



Catalog



DRS/DRN.. Gearmotors
and EDRS/EDRN.. Gearmotors with HazLoc-NA[®]



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1 Introduction

1.1 The SEW-EURODRIVE group of companies

1.1.1 Global presence

SEW-EURODRIVE is driving the world with innovative drive solutions for all industries and every application. Products and systems from SEW-EURODRIVE are used in a multitude of applications worldwide. Whether it is in the automotive, building materials, food and beverage or metal-processing industry, the decision to use drive technology "made by SEW-EURODRIVE" stands for reliability and quality.

We are represented in the most important branches of industry all over the world with 14 manufacturing plants and 79 Drive Technology Centers worldwide. In addition, our customer support is an integrative service that continues our commitment to outstanding quality.

1.1.2 Always the right drive

The SEW-EURODRIVE modular concept offers millions of combinations. This wide selection enables you to choose the correct drive for all applications, based upon your required speed, torque, available space, and ambient conditions. We offer many gradual sizes of gear units so there is always a unit that closely matches your torque requirement to provide the best economic solution and to prevent unnecessary oversizing.

The modular DR.. motor series includes the energy-efficient motor types IE1 to IE4 and was designed and constructed with all worldwide requirements for energy efficiency classes in mind. The DR.. motor easily meets the requirements for approval and certification in all relevant countries. The energy-efficient drives achieve the highest efficiency in combination with SEW-EURODRIVE gear units.

The gearmotors are electronically enhanced by MOVITRAC[®] frequency inverters, MOVIDRIVE[®] drive inverters, and MOVIAXIS[®] multi-axis servo inverters – a combination that blends perfectly with the existing SEW-EURODRIVE program. As is the case with the mechanical systems, all development, production, and assembly is accomplished entirely by SEW-EURODRIVE. In combination with our drive electronics, these gearmotors provide the utmost in flexibility.

Products of the servo drive system, such as low backlash servo gear units, compact servomotors, or MOVIAXIS[®] multi-axis servo inverters ensure precision and dynamics. From single-axis or multi-axis applications to synchronized process sequences, servo drive systems from SEW-EURODRIVE enable flexible and customized implementation of your applications.

For economical, decentralized installations, SEW-EURODRIVE offers components from its decentralized drive system, such as MOVIMOT[®], the gearmotor with integrated frequency inverter, or MOVI-SWITCH[®], the gearmotor with integrated switching and protection function. SEW-EURODRIVE has developed hybrid cables to provide cost-effective functional solutions, irrespective of the system philosophy or scope. The latest developments from SEW-EURODRIVE: DRC.. electronic motor, MOVIGEAR[®] mechatronic drive system, MOVIFIT[®] decentralized drive controller, MOVIPRO[®] decentralized drive, positioning, and application controller, as well as MOVITRANS[®] system components for contactless energy transfer.

Power, quality, and robustness combined in a single standard product: with SEW-EURODRIVE, powerful movements are delivered by industrial gear units with high torques. The modular concept once again ensures optimum adaptation of industrial gear units to meet a wide range of different applications.

1.1.3 Your ideal partner

Its global presence, extensive product range and broad spectrum of services make SEW-EURODRIVE the ideal partner for drive solutions in all industries and applications.

1.2 Products and systems from SEW-EURODRIVE

The products and systems by SEW-EURODRIVE are divided into the following product groups:

- Industrial gear units
- Gearmotors and frequency inverters
- Servo drive systems
- Decentralized drive systems
- MAXOLUTION®

Products and systems used in applications of several groups are listed in a separate group entitled "products and systems covering several product groups". The following tables indicate the products and systems included in the respective product group:

Industrial gear units
<ul style="list-style-type: none"> • X, MC, ML series helical and bevel-helical gear units • P002 – 102 series planetary gear units • XP130 – 250 series planetary gear units • P.X.. series planetary bevel-helical gear units • Application solutions with connections <ul style="list-style-type: none"> – Girth gears – Swing base – Gearmotor – Motor – Coupling – Brake – Lubrication system <p>For conveyor drives, bucket conveyors, agitators, cooling towers, crane systems, and much more</p>

Gearmotors and frequency inverters		
Gear units / gearmotors	Motors	Frequency inverters
<ul style="list-style-type: none"> • Helical gear units / helical gearmotors • Parallel-shaft helical gear units / parallel-shaft helical gearmotors • Helical-bevel gear units / gearmotors • Helical-worm gear units / helical-worm gearmotors 	<ul style="list-style-type: none"> • Asynchronous AC motors / AC brakemotors • Pole-changing AC motors / AC brakemotors • Energy-efficient motors • Explosion-proof AC motors / AC brakemotors • Torque motors 	<ul style="list-style-type: none"> • MOVITRAC® frequency inverters • MOVI4R-U® frequency inverters • MOVIDRIVE® drive inverters • Control, technology and communication options for inverters

Gearmotors and frequency inverters		
Gear units / gearmotors	Motors	Frequency inverters
<ul style="list-style-type: none"> • SPIROPLAN® right-angle gearmotors • EMS drives • Geared torque motors • Pole-changing gearmotors • Variable-speed gearmotors • Aseptic gearmotors • Explosion-proof gearmotors • Explosion-proof, variable-speed gearmotors 	<ul style="list-style-type: none"> • Single-phase motors / single-phase brakemotors • Asynchronous linear motors 	
Servo drive systems		
Servo gear units / gearmotors	Servomotors	Servo drive inverters / servo inverters
<ul style="list-style-type: none"> • Low backlash planetary servo gear units / planetary gearmotors • Low backlash helical-bevel servo gear units / helical-bevel gear units • R, F, K, S, W gear units / gearmotors • Explosion-proof servo gearmotors 	<ul style="list-style-type: none"> • Asynchronous servomotors / servo brakemotors • Synchronous servomotors / servo brakemotors • Explosion-proof servomotors / servo brakemotors • Synchronous linear motors 	<ul style="list-style-type: none"> • MOVIDRIVE® servo drive inverters • MOVIAXIS® multi-axis servo inverter • Control, technology and communication options for servo drive inverters and servo inverters
Decentralized drive systems		
Decentralized drives	Communication and installation	Contactless energy transfer
<ul style="list-style-type: none"> • DRC.. electronic motors / MOVIGEAR® mechatronic drive systems <ul style="list-style-type: none"> – DBC – Direct Binary Communication – DAC – Direct AS-Interface Communication – DSC – Direct SBus Communication – SNI – Single Line Network Installation • MOVIMOT® gearmotors, motors, and brakemotors with integrated frequency inverter 	<ul style="list-style-type: none"> • Fieldbus interfaces • Field distributors for decentralized installation • MOVIFIT® product range <ul style="list-style-type: none"> – MOVIFIT® FDC for controlling MOVIGEAR® and DRC.. drive units – MOVIFIT® MC for controlling MOVIMOT® drives – MOVIFIT® SC with integrated electronic motor switch – MOVIFIT® FC with integrated freq. inverter 	<ul style="list-style-type: none"> • MOVITRANS® system <ul style="list-style-type: none"> – Stationary components for energy supply – Mobile components for energy consumption – Line cables and installation material

Decentralized drive systems		
Decentralized drives	Communication and installation	Contactless energy transfer
<ul style="list-style-type: none"> • MOVI-SWITCH[®] gearmotors with integrated switching and protection functions • MOVI-SWITCH[®] motors / brakemotors with integrated switching and protection function • Explosion-proof MOVIMOT[®] and MOVI-SWITCH[®] gearmotors 	<ul style="list-style-type: none"> • MOVIPRO[®] product range <ul style="list-style-type: none"> – MOVIPRO[®] SDC decentralized drive and positioning control 	
MAXOLUTION [®]		
<ul style="list-style-type: none"> • MAXOLUTION[®] packages for predefined application solutions • MAXOLUTION[®] systems for customer-specific system solutions and plants 		
Products and systems covering several product groups		
<ul style="list-style-type: none"> • Operator panels • MOVI-PLC[®] drive-based control system • Components of the type "functional safety" • Diagnostic units 		

1.3 Services from SEW-EURODRIVE

In addition to its products and systems, SEW-EURODRIVE offers the following comprehensive range of services.

- Technical application assistance
- Application and calculation software
- Seminars and training
- PT Pilot[®] online configurator/quotation program
- Extensive technical documentation
- 2D/3D CAD files
- Worldwide customer service

Visit our USA website at

→ www.seweurodrive.com

The website provides comprehensive information and services.

1.4 Documentation

1.4.1 Content of this publication

This "DRS/DRN.. Gearmotors" 60Hz catalog describes the following product groups from SEW-EURODRIVE in detail:

- DRN.. /EDRN helical gearmotors (R, RX-series)
- DRN.. /EDRN ^{the}Snuggler[®] helical gearmotors (F-series)
- DRN.. /EDRN helical-bevel gearmotors (K-series)
- DRN.. /EDRN helical-worm gearmotors (S-series)
- DRN.. /EDRN SPIROPLAN[®] gearmotors (W-series)

1.4.2 Additional documentation


In addition to this catalog, you can download other technical documents from our USA website at:

→ www.seweurodrive.com

Catalogs

- Gear units
- Servo gear units
- AC motors
- Synchronous servomotors
- Synchronous servo gearmotors
- Asynchronous servo gearmotors
- DRC.. gearmotors
- Variable-speed gearmotors
- Pole-changing gearmotors
- Geared torque motors

Drive Engineering – Practical Implementation

Detailed documentation about the entire topic of electrical drive engineering is available within the "Drive Engineering - Practical Implementation" publications listed below. See also (→  42).

- Project planning for drives
- EMC in Drive Engineering – Basic Theoretical Principles and EMC-Compliant Installation in Practice
- Efficient Plant Automation with Mechatronic Drive Solutions
- SEW encoder systems
- Servo technology

1.5 Product names and trademarks

All product names included in this documentation are trademarks or registered trademarks of the respective titleholders.

1.6 Copyright

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2 Product description

2.1 Product features

2.1.1 Operating temperatures

Gear units and gearmotors from SEW-EURODRIVE can operate in a wide ambient temperature range.

Gear unit

The following table shows the temperature range for the standard oil supplied with each gear unit. Alternate oils are available per the lubricant table (→ 111).

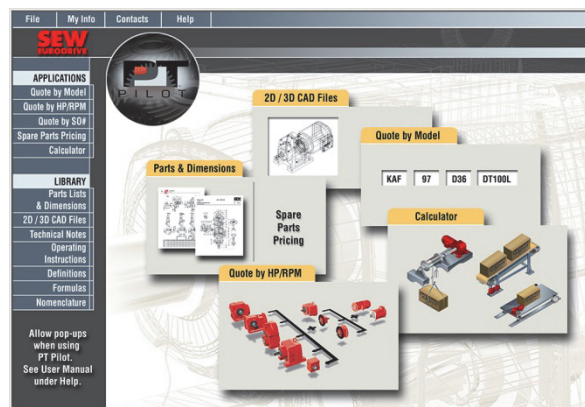
Gear unit	Standard Lubricant	Temperature range
R	CLP VG220	-15°C to +40°C
F		
K..7		
K..9	CLP PG VG460	-20°C to +60°C
S	CLP VG680	0°C to +40°C
W	CLP PG (SEW) VG460	-20°C to +40°C

The rated data of the gearmotors specified in this catalog refer to an ambient temperature of +25°C (77°F).

With proper project planning, gearmotors from SEW-EURODRIVE can operate from -40°C to +60°C (-40°F to +140°F). Project planning must consider special operating conditions and use appropriate lubricants and seals. It is especially important for the following gear units:

- R, K, F gear units > size 87 with small ratios due to oil churning heat
- All S gear units (helical-worm), due to sliding friction – especially with large ratios or low input speeds.

SEW-EURODRIVE will perform this project planning for you. Or, you may visit www.ptpilot.com. PT Pilot gives you a complete quotation and calculates your oil sump temperature based upon your mounting position, ambient temperature, and ratio. Where applicable, PT Pilot adds synthetic oil and FKM seals for proper protection against heat.



Motors

The motors of the DRS..and DRN.. series are designed for use in a temperature range from -20°C to +40°C (-4°F to 104°F).

This expands the standard temperature range required by IEC 60034.

Using the motors outside the above temperature range is possible with some special adjustments. Please contact SEW-EURODRIVE for available options.

INFORMATION



If the motor is controlled by a frequency inverter, you must also consider the project planning notes for the inverter and take into account the thermal effects of inverter operation.

2.1.2 Altitude

Due to the low air density at high installation altitudes, heat dissipation decreases on the surface of motors and gear units. The rated data listed in the catalog applies to a maximum installation altitude of 3280 feet above sea level. Proper project planning must be considered for higher altitudes to ensure proper cooling (→ 57).

2.1.3 Power and torque

The power and torque ratings refer to mounting position M1 and similar mounting positions in which the input stage is not completely submerged in oil. In addition, the gearmotors are assumed to be standard versions with standard lubrication and under normal ambient conditions.

2.1.4 Speeds

The output speeds shown are based upon the rated motor speed and the gear unit ratio. Please note that the actual output speed depends on the motor load and the line voltage conditions.

2.1.5 Noise

The noise levels of all SEW-EURODRIVE gear units, motors and gearmotors are well within the maximum permitted noise levels set forth in the VDI guideline 2159 for gear units and IEC/EN 60034 for motors.

2.1.6 Reduced backlash

Helical (R-series), the Snuggler® helical (F-series) and helical-bevel (K..7 series) gear units with reduced backlash are available in gear size 37 and larger. K..9 helical-bevel gear units are not available with reduced backlash.

The rotational clearance (backlash) of these gear units is considerably less than that of the standard designs; therefore, positioning tasks can be solved with great precision. The rotational clearance is specified in angular minutes and is shown in the "Possible combinations" section within each gear unit chapter (→ 160).

The rotational clearance for the output shaft is specified without load (max. 1% of the rated output torque) with the gear unit input end blocked.

2.1.7 Paint colors

The gear units and motors from SEW-EURODRIVE in USA are coated as follows. The alternate colors shown are available at no extra charge. Special coatings are available upon request.

Color	Surface Protection		
	Standard	OS2	OS4
Standard (default)	RAL 5001 Green Blue		RAL 9007 Metallic Gray
Alternate	RAL 9003 Signal White RAL 9005 Jet Black RAL 7031 Blue Gray RAL 3020 Traffic Red RAL 9007 Metallic Gray		RAL 9003 Signal White RAL 9005 Jet Black RAL 3020 Traffic Red

Exception: SPIROPLAN® W..10DT56 gearmotors have an aluminum housing and are supplied unpainted as standard.

2.1.8 Surface and anti-corrosion protection

If required, all gear units, motors and gearmotors from SEW-EURODRIVE can also be supplied with OS2 or OS4 surface protection for applications in extremely humid and/or chemically aggressive environments (→ 18).

2.1.9 Heat dissipation and accessibility

Make sure to maintain adequate distance from heat-sensitive components when installing gearmotors/geared brakemotors to the driven machine. The distance is necessary for air circulation/heat dissipation, and for maintenance of the brake or MOVIMOT® inverter, if installed.

2.1.10 Weights

Please note that all weight specifications in the catalogs apply to gear units and gearmotors without lubricant. The weights vary according to gear unit design and size. The lubricant volume depends on the mounting position. Suggested values for lubricant fill quantities based on the mounting position are provided in the chapter "Oil fill quantities" (→ 113). The exact weight is shown on the order confirmation.

2.1.11 Compound gearmotors


Particularly low output speeds are possible by using compound (multi-stage) gear units (ex: K87R57). These units contain an additional helical gear unit on the input in order to achieve much higher ratios than those in a single gear unit.

However, it may be necessary to limit the motor power or to provide torque overload protection in order to ensure that the maximum permissible output torque of the gear unit is not exceeded.

2.1.12 Shaft diameters

All gear units are available with either an inch or a metric diameter output shaft. In addition, several diameters are available for each output shaft at no extra charge. See "Output shaft sizes" at the end of each dimension section.

2.1.13 RM gearmotors

RM gearmotors are a special type of helical gear unit with an extended output bearing hub. They are designed especially for agitating applications to allow for high overhung loads, axial loads, and bending moments. You can find special project planning notes for RM gearmotors (→  60).

2.1.14 SPIROPLAN® gearmotors

SPIROPLAN® (W-series) are robust right-angle gear units with either single or two stage gearing. Unlike the helical-worm gear units (S-series) that use both bronze and metal gears with sliding friction, the SPIROPLAN® units use only steel gears with a special meshing pattern that incorporates both sliding and rolling friction for greater efficiency. In addition, the housing is aluminum. Therefore, SPIROPLAN® gearmotors are wear-free, lightweight, and compact. The wear-free gearing and the life-long lubrication provide a long period of maintenance-free operation.

For maximum mounting versatility, the spacing of the holes on the feet is the same on all three sides. In addition, the shaft height remains the same regardless of the side upon which the unit is mounted. Also, two different flange diameters are available for each unit. As an option, SPIROPLAN® gearmotors can be equipped with a torque arm.

2.1.15 Brakemotors

Motors and gearmotors can be supplied with an optional integrated mechanical brake. The SEW-EURODRIVE brake is an electromagnetic disk brake with a DC coil that releases electrically. Braking occurs via a combination of adjustable spring forces. Due to its operating principle, the brake is automatically applied during a power failure, meeting basic safety requirements. The brake can be released mechanically if equipped with manual brake release that is available as either an adjustable setscrew or as a hand lever with automatic reset. The brake is controlled via a rectifier that is installed in either the motor conduit box or inside the control cabinet.

The brake bearing endshield is a part of both the motor and the brake, yielding an integral design and a very compact brakemotor.

2.1.16 Motor adapters

The following adapters are available between the motor and input of gear unit:

- For mounting IEC or NEMA motors with the option of a backstop
- For mounting servomotors with a square flange
- With torque limiting safety couplings and speed or slip monitor
- With hydraulic start-up coupling and the option of a disk brake or backstop

2.1.17 Swing base

A swing base is a drive unit consisting of helical-bevel gear unit, hydraulic centrifugal coupling and motor. The complete arrangement is mounted to a rigid mounting rail. Swing bases are available with the following optional accessories:


- Torque arm
- Mechanical thermal monitoring unit
- Contactless thermal monitoring unit

2.1.18 International markets




Market access is contingent to local approvals in many countries. Additional laws, market conventions, and regulations must be followed. SEW-EURODRIVE products contain logos on the main nameplate or motor as a certificate of compliance.

The following countries have special requirements for motors.


Canada

Mark	Explanation
	SEW-EURODRIVE motors for Canada comply with the general motor standards and, if required, the efficiency requirements of the Canadian Energy Efficiency Regulations of 2011 (EER2011). The CSA-certified explosion-proof motors of the type EDRN.. contain the required CSA logo on the nameplate.


USA

Mark	Explanation
	Motors for the USA comply with the requirements stipulated by Underwriters Laboratories as a UL Recognized Component. Thus, they contain the UR label.
	The motors that fulfill the efficiency requirements according to CFR 431 have the energy efficiency logo of the Department of Energy (DoE).
	The explosion-proof motors of the type EDRN.. are CSA certified. The CSA logo indicates that the motors meet the Canadian and American standards.

South Korea

Mark	Explanation
	Korea accepts motors that are based on the IEC standard 60034. Motors that require an efficiency level must be registered at the Korean KEMCO (Korea Energy Motors Corporation) institution and get the Korean Energy Efficiency label (KEL). Explosion-proof motors are also certified by the "Korea Occupational Safety and Health Agency (KOSHA)". They are not shown in this catalog.

Brazil

Mark	Explanation
	SEW motors for the Brazilian market are registered at ABNT. They have the PROCEL logo if they fulfill the efficiency requirements. Explosion-proof motors have an additional certification based on the IECEx agreement. They are not shown in this catalog.

2.2 Corrosion and surface protection

2.2.1 General information

For motor and gear unit operation in aggressive environments, SEW-EURODRIVE offers the following options:

- Corrosion protection for motors
- Surface protection OS2 and OS4 for motors and gear units

For motors, the best protection is a combination of corrosion protection and OS surface protection. For the output shaft, additional options are available.

2.2.2 Corrosion protection

Corrosion protection for motors contains the following procedures:

- All retaining screws that are loosened during operation are made of stainless steel.
- Stainless steel nameplates.
- Various motor parts are coated with a finishing varnish.
- The flange contact surfaces and shaft ends are treated with temporary rust preventive.
- Additional procedures are performed for brakemotors.

INFORMATION



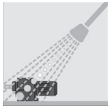


The following motor options do not receive additional corrosion protection. However, they can be ordered with a gearmotor that does receive corrosion protection.

- /V forced cooling fan
- Shaft-centered encoders /ES, /ES7, /EG, /EG7, /EV7, /AS, /AS7, /AG, /AG7, /AV7

2.2.3 OS surface protection

Instead of the standard surface protection, motors and gear units are available with OS2 or OS4 surface protection as an option. The protection layers shown below reflect the current methods in the USA.

OS Type ^{1) 2)}	Protection layers	Ambient conditions	Comments/sample applications
OSG	<ul style="list-style-type: none"> Dip primer Acrylic primer 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Primer only – not a finish coat Customer to supply additional paint coating depending on application.
STD 	<ul style="list-style-type: none"> Dip primer Acrylic top coat 	<p>Indoors – clean atmosphere, heated buildings</p> <p>Similar to corrosivity category³⁾:</p> <ul style="list-style-type: none"> C1 (negligible) 	<ul style="list-style-type: none"> Machines and systems in the automobile industry Transport systems in logistics Conveyor belts at airports
OS2 	<ul style="list-style-type: none"> Dip Primer Acrylic primer Acrylic top coat + UV protection 	<p>Indoors – high humidity, condensation, or splashing water</p> <p>Outdoors – direct weathering and low pollution</p> <p>According to corrosivity category³⁾:</p> <ul style="list-style-type: none"> C3 (moderate) 	<ul style="list-style-type: none"> Sports halls, depots Applications in amusement parks Applications in gravel plants Systems in nuclear power plants Wastewater treatment plants
OS4 	<ul style="list-style-type: none"> Dip Primer Epoxy primer (2 layers) Polyurethane top coat Polyurethane clear coat + UV protection 	<p>Indoors – pressure spray, chemical washdown, brine solutions, regular acidic or caustic wet cleaning</p> <p>Outdoors – high humidity, high pollution, severe atmospheric or chemical contamination, salinity</p> <p>According to corrosivity category³⁾:</p> <ul style="list-style-type: none"> C5-1 (very high) 	<ul style="list-style-type: none"> Breweries Beverage industry Food processing Chemical plants Dairies Coastal areas

1) Motors/brakemotors in degree of protection IP56 or IP66 are only available with OS2 or OS4 surface protection.

2) Gearmotors with OS2 or OS4 surface protection are offered only in combination with corrosion protection.

3) According to DIN EN ISO 12944-2, classification of ambient conditions

2.2.4 Seal and shaft protection

Gearmotor output shafts can be supplied with the options below for operation in severe environmental pollution or in particularly demanding applications.

2

Feature	Design	Suitable for:
FKM oil seal	High quality material	Drives subject to chemicals or high temperature.
PTFE oil seal	High quality material	Drives subject to chemicals
Stainless steel output shaft	Surface protection through non-corrosive material. All TorqLOC® shafts and many keyed hollow shafts are available in stainless steel.	Heavy washdown or demanding applications where anti-corrosion is mandatory.

2.2.5 NOCO® fluid

As standard, SEW-EURODRIVE supplies NOCO® fluid corrosion protection and lubricant with every hollow shaft gear unit. NOCO® fluid should be used when installing hollow shaft gear units to prevent contact corrosion and to make it easier to disassemble the drive at a later time. NOCO® fluid can also be used to protect machined metal surfaces that do not have corrosion protection, such as output shafts or flanges. You can order NOCO® fluid in the quantities listed below.

Batch size	Packaging type	Part number
5.5 g	Sachet	09107819
100 g	Tube	03253147
1 kg	Tub	09107827

NOCO® fluid is a food grade substance according to NSF-H1. It has a corresponding NSF-H1 label on the packaging.

2.3 Extended storage

SEW-EURODRIVE recommends the "extended storage" option for storage periods lasting longer than 9 months. The gear unit oil is mixed with a VCI (volatile corrosion inhibitors) anti-corrosion agent. Please note that VCI is effective only in a temperature range of -25°C to +50°C.

The flange contact surfaces and output shafts are also treated with an anti-corrosion agent. As standard, the gear unit with "extended storage" option is supplied with OS2 surface protection. However, OS4 is available as an alternative.

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Observe the storage conditions specified in the following table:

Climate zone	Packaging ¹⁾	Storage ²⁾	Storage duration
Temperate (Europe, USA, Canada, China and Russia, excluding tropical zones)	<ul style="list-style-type: none"> • Packed in containers • With desiccant and moisture indicator sealed in the plastic wrap 	<ul style="list-style-type: none"> • Roofed • Protected against rain and snow • Shock-free 	Up to 3 years with regular checks of the packaging and moisture indicator (humidity < 50%)
	Open	<ul style="list-style-type: none"> • Under roof and enclosed at constant temperature between 5°C to 50°C • No sudden temperature variations • Relative humidity < 50% • Controlled ventilation with filter (free from dust and dirt) • No aggressive vapors • No shocks 	2 years or more with regular inspections <ul style="list-style-type: none"> • Check for cleanliness • Check for mechanical damage • Check for corrosion
Tropical (Asia, Africa, Central and South America, Australia, New Zealand, excluding temperate zones)	<ul style="list-style-type: none"> • Packed in containers • With desiccant and moisture indicator sealed in the plastic wrap • Protected against insect damage and mildew by chemical treatment 	<ul style="list-style-type: none"> • Roofed • Protected against rain and snow • Shock-free 	Up to 3 years with regular checks of the packaging and moisture indicator (humidity < 50%)
	Open	<ul style="list-style-type: none"> • Under roof and enclosed at constant temperature between 5°C to 50°C • No sudden temperature variations • Relative humidity < 50% • Controlled ventilation with filter (free from dust and dirt) • No aggressive vapors • No shocks • Protected against insect damage 	2 years or more with regular inspections <ul style="list-style-type: none"> • Check for cleanliness • Check for mechanical damage • Check for corrosion

1) The packaging must be carried out by an experienced company using the packaging materials that have been explicitly specified for the particular application.

2) SEW-EURODRIVE recommends storing the gear units in the same orientation as the mtg position on the nameplate.

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To prevent the VCI anti-corrosion agent from evaporating, the gear units with "extended storage" must remain tightly sealed until startup.

The gear units come with the oil fill according to the specified mounting position (M1 – M6). Always check the oil level before placing the gear unit into operation.

2.4 Oil aging monitor: DUO10A

The oil condition monitoring option consists of a temperature sensor and the evaluation unit. Service life curves for oils supplied by SEW-EURODRIVE are stored in the evaluation unit. In addition, SEW-EURODRIVE can customize any other oil grade in the diagnostic unit. During operation, the evaluation unit uses the oil temperature to continuously calculate the remaining service life in days until the next oil change. The remaining life is displayed directly on the evaluation unit. When the service life is expired, a binary signal can be sent to a higher-level system and evaluated.

Using the DUO10A diagnostic unit, the system operator no longer has to replace the oil within predefined intervals, but can adapt the replacement interval individually to the actual load. The benefits are reduced maintenance costs and increased uptime.

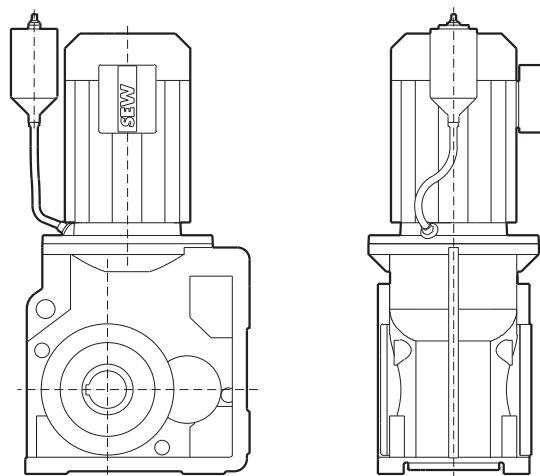
For more information, (→ 157).

2.5 Oil expansion tank

The oil expansion tank allows the lubricant or air space of the gear unit to expand. This means no lubricant can escape the breather valve at high operating temperatures.

SEW-EURODRIVE recommends using an oil expansion tank for gear units and gearmotors in M4 mounting position and for input speeds > 2000 rpm.

The following figure shows the oil expansion tank of a gearmotor.



4979181323

The oil expansion tank is delivered as assembly kit for mounting onto the gearmotor. In case of limited space or of gear units without motor, the oil expansion tank can also be mounted to nearby machine parts.

3 Nomenclature and options

3.1 Gear options

3.1.1 Helical gear units

Nomenclature	Description
RX..	Foot-mounted with 1 gearing stage
RXF..	B5 flange with 1 gearing stage
R..	Foot-mounted
R..F	Foot-mounted with B5 flange
RF..	B5 flange
RZ..	B14 flange (tapped holes) with solid shaft
RM..	B5 flange with extended bearing hub

3.1.2 ^{the}Snuggler[®] helical gear units

Nomenclature	Description
F..	Foot-mounted (tapped holes) with solid shaft
FA..B	Foot-mounted (tapped holes) with keyed hollow shaft
FH..B	Foot-mounted (tapped holes) w/keyless hollow shaft and shrink disk
FV..B	Foot-mounted (tapped holes) with DIN 5480 splined hollow shaft
FF..	B5 flange with solid shaft
FAF..	B5 flange with keyed hollow shaft
FHF..	B5 flange with keyless hollow shaft and shrink disk
FVF..	B5 flange with DIN 5480 splined hollow shaft
FTF..	B5 flange with keyless hollow shaft and TorqLOC [®] taper bushing
FA..	Keyed hollow shaft
FH..	Keyless hollow shaft with shrink disk
FT..	Keyless hollow shaft with TorqLOC [®] taper bushing system
FV..	DIN 5480 splined hollow shaft
FZ..	B14 flange (tapped holes) and solid shaft
FAZ..	B14 flange (tapped holes) and keyed hollow shaft
FHZ..	B14 flange (tapped holes) and keyless hollow shaft w/shrink disk
FVZ..	B14 flange (tapped holes) and DIN 5480 splined hollow shaft

3.1.3 Helical-bevel gear units

Nomenclature	Description
K..	Foot-mounted with solid shaft
KA..B	Foot-mounted with keyed hollow shaft
KH..B	Foot-mounted with keyless hollow shaft and shrink disk
KV..B	Foot-mounted with DIN 5480 splined hollow shaft
KF..	B5 flange with solid shaft
KAF..	B5 flange with keyed hollow shaft
KHF..	B5 flange with keyless hollow shaft and shrink disk
KTF..	B5 flange with keyless hollow shaft and TorqLOC® taper bushing system
KVF..	B5 flange with DIN 5480 splined hollow shaft
KA..	Keyed hollow shaft
KH..	Keyless hollow shaft with shrink disk
KT..	Keyless hollow shaft with TorqLOC® taper bushing system
KV..	DIN 5480 splined hollow shaft
KZ..	B14 flange (tapped holes) with solid shaft
KAZ..	B14 flange (tapped holes) with keyed hollow shaft
KHZ..	B14 flange (tapped holes) w/keyless hollow shaft and shrink disk
KVZ..	B14 flange (tapped holes) with DIN 5480 splined hollow shaft

3.1.4 Helical-worm gear units

Nomenclature	Description
S..	Foot-mounted with solid shaft
SF..	B5 flange with solid shaft
SAF..	B5 flange with keyed hollow shaft
SHF..	B5 flange with keyless hollow shaft and shrink disk
SA..	Keyed hollow shaft
SH..	Keyless hollow shaft with shrink disk
ST..	Keyless hollow shaft with TorqLOC® taper bushing system
SAZ..	B14 flange (tapped holes) with keyed hollow shaft
STF..	B5 flange with keyless hollowshaft and TorqLOC® taper bushing system
SHZ..	B14 flange (tapped holes) w/keyless hollow shaft and shrink disk

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3 Nomenclature and options

Gear options

3.1.5 SPIROPLAN® gear units

Nomenclature	Description
W..	Foot-mounted with solid shaft
WF..	B5 flange with solid shaft
WAF..	B5 flange with keyed hollow shaft
WA..	Keyed hollow shaft
WA..B	Foot-mounted with keyed hollow shaft
WH..B	Foot-mounted with keyless hollow shaft and shrink disk
WHF..	B5 flange with keyless hollow shaft and shrink disk
WH..	Keyless hollow shaft with shrink disk
WT..	Keyless hollow shaft with TorqLOC® taper bushing system

3.1.6 Miscellaneous Options

Nomenclature	Description	R	F	K	S	W
/R	Reduced backlash	X	X	X	-	-
/T	With torque arm	-	1)	X	X	X
/G	With rubber buffers (to provide cushioning of torque arm)	-	X	-	-	-

1) F-series has built-in torque arm so optional torque arm is unnecessary

3.1.7 Condition monitoring

Nomenclature	Description
/DUO	Diagnostic Unit Oil = Oil aging sensor

3.2 Motor options

3.2.1 Size designation

Nomenclature	HazLoc-NA®	Description
DRN..	-	Energy-efficient motors of energy efficiency class IE3
EDRN..	X	Motor for hazardous locations, 60Hz, energy efficiency class IE3
80 – 315	X	Sizes: 80 / 90 / 100 / 112 / 132 / 160 / 180 / 200 / 225 / 250 / 280 / 315
S, M, MS, ME, LS, L, H	X	Lengths: S = Short; M = Medium; L = Long; H = Extra-long design MS = shorter variation of length M; ME = longer variation of length M LS = Length S with shorter package
2	-	Number of poles: (2=3600 rpm, 4=1800 rpm, 6=1200 rpm)
4	X	
6	-	

3.2.2 Mounting types

Nomenclature	HazLoc-NA®	Description	Size
/FI	X	IEC foot-mounted motor	80M – 315H
/F.A, /F.B	X	Universal foot-mounted motor	80M – 132S 225S – 315H
/FG	X	7 series integral motor, as stand-alone motor	80M – 315H
/FF	X	IEC flange-mounted motor with bore	80M – 315H
/FT	X	IEC flange-mounted motor with threads	80M – 100L
/FL	X	Flange mounted motor (deviating from IEC)	80M – 315H
/FM	X	7-series integral motor with IEC feet	80M – 315H
/FE	X	IEC flange-mounted motor with bore and IEC feet	80M – 315H
/FY	X	IEC flange-mounted motor with threads and IEC feet	80M – 100L
/FK	X	Flange-mounted motor (deviating from IEC) with feet	80M – 280M
/FC	X	C-face motor; flange and shaft dimensions in inch	71S – 160L (56C – 256TC)

3.2.3 Mechanical attachments

Nomenclature	HazLoc-NA®	Description	Size
/BE..	X	Spring-loaded brake with size designation	80M – 315H
/HR	X	Manual brake release (hand lever), with automatic re-engaging	80M – 315H
/HF	X	Manual brake release (screw), lockable	80M – 315H
/RS	X	Backstop	80M – 315H
/MSW	-	MOVI-SWITCH®	80M – 100L
/MI	-	Motor identification module for MOVIMOT®	80M – 112M
/MM03 – MM40	-	MOVIMOT®	80M – 112M
/MO	-	MOVIMOT® option(s)	80M – 112M

3.2.4 Connectors

Nomenclature	HazLoc-NA®	Description	Size
/IS	-	Integrated plug connector	80M – 132S
/ASE.	-	HAN 10ES plug connector on terminal box with single locking latch (cage clamp contacts on the motor side)	80M – 132S
/ASB.	-	HAN 10ES plug connector on terminal box with double locking latch (cage clamp contacts on the motor side)	80M – 132S
/ACE.	-	HAN 10E plug connector on terminal box with single locking latch (crimp contacts on the motor side)	80M – 132S
/ACB.	-	HAN 10E plug connector on terminal box with double locking latch (crimp contacts on the motor side)	80M – 132S
/AME.	-	HAN Modular 10B plug connector on terminal box with single locking latch (crimp contacts on the motor side)	80M – 132S
/ABE.	-		80M – 225M
/ADE.	-		80M – 225M
/AKE.	-		132M – 225M
/AMB.	-	HAN Modular 10B plug connector on terminal box with double locking latch (crimp contacts on the motor side)	80M – 132S
/ABB.	-		80M – 225M
/ADB.	-		80M – 225M
/AKB.	-		132M – 225M
/AND.	-	Harting Han® Q8/0, single locking latch	80M – 132S
/AFQ.	-	Round plug connector Molex/Amphenol, 4-pole power 1 3/8" (AFQ8 housing AI), 3-pole brake connection 7/8", 3 fixed ends, max. 25 A, BG/BGE/BSR/BUR brake	80M – 132S

Nomenclature	HazLoc-NA®	Description	Size
/AFL.	-	Round plug connector Molex/Amphenol, 4-pole power 7/8" (AFL8 housing AI), 3-pole brake connection 7/8", 3 ends, max. 25 A, BG/BGE/BSR/BUR brake	80M – 100L
/KCC	X	6 or 10-pole terminal strip with cage clamp contacts	80M – 132S
/KC1	-	C1-profile-compliant connection of the electrified monorail system drive (VDI guideline 3643) (for DR71, 80). Alternatively for DR.90 – 132 for a more compact connection range	80M – 132S
/IV	-	Other industrial plug connectors according to customer specifications	80M – 225M

3.2.5 Hazardous location options

Nomenclature	HazLoc-NA®	Description
/CID2	X	Motors suitable for use in Class I, Division 2, Groups A, B, C & D Gas atmosphere
/CIID2	X	Motors suitable for use in Class II, Division 2, Groups F&G Dust atmosphere
/CICIID2	X	Motors suitable for use in Class I, Division 2, Groups A, B, C & D + Class II, Division 2, Groups F&G; gas or dust atmosphere

3.2.6 Temperature sensor

Nomenclature	HazLoc-NA®	Description	Size
/TF	X	Temperature sensor (PTC thermistor or PTC resistor)	80M – 315H
/TH	-	Thermostat (bimetallic switch)	80M – 315H
/PT	X	1 or 3 PT100 sensor(s)	80M – 315H
/PK	X	1 or 3 PT1000 sensor(s)	80M – 315H

3.2.7 Encoders

Nomenclature	HazLoc-NA®	Description	Size
/ES7S ¹⁾	-	Add-on speed sensor with Sin/Cos interface	80M – 132S
/EG7S ¹⁾	-		132M – 280M
/EV7S	-		80M – 280M
/EH7S	-		315S – 315H
/ES7R	-	Add-on speed sensor with TTL (RS-422) interface, V = 9 – 26 V	80M – 132S
/EG7R	-		132M – 280M
/EV7R	-		80M – 280M
/EH7R	-		315S – 315H
/EI7C ¹⁾	-	Built-in incremental encoder w/HTL interface, 24 PPR	80M – 132S
/EI76	-	Built-in incremental encoder with HTL interface and 6 / 2 / 1 PPR (pulses per revolution)	80M – 132S
/EI72	-		80M – 132S
/EI71	-		80M – 132S
/AS7W ¹⁾	-	Add-on absolute encoder, RS-485 interface (multi-turn)	80M – 132S
/AG7W ¹⁾	-		132M – 280M
/AV7W	-		80M – 280M
/AS7Y ¹⁾	-	Add-on absolute encoder, SSI interface (multi-turn)	80M – 132S
/AG7Y ¹⁾	-		132M – 280M
/AV7Y	-		80M – 280M
/AH7Y	-		315S – 315H
/ES7A	-	Mounting adapter only. Used to mount speed sensors from the SEW-EURODRIVE portfolio	80M – 132S
/EG7A	-		132M – 280M
/EV7A	-		80M – 280M
/EH7A	-		315S – 315H
/ES7C	-	Add-on speed sensor with HTL interface	80M – 132S
/EG7C	-		132M – 280M
/EV7C	-		80M – 280M
/EH7C	-		315S – 315H
/EH7T	-	Add-on speed sensor with TTL(RS422) interface	315S – 315H
/XV.A, XC.A	X	Mounting adapter only. Used for non-SEW sensors	80M – 280M
/XH1.	-	Mounted non-SEW speed sensor	80M – 132S ²⁾
/XV..	-		80M – 280M

1) also available in safety-rated design 2) in preparation

3.2.8 Ventilation

Nomenclature	HazLoc-NA®	Description	Size
/V	-	Forced cooling fan	80M – 315H
/Z	-	High-inertia cast iron fan (flywheel fan)	80M – 132L
/AL	X	Metal fan (cold environments)	80M – 315H
/U	-	Non-ventilated (without fan)	80M – 315H
/OL	-	Non-ventilated (closed B-side)	80M – 132S
/C	X	Canopy attached to fan guard (M4 mounting)	80M – 315H
/LN	X	Low-noise fan guard	71, 100 – 132S

3.2.9 Motor Bearings

Nomenclature	HazLoc-NA®	Description	Size
/NS	X	Grease nipples provided for lubrication	225S – 315H
/ERF	X	Reinforced bearings on A-side with rolling bearing	250M – 315H
/NIB	X	Insulated bearing B-side	200L – 315H

3.2.10 Condition monitoring

Nomenclature	HazLoc-NA®	Description	Size
/DUE	-	Diagnostic Unit Eddy Current = function/wear monitoring for BE1 – BE122 brake	80M – 315H

3.2.11 Other additional features

Nomenclature	HazLoc-NA®	Description	Size
/DH	-	Condensation drain hole	80M – 315H
/RI	X	Reinforced winding insulation	80M – 315H
/RI2	-	Reinforced winding insulation with increased resistance against partial discharge	112M – 315H
/2W	X	2nd shaft end on the motor/brakemotor	80M – 315H

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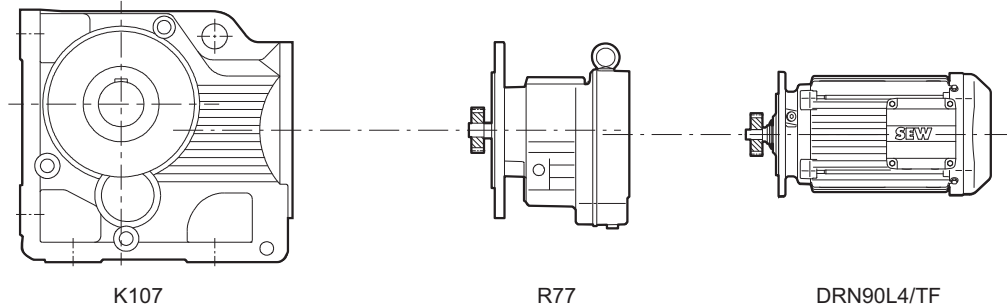
3 Nomenclature and options

Model type example

3.3 Model type example

The model type shown on the nameplate of the gearmotor is a combination of gear and motor components represented as letters and numbers, beginning at the output shaft. The following is an example of a compound helical-bevel gearmotor.

Example: K107R77DRN90L4 /TF		
Gear unit series	K	Gear unit - large
Gear unit size	107	
Gear unit series	R	Gear unit - small
Gear unit size	77	
Motor series	DRN..	Motor
Motor size	90	
Length	L	
Number of poles	4	
Motor option temperature sensor	/TF	Motor Option



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3.4 Serial number example

Example: 87.74178600 01. 0001. 17. 60	
87.	Sales organization / Country code
74178600	Order number (8 digits)
01.	Order line item
0001.	Specific unit ID (within batch of identical gearmotors)
17.	Year of manufacturing
60	Assembly facility (10=Lyman, SC; 50=Troy, OH; 60=Hayward, CA; 80=Dallas, TX; 90=Bridgeport, NJ)

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3.5 Nameplate example

The following is an example of a USA nameplate on a DRN.. gearmotor.

Nameplate_US

[1]	Model Type
[2]	Serial number
[3]	Frequency Motor speed / Output speed of gearmotor
[4]	Motor rated power (HP) / Duty type
[5]	Duty Type Power factor
[6]	Thermal class NEMA design
[7]	Constant torque speed range
[8]	Ratio Output torque
[9]	Oil type / volume (liters) based upon mounting position
[10]	Weight (lbs) Ambient temperature
[11]	Suitability for inverter operation Number of phases and performance standard
[12]	Nominal voltage and connection type
[13]	Full load amps Efficiency and energy efficiency class
[14]	Motor service factor according to NEMA Degree of protection according to IEC 60034-12 Motor enclosure type
[15]	KVA code according to NEMA MG1
[16]	Manufacturing location: 85=Troy, OH; 86=Hayward, CA; 87=Lyman, SC; 88=Dallas, TX; 89=Bridgeport, NJ
[17]	Nominal brake voltage
[18]	Braking torque
[19]	Brake control rectifier
[20]	Mounting position

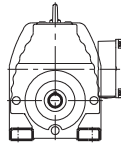
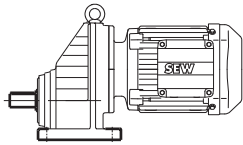
3.6 Gearmotor types

INFORMATION



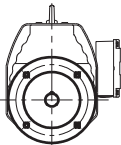
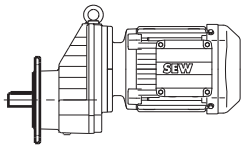
The options described in this chapter refer to gearmotors available from SEW-EURODRIVE. They also apply to gear units without motors.

3.6.1 Helical gearmotors



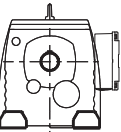
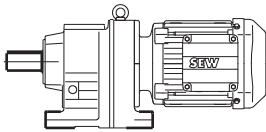
RX..DR..

Helical gearmotor (single stage), foot-mounted



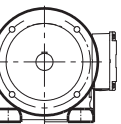
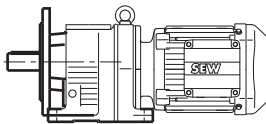
RXF..DR..

Single-stage helical gearmotor with B5 flange



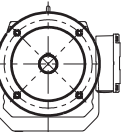
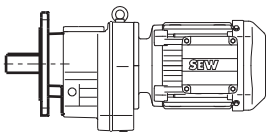
R..DR..

Helical gearmotor, foot-mounted



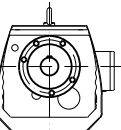
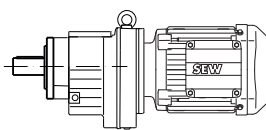
R..F DR..

Helical gearmotor foot-mounted with B5 flange



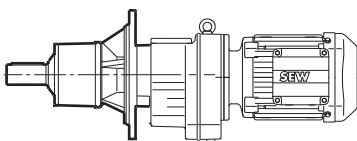
RF..DR..

Helical gearmotor with B5 flange



RZ..DR..

Helical gearmotor with B14 flange

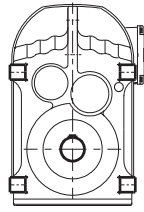
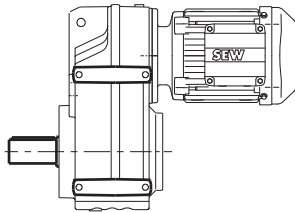


RM..DR..

Helical gearmotor with B5 flange and extended bearing hub

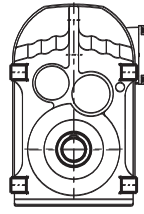
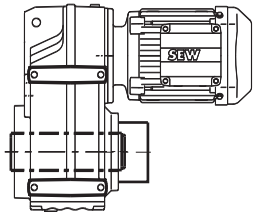
3.6.2 the Snuggler® helical gearmotors

3



F..DR..

the Snuggler® helical gearmotor with solid shaft and tapped rail holes for foot mounting

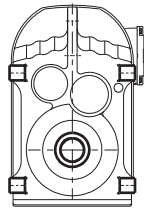
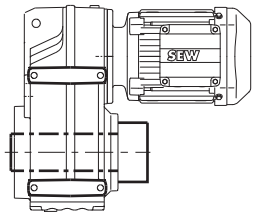


FA..B DR..

the Snuggler® helical gearmotor with keyed hollow shaft and tapped rail holes for foot mounting

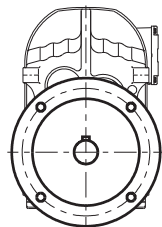
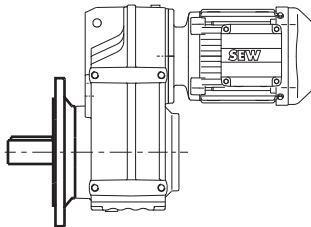
FV..B DR..

the Snuggler® helical gearmotor with DIN 5480 splined hollow shaft and tapped rail holes for foot mounting



FH..B DR..

the Snuggler® helical gearmotor with keyless hollow shaft, shrink disk, and tapped rail holes for foot mounting

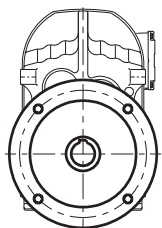
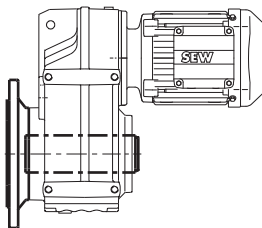


FF..DR..

the Snuggler® helical gearmotor with B5 flange and solid shaft

FAF..DR..

the Snuggler® helical gearmotor with B5 flange and keyed hollow shaft



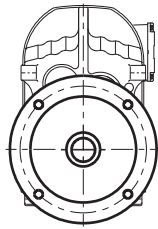
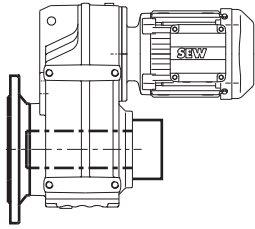
FVF..DR..

the Snuggler® helical gearmotor with B5 flange and DIN 5480 splined hollow shaft

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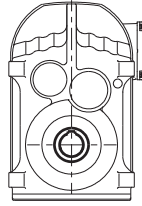
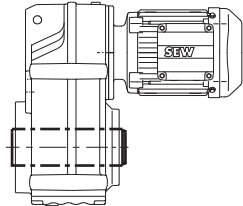
3 Nomenclature and options

Gearmotor types



FHF..DR..

the Snuggler® helical gearmotor with B5 flange and keyless hollow shaft with shrink disk

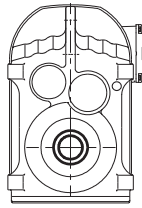
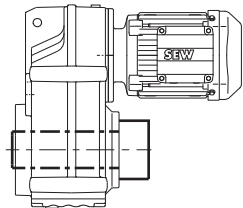


FA..DR..

the Snuggler® helical gearmotor with keyed hollow shaft

FV..DR..

the Snuggler® helical gearmotor with DIN 5480 splined hollow shaft

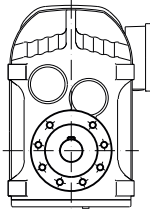
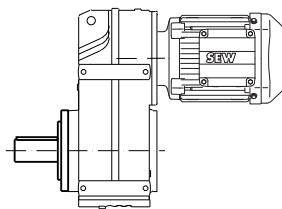


FH..DR..

the Snuggler® helical gearmotor with keyless hollow shaft and shrink disk

FT..DR..

the Snuggler® helical gearmotor with keyless hollow shaft and TorqLOC® tapered bushing system



FZ..DR..

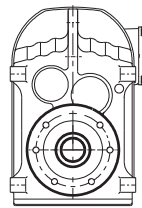
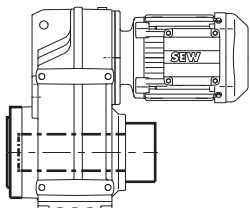
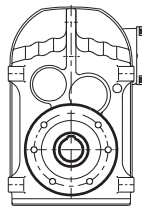
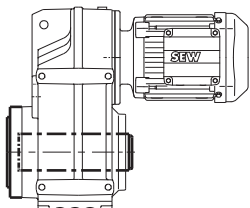
the Snuggler® helical gearmotor with B14 flange (tapped holes) and solid shaft

FAZ..DR..

the Snuggler® helical gearmotor with B14 flange (tapped holes) and keyed hollow shaft

FVZ..DR..

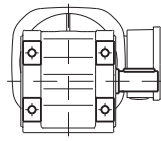
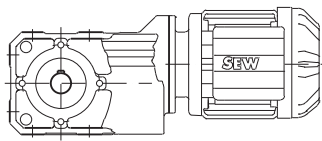
the Snuggler® helical gearmotor with B14 flange (tapped holes) and DIN 5480 splined hollow shaft



FHZ..DR..

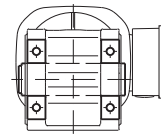
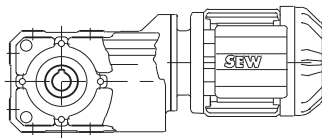
the Snuggler® helical gearmotor with B14 flange (tapped holes) and keyless hollow shaft with shrink disk

3.6.3 Helical-bevel gearmotors sizes K..19 and K..29



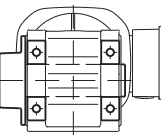
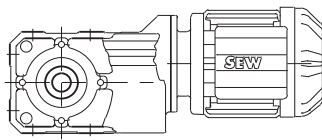
K19 DR.., K29 DR..

Helical-bevel gearmotor, foot-mounted with solid shaft



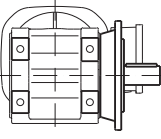
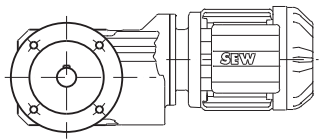
KA19B DR.., KA29B DR..

Helical-bevel gearmotor, foot-mounted with keyed hollow shaft



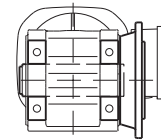
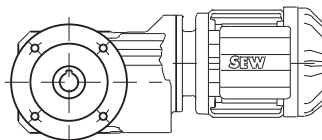
KH19B DR.., KH29B DR..

Helical-bevel gearmotor, foot-mounted with keyless hollow shaft and shrink disk



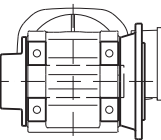
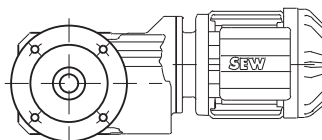
KF19B DR.., KF29B DR..

Helical-bevel gearmotor, foot-mounted with B5 flange and solid shaft



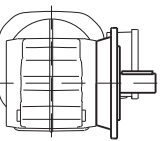
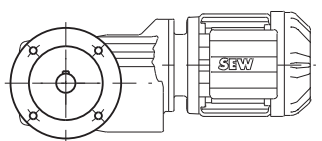
KAF19B DR.., KAF29B DR..

Helical-bevel gearmotor, foot-mounted with B5 flange and keyed hollow shaft



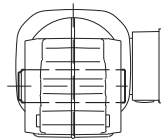
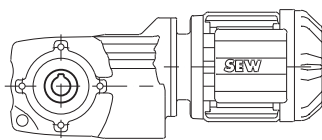
KHF19B DR.., KHF29B DR..

Helical-bevel gearmotor, foot-mounted with B5 flange, keyless hollow shaft and shrink disk



KF19 DR.., KF29 DR..

Helical-bevel gearmotor with B5 flange and solid shaft



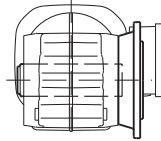
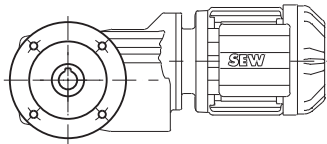
KA19 DR.., KA29 DR..

Helical-bevel gearmotor with keyed hollow shaft

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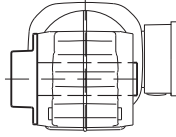
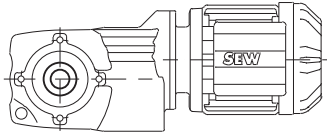
3 Nomenclature and options

Gearmotor types



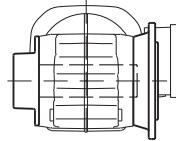
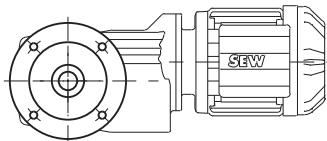
KAF19 DR.., KAF29 DR..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft



KH19 DR.., KH29 DR..

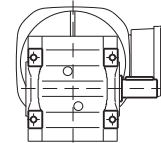
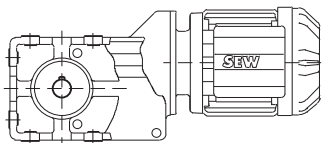
Helical-bevel gearmotor with keyless hollow shaft and shrink disk



KHF19 DR.., KHF29 DR..

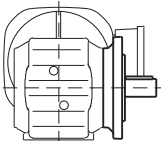
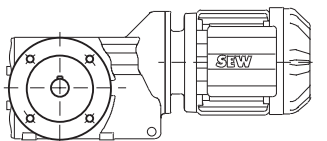
Helical-bevel gearmotor with B5 flange and keyless hollow shaft with shrink disk

3.6.4 Helical-bevel gearmotors, sizes K..39 and K..49



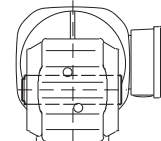
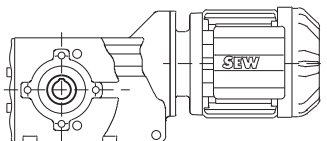
K39 DR.., K49 DR..

Helical-bevel gearmotor, foot-mounted with solid shaft



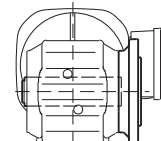
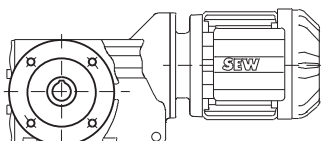
KF39 DR.., KF49 DR..

Helical-bevel gearmotor with B5 flange and solid shaft



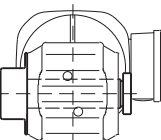
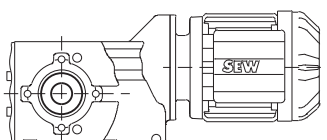
KA39 DR.., KA49 DR..

Helical-bevel gearmotor with keyed hollow shaft



KAF39 DR.., KAF49 DR..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft

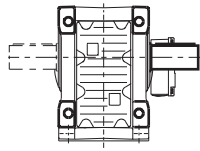
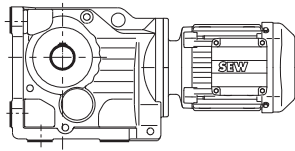


KT39 DR.., KT49 DR..

Helical-bevel gearmotor with keyless hollow shaft and TorqLOC[®] taper bushing system

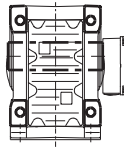
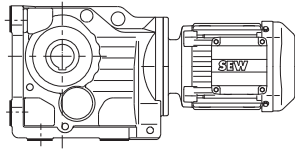
3.6.5 Helical-bevel gearmotors, sizes K..7

3



K..7 DR..

Helical-bevel gearmotor, foot-mounted with solid shaft

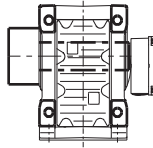
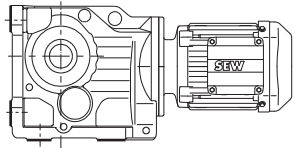


KA..7B DR..

Helical-bevel gearmotor, foot-mounted with keyed hollow shaft

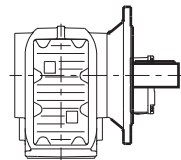
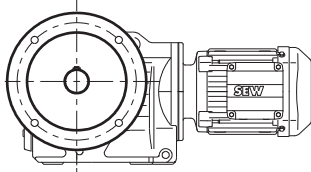
KV..7B DR..

Helical-bevel gearmotor, foot-mounted with DIN 5480 splined hollow shaft



KH..7B DR..

Helical-bevel gearmotor, foot-mounted with keyless hollow shaft and shrink disk



KF..7 DR..

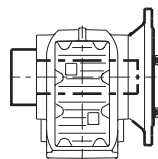
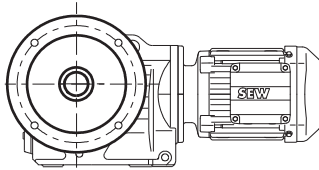
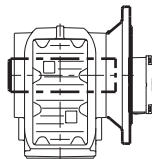
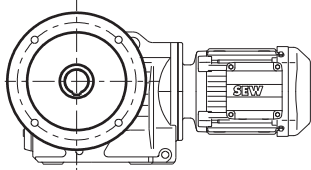
Helical-bevel gearmotor with B5 flange and solid shaft

KAF..7 DR..

Helical-bevel gearmotor with B5 flange and keyed hollow shaft

KVF..7 DR..

Helical-bevel gearmotor with B5 flange and DIN 5480 splined hollow shaft



KHF..7 DR..

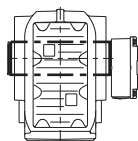
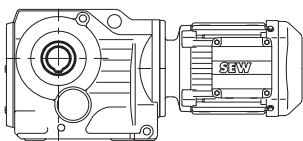
Helical-bevel gearmotor with B5 flange with keyless hollow shaft and shrink disk

KA..7 DR..

Helical-bevel gearmotor with keyed hollow shaft

KV..7 DR..

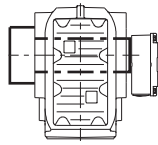
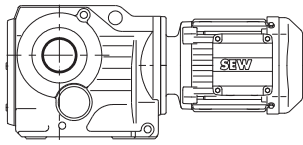
Helical-bevel gearmotor with DIN 5480 splined hollow shaft



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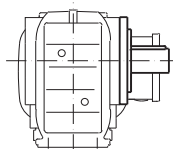
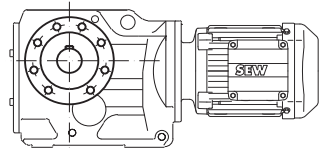
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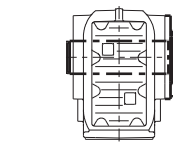
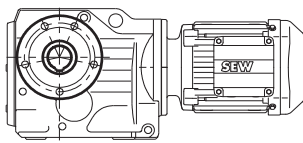
KH..7 DR..

Helical-bevel gearmotor with keyless hollow shaft and shrink disk



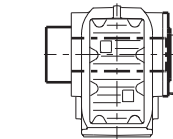
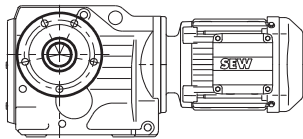
KT..7 DR..

Helical-bevel gearmotor with keyless hollow shaft and TorqLOC[®] tapered bushing system



KZ..7 DR..

Helical-bevel gearmotor with B14 flange (tapped holes)



KAZ..7 DR..

Helical-bevel gearmotor with B14 flange (tapped holes) and keyed hollow shaft



KVZ..7 DR..

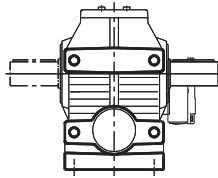
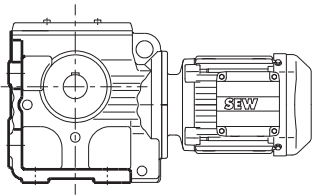
Helical-bevel gearmotor with B14 flange (tapped holes) with DIN 5480 splined hollow shaft



KHZ..7 DR..

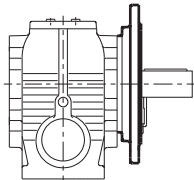
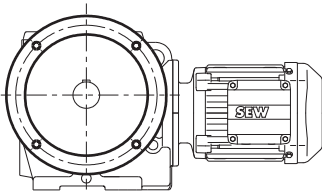
Helical-bevel gearmotor with B14 flange (tapped holes) with keyless hollow shaft and shrink disk

3.6.6 Helical-worm gearmotors



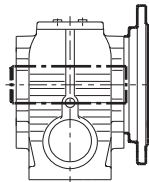
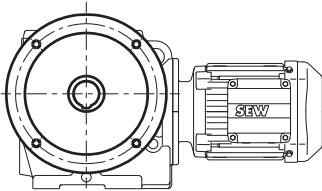
S..DR..

Helical-worm gearmotor, foot-mounted with solid shaft



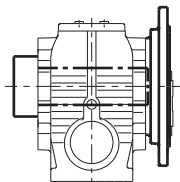
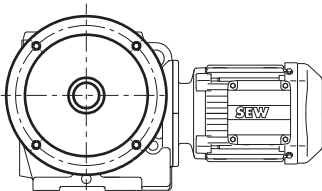
SF..DR..

Helical-worm gearmotor with B5 flange and solid shaft



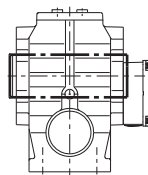
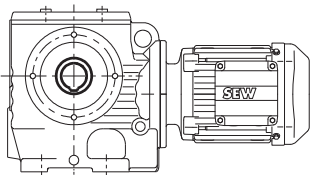
SAF..DR..

Helical-worm gearmotor with B5 flange and keyed hollow shaft



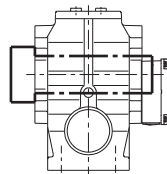
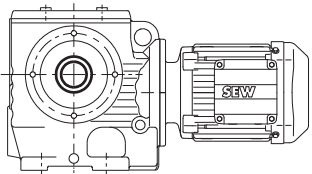
SHF..DR..

Helical-worm gearmotor with B5 flange and keyless hollow shaft with shrink disk



SA..DR..

Helical-worm gearmotor with keyed hollow shaft



SH..DR..

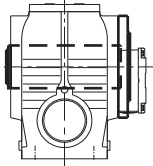
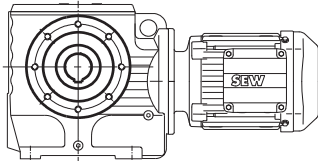
Helical-worm gearmotor with keyless hollow shaft and shrink disk

ST..DR..

Helical-worm gearmotor with keyless hollow shaft and TorqLOC[®] taper bushing system

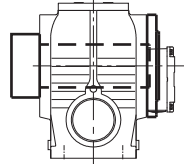
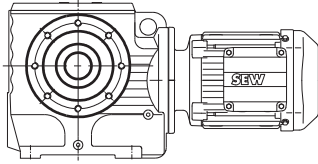
3 Nomenclature and options

Gearmotor types



SAZ..DR..

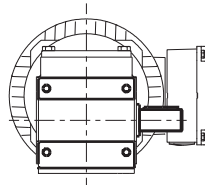
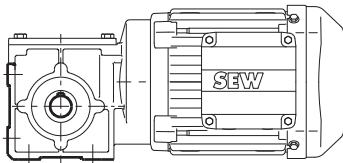
Helical-worm gearmotor with B14 flange (tapped holes) and keyed hollow shaft



SHZ..DR..

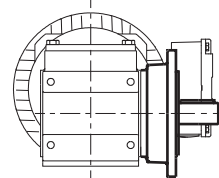
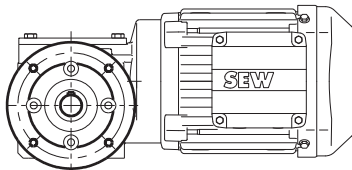
Helical-worm gearmotor with B14 flange and keyless hollow shaft with shrink disk

3.6.7 SPIROPLAN® gearmotors, sizes W..10, W..20, W..30



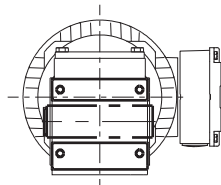
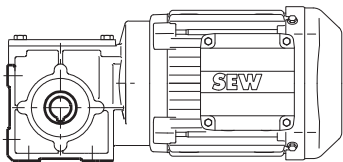
W10 DR.., W20 DR.., W30 DR..,

SPIROPLAN® gearmotor, foot-mounted with solid shaft



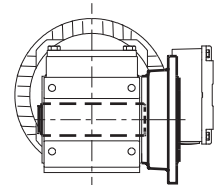
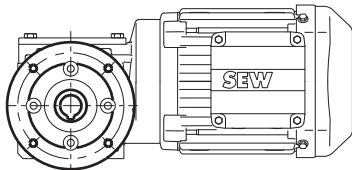
WF10 DR.., WF20 DR.., WF30 DR..

SPIROPLAN® gearmotor with B5 flange and solid shaft



WA10 DR.., WA20 DR.., WA30 DR..

SPIROPLAN® gearmotor with keyed hollow shaft

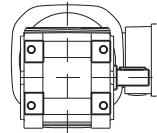
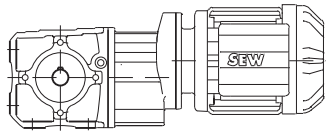


WAF10 DR.., WAF20 DR.., WAF30 DR..

SPIROPLAN® gearmotor with B5 flange and keyed hollow shaft

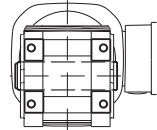
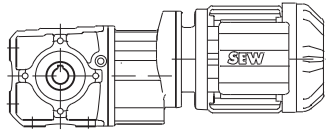
3.6.8 SPIROPLAN® gearmotors, sizes W..37 and W..47

3



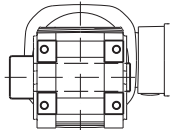
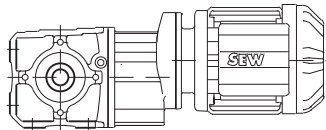
W37 DR.., W47 DR..

SPIROPLAN® gearmotor, foot-mounted with solid shaft



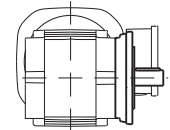
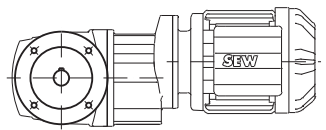
WA37B DR.., WA47B DR..

SPIROPLAN® gearmotor, foot-mounted with keyed hollow shaft



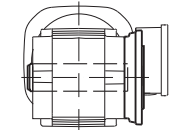
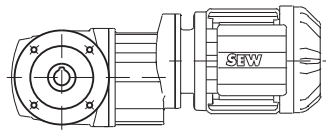
WH37B DR.., WH47B DR..

SPIROPLAN® gearmotor, foot-mounted with keyless hollow shaft and shrink disk



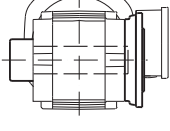
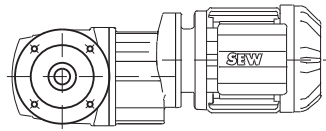
WF37 DR.., WF47 DR..

SPIROPLAN® gearmotor with B5 flange and solid shaft



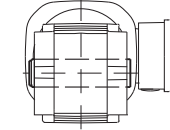
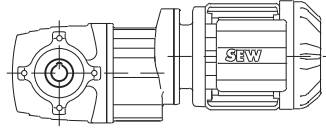
WAF37 DR.., WAF47 DR..

SPIROPLAN® gearmotor with B5 flange and keyed hollow shaft



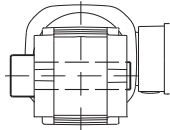
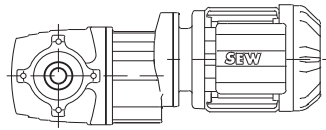
WHF37 DR.., WHF47 DR..

SPIROPLAN® gearmotor with B5 flange and keyless hollow shaft with shrink disk



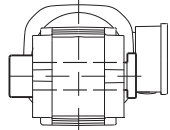
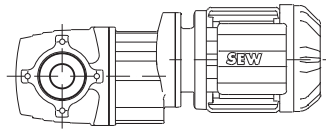
WA37 DR.., WA47 DR..

SPIROPLAN® gearmotor with keyed hollow shaft



WH37 DR.., WH47 DR..

SPIROPLAN® gearmotor with keyless hollow shaft and shrink disk



WT37 DR.., WT47 DR..

SPIROPLAN® gearmotor with keyless hollow shaft and TorqLOC® tapered bushing system

21933480/EN-US – 04/2018

4 Project planning for drives

4.1 Additional publications

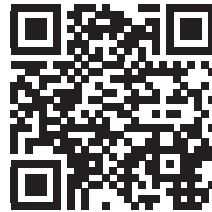
For more details on the subject of project planning for drives, visit the documentation section of the SEW-EURODRIVE website where you can download the following publications of the "Drive Engineering – Practical Implementation" series:

- Project Planning for Drives.
This industry-leading publication is a must for engineers! It provides a comprehensive collection of all important formulas needed for the most frequently used applications – with or without an inverter. Download "Project Planning for Drives" by scanning the bar code below, or from one of the following links:


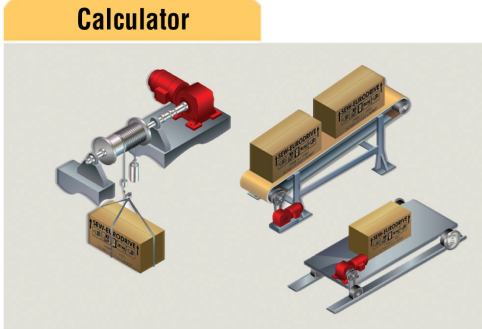
→ www.seweurodrive.com/download/pdf/10522913.pdf

or

→ <https://download.sew-eurodrive.com/download/pdf/10522913.pdf>



- EMC in Drive Engineering – Basic Theoretical Principles and EMC-Compliant Installation in Practice
- Efficient Plant Automation with Mechatronic Drive Solutions
- SEW encoder systems
- Servo Technology

	INFORMATION	
	<p>Online assistance for conveyors, hoists, and travel drives is available through SEW-EURODRIVE's exclusive PT Pilot® calculator.</p> <p>Simply enter your drive parameters and let PT Pilot® do all of the calculations and select a drive.</p> <p>→ www.ptpilot.com</p>	

4.2 Application data required

The following application data is required for project planning:

Abbreviation	Meaning	Unit
n_{a_min}	Minimum output speed	rpm
n_{a_max}	Maximum output speed	rpm
P_a at n_{a_min}	Output power at minimum output speed	HP
P_a at n_{a_max}	Output power at maximum output speed	HP
T_a at n_{a_min}	Output torque at minimum output speed	lb-in
T_a at n_{a_max}	Output torque at maximum output speed	lb-in
F_A	Axial load (tension and compression) on the output shaft	lb
F_R	Overhung loads acting on the output shaft	lb
J_{load}	Mass moment of inertia of the load to be driven	lb-ft ²
R, F, K, S, W	Required gear unit type	-
f_B	Service factor	-
M1 – M6	Mounting position (→ 69)	-
IP..	Required degree of protection for motor	-
$\vartheta_{ambient}$	Ambient temperature	°C
H	Installation altitude	feet above sea level
S.., ..% cdf	Duty type and cyclic duration factor (cdf), or exact load cycle	-
Z	Starting frequency (or exact load cycle)	per hour
f_{line}	Line frequency	Hz
V_{Mot}	Operating voltage of the motor	V
V_{brake}	Operating voltage of the brake	V
T_B	Required braking torque	lb-in
Control mode	For inverter operation only (CFC, VFC, supercharge, etc)	Hz
Hz range	For inverter operation only	Hz

4.3 Project planning procedure

4.3.1 Drive selection – non-controlled operation (without inverter)

The following flow diagram illustrates the project planning procedure for a non-controlled drive (without inverter). The gearmotor receives constant voltage “across-the-line”.

Required information about the application

- Technical data and environmental conditions
- Stopping accuracy
- Output speed
- Starting acceleration and deceleration
- Cyclic duration factor and starting frequency



Calculation of the application data

- Static and dynamic power
- Speeds
- Torques, power ratings
- Travel diagram, if required
- Service factor, f_B



Motor selection

- Torque/power/speed (number of poles)
- Acceleration torque/starting torque
- Switching frequency
- Energy efficiency class IE
- Mechanical brake (braking work, braking torque, brake service life)
- Motor equipment (brake, plug connector, thermal motor protection, etc.)



Gear unit selection

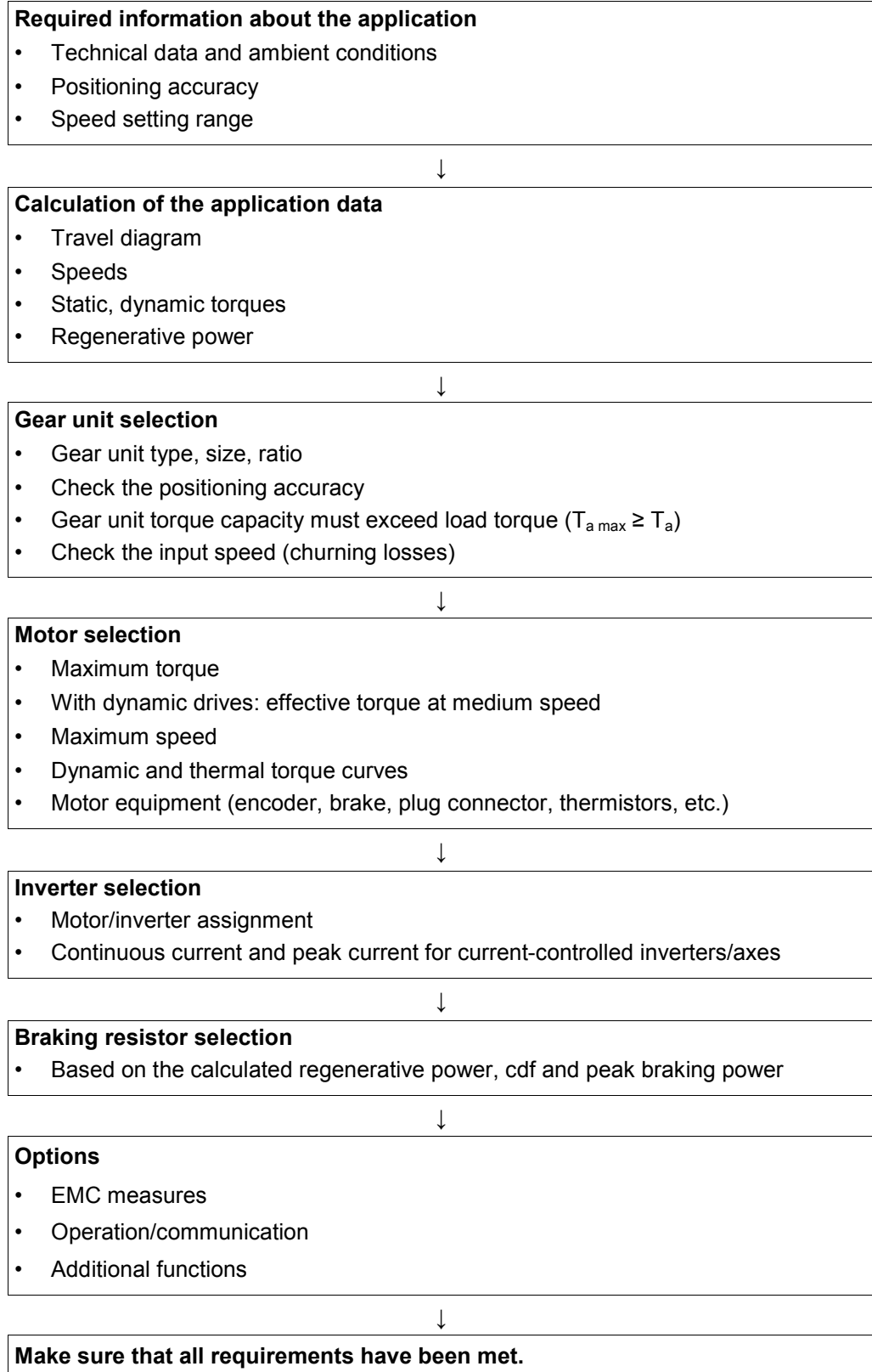
- Gear unit type, size
- Gear ratio
- Position accuracy (verify)
- Service factor, f_B



Make sure that all requirements have been met.

4.3.2 Drive selection – controlled operation (with inverter)

The following flow diagram illustrates the project planning procedure for a drive controlled by an inverter.



4.4 Gear efficiency and thermal losses

The efficiency of gear units is mainly determined by the gearing and bearing friction. Keep in mind that the starting efficiency of a gear unit is always less than its efficiency at operating speed. This applies in particular to helical-worm and SPIROPLAN® right-angle gear units. Gear units are listed below from highest to lowest efficiency.

4.4.1 R, F, and K

The helical (R), the Snuggler (F), and helical-bevel (K) gear units (excluding K19, K29, K39, K49) contain 100% rolling friction and the highest efficiency. As a general rule, efficiency loss is 1.5% per gear stage. Therefore, efficiency is approximately 96% (3-stage), 97% (2-stage) and 98% (1-stage).

4.4.2 K..19 – K..49

These right-angle units contain 2-stage hypoid gearing that combines rolling friction with minor sliding friction. Their efficiency ranges from 90% to 96%, depending on the ratio. Current sizes include K19, K29, K39, and K49.

4.4.3 W-SPIROPLAN®

The SPIROPLAN® gear units (W-series) combine rolling friction with some sliding friction, similar to hypoid gearing. The sliding friction induces some loss and an efficiency that is lower than R, F, and K, but higher than helical-worm (S-series).

The SPIROPLAN® sizes W37 and W47 contain a helical input stage. Therefore, they have the highest efficiency of all of the SPIROPLAN (>90%), dropping only slightly for larger ratios.

The efficiency depends on the following factors:

- Gear ratio
- Input speed
- Ambient temperature

4.4.4 S-series

The helical-worm (S-series) gear units contain a first stage helical gear set and a second stage worm set. Various degrees of sliding friction occur in the worm set, depending on the number of “starts” on the worm gear. Therefore, these gears have higher losses and lower efficiency than other SEW-EURODRIVE gear units. However, they are still significantly more efficient than single-stage worm gears units that are commonly used in the industry.

The efficiency depends on the following factors:

- Gear ratio due to number of starts on worm gear. The efficiency may reach $\eta < 0.5$ if the helical-worm gear stage has a very high ratio.
- Input speed (Ex: See how efficiency changes (→ 767) based on input speed)
- Ambient temperature

4.4.5 Self-locking

Backdriving torque in helical-worm or SPIROPLAN® gear units produces an efficiency of $\eta' = 2 - 1/\eta$, which is significantly less favorable than the forward efficiency, η . The helical-worm or SPIROPLAN® gear unit is self-locking if the forward efficiency is ≤ 0.5 . Some SPIROPLAN® gear units are also dynamically self-locking. Contact SEW-EURODRIVE if you want to make technical use of the braking effect of self-locking characteristics.

INFORMATION



The self-locking effect of helical-worm and SPIROPLAN® gear units should not be used as the sole safety function for hoists.

4.4.6 Run-in phase

When gears are initially manufactured, the tooth flanks of helical-worm and SPIROPLAN® gear units are not 100% smooth. They require a run-in period in order to achieve their maximum polish. Therefore, there is a greater friction angle and less efficiency during initial operation. This effect intensifies with higher gear ratios.

To determine the startup efficiency, subtract the following values from the listed efficiency.

	Worm (S-series)	
	Ratio Range	η reduction
1-start	approx. 50 – 280	approx. 12%
2-start	approx. 20 – 75	approx. 6%
3-start	approx. 20 – 90	approx. 3%
5-start	approx. 6 – 25	approx. 3%
6 start	approx. 7 – 25	approx. 2 %

SPIROPLAN® W10 to W30		SPIROPLAN® W37 and W47	
Ratio range	η reduction	Ratio range	η reduction
approx. 35 – 75	approx. 15%	-	-
approx. 20 – 35	approx. 10%	-	-
approx. 10 – 20	approx. 8%	approx. 30 – 70	approx. 8%
approx. 8	approx. 5%	approx. 10 – 30	approx. 5%
approx. 6	approx. 3%	approx. 3 – 10	approx. 3%

The run-in phase usually lasts 48 hours. The following conditions must be met for helical-worm and SPIROPLAN® gear units to achieve their nominal efficiency ratings:

- The gear unit has been completely run-in.
- The gear unit has reached nominal operating temperature.
- The recommended lubricant has been used.
- The gear unit is operating in the nominal load range.

4.4.7 Thermal (churning) losses

In certain gear unit mounting positions, the first gearing stage is completely immersed in the lubricant. When the circumferential velocity of the input gear stage is high, considerable churning losses occur, especially in larger gear units (> size 87) or with input speeds > 1750 rpm. As a result, the gear unit may have a reduced input HP rating. Substituting synthetic oil and FKM seals often permits a higher operating temperature and increases the HP rating.

To keep churning losses to a minimum, use gear units in M1 mounting position.

4.5 Inertias

In order to determine the proper service factor, inertias must be known.

The inertia acceleration factor, **IAF**, is the ratio between the system (load) inertias and the motor inertia. It is an important factor that determines system stability and gear unit service factor. It is calculated at the motor shaft, as follows.

Inertia Acceleration Factor
$IAF = \frac{J_{gear} + J_{apt} + J_x}{J_{Mot} + J_z}$

- J_{gear} = Inertia of gear unit (ratio dependent)
- J_{apt} = Inertia of input motor adapter, if applicable
- J_x = Inertia of all load components, reflected to the motor shaft
- J_{Mot} = J_{Mot} for inertia of motor without brake
= J_{BMot} for inertia of motor with brake
- J_z = Inertia of the cast iron flywheel fan (Z-fan) on motor, if applicable. Not available on HazLoc-NA[®] motors.

The values for J_{Mot} , J_{BMot} , and J_z are available in the motor section (→ 888). Both J_{gear} and J_{apt} are often negligible on smaller gear units.

Use the application formula below to calculate J_x .

Linear Motion (Conveyor, Travel Drive, Hoist)	Rotational Motion (Turntable, Solid Cylinder)
$J_x = \frac{W_T}{39.5} \times \left(\frac{V_{Max}}{n_m} \right)^2$	$J_x = \frac{W_T}{2} \times \left(\frac{D}{24} \right)^2 \times \left(\frac{n_t}{n_m} \right)^2$

- W_T = Total weight (lbs)
- V_{Max} = Maximum velocity (feet per minute)
- D = Diameter of turntable or cylinder (in)
- n_t = Turntable speed (rpm)
- n_m = Motor full-load speed (rpm)

4.6 Load classification

There are three load classifications, based upon the inertia acceleration factor:

Load Class	Type	IAF
(I)	Uniform	$IAF \leq 0.2$
(II)	Moderate Shock	$0.2 < IAF \leq 3.0$
(III)	Heavy Shock	$3.0 < IAF \leq 10$

Contact SEW-EURODRIVE for inertia acceleration factor >10.

4.7 Service factor

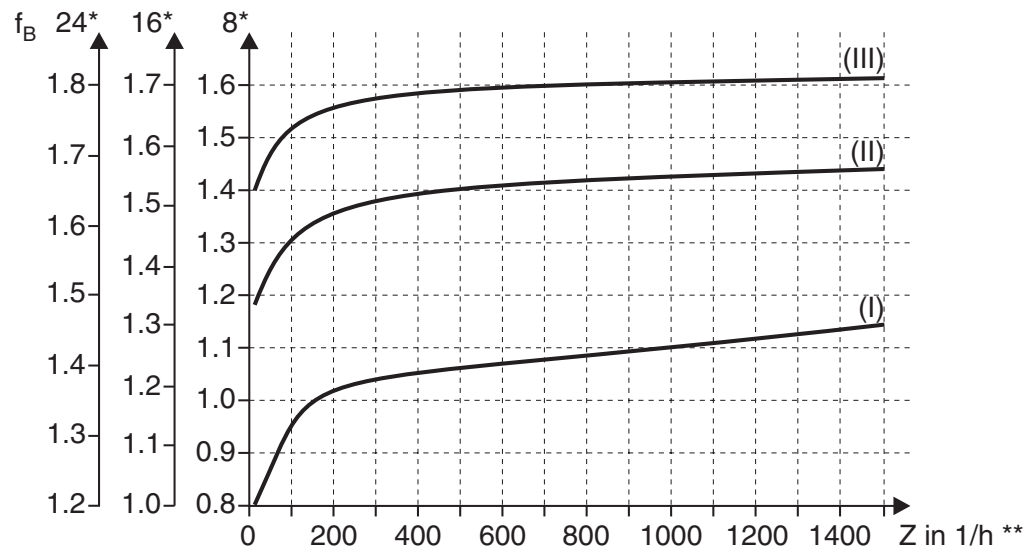
The load from the driven machine imposes a shock onto the gear unit. The degree of shock depends upon the load inertia, motor inertia, daily operating time, and starting frequency. The SEW service factor, f_B , considers all of these variables.

Since the method for determining the maximum output torque rating can vary among gear manufacturers, the required SEW service factor applies to SEW gear units. As such, this service factor may differ from an AGMA service factor or the service factor from another manufacturer. However, even when $f_B=1.0$, the SEW gear unit contains a high level of safety and reliability in the fatigue strength range.

Service factor is determined from the figure below, using the load classifications I, II, III as defined on the previous page. For proper project planning, the maximum permissible output torque of the gear unit, T_{aMax} , must be greater than the load torque multiplied by the SEW service factor, f_B , as shown in the following equation.

$$T_{aMax} \geq (T_a \times f_B)$$

- T_a = load torque
- T_{aMax} = maximum permissible output torque from gear unit tables
- f_B = SEW service factor



- * Daily operating time in hours/day
- ** Starting frequency Z, is the sum of all load changes within one hour, which includes all instances of starting, braking, and speed changes.
Example: In one hour, a 2-speed motor starts 50 times, switches from low to high speed 50 times, switches from high to low speed 50 times, and stops 50 times. In this case Z=200.
- I, II, III Load classification (→ 48)

Service factors $f_B > 1.8$ may occur with large mass acceleration factors (> 10), high levels of backlash in the transmission elements, or large overhung loads. Contact SEW-EURODRIVE for these applications.

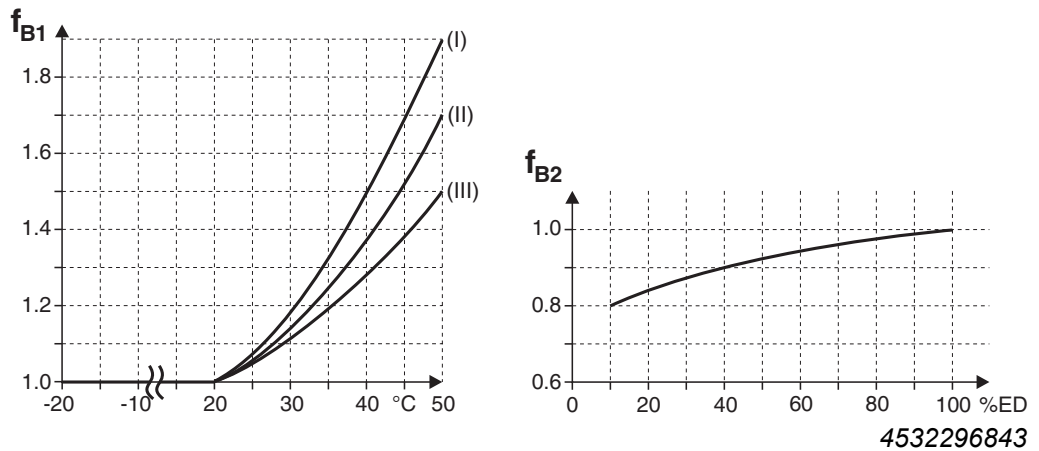
4.7.1 Helical-worm gear unit

For helical-worm gear units (S-series), two additional service factors, f_{B1} and f_{B2} , are required.

- f_{B1} = Service factor from ambient temperature and load classification (→ 48). Contact SEW-EURODRIVE if the temperature < -20°C (-4° F)
- f_{B2} = Service factor from cyclic duration factor, ED, which is the amount of time the motor is operating compared to the time that it is resting, as figured below.

$$\%ED = \frac{\text{Time under load in min/hr}}{60} \times 100$$

f_{B1} and f_{B2} are obtained from the figures below.



Therefore, the total service factor for a helical-worm gear unit becomes:

$$F_{Btot} = (f_B \times f_{B1} \times f_{B2})$$

- f_{Btot} = Total service factor
- f_B = SEW service factor
- f_{B1} = Service factor from ambient temperature
- f_{B2} = Service factor from cyclic duration factor

4.7.2 Example #1

- Inertia acceleration factor = 2.5
- 14 hours/day operation
- 300 load changes/hour
- K-series gear unit required
- Load torque = 6800 lb-in
- Ratio = 30:1

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Using the load classification table (→ 48), when IAF = 2.5, then
Load class = II

From service factor figure (→ 49): 14 hours/day rounds to 16. Using the column for 16 hours/day along with Load class = II,

$$f_B = 1.5$$

Therefore, the K-series gear unit must have a torque rating where,

$$T_{aMax} > (\text{load torque} \times 1.5)$$

$$T_{aMax} > (6800 \times 1.5)$$

$$T_{aMax} > 10,200 \text{ lb-in}$$

Solution: K77, 30.89:1, has $T_{aMax} = 13,700$ lb-in, which is sufficient (→ 535).

4.7.3 Example #2

Change Example #1 to use a helical-worm gear unit with additional conditions below.

- Ambient temperature = 40°C
- Time under load = 40 min per hour

From Example #1 results, Load class = II, $f_B = 1.5$.

Calculate %ED,

$$ED = 40/60 = 66.7\%$$

Using the charts for FB1 and FB2 (→ 50),

$$f_{B1} = 1.40$$

$$f_{B2} = 0.95$$

Therefore,

$$f_{Btot} = 1.5 \times 1.40 \times 0.95 = 2.0$$

And,

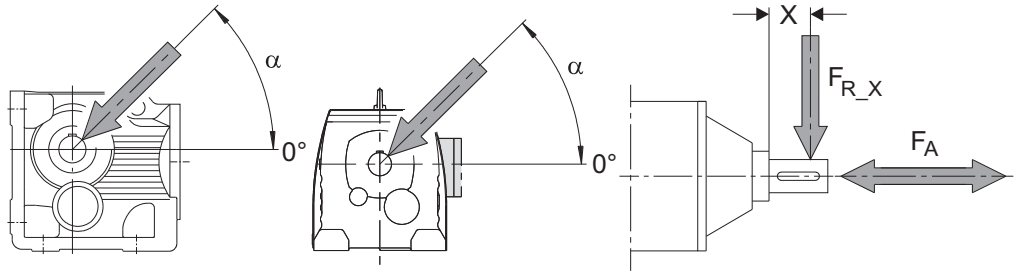
$$T_{aMax} > (\text{load torque} \times 2)$$

$$T_{aMax} > (6800 \times 2) = 13,600 \text{ lb-in}$$

Solution: S87, 31.43:1, has $T_{aMax} = 14,100$ lb-in, which is sufficient (→ 731).

4.8 Overhung and axial loads

Overhung and axial loads are defined by the following figure.



F_{R_X} = Allowable overhung load at point x in lbs

F_A = Allowable axial load in lbs

α = Angle of force (side A)

4.8.1 Calculating overhung load

The type of transmission component that is mounted onto the output shaft has a direct impact on the overhung load. Some components impart higher forces than others, as shown by the transmission factor, f_z , in the following table.

Component	Transmission factor, f_z	Comments
Gears	1.15	< 17 teeth
Sprockets	1.40	< 13 teeth
Sprockets	1.25	< 20 teeth
Narrow V-belt pulleys	1.75	Due to pretension force
Flat belt pulleys	2.50	Due to pretension force
Timing or toothed belt pulleys	2.0 – 2.50	Due to pretension force
Gear rack pinion, normal mesh	1.00	
Gear rack pinion, tightly meshed	2.00	Tightly meshed gears increase pretension force

The overhung load force exerted on the gear unit shaft is calculated as follows:

$$F_R = \frac{2 \times T}{d_0} \times f_z$$

F_R = Overhung load (lbs)

T = Load Torque (lb-in)

d_0 = Diameter of gear, sprocket, or pulley (in)

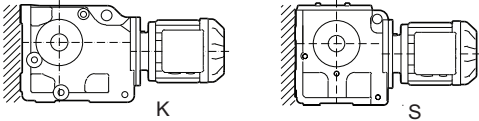
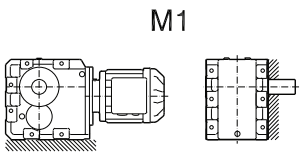
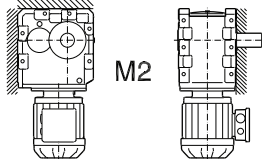
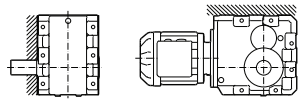
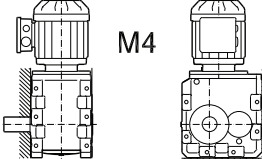
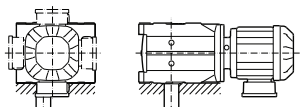
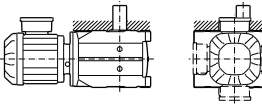
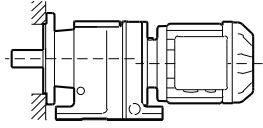
f_z = Transmission factor

4.8.2 Allowable overhung load, F_{Ra}

The following is important information regarding the overhung load value, F_{Ra} , that is shown in the rating tables of this catalog:

- F_{Ra} is calculated from the rated bearing service life L_{10h} (according to ISO 281).
- F_{Ra} is the allowable force that can be applied at the **center** of a **solid** output shaft with standard length. For allowable overhung load values of a hollow shaft gear unit, please contact SEW-EURODRIVE.
- For right-angle gear units, the angle of force, α , is viewed by looking into side A.
- Both the direction of rotation and the angle of force impact the allowable overhung load. The F_{Ra} values shown in the catalog are based upon the most **unfavorable** conditions (worst case scenario).
- In certain situations, the allowable overhung load (OHL) is not equal to F_{Ra} and must be limited, as shown below.

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Mounting Surface	Gear Units	Mtg Pos	Restriction
<p>M1</p> 	<p>K19 – K49 K37 – K157 S37 – S97</p>	M1	When mounting via shaded vertical feet as shown, OHL = 50% x F_{Ra}
<p>M1</p>  <p>M2</p> 	<p>K167 K187</p>	M1 M2 M3 M4	When mounting via shaded feet as shown, OHL = 100% x F_{Ra}
<p>M3</p>  <p>M4</p> 			When mounting via feet that are not shaded, OHL = 50% x F_{Ra}
<p>M5</p>  <p>M6</p> 	<p>K167 K187</p>	M5 M6	When mounting via shaded feet, OHL = 100% x F_{Ra} When mounting via any means other than shaded, contact SEW-EURODRIVE
	R07F – R87F	ALL	For all foot/flange units mounted via the flange, OHL = 50% x F_{Ra}

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4.8.3 Allowable axial force, F_A

If there is no overhung load present, then the allowable axial force, F_A (tension or compression), is equal to **50%** of the value shown for F_{Ra} in the selection tables.

This condition applies to the following gearmotors:

- Helical gearmotors except for R..137 to R..167.
- Parallel shaft and helical-bevel gearmotors with solid shaft except for F97.
- Helical-worm gearmotors with solid shaft

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Contact SEW-EURODRIVE for all other types of gear units or when there is a combination of overhung load and axial forces.

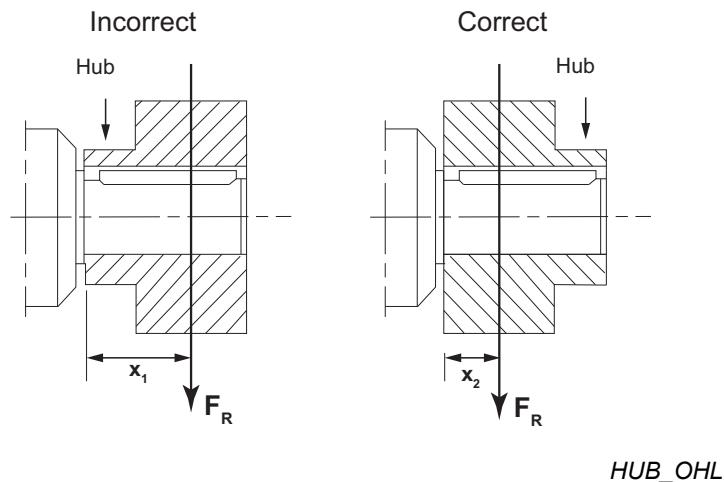
4.8.4 Increasing overhung load capacity

The allowable overhung values shown in the catalog are based upon the worst case angle and direction of rotation. If the actual angle of force is more favorable, there is normally an increase in the allowable overhung load.

Furthermore, if heavy duty bearings are used, especially with R, F and K gear units, higher overhung and axial load forces are allowed.

For either case above, contact SEW-EURODRIVE.

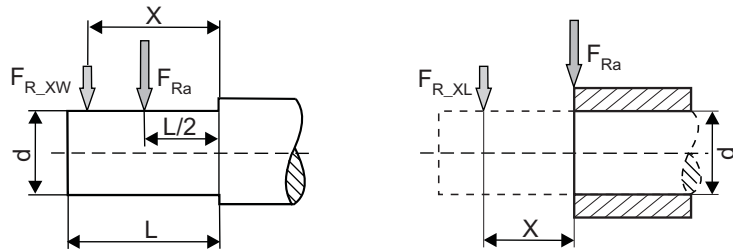
Also, when installing components onto the output shaft, such as sprockets and pulleys, position the component as close to the gear unit housing as possible. For components with a hub, position the hub away from the gear unit so that the force acting through the belt or chain is closest to the gear unit. In the example below, placing the hub in the correct location moves the overhung load force, F_R , closer to the gear unit such that $x_2 < x_1$.



4.8.5 Overhung load conversion

When the overhung load force is not applied at the midpoint of the output shaft, the following formulas should be used on R, F, K, S, W units to determine two overhung load values; F_{R_XL} for bearing life, and F_{R_XW} for shaft strength. The allowable overhung load is the **smaller of the two values of F_{R_XL} and F_{R_XW}** .

For RM units, an additional value for flange strength, F_{R_XF} , is required.



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F_{R_XW} , based upon shaft strength (excludes RM units):

$$F_{R_XW} = \frac{c \times 10^3}{f + x} \quad [lb]$$

F_{R_XF} , based upon flange tensile strength (RM units only):

$$F_{R_XF} = \frac{c_F \times 10^3}{F_F + x} \quad [lb]$$

F_{R_XL} , based upon bearing life:

$$F_{R_XL} = F_{Ra} \times \frac{a}{b + x} \quad [lb]$$

F_{Ra} = Allowable overhung load (lb) as shown in the selection tables when the force occurs at the midpoint of the solid output shaft of a footed gear unit. For RM units, the force occurs at 39.4 inches (1 meter). See (→ 61) for RM values.

X = Distance (inches) from the shaft shoulder to the force application point.

a, b, f, F_F = Gear unit constants for overhung load conversion (inches)

c, c_F = Gear unit constants for overhung load conversion (lb-in)

For constants: R, K, F, S, W units, see (→ 56). RM units, see (→ 62).

Constants for OHL conversion

Gear unit	a (in)	b (in)	c (lb-in)	d (in)	f (in)	l (in)
RM57 – RM167	See (→ 62)					
RX57	1.71	0.93	1.34	0.750	1.35	1.57
RX67	2.07	1.08	2.14	1.000	1.56	1.97
RX77	2.38	1.2	1.73	1.250	0	2.36
RX87	2.89	1.32	6.81	1.625	1.93	3.15
RX97	3.41	1.44	12.66	2.125	2.12	3.94
RX107	4.04	1.67	21.86	2.375	2.45	4.72
R07	2.83	2.05	0.41	0.750	0.43	1.57
R17	3.48	2.7	0.58	0.750	0.67	1.57
R27	4.19	3.21	1.38	1.000	0.46	1.97
R37	4.65	3.66	1.1	1.000	0	1.97
R47	5.39	4.21	2.16	1.250	0.59	2.36
R57	5.81	4.43	3.34	1.375	0.71	2.76
R67	6.63	5.26	2.35	1.375	0	2.76
R77	6.84	5.26	3.51	1.625	0	3.15
R87	8.53	6.56	7.5	2.125	0	3.94
R97	10.06	7.7	9.38	2.375	0	4.72
R107	11.24	8.48	18.23	2.875	0	5.51
R137	13.52	10.18	40.53	3.625	0	6.69
R147	15.83	11.69	76.55	4.375	1.3	8.27
R167	17.72	13.58	111.51	1.750	0	8.27
F27	4.31	3.33	1	1.000	0	1.97
F37	4.86	3.88	0.95	1.000	0	1.97
F47	6.04	4.86	1.24	1.250	0	2.36
F57	6.72	5.34	2.39	1.375	0	2.76
F67	7.14	5.56	3.65	1.625	0	3.15
F77	8.5	6.53	6.96	2.000	0	3.94
F87	10.35	7.99	9.38	2.375	0	4.72
F97	13.78	11.02	18.5	2.875	0	5.51
F107	14.7	11.36	37.44	3.625	0	6.69
F127	17.42	13.29	83.63	4.375	0	8.27
F157	20.16	16.02	92.93	4.750	0	8.27
K19	4.08	3.3	0.77	0.750	0	1.57
K29	4.9	3.92	1.12	1.000	0	1.97
K37	4.86	3.88	1.15	1.000	0	1.97
K39	6.12	4.94	1.99	1.250	0	2.36
K47	6.04	4.86	1.24	1.250	0	2.36
K49	7.22	5.85	2.33	1.375	0	2.76
K57	6.68	5.3	2.39	1.375	0	2.76
K67	7.14	5.56	3.65	1.625	0	3.15
K77	8.5	6.53	6.81	2.000	0	3.94
K87	9.92	7.56	14.51	2.375	0	4.72
K97	12.56	9.8	24.78	2.875	0	5.51
K107	14.7	11.36	48.94	3.625	0	6.69
K127	17.46	13.33	73.54	4.375	0	8.27
K157	20.04	15.91	104.43	4.750	0	8.27
K167	24.47	19.55	166.38	6.250	0	9.84
K187	28.37	22.07	269.04	7.50	0	12.6
S37	4.67	3.88	0.53	0.750	0	1.57
S47	5.12	4.13	1.18	1.000	0	1.97
S57	5.91	4.72	1.89	1.250	0	2.36
S67	7.24	5.87	2.69	1.375	0	2.76
S77	8.82	7.05	4.66	1.750	0	3.54

Gear unit	a (in)	b (in)	c (lb-in)	d (in)	f (in)	l (in)
S87	11.08	8.72	14.87	2.375	0	4.72
S97	12.85	10.09	22.48	2.875	0	5.51
W10	3.34	2.55	0.32	0.625	0	1.57
W20	3.88	3.09	0.39	0.750	0	1.57
W30	4.31	3.52	0.53	0.750	0	1.57
W37	4.77	3.98	0.62	0.750	0	1.57
W47	5.73	4.55	3.77	1.250	1.4	2.36

4.9 Altitude and temperature

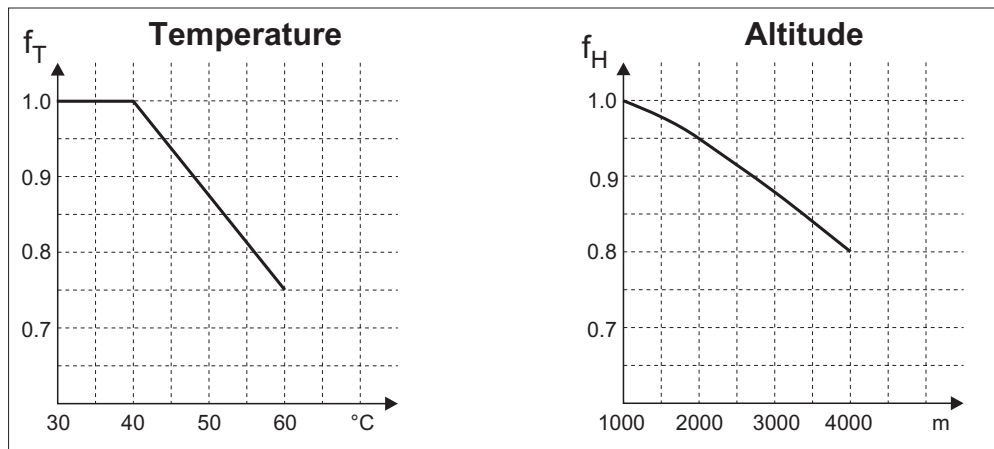
The rated power, P_m , of a motor is dependent upon ambient temperature and altitude. The power shown on the nameplate applies to an ambient temperature of up to 40°C and a maximum altitude of 3280 ft (1000 meters) above sea level.

For deviations, the rated power must be reduced according to the following formula.

$$P_{N1} = P_N \times f_T \times f_H$$

- P_{N1} = Reduced rated power (HP)
- P_N = Rated power (HP), as shown in selection tables
- f_T = Factor due to ambient temperature
- f_H = Factor due to altitude

The values for f_T and f_H are obtained from the graphs below.



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4.10 Compound gearmotors

You can achieve particularly low output speeds by using a compound gearmotor. It contains an additional gear unit (type RF) between the motor and the larger gear unit.

A compound gearmotor is capable of producing a large output torque due to its high ratio. Often, the motor torque multiplied by the gear ratio is much larger than the rated torque (T_{aMax}) of the gear unit. Therefore, it is necessary to properly protect the gear unit by limiting the motor power.

4.10.1 Limiting the motor power

To properly protect a compound gearmotor from overload, the motor amp draw must be limited so that it corresponds to the maximum allowable motor torque, which depends on the maximum output torque of the gear unit, T_{aMax} .

Use the following formula to calculate the maximum allowable motor torque, T_{Mot_Max} .

$$T_{Mot_Max} = \frac{T_{aMax}}{i_{tot} \times \eta_{tot}}$$

T_{Mot_Max} = Maximum allowable motor torque (lb-in)

T_{aMax} = Maximum allowable output torque (lb-in), shown in rating tables

i_{tot} = Total gear ratio

η_{tot} = Overall efficiency of gear unit

Use the maximum allowable motor torque, T_{Mot_Max} , and the load diagram of the motor to determine the corresponding value for the maximum motor current. Then, limit the amp draw of the motor so that it is less than this motor current, as follows:

For a motor without an inverter, set the tripping current of the motor protection switch to this maximum current value. During the startup phase of the motor when the motor draws full-load amps, a motor circuit breaker offers the option to compensate for this brief overload without tripping.

For inverter drives, limit the output current of the inverter to the maximum current value found above.

4.10.2 Reducing the braking torque

If you use a compound brakemotor, you also have to reduce the braking torque (T_B) according to the maximum allowable motor torque, T_{Mot_max} . The maximum allowable braking torque is 200% more than T_{Mot_Max} .

$$T_{B_Max} = T_{Mot_Max} \times 2$$

T_{B_Max} = Maximum braking torque (lb-in)

T_{Mot_Max} = Maximum allowable motor torque (lb-in)

For a list of braking torques available on SEW-EURODRIVE motors see (→ 902).

4.10.3 Preventing blockage

Blockage that disables the output shaft of a compound gearmotor from rotating is not permitted. Depending on the size of the motor, the gear unit may experience a very large torque, overhung load, or axial load. Such large forces impart severe shock to the gear unit. Catastrophic or irreparable damage may result.

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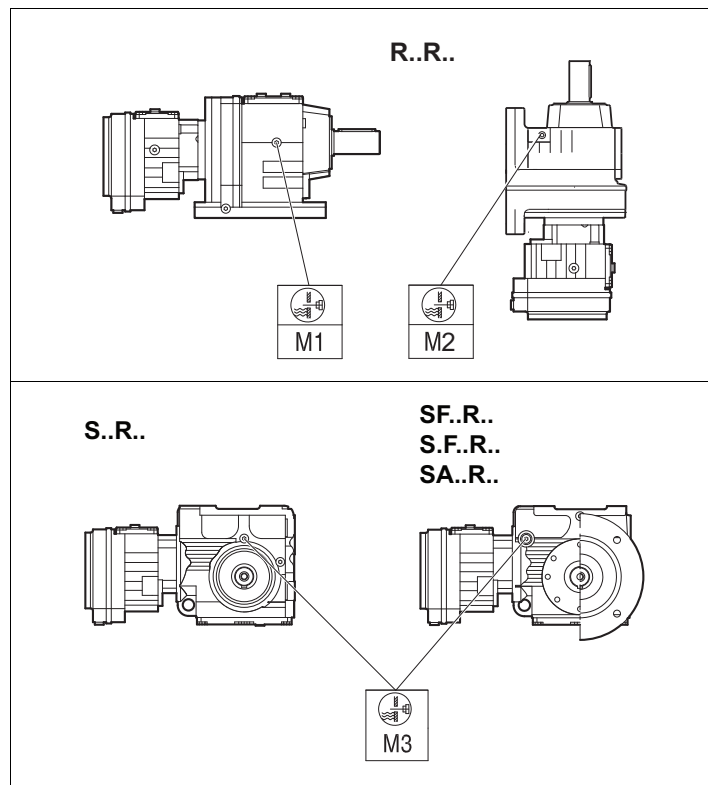
Contact SEW-EURODRIVE if blockage of a compound gearmotor cannot be avoided due to the application.

4.10.4 Position of the oil level plug of compound gear units

To ensure sufficient lubrication of the larger gear unit of a compound gearmotor, a higher oil level is required in some mounting positions, as specified below.

- Helical gear unit type R..R in mounting position M1 and M2
- Helical-worm gear unit type S..R in mounting position M3

The oil level plugs are located at the following positions, which are different from the positions shown on the mounting position pages.



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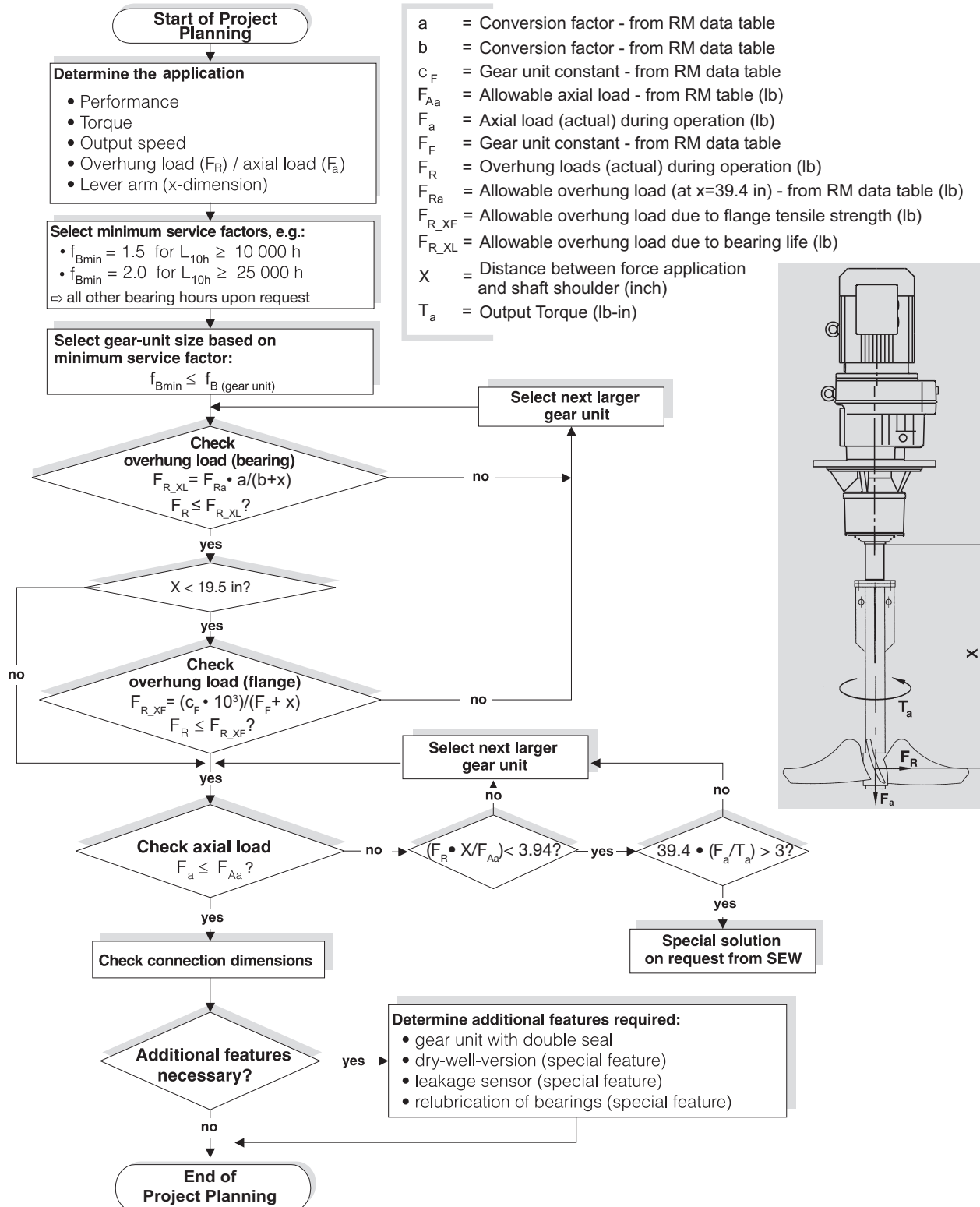
Icon	Designation
	Oil level plug

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4.11 RM gearmotors

4.11.1 Project planning procedure – Imperial units

RM gearmotors contain an extending bearing hub for higher overhung and axial load capacity. Use the following procedures. See (→ 61-62) for values.



4.11.2 Overhung loads and axial forces, RM

The following table shows the allowable overhung load, F_{Ra} , and axial load, F_{Aa} at 39.4 inches (1m) for two common values of service factor, f_B , and bearing service life, L_{10h} .

$f_B = 1.5; L_{10h} = 10,000$ h

Gear	Load	n_a in rpm							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} (lb)	90	90	90	90	90	90	90	95
	F_{Aa} (lb)	4225	3370	2585	2180	1595	1270	1000	855
RM67	F_{Ra} (lb)	130	130	130	130	130	130	135	135
	F_{Aa} (lb)	4270	4250	3440	2675	2070	1680	1320	1135
RM77	F_{Ra} (lb)	270	270	270	270	270	270	270	275
	F_{Aa} (lb)	4945	4945	4360	3395	2565	2075	1620	1510
RM87	F_{Ra} (lb)	445	445	445	445	445	445	450	450
	F_{Aa} (lb)	6745	6745	5305	4045	3215	2475	2010	1805
RM97	F_{Ra} (lb)	670	670	670	670	675	685	690	690
	F_{Aa} (lb)	8990	8115	6135	4565	3575	2830	2165	1755
RM107	F_{Ra} (lb)	950	950	950	950	950	950	805	860
	F_{Aa} (lb)	10790	9215	6810	5170	4045	2945	2145	2030
RM137	F_{Ra} (lb)	1960	1960	1960	1960	1625	1135	895	1515
	F_{Aa} (lb)	15735	15735	15735	12950	10545	9890	8005	7285
RM147	F_{Ra} (lb)	2495	2495	2495	2495	2495	2385	1940	2430
	F_{Aa} (lb)	15735	15735	15670	13130	10250	8540	7375	6925
RM167	F_{Ra} (lb)	3280	3280	3280	3280	3280	3305	-	-
	F_{Aa} (lb)	15735	15735	15735	13555	10185	8295	-	-

$f_B = 2.0; L_{10h} = 25,000$ h

Gear	Load	n_a in rpm							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} (lb)	90	90	90	90	90	95	95	95
	F_{Aa} (lb)	2720	2160	1650	1360	965	755	585	495
RM67	F_{Ra} (lb)	135	135	135	135	135	135	135	135
	F_{Aa} (lb)	3550	2700	2155	1650	1255	1005	780	660
RM77	F_{Ra} (lb)	270	270	270	270	270	275	275	275
	F_{Aa} (lb)	4495	3460	2675	2040	1500	1185	900	830
RM87	F_{Ra} (lb)	450	450	450	450	450	385	380	385
	F_{Aa} (lb)	5530	4315	3215	2385	1840	1370	1235	1095
RM97	F_{Ra} (lb)	685	685	685	685	690	690	570	545
	F_{Aa} (lb)	6385	4945	3640	2610	1990	1540	1310	1070
RM107	F_{Ra} (lb)	975	975	975	975	975	755	630	670
	F_{Aa} (lb)	7260	5575	4000	2920	2200	1835	1340	1265
RM137	F_{Ra} (lb)	1990	1990	1990	1985	1270	905	720	1180
	F_{Aa} (lb)	15735	13465	10790	8520	7600	7125	5755	5240
RM147	F_{Ra} (lb)	2565	2565	2565	2565	2565	1870	1540	1895
	F_{Aa} (lb)	15735	13625	10320	8970	7530	6270	5420	5080
RM167	F_{Ra} (lb)	3395	3395	3395	3395	3395	2945	-	-
	F_{Aa} (lb)	15735	14275	11600	8495	6025	5305	-	-

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4.11.3 Conversion factors, RM

The following conversion factors and constants apply to RM gearmotors to calculate the allowable overhung loads, F_{R_XL} , and F_{R_XF} where $x \neq 39.4$ in (1 meter).

Gear unit	a (in)	b (in)	c_F (lb-in)		F_F (in)
			($f_B = 1.5$)	($f_B = 2.0$)	
RM57	41.2	1.9	10805	11155	10.9
RM67	41.2	1.9	18125	18585	11.7
RM77	41.3	2	22240	22790	13.4
RM87	41.6	2.2	43525	44510	16.3
RM97	41.8	2.4	96575	98455	18.9
RM107	42.1	2.7	136010	138530	21.8
RM137	42.8	3.5	223850	230065	25.6
RM147	43	3.6	265865	275910	29.8
RM167	42.9	3.5	372580	386375	34.2

4.11.4 Additional weight, RM

Gear unit	Additional weight of RM flange compared to the smallest RF flange
	Δ lbs
RM57	+26
RM67	+35
RM77	+55
RM87	+65
RM97	+113
RM107	+194
RM137	+245
RM147	+369
RM167	+431

5 Order information and mounting positions

5.1 Order information

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5



The following information, along with the mounting position, is required for R, F, K, S, and W gearmotors when placing an order.

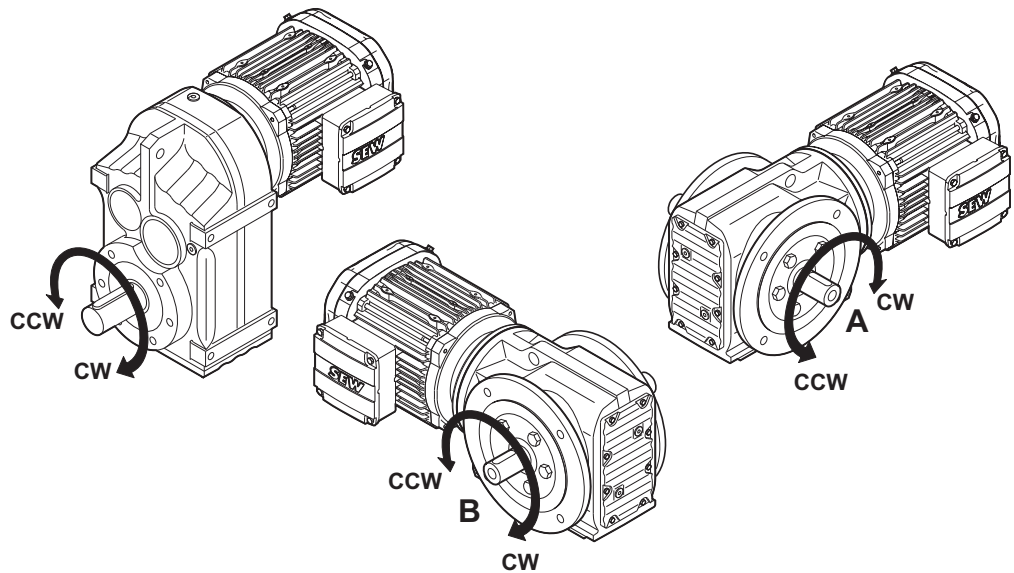
This information is also required for gearmotors that do not depend on a particular mounting position.

5.1.1 Direction of rotation

The purpose of a backstop is to prevent unwanted direction of rotation. During operation, the backstop allows rotation only in the specified direction.

The direction of rotation is specified when looking into the output shaft (also known as low speed shaft, LSS):

- CW rotation
- CCW rotation



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For right-angle gearmotors with a hollow shaft or with a double output shaft (with solid shaft ends at both A and B), the direction is specified as looking into side A.

For units without a backstop, the direction of rotation may be reversed simply by switching any two motor power wires.

The allowable direction of rotation is indicated by an arrow on the housing:

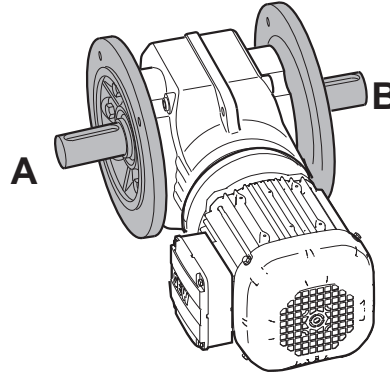


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5.1.2 Output shaft and output flange positions

In right-angle gear units, you also have to indicate the position of the output shaft and the output flange:

- A, B, or AB
- AB indicates both sides



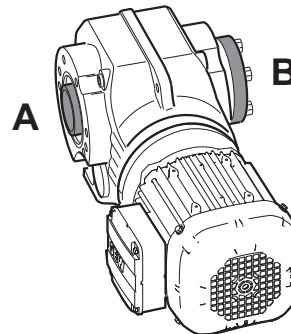
4579723275

5.1.3 Output shaft entry position

For shaft mounted right-angle gear units with either a shrink disk (ex. KH) or TorqLOC® (ex. KT). You must indicate whether A or B is the entry so that the clamping collar is placed on the correct side. The entry is the side that the customer's solid shaft first enters during installation. Therefore, it is the side closest to the customer's machine. The clamping collar is always located opposite the entry side. Thus, in the figure below, the entry side is A. So, the clamping collar is placed at B.

NOTE: On gear units with a TorqLOC® shaft (ex. KT, ST, FT), a symmetrical shaft is available so that the customer's shaft may enter on either side. Designation = **AB**.

For hollow shaft units with key (ex. KA, SA), stating the entry side allows SEW to correctly install the internal snapping on the opposite side of shaft entry.



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INFORMATION



For the permitted mounting surfaces (= hatched area), refer to the mounting position pages (→ 75).

5.1.4 Motor terminal box and cable entry position

Footed motor (without gear unit):

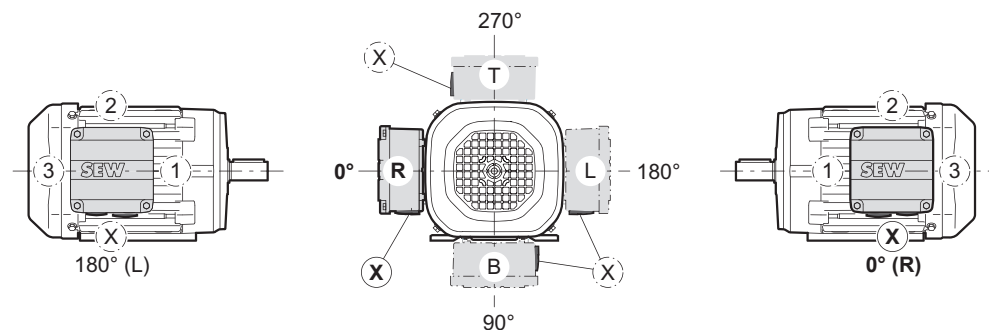
The position of the motor terminal box was previously specified as 0°, 90°, 180°, or 270° when looking into the fan guard. However, a change in the product standard EN 60034 now specifies the following positions:

- Positions pertain to the view when looking **into the output shaft** of a motor in mounting position B3 (or M1)
- Positions are designated as R (right), B (bottom), L (left) and T (top).
- Cable entry position is specified with X, 1, 2, 3, as shown in the figure below.

At first glance, R and L may appear to be backwards in the figure below. However, the view below is looking into the fan guard. When looking into the output shaft, R and L are correct.

Gearmotors:

- The position of motor terminal box is determined by looking **into the fan guard** when the gearmotor is in M1 mounting position.
- The position of the terminal box is specified with 0°, 90°, 180° or 270°, as shown in the figure below.
- For mounting positions other than M1, the terminal box positions rotate with the feet of gear unit.
- Cable entry position is specified with x, 1, 2, 3, as shown in the figure below.



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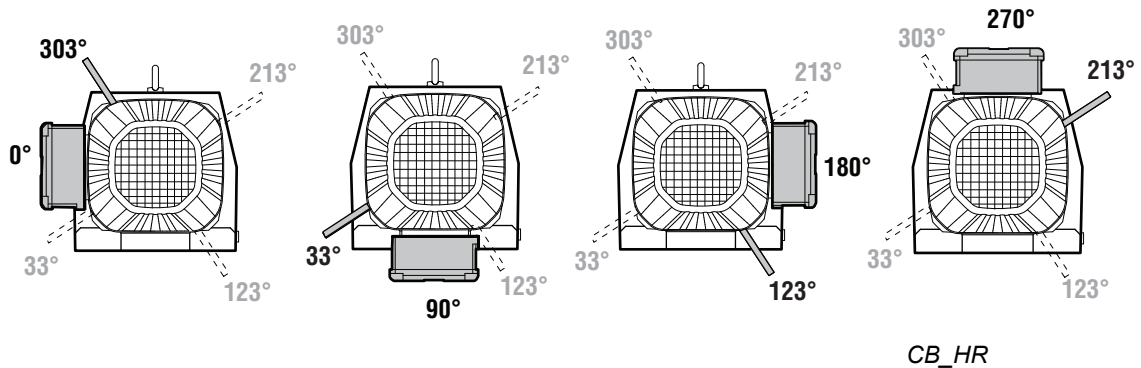
INFORMATION



Unless indicated otherwise in your order, you will receive the terminal box type 0° with "x" cable entry for all gearmotors.

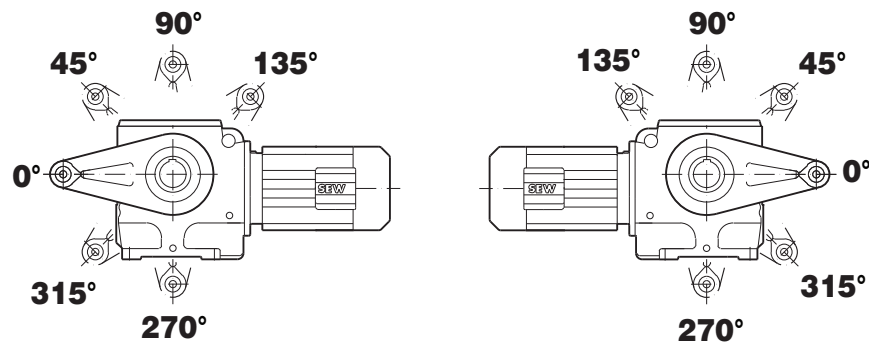
5.1.5 Brake hand release and conduit box positions

The conduit box and brake release use the same coordinate system, where 0° is the same as 9:00 (o'clock) when looking into the back of the gearmotor in an M1 mounting position (feet on bottom). Degrees increase in the CCW direction. You may place the hand release in any one of the four positions shown below, regardless of the conduit box location. However, if you do not specify otherwise, SEW assembles the hand release CW from the conduit box, as shown in bold.



5.1.6 Torque arm position

The following illustration shows the possible torque arm positions for helical-worm gear units, K..9 helical-bevel gear units, and SPIROPLAN® gear units (135° position not possible with SPIROPLAN® gear units). As a standard, SEW-EURODRIVE supplies the torque arm loosely. Therefore, the customer must specify the desired angle if factory mounting is required.



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5.1.7 Example orders

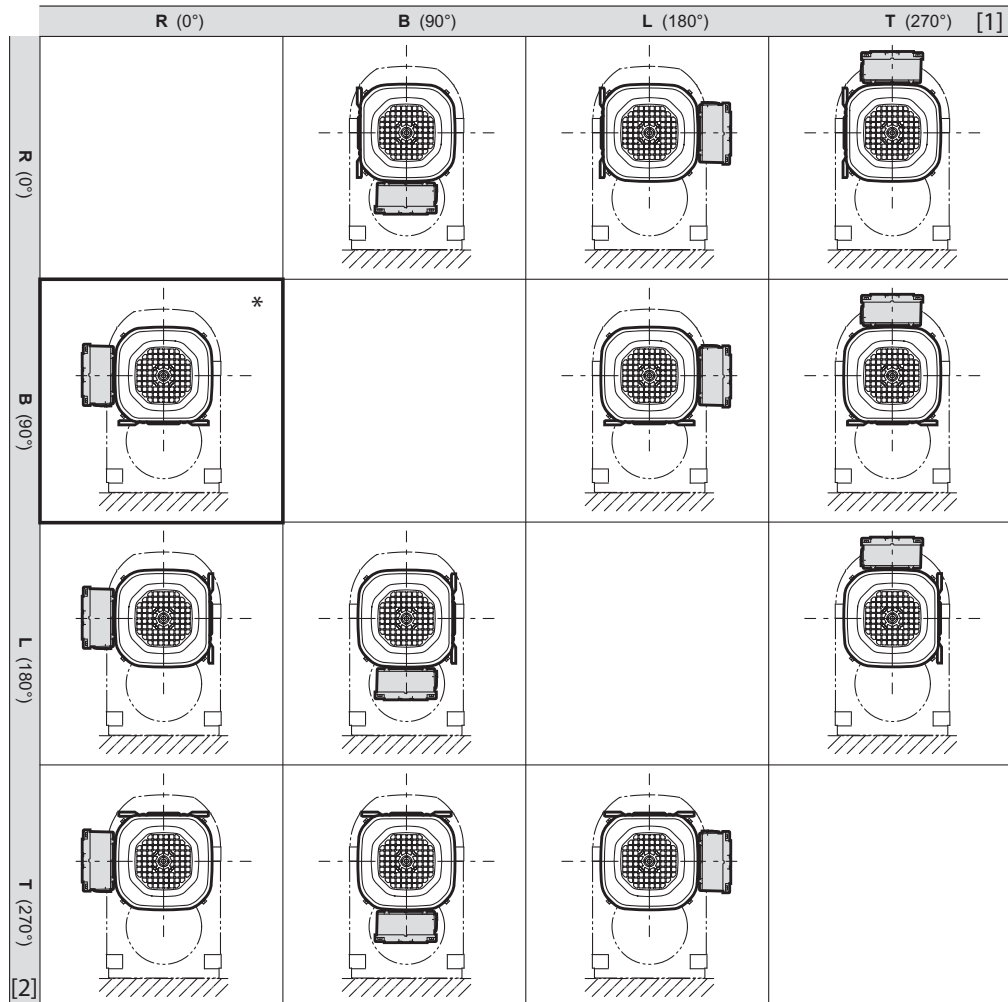
Model Type	Mounting position	Shaft position	Flange position	Terminal box position	Cable entry position	Output direction of rotation
K47DRS71M4/RS	M2	A	-	0°	"X"	Clockwise
SF77DRN90L4	M6	AB	AB	90°	"3"	-
KA97DRN132M4	M4	B	-	270°	"2"	-
KH107DRN160M4	M1	A	-	180°	"3"	-
KT47DRN90M4	M2	AB	-	0°	"X"	-

5.1.8 Option /FM - Motor terminal box and foot positions

With gearmotors, the motor is designed as flange-mounted motor for mounting to gear units. It is also possible to provide the motor with feet that can be used for customer components. The load values of the feet are available from SEW-EURODRIVE on request. The position of the foot must be specified in the order.

The following figure shows the possible positions of the terminal box and the feet for gearmotors with motor option /FM.

5



[1] Terminal box positions [2] Foot positions

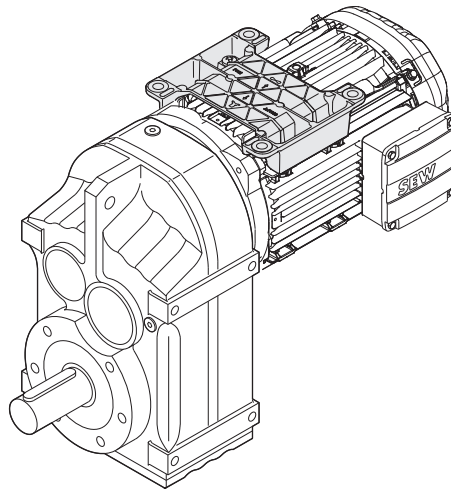
*) If not specified otherwise in the order, the gearmotor is delivered with foot position B (90°) and terminal box position R (0°).

INFORMATION



The foot on the motor is not suited to attach a complete gearmotor.

Example: Gearmotor with motor option /FM:



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Order information on mounting position of the complete drive, foot positions, terminal box and cable entry:

Mounting position complete drive:	M1
Terminal box position:	R (0°)
Cable entry:	X
Foot position:	T (270°)

5.1.9 Changing mounting position

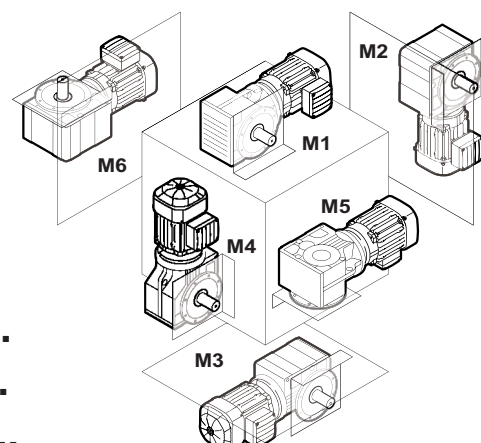
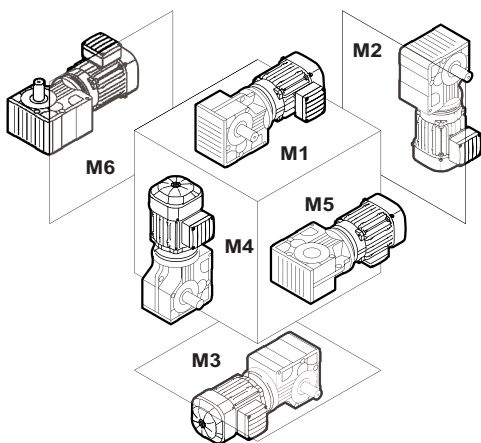
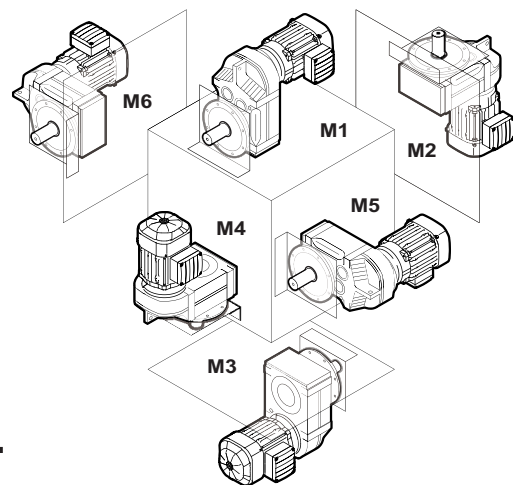
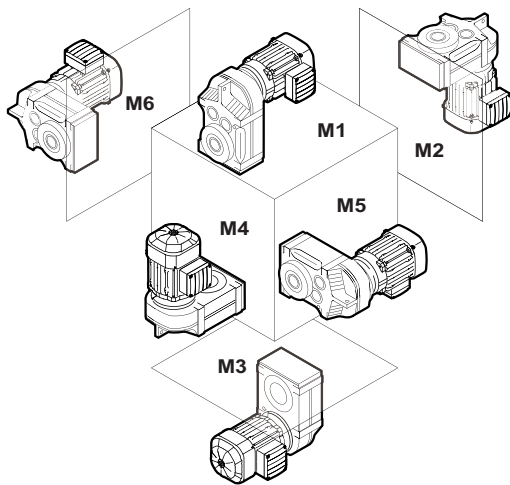
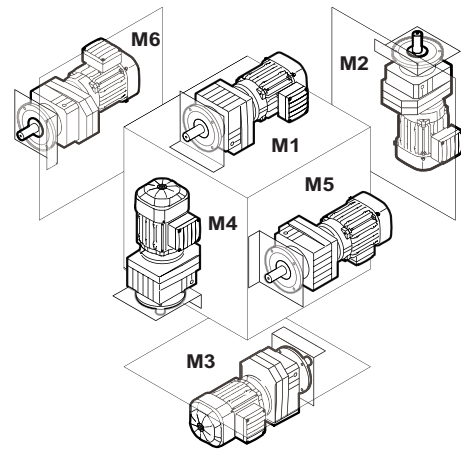
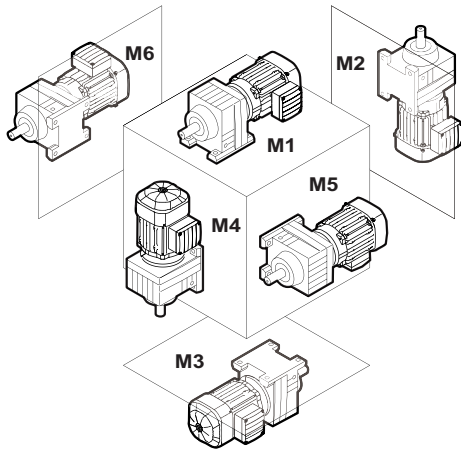
Please observe the following information when installing the gearmotor in a mounting position other than the one indicated on the order:

- Adjust the lubricant fill quantity to the changed mounting position.
- Adjust the position of the breather valve.
- When changing the mounting position to M4: Contact SEW-EURODRIVE. Depending on the drive's operating mode, an oil expansion tank might be necessary (see chapter "Oil expansion tank" (→ 21)).
- For helical-bevel gearmotors: Contact SEW-EURODRIVE if you want to change to mounting position M5 or M6, regardless of the initial mounting position.
- For helical-worm gearmotors: Contact the SEW-EURODRIVE when changing to mounting position M2 or M3.

5.2 Mounting position information

5.2.1 Overview

The following illustration is an overview of mounting positions M1 – M6.



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INFORMATION



The positions of the breather valve, oil level plug, and oil drain plug specified in the mounting position sheets are binding and comply with the assembly specifications.

The motors are only depicted symbolically on the mounting position sheets.

INFORMATION



For gear units with solid shaft: The displayed shaft is always on the A-side.

For shaft-mounted gear units: The shaft with dashed lines represents the customer shaft. The output end (= shaft position) is always shown on the A-side.

INFORMATION



SPIROPLAN® gearmotors are not dependent on the mounting position, except for W..37 and W..47 gearmotors in mounting position M4. However, mounting positions M1 to M6 are also shown for SPIROPLAN® gearmotors to assist you in working with this documentation.

INFORMATION



SPIROPLAN® gearmotors W..10 to W..30 cannot be equipped with breather valves, oil level plugs or oil drain plugs.

SPIROPLAN® gear units W..37 and W..47 are equipped with breather valves in mounting position M4 and with oil drain plugs in mounting position M2.


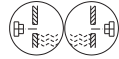

INFORMATION



Some gear units can be supplied in mounting position M0. In this case, the gear unit is delivered in a universal mounting position and can be adjusted to various mounting positions by the customer. It may be necessary to contact SEW-EURODRIVE.

5.2.2 Symbols used

The following table shows the symbols used in the mounting position pages:

Icon	Designation
	Breather valve
	Oil level plug ¹⁾
	Oil drain plug

1) Does not apply to the 1st gear unit (large gear unit) of compound gear units.

5

5.2.3 Churning losses



Some gearmotors are marked with an asterisk (*) in the mounting position pages. Churning losses may occur for gearmotors in those mounting positions. Thus, additional measures may be needed to protect against heat. Please contact SEW-EURODRIVE.

Mounting position	Gear unit type	Gear unit size	Input speed [rpm]
M2, M4	R	97 – 107	> 3600
		> 107	>1800
M2, M3, M4, M5, M6	F	97 – 107	> 3600
		> 107	>1800
	K	77 – 107	> 3600
		> 107	>1800
	S	77 – 97	> 3600

INFORMATION



PT Pilot considers churning losses when providing selections for both gear units and gearmotors. It adds synthetic oil and FKM seals as necessary for proper heat protection. To obtain valid selections that include churning loss calculations and sump oil temperature, please visit PT Pilot.

→ www.ptpilot.com

5.2.4 Breather valve/oil drain plug in motor flange

As shown in the mounting position pages, the placement of the breather valve and oil drain plug depend on the gearmotor mounting position.

The following table summarizes their location:

Mounting position	Breather valve position	Oil drain plug position
M1, M3, M5, M6	In the gear unit housing	In the gear unit housing
M4	In the motor flange @ 90°	In the gear unit housing
M2	In the gear unit housing	In the motor flange (varies with terminal box)

INFORMATION

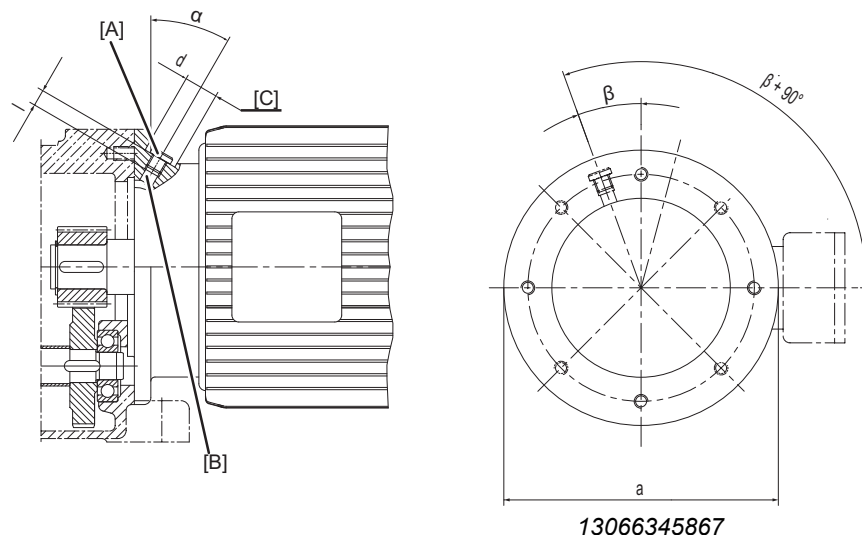


The position of the oil drain plug in the mounting position pages always refers to the standard terminal box position 0°.

When the breather valve is placed in the motor flange for M4 mounting, its position does not change with the terminal box. Rather, it is always placed near 90° (by gearmotor feet) to minimize oil seepage and spitting. See (→ 65) for 90°.

When the oil drain plug is placed in the motor flange for M2 mounting, its position depends on the terminal box location (90°, 180°, 270°), as shown below.

The following illustration shows the exact position of the oil drain plug in the motor flange.



- [A] Position of breather valve/oil drain plug
- [B] Continuous core drilling
- [C] Counterbored bore
- [α] Drill angle

- [d] Diameter of the countersinking
- [l] Thread length
- [a] Flange diameter
- [β] Position angle

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5.2.5 Breather dimensions

The following table contains the dimensions and information for the breather valve and the oil drain plug, depending on the motor size.

Motor Size	a [mm]	α [°]	β [°]	Thread designation	\varnothing d [mm]	l [mm]
DR63	120	30	45	M10x1	15	10
	160		22.5	M12x1.5	18	12
	200					
DRS71	120	0	45	M10x1	15	10
	160	30	22.5	M12x1.5	18	12
	200					
	250					
	300	90	M22x1.5	28	14	
DRN80	120	30	22.5	M10x1	15	10
	160					
	200					
	250					
	300	90	M22x1.5	28	14	
DRN90	120	30	22.5	M10x1	15	12
	160					
	200			M12x1.5	15	16
	250				18	12
	300			M22x1.5	28	12
DRN100	120	30	22.5	M10x1	15	10
	160					
	200			M12x1.5	18	12
	250					
	300			M22x1.5	28	14
	350					
DRN112M DRN132S	160	30	22.5	M10x1	15	10
	200			M12x1.5	18	12
	250					
	300					
	350	45	M22x1.5	28	14	
	400				10	
	450				16	
DRN132M/L	160	30	22.5	M10x1	15	10
	200	15		M12x1.5	18	14
	250					
	300	30		M22x1.5	28	12
	350					14
	400					13
	450	75		M33x2	40	16
	550	90		M42x2	50	18
DRN160	200	30	22.5	M10x1	15	17
	250			M12x1.5	18	15
	300					
	350			M22x1.5	28	12
	400					
	450			M33x2	40	16
	550					

5 Order information and mounting positions

Mounting position information

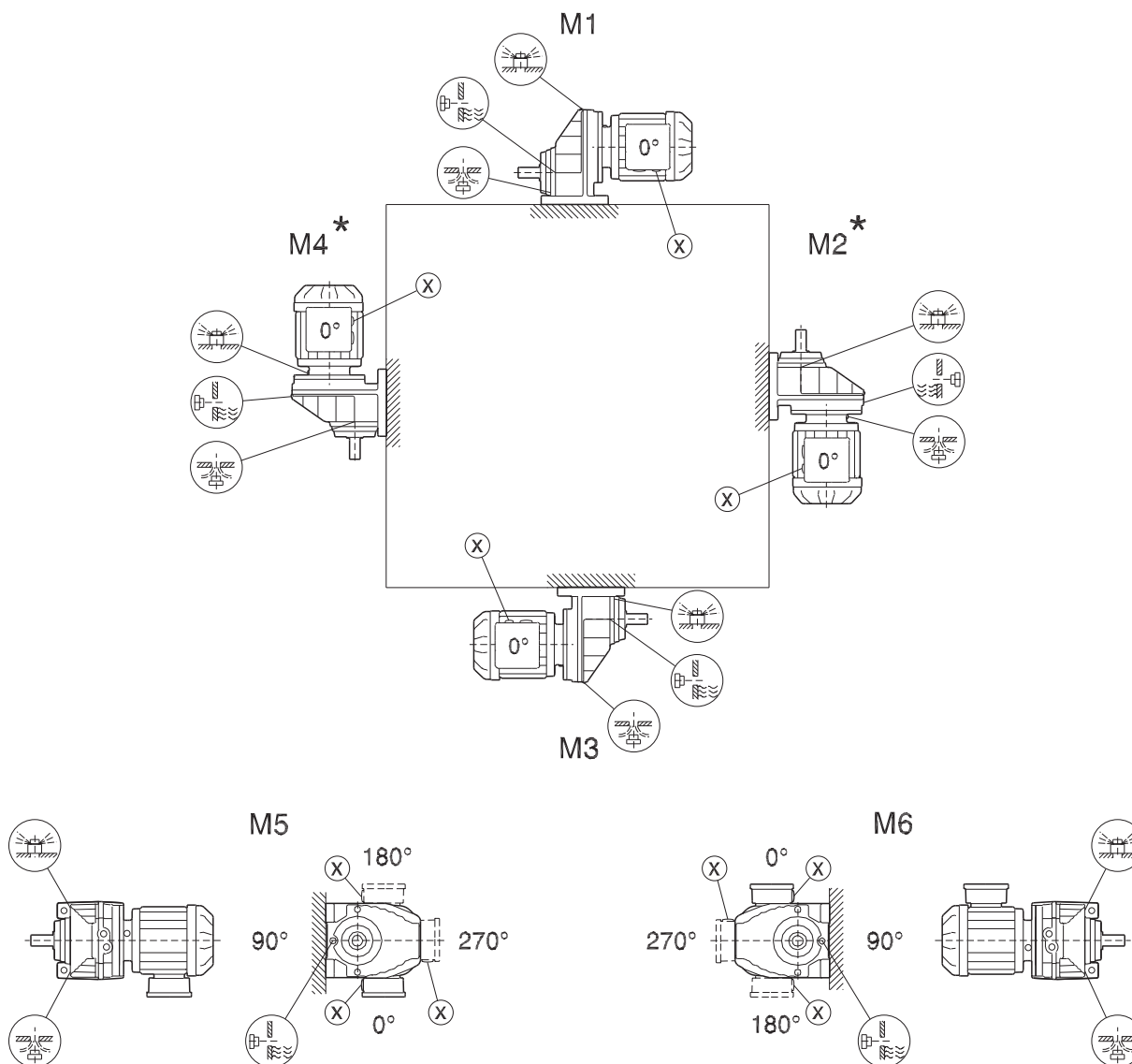
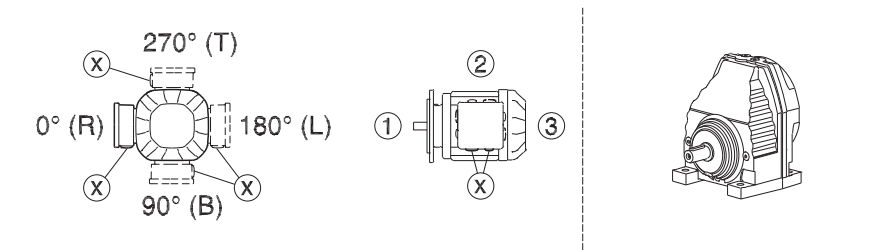
Motor Size	a [mm]	α [°]	β [°]	Thread designation	$\varnothing d$ [mm]	l [mm]
DRN180	250	30	22.5	M12x1.5	18	15
	300			M22x1.5	28	
	350					M33x2
	400			M42x2	50	
	450	90				M12x1.5
	550			M22x1.5	28	
DRN200	250	30	22.5			M22x1.5
	300			M33x2	40	
	350					M42x2
	400			M12x1.5	18	
	450	M22x1.5				28
	550			M33x2	40	
DRN225	300	30	22.5			M22x1.5
	350			M33x2	40	
	400					M42x2
	450			M12x1.5	18	
	550					M22x1.5
DRN250 DRN280	350	15	22.5	M22x1.5	28	
	400		21			
	450		22.5	M33x2	40	16
	550		M42x2			
DRN315	450	30		22.5	M33x2	40
	550		11.25	M42x2	50	20

5.3 Mounting positions – Helical gearmotors

RX57-RX107

04 043 03 00

5



* (→ 71)

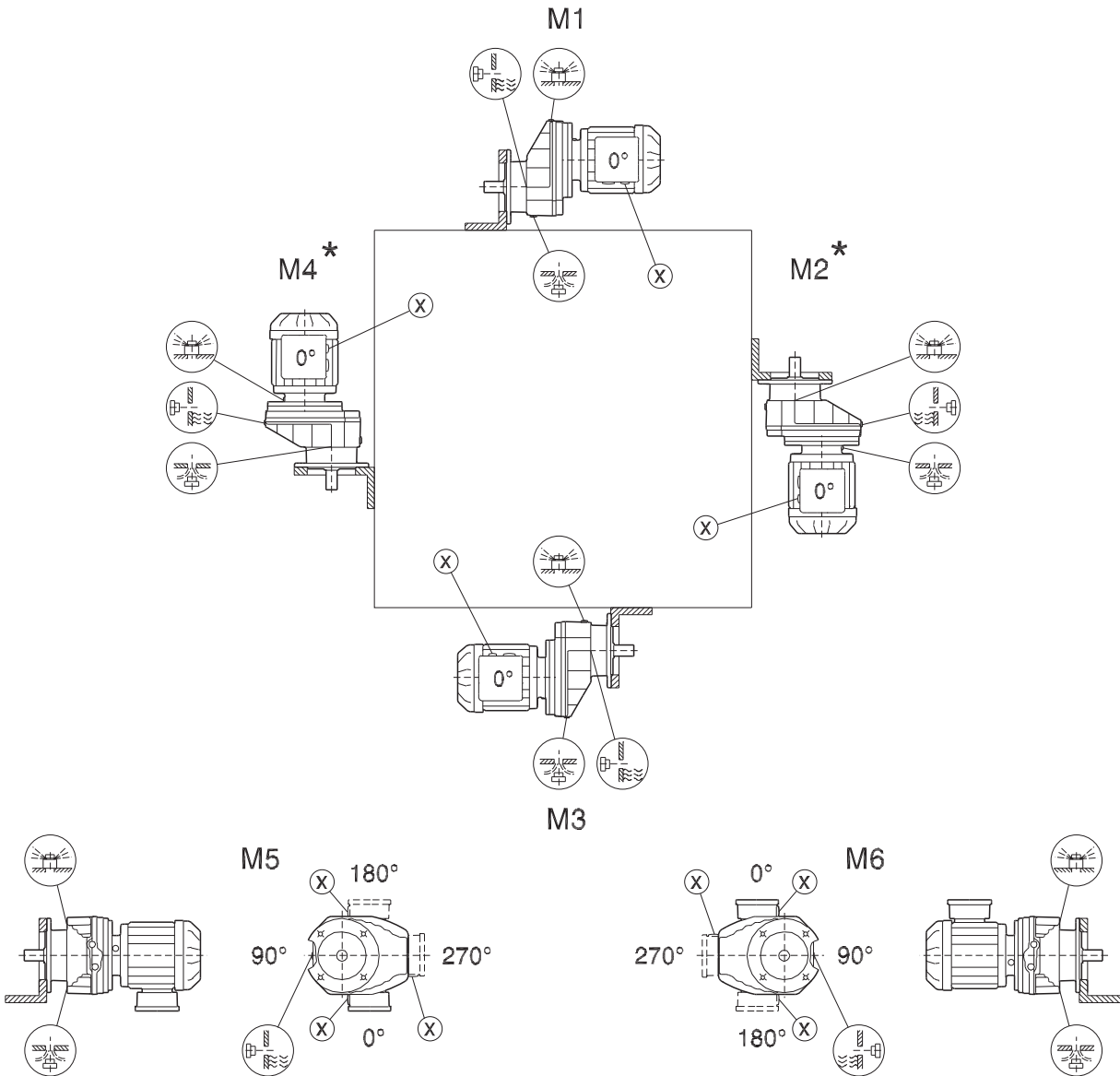
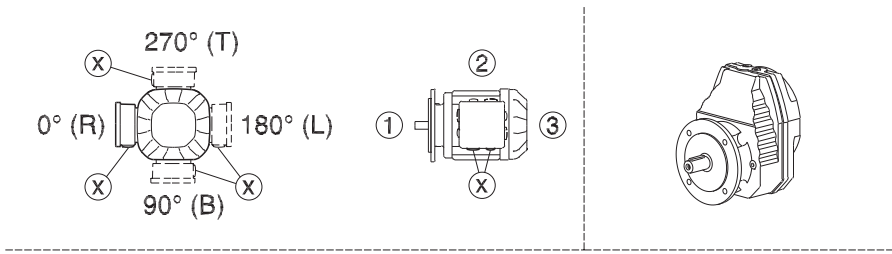
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical gearmotors

RXF57-RXF107

04 044 03 00

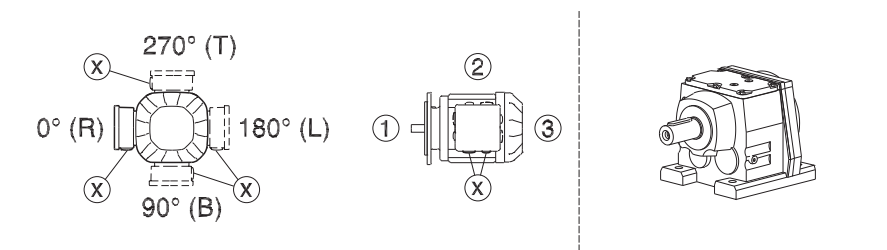


* (→ 71)

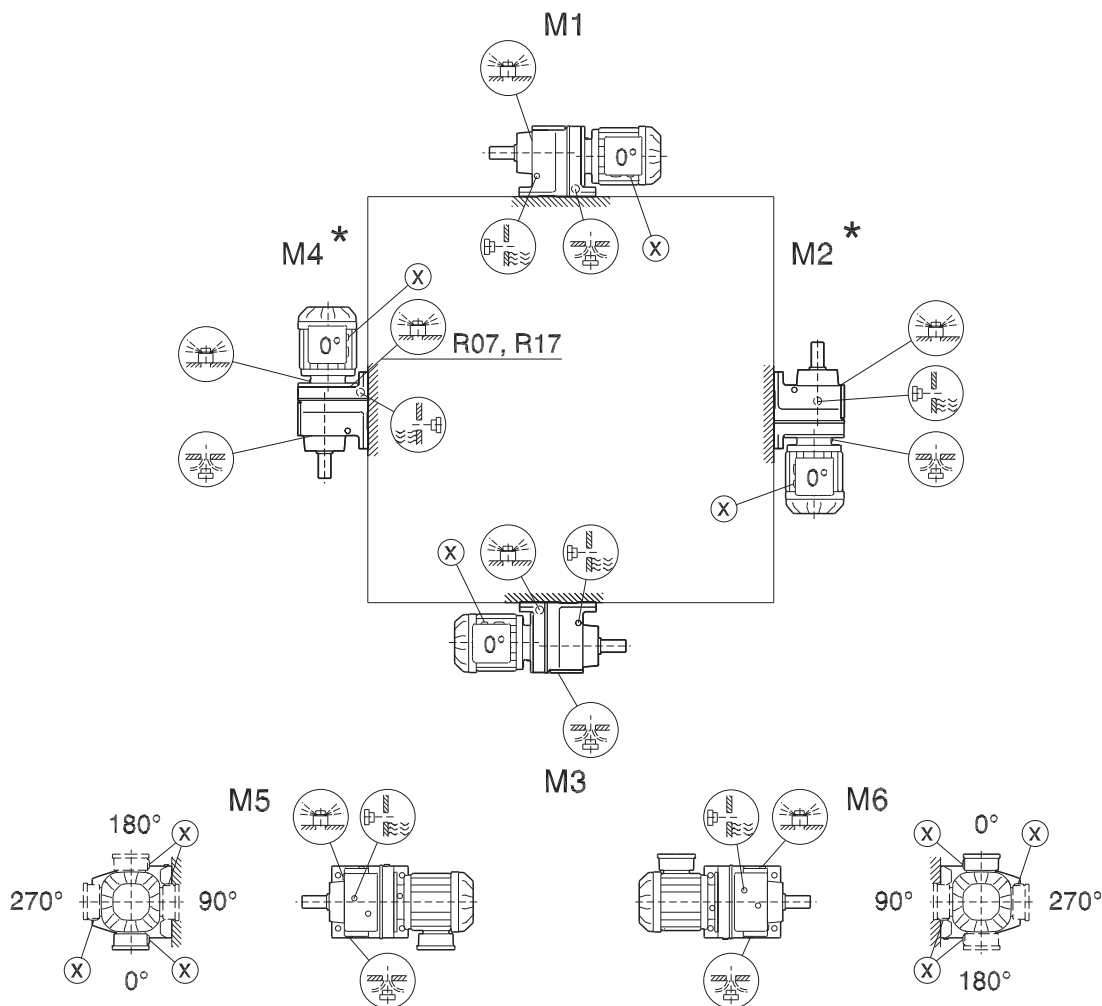
21933480/EN-US – 04/2018

R07-R167

04 040 04 00



5



- | | | |
|---------------|--|--------------------|
| R07 | | M1, M2, M3, M5, M6 |
| R17, R27 | | M1, M3, M5, M6 |
| R07, R17, R27 | | |
| R47, R57 | | M5 |

* (→ 71)

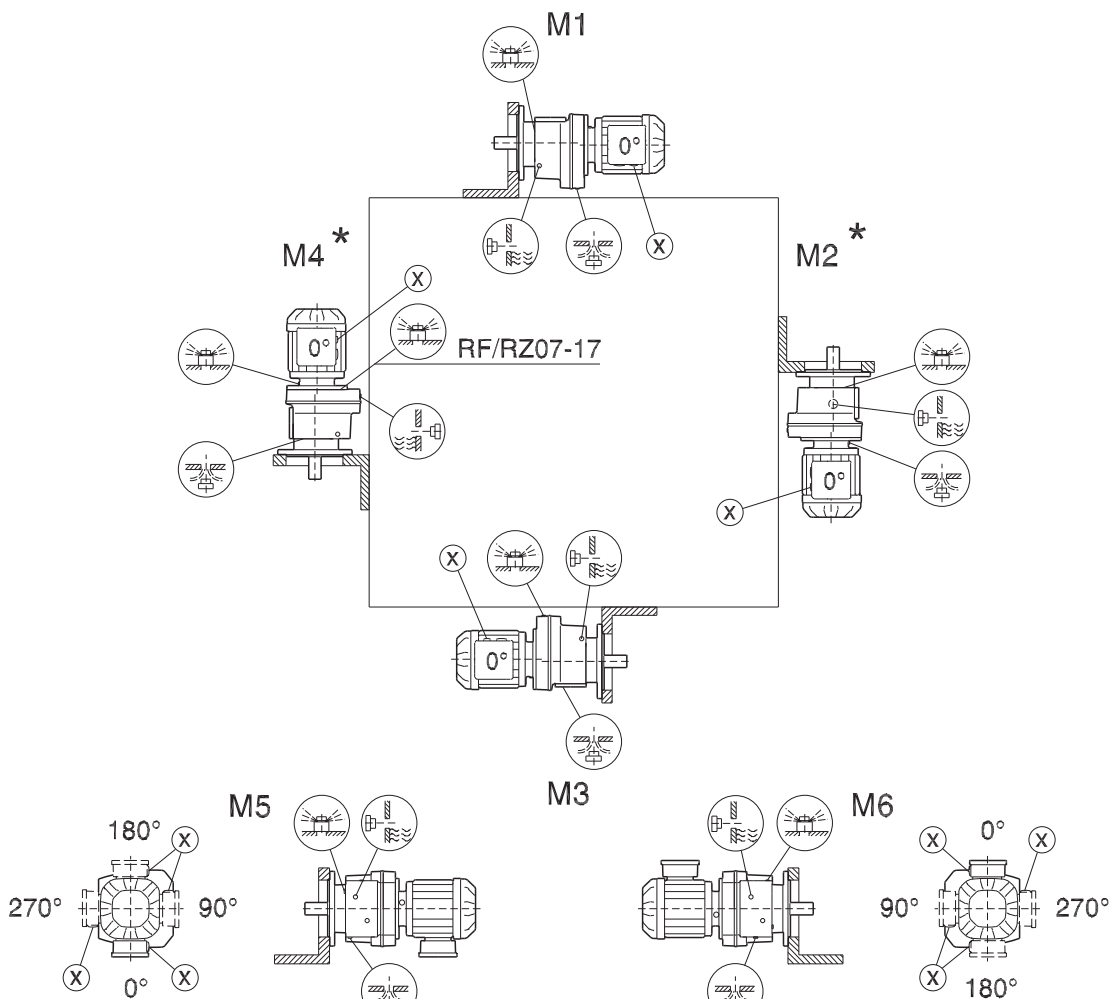
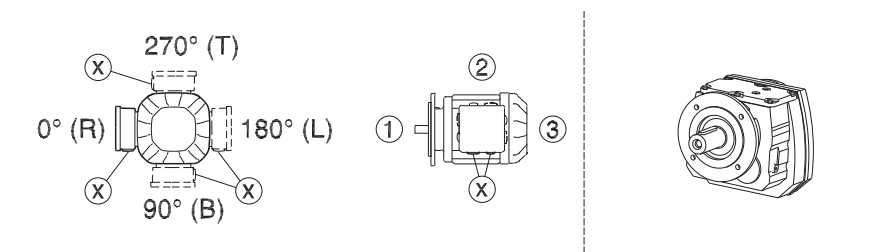
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical gearmotors

RF07-RF167, RZ07-RZ87

04 041 04 00



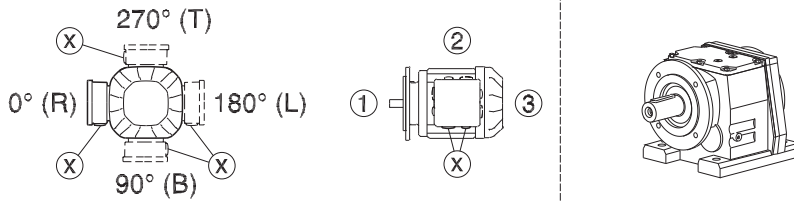
RF/RZ07		M1, M2, M3, M5, M6
RF/RZ17, 27		M1, M3, M5, M6
RF/RZ07, 17, 27		M1, M3, M5, M6
RF/RZ47, 57		M5

* (→ 71)

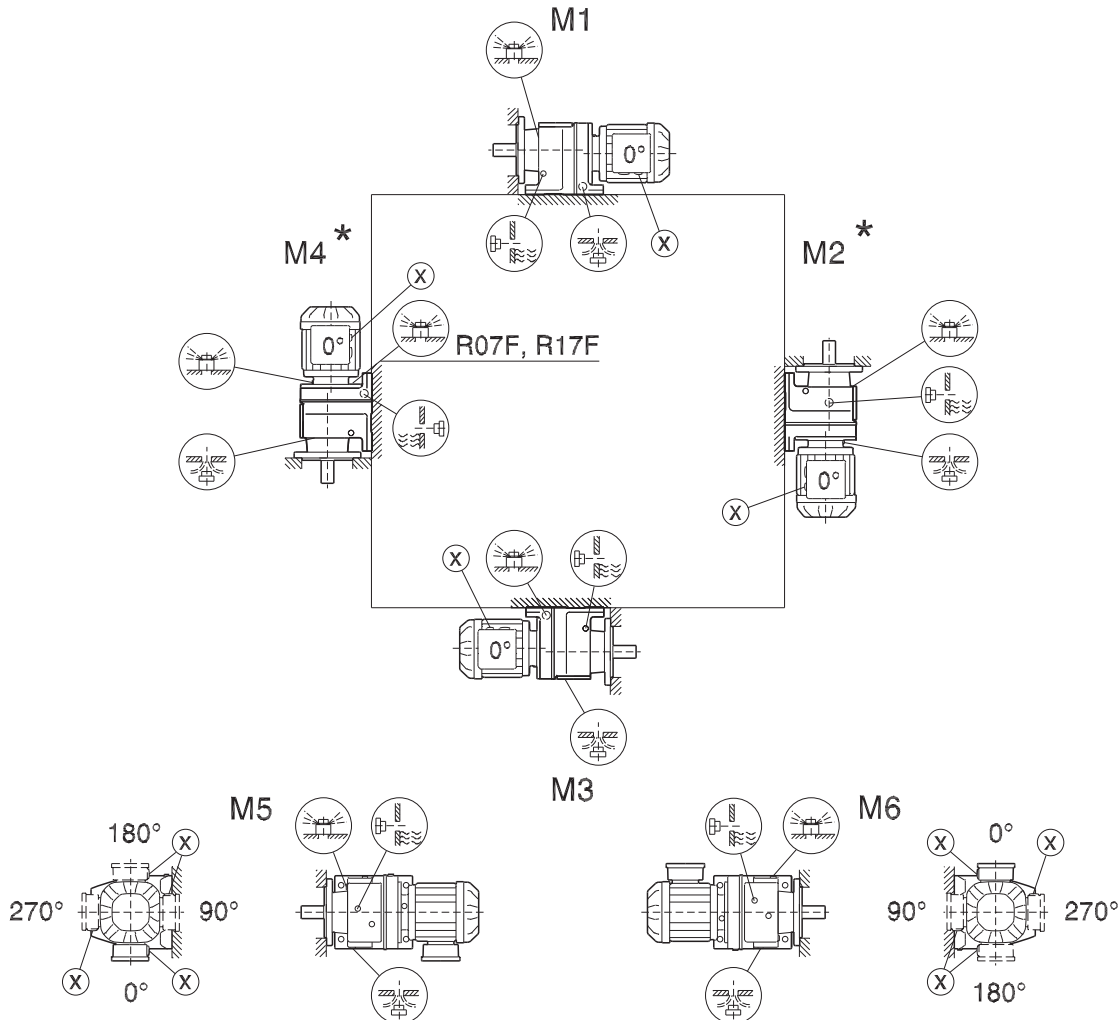
21933480/EN-US – 04/2018

R07F-R87F

04 042 04 00



5



R07F	
R17F, R27F	
R07F, R17F, R27F	
R47F, R57F	

* (→ 71)

Proper alignment must be ensured when two mounting surfaces are used. Also, the OHL and F_{Ra} shown in the selection tables is reduced 50% if torque transmission occurs via the mounting flange. (→ 53)

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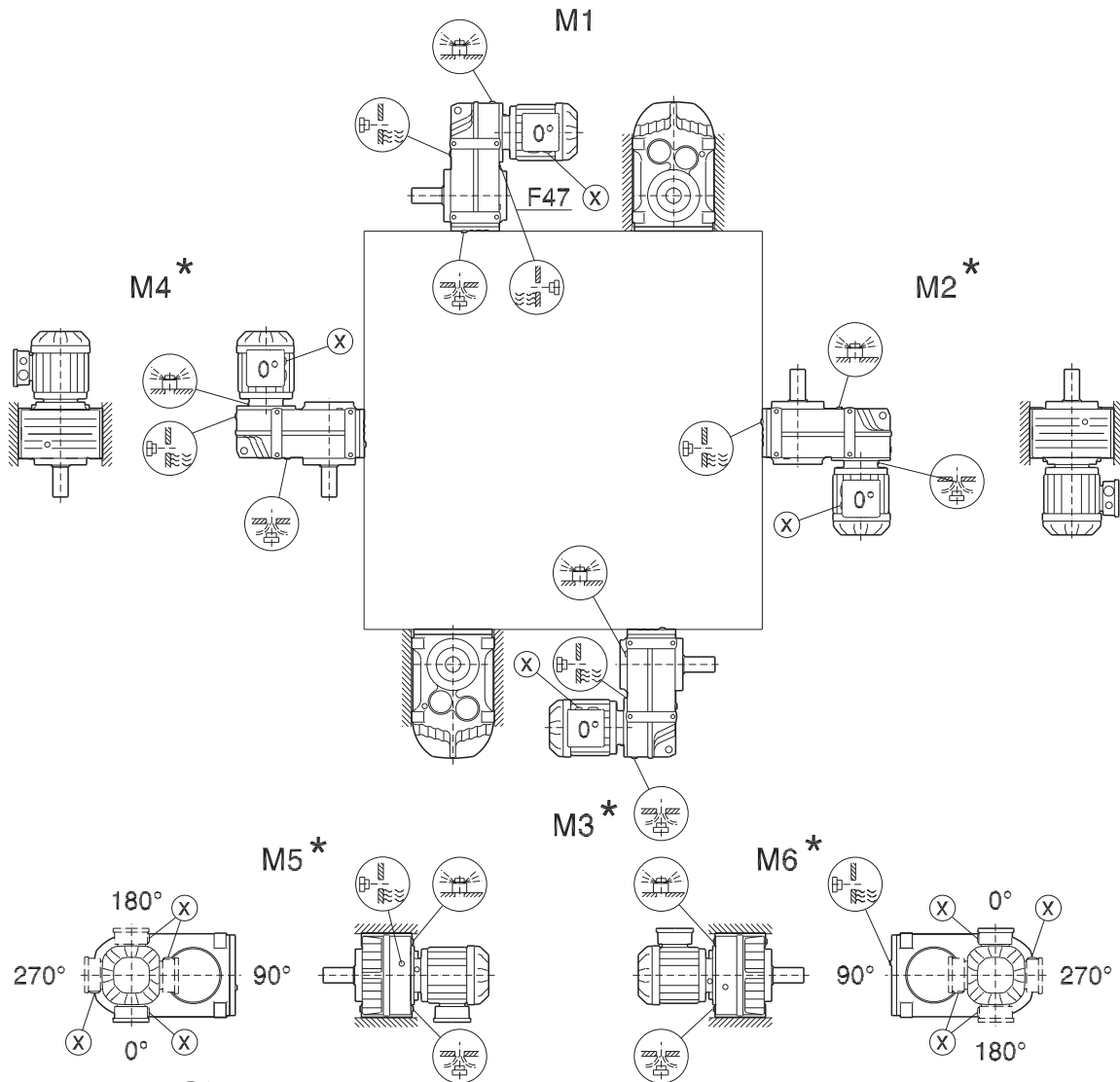
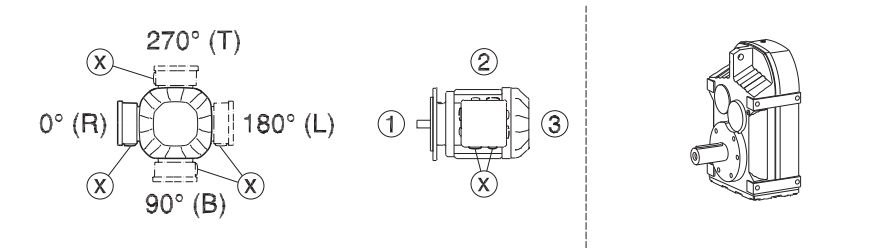
5 Order information and mounting positions

Mounting positions – theSnuggler

5.4 Mounting positions – theSnuggler

F/FA..B/FH27B-157B, FV27B-107B

42 042 04 00



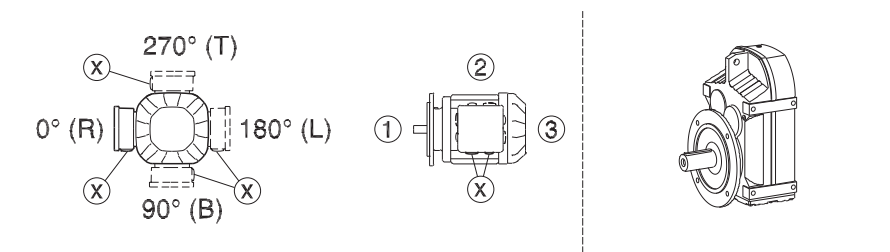
- | | | |
|-------|--|----------------|
| F..27 | | M1, M3, M5, M6 |
| F..27 | | M1 - M6 |
| F..27 | | M1, M3, M5, M6 |

* (→ 71)

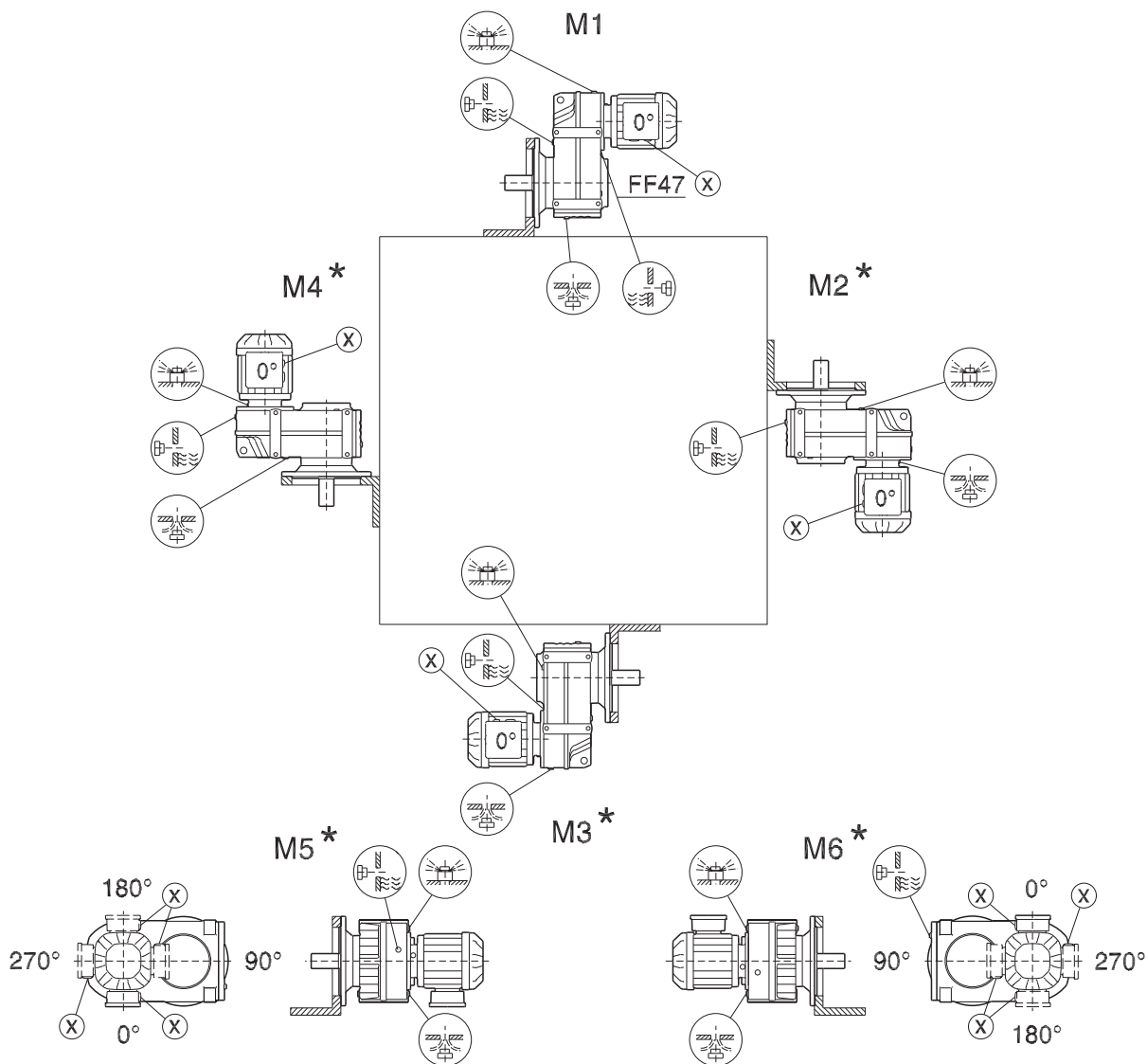
21933480/EN-US – 04/2018

FF/FAF/FHF/FZ/FAZ/FHZ27-157, FVF/FVZ27-107

42 043 04 00



5



- F..27 M1, M3, M5, M6
- F..27 M1 - M6
- F..27 M1, M3, M5, M6

* (→ 71)

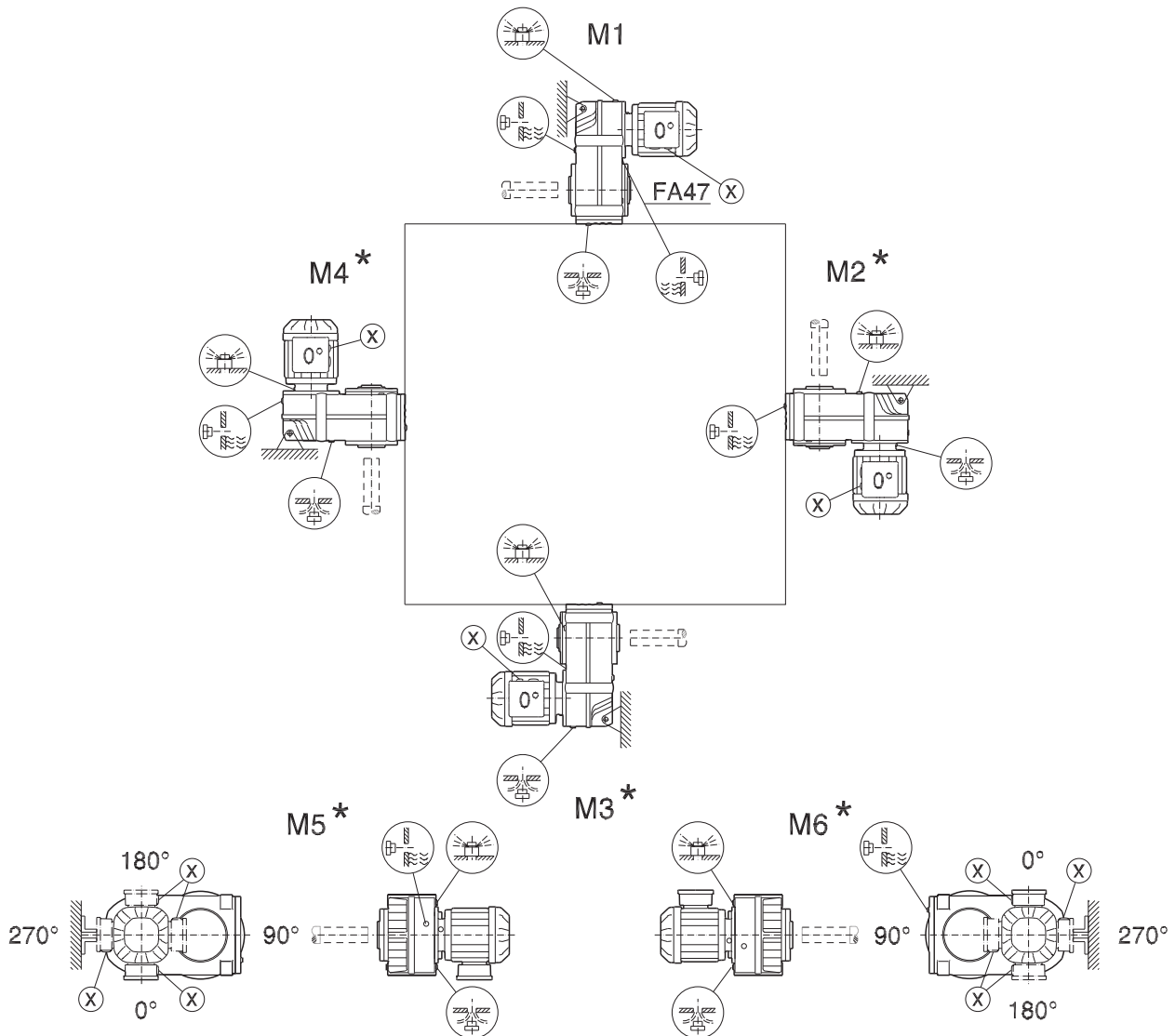
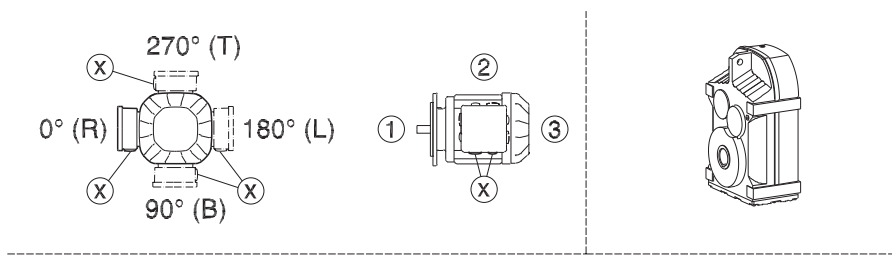
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – theSnuggler

FA/FH27-157, FV27-107, FT37-97

42 044 04 00



- | | | |
|-------|--|----------------|
| F..27 | | M1, M3, M5, M6 |
| F..27 | | M1 - M6 |
| F..27 | | M1, M3, M5, M6 |

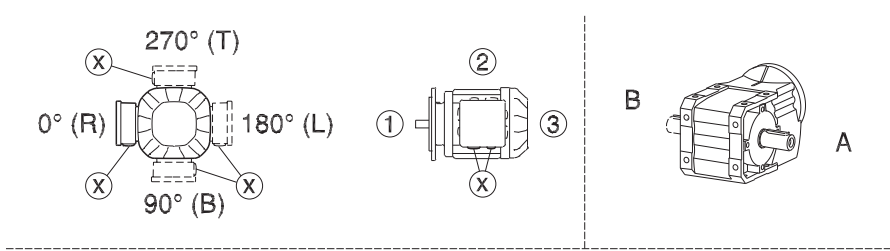
* (→ 71)

21933480/EN-US – 04/2018

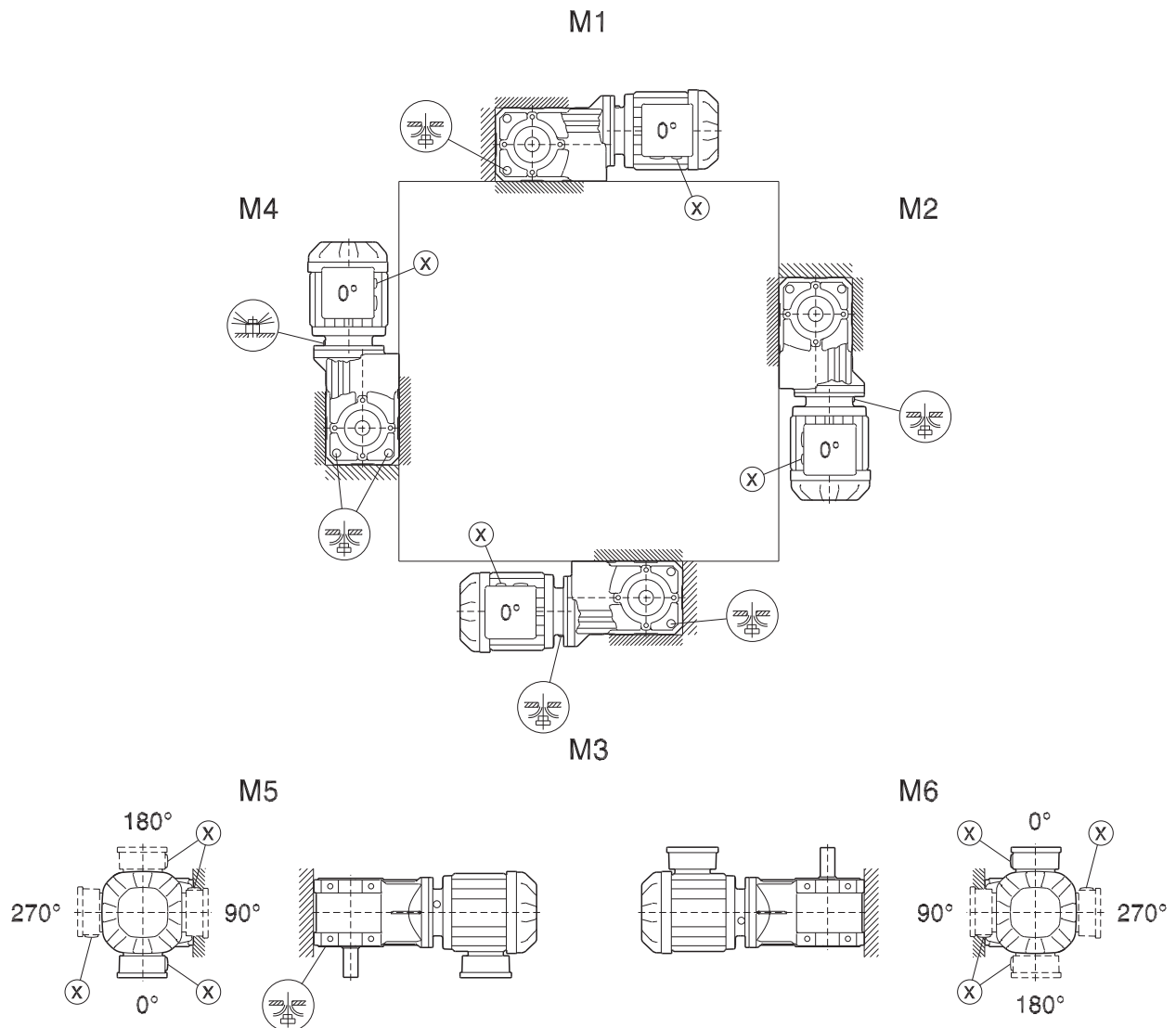
5.5 Mounting positions – Helical-bevel

K/KA..B/KH19B-29B

33 023 00 15^L



5



For M1, refer to the information in chapter "Allowable overhung load" (→ 53).

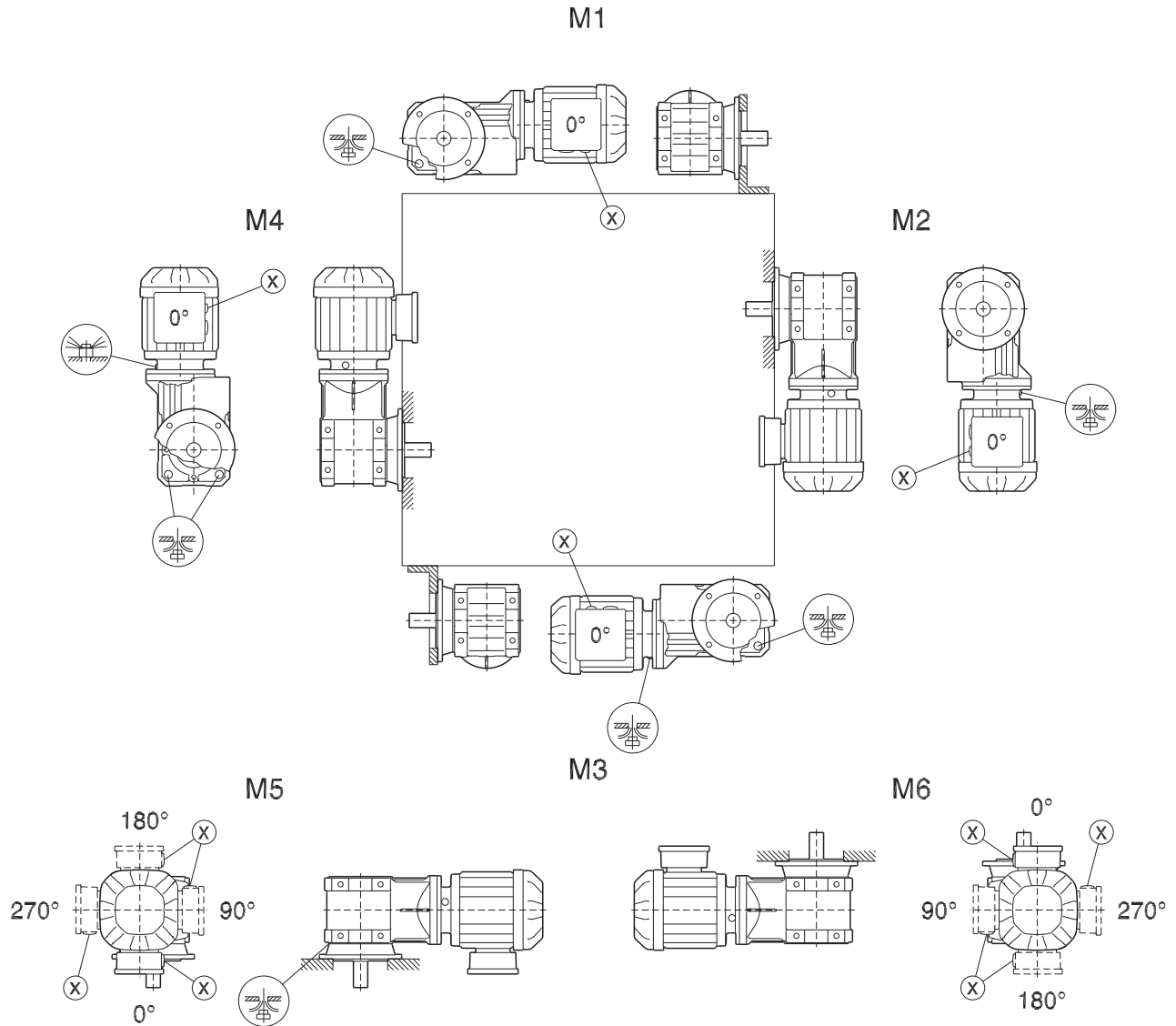
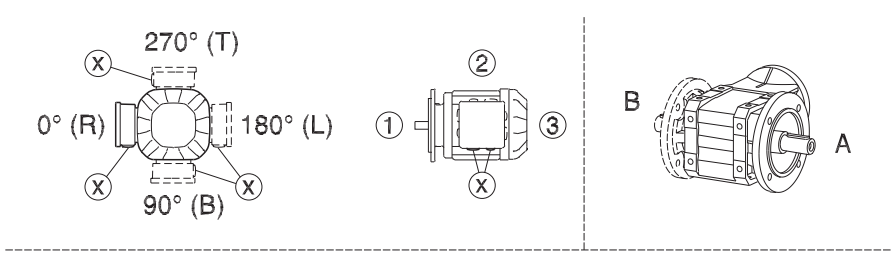
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

KF..B/KAF..B/KHF19B-29B

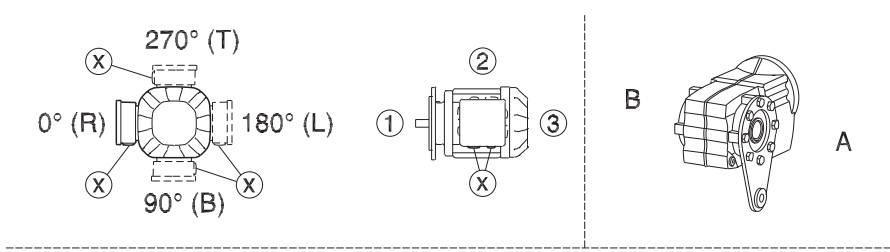
33 024 00 15^L



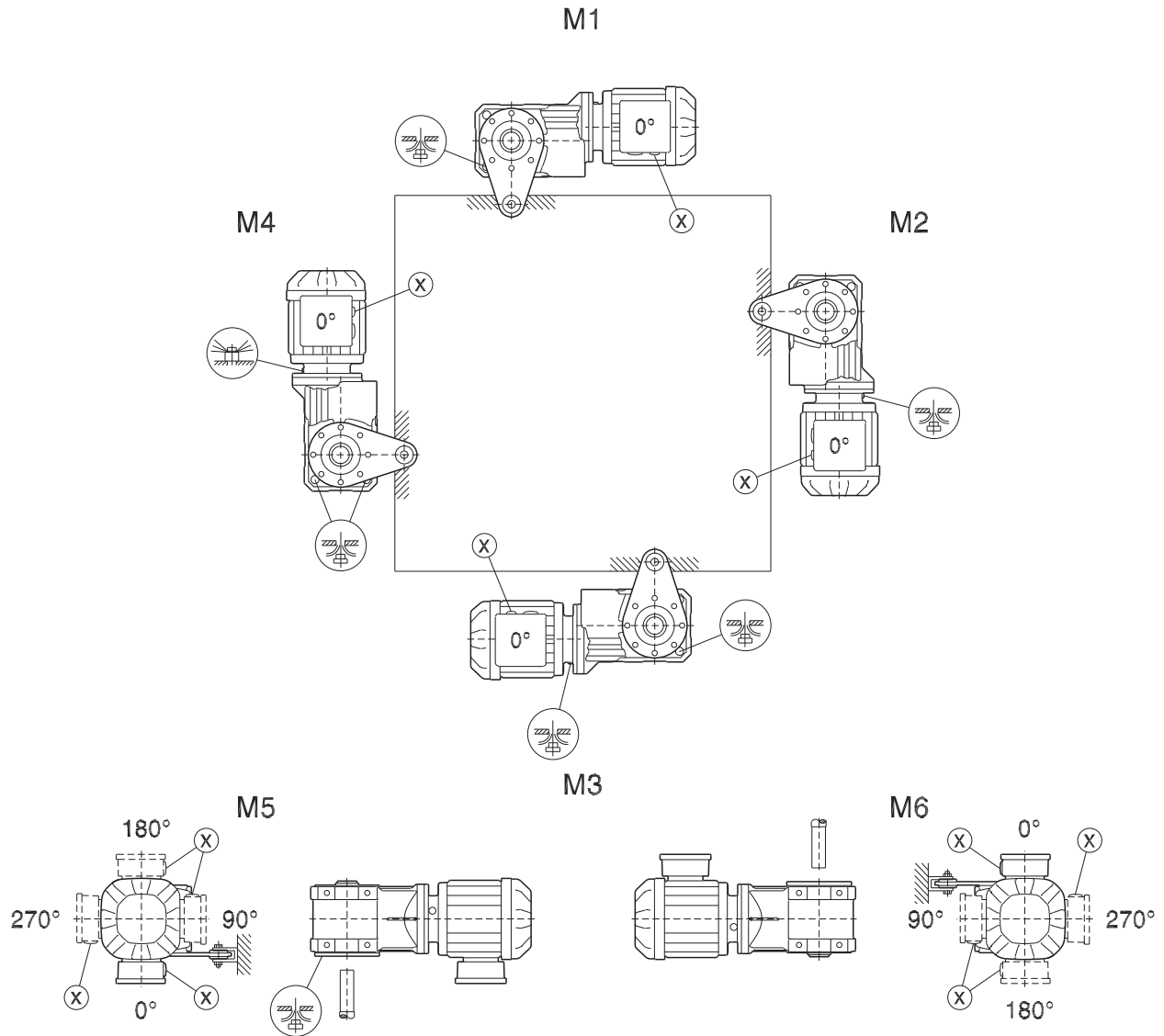
21933480/EN-US – 04/2018

KA..B/KH19B-29B

33 025 00 15^L



5



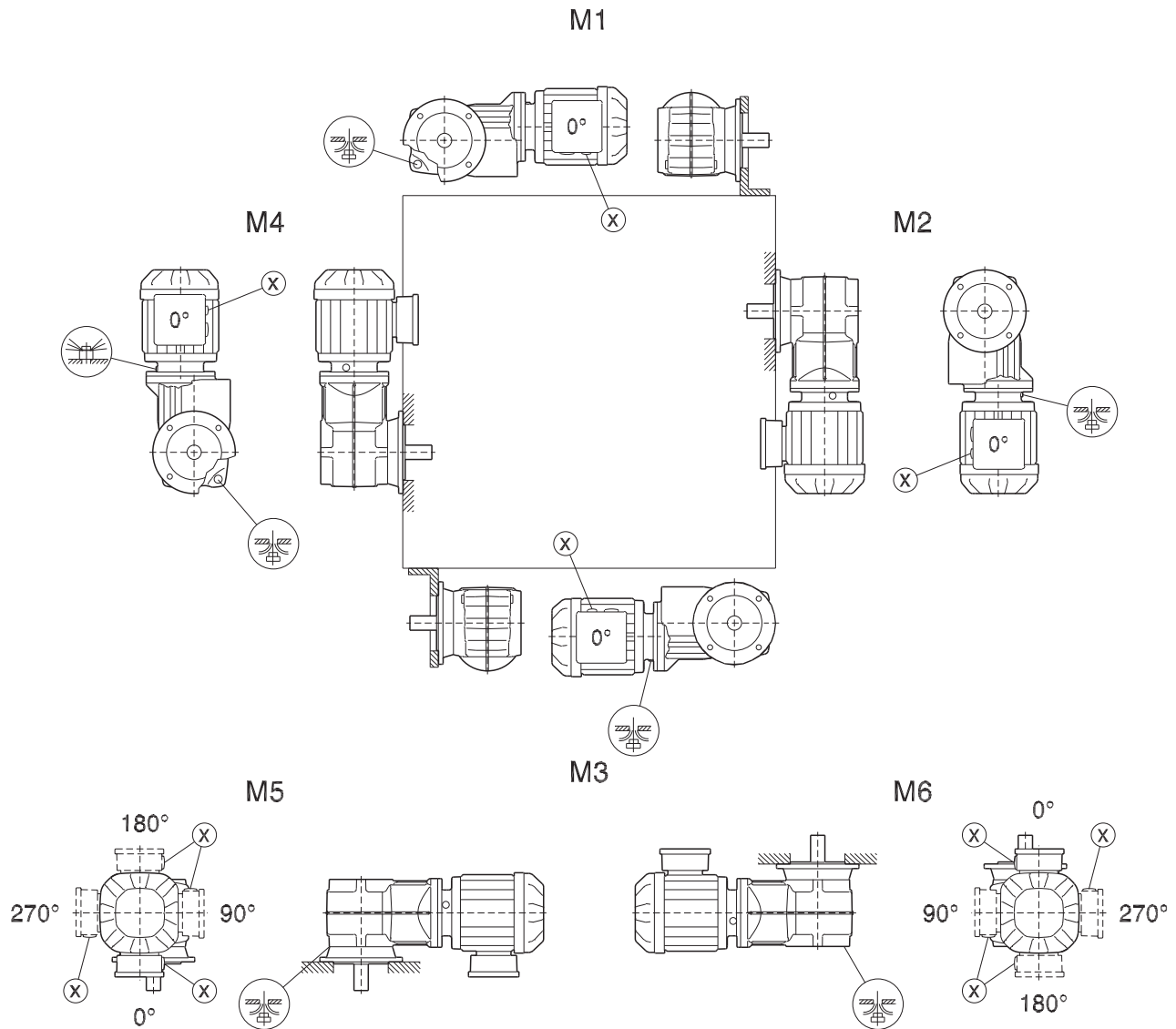
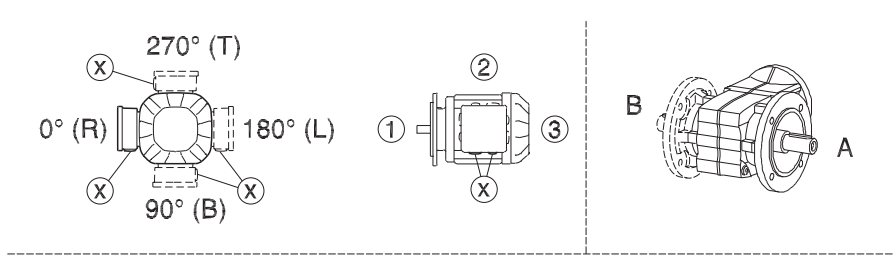
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

KF/KAF/KHF19-29

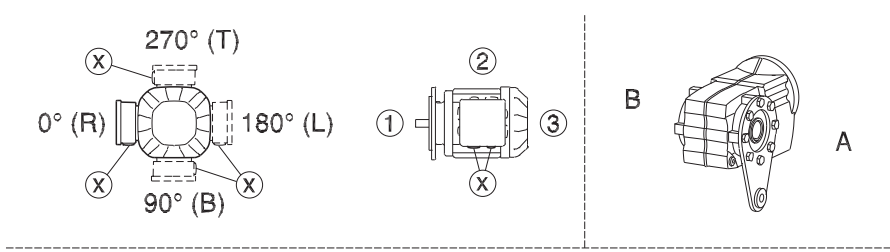
33 026 00 15^L



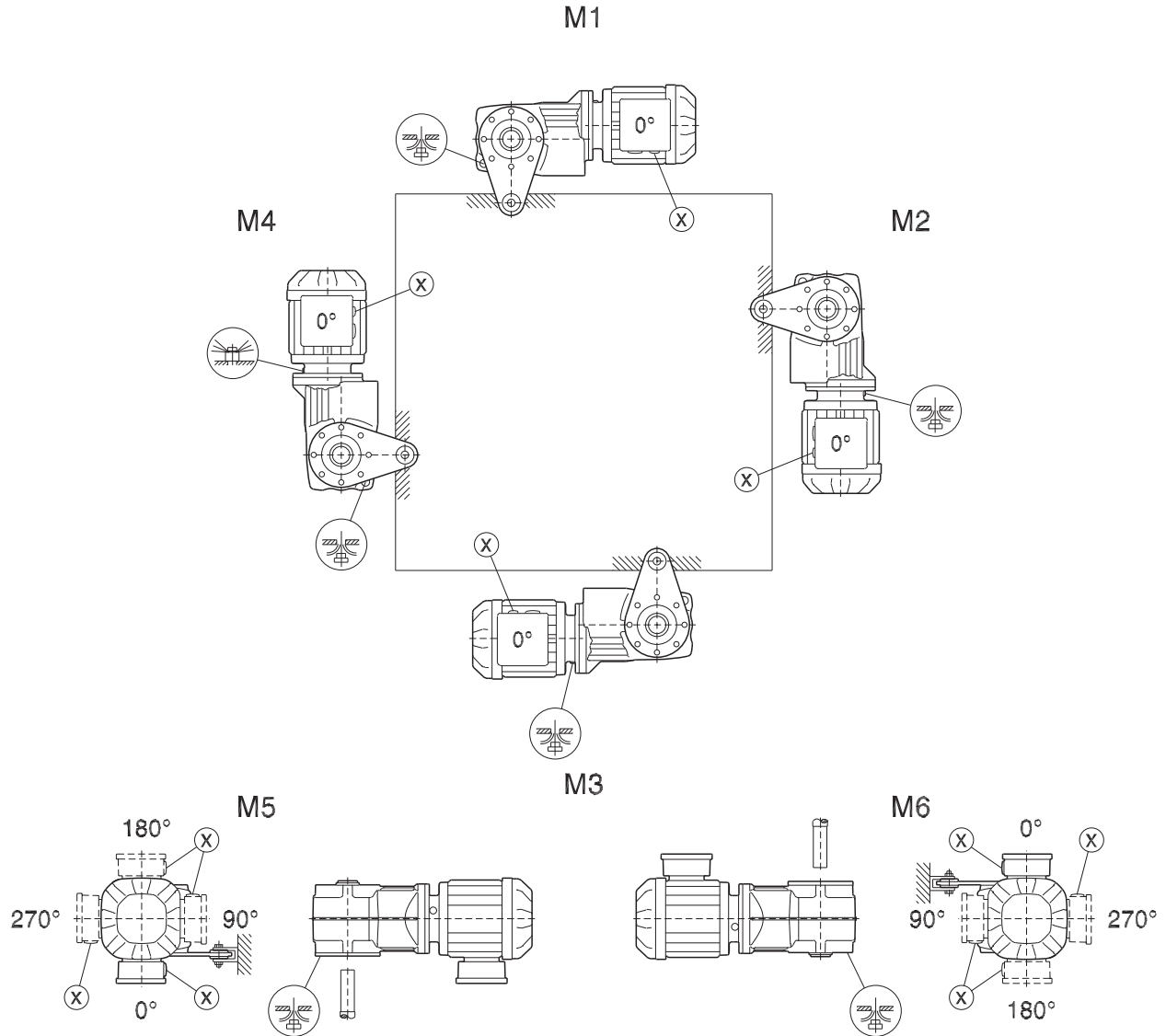
21933480/EN-US – 04/2018

KA/KH19-29

33 027 00 15^L



5



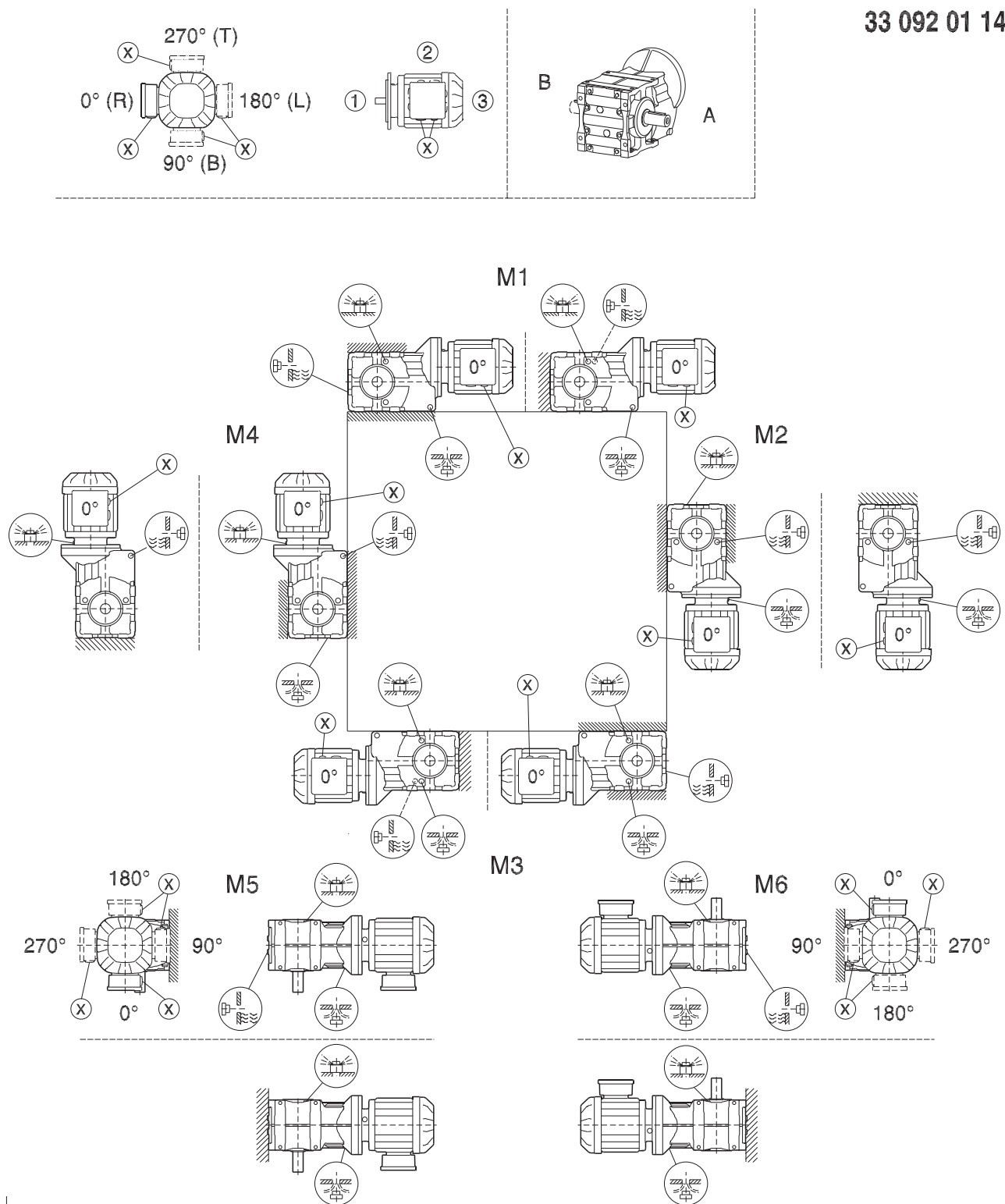
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

K39-49

33 092 01 14

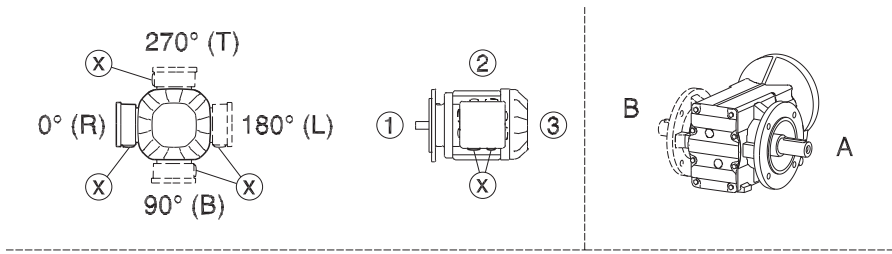


For M1, refer to the information in chapter "Allowable overhung load" (→ 53).

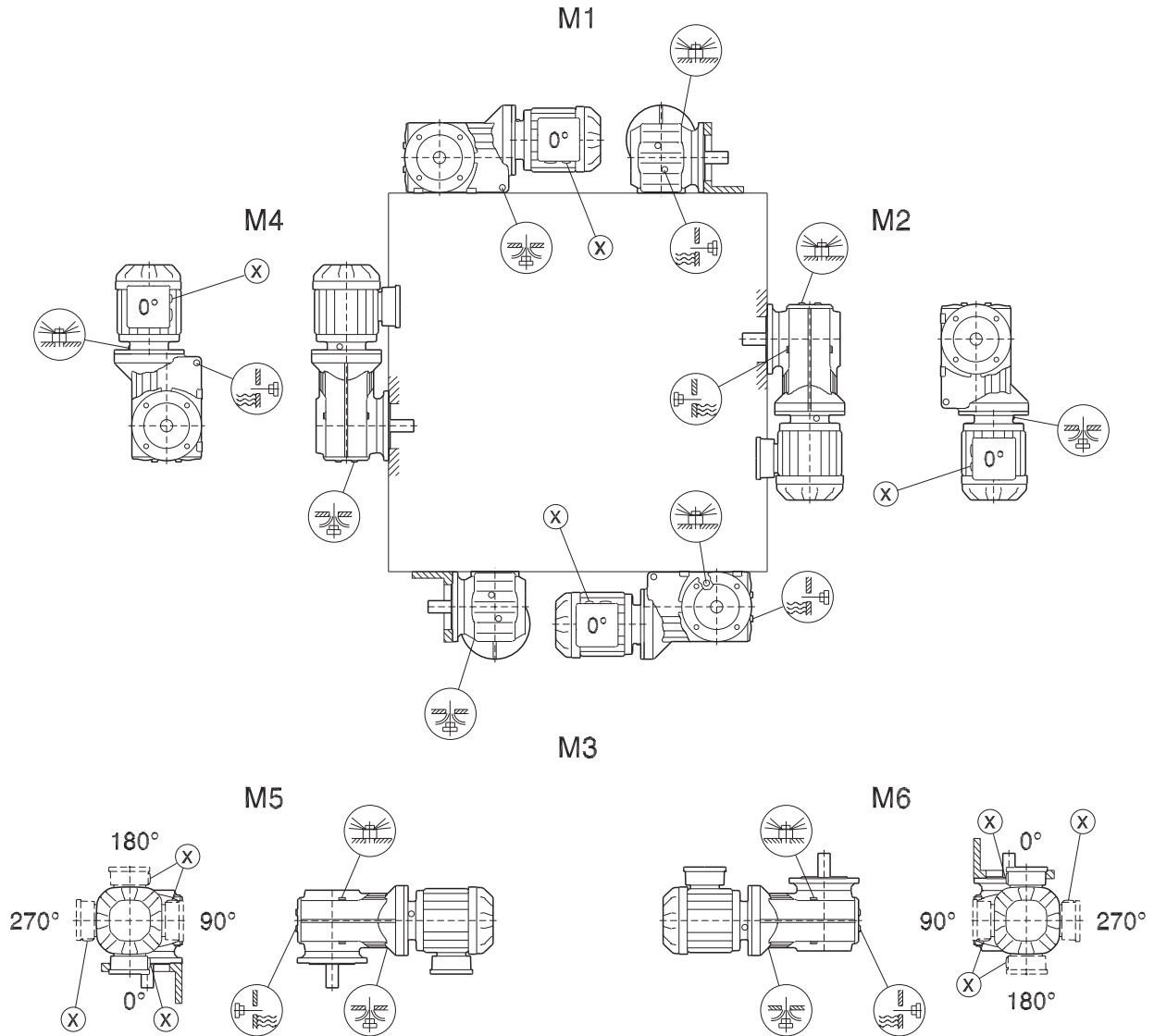
21933480/EN-US – 04/2018

KF/KAF/KHF/KTF39-49

33 093 00 14



5



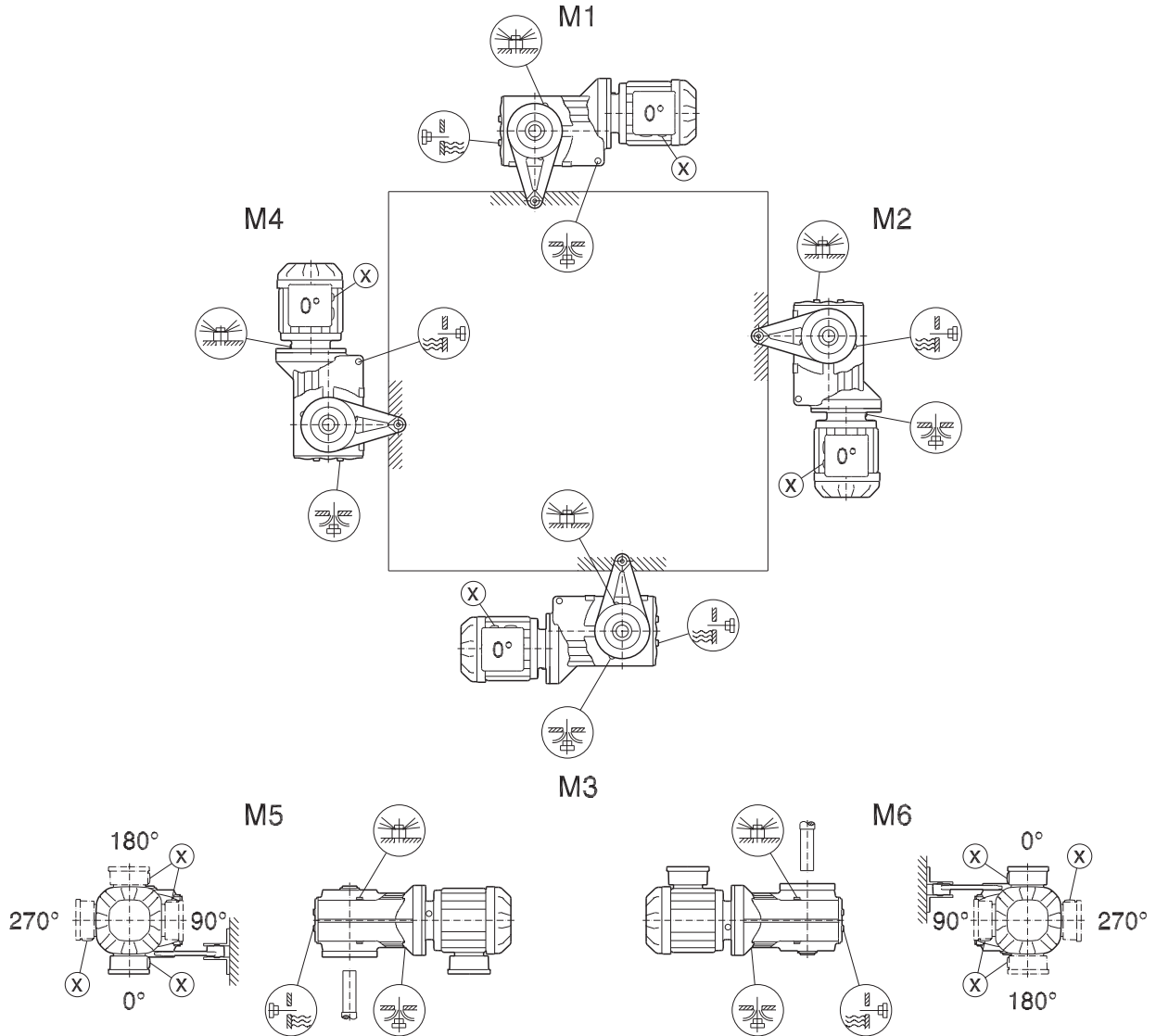
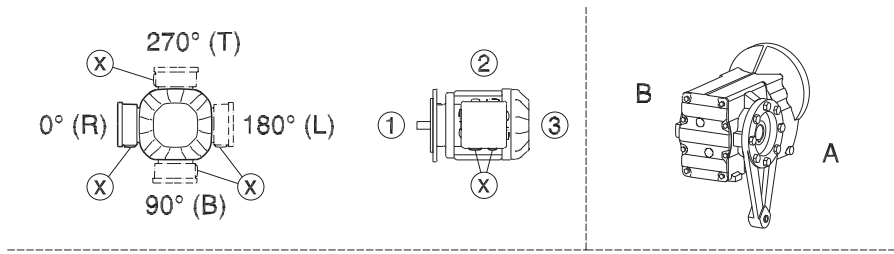
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

KA/KH/KT39-49

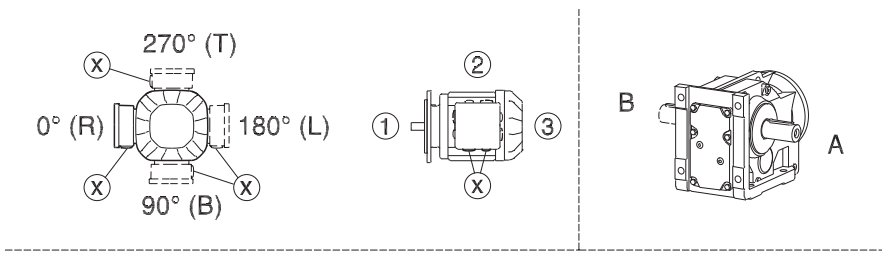
33 094 00 14



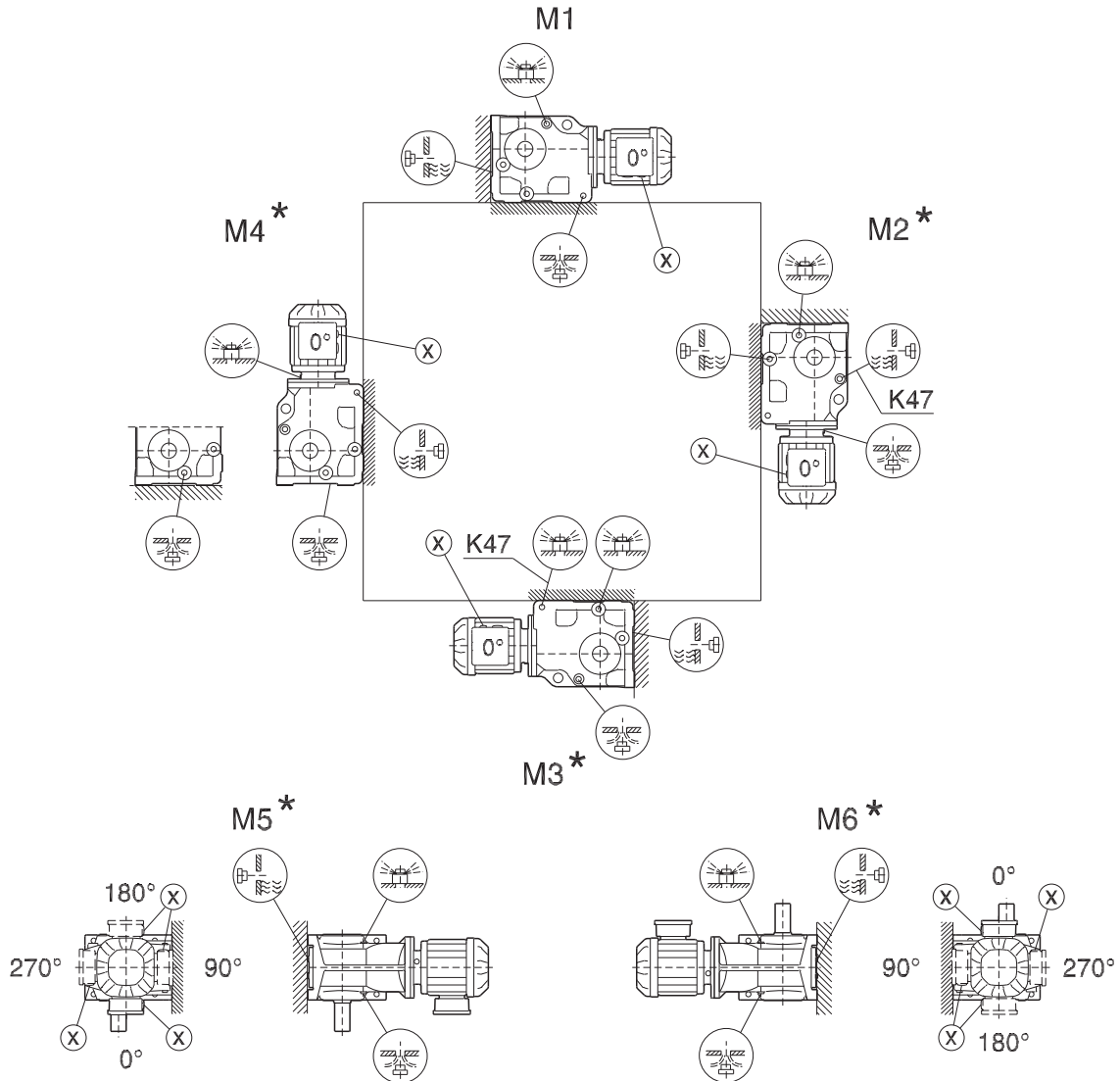
21933480/EN-US – 04/2018

K/KA..B/KH47B-157B, KV47B-107B

34 025 05 00



5



* (→ 71)

For M1, refer to the information in chapter "Allowable overhung load" (→ 53).

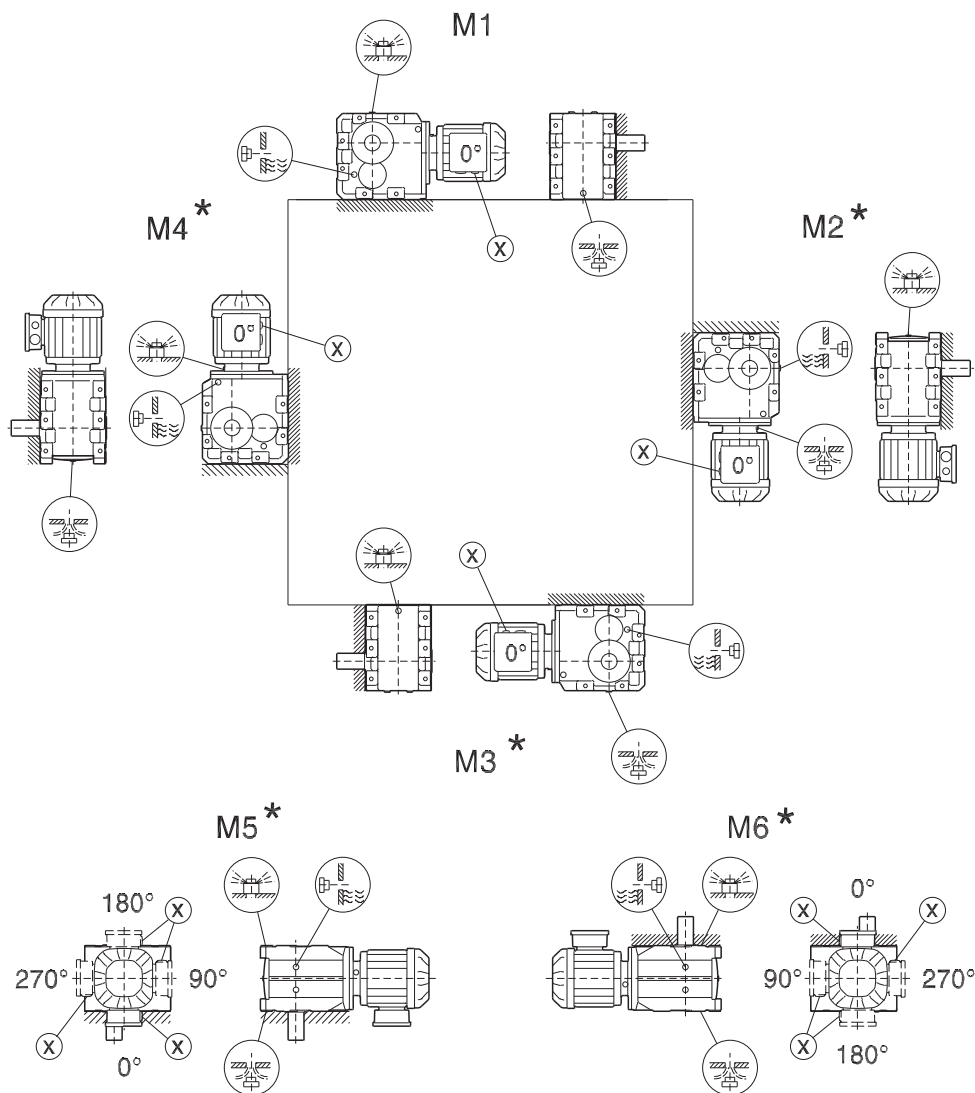
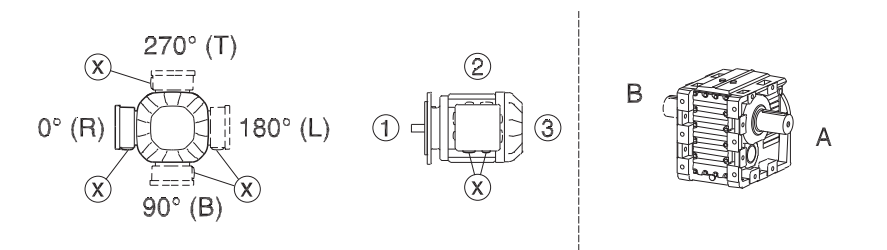
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

K167-187, KH167B-187B

34 026 05 00

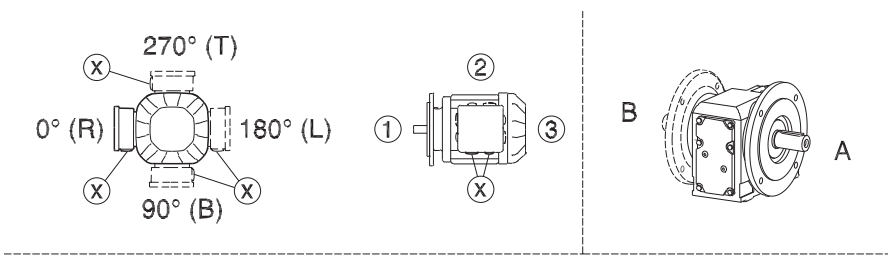


* (→ 71)

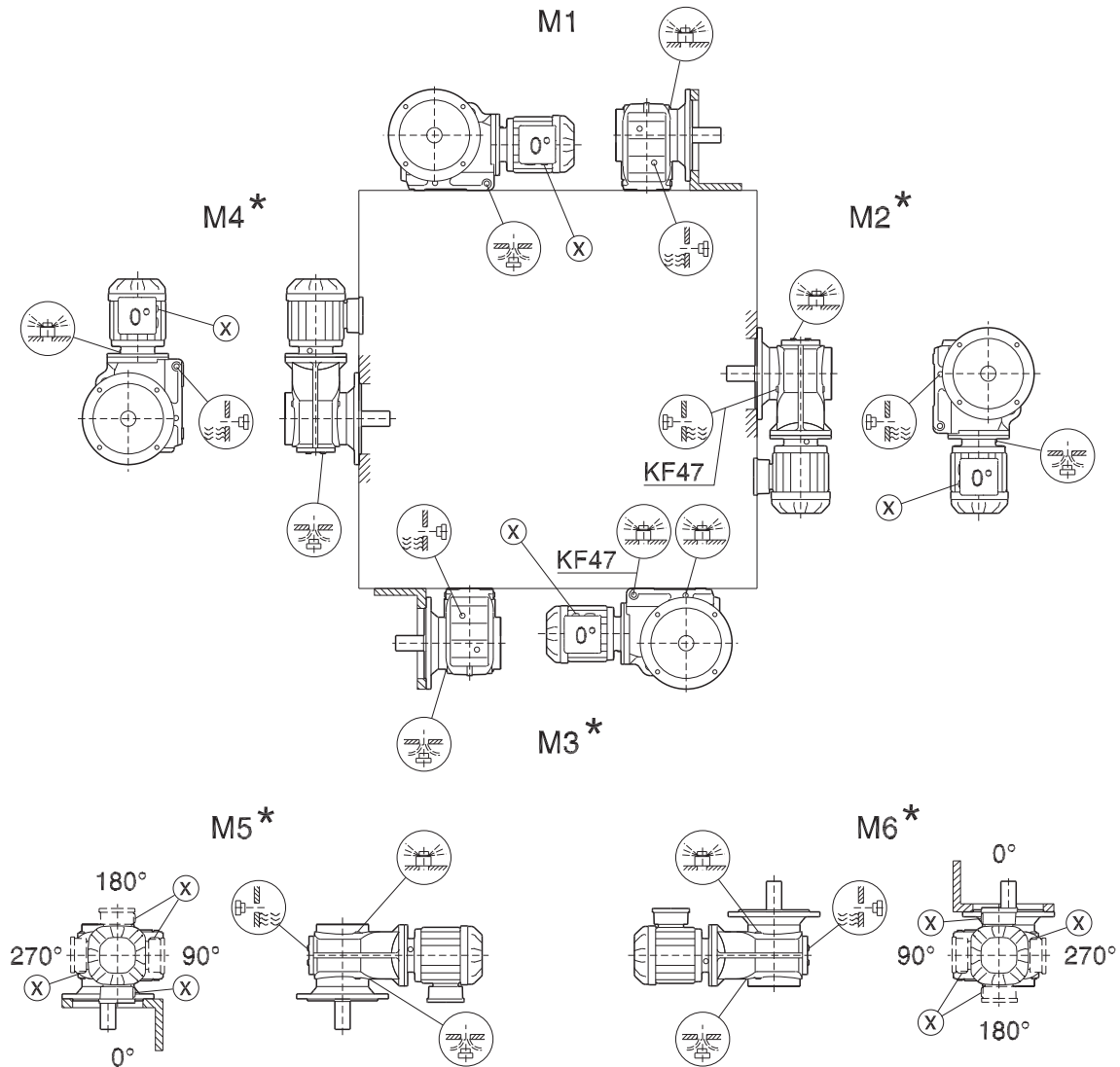
Also refer to the information in chapter "Allowable overhung load" (→ 53).

KF/KAF/KHF/KZ/KAZ/KHZ37-157, KVF/KVZ37-107

34 027 04 00



5



* (→ 71)

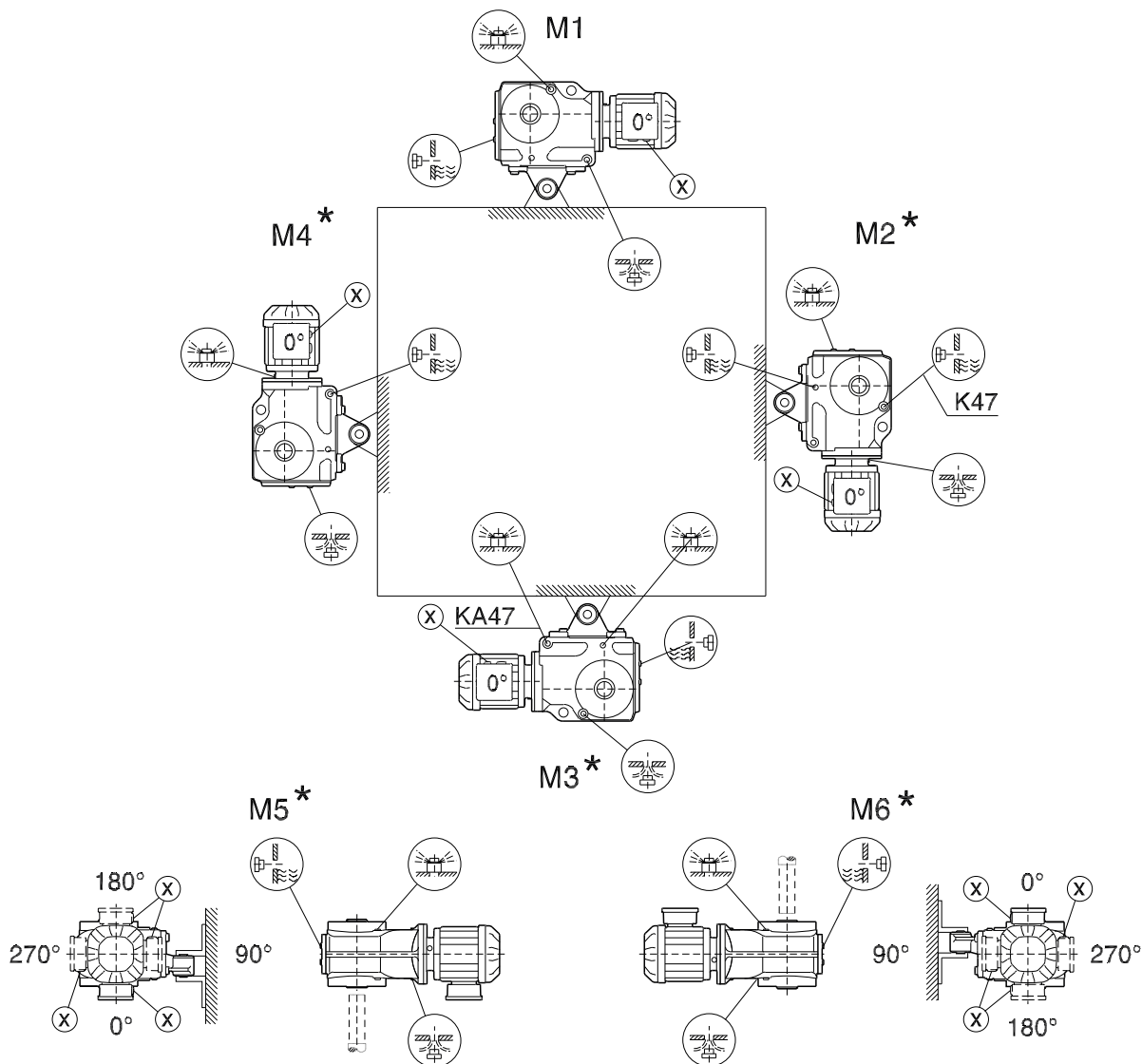
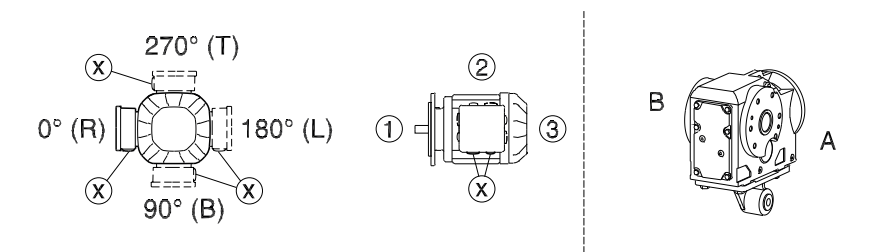
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-bevel

KA/KH37-157, KV37-107, KT37-97

39 025 05 00

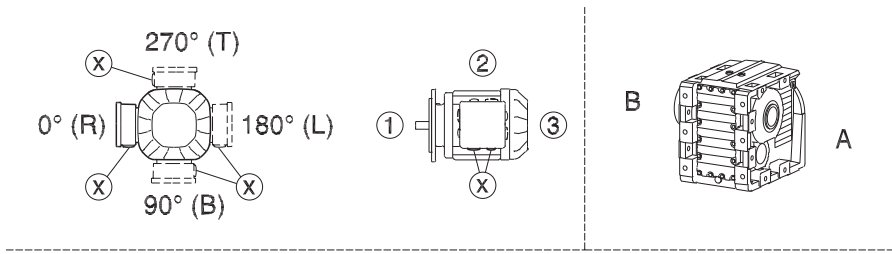


* (→ 71)

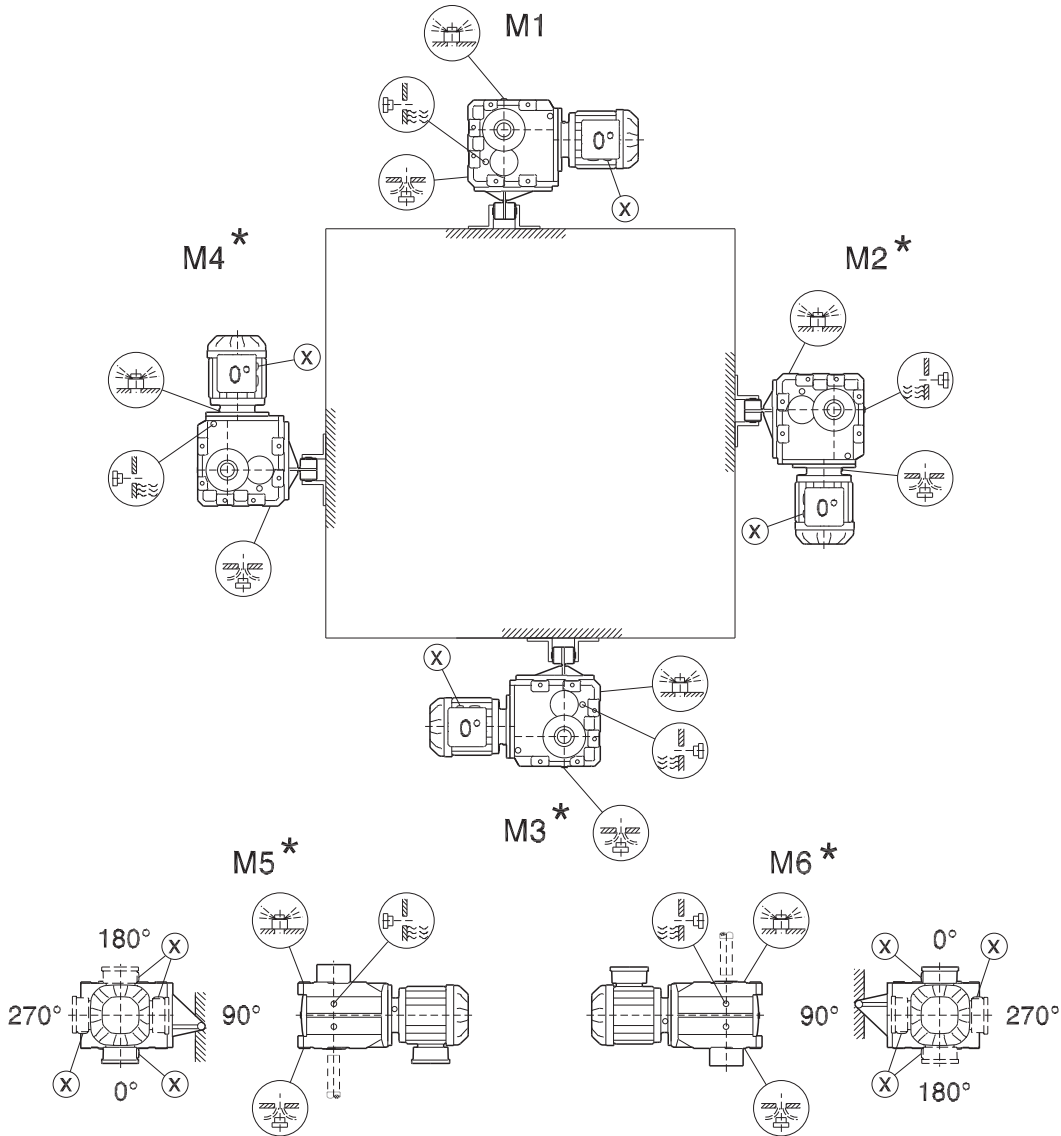
21933480/EN-US – 04/2018

KH167-187

39 026 05 00



5



* (→ 71)

21933480/EN-US – 04/2018

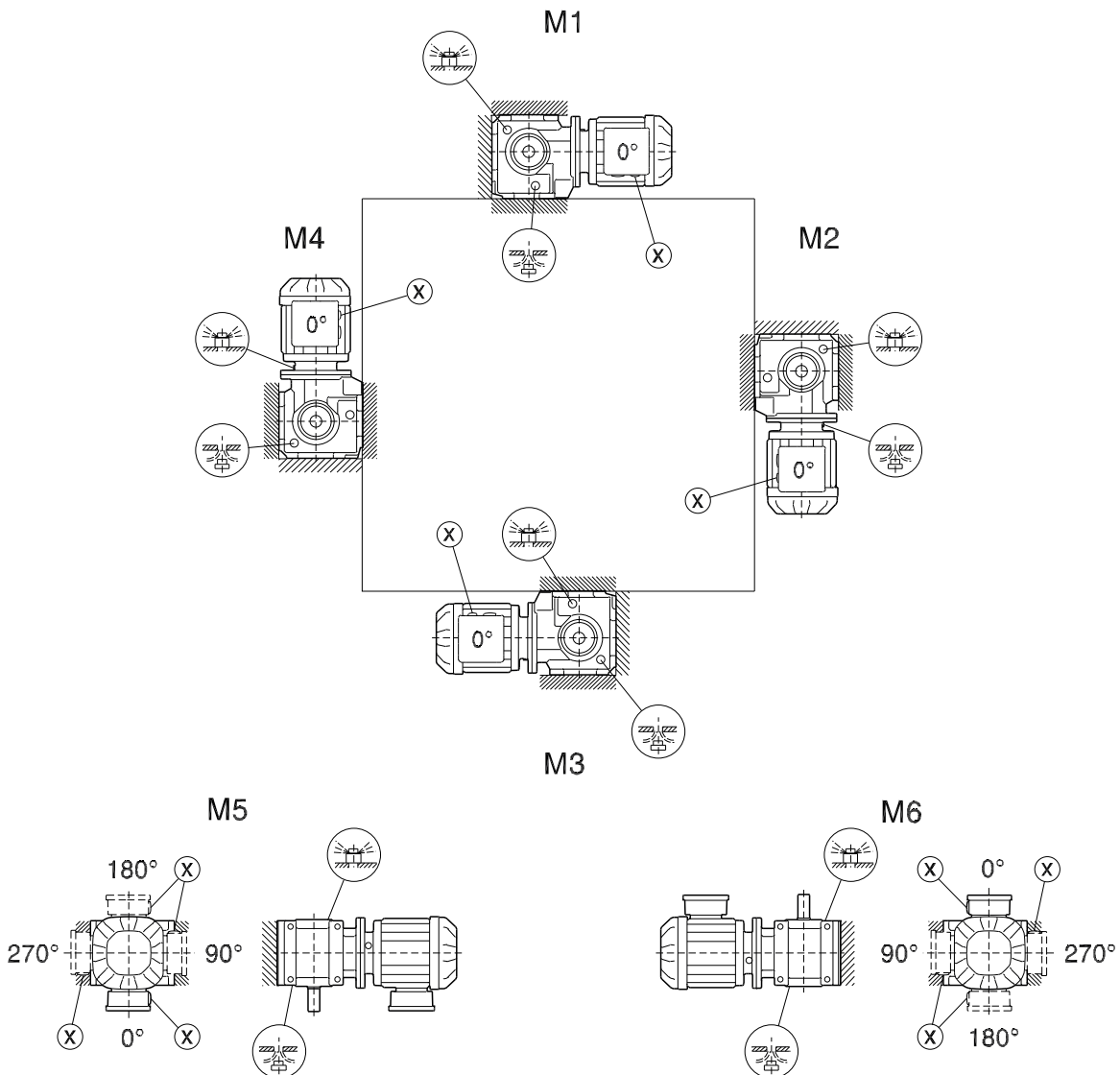
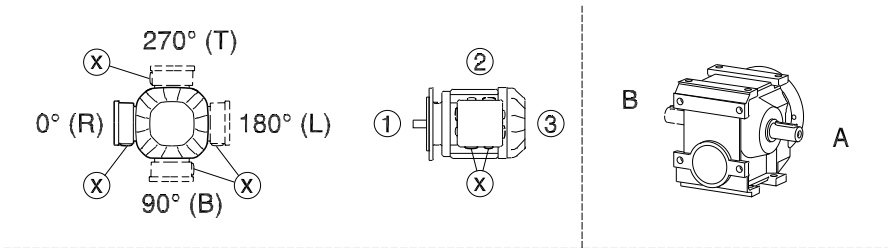
5 Order information and mounting positions

Mounting positions – Helical-worm

5.6 Mounting positions – Helical-worm

S37

05 025 04 00

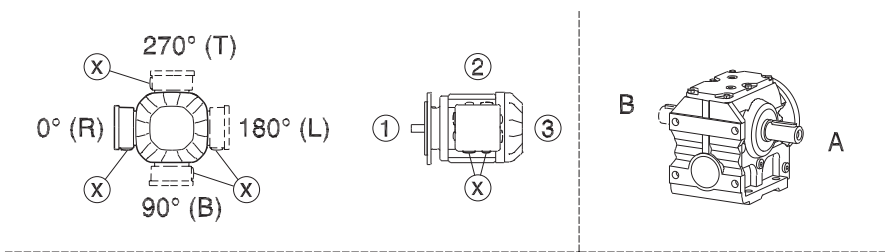


For M1, refer to the information in chapter "Allowable overhung load" (→ 53).

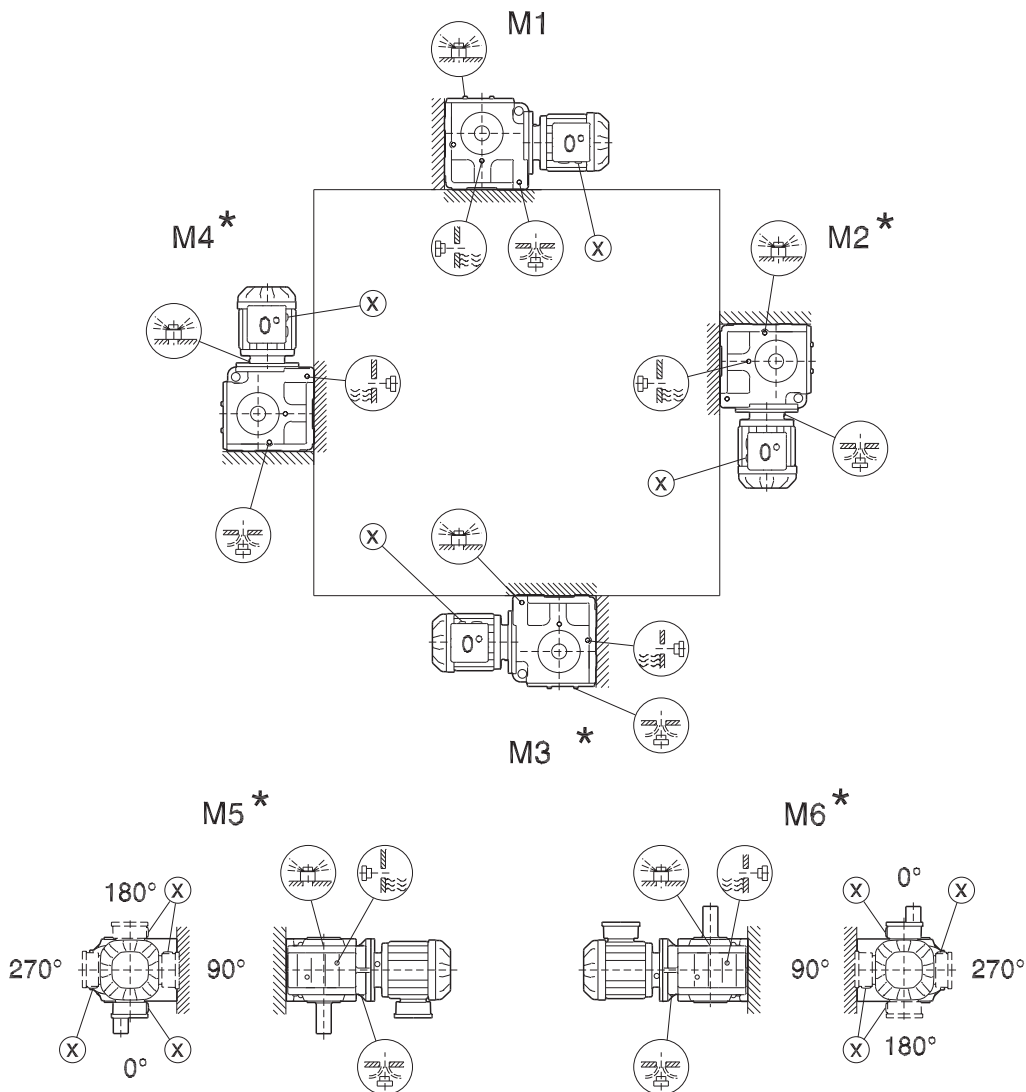
21933480/EN-US – 04/2018

S47-S97

05 026 04 00



5



* (→ 71)

For M1, refer to the information in chapter "Allowable overhung load" (→ 53).

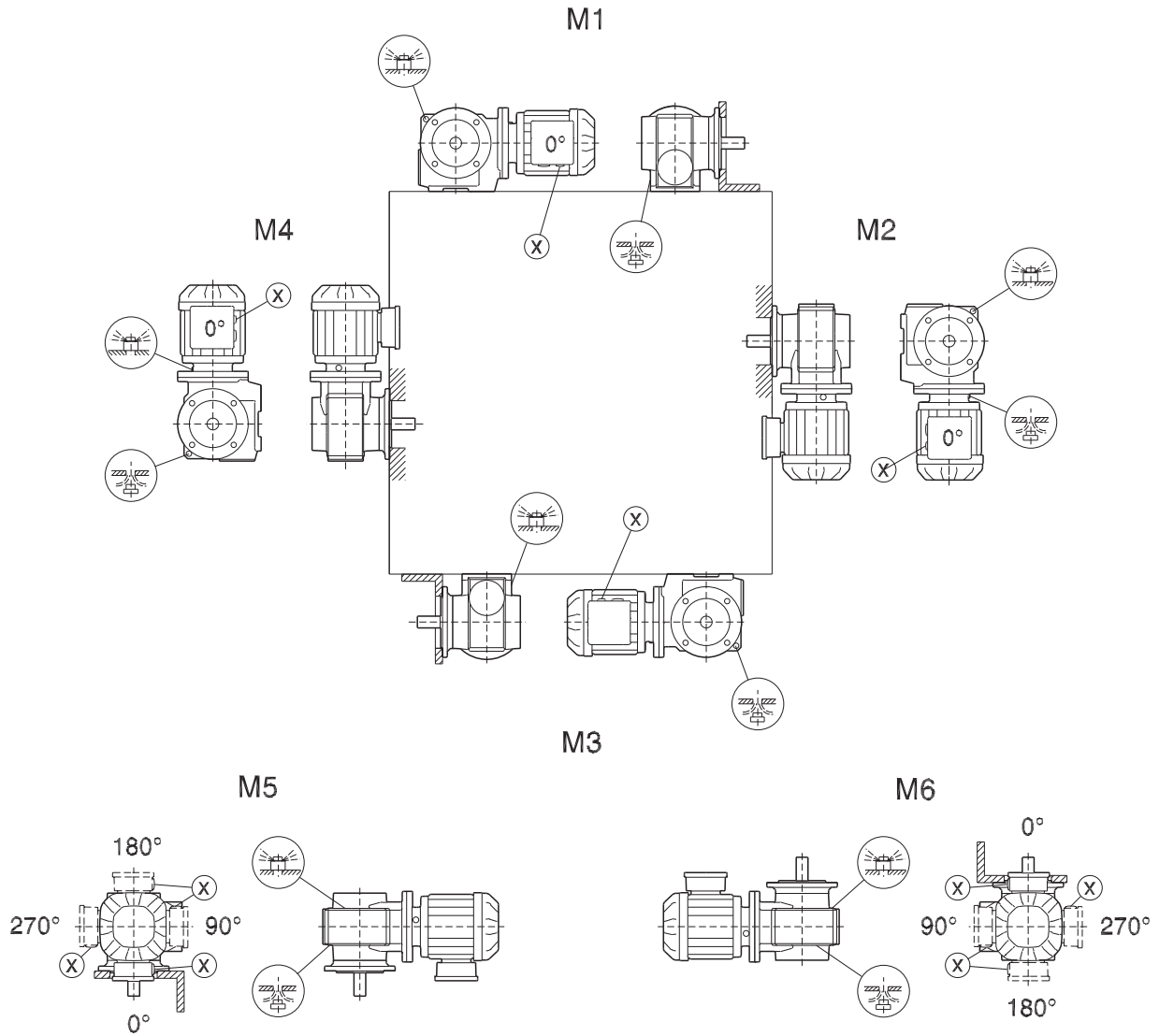
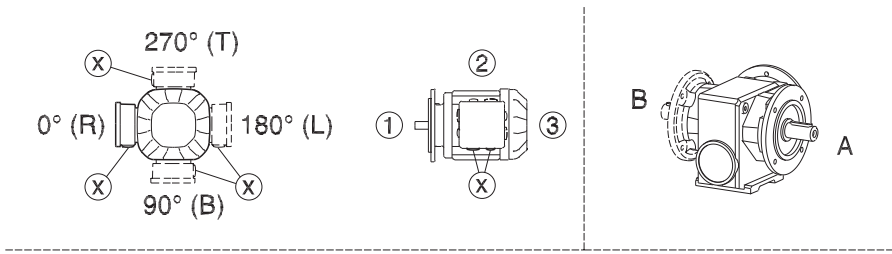
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-worm

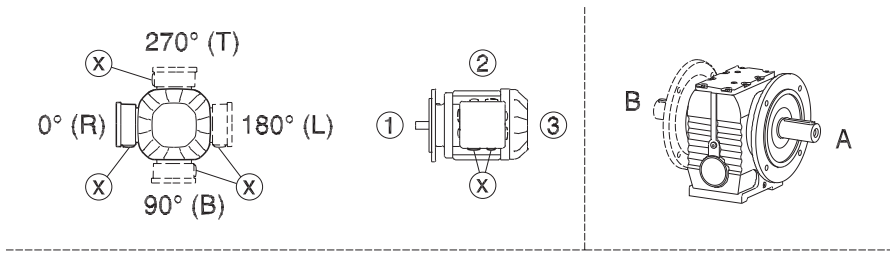
SF/SAF/SHF37

05 027 04 00

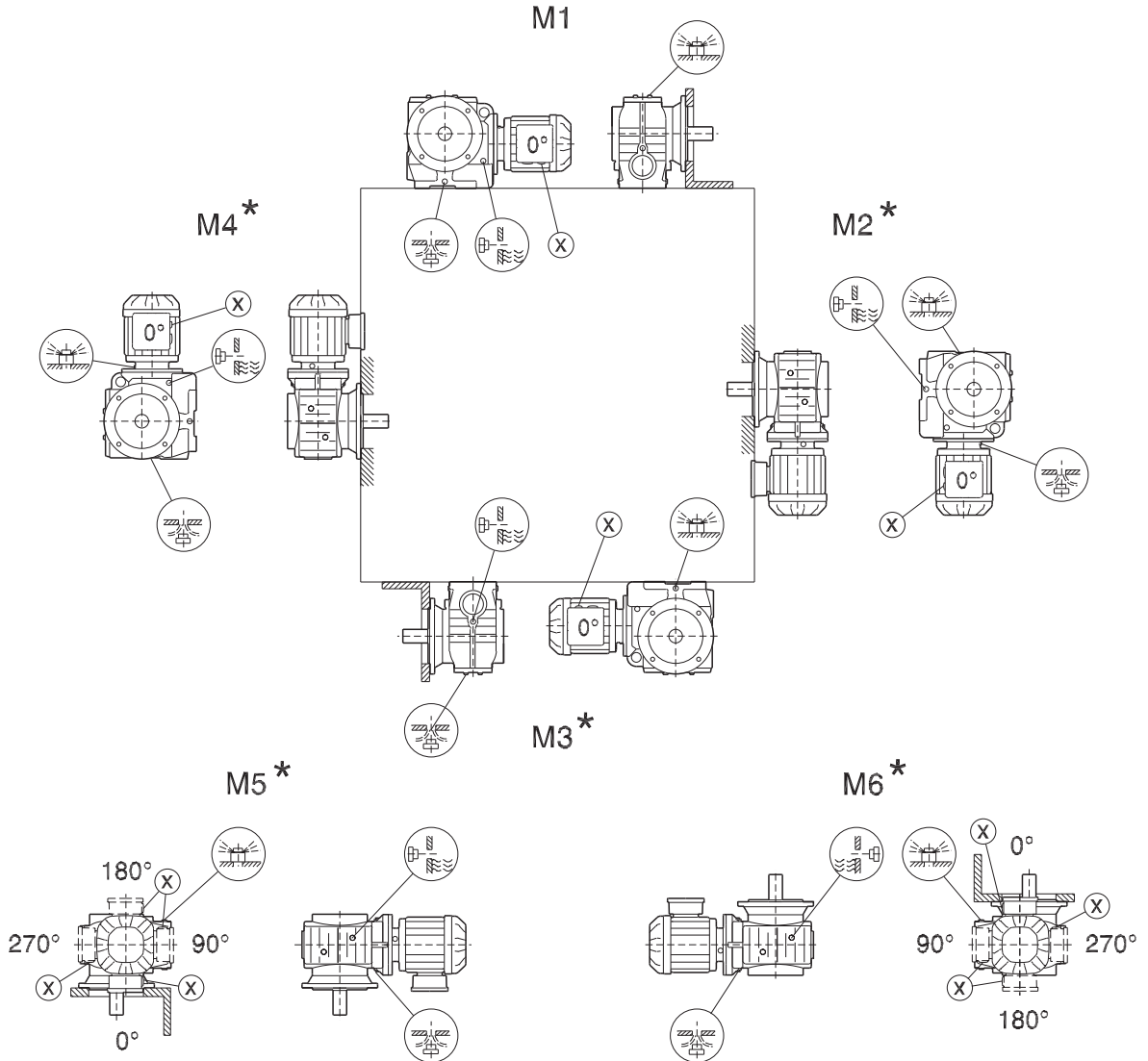


SF/SAF/SHF/SAZ/SHZ47-97

05 028 04 00



5



* (→ 71)

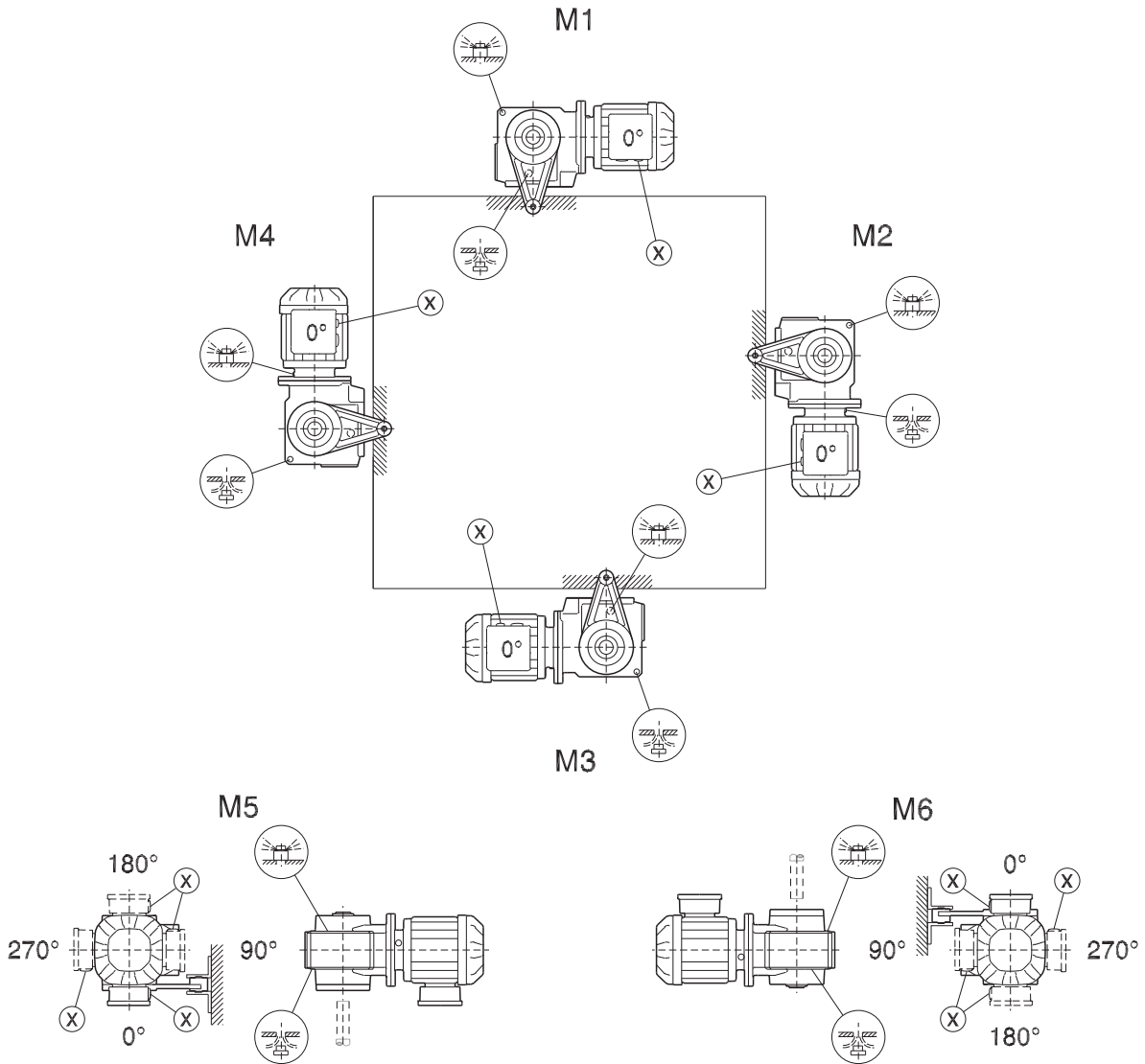
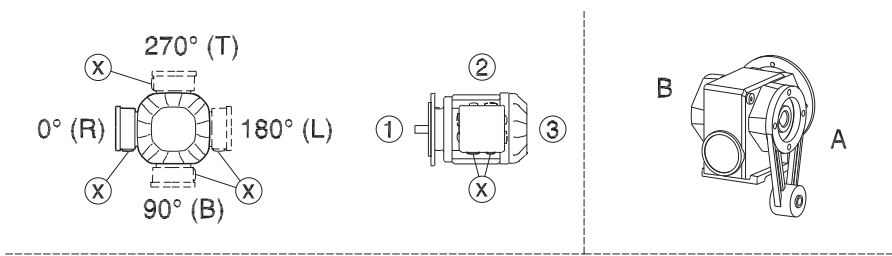
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – Helical-worm

SA/SH/ST37

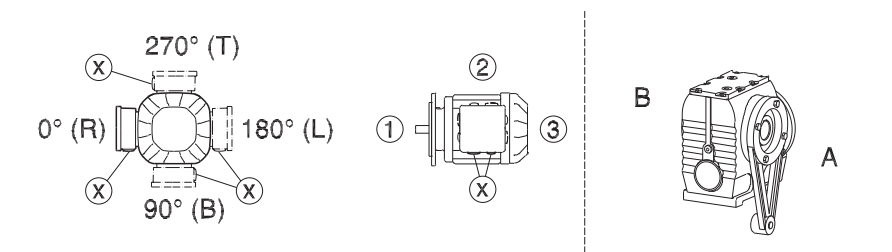
28 020 05 00



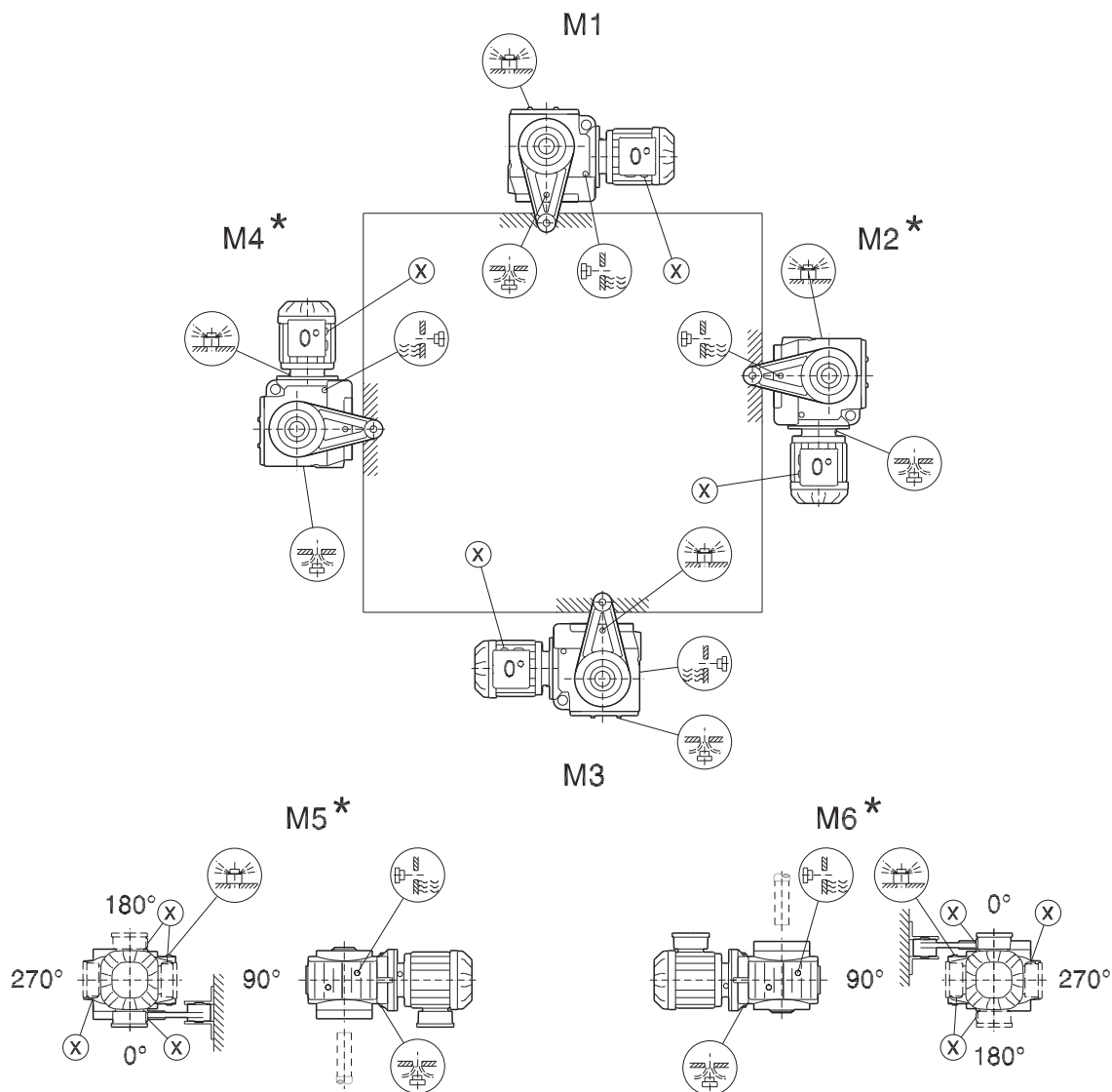
21933480/EN-US – 04/2018

SA/SH/ST47-97

28 021 04 00



5



* (→ 71)

21933480/EN-US – 04/2018

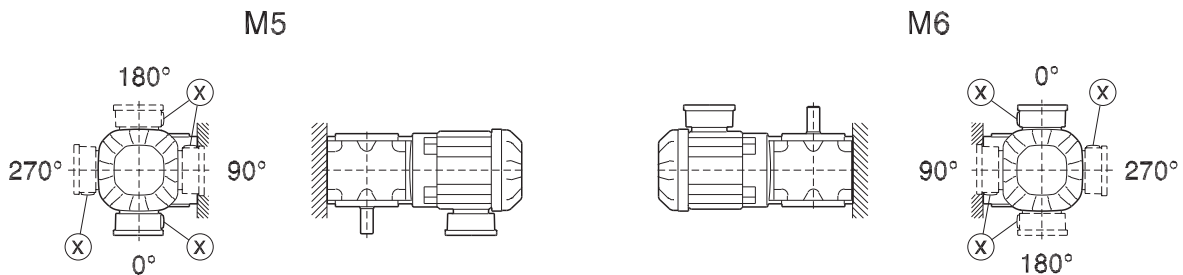
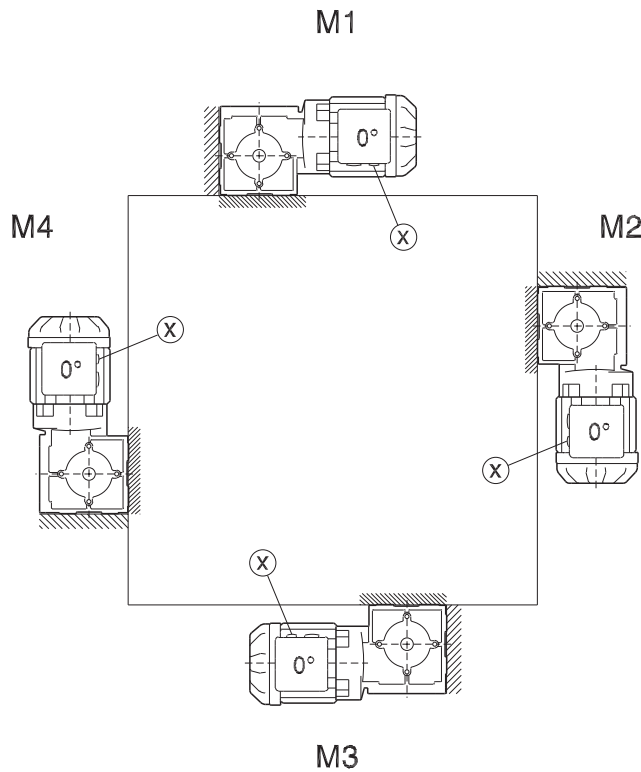
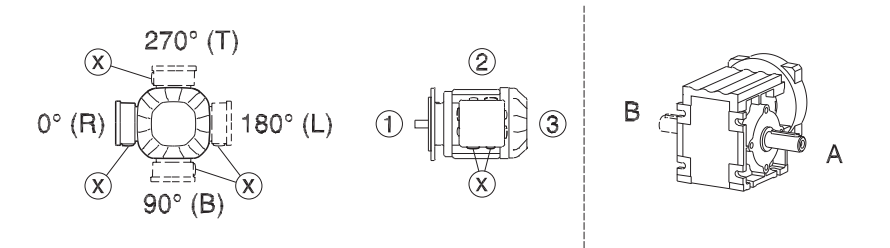
5 Order information and mounting positions

Mounting positions – SPIROPLAN®

5.7 Mounting positions – SPIROPLAN®

W10-30

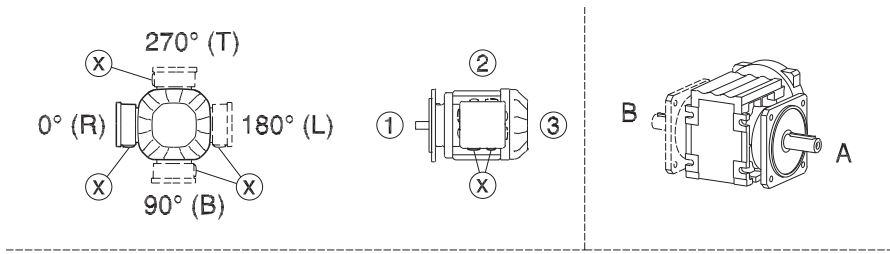
20 001 02 02



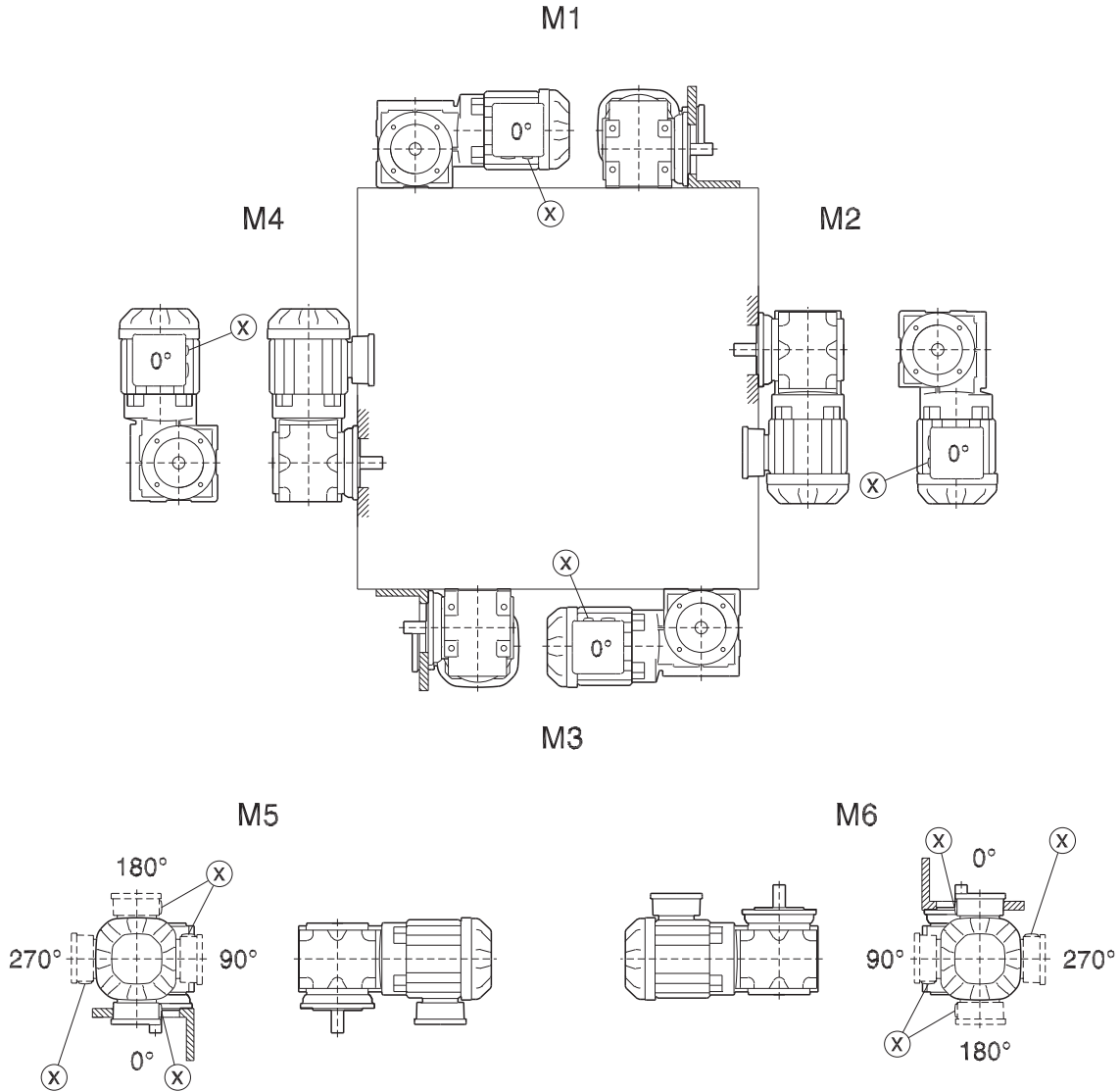
21933480/EN-US – 04/2018

WF10-30

20 002 02 02



5



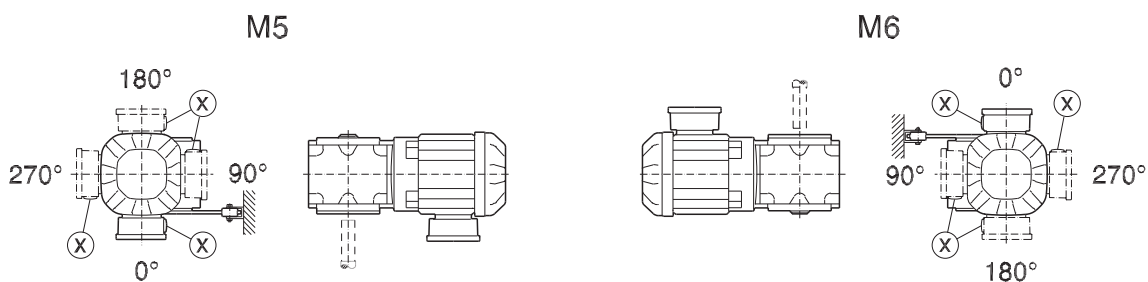
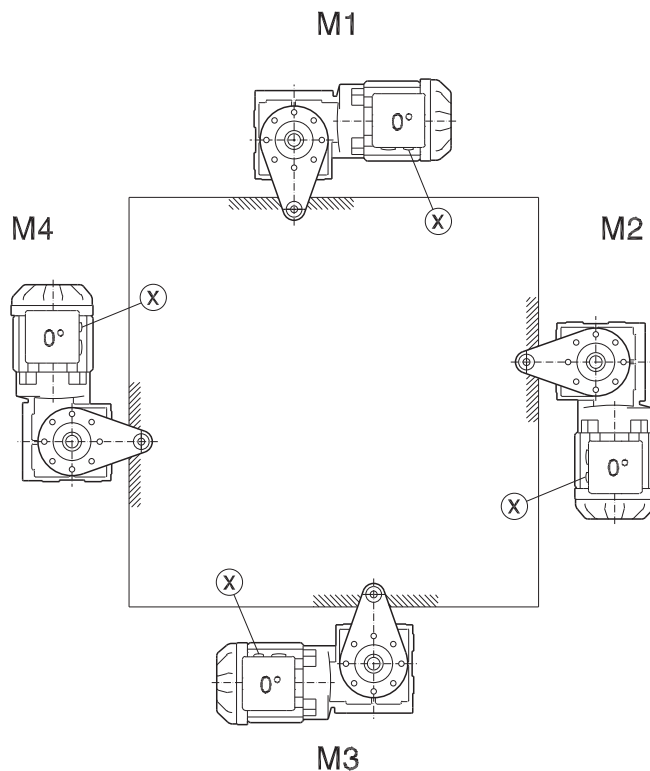
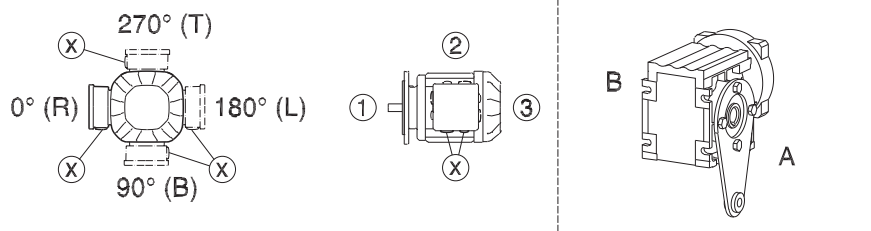
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – SPIROPLAN®

WA10-30

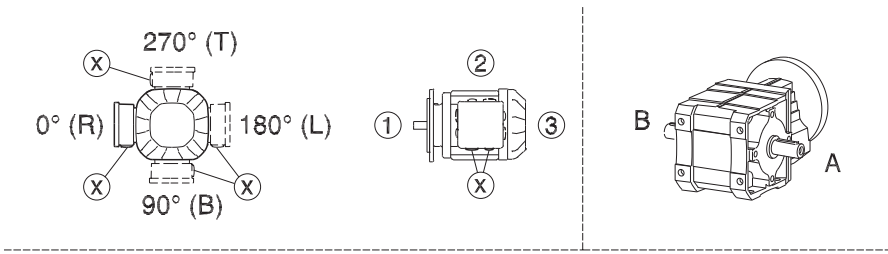
20 003 03 02



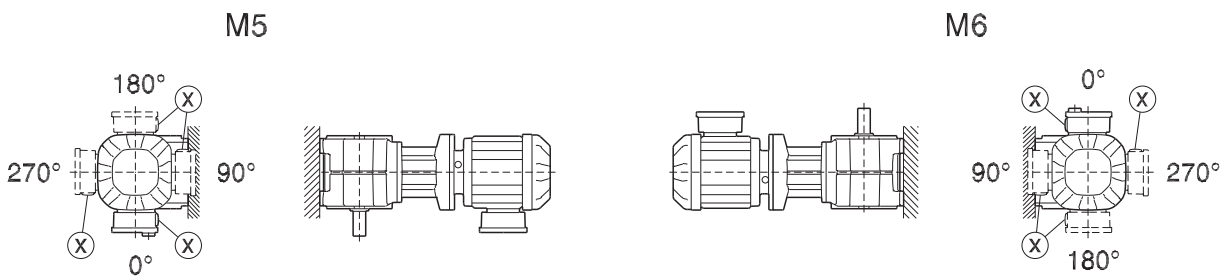
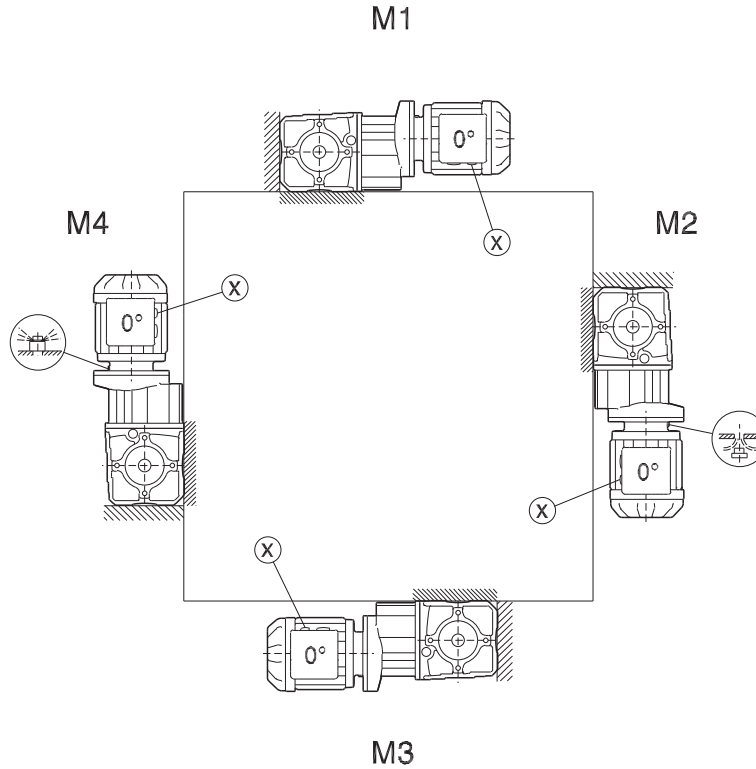
21933480/EN-US – 04/2018

W/WA..B/WH37B-47B

20 012 02 07



5



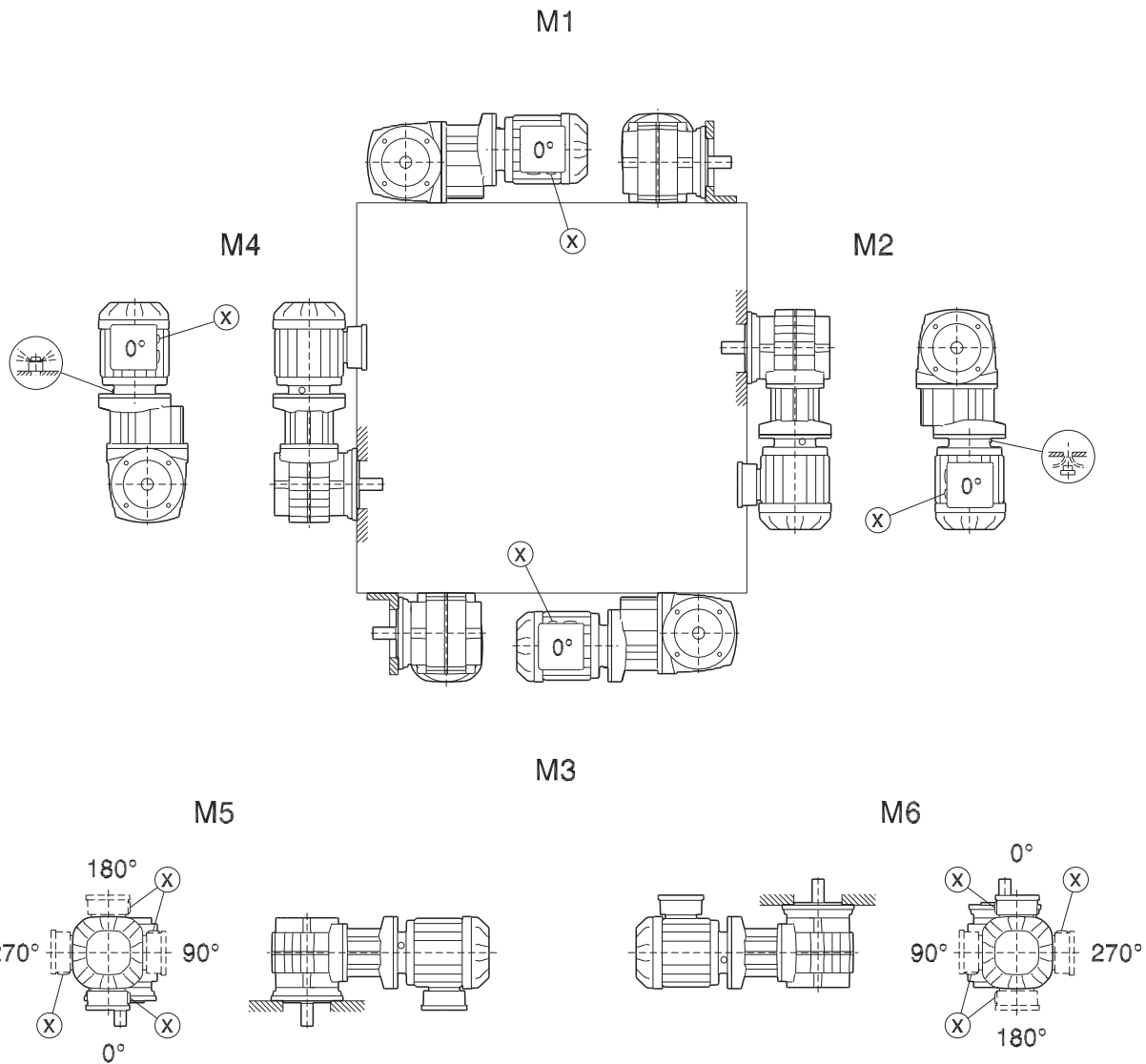
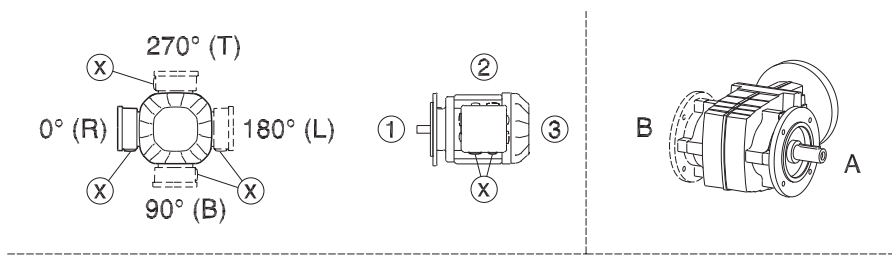
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – SPIROPLAN®

WF/WAF/WHF37-47

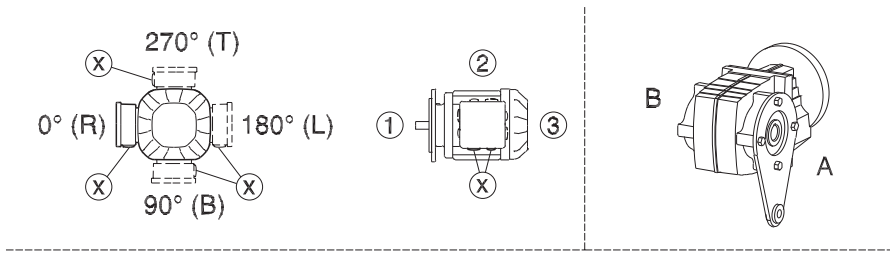
20 013 02 07



21933480/EN-US – 04/2018

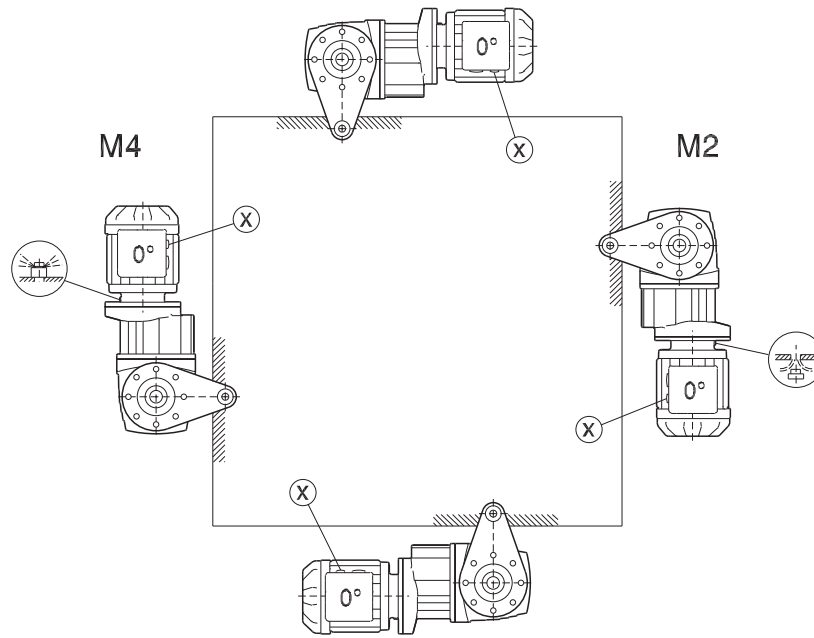
WA/WH/WT37-47

20 014 02 07



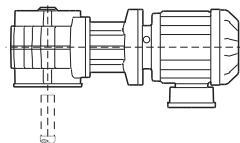
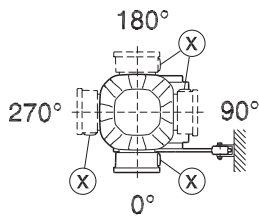
5

M1

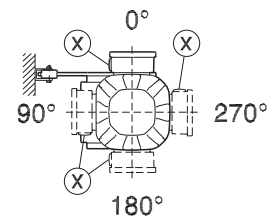


M3

M5



M6



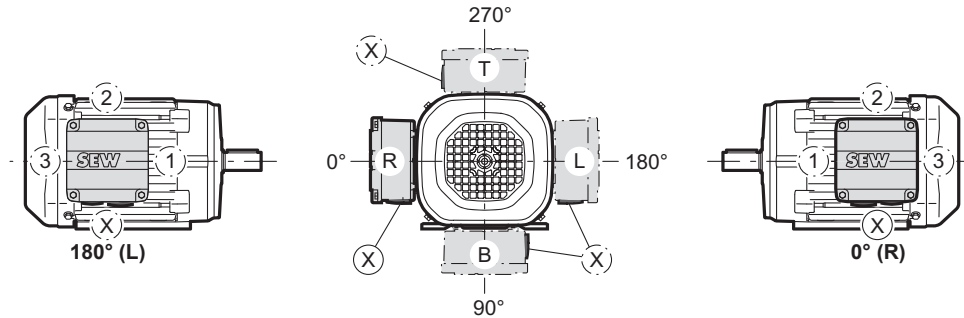
21933480/EN-US – 04/2018

5 Order information and mounting positions

Mounting positions – AC motors without gear units

5.8 Mounting positions – AC motors without gear units

5.8.1 Terminal box position and cable entry



8670476811

5.8.2 Mounting positions

B3 	B6 	B7
B8 	V5 	V6
B5 	V1 	V15
B35 	V18 	V3
B14 	V17 	V36
B34 	V19 	V37
B65 	B75 	B85

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21933480/EN-US – 04/2018

6 Design and operating notes

6.1 Lubricants

6.1.1 General information

INFORMATION





Unless a special arrangement is made, SEW-EURODRIVE supplies the drives with a lubricant fill adapted for the specific gear unit and mounting position. The mounting position must be specified with the order (→ 69).

When the mounting position is changed, the lubricant fill quantity must be adjusted (see “Oil fill quantities” (→ 113)). Therefore, to maintain your warranty rights, please consult with SEW-EURODRIVE when changing a mounting position.

6.1.2 Bearing greases

The gear unit rolling bearings are factory-filled with the greases listed below. SEW-EURODRIVE recommends re-greasing the rolling bearings with a grease filling at the same time as changing the oil.

	Type	Ambient temperature	Manufacturer	Type
Gear unit bearings	mineral	-20 °C to +60 °C	Shell	Gadus S2 V220 2
	synthetic	-40 °C to +80 °C	Shell	Gadus S5 V100 2
		-20 °C to +40 °C	Klüber	Klübersynth UH1 14-151
		-20 °C to +40 °C	Klüber	Klüber M 72-82
Motor bearings	mineral	-20 °C to +80 °C	ExxonMobil	Polyrex EM
	Synthetic	-40 °C to +60 °C	Kyodo Yushi	Multemp SRL

INFORMATION



The following grease quantities are required:

- For **fast-running** bearings (gear unit input side): Fill the cavities between the rolling elements one-third full with grease.
- For **slow-running** bearings (gear unit output end): Fill the cavities between the rolling elements two-thirds full with grease.

6.1.3 Lubrication Table

The lubricant table on the following page shows the approved lubricants for SEW-EURODRIVE gear units.

Key to lubricant table

API GL-5	= American Petroleum Institute GL-5 type oil
CLP	= Mineral oil
CLP PG	= Synthetic polyglycol
CLP HC	= Synthetic hydrocarbons
E	= Ester oil (water hazard class 1 (German regulation – "WKG"))
NSF-H1	= Synthetic, NSF H1 registered food grade
PSS	= PSS next to the lubricant indicates compatibility with the radial oil seal type PSS (Premium Sine Seal)
X	= Optional oil, alternate viscosity
XX	= Optional oil, standard viscosity
std	= Standard oil, standard viscosity

- 1) Helical-worm gear units with CLP PG oil: please consult SEW-EURODRIVE
- 2) Special lubricant for SPIROPLAN® gear units only
- 3) Gear unit service factor, SEW $f_B \geq 1.2$ is required
- 4) Observe the critical starting behavior at low temperatures.
- 5) Low-viscosity grease



Lubricant for the food industry (food grade oil)



Biodegradable oil (lubricant for agriculture, forestry, fisheries, and water management)



Available at all SEW (USA) facilities








INFORMATION



The lubricant recommendation in no way represents a guarantee as to the quality of the lubricant delivered by each respective supplier. Each lubricant manufacturer is responsible for the quality of their product. Thus the following lubricant table is not binding. It may be necessary to contact SEW-EURODRIVE.

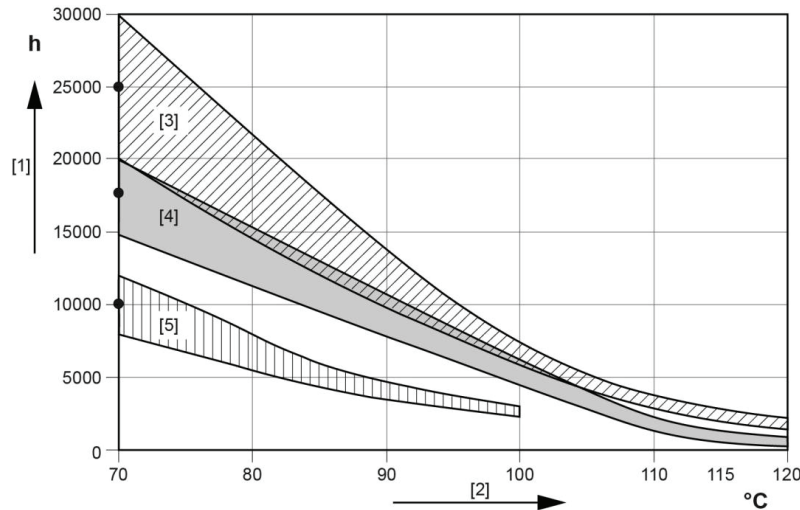
Type	DIN (ISO) API	ISO SAE NLGI	R RES	F	K..7 KES/HK	S HS	Ambient Temperature °C		Note	Mobil®	Shell	KLUBER LUBRICATION	FUCHS	Castrol Optimol	TOTAL	
Mineral	CLP	VG 680				std	0	+40		Mobilgear 600 XP 680	Shell Omala S2 G 680	Kluberoil GEM 1-680 N	Renolin SEW 680	Optigear BM 680	Carter EP 680	
		VG 220					-15	+40		Mobilgear 600 XP 220	Shell Omala S2 G 220	Kluberoil GEM 1-220 N	Renolin CLP 220	Optigear BM 220	Carter EP 220	
		VG 150					X	-20	+30	4)	Mobilgear 600 XP 150	Shell Omala S2 G 150	Kluberoil GEM 1-150 N	Renolin CLP 150	Optigear BM 150	Carter EP 150
CLP HC	VG 460					XX	-15	+60		Mobil SHC 634	Shell Omala S4 GX 460	Klubersynth GEM 4-460 N	Renolin Unisyn CLP 460	Optigear Synthetic PD 460	Carter SH 460	
		VG 220					-25	+60		Mobil SHC 630	Shell Omala S4 GX 220	Klubersynth GEM 4-220 N	Renolin Unisyn CLP 220	Optigear Synthetic PD 220	Carter SH 220	
		VG 150					X	-30	+70	4)	Mobil SHC 629	Shell Omala S4 GX 150	Klubersynth GEM 4-150 N	Renolin Unisyn CLP 150	Optigear Synthetic PD 150	Carter SH 150
Synthetic	CLP PG	VG 68					-40	+20	4)	Mobil SHC 626	Shell Omala S4 GX 68	-	Renolin Unisyn CLP 68	-	-	
			VG 32				X	-40	+30	4)	Mobil SHC 624	-	-	Renolin Unisyn OL32	-	Dacnis SH 32
			VG 680					X	-15	+80	1)	Mobil Glycoyle 680	Shell Omala S4 WE 680	Klubersynth GH 6-680	Renolin PG 680	Optigear Synthetic 800/680
CLP HC NSF-H1	VG 220						-25	+80		Mobil Glycoyle 220	Shell Omala S4 WE 220	Klubersynth GH 6-220	Renolin PG 220	Optigear Synthetic 800/220	Carter SY 220	
		VG 68					X	+40	1)	-	-	Kluberoil 4UH1-460 N	Cassida Fluid GL 460	Optileb GT 460	-	
		VG 220					X	-25	+30		-	Kluberoil 4UH1-220 N	Cassida Fluid GL 220	Optileb GT 220	-	
Bio	E	VG 32					-35	+20	4)	-	-	Kluberoil 4UH1-68 N	Cassida Fluid HF 68	Optileb HY 68	-	
			VG 68				X	-35	+10	4)	-	-	Klubersynth HySyn FG 32	Cassida Fluid HF 32	Optileb HY 32	-
			VG 460				X	-40	+0	4)	-	-	Kluberbio CA2-460	Plantogear 460 S	-	-

01 751 14 04US2

Type	DIN (ISO) API	ISO SAE NLGI	K..9 	W / HW 	Ambient Temperature °C	Note	Mobil®	Shell 	KLUBER LUBRICATION 	FUCHS 	Castrol 	Optimol	TOTAL 	
Synthetic	CLP PG	VG 680	X		-15				PS Klubersynth GH 6-680					
		VG 460	standard		-20				PSS Klubersynth GH 6-460					
		VG 220	X			-20	2)		PS Kluber SEW HT 460-5					
		VG 150	X			-25			PSS Klubersynth GH 6-220					
		VG 680	X			-30	4)		PS Klubersynth GH 6-150					
		VG 460	XX			-15			PS Klubersynth UH1 6-680					
	CLP PG NSF-H1	VG 220	X			-20			PS Klubersynth UH1 6-460					
		VG 150	X		XX	-20	3)		PS Klubersynth UH1 6-220					
		VG 100 (SAE 75W90)			X	-25	4)		PS Klubersynth UH1 6-150					
	API GL5				-30									
						-40								

6.1.4 Oil change frequency

The following diagram shows the oil change frequency in normal ambient conditions for gear units listed in this catalog. The lubricant should be changed more frequently in severe conditions. Notice how synthetic oil (CLP HC, CLP PG) extends the maintenance interval 2 to 2.5 times longer than mineral oil. Thus, synthetic oil is highly recommended for hard-to-reach locations or applications where downtime is critical.



- [1] Operating hours
- [2] Sustained oil bath temperature
- [3] Synthetic: CLP PG, CLP PG-NSF H1
- [4] Synthetic: CLP HC, CLP HC-NSF H1
- [5] Mineral: CLP, E

6.2 Oil fill quantities

INFORMATION



The specified fill quantities are only given as a **guideline**. The precise values vary depending on the number of stages and gear ratio. When filling, it is essential to **check the oil level plug since it indicates the precise oil volume**.

The following tables show lubricant fill quantities depending on the mounting positions M1 – M6.

Helical (R) gear units

RX..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RX57	0.60	0.80	1.30		0.90	
RX67	0.80		1.70	1.90	1.10	
RX77	1.10	1.50	2.60	2.70	1.60	
RX87	1.70	2.50	4.80		2.90	
RX97	2.10	3.40	7.4	7.0	4.80	
RX107	3.90	5.6	11.6	11.9	7.7	

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RXF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RXF57	0.50	0.80	1.10		0.70	
RXF67	0.70	0.80	1.50	1.40	1.00	
RXF77	0.90	1.30	2.40	2.00	1.60	
RXF87	1.60	1.95	4.90	3.95	2.90	
RXF97	2.10	3.70	7.1	6.3	4.80	
RXF107	3.10	5.7	11.2	9.3	7.2	

R.., R..F

Gear unit	Fill quantity in liters					
	M1 ¹⁾	M2	M3	M4	M5	M6
R07	0.12	0.20				
R17	0.25	0.55	0.35	0.55	0.35	0.40
R27	0.25/0.40	0.70	0.50	0.70	0.50	
R37	0.30/0.95	0.85	0.95	1.05	0.75	0.95
R47	0.70/1.50	1.60	1.50	1.65	1.50	
R57	0.80/1.70	1.90	1.70	2.10	1.70	
R67	1.10/2.30	2.40	2.80	2.90	1.80	2.00
R77	1.20/3.00	3.30	3.60	3.80	2.50	3.40
R87	2.30/6.0	6.4	7.2		6.3	6.5
R97	4.60/9.8	11.7		13.4	11.3	11.7
R107	6.0/13.7	16.3	16.9	19.2	13.2	15.9
R127	6.4/17.0	18.3	18.2	22.0	16.8	17.9
R137	10.0/25.0	28.0	29.5	31.5	25.0	
R147	15.4/40.0	46.5	48.0	52.0	39.5	41.0
R167	27.0/70.0	82.0	78.0	88.0	66.0	69.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

RF.., RZ..

Gear unit	Fill quantity in liters					
	M1 ¹⁾	M2	M3	M4	M5	M6
RF07	0.12	0.20				
RF17	0.25	0.55	0.35	0.55	0.35	0.40
RF27	0.25/0.40	0.70	0.50	0.70	0.50	
RF37	0.35/0.95	0.90	0.95	1.05	0.75	0.95
RF47	0.65/1.50	1.60	1.50	1.65	1.50	
RF57	0.80/1.70	1.80	1.70	2.00	1.70	
RF67	1.20/2.50	2.50	2.70	2.80	1.90	2.10
RF77	1.20/2.60	3.10	3.30	3.60	2.40	3.00
RF87	2.40/6.0	6.4	7.1	7.2	6.3	6.4
RF97	5.1/10.2	11.9	11.2	14.0	11.2	11.8
RF107	6.3/14.9	15.9	17.0	19.2	13.1	15.9
RF127	6.6/16.0	18.3	18.2	21.4	15.9	17.0
RF137	9.5/25.0	27.0	29.0	32.5	25.0	
RF147	16.4/42.0	47.0	48.0	52.0	42.0	42.0
RF167	26.0/70.0	82.0	78.0	88.0	65.0	71.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity (→ 59)

the Snuggler® - Helical (F) gear units

F., FA..B, FH..B, FV..B

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.60	3.50	2.10	3.50	2.80	2.90
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	
F..127	40.5	54.5	34.0	61.0	46.3	47.0
F..157	69.0	104.0	63.0	105.0	86.0	78.0

FF..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
FF27	0.60	0.80	0.65	0.70	0.60	
FF37	1.00	1.25	0.70	1.30	1.00	
FF47	1.60	1.85	1.10	1.90	1.50	1.70
FF57	2.80	3.50	2.10	3.70	2.90	3.00
FF67	2.70	3.80	1.90	3.80	2.90	3.20
FF77	5.9	7.3	4.30	8.1	6.0	6.3
FF87	10.8	13.2	7.8	14.1	11.0	11.2
FF97	19.0	22.5	12.6	25.6	18.9	20.5
FF107	25.5	32.0	19.5	38.5	27.5	28.0
FF127	41.5	55.5	34.0	63.0	46.3	49.0
FF157	72.0	105.0	64.0	106.0	87.0	79.0

FA., FH., FV., FAF., FAZ., FHF., FZ., FHZ., FVF., FVZ., FT..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.70	3.50	2.10	3.40	2.90	3.00
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	
F..127	39.0	54.5	34.0	61.0	45.0	46.5
F..157	68.0	103.0	62.0	104.0	85.0	79.5

Helical-bevel (K) gear units

INFORMATION



All K..19 and K..29 gear units are filled with the same oil quantity for all positions except M4. M4 requires a larger volume of oil.

K., KA..B, KH..B, KV..B

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..19		0.40		0.45	0.40	
K..29		0.70		0.85	0.70	
K..39	0.90	1.70	1.55	1.9	1.55	1.30
K..49	1.70	3.40	2.80	4.20	3.15	2.80
K..37	0.50	1.00		1.25	0.95	
K..47	0.80	1.30	1.50	2.00	1.60	
K..57	1.10	2.20		2.80	2.30	2.10
K..67	1.10	2.40	2.60	3.45	2.60	
K..77	2.20	4.10	4.40	5.80	4.20	4.40
K..87	3.70	8.0	8.70	10.90	8.0	
K..97	7.0	14.0	15.70	20.0	15.70	15.50
K..107	10.0	21.0	25.50	33.50	24.0	
K..127	21.0	41.50	44.0	54.0	40.0	41.0
K..157	31.0	65.0	68.0	90.0	62.0	63.0
K..167	33.0	97.0	109.0	127.0	89.0	86.0
K..187	53.0	156.0	174.0	207.0	150.0	147.0

KF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
KF19		0.40		0.45	0.40	
KF29		0.70		0.85	0.70	
KF39	0.90	1.70	1.55	1.9	1.55	1.30
KF49	1.70	3.40	2.80	4.20	3.15	2.80
KF37	0.50	1.10		1.50	1.00	
KF47	0.80	1.30	1.70	2.20	1.60	
KF57	1.20	2.20	2.40	3.15	2.50	2.30
KF67	1.10	2.40	2.80	3.70	2.70	
KF77	2.10	4.10	4.40	5.90	4.50	
KF87	3.70	8.20	9.0	11.90	8.40	
KF97	7.0	14.70	17.30	21.50	15.70	16.50
KF107	10.0	21.80	25.80	35.10	25.20	
KF127	21.0	41.50	46.0	55.0	41.0	
KF157	31.0	66.0	69.0	92.0	62.0	63.0

KA., KH., KV., KAF., KHF., KVF., KZ., KAZ., KHZ., KVZ., KT..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..19	0.40			0.45	0.40	
K..29	0.70			0.85	0.70	
K..39	0.90	1.70	1.55	1.9	1.55	1.30
K..49	1.70	3.40	2.80	4.20	3.15	2.80
K..37	0.50	1.00		1.40	1.00	
K..47	0.80	1.30	1.60	2.15	1.60	
K..57	1.20	2.20	2.40	3.15	2.70	2.40
K..67	1.10	2.40	2.70	3.70	2.60	
K..77	2.10	4.10	4.60	5.90	4.40	
K..87	3.70	8.20	8.80	11.10	8.0	
K..97	7.0	14.70	15.70	20.0	15.70	
K..107	10.0	20.50	24.0	32.40	24.0	
K..127	21.0	41.50	43.0	52.0	40.0	
K..157	31.0	65.0	68.0	90.0	62.0	63.0
K..167	33.0	97.0	109.0	127.0	89.0	86.0
K..187	53.0	156.0	174.0	207.0	150.0	147.0

Helical-worm (S) gear units

S..

Gear unit	Fill quantity in liters					
	M1	M2	M3 ¹⁾	M4	M5	M6
S37	0.25	0.40	0.50	0.55	0.40	
S47	0.35	0.80	0.70/0.90	1.00	0.80	
S57	0.50	1.20	1.00/1.20	1.45	1.30	
S67	1.00	2.00	2.20/3.10	3.10	2.60	2.60
S77	1.90	4.20	3.70/5.4	5.9	4.40	
S87	3.30	8.1	6.9/10.4	11.3	8.4	
S97	6.8	15.0	13.4/18.0	21.8	17.0	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

SF..

Gear unit	Fill quantity in liters					
	M1	M2	M3 ¹⁾	M4	M5	M6
SF37	0.25	0.40	0.50	0.55	0.40	
SF47	0.40	0.90	0.90/1.05	1.05	1.00	
SF57	0.50	1.20	1.00/1.50	1.55	1.40	
SF67	1.00	2.20	2.30/3.00	3.20	2.70	
SF77	1.90	4.10	3.90/5.8	6.5	4.90	
SF87	3.80	8.0	7.1/10.1	12.0	9.1	
SF97	7.4	15.0	13.8/18.8	22.6	18.0	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

SA., SH., SAF., SHZ., SAZ., SHF., ST..

Gear unit	Fill quantity in liters					
	M1	M2	M3 ¹⁾	M4	M5	M6
S..37	0.25	0.40	0.50		0.40	
S..47	0.40	0.80	0.70/0.90	1.00	0.80	
S..57	0.50	1.10	1.00/1.50	1.50	1.20	
S..67	1.00	2.00	1.80/2.60	2.90	2.50	
S..77	1.80	3.90	3.60/5.0	5.8	4.50	
S..87	3.80	7.4	6.0/8.7	10.8	8.0	
S..97	7.0	14.0	11.4/16.0	20.5	15.7	

1) The larger gear unit of multi-stage gear units must be filled with the larger oil quantity.

SPIROPLAN® (W) gear units

INFORMATION



SPIROPLAN® gear units W..10 to W..30 have a universal mounting position. Therefore, they are filled with the same oil quantity regardless of the mounting position.

The oil fill quantity of SPIROPLAN® gear units W..37 and W..47 in mounting position M4 is different than the amount needed for the other mounting positions.

W., WA..B, WH..B

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
W..10	0.16					
W..20	0.24					
W..30	0.40					
W..37		0.50		0.70		0.50
W..47		0.90		1.40		0.90

WF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
WF10	0.16					
WF20	0.24					
WF30	0.40					
WF37		0.50		0.70		0.50
WF47		0.90		1.55		0.90

WA.., WAF..,WH.., WT.., WHF..

Gear unit	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
W..10	0.16					
W..20	0.24					
W..30	0.40					
W..37		0.50		0.70		0.50
W..47		0.80		1.40		0.80

6.3 Gear unit venting

INFORMATION



The function of breather valves can be impaired by dirt and dust in the environment. If necessary, contact SEW-EURODRIVE to discuss alternative venting systems.

6.4 Reduced backlash /R

The rotational clearance (backlash) of units with this option is considerably less than that of the standard designs; therefore, positioning tasks can be solved with great precision. The rotational clearance for the output shaft is specified without load (max. 1% of the rated output torque) with the gear unit input end blocked. The clearance is specified in angular minutes and is shown in the "Possible geometrical combinations" section within each gear unit chapter.

The reduced backlash design is available for the following gear units:

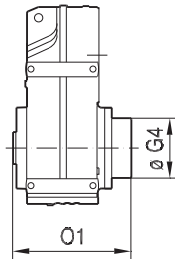
- Helical gear units (R), sizes 37 to 167
- ^{the}Snuggler[®] helical gear units (F), sizes 37 to 157
- Helical-bevel gear units (K..7), sizes 37 to 187.

Reduced backlash is not available on K..9 gear units or compound gear units.

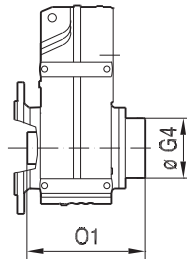
The dimensions of the reduced backlash designs are the same as the dimensions of the standard designs, except for ^{the}Snuggler[®] helical gear units FH.87 and FH.97. The following figure shows the reduced backlash dimensions of FH.87 and FH.97.

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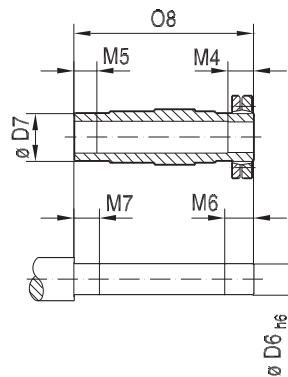
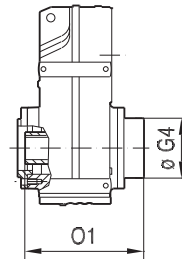
FH../R
FH..B/R



FHF../R



FHZ../R




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Type	Dimensions in mm								
	D6	D7	G4	M4	M5	M6	M7	O1	O8
FH.87/R	Ø 65 _{h6}	Ø 85	Ø 163	41	40	46	45	312.5	299.5
FH.97/R	Ø 75 _{h6}	Ø 95	Ø 184	55	50	60	55	382.5	367

6.5 Installation/removal of gear units with hollow shaft and key

INFORMATION



Use the supplied NOCO[®] fluid for assembly. The fluid minimizes contact corrosion and facilitates future disassembly (→  19).

6.5.1 Design Methods

There are two ways to design the customer's solid shaft for use with a gear unit containing a keyed hollow shaft. While both designs are acceptable, the second is more advantageous to the end user because it allows for easier disassembly later, especially if corrosion exists between the two shafts.

1. Standard Design:

Use the fastening parts supplied with the gear unit. This design requires a longer customer shaft that extends to the snapping. While this design is very common, it does not permit the use of a removal kit to aid with future removal of the customer's shaft.

2. Recommended Design:

Use the optional installation/removal kit. This design requires a shorter customer shaft than the standard design. The shaft does not extend to the snapping. The area between the end of the shaft and the snapping contains a gap or a spacer tube, depending if the customer shaft contains a shoulder. During future disassembly, the gap or spacer tube is replaced with a locking nut that allows the user to push out the shaft by turning a wrench. This is especially beneficial in a humid or wet environment where corrosion between the shafts is probable.

6.5.2 Standard Design

The standard design uses the parts that are normally supplied with every hollow shaft, as shown in Figure 1 below. Note the following points concerning the customer's solid shaft.

- See dimension sheets or next page for dimension, L8
- If there is a contact shoulder [A] on the customer shaft, the installation length should be $(L8 - 1 \text{ mm})$ or $(L8 - 0.04 \text{ in})$.
- If there is no contact shoulder [B] on the customer shaft, the installation length should equal L8.
- Observe the tolerances for dimension, D, along the shaft.
- Refer to the dimension pages (or next page) for the diameter and length of retaining screw [2].
- X must be $> D$. But the key does not have to extend the length of shaft.

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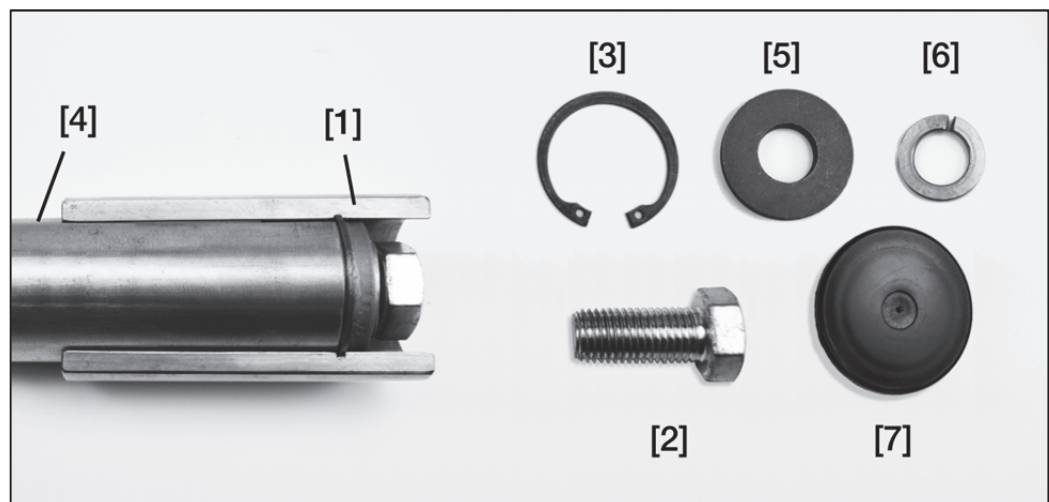
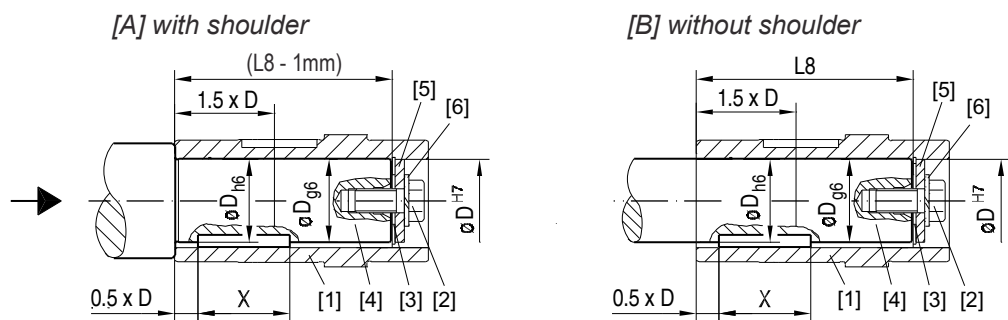


Figure 1: Customer shaft with contact shoulder [A] and without contact shoulder [B]

- | | | | |
|-----|----------------------|-----|------------------------|
| [1] | Hollow shaft | [5] | Flat washer |
| [2] | Retaining screw | [6] | Lock washer |
| [3] | Retaining snapping | [7] | Plastic protection cap |
| [4] | Customer solid shaft | | |

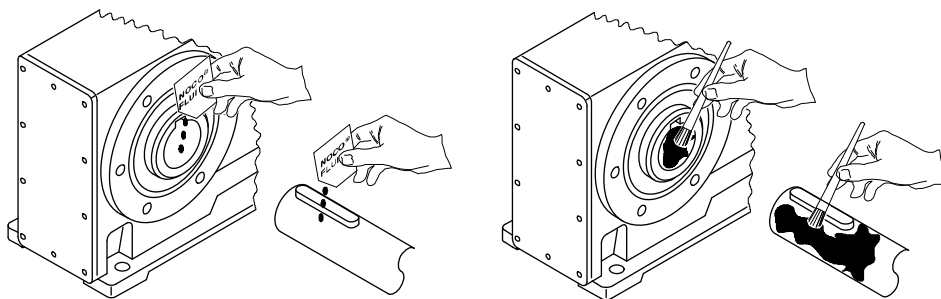
Customer shaft dimensions – Standard design

Gear Unit	[inch]			[mm]		
	D	STD Screw	L8 ¹	D	STD Screw	L8 ¹⁾
WA..10	0.625	1/4-20 x 5/8	2.72	14 or 16	M5 x 16	69
KA..19	0.750	1/4-20 x 5/8	3.62	20	M6 x 16	92
WA..20	0.750	1/4-20 x 5/8	3.31	18	M6 x 16	84
				20		
FA..27	1.000	3/8-16 x 1	3.47	25	M10 x 25	88
KA..29	1.000	3/8-16 x 1	4.21	25	M10 x 25	107
WA..30, WA..37	0.750	1/4-20 x 5/8	4.13	20	M6 x 16	105
SA..37	0.750	1/4-20 x 5/8	4.09	20	M6 x 16	104
FA..37, KA..37	1.250	7/16-14 x 1	4.13	30	M10 x 25	105
KA..39	1.250	7/16-14 x 1	5.39	30	M10 x 25	137
	1.375	1/2-13 x 1		35	M12 x 30	
WA..47	1.000	3/8-16 x 1	4.80	30	M10 x 25	122
	1.250	7/16-14 x 1				
SA..47	1.250	7/16-14 x 1	4.13	25	M10 x 25	105
				30		
FA..47, KA..47, SA..57	1.250	7/16-14 x 1	5.20	30	M10 x 25	132
	1.375	1/2-13 x 1		35	M12 x 30	
	1.4375	5/8-11 x 1-3/4				
KA..49	1.375	1/2-13 x 1	6.30	35	M12 x 30	160
	1.500	5/8-11 x 1-3/4		40	M16 x 40	
FA..57, KA..57	1.4375	5/8-11 x 1-3/4	5.59	40	M16 x 40	142
	1.500					
FA..67, KA..67	1.4375	5/8-11 x 1-3/4	6.14	40	M16 x 40	156
	1.500					
SA..67	1.250	7/16-14 x 1	5.67	40	M16 x 40	144
	1.500	5/8-11 x 1-3/4		45		
FA..77, KA..77	1.9375	5/8-11 x 1-3/4	7.21	50	M16 x 45	183
	2.000					
SA..77	2.000	5/8-11 x 1-3/4	7.21	50	M16 x 45	183
			7.09	60	M20 x 50	180
FA..87, KA..87	2.375	3/4-10 x 2	8.27	60	M20 x 50	210
	2.4375					
SA..87	2.375	3/4-10 x 2	8.66	60	M20 x 50	220
				70		
FA..97, KA..97	2.750	3/4-10 x 2	10.63	70	M20 x 50	270
	2.9375					
SA..97	2.750	3/4-10 x 2	10.24	70	M20 x 50	260
			10.04	90	M24 x 60	255
FA..107, KA..107	3.250	3/4-10 x 2	12.32	90	M24 x 60	313
	3.4375			80	M20 x 50	
	3.625					
FA..127, KA..127	4.000	1-8 x 2-1/4	14.69	100	M24 x 60	373
FA..157, KA..157	4.500		18.11	120		460

¹If customer shaft does not contain a shoulder, then the installation length of customer shaft = L8. If customer shaft contains a shoulder, the installation length = (L8 - 1mm) or (L8 - 0.04")

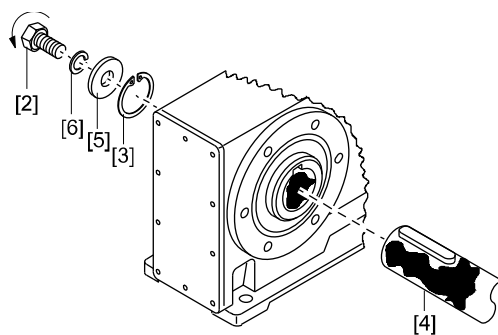
Installation procedure – standard design

1. Apply and thoroughly spread NOCO fluid (normally supplied with unit).



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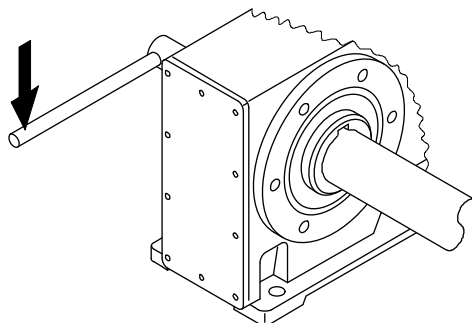
2. Install the shaft and secure it axially with the hardware supplied.



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- | | | | |
|-----|---|-----|-------------|
| [2] | Shorter retaining screw (normally supplied) | [5] | Flat washer |
| [3] | Retaining snapping | [6] | Lock washer |
| [4] | Customer shaft | | |

3. Tighten the retaining screw to the appropriate torque shown in the table below.



Screw		Tightening torque Nm / lb-in
Metric	SAE	
M5		5 / 44
M6	1/4-20	8 / 71
M10	7/16-14	20 / 177
M12	1/2-13	
M16	5/8-11	40 / 355
M20	3/4-10	80 / 710
M24	1-8	200 / 1770

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6.5.3 Recommended design

The recommended design uses the standard hardware along with a removal kit, as shown dotted in Figure 2 below. However, the normal retaining screw is too short; therefore, the removal kit includes a longer screw [2]. The customer may make his own kit or purchase it from SEW-EURODRIVE. Kit part numbers and dimensions are shown on page 127.

Please observe the following:

- Items 3, 5, 6, and 7 are normally supplied with the hollowshaft, so they are not included in the kit
- The longer retaining screw [2] can be used for both assembly and removal.
- The installation length of the customer shaft must be LK2, regardless if the shaft has a contact shoulder or not. See next page for LK2 dimension. Observe that the customer shaft does **not** extend to the snapping.
- The spacer tube [8] is not needed if the customer shaft has a shoulder.
- X must be > D. However, the key does not have to extend the length of shaft.

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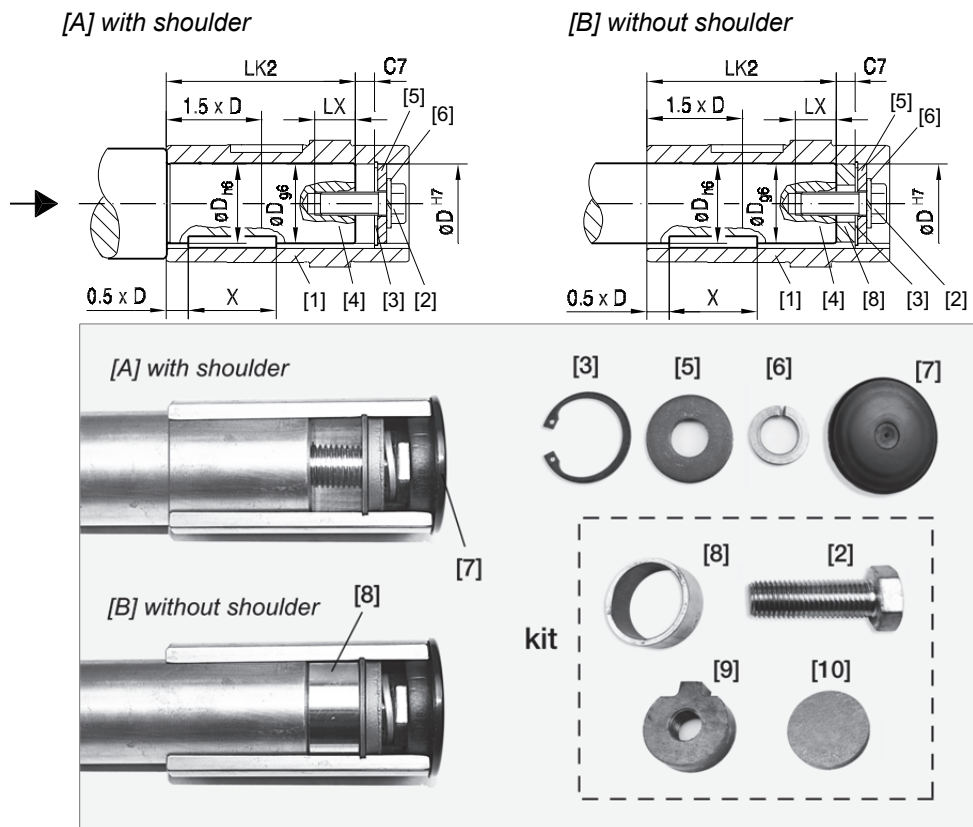


Figure 2: Customer shaft with contact shoulder [A] and without contact shoulder [B]

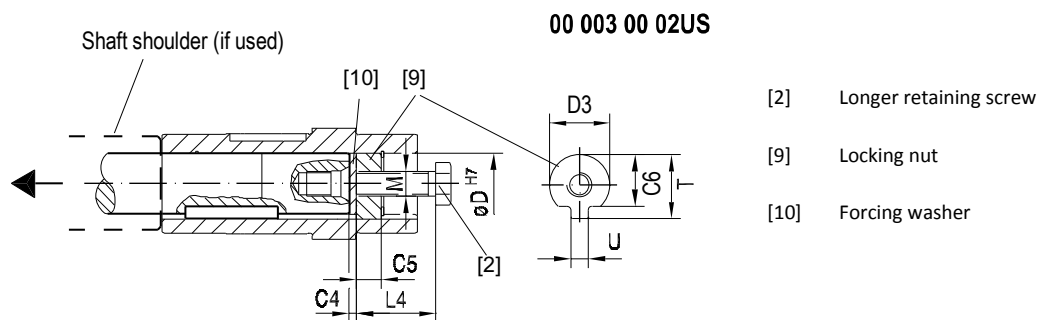
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|-----|--|------|------------------------------------|
| [1] | Hollow shaft | [6] | Lock washer |
| [2] | Retaining screw (for assembly & removal) | [7] | Plastic protection cap |
| [3] | Retaining snapping | [8] | Space tube (not needed w/shoulder) |
| [4] | Customer solid shaft | [9] | Locking nut (for removal only) |
| [5] | Flat washer | [10] | Forcing washer (for removal only) |

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Customer shaft dimensions – recommended design

Gear Unit	D		LK2 [mm]	LX ⁺² [mm]	C7 [mm]
	[inch]	[mm]			
WA..10	0.625	14	58	12.5	11
		16			
KA..19	0.750	20	80	16	12
WA..20	0.750	18	72	16	12
		20			
FA..27	1.000	25	72	22	16
KA..29	1.000	25	91	22	16
WA..30, WA..37	0.750	20	93	16	12
SA..37	0.750	20	92	16	12
FA..37, KA..37	1.250	30	89	22	16
KA..39	1.250	30	121	22	16
	1.375	35			
WA..47	1.000	30	106	22	16
	1.250				
SA..47	1.250	25	89	22	16
		30			
FA..47, KA..47, SA..57	1.250	30	116	22	16
	1.375	35			
	1.4375				
KA..49	1.375	35	142	28	18
	1.500	40			
FA..57, KA..57	1.4375	40	124	26	18
	1.500				
FA..67, KA..67	1.4375	40	138	36	18
	1.500				
SA..67	1.250	40	126	36	18
	1.500	45			
FA..77, KA..77	1.9375	50	165	36	18
	2.000				
SA..77	2.000	50	165	36	18
		60	158	42	22
FA..87, KA..87	2.375	60	188	42	22
	2.4375				
SA..87	2.375	60	198	42	22
		70			
FA..97, KA..97	2.750	70	248	42	22
	2.9375				
SA..97	2.750	70	238	42	22
		90	229	52	26
FA..107, KA..107	3.250	80	289	52	24
	3.4375				
	3.625				
FA..127, KA..127	4.000	100	347	62	26
FA..157, KA..157	4.500	120	434	62	26

Kit dimensions and part numbers



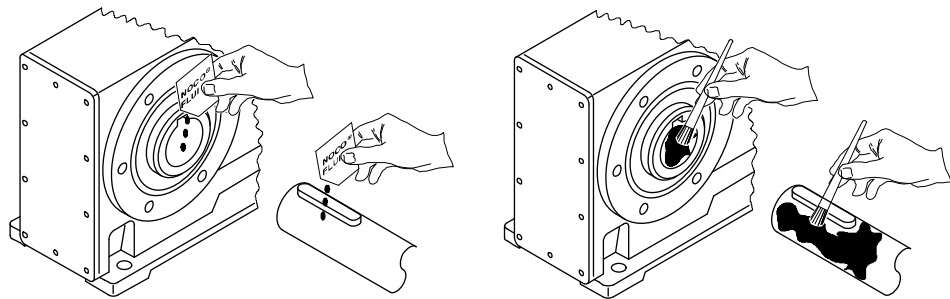
D [mm]	M	C4 [mm]	C5 [mm]	C6 [mm]	U ^{-0.5} [mm]	T ^{-0.5} [mm]	D3 ^{-0.5} [mm]	L4 [mm]	Kit Part Number	
16	M5	5	5	12	4.5	18	15.7	50	643 712 5	
18	M6		6	13.5	5.5	20.5	17.7	25	643 682 X	
20				15.5	5.5	22.5	19.7		643 683 8	
25	M10		10	20	7.5	28	24.7	35	643 684 6	
30				25	7.5	33	29.7		643 685 4	
35	M12		12	29	9.5	38	34.7	45	643 686 2	
40	M16			34	11.5	41.9	39.7		50	643 687 0
45				38.5	13.5	48.5	44.7			643 688 9
50			43.5	13.5	53.5	49.7	643 689 7			
60	M20		16	56	17.5	64	59.7	60	643 690 0	
70				65.5	19.5	74.5	69.7		643 691 9	
90	M24		20	80	24.5	95	89.7	70	643 692 7	
100				89	27.5	106	99.7		643 693 5	
120				107	31	127	119.7		643 694 3	

D [inch]	M	C4 [mm]	C5 [mm]	C6 [inch]	U ^{-0.02} [inch]	T ^{-0.02} [inch]	D3 ^{-0.02} [inch]	L4 [inch]	Kit Part Number
0.625	1/4-20	5	5	0.500	0.168	0.701	0.6130	2.0	250 546 00
0.750	1/4-20		6	0.625		0.835	0.738	1.0	250 546 19
1.000	7/16-14		10	0.863	0.230	1.110	0.988	1.5	250 546 27
1.250	7/16-14			1.113		1.362	1.238		250 546 35
1.375	1/2-13		12	1.142	0.293	1.509	1.363	1.75	250 546 43
1.4375	5/8-11			1.205		0.356	1.602		1.4255
1.500	5/8-11			1.267	1.657		1.4880	250 546 78	
1.9375	5/8-11			1.682	0.480	2.148	1.9255	250 546 86	
2.00	5/8-11		1.744	2.224		1.9880	250 546 94		
2.375	3/4-10		16	2.119	0.606	2.650	2.3630	2.5	250 247 08
2.4375	3/4-10			2.182		2.605	2.4255		250 547 16
2.750	3/4-10			2.488		3.031	2.7380		250 547 24
2.9375	3/4-10		18	2.676	0.730	3.128	2.9255	3.0	250 547 32
3.250	3/4-10			2.938		3.587	3.2380		250 547 40
3.4375	3/4-10		20	3.126	0.856	3.685	3.4255	3.0	250 547 59
3.6250	1-8			3.263		3.873	3.6130		250 547 67
4.000	1-8			3.588	0.980	4.441	3.9880	3.5	250 547 75
4.500	1-8			4.088		4.933	4.4880		250 547 83

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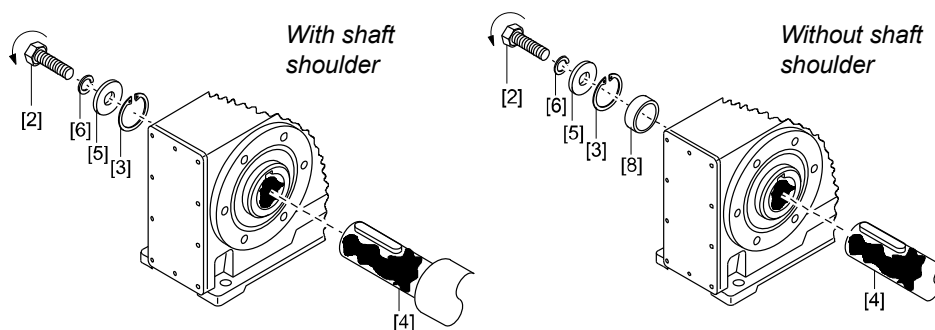
Installation procedure – recommended design

1. Apply and thoroughly spread NOCO fluid (normally supplied with unit).



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2. Install the shaft and secure it axially with the hardware supplied.

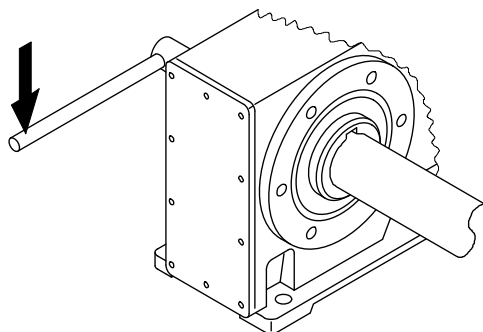


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- [2] Longer retaining screw
- [3] Retaining snapping
- [4] Customer shaft

- [5] Flat washer
- [6] Lock washer
- [8] Spacer tube

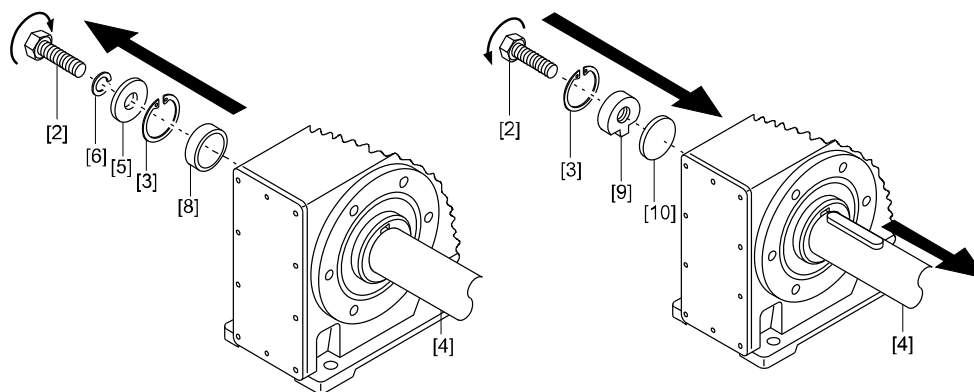
3. Tighten the retaining screw to the appropriate torque shown in the table below.



Screw		Tightening torque Nm / lb-in
Metric	SAE	
M5		5 / 44
M6	1/4-20	8 / 71
M10	7/16-14	20 / 177
M12	1/2-13	
M16	5/8-11	40 / 355
M20	3/4-10	80 / 710
M24	1-8	200 / 1770

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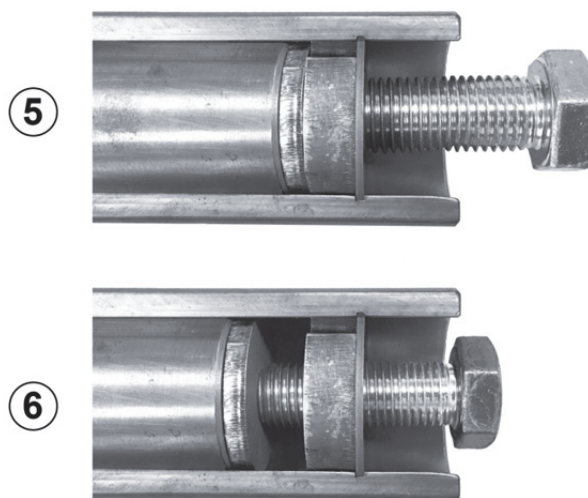
Removal procedure – recommended design



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- | | |
|----------------------------|---------------------|
| [2] Longer retaining screw | [6] Lock washer |
| [3] Snapping | [8] Spacer tube |
| [4] Customer shaft | [9] Locking nut |
| [5] Flat washer | [10] Forcing washer |

1. Loosen the retaining screw [2].
2. Remove parts [3], [5], and [6]. Also, remove the spacer tube, [8], if applicable.
3. Using the parts [9] and [10] from the removal kit, insert the forcing washer and the locking nut until they rest against the customer shaft [4].
4. Re-install the snapping [3].
5. Thread the retaining screw [2] into the locking nut as shown below.
6. Continue turning the screw with wrench to force the shaft out of the gear unit, as shown in the cross sectional view below.

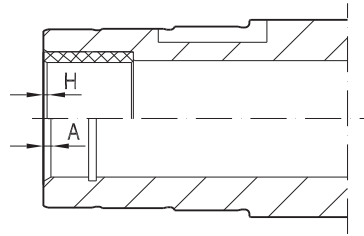


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6.6 Chamfers on hollow shafts

The following illustration shows the chamfers on gear units with hollow shaft:

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Gear unit	Design	
	Hollow shaft (A)	Hollow shaft and shrink disk (H)
W..10	1.5 × 30°	-
W..20	2 × 30°	-
W..30		-
F..27		0.5 × 45°
K..19		
K..29		
F./K./S../W..37		-
K..39		0.5 × 45°
F./K./S../W..47		
K..49		-
S..57		0.5 × 45°
F./K..57		
F./K./S..67		
F./K./S..77		
F./K./S..87		
F./K./S..97		
F./K..107		
F./K..127		
F./K..157		
KH167	-	
KH187	-	

6.6.1 Special motor/gear unit combinations

Please note for the Snuggler® (F-series) gearmotors with hollow shaft (FA..B, FV..B, FH..B, FAF, FVF, FHF, FA, FV, FH, FT, FAZ, FVZ, FHZ):

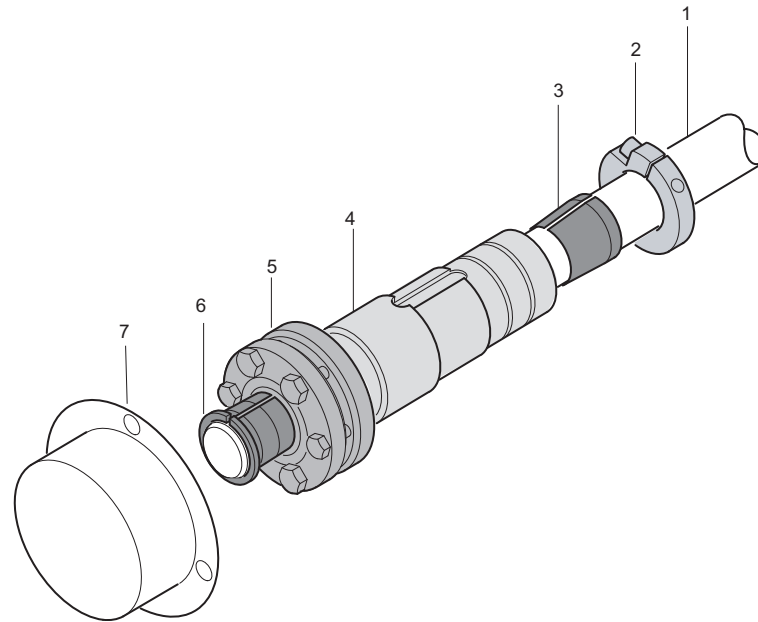
- If the machine shaft enters the gear unit from underneath the motor, there may be interference on some gear unit/motor combinations, especially with larger motors.
- Check the motor dimension AC to determine if there is interference when the customer shaft is pushed through.

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6.7 TorqLOC® mounting system for hollow shaft gear units

The TorqLOC® hollow shaft mounting system is a premier design used for achieving a keyless connection between a customer solid shaft and the hollow shaft of the gear unit. TorqLOC® is the preferred alternative to a hollow shaft with shrink disk, a hollow shaft with key, or a hollow shaft with spline.

TorqLOC® consists of the following components:



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- | | | | |
|-----|-------------------------------|-----|--|
| [1] | Customer shaft | [5] | Shrink disk |
| [2] | Clamping ring | [6] | Tapered bushing (steel or stainless steel) |
| [3] | Tapered bronze bushing | [7] | Fixed hood cover |
| [4] | Hollow shaft inside gear unit | | |

6.7.1 Benefits of TorqLOC®

The TorqLOC® hollow shaft mounting system provides the following benefits:

- Cost savings because the customer shaft can be made from turned shaft stock or cold rolled stock without additional machining (material up to quality h11).
- Cost savings because there is no keyway to machine.
- A variety of tapered bushings [item 6] are available for each hollow shaft, providing flexibility and various shaft diameter options within the same gear unit.
- Simple installation since there is no key.
- Simple removal even after many hours of operation. High clamping forces on one end and dissimilar metals on the other end deter corrosion.
- Ease of disassembly - the same screws that are used for tightening during installation can be used for future disassembly.

6.7.2 Technical data of TorqLOC®

TorqLOC® is approved for output torques of 815 lb-in to 159,300 lb-in and is available on the following gear units:

- FT37 – FT157 ^{the}Snuggler helical-parallel shaft
- KT37 – KT157 Helical-bevel
- KT39 – KT49 Hypoid
- ST37 – ST97 Helical-worm gear units
- WT37 – WT47 SPIROPLAN®

6.7.3 TorqLOC® options

The following options are available for gear units with a TorqLOC®:

- (/T) torque arm option is available on KT..., ST..., WT37, WT47 gear units
- (/G) rubber buffer option is available for the built-in torque arm of FT gear units

6.7.4 TorqLOC® bore sizes

The following chart shows the metric and inch bores available with TorqLOC®.

Model	inch					mm					
ST37	0.625	0.6875	0.75	-	-	16	19	20	-	-	-
WT37	0.625	0.6875	0.75	-	-	20	-	-	-	-	-
FT37, KT37, ST47, WT47	1.00	1.1875	1.25	-	-	25	30	-	-	-	-
FT47, KT39, KT47, ST57	1.1875	1.250	1.375	1.4375	-	30	35	-	-	-	-
FT57, KT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-
FT67, KT49, KT67, ST67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	-	-
FT77, KT77, ST77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	-	-	-
FT87, KT87, ST87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65
FT97, KT97, ST97	2.4375	2.750	2.9375	-	-	60	62	65	70	75	-
FT107, KT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-
FT127, KT127	3.4375	3.750	3.9375	4.00	4.1875	90	95	100	105	-	-
FT157, KT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-

INFORMATION



For additional information on TorqLOC®, see Technical Notes **GM-033**, **GM-034**, and **GM-035** available at:

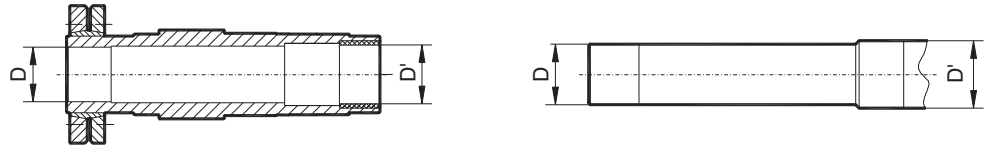
→ www.seweurodrive.com

6.8 Shouldered hollow shaft with shrink disk

The following gear units with a hollow shaft and shrink disk are also available with an optional larger bore diameter D':

- Parallel-shaft helical gear units FH/FHF/FHZ37 – 157
- Helical-bevel gear units KH/KHF/KHZ37 – 157
- Helical-worm gear units SH/SHF47 – 97

D' = D as standard.



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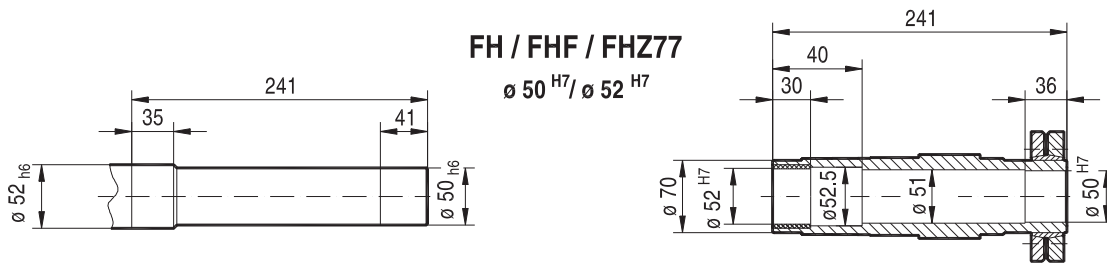
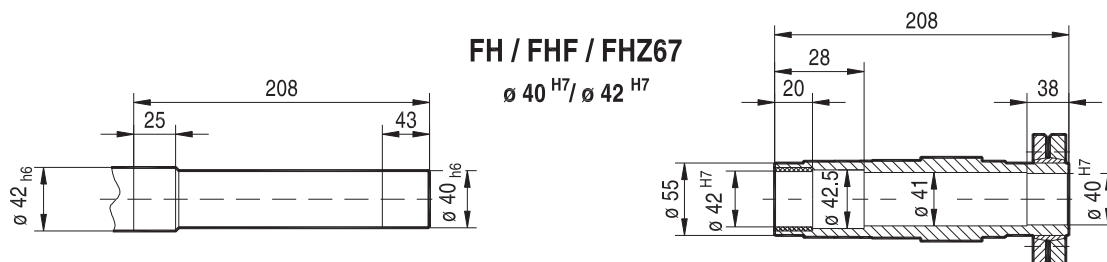
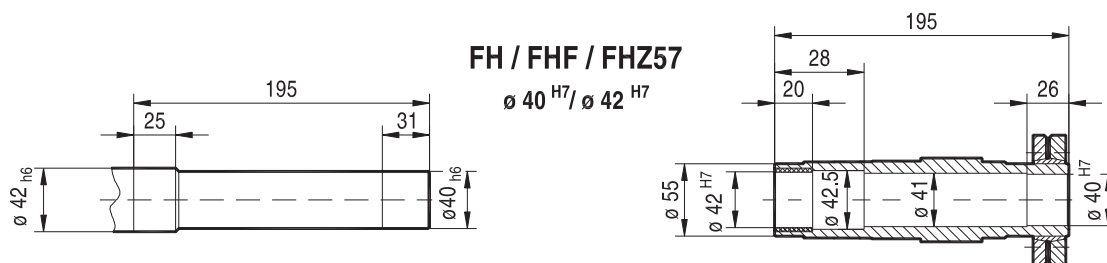
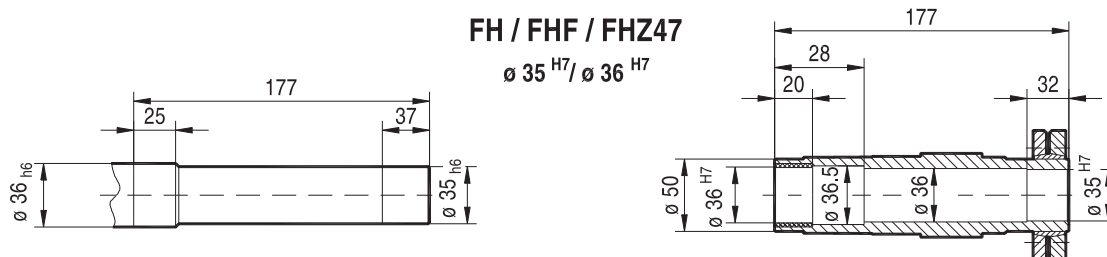
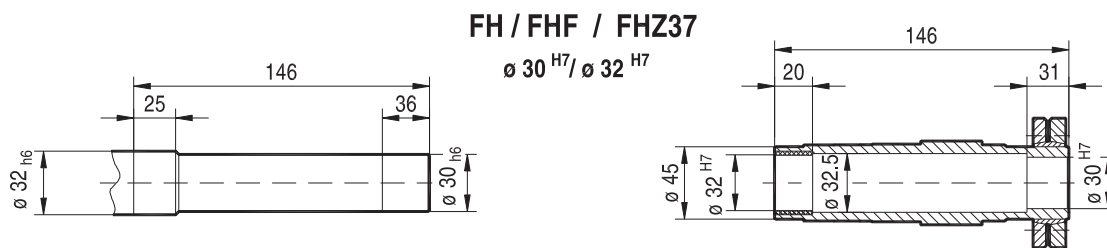
Gear units	Bore diameter D / optionally D' mm
FH/FHF/FHZ37, KH/KHF/KHZ37, SH/SHF/SHZ47	30 / 32
FH/FHF/FHZ47, KH/KHF/KHZ47, SH/SHF/SHZ57	35 / 36
FH/FHF/FHZ57, KH/KHF/KHZ57	40 / 42
FH/FHF/FHZ67, KH/KHF/KHZ67, SH/SHF/SHZ67	40 / 42
FH/FHF/FHZ77, KH/KHF/KHZ77, SH/SHF/SHZ77	50 / 52
FH/FHF/FHZ87, KH/KHF/KHZ87, SH/SHF/SHZ87	65 / 66
FH/FHF/FHZ97, KH/KHF/KHZ97, SH/SHF/SHZ97	75 / 76
FH/FHF/FHZ107, KH/KHF/KHZ107	95 / 96
FH/FHF/FHZ127, KH/KHF/KHZ127	105 / 106
FH/FHF/FHZ157, KH/KHF/KHZ157	125 / 126

Diameter D / D' must be specified when ordering gear units with a shouldered hollow shaft (optional bore diameter D').

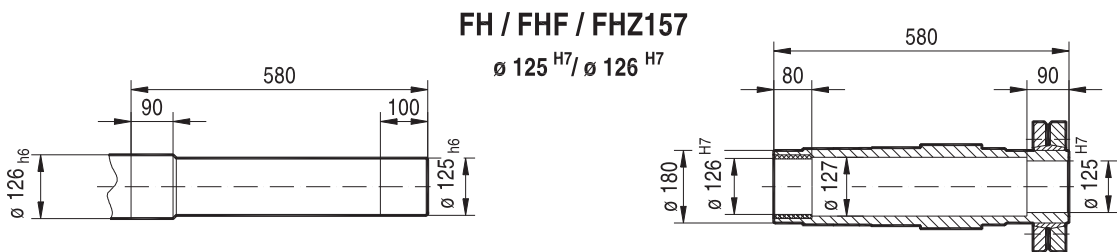
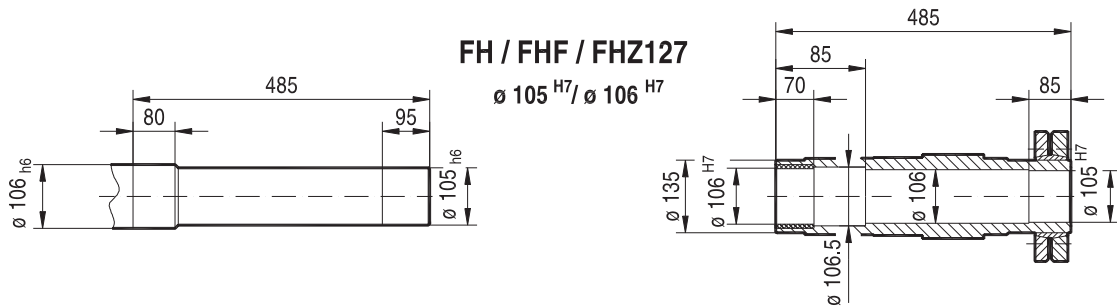
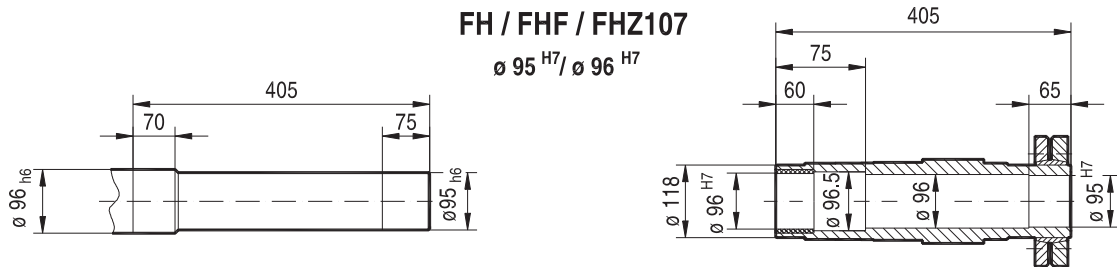
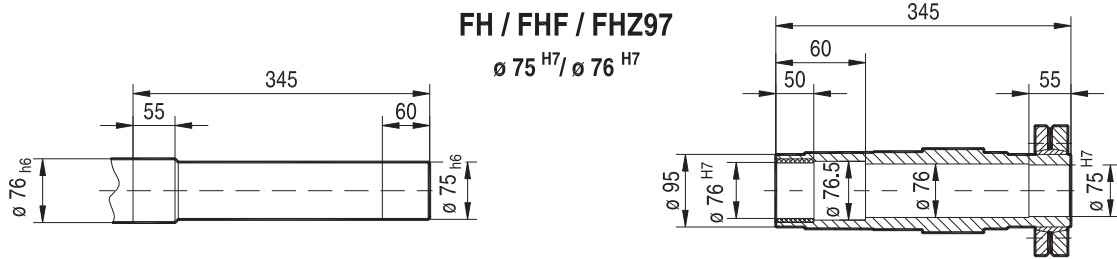
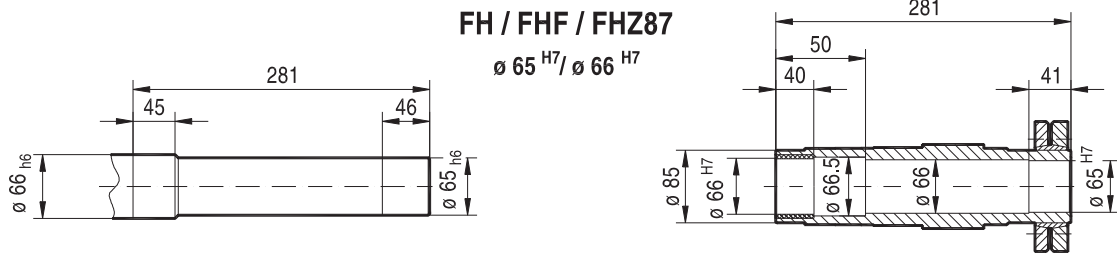
6.8.1 Sample order

FH37 DRN80M4 with hollow shaft 30/32 mm

6.8.2 Parallel-shaft helical gear units with shouldered hollow shaft (dimensions in mm):

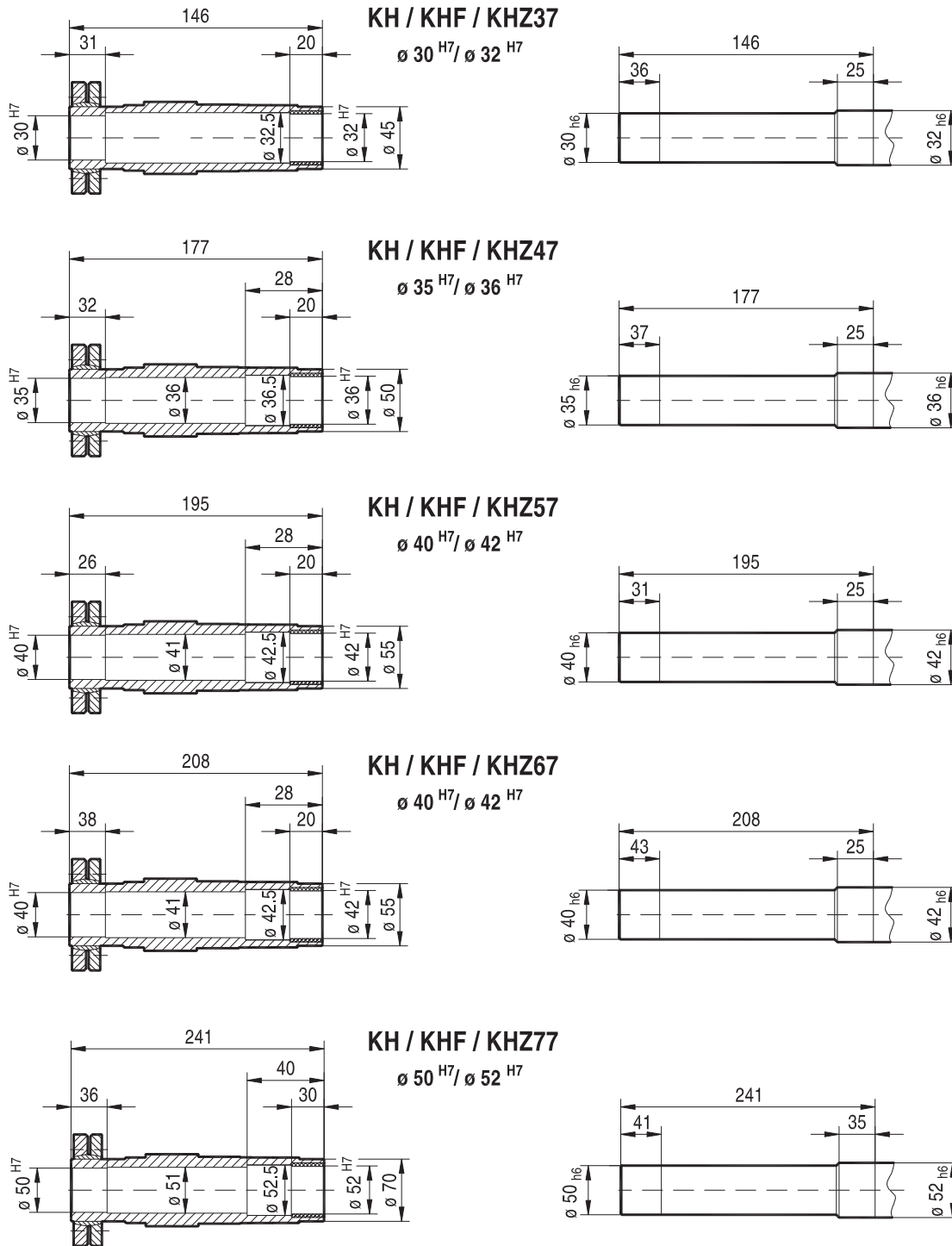


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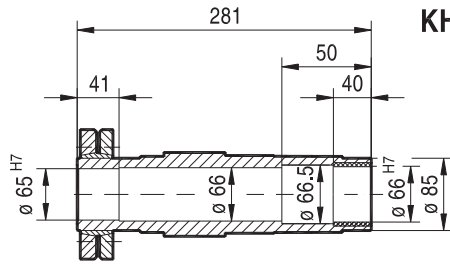


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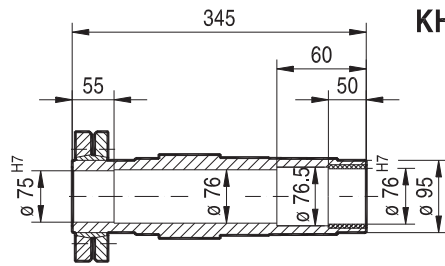
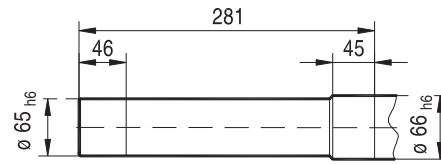
6.8.3 Helical-bevel gear units with shouldered hollow shaft (dimensions in mm):



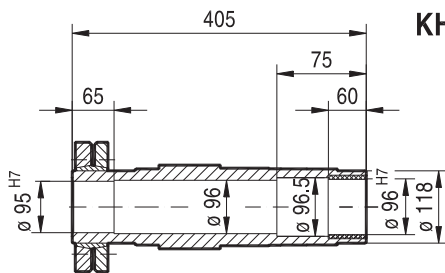
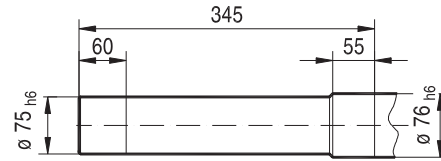
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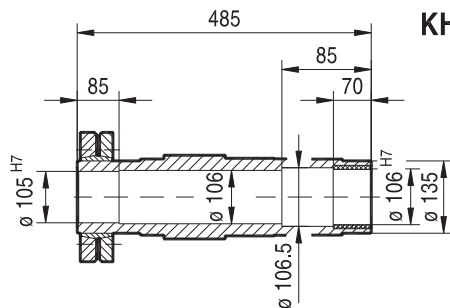
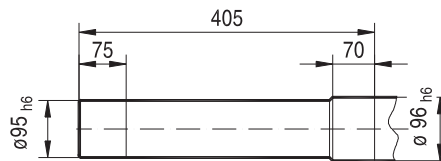
KH / KHF / KHZ87
 $\varnothing 65^{H7} / \varnothing 66^{H7}$



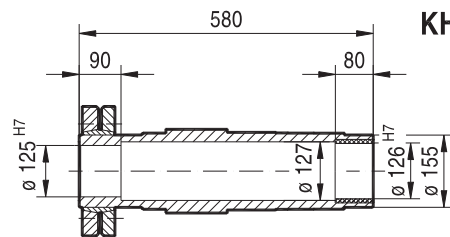
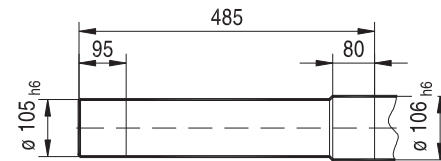
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 $\varnothing 75^{H7} / \varnothing 76^{H7}$



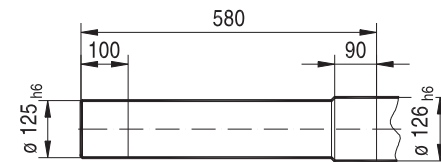
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KH / KHF / KHZ127
 $\varnothing 105^{H7} / \varnothing 106^{H7}$

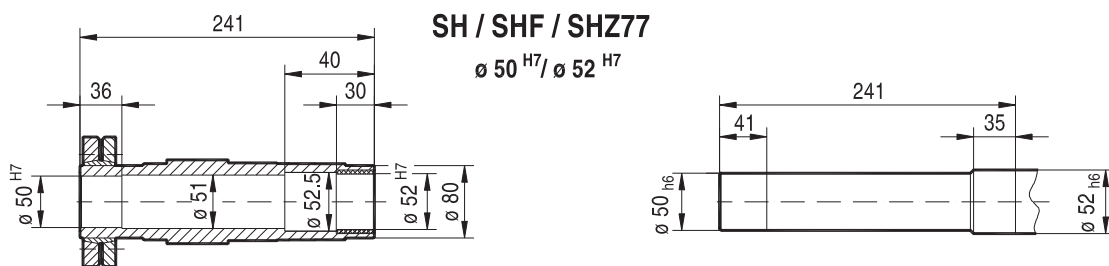
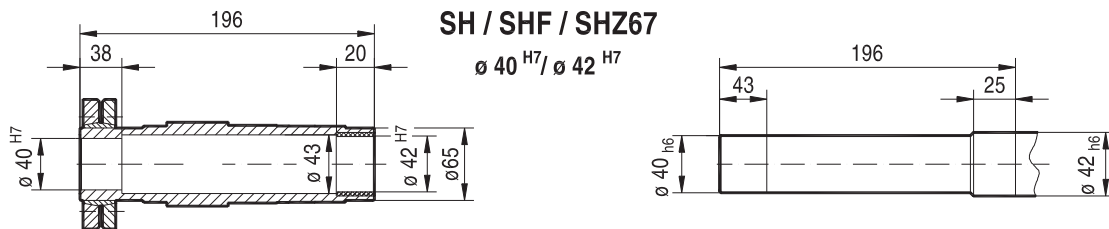
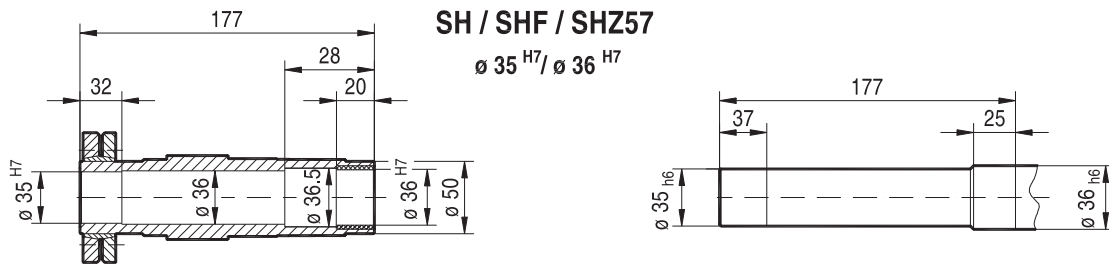
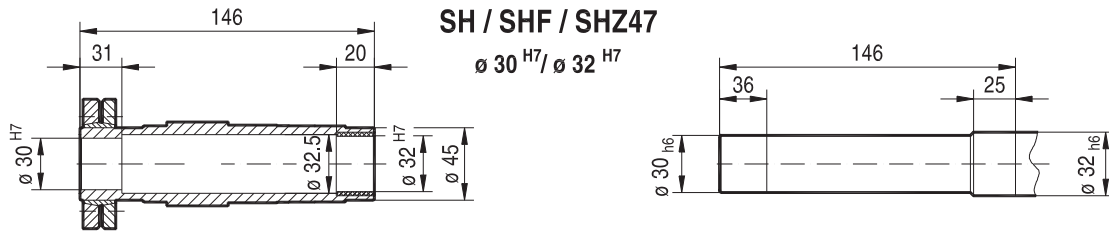


KH / KHF / KHZ157
 $\varnothing 125^{H7} / \varnothing 126^{H7}$

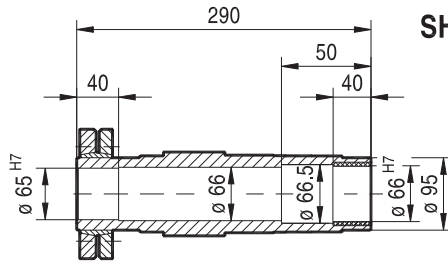


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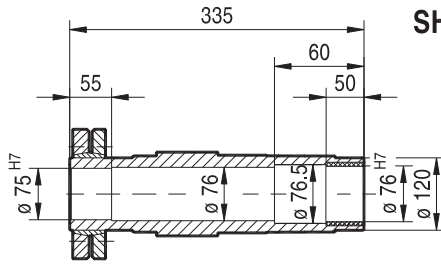
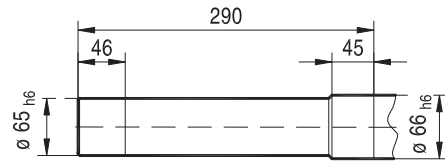
6.8.4 Helical-worm gear units with shouldered hollow shaft (dimensions in mm):



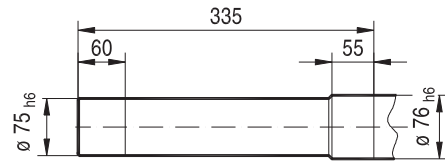
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SH / SHF / SHZ87
 $\varnothing 65^{H7} / \varnothing 66^{H7}$



SH / SHF / SHZ97
 $\varnothing 75^{H7} / \varnothing 76^{H7}$

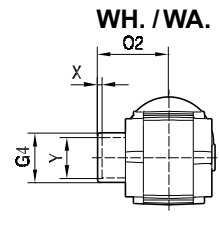
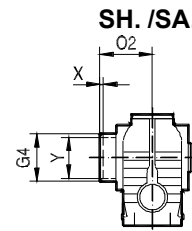
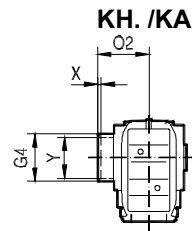
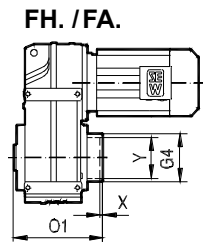
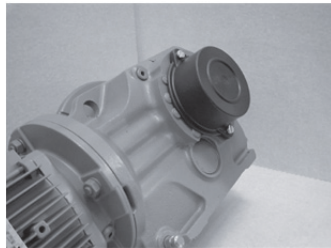


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6.9 Covers for hollow shafts

6.9.1 Non-rotating plastic covers

Gear units with shrink discs (FH, SH, KH, WH) are normally supplied with a stationary black plastic cover. The cover is **optional** for units with a hollow shaft and key (ie: FA, KA, SA, WA).



14436693643

FH / FA / FHF / FAF	37	47	57	67	77	87	97	107	127	157
Kit part number ¹	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1	643 519 X	643 520 3	643 528 9
G4 [mm]	78	88	100	100	121	164	185	200	233	275
O1 [mm]	157	188.5	207.5	221.5	255	295	363.5	420	502	598
X [mm]	11	11.5	12.5	13.5	14	14	18.5	15	17	18
Y [mm]	71	79	79	89	110	155	170	185	212	263

KH ² / KA ² / KHF / KAF	37	47	57	67	77	87	97	107	127	157
Kit part number ¹	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1	643 519 X	643 520 3	643 521 1
G4 [mm]	78	88	100	100	121	164	185	200	233	315
O2 [mm]	95	111.5	122.5	129	147	172	210.5	245	296	370
X [mm]	9	9.5	10.5	11	11	11	15.5	15	16	40
Y [mm]	71	79	79	89	110	155	170	185	212	263

KH / KA / KHF / KAF	19	29
Kit part number ¹	1068 415 8	1068 416 6
G4 [mm]	62	68
O2 [mm]	83	90
X [mm]	9	7
Y [mm]	50	60

WH / WA / WHF / WAF	37	47
Kit part number ¹	1061 136 3	1061 194 0
G4 [mm]	68	80.5
O2 [mm]	95.5	109.5
X [mm]	15	13.5
Y [mm]	50	72

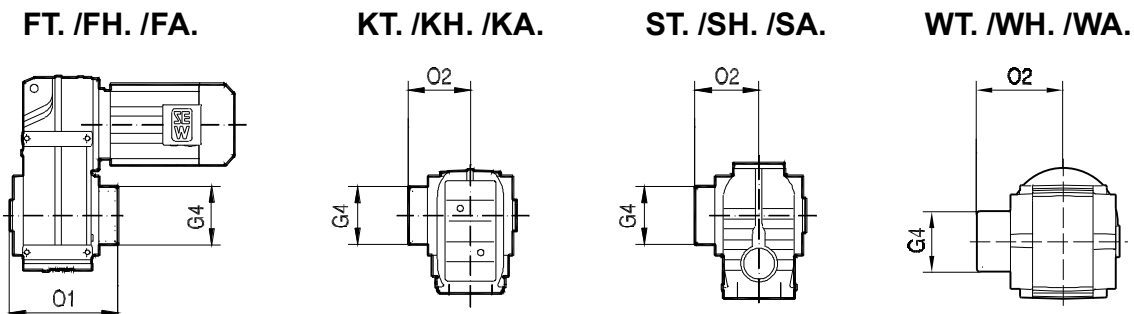
SH / SA / SHF / SAF	37	47	57	67	77	87	97
Kit part number ¹	643 512 2	643 513 0	643 514 9	643 515 7	643 516 5	643 517 3	643 518 1
G4 [mm]	59	78	88	100	121	164	185
O2 [mm]	88	95	111.5	123	147	176	204.5
X [mm]	9	9	9.5	11	11	11	14.5
Y [mm]	49	71	79	89	110	155	174

¹Kit contains cover and mounting bolts.

²Not possible on helical-bevel units with foot-mounting (KH..B, KA..B), since there are no mounting holes for the cover.

6.9.2 Non-rotating metal covers

Gear units with TorqLOC® (FT, ST, KT, WT) are normally supplied with a stainless steel cover and seal. This cover is **optional** on units with a hollow shaft and key or units with shrink disc. Note that on some combinations of theSnuggler® (FT./FH./FA.), the metal cover interferes with the motor. However, in these cases, a split or split/notch cover may be available as shown on the next page.



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FH / FA / FT / FHF / FAF / FTF	37	47	57	67	77	87	97	107	127	157
Kit part number ¹	0643584X	06435858	06435866	06435866	06435874	06435882	06435890	06421814	06421822	06421830
G4 [mm]	81	90	101	101	124	165	200	196	229	275
O1 ² [mm]	166	199	222	236	285	322	382	421	502	605

KH ³ / KA ³ / KT / KHF / KAF / KTF	37	47	57	67	77	87	97	107	127	157
Kit part number ¹	0643584X	06435858	06435866	06435866	06435874	06435882	06435890	06421814	06421822	06421879
G4 [mm]	81	90	101	101	124	165	200	196	229	275
O2 ² [mm]	104	122	137	143	177	229	382	246	297	375

KH / KA / KT / KHF / KAF / KTF	19	29	39	49
Kit part number ¹	06442595	10631259	10682651	10682964
G4 [mm]	62	68	86	97
O2 ² [mm]	83	90	117.5	138

WH / WA / WT / WHF / WAF / WTF	37	47
Kit part number ¹	10611479	10611959
G4 [mm]	67	78
O2 ² [mm]	95.5	109

SH / SA / ST / SHF / SAF / STF	37	47	57	67	77	87	97
Kit part number ¹	10640290	0643584X	06435858	06435866	06435874	06435882	06435890
G4 [mm]	64	81	90	101	124	165	200
O2 ² [mm]	98	104	122	137	177	203	223

¹Kit contains metal cover, mounting bolts, gasket, and thread reduction adapters (if applicable).

²O1 and O2 dimensions apply to units with shrink disc or keyed hollowshaft (ex: FH or FA).

³Not possible on helical-bevel units with foot-mounting (KH..B, KA..B, KT..B), since there are no mounting holes for the cover.

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6.9.3 Maximum motor size with non-rotating covers

On certain gear unit/motor combinations of the Snuggler®, the motor diameter interferes with either the shrink disc or the cover. The following tables show the maximum motor size where there is no interference.

Non-rotating black plastic cover









Gear unit	FH.37	FH.47	FH.57	FH.67	FH.77	FH.87	FH.97
Max DRN.. size	80	90	80	100	132	180	180

Non-rotating metal cover

Gear unit	FT.37	FT.47	FT.57	FT.67	FT.77	FT.87	FT.97
Max DRN.. size	71	71	80	100	132	160	160

6.9.4 Modified metal covers - Split or split/notch

Split or split/notched covers are available on some TorqLOC® combinations when the standard metal cover interferes with the motor.

Gear unit	FT.37		FT.47	FT.57		FT.67		FT.77
DRN..	80	90 / 100	80/90/100	90	100	112 /132S	132M	160
Kit #	22584331	22584250	22584269	22584277	22584285	22584277	22584285	22584315
Cover Type	Split	Split/Notch	Split	Split	Split/Notch	Split	Split/Notch	Split/Notch
								

6.9.5 Optional safety covers for TorqLOC®

Instead of the standard stainless cover on the exit side, some gear units with TorqLOC® are available with two plastic covers at no extra charge. This option includes a safety-yellow cover on the exit side to protect the shrink disc plus a safety-yellow (or gray) split cover on the input side to protect the clamping ring. The following kit part numbers include the cover, bolts, and thread reduction adapters (if necessary).

	Gear unit size ¹			Entry side – Split	
				Yellow kit	Gray kit
	FT37B	KT37	ST47	25054864	25054805
	FT47B	KT47	ST57	25054872	25054813
	FT57B	KT57	ST67	25054880	25054821
FT67B	KT67				
	Gear unit size				Exit side – Solid
					Yellow kit
	FT37B	FT37	KT37	ST47	25054945
	FT47B	FT47	KT47	ST57	25054953
	FT57B	FT57	KT57	ST67	25054961
FT67B	FT67	KT67			

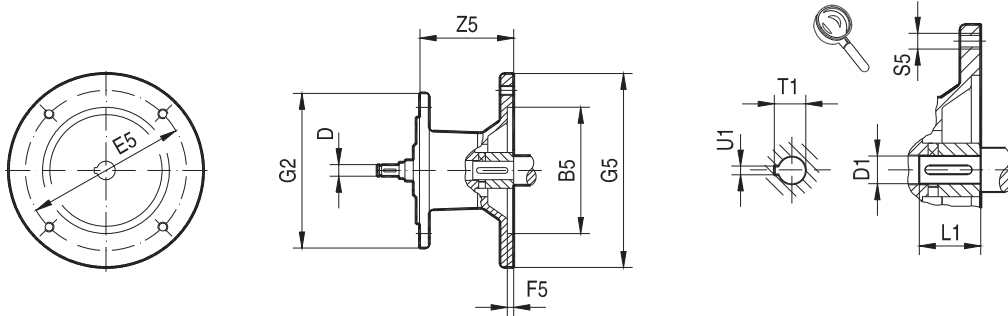
1) the Snuggler gear unit must have rail holes (FT..B) to provide mounting holes for the cover.

6.10 Motor adapters

6.10.1 IEC motors

23 002 100

6



Gear unit type	Adapter type	Dimensions in mm											
		B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AM63	95	10	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 ¹⁾	110		130	4		160			14	30	16.3	5
	AM80 ¹⁾	130	12	165	4.5		200	M10	106	19	40	21.8	6
	AM90 ¹⁾		14							24	50	27.3	8
R..47 ²⁾ , R..57, R..67 F..57, F..67 K..39, K..47 ²⁾ , K..57, K..67 S..67 W..47 ³⁾	AM63	95	10	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71	110		130	4		160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	99	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100 ¹⁾	180	16	215	5		250	M12	134	28	60	31.3	8
	AM112 ¹⁾		18							300	38	80	41.3
AM132S/M ¹⁾	230	22	265		300		191	38	80	41.3	10		
R..77 F..77 K..49, K..77 S..77	AM63	95	10	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71	110		130	4		160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	92	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100 ¹⁾	180	16	215	5		250	M12	126	28	60	31.3	8
	AM112 ¹⁾		18							300	38	80	41.3
	AM132S/M ¹⁾	230	22	265			300	M12	179	38	80	41.3	10
	AM132ML ¹⁾		28										
R..87 F..87 K..87 S..87 ⁴⁾	AM80	130	12	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100	180	16	215	5		250	M12	121	28	60	31.3	8
	AM112		18										
	AM132S/M	230	22	265			300	M12	174	38	80	41.3	10
	AM132ML		28										
	AM160 ¹⁾	250	28	300	6		350	M16	232	42	110	45.3	12
AM180 ¹⁾	32		48			51.8				14			

1) Check dimension (G5)/2 because component may protrude past foot-mounting surface if installed on R, K, S or W foot-mounted gear unit.

2) Maximum AM100

3) Maximum AM90

4) Not with AM180

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Fig.1

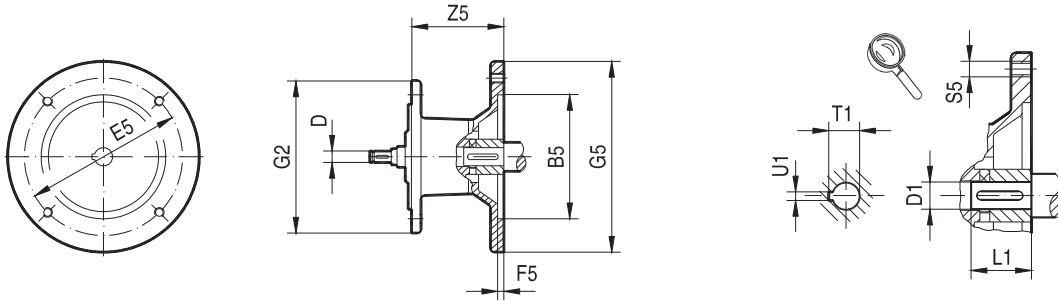
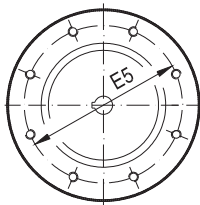


Fig.2



Gear unit type	Adapter type	Fig.	Dimensions in mm												
			B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
R..97 F..97 K..97 S..97 ¹⁾	AM100	1	180	16	215	5	300	250	M12	116	28	60	31.3	8	
	AM112			18											
	AM132S/M		230	22	265										
	AM132ML			28											
	AM160		250	32	300			6	350	M16	227	42	110	45.3	12
	AM180			48								51.8			
	AM200		300	38	350			7	400	268	55	59.3	16		
R..107, R..127 F..107 K..107	AM100	1	180	16	215	5	350	250	M12	110	28	60	31.3	8	
	AM112			18											
	AM132S/M		230	22	265										
	AM132ML			28											
	AM160		250	32	300			6	350	M16	221	42	110	45.3	12
	AM180			48								51.8			
	AM200		300	38	350			7	400	262	55	59.3	16		
	AM225	2	350	400	7	450	277	60	140	64.4	18				
R..137	AM132S/M	1	230	22	265	5	400	300	M12	156	38	80	41.3	10	
	AM132ML			28											
	AM160		250	32	300			6	350	M16	214	42	110	45.3	12
	AM180	48		51.8											
	AM200	300	38	350	7	400	255	55	59.3	16					
	AM225	2	350	400	7	450	270	60	140	64.4	18				

1) Not with AM200

23 004 100

Fig.1

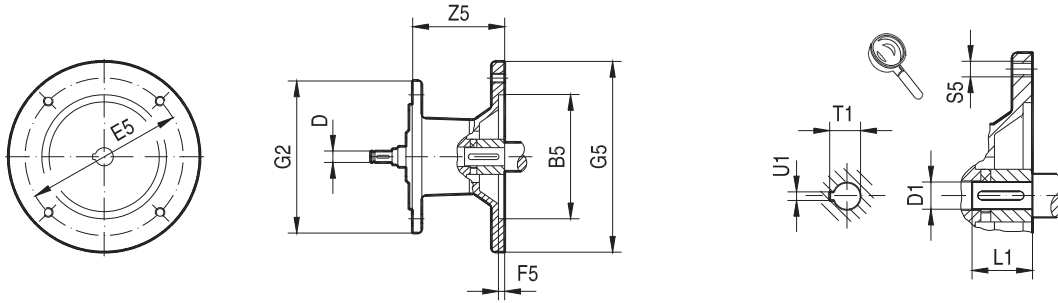
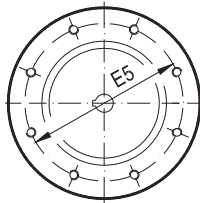
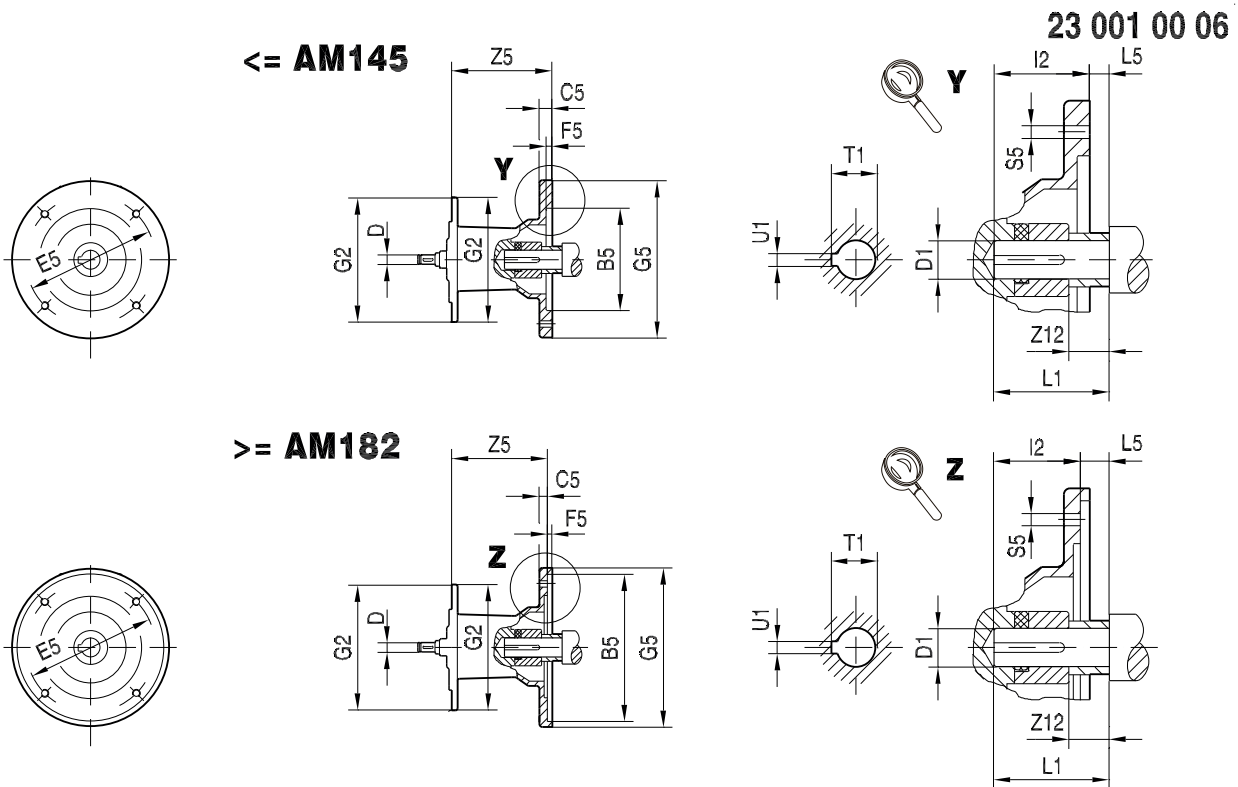


Fig.2



Gear unit type	Adapter type	Fig.	Dimensions in mm											
			B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..147 F..127 K..127	AM132S/M	1	230	22	265	5	450	300	M12	148	38	80	41.3	10
	AM132ML			28										
	AM160		28	300	6	350		42	45.3	12				
	AM180										32			
	AM200	38	350	7	400	247		55	110	59.3	16			
	AM225											350	400	
	AM250	48	500	7	550	336		65	140	69.4	18			
	AM280											450	48	500
R..167 F..157 K..157 K..167 K..187	AM160	1	250	28	300	6	550	350	M16	198	42	110	45.3	12
	AM180			32										
	AM200		38	350	7	400		239	55	140	59.3	16		
	AM225												350	400
	AM250	48	500	7	550	328		65	140	69.4	18			
	AM280											450	48	500

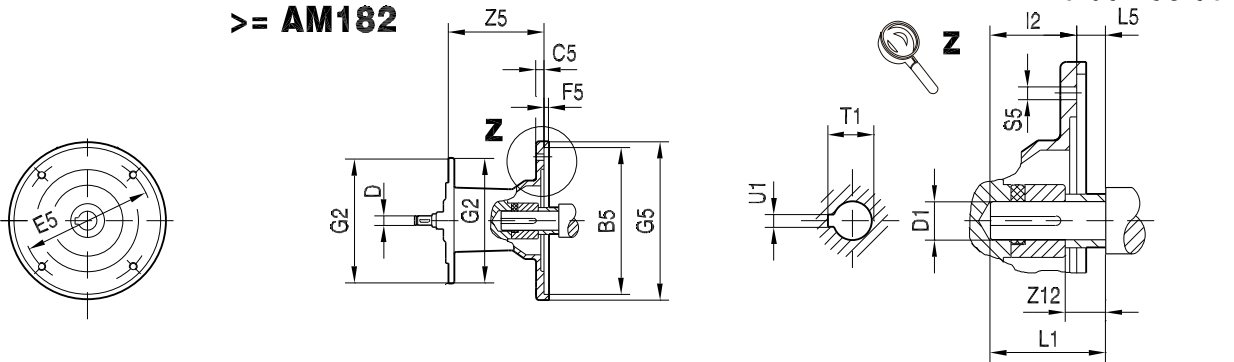
6.10.2 NEMA motors



Gear unit type	Adapter type	Dimensions in mm/inch																
		B5 inch	C5 mm	D mm	E5 inch	F5 mm	G2 mm	G5 mm	I2 mm	L5 inch	S5 mm	Z5 mm	Z12 mm	D1 inch	L1 inch	T1 inch	U1 inch	
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AM56	4.50	11	10	5.875	4.5	120	170	52.55	-0.18	10.5	93.5	16.5	0.625	1.88	0.71	0.188	
	AM143		12	12					54.1	0.13		117	14.5	0.875	2.25	0.98		
	AM145		12	14					54.1	0.13		117	14.5	0.875	2.25	0.98		
	AM56		11	10					52.55	-0.18		87	16.5	0.625	1.88	0.71		
	AM143		12	12					54.1	0.13		110.5	14.5	0.875	2.25	0.98		
	AM145		12	14					54.1	0.13		110.5	14.5	0.875	2.25	0.98		
R..47, R..57, R..67 F..57, F..67 K..39, K..47, K..57, K..67 S..67 W..47 ¹⁾	AM56	8.50	10	16	7.25	5	160	228	66.85	0.13	15	147.5	16.5	1.125	2.75	1.24	0.250	
	AM143		12	12					79.55	0.25		200.5	15.8	1.375	3.38	1.52	0.312	
	AM145		12	14					79.55	0.25		200.5	15.8	1.375	3.38	1.52	0.312	
	AM182		10	18					66.85	0.13		139.5	16.5	1.125	2.75	1.24	0.250	
	AM184		10	18					66.85	0.13		139.5	16.5	1.125	2.75	1.24	0.250	
	AM213/215		11	22					79.55	0.25		188.5	15.8	1.375	3.38	1.52	0.312	
R..77 F..77 K..49, K..77 S..77	AM56	4.50	11	10	5.875	4.5	200	170	52.55	-0.18	10.5	81	16.5	0.625	1.88	0.71	0.188	
	AM143		12	12					54.1	0.13		103.5	14.5	0.875	2.25	0.98		
	AM145		12	14					54.1	0.13		103.5	14.5	0.875	2.25	0.98		
	AM182		10	16					66.85	0.13		139.5	16.5	1.125	2.75	1.24		0.250
	AM184		10	18					66.85	0.13		139.5	16.5	1.125	2.75	1.24		0.250
	AM213/215		11	22					79.55	0.25		188.5	15.8	1.375	3.38	1.52		0.312
R..87 F..87 K..87 S..87	AM143	4.50	12	12	5.875	4.5	250	170	54.1	0.13	10.5	98.5	14.5	0.875	2.25	0.98	0.188	
	AM145		12	14					54.1	0.13		98.5	14.5	0.875	2.25	0.98		
	AM182	8.50	10	16	7.25	5	228	228	66.85	0.13	15	134.5	16.5	1.125	2.75	1.24	0.250	
	AM184		10	18					66.85	0.13		134.5	16.5	1.125	2.75	1.24	0.250	
	AM213/215		11	22					79.55	0.25		183.5	15.8	1.375	3.38	1.52	0.312	
	AM254/256		12	28					95.3	0.25		234	8.8	1.625	4.00	1.80	0.375	
	AM284/286		10.50	15					32	9.00		286	111.05	0.25	15	241	15.8	1.875

1) Maximum AM143/AM145

>= AM182



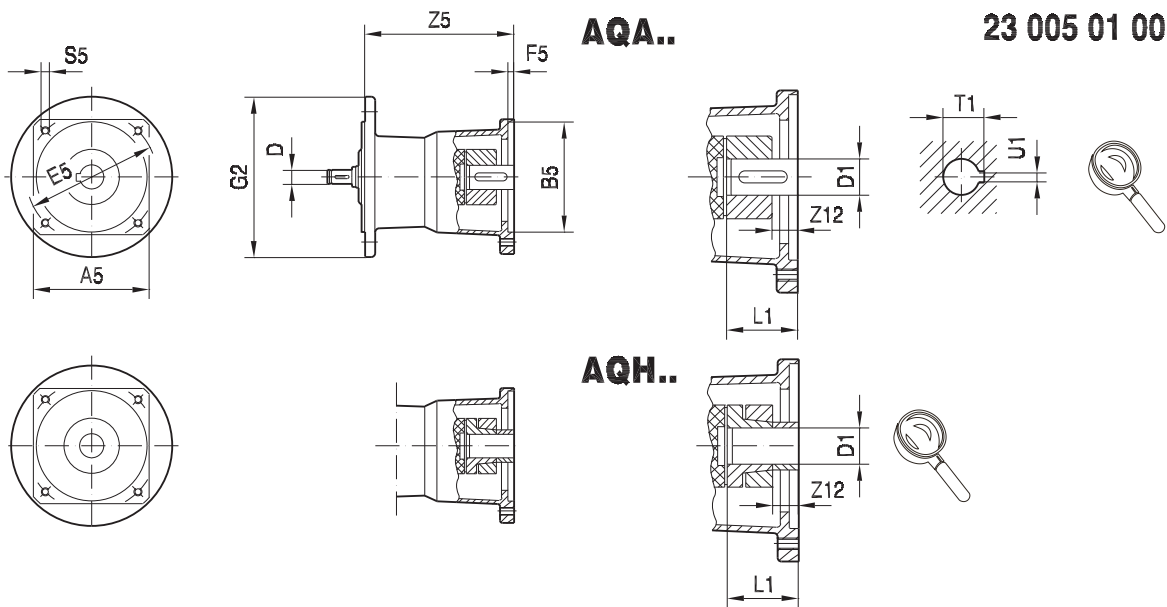
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Gear unit type	Adapter type	Dimensions in mm/inch															
		B5 inch	C5 mm	D mm	E5 inch	F5 mm	G2 mm	G5 mm	I2 mm	L5 inch	S5 mm	Z5 mm	Z12 mm	D1 inch	L1 inch	T1 inch	U1 inch
R..97 F..97 K..97 S..97	AM182	8.50	10	16	7.25	300	228	66.85	0.13	15	129.5	16.5	1.125	2.75	1.24	0.250	
	AM184			18													
	AM213/215		11	22													
	AM254/256	12	28	9.00	286		111.05	0.25	236	15.8	1.875	4.62	2.10	0.500			
	AM284/286	20	32														
	AM324/326	12.50	17	38	11.0		356	127.05	17.5	296	34.8	2.125	5.25	2.36	0.500		
	AM364/365															2.375	5.88
R..107, R..127 F..107 K..107	AM182	8.50	10	16	7.25	350	228	66.85	0.13	15	123.5	16.5	1.125	2.75	1.24	0.250	
	AM184			18													
	AM213/215		11	22													
	AM254/256	12	28	9.00	286		111.05	0.25	230	15.8	1.875	4.62	2.10	0.500			
	AM284/286	15	32														
	AM324/326	12.50	17	38	11.0		356	127.05	17.5	290	34.8	2.125	5.25	2.36	0.500		
	AM364/365															2.375	5.88
R..137	AM213/215	8.50	11	22	7.25	400	228	79.55	0.25	15	165.5	15.8	1.375	3.38	1.52	0.312	
	AM254/256																12
	AM284/286	10.50	15	32	9.00		286	111.05		17.5	216	8.8	1.625	4.00	1.80	0.375	
	AM324/326	12.50	17	38	11.0		356	127.05		17.5	283	34.8	2.125	5.25	2.36	0.500	
	AM364/365																2.375
R..147 F..127 K..127	AM213/215	8.50	11	22	7.25	450	228	79.55	0.25	15	157.5	15.8	1.375	3.38	1.52	0.312	
	AM254/256																12
	AM284/286	10.50	15	32	9.00		286	111.05		17.5	208	8.8	1.625	4.00	1.80	0.375	
	AM324/326	12.50	17	38	11.0		356	127.05		17.5	215	15.8	1.875	4.62	2.10	0.500	
	AM364/365																2.375
R..167 F..157 K..157 K..167 K..187	AM254/256	8.50	12	28	7.25	550	228	95.3	0.25	15	200	8.8	1.625	4.00	1.80	0.375	
	AM284/286	10.50	15	32	9.00		286	111.05									17.5
	AM324/326	12.50	17	38	11.0		356	127.05		17.5	267	34.8	2.125	5.25	2.36	0.500	
	AM364/365																2.375

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6.10.3 Servomotors

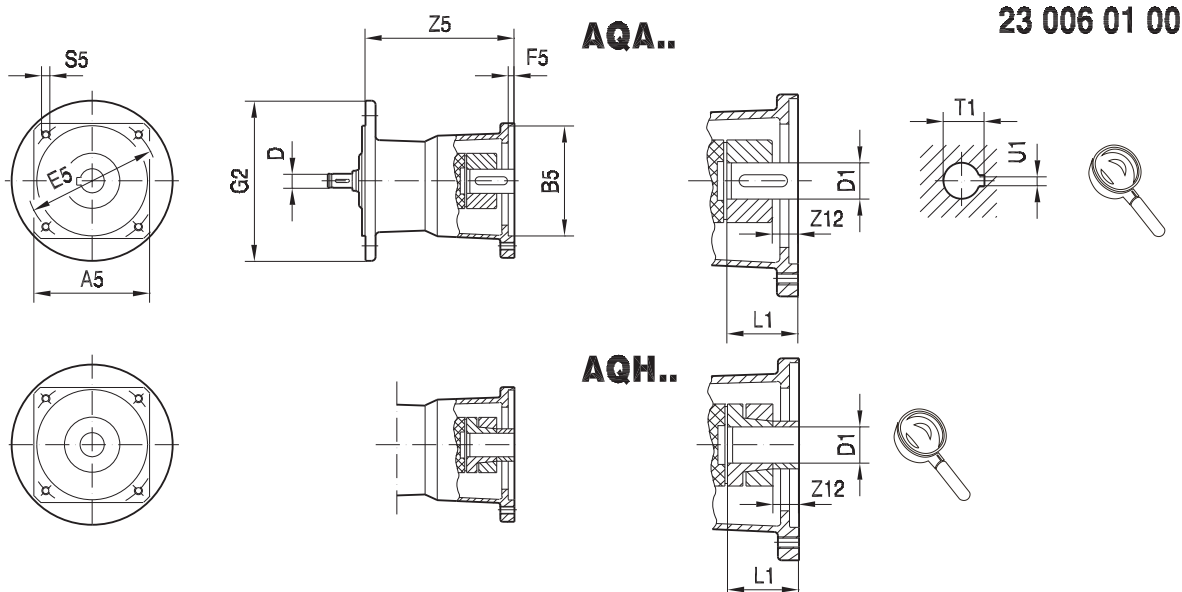


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Gear unit type	Adapter type	Dimensions in mm																
		A5	B5	D	E5	F5	G2	S5	Z5	Z12 ¹⁾	Z12 ²⁾	D1	L1	T1 ¹⁾	U1 ¹⁾			
R..27, R..37 F..27, F..37, F..47 K..19, K..29, K..37 S..37, S..47, S..57 W..37	AQ..80/1	82	60	10 12	75	3	120	M5	104.5	5.5	5.5	11	23	12.8	4			
	AQ..80/2		50		95			14								30	16.3	5
	AQ..80/3		80	100	19							40	21.8	6				
	AQ..100/1	100	80	10 12 14 16		100		4	M6	129.5	-				-	14	30	16.3
	AQ..100/2		95		115	M8			143.5			2	14	19				
	AQ..100/3		80	100	M6											143.5	2	14
	AQ..100/4	95	115	M8		152.5		11	23	19	40	21.8	6					
	AQ..115/1	115	95		10 12 14 16									130	4	M8	152.5	11
	AQ..115/2		110	130		M8		152.5	11	23	19	40	21.8	6				
	AQ..115/3		110	130	M8											152.5	11	23
R..47, R..57, R..67 F..57, F..67 K..39, K..47 ³⁾ , K..57, K..67 S..67 W..47	AQ..80/1	82	60	10 12		75	3	160	M5	98	5.5	5.5	11	23	12.8			
	AQ..80/2		50		95	14			30							16.3	5	
	AQ..80/3		80	100	19								40	21.8	6			
	AQ..100/1	100	80	10 12 14 16		100	4		M6	122.5	-	-				14	30	16.3
	AQ..100/2		95		115	M8			122.5				-	-	14			
	AQ..100/3		80	100	M6											136.5	2	14
	AQ..100/4	95	115	M8		145.5	11		23	19	40	21.8	6					
	AQ..115/1	115	95		10 12 14 16									130	4	M8	145.5	11
	AQ..115/2		110	130		M8	145.5		11	23	19	40	21.8	6				
	AQ..115/3		110	130	M8											145.5	11	23
	AQ..140/1	140	130	16 18 22		165	5		M10	175	16	16	24	50	27.3			
	AQ..140/2		130		165	M10										175	16	16
	AQ..140/3		130	165	M10				175	16	16	24	50	27.3	8			
	AQ..140/4		130	165		M10										175	16	16
	AQ..160/1	162	155	22 28	190		5		M12	237.5	24	24	32	60	35.3			
AQ..190/1	190	130	215		M12	237.5		24								24	32	60
AQ..190/2		130	215	M12					237.5	24	24	32	60	35.3	10			
AQ..190/3		180	215		M12	261.5	34	34								38	80	41.3

1) For designs with keyway (AQA..)
 2) For designs with clamping ring hub (AQH..)
 3) Not with AQ190

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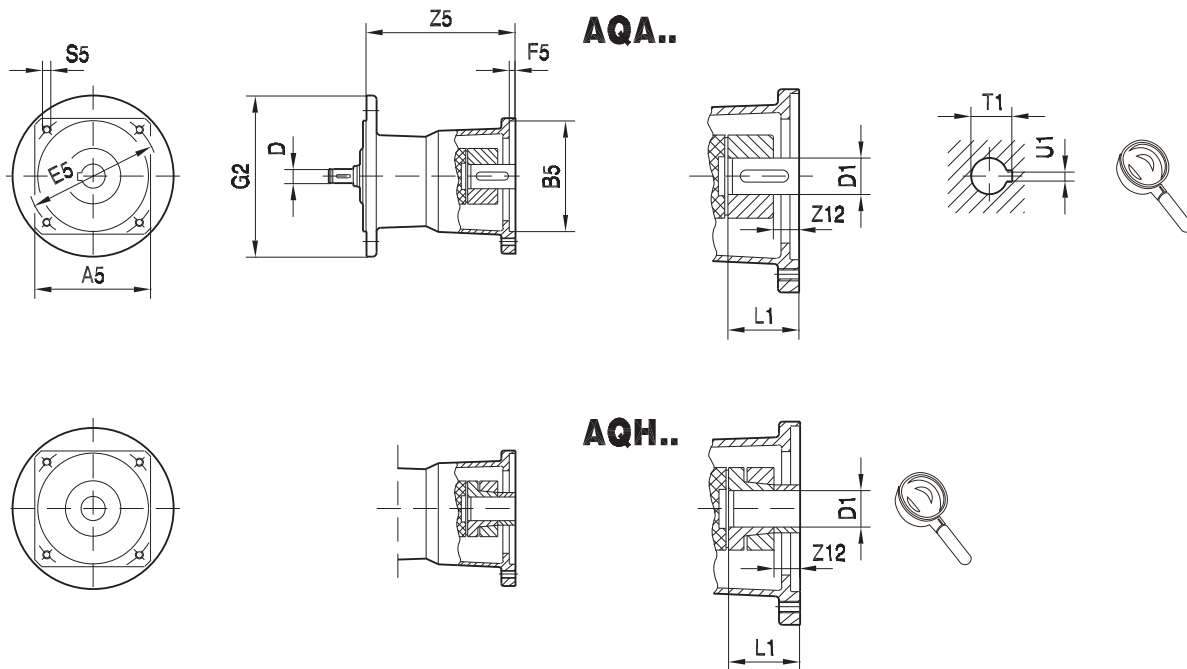
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Gear unit type	Adapter type	Dimensions in mm																									
		A5	B5	D	E5	F5	G2	S5	Z5	Z12 ¹⁾	Z12 ²⁾	D1	L1	T1 ¹⁾	U1 ¹⁾												
R..77 F..77 K..49, K..77 S..77	AQ..80/1	82	60	10	75	3	200	M5	92	5.5	5.5	11	23	12.8	4												
	AQ..80/2		50	12	95			14				30				16.3	5										
	AQ..80/3			10	100			19																			
	AQ..100/1	100	80	10	115	4		M6	115.5	-	-		19	40	21.8			6									
	AQ..100/2		12		100			M8				129.5				2	14										
	AQ..100/3		14		115			M8											138.5	11	23						
	AQ..100/4		16		130							M10				167	16					16	24	50	27.3	8	
	AQ..115/1	115	110	16	165	5		M10	180	22	22		32	60	35.3			10									
	AQ..115/2											18				190	28		31.3	8							
	AQ..115/3											22				215					32	35.3	10				
	AQ..140/1	140	130	18	165	5		M12	225.5	24	24	38	80	41.3	10												
	AQ..140/2															190	180	22	215	M12	249.5	34	34	38	80	41.3	
	AQ..140/3																										190
	AQ..140/4															190	180	22	215	M12	244.5	34	34	38	80	41.3	
	AQ..160/1	162	155	22	215	5		M12	220.5	24	24	32	60	35.3	10												
	AQ..190/1	190	180													22	215	5	M12	220.5	24	24	32	60	35.3	10	
AQ..190/2	190			180	22	215	5	M12	220.5	24	24	32	60	35.3	10												
AQ..190/3																											190
AQ..100/1	100	80	12	100	4	250	M6	110.5	-	-	14	30	16.3	5													
AQ..100/2		95		115			M6								124.5	2	14	19	40	21.8	6						
AQ..100/3		80		100																		M8	133.5	11	23	19	40
AQ..100/4		95		115			M8								133.5	11	23	19	40	21.8	6						
AQ..115/1	115	110	14	130	4			M8	133.5	11	23	19	40	21.8								6					
AQ..115/2							115								110	14	130	4	M8	133.5	11		23	19	40	21.8	6
AQ..115/3																											
AQ..140/1	140	130	16	165	5		M10	162	16	16	24	50	27.3	8													
AQ..140/2															190	180	22	215	5	M10	175	22	22	32	60	35.3	10
AQ..140/3																											
AQ..140/4															190	180	22	215	5	M10	175	22	22	32	60	35.3	10
AQ..160/1	162	155	22	215	5		M12	220.5	24	24	32	60	35.3	10													
AQ..190/1	190	180													22	215	5	M12	220.5	24	24	32	60	35.3	10		
AQ..190/2			190	180	22		215	5	M12	220.5	24	24	32	60												35.3	10
AQ..190/3																											

1) For designs with keyway (AQA..)

2) For designs with clamping ring hub (AQH..)

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Gear unit type	Adapter type	Dimensions in mm																				
		A5	B5	D	E5	F5	G2	S5	Z5	Z12 ¹⁾	Z12 ²⁾	D1	L1	T1 ¹⁾	U1 ¹⁾							
R..97 F..97 K..97 S..97	AQ..140/1	140	110	16 18 22	165	5	300	M10	157	16	16	24	50	27.3	8							
	AQ..140/2		130						32	28	60					35.3	10					
	AQ..140/3																	170	22	22	31.3	8
	AQ..140/4																					
	AQ..160/1	190	130	22 28	215			M12	215.5	24	24	32	60	35.3	10							
	AQ..190/1		180						209.5	24	24					32	35.3					
	AQ..190/2																	233.5	34	34	38	80
AQ..190/3	190	130	22 28	215	M12	202.5	24	24	32	60	35.3	10										
AQ..190/1		180				226.5	34	34					38	80	41.3							
AQ..190/2																194.5	24	24	32	60	35.3	
AQ..190/3	140	110	16 18 22	165	5	350	M10	151	16	16	24	50	27.3	8								
AQ..140/1		130						32	28	60					35.3	10						
AQ..140/2																	162	155	190	M10	164	22
AQ..140/3	209.5	24	24	32	35.3																	
AQ..140/4						233.5	34	34	38	80	41.3											
AQ..160/1	190	130	22 28	215	M12							202.5	24	24	32	60	35.3	10				
AQ..190/1		180				226.5	34	34	38	80	41.3											
AQ..190/2												194.5	24	24					32	60	35.3	
AQ..190/3	140	110	16 18 22	165	5	400	M12	194.5	24	24	32				60	35.3						
AQ..140/1		130						209.5	24	24		32	35.3									
AQ..140/2														162			155	190	M10	218.5	34	34
AQ..140/3	209.5	24	24	32	35.3																	
AQ..140/4						233.5	34	34	38	80	41.3											
AQ..160/1	190	130	22 28	215	M12							202.5	24	24	32	60	35.3	10				
AQ..190/1		180				226.5	34	34	38	80	41.3											
AQ..190/2												194.5	24	24					32	60	35.3	
AQ..190/3	140	110	16 18 22	165	5	450	M12	218.5	34	34	38				80	41.3						
AQ..140/1		130						209.5	24	24		32	35.3									
AQ..140/2														162			155	190	M10	218.5	34	34
AQ..140/3	209.5	24	24	32	35.3																	
AQ..140/4						233.5	34	34	38	80	41.3											

1) For designs with keyway (AQA..)

2) For designs with clamping ring hub (AQH..)

6.11 Gear unit mounting

6.11.1 Foot or flange mounting

INFORMATION



Alignment is critical when installing gear units with a flange or with feet. Installation recommendations are available online within the **Technical Notes** section at:

→ www.seweurodrive.com

For gear units with a flange, review Technical Note **GM-020**.

For gear units with hollow shaft and feet, review Technical Note **GM-019**.

Bolt strength:

Always install gearmotors using screws of strength **class 8.8**.

Gearmotors in flange-mounted design and in foot-/flange-mounted design listed in the following table are an exception. Always use screws of strength class 10.9 for these gearmotors. In addition, use suitable washers.

Gear unit	Flange Ø in mm	Strength class of the screws
RF37/R37F	120	10.9
RF47/R47F	140	
RF57/R57F	160	
FF/FAF77/KF/KAF77	250	
RF147	450	
RF167	550	
RZ37 – RZ87	60ZR – 130ZR	
All other units		8.8

Lifting Eyebolts:

R07..R27 helical gear units, motors up to DRN..100 and the Spiroplan® gearmotors W..10 to W..30 are delivered without additional hardware for ease of handling. All other gear units and motors are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs, or screw-on lifting eyebolts, as noted below.

Gear Unit	Screw-on		Cast-on eyebolts
	lifting eyebolts	eyebolts	
R..37 - R..57		X	
R..67 - R..107	X		
RX57 - RX67		X	
RX77 - RX107	X		
F..27 - F..157			X
K..37 - K..157			X
K..167 - K..187	X		
S..37 - S..47		X	
S..57 - S..97			X
W37 - W47		X	

X = Standard; blank = not available

6.11.2 Torque arm mounting

DANGER NOTICE



If gear units with hollow shaft and feet (e.g. KA19/29B, KA127/157B or FA127/157B) are mounted via both a torque arm and feet, injury or damage could result due to binding forces!

- KA.9B/T design: Do NOT use the feet and torque arm at the same time. Mount via the torque arm only.
- K.9 or KA.9B: Mount via the feet only.
- If you have a special need for using both the feet and torque arm, contact SEW-EURODRIVE.

Part numbers

The following table lists the part numbers of available torque arms and rubber buffers.

Gear unit	Size			
	19	29	39	49
KA, KH, KT	10684115	10684107	10682163	06442439

Gear unit	Size					
	27	37	47	57	67	77
KA, KH, KV, KT	-	6434258	6434282	6434312	6434312	6434347
SA, SH, ST	-	1269941	6442374	6442404	6442439	6442463
FA, FH, FV, FT Rubber buffer (2 pieces)	0133485	0133485	0133485	0133485	0133485	0133493

Gear unit	Size					
	87	97	107	127	157	167/187
KA, KH, KV, KT	6434371	6434401	6434436	6432948	6432956-	N/A
SA, SH, ST	6442498	6442528	-	-	-	-
FA, FH, FV, FT Rubber buffer (2 pieces)	0133493	0133507	0133507	0133515	0133477	-

Gear unit	Size					
	10	20	30	37	47	
WA, WH, WT	10610219	1680730	1680110	10611290	10611851	

INFORMATION

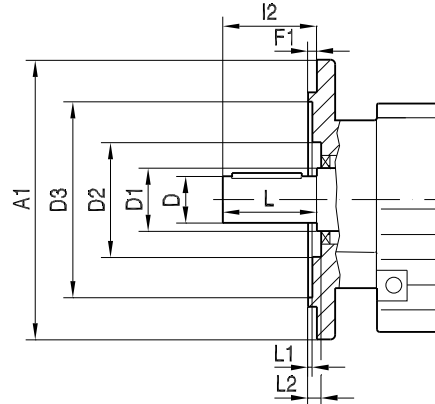


For proper design and mounting of torque arms and torque arm brackets, please see Technical Note **GM-021**, available at:

→ www.seweurodrive.com

6.12 Flange contours

6.12.1 RF.. and R..F



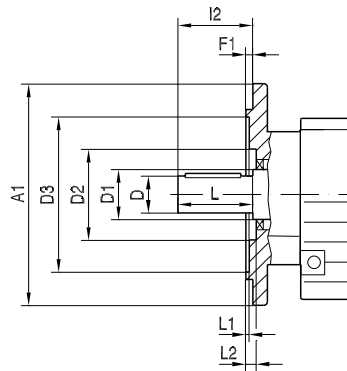
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Check dimensions L1 and L2 for selection and installation of output elements.

Type	A1	D	D1	D2		D3	F1	I2	L	L1		L2						
				RF	R..F					RF	R..F							
RF07, R07F	120	20	22	38	38	72	3	40	40	2	2	6						
	140 ¹⁾				-	85				3.5	2.5		-					
	160 ¹⁾				-	100												
RF17, R17F	120				25	25	46			46	65	3	50	50	1	1	5	
	140									-	78				3.5	-		-
	160 ¹⁾									-	95							
RF27, R27F	120	25	30	54	54	66	3	60	60	1	1	6						
	140				-	79				3.5	3				-			
	160				-	92												
RF37, R37F	120				30	35	60			63	70	3	70	70	5	4	7	
	160									-	96				3.5	1		-
	200 ¹⁾									-	119							
RF47, R47F	140	35	40	76				64	82	3	80	80			4	1	6	
	160							-	96						3.5	0.5		-
	200							-	116									
RF57, R57F	160				35	50	90	75	96	3.5			100	100	4	2.5	5	
	200							-	116						4	0		-
	250 ¹⁾							-	160									
RF67, R67F	200	40	52	112				90	118	3.5	120	120			2	4	7	
	250							-	160						4	1		-
	300 ¹⁾							-	210									
RF77, R77F	300				50	62	123	122	210	4			140	140	0.5	2.5	7	
	350							-	226						5	0		-
	450							-	236									
RF87, R87F	350	60	72	136				-	210	5	170	170			1	1.5	8	
	450							-	232						6	1		-
	550							-	316									
RF97	450				70	82	157	-	232	5			210	210	0	2.5	9	
	550							-	316						6	1		-
	660							-	316									
RF107	450	90	108	180				-	316	5	210	210			0	2.5	10	
	550							-	416						6	1		-
	660							-	416									
RF137	450				110	125	210	-	316	5			210	210	0	2.5	10	
	550							-	416						6	1		-
	660							-	416									
RF147	450	120	145	290				-	517	6	210	210			1	2	11	
	550							-	517						6	1		-
	660							-	517									
RF167	450				120	145	290	-	517	6			210	210	1	2	11	
	550							-	517						6	1		-
	660							-	517									

1) The flange contour protrudes from under the base surface.

6.12.2 FF..., KF..., SF.. and WF..



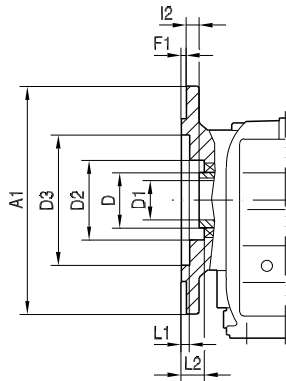
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Check dimensions L1 and L2 for selection and installation of output elements.

Type	Dimensions in mm									
	A1	D	D1	D2	D3	F1	I2	L	L1	L2
FF27	160	25	40	66	96	3.5	50	50	3	18.5
FF37			30	70	94				2	6
FF47	200	30	40	72	115	4	60	60	3.5	7.5
FF57	250	35		84	155		70	70	4	9
FF67	250	40	50	82	155	4	80	80		
FF77	250	50	55				205	220	5	100
FF87	350			60	65	115				120
FF97	450	70	75	112	320	5	140	140	10	-
FF107		90	100	159	318		170	170		
FF127	550	110	118	-	420	6	210	210	10	-
FF157	660	120	135	190	520				8	14
KF19	120	20	25	-	70	2.5	40	40	-	11.5
	160				100					
KF29	200	25	30	-	109	3.5	50	50	-	6.5
	200				115					
KF37	160	30	39	68	96	3.5	60	60	2	6
KF39									40	72
KF47	200	35	49	76	115	4	70	70	3.5	7.5
KF49									24.5	28
KF57	250	35	40	84	155	4	70	70	4	9
KF67		40	50				80	80		
KF77	250	50	55	82	155	4	100	100	5	9
	300									
KF87	350	60	65	115	220	5	120	120	8	10
KF97	450	70	75	112	320	5	140	140	16	9
KF107		90	100	159	318		170	170	10	-
KF127	550	110	118	-	420	6	210	210	8	14
KF157	660	120	135	190	520				6	3
SF37	120	20	25	-	68	3.5	40	40	6	-
	160	20	25	-	96				5.5	
SF47	200	25	30	70	94	4	50	50	2	6
SF57		30	40	72	115		60	60	3.5	7.5
SF67	250	35	45	-	-	5	70	70	8.5	-
SF77		45	55	108	160		90	90	8	9
SF87	350	60	65	130	220	5	120	120	6	10
SF97	450	70	75	150	320		140	140	8.5	
WF10	80	16	25	-	39	2.5	40	40	30	-
	120		25	39	74	3			5	30
WF20	110	20	30	44	53	-4	40	40	27	35
	120			-	45	37.5			-	
WF30	160	20	30	48	63	2.5	40	40	18	27
	120			-	70				33	42
WF37	120	30	35	-	92	3.5	10	60	-	10.5
WF47	160								6	-

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6.12.3 FAF..., KAF..., SAF.. and WAF..



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Check dimensions L1 and L2 for selection and installation of output elements.

Type	Dimensions in mm								
	A1	D	D1	D2	D3	F1	I2	L1	L2
FAF27	160	40	25	66	96	3.5	20	3	18.5
FAF37		45	30	62	94		24	2	30
FAF47		50	35	70	115		25	3.5	31.5
FAF57	250	55	40	76	155	4	23.5	4	31
FAF67							23		
FAF77	250	70	50	95	155	5	37	5	45
	300				205				
FAF87	350	85	60	120	220	5	30	5.5	39
FAF97	450	95	70	135	320		41.5		51
FAF107		118	90	224			41		16
FAF127	550	135	100	185	420	6	51	6	63
FAF157	660	155	120	200	520		60	10	74
KAF19	120	30	20	60	70	2.5	25	9	25.5
	160				100				
KAF29	160	40	25 / 30	-	105	3.5	33.5	-	6.5
	200			-	118				
KAF39	160	50	30 / 35	68	96	3.5	24.5	10	27
KAF37	160	45	30	62	94		24	2	30
KAF47	200	50	35	70	115		25	3.5	8.5
KAF49	200	55	35 / 40	76	115	4	32.5	16	34.5
KAF57	250	55	40	76	155		23.5	4	31
KAF67						23			
KAF77	250	70	50	95	155	5	37	5	45
	300				205				
KAF87	350	85	60	120	220	5	30	5.5	39
KAF97	450	95	70	135	320		41.5		51
KAF107		118	90	224			41		16
KAF127	550	135	100	185	420	6	51	6	63
KAF157	660	155	120	200	520		60	10	74
SAF37	120	35	20	-	68	3	15	6	-
	160				96				
SAF47	200	45	30 / 25	62	94	3.5	24	2	30
SAF57		50	35 / 30	70	115		25	3.5	31.5
SAF67		65	45 / 40	91			42.5	4	48.5
SAF77	250	80	60 / 50	112	164	4	45.5	5	53.5
SAF87	350	95	70 / 60	131	220	5	52.5	6	62.5
SAF97	450	120	90 / 70	160	320	5	60	6.5	69
WAF10	80	25	16	-	39	2.5	23	30	-
	120			39	74	3		5	30
WAF20	110	30	18 / 20	44	53	-4	30	27	35
	120			-	45	2.5		37.5	-
WAF30	160			20	48			63	19.5
	120	35	20 / 25	54	70	3.5	34.5	33	42
WAF37	160						19.5	10.5	27
WAF47	160	45	25 / 30	72	92	3.5	10	6	45




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6.13 Oil aging sensor

6.13.1 DUO10A technical data

DUO10A	Technical data		
Preset oil grades	OIL1	CLP mineral oil.	$T_{max} = 100\text{ °C}$
		Bio oil	$T_{max} = 100\text{ °C}$
	OIL2	CLP HC synthetic oil:	$T_{max} = 130\text{ °C}$
		CLP PAO oil	$T_{max} = 130\text{ °C}$
	OIL3	Polyglycol CLP PG	$T_{max} = 130\text{ °C}$
OIL4	Food grade oil	$T_{max} = 100\text{ °C}$	
Switch outputs	1: Early warning (time to next oil change can be set to between 2 and 100 days) 2: Main alarm (time to oil change 0 days) 3: Maximum temperature exceeded T_{max} 4: DUO10A is ready for operation		
Permitted oil temperature	-40 °C – +130 °C		
Permitted temperature sensor	PT1000		
EMC	IEC1000-4-2/3/4/6		
Ambient temperature	-25 °C – +70 °C		
Operating voltage	DC 18 – 28 V		
Current consumption for DC 24 V	< 90 mA		
Protection class	III		
Degree of protection	IP67 (optionally IP69K)		
Housing materials	Evaluation unit: V2A, EPDM/X, PBT, FPM Temperature sensor: V4A		
Electrical connection	Evaluation unit: M12 plug connector PT1000 temperature sensor: M12 plug connector		

6.13.2 Part numbers

Designation	Description	Part number
 DUO10A	Evaluation unit (basic unit)	13438751
DUO10A-PUR-M12-5m	5 m PUR cable with 1 connector	13438778
DUO10A-PVC-M12-5m	5 m PVC cable with 1 connector	13438786
DUO10A	Angle bracket	13438808
DUO10A D = 34	Mounting clamp	13438794
 W4843 PT1000	PT1000 temperature sensor	13438816
W4843_4x0,34-2m-PUR	2 m PUR cable for PT1000 ¹⁾	13438824
W4843_4x0,34-2m-PVC	2 m PVC cable for PT1000 ²⁾	13438832
 DUO10A	Protection cap (for aseptic design, IP69K)	13439022

1) PUR cables are particularly suited for use in oil-contaminated environments.

2) PVC cables are particularly suited for use in moist environments.

6.13.3 Mounting to gear units (R, F, K,S)

Adapter for mounting the PT1000 temperature sensor in screw plug holes:

Complete adapter for PT1000 sensor	Part number
M10 × 1	13439030
M12 × 1.5	13439049
M22 × 1.5	13439057
M33 × 2	13439065
M42 × 2	13439073

Mounting base for installing the diagnostic unit at the gear unit with an angle bracket:

Mounting base with sealing ring	Part number
M10 × 1	13434411
M12 × 1.5	13438271
M22 × 1.5	13438298
M33 × 2	13438301
M42 × 2	13438328


7 Selections and dimensions - Overview

7.1 Possible combinations table

These tables show the possible physical combinations of single-speed gear units and AC motors and brakemotors based upon pinion gear and flange diameter. Contact SEW-EURODRIVE for information on two-speed AC motors and brakemotors.

For each combination the following values are specified: the input speed $n_e = 1700$ rpm, the output speed n_a , the maximum output torque T_{aMax} , the allowable overhung load F_{Ra} (at maximum output torque), the torsion angle φ (/R), and the ratio.

If no value is specified for the torsion angle $\varphi_{(/R)}$, the gear unit with this ratio is not available with "reduced backlash (/R)" option. If a numerical value is given, this gear unit is available with "reduced backlash (/R)" option. The numerical value specifies the rotational clearance of the reduced backlash version in angular minutes ['].

R77, $n_e=1700$ rpm											7250 lb-in	
n_a rpm	T_{aMax} lb-in	$F_{Ra}^{1)}$ lb	$\varphi_{(/R)}$	i	DR63 DRS71	DRN80M DRN90S	DRN90L	DRN100L DRN100LM	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
 3												
7.2	820	9920	6.4	195.24*								
8.4	820	9920	6.5	166.59								

Gear ratio; * indicates a finite ratio.

Dash (-) means reduced backlash (/R) option is not possible.


A numeric value represents the rotational clearance (in angular minutes) for gear unit that contains reduced backlash option.

Maximum allowable overhung load at maximum output torque T_{aMax}

Maximum output torque of the gear unit

Output speed

¹⁾ The value is based on **foot-mounted** gear units with solid shaft. Contact SEW for hollow shaft units.

 Combination with the motor listed in the header **is possible**.

 Combination with the motor listed in the header **is not possible**.

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Number of gear stages (1, 2 or 3 stages). ^{the}Snuggler parallel-shaft gear units (F-series) and helical gear units (R-series) have 2 or 3 stages, depending on the ratio.

RX helical, helical-bevel (K-series), helical-worm (S-series) and SPIROPLAN[®] (W-series) gear units do not depend on the ratio and have the following stages:

- RX (helical) = 1-stage
- K..7 (helical bevel) = 3-stage; K..9 = 2-stage
- S..7 (Helical-worm) = 2-stage
- (SPIROPLAN[®]) W..10 to W..30 = 1-stage; W..37 and W..47 = 2-stage



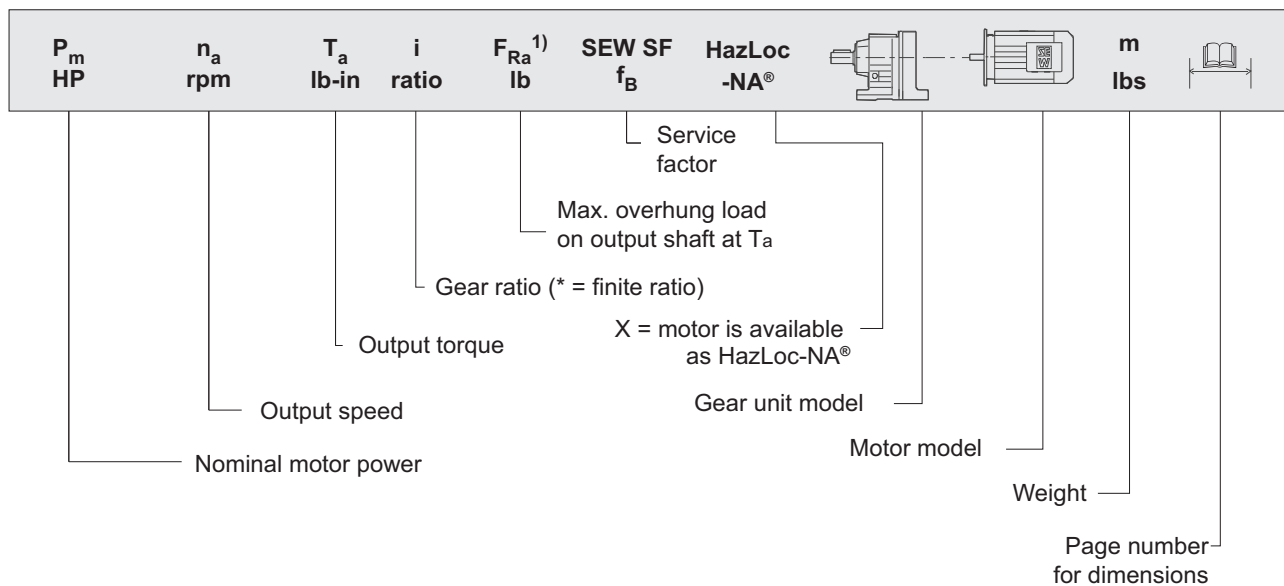
Stages of the compound gear unit ratios (2-2, 3-3, 2-3 or 3-2 stages). The number of stages of the smaller gear unit is shown on the right; the number of stages of the larger gear unit is shown on the left. The smaller gear unit of the compound is always a helical gear unit (RF-series).

7.2 Selections table

The two figures below illustrate the structure of the selection tables for gearmotors:

1. For standard output speeds, the tables are sorted by the rated input HP.
2. For extremely low output speeds, compound gearmotors are sorted by the maximum allowable output torque T_{aMax} (lb-in).

7.2.1 Standard output speeds:



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- 1) Overhung load value applies to **foot-mounted** gear units with **solid** shaft; overhung loads for hollow shaft and other design types are available upon request.

In addition, the F_{Ra} value shown assumes the motor is fully loaded so that the gearmotor is producing full output torque, T_a . However, if the motor is not fully loaded, the value for F_{Ra} may increase.

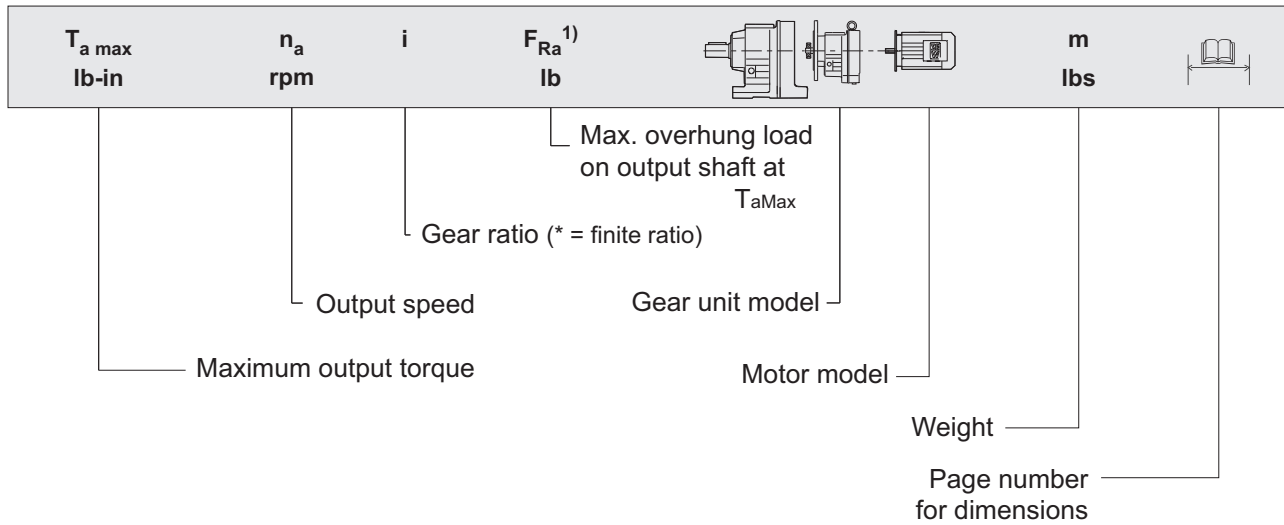
INFORMATION



Special note for SPIROPLAN® (W-series) gearmotors:

If a lubricant is used for the food industry (food grade), a service factor SEW $f_B \geq 1.2$ is required.

7.2.2 Extremely low output speeds (compound gearmotors):



9007211206567307US

- 1) Overhung load value applies to **foot-mounted** gear units with **solid** shaft; overhung loads for hollow shaft and other design types are available upon request.

In addition, the F_{Ra} value shown assumes the gearmotor is producing full output torque, T_{aMax} . However, if the gearmotor is producing less than 100% of T_{aMax} , the value of F_{Ra} may increase.

INFORMATION



In drives for particularly low output speeds (compound gearmotors), the motor power must be limited based upon the maximum output torque of the gear unit. Torque limiting protection is recommended. See (→ 58)

7.3 Dimension sheet information

7.3.1 Tolerances

Shaft heights

The following tolerances apply to the shaft height, h, dimension:

h	≤ 250 mm	→ -0.5 mm
h	> 250 mm	→ -1 mm

Foot-mounted gear units: Check the mounted motor because it may project **below** the mounting feet and require shimming under the feet.

7

Solid Shafts

INCH

METRIC

Diameter tolerance:

Ø > 0.500 – 1.500	→ +0 / -0.0005	Ø ≤ 50 mm	→ ISO k6
Ø > 1.500 – 7.500	→ +0 / -0.0010	Ø > 50 mm	→ ISO m6

Keys: according to DIN 6885 (domed type); keyway width to ISO N9

Hollow Shafts

Diameter tolerance:

Ø → ANSI H7	Ø → ISO H7 measured with plug gauge
Ø 0.625 → +0.0007 / -0	
Ø 0.750 – 1.000 → +0.0008 / -0	
Ø 1.250 – 1.9375 → +0.0010 / -0	
Ø 2.000 – 2.9375 → +0.0012 / -0	
Ø 3.250 – 4.500 → +0.0014 / -0	

Keys: according to DIN 6885 (domed type); keyway width to ISO JS9

Exception: Key for WA.37 with shaft Ø 25 mm and for KA.29 with shaft Ø 30 mm according to DIN 6885-3 (low form)

Flanges

Centering shoulder tolerance:

Ø ≤ 230 mm (flange sizes A120 – A300)	→ ISO j6
Ø > 230 mm (flange sizes A350 – A660)	→ ISO h6

Up to 3 different flange dimensions are available for each size of helical gear unit, SPIROPLAN® gear unit, AC (brake) motor and explosion-proof AC (brake) motor. The mountable flange for each size can be found in the dimension sheets.

Multiple-spline shafts

D _m	Measuring roller diameter
M _e	Check size

7.3.2 Centering Bores

INCH		METRIC	
∅ 0.625 – 0.750	→ 1/4 – 20 x 0.63	∅ = 7 – 10 mm	→ M3
∅ 1.000	→ 3/8 – 16 x 0.87	∅ > 10 – 13 mm	→ M4
∅ 1.250 – 1.375	→ 1/2 – 13 x 1.12	∅ > 13 – 16 mm	→ M5
∅ 1.625 – 1.750	→ 5/8 – 11 x 1.38	∅ > 16 – 21 mm	→ M6
∅ 2.000 – 2.875	→ 3/4 – 10 x 1.61	∅ > 21 – 24 mm	→ M8
∅ 3.625 – 4.750	→ 1 – 8 x 2.13	∅ > 24 – 30 mm	→ M10
∅ 6.250 – 7.500	→ 1-1/8 – 7 x 2.13	∅ > 30 – 38 mm	→ M12
		∅ > 38 – 50 mm	→ M16
		∅ > 50 – 85 mm	→ M20
		∅ > 85 – 130 mm	→ M24
		∅ > 130 mm	→ M30

Centering bores: according to DIN 332, shape D [in], shape DR [mm]

7.3.3 Symbols for scope of delivery



Standard parts supplied by SEW-EURODRIVE.



Standard parts not supplied by SEW-EURODRIVE.

7.3.4 Breather valves

Screw plugs are installed throughout the gear unit upon delivery. Depending on the mounting position required (M1 to M6), the appropriate screw plug should be replaced by the breather plug supplied by the factory. Proper breather plug position is shown in the Mounting Position pages

7.3.5 Shrink disk connection

In order to non-positively transfer the torques stated in the catalog for gear units with hollow shaft and shrink disk connection, observe the following conditions in addition to the information shown on the dimension pages when making the customer shaft:

- Surface roughness $R_z \leq 16 \mu\text{m}$
- Elastic limit of the customer shaft material R_e and/or $R_{p0.2} \geq 305 \text{ N/mm}^2$
- Customer shaft should be a solid shaft. Please contact SEW-EURODRIVE if you desire to use a hollow shaft for the customer shaft.

7.3.6 Splined hollow shaft

FV.. hollow shaft gear unit sizes 27 to 107, and KV.. sizes 37 to 107 are supplied with splining according to standard 5480.

7.3.7 Rubber buffer for FA/FH/FV/FT

The values shown on the FA/FH/FV/FT dimension sheets for rubber buffers reflect the gear units in a loose state. During installation, it is necessary to preload the rubber buffer by the indicated value, ΔL . The characteristic curve of spring for the rubber buffer is available upon request from SEW-EURODRIVE.

7.3.8 Motor options

The motor dimensions may change when installing motor options. Refer to the dimension drawings of the motor options in the "AC Motors" catalog.

7.3.9 Special designs

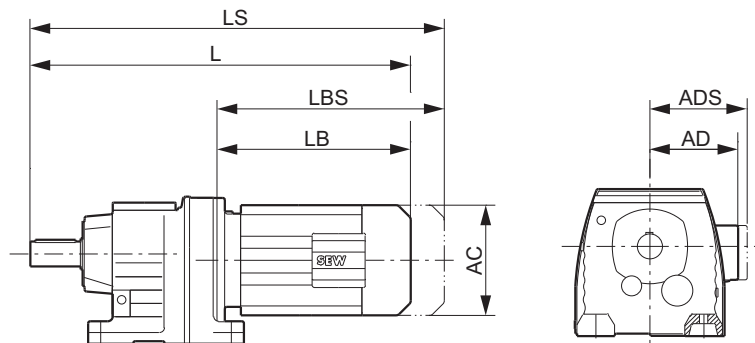
The terminal box dimensions in special designs might vary from the standard

7.3.10 Torque Arms

For hollow shaft units of K, S, and W, the torque arm dimensions are shown. To specify the angle of degrees when mounted, see (→ 66)

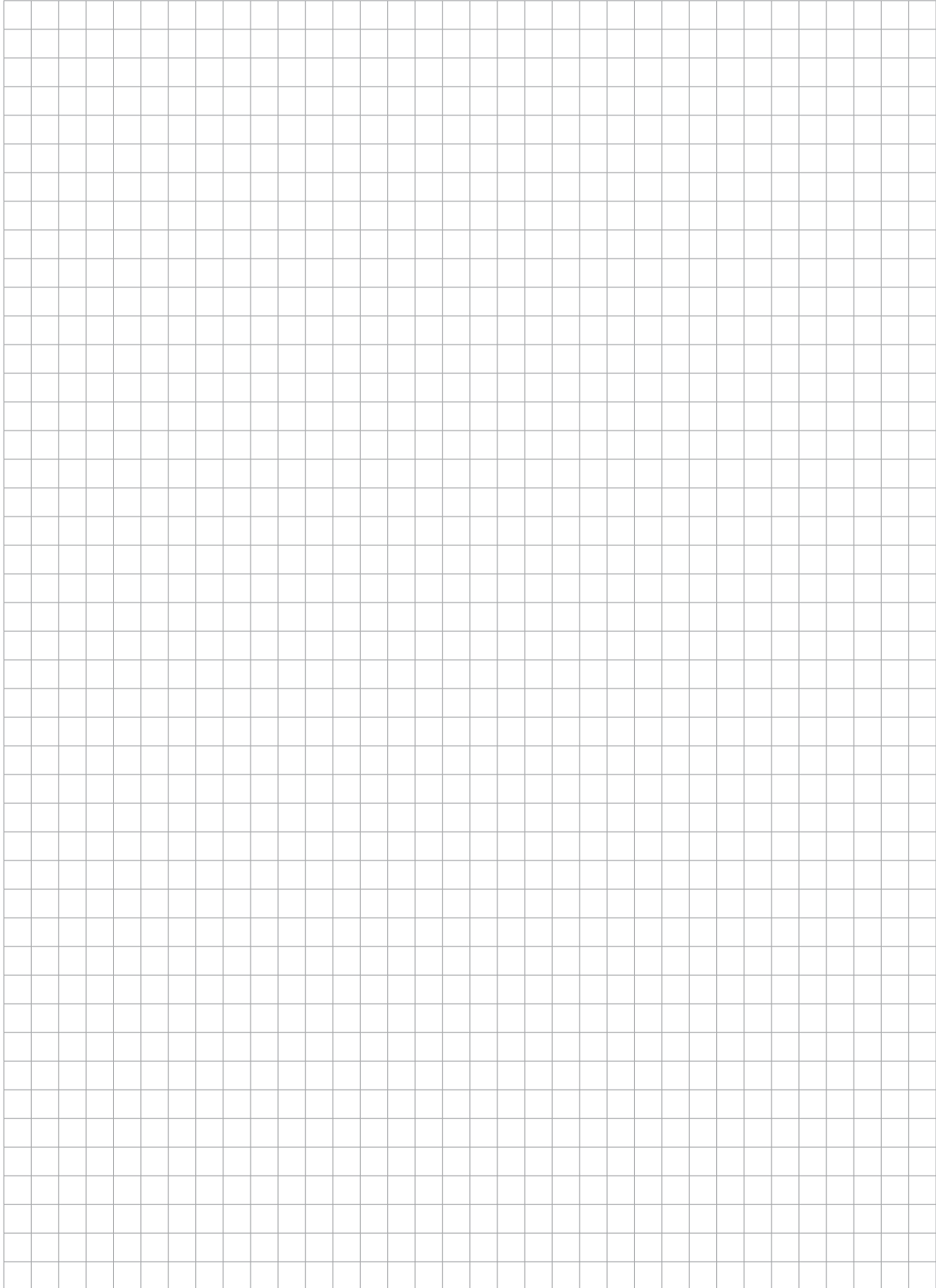
7.3.11 Gearmotor dimension drawings

The dimension drawings of the gearmotors are described below:



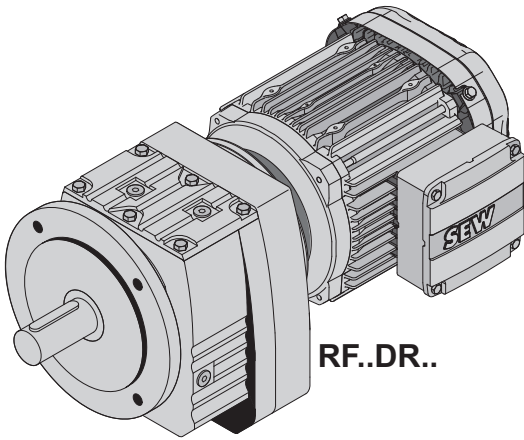
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- L Total length of gearmotor
- LS Total length of gearmotor including brake
- LB Length of motor
- LBS Length of brakemotor
- AC Diameter of motor
- AD Center of motor shaft to top part of terminal box
- ADS Center of brakemotor shaft to top part of terminal box

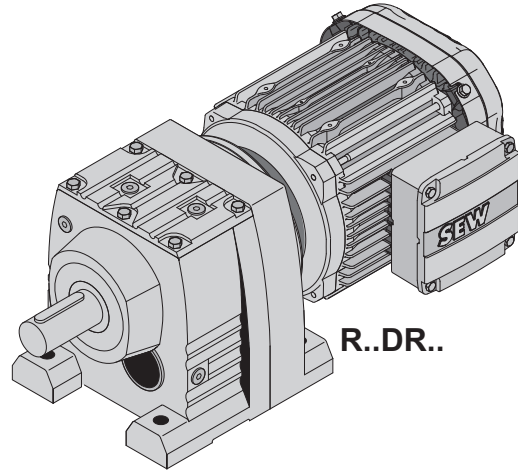


8 Helical gearmotors

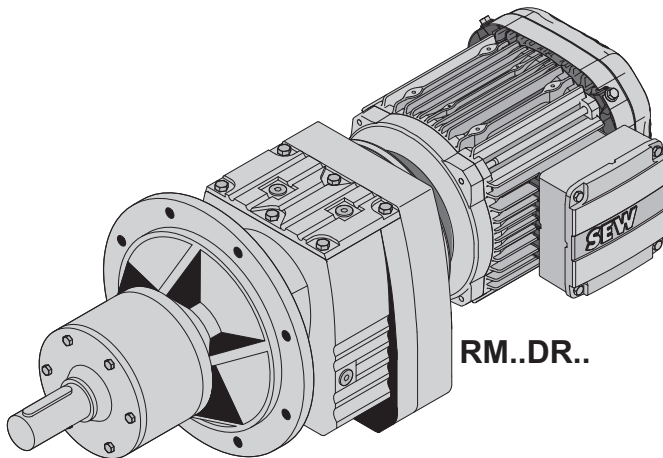
8.1 R..DRN.. designs



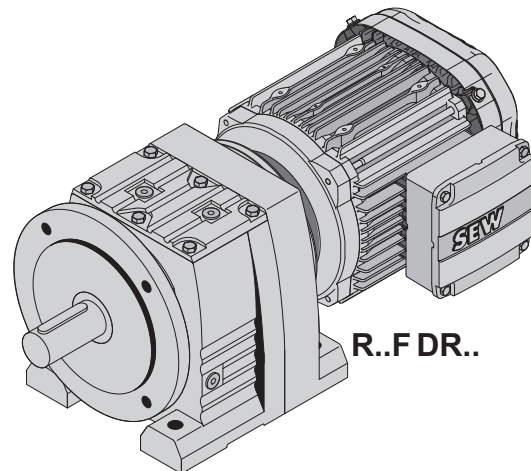
RF..DR..



R..DR..



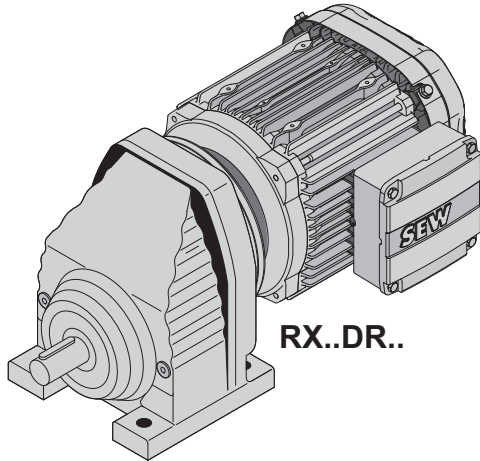
RM..DR..



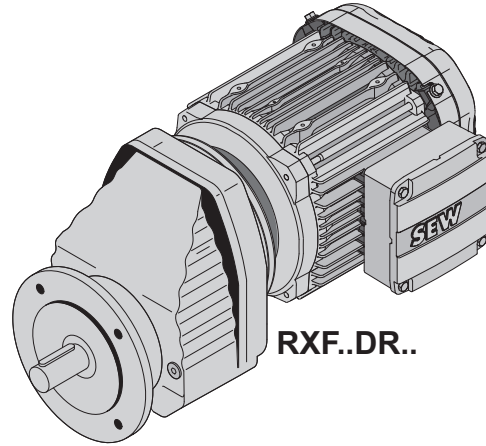
R..F DR..

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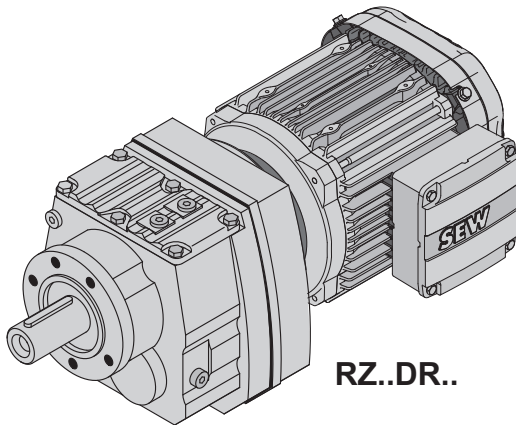
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RX..DR..




RXF..DR..





RZ..DR..

8962221323

8.2 R.. DRS/DRN.. Possible combinations


RX57, n _e =1700 rpm											610 lb-in
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	
 1											
309	345	650	-	5.50*							
335	315	635	-	5.07							
391	600	550	-	4.35							
449	610	515	-	3.79							
479	610	500	-	3.55*							
541	575	480	-	3.14							
584	590	405	-	2.91							
644	610	325	-	2.64*							
717	610	260	-	2.37							
833	610	166	-	2.04							
885	610	126	-	1.92*							
1030	610	27	-	1.65							
1150	600	-	-	1.48							
1310	555	-	-	1.30							


RX67, n _e =1700 rpm											1180 lb-in
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	
 1											
280	380	840	-	6.07							
328	660	745	-	5.18							
375	725	700	-	4.53							
395	705	685	-	4.30*							
451	765	640	-	3.77							
531	880	580	-	3.20*							
588	930	545	-	2.89							
669	1040	340	-	2.54							
708	1080	235	-	2.40*							
833	1180	-	-	2.04							
914	1110	-	-	1.86							
1055	1000	-	-	1.61							
1215	920	-	-	1.40*							


RX77, n _e =1700 rpm											1900 lb-in
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 1											
212	500	1330	-	8.00*							
228	465	1300	-	7.47							
265	910	1170	-	6.41							
302	970	1110	-	5.63							
318	910	1100	-	5.35*							
359	1080	1020	-	4.73							
421	1260	930	-	4.04*							
459	1350	890	-	3.70							
523	1610	570	-	3.25*							

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RX77, n _e =1700 rpm					1900 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
552	1700	425	-	3.08*							
630	1900	103	-	2.70							
700	1900	-	-	2.43							
798	1760	-	-	2.13							
904	1650	-	-	1.88*							
1020	1530	-	-	1.67							
1195	1370	-	-	1.42							

RX87, n _e =1700 rpm					3580 lb-in								
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
 1													
197	1220	1650	-	8.65									
223	1310	1570	-	7.63									
236	1230	1550	-	7.20*									
264	1690	1430	-	6.45									
306	1990	1320	-	5.56*									
335	2210	1250	-	5.07									
378	2560	1140	-	4.50*									
450	2690	1040	-	3.78									
489	3580	440	-	3.48									
550	3580	270	-	3.09									
616	3580	91	-	2.76*									
685	3580	-	-	2.48									
791	3400	-	-	2.15									
881	3140	-	-	1.93									
1060	2780	-	-	1.60*									
1225	2560	-	-	1.39									

RX97, n _e =1700 rpm					5260 lb-in								
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 1													
207	1990	2000	-	8.23									
237	2300	1870	-	7.16*									
259	2650	1780	-	6.56									
294	3710	1590	-	5.79									
346	3490	1500	-	4.91									
376	5260	1160	-	4.52									
421	5260	970	-	4.04									
467	5260	795	-	3.64*									
515	5260	620	-	3.30									
582	5260	425	-	2.92									
644	5260	235	-	2.64									
759	5260	-	-	2.24*									
867	5040	-	-	1.96									
1035	4460	-	-	1.64									
1195	4020	-	-	1.42									



RX107, n _e =1700 rpm					7340 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M
 1										
256	4070	2010	-	6.63*						
303	4020	1880	-	5.61						
328	6140	1600	-	5.19						
366	6140	1510	-	4.65						
405	7340	1090	-	4.20*						
446	7340	900	-	3.81						
503	7340	670	-	3.38						
554	7340	480	-	3.07						
644	7340	167	-	2.64*						
739	7340	-	-	2.30						
872	6760	-	-	1.95						
994	6230	-	-	1.71						
1180	5700	-	-	1.44						


8


R07, n _e =1700 rpm					440 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DT56M DT56L DR63S DRS71S DRS71M					
 3										
22	440	340	-	78.24						
24	440	340	-	71.47						
28	440	335	-	60.32						
33	440	315	-	51.52						
36	440	305	-	47.78						
38	440	295	-	44.16						
41	440	285	-	41.31						
42	440	285	-	40.34						
44	440	275	-	38.51						
50	440	265	-	34.05						
58	440	245	-	29.08						
63	440	235	-	26.97						
73	440	220	-	23.32						
78	440	215	-	21.73						
 2										
93	440	198	-	18.31						
102	440	190	-	16.73						
120	440	175	-	14.12						
141	440	161	-	12.06						
152	440	155	-	11.18						
176	440	144	-	9.67						
189	440	138	-	9.01						
217	430	130	-	7.85						
227	380	106	-	7.48						
249	380	93	-	6.83						
295	350	93	-	5.76						
346	325	95	-	4.92						
372	315	93	-	4.57						


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R07, $n_e=1700$ rpm					440 lb-in
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DT56M DT56L DR63S DRS71S DRS71M
430	300	91	-	3.95	
462	290	91	-	3.68	
530	270	90	-	3.21	







R17, $n_e=1700$ rpm					750 lb-in	
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M
					 3	
21	750	395	-	81.64		
24	750	395	-	70.39		
26	750	395	-	65.61		
30	750	395	-	57.35		
32	750	395	-	53.76		
36	750	395	-	47.44		
38	750	395	-	44.18		
44	750	395	-	38.61		
47	750	395	-	36.20		
53	750	385	-	31.94		
60	750	365	-	28.32		
71	750	340	-	24.07		
					 2	
67	750	345	-	25.23		
73	750	330	-	23.15		
86	750	310	-	19.71		
100	750	285	-	16.99		
107	750	275	-	15.84		
123	750	260	-	13.84		
131	750	250	-	12.98		
148	715	240	-	11.45		
167	680	230	-	10.15		
197	635	220	-	8.63		
225	495	210	-	7.55		
241	485	205	-	7.04		
276	475	194	-	6.15		
295	465	190	-	5.76		
334	450	182	-	5.09		
377	420	176	-	4.51		
444	395	168	-	3.83		



R27, $n_e=1700$ rpm					1150 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3			
13	1150	950	-	135.09				
14	1150	950	-	123.91				
16	1150	950	-	105.49				
19	1150	950	-	90.96				
20	1150	940	-	84.78				

R27, n _e =1700 rpm					1150 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
23	1150	890	-	74.11				
24	1150	870	-	69.47				
28	1150	830	-	61.30				
30	1150	800	-	55.87				
35	1150	755	-	48.17				
38	1150	735	-	44.90				
43	1150	695	-	39.25				
46	1150	680	-	36.79				
52	1150	645	-	32.47				
59	1150	615	-	28.78				
69	1150	575	-	24.47				
 2								
60	1150	610	-	28.37				
65	1150	590	-	26.09				
76	1150	550	-	22.32				
88	1150	520	-	19.35				
94	1150	505	-	18.08				
109	1150	475	-	15.63				
128	1150	410	-	13.28*				
143	1140	370	-	11.86				
168	1070	355	-	10.13				
181	1070	133	-	9.41				
208	1020	129	-	8.16				
223	990	137	-	7.63*				
258	930	136	-	6.59				
304	870	139	-	5.60*				
340	840	136	-	5.00*				
398	765	153	-	4.27				
425	750	151	-	4.00*				
504	695	152	-	3.37				

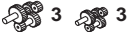

R27R17, n _e =1700 rpm					1150 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M		
 3								
0.20	1150	950	-	8612				
0.23	1150	745	-	7425				
0.25	1150	950	-	6921				
0.28	1150	950	-	6050				
0.33	1150	745	-	5217				
0.36	1150	950	-	4661				
0.42	1150	745	-	4073				
0.48	1150	950	-	3516				
0.54	1150	950	-	3160				
0.62	1150	950	-	2763				
0.70	1150	950	-	2414				
0.81	1150	950	-	2110				
0.91	1150	950	-	1862				
1.0	1150	745	-	1625				
1.2	1150	950	-	1434				

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R27R17, $n_e=1700$ rpm					1150 lb-in	
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M
1.4	1150	950	-	1254		
 2  3						
0.93	1150	950	-	1822		
1.1	1150	950	-	1580		
1.2	1150	950	-	1464		
1.3	1150	950	-	1270		
1.5	1150	950	-	1100		
1.7	1150	950	-	972		
2.0	1150	950	-	840		
2.3	1150	950	-	741		
2.6	1150	950	-	654		
3.0	1150	950	-	566		
3.4	1150	950	-	499		
 3  2						
1.5	1150	950	-	1101		
1.8	1150	950	-	962		
2.0	1150	745	-	848		
2.3	1150	745	-	743		
2.6	1150	950	-	649		
3.0	1150	950	-	567		
3.3	1150	950	-	509		
3.9	1150	950	-	432		
4.4	1150	950	-	387		
5.0	1150	745	-	339		
5.7	1150	745	-	296		
6.6	1150	950	-	259		
7.4	1150	950	-	229		
8.5	1150	950	-	200		
9.6	1150	745	-	177		
10	1150	950	-	166		
11	1150	950	-	150		
12	1150	950	-	141		
14	1150	745	-	124		
15	1150	950	-	110		
18	1150	950	-	94		
 2  2						
3.9	1150	950	-	440		
4.5	1150	950	-	381		
5.2	1150	950	-	329		
5.9	1150	950	-	290		
6.6	1150	950	-	256		
7.5	1150	950	-	227		
8.4	1150	950	-	203		
9.5	1150	950	-	179		
11	1150	950	-	156		
13	1150	950	-	135		
14	1150	950	-	118		
16	1150	950	-	104		
19	1150	950	-	90		

R37, $n_e=1700$ rpm					1760 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3								
13	1760	1110	7.9	134.82				
14	1760	1110	8	123.66				
16	1760	1110	8	105.28				
19	1760	1110	8	90.77				
20	1760	1110	8	84.61				
23	1760	1110	8	73.96				
25	1760	1110	8	69.33				
28	1760	1110	8.1	61.18				
30	1760	1110	8.7	55.76				
35	1760	1080	8.7	48.08				
38	1760	1020	8.8	44.81				
43	1760	920	8.8	39.17				
46	1760	880	8.9	36.72				
52	1760	790	8.9	32.40				
59	1760	705	9	28.73				
70	1760	605	9	24.42				
 2								
60	1760	700	7.3	28.32				
65	1630	740	7.4	26.03				
76	1760	545	7.4	22.27				
88	1760	460	7.5	19.31				
94	1760	425	7.5	18.05				
109	1760	345	7.7	15.60				
128	1680	320	7.9	13.25				
144	1610	310	8	11.83				
168	1500	315	8.1	10.11				
180	1470	305	8.2	9.47				
213	1380	300	8.4	7.97				
255	1270	144	12.1	6.67				
300	1250	94	12.4	5.67				
336	1190	104	12.7	5.06				
394	1110	114	13	4.32				
420	1070	121	13.2	4.05				
499	990	138	13.7	3.41				



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R37R17, $n_e=1700$ rpm					1760 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M		
 3  3								
0.20	1760	1110	-	8595				
0.23	1760	1110	-	7411				
0.25	1760	1110	-	6907				
0.28	1760	1110	-	6038				
0.33	1760	1110	-	5206				
0.37	1760	1110	-	4651				
0.42	1760	1110	-	4065				
0.46	1760	1110	-	3658				
0.54	1760	1110	-	3154				
0.62	1760	1110	-	2757				


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R37R17, $n_e=1700$ rpm					1760 lb-in	
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M
0.71	1760	1110	-	2409		
0.81	1760	1110	-	2106		
0.92	1760	1110	-	1856		
1.0	1760	1110	-	1622		
1.2	1760	1110	-	1431		
1.4	1760	1110	-	1251		
 2  3						
0.94	1760	1110	-	1818		
1.1	1760	1110	-	1576		
1.3	1760	1110	-	1359		
1.3	1760	1110	-	1267		
1.5	1760	1110	-	1098		
1.8	1760	1110	-	970		
2.0	1760	1110	-	839		
2.3	1760	1110	-	740		
2.6	1760	1110	-	653		
2.9	1760	1110	-	577		
3.4	1760	1110	-	498		
 3  2						
1.5	1760	1110	-	1099		
1.8	1760	1110	-	960		
2.0	1760	1110	-	847		
2.3	1760	1110	-	741		
2.6	1760	1110	-	647		
3.0	1760	1110	-	566		
3.3	1760	1110	-	508		
3.9	1760	1110	-	431		
4.4	1760	1110	-	387		
5.0	1760	1110	-	338		
5.7	1760	1110	-	296		
6.6	1760	1110	-	259		
7.5	1760	1110	-	228		
8.5	1760	1110	-	199		
9.9	1760	1110	-	172		
11	1760	1110	-	150		
13	1760	1110	-	130		
14	1760	1110	-	124		
15	1760	1110	-	110		
18	1760	1110	-	94		
 2  2						
3.9	1760	1110	-	439		
4.5	1760	1110	-	378		
5.2	1760	1110	-	328		
5.9	1760	1110	-	289		
6.4	1760	1110	-	265		
7.5	1760	1110	-	226		
8.4	1760	1110	-	202		
9.5	1760	1110	-	179		
11	1760	1110	-	156		
13	1760	1110	-	135		



R37R17, n _e =1700 rpm					1760 lb-in	
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
13	1760	1110	-	127		
16	1760	1110	-	104		
19	1760	1110	-	90		

R47, n _e =1700 rpm					2650 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S
 3										
9.6	2650	1220	6.9	176.88						
10	2650	1220	6.9	162.94						
12	2650	1220	6.9	139.99						
14	2650	1220	6.9	121.87						
15	2650	1220	6.9	114.17						
17	2650	1220	7	100.86						
18	2650	1220	7	93.68						
20	2650	1220	7	84.90						
22	2650	1220	7	76.23						
25	2650	1220	7.6	68.54						
26	2650	1200	7.6	64.21						
30	2650	1150	7.6	56.73						
32	2650	1110	7.6	52.69						
36	2650	1070	7.7	47.75						
40	2650	1020	7.7	42.87						
46	2650	960	7.7	36.93						
49	2650	940	7.7	34.73						
57	2650	880	7.8	29.88						
64	2650	840	7.9	26.70						
72	2650	775	8	23.59						
 2										
50	2120	970	6.5	33.79						
55	1940	960	6.5	31.12						
64	2650	840	6.6	26.74						
73	2650	760	6.6	23.28						
78	2650	710	6.7	21.81						
88	2610	640	6.8	19.27						
95	2560	615	6.8	17.89						
105	2430	625	6.9	16.22						
117	2340	605	7	14.56						
136	2210	590	7.1	12.54						
144	2160	575	7.1	11.79						
167	2030	565	7.3	10.15						
187	1940	550	7.7	9.07						
212	1810	555	7.8	8.01						
219	1440	565	9.5	7.76*						
244	1400	540	9.7	6.96						
283	1380	510	9.9	6.00						
301	1370	500	10	5.64*						
351	1320	470	10.3	4.85						
392	1290	455	11.1	4.34						
444	1270	430	11.4	3.83						

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R47R37, n _e =1700 rpm					2650 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3  3			
0.13	2650	1220	-	13598				
0.14	2650	1220	-	12472				
0.16	2650	1220	-	10619				
0.19	2650	1220	-	9155				
0.20	2650	1220	-	8534				
0.23	2650	1220	-	7460				
0.24	2650	1220	-	6993				
0.28	2650	1220	-	6171				
0.30	2650	1220	-	5624				
0.35	2650	1220	-	4849				
0.38	2650	1220	-	4520				
0.43	2650	1220	-	3951				
0.46	2650	1220	-	3704				
0.52	2650	1220	-	3268				
0.59	2650	1220	-	2898				
0.69	2650	1220	-	2463				
					 2  3			
0.65	2650	1220	-	2598				
0.71	2650	1220	-	2383				
0.84	2650	1220	-	2029				
0.97	2650	1220	-	1749				
1.0	2650	1220	-	1630				
1.2	2650	1220	-	1425				
1.3	2650	1220	-	1336*				
1.4	2650	1220	-	1179				
1.6	2650	1220	-	1074				
1.8	2650	1220	-	927				
2.0	2650	1220	-	863				
2.3	2650	1220	-	755				
2.4	2650	1220	-	708				
2.7	2650	1220	-	624				
3.1	2650	1220	-	554				
3.6	2650	1220	-	471				
					 3  2			
0.60	2650	1220	-	2856				
0.65	2650	1220	-	2625				
0.76	2650	1220	-	2246				
0.87	2650	1220	-	1948				
0.93	2650	1220	-	1821				
1.1	2650	1220	-	1573				
1.4	2650	1220	-	1193				
1.7	2650	1220	-	1020				
1.8	2650	1220	-	955				
2.1	2650	1220	-	804				
2.5	2650	1220	-	673				
3.0	2650	1220	-	572				
3.3	2650	1220	-	510				
3.9	2650	1220	-	436				
4.2	2650	1220	-	408				



R47R37, n _e =1700 rpm					2650 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
4.9	2650	1220	-	344				
 2  2								
3.1	2650	1220	-	546				
3.4	2650	1220	-	502				
4.0	2650	1220	-	429				
4.6	2650	1220	-	372				
4.9	2650	1220	-	348				
5.6	2650	1220	-	301				
6.7	2650	1220	-	255				
7.5	2650	1220	-	228				
8.7	2650	1220	-	195				
9.3	2650	1220	-	182				
11	2650	1220	-	154				
13	2650	1220	-	129				
16	2650	1220	-	109				
17	2650	1220	-	98				

R57, n _e =1700 rpm					3980 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3										
9.1	3980	1600	6.9	186.89						
9.9	3980	1600	6.9	172.17						
11	3980	1600	6.9	147.92						
13	3980	1600	6.9	128.77						
14	3980	1600	6.9	120.63						
16	3980	1600	7	106.58						
17	3980	1600	7	98.99						
19	3980	1600	7	89.71						
21	3980	1580	7	80.55						
25	3980	1490	7.5	69.23						
26	3980	1450	7.5	64.85						
30	3980	1370	7.6	57.29						
32	3980	1330	7.6	53.22						
35	3980	1280	7.6	48.23						
39	3980	1220	7.6	43.30						
46	3980	1140	7.6	37.30*						
48	3980	1110	7.7	35.07						
56	3980	1040	7.7	30.18						
63	3980	990	7.8	26.97						
 2										
65	3980	980	6.4	26.31						
68	3980	950	6.5	24.99*						
78	3980	900	6.6	21.93						
91	3980	830	6.7	18.60*						
101	3980	745	6.7	16.79						
115	3840	695	6.8	14.77*						
122	3800	670	6.8	13.95*						
143	3580	645	6.9	11.88						
158	3450	635	7.2	10.79						


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R57, n _e =1700 rpm					3980 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
182	3270	615	7.4	9.35						
188	3310	305	8.7	9.06						
213	3140	315	8.8	7.97						
226	3090	300	8.8	7.53						
265	2960	270	9	6.41						
292	2830	285	9.6	5.82						
337	2690	270	9.9	5.05						
387	2470	315	10.1	4.39						


R57R37, n _e =1700 rpm					3980 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3  3			
0.12	3980	1600	-	14369				
0.14	3980	1600	-	12095				
0.16	3980	1600	-	10860				
0.18	3980	1600	-	9445				
0.20	3980	1600	-	8480				
0.23	3980	1600	-	7312				
0.26	3980	1600	-	6521				
0.30	3980	1600	-	5585				
0.34	3980	1600	-	4928				
0.39	3980	1600	-	4378				
0.44	3980	1600	-	3873				
0.51	3980	1600	-	3344				
0.58	3980	1600	-	2907				
0.66	3980	1600	-	2567				
0.76	3980	1600	-	2244				
0.86	3980	1600	-	1967				
					 2  3			
0.57	3980	1600	-	2957				
0.68	3980	1600	-	2508				
0.74	3980	1600	-	2309				
0.85	3980	1600	-	1991				
0.96	3980	1600	-	1768				
1.1	3980	1600	-	1520				
1.3	3980	1600	-	1342*				
1.5	3980	1600	-	1164				
1.7	3980	1600	-	1027				
1.9	3980	1600	-	894				
2.1	3980	1600	-	805				
2.5	3980	1600	-	683				
2.8	3980	1600	-	603				
3.2	3980	1600	-	534				
3.7	3980	1600	-	454				
4.1	3980	1600	-	410				
					 3  2			
0.98	3980	1600	-	1732				
1.1	3980	1600	-	1555				
1.2	3980	1600	-	1399				

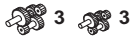



R57R37, n_e=1700 rpm					3980 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
1.4	3980	1600	-	1189				
1.6	3980	1600	-	1034				
2.2	3980	1600	-	782				
2.5	3980	1600	-	678				
2.8	3980	1600	-	604				
3.2	3980	1600	-	537				
3.6	3980	1600	-	471				
4.8	3980	1600	-	357				
5.3	3980	1600	-	319				
6.2	3980	1600	-	273				
7.1	3980	1600	-	241				
7.9	3980	1600	-	215				
9.1	3980	1600	-	187				
10	3980	1600	-	164				
12	3980	1600	-	142				
 2  2								
4.7	3980	1600	-	359				
5.2	3980	1600	-	324				
5.9	3980	1600	-	290				
6.5	3980	1600	-	262				
6.9	3980	1600	-	246*				
7.7	3980	1600	-	220*				
9.0	3980	1600	-	188				
11	3980	1600	-	159				
12	3980	1600	-	146				
13	3980	1600	-	134				





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R67, n_e=1700 rpm					5300 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3										
8.5	5300	1700	6.4	199.81						
9.2	5300	1700	6.4	184.07						
11	5300	1700	6.4	158.14						
12	5300	1700	6.4	137.67						
13	5300	1700	6.4	128.97						
15	5300	1700	6.5	113.94						
16	5300	1700	6.5	105.83						
18	5300	1700	6.5	95.91						
20	5300	1700	6.5	86.11						
23	5300	1700	6.5	74.17						
24	5300	1700	6.5	69.75						
28	5300	1700	7	61.26						
30	5300	1700	7	56.89						
33	5300	1700	7.1	51.56						
37	5300	1700	7.1	46.29						
43	5130	1750	7.1	39.88*						
45	5040	1780	7.1	37.50						
53	4770	1850	7.2	32.27						
59	4600	1890	7.3	28.83						

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R67, n _e =1700 rpm					5300 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 2										
60	4770	1850	6	28.13						
64	4770	1850	6	26.72						
73	4950	1760	6.1	23.44						
85	5300	1470	6.2	19.89						
95	5220	1380	6.2	17.95						
108	4950	1350	6.3	15.79						
114	4860	1320	6.3	14.91						
134	4600	1260	6.4	12.70						
147	4420	1230	6.7	11.54						
170	4150	1200	6.8	10.00						
195	3890	1190	7	8.70*						
218	3360	1110	8.3	7.79						
231	3270	1100	8.3	7.36*						
271	2910	1150	8.5	6.27						
298	2740	1130	9.1	5.70						
345	2560	1080	9.4	4.93						
396	2380	1040	9.7	4.29						





R67R37, n _e =1700 rpm					5300 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.11	5300	1700	-	15361						
0.13	5300	1700	-	12931						
0.14	5300	1700	-	11996						
0.17	5300	1700	-	10097						
0.19	5300	1700	-	9066						
0.22	5300	1700	-	7816						
0.25	5300	1700	-	6732						
0.28	5300	1700	-	5970						
0.32	5300	1700	-	5268						
0.36	5300	1700	-	4680						
0.41	5300	1700	-	4136						
0.48	5300	1700	-	3566						
0.54	5300	1700	-	3125						
0.62	5300	1700	-	2745						
0.71	5300	1700	-	2403						
 2  3										
0.63	5300	1700	-	2682						
0.69	5300	1700	-	2460						
0.81	5300	1700	-	2094						
0.94	5300	1700	-	1805						
1.0	5300	1700	-	1629						
1.2	5300	1700	-	1471						
1.2	5300	1700	-	1379						
1.5	5300	1700	-	1109						
1.8	5300	1700	-	956						
1.9	5300	1700	-	891						
2.3	5300	1700	-	730						





R67R37, n _e =1700 rpm					5300 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
2.6	5300	1700	-	644				
3.0	5300	1700	-	571				
3.5	5300	1700	-	486				
					 3  2			
0.80	5300	1700	-	2136				
0.92	5300	1700	-	1852				
1.0	5300	1700	-	1652				
1.2	5300	1700	-	1432				
1.4	5300	1700	-	1259				
1.5	5300	1700	-	1106				
2.0	5300	1700	-	836				
2.3	5300	1700	-	750				
2.6	5300	1700	-	646				
3.0	5300	1700	-	574				
3.4	5300	1700	-	495				
3.9	5300	1700	-	438				
4.4	5300	1700	-	388				
4.9	5300	1700	-	344				
5.8	5300	1700	-	294				
6.5	5300	1700	-	261				
7.3	5300	1700	-	234				
8.5	5300	1700	-	200				
9.7	5300	1700	-	176				
11	5300	1700	-	158				
					 2  2			
3.8	5300	1700	-	443				
4.4	5300	1700	-	384				
4.7	5300	1700	-	359				
5.5	5300	1700	-	310				
6.4	5300	1700	-	264*				
7.2	5300	1700	-	235				
8.5	5300	1700	-	201				
9.4	5300	1700	-	181				
11	5300	1700	-	159				


R77, n _e =1700 rpm					7250 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
					 3						
8.7	7250	2230	6.4	195.24*							
10	7250	2230	6.5	166.59							
12	7250	2230	6.4	145.67							
12	7250	2230	6.4	138.39							
14	7250	2230	6.5	121.42							
17	7250	2230	6.5	102.99							
18	7250	2230	6.5	92.97							
21	7250	2230	6.5	81.80							
22	7250	2230	6.5	77.24							
26	7250	2230	6.5	65.77							
29	7250	2230	7.1	57.68							

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R77, $n_e=1700$ rpm					7250 lb-in						
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
33	7250	2230	7.1	52.07							
37	7250	2230	7.1	45.81							
39	7250	2230	7.1	43.26							
46	7250	2230	7.1	36.83							
51	7250	2230	7.2	33.47							
59	7250	2030	7.3	29.00							
67	6900	1950	7.3	25.23							
 2											
73	7250	1690	6.1	23.37							
79	7250	1560	6.1	21.43							
90	6900	1510	6.1	18.80							
95	6900	1430	6.2	17.82*							
109	6540	1390	6.2	15.60							
121	6370	1330	6.5	14.05							
138	6100	1270	6.4	12.33							
156	5830	1220	6.5	10.88							
176	5570	1190	6.7	9.64							
198	5570	705	7.5	8.59							
220	5390	675	7.9	7.74							
250	5130	660	7.8	6.79							
284	4770	700	8	5.99*							
320	4510	710	8.4	5.31*							



R77R37, $n_e=1700$ rpm					7250 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3  3								
0.10	7250	2230	-	16370				
0.11	7250	2230	-	15015				
0.12	7250	2230	-	13885				
0.13	7250	2230	-	12783				
0.15	7250	2230	-	11021				
0.17	7250	2230	-	9788				
0.20	7250	2230	-	8714				
0.22	7250	2230	-	7617				
0.25	7250	2230	-	6770				
0.29	7250	2230	-	5838				
0.33	7250	2230	-	5184				
0.38	7250	2230	-	4470				
0.43	7250	2230	-	3999				
0.49	7250	2230	-	3488				
0.56	7250	2230	-	3053				
0.64	7250	2230	-	2671				
 2  3								
0.54	7250	2230	-	3151				
0.59	7250	2230	-	2890				
0.69	7250	2230	-	2460				
0.80	7250	2230	-	2121				
0.86	7250	2230	-	1977				
0.98	7250	2230	-	1728				







R77R37, n _e =1700 rpm					7250 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
1.0	7250	2230	-	1620				
1.2	7250	2230	-	1430				
1.3	7250	2230	-	1303				
1.5	7250	2230	-	1124				
1.6	7250	2230	-	1047				
1.9	7250	2230	-	915				
2.0	7250	2230	-	858				
2.2	7250	2230	-	757				
2.5	7250	2230	-	671				
3.0	7250	2230	-	571				
 3  2								
0.72	7250	2230	-	2345				
0.82	7250	2230	-	2070				
0.93	7250	2230	-	1822				
1.1	7250	2230	-	1580				
1.2	7250	2230	-	1394				
1.4	7250	2230	-	1218				
1.6	7250	2230	-	1084*				
1.8	7250	2230	-	940				
2.1	7250	2230	-	821				
2.3	7250	2230	-	731				
2.6	7250	2230	-	646				
3.0	7250	2230	-	560				
3.5	7250	2230	-	488				
3.9	7250	2230	-	436				
4.6	7250	2230	-	373				
5.2	7250	2230	-	327				
5.9	7250	2230	-	289				
6.5	7250	2230	-	260				
7.6	7250	2230	-	224				
8.6	7250	2230	-	197				
10	7250	2230	-	169				
11	7250	2230	-	149				
 2  2								
3.3	7250	2230	-	520				
3.8	7250	2230	-	451				
4.0	7250	2230	-	422				
4.7	7250	2230	-	365				
5.5	7250	2230	-	310*				
6.2	7250	2230	-	276				
7.2	7250	2230	-	236				
7.7	7250	2230	-	221				
9.1	7250	2230	-	186				

R87, n _e =1700 rpm					13700 lb-in								
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
 3													
6.9	13700	3800	6	246.54									
7.9	13700	3800	6	216.54									

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R87, $n_e=1700$ rpm					13700 lb-in								
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(R)}$ '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN160M DRN160L	DRN180M DRN180L	DRN200L
8.3	13700	3800	6	205.71									
9.4	13700	3800	6	181.77									
11	13700	3800	6	155.34									
12	13700	3800	6	142.41									
14	13700	3800	6	124.97									
14	13700	3800	6	118.43*									
16	13700	3800	6	103.65									
18	13700	3800	6	93.38									
21	13700	3730	6	81.92									
23	13700	3380	6.4	72.57									
27	13700	3020	6.4	63.68*									
28	13700	2880	6.4	60.35*									
32	13700	2540	6.5	52.82									
36	13700	2280	6.5	47.58									
41	13700	1970	6.5	41.74									
46	13700	1680	6.5	36.84*									
52	13700	1420	6.6	32.66*									
61	13200	1250	6.6	27.88									
 2													
49	13200	1690	5.5	34.40*									
54	13700	1330	5.5	31.40									
61	13700	1080	5.5	27.84*									
73	13700	740	5.5	23.40									
79	13200	740	5.7	21.51									
89	12700	720	5.7	19.10									
100	12200	685	5.8	17.08*									
111	11800	665	5.9	15.35									
128	11300	630	6	13.33									
142	10800	615	6	11.93									
172	10400	500	6.1	9.90*									
186	10700	-	6.3	9.14*									
207	10200	-	6.6	8.22									
238	9460	-	6.7	7.13									
266	9020	-	6.8	6.39									
321	8050	149	7	5.30*									







R87R57, $n_e=1700$ rpm					13700 lb-in					
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.10	13700	3800	-	17452						
0.11	13700	3800	-	15310						
0.12	13700	3800	-	13813						
0.14	13700	3800	-	12025						
0.16	13700	3800	-	10549						
0.18	13700	3800	-	9244						
0.21	13700	3800	-	8109						
0.24	13700	3800	-	7038						
0.28	13700	3800	-	6174						
0.31	13700	3800	-	5449						

R87R57, n _e =1700 rpm					13700 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
0.35	13700	3800	-	4831						
0.40	13700	3800	-	4206						
0.45	13700	3800	-	3744						
0.53	13700	3800	-	3233						
0.59	13700	3800	-	2873						
0.68	13700	3800	-	2518						
0.77	13700	3800	-	2209						
0.87	13700	3800	-	1961						
1.7	13700	3800	-	994						
1.9	13700	3800	-	881						
 2  3										
0.42	13700	3800	-	4020						
0.46	13700	3800	-	3703						
0.53	13700	3800	-	3182						
0.61	13700	3800	-	2770						
0.66	13700	3800	-	2595						
0.80	13700	3800	-	2129						
0.88	13700	3800	-	1930						
0.98	13700	3800	-	1733						
1.1	13700	3800	-	1489						
1.2	13700	3800	-	1395						
1.4	13700	3800	-	1232						
1.5	13700	3800	-	1145						
1.6	13700	3800	-	1037						
1.8	13700	3800	-	931						
2.1	13700	3800	-	802*						
2.3	13700	3800	-	754						
2.6	13700	3800	-	649						
2.9	13700	3800	-	580						
 3  2										
0.98	13700	3800	-	1737						
1.1	13700	3800	-	1524						
1.3	13700	3800	-	1303						
1.5	13700	3800	-	1143						
1.7	13700	3800	-	1008						
1.9	13700	3800	-	885						
2.2	13700	3800	-	776						
2.5	13700	3800	-	685*						
2.8	13700	3800	-	599						
3.2	13700	3800	-	525						
3.7	13700	3800	-	456*						
4.3	13700	3800	-	398						
4.8	13700	3800	-	352						
5.6	13700	3800	-	305						
6.3	13700	3800	-	268						
7.2	13700	3800	-	236*						
8.1	13700	3800	-	209*						
 2  2										
3.2	13700	3800	-	538						
3.6	13700	3800	-	472						
4.2	13700	3800	-	400						

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R87R57, n _e =1700 rpm						13700 lb-in				
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
4.7	13700	3800	-	361						
5.7	13700	3800	-	300						
6.6	13700	3800	-	256						
7.3	13700	3800	-	232						
8.7	13700	3800	-	195						



R97, n _e =1700 rpm					26500 lb-in								
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3													
5.9	26500	4450	5.7	289.74									
6.6	26500	4450	5.7	255.71									
7.0	26500	4450	5.7	241.25									
7.9	26500	4450	5.7	216.28									
9.1	26500	4450	5.7	186.30									
10.0	26500	4450	5.7	170.02									
11	26500	4450	5.7	150.78									
13	26500	4450	5.7	126.75									
15	26500	4450	5.7	116.48									
16	26500	4450	5.7	103.44									
18	26500	4270	5.7	92.48									
20	26500	3840	5.8	83.15									
24	26500	3300	5.8	72.17									
26	26500	2930	6.1	65.21									
28	26500	2620	6.2	59.92									
32	26500	2210	6.2	53.21									
36	26500	1840	6.2	47.58									
40	26500	1500	6.2	42.78									
46	26500	1060	6.3	37.13									
51	25500	1030	6.3	33.25									
62	23600	1090	6.3	27.58									
 2													
53	22600	1800	5.3	32.05									
63	22600	1340	5.3	27.19									
68	25000	400	5.4	25.03									
76	24000	400	5.5	22.37									
84	23000	430	5.5	20.14									
93	22100	485	5.6	18.24									
105	21200	470	5.6	16.17									
116	20300	510	5.6	14.62									
137	19300	445	5.7	12.39									
157	18400	435	5.8	10.83									
183	17900	-	5.6	9.29									
203	17900	-	5.7	8.39									
239	17600	-	5.8	7.12									
274	16700	-	5.9	6.21									
327	15700	-	6.1	5.20									
378	14400	-	6.2	4.50*									

R97R57, n _e =1700 rpm					26500 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.08	26500	4450	-	21769						
0.09	26500	4450	-	19332						
0.10	26500	4450	-	17230						
0.11	26500	4450	-	14999						
0.13	26500	4450	-	13320						
0.15	26500	4450	-	11156						
0.17	26500	4450	-	10030						
0.20	26500	4450	-	8706						
0.22	26500	4450	-	7692						
0.25	26500	4450	-	6708						
0.29	26500	4450	-	5931						
0.33	26500	4450	-	5161						
0.37	26500	4450	-	4559						
0.42	26500	4450	-	4004						
0.49	26500	4450	-	3481						
 2  3										
0.36	26500	4450	-	4678						
0.39	26500	4450	-	4309						
0.46	26500	4450	-	3702						
0.56	26500	4450	-	3019						
0.64	26500	4450	-	2668						
0.76	26500	4450	-	2245						
0.84	26500	4450	-	2016						
0.98	26500	4450	-	1733						
1.0	26500	4450	-	1623						
1.2	26500	4450	-	1434						
1.4	26500	4450	-	1207						
1.6	26500	4450	-	1084						
1.8	26500	4450	-	934						
1.9	26500	4450	-	878						
2.3	26500	4450	-	755						
 3  2										
0.55	26500	4450	-	3065						
0.62	26500	4450	-	2722						
0.74	26500	4450	-	2311						
0.82	26500	4450	-	2078						
0.93	26500	4450	-	1823						
1.1	26500	4450	-	1583						
1.2	26500	4450	-	1396						
1.4	26500	4450	-	1228						
1.6	26500	4450	-	1069						
1.8	26500	4450	-	938						
2.1	26500	4450	-	824						
2.3	26500	4450	-	737						
2.7	26500	4450	-	632						
3.0	26500	4450	-	560						
3.5	26500	4450	-	484						
3.9	26500	4450	-	431						
4.5	26500	4450	-	379						







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R97R57, $n_e=1700$ rpm					26500 lb-in					
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
5.1	26500	4450	-	336						
5.7	26500	4450	-	296						
6.8	26500	4450	-	249						
7.3	26500	4450	-	234						
8.1	26500	4450	-	209						
 2  2										
2.7	26500	4450	-	625						
3.1	26500	4450	-	549						
3.6	26500	4450	-	466						
4.0	26500	4450	-	420						
4.6	26500	4450	-	370						
4.9	26500	4450	-	349						
5.7	26500	4450	-	297						
6.3	26500	4450	-	270						
7.5	26500	4450	-	227						


R107, $n_e=1700$ rpm					38000 lb-in					
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M
 3										
6.8	38000	6620	7	251.15						
7.4	38000	6620	7	229.95						
8.4	38000	6620	7	203.16						
9.9	38000	6620	7	172.34						
11	38000	6620	7	158.68						
12	38000	6620	7	141.83						
13	38000	6620	7	127.68						
15	38000	6620	7	115.63						
17	38000	6620	7	102.53						
18	38000	6620	7	92.70						
22	38000	6520	7.1	78.57						
23	38000	6320	7.3	72.88						
26	38000	6050	7.3	65.60*						
29	38000	5800	7.4	59.41						
32	38000	5510	7.4	52.68						
36	38000	5280	7.4	47.63						
42	38000	4910	7.4	40.37*						
48	38000	4620	7.4	35.26						
58	38000	4260	7.5	29.49						
 2										
55	38000	4340	6.7	30.77						
62	38000	4130	6.8	27.58						
68	38000	3940	6.8	24.90*						
75	38000	3760	6.9	22.62						
85	38000	3550	6.9	20.07						
93	38000	3390	6.8	18.21						
109	38000	3140	6.9	15.65						
124	38000	2930	6.9	13.66						
147	38000	2690	7	11.59						
168	38000	2500	7.1	10.13						


R107, n _e =1700 rpm					38000 lb-in					
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M
199	38000	2280	7.2	8.56						
216	26200	2840	8.8	7.86						
255	26200	2640	8.9	6.66						
292	26200	2480	9	5.82						
346	25600	2320	9.3	4.92						

R107R77, n _e =1700 rpm					38000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3  3											
0.08	38000	6620	-	20018							
0.10	38000	6620	-	17080							
0.11	38000	6620	-	14936							
0.13	38000	6620	-	12829							
0.15	38000	6620	-	11256							
0.18	38000	6620	-	9547							
0.20	38000	6620	-	8618							
0.22	38000	6620	-	7583							
0.25	38000	6620	-	6743							
0.29	38000	6620	-	5914							
0.33	38000	6620	-	5168							
0.38	38000	6620	-	4435							
0.44	38000	6620	-	3896							
0.50	38000	6620	-	3432							
0.56	38000	6620	-	3039							
0.63	38000	6620	-	2688							
0.73	38000	6620	-	2339							
 2  3											
0.43	38000	6620	-	3918							
0.51	38000	6620	-	3343							
0.56	38000	6620	-	3034							
0.64	38000	6620	-	2653							
0.75	38000	6620	-	2280							
0.82	38000	6620	-	2067							
1.0	38000	6620	-	1693							
1.1	38000	6620	-	1550							
1.2	38000	6620	-	1407							
1.4	38000	6620	-	1209							
1.6	38000	6620	-	1055							
1.8	38000	6620	-	919							
2.1	38000	6620	-	815							
2.4	38000	6620	-	717							
2.7	38000	6620	-	626							
3.2	38000	6620	-	528							
 3  2											
0.86	38000	6620	-	1987							
0.93	38000	6620	-	1827							
1.1	38000	6620	-	1599							
1.2	38000	6620	-	1400*							
1.4	38000	6620	-	1226							


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R107R77, n _e =1700 rpm					38000 lb-in							
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
1.5	38000	6620	-	1104								
1.8	38000	6620	-	939								
2.1	38000	6620	-	822								
2.8	38000	6620	-	614								
3.1	38000	6620	-	544								
3.5	38000	6620	-	492								
4.1	38000	6620	-	417								
4.6	38000	6620	-	369								
5.3	38000	6620	-	323								
6.0	38000	6620	-	285								
6.7	38000	6620	-	253								
7.9	38000	6620	-	214*								
9.1	38000	6620	-	187								
 2  2												
3.6	38000	6620	-	469								
4.0	38000	6620	-	426								
4.5	38000	6620	-	377								
5.2	38000	6620	-	325								
6.0	38000	6620	-	284								
6.6	38000	6620	-	256								
7.7	38000	6620	-	220								
8.8	38000	6620	-	193								
9.9	38000	6620	-	172								





R127, n _e =1700 rpm					53000 lb-in							
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME	
 3												
6.5	53000	-	6	262.65								
7.1	53000	-	6	240.48								
8.0	53000	-	6	212.46								
9.4	53000	-	6	180.23								
10	53000	-	6	165.95								
11	53000	-	6	148.33								
13	53000	-	6	133.53								
14	53000	-	6	120.92								
16	53000	-	6	107.23								
18	53000	-	6	96.95								
20	53000	-	7	85.26								
21	53000	-	6	82.17								
22	53000	-	7	76.21								
25	53000	-	7	68.61								
27	53000	-	7	62.13								
31	53000	-	7	55.09								
34	53000	-	7	49.81								
40	53000	-	7	42.22								
46	50600	-	7	36.88								
55	47600	-	7	30.84								

R127, n _e =1700 rpm					53000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
 2											
53	53000	-	6	32.18							
59	53000	-	6	28.84							
65	53000	-	6	26.04							
72	53000	-	6	23.65							
81	53000	-	6	20.98							
89	53000	-	6	19.04							
104	53000	-	6	16.37							
119	53000	-	6	14.29							
140	52500	-	6	12.12							
161	50400	-	6	10.59							
190	47900	-	7	8.96							
192	34700	-	8	8.85							
226	34700	-	8	7.51							
259	34700	-	8	6.56							
306	34700	-	8	5.55							

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R127R77, n _e =1700 rpm					53000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3											
0.08	53000	-	-	20936							
0.10	53000	-	-	17863							
0.11	53000	-	-	15620							
0.12	53000	-	-	14123							
0.13	53000	-	-	13417							
0.14	53000	-	-	11772							
0.17	53000	-	-	9985							
0.19	53000	-	-	9013							
0.19	53000	-	-	8771							
0.21	53000	-	-	8282							
0.22	53000	-	-	7639							
0.24	53000	-	-	7053							
0.25	53000	-	-	6722							
0.27	53000	-	-	6347							
0.27	53000	-	-	6185							
0.30	53000	-	-	5592							
0.36	53000	-	-	4740							
0.38	53000	-	-	4441							
0.43	53000	-	-	3949							
0.45	53000	-	-	3764							
0.48	53000	-	-	3571							
0.55	53000	-	-	3110							
0.60	53000	-	-	2812							
0.71	53000	-	-	2383							
0.88	53000	-	-	1934							
0.93	53000	-	-	1835							
1.1	53000	-	-	1555							
1.2	53000	-	-	1444							
1.4	53000	-	-	1224							

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R127R77, n _e =1700 rpm					53000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R)	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 2  3											
0.49	53000	-	-	3495							
0.56	53000	-	-	3056							
0.59	53000	-	-	2903							
0.67	53000	-	-	2547							
0.79	53000	-	-	2161							
0.87	53000	-	-	1951							
0.99	53000	-	-	1716							
1.0	53000	-	-	1620							
1.2	53000	-	-	1380							
1.4	53000	-	-	1210							
1.8	53000	-	-	961							
2.2	53000	-	-	773							
2.8	53000	-	-	608							
 3  2											
0.68	53000	-	-	2506							
0.75	53000	-	-	2266							
0.84	53000	-	-	2016							
0.89	53000	-	-	1920							
0.93	53000	-	-	1823							
1.0	53000	-	-	1673							
1.1	53000	-	-	1545							
1.1	53000	-	-	1512							
1.3	53000	-	-	1322							
1.3	53000	-	-	1282							
1.4	53000	-	-	1195							
1.5	53000	-	-	1164							
1.6	53000	-	-	1034							
1.7	53000	-	-	1013							
1.7	53000	-	-	987							
1.8	53000	-	-	936							
1.8	53000	-	-	935							
2.0	53000	-	-	830							
2.1	53000	-	-	794							
2.1	53000	-	-	792							
2.2	53000	-	-	777							
2.3	53000	-	-	750							
2.6	53000	-	-	659							
2.6	53000	-	-	642							
2.7	53000	-	-	636							
2.8	53000	-	-	614							
2.9	53000	-	-	581							
3.3	53000	-	-	521							
3.5	53000	-	-	492							
3.5	53000	-	-	480							
4.2	53000	-	-	407							
4.4	53000	-	-	386							
5.7	53000	-	-	298							
6.7	53000	-	-	253							



R127R77, n _e =1700 rpm					53000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
2 2											
3.5	53000	-	-	490							
4.3	53000	-	-	394							
5.2	53000	-	-	327							
6.6	53000	-	-	259							
8.4	53000	-	-	202							
10	53000	-	-	162							
13	53000	-	-	126							

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R137, n _e =1700 rpm					70700 lb-in				
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M
3									
7.6	70700	12000	6	222.60*					
9.0	70700	12000	6	188.45					
9.7	70700	12000	6.1	174.40*					
11	70700	12000	6.1	156.31					
12	70700	12000	6.1	141.12*					
13	70700	12000	6.1	128.18					
15	70700	12000	6.1	113.72					
16	70700	12000	6.1	103.20*					
19	70700	12000	6.1	88.70*					
21	70700	12000	6.4	80.91*					
23	70700	12000	6.4	73.49					
26	70700	12000	6.4	65.20					
29	70700	12000	6.4	59.17*					
33	70700	12000	6.4	50.86*					
38	70700	12000	6.4	44.39					
45	70700	12000	6.4	37.65					
52	70700	11800	6.5	32.91					
61	67900	11100	6.5	27.83					
2									
57	68800	11400	5.7	29.57*					
70	70700	10000	5.8	24.12					
77	70700	9520	5.8	22.00*					
89	70700	8770	5.9	19.04*					
101	70700	8150	5.9	16.80*					
117	70700	7450	5.9	14.51					
133	70700	6890	6	12.83					
158	70700	6130	6.1	10.79					
195	69300	5410	6.1	8.71					
224	45200	8000	8	7.59					
266	45200	7340	8.2	6.38					
330	40700	7070	8.2	5.15					

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R137R77, n _e =1700 rpm					70700 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3  3											
0.08	70700	12000	-	22203*							
0.09	70700	12000	-	18945							
0.10	70700	12000	-	16566							
0.12	70700	12000	-	14777							
0.13	70700	12000	-	12921							
0.15	70700	12000	-	11712							
0.16	70700	12000	-	10573*							
0.19	70700	12000	-	8784							
0.23	70700	12000	-	7479							
0.26	70700	12000	-	6559							
0.29	70700	12000	-	5834							
0.33	70700	12000	-	5116							
0.38	70700	12000	-	4464							
0.43	70700	12000	-	3928*							
0.49	70700	12000	-	3454							
0.57	70700	12000	-	2993							
 2  3											
0.36	70700	12000	-	4709*							
0.42	70700	12000	-	4018							
0.48	70700	12000	-	3514							
0.51	70700	12000	-	3338							
0.58	70700	12000	-	2929							
0.68	70700	12000	-	2484							
0.76	70700	12000	-	2242*							
0.91	70700	12000	-	1863							
1.1	70700	12000	-	1586							
1.2	70700	12000	-	1391							
1.4	70700	12000	-	1256							
1.5	70700	12000	-	1105							
1.6	70700	12000	-	1043							
1.9	70700	12000	-	888							
2.4	70700	12000	-	699							
2.8	70700	12000	-	609							
 3  2											
0.64	70700	12000	-	2658							
0.70	70700	12000	-	2412							
0.82	70700	12000	-	2073*							
0.92	70700	12000	-	1839*							
1.1	70700	12000	-	1598							
1.2	70700	12000	-	1397							
1.4	70700	12000	-	1226*							
1.6	70700	12000	-	1090*							
1.8	70700	12000	-	951							
2.0	70700	12000	-	831							
2.3	70700	12000	-	730							
2.7	70700	12000	-	629							
3.0	70700	12000	-	560							
3.5	70700	12000	-	490*							
4.0	70700	12000	-	428							



R137R77, n _e =1700 rpm					70700 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
4.5	70700	12000	-	381							
5.3	70700	12000	-	323							
5.8	70700	12000	-	291							
6.7	70700	12000	-	255*							
7.6	70700	12000	-	223							
8.6	70700	12000	-	197*							
9.7	70700	12000	-	175							
 2  2											
3.0	70700	12000	-	564							
3.3	70700	12000	-	517							
3.8	70700	12000	-	453*							
4.5	70700	12000	-	376							
5.0	70700	12000	-	339							
5.7	70700	12000	-	297							

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R147, n _e =1700 rpm					115000 lb-in			
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M
 3								
10	115000	14100	5.5	163.31				
12	115000	14100	5.5	146.91				
14	115000	14100	5.5	119.86				
16	115000	14100	5.5	109.31				
18	115000	14100	5.5	94.60*				
20	115000	14100	5.5	83.47				
24	115000	14100	5.5	72.09				
25	115000	14100	5.8	66.99				
28	115000	14100	5.8	61.09				
32	115000	14100	5.8	52.87				
36	115000	14100	5.8	46.65				
42	115000	14100	5.8	40.29				
48	115000	14100	5.9	35.64				
57	115000	14100	5.9	29.95				
70	105200	14500	5.9	24.19				
 2								
83	106100	14500	5.2	20.44				
94	92900	15100	5.3	18.04				
109	115000	14100	5.3	15.64				
122	111400	13500	5.3	13.91				
142	115000	12300	5.4	11.99				
175	115000	11000	5.5	9.74				
206	115000	10100	5.6	8.26				
234	76700	12000	7.5	7.25				
289	76700	10900	7.6	5.89				
340	76700	10100	7.8	5.00				

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R147R77, n _e =1700 rpm					115000 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3  3											
0.07	115000	14100	-	23401							
0.08	115000	14100	-	21342							
0.09	115000	14100	-	18210							
0.11	115000	14100	-	15923							
0.12	115000	14100	-	14075							
0.14	115000	14100	-	12344							
0.15	115000	14100	-	11143							
0.17	115000	14100	-	9743							
0.20	115000	14100	-	8443							
0.23	115000	14100	-	7307							
0.26	115000	14100	-	6447							
0.31	115000	14100	-	5568							
0.35	115000	14100	-	4926							
0.39	115000	14100	-	4325							
0.45	115000	14100	-	3754							
0.51	115000	14100	-	3302							
0.59	115000	14100	-	2898							
 3  2											
0.67	115000	14100	-	2555							
0.77	115000	14100	-	2211							
0.87	115000	14100	-	1951							
1.00	115000	14100	-	1705							
1.1	115000	14100	-	1536							
1.3	115000	14100	-	1329							
1.5	115000	14100	-	1166							
1.7	115000	14100	-	1029							
1.9	115000	14100	-	889							
2.2	115000	14100	-	784							
2.4	115000	14100	-	695							
2.7	115000	14100	-	619							
3.0	115000	14100	-	558							
3.5	115000	14100	-	489							
4.1	115000	14100	-	415							

R147R87, n _e =1700 rpm					115000 lb-in							
n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
 3  2												
3.2	115000	14100	-	533								
3.7	115000	14100	-	462								
4.0	115000	14100	-	426								
4.6	115000	14100	-	368								
5.2	115000	14100	-	326								
6.1	115000	14100	-	280								
6.9	115000	14100	-	247								
7.9	115000	14100	-	214								
9.0	115000	14100	-	189								
11	115000	14100	-	159								



R167, n_e=1700 rpm **159200 lb-in**





n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H
 3										
7.4	159200	27000	5.2	229.71						
9.1	159200	27000	5.2	186.93*						
11	159200	27000	5.2	153.07						
12	159200	27000	5.2	139.98						
14	159200	27000	5.2	121.81*						
16	159200	27000	5.2	107.49						
18	159200	27000	5.2	93.19						
21	159200	27000	5.2	82.91*						
23	159200	27000	5.6	73.70*						
25	159200	27000	5.6	67.40						
29	159200	27000	5.6	58.65						
33	159200	27000	5.6	51.76						
38	159200	27000	5.6	44.87						
43	159200	27000	5.6	39.92						
49	159200	27000	5.6	34.41						
61	159200	25900	5.7	27.96						
72	159200	24100	5.7	23.71						
 2										
37	61900	27000	5	46.00						
45	79600	27000	5	37.74						
55	88400	27000	5	30.71						
69	123800	26900	5.1	24.57						
78	115000	26300	5.1	21.85						
89	141500	23100	5.1	19.03						
100	132700	22600	5.1	16.98						
117	159200	19300	5.2	14.48						
142	150400	18200	5.3	11.99						
166	150400	16900	5.3	10.24						

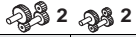
R167R97, n_e=1700 rpm **159200 lb-in**

n _a rpm	T _{amax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3  3													
0.06	159200	27000	-	27001									
0.08	159200	27000	-	22482									
0.08	159200	27000	-	20002*									
0.10	159200	27000	-	17361									
0.11	159200	27000	-	15446									
0.12	159200	27000	-	14051									
0.14	159200	27000	-	11812									
0.16	159200	27000	-	10509									
0.18	159200	27000	-	9631									
0.22	159200	27000	-	7749									
0.25	159200	27000	-	6894									
0.28	159200	27000	-	6077									
0.31	159200	27000	-	5407									
0.37	159200	27000	-	4650									
0.41	159200	27000	-	4129									
0.46	159200	27000	-	3692									

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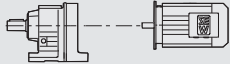

R167R97, $n_e=1700$ rpm										159200 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(R)}$ °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
0.55	159200	27000	-	3099									
 3  2													
0.64	159200	27000	-	2657*									
0.73	159200	27000	-	2333									
0.82	159200	27000	-	2085									
0.91	159200	27000	-	1877									
1.0	159200	27000	-	1670*									
1.2	159200	27000	-	1438									
1.3	159200	27000	-	1279									
1.5	159200	27000	-	1123									
1.7	159200	27000	-	999									
2.0	159200	27000	-	861									
2.2	159200	27000	-	760									
2.6	159200	27000	-	656									
2.9	159200	27000	-	579									
3.4	159200	27000	-	503									
3.9	159200	27000	-	432									
4.5	159200	27000	-	376									
5.1	159200	27000	-	335									
5.6	159200	27000	-	303									
6.1	159200	27000	-	279									

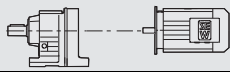

R167R107, $n_e=1700$ rpm										159200 lb-in			
n_a rpm	T_{amax} lb-in	F_{Ra} lb	$\varphi_{(R)}$ °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME		
 2  3													
0.47	159200	27000	-	3637									
0.51	159200	27000	-	3330									
0.62	159200	27000	-	2757									
0.70	159200	27000	-	2436									
0.74	159200	27000	-	2298									
0.82	159200	27000	-	2066									
0.92	159200	27000	-	1849									
1.0	159200	27000	-	1674									
1.1	159200	27000	-	1485									
1.3	159200	27000	-	1342									
1.4	159200	27000	-	1229									
1.5	159200	27000	-	1111									
1.8	159200	27000	-	950									
2.0	159200	27000	-	860									
2.2	159200	27000	-	763									
2.5	159200	27000	-	690									
2.9	159200	27000	-	585									
3.3	159200	27000	-	511									
 3  2													
4.9	159200	27000	-	349									
5.8	159200	27000	-	295									
6.3	159200	27000	-	270									
7.4	159200	27000	-	229									
8.5	159200	27000	-	200									

R167R107, n _e =1700 rpm					159200 lb-in						
n _a rpm	T _{amax} lb-in	F _{Ra} lb	φ _(/R) '	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
10	159200	27000	-	169							
											
3.8	159200	27000	-	446							
4.3	159200	27000	-	399							
4.7	159200	27000	-	361							
5.2	159200	27000	-	328							
5.8	159200	27000	-	291							
6.4	159200	27000	-	264							
7.5	159200	27000	-	227							
8.6	159200	27000	-	198							
10	159200	27000	-	168							

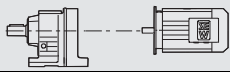

8

8.3 R.. DRS/DRN.. Selections by HP

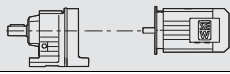

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
0.08	90900	21342	15100	1.25							
0.09	77600	18210	15600	1.50							
0.11	67800	15923	15900	1.70							
0.12	60000	14075	16100	1.90							
0.14	51500	12344	16300	2.2		R	147R77	DR	63S4	930	342/346
0.15	45000	11143	16400	2.6		RF	147R77	DR	63S4	950	343/346
0.17	40600	9743	16400	2.8		RM	147R77	DR	63S4	1310	343/346
0.20	31500	8443	16600	3.6							
0.23	27300	7307	16600	4.2							
0.26	24100	6447	16700	4.8							
0.30	20800	5568	16700	5.5							
0.13	55000	12921	12700	1.30							
0.14	48800	11712	13000	1.45							
0.16	42600	10573	13200	1.65		R	137R77	DR	63S4	640	340/346
0.19	32800	8784	13400	2.1		RF	137R77	DR	63S4	690	341/346
0.22	26200	7479	13600	2.7		RM	137R77	DR	63S4	930	341/346
0.26	27300	6559	13500	2.6							
0.29	20400	5834	13700	3.5							
0.33	21300	5116	13600	3.3							
0.14	50100	11772	9660	1.05							
0.17	41600	9985	9660	1.25							
0.19	36400	9013	9660	1.45							
0.19	33500	8771	9660	1.60							
0.20	30900	8282	9660	1.70							
0.22	30800	7639	9660	1.70							
0.24	24700	7053	9660	2.1							
0.25	25700	6722	9660	2.1		R	127R77	DR	63S4	570	338/346
0.26	23700	6347	9660	2.2		RF	127R77	DR	63S4	590	339/346
0.27	25800	6185	9660	2.1		RM	127R77	DR	63S4	810	339/346
0.30	23300	5592	9660	2.3							
0.35	19700	4740	9660	2.7							
0.38	17000	4441	9660	3.1							
0.43	13800	3949	9660	3.8							
0.45	14400	3764	9660	3.7							
0.47	12500	3571	9660	4.2							
0.54	9600	3110	9660	5.5							
0.48	15000	3495	9660	3.5		R	127R77	DR	63S4	530	338/346
0.55	13100	3056	9660	4.0		RF	127R77	DR	63S4	580	339/346
0.58	12500	2903	9660	4.2		RM	127R77	DR	63S4	790	339/346
0.66	10900	2547	9660	4.8							
0.67	10500	2506	9660	5.0		R	127R77	DR	63S4	570	338/346
						RF	127R77	DR	63S4	590	339/346
						RM	127R77	DR	63S4	800	339/346
0.22	29000	7583	7640	1.30							
0.25	23600	6743	8070	1.60							
0.28	24600	5914	8000	1.55		R	107R77	DR	63S4	445	336/346
0.33	18100	5168	8250	2.1		RF	107R77	DR	63S4	460	337/346
0.38	16600	4435	8290	2.3		RM	107R77	DR	63S4	650	337/346
0.43	14900	3896	8330	2.5							
0.55	12600	3039	8380	3.0							
0.43	16900	3918	8280	2.2							
0.50	14400	3343	8340	2.6		R	107R77	DR	63S4	430	336/346
0.55	13000	3034	8370	2.9		RF	107R77	DR	63S4	445	337/346
0.63	11400	2653	8400	3.3		RM	107R77	DR	63S4	640	337/346
0.74	9830	2280	8430	3.9							
0.81	8730	2067	8440	4.4							
0.37	21100	4559	5540	1.25		R	97R57	DR	63S4	285	334/346
0.42	17400	4004	5650	1.50		RF	97R57	DR	63S4	320	335/346
0.48	15500	3481	6120	1.70		RM	97R57	DR	63S4	435	335/346

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
0.36	22700	4678	5330	1.15							
0.39	20900	4309	5570	1.25							
0.45	17900	3702	5900	1.50							
0.56	14400	3019	6170	1.85		R	97R57	DR	63S4	275	334/346
0.63	12500	2668	6240	2.1		RF	97R57	DR	63S4	315	335/346
0.75	10100	2245	6310	2.6		RM	97R57	DR	63S4	430	335/346
0.83	8910	2016	6340	3.0							
0.97	8390	1733	6350	3.2							
0.55	14800	3065	6150	1.80							
0.62	13100	2722	6220	2.0							
0.73	11000	2311	6280	2.4		R	97R57	DR	63S4	280	334/346
0.81	9960	2078	6310	2.7		RF	97R57	DR	63S4	320	335/346
0.92	8550	1823	6350	3.1		RM	97R57	DR	63S4	430	335/346
1.1	7420	1583	6370	3.6							
1.2	6170	1396	6390	4.3							
1.4	5230	1228	6410	5.1							
0.58	11800	2873	3490	1.15		R	87R57	DR	63S4	190	331/346
0.86	8980	1961	4440	1.55		RF	87R57	DR	63S4	205	332/346
						RM	87R57	DR	63S4	270	332/346
0.65	12400	2595	4010	1.10		R	87R57	DR	63S4	185	331/346
0.79	9870	2129	4350	1.40		RF	87R57	DR	63S4	205	332/346
0.87	8740	1930	4470	1.55		RM	87R57	DR	63S4	270	332/346
0.97	7660	1733	4490	1.80							
0.97	7870	1737	4490	1.75							
1.1	6900	1524	4490	2.0							
1.3	5450	1303	4490	2.5		R	87R57	DR	63S4	190	331/346
1.5	4780	1143	4490	2.9		RF	87R57	DR	63S4	205	332/346
1.9	4010	885	4490	3.4		RM	87R57	DR	63S4	270	332/346
2.2	3510	776	4490	3.9							
2.5	3100	685	4490	4.4							
2.8	2390	599	4490	5.7							
1.3	6620	1303	2370	1.10		R	77R37	DR	63S4	100	328/346
1.5	5610	1124	2550	1.30		RF	77R37	DR	63S4	110	329/346
1.6	5190	1047	2610	1.40		RM	77R37	DR	63S4	165	329/346
1.8	4460	915	2710	1.65							
1.4	5670	1218	2540	1.30							
1.6	5140	1084	2620	1.40		R	77R37	DR	63S4	100	328/346
1.8	4650	940	2690	1.55		RF	77R37	DR	63S4	115	329/346
2.0	3540	821	2810	2.0		RM	77R37	DR	63S4	170	329/346
2.3	3260	731	2830	2.2							
2.6	3230	646	2830	2.2							
3.2	2670	520	2870	2.7		R	77R37	DR	63S4	99	328/346
3.7	2280	451	2900	3.2		RF	77R37	DR	63S4	110	329/346
4.0	2110	422	2910	3.4		RM	77R37	DR	63S4	165	329/346
4.6	1790	365	2920	4.0							
1.9	4410	891	1930	1.20							
2.3	3520	730	2100	1.50		R	67R37	DR	63S4	88	325/346
2.6	3050	644	2170	1.75		RF	67R37	DR	63S4	95	326/346
2.9	2660	571	2220	2.0		RM	67R37	DR	63S4	130	326/346
3.5	2190	486	2270	2.4							
2.0	4140	836	1990	1.30							
2.2	3390	750	2120	1.55		R	67R37	DR	63S4	90	325/346
2.6	3060	646	2170	1.75		RF	67R37	DR	63S4	97	326/346
2.9	2790	574	2200	1.90		RM	67R37	DR	63S4	130	326/346
3.4	2410	495	2250	2.2							
3.8	1950	438	2290	2.7							
2.5	3150	678	1680	1.25							
2.8	2860	604	1700	1.40		R	57R37	DR	63S4	75	322/346
3.1	2610	537	1720	1.50		RF	57R37	DR	63S4	83	323/346
3.6	2290	471	1740	1.75		RM	57R37	DR	63S4	110	323/346
4.7	1690	357	1770	2.4							
5.3	1480	319	1780	2.7							

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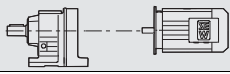

P_m = 0.16 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]		lbs				
4.7	1810	359	1760	2.2							
5.2	1640	324	1770	2.4							
5.8	1430	290	1780	2.8		R	57R37	DR	63S4	73	322/346
6.4	1290	262	1780	3.1		RF	57R37	DR	63S4	81	323/346
6.8	1180	246	1790	3.4		RM	57R37	DR	63S4	105	323/346
7.6	1030	220	1790	3.8							
3.3	2370	510	1250	1.10							
3.9	1970	436	1300	1.35		R	47R37	DR	63S4	63	319/346
4.1	1820	408	1310	1.45		RF	47R37	DR	63S4	63	320/346
4.9	1480	344	1340	1.80							
3.9	2200	429	1270	1.20							
4.5	1880	372	1310	1.40							
4.8	1740	348	1320	1.50		R	47R37	DR	63S4	62	319/346
5.6	1480	301	1340	1.80		RF	47R37	DR	63S4	63	320/346
6.6	1220	255	1350	2.2							
7.4	1070	228	1360	2.5							
8.6	890	195	1370	3.0							
5.0	1560	338	1100	1.15							
5.7	1490	296	1150	1.20							
6.5	1290	259	1240	1.35		R	37R17	DR	63S4	38	316/346
7.4	1140	228	1270	1.55		RF	37R17	DR	63S4	41	317/346
8.4	980	199	1290	1.80							
9.8	860	172	1310	2.0							
5.1	1670	328	1020	1.05							
5.8	1430	289	1190	1.25							
6.3	1350	265	1220	1.30		R	37R17	DR	63S4	37	316/346
7.4	1080	226	1280	1.65		RF	37R17	DR	63S4	40	317/346
8.3	1000	202	1290	1.75							
9.4	870	179	1310	2.0							
8.4	960	200	900	1.20		R	27R17	DR	63S4	25	313/346
9.5	830	177	920	1.35		RF	27R17	DR	63S4	25	314/346
10	810	166	920	1.40							
7.4	1080	227	840	1.05							
8.3	1000	203	890	1.15		R	27R17	DR	63S4	24	313/346
9.4	870	179	910	1.30		RF	27R17	DR	63S4	24	314/346
11	725	156	930	1.60							
5.6	1780	195.24*	2920	4.1		R	77	DR	63M6	81	328
6.6	1520	166.59	2920	4.8		RF	77	DR	63M6	94	329
7.5	1330	145.67	2920	5.4		RM	77	DR	63M6	150	329
5.5	1830	199.81	2300	2.9							
6.0	1680	184.07	2310	3.1							
7.0	1440	158.14	2330	3.7		R	67	DR	63M6	66	325
8.0	1260	137.67	2340	4.2		RF	67	DR	63M6	73	326
8.5	1180	128.97	2340	4.5		RM	67	DR	63M6	110	326
9.7	1040	113.94	2350	5.1							
8.4	1190	199.81	2340	4.4		R	67	DR	63S4	66	325
9.1	1100	184.07	2340	4.8		RF	67	DR	63S4	73	326
						RM	67	DR	63S4	110	326
5.9	1710	186.89	1770	2.3							
6.4	1570	172.17	1770	2.5							
7.4	1350	147.92	1780	2.9		R	57	DR	63M6	51	322
8.5	1170	128.77	1790	3.4		RF	57	DR	63M6	59	323
9.1	1100	120.63	1790	3.6		RM	57	DR	63M6	85	323
10	970	106.58	1790	4.1							
11	900	98.99	1790	4.4							
9.0	1120	186.89	1790	3.5		R	57	DR	63S4	51	322
9.8	1030	172.17	1790	3.9		RF	57	DR	63S4	59	323
11	880	147.92	1790	4.5		RM	57	DR	63S4	85	323
13	770	128.77	1800	5.2							
6.2	1620	176.88	1330	1.65							
6.8	1490	162.94	1340	1.80		R	47	DR	63M6	40	319
7.9	1280	139.99	1350	2.1		RF	47	DR	63M6	40	320
9.0	1110	121.87	1360	2.4							

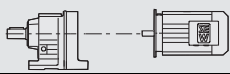

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P_m = 0.16 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
9.5	1060	176.88	1360	2.5					
10	970	162.94	1370	2.7					
12	830	139.99	1370	3.2					
14	730	121.87	1380	3.6		R	47	DR	63S4
15	685	114.17	1380	3.9		RF	47	DR	63S4
17	605	100.86	1380	4.4				40	319
18	560	93.68	1380	4.7				40	320
8.2	1230	134.82	1250	1.45					
8.9	1130	123.66	1270	1.55					
10	960	105.28	1300	1.85		R	37	DR	63M6
12	830	90.77	1310	2.1		RF	37	DR	63M6
13	775	84.61	1320	2.3				31	316
15	675	73.96	1330	2.6				34	317
12	800	134.82	1320	2.2					
14	740	123.66	1320	2.4					
16	630	105.28	1340	2.8		R	37	DR	63S4
19	540	90.77	1340	3.2		RF	37	DR	63S4
20	505	84.61	1350	3.5				31	316
23	440	73.96	1350	4.0				34	317
10	960	105.49	900	1.20					
12	830	90.96	920	1.40		R	27	DR	63M6
13	775	84.78	920	1.50		RF	27	DR	63M6
15	675	74.11	940	1.70				18	313
								18	314
12	810	135.09	920	1.40					
14	740	123.91	930	1.55					
16	630	105.49	940	1.80					
18	545	90.96	950	2.1					
20	505	84.78	960	2.3					
23	440	74.11	960	2.6		R	27	DR	63S4
24	415	69.47	970	2.8		RF	27	DR	63S4
27	365	61.30	930	3.1				18	313
30	335	55.87	910	3.4				18	314
35	285	48.17	870	4.0					
37	265	44.90	850	4.3					
16	645	70.39	535	1.15					
17	600	65.61	545	1.25		R	17	DR	63M6
19	525	57.35	560	1.45		RF	17	DR	63M6
20	490	53.76	560	1.55				17	310
23	430	47.44	560	1.75				17	311
21	485	81.64	560	1.55					
24	420	70.39	560	1.80					
26	390	65.61	560	1.90					
29	340	57.35	560	2.2					
31	320	53.76	560	2.3					
35	280	47.44	550	2.6		R	17	DR	63S4
38	265	44.18	535	2.8		RF	17	DR	63S4
44	230	38.61	520	3.2				17	310
46	215	36.20	510	3.5				17	311
53	192	31.94	490	3.9					
59	170	28.32	475	4.4					
70	144	24.07	450	5.2					
28	360	60.32	295	1.20					
33	305	51.52	305	1.45					
35	285	47.78	310	1.55					
38	260	44.16	315	1.65					
41	245	41.31	320	1.80					
42	240	40.34	320	1.85					
44	230	38.51	320	1.90		R	07	DR	63S4
49	200	34.05	310	2.2		RF	07	DR	63S4
58	174	29.08	300	2.5				14	307
62	162	26.97	290	2.7				14	308
72	140	23.32	280	3.2					
77	130	21.73	275	3.4					

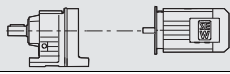

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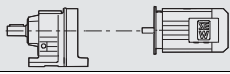

P_m = 0.16 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			lbs			
92	110	18.31	265	4.0							
100	100	16.73	255	4.4							
119	85	14.12	245	5.2							
139	72	12.06	235	6.1							
150	67	11.18	230	6.6							
174	58	9.67	220	7.6							
186	54	9.01	215	8.2							
214	47	7.85	205	9.2		R	07	DR	63S4	14	307
225	45	7.48	200	8.5		RF	07	DR	63S4	14	308
246	41	6.83	197	9.3							
291	35	5.76	187	10							
341	30	4.92	178	11							
368	27	4.57	173	12							
425	24	3.95	166	13							
457	22	3.68	162	13							
524	19	3.21	155	14							
277	36	6.07	900	10		RX	67	DR	63S4	36	297
325	31	5.18	850	21		RXF	67	DR	63S4	45	298
371	27	4.53	820	27							
391	26	4.30*	800	27							
305	33	5.50*	710	10							
332	30	5.07	690	10							
386	26	4.35	655	23							
443	23	3.79	625	27							
473	21	3.55*	615	29							
536	19	3.14	590	31		RX	57	DR	63S4	30	295
577	18	2.91	575	34		RXF	57	DR	63S4	35	296
636	16	2.64*	555	39							
709	14	2.37	535	43							
823	12	2.04	510	50							
875	12	1.92*	500	53							
1015	9.9	1.65	475	62							

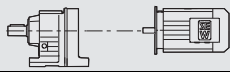

P_m = 0.25 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			lbs			
0.12	102800	14075	14700	1.10	X						
0.14	89000	12344	15200	1.30	X						
0.15	78800	11143	15600	1.45	X						
0.17	70200	9743	15800	1.65	X						
0.20	57200	8443	16100	2.0	X						
0.23	49500	7307	16300	2.3	X	R	147R77	(E)DRS	71S4	930	342/346
0.26	43700	6447	16400	2.6	X	RF	147R77	(E)DRS	71S4	950	343/346
0.31	37700	5568	16500	3.0	X	RM	147R77	(E)DRS	71S4	1320	343/346
0.35	34800	4926	16500	3.3	X						
0.39	29700	4325	16600	3.9	X						
0.45	26500	3754	16600	4.3	X						
0.51	22600	3302	16700	5.1	X						
0.19	59500	8784	12500	1.20	X						
0.23	48900	7479	13000	1.45	X						
0.26	47300	6559	13000	1.50	X	R	137R77	(E)DRS	71S4	640	340/346
0.29	38200	5834	13300	1.85	X	RF	137R77	(E)DRS	71S4	690	341/346
0.33	36900	5116	13300	1.90	X	RM	137R77	(E)DRS	71S4	940	341/346
0.38	30200	4464	13500	2.3	X						
0.43	26600	3928	13600	2.7	X						
0.36	34800	4709	13400	2.0	X						
0.42	29700	4018	13500	2.4	X	R	137R77	(E)DRS	71S4	620	340/346
0.48	25900	3514	13600	2.7	X	RF	137R77	(E)DRS	71S4	670	341/346
0.51	24600	3338	13600	2.9	X	RM	137R77	(E)DRS	71S4	920	341/346
0.58	21600	2929	13600	3.3	X						

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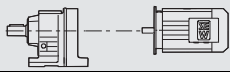

P_m = 0.25 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
0.24	46100	7053	9660	1.15	X				
0.25	46100	6722	9660	1.15	X				
0.27	43000	6347	9660	1.25	X				
0.27	44600	6185	9660	1.20	X				
0.30	40300	5592	9660	1.30	X				
0.36	34100	4740	9660	1.55	X				
0.38	30500	4441	9660	1.75	X				
0.43	25800	3949	9660	2.0	X	R	127R77	(E)DRS 71S4	580 338/346
0.45	25800	3764	9660	2.0	X	RF	127R77	(E)DRS 71S4	600 339/346
0.48	23300	3571	9660	2.3	X	RM	127R77	(E)DRS 71S4	810 339/346
0.55	19000	3110	9660	2.8	X				
0.60	17200	2812	9660	3.1	X				
0.71	14600	2383	9660	3.6	X				
0.88	13200	1934	9660	4.0	X				
0.93	12000	1835	9660	4.4	X				
1.1	10100	1555	9660	5.2	X				
0.49	25800	3495	9660	2.0	X				
0.56	22600	3056	9660	2.4	X				
0.59	21400	2903	9660	2.5	X	R	127R77	(E)DRS 71S4	540 338/346
0.67	18800	2547	9660	2.8	X	RF	127R77	(E)DRS 71S4	590 339/346
0.79	15700	2161	9660	3.4	X	RM	127R77	(E)DRS 71S4	800 339/346
0.87	13900	1951	9660	3.8	X				
0.99	11900	1716	9660	4.5	X				
1.1	11100	1620	9660	4.8	X				
0.68	18300	2506	9660	2.9	X				
0.75	16500	2266	9660	3.2	X				
0.84	14000	2016	9660	3.8	X	R	127R77	(E)DRS 71S4	570 338/346
0.89	14000	1920	9660	3.8	X	RF	127R77	(E)DRS 71S4	600 339/346
0.93	12600	1823	9660	4.2	X	RM	127R77	(E)DRS 71S4	810 339/346
1.0	11000	1673	9660	4.8	X				
1.1	10700	1545	9660	4.9	X				
1.1	10000	1512	9660	5.3	X				
0.38	30000	4435	7540	1.25	X	R	107R77	(E)DRS 71S4	450 336/346
0.44	26700	3896	7830	1.40	X	RF	107R77	(E)DRS 71S4	465 337/346
0.56	21900	3039	8130	1.75	X	RM	107R77	(E)DRS 71S4	660 337/346
0.43	28900	3918	7640	1.30	X				
0.51	24700	3343	7990	1.55	X	R	107R77	(E)DRS 71S4	435 336/346
0.56	22400	3034	8120	1.70	X	RF	107R77	(E)DRS 71S4	450 337/346
0.64	19600	2653	8210	1.95	X	RM	107R77	(E)DRS 71S4	640 337/346
0.75	16800	2280	8280	2.3	X				
0.82	15000	2067	8330	2.5	X				
0.86	14200	1987	8350	2.7	X				
0.93	12500	1827	8380	3.0	X	R	107R77	(E)DRS 71S4	450 336/346
1.1	10600	1599	8420	3.6	X	RF	107R77	(E)DRS 71S4	460 337/346
1.2	9610	1400	8430	4.0	X	RM	107R77	(E)DRS 71S4	660 337/346
1.4	8120	1226	8450	4.7	X				
0.64	20700	2668	5590	1.30	X				
0.76	17000	2245	5990	1.55	X				
0.84	15100	2016	6140	1.75	X				
0.98	13700	1733	6200	1.95	X				
1.1	12700	1623	6230	2.1	X	R	97R57	(E)DRS 71S4	280 334/346
1.2	11100	1434	6280	2.4	X	RF	97R57	(E)DRS 71S4	320 335/346
1.4	9180	1207	6330	2.9	X	RM	97R57	(E)DRS 71S4	435 335/346
1.6	8130	1084	6360	3.3	X				
1.8	6840	934	6380	3.9	X				
1.9	6370	878	6390	4.2	X				
2.2	5340	755	6410	5.0	X				
0.62	21500	2722	4430	1.25	X	R	97R57	(E)DRS 71S4	285 334/346
0.74	18100	2311	5440	1.45	X	RF	97R57	(E)DRS 71S4	325 335/346
0.82	16300	2078	5990	1.60	X	RM	97R57	(E)DRS 71S4	435 335/346



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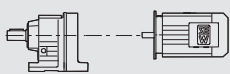

P_m = 0.25 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
1.1	11700	1489	4110	1.15	X	R RF RM	87R57 87R57 87R57	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	190	331/346
1.2	10900	1395	4220	1.25	X						
1.4	9570	1232	4380	1.45	X						
1.5	8830	1145	4460	1.55	X						
1.6	7890	1037	4490	1.75	X						
1.8	6980	931	4490	1.95	X						
2.1	5880	802	4490	2.3	X						
1.1	11500	1524	3590	1.20	X	R RF RM	87R57 87R57 87R57	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	195	331/346
1.3	9460	1303	4380	1.45	X						
1.5	8300	1143	4490	1.65	X						
1.9	6730	885	4490	2.0	X						
2.2	5900	776	4490	2.3	X						
2.0	6780	858	2330	1.05	X	R RF RM	77R37 77R37 77R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	105	328/346
2.2	5920	757	2500	1.20	X						
2.5	5190	671	2610	1.40	X						
3.0	4330	571	2720	1.65	X						
2.1	6070	821	2470	1.20	X	R RF RM	77R37 77R37 77R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	110	328/346
2.3	5510	731	2560	1.30	X						
2.6	5220	646	2610	1.40	X						
3.0	4520	560	2700	1.60	X						
3.5	3810	488	2780	1.90	X						
3.9	3370	436	2820	2.1	X						
4.6	2910	373	2860	2.5	X						
5.2	2550	327	2880	2.8	X						
5.9	2290	289	2900	3.2	X						
3.0	4410	571	1930	1.20	X	R RF RM	67R37 67R37 67R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	94	325/346
3.5	3690	486	2070	1.45	X						
3.0	4560	574	1900	1.15	X						
3.4	3930	495	2030	1.35	X	R RF RM	67R37 67R37 67R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	96	325/346
3.9	3300	438	2130	1.60	X						
4.4	2920	388	2190	1.80	X						
4.9	2730	344	2210	1.95	X						
5.8	2170	294	2270	2.4	X						
6.5	2010	261	2280	2.6	X						
3.7	3450	454	1650	1.15	X						
4.2	3110	410	1680	1.30	X						
3.6	3740	471	1620	1.05	X						
4.8	2790	357	1700	1.40	X	R RF RM	57R37 57R37 57R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	81	322/346
5.3	2460	319	1730	1.60	X						
6.2	2070	273	1750	1.90	X						
7.1	1780	241	1760	2.2	X						
7.9	1590	215	1770	2.5	X						
4.7	2930	359	1690	1.35	X	R RF RM	57R37 57R37 57R37	(E)DRS (E)DRS (E)DRS	71S4 71S4 71S4	79	322/346
5.2	2650	324	1710	1.50	X						
5.9	2330	290	1730	1.70	X						
6.5	2100	262	1750	1.90	X						
6.9	1950	246	1760	2.0	X						
7.7	1720	220	1770	2.3	X						
9.0	1440	188	1780	2.8	X						
11	1210	159	1780	3.3	X						
5.7	2410	301	1250	1.10	X						
6.7	2020	255	1290	1.30	X						
7.5	1780	228	1310	1.50	X						
8.7	1490	195	1340	1.75	X						
8.5	1590	199	1080	1.10	X	R RF	37R17 37R17	(E)DRS (E)DRS	71S4 71S4	43	316/346
9.9	1390	172	1220	1.25	X						
11	1200	150	1250	1.45	X						
8.4	1630	202	1050	1.10	X	R RF	37R17 37R17	(E)DRS (E)DRS	71S4 71S4	43	316/346
9.5	1420	179	1200	1.25	X						
11	1210	156	1250	1.45	X						

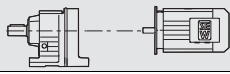

P_m = 0.25 HP										m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®						
12	1080	141	840	1.05	X						
14	950	124	900	1.20	X	R	27R17	(E)DRS	71S4	30	313/346
15	860	110	910	1.35	X	RF	27R17	(E)DRS	71S4	30	314/346
18	720	94	930	1.60	X						
13	1050	135	860	1.10	X						
14	970	118	900	1.20	X	R	27R17	(E)DRS	71S4	30	313/346
16	840	104	920	1.35	X	RF	27R17	(E)DRS	71S4	30	314/346
19	725	90	930	1.60	X						
8.7	1810	195.24*	2920	4.0	X	R	77	(E)DRS	71S4	87	328
10	1540	166.59	2920	4.7	X	RF	77	(E)DRS	71S4	99	329
12	1350	145.67	2920	5.4	X	RM	77	(E)DRS	71S4	155	329
12	1280	138.39	2920	5.7	X						
5.5	2870	195.24*	2860	2.5		R	77	DR	63L6	83	328
6.4	2450	166.59	2890	3.0		RF	77	DR	63L6	95	329
7.3	2140	145.67	2910	3.4		RM	77	DR	63L6	150	329
7.7	2030	138.39	2910	3.6							
8.8	1780	121.42	2920	4.1							
8.5	1850	199.81	2300	2.9	X						
9.2	1700	184.07	2310	3.1	X	R	67	(E)DRS	71S4	71	325
11	1460	158.14	2330	3.6	X	RF	67	(E)DRS	71S4	78	326
12	1270	137.67	2340	4.2	X	RM	67	(E)DRS	71S4	115	326
13	1190	128.97	2340	4.4	X						
15	1050	113.94	2350	5.0	X						
16	980	105.83	2350	5.4	X						
5.4	2940	199.81	2190	1.80		R	67	DR	63L6	67	325
5.8	2710	184.07	2210	1.95		RF	67	DR	63L6	74	326
6.8	2320	158.14	2260	2.3		RM	67	DR	63L6	110	326
7.8	2020	137.67	2280	2.6							
8.3	1900	128.97	2290	2.8							
9.4	1670	113.94	2310	3.2							
10	1550	105.83	2320	3.4							
11	1410	95.91	2330	3.8							
12	1260	86.11	2340	4.2							
14	1090	74.17	2340	4.9							
15	1020	69.75	2350	5.2							
9.1	1730	186.89	1770	2.3	X	R	57	(E)DRS	71S4	56	322
9.9	1590	172.17	1770	2.5	X	RF	57	(E)DRS	71S4	64	323
11	1370	147.92	1780	2.9	X	RM	57	(E)DRS	71S4	90	323
13	1190	128.77	1790	3.3	X						
14	1110	120.63	1790	3.6	X						
16	980	106.58	1790	4.0	X						
17	910	98.99	1790	4.3	X						
19	830	89.71	1790	4.8	X						
5.7	2750	186.89	1710	1.45		R	57	DR	63L6	53	322
6.2	2530	172.17	1720	1.55		RF	57	DR	63L6	60	323
7.2	2170	147.92	1740	1.85		RM	57	DR	63L6	87	323
8.3	1890	128.77	1760	2.1							
8.9	1770	120.63	1760	2.2							
9.6	1640	176.88	1330	1.60	X						
10	1510	162.94	1340	1.75	X	R	47	(E)DRS	71S4	45	319
12	1290	139.99	1350	2.0	X	RF	47	(E)DRS	71S4	45	320
14	1130	121.87	1360	2.4	X						
15	1050	114.17	1360	2.5	X						
17	930	100.86	1370	2.8	X						
18	860	93.68	1370	3.1	X						
20	785	84.90	1370	3.4	X						
22	705	76.23	1380	3.8	X						

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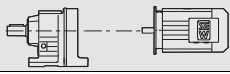

P_m = 0.25 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
13	1250	134.82	1250	1.40	X				
14	1140	123.66	1270	1.55	X				
16	970	105.28	1290	1.80	X				
19	840	90.77	1310	2.1	X				
20	780	84.61	1320	2.3	X	R	37	(E)DRS 71S4	37 316
23	685	73.96	1330	2.6	X	RF	37	(E)DRS 71S4	40 317
25	640	69.33	1340	2.8	X				
28	565	61.18	1330	3.1	X				
30	515	55.76	1300	3.4	X				
35	445	48.08	1240	4.0	X				
10	1550	105.28	1110	1.15		R	37	DR 63L6	33 316
12	1330	90.77	1230	1.30		RF	37	DR 63L6	36 317
13	1240	84.61	1250	1.40					
14	1140	123.91	795	1.00	X				
16	970	105.49	900	1.20	X				
19	840	90.96	920	1.35	X				
20	785	84.78	920	1.45	X				
23	685	74.11	930	1.65	X				
24	640	69.47	930	1.80	X				
28	565	61.30	900	2.0	X	R	27	(E)DRS 71S4	24 313
30	515	55.87	880	2.2	X	RF	27	(E)DRS 71S4	24 314
35	445	48.17	840	2.6	X				
38	415	44.90	830	2.8	X				
43	360	39.25	795	3.2	X				
46	340	36.79	780	3.4	X				
52	300	32.47	750	3.8	X				
59	265	28.78	725	4.3	X				
69	225	24.47	690	5.1	X				
60	260	28.37	720	4.4	X				
65	240	26.09	700	4.8	X				
76	205	22.32	670	5.6	X	R	27	(E)DRS 71S4	24 313
88	179	19.35	640	6.4	X	RF	27	(E)DRS 71S4	23 314
94	168	18.08	625	6.9	X				
109	145	15.63	600	7.9	X				
128	123	13.28*	570	9.3	X				
21	755	81.64	390	1.00					
24	650	70.39	535	1.15	X				
26	605	65.61	540	1.25	X				
30	530	57.35	540	1.40	X				
32	495	53.76	530	1.50	X				
36	435	47.44	515	1.70	X	R	17	(E)DRS 71S4	22 310
38	405	44.18	510	1.85	X	RF	17	(E)DRS 71S4	22 311
44	355	38.61	490	2.1	X				
47	335	36.20	485	2.2	X				
53	295	31.94	470	2.5	X				
60	260	28.32	455	2.9	X				
71	220	24.07	435	3.4	X				
67	230	25.23	440	3.2	X				
73	210	23.15	430	3.5	X	R	17	(E)DRS 71S4	22 310
86	183	19.71	410	4.1	X	RF	17	(E)DRS 71S4	21 311
100	158	16.99	395	4.8	X				
36	440	47.78	280	1.00	X				
38	405	44.16	285	1.10	X				
41	380	41.31	290	1.15	X				
42	370	40.34	295	1.20	X				
44	355	38.51	295	1.25	X	R	07	(E)DRS 71S4	20 307
50	315	34.05	285	1.40	X	RF	07	(E)DRS 71S4	20 308
58	265	29.08	280	1.65	X				
63	250	26.97	275	1.75	X				
73	215	23.32	265	2.0	X				
78	200	21.73	260	2.2	X				

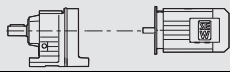

P_m = 0.25 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
3	170	18.31	250	2.6	X				
102	155	16.73	245	2.9	X				
120	131	14.12	235	3.4	X				
141	112	12.06	225	4.0	X				
152	104	11.18	220	4.3	X				
176	90	9.67	210	4.9	X				
189	84	9.01	205	5.3	X				
216	73	7.85	199	6.0	X	R	07	(E)DRS 71S4	19 307
227	69	7.48	197	5.5	X	RF	07	(E)DRS 71S4	19 308
249	63	6.83	192	6.0	X				
295	53	5.76	182	6.6	X				
345	46	4.92	174	7.2	X				
372	42	4.57	170	7.5	X				
431	37	3.95	163	8.2	X				
462	34	3.68	159	8.6	X				
530	30	3.21	153	9.2	X				
280	56	6.07	890	6.8	X				
328	48	5.18	850	14	X				
376	42	4.53	810	17	X				
395	40	4.30*	795	18	X				
451	35	3.77	765	22	X	RX	67	(E)DRS 71S4	41 297
531	30	3.20*	725	30	X	RXF	67	(E)DRS 71S4	50 298
588	27	2.89	700	35	X				
669	24	2.54	670	44	X				
708	22	2.40*	655	49	X				
832	19	2.04	625	63	X				
309	51	5.50*	705	6.8	X				
336	47	5.07	685	6.8	X				
391	40	4.35	650	15	X				
449	35	3.79	620	17	X				
479	33	3.55*	610	19	X				
542	29	3.14	585	20	X	RX	57	(E)DRS 71S4	36 295
584	27	2.91	570	22	X	RXF	57	(E)DRS 71S4	40 296
644	25	2.64*	555	25	X				
717	22	2.37	535	28	X				
833	19	2.04	510	32	X				
885	18	1.92*	500	34	X				
1030	15	1.65	475	40	X				

P_m = 0.33 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.17	97100	9743	14900	1.20	X						
0.20	80500	8443	15500	1.45	X						
0.23	69700	7307	15800	1.65	X						
0.26	61500	6447	16000	1.85	X						
0.31	53100	5568	16200	2.2	X	R	147R77	(E)DRS	71S4	930	342/346
0.35	48400	4926	16300	2.4	X	RF	147R77	(E)DRS	71S4	950	343/346
0.39	41600	4325	16400	2.8	X	RM	147R77	(E)DRS	71S4	1320	343/346
0.45	36900	3754	16500	3.1	X						
0.51	31800	3302	16600	3.6	X						
0.59	27600	2898	16600	4.2	X						
0.29	54300	5834	12800	1.30	X	R	137R77	(E)DRS	71S4	640	340/346
0.33	51000	5116	12900	1.40	X	RF	137R77	(E)DRS	71S4	690	341/346
0.38	42600	4464	13200	1.65	X	RM	137R77	(E)DRS	71S4	940	341/346
0.43	37400	3928	13300	1.90	X						
0.36	47900	4709	13000	1.45	X	R	137R77	(E)DRS	71S4	620	340/346
0.42	40900	4018	13200	1.75	X	RF	137R77	(E)DRS	71S4	670	341/346
0.48	35800	3514	13400	2.0	X	RM	137R77	(E)DRS	71S4	920	341/346
0.51	34000	3338	13400	2.1	X						
0.58	29800	2929	13500	2.4	X						
0.64	26800	2658	13600	2.6	X	R	137R77	(E)DRS	71S4	640	340/346
0.70	24300	2412	13600	2.9	X	RF	137R77	(E)DRS	71S4	690	341/346
0.82	20900	2073	13600	3.4	X	RM	137R77	(E)DRS	71S4	940	341/346
0.92	17700	1839	13700	4.0	X						
1.2	13900	1397	13700	5.1	X						
1.4	11900	1226	13800	5.9	X						
0.36	47200	4740	9660	1.10	X						
0.38	42700	4441	9660	1.25	X						
0.43	36700	3949	9660	1.45	X						
0.45	36200	3764	9660	1.45	X						
0.48	33200	3571	9660	1.60	X						
0.55	27600	3110	9660	1.90	X	R	127R77	(E)DRS	71S4	580	338/346
0.60	24900	2812	9660	2.1	X	RF	127R77	(E)DRS	71S4	600	339/346
0.71	21100	2383	9660	2.5	X	RM	127R77	(E)DRS	71S4	810	339/346
0.88	18600	1934	9660	2.9	X						
0.93	17000	1835	9660	3.1	X						
1.1	14400	1555	9660	3.7	X						
1.2	12800	1444	9660	4.1	X						
1.4	10800	1224	9660	4.9	X						
0.49	35600	3495	9660	1.50	X						
0.56	31100	3056	9660	1.70	X						
0.59	29500	2903	9660	1.80	X						
0.67	25900	2547	9660	2.0	X						
0.79	21800	2161	9660	2.4	X	R	127R77	(E)DRS	71S4	540	338/346
0.87	19400	1951	9660	2.7	X	RF	127R77	(E)DRS	71S4	590	339/346
0.99	16700	1716	9660	3.2	X	RM	127R77	(E)DRS	71S4	800	339/346
1.1	15600	1620	9660	3.4	X						
1.2	13000	1380	9660	4.1	X						
1.4	12200	1210	9660	4.3	X						
0.68	25300	2506	9660	2.1	X						
0.75	22800	2266	9660	2.3	X						
0.84	19600	2016	9660	2.7	X						
0.89	19300	1920	9660	2.7	X						
0.93	17700	1823	9660	3.0	X						
1.0	15700	1673	9660	3.4	X	R	127R77	(E)DRS	71S4	570	338/346
1.1	15000	1545	9660	3.5	X	RF	127R77	(E)DRS	71S4	600	339/346
1.1	14200	1512	9660	3.7	X	RM	127R77	(E)DRS	71S4	810	339/346
1.3	11800	1322	9660	4.5	X						
1.3	12000	1282	9660	4.4	X						
1.4	10700	1195	9660	4.9	X						
1.5	11700	1164	9660	4.5	X						
1.7	9960	987	9660	5.3	X						

P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
0.56	30300	3039	7520	1.25	X						
0.86	19700	1987	8200	1.90	X						
0.93	17600	1827	8260	2.2	X	R	107R77	(E)DRS	71S4	450	336/346
1.1	15000	1599	8330	2.5	X	RF	107R77	(E)DRS	71S4	465	337/346
1.2	13500	1400	8360	2.8	X	RM	107R77	(E)DRS	71S4	660	337/346
1.4	11500	1226	8400	3.3	X						
1.8	9060	939	8440	4.2	X						
2.1	7740	822	8450	4.9	X						
0.98	18500	1733	5840	1.45	X	R	97R57	(E)DRS	71S4	280	334/346
1.1	17300	1623	5970	1.55	X	RF	97R57	(E)DRS	71S4	320	335/346
						RM	97R57	(E)DRS	71S4	435	335/346
0.93	19200	1823	5120	1.40	X						
1.1	16700	1583	5880	1.60	X						
1.2	14300	1396	6170	1.85	X						
1.4	12400	1228	6240	2.1	X	R	97R57	(E)DRS	71S4	285	334/346
1.6	11400	1069	6270	2.3	X	RF	97R57	(E)DRS	71S4	325	335/346
1.8	9900	938	6320	2.7	X	RM	97R57	(E)DRS	71S4	435	335/346
2.1	8350	824	6350	3.2	X						
2.3	7460	737	6370	3.5	X						
2.7	6400	632	6390	4.2	X						
1.5	12000	1145	4070	1.15	X	R	87R57	(E)DRS	71S4	190	331/346
1.6	10700	1037	4240	1.25	X	RF	87R57	(E)DRS	71S4	210	332/346
1.8	9580	931	4380	1.45	X	RM	87R57	(E)DRS	71S4	275	332/346
2.1	8120	802	4490	1.70	X						
1.5	11400	1143	3630	1.20	X						
1.9	9200	885	4420	1.50	X						
2.2	8070	776	4490	1.70	X	R	87R57	(E)DRS	71S4	195	331/346
2.5	7120	685	4490	1.90	X	RF	87R57	(E)DRS	71S4	210	332/346
2.8	5900	599	4490	2.3	X	RM	87R57	(E)DRS	71S4	275	332/346
3.2	5180	525	4490	2.6	X						
3.7	4580	456	4490	3.0	X						
6.3	2640	268	4490	5.2	X						
3.0	5930	571	2500	1.20	X	R	77R37	(E)DRS	71S4	105	328/346
						RF	77R37	(E)DRS	71S4	120	329/346
						RM	77R37	(E)DRS	71S4	175	329/346
3.0	6080	560	2470	1.20	X						
3.5	5180	488	2610	1.40	X						
3.9	4580	436	2690	1.60	X	R	77R37	(E)DRS	71S4	110	328/346
4.6	3950	373	2770	1.85	X	RF	77R37	(E)DRS	71S4	120	329/346
5.2	3460	327	2810	2.1	X	RM	77R37	(E)DRS	71S4	175	329/346
5.9	3090	289	2840	2.3	X						
6.5	2750	260	2870	2.6	X						
7.6	2280	224	2900	3.2	X						
4.4	4010	388	2010	1.30	X						
4.9	3690	344	2070	1.45	X	R	67R37	(E)DRS	71S4	96	325/346
5.8	2990	294	2180	1.75	X	RF	67R37	(E)DRS	71S4	105	326/346
6.5	2740	261	2210	1.95	X	RM	67R37	(E)DRS	71S4	140	326/346
7.3	2460	234	2240	2.1	X						
8.5	2070	200	2280	2.5	X						
9.7	1790	176	2300	3.0	X						
11	1600	158	2320	3.3	X						
4.4	4220	384	1970	1.25	X						
4.7	3930	359	2030	1.35	X						
5.5	3370	310	2120	1.55	X	R	67R37	(E)DRS	71S4	94	325/346
6.5	2830	264	2200	1.85	X	RF	67R37	(E)DRS	71S4	100	326/346
7.2	2500	235	2240	2.1	X	RM	67R37	(E)DRS	71S4	135	326/346
8.5	2110	201	2280	2.5	X						
9.4	1900	181	2290	2.8	X						
5.3	3360	319	1660	1.20	X						
6.2	2830	273	1700	1.40	X						
7.1	2450	241	1730	1.60	X	R	57R37	(E)DRS	71S4	81	322/346
7.9	2190	215	1740	1.80	X	RF	57R37	(E)DRS	71S4	89	323/346
9.1	1940	187	1760	2.0	X	RM	57R37	(E)DRS	71S4	115	323/346
10	1670	164	1770	2.4	X						
12	1460	142	1780	2.7	X						

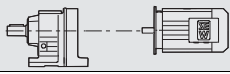

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P_m = 0.33 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs		
5.2	3560	324	1640	1.10	X	R RF RM	57R37	(E)DRS	71S4	79	322/346	
5.9	3150	290	1680	1.25	X		57R37	(E)DRS	71S4	87	323/346	
6.5	2840	262	1700	1.40	X		57R37	(E)DRS	71S4	115	323/346	
6.9	2640	246	1710	1.50	X							
7.7	2340	220	1730	1.70	X							
7.5	2420	228	1250	1.10	X	R RF	47R37	(E)DRS	71S4	68	319/346	
8.7	2040	195	1290	1.30	X		47R37	(E)DRS	71S4	69	320/346	
9.3	1900	182	1300	1.40	X							
11	1580	154	1330	1.70	X							
11	1620	150	1060	1.10	X	R RF	37R17	(E)DRS	71S4	43	316/346	
13	1370	130	1220	1.30	X		37R17	(E)DRS	71S4	46	317/346	
14	1300	124	1230	1.35	X							
15	1150	110	1260	1.55	X							
18	980	94	1290	1.80	X							
13	1420	135	1200	1.25	X	R RF	37R17	(E)DRS	71S4	43	316/346	
13	1390	127	1210	1.25	X		37R17	(E)DRS	71S4	46	317/346	
16	1130	104	1270	1.55	X							
19	980	90	1290	1.80	X							
5.6	3690	195.24*	2790	1.95		R RF RM	77	DRS	71S6	87	328	
6.6	3150	166.59	2840	2.3			77	DRS	71S6	99	329	
7.5	2750	145.67	2870	2.6			77	DRS	71S6	155	329	
8.7	2380	195.24*	2890	3.0	X	R RF RM	77	(E)DRS	71S4	87	328	
10	2030	166.59	2910	3.6	X		77	(E)DRS	71S4	99	329	
12	1780	145.67	2920	4.1	X		77	(E)DRS	71S4	155	329	
12	1690	138.39	2920	4.3	X		77	(E)DRS	71S4	155	329	
14	1480	121.42	2920	4.9	X							
5.5	3770	199.81	2060	1.40		R RF RM	67	DRS	71S6	71	325	
6.0	3480	184.07	2110	1.50			67	DRS	71S6	78	326	
7.0	2990	158.14	2180	1.75			67	DRS	71S6	115	326	
8.0	2600	137.67	2230	2.0								
8.5	2430	128.97	2240	2.2								
9.7	2150	113.94	2270	2.5								
10	2000	105.83	2290	2.6								
8.5	2440	199.81	2240	2.2	X	R RF RM	67	(E)DRS	71S4	71	325	
9.2	2250	184.07	2260	2.4	X		67	(E)DRS	71S4	78	326	
11	1930	158.14	2290	2.7	X		67	(E)DRS	71S4	115	326	
12	1680	137.67	2310	3.1	X							
13	1570	128.97	2320	3.4	X							
15	1390	113.94	2330	3.8	X							
16	1290	105.83	2330	4.1	X							
18	1170	95.91	2340	4.5	X							
20	1050	86.11	2350	5.0	X							
5.9	3530	186.89	1640	1.15		R RF RM	57	DRS	71S6	56	322	
6.4	3250	172.17	1670	1.20			57	DRS	71S6	64	323	
7.4	2790	147.92	1700	1.40			57	DRS	71S6	90	323	
8.5	2430	128.77	1730	1.65								
9.1	2280	120.63	1740	1.75								
10	2010	106.58	1750	1.95								
11	1870	98.99	1760	2.1								
9.1	2280	186.89	1740	1.75	X	R RF RM	57	(E)DRS	71S4	56	322	
9.9	2100	172.17	1750	1.90	X		57	(E)DRS	71S4	64	323	
11	1810	147.92	1760	2.2	X		57	(E)DRS	71S4	90	323	
13	1570	128.77	1770	2.5	X							
14	1470	120.63	1780	2.7	X							
16	1300	106.58	1780	3.0	X							
17	1210	98.99	1790	3.3	X							
19	1090	89.71	1790	3.6	X							
21	980	80.55	1790	4.0	X							
25	840	69.23	1770	4.7	X							

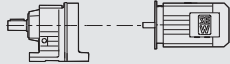

P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
9.6	2160	176.88	1280	1.25	X						
10	1990	162.94	1290	1.35	X						
12	1710	139.99	1320	1.55	X						
14	1490	121.87	1340	1.80	X						
15	1390	114.17	1340	1.90	X						
17	1230	100.86	1350	2.1	X						
18	1140	93.68	1360	2.3	X	R	47	(E)DRS	71S4	45	319
20	1030	84.90	1360	2.5	X	RF	47	(E)DRS	71S4	45	320
22	930	76.23	1370	2.8	X						
25	830	68.54	1370	3.2	X						
26	785	64.21	1370	3.4	X						
30	690	56.73	1330	3.8	X						
32	640	52.69	1300	4.1	X						
36	580	47.75	1260	4.5	X						
13	1650	134.82	1040	1.05	X						
14	1510	123.66	1140	1.15	X						
16	1280	105.28	1240	1.35	X						
19	1110	90.77	1270	1.60	X						
20	1030	84.61	1280	1.70	X						
23	900	73.96	1300	1.95	X						
25	840	69.33	1310	2.1	X	R	37	(E)DRS	71S4	37	316
28	745	61.18	1310	2.4	X	RF	37	(E)DRS	71S4	40	317
30	680	55.76	1280	2.6	X						
35	585	48.08	1220	3.0	X						
38	545	44.81	1200	3.2	X						
43	475	39.17	1150	3.7	X						
46	445	36.72	1130	3.9	X						
52	395	32.40	1090	4.5	X						
20	1030	84.78	870	1.10	X						
23	900	74.11	910	1.25	X						
24	850	69.47	910	1.35	X						
28	750	61.30	880	1.55	X						
30	680	55.87	860	1.70	X						
35	585	48.17	820	1.95	X	R	27	(E)DRS	71S4	24	313
38	545	44.90	810	2.1	X	RF	27	(E)DRS	71S4	24	314
43	480	39.25	780	2.4	X						
46	450	36.79	765	2.5	X						
52	395	32.47	740	2.9	X						
59	350	28.78	715	3.3	X						
69	295	24.47	680	3.8	X						
60	345	28.37	710	3.3	X						
65	315	26.09	695	3.6	X						
76	270	22.32	660	4.2	X						
88	235	19.35	635	4.9	X						
94	220	18.08	620	5.2	X						
109	191	15.63	595	6.0	X						
128	163	13.28*	565	7.1	X						
143	145	11.86	545	7.9	X						
168	124	10.13	520	8.7	X	R	27	(E)DRS	71S4	24	313
181	115	9.41	505	9.4	X	RF	27	(E)DRS	71S4	23	314
208	100	8.16	485	10	X						
223	93	7.63*	475	11	X						
258	81	6.59	450	12	X						
304	69	5.60*	430	13	X						
340	61	5.00*	415	14	X						
398	52	4.27	395	15	X						
425	49	4.00*	385	15	X						
505	41	3.37	365	17	X						
30	700	57.35	470	1.05	X						
32	655	53.76	500	1.15	X						
36	580	47.44	490	1.30	X						
38	540	44.18	485	1.40	X						
44	470	38.61	470	1.60	X	R	17	(E)DRS	71S4	22	310
47	440	36.20	465	1.70	X	RF	17	(E)DRS	71S4	22	311
53	390	31.94	450	1.90	X						
60	345	28.32	440	2.2	X						
71	290	24.07	420	2.5	X						

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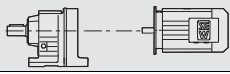

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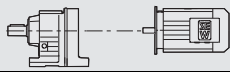

P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
167	124	19.71	335	6.0							
194	107	16.99	320	7.0							
208	100	15.84	315	7.5							
238	87	13.84	300	8.6							
254	82	12.98	295	9.2							
288	72	11.45	285	9.9							
325	64	10.15	275	11							
382	54	8.63	260	12		R	17	DRS	71S2	22	310
437	48	7.55	250	10		RF	17	DRS	71S2	21	311
469	44	7.04	245	11							
537	39	6.15	235	12							
572	36	5.76	230	13							
649	32	5.09	220	14							
732	28	4.51	210	15							
861	24	3.83	200	16							
67	305	25.23	425	2.4	X						
73	280	23.15	420	2.6	X						
86	240	19.71	400	3.1	X						
100	205	16.99	385	3.6	X	R	17	(E)DRS	71S4	22	310
107	194	15.84	380	3.9	X	RF	17	(E)DRS	71S4	21	311
123	169	13.84	365	4.4	X						
131	159	12.98	360	4.7	X						
148	140	11.45	345	5.1	X						
50	415	34.05	270	1.05	X						
58	355	29.08	260	1.25	X	R	07	(E)DRS	71S4	20	307
63	330	26.97	260	1.35	X	RF	07	(E)DRS	71S4	20	308
73	285	23.32	250	1.55	X						
78	265	21.73	250	1.65	X						
93	220	18.31	240	1.95	X						
102	200	16.73	235	2.2	X						
120	173	14.12	225	2.6	X						
141	148	12.06	220	3.0	X						
152	137	11.18	215	3.2	X						
176	118	9.67	205	3.7	X						
189	110	9.01	200	4.0	X						
216	96	7.85	195	4.5	X	R	07	(E)DRS	71S4	19	307
227	91	7.48	193	4.2	X	RF	07	(E)DRS	71S4	19	308
249	84	6.83	188	4.5	X						
295	71	5.76	179	5.0	X						
345	60	4.92	171	5.4	X						
372	56	4.57	167	5.7	X						
431	48	3.95	160	6.2	X						
462	45	3.68	157	6.5	X						
530	39	3.21	151	7.0	X						
280	74	6.07	890	5.1	X						
328	63	5.18	840	10	X						
376	55	4.53	810	13	X						
395	53	4.30*	795	13	X						
451	46	3.77	760	17	X	RX	67	(E)DRS	71S4	41	297
531	39	3.20*	720	23	X	RXF	67	(E)DRS	71S4	50	298
588	35	2.89	695	27	X						
669	31	2.54	670	34	X						
708	29	2.40*	655	37	X						
832	25	2.04	620	47	X						
309	67	5.50*	700	5.1	X						
336	62	5.07	680	5.1	X						
391	53	4.35	650	11	X						
449	46	3.79	620	13	X						
479	43	3.55*	605	14	X						
542	38	3.14	585	15	X	RX	57	(E)DRS	71S4	36	295
584	36	2.91	570	17	X	RXF	57	(E)DRS	71S4	40	296
644	32	2.64*	550	19	X						
717	29	2.37	530	21	X						
833	25	2.04	505	24	X						
885	24	1.92*	495	26	X						
1030	20	1.65	475	30	X						

P_m = 0.50 HP

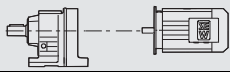

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs							
0.23	112500	7307	14200	1.00	X	R	147R77	(E)DRS	71S4	930	342/346						
0.26	99300	6447	14800	1.15	X												
0.31	85700	5568	15300	1.35	X												
0.35	77300	4926	15600	1.50	X												
0.39	67000	4325	15900	1.70	X												
0.45	58900	3754	16100	1.95	X												
0.51	51100	3302	16300	2.2	X												
0.59	44600	2898	16400	2.6	X												
						RF	147R77	(E)DRS	71S4	950	343/346						
						RM	147R77	(E)DRS	71S4	1320	343/346						
0.38	68700	4464	12100	1.05	X	R	137R77	(E)DRS	71S4	640	340/346						
0.43	60500	3928	12500	1.15	X												
						RF	137R77	(E)DRS	71S4	690	341/346						
						RM	137R77	(E)DRS	71S4	940	341/346						
0.42	64800	4018	12300	1.10	X	R	137R77	(E)DRS	71S4	620	340/346						
0.48	56600	3514	12700	1.25	X												
0.51	53800	3338	12800	1.30	X												
0.58	47200	2929	13000	1.50	X												
0.68	39800	2484	13300	1.80	X												
0.76	35600	2242	13400	2.0	X												
												RF	137R77	(E)DRS	71S4	670	341/346
						RM	137R77	(E)DRS	71S4	920	341/346						
0.64	42600	2658	13200	1.65	X	R	137R77	(E)DRS	71S4	640	340/346						
0.70	38600	2412	13300	1.85	X												
0.82	33200	2073	13400	2.1	X												
0.92	28600	1839	13500	2.5	X												
1.2	22200	1397	13600	3.2	X												
1.4	19200	1226	13700	3.7	X												
1.6	17300	1090	13700	4.1	X												
1.8	15100	951	13700	4.7	X												
						RF	137R77	(E)DRS	71S4	690	341/346						
						RM	137R77	(E)DRS	71S4	940	341/346						
0.55	45800	3110	9660	1.15	X	R	127R77	(E)DRS	71S4	580	338/346						
0.60	41400	2812	9660	1.30	X												
0.71	35100	2383	9660	1.50	X												
0.88	29900	1934	9660	1.75	X												
0.93	27800	1835	9660	1.90	X												
1.1	23500	1555	9660	2.2	X												
1.2	21300	1444	9660	2.5	X												
1.4	18000	1224	9660	2.9	X												
						RF	127R77	(E)DRS	71S4	600	339/346						
						RM	127R77	(E)DRS	71S4	810	339/346						
0.56	49200	3056	9660	1.10	X	R	127R77	(E)DRS	71S4	540	338/346						
0.59	46800	2903	9660	1.15	X												
0.67	41000	2547	9660	1.30	X												
0.79	34600	2161	9660	1.55	X												
0.87	31000	1951	9660	1.70	X												
0.99	26900	1716	9660	1.95	X												
1.1	25200	1620	9660	2.1	X												
1.2	21100	1380	9660	2.5	X												
1.4	19400	1210	9660	2.7	X												
1.8	15000	961	9660	3.5	X												
2.2	11800	773	9660	4.5	X												
												RF	127R77	(E)DRS	71S4	590	339/346
												RM	127R77	(E)DRS	71S4	800	339/346
0.68	40100	2506	9660	1.30	X	R	127R77	(E)DRS	71S4	570	338/346						
0.75	36300	2266	9660	1.45	X												
0.84	31600	2016	9660	1.70	X												
0.89	30700	1920	9660	1.70	X												
0.93	28500	1823	9660	1.85	X												
1.0	25600	1673	9660	2.1	X												
1.1	24200	1545	9660	2.2	X												
1.1	23200	1512	9660	2.3	X												
1.3	19700	1322	9660	2.7	X												
1.3	19600	1282	9660	2.7	X												
1.4	17800	1195	9660	3.0	X												
1.5	18600	1164	9660	2.8	X												
1.7	15100	1013	9660	3.5	X												
1.7	15800	987	9660	3.4	X												
1.8	14600	936	9660	3.6	X												
2.0	12600	830	9660	4.2	X												
2.1	12400	794	9660	4.3	X												
2.2	11900	777	9660	4.5	X												
2.3	11400	750	9660	4.7	X												
												RF	127R77	(E)DRS	71S4	600	339/346
						RM	127R77	(E)DRS	71S4	810	339/346						

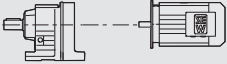

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P_m = 0.50 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			lbs			
0.82	33100	2067	7230	1.15	X						
1.0	26900	1693	7820	1.40	X	R	107R77	(E)DRS	71S4	435	336/346
1.1	24100	1550	8030	1.55	X	RF	107R77	(E)DRS	71S4	450	337/346
1.2	21900	1407	8130	1.75	X	RM	107R77	(E)DRS	71S4	640	337/346
1.4	18800	1209	8230	2.0	X						
1.6	16400	1055	8300	2.3	X						
0.86	31500	1987	7390	1.20	X						
0.93	28400	1827	7690	1.35	X	R	107R77	(E)DRS	71S4	450	336/346
1.1	24500	1599	8010	1.55	X	RF	107R77	(E)DRS	71S4	460	337/346
1.2	21800	1400	8140	1.75	X	RM	107R77	(E)DRS	71S4	660	337/346
1.4	18800	1226	8230	2.0	X						
1.8	14600	939	8340	2.6	X						
2.1	12600	822	8380	3.0	X						
1.4	19700	1207	5710	1.35	X	R	97R57	(E)DRS	71S4	280	334/346
1.6	17500	1084	5940	1.50	X	RF	97R57	(E)DRS	71S4	320	335/346
						RM	97R57	(E)DRS	71S4	435	335/346
1.2	22600	1396	4100	1.15	X						
1.4	19700	1228	4980	1.35	X	R	97R57	(E)DRS	71S4	285	334/346
1.6	17700	1069	5920	1.50	X	RF	97R57	(E)DRS	71S4	325	335/346
1.8	15400	938	6130	1.70	X	RM	97R57	(E)DRS	71S4	435	335/346
2.1	13200	824	6210	2.0	X						
2.3	11800	737	6260	2.2	X						
2.7	10100	632	6310	2.6	X						
3.9	6990	431	6380	3.8	X						
4.5	6090	379	6400	4.4	X						
5.0	5460	336	6410	4.9	X						
2.1	12800	802	3940	1.05	X	R	87R57	(E)DRS	71S4	190	331/346
2.2	12000	754	4070	1.15	X	RF	87R57	(E)DRS	71S4	210	332/346
2.6	10200	649	4300	1.35	X	RM	87R57	(E)DRS	71S4	275	332/346
2.2	12600	776	3980	1.10	X						
2.5	11100	685	4190	1.25	X	R	87R57	(E)DRS	71S4	195	331/346
2.8	9460	599	4380	1.45	X	RF	87R57	(E)DRS	71S4	210	332/346
3.2	8300	525	4490	1.65	X	RM	87R57	(E)DRS	71S4	275	332/346
3.7	7280	456	4490	1.90	X						
6.3	4220	268	4490	3.2	X						
7.2	3730	236	4490	3.7	X						
3.2	9030	538	4440	1.50	X	R	87R57	(E)DRS	71S4	190	331/346
3.6	7870	472	4490	1.75	X	RF	87R57	(E)DRS	71S4	205	332/346
4.2	6610	400	4490	2.1	X	RM	87R57	(E)DRS	71S4	270	332/346
4.7	5930	361	4490	2.3	X						
4.6	6160	373	2460	1.20	X						
5.2	5400	327	2580	1.35	X	R	77R37	(E)DRS	71S4	110	328/346
5.9	4810	289	2670	1.50	X	RF	77R37	(E)DRS	71S4	120	329/346
6.5	4290	260	2730	1.70	X	RM	77R37	(E)DRS	71S4	175	329/346
7.6	3610	224	2800	2.0	X						
8.7	3170	197	2840	2.3	X						
10	2780	169	2870	2.6	X						
11	2420	149	2890	3.0	X						
5.8	4730	294	1860	1.10	X	R	67R37	(E)DRS	71S4	96	325/346
6.5	4290	261	1960	1.25	X	RF	67R37	(E)DRS	71S4	105	326/346
7.3	3850	234	2040	1.40	X	RM	67R37	(E)DRS	71S4	140	326/346
8.5	3260	200	2140	1.65	X						
3.8	8300	289.74	6350	3.2		R	97	DRS	71M6	240	334
4.3	7320	255.71	6370	3.6		RF	97	DRS	71M6	280	335
4.6	6910	241.25	6380	3.8		RM	97	DRS	71M6	390	335
5.1	6190	216.28	6390	4.3							
4.5	7060	246.54	4490	1.95							
5.1	6200	216.54	4490	2.2		R	87	DRS	71M6	150	331
5.3	5890	205.71	4490	2.3		RF	87	DRS	71M6	165	332
6.0	5200	181.77	4490	2.6		RM	87	DRS	71M6	230	332
7.1	4450	155.34	4490	3.1							
7.7	4080	142.41	4490	3.4							
6.6	4770	166.59	2670	1.50		R	77	DRS	71M6	90	328
7.5	4170	145.67	2740	1.75		RF	77	DRS	71M6	100	329
8.0	3960	138.39	2760	1.85		RM	77	DRS	71M6	155	329

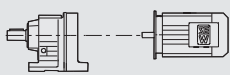

P_m = 0.50 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
8.7	3620	195.24*	2800	2.0	X						
10	3080	166.59	2840	2.4	X						
12	2700	145.67	2870	2.7	X	R	77	(E)DRS	71S4	87	328
12	2560	138.39	2880	2.8	X	RF	77	(E)DRS	71S4	99	329
14	2250	121.42	2900	3.2	X	RM	77	(E)DRS	71S4	155	329
17	1900	102.99	2920	3.8	X						
18	1720	92.97	2920	4.2	X						
7.0	4530	158.14	1900	1.15		R	67	DRS	71M6	74	325
8.0	3940	137.67	2030	1.35		RF	67	DRS	71M6	81	326
8.5	3690	128.97	2070	1.45		RM	67	DRS	71M6	115	326
9.7	3260	113.94	2140	1.65							
8.5	3700	199.81	2070	1.45	X						
9.2	3410	184.07	2120	1.55	X						
11	2930	158.14	2190	1.80	X						
12	2550	137.67	2230	2.1	X						
13	2390	128.97	2250	2.2	X						
15	2110	113.94	2280	2.5	X	R	67	(E)DRS	71S4	71	325
16	1960	105.83	2290	2.7	X	RF	67	(E)DRS	71S4	78	326
18	1770	95.91	2300	3.0	X	RM	67	(E)DRS	71S4	115	326
20	1590	86.11	2320	3.3	X						
23	1370	74.17	2330	3.9	X						
24	1290	69.75	2340	4.1	X						
28	1130	61.26	2340	4.7	X						
30	1050	56.89	2350	5.0	X						
8.5	3690	128.77	1630	1.10		R	57	DRS	71M6	59	322
9.1	3450	120.63	1650	1.15		RF	57	DRS	71M6	67	323
10	3050	106.58	1680	1.30		RM	57	DRS	71M6	93	323
11	2830	98.99	1700	1.40							
9.1	3460	186.89	1650	1.15	X						
9.9	3190	172.17	1670	1.25	X						
11	2740	147.92	1710	1.45	X						
13	2380	128.77	1730	1.65	X						
14	2230	120.63	1740	1.80	X						
16	1970	106.58	1750	2.0	X	R	57	(E)DRS	71S4	56	322
17	1830	98.99	1760	2.2	X	RF	57	(E)DRS	71S4	64	323
19	1660	89.71	1770	2.4	X	RM	57	(E)DRS	71S4	90	323
21	1490	80.55	1780	2.7	X						
25	1280	69.23	1730	3.1	X						
26	1200	64.85	1700	3.3	X						
30	1060	57.29	1640	3.8	X						
32	980	53.22	1600	4.0	X						
35	890	48.23	1560	4.5	X						
12	2590	139.99	1160	1.00	X						
14	2260	121.87	1270	1.15	X						
15	2110	114.17	1280	1.25	X						
17	1870	100.86	1310	1.40	X						
18	1730	93.68	1320	1.55	X						
20	1570	84.90	1330	1.70	X						
22	1410	76.23	1340	1.90	X						
25	1270	68.54	1350	2.1	X	R	47	(E)DRS	71S4	45	319
26	1190	64.21	1340	2.2	X	RF	47	(E)DRS	71S4	45	320
30	1050	56.73	1290	2.5	X						
32	970	52.69	1270	2.7	X						
36	880	47.75	1230	3.0	X						
40	795	42.87	1190	3.3	X						
46	680	36.93	1140	3.9	X						
49	640	34.73	1120	4.1	X						
50	625	33.79	1110	3.4	X						
55	575	31.12	1090	3.4	X	R	47	(E)DRS	71S4	44	319
64	495	26.74	1040	5.3	X	RF	47	(E)DRS	71S4	44	320
73	430	23.28	990	6.2	X						
78	400	21.81	970	6.6	X						

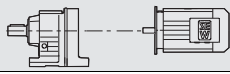

21933480/EN-US - 04/2018

P_m = 0.50 HP								m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]						
19	1680	90.77	1010	1.05	X	R	37	(E)DRS	71S4	37	316
20	1560	84.61	1100	1.15	X						
23	1370	73.96	1220	1.30	X						
25	1280	69.33	1240	1.40	X						
28	1130	61.18	1260	1.55	X						
30	1030	55.76	1230	1.70	X						
35	890	48.08	1190	2.0	X						
38	830	44.81	1160	2.1	X						
43	725	39.17	1120	2.4	X						
46	680	36.72	1100	2.6	X						
52	600	32.40	1060	2.9	X						
59	530	28.73	1020	3.3	X						
70	450	24.42	980	3.9	X						
60	525	28.32	1020	3.4	X						
65	480	26.03	1000	3.4	X						
76	410	22.27	950	4.3	X						
88	355	19.31	910	4.9	X						
94	330	18.05	890	5.3	X						
109	285	15.60	850	6.1	X						
128	245	13.25	810	6.8	X						
144	215	11.83	785	7.4	X						
28	1130	61.30	800	1.00	X	R	27	(E)DRS	71S4	24	313
30	1030	55.87	810	1.10	X						
35	890	48.17	785	1.30	X						
38	830	44.90	775	1.40	X						
43	725	39.25	750	1.60	X						
46	680	36.79	735	1.70	X						
52	600	32.47	715	1.90	X						
59	530	28.78	690	2.1	X						
69	450	24.47	660	2.5	X						
60	525	28.37	690	2.2	X						
65	480	26.09	670	2.4	X						
76	410	22.32	645	2.8	X						
88	355	19.35	620	3.2	X						
94	335	18.08	605	3.4	X						
109	285	15.63	580	4.0	X						
128	245	13.28*	555	4.7	X						
44	715	38.61	425	1.05	X	R	17	(E)DRS	71S4	22	310
47	670	36.20	425	1.10	X						
53	590	31.94	415	1.25	X						
60	525	28.32	405	1.45	X						
71	445	24.07	395	1.70	X						
208	151	15.84	305	5.0		R	17	DRS	71S2	22	310
238	132	13.84	295	5.7							
254	124	12.98	290	6.1							
288	109	11.45	280	6.5							
325	97	10.15	270	7.0							
382	82	8.63	255	7.7							
437	72	7.55	245	6.9							
469	67	7.04	240	7.2							
537	59	6.15	230	8.1							
572	55	5.76	225	8.5							
649	49	5.09	215	9.3							
732	43	4.51	210	9.9							
861	37	3.83	199	11							

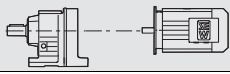

P_m = 0.50 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
67	465	25.23	400	1.60	X				
73	425	23.15	390	1.75	X				
86	365	19.71	380	2.1	X				
100	315	16.99	365	2.4	X				
107	290	15.84	360	2.6	X				
123	255	13.84	350	2.9	X				
131	240	12.98	345	3.1	X				
148	210	11.45	335	3.4	X				
167	188	10.15	325	3.6	X	R	17	(E)DRS 71S4	22 310
197	160	8.63	310	4.0	X	RF	17	(E)DRS 71S4	21 311
225	140	7.55	290	3.5	X				
242	131	7.04	285	3.7	X				
276	114	6.15	275	4.2	X				
295	107	5.76	270	4.4	X				
334	94	5.09	260	4.8	X				
377	84	4.51	255	5.1	X				
443	71	3.83	240	5.6	X				
93	335	18.31	220	1.30	X				
102	310	16.73	215	1.45	X				
120	260	14.12	210	1.70	X				
141	220	12.06	205	2.0	X				
152	205	11.18	200	2.1	X				
176	179	9.67	194	2.5	X				
189	167	9.01	191	2.6	X				
216	146	7.85	185	3.0	X	R	07	(E)DRS 71S4	19 307
227	139	7.48	184	2.7	X	RF	07	(E)DRS 71S4	19 308
249	127	6.83	180	3.0	X				
295	107	5.76	172	3.3	X				
345	91	4.92	165	3.6	X				
372	85	4.57	162	3.8	X				
431	73	3.95	156	4.1	X				
462	68	3.68	153	4.3	X				
530	59	3.21	147	4.6	X				
280	113	6.07	880	3.4	X				
328	96	5.18	840	6.9	X				
376	84	4.53	800	8.6	X				
395	80	4.30*	790	8.9	X				
451	70	3.77	755	11	X	RX	67	(E)DRS 71S4	41 297
531	59	3.20*	720	15	X	RXF	67	(E)DRS 71S4	50 298
588	54	2.89	695	18	X				
669	47	2.54	665	22	X				
708	45	2.40*	655	24	X				
832	38	2.04	620	31	X				
309	102	5.50*	695	3.4	X				
336	94	5.07	675	3.4	X				
391	81	4.35	645	7.5	X				
449	70	3.79	615	8.7	X				
479	66	3.55*	605	9.3	X				
542	58	3.14	580	9.9	X	RX	57	(E)DRS 71S4	36 295
584	54	2.91	565	11	X	RXF	57	(E)DRS 71S4	40 296
644	49	2.64*	550	12	X				
717	44	2.37	530	14	X				
833	38	2.04	505	16	X				
885	36	1.92*	495	17	X				
1030	31	1.65	470	20	X				

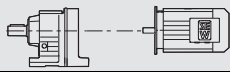

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P_m = 0.75 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
0.28	138100	6077	27000	1.15	X						
0.31	122900	5407	27000	1.30	X	R	167R97	(E)DRS	71M4	1660	344/346
0.36	104100	4650	27000	1.55	X	RF	167R97	(E)DRS	71M4	1680	345/346
0.41	90100	4129	27000	1.75	X	RM	167R97	(E)DRS	71M4	2110	345/346
0.39	104900	4325	14600	1.10	X	R	147R77	(E)DRS	71M4	940	342/346
0.45	91900	3754	15100	1.25	X	RF	147R77	(E)DRS	71M4	950	343/346
0.51	80100	3302	15500	1.45	X	RM	147R77	(E)DRS	71M4	1320	343/346
0.58	70000	2898	15800	1.65	X						
0.66	63600	2555	16000	1.80	X						
0.76	55000	2211	16200	2.1	X						
0.87	48600	1951	16300	2.4	X	R	147R77	(E)DRS	71M4	930	342/346
0.99	41300	1705	16400	2.8	X	RF	147R77	(E)DRS	71M4	950	343/346
1.1	36900	1536	16500	3.1	X	RM	147R77	(E)DRS	71M4	1320	343/346
1.3	32000	1329	16600	3.6	X						
1.4	27700	1166	16600	4.1	X						
0.68	61900	2484	12400	1.15	X	R	137R77	(E)DRS	71M4	620	340/346
						RF	137R77	(E)DRS	71M4	670	341/346
						RM	137R77	(E)DRS	71M4	920	341/346
0.64	66200	2658	12200	1.05	X						
0.70	60100	2412	12500	1.20	X						
0.82	51600	2073	12900	1.35	X						
0.92	45000	1839	13100	1.55	X	R	137R77	(E)DRS	71M4	640	340/346
1.1	38400	1598	13300	1.85	X	RF	137R77	(E)DRS	71M4	690	341/346
1.2	34600	1397	13400	2.0	X	RM	137R77	(E)DRS	71M4	940	341/346
1.4	30100	1226	13500	2.4	X						
1.6	27000	1090	13600	2.6	X						
1.8	23500	951	13600	3.0	X						
2.0	20000	831	13700	3.5	X						
0.87	46900	1934	9660	1.15	X	R	127R77	(E)DRS	71M4	580	338/346
0.92	43900	1835	9660	1.20	X	RF	127R77	(E)DRS	71M4	600	339/346
1.1	37200	1555	9660	1.45	X	RM	127R77	(E)DRS	71M4	810	339/346
1.2	33900	1444	9660	1.55	X						
1.4	28800	1224	9660	1.85	X						
0.78	53800	2161	9660	1.00	X						
0.87	48300	1951	9660	1.10	X						
0.98	42100	1716	9660	1.25	X						
1.0	39600	1620	9660	1.35	X	R	127R77	(E)DRS	71M4	540	338/346
1.2	33400	1380	9660	1.60	X	RF	127R77	(E)DRS	71M4	590	339/346
1.4	30100	1210	9660	1.75	X	RM	127R77	(E)DRS	71M4	800	339/346
1.8	23600	961	9660	2.2	X						
2.2	18700	773	9660	2.8	X						
2.8	14400	608	9660	3.7	X						
3.5	12300	490	9660	4.3	X						
0.84	49500	2016	9660	1.05	X						
0.88	47800	1920	9660	1.10	X						
0.93	44700	1823	9660	1.20	X						
1.0	40500	1673	9660	1.30	X						
1.1	37900	1545	9660	1.40	X						
1.1	36600	1512	9660	1.45	X						
1.3	31400	1322	9660	1.70	X						
1.3	31000	1282	9660	1.70	X						
1.4	28400	1195	9660	1.85	X						
1.4	29000	1164	9660	1.85	X	R	127R77	(E)DRS	71M4	580	338/346
1.7	24100	1013	9660	2.2	X	RF	127R77	(E)DRS	71M4	600	339/346
1.7	24500	987	9660	2.2	X	RM	127R77	(E)DRS	71M4	810	339/346
1.8	23000	936	9660	2.3	X						
2.0	19900	830	9660	2.7	X						
2.1	19500	794	9660	2.7	X						
2.2	18800	777	9660	2.8	X						
2.2	18000	750	9660	2.9	X						
2.6	15900	659	9660	3.3	X						
2.7	15300	636	9660	3.5	X						
2.8	14600	614	9660	3.6	X						
3.2	12300	521	9660	4.3	X						

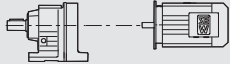

P_m = 0.75 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
1.2	34400	1407	7080	1.10	X	R RF RM	107R77 107R77 107R77	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	440	336/346
1.4	29500	1209	7590	1.30	X						
1.6	25800	1055	7910	1.45	X						
1.8	22500	919	8110	1.70	X						
2.1	20100	815	8190	1.90	X						
2.4	17600	717	8260	2.2	X						
2.7	15300	626	8320	2.5	X						
1.2	34200	1400	7100	1.10	X	R RF RM	107R77 107R77 107R77	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	450	336/346
1.4	29700	1226	7570	1.30	X						
1.5	26500	1104	7850	1.45	X						
1.8	22900	939	8100	1.65	X						
2.1	19900	822	8200	1.90	X	R RF RM	97R57 97R57 97R57	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	290	334/346
2.0	20500	824	4730	1.30	X						
2.3	18300	737	5380	1.45	X						
2.7	15700	632	6110	1.70	X						
3.0	13600	560	6200	1.95	X						
3.5	11800	484	6260	2.2	X						
3.9	10800	431	6290	2.5	X						
4.5	9460	379	6330	2.8	X						
5.0	8440	336	6350	3.1	X						
5.7	7380	296	6370	3.6	X						
6.8	6120	249	6400	4.3	X						
3.2	12900	525	3090	1.05	X	R RF RM	87R57 87R57 87R57	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	195	331/346
3.7	11300	456	4170	1.20	X						
4.2	9760	398	4360	1.40	X						
4.8	8660	352	4470	1.60	X						
5.5	7430	305	4490	1.85	X	R RF RM	87R57 87R57 87R57	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	195	331/346
3.6	12100	472	4060	1.15	X						
4.2	10200	400	4310	1.35	X						
4.7	9180	361	4420	1.50	X	R RF RM	77R37 77R37 77R37	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	110	328/346
6.1	7090	276	2270	1.00	X						
7.2	6030	236	2480	1.20	X						
7.6	5630	221	2550	1.30	X						
9.1	4710	186	2680	1.55	X	R RF RM	97 97 97	DRS DRS DRS	80S6 80S6 80S6	245	334
3.9	12200	289.74	6250	2.2	X						
4.4	10700	255.71	6290	2.5	X						
4.6	10100	241.25	6310	2.6	X						
5.2	9130	216.28	6340	2.9	X	R RF RM	97 97 97	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	240	334
5.8	8100	289.74	6360	3.3	X						
6.6	7150	255.71	6380	3.7	X						
7.0	6750	241.25	6380	3.9	X						
7.8	6050	216.28	6400	4.4	X	R RF RM	87 87 87	DRS DRS DRS	80S6 80S6 80S6	155	331
4.5	10400	246.54	4030	1.30	X						
5.2	9140	216.54	4430	1.50	X						
5.4	8680	205.71	4470	1.60	X						
6.2	7670	181.77	4490	1.80	X						
7.2	6550	155.34	4490	2.1	X	R RF RM	87 87 87	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	150	331
6.8	6890	246.54	4490	2.0	X						
7.8	6050	216.54	4490	2.3	X						
8.2	5750	205.71	4490	2.4	X						
9.3	5080	181.77	4490	2.7	X						
11	4340	155.34	4490	3.2	X						
12	3980	142.41	4490	3.4	X						
14	3490	124.97	4490	3.9	X						
14	3310	118.43*	4490	4.1	X						
16	2900	103.65	4490	4.7	X	R RF RM	77 77 77	(E)DRS (E)DRS (E)DRS	71M4 71M4 71M4	90	328
10	4660	166.59	2680	1.55	X						
12	4070	145.67	2750	1.80	X						
12	3870	138.39	2770	1.85	X						
14	3390	121.42	2820	2.1	X						
16	2880	102.99	2860	2.5	X						
18	2600	92.97	2880	2.8	X						
21	2280	81.80	2900	3.2	X						
22	2160	77.24	2910	3.4	X						
26	1840	65.77	2920	3.9	X						

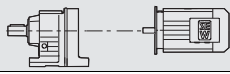

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P_m = 0.75 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
11	4420	158.14	1930	1.20	X				
12	3850	137.67	2040	1.40	X				
13	3600	128.97	2090	1.45	X				
15	3180	113.94	2150	1.65	X				
16	2960	105.83	2180	1.80	X	R	67	(E)DRS 71M4	74 325
18	2680	95.91	2220	2.0	X	RF	67	(E)DRS 71M4	81 326
20	2400	86.11	2250	2.2	X	RM	67	(E)DRS 71M4	115 326
23	2070	74.17	2280	2.6	X				
24	1950	69.75	2290	2.7	X				
28	1710	61.26	2310	3.1	X				
30	1590	56.89	2320	3.3	X				
14	3370	120.63	1660	1.20	X				
16	2980	106.58	1690	1.35	X				
17	2760	98.99	1710	1.45	X				
19	2510	89.71	1720	1.60	X				
21	2250	80.55	1740	1.75	X				
24	1930	69.23	1680	2.1	X	R	57	(E)DRS 71M4	59 322
26	1810	64.85	1650	2.2	X	RF	57	(E)DRS 71M4	67 323
30	1600	57.29	1590	2.5	X	RM	57	(E)DRS 71M4	93 323
32	1480	53.22	1560	2.7	X				
35	1340	48.23	1520	3.0	X				
39	1210	43.30	1470	3.3	X				
45	1040	37.30*	1410	3.8	X				
48	980	35.07	1390	4.1	X				
64	735	26.31	1280	5.4	X	R	57	(E)DRS 71M4	57 322
68	695	24.99*	1260	5.7	X	RF	57	(E)DRS 71M4	65 323
77	610	21.93	1210	6.5	X	RM	57	(E)DRS 71M4	91 323
91	520	18.60*	1150	7.7	X				
18	2620	93.68	1140	1.00	X				
20	2370	84.90	1250	1.10	X				
22	2130	76.23	1280	1.25	X				
25	1910	68.54	1300	1.40	X				
26	1790	64.21	1290	1.50	X				
30	1580	56.73	1250	1.65	X	R	47	(E)DRS 71M4	48 319
32	1470	52.69	1220	1.80	X	RF	47	(E)DRS 71M4	48 320
35	1330	47.75	1190	2.0	X				
39	1190	42.87	1160	2.2	X				
46	1030	36.93	1110	2.6	X				
49	970	34.73	1090	2.7	X				
57	830	29.88	1050	3.2	X				
63	745	26.74	1020	3.5	X	R	47	(E)DRS 71M4	46 319
73	650	23.28	980	4.1	X	RF	47	(E)DRS 71M4	47 320
78	610	21.81	960	4.3	X				
28	1710	61.18	990	1.05	X				
30	1560	55.76	1100	1.15	X				
35	1340	48.08	1130	1.30	X				
38	1250	44.81	1110	1.40	X				
43	1090	39.17	1080	1.60	X	R	37	(E)DRS 71M4	39 316
46	1020	36.72	1060	1.70	X	RF	37	(E)DRS 71M4	43 317
52	900	32.40	1030	1.95	X				
59	800	28.73	990	2.2	X				
69	680	24.42	950	2.6	X				
76	620	22.27	930	2.8	X				
88	540	19.31	890	3.3	X				
94	500	18.05	870	3.5	X	R	37	(E)DRS 71M4	39 316
108	435	15.60	840	4.0	X	RF	37	(E)DRS 71M4	42 317
128	370	13.25	800	4.5	X				
143	330	11.83	770	4.9	X				
43	1090	39.25	705	1.05	X				
46	1020	36.79	695	1.10	X	R	27	(E)DRS 71M4	27 313
52	900	32.47	675	1.25	X	RF	27	(E)DRS 71M4	26 314
59	800	28.78	660	1.45	X				
69	680	24.47	635	1.70	X				

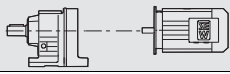

P_m = 0.75 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
76	620	22.32	620	1.85	X				
87	540	19.35	595	2.1	X				
93	505	18.08	585	2.3	X				
108	435	15.63	565	2.6	X				
127	370	13.28*	540	3.1	X				
143	330	11.86	525	3.4	X				
167	280	10.13	500	3.8	X				
180	260	9.41	485	4.1	X	R	27	(E)DRS 71M4	26 313
207	225	8.16	465	4.5	X	RF	27	(E)DRS 71M4	26 314
222	210	7.63*	455	4.6	X				
256	184	6.59	435	5.1	X				
302	157	5.60*	415	5.6	X				
338	140	5.00*	405	6.0	X				
396	120	4.27	385	6.4	X				
422	112	4.00*	375	6.7	X				
502	94	3.37	355	7.4	X				
86	550	19.71	345	1.35	X				
99	475	16.99	340	1.60	X				
107	440	15.84	335	1.70	X				
122	385	13.84	325	1.95	X				
130	360	12.98	320	2.1	X				
148	320	11.45	315	2.2	X				
166	280	10.15	305	2.4	X	R	17	(E)DRS 71M4	24 310
196	240	8.63	295	2.6	X	RF	17	(E)DRS 71M4	24 311
224	210	7.55	275	2.4	X				
240	197	7.04	270	2.5	X				
275	172	6.15	265	2.8	X				
293	161	5.76	260	2.9	X				
332	142	5.09	250	3.2	X				
375	126	4.51	245	3.4	X				
441	107	3.83	235	3.7	X				
396	119	8.63	245	5.3		R	17	DRS 71M2	24 310
453	104	7.55	235	4.8		RF	17	DRS 71M2	24 311
486	97	7.04	230	5.0					
556	85	6.15	220	5.6					
593	80	5.76	215	5.9					
672	70	5.09	210	6.4					
758	62	4.51	200	6.8					
892	53	3.83	193	7.5					
326	145	5.18	830	4.6	X				
373	127	4.53	800	5.7	X				
393	120	4.30*	785	5.9	X				
448	106	3.77	755	7.3	X				
528	90	3.20*	715	9.9	X	RX	67	(E)DRS 71M4	44 297
585	81	2.89	690	12	X	RXF	67	(E)DRS 71M4	53 298
665	71	2.54	665	15	X				
704	67	2.40*	650	16	X				
827	57	2.04	620	21	X				
910	52	1.86	600	21	X				
1050	45	1.61	570	22	X				
388	122	4.35	640	4.9	X				
446	106	3.79	610	5.8	X				
476	99	3.55*	600	6.2	X				
539	88	3.14	575	6.5	X				
580	81	2.91	560	7.3	X				
640	74	2.64*	545	8.3	X	RX	57	(E)DRS 71M4	38 295
713	66	2.37	525	9.2	X	RXF	57	(E)DRS 71M4	43 296
828	57	2.04	500	11	X				
880	54	1.92*	490	11	X				
1025	46	1.65	470	13	X				
1145	41	1.48	450	15	X				
1295	37	1.30	435	15	X				

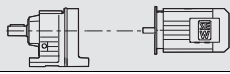

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P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
0.38	138400	4650	27000	1.15	X	R	167R97	(E)DRN	80M4	1670	344/346
0.42	120500	4129	27000	1.30	X	RF	167R97	(E)DRN	80M4	1690	345/346
0.47	105500	3692	27000	1.50	X	RM	167R97	(E)DRN	80M4	2120	345/346
0.66	82200	2657	27000	1.95	X						
0.75	70200	2333	27000	2.3	X	R	167R97	(E)DRN	80M4	1670	344/346
0.84	61600	2085	27000	2.6	X	RF	167R97	(E)DRN	80M4	1680	345/346
0.93	54300	1877	27000	2.9	X	RM	167R97	(E)DRN	80M4	2110	345/346
1.2	44500	1438	27000	3.6	X						
0.53	104700	3302	14600	1.10	X	R	147R77	(E)DRN	80M4	950	342/346
0.60	91600	2898	15100	1.25	X	RF	147R77	(E)DRN	80M4	960	343/346
						RM	147R77	(E)DRN	80M4	1330	343/346
0.69	82800	2555	15400	1.40	X						
0.79	71700	2211	15800	1.60	X						
0.90	63200	1951	16000	1.80	X	R	147R77	(E)DRN	80M4	940	342/346
1.0	54100	1705	16200	2.1	X	RF	147R77	(E)DRN	80M4	960	343/346
1.1	48500	1536	16300	2.4	X	RM	147R77	(E)DRN	80M4	1330	343/346
1.3	41900	1329	16400	2.7	X						
1.5	36500	1166	16500	3.1	X						
0.94	59600	1863	12500	1.20	X						
1.1	50300	1586	12900	1.40	X						
1.3	45100	1391	13100	1.55	X	R	137R77	(E)DRN	80M4	630	340/346
1.4	40500	1256	13200	1.75	X	RF	137R77	(E)DRN	80M4	680	341/346
1.6	35400	1105	13400	2.0	X	RM	137R77	(E)DRN	80M4	930	341/346
1.7	33300	1043	13400	2.1	X						
2.0	28200	888	13500	2.5	X						
0.84	67200	2073	12200	1.05	X						
0.95	58800	1839	12600	1.20	X						
1.1	50400	1598	12900	1.40	X						
1.2	45100	1397	13100	1.55	X	R	137R77	(E)DRN	80M4	650	340/346
1.4	39300	1226	13300	1.80	X	RF	137R77	(E)DRN	80M4	700	341/346
1.6	35200	1090	13400	2.0	X	RM	137R77	(E)DRN	80M4	950	341/346
1.8	30700	951	13500	2.3	X						
2.1	26200	831	13600	2.7	X						
2.4	22800	730	13600	3.1	X						
1.1	48800	1555	9660	1.10	X	R	127R77	(E)DRN	80M4	590	338/346
1.2	44700	1444	9660	1.20	X	RF	127R77	(E)DRN	80M4	610	339/346
1.4	37800	1224	9660	1.40	X	RM	127R77	(E)DRN	80M4	830	339/346
1.1	51800	1620	9660	1.00	X						
1.3	43800	1380	9660	1.20	X	R	127R77	(E)DRN	80M4	550	338/346
1.4	39200	1210	9660	1.35	X	RF	127R77	(E)DRN	80M4	600	339/346
1.8	30800	961	9660	1.70	X	RM	127R77	(E)DRN	80M4	810	339/346
2.3	24500	773	9660	2.2	X						
2.9	19000	608	9660	2.8	X						
1.1	53100	1673	9660	1.00	X						
1.1	49500	1545	9660	1.05	X						
1.2	48000	1512	9660	1.10	X						
1.3	41400	1322	9660	1.30	X						
1.4	40700	1282	9660	1.30	X						
1.5	37400	1195	9660	1.40	X						
1.5	37700	1164	9660	1.40	X						
1.7	31800	1034	9660	1.65	X						
1.7	31700	1013	9660	1.65	X						
1.8	32000	987	9660	1.65	X						
1.9	30000	936	9660	1.75	X	R	127R77	(E)DRN	80M4	590	338/346
1.9	28700	935	9660	1.85	X	RF	127R77	(E)DRN	80M4	610	339/346
2.1	26200	830	9660	2.0	X	RM	127R77	(E)DRN	80M4	820	339/346
2.2	25400	794	9660	2.1	X						
2.2	24400	792	9660	2.2	X						
2.2	24600	777	9660	2.1	X						
2.3	23700	750	9660	2.2	X						
2.7	20900	659	9660	2.5	X						
2.7	19900	642	9660	2.7	X						
2.8	20000	636	9660	2.6	X						
2.9	19200	614	9660	2.8	X						
3.0	18000	581	9660	2.9	X						
3.4	16300	521	9660	3.3	X						

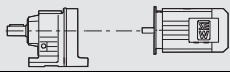

P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
3.6	15200	492	9660	3.5	X	R	127R77	(E)DRN	80M4	590	338/346
3.6	14700	480	9660	3.6	X	RF	127R77	(E)DRN	80M4	610	339/346
4.3	12500	407	9660	4.2	X	RM	127R77	(E)DRN	80M4	820	339/346
4.5	12100	386	9660	4.4	X						
3.6	16100	490	9660	3.3	X	R	127R77	(E)DRN	80M4	550	338/346
4.4	12800	394	9660	4.1	X	RF	127R77	(E)DRN	80M4	600	339/346
5.3	10500	327	9660	5.0	X	RM	127R77	(E)DRN	80M4	810	339/346
1.7	33700	1055	7160	1.15	X						
1.9	29400	919	7590	1.30	X	R	107R77	(E)DRN	80M4	450	336/346
2.1	26300	815	7870	1.45	X	RF	107R77	(E)DRN	80M4	465	337/346
2.4	23000	717	8100	1.65	X	RM	107R77	(E)DRN	80M4	660	337/346
2.8	20000	626	8190	1.90	X						
3.3	16500	528	8290	2.3	X						
1.6	34800	1104	7030	1.10	X						
1.9	30000	939	7540	1.25	X						
2.1	26000	822	7890	1.45	X						
2.9	19000	614	8220	2.0	X	R	107R77	(E)DRN	80M4	460	336/346
3.2	16700	544	8290	2.3	X	RF	107R77	(E)DRN	80M4	475	337/346
3.6	15100	492	8330	2.5	X	RM	107R77	(E)DRN	80M4	670	337/346
4.2	12800	417	8380	3.0	X						
4.8	11600	369	8400	3.3	X						
5.4	10100	323	8420	3.8	X						
3.7	15300	469	8320	2.5	X	R	107R77	(E)DRN	80M4	450	336/346
4.1	13900	426	8350	2.7	X	RF	107R77	(E)DRN	80M4	460	337/346
						RM	107R77	(E)DRN	80M4	660	337/346
2.3	24300	755	5080	1.10	X	R	97R57	(E)DRN	80M4	295	334/346
						RF	97R57	(E)DRN	80M4	335	335/346
						RM	97R57	(E)DRN	80M4	445	335/346
2.4	23900	737	3720	1.10	X						
2.8	20500	632	5620	1.30	X						
3.1	17800	560	5910	1.50	X						
3.6	15500	484	6120	1.70	X	R	97R57	(E)DRN	80M4	300	334/346
4.1	14000	431	6180	1.90	X	RF	97R57	(E)DRN	80M4	340	335/346
4.6	12300	379	6250	2.2	X	RM	97R57	(E)DRN	80M4	450	335/346
5.2	10900	336	6290	2.4	X						
5.9	9610	296	6320	2.8	X						
7.0	7990	249	6360	3.3	X						
2.8	20900	625	5570	1.25	X						
3.2	18200	549	5870	1.45	X						
3.8	15400	466	6130	1.70	X						
4.2	13800	420	6190	1.90	X	R	97R57	(E)DRN	80M4	295	334/346
4.7	12100	370	6250	2.2	X	RF	97R57	(E)DRN	80M4	330	335/346
5.0	11400	349	6270	2.3	X	RM	97R57	(E)DRN	80M4	445	335/346
5.9	9690	297	6320	2.7	X						
6.5	8770	270	6340	3.0	X						
4.4	12700	398	3960	1.05	X						
5.0	11300	352	4170	1.20	X						
5.7	9730	305	4360	1.40	X	R	87R57	(E)DRN	80M4	205	331/346
6.5	8610	268	4480	1.60	X	RF	87R57	(E)DRN	80M4	225	332/346
7.4	7600	236	4490	1.80	X	RM	87R57	(E)DRN	80M4	290	332/346
8.4	6610	209	4490	2.1	X						
4.4	13200	400	3880	1.05	X						
4.8	11900	361	4090	1.15	X						
5.8	9840	300	4350	1.40	X	R	87R57	(E)DRN	80M4	205	331/346
6.8	8330	256	4490	1.65	X	RF	87R57	(E)DRN	80M4	220	332/346
7.5	7540	232	4490	1.80	X	RM	87R57	(E)DRN	80M4	285	332/346
9.0	6430	195	4490	2.1	X						
8.9	6390	197	2410	1.15	X	R	77R37	(E)DRN	80M4	120	328/346
10	5560	169	2560	1.30	X	RF	77R37	(E)DRN	80M4	135	329/346
12	4870	149	2660	1.50	X	RM	77R37	(E)DRN	80M4	190	329/346
9.4	6130	186	2460	1.20	X	R	77R37	(E)DRN	80M4	120	328/346
						RF	77R37	(E)DRN	80M4	130	329/346
						RM	77R37	(E)DRN	80M4	185	329/346

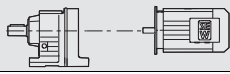

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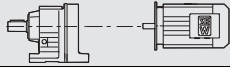

P_m = 1.0 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		lbs				
11	5130	158	1750	1.05	X	R	67R37	(E)DRN	80M4	110	325/346
						RF	67R37	(E)DRN	80M4	115	326/346
						RM	67R37	(E)DRN	80M4	150	326/346
4.6	13800	255.71	6190	1.90							
4.8	13000	241.25	6220	2.0		R	97	DRN	90S6	260	334
5.4	11600	216.28	6260	2.3		RF	97	DRN	90S6	300	335
6.2	10000	186.30	6310	2.6		RM	97	DRN	90S6	410	335
6.8	9190	170.02	6330	2.9							
6.0	10400	289.74	6300	2.5	X						
6.8	9200	255.71	6330	2.9	X						
7.3	8680	241.25	6350	3.1	X	R	97	(E)DRN	80M4	250	334
8.1	7780	216.28	6370	3.4	X	RF	97	(E)DRN	80M4	285	335
9.4	6700	186.30	6390	4.0	X	RM	97	(E)DRN	80M4	400	335
10	6110	170.02	6400	4.3	X						
5.4	11700	216.54	3550	1.15							
5.7	11100	205.71	3770	1.25							
6.4	9830	181.77	4240	1.40							
7.5	8400	155.34	4490	1.65		R	87	DRN	90S6	170	331
8.2	7700	142.41	4490	1.80		RF	87	DRN	90S6	185	332
9.3	6750	124.97	4490	2.0		RM	87	DRN	90S6	250	332
9.8	6400	118.43*	4490	2.1							
11	5600	103.65	4490	2.5							
12	5050	93.38	4490	2.7							
7.1	8870	246.54	4450	1.55	X						
8.1	7790	216.54	4490	1.75	X						
8.5	7400	205.71	4490	1.85	X						
9.6	6540	181.77	4490	2.1	X						
11	5580	155.34	4490	2.5	X	R	87	(E)DRN	80M4	160	331
12	5120	142.41	4490	2.7	X	RF	87	(E)DRN	80M4	175	332
14	4490	124.97	4490	3.0	X	RM	87	(E)DRN	80M4	240	332
15	4260	118.43*	4490	3.2	X						
17	3720	103.65	4490	3.7	X						
19	3360	93.38	4490	4.1	X						
9.6	6560	121.42	2380	1.10							
11	5560	102.99	2560	1.30							
13	5020	92.97	2640	1.45							
14	4420	81.80	2710	1.65		R	77	DRN	90S6	110	328
15	4170	77.24	2740	1.75		RF	77	DRN	90S6	125	329
18	3550	65.77	2800	2.0		RM	77	DRN	90S6	180	329
20	3110	57.68	2840	2.3							
22	2810	52.07	2870	2.6							
25	2470	45.81	2890	2.9							
11	5990	166.59	2490	1.20	X						
12	5240	145.67	2610	1.40	X						
13	4970	138.39	2640	1.45	X						
14	4360	121.42	2720	1.65	X						
17	3700	102.99	2790	1.95	X						
19	3340	92.97	2820	2.2	X	R	77	(E)DRN	80M4	100	328
21	2940	81.80	2860	2.5	X	RF	77	(E)DRN	80M4	115	329
23	2770	77.24	2870	2.6	X	RM	77	(E)DRN	80M4	170	329
27	2360	65.77	2890	3.1	X						
30	2070	57.68	2910	3.5	X						
34	1870	52.07	2920	3.9	X						
38	1640	45.81	2920	4.4	X						
40	1550	43.26	2920	4.7	X						
12	5180	95.91	1730	1.00							
14	4650	86.11	1870	1.15							
16	4010	74.17	2010	1.30							
17	3770	69.75	2060	1.40							
19	3310	61.26	2130	1.60							
20	3070	56.89	2170	1.75		R	67	DRN	90S6	98	325
23	2780	51.56	2200	1.90		RF	67	DRN	90S6	105	326
25	2500	46.29	2240	2.1		RM	67	DRN	90S6	140	326
29	2150	39.88*	2270	2.4							
31	2020	37.50	2280	2.5							
36	1740	32.27	2310	2.7							
40	1550	28.83	2320	3.0							

P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
13	4950	137.67	1800	1.05	X						
14	4640	128.97	1880	1.15	X						
15	4090	113.94	2000	1.30	X						
17	3800	105.83	2050	1.40	X						
18	3450	95.91	2110	1.55	X						
20	3090	86.11	2160	1.70	X	R	67	(E)DRN	80M4	84	325
24	2660	74.17	2220	2.0	X	RF	67	(E)DRN	80M4	91	326
25	2500	69.75	2240	2.1	X	RM	67	(E)DRN	80M4	125	326
29	2200	61.26	2270	2.4	X						
31	2040	56.89	2280	2.6	X						
34	1850	51.56	2300	2.9	X						
38	1660	46.29	2310	3.2	X						
17	3740	69.23	1620	1.05		R	57	DRN	90S6	84	322
18	3500	64.85	1640	1.15		RF	57	DRN	90S6	91	323
20	3090	57.29	1680	1.30		RM	57	DRN	90S6	120	323
22	2870	53.22	1660	1.40							
24	2600	48.23	1620	1.55							
27	2340	43.30	1580	1.70							
31	2010	37.30*	1520	1.95							
33	1890	35.07	1500	2.1							
39	1630	30.18	1440	2.4							
43	1450	26.97	1400	2.7							
16	3830	106.58	1610	1.05	X						
18	3560	98.99	1640	1.10	X						
20	3220	89.71	1670	1.25	X						
22	2890	80.55	1660	1.35	X						
25	2490	69.23	1600	1.60	X						
27	2330	64.85	1580	1.70	X	R	57	(E)DRN	80M4	70	322
31	2060	57.29	1530	1.95	X	RF	57	(E)DRN	80M4	77	323
33	1910	53.22	1500	2.1	X	RM	57	(E)DRN	80M4	105	323
36	1730	48.23	1470	2.3	X						
40	1550	43.30	1420	2.6	X						
47	1340	37.30*	1370	3.0	X						
50	1260	35.07	1350	3.1	X						
58	1080	30.18	1290	3.7	X						
65	970	26.97	1250	4.1	X						
67	940	26.31	1240	4.2	X	R	57	(E)DRN	80M4	68	322
70	890	24.99*	1220	4.4	X	RF	57	(E)DRN	80M4	75	323
80	785	21.93	1180	5.0	X	RM	57	(E)DRN	80M4	100	323
94	665	18.60*	1120	6.0	X						
24	2580	47.75	1170	1.05		R	47	DRN	90S6	72	319
27	2310	42.87	1220	1.15		RF	47	DRN	90S6	73	320
32	1990	36.93	1180	1.35							
34	1870	34.73	1170	1.40							
39	1610	29.88	1130	1.65							
44	1440	26.70	1090	1.85							
49	1270	23.59	1060	2.1							
26	2460	68.54	1240	1.10	X						
27	2310	64.21	1220	1.15	X						
31	2040	56.73	1190	1.30	X						
33	1890	52.69	1170	1.40	X	R	47	(E)DRN	80M4	58	319
37	1710	47.75	1140	1.55	X	RF	47	(E)DRN	80M4	59	320
41	1540	42.87	1110	1.70	X						
47	1320	36.93	1070	2.0	X						
50	1240	34.73	1050	2.1	X						
59	1070	29.88	1010	2.5	X						
66	960	26.70	980	2.8	X						
74	840	23.59	950	3.1	X						
65	960	26.74	980	2.8	X	R	47	(E)DRN	80M4	57	319
75	830	23.28	950	3.2	X	RF	47	(E)DRN	80M4	57	320
80	780	21.81	930	3.4	X						
91	690	19.27	900	3.8	X						
98	640	17.89	880	4.0	X						
108	580	16.22	850	4.2	X						
41	1550	28.73	1050	1.15		R	37	DRN	90S6	63	316
48	1320	24.42	1010	1.35		RF	37	DRN	90S6	66	317

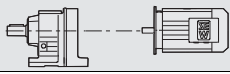

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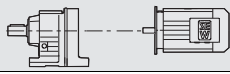

P_m = 1.0 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
36	1720	48.08	980	1.00	X	R RF	37 37	(E)DRN (E)DRN	80M4 80M4	50 53	316 317
39	1610	44.81	1060	1.10	X						
45	1400	39.17	1030	1.25	X						
48	1320	36.72	1010	1.35	X						
54	1160	32.40	980	1.50	X						
61	1030	28.73	950	1.70	X						
72	870	24.42	920	2.0	X						
79	800	22.27	890	2.2	X						
91	690	19.31	860	2.5	X						
97	645	18.05	850	2.7	X						
112	560	15.60	810	3.1	X	R RF	37 37	(E)DRN (E)DRN	80M4 80M4	49 52	316 317
132	475	13.25	775	3.5	X						
148	425	11.83	750	3.8	X						
173	360	10.11	715	4.1	X						
185	340	9.47	705	4.3	X						
61	1030	28.78	620	1.10	X						
72	880	24.47	600	1.30	X						
78	800	22.32	590	1.45	X						
91	695	19.35	570	1.65	X						
97	650	18.08	560	1.75	X						
112	560	15.63	540	2.0	X	R RF	27 27	(E)DRN (E)DRN	80M4 80M4	36 36	313 314
132	475	13.28*	520	2.4	X						
148	425	11.86	505	2.7	X						
173	360	10.13	485	3.0	X						
186	335	9.41	465	3.2	X						
215	290	8.16	450	3.5	X						
230	270	7.63*	440	3.6	X						
266	235	6.59	425	4.0	X						
313	200	5.60*	405	4.3	X						
350	180	5.00*	390	4.7	X						
89	705	19.71	310	1.05	X	R RF	17 17	(E)DRN (E)DRN	80M4 80M4	34 34	310 311
103	610	16.99	310	1.25	X						
111	565	15.84	305	1.30	X						
126	495	13.84	300	1.50	X						
135	465	12.98	300	1.60	X						
153	410	11.45	295	1.75	X						
172	365	10.15	285	1.85	X						
203	310	8.63	280	2.0	X						
232	270	7.55	260	1.80	X						
249	250	7.04	255	1.90	X						
285	220	6.15	250	2.2	X						
304	205	5.76	245	2.3	X						
344	183	5.09	240	2.5	X						
388	162	4.51	235	2.6	X						
457	138	3.83	225	2.9	X						
176	355	19.71	285	2.1	R RF	17 17	DRN DRN	80MS2 80MS2	34 34	310 311	
205	305	16.99	280	2.4							
219	285	15.84	275	2.6							
251	250	13.84	265	3.0							
268	235	12.98	260	3.2							
304	205	11.45	255	3.5							
342	184	10.15	250	3.7							
403	156	8.63	240	4.1							
461	137	7.55	225	3.6							
494	127	7.04	220	3.8							
565	111	6.15	215	4.3							
603	104	5.76	210	4.5							
683	92	5.09	205	4.9							
771	82	4.51	196	5.2							
907	69	3.83	188	5.7							

P_m = 1.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
338	186	5.18	820	3.6	X				
387	163	4.53	780	4.5	X				
407	155	4.30*	770	4.6	X				
464	136	3.77	740	5.7	X				
547	115	3.20*	700	7.7	X				
606	104	2.89	680	9.0	X	RX	67	(E)DRN 80M4	55 297
689	91	2.54	650	11	X	RXF	67	(E)DRN 80M4	64 298
730	86	2.40*	640	13	X				
857	74	2.04	605	16	X				
943	67	1.86	590	17	X				
1090	58	1.61	560	17	X				
402	157	4.35	625	3.8	X				
462	136	3.79	595	4.5	X				
493	128	3.55*	585	4.8	X				
558	113	3.14	565	5.1	X				
601	105	2.91	550	5.7	X				
663	95	2.64*	535	6.4	X	RX	57	(E)DRN 80M4	49 295
739	85	2.37	515	7.2	X	RXF	57	(E)DRN 80M4	53 296
858	73	2.04	490	8.3	X				
912	69	1.92*	480	8.8	X				
1060	59	1.65	460	10	X				
1185	53	1.48	445	11	X				
1340	47	1.30	425	12	X				

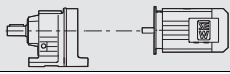

P_m = 1.5 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
0.66	126400	2657	27000	1.25	X				
0.76	109000	2333	27000	1.45	X				
0.85	96200	2085	27000	1.65	X	R	167R97	(E)DRN 90S4	1680 344/346
0.94	85400	1877	27000	1.85	X	RF	167R97	(E)DRN 90S4	1690 345/346
1.1	76000	1670	27000	2.1	X	RM	167R97	(E)DRN 90S4	2120 345/346
1.2	68400	1438	27000	2.3	X				
1.4	60800	1279	27000	2.6	X				
1.6	52400	1123	27000	3.0	X				
0.80	108400	2211	14400	1.05	X				
0.90	95700	1951	15000	1.20	X				
1.0	82400	1705	15400	1.40	X				
1.1	74000	1536	15700	1.55	X				
1.3	64000	1329	16000	1.80	X	R	147R77	(E)DRN 90S4	950 342/346
1.5	55900	1166	16200	2.1	X	RF	147R77	(E)DRN 90S4	970 343/346
1.7	49000	1029	16300	2.3	X	RM	147R77	(E)DRN 90S4	1340 343/346
2.0	42600	889	16400	2.7	X				
2.2	37300	784	16500	3.1	X				
2.5	32900	695	16600	3.5	X				
1.3	68200	1391	12100	1.05	X				
1.4	61400	1256	12500	1.15	X				
1.6	53800	1105	12800	1.30	X	R	137R77	(E)DRN 90S4	640 340/346
1.7	50700	1043	12900	1.40	X	RF	137R77	(E)DRN 90S4	700 341/346
2.0	42900	888	13200	1.65	X	RM	137R77	(E)DRN 90S4	940 341/346
2.5	33500	699	13400	2.1	X				
2.9	29000	609	13500	2.4	X				
1.3	68300	1397	12100	1.05	X				
1.4	59700	1226	12500	1.20	X				
1.6	53300	1090	12800	1.35	X				
1.9	46500	951	13000	1.50	X	R	137R77	(E)DRN 90S4	660 340/346
2.1	40000	831	13200	1.75	X	RF	137R77	(E)DRN 90S4	710 341/346
2.4	34900	730	13400	2.0	X	RM	137R77	(E)DRN 90S4	960 341/346
2.8	29800	629	13500	2.4	X				
3.1	27100	560	13500	2.6	X				
3.6	23200	490	13600	3.0	X				
3.1	27900	564	13500	2.5	X	R	137R77	(E)DRN 90S4	640 340/346
3.4	25500	517	13600	2.8	X	RF	137R77	(E)DRN 90S4	690 341/346
						RM	137R77	(E)DRN 90S4	940 341/346

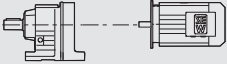

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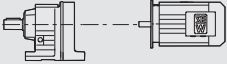

P_m = 1.5 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs		
1.8	46800	961	9660	1.15	X	R	127R77	(E)DRN	90S4	560	338/346	
2.3	37300	773	9660	1.40	X	RF	127R77	(E)DRN	90S4	610	339/346	
2.9	29100	608	9660	1.80	X	RM	127R77	(E)DRN	90S4	820	339/346	
1.7	49000	1034	9660	1.10	X							
1.7	48500	1013	9660	1.10	X							
1.8	48400	987	9660	1.10	X							
1.9	45600	936	9660	1.15	X							
1.9	44300	935	9660	1.20	X							
2.1	40000	830	9660	1.35	X							
2.2	38600	794	9660	1.35	X							
2.2	37500	792	9660	1.40	X							
2.3	37500	777	9660	1.40	X							
2.4	36100	750	9660	1.45	X							
2.7	31800	659	9660	1.65	X	R	127R77	(E)DRN	90S4	600	338/346	
2.7	30600	642	9660	1.75	X	RF	127R77	(E)DRN	90S4	620	339/346	
2.8	30600	636	9660	1.75	X	RM	127R77	(E)DRN	90S4	830	339/346	
2.9	29400	614	9660	1.80	X							
3.0	27700	581	9660	1.90	X							
3.4	24900	521	9660	2.1	X							
3.6	23400	492	9660	2.3	X							
3.7	22700	480	9660	2.3	X							
4.3	19300	407	9660	2.8	X							
4.6	18500	386	9660	2.9	X							
5.9	14200	298	9660	3.7	X							
7.0	12000	253	9660	4.4	X							
3.6	24300	490	9660	2.2	X	R	127R77	(E)DRN	90S4	560	338/346	
4.5	19400	394	9660	2.7	X	RF	127R77	(E)DRN	90S4	610	339/346	
5.4	16000	327	9660	3.3	X	RM	127R77	(E)DRN	90S4	820	339/346	
6.8	12500	259	9660	4.2	X							
2.5	34900	717	7020	1.10	X	R	107R77	(E)DRN	90S4	460	336/346	
2.8	30400	626	7500	1.25	X	RF	107R77	(E)DRN	90S4	475	337/346	
3.3	25300	528	7950	1.50	X	RM	107R77	(E)DRN	90S4	670	337/346	
2.9	29200	614	7610	1.30	X							
3.2	25800	544	7910	1.45	X							
3.6	23300	492	8080	1.65	X							
4.2	19700	417	8200	1.90	X	R	107R77	(E)DRN	90S4	475	336/346	
4.8	17700	369	8260	2.1	X	RF	107R77	(E)DRN	90S4	485	337/346	
5.5	15500	323	8320	2.5	X	RM	107R77	(E)DRN	90S4	680	337/346	
6.2	13600	285	8360	2.8	X							
7.0	11900	253	8390	3.2	X							
3.8	23200	469	8090	1.65	X							
4.1	21100	426	8160	1.80	X	R	107R77	(E)DRN	90S4	460	336/346	
4.7	18600	377	8240	2.0	X	RF	107R77	(E)DRN	90S4	470	337/346	
5.4	15900	325	8310	2.4	X	RM	107R77	(E)DRN	90S4	670	337/346	
6.2	13900	284	8350	2.7	X							
3.6	23500	484	3820	1.15	X							
4.1	21200	431	5530	1.25	X							
4.7	18600	379	5830	1.45	X							
5.2	16500	336	6040	1.60	X	R	97R57	(E)DRN	90S4	315	334/346	
6.0	14500	296	6170	1.85	X	RF	97R57	(E)DRN	90S4	350	335/346	
7.1	12100	249	6250	2.2	X	RM	97R57	(E)DRN	90S4	465	335/346	
7.5	11200	234	6280	2.4	X							
8.4	10000	209	6310	2.6	X							
3.8	23200	466	5250	1.15	X							
4.2	20900	420	5560	1.25	X							
4.8	18300	370	5860	1.45	X	R	97R57	(E)DRN	90S4	305	334/346	
5.0	17300	349	5970	1.55	X	RF	97R57	(E)DRN	90S4	345	335/346	
5.9	14600	297	6160	1.80	X	RM	97R57	(E)DRN	90S4	460	335/346	
6.5	13300	270	6210	2.0	X							
7.8	11300	227	6280	2.4	X							
6.6	13000	268	3910	1.05	X	R	87R57	(E)DRN	90S4	220	331/346	
7.5	11500	236	4140	1.20	X	RF	87R57	(E)DRN	90S4	235	332/346	
8.4	10000	209	4320	1.35	X	RM	87R57	(E)DRN	90S4	300	332/346	
6.9	12600	256	3980	1.10	X	R	87R57	(E)DRN	90S4	220	331/346	
7.6	11400	232	4160	1.20	X	RF	87R57	(E)DRN	90S4	235	332/346	
9.0	9710	195	4370	1.40	X	RM	87R57	(E)DRN	90S4	300	332/346	

P_m = 1.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
6.3	14800	186.30	6150	1.80		R	97	DRN	112M6	310	334
						RF	97	DRN	112M6	350	335
						RM	97	DRN	112M6	465	335
6.1	15500	289.74	6120	1.70	X						
6.9	13700	255.71	6200	1.95	X						
7.3	12900	241.25	6220	2.0	X						
8.2	11600	216.28	6270	2.3	X	R	97	(E)DRN	90S4	260	334
9.5	9990	186.30	6310	2.7	X	RF	97	(E)DRN	90S4	300	335
10	9110	170.02	6340	2.9	X	RM	97	(E)DRN	90S4	410	335
12	8080	150.78	6360	3.3	X						
14	6790	126.75	6380	3.9	X						
15	6240	116.48	6390	4.2	X						
7.2	13200	246.54	3000	1.05	X						
8.1	11600	216.54	3590	1.20	X						
8.6	11000	205.71	3800	1.25	X						
9.7	9740	181.77	4270	1.40	X						
11	8330	155.34	4490	1.65	X						
12	7630	142.41	4490	1.80	X						
14	6700	124.97	4490	2.0	X	R	87	(E)DRN	90S4	170	331
15	6350	118.43*	4490	2.2	X	RF	87	(E)DRN	90S4	185	332
17	5550	103.65	4490	2.5	X	RM	87	(E)DRN	90S4	250	332
19	5000	93.38	4490	2.7	X						
22	4390	81.92	4490	3.1	X						
24	3890	72.57	4490	3.5	X						
28	3410	63.68*	4490	4.0	X						
29	3230	60.35*	4490	4.2	X						
33	2830	52.82	4490	4.8	X						
15	6510	121.42	2390	1.10	X						
17	5520	102.99	2560	1.30	X						
19	4980	92.97	2640	1.45	X						
22	4380	81.80	2720	1.65	X						
23	4140	77.24	2750	1.75	X						
27	3520	65.77	2810	2.1	X	R	77	(E)DRN	90S4	110	328
31	3090	57.68	2840	2.4	X	RF	77	(E)DRN	90S4	125	329
34	2790	52.07	2870	2.6	X	RM	77	(E)DRN	90S4	180	329
38	2450	45.81	2890	3.0	X						
41	2320	43.26	2900	3.1	X						
48	1970	36.83	2880	3.7	X						
53	1790	33.47	2800	4.0	X						
18	5140	95.91	1750	1.05	X						
20	4610	86.11	1880	1.15	X						
24	3970	74.17	2020	1.35	X						
25	3740	69.75	2060	1.40	X						
29	3280	61.26	2140	1.60	X	R	67	(E)DRN	90S4	98	325
31	3050	56.89	2170	1.75	X	RF	67	(E)DRN	90S4	105	326
34	2760	51.56	2210	1.90	X	RM	67	(E)DRN	90S4	140	326
38	2480	46.29	2240	2.1	X						
44	2130	39.88*	2270	2.4	X						
47	2010	37.50	2290	2.5	X						
55	1730	32.27	2240	2.8	X						
61	1540	28.83	2170	3.0	X						
63	1500	28.13	2150	3.2	X	R	67	(E)DRN	90S4	96	325
66	1430	26.72	2120	3.3	X	RF	67	(E)DRN	90S4	105	326
75	1250	23.44	2040	3.9	X	RM	67	(E)DRN	90S4	140	326
89	1060	19.89	1940	5.0	X						
25	3710	69.23	1490	1.05	X						
27	3470	64.85	1470	1.15	X						
31	3070	57.29	1440	1.30	X						
33	2850	53.22	1410	1.40	X	R	57	(E)DRN	90S4	84	322
37	2580	48.23	1380	1.55	X	RF	57	(E)DRN	90S4	91	323
41	2320	43.30	1350	1.70	X	RM	57	(E)DRN	90S4	120	323
47	2000	37.30*	1300	2.0	X						
50	1880	35.07	1290	2.1	X						
58	1610	30.18	1240	2.5	X						
65	1440	26.97	1200	2.8	X						

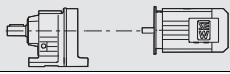

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P_m = 1.5 HP										
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs		
67	1410	26.31	1200	2.8	X					
70	1340	24.99*	1180	3.0	X	R	57	(E)DRN 90S4	82	322
80	1170	21.93	1140	3.4	X	RF	57	(E)DRN 90S4	89	323
95	990	18.60*	1090	4.0	X	RM	57	(E)DRN 90S4	115	323
105	900	16.79	1060	4.4	X					
37	2560	47.75	1060	1.05	X					
41	2290	42.87	1040	1.15	X					
48	1980	36.93	1010	1.35	X	R	47	(E)DRN 90S4	72	319
51	1860	34.73	1000	1.45	X	RF	47	(E)DRN 90S4	73	320
59	1600	29.88	960	1.65	X					
66	1430	26.70	940	1.85	X					
75	1260	23.59	910	2.1	X					
66	1430	26.74	940	1.85	X					
76	1240	23.28	910	2.1	X					
81	1160	21.81	890	2.3	X					
91	1030	19.27	860	2.5	X					
98	950	17.89	850	2.7	X					
109	860	16.22	830	2.8	X	R	47	(E)DRN 90S4	71	319
121	780	14.56	800	3.0	X	RF	47	(E)DRN 90S4	71	320
140	670	12.54	770	3.3	X					
149	630	11.79	755	3.4	X					
174	540	10.15	725	3.7	X					
194	485	9.07	700	4.0	X					
54	1730	32.40	785	1.00	X	R	37	(E)DRN 90S4	63	316
61	1540	28.73	850	1.15	X	RF	37	(E)DRN 90S4	66	317
72	1300	24.42	860	1.35	X					
79	1190	22.27	840	1.50	X					
91	1030	19.31	820	1.70	X					
98	960	18.05	810	1.85	X					
113	830	15.60	775	2.1	X					
133	710	13.25	745	2.4	X					
149	630	11.83	725	2.5	X	R	37	(E)DRN 90S4	62	316
174	540	10.11	695	2.8	X	RF	37	(E)DRN 90S4	65	317
186	505	9.47	680	2.9	X					
221	425	7.97	650	3.2	X					
264	355	6.67	615	3.6	X					
311	300	5.67	585	4.1	X					
348	270	5.06	570	4.4	X					
91	1030	19.35	525	1.10	X					
97	960	18.08	520	1.20	X					
113	830	15.63	505	1.35	X					
133	710	13.28*	490	1.60	X					
149	635	11.86	475	1.80	X					
174	540	10.13	460	2.0	X					
187	500	9.41	440	2.1	X	R	27	(E)DRN 90S4	49	313
216	435	8.16	430	2.4	X	RF	27	(E)DRN 90S4	49	314
231	405	7.63*	420	2.4	X					
267	350	6.59	405	2.6	X					
315	300	5.60*	390	2.9	X					
352	265	5.00*	380	3.1	X					
413	225	4.27	365	3.4	X					
440	210	4.00*	355	3.5	X					
523	181	3.37	340	3.9	X					
156	605	22.32	470	1.90						
180	520	19.35	455	2.2						
193	490	18.08	450	2.4						
223	420	15.63	435	2.7						
262	360	13.28*	415	3.2						
294	320	11.86	405	3.5						
344	270	10.13	385	3.9		R	27	DRN 80M2	36	313
370	255	9.41	375	4.2		RF	27	DRN 80M2	36	314
427	220	8.16	360	4.6						
457	205	7.63*	355	4.8						
529	179	6.59	340	5.2						
622	152	5.60*	325	5.8						
697	136	5.00*	315	6.2						
816	116	4.27	300	6.7						

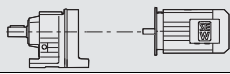

P_m = 1.5 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
871	108	4.00*	295	6.9							
1035	91	3.37	280	7.7							
177	530	19.71	255	1.40							
205	460	16.99	250	1.65							
220	425	15.84	245	1.75							
252	375	13.84	245	2.0							
269	350	12.98	240	2.1							
304	310	11.45	235	2.3							
343	275	10.15	230	2.5							
404	230	8.63	225	2.7		R	17	DRN	80M2	34	310
462	200	7.55	210	2.4		RF	17	DRN	80M2	34	311
495	191	7.04	205	2.5							
567	167	6.15	200	2.9							
605	156	5.76	198	3.0							
685	138	5.09	192	3.3							
773	122	4.51	187	3.5							
909	104	3.83	180	3.8							
204	460	8.65	1720	2.6	X	RX	87	(E)DRN	90S4	125	301
						RXF	87	(E)DRN	90S4	135	302
275	340	6.41	1240	2.6	X						
313	300	5.63	1190	3.2	X	RX	77	(E)DRN	90S4	90	299
329	285	5.35*	1170	3.2	X	RXF	77	(E)DRN	90S4	95	300
373	250	4.73	1120	4.3	X						
340	275	5.18	800	2.4	X						
389	240	4.53	765	3.0	X						
410	230	4.30*	755	3.1	X						
467	200	3.77	725	3.8	X						
551	172	3.20*	690	5.2	X						
610	155	2.89	670	6.0	X	RX	67	(E)DRN	90S4	69	297
693	136	2.54	645	7.7	X	RXF	67	(E)DRN	90S4	77	298
734	129	2.40*	630	8.4	X						
862	110	2.04	600	11	X						
949	100	1.86	580	11	X						
1095	86	1.61	555	12	X						
1260	75	1.40*	530	12	X						
405	230	4.35	610	2.6	X						
465	200	3.79	585	3.0	X						
496	190	3.55*	575	3.2	X						
562	168	3.14	550	3.4	X						
605	156	2.91	540	3.8	X						
667	142	2.64*	525	4.3	X	RX	57	(E)DRN	90S4	63	295
743	127	2.37	505	4.8	X	RXF	57	(E)DRN	90S4	67	296
863	110	2.04	485	5.6	X						
918	103	1.92*	475	5.9	X						
1065	89	1.65	455	6.9	X						
1195	79	1.48	435	7.6	X						
1350	70	1.30	420	8.0	X						

P_m = 2.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
0.76	147800	2333	27000	1.10	X						
0.85	130900	2085	27000	1.20	X						
0.94	116700	1877	27000	1.35	X						
1.1	103800	1670	27000	1.55	X	R	167R97	(E)DRN	90L4	1690	344/346
1.2	92300	1438	27000	1.70	X	RF	167R97	(E)DRN	90L4	1700	345/346
1.4	82100	1279	27000	1.95	X	RM	167R97	(E)DRN	90L4	2130	345/346
1.6	71100	1123	27000	2.2	X						
1.8	63300	999	27000	2.5	X						
2.0	54500	861	27000	2.9	X						
4.1	27000	426	16600	4.2	X	R	147R87	(E)DRN	90L4	1010	342/346
4.8	23300	368	16700	4.9	X	RF	147R87	(E)DRN	90L4	1020	343/346
						RM	147R87	(E)DRN	90L4	1390	343/346

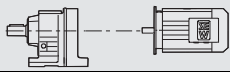

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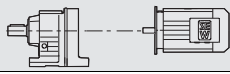

P_m = 2.0 HP								m		
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			lbs		
1.0	110800	1705	14300	1.05	X					
1.1	99600	1536	14800	1.15	X					
1.3	86200	1329	15300	1.35	X					
1.5	75300	1166	15700	1.55	X					
1.7	66100	1029	15900	1.75	X	R	147R77	(E)DRN 90L4	960	342/346
2.0	57300	889	16100	2.0	X	RF	147R77	(E)DRN 90L4	980	343/346
2.2	50400	784	16300	2.3	X	RM	147R77	(E)DRN 90L4	1350	343/346
2.5	44500	695	16400	2.6	X					
2.9	40200	619	16500	2.9	X					
3.2	36100	558	16500	3.2	X					
1.7	68000	1043	12100	1.05	X	R	137R77	(E)DRN 90L4	650	342/346
2.0	57700	888	12600	1.25	X	RF	137R77	(E)DRN 90L4	700	343/346
2.5	45100	699	13100	1.55	X	RM	137R77	(E)DRN 90L4	950	343/346
2.9	39100	609	13300	1.80	X					
1.6	71400	1090	12000	1.00						
1.9	62300	951	12400	1.15	X					
2.1	53900	831	12800	1.30	X					
2.4	47100	730	13000	1.50	X					
2.8	40200	629	13200	1.75	X	R	137R77	(E)DRN 90L4	670	342/346
3.1	36400	560	13300	1.95	X	RF	137R77	(E)DRN 90L4	720	343/346
3.6	31400	490	13500	2.2	X	RM	137R77	(E)DRN 90L4	970	343/346
4.1	27400	428	13500	2.6	X					
4.6	24800	381	13600	2.9	X					
5.5	21000	323	13600	3.4	X					
3.1	37400	564	13300	1.90	X	R	137R77	(E)DRN 90L4	650	342/346
3.4	34300	517	13400	2.1	X	RF	137R77	(E)DRN 90L4	700	343/346
3.9	30000	453	13500	2.4	X	RM	137R77	(E)DRN 90L4	940	343/346
4.7	24700	376	13600	2.9	X					
2.3	50200	773	9660	1.05	X	R	127R77	(E)DRN 90L4	570	338/346
2.9	39300	608	9660	1.35	X	RF	127R77	(E)DRN 90L4	620	339/346
						RM	127R77	(E)DRN 90L4	830	339/346
2.1	53800	830	9660	1.00						
2.2	51800	794	9660	1.00	X					
2.2	50700	792	9660	1.05	X					
2.3	50500	777	9660	1.05	X					
2.4	48600	750	9660	1.10	X					
2.7	42800	659	9660	1.25	X					
2.8	41300	642	9660	1.30	X					
2.8	41200	636	9660	1.30	X	R	127R77	(E)DRN 90L4	600	338/346
2.9	39600	614	9660	1.35	X	RF	127R77	(E)DRN 90L4	630	339/346
3.0	37300	581	9660	1.40	X	RM	127R77	(E)DRN 90L4	840	339/346
3.4	33600	521	9660	1.60	X					
3.6	31600	492	9660	1.70	X					
3.7	30700	480	9660	1.75	X					
4.3	26000	407	9660	2.0	X					
4.6	25000	386	9660	2.1	X					
5.9	19200	298	9660	2.8	X					
7.0	16200	253	9660	3.3	X					
3.6	32600	490	9660	1.65	X					
4.5	26000	394	9660	2.0	X	R	127R77	(E)DRN 90L4	570	338/346
5.4	21500	327	9660	2.5	X	RF	127R77	(E)DRN 90L4	610	339/346
6.8	16900	259	9660	3.1	X	RM	127R77	(E)DRN 90L4	830	339/346
8.7	13100	202	9660	4.0	X					
11	10600	162	9660	5.0	X					
3.4	34100	528	7120	1.10	X	R	107R77	(E)DRN 90L4	470	336/346
						RF	107R77	(E)DRN 90L4	480	337/346
						RM	107R77	(E)DRN 90L4	680	337/346
3.2	34800	544	7030	1.10	X					
3.6	31500	492	7400	1.20	X					
4.2	26700	417	7840	1.40	X					
4.8	23900	369	8050	1.60	X	R	107R77	(E)DRN 90L4	480	336/346
5.5	20800	323	8170	1.80	X	RF	107R77	(E)DRN 90L4	495	337/346
6.2	18300	285	8240	2.1	X	RM	107R77	(E)DRN 90L4	690	337/346
7.0	16200	253	8300	2.4	X					
8.2	13700	214	8360	2.8	X					

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P_m = 2.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
3.8	31100	469	7430	1.20	X				
4.2	28300	426	7700	1.35	X				
4.7	24900	377	7980	1.50	X	R	107R77	(E)DRN 90L4	465 336/346
5.5	21400	325	8150	1.80	X	RF	107R77	(E)DRN 90L4	480 337/346
6.2	18600	284	8240	2.0	X	RM	107R77	(E)DRN 90L4	670 337/346
6.9	16700	256	8290	2.3	X				
8.0	14400	220	8340	2.6	X				
9.1	12500	193	8380	3.0	X				
4.7	24900	379	4990	1.05	X				
5.2	22100	336	5400	1.20	X	R	97R57	(E)DRN 90L4	320 334/346
6.0	19400	296	5740	1.35	X	RF	97R57	(E)DRN 90L4	360 335/346
7.1	16200	249	6060	1.65	X	RM	97R57	(E)DRN 90L4	470 335/346
7.6	15100	234	6140	1.75	X				
8.5	13500	209	6200	1.95	X				
4.8	24600	370	5040	1.10	X				
5.1	23200	349	5260	1.15	X	R	97R57	(E)DRN 90L4	315 334/346
5.9	19700	297	5710	1.35	X	RF	97R57	(E)DRN 90L4	350 335/346
6.5	17800	270	5910	1.50	X	RM	97R57	(E)DRN 90L4	465 335/346
7.8	15100	227	6140	1.75	X				
9.1	12900	195	3930	1.05	X	R	87R57	(E)DRN 90L4	225 331/346
						RF	87R57	(E)DRN 90L4	240 332/346
						RM	87R57	(E)DRN 90L4	305 332/346
4.7	26700	251.15	7830	1.40					
5.1	24500	229.95	8010	1.55		R	107	DRN 112M6	440 336
5.8	21600	203.16	8140	1.75		RF	107	DRN 112M6	450 337
6.8	18300	172.34	8240	2.1		RM	107	DRN 112M6	650 337
7.4	16900	158.68	8280	2.2					
8.3	15100	141.83	8330	2.5					
6.9	18200	255.71	5430	1.45	X				
7.3	17200	241.25	5740	1.55	X				
8.2	15400	216.28	6130	1.70	X				
9.5	13200	186.30	6210	2.0	X				
10	12100	170.02	6250	2.2	X	R	97	(E)DRN 90L4	265 334
12	10700	150.78	6290	2.5	X	RF	97	(E)DRN 90L4	305 335
14	9030	126.75	6340	2.9	X	RM	97	(E)DRN 90L4	420 335
15	8300	116.48	6350	3.2	X				
17	7370	103.44	6370	3.6	X				
19	6590	92.48	6390	4.0	X				
9.7	12900	181.77	3090	1.05	X				
11	11000	155.34	3780	1.25	X				
12	10100	142.41	4120	1.35	X				
14	8910	124.97	4450	1.55	X				
15	8440	118.43*	4490	1.60	X				
17	7390	103.65	4490	1.85	X				
19	6650	93.38	4490	2.1	X	R	87	(E)DRN 90L4	175 331
22	5840	81.92	4490	2.4	X	RF	87	(E)DRN 90L4	190 332
24	5170	72.57	4490	2.6	X	RM	87	(E)DRN 90L4	260 332
28	4540	63.68*	4490	3.0	X				
29	4300	60.35*	4490	3.2	X				
33	3760	52.82	4490	3.6	X				
37	3390	47.58	4450	4.0	X				
42	2970	41.74	4270	4.6	X				
48	2620	36.84*	4110	5.2	X				
19	6630	92.97	2370	1.10	X				
22	5830	81.80	2510	1.25	X				
23	5500	77.24	2570	1.30	X				
27	4680	65.77	2680	1.55	X				
31	4110	57.68	2750	1.75	X				
34	3710	52.07	2790	1.95	X	R	77	(E)DRN 90L4	120 328
39	3260	45.81	2830	2.2	X	RF	77	(E)DRN 90L4	130 329
41	3080	43.26	2840	2.4	X	RM	77	(E)DRN 90L4	185 329
48	2620	36.83	2830	2.8	X				
53	2380	33.47	2750	3.0	X				
61	2060	29.00	2640	3.5	X				
70	1790	25.23	2530	3.8	X				

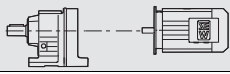

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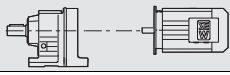

P_m = 2.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				m lbs		
76	1660	23.37	2470	4.3	X	R	77	(E)DRN 90L4	115	328	
82	1520	21.43	2410	4.8	X	RF	77	(E)DRN 90L4	130	329	
94	1340	18.80	2320	5.2	X	RM	77	(E)DRN 90L4	185	329	
25	4970	69.75	1790	1.05	X						
29	4360	61.26	1940	1.20	X						
31	4050	56.89	2010	1.30	X						
34	3670	51.56	2070	1.45	X	R	67	(E)DRN 90L4	105	325	
38	3300	46.29	2140	1.60	X	RF	67	(E)DRN 90L4	110	326	
44	2840	39.88*	2200	1.80	X	RM	67	(E)DRN 90L4	145	326	
47	2670	37.50	2220	1.90	X						
55	2300	32.27	2190	2.1	X						
61	2050	28.83	2120	2.2	X						
63	2000	28.13	2110	2.4	X						
66	1900	26.72	2080	2.5	X	R	67	(E)DRN 90L4	105	325	
75	1670	23.44	2000	3.0	X	RF	67	(E)DRN 90L4	110	326	
89	1410	19.89	1910	3.7	X	RM	67	(E)DRN 90L4	145	326	
98	1280	17.95	1850	4.1	X						
33	3790	53.22	1330	1.05	X						
37	3430	48.23	1310	1.15	X						
41	3080	43.30	1280	1.30	X	R	57	(E)DRN 90L4	91	322	
47	2650	37.30*	1240	1.50	X	RF	57	(E)DRN 90L4	98	323	
50	2500	35.07	1230	1.60	X	RM	57	(E)DRN 90L4	125	323	
59	2150	30.18	1190	1.85	X						
66	1920	26.97	1160	2.1	X						
67	1870	26.31	1150	2.1	X						
71	1780	24.99*	1140	2.2	X						
81	1560	21.93	1100	2.5	X	R	57	(E)DRN 90L4	89	322	
95	1320	18.60*	1060	3.0	X	RF	57	(E)DRN 90L4	96	323	
105	1190	16.79	1030	3.3	X	RM	57	(E)DRN 90L4	125	323	
120	1050	14.77*	1000	3.6	X						
127	990	13.95*	980	3.8	X						
149	840	11.88	940	4.2	X						
48	2630	36.93	950	1.00	X						
51	2470	34.73	940	1.05	X	R	47	(E)DRN 90L4	79	319	
59	2130	29.88	910	1.25	X	RF	47	(E)DRN 90L4	79	320	
66	1900	26.70	890	1.40	X						
75	1680	23.59	870	1.60	X						
76	1660	23.28	870	1.60	X						
81	1550	21.81	860	1.70	X						
92	1370	19.27	830	1.90	X						
99	1270	17.89	820	2.0	X						
109	1150	16.22	800	2.1	X						
121	1030	14.56	775	2.3	X						
141	890	12.54	750	2.5	X						
150	840	11.79	735	2.6	X						
174	720	10.15	705	2.8	X	R	47	(E)DRN 90L4	78	319	
195	645	9.07	685	3.0	X	RF	47	(E)DRN 90L4	78	320	
221	570	8.01	665	3.2	X						
228	550	7.76*	650	2.6	X						
254	495	6.96	630	2.8	X						
295	425	6.00	605	3.2	X						
313	400	5.64*	595	3.4	X						
364	345	4.85	570	3.8	X						
407	305	4.34	550	4.2	X						
461	270	3.83	530	4.7	X						
72	1740	24.42	600	1.00	X	R	37	(E)DRN 90L4	70	316	
						RF	37	(E)DRN 90L4	73	317	

P_m = 2.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
92	1370	19.31	720	1.30	X				
98	1280	18.05	750	1.40	X				
113	1110	15.60	745	1.60	X				
133	940	13.25	715	1.80	X				
149	840	11.83	700	1.90	X				
175	720	10.11	670	2.1	X				
187	675	9.47	660	2.2	X	R	37	(E)DRN 90L4	69 316
222	565	7.97	635	2.4	X	RF	37	(E)DRN 90L4	72 317
265	475	6.67	600	2.7	X				
312	400	5.67	575	3.1	X				
349	360	5.06	555	3.3	X				
409	305	4.32	530	3.6	X				
437	285	4.05	520	3.7	X				
518	240	3.41	495	4.1	X				
526	235	6.67	495	5.3					
619	200	5.67	470	6.2		R	37	DRN 90S2	62 316
693	182	5.06	455	6.6		RF	37	DRN 90S2	65 317
811	155	4.32	435	7.2					
866	145	4.05	425	7.4					
1030	123	3.41	405	8.1					
113	1110	15.63	470	1.05	X				
133	940	13.28*	460	1.20	X				
149	840	11.86	450	1.35	X				
174	720	10.13	435	1.50	X				
217	580	8.16	405	1.75	X				
232	540	7.63*	400	1.80	X	R	27	(E)DRN 90L4	56 313
268	470	6.59	390	2.0	X	RF	27	(E)DRN 90L4	56 314
316	395	5.60*	375	2.2	X				
353	355	5.00*	365	2.4	X				
414	300	4.27	350	2.5	X				
442	285	4.00*	345	2.6	X				
524	240	3.37	330	2.9	X				
532	235	6.59	330	4.0					
626	200	5.60*	315	4.3		R	27	DRN 90S2	49 313
701	180	5.00*	305	4.7		RF	27	DRN 90S2	49 314
821	154	4.27	295	5.0					
876	144	4.00*	285	5.2					
1040	121	3.37	275	5.8					
232	540	7.63	1640	2.4	X	RX	87	(E)DRN 90L4	135 301
245	510	7.20*	1610	2.4	X	RXF	87	(E)DRN 90L4	145 302
314	400	5.63	1170	2.4	X				
330	380	5.35*	1150	2.4	X				
374	335	4.73	1110	3.2	X				
437	285	4.04*	1060	4.4	X				
477	260	3.70	1030	5.1	X	RX	77	(E)DRN 90L4	97 299
544	230	3.25*	990	7.0	X	RXF	77	(E)DRN 90L4	100 300
574	215	3.08*	970	7.8	X				
656	192	2.70	930	9.9	X				
728	173	2.43	900	11	X				
390	320	4.53	755	2.2	X				
411	305	4.30*	745	2.3	X				
468	265	3.77	715	2.9	X				
552	225	3.20*	680	3.9	X				
612	205	2.89	660	4.5	X				
695	181	2.54	635	5.8	X	RX	67	(E)DRN 90L4	76 297
736	171	2.40*	625	6.4	X	RXF	67	(E)DRN 90L4	84 298
865	146	2.04	595	8.1	X				
951	132	1.86	575	8.4	X				
1100	115	1.61	550	8.8	X				
1260	100	1.40*	525	9.2	X				

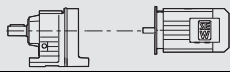

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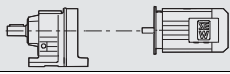

P_m = 2.0 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
466	270	3.79	570	2.3	X			
498	250	3.55*	560	2.4	X			
563	220	3.14	540	2.6	X			
607	205	2.91	530	2.9	X			
669	188	2.64*	515	3.2	X			
745	169	2.37	500	3.6	X	RX	57	(E)DRN 90L4
865	146	2.04	475	4.2	X	RXF	57	(E)DRN 90L4
920	137	1.92*	470	4.5	X			70 295
1070	118	1.65	445	5.2	X			74 296
1195	105	1.48	430	5.7	X			
1355	93	1.30	415	6.0	X			

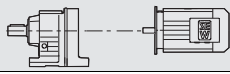

P_m = 3.0 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
1.1	157700	1674	27000	1.00	X			
1.2	138000	1485	27000	1.15	X			
1.3	123400	1342	27000	1.30	X			
1.4	114400	1229	27000	1.40	X	R	167R107	(E)DRN 100LM4
1.6	102200	1111	27000	1.55	X	RF	167R107	(E)DRN 100LM4
1.9	90200	950	27000	1.75	X	RM	167R107	(E)DRN 100LM4
2.0	81000	860	27000	1.95	X			1820 344/346
2.3	70900	763	27000	2.2	X			1830 345/346
2.6	63400	690	27000	2.5	X			2260 345/346
1.1	160300	1670	27000	1.00				
1.2	141000	1438	27000	1.15	X			
1.4	125400	1279	27000	1.25	X	R	167R97	(E)DRN 100LM4
1.6	109200	1123	27000	1.45	X	RF	167R97	(E)DRN 100LM4
1.8	97100	999	27000	1.65	X	RM	167R97	(E)DRN 100LM4
2.0	83700	861	27000	1.90	X			1710 344/346
2.3	74100	760	27000	2.1	X			1720 345/346
2.7	61400	656	27000	2.6	X			2160 345/346
3.3	51100	533	16300	2.2	X			
3.8	43900	462	16400	2.6	X	R	147R87	(E)DRN 100LM4
4.1	41500	426	16400	2.8	X	RF	147R87	(E)DRN 100LM4
4.8	35800	368	16500	3.2	X	RM	147R87	(E)DRN 100LM4
5.4	31700	326	16600	3.6	X			1030 342/346
1.5	114700	1166	14100	1.00	X			
1.7	101000	1029	14700	1.15	X			
2.0	87400	889	15300	1.30	X			
2.2	76900	784	15600	1.50	X	R	147R77	(E)DRN 100LM4
2.5	68000	695	15900	1.70	X	RF	147R77	(E)DRN 100LM4
2.8	61200	619	16000	1.90	X	RM	147R77	(E)DRN 100LM4
3.2	55000	558	16200	2.1	X			990 342/346
3.6	48100	489	16300	2.4	X			1000 343/346
4.2	40800	415	16400	2.8	X			1370 343/346
2.5	68800	699	12100	1.05	X	R	137R77	(E)DRN 100LM4
2.9	59700	609	12500	1.20	X	RF	137R77	(E)DRN 100LM4
						RM	137R77	(E)DRN 100LM4
2.4	71700	730	11900	1.00				680 340/346
2.8	61500	629	12500	1.15	X			730 341/346
3.1	55300	560	12700	1.30	X			970 341/346
3.6	48000	490	13000	1.45	X			
4.1	41900	428	13200	1.70	X	R	137R77	(E)DRN 100LM4
4.6	37700	381	13300	1.90	X	RF	137R77	(E)DRN 100LM4
5.5	31900	323	13400	2.2	X	RM	137R77	(E)DRN 100LM4
6.0	28700	291	13500	2.5	X			700 340/346
6.9	25100	255	13600	2.8	X			750 341/346
7.9	22000	223	13600	3.2	X			990 341/346
3.1	56800	564	12700	1.25	X			
3.4	52000	517	12900	1.35	X	R	137R77	(E)DRN 100LM4
3.9	45500	453	13100	1.55	X	RF	137R77	(E)DRN 100LM4
4.7	37600	376	13300	1.90	X	RM	137R77	(E)DRN 100LM4
5.2	33800	339	13400	2.1	X			670 340/346
5.9	29600	297	13500	2.4	X			720 341/346
								970 341/346

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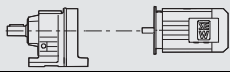

P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
3.4	51200	521	9660	1.05	X						
3.6	48300	492	9660	1.10	X						
3.7	47000	480	9660	1.15	X	R	127R77	(E)DRN	100LM4	630	338/346
4.3	39800	407	9660	1.35	X	RF	127R77	(E)DRN	100LM4	650	339/346
4.6	38000	386	9660	1.40	X	RM	127R77	(E)DRN	100LM4	870	339/346
5.9	29300	298	9660	1.80	X						
7.0	24800	253	9660	2.1	X						
3.6	49400	490	9660	1.05	X						
4.5	39600	394	9660	1.35	X						
5.4	32700	327	9660	1.60	X	R	127R77	(E)DRN	100LM4	590	338/346
6.8	25700	259	9660	2.1	X	RF	127R77	(E)DRN	100LM4	640	339/346
8.7	20000	202	9660	2.6	X	RM	127R77	(E)DRN	100LM4	850	339/346
11	16200	162	9660	3.3	X						
14	12400	126	9660	4.2	X						
4.8	36300	369	6840	1.05	X						
5.5	31800	323	7360	1.20	X	R	107R77	(E)DRN	100LM4	500	336/346
6.2	28000	285	7730	1.35	X	RF	107R77	(E)DRN	100LM4	520	337/346
7.0	24700	253	7990	1.55	X	RM	107R77	(E)DRN	100LM4	710	337/346
8.2	20900	214	8160	1.80	X						
9.4	18300	187	8250	2.1	X						
4.7	37800	377	6640	1.00	X						
5.4	32500	325	7290	1.15	X	R	107R77	(E)DRN	100LM4	490	336/346
6.2	28400	284	7690	1.35	X	RF	107R77	(E)DRN	100LM4	500	337/346
6.9	25500	256	7930	1.50	X	RM	107R77	(E)DRN	100LM4	700	337/346
8.0	21900	220	8130	1.75	X						
9.1	19100	193	8220	2.0	X						
10	17200	172	8270	2.2	X						
7.1	24700	249	5020	1.05	X	R	97R57	(E)DRN	100LM4	345	334/346
7.5	23000	234	5280	1.15	X	RF	97R57	(E)DRN	100LM4	385	335/346
8.4	20600	209	5600	1.30	X	RM	97R57	(E)DRN	100LM4	495	335/346
7.8	22800	227	5300	1.15	X	R	97R57	(E)DRN	100LM4	340	334/346
						RF	97R57	(E)DRN	100LM4	375	335/346
						RM	97R57	(E)DRN	100LM4	490	335/346
6.7	28100	262.65	9660	1.90	X						
7.3	25700	240.48	9660	2.1	X						
8.3	22700	212.46	9660	2.3	X						
9.8	19300	180.23	9660	2.8	X	R	127	(E)DRN	100LM4	540	338
11	17800	165.95	9660	3.0	X	RF	127	(E)DRN	100LM4	570	339
12	15900	148.33	9660	3.3	X	RM	127	(E)DRN	100LM4	780	339
13	14300	133.53	9660	3.7	X						
15	12900	120.92	9660	4.1	X						
16	11500	107.23	9660	4.6	X						
5.8	32500	203.16	7290	1.15		R	107	DRN	132S6	465	336
6.8	27600	172.34	7760	1.40		RF	107	DRN	132S6	475	337
7.4	25400	158.68	7940	1.50		RM	107	DRN	132S6	670	337
8.3	22700	141.83	8110	1.65							
7.0	26900	251.15	7820	1.40	X						
7.7	24600	229.95	8000	1.55	X						
8.7	21700	203.16	8140	1.75	X						
10	18400	172.34	8240	2.1	X	R	107	(E)DRN	100LM4	420	336
11	17000	158.68	8280	2.2	X	RF	107	(E)DRN	100LM4	435	337
12	15200	141.83	8330	2.5	X	RM	107	(E)DRN	100LM4	630	337
14	13600	127.68	8360	2.8	X						
15	12400	115.63	8380	3.1	X						
17	10900	102.53	8310	3.5	X						
19	9940	92.70	8070	3.8	X						
8.2	23200	216.28	3940	1.15	X						
9.5	19900	186.30	4900	1.35	X						
10	18200	170.02	5430	1.45	X						
12	16100	150.78	6050	1.65	X	R	97	(E)DRN	100LM4	295	334
14	13500	126.75	6200	1.95	X	RF	97	(E)DRN	100LM4	330	335
15	12400	116.48	6240	2.1	X	RM	97	(E)DRN	100LM4	445	335
17	11000	103.44	6280	2.4	X						
19	9920	92.48	6320	2.7	X						
21	8910	83.15	6250	3.0	X						
24	7740	72.17	6000	3.4	X						

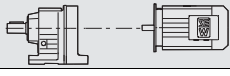

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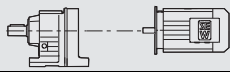

P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
27	6990	65.21	5830	3.8	X	R	97	(E)DRN	100LM4	295	334
29	6420	59.92	5680	4.1	X	RF	97	(E)DRN	100LM4	330	335
33	5700	53.21	5490	4.7	X	RM	97	(E)DRN	100LM4	445	335
37	5100	47.58	5310	5.2	X						
14	13400	124.97	2930	1.00	X						
15	12700	118.43*	3190	1.10	X						
17	11100	103.65	3770	1.25	X						
19	10000	93.38	4170	1.35	X						
22	8780	81.92	4460	1.55	X						
24	7780	72.57	4490	1.75	X	R	87	(E)DRN	100LM4	200	331
28	6830	63.68*	4490	2.0	X	RF	87	(E)DRN	100LM4	220	332
29	6470	60.35*	4490	2.1	X	RM	87	(E)DRN	100LM4	285	332
33	5660	52.82	4480	2.4	X						
37	5100	47.58	4350	2.7	X						
42	4470	41.74	4190	3.1	X						
48	3950	36.84*	4040	3.5	X						
54	3500	32.66*	3900	3.9	X						
51	3690	34.40*	3960	3.6	X	R	87	(E)DRN	100LM4	200	331
56	3360	31.40	3850	4.1	X	RF	87	(E)DRN	100LM4	215	332
63	2980	27.84*	3720	4.6	X	RM	87	(E)DRN	100LM4	280	332
75	2510	23.40	3520	5.5	X						
82	2300	21.51	3440	5.8	X						
27	7050	65.77	2280	1.05	X						
31	6180	57.68	2450	1.15	X						
34	5580	52.07	2550	1.30	X						
38	4910	45.81	2650	1.50	X	R	77	(E)DRN	100LM4	145	328
41	4640	43.26	2690	1.55	X	RF	77	(E)DRN	100LM4	155	329
48	3950	36.83	2730	1.85	X	RM	77	(E)DRN	100LM4	210	329
53	3590	33.47	2660	2.0	X						
61	3110	29.00	2560	2.3	X						
70	2700	25.23	2470	2.5	X						
75	2500	23.37	2410	2.9	X						
82	2290	21.43	2360	3.2	X	R	77	(E)DRN	100LM4	140	328
94	2010	18.80	2270	3.4	X	RF	77	(E)DRN	100LM4	155	329
99	1910	17.82*	2230	3.6	X	RM	77	(E)DRN	100LM4	210	329
113	1670	15.60	2150	3.9	X						
125	1500	14.05	2080	4.2	X						
38	4960	46.29	1800	1.05	X						
44	4270	39.88*	1960	1.20	X	R	67	(E)DRN	100LM4	130	325
47	4020	37.50	2010	1.25	X	RF	67	(E)DRN	100LM4	135	326
55	3460	32.27	2100	1.40	X	RM	67	(E)DRN	100LM4	170	326
61	3090	28.83	2040	1.50	X						
75	2510	23.44	1940	1.95	X						
89	2130	19.89	1850	2.5	X						
98	1920	17.95	1800	2.7	X						
112	1690	15.79	1740	2.9	X	R	67	(E)DRN	100LM4	125	325
118	1590	14.91	1710	3.0	X	RF	67	(E)DRN	100LM4	135	326
139	1360	12.70	1640	3.4	X	RM	67	(E)DRN	100LM4	170	326
153	1230	11.54	1590	3.6	X						
176	1070	10.00	1530	3.9	X						
203	930	8.70*	1460	4.2	X						
226	830	7.79	1420	4.0	X						
47	4000	37.30*	1120	1.00	X	R	57	(E)DRN	100LM4	115	322
50	3760	35.07	1110	1.05	X	RF	57	(E)DRN	100LM4	120	323
58	3230	30.18	1090	1.25	X	RM	57	(E)DRN	100LM4	150	323
65	2890	26.97	1070	1.40	X						
80	2350	21.93	1030	1.70	X						
95	1990	18.60*	1000	2.0	X						
105	1800	16.79	980	2.2	X						
119	1580	14.77*	950	2.4	X						
126	1490	13.95*	940	2.5	X	R	57	(E)DRN	100LM4	115	322
148	1270	11.88	900	2.8	X	RF	57	(E)DRN	100LM4	120	323
163	1150	10.79	880	3.0	X	RM	57	(E)DRN	100LM4	145	323
188	1000	9.35	850	3.3	X						
194	970	9.06	840	3.4	X						
221	850	7.97	810	3.7	X						

P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
75	2530	23.59	790	1.05	X	R	47	(E)DRN	100LM4	105	319
						RF	47	(E)DRN	100LM4	105	320
91	2060	19.27	770	1.25	X						
109	1730	16.22	745	1.40	X						
121	1560	14.56	730	1.50	X						
140	1340	12.54	705	1.65	X						
149	1260	11.79	700	1.70	X						
174	1080	10.15	675	1.85	X						
194	970	9.07	655	2.0	X						
220	850	8.01	635	2.1	X	R	47	(E)DRN	100LM4	100	319
227	830	7.76*	620	1.75	X	RF	47	(E)DRN	100LM4	100	320
253	745	6.96	605	1.90	X						
294	640	6.00	580	2.1	X						
312	605	5.64*	575	2.3	X						
363	520	4.85	550	2.5	X						
406	465	4.34	535	2.8	X						
460	410	3.83	515	3.1	X						
113	1670	15.60	395	1.05	X						
133	1420	13.25	490	1.20	X						
149	1260	11.83	545	1.30	X						
174	1080	10.11	600	1.40	X						
186	1010	9.47	620	1.45	X						
221	850	7.97	600	1.60	X	R	37	(E)DRN	100LM4	94	316
264	715	6.67	570	1.80	X	RF	37	(E)DRN	100LM4	97	317
311	605	5.67	545	2.1	X						
348	540	5.06	530	2.2	X						
408	460	4.32	510	2.4	X						
435	430	4.05	505	2.5	X						
517	365	3.41	480	2.7	X						
529	355	6.67	480	3.6							
622	300	5.67	455	4.1		R	37	DRN	90L2	69	316
697	270	5.06	445	4.4		RF	37	DRN	90L2	72	317
816	230	4.32	425	4.8							
871	215	4.05	415	5.0							
1035	183	3.41	395	5.4							
174	1080	10.13	335	1.00							
267	705	6.59	320	1.35	X						
315	600	5.60*	345	1.45	X						
352	535	5.00*	340	1.55	X	R	27	(E)DRN	100LM4	81	313
413	455	4.27	330	1.70	X	RF	27	(E)DRN	100LM4	81	314
440	425	4.00*	325	1.75	X						
523	360	3.37	315	1.95	X						
462	405	7.63*	320	2.4							
535	350	6.59	310	2.6		R	27	DRN	90L2	56	313
629	300	5.60*	300	2.9		RF	27	DRN	90L2	56	314
705	265	5.00*	290	3.1							
825	225	4.27	280	3.4							
881	210	4.00*	275	3.5							
1045	181	3.37	265	3.9							
373	505	4.73	1090	2.1	X						
436	430	4.04*	1040	2.9	X						
476	395	3.70	1010	3.4	X						
542	345	3.25*	970	4.6	X						
572	330	3.08*	960	5.2	X	RX	77	(E)DRN	100LM4	120	299
654	285	2.70	920	6.6	X	RXF	77	(E)DRN	100LM4	125	300
726	260	2.43	890	7.3	X						
827	225	2.13	860	7.7	X						
937	200	1.88*	820	8.2	X						
1055	179	1.67	790	8.6	X						
1240	153	1.42	755	9.0	X						

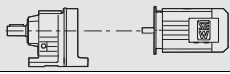

21933480/EN-US - 04/2018



P_m = 3.0 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
467	400	3.77	695	1.90	X	RX RXF	67 67	(E)DRN (E)DRN	100LM4 100LM4	100 110	297 298
551	340	3.20*	660	2.6	X						
610	305	2.89	645	3.0	X						
693	270	2.54	620	3.8	X						
734	255	2.40*	610	4.2	X						
862	215	2.04	580	5.4	X						
949	199	1.86	565	5.6	X						
1095	173	1.61	540	5.8	X						
1260	150	1.40*	520	6.1	X						
562	335	3.14	520	1.70	X						
667	280	2.64*	495	2.2	X						
743	250	2.37	480	2.4	X						
863	215	2.04	460	2.8	X						
918	205	1.92*	455	3.0	X						
1065	177	1.65	435	3.4	X						
1195	158	1.48	420	3.8	X						
1350	140	1.30	405	4.0	X						



P_m = 4.0 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
1.6	146900	1123	27000	1.10	X	R RF RM	167R97 167R97 167R97	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	1710 1720 2160	344/346 345/346 345/346
1.8	130700	999	27000	1.20	X						
2.0	112600	861	27000	1.40	X						
2.3	99600	760	27000	1.60	X						
2.7	83500	656	27000	1.90	X						
3.5	64000	503	27000	2.5	X						
3.3	69000	533	15800	1.65	X	R RF RM	147R87 147R87 147R87	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	1030 1050 1420	342/346 343/346 343/346
3.8	59400	462	16100	1.95	X						
4.1	55800	426	16200	2.1	X						
4.8	48200	368	16300	2.4	X						
5.4	42600	326	16400	2.7	X						
6.3	36000	280	16500	3.2	X						
2.0	117300	889	14000	1.00	X	R RF RM	147R77 147R77 147R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	990 1000 1370	342/346 343/346 343/346
2.2	103300	784	14600	1.10	X						
2.5	91400	695	15100	1.25	X						
2.9	82000	619	15500	1.40	X						
3.2	73800	558	15700	1.55	X						
3.6	64400	490	12300	1.10	X	R RF RM	137R77 137R77 137R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	700 750 990	340/346 341/346 341/346
4.1	56200	428	12700	1.25	X						
4.6	50500	381	12900	1.40	X						
5.5	42800	323	13200	1.65	X						
6.0	38500	291	13300	1.85	X						
6.9	33700	255	13400	2.1	X						
7.9	29500	223	13500	2.4	X						
3.4	69500	517	12100	1.00	X	R RF RM	137R77 137R77 137R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	670 720 970	340/346 341/346 341/346
3.9	60900	453	12500	1.15	X						
4.3	53500	407	9660	1.00	X						
4.6	51000	386	9660	1.05	X	R RF RM	127R77 127R77 127R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	630 650 870	338/346 339/346 339/346
5.9	39300	298	9660	1.35	X						
7.0	33300	253	9660	1.60	X						
4.5	53000	394	9660	1.00	X						
5.4	43800	327	9660	1.20	X	R RF RM	127R77 127R77 127R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	590 640 850	338/346 339/346 339/346
6.8	34500	259	9660	1.55	X						
8.7	26900	202	9660	1.95	X						
11	21700	162	9660	2.4	X						
14	16700	126	9660	3.2	X						
7.0	33200	253	7210	1.15	X	R RF RM	107R77 107R77 107R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	500 520 710	336/346 337/346 337/346
8.2	28200	214	7710	1.35	X						
9.4	24600	187	8000	1.55	X						
6.9	34200	256	7100	1.10	X	R	107R77	(E)DRN	100L4	490	336/346
						RF	107R77	(E)DRN	100L4	500	337/346
						RM	107R77	(E)DRN	100L4	700	337/346

P_m = 4.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
6.7	37500	262.65	9660	1.40	X				
7.3	34300	240.48	9660	1.55	X				
8.3	30300	212.46	9660	1.75	X				
9.8	25700	180.23	9660	2.1	X				
11	23700	165.95	9660	2.2	X				
12	21200	148.33	9660	2.5	X	R	127	(E)DRN 100L4	540 338
13	19000	133.53	9660	2.8	X	RF	127	(E)DRN 100L4	570 339
15	17200	120.92	9660	3.1	X	RM	127	(E)DRN 100L4	780 339
16	15300	107.23	9660	3.5	X				
18	13800	96.95	9660	3.8	X				
21	12100	85.26	9660	4.4	X				
21	11700	82.17	9660	4.5	X				
23	10800	76.21	9660	4.9	X				
7.4	33900	158.68	7140	1.10		R	107	DRN 132S6	465 336
8.3	30300	141.83	7510	1.25		RF	107	DRN 132S6	475 337
9.2	27300	127.68	7790	1.40		RM	107	DRN 132S6	670 337
7.7	32800	229.95	7260	1.15	X				
8.7	29000	203.16	7640	1.30	X				
10	24600	172.34	8000	1.55	X				
11	22600	158.68	8110	1.70	X				
12	20200	141.83	8190	1.90	X	R	107	(E)DRN 100L4	420 336
14	18200	127.68	8250	2.1	X	RF	107	(E)DRN 100L4	435 337
15	16500	115.63	8290	2.3	X	RM	107	(E)DRN 100L4	630 337
17	14600	102.53	8160	2.6	X				
19	13200	92.70	7930	2.9	X				
22	11200	78.57	7560	3.4	X				
24	10400	72.88	7390	3.6	X				
12	21500	150.78	4430	1.25	X				
14	18100	126.75	5460	1.45	X				
15	16600	116.48	5900	1.60	X				
17	14700	103.44	6160	1.80	X				
19	13200	92.48	6210	2.0	X				
21	11800	83.15	6100	2.2	X	R	97	(E)DRN 100L4	295 334
24	10300	72.17	5870	2.6	X	RF	97	(E)DRN 100L4	330 335
27	9320	65.21	5700	2.9	X	RM	97	(E)DRN 100L4	445 335
29	8560	59.92	5570	3.1	X				
33	7600	53.21	5390	3.5	X				
37	6800	47.58	5220	3.9	X				
41	6110	42.78	5060	4.3	X				
47	5300	37.13	4850	5.0	X				
53	4750	33.25	4700	5.4	X				
19	13300	93.38	2950	1.05	X				
22	11700	81.92	3550	1.15	X				
24	10300	72.57	4040	1.30	X				
28	9100	63.68*	4430	1.50	X				
29	8620	60.35*	4480	1.60	X	R	87	(E)DRN 100L4	200 331
33	7550	52.82	4360	1.80	X	RF	87	(E)DRN 100L4	220 332
37	6800	47.58	4240	2.0	X	RM	87	(E)DRN 100L4	285 332
42	5960	41.74	4090	2.3	X				
48	5260	36.84*	3960	2.6	X				
54	4660	32.66*	3820	2.9	X				
63	3980	27.88	3650	3.3	X				
51	4910	34.40*	3880	2.7	X				
56	4480	31.40	3780	3.1	X				
63	3980	27.84*	3650	3.5	X	R	87	(E)DRN 100L4	200 331
75	3340	23.40	3470	4.1	X	RF	87	(E)DRN 100L4	215 332
82	3070	21.51	3390	4.3	X	RM	87	(E)DRN 100L4	280 332
92	2730	19.10	3270	4.7	X				
103	2440	17.08*	3160	5.0	X				
115	2190	15.35	3060	5.4	X				
38	6540	45.81	2380	1.10	X				
41	6180	43.26	2450	1.15	X	R	77	(E)DRN 100L4	145 328
48	5260	36.83	2600	1.40	X	RF	77	(E)DRN 100L4	155 329
53	4780	33.47	2570	1.50	X	RM	77	(E)DRN 100L4	210 329
61	4140	29.00	2480	1.75	X				
70	3600	25.23	2400	1.90	X				

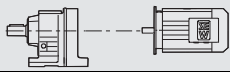

21933480/EN-US - 04/2018

P_m = 4.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
75	3340	23.37	2350	2.2	X						
82	3060	21.43	2300	2.4	X						
94	2680	18.80	2220	2.6	X						
99	2540	17.82*	2190	2.7	X						
113	2220	15.60	2110	2.9	X						
125	2000	14.05	2040	3.2	X	R	77	(E)DRN	100L4	140	328
143	1760	12.33	1970	3.5	X	RF	77	(E)DRN	100L4	155	329
162	1550	10.88	1900	3.8	X	RM	77	(E)DRN	100L4	210	329
183	1370	9.64	1830	4.0	X						
205	1220	8.59	1780	4.5	X						
228	1100	7.74	1730	4.9	X						
260	970	6.79	1660	5.3	X						
75	3350	23.44	1870	1.50	X						
89	2840	19.89	1790	1.85	X						
98	2560	17.95	1750	2.0	X	R	67	(E)DRN	100L4	125	325
112	2250	15.79	1690	2.2	X	RF	67	(E)DRN	100L4	135	326
118	2130	14.91	1670	2.3	X	RM	67	(E)DRN	100L4	170	326
139	1810	12.70	1600	2.5	X						
153	1640	11.54	1560	2.7	X						
176	1420	10.00	1500	2.9	X						
65	3850	26.97	980	1.05	X	R	57	(E)DRN	100L4	115	322
						RF	57	(E)DRN	100L4	120	323
						RM	57	(E)DRN	100L4	150	323
80	3130	21.93	960	1.25	X						
95	2650	18.60*	940	1.50	X						
105	2400	16.79	920	1.65	X						
119	2110	14.77*	900	1.80	X						
126	1990	13.95*	890	1.90	X						
148	1690	11.88	860	2.1	X						
163	1540	10.79	840	2.2	X	R	57	(E)DRN	100L4	115	322
189	1330	9.35	820	2.5	X	RF	57	(E)DRN	100L4	120	323
195	1290	9.06	810	2.6	X	RM	57	(E)DRN	100L4	145	323
221	1130	7.97	790	2.8	X						
234	1070	7.53	775	2.9	X						
275	910	6.41	745	3.2	X						
303	830	5.82	725	3.4	X						
349	720	5.05	700	3.7	X						
402	625	4.39	675	4.0	X						
109	2310	16.22	670	1.05	X						
121	2080	14.56	680	1.15	X						
141	1790	12.54	665	1.25	X						
149	1680	11.79	660	1.30	X						
174	1450	10.15	640	1.40	X						
194	1290	9.07	625	1.50	X						
220	1140	8.01	610	1.60	X	R	47	(E)DRN	100L4	100	319
227	1100	7.76*	590	1.30	X	RF	47	(E)DRN	100L4	100	320
253	990	6.96	575	1.40	X						
294	850	6.00	560	1.60	X						
313	800	5.64*	550	1.70	X						
363	690	4.85	530	1.90	X						
407	615	4.34	515	2.1	X						
460	545	3.83	500	2.3	X						
174	1440	10.11	340	1.05	X						
186	1350	9.47	380	1.10	X						
221	1130	7.97	455	1.20	X						
264	950	6.67	400	1.35	X						
311	800	5.67	455	1.55	X	R	37	(E)DRN	100L4	94	316
348	720	5.06	485	1.65	X	RF	37	(E)DRN	100L4	97	317
408	615	4.32	490	1.80	X						
436	575	4.05	485	1.85	X						
517	485	3.41	465	2.0	X						
527	475	6.67	465	2.7							
621	405	5.67	445	3.1							
695	360	5.06	430	3.3		R	37	DRN	100LM2	94	316
814	305	4.32	415	3.6		RF	37	DRN	100LM2	97	317
869	290	4.05	405	3.7							
1030	240	3.41	390	4.1							

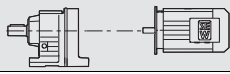

P_m = 4.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
315	800	5.60*	193	1.10	X	R RF	27 27	(E)DRN (E)DRN	100L4 100L4	81 81	313 314
353	710	5.00*	235	1.20	X						
413	610	4.27	280	1.25	X						
441	570	4.00*	295	1.30	X						
523	480	3.37	295	1.45	X						
534	470	6.59	295	2.0		R RF	27 27	DRN DRN	100LM2 100LM2	81 81	313 314
628	400	5.60*	285	2.2							
703	355	5.00*	280	2.4							
823	305	4.27	270	2.5							
879	285	4.00*	265	2.6							
1045	240	3.37	255	2.9							
373	675	4.73	1070	1.60	X	RX RXF	77 77	(E)DRN (E)DRN	100L4 100L4	120 125	299 300
436	575	4.04*	1020	2.2	X						
476	525	3.70	1000	2.6	X						
542	460	3.25*	960	3.5	X						
572	440	3.08*	940	3.9	X						
467	535	3.77	670	1.45	X	RX RXF	67 67	(E)DRN (E)DRN	100L4 100L4	100 110	297 298
551	455	3.20*	645	1.95	X						
610	410	2.89	625	2.3	X						
694	360	2.54	605	2.9	X						
735	340	2.40*	595	3.2	X						
863	290	2.04	570	4.1	X						
949	265	1.86	550	4.2	X						
1095	225	1.61	530	4.4	X						
1260	200	1.40*	510	4.6	X						
562	445	3.14	500	1.30	X						
668	375	2.64*	480	1.60	X						
744	335	2.37	465	1.80	X						
864	290	2.04	450	2.1	X						
918	270	1.92*	440	2.2	X						
1065	235	1.65	425	2.6	X						
1195	210	1.48	410	2.9	X						
1350	186	1.30	395	3.0	X						

P_m = 5.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
1.9	154500	950	27000	1.05	X	R RF RM	167R107 167R107 167R107	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	1820 1830 2260	344/346 345/346 345/346
2.0	139200	860	27000	1.15	X						
2.3	122500	763	27000	1.30	X						
2.5	110100	690	27000	1.45	X						
3.0	92200	585	27000	1.75	X						
4.0	74000	446	27000	2.1	X	R RF RM	167R107 167R107 167R107	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	1800 1820 2250	344/346 345/346 345/346
4.4	66000	399	27000	2.4	X						
4.9	59300	361	27000	2.7	X						
5.4	53600	328	27000	3.0	X						
2.0	142000	861	27000	1.10	X						
2.3	125600	760	27000	1.25	X						
2.7	105900	656	27000	1.50	X						
3.5	81200	503	27000	1.95	X						
4.7	60800	376	27000	2.6	X						
5.2	54000	335	27000	2.9	X						
3.3	87200	533	15300	1.30	X	R RF RM	147R87 147R87 147R87	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	1030 1050 1420	342/346 343/346 343/346
3.8	75100	462	15700	1.55	X						
4.1	70400	426	15800	1.65	X						
4.8	60800	368	16100	1.90	X						
5.4	53700	326	16200	2.1	X						
6.3	45600	280	16400	2.5	X						
7.1	40200	247	16500	2.9	X						
2.5	115100	695	14100	1.00	X	R RF RM	147R77 147R77 147R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	990 1000 1370	342/346 343/346 343/346
2.8	103100	619	14600	1.10	X						
3.1	92800	558	15100	1.25	X						
3.6	81300	489	15500	1.40	X						
4.2	68900	415	15800	1.65	X						

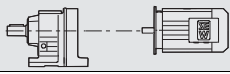

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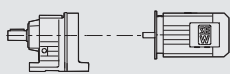

P_m = 5.0 HP																	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs							
4.1	70800	428	12000	1.00	X	R RF RM	137R77 137R77 137R77	(E)DRN (E)DRN (E)DRN	100L4 100L4 100L4	700	340/346						
4.6	63500	381	12400	1.10	X												
5.4	53800	323	12800	1.30	X												
6.0	48500	291	13000	1.45	X												
6.9	42300	255	13200	1.65	X												
7.9	37100	223	13300	1.90	X												
8.9	32700	197	13400	2.2	X												
10	28900	175	13500	2.4	X												
4.7	63400	376	12400	1.10	X							R	137R77	(E)DRN	100L4	670	340/346
5.2	57000	339	12700	1.25	X							RF	137R77	(E)DRN	100L4	720	341/346
5.9	50000	297	12900	1.40	X	RM	137R77	(E)DRN	100L4	970	341/346						
5.9	49500	298	9660	1.05	X	R	127R77	(E)DRN	100L4	630	338/346						
7.0	41900	253	9660	1.25	X	RF	127R77	(E)DRN	100L4	650	339/346						
						RM	127R77	(E)DRN	100L4	870	339/346						
6.8	43400	259	9660	1.20	X	R	127R77	(E)DRN	100L4	590	338/346						
8.7	33900	202	9660	1.55	X	RF	127R77	(E)DRN	100L4	640	339/346						
11	27300	162	9660	1.95	X	RM	127R77	(E)DRN	100L4	850	339/346						
14	21100	126	9660	2.5	X												
8.2	35500	214	6950	1.05	X	R	107R77	(E)DRN	100L4	500	336/346						
9.4	31000	187	7450	1.25	X	RF	107R77	(E)DRN	100L4	520	337/346						
						RM	107R77	(E)DRN	100L4	710	337/346						
8.0	37000	220	6760	1.05	X	R	107R77	(E)DRN	100L4	490	336/346						
9.1	32400	193	7300	1.15	X	RF	107R77	(E)DRN	100L4	500	337/346						
10	29000	172	7630	1.30	X	RM	107R77	(E)DRN	100L4	700	337/346						
6.7	47000	262.65	9660	1.15	X												
7.3	43000	240.48	9660	1.25	X												
8.3	38000	212.46	9660	1.40	X												
9.8	32200	180.23	9660	1.65	X												
11	29700	165.95	9660	1.80	X												
12	26500	148.33	9660	2.0	X	R	127	(E)DRN	100L4	540	338						
13	23900	133.53	9660	2.2	X	RF	127	(E)DRN	100L4	570	339						
15	21600	120.92	9660	2.5	X	RM	127	(E)DRN	100L4	780	339						
16	19200	107.23	9660	2.8	X												
18	17300	96.95	9660	3.1	X												
21	15200	85.26	9660	3.5	X												
21	14700	82.17	9660	3.6	X												
23	13600	76.21	9660	3.9	X												
8.7	36400	203.16	6840	1.05	X												
10	30800	172.34	7460	1.25	X												
11	28400	158.68	7690	1.35	X	R	107	(E)DRN	100L4	420	336						
12	25400	141.83	7940	1.50	X	RF	107	(E)DRN	100L4	435	337						
14	22800	127.68	8100	1.65	X	RM	107	(E)DRN	100L4	630	337						
15	20700	115.63	8170	1.85	X												
17	18300	102.53	8010	2.1	X												
19	16600	92.70	7790	2.3	X												
22	14000	78.57	7450	2.7	X												
24	13000	72.88	7290	2.9	X												
12	27000	150.78	2790	1.00													
14	22700	126.75	4080	1.15	X												
15	20800	116.48	4640	1.25	X												
17	18500	103.44	5340	1.45	X												
19	16500	92.48	5930	1.60	X												
21	14800	83.15	5950	1.80	X	R	97	(E)DRN	100L4	295	334						
24	12900	72.17	5740	2.0	X	RF	97	(E)DRN	100L4	330	335						
27	11600	65.21	5590	2.3	X	RM	97	(E)DRN	100L4	445	335						
29	10700	59.92	5470	2.5	X												
33	9530	53.21	5290	2.8	X												
37	8520	47.58	5130	3.1	X												
41	7660	42.78	4980	3.5	X												
47	6650	37.13	4790	4.0	X												
53	5950	33.25	4640	4.3	X												

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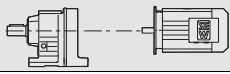

P_m = 5.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
24	13000	72.57	3080	1.05	X				
28	11400	63.68*	3660	1.20	X				
29	10800	60.35*	3860	1.25	X				
33	9460	52.82	4010	1.45	X	R	87	(E)DRN 100L4	200 331
37	8520	47.58	4100	1.60	X	RF	87	(E)DRN 100L4	220 332
42	7480	41.74	4010	1.85	X	RM	87	(E)DRN 100L4	285 332
48	6600	36.84*	3880	2.1	X				
54	5850	32.66*	3760	2.3	X				
63	4990	27.88	3600	2.7	X				
51	6160	34.40*	3810	2.1	X				
56	5620	31.40	3720	2.4	X				
63	4980	27.84*	3600	2.8	X	R	87	(E)DRN 100L4	200 331
75	4190	23.40	3420	3.3	X	RF	87	(E)DRN 100L4	215 332
82	3850	21.51	3340	3.4	X	RM	87	(E)DRN 100L4	280 332
92	3420	19.10	3230	3.7	X				
103	3060	17.08*	3130	4.0	X				
114	2750	15.35	3030	4.3	X				
48	6600	36.83	2370	1.10	X	R	77	(E)DRN 100L4	145 328
53	5990	33.47	2480	1.20	X	RF	77	(E)DRN 100L4	155 329
61	5190	29.00	2410	1.40	X	RM	77	(E)DRN 100L4	210 329
70	4520	25.23	2330	1.55	X				
75	4180	23.37	2290	1.75	X				
82	3830	21.43	2240	1.90	X				
93	3360	18.80	2170	2.0	X				
99	3190	17.82*	2140	2.2	X				
113	2790	15.60	2070	2.3	X	R	77	(E)DRN 100L4	140 328
125	2510	14.05	2010	2.5	X	RF	77	(E)DRN 100L4	155 329
143	2200	12.33	1940	2.8	X	RM	77	(E)DRN 100L4	210 329
162	1940	10.88	1870	3.0	X				
182	1720	9.64	1810	3.2	X				
205	1530	8.59	1760	3.6	X				
227	1380	7.74	1710	3.9	X				
259	1210	6.79	1640	4.2	X				
75	4200	23.44	1800	1.20	X				
88	3560	19.89	1740	1.50	X				
98	3210	17.95	1700	1.60	X				
111	2830	15.79	1650	1.75	X				
118	2670	14.91	1620	1.80	X				
138	2270	12.70	1560	2.0	X	R	67	(E)DRN 100L4	125 325
152	2060	11.54	1520	2.1	X	RF	67	(E)DRN 100L4	135 326
176	1790	10.00	1470	2.3	X	RM	67	(E)DRN 100L4	170 326
202	1550	8.70*	1410	2.5	X				
226	1390	7.79	1370	2.4	X				
239	1310	7.36*	1350	2.5	X				
281	1120	6.27	1290	2.6	X				
309	1020	5.70	1260	2.7	X				
356	880	4.93	1210	2.9	X				
80	3920	21.93	890	1.00	X				
95	3330	18.60*	880	1.20	X				
105	3000	16.79	870	1.30	X				
119	2640	14.77*	850	1.45	X				
126	2490	13.95*	840	1.50	X				
148	2120	11.88	820	1.70	X				
163	1930	10.79	810	1.80	X	R	57	(E)DRN 100L4	115 322
188	1670	9.35	785	1.95	X	RF	57	(E)DRN 100L4	120 323
194	1620	9.06	785	2.0	X	RM	57	(E)DRN 100L4	145 323
221	1420	7.97	765	2.2	X				
234	1340	7.53	755	2.3	X				
274	1140	6.41	725	2.6	X				
302	1040	5.82	710	2.7	X				
348	900	5.05	685	3.0	X				
400	785	4.39	660	3.1	X				

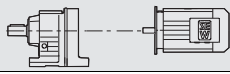

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P_m = 5.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
140	2240	12.54	545	1.00							
149	2110	11.79	590	1.05	X						
173	1810	10.15	605	1.10	X						
194	1620	9.07	595	1.20	X						
219	1430	8.01	585	1.25	X						
227	1380	7.76*	560	1.05	X	R	47	(E)DRN	100L4	100	319
252	1240	6.96	550	1.15	X	RF	47	(E)DRN	100L4	100	320
293	1070	6.00	535	1.30	X						
312	1010	5.64*	530	1.35	X						
362	860	4.85	515	1.55	X						
405	775	4.34	500	1.65	X						
459	685	3.83	485	1.85	X						
438	715	8.01	505	2.5		R	47	DRN	100L2	100	319
452	695	7.76*	490	2.1		RF	47	DRN	100L2	100	320
504	625	6.96	475	2.2							
264	1190	6.67	197	1.05	X						
310	1010	5.67	285	1.25	X						
348	900	5.06	335	1.30	X	R	37	(E)DRN	100L4	94	316
407	770	4.32	390	1.45	X	RF	37	(E)DRN	100L4	97	317
434	725	4.05	410	1.50	X						
516	610	3.41	445	1.60	X						
371	850	9.47	465	1.75							
440	715	7.97	470	1.95							
526	595	6.67	445	2.1							
619	505	5.67	430	2.5		R	37	DRN	100L2	94	316
693	450	5.06	420	2.6		RF	37	DRN	100L2	97	317
812	385	4.32	405	2.9							
867	360	4.05	400	3.0							
1030	305	3.41	380	3.2							
412	765	4.27	148	1.00	X	R	27	(E)DRN	100L4	81	313
440	715	4.00*	172	1.05	X	RF	27	(E)DRN	100L4	81	314
522	600	3.37	225	1.15	X						
532	590	6.59	230	1.60							
626	500	5.60*	265	1.75							
702	445	5.00*	265	1.85		R	27	DRN	100L2	81	313
821	380	4.27	260	2.0		RF	27	DRN	100L2	81	314
877	355	4.00*	255	2.1							
1040	300	3.37	245	2.3							
372	840	4.73	1040	1.30	X						
435	720	4.04*	1000	1.75	X						
475	660	3.70	980	2.0	X	RX	77	(E)DRN	100L4	120	299
541	580	3.25*	940	2.8	X	RXF	77	(E)DRN	100L4	125	300
571	550	3.08*	930	3.1	X						
466	675	3.77	650	1.15	X						
549	570	3.20*	625	1.55	X						
609	515	2.89	610	1.80	X						
692	455	2.54	590	2.3	X						
732	430	2.40*	580	2.5	X	RX	67	(E)DRN	100L4	100	297
860	365	2.04	555	3.2	X	RXF	67	(E)DRN	100L4	110	298
947	330	1.86	540	3.4	X						
1095	285	1.61	520	3.5	X						
1255	250	1.40*	500	3.7	X						
561	560	3.14	480	1.00	X						
666	470	2.64*	460	1.30	X						
742	420	2.37	450	1.45	X						
861	365	2.04	435	1.65	X	RX	57	(E)DRN	100L4	94	295
916	340	1.92*	425	1.75	X	RXF	57	(E)DRN	100L4	98	296
1065	295	1.65	410	2.1	X						
1190	260	1.48	400	2.3	X						
1350	230	1.30	385	2.4	X						

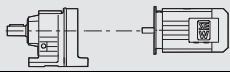

P_m = 5.4 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				m lbs			
2.1	149800	860	27000	1.05	X	R	167R107	(E)DRN	112M4	1830	344/346	
2.3	131900	763	27000	1.20	X		RF	167R107	(E)DRN	112M4	1850	345/346
2.6	118600	690	27000	1.35	X		RM	167R107	(E)DRN	112M4	2280	345/346
3.0	99400	585	27000	1.60	X							
4.0	79600	446	27000	2.0	X	R	167R107	(E)DRN	112M4	1820	344/346	
4.4	71000	399	27000	2.2	X		RF	167R107	(E)DRN	112M4	1830	345/346
4.9	63800	361	27000	2.5	X		RM	167R107	(E)DRN	112M4	2260	345/346
5.4	57700	328	27000	2.8	X							
2.0	152700	861	27000	1.05	X	R	167R97	(E)DRN	112M4	1730	344/346	
2.3	135000	760	27000	1.20	X		RF	167R97	(E)DRN	112M4	1740	345/346
2.7	114000	656	27000	1.40	X		RM	167R97	(E)DRN	112M4	2170	345/346
3.5	87400	503	27000	1.80	X							
4.7	65400	376	27000	2.4	X							
5.3	58200	335	27000	2.7	X							
3.3	93800	533	15000	1.25	X	R	147R87	(E)DRN	112M4	1050	342/346	
3.8	80800	462	15500	1.40	X							
4.2	75600	426	15700	1.50	X							
4.8	65300	368	15900	1.75	X							
5.4	57800	326	16100	2.0	X							
6.3	49000	280	16300	2.3	X							
7.2	43200	247	16400	2.7	X							
8.3	37300	214	16500	3.1	X							
9.4	33000	189	16600	3.5	X							
11	27700	159	16600	4.1	X							
2.9	110800	619	14300	1.05	X							R
3.2	99700	558	14800	1.15	X	RF	147R77	(E)DRN	112M4	1020	343/346	
3.6	87300	489	15300	1.30	X	RM	147R77	(E)DRN	112M4	1390	343/346	
4.3	74000	415	15700	1.55	X							
4.6	68200	381	12100	1.05	X	R	137R77	(E)DRN	112M4	720	340/346	
5.5	57800	323	12600	1.20	X							
6.1	52100	291	12900	1.35	X							
6.9	45500	255	13100	1.55	X							
7.9	39800	223	13300	1.75	X							
9.0	35100	197	13400	2.0	X							
10	31100	175	13500	2.3	X							
4.7	68100	376	12100	1.05	X	R	137R77	(E)DRN	112M4	690	340/346	
5.2	61300	339	12500	1.15	X		RF	137R77	(E)DRN	112M4	740	341/346
6.0	53700	297	12800	1.30	X		RM	137R77	(E)DRN	112M4	990	341/346
5.9	53200	298	9660	1.00	X	R	127R77	(E)DRN	112M4	650	338/346	
7.0	45000	253	9660	1.20	X		RF	127R77	(E)DRN	112M4	670	339/346
6.8	46700	259	9660	1.15	X	R	127R77	(E)DRN	112M4	610	338/346	
8.7	36400	202	9660	1.45	X							
11	29300	162	9660	1.80	X							
14	22600	126	9660	2.3	X							
8.2	38100	214	6600	1.00	X	R	107R77	(E)DRN	112M4	530	336/346	
9.4	33300	187	7200	1.15	X		RF	107R77	(E)DRN	112M4	540	337/346
							RM	107R77	(E)DRN	112M4	730	337/346
9.1	34800	193	7030	1.10	X	R	107R77	(E)DRN	112M4	510	336/346	
10	31200	172	7430	1.20	X		RF	107R77	(E)DRN	112M4	520	337/346
							RM	107R77	(E)DRN	112M4	720	337/346
5.3	64100	222.60*	12300	1.10		R	137	DRN	132M6	690	340	
6.3	54200	188.45	12800	1.30								
6.8	50200	174.40*	12900	1.40								
7.6	45000	156.31	13100	1.55								
8.4	40600	141.12*	13200	1.75								
9.2	36900	128.18	13300	1.90								
10	32700	113.72	13400	2.2								
11	29700	103.20*	13500	2.4								
13	25500	88.70*	13600	2.8								

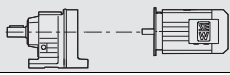

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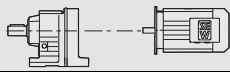

P_m = 5.4 HP								m lbs		
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					
6.7	50500	262.65	9660	1.05	X					
7.4	46200	240.48	9660	1.15	X					
8.3	40800	212.46	9660	1.30	X					
9.8	34600	180.23	9660	1.55	X					
11	31900	165.95	9660	1.65	X					
12	28500	148.33	9660	1.85	X					
13	25600	133.53	9660	2.1	X	R	127	(E)DRN	112M4	560 338
15	23200	120.92	9660	2.3	X	RF	127	(E)DRN	112M4	590 339
16	20600	107.23	9660	2.6	X	RM	127	(E)DRN	112M4	800 339
18	18600	96.95	9660	2.9	X					
21	16300	85.26	9660	3.2	X					
22	15800	82.17	9660	3.4	X					
23	14600	76.21	9660	3.6	X					
26	13100	68.61	9660	4.0	X					
28	11900	62.13	9660	4.4	X					
10	33100	172.34	7230	1.15	X					
11	30500	158.68	7500	1.25	X					
12	27200	141.83	7790	1.40	X					
14	24500	127.68	8010	1.55	X					
15	22200	115.63	8120	1.70	X	R	107	(E)DRN	112M4	440 336
17	19700	102.53	7940	1.95	X	RF	107	(E)DRN	112M4	450 337
19	17800	92.70	7730	2.1	X	RM	107	(E)DRN	112M4	650 337
23	15100	78.57	7390	2.5	X					
24	14000	72.88	7230	2.7	X					
27	12600	65.60*	7020	3.0	X					
30	11400	59.41	6830	3.3	X					
34	10100	52.68	6590	3.8	X					
14	24300	126.75	3580	1.10	X					
15	22400	116.48	4180	1.20	X					
17	19800	103.44	4930	1.35	X					
19	17700	92.48	5560	1.50	X					
21	15900	83.15	5880	1.65	X					
25	13800	72.17	5680	1.90	X	R	97	(E)DRN	112M4	310 334
27	12500	65.21	5530	2.1	X	RF	97	(E)DRN	112M4	350 335
30	11500	59.92	5410	2.3	X	RM	97	(E)DRN	112M4	465 335
33	10200	53.21	5250	2.6	X					
37	9150	47.58	5090	2.9	X					
41	8220	42.78	4940	3.2	X					
48	7140	37.13	4750	3.7	X					
53	6390	33.25	4610	4.0	X					
55	6160	32.05	4560	3.7	X					
65	5220	27.19	4350	4.3	X	R	97	(E)DRN	112M4	305 334
71	4810	25.03	4240	5.2	X	RF	97	(E)DRN	112M4	345 335
79	4300	22.37	4100	5.6	X	RM	97	(E)DRN	112M4	455 335
88	3870	20.14	3980	6.0	X					
28	12200	63.68*	3360	1.10	X					
29	11600	60.35*	3550	1.20	X					
33	10100	52.82	3740	1.35	X	R	87	(E)DRN	112M4	220 331
37	9150	47.58	3860	1.50	X	RF	87	(E)DRN	112M4	240 332
42	8020	41.74	3960	1.70	X	RM	87	(E)DRN	112M4	305 332
48	7080	36.84*	3840	1.95	X					
54	6280	32.66*	3720	2.2	X					
63	5360	27.88	3570	2.5	X					
51	6610	34.40*	3770	2.0	X					
56	6030	31.40	3680	2.3	X					
64	5350	27.84*	3560	2.6	X					
76	4500	23.40	3400	3.0	X					
82	4130	21.51	3320	3.2	X	R	87	(E)DRN	112M4	220 331
93	3670	19.10	3210	3.5	X	RF	87	(E)DRN	112M4	235 332
104	3280	17.08*	3110	3.7	X	RM	87	(E)DRN	112M4	300 332
115	2950	15.35	3010	4.0	X					
133	2560	13.33	2890	4.4	X					
148	2290	11.93	2790	4.7	X					
48	7080	36.83	2270	1.00	X	R	77	(E)DRN	112M4	165 328
53	6430	33.47	2400	1.15	X	RF	77	(E)DRN	112M4	175 329
61	5570	29.00	2370	1.30	X	RM	77	(E)DRN	112M4	230 329
70	4850	25.23	2300	1.40	X					

P_m = 5.4 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
76	4490	23.37	2260	1.60	X						
83	4120	21.43	2210	1.75	X						
94	3610	18.80	2140	1.90	X						
99	3420	17.82*	2120	2.0	X						
113	2990	15.60	2050	2.2	X						
126	2700	14.05	1990	2.4	X						
144	2370	12.33	1920	2.6	X	R	77	(E)DRN	112M4	160	328
163	2090	10.88	1860	2.8	X	RF	77	(E)DRN	112M4	175	329
183	1850	9.64	1800	3.0	X	RM	77	(E)DRN	112M4	230	329
206	1650	8.59	1750	3.4	X						
229	1480	7.74	1700	3.6	X						
260	1300	6.79	1640	3.9	X						
295	1150	5.99*	1580	4.2	X						
333	1020	5.31*	1520	4.4	X						
89	3820	19.89	1710	1.40	X						
99	3450	17.95	1670	1.50	X						
112	3030	15.79	1630	1.65	X						
119	2860	14.91	1600	1.70	X						
139	2440	12.70	1540	1.90	X						
153	2210	11.54	1510	2.0	X						
177	1920	10.00	1450	2.2	X	R	67	(E)DRN	112M4	150	325
203	1670	8.70*	1400	2.3	X	RF	67	(E)DRN	112M4	155	326
227	1490	7.79	1360	2.2	X	RM	67	(E)DRN	112M4	190	326
240	1410	7.36*	1340	2.3	X						
282	1200	6.27	1280	2.4	X						
311	1090	5.70	1250	2.5	X						
359	940	4.93	1200	2.7	X						
412	820	4.29	1150	2.9	X						
95	3570	18.60*	850	1.10	X						
105	3220	16.79	840	1.25	X						
120	2840	14.77*	830	1.35	X						
127	2680	13.95*	830	1.40	X						
149	2280	11.88	810	1.55	X						
164	2070	10.79	795	1.65	X						
189	1790	9.35	775	1.80	X	R	57	(E)DRN	112M4	135	322
195	1740	9.06	770	1.90	X	RF	57	(E)DRN	112M4	140	323
222	1530	7.97	750	2.0	X	RM	57	(E)DRN	112M4	170	323
235	1440	7.53	745	2.1	X						
276	1230	6.41	715	2.4	X						
304	1120	5.82	700	2.5	X						
351	970	5.05	675	2.8	X						
403	840	4.39	655	2.9	X						
446	760	7.97	635	4.1							
472	720	7.53	625	4.3		R	57	DRN	112M2	135	322
554	610	6.41	600	4.8		RF	57	DRN	112M2	140	323
610	555	5.82	585	5.1		RM	57	DRN	112M2	170	323
704	480	5.05	560	5.6							
809	420	4.39	540	5.9							
174	1950	10.15	590	1.05	X						
195	1740	9.07	585	1.10	X						
221	1540	8.01	575	1.20	X						
254	1330	6.96	540	1.05	X						
295	1150	6.00	525	1.20	X	R	47	(E)DRN	112M4	125	319
314	1080	5.64*	520	1.25	X	RF	47	(E)DRN	112M4	125	320
364	930	4.85	505	1.40	X						
408	830	4.34	495	1.55	X						
462	735	3.83	480	1.75	X						
458	740	7.76*	480	1.95							
510	665	6.96	470	2.1							
592	570	6.00	455	2.4		R	47	DRN	112M2	125	319
630	540	5.64*	445	2.5		RF	47	DRN	112M2	125	320
732	460	4.85	430	2.9							
819	415	4.34	420	3.1							
927	365	3.83	405	3.5							

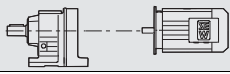

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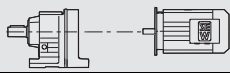

P_m = 5.4 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
438	775	4.04*	990	1.65	X				
478	710	3.70	970	1.90	X				
544	625	3.25*	930	2.6	X				
574	590	3.08*	920	2.9	X				
656	515	2.70	890	3.7	X	RX	77	(E)DRN 112M4	140 299
728	465	2.43	860	4.1	X	RXF	77	(E)DRN 112M4	145 300
830	405	2.13	830	4.3	X				
941	360	1.88*	795	4.6	X				
1060	320	1.67	770	4.8	X				
1245	270	1.42	735	5.0	X				
553	615	3.20*	615	1.45	X				
612	555	2.89	600	1.70	X				
696	485	2.54	580	2.1	X				
737	460	2.40*	575	2.4	X	RX	67	(E)DRN 112M4	120 297
866	390	2.04	550	3.0	X	RXF	67	(E)DRN 112M4	130 298
953	355	1.86	535	3.1	X				
1100	305	1.61	515	3.3	X				
1265	265	1.40*	495	3.4	X				
670	505	2.64*	455	1.20	X				
746	455	2.37	440	1.35	X				
866	390	2.04	425	1.55	X				
921	365	1.92*	420	1.65	X	RX	57	(E)DRN 112M4	115 295
1070	315	1.65	405	1.90	X	RXF	57	(E)DRN 112M4	120 296
1200	280	1.48	395	2.1	X				
1355	250	1.30	380	2.2	X				

P_m = 7.5 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
3.0	140600	585	27000	1.15	X	R	167R107	(E)DRN 132S4	1860 344/346
3.5	121800	511	27000	1.30	X	RF	167R107	(E)DRN 132S4	1870 345/346
						RM	167R107	(E)DRN 132S4	2300 345/346
5.1	81400	349	27000	1.95	X	R	167R107	(E)DRN 132S4	1860 344/346
6.5	64500	270	27000	2.5	X	RF	167R107	(E)DRN 132S4	1870 345/346
7.7	54100	229	27000	2.9	X	RM	167R107	(E)DRN 132S4	2300 345/346
4.0	111400	446	27000	1.45	X				
4.4	99500	399	27000	1.60	X				
4.9	89600	361	27000	1.80	X	R	167R107	(E)DRN 132S4	1840 344/346
5.4	81100	328	27000	1.95	X	RF	167R107	(E)DRN 132S4	1860 345/346
6.1	71600	291	27000	2.2	X	RM	167R107	(E)DRN 132S4	2290 345/346
6.7	64700	264	27000	2.5	X				
7.8	55200	227	27000	2.9	X				
2.7	160300	656	27000	1.00	X				
3.0	139800	579	27000	1.15	X				
3.5	122900	503	27000	1.30	X				
4.1	104300	432	27000	1.55	X	R	167R97	(E)DRN 132S4	1750 344/346
4.7	92000	376	27000	1.75	X	RF	167R97	(E)DRN 132S4	1770 345/346
5.3	81800	335	27000	1.95	X	RM	167R97	(E)DRN 132S4	2200 345/346
5.8	73000	303	27000	2.2	X				
6.3	67300	279	27000	2.4	X				
3.8	113400	462	14200	1.00	X				
4.2	105700	426	14500	1.10	X				
4.8	91300	368	15100	1.25	X				
5.4	80700	326	15500	1.40	X	R	147R87	(E)DRN 132S4	1080 342/346
6.3	68800	280	15900	1.65	X	RF	147R87	(E)DRN 132S4	1100 343/346
7.2	60700	247	16100	1.90	X	RM	147R87	(E)DRN 132S4	1460 343/346
8.3	52400	214	16200	2.2	X				
9.4	46400	189	16400	2.5	X				
11	38900	159	16500	3.0	X				
4.3	103300	415	14600	1.10	X	R	147R77	(E)DRN 132S4	1030 342/346
						RF	147R77	(E)DRN 132S4	1050 343/346
						RM	147R77	(E)DRN 132S4	1420 343/346

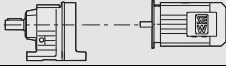

P_m = 7.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®		m lbs				
6.9	63500	255	12400	1.10	X	R	137R77	(E)DRN	132S4	740	340/346
7.9	55600	223	12700	1.25	X	RF	137R77	(E)DRN	132S4	790	341/346
9.0	49000	197	13000	1.45	X	RM	137R77	(E)DRN	132S4	1040	341/346
10	43400	175	13100	1.65	X						
8.7	50900	202	9660	1.05	X	R	127R77	(E)DRN	132S4	640	338/346
11	40900	162	9660	1.30	X	RF	127R77	(E)DRN	132S4	690	339/346
14	31600	126	9660	1.70	X	RM	127R77	(E)DRN	132S4	900	339/346
7.3	65100	163.31	15900	1.75							
8.1	58500	146.91	16100	1.95							
9.9	47700	119.86	16300	2.4		R	147	DRN	160M6	1060	342
11	43500	109.31	16400	2.6		RF	147	DRN	160M6	1080	343
13	37700	94.60*	16500	3.0		RM	147	DRN	160M6	1450	343
14	33200	83.47	16600	3.5							
6.8	69500	174.40*	12100	1.00							
7.6	62300	156.31	12400	1.15		R	137	DRN	160M6	780	340
8.4	56200	141.12*	12700	1.25		RF	137	DRN	160M6	830	341
9.2	51100	128.18	12900	1.40		RM	137	DRN	160M6	1070	341
10	45300	113.72	13100	1.55							
11	41100	103.20*	13200	1.70							
7.9	59400	222.60*	12600	1.20	X						
9.4	50300	188.45	12900	1.40	X						
10	46600	174.40*	13000	1.50	X						
11	41700	156.31	13200	1.70	X						
13	37700	141.12*	13300	1.90	X						
14	34200	128.18	13400	2.1	X						
16	30300	113.72	13500	2.3	X	R	137	(E)DRN	132S4	650	340
17	27500	103.20*	13500	2.6	X	RF	137	(E)DRN	132S4	710	341
20	23700	88.70*	13600	3.0	X	RM	137	(E)DRN	132S4	950	341
22	21600	80.91*	13600	3.3	X						
24	19600	73.49	13700	3.6	X						
27	17400	65.20	13700	4.1	X						
30	15800	59.17*	13700	4.5	X						
35	13500	50.86*	13700	5.2	X						
9.8	48100	180.23	9660	1.10	X						
11	44300	165.95	9660	1.20	X						
12	39600	148.33	9660	1.35	X						
13	35600	133.53	9660	1.50	X						
15	32300	120.92	9660	1.65	X						
16	28600	107.23	9660	1.85	X						
18	25900	96.95	9660	2.0	X	R	127	(E)DRN	132S4	590	338
21	22700	85.26	9660	2.3	X	RF	127	(E)DRN	132S4	610	339
22	21900	82.17	9660	2.4	X	RM	127	(E)DRN	132S4	820	339
23	20300	76.21	9660	2.6	X						
26	18300	68.61	9660	2.9	X						
28	16600	62.13	9660	3.2	X						
32	14700	55.09	9660	3.6	X						
35	13300	49.81	9660	4.0	X						
42	11200	42.22	9660	4.7	X						
12	37900	141.83	6640	1.00	X						
14	34100	127.68	7110	1.10	X						
15	30900	115.63	7460	1.25	X						
17	27400	102.53	7610	1.40	X						
19	24700	92.70	7430	1.55	X						
22	21000	78.57	7140	1.80	X	R	107	(E)DRN	132S4	465	336
24	19400	72.88	7000	1.95	X	RF	107	(E)DRN	132S4	475	337
27	17500	65.60*	6820	2.2	X	RM	107	(E)DRN	132S4	670	337
30	15800	59.41	6640	2.4	X						
34	14000	52.68	6430	2.7	X						
37	12700	47.63	6250	3.0	X						
44	10700	40.37*	5970	3.5	X						

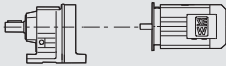

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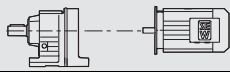

P_m = 7.5 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
19	24700	92.48	3480	1.05	X				
21	22200	83.15	4230	1.20	X				
24	19200	72.17	5110	1.40	X				
27	17400	65.21	5280	1.50	X				
30	16000	59.92	5190	1.65	X	R	97	(E)DRN 132S4	335 334
33	14200	53.21	5040	1.85	X	RF	97	(E)DRN 132S4	375 335
37	12700	47.58	4910	2.1	X	RM	97	(E)DRN 132S4	490 335
41	11400	42.78	4780	2.3	X				
48	9920	37.13	4610	2.7	X				
53	8880	33.25	4480	2.9	X				
64	7370	27.58	4260	3.2	X				
55	8560	32.05	4440	2.6	X				
65	7260	27.19	4240	3.1	X				
71	6690	25.03	4150	3.7	X	R	97	(E)DRN 132S4	330 334
79	5980	22.37	4020	4.0	X	RF	97	(E)DRN 132S4	370 335
88	5380	20.14	3900	4.3	X	RM	97	(E)DRN 132S4	480 335
97	4870	18.24	3790	4.5	X				
109	4320	16.17	3660	4.9	X				
37	12700	47.58	3880	1.10	X	R	87	(E)DRN 132S4	245 331
42	11100	41.74	3770	1.25	X	RF	87	(E)DRN 132S4	265 332
48	9840	36.84*	3670	1.40	X	RM	87	(E)DRN 132S4	330 332
54	8720	32.66*	3570	1.55	X				
63	7450	27.88	3440	1.80	X				
64	7440	27.84*	3440	1.85	X				
76	6250	23.40	3290	2.2	X				
82	5740	21.51	3220	2.3	X				
93	5100	19.10	3120	2.5	X				
104	4560	17.08*	3030	2.7	X	R	87	(E)DRN 132S4	245 331
115	4100	15.35	2940	2.9	X	RF	87	(E)DRN 132S4	260 332
133	3560	13.33	2830	3.2	X	RM	87	(E)DRN 132S4	325 332
148	3180	11.93	2740	3.4	X				
179	2640	9.90*	2600	4.0	X				
193	2440	9.14*	2560	4.4	X				
215	2190	8.22	2480	4.7	X				
248	1900	7.13	2380	5.0	X				
70	6740	25.23	1950	1.00	X	R	77	(E)DRN 132S4	190 328
						RF	77	(E)DRN 132S4	200 329
						RM	77	(E)DRN 132S4	255 329
94	5020	18.80	2040	1.35	X				
99	4760	17.82*	2020	1.45	X				
113	4160	15.60	1960	1.55	X				
126	3750	14.05	1910	1.70	X				
143	3290	12.33	1850	1.85	X	R	77	(E)DRN 132S4	185 328
163	2900	10.88	1800	2.0	X	RF	77	(E)DRN 132S4	200 329
183	2570	9.64	1740	2.2	X	RM	77	(E)DRN 132S4	255 329
206	2290	8.59	1710	2.4	X				
228	2060	7.74	1660	2.6	X				
260	1810	6.79	1600	2.8	X				
295	1600	5.99*	1550	3.0	X				
333	1410	5.31*	1490	3.2	X				
112	4220	15.79	1530	1.15	X				
119	3980	14.91	1510	1.20	X				
139	3390	12.70	1460	1.35	X				
153	3080	11.54	1440	1.45	X				
177	2670	10.00	1390	1.55	X	R	67	(E)DRN 132S4	175 325
203	2320	8.70*	1350	1.65	X	RF	67	(E)DRN 132S4	180 326
227	2080	7.79	1320	1.60	X	RM	67	(E)DRN 132S4	215 326
240	1960	7.36*	1300	1.65	X				
282	1670	6.27	1250	1.75	X				
310	1520	5.70	1210	1.80	X				
358	1310	4.93	1170	1.95	X				
412	1140	4.29	1120	2.1	X				

P_m = 7.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
127	3720	13.95*	675	1.00	X						
149	3170	11.88	725	1.15	X						
164	2880	10.79	720	1.20	X						
189	2490	9.35	710	1.30	X						
222	2130	7.97	700	1.45	X	R	57	(E)DRN	132S4	160	322
235	2010	7.53	695	1.55	X	RF	57	(E)DRN	132S4	165	323
276	1710	6.41	675	1.75	X	RM	57	(E)DRN	132S4	195	323
304	1550	5.82	660	1.80	X						
350	1340	5.05	645	2.0	X						
403	1170	4.39	625	2.1	X						
240	1960	14.77*	685	1.95							
254	1860	13.95*	680	2.0							
298	1580	11.88	660	2.3							
328	1430	10.79	650	2.4							
379	1240	9.35	630	2.6		R	57	DRN	132S2	160	322
445	1060	7.97	610	3.0		RF	57	DRN	132S2	165	323
471	1000	7.53	600	3.1		RM	57	DRN	132S2	195	323
553	850	6.41	580	3.5							
608	775	5.82	565	3.6							
702	670	5.05	545	4.0							
807	585	4.39	525	4.2							
364	1290	4.85	465	1.00	X	R	47	(E)DRN	132S4	150	319
408	1150	4.34	460	1.10	X	RF	47	(E)DRN	132S4	150	320
461	1020	3.83	450	1.25	X						
283	1670	12.54	495	1.30							
300	1570	11.79	500	1.40							
349	1350	10.15	490	1.50							
391	1200	9.07	480	1.60							
442	1060	8.01	470	1.70		R	47	DRN	132S2	150	319
591	795	6.00	430	1.75		RF	47	DRN	132S2	150	320
628	750	5.64*	425	1.80							
730	645	4.85	410	2.0							
817	575	4.34	400	2.2							
925	510	3.83	390	2.5							
267	1770	6.63*	2210	2.3	X						
315	1490	5.61	2110	2.7	X	RX	107	(E)DRN	132S4	325	305
341	1380	5.19	2060	4.4	X	RXF	107	(E)DRN	132S4	365	306
380	1240	4.65	2000	5.0	X						
305	1540	5.79	1770	2.4	X						
360	1310	4.91	1690	2.7	X						
391	1200	4.52	1650	4.3	X						
437	1080	4.04	1600	4.9	X						
486	970	3.64*	1550	5.4	X						
536	880	3.30	1510	6.0	X	RX	97	(E)DRN	132S4	255	303
605	780	2.92	1450	6.7	X	RXF	97	(E)DRN	132S4	275	304
669	705	2.64	1410	7.5	X						
789	595	2.24*	1340	8.8	X						
904	520	1.96	1290	9.6	X						
1080	435	1.64	1220	10	X						
1250	375	1.42	1160	11	X						
393	1200	4.50*	1280	2.1	X						
467	1010	3.78	1220	2.7	X						
509	920	3.48	1200	3.9	X						
573	820	3.09	1160	4.3	X	RX	87	(E)DRN	132S4	205	301
641	735	2.76*	1120	4.9	X	RXF	87	(E)DRN	132S4	215	302
712	660	2.48	1090	5.4	X						
821	575	2.15	1040	5.9	X						
544	860	3.25*	900	1.85	X						
574	820	3.08*	890	2.1	X						
656	720	2.70	860	2.6	X						
728	645	2.43	830	2.9	X						
830	565	2.13	800	3.1	X	RX	77	(E)DRN	132S4	165	299
940	500	1.88*	775	3.3	X	RXF	77	(E)DRN	132S4	170	300
1060	445	1.67	750	3.4	X						
1240	380	1.42	715	3.6	X						

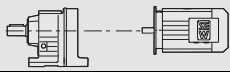

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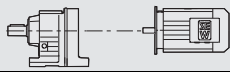

P_m = 7.5 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
696	675	2.54	550	1.55	X	RX RXF	67 67	(E)DRN (E)DRN	132S4 132S4	145 155	297 298
737	640	2.40*	545	1.70	X						
865	545	2.04	520	2.2	X						
952	495	1.86	510	2.2	X						
1100	425	1.61	490	2.4	X						
1265	370	1.40*	475	2.5	X						
866	545	2.04	250	1.10	X	RX RXF	57 57	(E)DRN (E)DRN	132S4 132S4	140 145	295 296
921	510	1.92*	265	1.20	X						
1070	440	1.65	295	1.40	X						
1200	390	1.48	305	1.50	X						
1355	345	1.30	325	1.60	X						

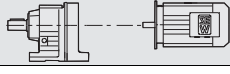

P_m = 10.0 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
5.1	110200	349	27000	1.45	X	R RF RM	167R107 167R107 167R107	(E)DRN (E)DRN (E)DRN	132M4 132M4 132M4	1900 1910 2340	344/346 345/346 345/346
6.6	86800	270	27000	1.85	X						
7.7	73100	229	27000	2.2	X						
8.8	63400	200	27000	2.5	X						
4.0	148700	446	27000	1.05	X	R RF RM	167R107 167R107 167R107	(E)DRN (E)DRN (E)DRN	132M4 132M4 132M4	1880 1900 2330	344/346 345/346 345/346
4.4	133000	399	27000	1.20	X						
4.9	119800	361	27000	1.35	X						
5.4	108500	328	27000	1.45	X						
6.1	95900	291	27000	1.65	X						
6.7	86700	264	27000	1.85	X						
7.8	74100	227	27000	2.1	X						
9.0	64300	198	27000	2.5	X						
11	54100	168	27000	2.9	X						
4.1	140100	432	27000	1.15	X						
4.7	123100	376	27000	1.30	X						
5.3	109600	335	27000	1.45	X						
5.9	98100	303	27000	1.60	X						
6.4	90400	279	27000	1.75	X	R RF RM	147R87 147R87 147R87	(E)DRN (E)DRN (E)DRN	132M4 132M4 132M4	1120 1130 1500	342/346 343/346 343/346
5.4	107700	326	14400	1.05	X						
6.3	92000	280	15100	1.25	X						
7.2	81200	247	15500	1.40	X						
8.3	70100	214	15800	1.65	X						
9.4	62000	189	16000	1.85	X						
11	52100	159	16200	2.2	X	R RF RM	137R77 137R77 137R77	(E)DRN (E)DRN (E)DRN	132M4 132M4 132M4	780 830 1080	340/346 341/346 341/346
9.0	65300	197	12300	1.10	X						
10	57900	175	12600	1.20	X	R RF RM	127R77 127R77 127R77	(E)DRN (E)DRN (E)DRN	132M4 132M4 132M4	680 720 940	338/346 339/346 339/346
14	42100	126	9660	1.25	X						
5.2	122400	229.71	27000	1.30	X						
6.3	99600	186.93*	27000	1.60	X						
7.7	81500	153.07	27000	1.95	X						
8.4	74600	139.98	27000	2.1	X						
9.7	64900	121.81*	27000	2.5	X						
11	57200	107.49	27000	2.8	X						
13	49600	93.19	27000	3.2	X						
14	44100	82.91*	27000	3.6	X						
16	39200	73.70*	27000	4.0	X						
18	35900	67.40	27000	4.4	X	R RF RM	147 147 147	DRN DRN DRN	160M6 160M6 160M6	1060 1080 1450	342 343 343
7.2	87000	163.31	15300	1.30	X						
8.1	78300	146.91	15600	1.45	X						
9.9	63800	119.86	16000	1.80	X						
11	58200	109.31	16100	1.95	X						
12	50400	94.60*	16300	2.3	X						
14	44400	83.47	16400	2.6	X						

P_m = 10.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
9.4	66900	188.45	12200	1.05	X				
10	61900	174.40*	12400	1.15	X				
11	55500	156.31	12700	1.30	X				
13	50100	141.12*	12900	1.40	X				
14	45500	128.18	13100	1.55	X				
16	40300	113.72	13200	1.75	X	R	137	(E)DRN 132M4	690 340
17	36600	103.20*	13300	1.95	X	RF	137	(E)DRN 132M4	740 341
20	31500	88.70*	13500	2.2	X	RM	137	(E)DRN 132M4	990 341
22	28700	80.91*	13500	2.5	X				
24	26100	73.49	13600	2.7	X				
27	23100	65.20	13600	3.1	X				
30	21000	59.17*	13600	3.4	X				
35	18000	50.86*	13700	3.9	X				
12	52600	148.33	9660	1.00	X				
13	47400	133.53	9660	1.10	X				
15	42900	120.92	9660	1.25	X				
17	38000	107.23	9660	1.40	X				
18	34400	96.95	9660	1.55	X				
21	30200	85.26	9660	1.75	X				
22	29100	82.17	9660	1.80	X	R	127	(E)DRN 132M4	630 338
23	27000	76.21	9660	1.95	X	RF	127	(E)DRN 132M4	650 339
26	24300	68.61	9660	2.2	X	RM	127	(E)DRN 132M4	860 339
29	22000	62.13	9660	2.4	X				
32	19500	55.09	9660	2.7	X				
36	17600	49.81	9660	3.0	X				
42	14900	42.22	9660	3.5	X				
48	13000	36.88	9660	3.9	X				
58	10900	30.84	9660	4.3	X				
55	11400	32.18	9660	4.6	X	R	127	(E)DRN 132M4	590 338
						RF	127	(E)DRN 132M4	640 339
						RM	127	(E)DRN 132M4	850 339
17	36400	102.53	6840	1.05	X				
19	32900	92.70	7080	1.15	X				
23	27900	78.57	6840	1.35	X				
24	25800	72.88	6720	1.45	X				
27	23200	65.60*	6560	1.65	X	R	107	(E)DRN 132M4	500 336
30	21000	59.41	6410	1.80	X	RF	107	(E)DRN 132M4	520 337
34	18700	52.68	6230	2.0	X	RM	107	(E)DRN 132M4	710 337
37	16900	47.63	6070	2.2	X				
44	14300	40.37*	5810	2.6	X				
50	12500	35.26	5610	3.0	X				
60	10400	29.49	5340	3.6	X				
58	10900	30.77	5400	3.5	X	R	107	(E)DRN 132M4	490 336
64	9790	27.58	5240	3.9	X	RF	107	(E)DRN 132M4	500 337
71	8840	24.90*	5090	4.3	X	RM	107	(E)DRN 132M4	700 337
78	8030	22.62	4950	4.7	X				
25	25600	72.17	3210	1.05	X				
27	23100	65.21	4980	1.15	X				
30	21200	59.92	4910	1.25	X				
33	18800	53.21	4800	1.40	X	R	97	(E)DRN 132M4	375 334
37	16800	47.58	4690	1.55	X	RF	97	(E)DRN 132M4	415 335
41	15100	42.78	4580	1.75	X	RM	97	(E)DRN 132M4	530 335
48	13100	37.13	4440	2.0	X				
53	11800	33.25	4320	2.2	X				
64	9790	27.58	4130	2.4	X				
55	11300	32.05	4290	2.0	X				
65	9650	27.19	4110	2.4	X				
71	8890	25.03	4030	2.8	X	R	97	(E)DRN 132M4	370 334
79	7940	22.37	3910	3.0	X	RF	97	(E)DRN 132M4	410 335
88	7150	20.14	3800	3.2	X	RM	97	(E)DRN 132M4	520 335
97	6470	18.24	3700	3.4	X				
48	13000	36.84*	3470	1.05	X	R	87	(E)DRN 132M4	285 331
54	11500	32.66*	3390	1.20	X	RF	87	(E)DRN 132M4	300 332
64	9900	27.88	3280	1.35	X	RM	87	(E)DRN 132M4	365 332

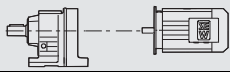

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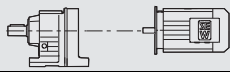

P_m = 10.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs			
64	9880	27.84*	3280	1.40	X						
76	8310	23.40	3160	1.65	X						
82	7630	21.51	3100	1.75	X						
93	6780	19.10	3010	1.90	X						
104	6060	17.08*	2930	2.0	X						
116	5450	15.35	2860	2.2	X						
133	4730	13.33	2750	2.4	X	R	87	(E)DRN	132M4	285	331
149	4230	11.93	2670	2.6	X	RF	87	(E)DRN	132M4	300	332
179	3510	9.90*	2540	3.0	X	RM	87	(E)DRN	132M4	365	332
194	3240	9.14*	2520	3.3	X						
216	2910	8.22	2440	3.5	X						
249	2530	7.13	2340	3.7	X						
278	2260	6.39	2270	4.0	X						
335	1880	5.30*	2140	4.3	X						
94	6670	18.80	1540	1.05	X						
100	6320	17.82*	1600	1.10	X						
114	5530	15.60	1740	1.20	X						
126	4990	14.05	1820	1.30	X						
144	4370	12.33	1770	1.40	X						
163	3860	10.88	1720	1.50	X	R	77	(E)DRN	132M4	225	328
184	3420	9.64	1680	1.65	X	RF	77	(E)DRN	132M4	240	329
206	3050	8.59	1660	1.85	X	RM	77	(E)DRN	132M4	295	329
229	2740	7.74	1620	1.95	X						
261	2410	6.79	1560	2.1	X						
296	2120	5.99*	1510	2.2	X						
334	1880	5.31*	1460	2.4	X						
140	4510	12.70	1250	1.00	X						
154	4090	11.54	1350	1.10	X						
177	3550	10.00	1320	1.15	X						
204	3080	8.70*	1280	1.25	X						
228	2760	7.79	1260	1.20	X	R	67	(E)DRN	132M4	215	325
241	2610	7.36*	1240	1.25	X	RF	67	(E)DRN	132M4	220	326
283	2220	6.27	1200	1.30	X	RM	67	(E)DRN	132M4	255	326
311	2020	5.70	1170	1.35	X						
360	1750	4.93	1130	1.45	X						
413	1520	4.29	1090	1.55	X						
223	2830	7.97	460	1.10	X						
236	2670	7.53	510	1.15	X	R	57	(E)DRN	132M4	200	322
277	2270	6.41	625	1.30	X	RF	57	(E)DRN	132M4	205	323
305	2060	5.82	615	1.35	X	RM	57	(E)DRN	132M4	235	323
352	1790	5.05	605	1.50	X						
404	1550	4.39	590	1.60	X						
240	2620	14.77*	625	1.45							
254	2470	13.95*	625	1.55							
298	2110	11.88	610	1.70							
328	1910	10.79	605	1.80							
379	1660	9.35	590	1.95		R	57	DRN	132S2	160	322
445	1410	7.97	580	2.2		RF	57	DRN	132S2	165	323
471	1330	7.53	575	2.3		RM	57	DRN	132S2	195	323
553	1130	6.41	555	2.6							
609	1030	5.82	545	2.7							
703	890	5.05	525	3.0							
807	780	4.39	510	3.2							
268	2350	6.63*	2150	1.75	X						
316	1990	5.61	2060	2.0	X						
342	1840	5.19	2010	3.3	X	RX	107	(E)DRN	132M4	370	305
381	1650	4.65	1950	3.7	X	RXF	107	(E)DRN	132M4	405	306
422	1490	4.20*	1900	4.9	X						
306	2050	5.79	1720	1.80	X						
361	1740	4.91	1650	2.0	X						
392	1600	4.52	1610	3.3	X						
439	1430	4.04	1560	3.7	X	RX	97	(E)DRN	132M4	295	303
487	1290	3.64*	1520	4.1	X	RXF	97	(E)DRN	132M4	315	304
538	1170	3.30	1480	4.5	X						
607	1030	2.92	1430	5.1	X						

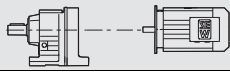

P_m = 10.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
394	1590	4.50*	1230	1.60	X				
469	1340	3.78	1180	2.0	X				
510	1230	3.48	1160	2.9	X				
575	1090	3.09	1120	3.3	X				
643	980	2.76*	1090	3.7	X	RX	87	(E)DRN 132M4	240 301
715	880	2.48	1060	4.1	X	RXF	87	(E)DRN 132M4	255 302
824	760	2.15	1020	4.5	X				
920	680	1.93	980	4.6	X				
1110	565	1.60*	930	4.9	X				
1275	490	1.39	900	5.2	X				
546	1150	3.25*	860	1.40	X				
576	1090	3.08*	850	1.55	X				
658	950	2.70	820	2.0	X				
730	860	2.43	800	2.2	X	RX	77	(E)DRN 132M4	205 299
833	755	2.13	775	2.3	X	RXF	77	(E)DRN 132M4	210 300
944	665	1.88*	750	2.5	X				
1065	590	1.67	725	2.6	X				
1245	505	1.42	695	2.7	X				
698	900	2.54	490	1.15	X				
739	850	2.40*	505	1.30	X				
868	725	2.04	490	1.65	X	RX	67	(E)DRN 132M4	185 297
955	655	1.86	480	1.70	X	RXF	67	(E)DRN 132M4	195 298
1105	570	1.61	465	1.75	X				
1265	495	1.40*	450	1.85	X				
1075	585	1.65	52	1.05	X	RX	57	(E)DRN 132M4	180 295
1200	520	1.48	78	1.15	X	RXF	57	(E)DRN 132M4	185 296
1360	460	1.30	120	1.20	X				

P_m = 12.3 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
5.1	136900	349	27000	1.15	X				
6.0	114600	295	27000	1.40	X				
6.6	107600	270	27000	1.50	X	R	167R107	(E)DRN 132L4	1920 344/346
7.7	90600	229	27000	1.75	X	RF	167R107	(E)DRN 132L4	1930 345/346
8.9	78700	200	27000	2.0	X	RM	167R107	(E)DRN 132L4	2360 345/346
10	65900	169	27000	2.4	X				
4.9	147700	361	27000	1.10	X				
5.4	133900	328	27000	1.20	X				
6.1	118400	291	27000	1.35	X	R	167R107	(E)DRN 132L4	1900 344/346
6.7	107200	264	27000	1.50	X	RF	167R107	(E)DRN 132L4	1920 345/346
7.8	91700	227	27000	1.75	X	RM	167R107	(E)DRN 132L4	2350 345/346
9.0	79600	198	27000	2.0	X				
11	67100	168	27000	2.4	X				
4.7	152000	376	27000	1.05	X				
5.3	135200	335	27000	1.20	X	R	167R97	(E)DRN 132L4	1810 344/346
5.9	121300	303	27000	1.30	X	RF	167R97	(E)DRN 132L4	1830 345/346
6.4	111700	279	27000	1.40	X	RM	167R97	(E)DRN 132L4	2260 345/346
6.3	113500	280	14200	1.00	X				
7.2	100100	247	14800	1.15	X	R	147R87	(E)DRN 132L4	1130 342/346
8.3	86500	214	15300	1.35	X	RF	147R87	(E)DRN 132L4	1150 343/346
9.4	76500	189	15600	1.50	X	RM	147R87	(E)DRN 132L4	1520 343/346
11	64300	159	16000	1.80	X				
14	51900	126	9660	1.00	X	R	127R77	(E)DRN 132L4	700 338/346
						RF	127R77	(E)DRN 132L4	740 339/346
						RM	127R77	(E)DRN 132L4	950 339/346
7.7	100200	229.71	27000	1.60	X				
9.5	81600	186.93*	27000	1.95	X	R	167	(E)DRN 132L4	1540 344
12	66800	153.07	27000	2.4	X	RF	167	(E)DRN 132L4	1550 345
13	61100	139.98	27000	2.6	X	RM	167	(E)DRN 132L4	1980 345
15	53100	121.81*	27000	3.0	X				

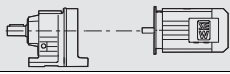

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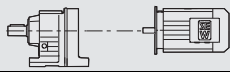

P_m = 12.3 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
11	71300	163.31	15800	1.60	X						
12	64100	146.91	16000	1.80	X						
15	52300	119.86	16200	2.2	X	R	147	(E)DRN	132L4	990	342
16	47700	109.31	16300	2.4	X	RF	147	(E)DRN	132L4	1010	343
19	41300	94.60*	16400	2.8	X	RM	147	(E)DRN	132L4	1380	343
21	36400	83.47	16500	3.2	X						
25	31400	72.09	16600	3.6	X						
26	29200	66.99	16600	3.9	X						
11	68200	156.31	12100	1.05	X						
13	61600	141.12*	12500	1.15	X						
14	55900	128.18	12700	1.25	X						
16	49600	113.72	12900	1.45	X						
17	45000	103.20*	13100	1.55	X	R	137	(E)DRN	132L4	710	340
20	38700	88.70*	13300	1.85	X	RF	137	(E)DRN	132L4	760	341
22	35300	80.91*	13400	2.0	X	RM	137	(E)DRN	132L4	1000	341
24	32000	73.49	13400	2.2	X						
27	28400	65.20	13500	2.5	X						
30	25800	59.17*	13600	2.7	X						
35	22200	50.86*	13600	3.2	X						
40	19300	44.39	13700	3.6	X						
15	52700	120.92	9660	1.00	X						
17	46800	107.23	9660	1.15	X						
18	42300	96.95	9660	1.25	X						
21	37200	85.26	9660	1.45	X						
22	35800	82.17	9660	1.50	X						
23	33200	76.21	9660	1.60	X	R	127	(E)DRN	132L4	650	338
26	29900	68.61	9660	1.75	X	RF	127	(E)DRN	132L4	670	339
29	27100	62.13	9660	1.95	X	RM	127	(E)DRN	132L4	880	339
32	24000	55.09	9660	2.2	X						
36	21700	49.81	9660	2.4	X						
42	18400	42.22	9660	2.9	X						
48	16100	36.88	9660	3.1	X						
58	13400	30.84	9660	3.5	X						
55	14000	32.18	9660	3.8	X	R	127	(E)DRN	132L4	610	338
62	12500	28.84	9660	4.2	X	RF	127	(E)DRN	132L4	660	339
68	11300	26.04	9660	4.7	X	RM	127	(E)DRN	132L4	870	339
23	34300	78.57	6570	1.10	X						
24	31800	72.88	6470	1.20	X						
27	28600	65.60*	6340	1.35	X						
30	25900	59.41	6210	1.45	X	R	107	(E)DRN	132L4	520	336
34	23000	52.68	6040	1.65	X	RF	107	(E)DRN	132L4	540	337
37	20700	47.63	5900	1.85	X	RM	107	(E)DRN	132L4	730	337
44	17600	40.37*	5680	2.2	X						
50	15300	35.26	5490	2.5	X						
60	12800	29.49	5240	3.0	X						
58	13400	30.77	5300	2.8	X						
64	12000	27.58	5140	3.2	X	R	107	(E)DRN	132L4	510	336
71	10800	24.90*	5000	3.5	X	RF	107	(E)DRN	132L4	520	337
78	9870	22.62	4870	3.9	X	RM	107	(E)DRN	132L4	720	337
88	8760	20.07	4710	4.3	X						
30	26100	59.92	4660	1.00	X						
33	23200	53.21	4580	1.15	X						
37	20700	47.58	4490	1.30	X	R	97	(E)DRN	132L4	395	334
41	18600	42.78	4400	1.40	X	RF	97	(E)DRN	132L4	435	335
48	16200	37.13	4280	1.65	X	RM	97	(E)DRN	132L4	550	335
53	14500	33.25	4180	1.75	X						
64	12000	27.58	4010	1.95	X						
71	10900	25.03	3920	2.3	X						
79	9760	22.37	3820	2.5	X						
88	8790	20.14	3720	2.6	X	R	97	(E)DRN	132L4	390	334
97	7960	18.24	3630	2.8	X	RF	97	(E)DRN	132L4	425	335
110	7060	16.17	3510	3.0	X	RM	97	(E)DRN	132L4	540	335
121	6380	14.62	3420	3.2	X						
143	5410	12.39	3270	3.6	X						

P_m = 12.3 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
64	12100	27.88	3140	1.10	X				
83	9390	21.51	2990	1.40	X				
93	8330	19.10	2920	1.55	X				
104	7450	17.08*	2850	1.65	X				
116	6700	15.35	2780	1.75	X				
133	5810	13.33	2690	1.95	X	R	87	(E)DRN 132L4	300 331
149	5200	11.93	2610	2.1	X	RF	87	(E)DRN 132L4	315 332
179	4320	9.90*	2490	2.4	X	RM	87	(E)DRN 132L4	385 332
194	3990	9.14*	2480	2.7	X				
216	3580	8.22	2410	2.9	X				
249	3110	7.13	2310	3.0	X				
278	2780	6.39	2240	3.2	X				
126	6130	14.05	1370	1.05	X				
144	5380	12.33	1500	1.15	X				
163	4740	10.88	1600	1.25	X	R	77	(E)DRN 132L4	245 328
184	4210	9.64	1620	1.30	X	RF	77	(E)DRN 132L4	255 329
229	3370	7.74	1560	1.60	X	RM	77	(E)DRN 132L4	310 329
261	2960	6.79	1520	1.75	X				
296	2610	5.99*	1480	1.85	X				
334	2310	5.31*	1430	1.95	X				
342	2260	5.19	1970	2.7	X				
382	2030	4.65	1920	3.0	X	RX	107	(E)DRN 132L4	385 305
423	1830	4.20*	1860	4.0	X	RXF	107	(E)DRN 132L4	425 306
465	1660	3.81	1810	4.4	X				
524	1470	3.38	1750	5.0	X				
392	1970	4.52	1570	2.7	X				
439	1760	4.04	1530	3.0	X				
488	1580	3.64*	1490	3.3	X				
538	1430	3.30	1450	3.7	X				
607	1270	2.92	1400	4.1	X	RX	97	(E)DRN 132L4	315 303
672	1150	2.64	1360	4.6	X	RXF	97	(E)DRN 132L4	330 304
792	970	2.24*	1300	5.4	X				
907	850	1.96	1250	5.9	X				
1085	710	1.64	1180	6.2	X				
1255	615	1.42	1130	6.5	X				
511	1510	3.48	1120	2.4	X				
575	1340	3.09	1090	2.7	X				
643	1200	2.76*	1060	3.0	X				
715	1080	2.48	1030	3.3	X	RX	87	(E)DRN 132L4	260 301
824	940	2.15	990	3.6	X	RXF	87	(E)DRN 132L4	270 302
920	840	1.93	960	3.7	X				
1110	695	1.60*	910	4.0	X				
1275	605	1.39	880	4.2	X				
731	1060	2.43	770	1.80	X				
833	930	2.13	750	1.90	X	RX	77	(E)DRN 132L4	225 299
944	820	1.88*	725	2.0	X	RXF	77	(E)DRN 132L4	230 300
1065	725	1.67	705	2.1	X				
1245	620	1.42	675	2.2	X				

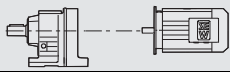

P_m = 15.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
6.0	141100	295	27000	1.15	X				
6.6	131900	270	27000	1.20	X	R	167R107	(E)DRN 160M4	1990 344/346
7.8	111300	229	27000	1.45	X	RF	167R107	(E)DRN 160M4	2000 345/346
8.9	96700	200	27000	1.65	X	RM	167R107	(E)DRN 160M4	2430 345/346
10	81100	169	27000	1.95	X				
6.1	144900	291	27000	1.10	X				
6.7	131200	264	27000	1.20	X	R	167R107	(E)DRN 160M4	1980 344/346
7.8	112300	227	27000	1.40	X	RF	167R107	(E)DRN 160M4	1990 345/346
9.0	97600	198	27000	1.65	X	RM	167R107	(E)DRN 160M4	2420 345/346
11	82400	168	27000	1.95	X				



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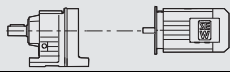

P_m = 15.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
5.9	148500	303	27000	1.05	X	R	167R97	(E)DRN	160M4	1880	344/346
6.4	136800	279	27000	1.15	X	RF	167R97	(E)DRN	160M4	1900	345/346
						RM	167R97	(E)DRN	160M4	2330	345/346
8.3	105700	214	14500	1.10	X	R	147R87	(E)DRN	160M4	1210	342/346
9.4	93400	189	15000	1.25	X	RF	147R87	(E)DRN	160M4	1220	343/346
11	78500	159	15600	1.45	X	RM	147R87	(E)DRN	160M4	1590	343/346
7.7	122200	229.71	27000	1.30	X						
9.5	99400	186.93*	27000	1.60	X						
12	81400	153.07	27000	1.95	X						
13	74400	139.98	27000	2.1	X	R	167	(E)DRN	160M4	1600	344
15	64800	121.81*	27000	2.5	X	RF	167	(E)DRN	160M4	1620	345
17	57200	107.49	27000	2.8	X	RM	167	(E)DRN	160M4	2050	345
19	49500	93.19	27000	3.2	X						
21	44100	82.91*	27000	3.6	X						
39	24400	46.00	27000	2.5	X	R	167	(E)DRN	160M4	1590	344
						RF	167	(E)DRN	160M4	1600	345
						RM	167	(E)DRN	160M4	2030	345
11	86900	163.31	15300	1.30	X						
12	78100	146.91	15600	1.45	X						
15	63700	119.86	16000	1.80	X						
16	58100	109.31	16100	2.0	X						
19	50300	94.60*	16300	2.3	X	R	147	(E)DRN	160M4	1060	342
21	44400	83.47	16400	2.6	X	RF	147	(E)DRN	160M4	1080	343
25	38300	72.09	16500	3.0	X	RM	147	(E)DRN	160M4	1450	343
27	35600	66.99	16500	3.2	X						
29	32500	61.09	16600	3.5	X						
34	28100	52.87	16600	4.1	X						
14	68200	128.18	12100	1.05	X						
16	60500	113.72	12500	1.15	X						
17	54900	103.20*	12700	1.30	X						
20	47200	88.70*	13000	1.50	X						
22	43000	80.91*	13200	1.65	X						
24	39100	73.49	13300	1.80	X	R	137	(E)DRN	160M4	780	340
27	34600	65.20	13400	2.0	X	RF	137	(E)DRN	160M4	830	341
30	31400	59.17*	13500	2.2	X	RM	137	(E)DRN	160M4	1070	341
35	27000	50.86*	13500	2.6	X						
40	23600	44.39	13600	3.0	X						
47	20000	37.65	13700	3.5	X						
54	17500	32.91	13700	4.0	X						
18	51500	96.95	9660	1.05	X						
21	45300	85.26	9660	1.15	X						
22	43700	82.17	9660	1.20	X						
23	40500	76.21	9660	1.30	X						
26	36500	68.61	9660	1.45	X	R	127	(E)DRN	160M4	720	338
29	33000	62.13	9660	1.60	X	RF	127	(E)DRN	160M4	740	339
32	29300	55.09	9660	1.80	X	RM	127	(E)DRN	160M4	950	339
36	26500	49.81	9660	2.0	X						
42	22400	42.22	9660	2.4	X						
48	19600	36.88	9660	2.6	X						
58	16400	30.84	9660	2.9	X						
55	17100	32.18	9660	3.1	X						
62	15300	28.84	9660	3.5	X	R	127	(E)DRN	160M4	680	338
68	13800	26.04	9660	3.8	X	RF	127	(E)DRN	160M4	730	339
75	12500	23.65	9660	4.2	X	RM	127	(E)DRN	160M4	940	339
85	11100	20.98	9660	4.8	X						
24	38700	72.88	6180	1.00							
27	34900	65.60*	6070	1.10	X						
30	31600	59.41	5970	1.20	X						
34	28000	52.68	5830	1.35	X	R	107	(E)DRN	160M4	590	336
37	25300	47.63	5710	1.50	X	RF	107	(E)DRN	160M4	610	337
44	21400	40.37*	5510	1.75	X	RM	107	(E)DRN	160M4	800	337
50	18700	35.26	5340	2.0	X						
60	15600	29.49	5120	2.4	X						

P_m = 15.0 HP										
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs		
58	16300	30.77	5170	2.3	X					
64	14600	27.58	5030	2.6	X					
71	13200	24.90*	4900	2.9	X	R	107	(E)DRN	160M4	580 336
79	12000	22.62	4780	3.2	X	RF	107	(E)DRN	160M4	590 337
89	10600	20.07	4630	3.6	X	RM	107	(E)DRN	160M4	790 337
98	9680	18.21	4510	3.9	X					
37	25300	47.58	4260	1.05	X					
42	22700	42.78	4190	1.15	X	R	97	(E)DRN	160M4	465 334
48	19700	37.13	4100	1.35	X	RF	97	(E)DRN	160M4	500 335
53	17600	33.25	4020	1.45	X	RM	97	(E)DRN	160M4	620 335
64	14600	27.58	3880	1.60	X					
71	13300	25.03	3800	1.90	X					
79	11900	22.37	3710	2.0	X					
88	10700	20.14	3620	2.1	X					
97	9700	18.24	3540	2.3	X					
110	8600	16.17	3430	2.5	X	R	97	(E)DRN	160M4	460 334
121	7780	14.62	3350	2.6	X	RF	97	(E)DRN	160M4	500 335
143	6590	12.39	3210	2.9	X	RM	97	(E)DRN	160M4	610 335
164	5760	10.83	3090	3.2	X					
191	4940	9.29	3010	3.6	X					
212	4460	8.39	2930	4.0	X					
250	3780	7.12	2790	4.7	X					
286	3300	6.21	2680	5.1	X					
83	11400	21.51	2870	1.15	X					
93	10100	19.10	2810	1.25	X					
104	9080	17.08*	2750	1.35	X					
116	8170	15.35	2690	1.45	X					
133	7090	13.33	2610	1.60	X					
149	6350	11.93	2540	1.70	X	R	87	(E)DRN	160M4	375 331
179	5260	9.90*	2430	2.0	X	RF	87	(E)DRN	160M4	390 332
194	4860	9.14*	2440	2.2	X	RM	87	(E)DRN	160M4	455 332
216	4370	8.22	2370	2.4	X					
249	3790	7.13	2280	2.5	X					
278	3390	6.39	2210	2.6	X					
335	2820	5.30*	2100	2.9	X					
163	5780	10.88	1190	1.00	X					
184	5130	9.64	1310	1.10	X	R	77	(E)DRN	160M4	315 328
229	4110	7.74	1220	1.30	X	RF	77	(E)DRN	160M4	325 329
262	3610	6.79	1320	1.40	X	RM	77	(E)DRN	160M4	380 329
296	3180	5.99*	1390	1.50	X					
334	2820	5.31*	1400	1.60	X					
342	2760	5.19	1920	2.2	X					
382	2470	4.65	1870	2.5	X					
423	2230	4.20*	1820	3.3	X	RX	107	(E)DRN	160M4	460 305
466	2020	3.81	1780	3.6	X	RXF	107	(E)DRN	160M4	495 306
525	1800	3.38	1720	4.1	X					
578	1630	3.07	1680	4.5	X					
673	1400	2.64*	1610	5.2	X					
393	2400	4.52	1530	2.2	X					
439	2150	4.04	1490	2.5	X					
488	1930	3.64*	1450	2.7	X					
539	1750	3.30	1410	3.0	X					
608	1550	2.92	1370	3.4	X	RX	97	(E)DRN	160M4	385 303
672	1400	2.64	1330	3.7	X	RXF	97	(E)DRN	160M4	405 304
793	1190	2.24*	1270	4.4	X					
908	1040	1.96	1230	4.8	X					
1085	870	1.64	1170	5.1	X					
1255	750	1.42	1120	5.3	X					

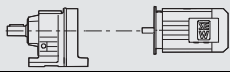

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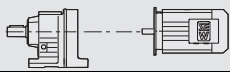

P_m = 15.0 HP							m lbs								
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]										
511	1840	3.48	1080	1.95	X	RX	87	(E)DRN 160M4	330	301					
575	1640	3.09	1050	2.2	X										
643	1460	2.76*	1030	2.4	X										
716	1320	2.48	1000	2.7	X										
825	1140	2.15	970	3.0	X										
921	1020	1.93	940	3.1	X										
1110	850	1.60*	890	3.3	X										
1275	740	1.39	860	3.5	X										
731	1290	2.43	560	1.45	X						RX	77	(E)DRN 160M4	295	299
834	1130	2.13	600	1.55	X										
945	1000	1.88*	625	1.65	X										
1065	880	1.67	645	1.75	X										
1250	755	1.42	655	1.80	X										

P_m = 20 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
7.8	149500	229	27000	1.05	X	R	167R107	(E)DRN 160L4	2020	344/346
8.9	130100	200	27000	1.20	X					
10	109300	169	27000	1.45	X					
7.8	150500	227	27000	1.05	X	R	167R107	(E)DRN 160L4	2010	344/346
9.0	131000	198	27000	1.20	X					
11	110700	168	27000	1.45	X					
11	105000	159	14600	1.10	X	R	147R87	(E)DRN 160L4	1240	342/346
7.7	162800	229.71	27000	1.00		R	167	(E)DRN 160L4	1640	344
9.5	132500	186.93*	27000	1.20	X					
12	108500	153.07	27000	1.45	X					
13	99200	139.98	27000	1.60	X					
15	86300	121.81*	27000	1.85	X					
17	76200	107.49	27000	2.1	X					
19	66000	93.19	27000	2.4	X					
21	58700	82.91*	27000	2.7	X					
24	52200	73.70*	27000	3.0	X					
26	47700	67.40	27000	3.3	X					
39	32600	46.00	27000	1.90	X	R	167	(E)DRN 160L4	1620	344
47	26700	37.74	27000	3.0	X					
11	115800	163.31	14000	1.00		R	147	(E)DRN 160L4	1090	342
12	104100	146.91	14600	1.10	X					
15	84900	119.86	15400	1.35	X					
16	77500	109.31	15600	1.50	X					
19	67000	94.60*	15900	1.70	X					
21	59100	83.47	16100	1.95	X					
25	51100	72.09	16300	2.2	X					
27	47500	66.99	16300	2.4	X					
29	43300	61.09	16400	2.7	X					
34	37400	52.87	16500	3.1	X					
38	33000	46.65	16600	3.5	X					
20	62900	88.70*	12400	1.15	X	R	137	(E)DRN 160L4	810	340
22	57300	80.91*	12600	1.25	X					
24	52100	73.49	12900	1.35	X					
27	46200	65.20	13100	1.55	X					
30	41900	59.17*	13200	1.70	X					
35	36000	50.86*	13400	1.95	X					
40	31400	44.39	13500	2.2	X					
47	26700	37.65	13600	2.6	X					
54	23300	32.91	13600	3.0	X					
64	19700	27.83	13700	3.4	X					

P_m = 20 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
23	54000	76.21	9660	1.00					
26	48600	68.61	9660	1.10	X				
29	44000	62.13	9660	1.20	X	R	127	(E)DRN 160L4	750 338
32	39000	55.09	9660	1.35	X	RF	127	(E)DRN 160L4	780 339
36	35300	49.81	9660	1.50	X	RM	127	(E)DRN 160L4	990 339
42	29900	42.22	9660	1.75	X				
48	26100	36.88	9660	1.95	X				
58	21800	30.84	9660	2.2	X				
55	22800	32.18	9660	2.3	X				
62	20400	28.84	9660	2.6	X				
68	18400	26.04	9660	2.9	X	R	127	(E)DRN 160L4	720 338
75	16700	23.65	9660	3.2	X	RF	127	(E)DRN 160L4	760 339
85	14800	20.98	9660	3.6	X	RM	127	(E)DRN 160L4	980 339
93	13500	19.04	9660	3.9	X				
109	11600	16.37	9660	4.6	X				
34	37300	52.68	5440	1.00	X	R	107	(E)DRN 160L4	630 336
37	33700	47.63	5360	1.15	X	RF	107	(E)DRN 160L4	640 337
44	28600	40.37*	5210	1.35	X	RM	107	(E)DRN 160L4	840 337
50	25000	35.26	5080	1.50	X				
60	20900	29.49	4900	1.80	X				
58	21800	30.77	4940	1.75	X				
64	19500	27.58	4830	1.95	X	R	107	(E)DRN 160L4	610 336
71	17600	24.90*	4720	2.1	X	RF	107	(E)DRN 160L4	630 337
79	16000	22.62	4610	2.4	X	RM	107	(E)DRN 160L4	820 337
89	14200	20.07	4480	2.7	X				
98	12900	18.21	4380	3.0	X				
114	11000	15.65	4210	3.4	X				
130	9680	13.66	4060	3.9	X				
48	26300	37.13	3760	1.00	X	R	97	(E)DRN 160L4	500 334
53	23500	33.25	3720	1.10	X	RF	97	(E)DRN 160L4	540 335
64	19500	27.58	3630	1.20	X	RM	97	(E)DRN 160L4	650 335
71	17700	25.03	3570	1.40	X				
79	15800	22.37	3500	1.50	X				
88	14200	20.14	3440	1.60	X				
97	12900	18.24	3370	1.70	X				
110	11400	16.17	3290	1.85	X	R	97	(E)DRN 160L4	495 334
122	10300	14.62	3220	1.95	X	RF	97	(E)DRN 160L4	530 335
143	8780	12.39	3100	2.2	X	RM	97	(E)DRN 160L4	650 335
164	7670	10.83	3000	2.4	X				
191	6580	9.29	2940	2.7	X				
212	5950	8.39	2860	3.0	X				
250	5040	7.12	2730	3.5	X				
286	4400	6.21	2630	3.8	X				
104	12100	17.08*	2560	1.00	X				
116	10800	15.35	2520	1.10	X				
133	9450	13.33	2460	1.20	X				
149	8460	11.93	2410	1.30	X				
179	7020	9.90*	2320	1.50	X	R	87	(E)DRN 160L4	410 331
194	6480	9.14*	2360	1.65	X	RF	87	(E)DRN 160L4	425 332
216	5820	8.22	2300	1.75	X	RM	87	(E)DRN 160L4	490 332
249	5050	7.13	2220	1.85	X				
278	4530	6.39	2150	2.0	X				
335	3750	5.30*	2050	2.1	X				
342	3680	5.19	1830	1.65	X				
382	3290	4.65	1790	1.85	X				
423	2970	4.20*	1750	2.5	X				
466	2700	3.81	1710	2.7	X				
525	2400	3.38	1660	3.1	X				
579	2170	3.07	1620	3.4	X	RX	107	(E)DRN 160L4	495 305
673	1870	2.64*	1560	3.9	X	RXF	107	(E)DRN 160L4	530 306
771	1630	2.30	1500	4.5	X				
909	1380	1.95	1430	4.9	X				
1040	1210	1.71	1380	5.2	X				
1230	1020	1.44	1320	5.6	X				

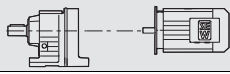

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P_m = 20 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
393	3200	4.52	1450	1.65	X						
439	2860	4.04	1420	1.85	X						
488	2580	3.64*	1380	2.0	X						
539	2330	3.30	1350	2.2	X						
608	2070	2.92	1320	2.5	X	RX	97	(E)DRN	160L4	420	303
672	1870	2.64	1280	2.8	X	RXF	97	(E)DRN	160L4	440	304
793	1580	2.24*	1230	3.3	X						
908	1380	1.96	1190	3.6	X						
1085	1160	1.64	1130	3.9	X						
1255	1000	1.42	1090	4.0	X						
511	2460	3.48	1010	1.45	X						
576	2180	3.09	990	1.65	X						
644	1950	2.76*	970	1.85	X						
716	1750	2.48	950	2.0	X	RX	87	(E)DRN	160L4	365	301
825	1520	2.15	920	2.2	X	RXF	87	(E)DRN	160L4	380	302
921	1360	1.93	900	2.3	X						
1110	1130	1.60*	860	2.5	X						
1275	980	1.39	830	2.6	X						

P_m = 25 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
11	137300	169	27000	1.15	X	R	167R107	(E)DRN	180M4	2070	344/346
						RF	167R107	(E)DRN	180M4	2080	345/346
						RM	167R107	(E)DRN	180M4	2520	345/346
11	138700	168	27000	1.15	X	R	167R107	(E)DRN	180M4	2060	344/346
						RF	167R107	(E)DRN	180M4	2070	345/346
						RM	167R107	(E)DRN	180M4	2500	345/346
12	135300	153.07	27000	1.20	X						
13	123800	139.98	27000	1.30	X						
15	107700	121.81*	27000	1.50	X						
17	95000	107.49	27000	1.70	X	R	167	(E)DRN	180M4	1690	344
19	82400	93.19	27000	1.95	X	RF	167	(E)DRN	180M4	1700	345
21	73300	82.91*	27000	2.2	X	RM	167	(E)DRN	180M4	2130	345
24	65100	73.70*	27000	2.4	X						
26	59600	67.40	27000	2.7	X						
30	51800	58.65	27000	3.1	X						
47	33300	37.74	27000	2.4	X	R	167	(E)DRN	180M4	1680	344
						RF	167	(E)DRN	180M4	1690	345
						RM	167	(E)DRN	180M4	2120	345
15	106000	119.86	14500	1.10	X						
16	96600	109.31	14900	1.20	X						
19	83600	94.60*	15400	1.35	X						
21	73800	83.47	15700	1.55	X						
25	63700	72.09	16000	1.80	X	R	147	(E)DRN	180M4	1140	342
27	59200	66.99	16100	1.95	X	RF	147	(E)DRN	180M4	1160	343
29	54000	61.09	16200	2.1	X	RM	147	(E)DRN	180M4	1530	343
34	46700	52.87	16300	2.5	X						
38	41200	46.65	16400	2.8	X						
44	35600	40.29	16500	3.2	X						
22	71500	80.91*	12000	1.00	X						
24	64900	73.49	12300	1.10	X						
27	57600	65.20	12600	1.25	X						
30	52300	59.17*	12800	1.35	X	R	137	(E)DRN	180M4	860	340
35	44900	50.86*	13100	1.55	X	RF	137	(E)DRN	180M4	910	341
40	39200	44.39	13300	1.80	X	RM	137	(E)DRN	180M4	1160	341
47	33300	37.65	13400	2.1	X						
54	29100	32.91	13500	2.4	X						
64	24600	27.83	13600	2.8	X						
60	26100	29.57*	13600	2.6	X	R	137	(E)DRN	180M4	840	340
74	21300	24.12	13600	3.3	X	RF	137	(E)DRN	180M4	890	341
81	19400	22.00*	13700	3.6	X	RM	137	(E)DRN	180M4	1140	341
94	16800	19.04*	13700	4.2	X						
106	14800	16.80*	13700	4.8	X						

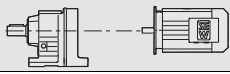

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P_m = 25 HP

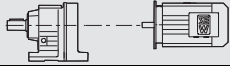

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
32	48700	55.09	9660	1.10	X						
36	44000	49.81	9660	1.20	X	R	127	(E)DRN	180M4	800	338
42	37300	42.22	9660	1.40	X	RF	127	(E)DRN	180M4	830	339
48	32600	36.88	9660	1.55	X	RM	127	(E)DRN	180M4	1040	339
58	27200	30.84	9660	1.75	X						
68	23000	26.04	9660	2.3	X						
75	20900	23.65	9660	2.5	X						
85	18500	20.98	9660	2.9	X	R	127	(E)DRN	180M4	760	338
94	16800	19.04	9660	3.1	X	RF	127	(E)DRN	180M4	810	339
109	14400	16.37	9660	3.7	X	RM	127	(E)DRN	180M4	1020	339
125	12600	14.29	9660	4.2	X						
201	7830	8.85	9660	4.4	X						
44	35700	40.37*	4910	1.05	X	R	107	(E)DRN	180M4	680	336
51	31100	35.26	4810	1.20	X	RF	107	(E)DRN	180M4	690	337
60	26000	29.49	4670	1.45	X	RM	107	(E)DRN	180M4	880	337
72	22000	24.90*	4530	1.75	X						
79	20000	22.62	4440	1.90	X						
89	17700	20.07	4330	2.1	X						
98	16100	18.21	4240	2.4	X						
114	13800	15.65	4090	2.8	X	R	107	(E)DRN	180M4	660	336
130	12000	13.66	3960	3.1	X	RF	107	(E)DRN	180M4	670	337
154	10200	11.59	3800	3.7	X	RM	107	(E)DRN	180M4	870	337
176	8950	10.13	3670	4.2	X						
227	6940	7.86	3470	3.8	X						
267	5890	6.66	3310	4.5	X						
88	17800	20.14	3250	1.30	X						
98	16100	18.24	3200	1.35	X						
110	14300	16.17	3140	1.50	X						
122	12900	14.62	3080	1.55	X						
144	10900	12.39	2980	1.75	X						
165	9570	10.83	2900	1.95	X	R	97	(E)DRN	180M4	540	334
192	8210	9.29	2870	2.2	X	RF	97	(E)DRN	180M4	580	335
212	7420	8.39	2800	2.4	X	RM	97	(E)DRN	180M4	690	335
250	6290	7.12	2680	2.8	X						
287	5490	6.21	2580	3.0	X						
343	4590	5.20	2460	3.4	X						
396	3970	4.50*	2360	3.6	X						
149	10500	11.93	2280	1.05	X						
180	8750	9.90*	2210	1.20	X						
195	8080	9.14*	2270	1.30	X	R	87	(E)DRN	180M4	455	331
217	7260	8.22	2220	1.40	X	RF	87	(E)DRN	180M4	470	332
250	6300	7.13	2150	1.50	X	RM	87	(E)DRN	180M4	540	332
279	5640	6.39	2090	1.60	X						
336	4680	5.30*	2000	1.70	X						
424	3710	4.20*	1670	2.0	X						
467	3370	3.81	1640	2.2	X						
526	2990	3.38	1600	2.5	X						
580	2710	3.07	1560	2.7	X						
675	2330	2.64*	1510	3.1	X	RX	107	(E)DRN	180M4	540	305
773	2030	2.30	1460	3.6	X	RXF	107	(E)DRN	180M4	580	306
911	1720	1.95	1400	3.9	X						
1045	1510	1.71	1350	4.1	X						
1235	1270	1.44	1290	4.5	X						
489	3210	3.64*	1320	1.65	X						
540	2910	3.30	1290	1.80	X						
609	2580	2.92	1260	2.0	X						
674	2330	2.64	1240	2.2	X						
795	1980	2.24*	1190	2.7	X	RX	97	(E)DRN	180M4	470	303
910	1730	1.96	1150	2.9	X	RXF	97	(E)DRN	180M4	490	304
1090	1440	1.64	1100	3.1	X						
1255	1250	1.42	1060	3.2	X						

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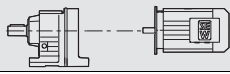

P_m = 25 HP

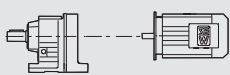

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
645	2440	2.76*	870	1.45	X			
718	2190	2.48	890	1.65	X			
827	1900	2.15	870	1.80	X	RX	87	(E)DRN 180M4 415 301
923	1700	1.93	850	1.85	X	RXF	87	(E)DRN 180M4 425 302
1115	1410	1.60*	820	1.95	X			
1280	1230	1.39	795	2.1	X			

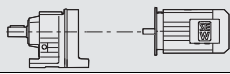

P_m = 30 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
12	162400	153.07	27000	1.00				
13	148500	139.98	27000	1.05	X			
15	129200	121.81*	27000	1.25	X			
17	114000	107.49	27000	1.40	X			
19	98900	93.19	27000	1.60	X	R	167	(E)DRN 180L4 1720 344
21	87900	82.91*	27000	1.80	X	RF	167	(E)DRN 180L4 1740 345
24	78200	73.70*	27000	2.0	X	RM	167	(E)DRN 180L4 2170 345
26	71500	67.40	27000	2.2	X			
30	62200	58.65	27000	2.6	X			
34	54900	51.76	27000	2.9	X			
40	47600	44.87	27000	3.3	X			
47	40000	37.74	27000	2.0	X	R	167	(E)DRN 180L4 1710 344
58	32500	30.71	27000	2.7	X	RF	167	(E)DRN 180L4 1720 345
						RM	167	(E)DRN 180L4 2160 345
16	116000	109.31	14000	1.00				
19	100300	94.60*	14800	1.15	X			
21	88500	83.47	15200	1.30	X			
25	76500	72.09	15600	1.50	X			
27	71000	66.99	15800	1.60	X	R	147	(E)DRN 180L4 1180 342
29	64800	61.09	16000	1.75	X	RF	147	(E)DRN 180L4 1200 343
34	56100	52.87	16200	2.0	X	RM	147	(E)DRN 180L4 1570 343
38	49500	46.65	16300	2.3	X			
44	42700	40.29	16400	2.7	X			
50	37800	35.64	16500	3.0	X			
59	31700	29.95	16600	3.6	X			
27	69100	65.20	12100	1.00	X			
30	62700	59.17*	12400	1.15	X			
35	53900	50.86*	12800	1.30	X	R	137	(E)DRN 180L4 900 340
40	47100	44.39	13000	1.50	X	RF	137	(E)DRN 180L4 950 341
47	39900	37.65	13300	1.75	X	RM	137	(E)DRN 180L4 1190 341
54	34900	32.91	13400	2.0	X			
64	29500	27.83	13500	2.3	X			
60	31300	29.57*	13500	2.2	X			
74	25600	24.12	13600	2.8	X			
81	23300	22.00*	13600	3.0	X	R	137	(E)DRN 180L4 880 340
94	20200	19.04*	13700	3.5	X	RF	137	(E)DRN 180L4 930 341
106	17800	16.80*	13700	4.0	X	RM	137	(E)DRN 180L4 1170 341
123	15300	14.51	13600	4.6	X			
139	13600	12.83	13200	5.2	X			
36	52800	49.81	9660	1.00	X	R	127	(E)DRN 180L4 840 338
42	44800	42.22	9660	1.20	X	RF	127	(E)DRN 180L4 860 339
48	39100	36.88	9660	1.30	X	RM	127	(E)DRN 180L4 1070 339
58	32700	30.84	9660	1.45	X			
68	27600	26.04	9660	1.90	X			
75	25100	23.65	9660	2.1	X			
85	22200	20.98	9660	2.4	X			
94	20200	19.04	9660	2.6	X			
109	17300	16.37	9660	3.1	X	R	127	(E)DRN 180L4 800 338
125	15100	14.29	9660	3.5	X	RF	127	(E)DRN 180L4 850 339
147	12800	12.12	9660	4.1	X	RM	127	(E)DRN 180L4 1060 339
168	11200	10.59	9660	4.5	X			
201	9390	8.85	9660	3.7	X			
237	7960	7.51	9660	4.4	X			

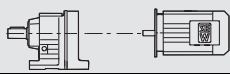

P_m = 30 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs			
51	37400	35.26	4550	1.00	X	R	107	(E)DRN 180L4	710	336
60	31200	29.49	4450	1.20	X	RF	107	(E)DRN 180L4	720	337
						RM	107	(E)DRN 180L4	920	337
72	26400	24.90*	4340	1.45	X					
79	24000	22.62	4270	1.60	X					
89	21200	20.07	4180	1.80	X					
98	19300	18.21	4100	1.95	X					
114	16600	15.65	3970	2.3	X					
130	14400	13.66	3860	2.6	X	R	107	(E)DRN 180L4	700	336
154	12200	11.59	3710	3.1	X	RF	107	(E)DRN 180L4	710	337
176	10700	10.13	3590	3.5	X	RM	107	(E)DRN 180L4	900	337
208	9080	8.56	3440	4.2	X					
227	8330	7.86	3420	3.1	X					
267	7070	6.66	3270	3.7	X					
306	6180	5.82	3140	4.2	X					
88	21300	20.14	3070	1.10	X					
98	19300	18.24	3040	1.15	X					
110	17100	16.17	2990	1.25	X					
122	15500	14.62	2950	1.30	X					
144	13100	12.39	2870	1.45	X	R	97	(E)DRN 180L4	580	334
165	11400	10.83	2800	1.60	X	RF	97	(E)DRN 180L4	620	335
192	9850	9.29	2800	1.80	X	RM	97	(E)DRN 180L4	730	335
212	8900	8.39	2740	2.0	X					
250	7550	7.12	2630	2.3	X					
287	6590	6.21	2540	2.5	X					
343	5510	5.20	2420	2.9	X					
396	4770	4.50*	2330	3.0	X					
180	10500	9.90*	2110	1.00		R	87	(E)DRN 180L4	490	331
195	9700	9.14*	2190	1.10	X	RF	87	(E)DRN 180L4	510	332
217	8720	8.22	2150	1.20	X	RM	87	(E)DRN 180L4	570	332
250	7570	7.13	2090	1.25	X					
279	6770	6.39	2040	1.35	X					
336	5620	5.30*	1950	1.45	X					
424	4450	4.20*	1600	1.65	X					
467	4040	3.81	1570	1.80	X					
526	3590	3.38	1540	2.0	X					
580	3250	3.07	1510	2.2	X	RX	107	(E)DRN 180L4	570	305
675	2800	2.64*	1460	2.6	X	RXF	107	(E)DRN 180L4	610	306
773	2440	2.30	1410	3.0	X					
911	2070	1.95	1360	3.3	X					
1045	1810	1.71	1310	3.4	X					
1235	1530	1.44	1260	3.7	X					
489	3860	3.64*	1250	1.35	X					
540	3490	3.30	1230	1.50	X					
609	3100	2.92	1210	1.70	X					
674	2800	2.64	1190	1.90	X	RX	97	(E)DRN 180L4	500	303
795	2370	2.24*	1150	2.2	X	RXF	97	(E)DRN 180L4	520	304
910	2070	1.96	1110	2.4	X					
1090	1730	1.64	1070	2.6	X					
1255	1500	1.42	1030	2.7	X					
645	2920	2.76*	520	1.20	X					
718	2630	2.48	590	1.35	X					
827	2280	2.15	665	1.50	X	RX	87	(E)DRN 180L4	450	301
923	2040	1.93	710	1.55	X	RXF	87	(E)DRN 180L4	460	302
1115	1690	1.60*	750	1.65	X					
1280	1470	1.39	760	1.75	X					

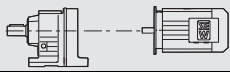

P_m = 40 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
17	151900	107.49	27000	1.05	X				
19	131700	93.19	27000	1.20	X				
22	117100	82.91*	27000	1.35	X				
24	104100	73.70*	27000	1.55	X				
26	95200	67.40	27000	1.65	X				
30	82800	58.65	27000	1.90	X	R	167	(E)DRN 200L4	1960 344
34	73100	51.76	27000	2.2	X	RF	167	(E)DRN 200L4	1980 345
40	63400	44.87	27000	2.5	X	RM	167	(E)DRN 200L4	2410 345
45	56400	39.92	27000	2.8	X				
52	48600	34.41	27000	3.3	X				
64	39500	27.96	27000	4.0	X				
75	33500	23.71	27000	4.8	X				
58	43400	30.71	27000	2.0	X	R	167	(E)DRN 200L4	1950 344
						RF	167	(E)DRN 200L4	1960 345
						RM	167	(E)DRN 200L4	2390 345
25	101800	72.09	14700	1.15	X				
27	94600	66.99	15000	1.20	X				
29	86300	61.09	15300	1.35	X				
34	74700	52.87	15700	1.55	X	R	147	(E)DRN 200L4	1420 342
38	65900	46.65	15900	1.75	X	RF	147	(E)DRN 200L4	1440 343
44	56900	40.29	16100	2.0	X	RM	147	(E)DRN 200L4	1800 343
50	50300	35.64	16300	2.3	X				
60	42300	29.95	16400	2.7	X				
74	34100	24.19	16500	3.1	X				
87	28800	20.44	16600	3.7	X	R	147	(E)DRN 200L4	1390 342
99	25400	18.04	16600	3.6	X	RF	147	(E)DRN 200L4	1410 343
114	22100	15.64	16700	5.2	X	RM	147	(E)DRN 200L4	1770 343
35	71800	50.86*	11900	1.00					
40	62700	44.39	12400	1.15	X	R	137	(E)DRN 200L4	1130 340
47	53200	37.65	12800	1.35	X	RF	137	(E)DRN 200L4	1190 341
54	46500	32.91	13100	1.50	X	RM	137	(E)DRN 200L4	1430 341
64	39300	27.83	13300	1.75	X				
74	34000	24.12	13400	2.1	X				
81	31000	22.00*	13500	2.3	X				
94	26900	19.04*	13500	2.6	X				
106	23700	16.80*	13300	3.0	X	R	137	(E)DRN 200L4	1110 340
123	20500	14.51	13000	3.5	X	RF	137	(E)DRN 200L4	1160 341
139	18100	12.83	12700	3.9	X	RM	137	(E)DRN 200L4	1410 341
165	15200	10.79	12300	4.6	X				
235	10700	7.59	11500	4.2	X				
279	9010	6.38	11000	5.0	X				
58	43500	30.84	9660	1.10	X	R	127	(E)DRN 200L4	1080 338
						RF	127	(E)DRN 200L4	1100 339
						RM	127	(E)DRN 200L4	1310 339
85	29600	20.98	9660	1.80	X				
94	26900	19.04	9660	1.95	X				
109	23100	16.37	9660	2.3	X				
125	20100	14.29	9660	2.6	X				
147	17100	12.12	9660	3.1	X	R	127	(E)DRN 200L4	1040 338
168	14900	10.59	9660	3.4	X	RF	127	(E)DRN 200L4	1090 339
199	12600	8.96	9660	3.8	X	RM	127	(E)DRN 200L4	1300 339
201	12500	8.85	9660	2.8	X				
237	10600	7.51	9660	3.3	X				
272	9270	6.56	9660	3.8	X				
321	7840	5.55	9660	4.4	X				
89	28300	20.07	3880	1.35	X				
98	25700	18.21	3830	1.50	X				
114	22100	15.65	3740	1.70	X				
131	19300	13.66	3650	1.95	X				
154	16300	11.59	3540	2.3	X	R	107	(E)DRN 200L4	940 336
176	14300	10.13	3440	2.7	X	RF	107	(E)DRN 200L4	950 337
208	12100	8.56	3310	3.1	X	RM	107	(E)DRN 200L4	1140 337
227	11100	7.86	3320	2.4	X				
268	9410	6.66	3180	2.8	X				
306	8230	5.82	3070	3.2	X				
362	6960	4.92	2930	3.7	X				

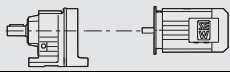

P_m = 40 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
122	20600	14.62	2680	1.00					
144	17500	12.39	2640	1.10	X				
165	15300	10.83	2600	1.20	X				
192	13100	9.29	2670	1.35	X	R	97	(E)DRN 200L4	820 334
212	11800	8.39	2610	1.50	X	RF	97	(E)DRN 200L4	860 335
251	10000	7.12	2520	1.75	X	RM	97	(E)DRN 200L4	970 335
287	8780	6.21	2450	1.90	X				
343	7340	5.20	2340	2.1	X				
396	6360	4.50*	2260	2.3	X				
527	4780	3.38	1410	1.55	X				
581	4340	3.07	1390	1.70	X				
675	3730	2.64*	1360	1.95	X	RX	107	(E)DRN 200L4	820 305
774	3250	2.30	1330	2.2	X	RXF	107	(E)DRN 200L4	850 306
912	2760	1.95	1280	2.5	X				
1045	2410	1.71	1240	2.6	X				
1235	2040	1.44	1200	2.8	X				
610	4130	2.92	990	1.25	X				
675	3730	2.64	1060	1.40	X				
796	3160	2.24*	1060	1.65	X	RX	97	(E)DRN 200L4	740 303
911	2760	1.96	1040	1.80	X	RXF	97	(E)DRN 200L4	760 304
1090	2310	1.64	1000	1.95	X				
1260	2000	1.42	970	2.0	X				

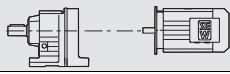

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P_m = 50 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
22	146300	82.91*	27000	1.10	X				
24	130000	73.70*	27000	1.20	X				
26	118900	67.40	27000	1.35	X				
30	103500	58.65	27000	1.55	X	R	167	(E)DRN 225S4	2030 344
34	91300	51.76	27000	1.75	X	RF	167	(E)DRN 225S4	2040 345
40	79100	44.87	27000	2.0	X	RM	167	(E)DRN 225S4	2470 345
45	70400	39.92	27000	2.3	X				
52	60700	34.41	27000	2.6	X				
64	49300	27.96	27000	3.2	X				
58	54100	30.71	27000	1.65	X				
73	43300	24.57	27000	2.9	X	R	167	(E)DRN 225S4	2020 344
82	38500	21.85	27000	3.0	X	RF	167	(E)DRN 225S4	2030 345
94	33500	19.03	27000	4.2	X	RM	167	(E)DRN 225S4	2460 345
105	29900	16.98	27000	4.4	X				
29	107800	61.09	14400	1.05	X				
34	93300	52.87	15000	1.25	X				
38	82300	46.65	15400	1.40	X	R	147	(E)DRN 225S4	1490 342
44	71100	40.29	15800	1.60	X	RF	147	(E)DRN 225S4	1510 343
50	62800	35.64	16000	1.85	X	RM	147	(E)DRN 225S4	1880 343
60	52800	29.95	16200	2.2	X				
74	42600	24.19	16400	2.5	X				
87	36000	20.44	16500	2.9	X	R	147	(E)DRN 225S4	1460 342
99	31800	18.04	16600	2.9	X	RF	147	(E)DRN 225S4	1480 343
114	27500	15.64	16600	4.2	X	RM	147	(E)DRN 225S4	1850 343
128	24500	13.91	16600	4.5	X				
47	66400	37.65	12200	1.05	X	R	137	(E)DRN 225S4	1200 340
54	58000	32.91	12600	1.20	X	RF	137	(E)DRN 225S4	1250 341
64	49100	27.83	13000	1.40	X	RM	137	(E)DRN 225S4	1500 341
74	42500	24.12	13000	1.65	X				
81	38800	22.00*	12900	1.80	X				
94	33600	19.04*	12800	2.1	X				
106	29600	16.80*	12600	2.4	X	R	137	(E)DRN 225S4	1180 340
123	25600	14.51	12400	2.8	X	RF	137	(E)DRN 225S4	1230 341
139	22600	12.83	12200	3.1	X	RM	137	(E)DRN 225S4	1480 341
166	19000	10.79	11800	3.7	X				
205	15300	8.71	11400	4.5	X				
235	13300	7.59	11200	3.4	X				
280	11200	6.38	10800	4.0	X				



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P_m = 50 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
346	9090	5.15	10300	4.5	X				
85	37000	20.98	9660	1.45	X				
94	33600	19.04	9660	1.60	X				
109	28800	16.37	9660	1.85	X				
125	25200	14.29	9660	2.1	X				
147	21300	12.12	9660	2.5	X	R	127	(E)DRN 225S4	1110 338
169	18600	10.59	9660	2.7	X	RF	127	(E)DRN 225S4	1150 339
199	15800	8.96	9660	3.0	X	RM	127	(E)DRN 225S4	1370 339
202	15600	8.85	9660	2.2	X				
238	13200	7.51	9660	2.6	X				
272	11500	6.56	9660	3.0	X				
322	9790	5.55	9660	3.5	X				
89	35400	20.07	3580	1.05	X				
98	32100	18.21	3560	1.20	X				
114	27600	15.65	3510	1.40	X				
131	24100	13.66	3450	1.60	X				
154	20400	11.59	3360	1.85	X	R	107	(E)DRN 225S4	1010 336
176	17800	10.13	3290	2.1	X	RF	107	(E)DRN 225S4	1020 337
208	15100	8.56	3180	2.5	X	RM	107	(E)DRN 225S4	1210 337
227	13800	7.86	3220	1.90	X				
268	11700	6.66	3100	2.2	X				
306	10200	5.82	2990	2.6	X				
362	8690	4.92	2870	3.0	X				
192	16300	9.29	2530	1.10	X				
213	14800	8.39	2490	1.20	X				
251	12500	7.12	2420	1.40	X	R	97	(E)DRN 225S4	890 334
287	10900	6.21	2350	1.50	X	RF	97	(E)DRN 225S4	920 335
343	9170	5.20	2270	1.70	X	RM	97	(E)DRN 225S4	1040 335
397	7940	4.50*	2190	1.80	X				
527	5970	3.38	1290	1.25	X				
581	5420	3.07	1280	1.35	X				
676	4650	2.64*	1260	1.60	X	RX	107	(E)DRN 225S4	880 305
775	4060	2.30	1240	1.80	X	RXF	107	(E)DRN 225S4	920 306
913	3440	1.95	1210	1.95	X				
1045	3010	1.71	1180	2.1	X				
1235	2540	1.44	1140	2.2	X				
611	5150	2.92	410	1.00	X				
675	4660	2.64	520	1.15	X				
797	3950	2.24*	650	1.35	X	RX	97	(E)DRN 225S4	810 303
912	3450	1.96	755	1.45	X	RXF	97	(E)DRN 225S4	830 304
1090	2880	1.64	830	1.55	X				
1260	2500	1.42	870	1.60	X				

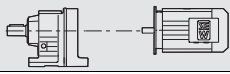

P_m = 60 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
24	156000	73.70*	27000	1.00	X				
26	142700	67.40	27000	1.10	X				
30	124200	58.65	27000	1.30	X				
34	109600	51.76	27000	1.45	X	R	167	(E)DRN 225M4	2030 344
40	95000	44.87	27000	1.70	X	RF	167	(E)DRN 225M4	2040 345
45	84500	39.92	27000	1.90	X	RM	167	(E)DRN 225M4	2470 345
52	72800	34.41	27000	2.2	X				
64	59200	27.96	27000	2.7	X				
75	50200	23.71	27000	3.2	X				
58	65000	30.71	27000	1.35	X				
73	52000	24.57	27000	2.4	X	R	167	(E)DRN 225M4	2020 344
82	46200	21.85	27000	2.5	X	RF	167	(E)DRN 225M4	2030 345
94	40300	19.03	27000	3.5	X	RM	167	(E)DRN 225M4	2460 345
105	35900	16.98	27000	3.7	X				

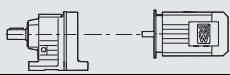

P_m = 60 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
34	111900	52.87	14200	1.05	X				
38	98800	46.65	14800	1.15	X	R	147	(E)DRN 225M4	1490 342
44	85300	40.29	15300	1.35	X	RF	147	(E)DRN 225M4	1510 343
50	75400	35.64	15700	1.50	X	RM	147	(E)DRN 225M4	1880 343
60	63400	29.95	16000	1.80	X				
74	51200	24.19	16300	2.1	X				
87	43200	20.44	16400	2.5	X				
99	38100	18.04	16500	2.4	X	R	147	(E)DRN 225M4	1460 342
114	33100	15.64	16600	3.5	X	RF	147	(E)DRN 225M4	1480 343
128	29400	13.91	16600	3.8	X	RM	147	(E)DRN 225M4	1850 343
149	25300	11.99	16600	4.5	X				
246	15300	7.25	16600	5.0	X				
54	69600	32.91	11600	1.00	X	R	137	(E)DRN 225M4	1200 340
64	58900	27.83	11900	1.15	X	RF	137	(E)DRN 225M4	1250 341
						RM	137	(E)DRN 225M4	1500 341
74	51000	24.12	12000	1.40	X				
81	46500	22.00*	12000	1.50	X				
94	40300	19.04*	12000	1.75	X				
106	35500	16.80*	11900	2.0	X				
123	30700	14.51	11800	2.3	X	R	137	(E)DRN 225M4	1180 340
139	27100	12.83	11700	2.6	X	RF	137	(E)DRN 225M4	1230 341
166	22800	10.79	11400	3.1	X	RM	137	(E)DRN 225M4	1480 341
205	18400	8.71	11000	3.8	X				
235	16000	7.59	10900	2.8	X				
280	13500	6.38	10500	3.4	X				
346	10900	5.15	10100	3.7	X				
85	44400	20.98	9660	1.20	X				
94	40300	19.04	9660	1.30	X				
109	34600	16.37	9660	1.55	X				
125	30200	14.29	9660	1.75	X				
147	25600	12.12	9660	2.0	X	R	127	(E)DRN 225M4	1110 338
169	22400	10.59	9660	2.2	X	RF	127	(E)DRN 225M4	1150 339
199	18900	8.96	9660	2.5	X	RM	127	(E)DRN 225M4	1370 339
202	18700	8.85	9660	1.85	X				
238	15900	7.51	9660	2.2	X				
272	13900	6.56	9660	2.5	X				
322	11700	5.55	9660	3.0	X				
114	33100	15.65	3270	1.15	X				
131	28900	13.66	3240	1.30	X				
154	24500	11.59	3190	1.55	X				
176	21400	10.13	3140	1.75	X	R	107	(E)DRN 225M4	1010 336
208	18100	8.56	3060	2.1	X	RF	107	(E)DRN 225M4	1020 337
227	16600	7.86	3120	1.60	X	RM	107	(E)DRN 225M4	1210 337
268	14100	6.66	3010	1.85	X				
306	12300	5.82	2920	2.1	X				
362	10400	4.92	2810	2.5	X				
527	7160	3.38	755	1.00	X				
581	6500	3.07	870	1.15	X				
676	5590	2.64*	1010	1.30	X	RX	107	(E)DRN 225M4	880 305
775	4880	2.30	1110	1.50	X	RXF	107	(E)DRN 225M4	920 306
913	4130	1.95	1130	1.65	X				
1045	3610	1.71	1110	1.70	X				
1235	3050	1.44	1080	1.85	X				

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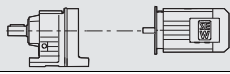

P_m = 75 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
30	155200	58.65	27000	1.05	X				
34	137000	51.76	27000	1.15	X				
40	118700	44.87	27000	1.35	X	R	167	(E)DRN 250ME4	2470 344
45	105600	39.92	27000	1.50	X	RF	167	(E)DRN 250ME4	2480 345
52	91000	34.41	27000	1.75	X	RM	167	(E)DRN 250ME4	2910 345
64	74000	27.96	27000	2.1	X				
75	62700	23.71	27000	2.5	X				

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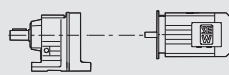

P_m = 75 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
73	65000	24.57	27000	1.90	X					
82	57800	21.85	27000	2.0	X	R	167	(E)DRN 250ME4	2450	344
94	50300	19.03	27000	2.8	X	RF	167	(E)DRN 250ME4	2470	345
105	44900	16.98	27000	3.0	X	RM	167	(E)DRN 250ME4	2900	345
123	38300	14.48	27000	4.2	X					
149	31700	11.99	25900	4.7	X					
44	106600	40.29	14500	1.10	X	R	147	(E)DRN 250ME4	1920	342
50	94300	35.64	15000	1.20	X	RF	147	(E)DRN 250ME4	1940	343
60	79200	29.95	15500	1.45	X	RM	147	(E)DRN 250ME4	2310	343
74	64000	24.19	16000	1.65	X					
87	54100	20.44	16200	1.95	X					
99	47700	18.04	16300	1.95	X					
114	41300	15.64	16400	2.8	X	R	147	(E)DRN 250ME4	1890	342
128	36800	13.91	16500	3.0	X	RF	147	(E)DRN 250ME4	1910	343
149	31700	11.99	16600	3.6	X	RM	147	(E)DRN 250ME4	2280	343
183	25700	9.74	16600	4.5	X					
246	19100	7.25	16300	4.0	X					
303	15500	5.89	15500	4.9	X					
94	50400	19.04*	10900	1.40	X					
106	44400	16.80*	10900	1.60	X					
123	38400	14.51	10900	1.85	X					
139	33900	12.83	10900	2.1	X	R	137	(E)DRN 250ME4	1620	340
166	28500	10.79	10800	2.5	X	RF	137	(E)DRN 250ME4	1670	341
205	23000	8.71	10500	3.0	X	RM	137	(E)DRN 250ME4	1910	341
235	20000	7.59	10500	2.2	X					
280	16800	6.38	10200	2.7	X					
346	13600	5.15	9780	3.0	X					
109	43300	16.37	9660	1.25	X					
125	37800	14.29	9660	1.40	X					
147	32000	12.12	9660	1.65	X					
169	28000	10.59	9660	1.80	X	R	127	(E)DRN 250ME4	1540	338
199	23700	8.96	9660	2.0	X	RF	127	(E)DRN 250ME4	1590	339
202	23400	8.85	9660	1.50	X	RM	127	(E)DRN 250ME4	1800	339
238	19800	7.51	9660	1.75	X					
272	17300	6.56	9660	2.0	X					
322	14600	5.55	9460	2.4	X					

P_m = 100 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
40	158300	44.87	27000	1.00	X					
45	140900	39.92	27000	1.15	X	R	167	(E)DRN 280S4	2470	344
52	121400	34.41	27000	1.30	X	RF	167	(E)DRN 280S4	2490	345
64	98600	27.96	27000	1.60	X	RM	167	(E)DRN 280S4	2920	345
75	83600	23.71	27000	1.90	X					
73	86700	24.57	27000	1.45	X					
82	77100	21.85	27000	1.50	X					
94	67100	19.03	27000	2.1	X	R	167	(E)DRN 280S4	2460	344
105	59900	16.98	27000	2.2	X	RF	167	(E)DRN 280S4	2470	345
123	51000	14.48	26200	3.1	X	RM	167	(E)DRN 280S4	2900	345
149	42300	11.99	25200	3.5	X					
174	36100	10.24	24300	4.2	X					
60	105700	29.95	14500	1.10	X	R	147	(E)DRN 280S4	1920	342
74	85300	24.19	15300	1.25	X	RF	147	(E)DRN 280S4	1940	343
						RM	147	(E)DRN 280S4	2310	343


P_m = 100 HP


n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs		
87	72100	20.44	15800	1.45	X					
99	63600	18.04	16000	1.45	X					
114	55100	15.64	16200	2.1	X					
128	49100	13.91	16300	2.3	X					
149	42300	11.99	16400	2.7	X	R	147	(E)DRN	280S4	1900 342
183	34300	9.74	16500	3.3	X	RF	147	(E)DRN	280S4	1910 343
216	29100	8.26	16400	3.9	X	RM	147	(E)DRN	280S4	2280 343
246	25500	7.25	15800	3.0	X					
303	20700	5.89	15100	3.7	X					
357	17600	5.00	14600	4.3	X					
94	67200	19.04*	8930	1.05	X					
106	59200	16.80*	9230	1.20	X					
123	51200	14.51	9460	1.40	X					
139	45200	12.83	9590	1.55	X	R	137	(E)DRN	280S4	1620 340
166	38000	10.79	9660	1.85	X	RF	137	(E)DRN	280S4	1670 341
205	30700	8.71	9630	2.3	X	RM	137	(E)DRN	280S4	1920 341
235	26700	7.59	9770	1.70	X					
280	22500	6.38	9580	2.0	X					
346	18100	5.15	9300	2.2	X					


P_m = 125 HP


n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs		
52	151900	34.41	27000	1.05	X	R	167	(E)DRN	280M4	2720 344
64	123400	27.96	27000	1.30	X	RF	167	(E)DRN	280M4	2740 345
75	104600	23.71	27000	1.50	X	RM	167	(E)DRN	280M4	3170 345
73	108400	24.57	27000	1.15	X	R	167	(E)DRN	280M4/ERF/NS	2710 344
						RF	167	(E)DRN	280M4/ERF/NS	2720 345
						RM	167	(E)DRN	280M4/ERF/NS	3160 345
82	96400	21.85	27000	1.20	X					
94	84000	19.03	26500	1.70	X					
105	74900	16.98	26100	1.75	X	R	167	(E)DRN	280M4	2710 344
123	63900	14.48	25400	2.5	X	RF	167	(E)DRN	280M4	2720 345
149	52900	11.99	24500	2.8	X	RM	167	(E)DRN	280M4	3160 345
174	45100	10.24	23700	3.3	X					
74	106700	24.19	14500	1.00		R	147	(E)DRN	280M4	2180 342
						RF	147	(E)DRN	280M4	2200 343
						RM	147	(E)DRN	280M4	2560 343
87	90200	20.44	15200	1.20	X	R	147	(E)DRN	280M4/ERF/NS	2150 342
						RF	147	(E)DRN	280M4/ERF/NS	2170 343
						RM	147	(E)DRN	280M4/ERF/NS	2540 343
99	79600	18.04	15500	1.15	X					
114	69000	15.64	15800	1.65	X					
128	61400	13.91	16000	1.80	X					
149	52900	11.99	16200	2.2	X	R	147	(E)DRN	280M4	2150 342
183	43000	9.74	16200	2.7	X	RF	147	(E)DRN	280M4	2170 343
216	36400	8.26	15800	3.1	X	RM	147	(E)DRN	280M4	2540 343
246	32000	7.25	15300	2.4	X					
303	26000	5.89	14700	3.0	X					
357	22000	5.00	14200	3.5	X					
123	64000	14.51	8000	1.10	X					
139	56600	12.83	8290	1.25	X					
165	47600	10.79	8570	1.50	X	R	137	(E)DRN	280M4	1870 340
205	38400	8.71	8750	1.80	X	RF	137	(E)DRN	280M4	1930 341
235	33500	7.59	9060	1.35	X	RM	137	(E)DRN	280M4	2170 341
280	28100	6.38	8980	1.60	X					
346	22700	5.15	8810	1.80	X					


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P_m = 150 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
64	147600	27.96	26100	1.10	X	R	167	(E)DRN	315S4		3260	344
75	125100	23.71	25900	1.25	X	RF	167	(E)DRN	315S4		3280	345
						RM	167	(E)DRN	315S4		3710	345
94	100400	19.03	25400	1.40	X	R	167	(E)DRN	315S4/ERF/NS		3250	344
						RF	167	(E)DRN	315S4/ERF/NS		3260	345
						RM	167	(E)DRN	315S4/ERF/NS		3690	345
105	89600	16.98	25000	1.50	X	R	167	(E)DRN	315S4		3250	344
124	76400	14.48	24500	2.1	X	RF	167	(E)DRN	315S4		3260	345
149	63300	11.99	23700	2.4	X	RM	167	(E)DRN	315S4		3690	345
175	54000	10.24	23100	2.8	X							

P_m = 175 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
76	145900	23.71	24500	1.10	X	R	167	(E)DRN	315ME4		3540	344
						RF	167	(E)DRN	315ME4		3560	345
						RM	167	(E)DRN	315ME4		3990	345
94	117100	19.03	24200	1.20	X	R	167	(E)DRN	315ME4/ERF/NS		3530	344
105	104500	16.98	24000	1.25	X	RF	167	(E)DRN	315ME4/ERF/NS		3540	345
						RM	167	(E)DRN	315ME4/ERF/NS		3970	345
124	89100	14.48	23600	1.80	X	R	167	(E)DRN	315ME4		3530	344
149	73800	11.99	23000	2.0	X	RF	167	(E)DRN	315ME4		3540	345
175	63000	10.24	22500	2.4	X	RM	167	(E)DRN	315ME4		3970	345

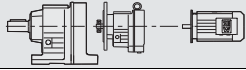

P_m = 200 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
124	102000	14.48	22700	1.55	X	R	167	(E)DRN	315L4		3580	344
149	84500	11.99	22300	1.80	X	RF	167	(E)DRN	315L4		3600	345
175	72100	10.24	21800	2.1	X	RM	167	(E)DRN	315L4		4030	345

P_m = 225 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
124	114700	14.48	21900	1.40	X	R	167	(E)DRN	315L4		3580	344
149	95000	11.99	21600	1.60	X	RF	167	(E)DRN	315L4		3600	345
175	81100	10.24	21200	1.85	X	RM	167	(E)DRN	315L4		4030	345



P_m = 250 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
124	127200	14.48	21000	1.25	X	R	167	(E)DRN	315H4		3840	344
149	105400	11.99	20900	1.45	X	RF	167	(E)DRN	315H4		3860	345
175	89900	10.24	20600	1.65	X	RM	167	(E)DRN	315H4		4290	345

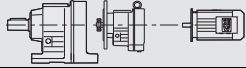

P_m = 300 HP												
n_a rpm	T_a lb-in	i ratio	$F_{Ra}^{1)}$ lb	SEW SF f_B	HazLoc -NA [®]						m lbs	
124	152800	14.48	19300	1.05	X	R	167	(E)DRN	315H4		3840	344
149	126600	11.99	19400	1.20	X	RF	167	(E)DRN	315H4		3860	345
175	108000	10.24	19400	1.40	X	RM	167	(E)DRN	315H4		4290	345

8.4 R.. R.. DRS/DRN.. Selections by torque / low output speed



$T_{a \max} = 1150 \text{ lb-in}$								
n_a rpm	i	$F_{Ra}^{(1)}$ lb					m lbs	
0.20	8612	795						
0.23	7425	795						
0.24	6921	795						
0.28	6050	795						
0.32	5217	795						
0.36	4661	795						
0.41	4073	795						
0.48	3516	795	R	27R17	DR	63S4	25	313/346
0.53	3160	795	RF	27R17	DR	63S4	25	314/346
0.61	2763	795						
0.70	2414	795						
0.80	2110	795						
0.90	1862	795						
1.0	1625	795						
1.2	1434	795						
1.3	1254	795						
0.92	1822	795						
1.1	1580	795						
1.1	1464	795						
1.3	1270	795						
1.5	1100	795						
1.7	972	795	R	27R17	DR	63S4	25	313/346
2.0	840	795	RF	27R17	DR	63S4	25	314/346
2.3	741	795						
2.6	654	795						
3.0	566	795						
3.4	499	795						
1.5	1101	795						
1.8	962	795						
2.0	848	795						
2.3	743	795						
2.6	649	795						
3.0	567	795						
3.3	509	795	R	27R17	DR	63S4	25	313/346
3.9	432	795	RF	27R17	DR	63S4	25	314/346
4.3	387	795						
5.0	339	795						
5.7	296	795						
6.5	259	795						
7.3	229	795						
8.5	200	795						
9.6	177	795						
10	166	795						
11	150	795	R	27R17	DRS	71S4	30	313/346
12	141	795	RF	27R17	DRS	71S4	30	314/346
14	124	795						
15	110	795						
18	94	795						
3.8	440	795						
4.4	381	795						
5.1	329	795	R	27R17	DR	63S4	24	313/346
5.8	290	795	RF	27R17	DR	63S4	24	314/346
6.6	256	795						
7.4	227	795						
8.4	203	795						
9.5	179	795						
11	156	795						
13	135	795	R	27R17	DRS	71S4	30	313/346
14	118	795	RF	27R17	DRS	71S4	30	314/346
16	104	795						
19	90	795						

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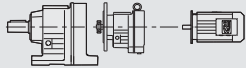

T_{a max} = 1760 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.20	8595	950						
0.23	7411	950						
0.24	6907	950						
0.28	6038	950						
0.32	5206	950						
0.36	4651	950						
0.41	4065	950						
0.46	3658	950	R	37R17	DR	63S4	38	316/346
0.53	3154	950	RF	37R17	DR	63S4	41	317/346
0.61	2757	950						
0.70	2409	950						
0.80	2106	950						
0.90	1856	950						
1.0	1622	950						
1.2	1431	950						
1.3	1251	950						
0.92	1818	950						
1.1	1576	950						
1.2	1359	950						
1.3	1267	950						
1.5	1098	950	R	37R17	DR	63S4	38	316/346
1.7	970	950	RF	37R17	DR	63S4	41	317/346
2.0	839	950						
2.3	740	950						
2.6	653	950						
2.9	577	950						
3.4	498	950						
1.5	1099	950						
1.8	960	950						
2.0	847	950						
2.3	741	950	R	37R17	DR	63S4	38	316/346
2.6	647	950	RF	37R17	DR	63S4	41	317/346
3.0	566	950						
3.3	508	950						
3.9	431	950						
4.3	387	950						
5.0	338	950						
5.8	296	950						
6.6	259	950						
7.5	228	950						
8.5	199	950	R	37R17	DRS	71S4	43	316/346
9.9	172	950	RF	37R17	DRS	71S4	46	317/346
11	150	950						
13	130	950						
14	124	950						
15	110	950						
18	94	950	R	37R17	DRS	71M4	46	316/346
			RF	37R17	DRS	71M4	49	317/346
3.8	439	950	R	37R17	DR	63S4	37	316/346
4.4	378	950	RF	37R17	DR	63S4	40	317/346
5.1	328	950						
5.9	289	950						
6.4	265	950						
7.5	226	950						
8.4	202	950	R	37R17	DRS	71S4	43	316/346
9.5	179	950	RF	37R17	DRS	71S4	46	317/346
11	156	950						
13	135	950						
13	127	950						
16	104	950	R	37R17	DRS	71M4	45	316/346
19	90	950	RF	37R17	DRS	71M4	49	317/346

T_{a max} = 2650 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.12	13598	1120						
0.13	12472	1120						
0.16	10619	1120						
0.18	9155	1120						
0.20	8534	1120						
0.23	7460	1120						
0.24	6993	1120						
0.27	6171	1120	R	47R37	DR	63S4	63 319/346	
0.30	5624	1120	RF	47R37	DR	63S4	63 320/346	
0.35	4849	1120						
0.37	4520	1120						
0.43	3951	1120						
0.45	3704	1120						
0.51	3268	1120						
0.58	2898	1120						
0.68	2463	1120						
0.65	2598	1120						
0.71	2383	1120						
0.83	2029	1120						
0.96	1749	1120						
1.0	1630	1120						
1.2	1425	1120						
1.3	1336	1120						
1.4	1179	1120	R	47R37	DR	63S4	63 319/346	
1.6	1074	1120	RF	47R37	DR	63S4	63 320/346	
1.8	927	1120						
1.9	863	1120						
2.2	755	1120						
2.4	708	1120						
2.7	624	1120						
3.0	554	1120						
3.6	471	1120	R	47R37	DRS	71S4	69 319/346	
			RF	47R37	DRS	71S4	69 320/346	
0.59	2856	1120						
0.64	2625	1120						
0.75	2246	1120						
0.86	1948	1120						
0.92	1821	1120						
1.1	1573	1120	R	47R37	DR	63S4	63 319/346	
1.4	1193	1120	RF	47R37	DR	63S4	63 320/346	
1.6	1020	1120						
1.8	955	1120						
2.1	804	1120						
2.5	673	1120						
2.9	572	1120						
3.3	510	1120						
3.9	436	1120	R	47R37	DRS	71S4	68 319/346	
4.2	408	1120	RF	47R37	DRS	71S4	69 320/346	
4.9	344	1120						
3.1	546	1120	R	47R37	DR	63S4	62 319/346	
3.4	502	1120	RF	47R37	DR	63S4	63 320/346	
4.0	429	1120						
4.6	372	1120						
4.9	348	1120						
5.7	301	1120	R	47R37	DRS	71S4	68 319/346	
6.7	255	1120	RF	47R37	DRS	71S4	69 320/346	
7.5	228	1120						
8.7	195	1120						
9.3	182	1120						
11	154	1120	R	47R37	DRS	71M4	71 319/346	
13	129	1120	RF	47R37	DRS	71M4	71 320/346	
15	109	1120						
18	98	1120	R	47R37	DRN	80M4	81 319/346	
			RF	47R37	DRN	80M4	81 320/346	

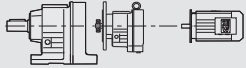

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T_{a max} = 3980 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb				m lbs		
0.12	14369	1600						
0.14	12095	1600						
0.15	10860	1600						
0.18	9445	1600						
0.20	8480	1600						
0.23	7312	1600						
0.26	6521	1600						
0.30	5585	1600	R	57R37	DR	63S4	76	322/346
0.34	4928	1600	RF	57R37	DR	63S4	83	323/346
0.38	4378	1600	RM	57R37	DR	63S4	110	323/346
0.43	3873	1600						
0.50	3344	1600						
0.58	2907	1600						
0.65	2567	1600						
0.75	2244	1600						
0.85	1967	1600						
0.57	2957	1600						
0.67	2508	1600						
0.73	2309	1600						
0.84	1991	1600						
0.95	1768	1600	R	57R37	DR	63S4	74	322/346
1.1	1520	1600	RF	57R37	DR	63S4	81	323/346
1.2	1342	1600	RM	57R37	DR	63S4	110	323/346
1.4	1164	1600						
1.6	1027	1600						
1.9	894	1600						
2.1	805	1600						
2.5	683	1600	R	57R37	DRS	71S4	80	322/346
2.8	603	1600	RF	57R37	DRS	71S4	87	323/346
3.2	534	1600	RM	57R37	DRS	71S4	115	323/346
3.7	454	1600						
4.2	410	1600						
0.97	1732	1600						
1.1	1555	1600	R	57R37	DR	63S4	75	322/346
1.2	1399	1600	RF	57R37	DR	63S4	83	323/346
1.4	1189	1600	RM	57R37	DR	63S4	110	323/346
1.6	1034	1600						
2.1	782	1600						
2.5	678	1600						
2.8	604	1600	R	57R37	DRS	71S4	81	322/346
3.2	537	1600	RF	57R37	DRS	71S4	89	323/346
3.6	471	1600	RM	57R37	DRS	71S4	115	323/346
4.8	357	1600						
5.3	319	1600						
6.2	273	1600						
7.0	241	1600	R	57R37	DRS	71M4	84	322/346
7.9	215	1600	RF	57R37	DRS	71M4	91	323/346
9.0	187	1600	RM	57R37	DRS	71M4	120	323/346
10	164	1600						
12	142	1600	R	57R37	DRN	80M4	94	322/346
			RF	57R37	DRN	80M4	100	323/346
			RM	57R37	DRN	80M4	130	323/346
4.7	359	1600						
5.2	324	1600	R	57R37	DRS	71S4	79	322/346
5.9	290	1600	RF	57R37	DRS	71S4	87	323/346
6.5	262	1600	RM	57R37	DRS	71S4	115	323/346
6.9	246	1600						
7.7	220	1600	R	57R37	DRS	71M4	82	322/346
9.0	188	1600	RF	57R37	DRS	71M4	89	323/346
11	159	1600	RM	57R37	DRS	71M4	115	323/346
12	146	1600	R	57R37	DRN	80M4	92	322/346
13	134	1600	RF	57R37	DRN	80M4	99	323/346
			RM	57R37	DRN	80M4	125	323/346

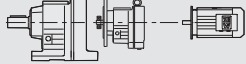

T_{a max} = 5300 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb				m lbs	
0.11	15361	1700					
0.13	12931	1700					
0.14	11996	1700					
0.17	10097	1700					
0.19	9066	1700					
0.21	7816	1700					
0.25	6732	1700	R	67R37	DR	63S4	90 325/346
0.28	5970	1700	RF	67R37	DR	63S4	97 326/346
0.32	5268	1700	RM	67R37	DR	63S4	130 326/346
0.36	4680	1700					
0.41	4136	1700					
0.47	3566	1700					
0.54	3125	1700					
0.61	2745	1700					
0.70	2403	1700					
0.63	2682	1700					
0.68	2460	1700					
0.80	2094	1700	R	67R37	DR	63S4	88 325/346
0.93	1805	1700	RF	67R37	DR	63S4	95 326/346
1.0	1629	1700	RM	67R37	DR	63S4	130 326/346
1.1	1471	1700					
1.2	1379	1700					
1.5	1109	1700					
1.8	956	1700	R	67R37	DRS	71S4	94 325/346
1.9	891	1700	RF	67R37	DRS	71S4	100 326/346
2.3	730	1700	RM	67R37	DRS	71S4	135 326/346
2.6	644	1700					
3.0	571	1700					
3.5	486	1700					
0.79	2136	1700	R	67R37	DR	63S4	90 325/346
0.91	1852	1700	RF	67R37	DR	63S4	97 326/346
1.0	1652	1700	RM	67R37	DR	63S4	130 326/346
1.2	1432	1700					
1.3	1259	1700					
1.5	1106	1700					
2.0	836	1700	R	67R37	DRS	71S4	96 325/346
2.3	750	1700	RF	67R37	DRS	71S4	105 326/346
2.6	646	1700	RM	67R37	DRS	71S4	140 326/346
3.0	574	1700					
3.4	495	1700					
3.9	438	1700					
4.4	388	1700					
4.9	344	1700					
5.8	294	1700	R	67R37	DRS	71M4	98 325/346
6.5	261	1700	RF	67R37	DRS	71M4	105 326/346
7.2	234	1700	RM	67R37	DRS	71M4	140 326/346
8.8	200	1700	R	67R37	DRN	80M4	110 325/346
10.0	176	1700	RF	67R37	DRN	80M4	115 326/346
			RM	67R37	DRN	80M4	150 326/346
11	158	1700	R	67R37	DRN	90S4	120 325/346
			RF	67R37	DRN	90S4	130 326/346
			RM	67R37	DRN	90S4	165 326/346
3.8	443	1700	R	67R37	DRS	71S4	94 325/346
4.4	384	1700	RF	67R37	DRS	71S4	100 326/346
4.7	359	1700	RM	67R37	DRS	71S4	135 326/346
5.5	310	1700	R	67R37	DRS	71M4	96 325/346
6.4	264	1700	RF	67R37	DRS	71M4	105 326/346
7.2	235	1700	RM	67R37	DRS	71M4	140 326/346
8.7	201	1700	R	67R37	DRN	80M4	105 325/346
9.7	181	1700	RF	67R37	DRN	80M4	115 326/346
			RM	67R37	DRN	80M4	150 326/346
11	159	1700	R	67R37	DRN	90S4	120 325/346
			RF	67R37	DRN	90S4	125 326/346
			RM	67R37	DRN	90S4	160 326/346

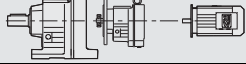

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$T_{a \max} = 7250 \text{ lb-in}$								
n_a rpm	i	$F_{Ra}^{1)}$ lb					m lbs	
0.10	16370	2230						
0.11	15015	2230						
0.12	13885	2230						
0.13	12783	2230						
0.15	11021	2230						
0.17	9788	2230						
0.19	8714	2230						
0.22	7617	2230	R	77R37	DR	63S4	100	328/346
0.25	6770	2230	RF	77R37	DR	63S4	115	329/346
0.29	5838	2230	RM	77R37	DR	63S4	170	329/346
0.32	5184	2230						
0.38	4470	2230						
0.42	3999	2230						
0.48	3488	2230						
0.55	3053	2230						
0.63	2671	2230						
0.53	3151	2230						
0.58	2890	2230						
0.68	2460	2230						
0.79	2121	2230	R	77R37	DR	63S4	100	328/346
0.85	1977	2230	RF	77R37	DR	63S4	110	329/346
0.97	1728	2230	RM	77R37	DR	63S4	165	329/346
1.0	1620	2230						
1.2	1430	2230						
1.3	1303	2230						
1.5	1124	2230						
1.6	1047	2230						
1.9	915	2230	R	77R37	DRS	71S4	105	328/346
2.0	858	2230	RF	77R37	DRS	71S4	120	329/346
2.2	757	2230	RM	77R37	DRS	71S4	175	329/346
2.5	671	2230						
3.0	571	2230						
0.72	2345	2230						
0.81	2070	2230	R	77R37	DR	63S4	100	328/346
0.92	1822	2230	RF	77R37	DR	63S4	115	329/346
1.1	1580	2230	RM	77R37	DR	63S4	170	329/346
1.2	1394	2230						
1.4	1218	2230						
1.6	1084	2230						
1.8	940	2230						
2.1	821	2230	R	77R37	DRS	71S4	110	328/346
2.3	731	2230	RF	77R37	DRS	71S4	120	329/346
2.6	646	2230	RM	77R37	DRS	71S4	175	329/346
3.0	560	2230						
3.5	488	2230						
3.9	436	2230	R	77R37	DRS	71M4	110	328/346
4.5	373	2230	RF	77R37	DRS	71M4	125	329/346
5.2	327	2230	RM	77R37	DRS	71M4	180	329/346
5.9	289	2230						
6.8	260	2230	R	77R37	DRN	80M4	120	328/346
7.8	224	2230	RF	77R37	DRN	80M4	135	329/346
			RM	77R37	DRN	80M4	190	329/346
9.0	197	2230	R	77R37	DRN	90S4	135	328/346
10	169	2230	RF	77R37	DRN	90S4	145	329/346
12	149	2230	RM	77R37	DRN	90S4	200	329/346
3.3	520	2230	R	77R37	DRS	71S4	105	328/346
3.8	451	2230	RF	77R37	DRS	71S4	120	329/346
			RM	77R37	DRS	71S4	175	329/346

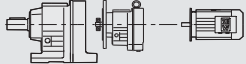

T_{a max} = 7250 lb-in

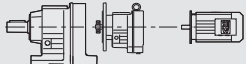

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
4.0	422	2230	R	77R37	DRS	71M4	110	328/346
4.6	365	2230	RF	77R37	DRS	71M4	120	329/346
5.5	310	2230	RM	77R37	DRS	71M4	175	329/346
6.3	276	2230	R	77R37	DRN	80M4	120	328/346
7.4	236	2230	RF	77R37	DRN	80M4	130	329/346
7.9	221	2230	RM	77R37	DRN	80M4	185	329/346
9.4	186	2230	R	77R37	DRN	90S4	130	328/346
			RF	77R37	DRN	90S4	145	329/346
			RM	77R37	DRN	90S4	200	329/346

T_{a max} = 13700 lb-in

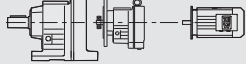

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.10	17452	2820						
0.11	15310	2820						
0.12	13813	2820						
0.14	12025	2820						
0.16	10549	2820						
0.18	9244	2820						
0.21	8109	2820	R	87R57	DR	63S4	190	331/346
0.24	7038	3800	RF	87R57	DR	63S4	205	332/346
0.27	6174	3800	RM	87R57	DR	63S4	270	332/346
0.31	5449	3800						
0.35	4831	3800						
0.40	4206	3800						
0.45	3744	3800						
0.52	3233	3800						
0.59	2873	2820						
0.68	2518	2820	R	87R57	DRS	71S4	195	331/346
0.77	2209	2820	RF	87R57	DRS	71S4	210	332/346
0.87	1961	3800	RM	87R57	DRS	71S4	275	332/346
1.7	994	3800						
1.9	881	3800	R	87R57	DRS	71M4	200	331/346
			RF	87R57	DRS	71M4	215	332/346
			RM	87R57	DRS	71M4	280	332/346
0.42	4020	3800	R	87R57	DR	63S4	185	331/346
0.45	3703	3800	RF	87R57	DR	63S4	205	332/346
0.53	3182	3800	RM	87R57	DR	63S4	270	332/346
0.61	2770	3800						
0.66	2595	3800						
0.80	2129	3800						
0.88	1930	3800						
0.98	1733	3800						
1.1	1489	3800	R	87R57	DRS	71S4	190	331/346
1.2	1395	3800	RF	87R57	DRS	71S4	210	332/346
1.4	1232	3800	RM	87R57	DRS	71S4	275	332/346
1.5	1145	3800						
1.6	1037	3800						
1.8	931	3800						
2.1	802	3800	R	87R57	DRS	71M4	195	331/346
2.2	754	3800	RF	87R57	DRS	71M4	210	332/346
2.6	649	3800	RM	87R57	DRS	71M4	275	332/346
2.9	580	3800						
0.98	1737	2820						
1.1	1524	2820						
1.3	1303	2820	R	87R57	DRS	71S4	195	331/346
1.5	1143	2820	RF	87R57	DRS	71S4	210	332/346
1.7	1008	2820	RM	87R57	DRS	71S4	275	332/346
1.9	885	3800						
2.2	776	3800	R	87R57	DRS	71M4	195	331/346
2.5	685	3800	RF	87R57	DRS	71M4	210	332/346
2.8	599	2820	RM	87R57	DRS	71M4	275	332/346

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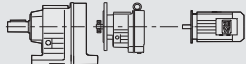

T_{a max} = 13700 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
3.3 3.8	525	2820	R	87R57	DRN	80M4	205	331/346
	456	3800	RF	87R57	DRN	80M4	225	332/346
			RM	87R57	DRN	80M4	290	332/346
4.4 5.0 5.8	398	3800	R	87R57	DRN	90S4	220	331/346
	352	3800	RF	87R57	DRN	90S4	235	332/346
	305	3800	RM	87R57	DRN	90S4	300	332/346
6.6 7.5	268	3800	R	87R57	DRN	90L4	230	331/346
	236	3800	RF	87R57	DRN	90L4	245	332/346
			RM	87R57	DRN	90L4	310	332/346
8.4	209	3800	R	87R57	DRN	100LM4	250	331/346
			RF	87R57	DRN	100LM4	270	332/346
			RM	87R57	DRN	100LM4	335	332/346
3.1	538	3800	R	87R57	DRS	71M4	195	331/346
			RF	87R57	DRS	71M4	210	332/346
			RM	87R57	DRS	71M4	275	332/346
3.7	472	3800	R	87R57	DRN	80M4	205	331/346
			RF	87R57	DRN	80M4	220	332/346
			RM	87R57	DRN	80M4	285	332/346
4.4 4.9 5.9	400	3800	R	87R57	DRN	90S4	220	331/346
	361	3800	RF	87R57	DRN	90S4	235	332/346
	300	3800	RM	87R57	DRN	90S4	300	332/346
6.9 7.6	256	3800	R	87R57	DRN	90L4	225	331/346
	232	3800	RF	87R57	DRN	90L4	240	332/346
			RM	87R57	DRN	90L4	305	332/346
9.1	195	3800	R	87R57	DRN	100LM4	250	331/346
			RF	87R57	DRN	100LM4	265	332/346
			RM	87R57	DRN	100LM4	330	332/346

T_{a max} = 26500 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.08	21769	2930						
0.09	19332	2930						
0.10	17230	2930						
0.11	14999	2930						
0.13	13320	2930	R	97R57	DR	63S4	285	334/346
0.15	11156	2930	RF	97R57	DR	63S4	320	335/346
0.17	10030	2930	RM	97R57	DR	63S4	435	335/346
0.19	8706	2930						
0.22	7692	2930						
0.25	6708	2930						
0.28	5931	4450						
0.33	5161	4450	R	97R57	DRS	71S4	290	334/346
0.37	4559	4450	RF	97R57	DRS	71S4	325	335/346
0.42	4004	2930	RM	97R57	DRS	71S4	440	335/346
0.49	3481	2930						
0.36	4678	4450						
0.39	4309	4450						
0.46	3702	4450						
0.56	3019	4450	R	97R57	DRS	71S4	280	334/346
0.64	2668	4450	RF	97R57	DRS	71S4	320	335/346
0.76	2245	4450	RM	97R57	DRS	71S4	435	335/346
0.84	2016	4450						
0.98	1733	4450						
1.1	1623	4450						
1.2	1434	4450	R	97R57	DRS	71M4	285	334/346
1.4	1207	4450	RF	97R57	DRS	71M4	325	335/346
1.6	1084	4450	RM	97R57	DRS	71M4	435	335/346
1.9	934	4450	R	97R57	DRN	80M4	295	334/346
2.0	878	4450	RF	97R57	DRN	80M4	335	335/346
			RM	97R57	DRN	80M4	445	335/346

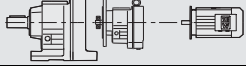

T_{a max} = 26500 lb-in

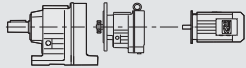

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs		
2.3	755	4450	R	97R57	DRN	90S4	310	334/346	
			RF	97R57	DRN	90S4	345	335/346	
			RM	97R57	DRN	90S4	460	335/346	
0.55	3065	2930	R	97R57	DRS	71S4	285	334/346	
0.62	2722	2930		RF	97R57	DRS	71S4	325	335/346
0.74	2311	2930		RM	97R57	DRS	71S4	435	335/346
0.82	2078	2930							
0.93	1823	2930							
1.1	1583	2930	R	97R57	DRS	71M4	290	334/346	
1.2	1396	2930		RF	97R57	DRS	71M4	325	335/346
1.4	1228	2930		RM	97R57	DRS	71M4	440	335/346
1.6	1069	4450							
1.9	938	4450	R	97R57	DRN	80M4	300	334/346	
			RF	97R57	DRN	80M4	340	335/346	
			RM	97R57	DRN	80M4	450	335/346	
2.1	824	2930							
2.4	737	2930	R	97R57	DRN	90S4	315	334/346	
			RF	97R57	DRN	90S4	350	335/346	
			RM	97R57	DRN	90S4	465	335/346	
2.8	632	4450							
3.1	560	4450							
3.6	484	2930	R	97R57	DRN	90L4	320	334/346	
			RF	97R57	DRN	90L4	360	335/346	
			RM	97R57	DRN	90L4	470	335/346	
4.1	431	4450							
4.7	379	4450	R	97R57	DRN	100LM4	345	334/346	
			RF	97R57	DRN	100LM4	385	335/346	
			RM	97R57	DRN	100LM4	495	335/346	
5.2	336	4450							
6.0	296	4450							
7.1	249	4450	R	97R57	DRN	100L4	345	334/346	
			RF	97R57	DRN	100L4	385	335/346	
			RM	97R57	DRN	100L4	495	335/346	
7.5	234	4450							
8.4	209	4450							
2.8	625	4450	R	97R57	DRN	90S4	305	334/346	
			RF	97R57	DRN	90S4	345	335/346	
			RM	97R57	DRN	90S4	460	335/346	
3.2	549	4450							
3.8	466	4450	R	97R57	DRN	90L4	315	334/346	
			RF	97R57	DRN	90L4	350	335/346	
			RM	97R57	DRN	90L4	465	335/346	
4.2	420	4450							
4.8	370	4450	R	97R57	DRN	100LM4	340	334/346	
			RF	97R57	DRN	100LM4	375	335/346	
			RM	97R57	DRN	100LM4	490	335/346	
5.0	349	4450							
5.9	297	4450							
6.5	270	4450							
7.8	227	4450	R	97R57	DRN	100L4	340	334/346	
			RF	97R57	DRN	100L4	375	335/346	
			RM	97R57	DRN	100L4	490	335/346	

T_{a max} = 38000 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs							
0.08	20018	6620	R	107R77	DR	63S4	445	336/346						
0.10	17080	6620												
0.11	14936	6620												
0.13	12829	6620												
0.15	11256	6620												
0.18	9547	6620												
0.20	8618	6620	RF	107R77	DR	63S4	460	337/346						
									RM	107R77	DR	63S4	650	337/346
			0.22	7583	6620	R	107R77	DRS	71S4	450	336/346			
			0.25	6743	6620									
			0.29	5914	6620									
			0.33	5168	6620									
			0.38	4435	6620									
			0.44	3896	6620									
0.50	3432	6620												
0.56	3039	6620	RF	107R77	DRS	71S4	465	337/346						
0.63	2688	6620							RM	107R77	DRS	71S4	660	337/346

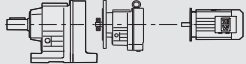

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T_{a max} = 38000 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.75	2339	6620	R	107R77	DRN	80M4	465	336/346
			RF	107R77	DRN	80M4	480	337/346
			RM	107R77	DRN	80M4	670	337/346
0.43	3918	6620	R	107R77	DRS	71S4	435	336/346
0.51	3343	6620	RF	107R77	DRS	71S4	450	337/346
0.56	3034	6620	RM	107R77	DRS	71S4	640	337/346
0.64	2653	6620						
0.74	2280	6620	R	107R77	DRS	71M4	440	336/346
0.82	2067	6620	RF	107R77	DRS	71M4	455	337/346
1.0	1693	6620	RM	107R77	DRS	71M4	650	337/346
1.1	1550	6620	R	107R77	DRN	80M4	450	336/346
1.2	1407	6620	RF	107R77	DRN	80M4	465	337/346
1.4	1209	6620	RM	107R77	DRN	80M4	660	337/346
1.7	1055	6620	R	107R77	DRN	90S4	460	336/346
1.9	919	6620	RF	107R77	DRN	90S4	475	337/346
2.2	815	6620	RM	107R77	DRN	90S4	670	337/346
2.5	717	6620	R	107R77	DRN	90L4	470	336/346
2.8	626	6620	RF	107R77	DRN	90L4	480	337/346
			RM	107R77	DRN	90L4	680	337/346
3.3	528	6620	R	107R77	DRN	100LM4	495	336/346
			RF	107R77	DRN	100LM4	510	337/346
			RM	107R77	DRN	100LM4	700	337/346
0.85	1987	6620	R	107R77	DRS	71M4	450	336/346
0.92	1827	6620	RF	107R77	DRS	71M4	465	337/346
1.1	1599	6620	RM	107R77	DRS	71M4	660	337/346
1.2	1400	6620	R	107R77	DRN	80M4	460	336/346
1.4	1226	6620	RF	107R77	DRN	80M4	475	337/346
			RM	107R77	DRN	80M4	670	337/346
1.6	1104	6620	R	107R77	DRN	90S4	475	336/346
1.9	939	6620	RF	107R77	DRN	90S4	485	337/346
2.1	822	6620	RM	107R77	DRN	90S4	680	337/346
2.9	614	6620	R	107R77	DRN	90L4	480	336/346
			RF	107R77	DRN	90L4	495	337/346
			RM	107R77	DRN	90L4	690	337/346
3.2	544	6620	R	107R77	DRN	100LM4	500	336/346
3.6	492	6620	RF	107R77	DRN	100LM4	520	337/346
4.2	417	6620	RM	107R77	DRN	100LM4	710	337/346
4.8	369	6620	R	107R77	DRN	100L4	500	336/346
5.5	323	6620	RF	107R77	DRN	100L4	520	337/346
6.2	285	6620	RM	107R77	DRN	100L4	710	337/346
7.0	253	6620						
8.2	214	6620	R	107R77	DRN	112M4	530	336/346
			RF	107R77	DRN	112M4	540	337/346
			RM	107R77	DRN	112M4	730	337/346
9.4	187	6620	R	107R77	DRN	132S4	550	336/346
			RF	107R77	DRN	132S4	560	337/346
			RM	107R77	DRN	132S4	760	337/346
3.8	469	6620	R	107R77	DRN	100LM4	490	336/346
4.2	426	6620	RF	107R77	DRN	100LM4	500	337/346
RM	107R77	DRN	100LM4	700	337/346			
4.7	377	6620	R	107R77	DRN	100L4	490	336/346
5.4	325	6620	RF	107R77	DRN	100L4	500	337/346
6.2	284	6620	RM	107R77	DRN	100L4	700	337/346
6.9	256	6620						
8.0	220	6620	R	107R77	DRN	112M4	510	336/346
			RF	107R77	DRN	112M4	520	337/346
			RM	107R77	DRN	112M4	720	337/346
9.1	193	6620	R	107R77	DRN	132S4	540	336/346
10	172	6620	RF	107R77	DRN	132S4	550	337/346
			RM	107R77	DRN	132S4	740	337/346

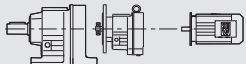

T_{a max} = 53000 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.08	20936	9660	R RF RM	127R77	DR	63S4	570	338/346
0.09	17863	9660		127R77	DR	63S4	590	339/346
0.11	15620	9660		127R77	DR	63S4	810	339/346
0.12	14123	9660						
0.13	13417	9660						
0.14	11772	9660						
0.17	9985	9660	R RF RM	127R77	DRS	71S4	580	338/346
0.19	9013	9660		127R77	DRS	71S4	600	339/346
0.19	8771	9660		127R77	DRS	71S4	810	339/346
0.21	8282	9660						
0.22	7639	9660						
0.24	7053	9660						
0.25	6722	9660						
0.27	6347	9660						
0.27	6185	9660						
0.30	5592	9660						
0.36	4740	9660						
0.38	4441	9660						
0.43	3949	9660						
0.45	3764	9660						
0.48	3571	9660						
0.54	3110	9660	R	127R77	DRS	71M4	580	338/346
0.60	2812	9660	RF	127R77	DRS	71M4	600	339/346
0.71	2383	9660	RM	127R77	DRS	71M4	810	339/346
0.91	1934	9660	R	127R77	DRN	80M4	590	338/346
0.95	1835	9660	RF	127R77	DRN	80M4	610	339/346
			RM	127R77	DRN	80M4	830	339/346
1.1	1555	9660	R	127R77	DRN	90S4	600	338/346
1.2	1444	9660	RF	127R77	DRN	90S4	620	339/346
1.4	1224	9660	RM	127R77	DRN	90S4	840	339/346
0.49	3495	9660	R	127R77	DRS	71S4	540	338/346
			RF	127R77	DRS	71S4	590	339/346
			RM	127R77	DRS	71S4	800	339/346
0.55	3056	9660	R	127R77	DRS	71M4	540	338/346
0.58	2903	9660	RF	127R77	DRS	71M4	590	339/346
0.66	2547	9660	RM	127R77	DRS	71M4	800	339/346
0.78	2161	9660						
0.90	1951	9660	R	127R77	DRN	80M4	550	338/346
1.0	1716	9660	RF	127R77	DRN	80M4	600	339/346
			RM	127R77	DRN	80M4	810	339/346
1.1	1620	9660	R	127R77	DRN	90S4	560	338/346
1.3	1380	9660	RF	127R77	DRN	90S4	610	339/346
1.5	1210	9660	RM	127R77	DRN	90S4	820	339/346
1.8	961	9660	R	127R77	DRN	90L4	570	338/346
			RF	127R77	DRN	90L4	620	339/346
			RM	127R77	DRN	90L4	830	339/346
2.3	773	9660	R	127R77	DRN	100LM4	600	338/346
2.9	608	9660	RF	127R77	DRN	100LM4	640	339/346
			RM	127R77	DRN	100LM4	850	339/346
0.67	2506	9660	R	127R77	DRS	71M4	580	338/346
0.75	2266	9660	RF	127R77	DRS	71M4	600	339/346
			RM	127R77	DRS	71M4	810	339/346
0.87	2016	9660	R	127R77	DRN	80M4	590	338/346
0.91	1920	9660	RF	127R77	DRN	80M4	610	339/346
0.96	1823	9660	RM	127R77	DRN	80M4	820	339/346
1.1	1673	9660						
1.1	1545	9660	R RF RM	127R77	DRN	90S4	600	338/346
1.2	1512	9660		127R77	DRN	90S4	620	339/346
1.3	1322	9660		127R77	DRN	90S4	830	339/346
1.4	1282	9660						
1.5	1195	9660						
1.5	1164	9660						

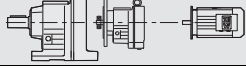

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T_{a max} = 53000 lb-in

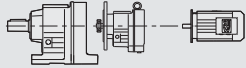

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
1.7	1034	9660	R RF RM	127R77	DRN	90L4	600	338/346
1.7	1013	9660		127R77	DRN	90L4	630	339/346
1.8	987	9660		127R77	DRN	90L4	840	339/346
1.9	936	9660		127R77	DRN	90L4		
1.9	935	9660						
2.1	830	9660						
2.2	794	9660	R RF RM	127R77	DRN	100LM4	630	338/346
2.2	792	9660		127R77	DRN	100LM4	650	339/346
2.3	777	9660		127R77	DRN	100LM4	870	339/346
2.4	750	9660		127R77	DRN	100LM4		
2.7	659	9660		127R77	DRN	100LM4		
2.8	642	9660		127R77	DRN	100LM4		
2.8	636	9660						
2.9	614	9660						
3.0	581	9660						
3.4	521	9660	R RF RM	127R77	DRN	100L4	630	338/346
3.6	492	9660		127R77	DRN	100L4	650	339/346
3.7	480	9660		127R77	DRN	100L4	870	339/346
4.3	407	9660		127R77	DRN	100L4		
4.6	386	9660						
5.9	298	9660	R RF RM	127R77	DRN	112M4	650	338/346
7.0	253	9660		127R77	DRN	112M4	670	339/346
				127R77	DRN	112M4	890	339/346
3.6	490	9660	127R77	DRN	132S4	670	338/346	
			127R77	DRN	132S4	700	339/346	
			127R77	DRN	132S4	910	339/346	
4.5	394	9660	127R77	DRN	100L4	590	338/346	
			127R77	DRN	100L4	640	339/346	
			127R77	DRN	100L4	850	339/346	
5.4	327	9660	127R77	DRN	100L4			
			127R77	DRN	100L4			
			127R77	DRN	100L4			
6.8	259	9660	127R77	DRN	132S4	640	338/346	
			127R77	DRN	132S4	690	339/346	
			127R77	DRN	132S4	900	339/346	
8.8	202	9660	127R77	DRN	132M4	680	338/346	
			127R77	DRN	132M4	720	339/346	
			127R77	DRN	132M4	940	339/346	
11	162	9660	127R77	DRN	132M4			
			127R77	DRN	132M4			
			127R77	DRN	132M4			
14	126	9660	127R77	DRN	160M4	770	338/346	
			127R77	DRN	160M4	810	339/346	
			127R77	DRN	160M4	1020	339/346	

T_{a max} = 70700 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.08	22203	12000	R RF RM	137R77	DR	63S4	640	340/346
0.09	18945	12000		137R77	DR	63S4	690	341/346
0.10	16566	12000		137R77	DR	63S4	930	341/346
0.12	14777	12000	R RF RM	137R77	DRS	71S4	640	340/346
0.13	12921	12000						
0.15	11712	12000						
0.16	10573	12000						
0.19	8784	12000						
0.23	7479	12000						
0.26	6559	12000						
0.29	5834	12000						
0.33	5116	12000						
0.38	4464	12000						
0.43	3928	12000	137R77	DRS	71M4	700	341/346	
0.49	3454	12000	137R77	DRS	71M4	940	341/346	
0.59	2993	12000	137R77	DRN	80M4	650	340/346	
			137R77	DRN	80M4	710	341/346	
			137R77	DRN	80M4	950	341/346	
0.36	4709	12000	137R77	DRS	71S4	620	340/346	
			137R77	DRS	71S4	670	341/346	
			137R77	DRS	71S4	920	341/346	

T_{a max} = 70700 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.42	4018	12000	R	137R77	DRS	71M4	620	340/346
0.48	3514	12000	RF	137R77	DRS	71M4	670	341/346
0.51	3338	12000	RM	137R77	DRS	71M4	920	341/346
0.58	2929	12000						
0.70	2484	12000	R	137R77	DRN	80M4	630	340/346
0.78	2242	12000	RF	137R77	DRN	80M4	680	341/346
			RM	137R77	DRN	80M4	930	341/346
0.95	1863	12000	R	137R77	DRN	90S4	640	340/346
1.1	1586	12000	RF	137R77	DRN	90S4	700	341/346
			RM	137R77	DRN	90S4	940	341/346
1.3	1391	12000	R	137R77	DRN	90L4	650	340/346
1.4	1256	12000	RF	137R77	DRN	90L4	700	341/346
1.6	1105	12000	RM	137R77	DRN	90L4	950	341/346
1.7	1043	12000	R	137R77	DRN	100LM4	680	340/346
2.0	888	12000	RF	137R77	DRN	100LM4	730	341/346
			RM	137R77	DRN	100LM4	970	341/346
2.5	699	12000	R	137R77	DRN	100L4	680	340/346
2.9	609	12000	RF	137R77	DRN	100L4	730	341/346
			RM	137R77	DRN	100L4	970	341/346
0.66	2658	12000	R	137R77	DRN	80M4	650	340/346
0.73	2412	12000	RF	137R77	DRN	80M4	700	341/346
			RM	137R77	DRN	80M4	950	341/346
0.85	2073	12000	R	137R77	DRN	90S4	660	340/346
0.96	1839	12000	RF	137R77	DRN	90S4	710	341/346
1.1	1598	12000	RM	137R77	DRN	90S4	960	341/346
1.3	1397	12000	R	137R77	DRN	90L4	670	340/346
1.4	1226	12000	RF	137R77	DRN	90L4	720	341/346
1.6	1090	12000	RM	137R77	DRN	90L4	970	341/346
1.9	951	12000	R	137R77	DRN	100LM4	700	340/346
2.1	831	12000	RF	137R77	DRN	100LM4	750	341/346
2.4	730	12000	RM	137R77	DRN	100LM4	990	341/346
2.8	629	12000	R	137R77	DRN	100L4	700	340/346
3.1	560	12000	RF	137R77	DRN	100L4	750	341/346
3.6	490	12000	RM	137R77	DRN	100L4	990	341/346
4.1	428	12000						
4.6	381	12000	R	137R77	DRN	132S4	740	340/346
5.5	323	12000	RF	137R77	DRN	132S4	790	341/346
6.1	291	12000	RM	137R77	DRN	132S4	1040	341/346
7.0	255	12000	R	137R77	DRN	132M4	780	340/346
7.9	223	12000	RF	137R77	DRN	132M4	830	341/346
			RM	137R77	DRN	132M4	1080	341/346
9.0	197	12000	R	137R77	DRN	132L4	800	340/346
10	175	12000	RF	137R77	DRN	132L4	850	341/346
			RM	137R77	DRN	132L4	1100	341/346
3.1	564	12000	R	137R77	DRN	100L4	670	340/346
3.4	517	12000	RF	137R77	DRN	100L4	720	341/346
3.9	453	12000	RM	137R77	DRN	100L4	970	341/346
4.7	376	12000	R	137R77	DRN	132S4	720	340/346
5.2	339	12000	RF	137R77	DRN	132S4	770	341/346
6.0	297	12000	RM	137R77	DRN	132S4	1010	341/346

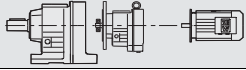

T_{a max} = 115000 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
0.07	23401	14100						
0.08	21342	14100						
0.09	18210	14100						
0.11	15923	14100	R	147R77	DRS	71S4	930	342/346
0.12	14075	14100	RF	147R77	DRS	71S4	950	343/346
0.14	12344	14100	RM	147R77	DRS	71S4	1320	343/346
0.15	11143	14100						
0.17	9743	14100						
0.20	8443	14100						
0.23	7307	14100	R	147R77	DRS	71M4	940	342/346
0.26	6447	14100	RF	147R77	DRS	71M4	950	343/346
0.30	5568	14100	RM	147R77	DRS	71M4	1320	343/346
0.34	4926	14100						
0.40	4325	14100	R	147R77	DRN	80M4	950	342/346
0.47	3754	14100	RF	147R77	DRN	80M4	960	343/346
			RM	147R77	DRN	80M4	1330	343/346
0.53	3302	14100	R	147R77	DRN	90S4	960	342/346
0.61	2898	14100	RF	147R77	DRN	90S4	970	343/346
			RM	147R77	DRN	90S4	1340	343/346
0.69	2555	14100	R	147R77	DRN	90S4	950	342/346
			RF	147R77	DRN	90S4	970	343/346
			RM	147R77	DRN	90S4	1340	343/346
0.80	2211	14100	R	147R77	DRN	90L4	960	342/346
0.91	1951	14100	RF	147R77	DRN	90L4	980	343/346
			RM	147R77	DRN	90L4	1350	343/346
1.0	1705	14100	R	147R77	DRN	100LM4	990	342/346
1.1	1536	14100	RF	147R77	DRN	100LM4	1000	343/346
1.3	1329	14100	RM	147R77	DRN	100LM4	1370	343/346
1.5	1166	14100						
1.7	1029	14100	R	147R77	DRN	100L4	990	342/346
2.0	889	14100	RF	147R77	DRN	100L4	1000	343/346
2.2	784	14100	RM	147R77	DRN	100L4	1370	343/346
2.5	695	14100						
2.9	619	14100	R	147R77	DRN	132S4	1030	342/346
3.2	558	14100	RF	147R77	DRN	132S4	1050	343/346
3.6	489	14100	RM	147R77	DRN	132S4	1420	343/346
4.3	415	14100	R	147R77	DRN	132M4	1070	342/346
			RF	147R77	DRN	132M4	1090	343/346
			RM	147R77	DRN	132M4	1460	343/346
3.3	533	14100	R	147R87	DRN	132S4	1080	342/346
			RF	147R87	DRN	132S4	1100	343/346
			RM	147R87	DRN	132S4	1460	343/346
3.8	462	14100	R	147R87	DRN	132M4	1120	342/346
4.2	426	14100	RF	147R87	DRN	132M4	1130	343/346
4.8	368	14100	RM	147R87	DRN	132M4	1500	343/346
5.5	326	14100	R	147R87	DRN	132L4	1130	342/346
			RF	147R87	DRN	132L4	1150	343/346
			RM	147R87	DRN	132L4	1520	343/346
6.3	280	14100	R	147R87	DRN	160M4	1210	342/346
7.2	247	14100	RF	147R87	DRN	160M4	1220	343/346
			RM	147R87	DRN	160M4	1590	343/346
8.3	214	14100	R	147R87	DRN	160L4	1240	342/346
9.4	189	14100	RF	147R87	DRN	160L4	1260	343/346
			RM	147R87	DRN	160L4	1630	343/346
11	159	14100	R	147R87	DRN	180M4	1290	342/346
			RF	147R87	DRN	180M4	1310	343/346
			RM	147R87	DRN	180M4	1680	343/346

$T_{a \max} = 159200 \text{ lb-in}$								
n_a rpm	i	$F_{Ra}^{1)}$ lb					m lbs	
0.06	27001	27000						
0.08	22482	27000						
0.08	20002	27000						
0.10	17361	27000	R	167R97	DRS	71M4	1660	344/346
0.11	15446	27000	RF	167R97	DRS	71M4	1680	345/346
0.12	14051	27000	RM	167R97	DRS	71M4	2110	345/346
0.14	11812	27000						
0.16	10509	27000						
0.18	9631	27000						
0.23	7749	27000	R	167R97	DRN	80M4	1670	344/346
0.25	6894	27000	RF	167R97	DRN	80M4	1690	345/346
0.29	6077	27000	RM	167R97	DRN	80M4	2120	345/346
0.32	5407	27000						
0.38	4650	27000	R	167R97	DRN	90S4	1680	344/346
0.43	4129	27000	RF	167R97	DRN	90S4	1700	345/346
0.48	3692	27000	RM	167R97	DRN	90S4	2130	345/346
0.57	3099	27000	R	167R97	DRN	100LM4	1720	344/346
			RF	167R97	DRN	100LM4	1730	345/346
			RM	167R97	DRN	100LM4	2160	345/346
0.67	2657	27000	R	167R97	DRN	90L4	1690	344/346
			RF	167R97	DRN	90L4	1700	345/346
			RM	167R97	DRN	90L4	2130	345/346
0.76	2333	27000	R	167R97	DRN	100LM4	1710	344/346
0.85	2085	27000	RF	167R97	DRN	100LM4	1720	345/346
0.94	1877	27000	RM	167R97	DRN	100LM4	2160	345/346
1.1	1670	27000						
1.2	1438	27000	R	167R97	DRN	100L4	1710	344/346
1.4	1279	27000	RF	167R97	DRN	100L4	1720	345/346
1.6	1123	27000	RM	167R97	DRN	100L4	2160	345/346
1.8	999	27000						
2.0	861	27000	R	167R97	DRN	132S4	1750	344/346
2.3	760	27000	RF	167R97	DRN	132S4	1770	345/346
2.7	656	27000	RM	167R97	DRN	132S4	2200	345/346
3.1	579	27000	R	167R97	DRN	132M4	1790	344/346
3.5	503	27000	RF	167R97	DRN	132M4	1810	345/346
			RM	167R97	DRN	132M4	2240	345/346
4.1	432	27000	R	167R97	DRN	132L4	1810	344/346
			RF	167R97	DRN	132L4	1830	345/346
			RM	167R97	DRN	132L4	2260	345/346
4.7	376	27000	R	167R97	DRN	160M4	1880	344/346
5.3	335	27000	RF	167R97	DRN	160M4	1900	345/346
			RM	167R97	DRN	160M4	2330	345/346
5.9	303	27000	R	167R97	DRN	160L4	1920	344/346
6.4	279	27000	RF	167R97	DRN	160L4	1930	345/346
			RM	167R97	DRN	160L4	2360	345/346
0.49	3637	27000						
0.53	3330	27000						
0.64	2757	27000	R	167R107	DRN	100LM4	1820	344/346
0.72	2436	27000	RF	167R107	DRN	100LM4	1830	345/346
0.77	2298	27000	RM	167R107	DRN	100LM4	2260	345/346
0.85	2066	27000						
0.95	1849	27000						
1.1	1674	27000						
1.2	1485	27000	R	167R107	DRN	100L4	1820	344/346
1.3	1342	27000	RF	167R107	DRN	100L4	1830	345/346
1.4	1229	27000	RM	167R107	DRN	100L4	2260	345/346
1.6	1111	27000						
1.9	950	27000	R	167R107	DRN	112M4	1830	344/346
			RF	167R107	DRN	112M4	1850	345/346
			RM	167R107	DRN	112M4	2280	345/346
2.1	860	27000	R	167R107	DRN	132S4	1860	344/346
2.3	763	27000	RF	167R107	DRN	132S4	1870	345/346
2.6	690	27000	RM	167R107	DRN	132S4	2300	345/346

8

Helical gearmotors

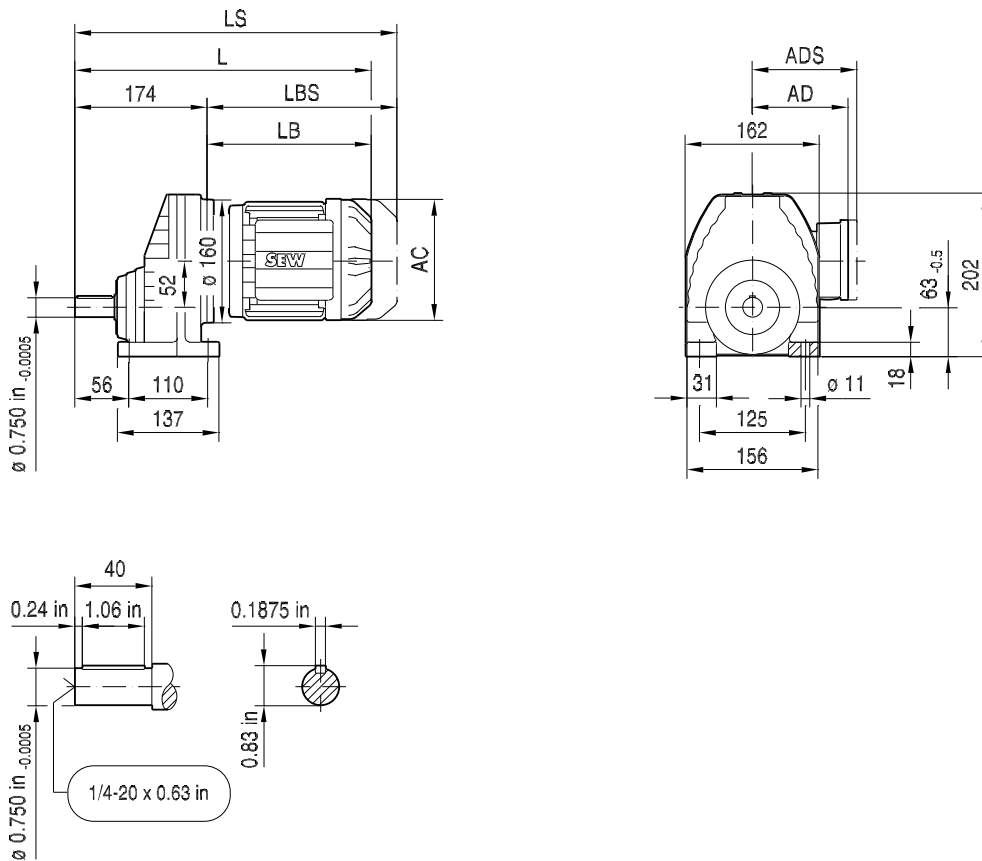
R.. R.. DRS/DRN.. Selections by torque / low output speed

T_{a max} = 159200 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
3.0 3.5	585	27000	R	167R107	DRN	132M4	1900	344/346
	511	27000	RF	167R107	DRN	132M4	1910	345/346
			RM	167R107	DRN	132M4	2340	345/346
5.1	349	27000	R	167R107	DRN	160M4	1990	344/346
			RF	167R107	DRN	160M4	2000	345/346
			RM	167R107	DRN	160M4	2430	345/346
6.0 6.6	295	27000	R	167R107	DRN	160L4	2020	344/346
	270	27000	RF	167R107	DRN	160L4	2040	345/346
			RM	167R107	DRN	160L4	2470	345/346
7.8 8.9	229	27000	R	167R107	DRN	180M4	2070	344/346
	200	27000	RF	167R107	DRN	180M4	2080	345/346
			RM	167R107	DRN	180M4	2520	345/346
11	169	27000	R	167R107	DRN	180L4	2110	344/346
			RF	167R107	DRN	180L4	2120	345/346
			RM	167R107	DRN	180L4	2550	345/346
4.0 4.5	446	27000	R	167R107	DRN	132L4	1900	344/346
	399	27000	RF	167R107	DRN	132L4	1920	345/346
			RM	167R107	DRN	132L4	2350	345/346
4.9 5.4	361	27000	R	167R107	DRN	160M4	1980	344/346
	328	27000	RF	167R107	DRN	160M4	1990	345/346
			RM	167R107	DRN	160M4	2420	345/346
6.1 6.7	291	27000	R	167R107	DRN	160L4	2010	344/346
	264	27000	RF	167R107	DRN	160L4	2020	345/346
			RM	167R107	DRN	160L4	2460	345/346
7.9 9.0	227	27000	R	167R107	DRN	180M4	2060	344/346
	198	27000	RF	167R107	DRN	180M4	2070	345/346
			RM	167R107	DRN	180M4	2500	345/346
11	168	27000	R	167R107	DRN	180L4	2090	344/346
			RF	167R107	DRN	180L4	2110	345/346
			RM	167R107	DRN	180L4	2540	345/346

8.5 R.. DRS/DRN.. Dimensions

01 229 00 16

RX57..



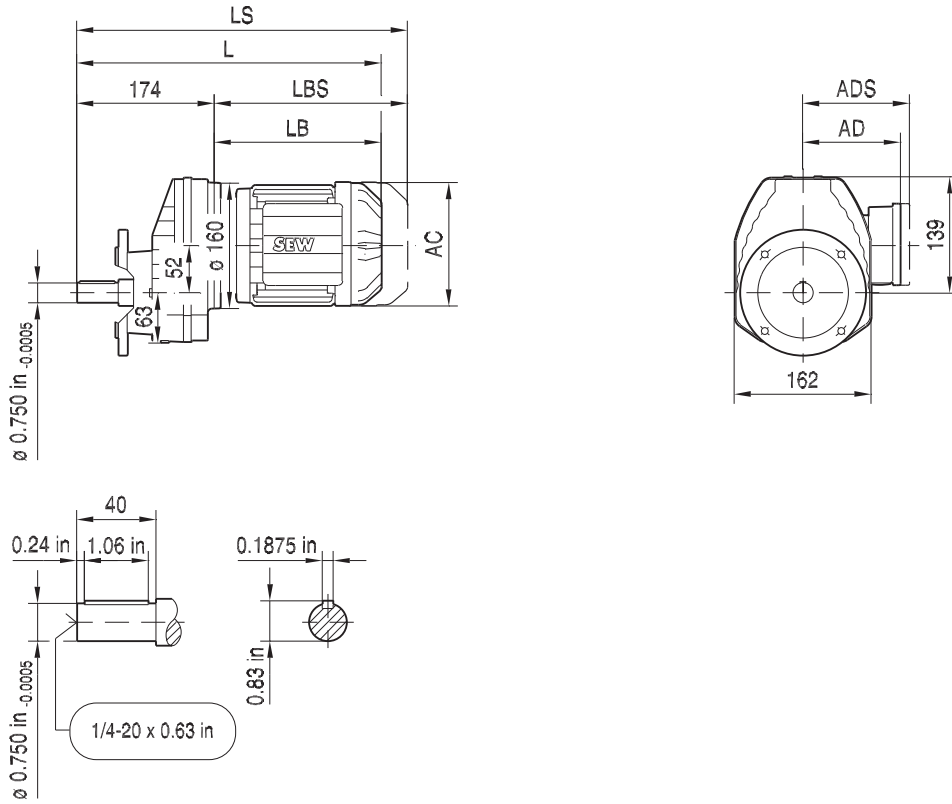
8

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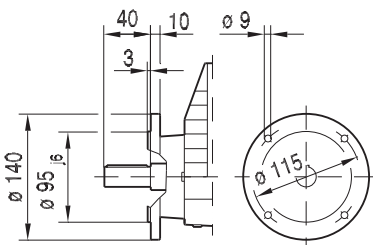
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	359	370	395	449	451	483	529	560	614	632
LS	414	438	463	530	544	576	623	672	726	770
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

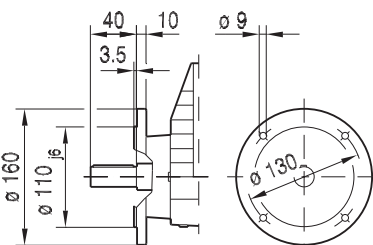
RXF57..



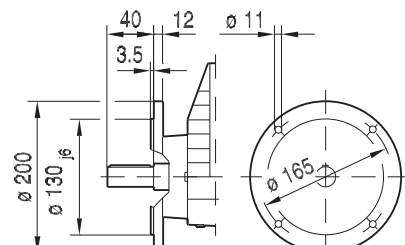
Ø 140



Ø 160



Ø 200

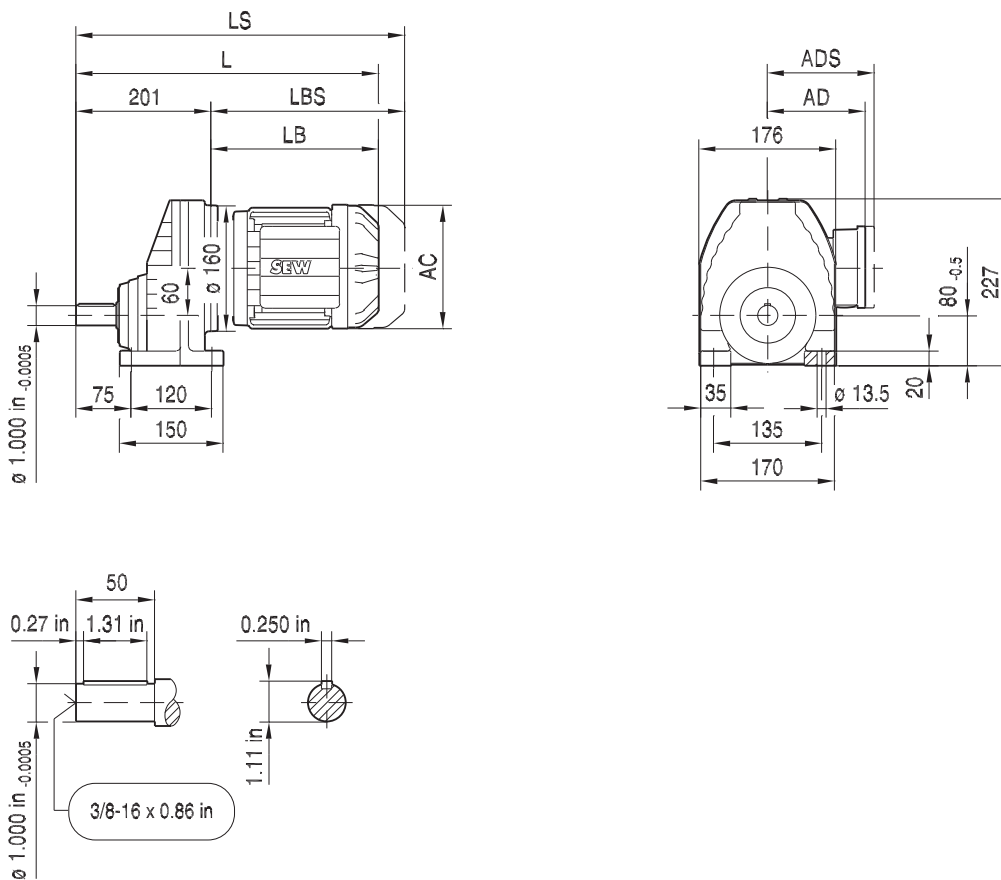


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	359	370	395	449	451	483	529	560	614	632
LS	414	438	463	530	544	576	623	672	726	770
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 231 00 16

RX67..



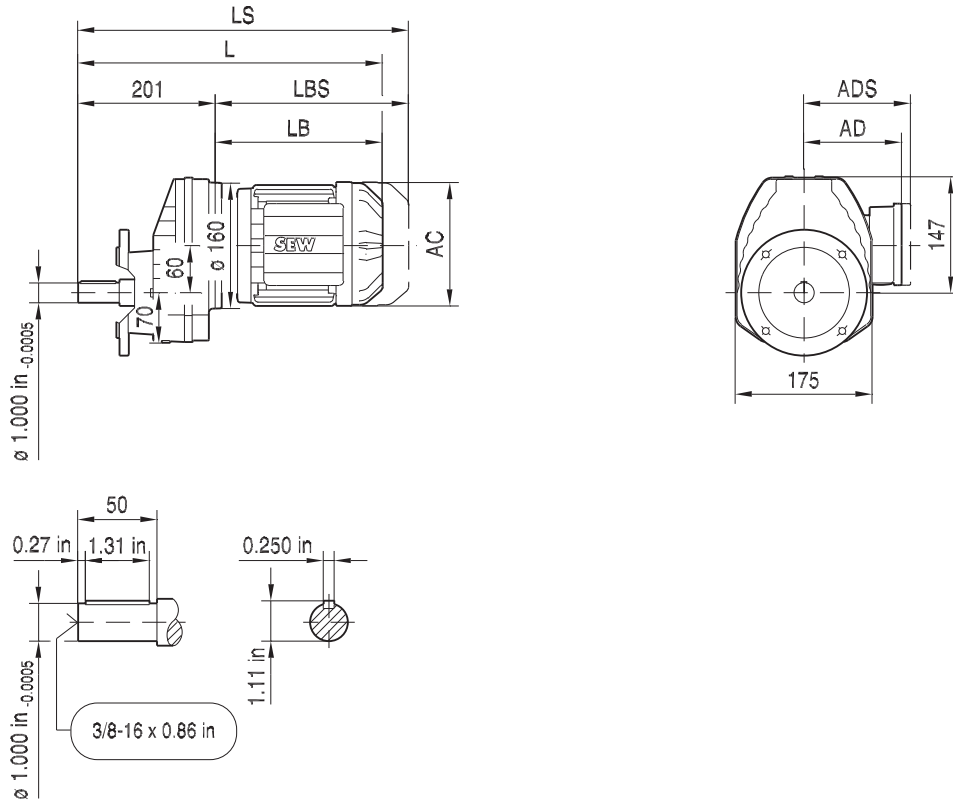
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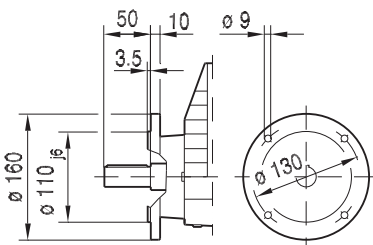
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	386	397	422	476	478	510	556	587	641	659
LS	441	465	490	557	571	603	650	699	753	797
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

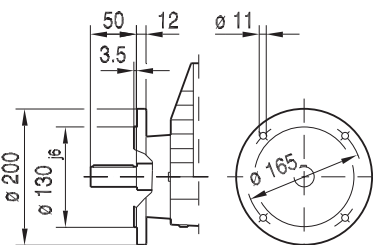
RXF67..



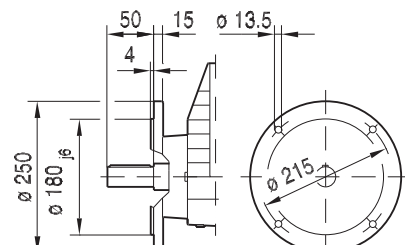
Ø 160



Ø 200



Ø 250

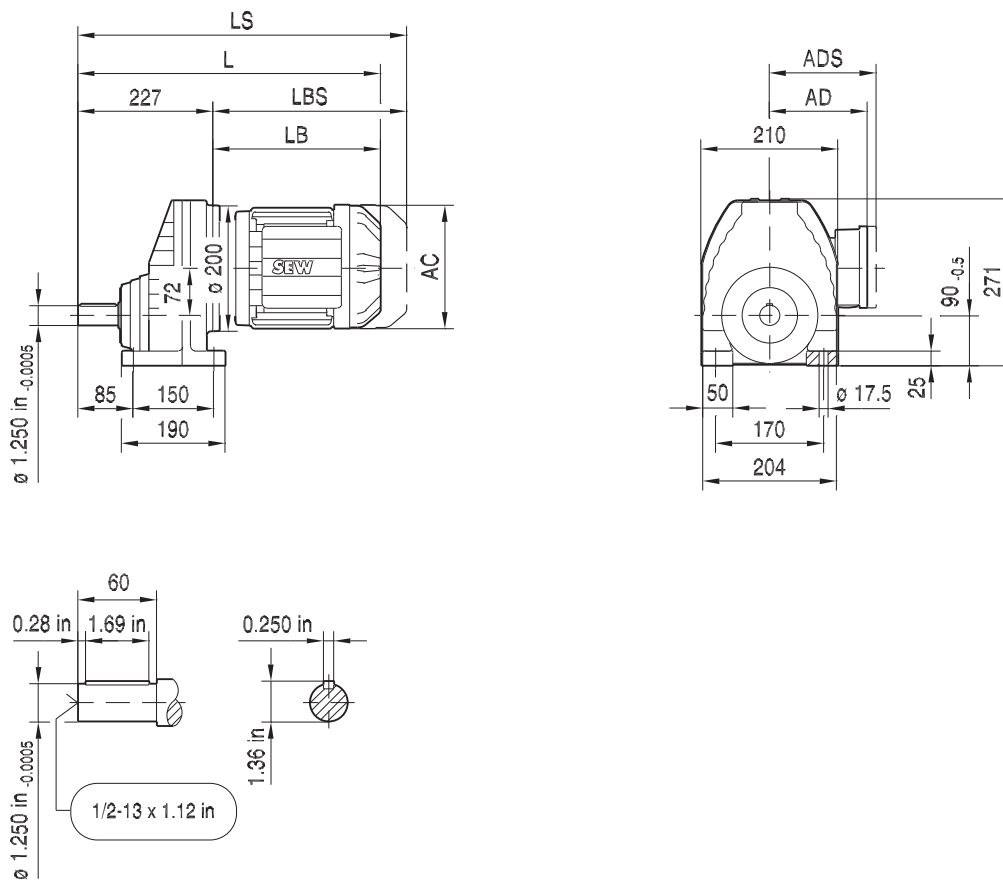


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	386	397	422	476	478	510	556	587	641	659
LS	441	465	490	557	571	603	650	699	753	797
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 233 00 16

RX77..



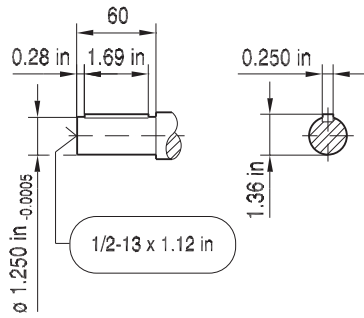
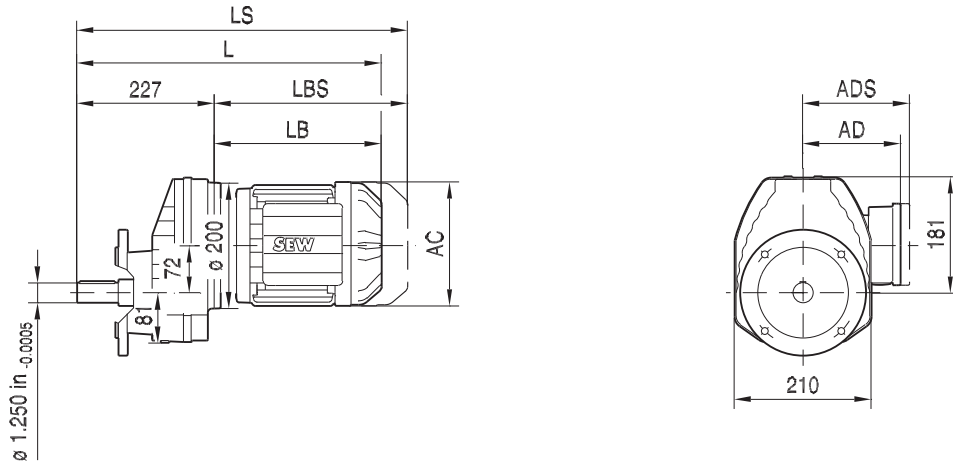
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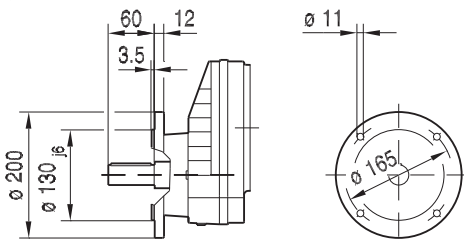
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	179	179	197	221	221	261	261	314
AD	140	140	157	170	170	228	228	253
ADS	150	150	158	172	172	228	228	253
L	497	529	575	606	656	674	700	766
LS	590	622	669	718	768	812	837	955
LB	270	302	348	379	429	447	473	539
LBS	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

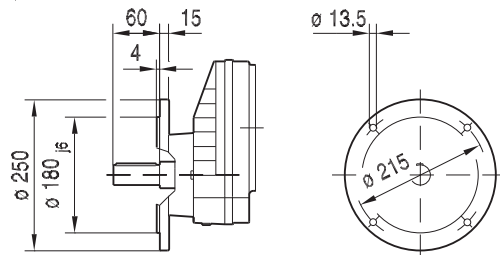
RXF77..



$\varnothing 200$



$\varnothing 250$

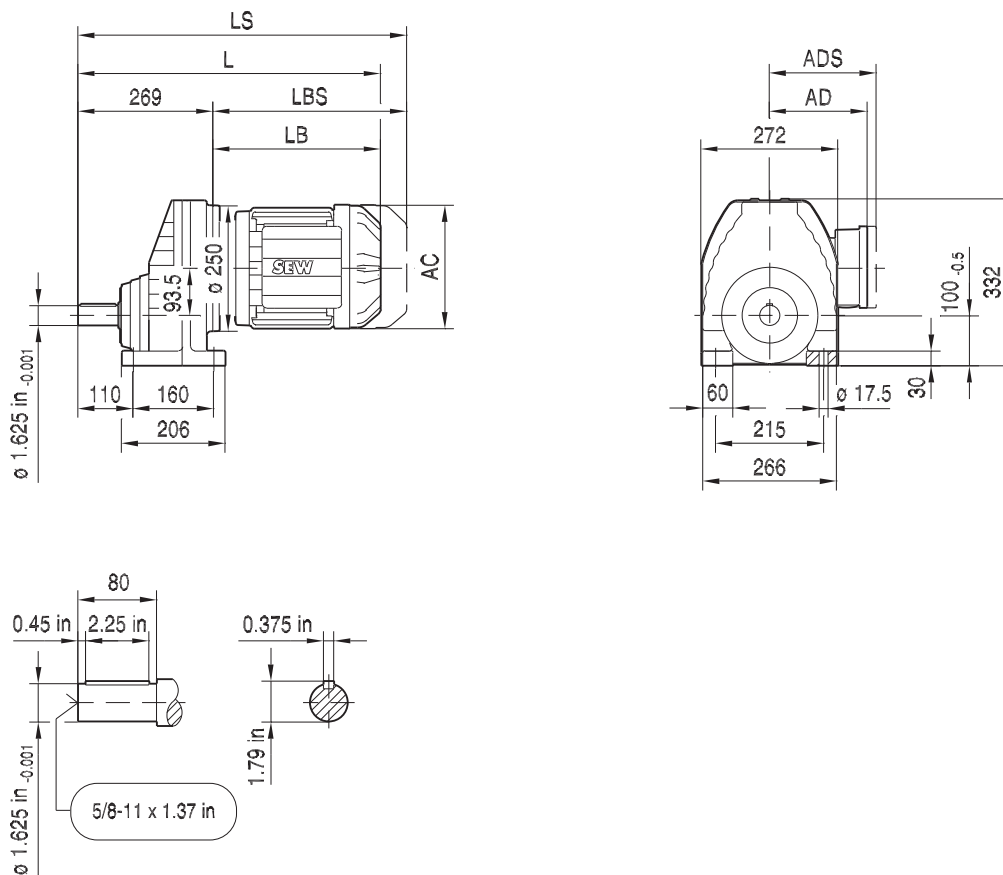


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	179	179	197	221	221	261	261	314
AD	140	140	157	170	170	228	228	253
ADS	150	150	158	172	172	228	228	253
L	497	529	575	606	656	674	700	766
LS	590	622	669	718	768	812	837	955
LB	270	302	348	379	429	447	473	539
LBS	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 235 00 16

RX87..



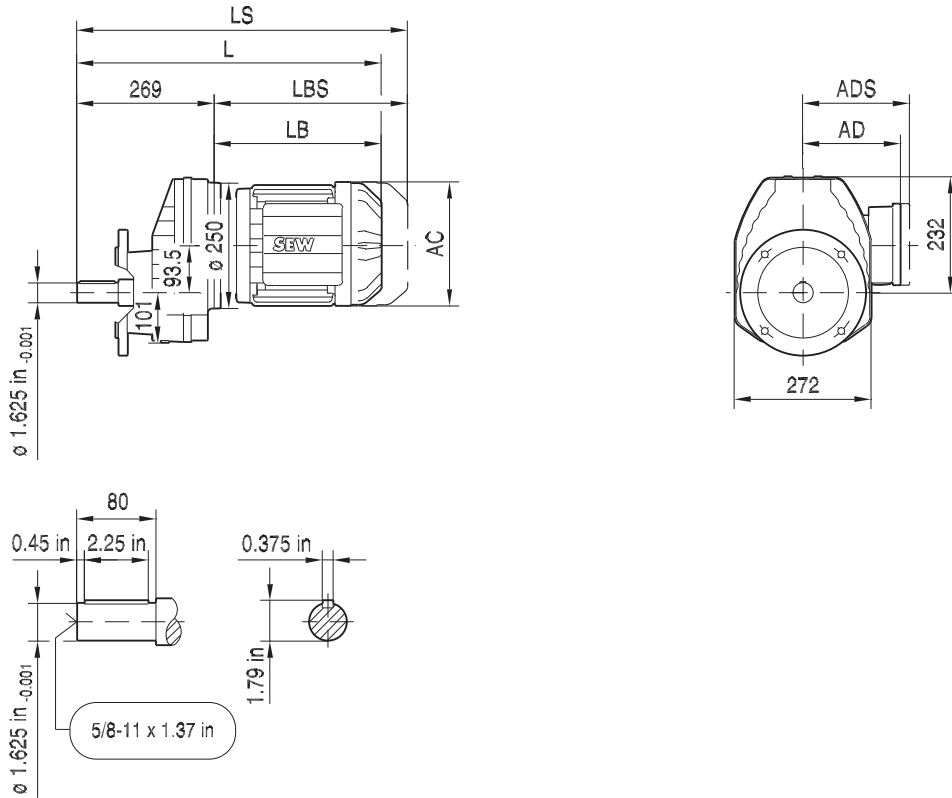
8

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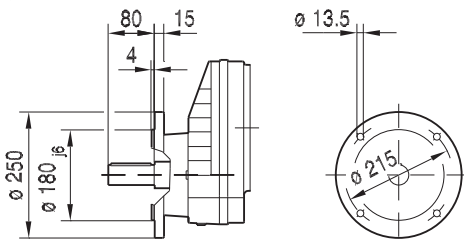
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	534	566	612	643	693	711	737	803	826
LS	627	659	706	755	805	849	874	992	1015
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

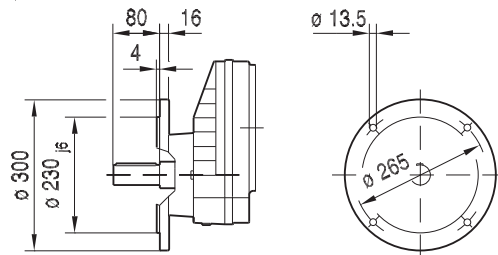
RXF87..



Ø 250



Ø 300

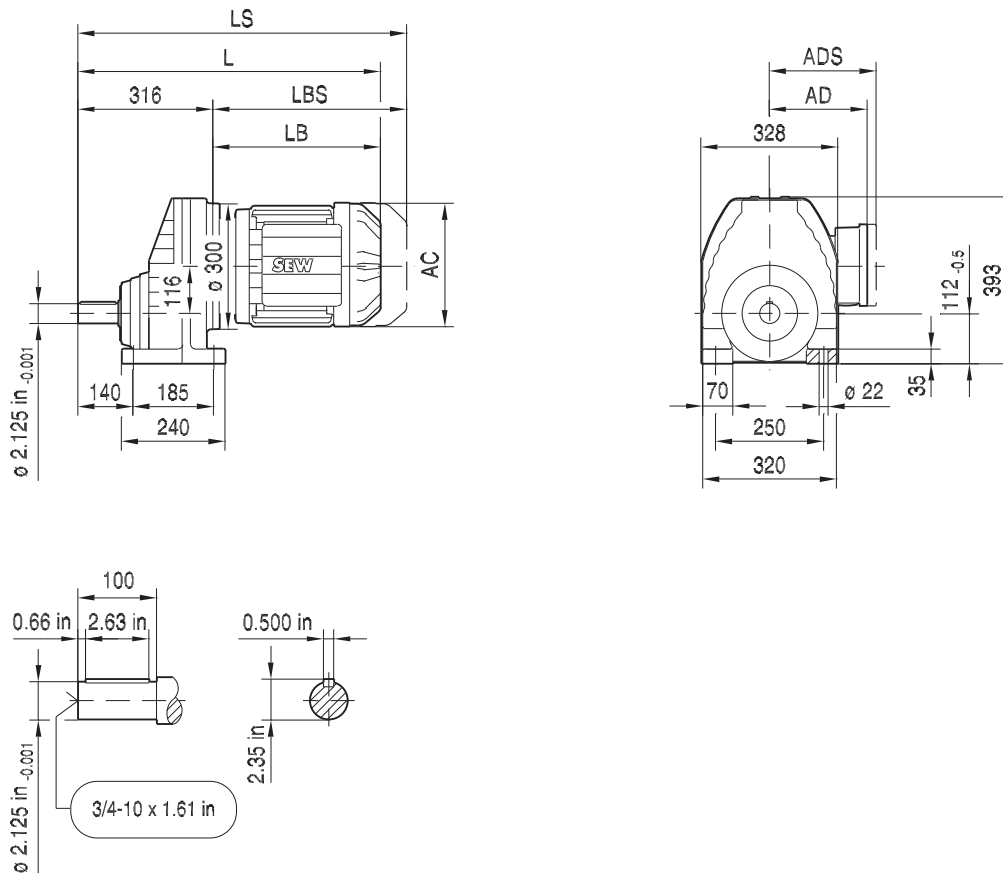


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	534	566	612	643	693	711	737	803	826
LS	627	659	706	755	805	849	874	992	1015
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 237 00 16

RX97..



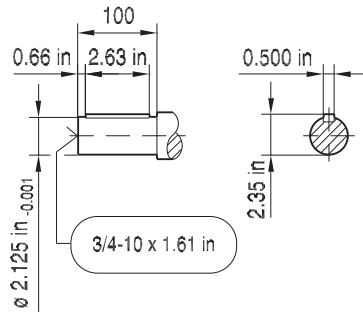
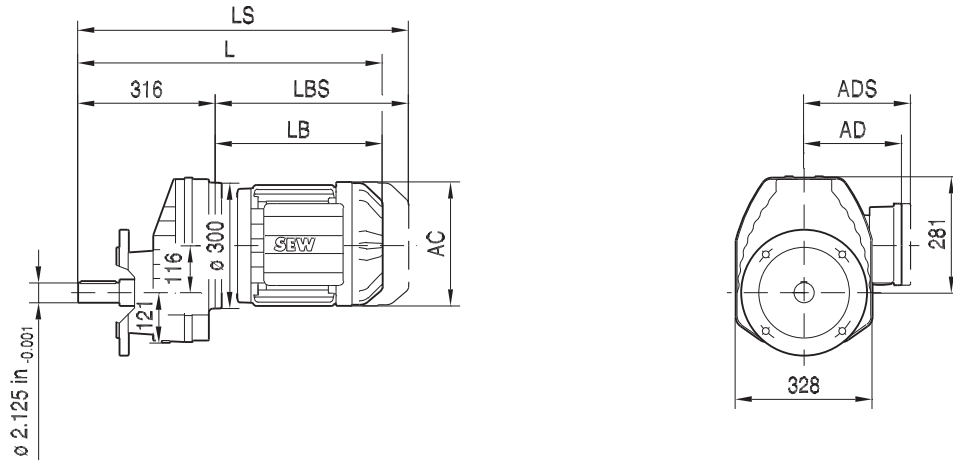
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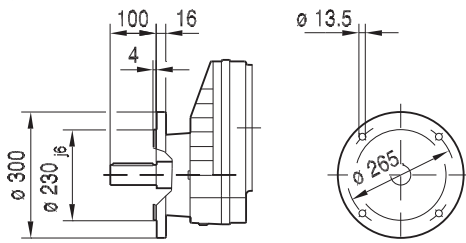
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	654	685	735	753	779	845	868	978	952
LS	748	797	847	891	916	1034	1057	1183	1157
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

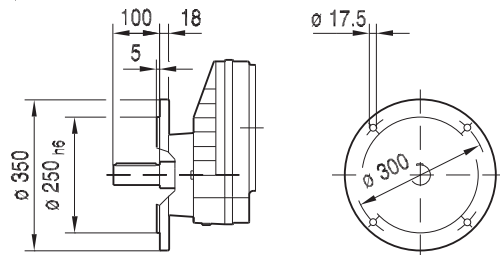
RXF97..



Ø 300



Ø 350

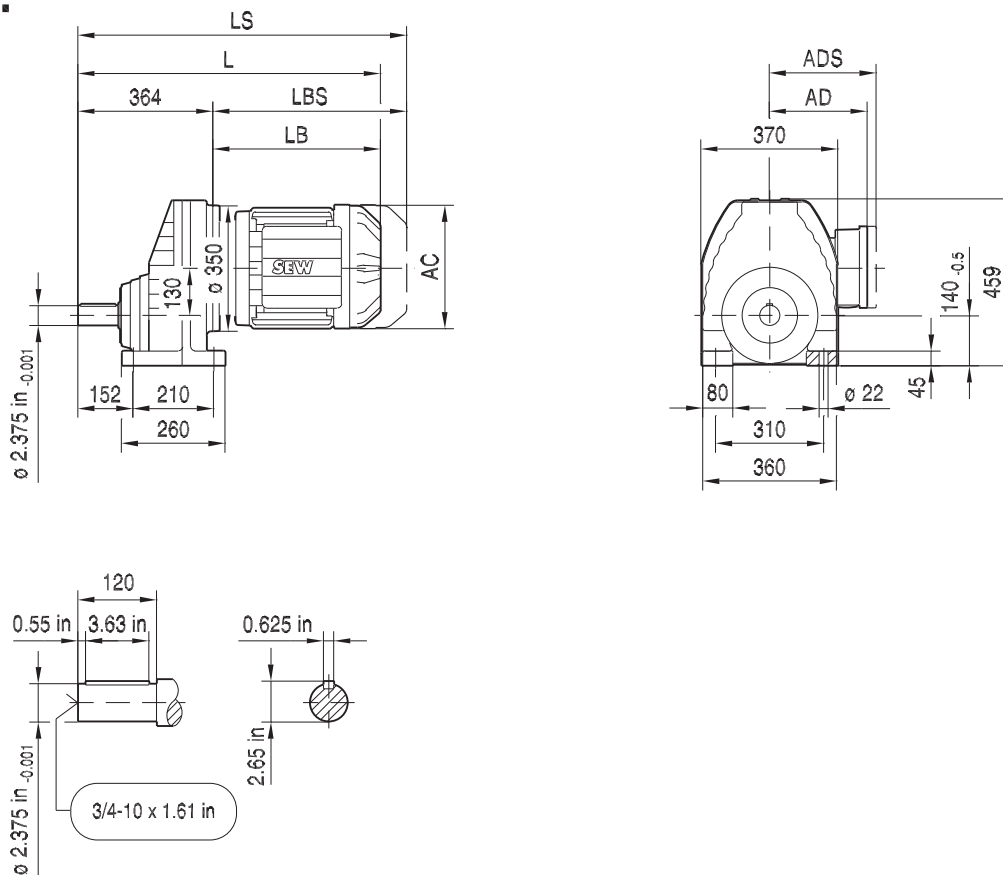


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	654	685	735	753	779	845	868	978	952
LS	748	797	847	891	916	1034	1057	1183	1157
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 239 00 16

RX107..



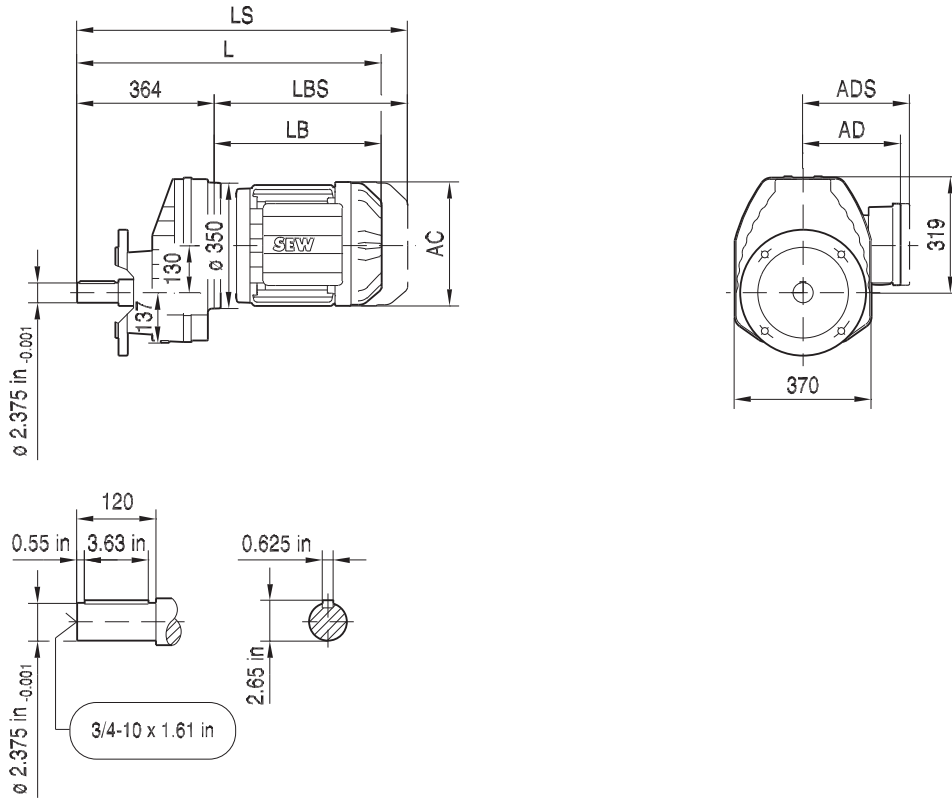
8

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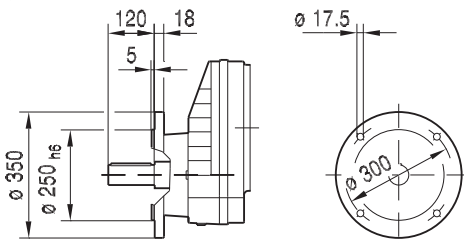
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	221	261	261	314	357	394	434
AD	170	228	228	253	268	283	305
ADS	172	228	228	253	268	283	305
L	777	795	821	887	910	1020	994
LS	889	933	958	1076	1099	1225	1199
LB	413	431	457	523	546	656	630
LBS	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

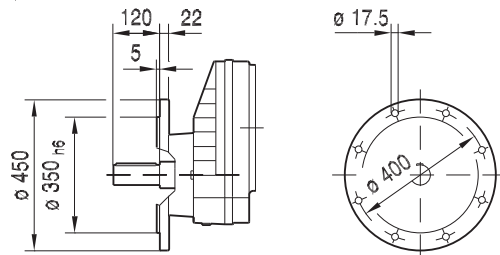
RXF107..



Ø 350



Ø 450



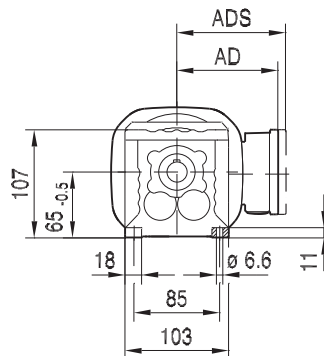
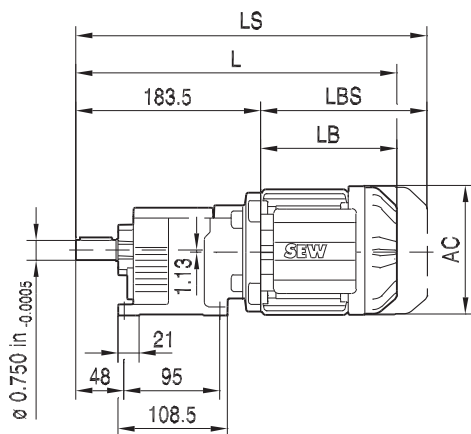
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	221	261	261	314	357	394	434
AD	170	228	228	253	268	283	305
ADS	172	228	228	253	268	283	305
L	777	795	821	887	910	1020	994
LS	889	933	958	1076	1099	1225	1199
LB	413	431	457	523	546	656	630
LBS	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

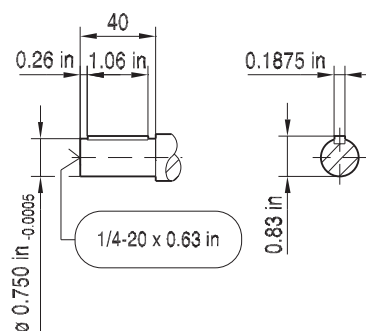
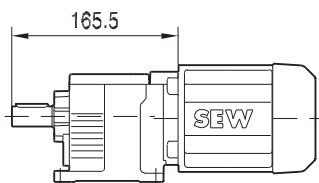
01 241 00 16

R07..

DR..

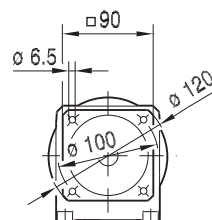
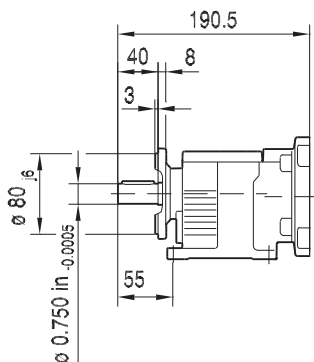


DT56..

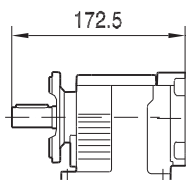


R07F..

DR..



DT56..



21933480/EN-US - 04/2018

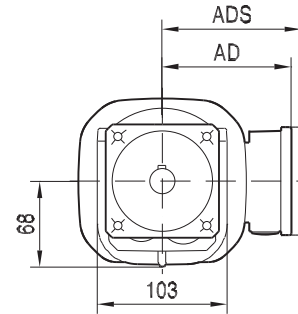
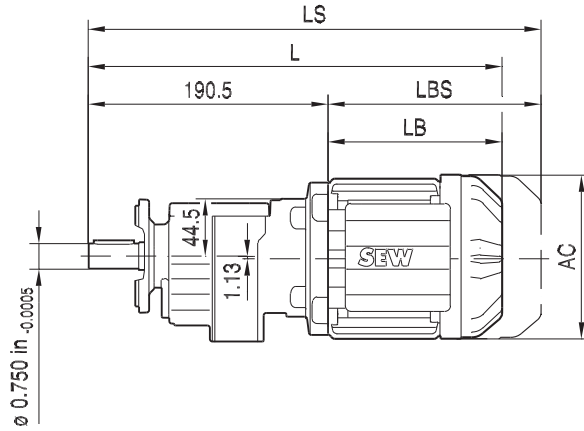
(→ 163)	DT56	DR63	DRS71S	DRS71M				
AC	109	132	139	139				
AD	87	105	119	119				
ADS	87	105	129	129				
L	302	333	344	369				
LS	338	388	412	437				
LB	136	149	160	185				
LBS	172	204	228	253				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

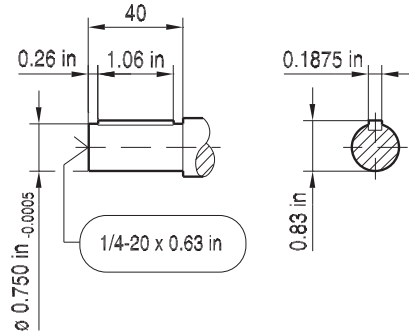
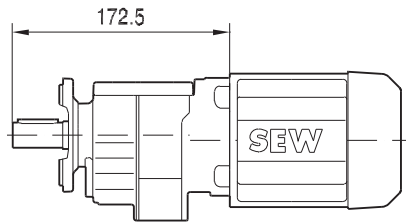
01 242 00 16

RF07..

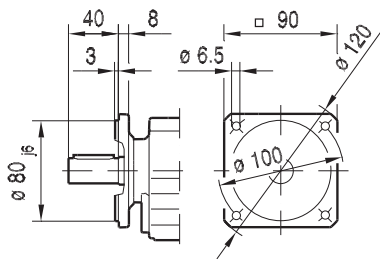
DR..



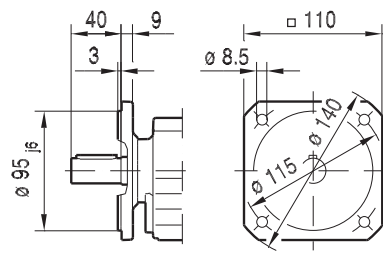
DT56..



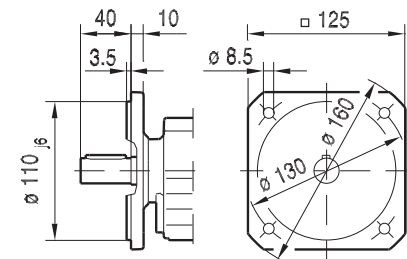
ø 120



ø 140



ø 160



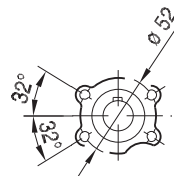
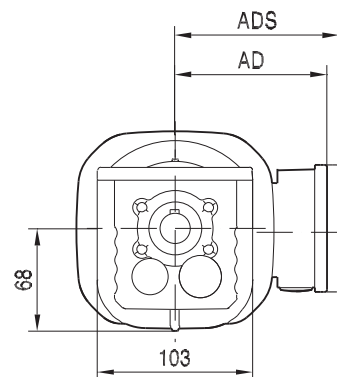
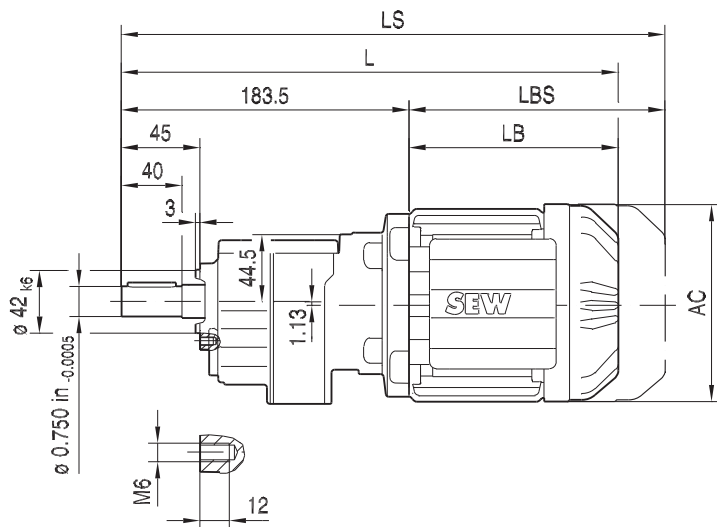
(→ 163)	DT56	DR63	DRS71S	DRS71M				
AC	109	132	139	139				
AD	87	105	119	119				
ADS	87	105	129	129				
L	309	340	351	376				
LS	345	395	419	444				
LB	136	149	160	185				
LBS	172	204	228	253				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

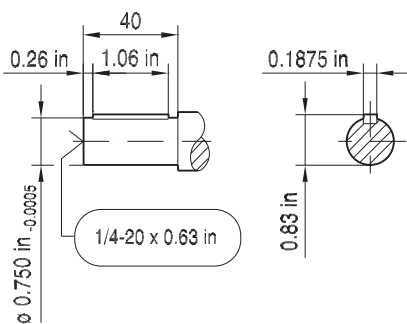
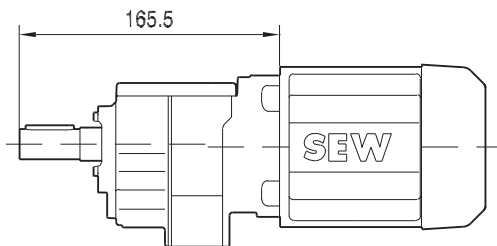
21933480/EN-US - 04/2018

01 243 00 16

**RZ07..
DR..**



DT56..

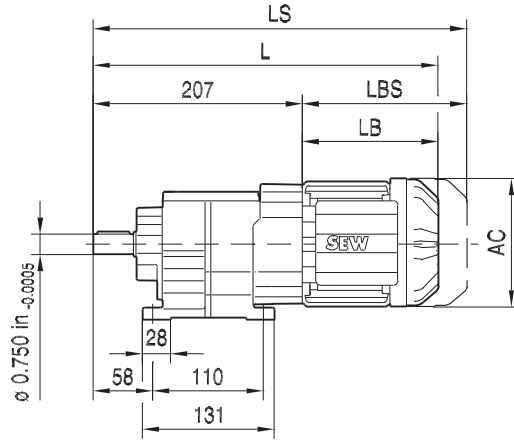


21933480/EN-US - 04/2018

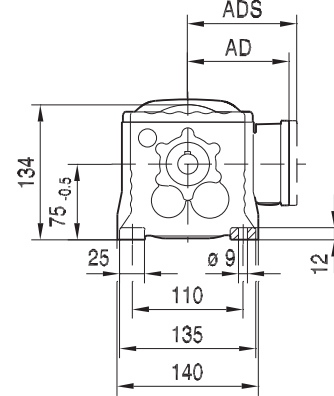
(→ 163)	DT56	DR63	DRS71S	DRS71M				
AC	109	132	139	139				
AD	87	105	119	119				
ADS	87	105	129	129				
L	302	333	344	369				
LS	338	388	412	437				
LB	136	149	160	185				
LBS	172	204	228	253				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

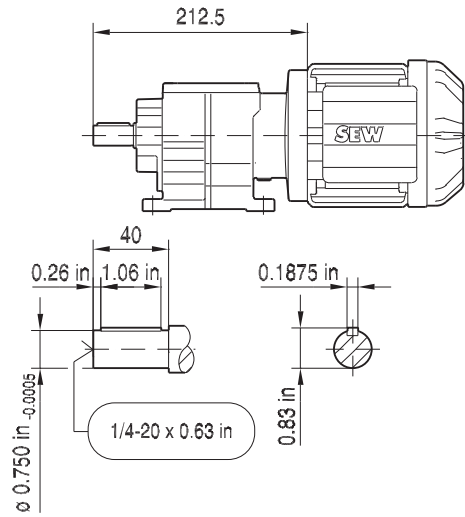
R17..



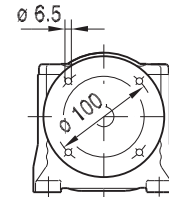
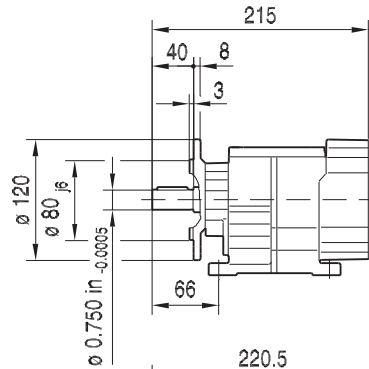
01 244 00 16



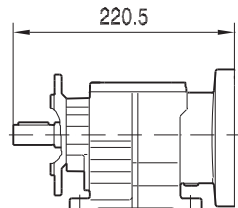
DRN80..



R17F..



DRN80..

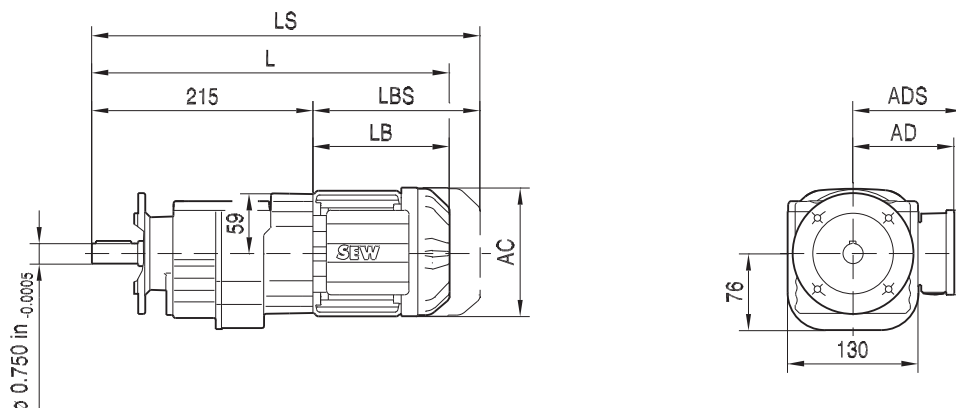


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M			
AC	132	139	139	156	156			
AD	105	119	119	128	128			
ADS	105	129	129	139	139			
L	356	367	392	414	442			
LS	411	435	460	495	523			
LB	149	160	185	207	235			
LBS	204	228	253	288	316			

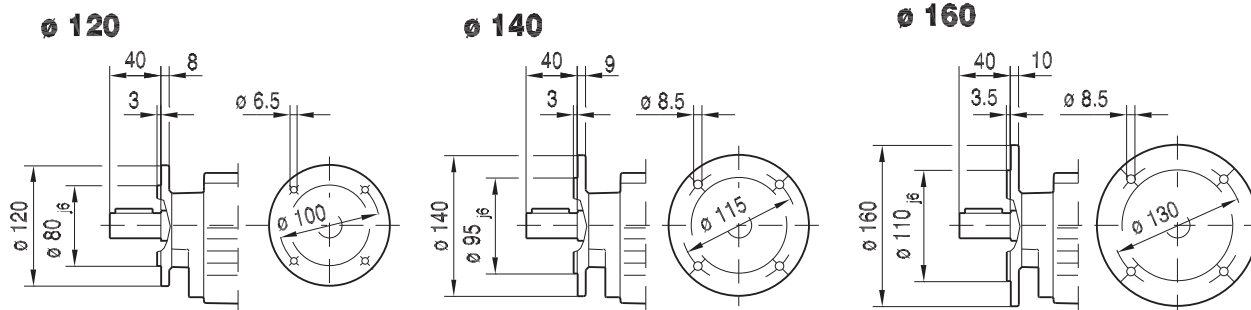
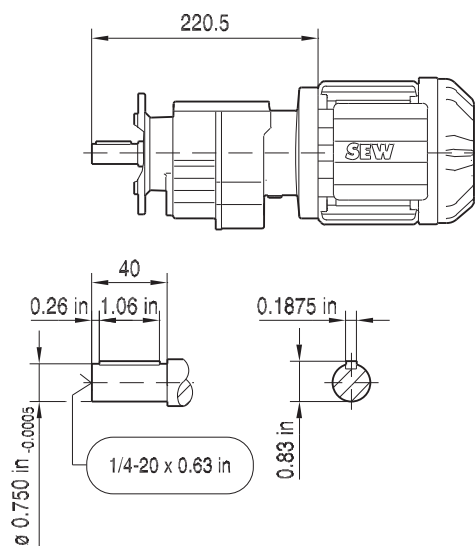
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 245 00 16

RF17..



DRN80..



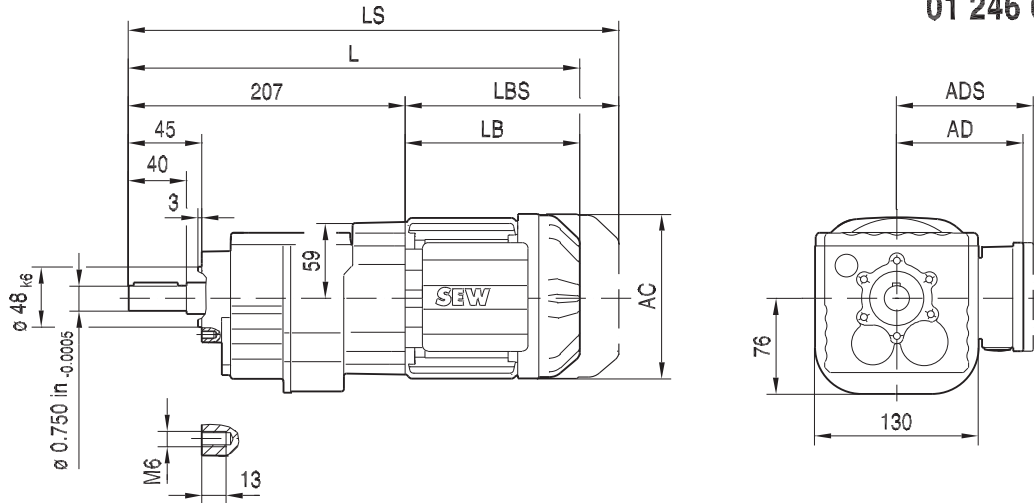
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M			
AC	132	139	139	156	156			
AD	105	119	119	128	128			
ADS	105	129	129	139	139			
L	364	375	400	422	450			
LS	419	443	468	503	531			
LB	149	160	185	207	235			
LBS	204	228	253	288	316			

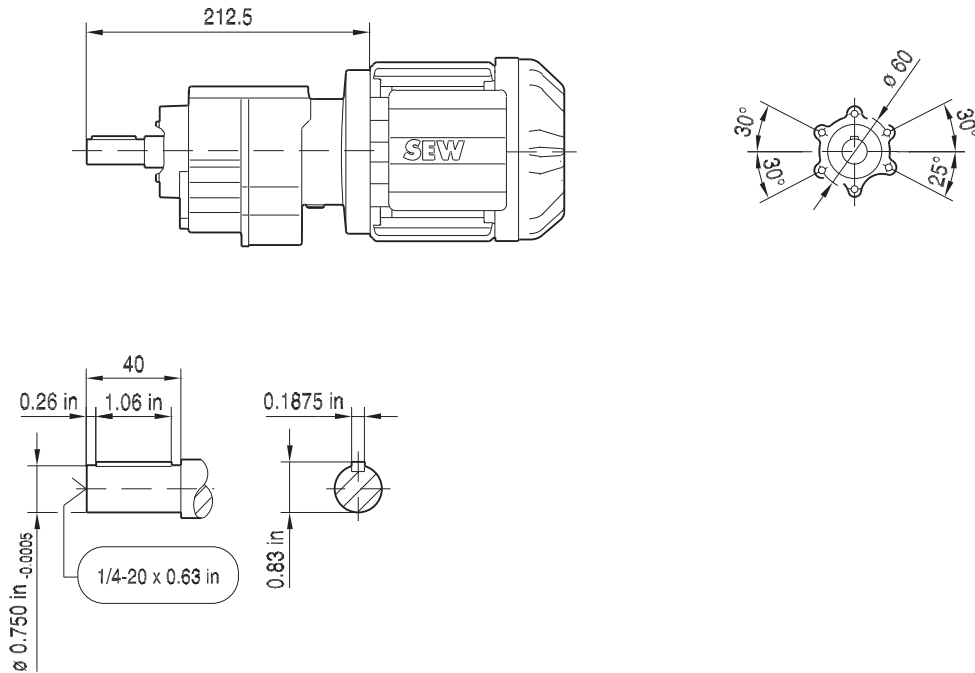
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 246 00 16

RZ17..



DRN80..

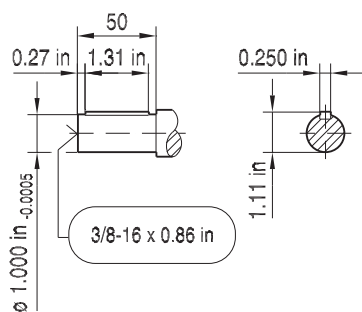
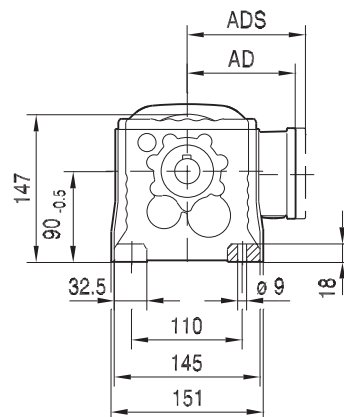
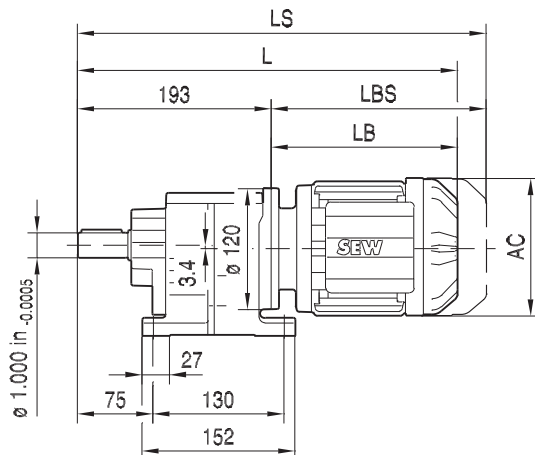


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M			
AC	132	139	139	156	156			
AD	105	119	119	128	128			
ADS	105	129	129	139	139			
L	356	367	392	414	442			
LS	411	435	460	495	523			
LB	149	160	185	207	235			
LBS	204	228	253	288	316			

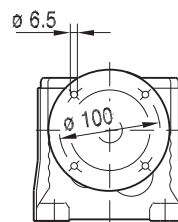
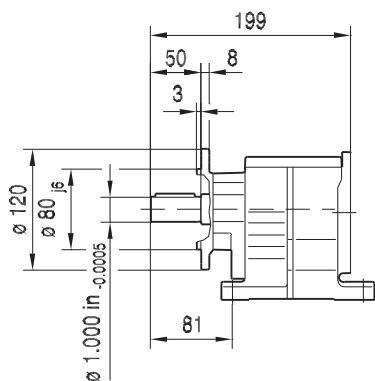
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 247 00 16

R27..



R27F..



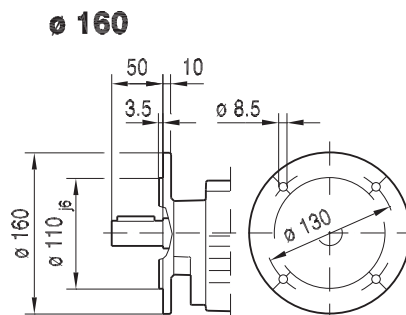
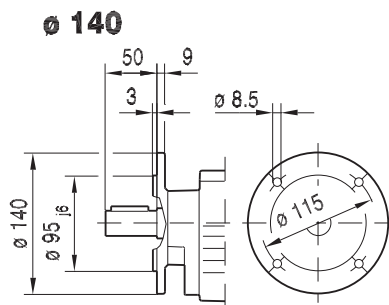
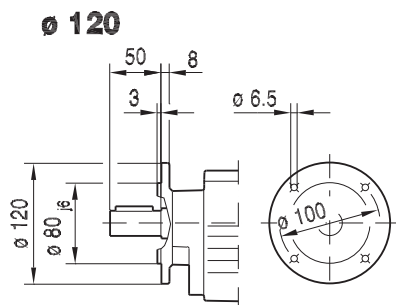
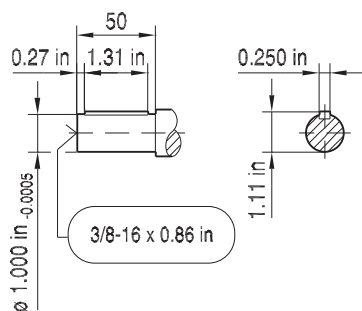
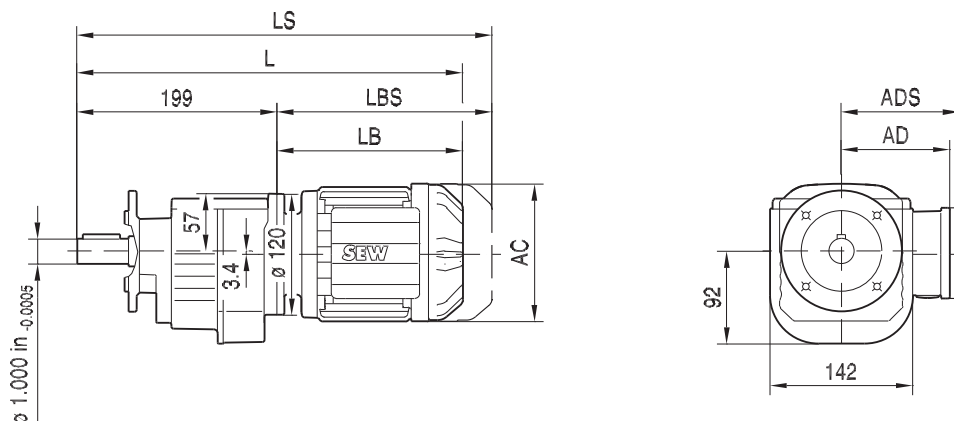
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	384	395	420	447	475	476	508	557
LS	439	463	488	528	556	570	602	651
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RF27..

01 248 00 16

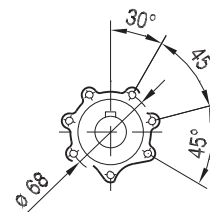
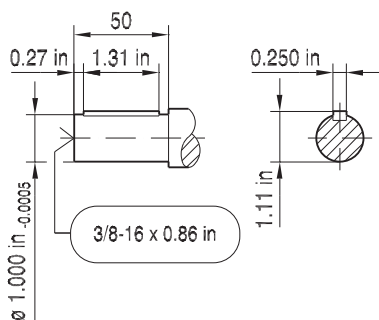
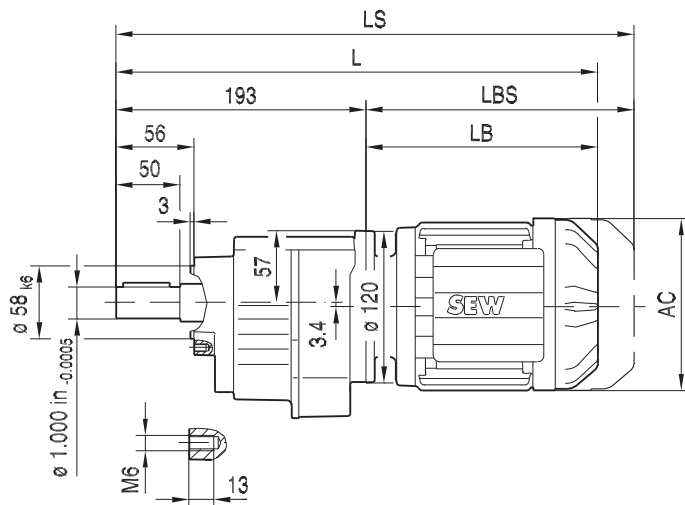


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	390	401	426	453	481	482	514	563
LS	445	469	494	534	562	576	608	657
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ27..

01 249 00 16



8

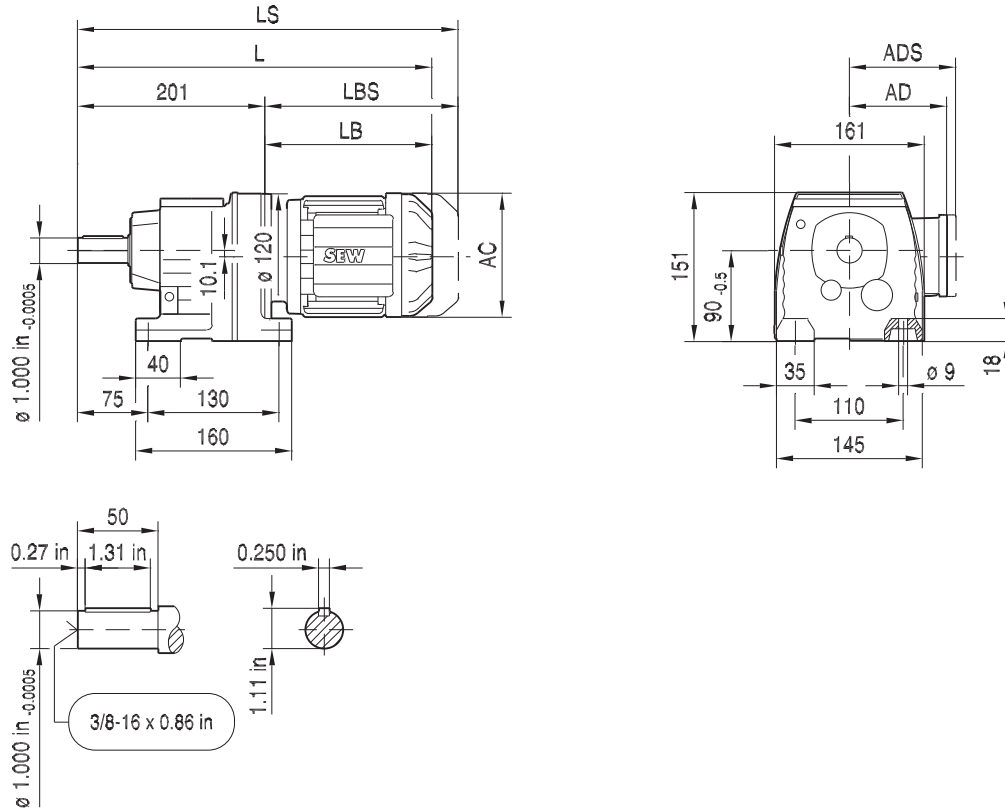
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	384	395	420	447	475	476	508	557
LS	439	463	488	528	556	570	602	651
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

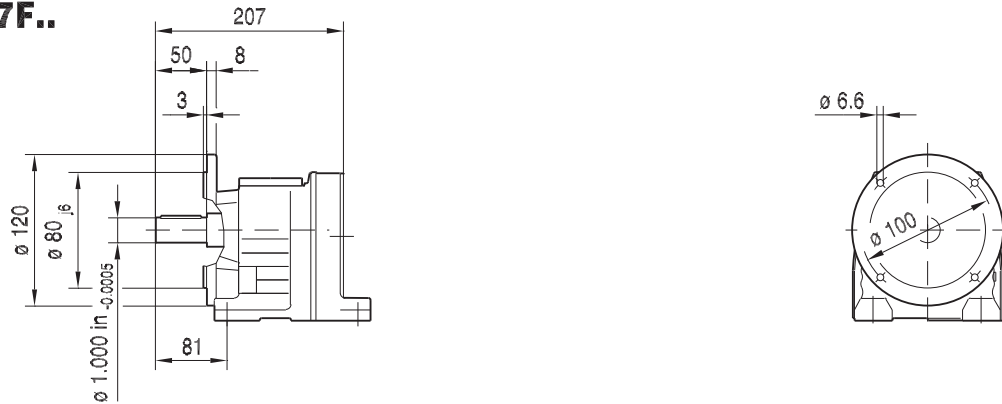
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 250 00 16

R37..



R37F..

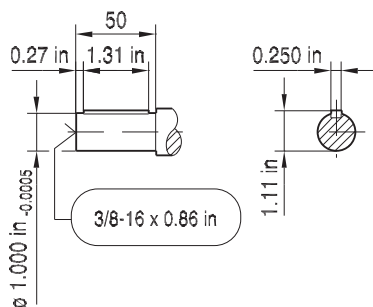
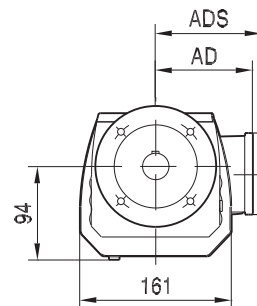
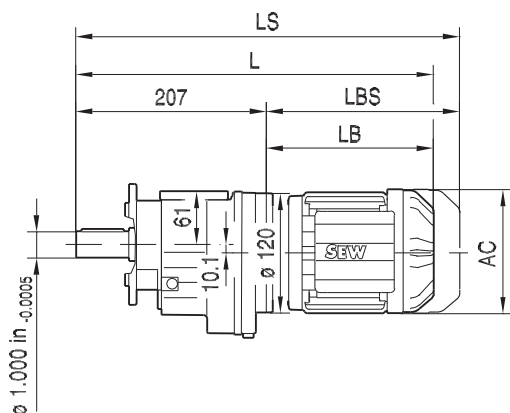


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	392	403	428	483	484	516	565
LS	447	471	496	564	578	610	659
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

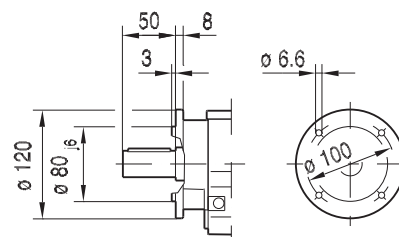
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 251 00 16

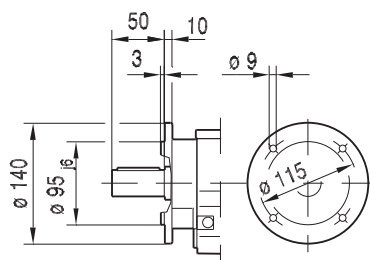
RF37..



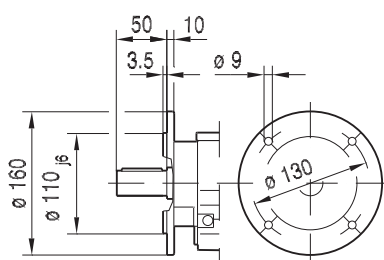
ø 120



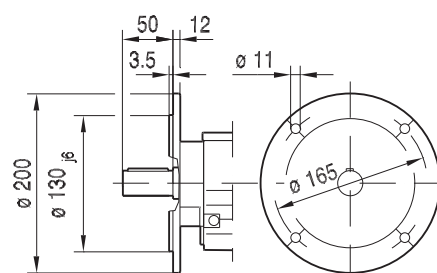
ø 140



ø 160



ø 200



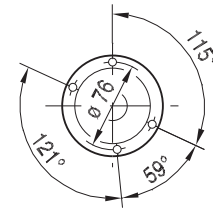
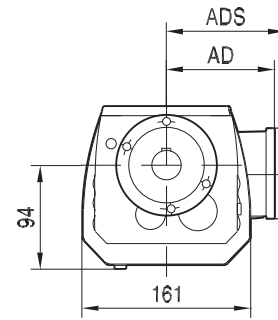
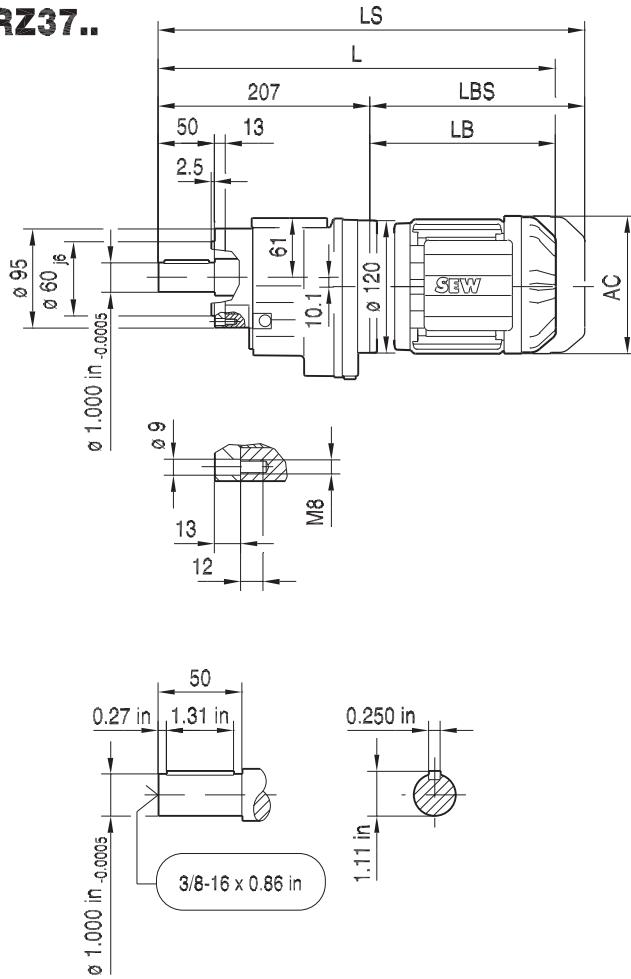
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	398	409	434	489	490	522	571
LS	453	477	502	570	584	616	665
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ37..

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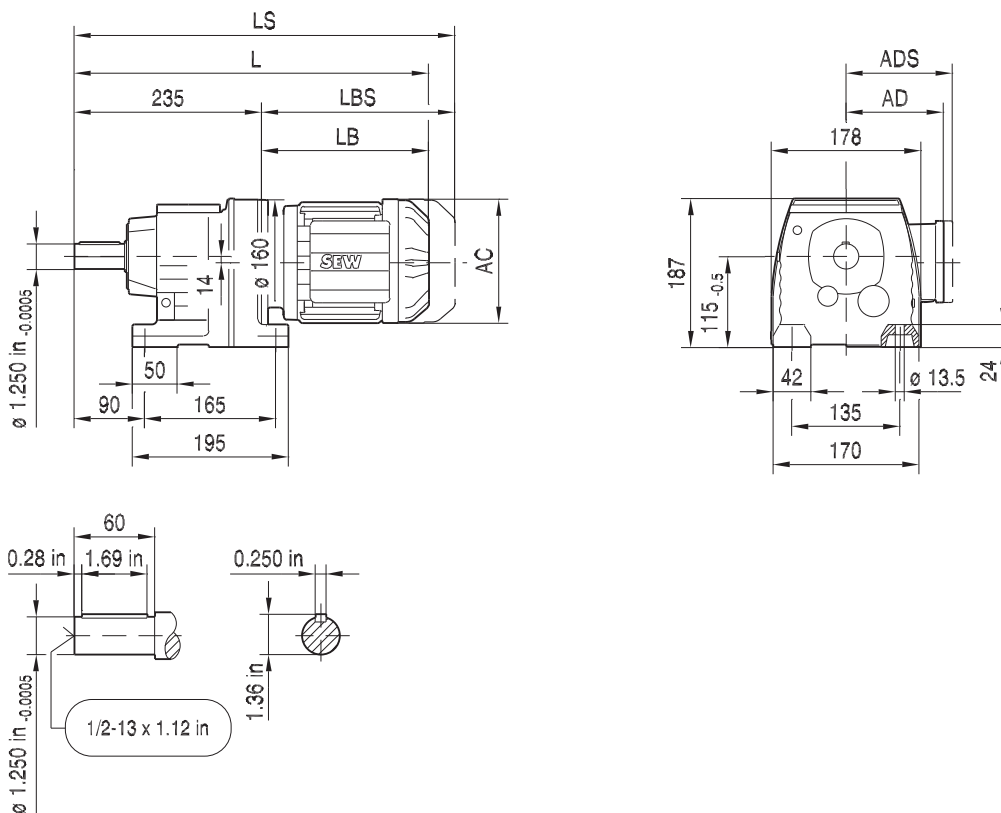


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	398	409	434	489	490	522	571
LS	453	477	502	570	584	616	665
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

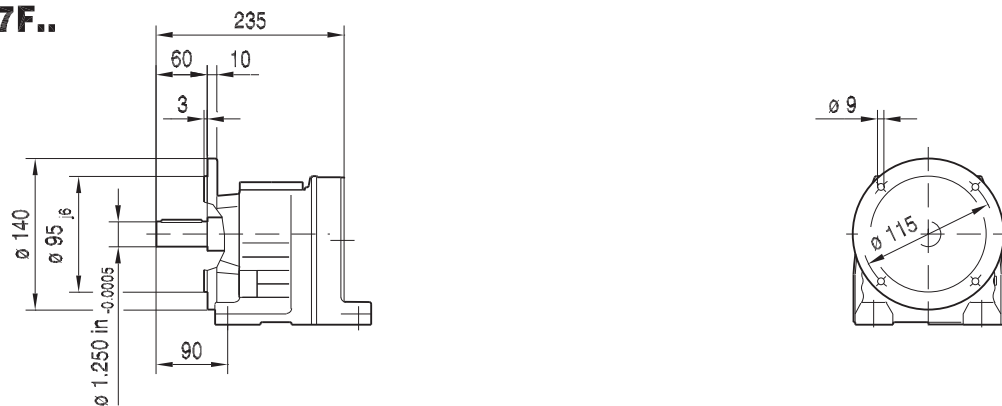
01 253 00 16

R47..



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R47F..

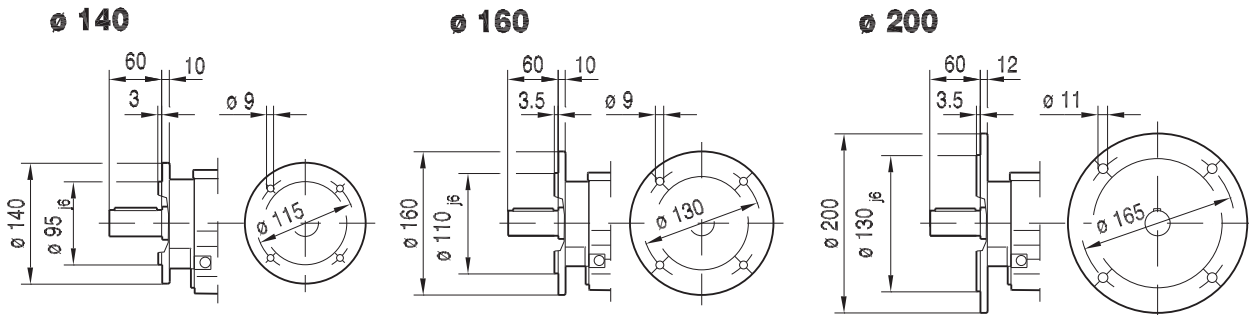
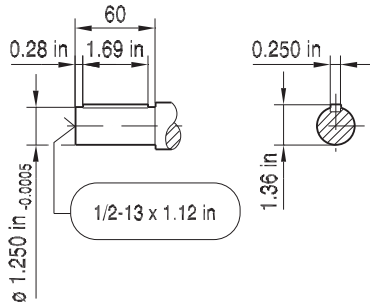
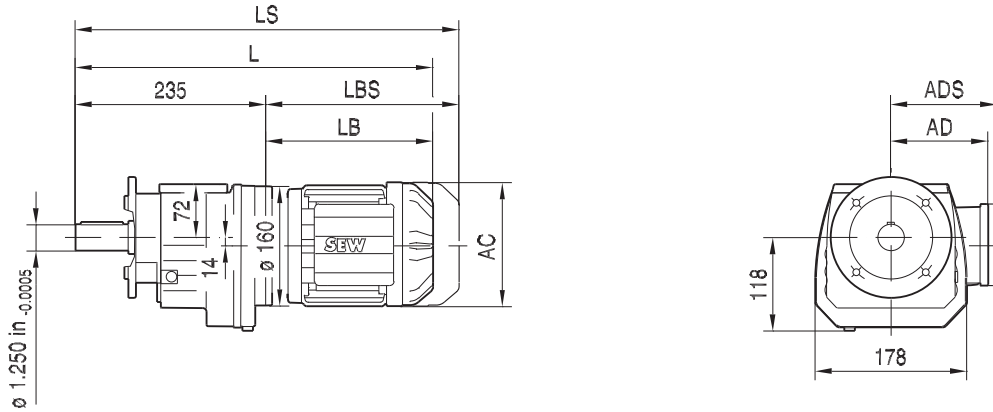


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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	420	431	456	510	512	544	590	621	675
LS	475	499	524	591	605	637	684	733	787
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RF47..

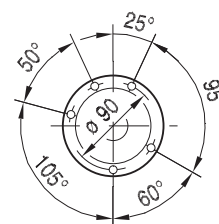
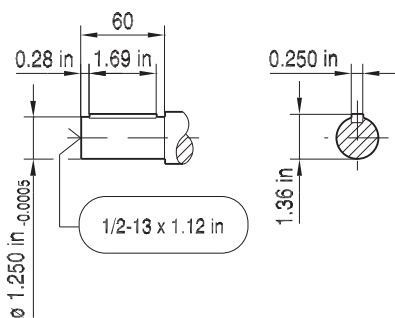
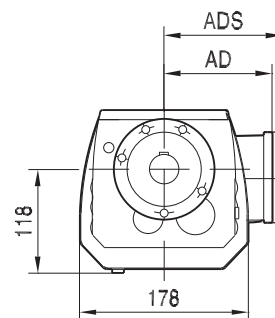
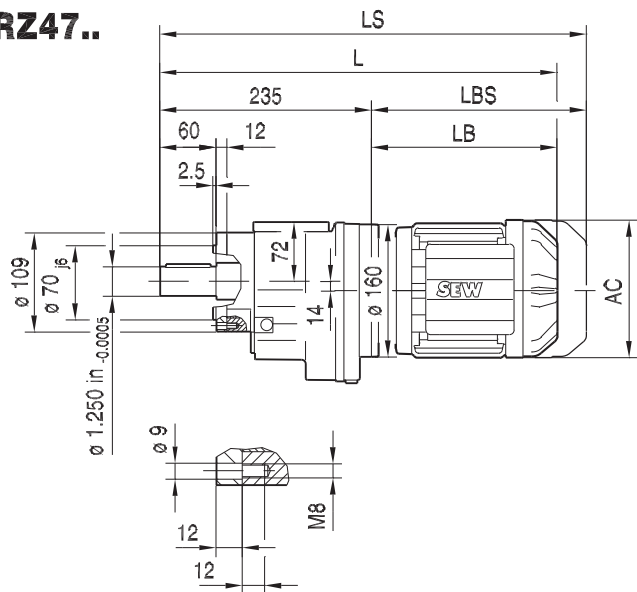


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	420	431	456	510	512	544	590	621	675
LS	475	499	524	591	605	637	684	733	787
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ47..

01 255 00 16



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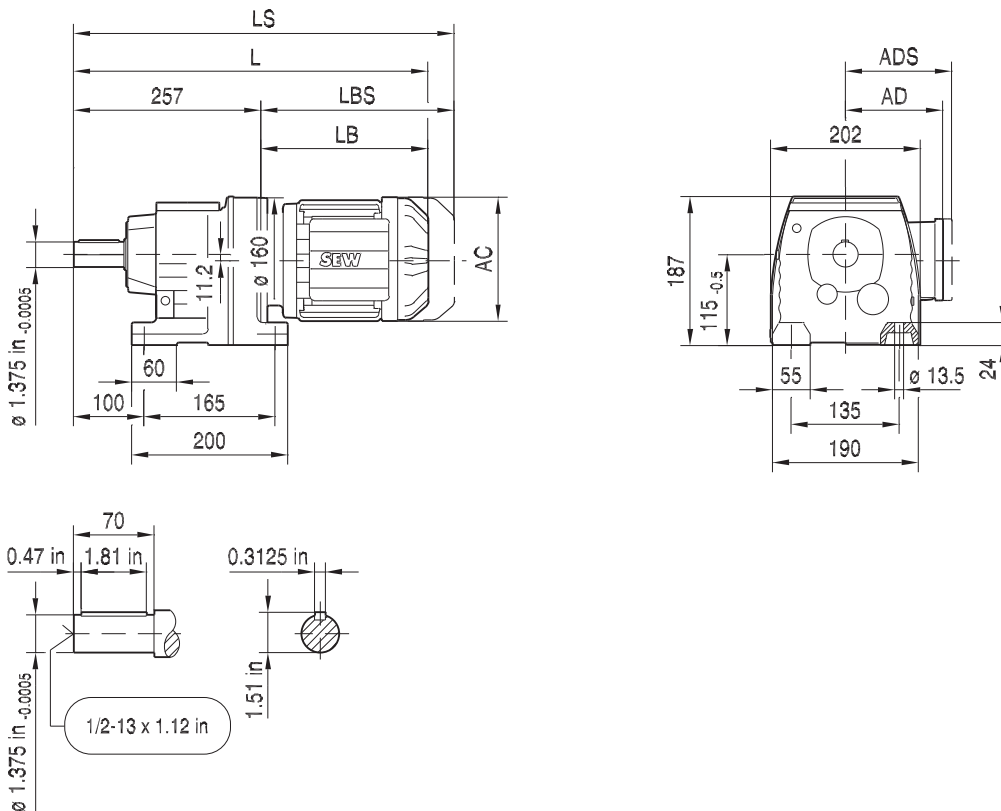
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	420	431	456	510	512	544	590	621	675
LS	475	499	524	591	605	637	684	733	787
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

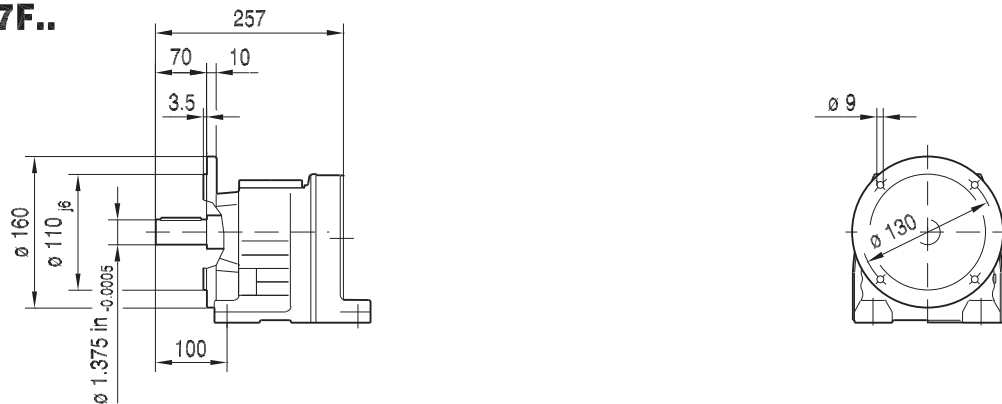
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 256 00 16

R57..



R57F..

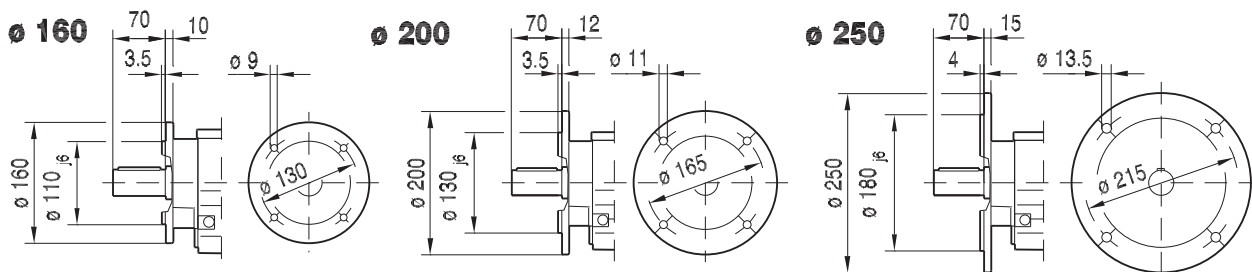
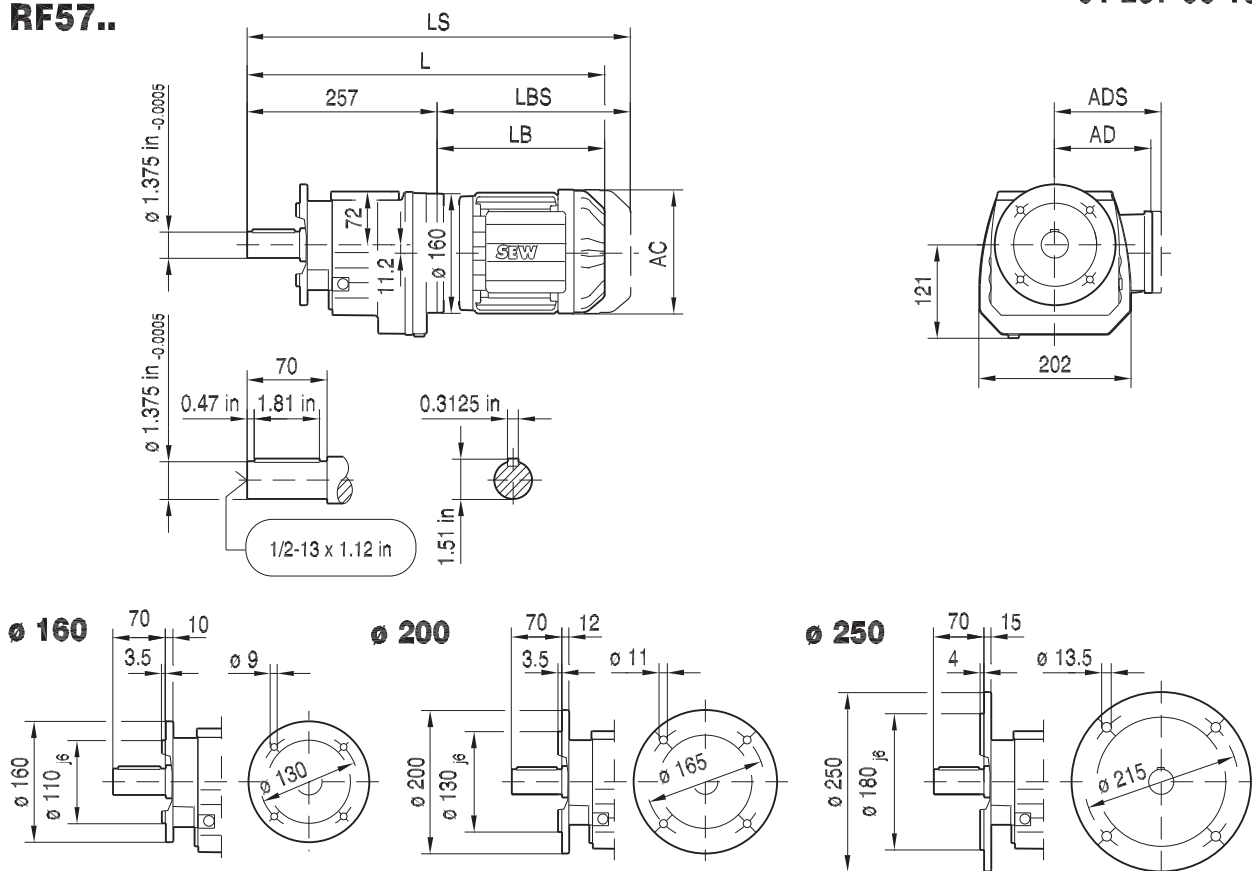


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	442	453	478	532	534	566	612	643	697	715
LS	497	521	546	613	627	659	706	755	809	853
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

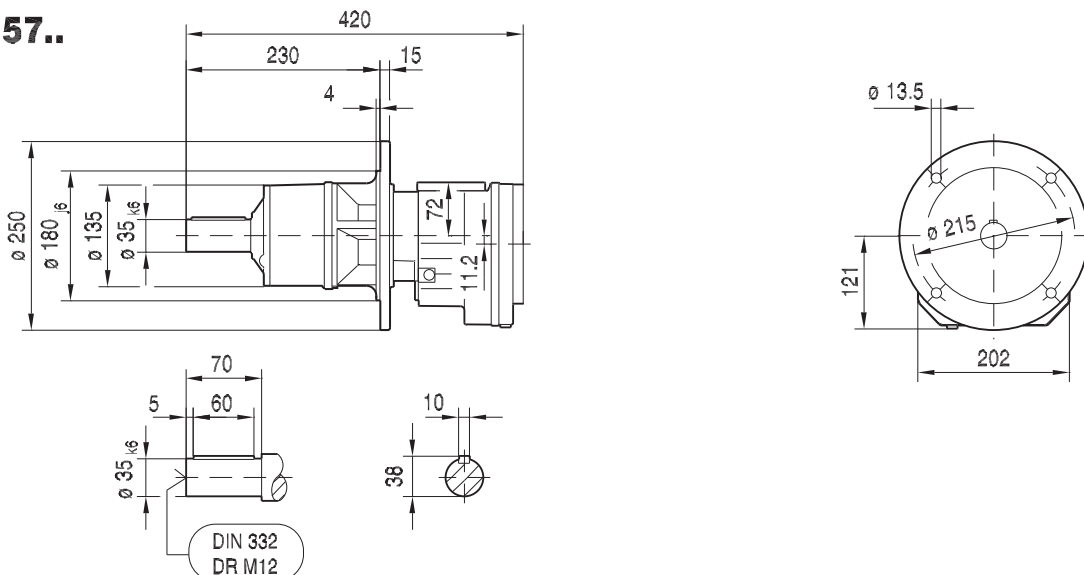
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 257 00 16

RF57..



RM57..



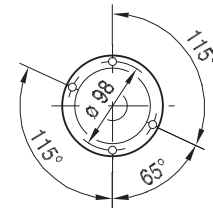
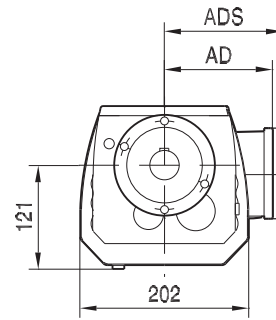
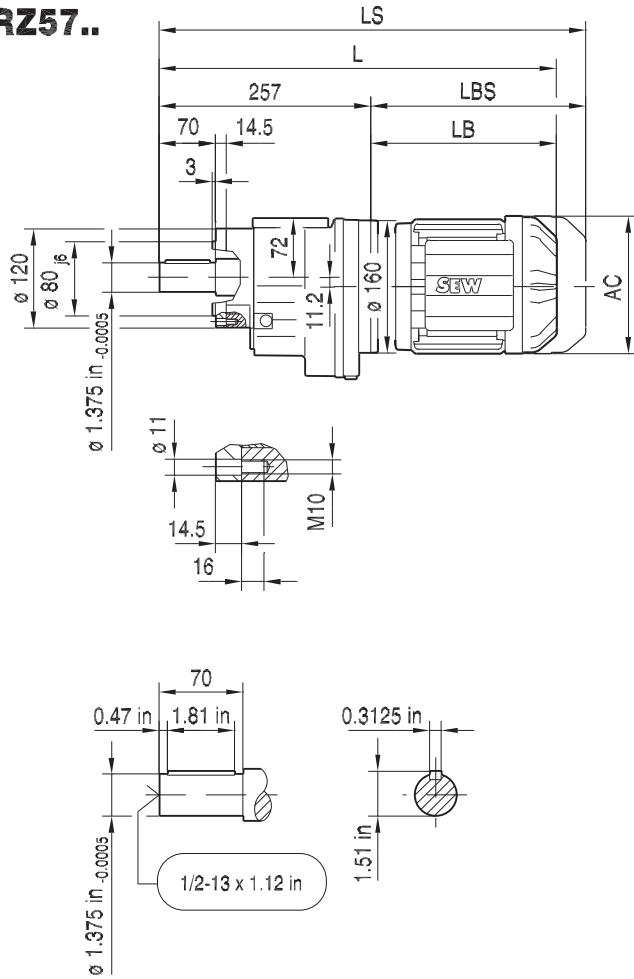
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	442	453	478	532	534	566	612	643	697	715
LS	497	521	546	613	627	659	706	755	809	853
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ57..

01 258 00 16

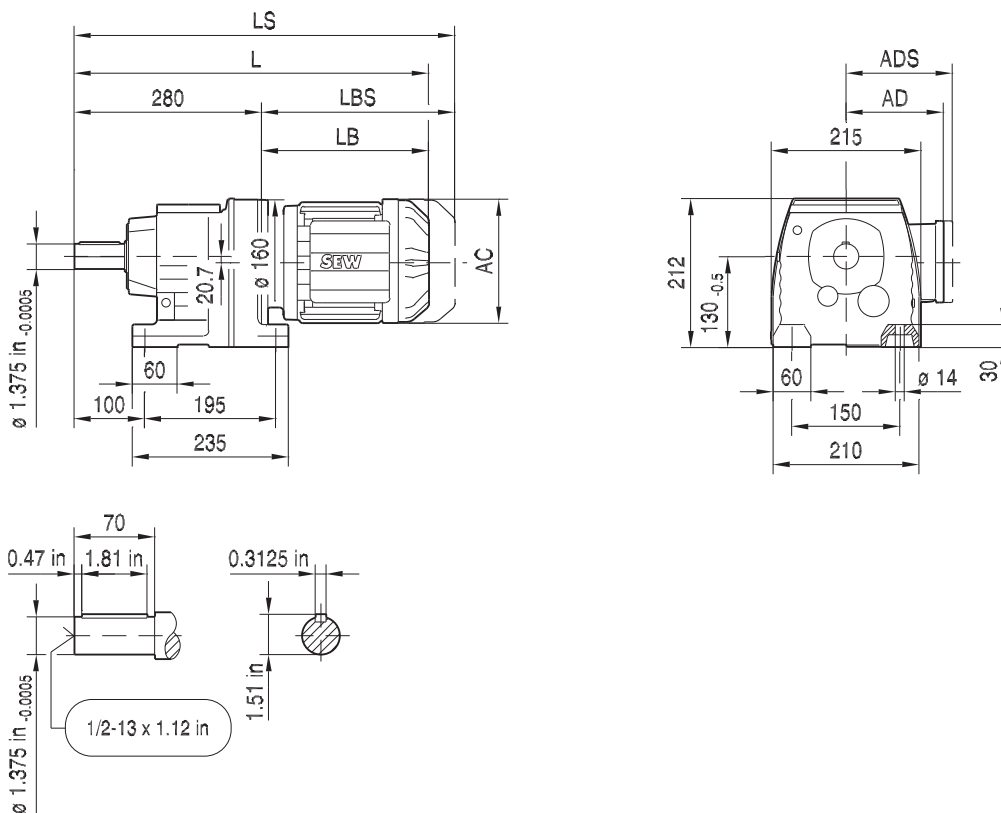


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	442	453	478	532	534	566	612	643	697	715
LS	497	521	546	613	627	659	706	755	809	853
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

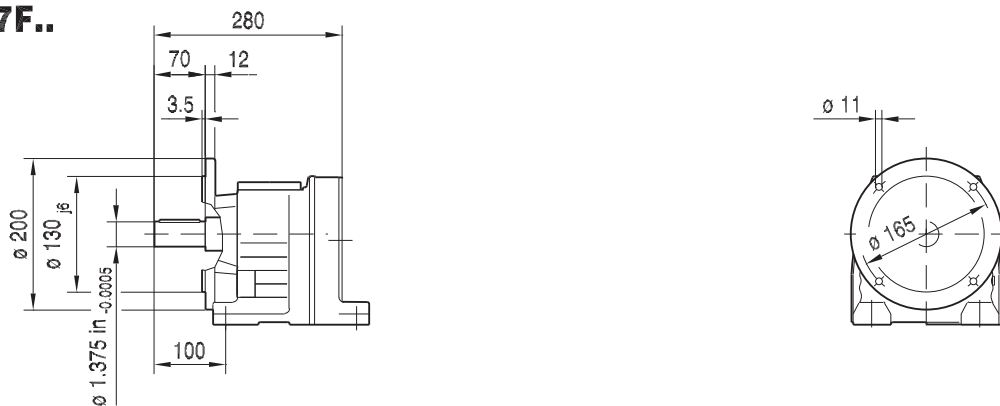
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 259 00 16

R67..



R67F..



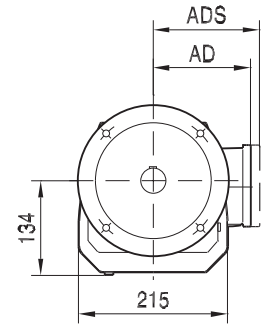
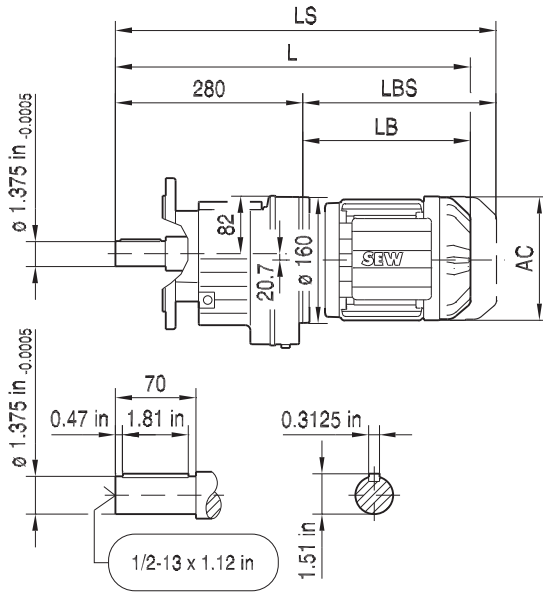
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	465	476	501	555	557	589	635	666	720	738
LS	520	544	569	636	650	682	729	778	832	876
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

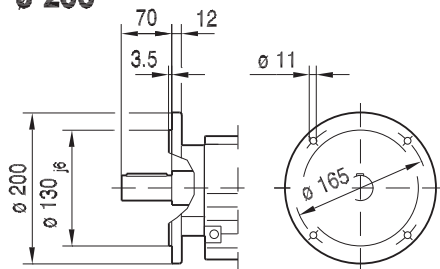
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 260 00 16

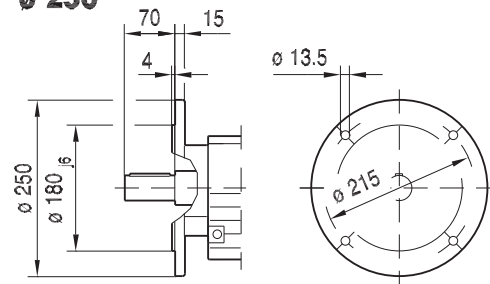
RF67..



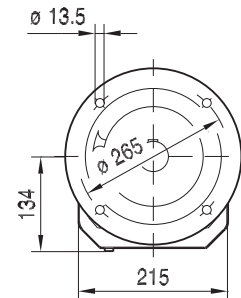
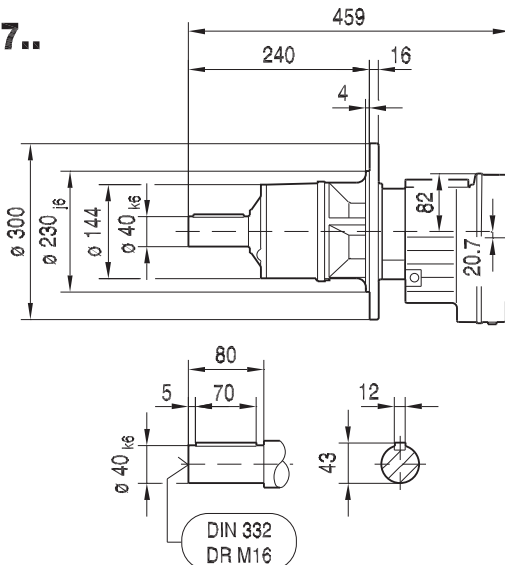
ø 200



ø 250



RM67..



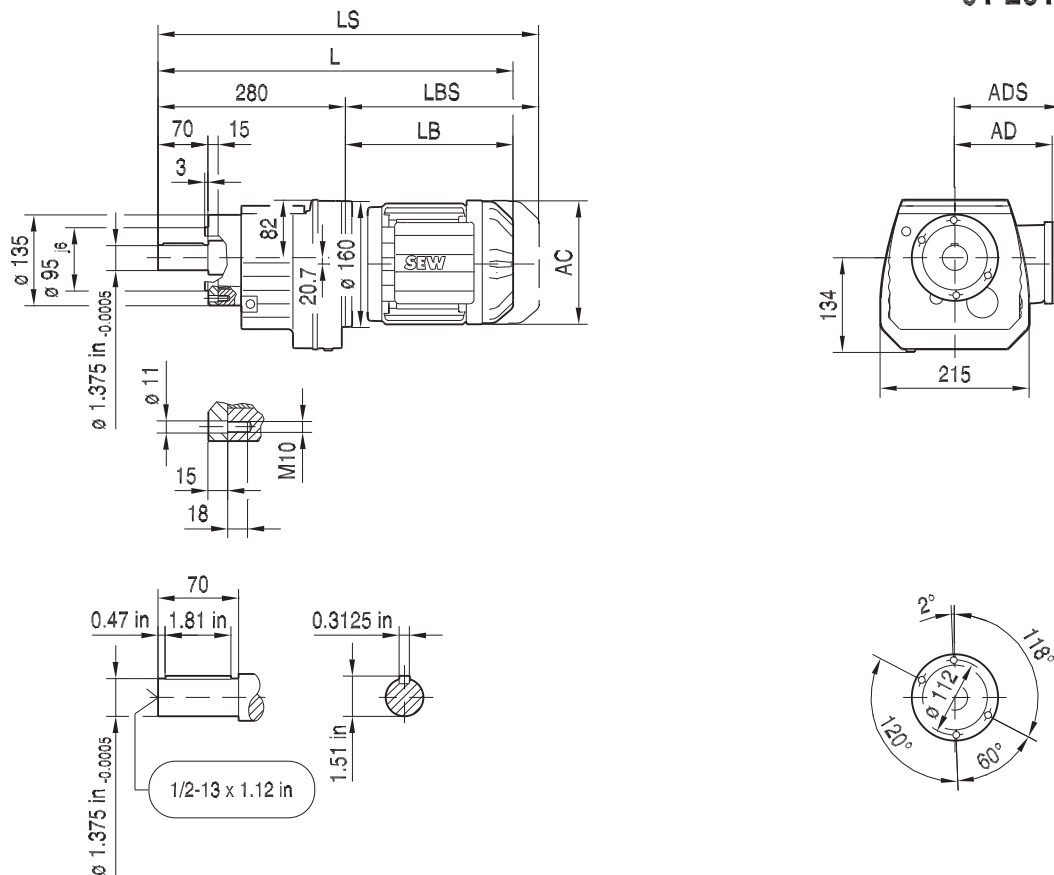
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	465	476	501	555	557	589	635	666	720	738
LS	520	544	569	636	650	682	729	778	832	876
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

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RZ67..

01 261 00 16



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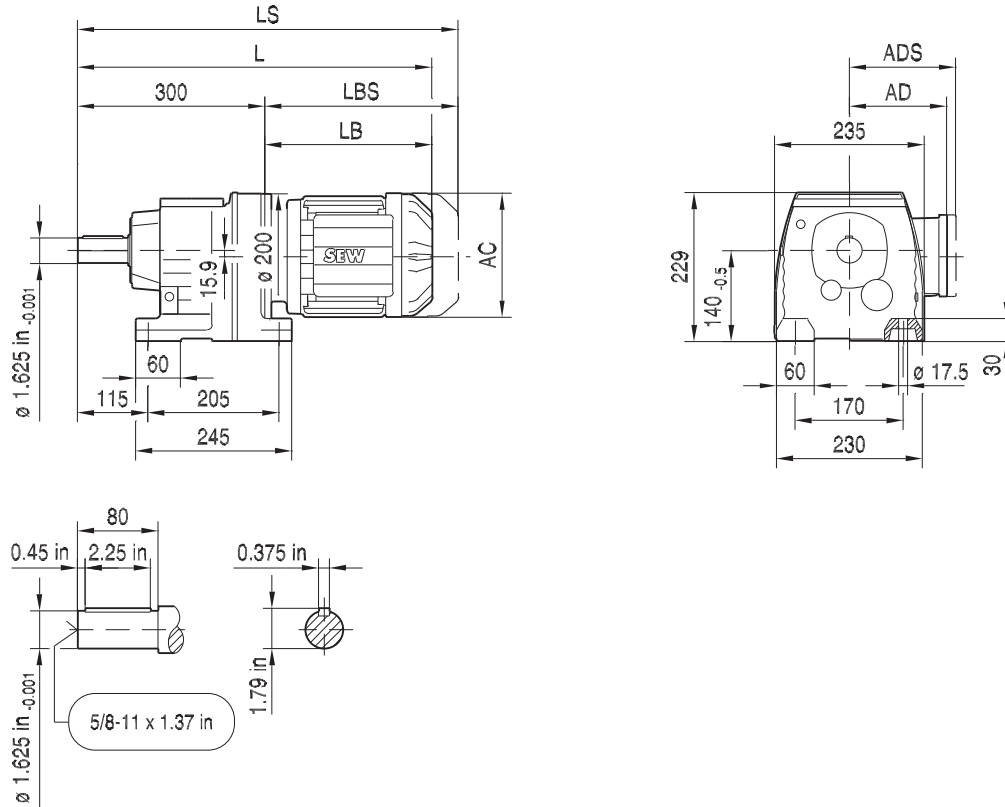
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	465	476	501	555	557	589	635	666	720	738
LS	520	544	569	636	650	682	729	778	832	876
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

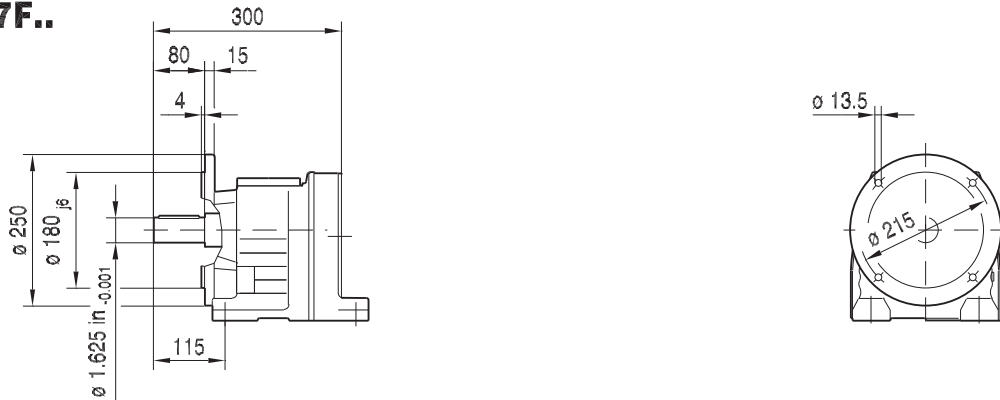
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 262 00 16

R77..



R77F..

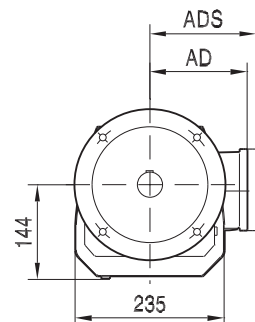
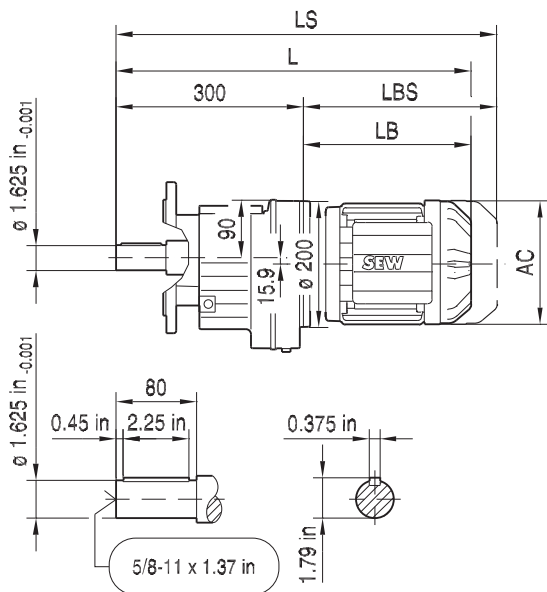


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	568	570	602	648	679	729	747	773	839
LS	649	663	695	742	791	841	885	910	1028
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

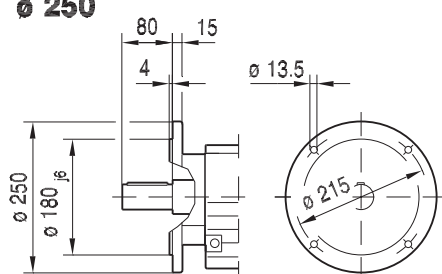
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 263 00 16

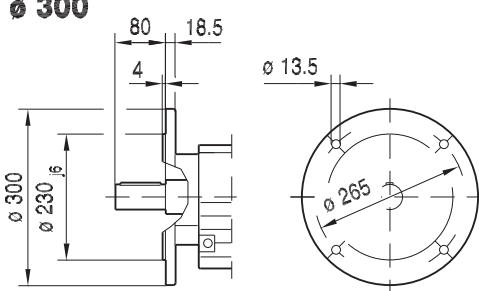
RF77..



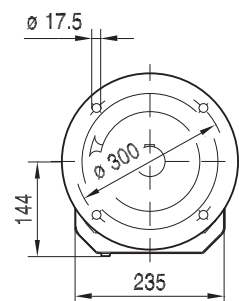
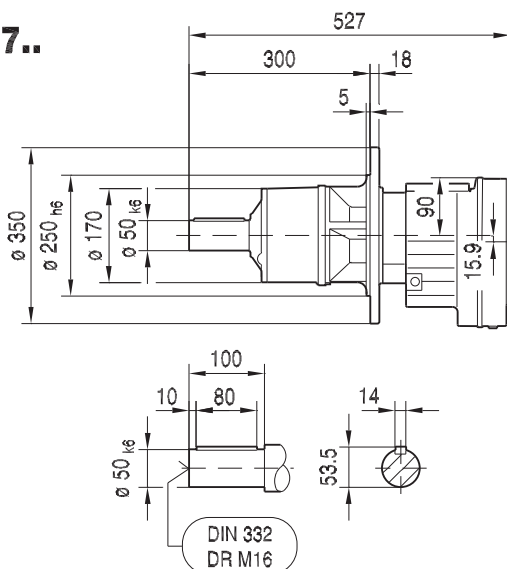
∅ 250



∅ 300



RM77..



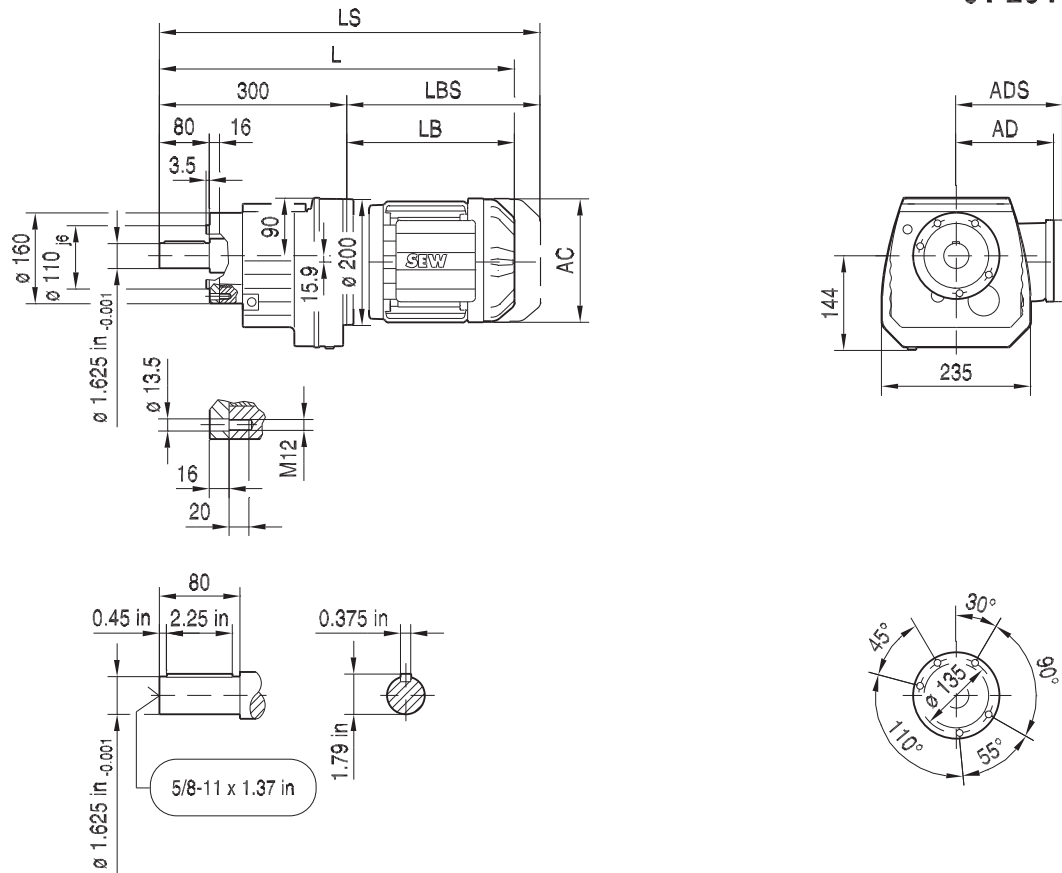
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(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	568	570	602	648	679	729	747	773	839
LS	649	663	695	742	791	841	885	910	1028
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ77..

01 264 00 16

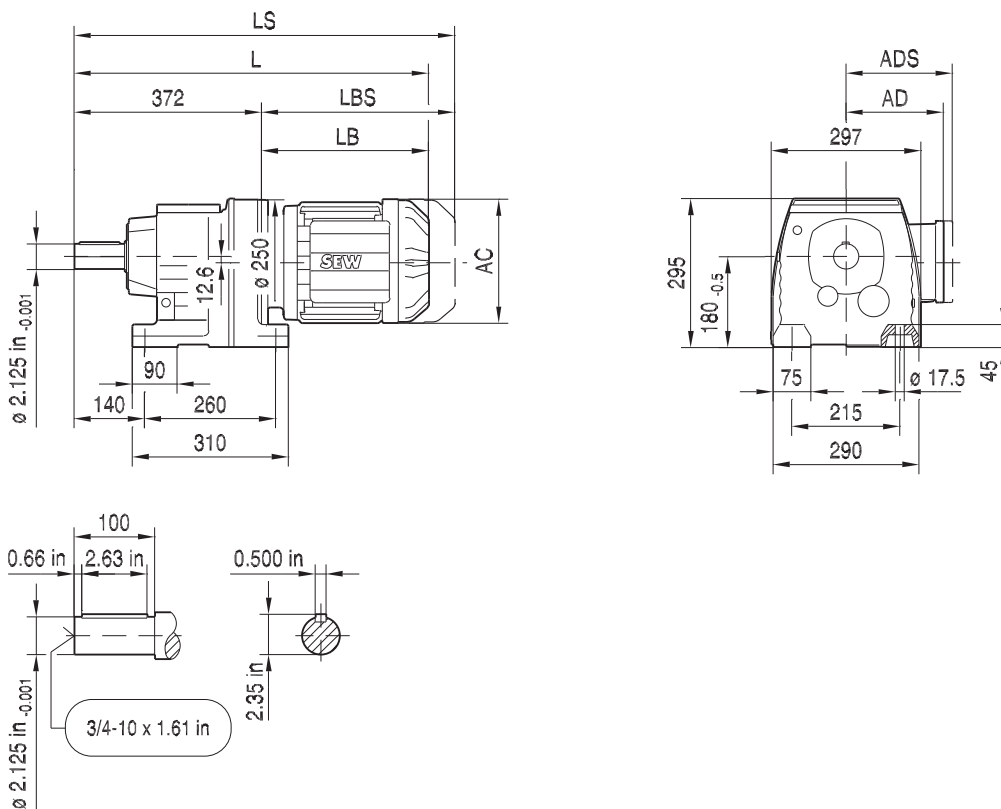


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	568	570	602	648	679	729	747	773	839
LS	649	663	695	742	791	841	885	910	1028
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

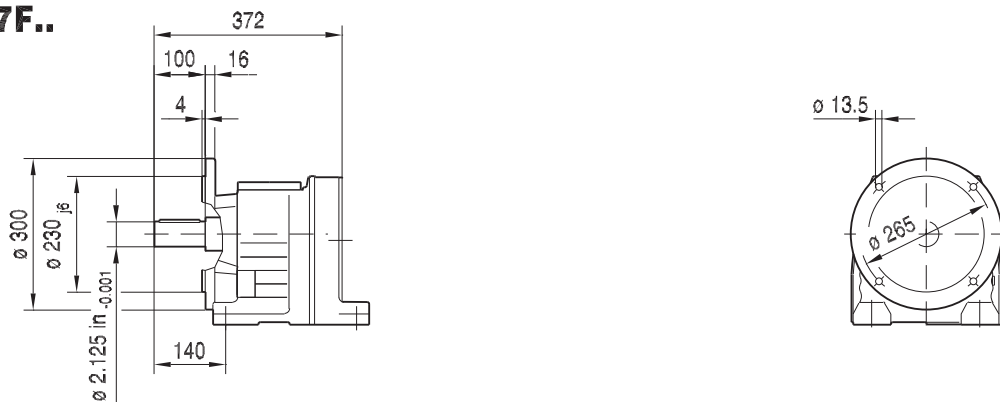
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 265 00 16

R87..



R87F..



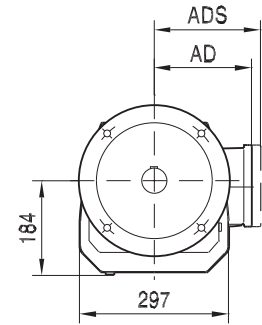
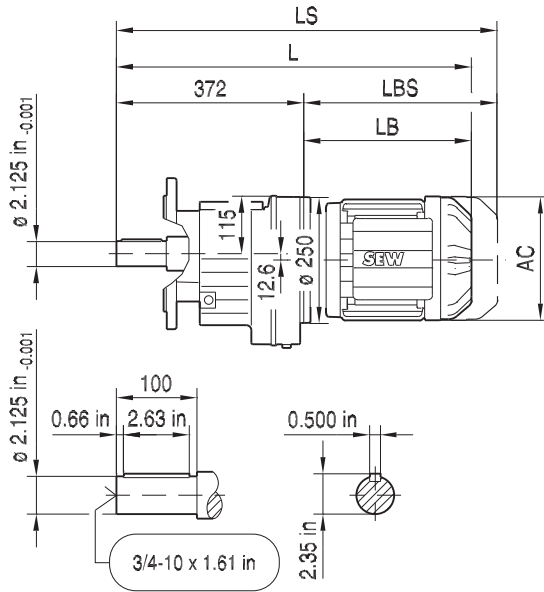
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(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	637	669	715	746	796	814	840	906	929
LS	730	762	809	858	908	952	977	1095	1118
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

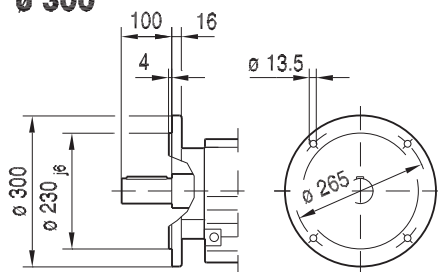
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 266 00 16

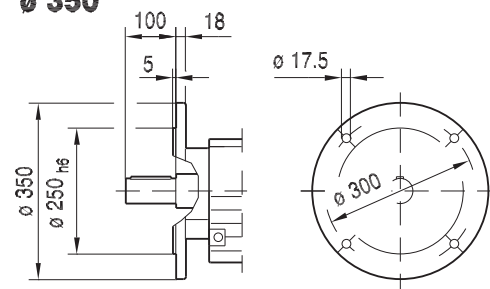
RF87..



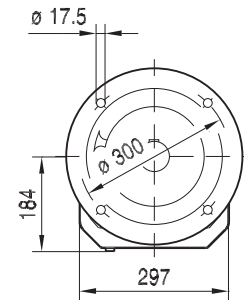
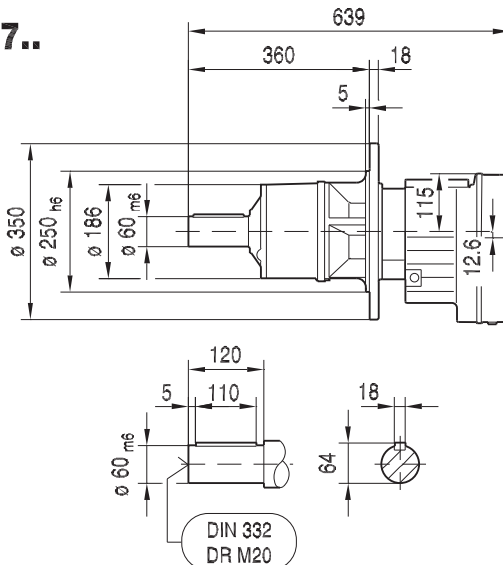
ø 300



ø 350



RM87..

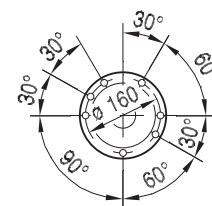
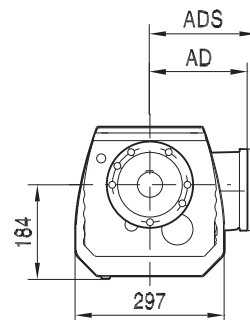
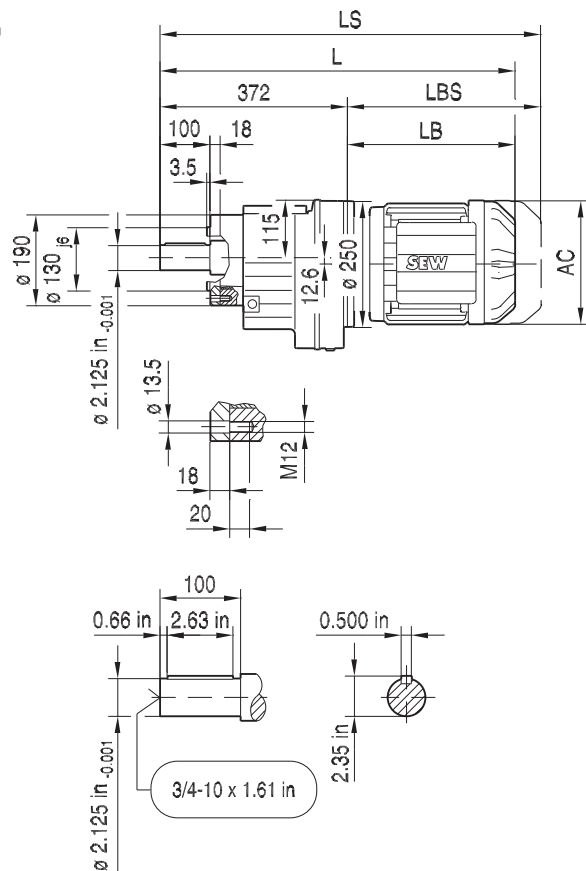


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	637	669	715	746	796	814	840	906	929
LS	730	762	809	858	908	952	977	1095	1118
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

RZ87..

01 267 00 16



8

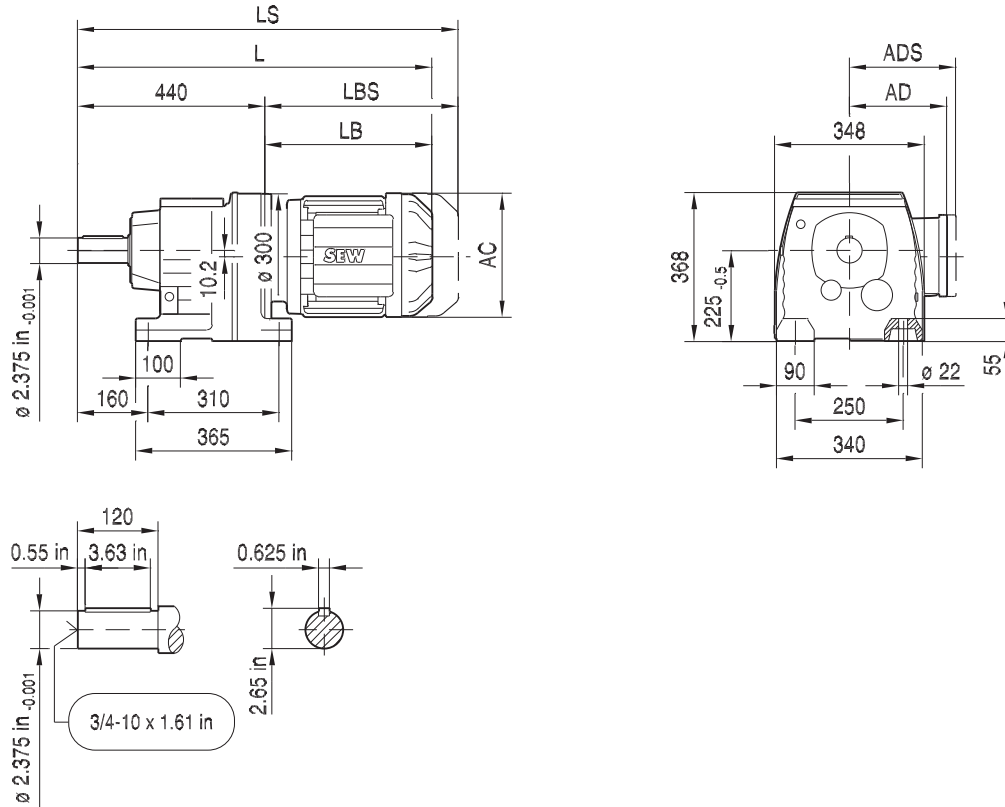
21933480/EN-US - 04/2018

(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	637	669	715	746	796	814	840	906	929
LS	730	762	809	858	908	952	977	1095	1118
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 268 00 16

R97..

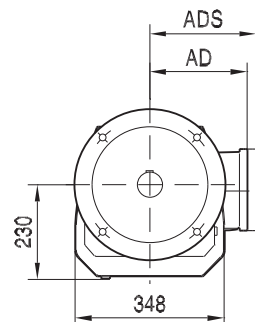
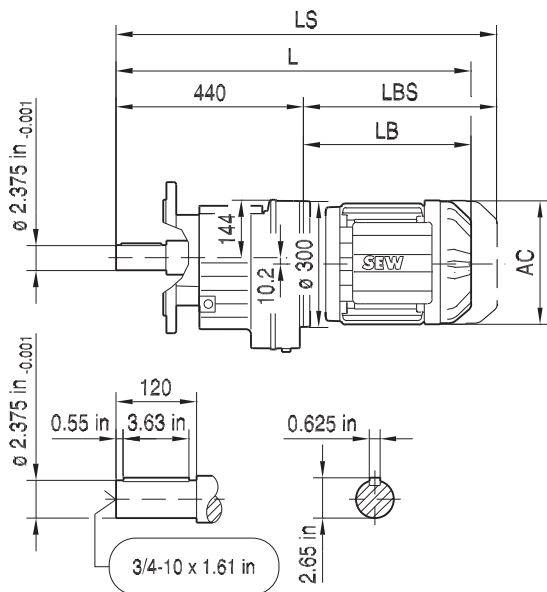


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	778	809	859	877	903	969	992	1102	1076
LS	872	921	971	1015	1040	1158	1181	1307	1281
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

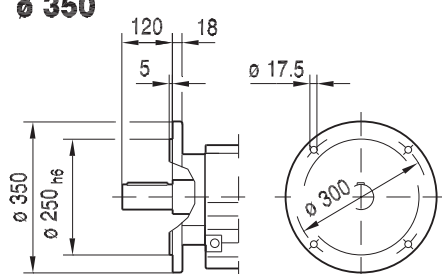
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 269 00 16

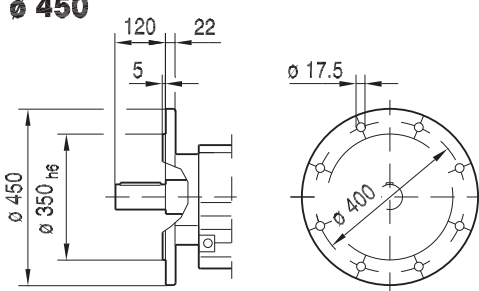
RF97..



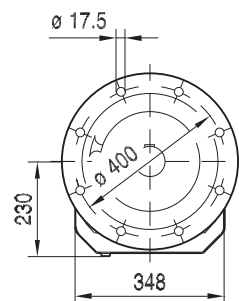
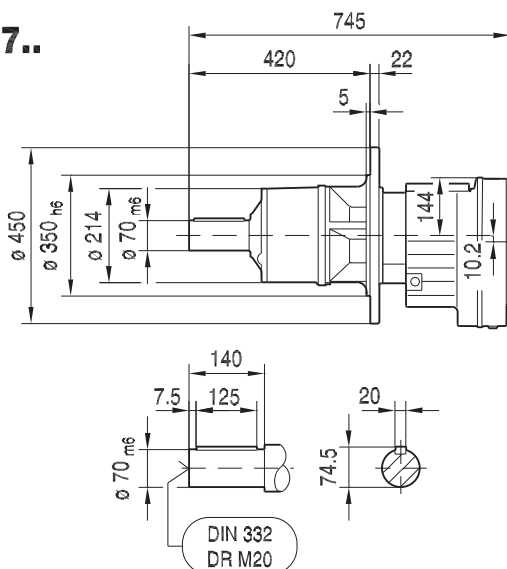
∅ 350



∅ 450



RM97..



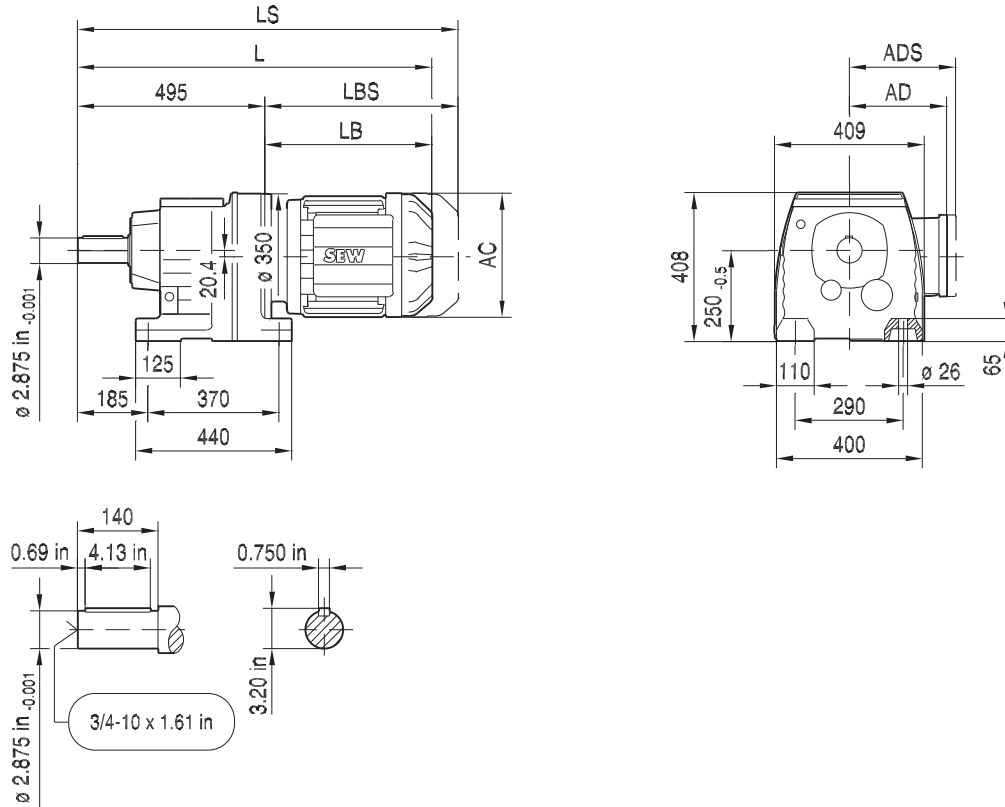
21933480/EN-US - 04/2018

(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	778	809	859	877	903	969	992	1102	1076
LS	872	921	971	1015	1040	1158	1181	1307	1281
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 270 00 16^L

R107..

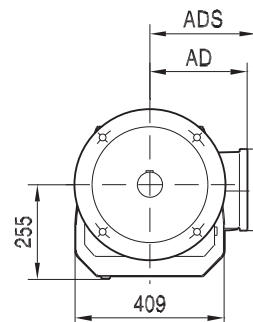
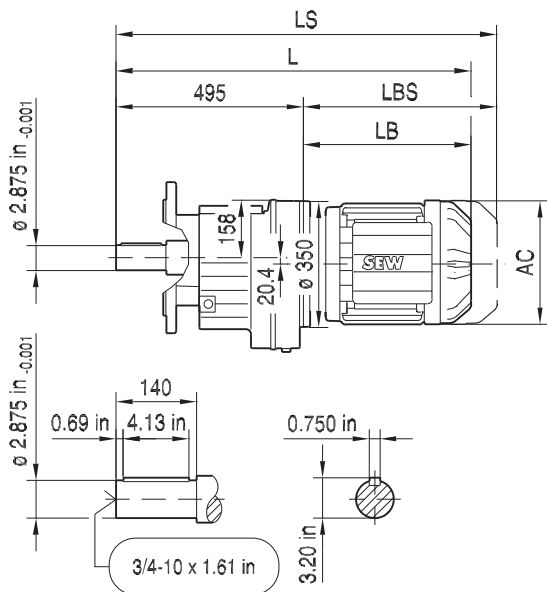


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	827	858	908	926	952	1018	1041	1151	1125
LS	921	970	1020	1064	1089	1207	1230	1356	1330
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

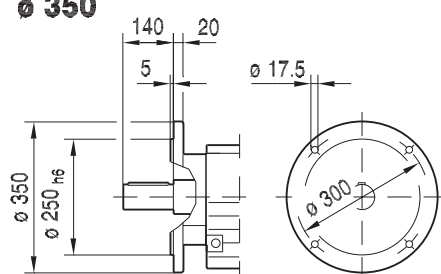
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 271 00 16

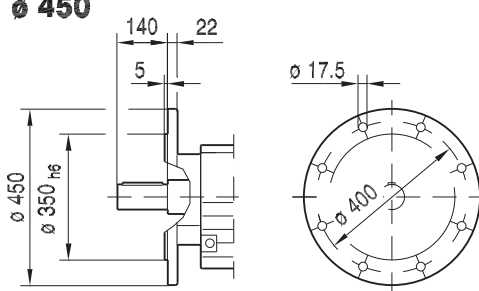
RF107..



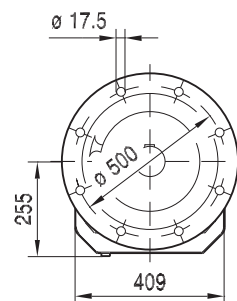
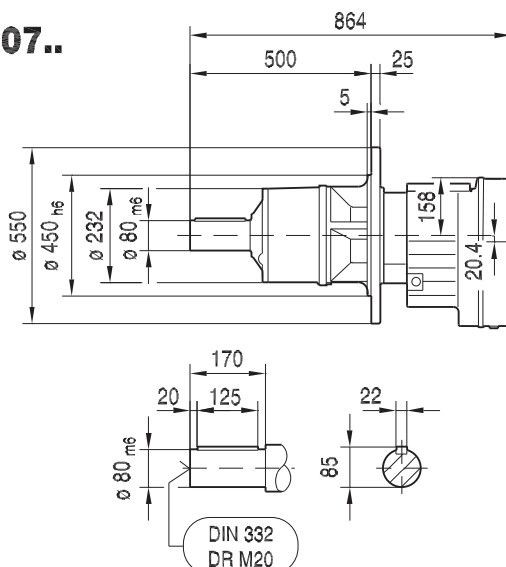
Ø 350



Ø 450



RM107..



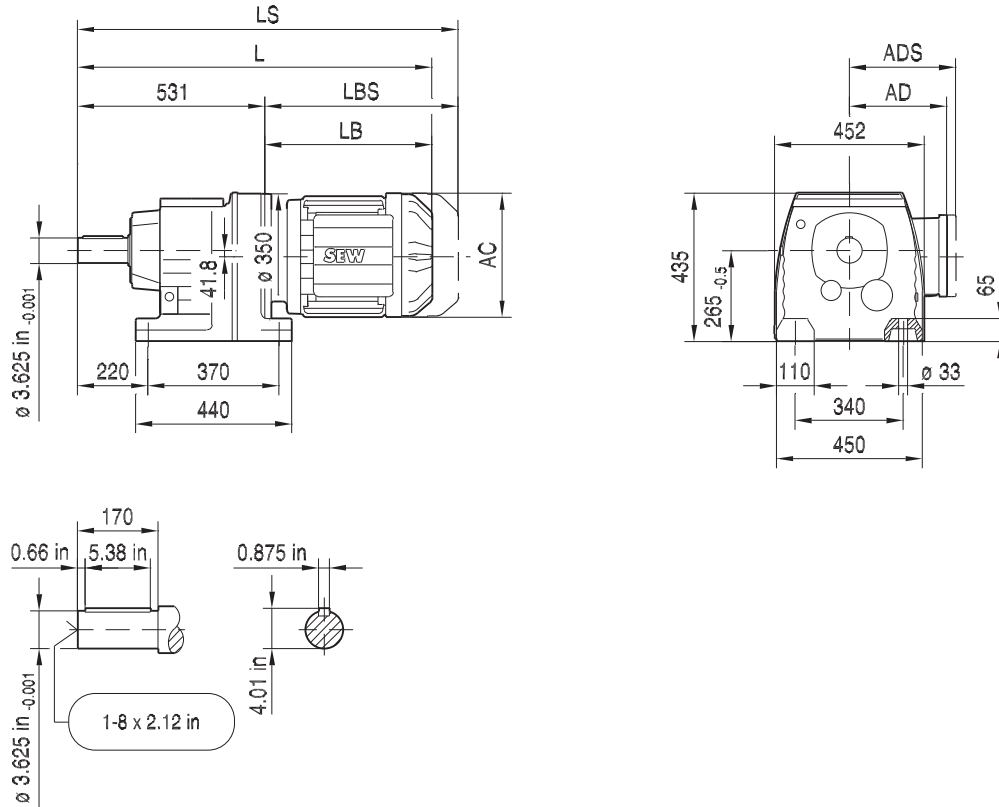
21933480/EN-US - 04/2018

(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	827	858	908	926	952	1018	1041	1151	1125
LS	921	970	1020	1064	1089	1207	1230	1356	1330
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 272 00 16

R127..

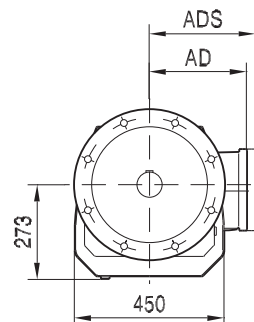
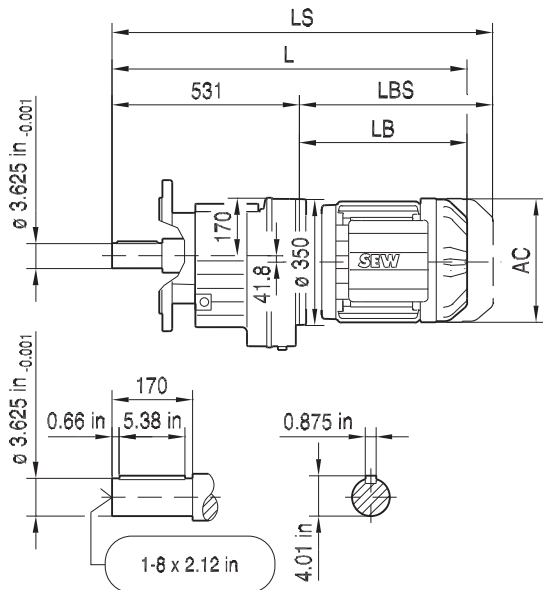


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M
AC	197	221	221	261	261	314	357	394	434	495
AD	157	170	170	228	228	253	268	283	305	394
ADS	158	172	172	228	228	253	268	283	305	394
L	863	894	944	962	988	1054	1077	1187	1161	1298
LS	957	1006	1056	1100	1125	1243	1266	1392	1366	1538
LB	332	363	413	431	457	523	546	656	630	767
LBS	426	475	525	569	594	712	735	861	835	1007

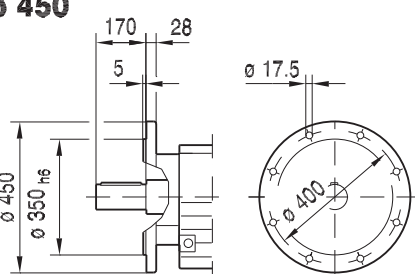
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 273 00 16

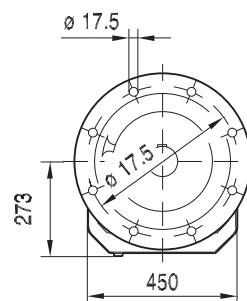
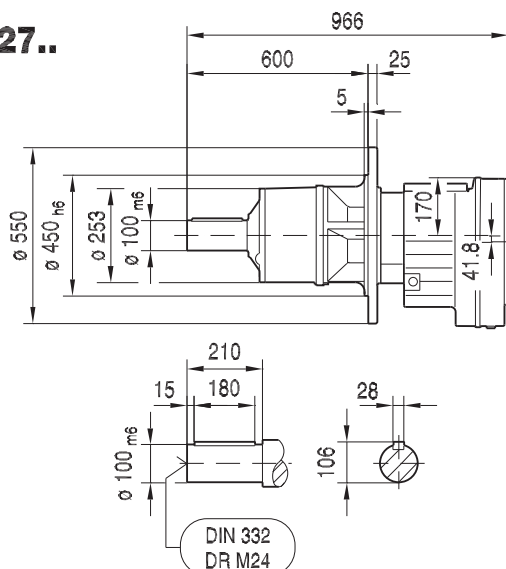
RF127..



ø 450



RM127..



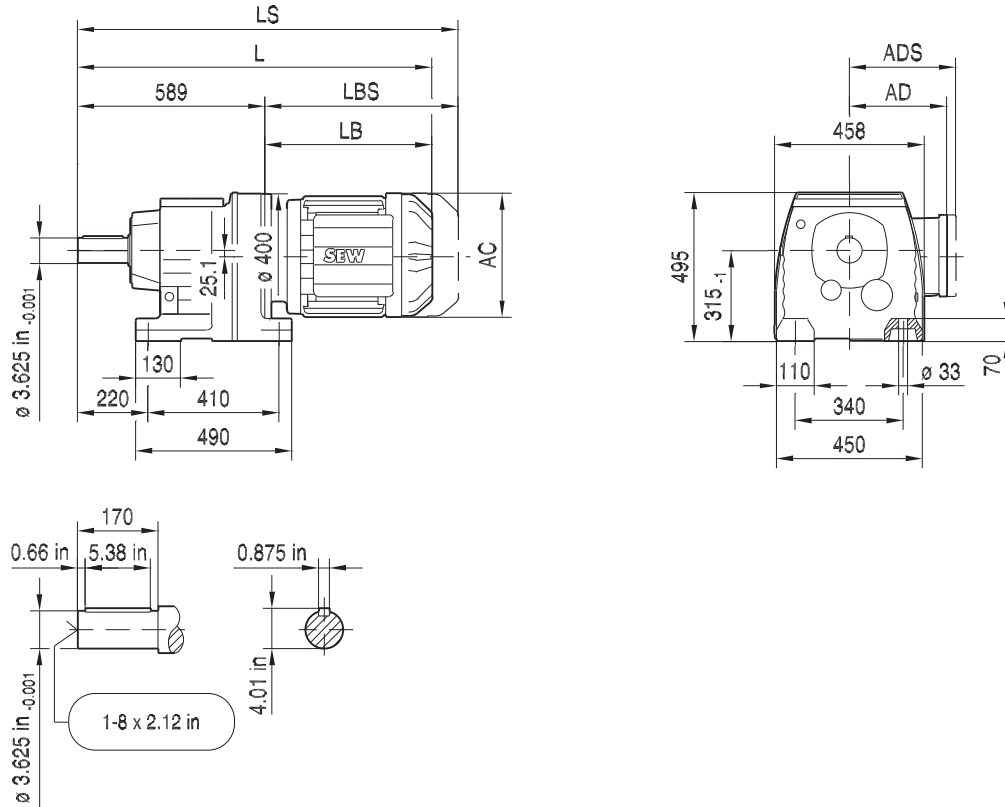
21933480/EN-US - 04/2018

(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M
AC	197	221	221	261	261	314	357	394	434	495
AD	157	170	170	228	228	253	268	283	305	394
ADS	158	172	172	228	228	253	268	283	305	394
L	863	894	944	962	988	1054	1077	1187	1161	1298
LS	957	1006	1056	1100	1125	1243	1266	1392	1366	1538
LB	332	363	413	431	457	523	546	656	630	767
LBS	426	475	525	569	594	712	735	861	835	1007

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 274 00 16

R137..

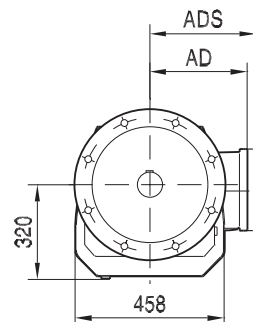
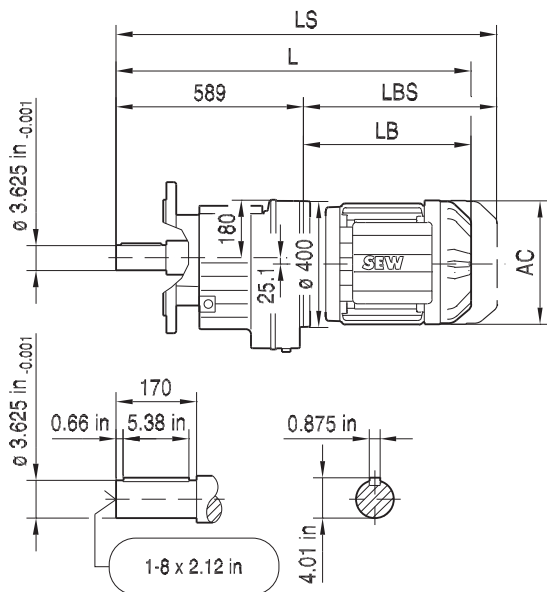


(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	995	1013	1039	1105	1128	1238	1212	1349	1349	1444
LS	1107	1151	1176	1294	1317	1443	1417	1589	1589	1684
LB	406	424	450	516	539	649	623	760	760	855
LBS	518	562	587	705	728	854	828	1000	1000	1095

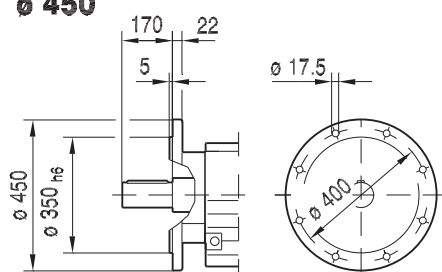
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 275 00 16

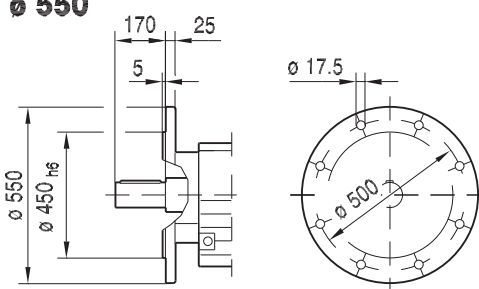
RF137..



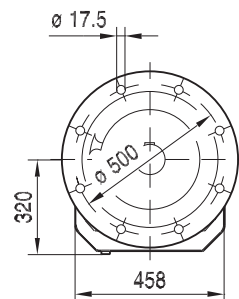
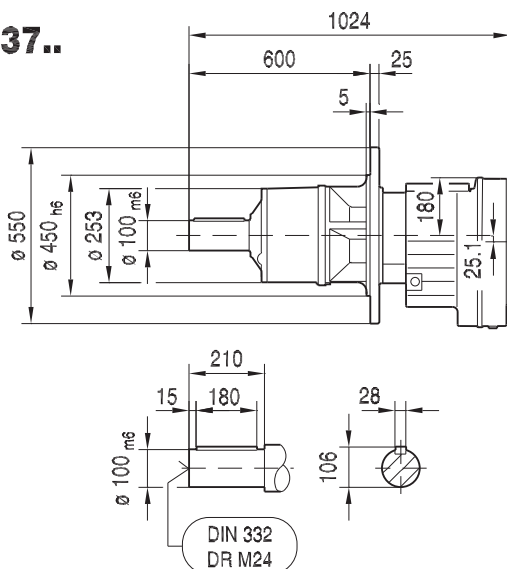
ø 450



ø 550



RM137..



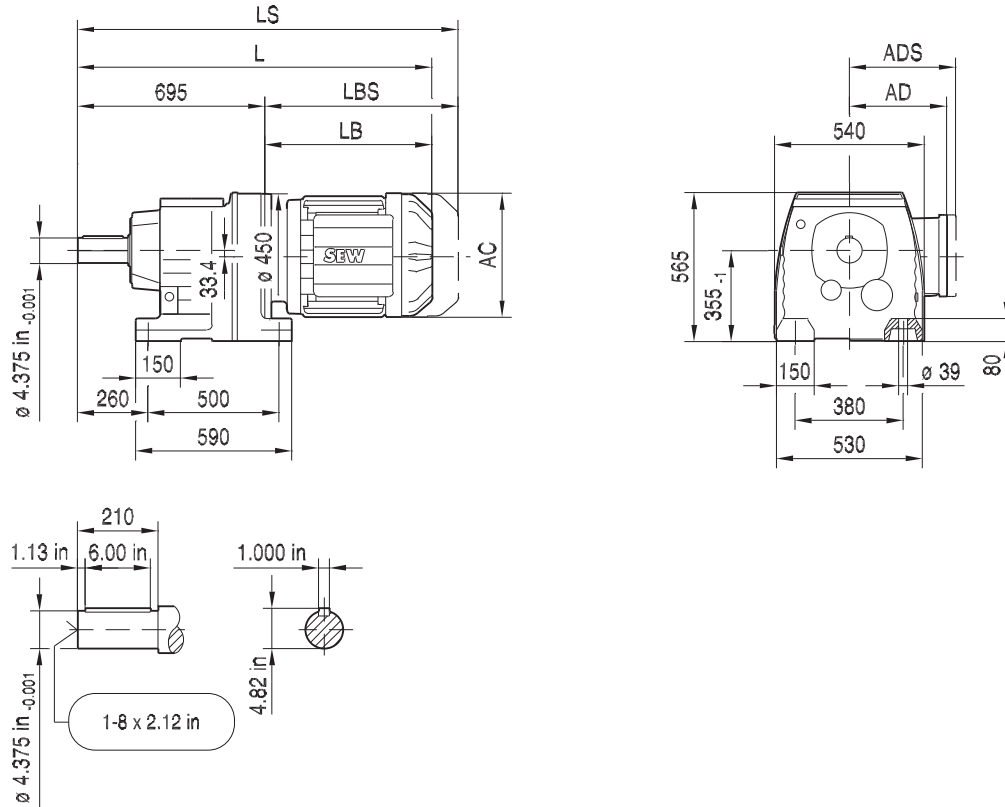
21933480/EN-US - 04/2018

(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	995	1013	1039	1105	1128	1238	1212	1349	1349	1444
LS	1107	1151	1176	1294	1317	1443	1417	1589	1589	1684
LB	406	424	450	516	539	649	623	760	760	855
LBS	518	562	587	705	728	854	828	1000	1000	1095

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 276 00 16

R147..

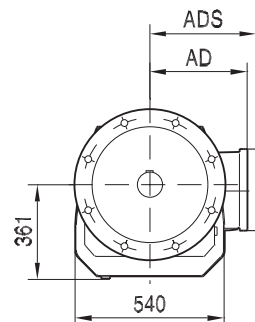
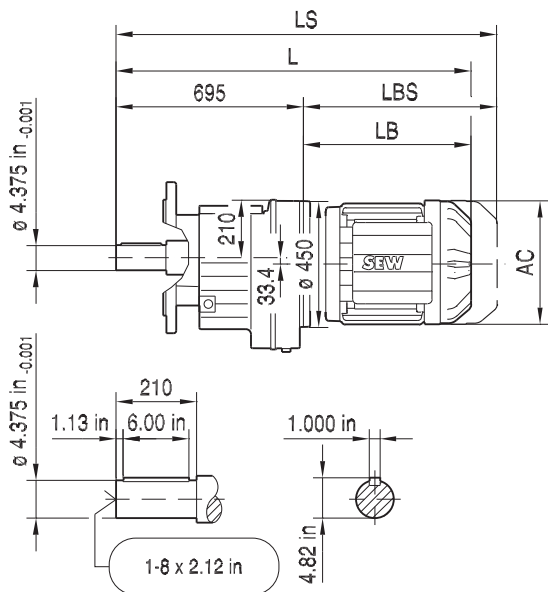


(→ 163)	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	261	314	357	394	434	495	495	495
AD	228	253	268	283	305	394	394	394
ADS	228	253	268	283	305	394	394	394
L	1137	1203	1226	1336	1310	1447	1447	1542
LS	1274	1392	1415	1541	1515	1687	1687	1782
LB	442	508	531	641	615	752	752	847
LBS	579	697	720	846	820	992	992	1087

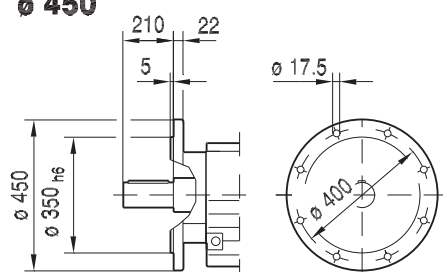
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 277 00 16

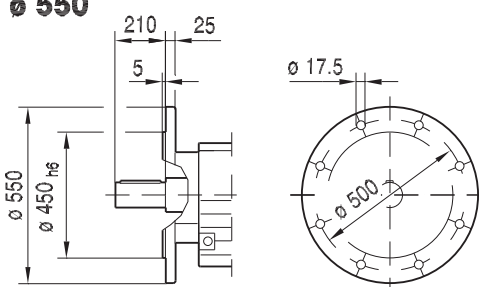
RF147..



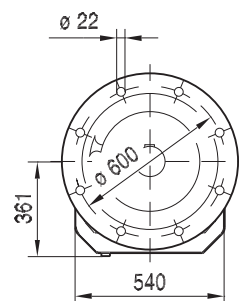
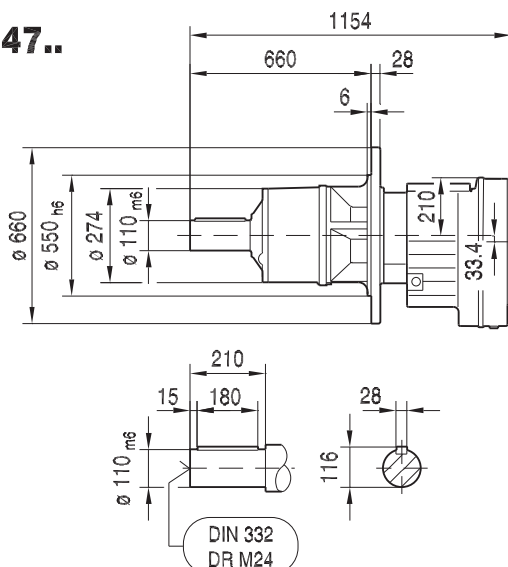
ø 450



ø 550



RM147..



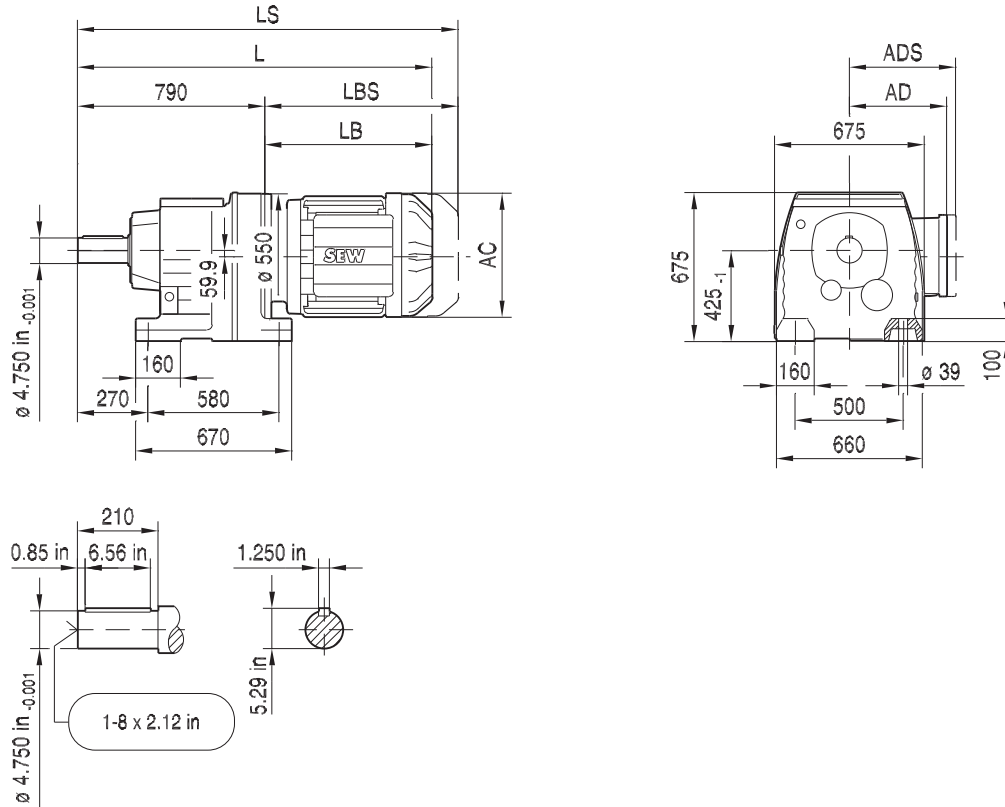
21933480/EN-US - 04/2018

(→ 163)	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	261	314	357	394	434	495	495	495
AD	228	253	268	283	305	394	394	394
ADS	228	253	268	283	305	394	394	394
L	1137	1203	1226	1336	1310	1447	1447	1542
LS	1274	1392	1415	1541	1515	1687	1687	1782
LB	442	508	531	641	615	752	752	847
LBS	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 278 00 16

R167..

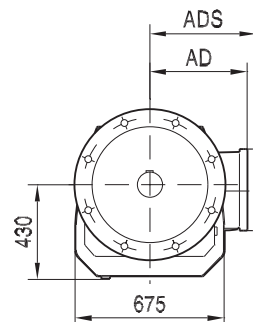
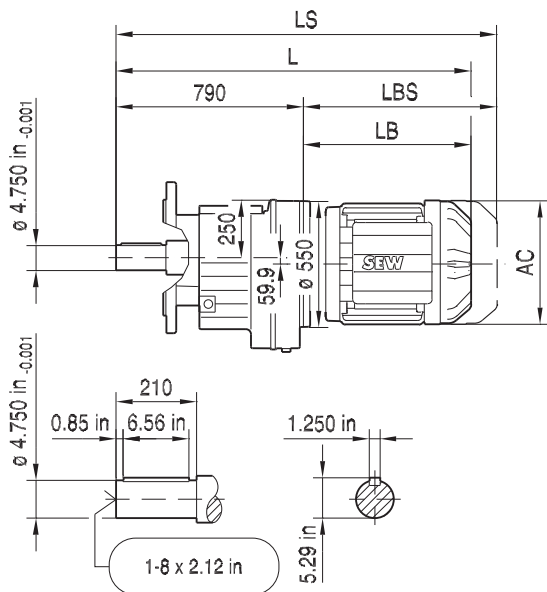


(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1290	1313	1423	1397	1534	1534	1629	1731	1861
LS	1479	1502	1628	1602	1774	1774	1869	1982	2112
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

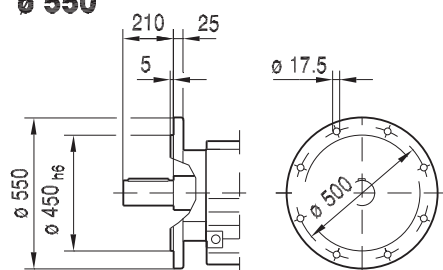
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

01 279 00 16

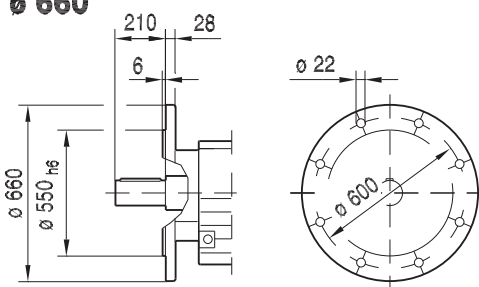
RF167..



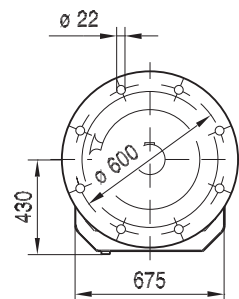
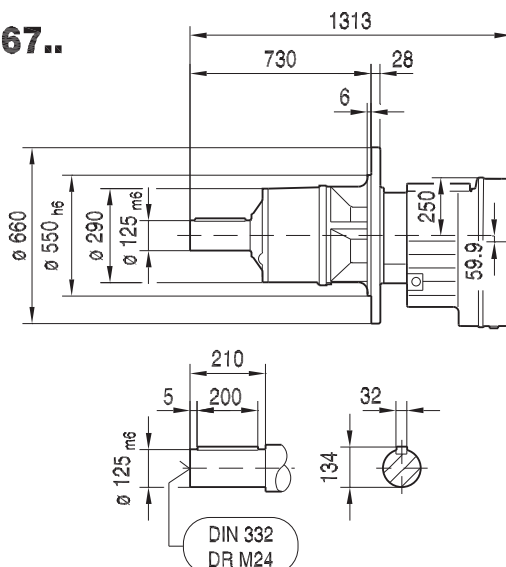
ø 550



ø 660



RM167..



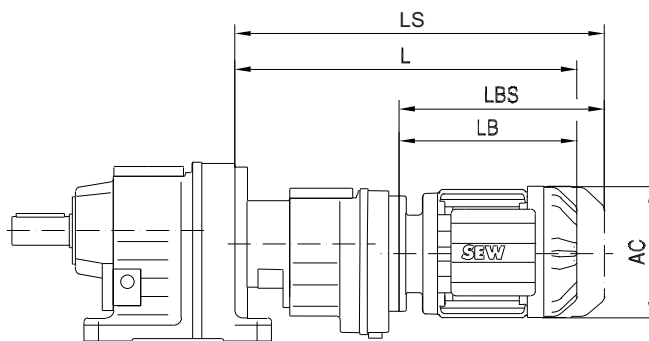
21933480/EN-US - 04/2018

(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1290	1313	1423	1397	1534	1534	1629	1731	1861
LS	1479	1502	1628	1602	1774	1774	1869	1982	2112
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 348. For tolerances, see page 163.

8.6 R.. R.. DRS/DRN.. Compound dimensions

01 131 00 06



(All dimensions in mm)

Gear	Motor	AC	L	LS	LB	LBS
R..27R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
R..37R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
R..47R37	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
	DRN80M	156	447	527	282	362
R..57R37	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
R..67R37	DRN80M	156	447	527	282	362
	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
R..77R37	DRN80M	156	446	527	281	362
	DRN90S	179	447	541	282	376
	DR63	132	348	403	191	246
	DRS71S	139	359	426	202	269
R..87R57	DRS71M	139	384	451	227	294
	DRN80M	156	438	519	281	362
	DRN90S	179	440	553	283	376
	DR63	132	412	467	185	240
	DRS71S	139	423	491	196	264
R..97R57	DRS71M	139	448	516	221	289
	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
	DRN90L	179	536	629	309	402
	DRN100LM	197	582	676	355	449
	DR63	132	407	462	185	240
	DRS71S	139	418	486	196	264
	DRS71M	139	443	511	221	289
DRN80M	156	497	578	275	356	
R..107R77	DRN90S	179	499	592	277	370
	DRN90L	179	531	624	309	402
	DRN100L	197	578	671	355	448
	DRN100LM	197	578	671	355	448
	DR63	132	481	473	178	233
	DRS71S	139	429	497	189	257
	DRS71M	139	454	522	214	282
	DRN80M	156	508	589	268	349
R..127R77	DRN90S	179	510	603	270	363
	DRN90L	179	542	635	302	395
	DRN100L	197	588	681	348	441
	DRN100LM	197	588	681	348	441
	DRN112M	221	619	731	379	491
	DRN132S	221	669	781	429	541
	DRN132M	261	685	824	445	584
	DRN132L	261	710	849	470	609
	DR63	168	461	516	214	269
	DRS71S	175	472	540	225	293
R..137R77	DRS71M	175	497	565	250	318
	DRN80M	192	551	632	304	385
	DRN90S	215	553	646	306	399
	DRN90L	215	585	678	338	431
	DRN100L	233	631	724	384	477
	DRN100LM	233	631	724	384	477
	DRN112M	257	662	774	415	527
	DRN132S	257	712	824	465	577
	DRN132M	261	730	868	483	621
	DRN160M	314	822	1011	575	764

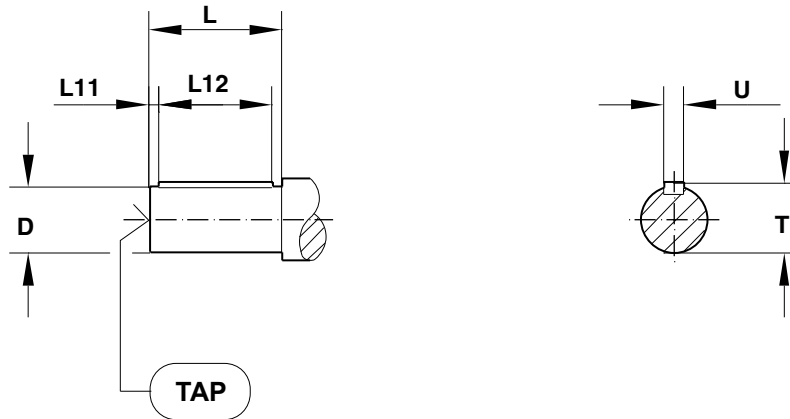
Gear	Motor	AC	L	LS	LB	LBS
R..107R77	DR63	132	425	480	178	233
	DRS71S	139	436	504	189	257
	DRS71M	139	461	529	214	282
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L	197	595	688	348	441
	DRN100LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
R..127R77	DR63	168	461	516	214	269
	DRS71S	175	472	540	225	293
	DRS71M	175	497	565	250	318
	DRN80M	192	551	632	304	385
	DRN90S	215	553	646	306	399
	DRN90L	215	585	678	338	431
	DRN100L	233	631	724	384	477
	DRN100LM	233	631	724	384	477
	DRN112M	257	662	774	415	527
	DRN132S	257	712	824	465	577
R..137R77	DRN132M	261	730	868	483	621
	DRN160M	314	822	1011	575	764
	DR63	132	481	473	178	233
	DRS71S	139	429	497	189	257
	DRS71M	139	454	522	214	282
	DRN80M	156	508	589	268	349
	DRN90S	179	510	603	270	363
	DRN90L	179	542	635	302	395
	DRN100L	197	588	681	348	441
	DRN100LM	197	588	681	348	441

Gear	Motor	AC	L	LS	LB	LBS
R..147R77	DRS71S	139	421	489	189	257
	DRS71M	139	446	514	214	282
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L	197	580	673	348	441
	DRN100LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
DRN132M	261	679	817	447	585	
R..147R87	DRN90L	179	577	670	297	390
	DRN100L	197	623	716	343	436
	DRN100LM	197	623	716	343	436
	DRN112M	221	654	766	379	486
	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160M	314	814	1003	534	723
DRN160L	314	814	1003	534	723	
R..167R97	DRS71M	139	529	597	204	272
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L	197	663	756	338	431
	DRN100LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718
DRN160L	314	854	1043	529	718	
R..167R107	DRN100L	197	714	807	332	425
	DRN100LM	197	714	807	332	425
	DRN112M	221	745	857	363	475
	DRN132S	221	795	907	413	525
	DRN132M	261	811	950	429	568
	DRN132L	261	836	975	454	593
	DRN160M	314	905	1094	523	712
	DRN160L	314	905	1094	523	712
	DRN180M	357	930	1119	548	737
	DRN180L	357	930	1119	548	737

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8.7 Output shaft sizes

8.7.1 Solid Shafts – Inch

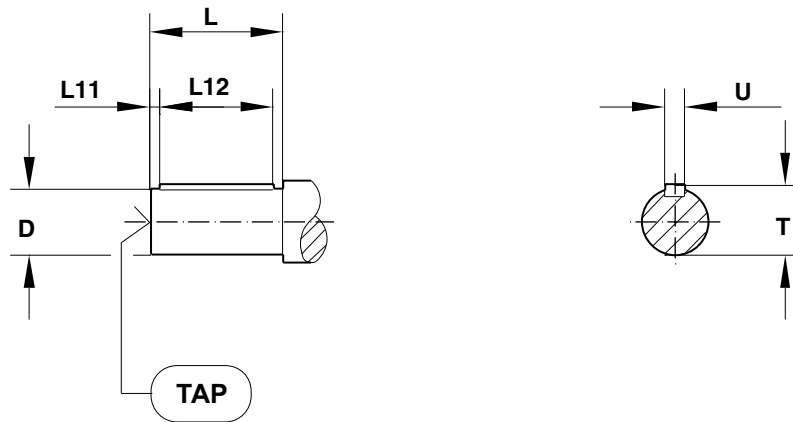


Model	All dimensions in inches							
	D	T	U	L ¹	L11	L12	TAP	Change ²
R..17	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63	0
R..27	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
R..37	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
R..47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
R..57	1.25	1.36	1/4	2.36	0.28	1-11/16	1/2 - 13 x 1.12	-0.4
	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
R..67	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
R..77	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
R..87	2.125	2.35	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
R..97	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
R..107	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
R..137	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
R..147	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
R..167	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0
RX..57	0.75	0.83	3/16	1.57	0.23	1-1/16	1/4 - 20 x 0.63	0
RX..67	1.00	1.11	1/4	1.97	0.26	1-5/16	3/8 - 16 x 0.87	0
RX..77	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	+0.79
RX..87	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
	1.75	1.92	3/8	3.54	0.38	2-3/4	5/8 - 11 x 1.38	+0.39
RX..97	2.125	2.35	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
RX..107	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0

¹Longer shafts to match obsolete gear unit designs (ie: RF60/RF62/RF63) are available for flanged units.

²The change in length, L, when compared to the standard shaft that is shown in dimension pages.

8.7.2 Solid Shafts – Metric



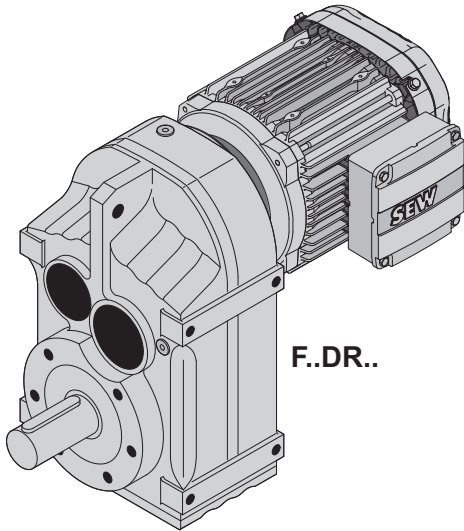
Model	All dimensions in mm						
	D	T	U	L ¹	L11	L12	TAP
R..17	20	22.5	6	40	4	32	M6 x 16
R..27	25	28	8	50	3.5	40	M10 x 22
R..37	25	28	8	50	3.5	50	M10 x 22
R..47	30	33	8	60	3.5	50	M10 x 22
R..57	30	33	8	60	7	50	M10 x 22
	35	38	10	70	7	56	M12 x 28
R..67	35	38	10	70	7	56	M12 x 28
R..77	40	43	12	80	5	70	M16 x 36
R..87	50	53.5	14	100	10	80	M16 x 36
R..97	60	64	18	120	5	110	M20 x 42
R..107	70	74.5	20	140	7.5	125	M20 x 42
R..137	90	95	25	170	5	160	M24 x 50
R..147	110	116	28	210	15	180	M24 x 50
R..167	120	127	32	210	5	200	M24 x 50
RX..57	20	22.5	6	40	3.5	32	M6 x 16
RX..67	25	28	8	50	3.5	40	M10 x 22
RX..77	30	33	8	60	3.5	50	M10 x 22
	40	43	12	80	5	70	M16 x 36
RX..87	40	43	12	80	5	70	M16 x 36
	45	48.5	14	90	5	80	M16 x 36
RX..97	50	53.5	14	100	10	80	M16 x 36
RX..107	60	64	18	120	5	110	M20 x 42

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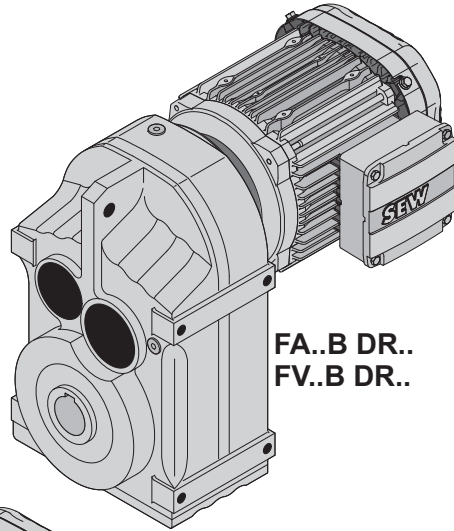
¹Longer shafts to match obsolete gear unit designs (ie: RF60/RF62/RF63) are available for flanged units.

9 theSnuggler® helical gearmotors

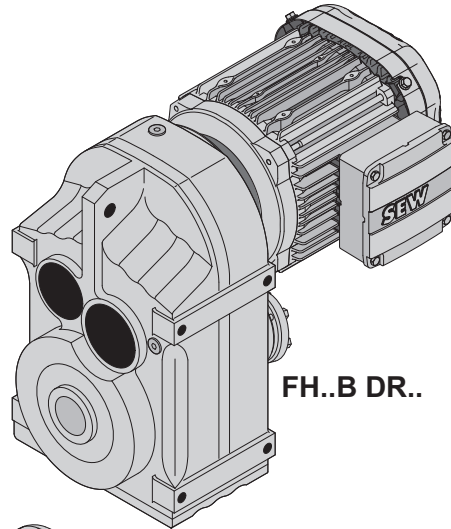
9.1 F.. DRS/DRN.. Designs



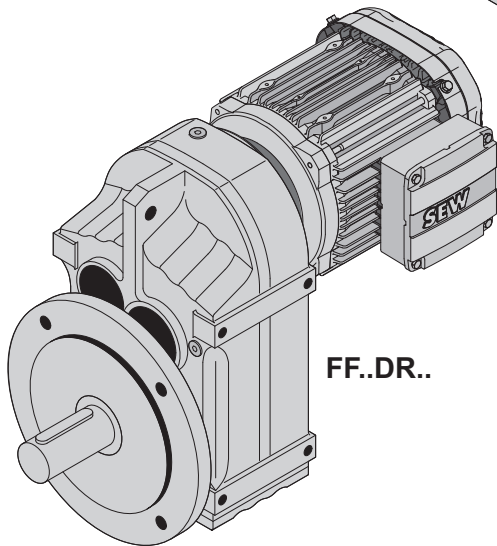
F..DR..



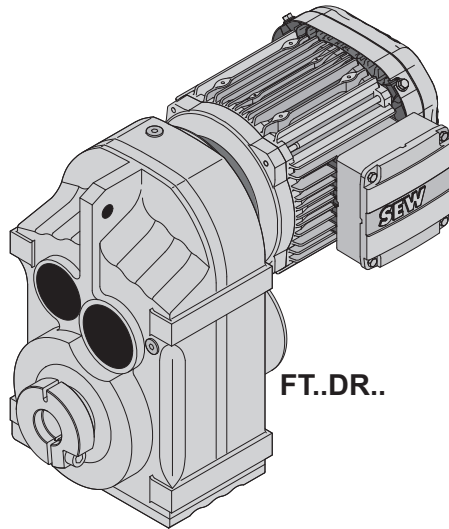
FA..B DR..
FV..B DR..



FH..B DR..



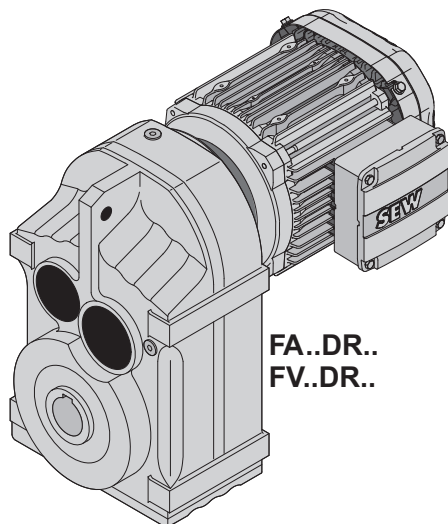
FF..DR..



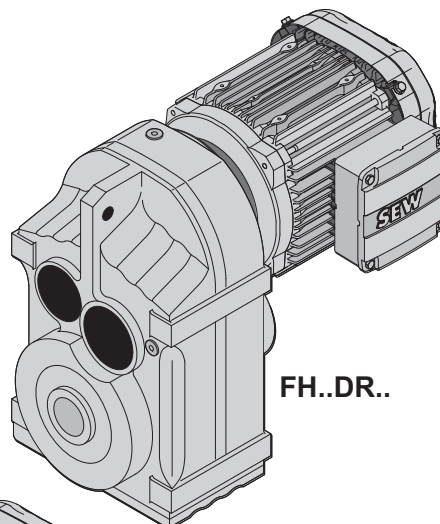
FT..DR..

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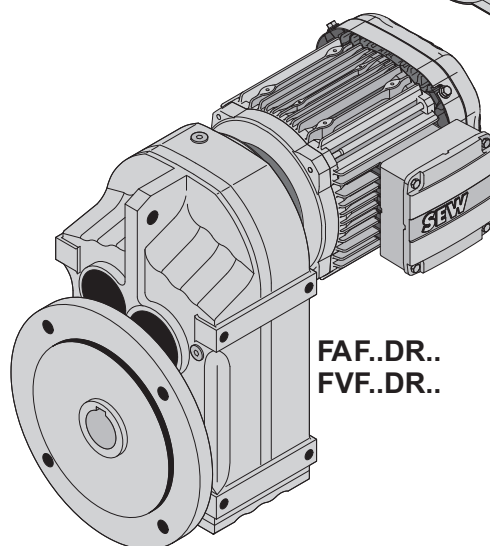
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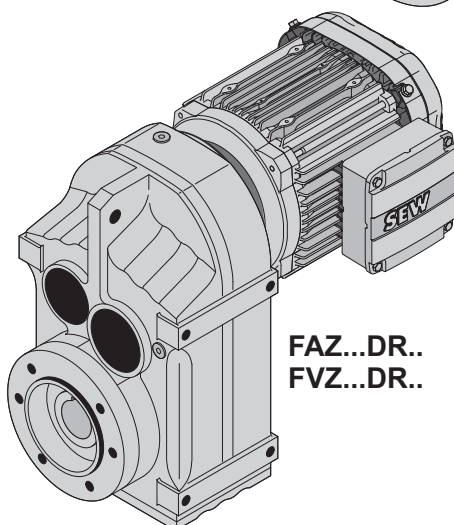
FA..DR..
FV..DR..



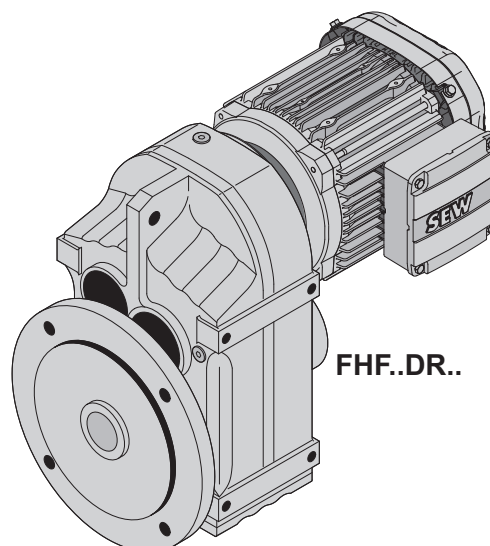
FH..DR..



FAF..DR..
FVF..DR..



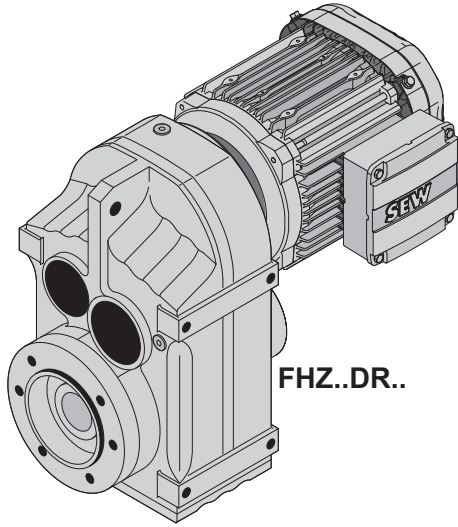
FAZ...DR..
FVZ...DR..



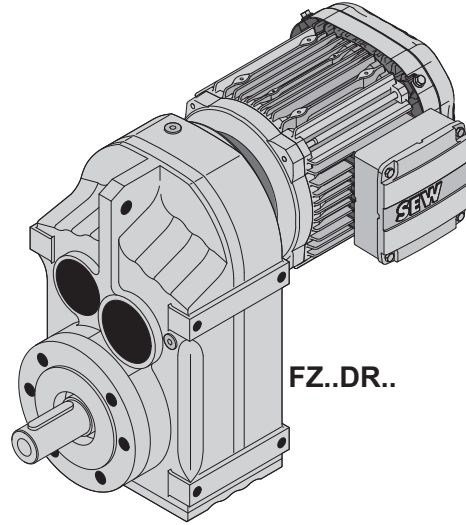
FHF..DR..

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FHZ..DR..





FZ..DR..







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9.2 F.. DRS/DRN.. Possible combinations



F27, $n_e=1700$ rpm					1150 lb-in			
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3								
12	1150	1010	-	140.74				
13	1150	1010	-	129.09				
15	1150	1010	-	109.90				
18	1150	1010	-	94.76				
19	1150	1010	-	88.32				
22	1150	990	-	77.21				
23	1150	960	-	72.37				
27	1150	910	-	63.86				
30	1150	870	-	56.62				
34	1150	820	-	50.19				
36	1150	795	-	46.78				
42	1150	750	-	40.89				
44	1150	730	-	38.33				
50	1150	690	-	33.83				
 2								
58	1150	645	-	29.56				
63	1150	620	-	27.18				
73	1150	575	-	23.25				
84	1150	540	-	20.15				
90	1150	520	-	18.84				
104	1150	485	-	16.28				
123	1150	445	-	13.84				
138	1150	420	-	12.35				
161	1150	385	-	10.55				
172	1150	370	-	9.88				
181	1150	330	-	9.40				
209	1080	315	-	8.13				
246	1000	305	-	6.91				
276	960	295	-	6.17				
323	880	290	-	5.27				
345	840	285	-	4.93				
409	765	280	-	4.16				

F27R17, $n_e=1700$ rpm					1150 lb-in			
n_a rpm	M_{amax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M		
 3  3								
0.19	1150	1010	-	8972				
0.22	1150	1010	-	7736				
0.24	1150	1010	-	7211				
0.27	1150	1010	-	6303				
0.31	1150	1010	-	5435				
0.35	1150	1010	-	4855				
0.40	1150	1010	-	4243				
0.46	1150	1010	-	3715				
0.52	1150	1010	-	3247				







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F27R17, n _e =1700 rpm					1150 lb-in	
n _a rpm	M _{amax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
0.59	1150	1010	-	2878		
0.68	1150	1010	-	2515		
0.77	1150	1010	-	2217		
 2  3						
0.90	1150	1010	-	1898		
1.0	1150	1010	-	1645		
1.1	1150	1010	-	1525		
1.3	1150	1010	-	1322		
1.5	1150	1010	-	1146		
1.7	1150	1010	-	1013		
1.9	1150	1010	-	890		
2.2	1150	1010	-	778		
2.5	1150	1010	-	682		
2.8	1150	1010	-	602		
3.3	1150	1010	-	520		
 3  2						
0.87	1150	1010	-	1948		
0.93	1150	1010	-	1826		
1.1	1150	1010	-	1610		
1.2	1150	1010	-	1399		
1.4	1150	1010	-	1230		
1.8	1150	1010	-	948		
2.1	1150	1010	-	829		
2.3	1150	1010	-	731		
2.7	1150	1010	-	633		
3.1	1150	1010	-	551*		
3.5	1150	1010	-	489		
4.0	1150	1010	-	427		
4.5	1150	1010	-	379		
5.2	1150	1010	-	326		
5.9	1150	1010	-	288		
6.8	1150	1010	-	251		
7.7	1150	1010	-	221		
9.9	1150	1010	-	172		
11	1150	1010	-	153		
13	1150	1010	-	130		
 2  2						
3.7	1150	1010	-	458		
4.3	1150	1010	-	397		
5.0	1150	1010	-	342		
5.6	1150	1010	-	302		
6.4	1150	1010	-	266		
7.2	1150	1010	-	236		
8.1	1150	1010	-	211		
9.1	1150	1010	-	186		
12	1150	1010	-	142		
14	1150	1010	-	124		
16	1150	1010	-	109		
18	1150	1010	-	96		

F37, n _e =1700 rpm					1760 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3								
13	1760	960	6.8	128.51				
14	1760	960	6.8	117.88				
17	1760	960	6.8	100.36				
20	1760	960	6.8	86.53				
21	1760	960	6.8	80.65				
24	1760	960	6.9	70.50				
26	1760	960	6.9	66.09				
29	1760	960	6.9	58.32				
31	1760	960	7.5	54.54				
33	1760	960	6.9	51.70				
36	1760	960	7.6	47.02				
39	1760	960	7.6	43.83				
44	1760	960	7.7	38.31				
47	1760	930	7.7	35.91				
54	1760	880	7.7	31.69				
61	1760	830	7.8	28.09				
71	1760	770	7.8	23.88				
 2								
72	1760	765	6.1	23.63				
83	1760	715	6.2	20.57				
88	1760	690	6.2	19.27				
100	1760	645	6.4	17.03				
108	1760	625	6.4	15.81				
119	1760	590	6.5	14.33				
132	1760	555	6.6	12.87				
153	1680	530	6.7	11.08				
163	1630	520	6.8	10.42				
190	1540	500	6.9	8.97				
212	1500	475	7.4	8.01				
228	1280	475	9.9	7.44				
252	1230	460	10	6.74				
281	1190	445	10.2	6.05				
326	1100	430	10.5	5.21				
347	1060	425	10.6	4.90				
403	970	415	10.9	4.22				
451	920	400	11.9	3.77				

F37R17, n _e =1700 rpm					1760 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M		
 3  3								
0.21	1760	960	-	8193				
0.24	1760	960	-	7064				
0.26	1760	960	-	6585				
0.30	1760	960	-	5756				
0.34	1760	960	-	4963				
0.38	1760	960	-	4434				
0.44	1760	960	-	3875				

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F37R17, n _e =1700 rpm					1760 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
0.50	1760	960	-	3392		
0.57	1760	960	-	2965		
0.66	1760	960	-	2587		
0.74	1760	960	-	2284		
0.85	1760	960	-	1997		
0.98	1760	960	-	1742		
1.1	1760	960	-	1545		
 2  3						
0.88	1760	960	-	1929		
1.0	1760	960	-	1679		
1.1	1760	960	-	1550		
1.3	1760	960	-	1356		
1.4	1760	960	-	1180		
1.6	1760	960	-	1044		
1.9	1760	960	-	914		
2.1	1760	960	-	808		
2.4	1760	960	-	698		
2.8	1760	960	-	616		
3.1	1760	960	-	544		
3.6	1760	960	-	466		
4.1	1760	960	-	411		
4.7	1760	960	-	364		
 3  2						
1.2	1760	960	-	1370		
1.4	1760	960	-	1198		
1.6	1760	960	-	1047		
1.9	1760	960	-	915		
2.1	1760	960	-	807		
2.4	1760	960	-	707		
2.8	1760	960	-	617		
3.2	1760	960	-	538		
3.6	1760	960	-	477		
4.1	1760	960	-	412		
4.7	1760	960	-	365		
5.3	1760	960	-	322		
6.1	1760	960	-	278		
7.0	1760	960	-	242		
7.7	1760	960	-	221		
8.7	1760	960	-	195		
10	1760	960	-	168		
12	1760	960	-	147		
13	1760	960	-	127		
14	1760	960	-	121		
16	1760	960	-	108		
19	1760	960	-	91		
 2  2						
5.2	1760	960	-	326		
6.0	1760	960	-	285		
6.8	1760	960	-	250		

F37R17, n_e=1700 rpm



1760 lb-in

n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M
7.8	1760	960	-	219		
9.1	1760	960	-	186		
10	1760	960	-	167		
12	1760	960	-	145		
13	1760	960	-	129		
14	1760	960	-	118		
17	1760	960	-	98		
20	1760	960	-	87		







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F47, n_e=1700 rpm

3530 lb-in



n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3								
8.9	3530	1330	6.1	190.76				
9.7	3530	1330	6.2	175.38				
11	3530	1330	6.2	150.06				
13	3530	1330	6.2	130.07				
14	3530	1330	6.2	121.57				
16	3530	1330	6.2	105.09				
19	3530	1330	6.2	89.29				
21	3530	1330	6.2	79.72				
25	3530	1330	6.3	68.09				
26	3530	1330	6.7	65.36				
30	3530	1330	6.8	56.49				
35	3530	1330	6.8	48.00*				
40	3530	1330	6.8	42.86				
46	3530	1330	6.9	36.61				
50	3530	1290	6.9	34.29				
59	3530	1180	7	28.88				
 2								
55	3530	1220	5.7	30.86				
58	3530	1190	5.7	29.32				
66	3530	1110	5.8	25.72				
78	3530	1020	5.9	21.82				
86	3530	970	5.9	19.70				
98	3530	900	6	17.33				
104	3530	870	6	16.36				
122	3530	795	6.1	13.93				
134	3530	750	6.4	12.66				
155	3530	685	6.5	10.97				
190	2910	650	8	8.96				
216	3360	515	8.1	7.88				
228	3360	490	8.2	7.44*				
268	3090	485	8.4	6.34				
295	3000	465	9	5.76				
341	2830	450	9.2	4.99				

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F47R17, $n_e=1700$ rpm					3530 lb-in	
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\varphi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M
 3  3						
0.14	3530	1330	-	12251		
0.16	3530	1330	-	10619		
0.17	3530	1330	-	9846		
0.20	3530	1330	-	8534		
0.23	3530	1330	-	7460		
0.26	3530	1330	-	6536		
0.30	3530	1330	-	5746		
0.34	3530	1330	-	5022		
0.39	3530	1330	-	4401		
0.44	3530	1330	-	3883		
0.49	3530	1330	-	3443		
0.57	3530	1330	-	2976		
0.65	3530	1330	-	2629		
0.74	3530	1330	-	2304		
0.84	3530	1330	-	2033		
 2  3						
0.67	3530	1330	-	2519		
0.71	3530	1330	-	2394		
0.78	3530	1330	-	2172		
0.84	3530	1330	-	2025		
0.96	3530	1330	-	1770		
1.1	3530	1330	-	1576		
1.2	3530	1330	-	1363		
1.4	3530	1330	-	1192		
1.6	3530	1330	-	1061		
1.8	3530	1330	-	931		
2.1	3530	1330	-	822		
2.4	3530	1330	-	706		
2.7	3530	1330	-	619		
 3  2						
0.95	3530	1330	-	1785		
1.1	3530	1330	-	1578		
1.2	3530	1330	-	1364		
1.4	3530	1330	-	1203		
1.6	3530	1330	-	1049		
1.9	3530	1330	-	918		
2.1	3530	1330	-	809		
2.4	3530	1330	-	700		
2.7	3530	1330	-	622		
3.1	3530	1330	-	543		
3.6	3530	1330	-	475		
4.1	3530	1330	-	419		
4.6	3530	1330	-	370		
5.2	3530	1330	-	324		
5.9	3530	1330	-	288		
6.8	3530	1330	-	249		
7.8	3530	1330	-	218		
8.8	3530	1330	-	193		





F47R17, n _e =1700 rpm					3530 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
9.7	3530	1330	-	175		
12	3530	1330	-	147		
13	3530	1330	-	130		
 2  2						
3.2	3530	1330	-	524		
3.5	3530	1330	-	489		
4.0	3530	1330	-	427		
4.5	3530	1330	-	381		
5.1	3530	1330	-	334		
5.8	3530	1330	-	295		
6.7	3530	1330	-	253		
7.8	3530	1330	-	217		
8.9	3530	1330	-	190		
9.6	3530	1330	-	178		
11	3530	1330	-	149		
13	3530	1330	-	131		

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F57, n _e =1700 rpm					5300 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3										
8.5	5300	2070	6	199.70						
9.3	5300	2070	6.1	183.60						
11	5300	2070	6.1	157.09						
12	5300	2070	6.1	136.16						
13	5300	2070	6.1	127.27						
15	5300	2070	6.1	110.01						
18	5300	2070	6.1	93.47						
20	5300	2070	6.1	83.46						
23	5300	2070	6.5	72.98						
25	5300	2070	6.5	68.22						
29	5300	2070	6.5	58.97						
34	5300	1980	6.6	50.10						
38	5300	1880	6.6	44.73						
44	5300	1740	6.6	38.21						
47	5300	1690	6.6	35.79						
56	5220	1560	6.7	30.15						
 2										
42	2560	2200	5.7	40.13						
50	4420	1780	5.7	34.24						
57	4820	1620	5.6	29.94						
60	4730	1590	5.7	28.45						
68	5080	1440	5.8	24.96						
80	5300	1290	5.8	21.17						
89	5300	1220	5.9	19.11						
101	5300	1130	5.9	16.81						
107	5300	1100	6	15.88						
126	5300	1000	6.1	13.52						
138	5300	940	6.3	12.29						





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F57, n _e =1700 rpm					5300 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
160	5300	860	6.4	10.64						
183	3710	960	7.6	9.31						
208	3710	900	7.8	8.19						
220	3710	870	7.8	7.73						
258	3710	790	8	6.58						
284	3710	745	8.6	5.98						
328	3670	690	8.8	5.18						

F57R37, n _e =1700 rpm					5300 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN132S DRN132M
					 3 				
0.11	5300	2070	-	14832					
0.12	5300	2070	-	13604					
0.13	5300	2070	-	12602					
0.15	5300	2070	-	11252					
0.17	5300	2070	-	9986					
0.19	5300	2070	-	8787					
0.21	5300	2070	-	7908					
0.25	5300	2070	-	6913					
0.28	5300	2070	-	6030					
0.32	5300	2070	-	5289					
0.37	5300	2070	-	4654					
0.42	5300	2070	-	4060					
0.48	5300	2070	-	3564					
0.54	5300	2070	-	3161					
0.62	5300	2070	-	2737					
0.71	5300	2070	-	2409					
0.80	5300	2070	-	2131					
0.92	5300	2070	-	1840					
1.0	5300	2070	-	1623					
1.2	5300	2070	-	1439					
1.4	5300	2070	-	1238					
					 2 				
0.60	5300	2070	-	2854					
0.66	5300	2070	-	2576					
0.75	5300	2070	-	2266					
0.84	5300	2070	-	2012					
0.95	5300	2070	-	1791					
1.1	5300	2070	-	1617					
1.2	5300	2070	-	1422					
1.4	5300	2070	-	1243					
1.6	5300	2070	-	1066					
1.8	5300	2070	-	949					
2.0	5300	2070	-	856					
2.3	5300	2070	-	749					
2.6	5300	2070	-	658					
3.1	5300	2070	-	549					
3.5	5300	2070	-	483					

F57R37, n_e=1700 rpm


5300 lb-in

n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3 								
1.5	5300	2070	-	1106				
1.8	5300	2070	-	967				
2.0	5300	2070	-	851				
2.3	5300	2070	-	738				
2.6	5300	2070	-	646				
3.0	5300	2070	-	558				
3.4	5300	2070	-	506				
3.8	5300	2070	-	452				
4.4	5300	2070	-	386				
5.0	5300	2070	-	338				
6.7	5300	2070	-	255				
8.5	5300	2070	-	201				
9.4	5300	2070	-	181				
11	5300	2070	-	155				
 2 								
4.0	5300	2070	-	426				
4.5	5300	2070	-	382				
5.2	5300	2070	-	330				
5.7	5300	2070	-	298				
6.5	5300	2070	-	262				
7.5	5300	2070	-	226				
8.5	5300	2070	-	200				
10	5300	2070	-	170				
11	5300	2070	-	152				
13	5300	2070	-	134				


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F67, n_e=1700 rpm





7250 lb-in


n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3										
7.4	7250	2320	5.7	228.99						
8.7	7250	2320	5.8	195.39						
10.0	7250	2320	5.7	170.85						
10	7250	2320	5.7	162.31						
12	7250	2320	5.8	142.40						
14	7250	2320	5.8	120.79						
16	7250	2320	5.8	109.04						
18	7250	2320	5.8	95.94						
19	7250	2320	5.8	90.59						
21	7250	2320	6.3	79.76						
25	7250	2320	6.3	67.65						
28	7250	2320	6.3	61.07						
32	7250	2320	6.3	53.73						
34	7250	2320	6.3	50.74						
39	7250	2320	6.3	43.20						
43	6900	2390	6.4	39.26						
50	6540	2470	6.5	34.01						

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F67, n _e =1700 rpm					7250 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 2										
47	7250	2320	5.3	36.30						
53	7250	2320	5.4	32.08						
62	7250	2320	5.4	27.41						
68	7250	2320	5.4	25.13						
77	7250	2320	5.5	22.05						
81	7250	2320	5.5	20.90*						
93	7250	2320	5.6	18.29						
103	7250	2320	5.8	16.48						
118	7250	2320	5.7	14.46						
133	7250	2320	5.8	12.76						
150	7250	2320	6	11.31						
176	7250	2240	6.1	9.66						
187	4680	2370	8	9.08						
198	5040	2270	8.1	8.60						
226	5390	2100	8.2	7.53						
251	5480	2000	8.7	6.78						
286	5390	1910	8.6	5.95						
324	5220	1830	8.8	5.25						
365	4950	1780	9.3	4.66						
428	4420	1740	9.6	3.97						



F67R37, n _e =1700 rpm					7250 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.09	7250	2320	-	19199						
0.10	7250	2320	-	17610						
0.11	7250	2320	-	14992						
0.13	7250	2320	-	12926						
0.15	7250	2320	-	11480						
0.17	7250	2320	-	10220						
0.19	7250	2320	-	8933						
0.21	7250	2320	-	7940						
0.24	7250	2320	-	7096						
0.28	7250	2320	-	6080						
0.32	7250	2320	-	5341						
0.36	7250	2320	-	4690						
0.42	7250	2320	-	4091						
0.48	7250	2320	-	3574						
0.54	7250	2320	-	3133						
0.62	7250	2320	-	2756						
0.70	7250	2320	-	2439						
 2  3										
0.50	7250	2320	-	3377						
0.58	7250	2320	-	2912						
0.63	7250	2320	-	2714						
0.72	7250	2320	-	2372						
0.80	7250	2320	-	2126						





F67R37, n _e =1700 rpm					7250 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.91	7250	2320	-	1859				
1.0	7250	2320	-	1631				
1.2	7250	2320	-	1437				
1.4	7250	2320	-	1256				
1.5	7250	2320	-	1126				
1.7	7250	2320	-	984				
2.0	7250	2320	-	864				
2.4	7250	2320	-	722				
2.7	7250	2320	-	634				
3.2	7250	2320	-	539				
 3  2								
0.81	7250	2320	-	2106				
0.90	7250	2320	-	1884				
1.0	7250	2320	-	1635				
1.2	7250	2320	-	1429				
1.3	7250	2320	-	1271				
1.5	7250	2320	-	1102				
1.8	7250	2320	-	970				
2.0	7250	2320	-	858				
2.3	7250	2320	-	755				
2.7	7250	2320	-	641				
3.0	7250	2320	-	572				
3.3	7250	2320	-	509				
3.9	7250	2320	-	437				
4.4	7250	2320	-	384				
5.0	7250	2320	-	338				
5.6	7250	2320	-	305				
6.6	7250	2320	-	257				
7.4	7250	2320	-	231				
8.3	7250	2320	-	205				
9.7	7250	2320	-	175				
 2  2								
3.4	7250	2320	-	500				
3.7	7250	2320	-	454				
4.3	7250	2320	-	392				
5.1	7250	2320	-	333				
5.7	7250	2320	-	297				
6.5	7250	2320	-	261				
7.1	7250	2320	-	238				
8.5	7250	2320	-	200				
9.7	7250	2320	-	176				

F77, n _e =1700 rpm					13200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3											
6.0	13200	3530	5.4	281.71							
6.5	13200	3530	5.4	262.93							
7.5	13200	3530	5.4	225.79							

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F77, n _e =1700 rpm					13200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
8.6	13200	3530	5.4	198.31							
9.0	13200	3530	5.4	188.40							
10	13200	3530	5.5	166.47							
12	13200	3530	5.5	142.27							
13	13200	3530	5.5	130.42							
15	13200	3530	5.5	114.45							
16	13200	3530	5.5	108.46*							
18	13200	3530	5.5	94.93							
20	13200	3530	5.5	85.52							
23	13200	3530	5.5	75.02							
23	13200	3530	5.9	72.50							
26	13200	3530	5.9	66.46							
29	13200	3530	6	58.32							
31	13200	3530	6	55.27							
35	13200	3530	6	48.37							
39	13200	3530	6.1	43.58							
44	13200	3530	6	38.23							
50	13200	3530	6.1	33.74							
57	13200	3530	6.1	29.91							
67	12800	3610	6.2	25.54							
 2											
46	9820	4010	4.9	36.58							
54	12200	3700	4.9	31.51							
59	12600	3640	4.9	28.75							
67	13200	3530	4.9	25.50*							
79	13200	3530	5	21.43							
86	13200	3530	5.1	19.70							
97	13200	3530	5.2	17.49							
109	13200	3420	5.2	15.64*							
121	13200	3280	5.4	14.06							
139	13200	3090	5.4	12.20							
156	13200	2950	5.5	10.93							
183	9550	2860	7.1	9.30							
206	9550	2720	7.1	8.26							
230	9550	2590	7.2	7.39							
256	9550	2470	7.5	6.64							
295	9550	2320	7.7	5.76							
329	9550	2210	7.8	5.16							
397	8930	2100	8.1	4.28							



F77R37, n _e =1700 rpm					13200 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3  3								
0.09	13200	3530	-	19180				
0.10	13200	3530	-	17593				
0.11	13200	3530	-	16128				
0.11	13200	3530	-	14978				
0.12	13200	3530	-	13731				

F77R37, n _e =1700 rpm					13200 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.14	13200	3530	-	12049				
0.15	13200	3530	-	11035				
0.18	13200	3530	-	9683				
0.20	13200	3530	-	8464				
0.23	13200	3530	-	7520				
0.26	13200	3530	-	6580				
0.29	13200	3530	-	5808				
0.34	13200	3530	-	5026				
0.38	13200	3530	-	4435				
0.44	13200	3530	-	3832				
0.50	13200	3530	-	3381				
0.57	13200	3530	-	2978				
0.65	13200	3530	-	2613				
0.74	13200	3530	-	2284				
0.84	13200	3530	-	2029				
 2 								
0.34	9820	4010	-	4931				
0.38	9820	4010	-	4523				
0.44	9820	4010	-	3851				
0.51	9820	4010	-	3320				
0.55	9820	4010	-	3095				
0.63	9820	4010	-	2705				
0.67	9820	4010	-	2536				
0.76	9820	4010	-	2238				
0.83	9820	4010	-	2039				
0.97	9820	4010	-	1759				
1.0	9820	4010	-	1639				
1.2	9820	4010	-	1433				
1.3	9820	4010	-	1343				
1.4	9820	4010	-	1185				
1.6	9820	4010	-	1051				
1.9	9820	4010	-	893				
 3 								
0.98	13200	3530	-	1728				
1.1	13200	3530	-	1544				
1.3	13200	3530	-	1354				
1.4	13200	3530	-	1200				
1.6	13200	3530	-	1053				
1.9	13200	3530	-	910				
2.1	13200	3530	-	810				
2.4	13200	3530	-	710				
2.8	13200	3530	-	615*				
3.2	13200	3530	-	538				
3.5	13200	3530	-	480				
4.1	13200	3530	-	413				
4.6	13200	3530	-	367				
5.3	13200	3530	-	323				
6.1	13200	3530	-	280				
6.9	13200	3530	-	247				
7.7	13200	3530	-	221				







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F77R37, n _e =1700 rpm					13200 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
8.5	13200	3530	-	199				
					 2  2			
2.1	9820	4010	-	815				
2.4	9820	4010	-	706				
2.6	9820	4010	-	660				
3.0	9820	4010	-	571				
3.5	9820	4010	-	485				
3.9	9820	4010	-	433				
4.6	9820	4010	-	370				
4.9	9820	4010	-	346				
5.8	9820	4010	-	292				


F87, n _e =1700 rpm					26500 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
					 3								
6.3	26500	4450	7	270.68									
6.7	26500	4450	7	255.37									
7.4	26500	4450	7	228.93									
8.6	26500	4450	7	197.20									
9.4	26500	4450	7	179.97									
11	26500	4450	7	159.61									
13	26500	4450	7	134.16									
14	26500	4450	7	123.29									
16	26500	4450	7.1	109.49									
17	26500	4450	7.1	97.89									
19	26500	4450	7.1	88.01									
22	26500	4200	7.1	76.39									
25	26500	3960	7.1	68.40									
30	26500	3560	7.1	56.75									
34	26000	3370	7.5	50.36									
38	24900	3270	7.5	45.28									
43	24000	3090	7.5	39.30									
48	23000	2990	7.6	35.19									
58	22200	2760	7.6	29.20									
					 2								
50	23000	2930	6.6	33.92									
59	21600	2790	6.6	28.78									
64	26500	2180	6.8	26.50									
72	26500	2000	6.8	23.68									
80	26500	1840	6.8	21.32*									
88	26500	1700	6.9	19.31									
99	26500	1530	6.9	17.12									
110	26500	1390	7	15.48									
130	26500	1180	7	13.12*									
148	26500	1010	7.1	11.46									
177	25400	910	7.2	9.58									
205	13500	1780	6.7	8.29									
231	13500	1650	6.8	7.35									


F87, n _e =1700 rpm					26500 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
256	13500	1550	6.8	6.65									
302	13500	1390	7	5.63									
346	13500	1260	7.1	4.92									
413	12900	1170	7.4	4.12									

F87R57, n _e =1700 rpm					26500 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3 										
0.07	26500	4450	-	23042						
0.08	26500	4450	-	20462						
0.09	26500	4450	-	18238						
0.11	26500	4450	-	15877						
0.12	26500	4450	-	14099						
0.14	26500	4450	-	12205						
0.16	26500	4450	-	10433						
0.18	26500	4450	-	9381						
0.21	26500	4450	-	8142						
0.24	26500	4450	-	7100						
0.27	26500	4450	-	6273						
0.31	26500	4450	-	5510						
0.34	26500	4450	-	4954						
0.40	26500	4450	-	4245						
0.46	26500	4450	-	3721						
 2 										
0.34	26500	4450	-	4952						
0.37	26500	4450	-	4562						
0.43	26500	4450	-	3919						
0.49	26500	4450	-	3503						
0.53	26500	4450	-	3196						
0.60	26500	4450	-	2857						
0.67	26500	4450	-	2524						
0.80	26500	4450	-	2134						
0.89	26500	4450	-	1913*						
0.99	26500	4450	-	1717						
1.2	26500	4450	-	1476						
1.3	26500	4450	-	1278						
1.5	26500	4450	-	1142						
1.7	26500	4450	-	988						
1.9	26500	4450	-	883						
2.3	26500	4450	-	748						
 3 										
0.52	26500	4450	-	3244						
0.59	26500	4450	-	2881						
0.66	26500	4450	-	2576						
0.77	26500	4450	-	2199						
0.88	26500	4450	-	1930						
0.99	26500	4450	-	1709						
1.1	26500	4450	-	1493						





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F87R57, n _e =1700 rpm					26500 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
1.3	26500	4450	-	1300						
1.5	26500	4450	-	1148						
1.7	26500	4450	-	1010						
1.9	26500	4450	-	887						
2.2	26500	4450	-	780						
2.5	26500	4450	-	674						
2.8	26500	4450	-	609						
3.3	26500	4450	-	515						
3.8	26500	4450	-	452						
4.9	26500	4450	-	345						
5.7	26500	4450	-	300						
6.8	26500	4450	-	249						
 2  2										
2.6	26500	4450	-	662						
2.9	26500	4450	-	592						
3.3	26500	4450	-	519						
3.6	26500	4450	-	468						
4.3	26500	4450	-	398						
4.9	26500	4450	-	350						
5.4	26500	4450	-	315*						
6.0	26500	4450	-	281						
7.1	26500	4450	-	240						
8.1	26500	4450	-	211						
8.8	26500	4450	-	193						





F97, n _e =1700 rpm					38000 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3												
6.1	38000	6720	6	276.77								
6.7	38000	6720	6	253.41								
7.6	38000	6720	6	223.88								
9.0	38000	6720	6	189.92								
9.7	38000	6720	6	174.87								
11	38000	6720	6	156.30								
12	38000	6720	6	140.71								
13	38000	6720	6	127.42								
15	38000	6720	6	112.99								
17	38000	6720	6	102.16								
17	38000	6720	6.2	97.58								
19	38000	6720	6.3	89.85								
20	38000	6720	6	86.59								
21	38000	6540	6.3	80.31								
22	38000	6350	6	75.63								
24	38000	6200	6.3	72.29								
26	38000	5890	6.3	65.47								
29	38000	5520	6.3	58.06								
32	38000	5230	6.3	52.49								
38	38000	4770	6.4	44.49								



F97, n _e =1700 rpm					38000 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
44	38000	4410	6.4	38.86								
52	38000	3960	6.4	32.50								
 2												
39	27100	5660	5.6	43.28								
46	27100	5230	5.6	36.64								
50	38000	4060	5.7	33.91								
56	38000	3800	5.8	30.39								
62	38000	3550	5.8	27.44*								
68	38000	3340	5.8	24.92								
77	38000	3070	5.9	22.11								
85	38000	2870	5.8	20.07								
99	38000	2560	5.9	17.25*								
113	38000	2300	5.9	15.06								
133	38000	1990	6	12.77								
152	36200	1910	6	11.16								
188	20800	2680	8.6	9.06								
207	20800	2530	8.5	8.22								
240	20800	2300	8.6	7.07								
276	19900	2200	8.7	6.17								
325	19000	2070	8.8	5.23								
372	18100	1980	9	4.57								
439	15900	2000	9	3.87								



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F97R57, n _e =1700 rpm					38000 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.06	38000	6720	-	29211						
0.06	38000	6720	-	26911						
0.07	38000	6720	-	23814						
0.08	38000	6720	-	20813						
0.09	38000	6720	-	18119*						
0.11	38000	6720	-	15472						
0.12	38000	6720	-	14022						
0.14	38000	6720	-	12324						
0.16	38000	6720	-	10838						
0.18	38000	6720	-	9576						
0.20	38000	6720	-	8318						
0.23	38000	6720	-	7328						
0.26	38000	6720	-	6469						
0.30	38000	6720	-	5615						
0.34	38000	6720	-	4961*						
0.39	38000	6720	-	4333*						
 2  3										
0.27	38000	6720	-	6338						
0.30	38000	6720	-	5680						
0.34	38000	6720	-	5016						
0.39	38000	6720	-	4367						
0.43	38000	6720	-	3914						





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F97R57, n _e =1700 rpm					38000 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
0.51	38000	6720	-	3357						
0.56	38000	6720	-	3009						
0.69	38000	6720	-	2448						
0.77	38000	6720	-	2199						
0.86	38000	6720	-	1971						
0.98	38000	6720	-	1741*						
1.2	38000	6720	-	1468						
1.3	38000	6720	-	1316						
1.4	38000	6720	-	1189*						
1.7	38000	6720	-	1023						
 3  2										
0.44	38000	6720	-	3906						
0.51	38000	6720	-	3352						
0.58	38000	6720	-	2907						
0.67	38000	6720	-	2553						
0.76	38000	6720	-	2245						
0.86	38000	6720	-	1970						
0.99	38000	6720	-	1722						
1.1	38000	6720	-	1527						
1.3	38000	6720	-	1327						
1.5	38000	6720	-	1171*						
1.7	38000	6720	-	1022						
1.9	38000	6720	-	898						
2.2	38000	6720	-	784						
2.5	38000	6720	-	690						
2.8	38000	6720	-	605						
3.2	38000	6720	-	529						
3.6	38000	6720	-	467						
4.2	38000	6720	-	406						
4.7	38000	6720	-	363						
6.0	38000	6720	-	285						
6.9	38000	6720	-	245						
8.2	38000	6720	-	208						
8.7	38000	6720	-	195						
 2  2										
1.9	38000	6720	-	892						
2.2	38000	6720	-	760						
2.5	38000	6720	-	667						
3.0	38000	6720	-	569						
3.3	38000	6720	-	510						
3.6	38000	6720	-	473*						
4.2	38000	6720	-	403						
4.7	38000	6720	-	361						
5.4	38000	6720	-	317						
6.2	38000	6720	-	275						
7.0	38000	6720	-	242						



F107, n _e =1700 rpm					69300 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME	
 3												
6.7	67900	11200	5.4	254.40*								
7.9	67900	11200	5.4	215.37								
8.5	67900	11200	5.4	199.31								
9.5	67900	11200	5.4	178.64								
11	67900	11200	5.4	161.28*								
12	67900	11200	5.4	146.49								
13	67900	11200	5.4	129.97								
14	67900	11200	5.4	117.94								
17	67900	11200	5.4	101.38*								
18	67900	11200	5.6	92.47*								
19	67900	11200	5.4	88.49								
20	67900	11200	5.7	83.99								
23	67900	11000	5.7	74.52								
25	67900	10600	5.7	67.62								
29	67900	9880	5.7	58.12*								
34	67900	9300	5.7	50.73								
40	67900	8640	5.7	43.03								
45	67900	8110	5.7	37.61								
53	67900	7390	5.8	31.80								
 2												
50	65400	7880	5.1	33.79*								
62	69300	6640	5.2	27.57								
68	69300	6260	5.2	25.14								
78	69300	5670	5.2	21.76*								
89	69300	5170	5.2	19.20*								
103	69300	4600	5.3	16.58								
116	67900	4300	5.3	14.67								
138	61900	4390	5.4	12.33								
171	57500	4180	5.4	9.96								
175	43400	4660	6.7	9.69								
203	42400	4350	6.7	8.37								
230	40700	4220	6.8	7.40								
273	40700	3730	7	6.22								
338	40700	3140	7	5.03								

F107R77, n _e =1700 rpm					69300 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
 3  3												
0.07	67900	11200	-	25375*								
0.08	67900	11200	-	21652								
0.09	67900	11200	-	18933								
0.10	67900	11200	-	16888								
0.12	67900	11200	-	14767								
0.15	67900	11200	-	11348*								
0.17	67900	11200	-	10039								
0.20	67900	11200	-	8548								
0.22	67900	11200	-	7674								



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F107R77, n _e =1700 rpm					69300 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
0.25	67900	11200	-	6767								
0.29	67900	11200	-	5954								
0.33	67900	11200	-	5223								
0.37	67900	11200	-	4567								
0.43	67900	11200	-	3948								
0.48	67900	11200	-	3521								
 2  3												
0.32	69300	11100	-	5383*								
0.37	69300	11100	-	4593								
0.42	69300	11100	-	4016								
0.45	69300	11100	-	3815								
0.51	69300	11100	-	3347								
0.60	69300	11100	-	2839								
0.66	69300	11100	-	2563*								
0.75	69300	11100	-	2255								
0.80	69300	11100	-	2129								
0.94	69300	11100	-	1813								
1.1	69300	11100	-	1590								
1.2	69300	11100	-	1436								
1.3	69300	11100	-	1263								
1.4	69300	11100	-	1193								
1.7	69300	11100	-	1015								
1.8	69300	11100	-	923								
2.1	69300	11100	-	800								
2.4	69300	11100	-	696								
 3  2												
0.56	67900	11200	-	3037								
0.62	67900	11200	-	2756								
0.72	67900	11200	-	2369								
0.82	67900	11200	-	2068								
0.93	67900	11200	-	1826								
1.1	67900	11200	-	1597								
1.2	67900	11200	-	1401								
1.4	67900	11200	-	1243								
1.6	67900	11200	-	1087								
1.8	67900	11200	-	950								
2.0	67900	11200	-	834								
2.3	67900	11200	-	736								
2.7	67900	11200	-	640								
3.0	67900	11200	-	560								
3.5	67900	11200	-	489								
3.9	67900	11200	-	436								
4.6	67900	11200	-	370								
5.1	67900	11200	-	333								
5.8	67900	11200	-	291								
6.7	67900	11200	-	255								
7.6	67900	11200	-	225*								
8.9	67900	11200	-	190								





F107R77, n_e=1700 rpm 69300 lb-in



n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 2  2											
2.6	69300	11100	-	644							
2.9	69300	11100	-	591							
3.3	69300	11100	-	518*							
3.5	69300	11100	-	491							
4.0	69300	11100	-	430							
4.4	69300	11100	-	387							
5.0	69300	11100	-	340							
5.7	69300	11100	-	300							
6.4	69300	11100	-	266							

F127, n_e=1700 rpm 106100 lb-in



n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M
 3									
10.0	106100	20200	4.9	170.83					
11	106100	20200	4.9	153.67*					
14	106100	19000	4.9	125.37					
15	106100	18300	4.9	114.34					
17	106100	17200	4.9	98.95					
19	106100	16400	4.9	87.31*					
23	106100	15400	4.9	75.41*					
24	106100	14900	5.2	70.07					
27	106100	14300	5.2	63.91					
31	106100	13300	5.2	55.31					
35	106100	12500	5.2	48.80					
40	106100	11500	5.2	42.15					
46	106100	10700	5.2	37.28					
54	106100	9660	5.3	31.33					
67	106100	8400	5.3	25.30					
 2									
63	75200	11500	4.6	26.86					
69	75200	11000	4.6	24.57					
80	106100	7440	4.7	21.38					
90	97300	7680	4.7	18.87					
104	97300	6930	4.7	16.36					
117	97300	6340	4.7	14.55					
136	88400	6550	4.8	12.54					
167	84000	6060	4.9	10.19					
192	61900	7490	6.3	8.86					
216	53000	7650	6.4	7.88					
250	61900	6610	6.5	6.80					
308	53000	6540	6.7	5.52					
363	53000	6060	6.8	4.68					



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F127R77, n _e =1700 rpm					106100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
0.07	106100	20200	-	24478*			 3  3					
0.08	106100	20200	-	22323								
0.09	106100	20200	-	19048								
0.10	106100	20200	-	16656								
0.12	106100	20200	-	14722*								
0.13	106100	20200	-	12912								
0.15	106100	20200	-	11656*								
0.17	106100	20200	-	10191								
0.19	106100	20200	-	8831								
0.22	106100	20200	-	7643								
0.25	106100	20200	-	6715								
0.29	106100	20200	-	5925								
0.33	106100	20200	-	5153								
0.38	106100	20200	-	4533								
0.43	106100	20200	-	3926								
0.49	106100	20200	-	3454								
0.56	106100	20200	-	3031								
					 3  2							
0.64	106100	20200	-	2672								
0.72	106100	20200	-	2357*								
0.83	106100	20200	-	2038								
0.95	106100	20200	-	1784								
1.1	106100	20200	-	1606								
1.2	106100	20200	-	1390								
1.4	106100	20200	-	1220								
1.6	106100	20200	-	1077								
1.8	106100	20200	-	930								
2.1	106100	20200	-	820								
2.3	106100	20200	-	727								
2.6	106100	20200	-	648								
3.1	106100	20200	-	549								
3.4	106100	20200	-	495								
4.0	106100	20200	-	428								
4.5	106100	20200	-	376								


F127R87, n _e =1700 rpm					106100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
					 3  2							
3.5	106100	20200	-	483								
4.1	106100	20200	-	418								
4.5	106100	20200	-	374								
5.4	106100	20200	-	312								
5.8	106100	20200	-	293								
6.6	106100	20200	-	259								

F127R87, n _e =1700 rpm					106100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
7.6	106100	20200	-	223								
8.6	106100	20200	-	198								
10	106100	20200	-	166								

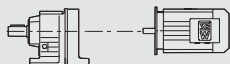

F157, n _e =1700 rpm					159200 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H
 3										
6.4	159200	22500	4.5	267.43						
7.8	159200	22500	4.5	217.62*						
9.5	159200	22500	4.5	178.20*						
10	159200	22500	4.5	162.96						
12	159200	22500	4.5	141.80*						
14	159200	22500	4.5	125.14						
16	159200	21900	4.5	108.49						
18	159200	20800	4.5	96.53*						
20	159200	19800	4.8	85.80*						
22	159200	19100	4.8	78.46						
25	159200	18000	4.8	68.28*						
28	159200	17000	4.8	60.25						
33	159200	16000	4.8	52.24						
37	159200	15200	4.8	46.48*						
42	159200	14100	4.9	40.06						
52	159200	12800	4.9	32.55						
62	159200	11800	4.9	27.60						
 2										
32	70700	20600	4.3	53.55						
39	88400	18400	4.3	43.94*						
48	97300	16500	4.4	35.75*						
59	150400	12500	4.4	28.60*						
67	132700	12700	4.4	25.43						
77	159200	10500	4.4	22.16						
86	150400	10400	4.4	19.77						
101	159200	9060	4.5	16.85						
122	150400	8570	4.6	13.96						
143	141500	8270	4.6	11.92						

F157R97, n _e =1700 rpm					159200 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100L M DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3  3													
0.05	159200	22500	-	31434									
0.06	159200	22500	-	26173									
0.07	159200	22500	-	23464									
0.08	159200	22500	-	20212									
0.09	159200	22500	-	17984*									
0.10	159200	22500	-	16358									
0.12	159200	22500	-	13751									

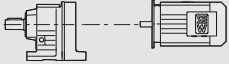

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F157R97, n _e =1700 rpm					159200 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100L M DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
0.14	159200	22500	-	12235									
0.17	159200	22500	-	10033									
0.19	159200	22500	-	9021									
0.21	159200	22500	-	8026									
0.24	159200	22500	-	7075									
0.27	159200	22500	-	6295									
0.31	159200	22500	-	5404									
0.35	159200	22500	-	4831									
0.41	159200	22500	-	4130*									
0.47	159200	22500	-	3607									
0.53	159200	22500	-	3210									
0.61	159200	22500	-	2780									
1.2	159200	22500	-	1441									
 3 2													
0.70	159200	22500	-	2427									
0.78	159200	22500	-	2185									
0.87	159200	22500	-	1944*									
1.0	159200	22500	-	1674									
1.3	159200	22500	-	1308									
1.5	159200	22500	-	1169									
1.8	159200	22500	-	953									
2.0	159200	22500	-	845									
2.2	159200	22500	-	764									
2.5	159200	22500	-	680									
3.0	159200	22500	-	576									
3.4	159200	22500	-	503									
3.8	159200	22500	-	446									
4.8	159200	22500	-	353									
5.6	159200	22500	-	302									
6.2	159200	22500	-	273									
7.3	159200	22500	-	232									
8.4	159200	22500	-	202									
8.6	159200	22500	-	197									

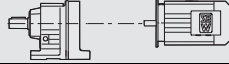

9.3 F.. DRS/DRN.. Selections by HP

P _m = 0.16 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
0.08	95100	22323	20200	1.10							
0.09	81200	19048	20200	1.30							
0.10	71000	16656	20200	1.50		FA	127R77	DR	63S4	940	504/516
0.11	62700	14722	20200	1.70		FAF	127R77	DR	63S4	1020	503/516
0.13	53800	12912	20200	1.95		F	127R77	DR	63S4	1020	502/516
0.14	47000	11656	20200	2.3		FF	127R77	DR	63S4	1120	503/516
0.16	42500	10191	20200	2.5							
0.11	62900	14767	11500	1.10							
0.15	48300	11348	12400	1.40							
0.17	37500	10039	13000	1.80							
0.20	30000	8548	13400	2.3		FA	107R77	DR	63S4	610	497/516
0.22	32000	7674	13300	2.1		FAF	107R77	DR	63S4	650	496/516
0.25	27300	6767	13500	2.5		F	107R77	DR	63S4	640	495/516
0.28	22800	5954	13700	3.0		FF	107R77	DR	63S4	700	496/516
0.32	19500	5223	13900	3.5							
0.37	19400	4567	13900	3.5							
0.48	14200	3521	14100	4.8							
0.26	28200	6469	7380	1.35		FA	97R57	DR	63S4	405	490/516
0.30	26500	5615	7480	1.45		FAF	97R57	DR	63S4	455	489/516
0.34	22900	4961	7690	1.65		F	97R57	DR	63S4	420	488/516
0.39	20000	4333	7840	1.90		FF	97R57	DR	63S4	495	489/516
0.43	18700	3906	7900	2.0		FA	97R57	DR	63S4	405	490/516
0.50	16200	3352	8020	2.3		FAF	97R57	DR	63S4	450	489/516
0.58	13100	2907	8150	2.9		F	97R57	DR	63S4	420	488/516
0.66	12200	2553	8190	3.1		FF	97R57	DR	63S4	490	489/516
0.40	19000	4245	5840	1.40		FA	87R57	DR	63S4	260	483/516
0.45	14700	3721	6160	1.80		FAF	87R57	DR	63S4	290	482/516
						F	87R57	DR	63S4	275	481/516
						FF	87R57	DR	63S4	305	482/516
0.52	15700	3244	6090	1.70							
0.58	13900	2881	6210	1.90							
0.65	12400	2576	6300	2.1		FA	87R57	DR	63S4	260	483/516
0.76	10500	2199	6420	2.5		FAF	87R57	DR	63S4	285	482/516
0.87	9050	1930	6500	2.9		F	87R57	DR	63S4	270	481/516
0.98	8190	1709	6540	3.2		FF	87R57	DR	63S4	305	482/516
1.1	7230	1493	6590	3.7							
1.3	5530	1300	6670	4.8							
1.5	5080	1148	6690	5.2							
0.74	10900	2284	3870	1.20		FA	77R37	DR	63S4	145	476/516
0.83	9680	2029	4030	1.35		FAF	77R37	DR	63S4	160	475/516
						F	77R37	DR	63S4	155	474/516
						FF	77R37	DR	63S4	175	475/516
0.97	8200	1728	4170	1.60							
1.1	7650	1544	4220	1.75							
1.2	6710	1354	4290	2.0		FA	77R37	DR	63S4	145	476/516
1.4	5940	1200	4340	2.2		FAF	77R37	DR	63S4	160	475/516
1.6	5210	1053	4390	2.5		F	77R37	DR	63S4	150	474/516
1.9	4430	910	4430	3.0		FF	77R37	DR	63S4	175	475/516
2.1	3610	810	4460	3.7							
2.4	3170	710	4470	4.2							
1.2	6650	1429	2440	1.10							
1.3	6030	1271	2560	1.20							
1.5	4980	1102	2720	1.45							
1.7	4380	970	2790	1.65		FA	67R37	DR	63S4	95	469/516
2.0	3830	858	2850	1.90		FAF	67R37	DR	63S4	110	468/516
2.2	3370	755	2890	2.1		F	67R37	DR	63S4	100	467/516
2.6	2860	641	2920	2.5		FF	67R37	DR	63S4	115	468/516
2.9	2710	572	2920	2.7							
3.3	2270	509	2920	3.2							
3.9	1970	437	2920	3.7							

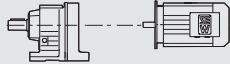

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P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
2.0	4320	851	2250	1.25							
2.3	3680	738	2350	1.45	FA	57R37	DR	63S4	86	462/516	
2.6	3200	646	2430	1.65	FAF	57R37	DR	63S4	98	461/516	
3.0	2720	558	2490	1.95	F	57R37	DR	63S4	87	460/516	
3.3	2400	506	2540	2.2	FF	57R37	DR	63S4	100	461/516	
3.7	2040	452	2580	2.6							
4.0	2180	426	2560	2.4	FA	57R37	DR	63S4	85	462/516	
4.4	1910	382	2580	2.8	FAF	57R37	DR	63S4	97	461/516	
5.1	1620	330	2580	3.3	F	57R37	DR	63S4	85	460/516	
5.6	1470	298	2580	3.6	FF	57R37	DR	63S4	99	461/516	
6.4	1290	262	2580	4.1							
3.1	2720	543	1570	1.30	FA	47R17	DR	63S4	52	455/516	
3.5	2320	475	1650	1.50	FAF	47R17	DR	63S4	58	454/516	
4.0	2020	419	1710	1.75	F	47R17	DR	63S4	54	453/516	
					FF	47R17	DR	63S4	61	454/516	
3.2	2680	524	1580	1.30							
3.4	2480	489	1620	1.45	FA	47R17	DR	63S4	51	455/516	
3.9	2130	427	1690	1.65	FAF	47R17	DR	63S4	57	454/516	
4.4	1880	381	1730	1.90	F	47R17	DR	63S4	53	453/516	
5.0	1650	334	1760	2.1	FF	47R17	DR	63S4	60	454/516	
5.7	1430	295	1790	2.5							
6.6	1180	253	1810	3.0							
5.2	1520	322	1040	1.15	FA	37R17	DR	63S4	42	448/516	
6.1	1330	278	1090	1.30	FAF	37R17	DR	63S4	45	447/516	
6.9	1120	242	1140	1.60	F	37R17	DR	63S4	43	446/516	
7.6	1090	221	1150	1.60	FF	37R17	DR	63S4	47	447/516	
5.2	1650	326	1000	1.05							
5.9	1420	285	1070	1.25	FA	37R17	DR	63S4	41	448/516	
6.7	1240	250	1120	1.45	FAF	37R17	DR	63S4	45	447/516	
7.7	1090	219	1150	1.60	F	37R17	DR	63S4	42	446/516	
9.0	920	186	1180	1.90	FF	37R17	DR	63S4	47	447/516	
10	820	167	1190	2.1							
7.6	1080	221	1010	1.05	FA	27R17	DR	63S4	28	443/516	
9.8	820	172	1010	1.40	FAF	27R17	DR	63S4	30	442/516	
11	720	153	1010	1.60	F	27R17	DR	63S4	29	441/516	
13	595	130	1010	1.90	FF	27R17	DR	63S4	31	442/516	
8.0	1040	211	1010	1.10							
9.0	910	186	1010	1.25	FA	27R17	DR	63S4	28	443/516	
12	720	142	1010	1.60	FAF	27R17	DR	63S4	29	442/516	
14	615	124	1010	1.85	F	27R17	DR	63S4	29	441/516	
15	535	109	1010	2.1	FF	27R17	DR	63S4	31	442/516	
18	465	96	1010	2.5							
4.8	2090	228.99	2920	3.5	FA	67	DR	63M6	71	469	
5.6	1790	195.39	2920	4.0	FAF	67	DR	63M6	85	468	
6.4	1560	170.85	2920	4.6	F	67	DR	63M6	77	467	
6.8	1480	162.31	2920	4.9	FF	67	DR	63M6	90	468	
7.7	1300	142.40	2920	5.6							
5.5	1820	199.70	2580	2.9							
6.0	1680	183.60	2580	3.2	FA	57	DR	63M6	62	462	
7.0	1430	157.09	2580	3.7	FAF	57	DR	63M6	74	461	
8.1	1240	136.16	2580	4.2	F	57	DR	63M6	63	460	
8.6	1160	127.27	2580	4.5	FF	57	DR	63M6	77	461	
8.4	1190	199.70	2580	4.4							
9.2	1100	183.60	2580	4.8	FA	57	DR	63S4	62	462	
11	940	157.09	2580	5.6	FAF	57	DR	63S4	74	461	
12	810	136.16	2580	6.5	F	57	DR	63S4	63	460	
					FF	57	DR	63S4	77	461	
5.8	1740	190.76	1750	2.0							
6.3	1600	175.38	1770	2.2							
7.3	1370	150.06	1790	2.6	FA	47	DR	63M6	46	455	
8.5	1190	130.07	1810	3.0	FAF	47	DR	63M6	52	454	
9.1	1110	121.57	1820	3.2	F	47	DR	63M6	48	453	
10	960	105.09	1830	3.7	FF	47	DR	63M6	55	454	
12	810	89.29	1840	4.3							
14	730	79.72	1840	4.8							

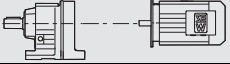

P_m = 0.16 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
8.8	1140	190.76	1820	3.1		FA 47 DR 63S4	46	455
9.6	1050	175.38	1820	3.4		FAF 47 DR 63S4	52	454
11	900	150.06	1830	3.9		F 47 DR 63S4	48	453
13	780	130.07	1840	4.5		FF 47 DR 63S4	55	454
8.6	1170	128.51	1130	1.50		FA 37 DR 63M6	35	448
9.3	1080	117.88	1150	1.65		FAF 37 DR 63M6	39	447
11	910	100.36	1180	1.90		F 37 DR 63M6	36	446
13	790	86.53	1190	2.2		FF 37 DR 63M6	40	447
14	735	80.65	1200	2.4				
13	770	128.51	1200	2.3		FA 37 DR 63S4	35	448
14	705	117.88	1200	2.5		FAF 37 DR 63S4	39	447
17	600	100.36	1220	2.9		F 37 DR 63S4	36	446
19	515	86.53	1220	3.4		FF 37 DR 63S4	40	447
21	480	80.65	1230	3.7				
10	1000	109.90	1010	1.15		FA 27 DR 63M6	22	443
12	860	94.76	1010	1.30		FAF 27 DR 63M6	23	442
12	800	88.32	1010	1.40		F 27 DR 63M6	23	441
14	705	77.21	1010	1.65		FF 27 DR 63M6	25	442
12	840	140.74	1010	1.35				
13	770	129.09	1010	1.50				
15	655	109.90	1010	1.75				
18	565	94.76	1010	2.0				
19	525	88.32	1010	2.2				
22	460	77.21	1010	2.5		FA 27 DR 63S4	22	443
23	430	72.37	1010	2.6		FAF 27 DR 63S4	23	442
26	380	63.86	1010	3.0		F 27 DR 63S4	23	441
30	335	56.62	1010	3.4		FF 27 DR 63S4	25	442
33	300	50.19	1010	3.8				
36	280	46.78	1000	4.1				
41	245	40.89	960	4.7				
44	225	38.33	940	5.0				
50	200	33.83	910	5.7				
57	177	29.56	870	6.5				
62	163	27.18	850	7.0				
72	140	23.25	810	8.2				
83	121	20.15	775	9.5				
89	113	18.84	755	10				
103	98	16.28	725	12				
121	83	13.84	685	14				
136	74	12.35	665	16		FA 27 DR 63S4	21	443
159	63	10.55	630	18		FAF 27 DR 63S4	23	442
170	59	9.88	620	19		F 27 DR 63S4	22	441
179	56	9.40	605	20		FF 27 DR 63S4	24	442
207	49	8.13	580	22				
243	41	6.91	550	24				
272	37	6.17	530	26				
319	32	5.27	505	28				
341	30	4.93	495	29				
404	25	4.16	465	31				

P_m = 0.25 HP

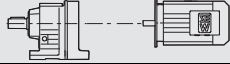

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
0.13	93100	12912	20200	1.15	X			
0.15	82500	11656	20200	1.30	X	FA 127R77 (E)DRS 71S4	940	504/516
0.17	73500	10191	20200	1.45	X	FAF 127R77 (E)DRS 71S4	1030	503/516
0.19	59800	8831	20200	1.75	X	F 127R77 (E)DRS 71S4	1020	502/516
0.22	51800	7643	20200	2.0	X	FF 127R77 (E)DRS 71S4	1120	503/516
0.25	49000	6715	20200	2.2	X			

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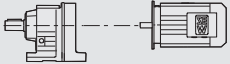

P _m = 0.25 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.20	55900	8548	12000	1.20	X						
0.22	55300	7674	12000	1.25	X						
0.25	47900	6767	12400	1.40	X	FA	107R77	(E)DRS	71S4	610	497/516
0.29	40900	5954	12800	1.65	X	FAF	107R77	(E)DRS	71S4	660	496/516
0.33	35400	5223	13100	1.90	X	F	107R77	(E)DRS	71S4	650	495/516
0.37	33300	4567	13200	2.0	X	FF	107R77	(E)DRS	71S4	710	496/516
0.48	24900	3521	13600	2.7	X						
0.56	22100	3037	13800	3.1	X	FA	107R77	(E)DRS	71S4	610	497/516
0.62	20100	2756	13900	3.4	X	FAF	107R77	(E)DRS	71S4	650	496/516
0.72	17300	2369	14000	3.9	X	F	107R77	(E)DRS	71S4	640	495/516
0.82	15100	2068	14100	4.5	X	FF	107R77	(E)DRS	71S4	710	496/516
0.39	33200	4333	7060	1.15	X	FA	97R57	(E)DRS	71S4	410	490/516
						FAF	97R57	(E)DRS	71S4	460	489/516
						F	97R57	(E)DRS	71S4	425	488/516
						FF	97R57	(E)DRS	71S4	500	489/516
0.44	30700	3906	7230	1.25	X						
0.51	26500	3352	7480	1.45	X						
0.58	22100	2907	7730	1.70	X						
0.67	20100	2553	7840	1.90	X	FA	97R57	(E)DRS	71S4	410	490/516
0.76	17600	2245	7950	2.1	X	FAF	97R57	(E)DRS	71S4	455	489/516
0.86	15300	1970	8060	2.5	X	F	97R57	(E)DRS	71S4	425	488/516
0.99	13600	1722	8130	2.8	X	FF	97R57	(E)DRS	71S4	495	489/516
1.1	12100	1527	8200	3.1	X						
1.3	9730	1327	8290	3.9	X						
1.4	9270	1171	8310	4.1	X						
0.66	20400	2576	5720	1.30	X						
0.77	17300	2199	5970	1.55	X						
0.88	14900	1930	6140	1.75	X						
0.99	13400	1709	6240	1.95	X	FA	87R57	(E)DRS	71S4	265	483/516
1.1	11800	1493	6340	2.2	X	FAF	87R57	(E)DRS	71S4	290	482/516
1.3	9530	1300	6470	2.8	X	F	87R57	(E)DRS	71S4	275	481/516
1.5	8610	1148	6520	3.1	X	FF	87R57	(E)DRS	71S4	310	482/516
1.7	7410	1010	6580	3.6	X						
1.9	6650	887	6620	4.0	X						
2.2	5720	780	6660	4.6	X						
1.1	12400	1544	3670	1.05	X						
1.3	10800	1354	3890	1.20	X						
1.4	9630	1200	4030	1.40	X	FA	77R37	(E)DRS	71S4	150	476/516
1.6	8450	1053	4150	1.55	X	FAF	77R37	(E)DRS	71S4	165	475/516
1.9	7230	910	4250	1.85	X	F	77R37	(E)DRS	71S4	160	474/516
2.1	6100	810	4330	2.2	X	FF	77R37	(E)DRS	71S4	180	475/516
2.4	5350	710	4380	2.5	X						
2.8	4800	615	4410	2.8	X						
2.0	6470	858	2480	1.10	X						
2.2	5690	755	2610	1.25	X						
2.6	4830	641	2740	1.50	X	FA	67R37	(E)DRS	71S4	100	469/516
3.0	4470	572	2780	1.60	X	FAF	67R37	(E)DRS	71S4	115	468/516
3.3	3830	509	2850	1.90	X	F	67R37	(E)DRS	71S4	105	467/516
3.9	3310	437	2900	2.2	X	FF	67R37	(E)DRS	71S4	120	468/516
4.4	2990	384	2920	2.4	X						
3.4	4020	500	2830	1.80	X						
3.8	3680	454	2870	1.95	X						
4.3	3150	392	2910	2.3	X	FA	67R37	(E)DRS	71S4	98	469/516
5.1	2630	333	2920	2.8	X	FAF	67R37	(E)DRS	71S4	110	468/516
5.7	2320	297	2920	3.1	X	F	67R37	(E)DRS	71S4	105	467/516
6.5	2040	261	2920	3.5	X	FF	67R37	(E)DRS	71S4	120	468/516
7.2	1810	238	2920	4.0	X						
8.5	1500	200	2920	4.8	X						
3.0	4430	558	2230	1.20	X						
3.4	3960	506	2310	1.35	X	FA	57R37	(E)DRS	71S4	92	462/516
3.8	3430	452	2390	1.55	X	FAF	57R37	(E)DRS	71S4	105	461/516
4.4	2930	386	2460	1.80	X	F	57R37	(E)DRS	71S4	92	460/516
5.0	2540	338	2520	2.1	X	FF	57R37	(E)DRS	71S4	105	461/516



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P_m = 0.25 HP

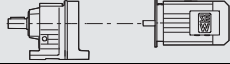

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
4.0	3510	426	2380	1.50	X					
4.5	3100	382	2440	1.70	X					
5.2	2650	330	2500	2.0	X	FA	57R37	(E)DRS 71S4	91	462/516
5.7	2390	298	2540	2.2	X	FAF	57R37	(E)DRS 71S4	105	461/516
6.5	2110	262	2570	2.5	X	F	57R37	(E)DRS 71S4	91	460/516
7.5	1770	226	2580	3.0	X	FF	57R37	(E)DRS 71S4	105	461/516
8.5	1530	200	2580	3.5	X					
4.6	2840	370	1540	1.25	X	FA	47R17	(E)DRS 71S4	58	455/516
5.3	2630	324	1590	1.35	X	FAF	47R17	(E)DRS 71S4	64	454/516
5.9	2270	288	1670	1.55	X	F	47R17	(E)DRS 71S4	60	453/516
6.8	1910	249	1720	1.85	X	FF	47R17	(E)DRS 71S4	67	454/516
5.1	2690	334	1580	1.30	X					
5.8	2350	295	1650	1.50	X	FA	47R17	(E)DRS 71S4	56	455/516
6.7	1970	253	1720	1.80	X	FAF	47R17	(E)DRS 71S4	62	454/516
7.8	1770	217	1740	2.0	X	F	47R17	(E)DRS 71S4	58	453/516
9.0	1540	190	1780	2.3	X	FF	47R17	(E)DRS 71S4	65	454/516
9.6	1430	178	1790	2.5	X					
9.1	1500	186	1050	1.20	X	FA	37R17	(E)DRS 71S4	47	448/516
10	1340	167	1090	1.30	X	FAF	37R17	(E)DRS 71S4	50	447/516
12	1190	145	1130	1.50	X	F	37R17	(E)DRS 71S4	48	446/516
13	1050	129	1150	1.65	X	FF	37R17	(E)DRS 71S4	52	447/516
12	1160	142	1010	1.00		FA	27R17	(E)DRS 71S4	33	443/516
14	1000	124	1010	1.15	X	FAF	27R17	(E)DRS 71S4	35	442/516
16	870	109	1010	1.30	X	F	27R17	(E)DRS 71S4	34	441/516
18	765	96	1010	1.50	X	FF	27R17	(E)DRS 71S4	36	442/516
3.8	4150	281.71	4440	3.2		FA	77	DR 63L6	125	476
4.1	3870	262.93	4450	3.4		FAF	77	DR 63L6	140	475
4.7	3320	225.79	4470	4.0		F	77	DR 63L6	135	474
						FF	77	DR 63L6	155	475
7.4	2120	228.99	2920	3.4	X	FA	67	(E)DRS 71S4	76	469
8.7	1810	195.39	2920	4.0	X	FAF	67	(E)DRS 71S4	90	468
9.9	1580	170.85	2920	4.6	X	F	67	(E)DRS 71S4	82	467
						FF	67	(E)DRS 71S4	95	468
4.7	3370	228.99	2890	2.1		FA	67	DR 63L6	72	469
5.5	2870	195.39	2920	2.5		FAF	67	DR 63L6	86	468
6.3	2510	170.85	2920	2.9		F	67	DR 63L6	78	467
						FF	67	DR 63L6	92	468
8.5	1850	199.70	2580	2.9	X	FA	57	(E)DRS 71S4	67	462
9.3	1700	183.60	2580	3.1	X	FAF	57	(E)DRS 71S4	79	461
11	1450	157.09	2580	3.6	X	F	57	(E)DRS 71S4	68	460
12	1260	136.16	2580	4.2	X	FF	57	(E)DRS 71S4	82	461
13	1180	127.27	2580	4.5	X					
5.4	2940	199.70	2460	1.80		FA	57	DR 63L6	64	462
5.8	2700	183.60	2500	1.95		FAF	57	DR 63L6	76	461
6.8	2310	157.09	2550	2.3		F	57	DR 63L6	64	460
7.9	2000	136.16	2580	2.6		FF	57	DR 63L6	78	461
8.4	1870	127.27	2580	2.8						
9.7	1620	110.01	2580	3.3						
8.9	1760	190.76	1750	2.0	X	FA	47	(E)DRS 71S4	52	455
9.7	1620	175.38	1760	2.2	X	FAF	47	(E)DRS 71S4	58	454
11	1390	150.06	1790	2.5	X	F	47	(E)DRS 71S4	54	453
13	1200	130.07	1810	2.9	X	FF	47	(E)DRS 71S4	61	454
14	1120	121.57	1820	3.1	X					
5.6	2810	190.76	1550	1.25		FA	47	DR 63L6	47	455
6.1	2580	175.38	1600	1.35		FAF	47	DR 63L6	53	454
7.1	2210	150.06	1680	1.60		F	47	DR 63L6	49	453
8.2	1910	130.07	1720	1.85		FF	47	DR 63L6	56	454
8.8	1790	121.57	1740	2.0						

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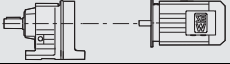

P_m = 0.25 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
13	1190	128.51	1130	1.50	X					
14	1090	117.88	1150	1.60	X					
17	930	100.36	1170	1.90	X	FA	37	(E)DRS 71S4	41	448
20	800	86.53	1190	2.2	X	FAF	37	(E)DRS 71S4	45	447
21	745	80.65	1200	2.4	X	F	37	(E)DRS 71S4	42	446
24	650	70.50	1210	2.7	X	FF	37	(E)DRS 71S4	46	447
26	610	66.09	1210	2.9	X					
29	540	58.32	1220	3.3	X					
9.1	1730	117.88	980	1.00		FA	37	DR 63L6	37	448
11	1470	100.36	1060	1.20		FAF	37	DR 63L6	40	447
12	1270	86.53	1110	1.40		F	37	DR 63L6	38	446
13	1180	80.65	1130	1.50		FF	37	DR 63L6	42	447
15	1030	70.50	1160	1.70						
15	1010	109.90	1010	1.15	X					
18	870	94.76	1010	1.30	X					
19	810	88.32	1010	1.40	X					
22	715	77.21	1010	1.60	X					
23	670	72.37	1010	1.70	X	FA	27	(E)DRS 71S4	28	443
27	590	63.86	1010	1.95	X	FAF	27	(E)DRS 71S4	29	442
30	525	56.62	1010	2.2	X	F	27	(E)DRS 71S4	29	441
34	465	50.19	980	2.5	X	FF	27	(E)DRS 71S4	31	442
36	430	46.78	960	2.6	X					
42	375	40.89	920	3.0	X					
44	355	38.33	910	3.2	X					
50	310	33.83	880	3.7	X					
58	270	29.56	840	4.2	X					
63	250	27.18	820	4.6	X					
73	215	23.25	785	5.3	X					
84	187	20.15	755	6.2	X					
90	175	18.84	740	6.6	X					
104	151	16.28	710	7.6	X					
123	128	13.84	675	9.0	X					
138	115	12.35	650	10	X	FA	27	(E)DRS 71S4	27	443
161	98	10.55	620	12	X	FAF	27	(E)DRS 71S4	29	442
172	92	9.88	610	13	X	F	27	(E)DRS 71S4	28	441
181	87	9.40	595	13	X	FF	27	(E)DRS 71S4	30	442
209	75	8.13	570	14	X					
246	64	6.91	540	16	X					
276	57	6.17	525	17	X					
323	49	5.27	495	18	X					
345	46	4.93	485	19	X					
409	39	4.16	460	20	X					

P_m = 0.33 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
0.19	84200	8831	20200	1.25	X					
0.22	72900	7643	20200	1.45	X	FA	127R77	(E)DRS 71S4	940	504/516
0.25	67600	6715	20200	1.55	X	FAF	127R77	(E)DRS 71S4	1030	503/516
0.29	59600	5925	20200	1.80	X	F	127R77	(E)DRS 71S4	1020	502/516
0.33	50600	5153	20200	2.1	X	FF	127R77	(E)DRS 71S4	1120	503/516
0.37	43600	4533	20200	2.4	X					
0.29	57300	5954	11900	1.20	X	FA	107R77	(E)DRS 71S4	610	497/516
0.33	49800	5223	12300	1.35	X	FAF	107R77	(E)DRS 71S4	660	496/516
0.37	45900	4567	12600	1.50	X	F	107R77	(E)DRS 71S4	650	495/516
0.48	34600	3521	13200	1.95	X	FF	107R77	(E)DRS 71S4	710	496/516
0.56	30600	3037	13400	2.2	X					
0.62	27800	2756	13500	2.4	X	FA	107R77	(E)DRS 71S4	610	497/516
0.72	23900	2369	13700	2.8	X	FAF	107R77	(E)DRS 71S4	650	496/516
0.82	20800	2068	13800	3.2	X	F	107R77	(E)DRS 71S4	640	495/516
1.1	15900	1597	14100	4.3	X	FF	107R77	(E)DRS 71S4	710	496/516
1.2	13600	1401	14100	5.0	X					

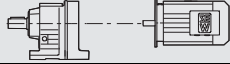

P_m = 0.33 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.58	30200	2907	7260	1.25	X						
0.67	27200	2553	7440	1.40	X						
0.76	23900	2245	7630	1.60	X						
0.86	20800	1970	7800	1.85	X	FA	97R57	(E)DRS	71S4	410	490/516
0.99	18400	1722	7920	2.1	X	FAF	97R57	(E)DRS	71S4	455	489/516
1.1	16300	1527	8010	2.3	X	F	97R57	(E)DRS	71S4	425	488/516
1.3	13400	1327	8140	2.8	X	FF	97R57	(E)DRS	71S4	495	489/516
1.4	12500	1171	8180	3.0	X						
1.7	10900	1022	8240	3.5	X						
0.88	20300	1930	5730	1.30	X						
0.99	18200	1709	5900	1.45	X						
1.1	16000	1493	6070	1.65	X						
1.3	13100	1300	6260	2.0	X	FA	87R57	(E)DRS	71S4	265	483/516
1.5	11800	1148	6340	2.2	X	FAF	87R57	(E)DRS	71S4	290	482/516
1.7	10200	1010	6430	2.6	X	F	87R57	(E)DRS	71S4	275	481/516
1.9	9130	887	6500	2.9	X	FF	87R57	(E)DRS	71S4	310	482/516
2.2	7900	780	6560	3.4	X						
2.5	6650	674	6620	4.0	X						
1.6	11300	1053	3820	1.15	X						
1.9	9770	910	4020	1.35	X						
2.1	8370	810	4160	1.60	X	FA	77R37	(E)DRS	71S4	150	476/516
2.4	7340	710	4250	1.80	X	FAF	77R37	(E)DRS	71S4	165	475/516
2.8	6520	615	4310	2.0	X	F	77R37	(E)DRS	71S4	160	474/516
3.2	5710	538	4360	2.3	X	FF	77R37	(E)DRS	71S4	180	475/516
3.5	5050	480	4390	2.6	X						
4.1	4260	413	4430	3.1	X						
3.0	6070	572	2550	1.20	X	FA	67R37	(E)DRS	71S4	100	469/516
3.3	5250	509	2680	1.40	X	FAF	67R37	(E)DRS	71S4	115	468/516
3.9	4530	437	2770	1.60	X	F	67R37	(E)DRS	71S4	105	467/516
						FF	67R37	(E)DRS	71S4	120	468/516
3.4	5440	500	2650	1.35	X						
3.8	4970	454	2720	1.45	X						
4.3	4260	392	2810	1.70	X	FA	67R37	(E)DRS	71S4	98	469/516
5.1	3570	333	2880	2.0	X	FAF	67R37	(E)DRS	71S4	110	468/516
5.7	3160	297	2910	2.3	X	F	67R37	(E)DRS	71S4	105	467/516
6.5	2780	261	2920	2.6	X	FF	67R37	(E)DRS	71S4	120	468/516
7.2	2480	238	2920	2.9	X						
4.4	4010	386	2300	1.30	X	FA	57R37	(E)DRS	71S4	92	462/516
5.0	3490	338	2380	1.50	X	FAF	57R37	(E)DRS	71S4	105	461/516
6.7	2640	255	2500	2.0	X	F	57R37	(E)DRS	71S4	92	460/516
						FF	57R37	(E)DRS	71S4	105	461/516
4.5	4180	382	2270	1.25	X						
5.2	3590	330	2370	1.50	X						
5.7	3240	298	2420	1.65	X	FA	57R37	(E)DRS	71S4	91	462/516
6.5	2850	262	2480	1.85	X	FAF	57R37	(E)DRS	71S4	105	461/516
7.5	2410	226	2540	2.2	X	F	57R37	(E)DRS	71S4	91	460/516
8.5	2090	200	2580	2.5	X	FF	57R37	(E)DRS	71S4	105	461/516
10	1780	170	2580	3.0	X						
6.8	2610	249	1600	1.35	X	FA	47R17	(E)DRS	71S4	58	455/516
7.8	2330	218	1650	1.50	X	FAF	47R17	(E)DRS	71S4	64	454/516
8.8	2050	193	1700	1.70	X	F	47R17	(E)DRS	71S4	60	453/516
9.8	1860	175	1730	1.90	X	FF	47R17	(E)DRS	71S4	67	454/516
6.7	2680	253	1580	1.30	X						
7.8	2390	217	1640	1.50	X						
9.0	2070	190	1700	1.70	X	FA	47R17	(E)DRS	71S4	56	455/516
9.6	1940	178	1720	1.80	X	FAF	47R17	(E)DRS	71S4	62	454/516
11	1610	149	1770	2.2	X	F	47R17	(E)DRS	71S4	58	453/516
13	1410	131	1790	2.5	X	FF	47R17	(E)DRS	71S4	65	454/516
12	1600	145	1020	1.10	X						
13	1420	129	1070	1.25	X	FA	37R17	(E)DRS	71S4	47	448/516
14	1290	118	1100	1.35	X	FAF	37R17	(E)DRS	71S4	50	447/516
17	1070	98	1150	1.65	X	F	37R17	(E)DRS	71S4	48	446/516
20	930	87	1170	1.90	X	FF	37R17	(E)DRS	71S4	52	447/516

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P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
3.9	5320	281.71	4380	2.5		FA	77	DRS	71S6	130	476
4.2	4970	262.93	4400	2.7		FAF	77	DRS	71S6	145	475
4.9	4270	225.79	4430	3.1		F	77	DRS	71S6	135	474
5.5	3750	198.31	4450	3.5		FF	77	DRS	71S6	160	475
5.8	3560	188.40	4460	3.7							
4.8	4330	228.99	2800	1.65		FA	67	DRS	71S6	76	469
5.6	3690	195.39	2860	1.95		FAF	67	DRS	71S6	90	468
6.4	3230	170.85	2910	2.2		F	67	DRS	71S6	82	467
6.8	3070	162.31	2920	2.4		FF	67	DRS	71S6	95	468
7.7	2690	142.40	2920	2.7							
7.4	2800	228.99	2920	2.6	X	FA	67	(E)DRS	71S4	76	469
8.7	2390	195.39	2920	3.0	X	FAF	67	(E)DRS	71S4	90	468
9.9	2090	170.85	2920	3.5	X	F	67	(E)DRS	71S4	82	467
10	1980	162.31	2920	3.6	X	FF	67	(E)DRS	71S4	95	468
12	1740	142.40	2920	4.2	X						
5.5	3770	199.70	2340	1.40		FA	57	DRS	71S6	67	462
6.0	3470	183.60	2380	1.55		FAF	57	DRS	71S6	79	461
7.0	2970	157.09	2460	1.80		F	57	DRS	71S6	68	460
8.1	2570	136.16	2510	2.1		FF	57	DRS	71S6	82	461
8.6	2400	127.27	2540	2.2							
10	2080	110.01	2580	2.5							
8.5	2440	199.70	2530	2.2	X	FA	57	(E)DRS	71S4	67	462
9.3	2240	183.60	2560	2.4	X	FAF	57	(E)DRS	71S4	79	461
11	1920	157.09	2580	2.8	X	F	57	(E)DRS	71S4	68	460
12	1660	136.16	2580	3.2	X	FF	57	(E)DRS	71S4	82	461
13	1550	127.27	2580	3.4	X						
15	1340	110.01	2580	3.9	X						
7.3	2830	150.06	1540	1.25		FA	47	DRS	71S6	52	455
8.5	2460	130.07	1630	1.45		FAF	47	DRS	71S6	58	454
9.1	2290	121.57	1660	1.55		F	47	DRS	71S6	54	453
10	1980	105.09	1710	1.80		FF	47	DRS	71S6	61	454
8.9	2330	190.76	1650	1.50	X	FA	47	(E)DRS	71S4	52	455
9.7	2140	175.38	1690	1.65	X	FAF	47	(E)DRS	71S4	58	454
11	1830	150.06	1740	1.95	X	F	47	(E)DRS	71S4	54	453
13	1590	130.07	1770	2.2	X	FF	47	(E)DRS	71S4	61	454
14	1480	121.57	1780	2.4	X						
16	1280	105.09	1800	2.8	X						
19	1090	89.29	1820	3.2	X						
13	1570	128.51	1030	1.10	X						
14	1440	117.88	1070	1.25	X						
17	1220	100.36	1120	1.45	X						
20	1050	86.53	1150	1.65	X						
21	980	80.65	1160	1.80	X						
24	860	70.50	1180	2.0	X						
26	800	66.09	1190	2.2	X	FA	37	(E)DRS	71S4	41	448
29	710	58.32	1200	2.5	X	FAF	37	(E)DRS	71S4	45	447
31	665	54.54	1210	2.6	X	F	37	(E)DRS	71S4	42	446
33	630	51.70	1210	2.8	X	FF	37	(E)DRS	71S4	46	447
36	575	47.02	1220	3.1	X						
39	535	43.83	1220	3.3	X						
44	465	38.31	1230	3.8	X						
47	435	35.91	1210	4.0	X						
54	385	31.69	1170	4.6	X						
22	940	77.21	1010	1.20	X						
23	880	72.37	1010	1.30	X						
27	780	63.86	990	1.45	X						
30	690	56.62	970	1.65	X	FA	27	(E)DRS	71S4	28	443
34	610	50.19	940	1.85	X	FAF	27	(E)DRS	71S4	29	442
36	570	46.78	930	2.0	X	F	27	(E)DRS	71S4	29	441
42	500	40.89	900	2.3	X	FF	27	(E)DRS	71S4	31	442
44	465	38.33	880	2.5	X						
50	410	33.83	850	2.8	X						

P_m = 0.33 HP

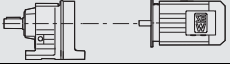

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
406	51	8.13	460	21				
478	44	6.91	435	23		FA 27	DRS 71S2	27 443
535	39	6.17	420	25		FAF 27	DRS 71S2	29 442
626	33	5.27	400	27		F 27	DRS 71S2	28 441
669	31	4.93	390	27		FF 27	DRS 71S2	30 442
794	26	4.16	370	29				
58	360	29.56	820	3.2	X			
63	330	27.18	810	3.5	X			
73	280	23.25	770	4.0	X			
84	245	20.15	740	4.7	X			
90	230	18.84	725	5.0	X			
104	199	16.28	695	5.8	X			
123	169	13.84	665	6.8	X			
138	151	12.35	645	7.6	X	FA 27	(E)DRS 71S4	27 443
161	129	10.55	615	8.9	X	FAF 27	(E)DRS 71S4	29 442
172	121	9.88	600	9.5	X	F 27	(E)DRS 71S4	28 441
181	115	9.40	590	10.0	X	FF 27	(E)DRS 71S4	30 442
209	100	8.13	565	11	X			
246	84	6.91	535	12	X			
276	75	6.17	520	13	X			
323	65	5.27	495	14	X			
345	60	4.93	485	14	X			
409	51	4.16	460	15	X			

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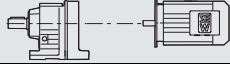

P_m = 0.50 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
0.25	106900	6715	20200	1.00				
0.29	94400	5925	20200	1.10	X	FA 127R77	(E)DRS 71S4	940 504/516
0.33	80900	5153	20200	1.30	X	FAF 127R77	(E)DRS 71S4	1030 503/516
0.37	70200	4533	20200	1.50	X	F 127R77	(E)DRS 71S4	1020 502/516
0.43	61600	3926	20200	1.70	X	FF 127R77	(E)DRS 71S4	1120 503/516
0.49	53500	3454	20200	2.0	X			
0.56	46700	3031	20200	2.3	X			
0.56	48700	3037	12400	1.40	X	FA 107R77	(E)DRS 71S4	610 497/516
0.62	44100	2756	12700	1.55	X	FAF 107R77	(E)DRS 71S4	650 496/516
0.72	37900	2369	13000	1.80	X	F 107R77	(E)DRS 71S4	640 495/516
0.82	33100	2068	13200	2.0	X	FF 107R77	(E)DRS 71S4	710 496/516
1.1	25300	1597	13600	2.7	X			
0.86	32500	1970	7110	1.15	X			
0.99	28600	1722	7360	1.35	X	FA 97R57	(E)DRS 71S4	410 490/516
1.1	25400	1527	7550	1.50	X	FAF 97R57	(E)DRS 71S4	455 489/516
1.3	21300	1327	7770	1.80	X	F 97R57	(E)DRS 71S4	425 488/516
1.4	19400	1171	7870	1.95	X	FF 97R57	(E)DRS 71S4	495 489/516
1.7	17000	1022	7980	2.2	X			
1.9	14200	898	8110	2.7	X			
1.3	20800	1300	5680	1.25	X			
1.5	18600	1148	5870	1.40	X			
1.7	16200	1010	6050	1.65	X	FA 87R57	(E)DRS 71S4	265 483/516
1.9	14300	887	6180	1.85	X	FAF 87R57	(E)DRS 71S4	290 482/516
2.2	12500	780	6300	2.1	X	F 87R57	(E)DRS 71S4	275 481/516
2.5	10600	674	6410	2.5	X	FF 87R57	(E)DRS 71S4	310 482/516
2.8	9780	609	6460	2.7	X			
3.3	8230	515	6540	3.2	X			
3.8	7260	452	6590	3.6	X			
2.1	13100	810	3550	1.00	X			
2.4	11500	710	3800	1.15	X	FA 77R37	(E)DRS 71S4	150 476/516
2.8	10100	615	3970	1.30	X	FAF 77R37	(E)DRS 71S4	165 475/516
3.2	8900	538	4110	1.50	X	F 77R37	(E)DRS 71S4	160 474/516
3.5	7900	480	4200	1.70	X	FF 77R37	(E)DRS 71S4	180 475/516
4.1	6710	413	4290	2.0	X			
4.6	6030	367	4340	2.2	X			
5.3	5380	323	4380	2.5	X			



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P_m = 0.50 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®						m lbs	
4.4	6340	384	2500	1.15	X	FA	67R37	(E)DRS	71S4	100	469/516	
5.0	5640	338	2620	1.30	X	FAF	67R37	(E)DRS	71S4	115	468/516	
5.6	5030	305	2710	1.45	X	F	67R37	(E)DRS	71S4	105	467/516	
6.6	4220	257	2810	1.70	X	FF	67R37	(E)DRS	71S4	120	468/516	
7.4	3710	231	2860	1.95	X							
6.7	4160	255	2270	1.30	X	FA	57R37	(E)DRS	71S4	92	462/516	
8.5	3240	201	2420	1.65	X	FAF	57R37	(E)DRS	71S4	105	461/516	
9.4	2940	181	2460	1.80	X	F	57R37	(E)DRS	71S4	92	460/516	
						FF	57R37	(E)DRS	71S4	105	461/516	
6.5	4420	262	2230	1.20	X							
7.5	3760	226	2340	1.40	X	FA	57R37	(E)DRS	71S4	91	462/516	
8.5	3300	200	2410	1.60	X	FAF	57R37	(E)DRS	71S4	105	461/516	
10	2800	170	2480	1.90	X	F	57R37	(E)DRS	71S4	91	460/516	
11	2480	152	2530	2.1	X	FF	57R37	(E)DRS	71S4	105	461/516	
13	2180	134	2560	2.4	X							
9.8	2900	175	1530	1.20	X	FA	47R17	(E)DRS	71S4	58	455/516	
12	2440	147	1630	1.45	X	FAF	47R17	(E)DRS	71S4	64	454/516	
13	2150	130	1690	1.65	X	F	47R17	(E)DRS	71S4	60	453/516	
						FF	47R17	(E)DRS	71S4	67	454/516	
4.1	7750	270.68	6570	3.4		FA	87	DRS	71M6	220	483	
4.3	7310	255.37	6590	3.6		FAF	87	DRS	71M6	245	482	
4.8	6560	228.93	6630	4.0		F	87	DRS	71M6	230	481	
						FF	87	DRS	71M6	265	482	
4.9	6470	225.79	4310	2.0		FA	77	DRS	71M6	130	476	
5.5	5680	198.31	4360	2.3		FAF	77	DRS	71M6	145	475	
5.8	5390	188.40	4380	2.5		F	77	DRS	71M6	140	474	
6.6	4770	166.47	4410	2.8		FF	77	DRS	71M6	165	475	
7.7	4070	142.27	4440	3.3								
6.0	5220	281.71	4390	2.5	X	FA	77	(E)DRS	71S4	130	476	
6.5	4870	262.93	4400	2.7	X	FAF	77	(E)DRS	71S4	145	475	
7.5	4180	225.79	4440	3.2	X	F	77	(E)DRS	71S4	135	474	
8.6	3670	198.31	4460	3.6	X	FF	77	(E)DRS	71S4	160	475	
5.6	5590	195.39	2630	1.30		FA	67	DRS	71M6	79	469	
6.4	4890	170.85	2730	1.50		FAF	67	DRS	71M6	93	468	
6.8	4650	162.31	2760	1.55		F	67	DRS	71M6	85	467	
7.7	4080	142.40	2830	1.80		FF	67	DRS	71M6	98	468	
9.1	3460	120.79	2890	2.1								
7.4	4240	228.99	2810	1.70	X	FA	67	(E)DRS	71S4	76	469	
8.7	3620	195.39	2870	2.0	X	FAF	67	(E)DRS	71S4	90	468	
9.9	3160	170.85	2910	2.3	X	F	67	(E)DRS	71S4	82	467	
10	3010	162.31	2920	2.4	X	FF	67	(E)DRS	71S4	95	468	
12	2640	142.40	2920	2.8	X							
14	2230	120.79	2920	3.2	X							
7.0	4500	157.09	2220	1.20		FA	57	DRS	71M6	70	462	
8.1	3900	136.16	2320	1.35		FAF	57	DRS	71M6	82	461	
8.6	3640	127.27	2360	1.45		F	57	DRS	71M6	71	460	
10	3150	110.01	2430	1.70		FF	57	DRS	71M6	85	461	
8.5	3700	199.70	2350	1.45	X							
9.3	3400	183.60	2400	1.55	X							
11	2910	157.09	2470	1.80	X	FA	57	(E)DRS	71S4	67	462	
12	2520	136.16	2520	2.1	X	FAF	57	(E)DRS	71S4	79	461	
13	2360	127.27	2540	2.2	X	F	57	(E)DRS	71S4	68	460	
15	2040	110.01	2580	2.6	X	FF	57	(E)DRS	71S4	82	461	
18	1730	93.47	2580	3.1	X							
20	1540	83.46	2580	3.4	X							
11	2780	150.06	1560	1.25	X							
13	2410	130.07	1640	1.45	X	FA	47	(E)DRS	71S4	52	455	
16	1940	105.09	1720	1.80	X	FAF	47	(E)DRS	71S4	58	454	
19	1650	89.29	1760	2.1	X	F	47	(E)DRS	71S4	54	453	
21	1470	79.72	1780	2.4	X	FF	47	(E)DRS	71S4	61	454	
25	1260	68.09	1800	2.8	X							
26	1210	65.36	1810	2.9	X							

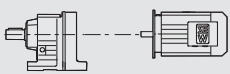

P_m = 0.50 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
20	1600	86.53	1020	1.10	X					
21	1490	80.65	1050	1.20	X					
24	1300	70.50	1100	1.35	X					
26	1220	66.09	1120	1.45	X					
29	1080	58.32	1150	1.65	X					
31	1010	54.54	1160	1.75	X	FA	37	(E)DRS 71S4	41	448
33	950	51.70	1170	1.85	X	FAF	37	(E)DRS 71S4	45	447
36	870	47.02	1180	2.0	X	F	37	(E)DRS 71S4	42	446
39	810	43.83	1190	2.2	X	FF	37	(E)DRS 71S4	46	447
44	710	38.31	1180	2.5	X					
47	665	35.91	1170	2.7	X					
54	585	31.69	1130	3.0	X					
61	520	28.09	1090	3.4	X					
71	440	23.88	1050	4.0	X					
30	1040	56.62	890	1.10	X					
34	930	50.19	870	1.25	X	FA	27	(E)DRS 71S4	28	443
36	860	46.78	860	1.35	X	FAF	27	(E)DRS 71S4	29	442
42	755	40.89	840	1.50	X	F	27	(E)DRS 71S4	29	441
44	710	38.33	830	1.60	X	FF	27	(E)DRS 71S4	31	442
50	625	33.83	810	1.85	X					
406	78	8.13	455	14		FA	27	DRS 71S2	27	443
478	66	6.91	430	15		FAF	27	DRS 71S2	29	442
535	59	6.17	415	16		F	27	DRS 71S2	28	441
626	50	5.27	395	18		FF	27	DRS 71S2	30	442
669	47	4.93	390	18						
794	40	4.16	365	19						
58	545	29.56	780	2.1	X					
63	500	27.18	765	2.3	X					
73	430	23.25	740	2.7	X					
84	370	20.15	715	3.1	X					
90	345	18.84	700	3.3	X					
104	300	16.28	675	3.8	X					
123	255	13.84	645	4.5	X					
138	225	12.35	625	5.0	X	FA	27	(E)DRS 71S4	27	443
161	196	10.55	600	5.9	X	FAF	27	(E)DRS 71S4	29	442
172	183	9.88	585	6.3	X	F	27	(E)DRS 71S4	28	441
181	174	9.40	575	6.6	X	FF	27	(E)DRS 71S4	30	442
209	151	8.13	550	7.2	X					
246	128	6.91	525	7.9	X					
276	114	6.17	510	8.4	X					
323	98	5.27	485	9.1	X					
345	91	4.93	475	9.3	X					
409	77	4.16	450	10.0	X					

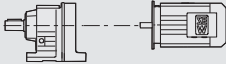

P_m = 0.75 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
0.27	143100	6295	23700	1.10	X	FA	157R97	(E)DRS 71M4	1690	511/516
0.31	118000	5404	25100	1.35	X	FAF	157R97	(E)DRS 71M4	1820	510/516
0.61	60700	2780	27000	2.6	X	F	157R97	(E)DRS 71M4	1740	509/516
						FF	157R97	(E)DRS 71M4	1970	510/516
0.70	53600	2427	27000	3.0	X	FA	157R97	(E)DRS 71M4	1690	511/516
1.0	39200	1674	27000	4.1	X	FAF	157R97	(E)DRS 71M4	1820	510/516
1.3	29600	1308	27000	5.4	X	F	157R97	(E)DRS 71M4	1730	509/516
1.4	25800	1169	27000	6.2	X	FF	157R97	(E)DRS 71M4	1970	510/516
0.43	96100	3926	20200	1.10	X	FA	127R77	(E)DRS 71M4	950	504/516
0.49	83800	3454	20200	1.25	X	FAF	127R77	(E)DRS 71M4	1030	503/516
0.56	73300	3031	20200	1.45	X	F	127R77	(E)DRS 71M4	1030	502/516
						FF	127R77	(E)DRS 71M4	1130	503/516

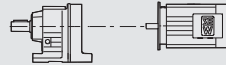

21933480/EN-US - 04/2018

P _m = 0.75 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.71	59000	2369	11800	1.15	X						
0.82	51500	2068	12200	1.30	X						
0.93	43900	1826	12700	1.55	X						
1.1	39500	1597	12900	1.70	X	FA	107R77	(E)DRS	71M4	610	497/516
1.2	34400	1401	13200	1.95	X	FAF	107R77	(E)DRS	71M4	660	496/516
1.4	29900	1243	13400	2.3	X	F	107R77	(E)DRS	71M4	650	495/516
1.6	26900	1087	13500	2.5	X	FF	107R77	(E)DRS	71M4	710	496/516
1.8	22800	950	13700	3.0	X						
2.0	19800	834	13900	3.4	X						
2.6	15500	640	14100	4.4	X						
1.3	33100	1327	7070	1.15	X						
1.4	29800	1171	7280	1.25	X						
1.6	26100	1022	7510	1.45	X						
1.9	22100	898	7730	1.70	X						
2.1	19700	784	7860	1.95	X	FA	97R57	(E)DRS	71M4	410	490/516
2.5	17000	690	7980	2.2	X	FAF	97R57	(E)DRS	71M4	460	489/516
2.8	15000	605	8070	2.5	X	F	97R57	(E)DRS	71M4	425	488/516
3.2	13000	529	8160	2.9	X	FF	97R57	(E)DRS	71M4	500	489/516
3.6	11400	467	8220	3.3	X						
4.2	9870	406	8280	3.9	X						
4.7	8850	363	8320	4.3	X						
1.9	22200	887	5560	1.20	X						
2.2	19400	780	5800	1.35	X						
2.5	16600	674	6020	1.60	X	FA	87R57	(E)DRS	71M4	265	483/516
2.8	15100	609	6120	1.75	X	FAF	87R57	(E)DRS	71M4	295	482/516
3.3	12800	515	6280	2.1	X	F	87R57	(E)DRS	71M4	280	481/516
3.7	11200	452	6370	2.4	X	FF	87R57	(E)DRS	71M4	315	482/516
4.9	8400	345	6530	3.2	X						
3.5	12100	480	3710	1.10	X	FA	77R37	(E)DRS	71M4	150	476/516
4.1	10300	413	3950	1.30	X	FAF	77R37	(E)DRS	71M4	165	475/516
4.6	9290	367	4070	1.45	X	F	77R37	(E)DRS	71M4	160	474/516
5.2	8240	323	4170	1.60	X	FF	77R37	(E)DRS	71M4	185	475/516
6.6	6500	257	2470	1.10	X	FA	67R37	(E)DRS	71M4	105	469/516
7.3	5760	231	2600	1.25	X	FAF	67R37	(E)DRS	71M4	115	468/516
8.2	5160	205	2690	1.40	X	F	67R37	(E)DRS	71M4	110	467/516
9.7	4390	175	2790	1.65	X	FF	67R37	(E)DRS	71M4	125	468/516
4.1	11400	270.68	6370	2.3		FA	87	DRS	80S6	225	483
4.4	10700	255.37	6400	2.5		FAF	87	DRS	80S6	250	482
4.9	9660	228.93	6470	2.8		F	87	DRS	80S6	235	481
5.7	8320	197.20	6540	3.2		FF	87	DRS	80S6	270	482
6.2	7590	179.97	6580	3.5							
5.0	9530	225.79	4040	1.40		FA	77	DRS	80S6	135	476
5.7	8370	198.31	4160	1.60		FAF	77	DRS	80S6	150	475
5.9	7950	188.40	4200	1.65		F	77	DRS	80S6	145	474
6.7	7020	166.47	4270	1.90		FF	77	DRS	80S6	170	475
7.9	6000	142.27	4340	2.2							
8.6	5500	130.42	4370	2.4							
7.5	6310	225.79	4320	2.1	X						
8.5	5540	198.31	4370	2.4	X						
9.0	5270	188.40	4380	2.5	X						
10	4650	166.47	4410	2.9	X	FA	77	(E)DRS	71M4	130	476
12	3980	142.27	4440	3.3	X	FAF	77	(E)DRS	71M4	145	475
13	3640	130.42	4460	3.6	X	F	77	(E)DRS	71M4	140	474
15	3200	114.45	4470	4.1	X	FF	77	(E)DRS	71M4	165	475
16	3030	108.46*	4480	4.4	X						
18	2650	94.93	4490	5.0	X						
8.7	5460	195.39	2650	1.35	X						
9.9	4780	170.85	2750	1.50	X						
10	4540	162.31	2770	1.60	X						
12	3980	142.40	2840	1.80	X	FA	67	(E)DRS	71M4	79	469
14	3370	120.79	2890	2.1	X	FAF	67	(E)DRS	71M4	93	468
16	3050	109.04	2920	2.4	X	F	67	(E)DRS	71M4	85	467
18	2680	95.94	2920	2.7	X	FF	67	(E)DRS	71M4	98	468
19	2530	90.59	2920	2.9	X						
21	2230	79.76	2920	3.2	X						

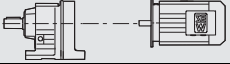

P_m = 0.75 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
11	4390	157.09	2230	1.20	X			
12	3810	136.16	2330	1.40	X			
13	3560	127.27	2370	1.50	X			
15	3070	110.01	2440	1.70	X	FA 57	(E)DRS 71M4	70 462
18	2610	93.47	2510	2.0	X	FAF 57	(E)DRS 71M4	82 461
20	2330	83.46	2550	2.3	X	F 57	(E)DRS 71M4	71 460
23	2040	72.98	2580	2.6	X	FF 57	(E)DRS 71M4	85 461
25	1900	68.22	2580	2.8	X			
29	1640	58.97	2580	3.2	X			
16	2940	105.09	1520	1.20	X			
19	2490	89.29	1620	1.40	X			
21	2230	79.72	1670	1.60	X			
25	1900	68.09	1730	1.85	X	FA 47	(E)DRS 71M4	54 455
26	1820	65.36	1740	1.95	X	FAF 47	(E)DRS 71M4	60 454
30	1580	56.49	1770	2.2	X	F 47	(E)DRS 71M4	56 453
35	1340	48.00*	1800	2.6	X	FF 47	(E)DRS 71M4	63 454
39	1190	42.86	1810	3.0	X			
29	1630	58.32	1010	1.10	X			
31	1520	54.54	1040	1.15	X			
33	1440	51.70	1070	1.20	X			
36	1310	47.02	1100	1.35	X	FA 37	(E)DRS 71M4	44 448
39	1220	43.83	1120	1.45	X	FAF 37	(E)DRS 71M4	47 447
44	1070	38.31	1110	1.65	X	F 37	(E)DRS 71M4	45 446
47	1000	35.91	1100	1.75	X	FF 37	(E)DRS 71M4	49 447
53	880	31.69	1070	2.0	X			
60	785	28.09	1040	2.2	X			
71	665	23.88	1000	2.6	X			
72	660	23.63	1000	2.7	X			
82	575	20.57	970	3.1	X	FA 37	(E)DRS 71M4	43 448
88	535	19.27	950	3.3	X	FAF 37	(E)DRS 71M4	47 447
99	475	17.03	920	3.7	X	F 37	(E)DRS 71M4	44 446
118	400	14.33	880	4.4	X	FF 37	(E)DRS 71M4	48 447
73	650	23.25	690	1.75	X			
84	560	20.15	670	2.0	X			
90	525	18.84	660	2.2	X			
104	455	16.28	640	2.5	X			
122	385	13.84	615	3.0	X			
137	345	12.35	600	3.3	X			
160	295	10.55	575	3.9	X	FA 27	(E)DRS 71M4	30 443
171	275	9.88	565	4.2	X	FAF 27	(E)DRS 71M4	31 442
180	260	9.40	555	4.4	X	F 27	(E)DRS 71M4	31 441
208	225	8.13	535	4.8	X	FF 27	(E)DRS 71M4	33 442
245	193	6.91	510	5.2	X			
274	173	6.17	495	5.6	X			
321	147	5.27	475	6.0	X			
343	138	4.93	465	6.2	X			
407	116	4.16	445	6.6	X			
421	112	8.13	440	9.7				
495	95	6.91	420	11		FA 27	DRS 71M2	30 443
555	85	6.17	405	11		FAF 27	DRS 71M2	31 442
649	73	5.27	385	12		F 27	DRS 71M2	31 441
693	68	4.93	380	12		FF 27	DRS 71M2	33 442
823	57	4.16	360	13				

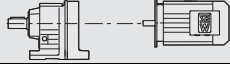

P_m = 1.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
0.32	157700	5404	22600	1.00	X	FA 157R97	(E)DRN 80M4	1700 511/516
0.36	138100	4831	24000	1.15	X	FAF 157R97	(E)DRN 80M4	1830 510/516
0.42	115500	4130	25200	1.40	X	F 157R97	(E)DRN 80M4	1750 509/516
0.63	81100	2780	26600	1.95	X	FF 157R97	(E)DRN 80M4	1980 510/516

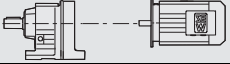

21933480/EN-US - 04/2018

P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.72	71700	2427	26900	2.2	X						
0.80	63200	2185	27000	2.5	X	FA	157R97	(E)DRN	80M4	1700	511/516
0.90	56200	1944	27000	2.8	X	FAF	157R97	(E)DRN	80M4	1820	510/516
1.1	51800	1674	27000	3.1	X	F	157R97	(E)DRN	80M4	1740	509/516
1.3	39300	1308	27000	4.0	X	FF	157R97	(E)DRN	80M4	1980	510/516
1.5	34500	1169	27000	4.6	X						
0.58	95800	3031	20200	1.10	X	FA	127R77	(E)DRN	80M4	960	504/516
						FAF	127R77	(E)DRN	80M4	1040	503/516
						F	127R77	(E)DRN	80M4	1040	502/516
						FF	127R77	(E)DRN	80M4	1140	503/516
0.66	86600	2672	20200	1.20	X						
0.74	75600	2357	20200	1.40	X	FA	127R77	(E)DRN	80M4	950	504/516
0.86	65100	2038	20200	1.65	X	FAF	127R77	(E)DRN	80M4	1040	503/516
0.98	56600	1784	20200	1.85	X	F	127R77	(E)DRN	80M4	1040	502/516
1.1	50700	1606	20200	2.1	X	FF	127R77	(E)DRN	80M4	1130	503/516
1.3	43900	1390	20200	2.4	X						
1.4	38200	1220	20200	2.8	X						
0.82	68100	2129	11200	1.00	X						
0.97	57500	1813	11900	1.20	X	FA	107R77	(E)DRN	80M4	600	497/516
1.1	51500	1590	12200	1.35	X	FAF	107R77	(E)DRN	80M4	650	496/516
1.2	46300	1436	12500	1.50	X	F	107R77	(E)DRN	80M4	640	495/516
1.4	40500	1263	12900	1.70	X	FF	107R77	(E)DRN	80M4	700	496/516
1.5	38100	1193	13000	1.80	X						
1.7	32200	1015	13300	2.1	X						
1.9	29100	923	13400	2.4	X						
2.2	25000	800	13600	2.8	X						
0.85	67000	2068	11300	1.00	X						
0.96	57700	1826	11900	1.20	X	FA	107R77	(E)DRN	80M4	620	497/516
1.1	51500	1597	12200	1.30	X	FAF	107R77	(E)DRN	80M4	670	496/516
1.2	44900	1401	12600	1.50	X	F	107R77	(E)DRN	80M4	660	495/516
1.4	39200	1243	12900	1.75	X	FF	107R77	(E)DRN	80M4	720	496/516
1.6	35100	1087	13100	1.95	X						
1.8	30000	950	13400	2.3	X						
2.1	26100	834	13600	2.6	X						
2.4	22800	736	13700	3.0	X						
2.7	20300	640	13900	3.3	X						
4.0	13800	436	14100	4.9	X						
1.7	32900	1023	7080	1.15	X	FA	97R57	(E)DRN	80M4	410	490/516
						FAF	97R57	(E)DRN	80M4	460	489/516
						F	97R57	(E)DRN	80M4	425	488/516
						FF	97R57	(E)DRN	80M4	500	489/516
1.7	33800	1022	7020	1.15	X						
1.9	28900	898	7340	1.30	X	FA	97R57	(E)DRN	80M4	420	490/516
2.2	25600	784	7540	1.50	X	FAF	97R57	(E)DRN	80M4	470	489/516
2.5	22200	690	7730	1.70	X	F	97R57	(E)DRN	80M4	440	488/516
2.9	19500	605	7860	1.95	X	FF	97R57	(E)DRN	80M4	510	489/516
3.3	17000	529	7980	2.2	X						
3.7	15000	467	8080	2.5	X						
4.3	12900	406	8160	3.0	X						
4.8	11500	363	8220	3.3	X						
2.0	29800	892	7280	1.25	X	FA	97R57	(E)DRN	80M4	410	490/516
2.3	25300	760	7550	1.50	X	FAF	97R57	(E)DRN	80M4	455	489/516
2.6	22200	667	7730	1.70	X	F	97R57	(E)DRN	80M4	425	488/516
3.1	18800	569	7900	2.0	X	FF	97R57	(E)DRN	80M4	495	489/516
3.4	16800	510	7990	2.3	X						
3.7	15500	473	8050	2.5	X						
4.3	13100	403	8160	2.9	X						
2.3	24200	748	5380	1.10	X	FA	87R57	(E)DRN	80M4	275	483/516
						FAF	87R57	(E)DRN	80M4	300	482/516
						F	87R57	(E)DRN	80M4	285	481/516
						FF	87R57	(E)DRN	80M4	320	482/516

P_m = 1.0 HP

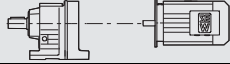

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs			
2.2	25300	780	5270	1.05	X					
2.6	21700	674	5610	1.20	X					
2.9	19700	609	5780	1.35	X	FA	87R57	(E)DRN 80M4	275	483/516
3.4	16600	515	6020	1.60	X	FAF	87R57	(E)DRN 80M4	305	482/516
3.9	14600	452	6160	1.80	X	F	87R57	(E)DRN 80M4	290	481/516
5.1	11000	345	6390	2.4	X	FF	87R57	(E)DRN 80M4	325	482/516
5.8	9510	300	6470	2.8	X					
2.6	22100	662	5570	1.20	X					
3.0	19700	592	5780	1.35	X					
3.4	17200	519	5970	1.55	X	FA	87R57	(E)DRN 80M4	270	483/516
3.8	15500	468	6100	1.70	X	FAF	87R57	(E)DRN 80M4	300	482/516
4.4	13100	398	6260	2.0	X	F	87R57	(E)DRN 80M4	285	481/516
5.0	11400	350	6360	2.3	X	FF	87R57	(E)DRN 80M4	315	482/516
5.6	10300	315	6430	2.6	X					
6.2	9170	281	6490	2.9	X					
4.8	12000	367	3730	1.10	X					
5.4	10600	323	3910	1.25	X	FA	77R37	(E)DRN 80M4	160	476/516
6.3	9190	280	4080	1.45	X	FAF	77R37	(E)DRN 80M4	175	475/516
7.1	8130	247	4180	1.65	X	F	77R37	(E)DRN 80M4	170	474/516
7.9	7240	221	4250	1.85	X	FF	77R37	(E)DRN 80M4	195	475/516
8.8	6460	199	4310	2.0	X					
6.0	9600	292	4040	1.00	X	FA	77R37	(E)DRN 80M4	160	476/516
						FAF	77R37	(E)DRN 80M4	175	475/516
						F	77R37	(E)DRN 80M4	170	474/516
						FF	77R37	(E)DRN 80M4	190	475/516
8.5	6710	205	2430	1.10	X	FA	67R37	(E)DRN 80M4	115	469/516
						FAF	67R37	(E)DRN 80M4	125	468/516
10	5710	175	2610	1.25	X	F	67R37	(E)DRN 80M4	120	467/516
						FF	67R37	(E)DRN 80M4	135	468/516
8.7	6590	200	2460	1.10	X	FA	67R37	(E)DRN 80M4	110	469/516
						FAF	67R37	(E)DRN 80M4	125	468/516
10.0	5790	176	2600	1.25	X	F	67R37	(E)DRN 80M4	115	467/516
						FF	67R37	(E)DRN 80M4	130	468/516
11	5050	155	2120	1.05	X	FA	57R37	(E)DRN 80M4	105	462/516
						FAF	57R37	(E)DRN 80M4	115	461/516
						F	57R37	(E)DRN 80M4	105	460/516
						FF	57R37	(E)DRN 80M4	120	461/516
11	5010	152	2120	1.05	X	FA	57R37	(E)DRN 80M4	105	462/516
						FAF	57R37	(E)DRN 80M4	115	461/516
13	4410	134	2230	1.20	X	F	57R37	(E)DRN 80M4	105	460/516
						FF	57R37	(E)DRN 80M4	120	461/516
4.2	14900	276.77	8080	2.5		FA	97	DRN 90S6	380	490
4.6	13700	253.41	8130	2.8		FAF	97	DRN 90S6	430	489
5.2	12100	223.88	8200	3.1		F	97	DRN 90S6	400	488
						FF	97	DRN 90S6	470	489
4.3	14600	270.68	6160	1.80						
4.6	13800	255.37	6220	1.90		FA	87	DRN 90S6	240	483
5.1	12300	228.93	6310	2.1		FAF	87	DRN 90S6	270	482
5.9	10600	197.20	6410	2.5		F	87	DRN 90S6	250	481
6.5	9730	179.97	6460	2.7		FF	87	DRN 90S6	285	482
7.3	8630	159.61	6520	3.1						
6.5	9730	270.68	6460	2.7	X	FA	87	(E)DRN 80M4	230	483
6.9	9180	255.37	6490	2.9	X	FAF	87	(E)DRN 80M4	255	482
7.7	8230	228.93	6540	3.2	X	F	87	(E)DRN 80M4	240	481
						FF	87	(E)DRN 80M4	275	482
5.9	10700	198.31	3910	1.25						
6.2	10100	188.40	3970	1.30						
7.0	9000	166.47	4100	1.45						
8.2	7690	142.27	4220	1.70		FA	77	DRN 90S6	155	476
8.9	7050	130.42	4270	1.90		FAF	77	DRN 90S6	170	475
10	6180	114.45	4330	2.1		F	77	DRN 90S6	160	474
11	5860	108.46*	4350	2.3		FF	77	DRN 90S6	185	475
12	5130	94.93	4390	2.6						
14	4620	85.52	4420	2.9						

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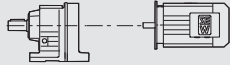

P _m = 1.0 HP												
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs		
7.8	8120	225.79	4180	1.65	X							
8.8	7130	198.31	4260	1.85	X							
9.3	6770	188.40	4290	1.95	X	FA	77	(E)DRN	80M4	140	476	
11	5980	166.47	4340	2.2	X	FAF	77	(E)DRN	80M4	155	475	
12	5110	142.27	4390	2.6	X	F	77	(E)DRN	80M4	150	474	
13	4690	130.42	4410	2.8	X	FF	77	(E)DRN	80M4	175	475	
15	4110	114.45	4440	3.2	X							
16	3900	108.46*	4450	3.4	X							
9.7	6530	120.79	2470	1.10								
11	5890	109.04	2580	1.25								
12	5180	95.94	2690	1.40		FA	67	DRN	90S6	105	469	
13	4890	90.59	2730	1.50		FAF	67	DRN	90S6	115	468	
15	4310	79.76	2800	1.70		F	67	DRN	90S6	110	467	
17	3650	67.65	2870	2.0		FF	67	DRN	90S6	125	468	
19	3300	61.07	2900	2.2								
22	2900	53.73	2920	2.5								
23	2740	50.74	2920	2.6								
9.0	7030	195.39	2370	1.05	X							
10	6140	170.85	2540	1.20	X							
11	5840	162.31	2590	1.25	X							
12	5120	142.40	2700	1.40	X	FA	67	(E)DRN	80M4	89	469	
14	4340	120.79	2800	1.65	X	FAF	67	(E)DRN	80M4	105	468	
16	3920	109.04	2840	1.85	X	F	67	(E)DRN	80M4	96	467	
18	3450	95.94	2890	2.1	X	FF	67	(E)DRN	80M4	110	468	
19	3250	90.59	2900	2.2	X							
22	2860	79.76	2920	2.5	X							
26	2430	67.65	2920	3.0	X							
29	2190	61.07	2920	3.3	X							
12	5050	93.47	2120	1.05								
14	4510	83.46	2210	1.20								
16	3940	72.98	2310	1.35		FA	57	DRN	90S6	95	462	
17	3680	68.22	2350	1.45		FAF	57	DRN	90S6	105	461	
20	3180	58.97	2430	1.65		F	57	DRN	90S6	95	460	
23	2700	50.10	2500	1.95		FF	57	DRN	90S6	110	461	
26	2410	44.73	2530	2.2								
30	2060	38.21	2570	2.6								
33	1930	35.79	2530	2.7								
13	4890	136.16	2140	1.10	X							
14	4570	127.27	2200	1.15	X							
16	3950	110.01	2310	1.35	X							
19	3360	93.47	2400	1.60	X	FA	57	(E)DRN	80M4	81	462	
21	3000	83.46	2450	1.75	X	FAF	57	(E)DRN	80M4	93	461	
24	2620	72.98	2510	2.0	X	F	57	(E)DRN	80M4	81	460	
26	2450	68.22	2530	2.2	X	FF	57	(E)DRN	80M4	95	461	
30	2120	58.97	2570	2.5	X							
35	1800	50.10	2480	2.9	X							
39	1600	44.73	2410	3.3	X							
21	3050	56.49	1490	1.15								
24	2590	48.00*	1600	1.35		FA	47	DRN	90S6	78	455	
27	2310	42.86	1660	1.55		FAF	47	DRN	90S6	83	454	
32	1970	36.61	1720	1.80		F	47	DRN	90S6	79	453	
34	1850	34.29	1730	1.90		FF	47	DRN	90S6	86	454	
40	1560	28.88	1760	2.3								
20	3210	89.29	1440	1.10	X							
22	2860	79.72	1540	1.25	X							
26	2450	68.09	1630	1.45	X							
27	2350	65.36	1650	1.50	X	FA	47	(E)DRN	80M4	65	455	
31	2030	56.49	1710	1.75	X	FAF	47	(E)DRN	80M4	71	454	
36	1720	48.00*	1750	2.0	X	F	47	(E)DRN	80M4	66	453	
41	1540	42.86	1760	2.3	X	FF	47	(E)DRN	80M4	73	454	
48	1310	36.61	1690	2.7	X							
51	1230	34.29	1670	2.9	X							
61	1030	28.88	1600	3.4	X							

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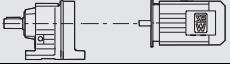

P_m = 1.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
37	1710	31.69	980	1.05		FA 37	DRN 90S6	67 448
41	1510	28.09	1050	1.15		FAF 37	DRN 90S6	70 447
49	1290	23.88	1020	1.35		F 37	DRN 90S6	68 446
						FF 37	DRN 90S6	72 447
37	1690	47.02	990	1.05	X			
40	1570	43.83	1030	1.10	X			
46	1370	38.31	1030	1.30	X	FA 37	(E)DRN 80M4	54 448
49	1290	35.91	1020	1.35	X	FAF 37	(E)DRN 80M4	57 447
55	1140	31.69	1000	1.55	X	F 37	(E)DRN 80M4	55 446
62	1010	28.09	980	1.75	X	FF 37	(E)DRN 80M4	59 447
73	850	23.88	950	2.1	X			
74	850	23.63	950	2.1	X			
85	740	20.57	920	2.4	X	FA 37	(E)DRN 80M4	54 448
91	690	19.27	900	2.5	X	FAF 37	(E)DRN 80M4	57 447
103	610	17.03	880	2.9	X	F 37	(E)DRN 80M4	55 446
122	515	14.33	840	3.4	X	FF 37	(E)DRN 80M4	59 447
136	460	12.87	820	3.8	X			
75	830	23.25	640	1.35	X			
87	725	20.15	625	1.60	X			
93	675	18.84	620	1.70	X			
108	585	16.28	605	1.95	X			
127	495	13.84	585	2.3	X			
142	440	12.35	570	2.6	X			
166	375	10.55	550	3.0	X	FA 27	(E)DRN 80M4	40 443
177	355	9.88	540	3.2	X	FAF 27	(E)DRN 80M4	41 442
186	335	9.40	525	3.4	X	F 27	(E)DRN 80M4	41 441
215	290	8.13	510	3.7	X	FF 27	(E)DRN 80M4	43 442
254	245	6.91	490	4.1	X			
284	220	6.17	475	4.3	X			
332	190	5.27	455	4.7	X			
355	177	4.93	450	4.8	X			
421	150	4.16	430	5.2	X			
370	171	9.40	445	6.8				
428	147	8.13	425	7.4		FA 27	DRN 80MS2	40 443
503	125	6.91	410	8.1		FAF 27	DRN 80MS2	41 442
564	112	6.17	395	8.6		F 27	DRN 80MS2	41 441
660	95	5.27	380	9.3		FF 27	DRN 80MS2	43 442
705	89	4.93	370	9.5				
836	75	4.16	350	10				

P_m = 1.5 HP

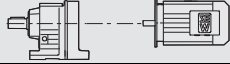

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
0.63	126700	2780	24600	1.25	X			
0.73	112000	2427	25400	1.40	X			
0.81	99500	2185	25900	1.60	X			
0.91	88500	1944	26300	1.80	X			
1.1	79600	1674	26600	2.0	X	FA 157R97	(E)DRN 90S4	1710 511/516
1.4	61100	1308	27000	2.6	X	FAF 157R97	(E)DRN 90S4	1840 510/516
1.5	53900	1169	27000	3.0	X	F 157R97	(E)DRN 90S4	1750 509/516
1.9	42700	953	27000	3.7	X	FF 157R97	(E)DRN 90S4	1990 510/516
2.1	37100	845	27000	4.3	X			
4.0	19600	446	27000	8.1	X			
5.8	13300	302	27000	12	X			
0.86	99000	2038	20200	1.05	X			
0.99	86200	1784	20200	1.25	X			
1.1	77400	1606	20200	1.35	X	FA 127R77	(E)DRN 90S4	970 504/516
1.3	67000	1390	20200	1.60	X	FAF 127R77	(E)DRN 90S4	1050 503/516
1.4	58400	1220	20200	1.80	X	F 127R77	(E)DRN 90S4	1050 502/516
1.6	52100	1077	20200	2.0	X	FF 127R77	(E)DRN 90S4	1140 503/516
1.9	44500	930	20200	2.4	X			
2.1	39100	820	20200	2.7	X			

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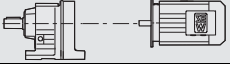

P _m = 1.5 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
1.4	61500	1263	11600	1.15	X						
1.5	57900	1193	11800	1.20	X	FA	107R77	(E)DRN	90S4	610	497/516
1.7	49100	1015	12400	1.40	X	FAF	107R77	(E)DRN	90S4	660	496/516
1.9	44400	923	12600	1.55	X	F	107R77	(E)DRN	90S4	650	495/516
2.2	38300	800	13000	1.80	X	FF	107R77	(E)DRN	90S4	710	496/516
2.5	33100	696	13200	2.1	X						
1.3	68200	1401	11200	1.00	X						
1.4	59900	1243	11700	1.15	X						
1.6	53100	1087	12100	1.30	X						
1.9	45800	950	12600	1.50	X	FA	107R77	(E)DRN	90S4	630	497/516
2.1	39900	834	12900	1.70	X	FAF	107R77	(E)DRN	90S4	680	496/516
2.4	35000	736	13100	1.95	X	F	107R77	(E)DRN	90S4	670	495/516
2.8	30900	640	13400	2.2	X	FF	107R77	(E)DRN	90S4	730	496/516
3.1	26500	560	13600	2.6	X						
3.6	23100	489	13700	2.9	X						
2.7	31900	644	13300	2.2	X	FA	107R77	(E)DRN	90S4	610	497/516
3.0	29200	591	13400	2.4	X	FAF	107R77	(E)DRN	90S4	660	496/516
3.4	25500	518	13600	2.7	X	F	107R77	(E)DRN	90S4	650	495/516
3.6	24100	491	13700	2.9	X	FF	107R77	(E)DRN	90S4	710	496/516
2.6	33600	690	7030	1.15	X						
2.9	29600	605	7300	1.30	X						
3.3	25800	529	7530	1.45	X	FA	97R57	(E)DRN	90S4	435	490/516
3.8	22700	467	7700	1.65	X	FAF	97R57	(E)DRN	90S4	485	489/516
4.3	19600	406	7860	1.95	X	F	97R57	(E)DRN	90S4	450	488/516
4.8	17600	363	7960	2.2	X	FF	97R57	(E)DRN	90S4	520	489/516
6.2	13900	285	8120	2.7	X						
2.3	38100	760	6710	1.00	X						
2.6	33400	667	7050	1.15	X						
3.1	28300	569	7380	1.35	X						
3.5	25400	510	7550	1.50	X	FA	97R57	(E)DRN	90S4	420	490/516
3.7	23400	473	7660	1.60	X	FAF	97R57	(E)DRN	90S4	470	489/516
4.4	19900	403	7850	1.90	X	F	97R57	(E)DRN	90S4	440	488/516
4.9	17800	361	7950	2.1	X	FF	97R57	(E)DRN	90S4	510	489/516
5.6	15500	317	8050	2.4	X						
6.4	13700	275	8130	2.8	X						
3.4	25200	515	5280	1.05	X	FA	87R57	(E)DRN	90S4	290	483/516
3.9	22200	452	5570	1.20	X	FAF	87R57	(E)DRN	90S4	320	482/516
5.1	16700	345	6010	1.60	X	F	87R57	(E)DRN	90S4	305	481/516
5.9	14500	300	6170	1.85	X	FF	87R57	(E)DRN	90S4	340	482/516
7.1	12000	249	6330	2.2	X						
3.4	26000	519	4900	1.00	X						
3.8	23400	468	5460	1.15	X						
4.4	19800	398	5770	1.35	X	FA	87R57	(E)DRN	90S4	285	483/516
5.0	17300	350	5960	1.55	X	FAF	87R57	(E)DRN	90S4	310	482/516
5.6	15600	315	6090	1.70	X	F	87R57	(E)DRN	90S4	295	481/516
6.3	13900	281	6210	1.90	X	FF	87R57	(E)DRN	90S4	330	482/516
7.3	11900	240	6330	2.2	X						
8.3	10400	211	6420	2.5	X						
9.1	9630	193	6470	2.8	X						
7.1	12200	247	3700	1.10	X	FA	77R37	(E)DRN	90S4	175	476/516
8.0	10900	221	3880	1.20	X	FAF	77R37	(E)DRN	90S4	190	475/516
8.9	9770	199	4020	1.35	X	F	77R37	(E)DRN	90S4	185	474/516
						FF	77R37	(E)DRN	90S4	205	475/516
4.3	22100	276.77	7730	1.70		FA	97	DRN	112M6	435	490
4.7	20200	253.41	7830	1.90		FAF	97	DRN	112M6	480	489
5.3	17800	223.88	7940	2.1		F	97	DRN	112M6	450	488
6.2	15100	189.92	8070	2.5		FF	97	DRN	112M6	520	489
6.8	13900	174.87	8120	2.7							
6.4	14800	276.77	8080	2.6	X	FA	97	(E)DRN	90S4	380	490
7.0	13500	253.41	8140	2.8	X	FAF	97	(E)DRN	90S4	430	489
7.9	12000	223.88	8200	3.2	X	F	97	(E)DRN	90S4	400	488
						FF	97	(E)DRN	90S4	470	489

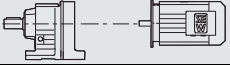

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P_m = 1.5 HP

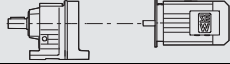

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
6.0	15700	197.20	6080	1.70		FA 87	DRN 112M6	290 483
6.6	14300	179.97	6180	1.85		FAF 87	DRN 112M6	320 482
7.4	12700	159.61	6280	2.1		F 87	DRN 112M6	305 481
						FF 87	DRN 112M6	340 482
6.5	14500	270.68	6170	1.85	X			
6.9	13600	255.37	6220	1.95	X			
7.7	12200	228.93	6310	2.2	X	FA 87	(E)DRN 90S4	240 483
8.9	10500	197.20	6420	2.5	X	FAF 87	(E)DRN 90S4	270 482
9.8	9650	179.97	6470	2.8	X	F 87	(E)DRN 90S4	250 481
11	8560	159.61	6530	3.1	X	FF 87	(E)DRN 90S4	285 482
13	7190	134.16	6600	3.7	X			
14	6610	123.29	6620	4.0	X			
7.8	12100	225.79	3720	1.10	X			
8.9	10600	198.31	3920	1.25	X			
9.3	10100	188.40	3980	1.30	X			
11	8920	166.47	4110	1.50	X			
12	7630	142.27	4220	1.75	X	FA 77	(E)DRN 90S4	155 476
14	6990	130.42	4270	1.90	X	FAF 77	(E)DRN 90S4	170 475
15	6130	114.45	4330	2.2	X	F 77	(E)DRN 90S4	160 474
16	5810	108.46*	4350	2.3	X	FF 77	(E)DRN 90S4	185 475
19	5090	94.93	4390	2.6	X			
21	4580	85.52	4420	2.9	X			
23	4020	75.02	4440	3.3	X			
15	6470	120.79	2480	1.10	X			
16	5840	109.04	2590	1.25	X			
18	5140	95.94	2700	1.40	X			
19	4850	90.59	2740	1.50	X			
22	4270	79.76	2800	1.70	X	FA 67	(E)DRN 90S4	105 469
26	3620	67.65	2870	2.0	X	FAF 67	(E)DRN 90S4	115 468
29	3270	61.07	2900	2.2	X	F 67	(E)DRN 90S4	110 467
33	2880	53.73	2920	2.5	X	FF 67	(E)DRN 90S4	125 468
35	2720	50.74	2920	2.7	X			
41	2310	43.20	2920	3.1	X			
45	2100	39.26	2920	3.3	X			
52	1820	34.01	2920	3.6	X			
19	5010	93.47	2120	1.05	X			
21	4470	83.46	2220	1.20	X			
24	3910	72.98	2320	1.35	X			
26	3650	68.22	2360	1.45	X	FA 57	(E)DRN 90S4	95 462
30	3160	58.97	2430	1.70	X	FAF 57	(E)DRN 90S4	105 461
35	2680	50.10	2340	2.0	X	F 57	(E)DRN 90S4	95 460
39	2390	44.73	2290	2.2	X	FF 57	(E)DRN 90S4	110 461
46	2040	38.21	2200	2.6	X			
49	1910	35.79	2170	2.8	X			
58	1610	30.15	2080	3.2	X			
51	1830	34.24	2140	2.4	X	FA 57	(E)DRN 90S4	93 462
						FAF 57	(E)DRN 90S4	105 461
						F 57	(E)DRN 90S4	94 460
						FF 57	(E)DRN 90S4	110 461
27	3500	65.36	1340	1.00	X			
31	3030	56.49	1490	1.15	X			
37	2570	48.00*	1600	1.35	X	FA 47	(E)DRN 90S4	78 455
41	2290	42.86	1620	1.55	X	FAF 47	(E)DRN 90S4	83 454
48	1960	36.61	1580	1.80	X	F 47	(E)DRN 90S4	79 453
51	1830	34.29	1560	1.90	X	FF 47	(E)DRN 90S4	86 454
61	1540	28.88	1500	2.3	X			
57	1650	30.86	1530	2.1	X			
60	1570	29.32	1510	2.2	X	FA 47	(E)DRN 90S4	76 455
68	1370	25.72	1470	2.6	X	FAF 47	(E)DRN 90S4	82 454
81	1170	21.82	1410	3.0	X	F 47	(E)DRN 90S4	78 453
89	1050	19.70	1380	3.4	X	FF 47	(E)DRN 90S4	85 454
56	1690	31.69	880	1.05	X	FA 37	(E)DRN 90S4	67 448
63	1500	28.09	870	1.15	X	FAF 37	(E)DRN 90S4	70 447
74	1280	23.88	860	1.40	X	F 37	(E)DRN 90S4	68 446
						FF 37	(E)DRN 90S4	72 447

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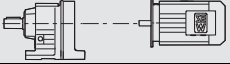

P_m = 1.5 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs		
75	1260	23.63	860	1.40	X					
86	1100	20.57	840	1.60	X					
91	1030	19.27	830	1.70	X					
103	910	17.03	810	1.95	X	FA	37	(E)DRN	90S4	66 448
111	840	15.81	800	2.1	X	FAF	37	(E)DRN	90S4	70 447
123	765	14.33	790	2.3	X	F	37	(E)DRN	90S4	68 446
137	690	12.87	770	2.6	X	FF	37	(E)DRN	90S4	72 447
159	590	11.08	745	2.8	X					
169	555	10.42	735	2.9	X					
196	480	8.97	710	3.2	X					
435	215	8.01	580	6.9						
469	200	7.44	560	6.4						
517	183	6.74	545	6.8		FA	37	DRN	80M2	54 448
576	164	6.05	530	7.3		FAF	37	DRN	80M2	57 447
669	141	5.21	505	7.8		F	37	DRN	80M2	55 446
711	133	4.90	500	8.0		FF	37	DRN	80M2	59 447
826	114	4.22	475	8.5						
925	102	3.77	460	9.1						
87	1080	20.15	545	1.05	X					
94	1010	18.84	540	1.15	X					
108	870	16.28	535	1.30	X					
127	740	13.84	525	1.55	X					
143	660	12.35	520	1.75	X					
167	565	10.55	505	2.0	X	FA	27	(E)DRN	90S4	53 443
178	530	9.88	500	2.2	X	FAF	27	(E)DRN	90S4	54 442
187	500	9.40	485	2.3	X	F	27	(E)DRN	90S4	54 441
217	435	8.13	475	2.5	X	FF	27	(E)DRN	90S4	56 442
255	370	6.91	460	2.7	X					
286	330	6.17	450	2.9	X					
335	280	5.27	435	3.1	X					
357	260	4.93	425	3.2	X					
424	220	4.16	410	3.5	X					
429	220	8.13	410	4.9		FA	27	DRN	80M2	40 443
505	187	6.91	390	5.4		FAF	27	DRN	80M2	41 442
565	167	6.17	380	5.8		F	27	DRN	80M2	41 441
662	143	5.27	365	6.2		FF	27	DRN	80M2	43 442
706	134	4.93	360	6.3						
839	113	4.16	340	6.8						

P_m = 2.0 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs		
0.73	152400	2427	23000	1.05	X					
0.81	135800	2185	24100	1.15	X					
0.91	120800	1944	24900	1.30	X					
1.1	107500	1674	25600	1.50	X	FA	157R97	(E)DRN	90L4	1710 511/516
1.4	82800	1308	26500	1.90	X	FAF	157R97	(E)DRN	90L4	1840 510/516
1.5	73300	1169	26800	2.2	X	F	157R97	(E)DRN	90L4	1760 509/516
1.9	58600	953	27000	2.7	X	FF	157R97	(E)DRN	90L4	1990 510/516
2.1	51200	845	27000	3.1	X					
4.0	27000	446	27000	5.9	X					
5.8	18300	302	27000	8.7	X					
1.1	104100	1606	20200	1.00	X					
1.3	90100	1390	20200	1.20	X					
1.4	78700	1220	20200	1.35	X					
1.6	70000	1077	20200	1.50	X	FA	127R77	(E)DRN	90L4	970 504/516
1.9	60000	930	20200	1.75	X	FAF	127R77	(E)DRN	90L4	1060 503/516
2.1	52700	820	20200	2.0	X	F	127R77	(E)DRN	90L4	1050 502/516
2.4	46500	727	20200	2.3	X	FF	127R77	(E)DRN	90L4	1150 503/516
2.7	42100	648	20200	2.5	X					
3.2	35700	549	20200	3.0	X					

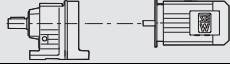

P_m = 2.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
1.7	66000	1015	11300	1.05	X	FA	107R77	(E)DRN 90L4	620	497/516
1.9	59800	923	11700	1.15	X	FAF	107R77	(E)DRN 90L4	670	496/516
2.2	51600	800	12200	1.35	X	F	107R77	(E)DRN 90L4	660	495/516
2.5	44700	696	12600	1.55	X	FF	107R77	(E)DRN 90L4	720	496/516
1.9	61600	950	11600	1.10	X					
2.1	53800	834	12100	1.25	X					
2.4	47300	736	12500	1.45	X	FA	107R77	(E)DRN 90L4	640	497/516
2.8	41600	640	12800	1.65	X	FAF	107R77	(E)DRN 90L4	690	496/516
3.1	35800	560	13100	1.90	X	F	107R77	(E)DRN 90L4	680	495/516
3.6	31300	489	13300	2.2	X	FF	107R77	(E)DRN 90L4	740	496/516
4.0	28300	436	13500	2.4	X					
4.8	24000	370	13700	2.8	X					
2.7	42800	644	12700	1.60	X					
3.0	39200	591	12900	1.75	X	FA	107R77	(E)DRN 90L4	620	497/516
3.4	34200	518	13200	2.0	X	FAF	107R77	(E)DRN 90L4	660	496/516
3.6	32400	491	13300	2.1	X	F	107R77	(E)DRN 90L4	650	495/516
4.1	28200	430	13500	2.5	X	FF	107R77	(E)DRN 90L4	710	496/516
4.6	25400	387	13600	2.7	X					
3.3	34500	529	6970	1.10	X					
3.8	30500	467	7240	1.25	X					
4.4	26300	406	7490	1.45	X	FA	97R57	(E)DRN 90L4	440	490/516
4.9	23600	363	7650	1.60	X	FAF	97R57	(E)DRN 90L4	490	489/516
6.2	18600	285	7910	2.0	X	F	97R57	(E)DRN 90L4	460	488/516
7.2	16000	245	8030	2.4	X	FF	97R57	(E)DRN 90L4	530	489/516
8.5	13600	208	8130	2.8	X					
9.1	12600	195	8170	3.0	X					
3.5	34000	510	7010	1.10	X					
3.7	31400	473	7180	1.20	X	FA	97R57	(E)DRN 90L4	430	490/516
4.4	26600	403	7480	1.45	X	FAF	97R57	(E)DRN 90L4	475	489/516
4.9	23900	361	7630	1.60	X	F	97R57	(E)DRN 90L4	445	488/516
5.6	20900	317	7790	1.80	X	FF	97R57	(E)DRN 90L4	520	489/516
6.4	18300	275	7920	2.1	X					
7.3	16100	242	8030	2.4	X					
5.1	22400	345	5540	1.20	X	FA	87R57	(E)DRN 90L4	300	483/516
5.9	19500	300	5800	1.35	X	FAF	87R57	(E)DRN 90L4	325	482/516
7.1	16100	249	6050	1.65	X	F	87R57	(E)DRN 90L4	310	481/516
						FF	87R57	(E)DRN 90L4	345	482/516
5.0	23200	350	5470	1.15	X					
5.6	20900	315	5680	1.25	X	FA	87R57	(E)DRN 90L4	290	483/516
6.3	18600	281	5870	1.40	X	FAF	87R57	(E)DRN 90L4	320	482/516
7.4	16000	240	6060	1.65	X	F	87R57	(E)DRN 90L4	305	481/516
8.4	14000	211	6200	1.90	X	FF	87R57	(E)DRN 90L4	340	482/516
9.2	12800	193	6280	2.1	X					
4.6	27100	254.40*	13500	2.5		FA	107	DRN 112M6	600	497
5.5	22900	215.37	13700	3.0		FAF	107	DRN 112M6	640	496
5.9	21200	199.31	13800	3.2		F	107	DRN 112M6	630	495
6.6	19000	178.64	13900	3.6		FF	107	DRN 112M6	690	496
4.3	29500	276.77	7300	1.30						
4.7	27000	253.41	7460	1.40		FA	97	DRN 112M6	435	490
5.3	23800	223.88	7640	1.60		FAF	97	DRN 112M6	480	489
6.2	20200	189.92	7830	1.90		F	97	DRN 112M6	450	488
6.8	18600	174.87	7910	2.0		FF	97	DRN 112M6	520	489
6.4	19700	276.77	7850	1.95	X	FA	97	(E)DRN 90L4	390	490
7.0	18000	253.41	7930	2.1	X	FAF	97	(E)DRN 90L4	435	489
7.9	15900	223.88	8030	2.4	X	F	97	(E)DRN 90L4	405	488
9.3	13500	189.92	8140	2.8	X	FF	97	(E)DRN 90L4	475	489
10	12400	174.87	8180	3.0	X					

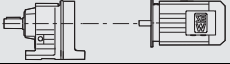

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P_m = 2.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
6.5	19300	270.68	5810	1.40	X						
6.9	18200	255.37	5900	1.45	X						
7.7	16300	228.93	6040	1.65	X						
9.0	14000	197.20	6200	1.90	X	FA	87	(E)DRN	90L4	245	483
9.8	12800	179.97	6280	2.1	X	FAF	87	(E)DRN	90L4	275	482
11	11300	159.61	6370	2.3	X	F	87	(E)DRN	90L4	260	481
13	9560	134.16	6470	2.8	X	FF	87	(E)DRN	90L4	295	482
14	8790	123.29	6510	3.0	X						
16	7800	109.49	6560	3.4	X						
18	6980	97.89	6610	3.8	X						
11	11800	166.47	3750	1.10	X						
12	10100	142.27	3980	1.30	X						
14	9300	130.42	4070	1.45	X						
15	8160	114.45	4180	1.65	X						
16	7730	108.46*	4210	1.70	X						
19	6760	94.93	4290	1.95	X	FA	77	(E)DRN	90L4	160	476
21	6090	85.52	4330	2.2	X	FAF	77	(E)DRN	90L4	175	475
24	5350	75.02	4380	2.5	X	F	77	(E)DRN	90L4	170	474
24	5160	72.50	4390	2.6	X	FF	77	(E)DRN	90L4	190	475
27	4730	66.46	4410	2.8	X						
30	4150	58.32	4440	3.2	X						
32	3940	55.27	4450	3.4	X						
37	3440	48.37	4460	3.9	X						
41	3100	43.58	4480	4.3	X						
46	2720	38.23	4490	4.9	X						
48	2600	36.58	4490	3.8	X	FA	77	(E)DRN	90L4	155	476
56	2240	31.51	4490	5.4	X	FAF	77	(E)DRN	90L4	170	475
						F	77	(E)DRN	90L4	165	474
						FF	77	(E)DRN	90L4	190	475
18	6840	95.94	2410	1.05	X						
20	6460	90.59	2480	1.10	X						
22	5680	79.76	2620	1.30	X						
26	4820	67.65	2740	1.50	X	FA	67	(E)DRN	90L4	110	469
29	4350	61.07	2800	1.65	X	FAF	67	(E)DRN	90L4	125	468
33	3830	53.73	2850	1.90	X	F	67	(E)DRN	90L4	115	467
35	3610	50.74	2870	2.0	X	FF	67	(E)DRN	90L4	130	468
41	3080	43.20	2920	2.4	X						
45	2790	39.26	2920	2.5	X						
52	2420	34.01	2920	2.7	X						
49	2580	36.30	2920	2.8	X	FA	67	(E)DRN	90L4	110	469
55	2280	32.08	2920	3.2	X	FAF	67	(E)DRN	90L4	120	468
64	1950	27.41	2920	3.7	X	F	67	(E)DRN	90L4	115	467
70	1790	25.13	2920	4.0	X	FF	67	(E)DRN	90L4	125	468
24	5200	72.98	2090	1.00	X						
26	4860	68.22	2150	1.10	X						
30	4200	58.97	2270	1.25	X	FA	57	(E)DRN	90L4	100	462
35	3570	50.10	2210	1.50	X	FAF	57	(E)DRN	90L4	115	461
40	3190	44.73	2160	1.65	X	F	57	(E)DRN	90L4	100	460
46	2720	38.21	2100	1.95	X	FF	57	(E)DRN	90L4	115	461
49	2550	35.79	2070	2.1	X						
59	2140	30.15	1990	2.4	X						
59	2130	29.94	1990	2.3	X	FA	57	(E)DRN	90L4	100	462
62	2020	28.45	1970	2.3	X	FAF	57	(E)DRN	90L4	110	461
71	1770	24.96	1910	2.9	X	F	57	(E)DRN	90L4	100	460
						FF	57	(E)DRN	90L4	115	461
37	3420	48.00*	1370	1.05	X	FA	47	(E)DRN	90L4	84	455
41	3050	42.86	1480	1.15	X	FAF	47	(E)DRN	90L4	90	454
48	2610	36.61	1460	1.35	X	F	47	(E)DRN	90L4	86	453
52	2440	34.29	1450	1.45	X	FF	47	(E)DRN	90L4	93	454
61	2050	28.88	1410	1.70	X						

P_m = 2.0 HP

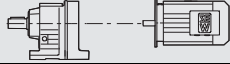

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs			
57	2200	30.86	1430	1.60	X					
60	2090	29.32	1420	1.70	X					
69	1830	25.72	1390	1.95	X	FA	47	(E)DRN 90L4	83	455
81	1550	21.82	1340	2.3	X	FAF	47	(E)DRN 90L4	89	454
90	1400	19.70	1320	2.5	X	F	47	(E)DRN 90L4	85	453
102	1230	17.33	1280	2.9	X	FF	47	(E)DRN 90L4	92	454
108	1160	16.36	1260	3.0	X					
127	990	13.93	1220	3.6	X					
74	1700	23.88	770	1.05	X	FA	37	(E)DRN 90L4	74	448
						FAF	37	(E)DRN 90L4	77	447
						F	37	(E)DRN 90L4	75	446
						FF	37	(E)DRN 90L4	79	447
86	1460	20.57	765	1.20	X					
92	1370	19.27	760	1.30	X					
104	1210	17.03	750	1.45	X					
112	1120	15.81	745	1.55	X					
123	1020	14.33	735	1.75	X					
137	910	12.87	725	1.95	X					
159	790	11.08	705	2.1	X	FA	37	(E)DRN 90L4	73	448
170	740	10.42	700	2.2	X	FAF	37	(E)DRN 90L4	77	447
197	635	8.97	680	2.4	X	F	37	(E)DRN 90L4	74	446
220	570	8.01	660	2.6	X	FF	37	(E)DRN 90L4	79	447
238	530	7.44	640	2.4	X					
262	480	6.74	625	2.6	X					
292	430	6.05	610	2.8	X					
339	370	5.21	590	3.0	X					
361	345	4.90	580	3.0	X					
391	320	8.97	580	4.8						
437	285	8.01	560	5.2						
471	265	7.44	545	4.8		FA	37	DRN 90S2	66	448
520	240	6.74	530	5.1		FAF	37	DRN 90S2	70	447
579	215	6.05	515	5.5		F	37	DRN 90S2	68	446
673	187	5.21	495	5.9		FF	37	DRN 90S2	72	447
715	176	4.90	485	6.0						
831	152	4.22	465	6.4						
930	135	3.77	450	6.9						
128	980	13.84	470	1.15	X					
143	880	12.35	470	1.30	X					
167	750	10.55	465	1.55	X					
179	700	9.88	460	1.65	X					
188	670	9.40	440	1.70	X	FA	27	(E)DRN 90L4	60	443
217	575	8.13	435	1.90	X	FAF	27	(E)DRN 90L4	61	442
256	490	6.91	425	2.0	X	F	27	(E)DRN 90L4	61	441
287	435	6.17	420	2.2	X	FF	27	(E)DRN 90L4	63	442
335	375	5.27	410	2.4	X					
358	350	4.93	405	2.4	X					
425	295	4.16	390	2.6	X					
431	290	8.13	390	3.7		FA	27	DRN 90S2	53	443
507	245	6.91	375	4.1		FAF	27	DRN 90S2	54	442
568	220	6.17	365	4.3		F	27	DRN 90S2	54	441
665	189	5.27	355	4.7		FF	27	DRN 90S2	56	442
710	177	4.93	345	4.8						
843	149	4.16	335	5.2						

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P _m = 3.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
1.2	131400	1441	24400	1.20	X						
1.4	127100	1308	24600	1.25	X						
1.5	112900	1169	25300	1.40	X						
1.9	90900	953	26300	1.75	X						
2.1	79800	845	26600	2.0	X						
2.3	71500	764	26900	2.2	X	FA	157R97	(E)DRN	100LM4	1740	511/516
2.6	63600	680	27000	2.5	X	FAF	157R97	(E)DRN	100LM4	1870	510/516
3.1	53100	576	27000	3.0	X	F	157R97	(E)DRN	100LM4	1780	509/516
4.0	42100	446	27000	3.8	X	FF	157R97	(E)DRN	100LM4	2020	510/516
5.8	28500	302	27000	5.6	X						
6.5	25600	273	27000	6.2	X						
7.6	21300	232	27000	7.5	X						
9.0	18100	197	27000	8.8	X						
3.6	45900	483	20200	2.3	X	FA	127R87	(E)DRN	100LM4	1040	504/516
4.2	40200	418	20200	2.6	X	FAF	127R87	(E)DRN	100LM4	1130	503/516
4.7	35800	374	20200	3.0	X	F	127R87	(E)DRN	100LM4	1120	502/516
						FF	127R87	(E)DRN	100LM4	1220	503/516
1.6	106500	1077	20200	1.00	X						
1.9	91500	930	20200	1.15	X						
2.1	80500	820	20200	1.30	X						
2.4	71100	727	20200	1.50	X						
2.7	64000	648	20200	1.65	X	FA	127R77	(E)DRN	100LM4	1000	504/516
3.2	54200	549	20200	1.95	X	FAF	127R77	(E)DRN	100LM4	1080	503/516
3.6	48800	495	20200	2.2	X	F	127R77	(E)DRN	100LM4	1080	502/516
4.1	42200	428	20200	2.5	X	FF	127R77	(E)DRN	100LM4	1180	503/516
4.7	36900	376	20200	2.9	X						
2.5	68300	696	11200	1.00	X	FA	107R77	(E)DRN	100LM4	650	497/516
						FAF	107R77	(E)DRN	100LM4	690	496/516
						F	107R77	(E)DRN	100LM4	680	495/516
						FF	107R77	(E)DRN	100LM4	740	496/516
2.8	63300	640	11500	1.05	X						
3.1	54800	560	12000	1.25	X						
3.6	47800	489	12400	1.40	X	FA	107R77	(E)DRN	100LM4	660	497/516
4.0	43100	436	12700	1.60	X	FAF	107R77	(E)DRN	100LM4	710	496/516
4.8	36500	370	13100	1.85	X	F	107R77	(E)DRN	100LM4	700	495/516
5.3	32800	333	13300	2.1	X	FF	107R77	(E)DRN	100LM4	760	496/516
6.0	28700	291	13500	2.4	X						
6.9	25100	255	13600	2.7	X						
2.7	64900	644	11400	1.05	X						
3.0	59400	591	11700	1.15	X						
3.4	52000	518	12200	1.35	X	FA	107R77	(E)DRN	100LM4	640	497/516
3.6	49200	491	12400	1.40	X	FAF	107R77	(E)DRN	100LM4	690	496/516
4.1	43000	430	12700	1.60	X	F	107R77	(E)DRN	100LM4	680	495/516
4.5	38700	387	13000	1.80	X	FF	107R77	(E)DRN	100LM4	740	496/516
5.2	33800	340	13200	2.0	X						
5.9	29700	300	13400	2.3	X						
6.6	26300	266	13600	2.6	X						
4.8	35900	363	6870	1.05	X	FA	97R57	(E)DRN	100LM4	465	490/516
6.2	28300	285	7380	1.35	X	FAF	97R57	(E)DRN	100LM4	510	489/516
7.2	24300	245	7610	1.55	X	F	97R57	(E)DRN	100LM4	485	488/516
8.5	20600	208	7810	1.85	X	FF	97R57	(E)DRN	100LM4	560	489/516
9.0	19200	195	7880	1.95	X						
4.9	36200	361	6850	1.05	X	FA	97R57	(E)DRN	100LM4	455	490/516
5.6	31700	317	7160	1.20	X	FAF	97R57	(E)DRN	100LM4	500	489/516
6.4	27800	275	7410	1.35	X	F	97R57	(E)DRN	100LM4	470	488/516
7.3	24400	242	7610	1.55	X	FF	97R57	(E)DRN	100LM4	540	489/516
7.1	24600	249	5340	1.10	X	FA	87R57	(E)DRN	100LM4	320	483/516
						FAF	87R57	(E)DRN	100LM4	350	482/516
						F	87R57	(E)DRN	100LM4	335	481/516
						FF	87R57	(E)DRN	100LM4	370	482/516
7.3	24200	240	5380	1.10	X	FA	87R57	(E)DRN	100LM4	315	483/516
8.3	21200	211	5650	1.25	X	FAF	87R57	(E)DRN	100LM4	345	482/516
9.1	19500	193	5800	1.35	X	F	87R57	(E)DRN	100LM4	330	481/516
						FF	87R57	(E)DRN	100LM4	365	482/516

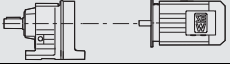

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P_m = 3.0 HP



n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
4.6	40700	254.40*	12800	1.65		FA 107	DRN 132S6	620 497
5.5	34500	215.37	13200	1.95		FAF 107	DRN 132S6	670 496
5.9	31900	199.31	13300	2.1		F 107	DRN 132S6	660 495
6.6	28600	178.64	13500	2.4		FF 107	DRN 132S6	720 496
6.9	27200	254.40*	13500	2.5	X	FA 107	(E)DRN 100LM4	580 497
8.2	23100	215.37	13700	2.9	X	FAF 107	(E)DRN 100LM4	630 496
8.8	21300	199.31	13800	3.2	X	F 107	(E)DRN 100LM4	620 495
9.9	19100	178.64	13900	3.5	X	FF 107	(E)DRN 100LM4	680 496
5.3	35800	223.88	6880	1.05		FA 97	DRN 132S6	460 490
6.2	30400	189.92	7250	1.25		FAF 97	DRN 132S6	510 489
6.7	28000	174.87	7400	1.35		F 97	DRN 132S6	475 488
7.5	25000	156.30	7570	1.50		FF 97	DRN 132S6	550 489
6.4	29600	276.77	7290	1.30	X			
7.0	27100	253.41	7450	1.40	X			
7.9	24000	223.88	7630	1.60	X	FA 97	(E)DRN 100LM4	415 490
9.3	20300	189.92	7820	1.85	X	FAF 97	(E)DRN 100LM4	460 489
10	18700	174.87	7900	2.0	X	F 97	(E)DRN 100LM4	430 488
11	16700	156.30	8000	2.3	X	FF 97	(E)DRN 100LM4	500 489
13	15000	140.71	8070	2.5	X			
14	13600	127.42	8130	2.8	X			
7.7	24500	228.93	5350	1.10	X			
8.9	21100	197.20	5660	1.25	X			
9.8	19300	179.97	5810	1.35	X			
11	17100	159.61	5980	1.55	X			
13	14300	134.16	6180	1.85	X			
14	13200	123.29	6250	2.0	X	FA 87	(E)DRN 100LM4	270 483
16	11700	109.49	6350	2.3	X	FAF 87	(E)DRN 100LM4	300 482
18	10500	97.89	6270	2.5	X	F 87	(E)DRN 100LM4	285 481
20	9440	88.01	6120	2.8	X	FF 87	(E)DRN 100LM4	320 482
23	8190	76.39	5920	3.2	X			
26	7330	68.40	5760	3.6	X			
31	6080	56.75	5490	4.4	X			
35	5400	50.36	5320	4.8	X			
39	4850	45.28	5170	5.1	X			
15	12200	114.45	3690	1.10	X			
16	11600	108.46*	3790	1.15	X			
19	10100	94.93	3970	1.30	X			
21	9170	85.52	4080	1.45	X	FA 77	(E)DRN 100LM4	185 476
23	8040	75.02	4190	1.65	X	FAF 77	(E)DRN 100LM4	200 475
24	7770	72.50	4210	1.70	X	F 77	(E)DRN 100LM4	195 474
27	7120	66.46	4260	1.85	X	FF 77	(E)DRN 100LM4	215 475
30	6250	58.32	4320	2.1	X			
32	5920	55.27	4350	2.2	X			
36	5180	48.37	4390	2.6	X			
40	4670	43.58	4410	2.8	X			
48	3920	36.58	4450	2.5	X	FA 77	(E)DRN 100LM4	180 476
56	3370	31.51	4470	3.6	X	FAF 77	(E)DRN 100LM4	195 475
61	3080	28.75	4480	4.1	X	F 77	(E)DRN 100LM4	190 474
69	2730	25.50*	4490	4.8	X	FF 77	(E)DRN 100LM4	215 475
26	7250	67.65	2320	1.00	X			
29	6550	61.07	2460	1.10	X	FA 67	(E)DRN 100LM4	135 469
33	5760	53.73	2600	1.25	X	FAF 67	(E)DRN 100LM4	150 468
35	5440	50.74	2650	1.35	X	F 67	(E)DRN 100LM4	140 467
41	4630	43.20	2760	1.55	X	FF 67	(E)DRN 100LM4	155 468
45	4210	39.26	2810	1.65	X			
52	3640	34.01	2870	1.80	X			
55	3440	32.08	2890	2.1	X			
64	2940	27.41	2920	2.5	X	FA 67	(E)DRN 100LM4	130 469
70	2690	25.13	2920	2.7	X	FAF 67	(E)DRN 100LM4	145 468
80	2360	22.05	2920	3.1	X	F 67	(E)DRN 100LM4	140 467
84	2240	20.90*	2920	3.2	X	FF 67	(E)DRN 100LM4	150 468
96	1960	18.29	2920	3.7	X			
39	4790	44.73	1920	1.10	X	FA 57	(E)DRN 100LM4	125 462
46	4090	38.21	1890	1.30	X	FAF 57	(E)DRN 100LM4	140 461

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P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
49	3830	35.79	1880	1.40	X	F	57	(E)DRN	100LM4	125	460
58	3230	30.15	1830	1.60	X	FF	57	(E)DRN	100LM4	140	461
71	2670	24.96	1780	1.90	X	FA	57	(E)DRN	100LM4	125	462
83	2270	21.17	1720	2.3	X	FAF	57	(E)DRN	100LM4	135	461
92	2050	19.11	1680	2.6	X	F	57	(E)DRN	100LM4	125	460
105	1800	16.81	1640	2.9	X	FF	57	(E)DRN	100LM4	140	461
111	1700	15.88	1620	3.1	X						
61	3090	28.88	1240	1.15	X	FA	47	(E)DRN	100LM4	110	455
						FAF	47	(E)DRN	100LM4	115	454
						F	47	(E)DRN	100LM4	110	453
						FF	47	(E)DRN	100LM4	120	454
68	2750	25.72	1230	1.30	X						
81	2340	21.82	1210	1.50	X						
89	2110	19.70	1190	1.65	X	FA	47	(E)DRN	100LM4	105	455
102	1850	17.33	1170	1.90	X	FAF	47	(E)DRN	100LM4	115	454
108	1750	16.36	1160	2.0	X	F	47	(E)DRN	100LM4	110	453
126	1490	13.93	1130	2.4	X	FF	47	(E)DRN	100LM4	115	454
139	1350	12.66	1110	2.6	X						
161	1170	10.97	1080	3.0	X						
197	960	8.96	1010	3.0	X						
123	1530	14.33	630	1.15	X						
137	1380	12.87	625	1.30	X						
159	1180	11.08	625	1.40	X						
169	1110	10.42	620	1.45	X						
196	960	8.97	610	1.60	X	FA	37	(E)DRN	100LM4	98	448
220	850	8.01	600	1.75	X	FAF	37	(E)DRN	100LM4	100	447
261	720	6.74	570	1.70	X	F	37	(E)DRN	100LM4	99	446
291	645	6.05	560	1.85	X	FF	37	(E)DRN	100LM4	105	447
338	555	5.21	550	2.0	X						
360	525	4.90	540	2.0	X						
418	450	4.22	525	2.1	X						
468	400	3.77	515	2.3	X						
474	395	7.44	515	3.2							
523	360	6.74	500	3.4		FA	37	DRN	90L2	73	448
583	320	6.05	490	3.7		FAF	37	DRN	90L2	77	447
676	275	5.21	475	4.0		F	37	DRN	90L2	74	446
719	260	4.90	465	4.0		FF	37	DRN	90L2	79	447
836	225	4.22	450	4.3							
935	200	3.77	435	4.6							
167	1130	10.55	380	1.00	X						
178	1060	9.88	380	1.10	X						
217	870	8.13	365	1.25	X	FA	27	(E)DRN	100LM4	84	443
255	740	6.91	365	1.35	X	FAF	27	(E)DRN	100LM4	86	442
286	660	6.17	365	1.45	X	F	27	(E)DRN	100LM4	85	441
335	565	5.27	360	1.55	X	FF	27	(E)DRN	100LM4	87	442
357	525	4.93	360	1.60	X						
424	445	4.16	355	1.75	X						
375	500	9.40	360	2.3							
434	435	8.13	355	2.5		FA	27	DRN	90L2	60	443
510	370	6.91	345	2.7		FAF	27	DRN	90L2	61	442
572	330	6.17	340	2.9		F	27	DRN	90L2	61	441
669	280	5.27	330	3.1		FF	27	DRN	90L2	63	442
715	260	4.93	325	3.2							
848	220	4.16	315	3.5							

P_m = 4.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
1.5	152200	1169	23000	1.05	X					
1.9	122900	953	24800	1.30	X					
2.1	108200	845	25600	1.45	X					
2.3	97200	764	26000	1.65	X					
2.6	86500	680	26400	1.85	X	FA	157R97	(E)DRN 100L4	1740	511/516
3.1	72500	576	26900	2.2	X	FAF	157R97	(E)DRN 100L4	1870	510/516
4.0	57100	446	27000	2.8	X	F	157R97	(E)DRN 100L4	1780	509/516
5.8	38700	302	27000	4.1	X	FF	157R97	(E)DRN 100L4	2020	510/516
6.5	34700	273	27000	4.6	X					
7.6	29100	232	27000	5.5	X					
9.0	24700	197	27000	6.4	X					
2.4	95600	727	20200	1.10	X	FA	127R77	(E)DRN 100L4	1000	504/516
2.7	85800	648	20200	1.25	X	FAF	127R77	(E)DRN 100L4	1080	503/516
3.2	72700	549	20200	1.45	X	F	127R77	(E)DRN 100L4	1080	502/516
3.6	65400	495	20200	1.60	X	FF	127R77	(E)DRN 100L4	1180	503/516
4.0	57700	436	11900	1.20	X	FA	107R77	(E)DRN 100L4	660	497/516
4.8	48900	370	12400	1.40	X	FAF	107R77	(E)DRN 100L4	710	496/516
5.3	44000	333	12700	1.55	X	F	107R77	(E)DRN 100L4	700	495/516
6.1	38500	291	13000	1.75	X	FF	107R77	(E)DRN 100L4	760	496/516
4.6	54400	254.40*	12100	1.25		FA	107	DRN 132S6	620	497
5.5	46000	215.37	12500	1.45		FAF	107	DRN 132S6	670	496
5.9	42600	199.31	12700	1.60		F	107	DRN 132S6	660	495
6.6	38200	178.64	13000	1.80		FF	107	DRN 132S6	720	496
6.9	36300	254.40*	13100	1.85	X	FA	107	(E)DRN 100L4	580	497
8.2	30700	215.37	13400	2.2	X	FAF	107	(E)DRN 100L4	630	496
8.8	28400	199.31	13500	2.4	X	F	107	(E)DRN 100L4	620	495
9.9	25500	178.64	13600	2.7	X	FF	107	(E)DRN 100L4	680	496
11	23000	161.28*	13700	3.0	X					
7.9	32000	223.88	7150	1.20	X					
9.3	27100	189.92	7450	1.40	X					
10	24900	174.87	7570	1.50	X					
11	22300	156.30	7720	1.70	X	FA	97	(E)DRN 100L4	415	490
13	20100	140.71	7840	1.90	X	FAF	97	(E)DRN 100L4	460	489
14	18200	127.42	7930	2.1	X	F	97	(E)DRN 100L4	430	488
16	16100	112.99	8020	2.4	X	FF	97	(E)DRN 100L4	500	489
17	14600	102.16	8090	2.6	X					
20	12800	89.85	8170	3.0	X					
13	19100	134.16	5820	1.40	X					
14	17600	123.29	5950	1.50	X					
16	15600	109.49	6050	1.70	X					
18	13900	97.89	5930	1.90	X	FA	87	(E)DRN 100L4	270	483
20	12500	88.01	5810	2.1	X	FAF	87	(E)DRN 100L4	300	482
23	10900	76.39	5650	2.4	X	F	87	(E)DRN 100L4	285	481
26	9770	68.40	5520	2.7	X	FF	87	(E)DRN 100L4	320	482
31	8110	56.75	5290	3.3	X					
35	7190	50.36	5150	3.6	X					
21	12200	85.52	3700	1.10	X					
24	10700	75.02	3910	1.25	X					
27	9500	66.46	4050	1.40	X	FA	77	(E)DRN 100L4	185	476
30	8330	58.32	4160	1.60	X	FAF	77	(E)DRN 100L4	200	475
32	7900	55.27	4200	1.70	X	F	77	(E)DRN 100L4	195	474
36	6910	48.37	4280	1.90	X	FF	77	(E)DRN 100L4	215	475
40	6220	43.58	4330	2.1	X					
46	5460	38.23	4370	2.4	X					
48	5220	36.58	4390	1.90	X	FA	77	(E)DRN 100L4	180	476
56	4500	31.51	4420	2.7	X	FAF	77	(E)DRN 100L4	195	475
61	4110	28.75	4440	3.1	X	F	77	(E)DRN 100L4	190	474
69	3640	25.50*	4460	3.6	X	FF	77	(E)DRN 100L4	215	475
82	3060	21.43	4480	4.3	X					
41	6170	43.20	2530	1.15	X	FA	67	(E)DRN 100L4	135	469
45	5610	39.26	2630	1.25	X	FAF	67	(E)DRN 100L4	150	468
52	4860	34.01	2730	1.35	X	F	67	(E)DRN 100L4	140	467
						FF	67	(E)DRN 100L4	155	468

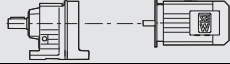

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P _m = 4.0 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
55	4580	32.08	2770	1.60	X					
64	3910	27.41	2840	1.85	X					
70	3590	25.13	2870	2.0	X	FA	67	(E)DRN 100L4	130	469
80	3150	22.05	2910	2.3	X	FAF	67	(E)DRN 100L4	145	468
84	2980	20.90*	2920	2.4	X	F	67	(E)DRN 100L4	140	467
96	2610	18.29	2920	2.8	X	FF	67	(E)DRN 100L4	150	468
107	2350	16.48	2920	3.1	X					
122	2060	14.46	2920	3.5	X					
71	3560	24.96	1640	1.45	X					
83	3020	21.17	1610	1.75	X					
92	2730	19.11	1580	1.95	X	FA	57	(E)DRN 100L4	125	462
105	2400	16.81	1550	2.2	X	FAF	57	(E)DRN 100L4	135	461
111	2260	15.88	1530	2.3	X	F	57	(E)DRN 100L4	125	460
130	1930	13.52	1480	2.8	X	FF	57	(E)DRN 100L4	140	461
144	1750	12.29	1460	3.0	X					
166	1520	10.64	1410	3.5	X					
90	2810	19.70	1070	1.25	X					
102	2470	17.33	1070	1.45	X					
108	2330	16.36	1060	1.50	X	FA	47	(E)DRN 100L4	105	455
127	1990	13.93	1040	1.80	X	FAF	47	(E)DRN 100L4	115	454
139	1810	12.66	1030	1.95	X	F	47	(E)DRN 100L4	110	453
161	1560	10.97	1010	2.3	X	FF	47	(E)DRN 100L4	115	454
197	1280	8.96	950	2.3	X					
159	1580	11.08	540	1.05	X					
169	1490	10.42	540	1.10	X					
197	1280	8.97	545	1.20	X					
220	1140	8.01	540	1.30	X	FA	37	(E)DRN 100L4	98	448
262	960	6.74	515	1.30	X	FAF	37	(E)DRN 100L4	100	447
291	860	6.05	510	1.40	X	F	37	(E)DRN 100L4	99	446
338	745	5.21	505	1.50	X	FF	37	(E)DRN 100L4	105	447
360	700	4.90	500	1.50	X					
418	600	4.22	490	1.60	X					
468	535	3.77	485	1.70	X					
317	790	11.08	525	2.1						
337	745	10.42	520	2.2						
392	640	8.97	510	2.4						
439	570	8.01	500	2.6		FA	37	DRN 100LM2	98	448
522	480	6.74	475	2.6		FAF	37	DRN 100LM2	100	447
581	430	6.05	465	2.8		F	37	DRN 100LM2	99	446
675	370	5.21	450	3.0		FF	37	DRN 100LM2	105	447
718	350	4.90	445	3.0						
834	300	4.22	430	3.2						
933	270	3.77	420	3.4						
433	580	8.13	315	1.85						
509	490	6.91	315	2.0		FA	27	DRN 100LM2	84	443
570	440	6.17	310	2.2		FAF	27	DRN 100LM2	86	442
668	375	5.27	305	2.3		F	27	DRN 100LM2	85	441
713	350	4.93	305	2.4		FF	27	DRN 100LM2	87	442
846	295	4.16	295	2.6						

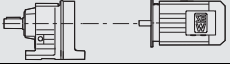

P _m = 5.0 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
1.9	155400	953	22800	1.00	X					
2.1	137000	845	24000	1.15	X					
2.3	123300	764	24800	1.30	X					
2.6	109700	680	25500	1.45	X					
3.0	92100	576	26200	1.75	X	FA	157R97	(E)DRN 100L4	1740	511/516
3.9	72400	446	26900	2.2	X	FAF	157R97	(E)DRN 100L4	1870	510/516
5.8	49000	302	27000	3.2	X	F	157R97	(E)DRN 100L4	1780	509/516
6.4	44100	273	27000	3.6	X	FF	157R97	(E)DRN 100L4	2020	510/516
7.6	37000	232	27000	4.3	X					
8.9	31400	197	27000	5.1	X					

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P_m = 5.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
3.6	78600	483	20200	1.35	X			
4.2	68500	418	20200	1.55	X			
4.7	61100	374	20200	1.75	X	FA	127R87	(E)DRN 100L4 1040 504/516
5.6	51000	312	20200	2.1	X	FAF	127R87	(E)DRN 100L4 1130 503/516
6.0	47700	293	20200	2.2	X	F	127R87	(E)DRN 100L4 1120 502/516
6.8	42000	259	20200	2.5	X	FF	127R87	(E)DRN 100L4 1220 503/516
7.9	36300	223	20200	2.9	X			
2.7	107900	648	20200	1.00		FA	127R77	(E)DRN 100L4 1000 504/516
3.2	91400	549	20200	1.15	X	FAF	127R77	(E)DRN 100L4 1080 503/516
3.5	82300	495	20200	1.30	X	F	127R77	(E)DRN 100L4 1080 502/516
4.1	71200	428	20200	1.50	X	FF	127R77	(E)DRN 100L4 1180 503/516
4.7	62400	376	20200	1.70	X			
4.8	61500	370	11600	1.10	X			
5.3	55400	333	12000	1.25	X	FA	107R77	(E)DRN 100L4 660 497/516
6.0	48400	291	12400	1.40	X	FAF	107R77	(E)DRN 100L4 710 496/516
6.9	42400	255	12800	1.60	X	F	107R77	(E)DRN 100L4 700 495/516
7.8	37300	225	13000	1.80	X	FF	107R77	(E)DRN 100L4 760 496/516
9.2	31600	190	13300	2.1	X			
4.5	65200	387	11400	1.05	X	FA	107R77	(E)DRN 100L4 640 497/516
5.2	57100	340	11900	1.20	X	FAF	107R77	(E)DRN 100L4 690 496/516
5.9	50300	300	12300	1.40	X	F	107R77	(E)DRN 100L4 680 495/516
6.6	44500	266	12600	1.55	X	FF	107R77	(E)DRN 100L4 740 496/516
8.4	34700	208	6960	1.10	X	FA	97R57	(E)DRN 100L4 465 490/516
9.0	32500	195	7110	1.15	X	FAF	97R57	(E)DRN 100L4 510 489/516
						F	97R57	(E)DRN 100L4 485 488/516
						FF	97R57	(E)DRN 100L4 560 489/516
6.9	45500	254.40*	12600	1.50	X			
8.2	38500	215.37	13000	1.75	X	FA	107	(E)DRN 100L4 580 497
8.8	35700	199.31	13100	1.90	X	FAF	107	(E)DRN 100L4 630 496
9.8	32000	178.64	13300	2.1	X	F	107	(E)DRN 100L4 620 495
11	28900	161.28*	13500	2.4	X	FF	107	(E)DRN 100L4 680 496
12	26200	146.49	13600	2.6	X			
14	23200	129.97	13700	2.9	X			
9.3	34000	189.92	7010	1.10	X			
10	31300	174.87	7190	1.20	X			
11	28000	156.30	7400	1.35	X			
12	25200	140.71	7560	1.50	X			
14	22800	127.42	7690	1.65	X	FA	97	(E)DRN 100L4 415 490
16	20200	112.99	7830	1.90	X	FAF	97	(E)DRN 100L4 460 489
17	18300	102.16	7920	2.1	X	F	97	(E)DRN 100L4 430 488
18	17400	97.58	7960	2.2	X	FF	97	(E)DRN 100L4 500 489
20	16100	89.85	8030	2.4	X			
20	15500	86.59	8050	2.5	X			
22	14300	80.31	8100	2.6	X			
24	12900	72.29	8160	2.9	X			
13	24000	134.16	5400	1.10	X			
14	22000	123.29	5580	1.20	X			
16	19600	109.49	5660	1.35	X	FA	87	(E)DRN 100L4 270 483
18	17500	97.89	5590	1.50	X	FAF	87	(E)DRN 100L4 300 482
20	15700	88.01	5510	1.70	X	F	87	(E)DRN 100L4 285 481
23	13600	76.39	5390	1.95	X	FF	87	(E)DRN 100L4 320 482
26	12200	68.40	5280	2.2	X			
31	10100	56.75	5100	2.6	X			
35	9020	50.36	4970	2.9	X			
23	13400	75.02	3500	1.00				
24	12900	72.50	3580	1.00	X			
26	11900	66.46	3750	1.10	X			
30	10400	58.32	3940	1.25	X			
32	9900	55.27	4000	1.35	X	FA	77	(E)DRN 100L4 185 476
36	8660	48.37	4130	1.55	X	FAF	77	(E)DRN 100L4 200 475
40	7800	43.58	4210	1.70	X	F	77	(E)DRN 100L4 195 474
46	6850	38.23	4280	1.95	X	FF	77	(E)DRN 100L4 215 475
52	6040	33.74	4340	2.2	X			
59	5350	29.91	4380	2.5	X			
69	4570	25.54	4420	2.8	X			

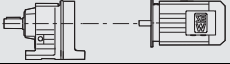

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P _m = 5.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
48	6550	36.58	4300	1.50	X	FA	77	(E)DRN	100L4	180	476
56	5640	31.51	4360	2.2	X	FAF	77	(E)DRN	100L4	195	475
61	5150	28.75	4390	2.5	X	F	77	(E)DRN	100L4	190	474
69	4560	25.50*	4420	2.9	X	FF	77	(E)DRN	100L4	215	475
82	3840	21.43	4450	3.5	X						
45	7030	39.26	2370	1.00		FA	67	(E)DRN	100L4	135	469
52	6090	34.01	2550	1.05	X	FAF	67	(E)DRN	100L4	150	468
						F	67	(E)DRN	100L4	140	467
						FF	67	(E)DRN	100L4	155	468
55	5740	32.08	2610	1.25	X						
64	4910	27.41	2730	1.50	X						
70	4500	25.13	2780	1.60	X	FA	67	(E)DRN	100L4	130	469
80	3950	22.05	2840	1.85	X	FAF	67	(E)DRN	100L4	145	468
84	3740	20.90*	2860	1.95	X	F	67	(E)DRN	100L4	140	467
96	3270	18.29	2900	2.2	X	FF	67	(E)DRN	100L4	150	468
107	2950	16.48	2920	2.5	X						
122	2590	14.46	2920	2.8	X						
194	1620	9.08	2790	2.9	X						
70	4470	24.96	1510	1.15	X						
83	3790	21.17	1490	1.40	X						
92	3420	19.11	1480	1.55	X						
105	3010	16.81	1460	1.75	X	FA	57	(E)DRN	100L4	125	462
111	2840	15.88	1450	1.85	X	FAF	57	(E)DRN	100L4	135	461
130	2420	13.52	1410	2.2	X	F	57	(E)DRN	100L4	125	460
143	2200	12.29	1390	2.4	X	FF	57	(E)DRN	100L4	140	461
165	1900	10.64	1350	2.8	X						
189	1660	9.31	1290	2.2	X						
215	1460	8.19	1260	2.5	X						
227	1380	7.73	1240	2.7	X						
89	3520	19.70	950	1.00	X						
101	3100	17.33	960	1.15	X						
107	2930	16.36	960	1.20	X						
126	2490	13.93	960	1.40	X	FA	47	(E)DRN	100L4	105	455
139	2260	12.66	950	1.55	X	FAF	47	(E)DRN	100L4	115	454
160	1960	10.97	940	1.80	X	F	47	(E)DRN	100L4	110	453
196	1600	8.96	890	1.80	X	FF	47	(E)DRN	100L4	115	454
223	1410	7.88	880	2.4	X						
236	1330	7.44*	870	2.5	X						
278	1130	6.34	850	2.7	X						
305	1030	5.76	840	2.9	X						
219	1430	8.01	480	1.05	X						
261	1200	6.74	460	1.05	X	FA	37	(E)DRN	100L4	98	448
291	1080	6.05	460	1.10	X	FAF	37	(E)DRN	100L4	100	447
337	930	5.21	460	1.20	X	F	37	(E)DRN	100L4	99	446
359	870	4.90	460	1.20	X	FF	37	(E)DRN	100L4	105	447
417	755	4.22	455	1.30	X						
467	675	3.77	455	1.40	X						
438	715	8.01	470	2.1		FA	37	DRN	100L2	98	448
521	605	6.74	445	2.0		FAF	37	DRN	100L2	100	447
580	540	6.05	440	2.2		F	37	DRN	100L2	99	446
673	465	5.21	430	2.4		FF	37	DRN	100L2	105	447
716	440	4.90	425	2.4							
832	375	4.22	415	2.6							
931	335	3.77	405	2.8							
423	740	4.16	280	1.05	X	FA	27	(E)DRN	100L4	84	443
						FAF	27	(E)DRN	100L4	86	442
						F	27	(E)DRN	100L4	85	441
						FF	27	(E)DRN	100L4	87	442
432	725	8.13	280	1.50		FA	27	DRN	100L2	84	443
508	620	6.91	285	1.65		FAF	27	DRN	100L2	86	442
569	550	6.17	285	1.75		F	27	DRN	100L2	85	441
666	470	5.27	280	1.85		FF	27	DRN	100L2	87	442
711	440	4.93	280	1.90							
844	370	4.16	275	2.1							

P_m = 5.4 HP



n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
2.1	147400	845	23400	1.10	X			
2.3	132700	764	24300	1.20	X			
2.6	118000	680	25100	1.35	X			
3.1	99300	576	25900	1.60	X	FA	157R97	(E)DRN 112M4 1760 511/516
4.0	77900	446	26700	2.0	X	FAF	157R97	(E)DRN 112M4 1890 510/516
5.8	52700	302	27000	3.0	X	F	157R97	(E)DRN 112M4 1800 509/516
6.5	47400	273	27000	3.4	X	FF	157R97	(E)DRN 112M4 2040 510/516
7.6	39900	232	27000	4.0	X			
9.0	33800	197	27000	4.7	X			
3.7	84600	483	20200	1.25	X			
4.2	73600	418	20200	1.45	X	FA	127R87	(E)DRN 112M4 1060 504/516
4.7	65700	374	20200	1.60	X	FAF	127R87	(E)DRN 112M4 1150 503/516
5.7	54800	312	20200	1.95	X	F	127R87	(E)DRN 112M4 1140 502/516
6.0	51300	293	20200	2.1	X	FF	127R87	(E)DRN 112M4 1240 503/516
6.8	45200	259	20200	2.3	X			
7.9	39100	223	20200	2.7	X			
3.2	98200	549	20200	1.10	X	FA	127R77	(E)DRN 112M4 1020 504/516
3.6	88400	495	20200	1.20	X	FAF	127R77	(E)DRN 112M4 1100 503/516
4.1	76500	428	20200	1.40	X	F	127R77	(E)DRN 112M4 1100 502/516
4.7	67000	376	20200	1.60	X	FF	127R77	(E)DRN 112M4 1200 503/516
4.8	66100	370	11300	1.05	X			
5.3	59500	333	11700	1.15	X	FA	107R77	(E)DRN 112M4 680 497/516
6.1	52000	291	12200	1.30	X	FAF	107R77	(E)DRN 112M4 730 496/516
6.9	45500	255	12600	1.50	X	F	107R77	(E)DRN 112M4 720 495/516
7.8	40100	225	12900	1.70	X	FF	107R77	(E)DRN 112M4 780 496/516
9.3	33900	190	13200	2.0	X			
5.2	61400	340	11600	1.15	X	FA	107R77	(E)DRN 112M4 660 497/516
5.9	54100	300	12100	1.30	X	FAF	107R77	(E)DRN 112M4 710 496/516
6.7	47800	266	12400	1.45	X	F	107R77	(E)DRN 112M4 700 495/516
						FF	107R77	(E)DRN 112M4 760 496/516
8.5	37300	208	6770	1.00	X	FA	97R57	(E)DRN 112M4 485 490/516
9.1	34900	195	6940	1.10	X	FAF	97R57	(E)DRN 112M4 540 489/516
						F	97R57	(E)DRN 112M4 500 488/516
						FF	97R57	(E)DRN 112M4 580 489/516
7.0	48900	254.40*	12400	1.40	X			
8.2	41400	215.37	12800	1.65	X			
8.9	38300	199.31	13000	1.75	X			
9.9	34300	178.64	13200	2.0	X	FA	107	(E)DRN 112M4 600 497
11	31000	161.28*	13400	2.2	X	FAF	107	(E)DRN 112M4 640 496
12	28100	146.49	13500	2.4	X	F	107	(E)DRN 112M4 630 495
14	24900	129.97	13600	2.7	X	FF	107	(E)DRN 112M4 690 496
15	22600	117.94	13800	3.0	X			
17	19400	101.38*	13900	3.5	X			
9.3	36500	189.92	6830	1.05	X			
10	33600	174.87	7040	1.15	X			
11	30000	156.30	7270	1.25	X			
13	27000	140.71	7460	1.40	X			
14	24500	127.42	7600	1.55	X			
16	21700	112.99	7750	1.75	X	FA	97	(E)DRN 112M4 435 490
17	19600	102.16	7860	1.95	X	FAF	97	(E)DRN 112M4 480 489
18	18700	97.58	7900	2.0	X	F	97	(E)DRN 112M4 450 488
20	17200	89.85	7970	2.2	X	FF	97	(E)DRN 112M4 520 489
20	16600	86.59	8000	2.3	X			
22	15400	80.31	8060	2.5	X			
24	13900	72.29	8120	2.7	X			
27	12500	65.47	8030	3.0	X			

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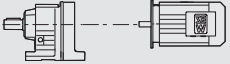

P _m = 5.4 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
13	25800	134.16	5100	1.05	X					
14	23700	123.29	5430	1.10	X					
16	21000	109.49	5510	1.25	X					
18	18800	97.89	5450	1.40	X	FA	87	(E)DRN	112M4	290 483
20	16900	88.01	5380	1.55	X	FAF	87	(E)DRN	112M4	320 482
23	14600	76.39	5270	1.80	X	F	87	(E)DRN	112M4	305 481
26	13100	68.40	5180	2.0	X	FF	87	(E)DRN	112M4	340 482
31	10900	56.75	5010	2.4	X					
35	9680	50.36	4900	2.7	X					
39	8700	45.28	4790	2.9	X					
27	12700	66.46	3610	1.05	X					
30	11200	58.32	3840	1.20	X					
32	10600	55.27	3920	1.25	X					
37	9300	48.37	4070	1.45	X	FA	77	(E)DRN	112M4	205 476
41	8380	43.58	4160	1.60	X	FAF	77	(E)DRN	112M4	220 475
46	7350	38.23	4250	1.80	X	F	77	(E)DRN	112M4	215 474
52	6480	33.74	4310	2.0	X	FF	77	(E)DRN	112M4	235 475
59	5750	29.91	4360	2.3	X					
69	4910	25.54	4400	2.6	X					
56	6050	31.51	4340	2.0	X	FA	77	(E)DRN	112M4	200 476
62	5530	28.75	4370	2.3	X	FAF	77	(E)DRN	112M4	215 475
69	4900	25.50*	4400	2.7	X	F	77	(E)DRN	112M4	210 474
83	4120	21.43	4440	3.2	X	FF	77	(E)DRN	112M4	235 475
90	3780	19.70	4450	3.5	X					
52	6540	34.01	2470	1.00	X	FA	67	(E)DRN	112M4	155 469
						FAF	67	(E)DRN	112M4	170 468
						F	67	(E)DRN	112M4	160 467
						FF	67	(E)DRN	112M4	175 468
65	5270	27.41	2680	1.40	X					
70	4830	25.13	2740	1.50	X					
80	4240	22.05	2810	1.70	X					
85	4010	20.90*	2830	1.80	X					
97	3510	18.29	2880	2.1	X					
107	3160	16.48	2910	2.3	X					
122	2780	14.46	2920	2.6	X					
139	2450	12.76	2920	3.0	X	FA	67	(E)DRN	112M4	155 469
156	2170	11.31	2920	3.3	X	FAF	67	(E)DRN	112M4	165 468
183	1850	9.66	2850	3.9	X	F	67	(E)DRN	112M4	160 467
195	1740	9.08	2770	2.7	X	FF	67	(E)DRN	112M4	170 468
206	1650	8.60	2730	3.0	X					
235	1440	7.53	2640	3.7	X					
261	1300	6.78	2580	4.2	X					
297	1140	5.95	2490	4.7	X					
337	1000	5.25	2420	5.2	X					
380	890	4.66	2340	5.5	X					
445	760	3.97	2250	5.8	X					
84	4070	21.17	1450	1.30	X					
93	3670	19.11	1440	1.45	X					
105	3230	16.81	1420	1.65	X					
111	3050	15.88	1410	1.75	X					
131	2590	13.52	1380	2.0	X					
144	2360	12.29	1360	2.2	X	FA	57	(E)DRN	112M4	145 462
166	2040	10.64	1330	2.6	X	FAF	57	(E)DRN	112M4	160 461
190	1790	9.31	1270	2.1	X	F	57	(E)DRN	112M4	145 460
216	1570	8.19	1240	2.4	X	FF	57	(E)DRN	112M4	160 461
229	1480	7.73	1220	2.5	X					
269	1260	6.58	1180	2.9	X					
296	1150	5.98	1160	3.2	X					
341	990	5.18	1120	3.7	X					
382	890	9.31	1090	4.2						
434	780	8.19	1060	4.7		FA	57	DRN	112M2	145 462
459	740	7.73	1040	5.0		FAF	57	DRN	112M2	160 461
539	630	6.58	1000	5.9		F	57	DRN	112M2	145 460
594	570	5.98	980	6.5		FF	57	DRN	112M2	160 461
685	495	5.18	940	7.4						

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P_m = 7.5 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
3.1	139900	576	23900	1.15	X			
3.5	121500	503	24900	1.30	X			
4.0	109400	446	25500	1.45	X			
5.0	85000	353	26500	1.85	X	FA	157R97	(E)DRN 132S4 1780 511/516
5.8	74000	302	26800	2.1	X	FAF	157R97	(E)DRN 132S4 1910 510/516
6.5	66700	273	27000	2.4	X	F	157R97	(E)DRN 132S4 1830 509/516
7.6	56200	232	27000	2.8	X	FF	157R97	(E)DRN 132S4 2060 510/516
8.7	48800	202	27000	3.3	X			
9.0	47700	197	27000	3.3	X			
4.2	103100	418	20200	1.05	X			
4.7	92100	374	20200	1.15	X			
5.7	76800	312	20200	1.40	X	FA	127R87	(E)DRN 132S4 1090 504/516
6.0	72000	293	20200	1.45	X	FAF	127R87	(E)DRN 132S4 1170 503/516
6.8	63500	259	20200	1.65	X	F	127R87	(E)DRN 132S4 1170 502/516
7.9	54800	223	20200	1.95	X	FF	127R87	(E)DRN 132S4 1270 503/516
8.9	48500	198	20200	2.2	X			
11	40700	166	20200	2.6	X			
4.1	106700	428	20200	1.00		FA	127R77	(E)DRN 132S4 1040 504/516
4.7	93500	376	20200	1.15	X	FAF	127R77	(E)DRN 132S4 1130 503/516
						F	127R77	(E)DRN 132S4 1120 502/516
						FF	127R77	(E)DRN 132S4 1220 503/516
6.9	63600	255	11500	1.05	X	FA	107R77	(E)DRN 132S4 710 497/516
7.8	56000	225	12000	1.20	X	FAF	107R77	(E)DRN 132S4 760 496/516
9.3	47400	190	12500	1.45	X	F	107R77	(E)DRN 132S4 750 495/516
						FF	107R77	(E)DRN 132S4 810 496/516
6.7	66800	266	11300	1.05	X	FA	107R77	(E)DRN 132S4 690 497/516
						FAF	107R77	(E)DRN 132S4 730 496/516
						F	107R77	(E)DRN 132S4 720 495/516
						FF	107R77	(E)DRN 132S4 790 496/516
10	45600	170.83	20200	2.3	X	FA	127	(E)DRN 132S4 960 504
12	41000	153.67*	20200	2.6	X	FAF	127	(E)DRN 132S4 1040 503
						F	127	(E)DRN 132S4 1040 502
						FF	127	(E)DRN 132S4 1140 503
7.0	67900	254.40*	11200	1.00	X			
8.2	57500	215.37	11900	1.20	X			
8.9	53200	199.31	12100	1.30	X			
9.9	47700	178.64	12500	1.40	X			
11	43100	161.28*	12700	1.60	X	FA	107	(E)DRN 132S4 620 497
12	39100	146.49	12900	1.75	X	FAF	107	(E)DRN 132S4 670 496
14	34700	129.97	13200	1.95	X	F	107	(E)DRN 132S4 660 495
15	31500	117.94	13300	2.2	X	FF	107	(E)DRN 132S4 720 496
17	27000	101.38*	13500	2.5	X			
19	24700	92.47*	13700	2.8	X			
20	23600	88.49	13700	2.9	X			
21	22400	83.99	13800	3.0	X			
13	37600	140.71	6750	1.00	X			
14	34000	127.42	7010	1.10	X			
16	30200	112.99	7260	1.25	X			
17	27300	102.16	7440	1.40	X			
18	26000	97.58	7510	1.45	X			
20	24000	89.85	7630	1.60	X	FA	97	(E)DRN 132S4 460 490
20	23100	86.59	7680	1.65	X	FAF	97	(E)DRN 132S4 510 489
22	21400	80.31	7770	1.75	X	F	97	(E)DRN 132S4 475 488
23	20200	75.63	7810	1.90	X	FF	97	(E)DRN 132S4 550 489
24	19300	72.29	7740	1.95	X			
27	17400	65.47	7600	2.2	X			
30	15500	58.06	7420	2.5	X			
34	14000	52.49	7260	2.7	X			
41	11500	43.28	6950	2.4	X	FA	97	(E)DRN 132S4 445 490
48	9790	36.64	6670	2.8	X	FAF	97	(E)DRN 132S4 495 489
						F	97	(E)DRN 132S4 460 488
						FF	97	(E)DRN 132S4 530 489

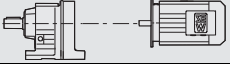

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P _m = 7.5 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs		
18	26100	97.89	4730	1.00	X					
20	23500	88.01	4730	1.15	X					
23	20400	76.39	4710	1.30	X					
26	18200	68.40	4680	1.45	X	FA	87	(E)DRN	132S4	320 483
31	15100	56.75	4600	1.75	X	FAF	87	(E)DRN	132S4	345 482
35	13400	50.36	4530	1.95	X	F	87	(E)DRN	132S4	330 481
39	12100	45.28	4460	2.1	X	FF	87	(E)DRN	132S4	365 482
45	10500	39.30	4350	2.3	X					
50	9400	35.19	4270	2.5	X					
61	7800	29.20	4110	2.9	X					
52	9060	33.92	4240	2.5	X	FA	87	(E)DRN	132S4	310 483
61	7690	28.78	4100	2.8	X	FAF	87	(E)DRN	132S4	340 482
67	7080	26.50	4020	3.8	X	F	87	(E)DRN	132S4	325 481
75	6320	23.68	3930	4.2	X	FF	87	(E)DRN	132S4	360 482
37	12900	48.37	3590	1.05	X					
41	11600	43.58	3780	1.15	X	FA	77	(E)DRN	132S4	230 476
46	10200	38.23	3970	1.30	X	FAF	77	(E)DRN	132S4	245 475
52	9010	33.74	4100	1.45	X	F	77	(E)DRN	132S4	240 474
59	7990	29.91	4190	1.65	X	FF	77	(E)DRN	132S4	260 475
69	6820	25.54	4280	1.90	X					
69	6810	25.50*	4290	1.95	X					
82	5720	21.43	4360	2.3	X	FA	77	(E)DRN	132S4	230 476
90	5260	19.70	4380	2.5	X	FAF	77	(E)DRN	132S4	240 475
101	4670	17.49	4330	2.8	X	F	77	(E)DRN	132S4	235 474
113	4180	15.64*	4220	3.2	X	FF	77	(E)DRN	132S4	260 475
126	3750	14.06	4110	3.5	X					
145	3260	12.20	3970	4.1	X					
80	5890	22.05	2580	1.25	X					
85	5580	20.90*	2630	1.30	X					
97	4880	18.29	2730	1.50	X					
107	4400	16.48	2790	1.65	X					
122	3860	14.46	2850	1.90	X					
139	3400	12.76	2890	2.1	X					
156	3020	11.31	2860	2.4	X	FA	67	(E)DRN	132S4	180 469
183	2580	9.66	2770	2.8	X	FAF	67	(E)DRN	132S4	190 468
195	2420	9.08	2670	1.95	X	F	67	(E)DRN	132S4	185 467
206	2290	8.60	2640	2.2	X	FF	67	(E)DRN	132S4	200 468
235	2010	7.53	2560	2.7	X					
261	1810	6.78	2500	3.0	X					
297	1590	5.95	2430	3.4	X					
337	1400	5.25	2360	3.7	X					
380	1240	4.66	2290	4.0	X					
445	1060	3.97	2200	4.2	X					
105	4490	16.81	1230	1.20	X					
111	4240	15.88	1230	1.25	X					
131	3610	13.52	1230	1.45	X					
144	3280	12.29	1220	1.60	X	FA	57	(E)DRN	132S4	170 462
166	2840	10.64	1210	1.85	X	FAF	57	(E)DRN	132S4	185 461
216	2180	8.19	1130	1.70	X	F	57	(E)DRN	132S4	170 460
229	2060	7.73	1130	1.80	X	FF	57	(E)DRN	132S4	185 461
269	1750	6.58	1100	2.1	X					
295	1590	5.98	1080	2.3	X					
341	1380	5.18	1060	2.6	X					
433	1090	8.19	1010	3.4	X	FA	57	DRN	132S2	170 462
458	1030	7.73	1000	3.6	X	FAF	57	DRN	132S2	185 461
538	870	6.58	960	4.2	X	F	57	DRN	132S2	170 460
592	795	5.98	940	4.7	X	FF	57	DRN	132S2	185 461
684	690	5.18	910	5.3	X					



P_m = 10.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
4.0	146300	446	23400	1.10	X					
5.0	114200	353	25300	1.40	X	FA	157R97	(E)DRN 132M4	1820	511/516
5.9	99000	302	25900	1.60	X	FAF	157R97	(E)DRN 132M4	1950	510/516
6.5	89300	273	26300	1.80	X	F	157R97	(E)DRN 132M4	1870	509/516
7.7	75400	232	26800	2.1	X	FF	157R97	(E)DRN 132M4	2100	510/516
8.8	65500	202	27000	2.4	X					
9.0	63900	197	27000	2.5	X					
5.7	102600	312	20200	1.05	X					
6.0	96200	293	20200	1.10	X	FA	127R87	(E)DRN 132M4	1130	504/516
6.9	84900	259	20200	1.25	X	FAF	127R87	(E)DRN 132M4	1210	503/516
7.9	73300	223	20200	1.45	X	F	127R87	(E)DRN 132M4	1210	502/516
9.0	64800	198	20200	1.65	X	FF	127R87	(E)DRN 132M4	1310	503/516
11	54500	166	20200	1.95	X					
9.3	63100	190	11500	1.10	X	FA	107R77	(E)DRN 132M4	750	497/516
						FAF	107R77	(E)DRN 132M4	800	496/516
						F	107R77	(E)DRN 132M4	790	495/516
						FF	107R77	(E)DRN 132M4	850	496/516
4.4	142500	267.43	23700	1.10						
5.4	116000	217.62*	25200	1.35						
6.6	94900	178.20*	26100	1.70						
7.2	86800	162.96	26400	1.85						
8.3	75500	141.80*	26800	2.1		FA	157	DRN 160M6	1630	511
9.4	66700	125.14	27000	2.4		FAF	157	DRN 160M6	1760	510
11	57800	108.49	27000	2.8		F	157	DRN 160M6	1680	509
12	51400	96.53*	27000	3.1		FF	157	DRN 160M6	1910	510
14	45700	85.80*	27000	3.5						
15	41800	78.46	27000	3.8						
17	36300	68.28*	27000	4.4						
20	32100	60.25	26400	5.0						
23	27800	52.24	25400	5.7						
6.9	91000	170.83	20200	1.15		FA	127	DRN 160M6	1070	504
7.7	81900	153.67*	20200	1.30		FAF	127	DRN 160M6	1150	503
9.4	66800	125.37	20200	1.60		F	127	DRN 160M6	1150	502
10	60900	114.34	20200	1.75		FF	127	DRN 160M6	1250	503
10	60600	170.83	20200	1.75	X	FA	127	(E)DRN 132M4	980	504
12	54500	153.67*	20200	1.95	X	FAF	127	(E)DRN 132M4	1070	503
14	44500	125.37	20200	2.4	X	F	127	(E)DRN 132M4	1060	502
16	40600	114.34	20200	2.6	X	FF	127	(E)DRN 132M4	1160	503
9.9	63400	178.64	11500	1.05	X					
11	57200	161.28*	11900	1.20	X					
12	52000	146.49	12200	1.30	X					
14	46100	129.97	12500	1.45	X					
15	41800	117.94	12800	1.60	X	FA	107	(E)DRN 132M4	660	497
18	36000	101.38*	13100	1.90	X	FAF	107	(E)DRN 132M4	710	496
19	32800	92.47*	13300	2.1	X	F	107	(E)DRN 132M4	700	495
20	31400	88.49	13300	2.2	X	FF	107	(E)DRN 132M4	760	496
21	29800	83.99	13400	2.3	X					
24	26400	74.52	13600	2.6	X					
26	24000	67.62	13300	2.8	X					
17	36200	102.16	6850	1.05	X					
18	34600	97.58	6960	1.10	X					
20	31900	89.85	7150	1.20	X					
20	30700	86.59	7230	1.25	X					
22	28500	80.31	7250	1.35	X					
23	26800	75.63	7200	1.40	X	FA	97	(E)DRN 132M4	500	490
25	25600	72.29	7170	1.50	X	FAF	97	(E)DRN 132M4	550	489
27	23200	65.47	7080	1.65	X	F	97	(E)DRN 132M4	510	488
31	20600	58.06	6950	1.85	X	FF	97	(E)DRN 132M4	590	489
34	18600	52.49	6840	2.0	X					
40	15800	44.49	6630	2.4	X					
46	13800	38.86	6460	2.8	X					
55	11500	32.50	6210	3.3	X					

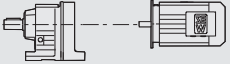

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P _m = 10.0 HP												
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs		
41	15300	43.28	6600	1.75	X	FA	97	(E)DRN	132M4	485	490	
48	13000	36.64	6380	2.1	X	FAF	97	(E)DRN	132M4	530	489	
52	12000	33.91	6270	3.2	X	F	97	(E)DRN	132M4	500	488	
58	10700	30.39	6120	3.5	X	FF	97	(E)DRN	132M4	570	489	
26	24200	68.40	4080	1.10	X							
31	20100	56.75	4100	1.30	X							
35	17800	50.36	4080	1.45	X	FA	87	(E)DRN	132M4	355	483	
39	16000	45.28	4060	1.55	X	FAF	87	(E)DRN	132M4	385	482	
45	13900	39.30	4010	1.70	X	F	87	(E)DRN	132M4	370	481	
50	12400	35.19	3960	1.85	X	FF	87	(E)DRN	132M4	405	482	
61	10300	29.20	3850	2.1	X							
52	12000	33.92	3940	1.90	X							
62	10200	28.78	3840	2.1	X							
67	9410	26.50	3790	2.8	X	FA	87	(E)DRN	132M4	350	483	
75	8410	23.68	3720	3.2	X	FAF	87	(E)DRN	132M4	380	482	
83	7570	21.32*	3640	3.5	X	F	87	(E)DRN	132M4	365	481	
92	6850	19.31	3570	3.9	X	FF	87	(E)DRN	132M4	395	482	
104	6080	17.12	3480	4.4	X							
115	5490	15.48	3400	4.8	X							
53	11900	33.74	3740	1.10	X	FA	77	(E)DRN	132M4	270	476	
59	10600	29.91	3920	1.25	X	FAF	77	(E)DRN	132M4	285	475	
69	9060	25.54	4090	1.40	X	F	77	(E)DRN	132M4	280	474	
						FF	77	(E)DRN	132M4	300	475	
70	9050	25.50*	4090	1.45	X							
83	7610	21.43	4220	1.75	X							
90	6990	19.70	4270	1.90	X							
101	6210	17.49	4180	2.1	X							
113	5550	15.64*	4080	2.4	X							
126	4990	14.06	3990	2.7	X							
145	4330	12.20	3870	3.1	X	FA	77	(E)DRN	132M4	265	476	
162	3880	10.93	3770	3.4	X	FAF	77	(E)DRN	132M4	280	475	
191	3300	9.30	3550	2.9	X	F	77	(E)DRN	132M4	275	474	
215	2930	8.26	3450	3.3	X	FF	77	(E)DRN	132M4	300	475	
240	2620	7.39	3360	3.6	X							
267	2350	6.64	3280	4.0	X							
308	2040	5.76	3170	4.7	X							
344	1830	5.16	3080	5.2	X							
414	1520	4.28	2940	5.9	X							
97	6490	18.29	2480	1.10	X							
108	5850	16.48	2590	1.25	X							
123	5130	14.46	2700	1.40	X							
139	4530	12.76	2780	1.60	X							
157	4010	11.31	2740	1.80	X							
184	3420	9.66	2660	2.1	X	FA	67	(E)DRN	132M4	220	469	
195	3220	9.08	2550	1.45	X	FAF	67	(E)DRN	132M4	230	468	
206	3050	8.60	2520	1.65	X	F	67	(E)DRN	132M4	225	467	
236	2670	7.53	2460	2.0	X	FF	67	(E)DRN	132M4	240	468	
262	2400	6.78	2410	2.3	X							
298	2110	5.95	2350	2.5	X							
338	1860	5.25	2290	2.8	X							
381	1650	4.66	2230	3.0	X							
131	4800	13.52	1050	1.10	X							
144	4360	12.29	1060	1.20	X							
167	3770	10.64	1070	1.40	X	FA	57	(E)DRN	132M4	210	462	
217	2900	8.19	1010	1.30	X	FAF	57	(E)DRN	132M4	225	461	
229	2740	7.73	1010	1.35	X	F	57	(E)DRN	132M4	210	460	
269	2330	6.58	1000	1.60	X	FF	57	(E)DRN	132M4	225	461	
296	2120	5.98	990	1.75	X							
342	1840	5.18	980	2.0	X							
433	1450	8.19	950	2.5		FA	57	DRN	132S2	170	462	
458	1370	7.73	940	2.7		FAF	57	DRN	132S2	185	461	
538	1170	6.58	910	3.2		F	57	DRN	132S2	170	460	
592	1060	5.98	890	3.5		FF	57	DRN	132S2	185	461	
684	920	5.18	870	4.0								

P_m = 12.3 HP

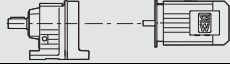

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
5.0	141200	353	23800	1.15	X					
5.9	122200	302	24900	1.30	X	FA	157R97	(E)DRN 132L4	1840	511/516
6.5	110300	273	25500	1.45	X	FAF	157R97	(E)DRN 132L4	1970	510/516
7.7	93100	232	26200	1.70	X	F	157R97	(E)DRN 132L4	1890	509/516
8.8	81000	202	26600	1.95	X	FF	157R97	(E)DRN 132L4	2120	510/516
9.0	79000	197	26700	2.0	X					
6.9	104700	259	20200	1.00	X	FA	127R87	(E)DRN 132L4	1150	504/516
8.0	90400	223	20200	1.15	X	FAF	127R87	(E)DRN 132L4	1230	503/516
9.0	80000	198	20200	1.35	X	F	127R87	(E)DRN 132L4	1230	502/516
11	67200	166	20200	1.60	X	FF	127R87	(E)DRN 132L4	1330	503/516
6.6	116700	267.43	25100	1.35	X					
8.2	95000	217.62*	26100	1.70	X	FA	157	(E)DRN 132L4	1560	504
10.0	77800	178.20*	26700	2.0	X	FAF	157	(E)DRN 132L4	1690	503
11	71100	162.96	26900	2.2	X	F	157	(E)DRN 132L4	1610	502
13	61900	141.80*	27000	2.6	X	FF	157	(E)DRN 132L4	1840	503
14	54600	125.14	27000	2.9	X					
10	74500	170.83	20200	1.40	X					
12	67000	153.67*	20200	1.60	X	FA	127	(E)DRN 132L4	1000	504
14	54700	125.37	20200	1.95	X	FAF	127	(E)DRN 132L4	1080	503
16	49900	114.34	20200	2.1	X	F	127	(E)DRN 132L4	1080	502
18	43200	98.95	20200	2.5	X	FF	127	(E)DRN 132L4	1180	503
20	38100	87.31*	20100	2.8	X					
12	63900	146.49	11500	1.05	X					
14	56700	129.97	11900	1.20	X					
15	51400	117.94	12200	1.30	X					
18	44200	101.38*	12700	1.55	X					
19	40300	92.47*	12900	1.70	X	FA	107	(E)DRN 132L4	680	497
20	38600	88.49	13000	1.75	X	FAF	107	(E)DRN 132L4	730	496
21	36600	83.99	13100	1.85	X	F	107	(E)DRN 132L4	720	495
24	32500	74.52	13200	2.1	X	FF	107	(E)DRN 132L4	780	496
26	29500	67.62	13000	2.3	X					
31	25300	58.12*	12600	2.7	X					
35	22100	50.73	12200	3.1	X					
20	37800	86.59	6670	1.00	X					
22	35000	80.31	6670	1.10	X					
23	33000	75.63	6650	1.15	X					
25	31500	72.29	6640	1.20	X	FA	97	(E)DRN 132L4	520	490
27	28500	65.47	6600	1.35	X	FAF	97	(E)DRN 132L4	560	489
31	25300	58.06	6530	1.50	X	F	97	(E)DRN 132L4	530	488
34	22900	52.49	6450	1.65	X	FF	97	(E)DRN 132L4	600	489
40	19400	44.49	6310	1.95	X					
46	16900	38.86	6170	2.2	X					
55	14100	32.50	5980	2.7	X					
52	14800	33.91	6030	2.6	X	FA	97	(E)DRN 132L4	500	490
58	13200	30.39	5900	2.9	X	FAF	97	(E)DRN 132L4	550	489
65	11900	27.44*	5780	3.2	X	F	97	(E)DRN 132L4	520	488
71	10800	24.92	5660	3.5	X	FF	97	(E)DRN 132L4	590	489
31	24700	56.75	3640	1.05	X					
35	21900	50.36	3680	1.20	X	FA	87	(E)DRN 132L4	375	483
39	19700	45.28	3700	1.25	X	FAF	87	(E)DRN 132L4	405	482
45	17100	39.30	3690	1.40	X	F	87	(E)DRN 132L4	390	481
50	15300	35.19	3670	1.50	X	FF	87	(E)DRN 132L4	420	482
61	12700	29.20	3620	1.75	X					
67	11500	26.50	3580	2.3	X					
75	10300	23.68	3530	2.6	X	FA	87	(E)DRN 132L4	370	483
83	9300	21.32*	3470	2.9	X	FAF	87	(E)DRN 132L4	395	482
92	8420	19.31	3410	3.1	X	F	87	(E)DRN 132L4	380	481
104	7470	17.12	3340	3.5	X	FF	87	(E)DRN 132L4	415	482
115	6750	15.48	3280	3.9	X					
135	5720	13.12*	3170	4.6	X					

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P_m = 12.3 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
59	13000	29.91	3570	1.00	X	FA	77	(E)DRN	132L4	290	476
70	11100	25.54	3850	1.15	X	FAF	77	(E)DRN	132L4	305	475
						F	77	(E)DRN	132L4	295	474
						FF	77	(E)DRN	132L4	320	475
90	8600	19.70	4130	1.55	X						
101	7630	17.49	4050	1.75	X						
113	6820	15.64*	3960	1.95	X						
126	6130	14.06	3880	2.2	X						
145	5320	12.20	3770	2.5	X						
162	4770	10.93	3690	2.8	X	FA	77	(E)DRN	132L4	285	476
191	4060	9.30	3460	2.4	X	FAF	77	(E)DRN	132L4	300	475
215	3600	8.26	3370	2.6	X	F	77	(E)DRN	132L4	295	474
240	3220	7.39	3290	3.0	X	FF	77	(E)DRN	132L4	320	475
267	2890	6.64	3210	3.3	X						
308	2510	5.76	3110	3.8	X						
344	2250	5.16	3030	4.2	X						
415	1860	4.28	2900	4.8	X						

P_m = 15.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
5.9	149400	302	23200	1.05	X	FA	157R97	(E)DRN	160M4	1910	511/516
6.5	134800	273	24200	1.20	X	FAF	157R97	(E)DRN	160M4	2040	510/516
7.7	114000	232	25300	1.40	X	F	157R97	(E)DRN	160M4	1960	509/516
8.8	99200	202	25900	1.60	X	FF	157R97	(E)DRN	160M4	2190	510/516
9.0	96600	197	26000	1.65	X						
9.0	97800	198	20200	1.10	X	FA	127R87	(E)DRN	160M4	1220	504/516
11	82100	166	20200	1.30	X	FAF	127R87	(E)DRN	160M4	1300	503/516
						F	127R87	(E)DRN	160M4	1300	502/516
						FF	127R87	(E)DRN	160M4	1400	503/516
6.6	142300	267.43	23700	1.10	X						
8.2	115800	217.62*	25200	1.40	X						
10.0	94800	178.20*	26100	1.70	X						
11	86700	162.96	26400	1.85	X						
13	75400	141.80*	26800	2.1	X	FA	157	(E)DRN	160M4	1630	511
14	66500	125.14	27000	2.4	X	FAF	157	(E)DRN	160M4	1760	510
16	57700	108.49	26600	2.8	X	F	157	(E)DRN	160M4	1680	509
18	51300	96.53*	25900	3.1	X	FF	157	(E)DRN	160M4	1910	510
21	45600	85.80*	25200	3.5	X						
23	41700	78.46	24700	3.8	X						
26	36300	68.28*	23900	4.4	X						
33	28400	53.55	22500	2.5	X	FA	157	(E)DRN	160M4	1620	511
						FAF	157	(E)DRN	160M4	1750	510
						F	157	(E)DRN	160M4	1660	509
						FF	157	(E)DRN	160M4	1900	510
10	90900	170.83	20200	1.15	X						
12	81700	153.67*	20200	1.30	X						
14	66700	125.37	20200	1.60	X	FA	127	(E)DRN	160M4	1070	504
16	60800	114.34	20200	1.75	X	FAF	127	(E)DRN	160M4	1150	503
18	52600	98.95	20100	2.0	X	F	127	(E)DRN	160M4	1150	502
20	46400	87.31*	19600	2.3	X	FF	127	(E)DRN	160M4	1250	503
24	40100	75.41*	19000	2.6	X						
25	37200	70.07	18700	2.9	X						
14	69100	129.97	11100	1.00							
15	62700	117.94	11500	1.10	X						
18	53900	101.38*	12100	1.25	X						
19	49200	92.47*	12400	1.40	X	FA	107	(E)DRN	160M4	750	497
20	47000	88.49	12500	1.45	X	FAF	107	(E)DRN	160M4	800	496
21	44600	83.99	12600	1.50	X	F	107	(E)DRN	160M4	790	495
24	39600	74.52	12700	1.70	X	FF	107	(E)DRN	160M4	850	496
26	35900	67.62	12500	1.90	X						
31	30900	58.12*	12200	2.2	X						
35	26900	50.73	11900	2.5	X						

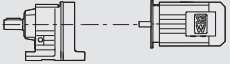

P_m = 15.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
41	22800	43.03	11500	3.0	X			
53	17900	33.79*	10900	3.6	X	FA 107 (E)DRN 160M4	730	497
64	14600	27.57	10400	4.7	X	FAF 107 (E)DRN 160M4	780	496
71	13300	25.14	10200	5.2	X	F 107 (E)DRN 160M4	770	495
						FF 107 (E)DRN 160M4	830	496
25	38400	72.29	6020	1.00				
27	34800	65.47	6040	1.10	X	FA 97 (E)DRN 160M4	590	490
31	30800	58.06	6030	1.25	X	FAF 97 (E)DRN 160M4	640	489
34	27900	52.49	6010	1.35	X	F 97 (E)DRN 160M4	600	488
40	23600	44.49	5930	1.60	X	FF 97 (E)DRN 160M4	680	489
46	20600	38.86	5840	1.85	X			
55	17200	32.50	5700	2.2	X			
52	18000	33.91	5740	2.1	X	FA 97 (E)DRN 160M4	580	490
58	16100	30.39	5640	2.4	X	FAF 97 (E)DRN 160M4	620	489
65	14600	27.44*	5540	2.6	X	F 97 (E)DRN 160M4	590	488
71	13200	24.92	5450	2.9	X	FF 97 (E)DRN 160M4	660	489
80	11700	22.11	5320	3.2	X			
39	24000	45.28	3270	1.05	X	FA 87 (E)DRN 160M4	445	483
45	20900	39.30	3320	1.15	X	FAF 87 (E)DRN 160M4	475	482
50	18700	35.19	3340	1.25	X	F 87 (E)DRN 160M4	460	481
61	15500	29.20	3340	1.45	X	FF 87 (E)DRN 160M4	495	482
67	14000	26.50	3330	1.90	X			
75	12600	23.68	3300	2.1	X	FA 87 (E)DRN 160M4	440	483
83	11300	21.32*	3270	2.3	X	FAF 87 (E)DRN 160M4	470	482
92	10200	19.31	3230	2.6	X	F 87 (E)DRN 160M4	450	481
104	9110	17.12	3180	2.9	X	FF 87 (E)DRN 160M4	485	482
115	8230	15.48	3130	3.2	X			
135	6980	13.12*	3040	3.8	X			
90	10400	19.70	3940	1.25	X			
102	9300	17.49	3890	1.45	X			
114	8320	15.64*	3820	1.60	X			
126	7480	14.06	3760	1.75	X			
146	6490	12.20	3670	2.0	X			
163	5810	10.93	3590	2.3	X	FA 77 (E)DRN 160M4	355	476
191	4940	9.30	3350	1.95	X	FAF 77 (E)DRN 160M4	370	475
215	4390	8.26	3280	2.2	X	F 77 (E)DRN 160M4	365	474
240	3920	7.39	3210	2.4	X	FF 77 (E)DRN 160M4	385	475
267	3530	6.64	3140	2.7	X			
308	3060	5.76	3050	3.1	X			
344	2740	5.16	2970	3.5	X			
415	2270	4.28	2850	3.9	X			



P_m = 20 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
7.7	152500	232	23000	1.05	X	FA 157R97 (E)DRN 160L4	1950	511/516
8.8	132900	202	24300	1.20	X	FAF 157R97 (E)DRN 160L4	2080	510/516
9.1	129400	197	24500	1.25	X	F 157R97 (E)DRN 160L4	1990	509/516
						FF 157R97 (E)DRN 160L4	2230	510/516
8.2	154300	217.62*	22900	1.05	X			
10.0	126300	178.20*	24600	1.25	X			
11	115500	162.96	25200	1.40	X			
13	100500	141.80*	25900	1.60	X			
14	88700	125.14	26300	1.80	X	FA 157 (E)DRN 160L4	1670	511
16	76900	108.49	25700	2.1	X	FAF 157 (E)DRN 160L4	1790	510
18	68400	96.53*	25100	2.3	X	F 157 (E)DRN 160L4	1710	509
21	60800	85.80*	24500	2.6	X	FF 157 (E)DRN 160L4	1950	510
23	55600	78.46	24000	2.9	X			
26	48400	68.28*	23300	3.3	X			
29	42700	60.25	22600	3.7	X			

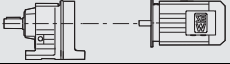

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P_m = 20 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
33	37900	53.55	22000	1.85	X	FA	157	(E)DRN	160L4	1650	511/516
40	31100	43.94*	21000	2.8	X	FAF	157	(E)DRN	160L4	1780	510/516
						F	157	(E)DRN	160L4	1700	509/516
						FF	157	(E)DRN	160L4	1930	510/516
14	88900	125.37	19700	1.20	X						
16	81000	114.34	19500	1.30	X						
18	70100	98.95	19100	1.50	X	FA	127	(E)DRN	160L4	1110	504/516
20	61900	87.31*	18700	1.70	X	FAF	127	(E)DRN	160L4	1190	503/516
24	53400	75.41*	18200	2.0	X	F	127	(E)DRN	160L4	1190	502/516
25	49600	70.07	18000	2.1	X	FF	127	(E)DRN	160L4	1290	503/516
28	45300	63.91	17700	2.3	X						
32	39200	55.31	17200	2.7	X						
19	65500	92.47*	11400	1.05	X						
20	62700	88.49	11500	1.10	X						
21	59500	83.99	11700	1.15	X						
24	52800	74.52	11800	1.30	X	FA	107	(E)DRN	160L4	790	497
26	47900	67.62	11700	1.40	X	FAF	107	(E)DRN	160L4	840	496
31	41200	58.12*	11500	1.65	X	F	107	(E)DRN	160L4	830	495
35	35900	50.73	11300	1.90	X	FF	107	(E)DRN	160L4	890	496
41	30500	43.03	11000	2.2	X						
47	26600	37.61	10700	2.5	X						
56	22500	31.80	10400	3.0	X						
53	23900	33.79*	10500	2.7	X	FA	107	(E)DRN	160L4	770	497
64	19500	27.57	10100	3.5	X	FAF	107	(E)DRN	160L4	810	496
71	17800	25.14	9900	3.9	X	F	107	(E)DRN	160L4	800	495
82	15400	21.76*	9590	4.5	X	FF	107	(E)DRN	160L4	860	496
34	37200	52.49	5180	1.00	X	FA	97	(E)DRN	160L4	620	490
40	31500	44.49	5230	1.20	X	FAF	97	(E)DRN	160L4	670	489
46	27500	38.86	5230	1.40	X	F	97	(E)DRN	160L4	640	488
55	23000	32.50	5190	1.65	X	FF	97	(E)DRN	160L4	710	489
52	24000	33.91	5200	1.60	X						
58	21500	30.39	5160	1.75	X						
65	19400	27.44*	5110	1.95	X						
71	17600	24.92	5050	2.1	X	FA	97	(E)DRN	160L4	610	490
80	15600	22.11	4970	2.4	X	FAF	97	(E)DRN	160L4	660	489
89	14200	20.07	4900	2.7	X	F	97	(E)DRN	160L4	630	488
103	12200	17.25*	4770	3.1	X	FF	97	(E)DRN	160L4	700	489
118	10600	15.06	4650	3.6	X						
139	9050	12.77	4500	4.2	X						
159	7910	11.16	4360	4.6	X						
61	20700	29.20	2840	1.05	X	FA	87	(E)DRN	160L4	480	483
						FAF	87	(E)DRN	160L4	510	482
						F	87	(E)DRN	160L4	495	481
						FF	87	(E)DRN	160L4	530	482
67	18700	26.50	2870	1.40	X						
75	16700	23.68	2890	1.60	X						
83	15100	21.32*	2900	1.75	X						
92	13600	19.31	2900	1.95	X						
104	12100	17.12	2880	2.2	X						
115	10900	15.48	2860	2.4	X						
135	9300	13.12*	2810	2.9	X	FA	87	(E)DRN	160L4	475	483
155	8120	11.46	2770	3.3	X	FAF	87	(E)DRN	160L4	500	482
185	6790	9.58	2690	3.8	X	F	87	(E)DRN	160L4	485	481
214	5870	8.29	2560	2.3	X	FF	87	(E)DRN	160L4	520	482
242	5210	7.35	2510	2.6	X						
267	4710	6.65	2460	2.9	X						
315	3990	5.63	2380	3.4	X						
361	3480	4.92	2310	3.9	X						
432	2910	4.12	2220	4.4	X						

P_m = 25 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
9.1	161800	197	22300	1.00		FA 157R97 (E)DRN 180M4	2000	511/516
						FAF 157R97 (E)DRN 180M4	2130	510/516
						F 157R97 (E)DRN 180M4	2040	509/516
						FF 157R97 (E)DRN 180M4	2280	510/516
10.0	157600	178.20*	22700	1.00	X			
11	144100	162.96	23600	1.10	X			
13	125400	141.80*	24700	1.25	X			
14	110600	125.14	25200	1.45	X			
16	95900	108.49	24700	1.65	X	FA 157 (E)DRN 180M4	1720	511
18	85300	96.53*	24200	1.85	X	FAF 157 (E)DRN 180M4	1850	510
21	75800	85.80*	23700	2.1	X	F 157 (E)DRN 180M4	1760	509
23	69300	78.46	23300	2.3	X	FF 157 (E)DRN 180M4	2000	510
26	60300	68.28*	22600	2.6	X			
30	53200	60.25	22100	3.0	X			
34	46100	52.24	21400	3.5	X			
41	38800	43.94*	20600	2.3	X	FA 157 (E)DRN 180M4	1700	511
						FAF 157 (E)DRN 180M4	1830	510
						F 157 (E)DRN 180M4	1750	509
						FF 157 (E)DRN 180M4	1990	510
16	101100	114.34	18200	1.05	X			
18	87500	98.95	18000	1.20	X			
20	77200	87.31*	17800	1.35	X			
24	66600	75.41*	17400	1.60	X	FA 127 (E)DRN 180M4	1150	504
25	61900	70.07	17300	1.70	X	FAF 127 (E)DRN 180M4	1240	503
28	56500	63.91	17000	1.90	X	F 127 (E)DRN 180M4	1230	502
32	48900	55.31	16600	2.2	X	FF 127 (E)DRN 180M4	1330	503
36	43100	48.80	16200	2.5	X			
42	37200	42.15	15800	2.9	X			
24	65900	74.52	10900	1.05	X			
26	59800	67.62	10900	1.15	X			
31	51400	58.12*	10800	1.30	X	FA 107 (E)DRN 180M4	840	497
35	44800	50.73	10700	1.50	X	FAF 107 (E)DRN 180M4	880	496
41	38000	43.03	10500	1.80	X	F 107 (E)DRN 180M4	870	495
47	33200	37.61	10300	2.0	X	FF 107 (E)DRN 180M4	930	496
56	28100	31.80	10000	2.4	X			
53	29800	33.79*	10100	2.2	X	FA 107 (E)DRN 180M4	810	497
65	24300	27.57	9760	2.8	X	FAF 107 (E)DRN 180M4	860	496
71	22200	25.14	9600	3.1	X	F 107 (E)DRN 180M4	850	495
82	19200	21.76*	9330	3.6	X	FF 107 (E)DRN 180M4	910	496
46	34300	38.86	4620	1.10	X	FA 97 (E)DRN 180M4	670	490
						FAF 97 (E)DRN 180M4	720	489
						F 97 (E)DRN 180M4	690	488
						FF 97 (E)DRN 180M4	760	489
55	28700	32.50	4670	1.30	X			
65	24200	27.44*	4670	1.55	X			
71	22000	24.92	4660	1.75	X			
81	19500	22.11	4620	1.95	X			
89	17700	20.07	4580	2.1	X			
103	15200	17.25*	4500	2.5	X	FA 97 (E)DRN 180M4	660	490
118	13300	15.06	4410	2.9	X	FAF 97 (E)DRN 180M4	710	489
139	11200	12.77	4290	3.4	X	F 97 (E)DRN 180M4	680	488
160	9870	11.16	4190	3.7	X	FF 97 (E)DRN 180M4	750	489
197	8010	9.06	3910	2.6	X			
217	7270	8.22	3840	2.9	X			

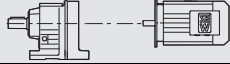

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P_m = 25 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
84	18800	21.32*	2530	1.40	X			
92	17000	19.31	2560	1.55	X			
104	15100	17.12	2580	1.75	X			
115	13600	15.48	2590	1.95	X			
136	11600	13.12*	2590	2.3	X			
155	10100	11.46	2570	2.6	X	FA	87	(E)DRN 180M4 520 483
186	8470	9.58	2520	3.0	X	FAF	87	(E)DRN 180M4 550 482
215	7330	8.29	2400	1.85	X	F	87	(E)DRN 180M4 530 481
242	6500	7.35	2370	2.1	X	FF	87	(E)DRN 180M4 570 482
268	5870	6.65	2330	2.3	X			
316	4980	5.63	2270	2.7	X			
362	4350	4.92	2210	3.1	X			
433	3630	4.12	2140	3.5	X			

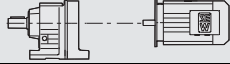

P_m = 30 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
13	150400	141.80*	23200	1.05	X			
14	132800	125.14	24100	1.20	X			
16	115100	108.49	23700	1.40	X			
18	102400	96.53*	23300	1.55	X			
21	91000	85.80*	22900	1.75	X	FA	157	(E)DRN 180L4 1750 511
23	83200	78.46	22600	1.90	X	FAF	157	(E)DRN 180L4 1880 510
26	72400	68.28*	22000	2.2	X	F	157	(E)DRN 180L4 1800 509
30	63900	60.25	21500	2.5	X	FF	157	(E)DRN 180L4 2030 510
34	55400	52.24	20900	2.9	X			
38	49300	46.48*	20400	3.2	X			
44	42500	40.06	19700	3.8	X			
55	34500	32.55	18800	4.6	X			
41	46600	43.94*	20200	1.90	X	FA	157	(E)DRN 180L4 1740 511
50	37900	35.75*	19200	2.6	X	FAF	157	(E)DRN 180L4 1870 510
						F	157	(E)DRN 180L4 1780 509
						FF	157	(E)DRN 180L4 2020 510
18	105000	98.95	17000	1.00	X			
20	92600	87.31*	16900	1.15	X			
24	80000	75.41*	16700	1.35	X	FA	127	(E)DRN 180L4 1190 504
25	74300	70.07	16500	1.45	X	FAF	127	(E)DRN 180L4 1270 503
28	67800	63.91	16300	1.55	X	F	127	(E)DRN 180L4 1270 502
32	58600	55.31	16000	1.80	X	FF	127	(E)DRN 180L4 1370 503
36	51700	48.80	15700	2.0	X			
42	44700	42.15	15300	2.4	X			
48	39500	37.28	15000	2.7	X			
66	28500	26.86	14000	2.6	X	FA	127	(E)DRN 180L4 1160 504
72	26000	24.57	13700	2.9	X	FAF	127	(E)DRN 180L4 1250 503
						F	127	(E)DRN 180L4 1240 502
						FF	127	(E)DRN 180L4 1340 503
31	61600	58.12*	10100	1.10	X	FA	107	(E)DRN 180L4 870 497
35	53800	50.73	10100	1.25	X	FAF	107	(E)DRN 180L4 920 496
41	45600	43.03	9960	1.50	X	F	107	(E)DRN 180L4 910 495
47	39900	37.61	9830	1.70	X	FF	107	(E)DRN 180L4 970 496
56	33700	31.80	9630	2.0	X			
53	35800	33.79*	9710	1.85	X	FA	107	(E)DRN 180L4 850 497
65	29200	27.57	9430	2.4	X	FAF	107	(E)DRN 180L4 890 496
71	26600	25.14	9300	2.6	X	F	107	(E)DRN 180L4 890 495
82	23000	21.76*	9070	3.0	X	FF	107	(E)DRN 180L4 950 496
93	20300	19.20*	8860	3.4	X			

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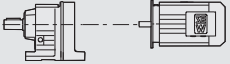

P_m = 30 HP

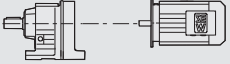

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs		
55	34400	32.50	4160	1.10	X	FA 97 (E)DRN 180L4	710	490	
						FAF 97 (E)DRN 180L4	750	489	
						F 97 (E)DRN 180L4	720	488	
						FF 97 (E)DRN 180L4	800	489	
65	29100	27.44*	4240	1.30	X	FA 97 (E)DRN 180L4	690	490	
71	26400	24.92	4260	1.45	X		740	489	
81	23400	22.11	4270	1.60	X		710	488	
89	21200	20.07	4260	1.80	X		780	489	
103	18300	17.25*	4230	2.1	X		FA 97 (E)DRN 180L4	740	489
118	15900	15.06	4170	2.4	X				
139	13500	12.77	4090	2.8	X				
160	11800	11.16	4010	3.1	X				
197	9610	9.06	3750	2.2	X				
217	8720	8.22	3690	2.4	X				
252	7500	7.07	3590	2.8	X	FA 87 (E)DRN 180L4	560	483	
84	22600	21.32*	2160	1.15	X				
92	20400	19.31	2230	1.30	X				
104	18100	17.12	2290	1.45	X				
115	16400	15.48	2320	1.60	X				
136	13900	13.12*	2360	1.90	X				
155	12100	11.46	2370	2.2	X				
186	10100	9.58	2360	2.5	X				
215	8790	8.29	2240	1.55	X				
242	7800	7.35	2230	1.75	X				
268	7050	6.65	2210	1.90	X				
316	5970	5.63	2160	2.3	X				
362	5220	4.92	2120	2.6	X				
433	4360	4.12	2060	3.0	X				

P_m = 40 HP

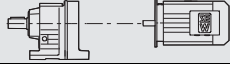

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
16	153300	108.49	21800	1.05	X	FA 157 (E)DRN 200L4	1990	511
18	136400	96.53*	21600	1.15	X			
21	121200	85.80*	21400	1.30	X			
23	110900	78.46	21200	1.45	X			
26	96500	68.28*	20800	1.65	X			
30	85100	60.25	20400	1.85	X			
34	73800	52.24	20000	2.2	X			
38	65600	46.48*	19600	2.4	X			
45	56600	40.06	19000	2.8	X			
50	50500	35.75*	18600	1.95	X			
24	106500	75.41*	15100	1.00	X			
25	99000	70.07	15100	1.05	X			
28	90300	63.91	15000	1.20	X			
32	78100	55.31	14900	1.35	X			
37	68900	48.80	14700	1.55	X			
42	59500	42.15	14400	1.80	X			
48	52600	37.28	14200	2.0	X			
57	44200	31.33	13800	2.4	X			
70	35700	25.30	13300	3.0	X			
66	37900	26.86	13400	2.0	X			
73	34700	24.57	13200	2.2	X			
83	30200	21.38	12900	3.5	X			
95	26600	18.87	12500	3.6	X			

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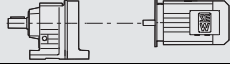

P_m = 40 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
41	60800	43.03	8930	1.10	X	FA	107	(E)DRN	200L4	1110	497
47	53100	37.61	8930	1.30	X	FAF	107	(E)DRN	200L4	1160	496
56	44900	31.80	8870	1.50	X	F	107	(E)DRN	200L4	1150	495
						FF	107	(E)DRN	200L4	1210	496
65	38900	27.57	8770	1.80	X						
71	35500	25.14	8700	1.95	X						
82	30700	21.76*	8550	2.3	X	FA	107	(E)DRN	200L4	1090	497
93	27100	19.20*	8400	2.6	X	FAF	107	(E)DRN	200L4	1140	496
108	23400	16.58	8210	3.0	X	F	107	(E)DRN	200L4	1130	495
122	20700	14.67	8040	3.3	X	FF	107	(E)DRN	200L4	1190	496
145	17400	12.33	7780	3.5	X						
179	14000	9.96	7450	4.1	X						
81	31200	22.11	3580	1.20	X						
89	28300	20.07	3630	1.35	X						
103	24300	17.25*	3680	1.55	X						
118	21200	15.06	3700	1.80	X						
140	18000	12.77	3690	2.1	X						
160	15700	11.16	3660	2.3	X	FA	97	(E)DRN	200L4	930	490
197	12800	9.06	3420	1.65	X	FAF	97	(E)DRN	200L4	980	489
217	11600	8.22	3390	1.80	X	F	97	(E)DRN	200L4	950	488
252	9990	7.07	3330	2.1	X	FF	97	(E)DRN	200L4	1020	489
289	8720	6.17	3270	2.3	X						
341	7390	5.23	3180	2.6	X						
390	6460	4.57	3100	2.8	X						
461	5460	3.87	3000	2.9	X						

P_m = 50 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
21	151400	85.80*	19800	1.05	X						
23	138400	78.46	19800	1.15	X						
26	120400	68.28*	19600	1.30	X	FA	157	(E)DRN	225S4	2060	511
30	106300	60.25	19400	1.50	X	FAF	157	(E)DRN	225S4	2190	510
34	92100	52.24	19000	1.75	X	F	157	(E)DRN	225S4	2100	509
38	82000	46.48*	18700	1.95	X	FF	157	(E)DRN	225S4	2340	510
45	70600	40.06	18300	2.2	X						
55	57400	32.55	17700	2.8	X						
65	48700	27.60	17100	3.3	X						
50	63000	35.75*	18000	1.55	X	FA	157	(E)DRN	225S4	2040	511
62	50400	28.60*	17200	3.0	X	FAF	157	(E)DRN	225S4	2170	510
70	44800	25.43	16800	3.0	X	F	157	(E)DRN	225S4	2090	509
						FF	157	(E)DRN	225S4	2330	510
32	97600	55.31	13700	1.10	X						
37	86100	48.80	13700	1.25	X	FA	127	(E)DRN	225S4	1500	504
42	74300	42.15	13500	1.45	X	FAF	127	(E)DRN	225S4	1580	503
48	65700	37.28	13400	1.60	X	F	127	(E)DRN	225S4	1580	502
57	55200	31.33	13200	1.90	X	FF	127	(E)DRN	225S4	1680	503
71	44600	25.30	12800	2.4	X						
66	47400	26.86	12900	1.60	X						
73	43300	24.57	12700	1.75	X						
84	37700	21.38	12400	2.8	X						
95	33200	18.87	12100	2.9	X	FA	127	(E)DRN	225S4	1470	504
109	28800	16.36	11800	3.4	X	FAF	127	(E)DRN	225S4	1560	503
123	25600	14.55	11500	3.8	X	F	127	(E)DRN	225S4	1550	502
142	22100	12.54	11200	4.0	X	FF	127	(E)DRN	225S4	1650	503
175	17900	10.19	10700	4.7	X						
201	15600	8.86	10300	4.0	X						
226	13900	7.88	9980	3.8	X						

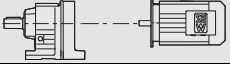

P_m = 50 HP

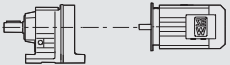

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
47	66300	37.61	8030	1.00	X	FA 107 (E)DRN 225S4	1180	497
56	56100	31.80	8110	1.20	X	FAF 107 (E)DRN 225S4	1230	496
						F 107 (E)DRN 225S4	1220	495
						FF 107 (E)DRN 225S4	1280	496
65	48600	27.57	8120	1.45	X			
71	44300	25.14	8100	1.55	X			
82	38400	21.76*	8030	1.80	X			
93	33800	19.20*	7940	2.0	X			
108	29200	16.58	7810	2.4	X	FA 107 (E)DRN 225S4	1160	497
122	25800	14.67	7690	2.6	X	FAF 107 (E)DRN 225S4	1200	496
145	21700	12.33	7490	2.9	X	F 107 (E)DRN 225S4	1190	495
179	17500	9.96	7210	3.3	X	FF 107 (E)DRN 225S4	1250	496
184	17100	9.69	7050	2.5	X			
213	14700	8.37	6870	2.9	X			
241	13000	7.40	6710	3.1	X			
287	10900	6.22	6470	3.7	X			
89	35400	20.07	3000	1.05	X			
103	30400	17.25*	3140	1.25	X			
119	26500	15.06	3230	1.45	X			
140	22500	12.77	3290	1.70	X			
160	19600	11.16	3310	1.85	X	FA 97 (E)DRN 225S4	1000	490
197	15900	9.06	3100	1.30	X	FAF 97 (E)DRN 225S4	1050	489
217	14500	8.22	3100	1.45	X	F 97 (E)DRN 225S4	1020	488
253	12400	7.07	3080	1.65	X	FF 97 (E)DRN 225S4	1090	489
289	10800	6.17	3050	1.85	X			
341	9230	5.23	3000	2.1	X			
390	8070	4.57	2940	2.2	X			
462	6820	3.87	2860	2.3	X			

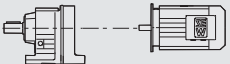

P_m = 60 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
26	144500	68.28*	18400	1.10	X			
30	127600	60.25	18300	1.25	X			
34	110600	52.24	18100	1.45	X	FA 157 (E)DRN 225M4	2060	511
38	98400	46.48*	17900	1.60	X	FAF 157 (E)DRN 225M4	2190	510
45	84800	40.06	17600	1.90	X	F 157 (E)DRN 225M4	2100	509
55	68900	32.55	17100	2.3	X	FF 157 (E)DRN 225M4	2340	510
65	58400	27.60	16600	2.7	X			
50	75700	35.75*	17300	1.30	X	FA 157 (E)DRN 225M4	2040	511
62	60500	28.60*	16700	2.5	X	FAF 157 (E)DRN 225M4	2170	510
70	53800	25.43	16400	2.5	X	F 157 (E)DRN 225M4	2090	509
						FF 157 (E)DRN 225M4	2330	510
37	103300	48.80	12400	1.05	X	FA 127 (E)DRN 225M4	1500	504
42	89200	42.15	12700	1.20	X	FAF 127 (E)DRN 225M4	1580	503
48	78900	37.28	12600	1.35	X	F 127 (E)DRN 225M4	1580	502
57	66300	31.33	12500	1.60	X	FF 127 (E)DRN 225M4	1680	503
71	53500	25.30	12200	2.0	X			
66	56800	26.86	12300	1.30	X			
73	52000	24.57	12200	1.45	X			
84	45200	21.38	12000	2.4	X			
95	39900	18.87	11700	2.4	X			
109	34600	16.36	11500	2.8	X	FA 127 (E)DRN 225M4	1470	504
123	30800	14.55	11200	3.2	X	FAF 127 (E)DRN 225M4	1560	503
142	26500	12.54	10900	3.3	X	F 127 (E)DRN 225M4	1550	502
175	21500	10.19	10500	3.9	X	FF 127 (E)DRN 225M4	1650	503
201	18700	8.86	10100	3.3	X			
226	16600	7.88	9800	3.2	X			
263	14300	6.80	9470	4.3	X			
323	11600	5.52	9020	4.5	X			

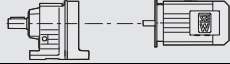

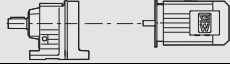
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P_m = 60 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
56	67300	31.80	7250	1.00	X	FA	107	(E)DRN 225M4	1180	497
						FAF	107	(E)DRN 225M4	1230	496
						F	107	(E)DRN 225M4	1220	495
						FF	107	(E)DRN 225M4	1280	496
65	58300	27.57	7460	1.20	X					
71	53200	25.14	7500	1.30	X					
82	46000	21.76*	7510	1.50	X					
93	40600	19.20*	7480	1.70	X					
108	35100	16.58	7420	2.0	X	FA	107	(E)DRN 225M4	1160	497
122	31000	14.67	7340	2.2	X	FAF	107	(E)DRN 225M4	1200	496
145	26100	12.33	7190	2.4	X	F	107	(E)DRN 225M4	1190	495
179	21000	9.96	6980	2.7	X	FF	107	(E)DRN 225M4	1250	496
184	20500	9.69	6800	2.1	X					
213	17700	8.37	6650	2.4	X					
241	15600	7.40	6510	2.6	X					
287	13100	6.22	6310	3.1	X					

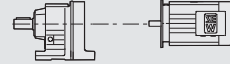

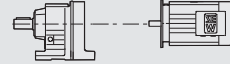
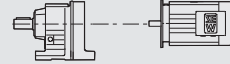
P_m = 75 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
30	159500	60.25	16700	1.00	X					
34	138200	52.24	16700	1.15	X	FA	157	(E)DRN 250ME4	2500	511
38	123000	46.48*	16700	1.30	X	FAF	157	(E)DRN 250ME4	2620	510
45	106000	40.06	16500	1.50	X	F	157	(E)DRN 250ME4	2540	509
55	86100	32.55	16200	1.85	X	FF	157	(E)DRN 250ME4	2780	510
65	73000	27.60	15900	2.2	X					
62	75700	28.60*	15900	2.0	X	FA	157	(E)DRN 250ME4	2480	511
70	67300	25.43	15700	1.95	X	FAF	157	(E)DRN 250ME4	2610	510
81	58600	22.16	15400	2.7	X	F	157	(E)DRN 250ME4	2530	509
90	52300	19.77	15100	2.9	X	FF	157	(E)DRN 250ME4	2760	510
106	44600	16.85	14600	3.6	X					
48	98600	37.28	11100	1.10	X	FA	127	(E)DRN 250ME4	1930	504
57	82900	31.33	11500	1.30	X	FAF	127	(E)DRN 250ME4	2010	503
71	66900	25.30	11400	1.60	X	F	127	(E)DRN 250ME4	2010	502
						FF	127	(E)DRN 250ME4	2110	503
84	56500	21.38	11300	1.90	X					
95	49900	18.87	11200	1.95	X					
109	43200	16.36	11000	2.2	X					
123	38500	14.55	10800	2.5	X	FA	127	(E)DRN 250ME4	1910	504
142	33200	12.54	10500	2.7	X	FAF	127	(E)DRN 250ME4	1990	503
175	26900	10.19	10100	3.1	X	F	127	(E)DRN 250ME4	1990	502
201	23400	8.86	9760	2.6	X	FF	127	(E)DRN 250ME4	2080	503
226	20800	7.88	9540	2.5	X					
263	17900	6.80	9250	3.4	X					
323	14600	5.52	8830	3.6	X					
381	12300	4.68	8500	4.3	X					

P_m = 100 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
45	141300	40.06	14700	1.15	X	FA	157	(E)DRN 280S4	2500	511
55	114800	32.55	14700	1.40	X	FAF	157	(E)DRN 280S4	2630	510
65	97400	27.60	14600	1.65	X	F	157	(E)DRN 280S4	2550	509
						FF	157	(E)DRN 280S4	2780	510

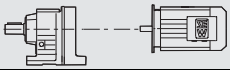

P_m = 100 HP

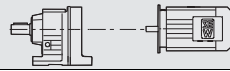

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs			
62	100900	28.60*	14700	1.50	X		2490	511		
70	89700	25.43	14600	1.50	X					
81	78200	22.16	14400	2.0	X					
90	69700	19.77	14200	2.2	X					
106	59400	16.85	13900	2.7	X					
128	49200	13.96	13500	3.0	X					
150	42000	11.92	13100	3.4	X					
71	89300	25.30	9770	1.20	X				127	504
84	75400	21.38	10100	1.40	X				127	503
95	66500	18.87	10200	1.45	X				127	502
109	57700	16.36	10100	1.70	X	127	502			
123	51300	14.55	10000	1.90	X	127	503			
142	44200	12.54	9860	2.0	X	127	502			
175	35900	10.19	9600	2.3	X	127	502			
201	31200	8.86	9260	2.0	X	127	503			
226	27800	7.88	9100	1.90	X	127	502			
263	23900	6.80	8870	2.6	X	127	503			
323	19400	5.52	8520	2.7	X	127	502			
381	16500	4.68	8240	3.2	X	127	503			

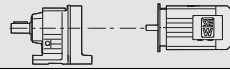

P_m = 125 HP

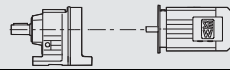

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs			
55	143600	32.55	13300	1.10	X		2750	511		
65	121800	27.60	13400	1.30	X					
62	126200	28.60*	13400	1.20	X					
70	112200	25.43	13400	1.20	X					
81	97800	22.16	13400	1.65	X		2740	511		
90	87200	19.77	13300	1.70	X					
106	74300	16.85	13100	2.1	X					
128	61600	13.96	12800	2.4	X					
150	52600	11.92	12600	2.7	X					
83	94300	21.38	8380	1.15	X				127	504
95	83200	18.87	8800	1.15	X				127	503
109	72200	16.36	9130	1.35	X				127	502
123	64200	14.55	9250	1.50	X				127	503
142	55300	12.54	9200	1.60	X				127	502
175	44900	10.19	9070	1.85	X	127	502			
201	39100	8.86	8770	1.60	X	127	503			
226	34800	7.88	8660	1.55	X	127	502			
263	29900	6.80	8490	2.1	X	127	503			
323	24300	5.52	8220	2.2	X	127	502			
381	20600	4.68	7980	2.6	X	127	503			

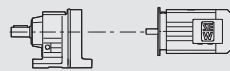

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P_m = 150 HP									m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
65	145700	27.60	12200	1.10	X	FA	157 (E)DRN 315S4	3290	511	
						FAF	157 (E)DRN 315S4	3420	510	
						F	157 (E)DRN 315S4	3340	509	
						FF	157 (E)DRN 315S4	3570	510	
81	116900	22.16	12400	1.35	X	FA	157 (E)DRN 315S4/ERF/NS	3280	511	
						FAF	157 (E)DRN 315S4/ERF/NS	3410	510	
						F	157 (E)DRN 315S4/ERF/NS	3320	509	
						FF	157 (E)DRN 315S4/ERF/NS	3560	510	
91	104300	19.77	12400	1.45	X	FA	157 (E)DRN 315S4	3280	511	
106	88900	16.85	12400	1.80	X	FAF	157 (E)DRN 315S4	3410	510	
128	73700	13.96	12200	2.0	X	F	157 (E)DRN 315S4	3320	509	
150	62900	11.92	12000	2.2	X	FF	157 (E)DRN 315S4	3560	510	

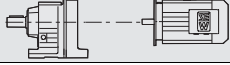

P_m = 175 HP									m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
81	136400	22.16	11400	1.15	X	FA	157 (E)DRN 315ME4/ERF/NS	3560	511	
						FAF	157 (E)DRN 315ME4/ERF/NS	3680	510	
						F	157 (E)DRN 315ME4/ERF/NS	3600	509	
						FF	157 (E)DRN 315ME4/ERF/NS	3840	510	
91	121700	19.77	11500	1.25	X	FA	157 (E)DRN 315ME4	3560	511	
						FAF	157 (E)DRN 315ME4	3680	510	
						F	157 (E)DRN 315ME4	3600	509	
						FF	157 (E)DRN 315ME4	3840	510	
106	103700	16.85	11600	1.55	X	FA	157 (E)DRN 315ME4	3560	511	
128	85900	13.96	11600	1.75	X	FAF	157 (E)DRN 315ME4	3680	510	
150	73300	11.92	11500	1.95	X	F	157 (E)DRN 315ME4	3600	509	
						FF	157 (E)DRN 315ME4	3840	510	

P_m = 200 HP									m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
106	118700	16.85	10900	1.35	X	FA	157 (E)DRN 315L4	3610	511	
						FAF	157 (E)DRN 315L4	3740	510	
						F	157 (E)DRN 315L4	3660	509	
						FF	157 (E)DRN 315L4	3890	510	
128	98400	13.96	11000	1.55	X	FA	157 (E)DRN 315L4	3610	511	
150	83900	11.92	11000	1.70	X	FAF	157 (E)DRN 315L4	3740	510	
						F	157 (E)DRN 315L4	3660	509	
						FF	157 (E)DRN 315L4	3890	510	

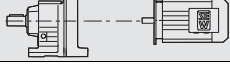

P_m = 225 HP									m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
106	133600	16.85	10100	1.20	X	FA	157 (E)DRN 315L4	3610	511	
						FAF	157 (E)DRN 315L4	3740	510	
						F	157 (E)DRN 315L4	3660	509	
						FF	157 (E)DRN 315L4	3890	510	
128	110700	13.96	10300	1.35	X	FA	157 (E)DRN 315L4	3610	511	
150	94400	11.92	10400	1.50	X	FAF	157 (E)DRN 315L4	3740	510	
						F	157 (E)DRN 315L4	3660	509	
						FF	157 (E)DRN 315L4	3890	510	

P_m = 250 HP									m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
106	148100	16.85	9360	1.10	X	FA	157 (E)DRN 315H4/ERF/NS	3870	511	
						FAF	157 (E)DRN 315H4/ERF/NS	4000	510	
						F	157 (E)DRN 315H4/ERF/NS	3920	509	
						FF	157 (E)DRN 315H4/ERF/NS	4150	510	
128	122700	13.96	9720	1.25	X	FA	157 (E)DRN 315H4	3870	511	
150	104700	11.92	9890	1.35	X	FAF	157 (E)DRN 315H4	4000	510	
						F	157 (E)DRN 315H4	3920	509	
						FF	157 (E)DRN 315H4	4150	510	

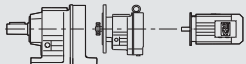

P_m = 275 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs				
106	163000	16.85	8600	1.00		FA	157	(E)DRN	315H4/ERF/NS	3870	511
						FAF	157	(E)DRN	315H4/ERF/NS	4000	510
						F	157	(E)DRN	315H4/ERF/NS	3920	509
						FF	157	(E)DRN	315H4/ERF/NS	4150	510
128	135000	13.96	9100	1.10	X	FA	157	(E)DRN	315H4	3870	511
						FAF	157	(E)DRN	315H4	4000	510
						F	157	(E)DRN	315H4	3920	509
						FF	157	(E)DRN	315H4	4150	510
150	115200	11.92	9360	1.25	X	FA	157	(E)DRN	315H4	3870	511
						FAF	157	(E)DRN	315H4	4000	510
						F	157	(E)DRN	315H4	3920	509
						FF	157	(E)DRN	315H4	4150	510

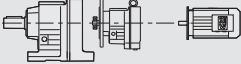

P_m = 300 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs				
128	147400	13.96	8470	1.00	X	FA	157	(E)DRN	315H4	3870	511
						FAF	157	(E)DRN	315H4	4000	510
						F	157	(E)DRN	315H4	3920	509
						FF	157	(E)DRN	315H4	4150	510
150	125800	11.92	8830	1.15	X	FA	157	(E)DRN	315H4	3870	511
						FAF	157	(E)DRN	315H4	4000	510
						F	157	(E)DRN	315H4	3920	509
						FF	157	(E)DRN	315H4	4150	510

9.4 F.. R.. DRS/DRN.. Selections by torque / low output speed

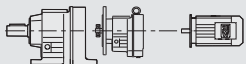

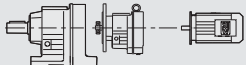

T_{a max} = 1150 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.19	8972	1010						
0.22	7736	1010						
0.23	7211	1010						
0.27	6303	1010						
0.31	5435	1010	FA	27R17	DR	63S4	29	443/516
0.35	4855	1010	FAF	27R17	DR	63S4	30	442/516
0.40	4243	1010	F	27R17	DR	63S4	30	441/516
0.45	3715	1010	FF	27R17	DR	63S4	32	442/516
0.52	3247	1010						
0.58	2878	1010						
0.67	2515	1010						
0.76	2217	1010						
0.88	1898	1010						
1.0	1645	1010						
1.1	1525	1010						
1.3	1322	1010						
1.5	1146	1010	FA	27R17	DR	63S4	28	443/516
1.7	1013	1010	FAF	27R17	DR	63S4	30	442/516
1.9	890	1010	F	27R17	DR	63S4	29	441/516
2.2	778	1010	FF	27R17	DR	63S4	31	442/516
2.5	682	1010						
2.8	602	1010						
3.2	520	1010						
0.86	1948	1010						
0.92	1826	1010						
1.0	1610	1010						
1.2	1399	1010						
1.4	1230	1010						
1.8	948	1010						
2.0	829	1010						
2.3	731	1010	FA	27R17	DR	63S4	28	443/516
2.6	633	1010	FAF	27R17	DR	63S4	30	442/516
3.0	551	1010	F	27R17	DR	63S4	29	441/516
3.4	489	1010	FF	27R17	DR	63S4	31	442/516
3.9	427	1010						
4.4	379	1010						
5.2	326	1010						
5.8	288	1010						
6.7	251	1010						
7.6	221	1010						
9.9	172	1010	FA	27R17	DRS	71S4	34	443/516
11	153	1010	FAF	27R17	DRS	71S4	35	442/516
13	130	1010	F	27R17	DRS	71S4	35	441/516
			FF	27R17	DRS	71S4	37	442/516
3.7	458	1010						
4.2	397	1010	FA	27R17	DR	63S4	28	443/516
4.9	342	1010	FAF	27R17	DR	63S4	29	442/516
5.6	302	1010	F	27R17	DR	63S4	29	441/516
6.3	266	1010	FF	27R17	DR	63S4	31	442/516
7.1	236	1010						
8.1	211	1010						
9.1	186	1010	FA	27R17	DRS	71S4	33	443/516
12	142	1010	FAF	27R17	DRS	71S4	35	442/516
14	124	1010	F	27R17	DRS	71S4	34	441/516
16	109	1010	FF	27R17	DRS	71S4	36	442/516
18	96	1010						

T_{a max} = 1760 lb-in

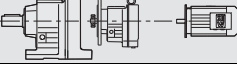

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.21	8193	960						
0.24	7064	960						
0.26	6585	960						
0.29	5756	960						
0.34	4963	960						
0.38	4434	960	FA	37R17	DR	63S4	42	448/516
0.43	3875	960	FAF	37R17	DR	63S4	46	447/516
0.50	3392	960	F	37R17	DR	63S4	43	446/516
0.57	2965	960	FF	37R17	DR	63S4	48	447/516
0.65	2587	960						
0.74	2284	960						
0.84	1997	960						
0.96	1742	960						
1.1	1545	960						
0.87	1929	960						
1.0	1679	960						
1.1	1550	960						
1.2	1356	960						
1.4	1180	960						
1.6	1044	960	FA	37R17	DR	63S4	42	448/516
1.8	914	960	FAF	37R17	DR	63S4	45	447/516
2.1	808	960	F	37R17	DR	63S4	43	446/516
2.4	698	960	FF	37R17	DR	63S4	47	447/516
2.7	616	960						
3.1	544	960						
3.6	466	960						
4.1	411	960						
4.6	364	960						
1.2	1370	960						
1.4	1198	960						
1.6	1047	960						
1.8	915	960	FA	37R17	DR	63S4	42	448/516
2.1	807	960	FAF	37R17	DR	63S4	45	447/516
2.4	707	960	F	37R17	DR	63S4	43	446/516
2.7	617	960	FF	37R17	DR	63S4	47	447/516
3.1	538	960						
3.5	477	960						
4.1	412	960						
4.6	365	960						
5.3	322	960						
6.1	278	960						
7.0	242	960						
7.7	221	960	FA	37R17	DRS	71S4	47	448/516
8.7	195	960	FAF	37R17	DRS	71S4	51	447/516
10	168	960	F	37R17	DRS	71S4	48	446/516
12	147	960	FF	37R17	DRS	71S4	53	447/516
13	127	960						
14	121	960						
16	108	960						
18	91	960	FA	37R17	DRS	71M4	50	448/516
			FAF	37R17	DRS	71M4	54	447/516
			F	37R17	DRS	71M4	51	446/516
			FF	37R17	DRS	71M4	55	447/516
5.2	326	960	FA	37R17	DR	63S4	41	448/516
			FAF	37R17	DR	63S4	45	447/516
			F	37R17	DR	63S4	42	446/516
			FF	37R17	DR	63S4	47	447/516
6.0	285	960						
6.8	250	960						
7.8	219	960	FA	37R17	DRS	71S4	47	448/516
9.1	186	960	FAF	37R17	DRS	71S4	50	447/516
10	167	960	F	37R17	DRS	71S4	48	446/516
12	145	960	FF	37R17	DRS	71S4	52	447/516
13	129	960						
14	118	960						

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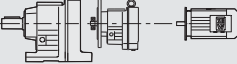

T_{a max} = 1760 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
17	98	960	FA	37R17	DRS	71M4	50	448/516
20	87	960	FAF	37R17	DRS	71M4	53	447/516
			F	37R17	DRS	71M4	51	446/516
			FF	37R17	DRS	71M4	55	447/516
T_{a max} = 3530 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.14	12251	1330						
0.16	10619	1330						
0.17	9846	1330						
0.20	8534	1330						
0.23	7460	1330						
0.26	6536	1330						
0.29	5746	1330	FA	47R17	DR	63S4	53	455/516
0.33	5022	1330	FAF	47R17	DR	63S4	59	454/516
0.38	4401	1330	F	47R17	DR	63S4	55	453/516
0.43	3883	1330	FF	47R17	DR	63S4	62	454/516
0.49	3443	1330						
0.56	2976	1330						
0.64	2629	1330						
0.73	2304	1330						
0.83	2033	1330						
0.67	2519	1330						
0.70	2394	1330						
0.77	2172	1330						
0.83	2025	1330						
0.95	1770	1330	FA	47R17	DR	63S4	51	455/516
1.1	1576	1330	FAF	47R17	DR	63S4	57	454/516
1.2	1363	1330	F	47R17	DR	63S4	53	453/516
1.4	1192	1330	FF	47R17	DR	63S4	60	454/516
1.6	1061	1330						
1.8	931	1330						
2.0	822	1330						
2.4	706	1330	FA	47R17	DRS	71S4	57	455/516
			FAF	47R17	DRS	71S4	63	454/516
2.8	619	1330	F	47R17	DRS	71S4	59	453/516
			FF	47R17	DRS	71S4	66	454/516
0.94	1785	1330						
1.1	1578	1330						
1.2	1364	1330	FA	47R17	DR	63S4	52	455/516
1.4	1203	1330	FAF	47R17	DR	63S4	58	454/516
1.6	1049	1330	F	47R17	DR	63S4	54	453/516
1.8	918	1330	FF	47R17	DR	63S4	61	454/516
2.1	809	1330						
2.4	700	1330						
2.7	622	1330						
3.1	543	1330						
3.6	475	1330						
4.1	419	1330	FA	47R17	DRS	71S4	58	455/516
4.6	370	1330	FAF	47R17	DRS	71S4	64	454/516
5.3	324	1330	F	47R17	DRS	71S4	60	453/516
5.9	288	1330	FF	47R17	DRS	71S4	67	454/516
6.8	249	1330						
7.8	218	1330						
8.7	193	1330	FA	47R17	DRS	71M4	61	455/516
9.7	175	1330	FAF	47R17	DRS	71M4	67	454/516
12	147	1330	F	47R17	DRS	71M4	63	453/516
			FF	47R17	DRS	71M4	70	454/516

T_{a max} = 3530 lb-in

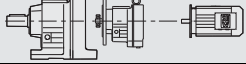

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs			
13	130	1330	FA	47R17	DRN	80M4	71	455/516		
			FAF	47R17	DRN	80M4	77	454/516		
			F	47R17	DRN	80M4	72	453/516		
			FF	47R17	DRN	80M4	79	454/516		
3.2	524	1330	FA	47R17	DRS	71S4	56	455/516		
3.5	489	1330		FAF	47R17	DRS	71S4	62	454/516	
4.0	427	1330		F	47R17	DRS	71S4	58	453/516	
4.5	381	1330		FF	47R17	DRS	71S4	65	454/516	
5.1	334	1330		FA	47R17	DRS	71M4	59	455/516	
5.8	295	1330			FAF	47R17	DRS	71M4	65	454/516
6.7	253	1330			F	47R17	DRS	71M4	61	453/516
7.8	217	1330			FF	47R17	DRS	71M4	68	454/516
13	131	1330	FA	47R17	DRN	80M4	69	455/516		
			FAF	47R17	DRN	80M4	75	454/516		
			F	47R17	DRN	80M4	71	453/516		
			FF	47R17	DRN	80M4	78	454/516		

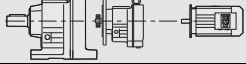

9

T_{a max} = 5300 lb-in

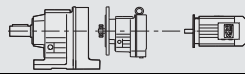

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.11	14832	2070	FA	57R37	DR	63S4	87	462/516
0.12	13604	2070						
0.13	12602	2070						
0.15	11252	2070						
0.17	9986	2070						
0.19	8787	2070						
0.21	7908	2070						
0.24	6913	2070						
0.28	6030	2070						
0.32	5289	2070						
0.36	4654	2070						
0.41	4060	2070						
0.47	3564	2070						
0.53	3161	2070						
0.61	2737	2070						
0.70	2409	2070						
0.79	2131	2070						
0.91	1840	2070						
1.0	1623	2070						
1.2	1439	2070						
1.4	1238	2070						
0.59	2854	2070	FA	57R37	DR	63S4	85	462/516
0.65	2576	2070						
0.74	2266	2070						
0.83	2012	2070						
0.94	1791	2070						
1.0	1617	2070						
1.2	1422	2070						
1.4	1243	2070						
1.6	1066	2070						
1.8	949	2070	FA	57R37	DRS	71S4	91	462/516
2.0	856	2070						
2.3	749	2070						
2.6	658	2070						
3.1	549	2070						
3.5	483	2070						

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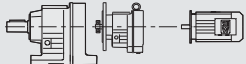

T_{a max} = 5300 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
1.5	1106	2070	FA	57R37	DR	63S4	86	462/516
			FAF	57R37	DR	63S4	98	461/516
			F	57R37	DR	63S4	87	460/516
			FF	57R37	DR	63S4	100	461/516
1.8	967	2070	FA FAF F FF	57R37	DRS	71S4	92	462/516
2.0	851	2070		57R37	DRS	71S4	105	461/516
2.3	738	2070		57R37	DRS	71S4	92	460/516
2.6	646	2070		57R37	DRS	71S4	105	461/516
3.0	558	2070		57R37	DRS	71S4	92	460/516
3.4	506	2070		57R37	DRS	71S4	105	461/516
3.8	452	2070		57R37	DRS	71S4	92	460/516
4.4	386	2070		57R37	DRS	71S4	105	461/516
5.0	338	2070	57R37	DRS	71S4	92	460/516	
6.6	255	2070	FA	57R37	DRS	71M4	94	462/516
			FAF	57R37	DRS	71M4	105	461/516
			F	57R37	DRS	71M4	95	460/516
			FF	57R37	DRS	71M4	110	461/516
8.7	201	2070	FA	57R37	DRN	80M4	105	462/516
			FAF	57R37	DRN	80M4	115	461/516
			F	57R37	DRN	80M4	105	460/516
			FF	57R37	DRN	80M4	120	461/516
9.7	181	2070	FA	57R37	DRN	90S4	120	462/516
			FAF	57R37	DRN	90S4	130	461/516
			F	57R37	DRN	90S4	120	460/516
			FF	57R37	DRN	90S4	130	461/516
11	155	2070	FA	57R37	DRS	71S4	91	462/516
			FAF	57R37	DRS	71S4	105	461/516
			F	57R37	DRS	71S4	91	460/516
			FF	57R37	DRS	71S4	105	461/516
5.7	298	2070	FA	57R37	DRS	71M4	93	462/516
			FAF	57R37	DRS	71M4	105	461/516
			F	57R37	DRS	71M4	94	460/516
			FF	57R37	DRS	71M4	110	461/516
6.4	262	2070	FA	57R37	DRN	80M4	105	462/516
			FAF	57R37	DRN	80M4	115	461/516
			F	57R37	DRN	80M4	105	460/516
			FF	57R37	DRN	80M4	120	461/516
7.5	226	2070	FA	57R37	DRN	80M4	105	462/516
			FAF	57R37	DRN	80M4	115	461/516
			F	57R37	DRN	80M4	105	460/516
			FF	57R37	DRN	80M4	120	461/516
8.7	200	2070	FA	57R37	DRN	90S4	115	462/516
			FAF	57R37	DRN	90S4	130	461/516
			F	57R37	DRN	90S4	115	460/516
			FF	57R37	DRN	90S4	130	461/516
10	170	2070	FA	57R37	DRN	90S4	115	462/516
			FAF	57R37	DRN	90S4	130	461/516
			F	57R37	DRN	90S4	115	460/516
			FF	57R37	DRN	90S4	130	461/516
12	152	2070	FA	57R37	DRN	90S4	115	462/516
			FAF	57R37	DRN	90S4	130	461/516
			F	57R37	DRN	90S4	115	460/516
			FF	57R37	DRN	90S4	130	461/516
13	134	2070	FA	57R37	DRN	90S4	115	462/516
			FAF	57R37	DRN	90S4	130	461/516
			F	57R37	DRN	90S4	115	460/516
			FF	57R37	DRN	90S4	130	461/516

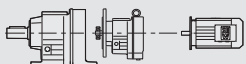

T_{a max} = 7250 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.09	19199	2320	FA FAF F FF	67R37	DR	63S4	95	469/516
0.10	17610	2320						
0.11	14992	2320						
0.13	12926	2320						
0.15	11480	2320						
0.16	10220	2320						
0.19	8933	2320						
0.21	7940	2320						
0.24	7096	2320						
0.28	6080	2320						
0.31	5341	2320						
0.36	4690	2320						
0.41	4091	2320						
0.47	3574	2320						
0.54	3133	2320						
0.61	2756	2320						
0.69	2439	2320						

T_{a max} = 7250 lb-in

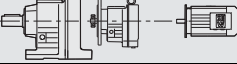

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.50	3377	2320						
0.58	2912	2320						
0.62	2714	2320	FA	67R37	DR	63S4	93 469/516	
0.71	2372	2320	FAF	67R37	DR	63S4	105 468/516	
0.79	2126	2320	F	67R37	DR	63S4	99 467/516	
0.90	1859	2320	FF	67R37	DR	63S4	110 468/516	
1.0	1631	2320						
1.2	1437	2320						
1.4	1256	2320						
1.5	1126	2320	FA	67R37	DRS	71S4	99 469/516	
1.7	984	2320	FAF	67R37	DRS	71S4	115 468/516	
2.0	864	2320	F	67R37	DRS	71S4	105 467/516	
2.4	722	2320	FF	67R37	DRS	71S4	120 468/516	
2.7	634	2320						
3.2	539	2320						
0.80	2106	2320	FA	67R37	DR	63S4	95 469/516	
0.89	1884	2320	FAF	67R37	DR	63S4	110 468/516	
1.0	1635	2320	F	67R37	DR	63S4	100 467/516	
			FF	67R37	DR	63S4	115 468/516	
1.2	1429	2320						
1.3	1271	2320						
1.5	1102	2320	FA	67R37	DRS	71S4	100 469/516	
1.8	970	2320	FAF	67R37	DRS	71S4	115 468/516	
2.0	858	2320	F	67R37	DRS	71S4	105 467/516	
2.2	755	2320	FF	67R37	DRS	71S4	120 468/516	
2.6	641	2320						
3.0	572	2320						
3.3	509	2320						
3.9	437	2320	FA	67R37	DRS	71M4	105 469/516	
4.4	384	2320	FAF	67R37	DRS	71M4	115 468/516	
5.0	338	2320	F	67R37	DRS	71M4	110 467/516	
5.5	305	2320	FF	67R37	DRS	71M4	125 468/516	
6.8	257	2320	FA	67R37	DRN	80M4	115 469/516	
7.6	231	2320	FAF	67R37	DRN	80M4	125 468/516	
			F	67R37	DRN	80M4	120 467/516	
			FF	67R37	DRN	80M4	135 468/516	
8.6	205	2320	FA	67R37	DRN	90S4	125 469/516	
10	175	2320	FAF	67R37	DRN	90S4	140 468/516	
			F	67R37	DRN	90S4	130 467/516	
			FF	67R37	DRN	90S4	145 468/516	
3.4	500	2320	FA	67R37	DRS	71S4	98 469/516	
3.8	454	2320	FAF	67R37	DRS	71S4	110 468/516	
			F	67R37	DRS	71S4	105 467/516	
			FF	67R37	DRS	71S4	120 468/516	
4.3	392	2320	FA	67R37	DRS	71M4	100 469/516	
5.1	333	2320	FAF	67R37	DRS	71M4	115 468/516	
5.7	297	2320	F	67R37	DRS	71M4	105 467/516	
			FF	67R37	DRS	71M4	120 468/516	
6.7	261	2320	FA	67R37	DRN	80M4	110 469/516	
7.4	238	2320	FAF	67R37	DRN	80M4	125 468/516	
			F	67R37	DRN	80M4	115 467/516	
			FF	67R37	DRN	80M4	130 468/516	
8.8	200	2320	FA	67R37	DRN	90S4	125 469/516	
10	176	2320	FAF	67R37	DRN	90S4	140 468/516	
			F	67R37	DRN	90S4	130 467/516	
			FF	67R37	DRN	90S4	145 468/516	

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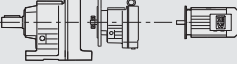

T_{a max} = 9820 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.34	4931	4010							
0.37	4523	4010							
0.44	3851	4010							
0.51	3320	4010	FA	77R37	DR	63S4	140	476/516	
0.54	3095	4010	FAF	77R37	DR	63S4	155	475/516	
0.62	2705	4010	F	77R37	DR	63S4	150	474/516	
0.66	2536	4010	FF	77R37	DR	63S4	175	475/516	
0.75	2238	4010							
0.82	2039	4010							
0.97	1759	4010							
1.0	1639	4010							
1.2	1433	4010	FA	77R37	DRS	71S4	145	476/516	
1.3	1343	4010	FAF	77R37	DRS	71S4	160	475/516	
1.4	1185	4010	F	77R37	DRS	71S4	155	474/516	
1.6	1051	4010	FF	77R37	DRS	71S4	180	475/516	
1.9	893	4010							
2.1	815	4010	FA	77R37	DRS	71S4	145	476/516	
2.4	706	4010	FAF	77R37	DRS	71S4	160	475/516	
2.6	660	4010	F	77R37	DRS	71S4	155	474/516	
			FF	77R37	DRS	71S4	180	475/516	
3.0	571	4010	FA	77R37	DRS	71M4	150	476/516	
3.5	485	4010	FAF	77R37	DRS	71M4	165	475/516	
3.9	433	4010	F	77R37	DRS	71M4	155	474/516	
			FF	77R37	DRS	71M4	180	475/516	
4.7	370	4010	FA	77R37	DRN	80M4	160	476/516	
5.1	346	4010	FAF	77R37	DRN	80M4	175	475/516	
			F	77R37	DRN	80M4	170	474/516	
			FF	77R37	DRN	80M4	190	475/516	
6.0	292	4010	FA	77R37	DRN	90S4	170	476/516	
			FAF	77R37	DRN	90S4	185	475/516	
			F	77R37	DRN	90S4	180	474/516	
			FF	77R37	DRN	90S4	205	475/516	

T_{a max} = 13200 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.09	19180	3530							
0.10	17593	3530							
0.10	16128	3530							
0.11	14978	3530							
0.12	13731	3530							
0.14	12049	3530							
0.15	11035	3530							
0.17	9683	3530	FA	77R37	DR	63S4	145	476/516	
0.20	8464	3530	FAF	77R37	DR	63S4	160	475/516	
0.22	7520	3530	F	77R37	DR	63S4	155	474/516	
0.26	6580	3530	FF	77R37	DR	63S4	175	475/516	
0.29	5808	3530							
0.33	5026	3530							
0.38	4435	3530							
0.44	3832	3530							
0.50	3381	3530							
0.56	2978	3530							
0.64	2613	3530							
0.74	2284	3530	FA	77R37	DRS	71S4	150	476/516	
0.84	2029	3530	FAF	77R37	DRS	71S4	165	475/516	
			F	77R37	DRS	71S4	160	474/516	
			FF	77R37	DRS	71S4	180	475/516	

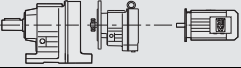

T_{a max} = 13200 lb-in

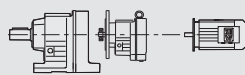

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.98	1728	3530						
1.1	1544	3530	FA	77R37	DRS	71S4	150	476/516
1.3	1354	3530	FAF	77R37	DRS	71S4	165	475/516
1.4	1200	3530	F	77R37	DRS	71S4	160	474/516
1.6	1053	3530	FF	77R37	DRS	71S4	180	475/516
1.9	910	3530						
2.1	810	3530	FA	77R37	DRS	71M4	150	476/516
2.4	710	3530	FAF	77R37	DRS	71M4	165	475/516
2.8	615	3530	F	77R37	DRS	71M4	160	474/516
3.1	538	3530	FF	77R37	DRS	71M4	185	475/516
3.6	480	3530	FA	77R37	DRN	80M4	160	476/516
			FAF	77R37	DRN	80M4	175	475/516
4.2	413	3530	F	77R37	DRN	80M4	170	474/516
			FF	77R37	DRN	80M4	195	475/516
4.8	367	3530	FA	77R37	DRN	90S4	175	476/516
			FAF	77R37	DRN	90S4	190	475/516
5.5	323	3530	F	77R37	DRN	90S4	185	474/516
6.3	280	3530	FF	77R37	DRN	90S4	205	475/516
7.2	247	3530	FA	77R37	DRN	90L4	180	476/516
			FAF	77R37	DRN	90L4	195	475/516
8.0	221	3530	F	77R37	DRN	90L4	190	474/516
			FF	77R37	DRN	90L4	215	475/516
8.9	199	3530	FA	77R37	DRN	100LM4	205	476/516
			FAF	77R37	DRN	100LM4	220	475/516
			F	77R37	DRN	100LM4	215	474/516
			FF	77R37	DRN	100LM4	240	475/516

T_{a max} = 26500 lb-in

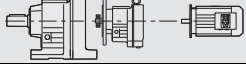

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.07	23042	4450						
0.08	20462	4450						
0.09	18238	4450						
0.11	15877	4450						
0.12	14099	4450	FA	87R57	DR	63S4	260	483/516
0.14	12205	4450	FAF	87R57	DR	63S4	290	482/516
0.16	10433	4450	F	87R57	DR	63S4	275	481/516
0.18	9381	4450	FF	87R57	DR	63S4	305	482/516
0.21	8142	4450						
0.24	7100	4450						
0.27	6273	4450						
0.31	5510	4450	FA	87R57	DRS	71S4	265	483/516
0.34	4954	4450	FAF	87R57	DRS	71S4	295	482/516
0.40	4245	4450	F	87R57	DRS	71S4	280	481/516
0.46	3721	4450	FF	87R57	DRS	71S4	315	482/516
0.34	4952	4450						
0.37	4562	4450						
0.43	3919	4450						
0.49	3503	4450	FA	87R57	DRS	71S4	260	483/516
0.53	3196	4450	FAF	87R57	DRS	71S4	285	482/516
0.60	2857	4450	F	87R57	DRS	71S4	270	481/516
0.67	2524	4450	FF	87R57	DRS	71S4	305	482/516
0.80	2134	4450						
0.89	1913	4450						
0.99	1717	4450						
1.1	1476	4450	FA	87R57	DRS	71M4	260	483/516
1.3	1278	4450	FAF	87R57	DRS	71M4	290	482/516
1.5	1142	4450	F	87R57	DRS	71M4	275	481/516
			FF	87R57	DRS	71M4	310	482/516

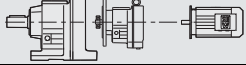

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T_{a max} = 26500 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
1.8 2.0	988 883	4450 4450	FA	87R57	DRN	80M4	275	483/516
			FAF	87R57	DRN	80M4	300	482/516
			F	87R57	DRN	80M4	285	481/516
			FF	87R57	DRN	80M4	320	482/516
2.4	748	4450	FA	87R57	DRN	90S4	285	483/516
			FAF	87R57	DRN	90S4	315	482/516
			F	87R57	DRN	90S4	300	481/516
			FF	87R57	DRN	90S4	335	482/516
0.52 0.59 0.66 0.77 0.88 0.99	3244 2881 2576 2199 1930 1709	4450 4450 4450 4450 4450 4450	FA	87R57	DRS	71S4	265	483/516
			FAF	87R57	DRS	71S4	290	482/516
			F	87R57	DRS	71S4	275	481/516
			FF	87R57	DRS	71S4	310	482/516
1.1 1.3 1.5	1493 1300 1148	4450 4450 4450	FA	87R57	DRS	71M4	265	483/516
			FAF	87R57	DRS	71M4	295	482/516
			F	87R57	DRS	71M4	280	481/516
			FF	87R57	DRS	71M4	315	482/516
1.7 2.0	1010 887	4450 4450	FA	87R57	DRN	80M4	275	483/516
			FAF	87R57	DRN	80M4	305	482/516
			F	87R57	DRN	80M4	290	481/516
			FF	87R57	DRN	80M4	325	482/516
2.3 2.6 2.9	780 674 609	4450 4450 4450	FA	87R57	DRN	90S4	290	483/516
			FAF	87R57	DRN	90S4	320	482/516
			F	87R57	DRN	90S4	305	481/516
			FF	87R57	DRN	90S4	340	482/516
3.4 3.9	515 452	4450 4450	FA	87R57	DRN	90L4	300	483/516
			FAF	87R57	DRN	90L4	325	482/516
			F	87R57	DRN	90L4	310	481/516
			FF	87R57	DRN	90L4	345	482/516
5.1 5.9	345 300	4450 4450	FA	87R57	DRN	100LM4	320	483/516
			FAF	87R57	DRN	100LM4	350	482/516
			F	87R57	DRN	100LM4	335	481/516
			FF	87R57	DRN	100LM4	370	482/516
7.1	249	4450	FA	87R57	DRN	100L4	320	483/516
			FAF	87R57	DRN	100L4	350	482/516
			F	87R57	DRN	100L4	335	481/516
			FF	87R57	DRN	100L4	370	482/516
2.7 3.0	662 592	4450 4450	FA	87R57	DRN	90S4	285	483/516
			FAF	87R57	DRN	90S4	310	482/516
			F	87R57	DRN	90S4	295	481/516
			FF	87R57	DRN	90S4	330	482/516
3.4 3.8	519 468	4450 4450	FA	87R57	DRN	90L4	290	483/516
			FAF	87R57	DRN	90L4	320	482/516
			F	87R57	DRN	90L4	305	481/516
			FF	87R57	DRN	90L4	340	482/516
4.4 5.0 5.6 6.3	398 350 315 281	4450 4450 4450 4450	FA	87R57	DRN	100LM4	315	483/516
			FAF	87R57	DRN	100LM4	345	482/516
			F	87R57	DRN	100LM4	330	481/516
			FF	87R57	DRN	100LM4	365	482/516
7.3 8.3 9.1	240 211 193	4450 4450 4450	FA	87R57	DRN	100L4	315	483/516
			FAF	87R57	DRN	100L4	345	482/516
			F	87R57	DRN	100L4	330	481/516
			FF	87R57	DRN	100L4	365	482/516

T_{a max} = 38000 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.06	29211	6720						
0.06	26911	6720						
0.07	23814	6720						
0.08	20813	6720						
0.09	18119	6720	FA	97R57	DR	63S4	405 490/516	
0.11	15472	6720	FAF	97R57	DR	63S4	455 489/516	
0.12	14022	6720	F	97R57	DR	63S4	420 488/516	
0.14	12324	6720	FF	97R57	DR	63S4	495 489/516	
0.16	10838	6720						
0.18	9576	6720						
0.20	8318	6720						
0.23	7328	6720	FA	97R57	DRS	71S4	410 490/516	
0.26	6469	6720	FAF	97R57	DRS	71S4	460 489/516	
0.30	5615	6720	F	97R57	DRS	71S4	425 488/516	
0.34	4961	6720	FF	97R57	DRS	71S4	500 489/516	
0.39	4333	6720						
0.27	6338	6720						
0.30	5680	6720						
0.34	5016	6720	FA	97R57	DRS	71S4	395 490/516	
0.39	4367	6720	FAF	97R57	DRS	71S4	445 489/516	
0.43	3914	6720	F	97R57	DRS	71S4	415 488/516	
0.51	3357	6720	FF	97R57	DRS	71S4	485 489/516	
0.57	3009	6720						
0.69	2448	6720						
0.77	2199	6720	FA	97R57	DRS	71M4	400 490/516	
0.86	1971	6720	FAF	97R57	DRS	71M4	445 489/516	
0.97	1741	6720	F	97R57	DRS	71M4	415 488/516	
			FF	97R57	DRS	71M4	490 489/516	
1.2	1468	6720	FA	97R57	DRN	80M4	410 490/516	
1.3	1316	6720	FAF	97R57	DRN	80M4	460 489/516	
1.5	1189	6720	F	97R57	DRN	80M4	425 488/516	
			FF	97R57	DRN	80M4	500 489/516	
1.7	1023	6720	FA	97R57	DRN	90S4	425 490/516	
			FAF	97R57	DRN	90S4	470 489/516	
			F	97R57	DRN	90S4	440 488/516	
			FF	97R57	DRN	90S4	510 489/516	
0.44	3906	6720	FA	97R57	DRS	71S4	410 490/516	
0.51	3352	6720	FAF	97R57	DRS	71S4	455 489/516	
0.58	2907	6720	F	97R57	DRS	71S4	425 488/516	
0.67	2553	6720	FF	97R57	DRS	71S4	495 489/516	
0.75	2245	6720	FA	97R57	DRS	71M4	410 490/516	
0.86	1970	6720	FAF	97R57	DRS	71M4	460 489/516	
0.98	1722	6720	F	97R57	DRS	71M4	425 488/516	
1.1	1527	6720	FF	97R57	DRS	71M4	500 489/516	
1.3	1327	6720	FA	97R57	DRN	80M4	420 490/516	
			FAF	97R57	DRN	80M4	470 489/516	
			F	97R57	DRN	80M4	440 488/516	
			FF	97R57	DRN	80M4	510 489/516	
1.5	1171	6720						
1.7	1022	6720	FA	97R57	DRN	90S4	435 490/516	
2.0	898	6720	FAF	97R57	DRN	90S4	485 489/516	
2.2	784	6720	F	97R57	DRN	90S4	450 488/516	
			FF	97R57	DRN	90S4	520 489/516	
2.6	690	6720	FA	97R57	DRN	90L4	440 490/516	
			FAF	97R57	DRN	90L4	490 489/516	
2.9	605	6720	F	97R57	DRN	90L4	460 488/516	
			FF	97R57	DRN	90L4	530 489/516	
3.3	529	6720	FA	97R57	DRN	100LM4	465 490/516	
3.8	467	6720	FAF	97R57	DRN	100LM4	510 489/516	
4.4	406	6720	F	97R57	DRN	100LM4	485 488/516	
			FF	97R57	DRN	100LM4	560 489/516	

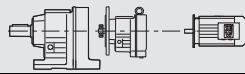

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T_{a max} = 38000 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
4.8	363	6720	FA	97R57	DRN	100L4	465	490/516
6.2	285	6720	FAF	97R57	DRN	100L4	510	489/516
7.2	245	6720	F	97R57	DRN	100L4	485	488/516
			FF	97R57	DRN	100L4	560	489/516
8.5	208	6720	FA	97R57	DRN	132S4	510	490/516
			FAF	97R57	DRN	132S4	560	489/516
9.1	195	6720	F	97R57	DRN	132S4	530	488/516
			FF	97R57	DRN	132S4	600	489/516
2.0	892	6720	FA	97R57	DRN	90S4	420	490/516
			FAF	97R57	DRN	90S4	470	489/516
2.3	760	6720	F	97R57	DRN	90S4	440	488/516
			FF	97R57	DRN	90S4	510	489/516
2.6	667	6720	FA	97R57	DRN	90L4	430	490/516
			FAF	97R57	DRN	90L4	475	489/516
			F	97R57	DRN	90L4	445	488/516
			FF	97R57	DRN	90L4	520	489/516
3.1	569	6720	FA	97R57	DRN	100LM4	455	490/516
			FAF	97R57	DRN	100LM4	500	489/516
3.7	473	6720	F	97R57	DRN	100LM4	470	488/516
4.4	403	6720	FF	97R57	DRN	100LM4	540	489/516
4.9	361	6720	FA	97R57	DRN	100L4	455	490/516
			FAF	97R57	DRN	100L4	500	489/516
5.6	317	6720	F	97R57	DRN	100L4	470	488/516
6.4	275	6720	FF	97R57	DRN	100L4	540	489/516
7.3	242	6720						

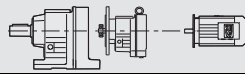

T_{a max} = 67900 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.07	25375	11200	FA	107R77	DR	63S4	610	497/516
0.08	21652	11200	FAF	107R77	DR	63S4	650	496/516
0.09	18933	11200	F	107R77	DR	63S4	640	495/516
0.10	16888	11200	FF	107R77	DR	63S4	700	496/516
0.11	14767	11200						
0.15	11348	11200						
0.17	10039	11200						
0.20	8548	11200	FA	107R77	DRS	71S4	610	497/516
0.22	7674	11200	FAF	107R77	DRS	71S4	660	496/516
0.25	6767	11200	F	107R77	DRS	71S4	650	495/516
0.29	5954	11200	FF	107R77	DRS	71S4	710	496/516
0.33	5223	11200						
0.37	4567	11200						
0.43	3948	11200	FA	107R77	DRS	71M4	610	497/516
			FAF	107R77	DRS	71M4	660	496/516
0.48	3521	11200	F	107R77	DRS	71M4	650	495/516
			FF	107R77	DRS	71M4	710	496/516
0.56	3037	11200	FA	107R77	DRS	71M4	610	497/516
			FAF	107R77	DRS	71M4	660	496/516
0.61	2756	11200	F	107R77	DRS	71M4	650	495/516
			FF	107R77	DRS	71M4	710	496/516
0.74	2369	11200	FA	107R77	DRN	80M4	620	497/516
			FAF	107R77	DRN	80M4	670	496/516
			F	107R77	DRN	80M4	660	495/516
			FF	107R77	DRN	80M4	720	496/516
0.85	2068	11200	FA	107R77	DRN	90S4	630	497/516
0.96	1826	11200	FAF	107R77	DRN	90S4	680	496/516
1.1	1597	11200	F	107R77	DRN	90S4	670	495/516
1.3	1401	11200	FF	107R77	DRN	90S4	730	496/516
1.4	1243	11200	FA	107R77	DRN	90L4	640	497/516
			FAF	107R77	DRN	90L4	690	496/516
1.6	1087	11200	F	107R77	DRN	90L4	680	495/516
			FF	107R77	DRN	90L4	740	496/516

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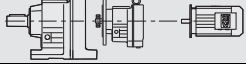

T_{a max} = 67900 lb-in

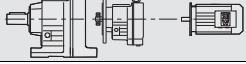

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
1.9	950	11200	FA	107R77	DRN	100LM4	660	497/516
2.1	834	11200	FAF	107R77	DRN	100LM4	710	496/516
2.4	736	11200	F	107R77	DRN	100LM4	700	495/516
			FF	107R77	DRN	100LM4	760	496/516
2.8	640	11200	FA	107R77	DRN	100L4	660	497/516
3.1	560	11200	FAF	107R77	DRN	100L4	710	496/516
3.6	489	11200	F	107R77	DRN	100L4	700	495/516
4.0	436	11200	FF	107R77	DRN	100L4	760	496/516
4.8	370	11200	FA	107R77	DRN	132S4	710	497/516
5.3	333	11200	FAF	107R77	DRN	132S4	760	496/516
6.1	291	11200	F	107R77	DRN	132S4	750	495/516
			FF	107R77	DRN	132S4	810	496/516
7.0	255	11200	FA	107R77	DRN	132M4	750	497/516
7.9	225	11200	FAF	107R77	DRN	132M4	800	496/516
			F	107R77	DRN	132M4	790	495/516
			FF	107R77	DRN	132M4	850	496/516
9.3	190	11200	FA	107R77	DRN	132L4	770	497/516
			FAF	107R77	DRN	132L4	810	496/516
			F	107R77	DRN	132L4	800	495/516
			FF	107R77	DRN	132L4	870	496/516

T_{a max} = 69300 lb-in

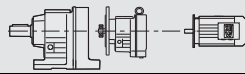

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.32	5383	11100	FA	107R77	DRS	71S4	590	497/516
0.37	4593	11100	FAF	107R77	DRS	71S4	640	496/516
			F	107R77	DRS	71S4	630	495/516
			FF	107R77	DRS	71S4	690	496/516
0.42	4016	11100	FA	107R77	DRS	71M4	590	497/516
0.44	3815	11100	FAF	107R77	DRS	71M4	640	496/516
0.50	3347	11100	F	107R77	DRS	71M4	630	495/516
0.60	2839	11100	FF	107R77	DRS	71M4	690	496/516
0.68	2563	11100	FA	107R77	DRN	80M4	600	497/516
0.78	2255	11100	FAF	107R77	DRN	80M4	650	496/516
			F	107R77	DRN	80M4	640	495/516
			FF	107R77	DRN	80M4	700	496/516
0.83	2129	11100	FA	107R77	DRN	90S4	610	497/516
0.97	1813	11100	FAF	107R77	DRN	90S4	660	496/516
1.1	1590	11100	F	107R77	DRN	90S4	650	495/516
1.2	1436	11100	FF	107R77	DRN	90S4	710	496/516
1.4	1263	11100	FA	107R77	DRN	90L4	620	497/516
1.5	1193	11100	FAF	107R77	DRN	90L4	670	496/516
			F	107R77	DRN	90L4	660	495/516
			FF	107R77	DRN	90L4	720	496/516
1.7	1015	11100	FA	107R77	DRN	100LM4	650	497/516
1.9	923	11100	FAF	107R77	DRN	100LM4	690	496/516
2.2	800	11100	F	107R77	DRN	100LM4	680	495/516
			FF	107R77	DRN	100LM4	740	496/516
2.5	696	11100	FA	107R77	DRN	100L4	650	497/516
			FAF	107R77	DRN	100L4	690	496/516
			F	107R77	DRN	100L4	680	495/516
			FF	107R77	DRN	100L4	740	496/516
2.7	644	11100	FA	107R77	DRN	100L4	640	497/516
3.0	591	11100	FAF	107R77	DRN	100L4	690	496/516
3.4	518	11100	F	107R77	DRN	100L4	680	495/516
3.6	491	11100	FF	107R77	DRN	100L4	740	496/516
4.1	430	11100						

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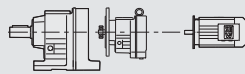

T_{a max} = 69300 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
4.6	387	11100	FA	107R77	DRN	112M4	660	497/516
			FAF	107R77	DRN	112M4	710	496/516
			F	107R77	DRN	112M4	700	495/516
			FF	107R77	DRN	112M4	760	496/516
5.2 5.9	340	11100	FA	107R77	DRN	132S4	690	497/516
			FAF	107R77	DRN	132S4	730	496/516
	300	11100	F	107R77	DRN	132S4	720	495/516
			FF	107R77	DRN	132S4	790	496/516
6.7	266	11100	FA	107R77	DRN	132M4	730	497/516
			FAF	107R77	DRN	132M4	770	496/516
			F	107R77	DRN	132M4	760	495/516
			FF	107R77	DRN	132M4	820	496/516

T_{a max} = 106100 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.07	24478	20200	FA	127R77	DR	63S4	940	504/516
			FAF	127R77	DR	63S4	1020	503/516
			F	127R77	DR	63S4	1020	502/516
			FF	127R77	DR	63S4	1120	503/516
0.08	22323	20200						
0.09	19048	20200						
0.10	16656	20200						
0.12	14722	20200	FA	127R77	DRS	71S4	940	504/516
0.13	12912	20200	FAF	127R77	DRS	71S4	1030	503/516
0.15	11656	20200	F	127R77	DRS	71S4	1020	502/516
0.17	10191	20200	FF	127R77	DRS	71S4	1120	503/516
0.19	8831	20200						
0.22	7643	20200						
0.25	6715	20200						
0.29	5925	20200	FA	127R77	DRS	71M4	950	504/516
			FAF	127R77	DRS	71M4	1030	503/516
			F	127R77	DRS	71M4	1030	502/516
			FF	127R77	DRS	71M4	1130	503/516
0.33	5153	20200	FA	127R77	DRN	80M4	960	504/516
			FAF	127R77	DRN	80M4	1040	503/516
			F	127R77	DRN	80M4	1040	502/516
			FF	127R77	DRN	80M4	1140	503/516
0.45	3926	20200	FA	127R77	DRN	90S4	970	504/516
			FAF	127R77	DRN	90S4	1050	503/516
			F	127R77	DRN	90S4	1050	502/516
			FF	127R77	DRN	90S4	1150	503/516
0.51	3454	20200	FA	127R77	DRN	90S4	970	504/516
			FAF	127R77	DRN	90S4	1050	503/516
			F	127R77	DRN	90S4	1050	502/516
			FF	127R77	DRN	90S4	1140	503/516
0.58	3031	20200	FA	127R77	DRN	90L4	970	504/516
			FAF	127R77	DRN	90L4	1060	503/516
			F	127R77	DRN	90L4	1050	502/516
			FF	127R77	DRN	90L4	1150	503/516
0.66	2672	20200	FA	127R77	DRN	100LM4	1000	504/516
			FAF	127R77	DRN	100LM4	1080	503/516
			F	127R77	DRN	100LM4	1080	502/516
			FF	127R77	DRN	100LM4	1180	503/516
0.75	2357	20200	FA	127R77	DRN	100L4	1000	504/516
			FAF	127R77	DRN	100L4	1080	503/516
			F	127R77	DRN	100L4	1080	502/516
			FF	127R77	DRN	100L4	1180	503/516
0.87	2038	20200	FA	127R77	DRN	132S4	1040	504/516
			FAF	127R77	DRN	132S4	1130	503/516
			F	127R77	DRN	132S4	1120	502/516
			FF	127R77	DRN	132S4	1220	503/516
0.99	1784	20200	FA	127R77	DRN	132S4	1040	504/516
			FAF	127R77	DRN	132S4	1130	503/516
			F	127R77	DRN	132S4	1120	502/516
			FF	127R77	DRN	132S4	1220	503/516
1.1	1606	20200	FA	127R77	DRN	132S4	1040	504/516
1.3	1390	20200	FAF	127R77	DRN	132S4	1130	503/516
1.4	1220	20200	F	127R77	DRN	132S4	1120	502/516
1.6	1077	20200	FF	127R77	DRN	132S4	1220	503/516
1.9	930	20200	FA	127R77	DRN	132S4	1040	504/516
2.1	820	20200	FAF	127R77	DRN	132S4	1130	503/516
2.4	727	20200	F	127R77	DRN	132S4	1120	502/516
2.7	648	20200	FF	127R77	DRN	132S4	1220	503/516
3.2	549	20200	FA	127R77	DRN	132S4	1040	504/516
3.6	495	20200	FAF	127R77	DRN	132S4	1130	503/516
4.1	428	20200	F	127R77	DRN	132S4	1120	502/516
			FF	127R77	DRN	132S4	1220	503/516

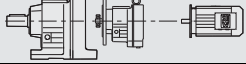

T_{a max} = 106100 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
4.7	376	20200	FA	127R77	DRN	132M4	1080	504/516
			FAF	127R77	DRN	132M4	1170	503/516
			F	127R77	DRN	132M4	1160	502/516
			FF	127R77	DRN	132M4	1260	503/516
3.7	483	20200	FA	127R87	DRN	132S4	1090	504/516
			FAF	127R87	DRN	132S4	1170	503/516
			F	127R87	DRN	132S4	1170	502/516
			FF	127R87	DRN	132S4	1270	503/516
4.2	418	20200	FA	127R87	DRN	132M4	1130	504/516
			FAF	127R87	DRN	132M4	1210	503/516
4.8	374	20200	F	127R87	DRN	132M4	1210	502/516
			FF	127R87	DRN	132M4	1310	503/516
5.7	312	20200	FA	127R87	DRN	132L4	1150	504/516
			FAF	127R87	DRN	132L4	1230	503/516
6.1	293	20200	F	127R87	DRN	132L4	1230	502/516
			FF	127R87	DRN	132L4	1330	503/516
6.9	259	20200	FA	127R87	DRN	160M4	1220	504/516
			FAF	127R87	DRN	160M4	1300	503/516
8.0	223	20200	F	127R87	DRN	160M4	1300	502/516
			FF	127R87	DRN	160M4	1400	503/516
9.0	198	20200	FA	127R87	DRN	160L4	1250	504/516
			FAF	127R87	DRN	160L4	1330	503/516
11	166	20200	F	127R87	DRN	160L4	1330	502/516
			FF	127R87	DRN	160L4	1430	503/516

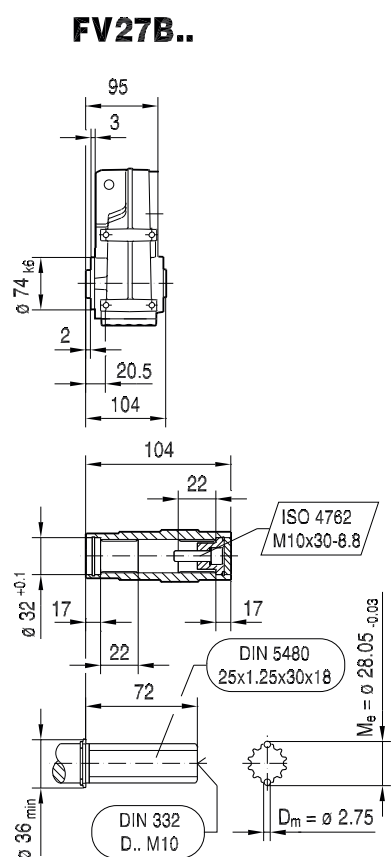
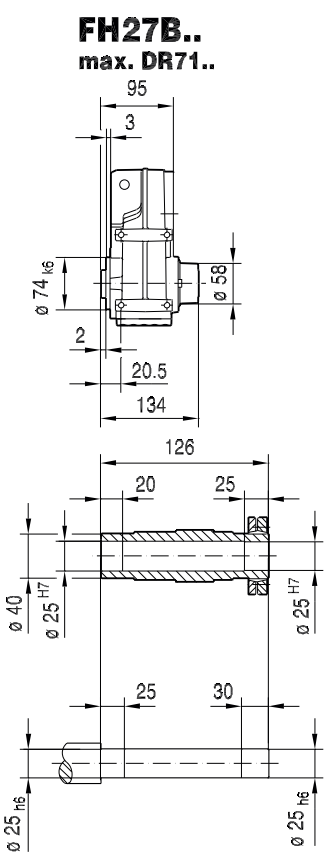
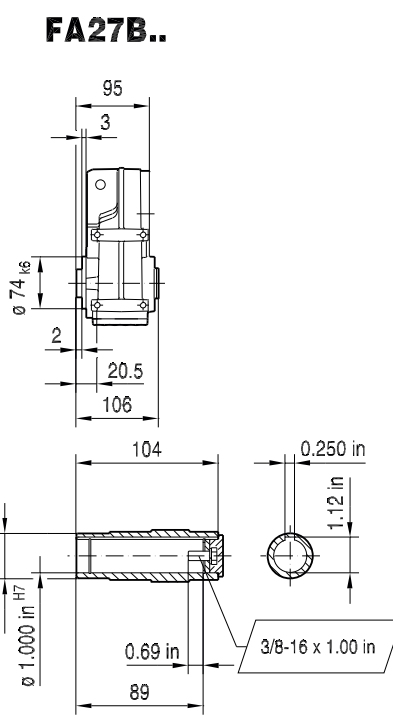
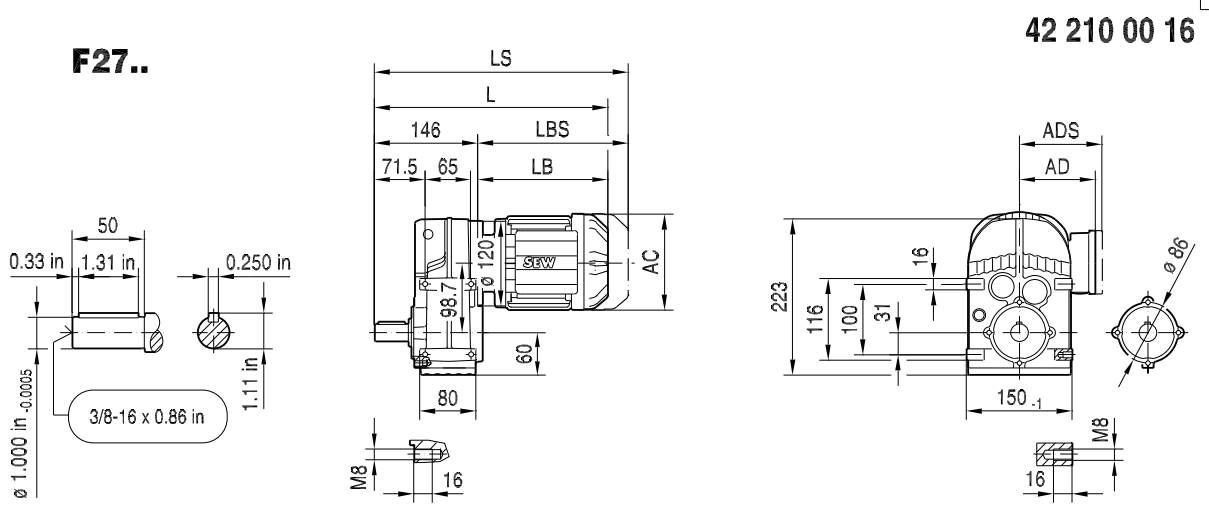
T_{a max} = 159200 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.05	31434	22500						
0.06	26173	22500						
0.07	23464	22500	FA	157R97	DRS	71M4	1690	511/516
0.08	20212	22500	FAF	157R97	DRS	71M4	1820	510/516
0.09	17984	22500	F	157R97	DRS	71M4	1740	509/516
0.10	16358	22500	FF	157R97	DRS	71M4	1970	510/516
0.12	13751	22500						
0.14	12235	22500						
0.17	10033	22500	FA	157R97	DRN	80M4	1700	511/516
			FAF	157R97	DRN	80M4	1830	510/516
0.19	9021	22500	F	157R97	DRN	80M4	1750	509/516
			FF	157R97	DRN	80M4	1980	510/516
0.22	8026	22500						
0.24	7075	22500	FA	157R97	DRS	71M4	1690	511/516
			FAF	157R97	DRS	71M4	1820	510/516
			F	157R97	DRS	71M4	1740	509/516
			FF	157R97	DRS	71M4	1970	510/516
0.28	6295	22500	FA	157R97	DRN	80M4	1700	511/516
			FAF	157R97	DRN	80M4	1830	510/516
			F	157R97	DRN	80M4	1750	509/516
			FF	157R97	DRN	80M4	1980	510/516
0.33	5404	22500	FA	157R97	DRN	90S4	1710	511/516
			FAF	157R97	DRN	90S4	1840	510/516
0.36	4831	22500	F	157R97	DRN	90S4	1760	509/516
			FF	157R97	DRN	90S4	1990	510/516
0.43	4130	22500						
0.49	3607	22500	FA	157R97	DRN	100LM4	1750	511/516
			FAF	157R97	DRN	100LM4	1870	510/516
			F	157R97	DRN	100LM4	1790	509/516
			FF	157R97	DRN	100LM4	2030	510/516
0.55	3210	22500						
0.64	2780	22500	FA	157R97	DRN	90L4	1720	511/516
			FAF	157R97	DRN	90L4	1850	510/516
			F	157R97	DRN	90L4	1770	509/516
			FF	157R97	DRN	90L4	2000	510/516

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T_{a max} = 159200 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
1.2	1441	22500	FA	157R97	DRN	100L4	1750	511/516
			FAF	157R97	DRN	100L4	1870	510/516
			F	157R97	DRN	100L4	1790	509/516
			FF	157R97	DRN	100L4	2030	510/516
0.73 0.81 0.91 1.1	2427 2185 1944 1674	22500	FA	157R97	DRN	100LM4	1740	511/516
			FAF	157R97	DRN	100LM4	1870	510/516
			F	157R97	DRN	100LM4	1780	509/516
			FF	157R97	DRN	100LM4	2020	510/516
1.4 1.5	1308 1169	22500	FA	157R97	DRN	100L4	1740	511/516
			FAF	157R97	DRN	100L4	1870	510/516
			F	157R97	DRN	100L4	1780	509/516
			FF	157R97	DRN	100L4	2020	510/516
1.9	953	22500	FA	157R97	DRN	112M4	1760	511/516
			FAF	157R97	DRN	112M4	1890	510/516
			F	157R97	DRN	112M4	1800	509/516
			FF	157R97	DRN	112M4	2040	510/516
2.1 2.3 2.6	845 764 680	22500	FA	157R97	DRN	132S4	1780	511/516
			FAF	157R97	DRN	132S4	1910	510/516
			F	157R97	DRN	132S4	1830	509/516
			FF	157R97	DRN	132S4	2060	510/516
3.1 3.5	576 503	22500	FA	157R97	DRN	132M4	1820	511/516
			FAF	157R97	DRN	132M4	1950	510/516
			F	157R97	DRN	132M4	1870	509/516
			FF	157R97	DRN	132M4	2100	510/516
4.0	446	22500	FA	157R97	DRN	132L4	1840	511/516
			FAF	157R97	DRN	132L4	1970	510/516
			F	157R97	DRN	132L4	1890	509/516
			FF	157R97	DRN	132L4	2120	510/516
5.0	353	22500	FA	157R97	DRN	160M4	1910	511/516
			FAF	157R97	DRN	160M4	2040	510/516
			F	157R97	DRN	160M4	1960	509/516
			FF	157R97	DRN	160M4	2190	510/516
5.9 6.5	302 273	22500	FA	157R97	DRN	160L4	1950	511/516
			FAF	157R97	DRN	160L4	2080	510/516
			F	157R97	DRN	160L4	1990	509/516
			FF	157R97	DRN	160L4	2230	510/516
7.7 8.8 9.1	232 202 197	22500	FA	157R97	DRN	180M4	2000	511/516
			FAF	157R97	DRN	180M4	2130	510/516
			F	157R97	DRN	180M4	2040	509/516
			FF	157R97	DRN	180M4	2280	510/516

9.5 F.. DRS/DRN.. Dimensions

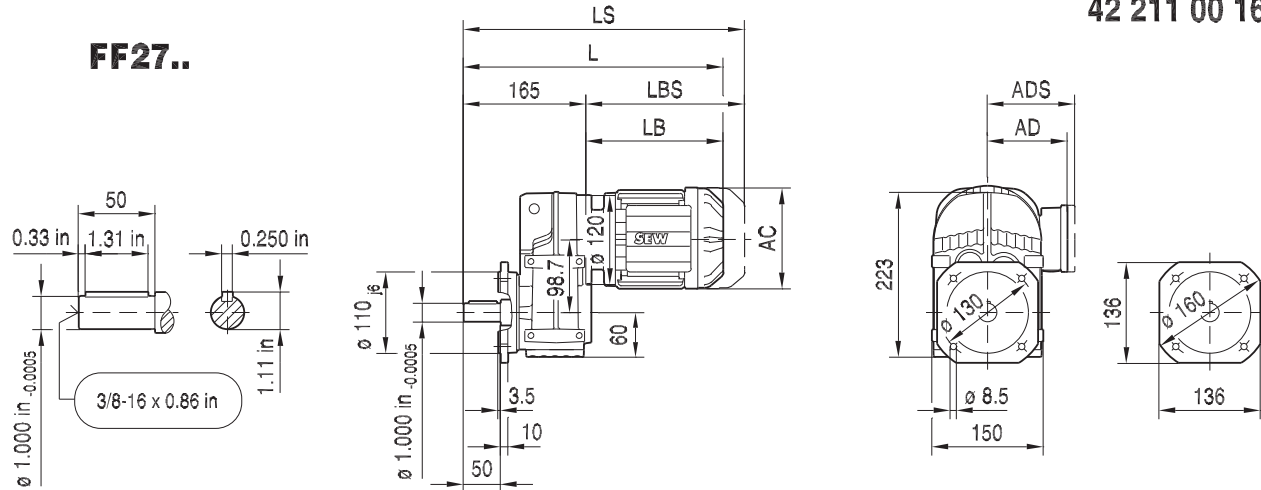


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	337	348	373	400	428	429	461	510
LS	392	416	441	481	509	523	555	604
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

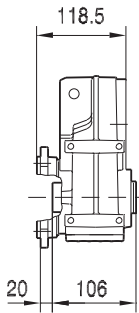
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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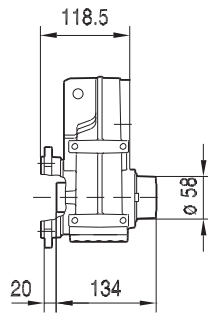
42 211 00 16



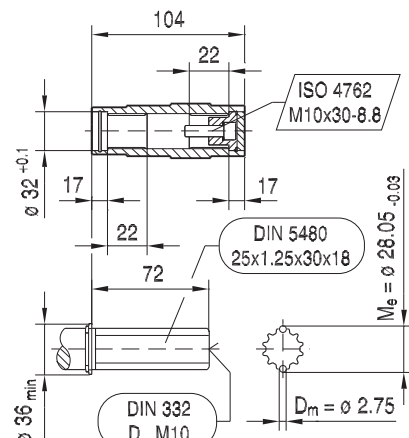
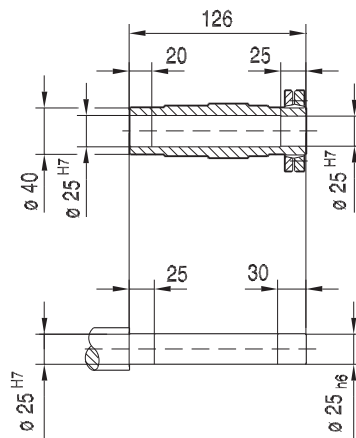
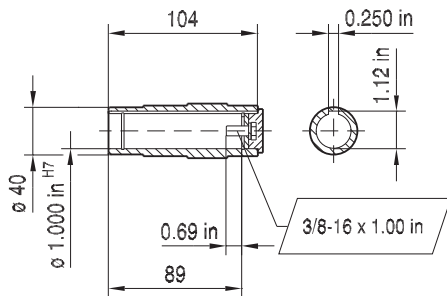
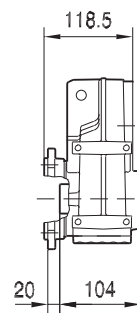
FAF27..



FHF27..
max. DR71..



FVF27..

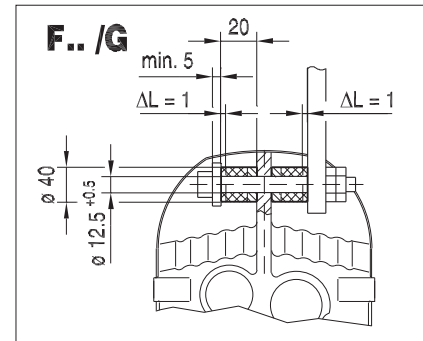
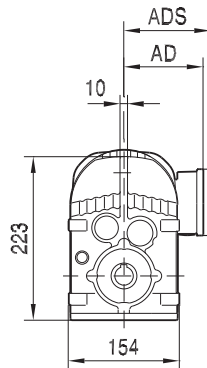
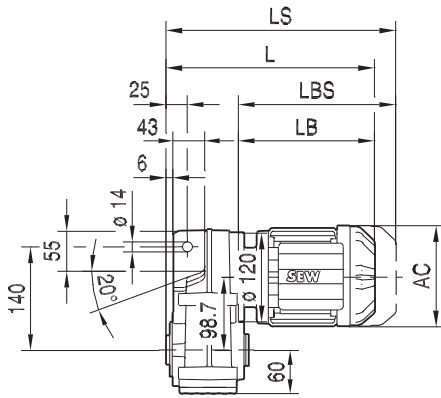


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	356	367	392	419	447	448	480	529
LS	411	435	460	500	528	542	574	623
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FA27..

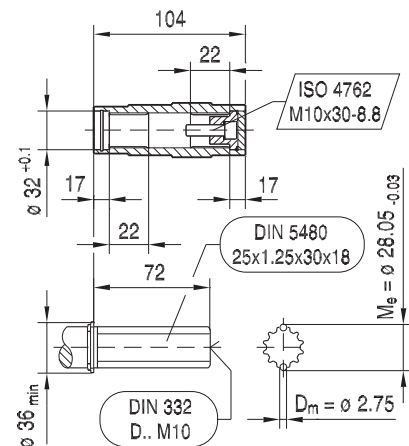
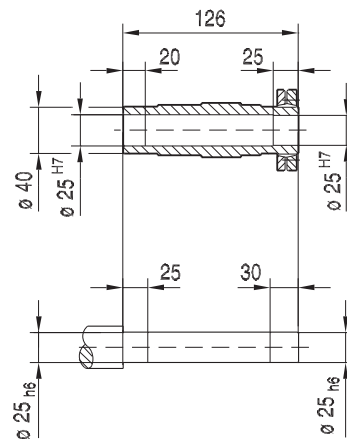
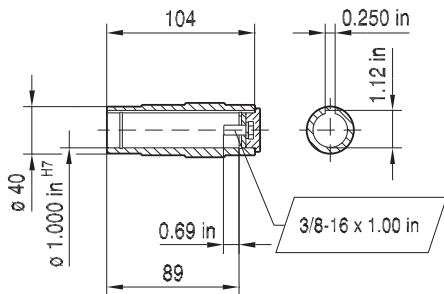
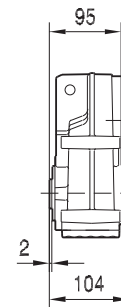
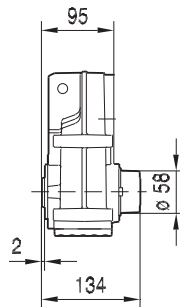
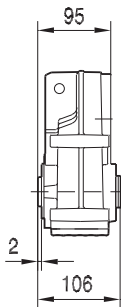
42 212 00 16



FA27..

FH27..
max. DR71..

FV27..



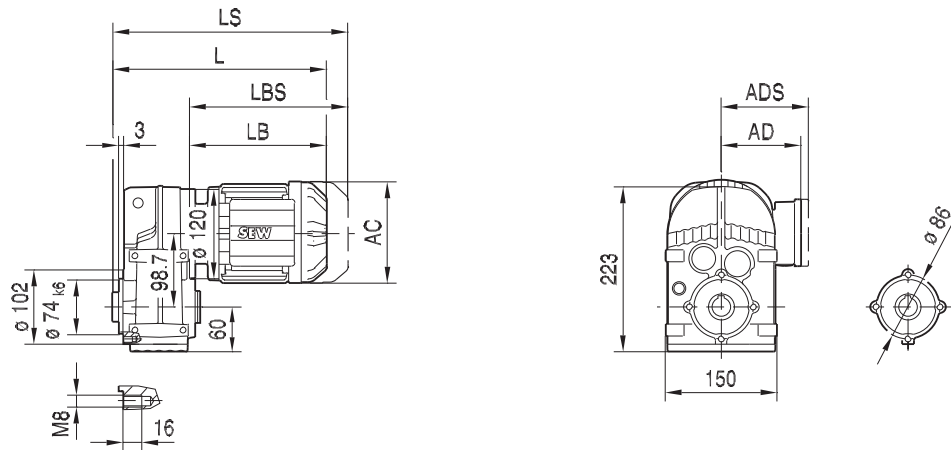
(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	286	297	322	349	377	378	410	459
LS	341	365	390	430	458	472	504	553
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

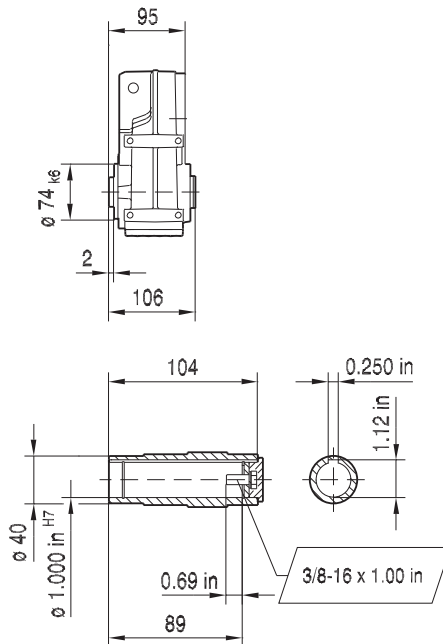
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42 213 00 16

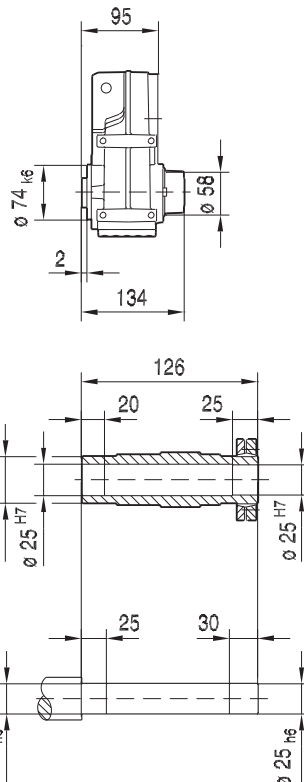
FAZ27..



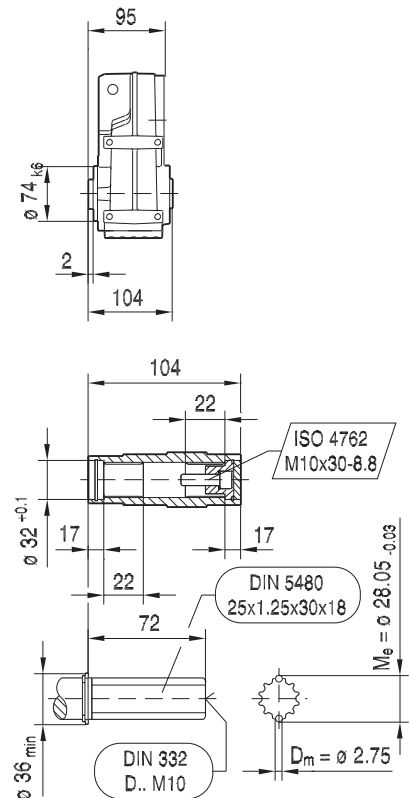
FAZ27..



FHZ27..
max. DR71..



FVZ27..



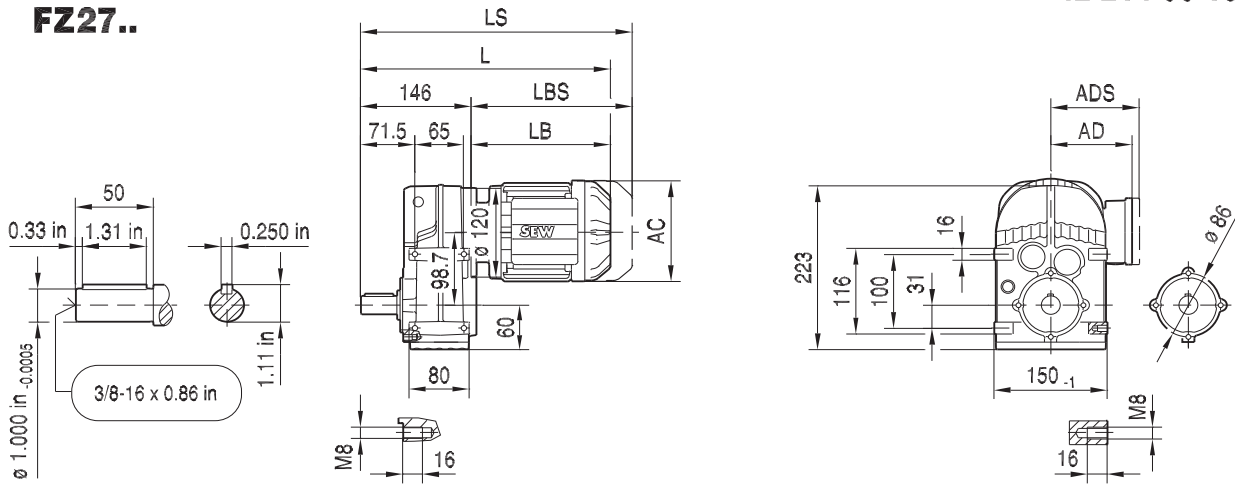
(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	286	297	322	349	377	378	410	459
LS	341	365	390	430	458	472	504	553
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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42 214 00 16

FZ27..



9

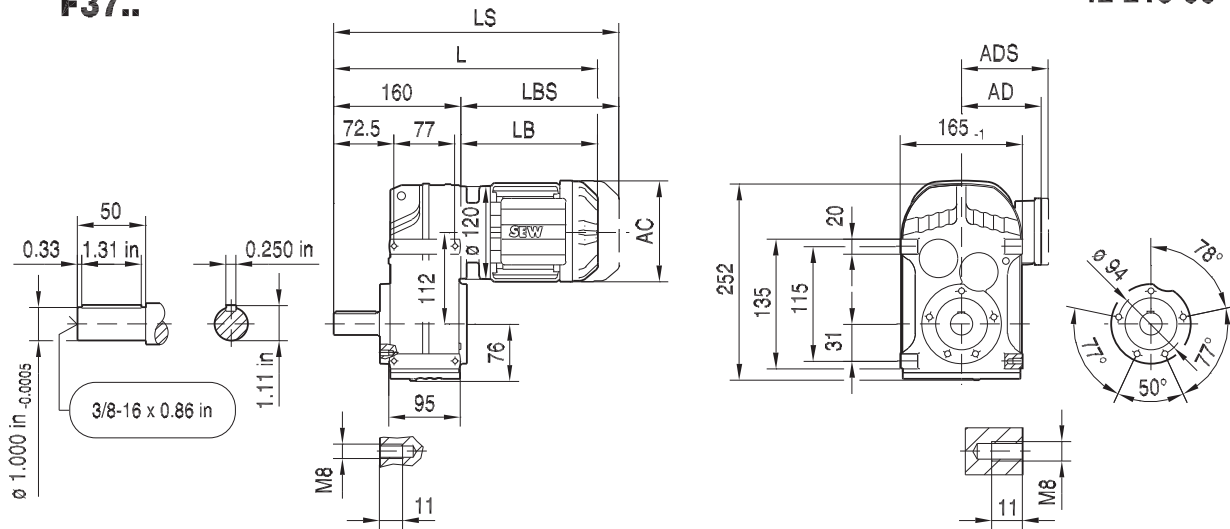
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	207	218	243	270	298	299	331	380
LS	262	286	311	351	379	393	425	474
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

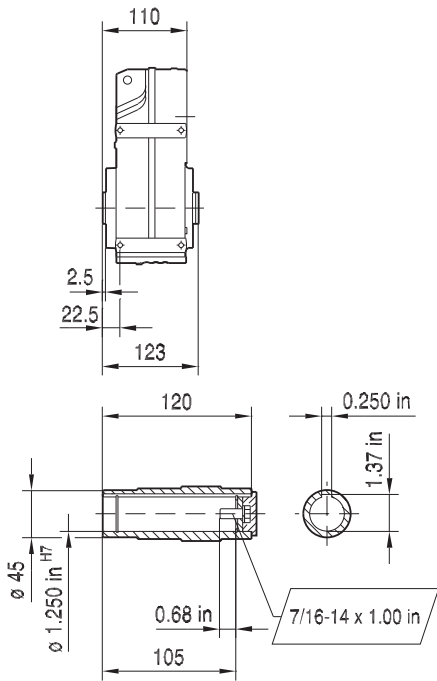
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

42 215 00 16

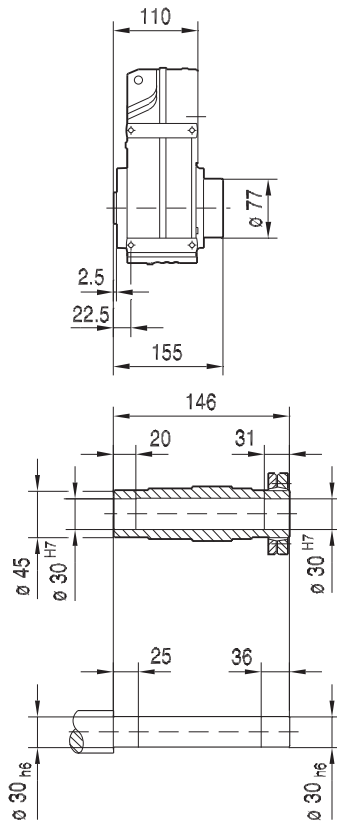
F37..



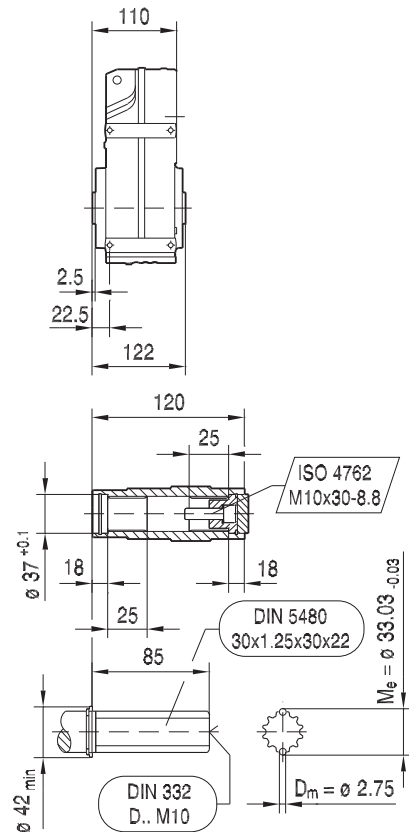
FA37B..



FH37B..



FV37B..

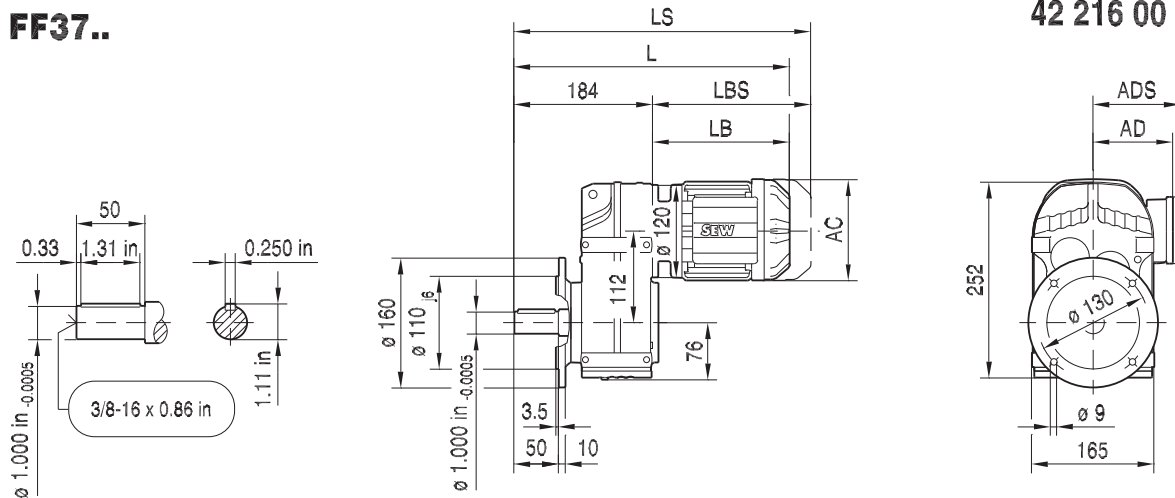


(↔ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	351	362	387	442	443	475	524
LS	406	430	455	523	537	569	618
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FF37..

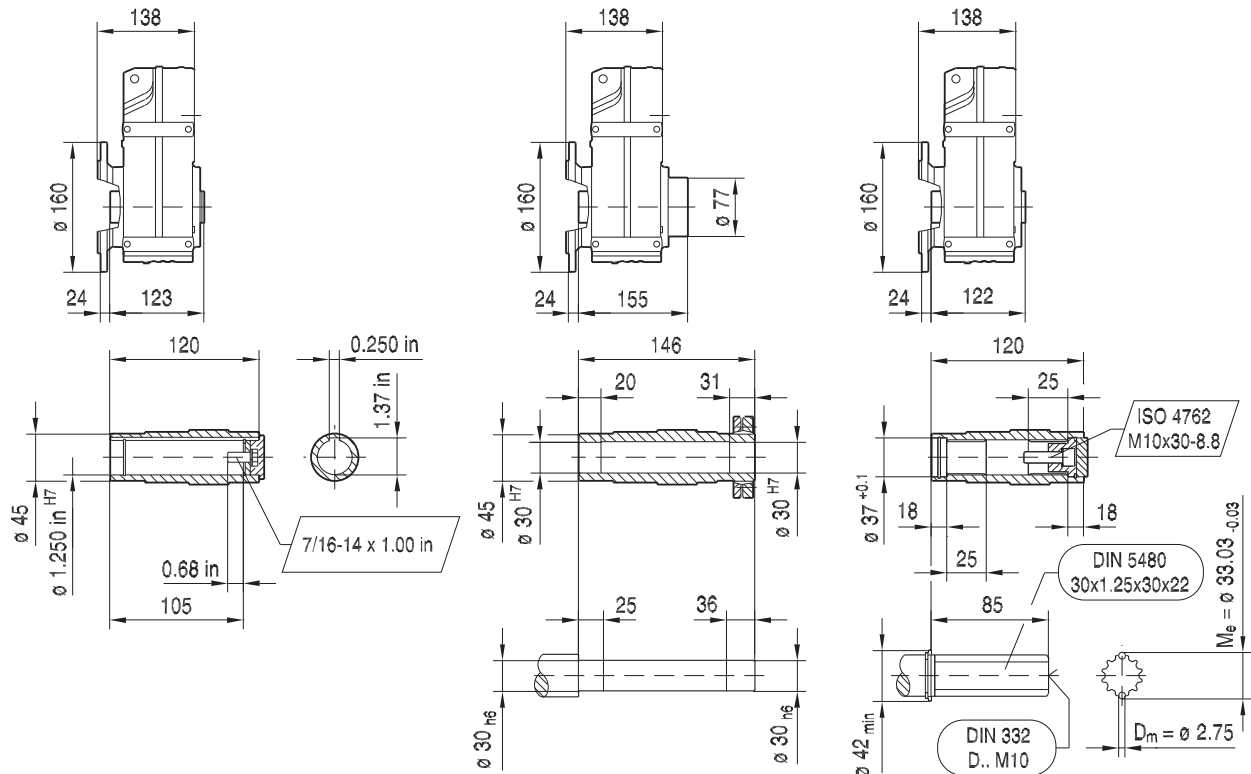
42 216 00 16



FAF37..

FHF37..

FVF37..

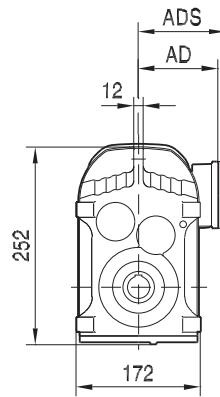
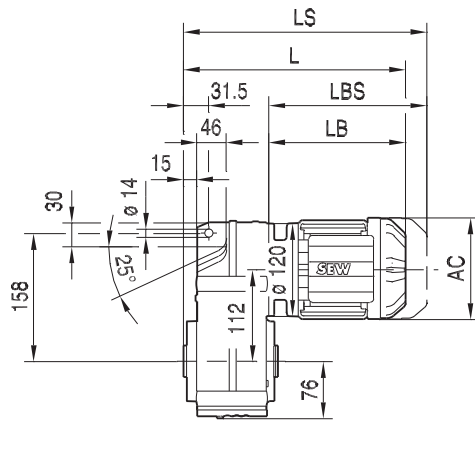


(163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	375	386	411	466	467	499	548
LS	430	454	479	547	561	593	642
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

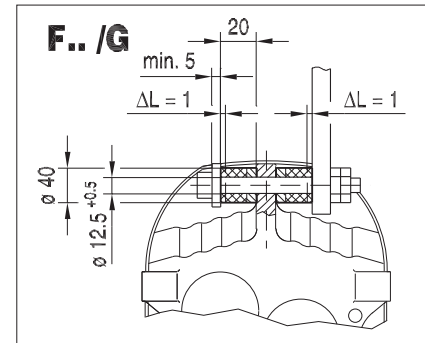
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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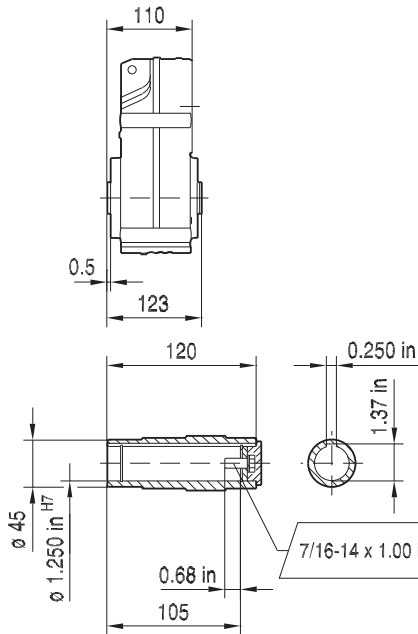
FA37..



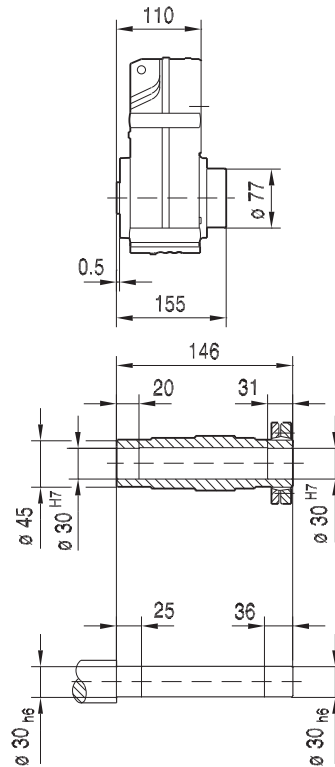
42 217 00 16



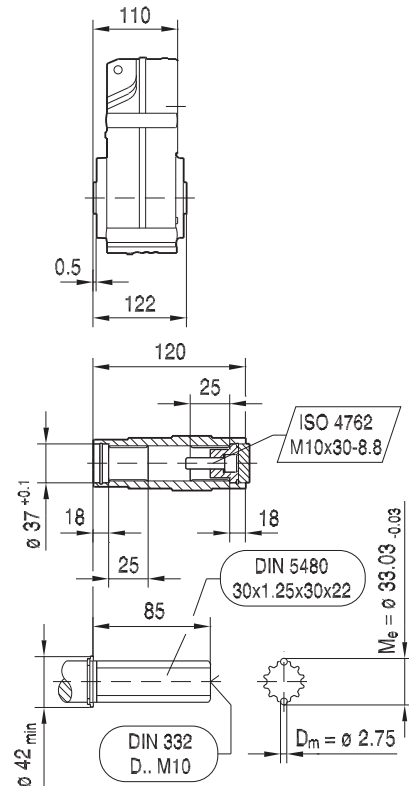
FA37..



FH37..



FV37..



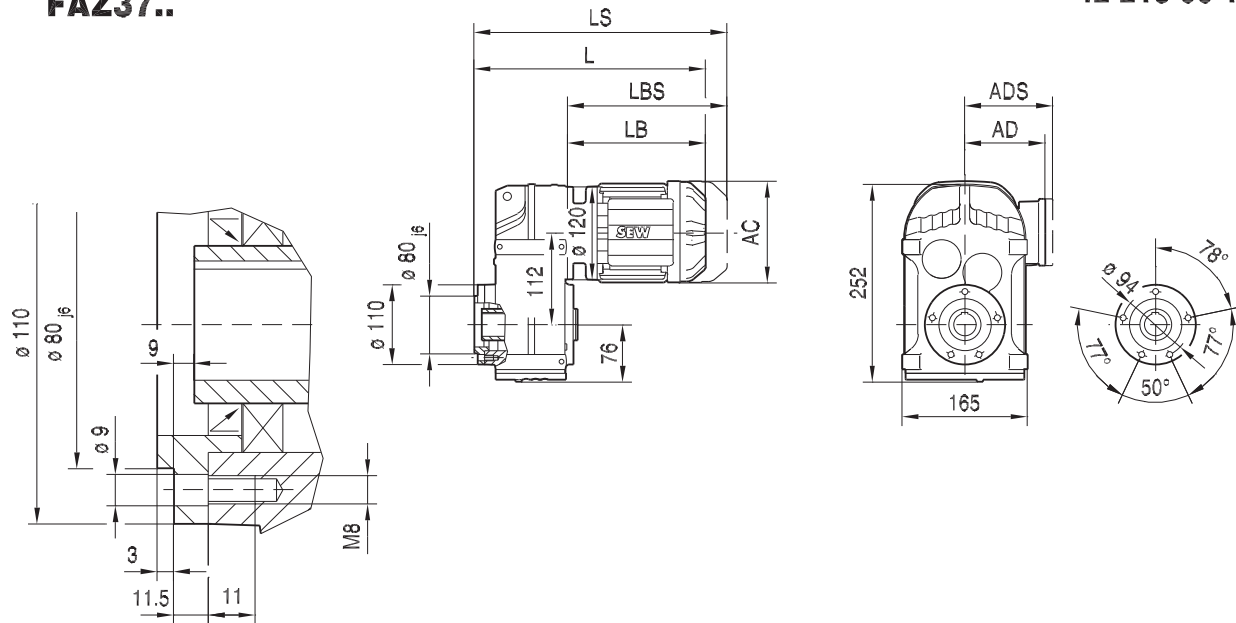
(↶ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	301	312	337	392	393	425	474
LS	356	380	405	473	487	519	568
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FAZ37..

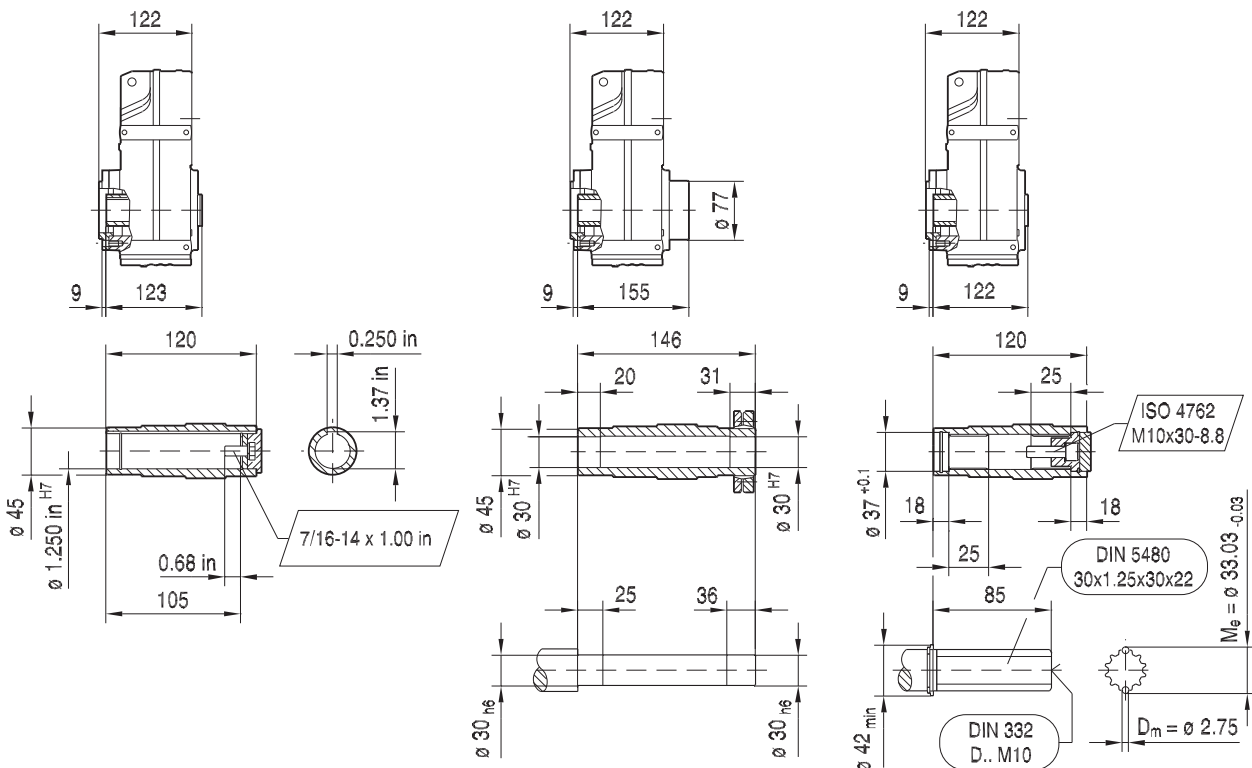
42 218 00 16



FAZ37..

FHZ37..

FVZ37..



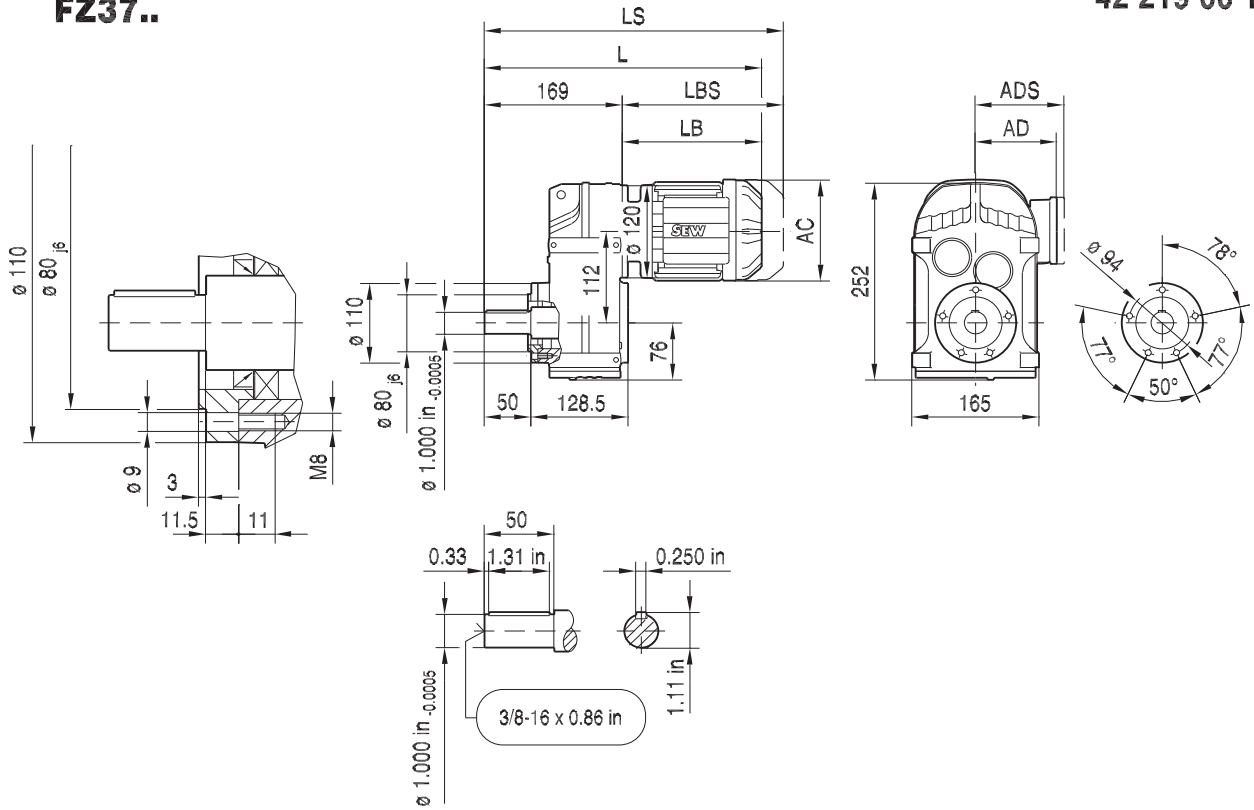
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	313	324	349	404	405	437	486
LS	368	392	417	485	499	531	580
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

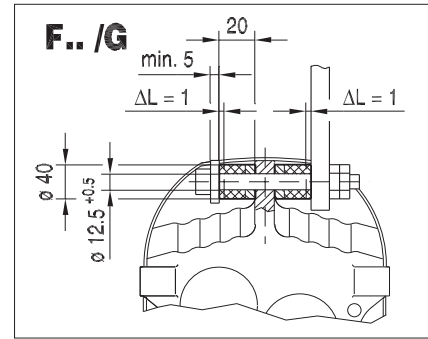
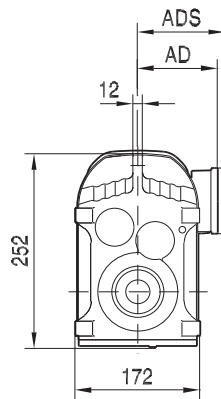
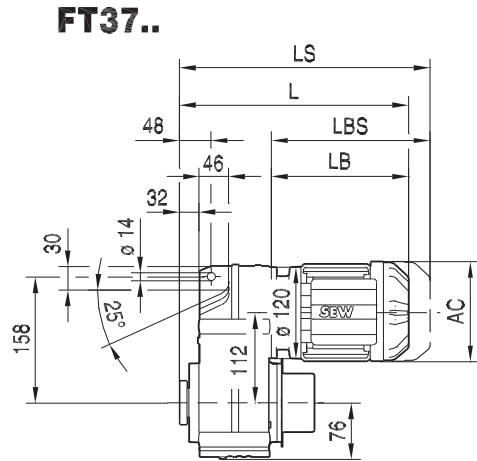
FZ37..

42 219 00 16



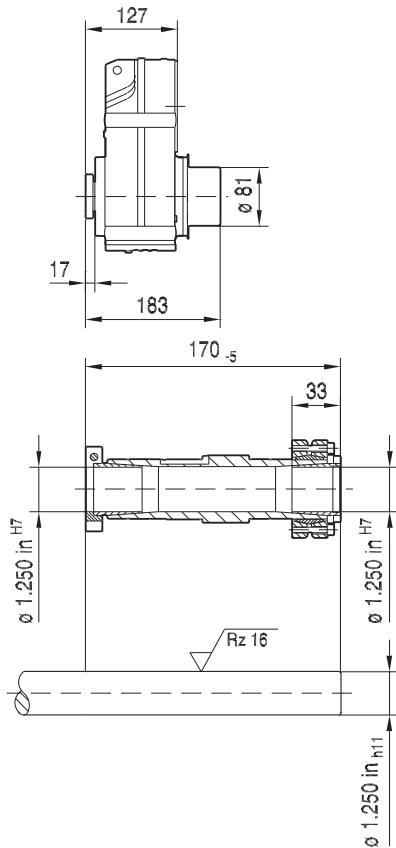
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	360	371	396	451	452	484	533
LS	415	439	464	532	546	578	627
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

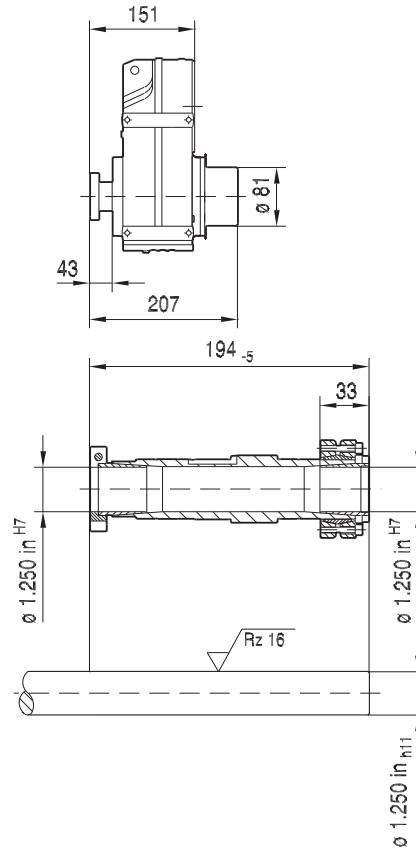


42 220 00 16

**FT37..
NON-Symmetrical**



**FT37B..
Symmetrical**



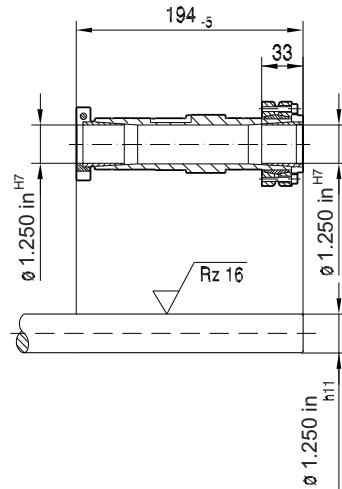
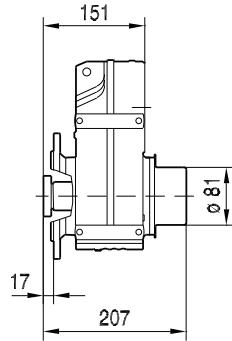
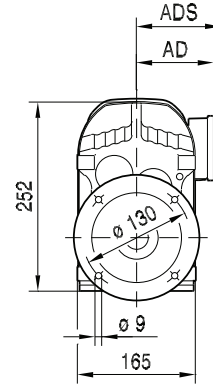
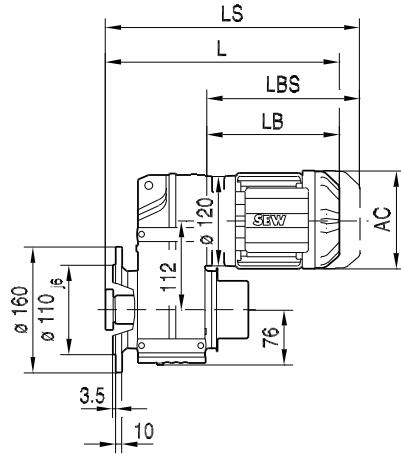
(→ 163)	DR63	DRS71S	DRS71M	DRN80M ¹⁾	DRN90S ¹⁾	DRN90L ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	318	329	354	409	410	442	491
LS	373	397	422	490	504	536	585
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF37..

42 023 03 13 US



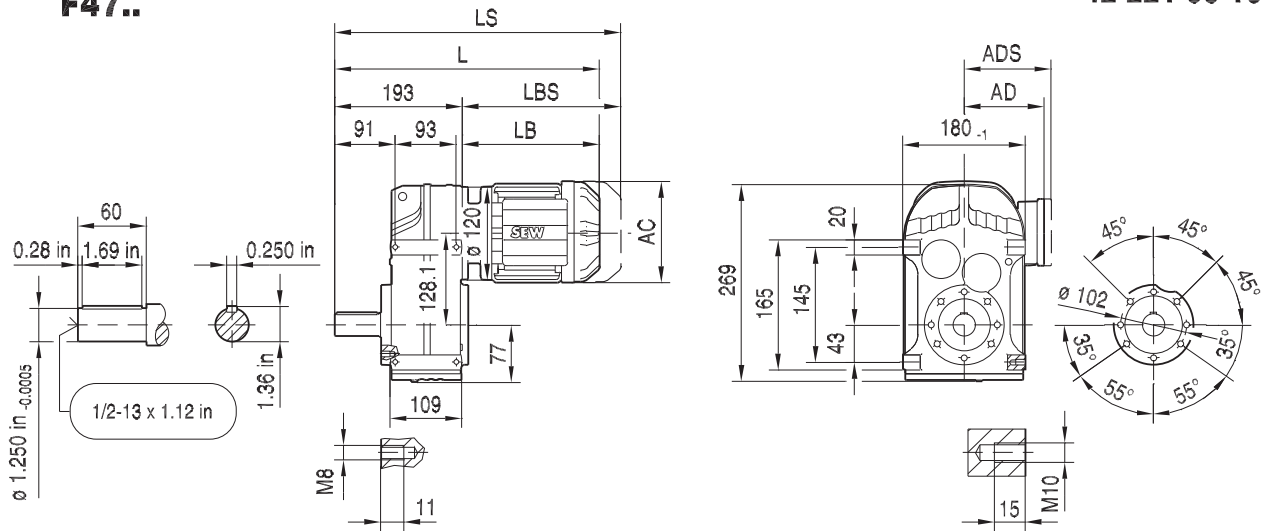
(→ 163)	DR63	DRS71S	DRS71M	DRN80M ¹⁾	DRN90S ¹⁾	DRN90L ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	342	353	378	433	434	466	515
LS	397	421	446	514	528	560	609
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

F47..

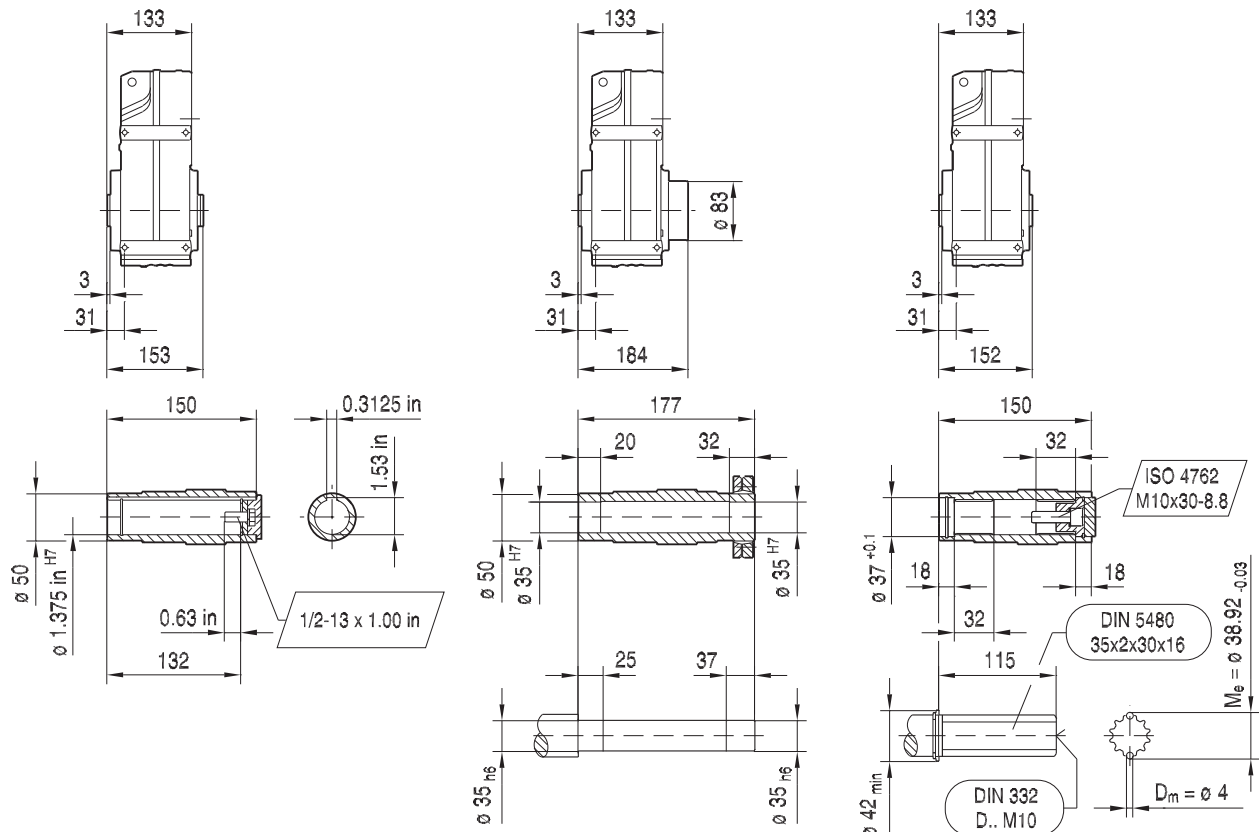
42 221 00 16



FA47B..

FH47B..

FV47B..



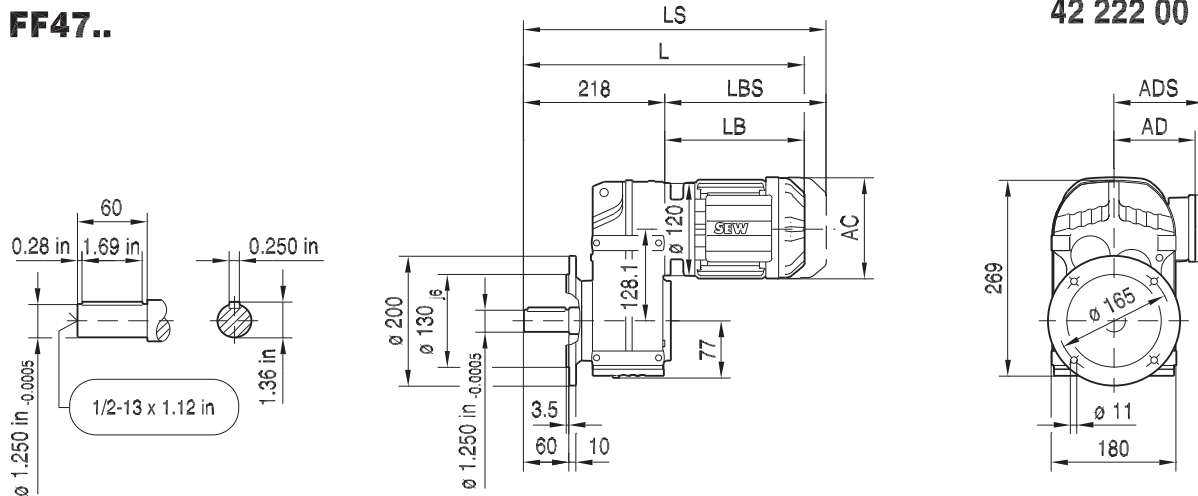
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	384	395	420	475	476	508	557
LS	439	463	488	556	570	602	651
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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FF47..

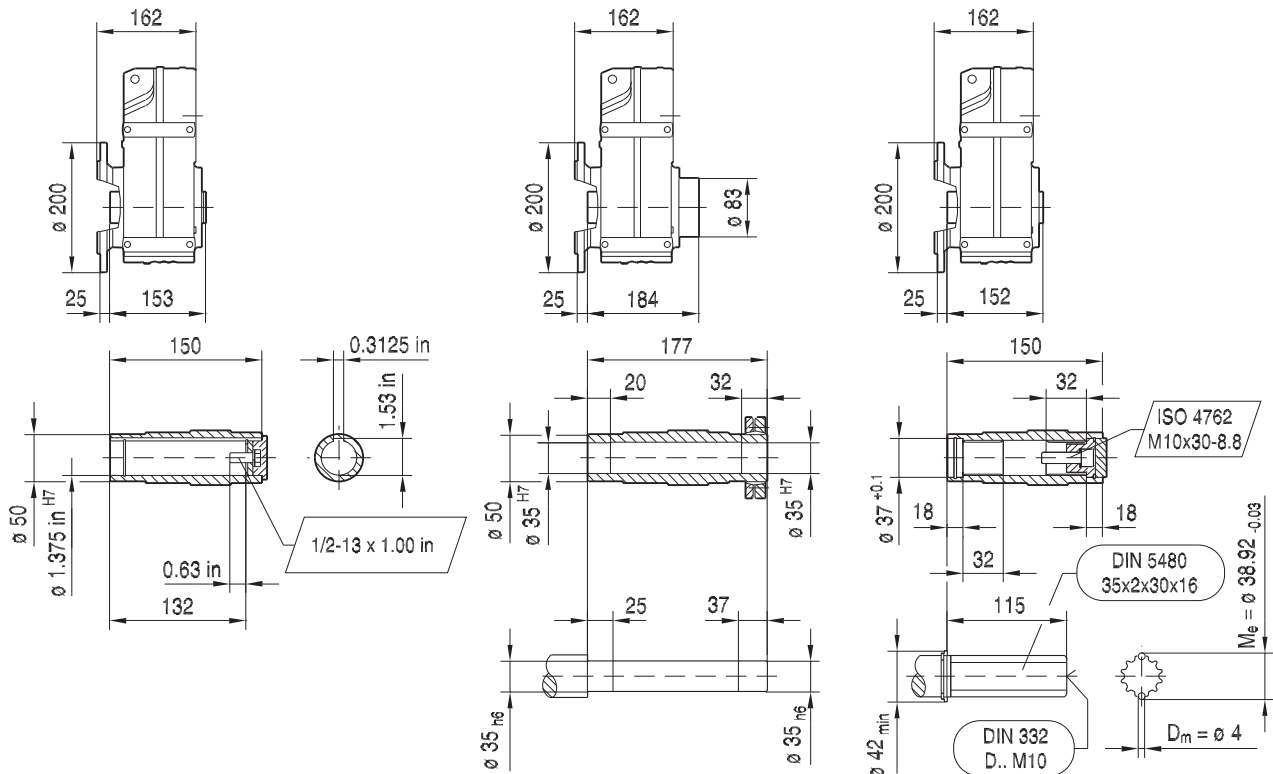
42 222 00 16



FAF47..

FHF47..

FVF47..



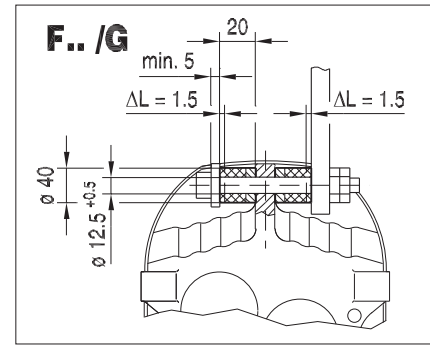
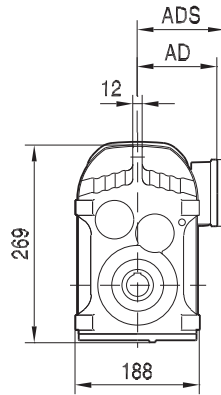
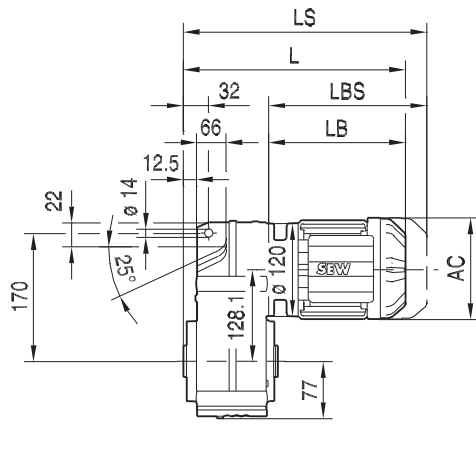
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	409	420	445	500	501	533	582
LS	464	488	513	581	595	627	676
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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FA47..

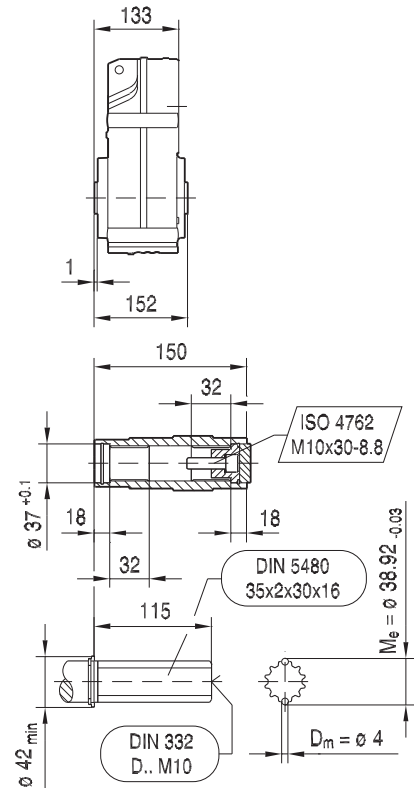
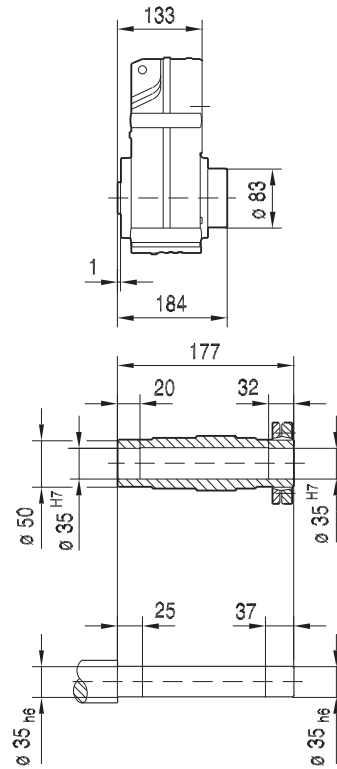
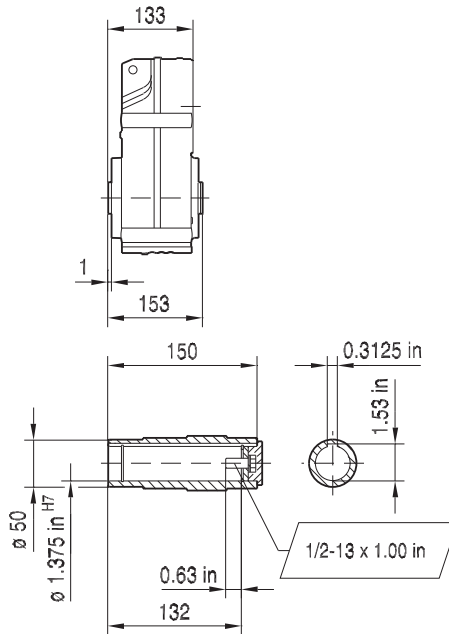
42 223 00 16



FA47..

FH47..

FV47..



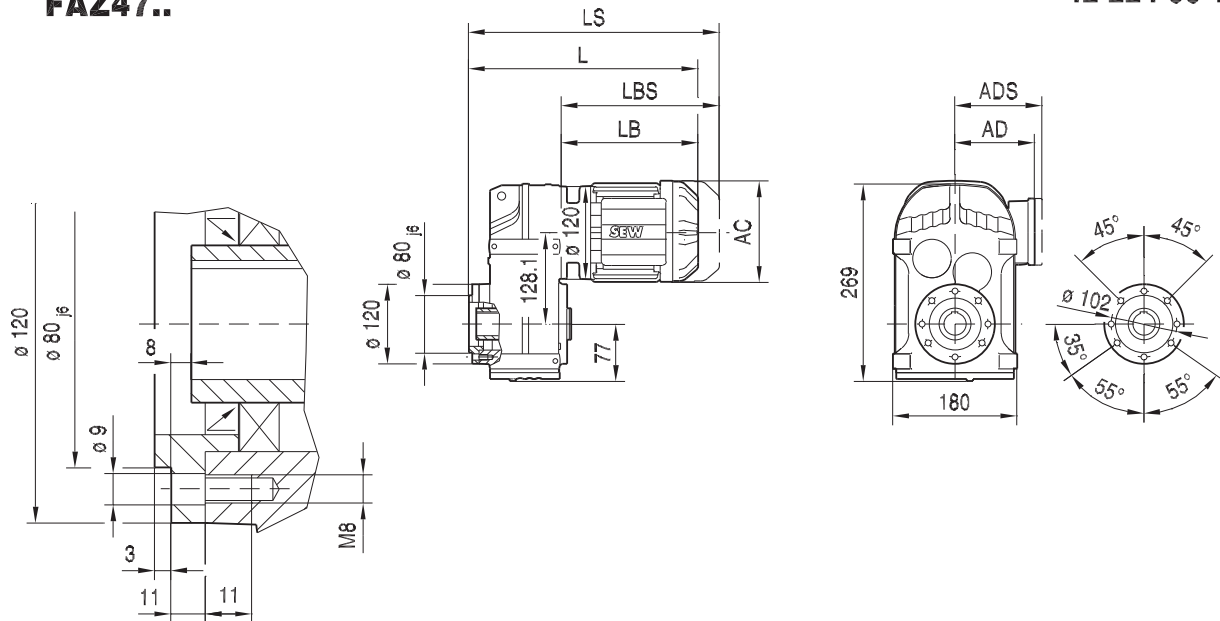
(↔ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	324	335	360	415	416	448	497
LS	379	403	428	496	510	542	591
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

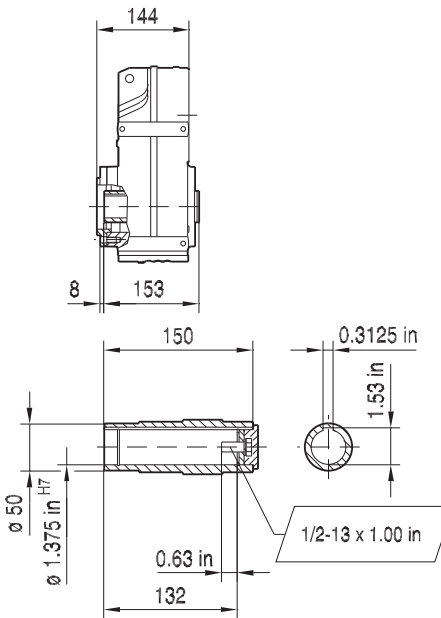
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42 224 00 16

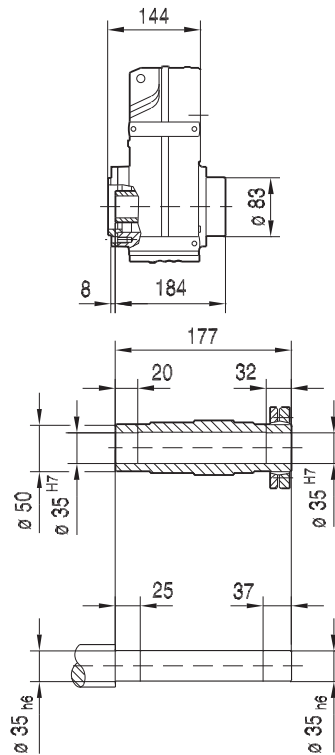
FAZ47..



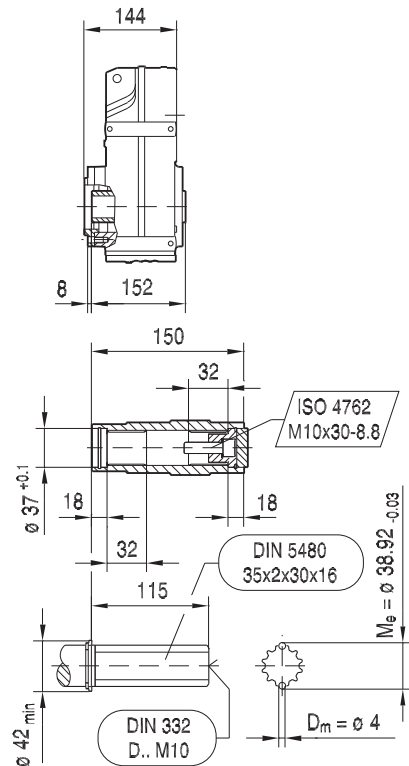
FAZ47..



FHZ47..



FVZ47..



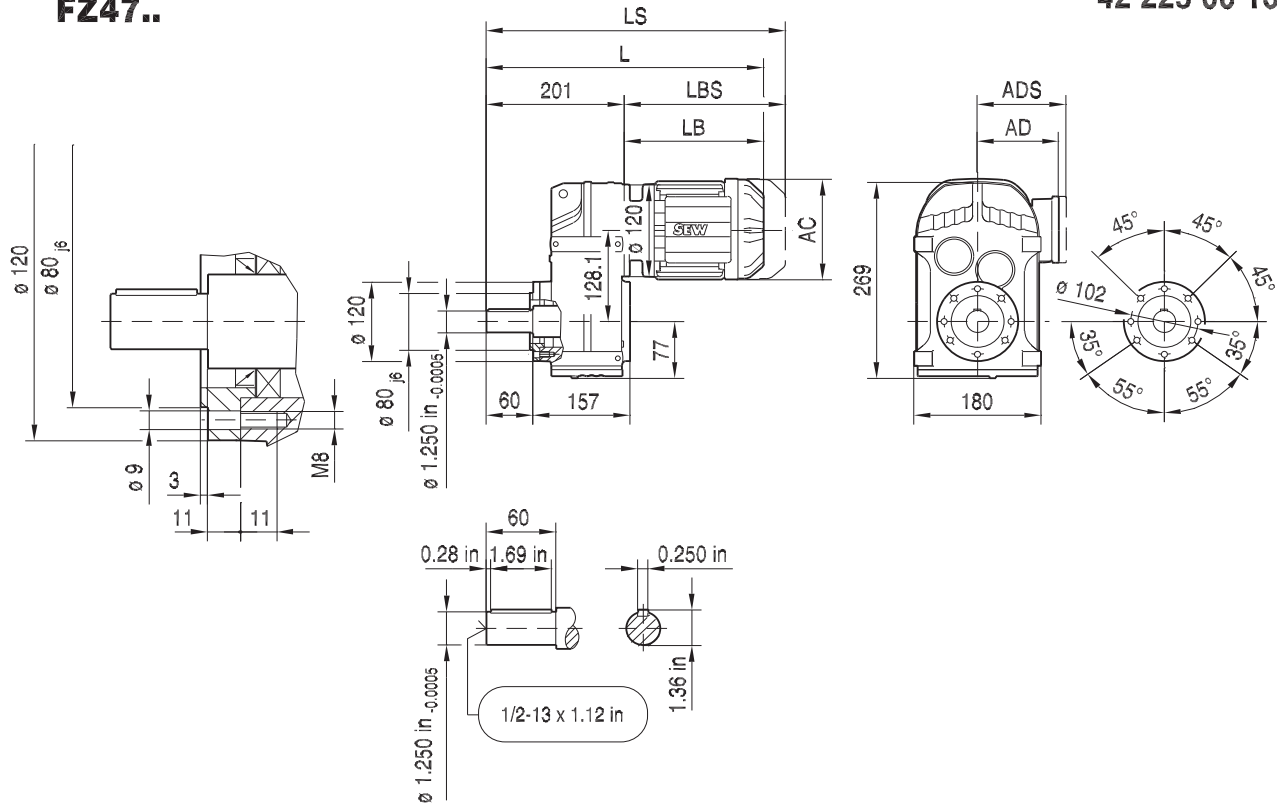
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	335	346	371	426	427	459	508
LS	390	414	439	507	521	553	602
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ47..

42 225 00 16

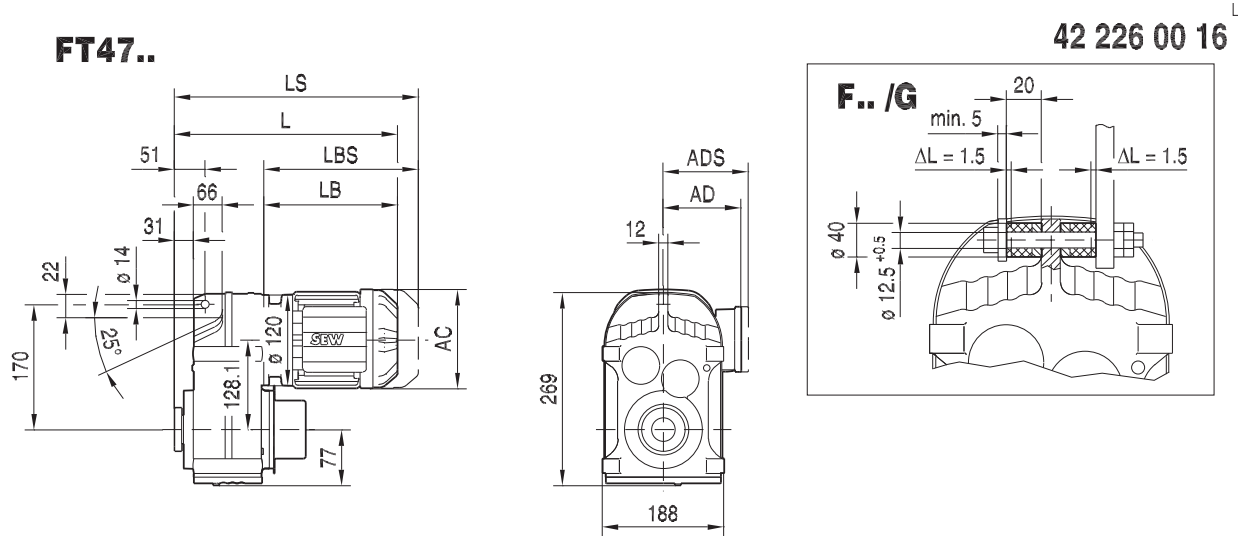


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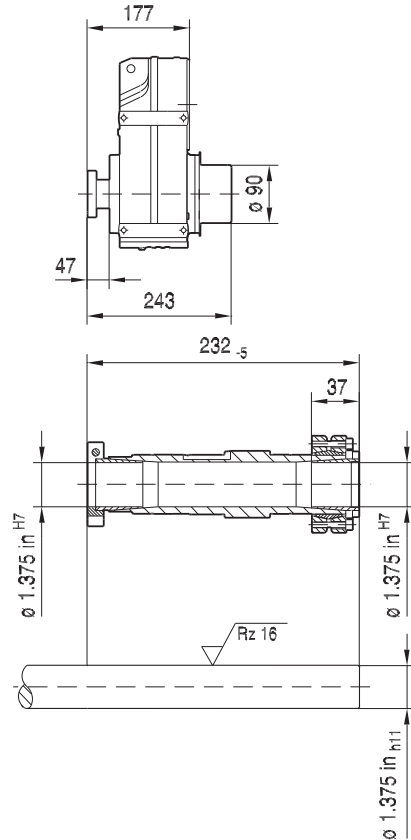
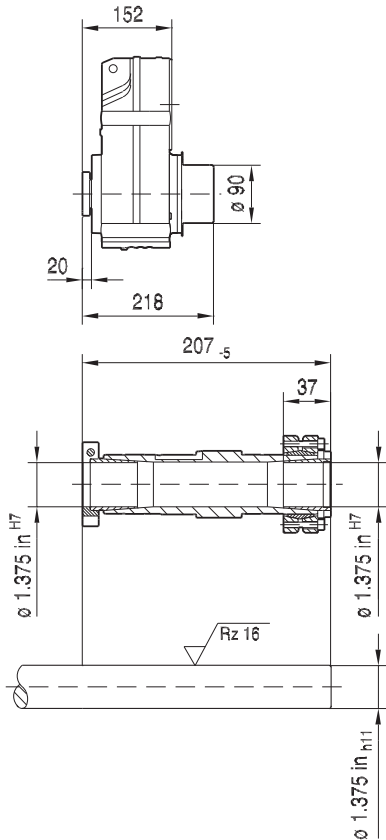
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	392	403	428	483	484	516	565
LS	447	471	496	564	578	610	659
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.



FT47..
NON-Symmetrical

FT47B..
Symmetrical

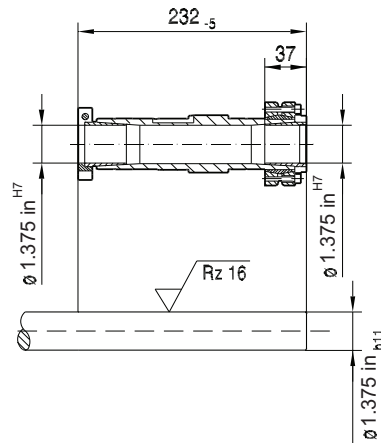
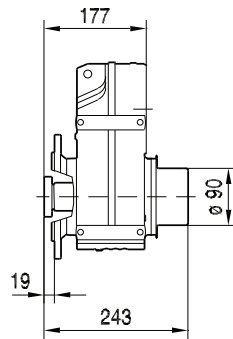
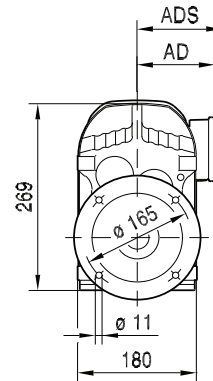
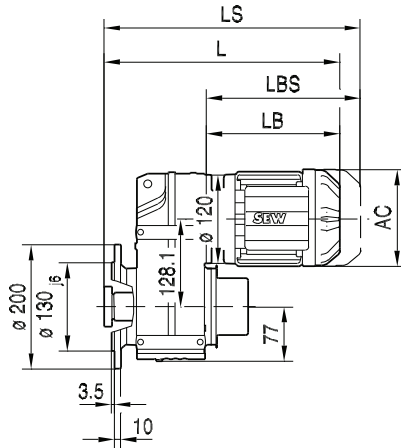


(→ 163)	DR63	DRS71S	DRS71M	DRN80M ¹⁾	DRN90S ¹⁾	DRN90L ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	343	354	379	434	435	467	516
LS	398	422	447	515	529	561	610
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

¹⁾ Combination requires a modified shaft cover. See page 142.
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF47..

42 024 03 13 US



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(→ 163)	DR63	DRS71S	DRS71M	DRN80M ¹⁾	DRN90S ¹⁾	DRN90L ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	368	379	404	459	460	492	541
LS	423	447	472	540	554	586	635
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

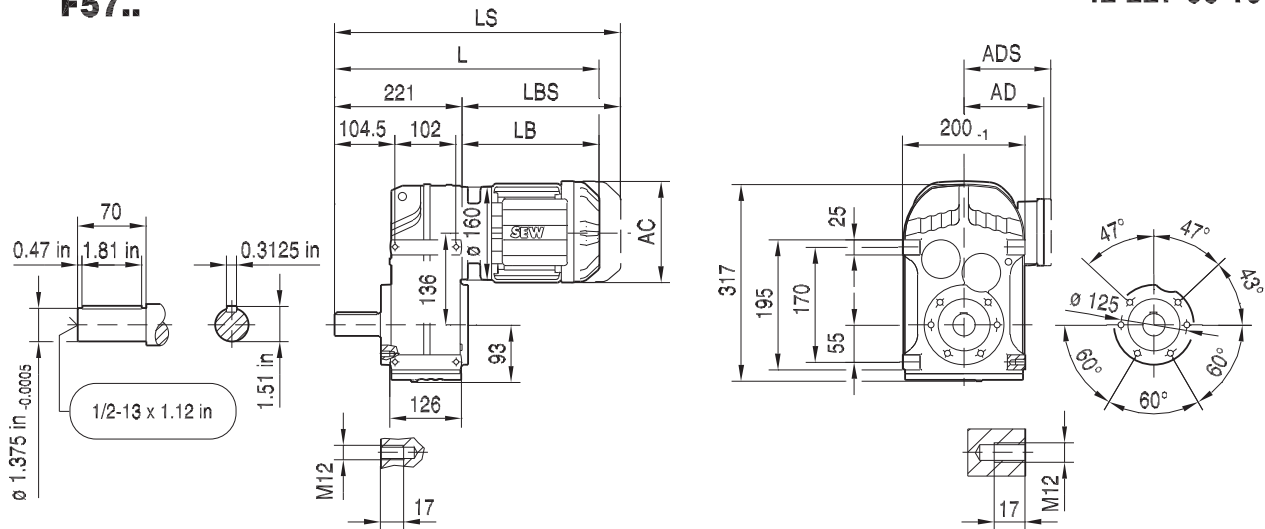
¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

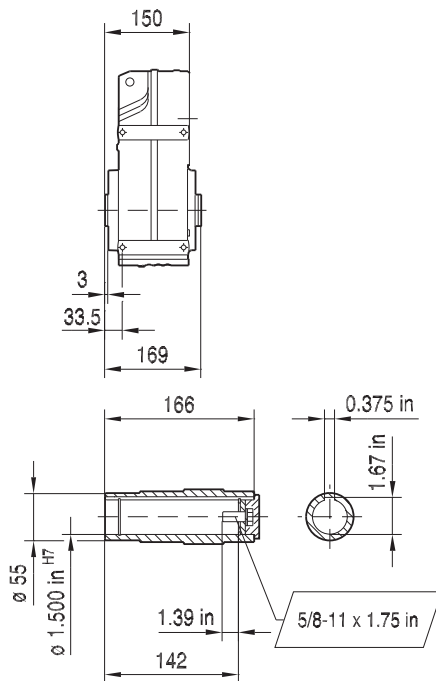
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42 227 00 16

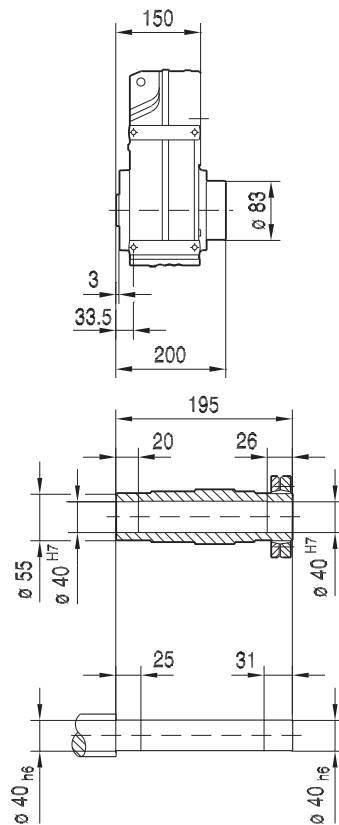
F57..



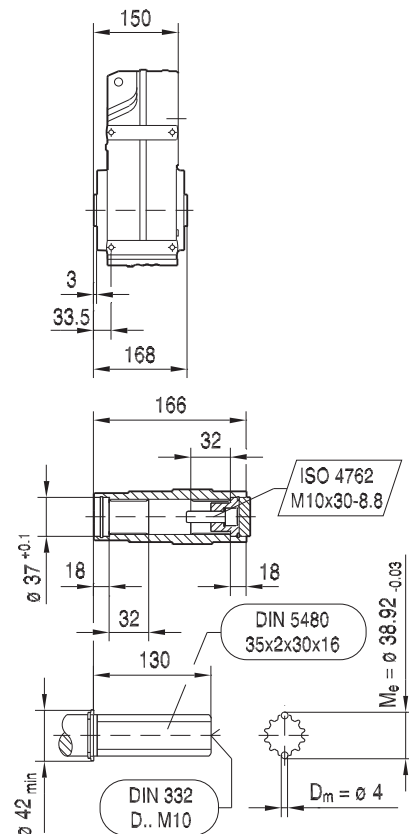
FA57B..



FH57B.. max. DRN100L..



FV57B..

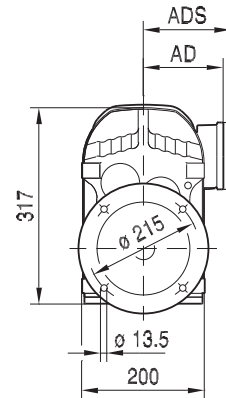
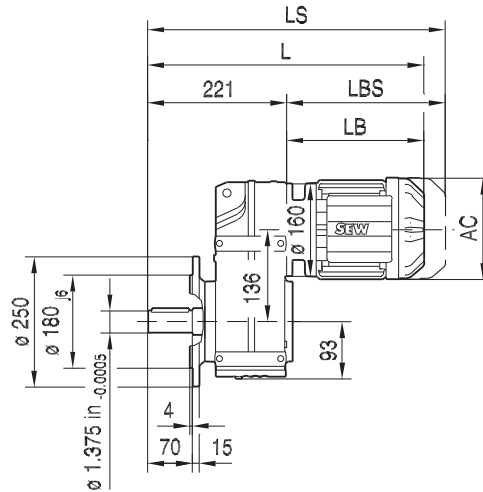
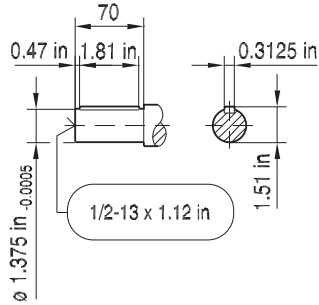


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	406	417	442	496	498	530	576	607	661	679
LS	461	485	510	577	591	623	670	719	773	817
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FF57..

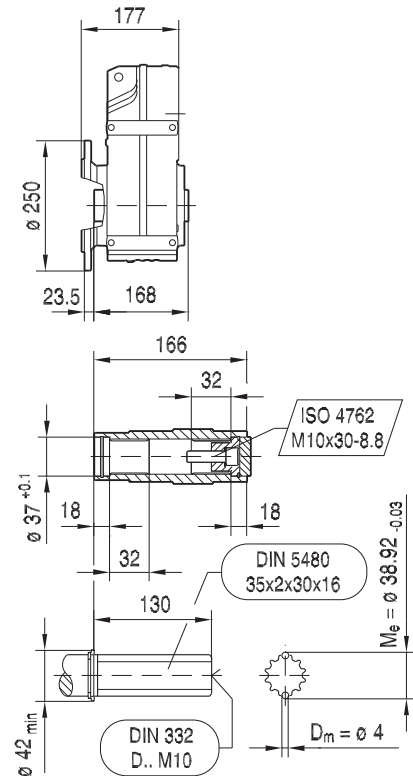
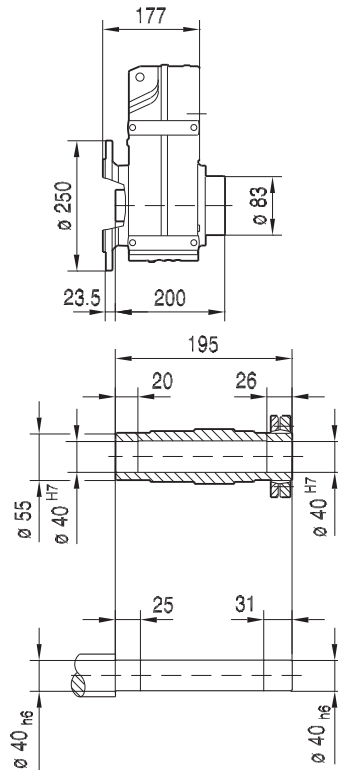
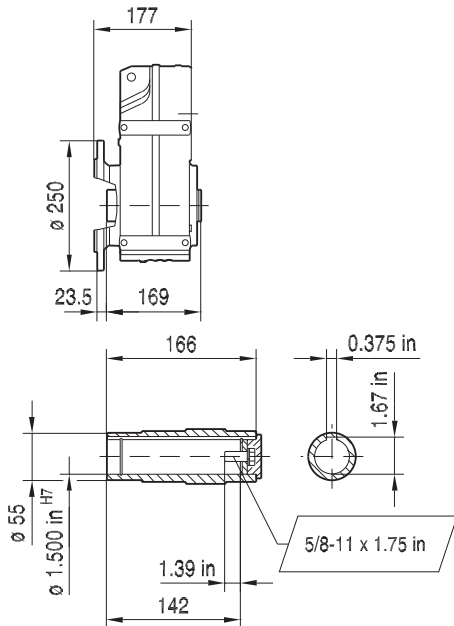
42 228 00 16



FAF57..

FHF57..
max. DRN100L..

FVF57..

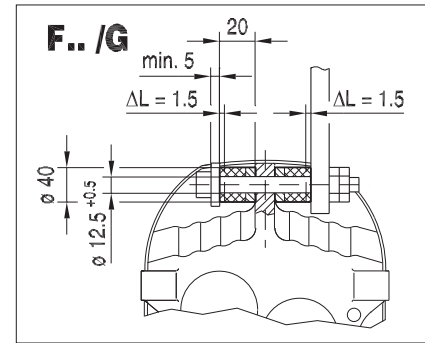
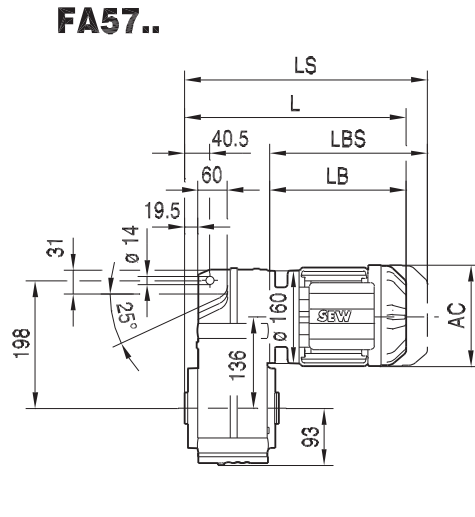


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	428	439	464	518	520	552	598	629	683	701
LS	483	507	532	599	613	645	692	741	795	839
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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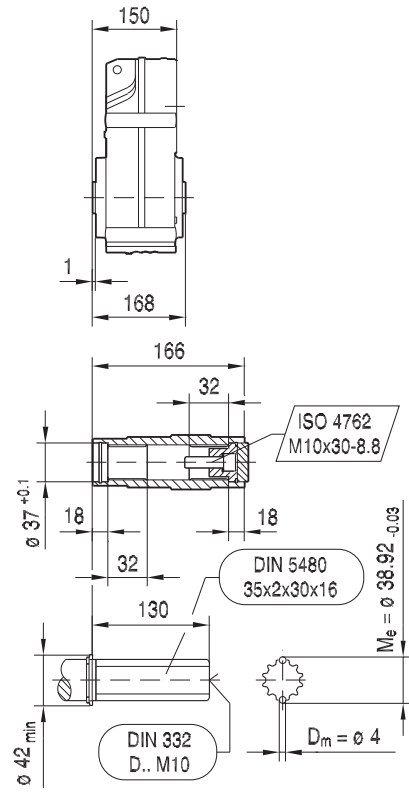
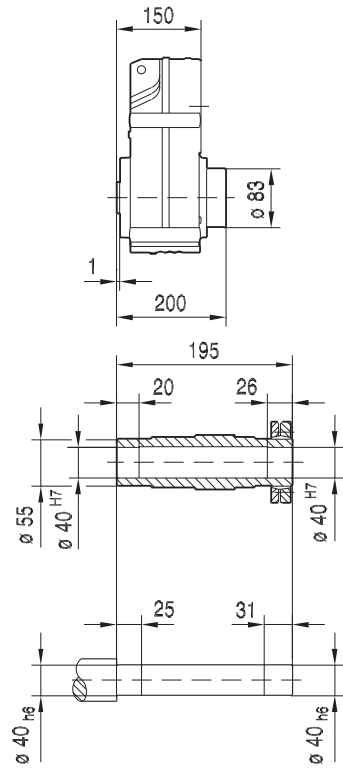
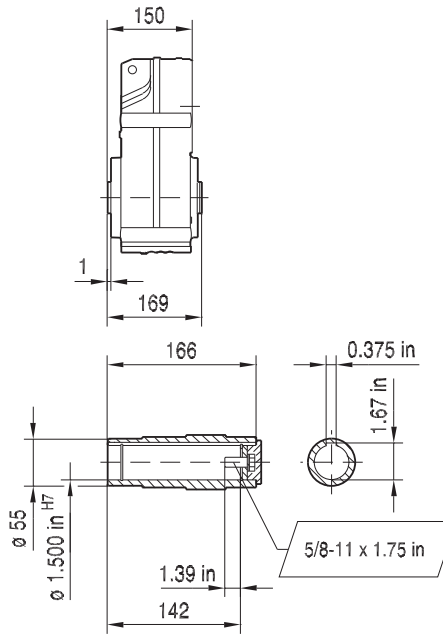
42 229 00 16



FA57..

FH57..
max. DRN100L..

FV57..

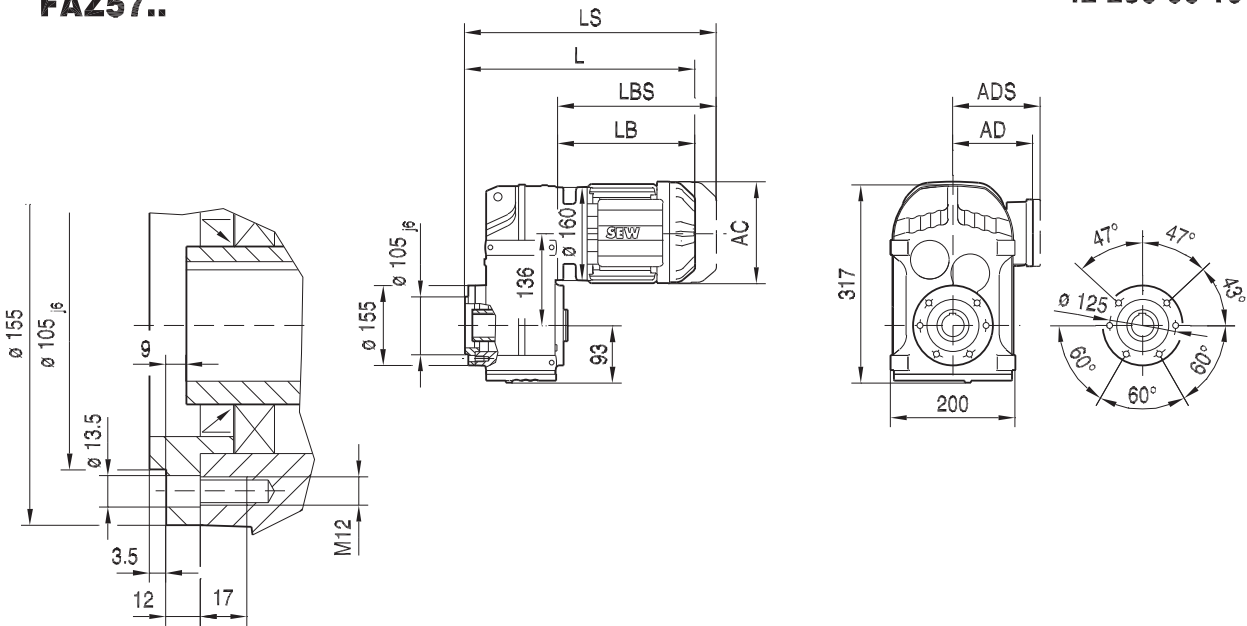


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	335	346	371	425	427	459	505	536	590	608
LS	390	414	439	506	520	552	599	648	702	746
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

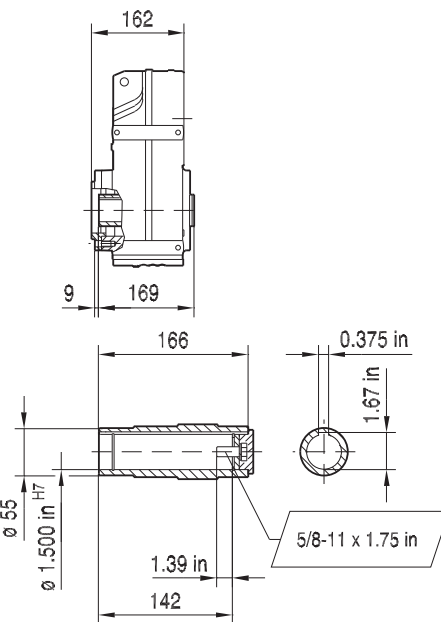
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

42 230 00 16

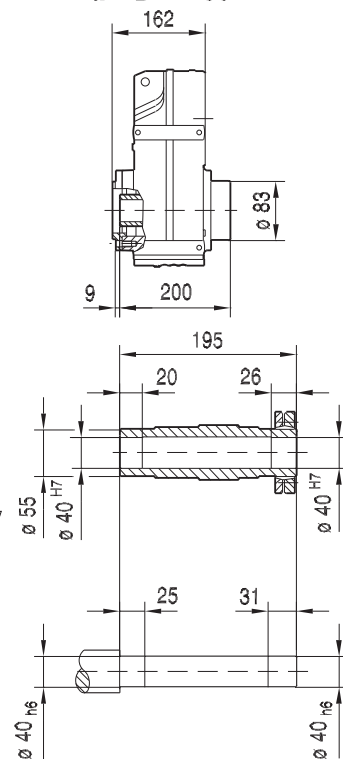
FAZ57..



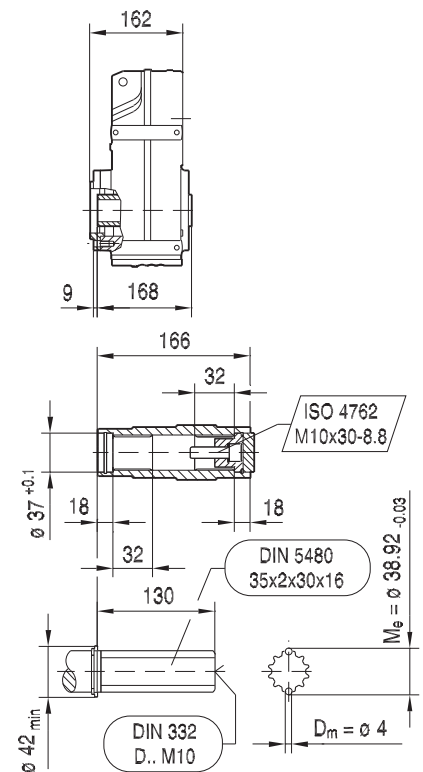
FAZ57..



FHZ57..
max. DRN100L..



FVZ57..



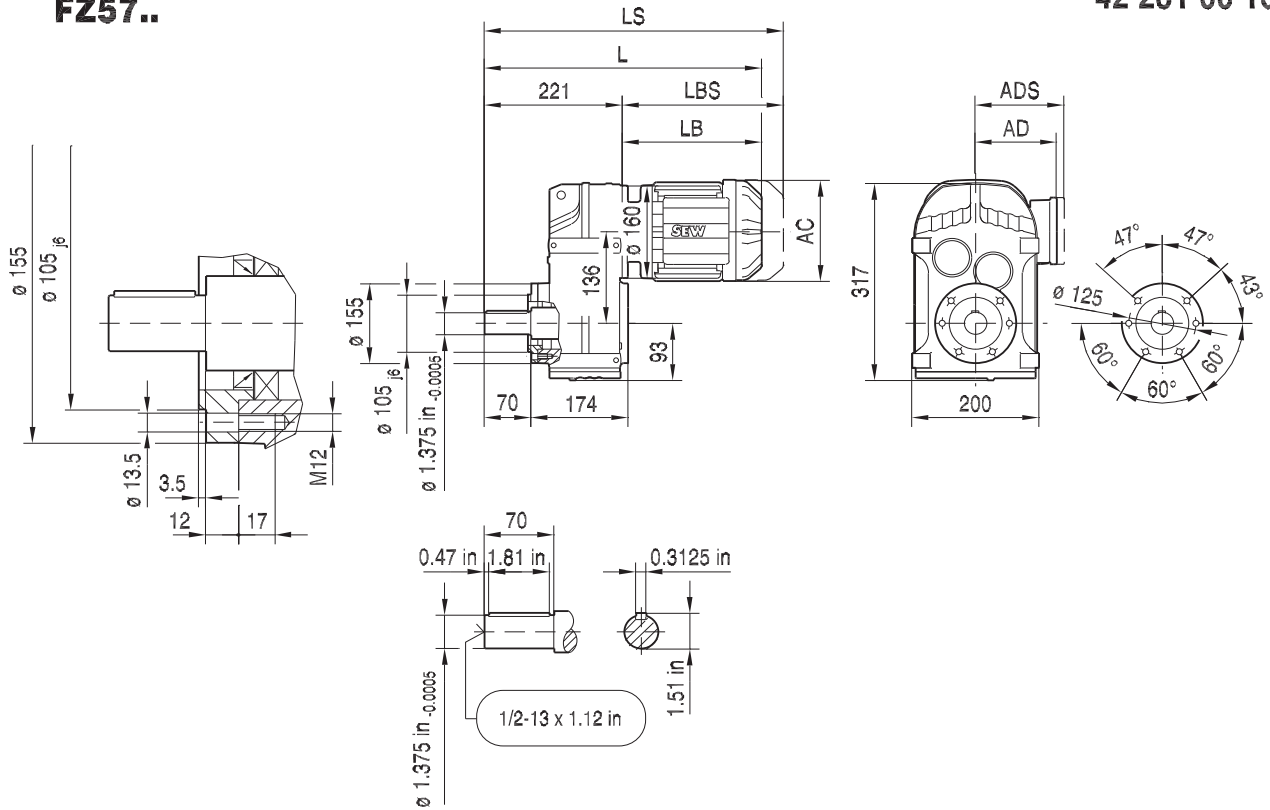
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	347	358	383	437	439	471	517	548	602	620
LS	402	426	451	518	532	564	611	660	714	758
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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42 231 00 16

FZ57..



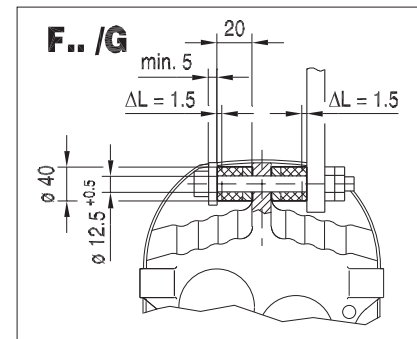
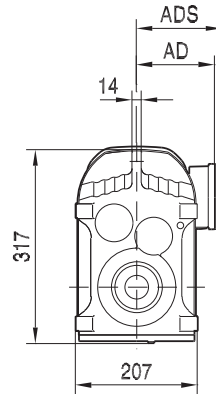
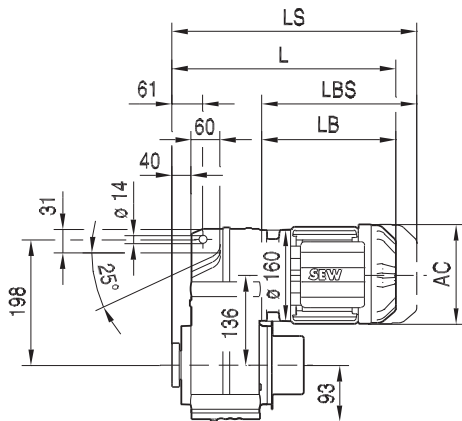
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	413	424	449	504	505	537	584	615	669	687
LS	468	492	517	585	599	631	677	727	781	824
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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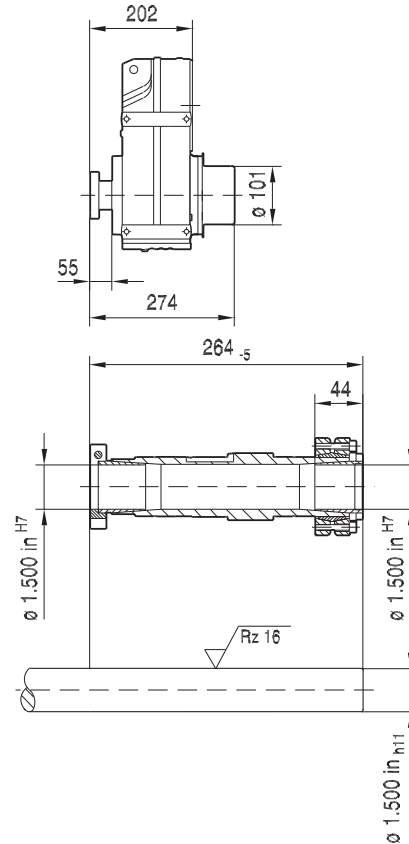
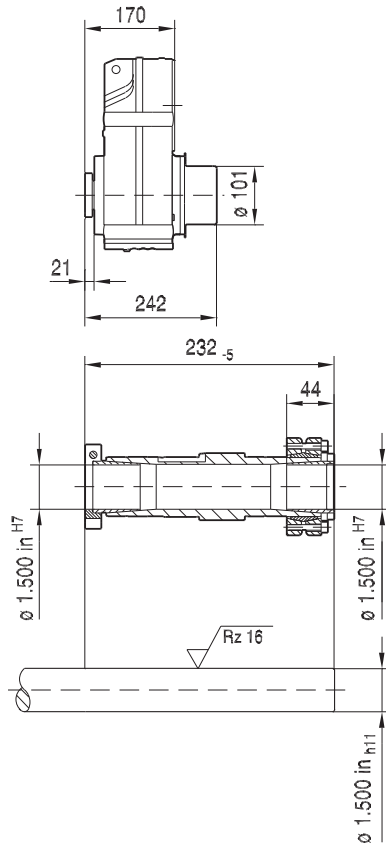
FT57..

42 232 00 16



**FT57..
NON-Symmetrical**

**FT57B..
Symmetrical**

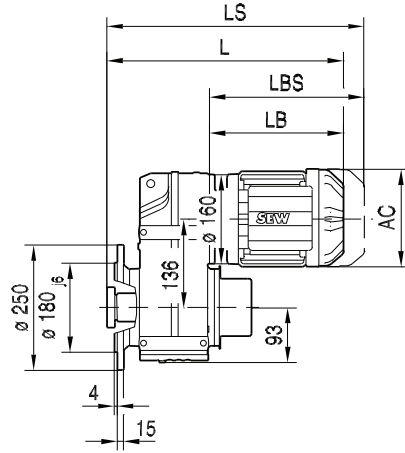


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	197
AD	105	119	119	128	140	157
ADS	105	129	129	139	150	158
L	355	366	391	445	447	525
LS	410	434	459	526	540	619
LB	185	196	221	275	277	355
LBS	240	264	289	356	370	449

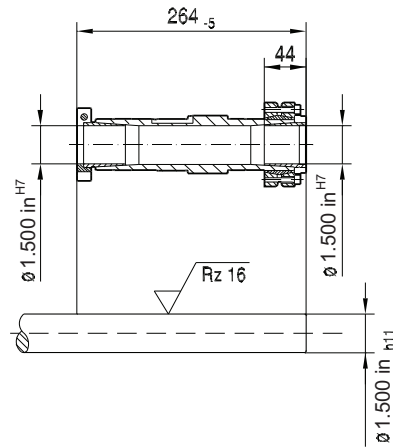
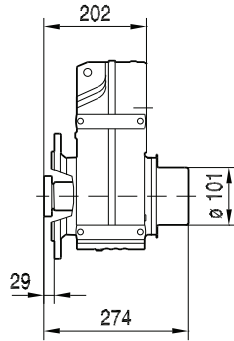
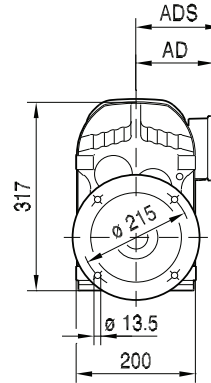
¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF57..



42 025 03 13 US



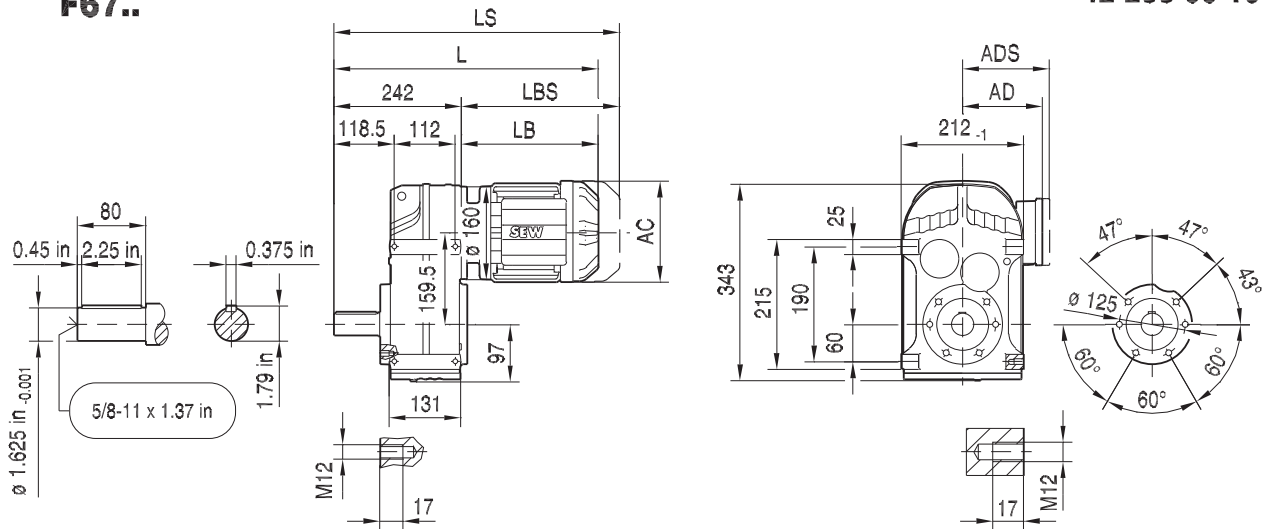
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S ¹⁾	DRN100L/LM ¹⁾
AC	132	139	139	156	179	197
AD	105	119	119	128	140	157
ADS	105	129	129	139	150	158
L	387	398	423	477	479	557
LS	442	466	491	558	572	651
LB	185	196	221	275	277	355
LBS	240	264	289	356	370	449

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

F67..

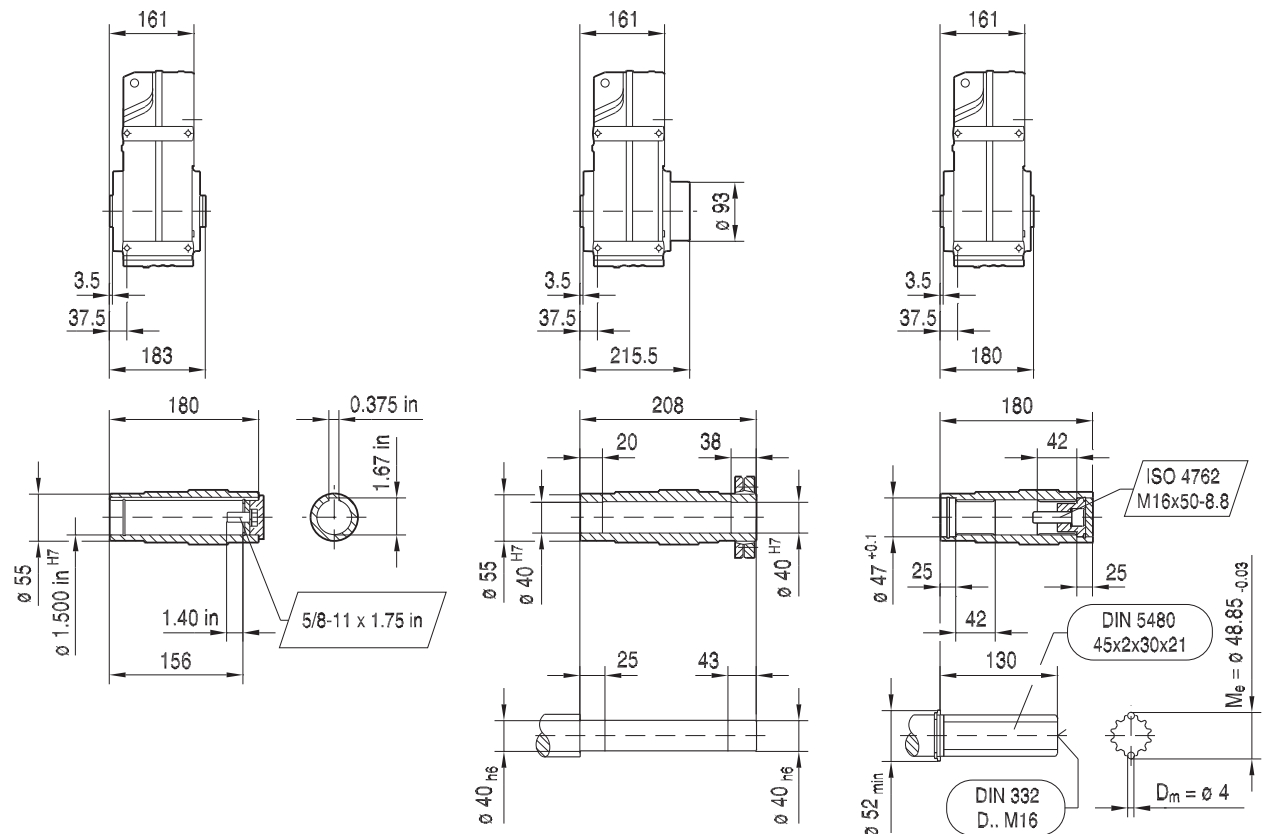
42 233 00 16



FA67B..

FH67B..
max. DRN132S..

FV67B..

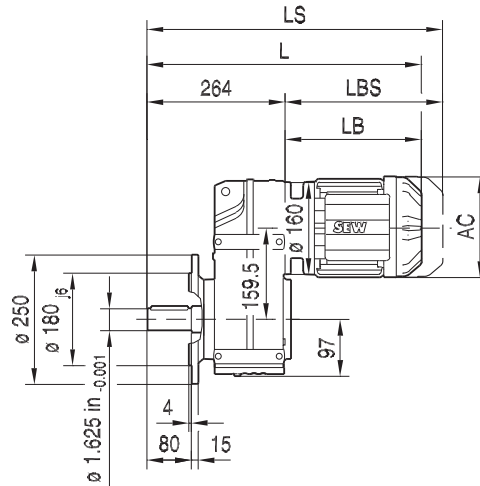
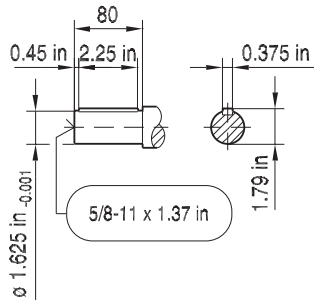


(↔ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	427	438	463	517	519	551	597	628	682	700
LS	482	506	531	598	612	644	691	740	794	838
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

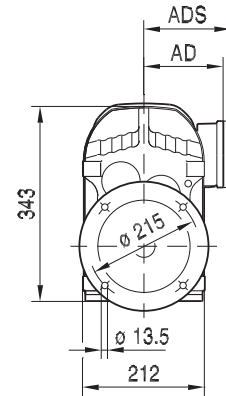
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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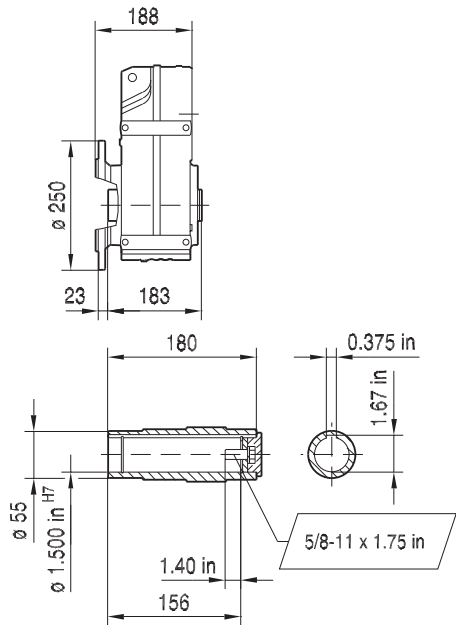
FF67..



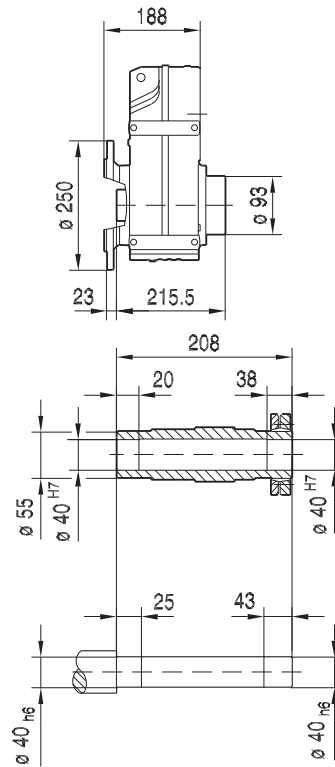
42 234 00 16^L



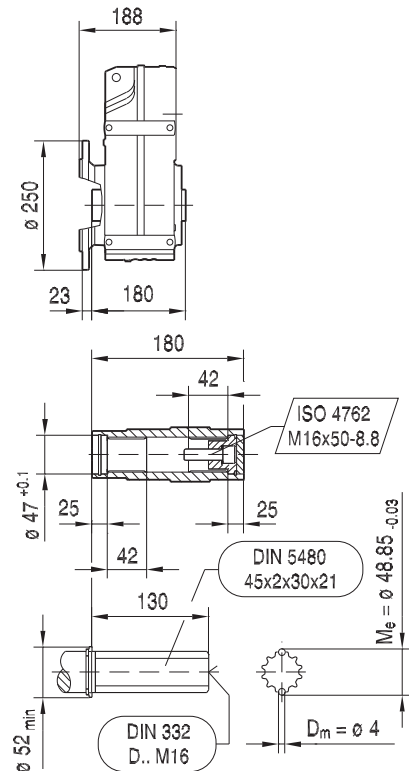
FAF67..



FHF67..
max. DRN132S..



FVF67..



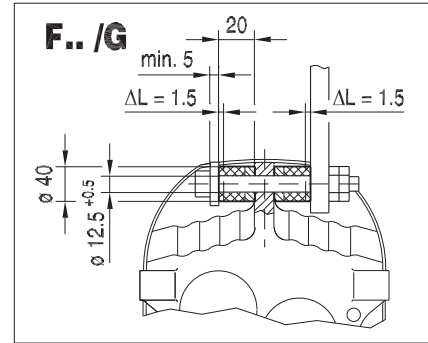
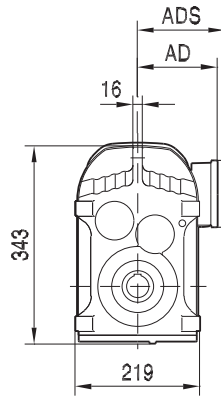
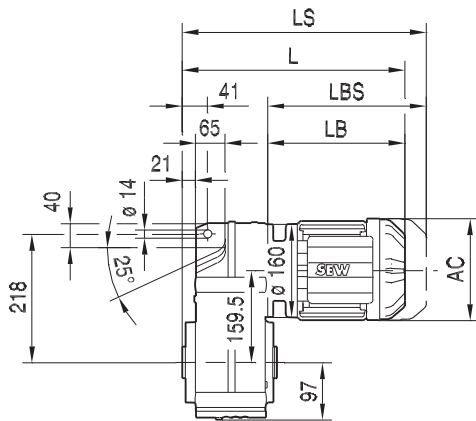
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	449	460	485	539	541	573	619	650	704	722
LS	504	528	553	620	634	666	713	762	816	860
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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FA67..

42 235 00 16

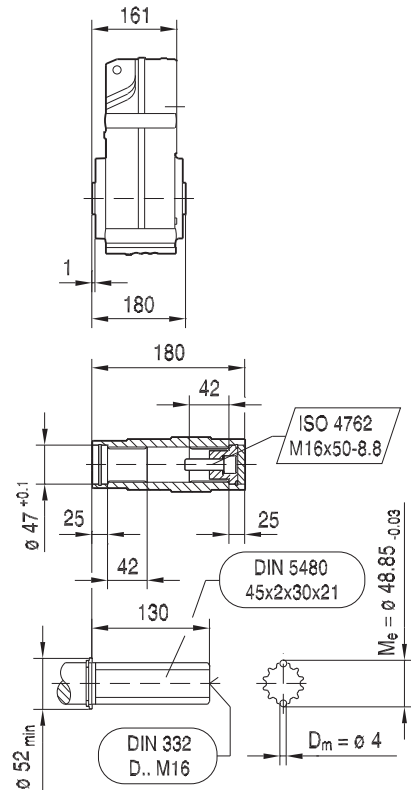
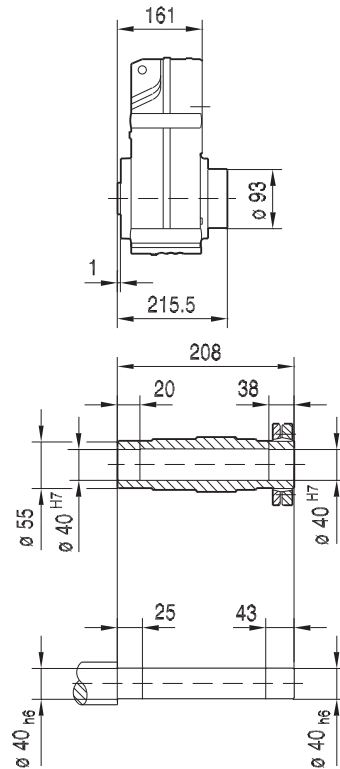
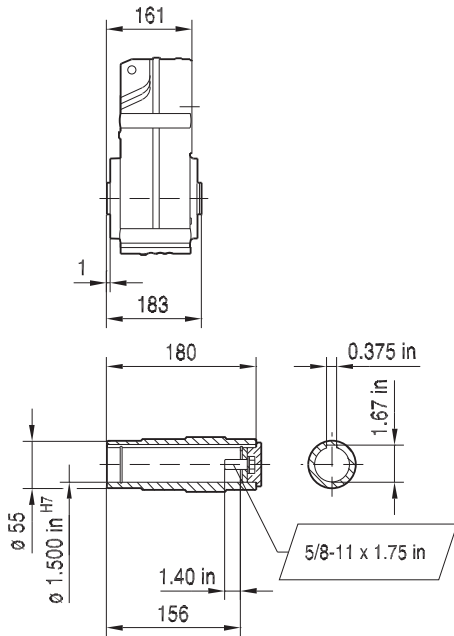


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FA67..

FH67..
max. DRN132S..

FV67..



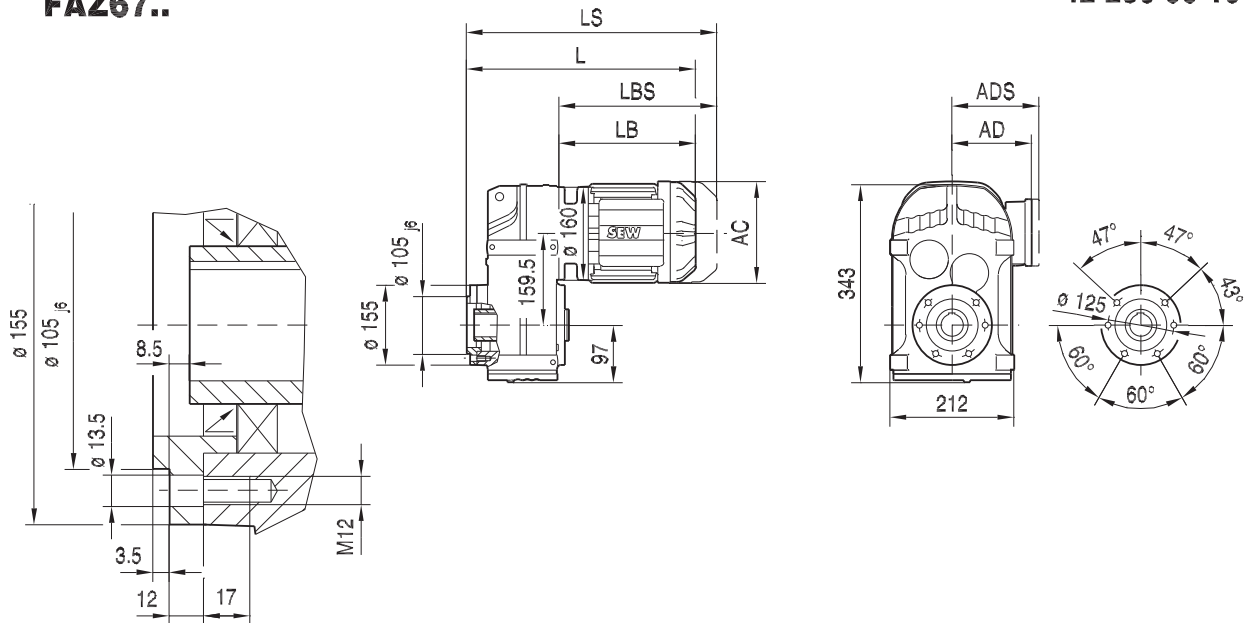
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	346	357	382	436	438	470	516	547	601	619
LS	401	425	450	517	531	563	610	659	713	757
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

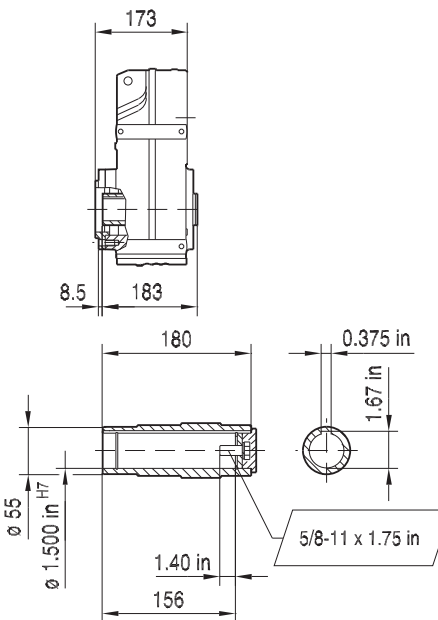
21933480/EN-US - 04/2018

42 236 00 16

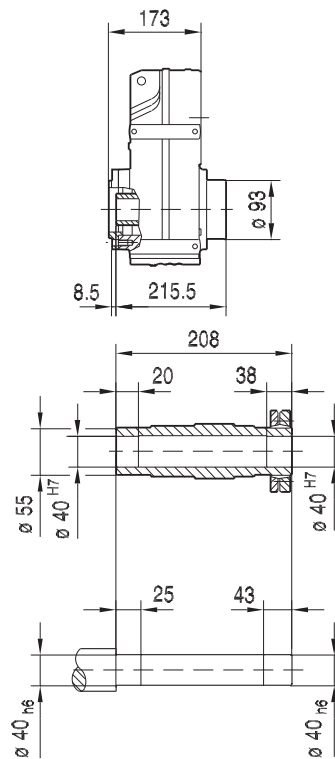
FAZ67..



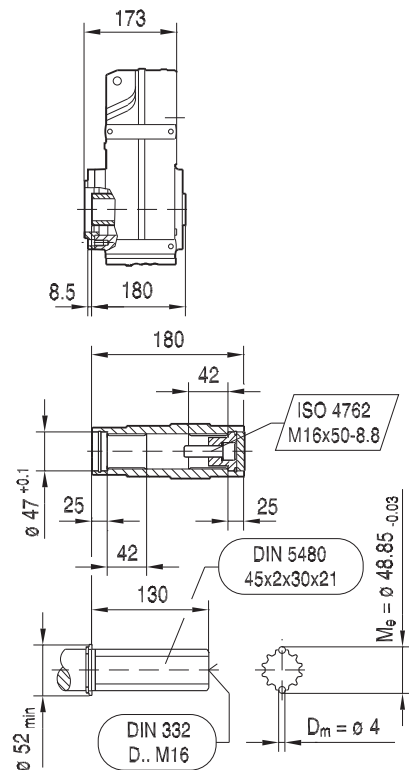
FAZ67..



FHZ67..
max. DRN132S..



FVZ67..



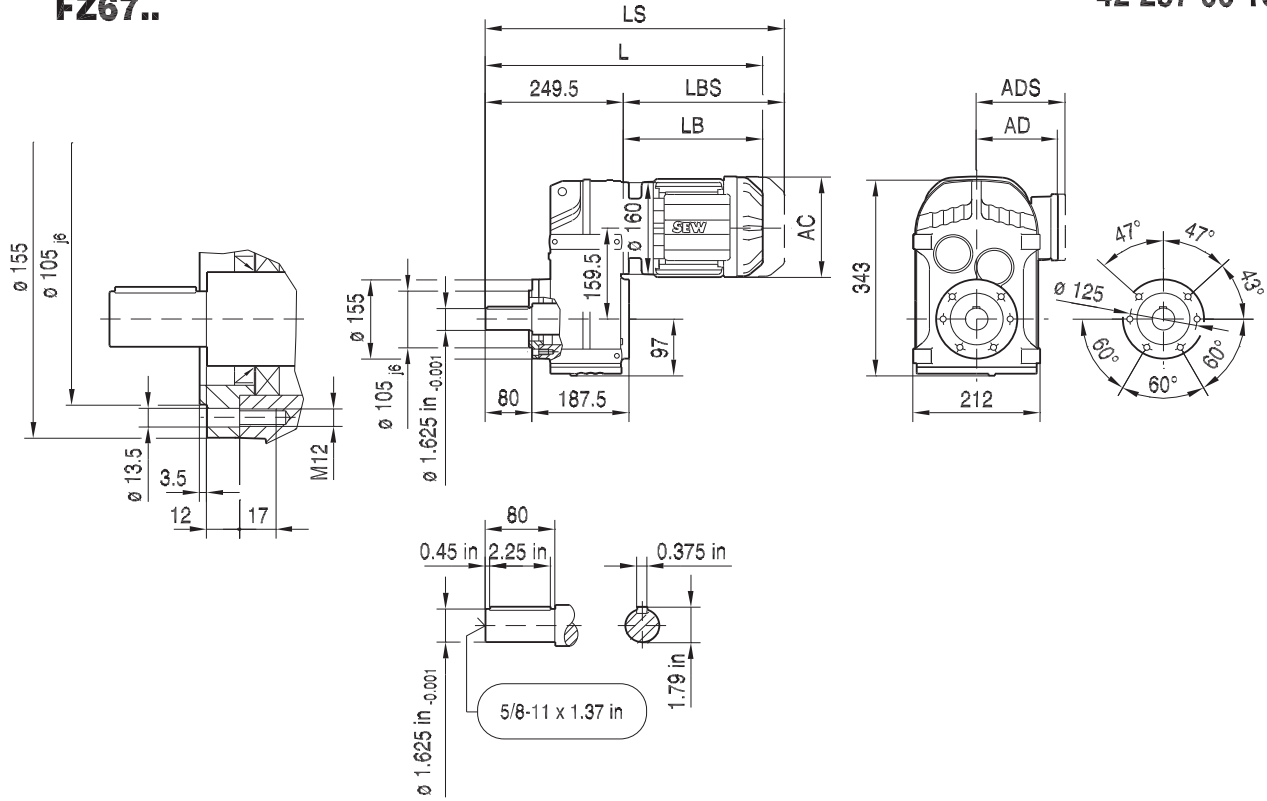
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	358	369	394	448	450	482	528	559	613	631
LS	413	437	462	529	543	575	622	671	725	769
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ67..

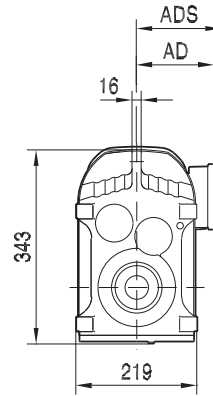
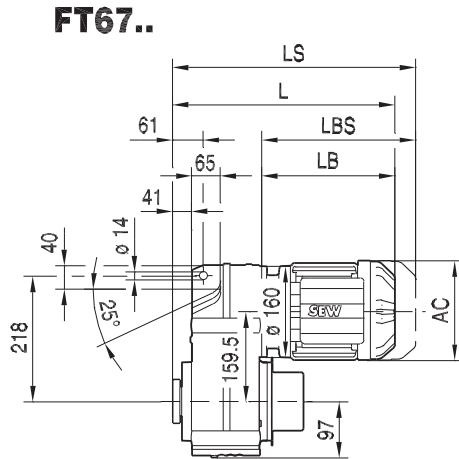
42 237 00 16



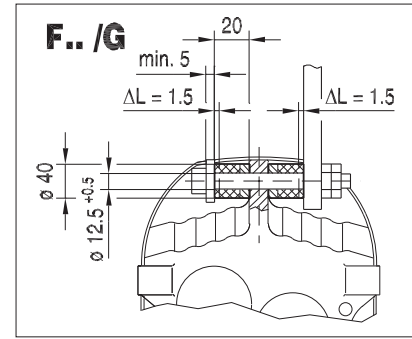
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	434	445	470	525	526	558	605	636	690	708
LS	489	513	538	606	620	652	698	748	802	845
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

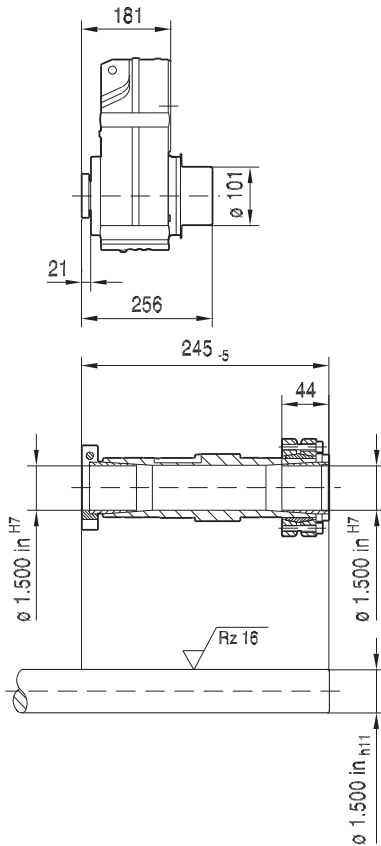
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.



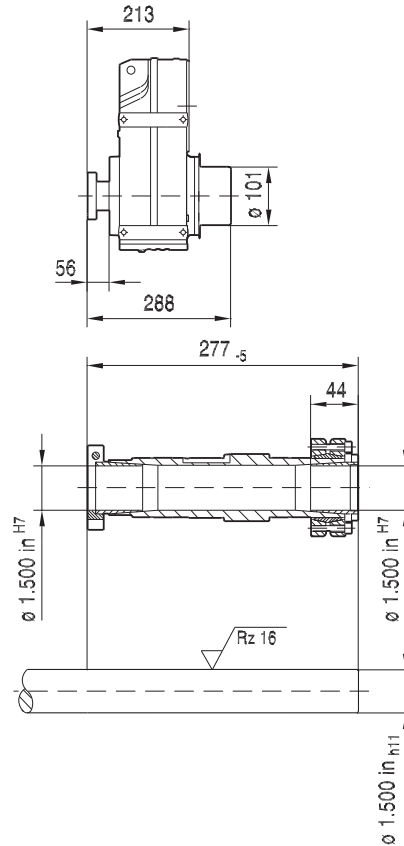
42 238 00 16



FT67..
NON-Symmetrical



FT67B..
Symmetrical



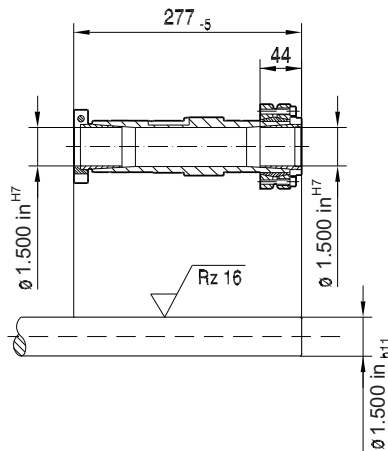
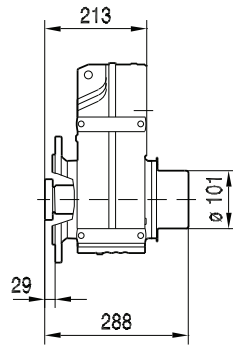
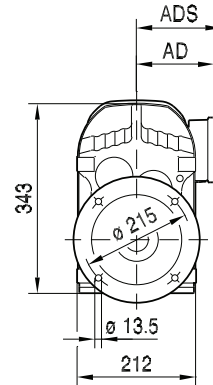
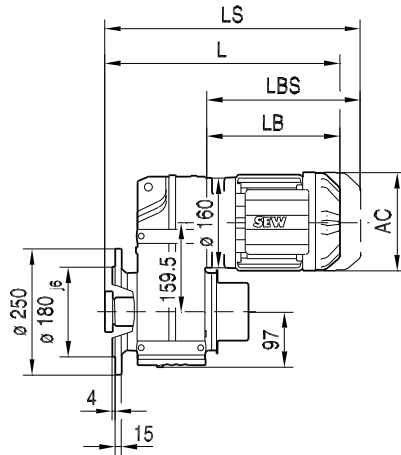
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100/LM	DRN112M ¹⁾	DRN132S ¹⁾
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	366	377	402	456	458	490	536	567	621
LS	421	445	470	537	551	583	630	679	733
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF67..

42 026 03 13 US



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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M ¹⁾	DRN132S ¹⁾
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	398	409	434	488	490	522	568	599	653
LS	453	477	502	569	583	615	662	711	765
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

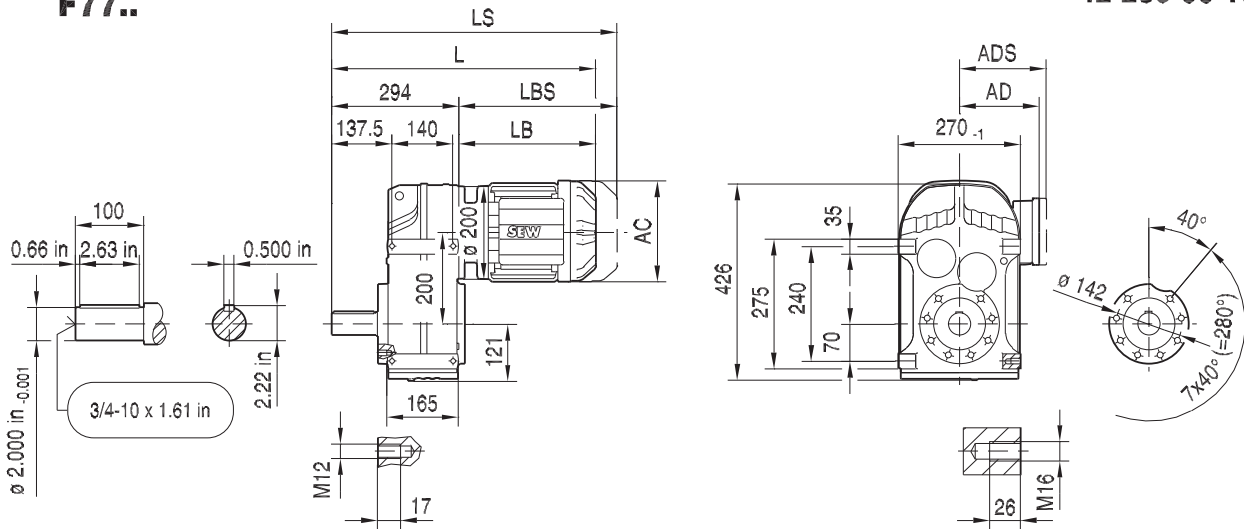
¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

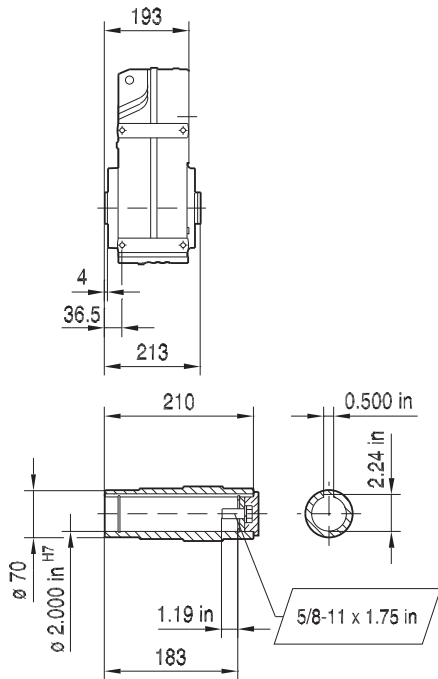
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42 239 00 16

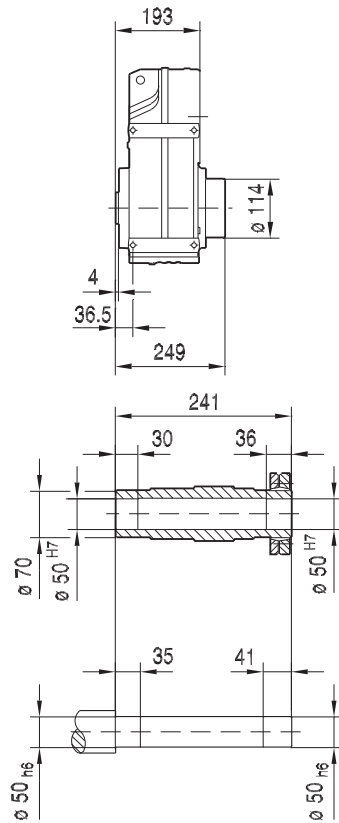
F77..



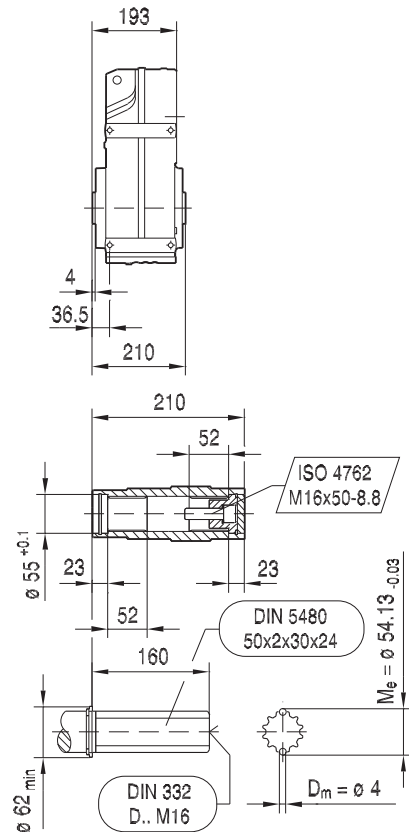
FA77B..



FH77B..
max. DRN132L..



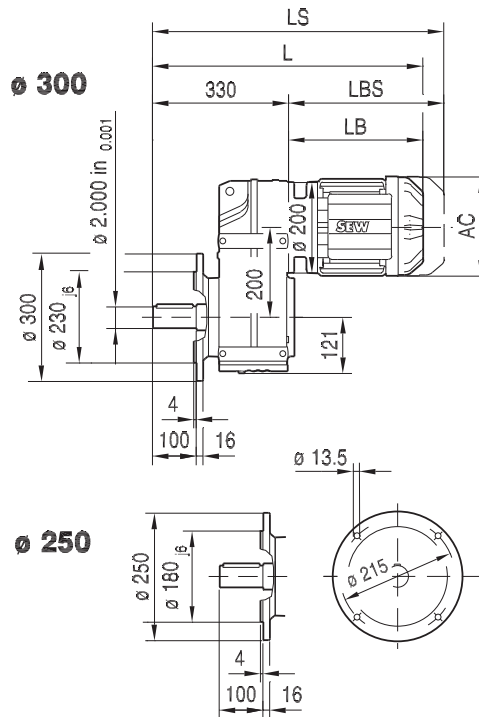
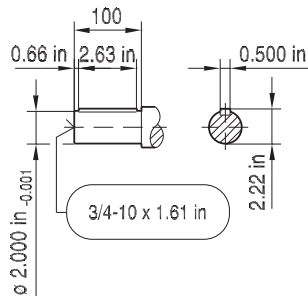
FV77B..



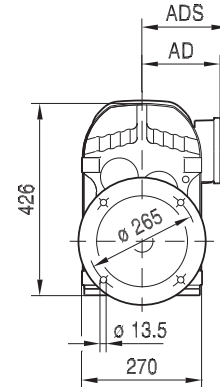
(↔ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	562	564	596	642	673	723	741	767	833
LS	643	657	689	736	785	835	879	904	1022
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

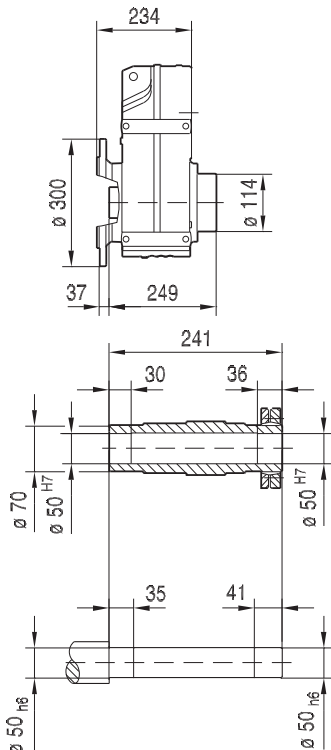
FF77..



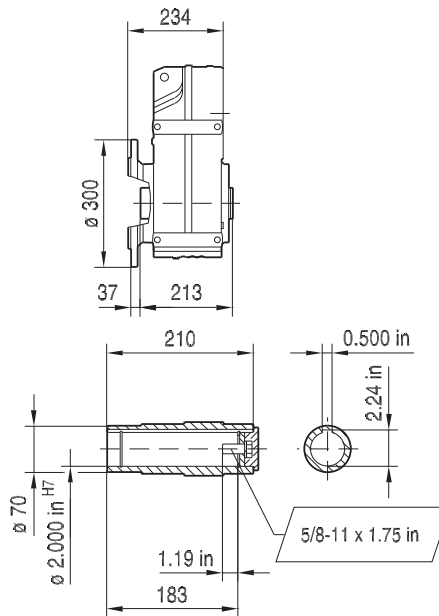
42 240 00 16US



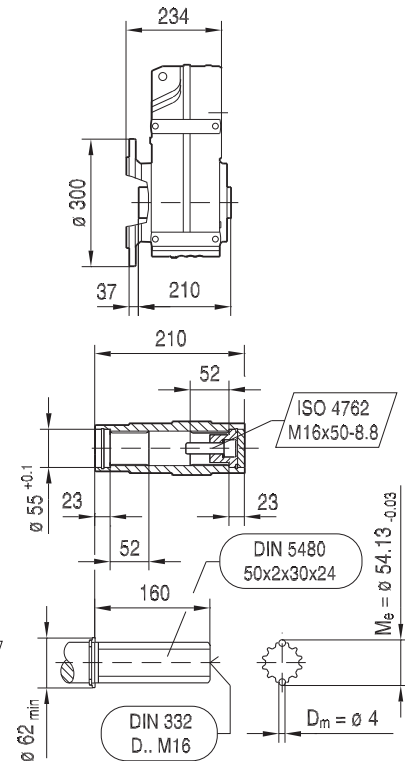
FHF77..
max. DRN132L..



FAF77..



FVF77..

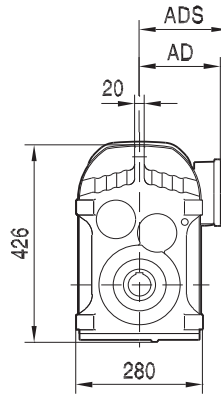
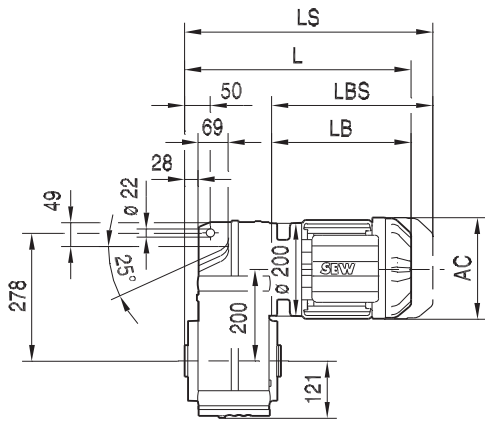


(↔ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	598	600	632	678	709	759	777	803	869
LS	679	693	725	772	821	871	915	940	1058
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

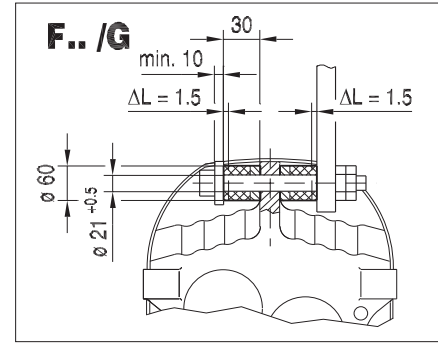
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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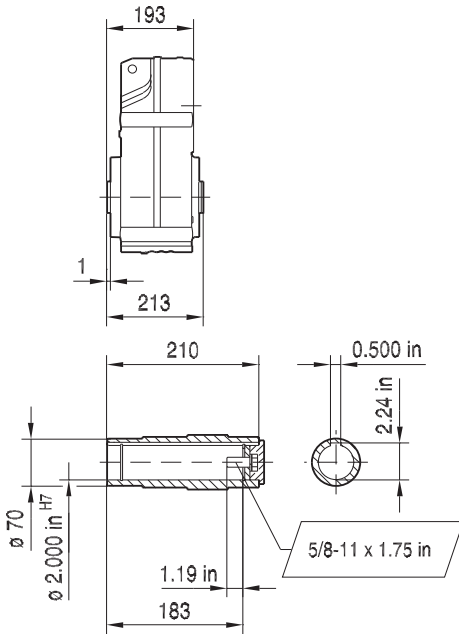
FA77..



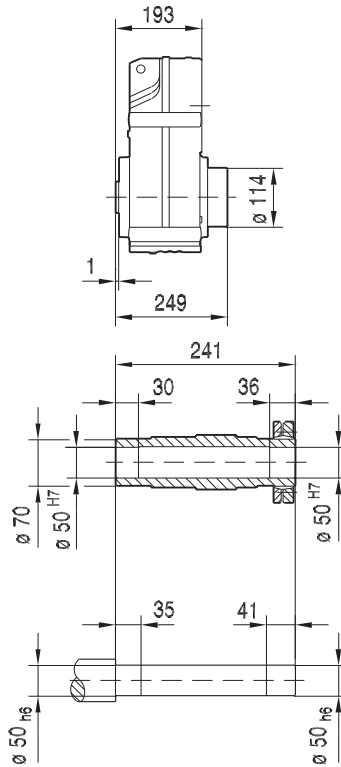
42 241 00 16



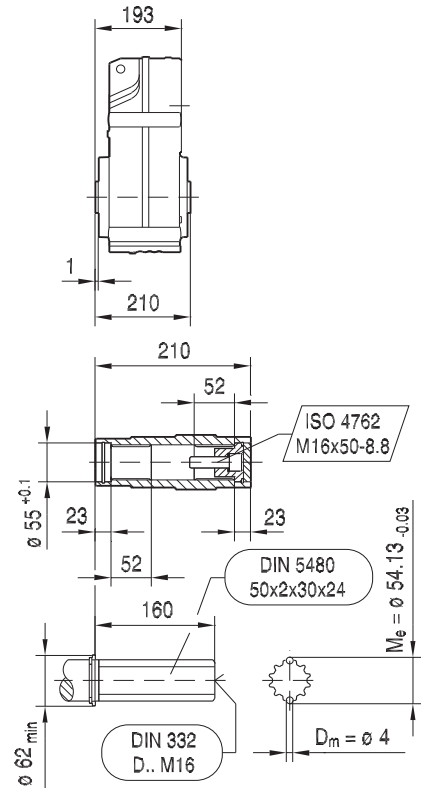
FA77..



FH77..
max. DRN132L..



FV77..



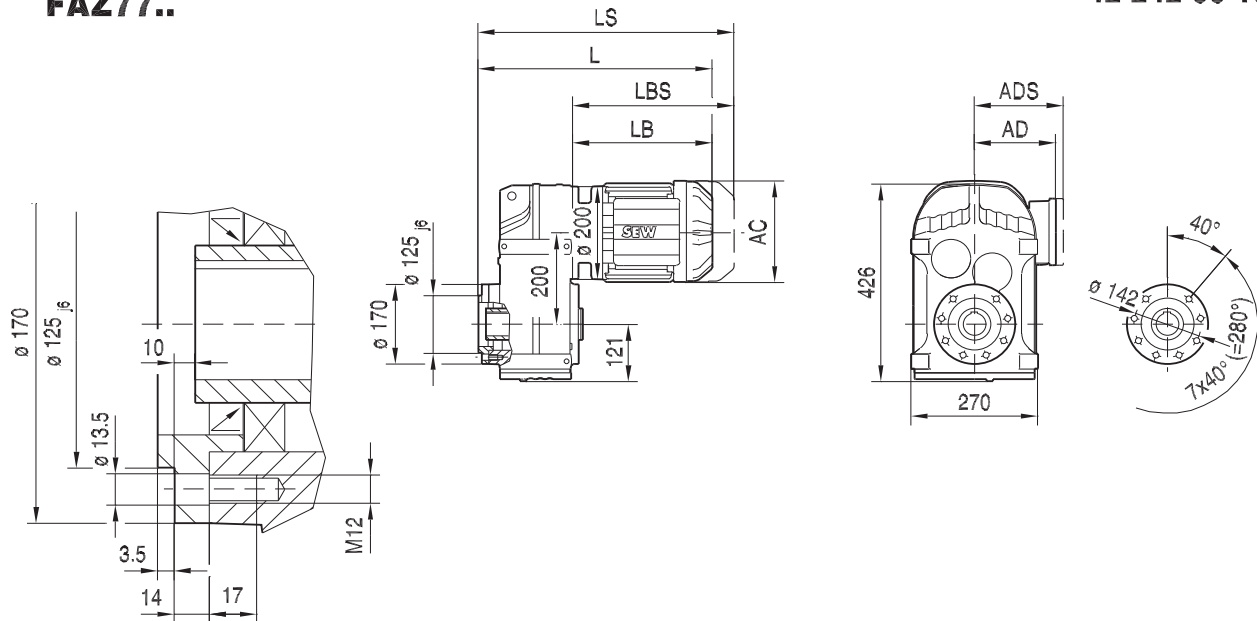
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	461	463	495	541	572	622	640	666	732
LS	542	556	588	635	684	734	778	803	921
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FAZ77..

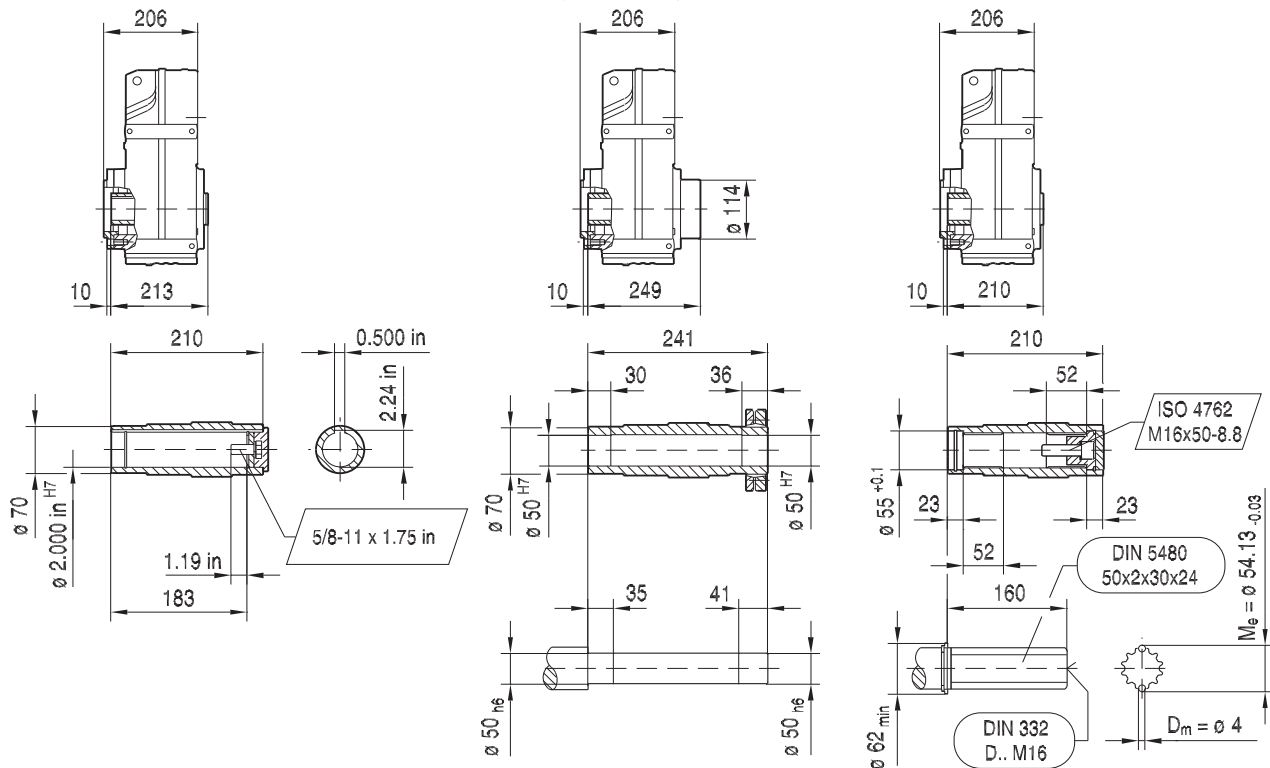
42 242 00 16



FAZ77..

FHZ77..
max. DRN132L..

FVZ77..



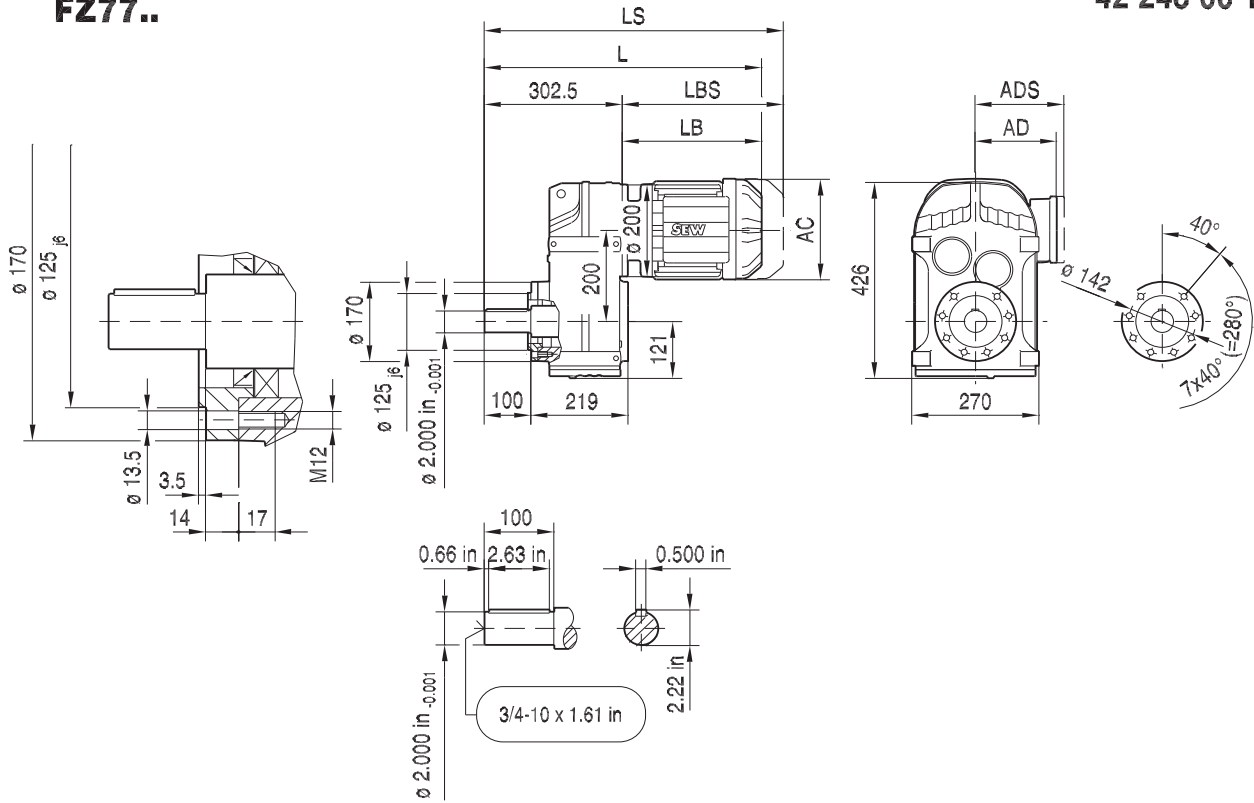
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	474	476	508	554	585	635	653	679	745
LS	555	569	601	648	697	747	791	816	934
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ77..

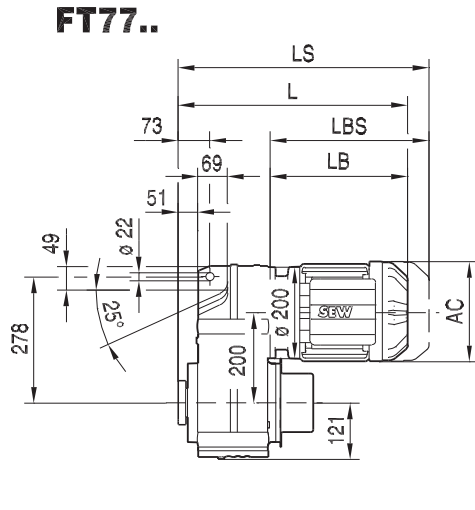
42 243 00 16



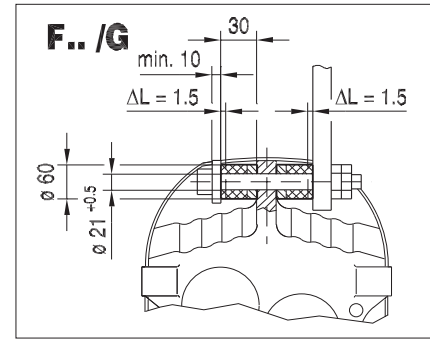
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	571	572	604	651	682	732	750	775	842
LS	652	666	698	744	794	844	887	912	1031
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

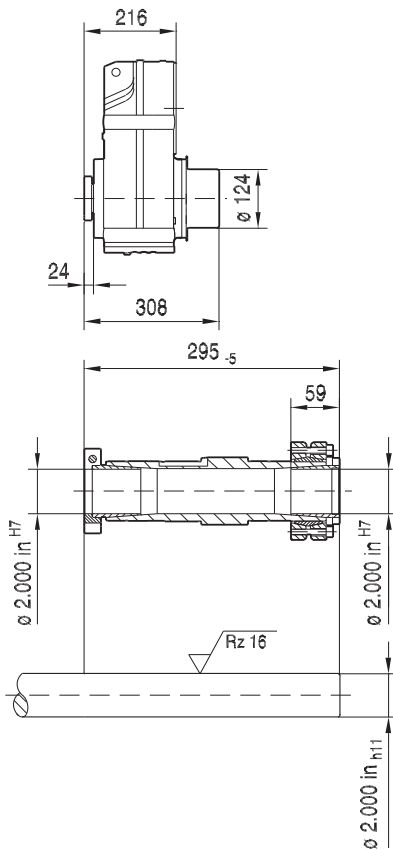
21933480/EN-US - 04/2018



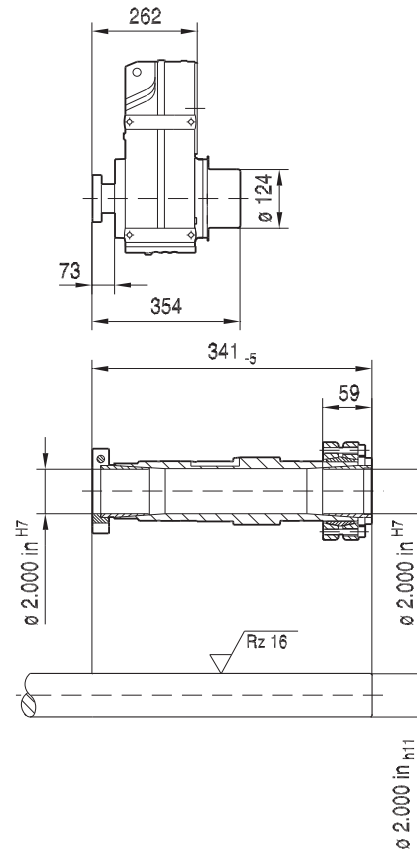
42 244 00 16



FT77..
NON-Symmetrical



FT77B..
Symmetrical



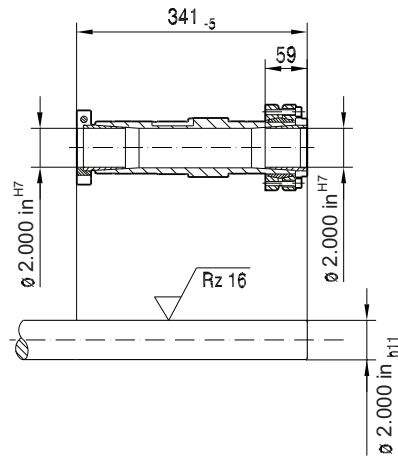
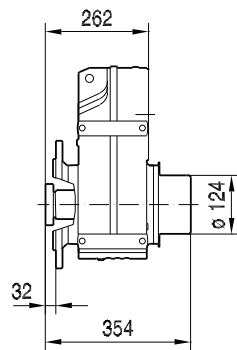
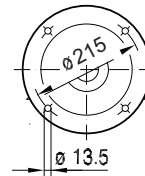
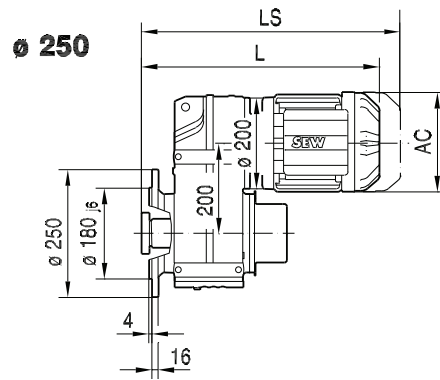
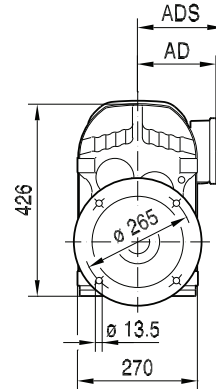
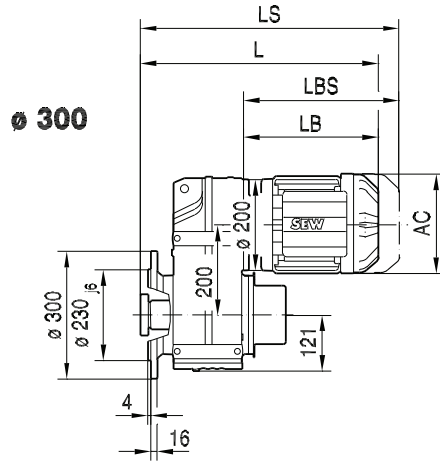
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160 ¹⁾
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	484	486	518	564	595	645	663	689	755
LS	565	579	611	658	707	757	801	826	944
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF77..

42 027 03 13 US

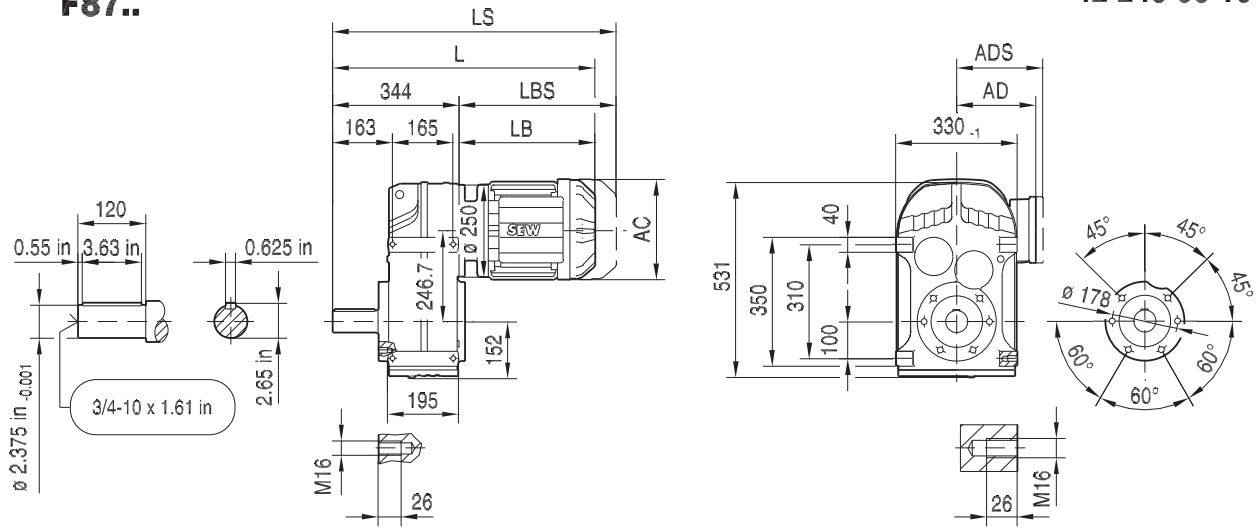


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160 ¹⁾
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	530	532	564	610	641	691	709	735	801
LS	611	625	657	704	753	803	847	872	990
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

¹⁾ Combination requires a modified shaft cover. See page 142.
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

F87..

42 245 00 16

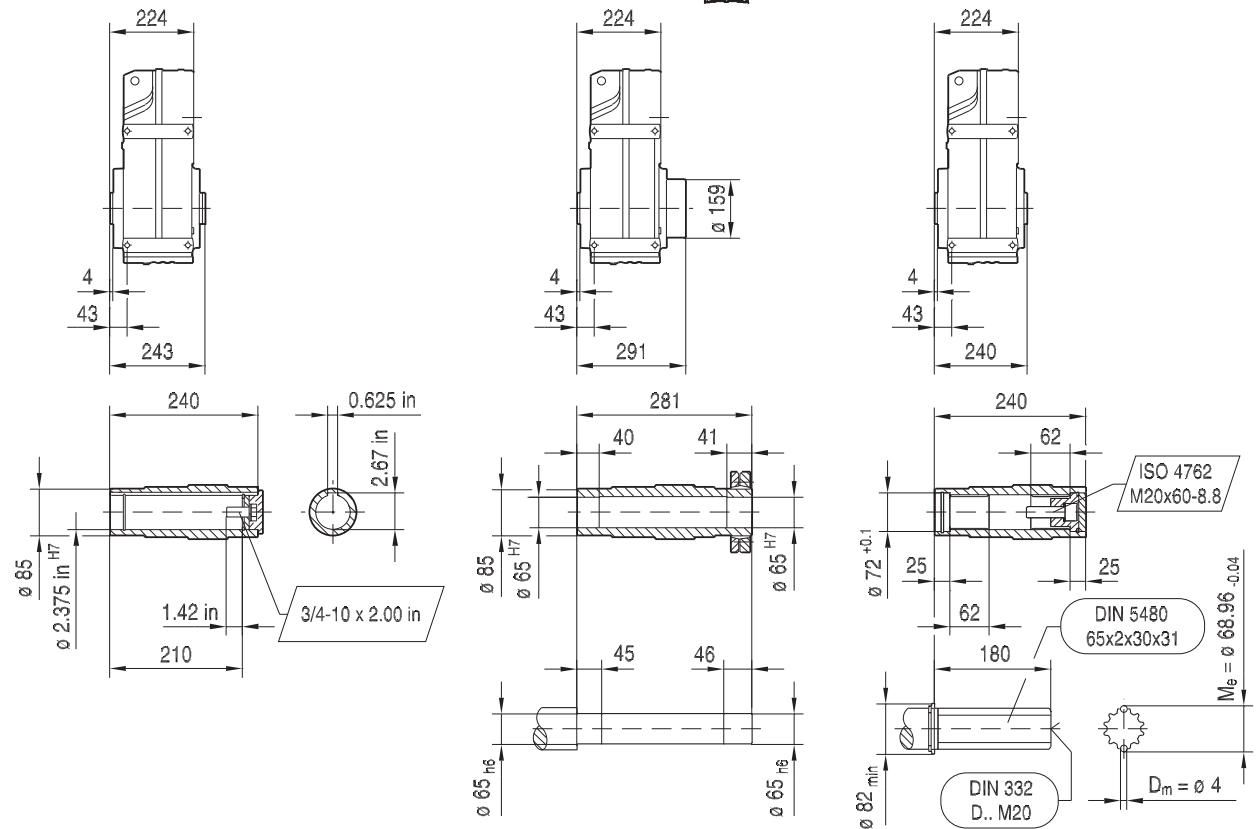


FA87B..

FH87B..

FH87B/R.. → pg. 120

FV87B..

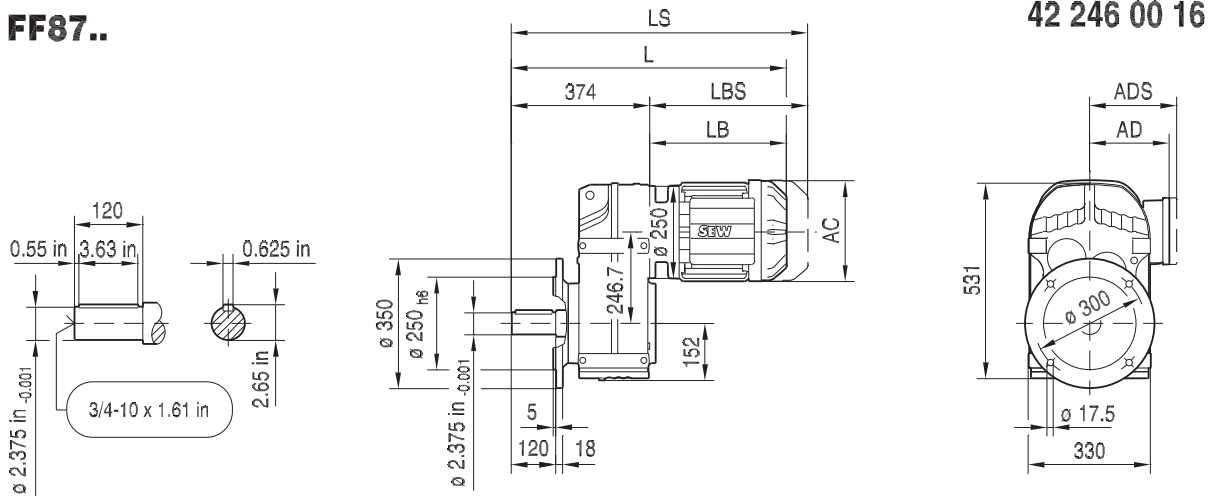


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	609	641	687	718	768	786	812	878	901
LS	702	734	781	830	880	924	949	1067	1090
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

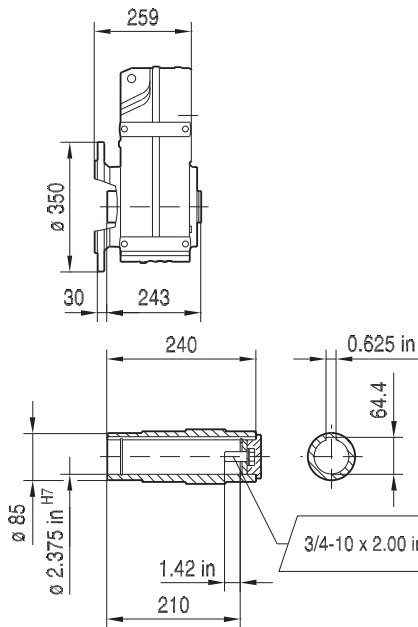
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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FF87..

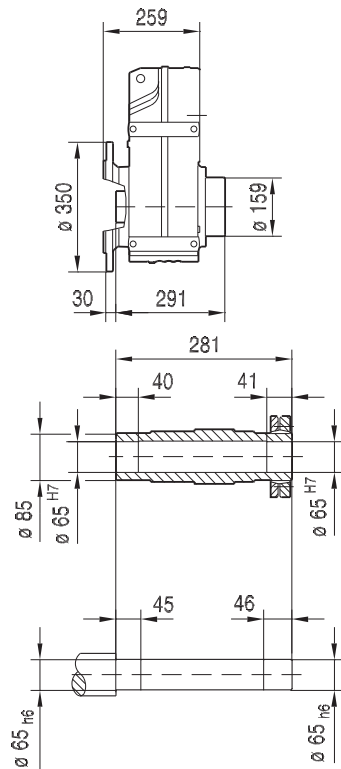


FAF87..

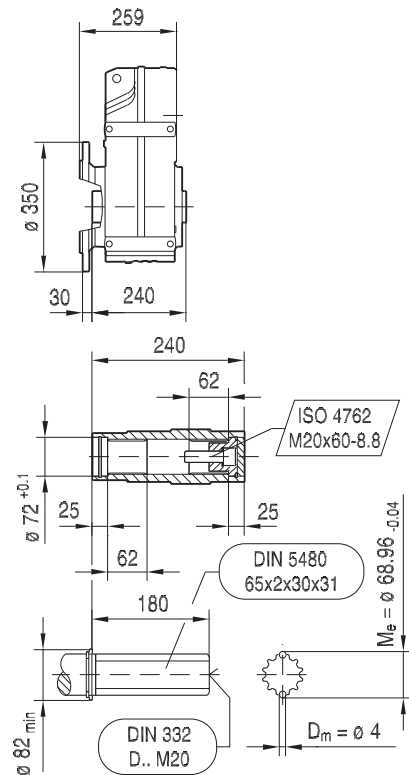


FHF87..

FHF87/R.. → pg. 120



FVF87..

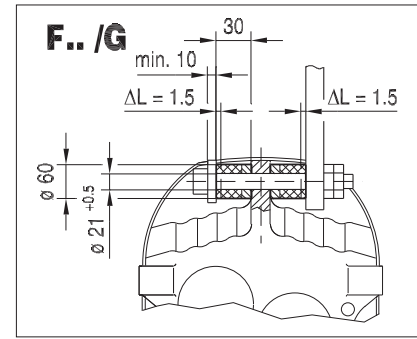
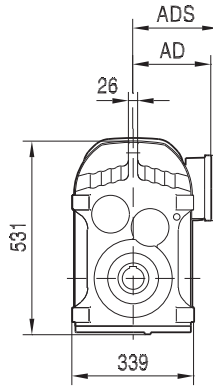
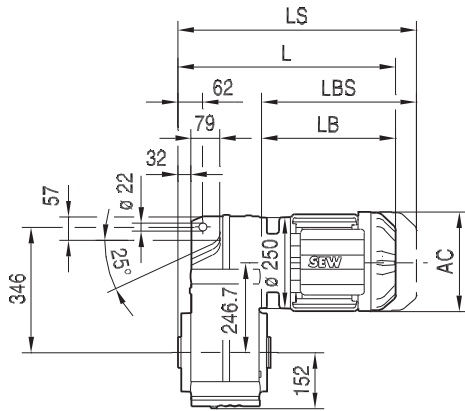


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	639	671	717	748	798	816	842	908	931
LS	732	764	811	860	910	954	979	1097	1120
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FA87..

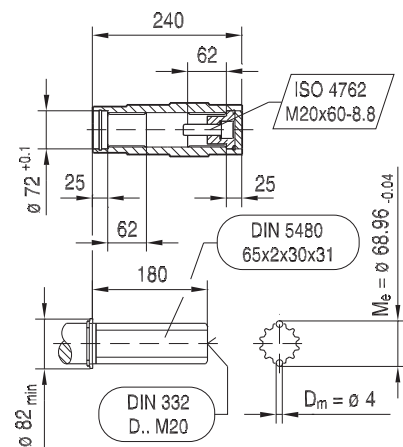
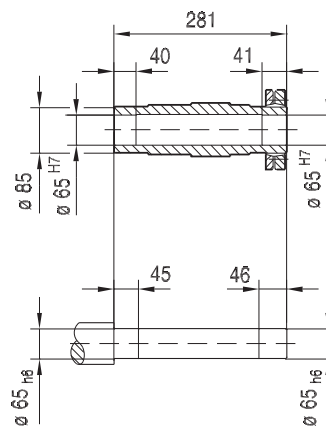
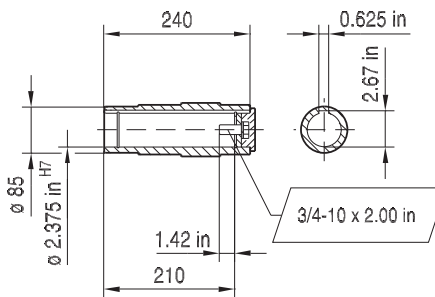
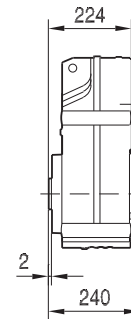
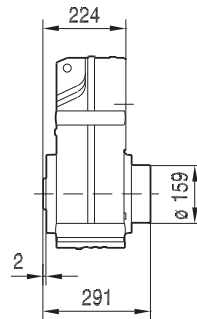
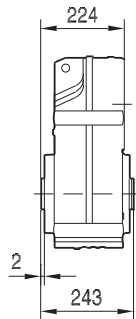
42 247 00 16



FA87..

FH87..
FH87/R.. → pg. 120

FV87..



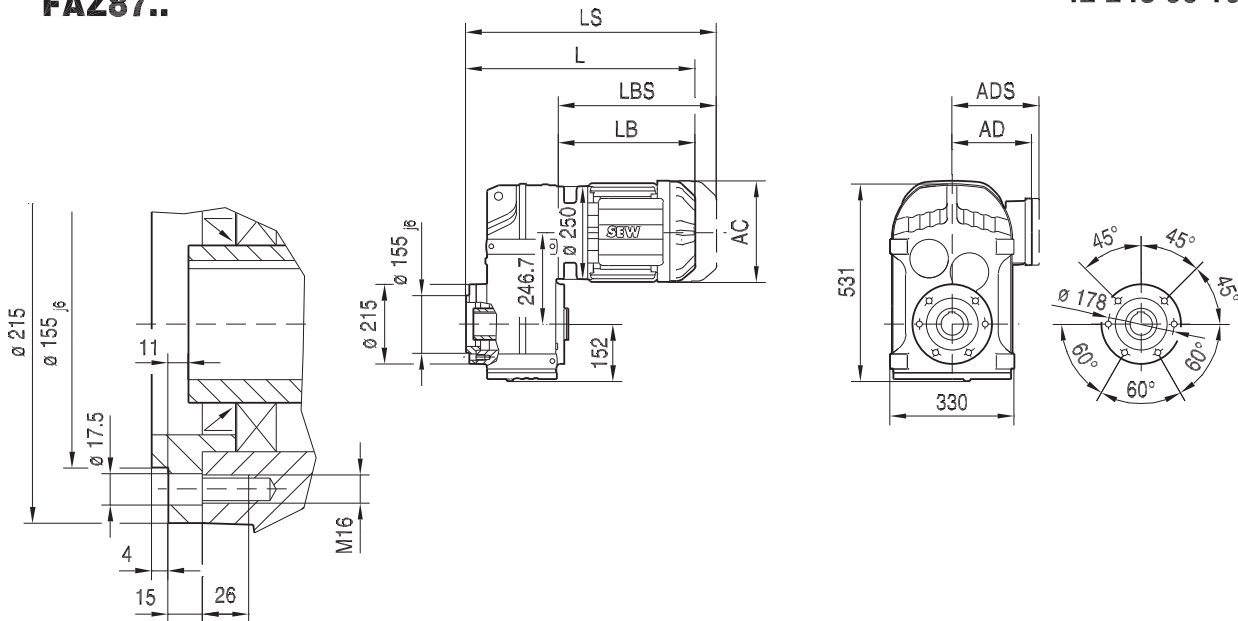
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	489	521	567	598	648	666	692	758	781
LS	582	614	661	710	760	804	829	947	970
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

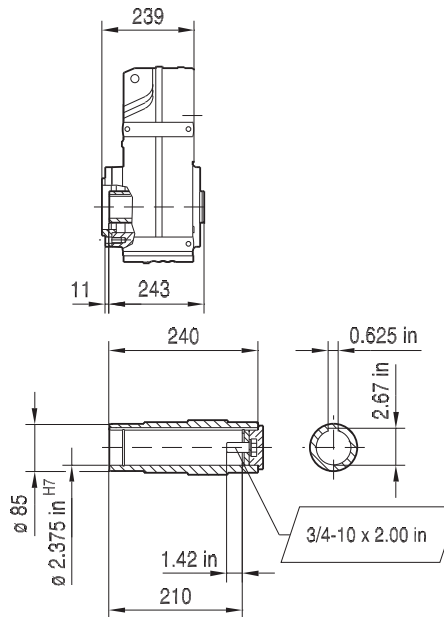
21933480/EN-US - 04/2018

42 248 00 16

FAZ87..

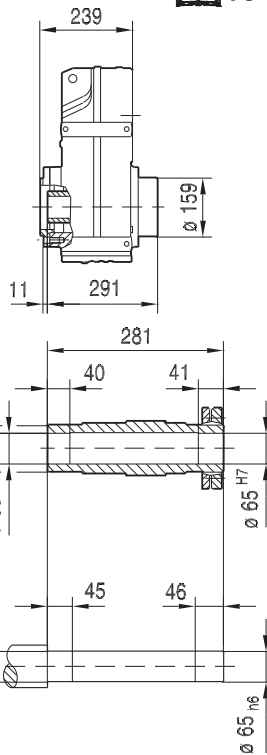


FAZ87..

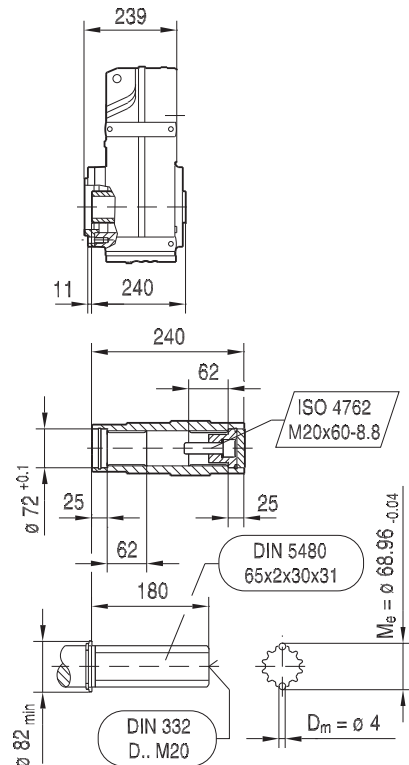


FHZ87..

FHZ87/R.. → pg. 120



FVZ87..

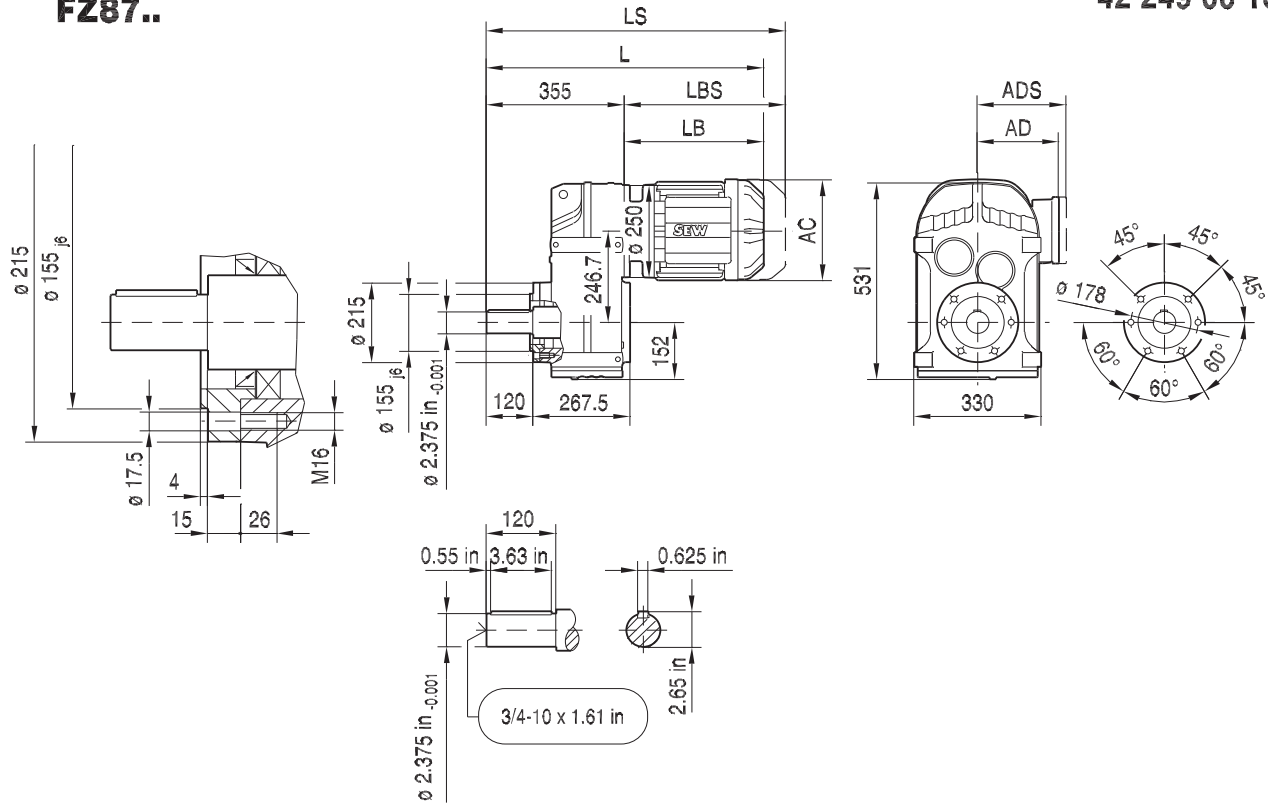


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	504	536	582	613	663	681	707	773	796
LS	597	629	676	725	775	819	844	962	985
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

FZ87..

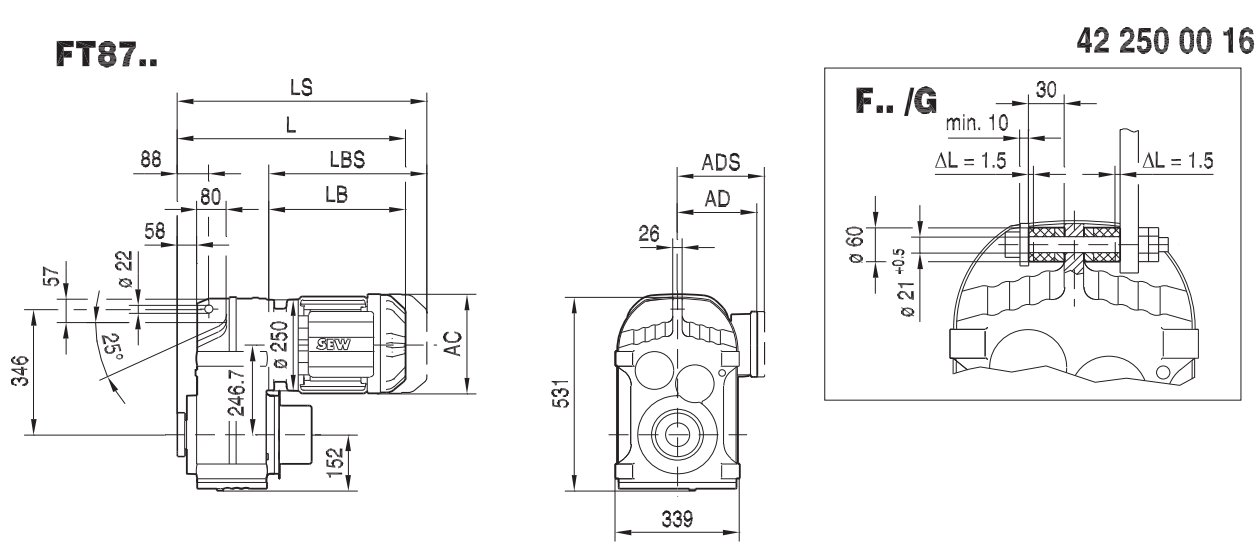
42 249 00 16



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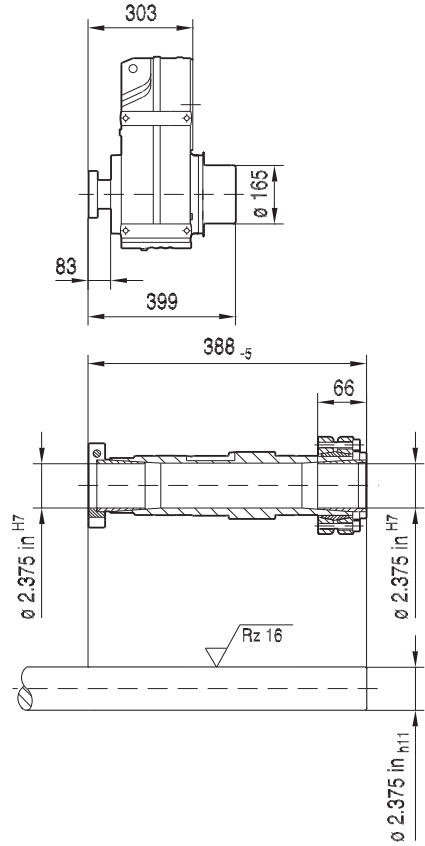
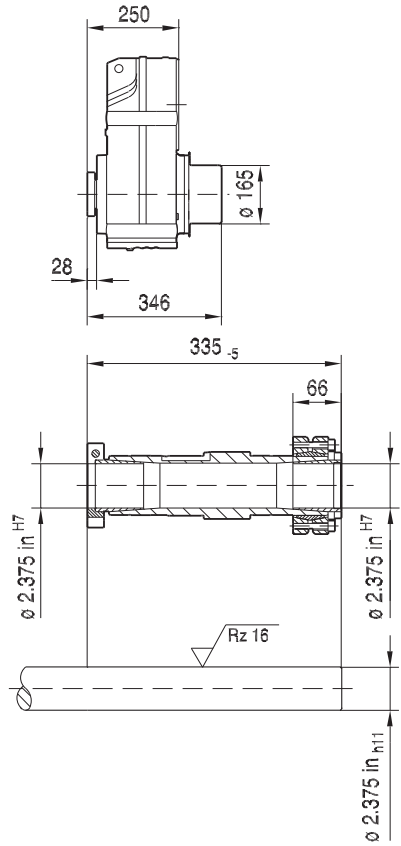
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	620	652	698	729	779	797	823	889	912
LS	713	745	792	841	891	935	960	1078	1101
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.



FT87..
NON-Symmetrical

FT87B..
Symmetrical



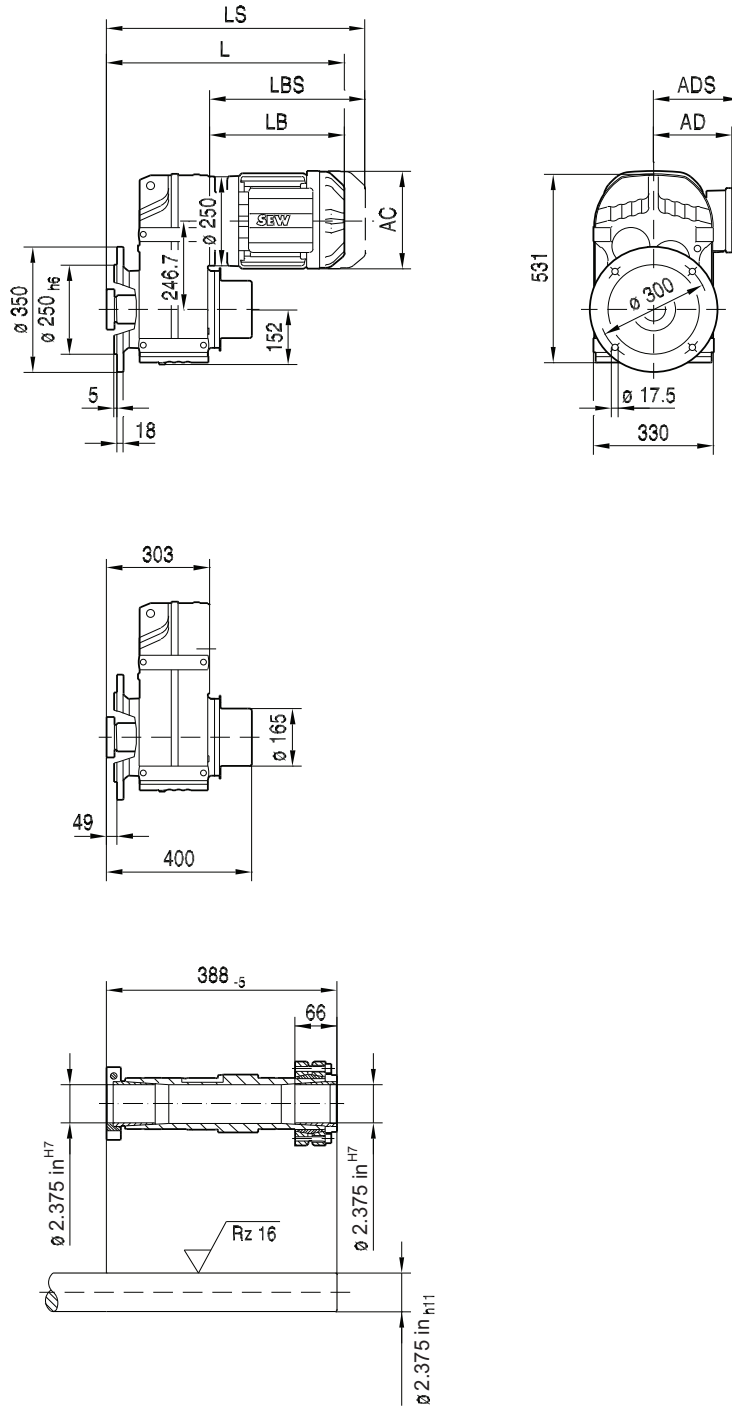
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180 ¹⁾
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	515	547	593	624	674	692	718	784	807
LS	608	640	687	736	786	830	855	973	996
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

¹⁾ Standard shaft cover not available for this combination.
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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FTF87..

42 028 03 13 US



9

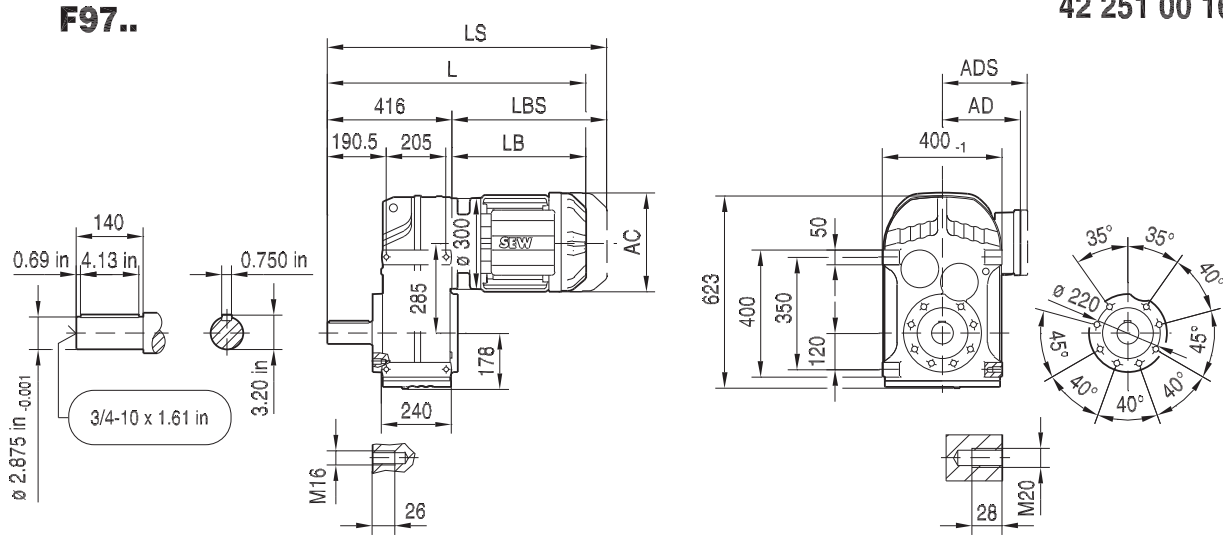
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180 ¹⁾
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	568	600	646	677	727	745	771	837	860
LS	661	693	740	789	839	883	908	1026	1049
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

¹⁾ Standard shaft cover not available for this combination.

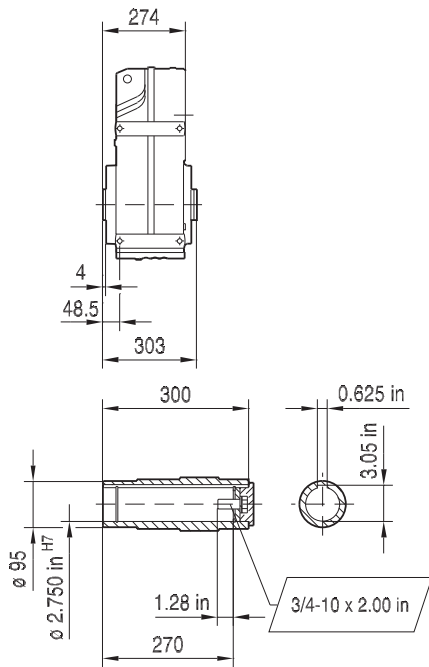
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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42 251 00 16

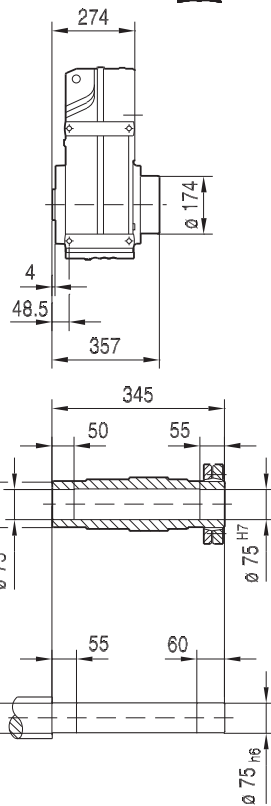


FA97B..

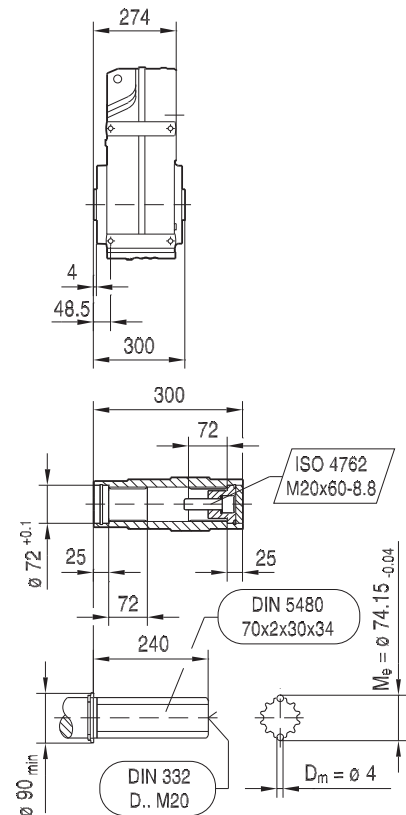


FH97B..

FH97B/R.. → pg. 120



FV97B..

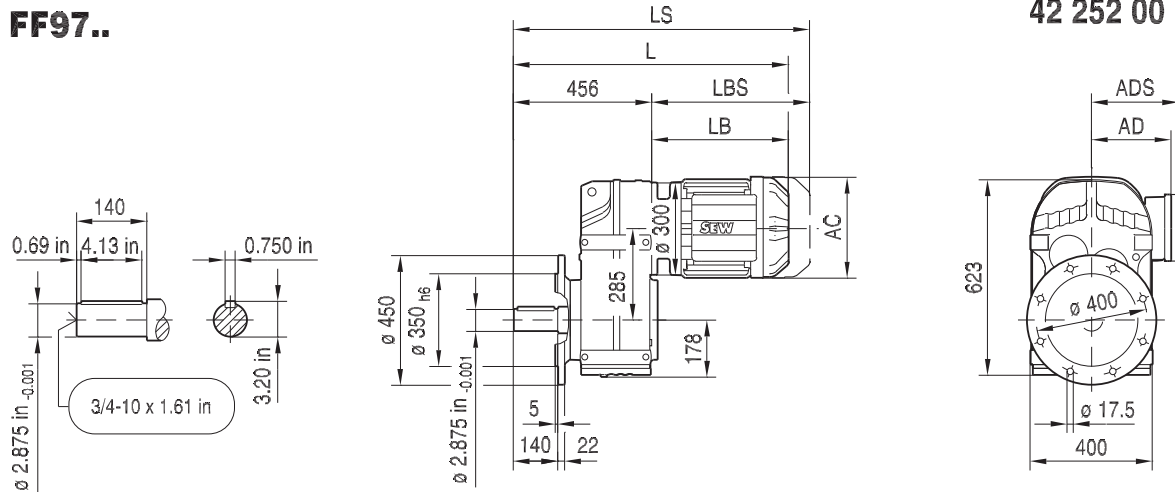


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	754	785	835	853	879	945	968	1078	1052
LS	848	897	947	991	1016	1134	1157	1283	1257
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FF97..

42 252 00 16

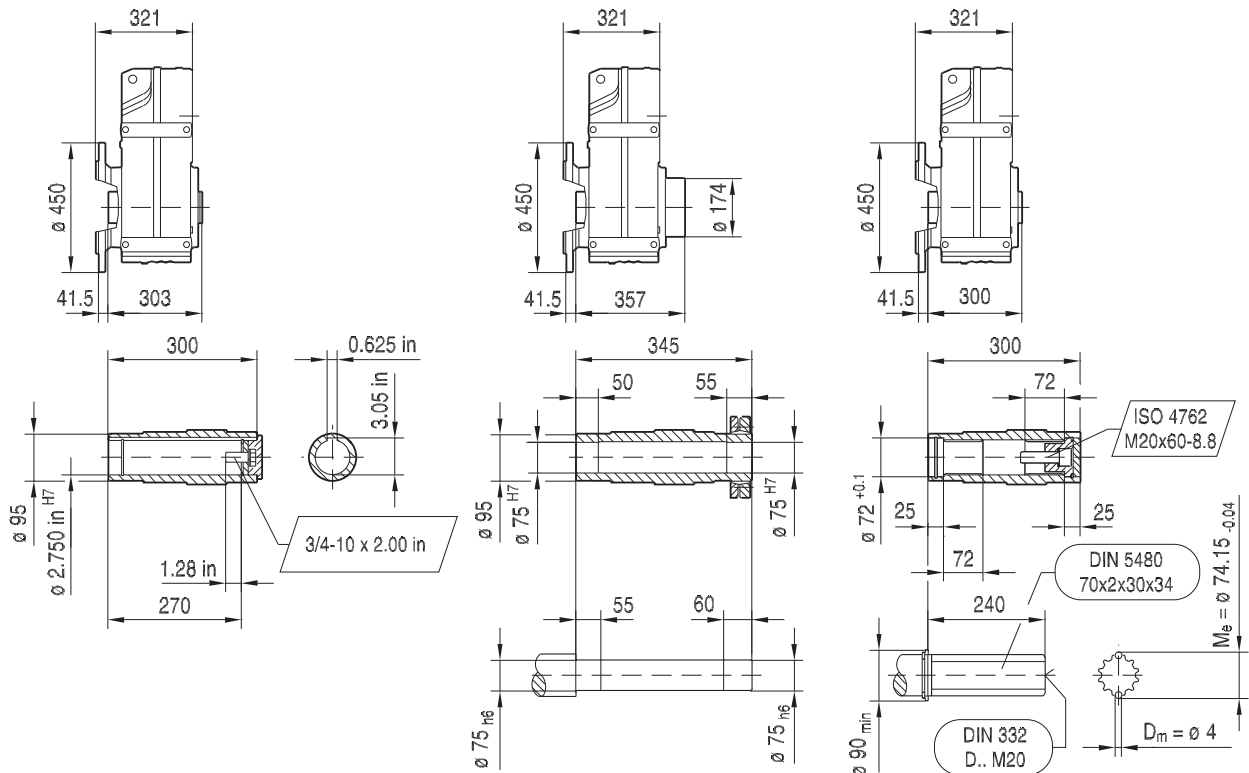


FAF97..

FHF97..

FHF97/R.. → pg. 120

FVF97..

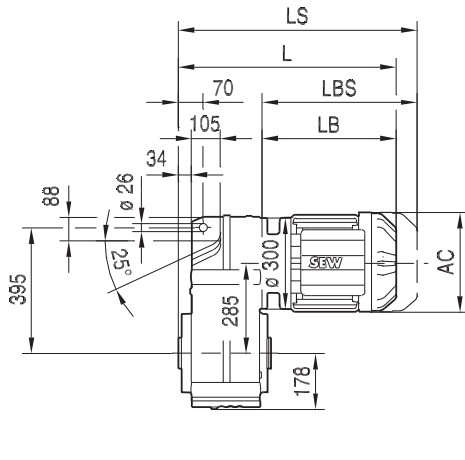


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	794	825	875	893	919	985	1008	1118	1092
LS	888	937	987	1031	1056	1174	1197	1323	1297
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

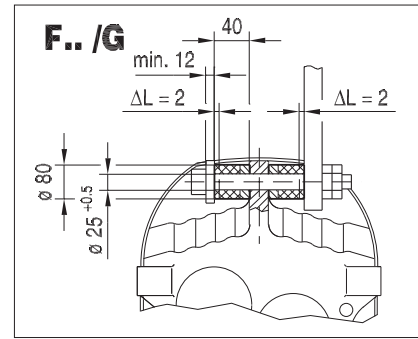
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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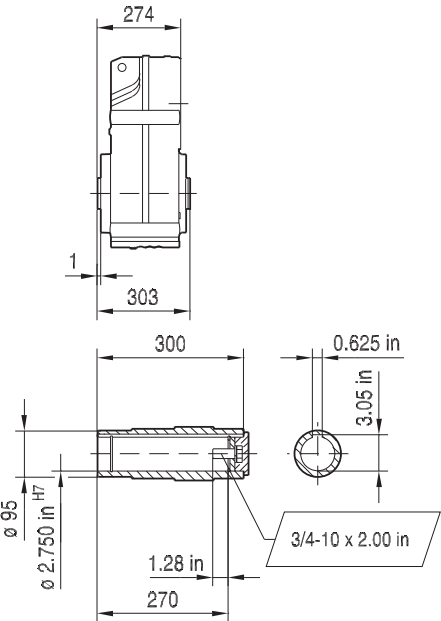
FA97..



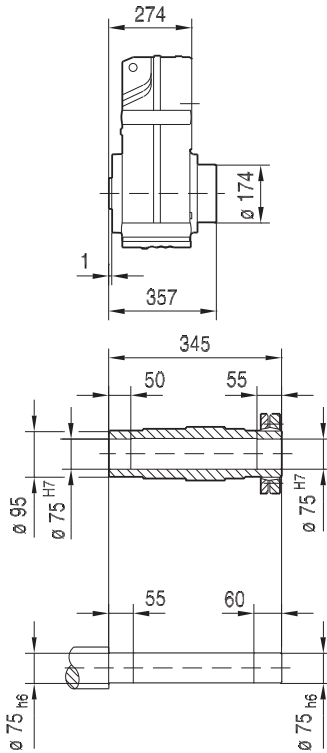
42 253 00 16



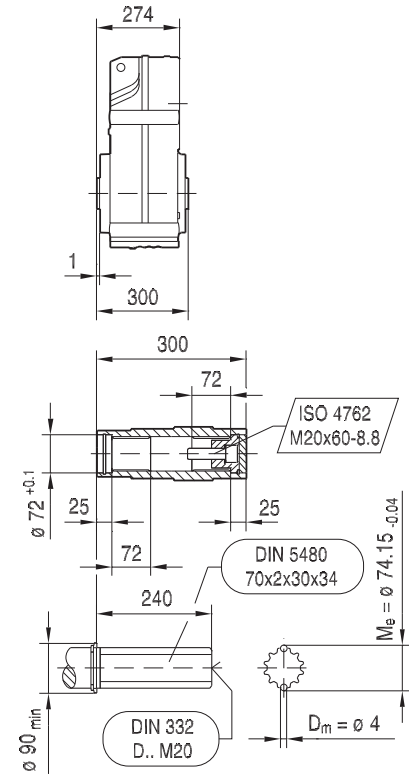
FA97..



FH97..
FH97/R.. → pg. 120



FV97..



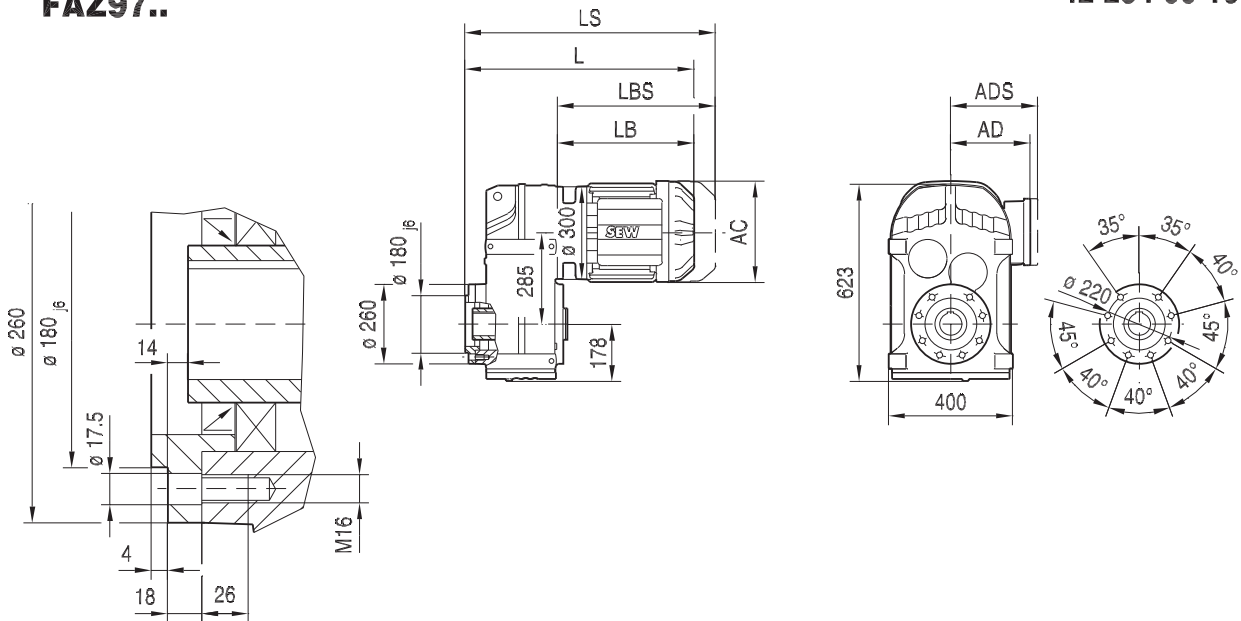
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	612	643	693	711	737	803	826	936	910
LS	706	755	805	849	874	992	1015	1141	1115
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FAZ97..

42 254 00 16

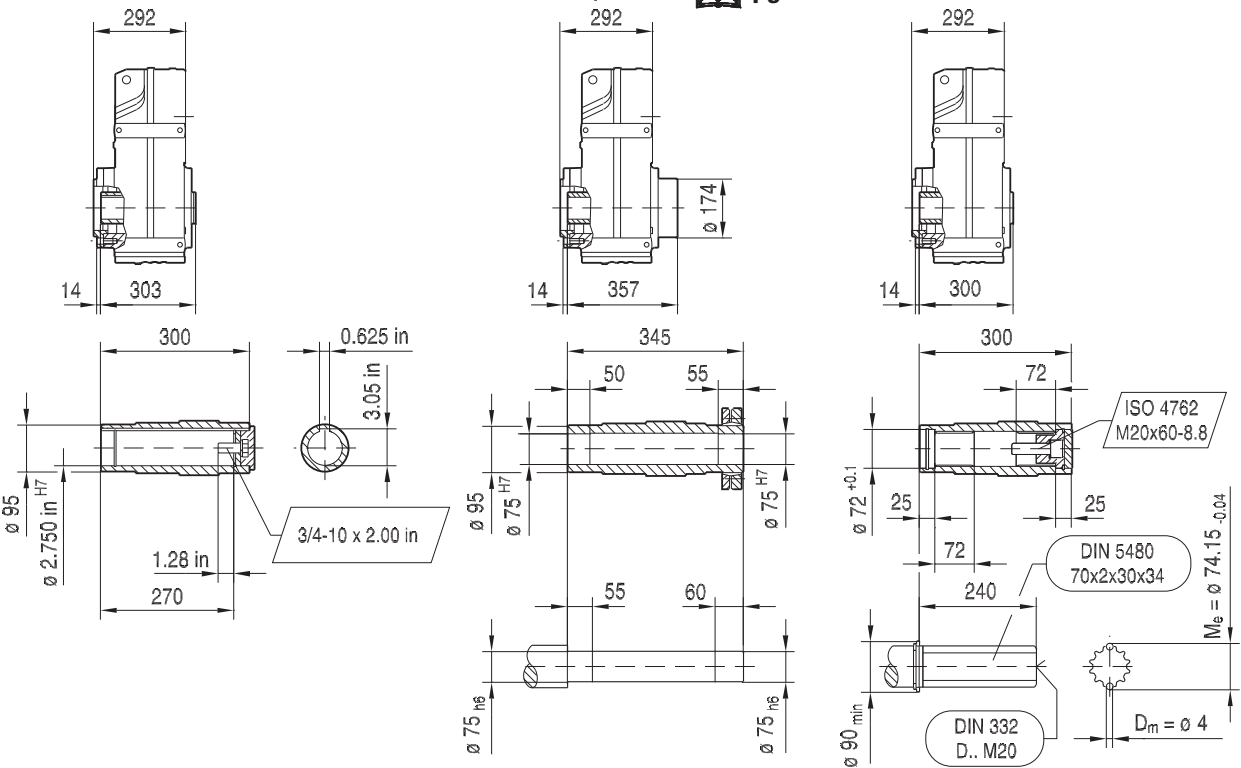


FAZ97..

FHZ97..

FHZ97/R.. → pg. 120

FVZ97..



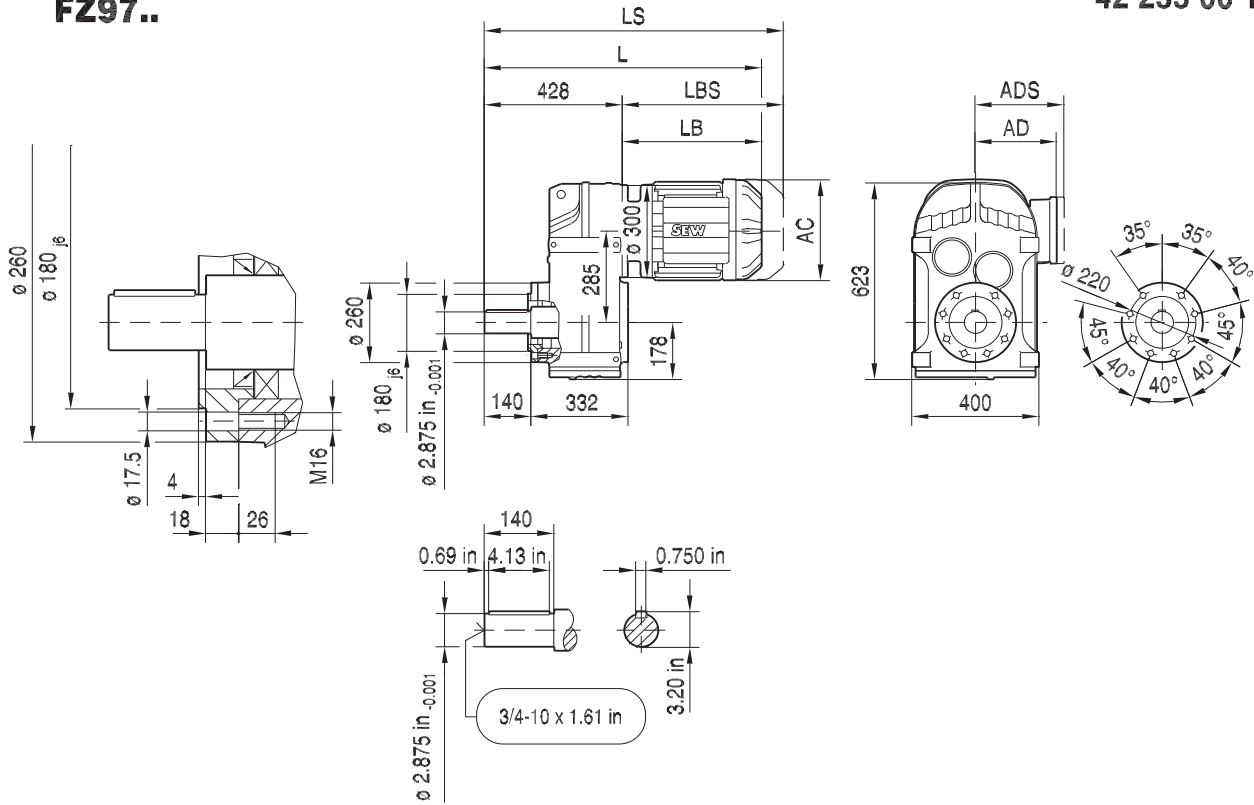
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	630	661	711	729	755	821	844	954	928
LS	724	773	823	867	892	1010	1033	1159	1133
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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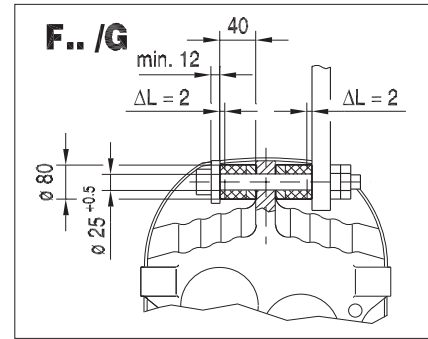
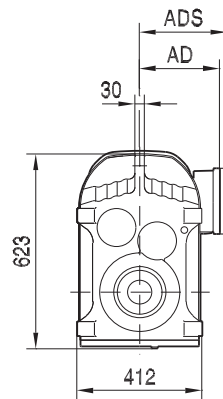
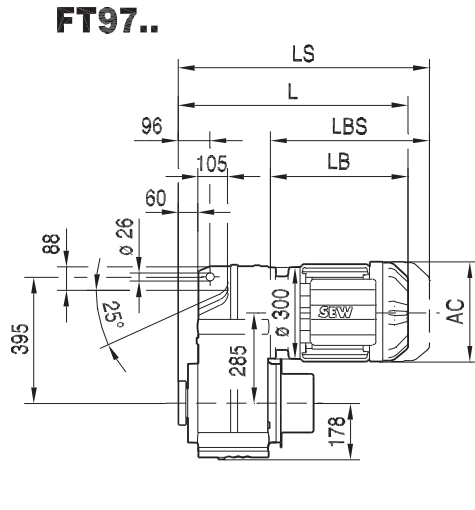
FZ97..

42 255 00 16



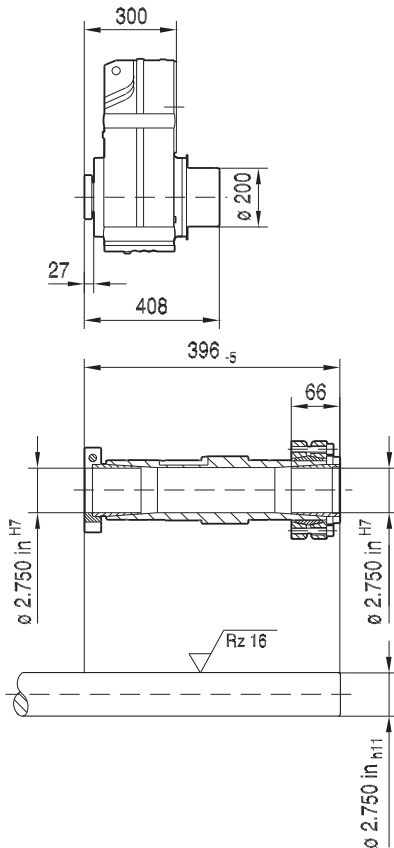
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	766	797	847	865	891	957	980	1090	1064
LS	860	909	959	1003	1028	1146	1169	1295	1269
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

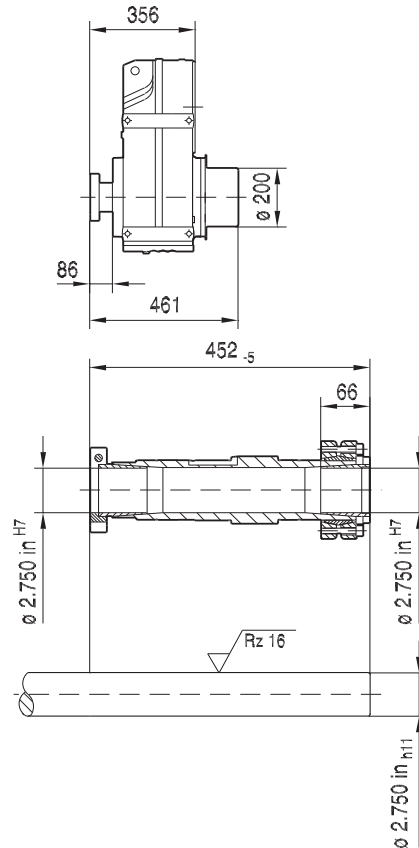


42 256 00 16

**FT97..
NON-Symmetrical**



**FT97B..
Symmetrical**



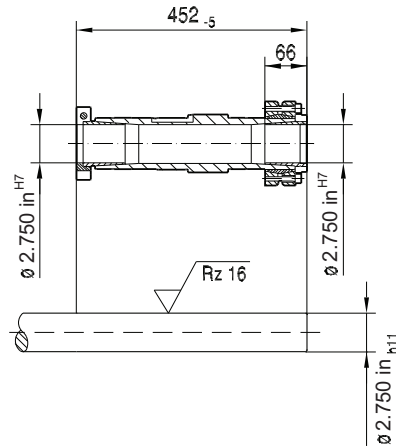
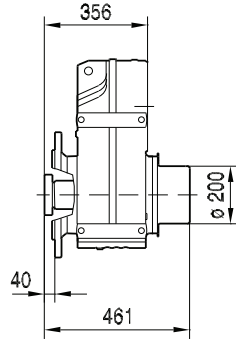
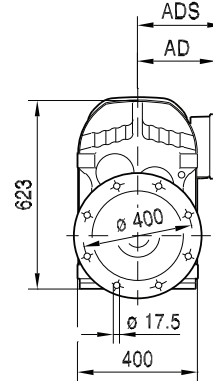
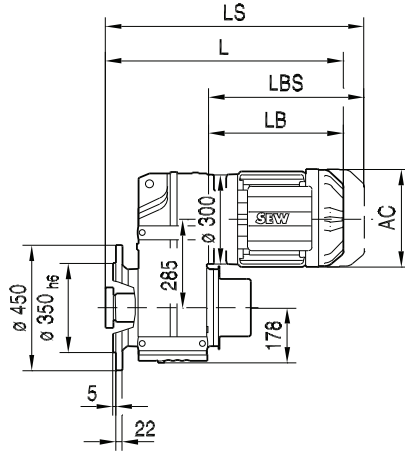
(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L ¹⁾
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	592	638	669	719	737	763	829	852	962
LS	685	732	781	831	875	900	1018	1041	1167
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

FTF97..

42 029 03 13 US



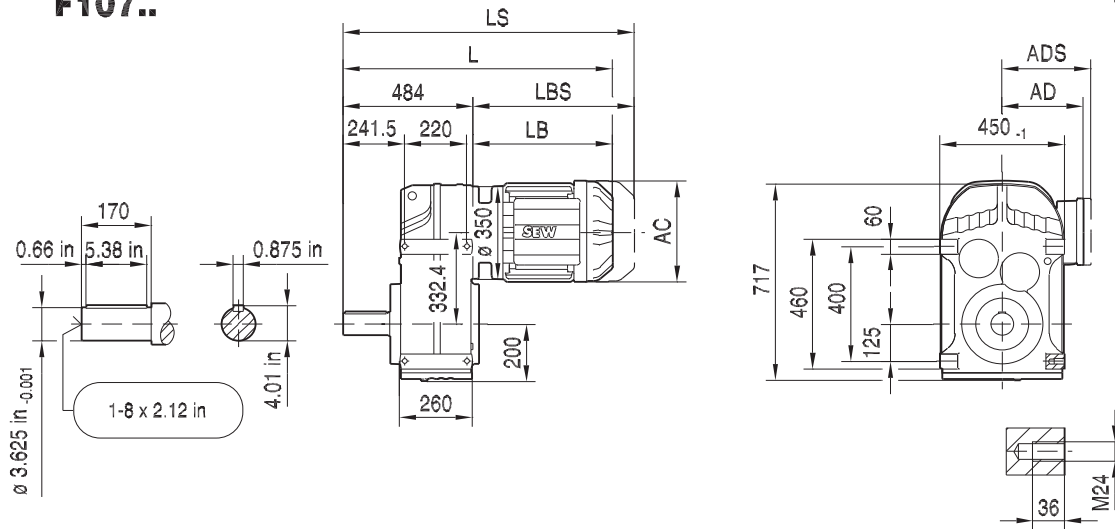
(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L ¹⁾
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	648	694	725	775	793	819	885	908	1018
LS	741	788	837	887	931	956	1074	1097	1223
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

¹⁾ Combination requires a modified shaft cover. See page 142.

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

F107..

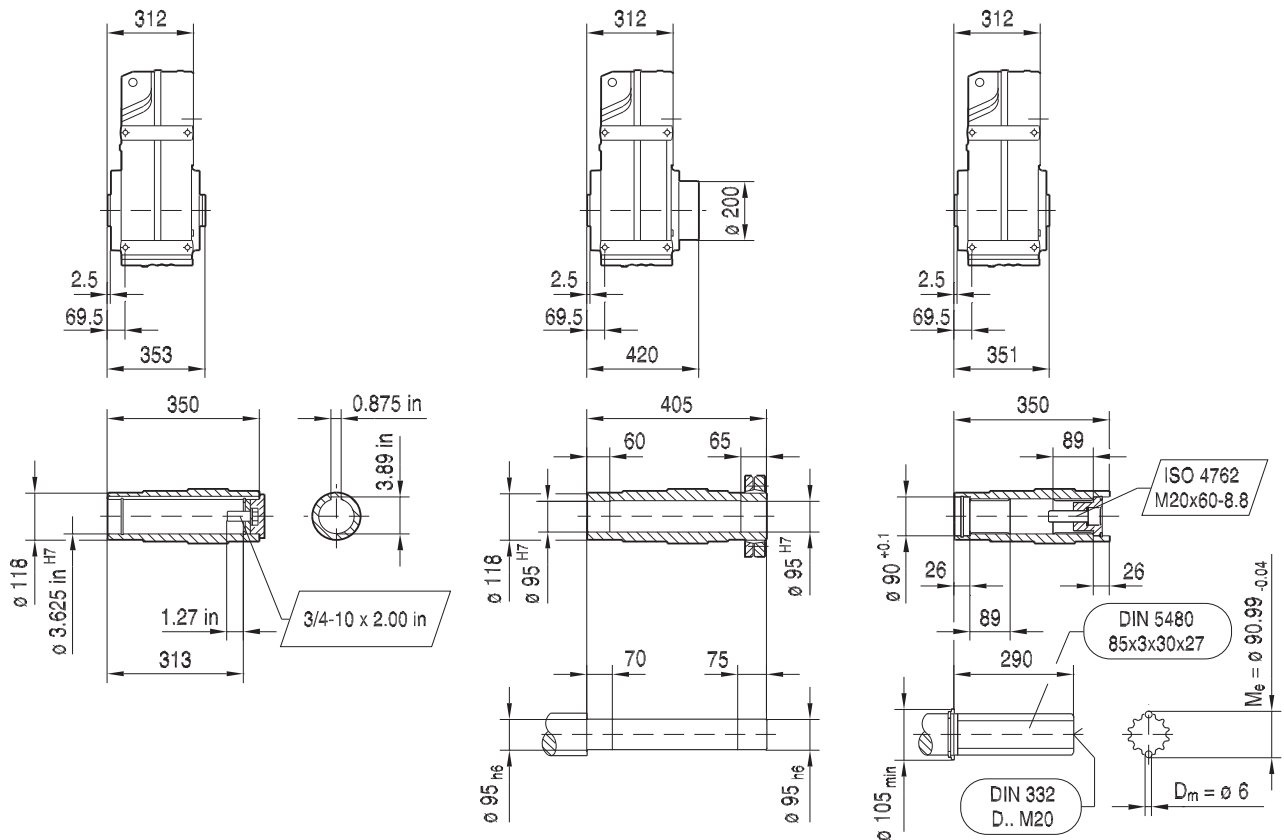
42 257 00 16



FA107B..

FH107B..

FV107B..

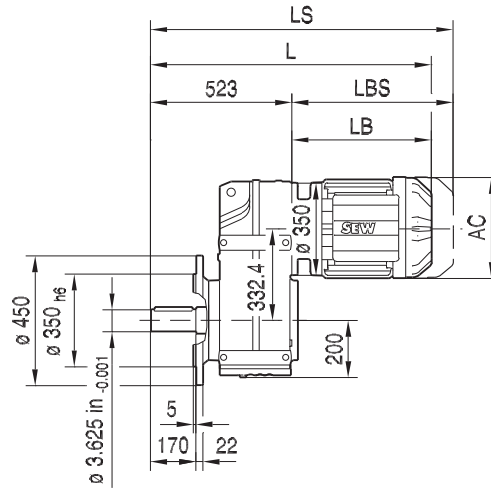
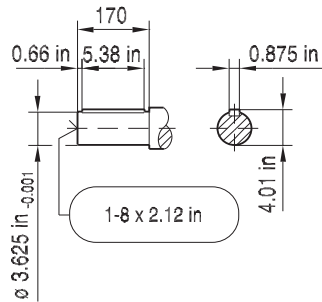


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	816	847	897	915	941	1007	1030	1140	1114
LS	910	959	1009	1053	1078	1196	1219	1345	1319
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

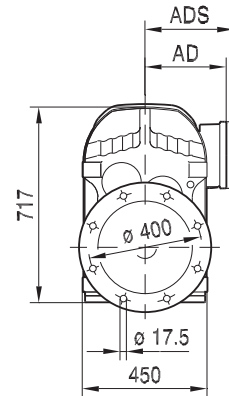
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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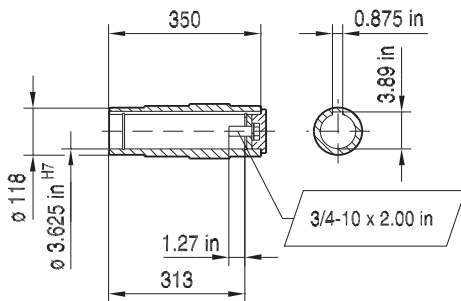
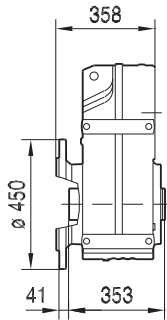
FF107..



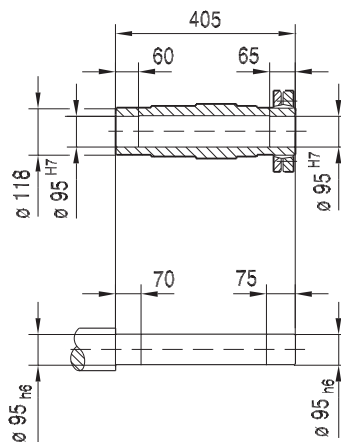
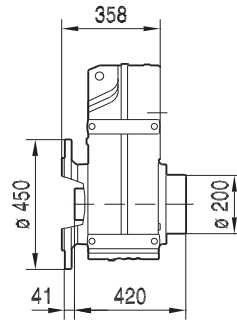
42 258 00 16



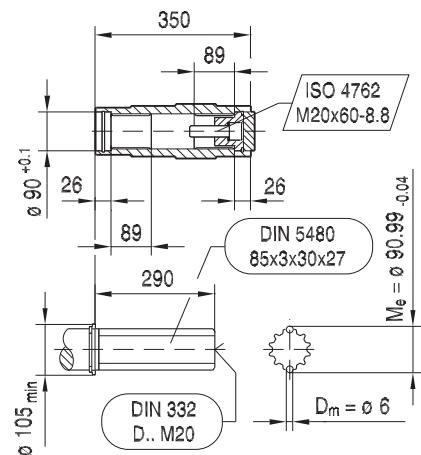
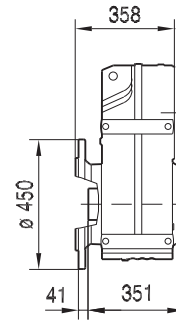
FAF107..



FHF107..



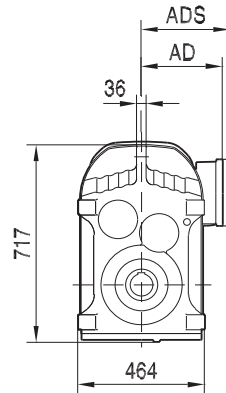
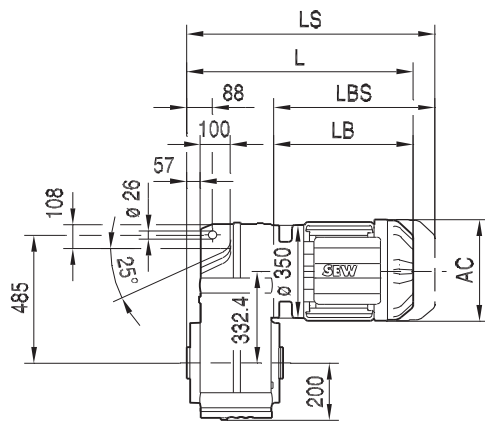
FVF107..



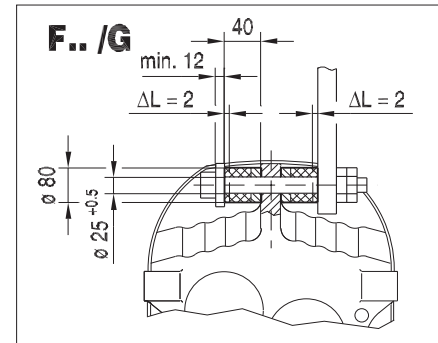
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	855	886	936	954	980	1046	1069	1179	1153
LS	949	998	1048	1092	1117	1235	1258	1384	1358
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

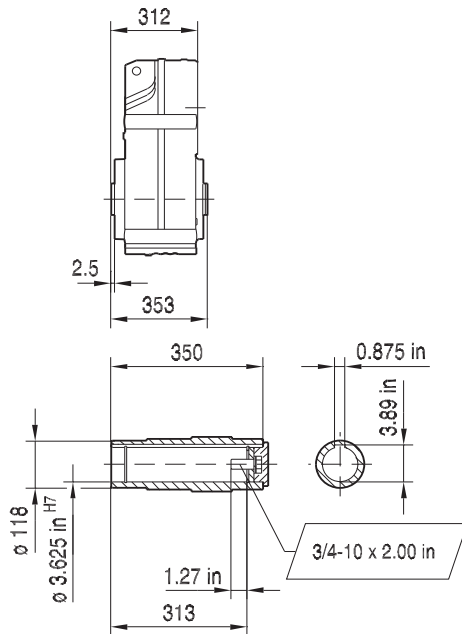
FA107..



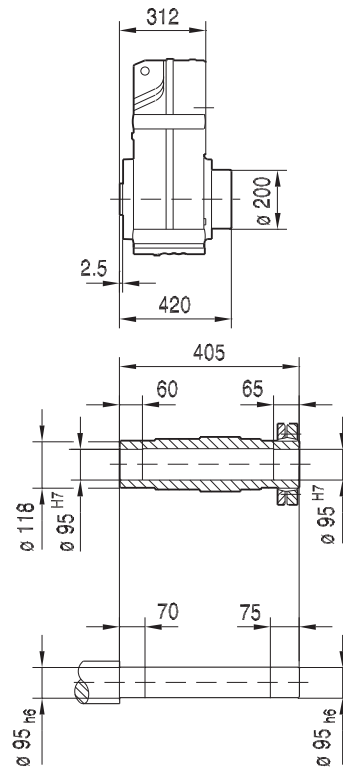
42 259 00 16



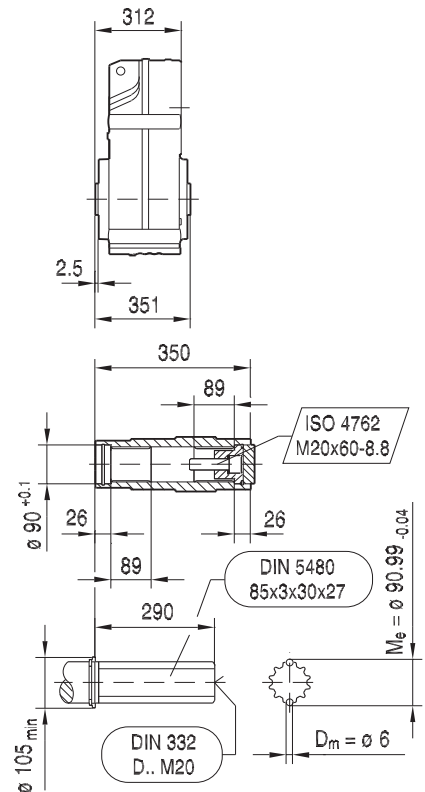
FA107..



FH107..



FV107..



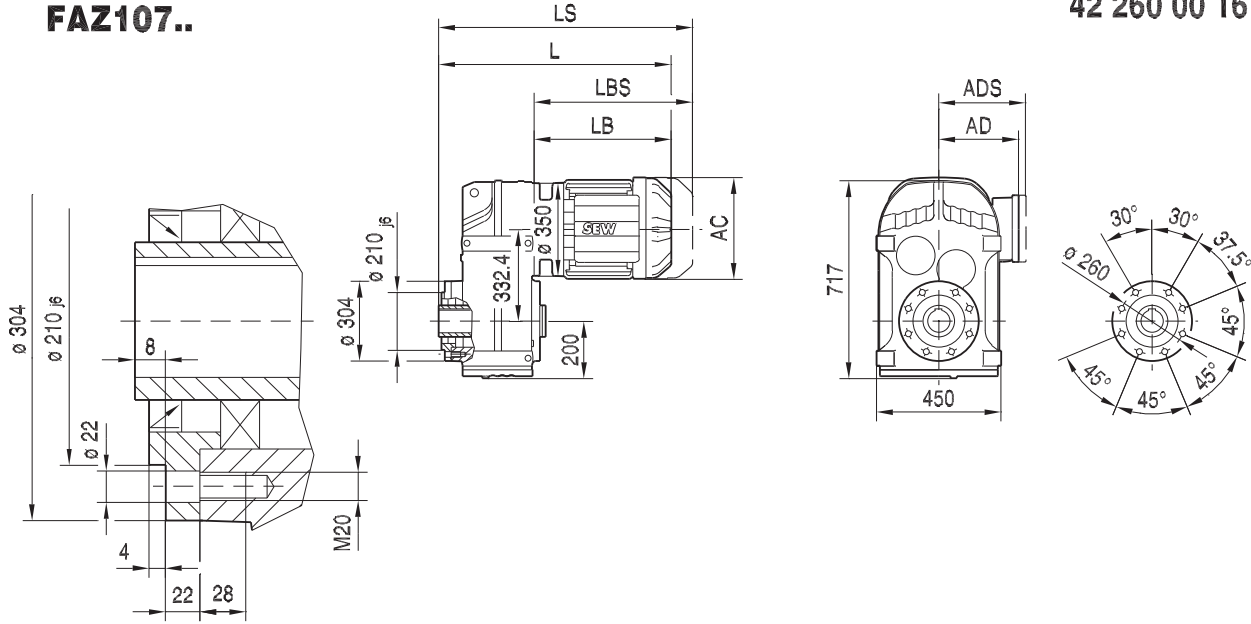
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	644	675	725	743	769	835	858	968	942
LS	738	787	837	881	906	1024	1047	1173	1147
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

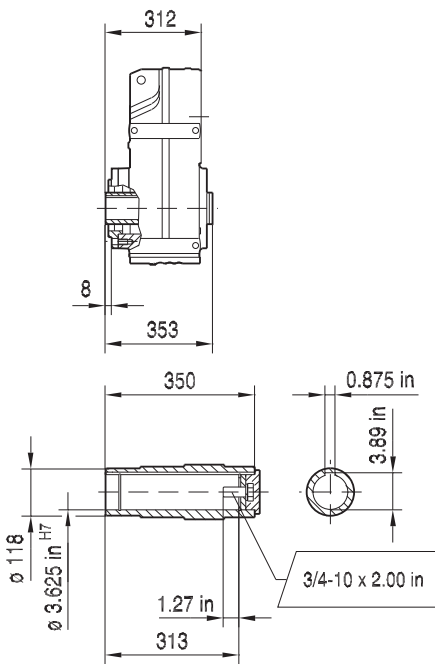
21933480/EN-US - 04/2018

42 260 00 16

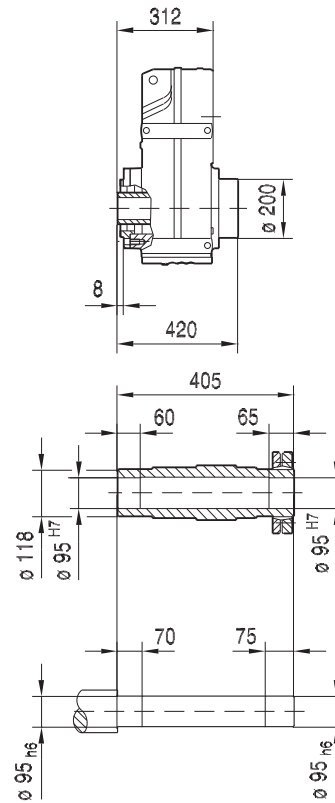
FAZ107..



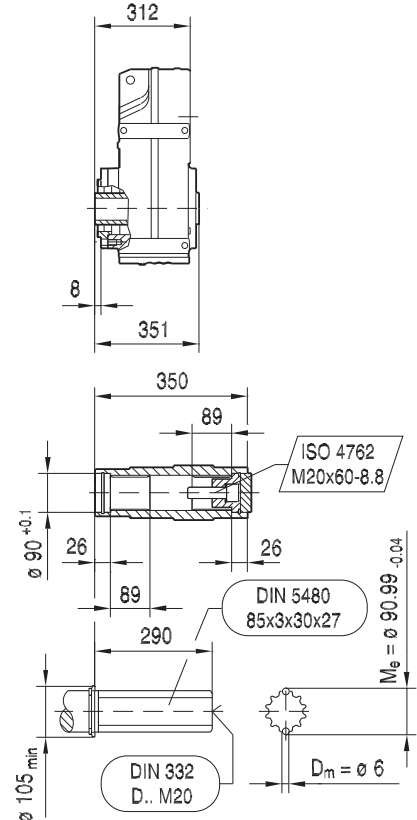
FAZ107..



FHZ107..



FVZ107..



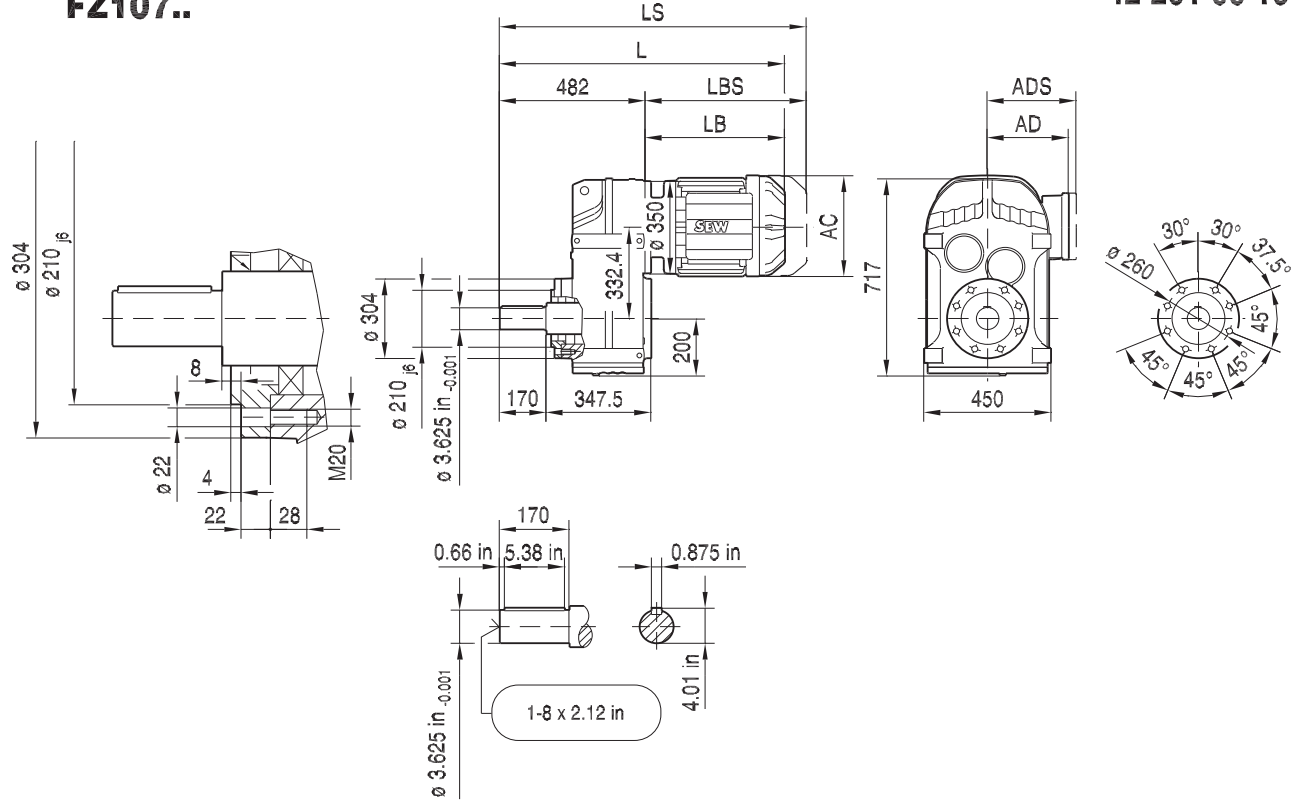
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	644	675	725	743	769	835	858	968	942
LS	738	787	837	881	906	1024	1047	1173	1147
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ107..

42 261 00 16

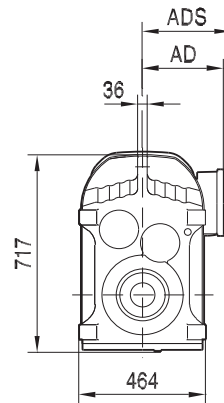
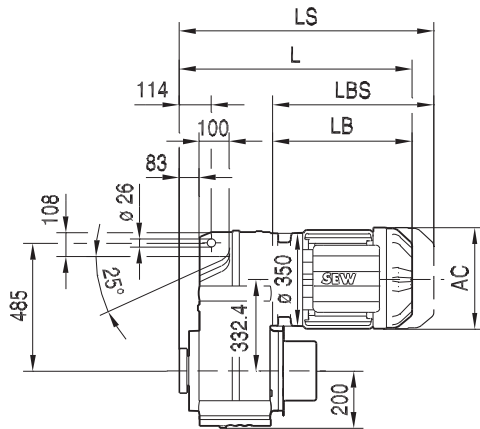


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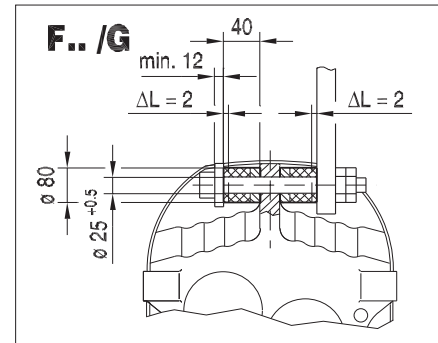
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	814	845	895	913	939	1005	1028	1138	1112
LS	908	957	1007	1051	1076	1194	1217	1343	1317
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

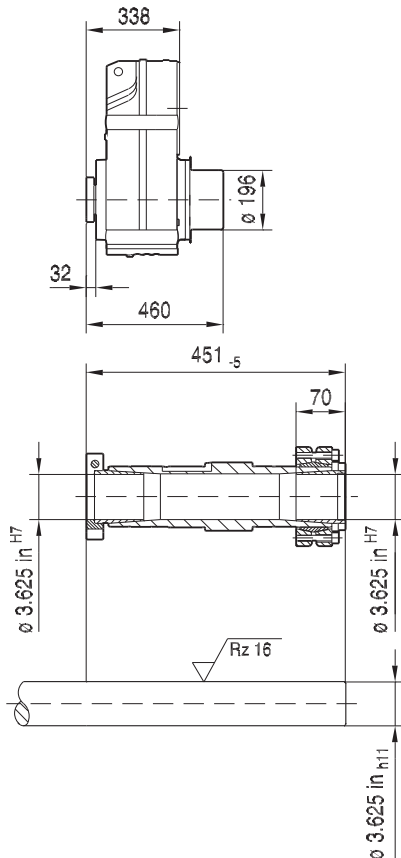
FT107..



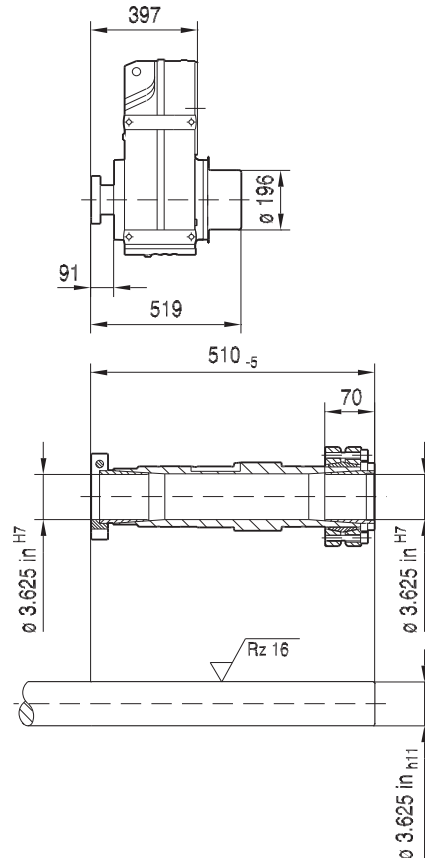
42 262 00 16



FT107..
NON-Symmetrical



FT107B..
Symmetrical



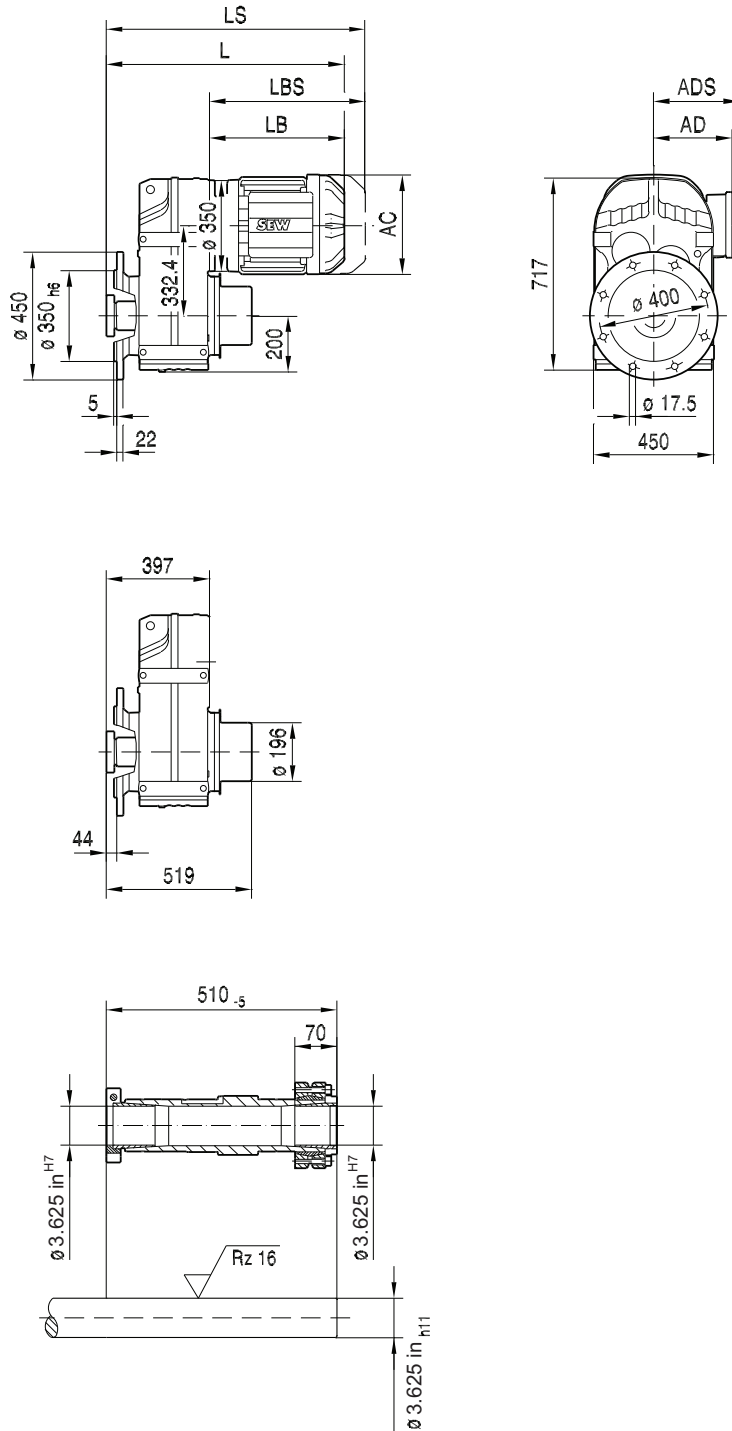
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	670	701	751	769	795	861	884	994	968
LS	764	813	863	907	932	1050	1073	1199	1173
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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FTF107..

42 030 03 13 US



9

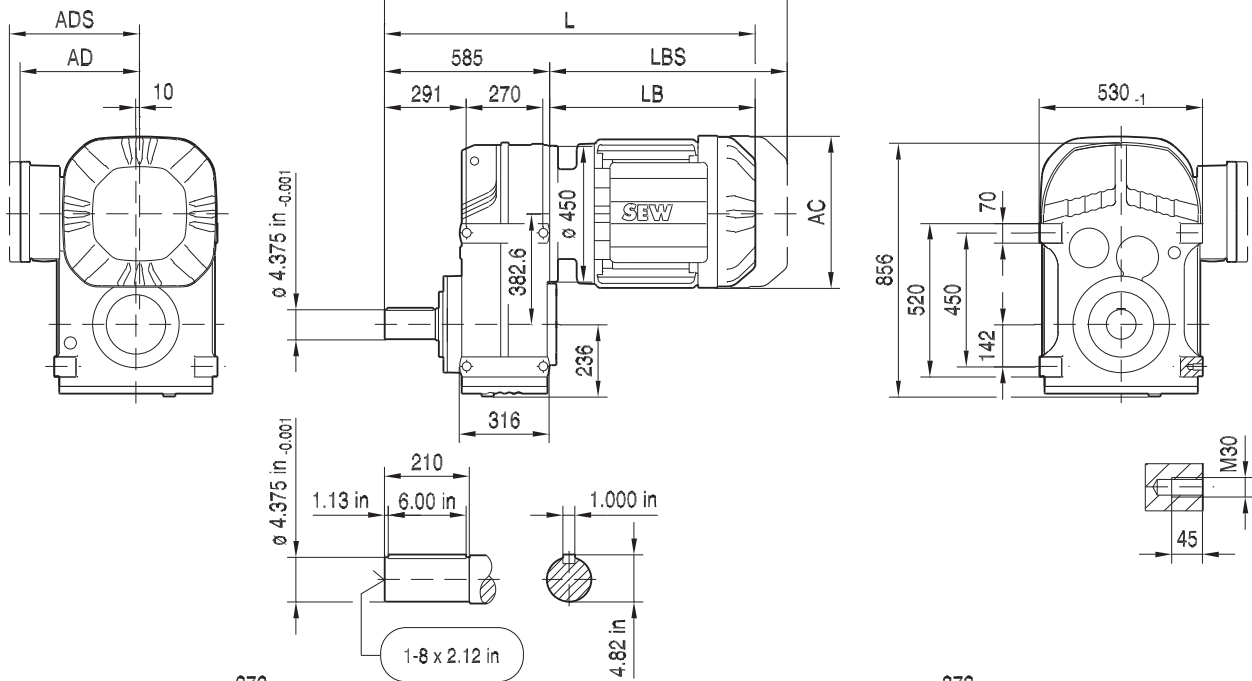
21933480/EN-US - 04/2018

(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	729	760	810	828	854	920	943	1053	1027
LS	823	872	922	966	991	1109	1132	1258	1232
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

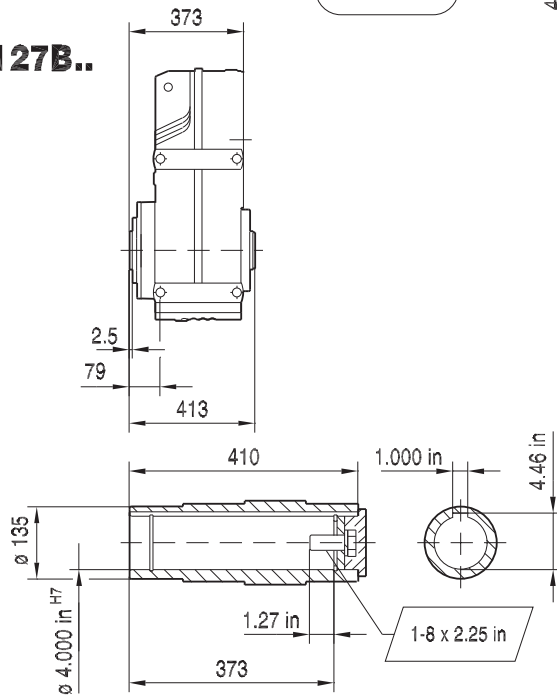
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

42 263 00 16

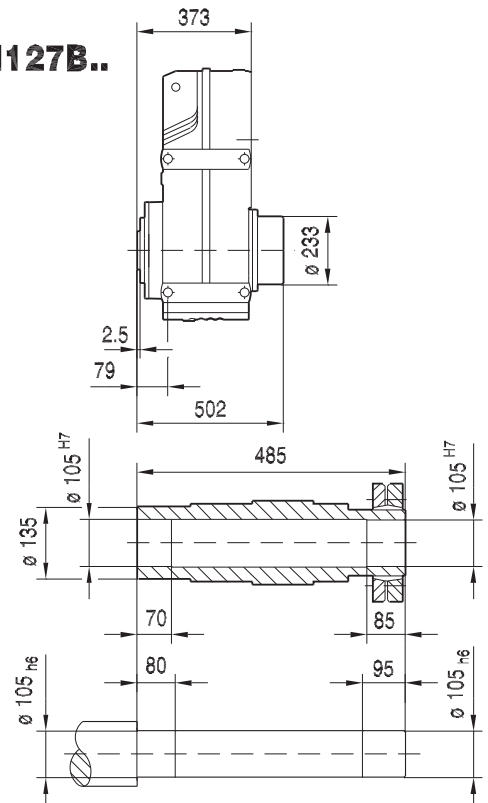
F127..



FA127B..



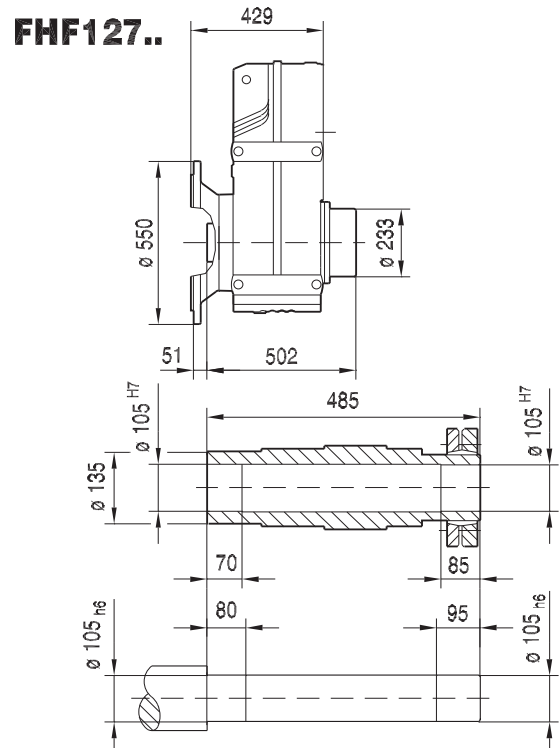
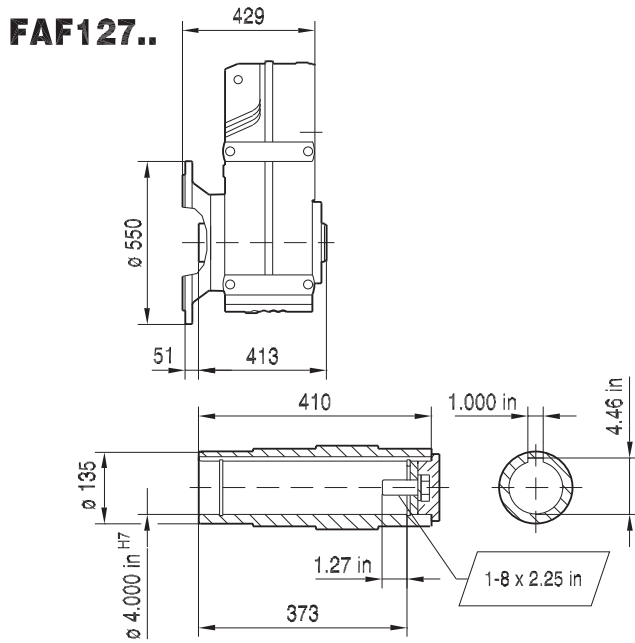
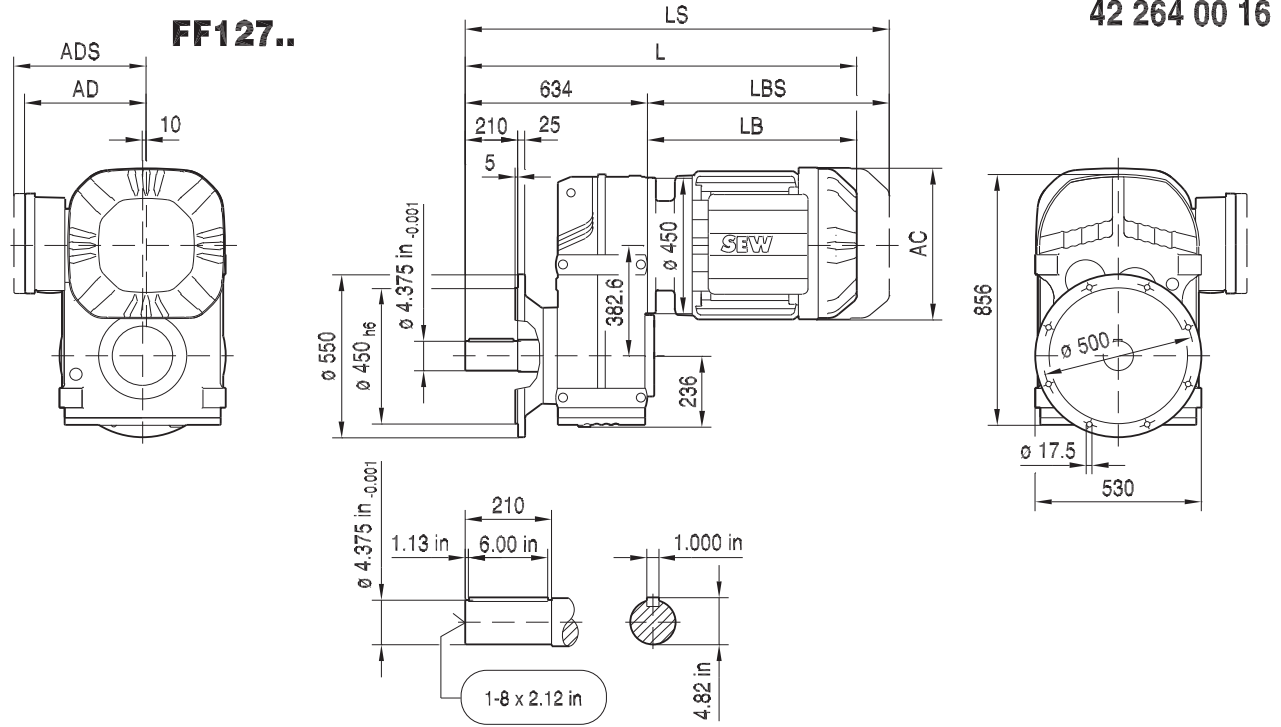
FH127B..



(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	983	1001	1027	1093	1116	1226	1200	1337	1337	1432
LS	1095	1139	1164	1282	1305	1431	1405	1577	1577	1672
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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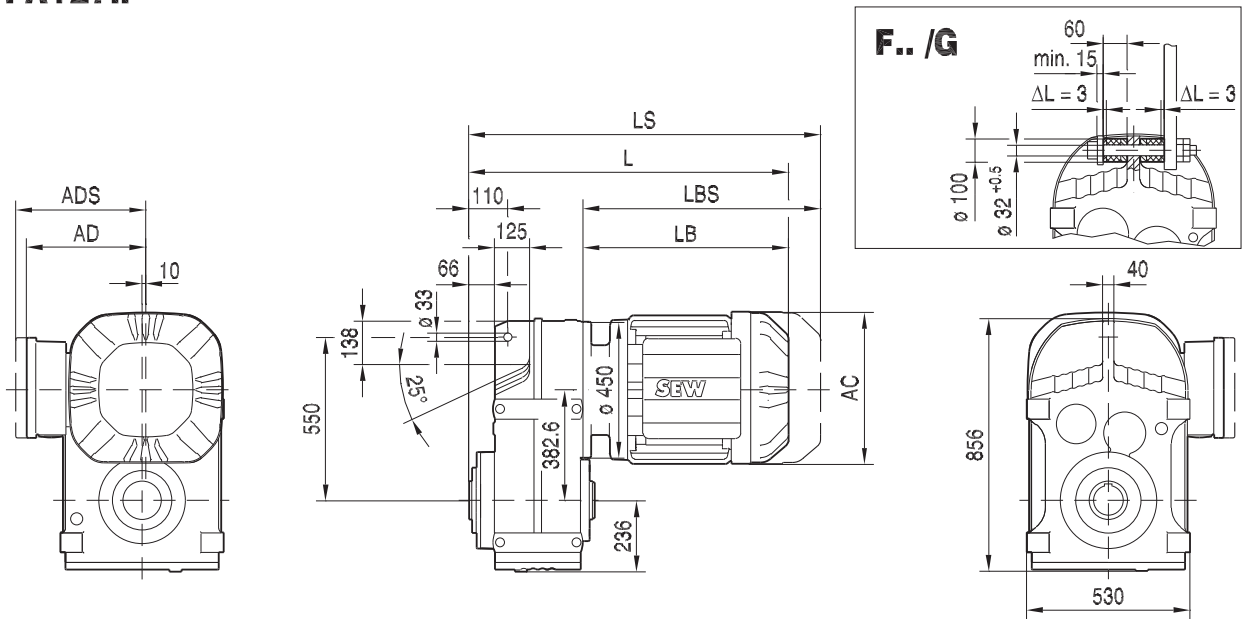
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1032	1050	1076	1142	1165	1275	1249	1386	1386	1481
LS	1144	1188	1213	1331	1354	1480	1454	1626	1626	1721
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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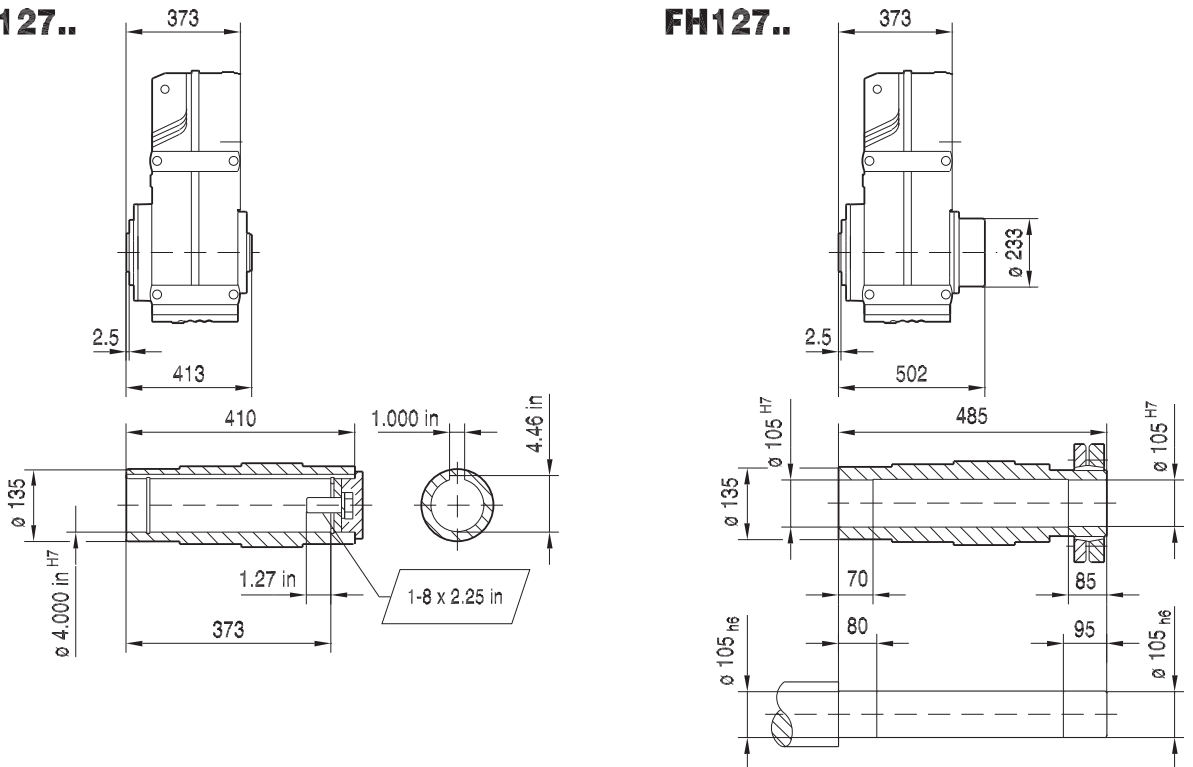
FA127..

42 265 00 16



FA127..

FH127..



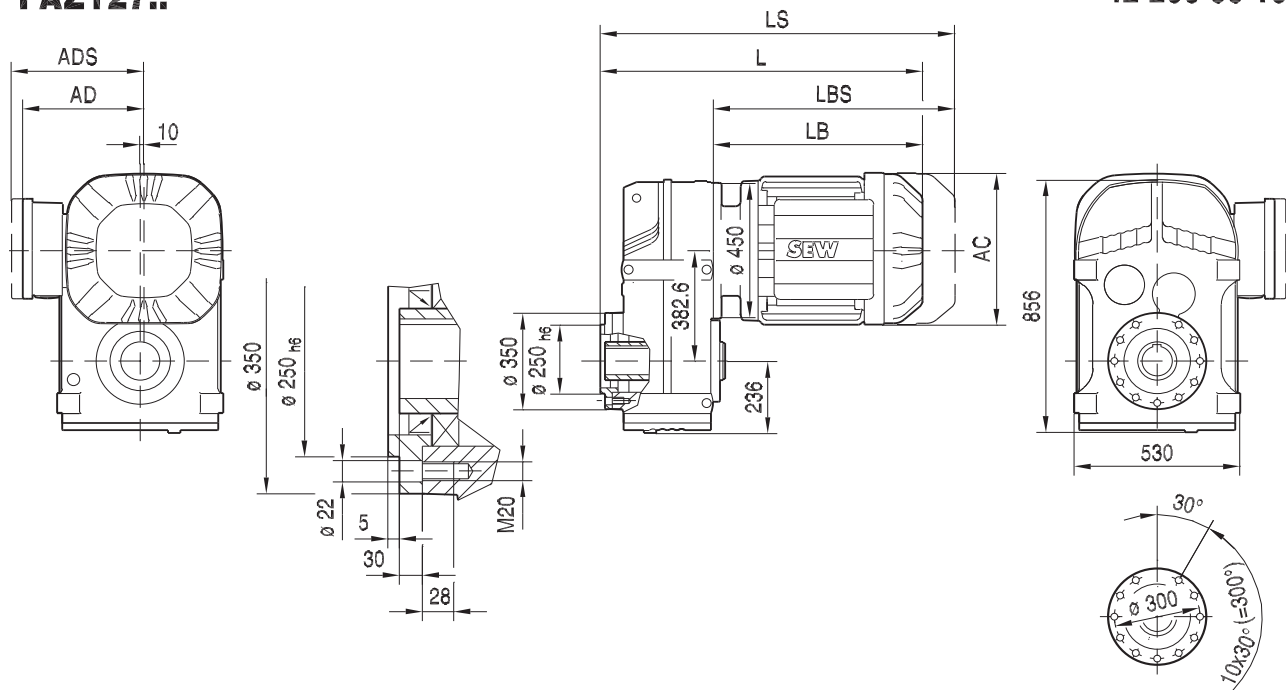
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	771	789	815	881	904	1014	988	1125	1125	1220
LS	883	927	952	1070	1093	1219	1193	1365	1365	1460
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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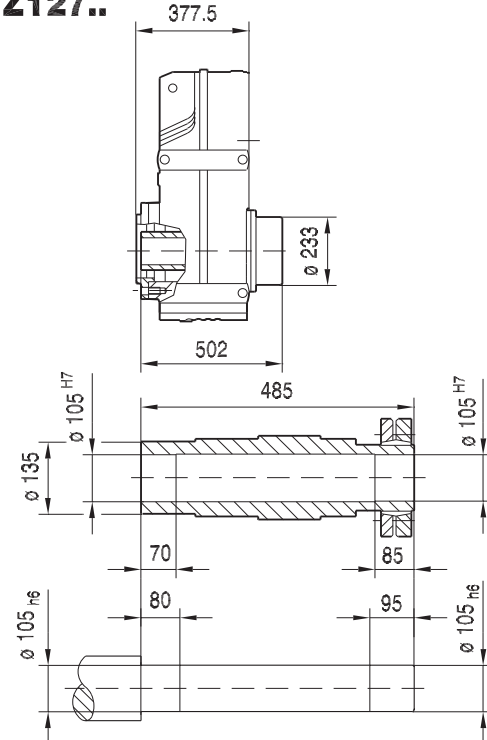
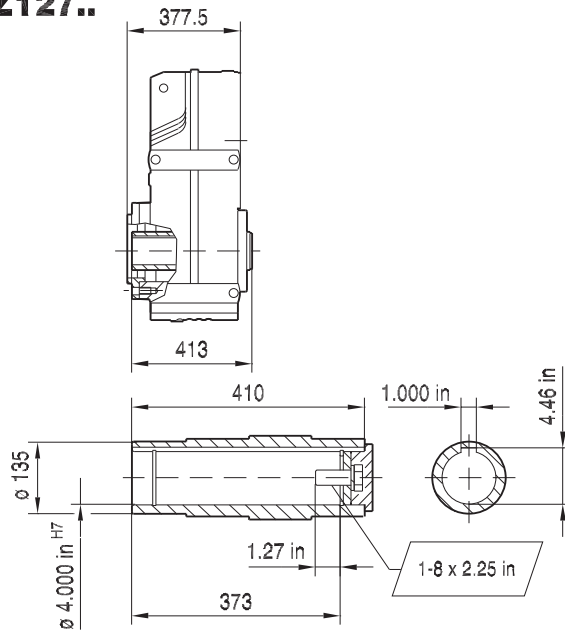
FAZ127..

42 266 00 16



FAZ127..

FHZ127..



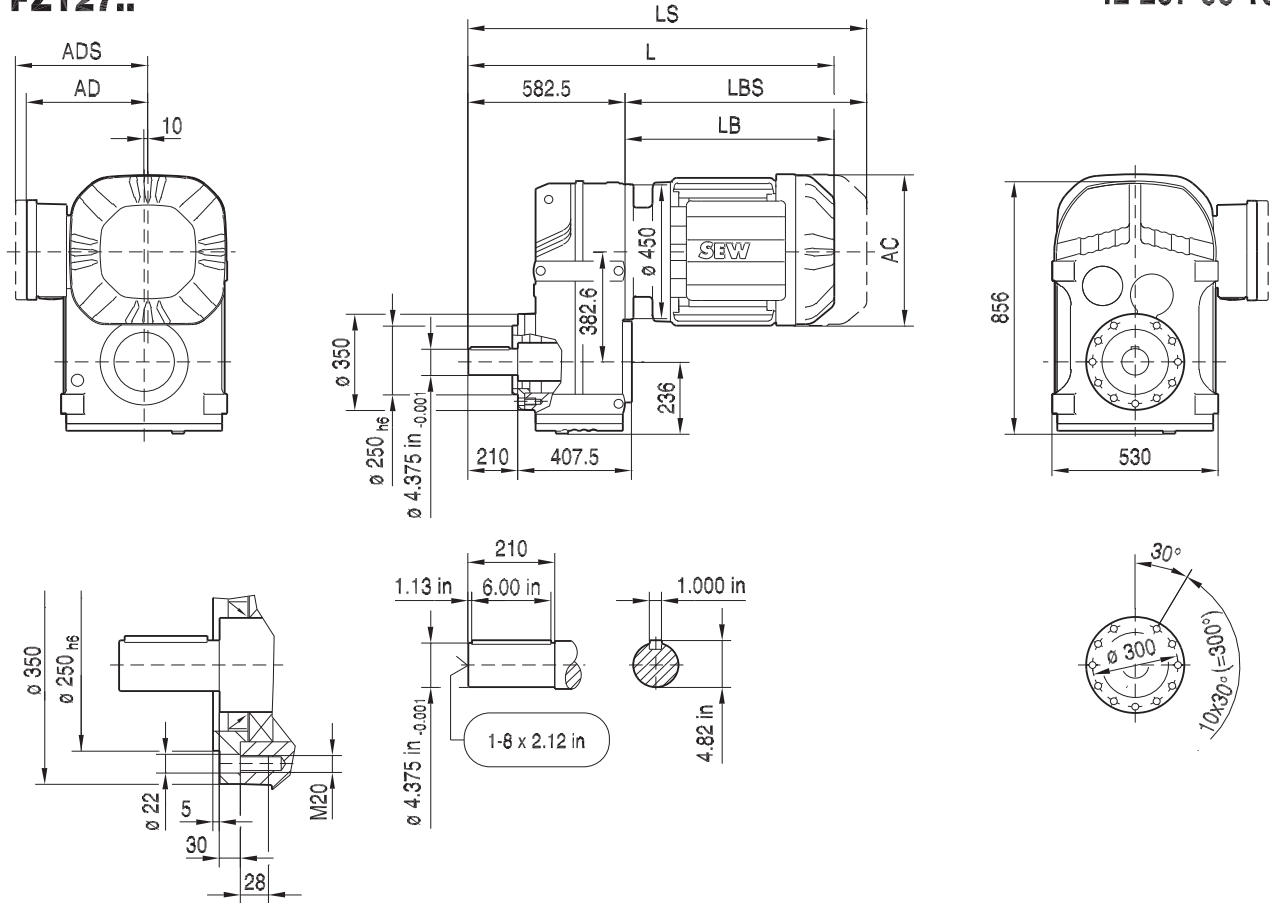
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	776	794	819	886	909	1018	993	1130	1130	1225
LS	888	931	956	1075	1098	1223	1198	1370	1370	1465
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ127..

42 267 00 16

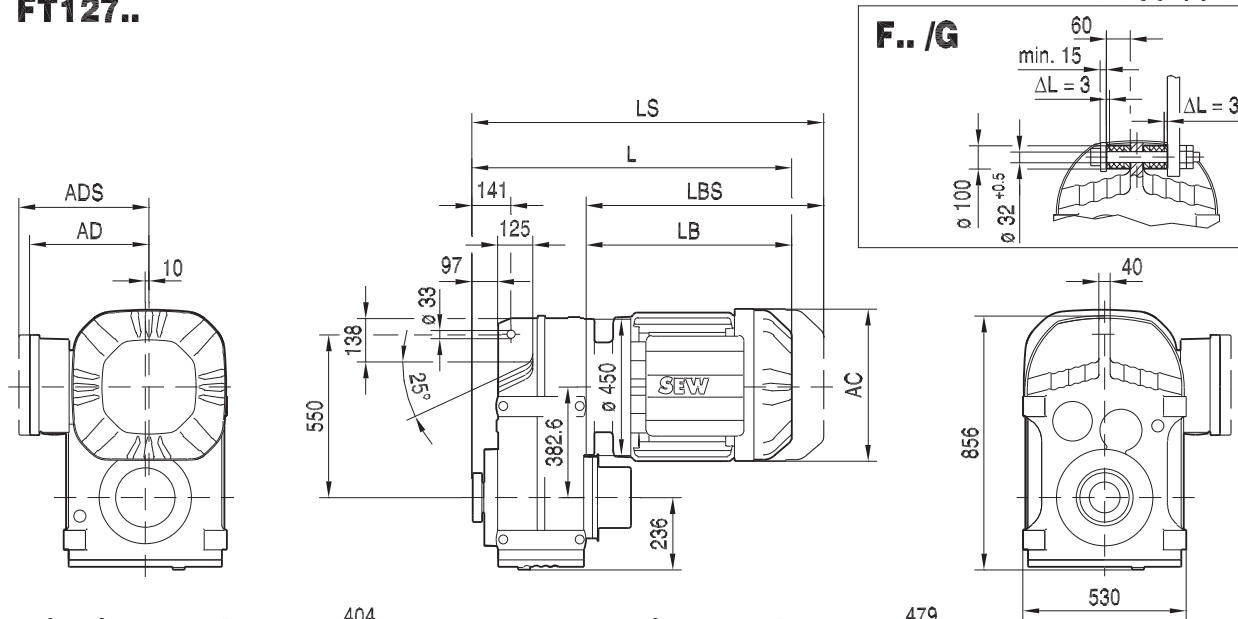


(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	981	999	1024	1091	1114	1223	1198	1335	1335	1430
LS	1093	1136	1161	1280	1303	1428	1403	1575	1575	1670
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

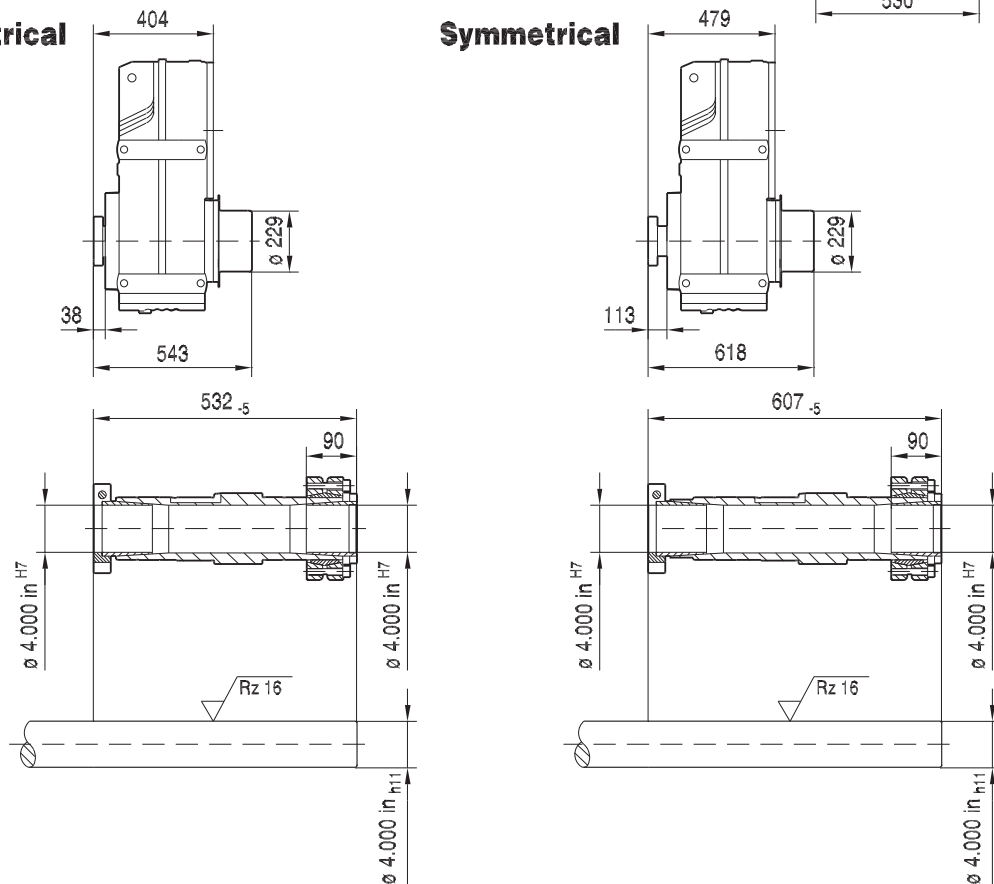
FT127..

42 268 00 16



NON-Symmetrical

Symmetrical



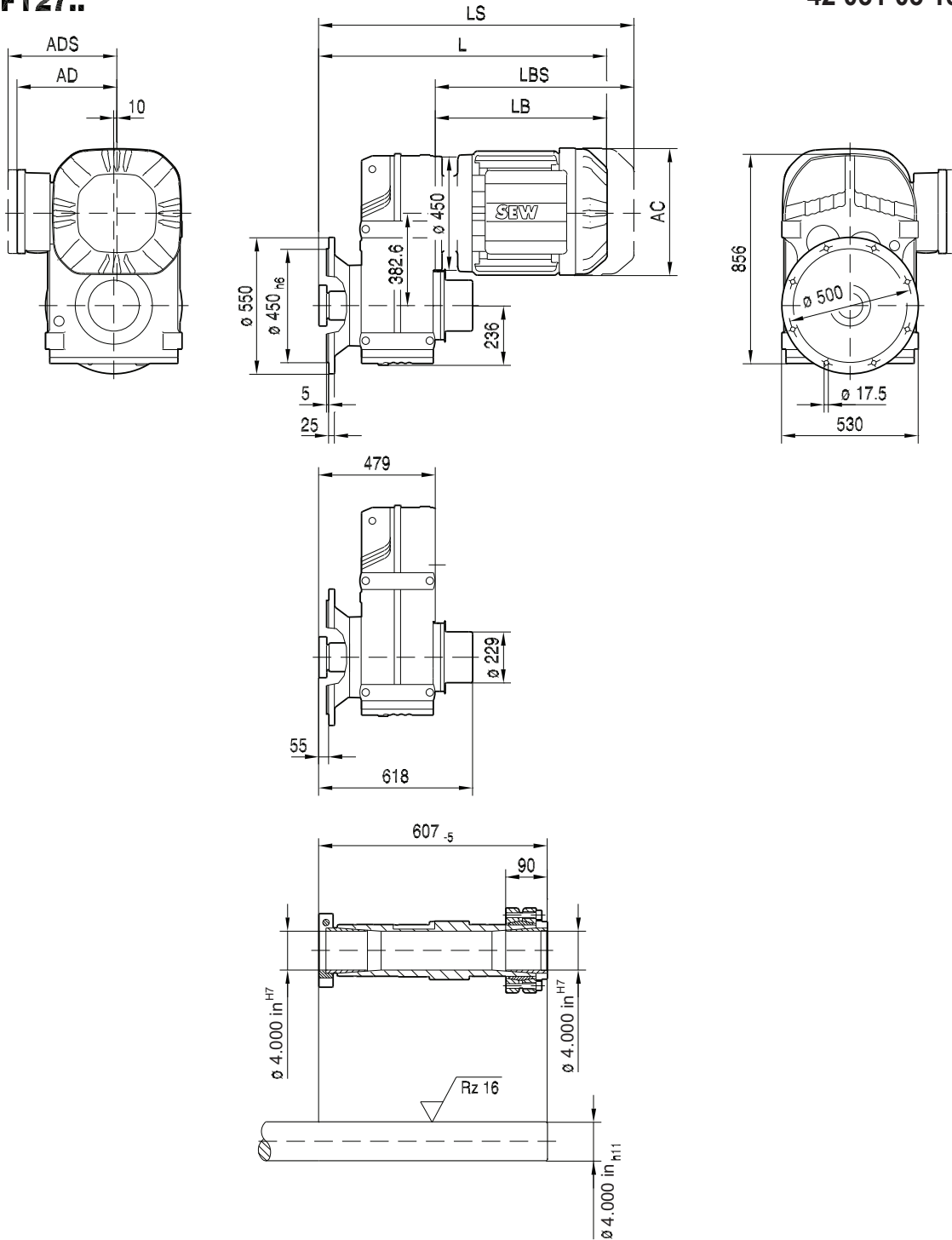
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	802	820	846	912	935	1045	1019	1156	1156	1251
LS	914	958	983	1101	1124	1250	1224	1396	1396	1491
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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FTF127..

42 031 03 13 US

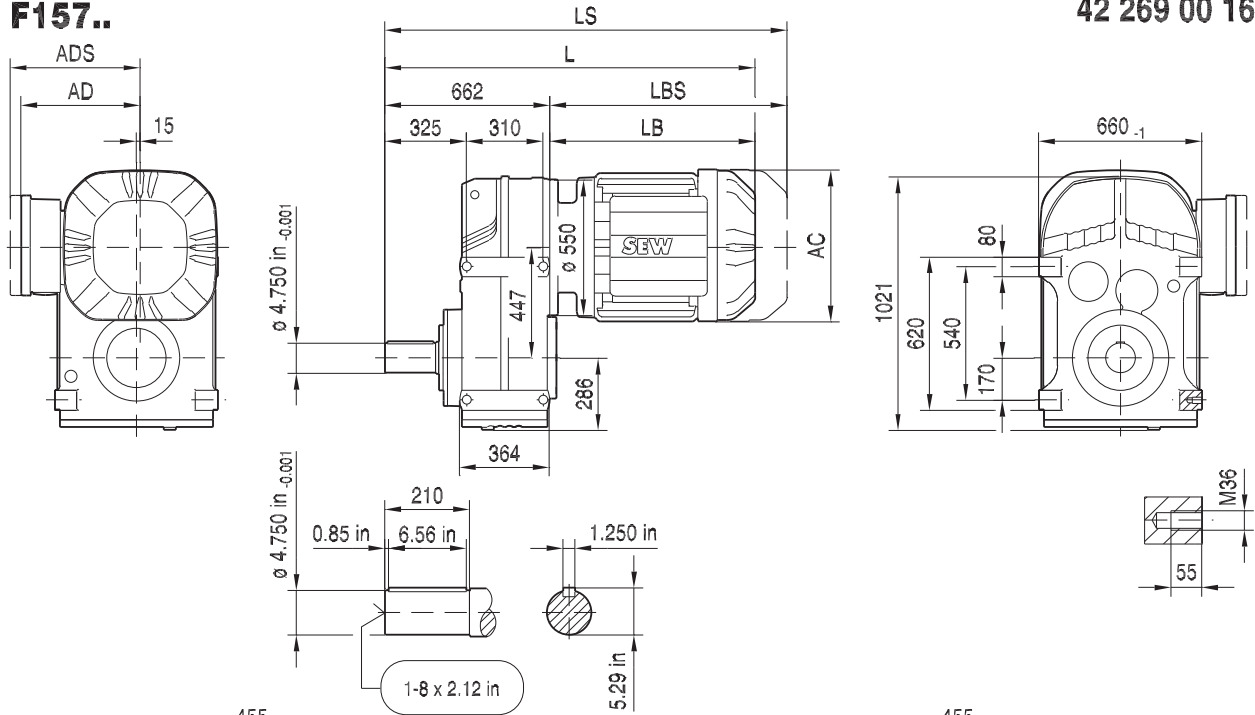


(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	877	895	921	987	1010	1120	1094	1231	1231	1326
LS	989	1033	1058	1176	1199	1325	1299	1471	1471	1566
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

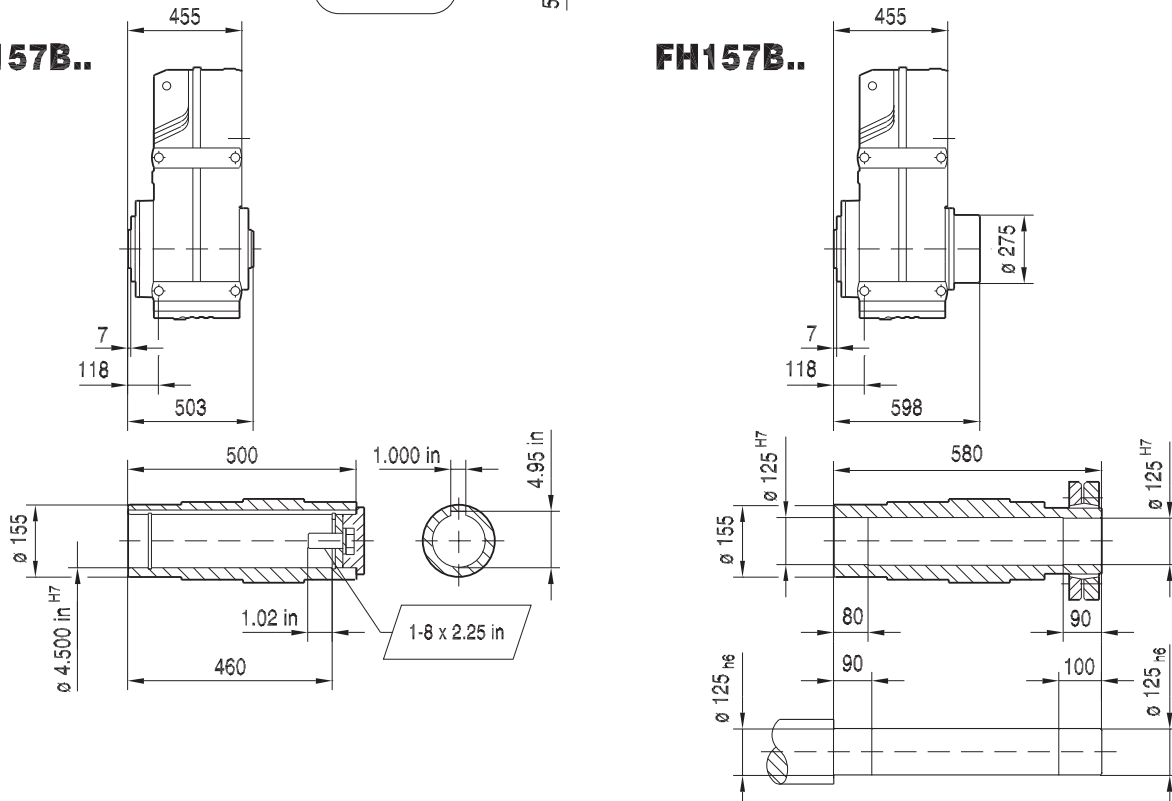
F157..

42 269 00 16



FA157B..

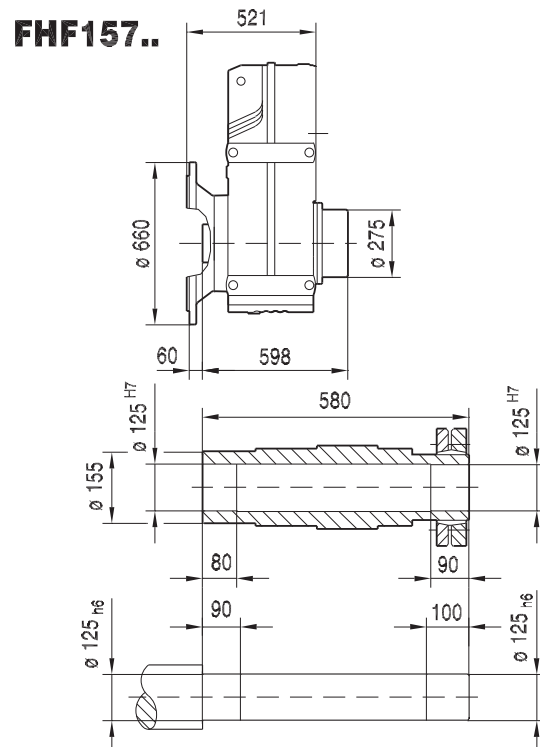
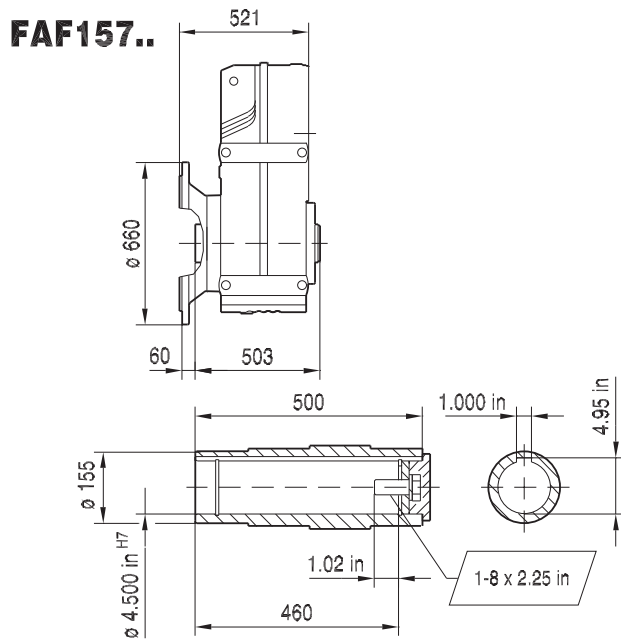
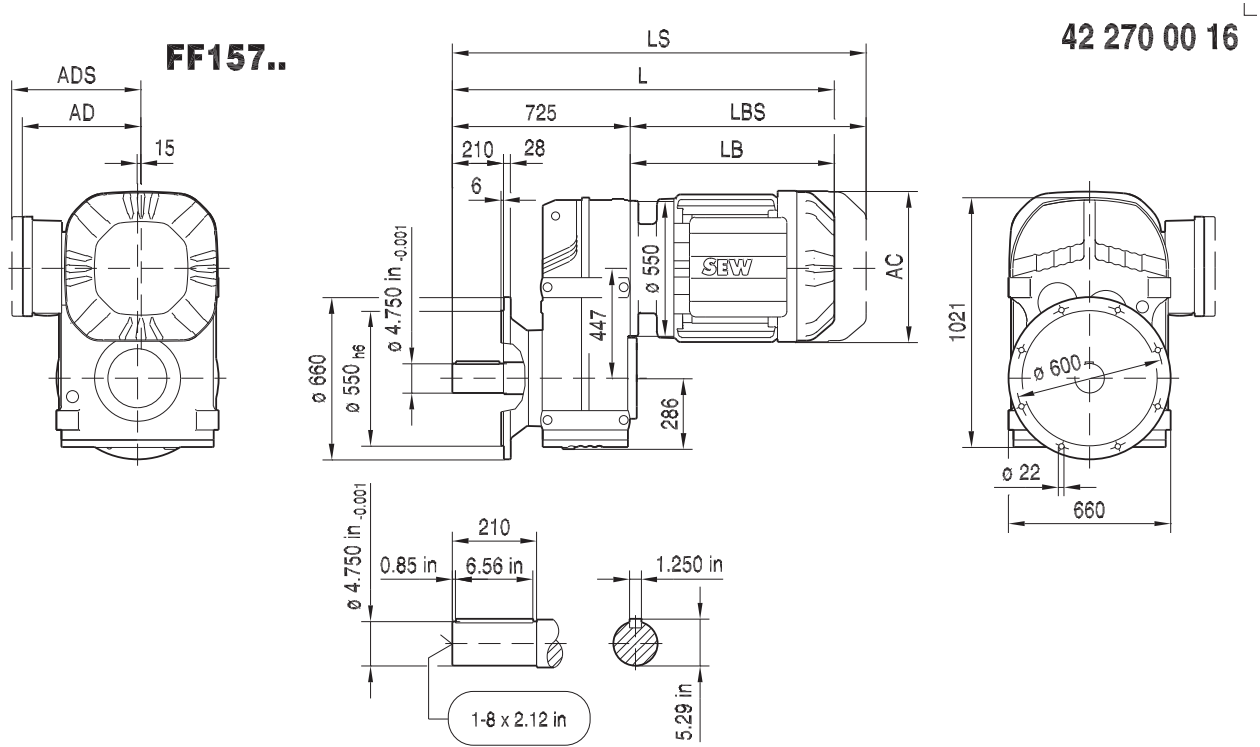
FH157B..



(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1162	1185	1295	1269	1406	1406	1501	1603	1733
LS	1351	1374	1500	1474	1646	1646	1741	1854	1984
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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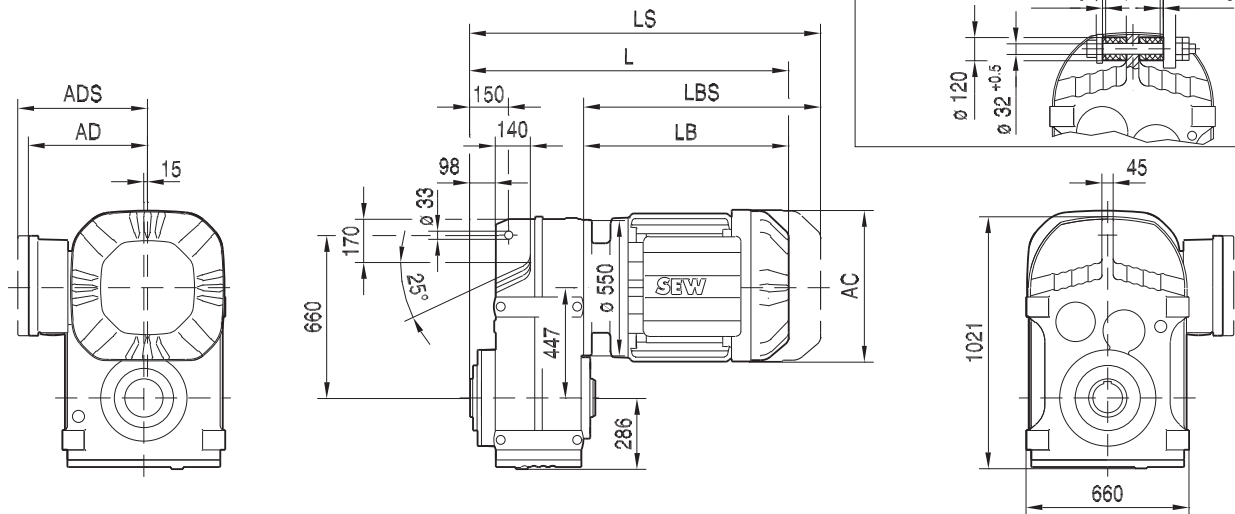
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1225	1248	1358	1332	1469	1469	1564	1666	1796
LS	1414	1437	1563	1537	1709	1709	1804	1917	2047
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

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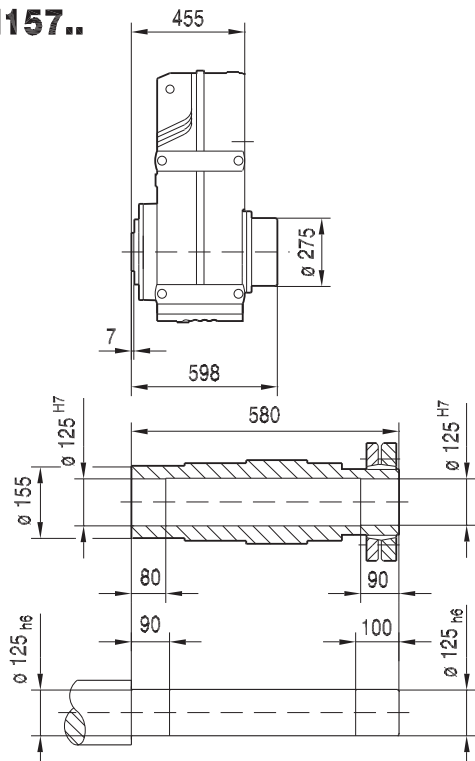
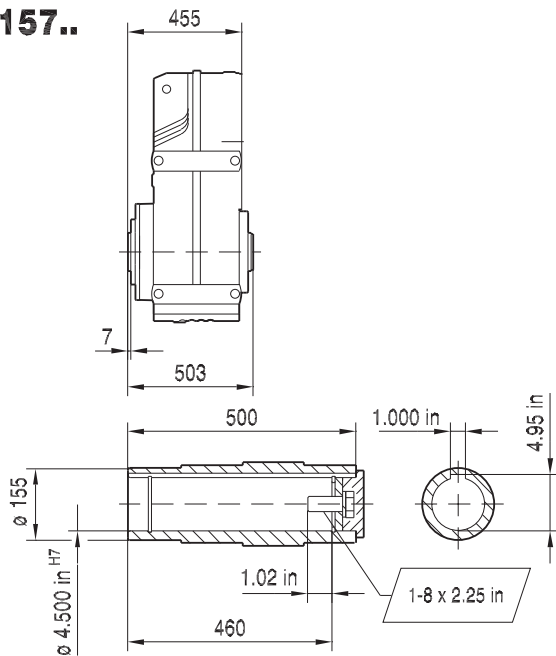
FA157..

42 271 00 16



FA157..

FH157..



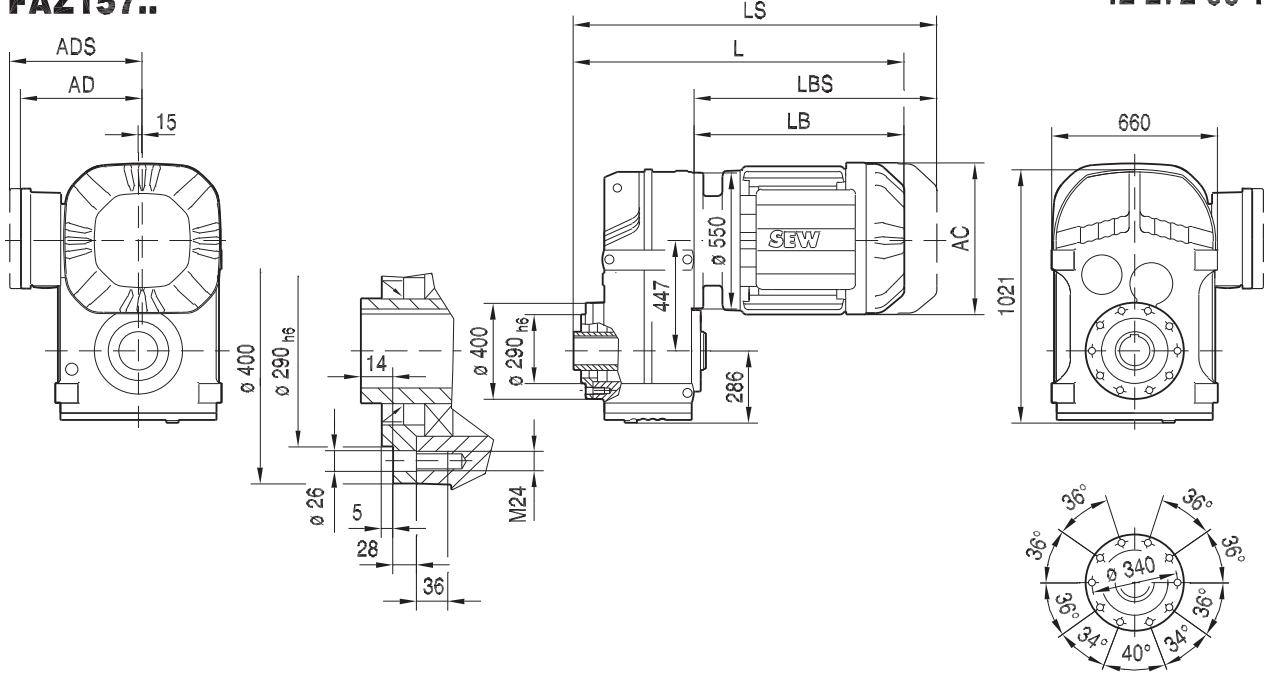
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	955	978	1088	1062	1199	1199	1294	1396	1526
LS	1144	1167	1293	1267	1439	1439	1534	1647	1777
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

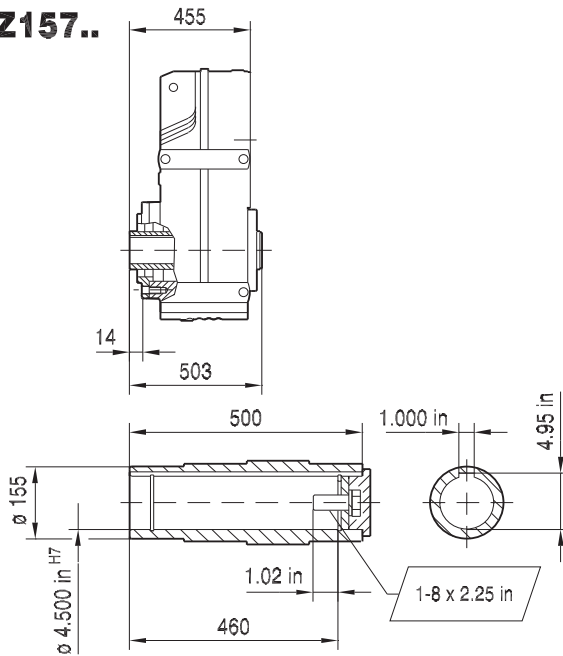
21933480/EN-US - 04/2018

42 272 00 16

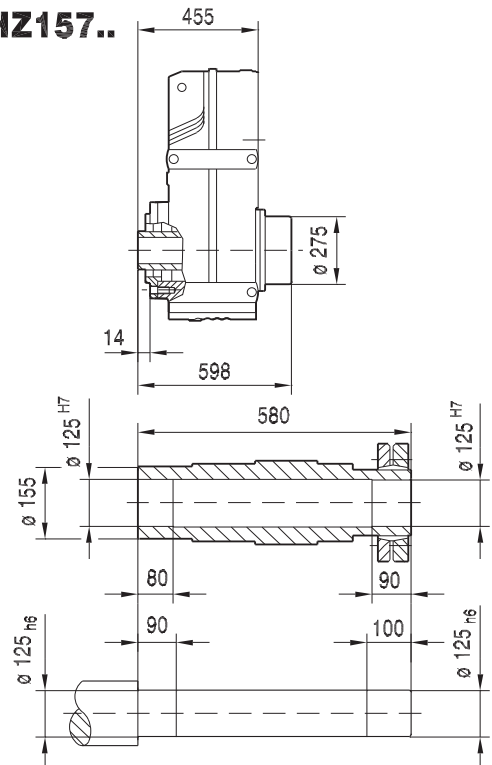
FAZ157..



FAZ157..



FHZ157..



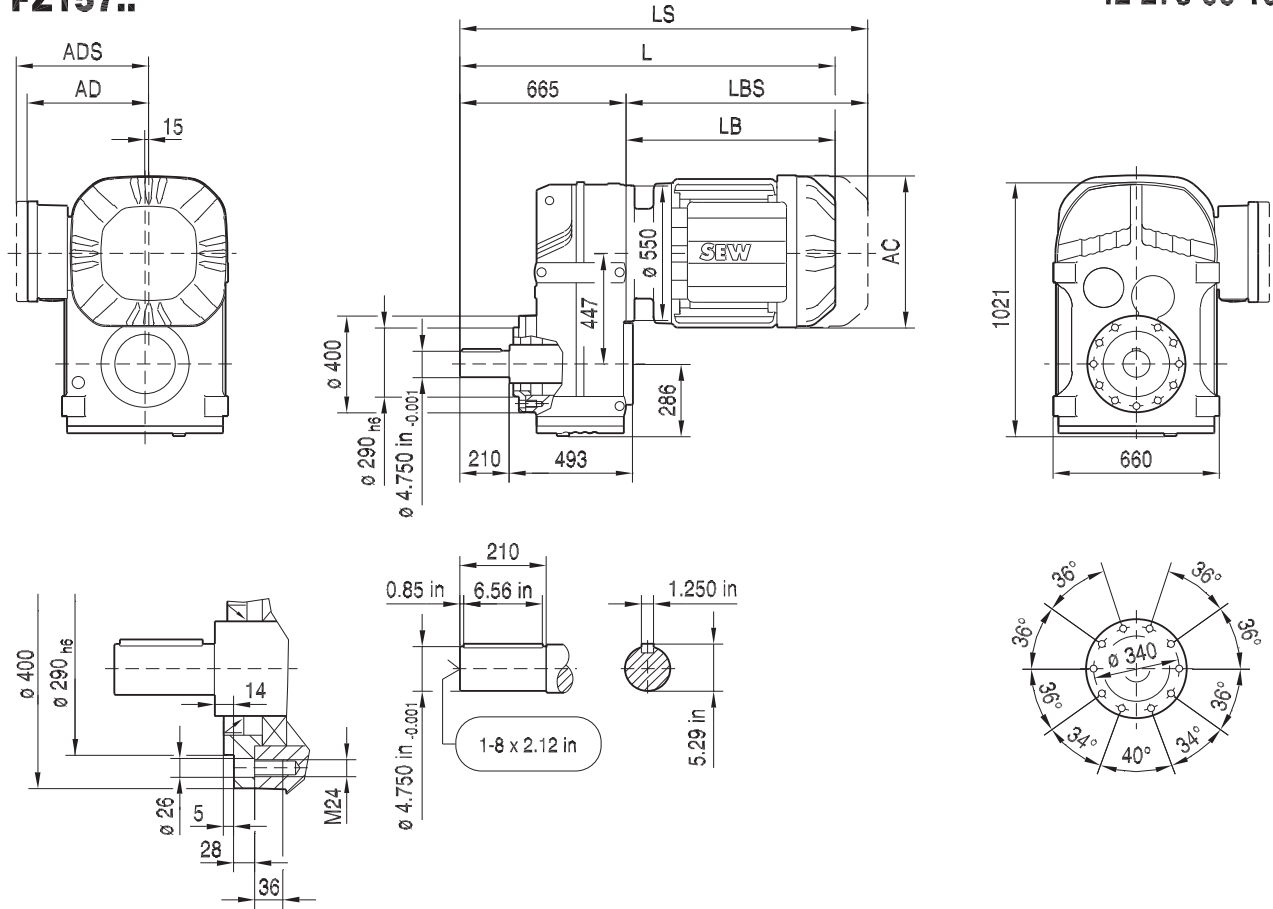
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	955	978	1088	1062	1199	1199	1294	1396	1526
LS	1144	1167	1293	1267	1439	1439	1534	1647	1777
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 519. For tolerances, see page 163.

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FZ157..

42 273 00 16



9

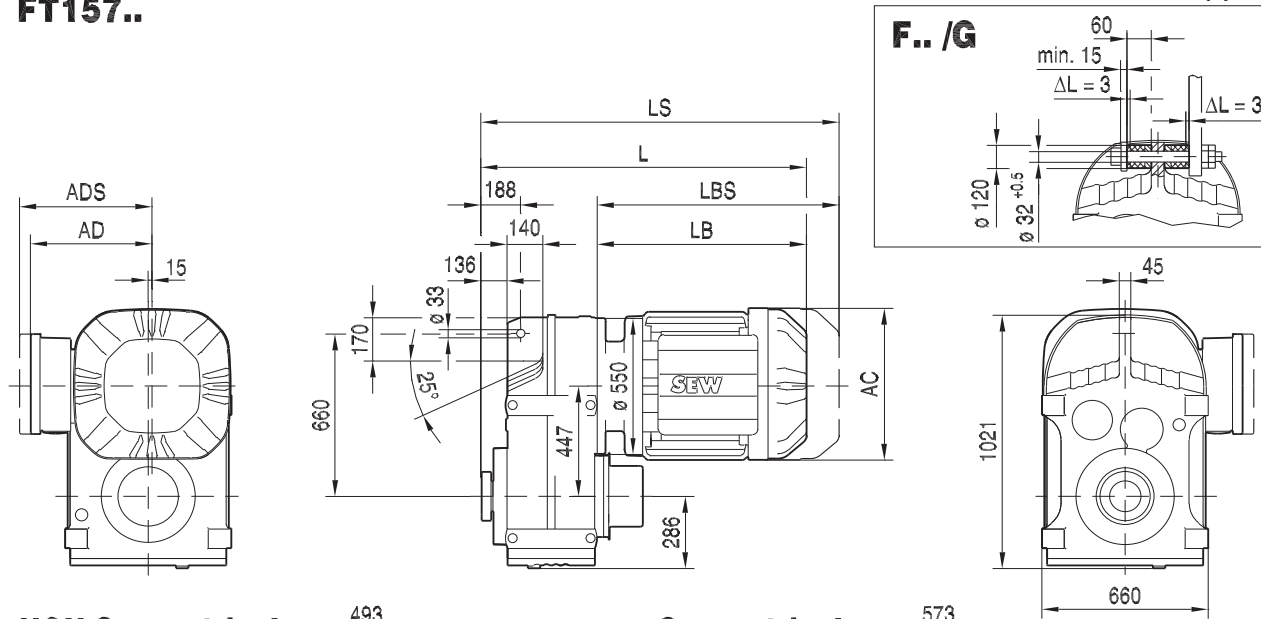
21933480/EN-US - 04/2018

(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1165	1188	1298	1272	1409	1409	1504	1606	1736
LS	1354	1377	1503	1477	1649	1649	1744	1857	1987
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

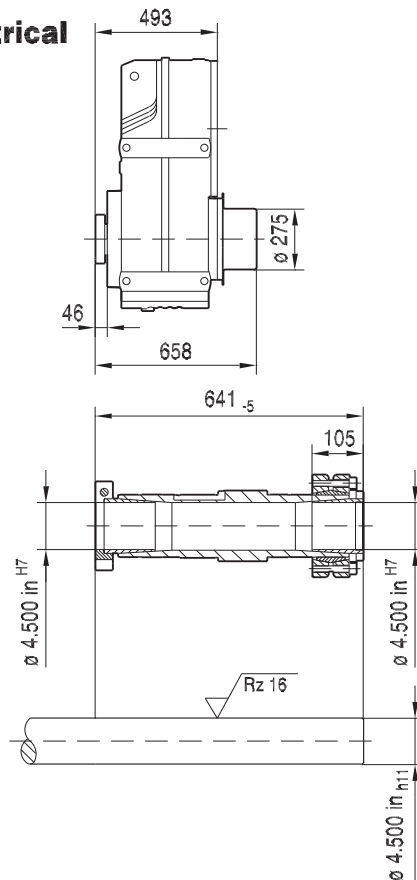
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 517. For tolerances, see page 163.

FT157..

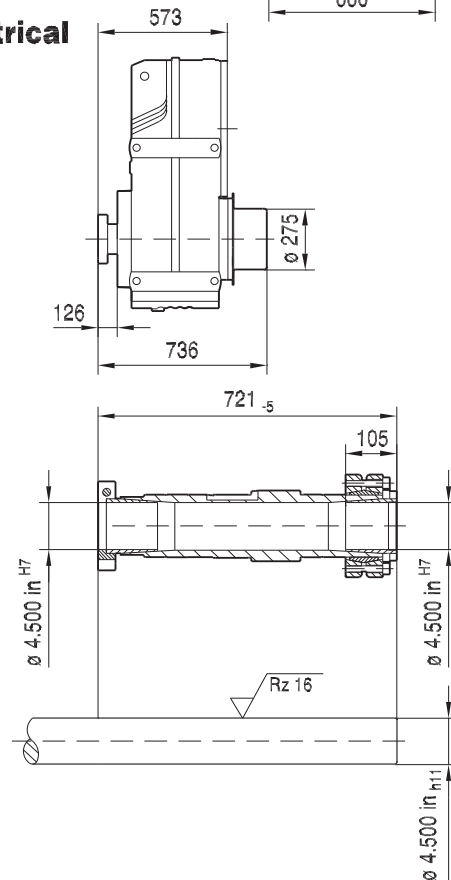
42 274 00 16



NON-Symmetrical



Symmetrical



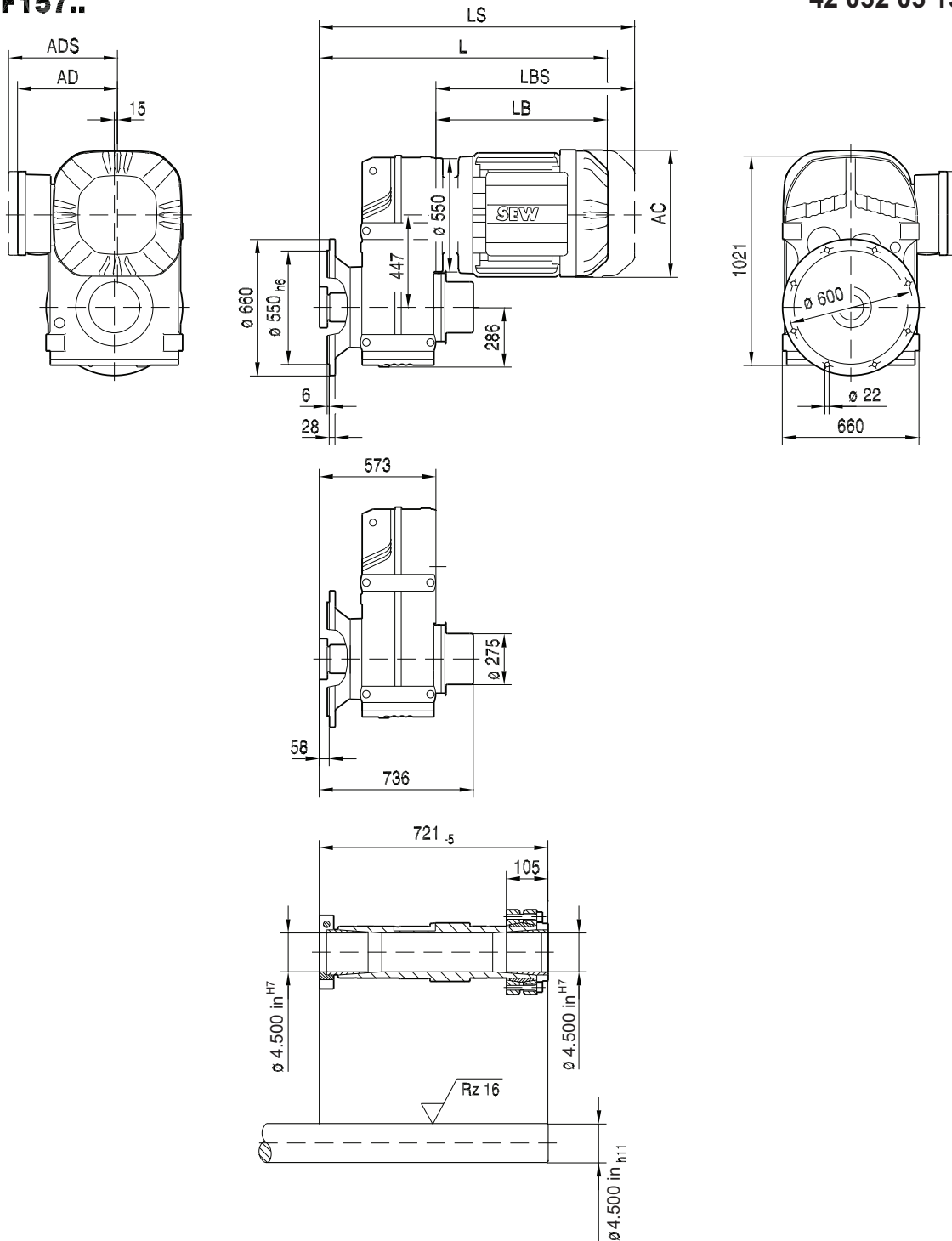
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	993	1016	1126	1100	1237	1237	1332	1434	1564
LS	1182	1205	1331	1305	1477	1477	1572	1685	1815
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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FTF157..

42 032 03 13 US



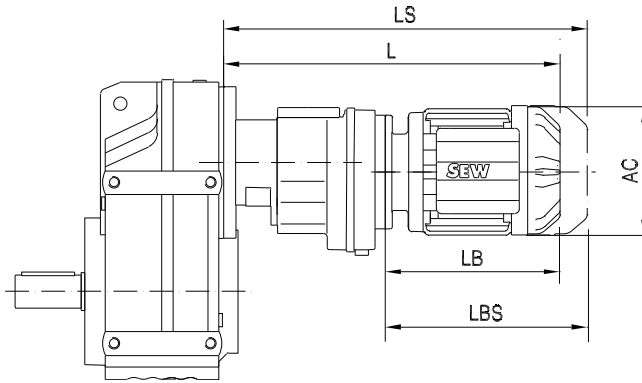
9

(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1073	1096	1206	1180	1317	1317	1412	1514	1644
LS	1262	1285	1411	1385	1557	1557	1652	1765	1895
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 521. For tolerances, see page 163.

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9.6 F.. R.. DRS/DRN.. Compound dimensions



42 121 00 06

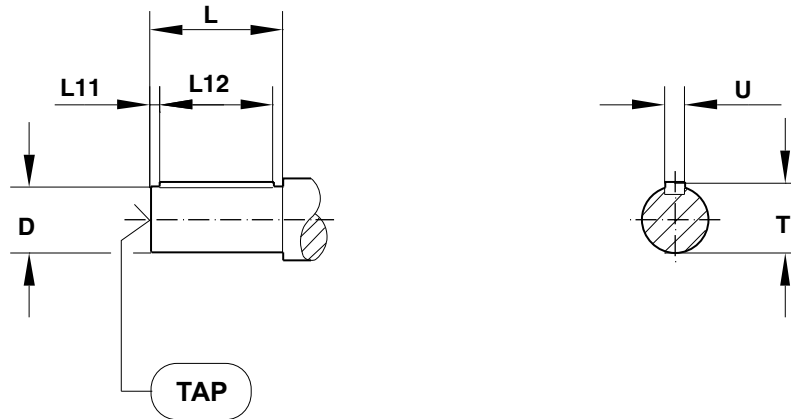
Gear	Motor	AC	L	LS	LB	LBS
F..27R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
F..37R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	253
F..47R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	253
	DRN80M	156	410	491	235	316
F..57R37	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
	DRN80M	156	446	527	281	362
	DRN90S	179	447	541	282	376
F..67R37	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
	DRN80M	156	446	527	281	362
	DRN90S	179	448	541	283	376
F..77R37	DR63	132	348	403	191	246
	DRS71S	139	359	426	202	269
	DRS71M	139	384	451	227	294
	DRN80M	156	438	519	281	362
	DRN90S	179	440	533	283	376
	DRN90L	179	472	565	315	408
F..87R57	DRN100L/LM	197	522	615	365	458
	DR63	132	412	467	185	240
	DRS71S	139	423	491	196	264
	DRS71M	139	448	516	221	289
	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
F..97R57	DRN90L	179	536	629	309	402
	DRN100L/LM	197	583	676	355	448
	DR63	132	407	462	185	240
	DRS71S	139	418	486	196	264
	DRS71M	139	443	511	221	289
	DRN80M	156	497	578	275	356
	DRN90S	179	499	592	277	370
F..107R77	DRN90L	179	531	624	309	402
	DRN100L/LM	197	578	671	355	448
	DR63	132	410	465	178	233
	DRS71S	139	421	489	189	257
	DRS71M	139	446	514	214	282
	DRN80M	156	500	581	268	349
F..107R77	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L/LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
	DRN132M	261	679	817	447	585
F..127R77	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160M	314	814	1003	534	723
	DRN160L	314	814	1003	534	723
	DRS71M	139	529	597	204	272
F..127R87	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718
	DRN160L	314	854	1043	529	718
F..157R97	DRN180M	357	879	1068	554	743

Gear	Motor	AC	L	LS	LB	LBS
F..97R57	DRN112M	221	608	720	386	498
	DRN132S	221	662	774	440	552
F..107R77	DR63	132	425	480	178	233
	DRS71S	139	436	504	189	257
	DRS71M	139	461	529	214	282
	DRN80M	156	515	596	268	349
F..107R77	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
F..127R77	DRN132M	261	692	831	445	584
	DR63	132	410	465	178	233
	DRS71S	139	421	489	189	257
	DRS71M	139	446	514	214	282
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100L/LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
F..127R87	DRN132M	261	679	817	447	585
	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160M	314	814	1003	534	723
	DRN160L	314	814	1003	534	723
F..157R97	DRS71M	139	529	597	204	272
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718

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9.7 Output shaft sizes

9.7.1 Solid Shaft – Inch



9

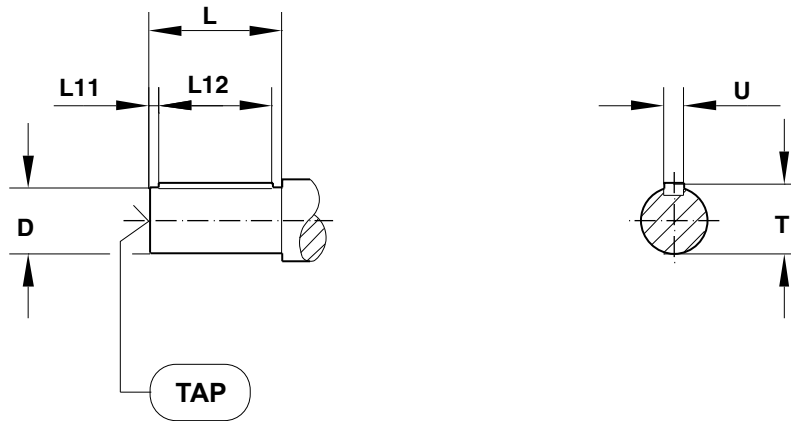
Model	All dimensions in inches							
	D	T	U	L ¹	L11	L12	TAP	Change ²
F..27	1.00	1.11	1/4	1.97	0.20	1-5/16	3/8 - 16 x 0.87	0
F..37	1.00	1.11	1/4	1.97	0.20	1-5/16	3/8 - 16 x 0.87	0
F..47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
F..57	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
F..67	1.375	1.51	5/16	2.76	0.47	1-13/16	1/2 - 13 x 1.12	-0.39
	1.625	1.79	3/8	3.15	0.38	2-1/4	5/8 - 11 x 1.38	0
F..77	1.75	1.92	3/8	3.54	0.4	2-3/4	5/8 - 11 x 1.38	-0.39
	2.00	2.22	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
F..87	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
F..97	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
F..107	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
F..127	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
F..157	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0

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¹Longer shafts to match obsolete gear unit designs are available for flanged units.

²The change in length, L, when compared to the standard shaft that is shown in dimension pages.

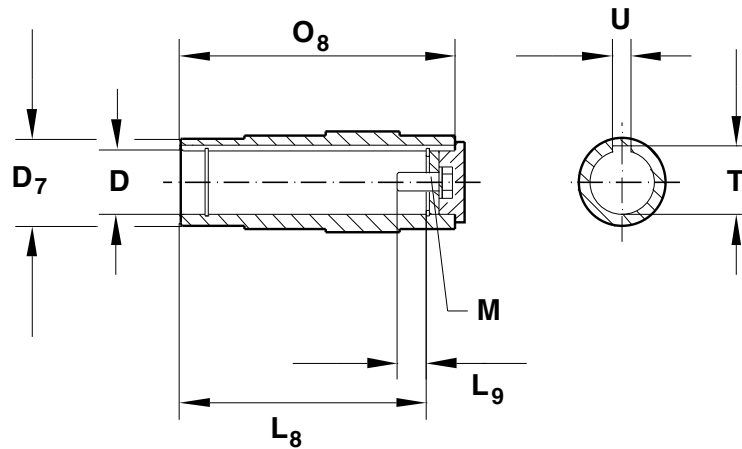
9.7.2 Solid Shaft – Metric



Model	All dimensions in mm						
	D	T	U	L ¹	L11	L12	TAP
F..27	25	28	8	50	5	40	M10 x 22
F..37	25	28	8	50	5	40	M10 x 22
F..47	30	33	8	60	3.5	50	M10 x 22
F..57	35	38	10	70	7	56	M12 x 28
F..67	40	43	12	80	5	70	M16 x 36
	35	38	10	70	7	56	M12 x 28
F..77	50	53.5	14	100	10	80	M16 x 36
	45	48.5	14	90	5	80	M16 x 36
F..87	60	64	18	120	5	110	M20 x 42
F..97	70	74.5	20	140	7.5	125	M20 x 42
F..107	90	95	25	170	5	160	M24 x 50
F..127	110	116	28	210	15	180	M24 x 50
F..157	120	127	32	210	5	200	M24 x 50

¹Longer shafts to match obsolete gear unit designs are available for flanged units.

9.7.3 Hollow Shaft – Inch



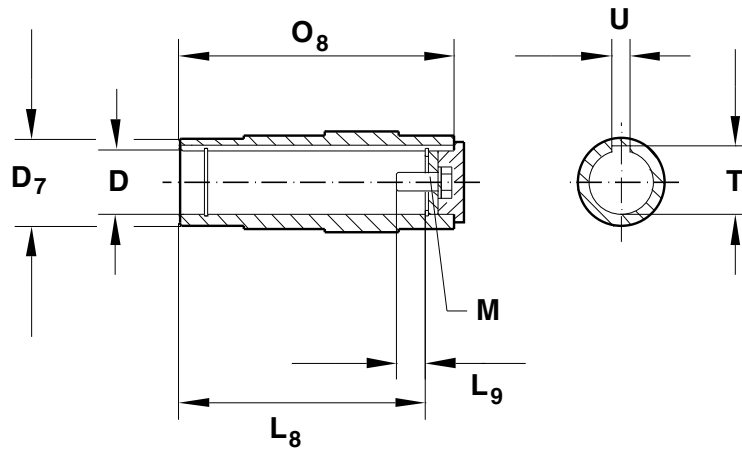
Note:

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in inch							
	D	D7	O8	T	U	L8	L9	M
FA..27	1.00	1.57	4.09	1.12	1/4	3.50	0.69	3/8 - 16 x 1
FA..37	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
FA..47	1.1875	1.97	5.91	1.30	1/4	5.2	0.67	3/8 - 16 x 1
	1.25	1.97	5.91	1.37	1/4	5.2	0.67	7/16 - 14 x 1
	1.375	1.97	5.91	1.52	5/16	5.2	0.65	1/2 - 13 x 1
	1.4375	1.97	5.91	1.61	3/8	5.2	0.65	5/8 - 11 x 1-3/4
FA..57	1.4375	2.17	6.54	1.61	3/8	5.59	1.36	5/8 - 11 x 1-3/4
	1.50	2.17	6.54	1.67	3/8	5.59	1.36	5/8 - 11 x 1-3/4
FA..67	1.4375	2.17	7.09	1.61	3/8	6.14	1.36	5/8 - 11 x 1-3/4
	1.50	2.17	7.09	1.67	3/8	6.14	1.36	5/8 - 11 x 1-3/4
FA..77	1.9375	2.76	8.27	2.16	1/2	7.2	1.16	5/8 - 11 x 1-3/4
	2.00	2.76	8.27	2.22	1/2	7.2	1.16	5/8 - 11 x 1-3/4
FA..87	2.375	3.35	9.45	2.65	5/8	8.27	1.39	3/4 - 10 x 2
	2.4375	3.35	9.45	2.62	5/8	8.27	1.39	3/4 - 10 x 2
FA..97	2.75	3.74	11.81	3.03	5/8	10.63	1.24	3/4 - 10 x 2
	2.9375	3.74	11.81	3.14	3/4	10.63	1.24	3/4 - 10 x 2
FA..107	3.25	4.65	13.78	3.59	3/4	12.32	1.24	3/4 - 10 x 2
	3.4375	4.65	13.78	3.7	7/8	12.32	1.24	3/4 - 10 x 2
	3.625	4.65	13.78	3.89	7/8	12.32	1.24	3/4 - 10 x 2
FA..127	4.00	5.31	16.14	4.44	1	14.69	1.26	1 - 8 x 2-1/4
FA..157	4.50	6.1	19.69	4.95	1	18.11	1.26	1 - 8 x 2-1/4

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9.7.4 Hollow Shaft – Metric

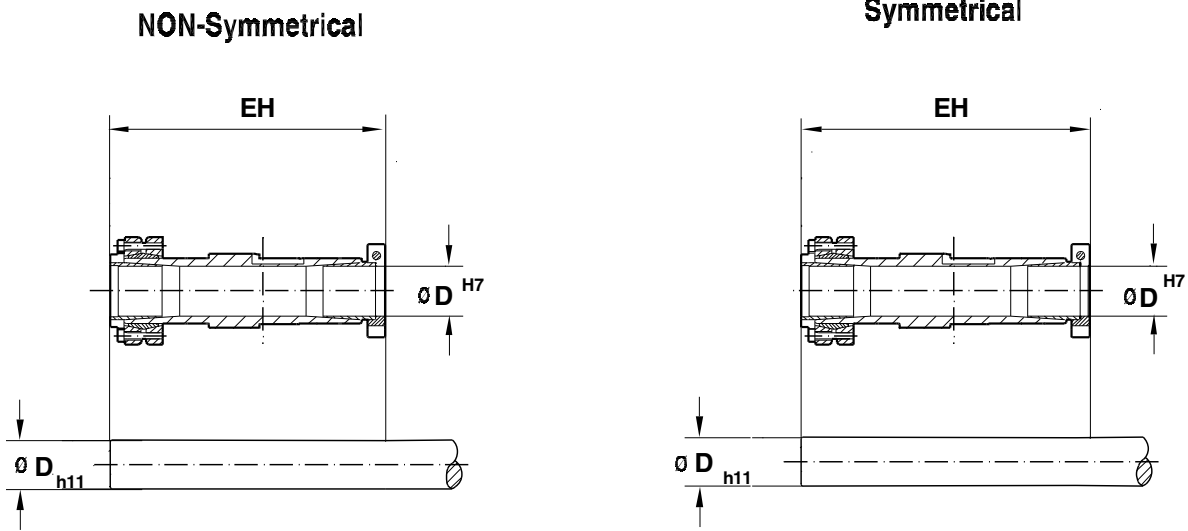


Note:

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in mm							
	D	D7	O8	T	U	L8	L9	M
FA..27	25	40	104	28.3	8	89	17	M10 x 25
FA..37	30	45	120	33.3	8	105	17	M10 x 25
FA..47	35	50	150	38.3	10	132	22	M12 x 30
	30	50	150	33.3	8	132	16	M10 x 25
FA..57	40	55	166	43.3	12	142	29	M16 x 40
FA..67	40	55	180	43.3	12	156	29	M16 x 40
FA..77	50	70	210	53.8	14	183	32	M16 x 45
FA..87	60	85	240	64.4	18	210	36	M20 x 50
FA..97	70	95	300	74.9	20	270	34	M20 x 50
FA..107	90	118	350	95.4	25	313	40	M24 x 60
	80	118	350	85.4	22	313	30	M20 x 50
FA..127	100	135	410	106.4	28	373	38	M24 x 60
FA..157	120	135	500	127.4	32	460	36	M24 x 60

9.7.5 TorqLOC® keyless hollow shaft

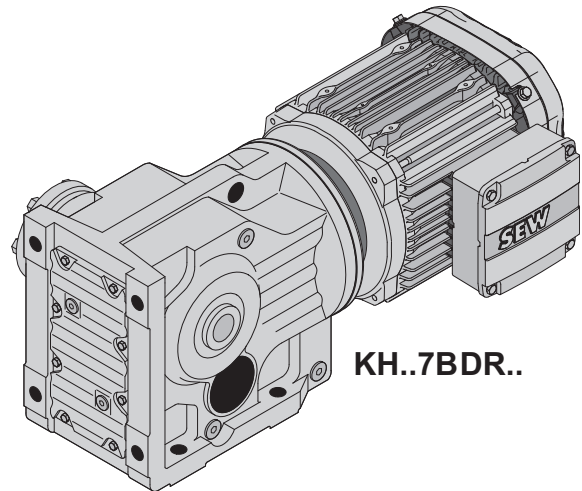
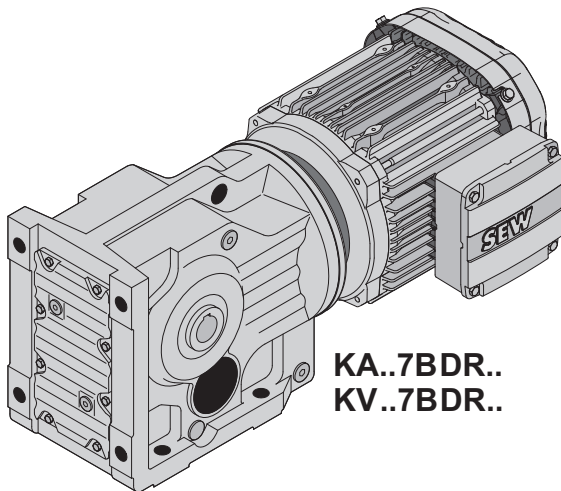
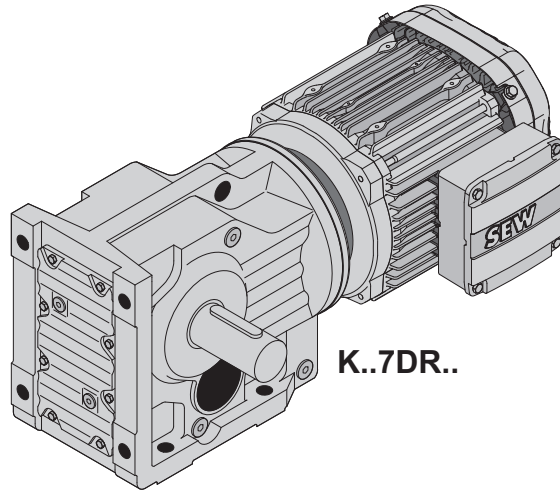
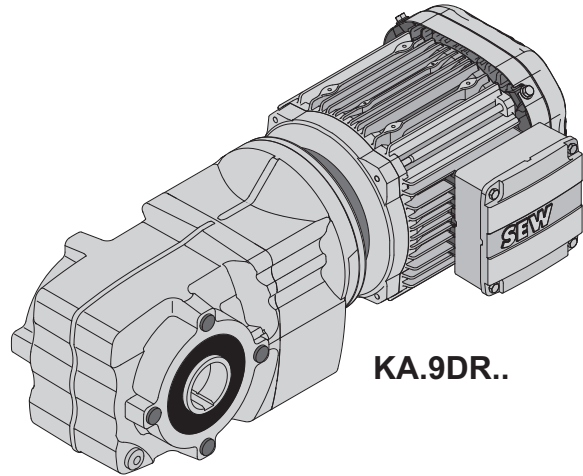
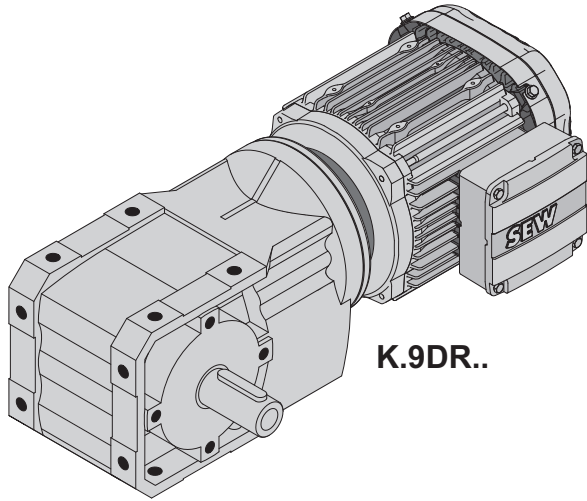


Model	D (in)					D (mm)						EH (in)	
	Inch Bores					Metric Bores						NON Symmetrical	Symmetrical
FT37	1.00	1.1875	1.25	-	-	25	30	-	-	-	-	6.69	7.60
FT47	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.15	9.09
FT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-	9.13	10.33
FT67	1.375	1.4375	1.50	1.625	1.688	35	38	40	-	-	-	9.65	10.85
FT77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	-	-	-	11.57	13.21
FT87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65	13.19	15.24
FT97	2.4375	2.75	2.9375	-	-	60	62	65	70	75	-	15.59	17.76
FT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-	17.76	20.09
FT127	3.4375	3.750	4.00	4.1875	-	90	95	100	105	-	-	20.94	23.89
FT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-	25.24	28.39

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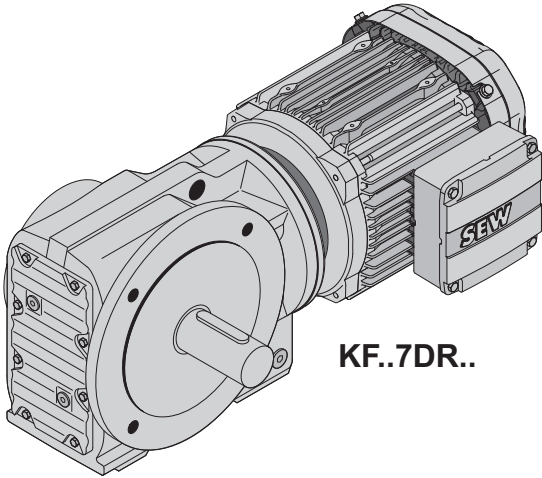
10 Helical-bevel gearmotors

10.1 K.. DRS/DRN.. Designs

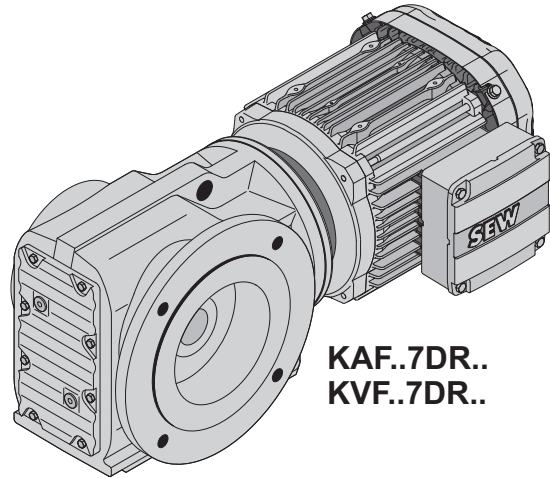


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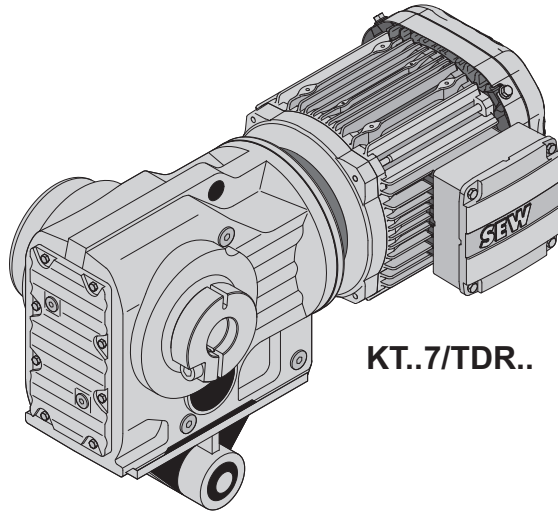


KF..7DR..

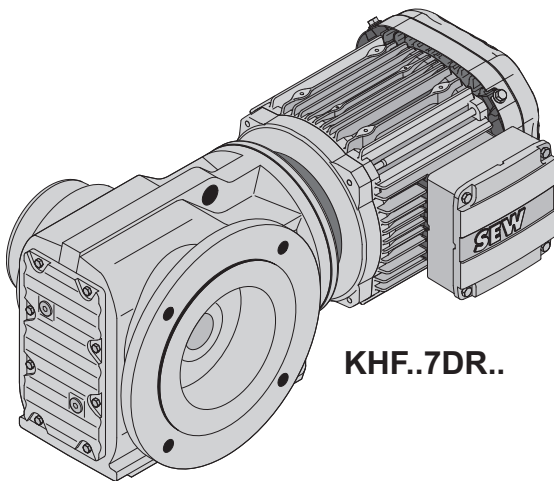


KAF..7DR..
KVF..7DR..

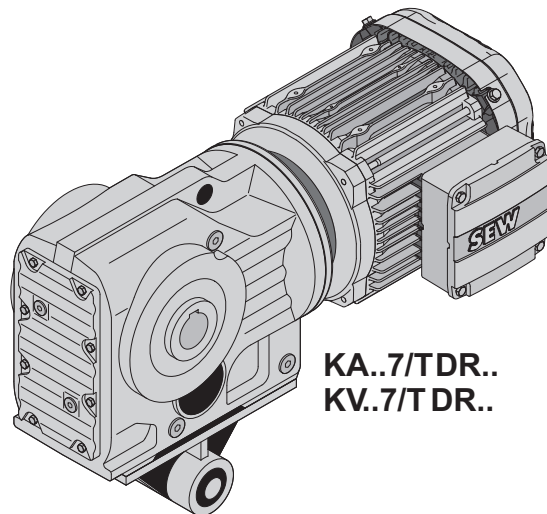
10



KT..7/TDR..



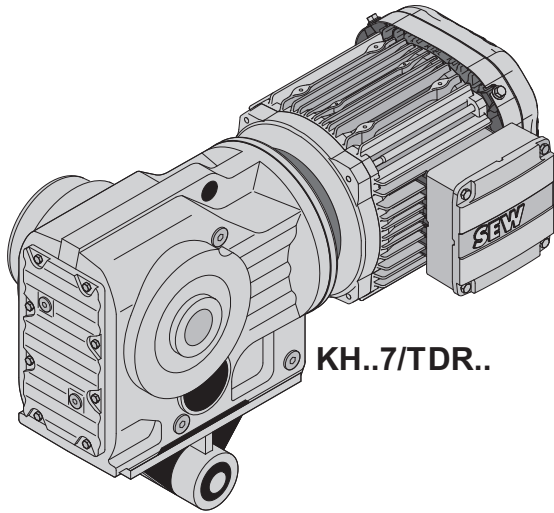
KHF..7DR..



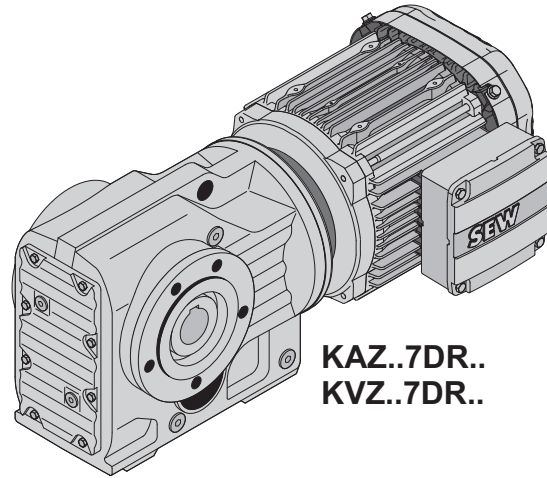
KA..7/TDR..
KV..7/TDR..

9007207919497227

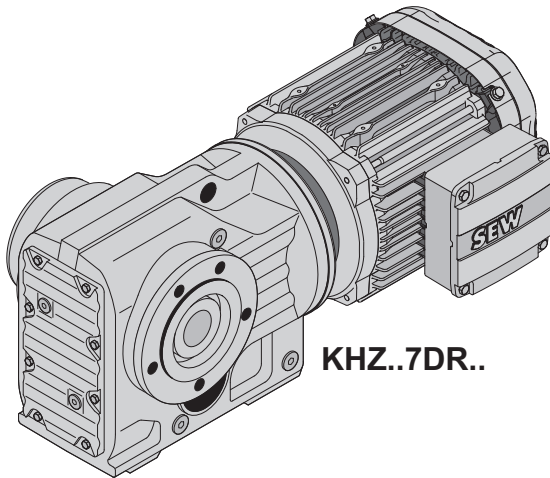
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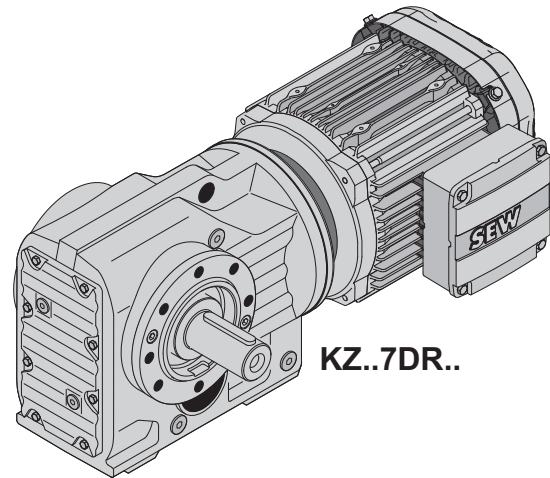
KH..7/TDR..



**KAZ..7DR..
KVZ..7DR..**




KHZ..7DR..




KZ..7DR..

27021606882178955

10.2 K.. DRS/DRN.. Possible combinations


K19, n _e =1700 rpm					705 lb-in		
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S	DRS71S DRS71M	DRN80M DRN90S
 2							
29	615	970	-	58.68			
32	615	970	-	53.88			
34	615	970	-	49.69			
38	610	970	-	44.48			
42	590	980	-	40.63			
50	565	920	-	34.29			
54	705	890	-	31.74			
58	535	870	-	29.29			
58	705	860	-	29.14			
63	530	850	-	27.16			
63	705	830	-	26.88			
71	705	790	-	24.06			
77	705	765	-	21.98			
92	705	710	-	18.55			
107	705	665	-	15.84			
116	705	645	-	14.69			
134	705	605	-	12.70			
144	695	590	-	11.84			
165	670	560	-	10.32			
177	555	605	-	9.58			
210	705	535	-	8.09			
246	705	500	-	6.91			
265	705	485	-	6.41			
307	705	455	-	5.54			
329	705	440	-	5.16			
378	705	415	-	4.50			



10



K29, n _e =1700 rpm					1150 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S	DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM
 2									
24	1150	1120	-	71.93					
26	1150	1120	-	66.25					
28	1150	1120	-	61.28					
31	1150	1100	-	54.89					
34	1150	1060	-	50.35					
40	1130	990	-	42.87					
44	1150	980	-	38.90					
46	1070	940	-	36.96					
47	1150	940	-	35.83					
51	1150	910	-	33.15					
56	1010	880	-	30.11					
57	1150	870	-	29.69					
62	1150	840	-	27.23					
68	960	820	-	24.91					
73	1150	780	-	23.19					
77	920	790	-	22.08					
85	1150	730	-	19.99					
104	1150	665	-	16.29					


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K29, n _e =1700 rpm					1150 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S	DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM
126	1150	610	-	13.47					
142	1150	575	-	11.94					
172	970	620	-	9.90					
185	1150	505	-	9.17					
199	1070	565	-	8.53					
227	1080	470	-	7.48					
245	990	530	-	6.95					
296	990	490	-	5.75					
333	970	465	-	5.10					
434	1110	390	-	3.92					
533	970	375	-	3.19					

K37, n _e =1700 rpm					1760 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	
16	1760	1270	6.8	106.38		 3			
17	1760	1270	6.8	97.81					
20	1760	1210	6.9	83.69					
23	1760	1140	6.9	72.54					
25	1760	1100	6.9	67.80					
29	1760	1030	6.9	58.60					
34	1760	960	7	49.79					
38	1760	900	7	44.46					
45	1760	840	7	37.97					
48	1760	810	7.1	35.57					
57	1760	745	7.1	29.96					
59	1760	730	8.1	28.83					
68	1760	675	8.1	24.99					
73	1720	660	8.2	23.36					
84	1630	630	8.3	20.19					
99	1590	590	8.4	17.15					
111	1540	565	8.5	15.31					
130	1450	535	8.6	13.08					
140	1410	525	11.9	12.14					
162	1410	485	12.2	10.49					
191	1410	445	12.4	8.91					
214	1370	425	12.5	7.96					
250	1320	395	12.8	6.80					
267	1280	390	12.9	6.37					
317	1230	365	13.2	5.36					
427	1100	335	13	3.98					





K37R17, n _e =1700 rpm					1760 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M			
0.25	1760	1270	-	6832		 3  3			
0.29	1760	1270	-	5922					
0.31	1760	1270	-	5491					


K37R17, n _e =1700 rpm					1760 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
0.36	1760	1270	-	4759		
0.41	1760	1270	-	4160		
0.47	1760	1270	-	3645		
0.53	1760	1270	-	3205		
0.61	1760	1270	-	2801		
0.69	1760	1270	-	2454		
0.78	1760	1270	-	2166		
0.90	1760	1270	-	1891		
1.0	1760	1270	-	1660		
1.2	1760	1270	-	1466		
1.3	1760	1270	-	1288		
1.5	1760	1270	-	1136		
 3  2						
1.7	1760	1270	-	996		
1.9	1760	1270	-	876		
2.2	1760	1270	-	761		
2.5	1760	1270	-	671		
2.9	1760	1270	-	585		
3.3	1760	1270	-	512		
3.8	1760	1270	-	451		
4.3	1760	1270	-	396		
4.9	1760	1270	-	346		
5.6	1760	1270	-	304		
6.4	1760	1270	-	267		
7.3	1760	1270	-	234		
8.3	1760	1270	-	205		
9.4	1760	1270	-	181		
11	1760	1270	-	160		
12	1760	1270	-	136		
13	1760	1270	-	127		
15	1760	1270	-	110		
18	1760	1270	-	96		

K39, n _e =1700 rpm					2650 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M
 2									
29	2650	1650	-	58.24					
34	2650	1530	-	49.69					
39	2650	1440	-	43.45					
41	2650	1400	-	41.28					
47	2650	1320	-	36.22					
55	2650	1220	-	30.72					
61	2650	1160	-	27.73					
70	2650	1090	-	24.40					
74	2650	1050	-	23.04					
87	2610	980	-	19.62					
95	2560	940	-	17.83					
110	2470	890	-	15.44					
126	2380	840	-	13.44					



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K39, n _e =1700 rpm					2650 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M
134	2210	1020	-	12.73					
141	2250	990	-	12.09					
160	2520	890	-	10.61					
189	2650	810	-	9.00					
209	2650	770	-	8.12					
238	2650	720	-	7.15					
252	2650	700	-	6.75					
296	2430	675	-	5.75					
326	2300	660	-	5.22					
376	2120	640	-	4.52					
431	1900	630	-	3.94					
605	1500	590	-	2.81					



K39R17, n _e =1700 rpm					2650 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M			
					 2  3				
0.42	2650	1690	-	4057					
0.50	2650	1690	-	3370					
0.58	2650	1690	-	2906					
0.68	2650	1690	-	2508					
0.72	2650	1690	-	2367					
0.79	2650	1690	-	2162					
0.90	2650	1690	-	1881					
0.96	2650	1690	-	1762					
1.0	2650	1690	-	1622					
1.1	2650	1690	-	1494					
1.3	2650	1690	-	1321					
1.5	2650	1690	-	1169					
1.6	2650	1690	-	1093					
					 2  2				
1.8	2650	1690	-	956					
2.1	2650	1690	-	814					
2.4	2650	1690	-	711					
2.8	2650	1690	-	605					
3.4	2650	1690	-	504					
3.7	2650	1690	-	454					
4.3	2650	1690	-	399					
4.7	2650	1690	-	365					
5.4	2650	1690	-	312					
5.7	2650	1690	-	299					
6.7	2650	1690	-	254					
7.3	2650	1690	-	234					
8.1	2650	1690	-	210					
9.0	2650	1690	-	189					
9.8	2650	1690	-	174					
11	2650	1690	-	156					
12	2650	1690	-	142					
15	2650	1690	-	117					
23	2610	1690	-	75					


K47, n _e =1700 rpm					3530 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3			
13	3530	1330	6.4	131.87*				
14	3530	1330	6.4	121.48*				
16	3530	1330	6.4	104.37				
19	3530	1330	6.4	90.86				
20	3530	1330	6.4	85.12*				
23	3530	1330	6.5	75.20*				
24	3530	1330	6.5	69.84				
27	3530	1330	6.5	63.30*				
30	3530	1330	6.5	56.83				
35	3530	1330	6.6	48.95*				
37	3530	1330	6.6	46.03*				
43	3530	1310	6.6	39.61				
48	3530	1240	6.7	35.39				
54	3530	1160	7.5	31.30				
58	3530	1120	7.5	29.32				
66	3530	1050	7.6	25.91				
71	3530	1000	7.7	24.06				
78	3530	950	7.7	21.81				
87	3530	890	7.7	19.58				
101	3360	850	7.8	16.86				
107	3360	820	7.9	15.86				
125	3180	780	8	13.65				
139	3090	745	8.3	12.19				
144	2470	820	10.5	11.77				
161	2470	775	10.6	10.56				
187	2470	715	10.7	9.10				
199	2380	705	10.8	8.56				
231	2210	685	11	7.36				
258	2120	660	11.5	6.58				
293	2030	635	11.8	5.81				
366	1810	605	12	4.64				

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K47R37, n _e =1700 rpm					3530 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3  3			
0.17	3530	1330	-	10138				
0.20	3530	1330	-	8534				
0.22	3530	1330	-	7662				
0.25	3530	1330	-	6826				
0.28	3530	1330	-	5983				
0.33	3530	1330	-	5159				
0.37	3530	1330	-	4601*				
0.43	3530	1330	-	3940				
0.49	3530	1330	-	3477				
0.56	3530	1330	-	3043				
0.62	3530	1330	-	2733				
0.72	3530	1330	-	2354				
0.82	3530	1330	-	2063				

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K47R37, n _e =1700 rpm					3530 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.93	3530	1330	-	1819				
1.1	3530	1330	-	1586				
1.2	3530	1330	-	1388				
					 3  2			
1.4	3530	1330	-	1222				
1.5	3530	1330	-	1097				
1.8	3530	1330	-	945				
2.0	3530	1330	-	831*				
2.4	3530	1330	-	718*				
2.7	3530	1330	-	639				
3.1	3530	1330	-	552				
3.4	3530	1330	-	495				
4.0	3530	1330	-	426				
4.5	3530	1330	-	375				
5.2	3530	1330	-	327				
5.9	3530	1330	-	289				
6.6	3530	1330	-	256				
7.6	3530	1330	-	225				
8.6	3530	1330	-	198				
9.9	3530	1330	-	171				
11	3530	1330	-	153				
13	3530	1330	-	131				
15	3530	1330	-	112				
17	3530	1330	-	99				
18	3530	1330	-	94				


K49, n _e =1700 rpm					4420 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
					 2					
23	4200	2020	-	75.20						
24	3930	2020	-	70.19						
28	4420	1870	-	60.27						
32	4420	1760	-	52.94						
34	4420	1710	-	50.29						
38	4420	1610	-	44.44						
45	4420	1490	-	37.98						
49	4420	1420	-	34.81						
56	4420	1330	-	30.55						
59	4420	1290	-	28.95						
67	4420	1200	-	25.34						
74	4420	1130	-	22.83						
85	4420	1050	-	20.03						
96	4420	970	-	17.67						
108	4330	920	-	15.67						
127	4150	860	-	13.38						
150	4370	1020	-	11.37						
163	4240	990	-	10.42						
186	4420	910	-	9.14						
196	4420	880	-	8.66						



K49, n _e =1700 rpm					4420 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
224	4420	820	-	7.58						
249	4420	775	-	6.83						
284	4420	580	-	5.99						
321	4290	455	-	5.29						
362	4110	420	-	4.69						
425	3890	370	-	4.00						



K49R37, n _e =1700 rpm					4420 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L		
 2  3										
0.24	4420	2020	-	7137						
0.28	4420	2020	-	5991						
0.33	4420	2020	-	5120						
0.42	4420	2020	-	4034						
0.47	4420	2020	-	3580						
0.55	4420	2020	-	3081						
0.61	4420	2020	-	2773						
0.67	4420	2020	-	2545						
0.72	4420	2020	-	2372						
0.80	4420	2020	-	2118						
0.88	4420	2020	-	1941						
0.98	4420	2020	-	1741						
1.0	4420	2020	-	1632						
1.1	4420	2020	-	1521						
1.4	4420	2020	-	1228						
1.7	4420	2020	-	1000						
 2  2										
1.2	4420	2020	-	1424						
1.3	4420	2020	-	1309						
1.5	4420	2020	-	1120						
1.9	4420	2020	-	908						
2.1	4420	2020	-	802						
2.4	4420	2020	-	701						
2.6	4420	2020	-	645						
2.9	4420	2020	-	595						
3.1	4420	2020	-	543						
3.4	4420	2020	-	501						
3.8	4420	2020	-	449						
4.2	4420	2020	-	401						
4.7	4420	2020	-	360						
5.2	4420	2020	-	330						
5.7	4420	2020	-	300						
6.2	4420	2020	-	274						
7.0	4420	2020	-	243						
7.8	4420	2020	-	217						
8.8	4420	2020	-	193						
9.7	4420	2020	-	176						

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K49R37, n_e=1700 rpm					4420 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
11	4420	2020	-	152				
14	4420	2020	-	125				
17	4420	2020	-	99				

K57, n_e=1700 rpm					5300 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M
 3									
12	5300	1720	5.9	145.14*					
14	5300	1720	5.9	123.85					
16	5300	1720	5.9	108.29					
17	5300	1720	5.9	102.88*					
19	5300	1720	5.9	90.26*					
22	5300	1720	5.9	76.56*					
25	5300	1720	6	69.12					
28	5300	1720	6	60.81*					
30	5300	1720	6	57.42*					
35	5300	1720	6	48.89					
38	5300	1720	6.1	44.43					
44	5300	1680	6.1	38.49					
48	5300	1620	6.8	35.70					
56	5300	1480	6.9	30.28					
62	5300	1400	6.9	27.34					
71	5300	1310	6.9	24.05					
75	5300	1270	6.9	22.71					
88	5080	1190	7	19.34					
97	4910	1160	7.2	17.57					
112	4730	1090	7.3	15.22					
128	4510	1050	7.4	13.25					
143	3670	1040	9.4	11.92					
151	3670	1010	9.5	11.26					
177	3580	940	9.6	9.59					
195	3450	910	10	8.71					
225	3220	880	10.2	7.55					
259	3050	850	10.4	6.57					
362	2650	770	11	4.69					

K57R37, n_e=1700 rpm					5300 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	
 3  3									
0.14	5300	1720	-	12169					
0.15	5300	1720	-	11162*					
0.18	5300	1720	-	9503					
0.20	5300	1720	-	8547					
0.23	5300	1720	-	7277					
0.26	5300	1720	-	6478*					
0.30	5300	1720	-	5662*					
0.34	5300	1720	-	5033					





K57R37, n _e =1700 rpm					5300 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.39	5300	1720	-	4340				
0.44	5300	1720	-	3854				
0.50	5300	1720	-	3390				
0.58	5300	1720	-	2924				
0.66	5300	1720	-	2593				
0.76	5300	1720	-	2249				
0.86	5300	1720	-	1986				
 3  2								
0.98	5300	1720	-	1743				
1.1	5300	1720	-	1539				
1.3	5300	1720	-	1354				
1.4	5300	1720	-	1174				
1.6	5300	1720	-	1036*				
1.9	5300	1720	-	906*				
2.1	5300	1720	-	806				
2.4	5300	1720	-	699				
2.8	5300	1720	-	615				
3.1	5300	1720	-	544*				
3.6	5300	1720	-	473				
4.0	5300	1720	-	421				
4.7	5300	1720	-	362				
5.3	5300	1720	-	319				
6.1	5300	1720	-	280				
6.9	5300	1720	-	246				
7.9	5300	1720	-	215				
8.9	5300	1720	-	192				
10	5300	1720	-	166				
12	5300	1720	-	145				
13	5300	1720	-	129				
15	5300	1720	-	111				
18	5300	1720	-	97				

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K67, n _e =1700 rpm					7250 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3										
12	7250	2320	6.2	144.79*						
14	7250	2320	6.2	123.54						
16	7250	2320	6.1	108.03						
17	7250	2320	6.1	102.62						
19	7250	2320	6.2	90.04						
22	7250	2320	6.2	76.37						
25	7250	2320	6.2	68.95						
28	7250	2320	6.2	60.66						
30	7250	2320	6.2	57.28						
35	7250	2320	6.3	48.77						
38	7250	2320	6.3	44.32						
44	7070	2360	6.4	38.39						
48	7250	2320	7.1	35.62						
56	7250	2320	7.1	30.22						



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K67, n _e =1700 rpm					7250 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
62	7250	2320	7.1	27.28						
71	7070	2360	7.2	24.00						
75	6900	2390	7.2	22.66						
88	6720	2430	7.3	19.30						
97	6540	2470	7.5	17.54						
112	6190	2530	7.5	15.19						
129	5920	2560	7.6	13.22						
136	4680	2570	8.6	12.48						
160	4420	2460	8.8	10.63						
176	4240	2390	9.1	9.66						
203	3890	2320	9.3	8.37						
234	3710	2230	9.4	7.28						
327	3090	2060	10	5.20						



K67R37, n _e =1700 rpm					7250 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 3  3			
0.14	7250	2320	-	12139				
0.15	7250	2320	-	11134				
0.18	7250	2320	-	9479				
0.21	7250	2320	-	8173				
0.23	7250	2320	-	7259				
0.26	7250	2320	-	6462				
0.30	7250	2320	-	5648				
0.35	7250	2320	-	4846				
0.39	7250	2320	-	4329				
0.45	7250	2320	-	3750				
0.51	7250	2320	-	3315				
0.58	7250	2320	-	2917				
0.67	7250	2320	-	2532				
0.76	7250	2320	-	2244				
0.86	7250	2320	-	1981				
					 3  2			
0.98	7250	2320	-	1739				
1.1	7250	2320	-	1535				
1.3	7250	2320	-	1351				
1.5	7250	2320	-	1171				
1.6	7250	2320	-	1034				
1.9	7250	2320	-	903				
2.1	7250	2320	-	793				
2.4	7250	2320	-	697				
2.8	7250	2320	-	613				
3.1	7250	2320	-	542				
3.6	7250	2320	-	471				
4.0	7250	2320	-	420				
4.7	7250	2320	-	361				
5.3	7250	2320	-	323				
6.1	7250	2320	-	279				
6.9	7250	2320	-	246				


K67R37, n _e =1700 rpm					7250 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
7.8	7250	2320	-	217				
8.9	7250	2320	-	191				
10	7250	2320	-	166				
12	7250	2320	-	144				
14	7250	2320	-	122				

K77, n _e =1700 rpm					13700 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3											
8.8	12800	3610	5.4	192.18							
9.5	12800	3610	5.4	179.37							
11	13700	3460	5.4	154.02							
13	13700	3460	5.4	135.28							
13	13700	3460	5.4	128.52							
15	13700	3460	5.4	113.56							
18	13700	3460	5.4	97.05							
19	13700	3460	5.4	88.97							
22	13700	3460	5.4	78.07							
23	13700	3460	5.4	73.99							
26	13700	3460	5.5	64.75							
29	13700	3460	5.5	58.34							
33	13700	3460	5.5	51.18							
38	13700	3460	5.5	45.16							
42	13700	3460	5.6	40.04							
44	13200	3530	6	38.39							
48	13700	3460	6	35.20							
55	13700	3460	6.1	30.89							
58	13700	3460	6.1	29.27							
66	13700	3460	6.1	25.62							
74	13700	3460	6.3	23.08							
84	13200	3460	6.3	20.25							
95	12800	3330	6.3	17.87							
107	12300	3210	6.4	15.84							
126	11800	3060	6.5	13.52							
138	8840	3140	7.9	12.36							
157	8750	2990	7.8	10.84							
178	8310	2890	7.9	9.56							
200	7870	2810	8.2	8.48							
235	7250	2710	8.3	7.24							

K77R37, n _e =1700 rpm					13700 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 3  3								
0.11	13700	3460	-	15310				
0.12	13700	3460	-	14043				
0.14	13700	3460	-	11955				
0.17	13700	3460	-	10217				





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K77R37, n _e =1700 rpm					13700 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.19	13700	3460	-	8809				
0.23	13700	3460	-	7528				
0.26	13700	3460	-	6606				
0.29	13700	3460	-	5774				
0.33	13700	3460	-	5089				
0.38	13700	3460	-	4489				
0.43	13700	3460	-	3961				
0.49	13700	3460	-	3485				
0.59	13700	3460	-	2901				
0.63	13700	3460	-	2717				
0.72	13700	3460	-	2370				
 3  2								
0.83	13700	3460	-	2050				
0.96	13700	3460	-	1772				
1.1	13700	3460	-	1514				
1.2	13700	3460	-	1388				
1.4	13700	3460	-	1218				
1.6	13700	3460	-	1053				
1.8	13700	3460	-	924				
2.1	13700	3460	-	815				
2.4	13700	3460	-	709				
2.7	13700	3460	-	622				
3.1	13700	3460	-	552				
3.5	13700	3460	-	485				
4.0	13700	3460	-	428				
4.6	13700	3460	-	367				
5.2	13700	3460	-	328				
5.9	13700	3460	-	290				
6.7	13700	3460	-	252				
7.7	13700	3460	-	221				
8.7	13700	3460	-	195				
9.7	13700	3460	-	175				
11	13700	3460	-	154				

K87, n _e =1700 rpm					23800 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
 3													
8.6	23800	6130	5.3	197.37									
9.8	23800	6130	5.3	174.19									
10	23800	6130	5.3	164.34*									
12	23800	6130	5.4	147.32*									
13	23800	6130	5.4	126.91*									
15	23800	6130	5.4	115.82									
17	23800	6130	5.4	102.71*									
20	23800	6130	5.4	86.34									
21	23800	5970	5.4	79.34									
24	23800	5670	5.4	70.46									
27	23800	5410	5.4	63.00*									
30	23800	5160	5.5	56.64									


K87, n _e =1700 rpm					23800 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
35	23800	4840	5.5	49.16									
39	23000	4700	5.5	44.02									
47	22100	4400	5.5	36.52*									
54	23800	3930	6.1	31.39									
61	23000	3790	6.1	27.88									
68	22100	3680	6.1	24.92									
76	20300	3680	6.2	22.41									
87	20300	3440	6.3	19.45									
98	19400	3350	6.3	17.42									
106	15900	3290	6.5	16.00									
118	18500	3150	6.4	14.45									
135	17600	3030	6.5	12.56									
152	13200	3080	6.7	11.17									
170	13200	2920	6.8	10.00									
205	12300	2780	7	8.29									
236	11500	2720	7.1	7.21									



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K87R57, n _e =1700 rpm					23800 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.11	23800	6130	-	14829						
0.13	23800	6130	-	13168						
0.14	23800	6130	-	11737						
0.17	23800	6130	-	10217						
0.19	23800	6130	-	9073						
0.22	23800	6130	-	7854						
0.25	23800	6130	-	6832						
0.29	23800	6130	-	5930						
0.32	23800	6130	-	5240						
0.37	23800	6130	-	4562						
0.42	23800	6130	-	4037						
0.47	23800	6130	-	3609						
0.55	23800	6130	-	3107						
0.62	23800	6130	-	2728						
0.72	23800	6130	-	2371						
 3  2										
0.81	23800	6130	-	2088						
0.92	23800	6130	-	1854						
1.0	23800	6130	-	1657						
1.2	23800	6130	-	1415						
1.4	23800	6130	-	1229						
1.6	23800	6130	-	1078						
1.8	23800	6130	-	951						
2.0	23800	6130	-	837						
2.3	23800	6130	-	726						
2.7	23800	6130	-	638						
3.0	23800	6130	-	562*						
3.6	23800	6130	-	474*						
4.0	23800	6130	-	426						

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K87R57, n _e =1700 rpm					23800 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
4.6	23800	6130	-	373						
5.2	23800	6130	-	330						
5.8	23800	6130	-	294						
6.8	23800	6130	-	250						
7.2	23800	6130	-	236						
8.5	23800	6130	-	201						
9.3	23800	6130	-	183						
11	23800	6130	-	159						
12	23000	6160	-	141						

K97, n _e =1700 rpm					38000 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3												
9.7	38000	8990	6.8	176.05*								
11	38000	8990	6.8	153.21*								
12	38000	8990	6.8	140.28								
14	38000	8990	6.8	123.93*								
16	38000	8710	6.8	105.13								
18	38000	8420	6.8	96.80								
20	38000	8030	6.8	86.52								
22	38000	7670	6.8	77.89*								
24	38000	7350	6.9	70.54								
27	38000	6970	6.9	62.55								
30	38000	6660	6.9	56.55								
35	38000	6180	6.9	47.93*								
41	38000	5800	6.9	41.87								
44	38000	5560	7.4	38.30								
50	38000	5260	7.5	34.23								
55	38000	5000	7.5	30.82								
61	38000	4750	7.5	27.91								
69	38000	4460	7.6	24.75								
76	38000	4230	7.6	22.37								
90	38000	3860	7.6	18.96								
103	38000	3580	7.7	16.56								
123	38000	3220	7.7	13.85								
142	34400	3260	7.8	11.99								
163	25300	3320	9.7	10.41								
195	23500	3200	9.8	8.71								
225	21200	3210	10	7.54								

K97R57, n _e =1700 rpm					38000 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 3  3										
0.09	38000	8990	-	18091						
0.10	38000	8990	-	16666						
0.11	38000	8990	-	14897						
0.13	38000	8990	-	13182						





K97R57, n _e =1700 rpm					38000 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
0.15	38000	8990	-	11677						
0.16	38000	8990	-	10317						
0.19	38000	8990	-	9083						
0.21	38000	8990	-	8054						
0.24	38000	8990	-	6970						
0.28	38000	8990	-	6027						
0.32	38000	8990	-	5391						
0.36	38000	8990	-	4669						
0.42	38000	8990	-	4082						
0.47	38000	8990	-	3583						
0.55	38000	8990	-	3108*						
0.62	38000	8990	-	2757						
 3  2										
0.70	38000	8990	-	2419						
0.80	38000	8990	-	2123						
0.92	38000	8990	-	1856						
1.0	38000	8990	-	1625						
1.2	38000	8990	-	1430						
1.3	38000	8990	-	1261						
1.5	38000	8990	-	1102						
1.8	38000	8990	-	957						
2.0	38000	8990	-	855						
2.3	38000	8990	-	743						
2.6	38000	8990	-	652*						
3.0	38000	8990	-	573						
3.4	38000	8990	-	504						
3.9	38000	8990	-	437						
4.5	38000	8990	-	382*						
5.0	38000	8990	-	342*						
5.6	38000	8990	-	305						
6.6	38000	8990	-	258						
7.3	38000	8990	-	232						
8.5	38000	8990	-	199						

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K107, n _e =1700 rpm					70700 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
 3											
12	70700	13600	5.7	143.47*							
14	70700	12600	5.7	121.46							
15	70700	12100	5.8	112.41*							
17	70700	11500	5.8	100.75							
19	70700	10900	5.8	90.96*							
21	70700	10300	5.8	82.61							
23	70700	9680	5.8	73.30							
26	70700	9150	5.8	66.52*							
30	70700	8360	5.8	57.17*							
34	69300	7840	5.8	49.90							
40	65100	7580	5.8	42.33*							
46	63700	7130	5.8	37.00*							

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K107, n _e =1700 rpm					70700 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME	
52	63700	6570	6.4	32.69								
54	60100	6840	5.9	31.28*								
59	63700	6040	6.5	29.00								
65	63700	5620	6.4	26.32								
75	63700	4970	6.5	22.62								
86	63700	4400	6.5	19.74								
101	62300	3920	6.5	16.75								
116	60900	3600	6.6	14.64								
127	38000	6010	8.8	13.43								
145	38000	5640	8.8	11.73								
171	37000	5290	8.9	9.94								
196	36000	5050	9	8.69								
231	31800	5010	9	7.35								

K107R77, n _e =1700 rpm					70700 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
 3  3												
0.12	70700	14600	-	14311*								
0.14	70700	14600	-	12211								
0.16	70700	14600	-	10677								
0.18	70700	14600	-	9524								
0.20	70700	14600	-	8328								
0.23	70700	14600	-	7270								
0.27	70700	14600	-	6184								
0.30	70700	14600	-	5662								
0.33	70700	14600	-	5138								
0.39	70700	14600	-	4359*								
0.45	70700	14600	-	3810*								
0.51	70700	14600	-	3358								
0.57	70700	14600	-	2977*								
0.65	70700	14600	-	2599								
0.74	70700	14600	-	2286								
0.88	70700	14600	-	1939								
 3  2												
0.99	70700	14600	-	1713								
1.1	70700	14600	-	1554								
1.3	70700	14600	-	1336*								
1.5	70700	14600	-	1166								
1.7	70700	14600	-	1030								
1.9	70700	14600	-	904								
2.1	70700	14600	-	793*								
2.4	70700	14600	-	696*								
2.8	70700	14600	-	615								
3.3	70700	14600	-	522								
3.7	70700	14600	-	461*								
4.2	70700	14600	-	408*								
4.7	70700	14600	-	364								
5.3	70700	14600	-	318								
5.9	70700	14600	-	286*								



K107R77, n _e =1700 rpm					70700 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
6.8	70700	14600	-	251							
7.7	70700	14600	-	222*							
8.7	70700	14600	-	196*							
9.8	63700	14600	-	174							
11	63700	14600	-	154							
12	63700	14100	-	140							



K127, n _e =1700 rpm					115000 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M
 3									
12	115000	17800	5.2	146.07					
12	115000	17800	5.2	136.14					
14	115000	17700	5.2	122.48					
15	115000	16900	5.2	110.18					
19	115000	15500	5.2	89.89					
21	115000	14900	5.3	81.98					
24	115000	13900	5.3	70.95*					
27	115000	13200	5.3	62.60					
31	115000	12300	5.3	54.07					
36	115000	11600	5.3	47.82					
42	115000	10600	5.3	40.19					
47	115000	10100	5.6	36.25					
54	115000	9320	5.6	31.37					
61	115000	8710	5.7	27.68					
71	115000	7940	5.7	23.91					
80	115000	7200	5.7	21.15					
96	115000	6160	5.8	17.77					
118	107000	5880	5.8	14.35					
133	75400	7190	8	12.79					
158	70700	6880	8.1	10.74					
196	63900	6630	8.1	8.68					


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K127R77, n _e =1700 rpm					115000 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
 3  3											
0.10	115000	17800	-	17550							
0.11	115000	17800	-	16006							
0.11	115000	17800	-	14975							
0.14	115000	17800	-	12440							
0.16	115000	17800	-	10915							
0.17	115000	17800	-	9819							
0.20	115000	17800	-	8443							
0.23	115000	17800	-	7482							
0.26	115000	17800	-	6565							
0.29	115000	17800	-	5804							
0.34	115000	17800	-	5027							
0.38	115000	17800	-	4423							





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K127R77, n _e =1700 rpm					115000 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	
0.44	115000	17800	-	3889								
0.51	115000	17800	-	3311								
0.56	115000	17800	-	3009								
0.65	115000	17800	-	2607								
0.75	115000	17800	-	2268								
 3  2												
0.88	115000	17800	-	1926								
0.97	115000	17800	-	1757								
1.1	115000	17800	-	1541								
1.3	115000	17800	-	1342								
1.4	115000	17800	-	1177								
1.7	115000	17800	-	1025								
1.9	115000	17800	-	899								
2.2	115000	17800	-	790								
2.4	115000	17800	-	704								
2.8	115000	17800	-	610								
3.1	115000	17800	-	549								
3.6	115000	17800	-	477								
4.1	115000	17800	-	418								



K127R87, n _e =1700 rpm					115000 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L
 3  2												
3.2	115000	17800	-	536								
3.6	115000	17800	-	473								
4.1	115000	17800	-	418								
4.6	115000	17800	-	367								
5.2	115000	17800	-	330								
5.9	115000	17800	-	287								
6.7	115000	17800	-	253								
8.0	115000	17800	-	213								
8.5	106100	17900	-	200								
10	106100	17900	-	166								
12	106100	17900	-	147								


K157, n _e =1700 rpm					159200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H	
 3											
11	159200	24100	5.2	150.41							
14	159200	22100	5.2	122.39							
17	159200	20300	5.2	100.22							
19	159200	19500	5.2	91.65							
21	159200	18300	5.2	79.75							
24	159200	17400	5.2	70.38							
28	159200	16300	5.2	61.02							
31	159200	15400	5.2	54.29							
36	159200	14300	5.2	46.79							



K157, n _e =1700 rpm					159200 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H
45	159200	12900	5.3	38.02						
54	159200	11700	5.6	31.30						
62	159200	10900	5.6	27.62						
71	159200	10100	5.6	23.95						
80	159200	9450	5.6	21.31						
93	159200	8660	5.7	18.37						
114	159200	7600	5.8	14.92						
134	150400	7300	5.8	12.65						



K157R97, n _e =1700 rpm					159200 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3  3													
0.10	159200	25200	-	17679									
0.11	159200	25200	-	15729									
0.12	159200	25200	-	14721									
0.13	159200	25200	-	13097									
0.15	159200	25200	-	11368									
0.17	159200	25200	-	10114									
0.19	159200	25200	-	8718									
0.22	159200	25200	-	7734									
0.25	159200	25200	-	6881									
0.29	159200	25200	-	5931									
0.34	159200	25200	-	5074									
0.38	159200	25200	-	4514									
0.43	159200	25200	-	3979									
0.48	159200	25200	-	3516									
0.56	159200	25200	-	3051									
0.65	159200	25200	-	2610									
0.73	159200	25200	-	2322									
0.84	159200	25200	-	2029									
0.94	159200	25200	-	1805									
 3  2													
1.0	159200	25200	-	1659									
1.2	159200	25200	-	1365									
1.4	159200	25200	-	1229*									
1.6	159200	25200	-	1093*									
1.8	159200	25200	-	942									
2.0	159200	25200	-	854									
2.2	159200	25200	-	756*									
2.6	159200	25200	-	661									
3.0	159200	25200	-	567									
3.4	159200	25200	-	504									
3.9	159200	25200	-	434*									
4.5	159200	25200	-	379									
5.1	159200	25200	-	333									
5.8	159200	25200	-	291									



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K157R107, n _e =1700 rpm					159200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
 3  2											
4.4	159200	25200	-	385							
5.2	159200	25200	-	325							
5.7	159200	25200	-	299							
6.7	159200	25200	-	253							
7.4	159200	25200	-	230							
8.0	159200	25200	-	213							
9.1	159200	25200	-	187							
11	159200	24500	-	157							
14	159200	22100	-	122							
16	159200	20900	-	107							

K167, n _e =1700 rpm					283100 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H
 3										
10	283100	33700	4.5	164.50						
13	283100	33700	4.5	134.99						
15	283100	33500	4.5	109.83						
19	283100	30500	4.5	87.86						
22	283100	28900	4.5	78.14						
25	283100	27200	4.5	68.07						
28	283100	25900	4.5	60.74						
33	283100	24100	4.6	51.77						
40	283100	22000	4.6	42.89						
46	283100	20400	4.6	36.61						
53	283100	19100	4.8	32.25						
59	283100	18000	4.8	28.77						
69	283100	16600	4.9	24.52						
84	283100	14900	4.9	20.32						
98	283100	13600	5	17.34						

K167R97, n _e =1700 rpm					283100 lb-in								
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3  3													
0.09	283100	33700	-	19723									
0.10	283100	33700	-	17406									
0.11	283100	33700	-	15000									
0.13	283100	33700	-	13238									
0.15	283100	33700	-	11573									
0.17	283100	33700	-	10264									
0.20	283100	33700	-	8628									
0.26	283100	33700	-	6562									
0.32	283100	33700	-	5355									
0.36	283100	33700	-	4788									
0.42	283100	33700	-	4079									
0.50	283100	33700	-	3376									
0.62	283100	33700	-	2755									





K167R97, n _e =1700 rpm						283100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
0.75	283100	33700	-	2263									
 3  2													
0.78	283100	33700	-	2182									
1.00	283100	33700	-	1704									
1.2	283100	33700	-	1408									
1.3	283100	33700	-	1296									
1.5	283100	33700	-	1101									
1.8	283100	33700	-	944									
2.0	283100	33700	-	843									
2.2	283100	33700	-	757									
2.7	283100	33700	-	632									
3.0	283100	33700	-	561									
3.5	283100	33700	-	481									
4.0	283100	33700	-	423									
4.6	283100	33700	-	369									

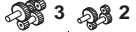

K167R107, n _e =1700 rpm						283100 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
 3  2											
5.3	283100	33700	-	318							
6.1	283100	33700	-	278							
7.0	283100	33700	-	244							
8.0	283100	33700	-	213							
8.3	283100	33700	-	206							
9.4	283100	33700	-	180							
11	283100	33700	-	160							
13	283100	33700	-	135							
14	283100	33700	-	118							

K187, n _e =1700 rpm						442300 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H	
 3											
9.5	442300	42700	3.8	179.86							
10	442300	42700	3.8	165.21							
12	442300	40800	3.8	144.59							
13	442300	38900	3.8	129.69							
15	442300	36600	3.8	112.60							
17	442300	35000	3.8	102.16							
19	442300	32700	3.8	88.00							
23	442300	30200	3.8	73.96							
27	442300	28200	3.8	64.04							
32	442300	25800	3.9	53.36							
37	442300	23700	3.9	45.50*							
40	442300	22900	4.1	42.51							
44	442300	21800	4.1	38.57							
51	442300	20000	4.2	33.23							
61	442300	18100	4.2	27.92							

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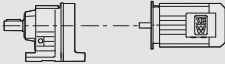

K187, n _e =1700 rpm						442300 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME DRN280S DRN280M	DRN315S DRN315ME	DRN315L DRN315H
70	421100	17500	4.2	24.18						
84	388400	16900	4.3	20.15						
99	366300	16300	4.3	17.18						

K187R97, n _e =1700 rpm						442300 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 3  3													
0.05	442300	42700	-	32625									
0.06	442300	42700	-	27165									
0.07	442300	42700	-	24353									
0.09	442300	42700	-	19144									
0.10	442300	42700	-	16978									
0.12	442300	42700	-	14272									
0.13	442300	42700	-	13116									
0.15	442300	42700	-	11647									
0.16	442300	42700	-	10413									
0.18	442300	42700	-	9363									
0.21	442300	42700	-	8126									
0.23	442300	42700	-	7343									
0.25	442300	42700	-	6747									
0.28	442300	42700	-	5991									
0.32	442300	42700	-	5358									
0.35	442300	42700	-	4817									
0.39	442300	42700	-	4370									
0.60	442300	42700	-	2818*									
 3  2													
0.47	442300	42700	-	3609									
0.56	442300	42700	-	3062									
0.67	442300	42700	-	2519									
0.75	442300	42700	-	2268									
0.83	442300	42700	-	2054									
0.93	442300	42700	-	1821									
1.1	442300	42700	-	1605									
1.2	442300	42700	-	1395									
1.4	442300	42700	-	1196									
1.6	442300	42700	-	1046									
1.8	442300	42700	-	945									
2.3	442300	42700	-	738									
2.7	442300	42700	-	621									
3.2	442300	42700	-	527									

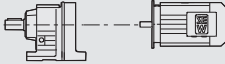

K187R107, n _e =1700 rpm						442300 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
 3  2											
2.0	442300	42700	-	835							
2.3	442300	42700	-	729							
2.7	442300	42700	-	622							

K187R107, n _e =1700 rpm					442300 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S DRN225M	DRN250ME
3.3	442300	42700	-	520							
3.7	442300	42700	-	454							
4.8	442300	42700	-	355							
6.5	442300	42700	-	261							
7.7	442300	42700	-	221							
8.8	442300	42700	-	193							
10	442300	42700	-	163							



10.3 K.. DRS/DRN.. Selections by HP

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.10	74200	17550	18300	1.55							
0.10	67600	16006	18300	1.70							
0.11	63300	14975	18400	1.80	K	127R77	DR	63S4	1040	696/714	
0.14	52600	12440	18400	2.2	KF	127R77	DR	63S4	1130	697/714	
0.15	46100	10915	18500	2.5	KA	127R77	DR	63S4	970	698/714	
0.17	41500	9819	18500	2.8	KAF	127R77	DR	63S4	1060	697/714	
0.20	34900	8443	18500	3.3							
0.22	31600	7482	18600	3.6							
0.12	60500	14311	14600	1.15							
0.14	51600	12211	14600	1.35							
0.16	45100	10677	14600	1.55							
0.18	40200	9524	14600	1.75	K	107R77	DR	63S4	680	689/714	
0.20	35200	8328	14600	2.0	KF	107R77	DR	63S4	710	690/714	
0.23	30700	7270	14600	2.3	KA	107R77	DR	63S4	620	691/714	
0.27	24700	6184	14600	2.9	KAF	107R77	DR	63S4	670	690/714	
0.30	21000	5662	14600	3.4							
0.33	19000	5138	14600	3.7							
0.39	18000	4359	14600	3.9							
0.24	30200	6970	8990	1.25							
0.28	27700	6027	8990	1.35							
0.31	25500	5391	8990	1.50	K	97R57	DR	63S4	395	682/714	
0.36	20700	4669	8990	1.85	KF	97R57	DR	63S4	440	683/714	
0.41	18900	4082	8990	2.0	KA	97R57	DR	63S4	355	684/714	
0.47	16400	3583	8990	2.3	KAF	97R57	DR	63S4	410	683/714	
0.54	14600	3108	8990	2.6							
0.61	12000	2757	8990	3.1							
0.69	11500	2419	8990	3.3							
0.79	9870	2123	8990	3.9							
0.91	8910	1856	8990	4.3	K	97R57	DR	63S4	395	682/714	
1.0	7130	1625	8990	5.3	KF	97R57	DR	63S4	440	683/714	
1.2	6030	1430	8990	6.3	KA	97R57	DR	63S4	355	684/714	
1.3	6050	1261	8990	6.3	KAF	97R57	DR	63S4	410	683/714	
1.5	5290	1102	8990	7.2							
0.37	19700	4562	6250	1.20							
0.42	18500	4037	6280	1.30	K	87R57	DR	63S4	260	675/714	
0.47	16500	3609	6330	1.45	KF	87R57	DR	63S4	280	676/714	
0.54	14200	3107	6380	1.65	KA	87R57	DR	63S4	235	677/714	
0.62	11800	2728	6420	2.0	KAF	87R57	DR	63S4	265	676/714	
0.71	10500	2371	6440	2.3							
0.80	10000	2088	6450	2.4							
0.91	8900	1854	6470	2.7							
1.0	7960	1657	6480	3.0	K	87R57	DR	63S4	260	675/714	
1.2	6730	1415	6490	3.5	KF	87R57	DR	63S4	280	676/714	
1.4	5840	1229	6500	4.1	KA	87R57	DR	63S4	235	677/714	
1.6	5010	1078	6510	4.8	KAF	87R57	DR	63S4	260	676/714	
1.8	4170	951	6520	5.7							
2.0	3530	837	6520	6.8							
2.3	3060	726	6520	7.8							
0.62	12800	2717	3600	1.05	K	77R37	DR	63S4	155	668/714	
0.71	10500	2370	3930	1.30	KF	77R37	DR	63S4	170	669/714	
					KA	77R37	DR	63S4	135	670/714	
					KAF	77R37	DR	63S4	155	669/714	
0.82	10000	2050	3980	1.35							
0.95	8560	1772	4140	1.60							
1.1	7310	1514	4250	1.85							
1.2	6700	1388	4290	2.0	K	77R37	DR	63S4	150	668/714	
1.4	5880	1218	4350	2.3	KF	77R37	DR	63S4	170	669/714	
1.6	5170	1053	4390	2.6	KA	77R37	DR	63S4	135	670/714	
1.8	4540	924	4420	3.0	KAF	77R37	DR	63S4	155	669/714	
2.1	4000	815	4440	3.4							
2.4	3030	709	4480	4.5							
2.7	2660	622	4490	5.1							

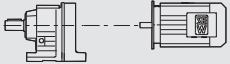

P_m = 0.16 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs				
1.2	6800	1351	2410	1.05							
1.4	5800	1171	2600	1.25							
1.6	5080	1034	2710	1.45							
1.9	4170	903	2820	1.75							
2.1	4030	793	2830	1.80							
2.4	3120	697	2910	2.3							
2.7	2750	613	2920	2.6		K	67R37	DR	63S4	99	661/714
3.1	2400	542	2920	3.0		KF	67R37	DR	63S4	110	662/714
3.6	2300	471	2920	3.1		KA	67R37	DR	63S4	93	663/714
4.0	1850	420	2920	3.9		KAF	67R37	DR	63S4	105	662/714
4.7	1710	361	2920	4.2							
5.2	1500	323	2920	4.8							
6.0	1230	279	2920	5.9							
6.8	1080	246	2920	6.7							
7.7	940	217	2920	7.7							
1.9	4180	906	1920	1.25							
2.1	3790	806	1970	1.40							
2.4	3130	699	2040	1.70							
2.7	2750	615	2080	1.90							
3.1	2400	544	2110	2.2							
3.5	2240	473	2120	2.4		K	57R37	DR	63S4	86	654/714
4.0	1860	421	2160	2.9		KF	57R37	DR	63S4	97	655/714
4.6	1720	362	2170	3.1		KA	57R37	DR	63S4	82	656/714
5.3	1510	319	2180	3.5		KAF	57R37	DR	63S4	94	655/714
6.0	1230	280	2200	4.3							
6.8	1090	246	2220	4.9							
7.8	960	215	2220	5.5							
8.8	860	192	2230	6.2							
2.1	3820	802	2020	1.15							
2.4	3200	701	2020	1.40							
2.6	3150	645	2020	1.40							
2.8	2660	595	2020	1.65							
3.1	2540	543	2020	1.75							
3.4	2150	501	2020	2.0							
3.7	1950	449	2020	2.3		K	49R37	DR	63S4	94	650/714
4.2	1660	401	2020	2.6		KF	49R37	DR	63S4	98	651/714
4.7	1540	360	2020	2.9		KA	49R37	DR	63S4	88	652/714
5.1	1410	330	2020	3.1		KAF	49R37	DR	63S4	99	651/714
5.6	1370	300	2020	3.2							
6.1	1170	274	2020	3.8							
6.9	1010	243	2020	4.4							
7.7	940	217	2020	4.7							
8.7	900	193	2020	4.9							
3.0	2660	552	1580	1.35							
3.4	2220	495	1670	1.60		K	47R37	DR	63S4	73	643/714
3.9	2000	426	1710	1.75		KF	47R37	DR	63S4	80	644/714
4.5	1660	375	1760	2.1		KA	47R37	DR	63S4	71	645/714
5.2	1570	327	1770	2.2		KAF	47R37	DR	63S4	78	644/714
5.8	1370	289	1790	2.6							
3.3	2300	504	1690	1.15							
3.7	2240	454	1690	1.20							
4.2	1880	399	1690	1.40							
4.6	1760	365	1690	1.50							
5.4	1420	312	1690	1.85							
5.6	1410	299	1690	1.90		K	39R17	DR	63S4	53	639/714
6.6	1200	254	1690	2.2		KF	39R17	DR	63S4	56	640/714
7.2	1060	234	1690	2.5		KA	39R17	DR	63S4	51	641/714
8.0	970	210	1690	2.7		KAF	39R17	DR	63S4	54	640/714
8.9	890	189	1690	3.0							
9.7	840	174	1690	3.1							
11	725	156	1690	3.7							
12	670	142	1690	3.9							
14	540	117	1690	4.9							



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P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
5.5	1430	304	1250	1.25							
6.3	1320	267	1270	1.35		K	37R17	DR	63S4	42	632/714
7.2	1140	234	1320	1.55		KF	37R17	DR	63S4	47	633/714
8.2	990	205	1350	1.80		KA	37R17	DR	63S4	41	634/714
9.3	860	181	1380	2.0		KAF	37R17	DR	63S4	45	633/714
10	750	160	1410	2.4							
12	620	136	1440	2.8							
7.6	1320	144.79*	2920	5.5		K	67	DR	63M6	75	661
						KF	67	DR	63M6	88	662
						KA	67	DR	63M6	69	663
						KAF	67	DR	63M6	82	662
7.6	1330	145.14*	2200	4.0							
8.9	1130	123.85	2210	4.7		K	57	DR	63M6	62	654
10	990	108.29	2220	5.3		KF	57	DR	63M6	73	655
11	940	102.88*	2230	5.6		KA	57	DR	63M6	58	656
12	820	90.26*	2230	6.4		KAF	57	DR	63M6	70	655
14	700	76.56*	2240	7.6							
12	870	145.14*	2230	6.1		K	57	DR	63S4	62	654
14	740	123.85	2240	7.1		KF	57	DR	63S4	73	655
16	645	108.29	2240	8.2		KA	57	DR	63S4	58	656
16	615	102.88*	2250	8.6		KAF	57	DR	63S4	70	655
19	540	90.26*	2250	9.8							
8.3	1200	131.87*	1810	2.9		K	47	DR	63M6	49	643
9.1	1110	121.48*	1820	3.2		KF	47	DR	63M6	57	644
11	950	104.37	1830	3.7		KA	47	DR	63M6	48	645
						KAF	47	DR	63M6	54	644
13	790	131.87*	1840	4.5		K	47	DR	63S4	49	643
14	725	121.48*	1840	4.9		KF	47	DR	63S4	57	644
						KA	47	DR	63S4	48	645
						KAF	47	DR	63S4	54	644
10	970	106.38	1350	1.80		K	37	DR	63M6	35	632
11	890	97.81	1370	1.95		KF	37	DR	63M6	40	633
13	765	83.69	1400	2.3		KA	37	DR	63M6	35	634
15	660	72.54	1430	2.7		KAF	37	DR	63M6	38	633
16	635	106.38	1430	2.8		K	37	DR	63S4	35	632
17	585	97.81	1440	3.0		KF	37	DR	63S4	40	633
20	500	83.69	1460	3.5		KA	37	DR	63S4	35	634
23	435	72.54	1450	4.1		KAF	37	DR	63S4	38	633
25	405	67.80	1420	4.3							
23	430	71.93	1170	2.7							
25	395	66.25	1180	2.9		K	29	DR	63S4	23	625
27	365	61.28	1180	3.1		KF	29	DR	63S4	25	629
31	325	54.89	1180	3.5		KA	29	DR	63S4	22	631
33	300	50.35	1180	3.8		KAF	29	DR	63S4	23	629
39	255	42.87	1180	4.4							
29	350	58.68	1010	1.75							
31	320	53.88	1010	1.90							
34	295	49.69	1010	2.1							
38	265	44.48	1010	2.3							
41	240	40.63	1010	2.4							
49	205	34.29	1010	2.8							
53	190	31.74	1010	3.7							
57	176	29.29	990	3.1							
58	175	29.14	1000	4.0		K	19	DR	63S4	19	619
62	163	27.16	970	3.3		KF	19	DR	63S4	19	622
63	161	26.88	980	4.4		KA	19	DR	63S4	18	624
70	144	24.06	940	4.9		KAF	19	DR	63S4	19	622
76	132	21.98	920	5.4							
91	111	18.55	870	6.4							
106	95	15.84	830	7.5							
114	88	14.69	810	8.0							
132	76	12.70	775	9.3							
142	71	11.84	755	9.8							
163	62	10.32	725	11							
175	58	9.58	710	9.7							

P_m = 0.25 HP

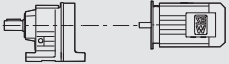

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.11	108500	14975	17900	1.05	X						
0.14	90100	12440	18100	1.30	X						
0.16	79100	10915	18200	1.45	X						
0.17	71100	9819	18300	1.60	X						
0.20	60400	8443	18400	1.90	X	K	127R77	(E)DRS	71S4	1040	696/714
0.23	54200	7482	18400	2.1	X	KF	127R77	(E)DRS	71S4	1130	697/714
0.26	47500	6565	18500	2.4	X	KA	127R77	(E)DRS	71S4	980	698/714
0.29	39500	5804	18500	2.9	X	KAF	127R77	(E)DRS	71S4	1060	697/714
0.34	35200	5027	18500	3.3	X						
0.38	30100	4423	18600	3.8	X						
0.44	26100	3889	18600	4.4	X						
0.51	21500	3311	18600	5.3	X						
0.20	60300	8328	14600	1.15	X						
0.23	52600	7270	14600	1.35	X						
0.27	43400	6184	14600	1.65	X						
0.30	38000	5662	14600	1.85	X						
0.33	34500	5138	14600	2.0	X	K	107R77	(E)DRS	71S4	690	689/714
0.39	31100	4359	14600	2.3	X	KF	107R77	(E)DRS	71S4	710	690/714
0.45	27200	3810	14600	2.6	X	KA	107R77	(E)DRS	71S4	630	691/714
0.51	22800	3358	14600	3.1	X	KAF	107R77	(E)DRS	71S4	680	690/714
0.57	20900	2977	14600	3.4	X						
0.65	18200	2599	14600	3.9	X						
0.74	15500	2286	14600	4.5	X						
0.36	34800	4669	8990	1.10	X	K	97R57	(E)DRS	71S4	400	682/714
0.42	31300	4082	8990	1.20	X	KF	97R57	(E)DRS	71S4	445	683/714
0.47	27200	3583	8990	1.40	X	KA	97R57	(E)DRS	71S4	360	684/714
0.55	23900	3108	8990	1.60	X	KAF	97R57	(E)DRS	71S4	415	683/714
0.62	20400	2757	8990	1.85	X						
0.70	18800	2419	8990	2.0	X						
0.80	16300	2123	8990	2.3	X						
0.92	14500	1856	8990	2.6	X						
1.1	12000	1625	8990	3.1	X						
1.2	10400	1430	8990	3.7	X	K	97R57	(E)DRS	71S4	400	682/714
1.4	9910	1261	8990	3.8	X	KF	97R57	(E)DRS	71S4	445	683/714
1.5	8650	1102	8990	4.4	X	KA	97R57	(E)DRS	71S4	360	684/714
1.8	7540	957	8990	5.0	X	KAF	97R57	(E)DRS	71S4	415	683/714
2.0	6740	855	8990	5.6	X						
2.3	5210	743	8990	7.3	X						
2.6	4690	652	8990	8.1	X						
0.55	23700	3107	6140	1.00	X	K	87R57	(E)DRS	71S4	265	675/714
0.62	20000	2728	6240	1.20	X	KF	87R57	(E)DRS	71S4	285	676/714
0.72	17600	2371	6300	1.35	X	KA	87R57	(E)DRS	71S4	240	677/714
						KAF	87R57	(E)DRS	71S4	270	676/714
0.81	16400	2088	6330	1.45	X						
0.92	14500	1854	6370	1.65	X						
1.0	13000	1657	6400	1.85	X						
1.2	11000	1415	6440	2.2	X	K	87R57	(E)DRS	71S4	265	675/714
1.4	9590	1229	6460	2.5	X	KF	87R57	(E)DRS	71S4	285	676/714
1.6	8300	1078	6470	2.9	X	KA	87R57	(E)DRS	71S4	240	677/714
1.8	7070	951	6490	3.4	X	KAF	87R57	(E)DRS	71S4	265	676/714
2.0	6080	837	6500	3.9	X						
2.3	5280	726	6510	4.5	X						
1.1	11900	1514	3740	1.15	X						
1.2	10900	1388	3880	1.25	X						
1.4	9600	1218	4040	1.45	X						
1.6	8390	1053	4160	1.65	X						
1.8	7360	924	4240	1.85	X						
2.1	6490	815	4310	2.1	X	K	77R37	(E)DRS	71S4	160	668/714
2.4	5200	709	4390	2.6	X	KF	77R37	(E)DRS	71S4	175	669/714
2.7	4560	622	4420	3.0	X	KA	77R37	(E)DRS	71S4	140	670/714
3.1	4130	552	4440	3.3	X	KAF	77R37	(E)DRS	71S4	160	669/714
3.5	3620	485	4460	3.8	X						
4.0	3190	428	4470	4.3	X						
4.6	2840	367	4480	4.8	X						

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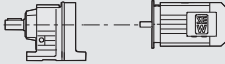

P_m = 0.25 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				lbs		
2.1	6480	793	2480	1.10	X						
2.4	5250	697	2680	1.40	X						
2.8	4620	613	2760	1.55	X						
3.1	4050	542	2830	1.80	X	K	67R37	(E)DRS	71S4	105	661/714
3.6	3750	471	2860	1.95	X	KF	67R37	(E)DRS	71S4	115	662/714
4.0	3140	420	2910	2.3	X	KA	67R37	(E)DRS	71S4	99	663/714
4.7	2830	361	2920	2.6	X	KAF	67R37	(E)DRS	71S4	110	662/714
5.3	2500	323	2920	2.9	X						
6.1	2080	279	2920	3.5	X						
3.1	4060	544	1940	1.30	X						
3.6	3700	473	1980	1.45	X						
4.0	3140	421	2040	1.70	X						
4.7	2840	362	2070	1.85	X	K	57R37	(E)DRS	71S4	92	654/714
5.3	2490	319	2100	2.1	X	KF	57R37	(E)DRS	71S4	105	655/714
6.1	2090	280	2140	2.5	X	KA	57R37	(E)DRS	71S4	88	656/714
6.9	1840	246	2160	2.9	X	KAF	57R37	(E)DRS	71S4	100	655/714
7.9	1620	215	2180	3.3	X						
8.8	1440	192	2190	3.7	X						
10	1250	166	2200	4.2	X						
3.1	4150	543	2020	1.05	X						
3.4	3640	501	2020	1.20	X						
3.8	3280	449	2020	1.35	X						
4.2	2850	401	2020	1.55	X						
4.7	2610	360	2020	1.70	X						
5.2	2390	330	2020	1.85	X	K	49R37	(E)DRS	71S4	100	650/714
5.7	2250	300	2020	1.95	X	KF	49R37	(E)DRS	71S4	105	651/714
6.2	1990	274	2020	2.2	X	KA	49R37	(E)DRS	71S4	94	652/714
7.0	1730	243	2020	2.5	X	KAF	49R37	(E)DRS	71S4	105	651/714
7.8	1590	217	2020	2.8	X						
8.8	1470	193	2020	3.0	X						
9.7	1310	176	2020	3.4	X						
11	1070	152	2020	4.1	X						
14	910	125	2020	4.8	X						
4.5	2800	375	1550	1.25	X						
5.2	2570	327	1600	1.35	X						
5.9	2260	289	1670	1.55	X	K	47R37	(E)DRS	71S4	79	643/714
6.6	1910	256	1720	1.85	X	KF	47R37	(E)DRS	71S4	86	644/714
7.6	1740	225	1750	2.0	X	KA	47R37	(E)DRS	71S4	77	645/714
8.6	1480	198	1780	2.4	X	KAF	47R37	(E)DRS	71S4	84	644/714
9.9	1290	171	1800	2.7	X						
11	1150	153	1820	3.1	X						
13	1010	131	1830	3.5	X						
5.5	2340	312	1690	1.15	X						
5.7	2290	299	1690	1.15	X						
6.7	1960	254	1690	1.35	X						
7.3	1760	234	1690	1.50	X						
8.1	1590	210	1690	1.65	X	K	39R17	(E)DRS	71S4	58	639/714
9.0	1450	189	1690	1.80	X	KF	39R17	(E)DRS	71S4	62	640/714
9.8	1360	174	1690	1.95	X	KA	39R17	(E)DRS	71S4	56	641/714
11	1180	156	1690	2.2	X	KAF	39R17	(E)DRS	71S4	60	640/714
12	1090	142	1690	2.4	X						
14	890	117	1690	3.0	X						
23	555	75	1690	4.7	X						
8.3	1620	205	1200	1.10	X	K	37R17	(E)DRS	71S4	47	632/714
9.4	1410	181	1250	1.25	X	KF	37R17	(E)DRS	71S4	52	633/714
11	1240	160	1290	1.40	X	KA	37R17	(E)DRS	71S4	47	634/714
12	1040	136	1340	1.70	X	KAF	37R17	(E)DRS	71S4	51	633/714
13	1000	127	1350	1.75	X						
12	1340	144.79*	2920	5.4	X	K	67	(E)DRS	71S4	80	661
14	1140	123.54	2920	6.3	X	KF	67	(E)DRS	71S4	93	662
16	1000	108.03	2920	7.2	X	KA	67	(E)DRS	71S4	74	663
						KAF	67	(E)DRS	71S4	87	662
7.4	2130	144.79*	2920	3.4		K	67	DR	63L6	77	661
8.7	1820	123.54	2920	4.0		KF	67	DR	63L6	89	662
9.9	1590	108.03	2920	4.6		KA	67	DR	63L6	71	663
10	1510	102.62	2920	4.8		KAF	67	DR	63L6	83	662

P_m = 0.25 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
12	1340	145.14*	2200	3.9	X						
14	1140	123.85	2210	4.6	X	K	57	(E)DRS	71S4	67	654
16	1000	108.29	2220	5.3	X	KF	57	(E)DRS	71S4	78	655
17	950	102.88*	2220	5.6	X	KA	57	(E)DRS	71S4	63	656
19	830	90.26*	2230	6.3	X	KAF	57	(E)DRS	71S4	75	655
22	705	76.56*	2240	7.5	X						
7.4	2130	145.14*	2130	2.5		K	57	DR	63L6	64	654
8.6	1820	123.85	2160	2.9		KF	57	DR	63L6	74	655
9.9	1590	108.29	2180	3.3		KA	57	DR	63L6	59	656
10	1510	102.88*	2180	3.5		KAF	57	DR	63L6	72	655
12	1320	90.26*	2200	4.0							
13	1220	131.87*	1810	2.9	X	K	47	(E)DRS	71S4	55	643
14	1120	121.48*	1820	3.1	X	KF	47	(E)DRS	71S4	62	644
16	960	104.37	1830	3.7	X	KA	47	(E)DRS	71S4	53	645
19	840	90.86	1840	4.2	X	KAF	47	(E)DRS	71S4	59	644
20	785	85.12*	1840	4.5	X						
8.1	1940	131.87*	1720	1.80		K	47	DR	63L6	51	643
8.8	1780	121.48*	1740	2.0		KF	47	DR	63L6	58	644
10	1530	104.37	1780	2.3		KA	47	DR	63L6	49	645
12	1330	90.86	1800	2.6		KAF	47	DR	63L6	55	644
13	1250	85.12*	1810	2.8							
16	980	106.38	1350	1.80	X						
17	900	97.81	1370	1.95	X						
20	775	83.69	1400	2.3	X						
23	670	72.54	1390	2.6	X	K	37	(E)DRS	71S4	41	632
25	625	67.80	1370	2.8	X	KF	37	(E)DRS	71S4	46	633
29	540	58.60	1310	3.3	X	KA	37	(E)DRS	71S4	41	634
34	460	49.79	1260	3.8	X	KAF	37	(E)DRS	71S4	44	633
38	410	44.46	1220	4.3	X						
45	350	37.97	1160	5.0	X						
10	1560	106.38	1220	1.15		K	37	DR	63L6	37	632
11	1440	97.81	1250	1.25		KF	37	DR	63L6	42	633
13	1230	83.69	1290	1.45		KA	37	DR	63L6	36	634
15	1060	72.54	1330	1.65		KAF	37	DR	63L6	40	633
31	505	54.89	1170	2.3	X						
34	465	50.35	1170	2.5	X						
40	395	42.87	1180	2.9	X	K	29	(E)DRS	71S4	29	625
46	340	36.96	1130	3.1	X	KF	29	(E)DRS	71S4	31	629
56	275	30.11	1070	3.6	X	KA	29	(E)DRS	71S4	28	631
57	275	29.69	1070	4.2	X	KAF	29	(E)DRS	71S4	29	629
62	250	27.23	1040	4.5	X						
68	230	24.91	1010	4.2	X						
38	410	44.48	1010	1.50	X						
42	375	40.63	1010	1.55	X						
50	315	34.29	1000	1.80	X						
58	270	29.29	960	2.0	X						
63	250	27.16	940	2.1	X						
71	220	24.06	920	3.2	X						
77	200	21.98	890	3.5	X	K	19	(E)DRS	71S4	25	619
92	172	18.55	850	4.1	X	KF	19	(E)DRS	71S4	25	622
107	147	15.84	810	4.8	X	KA	19	(E)DRS	71S4	24	624
116	136	14.69	795	5.2	X	KAF	19	(E)DRS	71S4	25	622
134	118	12.70	760	6.0	X						
144	110	11.84	745	6.4	X						
165	96	10.32	710	7.0	X						
177	89	9.58	700	6.3	X						
210	75	8.09	665	9.4	X						
246	64	6.91	630	11	X						

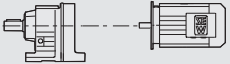

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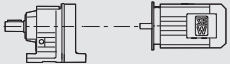

P_m = 0.33 HP							m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
0.17	98000	9819	18000	1.15	X			
0.20	83500	8443	18200	1.40	X			
0.23	74700	7482	18300	1.55	X	K	127R77	(E)DRS 71S4
0.26	65500	6565	18300	1.75	X	KF	127R77	(E)DRS 71S4
0.29	55400	5804	18400	2.1	X	KA	127R77	(E)DRS 71S4
0.34	49000	5027	18500	2.3	X	KAF	127R77	(E)DRS 71S4
0.38	42200	4423	18500	2.7	X			
0.44	36800	3889	18500	3.1	X			
0.51	30500	3311	18600	3.8	X			
0.27	60300	6184	14600	1.15	X			
0.30	53500	5662	14600	1.30	X			
0.33	48600	5138	14600	1.45	X			
0.39	43100	4359	14600	1.65	X	K	107R77	(E)DRS 71S4
0.45	37600	3810	14600	1.90	X	KF	107R77	(E)DRS 71S4
0.51	32000	3358	14600	2.2	X	KA	107R77	(E)DRS 71S4
0.57	29000	2977	14600	2.4	X	KAF	107R77	(E)DRS 71S4
0.65	25300	2599	14600	2.8	X			
0.74	21800	2286	14600	3.2	X			
0.88	18500	1939	14600	3.8	X			
0.99	17100	1713	14600	4.1	X	K	107R77	(E)DRS 71S4
1.1	15500	1554	14600	4.5	X	KF	107R77	(E)DRS 71S4
1.3	13300	1336	14600	5.3	X	KA	107R77	(E)DRS 71S4
						KAF	107R77	(E)DRS 71S4
0.55	32400	3108	8990	1.15	X	K	97R57	(E)DRS 71S4
0.62	28000	2757	8990	1.35	X	KF	97R57	(E)DRS 71S4
						KA	97R57	(E)DRS 71S4
						KAF	97R57	(E)DRS 71S4
0.70	25500	2419	8990	1.50	X			
0.80	22200	2123	8990	1.70	X			
0.92	19700	1856	8990	1.95	X	K	97R57	(E)DRS 71S4
1.1	16500	1625	8990	2.3	X	KF	97R57	(E)DRS 71S4
1.2	14300	1430	8990	2.6	X	KA	97R57	(E)DRS 71S4
1.4	13400	1261	8990	2.8	X	KAF	97R57	(E)DRS 71S4
1.5	11700	1102	8990	3.2	X			
1.8	10200	957	8990	3.7	X			
2.0	9140	855	8990	4.2	X			
0.81	22100	2088	6180	1.10	X			
0.92	19700	1854	6250	1.20	X			
1.0	17600	1657	6310	1.35	X	K	87R57	(E)DRS 71S4
1.2	14900	1415	6360	1.60	X	KF	87R57	(E)DRS 71S4
1.4	12900	1229	6400	1.85	X	KA	87R57	(E)DRS 71S4
1.6	11200	1078	6430	2.1	X	KAF	87R57	(E)DRS 71S4
1.8	9710	951	6460	2.5	X			
2.0	8400	837	6470	2.8	X			
2.3	7290	726	6490	3.3	X			
2.7	6510	638	6500	3.7	X			
1.6	11300	1053	3830	1.20	X			
1.8	9920	924	4000	1.40	X			
2.1	8750	815	4120	1.55	X			
2.4	7170	709	4260	1.90	X			
2.7	6290	622	4320	2.2	X			
3.1	5660	552	4360	2.4	X	K	77R37	(E)DRS 71S4
3.5	4960	485	4400	2.8	X	KF	77R37	(E)DRS 71S4
4.0	4380	428	4430	3.1	X	KA	77R37	(E)DRS 71S4
4.6	3860	367	4450	3.5	X	KAF	77R37	(E)DRS 71S4
5.2	3420	328	4470	4.0	X			
5.9	3050	290	4480	4.5	X			
6.7	2590	252	4490	5.3	X			
7.7	2280	221	4490	6.0	X			
8.7	2010	195	4490	6.8	X			
9.7	1760	175	4490	7.8	X			

P_m = 0.33 HP



n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
2.8	6320	613	2510	1.15	X						
3.1	5560	542	2640	1.30	X						
3.6	5070	471	2710	1.45	X						
4.0	4300	420	2800	1.70	X	K	67R37	(E)DRS	71S4	105	661/714
4.7	3840	361	2850	1.90	X	KF	67R37	(E)DRS	71S4	115	662/714
5.3	3400	323	2890	2.1	X	KA	67R37	(E)DRS	71S4	99	663/714
6.1	2860	279	2920	2.5	X	KAF	67R37	(E)DRS	71S4	110	662/714
6.9	2510	246	2920	2.9	X						
7.8	2220	217	2920	3.3	X						
4.0	4310	421	1910	1.25	X						
4.7	3850	362	1960	1.40	X						
5.3	3390	319	2010	1.55	X						
6.1	2860	280	2070	1.85	X						
6.9	2520	246	2100	2.1	X	K	57R37	(E)DRS	71S4	92	654/714
7.9	2220	215	2130	2.4	X	KF	57R37	(E)DRS	71S4	105	655/714
8.8	1970	192	2150	2.7	X	KA	57R37	(E)DRS	71S4	88	656/714
10	1710	166	2170	3.1	X	KAF	57R37	(E)DRS	71S4	100	655/714
12	1490	145	2190	3.5	X						
13	1360	129	2200	3.9	X						
15	1140	111	2210	4.6	X						
17	1000	97	2220	5.3	X						
4.2	3930	401	2020	1.10	X						
4.7	3570	360	2020	1.25	X						
5.2	3280	330	2020	1.35	X						
5.7	3060	300	2020	1.45	X						
6.2	2720	274	2020	1.60	X	K	49R37	(E)DRS	71S4	100	650/714
7.0	2390	243	2020	1.85	X	KF	49R37	(E)DRS	71S4	105	651/714
7.8	2170	217	2020	2.0	X	KA	49R37	(E)DRS	71S4	94	652/714
8.8	1990	193	2020	2.2	X	KAF	49R37	(E)DRS	71S4	105	651/714
9.7	1780	176	2020	2.5	X						
11	1480	152	2020	3.0	X						
14	1250	125	2020	3.5	X						
17	960	99	2020	4.6	X						
7.3	2390	234	1690	1.10	X						
8.1	2160	210	1690	1.25	X						
9.0	1960	189	1690	1.35	X	K	39R17	(E)DRS	71S4	58	639/714
9.8	1830	174	1690	1.45	X	KF	39R17	(E)DRS	71S4	62	640/714
11	1600	156	1690	1.65	X	KA	39R17	(E)DRS	71S4	56	641/714
12	1470	142	1690	1.80	X	KAF	39R17	(E)DRS	71S4	60	640/714
14	1200	117	1690	2.2	X						
23	755	75	1690	3.4	X						
5.7	3630	192.18	4460	3.5		K	77	DRS	71S6	140	668
6.1	3390	179.37	4470	3.8		KF	77	DRS	71S6	155	669
7.1	2910	154.02	4480	4.7		KA	77	DRS	71S6	120	670
8.1	2550	135.28	4490	5.4		KAF	77	DRS	71S6	140	669
7.6	2730	144.79*	2920	2.6		K	67	DRS	71S6	80	661
8.9	2330	123.54	2920	3.1		KF	67	DRS	71S6	93	662
10	2040	108.03	2920	3.5		KA	67	DRS	71S6	74	663
11	1940	102.62	2920	3.7		KAF	67	DRS	71S6	87	662
12	1770	144.79*	2920	4.1	X	K	67	(E)DRS	71S4	80	661
14	1510	123.54	2920	4.8	X	KF	67	(E)DRS	71S4	93	662
16	1320	108.03	2920	5.5	X	KA	67	(E)DRS	71S4	74	663
17	1250	102.62	2920	5.8	X	KAF	67	(E)DRS	71S4	87	662
7.6	2740	145.14*	2080	1.95							
8.9	2340	123.85	2120	2.3		K	57	DRS	71S6	67	654
10	2040	108.29	2140	2.6		KF	57	DRS	71S6	78	655
11	1940	102.88*	2150	2.7		KA	57	DRS	71S6	63	656
12	1700	90.26*	2170	3.1		KAF	57	DRS	71S6	75	655
14	1440	76.56*	2190	3.7							
12	1770	145.14*	2160	3.0	X						
14	1510	123.85	2180	3.5	X	K	57	(E)DRS	71S4	67	654
16	1320	108.29	2200	4.0	X	KF	57	(E)DRS	71S4	78	655
17	1250	102.88*	2200	4.2	X	KA	57	(E)DRS	71S4	63	656
19	1100	90.26*	2210	4.8	X	KAF	57	(E)DRS	71S4	75	655
22	930	76.56*	2230	5.7	X						

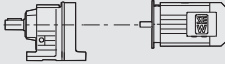

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P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
23	920	75.20	2020	4.6	X	K	49	(E)DRS	71S4	82	650
24	850	70.19	2020	4.6	X	KF	49	(E)DRS	71S4	85	651
						KA	49	(E)DRS	71S4	75	652
						KAF	49	(E)DRS	71S4	86	651
8.3	2490	131.87*	1620	1.40		K	47	DRS	71S6	55	643
9.1	2290	121.48*	1660	1.55		KF	47	DRS	71S6	62	644
11	1970	104.37	1720	1.80		KA	47	DRS	71S6	53	645
12	1710	90.86	1750	2.1		KAF	47	DRS	71S6	59	644
13	1610	85.12*	1770	2.2							
13	1610	131.87*	1770	2.2	X	K	47	(E)DRS	71S4	55	643
14	1480	121.48*	1780	2.4	X	KF	47	(E)DRS	71S4	62	644
16	1270	104.37	1800	2.8	X	KA	47	(E)DRS	71S4	53	645
19	1110	90.86	1820	3.2	X	KAF	47	(E)DRS	71S4	59	644
20	1040	85.12*	1820	3.4	X						
29	710	58.24	1690	3.7	X	K	39	(E)DRS	71S4	52	639
34	605	49.69	1690	4.4	X	KF	39	(E)DRS	71S4	55	640
						KA	39	(E)DRS	71S4	50	641
						KAF	39	(E)DRS	71S4	53	640
13	1580	83.69	1210	1.10		K	37	DRS	71S6	41	632
15	1370	72.54	1260	1.30		KF	37	DRS	71S6	46	633
16	1280	67.80	1280	1.40		KA	37	DRS	71S6	41	634
19	1100	58.60	1320	1.60		KAF	37	DRS	71S6	44	633
22	940	49.79	1360	1.90							
16	1300	106.38	1280	1.35	X						
17	1190	97.81	1300	1.50	X						
20	1020	83.69	1340	1.75	X						
23	880	72.54	1340	2.0	X						
25	820	67.80	1320	2.1	X	K	37	(E)DRS	71S4	41	632
29	715	58.60	1270	2.5	X	KF	37	(E)DRS	71S4	46	633
34	605	49.79	1220	2.9	X	KA	37	(E)DRS	71S4	41	634
38	540	44.46	1190	3.2	X	KAF	37	(E)DRS	71S4	44	633
45	460	37.97	1140	3.8	X						
48	435	35.57	1120	4.1	X						
57	365	29.96	1070	4.8	X						
59	350	28.83	1060	5.0	X						
31	670	54.89	1160	1.70	X						
34	615	50.35	1160	1.85	X						
40	520	42.87	1150	2.2	X						
46	450	36.96	1100	2.4	X	K	29	(E)DRS	71S4	29	625
56	365	30.11	1040	2.8	X	KF	29	(E)DRS	71S4	31	629
57	360	29.69	1050	3.2	X	KA	29	(E)DRS	71S4	28	631
62	330	27.23	1020	3.5	X	KAF	29	(E)DRS	71S4	29	629
68	300	24.91	990	3.2	X						
73	280	23.19	980	4.0	X						
77	270	22.08	960	3.4	X						
85	240	19.99	940	4.7	X						
38	540	44.48	990	1.10	X						
42	495	40.63	990	1.20	X						
50	415	34.29	970	1.35	X						
58	355	29.29	930	1.50	X						
63	330	27.16	910	1.60	X						
71	290	24.06	900	2.4	X						
77	265	21.98	880	2.6	X						
92	225	18.55	840	3.1	X						
107	194	15.84	800	3.6	X	K	19	(E)DRS	71S4	25	619
116	180	14.69	780	3.9	X	KF	19	(E)DRS	71S4	25	622
134	155	12.70	750	4.5	X	KA	19	(E)DRS	71S4	24	624
144	145	11.84	735	4.8	X	KAF	19	(E)DRS	71S4	25	622
165	126	10.32	705	5.3	X						
177	117	9.58	695	4.8	X						
210	99	8.09	660	7.2	X						
246	85	6.91	625	8.4	X						
265	78	6.41	615	9.0	X						
307	68	5.54	585	10	X						
329	63	5.16	570	11	X						

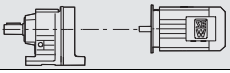

P_m = 0.50 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						m lbs	
0.26	103700	6565	17900	1.10	X							
0.29	89100	5804	18100	1.30	X	K	127R77	(E)DRS	71S4	1040	696/714	
0.34	78200	5027	18200	1.45	X	KF	127R77	(E)DRS	71S4	1130	697/714	
0.38	67900	4423	18300	1.70	X	KA	127R77	(E)DRS	71S4	980	698/714	
0.44	59400	3889	18400	1.95	X	KAF	127R77	(E)DRS	71S4	1060	697/714	
0.51	49800	3311	18500	2.3	X							
0.88	30300	1926	18600	3.8	X	K	127R77	(E)DRS	71S4	1040	696/714	
0.97	27600	1757	18600	4.2	X	KF	127R77	(E)DRS	71S4	1130	697/714	
						KA	127R77	(E)DRS	71S4	980	698/714	
1.1	23900	1541	18600	4.8	X	KAF	127R77	(E)DRS	71S4	1060	697/714	
0.45	59800	3810	14600	1.20	X							
0.51	51600	3358	14600	1.35	X	K	107R77	(E)DRS	71S4	690	689/714	
0.57	46300	2977	14600	1.55	X	KF	107R77	(E)DRS	71S4	710	690/714	
0.65	40400	2599	14600	1.75	X	KA	107R77	(E)DRS	71S4	630	691/714	
0.74	35100	2286	14600	2.0	X	KAF	107R77	(E)DRS	71S4	680	690/714	
0.88	29800	1939	14600	2.4	X							
0.99	27200	1713	14600	2.6	X	K	107R77	(E)DRS	71S4	680	689/714	
1.1	24700	1554	14600	2.9	X	KF	107R77	(E)DRS	71S4	710	690/714	
1.3	21200	1336	14600	3.3	X	KA	107R77	(E)DRS	71S4	620	691/714	
1.5	18500	1166	14600	3.8	X	KAF	107R77	(E)DRS	71S4	680	690/714	
0.80	34700	2123	8990	1.10	X							
0.92	30600	1856	8990	1.25	X							
1.1	26100	1625	8990	1.45	X							
1.2	22700	1430	8990	1.65	X							
1.4	20800	1261	8990	1.85	X	K	97R57	(E)DRS	71S4	400	682/714	
1.5	18100	1102	8990	2.1	X	KF	97R57	(E)DRS	71S4	445	683/714	
1.8	15900	957	8990	2.4	X	KA	97R57	(E)DRS	71S4	360	684/714	
2.0	14200	855	8990	2.7	X	KAF	97R57	(E)DRS	71S4	415	683/714	
2.3	11600	743	8990	3.3	X							
2.6	10300	652	8990	3.7	X							
3.0	9380	573	8990	4.1	X							
1.2	23300	1415	6150	1.00	X							
1.4	20200	1229	6240	1.20	X							
1.6	17600	1078	6310	1.35	X							
1.8	15300	951	6360	1.55	X							
2.0	13300	837	6400	1.80	X	K	87R57	(E)DRS	71S4	265	675/714	
2.3	11500	726	6430	2.1	X	KF	87R57	(E)DRS	71S4	285	676/714	
2.7	10200	638	6450	2.3	X	KA	87R57	(E)DRS	71S4	240	677/714	
3.0	8950	562	6470	2.7	X	KAF	87R57	(E)DRS	71S4	265	676/714	
3.6	7520	474	6480	3.2	X							
4.0	6760	426	6490	3.5	X							
4.6	5900	373	6500	4.0	X							
2.1	13500	815	3480	1.00	X							
2.4	11300	709	3830	1.20	X							
2.7	9950	622	4000	1.40	X							
3.1	8910	552	4110	1.55	X							
3.5	7820	485	4210	1.75	X							
4.0	6900	428	4280	2.0	X	K	77R37	(E)DRS	71S4	160	668/714	
4.6	6020	367	4340	2.3	X	KF	77R37	(E)DRS	71S4	175	669/714	
5.2	5350	328	4380	2.6	X	KA	77R37	(E)DRS	71S4	140	670/714	
5.9	4760	290	4410	2.9	X	KAF	77R37	(E)DRS	71S4	160	669/714	
6.7	4080	252	4440	3.4	X							
7.7	3580	221	4460	3.8	X							
8.7	3160	195	4470	4.3	X							
9.7	2790	175	4490	4.9	X							
11	2460	154	4490	5.6	X							
4.0	6770	420	2420	1.05	X							
4.7	5990	361	2570	1.20	X							
5.3	5320	323	2670	1.35	X							
6.1	4500	279	2780	1.60	X	K	67R37	(E)DRS	71S4	105	661/714	
6.9	3960	246	2840	1.85	X	KF	67R37	(E)DRS	71S4	115	662/714	
7.8	3510	217	2880	2.1	X	KA	67R37	(E)DRS	71S4	99	663/714	
8.9	3100	191	2920	2.3	X	KAF	67R37	(E)DRS	71S4	110	662/714	
10	2650	166	2920	2.7	X							
12	2350	144	2920	3.1	X							
14	1990	122	2920	3.6	X							

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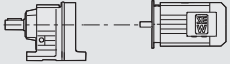

P_m = 0.50 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
6.1	4510	280	1870	1.20	X						
6.9	3970	246	1950	1.35	X						
7.9	3500	215	2000	1.50	X						
8.8	3110	192	2040	1.70	X	K	57R37	(E)DRS	71S4	92	654/714
10	2690	166	2080	1.95	X	KF	57R37	(E)DRS	71S4	105	655/714
12	2350	145	2110	2.2	X	KA	57R37	(E)DRS	71S4	88	656/714
13	2130	129	2130	2.5	X	KAF	57R37	(E)DRS	71S4	100	655/714
15	1800	111	2160	2.9	X						
17	1580	97	2180	3.3	X						
6.2	4290	274	2020	1.05	X						
7.0	3780	243	2020	1.15	X						
7.8	3410	217	2020	1.30	X	K	49R37	(E)DRS	71S4	100	650/714
8.8	3100	193	2020	1.45	X	KF	49R37	(E)DRS	71S4	105	651/714
9.7	2790	176	2020	1.60	X	KA	49R37	(E)DRS	71S4	94	652/714
11	2350	152	2020	1.90	X	KAF	49R37	(E)DRS	71S4	105	651/714
14	1960	125	2020	2.2	X						
17	1530	99	2020	2.9	X						
11	2500	156	1690	1.05	X	K	39R17	(E)DRS	71S4	58	639/714
12	2280	142	1690	1.15	X	KF	39R17	(E)DRS	71S4	62	640/714
14	1870	117	1690	1.40	X	KA	39R17	(E)DRS	71S4	56	641/714
23	1180	75	1690	2.2	X	KAF	39R17	(E)DRS	71S4	60	640/714
5.6	5650	197.37	6500	4.2		K	87	DRS	71M6	220	675
6.3	4990	174.19	6510	4.8		KF	87	DRS	71M6	240	676
						KA	87	DRS	71M6	190	677
						KAF	87	DRS	71M6	220	675
7.1	4410	154.02	4430	3.1		K	77	DRS	71M6	140	668
8.1	3870	135.28	4450	3.5		KF	77	DRS	71M6	160	669
8.6	3680	128.52	4460	3.7		KA	77	DRS	71M6	125	670
9.7	3250	113.56	4470	4.2		KAF	77	DRS	71M6	140	669
8.8	3560	192.18	4460	3.6	X	K	77	(E)DRS	71S4	140	668
9.5	3320	179.37	4470	3.9	X	KF	77	(E)DRS	71S4	155	669
11	2850	154.02	4480	4.8	X	KA	77	(E)DRS	71S4	120	670
						KAF	77	(E)DRS	71S4	140	669
8.9	3540	123.54	2880	2.0		K	67	DRS	71M6	83	661
10	3090	108.03	2920	2.3		KF	67	DRS	71M6	96	662
11	2940	102.62	2920	2.5		KA	67	DRS	71M6	77	663
12	2580	90.04	2920	2.8		KAF	67	DRS	71M6	90	662
12	2680	144.79*	2920	2.7	X						
14	2290	123.54	2920	3.2	X	K	67	(E)DRS	71S4	80	661
16	2000	108.03	2920	3.6	X	KF	67	(E)DRS	71S4	93	662
19	1660	90.04	2920	4.3	X	KA	67	(E)DRS	71S4	74	663
22	1410	76.37	2920	5.1	X	KAF	67	(E)DRS	71S4	87	662
8.9	3540	123.85	1990	1.50							
10	3100	108.29	2040	1.70		K	57	DRS	71M6	70	654
11	2940	102.88*	2060	1.80		KF	57	DRS	71M6	81	655
12	2580	90.26*	2090	2.0		KA	57	DRS	71M6	66	656
14	2190	76.56*	2130	2.4		KAF	57	DRS	71M6	78	655
16	1980	69.12	2150	2.7							
12	2690	145.14*	2080	1.95	X						
14	2290	123.85	2120	2.3	X						
16	2000	108.29	2140	2.6	X	K	57	(E)DRS	71S4	67	654
17	1900	102.88*	2150	2.8	X	KF	57	(E)DRS	71S4	78	655
19	1670	90.26*	2170	3.2	X	KA	57	(E)DRS	71S4	63	656
22	1410	76.56*	2190	3.7	X	KAF	57	(E)DRS	71S4	75	655
25	1280	69.12	2200	4.1	X						
23	1390	75.20	2020	3.0	X	K	49	(E)DRS	71S4	82	650
24	1300	70.19	2020	3.0	X	KF	49	(E)DRS	71S4	85	651
28	1110	60.27	2020	4.0	X	KA	49	(E)DRS	71S4	75	652
						KAF	49	(E)DRS	71S4	86	651
11	2990	104.37	1500	1.20		K	47	DRS	71M6	57	643
12	2600	90.86	1600	1.35		KF	47	DRS	71M6	65	644
13	2430	85.12*	1630	1.45		KA	47	DRS	71M6	55	645
15	2150	75.20*	1690	1.65		KAF	47	DRS	71M6	62	644

P_m = 0.50 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					lbs	
13	2440	131.87*	1630	1.45	X						
14	2250	121.48*	1670	1.55	X						
16	1930	104.37	1720	1.85	X	K	47	(E)DRS	71S4	55	643
19	1680	90.86	1760	2.1	X	KF	47	(E)DRS	71S4	62	644
20	1570	85.12*	1770	2.2	X	KA	47	(E)DRS	71S4	53	645
23	1390	75.20*	1790	2.5	X	KAF	47	(E)DRS	71S4	59	644
24	1290	69.84	1800	2.7	X						
27	1170	63.30*	1810	3.0	X						
29	1080	58.24	1690	2.5	X	K	39	(E)DRS	71S4	52	639
34	920	49.69	1690	2.9	X	KF	39	(E)DRS	71S4	55	640
39	800	43.45	1690	3.3	X	KA	39	(E)DRS	71S4	50	641
41	765	41.28	1690	3.5	X	KAF	39	(E)DRS	71S4	53	640
47	670	36.22	1690	4.0	X						
17	1810	97.81	1160	1.00							
20	1550	83.69	1220	1.15	X						
23	1340	72.54	1240	1.30	X						
25	1250	67.80	1220	1.40	X						
29	1080	58.60	1190	1.65	X						
34	920	49.79	1150	1.90	X						
38	820	44.46	1120	2.1	X	K	37	(E)DRS	71S4	41	632
45	700	37.97	1080	2.5	X	KF	37	(E)DRS	71S4	46	633
48	655	35.57	1070	2.7	X	KA	37	(E)DRS	71S4	41	634
57	555	29.96	1020	3.2	X	KAF	37	(E)DRS	71S4	44	633
59	530	28.83	1010	3.3	X						
68	460	24.99	980	3.8	X						
73	430	23.36	960	4.0	X						
84	370	20.19	920	4.4	X						
99	315	17.15	880	5.0	X						
31	1010	54.89	1130	1.15	X						
34	930	50.35	1110	1.25	X						
40	790	42.87	1080	1.40	X						
46	685	36.96	1040	1.55	X						
56	555	30.11	1000	1.80	X	K	29	(E)DRS	71S4	29	625
57	550	29.69	1010	2.1	X	KF	29	(E)DRS	71S4	31	629
62	505	27.23	980	2.3	X	KA	29	(E)DRS	71S4	28	631
68	460	24.91	950	2.1	X	KAF	29	(E)DRS	71S4	29	629
73	430	23.19	940	2.7	X						
77	405	22.08	920	2.3	X						
85	370	19.99	910	3.1	X						
104	300	16.29	860	3.8	X						
58	540	29.29	870	1.00							
63	500	27.16	860	1.05	X						
71	445	24.06	860	1.60	X						
77	405	21.98	840	1.75	X						
92	340	18.55	810	2.1	X						
107	290	15.84	775	2.4	X						
116	270	14.69	760	2.6	X						
134	235	12.70	730	3.0	X	K	19	(E)DRS	71S4	25	619
144	215	11.84	715	3.2	X	KF	19	(E)DRS	71S4	25	622
165	191	10.32	685	3.5	X	KA	19	(E)DRS	71S4	24	624
177	178	9.58	685	3.1	X	KAF	19	(E)DRS	71S4	25	622
210	150	8.09	650	4.7	X						
246	128	6.91	620	5.5	X						
265	119	6.41	605	6.0	X						
307	103	5.54	580	6.9	X						
329	96	5.16	565	7.4	X						
378	83	4.50	540	8.5	X						

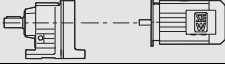

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P_m = 0.75 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.10	389800	16978	42700	1.15	X	K KH	187R97 187R97	(E)DRS (E)DRS	71M4 71M4	3900 3750	712/715 713/715
0.12	321900	14272	42700	1.35	X						
0.13	291400	13116	42700	1.50	X						
0.15	252300	11647	42700	1.75	X						
0.23	165600	7343	42700	2.7	X						
0.15	265700	11573	33700	1.05	X	K KH	167R97 167R97	(E)DRS (E)DRS	71M4 71M4	2610 2530	710/715 711/715
0.16	235600	10264	33700	1.20	X						
0.20	194600	8628	33700	1.45	X						
0.26	148000	6562	33700	1.90	X						
0.32	116000	5355	33700	2.4	X						
0.41	90600	4079	33700	3.1	X						
0.25	155200	6881	25300	1.05	X	K KF KA KAF	157R97 157R97 157R97 157R97	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	1740 1920 1660 1790	703/715 704/715 705/715 704/715
0.28	133700	5931	25500	1.20	X						
0.42	89700	3979	25900	1.75	X						
0.55	68800	3051	26000	2.3	X						
0.38	106400	4423	17900	1.10	X	K KF KA KAF	127R77 127R77 127R77 127R77	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	1040 1140 980 1060	696/714 697/714 698/714 697/714
0.43	93200	3889	18100	1.25	X						
0.51	78600	3311	18200	1.45	X						
0.56	71000	3009	18300	1.60	X						
0.65	60800	2607	18400	1.90	X						
0.88	47300	1926	18500	2.4	X	K KF KA KAF	127R77 127R77 127R77 127R77	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	1040 1140 980 1060	696/714 697/714 698/714 697/714
0.96	43100	1757	18500	2.7	X						
1.1	37500	1541	18500	3.1	X						
1.3	32900	1342	18500	3.5	X						
1.4	28600	1177	18600	4.0	X						
1.6	25100	1025	18600	4.6	X						
0.57	72200	2977	14600	1.00	X	K KF KA KAF	107R77 107R77 107R77 107R77	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	690 720 630 680	689/714 690/714 691/714 690/714
0.65	63100	2599	14600	1.10	X						
0.74	55000	2286	14600	1.30	X						
0.87	46600	1939	14600	1.50	X						
0.99	42300	1713	14600	1.65	X	K KF KA KAF	107R77 107R77 107R77 107R77	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	690 710 630 680	689/714 690/714 691/714 690/714
1.1	38400	1554	14600	1.85	X						
1.3	33000	1336	14600	2.1	X						
1.4	28800	1166	14600	2.5	X						
1.6	24600	1030	14600	2.9	X						
1.9	21300	904	14600	3.3	X						
2.1	19400	793	14600	3.6	X						
2.4	16900	696	14600	4.2	X						
2.8	14500	615	14600	4.9	X						
1.2	35300	1430	8990	1.05	X	K KF KA KAF	97R57 97R57 97R57 97R57	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	400 445 360 415	682/714 683/714 684/714 683/714
1.3	31900	1261	8990	1.20	X						
1.5	27900	1102	8990	1.35	X						
1.8	24400	957	8990	1.55	X						
2.0	21800	855	8990	1.75	X						
2.3	18100	743	8990	2.1	X						
2.6	16000	652	8990	2.4	X						
3.0	14400	573	8990	2.6	X						
3.4	12200	504	8990	3.1	X						
3.9	10500	437	8990	3.6	X						
4.4	9450	382	8990	4.0	X						
5.5	7630	305	8990	5.0	X						
1.8	23600	951	6140	1.00	X	K KF KA KAF	87R57 87R57 87R57 87R57	(E)DRS (E)DRS (E)DRS (E)DRS	71M4 71M4 71M4 71M4	265 290 240 270	675/714 676/714 677/714 676/714
2.0	20700	837	6230	1.15	X						
2.3	17900	726	6300	1.35	X						
2.6	15900	638	6340	1.50	X						
3.0	13900	562	6390	1.70	X						
3.6	11700	474	6430	2.0	X						
4.0	10500	426	6440	2.3	X						
4.5	9220	373	6460	2.6	X						
5.1	8030	330	6480	3.0	X						
5.8	7160	294	6490	3.3	X						
6.8	6250	250	6500	3.8	X						
7.2	5880	236	6500	4.1	X						
8.4	4970	201	6510	4.8	X						

P_m = 0.75 HP



n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
3.5	12000	485	3720	1.15	X						
4.0	10600	428	3910	1.30	X						
4.6	9250	367	4070	1.50	X						
5.2	8230	328	4170	1.65	X	K	77R37	(E)DRS	71M4	160	668/714
5.8	7310	290	4250	1.85	X	KF	77R37	(E)DRS	71M4	180	669/714
6.7	6300	252	4320	2.2	X	KA	77R37	(E)DRS	71M4	145	670/714
7.6	5530	221	4370	2.5	X	KAF	77R37	(E)DRS	71M4	160	669/714
8.7	4880	195	4400	2.8	X						
9.7	4320	175	4430	3.2	X						
11	3810	154	4450	3.6	X						
6.1	6960	279	2380	1.05	X						
6.9	6120	246	2540	1.20	X						
7.8	5450	217	2650	1.35	X	K	67R37	(E)DRS	71M4	110	661/714
8.8	4790	191	2740	1.50	X	KF	67R37	(E)DRS	71M4	120	662/714
10	4120	166	2820	1.75	X	KA	67R37	(E)DRS	71M4	100	663/714
12	3630	144	2870	2.0	X	KAF	67R37	(E)DRS	71M4	115	662/714
14	3080	122	2920	2.4	X						
8.8	4800	192	1820	1.10	X						
10	4150	166	1920	1.30	X	K	57R37	(E)DRS	71M4	95	654/714
12	3640	145	1980	1.45	X	KF	57R37	(E)DRS	71M4	105	655/714
13	3280	129	2020	1.60	X	KA	57R37	(E)DRS	71M4	90	656/714
15	2780	111	2070	1.90	X	KAF	57R37	(E)DRS	71M4	105	655/714
17	2450	97	2110	2.2	X						
9.6	4290	176	2020	1.05	X	K	49R37	(E)DRS	71M4	105	650/714
11	3640	152	2020	1.20	X	KF	49R37	(E)DRS	71M4	105	651/714
14	3030	125	2020	1.45	X	KA	49R37	(E)DRS	71M4	97	652/714
17	2370	99	2020	1.85	X	KAF	49R37	(E)DRS	71M4	105	651/714
22	1830	75	1690	1.40	X	K	39R17	(E)DRS	71M4	61	639/714
						KF	39R17	(E)DRS	71M4	65	640/714
						KA	39R17	(E)DRS	71M4	59	641/714
						KAF	39R17	(E)DRS	71M4	62	640/714
5.7	8330	197.37	6470	2.9		K	87	DRS	80S6	225	675
6.4	7350	174.19	6490	3.2		KF	87	DRS	80S6	245	676
6.8	6930	164.34*	6490	3.4		KA	87	DRS	80S6	195	677
7.6	6220	147.32*	6500	3.8		KAF	87	DRS	80S6	225	676
7.3	6500	154.02	4310	2.1		K	77	DRS	80S6	145	668
8.3	5710	135.28	4360	2.4		KF	77	DRS	80S6	165	669
8.7	5420	128.52	4370	2.5		KA	77	DRS	80S6	130	670
9.9	4790	113.56	4410	2.9		KAF	77	DRS	80S6	145	669
11	4300	154.02	4430	3.2	X						
12	3780	135.28	4450	3.6	X	K	77	(E)DRS	71M4	140	668
13	3590	128.52	4460	3.8	X	KF	77	(E)DRS	71M4	160	669
15	3170	113.56	4470	4.3	X	KA	77	(E)DRS	71M4	125	670
17	2710	97.05	4490	5.0	X	KAF	77	(E)DRS	71M4	140	669
9.1	5210	123.54	2690	1.40							
10	4560	108.03	2770	1.60		K	67	DRS	80S6	88	661
11	4330	102.62	2800	1.65		KF	67	DRS	80S6	100	662
12	3800	90.04	2850	1.90		KA	67	DRS	80S6	82	663
15	3220	76.37	2910	2.2		KAF	67	DRS	80S6	95	662
14	3450	123.54	2890	2.1	X	K	67	(E)DRS	71M4	83	661
16	3020	108.03	2920	2.4	X	KF	67	(E)DRS	71M4	96	662
19	2510	90.04	2920	2.9	X	KA	67	(E)DRS	71M4	77	663
22	2130	76.37	2920	3.4	X	KAF	67	(E)DRS	71M4	90	662
10	4570	108.29	1860	1.15							
11	4340	102.88*	1900	1.20		K	57	DRS	80S6	75	654
12	3810	90.26*	1970	1.40		KF	57	DRS	80S6	86	655
15	3230	76.56*	2030	1.65		KA	57	DRS	80S6	71	656
16	2910	69.12	2060	1.80		KAF	57	DRS	80S6	83	655
18	2560	60.81*	2090	2.1							
20	2420	57.42*	2110	2.2							

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P_m = 0.75 HP										
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				m lbs	
14	3460	123.85	2000	1.55	X					
16	3030	108.29	2050	1.75	X					
16	2870	102.88*	2060	1.85	X	K	57	(E)DRS	71M4	70 654
19	2520	90.26*	2100	2.1	X	KF	57	(E)DRS	71M4	81 655
22	2140	76.56*	2130	2.5	X	KA	57	(E)DRS	71M4	66 656
24	1930	69.12	2150	2.7	X	KAF	57	(E)DRS	71M4	78 655
28	1700	60.81*	2170	3.1	X					
29	1600	57.42*	2180	3.3	X					
22	2100	75.20	2020	2.0	X					
24	1960	70.19	2020	2.0	X	K	49	(E)DRS	71M4	84 650
28	1680	60.27	2020	2.6	X	KF	49	(E)DRS	71M4	88 651
32	1480	52.94	2020	3.0	X	KA	49	(E)DRS	71M4	78 652
34	1400	50.29	2020	3.1	X	KAF	49	(E)DRS	71M4	89 651
38	1240	44.44	2020	3.6	X					
44	1060	37.98	2020	4.2	X					
16	2920	104.37	1520	1.20	X					
19	2540	90.86	1610	1.40	X					
20	2380	85.12*	1640	1.50	X					
22	2100	75.20*	1700	1.70	X	K	47	(E)DRS	71M4	57 643
24	1950	69.84	1720	1.80	X	KF	47	(E)DRS	71M4	65 644
27	1770	63.30*	1750	2.0	X	KA	47	(E)DRS	71M4	55 645
30	1590	56.83	1770	2.2	X	KAF	47	(E)DRS	71M4	62 644
35	1360	48.95*	1790	2.6	X					
37	1280	46.03*	1800	2.8	X					
29	1620	58.24	1690	1.65	X					
34	1390	49.69	1690	1.90	X					
39	1210	43.45	1690	2.2	X	K	39	(E)DRS	71M4	55 639
41	1150	41.28	1690	2.3	X	KF	39	(E)DRS	71M4	58 640
47	1010	36.22	1680	2.6	X	KA	39	(E)DRS	71M4	53 641
55	850	30.72	1610	3.1	X	KAF	39	(E)DRS	71M4	56 640
61	775	27.73	1570	3.4	X					
69	680	24.40	1520	3.9	X					
73	640	23.04	1500	4.1	X					
29	1630	58.60	1060	1.10	X					
34	1390	49.79	1040	1.25	X					
38	1240	44.46	1030	1.40	X					
44	1060	37.97	1000	1.65	X					
48	990	35.57	990	1.80	X					
56	830	29.96	960	2.1	X					
59	800	28.83	950	2.2	X	K	37	(E)DRS	71M4	44 632
68	695	24.99	920	2.5	X	KF	37	(E)DRS	71M4	49 633
72	650	23.36	910	2.6	X	KA	37	(E)DRS	71M4	43 634
84	560	20.19	880	2.9	X	KAF	37	(E)DRS	71M4	47 633
99	480	17.15	850	3.3	X					
110	425	15.31	820	3.6	X					
129	365	13.08	790	4.0	X					
139	335	12.14	775	4.2	X					
161	290	10.49	745	4.8	X					
46	1030	36.96	960	1.05	X					
56	840	30.11	930	1.20	X					
57	830	29.69	950	1.40	X					
62	760	27.23	930	1.50	X					
68	695	24.91	890	1.40	X					
73	645	23.19	900	1.75	X	K	29	(E)DRS	71M4	31 625
77	615	22.08	870	1.50	X	KF	29	(E)DRS	71M4	33 629
85	555	19.99	870	2.1	X	KA	29	(E)DRS	71M4	30 631
104	455	16.29	820	2.5	X	KAF	29	(E)DRS	71M4	32 629
125	375	13.47	785	3.0	X					
141	330	11.94	760	3.4	X					
171	275	9.90	740	3.5	X					
198	235	8.53	710	4.5	X					

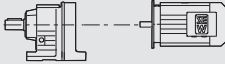

P_m = 0.75 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
70	670	24.06	800	1.05	X			
77	615	21.98	790	1.15	X			
91	515	18.55	760	1.35	X			
107	440	15.84	735	1.60	X			
115	410	14.69	725	1.70	X			
133	355	12.70	700	2.0	X			
143	330	11.84	685	2.1	X	K	19	(E)DRS 71M4 27 619
164	285	10.32	665	2.3	X	KF	19	(E)DRS 71M4 28 622
176	265	9.58	665	2.1	X	KA	19	(E)DRS 71M4 26 624
209	225	8.09	635	3.1	X	KAF	19	(E)DRS 71M4 27 622
245	193	6.91	605	3.7	X			
264	179	6.41	595	4.0	X			
305	155	5.54	570	4.6	X			
327	144	5.16	555	4.9	X			
376	126	4.50	535	5.6	X			

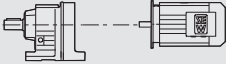

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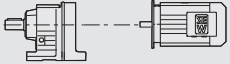

P_m = 1.0 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
0.13	387200	13116	42700	1.15	X			
0.15	337300	11647	42700	1.30	X			
0.24	219300	7343	42700	2.0	X	K	187R97	(E)DRN 80M4 3900 712/715
0.26	199200	6747	42700	2.2	X	KH	187R97	(E)DRN 80M4 3760 713/715
0.29	173500	5991	42700	2.5	X			
0.33	151900	5358	42700	2.9	X			
0.20	257700	8628	33700	1.10	X			
0.27	196000	6562	33700	1.45	X			
0.33	155000	5355	33700	1.85	X	K	167R97	(E)DRN 80M4 2620 710/715
0.37	135800	4788	33700	2.1	X	KH	167R97	(E)DRN 80M4 2540 711/715
0.43	120400	4079	33700	2.4	X			
0.52	100800	3376	33700	2.8	X			
0.35	140700	5074	25400	1.15	X			
0.39	125200	4514	25600	1.25	X			
0.44	118800	3979	25700	1.35	X	K	157R97	(E)DRN 80M4 1750 703/715
0.50	99700	3516	25800	1.60	X	KF	157R97	(E)DRN 80M4 1930 704/715
0.57	91100	3051	25900	1.75	X	KA	157R97	(E)DRN 80M4 1670 705/715
0.67	72400	2610	26000	2.2	X	KAF	157R97	(E)DRN 80M4 1800 704/715
0.75	64400	2322	26000	2.5	X			
1.1	50100	1659	26100	3.2	X	K	157R97	(E)DRN 80M4 1750 703/715
1.3	40000	1365	26100	4.0	X	KF	157R97	(E)DRN 80M4 1920 704/715
						KA	157R97	(E)DRN 80M4 1660 705/715
						KAF	157R97	(E)DRN 80M4 1790 704/715
0.53	103000	3311	18000	1.10	X	K	127R77	(E)DRN 80M4 1050 696/714
0.58	93100	3009	18100	1.25	X	KF	127R77	(E)DRN 80M4 1150 697/714
0.67	80000	2607	18200	1.45	X	KA	127R77	(E)DRN 80M4 990 698/714
0.77	69000	2268	18300	1.65	X	KAF	127R77	(E)DRN 80M4 1080 697/714
0.91	61700	1926	18400	1.85	X			
1.0	56200	1757	18400	2.0	X			
1.1	49000	1541	18500	2.3	X	K	127R77	(E)DRN 80M4 1050 696/714
1.3	42900	1342	18500	2.7	X	KF	127R77	(E)DRN 80M4 1150 697/714
1.5	37400	1177	18500	3.1	X	KA	127R77	(E)DRN 80M4 990 698/714
1.7	32800	1025	18500	3.5	X	KAF	127R77	(E)DRN 80M4 1070 697/714
1.9	28600	899	18600	4.0	X			
0.90	60900	1939	14600	1.15	X	K	107R77	(E)DRN 80M4 700 689/714
						KF	107R77	(E)DRN 80M4 730 690/714
						KA	107R77	(E)DRN 80M4 640 691/714
						KAF	107R77	(E)DRN 80M4 690 690/714

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P_m = 1.0 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				lbs		
1.0	55100	1713	14600	1.30	X						
1.1	50000	1554	14600	1.40	X						
1.3	43000	1336	14600	1.65	X						
1.5	37500	1166	14600	1.90	X	K	107R77	(E)DRN 80M4	700	689/714	
1.7	32200	1030	14600	2.2	X	KF	107R77	(E)DRN 80M4	730	690/714	
1.9	28000	904	14600	2.5	X	KA	107R77	(E)DRN 80M4	640	691/714	
2.2	25300	793	14600	2.8	X	KAF	107R77	(E)DRN 80M4	690	690/714	
2.5	22100	696	14600	3.2	X						
2.9	19100	615	14600	3.7	X						
1.6	36100	1102	8990	1.05	X						
1.8	31600	957	8990	1.20	X						
2.0	28200	855	8990	1.35	X						
2.4	23700	743	8990	1.60	X						
2.7	20900	652	8990	1.80	X						
3.1	18800	573	8990	2.0	X	K	97R57	(E)DRN 80M4	410	682/714	
3.5	16000	504	8990	2.4	X	KF	97R57	(E)DRN 80M4	455	683/714	
4.0	13800	437	8990	2.8	X	KA	97R57	(E)DRN 80M4	370	684/714	
4.6	12300	382	8990	3.1	X	KAF	97R57	(E)DRN 80M4	425	683/714	
5.7	9930	305	8990	3.8	X						
6.8	8360	258	8990	4.5	X						
7.5	7520	232	8990	5.0	X						
8.8	6400	199	8990	5.9	X						
2.4	23300	726	6150	1.00	X						
2.7	20600	638	6230	1.15	X						
3.1	18000	562	6290	1.30	X						
3.7	15200	474	6360	1.55	X						
4.1	13700	426	6390	1.75	X	K	87R57	(E)DRN 80M4	280	675/714	
4.7	12000	373	6420	2.0	X	KF	87R57	(E)DRN 80M4	300	676/714	
5.3	10400	330	6440	2.3	X	KA	87R57	(E)DRN 80M4	250	677/714	
6.0	9370	294	6460	2.5	X	KAF	87R57	(E)DRN 80M4	280	676/714	
7.0	8140	250	6480	2.9	X						
7.4	7660	236	6480	3.1	X						
8.7	6490	201	6500	3.7	X						
4.8	11900	367	3730	1.15	X						
5.3	10600	328	3910	1.30	X						
6.0	9480	290	4050	1.45	X	K	77R37	(E)DRN 80M4	170	668/714	
7.0	8180	252	4180	1.70	X	KF	77R37	(E)DRN 80M4	190	669/714	
7.9	7180	221	4260	1.90	X	KA	77R37	(E)DRN 80M4	155	670/714	
9.0	6330	195	4320	2.2	X	KAF	77R37	(E)DRN 80M4	170	669/714	
10	5630	175	4360	2.4	X						
11	4960	154	4400	2.8	X						
8.1	7080	217	2350	1.00	X	K	67R37	(E)DRN 80M4	120	661/714	
9.1	6210	191	2530	1.15	X	KF	67R37	(E)DRN 80M4	130	662/714	
11	5360	166	2670	1.35	X	KA	67R37	(E)DRN 80M4	110	663/714	
12	4720	144	2750	1.55	X	KAF	67R37	(E)DRN 80M4	125	662/714	
14	4000	122	2830	1.80	X						
12	4730	145	1830	1.10	X	K	57R37	(E)DRN 80M4	105	654/714	
14	4250	129	1910	1.25	X	KF	57R37	(E)DRN 80M4	115	655/714	
16	3620	111	1990	1.45	X	KA	57R37	(E)DRN 80M4	100	656/714	
18	3180	97	2030	1.65	X	KAF	57R37	(E)DRN 80M4	115	655/714	
14	3940	125	2020	1.10	X	K	49R37	(E)DRN 80M4	115	650/714	
18	3090	99	2020	1.45	X	KF	49R37	(E)DRN 80M4	115	651/714	
						KA	49R37	(E)DRN 80M4	105	652/714	
						KAF	49R37	(E)DRN 80M4	120	651/714	
18	3260	99	1420	1.10	X	K	47R37	(E)DRN 80M4	92	643/714	
19	3090	94	1480	1.15	X	KF	47R37	(E)DRN 80M4	99	644/714	
						KA	47R37	(E)DRN 80M4	90	645/714	
						KAF	47R37	(E)DRN 80M4	96	644/714	
23	2370	75	1690	1.10	X	K	39R17	(E)DRN 80M4	71	639/714	
						KF	39R17	(E)DRN 80M4	74	640/714	
						KA	39R17	(E)DRN 80M4	69	641/714	
						KAF	39R17	(E)DRN 80M4	72	640/714	
6.7	9420	174.19	6460	2.5		K	87	DRN 90S6	240	675	
7.1	8880	164.34*	6470	2.7		KF	87	DRN 90S6	260	676	
7.9	7960	147.32*	6480	3.0		KA	87	DRN 90S6	215	677	
9.2	6860	126.91*	6490	3.5		KAF	87	DRN 90S6	245	676	

P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
8.9	7100	197.37	6490	3.4	X	K	87	(E)DRN	80M4	230	675
10	6260	174.19	6500	3.8	X	KF	87	(E)DRN	80M4	250	676
11	5910	164.34*	6500	4.0	X	KA	87	(E)DRN	80M4	205	677
12	5300	147.32*	6510	4.5	X	KAF	87	(E)DRN	80M4	230	676
8.6	7310	135.28	4250	1.85		K	77	DRN	90S6	160	668
9.1	6950	128.52	4280	1.95		KF	77	DRN	90S6	180	669
10	6140	113.56	4330	2.2		KA	77	DRN	90S6	145	670
12	5240	97.05	4380	2.6		KAF	77	DRN	90S6	165	669
13	4810	88.97	4410	2.9							
11	5540	154.02	4370	2.5	X	K	77	(E)DRN	80M4	150	668
13	4860	135.28	4400	2.8	X	KF	77	(E)DRN	80M4	170	669
14	4620	128.52	4420	3.0	X	KA	77	(E)DRN	80M4	135	670
15	4080	113.56	4440	3.4	X	KAF	77	(E)DRN	80M4	150	669
18	3490	97.05	4460	3.9	X						
11	5840	108.03	2590	1.25							
11	5550	102.62	2640	1.30							
13	4860	90.04	2730	1.50		K	67	DRN	90S6	110	661
15	4130	76.37	2820	1.75		KF	67	DRN	90S6	120	662
17	3720	68.95	2860	1.95		KA	67	DRN	90S6	100	663
19	3280	60.66	2900	2.2		KAF	67	DRN	90S6	115	662
20	3090	57.28	2920	2.3							
24	2630	48.77	2920	2.8							
26	2390	44.32	2920	3.0							
14	4440	123.54	2790	1.65	X						
16	3880	108.03	2850	1.85	X						
17	3690	102.62	2860	1.95	X	K	67	(E)DRN	80M4	94	661
19	3230	90.04	2900	2.2	X	KF	67	(E)DRN	80M4	105	662
23	2740	76.37	2920	2.6	X	KA	67	(E)DRN	80M4	88	663
25	2480	68.95	2920	2.9	X	KAF	67	(E)DRN	80M4	100	662
29	2180	60.66	2920	3.3	X						
31	2060	57.28	2920	3.5	X						
13	4880	90.26*	1800	1.10							
15	4140	76.56*	1930	1.30							
17	3730	69.12	1970	1.40		K	57	DRN	90S6	95	654
19	3280	60.81*	2020	1.60		KF	57	DRN	90S6	105	655
20	3100	57.42*	2040	1.70		KA	57	DRN	90S6	90	656
24	2640	48.89	2090	2.0		KAF	57	DRN	90S6	105	655
26	2400	44.43	2110	2.2							
30	2080	38.49	2140	2.5							
33	1930	35.70	2150	2.8							
14	4450	123.85	1890	1.20	X						
16	3890	108.29	1960	1.35	X						
17	3700	102.88*	1980	1.45	X						
19	3240	90.26*	2030	1.65	X	K	57	(E)DRN	80M4	81	654
23	2750	76.56*	2080	1.95	X	KF	57	(E)DRN	80M4	91	655
25	2480	69.12	2100	2.1	X	KA	57	(E)DRN	80M4	76	656
29	2180	60.81*	2130	2.4	X	KAF	57	(E)DRN	80M4	89	655
30	2060	57.42*	2140	2.6	X						
36	1750	48.89	2170	3.0	X						
39	1590	44.43	2180	3.3	X						
29	2160	60.27	2020	2.0	X						
33	1900	52.94	2020	2.3	X						
35	1800	50.29	2020	2.4	X	K	49	(E)DRN	80M4	95	650
39	1590	44.44	2020	2.8	X	KF	49	(E)DRN	80M4	99	651
46	1360	37.98	2020	3.2	X	KA	49	(E)DRN	80M4	89	652
50	1250	34.81	1980	3.5	X	KAF	49	(E)DRN	80M4	100	651
57	1090	30.55	1920	4.0	X						
60	1040	28.95	1890	4.2	X						

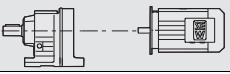

P_m = 1.0 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
18	3420	63.30*	1370	1.05							
20	3070	56.83	1480	1.15							
24	2640	48.95*	1590	1.35							
25	2480	46.03*	1620	1.40							
29	2140	39.61	1690	1.65	K	47	DRN	90S6	82	643	
33	1910	35.39	1730	1.85	KF	47	DRN	90S6	89	644	
37	1690	31.30	1760	2.1	KA	47	DRN	90S6	80	645	
40	1580	29.32	1740	2.2	KAF	47	DRN	90S6	86	644	
45	1400	25.91	1690	2.5							
48	1300	24.06	1660	2.7							
53	1170	21.81	1620	3.0							
19	3260	90.86	1420	1.10	X						
21	3060	85.12*	1480	1.15	X						
23	2700	75.20*	1570	1.30	X						
25	2510	69.84	1620	1.40	X						
28	2270	63.30*	1660	1.55	X	K	47	(E)DRN	80M4	68	643
31	2040	56.83	1700	1.75	X	KF	47	(E)DRN	80M4	75	644
36	1760	48.95*	1750	2.0	X	KA	47	(E)DRN	80M4	66	645
38	1650	46.03*	1750	2.1	X	KAF	47	(E)DRN	80M4	72	644
44	1420	39.61	1700	2.5	X						
49	1270	35.39	1650	2.8	X						
56	1120	31.30	1610	3.1	X						
35	1780	49.69	1690	1.50	X						
40	1560	43.45	1660	1.70	X						
42	1480	41.28	1640	1.80	X						
48	1300	36.22	1600	2.0	X	K	39	(E)DRN	80M4	65	639
57	1100	30.72	1540	2.4	X	KF	39	(E)DRN	80M4	69	640
63	990	27.73	1500	2.7	X	KA	39	(E)DRN	80M4	63	641
72	870	24.40	1460	3.0	X	KAF	39	(E)DRN	80M4	67	640
76	820	23.04	1440	3.2	X						
89	705	19.62	1380	3.7	X						
98	640	17.83	1350	4.0	X						
113	555	15.44	1290	4.5	X						
39	1620	29.96	930	1.10	X						
47	1350	24.99	920	1.30	X						
50	1260	23.36	910	1.35	X						
58	1090	20.19	890	1.50	X	K	37	DRN	90S6	67	632
68	920	17.15	870	1.70	X	KF	37	DRN	90S6	72	633
76	820	15.31	850	1.85	X	KA	37	DRN	90S6	66	634
89	705	13.08	830	2.1	X	KAF	37	DRN	90S6	70	633
96	655	12.14	820	2.2	X						
111	565	10.49	790	2.5	X						
131	480	8.91	760	2.9	X						
39	1590	44.46	930	1.10	X						
46	1360	37.97	920	1.30	X						
49	1270	35.57	910	1.40	X						
58	1070	29.96	890	1.65	X						
61	1030	28.83	890	1.70	X						
70	890	24.99	870	1.95	X						
75	840	23.36	860	2.0	X	K	37	(E)DRN	80M4	54	632
87	725	20.19	830	2.2	X	KF	37	(E)DRN	80M4	59	633
102	615	17.15	800	2.6	X	KA	37	(E)DRN	80M4	53	634
114	550	15.31	785	2.8	X	KAF	37	(E)DRN	80M4	57	633
134	470	13.08	755	3.1	X						
144	435	12.14	745	3.2	X						
167	375	10.49	715	3.8	X						
196	320	8.91	685	4.4	X						
220	285	7.96	665	4.8	X						



P_m = 1.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
70	890	24.91	830	1.10	X						
76	830	23.19	840	1.40	X						
79	790	22.08	810	1.15	X						
88	715	19.99	820	1.60	X						
108	585	16.29	785	1.95	X	K	29	(E)DRN	80M4	41	625
130	480	13.47	750	2.4	X	KF	29	(E)DRN	80M4	44	629
147	425	11.94	730	2.7	X	KA	29	(E)DRN	80M4	40	631
177	355	9.90	720	2.7	X	KAF	29	(E)DRN	80M4	42	629
191	330	9.17	685	3.5	X						
205	305	8.53	690	3.5	X						
234	265	7.48	645	4.0	X						
252	250	6.95	650	4.0	X						
258	240	13.47	630	4.7							
291	215	11.94	610	5.3							
351	179	9.90	590	5.4		K	29	DRN	80MS2	41	625
379	166	9.17	565	6.9		KF	29	DRN	80MS2	44	629
407	155	8.53	560	7.0		KA	29	DRN	80MS2	40	631
465	136	7.48	530	8.0		KAF	29	DRN	80MS2	42	629
500	126	6.95	530	7.9							
604	104	5.75	500	9.5							
94	665	18.55	715	1.05	X						
111	570	15.84	695	1.25	X						
119	525	14.69	685	1.35	X						
138	455	12.70	665	1.55	X						
148	425	11.84	655	1.65	X	K	19	(E)DRN	80M4	37	619
170	370	10.32	635	1.80	X	KF	19	(E)DRN	80M4	38	622
216	290	8.09	615	2.4	X	KA	19	(E)DRN	80M4	36	624
253	245	6.91	590	2.9	X	KAF	19	(E)DRN	80M4	37	622
273	230	6.41	575	3.1	X						
316	199	5.54	555	3.5	X						
339	186	5.16	540	3.8	X						
389	162	4.50	520	4.4	X						
363	174	9.58	530	3.2							
430	147	8.09	505	4.8		K	19	DRN	80MS2	37	619
503	125	6.91	480	5.7		KF	19	DRN	80MS2	38	622
543	116	6.41	470	6.1		KA	19	DRN	80MS2	36	624
627	100	5.54	450	7.0		KAF	19	DRN	80MS2	37	622
673	94	5.16	440	7.6							
772	82	4.50	425	8.7							

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P_m = 1.5 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.19	412100	9363	42700	1.05	X						
0.22	350400	8126	42700	1.25	X						
0.24	338800	7343	42700	1.30	X						
0.26	309000	6747	42700	1.45	X						
0.29	271000	5991	42700	1.65	X	K	187R97	(E)DRN	90S4	3920	712/715
0.33	239100	5358	42700	1.85	X	KH	187R97	(E)DRN	90S4	3770	713/715
0.37	212000	4817	42700	2.1	X						
0.40	192300	4370	42700	2.3	X						
0.49	170300	3609	42700	2.6	X	K	187R97	(E)DRN	90S4	3910	712/715
						KH	187R97	(E)DRN	90S4	3760	713/715
0.33	242200	5355	33700	1.15	X						
0.37	213700	4788	33700	1.30	X						
0.43	186800	4079	33700	1.50	X	K	167R97	(E)DRN	90S4	2630	710/715
0.52	155700	3376	33700	1.80	X	KH	167R97	(E)DRN	90S4	2550	711/715
0.64	124600	2755	33700	2.3	X						
0.81	102900	2182	33700	2.8	X						
1.0	78900	1704	33700	3.6	X	K	167R97	(E)DRN	90S4	2630	710/715
1.2	65700	1408	33700	4.3	X	KH	167R97	(E)DRN	90S4	2540	711/715
1.4	60000	1296	33700	4.7	X						



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P_m = 1.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
0.50	156900	3516	25200	1.00	X	K	157R97	(E)DRN	90S4	1760	703/715
0.58	140800	3051	25400	1.15	X	KF	157R97	(E)DRN	90S4	1940	704/715
0.68	114800	2610	25700	1.40	X	KA	157R97	(E)DRN	90S4	1680	705/715
0.76	102200	2322	25800	1.55	X	KAF	157R97	(E)DRN	90S4	1810	704/715
1.1	77400	1659	26000	2.1	X						
1.3	62500	1365	26100	2.5	X	K	157R97	(E)DRN	90S4	1760	703/715
1.4	55500	1229	26100	2.9	X	KF	157R97	(E)DRN	90S4	1930	704/715
1.6	49400	1093	26100	3.2	X	KA	157R97	(E)DRN	90S4	1680	705/715
1.9	42500	942	26100	3.7	X	KAF	157R97	(E)DRN	90S4	1810	704/715
2.1	38000	854	26200	4.2	X						
0.78	105900	2268	17900	1.10	X	K	127R77	(E)DRN	90S4	1070	696/714
						KF	127R77	(E)DRN	90S4	1160	697/714
						KA	127R77	(E)DRN	90S4	1000	698/714
						KAF	127R77	(E)DRN	90S4	1090	697/714
0.91	93400	1926	18100	1.25	X						
1.0	85200	1757	18200	1.35	X						
1.1	74400	1541	18300	1.55	X						
1.3	65000	1342	18400	1.75	X						
1.5	56800	1177	18400	2.0	X	K	127R77	(E)DRN	90S4	1060	696/714
1.7	49700	1025	18500	2.3	X	KF	127R77	(E)DRN	90S4	1160	697/714
2.0	43400	899	18500	2.6	X	KA	127R77	(E)DRN	90S4	1000	698/714
2.2	37100	790	18500	3.1	X	KAF	127R77	(E)DRN	90S4	1080	697/714
2.5	33800	704	18500	3.4	X						
2.9	29000	610	18600	4.0	X						
3.2	26200	549	18600	4.4	X						
3.7	22400	477	18600	5.1	X						
1.3	65000	1336	14600	1.10	X						
1.5	56700	1166	14600	1.25	X						
1.7	49200	1030	14600	1.45	X						
1.9	42900	904	14600	1.65	X						
2.2	38400	793	14600	1.85	X	K	107R77	(E)DRN	90S4	710	689/714
2.5	33600	696	14600	2.1	X	KF	107R77	(E)DRN	90S4	740	690/714
2.9	29200	615	14600	2.4	X	KA	107R77	(E)DRN	90S4	650	691/714
3.4	24800	522	14600	2.9	X	KAF	107R77	(E)DRN	90S4	700	690/714
3.8	21700	461	14600	3.2	X						
4.3	19100	408	14600	3.7	X						
4.8	17400	364	14600	4.1	X						
5.5	15200	318	14600	4.6	X						
2.4	35900	743	8990	1.05	X						
2.7	31600	652	8990	1.20	X						
3.1	28300	573	8990	1.35	X	K	97R57	(E)DRN	90S4	425	682/714
3.5	24300	504	8990	1.55	X	KF	97R57	(E)DRN	90S4	470	683/714
4.0	21000	437	8990	1.80	X	KA	97R57	(E)DRN	90S4	385	684/714
4.6	18600	382	8990	2.0	X	KAF	97R57	(E)DRN	90S4	440	683/714
5.2	16300	342	8990	2.3	X						
5.8	15000	305	8990	2.5	X						
3.7	23000	474	6160	1.05	X						
4.1	20700	426	6230	1.15	X						
4.7	18200	373	6290	1.30	X						
5.3	15900	330	6340	1.50	X	K	87R57	(E)DRN	90S4	290	675/714
6.0	14200	294	6380	1.70	X	KF	87R57	(E)DRN	90S4	310	676/714
7.0	12300	250	6420	1.95	X	KA	87R57	(E)DRN	90S4	265	677/714
7.5	11600	236	6430	2.1	X	KAF	87R57	(E)DRN	90S4	295	676/714
8.8	9840	201	6450	2.4	X						
9.6	8920	183	6470	2.7	X						
7.0	12300	252	3680	1.10	X	K	77R37	(E)DRN	90S4	185	668/714
8.0	10800	221	3890	1.25	X	KF	77R37	(E)DRN	90S4	200	669/714
9.0	9550	195	4040	1.45	X	KA	77R37	(E)DRN	90S4	170	670/714
10	8500	175	4150	1.60	X	KAF	77R37	(E)DRN	90S4	185	669/714
11	7500	154	4230	1.85	X						
12	7120	144	2350	1.00	X	K	67R37	(E)DRN	90S4	130	661/714
14	6030	122	2560	1.20	X	KF	67R37	(E)DRN	90S4	145	662/714
						KA	67R37	(E)DRN	90S4	125	663/714
						KAF	67R37	(E)DRN	90S4	135	662/714

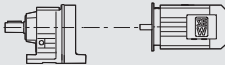

P_m = 1.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
7.7	12200	153.21*	8990	3.1		K	97	DRN	112M6	425	682
8.4	11200	140.28	8990	3.4		KF	97	DRN	112M6	470	683
9.6	9900	123.93*	8990	3.8		KA	97	DRN	112M6	385	684
						KAF	97	DRN	112M6	440	683
10	9440	176.05*	8990	4.0	X	K	97	(E)DRN	90S4	370	682
12	8210	153.21*	8990	4.6	X	KF	97	(E)DRN	90S4	415	683
13	7520	140.28	8990	5.1	X	KA	97	(E)DRN	90S4	330	684
						KAF	97	(E)DRN	90S4	385	683
9.3	10100	126.91*	6450	2.4		K	87	DRN	112M6	295	675
						KF	87	DRN	112M6	315	676
						KA	87	DRN	112M6	265	677
						KAF	87	DRN	112M6	295	676
8.9	10500	197.37	6440	2.3	X						
10	9340	174.19	6460	2.6	X						
11	8810	164.34*	6470	2.7	X	K	87	(E)DRN	90S4	240	675
12	7900	147.32*	6480	3.0	X	KF	87	(E)DRN	90S4	260	676
14	6800	126.91*	6490	3.5	X	KA	87	(E)DRN	90S4	215	677
15	6210	115.82	6500	3.9	X	KAF	87	(E)DRN	90S4	245	676
12	7750	97.05	4210	1.75		K	77	DRN	112M6	215	668
						KF	77	DRN	112M6	230	669
						KA	77	DRN	112M6	200	670
						KAF	77	DRN	112M6	215	669
11	8260	154.02	4170	1.65	X						
13	7250	135.28	4250	1.90	X						
14	6890	128.52	4280	2.0	X	K	77	(E)DRN	90S4	160	668
16	6090	113.56	4340	2.2	X	KF	77	(E)DRN	90S4	180	669
18	5200	97.05	4390	2.6	X	KA	77	(E)DRN	90S4	145	670
20	4770	88.97	4410	2.9	X	KAF	77	(E)DRN	90S4	165	669
23	4180	78.07	4440	3.3	X						
24	3960	73.99	4450	3.5	X						
14	6620	123.54	2450	1.10	X						
16	5790	108.03	2600	1.25	X						
17	5500	102.62	2640	1.30	X						
20	4820	90.04	2740	1.50	X						
23	4090	76.37	2820	1.75	X	K	67	(E)DRN	90S4	110	661
26	3690	68.95	2860	1.95	X	KF	67	(E)DRN	90S4	120	662
29	3250	60.66	2900	2.2	X	KA	67	(E)DRN	90S4	100	663
31	3070	57.28	2920	2.4	X	KAF	67	(E)DRN	90S4	115	662
36	2610	48.77	2920	2.8	X						
40	2370	44.32	2920	3.0	X						
46	2050	38.39	2920	3.4	X						
20	4840	90.26*	1810	1.10	X						
23	4100	76.56*	1930	1.30	X						
25	3700	69.12	1980	1.45	X						
29	3260	60.81*	2030	1.65	X						
31	3070	57.42*	2040	1.70	X						
36	2620	48.89	2090	2.0	X						
40	2380	44.43	2110	2.2	X						
46	2060	38.49	2140	2.6	X						
49	1910	35.70	2150	2.8	X						
58	1620	30.28	2070	3.3	X						
64	1460	27.34	2020	3.6	X						
73	1290	24.05	1950	4.1	X	K	57	(E)DRN	90S4	95	654
78	1210	22.71	1920	4.4	X	KF	57	(E)DRN	90S4	105	655
91	1030	19.34	1840	4.9	X	KA	57	(E)DRN	90S4	90	656
100	940	17.57	1790	5.2	X	KAF	57	(E)DRN	90S4	105	655
116	810	15.22	1720	5.8	X						
133	710	13.25	1660	6.3	X						
148	635	11.92	1590	5.7	X						
157	600	11.26	1570	6.1	X						
184	510	9.59	1500	7.0	X						
202	465	8.71	1460	7.4	X						
234	400	7.55	1390	8.0	X						
268	350	6.57	1340	8.7	X						
376	250	4.69	1210	11	X						

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P_m = 1.5 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
29	3230	60.27	2020	1.35	X					
33	2830	52.94	2020	1.55	X					
35	2690	50.29	2000	1.65	X					
40	2380	44.44	1960	1.85	X					
46	2030	37.98	1900	2.2	X	K	49	(E)DRN 90S4	105	650
51	1860	34.81	1860	2.4	X	KF	49	(E)DRN 90S4	110	651
58	1630	30.55	1810	2.7	X	KA	49	(E)DRN 90S4	100	652
61	1550	28.95	1790	2.9	X	KAF	49	(E)DRN 90S4	110	651
70	1350	25.34	1740	3.3	X					
77	1220	22.83	1690	3.6	X					
88	1070	20.03	1640	4.1	X					
28	3390	63.30*	1380	1.05	X					
31	3040	56.83	1490	1.15	X					
36	2620	48.95*	1590	1.35	X					
38	2460	46.03*	1590	1.45	X					
44	2120	39.61	1560	1.65	X	K	47	(E)DRN 90S4	82	643
50	1890	35.39	1530	1.85	X	KF	47	(E)DRN 90S4	89	644
56	1670	31.30	1500	2.1	X	KA	47	(E)DRN 90S4	80	645
60	1570	29.32	1480	2.2	X	KAF	47	(E)DRN 90S4	86	644
68	1380	25.91	1440	2.5	X					
73	1290	24.06	1420	2.7	X					
81	1160	21.81	1390	3.0	X					
90	1050	19.58	1350	3.4	X					
35	2660	49.69	1500	1.00	X					
41	2330	43.45	1490	1.15	X					
43	2210	41.28	1480	1.20	X					
49	1940	36.22	1450	1.35	X					
57	1640	30.72	1420	1.60	X					
64	1480	27.73	1390	1.80	X	K	39	(E)DRN 90S4	79	639
72	1300	24.40	1360	2.0	X	KF	39	(E)DRN 90S4	83	640
76	1230	23.04	1340	2.1	X	KA	39	(E)DRN 90S4	77	641
90	1050	19.62	1300	2.5	X	KAF	39	(E)DRN 90S4	81	640
99	950	17.83	1270	2.7	X					
114	820	15.44	1230	3.0	X					
131	720	13.44	1190	3.3	X					
138	680	12.73	1230	3.2	X					
146	645	12.09	1210	3.5	X					
166	565	10.61	1160	4.4	X					
59	1600	29.96	765	1.10	X					
61	1540	28.83	765	1.15	X					
71	1340	24.99	760	1.30	X					
75	1250	23.36	760	1.40	X					
87	1080	20.19	745	1.50	X					
103	920	17.15	730	1.75	X					
115	820	15.31	720	1.90	X	K	37	(E)DRN 90S4	67	632
135	700	13.08	700	2.1	X	KF	37	(E)DRN 90S4	72	633
145	650	12.14	690	2.2	X	KA	37	(E)DRN 90S4	66	634
168	560	10.49	675	2.5	X	KAF	37	(E)DRN 90S4	70	633
198	475	8.91	650	3.0	X					
221	425	7.96	635	3.2	X					
259	360	6.80	610	3.6	X					
277	340	6.37	600	3.8	X					
329	285	5.36	575	4.3	X					
443	210	3.98	530	5.2	X					
88	1070	19.99	735	1.05	X					
108	870	16.29	715	1.30	X					
131	720	13.47	695	1.60	X					
148	640	11.94	680	1.80	X	K	29	(E)DRN 90S4	54	625
178	530	9.90	685	1.85	X	KF	29	(E)DRN 90S4	57	629
192	490	9.17	645	2.3	X	KA	29	(E)DRN 90S4	53	631
206	455	8.53	660	2.4	X	KAF	29	(E)DRN 90S4	55	629
236	400	7.48	615	2.7	X					
253	370	6.95	625	2.7	X					
306	305	5.75	595	3.2	X					
346	270	5.10	575	3.6	X					

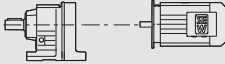

P_m = 1.5 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			lbs			
352	265	9.90	575	3.6							
380	245	9.17	545	4.6							
408	230	8.53	550	4.7		K	29	DRN	80M2	41	625
466	200	7.48	515	5.4		KF	29	DRN	80M2	44	629
501	189	6.95	520	5.3		KA	29	DRN	80M2	40	631
606	156	5.75	490	6.3		KAF	29	DRN	80M2	42	629
684	138	5.10	470	7.0							
139	680	12.70	600	1.05	X						
149	635	11.84	595	1.10	X						
171	550	10.32	585	1.20	X						
218	430	8.09	585	1.65	X	K	19	(E)DRN	90S4	50	619
255	370	6.91	560	1.90	X	KF	19	(E)DRN	90S4	51	622
275	340	6.41	550	2.1	X	KA	19	(E)DRN	90S4	49	624
318	295	5.54	530	2.4	X	KAF	19	(E)DRN	90S4	50	622
341	275	5.16	520	2.6	X						
392	240	4.50	505	2.9	X						
431	215	8.09	490	3.2		K	19	DRN	80M2	37	619
504	187	6.91	470	3.8		KF	19	DRN	80M2	38	622
544	174	6.41	460	4.1		KA	19	DRN	80M2	36	624
629	150	5.54	440	4.7		KAF	19	DRN	80M2	37	622
675	140	5.16	430	5.1							
774	122	4.50	415	5.8							

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P_m = 2.0 HP								m			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			lbs			
0.26	419000	6747	42700	1.05	X						
0.29	368700	5991	42700	1.20	X						
0.33	326400	5358	42700	1.35	X	K	187R97	(E)DRN	90L4	3920	712/715
0.37	290500	4817	42700	1.50	X	KH	187R97	(E)DRN	90L4	3780	713/715
0.40	263600	4370	42700	1.70	X						
0.49	229800	3609	42700	1.90	X						
0.58	193400	3062	42700	2.3	X	K	187R97	(E)DRN	90L4	3920	712/715
0.70	156900	2519	42700	2.8	X	KH	187R97	(E)DRN	90L4	3770	713/715
0.78	139800	2268	42700	3.2	X						
0.43	253300	4079	33700	1.10	X	K	167R97	(E)DRN	90L4	2640	710/715
0.52	210800	3376	33700	1.35	X	KH	167R97	(E)DRN	90L4	2560	711/715
0.64	169500	2755	33700	1.65	X						
0.81	138900	2182	33700	2.0	X	K	167R97	(E)DRN	90L4	2630	710/715
1.0	107100	1704	33700	2.6	X	KH	167R97	(E)DRN	90L4	2550	711/715
1.3	88900	1408	33700	3.2	X						
1.4	81400	1296	33700	3.5	X						
0.76	140000	2322	25400	1.15	X	K	157R97	(E)DRN	90L4	1770	703/715
						KF	157R97	(E)DRN	90L4	1940	704/715
						KA	157R97	(E)DRN	90L4	1690	705/715
						KAF	157R97	(E)DRN	90L4	1820	704/715
1.1	104800	1659	25800	1.50	X						
1.3	85000	1365	25900	1.85	X						
1.4	75800	1229	26000	2.1	X	K	157R97	(E)DRN	90L4	1760	703/715
1.6	67400	1093	26000	2.4	X	KF	157R97	(E)DRN	90L4	1940	704/715
1.9	58100	942	26100	2.7	X	KA	157R97	(E)DRN	90L4	1680	705/715
2.1	52100	854	26100	3.1	X	KAF	157R97	(E)DRN	90L4	1810	704/715
3.1	34000	567	26200	4.7	X						
3.5	30300	504	26200	5.2	X						
3.3	33200	536	18500	3.5	X	K	127R87	(E)DRN	90L4	1120	696/714
4.2	26100	418	18600	4.4	X	KF	127R87	(E)DRN	90L4	1210	697/714
4.8	23100	367	18600	5.0	X	KA	127R87	(E)DRN	90L4	1050	698/714
						KAF	127R87	(E)DRN	90L4	1140	697/714

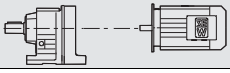

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P_m = 2.0 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				lbs		
1.0	114200	1757	17800	1.00	X						
1.1	99900	1541	18000	1.15	X						
1.3	87200	1342	18100	1.30	X						
1.5	76300	1177	18300	1.50	X						
1.7	66600	1025	18300	1.75	X	K	127R77	(E)DRN 90L4	1070	696/714	
2.0	58200	899	18400	1.95	X	KF	127R77	(E)DRN 90L4	1160	697/714	
2.2	50200	790	18500	2.3	X	KA	127R77	(E)DRN 90L4	1010	698/714	
2.5	45400	704	18500	2.5	X	KAF	127R77	(E)DRN 90L4	1090	697/714	
2.9	39100	610	18500	2.9	X						
3.2	35300	549	18500	3.3	X						
3.7	30300	477	18600	3.8	X						
4.2	26900	418	18600	4.3	X						
1.7	66200	1030	14600	1.05	X						
2.0	57800	904	14600	1.20	X						
2.2	51500	793	14600	1.35	X						
2.5	45000	696	14600	1.55	X	K	107R77	(E)DRN 90L4	720	689/714	
2.9	39400	615	14600	1.80	X	KF	107R77	(E)DRN 90L4	740	690/714	
3.4	33400	522	14600	2.1	X	KA	107R77	(E)DRN 90L4	660	691/714	
3.8	29300	461	14600	2.4	X	KAF	107R77	(E)DRN 90L4	710	690/714	
4.3	25900	408	14600	2.7	X						
4.9	23400	364	14600	3.0	X						
5.6	20500	318	14600	3.5	X						
3.1	37900	573	8990	1.00	X						
3.5	32600	504	8990	1.15	X						
4.0	28200	437	8990	1.35	X	K	97R57	(E)DRN 90L4	435	682/714	
4.6	24900	382	8990	1.55	X	KF	97R57	(E)DRN 90L4	475	683/714	
5.2	22000	342	8990	1.75	X	KA	97R57	(E)DRN 90L4	395	684/714	
5.8	20100	305	8990	1.90	X	KAF	97R57	(E)DRN 90L4	445	683/714	
6.9	16900	258	8990	2.2	X						
7.6	15200	232	8990	2.5	X						
8.9	13000	199	8990	2.9	X						
5.4	21300	330	6210	1.10	X						
6.0	19100	294	6270	1.25	X						
7.1	16400	250	6330	1.45	X	K	87R57	(E)DRN 90L4	300	675/714	
7.5	15500	236	6350	1.55	X	KF	87R57	(E)DRN 90L4	320	676/714	
8.8	13100	201	6400	1.80	X	KA	87R57	(E)DRN 90L4	270	677/714	
9.7	11900	183	6420	2.0	X	KAF	87R57	(E)DRN 90L4	300	676/714	
11	10300	159	6450	2.3	X						
13	9170	141	6460	2.5	X						
9.1	12700	195	3620	1.05	X	K	77R37	(E)DRN 90L4	190	668/714	
10	11300	175	3820	1.20	X	KF	77R37	(E)DRN 90L4	210	669/714	
11	10000	154	3990	1.35	X	KA	77R37	(E)DRN 90L4	175	670/714	
						KAF	77R37	(E)DRN 90L4	190	669/714	
7.7	16300	153.21*	8990	2.3		K	97	DRN 112M6	425	682	
8.4	14900	140.28	8990	2.5		KF	97	DRN 112M6	470	683	
9.5	13200	123.93*	8990	2.9		KA	97	DRN 112M6	385	684	
						KAF	97	DRN 112M6	440	683	
10	12500	176.05*	8990	3.0	X	K	97	(E)DRN 90L4	380	682	
12	10900	153.21*	8990	3.5	X	KF	97	(E)DRN 90L4	425	683	
13	10000	140.28	8990	3.8	X	KA	97	(E)DRN 90L4	340	684	
14	8830	123.93*	8990	4.3	X	KAF	97	(E)DRN 90L4	395	683	
9.3	13500	126.91*	6390	1.75		K	87	DRN 112M6	295	675	
10	12300	115.82	6410	1.95		KF	87	DRN 112M6	315	676	
12	10900	102.71*	6440	2.2		KA	87	DRN 112M6	265	677	
						KAF	87	DRN 112M6	295	676	
10	12400	174.19	6410	1.90	X						
11	11700	164.34*	6420	2.0	X	K	87	(E)DRN 90L4	250	675	
12	10500	147.32*	6440	2.3	X	KF	87	(E)DRN 90L4	270	676	
14	9050	126.91*	6460	2.6	X	KA	87	(E)DRN 90L4	220	677	
15	8250	115.82	6480	2.9	X	KAF	87	(E)DRN 90L4	250	676	
17	7320	102.71*	6490	3.3	X						
20	6150	86.34	6500	3.9	X						
12	10300	97.05	3950	1.30		K	77	DRN 112M6	215	668	
13	9490	88.97	4050	1.45		KF	77	DRN 112M6	230	669	
15	8330	78.07	4160	1.65		KA	77	DRN 112M6	200	670	
						KAF	77	DRN 112M6	215	669	



P_m = 2.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				m lbs		
13	9640	135.28	4030	1.40	X						
14	9160	128.52	4080	1.50	X						
16	8090	113.56	4180	1.70	X						
18	6920	97.05	4280	2.0	X						
20	6340	88.97	4320	2.2	X	K	77	(E)DRN 90L4	170	668	
23	5560	78.07	4370	2.5	X	KF	77	(E)DRN 90L4	185	669	
24	5270	73.99	4380	2.6	X	KA	77	(E)DRN 90L4	150	670	
27	4610	64.75	4420	3.0	X	KAF	77	(E)DRN 90L4	170	669	
30	4160	58.34	4440	3.3	X						
35	3640	51.18	4460	3.8	X						
39	3220	45.16	4470	4.3	X						
44	2850	40.04	4480	4.8	X						
20	6420	90.04	2490	1.15	X						
23	5440	76.37	2650	1.35	X						
26	4910	68.95	2730	1.50	X						
29	4320	60.66	2800	1.70	X						
31	4080	57.28	2830	1.80	X	K	67	(E)DRN 90L4	115	661	
36	3470	48.77	2880	2.1	X	KF	67	(E)DRN 90L4	125	662	
40	3160	44.32	2910	2.3	X	KA	67	(E)DRN 90L4	110	663	
46	2730	38.39	2920	2.6	X	KAF	67	(E)DRN 90L4	120	662	
50	2530	35.62	2920	2.9	X						
58	2150	30.22	2920	3.4	X						
65	1940	27.28	2920	3.7	X						
74	1710	24.00	2920	4.1	X						
26	4920	69.12	1790	1.10	X						
29	4330	60.81*	1900	1.20	X						
31	4090	57.42*	1930	1.30	X						
36	3480	48.89	2000	1.50	X						
40	3160	44.43	2040	1.70	X	K	57	(E)DRN 90L4	100	654	
46	2740	38.49	2070	1.95	X	KF	57	(E)DRN 90L4	110	655	
49	2540	35.70	2040	2.1	X	KA	57	(E)DRN 90L4	97	656	
58	2150	30.28	1980	2.5	X	KAF	57	(E)DRN 90L4	110	655	
65	1940	27.34	1930	2.7	X						
73	1710	24.05	1880	3.1	X						
78	1610	22.71	1850	3.3	X						
91	1370	19.34	1780	3.7	X						
33	3770	52.94	1840	1.15	X						
35	3580	50.29	1840	1.25	X						
40	3160	44.44	1810	1.40	X						
47	2700	37.98	1770	1.65	X						
51	2480	34.81	1750	1.80	X						
58	2170	30.55	1710	2.0	X	K	49	(E)DRN 90L4	115	650	
61	2060	28.95	1700	2.1	X	KF	49	(E)DRN 90L4	115	651	
70	1800	25.34	1650	2.5	X	KA	49	(E)DRN 90L4	105	652	
77	1620	22.83	1620	2.7	X	KAF	49	(E)DRN 90L4	120	651	
88	1420	20.03	1570	3.1	X						
100	1260	17.67	1530	3.5	X						
113	1110	15.67	1480	3.9	X						
132	950	13.38	1430	4.4	X						
38	3280	46.03*	1420	1.10	X						
45	2820	39.61	1420	1.25	X						
50	2520	35.39	1410	1.40	X						
56	2230	31.30	1390	1.60	X						
60	2090	29.32	1380	1.70	X						
68	1840	25.91	1350	1.90	X	K	47	(E)DRN 90L4	89	643	
73	1710	24.06	1330	2.1	X	KF	47	(E)DRN 90L4	96	644	
81	1550	21.81	1310	2.3	X	KA	47	(E)DRN 90L4	87	645	
90	1390	19.58	1290	2.5	X	KAF	47	(E)DRN 90L4	93	644	
105	1200	16.86	1250	2.8	X						
111	1130	15.86	1230	3.0	X						
129	970	13.65	1190	3.3	X						
145	860	12.19	1160	3.6	X						
150	830	11.77	1140	3.0	X						

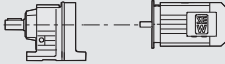

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P_m = 2.0 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
49	2580	36.22	1310	1.05	X					
58	2190	30.72	1300	1.20	X					
64	1970	27.73	1280	1.35	X					
72	1740	24.40	1260	1.55	X					
77	1640	23.04	1250	1.60	X					
90	1390	19.62	1220	1.85	X	K	39	(E)DRN 90L4	86	639
99	1270	17.83	1200	2.0	X	KF	39	(E)DRN 90L4	90	640
114	1100	15.44	1170	2.2	X	KA	39	(E)DRN 90L4	84	641
131	950	13.44	1140	2.5	X	KAF	39	(E)DRN 90L4	87	640
139	900	12.73	1190	2.4	X					
146	860	12.09	1180	2.6	X					
167	755	10.61	1140	3.3	X					
196	640	9.00	1090	4.1	X					
217	575	8.12	1060	4.6	X					
76	1660	23.36	660	1.05	X					
88	1430	20.19	665	1.15	X					
103	1220	17.15	660	1.30	X					
115	1090	15.31	655	1.40	X					
135	930	13.08	645	1.55	X	K	37	(E)DRN 90L4	74	632
146	860	12.14	640	1.65	X	KF	37	(E)DRN 90L4	79	633
168	745	10.49	630	1.90	X	KA	37	(E)DRN 90L4	73	634
198	635	8.91	615	2.2	X	KAF	37	(E)DRN 90L4	77	633
222	565	7.96	600	2.4	X					
260	480	6.80	580	2.7	X					
278	450	6.37	575	2.8	X					
329	380	5.36	555	3.2	X					
444	280	3.98	515	3.9	X					
108	1160	16.29	650	1.00						
131	960	13.47	640	1.20	X					
148	850	11.94	630	1.35	X					
193	650	9.17	605	1.75	X	K	29	(E)DRN 90L4	61	625
207	605	8.53	635	1.75	X	KF	29	(E)DRN 90L4	63	629
236	530	7.48	585	2.0	X	KA	29	(E)DRN 90L4	60	631
254	495	6.95	605	2.0	X	KAF	29	(E)DRN 90L4	62	629
307	410	5.75	580	2.4	X					
347	360	5.10	560	2.7	X					
451	275	3.92	520	4.0	X					
554	225	3.19	495	4.3	X					
382	325	9.17	525	3.5						
411	305	8.53	535	3.5		K	29	DRN 90S2	54	625
469	265	7.48	500	4.0		KF	29	DRN 90S2	57	629
504	245	6.95	505	4.0		KA	29	DRN 90S2	53	631
610	205	5.75	480	4.8		KAF	29	DRN 90S2	55	629
688	183	5.10	465	5.3						
895	141	3.92	430	7.9						
1100	115	3.19	405	8.5						
189	665	18.55	530	1.05						
221	565	15.84	520	1.25		K	19	DRN 90S2	50	619
239	525	14.69	515	1.35		KF	19	DRN 90S2	51	622
276	455	12.70	500	1.55		KA	19	DRN 90S2	49	624
296	425	11.84	495	1.65		KAF	19	DRN 90S2	50	622
340	370	10.32	480	1.80						
433	290	8.09	475	2.4						
507	245	6.91	455	2.9						
547	230	6.41	445	3.1						
633	199	5.54	430	3.5						
679	186	5.16	420	3.8						
779	162	4.50	405	4.4						

P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.40	408600	4370	42700	1.10	X	K	187R97	(E)DRN	100LM4	3950	712/715
0.63	254900	2818	42700	1.75	X	KH	187R97	(E)DRN	100LM4	3800	713/715
0.49	351000	3609	42700	1.25	X						
0.58	296300	3062	42700	1.50	X						
0.70	241500	2519	42700	1.85	X	K	187R97	(E)DRN	100LM4	3940	712/715
0.78	216000	2268	42700	2.0	X	KH	187R97	(E)DRN	100LM4	3790	713/715
0.86	194300	2054	42700	2.3	X						
0.97	170700	1821	42700	2.6	X						
1.1	151900	1605	42700	2.9	X						
0.64	260900	2755	33700	1.10	X	K	167R97	(E)DRN	100LM4	2670	710/715
0.78	207800	2263	33700	1.35	X	KH	167R97	(E)DRN	100LM4	2580	711/715
0.81	212200	2182	33700	1.35	X						
1.0	164300	1704	33700	1.70	X						
1.2	136200	1408	33700	2.1	X	K	167R97	(E)DRN	100LM4	2660	710/715
1.4	124900	1296	33700	2.3	X	KH	167R97	(E)DRN	100LM4	2570	711/715
1.6	103200	1101	33700	2.7	X						
1.9	89300	944	33700	3.2	X						
1.1	160500	1659	25200	1.00							
1.3	130800	1365	25500	1.20	X						
1.4	117000	1229	25700	1.35	X	K	157R97	(E)DRN	100LM4	1790	703/715
1.6	104100	1093	25800	1.55	X	KF	157R97	(E)DRN	100LM4	1960	704/715
1.9	89700	942	25900	1.75	X	KA	157R97	(E)DRN	100LM4	1710	705/715
2.1	80700	854	26000	1.95	X	KAF	157R97	(E)DRN	100LM4	1840	704/715
2.3	69200	756	26000	2.3	X						
3.1	53100	567	26100	3.0	X						
3.3	51100	536	18500	2.2	X	K	127R87	(E)DRN	100LM4	1140	696/714
3.7	44600	473	18500	2.6	X	KF	127R87	(E)DRN	100LM4	1230	697/714
4.2	40300	418	18500	2.9	X	KA	127R87	(E)DRN	100LM4	1080	698/714
4.8	35400	367	18500	3.2	X	KAF	127R87	(E)DRN	100LM4	1160	697/714
5.3	31700	330	18600	3.6	X						
1.7	101000	1025	18000	1.15	X						
2.0	88400	899	18100	1.30	X						
2.2	76700	790	18200	1.50	X	K	127R77	(E)DRN	100LM4	1100	696/714
2.5	69000	704	18300	1.65	X	KF	127R77	(E)DRN	100LM4	1190	697/714
2.9	59600	610	18400	1.95	X	KA	127R77	(E)DRN	100LM4	1030	698/714
3.2	53700	549	18400	2.1	X	KAF	127R77	(E)DRN	100LM4	1120	697/714
3.7	46300	477	18500	2.5	X						
4.2	40900	418	18500	2.8	X						
2.5	68400	696	14600	1.05	X						
2.9	60000	615	14600	1.20	X						
3.4	50900	522	14600	1.40	X						
3.8	44800	461	14600	1.60	X	K	107R77	(E)DRN	100LM4	740	689/714
4.3	39600	408	14600	1.80	X	KF	107R77	(E)DRN	100LM4	770	690/714
4.8	35600	364	14600	2.0	X	KA	107R77	(E)DRN	100LM4	680	691/714
5.5	31100	318	14600	2.3	X	KAF	107R77	(E)DRN	100LM4	730	690/714
6.2	28000	286	14600	2.5	X						
7.0	24500	251	14600	2.9	X						
4.6	37700	382	8990	1.00	X						
5.2	33500	342	8990	1.15	X	K	97R57	(E)DRN	100LM4	455	682/714
5.8	30400	305	8990	1.25	X	KF	97R57	(E)DRN	100LM4	500	683/714
6.8	25600	258	8990	1.50	X	KA	97R57	(E)DRN	100LM4	415	684/714
7.6	23100	232	8990	1.65	X	KAF	97R57	(E)DRN	100LM4	470	683/714
8.8	19800	199	8990	1.90	X						
7.5	23500	236	6140	1.00	X						
8.8	20000	201	6250	1.20	X	K	87R57	(E)DRN	100LM4	325	675/714
9.6	18100	183	6290	1.30	X	KF	87R57	(E)DRN	100LM4	345	676/714
11	15700	159	6350	1.50	X	KA	87R57	(E)DRN	100LM4	295	677/714
13	13900	141	6380	1.65	X	KAF	87R57	(E)DRN	100LM4	325	676/714
9.5	19800	123.93*	8990	1.90		K	97	DRN	132S6	450	682
11	16800	105.13	8990	2.3		KF	97	DRN	132S6	495	683
						KA	97	DRN	132S6	410	684
						KAF	97	DRN	132S6	465	683

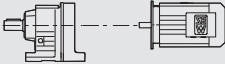

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P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
10	18800	176.05*	8990	2.0	X						
12	16400	153.21*	8990	2.3	X	K	97	(E)DRN	100LM4	405	682
13	15000	140.28	8990	2.5	X	KF	97	(E)DRN	100LM4	450	683
14	13200	123.93*	8990	2.9	X	KA	97	(E)DRN	100LM4	365	684
17	11200	105.13	8990	3.4	X	KAF	97	(E)DRN	100LM4	420	683
18	10300	96.80	8990	3.7	X						
12	15800	147.32*	6350	1.50	X						
14	13600	126.91*	6390	1.75	X						
15	12400	115.82	6410	1.90	X	K	87	(E)DRN	100LM4	275	675
17	11000	102.71*	6440	2.2	X	KF	87	(E)DRN	100LM4	295	676
20	9260	86.34	6460	2.6	X	KA	87	(E)DRN	100LM4	245	677
22	8510	79.34	6470	2.8	X	KAF	87	(E)DRN	100LM4	275	676
25	7550	70.46	6480	3.2	X						
28	6750	63.00*	6490	3.5	X						
16	12100	113.56	3710	1.15	X						
18	10400	97.05	3940	1.30	X						
20	9540	88.97	4040	1.45	X						
23	8370	78.07	4160	1.65	X						
24	7930	73.99	4200	1.75	X						
27	6940	64.75	4280	1.95	X	K	77	(E)DRN	100LM4	195	668
30	6250	58.34	4320	2.2	X	KF	77	(E)DRN	100LM4	210	669
34	5490	51.18	4370	2.5	X	KA	77	(E)DRN	100LM4	175	670
39	4840	45.16	4410	2.8	X	KAF	77	(E)DRN	100LM4	195	669
44	4290	40.04	4430	3.2	X						
50	3770	35.20	4450	3.6	X						
57	3310	30.89	4470	4.1	X						
60	3130	29.27	4480	4.4	X						
69	2740	25.62	4490	5.0	X						
29	6500	60.66	2470	1.10	X						
31	6140	57.28	2540	1.20	X						
36	5230	48.77	2680	1.40	X						
40	4750	44.32	2750	1.55	X						
46	4110	38.39	2820	1.70	X						
49	3820	35.62	2850	1.90	X						
58	3240	30.22	2900	2.2	X						
65	2920	27.28	2920	2.5	X						
73	2570	24.00	2920	2.8	X	K	67	(E)DRN	100LM4	140	661
78	2430	22.66	2920	2.8	X	KF	67	(E)DRN	100LM4	150	662
91	2060	19.30	2920	3.2	X	KA	67	(E)DRN	100LM4	135	663
101	1880	17.54	2920	3.5	X	KAF	67	(E)DRN	100LM4	145	662
116	1620	15.19	2920	3.8	X						
133	1410	13.22	2920	4.2	X						
141	1330	12.48	2920	3.5	X						
166	1140	10.63	2920	3.9	X						
182	1030	9.66	2910	4.1	X						
211	890	8.37	2800	4.3	X						
242	780	7.28	2700	4.8	X						
339	555	5.20	2460	5.5	X						
36	5240	48.89	1730	1.00	X						
40	4760	44.43	1830	1.10	X						
46	4120	38.49	1850	1.30	X						
49	3820	35.70	1830	1.40	X						
58	3240	30.28	1800	1.65	X						
64	2930	27.34	1770	1.80	X	K	57	(E)DRN	100LM4	125	654
73	2580	24.05	1740	2.1	X	KF	57	(E)DRN	100LM4	135	655
78	2430	22.71	1720	2.2	X	KA	57	(E)DRN	100LM4	120	656
91	2070	19.34	1670	2.5	X	KAF	57	(E)DRN	100LM4	135	655
100	1880	17.57	1640	2.6	X						
116	1630	15.22	1590	2.9	X						
133	1420	13.25	1540	3.2	X						
148	1270	11.92	1470	2.9	X						
157	1200	11.26	1450	3.0	X						

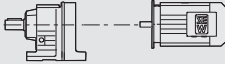

P_m = 3.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
46	4070	37.98	1530	1.10	X						
51	3730	34.81	1520	1.20	X						
58	3270	30.55	1510	1.35	X						
61	3100	28.95	1510	1.40	X						
70	2710	25.34	1490	1.65	X						
77	2440	22.83	1470	1.80	X	K	49	(E)DRN	100LM4	140	650
88	2140	20.03	1440	2.1	X	KF	49	(E)DRN	100LM4	140	651
100	1890	17.67	1410	2.3	X	KA	49	(E)DRN	100LM4	130	652
112	1680	15.67	1380	2.6	X	KAF	49	(E)DRN	100LM4	145	651
132	1430	13.38	1340	2.9	X						
155	1210	11.37	1380	3.6	X						
169	1110	10.42	1340	3.8	X						
193	980	9.14	1300	4.5	X						
68	2770	25.91	1170	1.25	X						
81	2330	21.81	1160	1.50	X						
90	2100	19.58	1150	1.70	X						
104	1800	16.86	1130	1.85	X						
111	1700	15.86	1120	2.0	X	K	47	(E)DRN	100LM4	115	643
129	1460	13.65	1100	2.2	X	KF	47	(E)DRN	100LM4	120	644
145	1300	12.19	1080	2.4	X	KA	47	(E)DRN	100LM4	110	645
150	1260	11.77	1060	1.95	X	KAF	47	(E)DRN	100LM4	120	644
167	1130	10.56	1040	2.2	X						
194	970	9.10	1010	2.5	X						
206	910	8.56	990	2.6	X						
239	785	7.36	960	2.8	X						
72	2610	24.40	1070	1.00	X						
76	2470	23.04	1070	1.05	X						
90	2100	19.62	1070	1.25	X						
99	1910	17.83	1060	1.35	X						
114	1650	15.44	1050	1.50	X						
131	1440	13.44	1030	1.65	X						
166	1130	10.61	1080	2.2	X	K	39	(E)DRN	100LM4	110	639
196	960	9.00	1040	2.8	X	KF	39	(E)DRN	100LM4	115	640
217	870	8.12	1010	3.0	X	KA	39	(E)DRN	100LM4	110	641
246	765	7.15	980	3.5	X	KAF	39	(E)DRN	100LM4	110	640
261	720	6.75	970	3.7	X						
307	615	5.75	930	4.0	X						
337	560	5.22	900	4.1	X						
389	485	4.52	870	4.4	X						
447	420	3.94	830	4.5	X						
493	380	7.15	810	6.9		K	39	DRN	90L2	86	639
522	360	6.75	800	7.3		KF	39	DRN	90L2	90	640
613	305	5.75	760	7.9		KA	39	DRN	90L2	84	641
675	280	5.22	740	8.2		KAF	39	DRN	90L2	87	640
779	240	4.52	710	8.8							
895	210	3.94	680	9.0							
1255	151	2.81	615	10.0							
135	1400	13.08	540	1.05	X						
168	1120	10.49	545	1.25	X						
198	950	8.91	540	1.50	X	K	37	(E)DRN	100LM4	98	632
221	850	7.96	535	1.60	X	KF	37	(E)DRN	100LM4	105	633
259	725	6.80	525	1.80	X	KA	37	(E)DRN	100LM4	98	634
277	680	6.37	520	1.90	X	KAF	37	(E)DRN	100LM4	100	633
329	575	5.36	510	2.1	X						
443	425	3.98	480	2.6	X						
176	1070	19.99	535	1.05							
216	870	16.29	530	1.30							
262	720	13.47	520	1.60							
295	640	11.94	510	1.80							
384	490	9.17	490	2.3		K	29	DRN	90L2	61	625
413	455	8.53	510	2.4		KF	29	DRN	90L2	63	629
471	400	7.48	470	2.7		KA	29	DRN	90L2	60	631
507	370	6.95	485	2.7		KAF	29	DRN	90L2	62	629
613	305	5.75	460	3.2							
691	270	5.10	450	3.6							
900	205	3.92	415	5.3							
1105	171	3.19	395	5.7							

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

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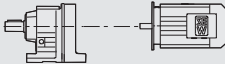

P_m = 4.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
0.63	347700	2818	42700	1.25	X	K	187R97	(E)DRN	100L4	3950	712/715
						KH	187R97	(E)DRN	100L4	3800	713/715
0.58	398200	3062	42700	1.10	X						
0.70	325400	2519	42700	1.35	X						
0.78	291600	2268	42700	1.50	X						
0.86	262700	2054	42700	1.70	X	K	187R97	(E)DRN	100L4	3940	712/715
0.97	231300	1821	42700	1.90	X	KH	187R97	(E)DRN	100L4	3790	713/715
1.1	205300	1605	42700	2.1	X						
1.3	174300	1395	42700	2.5	X						
1.5	151900	1196	42700	2.9	X						
1.0	221100	1704	33700	1.30	X						
1.2	183100	1408	33700	1.55	X						
1.4	168100	1296	33700	1.70	X	K	167R97	(E)DRN	100L4	2660	710/715
1.6	139800	1101	33700	2.0	X	KH	167R97	(E)DRN	100L4	2570	711/715
1.9	120800	944	33700	2.3	X						
2.1	105300	843	33700	2.7	X						
2.3	95500	757	33700	3.0	X						
1.4	158000	1229	25200	1.00	X						
1.6	140500	1093	25400	1.15	X	K	157R97	(E)DRN	100L4	1790	703/715
1.9	121100	942	25600	1.30	X	KF	157R97	(E)DRN	100L4	1960	704/715
2.1	109200	854	25700	1.45	X	KA	157R97	(E)DRN	100L4	1710	705/715
2.3	94400	756	25900	1.70	X	KAF	157R97	(E)DRN	100L4	1840	704/715
3.1	71900	567	26000	2.2	X						
3.5	64000	504	26100	2.5	X						
3.3	69000	536	18300	1.65	X	K	127R87	(E)DRN	100L4	1140	696/714
3.7	60400	473	18400	1.90	X	KF	127R87	(E)DRN	100L4	1230	697/714
4.2	54400	418	18400	2.1	X	KA	127R87	(E)DRN	100L4	1080	698/714
4.8	47700	367	18500	2.4	X	KAF	127R87	(E)DRN	100L4	1160	697/714
5.3	42700	330	18500	2.7	X						
6.2	36500	287	18500	3.1	X						
2.2	103100	790	18000	1.10	X	K	127R77	(E)DRN	100L4	1100	696/714
2.5	92500	704	18100	1.25	X	KF	127R77	(E)DRN	100L4	1190	697/714
2.9	79900	610	18200	1.45	X	KA	127R77	(E)DRN	100L4	1030	698/714
3.2	72000	549	18300	1.60	X	KAF	127R77	(E)DRN	100L4	1120	697/714
3.7	62200	477	18400	1.85	X						
4.2	54900	418	18400	2.1	X						
3.8	60100	461	14600	1.20	X						
4.3	53200	408	14600	1.35	X	K	107R77	(E)DRN	100L4	740	689/714
4.8	47700	364	14600	1.50	X	KF	107R77	(E)DRN	100L4	770	690/714
5.5	41700	318	14600	1.70	X	KA	107R77	(E)DRN	100L4	680	691/714
6.2	37500	286	14600	1.90	X	KAF	107R77	(E)DRN	100L4	730	690/714
7.0	32900	251	14600	2.1	X						
8.0	28900	222	14600	2.4	X						
9.0	25600	196	14600	2.8	X						
10	22900	174	14600	2.8	X						
11	20200	154	14600	3.1	X						
13	18400	140	14600	3.5	X						
6.8	34300	258	8990	1.10	X	K	97R57	(E)DRN	100L4	455	682/714
7.6	30900	232	8990	1.25	X	KF	97R57	(E)DRN	100L4	500	683/714
8.8	26500	199	8990	1.45	X	KA	97R57	(E)DRN	100L4	415	684/714
						KAF	97R57	(E)DRN	100L4	470	683/714
8.2	30600	143.47*	14600	2.3		K	107	DRN	132S6	700	689
9.7	25900	121.46	14600	2.7		KF	107	DRN	132S6	730	690
10	24000	112.41*	14600	2.9		KA	107	DRN	132S6	640	691
12	21500	100.75	14600	3.3		KAF	107	DRN	132S6	690	690
12	20500	143.47*	14600	3.5	X	K	107	(E)DRN	100L4	660	689
15	17300	121.46	14600	4.1	X	KF	107	(E)DRN	100L4	680	690
						KA	107	(E)DRN	100L4	600	691
						KAF	107	(E)DRN	100L4	650	690
9.5	26500	123.93*	8990	1.45		K	97	DRN	132S6	450	682
11	22400	105.13	8990	1.70		KF	97	DRN	132S6	495	683
12	20700	96.80	8990	1.85		KA	97	DRN	132S6	410	684
14	18500	86.52	8990	2.1		KAF	97	DRN	132S6	465	683

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P_m = 4.0 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				lbs		
10	25100	176.05*	8990	1.50	X						
12	21900	153.21*	8990	1.75	X						
13	20000	140.28	8990	1.90	X						
14	17700	123.93*	8990	2.1	X						
17	15000	105.13	8990	2.5	X	K	97	(E)DRN	100L4	405	682
18	13800	96.80	8990	2.8	X	KF	97	(E)DRN	100L4	450	683
20	12300	86.52	8990	3.1	X	KA	97	(E)DRN	100L4	365	684
23	11100	77.89*	8990	3.4	X	KAF	97	(E)DRN	100L4	420	683
25	10000	70.54	8990	3.8	X						
28	8940	62.55	8990	4.3	X						
31	8080	56.55	8990	4.7	X						
12	21000	147.32*	6220	1.15	X						
14	18100	126.91*	6290	1.30	X						
15	16500	115.82	6330	1.45	X						
17	14600	102.71*	6370	1.65	X						
20	12300	86.34	6410	1.95	X	K	87	(E)DRN	100L4	275	675
22	11300	79.34	6430	2.1	X	KF	87	(E)DRN	100L4	295	676
25	10000	70.46	6450	2.4	X	KA	87	(E)DRN	100L4	245	677
28	9000	63.00*	6470	2.6	X	KAF	87	(E)DRN	100L4	275	676
31	8090	56.64	6480	3.0	X						
36	7020	49.16	6490	3.4	X						
40	6290	44.02	6330	3.7	X						
48	5220	36.52*	6060	4.2	X						
20	12700	88.97	3620	1.10	X						
23	11100	78.07	3850	1.25	X						
24	10500	73.99	3920	1.30	X						
27	9250	64.75	4070	1.50	X	K	77	(E)DRN	100L4	195	668
30	8330	58.34	4160	1.65	X	KF	77	(E)DRN	100L4	210	669
34	7310	51.18	4250	1.85	X	KA	77	(E)DRN	100L4	175	670
39	6450	45.16	4310	2.1	X	KAF	77	(E)DRN	100L4	195	669
44	5720	40.04	4360	2.4	X						
50	5030	35.20	4400	2.7	X						
57	4410	30.89	4430	3.1	X						
40	6330	44.32	2510	1.15	X						
46	5480	38.39	2650	1.30	X						
50	5090	35.62	2700	1.45	X						
58	4310	30.22	2800	1.70	X						
65	3890	27.28	2840	1.85	X						
73	3420	24.00	2890	2.1	X	K	67	(E)DRN	100L4	140	661
78	3230	22.66	2900	2.1	X	KF	67	(E)DRN	100L4	150	662
91	2750	19.30	2920	2.4	X	KA	67	(E)DRN	100L4	135	663
101	2500	17.54	2920	2.6	X	KAF	67	(E)DRN	100L4	145	662
116	2170	15.19	2920	2.9	X						
133	1880	13.22	2920	3.1	X						
141	1780	12.48	2920	2.6	X						
166	1510	10.63	2910	2.9	X						
183	1380	9.66	2850	3.1	X						
58	4320	30.28	1620	1.25	X						
64	3900	27.34	1610	1.35	X						
73	3430	24.05	1590	1.55	X						
78	3240	22.71	1580	1.65	X						
91	2760	19.34	1550	1.85	X						
100	2510	17.57	1530	1.95	X	K	57	(E)DRN	100L4	125	654
116	2170	15.22	1500	2.2	X	KF	57	(E)DRN	100L4	135	655
133	1890	13.25	1460	2.4	X	KA	57	(E)DRN	100L4	120	656
148	1700	11.92	1390	2.1	X	KAF	57	(E)DRN	100L4	135	655
157	1600	11.26	1380	2.3	X						
184	1370	9.59	1330	2.6	X						
202	1240	8.71	1310	2.8	X						
234	1070	7.55	1270	3.0	X						
268	930	6.57	1230	3.2	X						
376	670	4.69	1130	4.0	X						

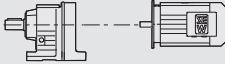
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P_m = 4.0 HP										m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				lbs		
58	4360	30.55	1310	1.00	X						
61	4130	28.95	1320	1.05	X						
70	3620	25.34	1320	1.20	X						
77	3260	22.83	1320	1.35	X						
88	2860	20.03	1310	1.55	X						
100	2520	17.67	1300	1.75	X	K	49	(E)DRN	100L4	140	650
113	2230	15.67	1280	1.95	X	KF	49	(E)DRN	100L4	140	651
132	1910	13.38	1250	2.2	X	KA	49	(E)DRN	100L4	130	652
155	1620	11.37	1330	2.7	X	KAF	49	(E)DRN	100L4	145	651
169	1480	10.42	1300	2.9	X						
193	1300	9.14	1260	3.4	X						
204	1230	8.66	1240	3.6	X						
233	1080	7.58	1200	4.1	X						
258	970	6.83	1170	4.5	X						
90	2790	19.58	1020	1.25	X						
105	2410	16.86	1020	1.40	X						
111	2260	15.86	1010	1.50	X						
129	1950	13.65	1000	1.65	X						
145	1740	12.19	990	1.80	X	K	47	(E)DRN	100L4	115	643
150	1680	11.77	970	1.45	X	KF	47	(E)DRN	100L4	120	644
167	1510	10.56	960	1.65	X	KA	47	(E)DRN	100L4	110	645
194	1300	9.10	940	1.90	X	KAF	47	(E)DRN	100L4	120	644
206	1220	8.56	930	1.95	X						
239	1050	7.36	910	2.1	X						
268	940	6.58	890	2.3	X						
303	830	5.81	870	2.5	X						
380	660	4.64	830	2.7	X						
99	2540	17.83	930	1.00	X						
114	2200	15.44	930	1.10	X						
131	1920	13.44	930	1.25	X						
166	1510	10.61	1030	1.65	X						
196	1280	9.00	990	2.1	X	K	39	(E)DRN	100L4	110	639
217	1160	8.12	970	2.3	X	KF	39	(E)DRN	100L4	115	640
247	1020	7.15	940	2.6	X	KA	39	(E)DRN	100L4	110	641
261	960	6.75	930	2.8	X	KAF	39	(E)DRN	100L4	110	640
307	820	5.75	900	3.0	X						
338	745	5.22	880	3.1	X						
390	645	4.52	840	3.3	X						
448	560	3.94	810	3.4	X						
627	400	2.81	740	3.7	X						
492	510	7.15	795	5.2							
521	480	6.75	780	5.5		K	39	DRN	100LM2	110	639
612	410	5.75	745	5.9		KF	39	DRN	100LM2	115	640
673	370	5.22	725	6.2		KA	39	DRN	100LM2	110	641
777	320	4.52	700	6.5		KAF	39	DRN	100LM2	110	640
893	280	3.94	670	6.7							
1250	200	2.81	605	7.5							
198	1270	8.91	465	1.10	X						
222	1130	7.96	470	1.20	X	K	37	(E)DRN	100L4	98	632
259	970	6.80	470	1.35	X	KF	37	(E)DRN	100L4	105	633
277	910	6.37	470	1.40	X	KA	37	(E)DRN	100L4	98	634
329	765	5.36	465	1.60	X	KAF	37	(E)DRN	100L4	100	633
443	565	3.98	450	1.95	X						
216	1160	16.29	460	1.00							
261	960	13.47	465	1.20							
294	850	11.94	460	1.35							
383	655	9.17	450	1.75		K	29	DRN	100LM2	86	625
470	535	7.48	440	2.0		KF	29	DRN	100LM2	88	629
506	495	6.95	465	2.0		KA	29	DRN	100LM2	85	631
612	410	5.75	445	2.4		KAF	29	DRN	100LM2	86	629
690	365	5.10	435	2.7							
898	280	3.92	405	4.0							
1100	225	3.19	385	4.3							

P _m = 5.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
0.62	441900	2818	42700	1.00	X	K KH	187R97	(E)DRN	100L4	3950	712/715
							187R97	(E)DRN	100L4	3800	713/715
0.70	410700	2519	42700	1.10	X	K KH	187R97	(E)DRN	100L4	3940	712/715
0.78	368300	2268	42700	1.20	X		187R97	(E)DRN	100L4	3790	713/715
0.86	332300	2054	42700	1.35	X						
0.97	293000	1821	42700	1.50	X						
1.1	259700	1605	42700	1.70	X						
1.3	221500	1395	42700	2.0	X						
1.5	192400	1196	42700	2.3	X						
1.7	168200	1046	42700	2.6	X						
1.9	151300	945	42700	2.9	X						
1.0	278700	1704	33700	1.00	X	K KH	167R97	(E)DRN	100L4	2660	710/715
1.2	230700	1408	33700	1.25	X		167R97	(E)DRN	100L4	2570	711/715
1.4	212000	1296	33700	1.35	X						
1.6	177100	1101	33700	1.60	X						
1.9	152700	944	33700	1.85	X						
2.1	133900	843	33700	2.1	X						
2.3	121200	757	33700	2.3	X						
2.8	101700	632	33700	2.8	X						
1.9	153000	942	25300	1.05	X	K KF KA KAF	157R97	(E)DRN	100L4	1790	703/715
2.1	138100	854	25500	1.15	X		157R97	(E)DRN	100L4	1960	704/715
2.3	120000	756	25600	1.35	X		157R97	(E)DRN	100L4	1710	705/715
3.1	91100	567	25900	1.75	X		157R97	(E)DRN	100L4	1840	704/715
4.0	68900	434	26000	2.3	X						
3.3	87100	536	18100	1.30	X	K KF KA KAF	127R87	(E)DRN	100L4	1140	696/714
3.7	76400	473	18300	1.50	X		127R87	(E)DRN	100L4	1230	697/714
4.2	68700	418	18300	1.65	X		127R87	(E)DRN	100L4	1080	698/714
4.8	60100	367	18400	1.90	X		127R87	(E)DRN	100L4	1160	697/714
5.3	53900	330	18400	2.1	X						
6.1	46200	287	18500	2.5	X						
6.9	40900	253	18500	2.8	X						
2.5	116300	704	17800	1.00		K KF KA KAF	127R77	(E)DRN	100L4	1100	696/714
2.9	100600	610	18000	1.15	X		127R77	(E)DRN	100L4	1190	697/714
3.2	90600	549	18100	1.25	X		127R77	(E)DRN	100L4	1030	698/714
3.7	78400	477	18200	1.45	X		127R77	(E)DRN	100L4	1120	697/714
4.2	69000	418	18300	1.65	X						
4.3	67000	408	14600	1.05	X	K KF KA KAF	107R77	(E)DRN	100L4	740	689/714
4.8	60000	364	14600	1.20	X		107R77	(E)DRN	100L4	770	690/714
5.5	52500	318	14600	1.35	X		107R77	(E)DRN	100L4	680	691/714
6.1	47200	286	14600	1.50	X		107R77	(E)DRN	100L4	730	690/714
7.0	41400	251	14600	1.70	X						
7.9	36400	222	14600	1.95	X						
8.9	32200	196	14600	2.2	X						
10	28800	174	14600	2.2	X						
11	25500	154	14600	2.5	X						
13	23100	140	14600	2.8	X						
7.6	38800	232	8990	1.00			K KF KA KAF	97R57	(E)DRN	100L4	455
8.8	33300	199	8990	1.15	X	97R57		(E)DRN	100L4	500	683/714
						97R57		(E)DRN	100L4	415	684/714
						97R57		(E)DRN	100L4	470	683/714
12	25700	143.47*	14600	2.8	X	K KF KA KAF	107	(E)DRN	100L4	660	689
14	21700	121.46	14600	3.2	X		107	(E)DRN	100L4	680	690
							107	(E)DRN	100L4	600	691
							107	(E)DRN	100L4	650	690
10.0	31500	176.05*	8990	1.20	X	K KF KA KAF	97	(E)DRN	100L4	405	682
11	27400	153.21*	8990	1.40	X		97	(E)DRN	100L4	450	683
13	25100	140.28	8990	1.50	X		97	(E)DRN	100L4	365	684
14	22200	123.93*	8990	1.70	X		97	(E)DRN	100L4	420	683
17	18800	105.13	8990	2.0	X						
18	17300	96.80	8990	2.2	X						
20	15500	86.52	8990	2.5	X						
23	13900	77.89*	8990	2.7	X						
25	12600	70.54	8990	3.0	X						
28	11200	62.55	8990	3.4	X						
31	10100	56.55	8990	3.8	X						



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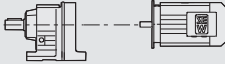

P_m = 5.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
14	22700	126.91*	6170	1.05	X						
15	20700	115.82	6230	1.15	X						
17	18400	102.71*	6290	1.30	X						
20	15400	86.34	6350	1.55	X						
22	14200	79.34	6380	1.70	X	K	87	(E)DRN	100L4	275	675
25	12600	70.46	6410	1.90	X	KF	87	(E)DRN	100L4	295	676
28	11200	63.00*	6430	2.1	X	KA	87	(E)DRN	100L4	245	677
31	10100	56.64	6450	2.4	X	KAF	87	(E)DRN	100L4	275	676
36	8800	49.16	6310	2.7	X						
40	7880	44.02	6170	2.9	X						
48	6540	36.52*	5930	3.4	X						
23	13900	78.07	3410	1.00							
24	13200	73.99	3540	1.05	X						
27	11600	64.75	3790	1.20	X						
30	10400	58.34	3940	1.30	X						
34	9170	51.18	4080	1.50	X	K	77	(E)DRN	100L4	195	668
39	8090	45.16	4180	1.70	X	KF	77	(E)DRN	100L4	210	669
44	7170	40.04	4260	1.90	X	KA	77	(E)DRN	100L4	175	670
46	6870	38.39	4280	1.95	X	KAF	77	(E)DRN	100L4	195	669
50	6300	35.20	4320	2.2	X						
57	5530	30.89	4370	2.5	X						
60	5240	29.27	4380	2.6	X						
69	4580	25.62	4420	3.0	X						
46	6870	38.39	2400	1.05	X						
49	6380	35.62	2500	1.15	X						
58	5410	30.22	2660	1.35	X						
64	4880	27.28	2730	1.50	X						
73	4290	24.00	2800	1.65	X						
78	4050	22.66	2830	1.70	X						
91	3450	19.30	2890	1.95	X	K	67	(E)DRN	100L4	140	661
100	3140	17.54	2910	2.1	X	KF	67	(E)DRN	100L4	150	662
116	2720	15.19	2920	2.3	X	KA	67	(E)DRN	100L4	135	663
133	2360	13.22	2920	2.5	X	KAF	67	(E)DRN	100L4	145	662
141	2230	12.48	2920	2.1	X						
165	1900	10.63	2850	2.3	X						
182	1730	9.66	2790	2.5	X						
210	1490	8.37	2700	2.6	X						
241	1300	7.28	2610	2.9	X						
58	5420	30.28	1440	1.00							
64	4890	27.34	1450	1.10	X						
73	4310	24.05	1450	1.25	X						
77	4060	22.71	1450	1.30	X						
91	3460	19.34	1440	1.45	X						
100	3140	17.57	1430	1.55	X	K	57	(E)DRN	100L4	125	654
115	2720	15.22	1410	1.75	X	KF	57	(E)DRN	100L4	135	655
133	2370	13.25	1380	1.90	X	KA	57	(E)DRN	100L4	120	656
147	2130	11.92	1310	1.70	X	KAF	57	(E)DRN	100L4	135	655
156	2010	11.26	1300	1.80	X						
183	1710	9.59	1270	2.1	X						
202	1560	8.71	1250	2.2	X						
233	1350	7.55	1220	2.4	X						
268	1170	6.57	1180	2.6	X						
375	840	4.69	1100	3.2	X						
77	4090	22.83	1170	1.10	X						
88	3580	20.03	1180	1.25	X						
99	3160	17.67	1180	1.40	X						
112	2800	15.67	1180	1.55	X	K	49	(E)DRN	100L4	140	650
131	2390	13.38	1170	1.75	X	KF	49	(E)DRN	100L4	140	651
155	2030	11.37	1280	2.1	X	KA	49	(E)DRN	100L4	130	652
169	1860	10.42	1260	2.3	X	KAF	49	(E)DRN	100L4	145	651
192	1630	9.14	1220	2.7	X						
203	1550	8.66	1210	2.9	X						
232	1350	7.58	1170	3.3	X						
257	1220	6.83	1140	3.6	X						

P_m = 5.0 HP										m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
90	3500	19.58	880	1.00	X						
104	3020	16.86	900	1.10	X						
111	2840	15.86	900	1.20	X						
129	2440	13.65	910	1.30	X						
144	2180	12.19	910	1.40	X						
149	2100	11.77	880	1.15	X	K	47	(E)DRN	100L4	115	643
166	1890	10.56	880	1.30	X	KF	47	(E)DRN	100L4	120	644
193	1630	9.10	870	1.50	X	KA	47	(E)DRN	100L4	110	645
205	1530	8.56	870	1.55	X	KAF	47	(E)DRN	100L4	120	644
239	1310	7.36	850	1.70	X						
267	1170	6.58	840	1.80	X						
302	1040	5.81	830	1.95	X						
379	830	4.64	795	2.2	X						
131	2400	13.44	820	1.00							
166	1900	10.61	970	1.35	X						
195	1610	9.00	950	1.65	X						
216	1450	8.12	930	1.80	X						
246	1280	7.15	910	2.1	X	K	39	(E)DRN	100L4	110	639
260	1200	6.75	900	2.2	X	KF	39	(E)DRN	100L4	115	640
306	1020	5.75	870	2.4	X	KA	39	(E)DRN	100L4	110	641
337	930	5.22	850	2.5	X	KAF	39	(E)DRN	100L4	110	640
389	810	4.52	820	2.6	X						
446	705	3.94	795	2.7	X						
625	500	2.81	730	3.0	X						
491	640	7.15	775	4.1							
520	605	6.75	765	4.4		K	39	DRN	100L2	110	639
610	515	5.75	735	4.7		KF	39	DRN	100L2	115	640
672	465	5.22	715	4.9		KA	39	DRN	100L2	110	641
775	405	4.52	685	5.2		KAF	39	DRN	100L2	110	640
891	350	3.94	660	5.4							
1245	250	2.81	600	6.0							
259	1210	6.80	415	1.10	X	K	37	(E)DRN	100L4	98	632
276	1140	6.37	415	1.10	X	KF	37	(E)DRN	100L4	105	633
328	960	5.36	420	1.30	X	KA	37	(E)DRN	100L4	98	634
442	710	3.98	415	1.55	X	KAF	37	(E)DRN	100L4	100	633
394	800	8.91	420	1.75							
441	710	7.96	415	1.90		K	37	DRN	100L2	98	632
516	610	6.80	410	2.2		KF	37	DRN	100L2	105	633
551	570	6.37	410	2.2		KA	37	DRN	100L2	98	634
654	480	5.36	400	2.6		KAF	37	DRN	100L2	100	633
882	355	3.98	380	3.1							



P_m = 5.4 HP										m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
2.1	140900	835	42700	3.1	X	K	187R107	(E)DRN	112M4	4060	712/715
3.4	88600	520	42700	5.0	X	KH	187R107	(E)DRN	112M4	3920	713/715
0.70	441600	2519	42700	1.00	X						
0.78	396100	2268	42700	1.10	X						
0.86	357400	2054	42700	1.25	X						
0.97	315300	1821	42700	1.40	X						
1.1	279300	1605	42700	1.60	X	K	187R97	(E)DRN	112M4	3960	712/715
1.3	238600	1395	42700	1.85	X	KH	187R97	(E)DRN	112M4	3810	713/715
1.5	207100	1196	42700	2.1	X						
1.7	181000	1046	42700	2.4	X						
1.9	162900	945	42700	2.7	X						
1.3	247900	1408	33700	1.15	X						
1.4	227800	1296	33700	1.25	X						
1.6	190600	1101	33700	1.50	X						
1.9	164300	944	33700	1.70	X	K	167R97	(E)DRN	112M4	2680	710/715
2.1	144200	843	33700	1.95	X	KH	167R97	(E)DRN	112M4	2590	711/715
2.3	130400	757	33700	2.2	X						
2.8	109400	632	33700	2.6	X						



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P_m = 5.4 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
2.1	148500	854	25300	1.05	X						
2.3	129300	756	25600	1.25	X	K	157R97	(E)DRN	112M4	1810	703/715
3.1	98000	567	25800	1.60	X	KF	157R97	(E)DRN	112M4	1980	704/715
3.5	87200	504	25900	1.80	X	KA	157R97	(E)DRN	112M4	1730	705/715
4.1	74200	434	26000	2.1	X	KAF	157R97	(E)DRN	112M4	1860	704/715
5.3	56900	333	26100	2.8	X						
3.3	93700	536	18100	1.25	X						
3.7	82200	473	18200	1.40	X	K	127R87	(E)DRN	112M4	1160	696/714
4.2	73800	418	18300	1.55	X	KF	127R87	(E)DRN	112M4	1250	697/714
4.8	64600	367	18400	1.80	X	KA	127R87	(E)DRN	112M4	1100	698/714
5.3	58000	330	18400	2.0	X	KAF	127R87	(E)DRN	112M4	1180	697/714
6.2	49700	287	18500	2.3	X						
7.0	44000	253	18500	2.6	X						
2.9	108000	610	17900	1.05	X	K	127R77	(E)DRN	112M4	1120	696/714
3.2	97300	549	18000	1.20	X	KF	127R77	(E)DRN	112M4	1210	697/714
3.7	84300	477	18200	1.35	X	KA	127R77	(E)DRN	112M4	1050	698/714
4.2	74200	418	18300	1.55	X	KAF	127R77	(E)DRN	112M4	1140	697/714
4.9	64500	364	14600	1.10	X						
5.6	56400	318	14600	1.25	X						
6.2	50700	286	14600	1.40	X						
7.0	44400	251	14600	1.60	X	K	107R77	(E)DRN	112M4	760	689/714
8.0	39100	222	14600	1.80	X	KF	107R77	(E)DRN	112M4	790	690/714
9.0	34600	196	14600	2.0	X	KA	107R77	(E)DRN	112M4	700	691/714
10	31000	174	14600	2.0	X	KAF	107R77	(E)DRN	112M4	750	690/714
11	27400	154	14600	2.3	X						
13	24900	140	14600	2.6	X						
8.9	35800	199	8990	1.05	X	K	97R57	(E)DRN	112M4	480	682/714
						KF	97R57	(E)DRN	112M4	520	683/714
						KA	97R57	(E)DRN	112M4	440	684/714
						KAF	97R57	(E)DRN	112M4	495	683/714
8.1	42000	146.07	18500	2.7	X	K	127	DRN	132M6	1080	696
8.7	39200	136.14	18500	2.9	X	KF	127	DRN	132M6	1170	697
9.6	35200	122.48	18500	3.3	X	KA	127	DRN	132M6	1020	698
11	31700	110.18	18600	3.6	X	KAF	127	DRN	132M6	1100	697
8.2	41300	143.47*	14600	1.70	X						
9.7	34900	121.46	14600	2.0	X	K	107	DRN	132M6	740	689
11	32300	112.41*	14600	2.2	X	KF	107	DRN	132M6	770	690
12	29000	100.75	14600	2.4	X	KA	107	DRN	132M6	680	691
13	26200	90.96*	14600	2.7	X	KAF	107	DRN	132M6	730	690
12	27500	143.47*	14600	2.6	X						
15	23300	121.46	14600	3.0	X						
16	21600	112.41*	14600	3.3	X	K	107	(E)DRN	112M4	670	689
18	19300	100.75	14600	3.6	X	KF	107	(E)DRN	112M4	700	690
19	17400	90.96*	14600	4.0	X	KA	107	(E)DRN	112M4	610	691
21	15800	82.61	14600	4.5	X	KAF	107	(E)DRN	112M4	670	690
24	14000	73.30	14300	5.0	X						
12	29400	153.21*	8990	1.30	X						
13	26900	140.28	8990	1.40	X						
14	23800	123.93*	8990	1.60	X	K	97	(E)DRN	112M4	425	682
17	20200	105.13	8990	1.90	X	KF	97	(E)DRN	112M4	470	683
18	18600	96.80	8990	2.0	X	KA	97	(E)DRN	112M4	385	684
20	16600	86.52	8990	2.3	X	KAF	97	(E)DRN	112M4	440	683
23	14900	77.89*	8990	2.5	X						
25	13500	70.54	8990	2.8	X						
15	22200	115.82	6180	1.05	X						
17	19700	102.71*	6250	1.20	X						
20	16600	86.34	6330	1.45	X						
22	15200	79.34	6360	1.55	X	K	87	(E)DRN	112M4	295	675
25	13500	70.46	6390	1.75	X	KF	87	(E)DRN	112M4	315	676
28	12100	63.00*	6420	1.95	X	KA	87	(E)DRN	112M4	265	677
31	10800	56.64	6400	2.2	X	KAF	87	(E)DRN	112M4	295	676
36	9450	49.16	6230	2.5	X						
40	8460	44.02	6100	2.7	X						
48	7020	36.52*	5860	3.1	X						

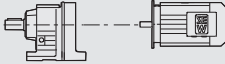

P_m = 5.4 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
27	12400	64.75	3670	1.10	X				
30	11200	58.34	3840	1.20	X				
35	9840	51.18	4010	1.40	X				
39	8680	45.16	4130	1.60	X				
44	7700	40.04	4220	1.80	X	K	77	(E)DRN 112M4	215 668
46	7380	38.39	4240	1.80	X	KF	77	(E)DRN 112M4	230 669
50	6760	35.20	4290	2.0	X	KA	77	(E)DRN 112M4	200 670
57	5930	30.89	4340	2.3	X	KAF	77	(E)DRN 112M4	215 669
60	5620	29.27	4360	2.4	X				
69	4920	25.62	4400	2.8	X				
77	4430	23.08	4420	3.1	X				
87	3890	20.25	4450	3.4	X				
59	5800	30.22	2600	1.25	X				
65	5240	27.28	2680	1.40	X				
74	4610	24.00	2770	1.55	X				
78	4350	22.66	2800	1.60	X				
92	3710	19.30	2860	1.80	X				
101	3370	17.54	2890	1.95	X	K	67	(E)DRN 112M4	160 661
116	2920	15.19	2920	2.1	X	KF	67	(E)DRN 112M4	170 662
134	2540	13.22	2920	2.3	X	KA	67	(E)DRN 112M4	155 663
142	2400	12.48	2920	1.95	X	KAF	67	(E)DRN 112M4	165 662
166	2040	10.63	2820	2.2	X				
183	1850	9.66	2760	2.3	X				
211	1600	8.37	2680	2.4	X				
243	1400	7.28	2590	2.6	X				
340	1000	5.20	2390	3.1	X				
65	5250	27.34	1380	1.00	X				
74	4620	24.05	1390	1.15	X				
78	4360	22.71	1400	1.20	X				
91	3710	19.34	1390	1.35	X				
101	3380	17.57	1390	1.45	X				
116	2920	15.22	1370	1.60	X	K	57	(E)DRN 112M4	145 654
134	2540	13.25	1350	1.75	X	KF	57	(E)DRN 112M4	155 655
148	2290	11.92	1280	1.60	X	KA	57	(E)DRN 112M4	140 656
157	2160	11.26	1270	1.70	X	KAF	57	(E)DRN 112M4	155 655
185	1840	9.59	1240	1.95	X				
203	1670	8.71	1230	2.1	X				
234	1450	7.55	1200	2.2	X				
269	1260	6.57	1160	2.4	X				
377	900	4.69	1080	2.9	X				
77	4390	22.83	1110	1.00	X				
88	3850	20.03	1130	1.15	X				
100	3390	17.67	1140	1.30	X				
113	3010	15.67	1140	1.45	X				
132	2570	13.38	1130	1.60	X				
156	2180	11.37	1260	2.0	X	K	49	(E)DRN 112M4	160 650
170	2000	10.42	1240	2.1	X	KF	49	(E)DRN 112M4	160 651
194	1750	9.14	1200	2.5	X	KA	49	(E)DRN 112M4	150 652
204	1660	8.66	1190	2.7	X	KAF	49	(E)DRN 112M4	165 651
233	1450	7.58	1150	3.0	X				
259	1310	6.83	1130	3.4	X				
295	1150	5.99	1090	3.8	X				
335	1010	5.29	1060	4.2	X				
377	900	4.69	1020	4.6	X				
389	870	9.14	1020	5.0					
410	820	8.66	1000	5.3					
469	725	7.58	970	6.1		K	49	DRN 112M2	160 650
520	650	6.83	940	6.8		KF	49	DRN 112M2	160 651
593	570	5.99	900	7.7		KA	49	DRN 112M2	150 652
672	505	5.29	870	8.5		KAF	49	DRN 112M2	165 651
758	445	4.69	840	9.2					
887	380	4.00	800	10					

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P_m = 5.4 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
197	1730	9.00	930	1.55	X						
218	1560	8.12	910	1.70	X						
247	1370	7.15	890	1.95	X	K 39	(E)DRN 112M4	130	639		
262	1290	6.75	880	2.0	X			KF 39	(E)DRN 112M4	135	640
308	1100	5.75	850	2.2	X			KA 39	(E)DRN 112M4	130	641
339	1000	5.22	840	2.3	X			KAF 39	(E)DRN 112M4	135	640
391	870	4.52	810	2.4	X						
449	755	3.94	785	2.5	X						
629	540	2.81	720	2.8	X						

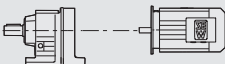

P_m = 7.5 HP							m lbs				
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]						
2.1	199400	835	42700	2.2	X	K 187R107	(E)DRN 132S4	4090	712/715		
2.4	172600	729	42700	2.6	X			KH 187R107	(E)DRN 132S4	3940	713/715
0.97	442800	1821	42700	1.00	X						
1.1	391700	1605	42700	1.15	X						
1.3	336300	1395	42700	1.30	X						
1.5	290800	1196	42700	1.50	X	K 187R97	(E)DRN 132S4	3990	712/715		
1.7	254200	1046	42700	1.75	X			KH 187R97	(E)DRN 132S4	3840	713/715
1.9	229000	945	42700	1.95	X						
2.4	179000	738	42700	2.5	X						
2.9	150400	621	42700	2.9	X						
1.6	267700	1101	33700	1.05	X						
1.9	230400	944	33700	1.25	X						
2.1	203300	843	33700	1.40	X	K 167R97	(E)DRN 132S4	2700	710/715		
2.3	183400	757	33700	1.55	X			KH 167R97	(E)DRN 132S4	2620	711/715
2.8	153600	632	33700	1.85	X						
3.1	134200	561	33700	2.1	X						
3.7	116800	481	33700	2.4	X						
4.2	101300	423	33700	2.8	X						
4.6	89200	385	25900	1.80	X			K 157R107	(E)DRN 132S4	1940	703/715
5.9	70700	299	26000	2.2	X	KF 157R107	(E)DRN 132S4			2110	704/715
7.0	59300	253	26100	2.7	X	KA 157R107	(E)DRN 132S4			1860	705/715
						KAF 157R107	(E)DRN 132S4	1990	704/715		
2.7	158200	661	25200	1.00	X	K 157R97	(E)DRN 132S4	1830	703/715		
3.1	137700	567	25500	1.15	X			KF 157R97	(E)DRN 132S4	2010	704/715
3.5	122500	504	25600	1.30	X			KA 157R97	(E)DRN 132S4	1750	705/715
4.1	104600	434	25800	1.50	X			KAF 157R97	(E)DRN 132S4	1880	704/715
4.7	90800	379	25900	1.75	X						
5.3	80200	333	26000	2.0	X						
6.1	69600	291	26000	2.3	X						
3.7	115300	473	17800	1.00	X						
4.2	103400	418	17900	1.10	X	K 127R87	(E)DRN 132S4	1190	696/714		
4.8	90300	367	18100	1.25	X			KF 127R87	(E)DRN 132S4	1280	697/714
5.3	81100	330	18200	1.40	X			KA 127R87	(E)DRN 132S4	1120	698/714
6.2	69800	287	18300	1.65	X			KAF 127R87	(E)DRN 132S4	1210	697/714
7.0	61700	253	18400	1.85	X						
8.3	51900	213	18400	2.2	X						
8.8	49400	200	18500	2.1	X						
11	40900	166	18500	2.6	X						
12	36100	147	18500	2.9	X						
4.2	103500	418	17900	1.10	X			K 127R77	(E)DRN 132S4	1140	696/714
										KF 127R77	(E)DRN 132S4
						KA 127R77	(E)DRN 132S4			1080	698/714
						KAF 127R77	(E)DRN 132S4			1160	697/714
6.2	70800	286	14600	1.00	X	K 107R77	(E)DRN 132S4	790	689/714		
7.0	62000	251	14600	1.15	X			KF 107R77	(E)DRN 132S4	810	690/714
8.0	54700	222	14600	1.30	X			KA 107R77	(E)DRN 132S4	730	691/714
9.0	48400	196	14600	1.45	X			KAF 107R77	(E)DRN 132S4	780	690/714
10	43300	174	14600	1.45	X						
11	38300	154	14600	1.65	X						
13	34800	140	14600	1.85	X						

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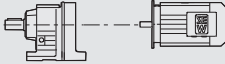

P_m = 7.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
8.7	54200	136.14	18400	2.1		K	127	DRN	160M6	1170	696
9.7	48800	122.48	18500	2.4		KF	127	DRN	160M6	1260	697
11	43900	110.18	18500	2.6		KA	127	DRN	160M6	1110	698
13	35800	89.89	18500	3.2		KAF	127	DRN	160M6	1190	697
12	39000	146.07	18500	3.0	X	K	127	(E)DRN	132S4	1050	696
						KF	127	(E)DRN	132S4	1150	697
						KA	127	(E)DRN	132S4	990	698
						KAF	127	(E)DRN	132S4	1070	697
11	44800	112.41*	14600	1.60		K	107	DRN	160M6	830	689
12	40100	100.75	14600	1.75		KF	107	DRN	160M6	860	690
13	36200	90.96*	14600	1.95		KA	107	DRN	160M6	770	691
14	32900	82.61	14600	2.1		KAF	107	DRN	160M6	820	690
12	38300	143.47*	14600	1.85	X						
15	32400	121.46	14600	2.2	X	K	107	(E)DRN	132S4	700	689
16	30000	112.41*	14600	2.4	X	KF	107	(E)DRN	132S4	730	690
18	26900	100.75	14600	2.6	X	KA	107	(E)DRN	132S4	640	691
19	24300	90.96*	14500	2.9	X	KAF	107	(E)DRN	132S4	690	690
21	22000	82.61	14200	3.2	X						
14	33100	123.93*	8990	1.15	X						
17	28000	105.13	8990	1.35	X						
18	25800	96.80	8990	1.45	X						
20	23100	86.52	8990	1.65	X	K	97	(E)DRN	132S4	450	682
23	20800	77.89*	8990	1.85	X	KF	97	(E)DRN	132S4	495	683
25	18800	70.54	8920	2.0	X	KA	97	(E)DRN	132S4	410	684
28	16700	62.55	8730	2.3	X	KAF	97	(E)DRN	132S4	465	683
31	15100	56.55	8570	2.5	X						
37	12800	47.93*	8290	3.0	X						
20	23000	86.34	6160	1.05	X						
22	21200	79.34	6140	1.15	X						
25	18800	70.46	6100	1.25	X						
28	16800	63.00*	6030	1.40	X	K	87	(E)DRN	132S4	320	675
31	15100	56.64	5960	1.60	X	KF	87	(E)DRN	132S4	340	676
36	13100	49.16	5860	1.80	X	KA	87	(E)DRN	132S4	290	677
40	11700	44.02	5760	1.95	X	KAF	87	(E)DRN	132S4	320	676
48	9760	36.52*	5590	2.3	X						
56	8380	31.39	5430	2.9	X						
63	7440	27.88	5310	3.1	X						
35	13600	51.18	3460	1.00	X						
39	12000	45.16	3720	1.15	X						
44	10700	40.04	3910	1.30	X						
57	8250	30.89	4170	1.65	X						
60	7820	29.27	4210	1.75	X						
69	6840	25.62	4280	2.0	X	K	77	(E)DRN	132S4	240	668
77	6160	23.08	4330	2.2	X	KF	77	(E)DRN	132S4	255	669
87	5410	20.25	4340	2.5	X	KA	77	(E)DRN	132S4	225	670
99	4770	17.87	4230	2.7	X	KAF	77	(E)DRN	132S4	240	669
112	4230	15.84	4120	2.9	X						
131	3610	13.52	3980	3.3	X						
143	3300	12.36	3840	2.7	X						
163	2890	10.84	3730	3.0	X						
74	6410	24.00	2490	1.10	X						
78	6050	22.66	2560	1.15	X						
92	5150	19.30	2700	1.30	X						
101	4680	17.54	2760	1.40	X						
116	4050	15.19	2830	1.55	X	K	67	(E)DRN	132S4	185	661
134	3530	13.22	2870	1.70	X	KF	67	(E)DRN	132S4	195	662
142	3330	12.48	2760	1.40	X	KA	67	(E)DRN	132S4	180	663
166	2840	10.63	2690	1.55	X	KAF	67	(E)DRN	132S4	190	662
183	2580	9.66	2640	1.65	X						
211	2230	8.37	2570	1.75	X						
243	1940	7.28	2500	1.90	X						
340	1390	5.20	2320	2.2	X						

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P_m = 7.5 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
91	5160	19.34	1150	1.00						
101	4690	17.57	1170	1.05	X					
116	4060	15.22	1180	1.15	X					
133	3540	13.25	1180	1.25	X					
148	3180	11.92	1110	1.15	X	K	57	(E)DRN 132S4	170	654
157	3000	11.26	1110	1.20	X	KF	57	(E)DRN 132S4	185	655
184	2560	9.59	1110	1.40	X	KA	57	(E)DRN 132S4	170	656
203	2320	8.71	1100	1.50	X	KAF	57	(E)DRN 132S4	180	655
234	2010	7.55	1090	1.60	X					
269	1750	6.57	1070	1.75	X					
377	1250	4.69	1020	2.1	X					
370	1270	9.59	1020	2.8		K	57	DRN 132S2	170	654
407	1160	8.71	1000	3.0		KF	57	DRN 132S2	185	655
470	1000	7.55	980	3.2		KA	57	DRN 132S2	170	656
540	870	6.57	950	3.5		KAF	57	DRN 132S2	180	655
756	625	4.69	880	4.2						
113	4180	15.67	920	1.05	X					
132	3570	13.38	950	1.15	X					
193	2440	9.14	1120	1.80	X					
204	2310	8.66	1110	1.90	X	K	49	(E)DRN 132S4	185	650
233	2020	7.58	1090	2.2	X	KF	49	(E)DRN 132S4	185	651
259	1820	6.83	1070	2.4	X	KA	49	(E)DRN 132S4	175	652
295	1600	5.99	1040	2.8	X	KAF	49	(E)DRN 132S4	190	651
334	1410	5.29	1010	3.0	X					
377	1250	4.69	980	3.3	X					
442	1060	4.00	950	3.6	X					
409	1150	8.66	960	3.8		K	49	DRN 132S2	185	650
467	1010	7.58	930	4.4		KF	49	DRN 132S2	185	651
519	910	6.83	910	4.9		KA	49	DRN 132S2	175	652
591	795	5.99	880	5.5		KAF	49	DRN 132S2	190	651
670	705	5.29	850	6.1						
756	625	4.69	820	6.6						
885	530	4.00	785	7.3						



P_m = 10.0 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
2.1	267900	835	42700	1.65	X					
2.4	232400	729	42700	1.90	X	K	187R107	(E)DRN 132M4	4130	712/715
2.9	198200	622	42700	2.2	X	KH	187R107	(E)DRN 132M4	3980	713/715
3.4	168500	520	42700	2.6	X					
1.5	389000	1196	42700	1.15	X					
1.7	339900	1046	42700	1.30	X					
1.9	306600	945	42700	1.45	X	K	187R97	(E)DRN 132M4	4030	712/715
2.4	239600	738	42700	1.85	X	KH	187R97	(E)DRN 132M4	3880	713/715
2.9	201400	621	42700	2.2	X					
3.4	169900	527	42700	2.6	X					
5.6	103000	318	33700	2.8	X	K	167R107	(E)DRN 132M4	2850	710/715
						KH	167R107	(E)DRN 132M4	2760	711/715
2.1	272500	843	33700	1.05	X					
2.3	245500	757	33700	1.15	X					
2.8	205500	632	33700	1.40	X					
3.2	180200	561	33700	1.55	X	K	167R97	(E)DRN 132M4	2740	710/715
3.7	156300	481	33700	1.80	X	KH	167R97	(E)DRN 132M4	2660	711/715
4.2	136000	423	33700	2.1	X					
4.8	118900	369	33700	2.4	X					
4.6	120800	385	25600	1.30	X	K	157R107	(E)DRN 132M4	1980	703/715
5.9	95200	299	25900	1.65	X	KF	157R107	(E)DRN 132M4	2150	704/715
7.0	80100	253	26000	2.0	X	KA	157R107	(E)DRN 132M4	1900	705/715
8.3	67900	213	26000	2.3	X	KAF	157R107	(E)DRN 132M4	2030	704/715
4.1	140200	434	25400	1.15	X	K	157R97	(E)DRN 132M4	1870	703/715
4.7	121900	379	25600	1.30	X	KF	157R97	(E)DRN 132M4	2050	704/715
5.3	107500	333	25800	1.50	X	KA	157R97	(E)DRN 132M4	1790	705/715
6.1	93500	291	25900	1.70	X	KAF	157R97	(E)DRN 132M4	1920	704/715

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P_m = 10.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
5.4	108200	330	17900	1.05	X				
6.2	93300	287	18100	1.25	X				
7.0	82500	253	18200	1.40	X	K	127R87	(E)DRN 132M4	1230 696/714
8.3	69300	213	18300	1.65	X	KF	127R87	(E)DRN 132M4	1320 697/714
8.8	66100	200	18300	1.60	X	KA	127R87	(E)DRN 132M4	1160 698/714
11	54700	166	18400	1.95	X	KAF	127R87	(E)DRN 132M4	1250 697/714
12	48200	147	18500	2.2	X				
9.0	64500	196	14600	1.10	X	K	107R77	(E)DRN 132M4	830 689/714
10	57700	174	14600	1.10	X	KF	107R77	(E)DRN 132M4	850 690/714
12	51100	154	14600	1.25	X	KA	107R77	(E)DRN 132M4	770 691/714
13	46300	140	14600	1.35	X	KAF	107R77	(E)DRN 132M4	820 690/714
7.2	87600	164.50	33700	3.2		KH	167	DRN 160M6	2550 710
8.8	71900	134.99	33700	3.9		KH	167	DRN 160M6	2470 711
7.9	80100	150.41	26000	2.0		K	157	DRN 160M6	1680 703
9.7	65200	122.39	26000	2.4		KF	157	DRN 160M6	1850 704
12	53400	100.22	26100	3.0		KA	157	DRN 160M6	1600 705
13	48800	91.65	26100	3.3		KAF	157	DRN 160M6	1730 704
15	42500	79.75	26100	3.8					
8.7	72500	136.14	18300	1.60		K	127	DRN 160M6	1170 696
9.7	65200	122.48	18300	1.75		KF	127	DRN 160M6	1260 697
11	58700	110.18	18400	1.95		KA	127	DRN 160M6	1110 698
13	47900	89.89	18500	2.4		KAF	127	DRN 160M6	1190 697
12	51800	146.07	18400	2.2	X				
13	48300	136.14	18500	2.4	X				
14	43500	122.48	18500	2.6	X	K	127	(E)DRN 132M4	1080 696
16	39100	110.18	18500	2.9	X	KF	127	(E)DRN 132M4	1170 697
20	31900	89.89	18600	3.6	X	KA	127	(E)DRN 132M4	1020 698
22	29100	81.98	18600	4.0	X	KAF	127	(E)DRN 132M4	1100 697
25	25100	70.95*	18600	4.6	X				
12	50900	143.47*	14600	1.40	X				
15	43100	121.46	14600	1.65	X				
16	39900	112.41*	14400	1.75	X				
18	35700	100.75	14200	2.0	X				
20	32300	90.96*	13900	2.2	X				
21	29300	82.61	13700	2.4	X	K	107	(E)DRN 132M4	740 689
24	26000	73.30	13400	2.7	X	KF	107	(E)DRN 132M4	770 690
27	23600	66.52*	13100	3.0	X	KA	107	(E)DRN 132M4	680 691
31	20300	57.17*	12700	3.5	X	KAF	107	(E)DRN 132M4	730 690
36	17700	49.90	12300	3.9	X				
42	15000	42.33*	11900	4.3	X				
48	13100	37.00*	11500	4.8	X				
17	37300	105.13	8620	1.00	X				
18	34300	96.80	8590	1.10	X				
20	30700	86.52	8530	1.25	X				
23	27600	77.89*	8450	1.40	X				
25	25000	70.54	8360	1.50	X	K	97	(E)DRN 132M4	490 682
28	22200	62.55	8240	1.70	X	KF	97	(E)DRN 132M4	530 683
31	20000	56.55	8120	1.90	X	KA	97	(E)DRN 132M4	450 684
37	17000	47.93*	7910	2.2	X	KAF	97	(E)DRN 132M4	500 683
42	14800	41.87	7730	2.6	X				
46	13500	38.30	7600	2.8	X				
52	12100	34.23	7440	3.1	X				
28	22300	63.00*	5460	1.05	X				
31	20100	56.64	5450	1.20	X				
36	17400	49.16	5410	1.35	X				
40	15600	44.02	5360	1.45	X				
49	12900	36.52*	5250	1.70	X				
57	11100	31.39	5150	2.1	X	K	87	(E)DRN 132M4	360 675
64	9890	27.88	5050	2.3	X	KF	87	(E)DRN 132M4	380 676
71	8840	24.92	4960	2.5	X	KA	87	(E)DRN 132M4	330 677
79	7950	22.41	4870	2.6	X	KAF	87	(E)DRN 132M4	360 676
91	6900	19.45	4740	3.0	X				
102	6180	17.42	4630	3.1	X				
111	5680	16.00	4450	2.8	X				
123	5130	14.45	4460	3.6	X				

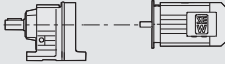

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P_m = 10.0 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
57	10900	30.89	3880	1.25	X			
61	10300	29.27	3950	1.30	X			
69	9090	25.62	4090	1.50	X			
77	8190	23.08	4170	1.65	X			
88	7180	20.25	4120	1.85	X			
99	6340	17.87	4040	2.0	X	K	77	(E)DRN 132M4 280 668
112	5620	15.84	3950	2.2	X	KF	77	(E)DRN 132M4 295 669
131	4800	13.52	3840	2.5	X	KA	77	(E)DRN 132M4 260 670
144	4380	12.36	3690	2.0	X	KAF	77	(E)DRN 132M4 280 669
164	3840	10.84	3600	2.3	X			
186	3390	9.56	3510	2.5	X			
209	3010	8.48	3420	2.6	X			
245	2570	7.24	3300	2.8	X			
101	6220	17.54	2530	1.05	X			
117	5390	15.19	2660	1.15	X			
134	4690	13.22	2690	1.25	X			
142	4430	12.48	2570	1.05	X	K	67	(E)DRN 132M4 225 661
167	3770	10.63	2520	1.15	X	KF	67	(E)DRN 132M4 240 662
184	3430	9.66	2490	1.25	X	KA	67	(E)DRN 132M4 220 663
212	2970	8.37	2440	1.30	X	KAF	67	(E)DRN 132M4 230 662
244	2580	7.28	2390	1.45	X			
341	1840	5.20	2240	1.70	X			
185	3400	9.59	950	1.05	X	K	57	(E)DRN 132M4 215 654
204	3090	8.71	960	1.10	X	KF	57	(E)DRN 132M4 225 655
235	2680	7.55	960	1.20	X	KA	57	(E)DRN 132M4 210 656
270	2330	6.57	960	1.30	X	KAF	57	(E)DRN 132M4 220 655
378	1660	4.69	940	1.60	X			
370	1700	9.59	940	2.1	X	K	57	DRN 132S2 170 654
407	1540	8.71	930	2.2	X	KF	57	DRN 132S2 185 655
470	1340	7.55	910	2.4	X	KA	57	DRN 132S2 170 656
540	1160	6.57	890	2.6	X	KAF	57	DRN 132S2 180 655
756	830	4.69	840	3.2	X			
194	3240	9.14	1030	1.35	X			
205	3070	8.66	1020	1.45	X			
234	2690	7.58	1010	1.65	X	K	49	(E)DRN 132M4 225 650
260	2420	6.83	990	1.80	X	KF	49	(E)DRN 132M4 225 651
296	2120	5.99	970	2.1	X	KA	49	(E)DRN 132M4 215 652
336	1870	5.29	950	2.3	X	KAF	49	(E)DRN 132M4 230 651
378	1660	4.69	930	2.5	X			
443	1420	4.00	900	2.7	X			

P_m = 12.3 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			
2.1	331400	835	42700	1.35	X			
2.4	287900	729	42700	1.55	X			
2.9	245400	622	42700	1.80	X	K	187R107	(E)DRN 132L4 4150 712/715
3.4	208500	520	42700	2.1	X	KH	187R107	(E)DRN 132L4 4000 713/715
3.9	181000	454	42700	2.4	X			
1.7	419500	1046	42700	1.05	X			
1.9	378500	945	42700	1.15	X			
2.4	295800	738	42700	1.50	X	K	187R97	(E)DRN 132L4 4040 712/715
2.9	248600	621	42700	1.80	X	KH	187R97	(E)DRN 132L4 3900 713/715
3.4	210000	527	42700	2.1	X			
5.6	127500	318	33700	2.2	X			
6.4	110700	278	33700	2.6	X			
7.3	95600	244	33700	3.0	X	K	167R107	(E)DRN 132L4 2860 710/715
8.3	83100	213	33700	3.4	X	KH	167R107	(E)DRN 132L4 2780 711/715
8.6	81000	206	33700	3.5	X			
2.8	253600	632	33700	1.10	X			
3.2	222800	561	33700	1.25	X			
3.7	192800	481	33700	1.45	X	K	167R97	(E)DRN 132L4 2760 710/715
4.2	168200	423	33700	1.70	X	KH	167R97	(E)DRN 132L4 2680 711/715
4.8	147000	369	33700	1.95	X			



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P_m = 12.3 HP

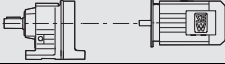

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]		m lbs	
4.6	150100	385	25300	1.05	X			
5.5	125600	325	25600	1.25	X			
5.9	117900	299	25700	1.35	X	K	157R107	(E)DRN 132L4 2000 703/715
7.0	99300	253	25800	1.60	X	KF	157R107	(E)DRN 132L4 2170 704/715
7.7	88900	230	25900	1.80	X	KA	157R107	(E)DRN 132L4 1910 705/715
8.3	84300	213	25900	1.90	X	KAF	157R107	(E)DRN 132L4 2040 704/715
9.5	72200	187	26000	2.2	X			
11	61300	157	26100	2.6	X			
4.7	150700	379	25300	1.05	X	K	157R97	(E)DRN 132L4 1890 703/715
5.3	132800	333	25500	1.20	X	KF	157R97	(E)DRN 132L4 2060 704/715
6.1	115600	291	25700	1.40	X	KA	157R97	(E)DRN 132L4 1810 705/715
						KAF	157R97	(E)DRN 132L4 1940 704/715
7.0	101800	253	18000	1.15	X	K	127R87	(E)DRN 132L4 1240 696/714
8.3	85500	213	18200	1.35	X	KF	127R87	(E)DRN 132L4 1340 697/714
8.9	81400	200	18200	1.30	X	KA	127R87	(E)DRN 132L4 1180 698/714
11	67400	166	18300	1.55	X	KAF	127R87	(E)DRN 132L4 1260 697/714
12	59500	147	18400	1.80	X			
12	62900	154	14400	1.00	X	K	107R77	(E)DRN 132L4 840 689/714
13	57100	140	14300	1.10	X	KF	107R77	(E)DRN 132L4 870 690/714
						KA	107R77	(E)DRN 132L4 780 691/714
						KAF	107R77	(E)DRN 132L4 840 690/714
12	65600	150.41	26000	2.4	X	K	157	(E)DRN 132L4 1610 703
14	53400	122.39	26100	3.0	X	KF	157	(E)DRN 132L4 1790 704
						KA	157	(E)DRN 132L4 1530 705
						KAF	157	(E)DRN 132L4 1660 704
13	59400	136.14	18400	1.95	X	K	127	(E)DRN 132L4 1100 696
14	53400	122.48	18400	2.1	X	KF	127	(E)DRN 132L4 1190 697
16	48100	110.18	18500	2.4	X	KA	127	(E)DRN 132L4 1040 698
20	39200	89.89	18500	2.9	X	KAF	127	(E)DRN 132L4 1120 697
22	35700	81.98	18500	3.2	X			
16	49000	112.41*	13800	1.45	X			
18	43900	100.75	13600	1.60	X			
20	39700	90.96*	13400	1.80	X			
21	36000	82.61	13200	1.95	X	K	107	(E)DRN 132L4 760 689
24	32000	73.30	12900	2.2	X	KF	107	(E)DRN 132L4 790 690
27	29000	66.52*	12700	2.4	X	KA	107	(E)DRN 132L4 700 691
31	24900	57.17*	12400	2.8	X	KAF	107	(E)DRN 132L4 750 690
36	21700	49.90	12000	3.2	X			
42	18400	42.33*	11600	3.5	X			
21	37700	86.52	7910	1.00	X			
23	34000	77.89*	7890	1.10	X			
25	30700	70.54	7850	1.25	X			
28	27300	62.55	7790	1.40	X			
31	24600	56.55	7710	1.55	X			
37	20900	47.93*	7570	1.80	X	K	97	(E)DRN 132L4 510 682
42	18200	41.87	7430	2.1	X	KF	97	(E)DRN 132L4 550 683
46	16700	38.30	7320	2.3	X	KA	97	(E)DRN 132L4 465 684
52	14900	34.23	7190	2.5	X	KAF	97	(E)DRN 132L4 520 683
58	13400	30.82	7060	2.8	X			
64	12100	27.91	6930	3.1	X			
72	10800	24.75	6770	3.5	X			
36	21400	49.16	5000	1.10	X			
40	19200	44.02	4990	1.20	X			
49	15900	36.52*	4950	1.40	X			
57	13700	31.39	4880	1.75	X			
64	12100	27.88	4820	1.90	X			
71	10800	24.92	4750	2.0	X	K	87	(E)DRN 132L4 375 675
79	9780	22.41	4680	2.1	X	KF	87	(E)DRN 132L4 395 676
91	8480	19.45	4580	2.4	X	KA	87	(E)DRN 132L4 350 677
102	7600	17.42	4490	2.6	X	KAF	87	(E)DRN 132L4 380 676
111	6980	16.00	4300	2.3	X			
123	6300	14.45	4330	3.0	X			
141	5480	12.56	4210	3.2	X			
159	4870	11.17	4020	2.7	X			
178	4360	10.00	3930	3.0	X			

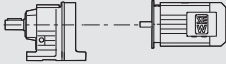

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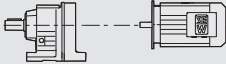

P_m = 12.3 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
77	10000	23.08	3980	1.35	X			
88	8830	20.25	3920	1.50	X			
99	7790	17.87	3860	1.65	X			
112	6910	15.84	3800	1.80	X	K	77	(E)DRN 132L4 295 668
131	5900	13.52	3700	2.0	X	KF	77	(E)DRN 132L4 315 669
144	5390	12.36	3550	1.65	X	KA	77	(E)DRN 132L4 280 670
164	4730	10.84	3480	1.85	X	KAF	77	(E)DRN 132L4 300 669
186	4170	9.56	3400	2.0	X			
209	3700	8.48	3330	2.1	X			
245	3160	7.24	3220	2.3	X			

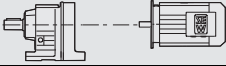

P_m = 15.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs	
2.1	406000	835	42700	1.10	X			
2.4	352900	729	42700	1.25	X			
2.9	300900	622	42700	1.45	X	K	187R107	(E)DRN 160M4 4220 712/715
3.4	255300	520	42700	1.75	X	KH	187R107	(E)DRN 160M4 4070 713/715
3.9	221900	454	42700	2.0	X			
5.0	171200	355	42700	2.6	X			
2.4	361700	738	42700	1.20	X	K	187R97	(E)DRN 160M4 4120 712/715
2.9	304000	621	42700	1.45	X	KH	187R97	(E)DRN 160M4 3970 713/715
3.4	256900	527	42700	1.70	X			
5.6	156100	318	33700	1.80	X			
6.4	135700	278	33700	2.1	X	K	167R107	(E)DRN 160M4 2940 710/715
7.3	117400	244	33700	2.4	X	KH	167R107	(E)DRN 160M4 2850 711/715
8.3	102100	213	33700	2.8	X			
8.6	99500	206	33700	2.8	X			
3.2	272800	561	33700	1.05	X	K	167R97	(E)DRN 160M4 2830 710/715
3.7	235700	481	33700	1.20	X	KH	167R97	(E)DRN 160M4 2750 711/715
4.2	205900	423	33700	1.35	X			
4.8	179800	369	33700	1.55	X			
5.5	154700	325	25300	1.05	X	K	157R107	(E)DRN 160M4 2070 703/715
6.0	144500	299	25400	1.10	X	KF	157R107	(E)DRN 160M4 2240 704/715
7.0	121900	253	25600	1.30	X	KA	157R107	(E)DRN 160M4 1990 705/715
7.7	109400	230	25700	1.45	X	KAF	157R107	(E)DRN 160M4 2120 704/715
8.3	103500	213	25800	1.55	X			
9.5	88900	187	25900	1.80	X			
11	75400	157	26000	2.1	X			
15	59500	122	26100	2.7	X			
5.3	162500	333	25200	1.00		K	157R97	(E)DRN 160M4 1960 703/715
6.1	141500	291	25400	1.10	X	KF	157R97	(E)DRN 160M4 2140 704/715
						KA	157R97	(E)DRN 160M4 1880 705/715
						KAF	157R97	(E)DRN 160M4 2010 704/715
8.3	104500	213	17900	1.10	X	K	127R87	(E)DRN 160M4 1310 696/714
8.9	99500	200	18000	1.05	X	KF	127R87	(E)DRN 160M4 1410 697/714
11	82400	166	18200	1.30	X	KA	127R87	(E)DRN 160M4 1250 698/714
12	72700	147	18300	1.45	X	KAF	127R87	(E)DRN 160M4 1340 697/714
11	87500	164.50	33700	3.2	X	K	167	(E)DRN 160M4 2550 710
13	71800	134.99	33700	3.9	X	KH	167	(E)DRN 160M4 2470 711
12	80000	150.41	26000	2.0	X	K	157	(E)DRN 160M4 1680 703
15	65100	122.39	26000	2.5	X	KF	157	(E)DRN 160M4 1850 704
18	53300	100.22	25800	3.0	X	KA	157	(E)DRN 160M4 1600 705
19	48700	91.65	25300	3.3	X	KAF	157	(E)DRN 160M4 1730 704
13	72400	136.14	18300	1.60	X			
14	65100	122.48	18400	1.75	X	K	127	(E)DRN 160M4 1170 696
16	58600	110.18	18400	1.95	X	KF	127	(E)DRN 160M4 1260 697
20	47800	89.89	18500	2.4	X	KA	127	(E)DRN 160M4 1110 698
22	43600	81.98	18500	2.6	X	KAF	127	(E)DRN 160M4 1190 697
25	37700	70.95*	18500	3.0	X			

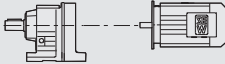

P_m = 15.0 HP							m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®		lbs	
16	59800	112.41*	13000	1.20	X			
18	53600	100.75	12900	1.30	X			
20	48400	90.96*	12700	1.45	X			
22	43900	82.61	12600	1.60	X	K	107	(E)DRN 160M4 830 689
24	39000	73.30	12400	1.80	X	KF	107	(E)DRN 160M4 860 690
27	35300	66.52*	12200	2.0	X	KA	107	(E)DRN 160M4 770 691
31	30400	57.17*	11900	2.3	X	KAF	107	(E)DRN 160M4 820 690
36	26500	49.90	11700	2.6	X			
42	22500	42.33*	11300	2.9	X			
48	19600	37.00*	11000	3.2	X			
25	37500	70.54	7260	1.00	X			
28	33200	62.55	7260	1.15	X			
31	30000	56.55	7240	1.25	X			
37	25500	47.93*	7160	1.50	X			
42	22200	41.87	7070	1.70	X	K	97	(E)DRN 160M4 580 682
46	20300	38.30	7000	1.85	X	KF	97	(E)DRN 160M4 620 683
52	18200	34.23	6900	2.1	X	KA	97	(E)DRN 160M4 540 684
58	16300	30.82	6800	2.3	X	KAF	97	(E)DRN 160M4 590 683
64	14800	27.91	6690	2.6	X			
72	13100	24.75	6560	2.9	X			
79	11900	22.37	6440	3.2	X			
40	23400	44.02	4560	1.00	X			
49	19400	36.52*	4590	1.15	X			
57	16700	31.39	4580	1.45	X			
64	14800	27.88	4550	1.55	X			
71	13200	24.92	4510	1.65	X			
79	11900	22.41	4460	1.70	X			
91	10300	19.45	4390	1.95	X	K	87	(E)DRN 160M4 445 675
102	9260	17.42	4320	2.1	X	KF	87	(E)DRN 160M4 465 676
111	8510	16.00	4110	1.85	X	KA	87	(E)DRN 160M4 420 677
123	7680	14.45	4190	2.4	X	KAF	87	(E)DRN 160M4 450 676
141	6680	12.56	4090	2.6	X			
159	5940	11.17	3890	2.2	X			
178	5310	10.00	3820	2.5	X			
214	4410	8.29	3680	2.8	X			
246	3830	7.21	3580	3.0	X			
77	12200	23.08	3690	1.10	X			
88	10700	20.25	3690	1.25	X			
99	9500	17.87	3660	1.35	X			
112	8420	15.84	3620	1.45	X	K	77	(E)DRN 160M4 365 668
131	7190	13.52	3550	1.65	X	KF	77	(E)DRN 160M4 385 669
144	6570	12.36	3390	1.35	X	KA	77	(E)DRN 160M4 350 670
164	5760	10.84	3340	1.50	X	KAF	77	(E)DRN 160M4 370 669
186	5080	9.56	3280	1.65	X			
209	4510	8.48	3220	1.75	X			
245	3850	7.24	3130	1.90	X			

P_m = 20 HP							m	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®		lbs	
2.9	403600	622	42700	1.10	X			
3.4	342100	520	42700	1.30	X			
3.9	297700	454	42700	1.50	X	K	187R107	(E)DRN 160L4 4250 712/715
5.0	229900	355	42700	1.90	X	KH	187R107	(E)DRN 160L4 4110 713/715
6.8	171200	261	42700	2.6	X			
2.9	406600	621	42700	1.10	X	K	187R97	(E)DRN 160L4 4150 712/715
3.4	343900	527	42700	1.30	X	KH	187R97	(E)DRN 160L4 4000 713/715
5.6	209200	318	33700	1.35	X			
6.4	182000	278	33700	1.55	X			
7.3	157700	244	33700	1.80	X			
8.3	137300	213	33700	2.1	X	K	167R107	(E)DRN 160L4 2970 710/715
8.6	133900	206	33700	2.1	X	KH	167R107	(E)DRN 160L4 2890 711/715
9.9	115400	180	33700	2.5	X			
11	104700	160	33700	2.7	X			

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P_m = 20 HP												
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs		
4.2	275800	423	33700	1.05	X	K	167R97	(E)DRN	160L4	2870	710/715	
4.8	240700	369	33700	1.20	X		KH	167R97	(E)DRN	160L4	2780	711/715
7.7	147500	230	25400	1.10	X	K	157R107	(E)DRN	160L4	2100	703/715	
8.3	139000	213	25500	1.15	X		KF	157R107	(E)DRN	160L4	2280	704/715
9.5	119800	187	25600	1.35	X		KA	157R107	(E)DRN	160L4	2020	705/715
11	101700	157	25800	1.55	X		KAF	157R107	(E)DRN	160L4	2150	704/715
15	79900	122	26000	2.0	X							
17	69600	107	25500	2.3	X							
12	97200	147	18000	1.10	X		K	127R87	(E)DRN	160L4	1350	696/714
						KF	127R87	(E)DRN	160L4	1440	697/714	
						KA	127R87	(E)DRN	160L4	1290	698/714	
						KAF	127R87	(E)DRN	160L4	1370	697/714	
11	116600	164.50	33700	2.4	X	K	167	(E)DRN	160L4	2580	710	
13	95700	134.99	33700	3.0	X	KH	167	(E)DRN	160L4	2500	711	
12	106600	150.41	25800	1.50	X	K	157	(E)DRN	160L4	1720	703	
15	86700	122.39	25700	1.85	X		KF	157	(E)DRN	160L4	1890	704
18	71000	100.22	24800	2.2	X		KA	157	(E)DRN	160L4	1630	705
19	64900	91.65	24400	2.5	X		KAF	157	(E)DRN	160L4	1760	704
22	56500	79.75	23700	2.8	X							
13	96500	136.14	18000	1.20	X	K	127	(E)DRN	160L4	1200	696	
15	86800	122.48	18100	1.30	X		KF	127	(E)DRN	160L4	1300	697
16	78100	110.18	18200	1.45	X		KA	127	(E)DRN	160L4	1140	698
20	63700	89.89	18400	1.80	X		KAF	127	(E)DRN	160L4	1220	697
22	58100	81.98	18200	2.0	X							
25	50300	70.95*	17800	2.3	X							
28	44300	62.60	17400	2.6	X							
33	38300	54.07	16900	3.0	X							
37	33900	47.82	16500	3.4	X							
20	64400	90.96*	11300	1.10	X		K	107	(E)DRN	160L4	870	689
22	58500	82.61	11500	1.20	X	KF		107	(E)DRN	160L4	890	690
24	51900	73.30	11400	1.35	X	KA		107	(E)DRN	160L4	810	691
27	47100	66.52*	11400	1.50	X	KAF		107	(E)DRN	160L4	860	690
31	40500	57.17*	11200	1.75	X							
36	35300	49.90	11000	1.95	X							
42	30000	42.33*	10700	2.2	X							
48	26200	37.00*	10500	2.4	X							
54	23100	32.69	10300	2.8	X							
57	22100	31.28*	10200	2.7	X							
61	20500	29.00	10100	3.1	X							
37	33900	47.93*	6410	1.10	X	K	97	(E)DRN	160L4	610	682	
42	29600	41.87	6420	1.30	X		KF	97	(E)DRN	160L4	660	683
46	27100	38.30	6400	1.40	X		KA	97	(E)DRN	160L4	570	684
52	24200	34.23	6360	1.55	X		KAF	97	(E)DRN	160L4	630	683
58	21800	30.82	6310	1.75	X							
64	19700	27.91	6250	1.90	X							
72	17500	24.75	6170	2.2	X							
79	15800	22.37	6090	2.4	X							
94	13400	18.96	5940	2.8	X							
107	11700	16.56	5800	3.2	X							
57	22200	31.39	4010	1.05	X		K	87	(E)DRN	160L4	480	675
64	19700	27.88	4040	1.15	X	KF		87	(E)DRN	160L4	500	676
71	17600	24.92	4060	1.25	X	KA		87	(E)DRN	160L4	455	677
79	15800	22.41	4060	1.30	X	KAF		87	(E)DRN	160L4	485	676
91	13700	19.45	4030	1.50	X							
102	12300	17.42	4000	1.60	X							
111	11300	16.00	3770	1.40	X							
123	10200	14.45	3930	1.80	X							
141	8900	12.56	3860	2.0	X							
159	7910	11.17	3660	1.70	X							
178	7080	10.00	3610	1.85	X							
214	5880	8.29	3510	2.1	X							
246	5110	7.21	3430	2.2	X							

P_m = 25 HP


n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.4	428100	520	42700	1.05	X						
3.9	372800	454	42700	1.20	X						
5.0	288100	355	42700	1.55	X	K	187R107	(E)DRN	180M4	4300	712/715
6.8	214300	261	42700	2.1	X	KH	187R107	(E)DRN	180M4	4150	713/715
8.0	181200	221	42700	2.4	X						
9.2	157900	193	42700	2.8	X						
3.4	430000	527	42700	1.05	X	K	187R97	(E)DRN	180M4	4200	712/715
						KH	187R97	(E)DRN	180M4	4050	713/715
5.6	261800	318	33700	1.10	X						
6.4	227900	278	33700	1.25	X						
7.3	197600	244	33700	1.45	X						
8.3	172200	213	33700	1.65	X	K	167R107	(E)DRN	180M4	3020	710/715
8.7	167900	206	33700	1.70	X	KH	167R107	(E)DRN	180M4	2930	711/715
9.9	144900	180	33700	1.95	X						
11	131100	160	33700	2.2	X						
13	110800	135	33700	2.5	X						
15	96500	118	33700	2.9	X						
9.5	150500	187	25300	1.05	X	K	157R107	(E)DRN	180M4	2150	703/715
11	127700	157	25600	1.25	X	KF	157R107	(E)DRN	180M4	2320	704/715
15	100100	122	24900	1.60	X	KA	157R107	(E)DRN	180M4	2070	705/715
17	87300	107	24400	1.80	X	KAF	157R107	(E)DRN	180M4	2200	704/715
9.9	159000	179.86	42700	2.8	X						
11	146100	165.21	42700	3.0	X	K	187	(E)DRN	180M4	3920	712
12	127800	144.59	42700	3.5	X	KH	187	(E)DRN	180M4	3770	713
14	114600	129.69	42700	3.9	X						
13	119300	134.99	33700	2.4	X						
16	97100	109.83	33700	2.9	X	K	167	(E)DRN	180M4	2640	710
20	77700	87.86	33700	3.6	X	KH	167	(E)DRN	180M4	2550	711
15	108200	122.39	24500	1.45	X						
18	88600	100.22	23800	1.80	X						
19	81000	91.65	23500	1.95	X	K	157	(E)DRN	180M4	1770	703
22	70500	79.75	22900	2.3	X	KF	157	(E)DRN	180M4	1940	704
25	62200	70.38	22400	2.6	X	KA	157	(E)DRN	180M4	1690	705
29	53900	61.02	21800	3.0	X	KAF	157	(E)DRN	180M4	1820	704
33	48000	54.29	21200	3.3	X						
38	41300	46.79	20600	3.9	X						
47	33600	38.02	19600	4.7	X						
16	97400	110.18	17700	1.20	X						
20	79500	89.89	17400	1.45	X						
22	72500	81.98	17300	1.60	X						
25	62700	70.95*	17000	1.85	X	K	127	(E)DRN	180M4	1250	696
28	55300	62.60	16700	2.1	X	KF	127	(E)DRN	180M4	1350	697
33	47800	54.07	16300	2.4	X	KA	127	(E)DRN	180M4	1190	698
37	42200	47.82	15900	2.7	X	KAF	127	(E)DRN	180M4	1270	697
44	35500	40.19	15400	3.2	X						
49	32000	36.25	15100	3.6	X						
57	27700	31.37	14600	4.2	X						
64	24400	27.68	14200	4.7	X						
24	64800	73.30	10100	1.10	X						
27	58800	66.52*	10300	1.20	X						
31	50500	57.17*	10400	1.40	X						
36	44100	49.90	10300	1.55	X						
42	37400	42.33*	10200	1.75	X	K	107	(E)DRN	180M4	910	689
48	32700	37.00*	10000	1.95	X	KF	107	(E)DRN	180M4	940	690
54	28800	32.69	9850	2.2	X	KA	107	(E)DRN	180M4	850	691
57	27600	31.28*	9790	2.2	X	KAF	107	(E)DRN	180M4	900	690
61	25600	29.00	9670	2.5	X						
68	23200	26.32	9520	2.7	X						
79	19900	22.62	9260	3.2	X						
90	17400	19.74	9020	3.6	X						
106	14800	16.75	8720	4.2	X						

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P_m = 25 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs		
43	37000	41.87	5760	1.05	X						
58	27200	30.82	5830	1.40	X						
64	24600	27.91	5820	1.55	X						
72	21800	24.75	5780	1.75	X	K	97	(E)DRN	180M4	660	682
80	19700	22.37	5740	1.90	X	KF	97	(E)DRN	180M4	710	683
94	16700	18.96	5640	2.3	X	KA	97	(E)DRN	180M4	620	684
108	14600	16.56	5540	2.6	X	KAF	97	(E)DRN	180M4	680	683
129	12200	13.85	5400	3.1	X						
149	10600	11.99	5270	3.2	X						
171	9200	10.41	4960	2.8	X						
71	22000	24.92	3610	1.00	X						
80	19800	22.41	3650	1.05	X						
92	17100	19.45	3680	1.20	X						
102	15300	17.42	3690	1.25	X	K	87	(E)DRN	180M4	530	675
123	12700	14.45	3670	1.45	X	KF	87	(E)DRN	180M4	550	676
142	11100	12.56	3630	1.60	X	KA	87	(E)DRN	180M4	500	677
160	9870	11.17	3420	1.35	X	KAF	87	(E)DRN	180M4	530	676
178	8830	10.00	3390	1.50	X						
215	7330	8.29	3330	1.70	X						
247	6370	7.21	3270	1.80	X						

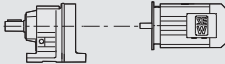

P_m = 30 HP



n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
3.9	448500	454	42700	1.00							
5.0	346900	355	42700	1.30	X						
6.8	257900	261	42700	1.70	X	K	187R107	(E)DRN	180L4	4340	712/715
8.0	218100	221	42700	2.0	X	KH	187R107	(E)DRN	180L4	4190	713/715
9.2	190200	193	42700	2.3	X						
11	160100	163	42700	2.8	X						
6.4	274300	278	33700	1.05	X						
7.3	237900	244	33700	1.20	X						
8.3	207400	213	33700	1.35	X						
8.7	202300	206	33700	1.40	X	K	167R107	(E)DRN	180L4	3050	710/715
9.9	174700	180	33700	1.60	X	KH	167R107	(E)DRN	180L4	2970	711/715
11	157700	160	33700	1.80	X						
13	133400	135	33700	2.1	X						
15	116300	118	33700	2.4	X						
11	153900	157	24300	1.05	X	K	157R107	(E)DRN	180L4	2180	703/715
15	120600	122	23800	1.30	X	KF	157R107	(E)DRN	180L4	2360	704/715
17	105100	107	23500	1.50	X	KA	157R107	(E)DRN	180L4	2100	705/715
						KAF	157R107	(E)DRN	180L4	2230	704/715
9.9	190800	179.86	42700	2.3	X						
11	175300	165.21	42700	2.5	X	K	187	(E)DRN	180L4	3960	712
12	153400	144.59	42700	2.9	X	KH	187	(E)DRN	180L4	3810	713
14	137600	129.69	42700	3.2	X						
13	143200	134.99	33700	2.0	X						
16	116500	109.83	33700	2.4	X	K	167	(E)DRN	180L4	2670	710
20	93200	87.86	33700	3.0	X	KH	167	(E)DRN	180L4	2590	711
23	82900	78.14	33700	3.4	X						
15	129800	122.39	23300	1.25	X						
18	106300	100.22	22800	1.50	X						
19	97200	91.65	22600	1.65	X	K	157	(E)DRN	180L4	1800	703
22	84600	79.75	22100	1.90	X	KF	157	(E)DRN	180L4	1980	704
25	74600	70.38	21700	2.1	X	KA	157	(E)DRN	180L4	1720	705
29	64700	61.02	21200	2.5	X	KAF	157	(E)DRN	180L4	1850	704
33	57600	54.29	20700	2.8	X						
38	49600	46.79	20100	3.2	X						
47	40300	38.02	19200	4.0	X						

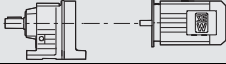

P_m = 30 HP

n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
16	116900	110.18	16500	1.00						
20	95400	89.89	16400	1.20	X					
22	87000	81.98	16400	1.30	X					
25	75200	70.95*	16200	1.55	X					
28	66400	62.60	16000	1.75	X					
33	57300	54.07	15700	2.0	X	K	127	(E)DRN 180L4	1290	696
37	50700	47.82	15400	2.3	X	KF	127	(E)DRN 180L4	1380	697
44	42600	40.19	15000	2.7	X	KA	127	(E)DRN 180L4	1220	698
49	38400	36.25	14700	3.0	X	KAF	127	(E)DRN 180L4	1310	697
57	33200	31.37	14300	3.5	X					
64	29300	27.68	13900	3.9	X					
75	25300	23.91	13500	4.5	X					
84	22400	21.15	13200	5.1	X					
27	70500	66.52*	8930	1.00	X					
31	60600	57.17*	9340	1.15	X					
36	52900	49.90	9570	1.30	X					
42	44900	42.33*	9630	1.45	X					
48	39200	37.00*	9540	1.60	X					
54	34600	32.69	9420	1.85	X					
57	33100	31.28*	9380	1.80	X	K	107	(E)DRN 180L4	950	689
61	30700	29.00	9290	2.1	X	KF	107	(E)DRN 180L4	970	690
68	27900	26.32	9170	2.3	X	KA	107	(E)DRN 180L4	890	691
79	23900	22.62	8960	2.6	X	KAF	107	(E)DRN 180L4	940	690
90	20900	19.74	8760	3.0	X					
106	17700	16.75	8500	3.5	X					
122	15500	14.64	8280	3.9	X					
133	14200	13.43	7950	2.7	X					
152	12400	11.73	7740	3.1	X					
179	10500	9.94	7480	3.5	X					
58	32600	30.82	5350	1.15	X					
64	29600	27.91	5380	1.30	X					
72	26200	24.75	5400	1.45	X					
80	23700	22.37	5390	1.60	X	K	97	(E)DRN 180L4	700	682
94	20100	18.96	5340	1.90	X	KF	97	(E)DRN 180L4	740	683
108	17500	16.56	5290	2.2	X	KA	97	(E)DRN 180L4	660	684
129	14600	13.85	5180	2.6	X	KAF	97	(E)DRN 180L4	710	683
149	12700	11.99	5080	2.7	X					
171	11000	10.41	4770	2.3	X					
205	9230	8.71	4650	2.5	X					
236	7990	7.54	4540	2.6	X					
92	20600	19.45	3330	1.00						
102	18400	17.42	3370	1.05	X	K	87	(E)DRN 180L4	560	675
123	15300	14.45	3410	1.20	X	KF	87	(E)DRN 180L4	580	676
142	13300	12.56	3410	1.35	X	KA	87	(E)DRN 180L4	540	677
160	11800	11.17	3180	1.10	X	KAF	87	(E)DRN 180L4	570	676
178	10600	10.00	3180	1.25	X					
215	8800	8.29	3160	1.40	X					
247	7650	7.21	3120	1.50	X					

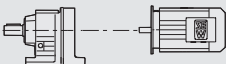

P_m = 40 HP

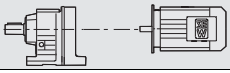

n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs			
6.8	344600	261	42700	1.30	X					
8.1	291700	221	42700	1.50	X	K	187R107	(E)DRN 200L4	4580	712/715
9.2	254500	193	42700	1.75	X	KH	187R107	(E)DRN 200L4	4430	713/715
11	214500	163	42700	2.1	X					
8.4	277500	213	33700	1.00	X					
8.7	270600	206	33700	1.05	X					
9.9	234000	180	33700	1.20	X	K	167R107	(E)DRN 200L4	3290	710/715
11	210700	160	33700	1.35	X	KH	167R107	(E)DRN 200L4	3210	711/715
13	178400	135	33700	1.60	X					
15	155600	118	33700	1.80	X					

P_m = 40 HP								m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®						
17	140600	107	21500	1.15	X	K	157R107	(E)DRN	200L4	2430	703/715
						KF	157R107	(E)DRN	200L4	2600	704/715
						KA	157R107	(E)DRN	200L4	2340	705/715
						KAF	157R107	(E)DRN	200L4	2470	704/715
9.9	254200	179.86	42700	1.75	X	K KH	187	(E)DRN	200L4	4190	712
11	233500	165.21	42700	1.90	X						
12	204300	144.59	42700	2.2	X						
14	183300	129.69	42700	2.4	X						
16	159100	112.60	42700	2.8	X						
17	144400	102.16	42700	3.1	X						
20	124300	88.00	42600	3.6	X						
16	155200	109.83	33700	1.80	X	K KH	167	(E)DRN	200L4	2910	710
20	124100	87.86	33700	2.3	X						
23	110400	78.14	33700	2.6	X						
26	96200	68.07	33700	2.9	X						
29	85800	60.74	33700	3.3	X						
18	141600	100.22	20800	1.10	X	K KF KA KAF	157	(E)DRN	200L4	2040	703
19	129500	91.65	20800	1.25	X						
22	112700	79.75	20600	1.40	X						
25	99400	70.38	20300	1.60	X						
29	86200	61.02	20000	1.85	X						
33	76700	54.29	19600	2.1	X						
38	66100	46.79	19200	2.4	X						
47	53700	38.02	18500	3.0	X						
57	44200	31.30	17800	3.6	X						
25	100200	70.95*	14600	1.15	X						
28	88400	62.60	14600	1.30	X						
33	76400	54.07	14500	1.50	X						
37	67500	47.82	14300	1.70	X						
44	56800	40.19	14100	2.0	X						
49	51200	36.25	13900	2.2	X						
57	44300	31.37	13600	2.6	X						
64	39100	27.68	13300	2.9	X						
75	33700	23.91	13000	3.4	X						
42	59800	42.33*	8010	1.10	X	K KF KA KAF	107	(E)DRN	200L4	1190	689
48	52200	37.00*	8300	1.20	X						
57	44200	31.28*	8510	1.35	X						
62	40900	29.00	8530	1.55	X						
68	37100	26.32	8480	1.70	X						
79	31900	22.62	8370	2.0	X						
90	27900	19.74	8240	2.3	X						
106	23600	16.75	8060	2.6	X						
122	20600	14.64	7890	3.0	X						
133	18900	13.43	7540	2.0	X						
152	16500	11.73	7380	2.3	X						
179	14000	9.94	7180	2.6	X						
205	12200	8.69	7000	2.9	X						
72	34900	24.75	4620	1.10	X						
80	31600	22.37	4690	1.20	X						
94	26700	18.96	4750	1.40	X						
108	23400	16.56	4770	1.65	X						
129	19500	13.85	4750	1.95	X						
149	16900	11.99	4710	2.0	X						
171	14700	10.41	4370	1.75	X						
205	12300	8.71	4320	1.90	X						
237	10600	7.54	4260	2.0	X						

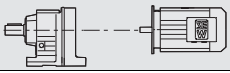

P_m = 50 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]					m lbs	
6.8	431100	261	42700	1.05	X						
8.1	365100	221	42700	1.20	X	K	187R107	(E)DRN	225S4	4650	712/715
9.2	318600	193	42700	1.40	X	KH	187R107	(E)DRN	225S4	4500	713/715
11	268700	163	42700	1.65	X						
11	263600	160	33700	1.05	X	K	167R107	(E)DRN	225S4	3360	710/715
13	223200	135	33700	1.25	X	KH	167R107	(E)DRN	225S4	3280	711/715
15	194800	118	33700	1.45	X						
9.9	317400	179.86	42700	1.40	X						
11	291500	165.21	42700	1.50	X						
12	255100	144.59	42700	1.75	X	K	187	(E)DRN	225S4	4260	712
14	228800	129.69	42700	1.95	X	KH	187	(E)DRN	225S4	4110	713
16	198700	112.60	42700	2.2	X						
17	180300	102.16	42500	2.5	X						
20	155300	88.00	41300	2.9	X						
16	193800	109.83	33700	1.45	X						
20	155000	87.86	33700	1.85	X						
23	137900	78.14	33700	2.0	X	K	167	(E)DRN	225S4	2980	710
26	120100	68.07	33700	2.4	X	KH	167	(E)DRN	225S4	2890	711
29	107100	60.74	33500	2.6	X						
34	91300	51.77	32400	3.1	X						
19	161700	91.65	19000	1.00	X						
22	140700	79.75	19000	1.15	X						
25	124200	70.38	18900	1.30	X	K	157	(E)DRN	225S4	2110	703
29	107600	61.02	18800	1.50	X	KF	157	(E)DRN	225S4	2280	704
33	95800	54.29	18600	1.65	X	KA	157	(E)DRN	225S4	2030	705
38	82500	46.79	18300	1.95	X	KAF	157	(E)DRN	225S4	2160	704
47	67100	38.02	17700	2.4	X						
57	55200	31.30	17200	2.9	X						
29	110400	62.60	13100	1.05	X						
33	95400	54.07	13200	1.20	X						
37	84300	47.82	13200	1.35	X						
44	70900	40.19	13200	1.60	X						
49	63900	36.25	13100	1.80	X						
57	55300	31.37	12900	2.1	X	K	127	(E)DRN	225S4	1600	696
64	48800	27.68	12700	2.4	X	KF	127	(E)DRN	225S4	1690	697
75	42100	23.91	12400	2.7	X	KA	127	(E)DRN	225S4	1530	698
84	37300	21.15	12200	3.1	X	KAF	127	(E)DRN	225S4	1620	697
100	31300	17.77	11800	3.7	X						
124	25300	14.35	11400	4.2	X						
140	22500	12.79	10900	3.4	X						
166	18900	10.74	10500	3.7	X						
206	15300	8.68	10000	4.2	X						
48	65200	37.00*	6710	1.00	X						
57	55200	31.28*	7240	1.10	X						
62	51100	29.00	7420	1.25	X						
68	46400	26.32	7580	1.35	X						
79	39900	22.62	7740	1.60	X						
90	34800	19.74	7720	1.85	X	K	107	(E)DRN	225S4	1260	689
107	29500	16.75	7620	2.1	X	KF	107	(E)DRN	225S4	1280	690
122	25800	14.64	7500	2.4	X	KA	107	(E)DRN	225S4	1200	691
133	23700	13.43	7130	1.60	X	KAF	107	(E)DRN	225S4	1250	690
152	20600	11.73	7020	1.85	X						
180	17500	9.94	6870	2.1	X						
205	15300	8.69	6730	2.4	X						
243	12900	7.35	6540	2.5	X						
94	33400	18.96	4160	1.15	X						
108	29200	16.56	4250	1.30	X	K	97	(E)DRN	225S4	1010	682
129	24400	13.85	4320	1.55	X	KF	97	(E)DRN	225S4	1050	683
149	21100	11.99	4330	1.65	X	KA	97	(E)DRN	225S4	970	684
171	18300	10.41	3980	1.40	X	KAF	97	(E)DRN	225S4	1020	683
205	15300	8.71	3990	1.55	X						
237	13300	7.54	3970	1.60	X						

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P_m = 60 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
8.1	438800	221	42700	1.00	X						
9.2	383000	193	42700	1.15	X	K	187R107	(E)DRN	225M4	4650	712/715
11	323200	163	42700	1.35	X	KH	187R107	(E)DRN	225M4	4500	713/715
13	268300	135	33700	1.05	X	K	167R107	(E)DRN	225M4	3360	710/715
15	234200	118	33700	1.20	X	KH	167R107	(E)DRN	225M4	3280	711/715
9.9	380900	179.86	42700	1.15	X						
11	349800	165.21	42700	1.25	X						
12	306200	144.59	42700	1.45	X						
14	274600	129.69	42500	1.60	X	K	187	(E)DRN	225M4	4260	712
16	238400	112.60	41700	1.85	X	KH	187	(E)DRN	225M4	4110	713
17	216300	102.16	41100	2.0	X						
20	186300	88.00	40100	2.4	X						
24	156600	73.96	38900	2.8	X						
16	232500	109.83	33700	1.20	X						
20	186000	87.86	33700	1.50	X						
23	165400	78.14	33700	1.70	X	K	167	(E)DRN	225M4	2980	710
26	144100	68.07	33100	1.95	X	KH	167	(E)DRN	225M4	2890	711
29	128600	60.74	32500	2.2	X						
34	109600	51.77	31600	2.6	X						
42	90800	42.89	30500	3.1	X						
25	149000	70.38	17500	1.05	X						
29	129200	61.02	17600	1.25	X						
33	114900	54.29	17500	1.40	X						
38	99100	46.79	17300	1.60	X	K	157	(E)DRN	225M4	2110	703
47	80500	38.02	17000	2.0	X	KF	157	(E)DRN	225M4	2280	704
57	66200	31.30	16600	2.4	X	KA	157	(E)DRN	225M4	2030	705
65	58500	27.62	16300	2.7	X	KAF	157	(E)DRN	225M4	2160	704
75	50700	23.95	15900	3.1	X						
84	45100	21.31	15500	3.5	X						
97	38800	18.37	15100	4.1	X						
33	114500	54.07	12000	1.00	X						
37	101200	47.82	12200	1.15	X						
44	85100	40.19	12200	1.35	X						
49	76700	36.25	12200	1.50	X						
57	66400	31.37	12200	1.75	X	K	127	(E)DRN	225M4	1600	696
64	58600	27.68	12100	1.95	X	KF	127	(E)DRN	225M4	1690	697
75	50600	23.91	11900	2.3	X	KA	127	(E)DRN	225M4	1530	698
84	44700	21.15	11700	2.6	X	KAF	127	(E)DRN	225M4	1620	697
100	37600	17.77	11400	3.1	X						
124	30300	14.35	11000	3.5	X						
140	27000	12.79	10500	2.8	X						
166	22700	10.74	10200	3.1	X						
206	18300	8.68	9810	3.5	X						
62	61400	29.00	6140	1.05	X						
68	55700	26.32	6470	1.15	X						
79	47800	22.62	6840	1.35	X						
90	41800	19.74	7050	1.50	X	K	107	(E)DRN	225M4	1260	689
107	35400	16.75	7180	1.75	X	KF	107	(E)DRN	225M4	1280	690
122	30900	14.64	7120	1.95	X	KA	107	(E)DRN	225M4	1200	691
133	28400	13.43	6710	1.35	X	KAF	107	(E)DRN	225M4	1250	690
152	24800	11.73	6660	1.55	X						
180	21000	9.94	6560	1.75	X						
205	18400	8.69	6460	1.95	X						
243	15500	7.35	6310	2.0	X						

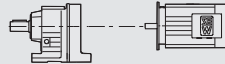

P_m = 75 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
12	382700	144.59	40000	1.15	X					
14	343300	129.69	39800	1.30	X					
16	298000	112.60	39400	1.50	X					
17	270400	102.16	39000	1.65	X	K	187	(E)DRN	250ME4	4700
20	232900	88.00	38300	1.90	X	KH	187	(E)DRN	250ME4	712
24	195700	73.96	37300	2.3	X					4550
28	169500	64.04	36500	2.6	X					713
20	232500	87.86	32200	1.20	X					
23	206800	78.14	31900	1.35	X					
26	180200	68.07	31400	1.55	X					
29	160700	60.74	31000	1.75	X	K	167	(E)DRN	250ME4	3410
34	137000	51.77	30300	2.1	X	KH	167	(E)DRN	250ME4	710
42	113500	42.89	29400	2.5	X					3330
49	96900	36.61	28600	2.9	X					711
29	161500	61.02	15800	1.00						
33	143700	54.29	15900	1.10	X					
38	123800	46.79	16000	1.30	X					
47	100600	38.02	15900	1.60	X	K	157	(E)DRN	250ME4	2550
57	82800	31.30	15600	1.90	X	KF	157	(E)DRN	250ME4	703
65	73100	27.62	15400	2.2	X	KA	157	(E)DRN	250ME4	2720
75	63400	23.95	15200	2.5	X	KAF	157	(E)DRN	250ME4	704
84	56400	21.31	14900	2.8	X					2460
97	48600	18.37	14600	3.3	X					705
120	39500	14.92	14000	4.0	X					2590
141	33500	12.65	13600	4.5	X					704
44	106300	40.19	10900	1.10	X					
57	83000	31.37	11100	1.40	X					
64	73200	27.68	11100	1.55	X					
75	63200	23.91	11100	1.80	X	K	127	(E)DRN	250ME4	2030
84	55900	21.15	11000	2.1	X	KF	127	(E)DRN	250ME4	696
100	47000	17.77	10800	2.5	X	KA	127	(E)DRN	250ME4	2120
124	37900	14.35	10600	2.8	X	KAF	127	(E)DRN	250ME4	697
140	33800	12.79	10000	2.2	X					1970
166	28400	10.74	9810	2.5	X					698
206	22900	8.68	9470	2.8	X					2050

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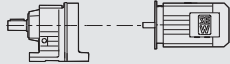

P_m = 100 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs	
16	397400	112.60	35500	1.10	X					
17	360600	102.16	35400	1.25	X					
20	310600	88.00	35200	1.40	X					
24	261000	73.96	34800	1.70	X	K	187	(E)DRN	280S4	4700
28	226000	64.04	34200	1.95	X	KH	187	(E)DRN	280S4	712
33	188300	53.36	33400	2.4	X					4550
39	160600	45.50*	32600	2.8	X					
42	150000	42.51	32200	3.0	X					
23	275800	78.14	28700	1.05	X					
26	240200	68.07	28700	1.20	X					
29	214300	60.74	28500	1.30	X					
34	182700	51.77	28200	1.55	X					
42	151400	42.89	27600	1.85	X	K	167	(E)DRN	280S4	3420
49	129200	36.61	27100	2.2	X	KH	167	(E)DRN	280S4	710
55	113800	32.25	26500	2.5	X					3340
62	101500	28.77	26000	2.8	X					
73	86500	24.52	25300	3.3	X					711

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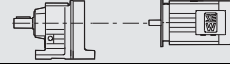

P_m = 100 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
47	134200	38.02	14000	1.20	X						
57	110400	31.30	14100	1.45	X						
65	97500	27.62	14100	1.65	X	K	157	(E)DRN	280S4	2550	703
75	84500	23.95	14000	1.90	X	KF	157	(E)DRN	280S4	2720	704
84	75200	21.31	13900	2.1	X	KA	157	(E)DRN	280S4	2470	705
97	64800	18.37	13700	2.5	X	KAF	157	(E)DRN	280S4	2600	704
120	52600	14.92	13300	3.0	X						
141	44600	12.65	13000	3.4	X						
57	110700	31.37	9350	1.05	X						
64	97600	27.68	9580	1.20	X						
75	84300	23.91	9750	1.35	X	K	127	(E)DRN	280S4	2030	696
84	74600	21.15	9820	1.55	X	KF	127	(E)DRN	280S4	2130	697
100	62700	17.77	9840	1.85	X	KA	127	(E)DRN	280S4	1970	698
124	50600	14.35	9750	2.1	X	KAF	127	(E)DRN	280S4	2050	697
140	45100	12.79	9220	1.65	X						
166	37900	10.74	9110	1.85	X						
206	30600	8.68	8910	2.1	X						

P_m = 125 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
17	451000	102.16	31900	1.00							
20	388500	88.00	32200	1.15	X						
24	326500	73.96	32200	1.35	X						
28	282700	64.04	32000	1.55	X	K	187	(E)DRN	280M4	4960	712
33	235500	53.36	31600	1.90	X	KH	187	(E)DRN	280M4	4810	713
39	200800	45.50*	31000	2.2	X						
42	187600	42.51	30800	2.4	X						
46	170200	38.57	30400	2.6	X						
29	268100	60.74	26000	1.05	X						
34	228500	51.77	26100	1.25	X						
42	189300	42.89	25900	1.50	X						
49	161600	36.61	25600	1.75	X	K	167	(E)DRN	280M4	3670	710
55	142300	32.25	25200	2.0	X	KH	167	(E)DRN	280M4	3590	711
62	127000	28.77	24900	2.2	X						
73	108200	24.52	24300	2.6	X						
88	89600	20.32	23500	3.2	X						
103	76500	17.34	22900	3.7	X						
57	138100	31.30	12600	1.15	X	K	157	(E)DRN	280M4/ERF/NS	2800	703
						KF	157	(E)DRN	280M4/ERF/NS	2980	704
						KA	157	(E)DRN	280M4/ERF/NS	2720	705
						KAF	157	(E)DRN	280M4/ERF/NS	2850	704
65	121900	27.62	12700	1.30	X						
74	105700	23.95	12800	1.50	X	K	157	(E)DRN	280M4	2800	703
84	94000	21.31	12800	1.70	X	KF	157	(E)DRN	280M4	2980	704
97	81000	18.37	12800	1.95	X	KA	157	(E)DRN	280M4	2720	705
120	65800	14.92	12600	2.4	X	KAF	157	(E)DRN	280M4	2850	704
141	55800	12.65	12300	2.7	X						
75	105500	23.91	8400	1.10	X						
84	93300	21.15	8630	1.25	X	K	127	(E)DRN	280M4	2290	696
100	78400	17.77	8840	1.45	X	KF	127	(E)DRN	280M4	2380	697
124	63300	14.35	8940	1.70	X	KA	127	(E)DRN	280M4	2220	698
140	56400	12.79	8400	1.35	X	KAF	127	(E)DRN	280M4	2310	697
166	47400	10.74	8420	1.50	X						
206	38300	8.68	8350	1.65	X						

P_m = 150 HP

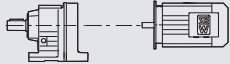

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
24	390400	73.96	29600	1.15	X						
28	338100	64.04	29800	1.30	X	K	187	(E)DRN	315S4	5490	712
34	281700	53.36	29700	1.55	X	KH	187	(E)DRN	315S4	5350	713
39	240200	45.50*	29400	1.85	X						
42	224400	42.51	29300	1.95	X	K	187	(E)DRN	315S4/ERF/NS	5490	712
						KH	187	(E)DRN	315S4/ERF/NS	5350	713
46	203600	38.57	29000	2.2	X	K	187	(E)DRN	315S4	5490	712
54	175400	33.23	28500	2.5	X	KH	187	(E)DRN	315S4	5350	713
64	147400	27.92	27800	3.0	X						
35	273300	51.77	23900	1.05	X	K	167	(E)DRN	315S4	4210	710
42	226400	42.89	24100	1.25	X	KH	167	(E)DRN	315S4	4130	711
49	193200	36.61	24000	1.45	X						
56	170200	32.25	23900	1.65	X	K	167	(E)DRN	315S4/ERF/NS	4210	710
						KH	167	(E)DRN	315S4/ERF/NS	4130	711
62	151900	28.77	23700	1.85	X						
73	129400	24.52	23300	2.2	X	K	167	(E)DRN	315S4	4210	710
88	107200	20.32	22700	2.6	X	KH	167	(E)DRN	315S4	4130	711
103	91500	17.34	22100	3.1	X						
75	126400	23.95	11600	1.25	X	K	157	(E)DRN	315S4/ERF/NS	3340	703
						KF	157	(E)DRN	315S4/ERF/NS	3510	704
						KA	157	(E)DRN	315S4/ERF/NS	3260	705
						KAF	157	(E)DRN	315S4/ERF/NS	3390	704
84	112500	21.31	11800	1.40	X	K	157	(E)DRN	315S4	3340	703
97	96900	18.37	11900	1.65	X	KF	157	(E)DRN	315S4	3510	704
120	78700	14.92	11800	2.0	X	KA	157	(E)DRN	315S4	3260	705
141	66800	12.65	11700	2.2	X	KAF	157	(E)DRN	315S4	3390	704

P_m = 175 HP

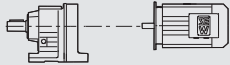

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
28	394200	64.04	27600	1.10	X						
34	328500	53.36	27900	1.35	X	K	187	(E)DRN	315ME4	5770	712
39	280100	45.50*	27900	1.60	X	KH	187	(E)DRN	315ME4	5620	713
42	261700	42.51	27800	1.70	X	K	187	(E)DRN	315ME4/ERF/NS	5770	712
46	237400	38.57	27700	1.85	X	KH	187	(E)DRN	315ME4/ERF/NS	5620	713
54	204500	33.23	27300	2.2	X						
64	171900	27.92	26800	2.6	X						
74	148800	24.18	26300	2.8	X	K	187	(E)DRN	315ME4	5770	712
89	124000	20.15	25600	3.1	X	KH	187	(E)DRN	315ME4	5620	713
104	105700	17.18	24900	3.5	X						
42	264000	42.89	22400	1.05	X	K	167	(E)DRN	315ME4	4490	710
49	225300	36.61	22500	1.25	X	KH	167	(E)DRN	315ME4	4410	711
56	198500	32.25	22600	1.45	X	K	167	(E)DRN	315ME4/ERF/NS	4490	710
62	177100	28.77	22500	1.60	X	KH	167	(E)DRN	315ME4/ERF/NS	4410	711
73	150900	24.52	22300	1.90	X						
88	125000	20.32	21900	2.3	X	K	167	(E)DRN	315ME4	4490	710
103	106700	17.34	21400	2.6	X	KH	167	(E)DRN	315ME4	4410	711
75	147400	23.95	10500	1.10	X	K	157	(E)DRN	315ME4/ERF/NS	3620	703
84	131100	21.31	10700	1.20	X	KF	157	(E)DRN	315ME4/ERF/NS	3790	704
						KA	157	(E)DRN	315ME4/ERF/NS	3540	705
						KAF	157	(E)DRN	315ME4/ERF/NS	3670	704
98	113000	18.37	11000	1.40	X	K	157	(E)DRN	315ME4	3620	703
120	91800	14.92	11100	1.75	X	KF	157	(E)DRN	315ME4	3790	704
142	77900	12.65	11100	1.95	X	KA	157	(E)DRN	315ME4	3540	705
						KAF	157	(E)DRN	315ME4	3670	704

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P_m = 200 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
34	376000	53.36	26000	1.20	X	K KH	187	(E)DRN (E)DRN	315L4 315L4	5830	712
39	320600	45.50*	26300	1.40	X						
54	234100	33.23	26200	1.90	X						
64	196700	27.92	25900	2.2	X						
74	170300	24.18	25500	2.5	X						
89	141900	20.15	24900	2.7	X						
104	121000	17.18	24300	3.0	X	K KH	167	(E)DRN (E)DRN	315L4 315L4	4550	710
49	258000	36.61	21000	1.10	X						
73	172800	24.52	21300	1.65	X						
88	143100	20.32	21000	2.0	X						
103	122200	17.34	20700	2.3	X	K KF KA KAF	157	(E)DRN (E)DRN (E)DRN (E)DRN	315L4 315L4 315L4 315L4	3680	703
97	129400	18.37	10100	1.25	X						
120	105100	14.92	10400	1.50	X						
141	89100	12.65	10500	1.70	X						

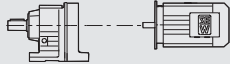

P_m = 225 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
34	423100	53.36	24200	1.05	X	K KH	187	(E)DRN (E)DRN	315L4 315L4	5830	712
39	360700	45.50*	24700	1.25	X						
54	263400	33.23	25000	1.70	X						
64	221300	27.92	24900	2.0	X						
74	191600	24.18	24600	2.2	X						
89	159700	20.15	24200	2.4	X						
104	136200	17.18	23700	2.7	X	K KH	167	(E)DRN (E)DRN	315L4 315L4	4550	710
49	290200	36.61	19500	1.00	X						
73	194400	24.52	20300	1.45	X						
88	161000	20.32	20200	1.75	X						
103	137400	17.34	20000	2.1	X	K KF KA KAF	157	(E)DRN (E)DRN (E)DRN (E)DRN	315L4 315L4 315L4 315L4	3680	703
97	145600	18.37	9150	1.10	X						
120	118300	14.92	9630	1.35	X						
141	100300	12.65	9850	1.50	X						

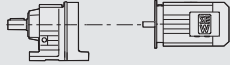

P_m = 250 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]				m lbs		
39	399900	45.50*	23200	1.10	X	K	187	(E)DRN	315H4	6090	712
						KH	187	(E)DRN	315H4	5940	713
54	292000	33.23	23900	1.50	X	K	187	(E)DRN	315H4/ERF/NS	6090	712
						KH	187	(E)DRN	315H4/ERF/NS	5940	713
64	245400	27.92	23900	1.80	X	K KH	187	(E)DRN (E)DRN	315H4 315H4	6090	712
74	212500	24.18	23800	2.0	X						
89	177000	20.15	23500	2.2	X						
104	150900	17.18	23100	2.4	X						
73	215500	24.52	19300	1.30	X	K	167	(E)DRN	315H4/ERF/NS	4810	710
						KH	167	(E)DRN	315H4/ERF/NS	4720	711
88	178500	20.32	19400	1.60	X	K KH	167	(E)DRN (E)DRN	315H4 315H4	4810	710
103	152400	17.34	19300	1.85	X						
120	131100	14.92	8900	1.20	X	K	157	(E)DRN	315H4	3940	703
						KF	157	(E)DRN	315H4	4110	704
142	111200	12.65	9230	1.35	X	KA	157	(E)DRN	315H4	3860	705
						KAF	157	(E)DRN	315H4	3990	704

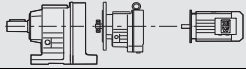

P_m = 275 HP

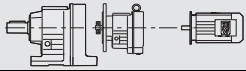

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs				
39	440100	45.50*	21600	1.00	X	K	187	(E)DRN	315H4	6090	712
						KH	187	(E)DRN	315H4	5940	713
54	321400	33.23	22700	1.40	X	K	187	(E)DRN	315H4/ERF/NS	6090	712
						KH	187	(E)DRN	315H4/ERF/NS	5940	713
64	270100	27.92	23000	1.65	X	K	187	(E)DRN	315H4	6090	712
74	233800	24.18	23000	1.80	X						
89	194900	20.15	22800	2.0	X						
104	166100	17.18	22500	2.2	X						
73	237200	24.52	18300	1.20	X	K	167	(E)DRN	315H4/ERF/NS	4810	710
						KH	167	(E)DRN	315H4/ERF/NS	4720	711
88	196500	20.32	18500	1.45	X	K	167	(E)DRN	315H4	4810	710
103	167700	17.34	18600	1.70	X						
120	144300	14.92	8170	1.10	X	K	157	(E)DRN	315H4	3940	703
						KF	157	(E)DRN	315H4	4110	704
142	122400	12.65	8610	1.25	X	KA	157	(E)DRN	315H4	3860	705
						KAF	157	(E)DRN	315H4	3990	704

P_m = 300 HP

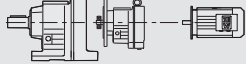

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®		m lbs				
54	350800	33.23	21600	1.25	X	K	187	(E)DRN	315H4/ERF/NS	6090	712
						KH	187	(E)DRN	315H4/ERF/NS	5940	713
64	294800	27.92	22000	1.50	X	K	187	(E)DRN	315H4	6090	712
74	255300	24.18	22100	1.65	X						
89	212700	20.15	22100	1.85	X						
104	181300	17.18	21900	2.0	X						
73	258900	24.52	17200	1.10	X	K	167	(E)DRN	315H4/ERF/NS	4810	710
						KH	167	(E)DRN	315H4/ERF/NS	4720	711
88	214500	20.32	17700	1.30	X	K	167	(E)DRN	315H4	4810	710
103	183100	17.34	17900	1.55	X						
120	157500	14.92	7440	1.00	X	K	157	(E)DRN	315H4	3940	703
						KF	157	(E)DRN	315H4	4110	704
141	133600	12.65	7990	1.15	X	KA	157	(E)DRN	315H4	3860	705
						KAF	157	(E)DRN	315H4	3990	704

10.4 K.. R.. DRS/DRN.. Selections by torque / low output speed

T_{a max} = 1760 lb-in							m	
n_a rpm	i	F_{Ra}¹⁾ lb				lbs		
0.25	6832	1170						
0.28	5922	1170						
0.31	5491	1170						
0.35	4759	1170						
0.40	4160	1170						
0.46	3645	1170						
0.52	3205	1170	K	37R17	DR	63S4	42 632/714	
0.60	2801	1170	KF	37R17	DR	63S4	47 633/714	
0.68	2454	1170	KA	37R17	DR	63S4	42 634/714	
0.78	2166	1170	KAF	37R17	DR	63S4	46 633/714	
0.89	1891	1170						
1.0	1660	1170						
1.1	1466	1170						
1.3	1288	1170						
1.5	1136	1170						
1.7	996	1170						
1.9	876	1170						
2.2	761	1170						
2.5	671	1170	K	37R17	DR	63S4	42 632/714	
2.9	585	1170	KF	37R17	DR	63S4	47 633/714	
3.3	512	1170	KA	37R17	DR	63S4	41 634/714	
3.7	451	1170	KAF	37R17	DR	63S4	45 633/714	
4.2	396	1170						
4.9	346	1170						
5.6	304	1170						
6.4	267	1170						
7.3	234	1170						
8.3	205	1170	K	37R17	DRS	71S4	47 632/714	
9.4	181	1170	KF	37R17	DRS	71S4	52 633/714	
11	160	1170	KA	37R17	DRS	71S4	47 634/714	
12	136	1170	KAF	37R17	DRS	71S4	51 633/714	
13	127	1170						
15	110	1170						
18	96	1170	K	37R17	DRS	71M4	50 632/714	
			KF	37R17	DRS	71M4	55 633/714	
			KA	37R17	DRS	71M4	50 634/714	
			KAF	37R17	DRS	71M4	53 633/714	

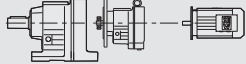

T_{a max} = 2650 lb-in							m	
n_a rpm	i	F_{Ra}¹⁾ lb				lbs		
0.41	4057	1690						
0.50	3370	1690						
0.58	2906	1690						
0.67	2508	1690						
0.71	2367	1690						
0.78	2162	1690	K	39R17	DR	63S4	53 632/714	
0.89	1881	1690	KF	39R17	DR	63S4	57 633/714	
0.95	1762	1690	KA	39R17	DR	63S4	51 634/714	
1.0	1622	1690	KAF	39R17	DR	63S4	55 633/714	
1.1	1494	1690						
1.3	1321	1690						
1.4	1169	1690						
1.5	1093	1690						

T_{a max} = 2650 lb-in

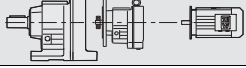

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
1.8	956	1690	K	39R17	DR	63S4	53	632/714
2.1	814	1690	KF	39R17	DR	63S4	56	633/714
2.4	711	1690	KA	39R17	DR	63S4	51	634/714
2.8	605	1690	KAF	39R17	DR	63S4	54	633/714
3.4	504	1690						
3.7	454	1690						
4.3	399	1690						
4.7	365	1690						
5.5	312	1690	K	39R17	DRS	71S4	58	632/714
5.7	299	1690	KF	39R17	DRS	71S4	62	633/714
6.7	254	1690	KA	39R17	DRS	71S4	56	634/714
7.3	234	1690	KAF	39R17	DRS	71S4	60	633/714
8.1	210	1690						
9.0	189	1690						
9.8	174	1690						
11	156	1690	K	39R17	DRS	71M4	61	632/714
12	142	1690	KF	39R17	DRS	71M4	65	633/714
14	117	1690	KA	39R17	DRS	71M4	59	634/714
			KAF	39R17	DRS	71M4	62	633/714

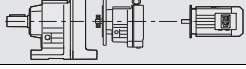

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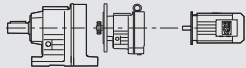

T_{a max} = 3530 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.17	10138	1330						
0.20	8534	1330						
0.22	7662	1330						
0.25	6826	1330						
0.28	5983	1330						
0.33	5159	1330						
0.37	4601	1330	K	47R37	DR	63S4	74	643/714
0.43	3940	1330	KF	47R37	DR	63S4	81	644/714
0.48	3477	1330	KA	47R37	DR	63S4	72	645/714
0.55	3043	1330	KAF	47R37	DR	63S4	78	644/714
0.61	2733	1330						
0.71	2354	1330						
0.81	2063	1330						
0.92	1819	1330						
1.1	1586	1330						
1.2	1388	1330						
1.4	1222	1330	K	47R37	DR	63S4	73	643/714
1.5	1097	1330	KF	47R37	DR	63S4	80	644/714
1.8	945	1330	KA	47R37	DR	63S4	71	645/714
2.0	831	1330	KAF	47R37	DR	63S4	78	644/714
2.3	718	1330						
2.7	639	1330						
3.1	552	1330						
3.4	495	1330	K	47R37	DRS	71S4	79	643/714
4.0	426	1330	KF	47R37	DRS	71S4	86	644/714
4.5	375	1330	KA	47R37	DRS	71S4	77	645/714
5.2	327	1330	KAF	47R37	DRS	71S4	84	644/714
5.9	289	1330						
6.6	256	1330						
7.6	225	1330						

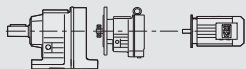

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T_{a max} = 3530 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
8.5	198	1330	K	47R37	DRS	71M4	82	643/714
9.9	171	1330	KF	47R37	DRS	71M4	89	644/714
11	153	1330	KA	47R37	DRS	71M4	80	645/714
			KAF	47R37	DRS	71M4	86	644/714
13	131	1330	K	47R37	DRN	80M4	92	643/714
16	112	1330	KF	47R37	DRN	80M4	99	644/714
			KA	47R37	DRN	80M4	90	645/714
			KAF	47R37	DRN	80M4	96	644/714
18	99	1330	K	47R37	DRN	90S4	105	643/714
19	94	1330	KF	47R37	DRN	90S4	110	644/714
			KA	47R37	DRN	90S4	105	645/714
			KAF	47R37	DRN	90S4	110	644/714

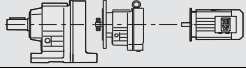

T_{a max} = 4420 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.24	7137	2020						
0.28	5991	2020						
0.33	5120	2020						
0.42	4034	2020						
0.47	3580	2020						
0.55	3081	2020						
0.61	2773	2020	K	49R37	DR	63S4	95	650/714
0.66	2545	2020	KF	49R37	DR	63S4	99	651/714
0.71	2372	2020	KA	49R37	DR	63S4	89	652/714
0.79	2118	2020	KAF	49R37	DR	63S4	100	651/714
0.87	1941	2020						
0.97	1741	2020						
1.0	1632	2020						
1.1	1521	2020						
1.4	1228	2020						
1.7	1000	2020						
1.2	1424	2020	K	49R37	DR	63S4	94	650/714
1.3	1309	2020	KF	49R37	DR	63S4	98	651/714
1.5	1120	2020	KA	49R37	DR	63S4	88	652/714
1.9	908	2020	KAF	49R37	DR	63S4	99	651/714
2.1	802	2020						
2.4	701	2020						
2.6	645	2020						
2.9	595	2020						
3.1	543	2020	K	49R37	DRS	71S4	100	650/714
3.4	501	2020	KF	49R37	DRS	71S4	105	651/714
3.8	449	2020	KA	49R37	DRS	71S4	94	652/714
4.2	401	2020	KAF	49R37	DRS	71S4	105	651/714
4.7	360	2020						
5.2	330	2020						
5.7	300	2020						
6.2	274	2020	K	49R37	DRS	71M4	105	650/714
6.9	243	2020	KF	49R37	DRS	71M4	105	651/714
7.8	217	2020	KA	49R37	DRS	71M4	97	652/714
8.8	193	2020	KAF	49R37	DRS	71M4	105	651/714
9.9	176	2020	K	49R37	DRN	80M4	115	650/714
12	152	2020	KF	49R37	DRN	80M4	115	651/714
			KA	49R37	DRN	80M4	105	652/714
			KAF	49R37	DRN	80M4	120	651/714
14	125	2020	K	49R37	DRN	90S4	125	650/714
18	99	2020	KF	49R37	DRN	90S4	130	651/714
			KA	49R37	DRN	90S4	120	652/714
			KAF	49R37	DRN	90S4	130	651/714

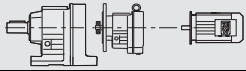

T_{a max} = 5300 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.14	12169	1710						
0.15	11162	1710						
0.18	9503	1710						
0.20	8547	1710						
0.23	7277	1710						
0.26	6478	1710						
0.30	5662	1710	K	57R37	DR	63S4	87	654/714
0.33	5033	1710	KF	57R37	DR	63S4	97	655/714
0.39	4340	1710	KA	57R37	DR	63S4	82	656/714
0.44	3854	1710	KAF	57R37	DR	63S4	95	655/714
0.50	3390	1710						
0.57	2924	1710						
0.65	2593	1710						
0.75	2249	1710						
0.85	1986	1710						
0.96	1743	1710	K	57R37	DR	63S4	86	654/714
1.1	1539	1710	KF	57R37	DR	63S4	97	655/714
1.2	1354	1710	KA	57R37	DR	63S4	82	656/714
1.4	1174	1710	KAF	57R37	DR	63S4	94	655/714
1.6	1036	1710						
1.9	906	1710						
2.1	806	1710						
2.4	699	1710	K	57R37	DRS	71S4	92	654/714
2.8	615	1710	KF	57R37	DRS	71S4	105	655/714
3.1	544	1710	KA	57R37	DRS	71S4	88	656/714
3.6	473	1710	KAF	57R37	DRS	71S4	100	655/714
4.0	421	1710						
4.7	362	1710						
5.3	319	1710	K	57R37	DRS	71M4	95	654/714
6.0	280	1710	KF	57R37	DRS	71M4	105	655/714
6.9	246	1710	KA	57R37	DRS	71M4	90	656/714
7.9	215	1710	KAF	57R37	DRS	71M4	105	655/714
9.1	192	1710	K	57R37	DRN	80M4	105	654/714
11	166	1710	KF	57R37	DRN	80M4	115	655/714
			KA	57R37	DRN	80M4	100	656/714
			KAF	57R37	DRN	80M4	115	655/714
12	145	1710	K	57R37	DRN	90S4	120	654/714
14	129	1710	KF	57R37	DRN	90S4	130	655/714
16	111	1710	KA	57R37	DRN	90S4	115	656/714
			KAF	57R37	DRN	90S4	125	655/714
18	97	1710	K	57R37	DRN	90L4	125	654/714
			KF	57R37	DRN	90L4	135	655/714
			KA	57R37	DRN	90L4	120	656/714
			KAF	57R37	DRN	90L4	135	655/714

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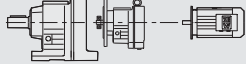

T_{a max} = 7250 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.14	12139	2320						
0.15	11134	2320						
0.18	9479	2320						
0.21	8173	2320						
0.23	7259	2320						
0.26	6462	2320						
0.30	5648	2320						
0.35	4846	2320	K	67R37	DR	63S4	100	661/714
0.39	4329	2320	KF	67R37	DR	63S4	110	662/714
0.45	3750	2320	KA	67R37	DR	63S4	94	663/714
0.51	3315	2320	KAF	67R37	DR	63S4	105	662/714
0.58	2917	2320						
0.66	2532	2320						
0.75	2244	2320						
0.85	1981	2320						

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T_{a max} = 7250 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.97	1739	2320	K	67R37	DR	63S4	99	661/714
1.1	1535	2320	KF	67R37	DR	63S4	110	662/714
1.2	1351	2320	KA	67R37	DR	63S4	93	663/714
			KAF	67R37	DR	63S4	105	662/714
1.4	1171	2320						
1.6	1034	2320						
1.9	903	2320	K	67R37	DRS	71S4	105	661/714
2.1	793	2320	KF	67R37	DRS	71S4	115	662/714
2.4	697	2320	KA	67R37	DRS	71S4	99	663/714
2.8	613	2320	KAF	67R37	DRS	71S4	110	662/714
3.1	542	2320						
3.6	471	2320						
4.0	420	2320	K	67R37	DRS	71M4	110	661/714
4.7	361	2320	KF	67R37	DRS	71M4	120	662/714
5.2	323	2320	KA	67R37	DRS	71M4	100	663/714
			KAF	67R37	DRS	71M4	115	662/714
6.3	279	2320	K	67R37	DRN	80M4	120	661/714
7.1	246	2320	KF	67R37	DRN	80M4	130	662/714
			KA	67R37	DRN	80M4	110	663/714
			KAF	67R37	DRN	80M4	125	662/714
8.1	217	2320	K	67R37	DRN	90S4	130	661/714
9.2	191	2320	KF	67R37	DRN	90S4	145	662/714
11	166	2320	KA	67R37	DRN	90S4	125	663/714
			KAF	67R37	DRN	90S4	135	662/714
12	144	2320	K	67R37	DRN	90L4	140	661/714
14	122	2320	KF	67R37	DRN	90L4	150	662/714
			KA	67R37	DRN	90L4	130	663/714
			KAF	67R37	DRN	90L4	145	662/714

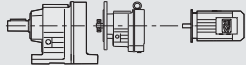

T_{a max} = 13700 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.11	15310	3460						
0.12	14043	3460						
0.14	11955	3460						
0.16	10217	3460						
0.19	8809	3460						
0.22	7528	3460	K	77R37	DR	63S4	155	668/714
0.25	6606	3460	KF	77R37	DR	63S4	170	669/714
0.29	5774	3460	KA	77R37	DR	63S4	135	670/714
0.33	5089	3460	KAF	77R37	DR	63S4	155	669/714
0.37	4489	3460						
0.42	3961	3460						
0.48	3485	3460						
0.58	2901	3460						
0.62	2717	3460						
0.72	2370	3460	K	77R37	DRS	71S4	160	668/714
			KF	77R37	DRS	71S4	175	669/714
			KA	77R37	DRS	71S4	140	670/714
			KAF	77R37	DRS	71S4	160	669/714
0.83	2050	3460						
0.96	1772	3460						
1.1	1514	3460	K	77R37	DRS	71S4	160	668/714
1.2	1388	3460	KF	77R37	DRS	71S4	175	669/714
1.4	1218	3460	KA	77R37	DRS	71S4	140	670/714
1.6	1053	3460	KAF	77R37	DRS	71S4	160	669/714
1.8	924	3460						
2.1	815	3460	K	77R37	DRS	71M4	160	668/714
2.4	709	3460	KF	77R37	DRS	71M4	180	669/714
2.7	622	3460	KA	77R37	DRS	71M4	145	670/714
3.1	552	3460	KAF	77R37	DRS	71M4	160	669/714

T_{a max} = 13700 lb-in

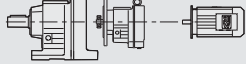

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
3.6 4.1	485 428	3460 3460	K	77R37	DRN	80M4	170	668/714
			KF	77R37	DRN	80M4	190	669/714
			KA	77R37	DRN	80M4	155	670/714
			KAF	77R37	DRN	80M4	170	669/714
4.8 5.4 6.1	367 328 290	3460 3460 3460	K	77R37	DRN	90S4	185	668/714
			KF	77R37	DRN	90S4	200	669/714
			KA	77R37	DRN	90S4	170	670/714
			KAF	77R37	DRN	90S4	185	669/714
7.0 8.0	252 221	3460 3460	K	77R37	DRN	90L4	190	668/714
			KF	77R37	DRN	90L4	210	669/714
			KA	77R37	DRN	90L4	175	670/714
			KAF	77R37	DRN	90L4	190	669/714
9.0 10 11	195 175 154	3460 3460 3460	K	77R37	DRN	100LM4	215	668/714
			KF	77R37	DRN	100LM4	235	669/714
			KA	77R37	DRN	100LM4	200	670/714
			KAF	77R37	DRN	100LM4	215	669/714

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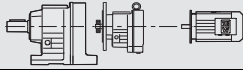

T_{a max} = 23000 lb-in

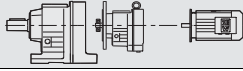

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
12	141	6160	K	87R57	DRN	100L4	325	675/714
			KF	87R57	DRN	100L4	345	677/714
			KA	87R57	DRN	100L4	295	677/714
			KAF	87R57	DRN	100L4	325	676/714

T_{a max} = 23800 lb-in

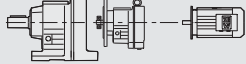

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.11	14829	6130	K KF KA KAF	87R57	DR	63S4	260	675/714
0.13	13168	6130						
0.14	11737	6130						
0.16	10217	6130						
0.19	9073	6130						
0.21	7854	6130						
0.25	6832	6130						
0.28	5930	6130						
0.32	5240	6130						
0.37	4562	6130						
0.42	4037	6130						
0.47	3609	6130						
0.55	3107	6130						
0.62	2728	6130						
0.72	2371	6130						
0.81	2088	6130	K KF KA KAF	87R57	DRS	71S4	265	675/714
0.92	1854	6130						
1.0	1657	6130						
1.2	1415	6130						
1.4	1229	6130	K KF KA KAF	87R57	DRS	71M4	265	675/714
1.6	1078	6130						
1.8	951	6130						
2.1	837	6130						
2.4	726	6130	K KF KA KAF	87R57	DRN	80M4	280	675/714
2.8	638	6130						
3.1	562	6130						

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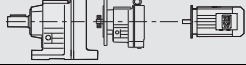

T_{a max} = 23800 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
3.7	474	6130	K	87R57	DRN	90L4	300	675/714	
4.1	426	6130	KF	87R57	DRN	90L4	320	676/714	
4.7	373	6130	KA	87R57	DRN	90L4	270	677/714	
			KAF	87R57	DRN	90L4	300	676/714	
5.3	330	6130	K	87R57	DRN	100LM4	325	675/714	
6.0	294	6130	KF	87R57	DRN	100LM4	345	676/714	
7.1	250	6130	KA	87R57	DRN	100LM4	295	677/714	
			KAF	87R57	DRN	100LM4	325	676/714	
7.5	236	6130	K	87R57	DRN	100L4	325	675/714	
8.8	201	6130	KF	87R57	DRN	100L4	345	676/714	
9.6	183	6130	KA	87R57	DRN	100L4	295	677/714	
11	159	6130	KAF	87R57	DRN	100L4	325	676/714	

T_{a max} = 38000 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.09	18091	8990							
0.10	16666	8990							
0.11	14897	8990	K	97R57	DR	63S4	395	682/714	
0.13	13182	8990	KF	97R57	DR	63S4	440	683/714	
0.14	11677	8990	KA	97R57	DR	63S4	355	684/714	
0.16	10317	8990	KAF	97R57	DR	63S4	410	683/714	
0.18	9083	8990							
0.21	8054	8990							
0.24	6970	8990							
0.28	6027	8990							
0.32	5391	8990	K	97R57	DRS	71S4	400	682/714	
0.36	4669	8990	KF	97R57	DRS	71S4	445	683/714	
0.42	4082	8990	KA	97R57	DRS	71S4	360	684/714	
0.47	3583	8990	KAF	97R57	DRS	71S4	415	683/714	
0.55	3108	8990							
0.62	2757	8990							
0.70	2419	8990	K	97R57	DRS	71S4	400	682/714	
			KF	97R57	DRS	71S4	445	683/714	
			KA	97R57	DRS	71S4	360	684/714	
			KAF	97R57	DRS	71S4	415	683/714	
0.80	2123	8990	K	97R57	DRS	71M4	400	682/714	
0.91	1856	8990	KF	97R57	DRS	71M4	445	683/714	
1.0	1625	8990	KA	97R57	DRS	71M4	360	684/714	
			KAF	97R57	DRS	71M4	415	683/714	
1.2	1430	8990	K	97R57	DRN	80M4	410	682/714	
1.4	1261	8990	KF	97R57	DRN	80M4	455	683/714	
			KA	97R57	DRN	80M4	370	684/714	
			KAF	97R57	DRN	80M4	425	683/714	
1.6	1102	8990	K	97R57	DRN	90S4	425	682/714	
1.8	957	8990	KF	97R57	DRN	90S4	470	683/714	
2.1	855	8990	KA	97R57	DRN	90S4	385	684/714	
			KAF	97R57	DRN	90S4	440	683/714	
2.4	743	8990	K	97R57	DRN	90L4	435	682/714	
2.7	652	8990	KF	97R57	DRN	90L4	475	683/714	
			KA	97R57	DRN	90L4	395	684/714	
			KAF	97R57	DRN	90L4	445	683/714	
3.1	573	8990	K	97R57	DRN	100LM4	455	682/714	
3.5	504	8990	KF	97R57	DRN	100LM4	500	683/714	
4.0	437	8990	KA	97R57	DRN	100LM4	415	684/714	
			KAF	97R57	DRN	100LM4	470	683/714	
4.6	382	8990	K	97R57	DRN	100L4	455	682/714	
5.2	342	8990	KF	97R57	DRN	100L4	500	683/714	
5.8	305	8990	KA	97R57	DRN	100L4	415	684/714	
6.8	258	8990	KAF	97R57	DRN	100L4	470	683/714	
7.6	232	8990							

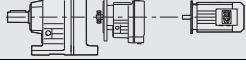

T_{a max} = 38000 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
8.9	199	8990	K	97R57	DRN	132S4	500	682/714
			KF	97R57	DRN	132S4	550	683/714
			KA	97R57	DRN	132S4	465	684/714
			KAF	97R57	DRN	132S4	520	683/714

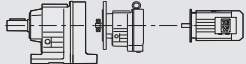

T_{a max} = 63700 lb-in

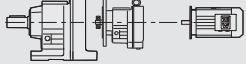

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
10	174	14600	K	107R77	DRN	132L4	840	689/714
			KF	107R77	DRN	132L4	870	690/714
			KA	107R77	DRN	132L4	780	691/714
			KAF	107R77	DRN	132L4	840	690/714
12	154	14400	K	107R77	DRN	160M4	910	689/714
13	140	13800	KF	107R77	DRN	160M4	940	690/714
			KA	107R77	DRN	160M4	850	691/714
			KAF	107R77	DRN	160M4	910	690/714

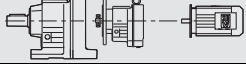

T_{a max} = 70700 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.12	14311	14600						
0.14	12211	14600						
0.16	10677	14600						
0.18	9524	14600	K	107R77	DRS	71S4	690	689/714
0.20	8328	14600	KF	107R77	DRS	71S4	710	690/714
0.23	7270	14600	KA	107R77	DRS	71S4	630	691/714
0.27	6184	14600	KAF	107R77	DRS	71S4	680	690/714
0.30	5662	14600						
0.33	5138	14600						
0.39	4359	14600	K	107R77	DRS	71M4	690	689/714
0.44	3810	14600	KF	107R77	DRS	71M4	720	690/714
0.50	3358	14600	KA	107R77	DRS	71M4	630	691/714
0.57	2977	14600	KAF	107R77	DRS	71M4	680	690/714
0.67	2599	14600	K	107R77	DRN	80M4	700	689/714
0.77	2286	14600	KF	107R77	DRN	80M4	730	690/714
			KA	107R77	DRN	80M4	640	691/714
			KAF	107R77	DRN	80M4	690	690/714
0.91	1939	14600	K	107R77	DRN	90S4	710	689/714
			KF	107R77	DRN	90S4	740	690/714
			KA	107R77	DRN	90S4	650	691/714
			KAF	107R77	DRN	90S4	700	690/714
1.0	1713	14600	K	107R77	DRN	90S4	710	689/714
			KF	107R77	DRN	90S4	740	690/714
1.1	1554	14600	KA	107R77	DRN	90S4	650	691/714
			KAF	107R77	DRN	90S4	700	690/714
1.3	1336	14600	K	107R77	DRN	90L4	720	689/714
			KF	107R77	DRN	90L4	740	690/714
1.5	1166	14600	KA	107R77	DRN	90L4	660	691/714
			KAF	107R77	DRN	90L4	710	690/714
1.7	1030	14600	K	107R77	DRN	100LM4	740	689/714
1.9	904	14600	KF	107R77	DRN	100LM4	770	690/714
2.2	793	14600	KA	107R77	DRN	100LM4	680	691/714
			KAF	107R77	DRN	100LM4	730	690/714
2.5	696	14600	K	107R77	DRN	100L4	740	689/714
2.9	615	14600	KF	107R77	DRN	100L4	770	690/714
3.4	522	14600	KA	107R77	DRN	100L4	680	691/714
3.8	461	14600	KAF	107R77	DRN	100L4	730	690/714
4.3	408	14600	K	107R77	DRN	112M4	760	689/714
			KF	107R77	DRN	112M4	790	690/714
			KA	107R77	DRN	112M4	700	691/714
			KAF	107R77	DRN	112M4	750	690/714

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T_{a max} = 70700 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
4.9 5.6 6.2	364	14600	K	107R77	DRN	132S4	790	689/714	
	318	14600	KF	107R77	DRN	132S4	810	690/714	
	286	14600	KA	107R77	DRN	132S4	730	691/714	
			KAF	107R77	DRN	132S4	780	690/714	
7.1 8.0	251	14600	K	107R77	DRN	132M4	830	689/714	
	222	14600	KF	107R77	DRN	132M4	850	690/714	
			KA	107R77	DRN	132M4	770	691/714	
			KAF	107R77	DRN	132M4	820	690/714	
9.0	196	14600	K	107R77	DRN	132L4	840	689/714	
			KF	107R77	DRN	132L4	870	690/714	
			KA	107R77	DRN	132L4	780	691/714	
			KAF	107R77	DRN	132L4	840	690/714	

T_{a max} = 106100 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
8.9 11	200	17900	K	127R87	DRN	160L4	1350	696/714	
	166	17900	KF	127R87	DRN	160L4	1440	697/714	
			KA	127R87	DRN	160L4	1290	698/714	
			KAF	127R87	DRN	160L4	1370	697/714	
12	147	17900	K	127R87	DRN	180M4	1400	696/714	
			KF	127R87	DRN	180M4	1490	697/714	
			KA	127R87	DRN	180M4	1340	698/714	
			KAF	127R87	DRN	180M4	1420	697/714	

T_{a max} = 115000 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.10 0.11 0.11 0.14 0.16 0.17 0.20 0.23	17550	17800	K	127R77	DRS	71S4	1040	696/714	
	16006	17800							
	14975	17800							
	12440	17800							
	10915	17800							
	9819	17800							
	8443	17800							
	7482	17800							
0.26 0.29 0.34	6565	17800	KF	127R77	DRS	71M4	1140	697/714	
	5804	17800	KA	127R77	DRS	71M4	980	698/714	
	5027	17800	KAF	127R77	DRS	71M4	1060	697/714	
			K	127R77	DRN	80M4	1050	696/714	
0.40 0.45	4423	17800	KF	127R77	DRN	80M4	1150	697/714	
	3889	17800	KA	127R77	DRN	80M4	990	698/714	
			KAF	127R77	DRN	80M4	1080	697/714	
			K	127R77	DRN	90S4	1070	696/714	
0.53 0.59 0.68	3311	17800	KF	127R77	DRN	90S4	1160	697/714	
	3009	17800	KA	127R77	DRN	90S4	1000	698/714	
	2607	17800	KAF	127R77	DRN	90S4	1090	697/714	
			K	127R77	DRN	90L4	1070	696/714	
0.78	2268	17800	KF	127R77	DRN	90L4	1170	697/714	
			KA	127R77	DRN	90L4	1010	698/714	
			KAF	127R77	DRN	90L4	1090	697/714	
			K	127R77	DRN	90L4	1070	696/714	
0.92	1926	17800	KF	127R77	DRN	90L4	1160	697/714	
			KA	127R77	DRN	90L4	1010	698/714	
			KAF	127R77	DRN	90L4	1090	697/714	
			K	127R77	DRN	100LM4	1100	696/714	
1.0 1.1 1.3 1.5	1757	17800	KF	127R77	DRN	100LM4	1190	697/714	
	1541	17800	KA	127R77	DRN	100LM4	1030	698/714	
	1342	17800	KAF	127R77	DRN	100LM4	1120	697/714	
	1177	17800							

T_{a max} = 115000 lb-in

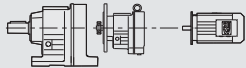

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
1.7	1025	17800	K	127R77	DRN	100L4	1100	696/714
2.0	899	17800	KF	127R77	DRN	100L4	1190	697/714
2.2	790	17800	KA	127R77	DRN	100L4	1030	698/714
2.5	704	17800	KAF	127R77	DRN	100L4	1120	697/714
2.9	610	17800	K	127R77	DRN	132S4	1140	696/714
3.2	549	17800	KF	127R77	DRN	132S4	1230	697/714
3.7	477	17800	KA	127R77	DRN	132S4	1080	698/714
			KAF	127R77	DRN	132S4	1160	697/714
4.2	418	17800	K	127R77	DRN	132M4	1180	696/714
			KF	127R77	DRN	132M4	1270	697/714
			KA	127R77	DRN	132M4	1120	698/714
			KAF	127R77	DRN	132M4	1200	697/714
3.3	536	17800	K	127R87	DRN	132S4	1190	696/714
			KF	127R87	DRN	132S4	1280	697/714
3.7	473	17800	KA	127R87	DRN	132S4	1120	698/714
			KAF	127R87	DRN	132S4	1210	697/714
4.2	418	17800	K	127R87	DRN	132M4	1230	696/714
			KF	127R87	DRN	132M4	1320	697/714
4.8	367	17800	KA	127R87	DRN	132M4	1160	698/714
			KAF	127R87	DRN	132M4	1250	697/714
5.4	330	17800	K	127R87	DRN	132L4	1240	696/714
			KF	127R87	DRN	132L4	1340	697/714
6.2	287	17800	KA	127R87	DRN	132L4	1180	698/714
			KAF	127R87	DRN	132L4	1260	697/714
7.0	253	17800	K	127R87	DRN	160M4	1310	696/714
			KF	127R87	DRN	160M4	1410	697/714
			KA	127R87	DRN	160M4	1250	698/714
			KAF	127R87	DRN	160M4	1340	697/714
8.3	213	17800	K	127R87	DRN	160L4	1350	696/714
			KF	127R87	DRN	160L4	1440	697/714
			KA	127R87	DRN	160L4	1290	698/714
			KAF	127R87	DRN	160L4	1370	697/714

T_{a max} = 159200 lb-in

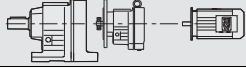

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.10	17679	25200						
0.11	15729	25200						
0.11	14721	25200	K	157R97	DRS	71M4	1740	703/715
0.13	13097	25200	KF	157R97	DRS	71M4	1920	704/715
0.15	11368	25200	KA	157R97	DRS	71M4	1660	705/715
0.17	10114	25200	KAF	157R97	DRS	71M4	1790	704/715
0.19	8718	25200						
0.22	7734	25200						
0.25	6881	25200	K	157R97	DRN	80M4	1750	703/715
			KF	157R97	DRN	80M4	1930	704/715
0.30	5931	25200	KA	157R97	DRN	80M4	1670	705/715
			KAF	157R97	DRN	80M4	1800	704/715
0.35	5074	25200	K	157R97	DRN	90S4	1760	703/715
			KF	157R97	DRN	90S4	1940	704/715
0.39	4514	25200	KA	157R97	DRN	90S4	1680	705/715
0.44	3979	25200	KAF	157R97	DRN	90S4	1810	704/715
0.50	3516	25200	K	157R97	DRN	90L4	1770	703/715
			KF	157R97	DRN	90L4	1940	704/715
0.58	3051	25200	KA	157R97	DRN	90L4	1690	705/715
			KAF	157R97	DRN	90L4	1820	704/715
0.68	2610	25200	K	157R97	DRN	100LM4	1800	703/715
			KF	157R97	DRN	100LM4	1970	704/715
0.76	2322	25200	KA	157R97	DRN	100LM4	1720	705/715
0.87	2029	25200	KAF	157R97	DRN	100LM4	1840	704/715
0.98	1805	25200						

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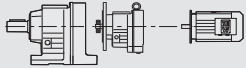

T_{a max} = 283100 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.09	19723	33700						
0.10	17406	33700	K	167R97	DRS	71M4	2610	710/715
0.11	15000	33700	KH	167R97	DRS	71M4	2530	711/715
0.13	13238	33700						
0.15	11573	33700	K	167R97	DRN	80M4	2620	710/715
0.17	10264	33700	KH	167R97	DRN	80M4	2540	711/715
0.20	8628	33700	K	167R97	DRN	90S4	2630	710/715
0.27	6562	33700	KH	167R97	DRN	90S4	2550	711/715
0.33	5355	33700	K	167R97	DRN	90L4	2640	710/715
0.37	4788	33700	KH	167R97	DRN	90L4	2560	711/715
0.43	4079	33700	K	167R97	DRN	100LM4	2670	710/715
0.52	3376	33700	KH	167R97	DRN	100LM4	2580	711/715
0.64	2755	33700	K	167R97	DRN	100L4	2670	710/715
0.78	2263	33700	KH	167R97	DRN	100L4	2580	711/715
0.81	2182	33700	K	167R97	DRN	100L4	2660	710/715
			KH	167R97	DRN	100L4	2570	711/715
1.0	1704	33700	K	167R97	DRN	112M4	2680	710/715
			KH	167R97	DRN	112M4	2590	711/715
1.3	1408	33700	K	167R97	DRN	132S4	2700	710/715
1.4	1296	33700	KH	167R97	DRN	132S4	2620	711/715
1.6	1101	33700	K	167R97	DRN	132M4	2740	710/715
1.9	944	33700	KH	167R97	DRN	132M4	2660	711/715
2.1	843	33700	K	167R97	DRN	132L4	2760	710/715
2.3	757	33700	KH	167R97	DRN	132L4	2680	711/715
2.8	632	33700	K	167R97	DRN	160M4	2830	710/715
			KH	167R97	DRN	160M4	2750	711/715
3.2	561	33700	K	167R97	DRN	160L4	2870	710/715
3.7	481	33700	KH	167R97	DRN	160L4	2780	711/715
4.2	423	33700	K	167R97	DRN	180M4	2920	710/715
4.8	369	33700	KH	167R97	DRN	180M4	2830	711/715
5.6	318	33700	K	167R107	DRN	180L4	3050	710/715
			KH	167R107	DRN	180L4	2970	711/715
6.4	278	33700	K	167R107	DRN	200L4	3290	710/715
7.3	244	33700	KH	167R107	DRN	200L4	3210	711/715
8.4	213	33700	K	167R107	DRN	225S4	3360	710/715
8.7	206	33700	KH	167R107	DRN	225S4	3280	711/715
9.9	180	33700						
11	160	33700	K	167R107	DRN	225M4	3360	710/715
			KH	167R107	DRN	225M4	3280	711/715
13	135	33700	K	167R107	DRN	250ME4	3790	710/715
15	118	33700	KH	167R107	DRN	250ME4	3710	711/715

T_{a max} = 442300 lb-in

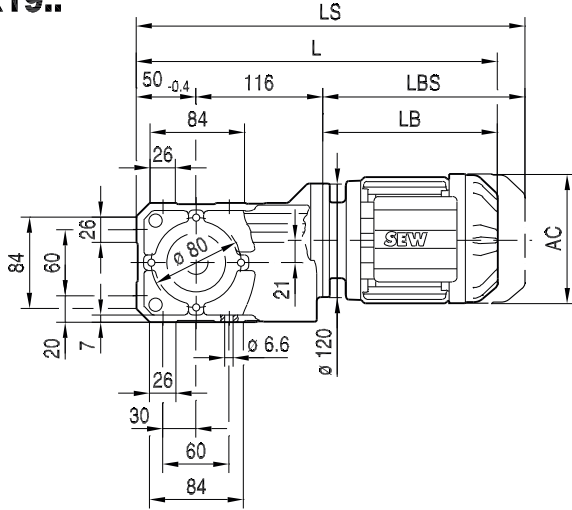
n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.05	32625	42700						
0.06	27165	42700	K	187R97	DRS	71M4	3900	712/715
0.07	24353	42700	KH	187R97	DRS	71M4	3750	713/715
0.09	19144	42700	K	187R97	DRN	80M4	3900	712/715
0.10	16978	42700	KH	187R97	DRN	80M4	3760	713/715
0.12	14272	42700						
0.13	13116	42700	K	187R97	DRN	90S4	3920	712/715
0.15	11647	42700	KH	187R97	DRN	90S4	3770	713/715
0.17	10413	42700						
0.19	9363	42700						
0.22	8126	42700	K	187R97	DRN	90L4	3920	712/715
0.24	7343	42700	KH	187R97	DRN	90L4	3780	713/715

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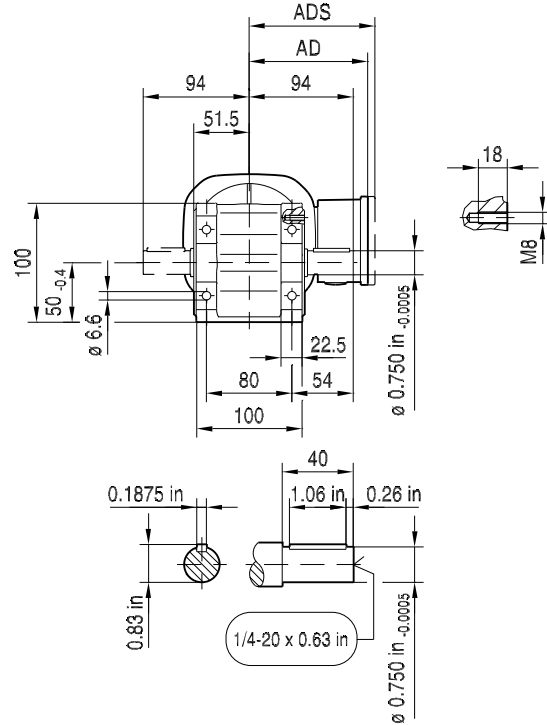
T_{a max} = 442300 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.26	6747	42700						
0.29	5991	42700	K	187R97	DRN	100LM4	3950	712/715
0.33	5358	42700	KH	187R97	DRN	100LM4	3800	713/715
0.37	4817	42700						
0.40	4370	42700	K	187R97	DRN	100L4	3950	712/715
			KH	187R97	DRN	100L4	3800	713/715
0.63	2818	42700	K	187R97	DRN	112M4	3970	712/715
			KH	187R97	DRN	112M4	3820	713/715
0.49	3609	42700	K	187R97	DRN	100L4	3940	712/715
0.57	3062	42700	KH	187R97	DRN	100L4	3790	713/715
0.70	2519	42700	K	187R97	DRN	132S4	3990	712/715
0.78	2268	42700	KH	187R97	DRN	132S4	3840	713/715
0.86	2054	42700						
0.97	1821	42700						
1.1	1605	42700	K	187R97	DRN	132M4	4030	712/715
1.3	1395	42700	KH	187R97	DRN	132M4	3880	713/715
1.5	1196	42700	K	187R97	DRN	132L4	4040	712/715
			KH	187R97	DRN	132L4	3900	713/715
1.7	1046	42700	K	187R97	DRN	160M4	4120	712/715
1.9	945	42700	KH	187R97	DRN	160M4	3970	713/715
2.4	738	42700	K	187R97	DRN	160L4	4150	712/715
			KH	187R97	DRN	160L4	4000	713/715
2.9	621	42700	K	187R97	DRN	180M4	4200	712/715
			KH	187R97	DRN	180M4	4050	713/715
3.4	527	42700	K	187R97	DRN	180L4	4230	712/715
			KH	187R97	DRN	180L4	4090	713/715
2.1	835	42700	K	187R107	DRN	160L4	4250	712/715
2.4	729	42700	KH	187R107	DRN	160L4	4110	713/715
2.9	622	42700	K	187R107	DRN	180M4	4300	712/715
			KH	187R107	DRN	180M4	4150	713/715
3.4	520	42700	K	187R107	DRN	180L4	4340	712/715
3.9	454	42700	KH	187R107	DRN	180L4	4190	713/715
5.0	355	42700	K	187R107	DRN	200L4	4580	712/715
			KH	187R107	DRN	200L4	4430	713/715
6.8	261	42700	K	187R107	DRN	225M4	4650	712/715
			KH	187R107	DRN	225M4	4500	713/715
8.1	221	42700	K	187R107	DRN	250ME4	5080	712/715
9.2	193	42700	KH	187R107	DRN	250ME4	4930	713/715

10.5 K.. DRS/DRN... Dimensions

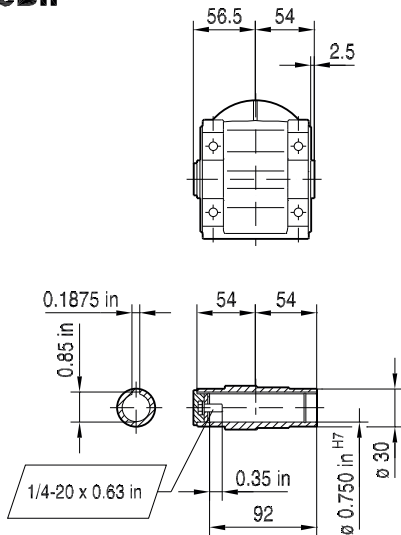
K19..



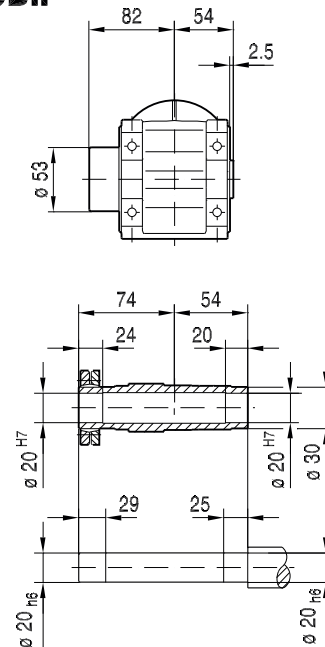
33 295 00 16



KA19B..



KH19B..



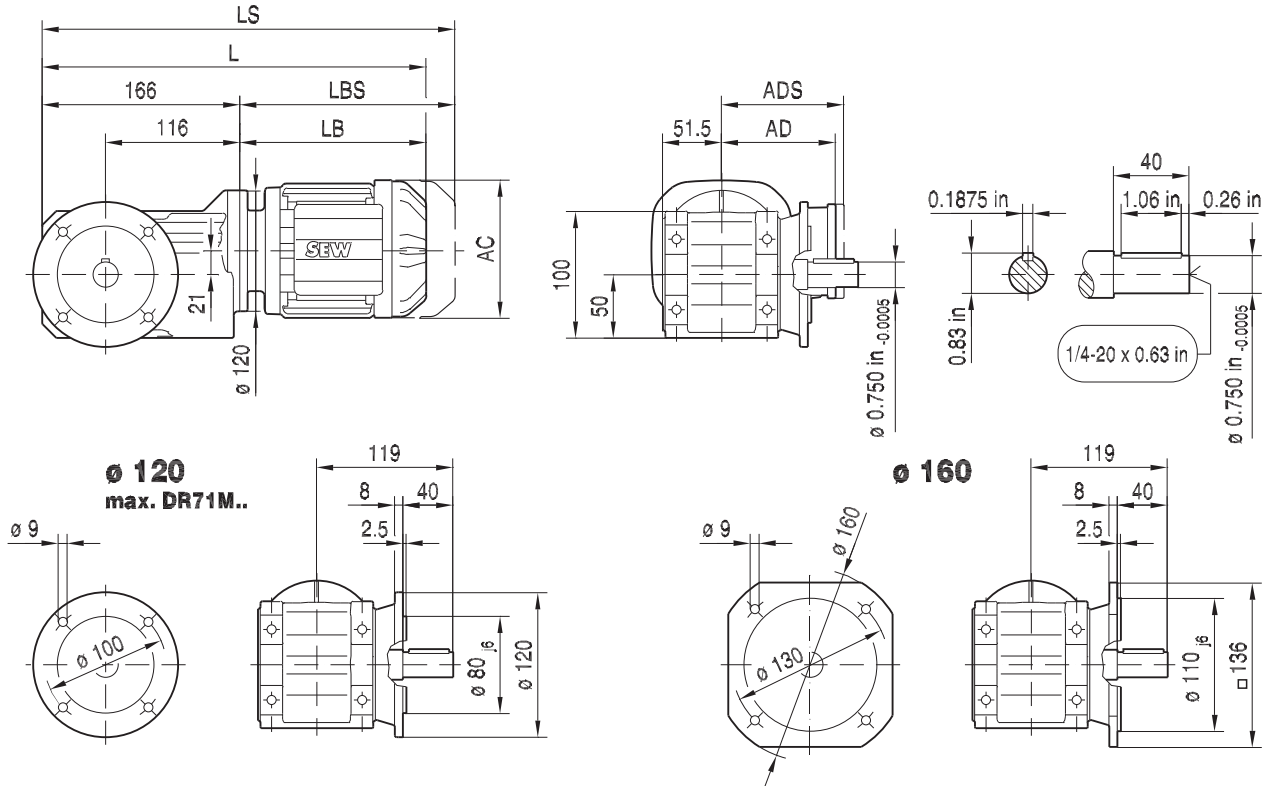
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 296 00 16

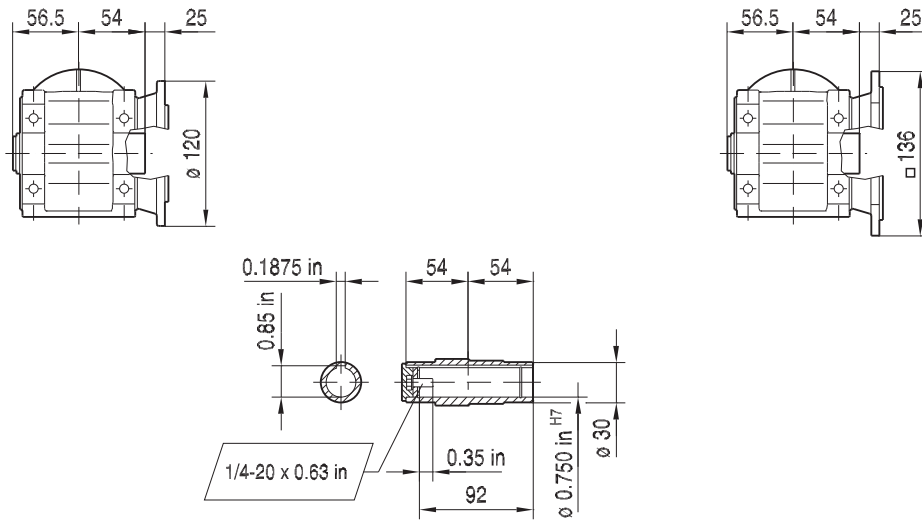
KF19B..



KAF19B..

ø 120
max. DR71M..

ø 160



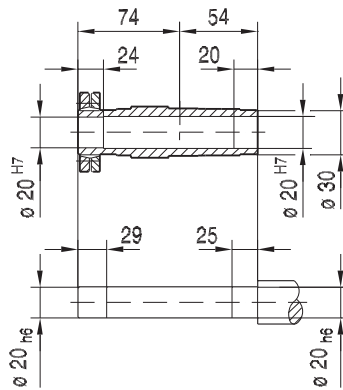
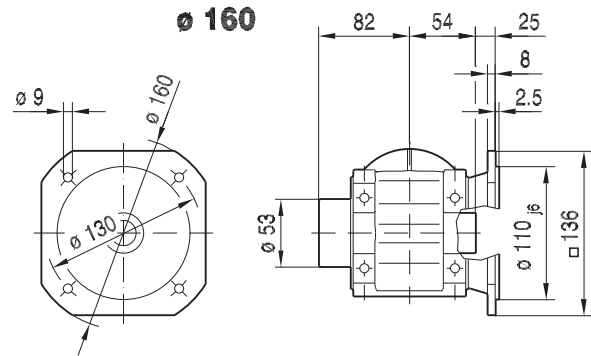
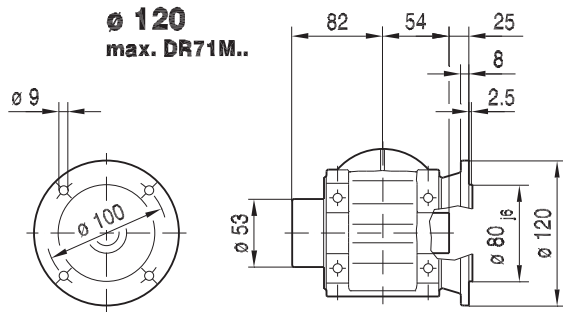
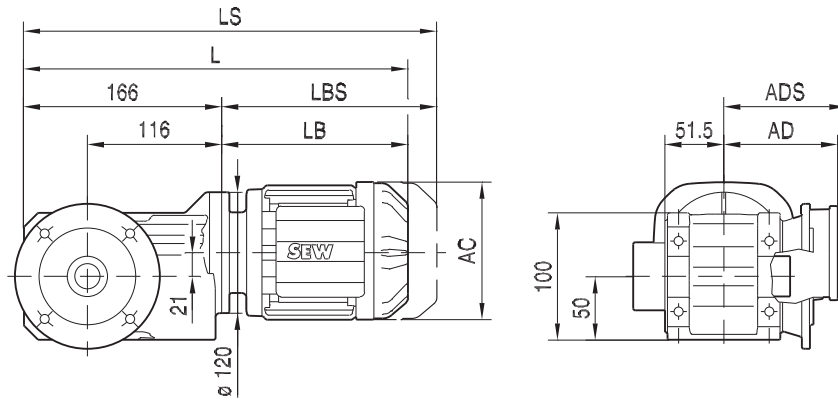
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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33 297 00 16

KHF19B..



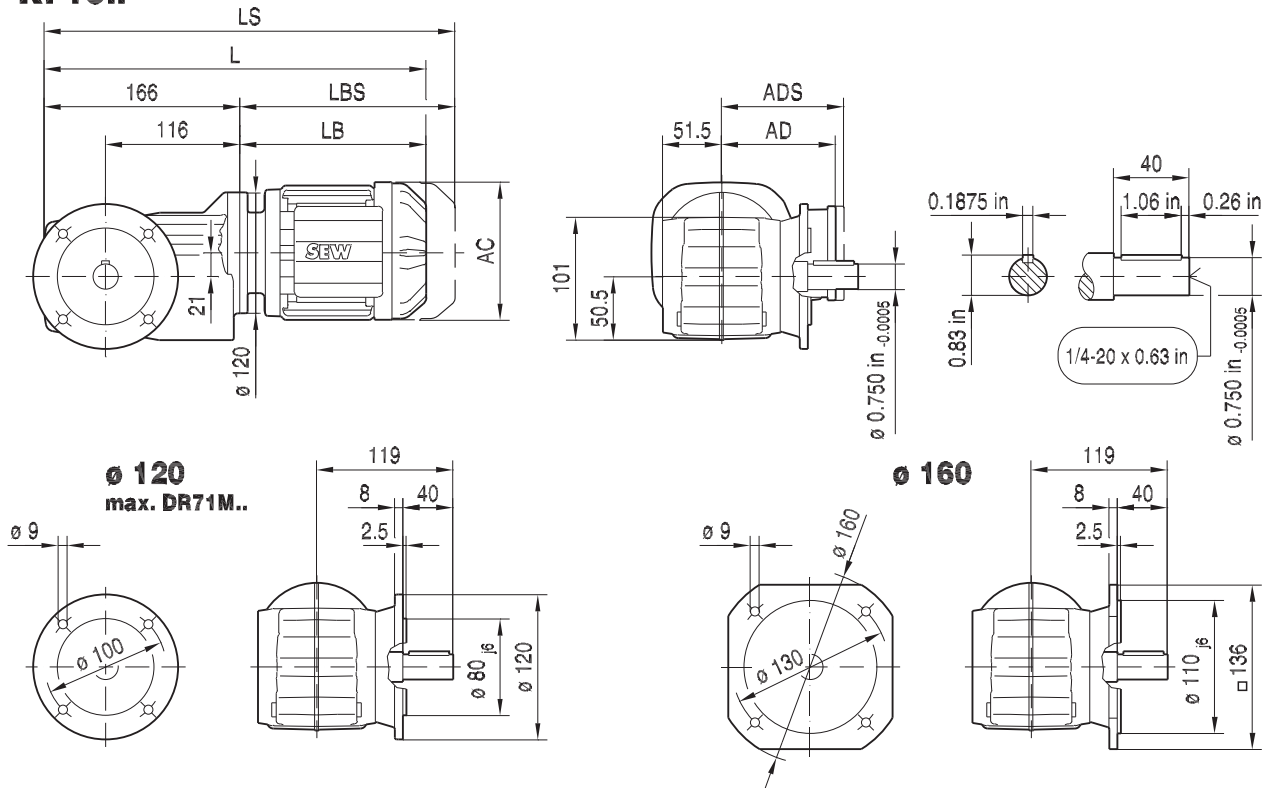
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

Dimensions in mm unless noted as inch. For tolerances, see page 163.

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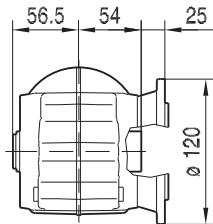
33 298 00 16

KF19..

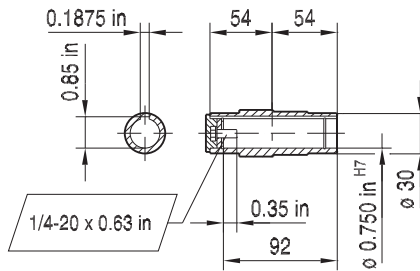
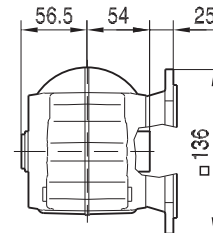


KAF19..

120 max. DR71M..



160



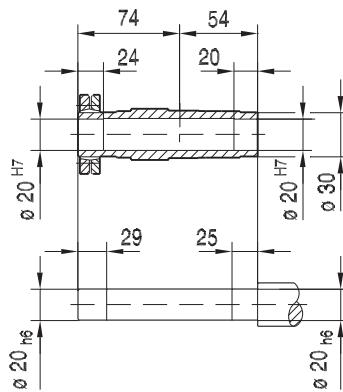
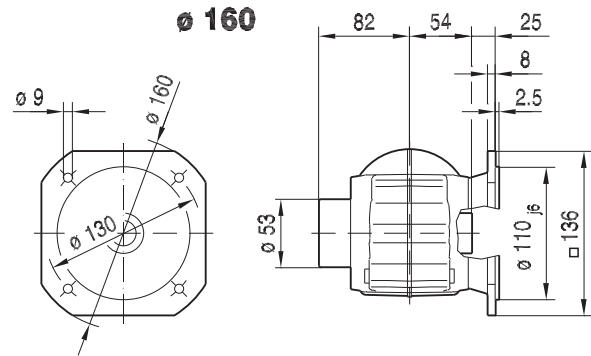
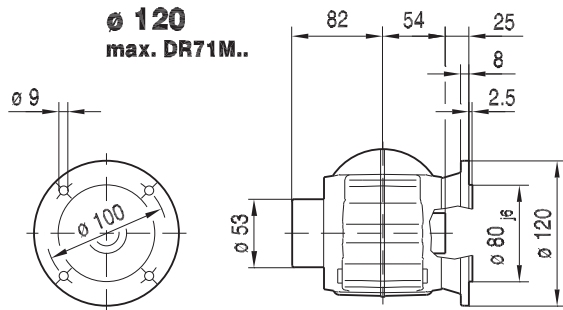
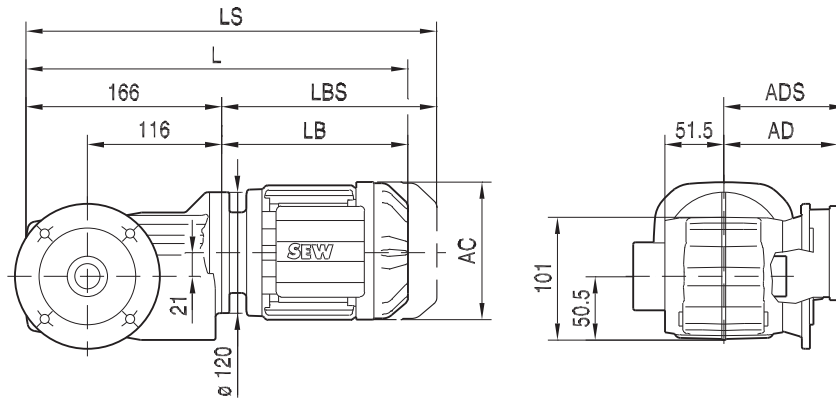
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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33 299 00 16

KHF19..

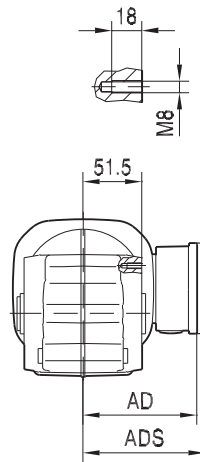
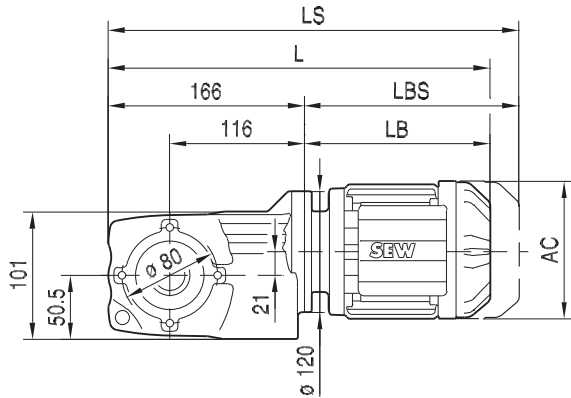


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

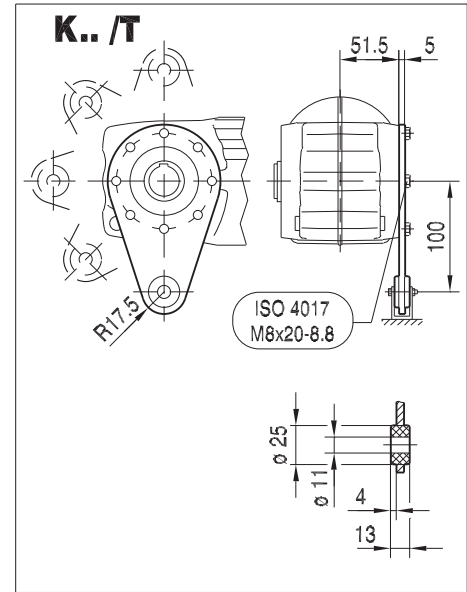
Dimensions in mm unless noted as inch. For tolerances, see page 163.

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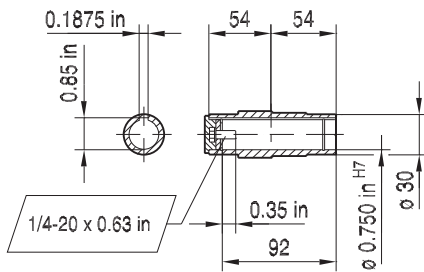
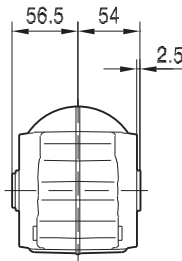
KA19..



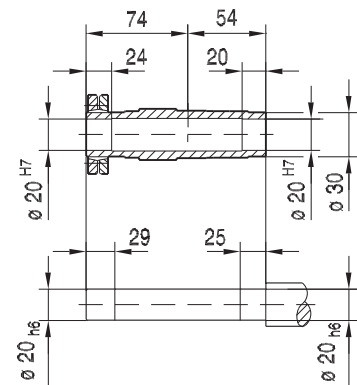
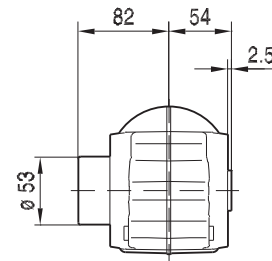
33 300 00 16



KA19..



KH19..



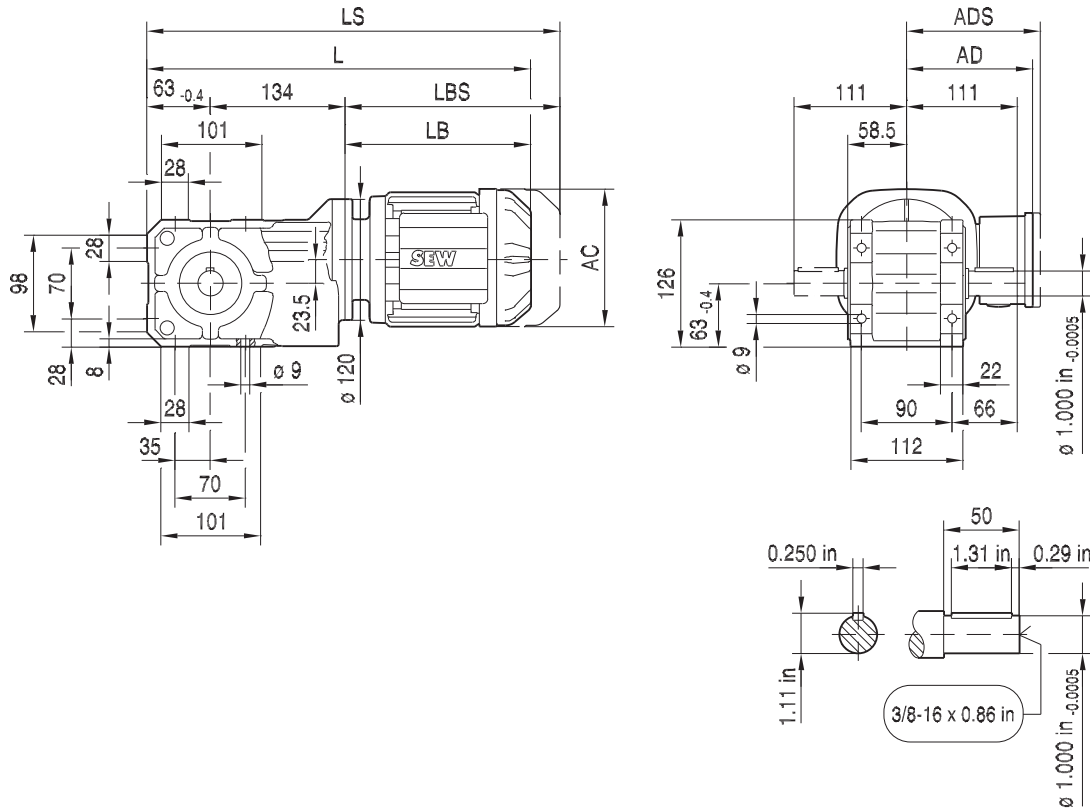
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	448	420	449		
LS	412	436	461	529	501	543		
LB	191	202	227	282	254	283		
LBS	246	270	295	363	335	377		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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K29..

33 301 00 16



10

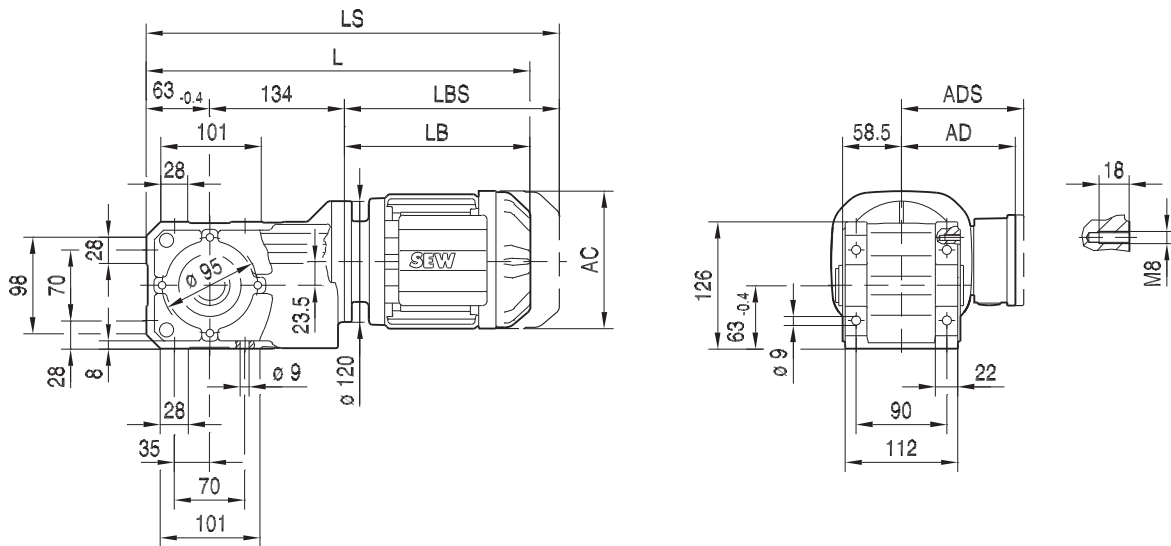
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	388	399	424	479	451	480	512
LS	443	467	492	560	532	574	606
LB	191	202	227	282	254	283	315
LBS	246	270	295	363	335	377	409

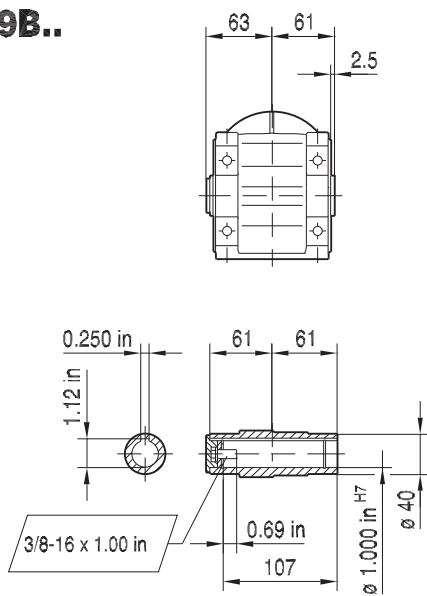
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 302 00 16

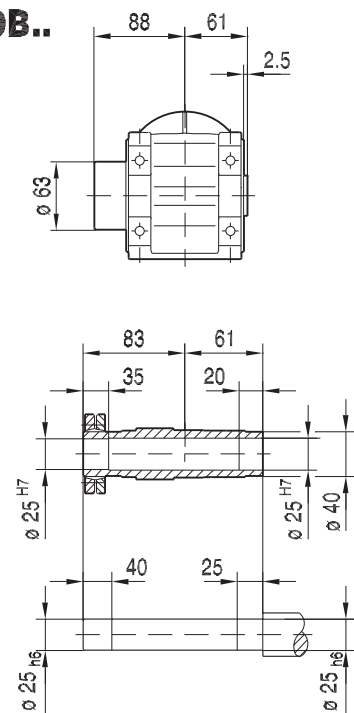
KA29B..



KA29B..



KH29B..



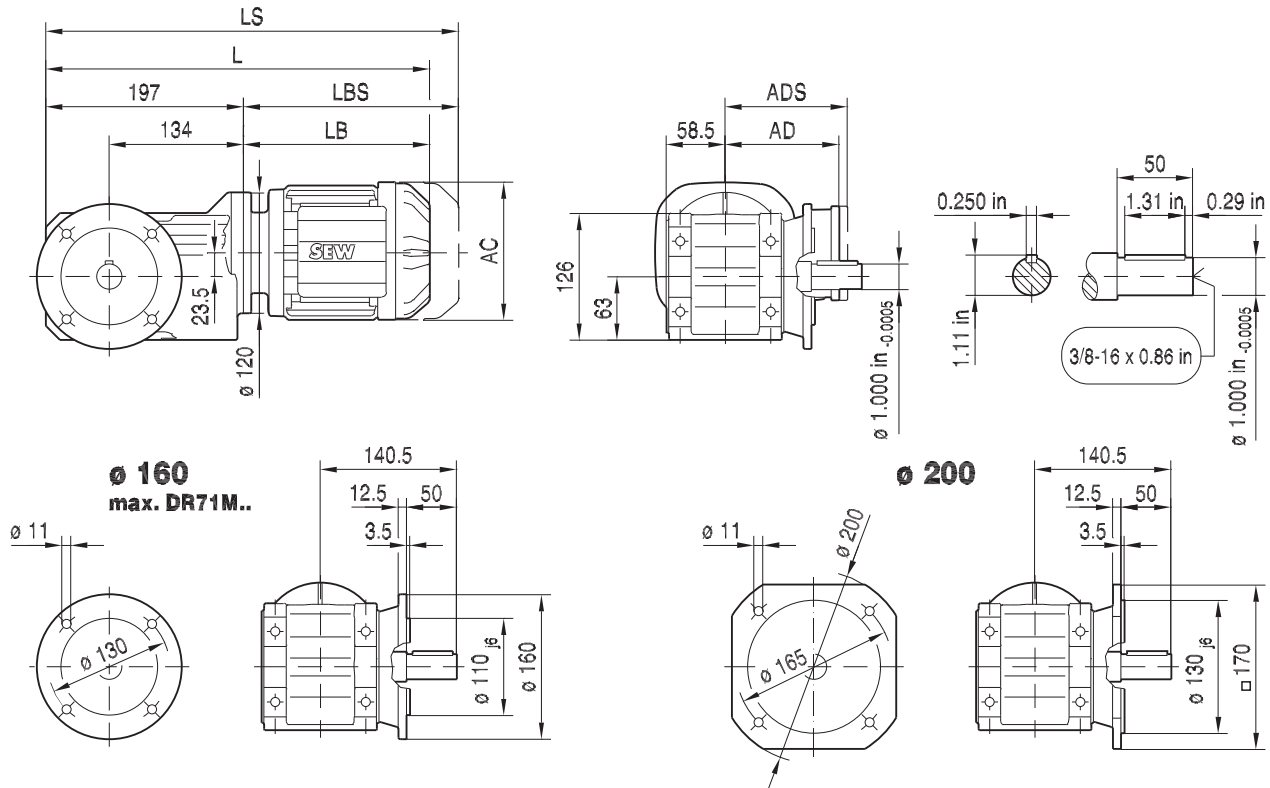
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L	
AC	132	139	139	156	156	179	179	
AD	105	119	119	128	128	140	140	
ADS	105	129	129	139	139	150	150	
L	388	399	424	479	451	480	512	
LS	443	467	492	560	532	574	606	
LB	191	202	227	282	254	283	315	
LBS	246	270	295	363	335	377	409	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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KF29B..

33 303 00 16

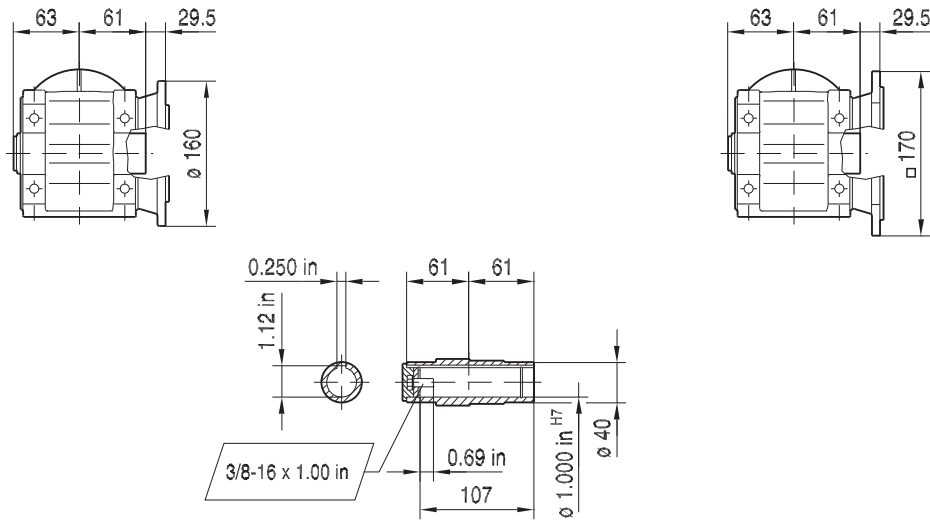


10

KAF29B..

160
max. DR71M..

200

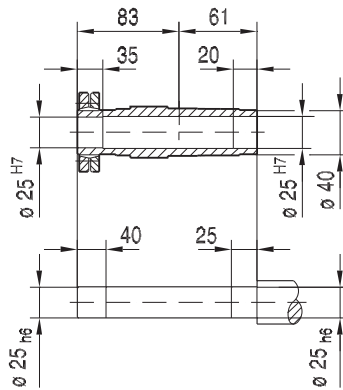
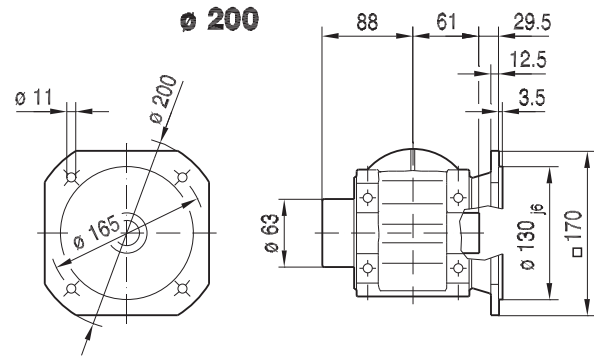
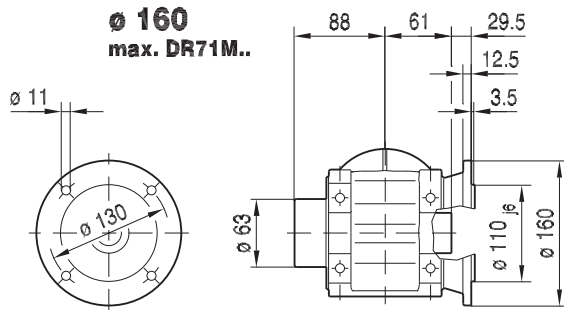
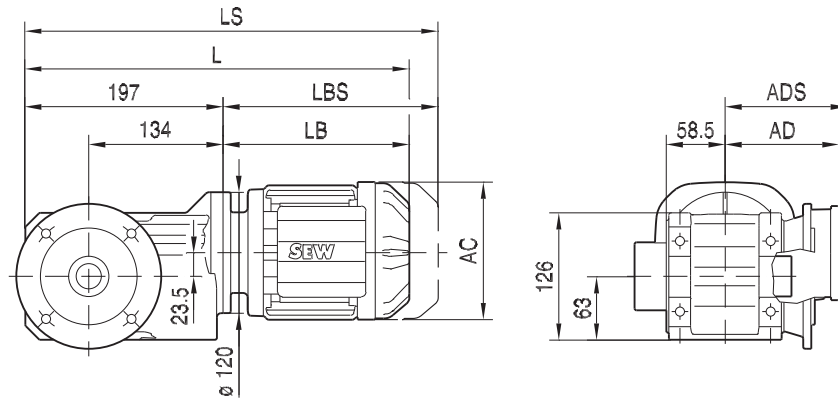


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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L	
AC	132	139	139	156	156	179	179	
AD	105	119	119	128	128	140	140	
ADS	105	129	129	139	139	150	150	
L	388	399	424	479	451	480	512	
LS	443	467	492	560	532	574	606	
LB	191	202	227	282	254	283	315	
LBS	246	270	295	363	335	377	409	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KHF29B..

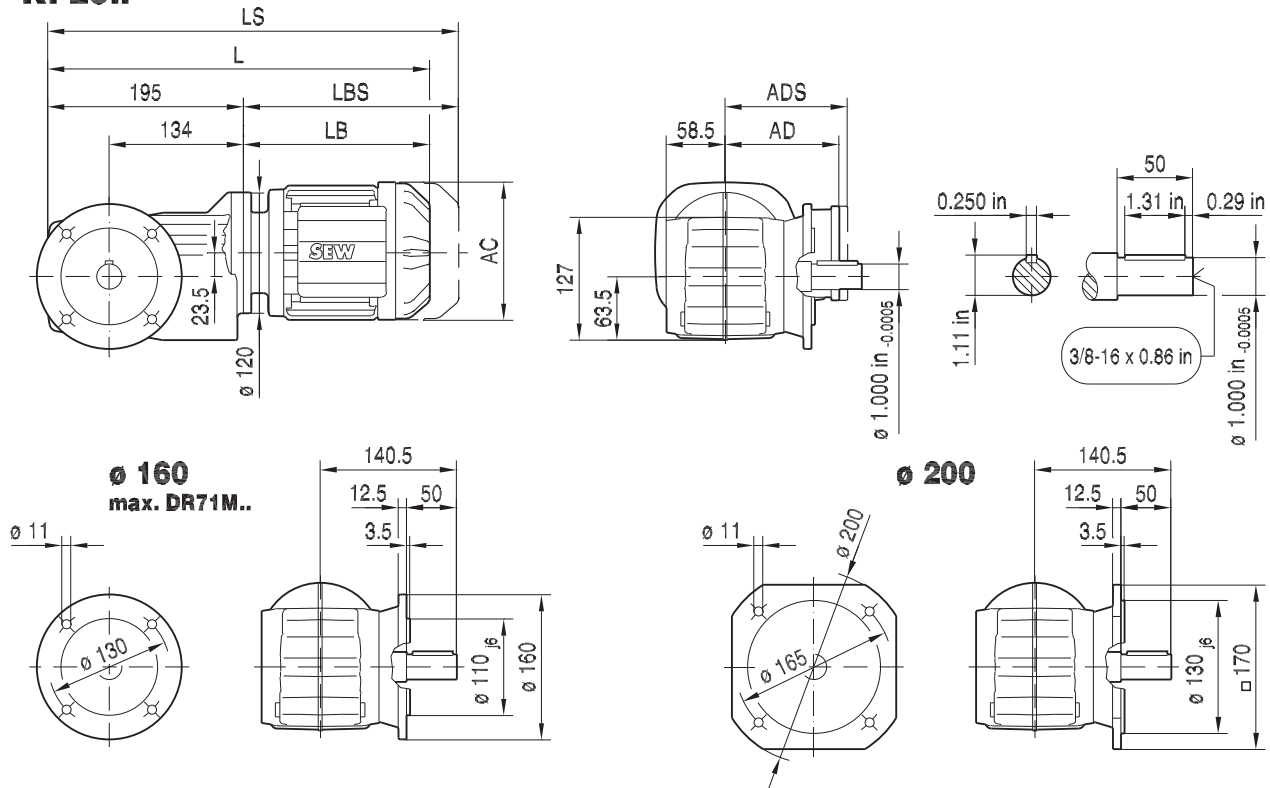


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L	
AC	132	139	139	156	156	179	179	
AD	105	119	119	128	128	140	140	
ADS	105	129	129	139	139	150	150	
L	388	399	424	479	451	480	512	
LS	443	467	492	560	532	574	606	
LB	191	202	227	282	254	283	315	
LBS	246	270	295	363	335	377	409	

Dimensions in mm unless noted as inch. For tolerances, see page 163.

33 305 00 16

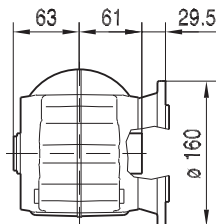
KF29..



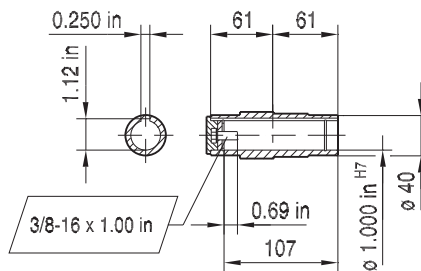
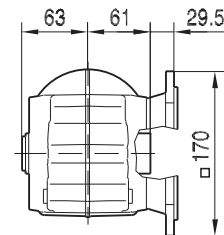
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KAF29..

ø 160
max. DR71M..



ø 200

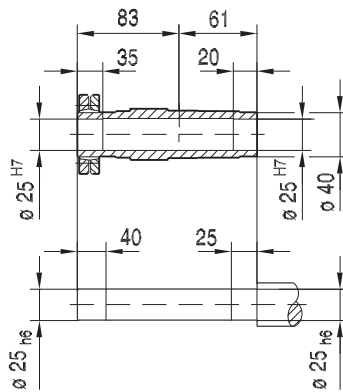
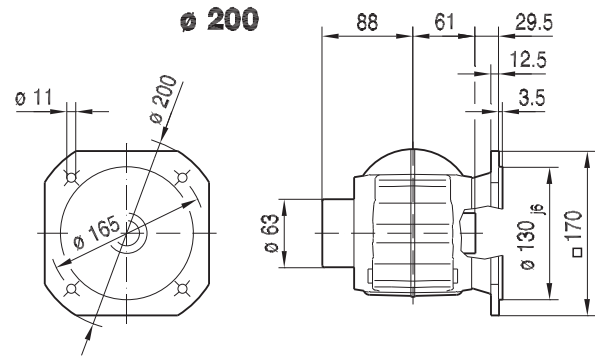
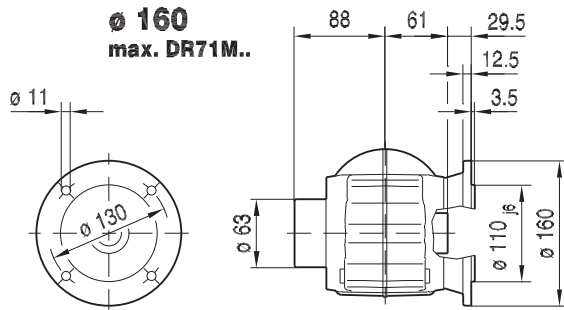
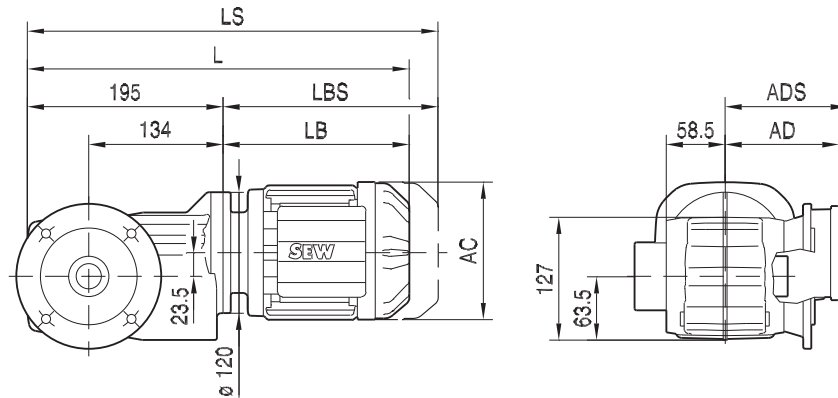


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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L	
AC	132	139	139	156	156	179	179	
AD	105	119	119	128	128	140	140	
ADS	105	129	129	139	139	150	150	
L	386	397	422	477	449	478	510	
LS	441	465	490	558	531	572	604	
LB	191	202	227	282	254	283	315	
LBS	246	270	295	363	335	377	409	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

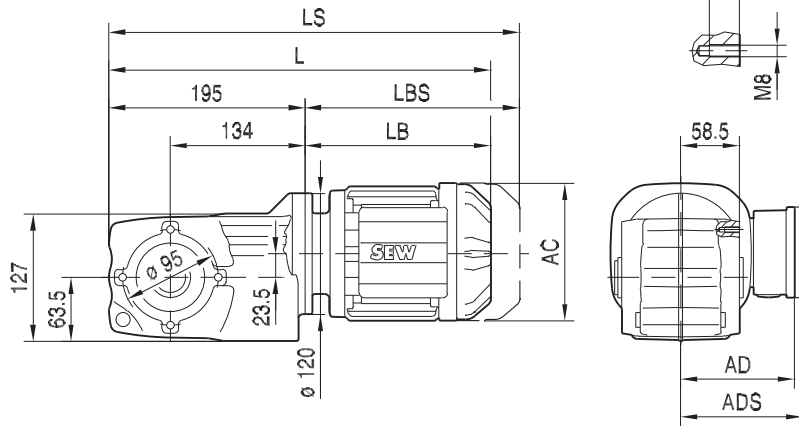
KHF29..



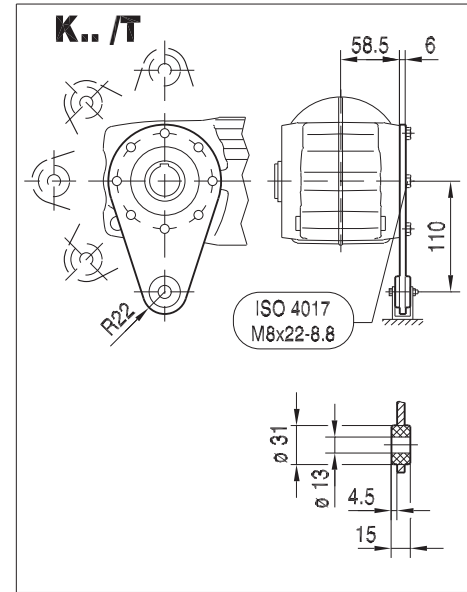
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN80MS	DRN90S	DRN90L	
AC	132	139	139	156	156	179	179	
AD	105	119	119	128	128	140	140	
ADS	105	129	129	139	139	150	150	
L	386	397	422	477	449	478	510	
LS	441	465	490	558	531	572	604	
LB	191	202	227	282	254	283	315	
LBS	246	270	295	363	335	377	409	

Dimensions in mm unless noted as inch. For tolerances, see page 163.

KA29..

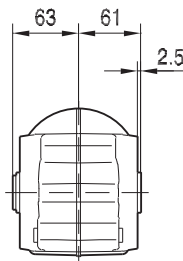


33 307 00 16

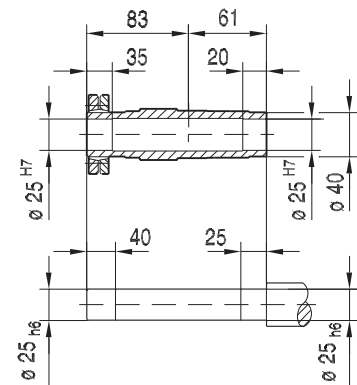
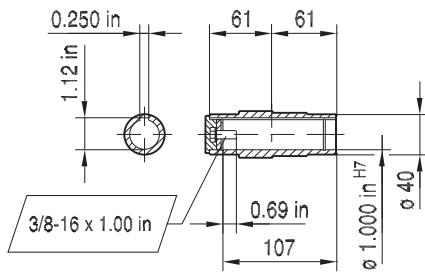
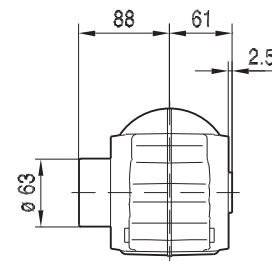


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KA29..



KH29..

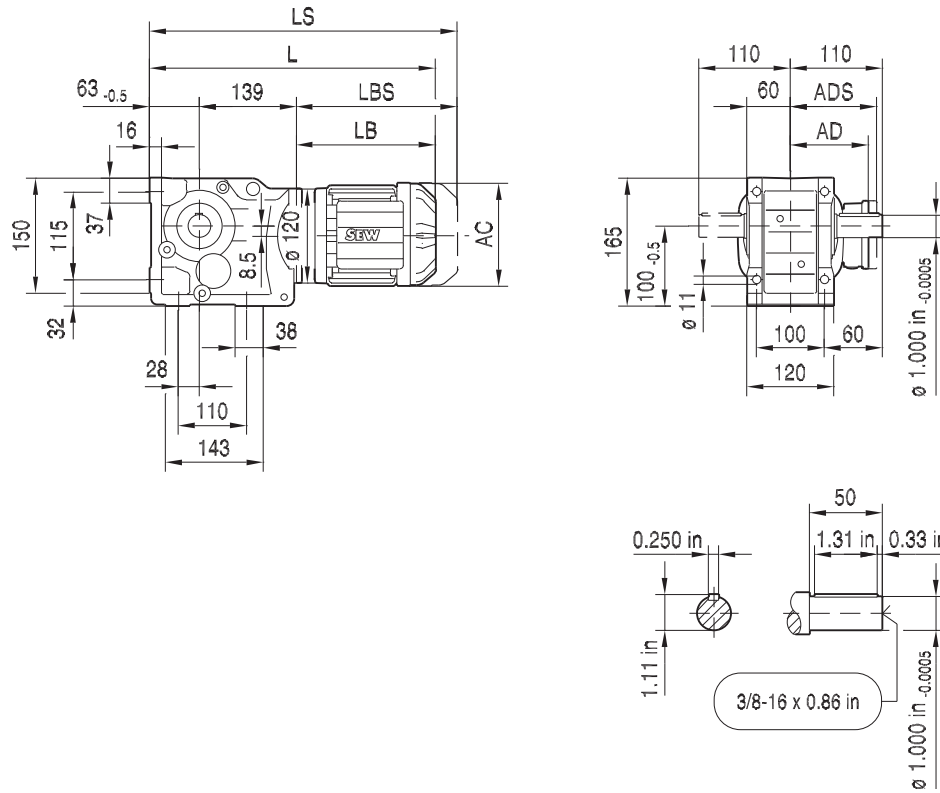


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L		
AC	132	139	139	156	179	179		
AD	105	119	119	128	140	140		
ADS	105	129	129	139	150	150		
L	386	397	422	477	478	510		
LS	441	465	490	558	572	604		
LB	191	202	227	282	283	315		
LBS	246	270	295	363	377	409		

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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K37..

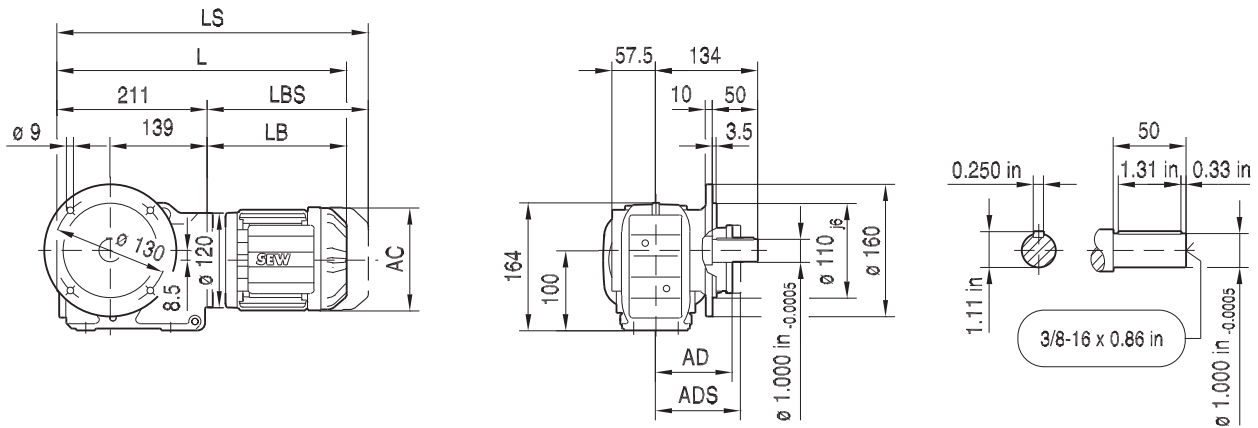


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN90S	DRN90L	DRN100L/LM	
AC	132	139	139	156	179	179	197	
AD	105	119	119	128	140	140	157	
ADS	105	129	129	139	150	150	158	
L	393	404	429	456	485	517	566	
LS	448	472	497	537	579	611	660	
LB	191	202	227	254	283	315	364	
LBS	246	270	295	335	377	409	458	

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 290 00 16

KF37..

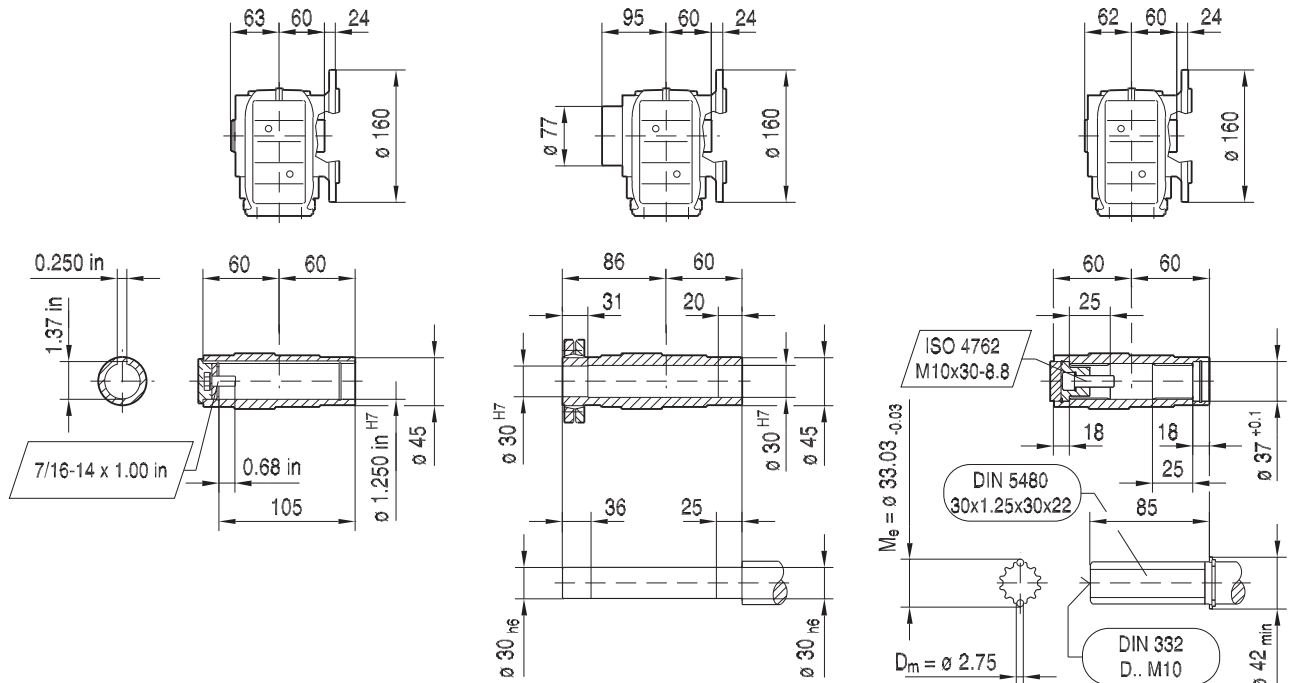


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KAF37..

KHF37..

KVF37..



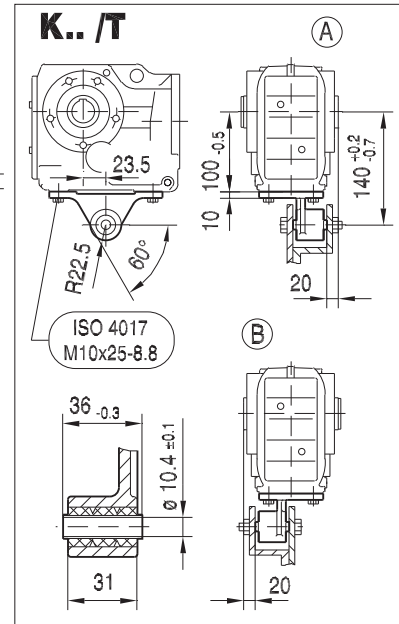
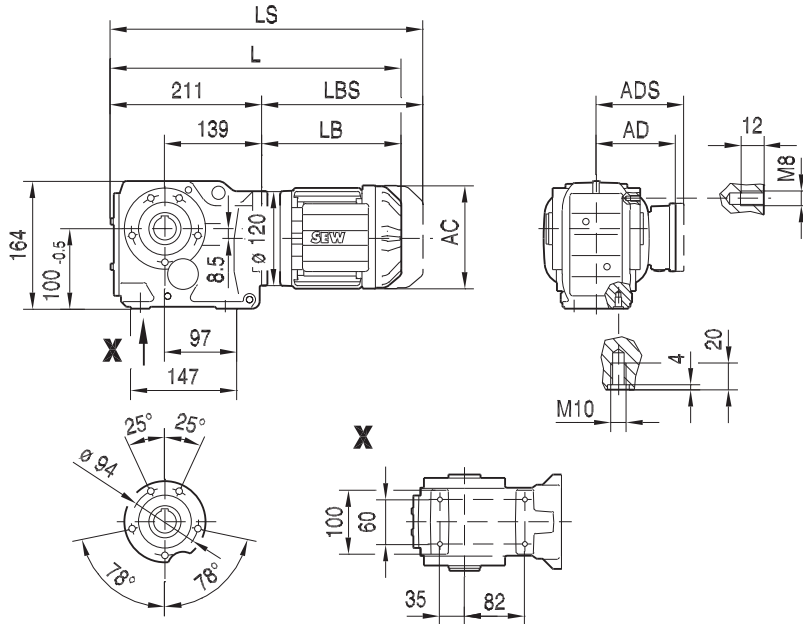
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	
AC	132	139	139	156	179	179	197	
AD	105	119	119	128	140	140	157	
ADS	105	129	129	139	150	150	158	
L	402	413	438	493	494	526	575	
LS	457	481	506	574	588	620	669	
LB	191	202	227	282	283	315	364	
LBS	246	270	295	363	377	409	458	

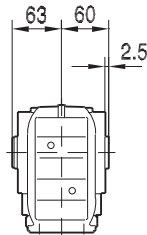
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 291 00 16

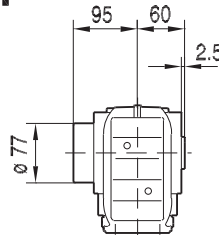
KA37..



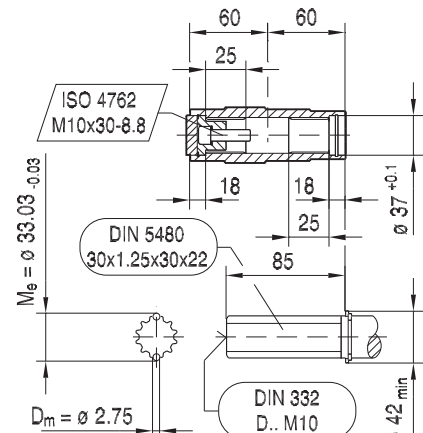
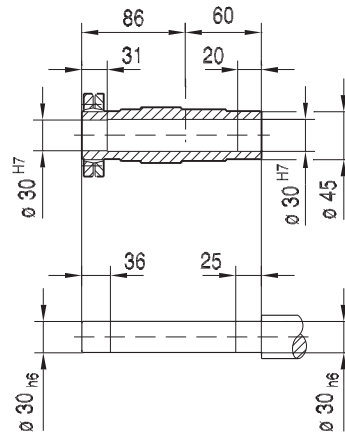
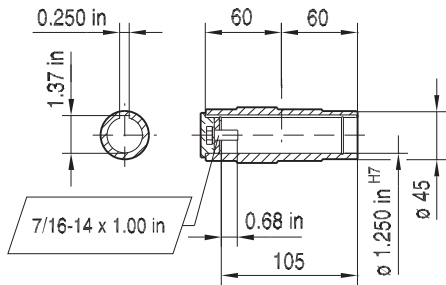
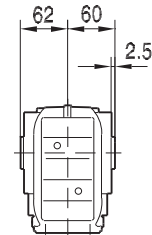
KA37..



KH37..



KV37..

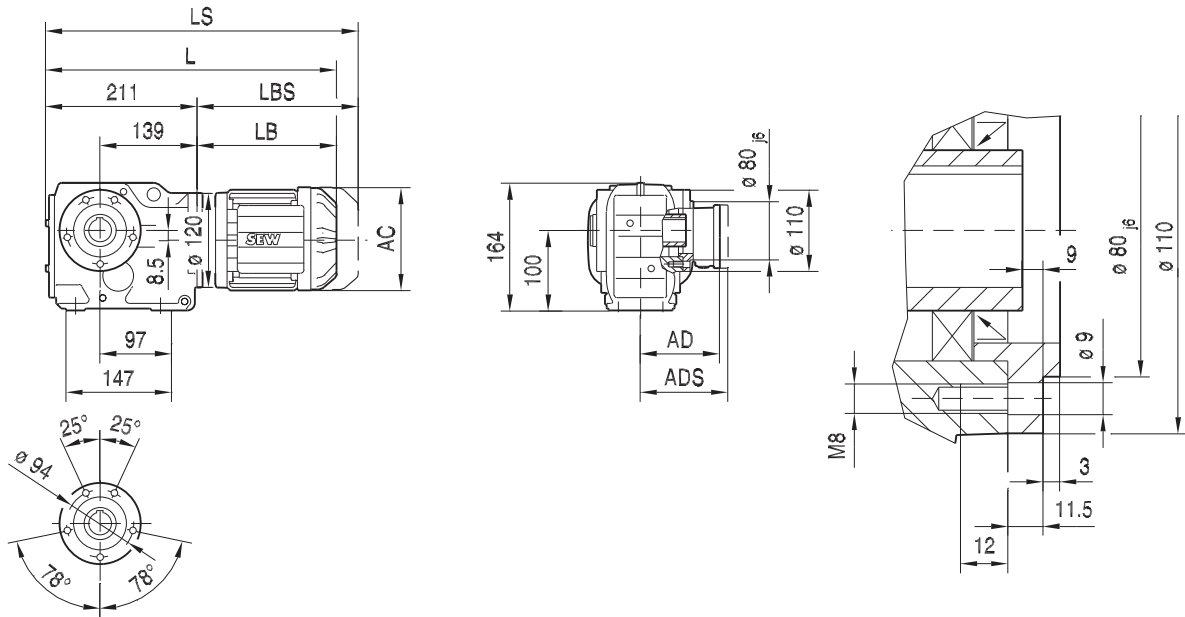


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	402	413	438	493	494	526	575
LS	457	481	506	574	588	620	669
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 292 00 16

KAZ37..

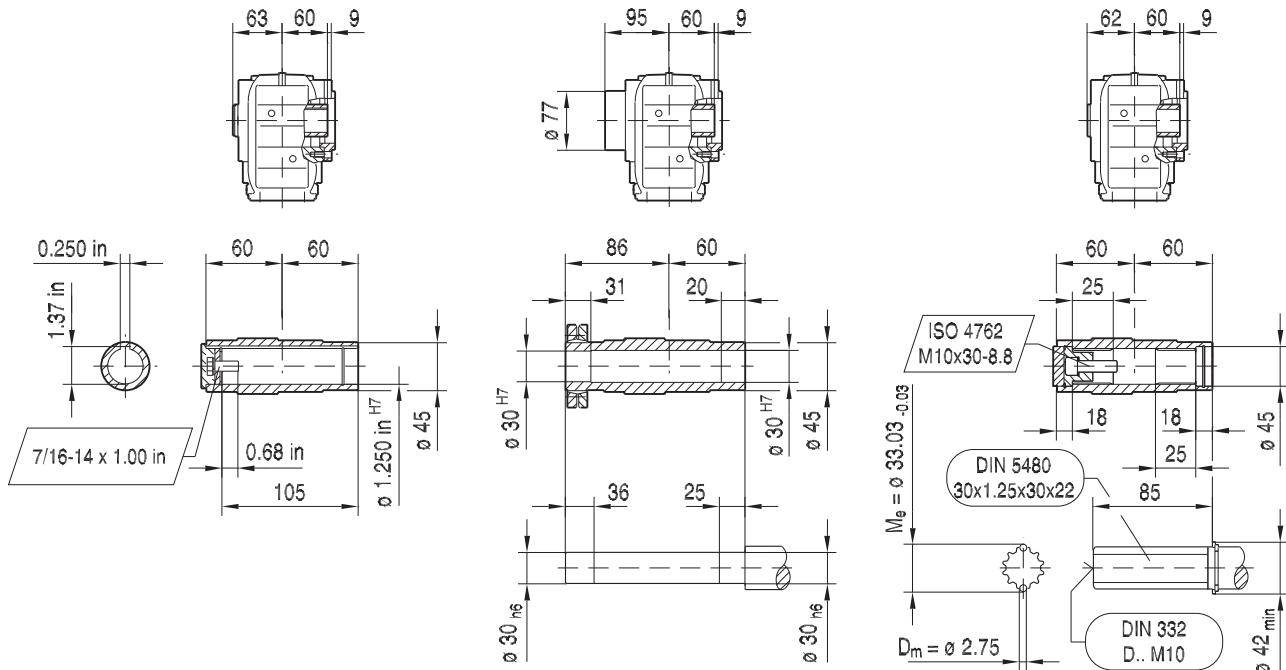


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KAZ37..

KHZ37..

KVZ37..

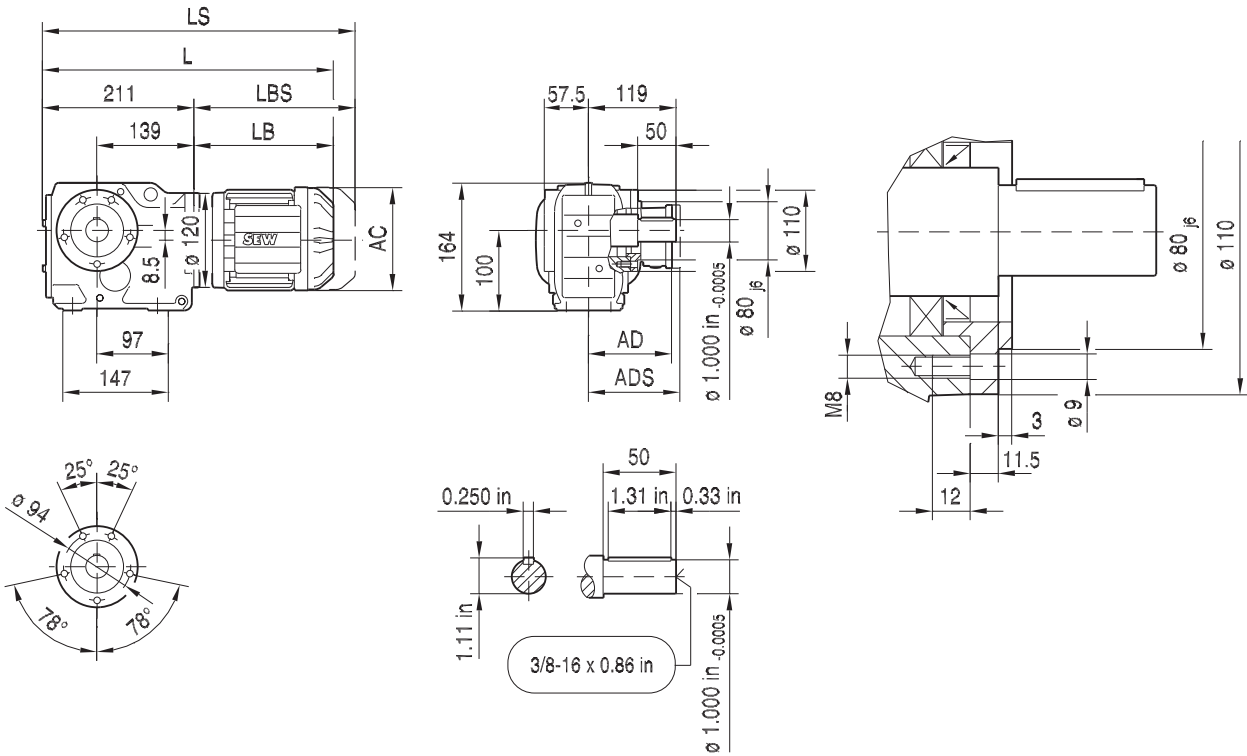


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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	402	413	438	493	494	526	575
LS	457	481	506	574	588	620	669
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

KZ37..

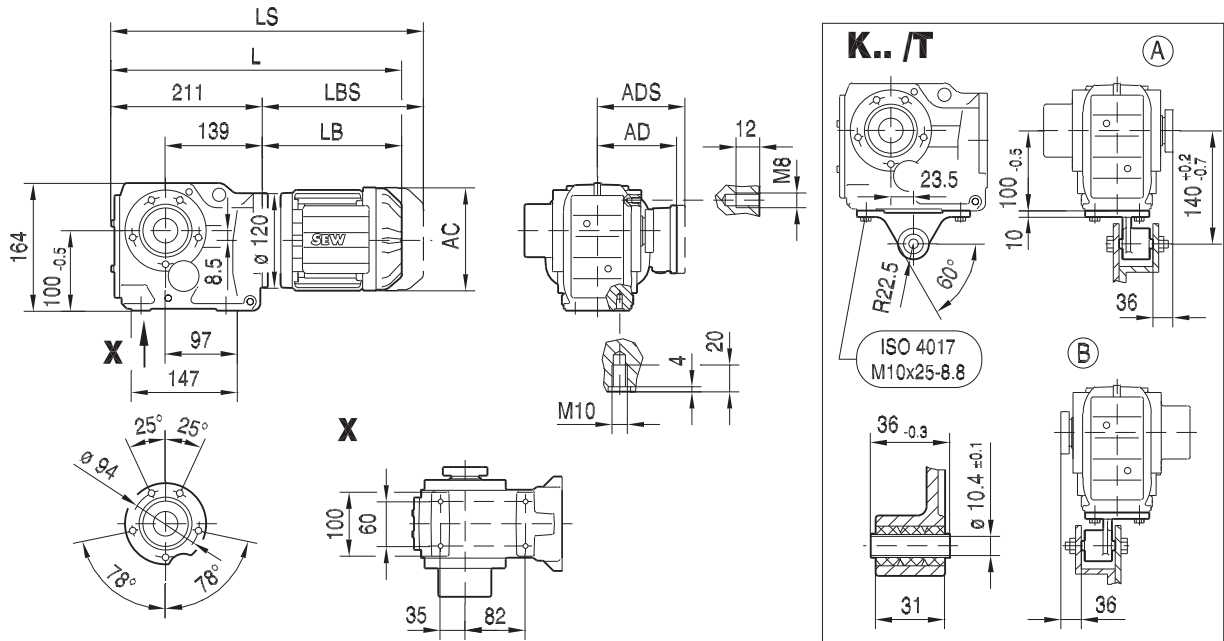


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	402	413	438	493	494	526	575
LS	457	481	506	574	588	620	669
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KT37..

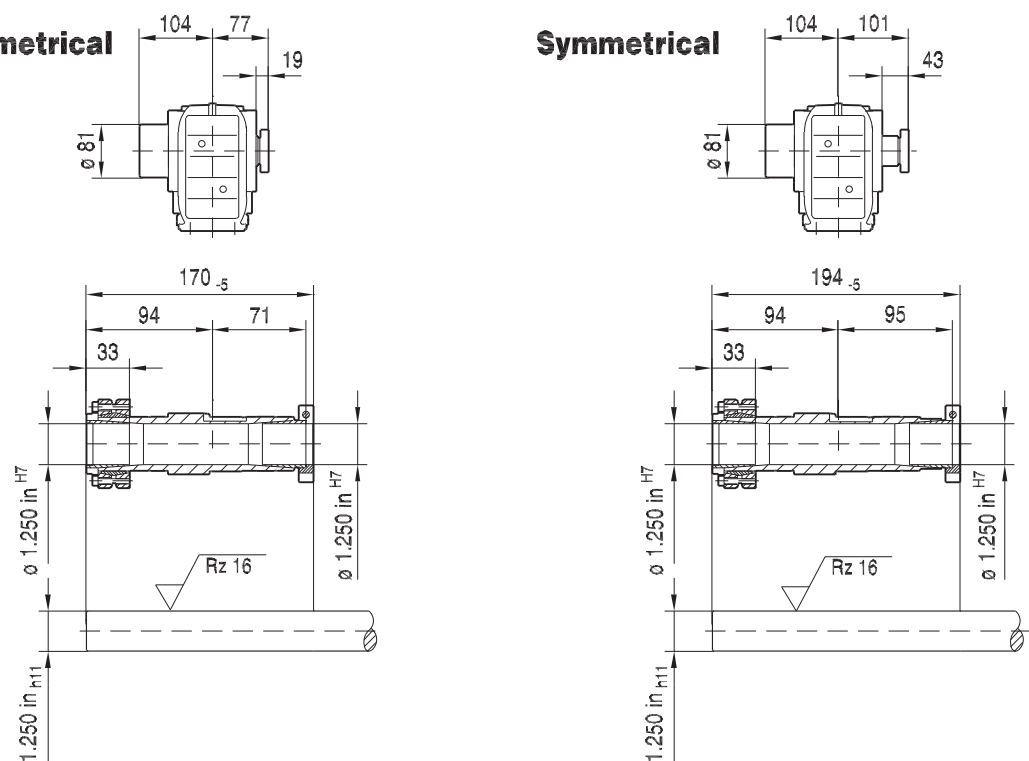
33 294 00 16



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NON-Symmetrical

Symmetrical



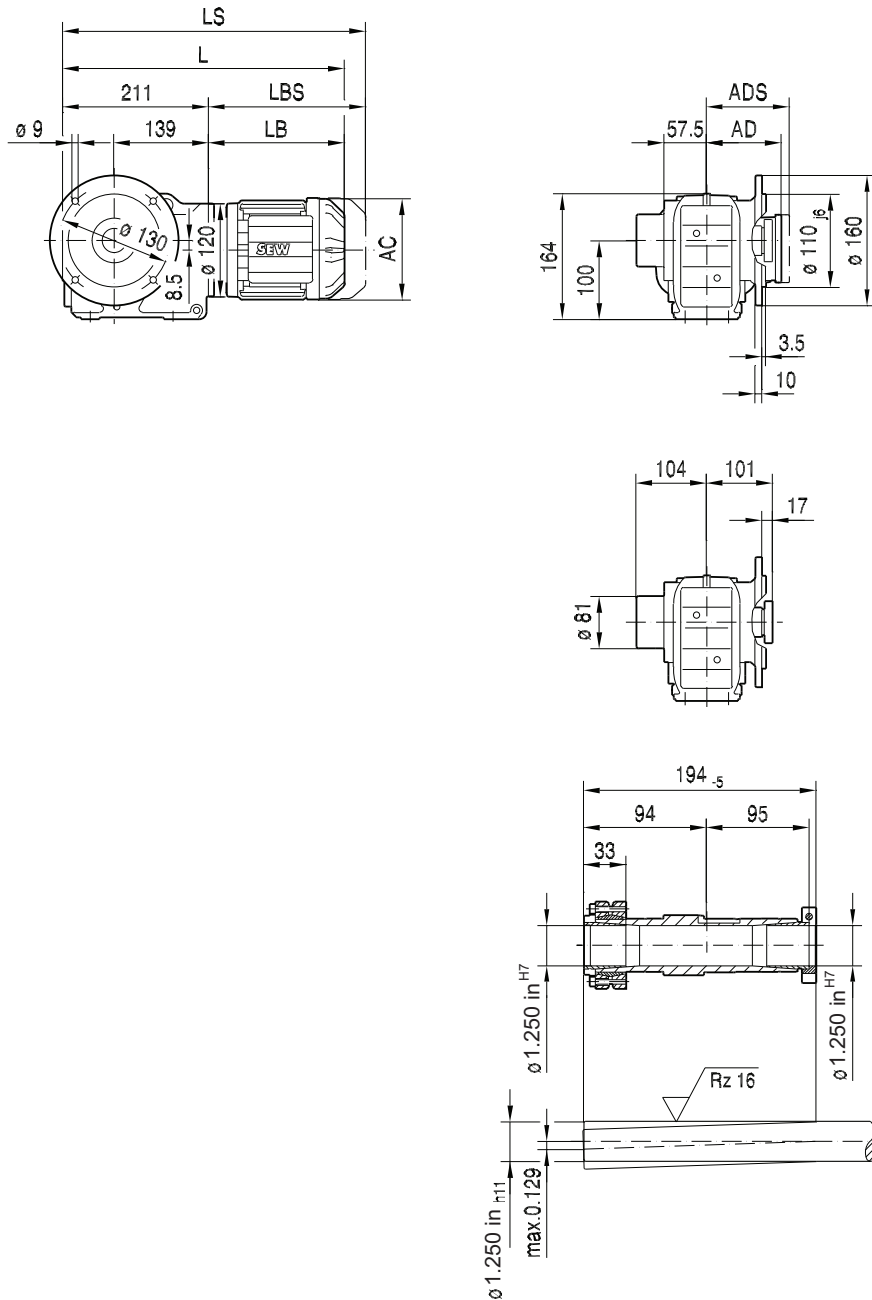
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	402	413	438	493	494	526	575
LS	457	481	506	574	588	620	669
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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33 095 02 13 US

KTF37..

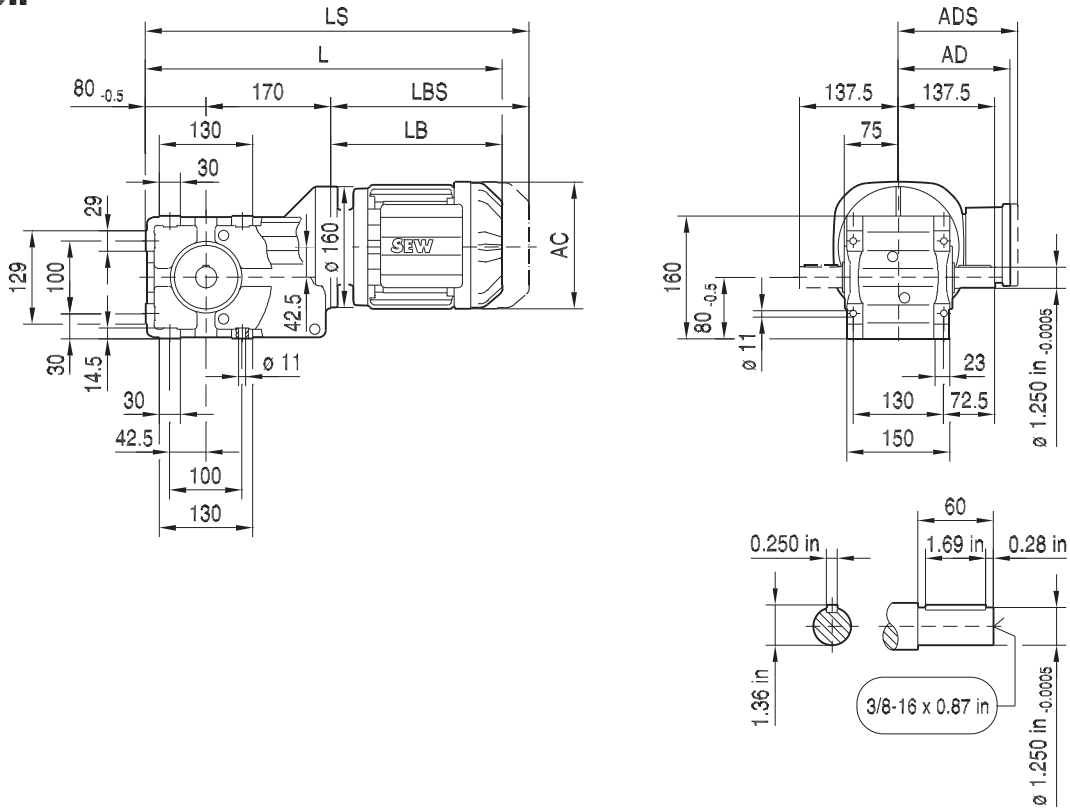


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	402	413	438	493	494	526	575
LS	457	481	506	574	588	620	669
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

K39..

33 308 00 16



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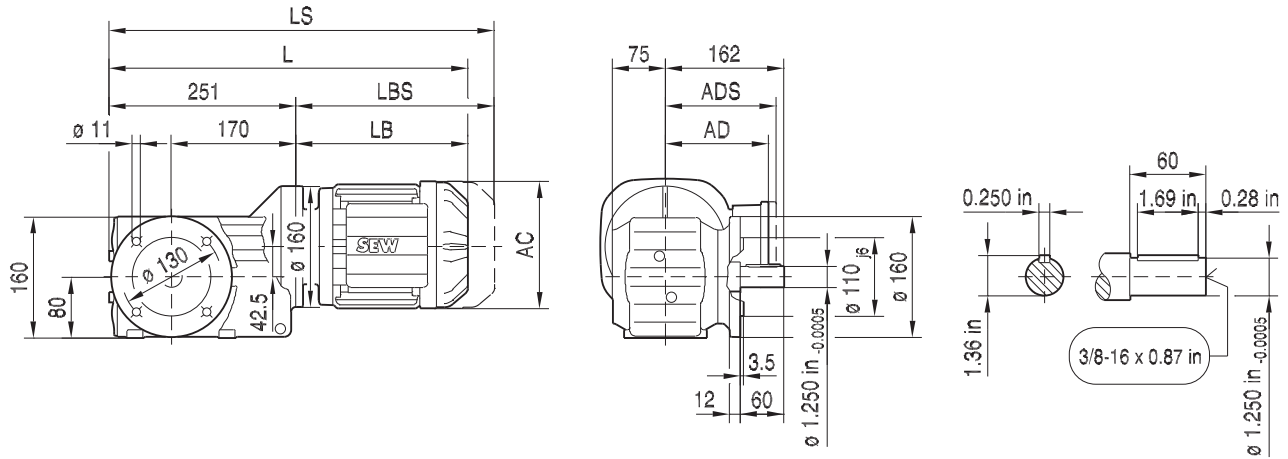
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	179	179	197	221
AD	105	119	119	128	140	140	157	170
ADS	105	129	129	139	150	150	158	172
L	435	446	471	525	527	559	605	636
LS	490	514	539	606	620	652	699	748
LB	185	196	221	275	277	309	355	386
LBS	240	264	289	356	370	402	449	498

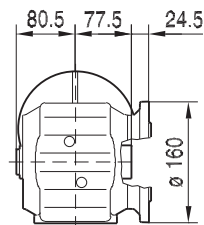
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 309 00 16

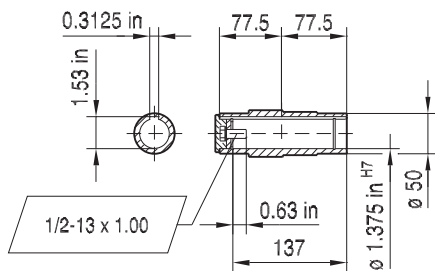
KF39..



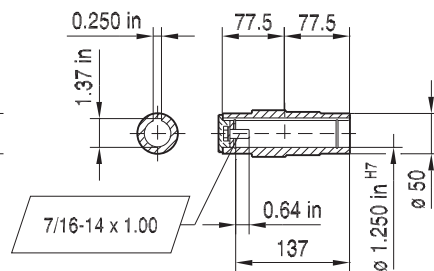
KAF39..



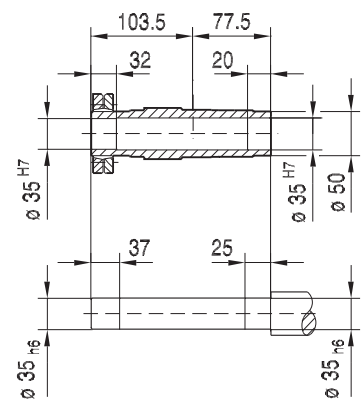
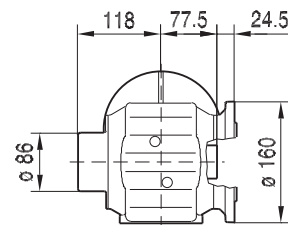
$\phi 1.375 \text{ in H7}$



$\phi 1.250 \text{ in H7}$



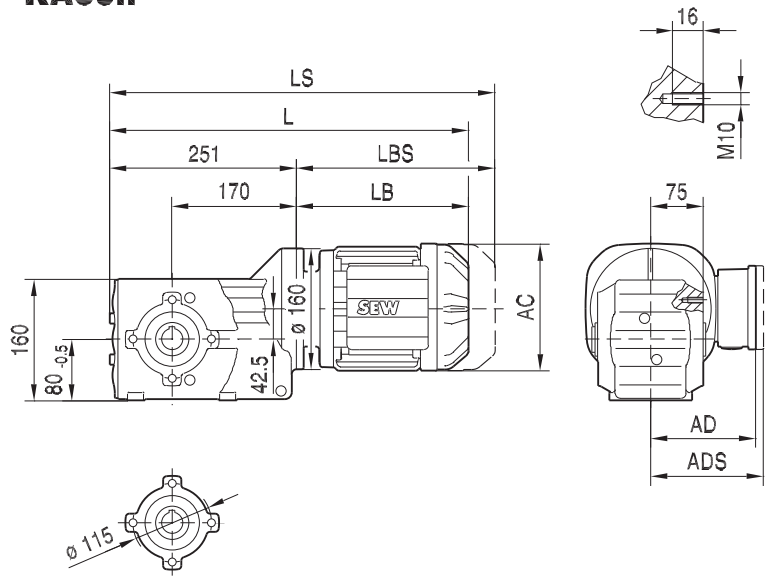
KHF39..



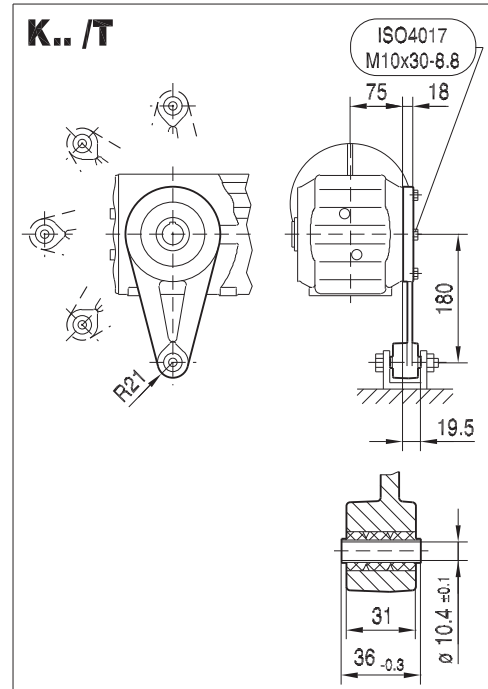
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	179	179	197	221
AD	105	119	119	128	140	140	157	170
ADS	105	129	129	139	150	150	158	172
L	436	447	472	526	528	560	606	637
LS	491	515	540	607	621	653	700	749
LB	185	196	221	275	277	309	355	386
LBS	240	264	289	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KA39..

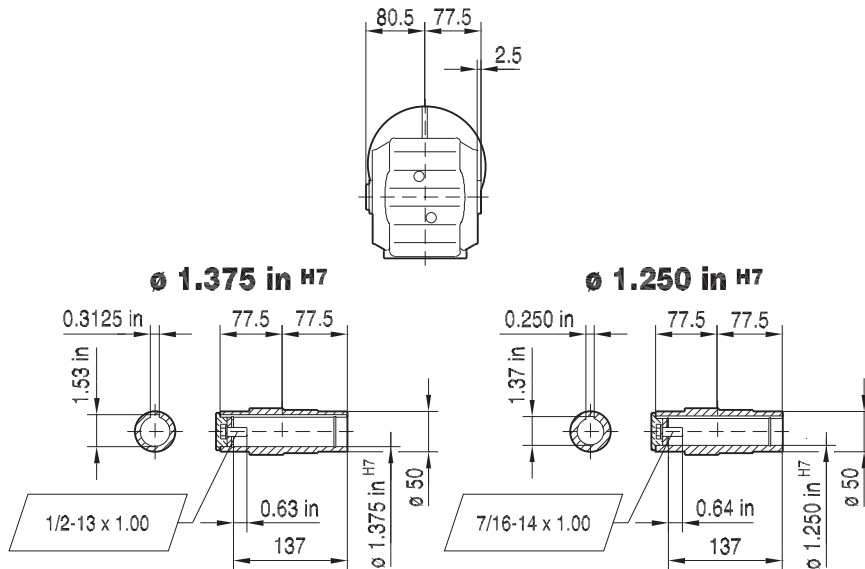


33 310 00 16

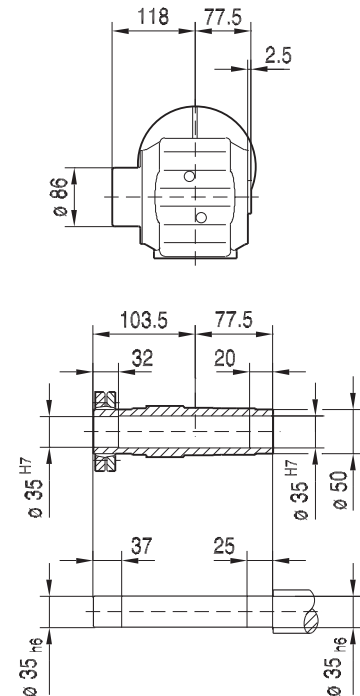


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KA39..



KH39..



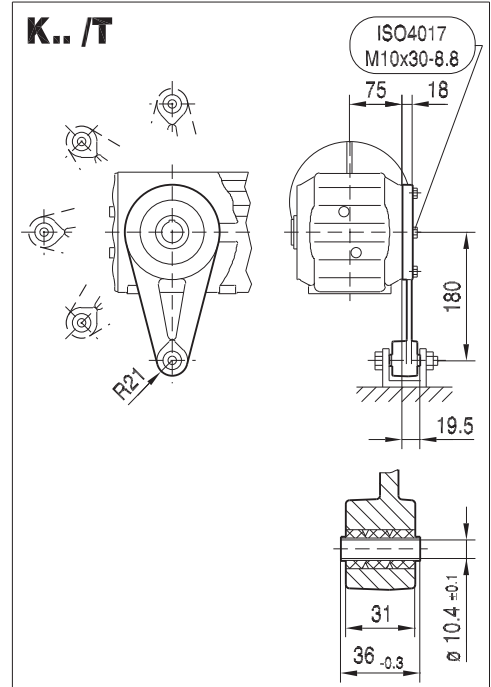
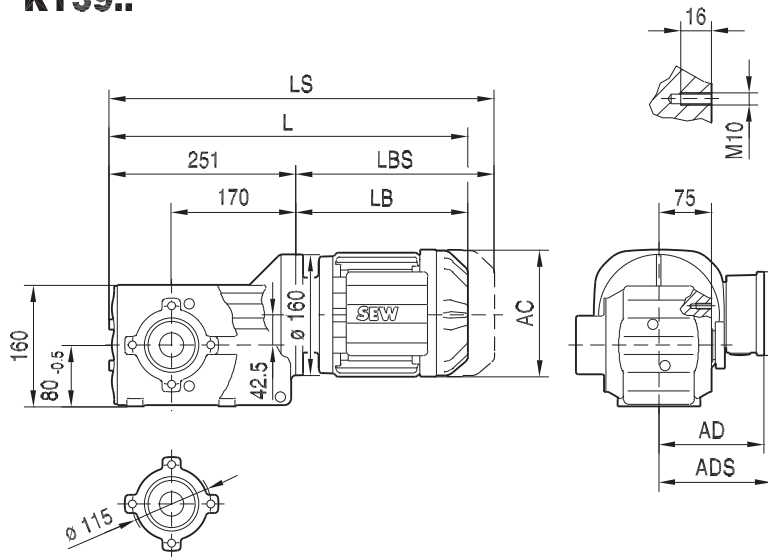
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	179	179	197	221
AD	105	119	119	128	140	140	157	170
ADS	105	129	129	139	150	150	158	172
L	436	447	472	526	528	560	606	637
LS	491	515	540	607	621	653	700	749
LB	185	196	221	275	277	309	355	386
LBS	240	264	289	356	370	402	449	498

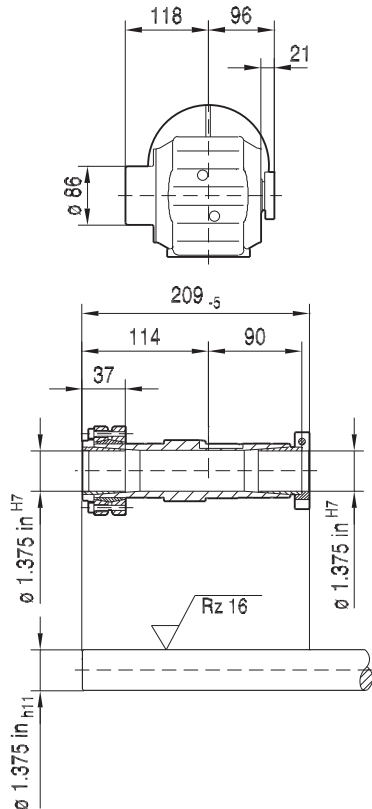
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 311 00 16

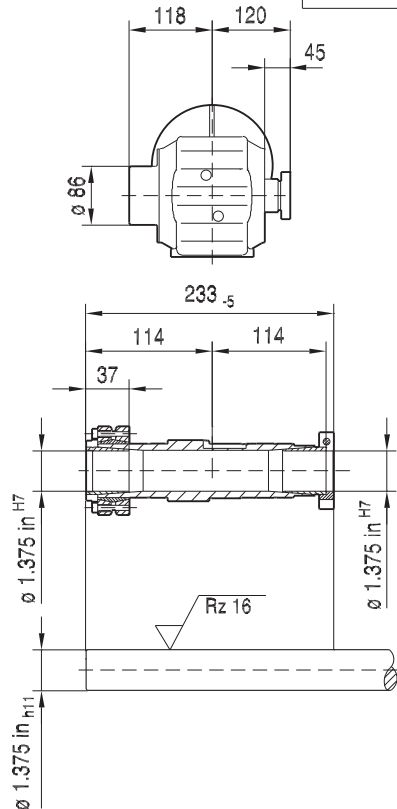
KT39..



NON-Symmetrical



Symmetrical



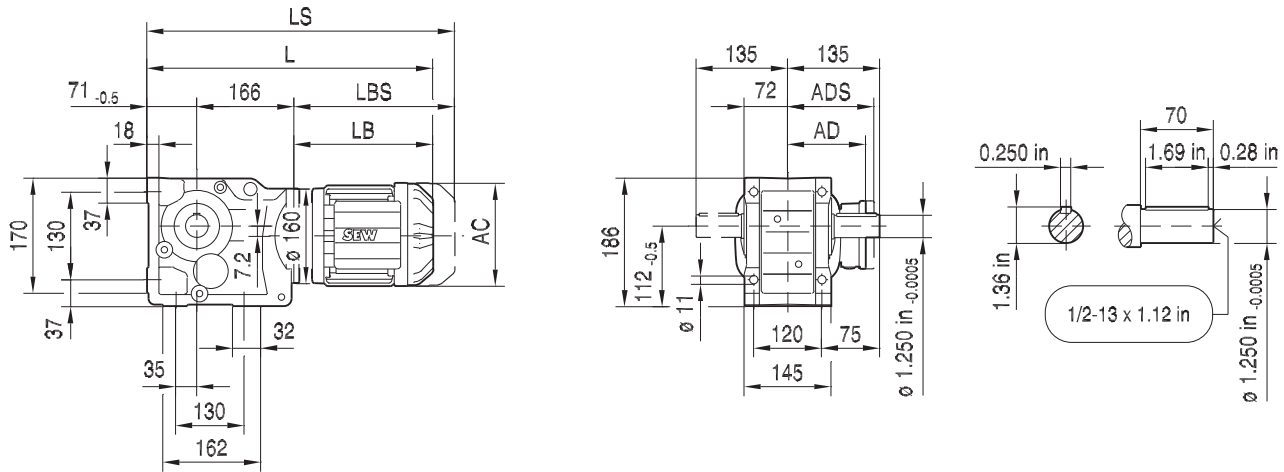
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	179	179	197	221
AD	105	119	119	128	140	140	157	170
ADS	105	129	129	139	150	150	158	172
L	436	447	472	526	528	560	606	637
LS	491	515	540	607	621	653	700	749
LB	185	196	221	275	277	309	355	386
LBS	240	264	289	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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33 312 00 16

K47..

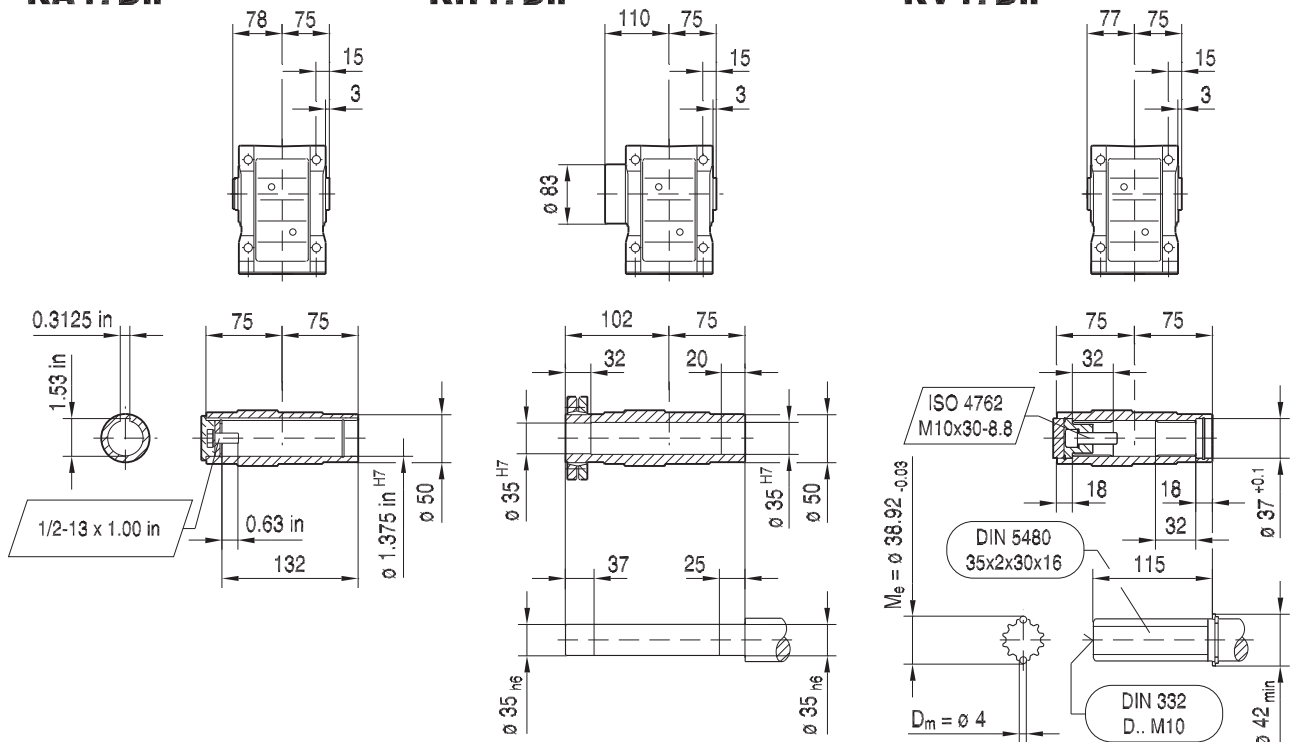


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KA47B..

KH47B..

KV47B..



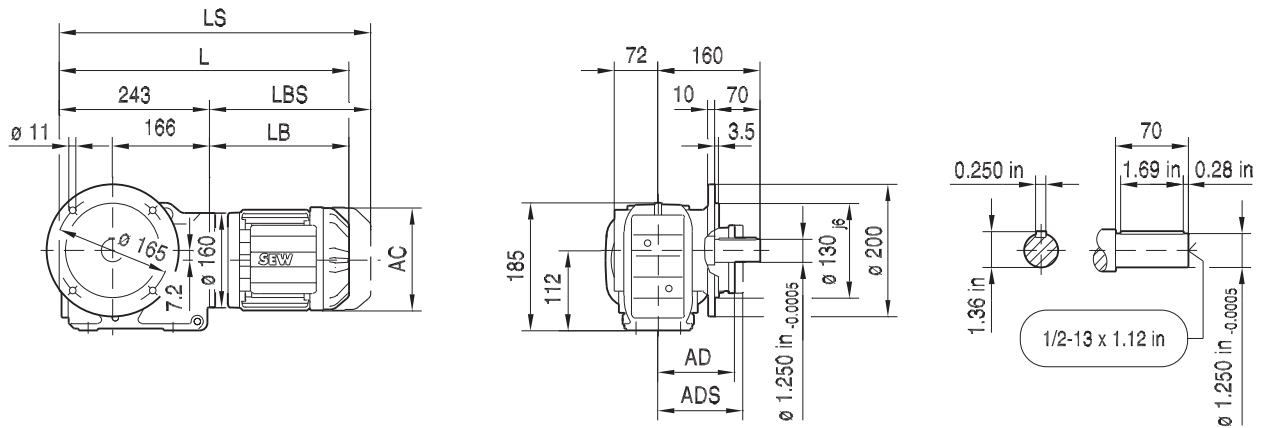
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	422	433	458	512	514	546	592
LS	477	501	526	593	607	639	686
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

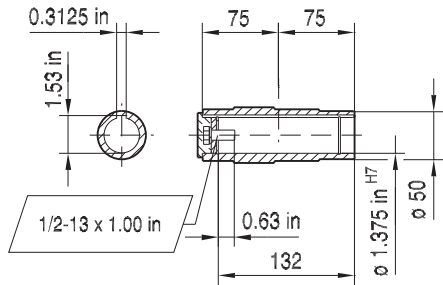
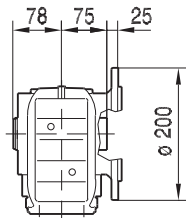
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 313 00 16

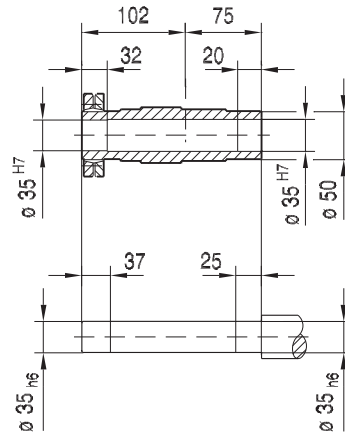
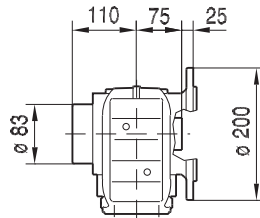
KF47..



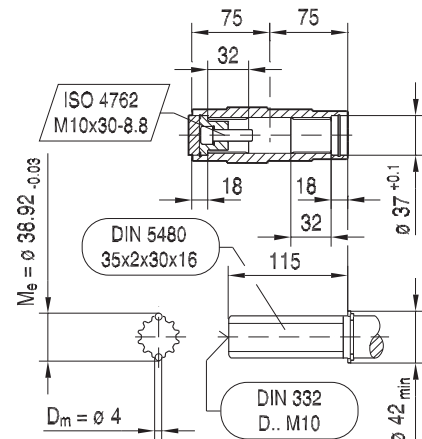
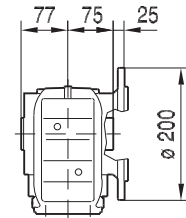
KAF47..



KHF47..



KVF47..



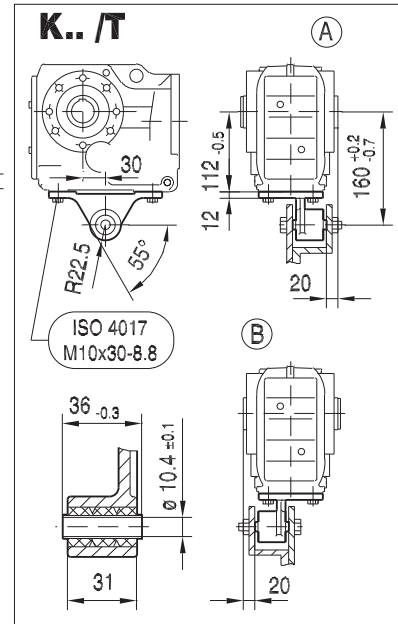
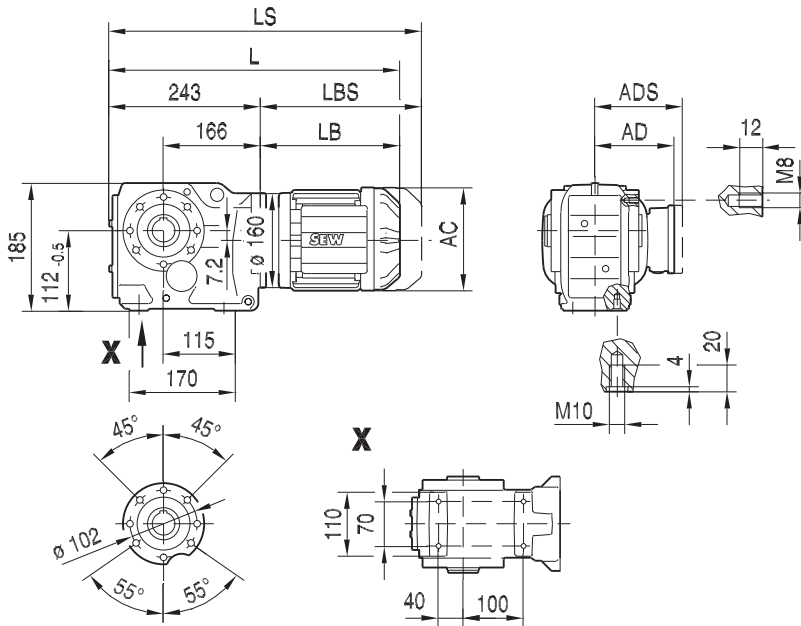
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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KA47..

33 314 00 16

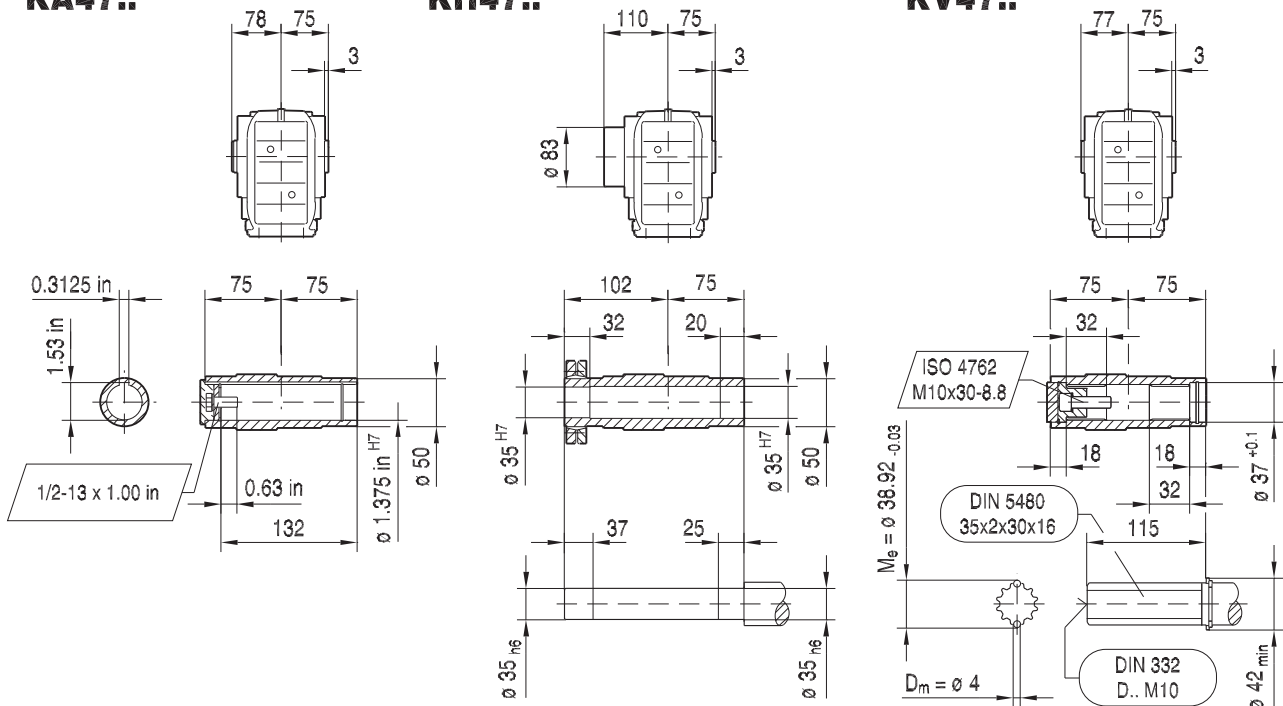


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KA47..

KH47..

KV47..



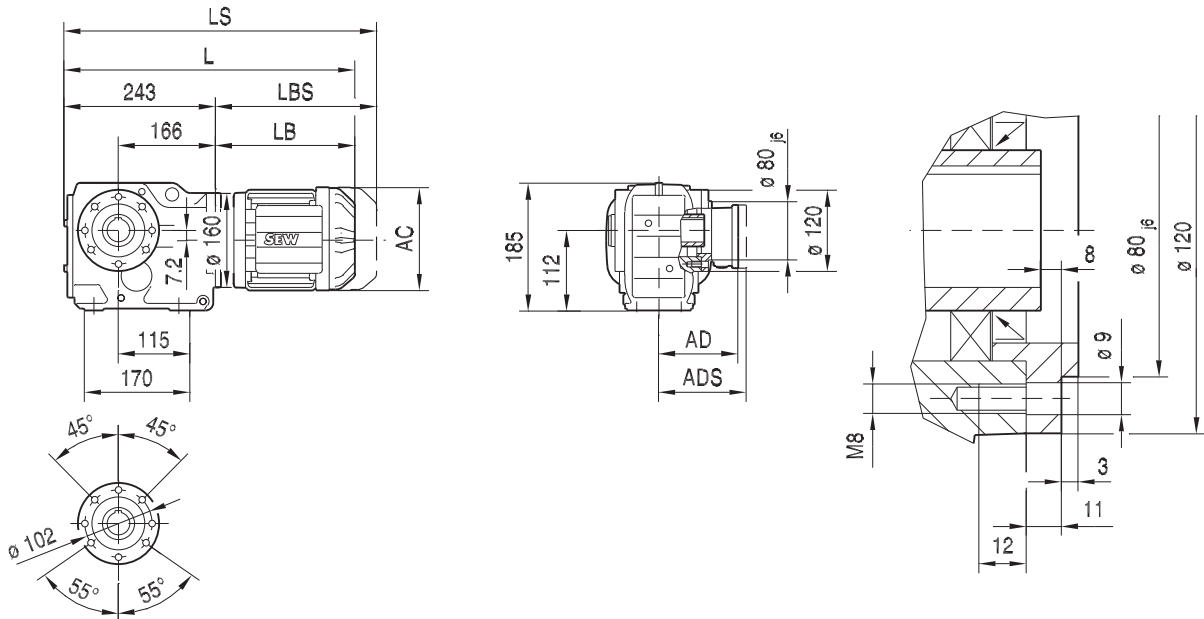
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

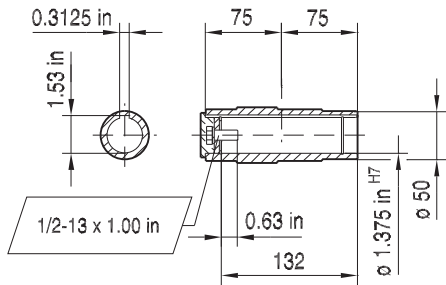
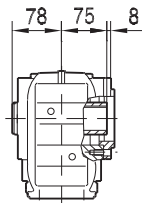
21933480/EN-US - 04/2018

33 315 00 16

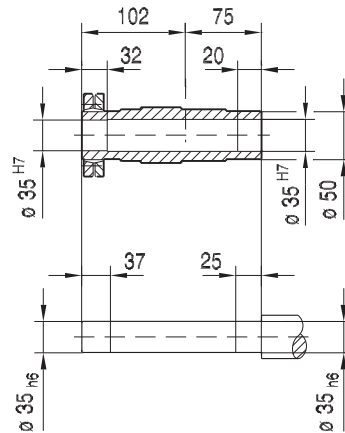
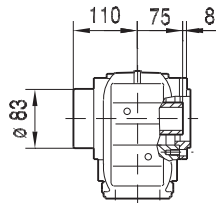
KAZ47..



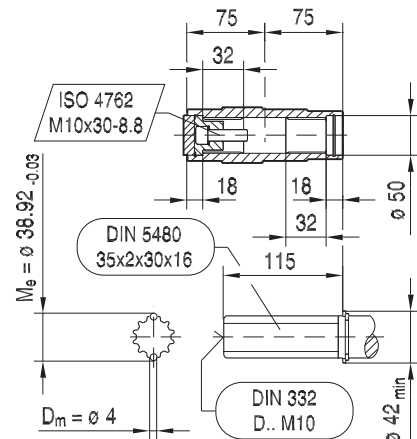
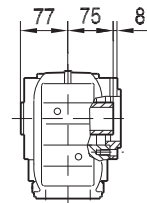
KAZ47..



KHZ47..



KVZ47..



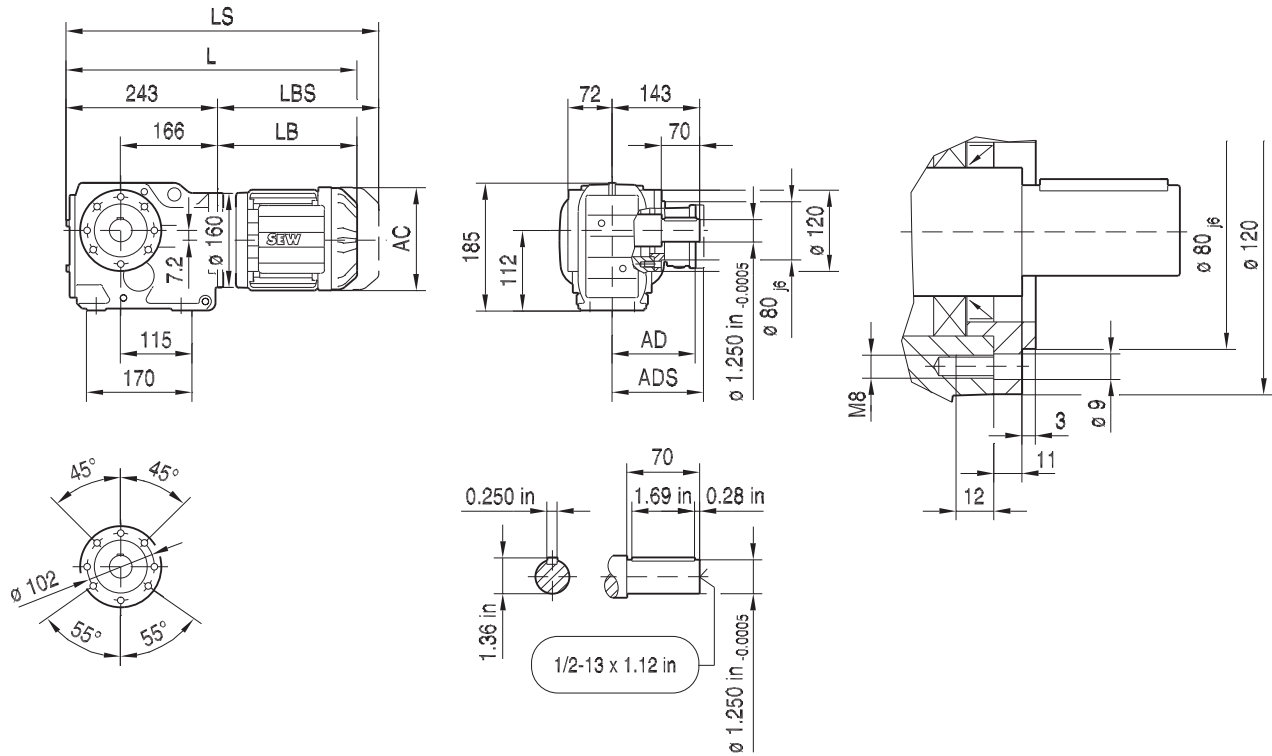
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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KZ47..

33 316 00 16



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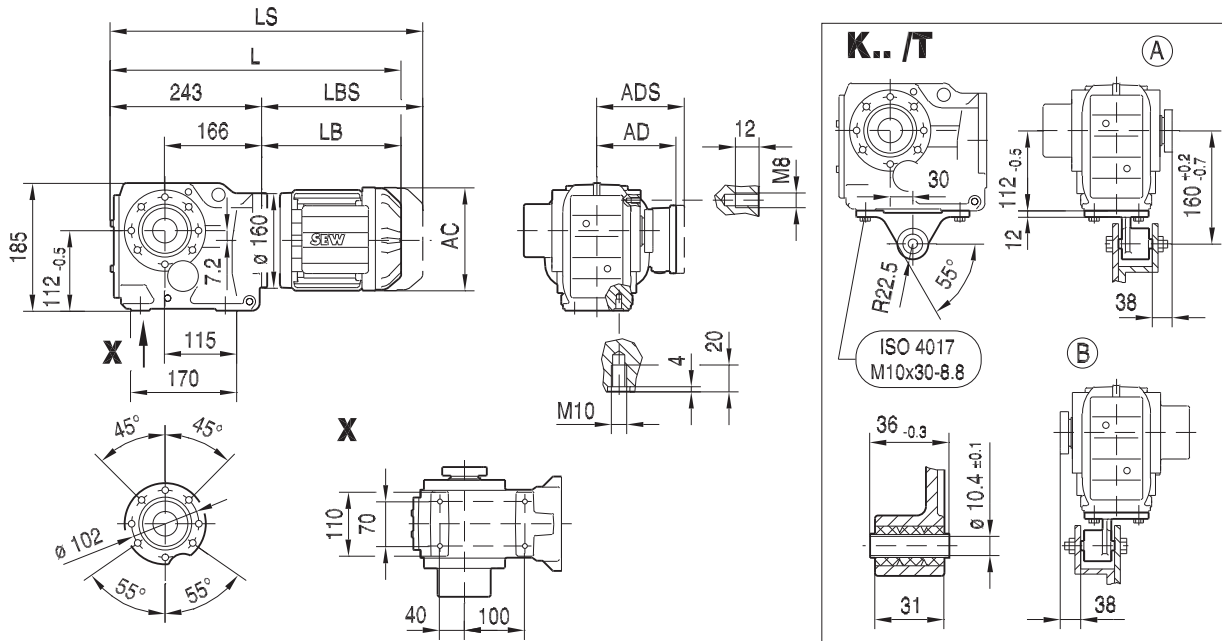
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

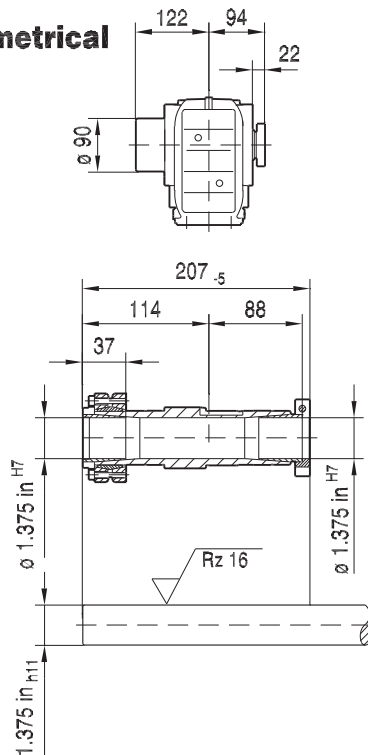
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 317 00 16

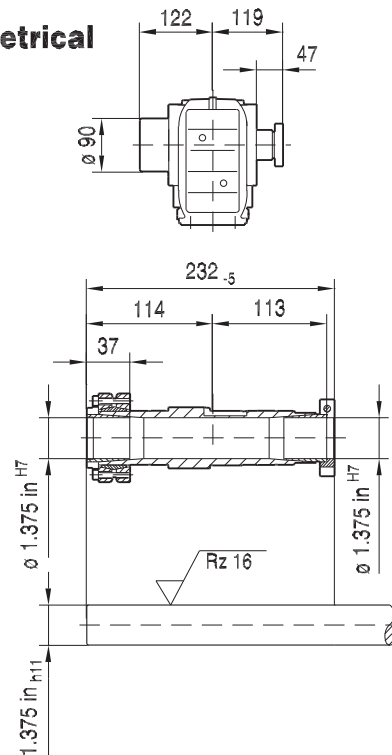
KT47..



NON-Symmetrical



Symmetrical

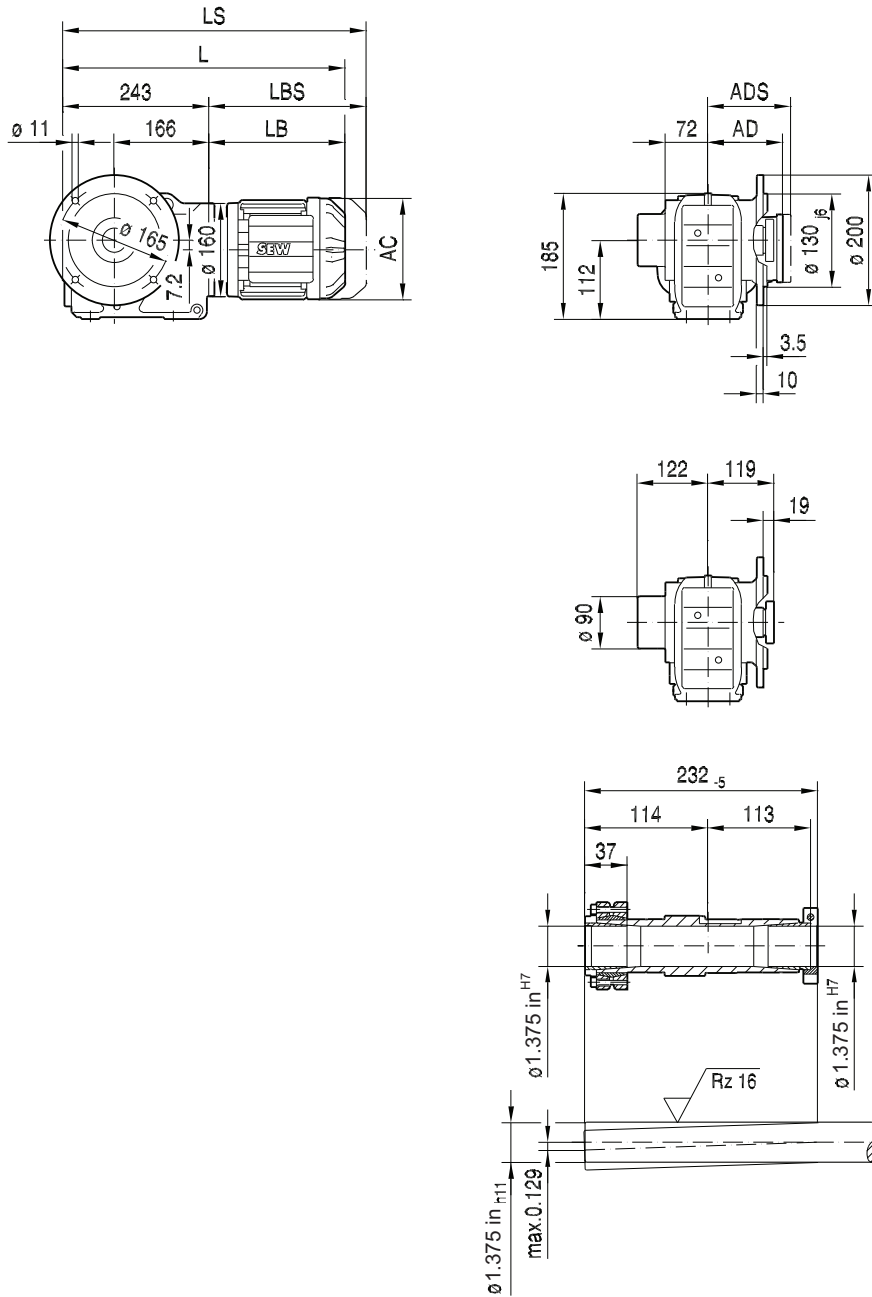


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

KTF47..

33 096 02 13 US



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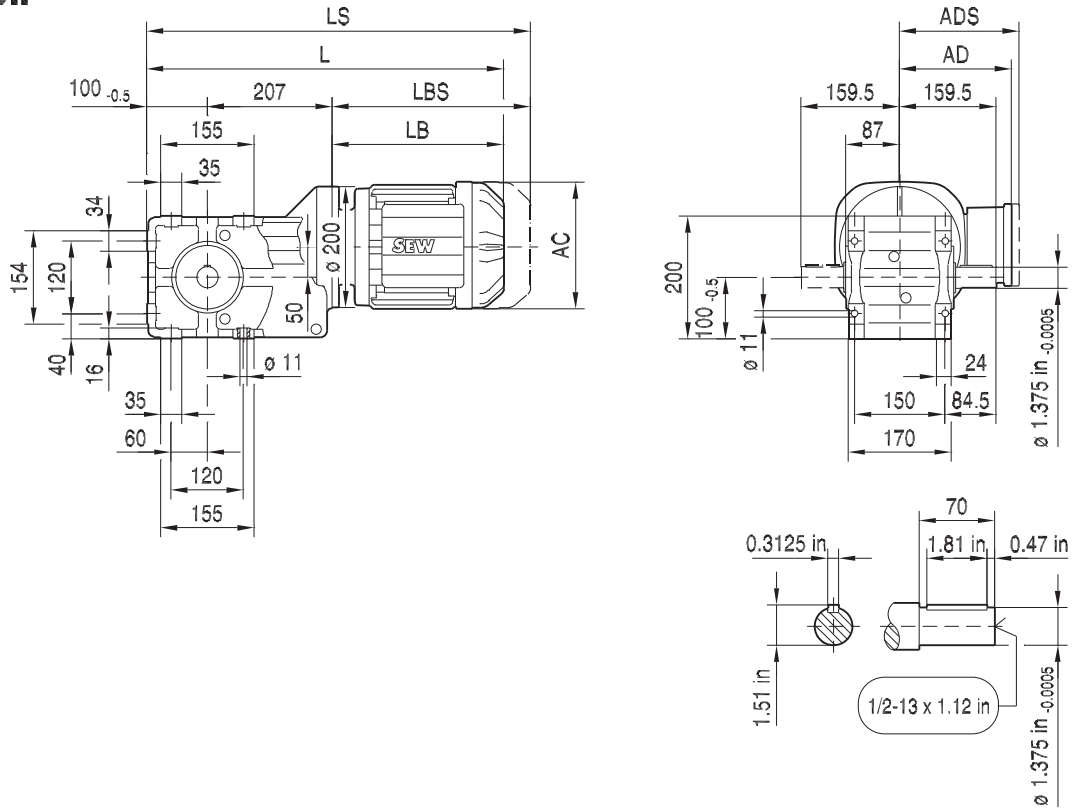
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	428	439	464	518	520	552	598
LS	483	507	532	599	613	645	692
LB	185	196	221	275	277	309	355
LBS	240	264	289	356	370	402	449

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 318 00 16

K49..

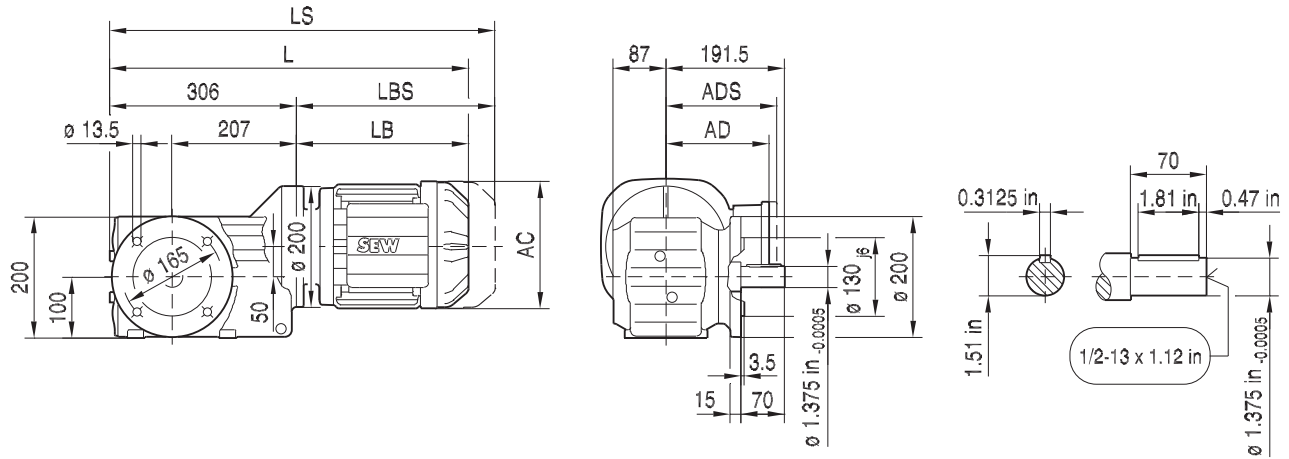


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	485	496	521	575	577	609	655	686	736	754
LS	540	564	589	656	670	702	749	798	848	892
LB	178	189	214	268	270	302	348	379	429	447
LBS	233	257	282	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

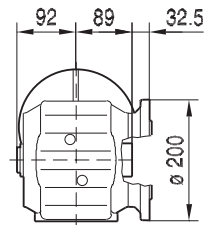
33 319 00 16

KF49..

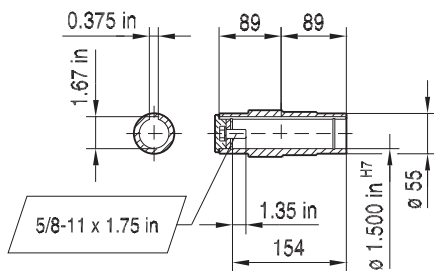


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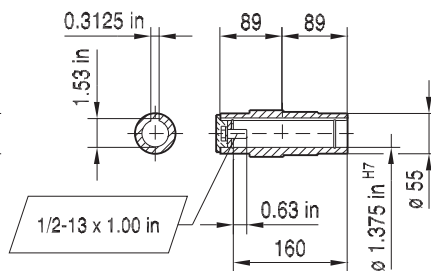
KAF49..



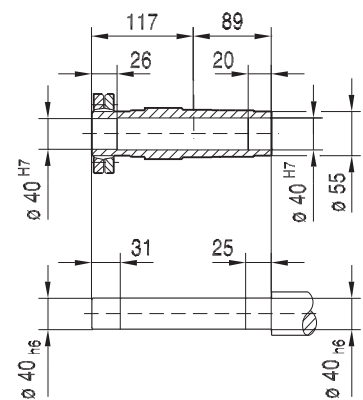
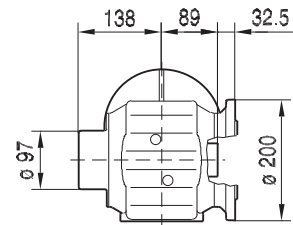
$\phi 1.500$ in H7



$\phi 1.375$ in H7



KHF49..

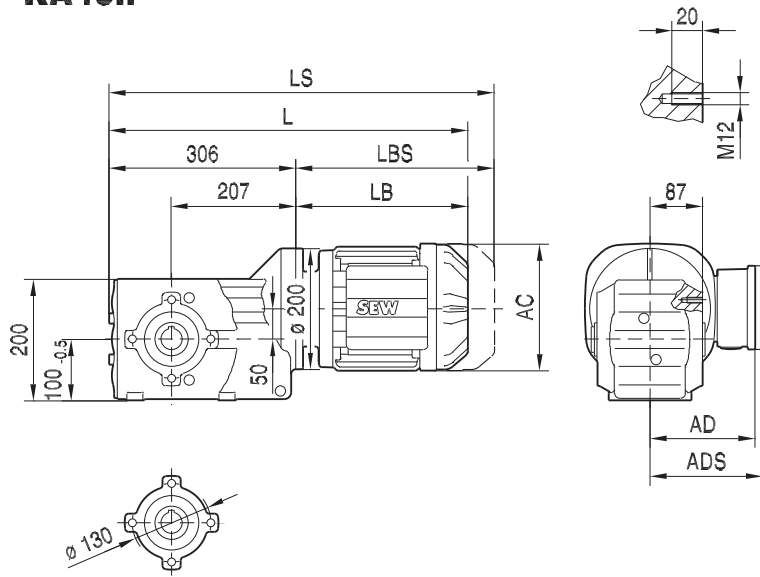


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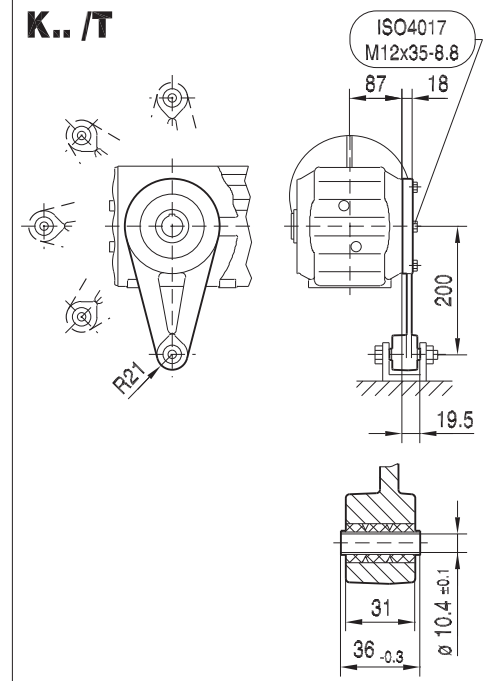
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	484	495	520	574	576	608	654	685	735	753
LS	539	563	588	655	669	701	748	797	847	891
LB	178	189	214	268	270	302	348	379	429	447
LBS	233	257	282	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

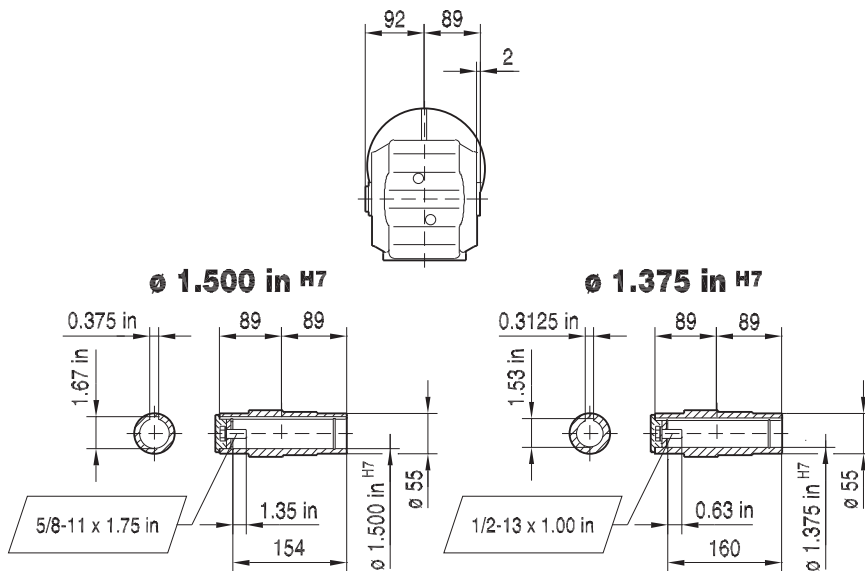
KA49..



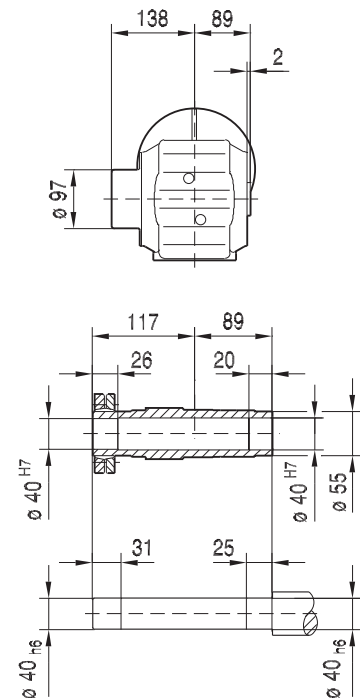
33 320 00 16



KA49..



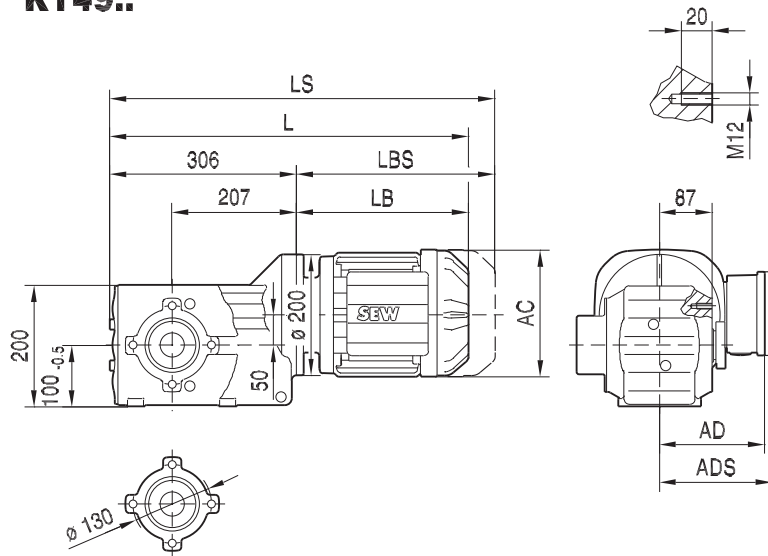
KH49..



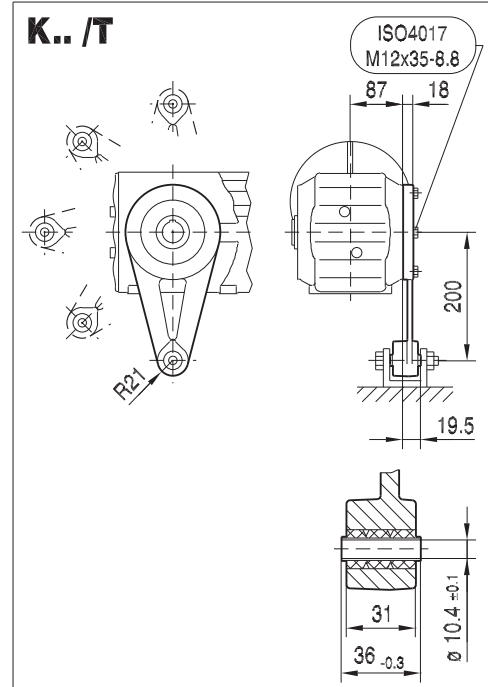
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	484	495	520	574	576	608	654	685	735	753
LS	539	563	588	655	669	701	748	797	847	891
LB	178	189	214	268	270	302	348	379	429	447
LBS	233	257	282	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

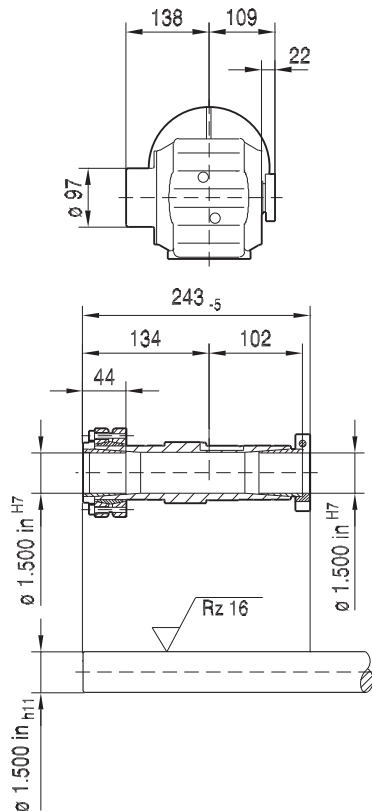
KT49..



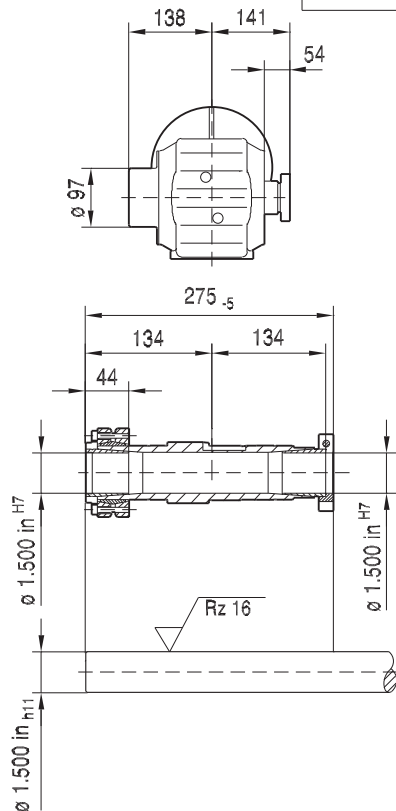
33 321 00 16



NON-Symmetrical



Symmetrical



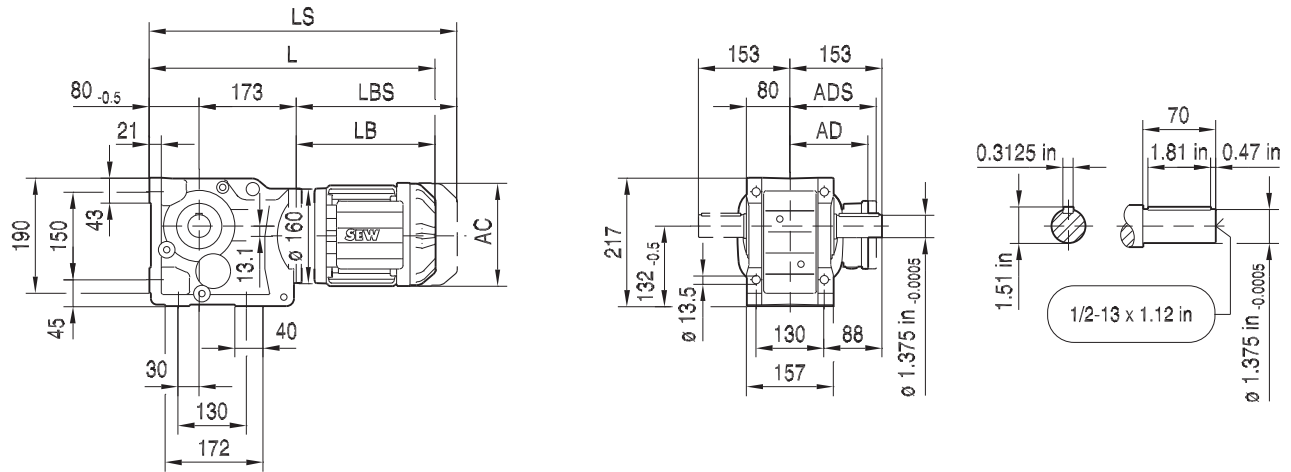
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	484	495	520	574	576	608	654	685	735	753
LS	539	563	588	655	669	701	748	797	847	891
LB	178	189	214	268	270	302	348	379	429	447
LBS	233	257	282	349	363	395	442	491	541	585

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

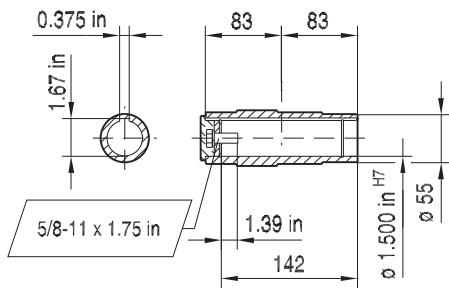
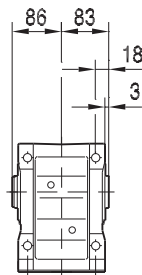
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33 322 00 16

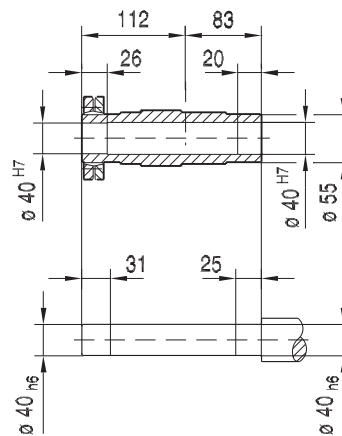
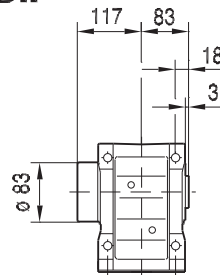
K57..



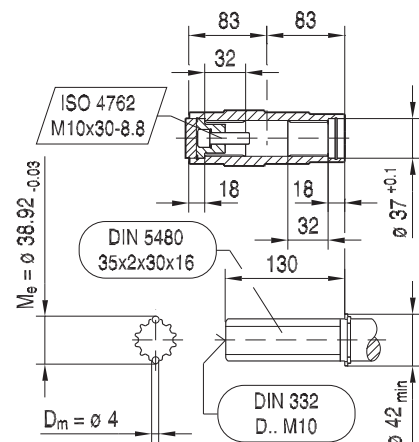
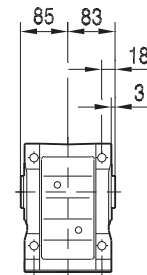
KA57B..



KH57B..



KV57B..

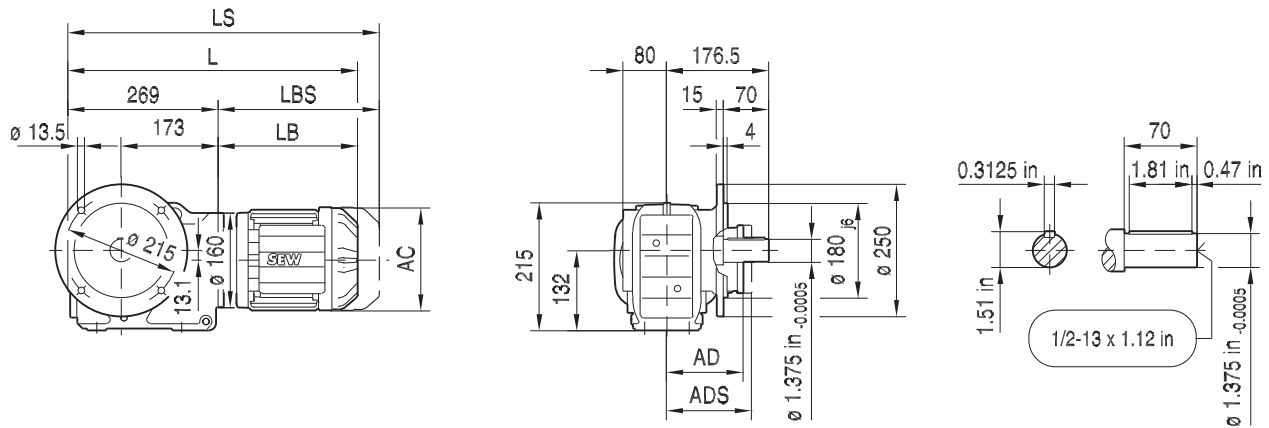


(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	449	474	528	530	562	608	639	693	711
LS	517	542	609	623	655	702	751	805	849
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 323 00 16

KF57..

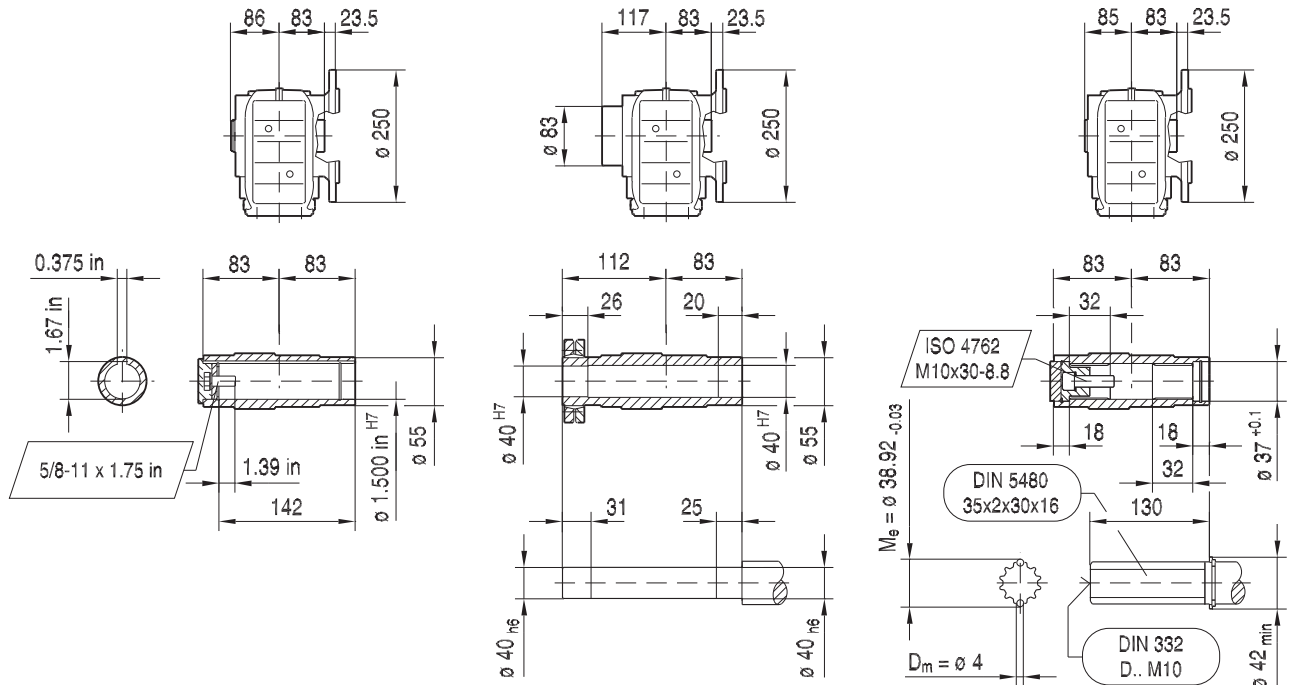


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KAF57..

KHF57..

KVF57..



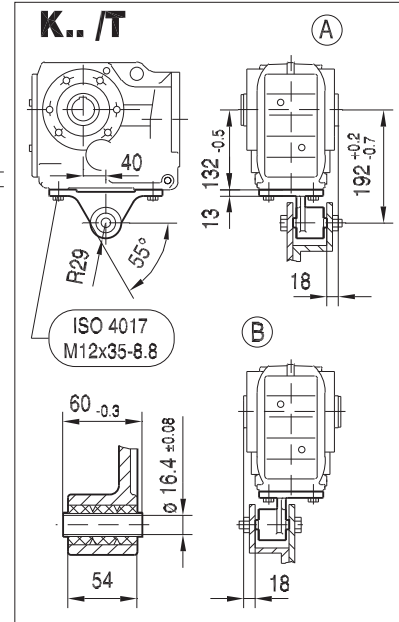
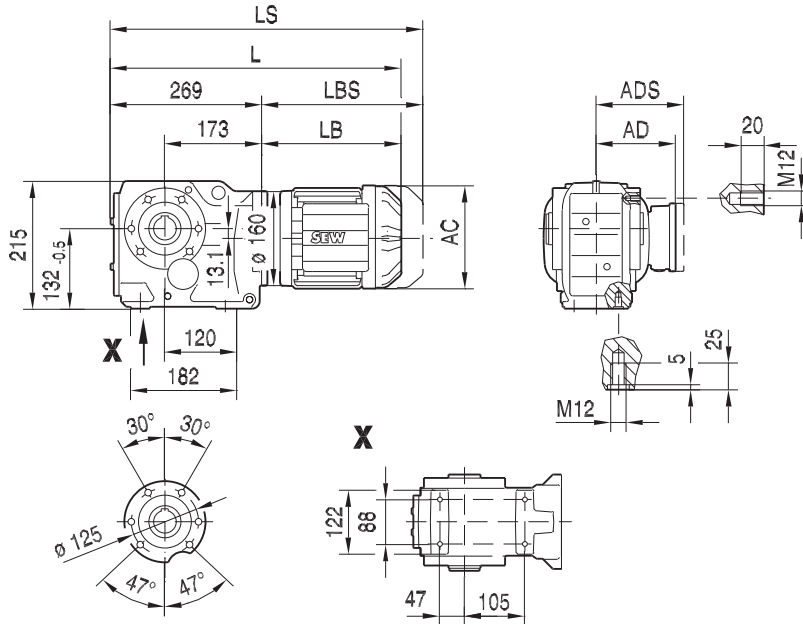
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(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

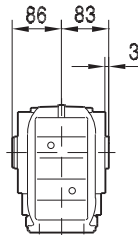
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 324 00 16

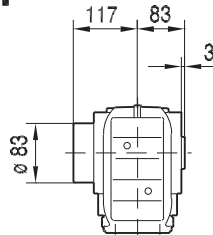
KA57..



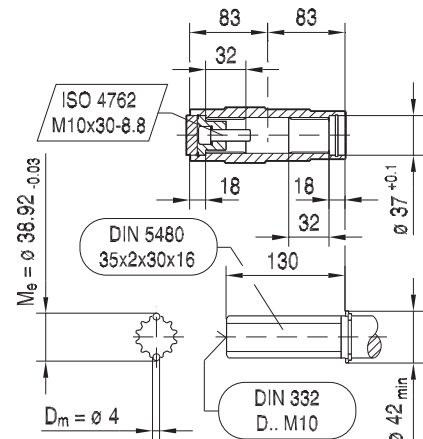
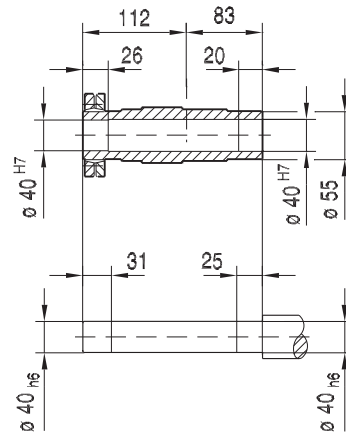
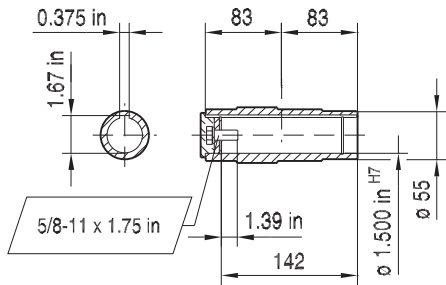
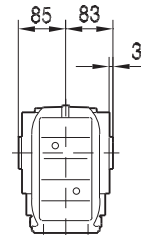
KA57..



KH57..



KV57..

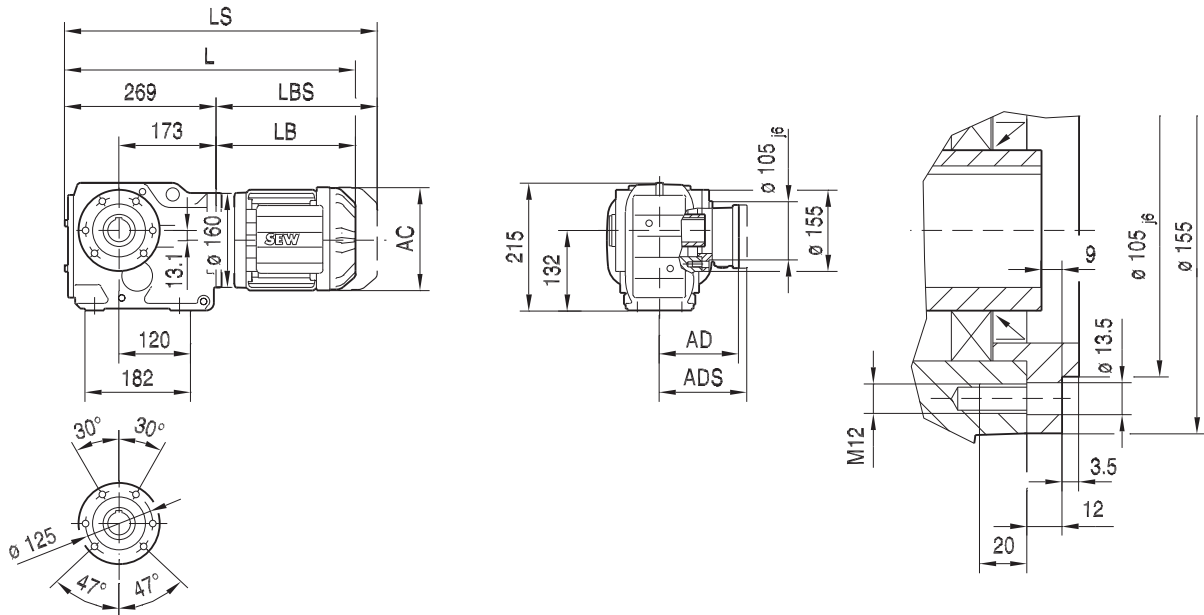


(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

KAZ57..

33 325 00 16

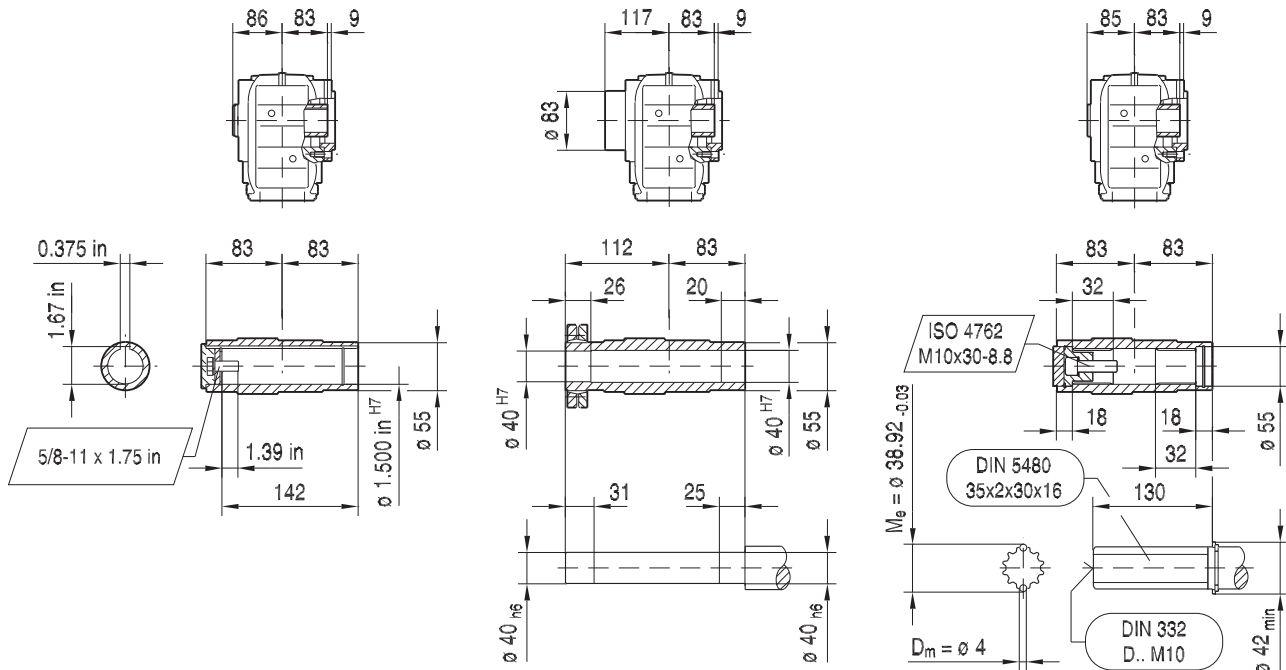


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KAZ57..

KHZ57..

KVZ57..



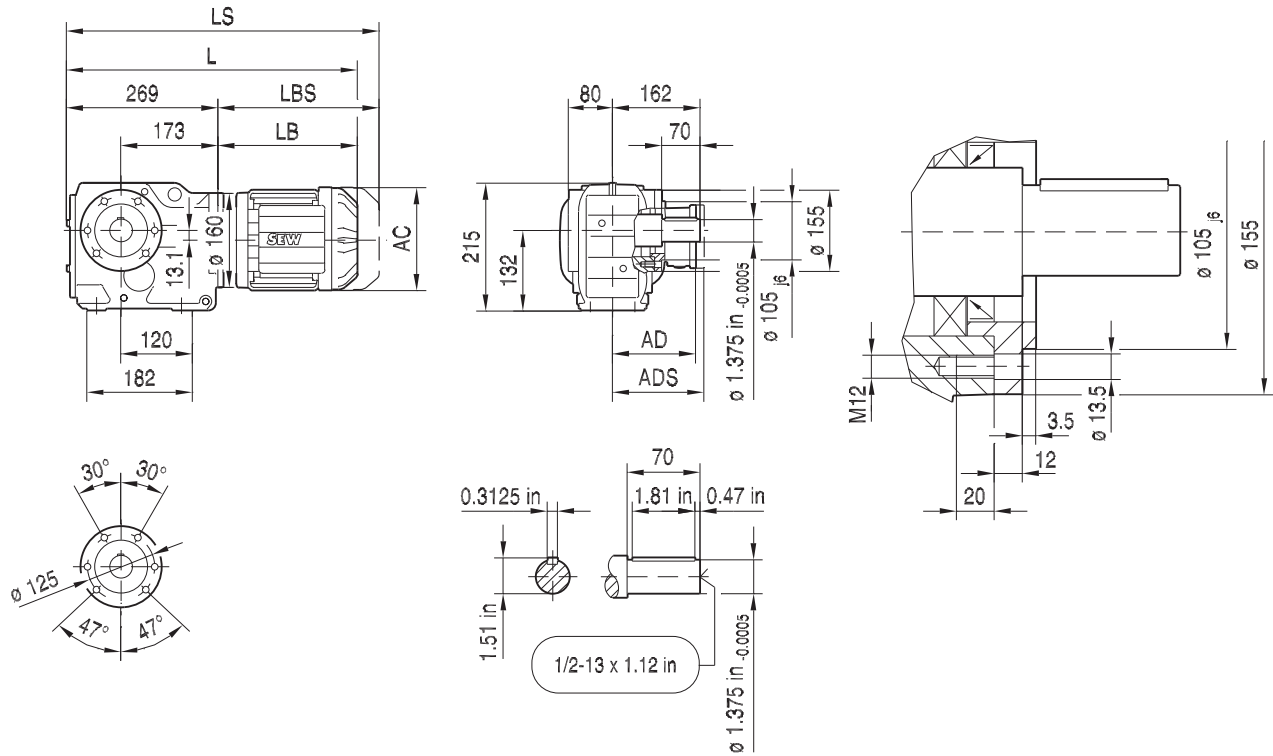
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(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 326 00 16

KZ57..

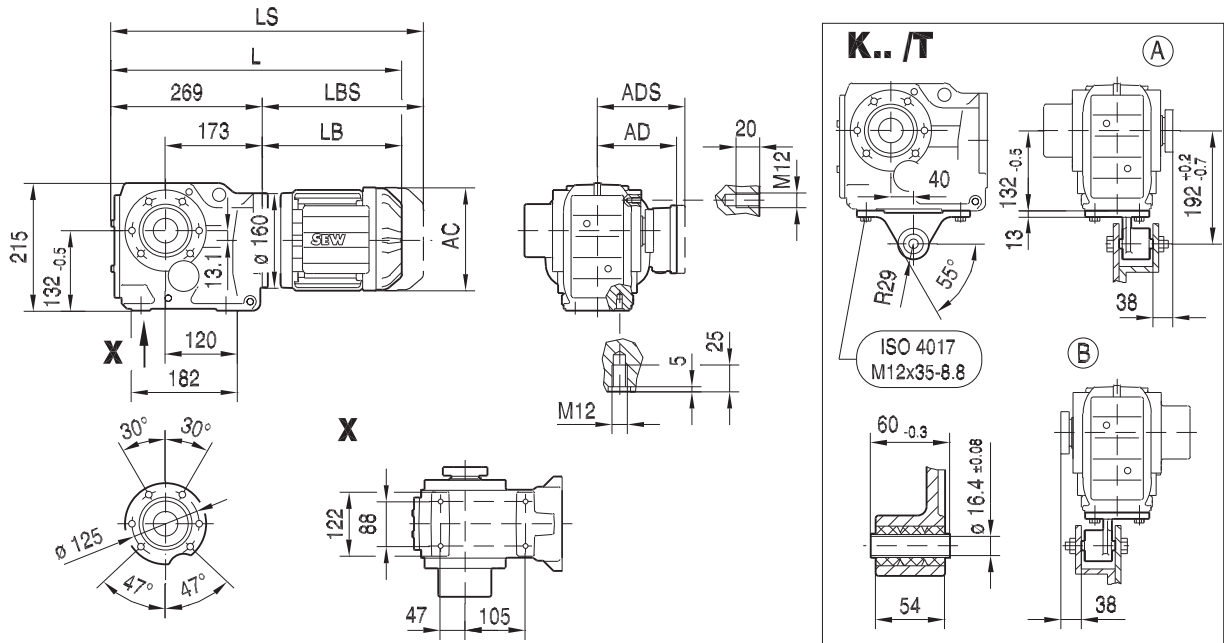


(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

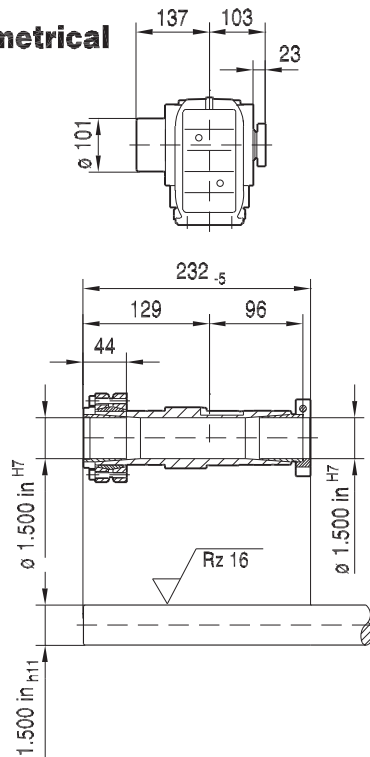
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KT57..

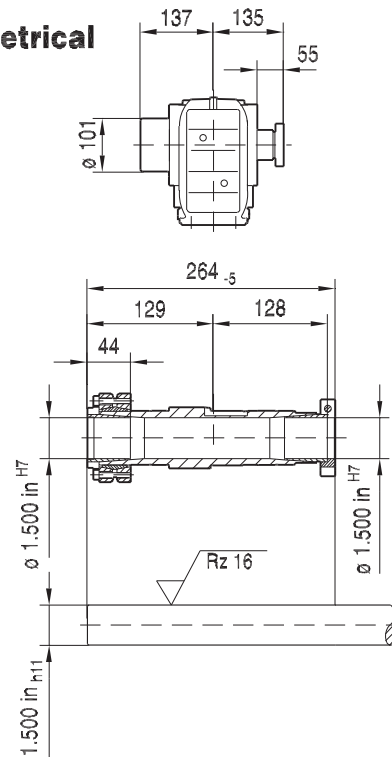
33 327 00 16



NON-Symmetrical



Symmetrical



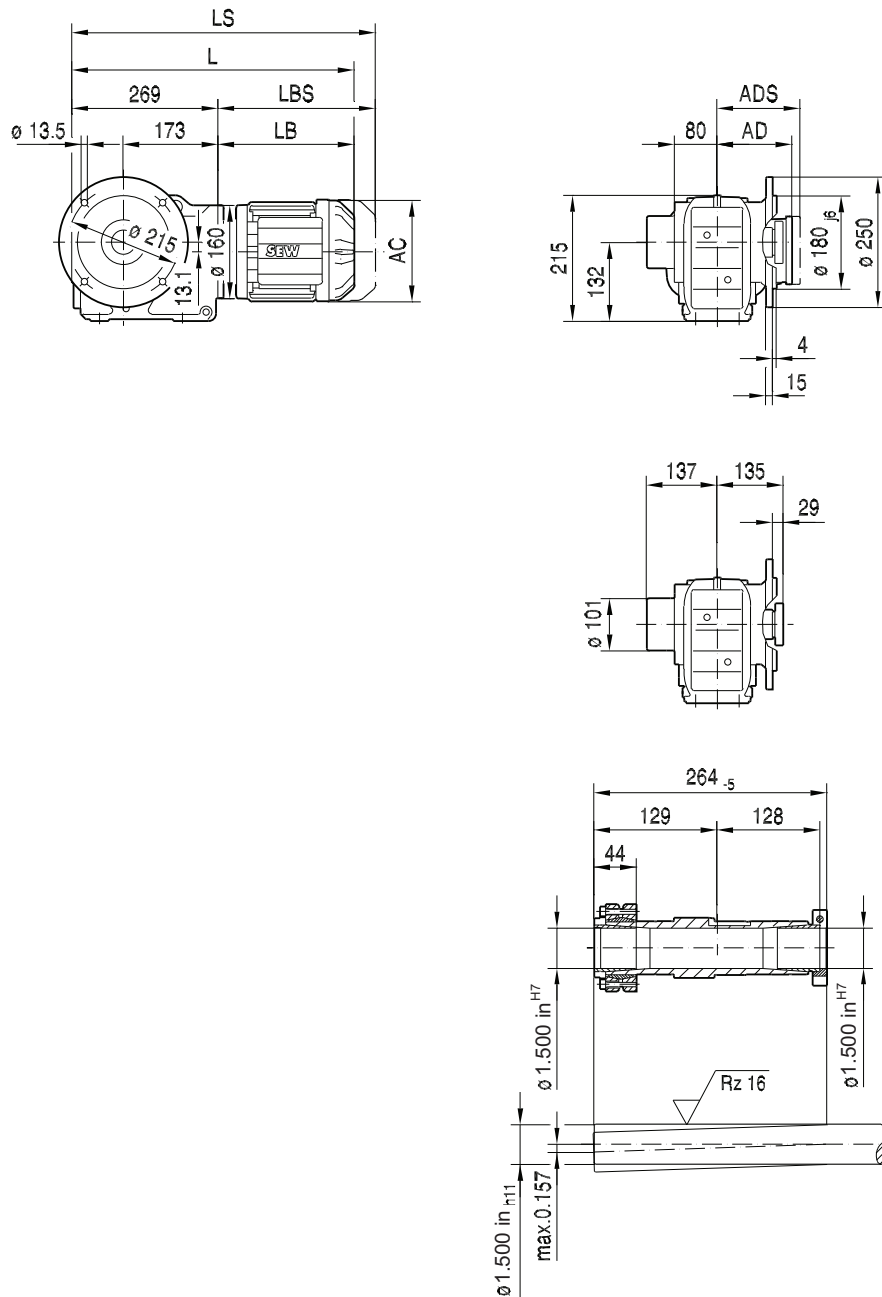
(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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33 097 02 13 US

KTF57..



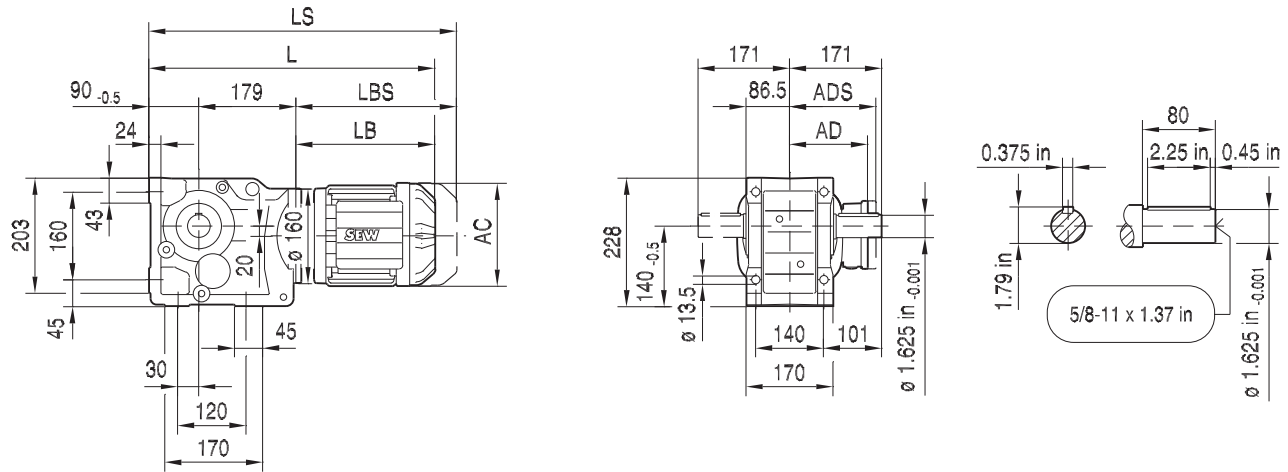
(→ 163)	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	139	139	156	179	179	197	221	221	261
AD	119	119	128	140	140	157	170	170	228
ADS	129	129	139	150	150	158	172	172	228
L	465	490	544	546	578	624	655	709	727
LS	533	558	625	639	671	718	767	821	865
LB	196	221	275	277	309	355	386	440	458
LBS	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

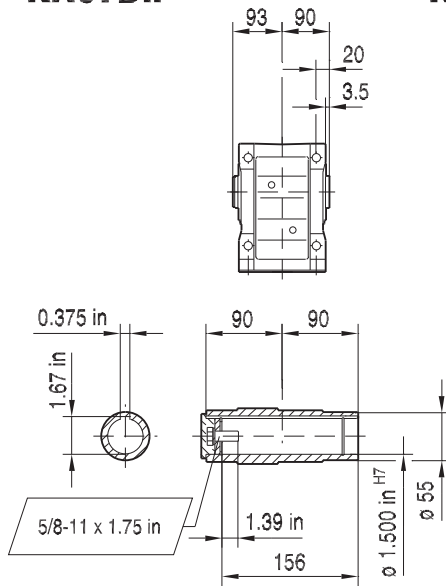
221933480/EN-US - 04/2018

33 328 00 16

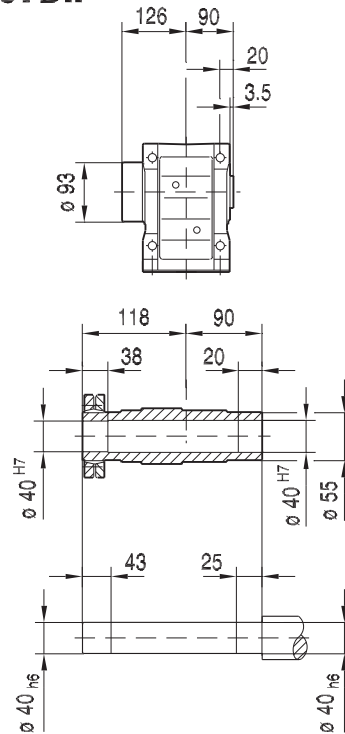
K67..



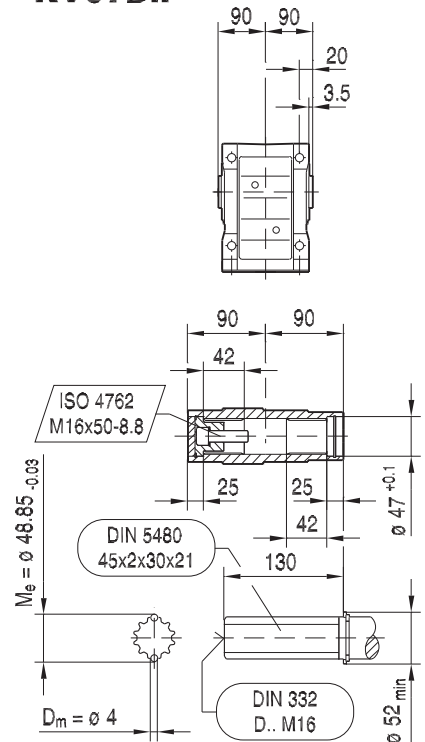
KA67B..



KH67B..



KV67B..



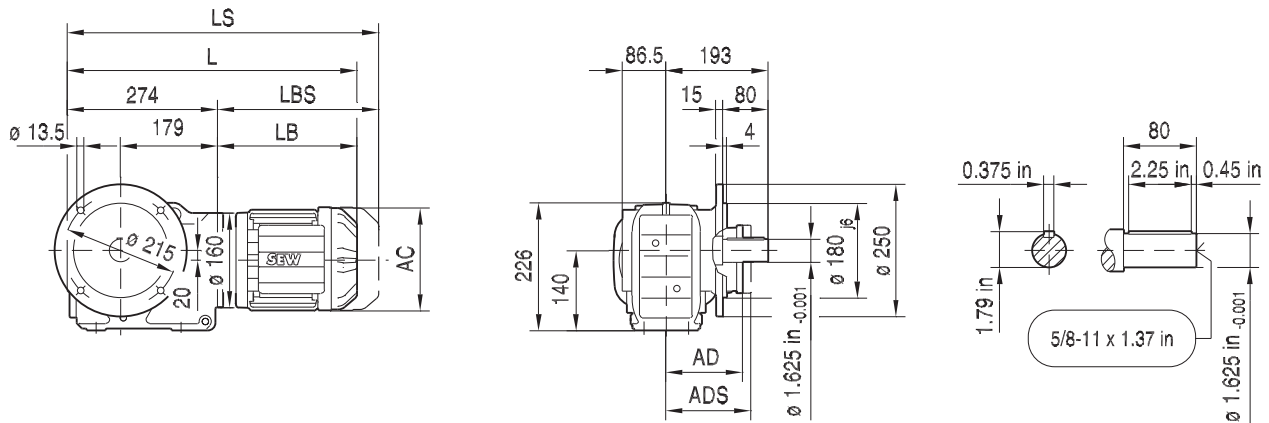
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	454	465	490	544	546	578	624	655	709	727
LS	509	533	558	625	639	671	718	767	821	865
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

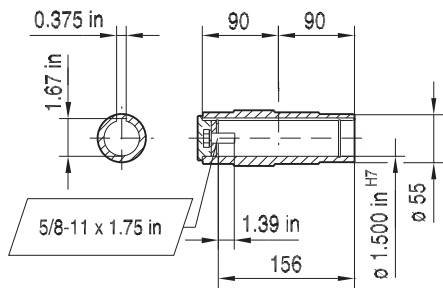
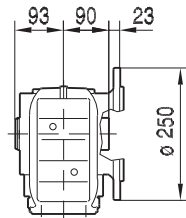
21933480/EN-US - 04/2018

33 329 00 16

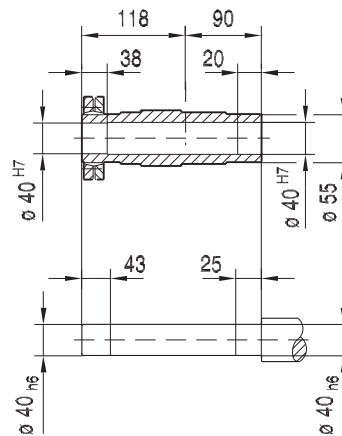
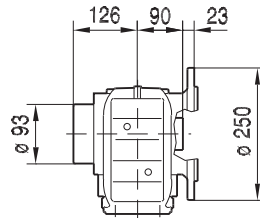
KF67..



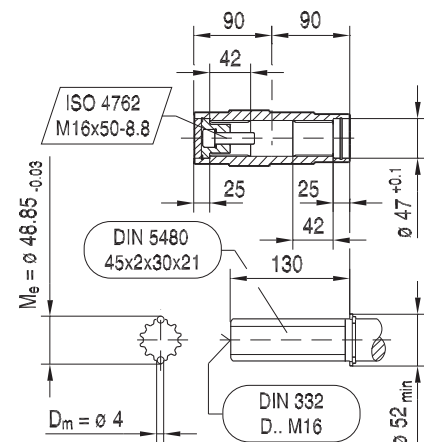
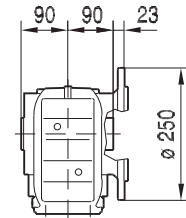
KAF67..



KHF67..



KVF67..

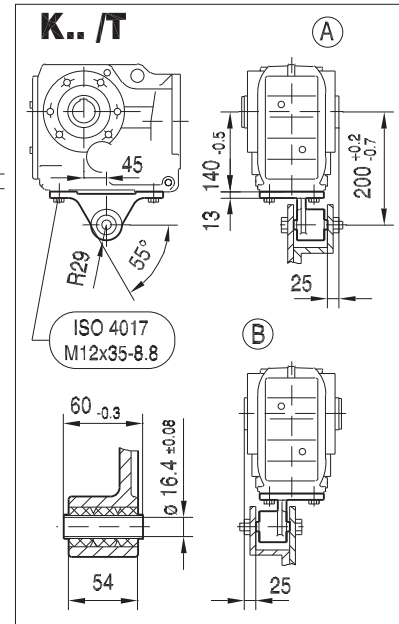
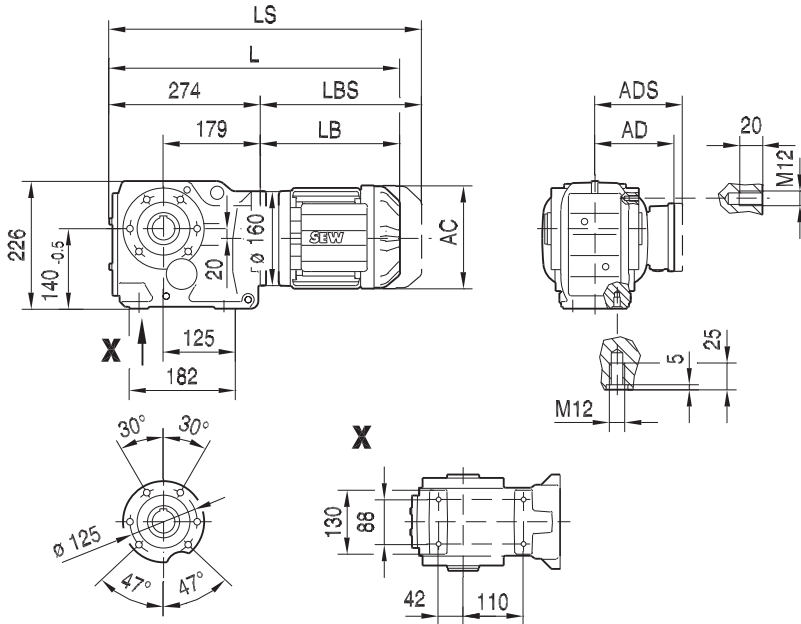


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

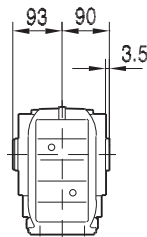
33 330 00 16

KA67..

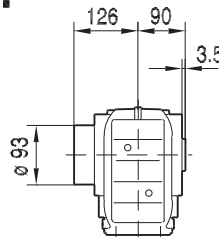


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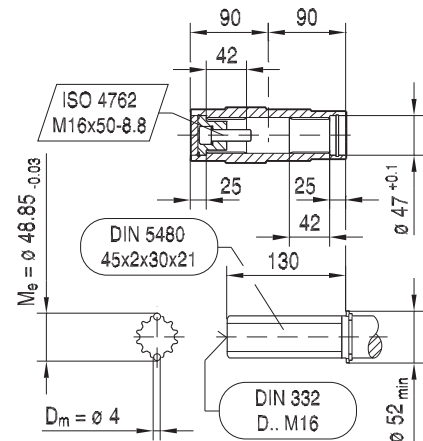
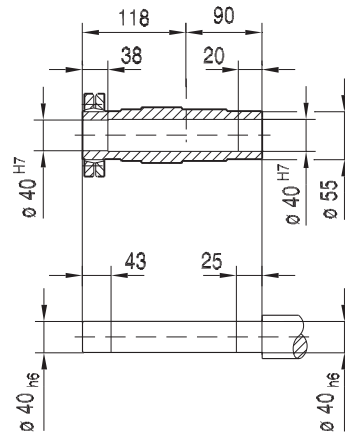
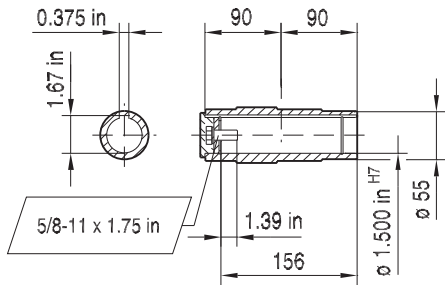
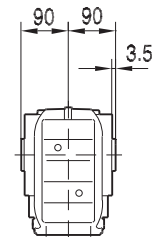
KA67..



KH67..



KV67..



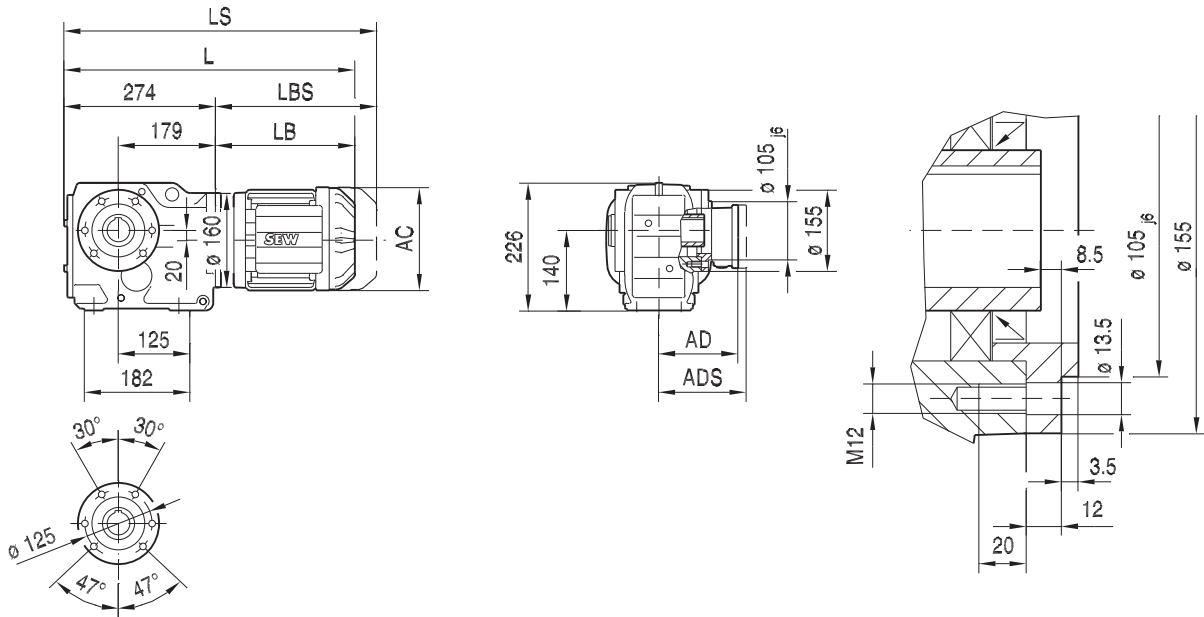
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

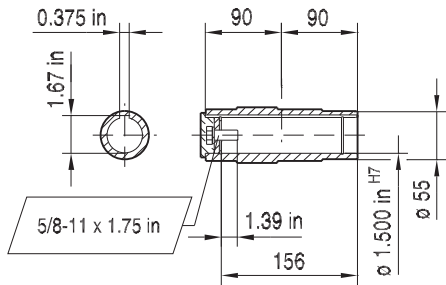
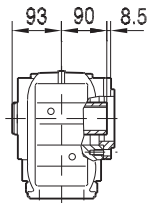
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33 331 00 16

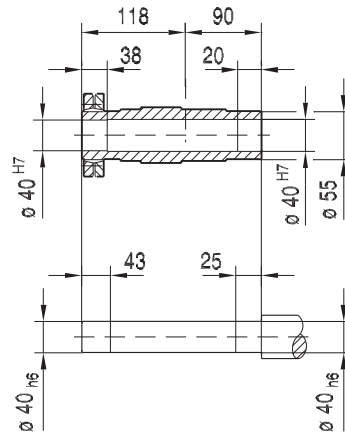
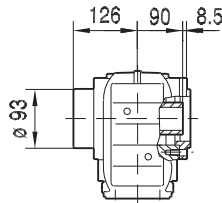
KAZ67..



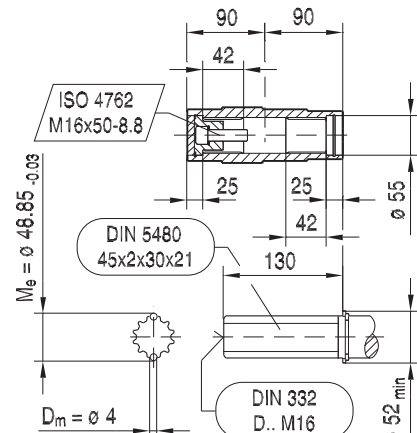
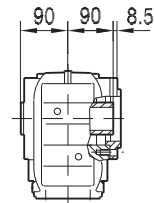
KAZ67..



KHZ67..



KVZ67..



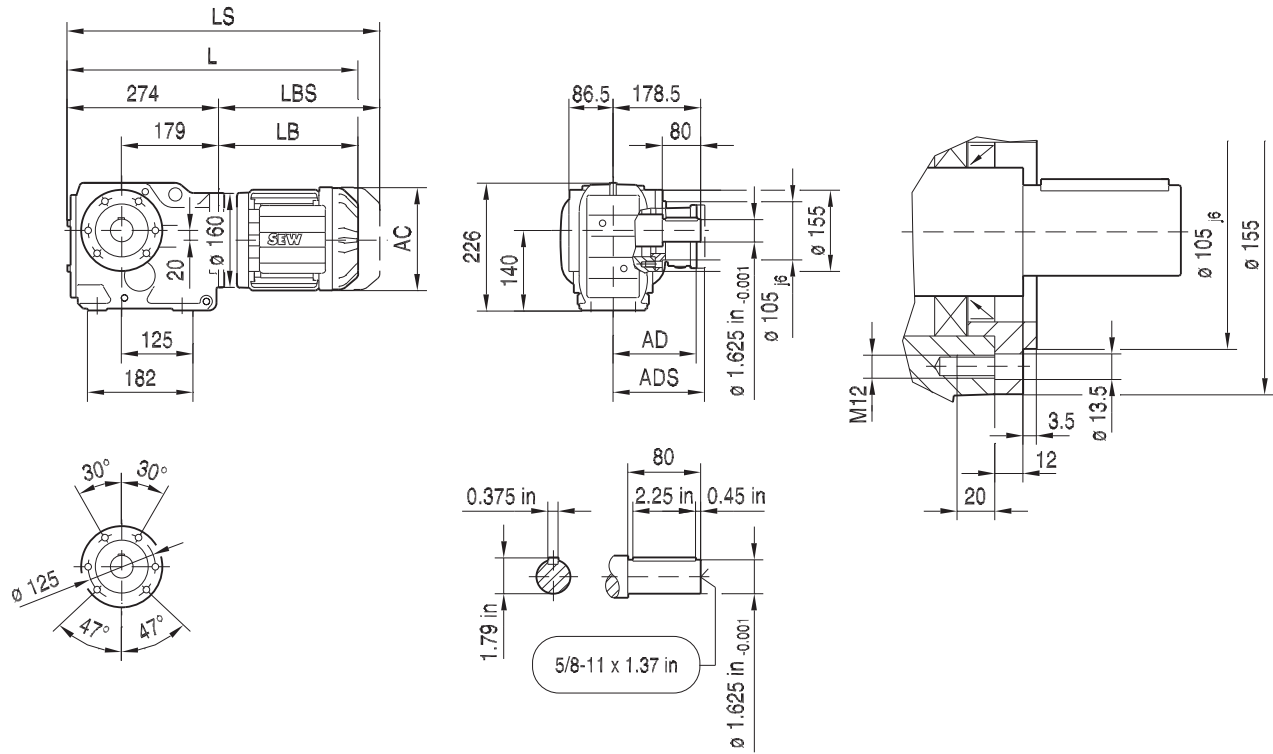
(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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33 332 00 16



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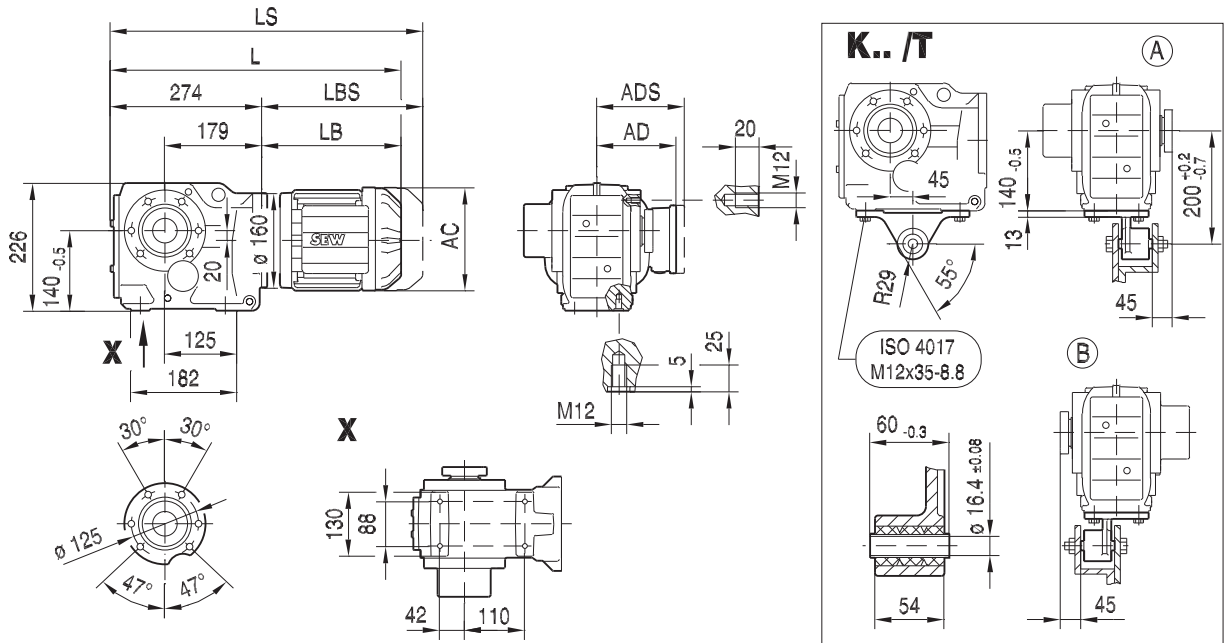
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

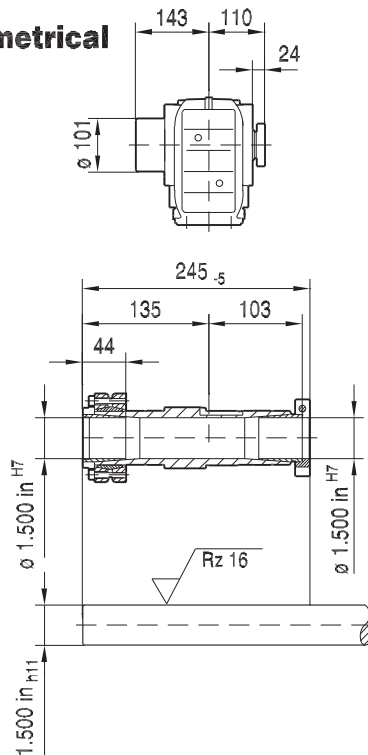
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 333 00 16

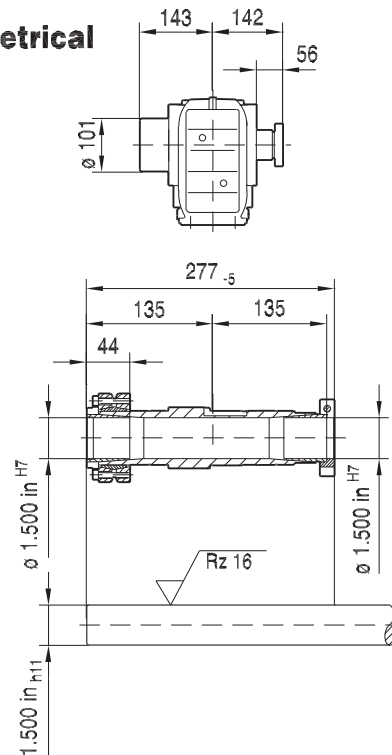
KT67..



NON-Symmetrical



Symmetrical

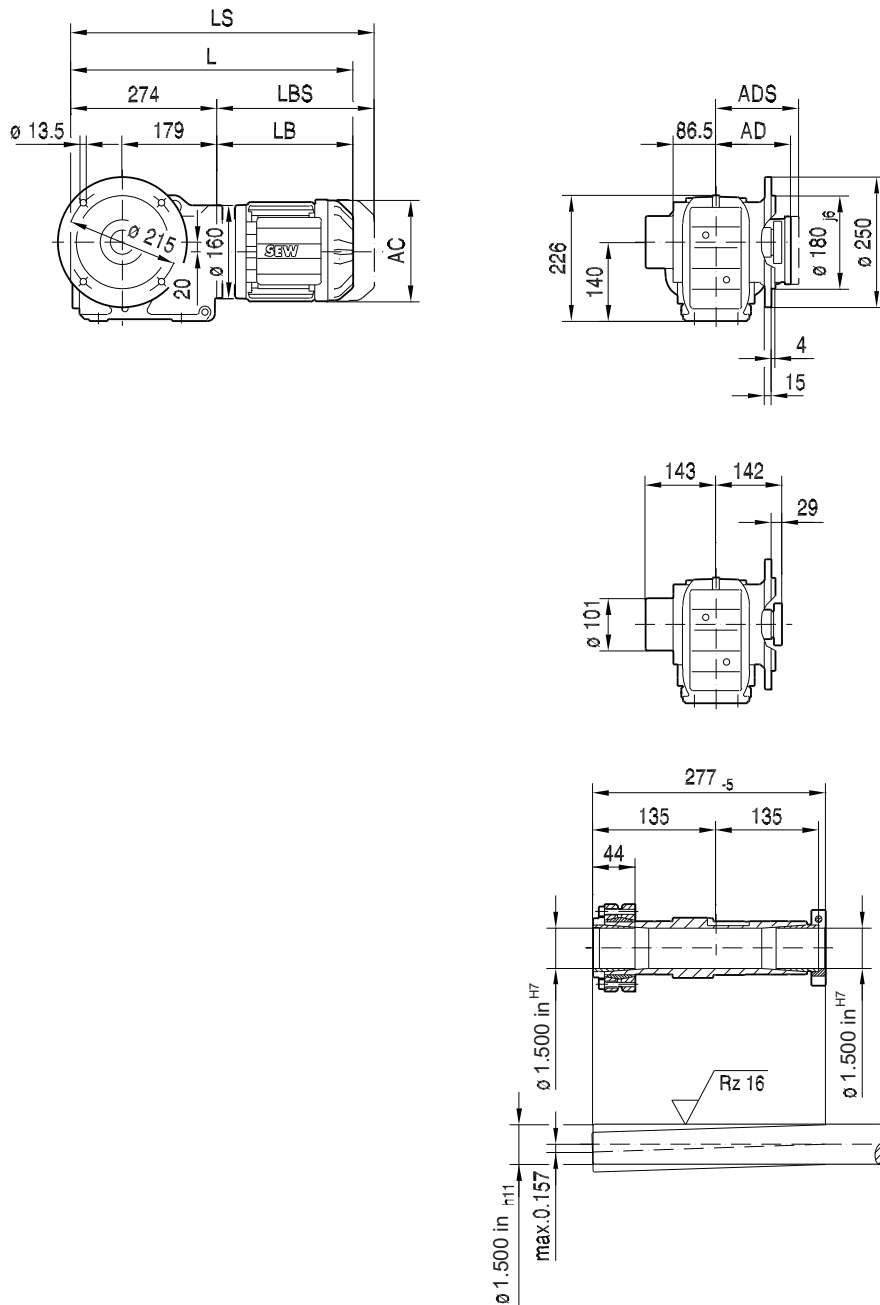


(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

KTF67..

33 098 02 13 US



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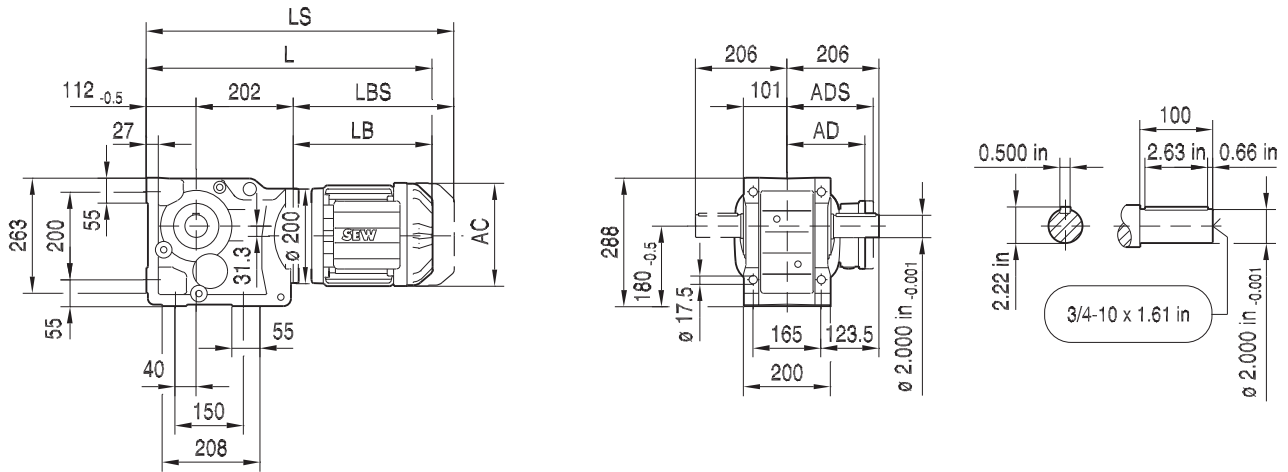
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M
AC	132	139	139	156	179	179	197	221	221	261
AD	105	119	119	128	140	140	157	170	170	228
ADS	105	129	129	139	150	150	158	172	172	228
L	459	470	495	549	551	583	629	660	714	732
LS	514	538	563	630	644	676	723	772	826	870
LB	185	196	221	275	277	309	355	386	440	458
LBS	240	264	289	356	370	402	449	498	552	596

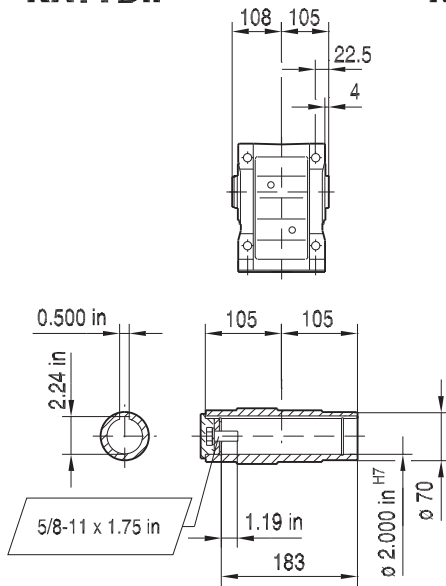
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 334 00 16

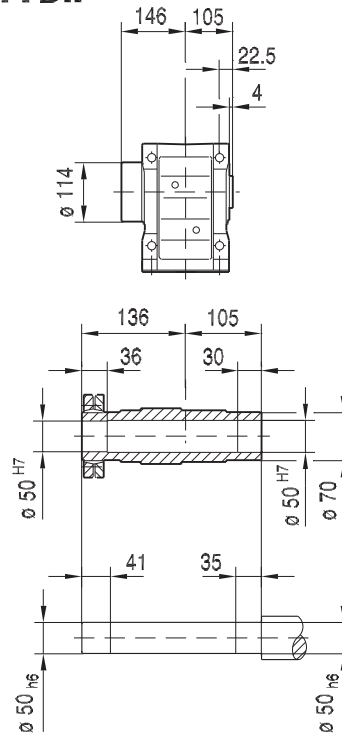
K77..



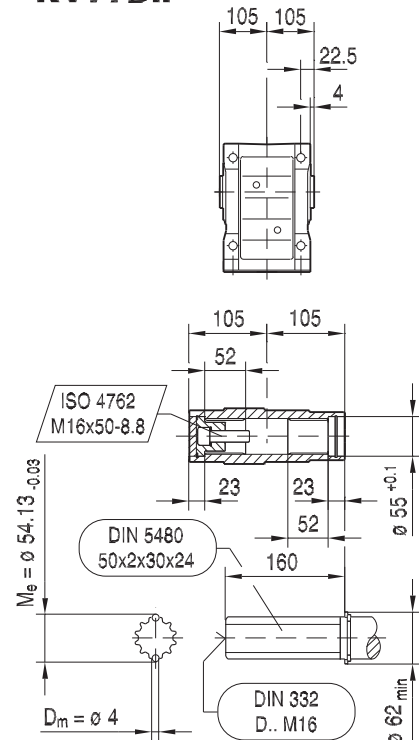
KA77B..



KH77B..



KV77B..



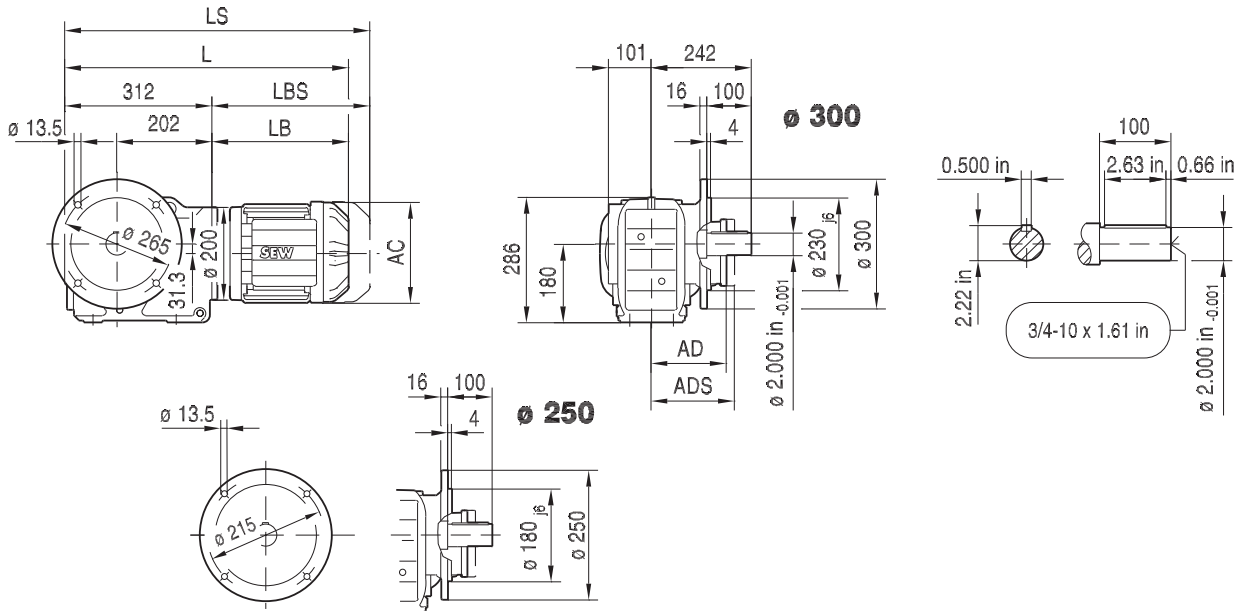
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	582	584	616	662	693	743	761	787	853
LS	663	677	709	756	805	855	899	924	1042
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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33 335 00 16US

KF77..

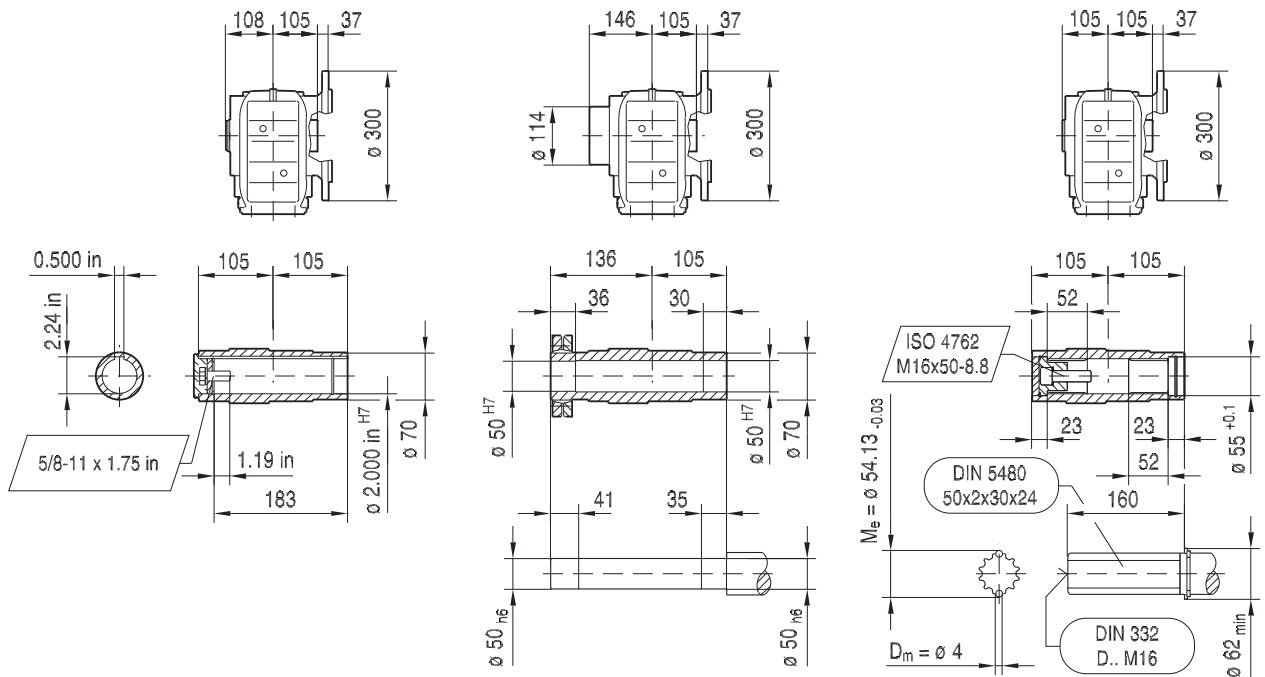


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KAF77..

KHF77..

KVF77..



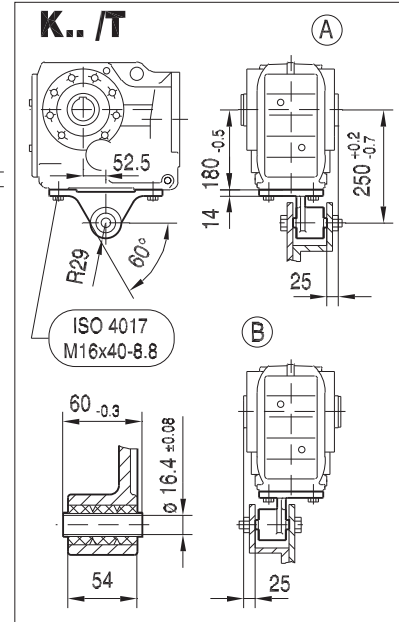
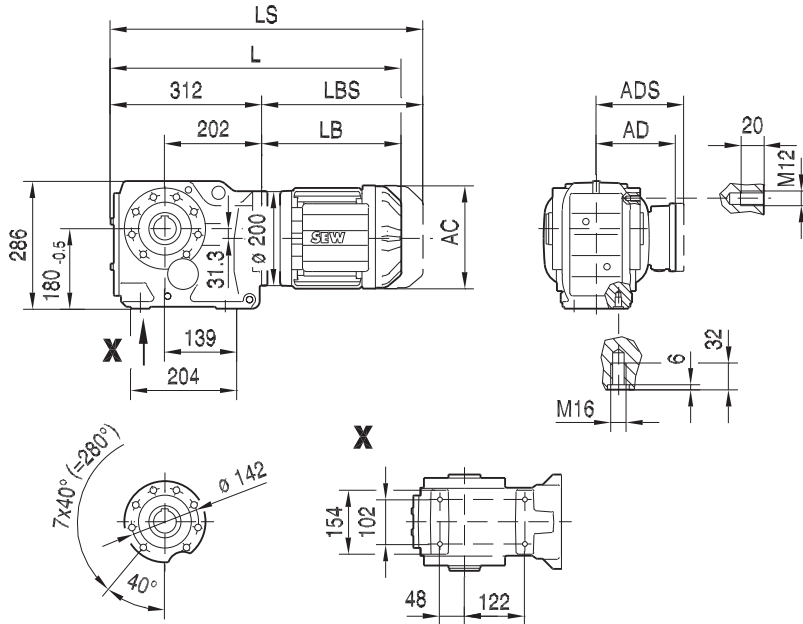
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(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

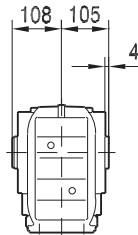
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 336 00 16

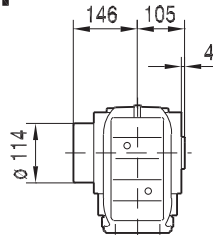
KA77..



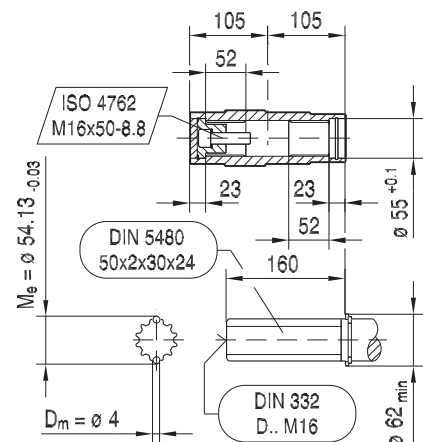
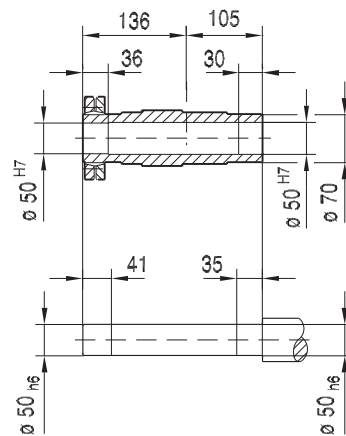
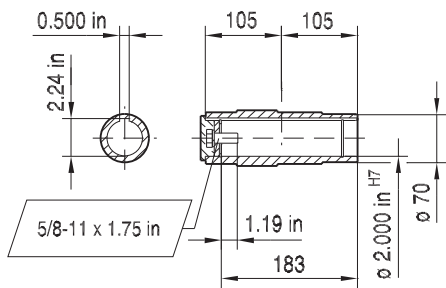
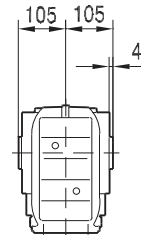
KA77..



KH77..



KV77..

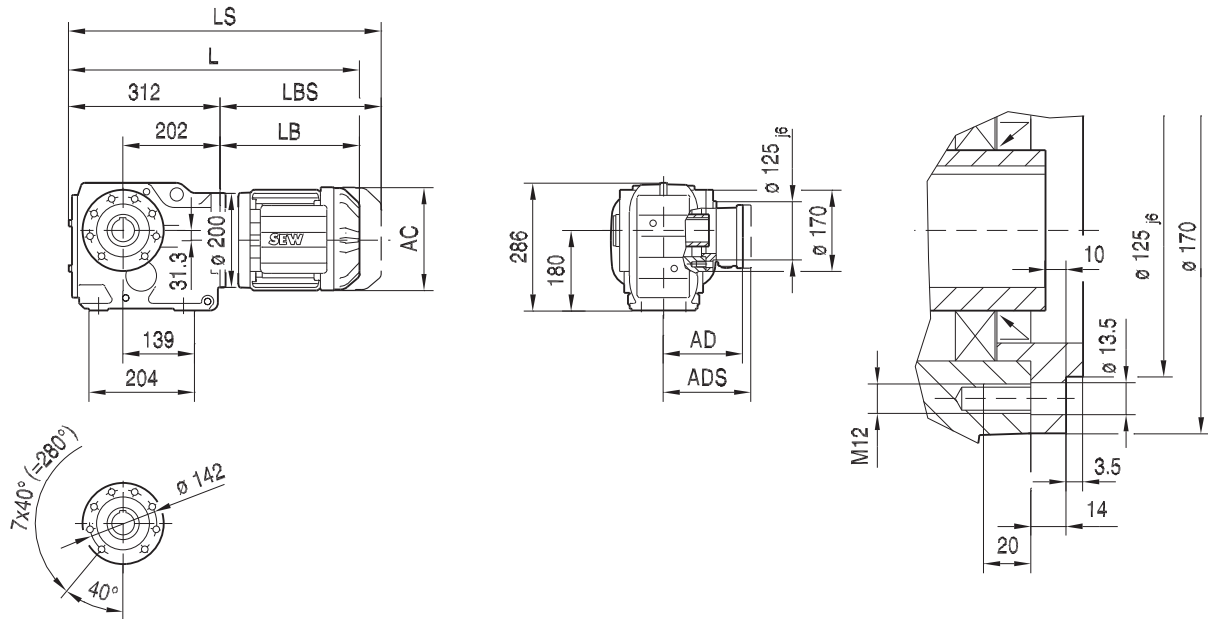


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

KAZ77..

33 337 00 16

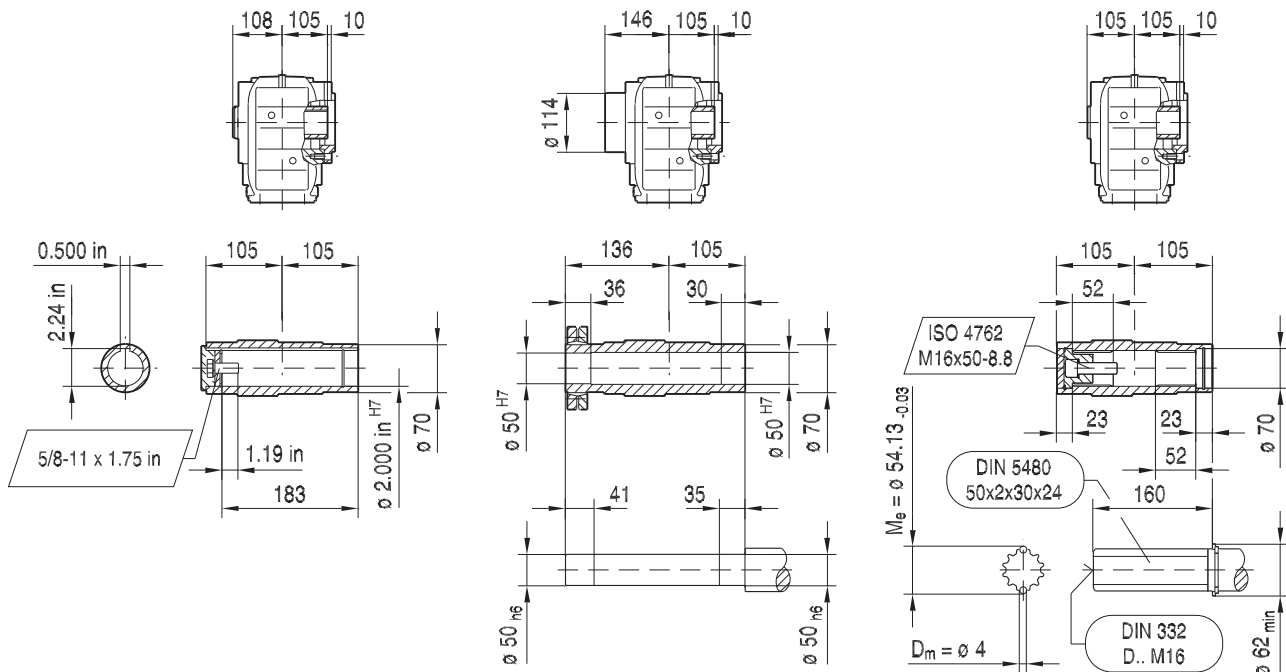


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KAZ77..

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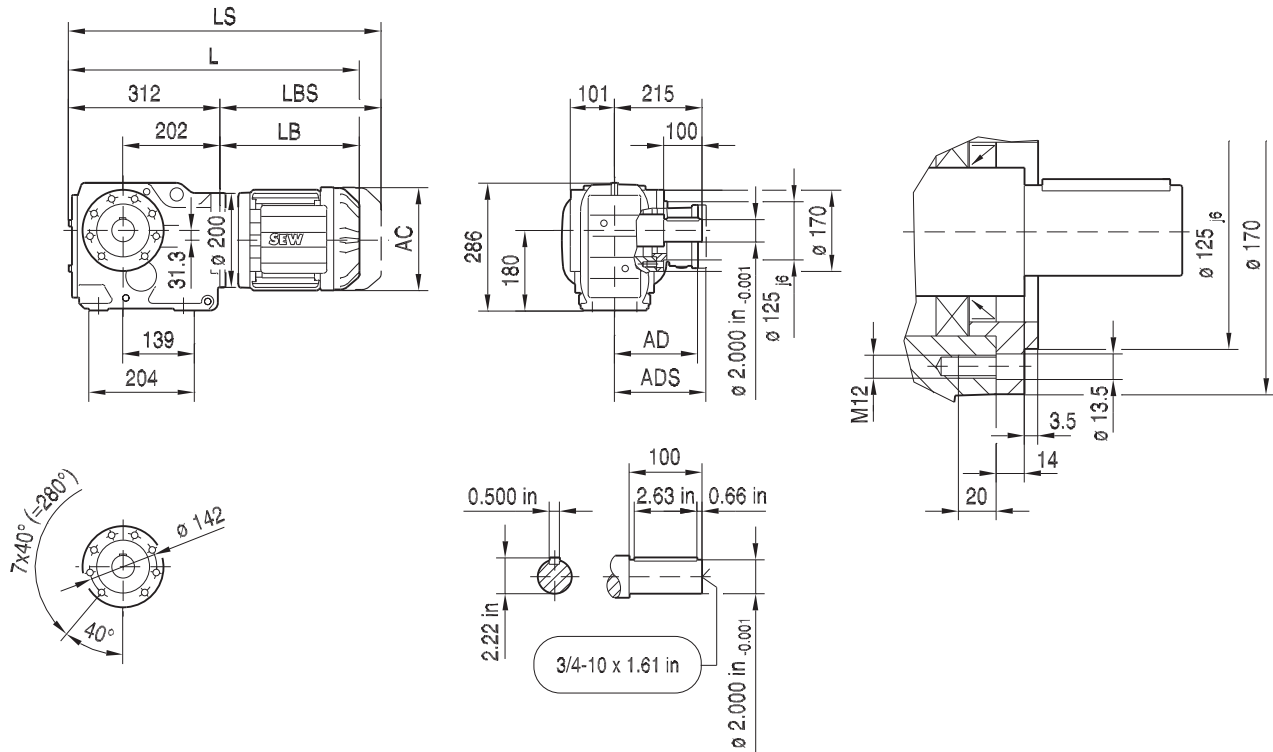
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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33 338 00 16

KZ77..

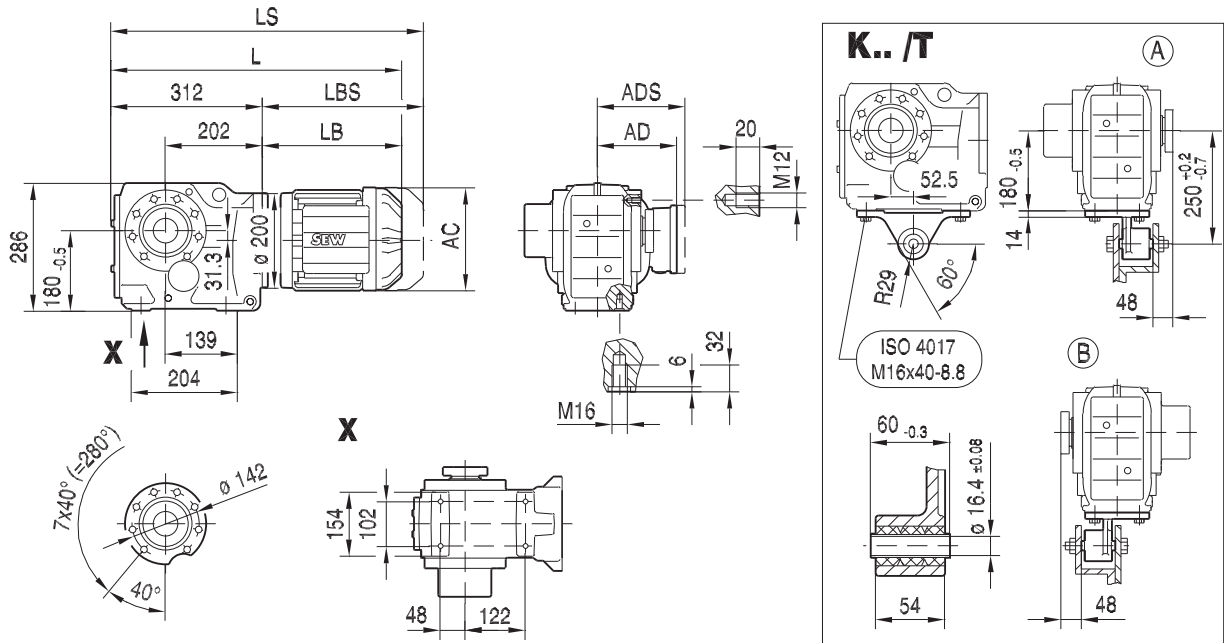


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KT77..

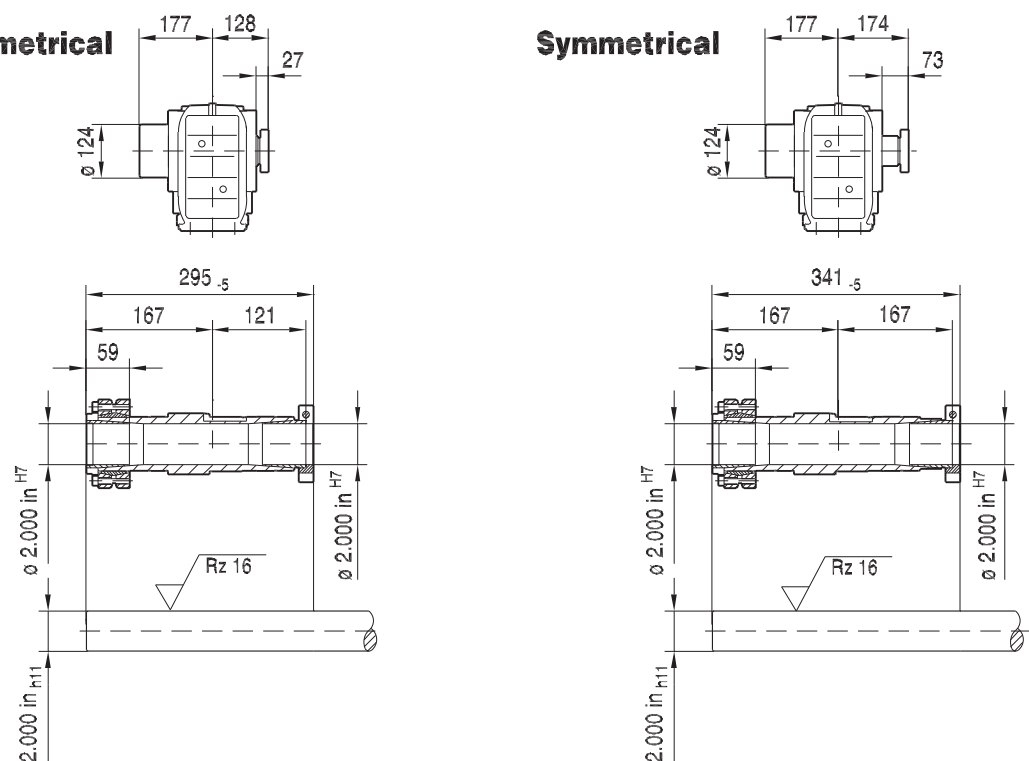
33 339 00 16



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NON-Symmetrical

Symmetrical



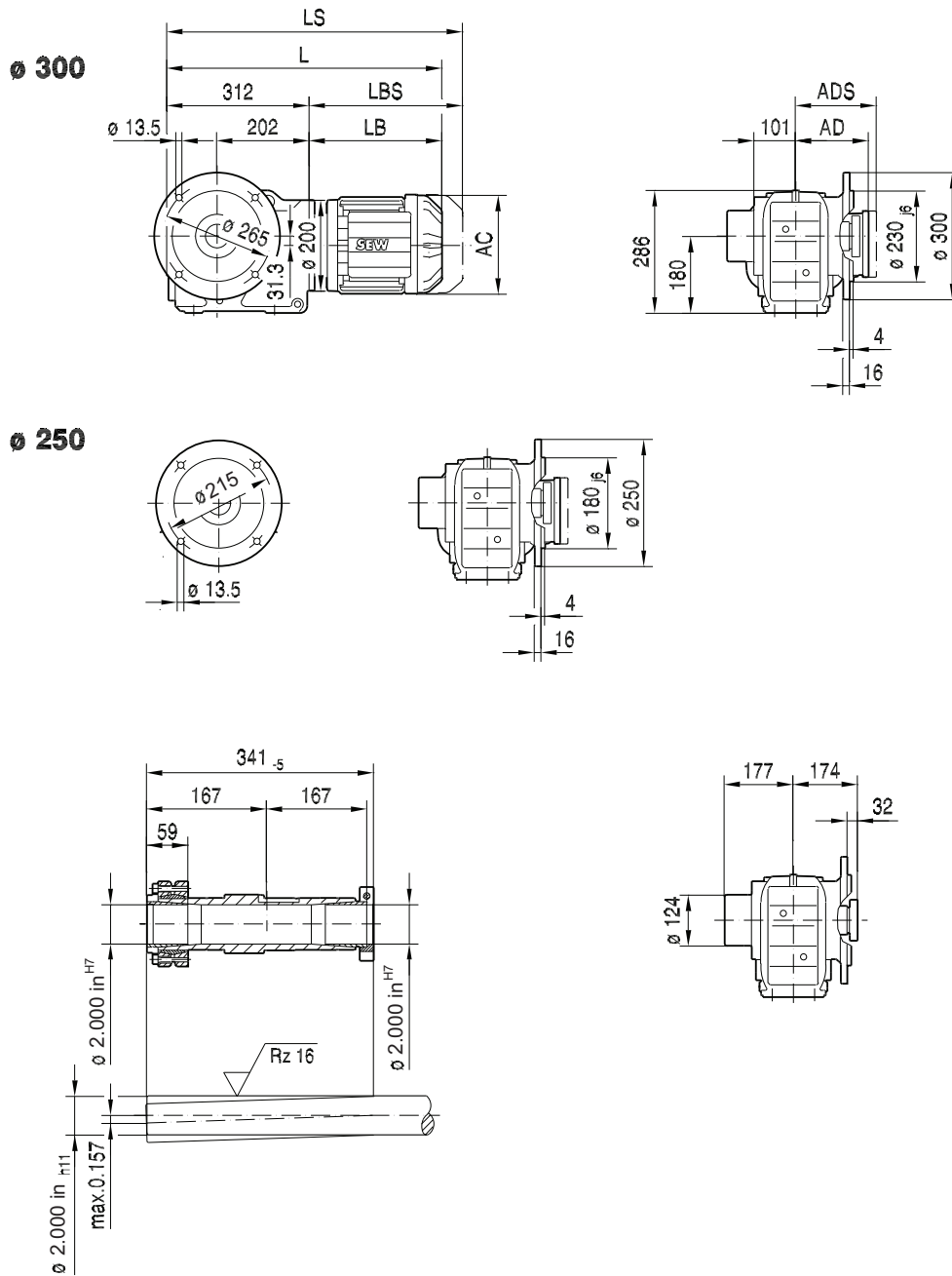
(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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KTF77..

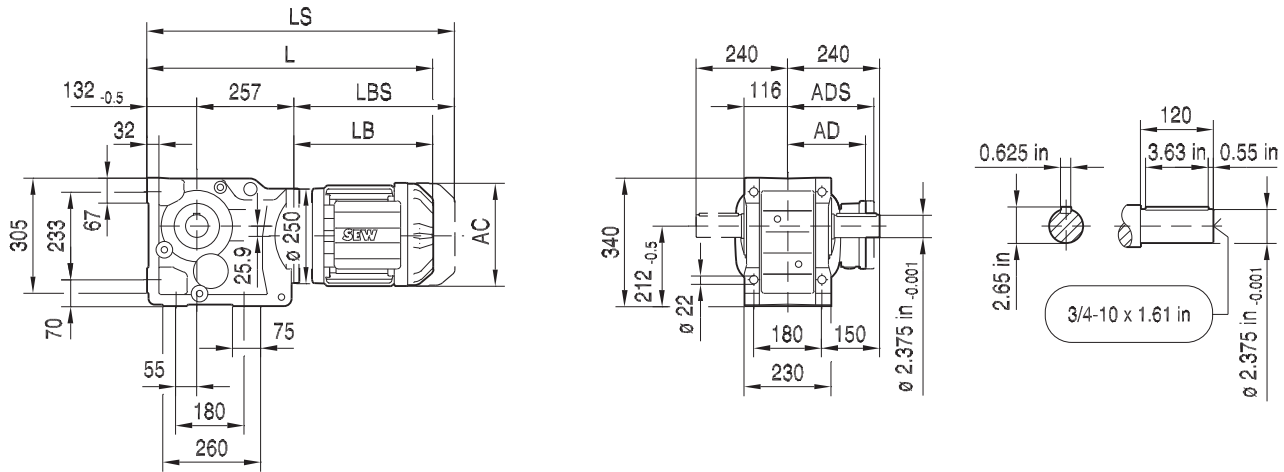


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	580	582	614	660	691	741	759	785	851
LS	661	675	707	754	803	853	897	922	1040
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 340 00 16

K87..

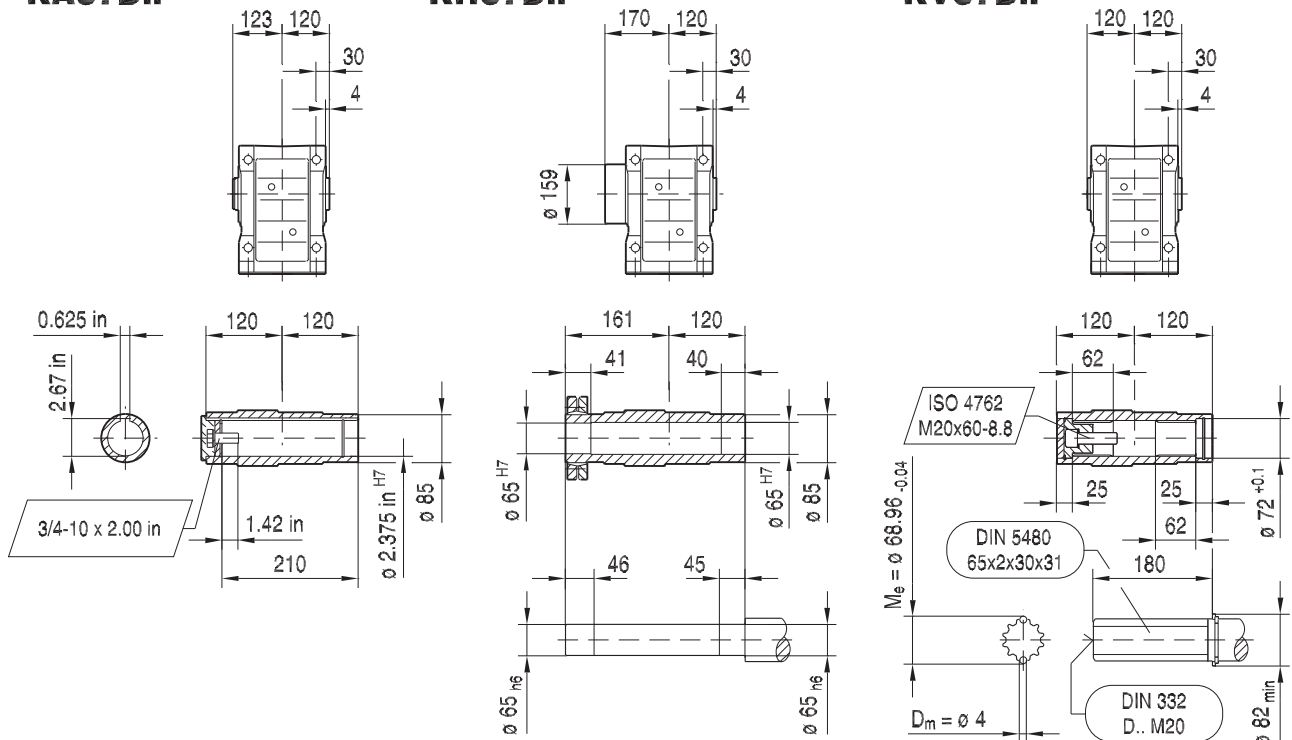


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KA87B..

KH87B..

KV87B..



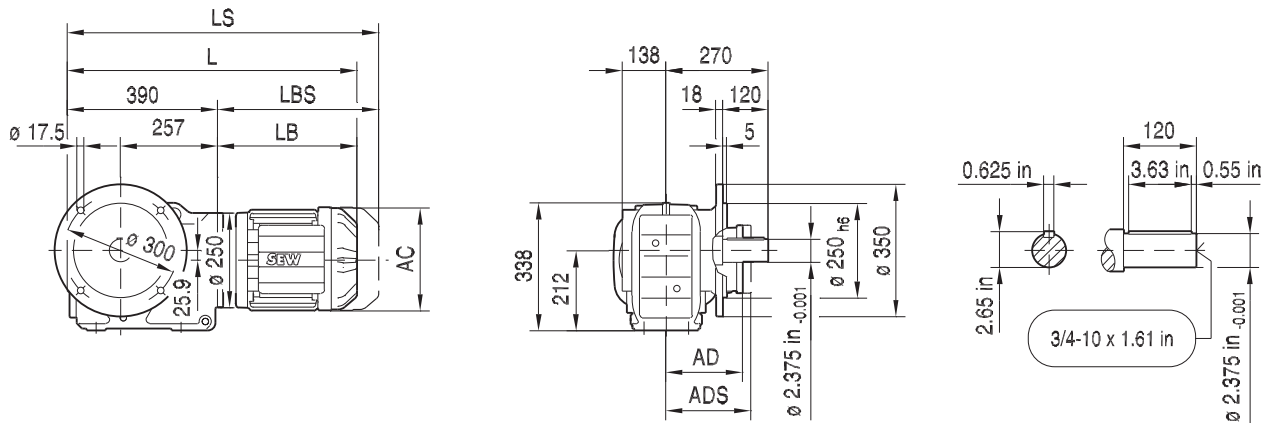
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	654	686	732	763	813	831	857	923	946
LS	747	779	826	875	925	969	994	1112	1135
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

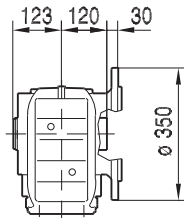
21933480/EN-US - 04/2018

33 341 00 16

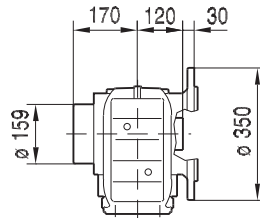
KF87..



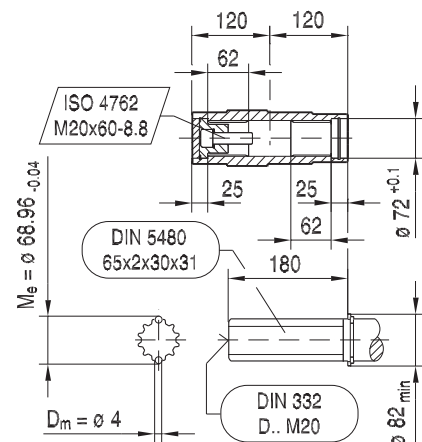
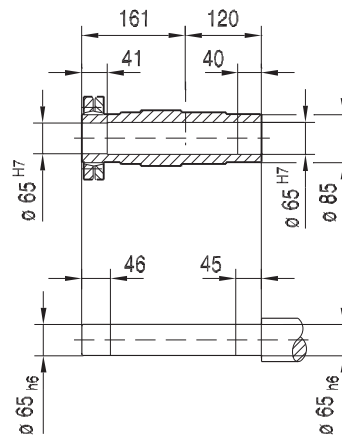
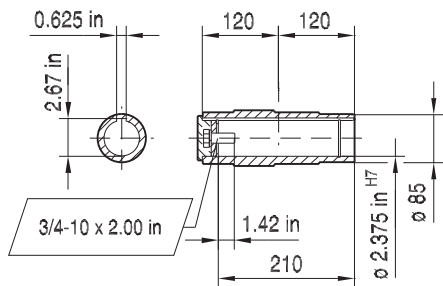
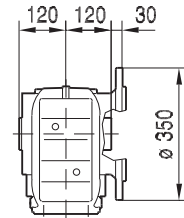
KAF87..



KHF87..



KVF87..



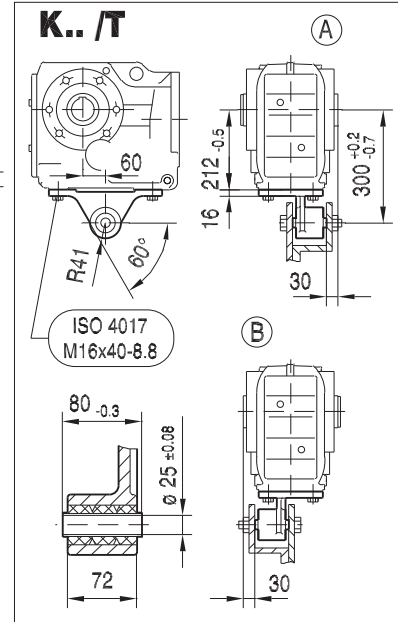
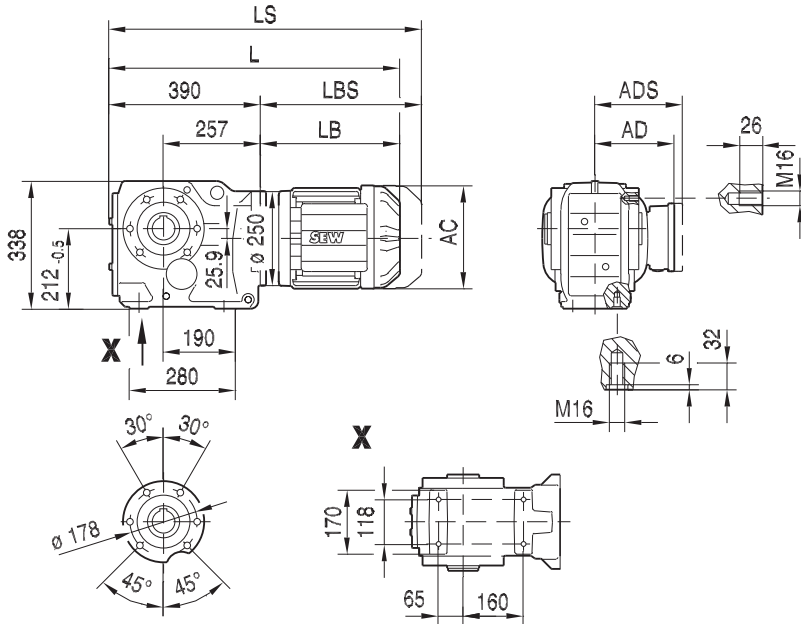
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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33 342 00 16

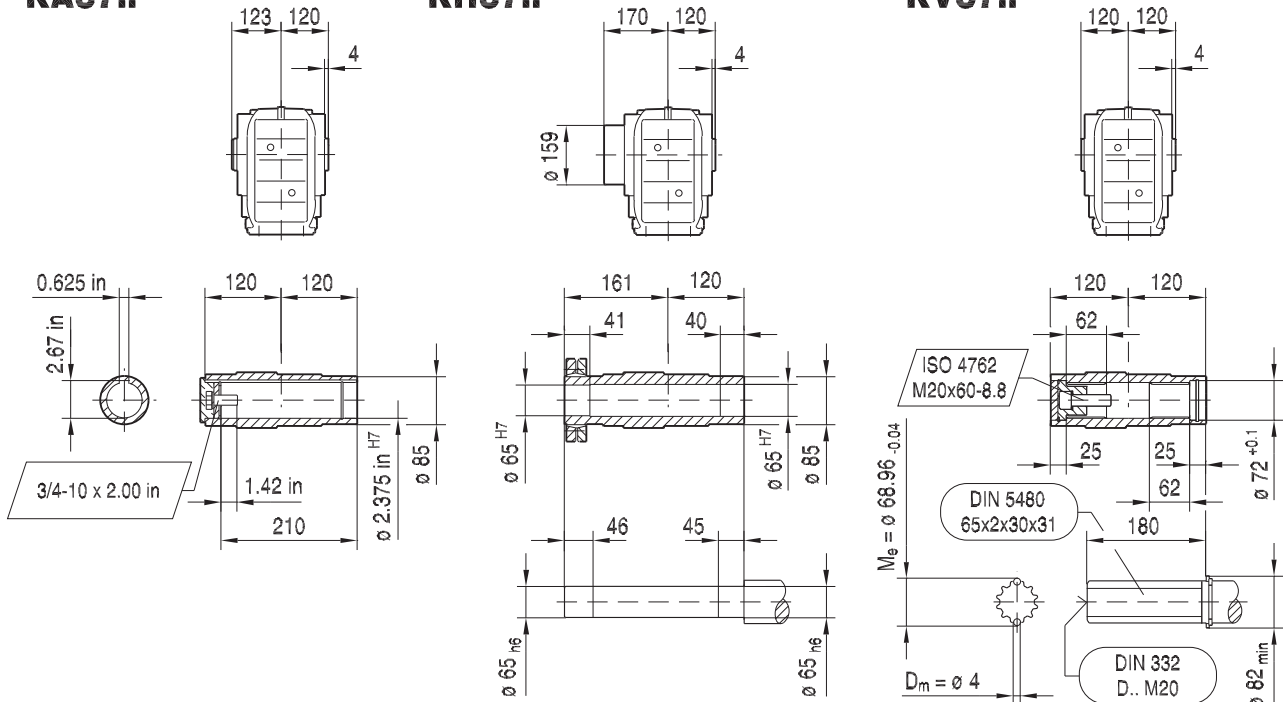


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KA87..

KH87..

KV87..



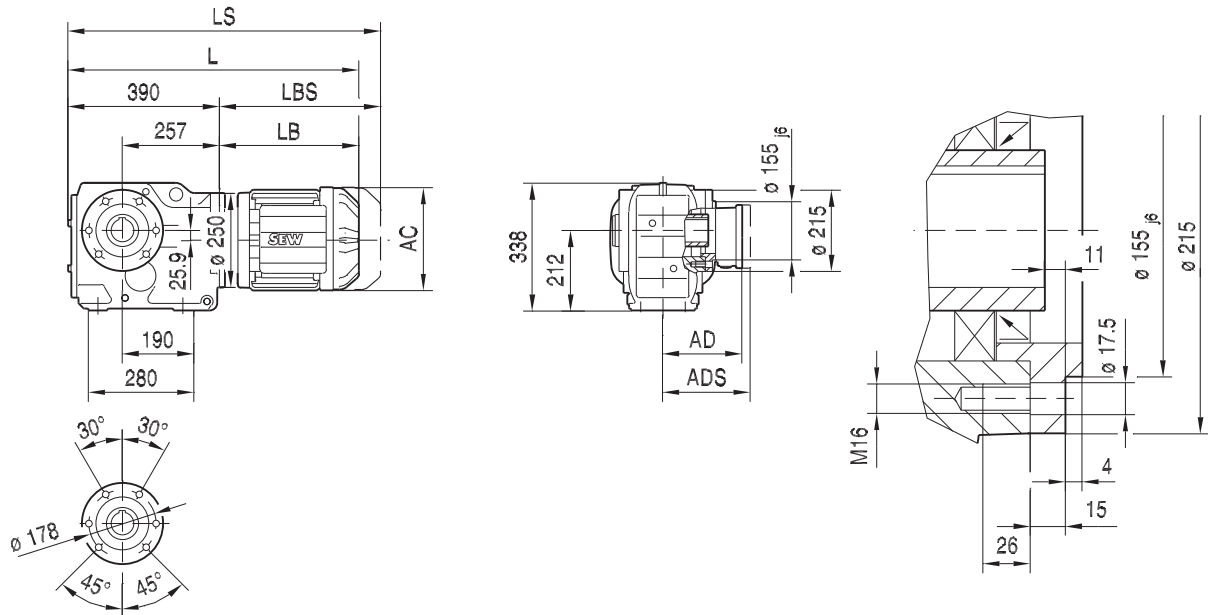
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

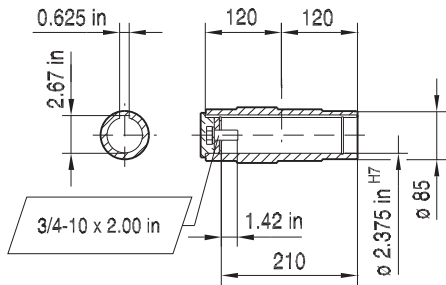
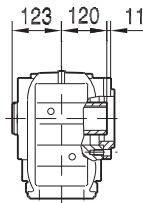
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33 343 00 16

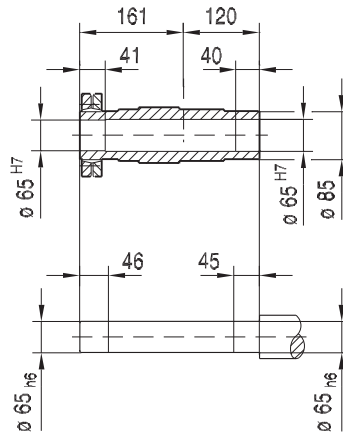
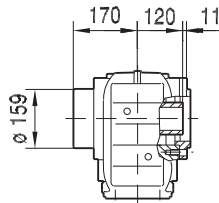
KAZ87..



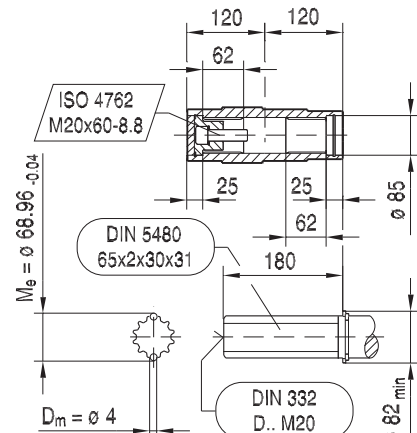
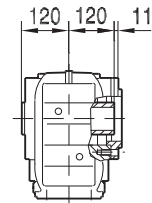
KAZ87..



KHZ87..



KVZ87..

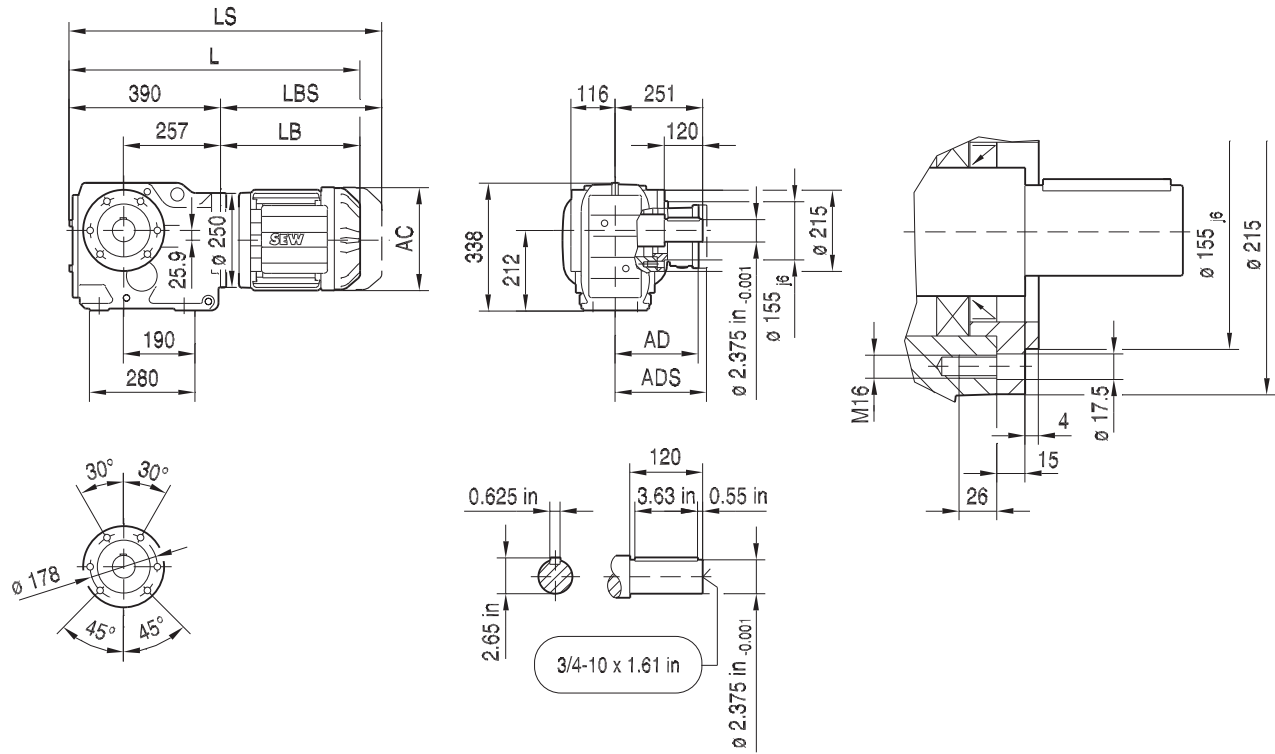


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

KZ87..

33 344 00 16



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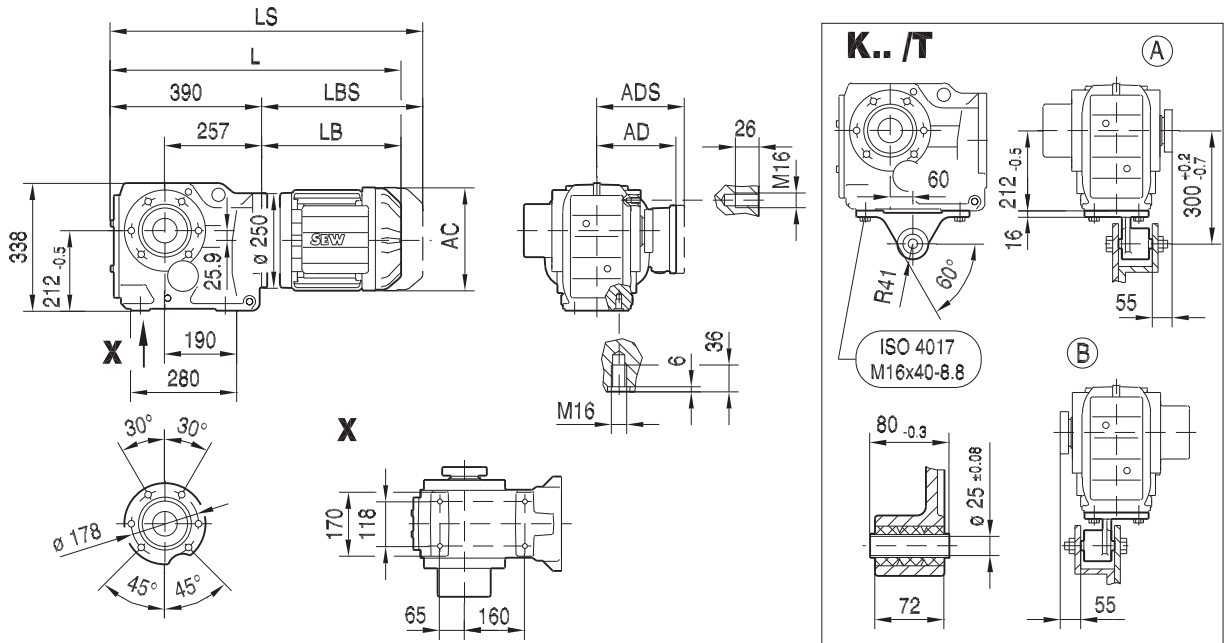
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(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

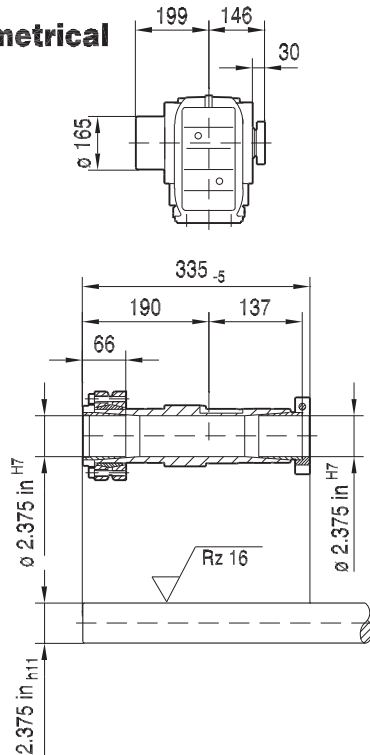
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 345 00 16

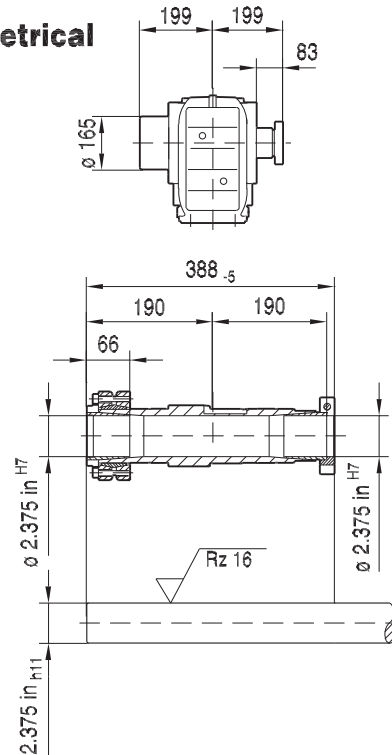
KT87..



NON-Symmetrical



Symmetrical

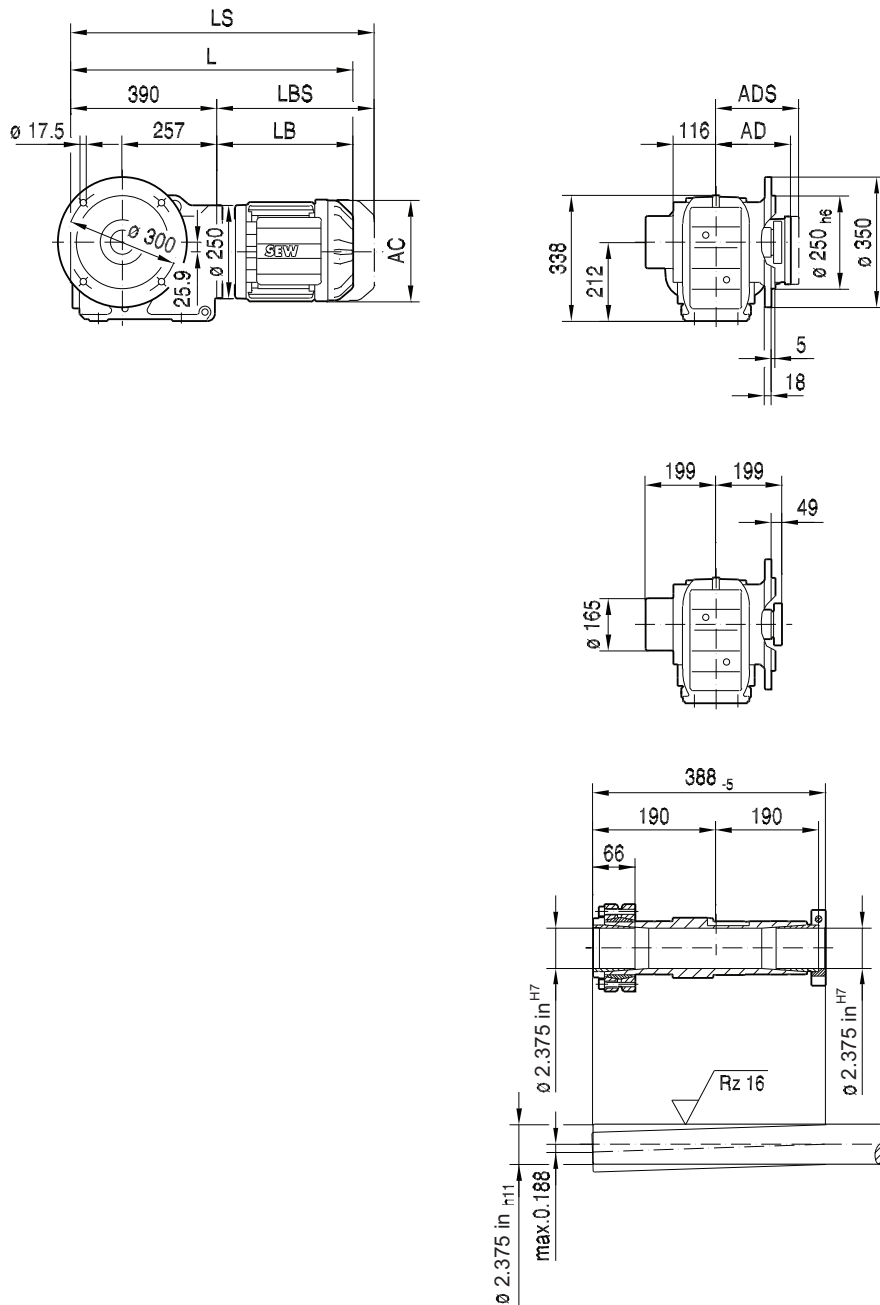


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

KTF87..

33 100 02 13 US



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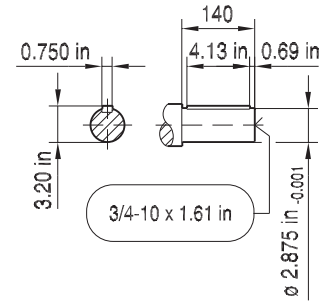
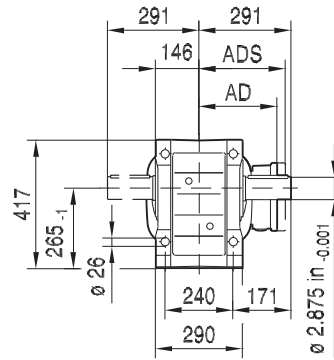
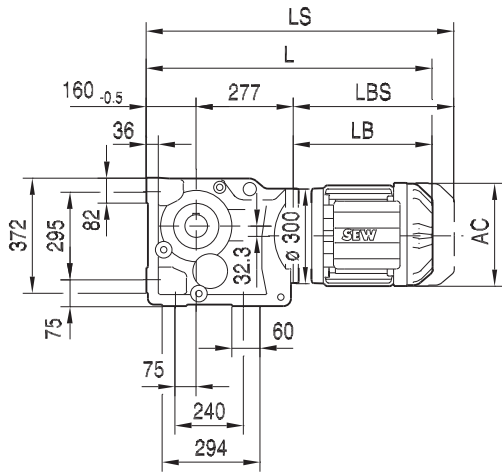
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(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	655	687	733	764	814	832	858	924	947
LS	748	780	827	876	926	970	995	1113	1136
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

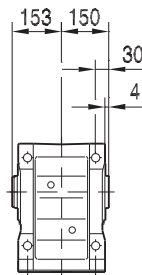
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 346 00 16

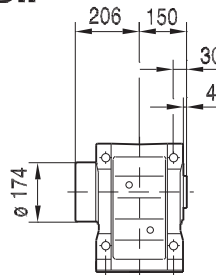
K97..



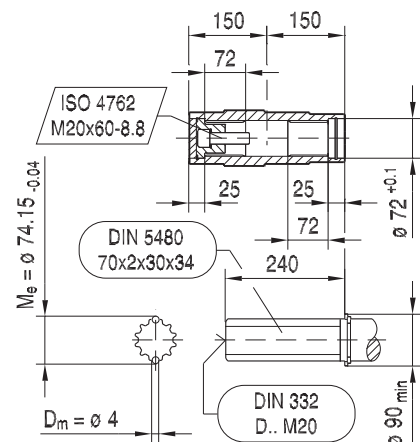
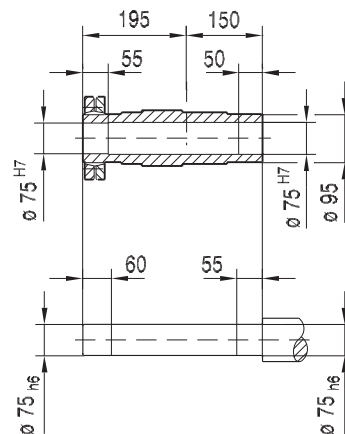
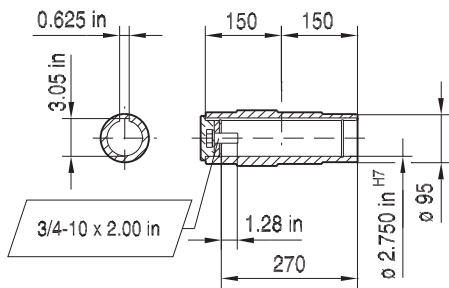
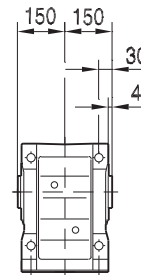
KA97B..



KH97B..



KV97B..



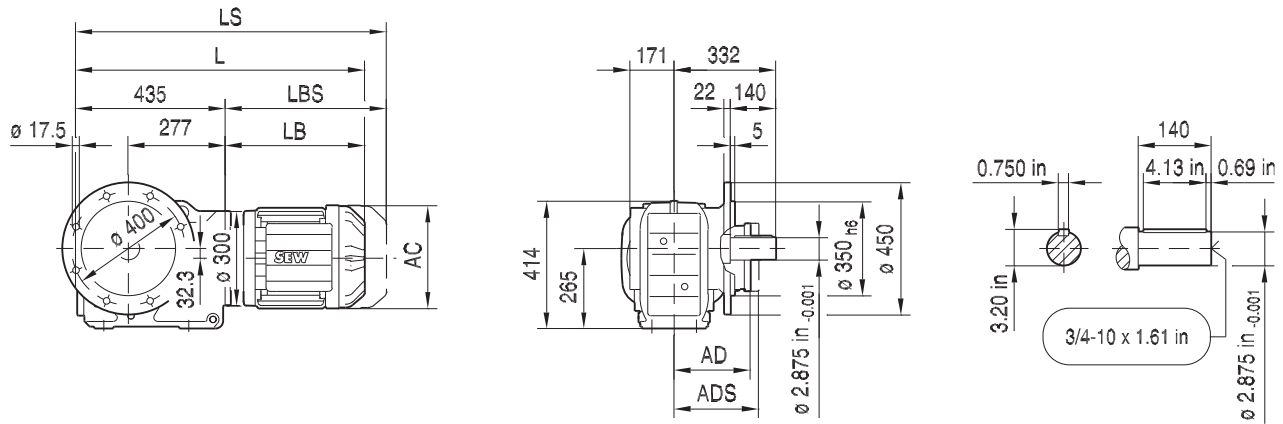
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	775	806	856	874	900	966	989	1099	1073
LS	869	918	968	1012	1037	1155	1178	1304	1278
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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33 347 00 16

KF97..

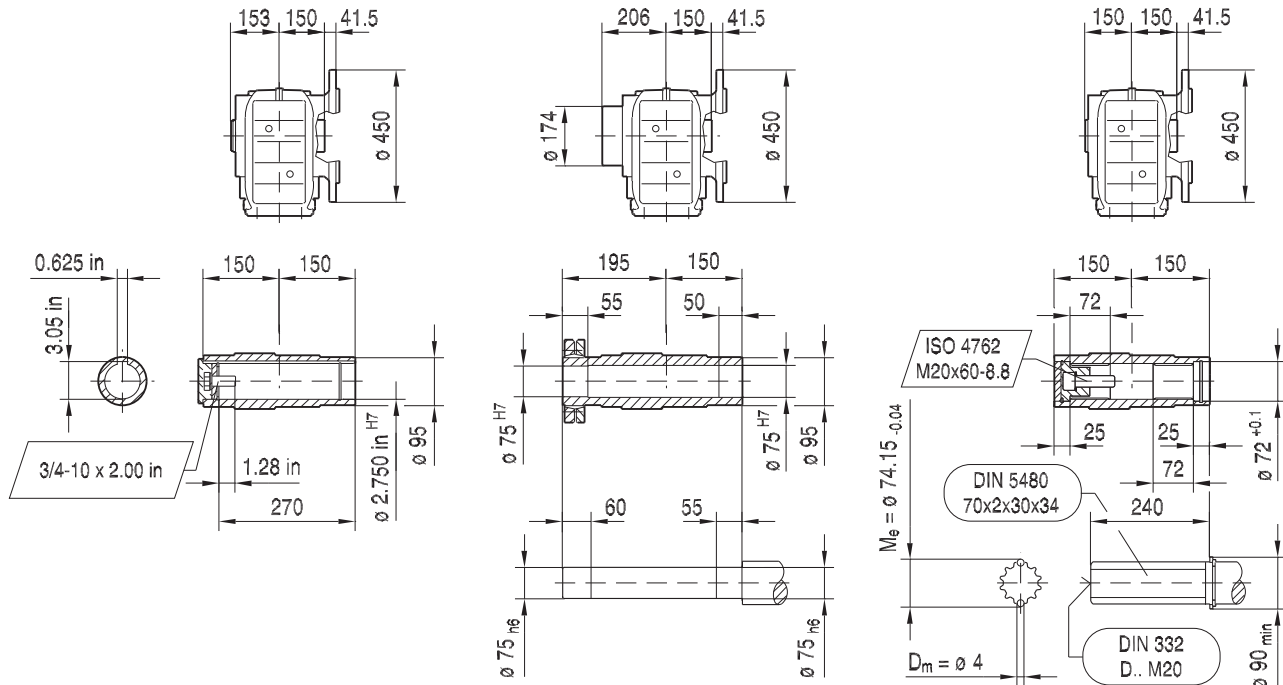


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KAF97..

KHF97..

KVF97..



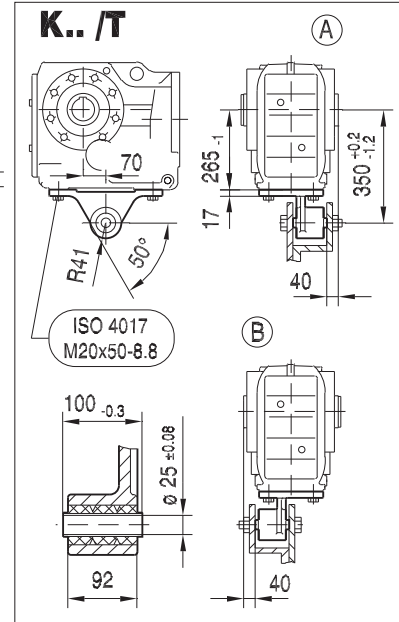
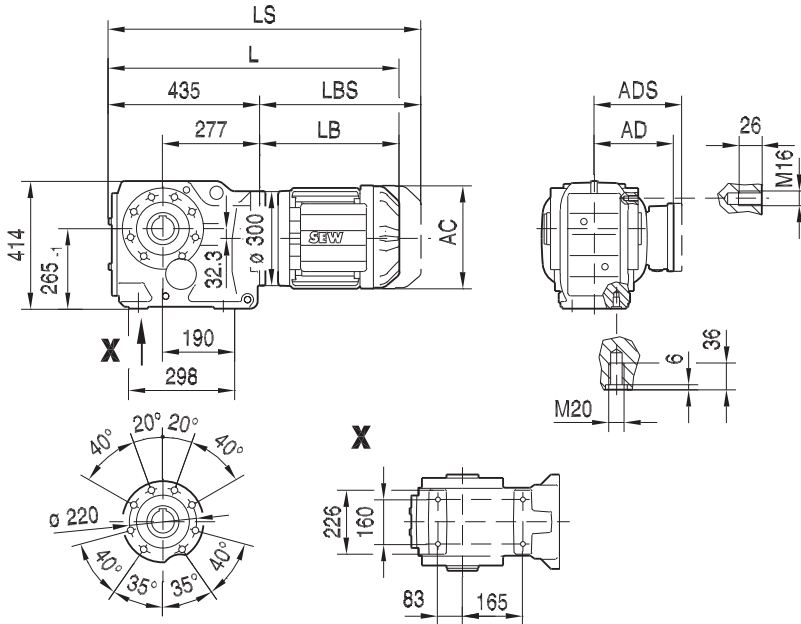
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(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

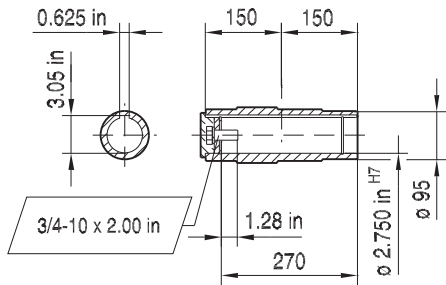
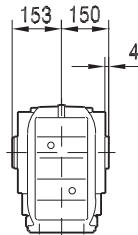
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 348 00 16

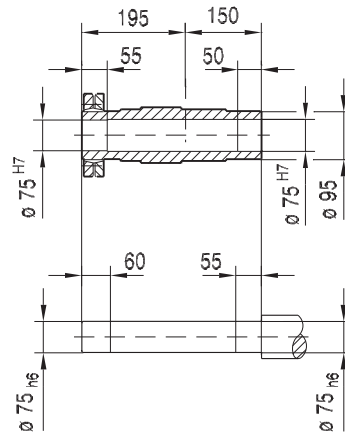
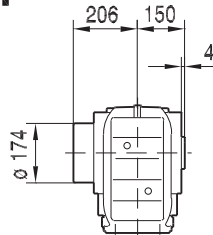
KA97..



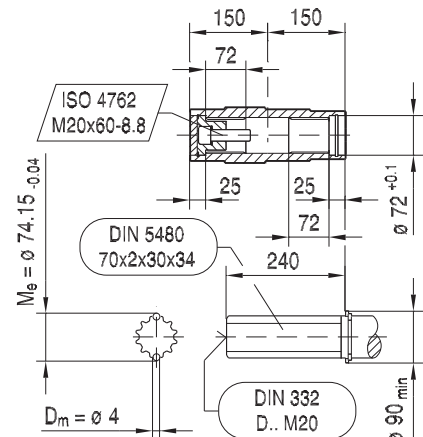
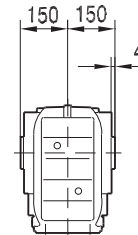
KA97..



KH97..



KV97..



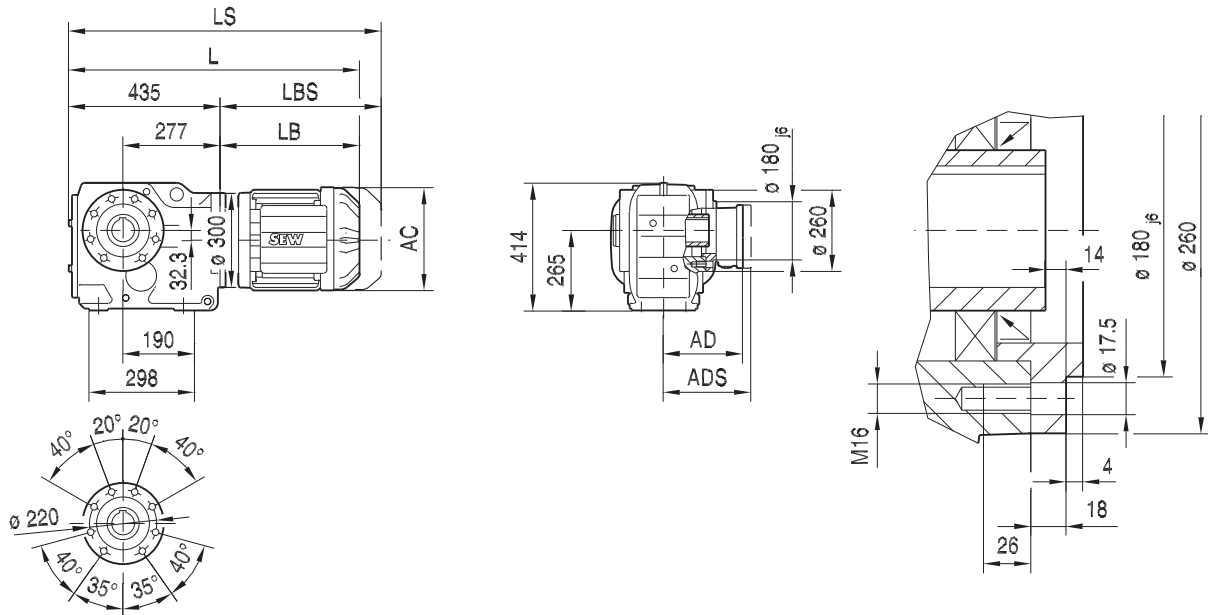
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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33 349 00 16

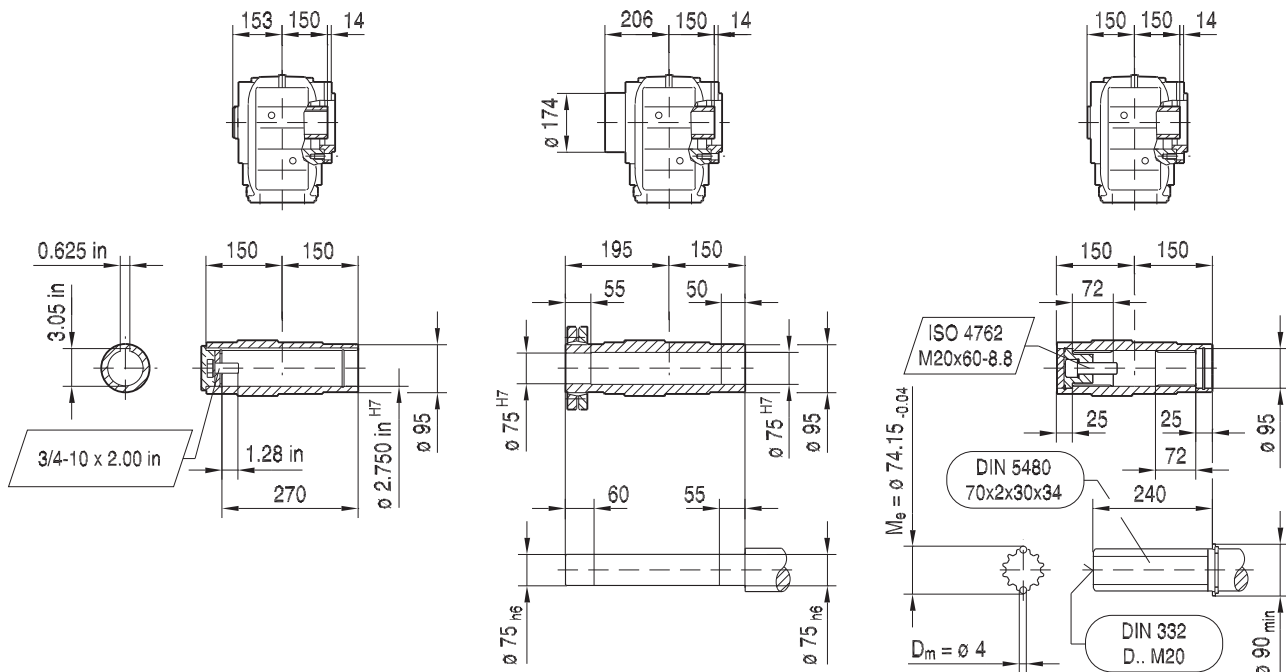


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KAZ97..

KHZ97..

KVZ97..



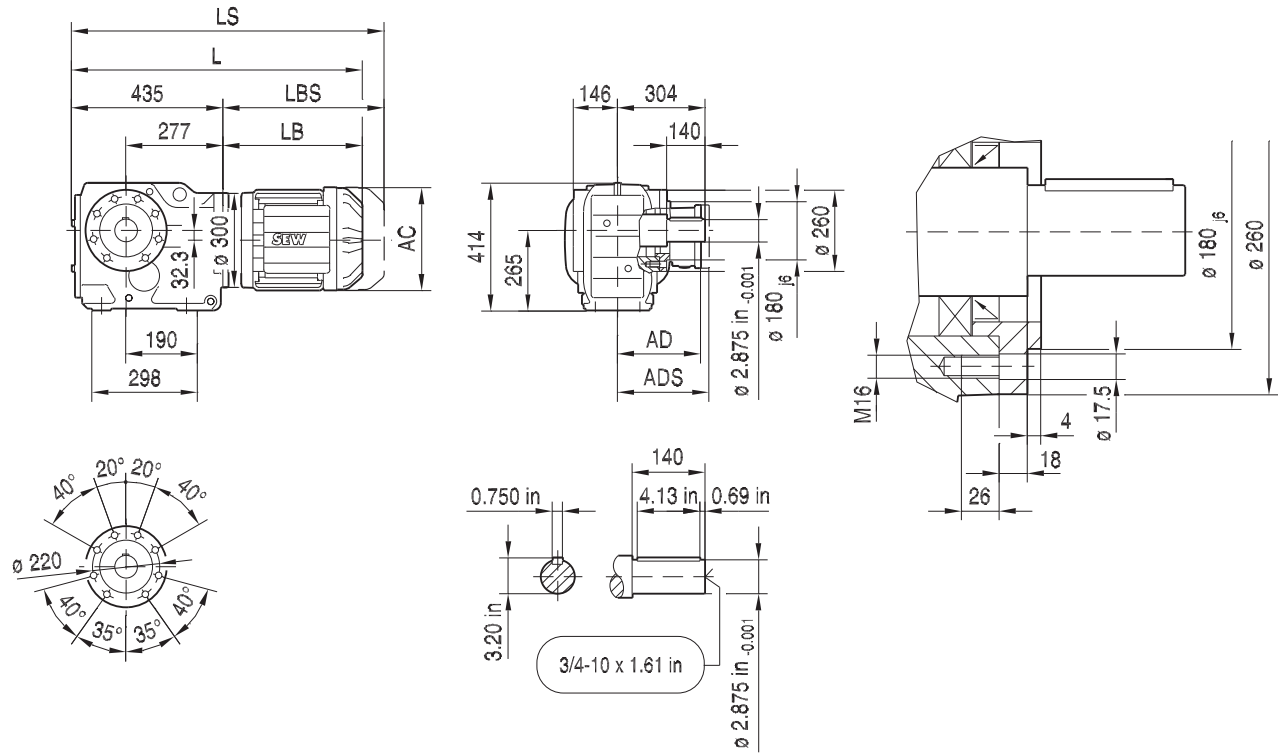
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(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 350 00 16

KZ97..

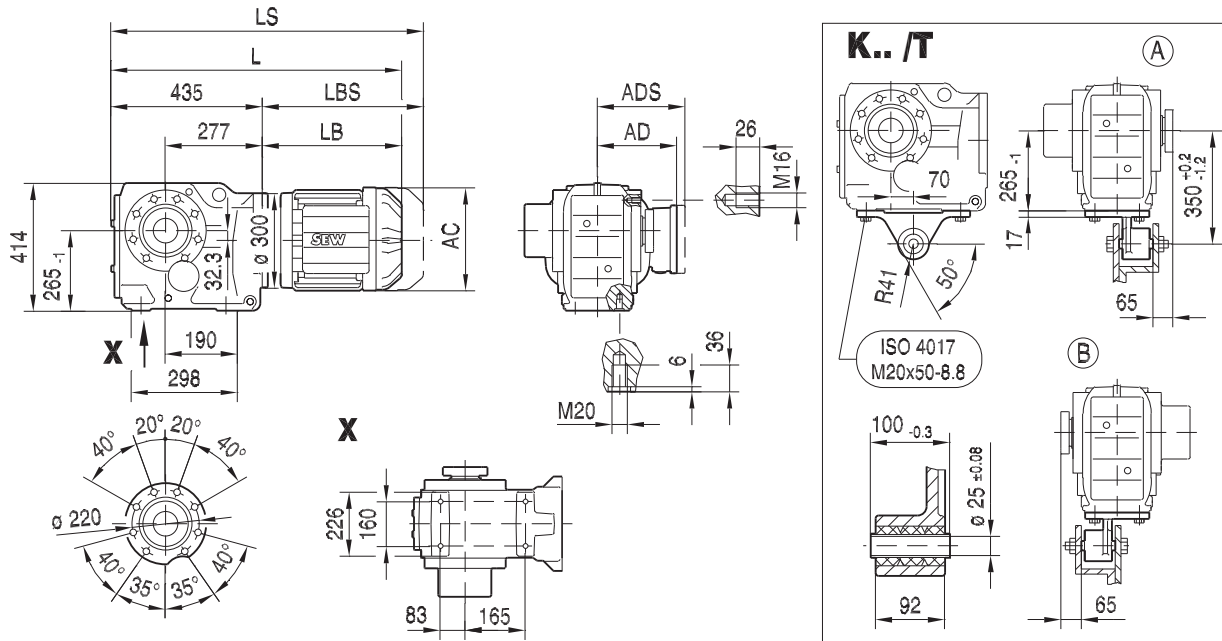


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

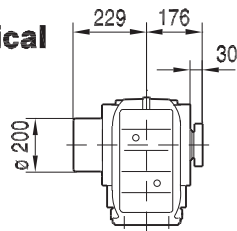
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

KT97..

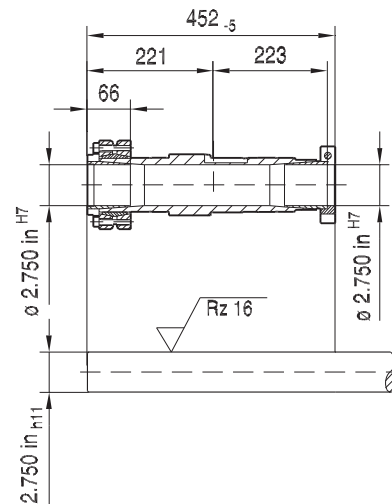
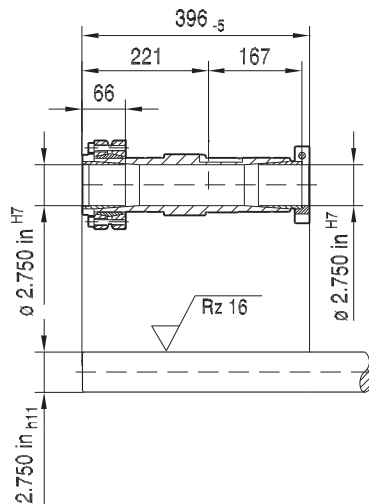
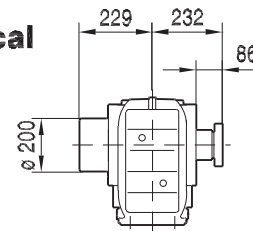
33 351 00 16



NON-Symmetrical



Symmetrical



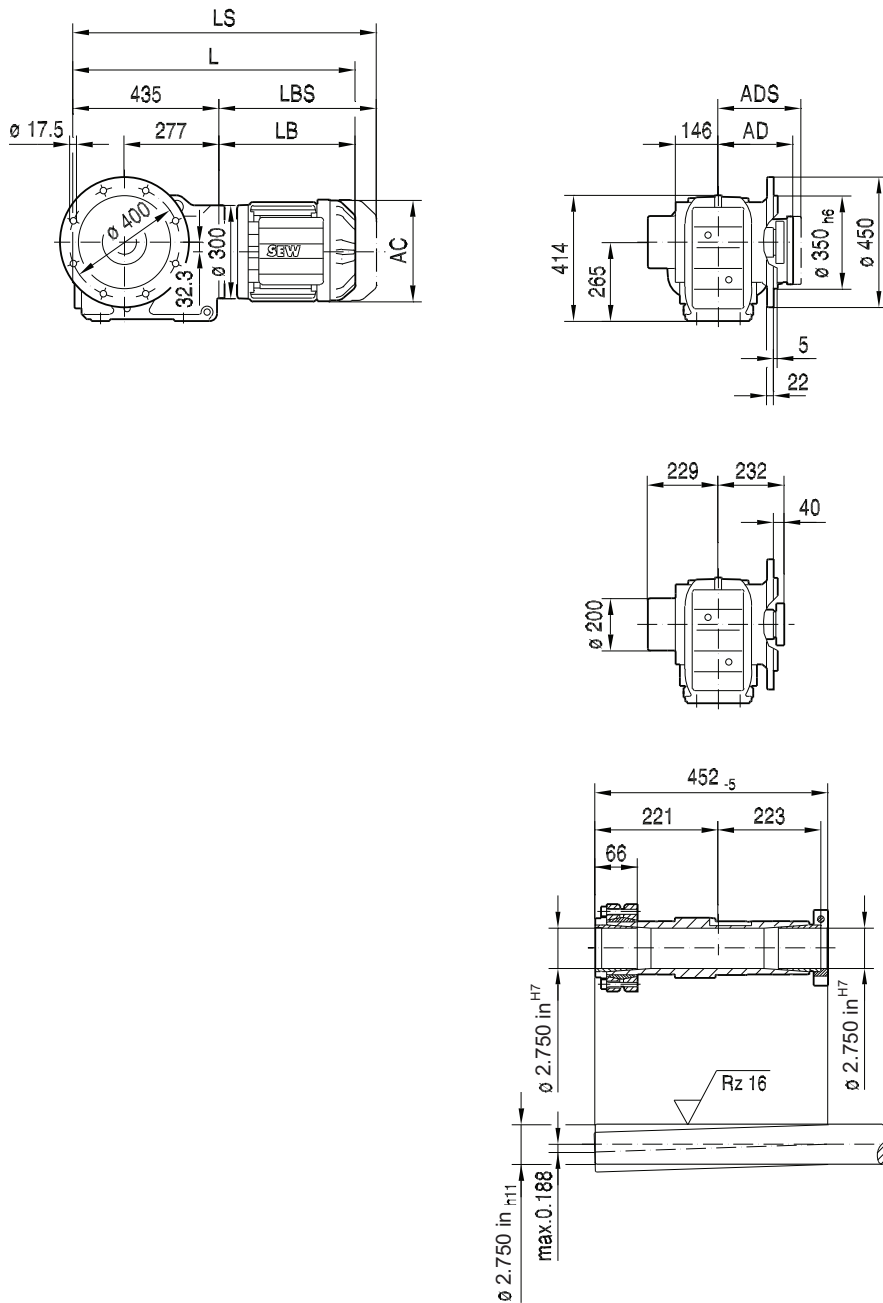
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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KTF97..

33 101 02 13 US

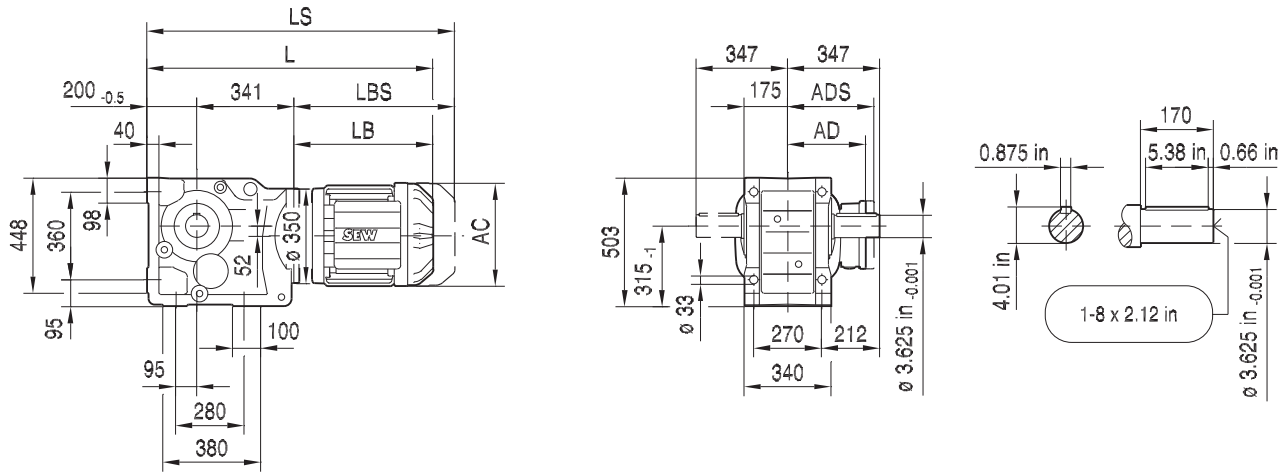


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	773	804	854	872	898	964	987	1097	1071
LS	867	916	966	1010	1035	1153	1176	1302	1276
LB	338	369	419	437	463	529	552	662	636
LBS	432	481	531	575	600	718	741	867	841

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 352 00 16

K107..

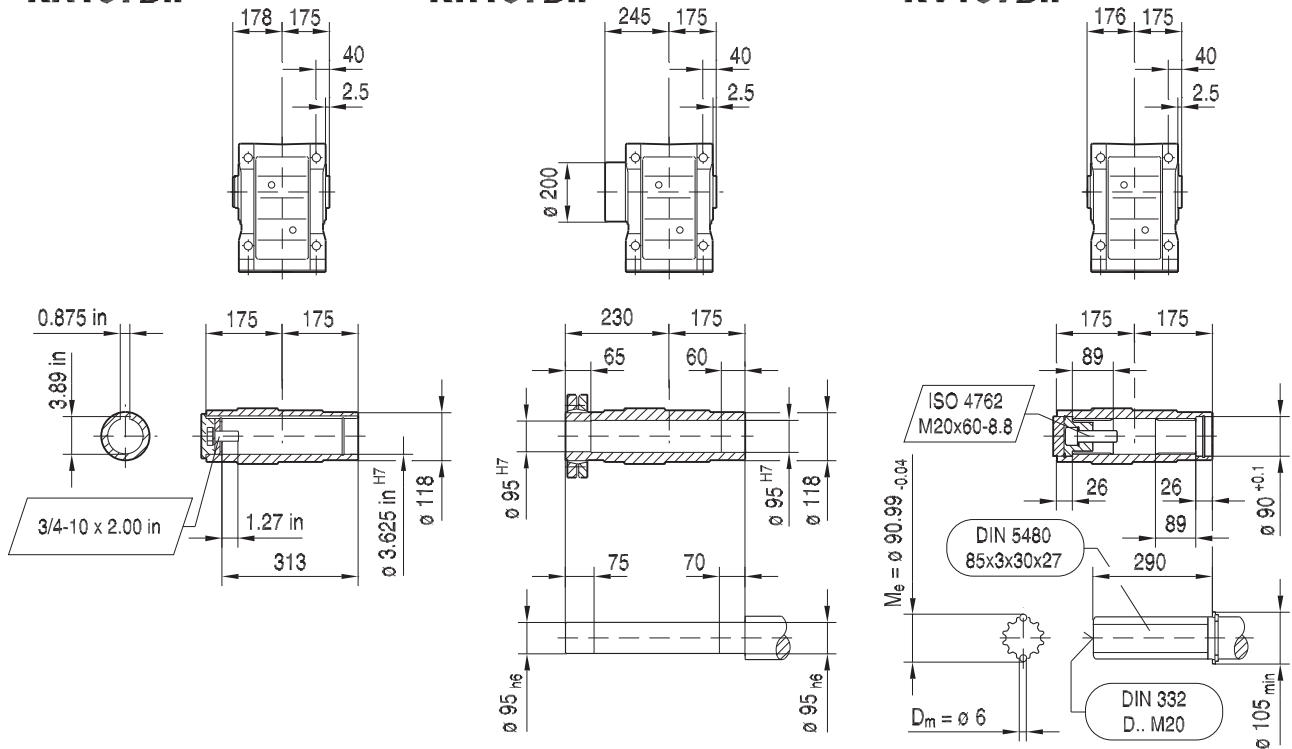


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KA107B..

KH107B..

KV107B..



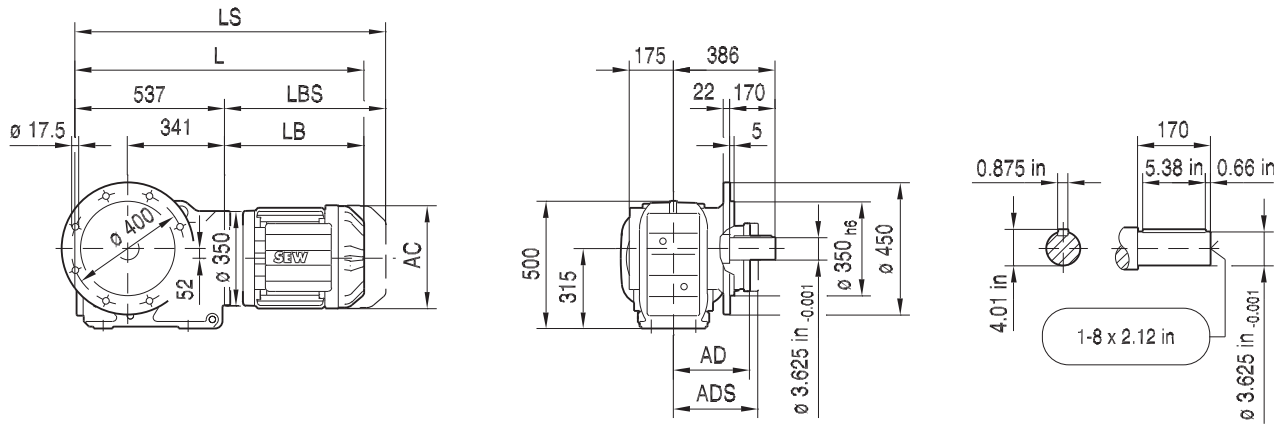
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(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	873	904	954	972	998	1064	1087	1197	1171
LS	967	1016	1066	1110	1135	1253	1276	1402	1376
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

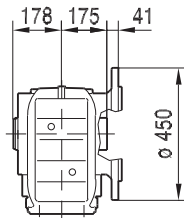
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 353 00 16

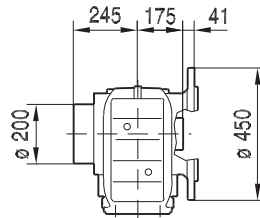
KF107..



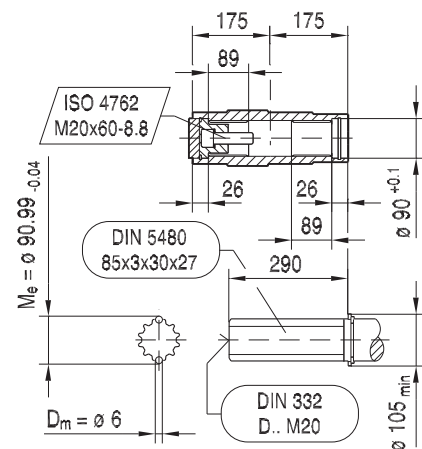
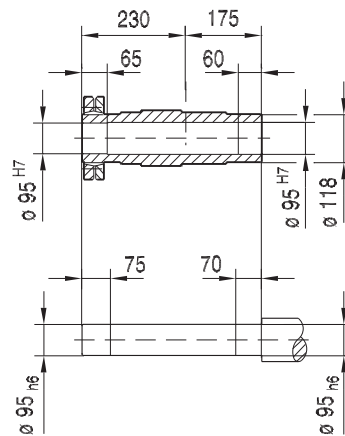
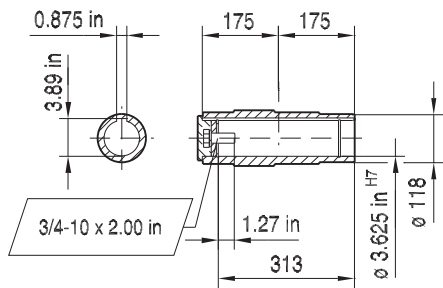
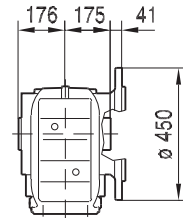
KAF107..



KHF107..



KVF107..



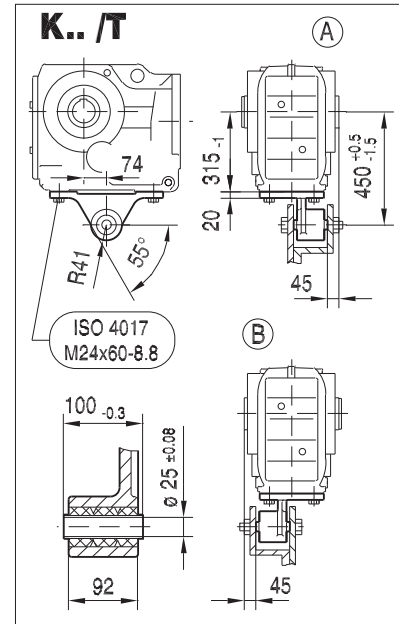
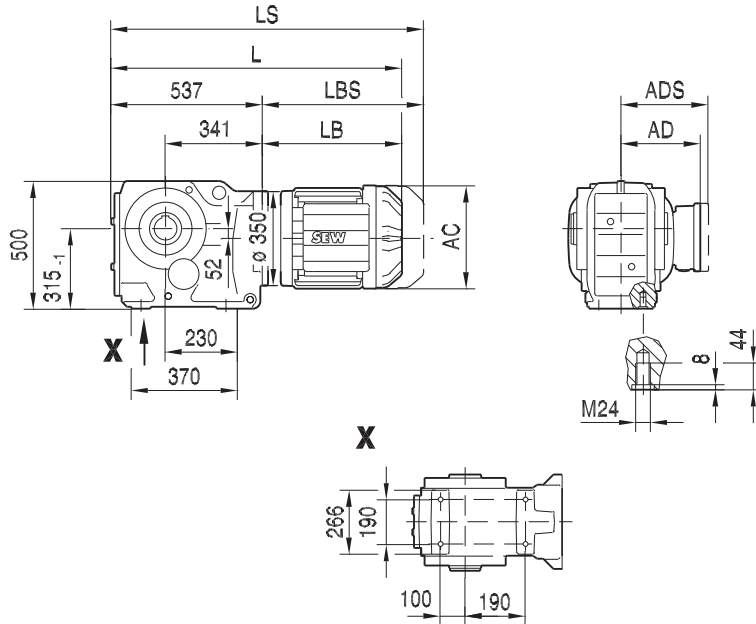
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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KA107..

33 354 00 16

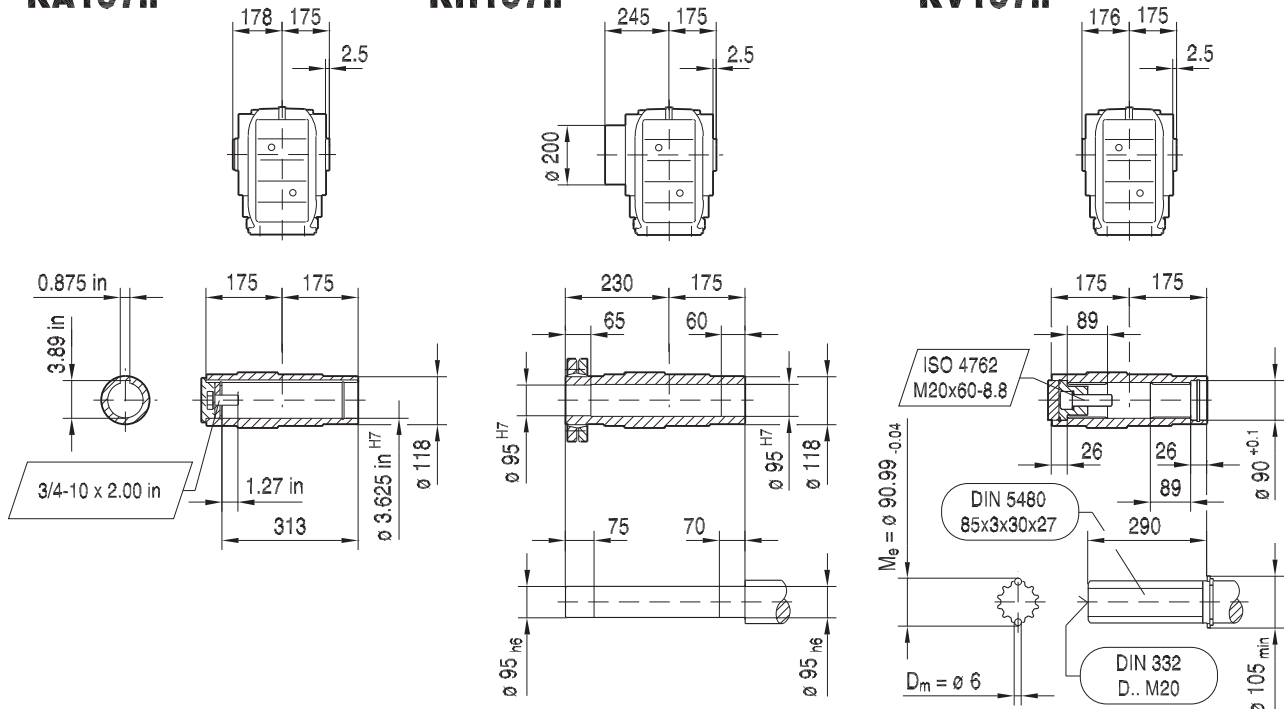


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KA107..

KH107..

KV107..



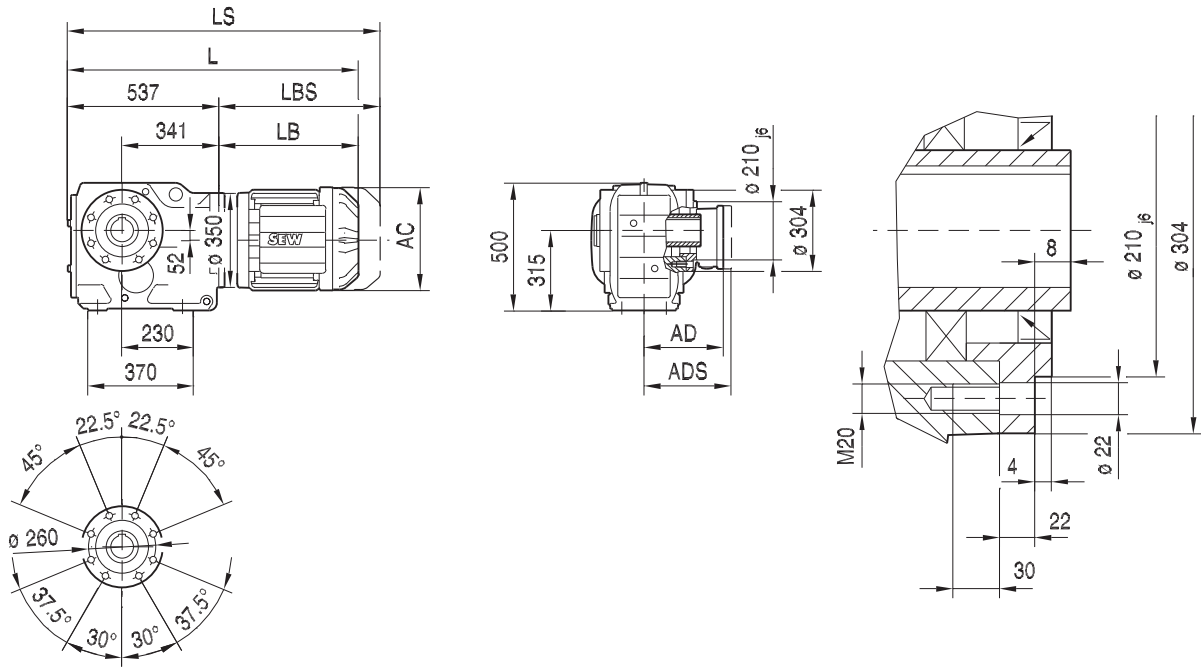
(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

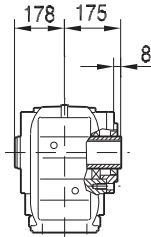
21933480/EN-US - 04/2018

33 355 00 16

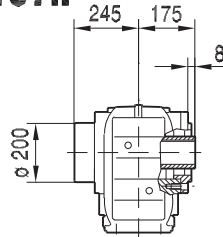
KAZ107..



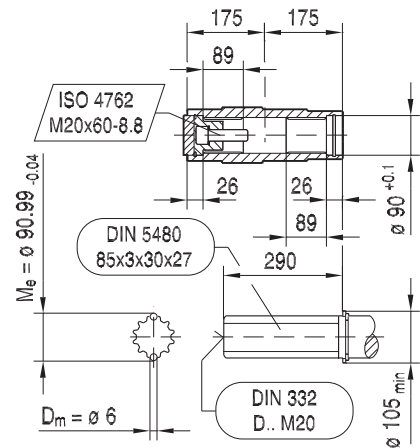
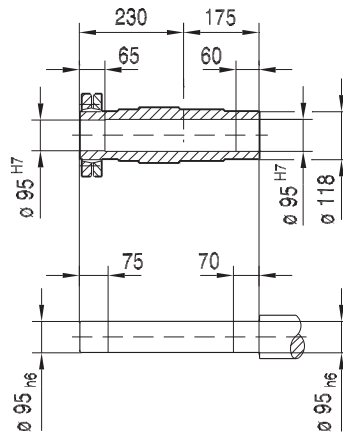
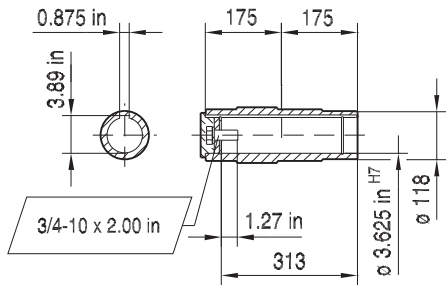
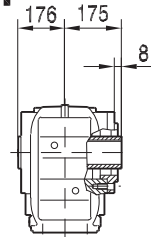
KAZ107..



KHZ107..



KVZ107..

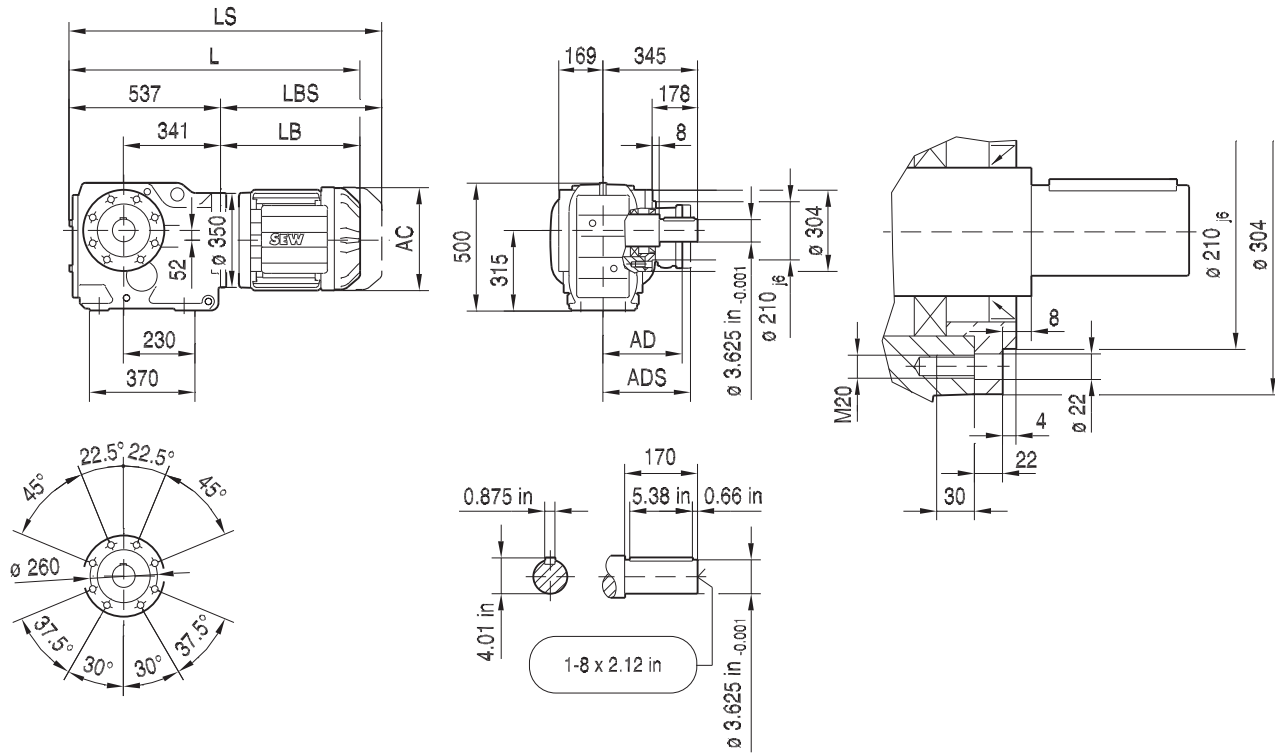


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

KZ107..

33 356 00 16



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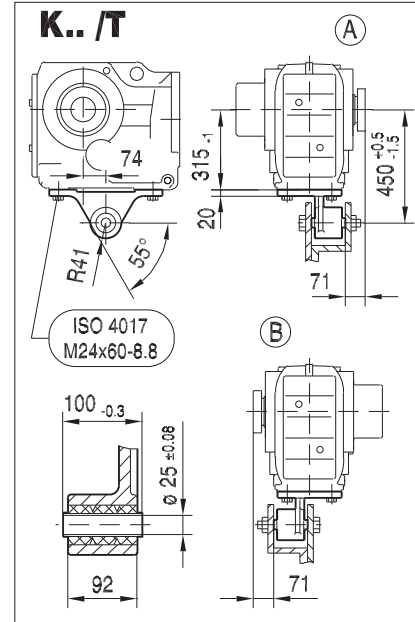
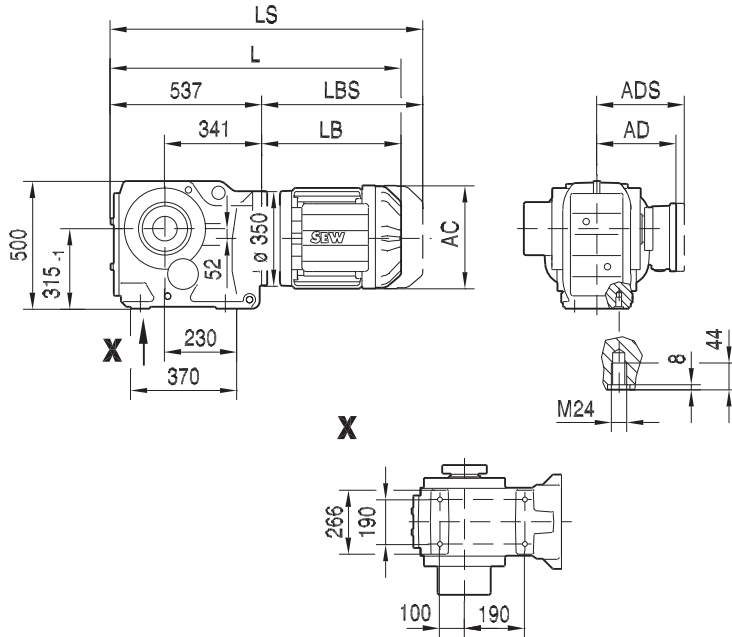
21933480/EN-US - 04/2018

(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

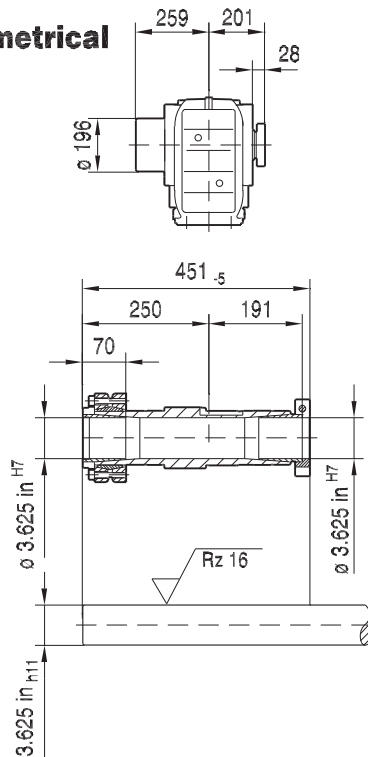
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 357 00 16

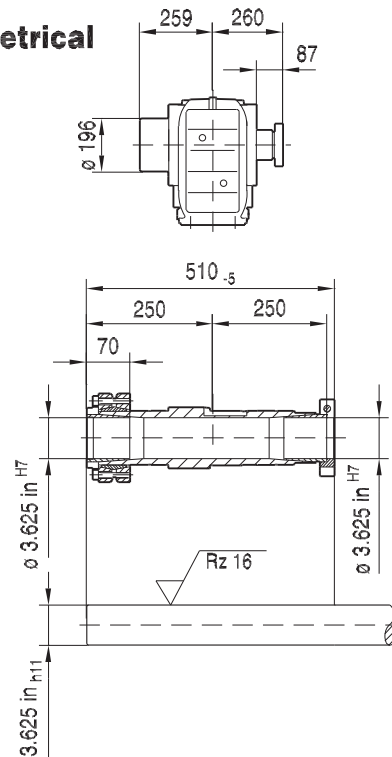
KT107..



NON-Symmetrical



Symmetrical

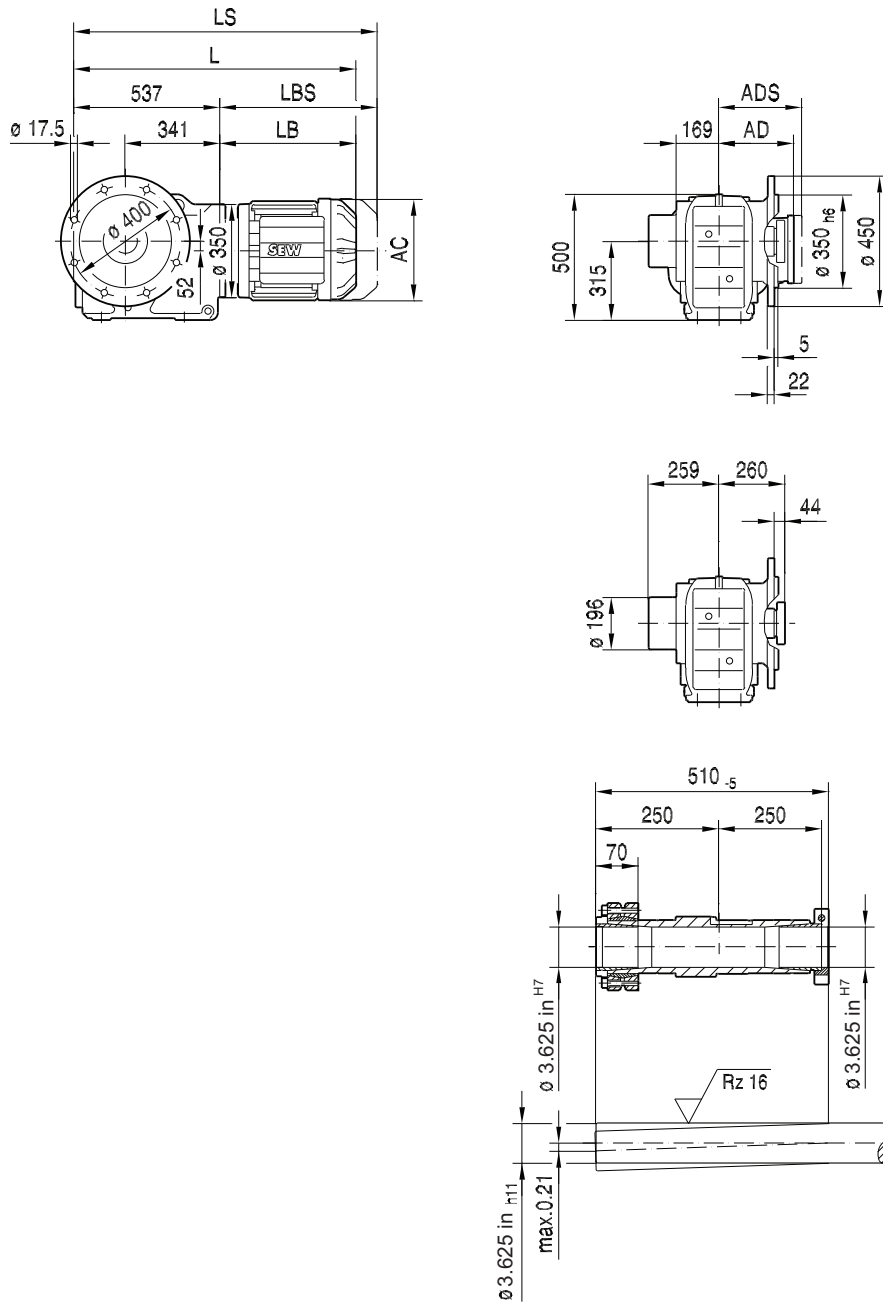


(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

KTF107..

33 102 02 13 US



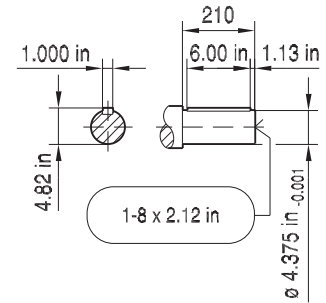
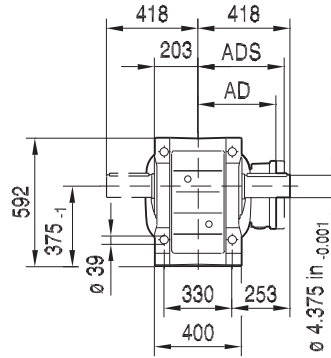
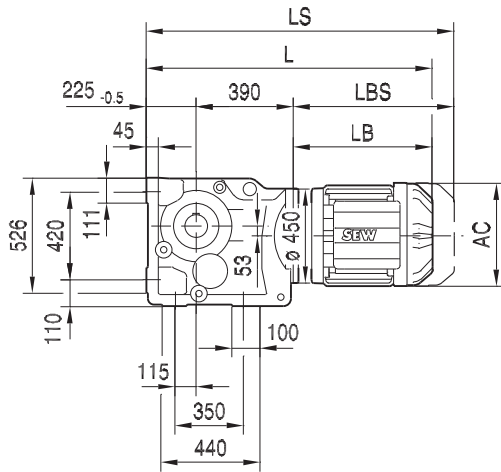
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(→ 163)	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225
AC	197	221	221	261	261	314	357	394	434
AD	157	170	170	228	228	253	268	283	305
ADS	158	172	172	228	228	253	268	283	305
L	869	900	950	968	994	1060	1083	1193	1167
LS	963	1012	1062	1106	1131	1249	1272	1398	1372
LB	332	363	413	431	457	523	546	656	630
LBS	426	475	525	569	594	712	735	861	835

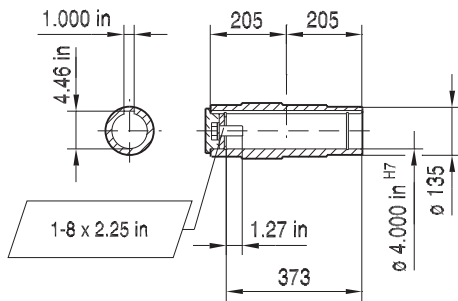
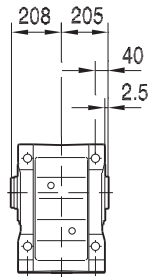
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 358 00 16

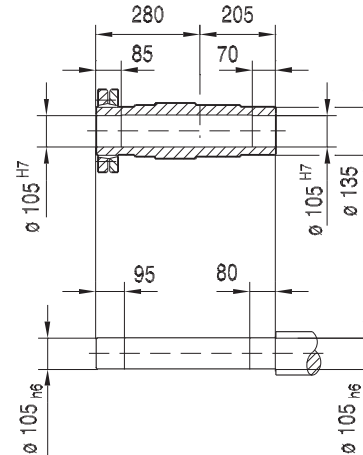
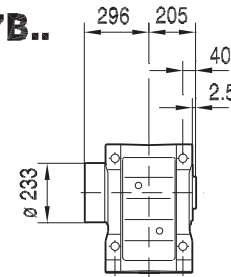
K127..



KA127B..



KH127B..



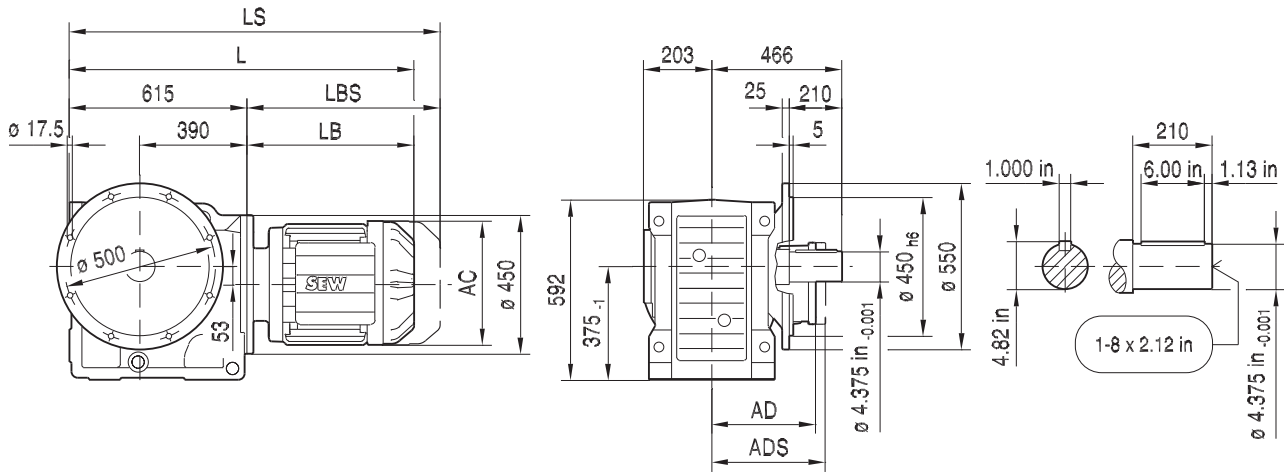
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

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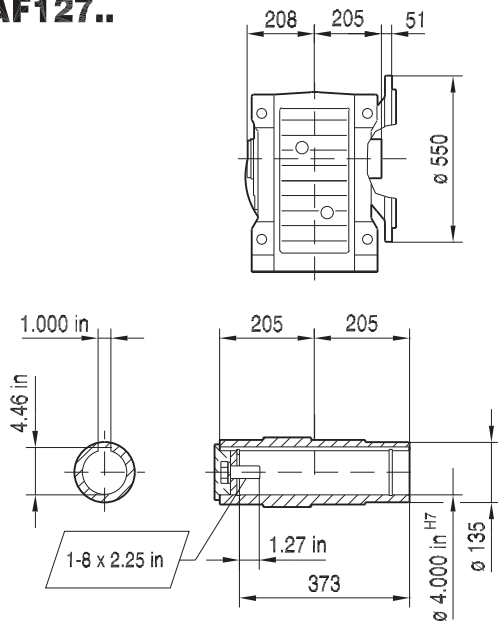
33 359 00 16

KF127..

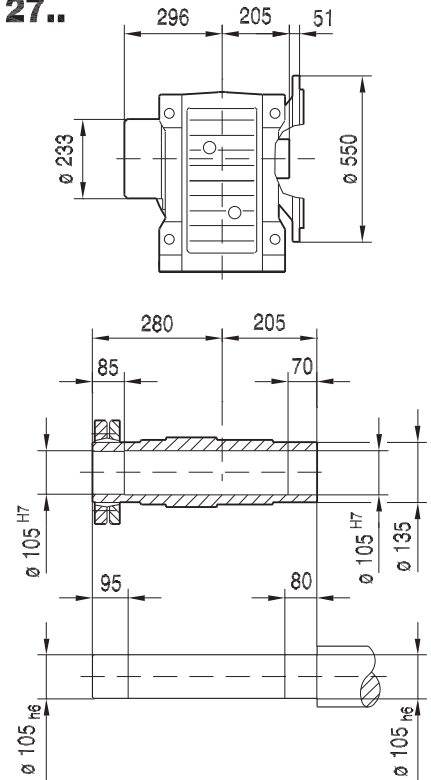


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KAF127..



KHF127..

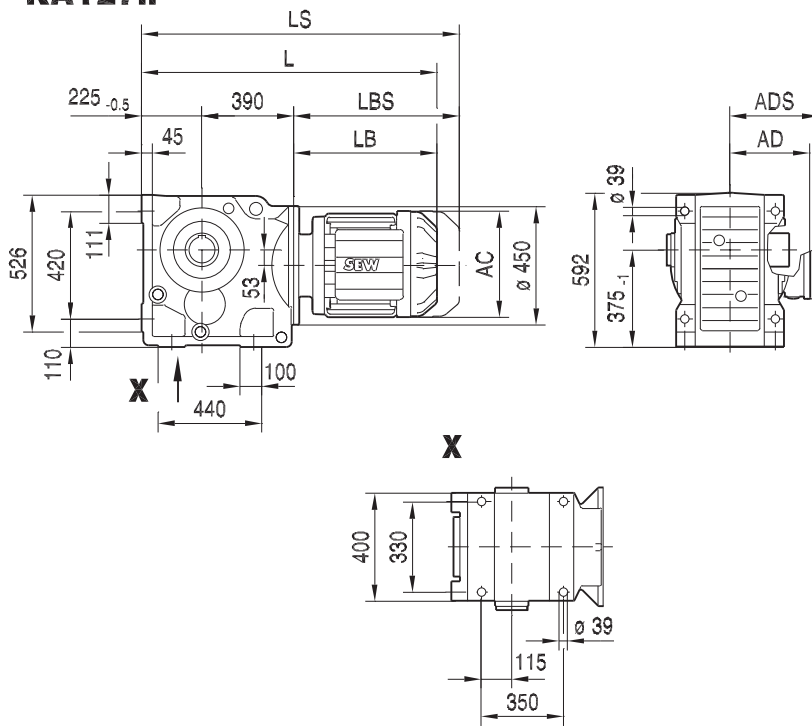


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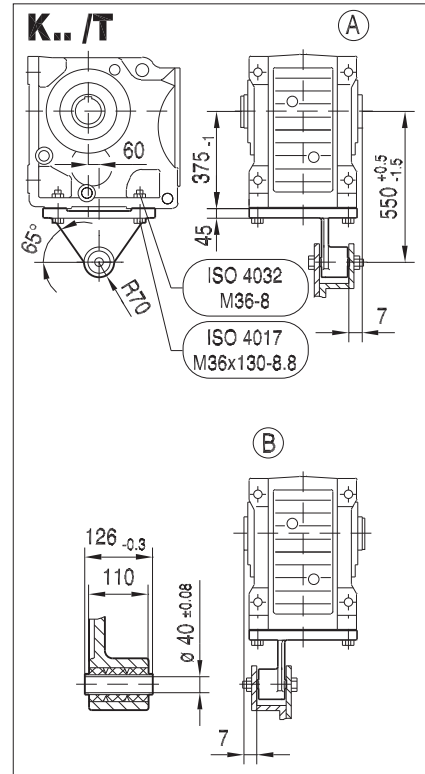
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

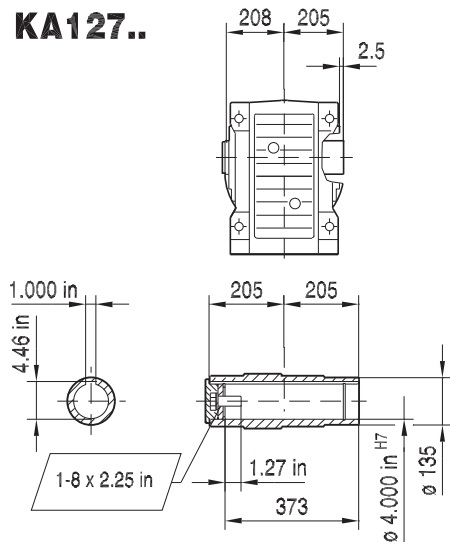
KA127..



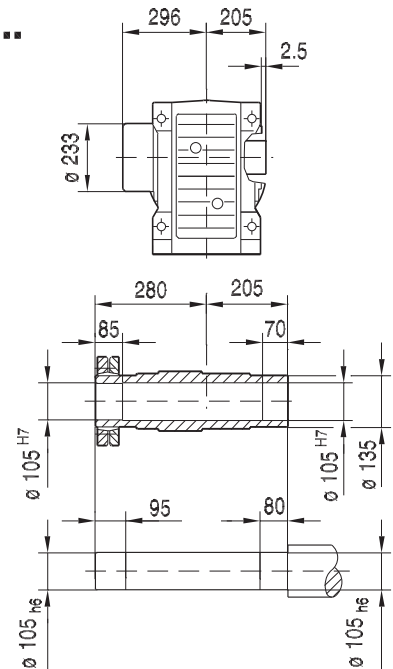
33 360 00 16



KA127..



KH127..

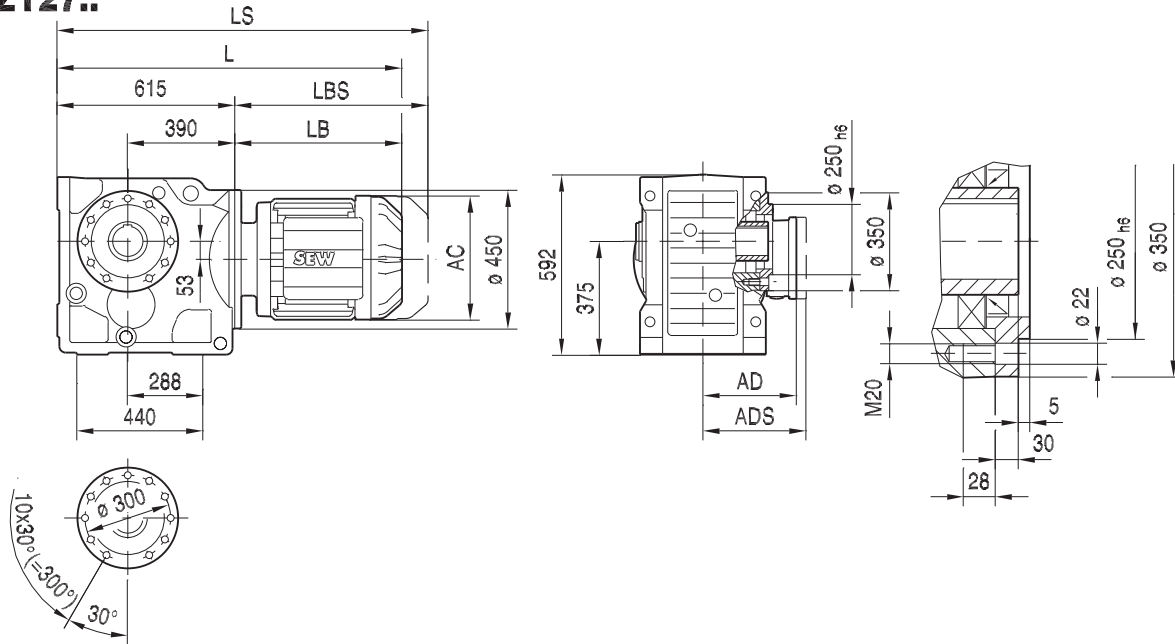


(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

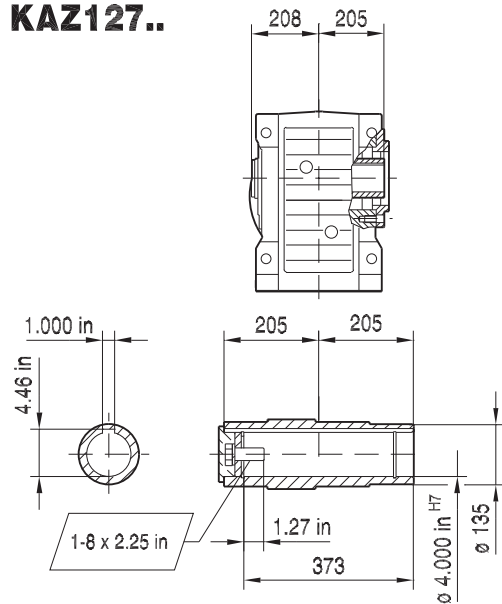
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 361 00 16

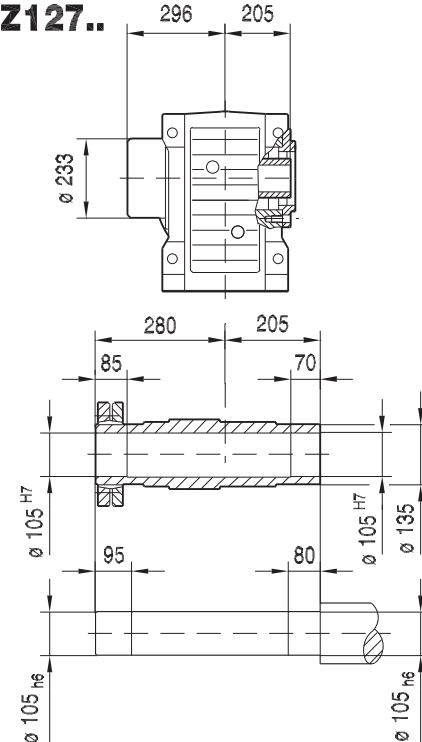
KAZ127..



KAZ127..



KHZ127..



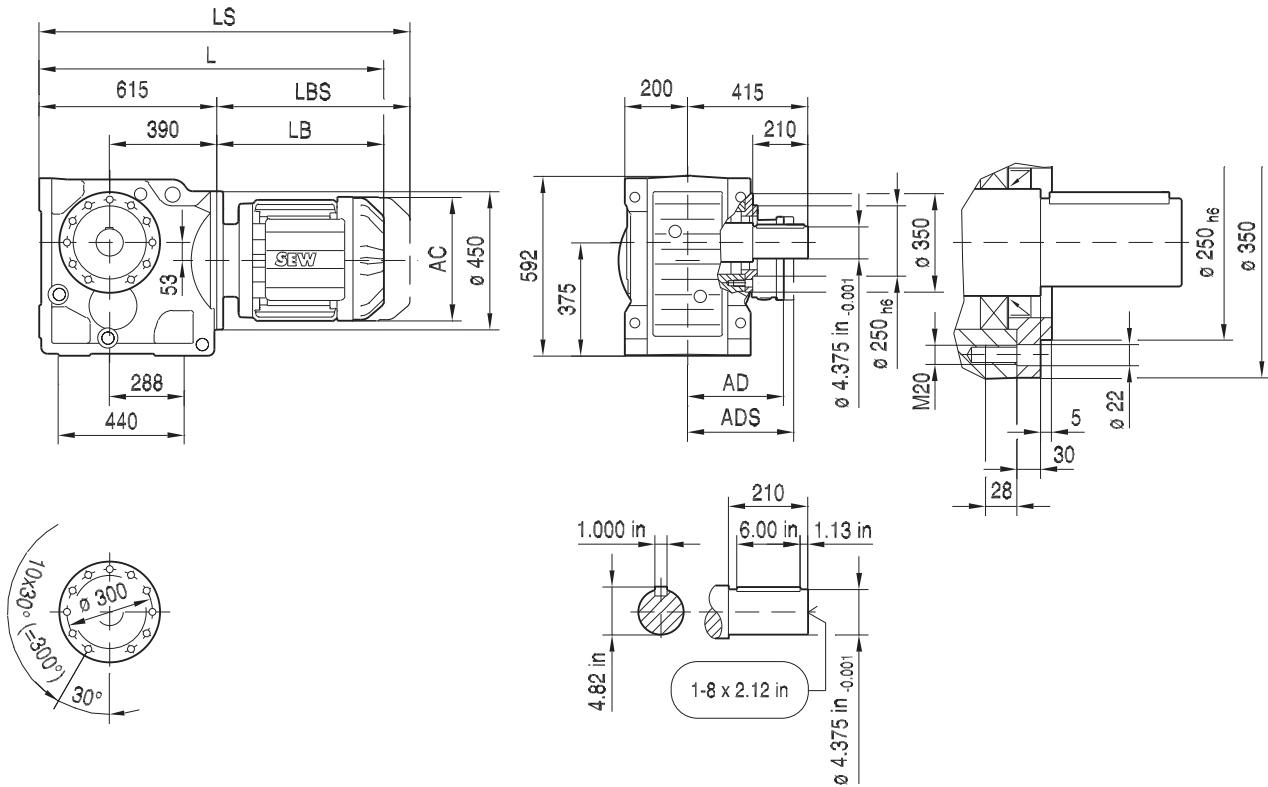
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(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 362 00 16

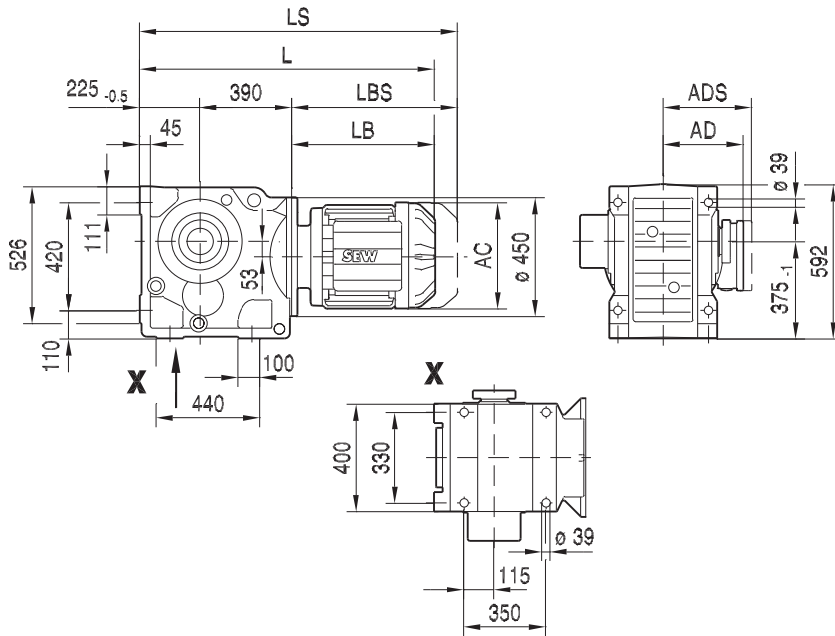
KZ127..



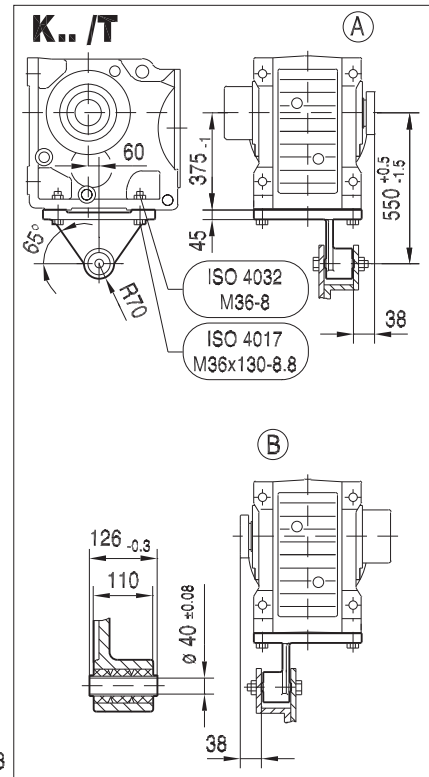
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

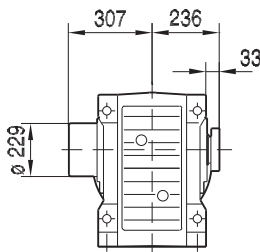
KT127..



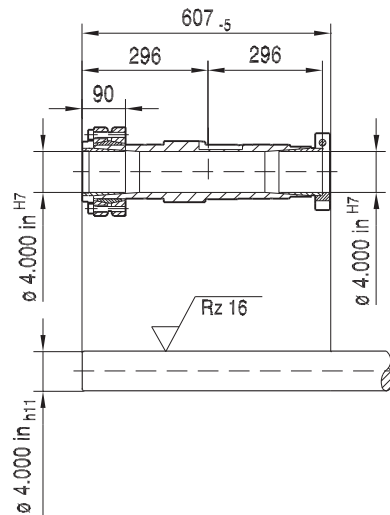
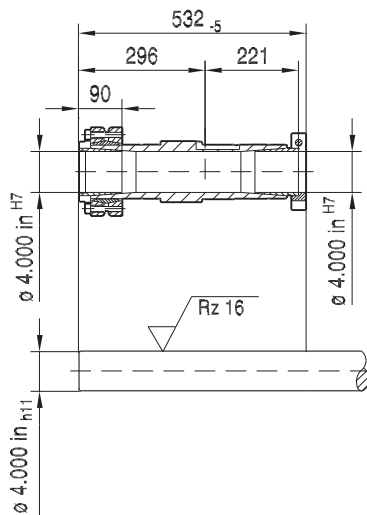
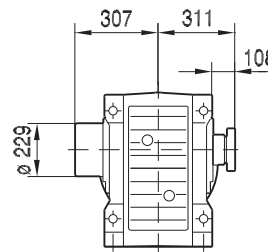
33 363 00 16



NON-Symmetrical



Symmetrical

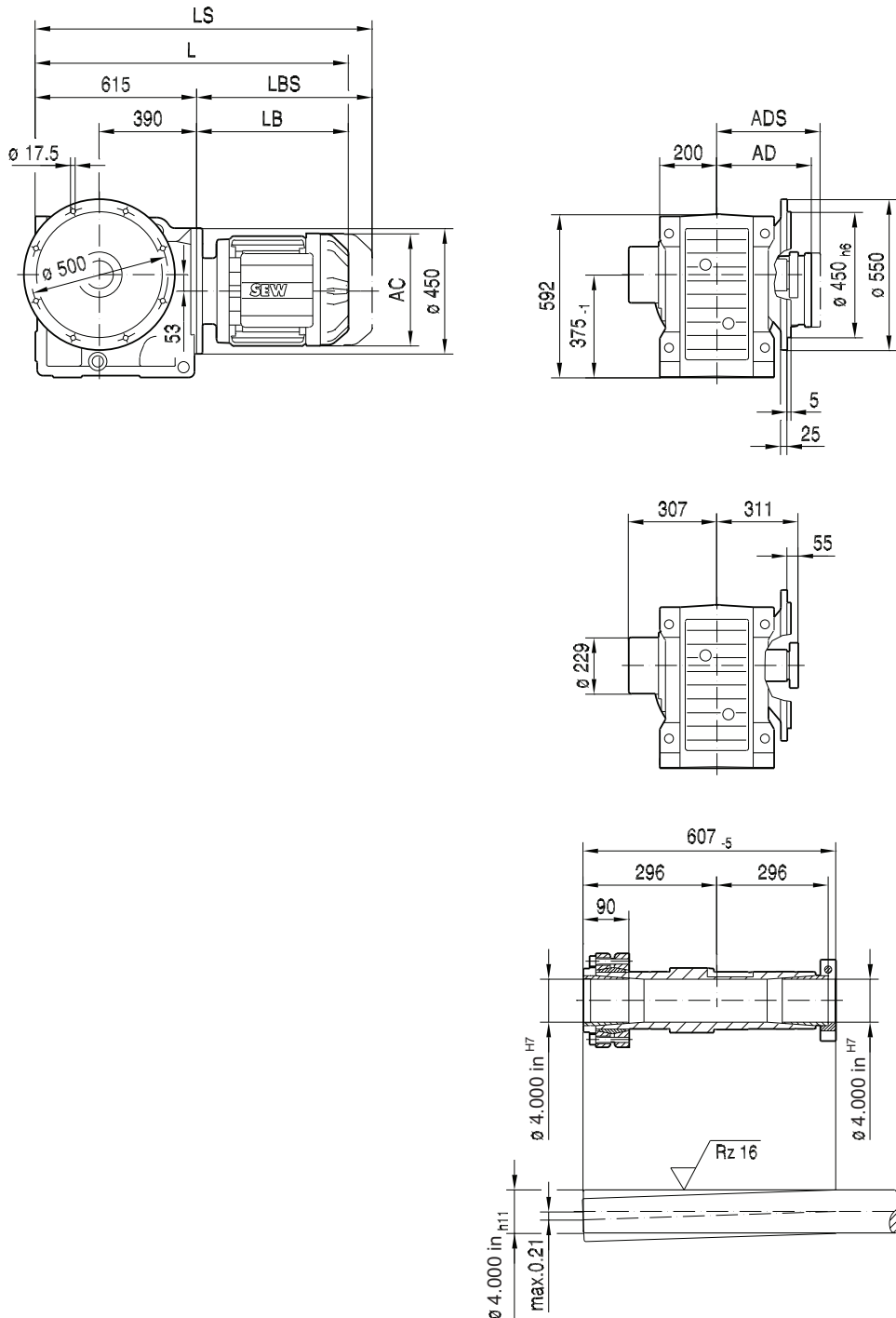


(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 103 02 13 US

KTF127..



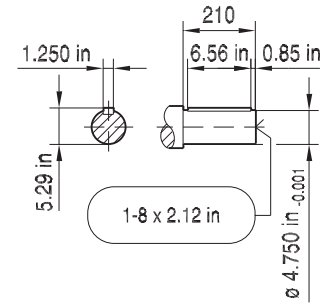
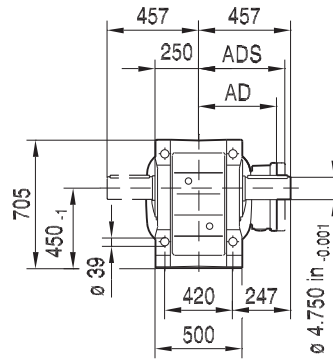
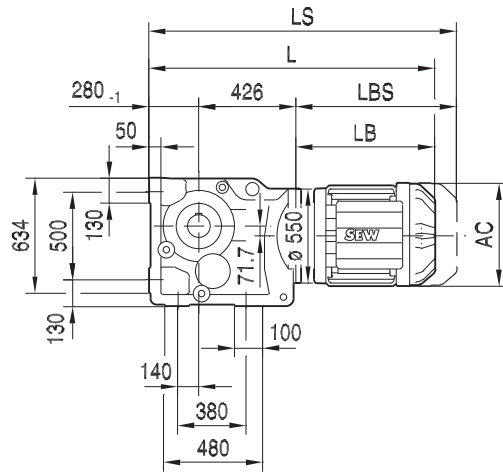
(→ 163)	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M
AC	221	261	261	314	357	394	434	495	495	495
AD	170	228	228	253	268	283	305	394	394	394
ADS	172	228	228	253	268	283	305	394	394	394
L	1013	1031	1057	1123	1146	1256	1230	1367	1367	1462
LS	1125	1169	1194	1312	1335	1461	1435	1607	1607	1702
LB	398	416	442	508	531	641	615	752	752	847
LBS	510	554	579	697	720	846	820	992	992	1087

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

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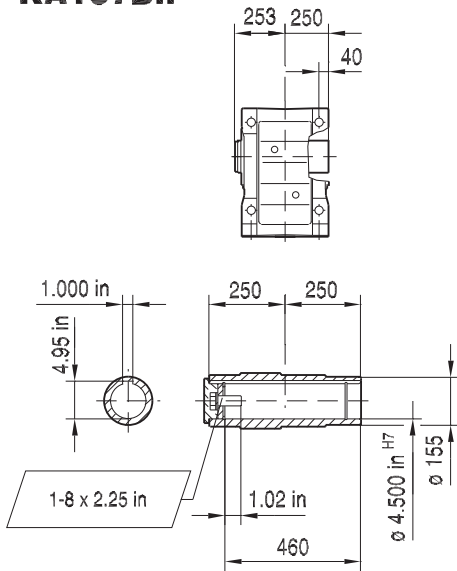
33 364 00 16

K157..

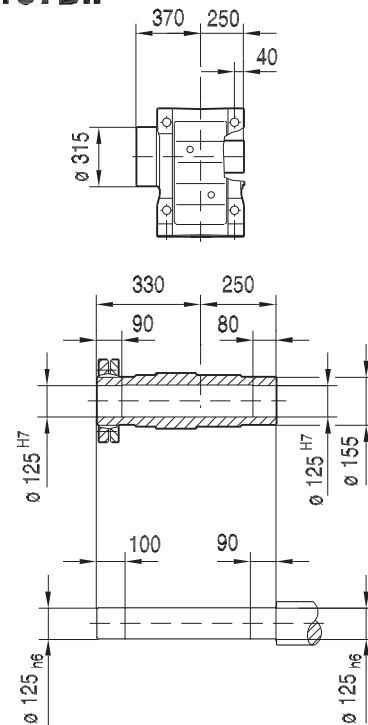


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KA157B..



KH157B..

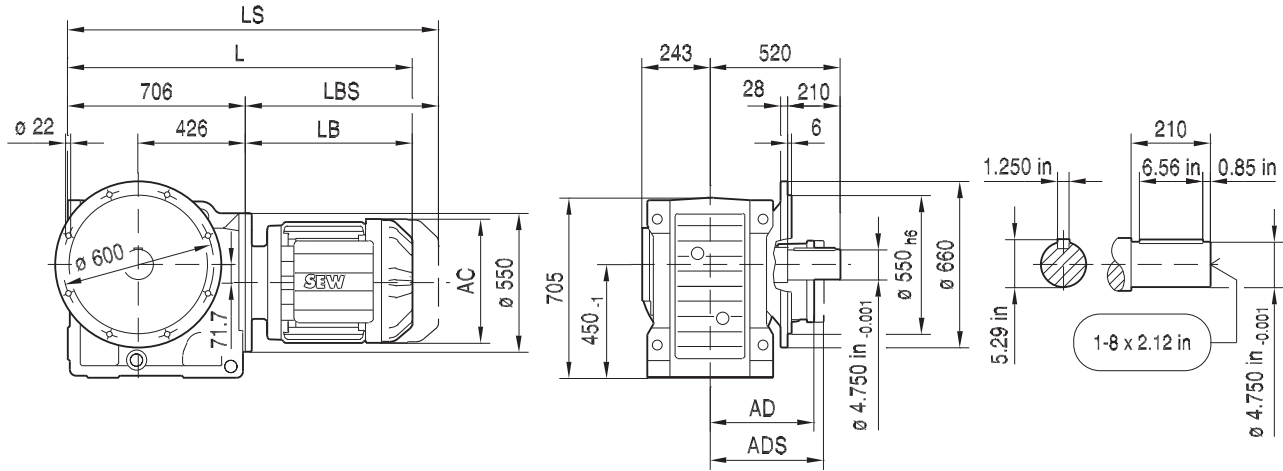


21933480/EN-US - 04/2018

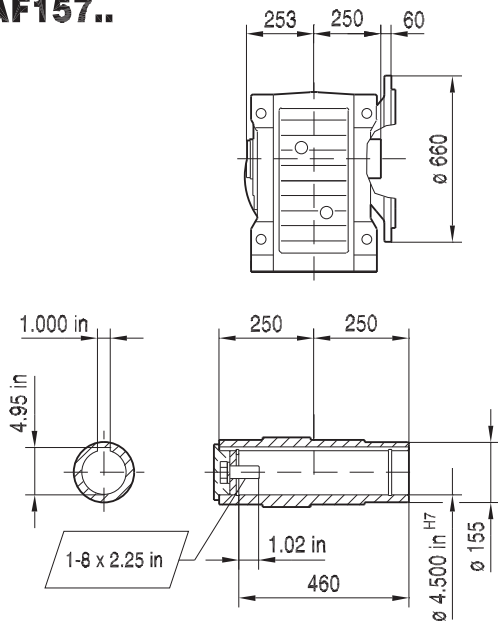
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

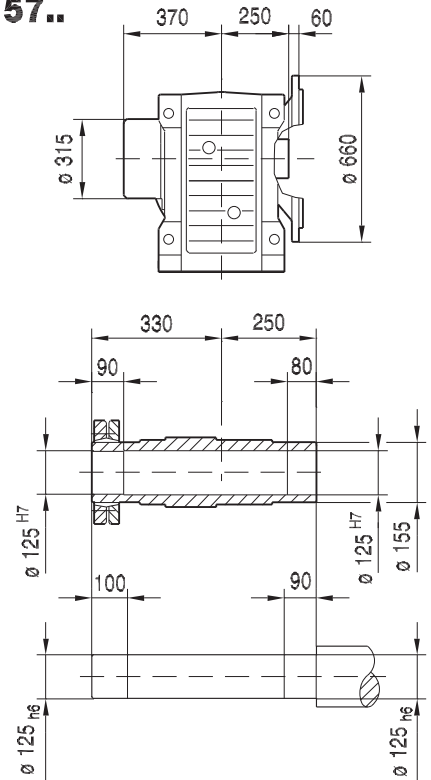
KF157..



KAF157..



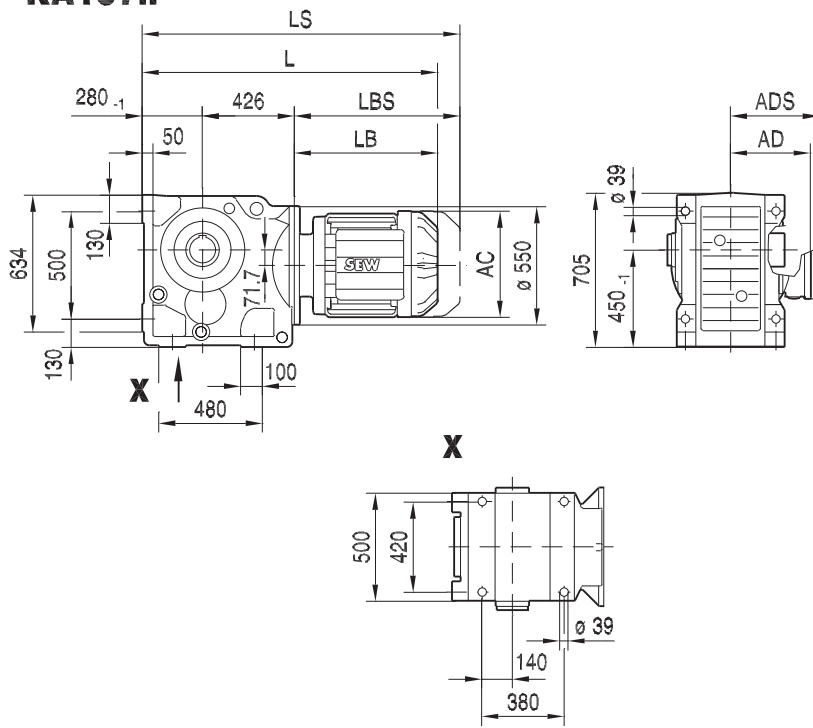
KHF157..



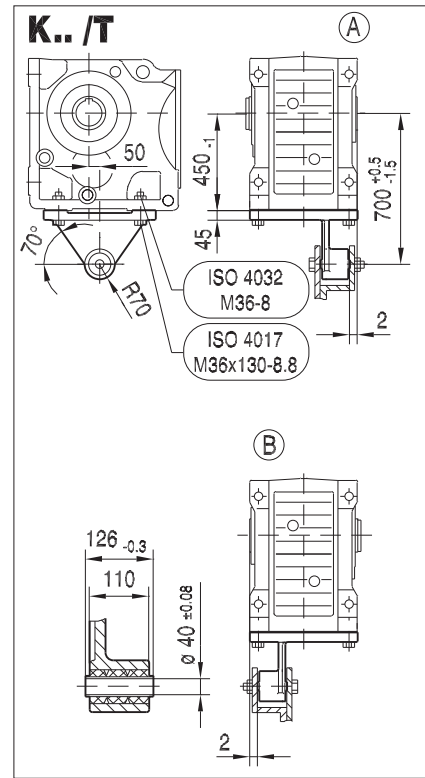
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

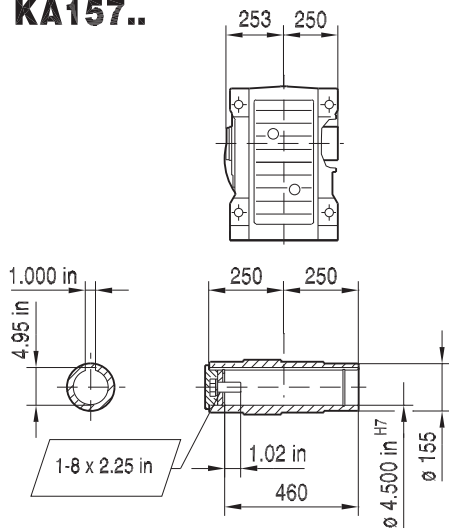
KA157..



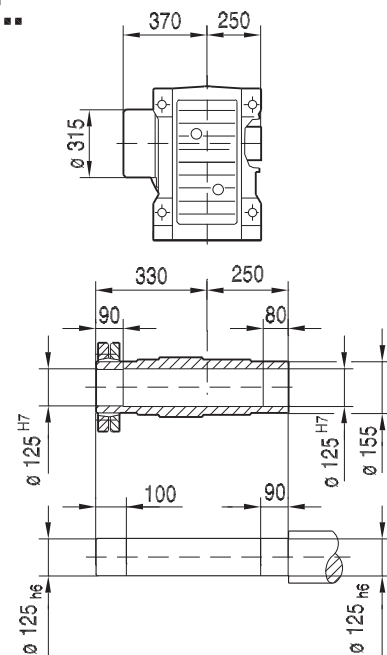
33 366 00 16



KA157..



KH157..

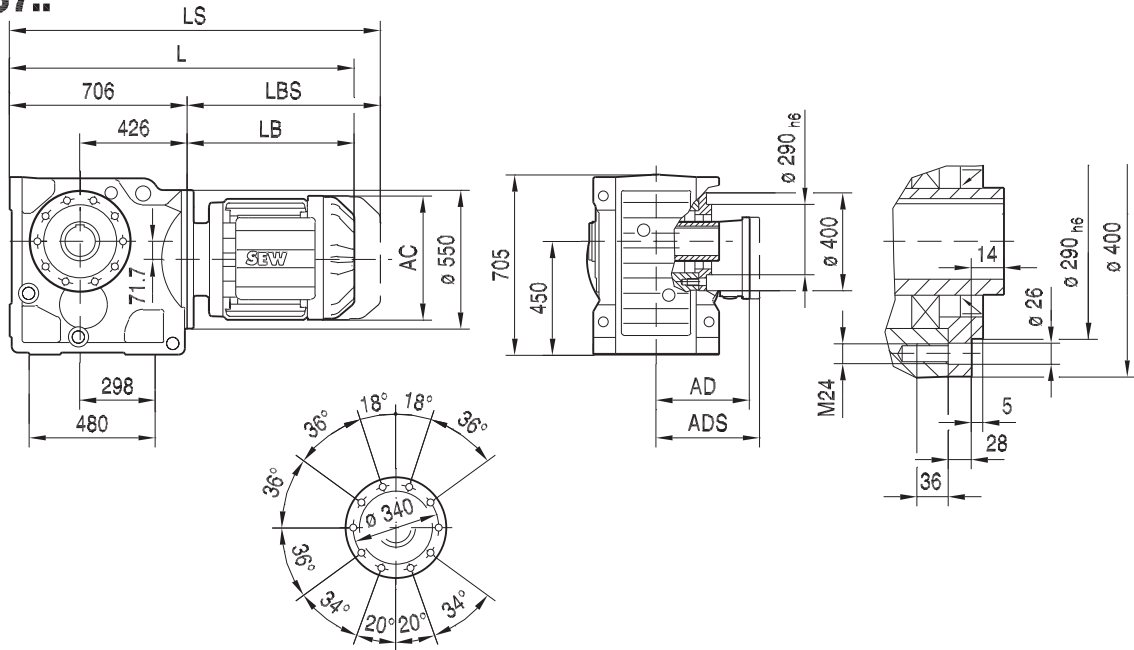


(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

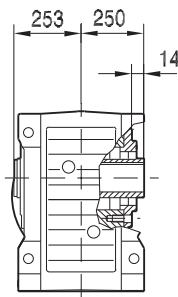
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

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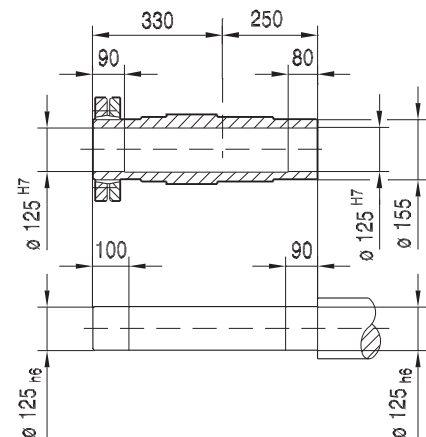
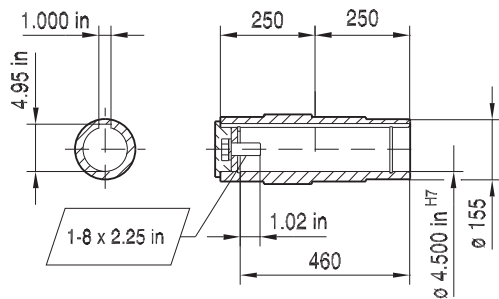
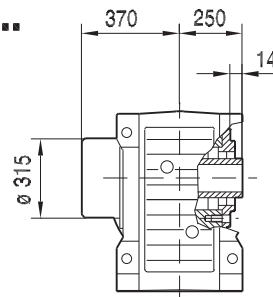
KAZ157..



KAZ157..



KHZ157..

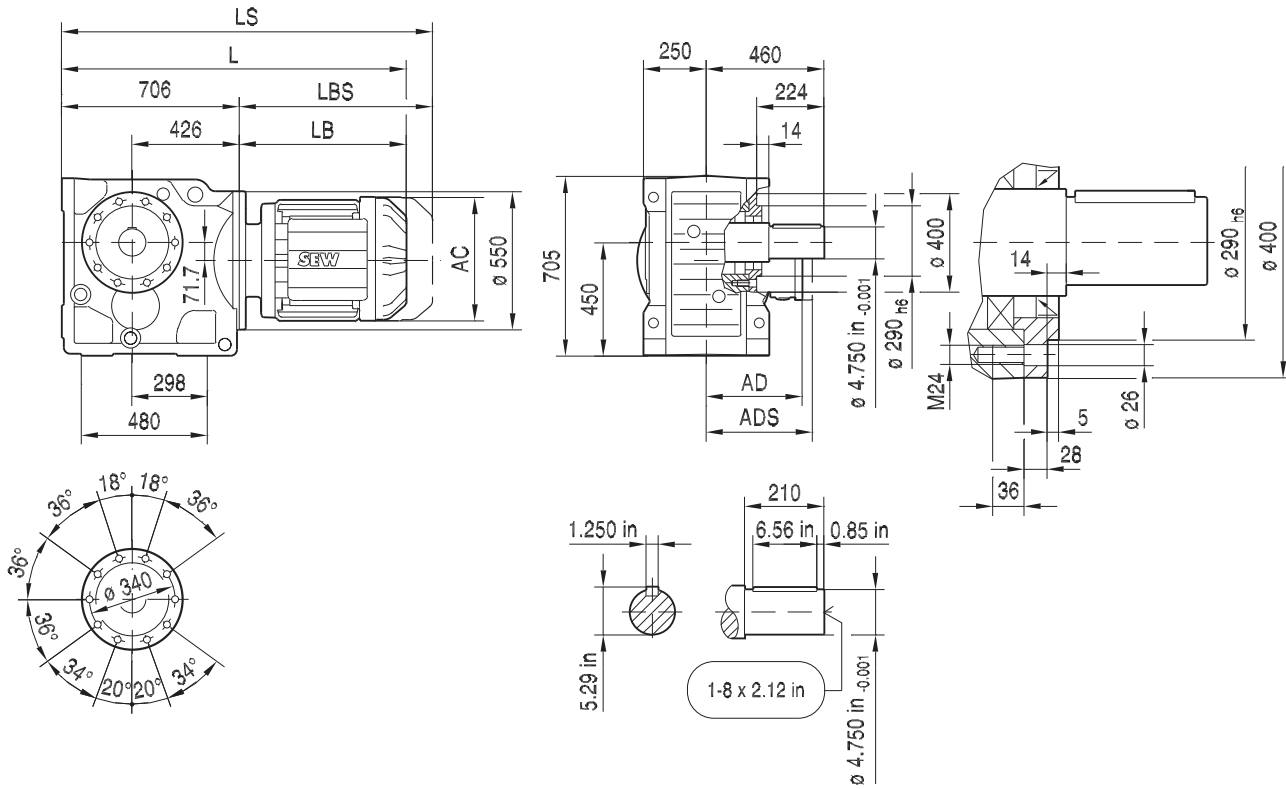


(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 718. For tolerances, see page 163.

33 368 00 16

KZ157..



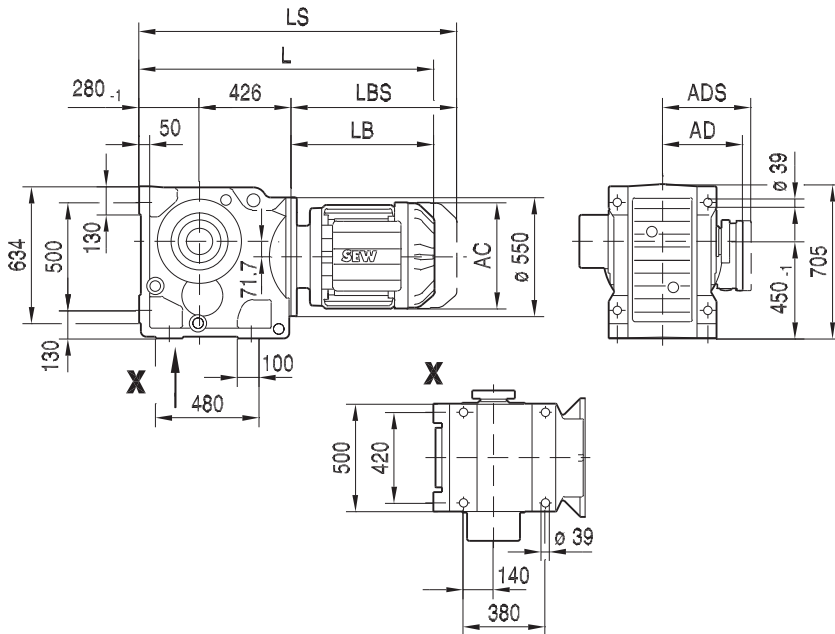
10

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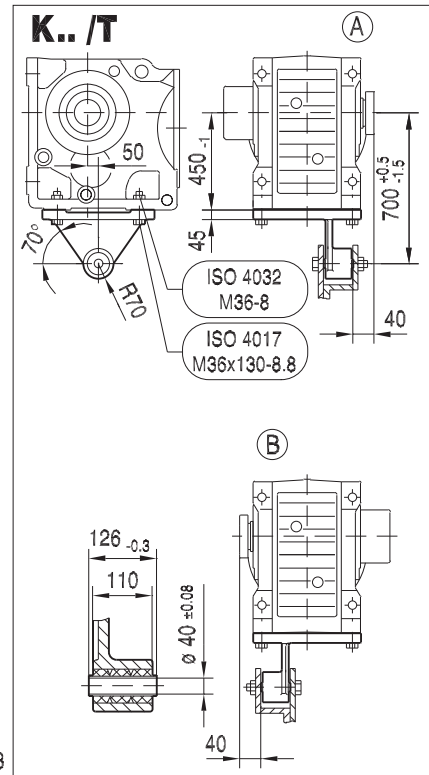
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

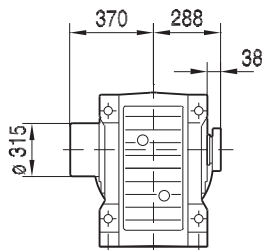
KT157..



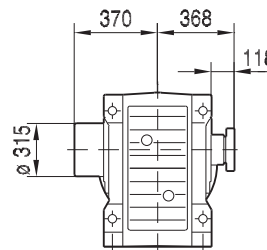
33 369 00 16



NON-Symmetrical



Symmetrical

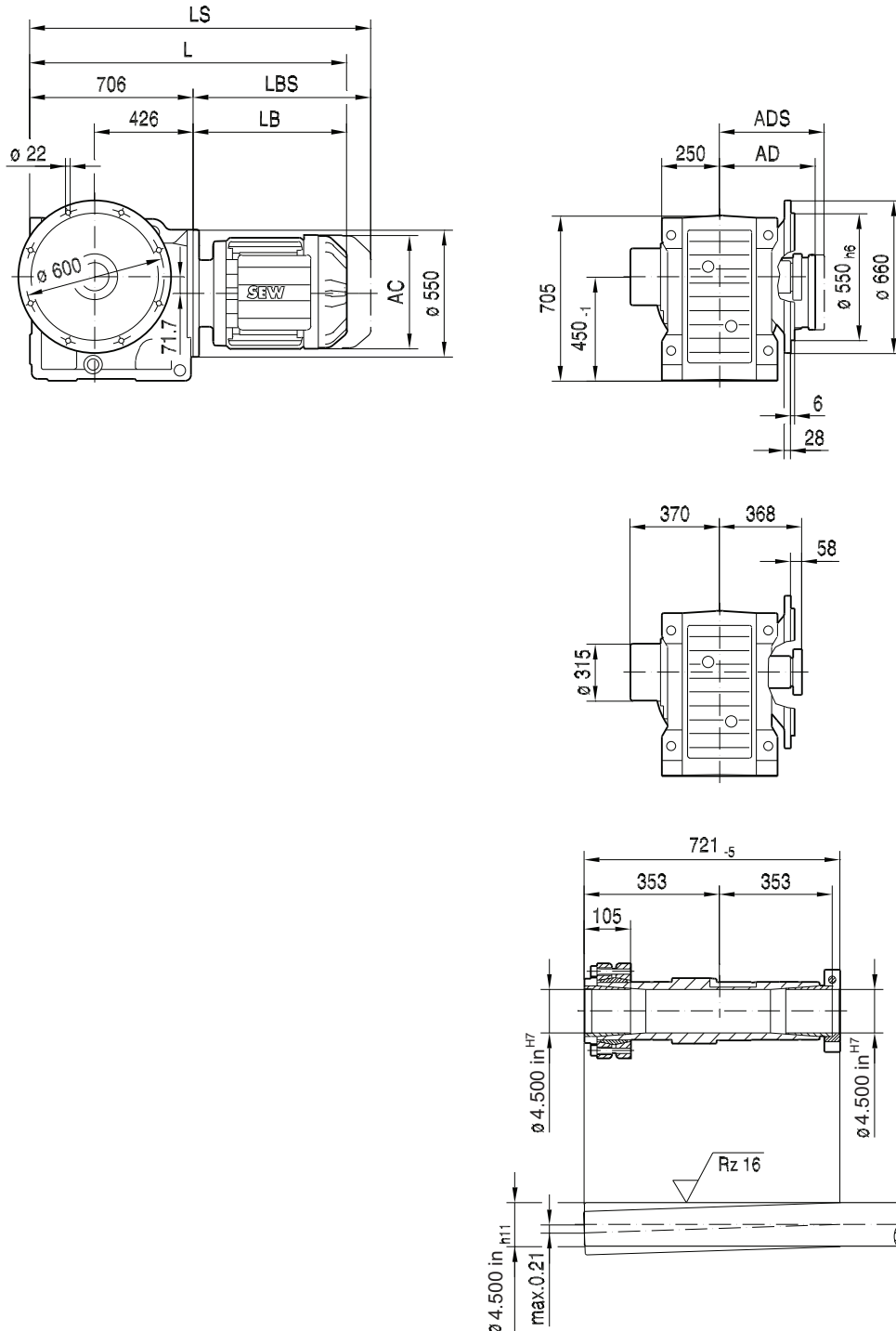


(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

33 104 02 13 US

KTF157..



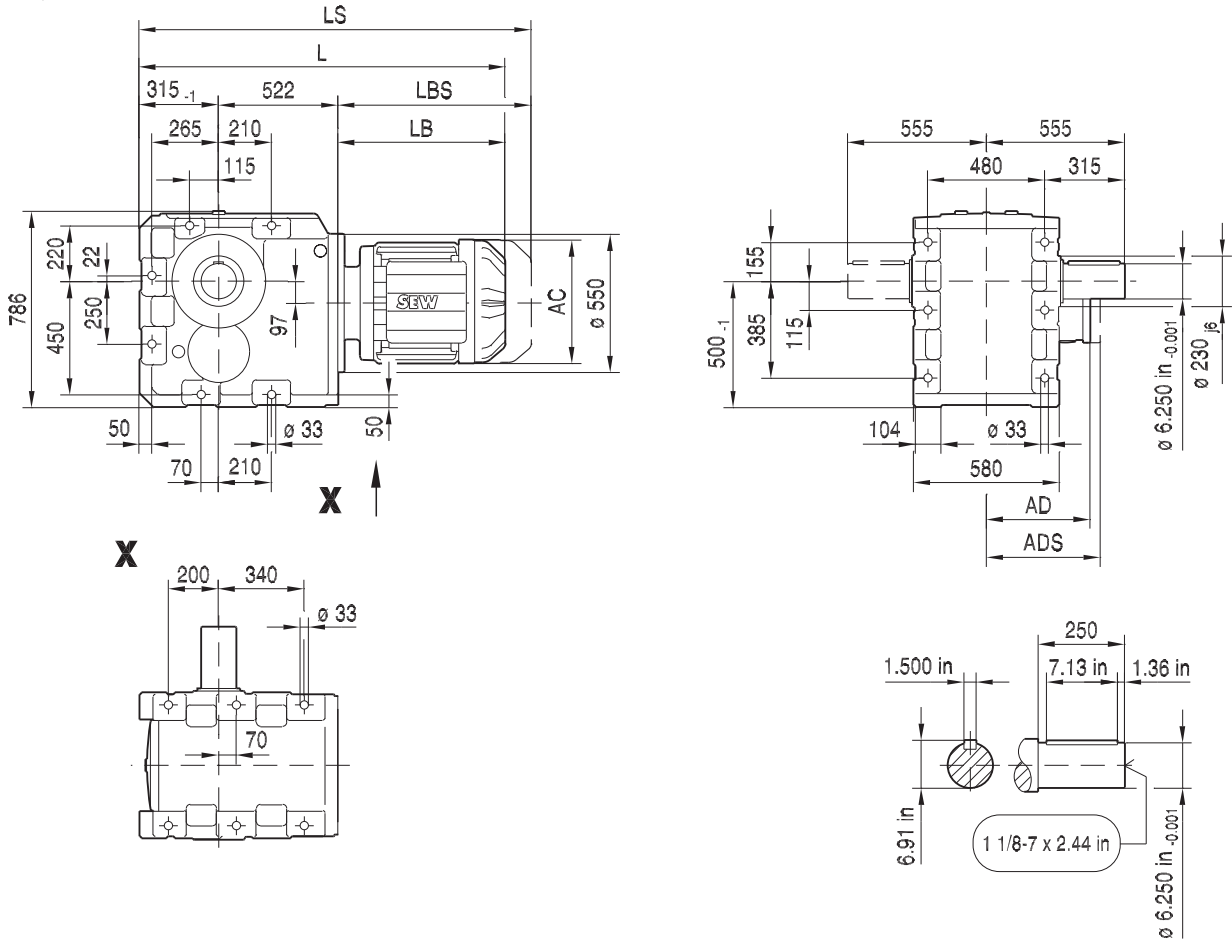
10

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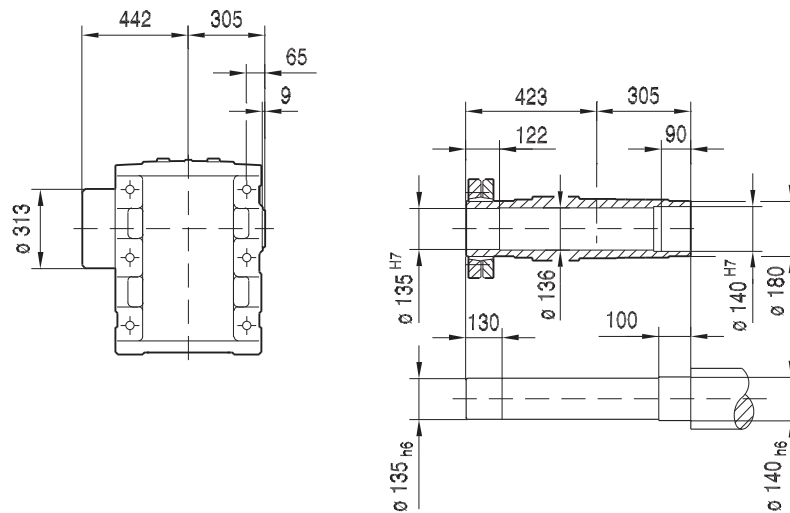
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1206	1229	1339	1313	1450	1450	1545	1647	1777
LS	1395	1418	1544	1518	1690	1690	1785	1898	2028
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 720. For tolerances, see page 163.

K167..



KH167B..

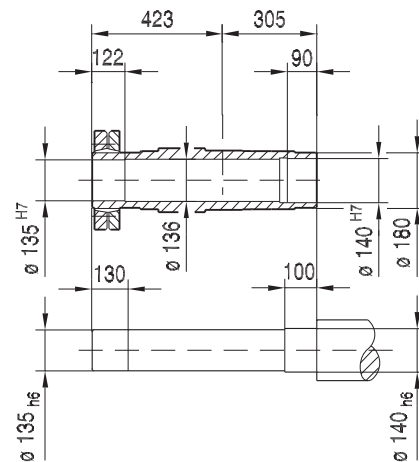
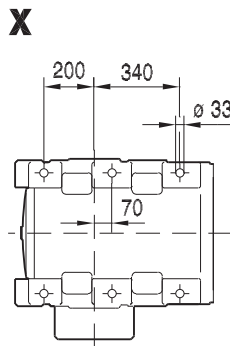
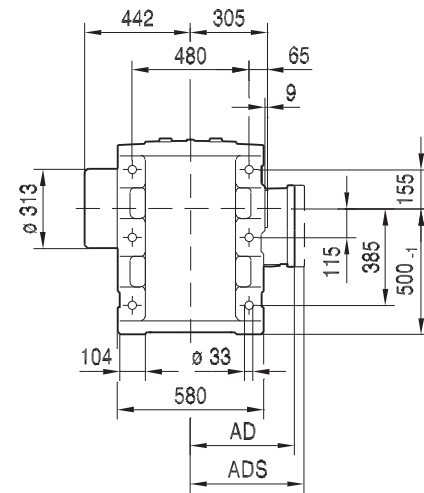
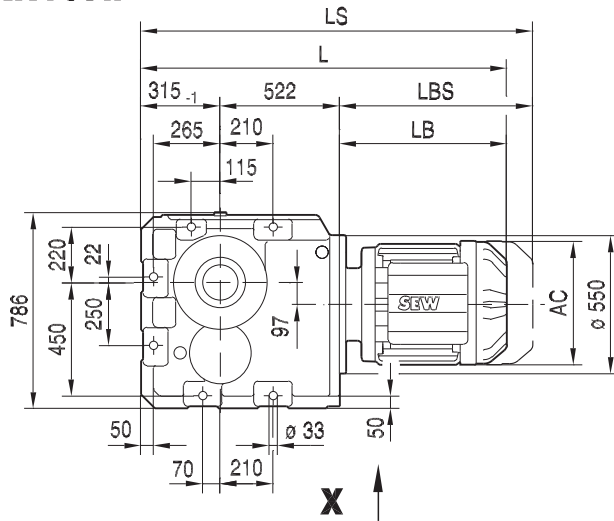


(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1337	1360	1470	1444	1581	1581	1676	1778	1908
LS	1526	1549	1675	1649	1821	1821	1916	2029	2159
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 371 00 16

KH167..



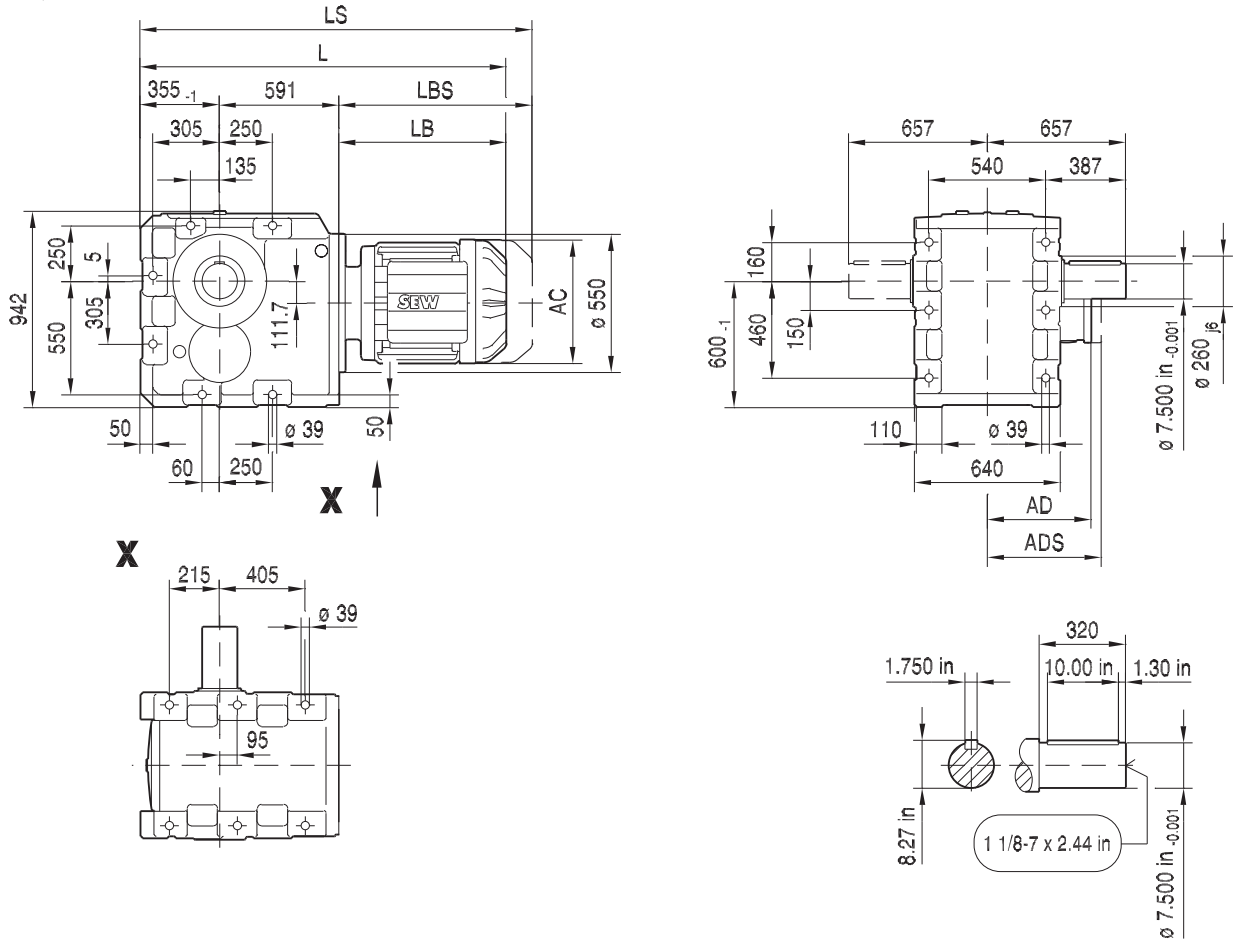
10

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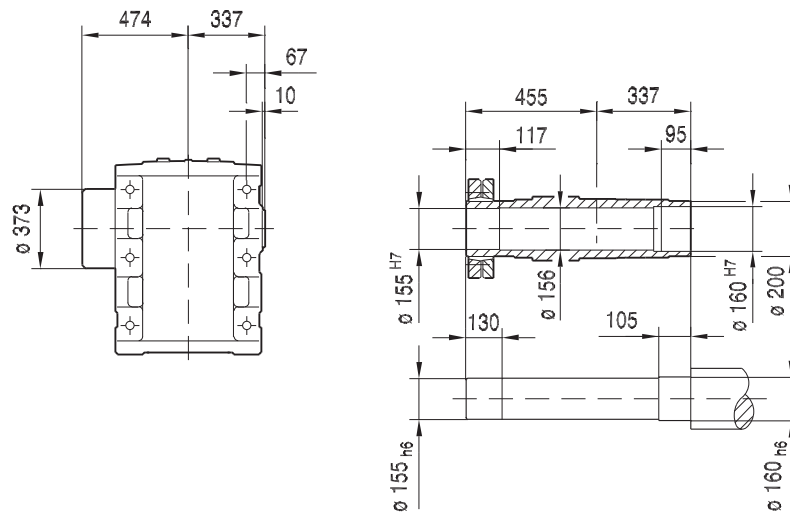
(→ 163)	DRN160	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	314	357	394	434	495	495	495	624	624
AD	253	268	283	305	394	394	394	506	506
ADS	253	268	283	305	394	394	394	506	506
L	1337	1360	1470	1444	1581	1581	1676	1778	1908
LS	1526	1549	1675	1649	1821	1821	1916	2029	2159
LB	500	523	633	607	744	744	839	941	1071
LBS	689	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 163.

K187..



KH187B..

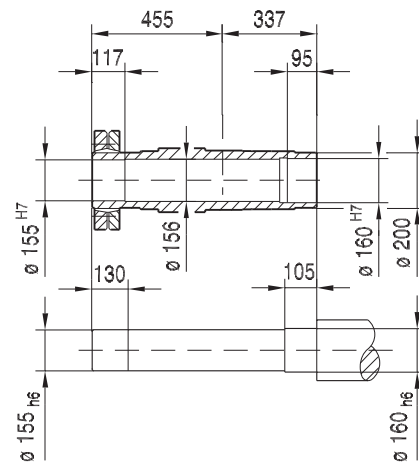
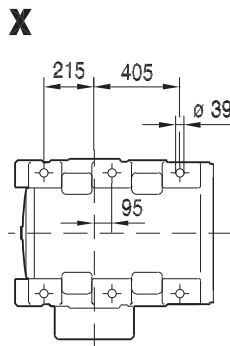
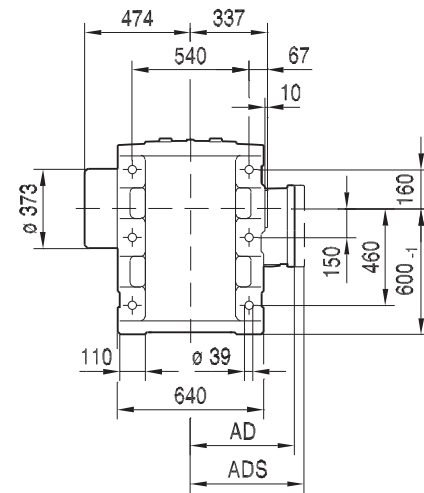
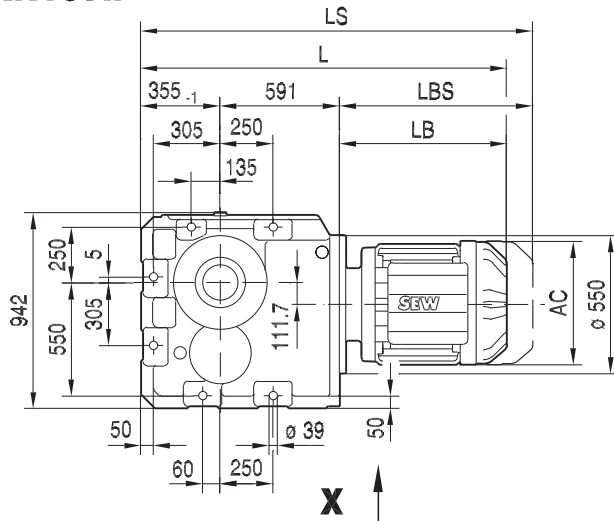


(→ 163)	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	357	394	434	495	495	495	624	624
AD	268	283	305	394	394	394	506	506
ADS	268	283	305	394	394	394	506	506
L	1469	1579	1553	1690	1690	1785	1887	2017
LS	1658	1784	1758	1930	1930	2025	2138	2268
LB	523	633	607	744	744	839	941	1071
LBS	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 716. For tolerances, see page 163.

33 373 00 16

KH187..



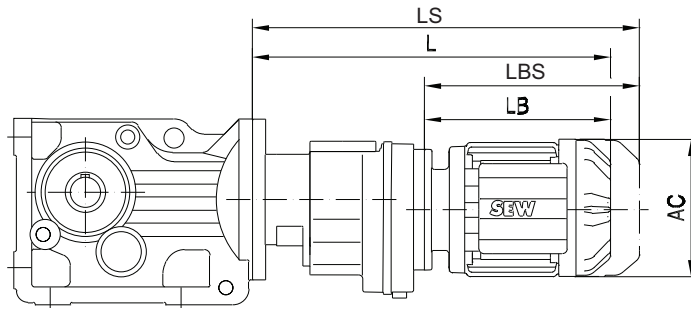
10

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(→ 163)	DRN180	DRN200L	DRN225	DRN250M	DRN280S	DRN280M	DRN315S/M	DRN315ME/H
AC	357	394	434	495	495	495	624	624
AD	268	283	305	394	394	394	506	506
ADS	268	283	305	394	394	394	506	506
L	1469	1579	1553	1690	1690	1785	1887	2017
LS	1658	1784	1758	1930	1930	2025	2138	2268
LB	523	633	607	744	744	839	941	1071
LBS	712	838	812	984	984	1079	1192	1322

Dimensions in mm unless noted as inch. For tolerances, see page 163.

10.6 K..R.. DRS/DRN.. Compound dimensions



33 133 00 06

All dimensions shown in mm.

Gear	Motor	AC	L	LS	LB	LBS
K..37R17	DR63	132	324	329	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	229
K..39R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	204
	DRS71M	139	360	428	185	229
K..47R37	DR63	132	356	411	191	246
	DRS71S	139	368	434	202	269
	DRS71M	139	392	459	227	294
	DRN80M	156	446	527	281	362
K..49R37	DRN90S	179	448	561	283	376
	DR63	132	348	403	191	246
	DRS71S	139	359	426	202	269
K..57R37	DRS71M	139	384	451	227	294
	DRN80M	156	438	519	281	362
	DRN90S	179	440	553	283	376
	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
K..67R37	DRS71M	139	392	459	227	294
	DRN80M	156	446	527	281	362
	DRN90S	179	448	541	283	376
	DRN90L	179	480	573	315	408
	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
K..77R37	DRS71M	139	392	459	227	294
	DRN80M	156	438	519	281	362
	DRN90S	179	440	533	283	376
	DRN90L	179	472	565	315	408
	DRN100L/LM	197	520	613	363	456
	DR63	132	412	467	185	240
	DRS71S	139	423	491	196	264
K..87R57	DRS71M	139	448	516	221	289
	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
	DRN90L	179	536	629	309	402
	DRN100L/LM	197	583	676	355	448

Gear	Motor	AC	L	LS	LB	LBS
K..97R57	DR63	132	407	462	185	240
	DRS71S	139	418	486	196	264
	DRS71M	139	443	511	221	289
	DRN80M	156	497	578	275	356
	DRN90S	179	499	592	277	370
	DRN90L	179	531	624	309	402
	DRN100L/LM	197	578	671	355	448
	DRN112M	221	608	720	386	498
	DRN132S	221	662	774	440	552
K..107R77	DR63	132	425	480	178	233
	DRS71S	139	436	504	189	257
	DRS71M	139	461	529	214	282
	DRN80M	156	515	596	268	349
	DRN90S	179	517	610	270	363
	DRN90L	179	549	642	302	395
	DRN100L/LM	197	595	688	348	441
	DRN112M	221	626	738	379	491
	DRN132S	221	676	788	429	541
	DRN132M	261	692	831	445	584
K..127R77	DRN132L	261	717	856	470	609
	DR63	132	410	465	178	233
	DRS71S	139	421	489	189	257
	DRS71M	139	446	514	214	282
	DRN80M	156	500	581	268	349
	DRN90S	179	502	595	270	363
	DRN90L	179	534	627	302	395
	DRN100LS	197	530	623	298	391
	DRN100L/LM	197	580	673	348	441
	DRN112M	221	611	723	379	491
	DRN132S	221	661	773	429	541
K..127R87	DRN132M	261	679	817	447	585
	DRN90L	179	577	670	297	390
	DRN100L/LM	197	623	716	343	436
	DRN112M	221	654	766	374	486
	DRN132S	221	704	816	424	536
	DRN132M	261	720	859	440	579
	DRN132L	261	745	884	465	604
	DRN160M	314	814	1003	534	723
	DRN160L	314	814	1003	534	723

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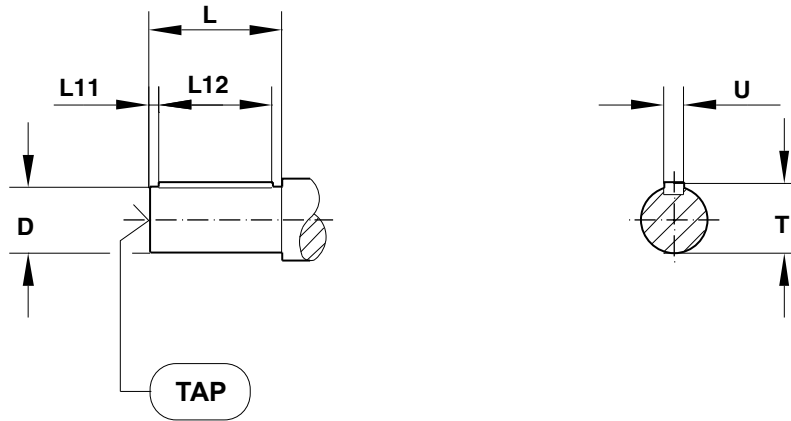
Gear	Motor	AC	L	LS	LB	LB
K..157R97	DRS71M	139	529	597	204	272
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718
	DRN160L	314	854	1043	529	718
	K..157R107	DRN132L	261	836	975	454
DRN160M		314	905	1094	523	712
DRN160L		314	905	1094	523	712
DRN180M		357	930	1119	548	737
DRN180L		357	930	1119	548	737
DRN200L		394	1038	1243	656	861
DRN225S		434	1012	1217	630	835
DRN225M		434	1012	1217	630	835
K..167R97	DRS71M	139	529	597	204	272
	DRN80M	156	583	664	258	339
	DRN90S	179	585	678	260	353
	DRN90L	179	617	710	292	385
	DRN100L/LM	197	663	756	338	431
	DRN112M	221	694	806	369	481
	DRN132S	221	744	856	419	531
	DRN132M	261	760	899	435	574
	DRN132L	261	785	924	460	599
	DRN160M	314	854	1043	529	718
	DRN160L	314	854	1043	529	718
	DRN180M	357	877	1066	552	741

Gear	Motor	AC	L	LS	LB	LB	
K..167R107	DRN132L	261	836	975	454	593	
	DRN160M	314	905	1094	523	712	
	DRN160L	304	905	1094	523	712	
	DRN180M	357	930	1119	548	737	
	DRN180L	357	930	1119	548	737	
	DRN200L	394	1038	1243	656	861	
	DRN225S	434	993	1198	611	816	
	DRN225M	434	1083	1288	701	906	
	DRN250ME	495	1220	1460	838	1078	
	K..187R97	DRS71M	139	529	597	204	272
		DRN80M	156	583	664	258	339
		DRN90S	179	585	678	260	353
DRN90L		179	617	710	292	385	
DRN100L/LM		197	663	756	338	431	
DRN112M		221	694	806	369	481	
DRN132S		221	744	856	419	531	
DRN132M		261	760	899	435	574	
DRN132L		261	785	924	460	599	
DRN160M		314	851	1042	526	717	
DRN160L		314	851	1042	526	717	
DRN180M		357	874	1065	549	740	
K..187R107	DRN112M	221	745	857	363	475	
	DRN132M	261	811	950	429	568	
	DRN132L	261	836	975	454	593	
	DRN160M	314	905	1094	523	712	
	DRN160L	314	905	1094	523	712	
	DRN180M	357	930	1119	548	737	
	DRN180L	357	930	1119	548	737	
	DRN200L	394	1038	1243	656	861	
	DRN225S	434	993	1198	611	816	
	DRN225M	434	1083	1288	701	906	
	DRN250ME	495	1149	1389	767	1007	

10

10.7 Output shaft sizes

10.7.1 Solid Shaft – Inch

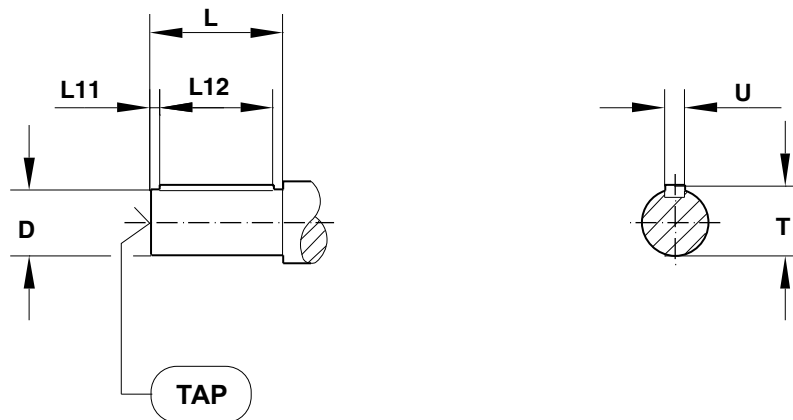


Model	All dimensions in inches							Change ²
	D	T	U	L ¹	L11	L12	TAP	
K..19	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63	0
K..29	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	0
K..37	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	0
K..39	1.00	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87	-0.39
	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
K..47	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12	0
K..49	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
K..57 ..	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12	0
K..67	1.375	1.51	5/16	2.76	0.47	1-13/16	1/2 - 13 x 1.12	-0.39
	1.625	1.79	3/8	3.15	0.38	2-3/8	5/8 - 11 x 1.38	0
K..77	1.75	1.92	3/8	3.54	0.4	2-3/4	5/8 - 11 x 1.38	-0.40
	2	2.22	1/2	3.94	0.64	2-5/8	3/4 - 10 x 1.61	0
K..87	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61	0
K..97	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61	0
K..107	3.625	4.01	7/8	6.69	0.63	5-3/8	1 - 8 x 2.13	0
K..127	4.375	4.82	1	8.27	1.09	6	1 - 8 x 2.13	0
K..157	4.75	5.29	1-1/4	8.27	0.82	6-9/16	1 - 8 x 2.13	0
K167	6.25	6.65	1-1/2	9.84	0.59	7-1/8	1-1/8 - 7 x 2.13	0
K187	7.5	8.27	1-3/4	12.6	0.39	10	1-1/8 - 7 x 2.13	0

¹Longer shafts to match obsolete gear unit designs are available for flanged units.

²The change in length, L, when compared to the standard shaft that is shown in dimension pages.

10.7.2 Solid Shaft – Metric



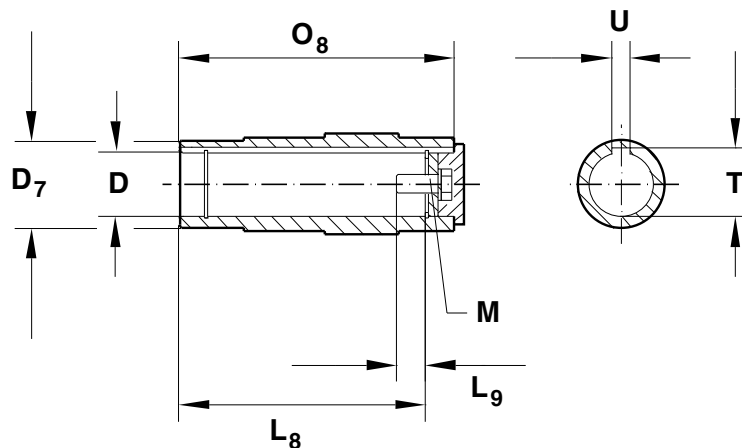
10

Model	All dimensions in mm						
	D	T	U	L ¹	L11	L12	TAP
K..19	20	22.5	6	40	4	32	M6 x 16
K..29	25	28	8	50	5	40	M10 x 22
K..37	25	28	8	50	5	40	M10 x 22
K..39	30	33	8	60	3.5	50	M10 x 22
K..47	30	33	8	60	3.5	50	M10 x 22
K..49	35	38	10	70	7	56	M12 x 28
K..57	35	38	10	70	7	56	M12 x 28
K..67	35	38	10	70	7	56	M12 x 28
	40	43	12	80	5	70	M16 x 36
K..77	45	48.5	14	90	5	80	M16 x 36
	50	53.5	14	100	10	80	M16 x 36
K..87	60	64	18	120	5	110	M20 x 42
K..97	70	74.5	20	140	7.5	125	M20 x 42
K..107	90	95	25	170	5	160	M24 x 50
K..127	110	116	28	210	15	180	M24 x 50
K..157	120	127	32	210	5	200	M24 x 50
K167	160	169	40	250	15	220	M30 x 63
K187	190	200	45	320	10	300	M30 x 63

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¹Longer shafts to match obsolete gear unit designs are available for flanged units.

10.7.3 Hollow Shaft – Inch

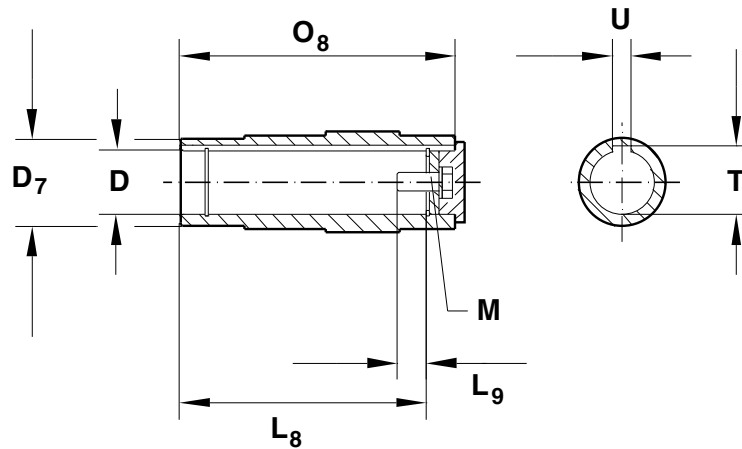


Note:

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in inch							
	D	D7	O8	T	U	L8	L9	M
KA..19	0.75	1.18	4.25	0.85	3/16	3.62	0.39	1/4 - 20 x 5/8
KA..29	1.00	1.57	4.80	1.12	1/4	4.21	0.69	3/8 - 16 x 1
KA..37	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
KA..39	1.25	1.97	6.10	1.37	1/4	5.39	0.67	7/16 - 14 x 1
	1.375	1.97	6.10	1.52	5/16	5.39	0.65	1/2 - 13 x 1
KA..47	1.1875	1.97	5.91	1.30	1/4	5.2	0.67	3/8 - 16 x 1
	1.25	1.97	5.91	1.37	1/4	5.2	0.67	7/16 - 14 x 1
	1.375	1.97	5.91	1.52	5/16	5.2	0.65	1/2 - 13 x 1
	1.4375	1.97	5.91	1.61	3/8	5.2	0.65	5/8 - 11 x 1-3/4
KA..49	1.375	2.17	7.01	1.52	5/16	6.3	0.65	1/2 - 13 x 1
	1.50	2.17	7.01	1.67	3/8	6.3	1.36	5/8 - 11 x 1-3/4
KA..57	1.4375	2.17	6.54	1.61	3/8	5.59	1.36	5/8 - 11 x 1-3/4
	1.50	2.17	6.54	1.67	3/8	5.59	1.36	5/8 - 11 x 1-3/4
KA..67	1.4375	2.17	7.09	1.61	3/8	6.14	1.36	5/8 - 11 x 1-3/4
	1.50	2.17	7.09	1.67	3/8	6.14	1.36	5/8 - 11 x 1-3/4
KA..77	1.9375	2.76	8.27	2.16	1/2	7.2	1.16	5/8 - 11 x 1-3/4
	2.00	2.76	8.27	2.22	1/2	7.2	1.16	5/8 - 11 x 1-3/4
KA..87	2.375	3.35	9.45	2.65	5/8	8.27	1.39	3/4 - 10 x 2
	2.4375	3.35	9.45	2.62	5/8	8.27	1.39	3/4 - 10 x 2
KA..97	2.75	3.74	11.81	3.03	5/8	10.63	1.24	3/4 - 10 x 2
	2.9375	3.74	11.81	3.14	3/4	10.63	1.24	3/4 - 10 x 2
KA..107	3.25	4.65	13.78	3.59	3/4	12.32	1.24	3/4 - 10 x 2
	3.4375	4.65	13.78	3.7	7/8	12.32	1.24	3/4 - 10 x 2
	3.625	4.65	13.78	3.89	7/8	12.32	1.24	3/4 - 10 x 2
KA..127	4.00	5.31	16.14	4.44	1	14.69	1.26	1 - 8 x 2-1/4
KA..157	4.50	6.1	19.69	4.95	1	18.11	1.26	1 - 8 x 2-1/4

10.7.4 Hollow Shaft – Metric



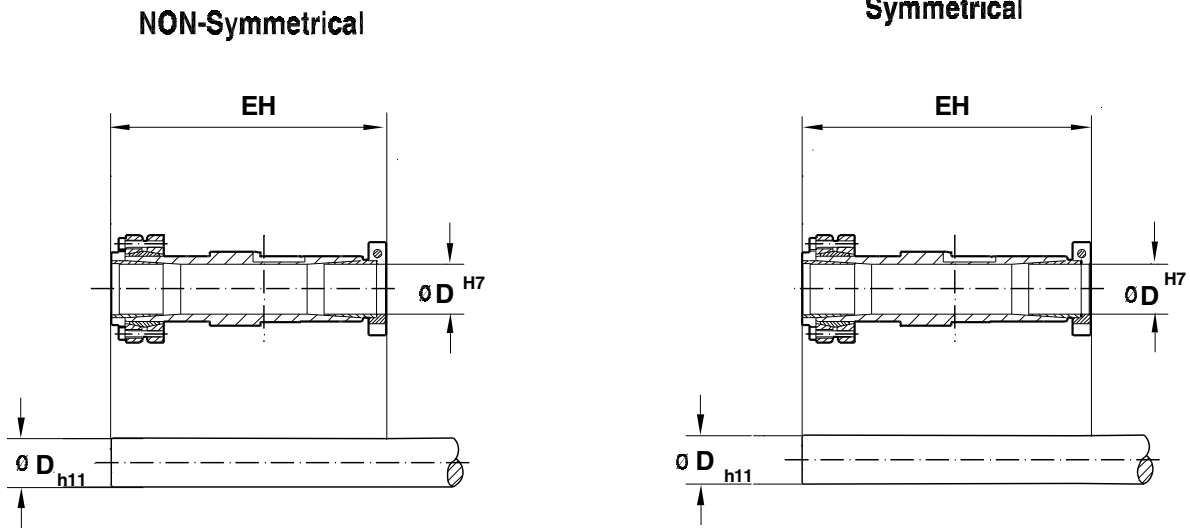
Note:

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in mm							
	D	D7	O8	T	U	L8	L9	M
KA..19	20	30	108	22.8	6	92	8	M6 x 16
KA..29	25	40	122	27	8	107	17	M10 x 25
KA..37	30	45	120	33.3	8	105	17	M10 x 25
KA..39	30	50	155	33.3	8	137	17	M10 x 25
	35	50	155	38.3	10	137	17	M12 x 30
KA..47	30	50	150	33.3	8	132	16	M10 x 25
	35	50	150	38.3	10	132	22	M12 x 30
KA..49	35	55	178	38.3	10	160	22	M12 x 30
	40	55	178	43.3	12	160	22	M12 x 30
KA..57	40	55	166	43.3	12	142	29	M16 x 40
KA..67	40	55	180	43.3	12	156	29	M16 x 40
KA..77	50	70	210	53.8	14	183	32	M16 x 45
KA..87	60	85	240	64.4	18	210	36	M20 x 50
KA..97	70	95	300	74.9	20	270	34	M20 x 50
KA..107	80	118	350	85.4	22	313	30	M20 x 50
	90	118	350	95.4	25	313	40	M24 x 60
KA..127	100	135	410	106.4	28	373	38	M24 x 60
KA..157	120	155	500	127.4	32	460	36	M24 x 60

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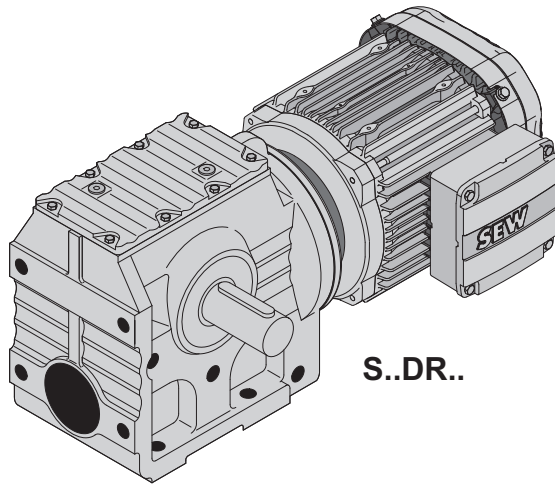
10.7.5 TorqLOC® keyless hollow shaft



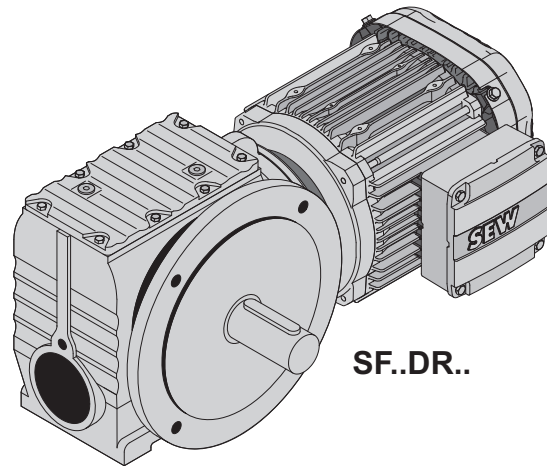
Model	D (in)					D (mm)						EH (in)	
	Inch Bores					Metric Bores						NON Symmetrical	Symmetrical
KT37	1.00	1.1875	1.25	-	-	25	30	-	-	-	-	6.69	7.63
KT39	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.23	-
KT47	1.1875	1.25	1.375	1.4375	-	30	35	-	-	-	-	8.15	9.13
KT49	1.375	1.4375	1.50	1.625	1.6875	35	40	-	-	-	-	9.57	-
KT57	1.375	1.4375	1.50	1.625	-	35	38	40	-	-	-	9.13	10.39
KT67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	-	-	9.65	10.91
KT77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	-	-	-	11.61	13.34
KT87	1.9375	2.00	2.375	2.4375	-	50	51	55	60	62	65	13.19	15.28
KT97	2.4375	2.75	2.9375	-	-	60	62	65	70	75	-	15.59	17.79
KT107	3.250	3.4375	3.625	3.750	-	80	85	90	95	-	-	17.76	20.08
KT127	3.4375	3.750	4.00	4.1875	-	90	95	100	105	-	-	20.94	23.89
KT157	4.4375	4.50	4.9375	5.00	-	110	120	125	-	-	-	25.24	28.39

11 Helical-worm gearmotors

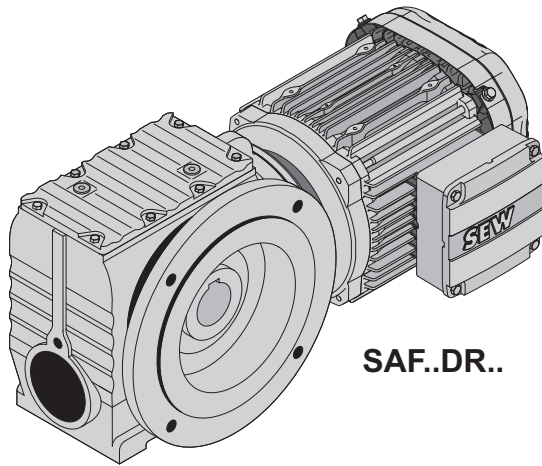
11.1 S.. DRS/DRN.. Designs



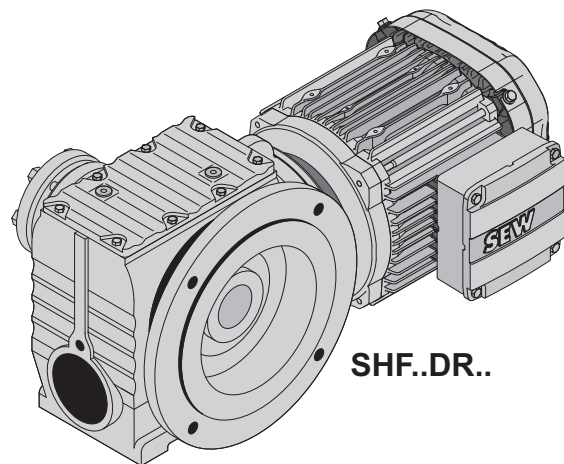
S..DR..



SF..DR..



SAF..DR..

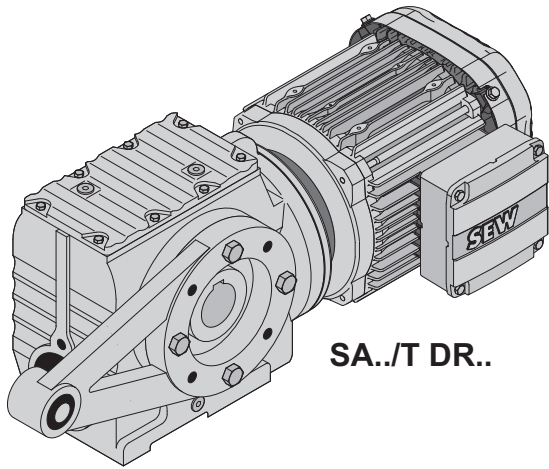


SHF..DR..

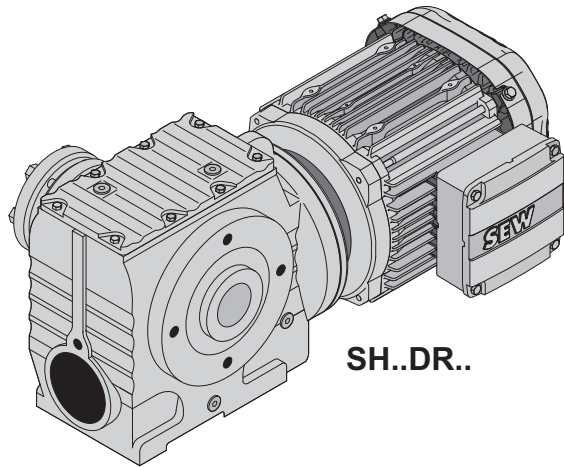
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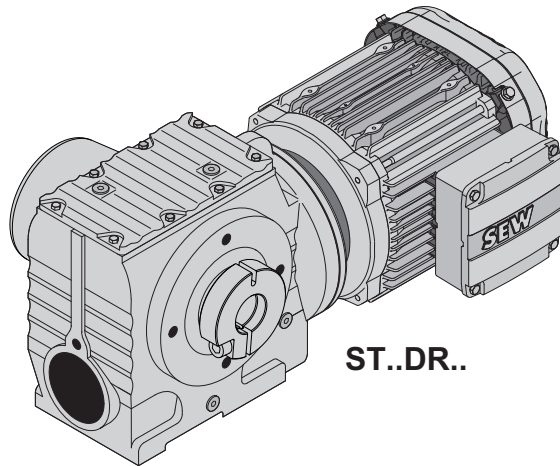
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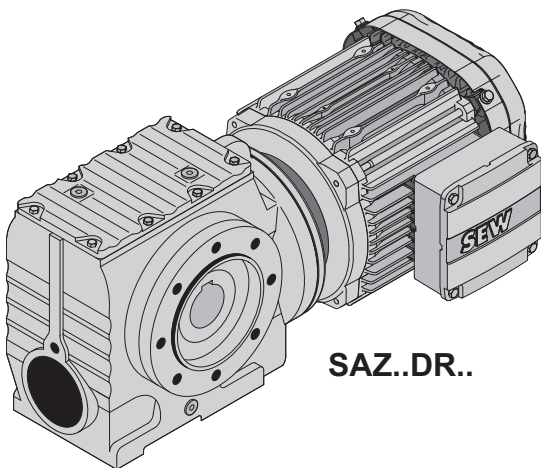
SA../T DR..



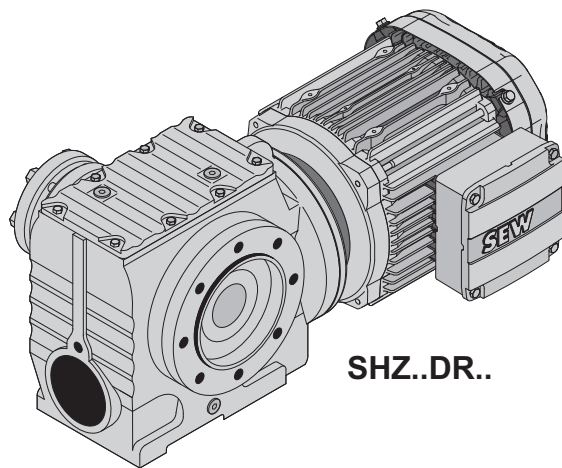
SH..DR..



ST..DR..




SAZ..DR..





SHZ..DR..

8664875531



11.2 S.. DRS/DRN.. Possible combinations


S37, n _e =1700 rpm					810 lb-in		
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L
 2							
11	800	675	-	157.43			
12	795	675	-	144.40*			
14	765	675	-	122.94			
16	760	675	-	106.00*			
17	750	675	-	98.80*			
20	725	675	-	86.36			
21	725	675	-	80.96			
24	705	675	-	71.44*			
27	695	675	-	63.33			
30	715	675	-	55.93			
32	670	675	-	53.83			
33	705	675	-	51.30*			
39	690	675	-	43.68			
45	670	645	-	37.66			
48	660	630	-	35.10*			
55	645	600	-	30.68			
59	645	580	-	28.76			
67	625	555	-	25.38*			
76	615	530	-	22.50*			
85	440	515	-	19.89			
89	600	495	-	19.13*			
93	430	500	-	18.24*			
109	420	470	-	15.53			
127	415	440	-	13.39			
136	405	430	-	12.48*			
156	395	410	-	10.91			
166	395	395	-	10.23			
188	380	380	-	9.02*			
212	380	360	-	8.00*			
250	360	340	-	6.80*			
269	305	345	-	6.33			
316	300	325	-	5.38			
350	290	310	-	4.86*			
428	280	285	-	3.97			

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S37R17, n _e =1700 rpm					810 lb-in		
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M	
 2  3							
0.17	810	675	-	10037			
0.20	810	675	-	8654			
0.21	810	675	-	8066			
0.24	810	675	-	7051			
0.28	810	675	-	6079			
0.31	810	675	-	5431			
0.36	810	675	-	4747			
0.41	810	675	-	4155			
0.47	810	675	-	3632			





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S37R17, n _e =1700 rpm					810 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
0.59	810	675	-	2866		
0.69	810	675	-	2471		
0.79	810	675	-	2160		
0.90	810	675	-	1887		
1.0	810	675	-	1665		
1.2	810	675	-	1456		
1.3	810	675	-	1271		
1.5	810	675	-	1121		
1.7	810	675	-	994		
2.0	810	675	-	869		
 2  2						
2.2	810	675	-	774		
2.6	810	675	-	666		
2.9	810	675	-	596		
3.3	810	675	-	521		
3.7	810	675	-	456		
4.3	810	675	-	398		
4.8	810	675	-	351		
5.6	810	675	-	303		
6.4	810	675	-	265		
7.3	810	675	-	232		
8.4	810	675	-	202		
9.5	810	675	-	179		
11	810	675	-	158		
12	810	675	-	144		
14	810	675	-	118		
15	810	675	-	110*		

S47, n _e =1700 rpm					1500 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
 2								
8.5	1500	1200	-	201.00*				
9.2	1480	1200	-	184.80*				
11	1480	1200	-	158.12				
12	1470	1200	-	137.05				
13	1470	1200	-	128.10*				
15	1470	1200	-	110.73				
18	1470	1200	-	94.08*				
20	1470	1200	-	84.00*				
24	1470	1200	-	71.75*				
24	1370	1180	-	69.39				
25	1450	1190	-	67.20*				
27	1370	1140	-	63.80*				
30	1340	1120	-	56.61				
31	1370	1070	-	54.59				
36	1370	1000	-	47.32				
38	1370	970	-	44.22*				
44	1370	910	-	38.23				
52	1370	850	-	32.48*				


S47, n _e =1700 rpm					1500 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
59	1360	810	-	29.00*				
69	1280	770	-	24.77				
73	1250	755	-	23.20*				
84	970	690	-	20.33				
87	1080	735	-	19.54				
96	960	650	-	17.62				
103	960	630	-	16.47*				
119	960	585	-	14.24				
140	960	540	-	12.10*				
157	950	510	-	10.80*				
184	920	480	-	9.23*				
197	880	475	-	8.64*				
234	760	475	-	7.28				
249	690	470	-	6.83				
266	670	465	-	6.40*				
315	575	455	-	5.39				
357	510	450	-	4.76				
425	420	445	-	4.00*				

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S47R17, n _e =1700 rpm					1630 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M		
					 2  3			
0.13	1630	1180	-	12909				
0.15	1630	1180	-	11189				
0.16	1630	1180	-	10374				
0.19	1630	1180	-	8992				
0.22	1630	1180	-	7860				
0.25	1630	1180	-	6887				
0.28	1630	1180	-	6055				
0.32	1630	1180	-	5292				
0.37	1630	1180	-	4637				
0.42	1630	1180	-	4092				
0.47	1630	1170	-	3582				
0.54	1630	1170	-	3131				
0.63	1630	1170	-	2714				
0.70	1630	1170	-	2412				
0.80	1630	1170	-	2131				
0.91	1630	1170	-	1863				
1.0	1630	1170	-	1663				
1.2	1630	1170	-	1435				
1.4	1630	1170	-	1254				
1.5	1630	1170	-	1120				
1.6	1630	1170	-	1083				
1.8	1610	1170	-	956				
					 2  2			
1.8	1630	1170	-	965				
2.0	1630	1170	-	865				
2.3	1630	1170	-	750				
2.6	1630	1170	-	655				

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S47R17, n _e =1700 rpm					1630 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M
3.0	1630	1170	-	574		
3.4	1630	1170	-	506		
3.9	1630	1170	-	438		
4.4	1630	1170	-	388		
5.1	1630	1170	-	336		
5.8	1630	1170	-	294		
6.6	1630	1180	-	257*		
7.4	1630	1170	-	229		
8.5	1630	1170	-	200		
9.1	1630	1170	-	187		
10	1630	1170	-	165		
11	1630	1170	-	148		
13	1630	1170	-	131		


S57, n _e =1700 rpm					2610 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 2			
8.5	2610	1600	-	201.00*				
9.2	2610	1600	-	184.80*				
11	2610	1600	-	158.12				
12	2610	1600	-	137.05				
13	2610	1600	-	128.10*				
15	2610	1600	-	110.73				
18	2650	1590	-	94.08*				
20	2520	1620	-	84.00*				
24	2430	1640	-	71.75*				
24	2160	1690	-	69.39				
25	2300	1670	-	67.20*				
27	2160	1690	-	63.80*				
30	1990	1720	-	56.61				
31	2160	1690	-	54.59				
36	2160	1660	-	47.32				
38	2160	1610	-	44.22*				
44	2160	1520	-	38.23				
52	2160	1420	-	32.48*				
59	2160	1350	-	29.00*				
69	1940	1300	-	24.77				
73	1850	1280	-	23.20*				
84	1480	1180	-	20.33				
87	1610	1240	-	19.54				
96	1480	1100	-	17.62				
103	1480	1070	-	16.47*				
119	1490	1000	-	14.24				
140	1490	930	-	12.10*				
157	1490	880	-	10.80*				
184	1310	860	-	9.23*				
197	1240	850	-	8.64*				
234	1070	830	-	7.28				
249	880	850	-	6.83				



S57, n _e =1700 rpm					2610 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
266	860	830	-	6.40*				
315	840	780	-	5.39				
357	740	765	-	4.76				
425	625	740	-	4.00*				

S57R17, n _e =1700 rpm					2910 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M		
					 2  3			
0.13	2910	1530	-	12909				
0.15	2910	1530	-	11189				
0.16	2910	1530	-	10374				
0.19	2910	1530	-	8992				
0.22	2910	1530	-	7860				
0.25	2910	1530	-	6887				
0.28	2910	1530	-	6055				
0.32	2910	1530	-	5292				
0.37	2910	1530	-	4637				
0.42	2910	1530	-	4092				
0.47	2910	1530	-	3628				
0.54	2650	1590	-	3131				
0.63	2650	1590	-	2714				
0.70	2650	1590	-	2412				
0.80	2650	1590	-	2131				
0.91	2650	1590	-	1863				
1.0	2650	1590	-	1663				
1.2	2650	1590	-	1435				
1.4	2650	1590	-	1254				
1.6	2650	1590	-	1083				
					 2  2			
1.8	2650	1590	-	965				
2.0	2650	1590	-	865				
2.3	2650	1590	-	750				
2.6	2650	1590	-	655				
3.0	2650	1590	-	574				
3.4	2650	1590	-	506				
3.9	2650	1590	-	438				
4.4	2650	1590	-	388				
5.1	2650	1590	-	336				
5.8	2650	1590	-	294				
6.3	2650	1590	-	269				
7.4	2650	1590	-	229				
8.3	2650	1590	-	204				
9.1	2650	1590	-	187				
10	2650	1590	-	165				
13	2650	1590	-	131				

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S67, $n_e=1700$ rpm					4600 lb-in					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 2										
7.8	4600	1950	-	217.41						
8.9	4600	1950	-	190.11						
9.4	4600	1950	-	180.60*						
11	4600	1950	-	158.45						
13	4600	1950	-	134.40*						
14	4600	1950	-	121.33						
16	4600	1950	-	106.75*						
17	4600	1950	-	100.80*						
20	4600	1950	-	85.83						
22	4510	1970	-	78.00*						
23	4240	2030	-	75.06						
25	4370	2000	-	67.57						
26	4240	1940	-	65.63						
27	4240	1890	-	62.35*						
29	4070	1950	-	58.80*						
31	4240	1790	-	54.70						
37	4240	1660	-	46.40*						
41	4240	1580	-	41.89						
46	4240	1490	-	36.85						
49	4240	1450	-	34.80*						
57	4240	1340	-	29.63						
63	4020	1310	-	26.93						
70	3000	1230	-	24.44						
73	3580	1290	-	23.33						
73	3000	1200	-	23.22*						
83	3000	1120	-	20.37						
84	3180	1270	-	20.30*						
98	3000	1030	-	17.28*						
109	3000	960	-	15.60*						
124	3000	840	-	13.73*						
131	3000	795	-	12.96*						
154	3000	655	-	11.03						
169	2780	700	-	10.03						
196	2470	755	-	8.69						
225	2210	795	-	7.56*						

S67R37, $n_e=1700$ rpm					5040 lb-in					
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 2  3										
0.08	5040	1840	-	21362*						
0.09	5040	1840	-	19594*						
0.09	5040	1840	-	18120*						
0.10	5040	1840	-	16682						
0.12	5040	1840	-	14383						
0.13	5040	1840	-	12774						
0.15	5040	1840	-	11013						
0.18	5040	1840	-	9694*						
0.20	5040	1840	-	8529*						


S67R37, n_e=1700 rpm					5040 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.23	5040	1840	-	7455*				
0.26	5040	1840	-	6531				
0.30	5040	1840	-	5759				
0.34	5040	1840	-	4965				
0.39	5040	1840	-	4410				
0.44	5040	1840	-	3880				
0.50	5040	1840	-	3432				
0.58	5040	1840	-	2944*				
0.65	5040	1840	-	2630				
0.75	5040	1840	-	2279				
0.84	5040	1840	-	2014				
0.96	5040	1840	-	1772				
1.1	5040	1840	-	1559				
1.2	5040	1840	-	1363				
1.4	5040	1840	-	1194				
1.6	5040	1840	-	1045				
1.9	5040	1840	-	914				
2 2								
2.1	5040	1840	-	809				
2.4	5040	1840	-	712				
2.8	5040	1840	-	615				
3.1	5040	1840	-	543				
3.6	5040	1840	-	469				
4.0	5040	1840	-	424				
4.7	5040	1840	-	365				
5.3	5040	1840	-	319				
6.0	5040	1840	-	281				
6.9	5040	1840	-	246				
7.7	5040	1840	-	221				
8.6	5040	1840	-	198				
10	5040	1840	-	168				
11	5040	1840	-	156				



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S77, n_e=1700 rpm					11200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
2											
6.6	11200	2630	-	256.47							
7.5	11200	2630	-	225.26							
7.9	11200	2630	-	214.00*							
9.0	10900	2690	-	189.09							
11	10700	2730	-	161.60*							
11	10600	2770	-	148.15							
13	10300	2830	-	130.00*							
14	10100	2860	-	123.20*							
16	9820	2930	-	107.83							
18	9640	2950	-	97.14							
20	9290	2820	-	85.22							
23	8930	2700	-	75.20*							
23	9730	2430	-	75.09							


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S77, n _e =1700 rpm					11200 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L
24	9730	2370	-	71.33							
25	8580	2590	-	66.67							
27	9730	2220	-	63.03							
30	8140	2460	-	56.92							
32	9730	2050	-	53.87							
34	9730	1960	-	49.38							
39	9730	1820	-	43.33							
41	9730	1770	-	41.07							
47	9370	1680	-	35.94							
53	9200	1610	-	32.38							
60	8750	1550	-	28.41							
68	8490	1470	-	25.07							
74	6230	1050	-	22.89							
77	8140	1420	-	22.22							
81	6230	930	-	20.99							
90	7600	1360	-	18.97							
92	6280	735	-	18.42							
97	6280	665	-	17.45							
111	6370	455	-	15.28							
124	6370	325	-	13.76							
141	6410	152	-	12.07							
160	6410	11	-	10.65							
180	5790	161	-	9.44							
211	5080	325	-	8.06							

S77R37, n _e =1700 rpm					11200 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
					 2 3			
0.07	11200	2630	-	25493				
0.08	11200	2630	-	21787				
0.09	11200	2630	-	19907				
0.10	11200	2630	-	17013				
0.12	11200	2630	-	14668				
0.13	11200	2630	-	13110				
0.15	11200	2630	-	11569				
0.17	11200	2630	-	9887				
0.19	11200	2630	-	8817				
0.22	11200	2630	-	7735				
0.25	11200	2630	-	6735				
0.29	11200	2630	-	5943				
0.33	11200	2630	-	5214				
0.37	11200	2630	-	4618				
0.43	11200	2630	-	3992				
0.48	11200	2630	-	3540				
0.55	11200	2630	-	3098				
0.62	10900	2690	-	2753				
0.72	10900	2690	-	2374				
0.82	10900	2690	-	2083				
0.94	10900	2690	-	1813				





S77R37, n_e=1700 rpm					11200 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L
0.97	10900	2690	-	1745				
1.1	10900	2690	-	1600				
1.2	10900	2690	-	1404				
1.4	10900	2690	-	1245				
 2  2								
1.5	10900	2690	-	1100				
1.8	10900	2690	-	954				
2.0	10900	2690	-	837				
2.4	10900	2690	-	714				
2.7	10900	2690	-	637				
3.0	10900	2690	-	574				
3.4	10900	2690	-	499				
3.9	10900	2690	-	438				
4.4	10900	2690	-	389				
5.2	10900	2690	-	327				
5.9	10900	2690	-	289				
6.8	10900	2690	-	250				
7.8	10900	2690	-	219				

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S87, n_e=1700 rpm					20100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L
 2												
5.9	20100	6280	-	288.00*								
6.6	19900	6290	-	258.18								
7.6	19500	6310	-	222.40*								
8.4	19300	6320	-	202.96								
9.4	18800	6340	-	180.00*								
11	18200	6370	-	151.30								
12	17800	6380	-	139.05								
14	17300	6410	-	123.48								
15	16800	6430	-	110.40*								
17	16200	6450	-	99.26								
19	13400	6540	-	91.20*								
20	15600	6470	-	86.15								
21	14100	6520	-	81.76								
22	15000	6500	-	77.14								
24	14100	6520	-	70.43								
26	14100	6520	-	64.27								
27	13900	6530	-	64.00*								
30	14100	6520	-	57.00*								
35	14100	6360	-	47.91								
39	14100	6160	-	44.03								
43	14100	5900	-	39.10								
49	14100	5660	-	34.96*								
54	14100	5440	-	31.43								
62	14100	5160	-	27.28								
67	10900	4870	-	25.50*								
70	14100	4950	-	24.43								
79	10900	4550	-	21.43								

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S87, n _e =1700 rpm					20100 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L
84	12500	4760	-	20.27								
86	10900	4400	-	19.70								
97	10900	4190	-	17.49								
109	10900	4000	-	15.64*								
121	10900	3830	-	14.06								
139	10900	3480	-	12.21								
156	9990	3580	-	10.93								
187	8400	3530	-	9.07								
216	7340	3490	-	7.88								

S87R57, n _e =1700 rpm					22100 lb-in						
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	
 2  3											
0.07	22100	6180	-	25987							
0.07	22100	6180	-	23940							
0.08	22100	6180	-	20568							
0.09	22100	6180	-	18265							
0.10	22100	6180	-	16774							
0.11	22100	6180	-	14820							
0.13	22100	6180	-	13160							
0.15	22100	6180	-	11200							
0.17	22100	6180	-	9904							
0.20	22100	6180	-	8549							
0.22	22100	6180	-	7643							
0.25	22100	6180	-	6706							
0.29	22100	6180	-	5875							
0.33	22100	6180	-	5187							
0.37	22100	6180	-	4606							
0.44	22100	6180	-	3872							
 2  2											
0.49	22100	6180	-	3475							
0.59	22100	6180	-	2905							
0.66	22100	6180	-	2586							
0.73	22100	6180	-	2335							
0.83	22100	6180	-	2054							
0.93	22100	6180	-	1824							
1.0	22100	6180	-	1631*							
1.3	22100	6180	-	1332							
1.4	22100	6180	-	1191							
1.6	22100	6180	-	1032*							
1.8	22100	6180	-	930							
2.0	22100	6180	-	831							
2.4	22100	6180	-	719							
2.7	22100	6180	-	624							
3.0	22100	6180	-	558							
3.5	22100	6180	-	485							
3.9	21600	6200	-	435							
4.5	21600	6200	-	378							
5.3	21200	6230	-	323							



S87R57, n _e =1700 rpm						22100 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
6.0	21200	6230	-	281						
6.7	17500	6390	-	255						
7.7	17500	6390	-	222						
8.3	17500	6390	-	205						

S97, n _e =1700 rpm						35300 lb-in							
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M	DRN132L DRN160M DRN160L	DRN180M DRN180L	DRN200L DRN225S
 2													
5.9	35300	7460	-	286.40*									
6.5	35300	7460	-	262.22									
7.3	35000	7480	-	231.67									
8.7	33900	7530	-	196.52									
9.4	33300	7560	-	180.95									
11	32200	7610	-	161.74									
12	31400	7650	-	145.60*									
13	30400	7700	-	131.85									
15	29500	7740	-	116.92									
16	28400	7780	-	105.71									
19	26700	7850	-	89.60*									
21	28900	7760	-	80.85									
22	25300	7900	-	78.26									
24	29100	7750	-	71.43									
26	23400	7960	-	65.45									
28	29100	7750	-	60.59									
30	29100	7740	-	55.79									
34	29100	7410	-	49.87									
38	29100	7110	-	44.89									
42	28500	6880	-	40.65									
47	27500	6650	-	36.05									
52	26300	6480	-	32.60									
62	24800	6180	-	27.63									
64	23000	5210	-	26.39									
70	23600	5960	-	24.13									
72	23000	4790	-	23.59									
80	22700	4510	-	21.23									
88	22100	4370	-	19.23									
100	21200	4260	-	17.05									
110	20300	4220	-	15.42									
130	19200	4080	-	13.07									
149	17600	4170	-	11.41									
178	14700	4230	-	9.55									
206	12700	4220	-	8.26									

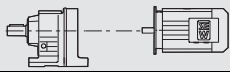

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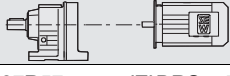

S97R57, n _e =1700 rpm					37100 lb-in					
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M	DRN132S DRN132M
 2  3										
0.05	37100	7360	-	33818						
0.05	37100	7360	-	31154						
0.06	37100	7360	-	27847						
0.07	37100	7360	-	24641						
0.08	37100	7360	-	21537						
0.09	37100	7360	-	18749*						
0.10	37100	7360	-	16233						
0.12	37100	7360	-	14576						
0.13	37100	7360	-	12752						
0.15	37100	7360	-	11267						
0.17	37100	7360	-	10078						
0.20	37100	7360	-	8608						
0.23	37100	7360	-	7554						
0.26	37100	7030	-	6640						
0.29	37100	7030	-	5780*						
0.34	37100	7030	-	4937						
0.38	37100	7030	-	4444						
0.42	37100	7030	-	4017						
0.49	37100	7030	-	3453						
0.55	37100	7030	-	3108						
0.64	37100	7030	-	2654						
0.73	37100	7030	-	2329						
0.82	37100	7030	-	2081						
0.91	37100	7030	-	1860						
1.1	37100	7030	-	1574*						
 2  2										
1.2	37100	7030	-	1394						
1.4	37100	7030	-	1223						
1.6	37100	7030	-	1070						
1.8	37100	7030	-	928						
2.1	37100	7030	-	824						
2.4	37100	7360	-	714						
2.7	37100	7050	-	626*						
3.2	37100	7050	-	538						
3.5	37100	7060	-	484*						
4.0	37100	7070	-	420						
4.5	37100	7070	-	376						
5.2	37100	7080	-	327						
5.9	37100	7090	-	287						
6.7	37100	7100	-	252						
7.8	37100	7100	-	219						
8.3	37100	7110	-	205						

11.3 S.. DRS/DRN.. Selections by HP

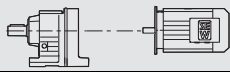

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
0.15	32800	11267	7590	1.15	S	97R57	DR	63S4	370	830/836	
0.17	30300	10078	7700	1.20	SF	97R57	DR	63S4	440	831/836	
0.20	24800	8608	7920	1.50	SA	97R57	DR	63S4	360	832/836	
0.22	22000	7554	8010	1.70	SAF	97R57	DR	63S4	415	831/836	
0.25	18400	6706	6360	1.20	S	87R57	DR	63S4	240	824/836	
0.29	16500	5875	6440	1.35	SF	87R57	DR	63S4	285	825/836	
0.32	13400	5187	6550	1.65	SA	87R57	DR	63S4	235	826/836	
0.36	11900	4606	6590	1.85	SAF	87R57	DR	63S4	270	825/836	
0.43	9860	3872	6650	2.2							
0.47	9490	3540	2990	1.20							
0.54	8300	3098	3190	1.35							
0.71	9330	2374	3020	1.20							
0.81	8190	2083	3200	1.35	S	77R37	DR	63S4	130	818/836	
0.93	6890	1813	3370	1.60	SF	77R37	DR	63S4	150	819/836	
0.96	6510	1745	3410	1.70	SA	77R37	DR	63S4	130	820/836	
1.1	5970	1600	3470	1.85	SAF	77R37	DR	63S4	145	819/836	
1.2	5240	1404	3540	2.1							
1.4	4560	1245	3590	2.4							
1.4	4080	1194	2060	1.25	S	67R37	DR	63S4	87	812/836	
1.6	3730	1045	2120	1.35	SF	67R37	DR	63S4	100	813/836	
1.8	3200	914	2200	1.55	SA	67R37	DR	63S4	89	814/836	
					SAF	67R37	DR	63S4	99	813/836	
2.1	2940	809	2240	1.70							
2.4	2590	712	2280	1.95	S	67R37	DR	63S4	86	812/836	
2.7	2120	615	2330	2.4	SF	67R37	DR	63S4	100	813/836	
3.1	1920	543	2350	2.6	SA	67R37	DR	63S4	89	814/836	
3.6	1550	469	2370	3.2	SAF	67R37	DR	63S4	98	813/836	
4.0	1410	424	2380	3.6							
4.6	1320	365	2390	3.8							
2.6	2300	655	1660	1.15							
2.9	2000	574	1720	1.30							
3.3	1740	506	1750	1.50	S	57R17	DR	63S4	45	806/836	
3.8	1500	438	1780	1.75	SF	57R17	DR	63S4	53	807/836	
4.3	1310	388	1800	2.0	SA	57R17	DR	63S4	44	808/836	
5.0	1190	336	1820	2.2	SAF	57R17	DR	63S4	51	807/836	
5.7	1010	294	1830	2.6							
6.2	990	269	1830	2.7							
3.8	1500	438	1190	1.10							
4.3	1310	388	1210	1.25							
5.0	1180	336	1230	1.40	S	47R17	DR	63S4	36	800/836	
5.7	1000	294	1250	1.65	SF	47R17	DR	63S4	44	801/836	
6.5	690	257	1290	2.4	SA	47R17	DR	63S4	39	802/836	
7.3	830	229	1270	1.95	SAF	47R17	DR	63S4	43	801/836	
8.4	725	200	1280	2.2							
9.0	680	187	1290	2.4							
8.3	730	202	675	1.10							
9.4	650	179	675	1.25	S	37R17	DR	63S4	30	795/836	
11	580	158	675	1.40	SF	37R17	DR	63S4	33	796/836	
12	535	144	675	1.50	SA	37R17	DR	63S4	29	797/836	
14	435	118	675	1.85	SAF	37R17	DR	63S4	33	796/836	
15	405	110	675	2.0							
5.5	1050	201.00*	1830	2.5	S	57	DR	63M6	38	806	
6.0	980	184.80*	1830	2.6	SF	57	DR	63M6	47	807	
7.0	850	158.12	1840	3.0	SA	57	DR	63M6	38	808	
8.0	755	137.05	1850	3.5	SAF	57	DR	63M6	44	807	
5.5	1020	201.00*	1260	1.50							
6.0	940	184.80*	1260	1.60	S	47	DR	63M6	30	800	
7.0	820	158.12	1280	1.85	SF	47	DR	63M6	38	801	
8.0	730	137.05	1290	2.1	SA	47	DR	63M6	32	802	
8.6	690	128.10*	1290	2.2	SAF	47	DR	63M6	36	801	

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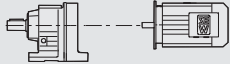

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
8.4	705	201.00*	1290	2.1							
9.1	655	184.80*	1290	2.3		S	47	DR	63S4	30	800
11	570	158.12	1300	2.6		SF	47	DR	63S4	38	801
12	505	137.05	1310	2.9		SA	47	DR	63S4	32	802
13	475	128.10*	1310	3.1		SAF	47	DR	63S4	36	801
15	415	110.73	1310	3.5							
7.6	730	144.40*	675	1.10		S	37	DR	63M6	23	795
8.9	635	122.94	675	1.30		SF	37	DR	63M6	26	796
10	560	106.00*	675	1.45		SA	37	DR	63M6	23	797
11	525	98.80*	675	1.55		SAF	37	DR	63M6	26	796
13	465	86.36	675	1.70							
11	545	157.43	675	1.45							
12	505	144.40*	675	1.55							
14	440	122.94	675	1.75							
16	385	106.00*	675	1.95							
17	360	98.80*	675	2.1							
19	320	86.36	675	2.2							
21	305	80.96	675	2.4							
24	270	71.44*	675	2.6							
27	245	63.33	675	2.8							
30	255	55.93	675	2.8		S	37	DR	63S4	23	795
33	235	51.30*	675	3.0		SF	37	DR	63S4	26	796
38	205	43.68	675	3.4		SA	37	DR	63S4	23	797
45	180	37.66	675	3.8		SAF	37	DR	63S4	26	796
48	168	35.10*	675	4.0							
55	148	30.68	675	4.4							
58	139	28.76	675	4.6							
66	124	25.38*	675	5.1							
75	111	22.50*	675	5.6							
84	104	19.89	655	4.2							
92	96	18.24*	640	4.5							
108	82	15.53	610	5.2							

P_m = 0.25 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
0.37	20500	4606	6260	1.10	X	S	87R57	(E)DRS	71S4	245	824/836
0.44	17100	3872	6420	1.30	X	SF	87R57	(E)DRS	71S4	290	825/836
						SA	87R57	(E)DRS	71S4	240	826/836
						SAF	87R57	(E)DRS	71S4	275	825/836
0.49	16800	3475	6430	1.30	X						
0.59	14100	2905	6520	1.55	X	S	87R57	(E)DRS	71S4	240	824/836
0.66	12100	2586	6590	1.85	X	SF	87R57	(E)DRS	71S4	290	825/836
0.73	10700	2335	6630	2.0	X	SA	87R57	(E)DRS	71S4	235	826/836
0.83	9270	2054	6660	2.4	X	SAF	87R57	(E)DRS	71S4	270	825/836
0.93	8240	1824	6680	2.7	X						
1.0	7430	1631	6700	3.0	X						
1.2	8640	1404	3140	1.25	X	S	77R37	(E)DRS	71S4	135	818/836
1.4	7570	1245	3290	1.45	X	SF	77R37	(E)DRS	71S4	155	819/836
						SA	77R37	(E)DRS	71S4	135	820/836
						SAF	77R37	(E)DRS	71S4	150	819/836
1.6	7140	1100	3340	1.55	X						
1.8	6130	954	3450	1.80	X	S	77R37	(E)DRS	71S4	135	818/836
2.0	5380	837	3520	2.0	X	SF	77R37	(E)DRS	71S4	155	819/836
2.4	4440	714	3600	2.5	X	SA	77R37	(E)DRS	71S4	135	820/836
2.7	3920	637	3600	2.8	X	SAF	77R37	(E)DRS	71S4	150	819/836
3.0	3570	574	3600	3.1	X						
2.4	4190	712	2040	1.20	X						
2.8	3510	615	2160	1.45	X	S	67R37	(E)DRS	71S4	92	812/836
3.1	3140	543	2210	1.60	X	SF	67R37	(E)DRS	71S4	105	813/836
3.6	2610	469	2280	1.95	X	SA	67R37	(E)DRS	71S4	94	814/836
4.0	2370	424	2300	2.1	X	SAF	67R37	(E)DRS	71S4	105	813/836
4.7	2160	365	2330	2.3	X						

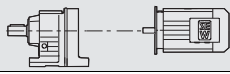

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P_m = 0.25 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
3.9	2460	438	1630	1.05	X						
4.4	2170	388	1690	1.20	X						
5.1	1940	336	1730	1.35	X	S	57R17	(E)DRS	71S4	50	806/836
5.8	1680	294	1760	1.60	X	SF	57R17	(E)DRS	71S4	59	807/836
6.3	1590	269	1770	1.65	X	SA	57R17	(E)DRS	71S4	50	808/836
7.4	1370	229	1800	1.95	X	SAF	57R17	(E)DRS	71S4	56	807/836
8.3	1230	204	1810	2.1	X						
9.1	1120	187	1820	2.4	X						
5.8	1650	294	1160	1.00							
6.6	1150	257	1240	1.40	X						
7.4	1350	229	1210	1.20	X	S	47R17	(E)DRS	71S4	42	800/836
8.5	1180	200	1230	1.40	X	SF	47R17	(E)DRS	71S4	50	801/836
9.1	1100	187	1240	1.50	X	SA	47R17	(E)DRS	71S4	44	802/836
10	970	165	1250	1.65	X	SAF	47R17	(E)DRS	71S4	48	801/836
12	880	148	1270	1.85	X						
13	775	131	1280	2.1	X						
4.9	1930	217.41	2340	2.5		S	67	DR	63L6	64	812
5.6	1710	190.11	2360	2.9		SF	67	DR	63L6	78	813
5.9	1640	180.60*	2370	3.0		SA	67	DR	63L6	66	814
						SAF	67	DR	63L6	76	813
8.5	1130	201.00*	1820	2.3	X	S	57	(E)DRS	71S4	44	806
9.2	1050	184.80*	1830	2.5	X	SF	57	(E)DRS	71S4	53	807
11	910	158.12	1840	2.9	X	SA	57	(E)DRS	71S4	44	808
12	800	137.05	1850	3.2	X	SAF	57	(E)DRS	71S4	50	807
5.3	1690	201.00*	1760	1.55		S	57	DR	63L6	40	806
5.8	1570	184.80*	1780	1.65		SF	57	DR	63L6	48	807
6.8	1370	158.12	1800	1.90		SA	57	DR	63L6	39	808
7.8	1210	137.05	1810	2.1		SAF	57	DR	63L6	46	807
8.5	1090	201.00*	1250	1.40	X						
9.2	1010	184.80*	1260	1.45	X						
11	880	158.12	1270	1.70	X						
12	780	137.05	1280	1.90	X	S	47	(E)DRS	71S4	36	800
13	735	128.10*	1290	2.0	X	SF	47	(E)DRS	71S4	44	801
15	645	110.73	1290	2.3	X	SA	47	(E)DRS	71S4	38	802
18	560	94.08*	1300	2.6	X	SAF	47	(E)DRS	71S4	42	801
20	505	84.00*	1310	2.9	X						
24	440	71.75*	1310	3.4	X						
24	500	69.39	1300	2.7	X						
5.8	1520	184.80*	1200	1.00		S	47	DR	63L6	31	800
6.8	1320	158.12	1220	1.15		SF	47	DR	63L6	39	801
7.8	1170	137.05	1240	1.30		SA	47	DR	63L6	34	802
8.3	1100	128.10*	1250	1.35		SAF	47	DR	63L6	38	801
12	785	144.40*	675	1.00	X						
14	680	122.94	675	1.15	X						
16	595	106.00*	675	1.25	X						
17	560	98.80*	675	1.35	X						
20	500	86.36	675	1.45	X						
21	470	80.96	675	1.55	X						
24	420	71.44*	675	1.65	X						
27	380	63.33	675	1.85	X						
30	400	55.93	675	1.80	X						
33	370	51.30*	675	1.90	X						
39	315	43.68	675	2.2	X	S	37	(E)DRS	71S4	29	795
45	275	37.66	675	2.4	X	SF	37	(E)DRS	71S4	32	796
48	260	35.10*	675	2.5	X	SA	37	(E)DRS	71S4	29	797
55	225	30.68	675	2.8	X	SAF	37	(E)DRS	71S4	32	796
59	215	28.76	675	3.0	X						
67	192	25.38*	675	3.3	X						
76	171	22.50*	670	3.6	X						
85	161	19.89	630	2.7	X						
93	148	18.24*	615	2.9	X						
109	127	15.53	590	3.3	X						
127	110	13.39	565	3.8	X						
136	103	12.48*	555	4.0	X						
156	90	10.91	535	4.4	X						
166	85	10.23	525	4.7	X						

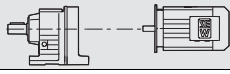

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P_m = 0.33 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
0.59	19100	2905	6330	1.15	X						
0.66	16500	2586	6440	1.35	X	S	87R57	(E)DRS	71S4	240	824/836
0.73	14700	2335	6500	1.50	X	SF	87R57	(E)DRS	71S4	290	825/836
0.83	12800	2054	6570	1.75	X	SA	87R57	(E)DRS	71S4	235	826/836
0.93	11300	1824	6610	1.95	X	SAF	87R57	(E)DRS	71S4	270	825/836
1.0	10200	1631	6640	2.1	X						
1.8	6100	930	6720	3.6	X						
1.8	8250	954	3190	1.35	X						
2.0	7240	837	3330	1.50	X	S	77R37	(E)DRS	71S4	135	818/836
2.4	6030	714	3460	1.80	X	SF	77R37	(E)DRS	71S4	155	819/836
2.7	5340	637	3530	2.0	X	SA	77R37	(E)DRS	71S4	135	820/836
3.0	4850	574	3570	2.3	X	SAF	77R37	(E)DRS	71S4	150	819/836
3.4	4130	499	3600	2.6	X						
3.1	4250	543	2020	1.20	X						
3.6	3580	469	2150	1.40	X	S	67R37	(E)DRS	71S4	92	812/836
4.0	3250	424	2200	1.55	X	SF	67R37	(E)DRS	71S4	105	813/836
4.7	2920	365	2240	1.70	X	SA	67R37	(E)DRS	71S4	94	814/836
5.3	2520	319	2290	2.0	X	SAF	67R37	(E)DRS	71S4	105	813/836
6.1	2200	281	2320	2.3	X						
5.8	2280	294	1670	1.15	X						
6.3	2150	269	1690	1.25	X	S	57R17	(E)DRS	71S4	50	806/836
7.4	1840	229	1740	1.45	X	SF	57R17	(E)DRS	71S4	59	807/836
8.3	1660	204	1770	1.60	X	SA	57R17	(E)DRS	71S4	50	808/836
9.1	1520	187	1780	1.75	X	SAF	57R17	(E)DRS	71S4	56	807/836
10	1340	165	1800	1.95	X						
13	1070	131	1830	2.5	X						
5.1	2490	217.41	2290	1.95		S	67	DRS	71S6	67	812
5.8	2210	190.11	2320	2.2		SF	67	DRS	71S6	82	813
6.1	2110	180.60*	2330	2.3		SA	67	DRS	71S6	70	814
6.9	1880	158.45	2350	2.6		SAF	67	DRS	71S6	80	813
7.8	1690	217.41	2360	2.7	X						
8.9	1500	190.11	2380	3.0	X	S	67	(E)DRS	71S4	67	812
9.4	1440	180.60*	2380	3.2	X	SF	67	(E)DRS	71S4	82	813
11	1280	158.45	2390	3.6	X	SA	67	(E)DRS	71S4	70	814
13	1100	134.40*	2400	4.2	X	SAF	67	(E)DRS	71S4	80	813
14	1000	121.33	2400	4.6	X						
16	890	106.75*	2400	5.1	X						
5.5	2180	201.00*	1690	1.20		S	57	DRS	71S6	44	806
6.0	2020	184.80*	1710	1.30		SF	57	DRS	71S6	53	807
7.0	1770	158.12	1750	1.45		SA	57	DRS	71S6	44	808
8.0	1560	137.05	1780	1.65		SAF	57	DRS	71S6	50	807
8.6	1470	128.10*	1790	1.75							
8.5	1490	201.00*	1790	1.75	X						
9.2	1380	184.80*	1800	1.90	X						
11	1210	158.12	1810	2.2	X	S	57	(E)DRS	71S4	44	806
12	1060	137.05	1830	2.5	X	SF	57	(E)DRS	71S4	53	807
13	1000	128.10*	1830	2.6	X	SA	57	(E)DRS	71S4	44	808
15	880	110.73	1840	3.0	X	SAF	57	(E)DRS	71S4	50	807
18	760	94.08*	1850	3.5	X						
20	685	84.00*	1850	3.7	X						
8.5	1440	201.00*	1210	1.05	X						
9.2	1340	184.80*	1220	1.10	X						
11	1170	158.12	1240	1.25	X						
12	1030	137.05	1260	1.45	X						
13	970	128.10*	1260	1.50	X						
15	850	110.73	1270	1.75	X	S	47	(E)DRS	71S4	36	800
18	740	94.08*	1290	2.0	X	SF	47	(E)DRS	71S4	44	801
20	665	84.00*	1290	2.2	X	SA	47	(E)DRS	71S4	38	802
24	580	71.75*	1300	2.5	X	SAF	47	(E)DRS	71S4	42	801
24	660	69.39	1290	2.1	X						
25	545	67.20*	1300	2.6	X						
27	610	63.80*	1290	2.2	X						
31	525	54.59	1260	2.6	X						
36	460	47.32	1210	3.0	X						

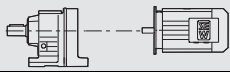

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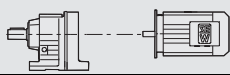

P_m = 0.33 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
485	39	6.80*	375	3.6		S	37	DRS	71S2	29	795
521	37	6.33	365	5.8		SF	37	DRS	71S2	32	796
613	31	5.38	345	5.6		SA	37	DRS	71S2	29	797
678	28	4.86*	335	5.6		SAF	37	DRS	71S2	32	796
832	23	3.97	315	5.3							
17	740	98.80*	675	1.00	X						
20	660	86.36	675	1.10	X						
21	620	80.96	675	1.15	X						
24	555	71.44*	675	1.25	X						
27	500	63.33	675	1.40	X						
30	525	55.93	675	1.35	X						
33	485	51.30*	675	1.45	X						
39	420	43.68	675	1.65	X						
45	365	37.66	675	1.85	X						
48	340	35.10*	675	1.95	X						
55	300	30.68	675	2.1	X						
59	280	28.76	675	2.3	X						
67	250	25.38*	675	2.5	X	S	37	(E)DRS	71S4	29	795
76	225	22.50*	650	2.7	X	SF	37	(E)DRS	71S4	32	796
85	210	19.89	610	2.1	X	SA	37	(E)DRS	71S4	29	797
93	196	18.24*	600	2.2	X	SAF	37	(E)DRS	71S4	32	796
109	168	15.53	575	2.5	X						
127	145	13.39	550	2.9	X						
136	136	12.48*	540	3.0	X						
156	119	10.91	520	3.3	X						
166	112	10.23	510	3.5	X						
188	99	9.02*	495	3.8	X						
212	88	8.00*	480	4.3	X						
250	75	6.80*	455	4.8	X						
268	71	6.33	445	4.4	X						
316	60	5.38	425	5.0	X						
350	55	4.86*	410	5.3	X						
429	45	3.97	385	6.3	X						

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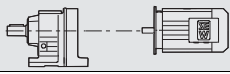

P_m = 0.50 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
0.83	20300	2054	6270	1.10	X						
0.93	18000	1824	6380	1.25	X	S	87R57	(E)DRS	71S4	240	824/836
1.0	16200	1631	6450	1.35	X	SF	87R57	(E)DRS	71S4	290	825/836
1.8	9710	930	6650	2.3	X	SA	87R57	(E)DRS	71S4	235	826/836
2.0	8780	831	6670	2.5	X	SAF	87R57	(E)DRS	71S4	270	825/836
2.4	9400	714	3010	1.15	X						
2.7	8350	637	3180	1.30	X	S	77R37	(E)DRS	71S4	135	818/836
3.0	7560	574	3290	1.45	X	SF	77R37	(E)DRS	71S4	155	819/836
3.4	6500	499	3420	1.70	X	SA	77R37	(E)DRS	71S4	135	820/836
3.9	5740	438	3490	1.90	X	SAF	77R37	(E)DRS	71S4	150	819/836
4.4	5100	389	3550	2.1	X						
4.7	4530	365	1960	1.10	X	S	67R37	(E)DRS	71S4	92	812/836
5.3	3940	319	2080	1.30	X	SF	67R37	(E)DRS	71S4	105	813/836
6.1	3460	281	2170	1.45	X	SA	67R37	(E)DRS	71S4	94	814/836
6.9	3140	246	2210	1.60	X	SAF	67R37	(E)DRS	71S4	105	813/836
4.3	4790	256.47	3570	2.3		S	77	DRS	71M6	115	818
4.9	4270	225.26	3600	2.6		SF	77	DRS	71M6	140	819
5.1	4070	214.00*	3600	2.8		SA	77	DRS	71M6	115	820
						SAF	77	DRS	71M6	130	819
5.1	3770	217.41	2120	1.30		S	67	DRS	71M6	70	812
5.8	3350	190.11	2180	1.45		SF	67	DRS	71M6	85	813
6.1	3200	180.60*	2200	1.55		SA	67	DRS	71M6	73	814
6.9	2850	158.45	2250	1.70		SAF	67	DRS	71M6	82	813
7.8	2570	217.41	2280	1.80	X						
8.9	2280	190.11	2310	2.0	X	S	67	(E)DRS	71S4	67	812
9.4	2180	180.60*	2320	2.1	X	SF	67	(E)DRS	71S4	82	813
11	1940	158.45	2340	2.4	X	SA	67	(E)DRS	71S4	70	814
13	1670	134.40*	2360	2.8	X	SAF	67	(E)DRS	71S4	80	813

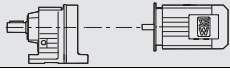

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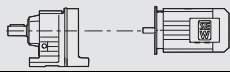

P_m = 0.50 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
14	1520	121.33	2370	3.0	X						
8.0	2360	137.05	1650	1.10		S	57	DRS	71M6	47	806
8.6	2230	128.10*	1680	1.15		SF	57	DRS	71M6	55	807
9.9	1960	110.73	1720	1.35		SA	57	DRS	71M6	46	808
12	1700	94.08*	1760	1.55		SAF	57	DRS	71M6	52	807
13	1540	84.00*	1780	1.70							
8.5	2260	201.00*	1670	1.15	X						
9.2	2100	184.80*	1700	1.25	X						
11	1830	158.12	1740	1.40	X						
12	1610	137.05	1770	1.60	X						
13	1520	128.10*	1780	1.70	X	S	57	(E)DRS	71S4	44	806
15	1330	110.73	1800	1.95	X	SF	57	(E)DRS	71S4	53	807
18	1150	94.08*	1820	2.3	X	SA	57	(E)DRS	71S4	44	808
20	1040	84.00*	1830	2.4	X	SAF	57	(E)DRS	71S4	50	807
24	900	71.75*	1840	2.7	X						
24	1010	69.39	1830	2.1	X						
25	850	67.20*	1840	2.7	X						
27	940	63.80*	1840	2.3	X						
13	1470	128.10*	1200	1.00	X						
15	1290	110.73	1230	1.15	X						
18	1120	94.08*	1250	1.30	X						
20	1010	84.00*	1260	1.45	X						
24	880	71.75*	1270	1.70	X						
24	1000	69.39	1250	1.35	X						
25	830	67.20*	1280	1.75	X						
27	920	63.80*	1240	1.50	X						
31	800	54.59	1200	1.70	X	S	47	(E)DRS	71S4	36	800
36	700	47.32	1160	1.95	X	SF	47	(E)DRS	71S4	44	801
38	655	44.22*	1140	2.1	X	SA	47	(E)DRS	71S4	38	802
44	570	38.23	1090	2.4	X	SAF	47	(E)DRS	71S4	42	801
52	490	32.48*	1050	2.8	X						
59	440	29.00*	1020	3.1	X						
69	380	24.77	970	3.4	X						
73	355	23.20*	960	3.5	X						
84	330	20.33	890	2.9	X						
96	290	17.62	860	3.3	X						
103	270	16.47*	840	3.5	X						
412	70	8.00*	385	2.5							
485	60	6.80*	365	2.4		S	37	DRS	71S2	29	795
521	56	6.33	355	3.8		SF	37	DRS	71S2	32	796
613	48	5.38	340	3.7		SA	37	DRS	71S2	29	797
678	43	4.86*	330	3.7		SAF	37	DRS	71S2	32	796
832	35	3.97	310	3.5							
39	635	43.68	675	1.10	X						
45	555	37.66	675	1.20	X						
48	515	35.10*	675	1.30	X						
55	455	30.68	660	1.40	X						
59	430	28.76	650	1.50	X						
67	380	25.38*	635	1.65	X						
76	340	22.50*	615	1.80	X						
85	320	19.89	570	1.35	X						
93	295	18.24*	560	1.45	X						
109	250	15.53	540	1.65	X	S	37	(E)DRS	71S4	29	795
127	220	13.39	525	1.90	X	SF	37	(E)DRS	71S4	32	796
136	205	12.48*	515	2.0	X	SA	37	(E)DRS	71S4	29	797
156	181	10.91	500	2.2	X	SAF	37	(E)DRS	71S4	32	796
166	170	10.23	490	2.3	X						
188	151	9.02*	475	2.5	X						
212	134	8.00*	460	2.8	X						
250	114	6.80*	440	3.2	X						
268	107	6.33	430	2.9	X						
316	91	5.38	410	3.3	X						
350	83	4.86*	400	3.5	X						
429	68	3.97	380	4.2	X						

P_m = 0.75 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
1.3	20600	1332	6250	1.05	X						
1.4	18600	1191	6350	1.20	X						
1.6	16200	1032	6450	1.35	X						
1.8	15100	930	6490	1.45	X	S	87R57	(E)DRS	71M4	245	824/836
2.0	13600	831	6540	1.60	X	SF	87R57	(E)DRS	71M4	290	825/836
2.4	11800	719	6600	1.85	X	SA	87R57	(E)DRS	71M4	240	826/836
2.7	10300	624	6640	2.1	X	SAF	87R57	(E)DRS	71M4	275	825/836
3.0	9320	558	6660	2.4	X						
3.9	7450	435	6700	2.9	X						
3.9	8860	438	3100	1.25	X	S	77R37	(E)DRS	71M4	135	818/836
4.3	7890	389	3250	1.40	X	SF	77R37	(E)DRS	71M4	160	819/836
5.2	6660	327	3400	1.65	X	SA	77R37	(E)DRS	71M4	135	820/836
5.8	6050	289	3460	1.80	X	SAF	77R37	(E)DRS	71M4	150	819/836
6.8	5220	250	3540	2.1	X						
6.9	4810	246	1900	1.05	X	S	67R37	(E)DRS	71M4	95	812/836
7.7	4280	221	2020	1.20	X	SF	67R37	(E)DRS	71M4	110	813/836
8.6	3920	198	2090	1.30	X	SA	67R37	(E)DRS	71M4	97	814/836
10	3350	168	2180	1.50	X	SAF	67R37	(E)DRS	71M4	105	813/836
3.9	8350	288.00*	6680	2.5		S	87	DRS	80S6	200	824
4.3	7570	258.18	6700	2.8		SF	87	DRS	80S6	250	825
5.0	6610	222.40*	6710	3.1		SA	87	DRS	80S6	195	826
5.5	6090	202.96	6720	3.4		SAF	87	DRS	80S6	230	825
4.4	7070	256.47	3350	1.60		S	77	DRS	80S6	120	818
5.0	6300	225.26	3440	1.80		SF	77	DRS	80S6	145	819
5.2	6020	214.00*	3470	1.85		SA	77	DRS	80S6	120	820
5.9	5380	189.09	3520	2.1		SAF	77	DRS	80S6	135	819
6.9	4680	161.60*	3580	2.4							
6.6	4890	256.47	3560	2.3	X	S	77	(E)DRS	71M4	115	818
7.5	4350	225.26	3600	2.6	X	SF	77	(E)DRS	71M4	140	819
7.9	4160	214.00*	3600	2.7	X	SA	77	(E)DRS	71M4	115	820
8.9	3710	189.09	3600	3.0	X	SAF	77	(E)DRS	71M4	130	819
7.8	3880	217.41	2100	1.20	X						
8.9	3440	190.11	2170	1.35	X						
9.4	3290	180.60*	2190	1.40	X						
11	2920	158.45	2240	1.55	X						
13	2520	134.40*	2290	1.80	X	S	67	(E)DRS	71M4	70	812
14	2300	121.33	2310	2.0	X	SF	67	(E)DRS	71M4	85	813
16	2050	106.75*	2340	2.2	X	SA	67	(E)DRS	71M4	73	814
17	1940	100.80*	2340	2.4	X	SAF	67	(E)DRS	71M4	82	813
20	1680	85.83	2360	2.7	X						
23	1700	75.06	2360	2.5	X						
26	1490	65.63	2370	2.8	X						
12	2510	94.08*	1620	1.05							
13	2270	84.00*	1670	1.15		S	57	DRS	80S6	52	806
16	1970	71.75*	1720	1.30		SF	57	DRS	80S6	60	807
17	1860	67.20*	1740	1.40		SA	57	DRS	80S6	51	808
21	1800	54.59	1750	1.35		SAF	57	DRS	80S6	57	807
24	1570	47.32	1780	1.50							
25	1480	44.22*	1790	1.60							
29	1290	38.23	1810	1.85							
12	2430	137.05	1640	1.05	X						
13	2290	128.10*	1670	1.15	X						
15	2010	110.73	1710	1.30	X						
18	1740	94.08*	1760	1.50	X						
20	1570	84.00*	1780	1.60	X						
24	1360	71.75*	1800	1.80	X						
25	1280	67.20*	1810	1.80	X	S	57	(E)DRS	71M4	47	806
31	1220	54.59	1810	1.75	X	SF	57	(E)DRS	71M4	55	807
36	1070	47.32	1830	2.0	X	SA	57	(E)DRS	71M4	46	808
38	1000	44.22*	1830	2.1	X	SAF	57	(E)DRS	71M4	52	807
44	870	38.23	1760	2.5	X						
52	750	32.48*	1680	2.9	X						
58	670	29.00*	1630	3.2	X						
68	580	24.77	1560	3.4	X						
73	545	23.20*	1530	3.4	X						
83	505	20.33	1440	2.9	X						

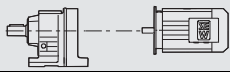

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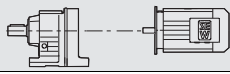

P_m = 0.75 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
24	1320	71.75*	1220	1.10	X					
25	1250	67.20*	1230	1.15	X					
31	1200	54.59	1110	1.15	X					
36	1050	47.32	1080	1.30	X					
38	990	44.22*	1060	1.40	X					
44	860	38.23	1030	1.60	X					
52	740	32.48*	990	1.85	X					
58	665	29.00*	970	2.0	X	S	47	(E)DRS 71M4	38	800
68	570	24.77	930	2.2	X	SF	47	(E)DRS 71M4	46	801
73	535	23.20*	920	2.3	X	SA	47	(E)DRS 71M4	41	802
83	500	20.33	850	1.95	X	SAF	47	(E)DRS 71M4	44	801
96	435	17.62	820	2.2	X					
103	410	16.47*	810	2.4	X					
119	355	14.24	780	2.7	X					
140	300	12.10*	745	3.2	X					
156	270	10.80*	725	3.5	X					
183	230	9.23*	695	4.0	X					
59	650	28.76	585	1.00						
67	575	25.38*	575	1.10	X					
75	515	22.50*	565	1.20	X					
88	440	19.13*	550	1.35	X					
109	380	15.53	490	1.10	X					
126	330	13.39	480	1.25	X					
135	310	12.48*	475	1.30	X	S	37	(E)DRS 71M4	32	795
155	270	10.91	465	1.45	X	SF	37	(E)DRS 71M4	35	796
165	255	10.23	460	1.55	X	SA	37	(E)DRS 71M4	31	797
187	225	9.02*	445	1.70	X	SAF	37	(E)DRS 71M4	34	796
211	200	8.00*	435	1.90	X					
249	172	6.80*	420	2.1	X					
267	161	6.33	410	1.90	X					
314	138	5.38	395	2.2	X					
347	125	4.86*	385	2.3	X					
426	102	3.97	365	2.8	X					
428	101	8.00*	365	1.75		S	37	DRS 71M2	32	795
503	86	6.80*	350	1.65		SF	37	DRS 71M2	35	796
540	81	6.33	345	2.6		SA	37	DRS 71M2	31	797
635	69	5.38	330	2.6		SAF	37	DRS 71M2	34	796
703	62	4.86*	320	2.5						
862	51	3.97	300	2.4						

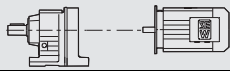

P_m = 1.0 HP							m lbs			
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					
1.4	33700	1223	7540	1.10	X					
1.6	29600	1070	7730	1.25	X					
1.9	25400	928	7890	1.45	X	S	97R57	(E)DRN 80M4	385	830/836
2.1	22400	824	7990	1.65	X	SF	97R57	(E)DRN 80M4	460	831/836
2.5	16300	714	8160	2.3	X	SA	97R57	(E)DRN 80M4	375	832/836
2.8	17100	626	8140	2.2	X	SAF	97R57	(E)DRN 80M4	430	831/836
3.2	14700	538	8190	2.5	X					
3.6	13300	484	8220	2.8	X					
1.7	21300	1032	6220	1.05	X					
1.9	19700	930	6300	1.10	X					
2.1	17800	831	6380	1.25	X					
2.4	15500	719	6480	1.45	X					
2.8	13500	624	6550	1.65	X	S	87R57	(E)DRN 80M4	255	824/836
3.1	12200	558	6590	1.80	X	SF	87R57	(E)DRN 80M4	305	825/836
3.6	10700	485	6630	2.1	X	SA	87R57	(E)DRN 80M4	250	826/836
4.0	9790	435	6650	2.2	X	SAF	87R57	(E)DRN 80M4	285	825/836
4.6	8580	378	6680	2.5	X					
5.4	7480	323	6700	2.8	X					
6.9	6950	255	6710	2.5	X					
7.9	6090	222	6720	2.9	X					

P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]				m lbs		
4.5	10200	389	2840	1.05	X	S	77R37	(E)DRN	80M4	145	818/836
5.3	8680	327	3130	1.25	X	SF	77R37	(E)DRN	80M4	170	819/836
6.1	7840	289	3250	1.40	X	SA	77R37	(E)DRN	80M4	145	820/836
7.0	6790	250	3380	1.60	X	SAF	77R37	(E)DRN	80M4	160	819/836
8.0	6000	219	3470	1.85	X						
10	4360	168	2000	1.15	X	S	67R37	(E)DRN	80M4	105	812/836
11	4080	156	2060	1.25	X	SF	67R37	(E)DRN	80M4	120	813/836
						SA	67R37	(E)DRN	80M4	105	814/836
						SAF	67R37	(E)DRN	80M4	115	813/836
4.0	10700	288.00*	6630	2.0		S	87	DRN	90S6	220	824
4.5	9730	258.18	6650	2.2		SF	87	DRN	90S6	265	825
5.2	8500	222.40*	6680	2.4		SA	87	DRN	90S6	210	826
5.7	7820	202.96	6690	2.6		SAF	87	DRN	90S6	250	825
6.5	7010	180.00*	6710	2.9							
6.1	7430	288.00*	6700	2.7	X	S	87	(E)DRN	80M4	205	824
6.8	6720	258.18	6710	3.0	X	SF	87	(E)DRN	80M4	255	825
7.9	5860	222.40*	6730	3.3	X	SA	87	(E)DRN	80M4	200	826
8.6	5390	202.96	6730	3.6	X	SAF	87	(E)DRN	80M4	235	825
5.2	8100	225.26	3220	1.40							
5.4	7740	214.00*	3270	1.45							
6.2	6930	189.09	3370	1.60							
7.2	6010	161.60*	3470	1.85							
7.9	5560	148.15	3510	2.0		S	77	DRN	90S6	140	818
9.0	4940	130.00*	3560	2.3		SF	77	DRN	90S6	160	819
9.5	4700	123.20*	3580	2.4		SA	77	DRN	90S6	135	820
11	4160	107.83	3600	2.6		SAF	77	DRN	90S6	150	819
12	3780	97.14	3600	2.8							
16	3410	75.09	3600	2.9							
16	3250	71.33	3600	3.0							
6.8	6320	256.47	3440	1.80	X						
7.8	5620	225.26	3500	2.0	X						
8.2	5360	214.00*	3530	2.1	X	S	77	(E)DRN	80M4	125	818
9.3	4790	189.09	3570	2.3	X	SF	77	(E)DRN	80M4	150	819
11	4150	161.60*	3600	2.6	X	SA	77	(E)DRN	80M4	125	820
12	3830	148.15	3600	2.8	X	SAF	77	(E)DRN	80M4	140	819
13	3400	130.00*	3600	3.0	X						
14	3240	123.20*	3600	3.1	X						
16	2860	107.83	3600	3.4	X						
8.7	4690	134.40*	1930	1.05							
9.6	4280	121.33	2020	1.15							
11	3820	106.75*	2110	1.25							
12	3630	100.80*	2140	1.35							
14	3140	85.83	2210	1.55							
15	2880	78.00*	2250	1.70							
18	2830	65.63	2250	1.65		S	67	DRN	90S6	95	812
19	2700	62.35*	2270	1.70		SF	67	DRN	90S6	110	813
21	2380	54.70	2300	1.95		SA	67	DRN	90S6	97	814
25	2040	46.40*	2310	2.3		SAF	67	DRN	90S6	105	813
28	1850	41.89	2250	2.5							
32	1640	36.85	2180	2.8							
33	1550	34.80*	2150	3.0							
48	1170	24.44	1880	2.7							
50	1110	23.22*	1860	2.8							
9.2	4440	190.11	1980	1.05	X						
9.7	4240	180.60*	2030	1.10	X						
11	3780	158.45	2110	1.20	X						
13	3260	134.40*	2200	1.40	X						
14	2970	121.33	2240	1.55	X						
16	2640	106.75*	2280	1.75	X	S	67	(E)DRN	80M4	81	812
17	2510	100.80*	2290	1.85	X	SF	67	(E)DRN	80M4	95	813
20	2160	85.83	2320	2.1	X	SA	67	(E)DRN	80M4	83	814
22	1980	78.00*	2340	2.3	X	SAF	67	(E)DRN	80M4	93	813
23	2190	75.06	2320	1.95	X						
27	1930	65.63	2280	2.2	X						
28	1840	62.35*	2250	2.3	X						
32	1620	54.70	2170	2.6	X						
38	1390	46.40*	2080	3.0	X						

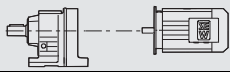

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P_m = 1.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
16	2540	71.75*	1620	1.05							
17	2390	67.20*	1650	1.10							
21	2050	56.61	1710	1.25							
25	2020	47.32	1710	1.20							
26	1900	44.22*	1730	1.25							
30	1650	38.23	1770	1.45							
36	1420	32.48*	1790	1.70		S	57	DRN	90S6	70	806
40	1270	29.00*	1750	1.85		SF	57	DRN	90S6	78	807
47	1100	24.77	1680	2.2		SA	57	DRN	90S6	69	808
50	1030	23.20*	1650	2.3		SAF	57	DRN	90S6	76	807
60	870	19.54	1580	2.5							
66	830	17.62	1480	1.80							
71	785	16.47*	1450	1.90							
82	680	14.24	1400	2.2							
96	580	12.10*	1340	2.6							
108	520	10.80*	1300	2.9							
16	2600	110.73	1600	1.00	X						
19	2240	94.08*	1670	1.20	X						
21	2020	84.00*	1710	1.25	X						
24	1750	71.75*	1750	1.40	X						
26	1650	67.20*	1770	1.40	X						
31	1410	56.61	1790	1.40	X						
32	1580	54.59	1780	1.35	X						
37	1380	47.32	1790	1.55	X						
40	1290	44.22*	1760	1.65	X	S	57	(E)DRN	80M4	57	806
46	1130	38.23	1690	1.90	X	SF	57	(E)DRN	80M4	65	807
54	960	32.48*	1620	2.2	X	SA	57	(E)DRN	80M4	56	808
60	860	29.00*	1570	2.5	X	SAF	57	(E)DRN	80M4	63	807
71	745	24.77	1510	2.6	X						
75	700	23.20*	1480	2.6	X						
86	650	20.33	1380	2.3	X						
90	595	19.54	1410	2.7	X						
99	565	17.62	1330	2.6	X						
106	530	16.47*	1310	2.8	X						
123	460	14.24	1260	3.2	X						
36	1400	32.48*	1000	1.05							
40	1260	29.00*	980	1.20							
47	1080	24.77	960	1.35							
50	1020	23.20*	940	1.40							
60	870	19.54	910	1.55							
66	830	17.62	820	1.20							
71	780	16.47*	820	1.25		S	47	DRN	90S6	61	800
82	680	14.24	800	1.45		SF	47	DRN	90S6	69	801
96	580	12.10*	775	1.70		SA	47	DRN	90S6	64	802
108	520	10.80*	760	1.90		SAF	47	DRN	90S6	68	801
126	445	9.23*	735	2.2							
135	420	8.64*	725	2.3							
160	355	7.28	695	2.7							
170	335	6.83	680	2.5							
182	315	6.40*	670	2.6							
216	265	5.39	640	2.9							
37	1360	47.32	990	1.00	X						
40	1280	44.22*	980	1.05	X						
46	1110	38.23	960	1.25	X						
54	950	32.48*	930	1.45	X						
60	850	29.00*	910	1.60	X						
71	740	24.77	880	1.75	X						
75	695	23.20*	870	1.80	X						
86	645	20.33	790	1.50	X	S	47	(E)DRN	80M4	49	800
90	585	19.54	840	1.85	X	SF	47	(E)DRN	80M4	57	801
99	560	17.62	770	1.70	X	SA	47	(E)DRN	80M4	51	802
106	525	16.47*	760	1.80	X	SAF	47	(E)DRN	80M4	55	801
123	455	14.24	740	2.1	X						
145	390	12.10*	710	2.5	X						
162	350	10.80*	695	2.7	X						
190	300	9.23*	665	3.1	X						
203	280	8.64*	655	3.1	X						
241	235	7.28	630	3.2	X						



P_m = 1.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
274	210	6.40*	605	3.2	X	S	47	(E)DRN	80M4	49	800
325	179	5.39	575	3.2	X	SF	47	(E)DRN	80M4	57	801
368	159	4.76	560	3.2	X	SA	47	(E)DRN	80M4	51	802
438	134	4.00*	530	3.2	X	SAF	47	(E)DRN	80M4	55	801
478	122	7.28	520	1.60							
509	115	6.83	510	2.6		S	47	DRN	80MS2	49	800
543	108	6.40*	500	2.5		SF	47	DRN	80MS2	57	801
645	91	5.39	475	2.3		SA	47	DRN	80MS2	51	802
730	81	4.76	460	2.2		SAF	47	DRN	80MS2	55	801
869	68	4.00*	435	2.1							
146	385	8.00*	435	1.10							
171	325	6.80*	425	1.25		S	37	DRN	90S6	55	795
184	305	6.33	415	1.30		SF	37	DRN	90S6	58	796
216	260	5.38	405	1.45		SA	37	DRN	90S6	54	797
240	235	4.86*	395	1.55		SAF	37	DRN	90S6	58	796
294	196	3.97	380	1.80							
92	565	19.13*	500	1.05	X						
140	400	12.48*	435	1.00	X						
161	350	10.91	425	1.15	X						
171	325	10.23	425	1.20	X						
194	290	9.02*	415	1.30	X	S	37	(E)DRN	80M4	42	795
219	255	8.00*	405	1.45	X	SF	37	(E)DRN	80M4	45	796
258	220	6.80*	395	1.65	X	SA	37	(E)DRN	80M4	41	797
276	205	6.33	385	1.50	X	SAF	37	(E)DRN	80M4	45	796
325	177	5.38	375	1.70	X						
360	161	4.86*	365	1.80	X						
442	131	3.97	350	2.2	X						
511	113	6.80*	340	1.25		S	37	DRN	80MS2	42	795
549	106	6.33	330	2.0		SF	37	DRN	80MS2	45	796
646	90	5.38	320	1.95		SA	37	DRN	80MS2	41	797
715	82	4.86*	310	1.95		SAF	37	DRN	80MS2	45	796
877	67	3.97	295	1.85							

P_m = 1.5 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
2.1	33900	824	7530	1.10	X						
2.5	24700	714	7920	1.50	X						
2.8	26000	626	7870	1.45	X	S	97R57	(E)DRN	90S4	400	830/836
3.3	22300	538	8000	1.65	X	SF	97R57	(E)DRN	90S4	475	831/836
3.6	20100	484	8060	1.85	X	SA	97R57	(E)DRN	90S4	390	832/836
4.2	17500	420	8130	2.1	X	SAF	97R57	(E)DRN	90S4	445	831/836
4.7	15900	376	8170	2.3	X						
5.4	14000	327	8210	2.6	X						
2.8	20600	624	6260	1.05	X						
3.2	18600	558	6350	1.20	X						
3.6	16300	485	6440	1.35	X						
4.0	14900	435	6500	1.45	X	S	87R57	(E)DRN	90S4	270	824/836
4.7	13000	378	6560	1.65	X	SF	87R57	(E)DRN	90S4	315	825/836
5.5	11300	323	6610	1.85	X	SA	87R57	(E)DRN	90S4	265	826/836
6.3	9990	281	6650	2.1	X	SAF	87R57	(E)DRN	90S4	300	825/836
6.9	10500	255	6630	1.65	X						
7.9	9270	222	6660	1.90	X						
8.6	8700	205	6670	2.0	X						
4.1	16500	286.40*	8150	2.2		S	97	DRN	112M6	400	830
4.5	15200	262.22	8180	2.4		SF	97	DRN	112M6	470	831
5.1	13600	231.67	8210	2.7		SA	97	DRN	112M6	385	832
						SAF	97	DRN	112M6	445	831
5.3	12500	222.40*	6580	1.65		S	87	DRN	112M6	270	824
5.8	11500	202.96	6600	1.80		SF	87	DRN	112M6	320	825
						SA	87	DRN	112M6	265	826
						SAF	87	DRN	112M6	300	825

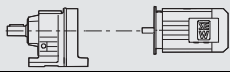

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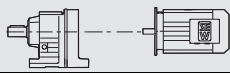

P_m = 1.5 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]					m lbs	
6.1	11000	288.00*	6620	1.80	X						
6.8	10000	258.18	6640	2.0	X	S	87	(E)DRN	90S4	220	824
7.9	8740	222.40*	6670	2.2	X	SF	87	(E)DRN	90S4	265	825
8.7	8040	202.96	6690	2.4	X	SA	87	(E)DRN	90S4	210	826
9.8	7200	180.00*	6700	2.6	X	SAF	87	(E)DRN	90S4	250	825
12	6120	151.30	6720	3.0	X						
6.9	9420	256.47	3000	1.20	X						
7.8	8380	225.26	3170	1.35	X						
8.2	8000	214.00*	3230	1.40	X						
9.3	7150	189.09	3340	1.55	X						
11	6200	161.60*	3450	1.75	X	S	77	(E)DRN	90S4	140	818
12	5720	148.15	3490	1.85	X	SF	77	(E)DRN	90S4	160	819
14	5070	130.00*	3550	2.0	X	SA	77	(E)DRN	90S4	135	820
14	4830	123.20*	3570	2.1	X	SAF	77	(E)DRN	90S4	150	819
16	4270	107.83	3600	2.3	X						
18	3870	97.14	3540	2.5	X						
21	3420	85.22	3420	2.7	X						
23	3450	75.09	3200	2.8	X						
25	3290	71.33	3160	3.0	X						
15	4430	121.33	1990	1.05	X						
17	3940	106.75*	2080	1.15	X						
17	3740	100.80*	2120	1.25	X						
21	3230	85.83	2200	1.40	X						
23	2960	78.00*	2240	1.50	X						
23	3260	75.06	2180	1.30	X						
27	2880	65.63	2120	1.45	X	S	67	(E)DRN	90S4	95	812
28	2740	62.35*	2100	1.55	X	SF	67	(E)DRN	90S4	110	813
32	2420	54.70	2040	1.75	X	SA	67	(E)DRN	90S4	97	814
38	2070	46.40*	1970	2.0	X	SAF	67	(E)DRN	90S4	105	813
42	1880	41.89	1920	2.3	X						
48	1660	36.85	1860	2.5	X						
51	1570	34.80*	1840	2.7	X						
59	1350	29.63	1760	3.1	X						
72	1180	24.44	1610	2.5	X						
76	1120	23.22*	1590	2.7	X						
37	2060	47.32	1660	1.05	X						
40	1930	44.22*	1630	1.10	X						
46	1680	38.23	1590	1.30	X						
54	1440	32.48*	1530	1.50	X						
61	1290	29.00*	1490	1.65	X						
71	1110	24.77	1440	1.75	X						
76	1040	23.20*	1410	1.80	X						
87	960	20.33	1300	1.55	X	S	57	(E)DRN	90S4	70	806
90	880	19.54	1350	1.80	X	SF	57	(E)DRN	90S4	78	807
100	840	17.62	1260	1.75	X	SA	57	(E)DRN	90S4	69	808
107	790	16.47*	1240	1.90	X	SAF	57	(E)DRN	90S4	76	807
124	685	14.24	1200	2.2	X						
146	585	12.10*	1150	2.5	X						
163	525	10.80*	1120	2.9	X						
191	450	9.23*	1070	2.9	X						
204	420	8.64*	1050	3.0	X						
258	335	6.83	980	2.6	X						
275	315	6.40*	970	2.7	X						
479	182	7.28	830	2.6		S	57	DRN	80M2	57	806
510	173	6.83	810	2.8		SF	57	DRN	80M2	65	807
545	162	6.40*	795	2.7		SA	57	DRN	80M2	56	808
646	137	5.39	755	2.7		SAF	57	DRN	80M2	63	807
732	121	4.76	725	2.6							
871	102	4.00*	685	2.4							

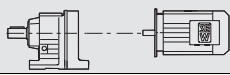

P_m = 1.5 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
61	1280	29.00*	810	1.05	X				
71	1100	24.77	800	1.15	X				
76	1030	23.20*	790	1.20	X				
87	960	20.33	695	1.00	X				
90	870	19.54	770	1.25	X				
100	840	17.62	685	1.15	X				
107	785	16.47*	680	1.20	X				
124	680	14.24	670	1.40	X	S	47	(E)DRN 90S4	61 800
146	580	12.10*	655	1.65	X	SF	47	(E)DRN 90S4	69 801
163	520	10.80*	640	1.80	X	SA	47	(E)DRN 90S4	64 802
191	445	9.23*	620	2.1	X	SAF	47	(E)DRN 90S4	68 801
204	420	8.64*	615	2.1	X				
242	355	7.28	590	2.1	X				
258	335	6.83	580	2.0	X				
275	315	6.40*	570	2.1	X				
327	265	5.39	550	2.1	X				
370	235	4.76	535	2.2	X				
440	199	4.00*	510	2.1	X				
479	182	7.28	500	1.05		S	47	DRN 80M2	49 800
510	173	6.83	490	1.75		SF	47	DRN 80M2	57 801
545	162	6.40*	485	1.70		SA	47	DRN 80M2	51 802
646	137	5.39	460	1.55		SAF	47	DRN 80M2	55 801
732	121	4.76	445	1.45					
871	102	4.00*	425	1.40					
220	385	8.00*	360	1.00					
259	330	6.80*	355	1.10	X	S	37	(E)DRN 90S4	55 795
278	305	6.33	345	1.00	X	SF	37	(E)DRN 90S4	58 796
327	260	5.38	340	1.15	X	SA	37	(E)DRN 90S4	54 797
362	235	4.86*	335	1.20	X	SAF	37	(E)DRN 90S4	58 796
444	196	3.97	320	1.45	X				
550	159	6.33	310	1.35		S	37	DRN 80M2	42 795
647	135	5.38	300	1.30		SF	37	DRN 80M2	45 796
716	122	4.86*	295	1.30		SA	37	DRN 80M2	41 797
879	100	3.97	280	1.25		SAF	37	DRN 80M2	45 796

P_m = 2.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
2.5	33100	714	7570	1.10	X				
2.8	34800	626	7490	1.05	X				
3.3	29900	538	7720	1.25	X				
3.6	27100	484	7830	1.35	X	S	97R57	(E)DRN 90L4	410 830/836
4.2	23500	420	7960	1.60	X	SF	97R57	(E)DRN 90L4	480 831/836
4.7	21300	376	8030	1.75	X	SA	97R57	(E)DRN 90L4	395 832/836
5.4	18700	327	8100	2.0	X	SAF	97R57	(E)DRN 90L4	455 831/836
6.2	16500	287	8150	2.2	X				
7.0	14400	252	8200	2.6	X				
8.1	12500	219	8230	3.0	X				
3.6	22000	485	6180	1.00	X				
4.1	20000	435	6290	1.10	X				
4.7	17600	378	6400	1.25	X	S	87R57	(E)DRN 90L4	275 824/836
5.5	15300	323	6490	1.40	X	SF	87R57	(E)DRN 90L4	325 825/836
6.3	13400	281	6550	1.60	X	SA	87R57	(E)DRN 90L4	270 826/836
6.9	14200	255	6520	1.25	X	SAF	87R57	(E)DRN 90L4	305 825/836
8.0	12400	222	6570	1.40	X				
8.6	11600	205	6600	1.50	X				
4.1	22000	286.40*	8010	1.70		S	97	DRN 112M6	400 830
4.5	20300	262.22	8060	1.85		SF	97	DRN 112M6	470 831
5.1	18100	231.67	8120	2.0		SA	97	DRN 112M6	385 832
6.0	15600	196.52	8170	2.4		SAF	97	DRN 112M6	445 831
6.2	15200	286.40*	8180	2.3	X	S	97	(E)DRN 90L4	355 830
6.7	14000	262.22	8210	2.5	X	SF	97	(E)DRN 90L4	425 831
7.6	12500	231.67	8230	2.8	X	SA	97	(E)DRN 90L4	340 832
9.0	10700	196.52	8260	3.2	X	SAF	97	(E)DRN 90L4	400 831

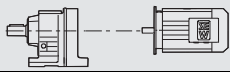

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P_m = 2.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
5.3	16800	222.40*	6430	1.25		S	87	DRN	112M6	270	824
5.8	15400	202.96	6480	1.35		SF	87	DRN	112M6	320	825
6.6	13800	180.00*	6540	1.45		SA	87	DRN	112M6	265	826
						SAF	87	DRN	112M6	300	825
6.1	14700	288.00*	6510	1.35	X						
6.8	13300	258.18	6550	1.50	X						
8.0	11600	222.40*	6600	1.70	X						
8.7	10600	202.96	6630	1.80	X						
9.8	9570	180.00*	6660	1.95	X	S	87	(E)DRN	90L4	225	824
12	8150	151.30	6690	2.2	X	SF	87	(E)DRN	90L4	270	825
13	7530	139.05	6700	2.4	X	SA	87	(E)DRN	90L4	220	826
14	6740	123.48	6710	2.6	X	SAF	87	(E)DRN	90L4	255	825
16	6060	110.40*	6720	2.8	X						
18	5490	99.26	6730	3.0	X						
19	5690	91.20*	6730	2.4	X						
22	5120	81.76	6730	2.8	X						
8.3	10600	214.00*	2760	1.05	X						
9.3	9510	189.09	2990	1.15	X						
11	8240	161.60*	3200	1.30	X						
12	7610	148.15	3280	1.40	X						
14	6750	130.00*	3390	1.55	X						
14	6420	123.20*	3420	1.60	X						
16	5680	107.83	3470	1.75	X						
18	5150	97.14	3390	1.85	X	S	77	(E)DRN	90L4	145	818
21	4560	85.22	3290	2.0	X	SF	77	(E)DRN	90L4	165	819
24	4600	75.09	3050	2.1	X	SA	77	(E)DRN	90L4	145	820
25	4380	71.33	3020	2.2	X	SAF	77	(E)DRN	90L4	160	819
27	3620	66.67	3100	2.4	X						
28	3890	63.03	2930	2.5	X						
31	3110	56.92	2970	2.6	X						
33	3340	53.87	2830	2.9	X						
36	3070	49.38	2770	3.2	X						
41	2710	43.33	2680	3.6	X						
21	4300	85.83	2020	1.05	X						
23	3930	78.00*	2090	1.15	X						
27	3830	65.63	1970	1.10	X						
28	3650	62.35*	1960	1.15	X						
32	3220	54.70	1920	1.30	X						
38	2750	46.40*	1860	1.55	X						
42	2500	41.89	1820	1.70	X						
48	2210	36.85	1780	1.90	X	S	67	(E)DRN	90L4	100	812
51	2090	34.80*	1750	2.0	X	SF	67	(E)DRN	90L4	115	813
60	1790	29.63	1690	2.4	X	SA	67	(E)DRN	90L4	105	814
66	1630	26.93	1660	2.5	X	SAF	67	(E)DRN	90L4	115	813
72	1570	24.44	1530	1.90	X						
76	1490	23.22*	1510	2.0	X						
87	1310	20.37	1470	2.3	X						
102	1120	17.28*	1420	2.7	X						
113	1010	15.60*	1390	3.0	X						
129	890	13.73*	1340	3.4	X						
54	1910	32.48*	1440	1.15	X						
61	1720	29.00*	1410	1.25	X						
71	1480	24.77	1370	1.30	X						
76	1390	23.20*	1350	1.35	X						
90	1180	19.54	1300	1.35	X						
100	1120	17.62	1190	1.30	X						
107	1050	16.47*	1170	1.40	X						
124	910	14.24	1140	1.65	X	S	57	(E)DRN	90L4	77	806
146	775	12.10*	1100	1.90	X	SF	57	(E)DRN	90L4	85	807
164	695	10.80*	1070	2.1	X	SA	57	(E)DRN	90L4	76	808
192	595	9.23*	1040	2.2	X	SAF	57	(E)DRN	90L4	83	807
205	560	8.64*	1020	2.2	X						
243	470	7.28	980	2.3	X						
259	445	6.83	950	1.95	X						
276	420	6.40*	940	2.1	X						
328	355	5.39	900	2.4	X						
371	310	4.76	870	2.4	X						
442	265	4.00*	830	2.4	X						



P_m = 2.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
482	240	7.28	810	2.0							
513	225	6.83	795	2.1		S	57	DRN	90S2	70	806
548	210	6.40*	780	2.1		SF	57	DRN	90S2	78	807
650	181	5.39	740	2.0		SA	57	DRN	90S2	69	808
736	160	4.76	715	1.95		SAF	57	DRN	90S2	76	807
876	135	4.00*	680	1.85							
124	910	14.24	600	1.05	X						
146	775	12.10*	595	1.25	X						
164	695	10.80*	590	1.35	X						
192	595	9.23*	580	1.55	X	S	47	(E)DRN	90L4	68	800
205	560	8.64*	575	1.60	X	SF	47	(E)DRN	90L4	76	801
243	470	7.28	555	1.60	X	SA	47	(E)DRN	90L4	71	802
259	445	6.83	545	1.55	X	SAF	47	(E)DRN	90L4	75	801
276	420	6.40*	540	1.60	X						
328	355	5.39	520	1.60	X						
371	310	4.76	510	1.65	X						
442	265	4.00*	490	1.60	X						
513	225	6.83	475	1.30		S	47	DRN	90S2	61	800
548	210	6.40*	465	1.30		SF	47	DRN	90S2	69	801
650	181	5.39	445	1.15		SA	47	DRN	90S2	64	802
736	160	4.76	435	1.10		SAF	47	DRN	90S2	68	801
876	135	4.00*	415	1.05							
446	260	3.97	295	1.10	X	S	37	(E)DRN	90L4	62	795
						SF	37	(E)DRN	90L4	65	796
						SA	37	(E)DRN	90L4	61	797
						SAF	37	(E)DRN	90L4	65	796
553	210	6.33	290	1.00		S	37	DRN	90S2	55	795
651	179	5.38	280	1.00		SF	37	DRN	90S2	58	796
721	162	4.86*	275	1.00		SA	37	DRN	90S2	54	797
						SAF	37	DRN	90S2	58	796

P_m = 3.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
4.2	35700	420	7440	1.05	X						
4.7	32300	376	7610	1.15	X	S	97R57	(E)DRN	100LM4	430	830/836
5.4	28300	327	7780	1.30	X	SF	97R57	(E)DRN	100LM4	500	831/836
6.1	25000	287	7910	1.50	X	SA	97R57	(E)DRN	100LM4	420	832/836
7.0	21900	252	8010	1.70	X	SAF	97R57	(E)DRN	100LM4	480	831/836
8.1	19100	219	8090	1.95	X						
8.6	18000	205	8120	2.1	X						
5.1	27300	231.67	7830	1.35		S	97	DRN	132S6	425	830
6.0	23400	196.52	7960	1.55		SF	97	DRN	132S6	495	831
						SA	97	DRN	132S6	410	832
						SAF	97	DRN	132S6	470	831
6.2	22900	286.40*	7980	1.55	X						
6.7	21100	262.22	8040	1.65	X						
7.6	18800	231.67	8100	1.85	X						
9.0	16100	196.52	8160	2.1	X	S	97	(E)DRN	100LM4	380	830
9.7	14900	180.95	8190	2.2	X	SF	97	(E)DRN	100LM4	450	831
11	13400	161.74	8220	2.4	X	SA	97	(E)DRN	100LM4	370	832
12	12100	145.60*	8240	2.6	X	SAF	97	(E)DRN	100LM4	425	831
13	11100	131.85	8260	2.7	X						
15	9910	116.92	8270	3.0	X						
17	9000	105.71	8280	3.1	X						
20	7690	89.60*	8300	3.5	X						

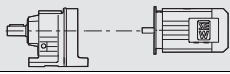

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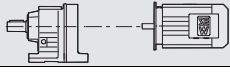

P_m = 3.0 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
6.8	20000	258.18	6280	1.00	X				
7.9	17400	222.40*	6400	1.10	X				
8.7	16000	202.96	6460	1.20	X				
9.8	14400	180.00*	6520	1.30	X				
12	12200	151.30	6590	1.50	X				
13	11300	139.05	6610	1.60	X				
14	10100	123.48	6640	1.70	X	S	87	(E)DRN 100LM4	250 824
16	9120	110.40*	6670	1.85	X	SF	87	(E)DRN 100LM4	300 825
18	8250	99.26	6680	1.95	X	SA	87	(E)DRN 100LM4	245 826
20	7220	86.15	6700	2.2	X	SAF	87	(E)DRN 100LM4	280 825
22	7700	81.76	6690	1.85	X				
23	6500	77.14	6720	2.3	X				
25	6670	70.43	6710	2.1	X				
27	6110	64.27	6720	2.3	X				
31	5440	57.00*	6730	2.6	X				
14	10100	130.00*	2870	1.00	X				
14	9660	123.20*	2960	1.05	X				
16	8540	107.83	3150	1.15	X				
18	7750	97.14	3110	1.25	X				
21	6850	85.22	3040	1.35	X				
23	6090	75.20*	2970	1.45	X				
26	5440	66.67	2900	1.60	X				
28	5850	63.03	2690	1.65	X				
31	4680	56.92	2800	1.75	X	S	77	(E)DRN 100LM4	170 818
33	5030	53.87	2620	1.95	X	SF	77	(E)DRN 100LM4	190 819
36	4620	49.38	2580	2.1	X	SA	77	(E)DRN 100LM4	170 820
41	4080	43.33	2510	2.4	X	SAF	77	(E)DRN 100LM4	185 819
43	3870	41.07	2490	2.5	X				
49	3400	35.94	2420	2.8	X				
54	3070	32.38	2360	3.0	X				
62	2710	28.41	2290	3.2	X				
70	2400	25.07	2220	3.5	X				
77	2250	22.89	2060	2.8	X				
84	2070	20.99	2020	3.0	X				
38	4140	46.40*	1650	1.00	X				
42	3760	41.89	1630	1.15	X				
48	3330	36.85	1610	1.30	X				
51	3150	34.80*	1590	1.35	X				
59	2700	29.63	1550	1.55	X				
65	2460	26.93	1530	1.65	X				
76	2140	23.33	1490	1.65	X	S	67	(E)DRN 100LM4	125 812
86	1980	20.37	1340	1.50	X	SF	67	(E)DRN 100LM4	140 813
102	1680	17.28*	1310	1.80	X	SA	67	(E)DRN 100LM4	130 814
113	1520	15.60*	1280	1.95	X	SAF	67	(E)DRN 100LM4	140 813
128	1340	13.73*	1250	2.2	X				
136	1270	12.96*	1240	2.4	X				
160	1080	11.03	1200	2.8	X				
176	990	10.03	1170	2.8	X				
203	860	8.69	1140	2.9	X				
233	750	7.56*	1100	3.0	X				
257	680	13.73*	1070	2.8		S	67	DRN 90L2	100 812
272	640	12.96*	1060	2.7		SF	67	DRN 90L2	115 813
319	550	11.03	1020	2.7		SA	67	DRN 90L2	105 814
352	500	10.03	990	2.7		SAF	67	DRN 90L2	115 813
406	430	8.69	950	2.5					
466	375	7.56*	920	2.2					
124	1370	14.24	1030	1.10	X				
146	1170	12.10*	1010	1.30	X				
163	1040	10.80*	990	1.40	X				
191	900	9.23*	960	1.45	X				
204	840	8.64*	950	1.50	X	S	57	(E)DRN 100LM4	100 806
242	710	7.28	920	1.50	X	SF	57	(E)DRN 100LM4	110 807
258	675	6.83	900	1.30	X	SA	57	(E)DRN 100LM4	100 808
275	630	6.40*	890	1.35	X	SAF	57	(E)DRN 100LM4	105 807
327	535	5.39	850	1.55	X				
370	470	4.76	830	1.55	X				
440	395	4.00*	795	1.55	X				

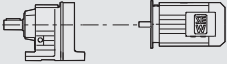

P_m = 3.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
484	360	7.28	780	1.30							
516	340	6.83	765	1.40							
551	315	6.40*	750	1.40		S	57	DRN	90L2	77	806
654	265	5.39	715	1.35		SF	57	DRN	90L2	85	807
740	235	4.76	695	1.30		SA	57	DRN	90L2	76	808
881	200	4.00*	660	1.25		SAF	57	DRN	90L2	83	807
191	890	9.23*	490	1.05	X						
204	840	8.64*	490	1.05	X						
242	710	7.28	490	1.05	X	S	47	(E)DRN	100LM4	93	800
258	675	6.83	480	1.00	X	SF	47	(E)DRN	100LM4	100	801
275	630	6.40*	475	1.05	X	SA	47	(E)DRN	100LM4	95	802
327	530	5.39	470	1.10	X	SAF	47	(E)DRN	100LM4	99	801
370	470	4.76	460	1.10	X						
440	395	4.00*	450	1.05	X						



P_m = 4.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
6.1	33400	287	7550	1.10	X	S	97R57	(E)DRN	100L4	430	830/836
7.0	29300	252	7740	1.25	X	SF	97R57	(E)DRN	100L4	500	831/836
8.1	25600	219	7890	1.45	X	SA	97R57	(E)DRN	100L4	420	832/836
8.6	24100	205	7940	1.55	X	SAF	97R57	(E)DRN	100L4	480	831/836
6.2	30500	286.40*	7690	1.15	X						
6.7	28100	262.22	7790	1.25	X						
7.6	25100	231.67	7910	1.40	X						
9.0	21500	196.52	8020	1.60	X						
9.7	19900	180.95	8070	1.65	X	S	97	(E)DRN	100L4	380	830
11	17900	161.74	8120	1.80	X	SF	97	(E)DRN	100L4	450	831
12	16200	145.60*	8160	1.95	X	SA	97	(E)DRN	100L4	370	832
13	14800	131.85	8190	2.1	X	SAF	97	(E)DRN	100L4	425	831
15	13200	116.92	8220	2.2	X						
17	12000	105.71	8240	2.4	X						
20	10200	89.60*	8270	2.6	X						
22	10300	80.85	8270	2.8	X						
9.8	19100	180.00*	6330	1.00							
12	16300	151.30	6450	1.10	X						
13	15000	139.05	6490	1.20	X						
14	13500	123.48	6550	1.30	X						
16	12100	110.40*	6590	1.40	X						
18	11000	99.26	6620	1.50	X						
20	9620	86.15	6650	1.65	X	S	87	(E)DRN	100L4	250	824
22	10200	81.76	6640	1.40	X	SF	87	(E)DRN	100L4	300	825
23	8660	77.14	6680	1.75	X	SA	87	(E)DRN	100L4	245	826
25	8890	70.43	6670	1.60	X	SAF	87	(E)DRN	100L4	280	825
27	8140	64.27	6680	1.75	X						
31	7250	57.00*	6700	1.95	X						
37	6120	47.91	6720	2.3	X						
40	5640	44.03	6730	2.5	X						
45	5020	39.10	6720	2.8	X						
50	4510	34.96*	6530	3.1	X						
21	9140	85.22	2790	1.00	X						
23	8120	75.20*	2740	1.10	X						
26	7250	66.67	2700	1.20	X						
28	7790	63.03	2440	1.25	X						
31	6240	56.92	2630	1.30	X						
33	6700	53.87	2410	1.45	X	S	77	(E)DRN	100L4	170	818
36	6160	49.38	2380	1.60	X	SF	77	(E)DRN	100L4	190	819
41	5430	43.33	2340	1.80	X	SA	77	(E)DRN	100L4	170	820
43	5160	41.07	2320	1.90	X	SAF	77	(E)DRN	100L4	185	819
49	4540	35.94	2270	2.1	X						
54	4100	32.38	2230	2.2	X						
62	3610	28.41	2180	2.4	X						
70	3190	25.07	2120	2.6	X						
77	3010	22.89	1930	2.1	X						

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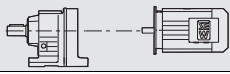

P_m = 4.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs		
84	2760	20.99	1900	2.2	X	S	77	(E)DRN	100L4	170	818
96	2430	18.42	1860	2.6	X						
101	2300	17.45	1840	2.7	X						
115	2020	15.28	1790	3.1	X						
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X	SF	77	(E)DRN	100L4	190	819
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X						
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X	SA	77	(E)DRN	100L4	170	820
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X						
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X	SAF	77	(E)DRN	100L4	185	819
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
165	1420	10.65	1650	4.5	X						
128	1820	13.76	1750	3.5	X						
146	1600	12.07	1700	4.0	X						
51	4200	34.80*	1430	1.00	X	S	67	(E)DRN	100L4	125	812
60	3600	29.63	1410	1.20	X						
65	3280	26.93	1400	1.25	X						
76	2850	23.33	1380	1.25	X						
87	2630	20.37	1200	1.15	X						
102	2240	17.28*	1190	1.35	X						
113	2030	15.60*	1180	1.50	X						
128	1790	13.73*	1160	1.70	X						
136	1690	12.96*	1150	1.75	X						
160	1450	11.03	1130	2.1	X						
176	1320	10.03	1110	2.1	X						
203	1140	8.69	1080	2.2	X						
233	1000	7.56*	1050	2.2	X						
256	910	13.73*	1030	2.1	X						
271	860	12.96*	1020	2.0	X						
319	735	11.03	980	2.0	X						
351	665	10.03	960	2.0	X						
405	580	8.69	920	1.90	X						
465	505	7.56*	890	1.65	X						
163	1390	10.80*	900	1.05	X	S	57	(E)DRN	100L4	100	806
191	1190	9.23*	890	1.10	X						
204	1120	8.64*	880	1.10	X						
242	950	7.28	860	1.15	X						
275	840	6.40*	830	1.05	X						
327	710	5.39	810	1.20	X						
370	630	4.76	790	1.20	X						
441	530	4.00*	760	1.20	X						
407	570	8.64*	780	1.05	X	SF	57	DRN	100LM2	100	806
483	480	7.28	750	1.00	X						
515	455	6.83	735	1.05	X						
550	425	6.40*	725	1.05	X						
652	360	5.39	695	1.00	X						
739	315	4.76	675	0.95	X						

P_m = 5.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®				m lbs		
7.0	36900	252	7230	1.00	X	S	97R57	(E)DRN	100L4	430	830/836
8.0	32200	219	7610	1.15	X						
8.6	30300	205	7700	1.20	X						
8.6	30300	205	7700	1.20	X						
6.7	35300	262.22	7460	1.00	X	SF	97	(E)DRN	100L4	380	830
7.6	31400	231.67	7650	1.10	X						
8.9	27000	196.52	7840	1.25	X						
9.7	24900	180.95	7910	1.35	X						
11	22400	161.74	7990	1.45	X						
12	20300	145.60*	8060	1.55	X						
13	18500	131.85	8110	1.65	X						
15	16500	116.92	8150	1.80	X						
17	15000	105.71	8190	1.90	X						
20	12800	89.60*	8230	2.1	X						
22	12900	80.85	8220	2.2	X						
25	11500	71.43	8250	2.5	X						
29	9820	60.59	8270	3.0	X						
6.7	35300	262.22	7460	1.00	X						
7.6	31400	231.67	7650	1.10	X						
8.9	27000	196.52	7840	1.25	X						
9.7	24900	180.95	7910	1.35	X						
11	22400	161.74	7990	1.45	X						
12	20300	145.60*	8060	1.55	X						
13	18500	131.85	8110	1.65	X						
15	16500	116.92	8150	1.80	X						
17	15000	105.71	8190	1.90	X						
20	12800	89.60*	8230	2.1	X						
22	12900	80.85	8220	2.2	X						
25	11500	71.43	8250	2.5	X						
29	9820	60.59	8270	3.0	X						
6.7	35300	262.22	7460	1.00	X	SAF	97	(E)DRN	100L4	425	831
7.6	31400	231.67	7650	1.10	X						
8.9	27000	196.52	7840	1.25	X						
9.7	24900	180.95	7910	1.35	X						
11	22400	161.74	7990	1.45	X						
12	20300	145.60*	8060	1.55	X						
13	18500	131.85	8110	1.65	X						
15	16500	116.92	8150	1.80	X						
17	15000	105.71	8190	1.90	X						
20	12800	89.60*	8230	2.1	X						
22	12900	80.85	8220	2.2	X						
25	11500	71.43	8250	2.5	X						
29	9820	60.59	8270	3.0	X						

P_m = 5.0 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs		
14	16900	123.48	6420	1.00	X					
16	15200	110.40*	6490	1.10	X					
18	13700	99.26	6540	1.20	X					
20	12000	86.15	6590	1.30	X					
22	12800	81.76	6560	1.10	X					
23	10800	77.14	6620	1.40	X					
25	11100	70.43	6610	1.25	X	S	87	(E)DRN	100L4	250 824
27	10200	64.27	6640	1.40	X	SF	87	(E)DRN	100L4	300 825
31	9080	57.00*	6660	1.55	X	SA	87	(E)DRN	100L4	245 826
37	7680	47.91	6690	1.85	X	SAF	87	(E)DRN	100L4	280 825
40	7070	44.03	6700	2.0	X					
45	6300	39.10	6600	2.2	X					
50	5650	34.96*	6430	2.5	X					
56	5090	31.43	6260	2.8	X					
69	4240	25.50*	5780	2.6	X					
28	9770	63.03	2190	1.00	X					
31	7830	56.92	2460	1.05	X					
33	8400	53.87	2190	1.15	X					
36	7730	49.38	2190	1.25	X					
41	6810	43.33	2170	1.45	X					
43	6470	41.07	2160	1.50	X					
49	5690	35.94	2130	1.65	X					
54	5140	32.38	2100	1.80	X	S	77	(E)DRN	100L4	170 818
62	4520	28.41	2060	1.95	X	SF	77	(E)DRN	100L4	190 819
70	4010	25.07	2020	2.1	X	SA	77	(E)DRN	100L4	170 820
77	3770	22.89	1800	1.65	X	SAF	77	(E)DRN	100L4	185 819
84	3460	20.99	1780	1.80	X					
95	3050	18.42	1750	2.1	X					
101	2890	17.45	1740	2.2	X					
115	2540	15.28	1700	2.5	X					
128	2290	13.76	1670	2.8	X					
146	2010	12.07	1630	3.2	X					
165	1780	10.65	1590	3.6	X					
230	1280	15.28	1480	3.6		S	77	DRN	100L2	170 818
255	1160	13.76	1440	3.7		SF	77	DRN	100L2	190 819
291	1010	12.07	1400	3.6		SA	77	DRN	100L2	170 820
329	900	10.65	1350	3.6		SAF	77	DRN	100L2	185 819
371	795	9.44	1310	3.5						
435	680	8.06	1260	3.4						
65	4110	26.93	1280	1.00						
75	3580	23.33	1270	1.00	X					
102	2810	17.28*	1080	1.05	X					
113	2550	15.60*	1080	1.20	X	S	67	(E)DRN	100L4	125 812
128	2250	13.73*	1070	1.35	X	SF	67	(E)DRN	100L4	140 813
136	2120	12.96*	1070	1.40	X	SA	67	(E)DRN	100L4	130 814
159	1810	11.03	1050	1.65	X	SAF	67	(E)DRN	100L4	140 813
175	1650	10.03	1040	1.70	X					
202	1430	8.69	1020	1.70	X					
233	1250	7.56*	1000	1.75	X					
256	1140	13.73*	980	1.65						
271	1070	12.96*	970	1.65		S	67	DRN	100L2	125 812
318	920	11.03	940	1.60		SF	67	DRN	100L2	140 813
350	830	10.03	920	1.60		SA	67	DRN	100L2	130 814
404	725	8.69	900	1.50		SAF	67	DRN	100L2	140 813
464	630	7.56*	870	1.35						

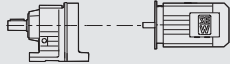

P_m = 5.4 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs		
8.1	34600	219	7490	1.05	X	S	97R57	(E)DRN	112M4	455 830/836
8.6	32600	205	7600	1.15	X	SF	97R57	(E)DRN	112M4	520 831/836
						SA	97R57	(E)DRN	112M4	440 832/836
						SAF	97R57	(E)DRN	112M4	500 831/836

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P_m = 5.4 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs	
7.6	33700	231.67	7540	1.05	X				
9.0	28900	196.52	7760	1.15	X				
9.8	26800	180.95	7840	1.25	X				
11	24100	161.74	7940	1.35	X				
12	21800	145.60*	8010	1.45	X				
13	19900	131.85	8070	1.55	X	S	97	(E)DRN 112M4	400 830
15	17700	116.92	8120	1.65	X	SF	97	(E)DRN 112M4	470 831
17	16100	105.71	8160	1.75	X	SA	97	(E)DRN 112M4	385 832
20	13700	89.60*	8210	1.95	X	SAF	97	(E)DRN 112M4	445 831
22	13900	80.85	8210	2.1	X				
25	12300	71.43	8240	2.4	X				
29	10500	60.59	8260	2.8	X				
32	9730	55.79	8280	3.0	X				
16	16300	110.40*	6450	1.05	X				
18	14800	99.26	6500	1.10	X				
21	12900	86.15	6560	1.20	X				
23	11600	77.14	6600	1.30	X				
25	11900	70.43	6590	1.20	X				
28	10900	64.27	6620	1.30	X				
31	9750	57.00*	6650	1.45	X	S	87	(E)DRN 112M4	270 824
37	8240	47.91	6680	1.70	X	SF	87	(E)DRN 112M4	320 825
40	7590	44.03	6690	1.85	X	SA	87	(E)DRN 112M4	265 826
45	6760	39.10	6540	2.1	X	SAF	87	(E)DRN 112M4	300 825
51	6060	34.96*	6380	2.3	X				
56	5470	31.43	6210	2.6	X				
65	4760	27.28	6000	3.0	X				
69	4560	25.50*	5720	2.4	X				
83	3840	21.43	5500	2.9	X				
33	9020	53.87	2110	1.10	X				
36	8300	49.38	2110	1.15	X				
41	7310	43.33	2100	1.35	X				
43	6940	41.07	2090	1.40	X				
49	6100	35.94	2070	1.55	X				
55	5520	32.38	2050	1.65	X				
62	4860	28.41	2010	1.80	X				
71	4300	25.07	1980	1.95	X	S	77	(E)DRN 112M4	190 818
77	4050	22.89	1740	1.55	X	SF	77	(E)DRN 112M4	210 819
84	3720	20.99	1730	1.70	X	SA	77	(E)DRN 112M4	190 820
96	3270	18.42	1710	1.90	X	SAF	77	(E)DRN 112M4	205 819
101	3100	17.45	1700	2.0	X				
116	2720	15.28	1670	2.3	X				
129	2460	13.76	1640	2.6	X				
147	2160	12.07	1600	3.0	X				
166	1910	10.65	1570	3.4	X				
187	1690	9.44	1530	3.4	X				
219	1450	8.06	1480	3.5	X				
233	1370	15.28	1460	3.4		S	77	DRN 112M2	190 818
258	1230	13.76	1420	3.4		SF	77	DRN 112M2	210 819
294	1080	12.07	1380	3.4		SA	77	DRN 112M2	190 820
333	960	10.65	1340	3.4		SAF	77	DRN 112M2	205 819
376	850	9.44	1300	3.3					
440	725	8.06	1240	3.2					
102	3020	17.28*	1030	1.00					
113	2730	15.60*	1040	1.10	X				
129	2410	13.73*	1040	1.25	X	S	67	(E)DRN 112M4	145 812
136	2280	12.96*	1030	1.30	X	SF	67	(E)DRN 112M4	160 813
160	1950	11.03	1020	1.55	X	SA	67	(E)DRN 112M4	150 814
176	1770	10.03	1010	1.55	X	SAF	67	(E)DRN 112M4	160 813
204	1540	8.69	1000	1.60	X				
234	1340	7.56*	980	1.65	X				
259	1210	13.73*	960	1.55		S	67	DRN 112M2	145 812
274	1150	12.96*	950	1.55		SF	67	DRN 112M2	160 813
322	980	11.03	930	1.50		SA	67	DRN 112M2	150 814
354	890	10.03	910	1.50		SAF	67	DRN 112M2	160 813
409	775	8.69	880	1.40					
470	675	7.56*	850	1.25					

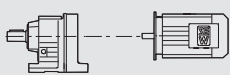

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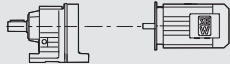

P_m = 7.5 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
12	30400	145.60*	7700	1.05	X				
13	27600	131.85	7810	1.10	X				
15	24700	116.92	7920	1.20	X				
17	22400	105.71	8000	1.25	X				
20	19100	89.60*	8090	1.40	X				
23	16800	78.26	8150	1.50	X	S	97	(E)DRN 132S4	425 830
25	17100	71.43	8140	1.70	X	SF	97	(E)DRN 132S4	495 831
27	14100	65.45	8200	1.65	X	SA	97	(E)DRN 132S4	410 832
29	14600	60.59	8190	2.0	X	SAF	97	(E)DRN 132S4	470 831
32	13500	55.79	8220	2.2	X				
35	12100	49.87	8240	2.4	X				
39	10900	44.89	8260	2.7	X				
43	9920	40.65	8260	2.9	X				
28	13500	64.00*	6550	1.05	X				
31	13500	57.00*	6540	1.05	X				
37	11400	47.91	6540	1.25	X				
40	10500	44.03	6440	1.35	X				
45	9400	39.10	6290	1.50	X				
51	8430	34.96*	6150	1.70	X				
56	7600	31.43	6010	1.85	X	S	87	(E)DRN 132S4	295 824
65	6610	27.28	5830	2.1	X	SF	87	(E)DRN 132S4	345 825
69	6330	25.50*	5490	1.75	X	SA	87	(E)DRN 132S4	290 826
82	5340	21.43	5300	2.0	X	SAF	87	(E)DRN 132S4	325 825
90	4910	19.70	5210	2.2	X				
101	4370	17.49	5070	2.5	X				
113	3920	15.64*	4950	2.8	X				
126	3530	14.06	4830	3.1	X				
145	3070	12.21	4670	3.6	X				
162	2750	10.93	4550	3.6	X				
43	9650	41.07	1750	1.00	X				
49	8480	35.94	1770	1.10	X				
55	7670	32.38	1780	1.20	X				
62	6750	28.41	1780	1.30	X				
71	5980	25.07	1770	1.40	X				
80	5310	22.22	1750	1.55	X				
93	4550	18.97	1720	1.65	X	S	77	(E)DRN 132S4	215 818
96	4550	18.42	1490	1.40	X	SF	77	(E)DRN 132S4	235 819
101	4310	17.45	1490	1.45	X	SA	77	(E)DRN 132S4	215 820
116	3780	15.28	1480	1.70	X	SAF	77	(E)DRN 132S4	230 819
128	3420	13.76	1470	1.85	X				
146	3000	12.07	1460	2.1	X				
166	2650	10.65	1440	2.4	X				
187	2360	9.44	1410	2.5	X				
219	2020	8.06	1380	2.5	X				
258	1720	13.76	1340	2.5		S	77	DRN 132S2	215 818
294	1510	12.07	1310	2.4		SF	77	DRN 132S2	235 819
333	1330	10.65	1270	2.4		SA	77	DRN 132S2	215 820
375	1180	9.44	1240	2.4		SAF	77	DRN 132S2	230 819
439	1010	8.06	1200	2.3					
160	2710	11.03	810	1.10	X	S	67	(E)DRN 132S4	170 812
176	2460	10.03	860	1.15	X	SF	67	(E)DRN 132S4	185 813
204	2140	8.69	880	1.15	X	SA	67	(E)DRN 132S4	175 814
234	1870	7.56*	870	1.20	X	SAF	67	(E)DRN 132S4	185 813
258	1690	13.73*	870	1.10		S	67	DRN 132S2	170 812
273	1600	12.96*	860	1.10		SF	67	DRN 132S2	185 813
321	1360	11.03	850	1.10		SA	67	DRN 132S2	175 814
353	1240	10.03	840	1.05		SAF	67	DRN 132S2	185 813
408	1080	8.69	820	1.00					

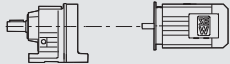

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P_m = 10.0 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs			
20	25400	89.60*	7890	1.05	X						
23	22300	78.26	8000	1.15	X						
25	22800	71.43	7980	1.30	X						
27	18800	65.45	8100	1.25	X						
29	19400	60.59	8080	1.50	X						
32	17900	55.79	8120	1.60	X						
36	16100	49.87	8160	1.80	X	S	97	(E)DRN	132M4	465	830
40	14500	44.89	8160	2.0	X	SF	97	(E)DRN	132M4	540	831
44	13100	40.65	8000	2.2	X	SA	97	(E)DRN	132M4	450	832
49	11700	36.05	7790	2.4	X	SAF	97	(E)DRN	132M4	510	831
54	10600	32.60	7620	2.5	X						
67	8830	26.39	6960	2.6	X						
75	7910	23.59	6800	2.9	X						
84	7130	21.23	6650	3.2	X						
92	6460	19.23	6500	3.4	X						
40	14000	44.03	6100	1.00	X						
45	12400	39.10	5980	1.15	X						
51	11200	34.96*	5870	1.25	X						
56	10100	31.43	5760	1.40	X						
65	8790	27.28	5610	1.60	X						
70	8420	25.50*	5200	1.30	X	S	87	(E)DRN	132M4	335	824
83	7100	21.43	5060	1.55	X	SF	87	(E)DRN	132M4	380	825
90	6530	19.70	4990	1.70	X	SA	87	(E)DRN	132M4	330	826
101	5810	17.49	4880	1.90	X	SAF	87	(E)DRN	132M4	365	825
113	5210	15.64*	4770	2.1	X						
126	4690	14.06	4670	2.3	X						
145	4080	12.21	4530	2.7	X						
162	3650	10.93	4420	2.7	X						
196	3040	9.07	4240	2.8	X						
225	2640	7.88	4100	2.8	X						
227	2620	15.64*	4090	2.6		S	87	DRN	132S2	295	824
252	2360	14.06	3990	2.5		SF	87	DRN	132S2	345	825
290	2050	12.21	3850	2.3		SA	87	DRN	132S2	290	826
324	1840	10.93	3740	2.1		SAF	87	DRN	132S2	325	825
391	1530	9.07	3570	1.45							
450	1330	7.88	3440	1.35							
62	8970	28.41	1490	1.00							
71	7950	25.07	1520	1.05	X						
80	7060	22.22	1530	1.15	X						
93	6050	18.97	1530	1.25	X						
96	6040	18.42	840	1.05	X	S	77	(E)DRN	132M4	255	818
102	5730	17.45	910	1.10	X	SF	77	(E)DRN	132M4	275	819
116	5030	15.28	1060	1.25	X	SA	77	(E)DRN	132M4	255	820
129	4540	13.76	1160	1.40	X	SAF	77	(E)DRN	132M4	270	819
147	3990	12.07	1270	1.60	X						
167	3530	10.65	1280	1.80	X						
188	3130	9.44	1280	1.85	X						
220	2680	8.06	1260	1.90	X						
232	2540	15.28	1260	1.85		S	77	DRN	132S2	215	818
258	2290	13.76	1240	1.85		SF	77	DRN	132S2	235	819
294	2010	12.07	1220	1.80		SA	77	DRN	132S2	215	820
333	1780	10.65	1200	1.80		SAF	77	DRN	132S2	230	819
375	1580	9.44	1170	1.75							
440	1350	8.06	1140	1.70							

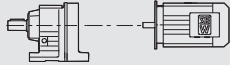

P_m = 12.3 HP									
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA[®]			m lbs	
27	23100	65.45	7970	1.00	X				
32	22000	55.79	8010	1.30	X				
36	19800	49.87	8050	1.45	X				
40	17800	44.89	7900	1.65	X				
44	16200	40.65	7760	1.75	X				
49	14400	36.05	7580	1.90	X				
54	13000	32.60	7430	2.0	X	S	97	(E)DRN 132L4	480 830
67	10800	26.39	6740	2.1	X	SF	97	(E)DRN 132L4	550 831
75	9720	23.59	6600	2.4	X	SA	97	(E)DRN 132L4	470 832
84	8760	21.23	6470	2.6	X	SAF	97	(E)DRN 132L4	530 831
92	7950	19.23	6340	2.8	X				
104	7060	17.05	6180	3.0	X				
115	6390	15.42	6050	3.2	X				
136	5420	13.07	5830	3.5	X				
156	4740	11.41	5650	3.7	X				
51	13700	34.96*	5620	1.05	X				
56	12400	31.43	5540	1.15	X				
65	10800	27.28	5410	1.30	X				
73	9700	24.43	5310	1.45	X				
88	8070	20.27	5130	1.55	X				
90	8030	19.70	4780	1.35	X	S	87	(E)DRN 132L4	355 824
101	7150	17.49	4700	1.55	X	SF	87	(E)DRN 132L4	400 825
113	6400	15.64*	4610	1.70	X	SA	87	(E)DRN 132L4	345 826
126	5760	14.06	4530	1.90	X	SAF	87	(E)DRN 132L4	385 825
145	5010	12.21	4410	2.2	X				
162	4490	10.93	4310	2.2	X				
196	3730	9.07	4140	2.2	X				
225	3250	7.88	4020	2.3	X				
94	7440	18.97	1360	1.00	X				
129	5580	13.76	685	1.15	X	S	77	(E)DRN 132L4	275 818
147	4910	12.07	840	1.30	X	SF	77	(E)DRN 132L4	295 819
167	4340	10.65	960	1.50	X	SA	77	(E)DRN 132L4	270 820
188	3850	9.44	1060	1.50	X	SAF	77	(E)DRN 132L4	285 819
220	3300	8.06	1160	1.55	X				

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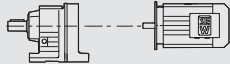

P_m = 15.0 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs		
32	26900	55.79	7810	1.10	X					
36	24100	49.87	7700	1.20	X					
40	21700	44.89	7590	1.35	X					
44	19700	40.65	7480	1.45	X					
49	17500	36.05	7330	1.55	X					
54	15900	32.60	7200	1.65	X	S	97	(E)DRN	160M4	550 830
67	13200	26.39	6480	1.75	X	SF	97	(E)DRN	160M4	630 831
75	11800	23.59	6370	1.95	X	SA	97	(E)DRN	160M4	540 832
84	10600	21.23	6260	2.1	X	SAF	97	(E)DRN	160M4	600 831
92	9690	19.23	6150	2.3	X					
104	8600	17.05	6010	2.5	X					
115	7790	15.42	5900	2.6	X					
136	6610	13.07	5700	2.9	X					
156	5780	11.41	5530	3.1	X					
65	13100	27.28	5180	1.05	X					
73	11800	24.43	5100	1.20	X					
88	9840	20.27	4960	1.30	X					
90	9790	19.70	4550	1.10	X	S	87	(E)DRN	160M4	425 824
102	8710	17.49	4490	1.25	X	SF	87	(E)DRN	160M4	470 825
114	7800	15.64*	4420	1.40	X	SA	87	(E)DRN	160M4	420 826
126	7030	14.06	4360	1.55	X	SAF	87	(E)DRN	160M4	455 825
146	6110	12.21	4260	1.80	X					
163	5480	10.93	4180	1.80	X					
196	4550	9.07	4040	1.85	X					
225	3960	7.88	3920	1.85	X					
147	5980	12.07	350	1.05	X	S	77	(E)DRN	160M4	345 818
167	5290	10.65	525	1.20	X	SF	77	(E)DRN	160M4	365 819
188	4700	9.44	665	1.25	X	SA	77	(E)DRN	160M4	340 820
220	4020	8.06	820	1.25	X	SAF	77	(E)DRN	160M4	355 819

P_m = 20 HP										
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA [®]			m lbs		
40	29000	44.89	7020	1.00	X					
44	26300	40.65	6960	1.10	X					
49	23400	36.05	6870	1.20	X					
55	21200	32.60	6790	1.25	X					
67	17600	26.39	5990	1.30	X					
75	15700	23.59	5930	1.45	X	S	97	(E)DRN	160L4	590 830
84	14200	21.23	5870	1.60	X	SF	97	(E)DRN	160L4	660 831
92	12900	19.23	5800	1.70	X	SA	97	(E)DRN	160L4	580 832
104	11400	17.05	5700	1.85	X	SAF	97	(E)DRN	160L4	630 831
115	10300	15.42	5610	1.95	X					
136	8810	13.07	5460	2.2	X					
156	7700	11.41	5320	2.3	X					
186	6450	9.55	5140	2.3	X					
215	5590	8.26	4990	2.3	X					
114	10400	15.64*	4080	1.05	X					
126	9360	14.06	4050	1.15	X	S	87	(E)DRN	160L4	460 824
146	8140	12.21	3990	1.35	X	SF	87	(E)DRN	160L4	510 825
163	7300	10.93	3940	1.35	X	SA	87	(E)DRN	160L4	455 826
196	6070	9.07	3830	1.40	X	SAF	87	(E)DRN	160L4	490 825
225	5280	7.88	3750	1.40	X					

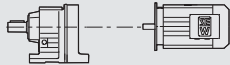

P_m = 25 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
55	26400	32.60	6370	1.00	X				
64	22400	27.63	6270	1.10	X				
74	19600	24.13	6170	1.20	X				
84	17700	21.23	5480	1.30	X				
93	16100	19.23	5440	1.35	X	S	97	(E)DRN 180M4	640 830
104	14300	17.05	5390	1.50	X	SF	97	(E)DRN 180M4	710 831
116	12900	15.42	5330	1.55	X	SA	97	(E)DRN 180M4	630 832
136	10900	13.07	5220	1.75	X	SAF	97	(E)DRN 180M4	680 831
156	9610	11.41	5110	1.85	X				
187	8050	9.55	4960	1.85	X				
216	6970	8.26	4830	1.85	X				
146	10100	12.21	3710	1.10	X	S	87	(E)DRN 180M4	510 824
163	9110	10.93	3690	1.10	X	SF	87	(E)DRN 180M4	550 825
196	7570	9.07	3630	1.10	X	SA	87	(E)DRN 180M4	500 826
226	6590	7.88	3570	1.10	X	SAF	87	(E)DRN 180M4	540 825

P_m = 30 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
74	23600	24.13	5870	1.00	X				
84	21300	21.23	4800	1.05	X				
93	19300	19.23	5090	1.15	X				
104	17100	17.05	5070	1.25	X				
116	15500	15.42	5050	1.30	X	S	97	(E)DRN 180L4	670 830
136	13100	13.07	4980	1.45	X	SF	97	(E)DRN 180L4	740 831
156	11500	11.41	4900	1.55	X	SA	97	(E)DRN 180L4	660 832
187	9660	9.55	4790	1.55	X	SAF	97	(E)DRN 180L4	720 831
216	8370	8.26	4680	1.50	X				

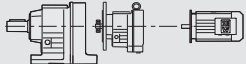

P_m = 40 HP

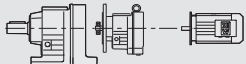

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
136	17500	13.07	4460	1.10	X	S	97	(E)DRN 200L4	910 830
156	15300	11.41	4480	1.15	X	SF	97	(E)DRN 200L4	980 831
187	12800	9.55	4440	1.15	X	SA	97	(E)DRN 200L4	900 832
216	11100	8.26	4380	1.15	X	SAF	97	(E)DRN 200L4	960 831

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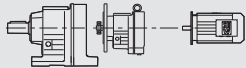

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11.4 S.. R.. DRS/DRN.. Selections by torque / low output speed

T_{a max} = 810 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.17	10037	675							
0.19	8654	675							
0.21	8066	675							
0.24	7051	675							
0.28	6079	675							
0.31	5431	675							
0.35	4747	675							
0.40	4155	675							
0.46	3632	675	S	37R17	DR	63S4	30	795/836	
0.59	2866	675	SF	37R17	DR	63S4	33	796/836	
0.68	2471	675	SA	37R17	DR	63S4	30	797/836	
0.78	2160	675	SAF	37R17	DR	63S4	33	796/836	
0.89	1887	675							
1.0	1665	675							
1.1	1456	675							
1.3	1271	675							
1.5	1121	675							
1.7	994	675							
1.9	869	675							
2.2	774	675							
2.5	666	675							
2.8	596	675							
3.2	521	675	S	37R17	DR	63S4	30	795/836	
3.7	456	675	SF	37R17	DR	63S4	33	796/836	
4.2	398	675	SA	37R17	DR	63S4	29	797/836	
4.8	351	675	SAF	37R17	DR	63S4	33	796/836	
5.5	303	675							
6.3	265	675							
7.2	232	675							
8.4	202	675							
9.5	179	675	S	37R17	DRS	71S4	35	795/836	
11	158	675	SF	37R17	DRS	71S4	38	796/836	
12	144	675	SA	37R17	DRS	71S4	35	797/836	
14	118	675	SAF	37R17	DRS	71S4	38	796/836	
15	110	675							

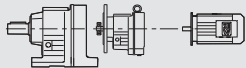

T_{a max} = 1610 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
1.8	956	1170	S	47R17	DR	63S4	37	800/836	
			SF	47R17	DR	63S4	45	801/836	
			SA	47R17	DR	63S4	39	802/836	
			SAF	47R17	DR	63S4	43	801/836	

T_{a max} = 1630 lb-in

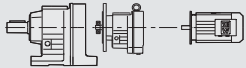

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.13	12909	1180						
0.15	11189	1180						
0.16	10374	1180						
0.19	8992	1180						
0.21	7860	1180						
0.24	6887	1180						
0.28	6055	1180						
0.32	5292	1180						
0.36	4637	1180						
0.41	4092	1180	S	47R17	DR	63S4	37	800/836
0.47	3582	1170	SF	47R17	DR	63S4	45	801/836
0.54	3131	1170	SA	47R17	DR	63S4	39	802/836
0.62	2714	1170	SAF	47R17	DR	63S4	43	801/836
0.70	2412	1170						
0.79	2131	1170						
0.90	1863	1170						
1.0	1663	1170						
1.2	1435	1170						
1.3	1254	1170						
1.5	1120	1170						
1.6	1083	1170						
1.7	965	1170	S	47R17	DR	63S4	36	800/836
1.9	865	1170	SF	47R17	DR	63S4	44	801/836
2.2	750	1170	SA	47R17	DR	63S4	39	802/836
2.6	655	1170	SAF	47R17	DR	63S4	43	801/836
2.9	574	1170						
3.3	506	1170						
3.9	438	1170						
4.4	388	1170						
5.1	336	1170						
5.8	294	1170	S	47R17	DRS	71S4	42	800/836
6.6	257	1180	SF	47R17	DRS	71S4	50	801/836
7.4	229	1170	SA	47R17	DRS	71S4	44	802/836
8.5	200	1170	SAF	47R17	DRS	71S4	48	801/836
9.1	187	1170						
10	165	1170						
12	148	1170						
13	131	1170						

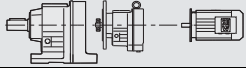

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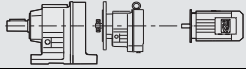

T_{a max} = 2650 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.54	3131	1590						
0.62	2714	1590						
0.70	2412	1590						
0.79	2131	1590	S	57R17	DR	63S4	45	806/836
0.90	1863	1590	SF	57R17	DR	63S4	54	807/836
1.0	1663	1590	SA	57R17	DR	63S4	45	808/836
1.2	1435	1590	SAF	57R17	DR	63S4	51	807/836
1.3	1254	1590						
1.6	1083	1590						
1.7	965	1590	S	57R17	DR	63S4	45	806/836
1.9	865	1590	SF	57R17	DR	63S4	53	807/836
2.2	750	1590	SA	57R17	DR	63S4	44	808/836
			SAF	57R17	DR	63S4	51	807/836

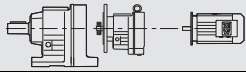

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T_{a max} = 2650 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
2.6	655	1590						
3.0	574	1590						
3.4	506	1590						
3.9	438	1590	S	57R17	DRS	71S4	50	806/836
4.4	388	1590	SF	57R17	DRS	71S4	59	807/836
5.1	336	1590	SA	57R17	DRS	71S4	50	808/836
5.8	294	1590	SAF	57R17	DRS	71S4	56	807/836
6.3	269	1590						
7.4	229	1590						
8.3	204	1590	S	57R17	DRS	71M4	53	806/836
9.0	187	1590	SF	57R17	DRS	71M4	61	807/836
10	165	1590	SA	57R17	DRS	71M4	53	808/836
			SAF	57R17	DRS	71M4	59	807/836
13	131	1590	S	57R17	DRN	80M4	63	806/836
			SF	57R17	DRN	80M4	71	807/836
			SA	57R17	DRN	80M4	62	808/836
			SAF	57R17	DRN	80M4	69	807/836

T_{a max} = 2910 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.13	12909	1530						
0.15	11189	1530						
0.16	10374	1530						
0.19	8992	1530						
0.21	7860	1530	S	57R17	DR	63S4	45	806/836
0.24	6887	1530	SF	57R17	DR	63S4	54	807/836
0.28	6055	1530	SA	57R17	DR	63S4	45	808/836
0.32	5292	1530	SAF	57R17	DR	63S4	51	807/836
0.36	4637	1530						
0.41	4092	1530						
0.46	3628	1530						

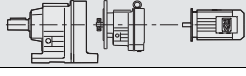

T_{a max} = 5040 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.08	21362	1840						
0.09	19594	1840						
0.09	18120	1840						
0.10	16682	1840						
0.12	14383	1840						
0.13	12774	1840						
0.15	11013	1840						
0.17	9694	1840						
0.20	8529	1840						
0.23	7455	1840						
0.26	6531	1840	S	67R37	DR	63S4	87	812/836
0.29	5759	1840	SF	67R37	DR	63S4	100	813/836
0.34	4965	1840	SA	67R37	DR	63S4	89	814/836
0.38	4410	1840	SAF	67R37	DR	63S4	99	813/836
0.43	3880	1840						
0.49	3432	1840						
0.57	2944	1840						
0.64	2630	1840						
0.74	2279	1840						
0.83	2014	1840						
0.95	1772	1840						
1.1	1559	1840						
1.2	1363	1840						
1.4	1194	1840	S	67R37	DRS	71S4	93	812/836
1.6	1045	1840	SF	67R37	DRS	71S4	105	813/836
1.9	914	1840	SA	67R37	DRS	71S4	95	814/836
			SAF	67R37	DRS	71S4	105	813/836

T_{a max} = 5040 lb-in

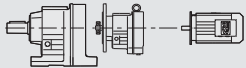

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
2.1	809	1840						
2.4	712	1840	S	67R37	DRS	71S4	92	812/836
2.8	615	1840	SF	67R37	DRS	71S4	105	813/836
3.1	543	1840	SA	67R37	DRS	71S4	94	814/836
3.6	469	1840	SAF	67R37	DRS	71S4	105	813/836
4.0	424	1840						
4.6	365	1840	S	67R37	DRS	71M4	95	812/836
5.3	319	1840	SF	67R37	DRS	71M4	110	813/836
6.0	281	1840	SA	67R37	DRS	71M4	97	814/836
			SAF	67R37	DRS	71M4	105	813/836
7.1	246	1840	S	67R37	DRN	80M4	105	812/836
7.9	221	1840	SF	67R37	DRN	80M4	120	813/836
8.9	198	1840	SA	67R37	DRN	80M4	105	814/836
			SAF	67R37	DRN	80M4	115	813/836
10	168	1840	S	67R37	DRN	90S4	120	812/836
			SF	67R37	DRN	90S4	130	813/836
			SA	67R37	DRN	90S4	120	814/836
			SAF	67R37	DRN	90S4	130	813/836

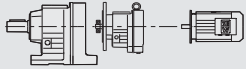

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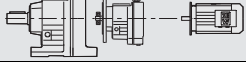

T_{a max} = 10900 lb-in

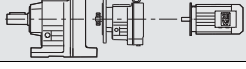

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.61	2753	2690	S	77R37	DR	63S4	130	818/836
			SF	77R37	DR	63S4	150	819/836
			SA	77R37	DR	63S4	130	820/836
			SAF	77R37	DR	63S4	145	819/836
0.72	2374	2690						
0.82	2083	2690	S	77R37	DRS	71S4	135	818/836
0.94	1813	2690	SF	77R37	DRS	71S4	155	819/836
0.97	1745	2690	SA	77R37	DRS	71S4	135	820/836
1.1	1600	2690	SAF	77R37	DRS	71S4	150	819/836
1.2	1404	2690						
1.4	1245	2690						
1.6	1100	2690	S	77R37	DRS	71S4	135	818/836
1.8	954	2690	SF	77R37	DRS	71S4	155	819/836
2.0	837	2690	SA	77R37	DRS	71S4	135	820/836
			SAF	77R37	DRS	71S4	150	819/836
2.4	714	2690	S	77R37	DRS	71M4	135	818/836
2.6	637	2690	SF	77R37	DRS	71M4	160	819/836
2.9	574	2690	SA	77R37	DRS	71M4	135	820/836
			SAF	77R37	DRS	71M4	150	819/836
3.5	499	2690	S	77R37	DRN	80M4	145	818/836
			SF	77R37	DRN	80M4	170	819/836
4.0	438	2690	SA	77R37	DRN	80M4	145	820/836
			SAF	77R37	DRN	80M4	160	819/836
4.5	389	2690	S	77R37	DRN	90S4	160	818/836
5.4	327	2690	SF	77R37	DRN	90S4	180	819/836
6.1	289	2690	SA	77R37	DRN	90S4	160	820/836
			SAF	77R37	DRN	90S4	175	819/836
7.1	250	2690	S	77R37	DRN	90L4	165	818/836
			SF	77R37	DRN	90L4	190	819/836
8.1	219	2690	SA	77R37	DRN	90L4	165	820/836
			SAF	77R37	DRN	90L4	180	819/836

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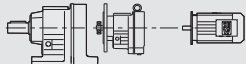

T_{a max} = 11200 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
0.07	25493	2630						
0.08	21787	2630						
0.08	19907	2630						
0.10	17013	2630						
0.11	14668	2630						
0.13	13110	2630						
0.15	11569	2630	S	77R37	DR	63S4	130	818/836
0.17	9887	2630	SF	77R37	DR	63S4	150	819/836
0.19	8817	2630	SA	77R37	DR	63S4	130	820/836
0.22	7735	2630	SAF	77R37	DR	63S4	145	819/836
0.25	6735	2630						
0.28	5943	2630						
0.32	5214	2630						
0.36	4618	2630						
0.42	3992	2630						
0.48	3540	2630	S	77R37	DRS	71S4	135	818/836
			SF	77R37	DRS	71S4	155	819/836
0.55	3098	2630	SA	77R37	DRS	71S4	135	820/836
			SAF	77R37	DRS	71S4	150	819/836

T_{a max} = 17500 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
6.9	255	6390	S	87R57	DRN	100LM4	300	824/836
7.9	222	6390	SF	87R57	DRN	100LM4	350	825/836
8.6	205	6390	SA	87R57	DRN	100LM4	295	826/836
			SAF	87R57	DRN	100LM4	330	825/836

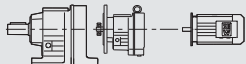

T_{a max} = 21200 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
5.5	323	6230	S	87R57	DRN	100LM4	300	824/836
			SF	87R57	DRN	100LM4	350	825/836
			SA	87R57	DRN	100LM4	295	826/836
			SAF	87R57	DRN	100LM4	330	825/836
6.3	281	6230	S	87R57	DRN	100L4	300	824/836
			SF	87R57	DRN	100L4	350	825/836
			SA	87R57	DRN	100L4	295	826/836
			SAF	87R57	DRN	100L4	330	825/836

T_{a max} = 21600 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
4.1	435	6200	S	87R57	DRN	100LM4	300	824/836
			SF	87R57	DRN	100LM4	350	825/836
4.7	378	6200	SA	87R57	DRN	100LM4	295	826/836
			SAF	87R57	DRN	100LM4	330	825/836

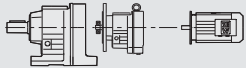

T_{a max} = 22100 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.06	25987	6180						
0.07	23940	6180						
0.08	20568	6180						
0.09	18265	6180						
0.10	16774	6180	S	87R57	DR	63S4	240	824/836
0.11	14820	6180	SF	87R57	DR	63S4	285	825/836
0.13	13160	6180	SA	87R57	DR	63S4	235	826/836
0.15	11200	6180	SAF	87R57	DR	63S4	270	825/836
0.17	9904	6180						
0.20	8549	6180						
0.22	7643	6180						
0.25	6706	6180	S	87R57	DRS	71S4	245	824/836
0.29	5875	6180	SF	87R57	DRS	71S4	290	825/836
0.33	5187	6180	SA	87R57	DRS	71S4	240	826/836
0.37	4606	6180	SAF	87R57	DRS	71S4	275	825/836
0.44	3872	6180						
0.49	3475	6180	S	87R57	DRS	71S4	240	824/836
0.59	2905	6180	SF	87R57	DRS	71S4	290	825/836
0.66	2586	6180	SA	87R57	DRS	71S4	235	826/836
0.73	2335	6180	SAF	87R57	DRS	71S4	270	825/836
0.82	2054	6180	S	87R57	DRS	71M4	245	824/836
0.93	1824	6180	SF	87R57	DRS	71M4	290	825/836
1.0	1631	6180	SA	87R57	DRS	71M4	240	826/836
			SAF	87R57	DRS	71M4	275	825/836
1.3	1332	6180	S	87R57	DRN	80M4	255	824/836
			SF	87R57	DRN	80M4	305	825/836
1.5	1191	6180	SA	87R57	DRN	80M4	250	826/836
			SAF	87R57	DRN	80M4	285	825/836
1.7	1032	6180	S	87R57	DRN	90S4	270	824/836
1.9	930	6180	SF	87R57	DRN	90S4	315	825/836
2.1	831	6180	SA	87R57	DRN	90S4	265	826/836
2.5	719	6180	SAF	87R57	DRN	90S4	300	825/836
2.8	624	6180	S	87R57	DRN	90L4	275	824/836
			SF	87R57	DRN	90L4	325	825/836
3.2	558	6180	SA	87R57	DRN	90L4	270	826/836
			SAF	87R57	DRN	90L4	305	825/836
3.6	485	6180	S	87R57	DRN	100LM4	300	824/836
			SF	87R57	DRN	100LM4	350	825/836
			SA	87R57	DRN	100LM4	295	826/836
			SAF	87R57	DRN	100LM4	330	825/836

T_{a max} = 37100 lb-in

n _a rpm	i	F _{Ra} ¹⁾ lb					m lbs	
0.05	33818	7360						
0.05	31154	7360						
0.06	27847	7360						
0.07	24641	7360	S	97R57	DR	63S4	370	830/836
0.08	21537	7360	SF	97R57	DR	63S4	440	831/836
0.09	18749	7360	SA	97R57	DR	63S4	360	832/836
0.10	16233	7360	SAF	97R57	DR	63S4	415	831/836
0.12	14576	7360						
0.13	12752	7360						
0.15	11267	7360						
0.17	10078	7360						
0.20	8608	7360						
0.23	7554	7360	S	97R57	DRS	71S4	375	830/836
0.26	6640	7080	SF	97R57	DRS	71S4	445	831/836
0.29	5780	7080	SA	97R57	DRS	71S4	365	832/836
0.34	4937	7080	SAF	97R57	DRS	71S4	420	831/836
0.38	4444	7080						
0.42	4017	7080						
0.49	3453	7080						
0.55	3108	7080						

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T_{a max} = 37100 lb-in									
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs		
0.64	2654	7080	S	97R57	DRS	71M4	380	830/836	
0.73	2329	7080	SF	97R57	DRS	71M4	450	831/836	
0.81	2081	7080	SA	97R57	DRS	71M4	365	832/836	
0.91	1860	7080	SAF	97R57	DRS	71M4	425	831/836	
1.1	1574	7080	S	97R57	DRN	80M4	390	830/836	
			SF	97R57	DRN	80M4	460	831/836	
			SA	97R57	DRN	80M4	375	832/836	
			SAF	97R57	DRN	80M4	435	831/836	
1.3	1394	7080	S	97R57	DRN	80M4	385	830/836	
			SF	97R57	DRN	80M4	460	831/836	
			SA	97R57	DRN	80M4	375	832/836	
			SAF	97R57	DRN	80M4	430	831/836	
1.4	1223	7080	S	97R57	DRN	90S4	400	830/836	
			SF	97R57	DRN	90S4	475	831/836	
			SA	97R57	DRN	90S4	390	832/836	
			SAF	97R57	DRN	90S4	445	831/836	
1.6	1070	7080	S	97R57	DRN	90S4	400	830/836	
			SF	97R57	DRN	90S4	475	831/836	
			SA	97R57	DRN	90S4	390	832/836	
			SAF	97R57	DRN	90S4	445	831/836	
1.9	928	7080	S	97R57	DRN	90S4	400	830/836	
			SF	97R57	DRN	90S4	475	831/836	
			SA	97R57	DRN	90S4	390	832/836	
			SAF	97R57	DRN	90S4	445	831/836	
2.1	824	7080	S	97R57	DRN	90L4	410	830/836	
			SF	97R57	DRN	90L4	480	831/836	
			SA	97R57	DRN	90L4	395	832/836	
			SAF	97R57	DRN	90L4	455	831/836	
2.5	714	7360	S	97R57	DRN	100LM4	430	830/836	
			SF	97R57	DRN	100LM4	500	831/836	
			SA	97R57	DRN	100LM4	420	832/836	
			SAF	97R57	DRN	100LM4	480	831/836	
2.8	626	7100	S	97R57	DRN	100LM4	430	830/836	
			SF	97R57	DRN	100LM4	500	831/836	
			SA	97R57	DRN	100LM4	420	832/836	
			SAF	97R57	DRN	100LM4	480	831/836	
3.3	538	7110	S	97R57	DRN	100LM4	430	830/836	
			SF	97R57	DRN	100LM4	500	831/836	
			SA	97R57	DRN	100LM4	420	832/836	
			SAF	97R57	DRN	100LM4	480	831/836	
3.6	484	7110	S	97R57	DRN	100LM4	430	830/836	
			SF	97R57	DRN	100LM4	500	831/836	
			SA	97R57	DRN	100LM4	420	832/836	
			SAF	97R57	DRN	100LM4	480	831/836	
4.2	420	7120	S	97R57	DRN	100L4	430	830/836	
			SF	97R57	DRN	100L4	500	831/836	
			SA	97R57	DRN	100L4	420	832/836	
			SAF	97R57	DRN	100L4	480	831/836	
4.7	376	7130	S	97R57	DRN	100L4	430	830/836	
			SF	97R57	DRN	100L4	500	831/836	
			SA	97R57	DRN	100L4	420	832/836	
			SAF	97R57	DRN	100L4	480	831/836	
5.4	327	7130	S	97R57	DRN	100L4	430	830/836	
			SF	97R57	DRN	100L4	500	831/836	
			SA	97R57	DRN	100L4	420	832/836	
			SAF	97R57	DRN	100L4	480	831/836	
6.1	287	7140	S	97R57	DRN	100L4	430	830/836	
			SF	97R57	DRN	100L4	500	831/836	
			SA	97R57	DRN	100L4	420	832/836	
			SAF	97R57	DRN	100L4	480	831/836	
7.0	252	7150	S	97R57	DRN	112M4	455	830/836	
			SF	97R57	DRN	112M4	520	831/836	
			SA	97R57	DRN	112M4	440	832/836	
			SAF	97R57	DRN	112M4	500	831/836	
8.1	219	7150	S	97R57	DRN	132S4	480	830/836	
			SF	97R57	DRN	132S4	550	831/836	
			SA	97R57	DRN	132S4	465	832/836	
			SAF	97R57	DRN	132S4	520	831/836	
8.6	205	7160	S	97R57	DRN	132S4	480	830/836	
			SF	97R57	DRN	132S4	550	831/836	
			SA	97R57	DRN	132S4	465	832/836	
			SAF	97R57	DRN	132S4	520	831/836	

11.5 Mechanical ratings S. SF. SA. SAF37

3400 – 2800 rpm

S37													
i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
157.43	38/1	22	690	0.42	57	20	710	0.40	57	18	725	0.36	57
144.40		24	675	0.44	58	22	690	0.42	58	19	710	0.38	57
122.94		28	655	0.50	58	26	665	0.47	58	23	690	0.43	58
106.00		32	630	0.55	59	30	635	0.52	59	26	675	0.48	59
98.80		34	620	0.58	59	32	635	0.55	59	28	665	0.51	59
86.36		39	600	0.63	60	37	610	0.60	60	32	635	0.55	60
80.96		42	585	0.66	60	40	600	0.63	60	35	635	0.58	60
71.44		48	485	0.63	58	45	565	0.67	60	39	620	0.63	61
63.33		54	325	0.55	51	51	450	0.63	57	44	595	0.68	61
53.83		63	255	0.52	49	59	285	0.54	50	52	470	0.66	59
55.93	27/2	61	620	0.78	77	57	630	0.75	76	50	635	0.67	76
51.30		66	600	0.82	77	62	620	0.80	77	55	635	0.72	76
43.68		78	585	0.94	77	73	595	0.90	77	64	620	0.82	77
37.66		90	565	1.0	78	85	575	0.99	78	74	600	0.91	78
35.10		97	550	1.1	78	91	565	1.0	78	80	585	0.95	78
30.68		111	540	1.2	78	104	550	1.2	78	91	565	1.0	78
28.76		118	515	1.2	78	111	540	1.2	78	97	565	1.1	78
25.38		134	415	1.2	77	126	470	1.2	78	110	550	1.2	79
22.50		151	275	0.93	71	142	380	1.1	76	124	505	1.3	79
19.13		178	210	0.87	69	167	240	0.90	70	146	390	1.2	77
19.89	24/5	171	370	1.2	86	161	380	1.1	86	141	390	1.0	86
18.24		186	365	1.2	86	175	370	1.2	86	154	390	1.1	86
15.53		219	345	1.3	86	206	355	1.3	86	180	370	1.2	86
13.39		254	325	1.5	86	239	345	1.5	86	209	365	1.3	86
12.48		272	325	1.6	86	256	335	1.6	86	224	355	2.0	86
10.91		312	310	1.7	86	293	320	1.7	86	257	345	1.6	87
10.23		332	310	1.9	87	313	320	1.9	87	274	335	1.7	87
9.02		377	275	1.9	86	355	300	2.0	87	310	320	1.7	87
8.00		425	175	1.5	82	400	255	1.9	86	350	310	2.0	87
6.80		500	140	1.3	81	471	160	1.5	82	412	255	1.9	86
6.33	537	210	2.1	87	506	240	2.1	88	442	285	2.3	88	
5.38	632	175	2.0	87	595	195	2.1	87	520	230	2.1	88	
4.86	700	160	2.0	87	658	170	2.0	87	576	210	2.3	88	
3.97	856	125	2.0	86	806	135	2.0	87	705	170	2.1	88	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 1.5 HP for continuous use.

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2200 – 1400 rpm

S37													
i ratio	Worm ratio/ # starts	$n_e = 2200$ rpm				$n_e = 1700$ rpm				$n_e = 1400$ rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	14	770	0.31	56	11	805	0.25	54	8.9	815	0.21	53
144.40		15	760	0.32	56	12	795	0.27	55	9.7	815	0.23	54
122.94		18	735	0.36	57	14	770	0.30	56	11	805	0.27	55
106.00		21	715	0.40	58	16	760	0.34	57	13	780	0.30	56
98.80		22	710	0.43	58	17	750	0.36	57	14	770	0.31	56
86.36		25	690	0.47	59	20	725	0.39	58	16	760	0.34	57
80.96		27	680	0.50	60	21	725	0.42	59	17	750	0.36	58
71.44		31	665	0.54	60	24	710	0.44	60	20	745	0.39	59
63.33		35	645	0.59	61	27	700	0.50	60	22	725	0.43	60
53.83		41	610	0.64	62	32	675	0.55	61	26	710	0.48	61
55.93	27/2	39	680	0.56	75	30	715	0.47	74	25	715	0.39	73
51.30		43	675	0.60	76	33	710	0.50	75	27	715	0.42	74
43.68		50	655	0.68	76	39	690	0.56	76	32	715	0.48	75
37.66		58	635	0.76	77	45	675	0.63	76	37	700	0.55	76
35.10		63	630	0.80	77	48	665	0.67	77	40	690	0.58	76
30.68		72	620	0.90	78	55	645	0.74	77	46	675	0.63	76
28.76		76	600	0.94	78	59	645	0.78	77	49	665	0.67	77
25.38		87	595	1.0	79	67	630	0.86	78	55	655	0.74	77
22.50		98	585	1.1	79	76	620	0.94	79	62	645	0.82	78
19.13		115	560	1.3	80	89	600	1.1	79	73	630	0.93	79
19.89	24/5	111	425	0.87	85	85	445	0.71	85	70	460	0.62	84
18.24		121	415	0.94	85	93	435	0.75	85	77	460	0.67	84
15.53		142	400	1.0	86	109	425	0.86	85	90	445	0.75	85
13.39		164	390	1.2	86	127	415	0.98	86	105	435	0.84	85
12.48		176	380	1.2	86	136	405	1.0	86	112	425	0.89	86
10.91		202	370	1.3	87	156	400	1.1	86	128	425	1.0	86
10.23		215	365	1.5	87	166	400	1.2	87	137	415	0.78	86
9.02		244	355	1.6	87	188	380	1.3	87	155	405	1.2	87
8.00		275	345	1.7	87	213	380	1.5	87	175	400	1.3	87
6.80		324	325	1.9	88	250	365	1.6	88	206	380	1.5	87
6.33	348	310	2.0	88	269	310	1.5	88	221	310	1.2	87	
5.38	409	300	2.3	88	316	300	1.7	88	260	300	1.5	88	
4.86	453	285	2.3	89	350	290	1.7	88	288	290	1.5	88	
3.97	554	230	2.3	88	428	285	2.1	89	353	285	1.7	88	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where $P_{e_{max}} = 1.5$ HP for continuous use.

1100 – 700 rpm

S37													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
157.43	38/1	7.0	815	0.17	52	5.7	815	0.15	50	4.4	815	0.12	49
144.40		7.6	815	0.19	52	6.2	815	0.16	51	4.8	815	0.12	50
122.94		8.9	815	0.21	54	7.3	815	0.19	52	5.7	815	0.15	51
106.00		10	815	0.24	55	8.5	815	0.20	53	6.6	815	0.16	52
98.80		11	815	0.25	55	9.1	815	0.21	54	7.1	815	0.17	52
86.36		13	795	0.28	56	10	815	0.24	55	8.1	815	0.20	53
80.96		14	790	0.30	57	11	815	0.25	55	8.6	815	0.21	54
71.44		15	770	0.32	57	13	805	0.28	56	9.8	815	0.23	55
63.33		17	760	0.36	58	14	790	0.31	57	11	815	0.25	56
53.83		20	745	0.40	60	17	770	0.35	58	13	805	0.30	57
55.93	27/2	20	770	0.34	72	16	805	0.28	71	13	815	0.23	70
51.30		21	770	0.36	73	18	795	0.31	72	14	815	0.25	71
43.68		25	745	0.40	74	21	770	0.35	73	16	815	0.30	71
37.66		29	725	0.46	75	24	760	0.39	74	19	790	0.32	72
35.10		31	725	0.48	75	26	745	0.42	74	20	780	0.34	73
30.68		36	710	0.54	76	29	725	0.46	75	23	770	0.38	74
28.76		38	700	0.56	76	31	725	0.48	75	24	760	0.40	74
25.38		43	690	0.62	77	35	715	0.54	76	28	745	0.44	75
22.50		49	680	0.68	77	40	700	0.58	76	31	725	0.48	75
19.13		58	665	0.78	78	47	690	0.67	77	37	715	0.55	76
19.89	24/5	55	485	0.51	83	45	515	0.44	83	35	530	0.36	82
18.24		60	480	0.55	84	49	495	0.47	83	38	530	0.39	82
15.53		71	470	0.63	84	58	485	0.54	84	45	515	0.44	83
13.39		82	460	0.71	85	67	480	0.60	84	52	495	0.50	83
12.48		88	450	0.74	85	72	470	0.63	84	56	485	0.52	84
10.91		101	445	0.83	86	82	460	0.71	85	64	480	0.58	84
10.23		108	435	0.86	86	88	450	0.74	85	68	480	0.62	84
9.02		122	425	0.95	86	100	445	0.82	86	78	470	0.68	85
8.00		138	415	1.0	87	113	435	0.90	86	88	460	0.75	85
6.80		162	405	1.2	87	132	425	1.0	87	103	450	0.86	86
6.33	24/5	174	400	1.3	87	142	400	1.0	87	111	400	0.82	86
5.38		204	380	1.4	88	167	380	1.2	87	130	380	0.91	87
4.86		226	370	1.5	88	185	370	1.2	88	144	370	0.98	87
3.97		277	355	1.8	88	227	355	1.4	88	176	355	1.1	88

11

500 - 10 rpm

S37													
i ratio	Worm ratio/ # starts	$n_e = 500$ rpm				$n_e = 250$ rpm				$n_e = 10$ rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
157.43	38/1	3.2	815	0.08	47	1.6	815	0.04	46	0.06	815	0.00	26
144.40		3.5	815	0.09	48	1.7	815	0.05	46	0.07	815	0.00	27
122.94		4.1	815	0.11	49	2.0	815	0.06	46	0.08	815	0.00	29
106.00		4.7	815	0.12	50	2.4	815	0.07	47	0.09	815	0.00	30
98.80		5.1	815	0.13	50	2.5	815	0.07	47	0.10	815	0.00	31
86.36		5.8	815	0.15	51	2.9	815	0.08	47	0.12	815	0.00	32
80.96		6.2	815	0.16	51	3.1	815	0.08	47	0.12	815	0.00	33
71.44		7.0	815	0.17	52	3.5	815	0.09	48	0.14	815	0.00	35
63.33		7.9	815	0.19	53	3.9	815	0.11	49	0.16	815	0.00	37
53.83		9.3	815	0.21	55	4.6	815	0.12	50	0.19	815	0.00	39
55.93	27/2	8.9	815	0.17	69	4.5	815	0.08	67	0.18	815	0.00	48
51.30		9.7	815	0.19	69	4.9	815	0.09	67	0.19	815	0.00	49
43.68		11	815	0.21	70	5.7	815	0.11	67	0.23	815	0.00	51
37.66		13	815	0.24	71	6.6	815	0.13	67	0.27	815	0.00	53
35.10		14	815	0.25	71	7.1	815	0.13	68	0.28	815	0.00	54
30.68		16	815	0.30	72	8.1	815	0.15	68	0.33	815	0.00	56
28.76		17	805	0.31	72	8.7	815	0.16	69	0.35	815	0.00	57
25.38		20	790	0.34	73	9.9	815	0.19	69	0.39	815	0.00	59
22.50		22	770	0.38	74	11	815	0.20	70	0.44	815	0.00	61
19.13		26	750	0.42	75	13	815	0.24	71	0.52	815	0.00	62
19.89	24/5	25	600	0.30	81	13	635	0.16	79	0.50	635	0.00	65
18.24		27	585	0.31	81	14	635	0.17	79	0.55	635	0.00	66
15.53		32	560	0.35	82	16	635	0.20	79	0.64	635	0.00	68
13.39		37	540	0.39	82	19	635	0.24	80	0.75	635	0.00	71
12.48		40	520	0.40	82	20	635	0.25	80	0.80	635	0.00	72
10.91		46	515	0.46	83	23	630	0.28	81	0.92	630	0.00	73
10.23		49	505	0.47	83	24	620	0.30	81	0.98	620	0.00	73
9.02		55	495	0.52	84	28	585	0.32	81	1.1	585	0.00	74
8.00		63	485	0.58	84	31	560	0.34	82	1.2	560	0.00	74
6.80		74	480	0.66	85	37	540	0.39	82	1.5	540	0.00	75
6.33	79	400	0.59	85	39	400	0.31	83	1.6	400	0.00	80	
5.38	93	380	0.66	86	46	380	0.34	83	1.9	380	0.00	80	
4.86	103	370	0.71	86	51	370	0.36	84	2.1	370	0.00	80	
3.97	126	355	0.82	87	63	355	0.42	84	2.5	355	0.00	80	

11.6 Mechanical ratings S. SF. SA. SAF47

3400 – 2800 rpm

S47

i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00	42/1	17	1330	0.59	60	16	1330	0.56	60	14	1330	0.50	59
184.80		18	1330	0.64	60	17	1330	0.60	60	15	1330	0.54	59
158.12		22	1330	0.74	61	20	1330	0.70	61	18	1330	0.62	60
137.05		25	1330	0.84	62	23	1330	0.79	62	20	1330	0.70	61
128.10		27	1330	0.90	63	25	1330	0.84	62	22	1330	0.75	62
110.73		31	1220	0.94	63	29	1310	0.95	63	25	1330	0.84	63
94.08		36	1000	0.93	62	34	1090	0.94	63	30	1290	0.97	63
84.00		40	840	0.89	61	38	945	0.93	62	33	1150	0.95	63
71.75		47	515	0.74	53	45	725	0.86	60	39	945	0.94	63
67.20		51	470	0.72	52	48	600	0.80	57	42	875	0.93	62
56.61		60	355	0.68	49	57	405	0.71	51	49	665	0.87	60
69.39		49	1240	1.2	79	46	1240	1.2	78	40	1240	1.0	78
63.80		53	1240	1.3	79	50	1240	1.2	79	44	1240	1.1	78
54.59		62	1240	1.5	80	59	1240	1.5	79	51	1240	1.3	79
47.32	72	1230	1.7	80	68	1240	1.6	80	59	1240	1.5	80	
44.22	77	1140	1.7	80	72	1230	1.7	80	63	1240	1.6	80	
38.23	29/2	89	990	1.7	80	84	1060	1.7	80	73	1230	1.7	80
32.48		105	805	1.7	79	99	885	1.7	80	86	1035	1.7	80
29.00		117	675	1.6	78	110	760	1.7	79	97	920	1.7	80
24.77		137	415	1.3	72	129	585	1.6	77	113	770	1.7	80
23.20	147	370	1.2	71	138	480	1.3	75	121	700	1.7	79	
19.54	174	285	1.1	69	164	325	1.2	71	143	520	1.5	77	
20.33	167	885	2.7	88	157	885	2.5	88	138	885	2.1	88	
17.62	193	860	3.0	88	182	885	3.0	88	159	885	2.5	88	
16.47	206	795	3.0	88	194	860	3.0	88	170	885	2.7	88	
14.24	239	690	3.0	88	225	735	3.0	88	197	860	3.1	88	
12.10	281	560	2.8	88	264	610	3.0	88	231	725	3.0	88	
10.80	315	470	2.7	87	296	530	2.8	88	259	635	3.0	88	
9.23	27/5	368	285	2.0	83	347	400	2.5	86	303	530	3.0	88
8.64		394	255	2.0	82	370	325	2.3	85	324	485	2.8	88
7.28		467	195	1.7	81	440	220	1.9	82	385	365	2.5	86
6.83		498	300	2.7	87	469	325	2.7	88	410	400	3.0	88
6.40		531	275	2.7	87	500	300	2.7	87	438	370	3.0	88
5.39		631	210	2.4	86	594	240	2.5	87	519	300	2.8	88
4.76		714	175	2.4	85	672	205	2.5	86	588	255	2.7	87
4.00		850	140	2.3	85	800	160	2.4	85	700	205	2.5	87

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

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2200 – 1400 rpm

S47													
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00	42/1	11	1480	0.44	58	8.5	1505	0.36	56	7.0	1505	0.31	55
184.80		12	1480	0.48	58	9.2	1485	0.39	57	7.6	1505	0.32	56
158.12		14	1480	0.55	60	11	1485	0.44	58	8.9	1505	0.38	57
137.05		16	1460	0.62	60	12	1480	0.50	59	10	1485	0.42	58
128.10		17	1460	0.66	61	13	1480	0.52	59	11	1485	0.44	58
110.73		20	1460	0.74	62	15	1480	0.59	61	13	1485	0.51	59
94.08		23	1460	0.86	63	18	1480	0.68	62	15	1485	0.58	60
84.00		26	1435	0.94	64	20	1480	0.76	62	17	1480	0.64	61
71.75		31	1285	0.98	64	24	1480	0.87	63	20	1480	0.74	62
67.20		33	1210	0.98	64	25	1450	0.91	64	21	1480	0.78	63
56.61		39	1020	0.98	64	30	1345	0.99	65	25	1460	0.90	64
69.39	29/2	32	1370	0.90	77	24	1370	0.70	76	20	1370	0.59	75
63.80		34	1370	0.97	77	27	1370	0.76	76	22	1370	0.63	75
54.59		40	1370	1.1	78	31	1370	0.89	77	26	1370	0.74	76
47.32		46	1370	1.3	79	36	1370	1.0	78	30	1370	0.84	77
44.22		50	1370	1.3	79	38	1370	1.1	78	32	1370	0.90	77
38.23		58	1370	1.6	80	44	1370	1.2	79	37	1370	1.0	78
32.48		68	1290	1.7	80	52	1370	1.5	80	43	1370	1.2	79
29.00		76	1210	1.7	81	59	1365	1.6	80	48	1370	1.3	79
24.77		89	1035	1.7	81	69	1285	1.7	81	57	1370	1.5	80
23.20		95	980	1.9	81	73	1255	1.7	81	60	1345	1.6	80
19.54		113	815	1.7	81	87	1090	1.9	81	72	1275	1.7	81
20.33	27/5	108	965	1.9	87	84	975	1.5	87	69	975	1.2	86
17.62		125	955	2.1	88	96	965	1.7	87	79	975	1.5	86
16.47		134	955	2.3	88	103	965	1.9	87	85	975	1.5	87
14.24		154	955	2.7	88	119	965	2.1	88	98	975	1.7	87
12.10		182	930	3.1	89	140	965	2.4	88	116	965	2.0	88
10.80		204	840	3.1	89	157	955	2.7	88	130	965	2.3	88
9.23		238	725	3.1	89	184	930	3.1	89	152	965	2.7	88
8.64		255	680	3.1	89	197	885	3.1	89	162	965	2.8	88
7.28		302	565	3.1	89	234	760	3.2	89	192	910	3.1	89
6.83		322	550	3.2	89	249	690	3.1	89	205	690	2.5	89
6.40		344	515	3.2	89	266	675	3.2	89	219	675	2.7	89
5.39	408	425	3.1	89	315	575	3.2	89	260	655	3.1	89	
4.76	462	370	3.1	89	357	515	3.2	89	294	635	3.4	90	
4.00	550	300	3.0	88	425	425	3.2	89	350	540	3.4	90	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

1100 – 700 rpm

S47													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00	42/1	5.5	1560	0.25	53	4.5	1595	0.21	52	3.5	1635	0.17	51
184.80		6.0	1540	0.27	54	4.9	1575	0.23	53	3.8	1620	0.19	51
158.12		7.0	1520	0.31	55	5.7	1560	0.27	54	4.4	1595	0.21	52
137.05		8.0	1515	0.35	56	6.6	1520	0.30	55	5.1	1575	0.24	53
128.10		8.6	1515	0.36	57	7.0	1520	0.31	55	5.5	1560	0.25	54
110.73		9.9	1495	0.40	58	8.1	1515	0.35	56	6.3	1540	0.28	55
94.08		12	1495	0.47	59	9.6	1515	0.40	57	7.4	1520	0.32	56
84.00		13	1495	0.52	60	11	1495	0.43	58	8.3	1515	0.35	57
71.75		15	1495	0.60	61	13	1495	0.50	60	9.8	1515	0.40	58
67.20		16	1495	0.63	61	13	1495	0.54	60	10	1515	0.43	58
56.61		19	1495	0.74	63	16	1495	0.62	61	12	1515	0.50	60
69.39		29/2	16	1530	0.52	74	13	1560	0.44	73	10	1595	0.36
63.80	17		1530	0.56	74	14	1550	0.47	73	11	1595	0.39	72
54.59	20		1515	0.64	75	16	1530	0.54	74	13	1560	0.44	73
47.32	23		1515	0.74	76	19	1530	0.62	75	15	1550	0.50	73
44.22	25		1515	0.78	76	20	1515	0.66	75	16	1550	0.52	74
38.23	29		1495	0.89	77	24	1515	0.75	76	18	1530	0.59	75
32.48	34		1495	1.0	78	28	1515	0.87	77	22	1515	0.68	75
29.00	38		1505	1.2	78	31	1515	0.97	77	24	1515	0.76	76
24.77	44		1495	1.3	79	36	1505	1.1	78	28	1515	0.89	77
23.20	47		1450	1.3	79	39	1505	1.2	79	30	1515	0.94	77
19.54	56		1365	1.5	80	46	1460	1.3	79	36	1505	1.1	78
20.33	27/5		54	990	1.0	85	44	1010	0.84	84	34	1025	0.67
17.62		62	990	1.2	86	51	1000	0.95	85	40	1020	0.76	84
16.47		67	990	1.2	86	55	1000	1.0	85	43	1010	0.80	84
14.24		77	980	1.3	86	63	990	1.2	86	49	1000	0.93	85
12.10		91	980	1.6	87	74	980	1.3	86	58	1000	1.1	85
10.80		102	980	1.9	87	83	980	1.5	87	65	990	1.2	86
9.23		119	975	2.1	88	98	980	1.7	87	76	990	1.3	86
8.64		127	965	2.3	88	104	980	1.9	87	81	990	1.5	87
7.28		151	965	2.7	88	124	980	2.1	88	96	980	1.7	87
6.83		161	840	2.4	89	132	840	2.0	88	102	840	1.6	88
6.40		172	825	2.5	89	141	825	2.1	88	109	825	1.6	88
5.39		204	790	2.8	89	167	790	2.4	89	130	790	1.9	88
4.76	231	770	3.2	89	189	770	2.5	89	147	770	2.0	89	
4.00	275	690	3.4	90	225	745	3.0	89	175	745	2.3	89	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 2.0 HP for continuous use.

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500 – 10 rpm

S47													
i ratio	Worm ratio/ # starts	n _e = 500 rpm				n _e = 250 rpm				n _e = 10 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00		2.5	1635	0.13	49	1.2	1635	0.07	48	0.05	1635	0.00	32
184.80		2.7	1635	0.15	49	1.4	1635	0.07	48	0.05	1635	0.00	32
158.12		3.2	1635	0.16	50	1.6	1635	0.08	48	0.06	1635	0.00	35
137.05		3.6	1635	0.19	51	1.8	1635	0.09	48	0.07	1635	0.00	37
128.10		3.9	1620	0.20	51	2.0	1635	0.11	48	0.08	1635	0.00	38
110.73	42/1	4.5	1600	0.21	52	2.3	1635	0.12	49	0.09	1635	0.00	40
94.08		5.3	1575	0.25	54	2.7	1635	0.13	49	0.11	1635	0.00	42
84.00		6.0	1560	0.27	54	3.0	1635	0.16	50	0.12	1635	0.00	43
71.75		7.0	1540	0.31	56	3.5	1635	0.17	51	0.14	1635	0.00	44
67.20		7.4	1520	0.32	56	3.7	1635	0.19	51	0.15	1635	0.00	44
56.61		8.8	1520	0.38	57	4.4	1600	0.21	53	0.18	1600	0.00	45
69.39		7.2	1635	0.27	70	3.6	1635	0.13	68	0.14	1635	0.00	56
63.80		7.8	1635	0.30	70	3.9	1635	0.15	68	0.16	1635	0.00	57
54.59		9.2	1635	0.34	71	4.6	1635	0.17	68	0.18	1635	0.00	60
47.32		11	1600	0.38	72	5.3	1635	0.20	68	0.21	1635	0.00	61
44.22		11	1595	0.40	72	5.7	1635	0.21	69	0.23	1635	0.00	62
38.23	29/2	13	1575	0.44	73	6.5	1635	0.24	69	0.26	1635	0.00	63
32.48		15	1540	0.51	74	7.7	1635	0.28	70	0.31	1635	0.00	64
29.00		17	1540	0.56	74	8.6	1635	0.32	71	0.34	1635	0.00	65
24.77		20	1520	0.64	75	10	1620	0.36	71	0.40	1620	0.00	66
23.20		22	1520	0.68	76	11	1600	0.38	72	0.43	1600	0.00	66
19.54		26	1520	0.80	77	13	1575	0.44	73	0.51	1575	0.00	67
20.33		25	1095	0.52	82	12	1390	0.34	80	0.49	1390	0.00	75
17.62		28	1060	0.58	83	14	1320	0.38	80	0.57	1320	0.00	76
16.47		30	1045	0.60	83	15	1285	0.39	81	0.61	1285	0.00	76
14.24		35	1025	0.68	84	18	1220	0.42	81	0.70	1220	0.00	77
12.10		41	1020	0.79	84	21	1160	0.47	82	0.83	1160	0.00	77
10.80		46	1010	0.87	85	23	1125	0.50	82	0.93	1125	0.00	77
9.23	27/5	54	1000	1.0	85	27	1070	0.55	83	1.1	1070	0.00	78
8.64		58	1000	1.1	86	29	1060	0.59	83	1.2	1060	0.00	78
7.28		69	990	1.2	86	34	1035	0.67	84	1.4	1035	0.00	78
6.83		73	840	1.1	87	37	840	0.58	84	1.5	840	0.00	81
6.40		78	825	1.2	87	39	825	0.60	85	1.6	825	0.00	81
5.39		93	790	1.3	87	46	790	0.68	85	1.9	790	0.00	81
4.76		105	770	1.5	88	53	770	0.75	86	2.1	770	0.00	81
4.00		125	745	1.7	88	63	745	0.86	86	2.5	745	0.00	81

11.7 Mechanical ratings S. SF. SA. SAF57

3400 – 2800 rpm

S57

i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00	42/1	17	2390	1.0	64	16	2390	0.95	63	14	2390	0.84	62
184.80		18	2390	1.1	64	17	2390	1.0	64	15	2390	0.91	63
158.12		22	2390	1.2	65	20	2390	1.2	65	18	2390	1.0	64
137.05		25	2255	1.3	66	23	2390	1.3	66	20	2390	1.2	65
128.10		27	2170	1.3	66	25	2255	1.3	66	22	2390	1.3	65
110.73		31	1905	1.3	67	29	2035	1.3	67	25	2255	1.3	66
94.08		36	1630	1.3	67	34	1735	1.3	67	30	1990	1.5	67
84.00		40	1460	1.3	67	38	1550	1.3	67	33	1770	1.3	67
71.75		47	1230	1.3	67	45	1320	1.3	67	39	1540	1.5	67
67.20		51	1135	1.3	66	48	1230	1.3	67	42	1450	1.5	67
56.61	60	910	1.3	65	57	1010	1.3	66	49	1220	1.5	67	
69.39	49	1945	1.9	81	46	1945	1.7	80	40	1945	1.6	80	
63.80	53	1945	2.0	81	50	1945	1.9	81	44	1945	1.7	80	
54.59	62	1945	2.4	81	59	1945	2.3	81	51	1945	2.0	81	
47.32	72	1860	2.5	82	68	1945	2.5	82	59	1945	2.3	81	
44.22	77	1745	2.5	82	72	1815	2.5	82	63	1945	2.4	81	
38.23	89	1540	2.7	82	84	1630	2.7	82	73	1815	2.5	82	
32.48	105	1310	2.7	82	99	1390	2.7	82	86	1595	2.7	82	
29.00	117	1160	2.7	82	110	1250	2.7	82	97	1435	2.7	82	
24.77	137	980	2.5	82	129	1060	2.7	82	113	1230	2.7	82	
23.20	147	905	2.5	82	138	980	2.7	82	121	1160	2.7	82	
19.54	174	715	2.4	81	164	795	2.5	82	143	965	2.7	82	
20.33	167	1415	4.3	89	157	1415	4.0	89	138	1415	3.5	88	
17.62	193	1240	4.3	89	182	1320	4.3	89	159	1415	4.0	89	
16.47	206	1170	4.3	89	194	1240	4.3	89	170	1400	4.3	89	
14.24	239	1025	4.3	89	225	1090	4.3	89	197	1230	4.3	89	
12.10	281	875	4.4	89	264	930	4.4	89	231	1070	4.4	89	
10.80	315	780	4.4	89	296	830	4.4	89	259	955	4.4	89	
9.23	368	645	4.3	89	347	700	4.3	89	303	825	4.4	89	
8.64	394	600	4.3	89	370	655	4.3	89	324	770	4.4	89	
7.28	467	480	4.0	88	440	530	4.2	89	385	635	4.3	89	
6.83	498	480	4.3	89	469	515	4.3	89	410	610	4.4	90	
6.40	531	445	4.2	89	500	480	4.3	89	438	565	4.4	89	
5.39	631	365	4.2	89	594	390	4.2	89	519	470	4.3	89	
4.76	714	310	4.0	88	672	335	4.0	89	588	405	4.3	89	
4.00	850	250	3.8	88	800	275	3.9	88	700	335	4.2	89	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 4.0 HP for continuous use.

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2200 – 1400 rpm

S57														
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm				
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	
201.00		11	2610	0.74	61	8.5	2610	0.59	59	7.0	2610	0.50	58	
184.80		12	2610	0.80	62	9.2	2610	0.64	60	7.6	2610	0.54	58	
158.12		14	2610	0.93	63	11	2610	0.74	61	8.9	2610	0.62	60	
137.05		16	2610	1.0	64	12	2610	0.83	62	10	2610	0.70	61	
128.10		17	2610	1.1	64	13	2610	0.89	62	11	2610	0.74	61	
110.73	42/1	20	2565	1.2	65	15	2610	1.0	63	13	2610	0.84	62	
94.08		23	2435	1.3	66	18	2655	1.2	65	15	2610	0.98	63	
84.00		26	2215	1.3	67	20	2520	1.2	65	17	2610	1.1	64	
71.75		31	1945	1.5	67	24	2435	1.3	66	20	2565	1.2	65	
67.20		33	1860	1.5	67	25	2300	1.3	67	21	2520	1.3	65	
56.61		39	1585	1.5	68	30	1990	1.5	67	25	2345	1.3	67	
69.39		32	2170	1.3	79	24	2170	1.1	77	20	2170	0.91	76	
63.80		34	2170	1.5	79	27	2170	1.2	78	22	2170	0.98	77	
54.59		40	2170	1.7	80	31	2170	1.3	79	26	2170	1.1	78	
47.32		46	2170	2.0	81	36	2170	1.6	79	30	2170	1.3	79	
44.22		50	2170	2.1	81	38	2170	1.6	80	32	2170	1.3	79	
38.23	29/2	58	2170	2.4	81	44	2170	1.9	80	37	2170	1.6	80	
32.48		68	1990	2.5	82	52	2170	2.3	81	43	2170	1.9	80	
29.00		76	1770	2.5	82	59	2170	2.4	81	48	2170	2.0	81	
24.77		89	1565	2.7	82	69	1945	2.5	82	57	2170	2.4	81	
23.20		95	1480	2.7	83	73	1860	2.7	82	60	2170	2.5	82	
19.54		113	1265	2.7	83	87	1620	2.7	83	72	1905	2.7	82	
20.33		108	1485	3.0	88	84	1485	2.3	87	69	1485	1.9	87	
17.62		125	1485	3.4	88	96	1485	2.5	88	79	1485	2.1	87	
16.47		134	1495	3.6	88	103	1485	2.8	88	85	1485	2.3	87	
14.24		154	1495	4.2	89	119	1495	3.2	88	98	1495	2.7	88	
12.10		182	1330	4.3	89	140	1495	3.8	89	116	1495	3.1	88	
10.80		204	1205	4.3	89	157	1495	4.2	89	130	1495	3.5	88	
9.23	27/5	238	1055	4.4	89	184	1320	4.3	89	152	1495	4.0	89	
8.64		255	990	4.4	89	197	1250	4.4	89	162	1470	4.3	89	
7.28		302	850	4.6	90	234	1080	4.4	90	192	1290	4.4	89	
6.83		322	805	4.6	90	249	885	3.9	90	205	885	3.2	89	
6.40		344	750	4.6	90	266	865	4.0	90	219	865	3.4	89	
5.39		408	635	4.6	90	315	840	4.7	90	260	840	3.9	90	
4.76		462	560	4.6	90	357	745	4.7	90	294	825	4.3	90	
4.00		550	470	4.6	90	425	630	4.7	90	350	780	4.8	90	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 4.0 HP for continuous use.

1100 – 700 rpm

S57													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00		5.5	2610	0.40	56	4.5	2660	0.35	55	3.5	2740	0.28	53
184.80		6.0	2610	0.43	57	4.9	2660	0.38	55	3.8	2700	0.31	54
158.12		7.0	2610	0.50	58	5.7	2610	0.42	56	4.4	2660	0.34	55
137.05		8.0	2610	0.56	59	6.6	2610	0.47	57	5.1	2660	0.39	56
128.10		8.6	2610	0.60	59	7.0	2610	0.50	58	5.5	2610	0.40	56
110.73	42/1	9.9	2610	0.68	61	8.1	2610	0.58	59	6.3	2610	0.46	57
94.08		12	2610	0.79	62	9.6	2610	0.66	60	7.4	2610	0.52	58
84.00		13	2610	0.87	63	11	2610	0.72	61	8.3	2610	0.58	59
71.75		15	2610	0.99	64	13	2610	0.83	62	9.8	2610	0.67	61
67.20		16	2660	1.1	64	13	2610	0.89	63	10	2610	0.71	61
56.61		19	2570	1.2	65	16	2660	1.0	64	12	2610	0.82	62
69.39		16	2390	0.80	75	13	2390	0.66	74	10	2390	0.52	73
63.80		17	2390	0.86	76	14	2390	0.71	75	11	2390	0.56	73
54.59		20	2390	0.99	77	16	2390	0.83	75	13	2390	0.66	74
47.32		23	2390	1.1	77	19	2390	0.94	76	15	2390	0.75	75
44.22		25	2390	1.2	78	20	2390	1.0	77	16	2390	0.79	75
38.23	29/2	29	2390	1.3	79	24	2390	1.2	77	18	2390	0.91	76
32.48		34	2390	1.6	79	28	2390	1.3	78	22	2390	1.1	77
29.00		38	2390	1.7	80	31	2390	1.5	79	24	2390	1.2	78
24.77		44	2390	2.1	81	36	2390	1.7	80	28	2390	1.3	78
23.20		47	2390	2.3	81	39	2390	1.9	80	30	2390	1.5	79
19.54		56	2210	2.4	81	46	2390	2.1	81	36	2390	1.7	80
20.33		54	1490	1.5	86	44	1500	1.2	85	34	1520	0.99	84
17.62		62	1500	1.7	86	51	1500	1.5	86	40	1500	1.1	85
16.47		67	1490	1.9	87	55	1490	1.5	86	43	1500	1.2	85
14.24		77	1490	2.1	87	63	1490	1.7	86	49	1500	1.3	86
12.10		91	1500	2.4	88	74	1500	2.0	87	58	1500	1.6	86
10.80		102	1500	2.8	88	83	1500	2.3	87	65	1500	1.7	87
9.23	27/5	119	1500	3.2	88	98	1490	2.7	88	76	1490	2.0	87
8.64		127	1500	3.5	88	104	1500	2.8	88	81	1490	2.1	87
7.28		151	1500	4.0	89	124	1500	3.4	88	96	1500	2.5	88
6.83		161	1060	3.1	89	132	1060	2.5	89	102	1060	2.0	88
6.4		172	1040	3.2	89	141	1040	2.5	89	109	1040	2.0	88
5.39		204	980	3.6	90	167	980	3.0	89	130	980	2.3	89
4.76		231	955	3.9	90	189	955	3.2	90	147	955	2.5	89
4.00		275	910	4.4	90	225	910	3.6	90	175	910	2.8	89

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500 – 10 rpm

S57													
i ratio	Worm ratio/ # starts	n _e = 500 rpm				n _e = 250 rpm				n _e = 10 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
201.00		2.5	2920	0.23	51	1.2	2920	0.12	49	0.05	2920	0.00	42
184.80		2.7	2920	0.24	51	1.4	2920	0.13	49	0.05	2920	0.00	43
158.12		3.2	2790	0.27	52	1.6	2920	0.15	49	0.06	2920	0.00	44
137.05		3.6	2740	0.30	53	1.8	2920	0.17	50	0.07	2920	0.00	45
128.10		3.9	2700	0.31	54	2.0	2920	0.19	50	0.08	2920	0.00	46
110.73	42/1	4.5	2660	0.35	55	2.3	2920	0.20	51	0.09	2920	0.00	46
94.08		5.3	2660	0.40	56	2.7	2920	0.24	51	0.11	2920	0.00	47
84.00		6.0	2610	0.43	57	3.0	2880	0.25	52	0.12	2880	0.00	47
71.75		7.0	2610	0.50	58	3.5	2740	0.28	53	0.14	2740	0.00	48
67.20		7.4	2610	0.52	58	3.7	2740	0.31	54	0.15	2740	0.00	48
56.61		8.8	2610	0.62	60	4.4	2660	0.34	55	0.18	2660	0.00	48
69.39		7.2	2660	0.43	71	3.6	2660	0.23	68	0.14	2660	0.00	63
63.80		7.8	2660	0.46	71	3.9	2660	0.24	68	0.16	2660	0.00	64
54.59		9.2	2660	0.54	72	4.6	2660	0.28	69	0.18	2660	0.00	65
47.32		11	2660	0.60	73	5.3	2660	0.32	70	0.21	2660	0.00	66
44.22		11	2660	0.64	74	5.7	2660	0.34	70	0.23	2660	0.00	66
38.23	29/2	13	2610	0.72	74	6.5	2660	0.39	71	0.26	2660	0.00	67
32.48		15	2610	0.84	75	7.7	2660	0.46	71	0.31	2660	0.00	67
29.00		17	2610	0.94	76	8.6	2660	0.51	72	0.34	2660	0.00	67
24.77		20	2610	1.1	77	10	2660	0.58	73	0.40	2660	0.00	68
23.20		22	2610	1.2	77	11	2660	0.62	73	0.43	2660	0.00	68
19.54		26	2610	1.3	78	13	2610	0.71	74	0.51	2610	0.00	68
20.33		25	1600	0.75	83	12	1900	0.47	80	0.49	1900	0.00	77
17.62		28	1550	0.83	83	14	1860	0.52	81	0.57	1860	0.00	77
16.47		30	1540	0.89	84	15	1810	0.54	81	0.61	1810	0.00	78
14.24		35	1520	1.0	84	18	1750	0.60	81	0.70	1750	0.00	78
12.10		41	1500	1.2	85	21	1660	0.66	82	0.83	1660	0.00	78
10.80		46	1500	1.3	85	23	1630	0.72	83	0.93	1630	0.00	78
9.23	27/5	54	1500	1.5	86	27	1570	0.80	83	1.1	1570	0.00	79
8.64		58	1500	1.6	86	29	1550	0.86	83	1.2	1550	0.00	79
7.28		69	1500	1.9	87	34	1520	0.98	84	1.4	1520	0.00	79
6.83		73	1060	1.5	87	37	1060	0.72	85	1.5	1060	0.00	81
6.40		78	1040	1.5	87	39	1040	0.75	85	1.6	1040	0.00	81
5.39		93	980	1.6	88	46	980	0.84	86	1.9	980	0.00	81
4.76		105	955	1.9	88	53	955	0.93	86	2.1	955	0.00	81
4.00		125	910	2.0	89	63	910	1.0	87	2.5	910	0.00	81

11.8 Mechanical ratings S. SF. SA. SAF67

3400 – 2800 rpm

S67													
i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
217.41	42/1	16	4120	1.6	66	15	4120	1.5	66	13	4120	1.3	65
190.11		18	4120	1.7	67	17	4120	1.6	67	15	4120	1.5	66
180.60		19	4120	1.9	67	18	4120	1.7	67	16	4120	1.5	66
158.45		21	4120	2.0	68	20	4120	2.0	68	18	4120	1.7	67
134.40		25	4120	2.4	69	24	4120	2.3	68	21	4120	2.0	68
121.33		28	4030	2.5	69	26	4120	2.5	69	23	4120	2.1	68
106.75		32	3580	2.7	69	30	3810	2.7	69	26	4120	2.5	69
100.80		34	3360	2.5	69	32	3630	2.7	69	28	4120	2.7	69
85.83		40	2830	2.5	69	37	3050	2.5	69	33	3540	2.7	70
78.00		44	2520	2.5	69	41	2740	2.5	69	36	3230	2.7	70
67.57		50	2080	2.4	67	47	2300	2.5	68	41	2790	2.7	69
58.80		58	1630	2.3	65	54	1900	2.4	67	48	2390	2.5	69
75.06		45	3850	3.4	82	43	3850	3.2	82	37	3850	2.8	81
65.63		52	3850	3.9	82	49	3850	3.6	82	43	3850	3.2	82
62.35		55	3850	4.0	83	51	3850	3.8	82	45	3850	3.4	82
54.70		62	3850	4.6	83	59	3850	4.3	83	51	3850	3.8	83
46.40	73	3500	4.8	83	69	3670	4.8	83	60	3850	4.4	83	
41.89	29/2	81	3140	4.8	83	76	3360	4.8	83	67	3810	4.8	83
36.85		92	2740	4.8	83	87	2960	4.8	84	76	3360	4.8	84
34.80		98	2610	4.8	83	92	2790	4.8	84	80	3230	5.0	84
29.63		115	2210	4.8	83	108	2390	5.0	83	94	2740	5.0	84
26.93		126	1950	4.7	83	119	2120	4.8	83	104	2480	4.8	84
23.33		146	1610	4.6	82	137	1770	4.7	83	120	2170	5.0	84
20.30		167	1250	4.2	81	158	1450	4.4	82	138	1810	4.8	83
24.44		139	2790	6.8	90	131	2790	6.4	90	115	2790	5.6	89
23.22		146	2790	7.2	90	138	2790	6.8	90	121	2790	5.9	90
20.37		167	2790	8.2	90	157	2790	7.8	90	137	2790	6.7	90
17.28	197	2390	8.3	90	185	2570	8.3	90	162	2790	7.9	90	
15.60	218	2170	8.3	90	205	2300	8.3	90	179	2610	8.2	90	
13.73	27/5	248	1900	8.3	90	233	2040	8.3	90	204	2350	8.4	90
12.96		262	1770	8.2	90	247	1900	8.2	90	216	2210	8.4	90
11.03		308	1500	8.2	90	290	1620	8.3	90	254	1900	8.4	90
10.03		339	1340	8.0	90	319	1450	8.2	90	279	1720	8.4	90
8.69		391	1100	7.6	89	368	1210	7.9	90	322	1470	8.3	90
7.56		450	840	6.8	88	423	990	7.5	89	370	1250	8.2	90

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 7.5 HP for continuous use.

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2200 – 1400 rpm

S67														
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm				
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	
217.41	42/1	10	4600	1.2	64	7.8	4600	0.93	62	6.4	4600	0.78	61	
190.11		12	4600	1.3	65	8.9	4600	1.0	63	7.4	4600	0.87	62	
180.60		12	4600	1.3	65	9.4	4600	1.1	63	7.8	4600	0.91	62	
158.45		14	4600	1.5	66	11	4600	1.2	64	8.8	4600	1.0	63	
134.40		16	4600	1.7	67	13	4600	1.5	65	10	4600	1.2	64	
121.33		18	4600	2.0	68	14	4600	1.6	66	12	4600	1.3	65	
106.75		21	4600	2.1	68	16	4600	1.7	67	13	4600	1.5	66	
100.80		22	4510	2.3	69	17	4600	1.9	67	14	4600	1.5	66	
85.83		26	4340	2.5	69	20	4600	2.1	68	16	4600	1.7	67	
78.00		28	4120	2.7	70	22	4510	2.3	69	18	4600	1.9	68	
67.57		33	3630	2.7	70	25	4380	2.5	69	21	4600	2.1	69	
58.80		37	3190	2.7	70	29	4070	2.7	70	24	4430	2.4	69	
75.06		29/2	29	4250	2.4	81	23	4250	1.9	79	19	4250	1.6	79
65.63			34	4250	2.8	81	26	4250	2.1	80	21	4250	1.9	79
62.35			35	4250	3.0	81	27	4250	2.3	80	22	4250	1.9	79
54.70			40	4250	3.4	82	31	4250	2.5	81	26	4250	2.1	80
46.40	47		4250	3.9	82	37	4250	3.1	82	30	4250	2.5	81	
41.89	53		4250	4.3	83	41	4250	3.4	82	33	4250	2.8	81	
36.85	60		4200	4.8	83	46	4250	3.8	82	38	4250	3.1	82	
34.80	63		3980	4.8	83	49	4250	4.0	83	40	4250	3.4	82	
29.63	74		3500	5.0	84	57	4250	4.7	83	47	4250	3.9	83	
26.93	82		3190	5.0	84	63	4030	4.8	83	52	4250	4.3	83	
23.33	94		2830	5.1	84	73	3580	5.0	84	60	4250	4.8	83	
20.30	108		2480	5.1	84	84	3190	5.1	84	69	3760	5.0	84	
24.44	27/5		90	3010	4.8	89	70	3010	3.8	88	57	3010	3.1	88
23.22			95	3010	5.1	89	73	3010	3.9	89	60	3010	3.2	88
20.37			108	3010	5.8	89	83	3010	4.4	89	69	3010	3.8	88
17.28			127	3010	6.7	90	98	3010	5.2	89	81	3010	4.3	89
15.60		141	3010	7.5	90	109	3010	5.8	89	90	3010	4.8	89	
13.73		160	2920	8.2	90	124	3010	6.6	90	102	3010	5.5	89	
12.96		170	2790	8.3	90	131	3010	7.0	90	108	3010	5.8	89	
11.03		199	2430	8.4	90	154	3010	8.2	90	127	3010	6.7	90	
10.03		219	2210	8.4	91	169	2790	8.3	90	140	3010	7.4	90	
8.69		253	1950	8.6	91	196	2480	8.4	91	161	2960	8.4	90	
7.56		291	1700	8.7	91	225	2210	8.7	91	185	2610	8.4	91	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 7.5 HP for continuous use.

1100 – 700 rpm

S67													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
217.41	42/1	5.1	4910	0.67	59	4.1	4960	0.56	58	3.2	5040	0.46	56
190.11		5.8	4910	0.75	60	4.7	4960	0.63	59	3.7	5000	0.51	57
180.60		6.1	4910	0.79	61	5.0	4910	0.66	59	3.9	5000	0.54	57
158.45		6.9	4870	0.87	62	5.7	4910	0.74	60	4.4	4960	0.59	58
134.40		8.2	4870	1.0	63	6.7	4870	0.84	61	5.2	4910	0.68	60
121.33		9.1	4870	1.1	63	7.4	4870	0.93	62	5.8	4910	0.75	60
106.75		10	4870	1.2	64	8.4	4870	1.0	63	6.6	4910	0.83	61
100.80		11	4870	1.3	65	8.9	4870	1.1	63	6.9	4910	0.89	62
85.83		13	4870	1.5	66	10	4870	1.3	64	8.2	4870	1.0	63
78.00		14	4870	1.6	66	12	4870	1.3	65	9.0	4870	1.1	63
67.57		16	4870	1.9	67	13	4870	1.6	66	10	4870	1.2	64
58.80		19	4690	2.0	68	15	4870	1.7	67	12	4870	1.3	65
75.06	29/2	15	4650	1.3	77	12	4650	1.2	76	9.3	4650	0.91	75
65.63		17	4650	1.6	78	14	4650	1.3	77	11	4650	1.0	76
62.35		18	4650	1.6	78	14	4650	1.3	77	11	4650	1.1	76
54.70		20	4650	1.9	79	16	4650	1.6	78	13	4650	1.2	77
46.40		24	4650	2.1	80	19	4650	1.9	79	15	4650	1.5	78
41.89		26	4650	2.4	80	21	4650	2.0	79	17	4650	1.6	78
36.85		30	4650	2.7	81	24	4650	2.3	80	19	4650	1.7	79
34.80		32	4650	2.8	81	26	4650	2.4	80	20	4650	1.9	79
29.63		37	4650	3.4	82	30	4650	2.8	81	24	4650	2.1	80
26.93		41	4650	3.6	82	33	4650	3.1	81	26	4650	2.4	80
23.33		47	4650	4.2	83	39	4650	3.5	82	30	4650	2.7	81
20.30		54	4600	4.7	83	44	4650	4.0	82	34	4650	3.1	81
24.44	27/5	45	3140	2.5	87	37	3190	2.1	87	29	3230	1.7	86
23.22		47	3140	2.7	87	39	3190	2.3	87	30	3230	1.7	86
20.37		54	3140	3.1	88	44	3140	2.5	87	34	3230	2.0	86
17.28		64	3140	3.6	88	52	3140	3.0	88	41	3190	2.4	87
15.60		71	3100	3.9	88	58	3140	3.2	88	45	3140	2.5	87
13.73		80	3100	4.4	89	66	3140	3.8	88	51	3140	3.0	88
12.96		85	3100	4.7	89	69	3100	3.9	88	54	3140	3.1	88
11.03		100	3100	5.5	89	82	3100	4.6	89	63	3140	3.6	88
10.03		110	3050	5.9	90	90	3100	5.0	89	70	3140	3.9	88
8.69		127	3050	6.8	90	104	3100	5.6	89	81	3100	4.4	89
7.56		146	3050	7.8	90	119	3050	6.4	90	93	3100	5.1	89

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 7.5 HP for continuous use.

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500 – 10 rpm

S67														
i ratio	Worm ratio/ # starts	n _e = 500 rpm				n _e = 250 rpm				n _e = 10 rpm				
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	
217.41	42/1	2.3	5040	0.34	54	1.1	5040	0.17	51	0.05	5040	0.00	47	
190.11		2.6	5040	0.39	55	1.3	5040	0.20	51	0.05	5040	0.00	48	
180.60		2.8	5040	0.40	55	1.4	5040	0.21	51	0.06	5040	0.00	48	
158.45		3.2	5040	0.46	56	1.6	5040	0.24	52	0.06	5040	0.00	49	
134.40		3.7	5000	0.51	57	1.9	5040	0.28	53	0.07	5040	0.00	50	
121.33		4.1	4960	0.56	58	2.1	5040	0.31	53	0.08	5040	0.00	50	
106.75		4.7	4960	0.63	59	2.3	5040	0.35	54	0.09	5040	0.00	50	
100.80		5.0	4960	0.66	59	2.5	5040	0.36	55	0.10	5040	0.00	50	
85.83		5.8	4910	0.75	60	2.9	5040	0.42	56	0.12	5040	0.00	51	
78.00		6.4	4910	0.82	61	3.2	5040	0.46	56	0.13	5040	0.00	51	
67.57		7.4	4910	0.93	62	3.7	5000	0.51	57	0.15	5000	0.00	51	
58.80		8.5	4870	1.0	63	4.3	4960	0.58	58	0.17	4960	0.00	51	
75.06		29/2	6.7	5040	0.72	73	3.3	5040	0.38	70	0.13	5040	0.00	68
65.63			7.6	5040	0.82	74	3.8	5040	0.43	71	0.15	5040	0.00	68
62.35			8.0	5040	0.86	74	4.0	5040	0.46	71	0.16	5040	0.00	69
54.70			9.1	5040	0.98	75	4.6	5040	0.51	71	0.18	5040	0.00	69
46.40	11		5040	1.1	76	5.4	5040	0.59	72	0.22	5040	0.00	69	
41.89	12		5040	1.2	76	6.0	5040	0.66	73	0.24	5040	0.00	69	
36.85	14		5040	1.5	77	6.8	5040	0.74	73	0.27	5040	0.00	69	
34.80	14		5040	1.5	77	7.2	5040	0.78	74	0.29	5040	0.00	69	
29.63	17		5000	1.7	78	8.4	5040	0.91	75	0.34	5040	0.00	70	
26.93	19		5000	1.9	79	9.3	5040	0.99	75	0.37	5040	0.00	70	
23.33	21		5000	2.1	79	11	5040	1.1	76	0.43	5040	0.00	70	
20.30	25		5000	2.4	80	12	5040	1.3	77	0.49	5040	0.00	70	
24.44	27/5		20	3230	1.2	85	10	3140	0.62	82	0.41	3140	0.03	80
23.22			22	3230	1.3	85	11	3140	0.66	82	0.43	3140	0.00	80
20.37			25	3360	1.5	85	12	3230	0.76	83	0.49	3230	0.00	80
17.28			29	3230	1.7	86	14	3850	1.1	83	0.58	3850	0.00	81
15.60		32	3230	1.9	86	16	3810	1.2	84	0.64	3810	0.00	81	
13.73		36	3230	2.1	87	18	3670	1.3	84	0.73	3670	0.00	81	
12.96		39	3190	2.3	87	19	3630	1.3	84	0.77	3630	0.00	81	
11.03		45	3140	2.5	87	23	3450	1.5	85	0.91	3450	0.00	81	
10.03		50	3140	2.8	88	25	3360	1.6	85	1.0	3360	0.00	81	
8.69		58	3140	3.2	88	29	3270	1.7	86	1.2	3270	0.08	81	
7.56		66	3140	3.8	88	33	3230	2.0	86	1.3	3230	0.08	81	

11.9 Mechanical ratings S. SF. SA. SAF77

3400 – 2800 rpm

S77													
i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
256.47	40/1	13	10270	3.1	71	12	10270	2.8	71	11	10270	2.5	70
225.26		15	10000	3.4	72	14	10180	3.2	71	12	10270	2.8	71
214.00		16	9820	3.5	72	15	10090	3.4	71	13	10270	3.0	71
189.09		18	9560	3.8	72	17	9740	3.6	72	15	10090	3.4	71
161.60		21	9200	4.2	73	20	9290	4.0	73	17	9650	3.6	72
148.15		23	8940	4.4	73	22	9120	4.3	73	19	9470	3.9	73
130.00		26	8580	4.8	74	25	8760	4.7	74	22	9120	4.3	73
123.20		28	8410	5.0	74	26	8580	4.8	74	23	8940	4.4	73
107.83		32	7970	5.4	74	30	8140	5.2	74	26	8580	4.8	74
97.14		35	7610	5.6	75	33	7790	5.5	74	29	8230	5.1	74
85.22		40	6810	5.8	75	38	7260	5.8	75	33	7790	5.5	75
75.20		45	5970	5.8	74	43	6420	5.8	75	37	7350	5.8	75
66.67		51	5180	5.6	74	48	5620	5.8	75	42	6590	5.9	75
56.92		60	4290	5.5	73	56	4690	5.6	74	49	5620	5.9	75
75.09		45	9030	7.5	86	43	9030	7.1	86	37	9030	6.2	86
71.33		48	9030	7.9	87	45	9030	7.4	86	39	9030	6.6	86
63.03	54	9030	8.9	87	51	9030	8.3	87	44	9030	7.4	86	
53.87	63	8670	9.9	87	59	8850	9.5	87	52	9030	8.6	87	
49.38	69	8410	10.5	87	65	8580	10.1	87	57	8940	9.3	87	
43.33	78	8050	11.4	88	74	8230	11.0	88	65	8580	10.1	87	
41.07	40/3	83	7970	11.9	88	78	8050	11.4	88	68	8410	10.5	87
35.94		95	7080	12.1	88	89	7520	12.1	88	78	8050	11.4	88
32.38		105	6420	12.2	88	99	6810	12.2	88	86	7790	12.2	88
28.41		120	5620	12.2	88	113	6020	12.2	88	99	6900	12.2	88
25.07	136	4960	12.2	88	128	5310	12.2	88	112	6150	12.3	88	
22.22	153	4290	11.9	88	144	4650	12.1	88	126	5440	12.3	88	
18.97	179	3500	11.4	87	169	3890	11.9	88	148	4600	12.2	88	
22.89	149	5220	13.4	91	140	5220	12.7	91	122	5220	11.1	91	
20.99	162	5220	14.6	92	152	5220	13.8	92	133	5220	12.1	91	
18.42	185	5220	16.6	92	174	5220	15.7	92	152	5220	13.8	92	
17.45	195	5220	17.6	92	183	5220	16.6	92	160	5220	14.5	92	
15.28	34/6	223	4690	18.1	92	209	4960	18.0	92	183	5220	16.5	92
13.76		247	4250	18.1	92	233	4470	18.0	92	203	5180	18.2	92
12.07		282	3670	17.8	92	265	3940	18.0	92	232	4560	18.2	92
10.65		319	3230	17.8	92	300	3450	18.0	92	263	4030	18.2	92
9.44		360	2790	17.4	92	339	3050	17.8	92	297	3580	18.4	92
8.06		422	2300	16.9	91	397	2520	17.3	92	347	3010	18.1	92

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 12.3 HP for continuous use.

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2200 – 1400 rpm

S77													
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
256.47	40/1	8.6	11150	2.1	69	6.6	11240	1.7	67	5.5	11240	1.5	66
225.26		9.8	10890	2.4	69	7.5	11240	2.0	68	6.2	11240	1.6	67
214.00		10	10800	2.5	70	7.9	11240	2.1	68	6.5	11240	1.7	67
189.09		12	10620	2.8	70	9.0	10970	2.3	69	7.4	11240	2.0	68
161.60		14	10270	3.1	71	11	10800	2.5	70	8.7	11150	2.3	69
148.15		15	10090	3.4	72	11	10620	2.8	70	9.4	10970	2.4	69
130.00		17	9740	3.6	72	13	10350	3.1	71	11	10710	2.5	70
123.20		18	9560	3.8	73	14	10180	3.1	71	11	10620	2.7	70
107.83		20	9200	4.0	73	16	9820	3.4	72	13	10350	3.0	71
97.14		23	8940	4.4	74	18	9650	3.8	73	14	10090	3.2	72
85.22		26	8580	4.7	74	20	9290	4.0	73	16	9740	3.5	72
75.20		29	8140	5.1	74	23	8940	4.3	74	19	9470	3.9	73
66.67		33	7790	5.5	75	25	8580	4.7	74	21	9200	4.2	73
56.92		39	7350	6.0	75	30	8140	5.2	75	25	8760	4.6	74
75.09		29	9740	5.4	85	23	9740	4.2	84	19	9740	3.5	83
71.33		31	9740	5.6	85	24	9740	4.3	85	20	9740	3.6	84
63.03	35	9740	6.3	86	27	9740	5.0	85	22	9740	4.0	84	
53.87	41	9740	7.4	86	32	9740	5.8	86	26	9740	4.7	85	
49.38	45	9560	7.8	87	34	9740	6.2	86	28	9740	5.1	85	
43.33	51	9290	8.6	87	39	9740	7.0	86	32	9740	5.8	86	
41.07	40/3	54	9120	8.9	87	41	9740	7.4	86	34	9740	6.2	86
35.94	61	8670	9.7	87	47	9380	8.2	87	39	9740	7.0	86	
32.38	68	8500	10.5	88	53	9200	8.9	87	43	9650	7.6	87	
28.41	77	8140	11.4	88	60	8760	9.5	87	49	9290	8.3	87	
25.07	88	7700	12.2	88	68	8500	10.5	88	56	9030	9.1	87	
22.22	99	6990	12.5	88	77	8140	11.3	88	63	8670	9.9	87	
18.97	116	6020	12.6	88	90	7610	12.3	88	74	8230	11.0	88	
22.89	96	6280	10.6	91	74	6240	8.2	90	61	6240	6.7	90	
20.99	105	6280	11.5	91	81	6240	8.9	91	67	6240	7.4	90	
18.42	119	6370	13.3	91	92	6280	10.2	91	76	6240	8.3	90	
17.45	126	6370	13.9	91	97	6280	10.7	91	80	6280	8.9	91	
15.28	144	6370	16.0	92	111	6370	12.3	91	92	6280	10.1	91	
13.76	34/6	160	6420	17.7	92	124	6370	13.7	91	102	6280	11.1	91
12.07	182	5750	18.1	92	141	6420	15.7	92	116	6370	12.9	91	
10.65	207	5130	18.2	92	160	6420	17.7	92	131	6370	14.5	92	
9.44	233	4600	18.5	92	180	5800	18.0	92	148	6420	16.5	92	
8.06	273	3940	18.5	92	211	5090	18.5	92	174	6020	18.1	92	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 12.3 HP for continuous use.

1100 – 700 rpm

S77													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
256.47	40/1	4.3	11240	1.2	64	3.5	11240	1.0	63	2.7	11240	0.80	61
225.26		4.9	11240	1.3	65	4.0	11240	1.1	63	3.1	11240	0.90	62
214.00		5.1	11240	1.3	65	4.2	11240	1.2	64	3.3	11240	0.94	62
189.09		5.8	11240	1.6	66	4.8	11240	1.3	65	3.7	11240	1.0	63
161.60		6.8	11240	1.7	67	5.6	11240	1.5	66	4.3	11240	1.2	64
148.15		7.4	11240	2.0	68	6.1	11240	1.6	66	4.7	11240	1.3	65
130.00		8.5	11150	2.1	69	6.9	11240	1.9	67	5.4	11240	1.5	66
123.20		8.9	11060	2.3	69	7.3	11240	1.9	68	5.7	11240	1.5	66
107.83		10	10800	2.5	70	8.3	11150	2.1	69	6.5	11240	1.7	67
97.14		11	10620	2.7	70	9.3	11060	2.4	69	7.2	11240	1.9	68
85.22		13	10350	3.0	71	11	10800	2.5	70	8.2	11240	2.1	69
75.20		15	10090	3.2	72	12	10530	2.8	71	9.3	11060	2.4	69
66.67	40/3	16	9820	3.5	72	13	10270	3.1	71	10	10800	2.5	70
56.92		19	9380	3.9	73	16	9910	3.5	72	12	10530	3.0	71
75.09		15	9910	2.8	83	12	10000	2.3	82	9.3	10350	1.9	81
71.33		15	9910	3.0	83	13	10000	2.4	82	9.8	9910	1.9	81
63.03		17	9910	3.4	83	14	9910	2.7	82	11	10000	2.1	81
53.87		20	9910	3.9	84	17	9910	3.2	83	13	9910	2.5	82
49.38		22	9910	4.2	84	18	9910	3.5	83	14	9910	2.7	82
43.33		25	10000	4.7	85	21	9910	3.9	84	16	9910	3.1	83
41.07		27	10000	5.0	85	22	9910	4.2	84	17	9910	3.2	83
35.94		31	10180	5.8	85	25	10000	4.7	85	19	9910	3.6	84
32.38		34	10000	6.3	86	28	10000	5.2	85	22	9910	4.0	84
28.41		39	9820	7.0	86	32	10180	6.0	86	25	10000	4.6	85
25.07	44	9560	7.6	87	36	9910	6.6	86	28	10000	5.2	85	
22.22	50	9290	8.4	87	41	9740	7.2	86	32	10180	5.9	86	
18.97	58	8940	9.4	87	47	9380	8.2	87	37	9910	6.7	86	
22.89	48	6150	5.2	89	39	6150	4.3	89	31	6240	3.5	88	
20.99	52	6240	5.8	90	43	6150	4.7	89	33	6240	3.8	88	
18.42	60	6200	6.6	90	49	6200	5.4	89	38	6200	4.2	89	
17.45	63	6200	6.8	90	52	6200	5.6	90	40	6200	4.4	89	
15.28	72	6280	7.9	90	59	6200	6.4	90	46	6200	5.1	89	
13.76	80	6280	8.9	91	65	6200	7.1	90	51	6200	5.6	90	
12.07	91	6280	10.1	91	75	6280	8.2	90	58	6200	6.3	90	
10.65	103	6330	11.4	91	85	6280	9.3	91	66	6280	7.2	90	
9.44	117	6370	12.9	91	95	6330	10.5	91	74	6280	8.2	90	
8.06	136	6420	15.2	92	112	6370	12.3	91	87	6280	9.5	91	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 12.3 HP for continuous use.

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500 – 10 rpm

S77													
i ratio	Worm ratio/ # starts	n _e = 500 rpm				n _e = 250 rpm				n _e = 10 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
256.47	40/1	1.9	11240	0.59	59	0.97	11240	0.31	56	0.04	11240	0.00	54
225.26		2.2	11240	0.66	60	1.1	11240	0.35	56	0.04	11240	0.00	55
214.00		2.3	11240	0.70	60	1.2	11240	0.38	56	0.05	11240	0.00	55
189.09		2.6	11240	0.78	61	1.3	11240	0.42	57	0.05	11240	0.00	55
161.60		3.1	11240	0.90	62	1.5	11240	0.48	58	0.06	11240	0.00	55
148.15		3.4	11240	0.97	62	1.7	11240	0.52	58	0.07	11240	0.00	55
130.00		3.8	11240	1.1	63	1.9	11240	0.58	59	0.08	11240	0.00	55
123.20		4.1	11240	1.1	64	2.0	11240	0.62	59	0.08	11240	0.00	55
107.83		4.6	11240	1.3	65	2.3	11240	0.68	60	0.09	11240	0.00	56
97.14		5.1	11240	1.3	65	2.6	11240	0.75	61	0.10	11240	0.00	56
85.22		5.9	11240	1.6	66	2.9	11240	0.84	62	0.12	11240	0.00	56
75.20		6.6	11240	1.7	67	3.3	11240	0.95	62	0.13	11240	0.00	56
66.67		7.5	11240	2.0	68	3.7	11240	1.1	63	0.15	11240	0.00	56
56.92		8.8	11150	2.3	69	4.4	11240	1.2	64	0.18	11240	0.00	56
75.09		6.7	10270	1.3	79	3.3	9910	0.68	76	0.13	9910	0.00	75
71.33		7.0	9820	1.3	79	3.5	9380	0.68	77	0.14	9380	0.00	75
63.03	7.9	10890	1.7	80	4.0	10620	0.87	77	0.16	10620	0.00	76	
53.87	9.3	10440	1.9	81	4.6	10970	1.0	78	0.19	10970	0.00	76	
49.38	10	10270	2.0	81	5.1	10970	1.1	78	0.20	10970	0.00	76	
43.33	12	9910	2.3	82	5.8	10970	1.3	79	0.23	10970	0.00	76	
41.07	40/3	12	9910	2.3	82	6.1	10970	1.3	79	0.24	10970	0.00	76
35.94		14	9910	2.7	82	7.0	10970	1.5	79	0.28	10970	0.00	76
32.38		15	9910	3.0	83	7.7	10970	1.7	80	0.31	10970	0.07	76
28.41		18	9910	3.4	83	8.8	10530	1.9	80	0.35	10530	0.08	76
25.07	20	9910	3.8	84	10	10350	2.0	81	0.40	10350	0.08	76	
22.22	23	10000	4.3	84	11	10000	2.1	81	0.45	10000	0.09	76	
18.97	26	10000	5.0	85	13	9910	2.5	82	0.53	9910	0.11	76	
22.89	22	6110	2.4	87	11	5970	1.2	85	0.44	5970	0.00	83	
20.99	24	6420	2.8	87	12	6550	1.5	85	0.48	6550	0.00	83	
18.42	27	6240	3.1	88	14	7350	1.9	86	0.54	7350	0.08	83	
17.45	29	6240	3.2	88	14	7170	1.9	86	0.57	7170	0.08	83	
15.28	34/6	33	6240	3.6	88	16	6950	2.1	86	0.65	6950	0.08	83
13.76		36	6150	4.0	89	18	6810	2.3	87	0.73	6810	0.09	83
12.07		41	6150	4.6	89	21	6640	2.5	87	0.83	6640	0.11	83
10.65		47	6150	5.1	89	23	6420	2.7	87	0.94	6420	0.12	83
9.44	53	6240	5.9	90	26	6240	3.0	88	1.1	6240	0.12	83	
8.06	62	6240	6.8	90	31	6240	3.5	88	1.2	6240	0.15	83	

11.10 Mechanical ratings S. SF. SA. SAF87

3400 – 2800 rpm

S87

i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
288.00	40/1	12	17970	4.6	74	11	18320	4.4	73	9.7	18320	3.9	73
258.18		13	17610	5.0	74	12	17790	4.7	74	11	18320	4.3	73
222.40		15	16900	5.5	75	14	17260	5.4	74	13	17790	4.8	74
202.96		17	16370	5.8	75	16	16730	5.6	75	14	17430	5.1	74
180.00		19	15930	6.3	75	18	16200	6.0	75	16	16900	5.6	75
151.30		22	14960	7.1	75	21	15310	6.8	75	19	15930	6.2	75
139.05		24	14430	7.4	76	23	14870	7.2	76	20	15580	6.6	75
123.48		28	13890	8.0	76	26	14160	7.6	76	23	14960	7.1	76
110.40		31	12660	8.2	76	29	13630	8.3	76	25	14340	7.6	76
99.26		34	11150	8.0	75	32	12210	8.3	76	28	13720	8.0	76
86.15		39	9120	7.8	74	37	10180	8.0	75	33	12300	8.3	76
77.14		44	7350	7.1	72	41	8580	7.6	74	36	10800	8.2	76
64.00		53	4430	5.8	65	50	5490	6.3	68	44	8500	7.9	75
91.20		37	13010	8.9	88	35	13010	8.3	87	31	13010	7.2	87
81.76		42	13010	9.8	88	39	13010	9.3	88	34	13010	8.0	87
70.43		48	13010	11.3	88	45	13010	10.6	88	40	13010	9.4	88
64.27	53	13010	12.3	88	50	13010	11.7	88	44	13010	10.2	88	
57.00	60	13010	13.9	88	56	13010	13.1	88	49	13010	11.5	88	
47.91	71	13010	16.5	89	67	13010	15.6	89	58	13010	13.7	88	
44.03	38/3	77	13010	18.0	89	73	13010	16.9	89	64	13010	14.8	89
39.10		87	11510	17.8	89	82	12390	18.1	89	72	13010	16.6	89
34.96		97	10090	17.6	89	92	10970	18.0	89	80	12740	18.2	89
31.43		108	8850	17.2	88	102	9650	17.6	89	89	11420	18.1	89
27.28	125	7170	16.2	88	117	8050	17.0	88	103	9820	18.0	89	
24.43	139	5840	14.9	87	131	6860	16.2	88	115	8500	17.4	89	
20.27	168	3500	11.3	82	158	4340	12.9	84	138	6680	16.6	88	
25.50	133	8760	20	92	125	8760	18.9	92	110	8760	16.6	92	
21.43	159	8760	24	92	149	8760	23	92	131	8760	19.7	92	
19.70	173	8760	25	92	162	8760	25	92	142	8760	21	92	
17.49	194	7700	25	92	183	8230	25	92	160	8760	24	92	
15.64	34/6	217	6730	25	92	205	7350	25	92	179	8500	25	92
14.06		242	5840	24	92	228	6420	25	92	199	7610	25	92
12.21		278	4780	23	91	262	5350	24	92	229	6460	25	92
10.93		311	3890	21	90	293	4510	23	91	256	5710	25	92
9.07	375	2260	15.4	87	353	2880	18.1	89	309	4430	24	92	
7.88	431	1770	14.1	86	406	2040	15.2	87	355	3320	21	90	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 20 HP for continuous use.

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2200 – 1400 rpm

S87													
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
288.00	40/1	7.6	19560	3.4	71	5.9	20180	2.7	70	4.9	20180	2.3	69
258.18		8.5	19200	3.6	72	6.6	20000	3.0	71	5.4	20180	2.5	69
222.40		9.9	18850	4.0	73	7.6	19560	3.4	71	6.3	20180	2.8	70
202.96		11	18410	4.3	73	8.4	19380	3.6	72	6.9	20000	3.1	71
180.00		12	17880	4.7	74	9.4	18850	3.9	73	7.8	19560	3.4	72
151.30		15	17170	5.4	75	11	18230	4.4	74	9.3	19030	3.9	73
139.05		16	16640	5.6	75	12	17880	4.7	74	10	18590	4.0	73
123.48		18	16110	6.0	75	14	17350	5.1	74	11	18230	4.4	74
110.40		20	15660	6.6	76	15	16820	5.5	75	13	17700	4.8	74
99.26		22	15050	7.0	76	17	16280	5.9	75	14	17350	5.2	75
86.15		26	14340	7.6	76	20	15660	6.4	76	16	16640	5.8	75
77.14		29	13630	8.0	76	22	15050	7.0	76	18	16110	6.2	76
64.00	34	12040	8.6	77	27	13980	7.6	77	22	15050	6.8	76	
91.20	24	13630	6.0	87	19	13450	4.7	86	15	13360	3.9	85	
81.76	27	14160	7.0	87	21	14160	5.4	86	17	14160	4.6	86	
70.43	31	14160	8.0	87	24	14160	6.3	87	20	14160	5.2	86	
64.27	34	14160	8.9	88	26	14160	6.8	87	22	14160	5.6	86	
57.00	39	14160	9.9	88	30	14160	7.6	87	25	14160	6.4	87	
47.91	46	14160	11.7	88	35	14160	9.1	88	29	14160	7.5	87	
44.03	50	14160	12.7	88	39	14160	9.9	88	32	14160	8.2	87	
39.10	56	14160	14.2	89	43	14160	11.1	88	36	14160	9.1	88	
34.96	63	14160	16.0	89	49	14160	12.3	88	40	14160	10.2	88	
31.43	70	14160	17.7	89	54	14160	13.7	89	45	14160	11.4	88	
27.28	81	12830	18.4	89	62	14160	15.7	89	51	14160	13.0	89	
24.43	90	11590	18.5	89	70	14160	17.6	89	57	14160	14.5	89	
20.27	109	9560	18.5	89	84	12570	18.8	89	69	14160	17.4	89	
25.50	86	10970	16.4	92	67	10970	12.7	91	55	10970	10.5	91	
21.43	103	10970	19.4	92	79	10970	15.0	92	65	10970	12.5	91	
19.70	112	10970	21	92	86	10970	16.4	92	71	10970	13.5	91	
17.49	126	10970	24	92	97	10970	18.4	92	80	10970	15.2	92	
15.64	141	10890	27	92	109	10970	21	92	90	10970	17.0	92	
14.06	156	9820	27	92	121	10970	23	92	100	10970	18.9	92	
12.21	180	8580	27	93	139	10970	27	92	115	10970	22	92	
10.93	201	7700	27	93	156	10000	27	93	128	10970	24	92	
9.07	243	6370	27	92	187	8410	27	93	154	10090	27	93	
7.88	279	5350	25	92	216	7350	27	93	178	8940	27	93	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 20 HP for continuous use.

1100 – 700 rpm

S87													
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
288.00	40/1	3.8	21240	1.9	67	3.1	21680	1.6	66	2.4	21950	1.3	64
258.18		4.3	21060	2.1	68	3.5	21510	1.7	67	2.7	21860	1.5	65
222.40		4.9	20800	2.4	69	4.0	21240	2.0	68	3.1	21680	1.6	66
202.96		5.4	20620	2.5	70	4.4	21060	2.1	68	3.4	21510	1.7	67
180.00		6.1	20180	2.8	70	5.0	20800	2.4	69	3.9	21240	1.9	68
151.30		7.3	19820	3.2	71	5.9	20440	2.7	70	4.6	20800	2.3	69
139.05		7.9	19380	3.4	72	6.5	20000	3.0	71	5.0	20620	2.4	69
123.48		8.9	19030	3.8	73	7.3	19820	3.2	71	5.7	20440	2.7	70
110.40		10	18670	4.0	73	8.2	19380	3.5	72	6.3	20180	2.8	71
99.26		11	18320	4.4	74	9.1	19030	3.8	73	7.1	19820	3.1	71
86.15		13	17700	4.8	74	10	18500	4.2	73	8.1	19380	3.5	72
77.14		14	17170	5.2	75	12	18050	4.6	74	9.1	19030	3.8	73
64.00		17	16280	5.9	76	14	17350	5.2	75	11	18320	4.3	74
91.20		38/3	12	13190	3.0	84	9.9	13100	2.4	83	7.7	12920	1.9
81.76	13		15580	3.9	85	11	15580	3.2	84	8.6	15580	2.5	83
70.43	16		15580	4.6	85	13	15580	3.8	85	9.9	15580	3.0	83
64.27	17		15580	5.0	86	14	15580	4.0	85	11	15580	3.2	84
57.00	19		15580	5.5	86	16	15580	4.6	85	12	15580	3.6	84
47.91	23		15580	6.6	87	19	15580	5.4	86	15	15580	4.3	85
44.03	25		15580	7.1	87	20	15580	5.9	86	16	15580	4.6	85
39.10	28		15580	8.0	87	23	15580	6.6	87	18	15580	5.2	86
34.96	31		15580	8.9	88	26	15580	7.4	87	20	15580	5.8	86
31.43	35		15580	9.9	88	29	15580	8.2	87	22	15580	6.3	87
27.28	40		15580	11.3	88	33	15580	9.3	88	26	15580	7.2	87
24.43	45		15580	12.6	88	37	15580	10.3	88	29	15580	8.0	87
20.27	54		15580	15.2	89	44	15580	12.5	88	35	15580	9.7	88
25.50	34/6		43	11860	9.0	90	35	11860	7.4	90	27	11860	5.8
21.43		51	11860	10.6	91	42	11860	8.7	90	33	11860	6.8	90
19.70		56	11860	11.5	91	46	11860	9.5	91	36	11860	7.4	90
17.49		63	11860	13.0	91	51	11860	10.6	91	40	11860	8.3	90
15.64		70	11860	14.5	92	58	11860	11.9	91	45	11860	9.3	91
14.06		78	11860	16.1	92	64	11860	13.1	91	50	11860	10.3	91
12.21		90	11860	18.5	92	74	11860	15.2	92	57	11860	11.8	91
10.93		101	11860	21	92	82	11860	16.9	92	64	11860	13.1	91
9.07		121	11860	25	92	99	11860	20	92	77	11860	15.8	92
7.88		140	11150	27	93	114	11860	23	92	89	11860	18.2	92

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =20 HP for continuous use.

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500 – 10 rpm

S87													
i ratio	Worm ratio/ # starts	n _e = 500 rpm				n _e = 250 rpm				n _e = 10 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
288.00	40/1	1.7	22130	0.98	62	0.87	22130	0.51	59	0.03	22130	0.00	58
258.18		1.9	22130	1.1	63	0.97	22130	0.58	59	0.04	22130	0.00	58
222.40		2.2	22130	1.2	64	1.1	22130	0.66	60	0.04	22130	0.00	59
202.96		2.5	21950	1.3	64	1.2	22130	0.71	61	0.05	22130	0.00	59
180.00		2.8	21950	1.5	65	1.4	22130	0.80	61	0.06	22130	0.00	59
151.30		3.3	21510	1.7	67	1.7	22130	0.94	62	0.07	22130	0.00	59
139.05		3.6	21510	1.9	67	1.8	22130	1.0	63	0.07	22130	0.00	59
123.48		4.0	21240	2.0	68	2.0	22130	1.1	63	0.08	22130	0.00	59
110.40		4.5	21060	2.1	69	2.3	22130	1.2	64	0.09	22130	0.00	59
99.26		5.0	20620	2.4	69	2.5	21860	1.3	65	0.10	21860	0.00	59
86.15		5.8	20440	2.7	70	2.9	21680	1.5	66	0.12	21680	0.07	59
77.14		6.5	20000	3.0	71	3.2	21510	1.6	66	0.13	21510	0.08	59
64.00	7.8	19650	3.4	72	3.9	21240	2.0	68	0.16	21240	0.09	59	
91.20	38/3	5.5	12830	1.3	81	2.7	12300	0.68	79	0.11	12300	0.00	78
81.76		6.1	17350	2.0	82	3.1	16640	1.0	79	0.12	16640	0.00	78
70.43		7.1	17520	2.4	82	3.5	17520	1.2	80	0.14	17520	0.00	79
64.27		7.8	17520	2.7	83	3.9	17520	1.3	80	0.16	17520	0.00	79
57.00		8.8	17520	3.0	83	4.4	17520	1.5	80	0.18	17520	0.00	79
47.91		10	17520	3.5	84	5.2	17520	1.7	81	0.21	17520	0.08	79
44.03		11	17520	3.8	84	5.7	17520	1.9	81	0.23	17520	0.08	79
39.10		13	17520	4.2	85	6.4	17520	2.1	82	0.26	17520	0.09	79
34.96		14	17520	4.7	85	7.2	17520	2.4	82	0.29	17520	0.11	79
31.43		16	17520	5.2	85	8.0	17520	2.7	83	0.32	17520	0.11	79
27.28		18	17520	5.9	86	9.2	17520	3.1	83	0.37	17520	0.13	79
24.43		20	17520	6.6	86	10	17520	3.4	84	0.41	17520	0.15	79
20.27	25	17520	7.9	87	12	17520	4.0	85	0.49	17520	0.17	79	
25.50	34/6	20	12660	4.4	88	9.8	12300	2.1	87	0.39	12300	0.09	85
21.43		23	12570	5.2	89	12	13360	2.8	87	0.47	13360	0.12	85
19.70		25	12480	5.6	89	13	13890	3.2	87	0.51	13890	0.13	85
17.49		29	12300	6.2	89	14	13890	3.6	88	0.57	13890	0.15	85
15.64		32	12300	7.0	90	16	13630	3.9	88	0.64	13630	0.16	85
14.06		36	12300	7.6	90	18	13360	4.3	88	0.71	13360	0.17	85
12.21		41	12300	8.9	90	20	12920	4.7	89	0.82	12920	0.20	85
10.93		46	12300	9.8	91	23	12660	5.2	89	0.91	12660	0.21	85
9.07		55	12480	11.9	91	28	12300	6.0	89	1.1	12300	0.25	85
7.88		63	12480	13.8	91	32	12300	6.8	90	1.3	12300	0.30	85

11.11 Mechanical ratings S. SF. SA. SAF97

3400 – 2800 rpm

S97													
i ratio	Worm ratio/ # starts	n _e = 3400 rpm				n _e = 3200 rpm				n _e = 2800 rpm			
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %
286.40	40/1	12	31150	7.8	76	11	31770	7.5	76	9.8	32750	6.7	75
262.22		13	30530	8.3	76	12	31150	7.9	76	11	32130	7.2	75
231.67		15	29290	9.0	76	14	29910	8.6	76	12	31150	7.9	76
196.52		17	27610	9.9	77	16	28410	9.7	76	14	29650	8.9	76
180.95		19	26820	10.5	77	18	27610	10.1	77	15	28760	9.3	76
161.74		21	25750	11.1	77	20	26280	10.7	77	17	27610	9.9	77
145.60		23	24430	11.8	77	22	25220	11.4	77	19	26550	10.6	77
131.85		26	23540	12.6	77	24	24250	12.2	77	21	25490	11.1	77
116.92		29	20530	12.5	76	27	22570	12.7	77	24	24250	11.9	77
105.71		32	17520	11.9	75	30	19560	12.3	76	26	23280	12.7	77
89.60		38	11330	9.8	70	36	14780	11.4	74	31	19560	12.6	77
78.26		43	8140	8.6	65	41	9200	9.0	67	36	15660	11.8	75
65.45		52	5970	7.9	63	49	6860	8.3	64	43	9120	9.1	68
80.85		42	27880	21	89	40	27880	19.6	89	35	27880	17.2	89
71.43		48	27350	23	90	45	27880	22	89	39	27880	19.4	89
60.59	56	25750	25	90	53	26280	25	90	46	27610	23	90	
55.79	61	24960	27	90	57	25490	25	90	50	26820	24	90	
49.87	37/3	68	23980	30	90	64	24430	28	90	56	25750	25	90
44.89		76	21510	28	90	71	23280	30	90	62	24690	27	90
40.65		84	19200	28	90	79	20800	30	90	69	23720	28	90
36.05		94	16200	27	89	89	17880	28	89	78	21240	30	90
32.60		104	13810	25	89	98	15580	27	89	86	19030	30	90
27.63		123	8940	20	86	116	11680	24	88	101	15400	28	89
24.13		141	6420	17.3	83	133	7260	18.2	84	116	12300	25	88
26.39		129	15490	34	93	121	15490	32	93	106	15490	28	93
23.59		144	15490	38	93	136	15490	36	93	119	15490	31	93
21.23		160	15490	43	93	151	15490	40	93	132	15490	35	93
19.23	177	13720	42	93	166	14870	42	93	146	15490	39	93	
17.05	35/6	199	11680	40	93	188	12830	42	93	164	15310	43	93
15.42		220	9820	38	92	208	11150	40	93	182	13630	42	93
13.07		260	6420	30	90	245	8320	35	92	214	10970	40	93
11.41		298	4560	25	88	280	5180	25	89	245	8850	38	92
9.55		356	3320	22	87	335	3850	23	87	293	5130	27	89
8.26		412	2570	19.7	85	387	2960	21	86	339	4030	25	88

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} =30 HP for continuous use.

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2200 – 1400 rpm

S97														
i ratio	Worm ratio/ # starts	n _e = 2200 rpm				n _e = 1700 rpm				n _e = 1400 rpm				
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	
286.40	40/1	7.7	34690	5.6	74	5.9	35400	4.6	73	4.9	35400	3.9	72	
262.22		8.4	33980	6.0	75	6.5	35400	5.0	73	5.3	35400	4.2	72	
231.67		9.5	33360	6.7	75	7.3	35050	5.5	74	6.0	35400	4.7	73	
196.52		11	31680	7.4	76	8.7	33980	6.3	75	7.1	35400	5.4	74	
180.95		12	31060	7.9	76	9.4	33360	6.6	75	7.7	34690	5.8	74	
161.74		14	30180	8.6	76	11	32300	7.1	76	8.7	33980	6.3	75	
145.60		15	28940	9.1	77	12	31420	7.6	76	9.6	33010	6.7	75	
131.85		17	28050	9.7	77	13	30440	8.2	76	11	32300	7.2	76	
116.92		19	26730	10.3	77	15	29560	8.9	77	12	31060	7.8	76	
105.71		21	25930	11.1	77	16	28410	9.4	77	13	30440	8.3	76	
89.60		25	24160	12.2	77	19	26730	10.5	77	16	28670	9.3	77	
78.26		28	22480	12.9	78	22	25400	11.3	78	18	27260	10.1	77	
65.45		34	18760	13.0	77	26	23450	12.3	78	21	25670	11.1	78	
80.85		37/3	27	29210	14.2	89	21	28940	11.0	88	17	28590	9.0	88
71.43	31		29210	16.1	89	24	29210	12.5	88	20	29210	10.3	88	
60.59	36		29210	18.9	89	28	29210	14.6	89	23	29210	12.1	88	
55.79	39		28940	20	89	30	29210	15.8	89	25	29210	13.1	88	
49.87	44		28050	22	90	34	29210	17.7	89	28	29210	14.6	89	
44.89	49		26990	23	90	38	29210	19.6	89	31	29210	16.2	89	
40.65	54		26110	25	90	42	28590	21	90	34	29210	17.8	89	
36.05	61		24870	27	90	47	27520	23	90	39	29210	20	89	
32.60	67		23900	28	90	52	26370	24	90	43	28320	21	90	
27.63	80		21150	30	90	62	24870	27	90	51	26640	24	90	
24.13	91		18230	30	90	70	23630	30	90	58	25400	25	90	
26.39	83		22570	32	93	64	23010	25	93	53	23010	21	92	
23.59	93		21680	35	93	72	23010	28	93	59	23010	23	93	
21.23	104		21060	38	93	80	22740	31	93	66	23010	25	93	
19.23	114	20180	39	93	88	22130	34	93	73	23010	28	93		
17.05	35/6	129	19200	42	93	100	21240	36	93	82	22740	32	93	
15.42		143	18050	44	93	110	20360	38	93	91	21860	34	93	
13.07		168	15220	43	93	130	19200	43	93	107	20620	38	93	
11.41		193	13100	43	93	149	17700	44	93	123	19560	40	93	
9.55		230	10620	42	93	178	14780	44	93	147	18050	44	94	
8.26		266	8670	40	93	206	12740	44	93	169	15660	46	94	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 30 HP for continuous use.

1100 – 700 rpm

S97														
i ratio	Worm ratio/ # starts	n _e = 1100 rpm				n _e = 900 rpm				n _e = 700 rpm				
		n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	n _a rpm	T _{aMax} lb-in	P _e HP	η %	
286.40	40/1	3.8	37170	3.2	70	3.1	37170	2.7	69	2.4	37170	2.1	68	
262.22		4.2	37170	3.5	71	3.4	37170	3.0	70	2.7	37170	2.3	68	
231.67		4.7	37170	3.9	72	3.9	37170	3.2	70	3.0	37170	2.5	69	
196.52		5.6	36820	4.6	73	4.6	37170	3.8	71	3.6	37170	3.0	70	
180.95		6.1	36460	4.8	73	5.0	37170	4.0	72	3.9	37170	3.2	70	
161.74		6.8	35670	5.2	74	5.6	36820	4.4	73	4.3	37170	3.6	71	
145.60		7.6	34960	5.6	74	6.2	36110	4.8	73	4.8	37170	3.9	72	
131.85		8.3	34340	6.0	75	6.8	35670	5.2	74	5.3	37170	4.3	72	
116.92		9.4	33280	6.6	75	7.7	34600	5.6	74	6.0	36460	4.7	73	
105.71		10	32300	7.1	76	8.5	33980	6.2	75	6.6	35670	5.1	74	
89.60		12	30980	7.9	76	10	32660	6.8	76	7.8	34600	5.8	75	
78.26		14	29820	8.7	77	12	31680	7.6	76	8.9	33630	6.3	75	
65.45		17	28050	9.7	77	14	30090	8.6	77	11	32300	7.2	76	
80.85		37/3	14	28590	7.1	87	11	28320	5.8	86	8.7	28050	4.6	85
71.43	15		31860	9.0	87	13	31860	7.4	87	9.8	31860	5.8	86	
60.59	18		31860	10.5	88	15	31860	8.6	87	12	31860	6.7	86	
55.79	20		31860	11.4	88	16	31860	9.4	87	13	31860	7.4	87	
49.87	22		31860	12.6	88	18	31860	10.5	88	14	31860	8.2	87	
44.89	25		31860	13.9	88	20	31860	11.5	88	16	31860	9.0	87	
40.65	27		31860	15.4	89	22	31860	12.7	88	17	31860	9.9	88	
36.05	31		31240	17.0	89	25	31860	14.2	89	19	31860	11.1	88	
32.60	34		30270	18.1	89	28	31860	15.7	89	21	31860	12.3	88	
27.63	40		28850	20	90	33	30620	17.7	89	25	31860	14.5	89	
24.13	46		27700	22	90	37	29380	19.4	89	29	31510	16.4	89	
26.39	35/6		42	23450	16.9	92	34	23190	13.7	92	27	23190	10.7	91
23.59			47	23450	18.8	92	38	23450	15.4	92	30	23190	11.9	91
21.23			52	23450	21	92	42	23450	17.2	92	33	23190	13.3	92
19.23		57	23450	23	93	47	23450	18.9	92	36	23190	14.6	92	
17.05		65	23630	25	93	53	23450	21	92	41	23450	16.6	92	
15.42		71	23630	28	93	58	23450	23	93	45	23450	18.4	92	
13.07		84	22480	32	93	69	23630	28	93	54	23450	22	92	
11.41		96	21420	35	93	79	22920	31	93	61	23450	25	93	
9.55		115	20180	39	93	94	21590	35	93	73	23450	30	93	
8.26		133	18940	43	94	109	20530	38	93	85	22480	32	93	

All values reflect mechanical limits. Shaded area indicates additional thermal limitations where P_{emax} = 30 HP for continuous use.

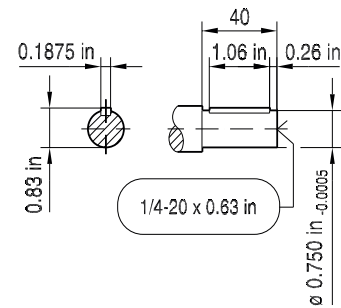
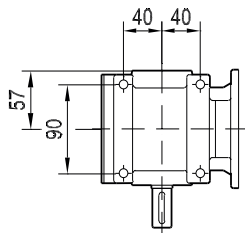
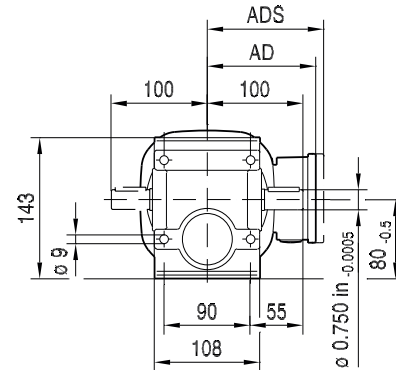
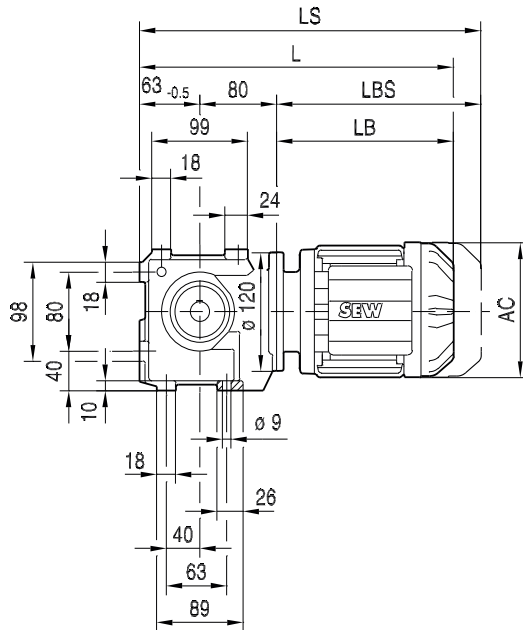
500 – 10 rpm

S97													
i ratio	Worm ratio/ # starts	$n_e = 500$ rpm				$n_e = 250$ rpm				$n_e = 10$ rpm			
		n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %	n_a rpm	T_{aMax} lb-in	P_e HP	η %
286.40		1.7	37170	1.6	65	0.87	37170	0.83	62	0.03	37170	0.00	60
262.22		1.9	37170	1.7	66	0.95	37170	0.91	62	0.04	37170	0.00	60
231.67		2.2	37170	1.9	67	1.1	37170	1.0	63	0.04	37170	0.00	60
196.52		2.5	37170	2.1	68	1.3	37170	1.2	64	0.05	37170	0.00	60
180.95		2.8	37170	2.4	68	1.4	37170	1.3	64	0.06	37170	0.00	60
161.74		3.1	37170	2.7	69	1.5	37170	1.5	65	0.06	37170	0.00	60
145.60	40/1	3.4	37170	3.0	70	1.7	37170	1.6	65	0.07	37170	0.07	60
131.85		3.8	37170	3.2	70	1.9	37170	1.7	66	0.08	37170	0.08	60
116.92		4.3	37170	3.5	71	2.1	37170	1.9	67	0.09	37170	0.08	60
105.71		4.7	37170	3.9	72	2.4	37170	2.0	67	0.09	37170	0.09	60
89.60		5.6	36820	4.4	73	2.8	37170	2.4	69	0.11	37170	0.11	60
78.26		6.4	36110	5.0	74	3.2	37170	2.7	69	0.13	37170	0.12	60
65.45		7.6	34600	5.6	75	3.8	37170	3.2	70	0.15	37170	0.15	60
80.85		6.2	27520	3.2	84	3.1	26640	1.6	82	0.12	26640	0.00	80
71.43		7.0	37170	4.8	85	3.5	36820	2.5	82	0.14	36820	0.11	81
60.59		8.3	37170	5.8	85	4.1	36110	2.8	83	0.17	36110	0.12	81
55.79		9.0	37170	6.2	86	4.5	37170	3.2	83	0.18	37170	0.13	81
49.87		10	37170	6.8	86	5.0	37170	3.5	83	0.20	37170	0.15	81
44.89	37/3	11	36820	7.5	86	5.6	37170	3.9	84	0.22	37170	0.16	81
40.65		12	36460	8.2	87	6.2	37170	4.3	84	0.25	37170	0.17	81
36.05		14	36110	9.1	87	6.9	37170	4.8	85	0.28	37170	0.20	81
32.60		15	35310	9.8	87	7.7	37170	5.4	85	0.31	37170	0.23	81
27.63		18	34600	11.3	88	9.0	37170	6.3	86	0.36	37170	0.27	81
24.13		21	33630	12.5	88	10	37170	7.1	86	0.41	37170	0.31	81
26.39		19	22920	7.6	90	9.5	22480	3.8	89	0.38	22480	0.16	87
23.59		21	22920	8.4	91	11	22480	4.3	89	0.42	22480	0.17	87
21.23		24	22920	9.4	91	12	22740	4.8	89	0.47	22740	0.20	87
19.23		26	23190	10.5	91	13	22740	5.2	89	0.52	22740	0.21	87
17.05	35/6	29	23190	11.8	91	15	22740	5.9	90	0.59	22740	0.24	87
15.42		32	23190	13.0	92	16	22740	6.4	90	0.65	22740	0.27	87
13.07		38	23450	15.6	92	19	22920	7.6	90	0.77	22920	0.32	87
11.41		44	23450	17.7	92	22	22920	8.9	91	0.88	22920	0.36	87
9.55		52	23450	21	92	26	23190	10.6	91	1.0	23190	0.44	87
8.26		61	23450	24	93	30	23190	12.2	91	1.2	23190	0.51	87

11.12 S.. DRS/DRN.. Dimensions

02 093 00 16^L

S37..



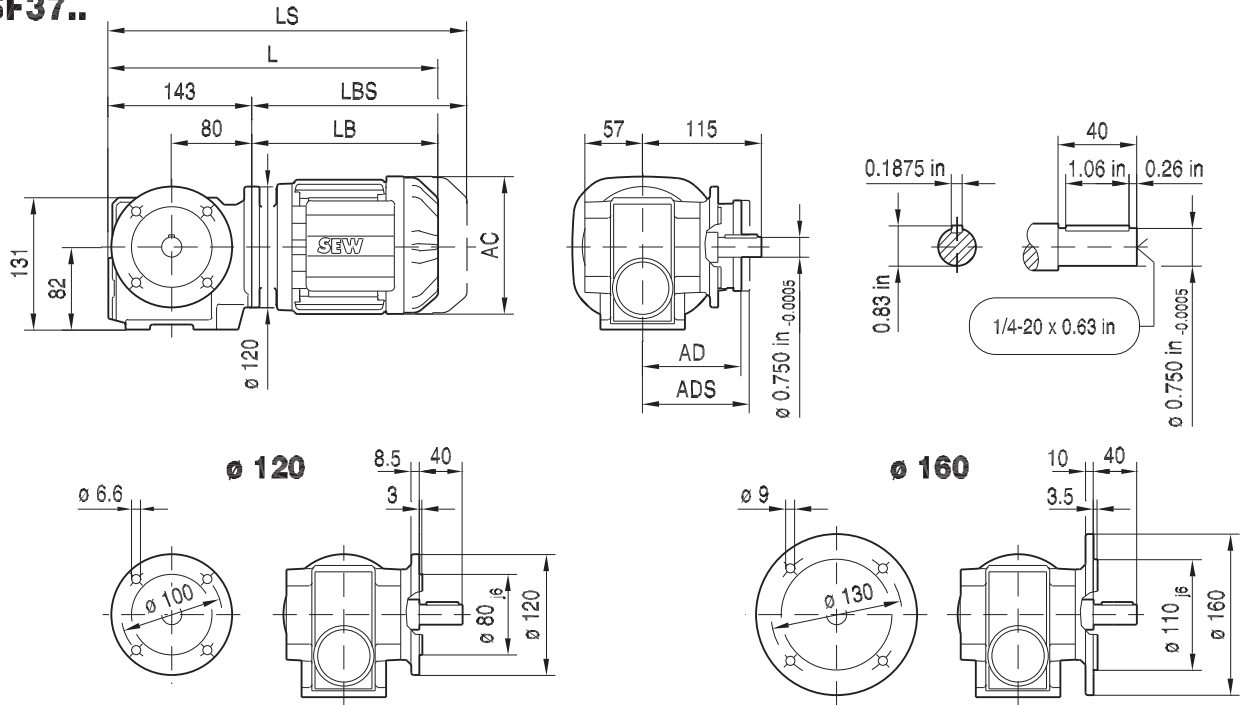
11

(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	329	340	365	392	420	421	453
LS	384	408	433	473	501	515	547
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

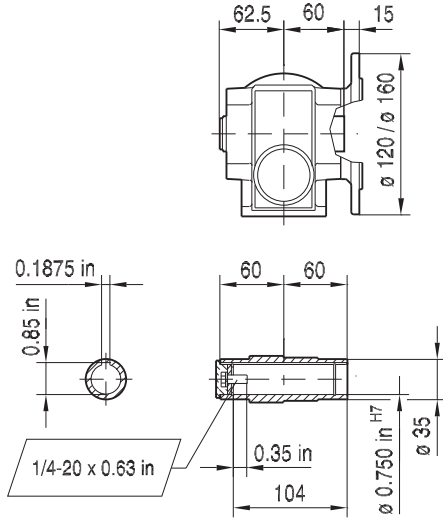
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

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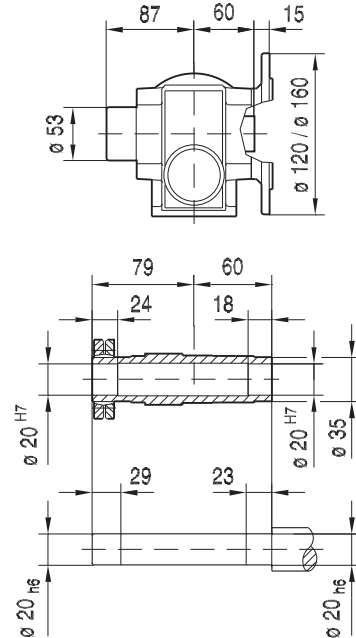
SF37..



SAF37..



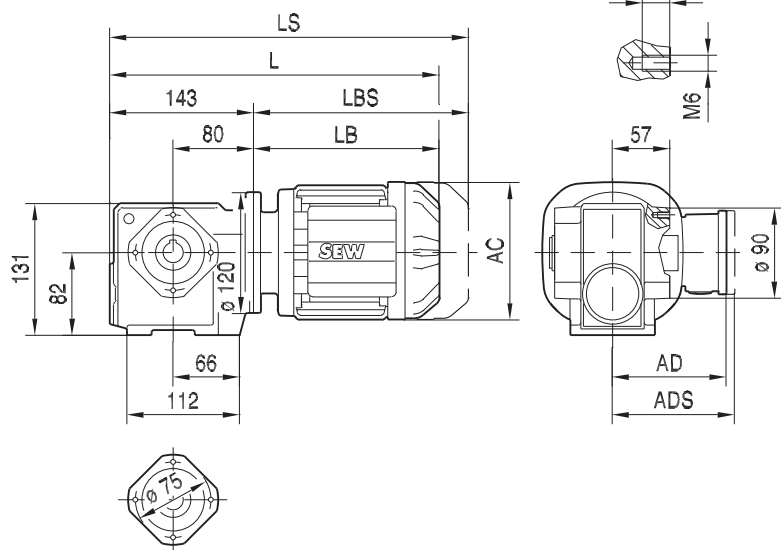
SHF37..



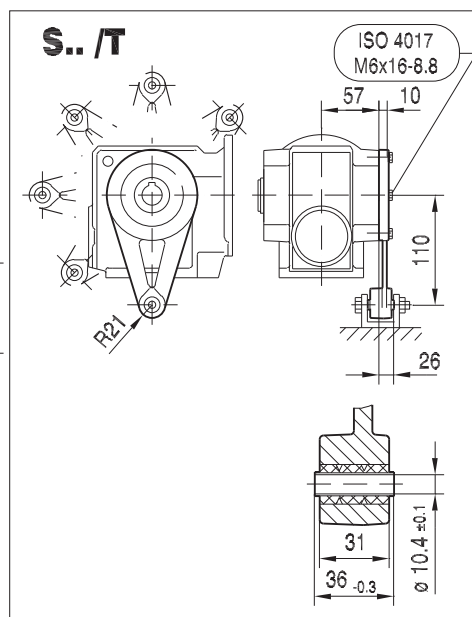
(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	329	340	365	392	420	421	453
LS	384	408	433	473	501	515	547
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

SA37..

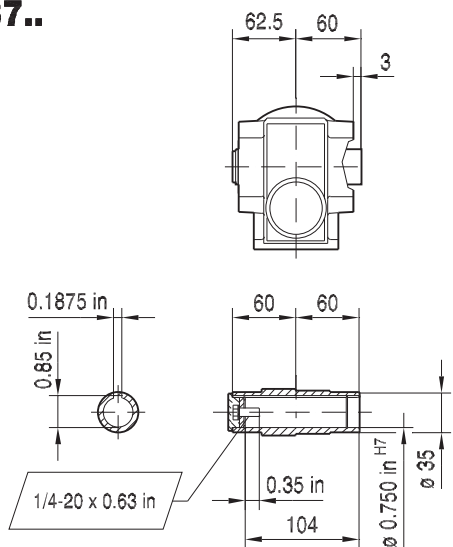


02 095 00 16

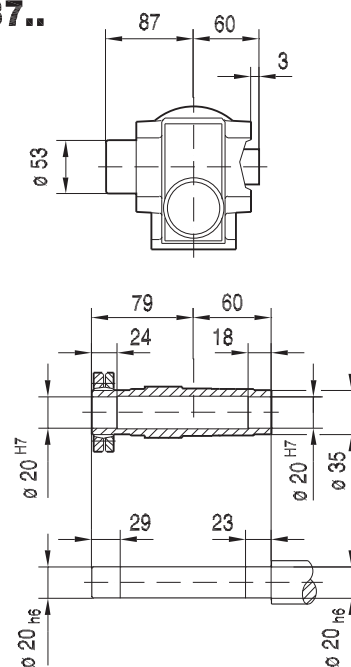


11

SA37..



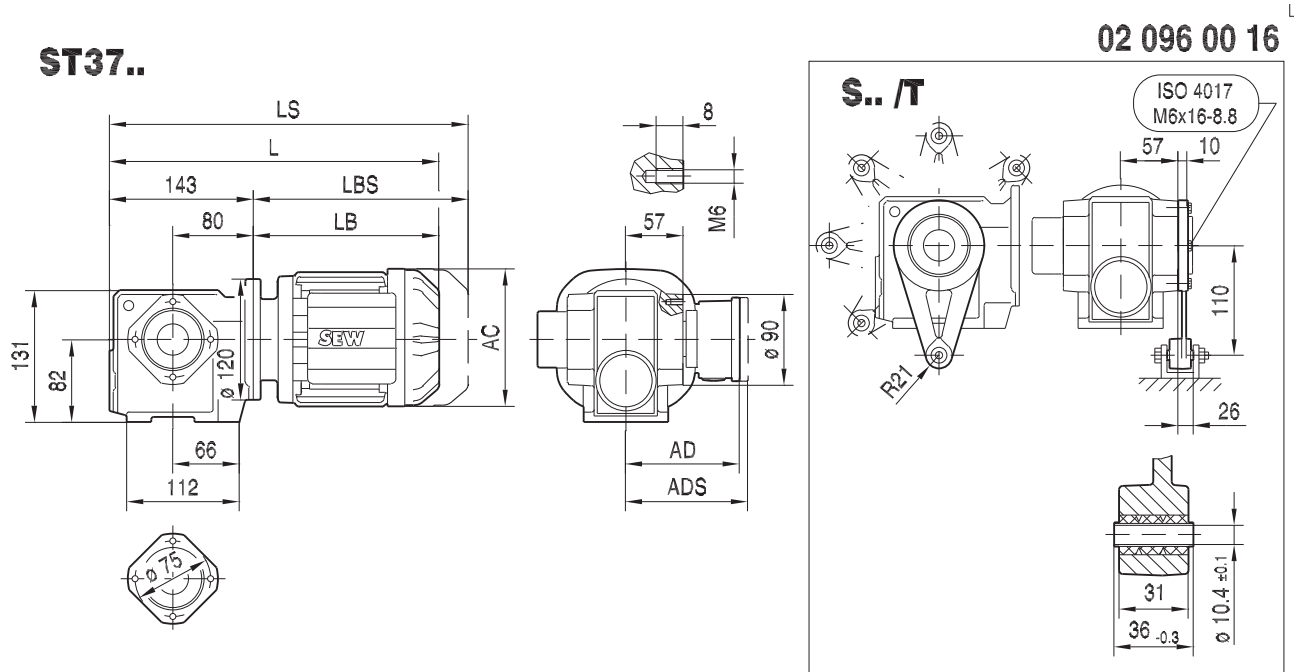
SH37..



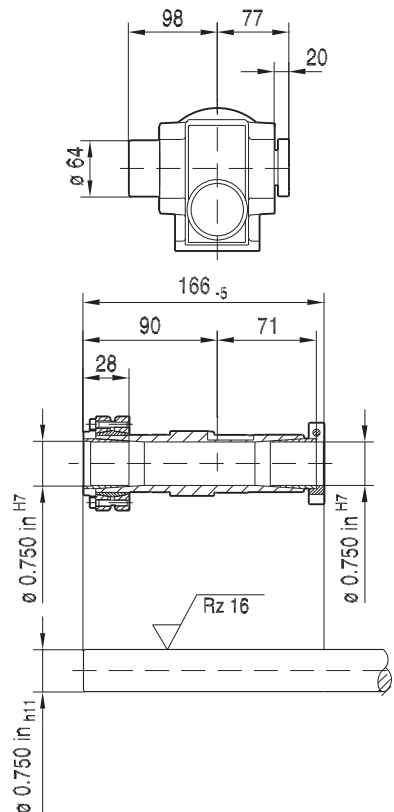
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(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	329	340	365	392	420	421	453
LS	384	408	433	473	501	515	547
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

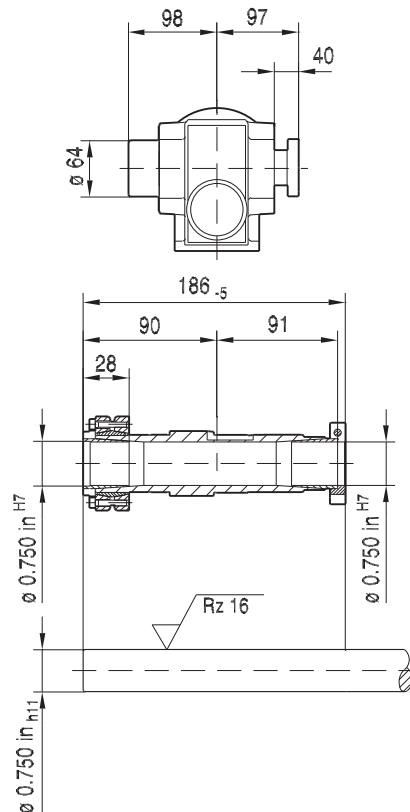
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.



NON-Symmetrical



Symmetrical

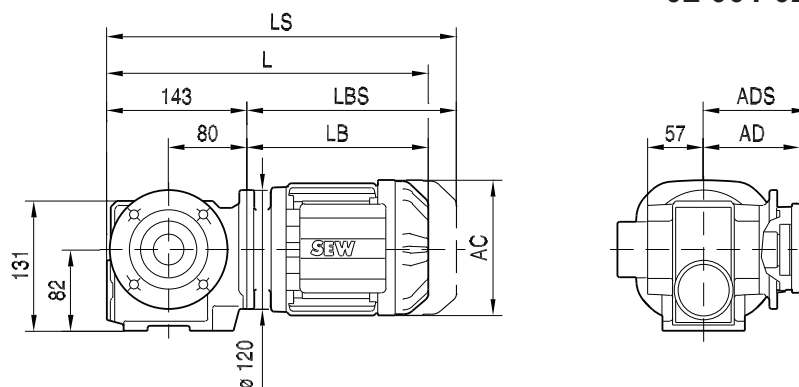


(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	329	340	365	392	420	421	453
LS	384	408	433	473	501	515	547
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

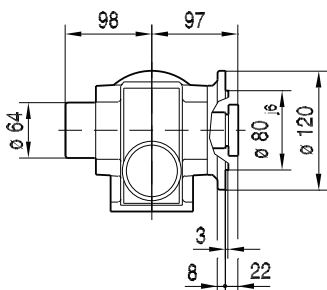
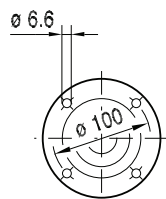
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

STF37..

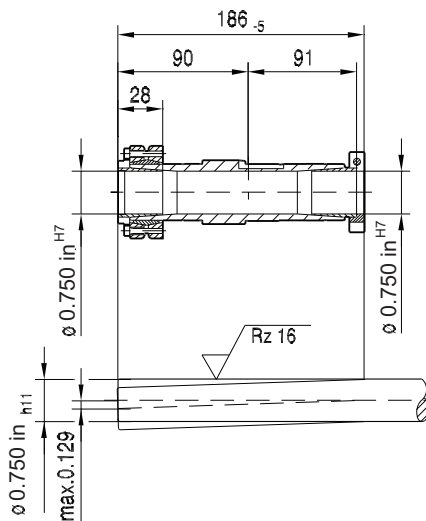
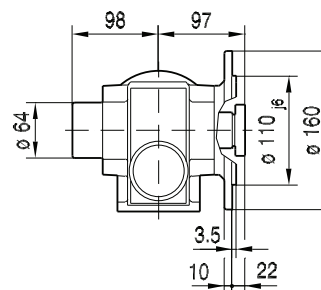
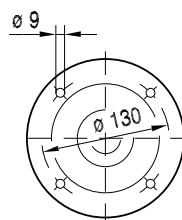
02 001 02 13 US



Ø 120



Ø 160



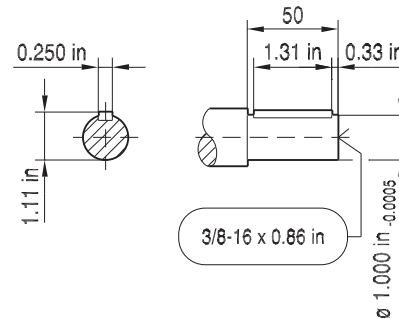
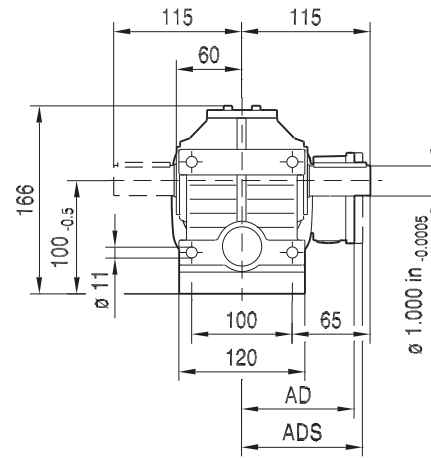
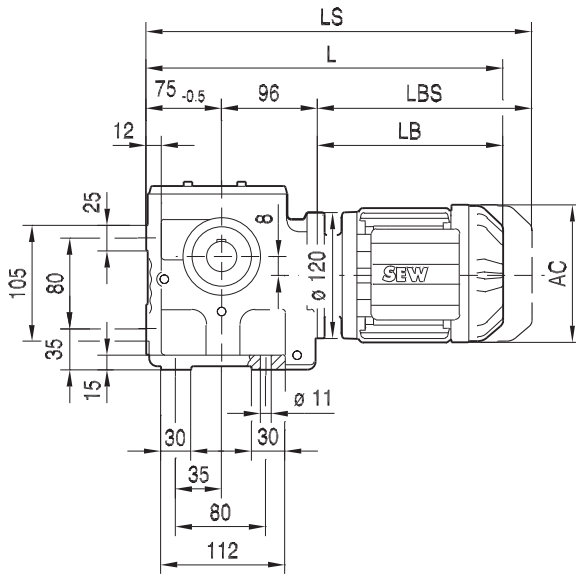
(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	329	340	365	392	420	421	453
LS	384	408	433	473	501	515	547
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

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02 097 00 16

S47..

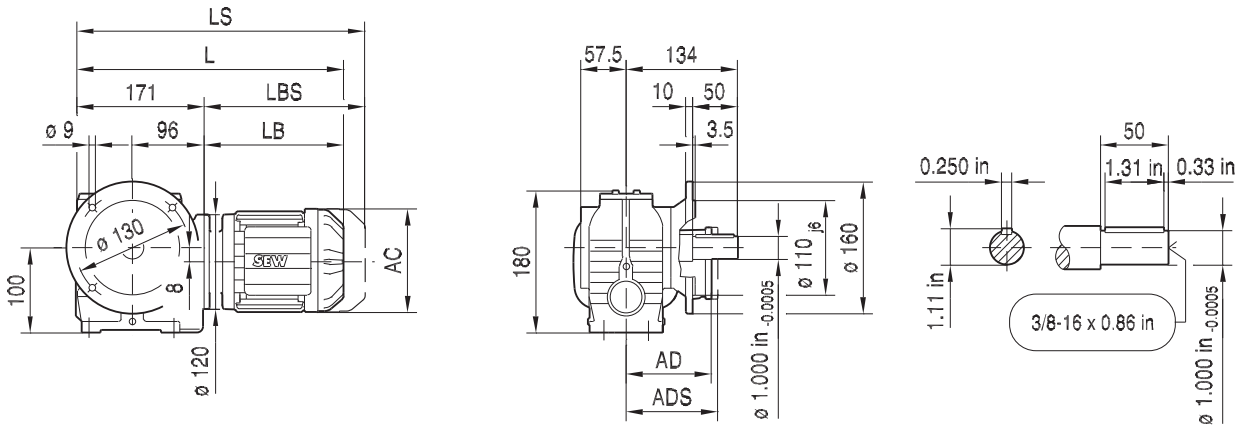


(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

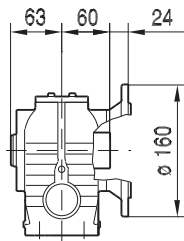
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 098 00 16

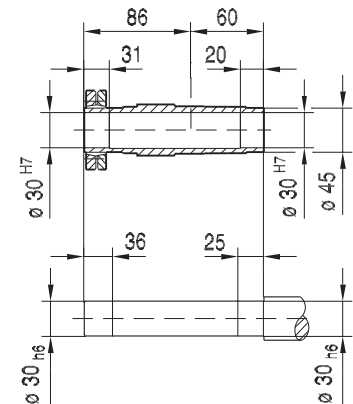
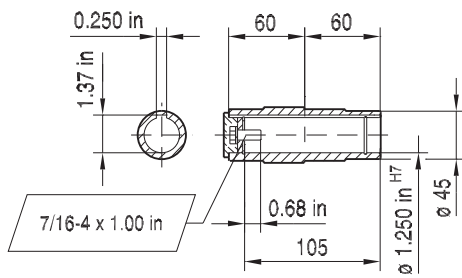
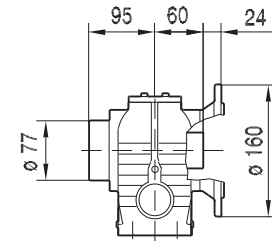
SF47..



SAF47..



SHF47..

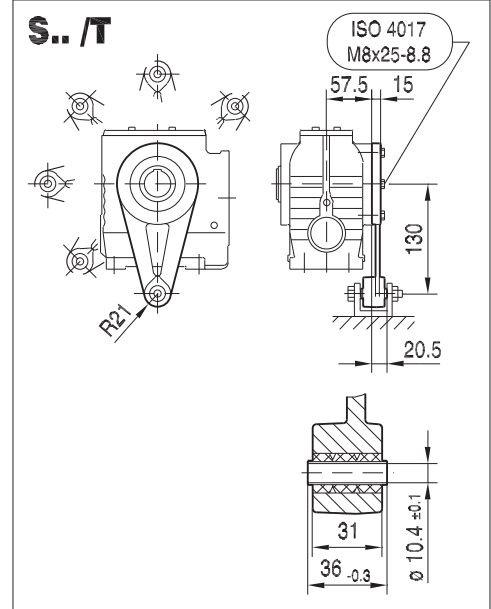
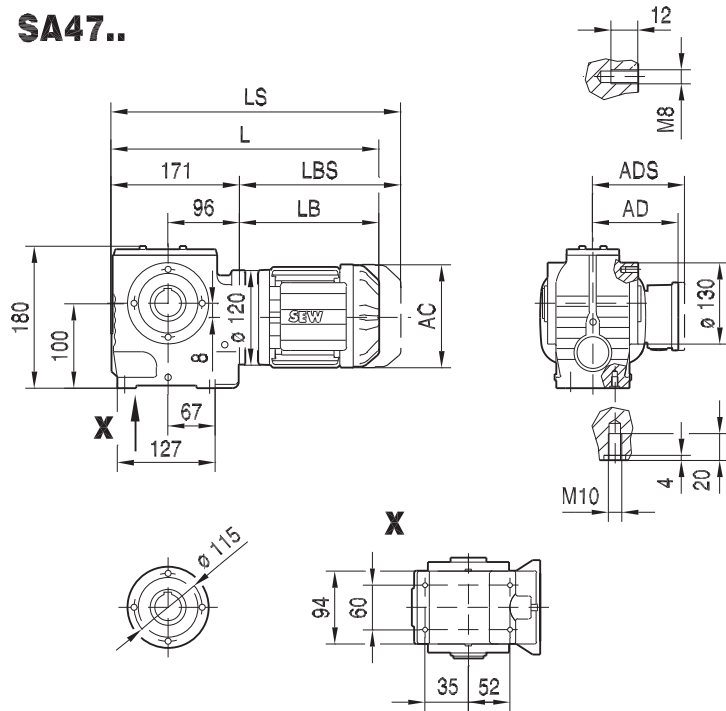


(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

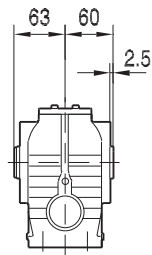
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 099 00 16

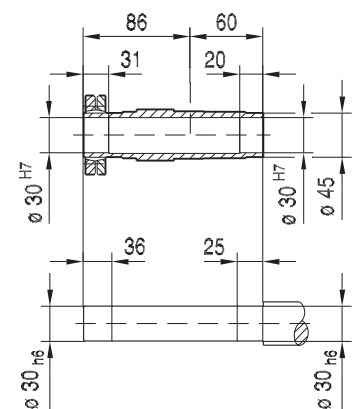
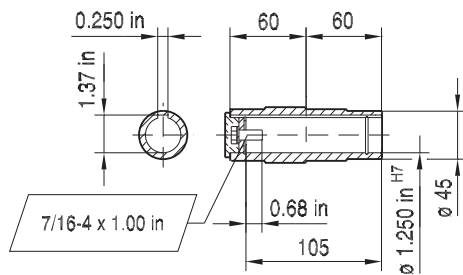
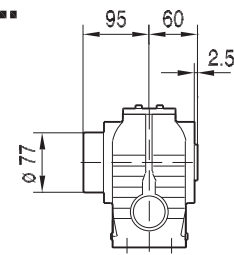
SA47..



SA47..



SH47..



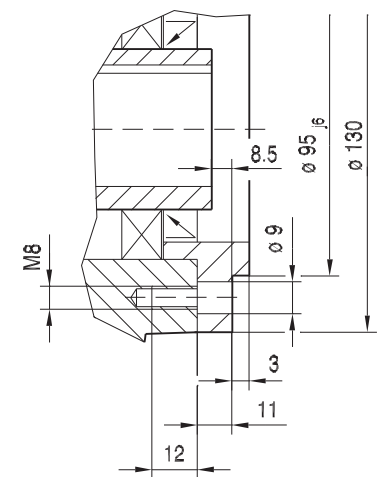
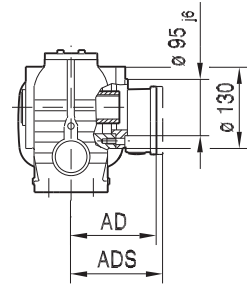
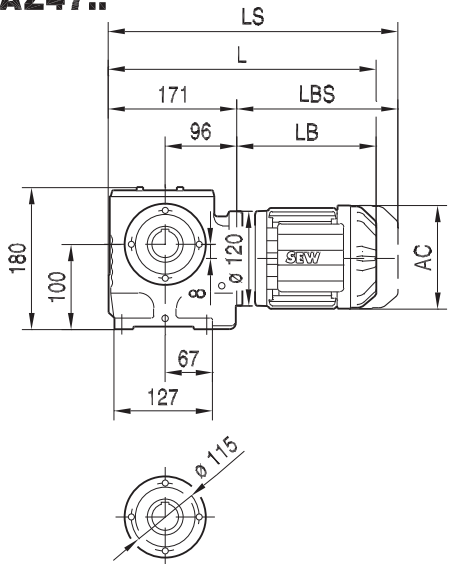
(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

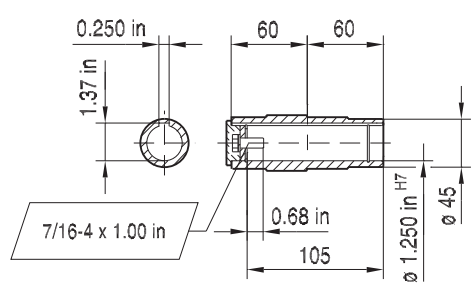
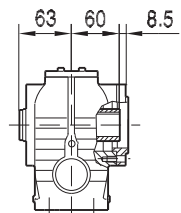
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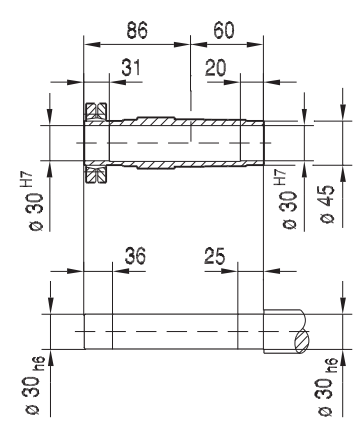
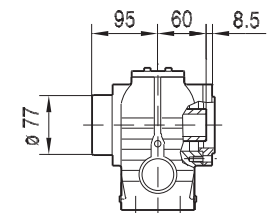
SAZ47..



SAZ47..



SHZ47..

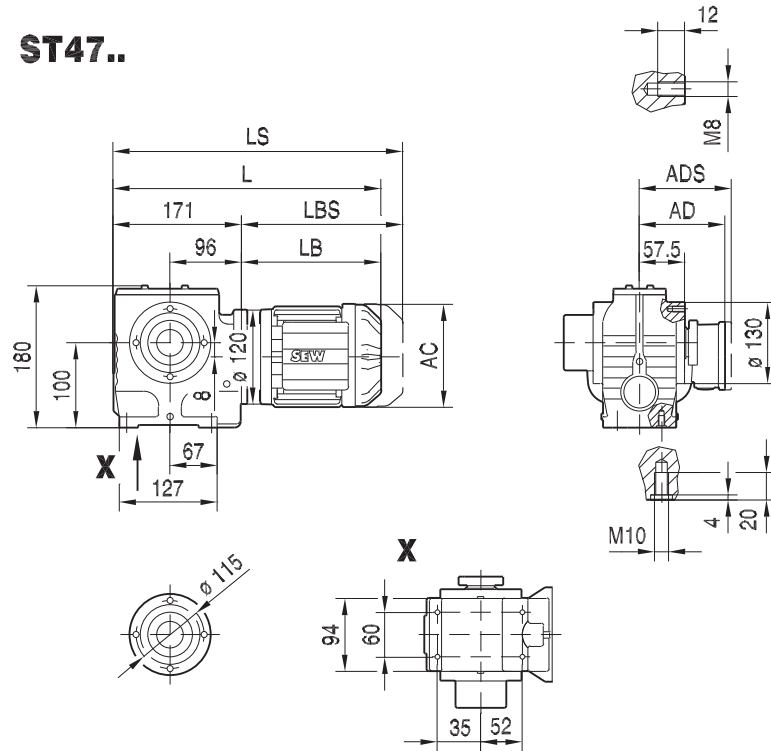


(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

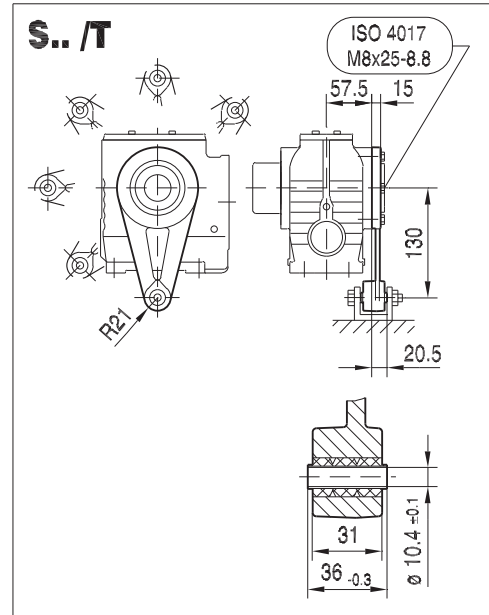
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

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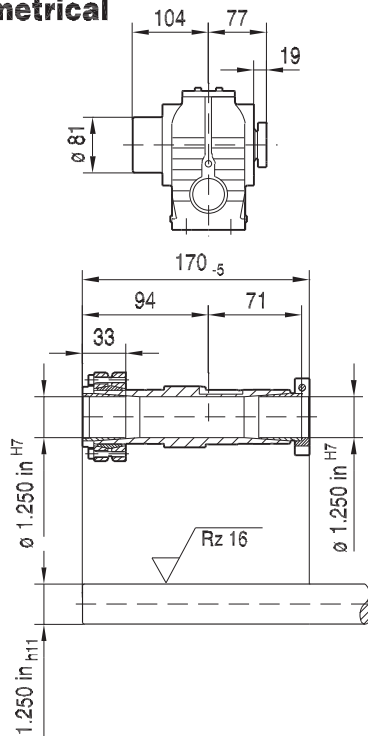
ST47..



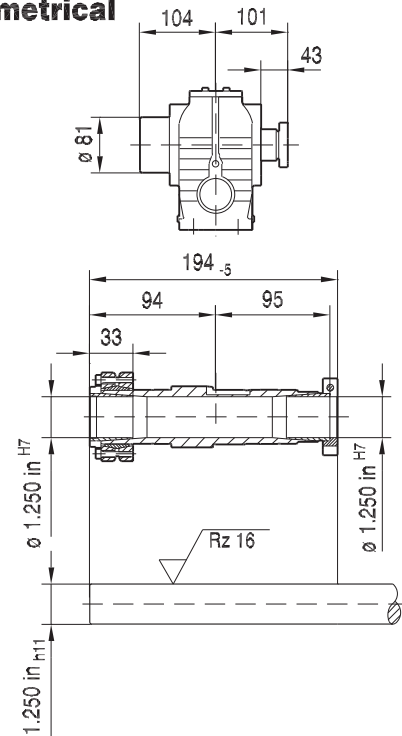
02 101 00 16



NON-Symmetrical



Symmetrical

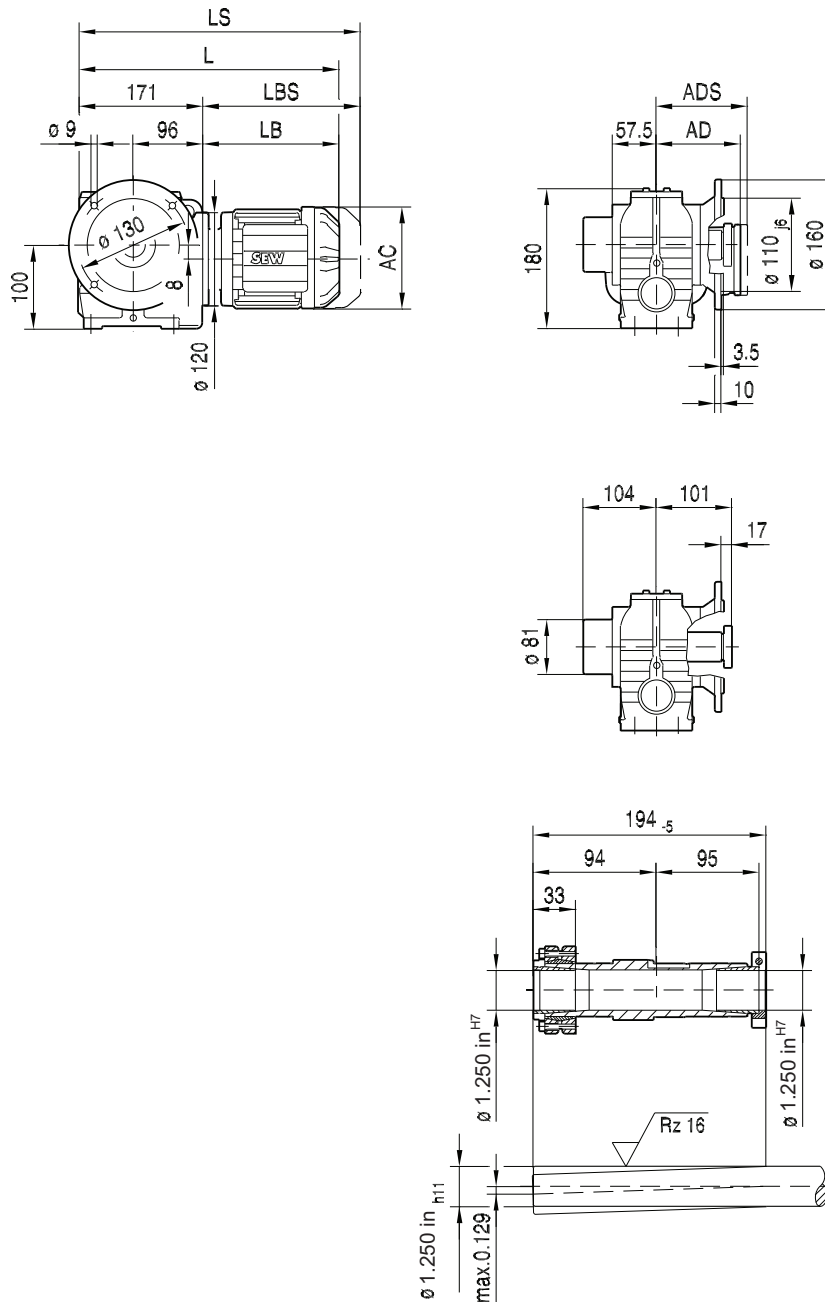


(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

STF47..

02 002 02 13 US



11

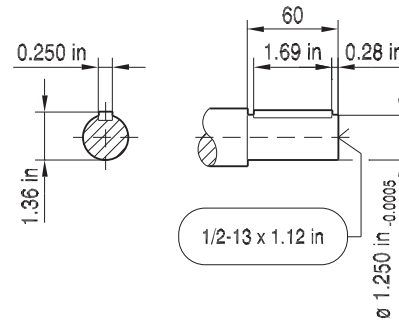
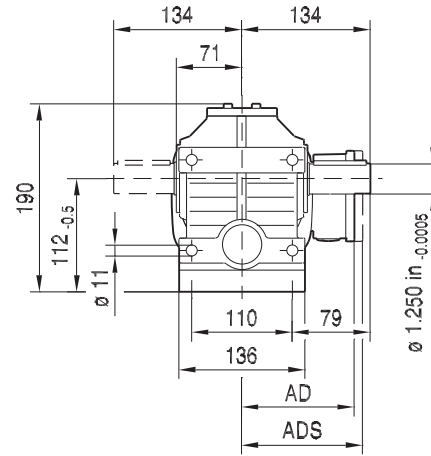
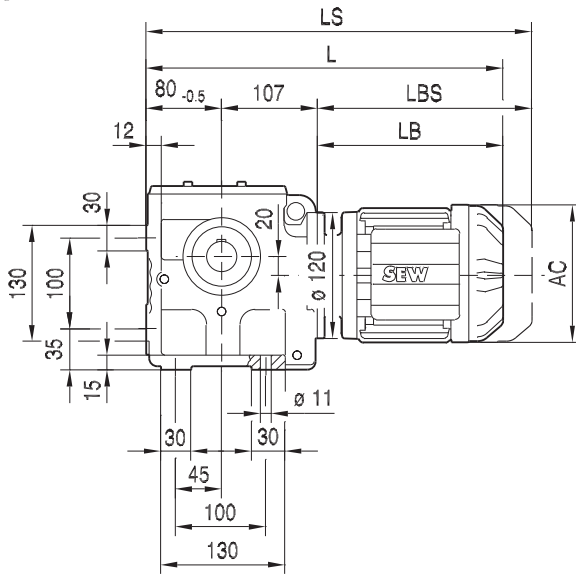
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(→ 163)	DR63..	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	362	373	398	425	453	454	486	535
LS	417	441	466	506	534	548	580	629
LB	191	202	227	254	282	283	315	364
LBS	246	270	295	335	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 102 00 16 ^L

S57..

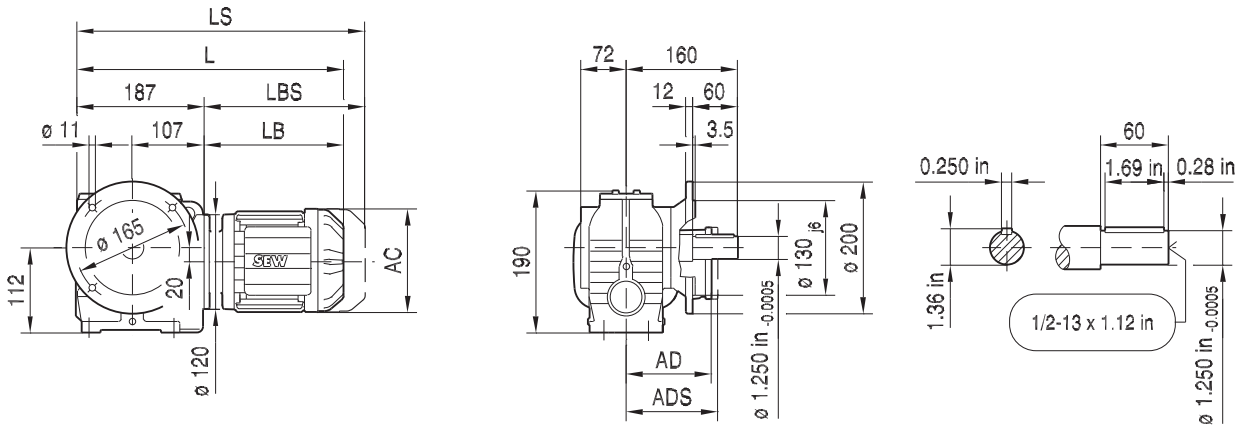


(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100LS	DRN100L/LM
AC	132	139	139	156	179	179	197	197
AD	105	119	119	128	140	140	157	157
ADS	105	129	129	139	150	150	158	158
L	378	389	414	469	470	502	501	551
LS	433	457	482	550	564	596	595	645
LB	191	202	227	282	283	315	314	364
LBS	246	270	295	363	377	409	408	458

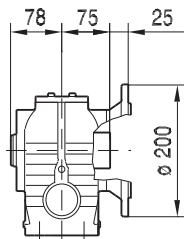
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 103 00 16

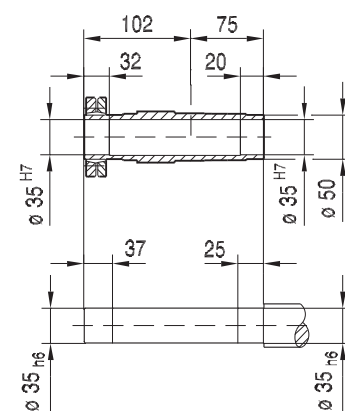
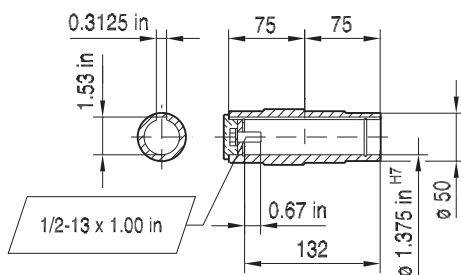
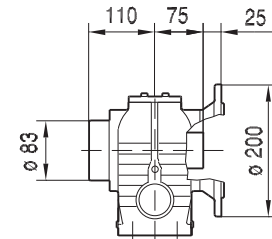
SF57..



SAF57..



SHF57..



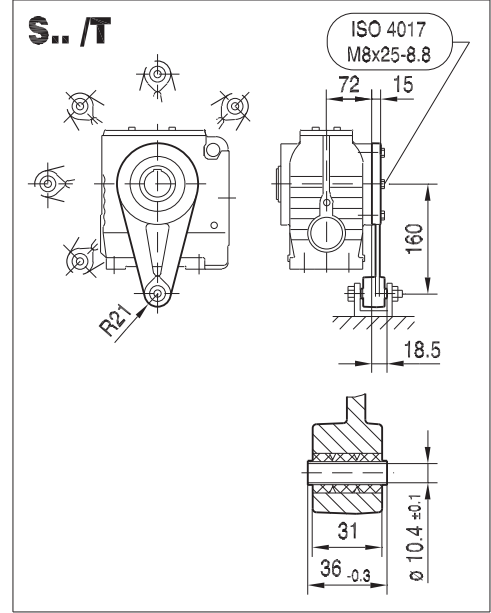
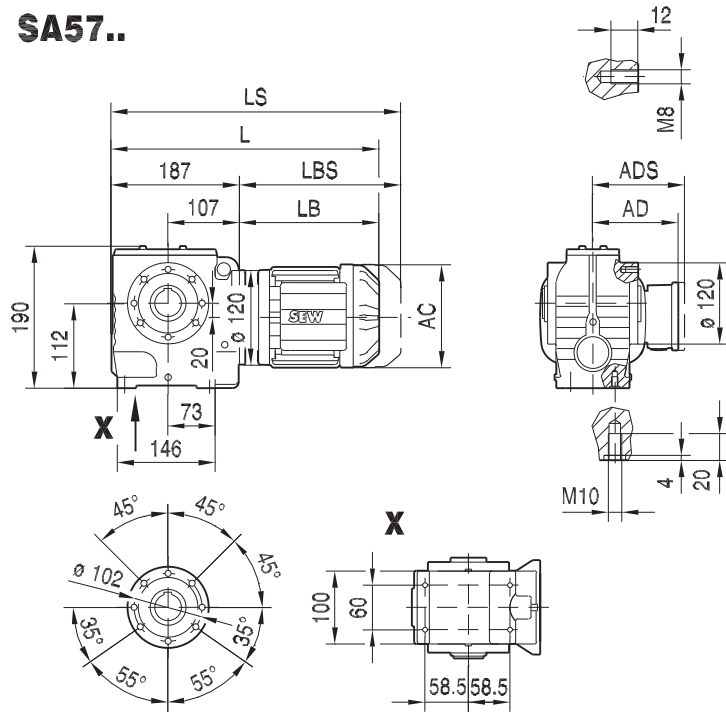
21933480/EN-US - 04/2018

(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	378	389	414	469	470	502	551
LS	433	457	482	550	564	596	645
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

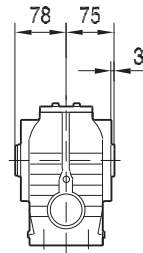
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 104 00 16

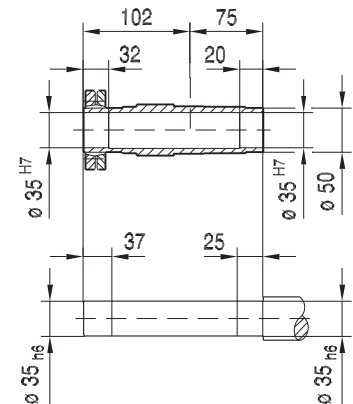
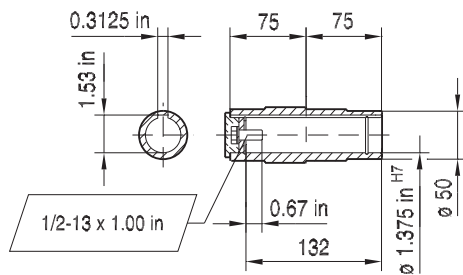
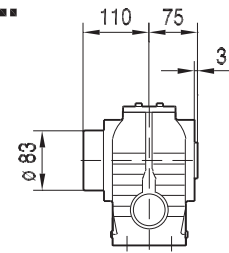
SA57..



SA57..



SH57..



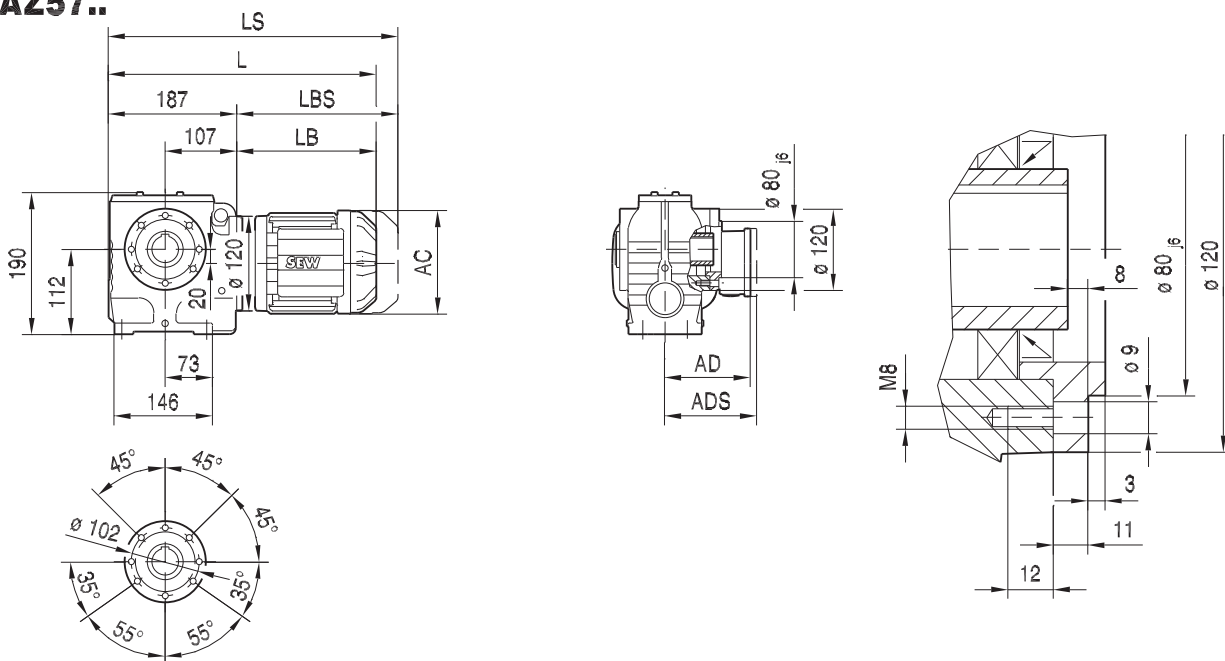
(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	378	389	414	469	470	502	551
LS	433	457	482	550	564	596	645
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

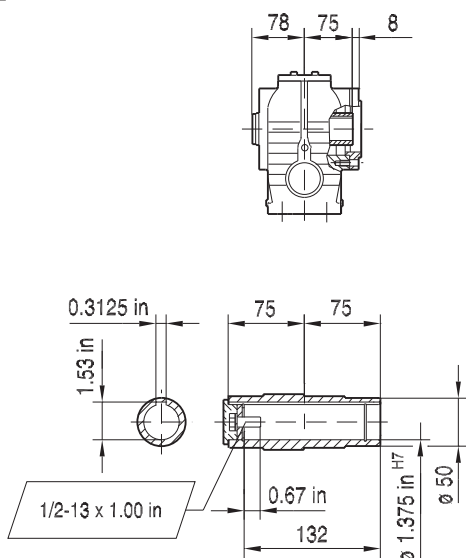
21933480/EN-US - 04/2018

02 105 00 16

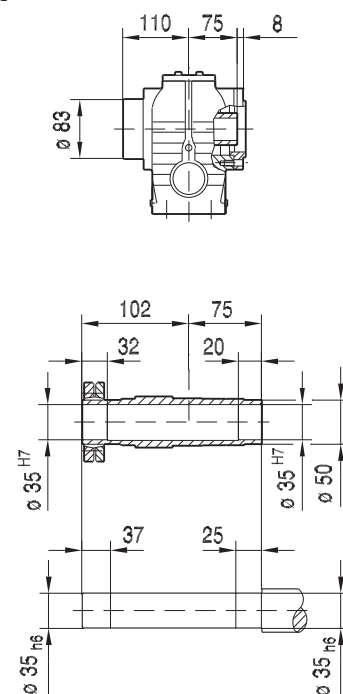
SAZ57..



SAZ57..



SHZ57..

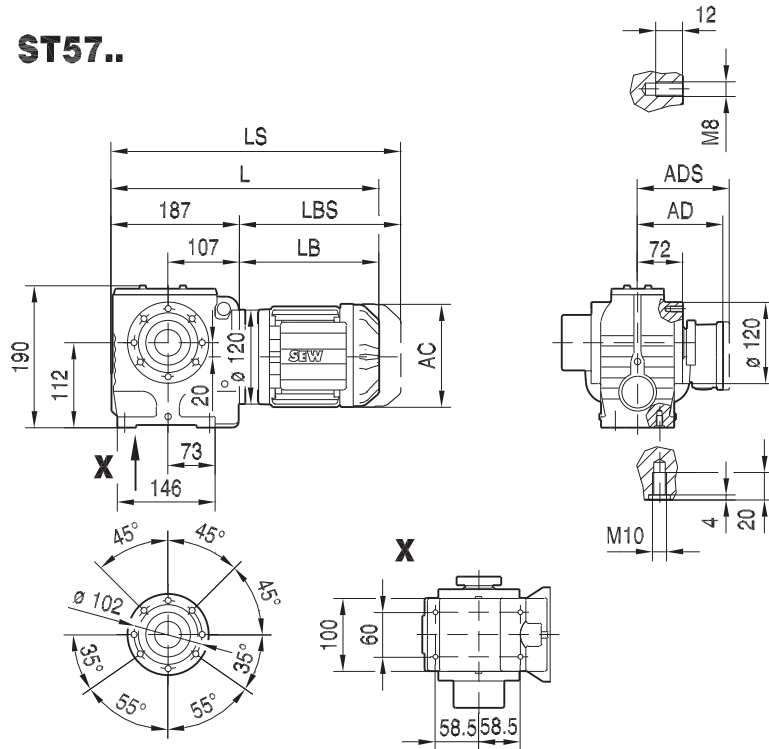


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(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	378	389	414	469	470	502	551
LS	433	457	482	550	564	596	645
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

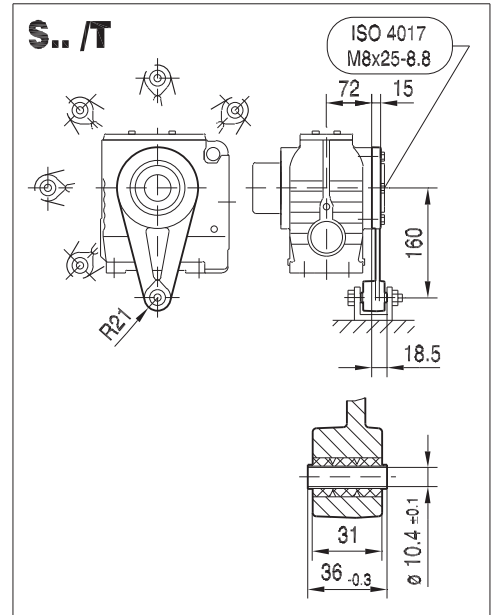
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

ST57..

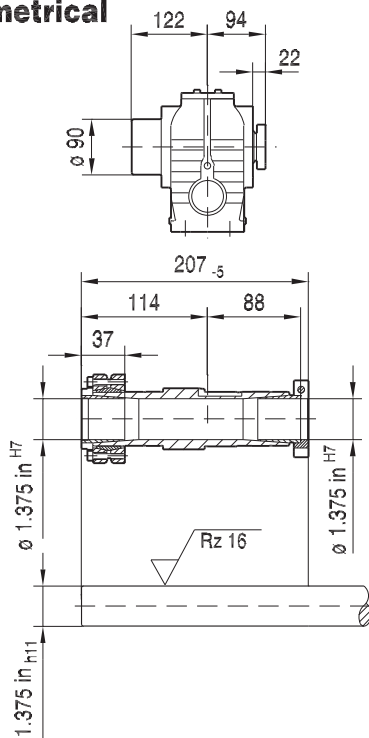


02 106 00 16

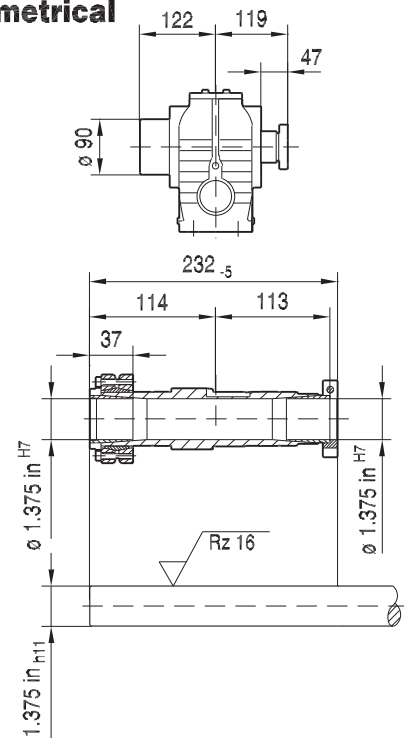
S../T



NON-Symmetrical



Symmetrical

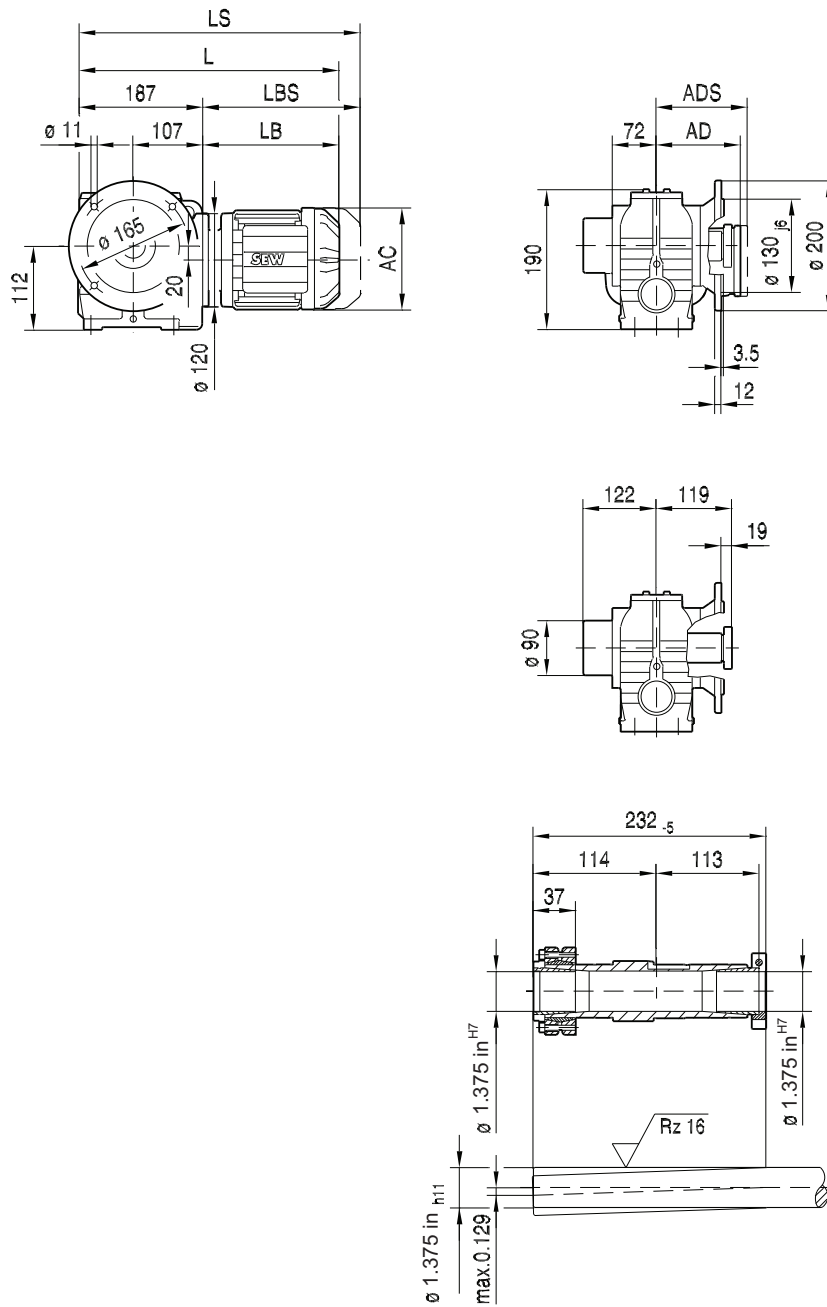


(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	378	389	414	469	470	502	551
LS	433	457	482	550	564	596	645
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 003 02 13 US

STF57..



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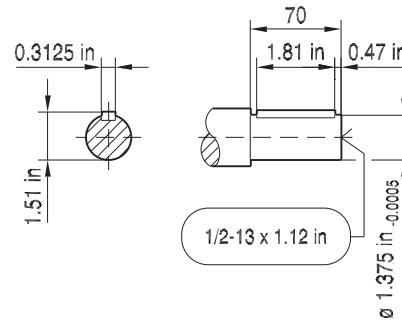
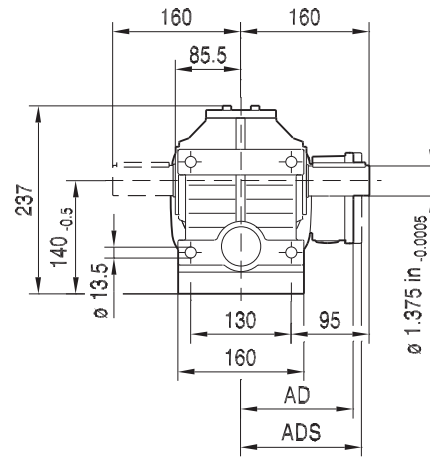
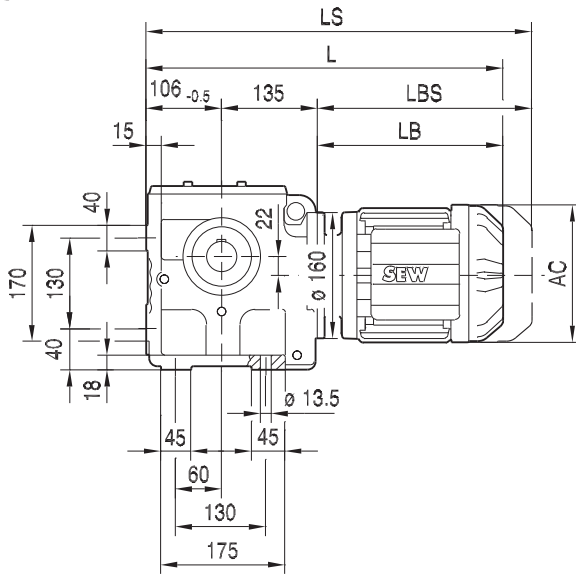
21933480/EN-US - 04/2018

(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM
AC	132	139	139	156	179	179	197
AD	105	119	119	128	140	140	157
ADS	105	129	129	139	150	150	158
L	378	389	414	469	470	502	551
LS	433	457	482	550	564	596	645
LB	191	202	227	282	283	315	364
LBS	246	270	295	363	377	409	458

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 107 00 16 ^L

S67..

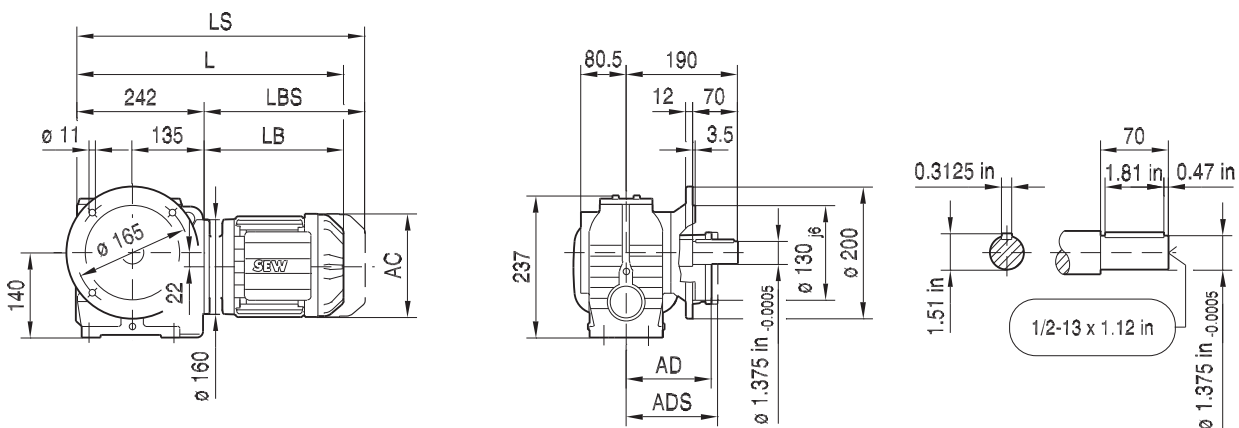


(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	426	437	462	516	518	550	596	627	681
LS	481	505	530	597	611	643	690	739	793
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

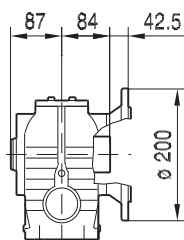
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 108 00 16

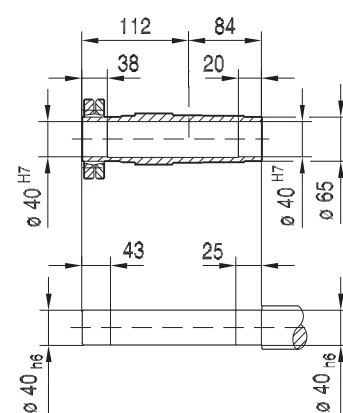
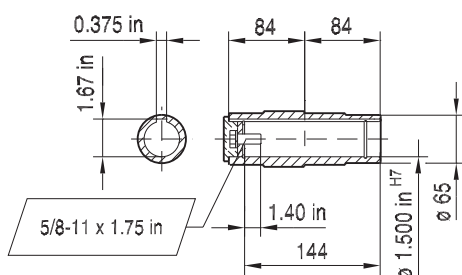
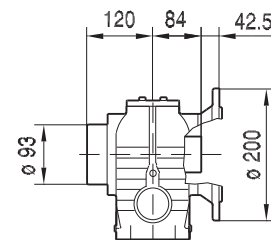
SF67..



SAF67..



SHF67..



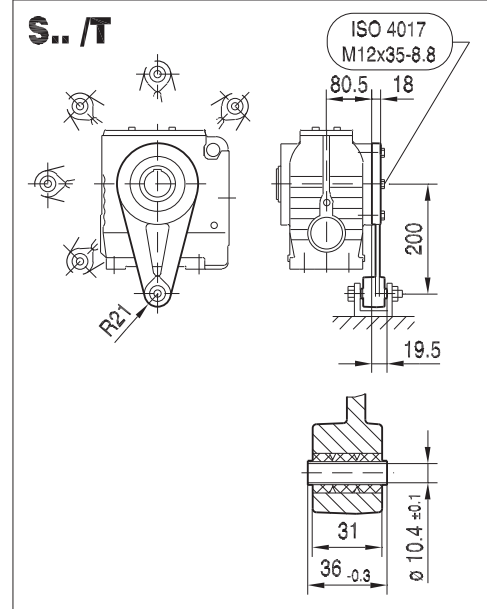
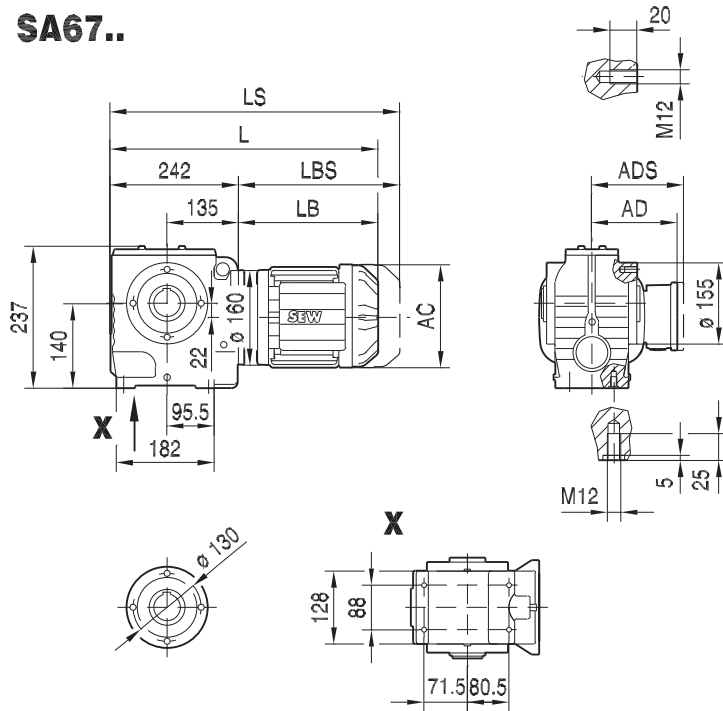
(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	427	438	463	517	519	551	597	628	682
LS	482	506	531	598	612	644	691	740	794
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

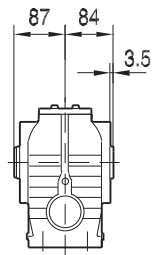
21933480/EN-US - 04/2018

02 109 00 16

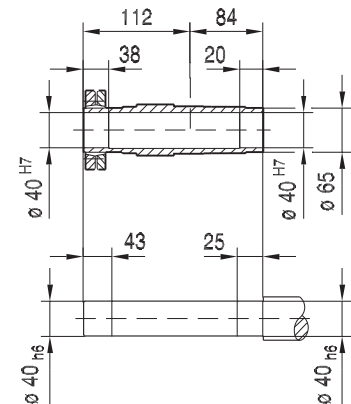
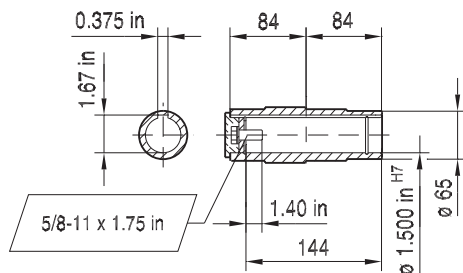
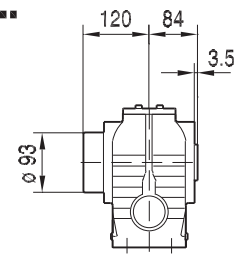
SA67..



SA67..



SH67..



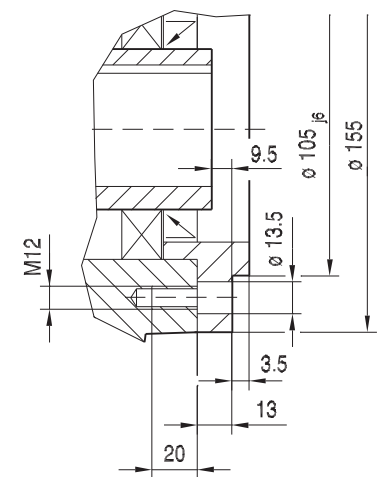
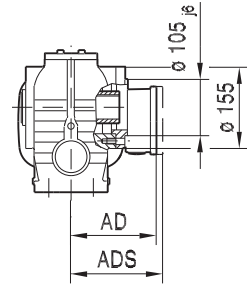
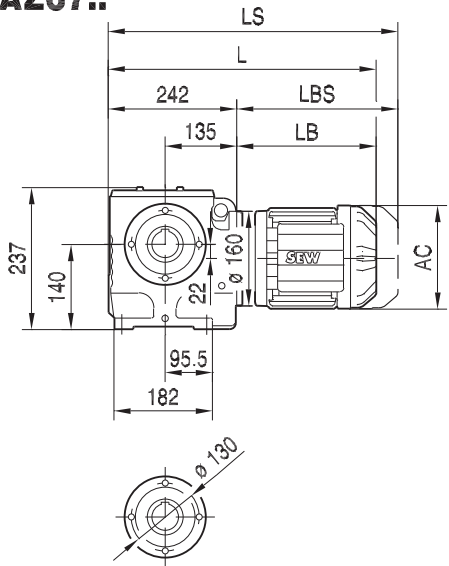
(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	427	438	463	517	519	551	597	628	682
LS	482	506	531	598	612	644	691	740	794
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

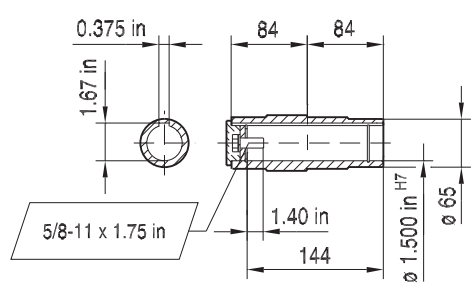
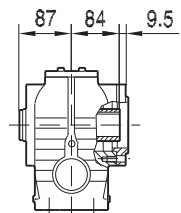
21933480/EN-US - 04/2018

02 110 00 16

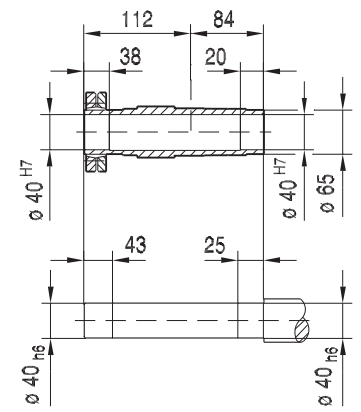
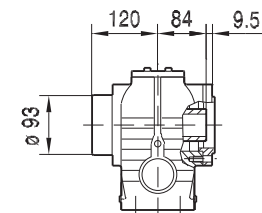
SAZ67..



SAZ67..



SHZ67..

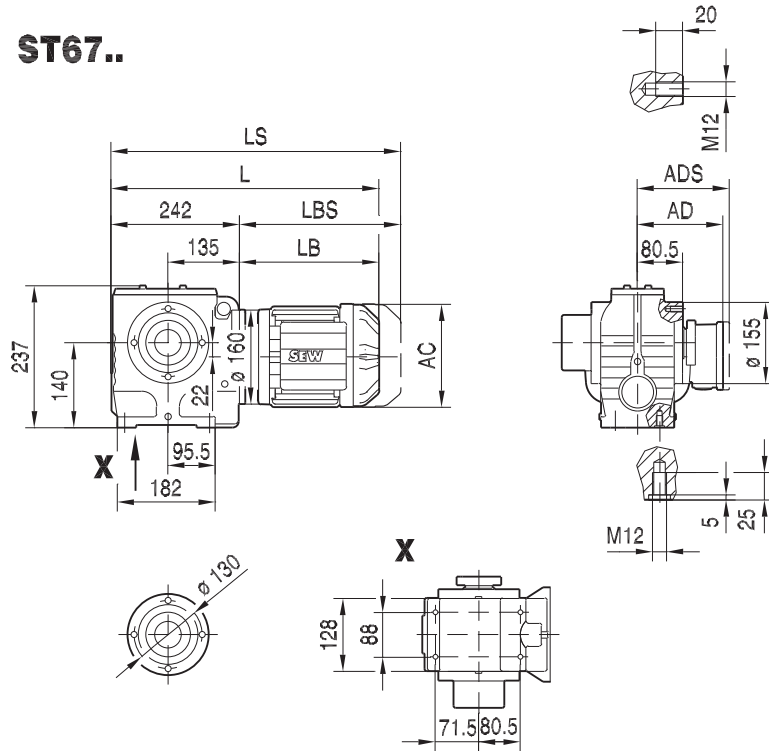


(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	427	438	463	517	519	551	597	628	682
LS	482	506	531	598	612	644	691	740	794
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

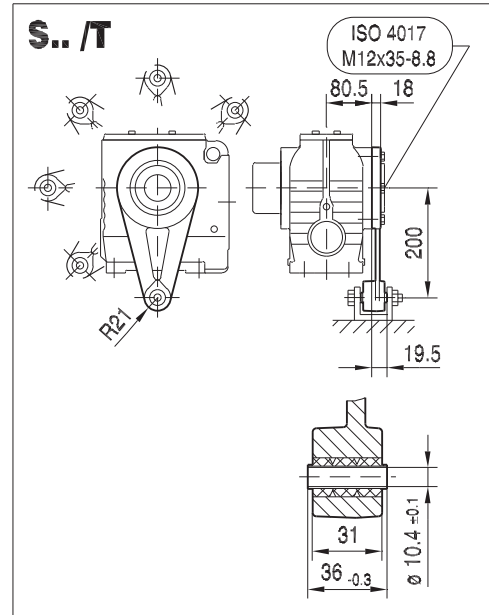
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

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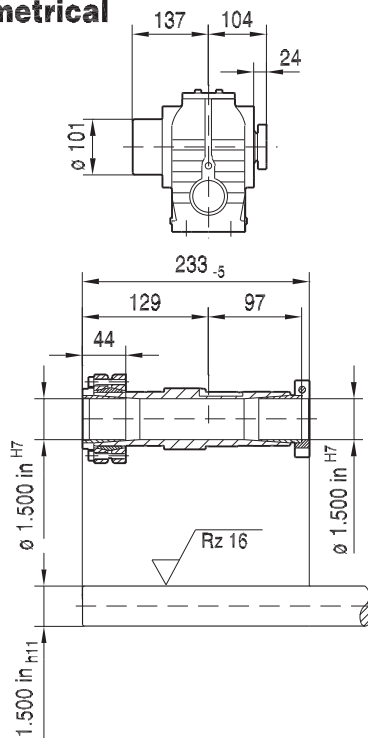
ST67..



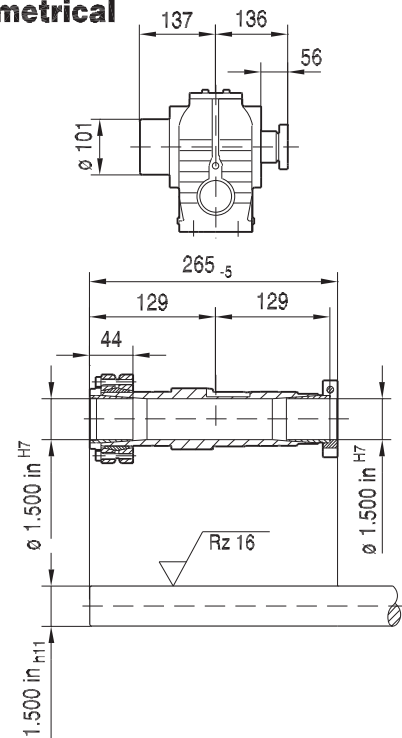
02 111 00 16



NON-Symmetrical



Symmetrical

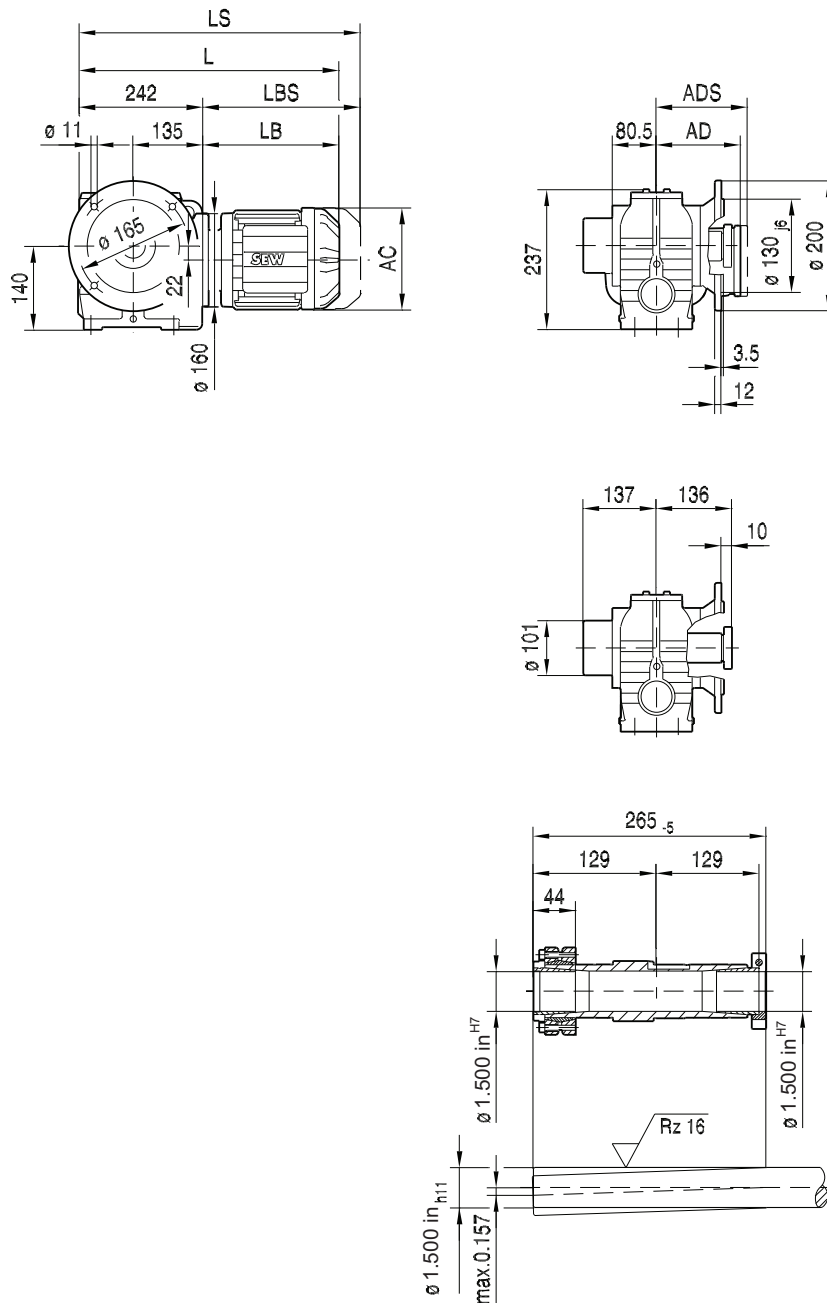


(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	427	438	463	517	519	551	597	628	682
LS	482	506	531	598	612	644	691	740	794
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

STF67..

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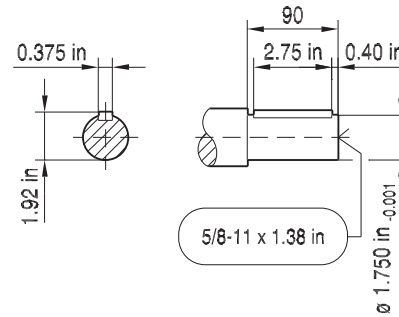
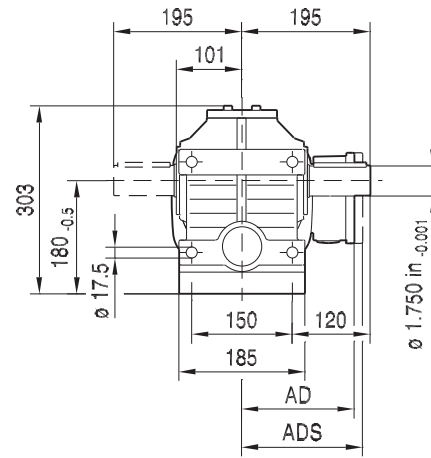
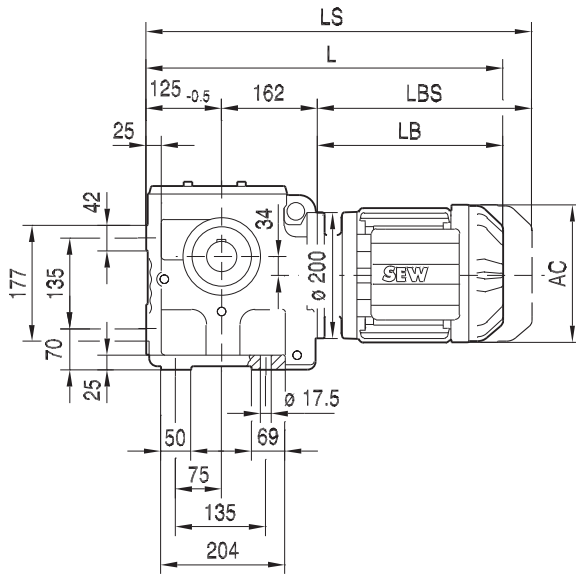
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(→ 163)	DR63..	DRS71S	DRS71M	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S
AC	132	139	139	156	179	179	197	221	221
AD	105	119	119	128	140	140	157	170	170
ADS	105	129	129	139	150	150	158	172	172
L	427	438	463	517	519	551	597	628	682
LS	482	506	531	598	612	644	691	740	794
LB	185	196	221	275	277	309	355	386	440
LBS	240	264	289	356	370	402	449	498	552

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 112 00 16 ^L

S77..

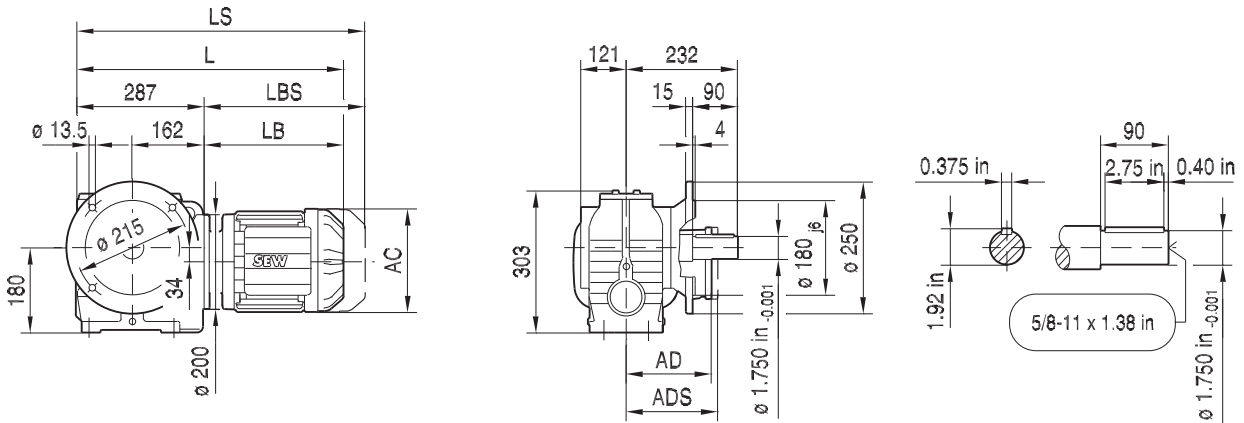


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

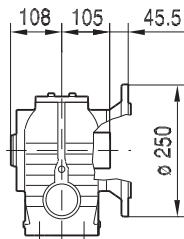
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 113 00 16

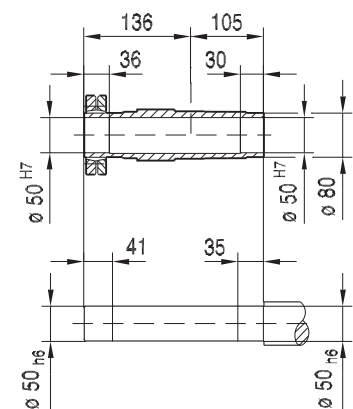
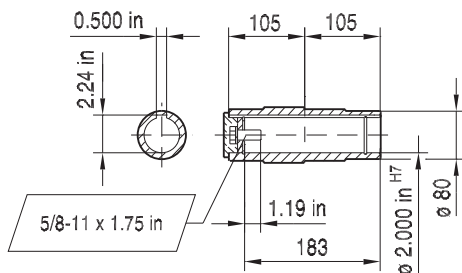
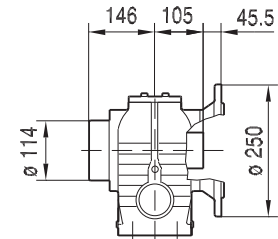
SF77..



SAF77..



SHF77..

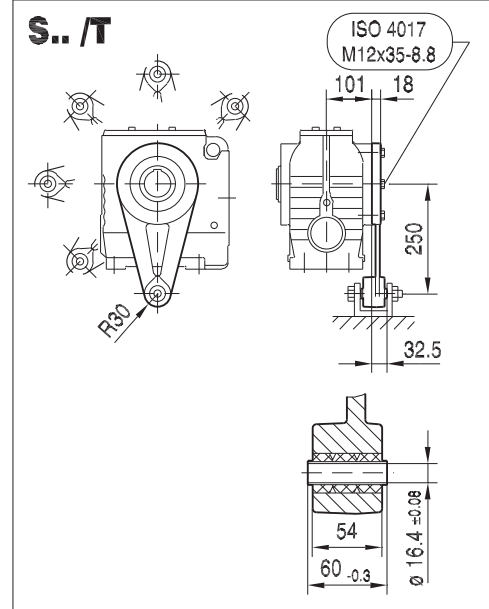
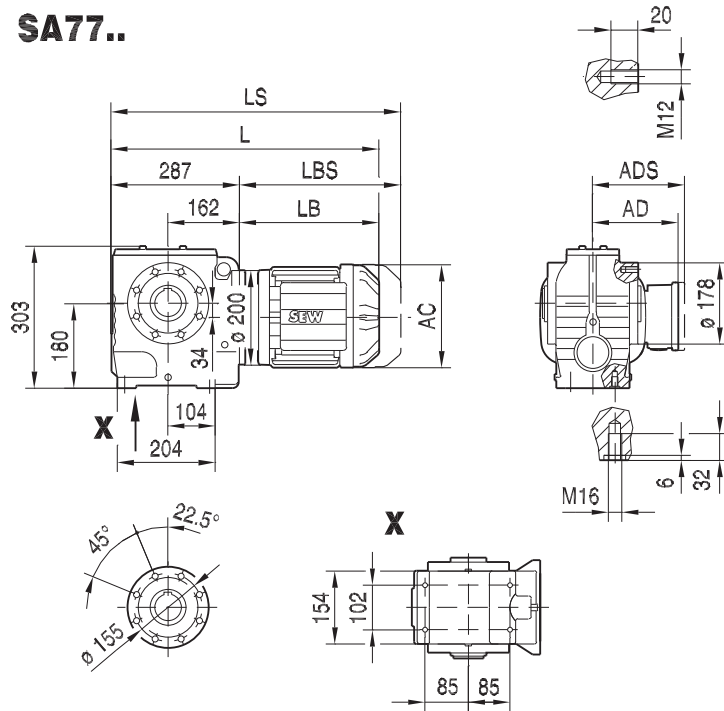


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

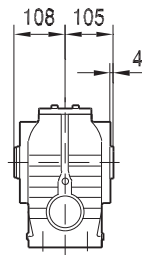
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

02 114 00 16

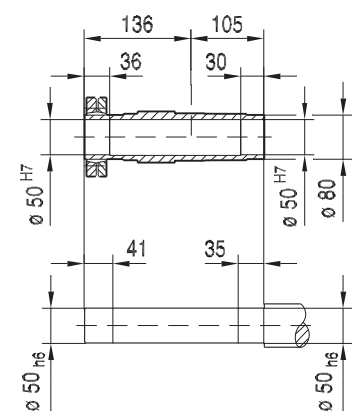
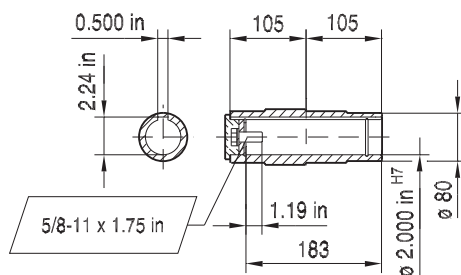
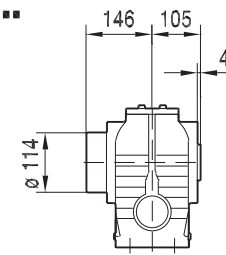
SA77..



SA77..



SH77..

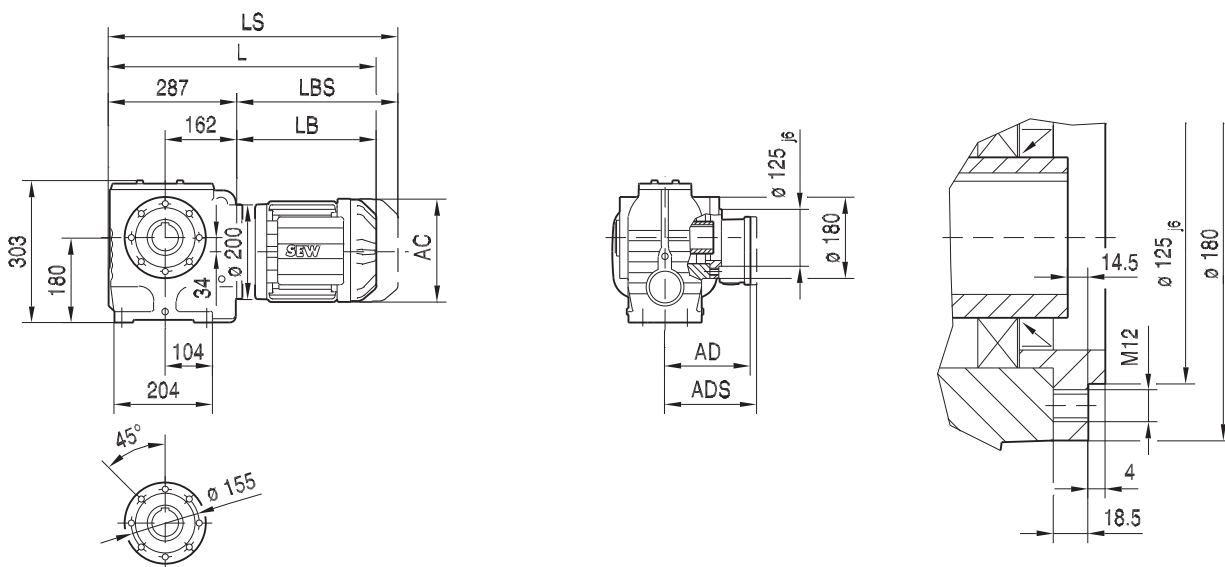


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

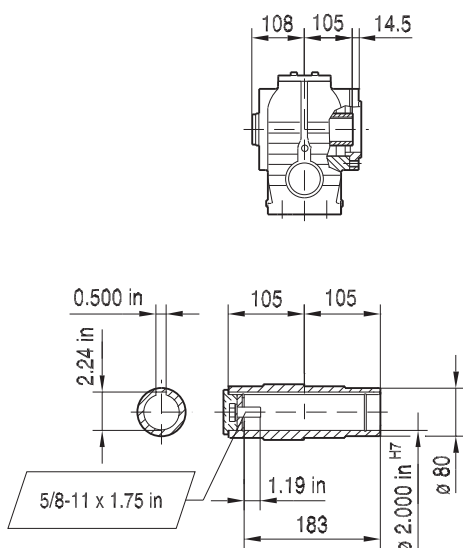
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

02 115 00 16

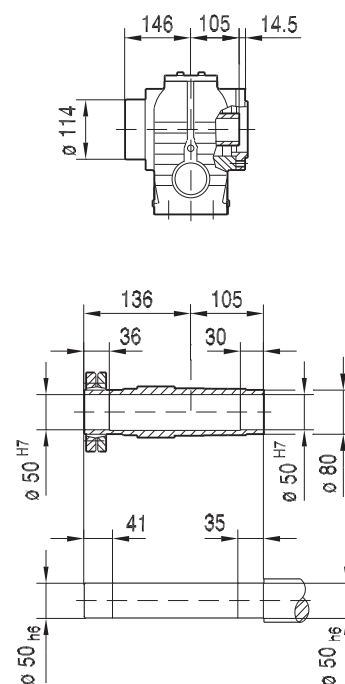
SAZ77..



SAZ77..



SHZ77..

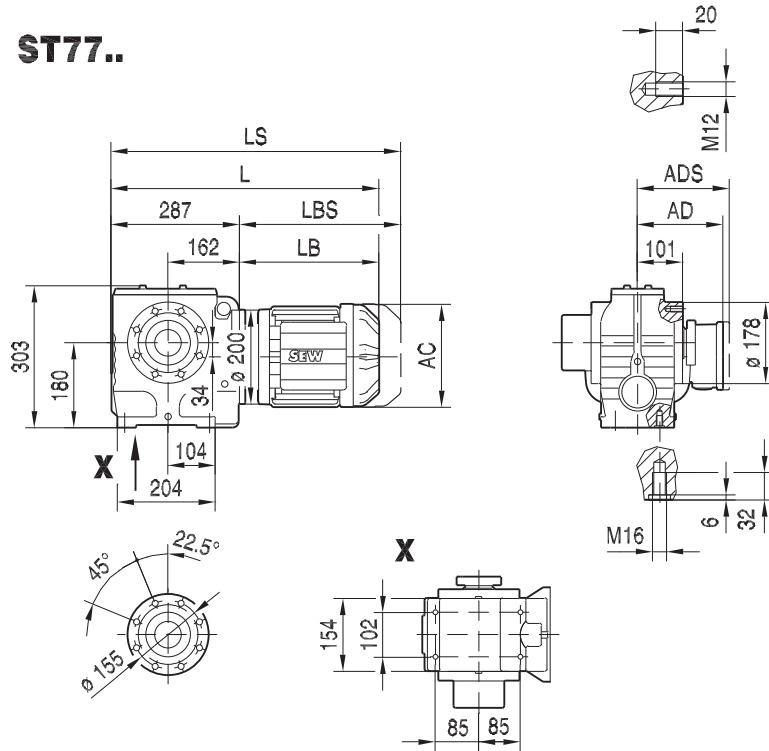


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

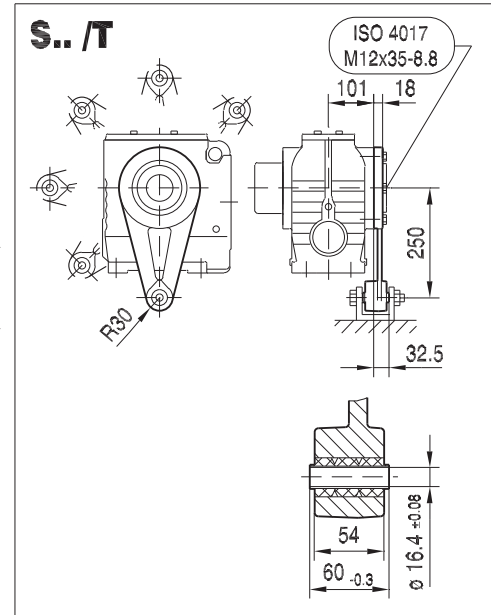
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

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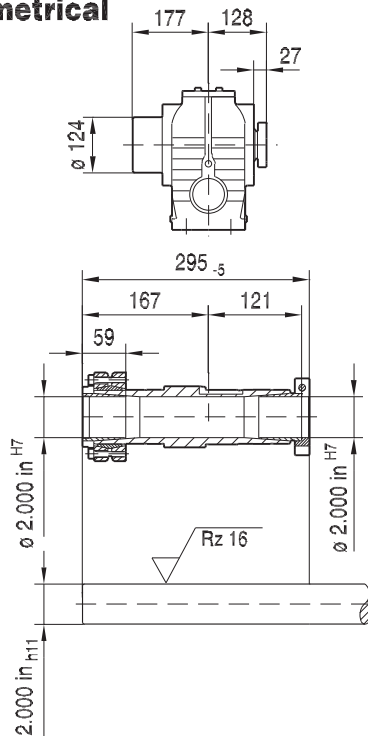
ST77..



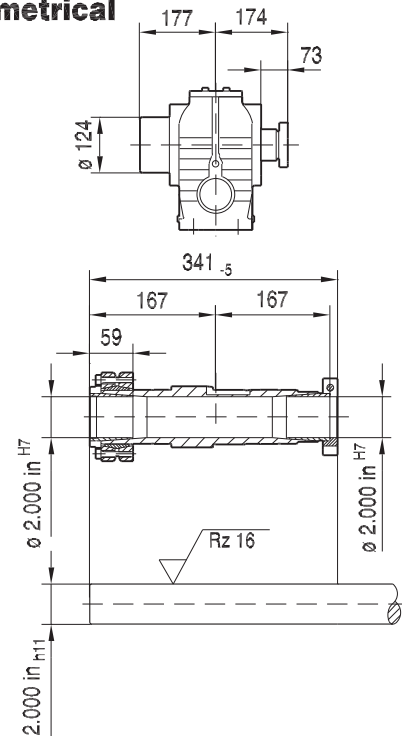
02 116 00 16



NON-Symmetrical



Symmetrical

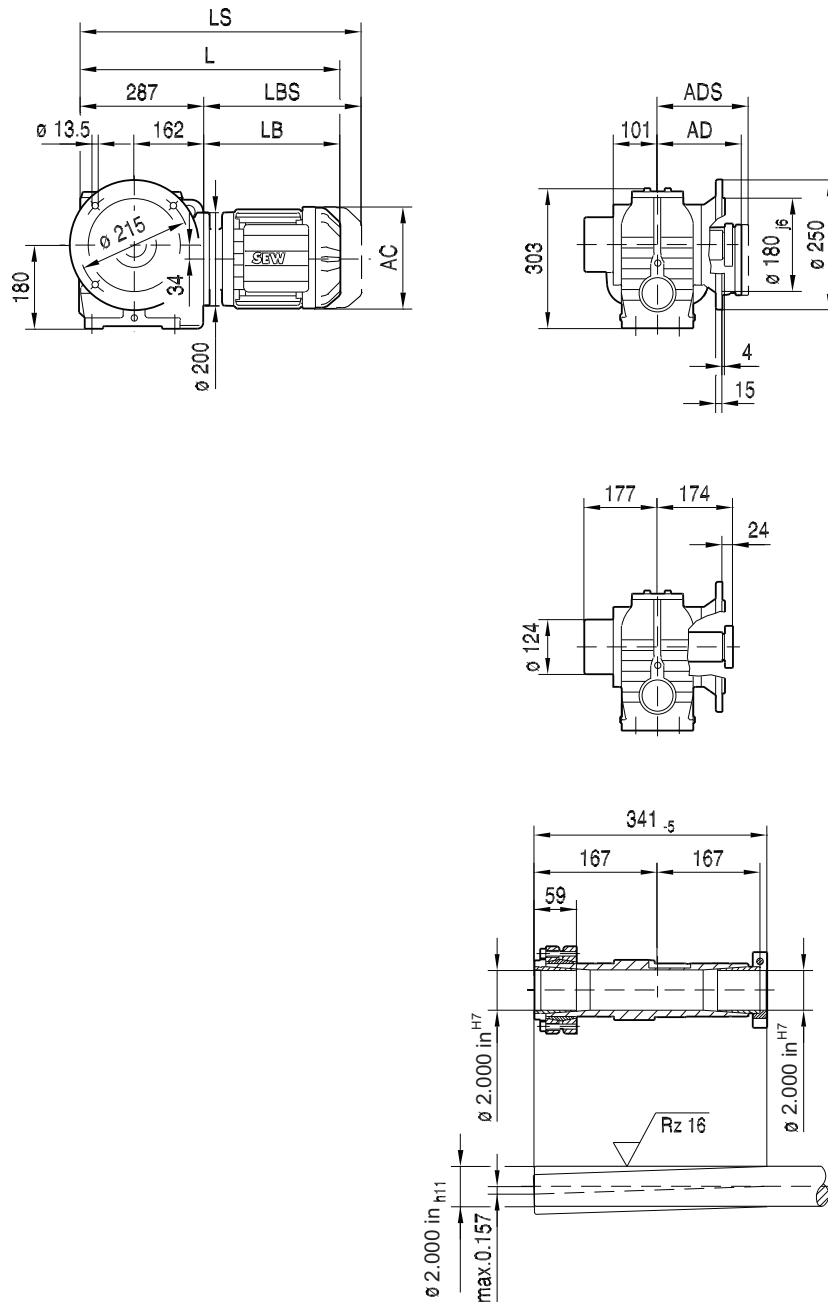


(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

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STF77..



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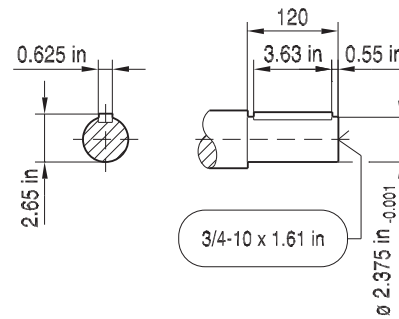
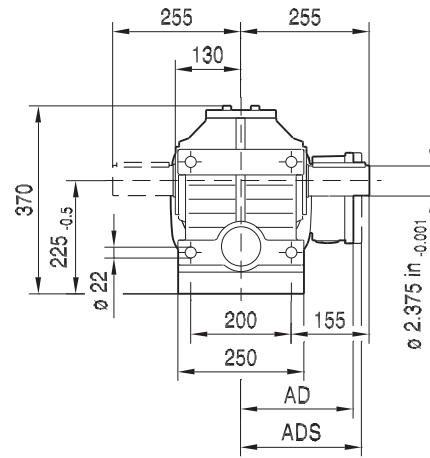
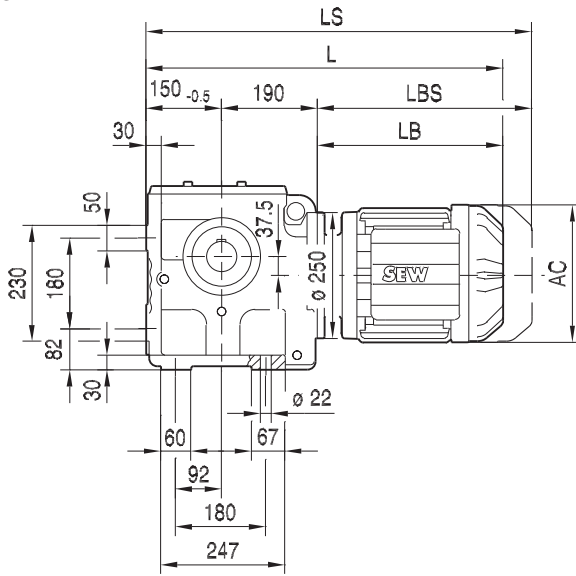
21933480/EN-US - 04/2018

(→ 163)	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160
AC	156	179	179	197	221	221	261	261	314
AD	128	140	140	157	170	170	228	228	253
ADS	139	150	150	158	172	172	228	228	253
L	555	557	589	635	666	716	734	760	826
LS	636	650	682	729	778	828	872	897	1015
LB	268	270	302	348	379	429	447	473	539
LBS	349	363	395	442	491	541	585	610	728

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 117 00 16 ^L

S87..



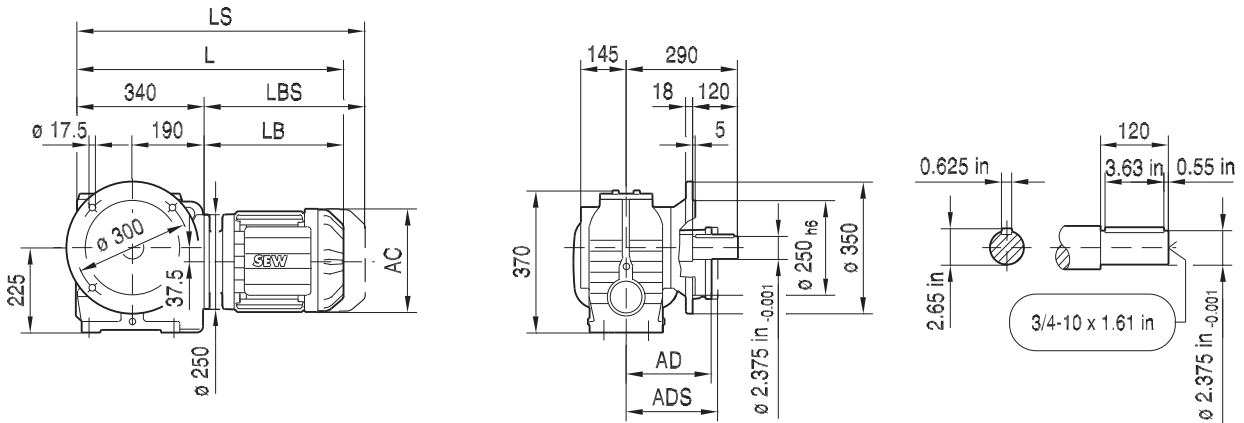
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

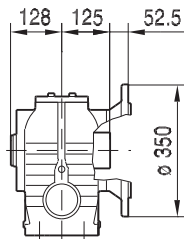
21933480/EN-US - 04/2018

02 118 00 16

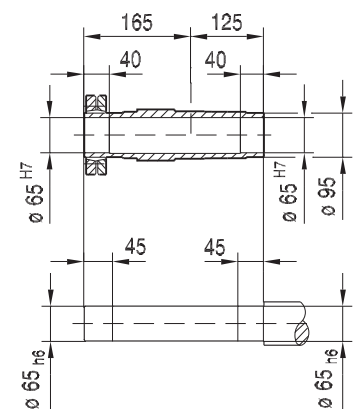
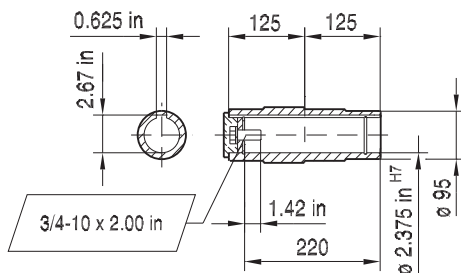
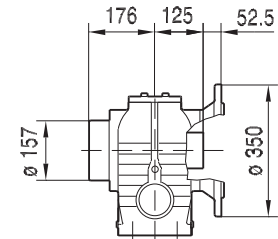
SF87..



SAF87..



SHF87..



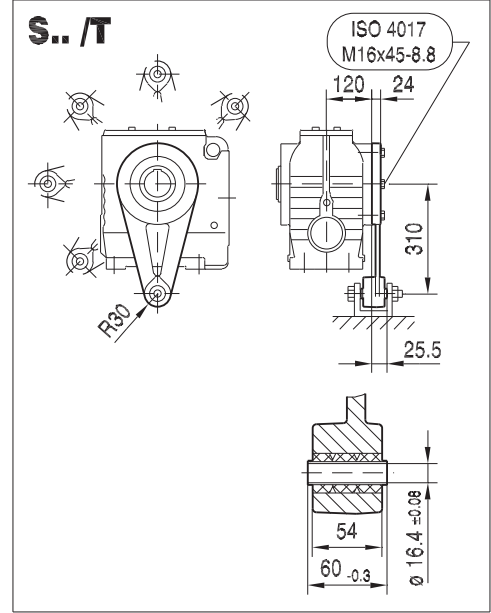
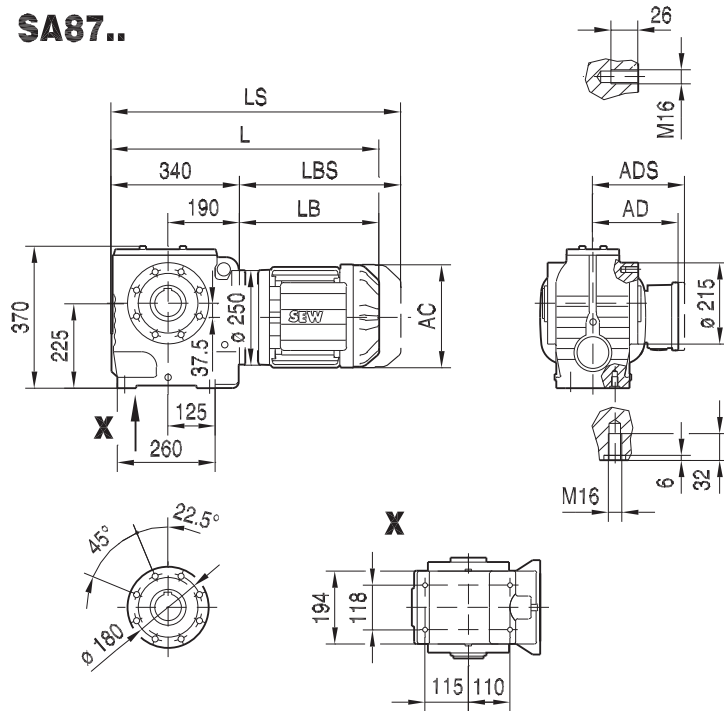
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

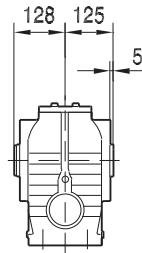
21933480/EN-US - 04/2018

02 119 00 16

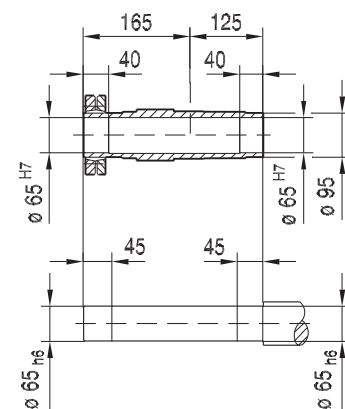
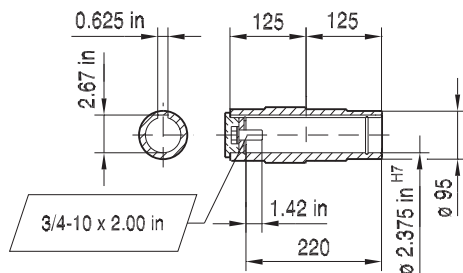
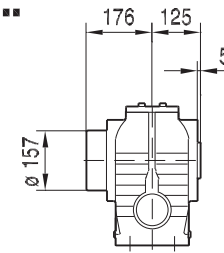
SA87..



SA87..



SH87..



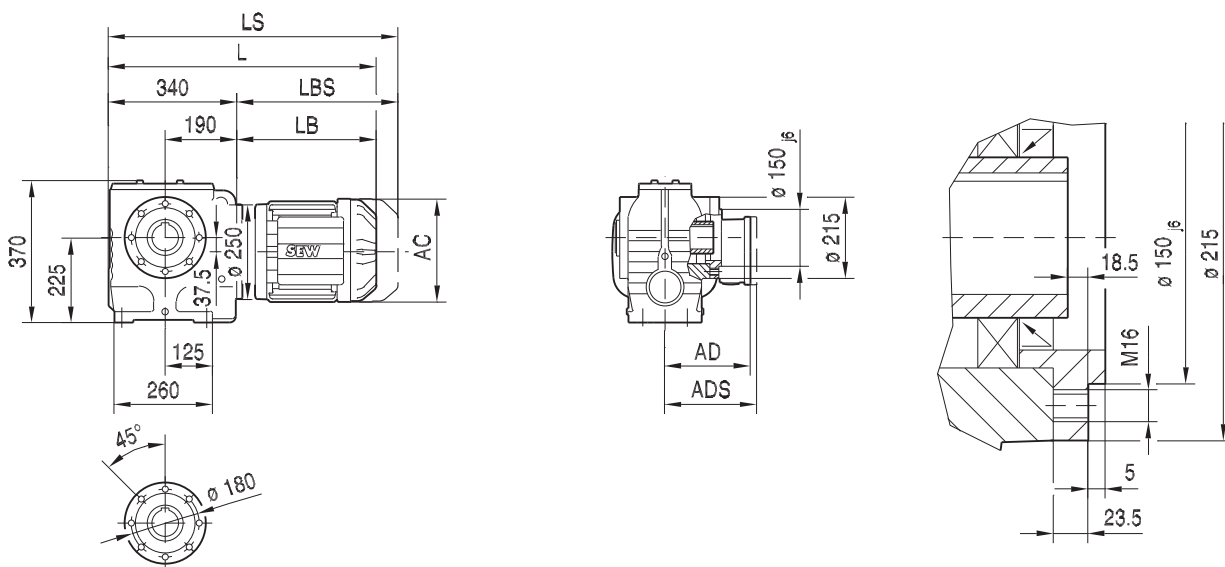
(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

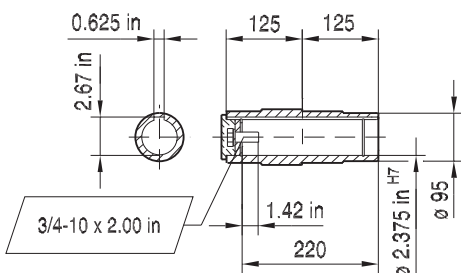
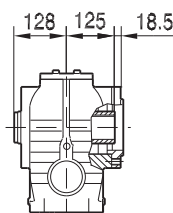
21933480/EN-US - 04/2018

02 120 00 16

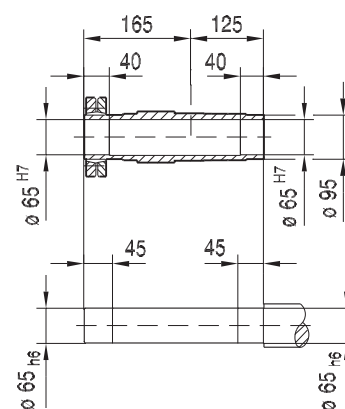
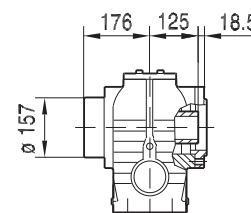
SAZ87..



SAZ87..



SHZ87..

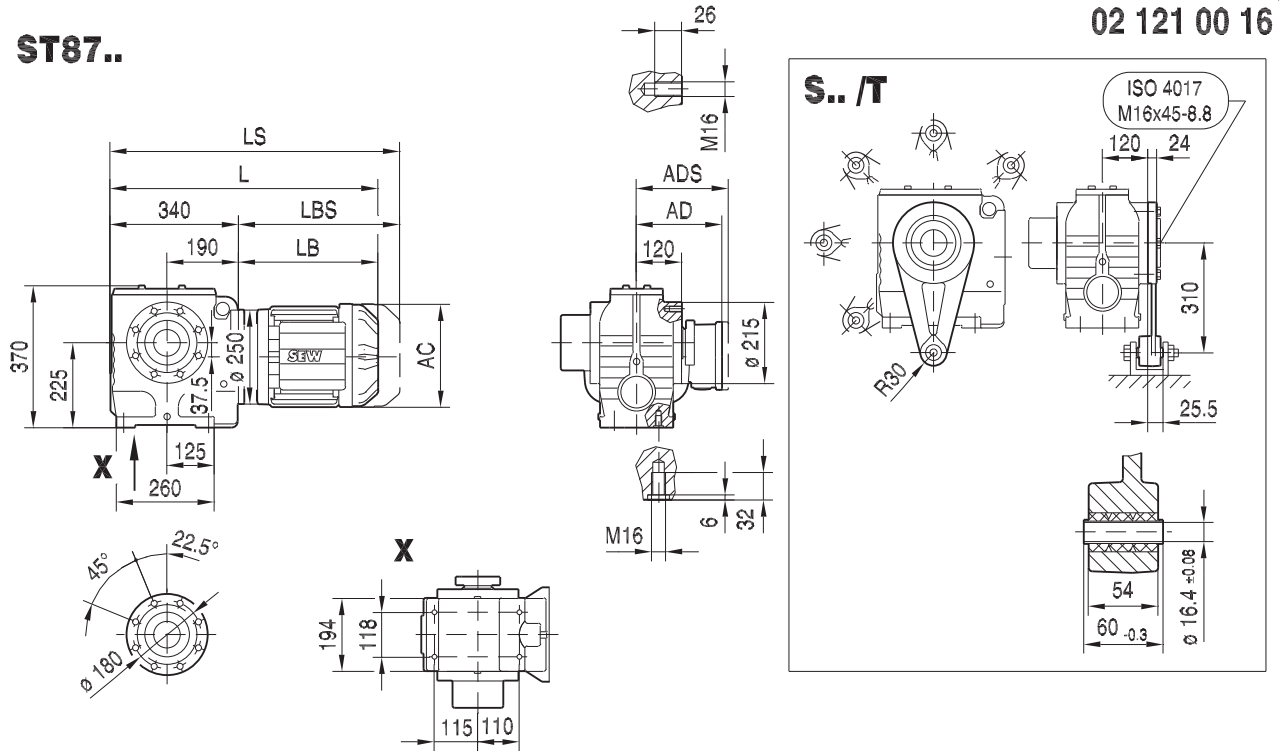


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

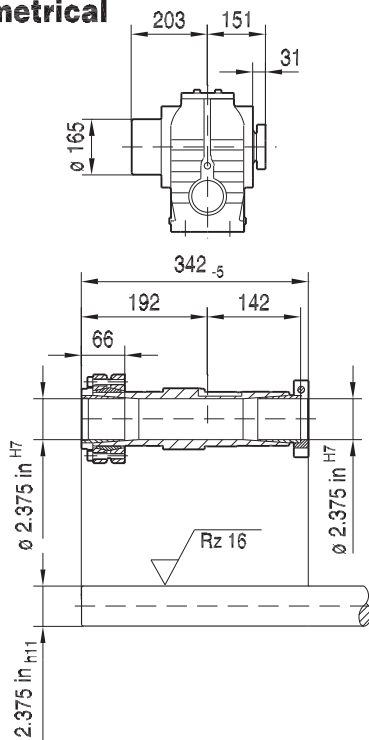
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

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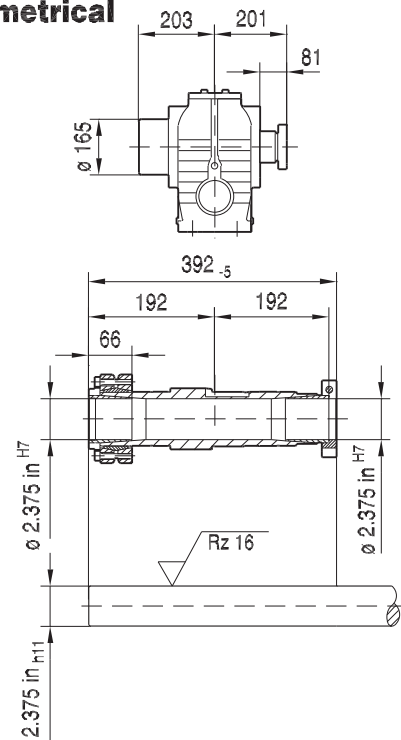
ST87..



NON-Symmetrical



Symmetrical

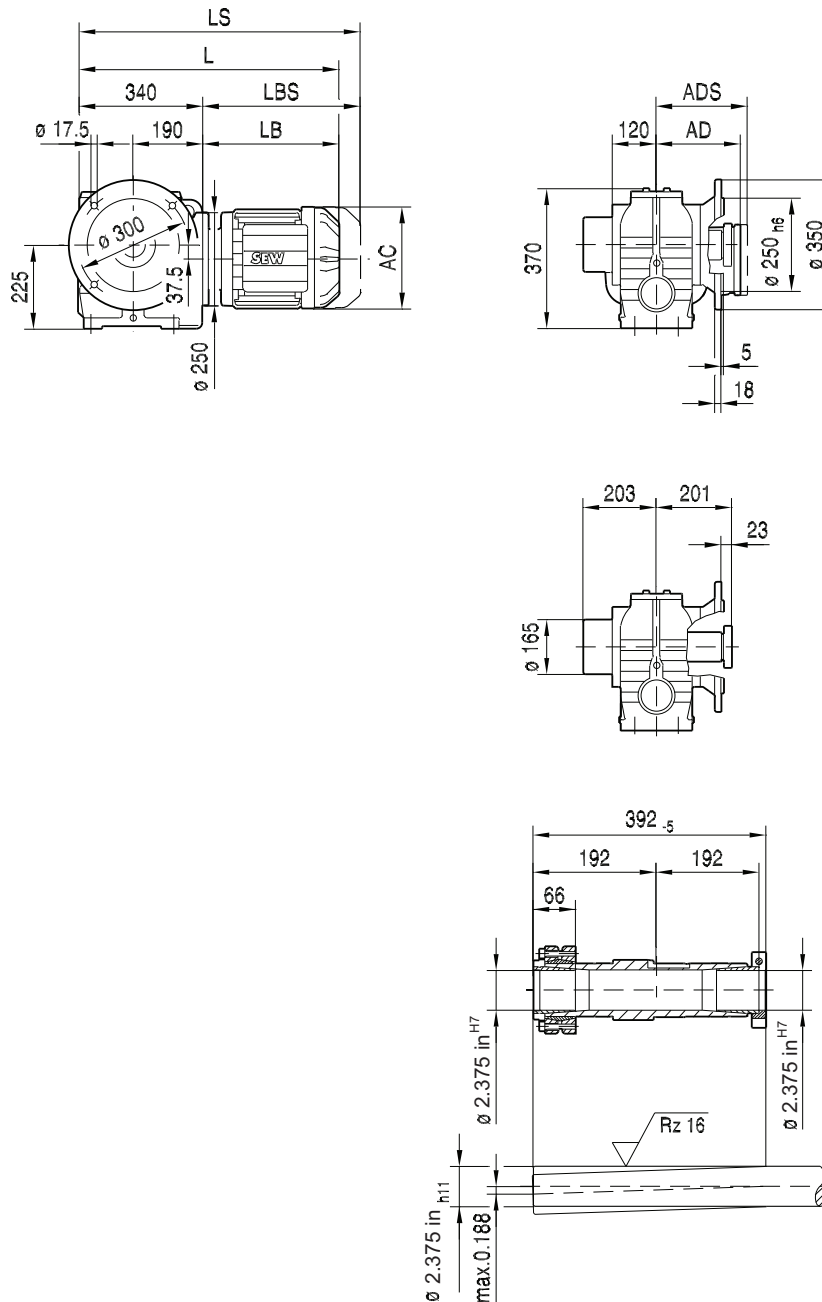


(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

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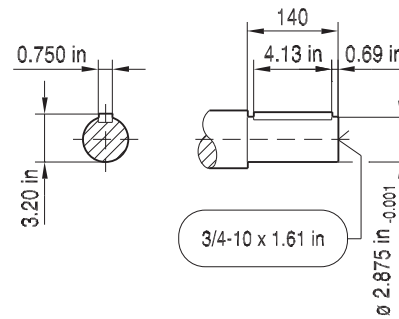
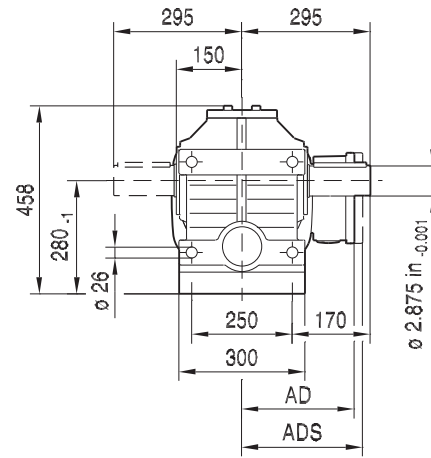
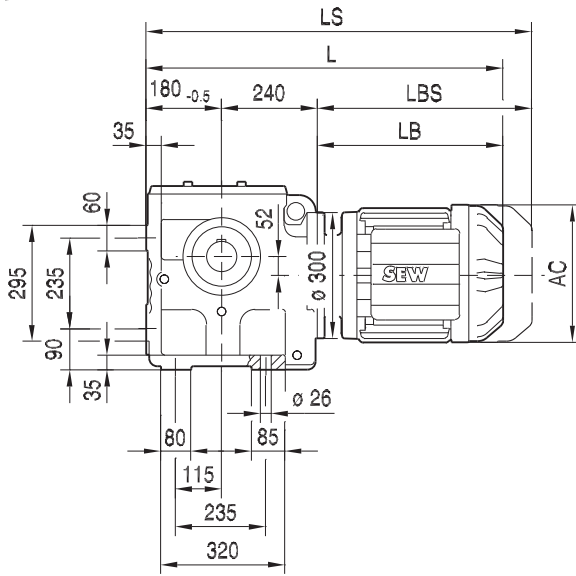
21933480/EN-US - 04/2018

(→ 163)	DRN90S	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180
AC	179	179	197	221	221	261	261	314	357
AD	140	140	157	170	170	228	228	253	268
ADS	150	150	158	172	172	228	228	253	268
L	605	637	683	714	764	782	808	874	897
LS	698	730	777	826	876	920	945	1063	1086
LB	265	297	343	374	424	442	468	534	557
LBS	358	390	437	486	536	580	605	723	746

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

02 122 00 16 ^L

S97..

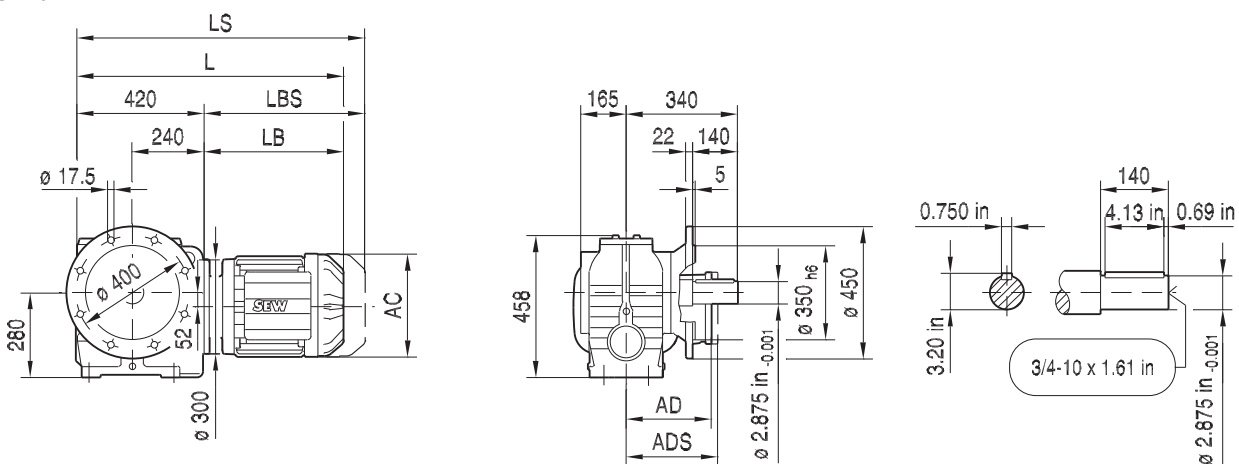


(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

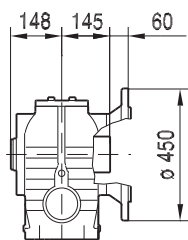
02 123 00 16

SF97..

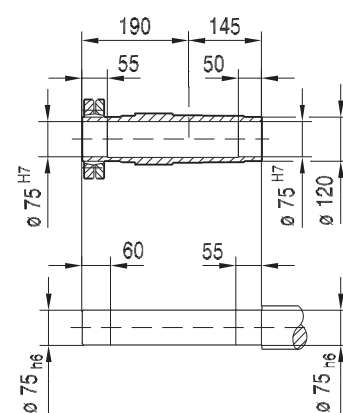
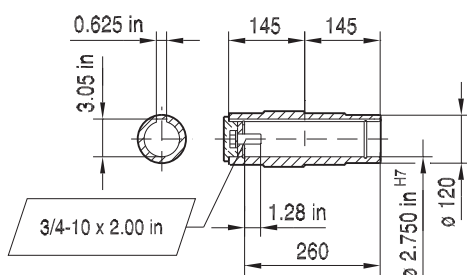
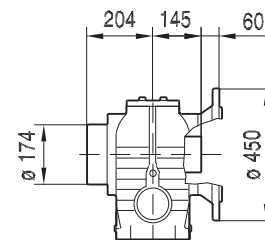


11

SAF97..



SHF97..



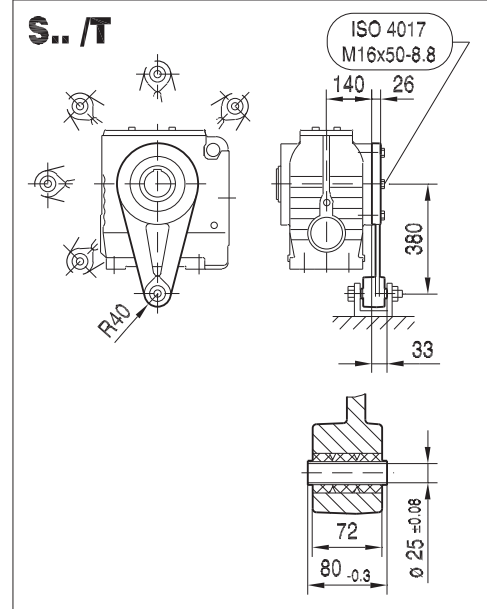
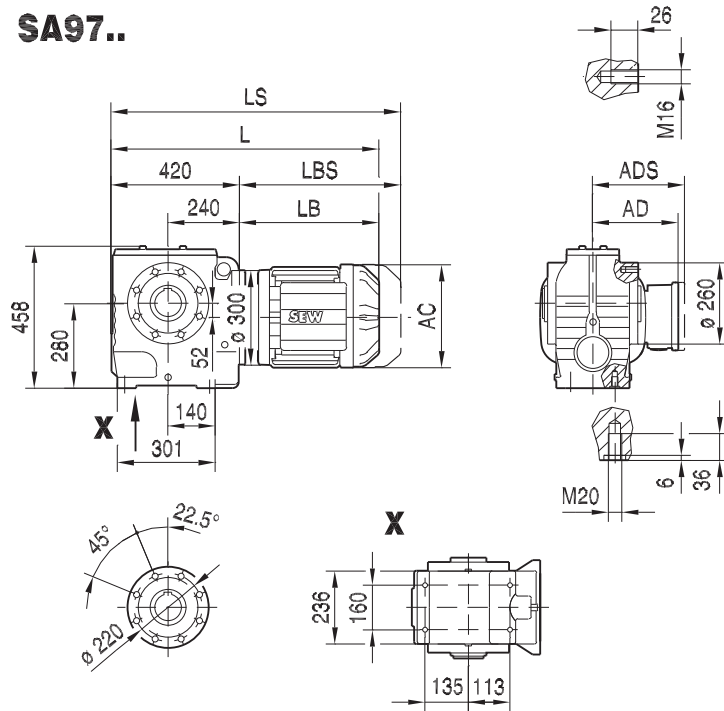
(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 837. For tolerances, see page 163.

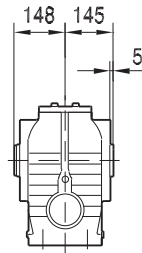
21933480/EN-US - 04/2018

02 124 00 16

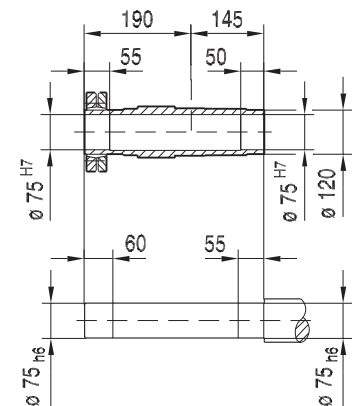
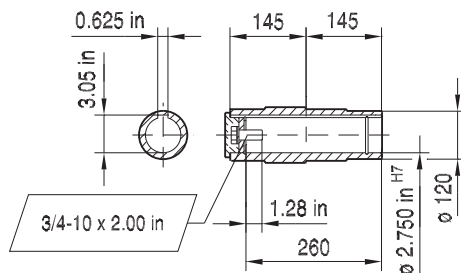
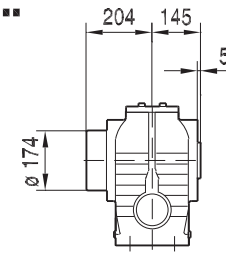
SA97..



SA97..



SH97..



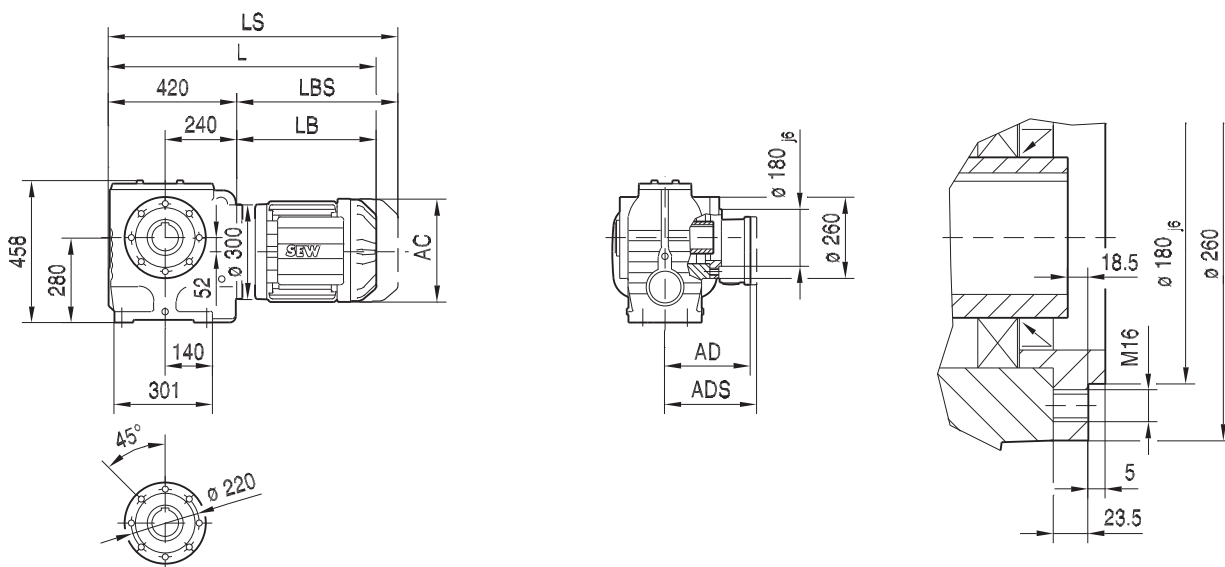
(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

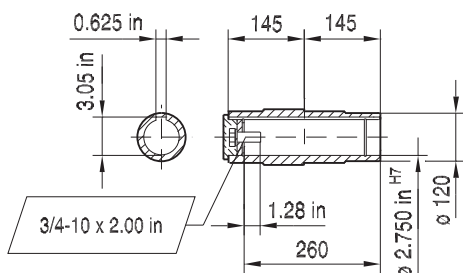
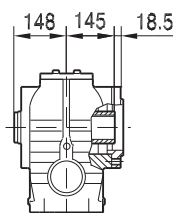
21933480/EN-US - 04/2018

02 125 00 16

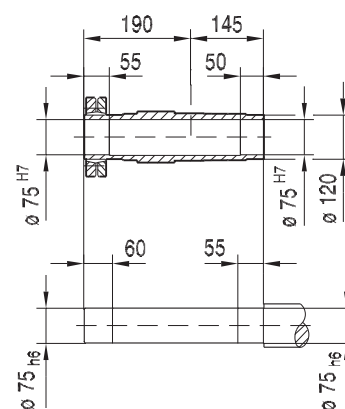
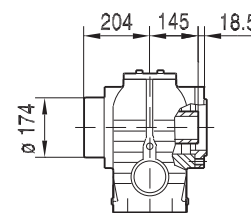
SAZ97..



SAZ97..



SHZ97..

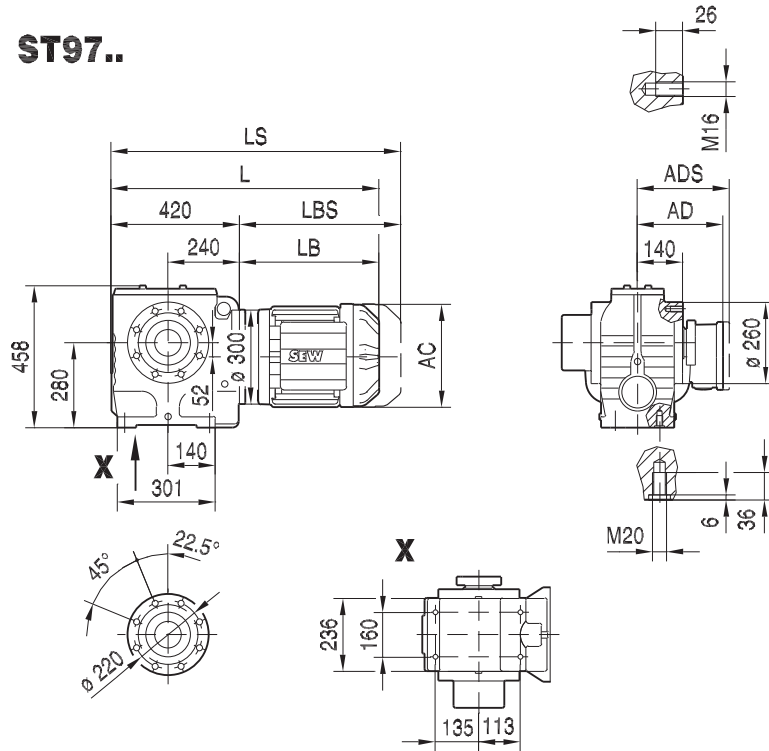


(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

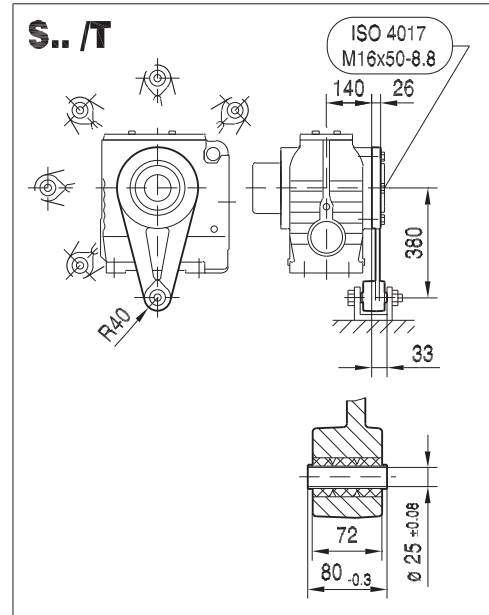
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 839. For tolerances, see page 163.

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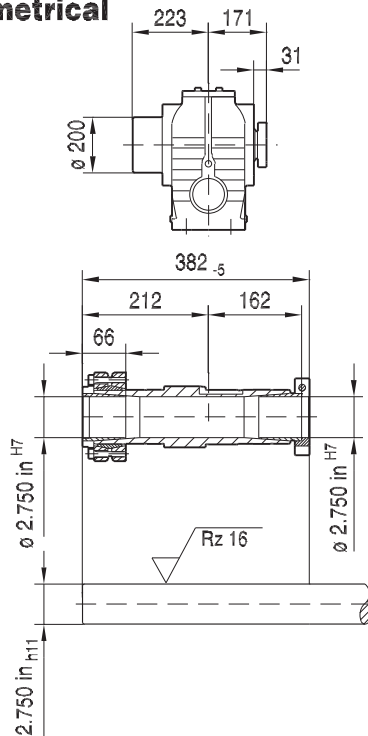
ST97..



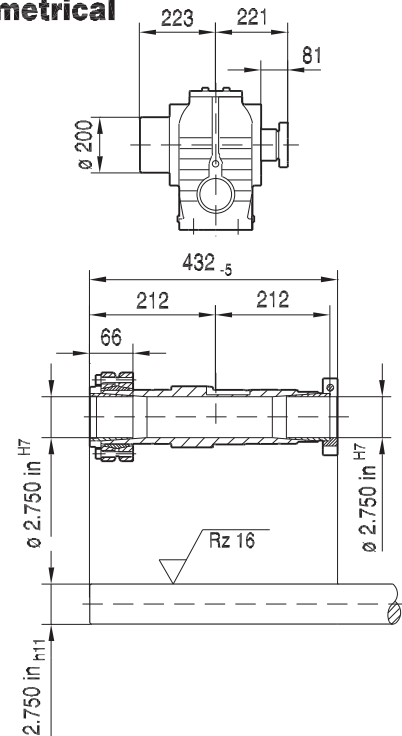
02 126 00 16



NON-Symmetrical



Symmetrical

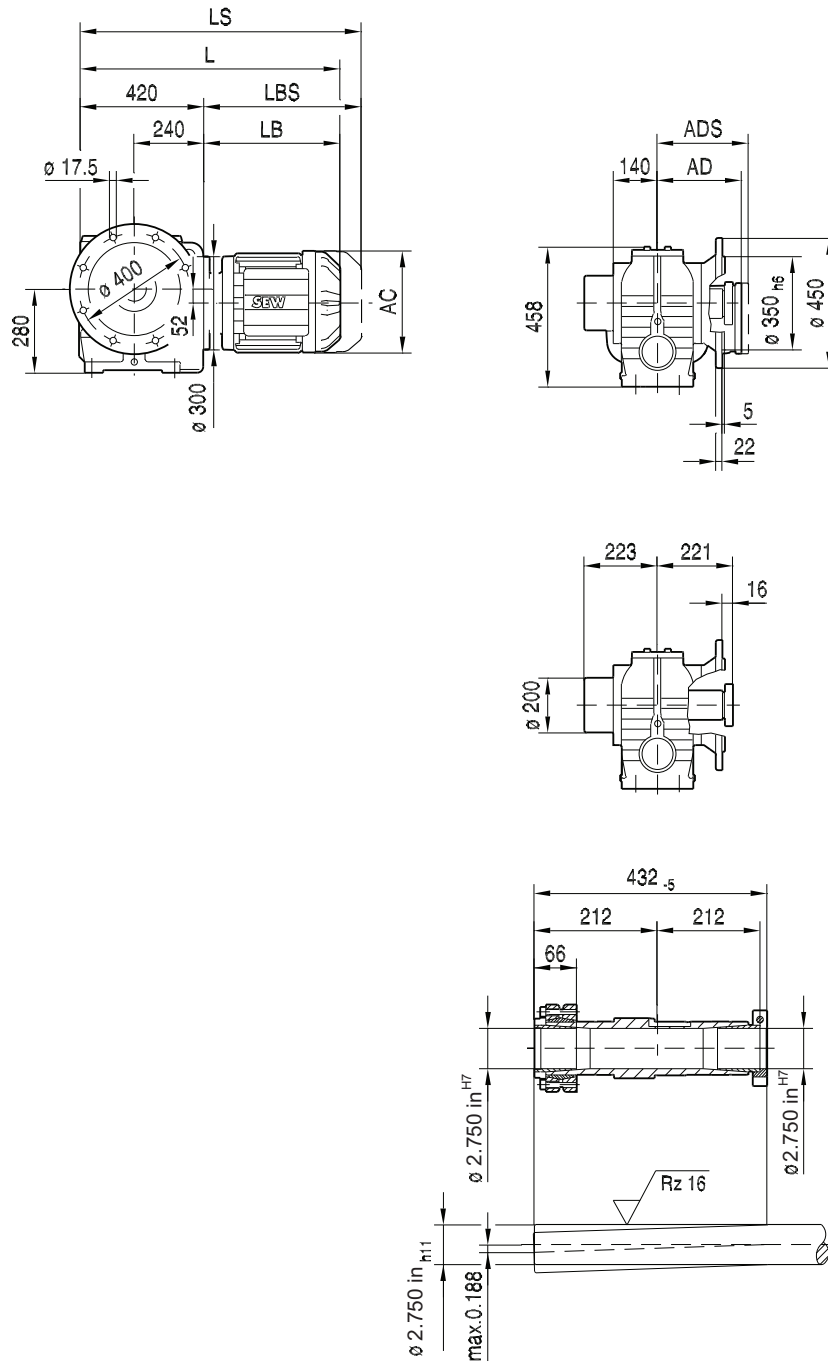


(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

STF97..

02 007 02 13 US



11

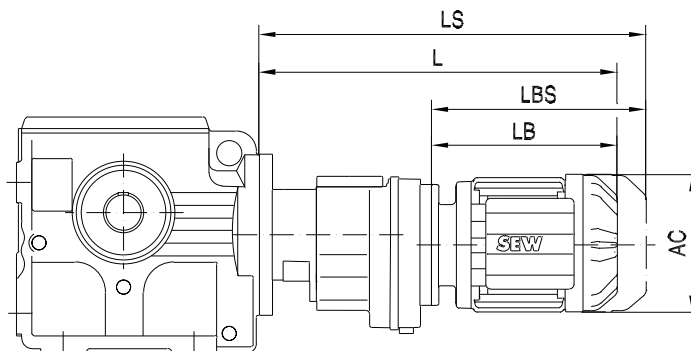
21933480/EN-US - 04/2018

(→ 163)	DRN90L	DRN100L/LM	DRN112M	DRN132S	DRN132M	DRN132L	DRN160	DRN180	DRN200L
AC	179	197	221	221	261	261	314	357	394
AD	140	157	170	170	228	228	253	268	283
ADS	150	158	172	172	228	228	253	268	283
L	712	758	789	839	857	883	949	972	1082
LS	805	852	901	951	995	1020	1138	1161	1287
LB	292	338	369	419	437	463	529	552	662
LBS	385	432	481	531	575	600	718	741	867

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 841. For tolerances, see page 163.

11.13 S.. R.. DRS/DRN.. Compound dimensions

02 080 00 06

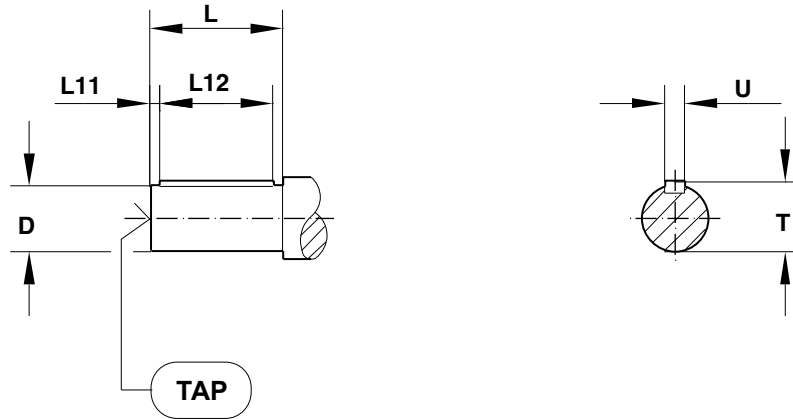


All dimensions shown in mm.

Gear	Motor	AC	L	LS	LB	LBS
S..37R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
S..47R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
S..57R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	253
	DRN80M	156	410	491	235	316
S..67R37	DR63	132	356	411	191	246
	DRS71S	139	367	434	202	269
	DRS71M	139	392	459	227	294
	DRN80M	156	446	527	281	362
S..77R37	DRN90S	179	448	541	283	376
	DR63	132	348	403	191	246
	DRS71S	139	359	426	202	269
	DRS71M	139	384	451	227	294
S..87R57	DRN80M	156	438	519	281	362
	DRN90S	179	440	533	283	376
	DRN90L	179	472	565	315	408
	DR63	132	412	467	185	240
	DRS71S	139	423	491	196	264
	DRS71M	139	448	516	221	289
S..97R57	DRN80M	156	502	583	275	356
	DRN90S	179	504	597	277	370
	DRN90L	179	536	629	309	402
	DRN100L	197	583	676	355	448
	DRN100LM	197	583	676	355	448
	DR63	132	407	462	185	240
	DRS71S	139	418	486	196	264
	DRS71M	139	443	511	221	289
S..97R57	DRN80M	156	497	578	275	356
	DRN90S	179	499	592	277	370
	DRN90L	179	531	624	309	402
	DRN100L	197	578	671	355	448
	DRN100LM	197	578	671	355	448
	DRN112M	221	608	720	386	498
	DRN132S	221	662	774	440	552

11.14 Output shaft sizes

11.14.1 Solid Shafts – Inch



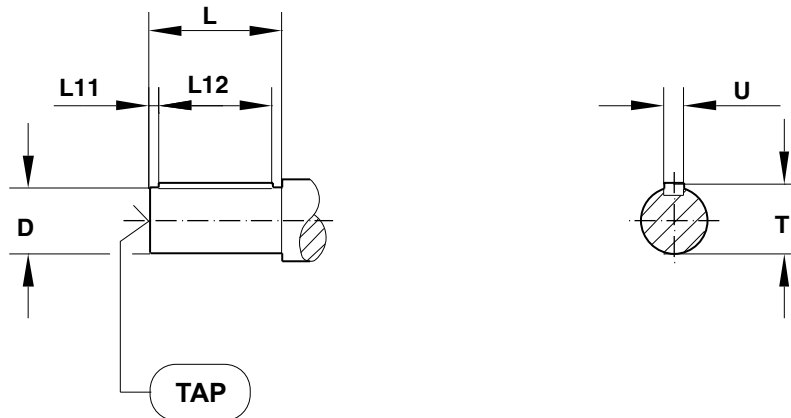
11

Model	All dimensions in inches						
	D	T	U	L ¹	L11	L12	TAP
S..37	0.75	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
S..47	1	1.11	1/4	1.97	0.32	1-5/16	3/8 - 16 x 0.87
S..57	1.25	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12
S..67	1.375	1.51	5/16	2.76	0.43	1-13/16	1/2 - 13 x 1.12
S..77	1.75	1.92	3/8	3.54	0.38	2-3/4	5/8 - 11 x 1.38
S..87	2.375	2.65	5/8	4.72	0.51	3-5/8	3/4 - 10 x 1.61
S..97	2.875	3.2	3/4	5.51	0.67	4-1/8	3/4 - 10 x 1.61

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¹Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

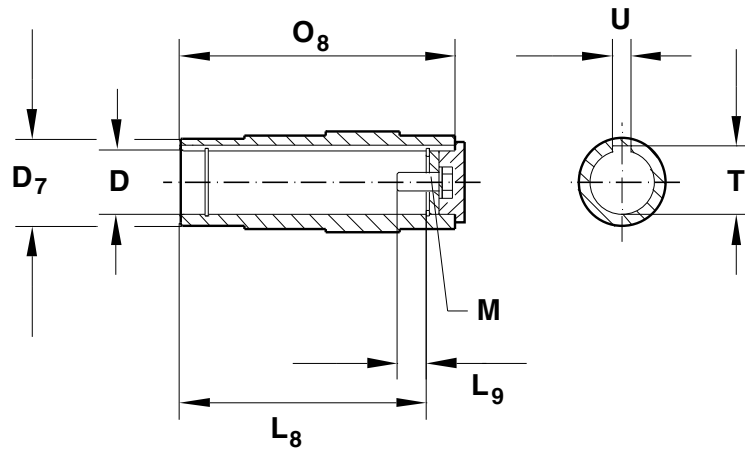
11.14.2 Solid Shafts – Metric



Model	All dimensions in mm						
	D	T	U	L ¹	L11	L12	TAP
S..37	20	22.5	6	40	4	32	M6 x 16
S..47	25	28	8	50	5	40	M10 x 22
S..57	30	33	8	60	3.5	50	M10 x 22
S..67	35	38	10	70	7	56	M12 x 28
S..77	45	48.5	14	90	5	80	M16 x 36
S..87	60	64	18	120	5	110	M20 x 42
S..97	70	74.5	20	140	7.5	125	M20 x 42

¹Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

11.14.3 Hollow Shaft – Inch

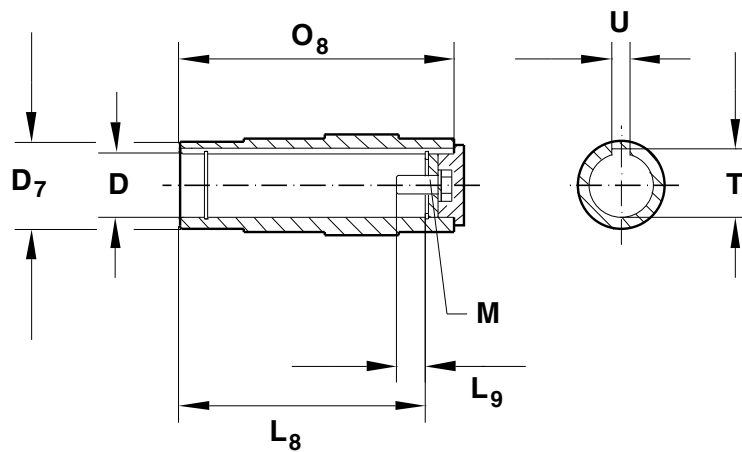


Note:

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in inch							
	D	D7	O8	T	U	L8	L9	M
SA..37	0.75	1.38	4.72	0.84	3/16	4.09	0.37	1/4 - 20 x 5/8
SA..47	1.25	1.77	4.72	1.37	1/4	4.13	0.67	7/16 - 14 x 1
SA..57	1.1875	1.97	5.91	1.30	1/4	5.20	0.67	3/8 - 16 x 1
	1.25	1.97	5.91	1.37	1/4	5.20	0.67	7/16 - 14 x 1
	1.375	1.97	5.91	1.52	5/16	5.20	0.65	1/2 - 13 x 1
	1.4375	1.97	5.91	1.61	3/8	5.20	0.65	5/8 - 11 x 1-3/4
SA..67	1.25	2.56	6.61	1.37	1/4	5.67	0.67	7/16 - 14 x 1
	1.50	2.56	6.61	1.67	3/8	5.67	1.36	5/8 - 11 x 1-3/4
SA..77	2.00	3.15	8.27	2.22	1/2	7.20	1.16	5/8 - 11 x 1-3/4
SA..87	2.375	3.74	9.84	2.65	5/8	8.66	1.37	3/4 - 10 x 2
SA..97	2.75	4.72	11.42	3.03	5/8	10.23	1.24	3/4 - 10 x 2

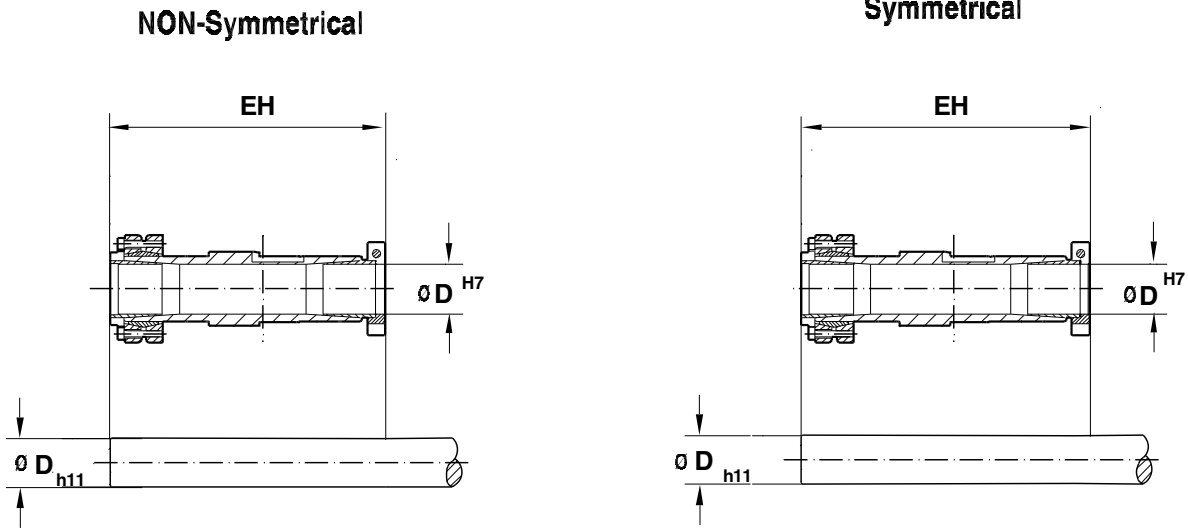
11.14.4 Hollow Shaft – Metric

**Note:**

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in mm							
	D	D7	O8	T	U	L8	L9	M
SA..37	20	35	120	22.8	6	104	8	M6 x 16
SA..47	25	45	120	28.3	8	105	17	M10 x 25
	30	45	120	33.3	8	105	17	M10 x 25
SA..57	30	50	150	33.3	8	132	17	M10 x 25
	35	50	150	38.3	10	132	22	M12 x 30
SA..67	40	65	168	43.3	12	144	29	M16 x 40
	45	65	168	48.3	14	144	29	M16 x 40
SA..77	50	80	210	53.8	14	183	32	M16 x 45
	60	80	210	64.4	18	180	37	M20 x 50
SA..87	60	95	250	64.4	18	220	36	M20 x 50
	70	95	250	74.9	20	220	34	M20 x 50
SA..97	70	120	290	74.9	20	260	34	M20 x 50
	90	120	290	95.4	25	255	41	M24 x 60

11.14.5 TorqLOC® keyless hollow shaft



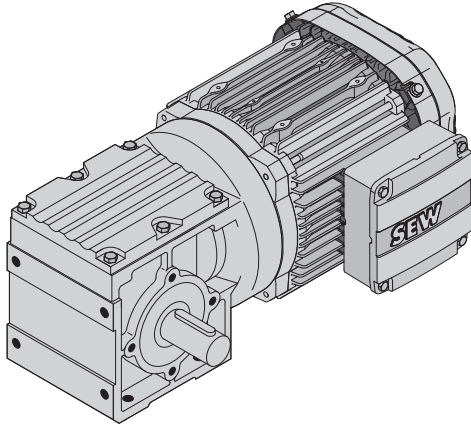
11

Model	D (in)					D (mm)				EH (in)	
	Inch Bores					Metric Bores				NON Symmetrical	Symmetrical
ST37	0.625	0.6875	0.75	-	-	16	19	20		6.54	7.33
ST47	1.00	1.1875	1.25	-	-	25	30	-	-	6.69	7.63
ST57	1.1875	1.25	1.375	1.4375	-	30	35	-	-	8.15	9.13
ST67	1.375	1.4375	1.50	1.625	1.6875	35	38	40	-	9.17	10.43
ST77	1.625	1.6875	1.75	1.9375	2.00	40	45	50	51	11.61	13.34
ST87	1.9375	2.00	2.375	2.4375	-	50	51	60	65	13.50	15.47
ST97	2.4375	2.75	2.9375	-	-	60	62	70	75	15.00	16.97

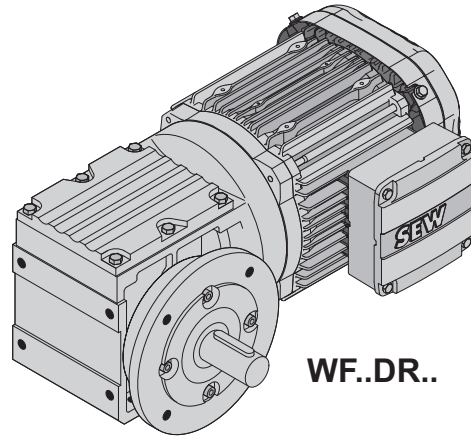
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12 SPIROPLAN® gearmotors

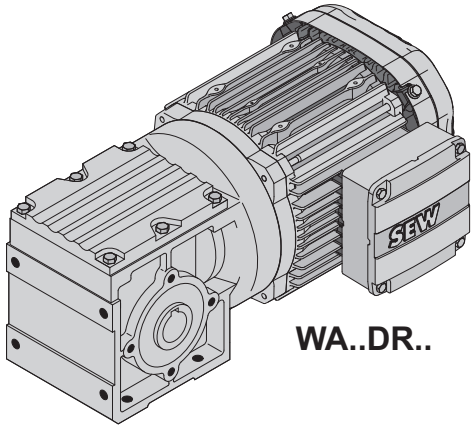
12.1 W.. DRS/DRN.. Designs



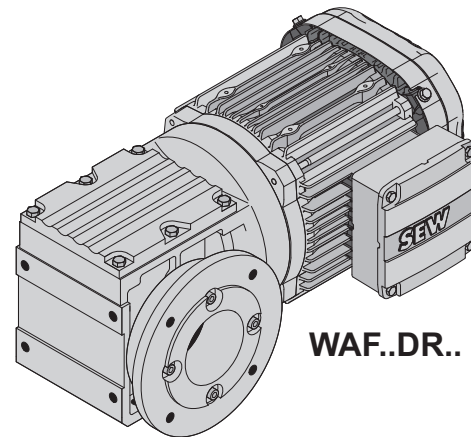
W..DR..



WF..DR..



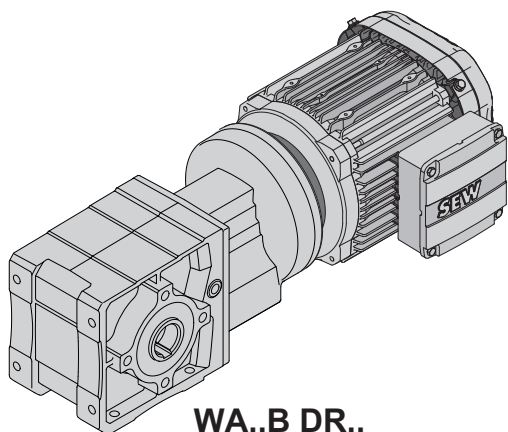
WA..DR..



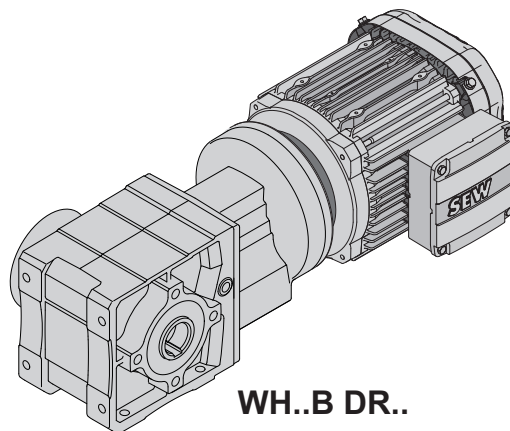
WAF..DR..

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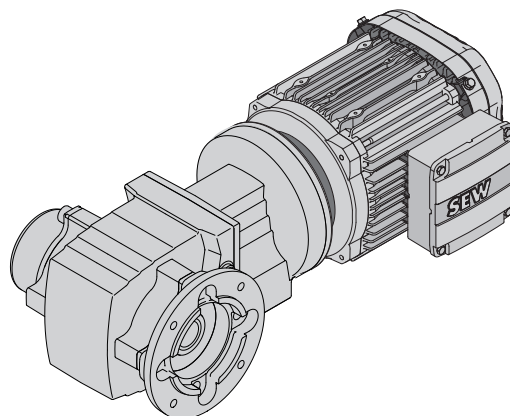


WA..B DR..

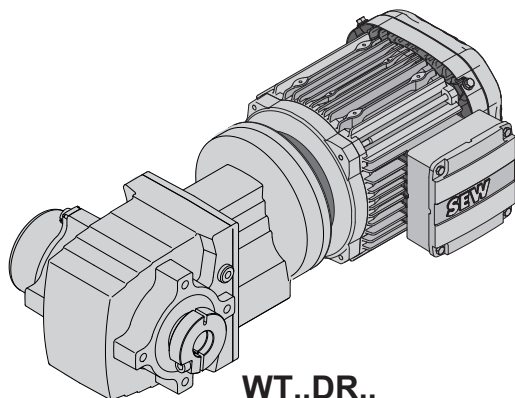


WH..B DR..

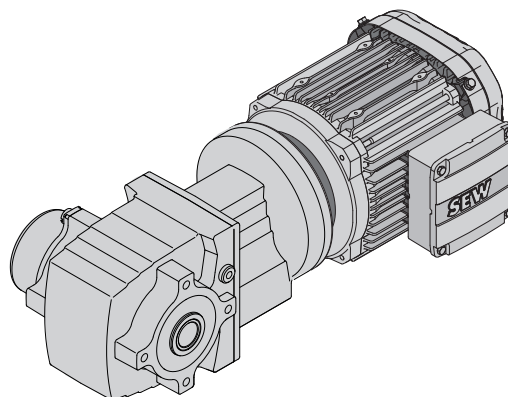
12



WHF..DR..



WT..DR..





WH..DR..


8665100939

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12.2 W.. DRS/DRN.. Possible combinations



W10, $n_e=1700$ rpm					220 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DT56M DT56L
 1					
23	220	405	-	75.00*	
28	220	405	-	60.00*	
35	220	405	-	48.00*	
44	220	405	-	39.00*	
52	220	405	-	32.50*	
62	210	405	-	27.50*	
69	220	405	-	24.50*	
87	220	405	-	19.50*	
103	177	405	-	16.50*	
119	195	405	-	14.33	
166	115	405	-	10.25*	
207	106	390	-	8.20*	
259	106	365	-	6.57	

W20, $n_e=1700$ rpm					350 lb-in
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M
 1					
23	350	495	-	75.00*	
28	350	495	-	60.00*	
35	350	495	-	48.00*	
44	350	495	-	39.00*	
52	350	495	-	32.50*	
62	350	495	-	27.50*	
69	350	495	-	24.50*	
87	305	475	-	19.50*	
103	265	455	-	16.50*	
119	265	440	-	14.33	
166	220	400	-	10.25*	
207	177	380	-	8.20*	
259	177	360	-	6.57	



W30, $n_e=1700$ rpm					615 lb-in	
n_a rpm	T_{aMax} lb-in	F_{Ra} lb	$\Phi_{(R)}$ '	i	DR63S DRS71S DRS71M	DRN80M
 1						
23	615	675	-	75.00*		
28	615	675	-	60.00*		
35	615	675	-	48.00*		
44	615	675	-	39.00*		
52	615	675	-	32.50*		
62	615	675	-	27.50*		
69	615	675	-	24.50*		
87	615	675	-	19.50*		
104	530	675	-	16.33		
119	530	675	-	14.33		


W30, n_e=1700 rpm					615 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
166	440	620	-	10.25*		
207	350	585	-	8.20*		
259	350	545	-	6.57		

W37, n_e=1700 rpm					970 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM
					 2			
25	970	745	-	69.05				
27	970	745	-	63.33				
32	970	745	-	53.92				
37	970	745	-	46.49				
45	970	745	-	37.88				
49	795	810	-	34.52				
54	795	810	-	31.67				
54	970	745	-	31.33				
61	970	745	-	27.78				
63	795	810	-	26.96				
73	795	810	-	23.25				
80	970	695	-	21.33				
90	795	770	-	18.94				
108	795	705	-	15.67				
122	795	670	-	13.89				
134	615	795	-	12.70				
146	615	770	-	11.65				
159	795	590	-	10.67				
171	615	720	-	9.92				
199	615	680	-	8.55				
244	615	630	-	6.97				
295	615	585	-	5.77				
333	615	560	-	5.11				
433	615	500	-	3.93				
531	615	460	-	3.20*				

W37R17, n_e=1700 rpm					970 lb-in			
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M			
					 2  3			
0.39	970	745	-	4402				
0.45	970	745	-	3795				
0.52	970	745	-	3272				
0.59	970	745	-	2899				
0.66	970	745	-	2558				
0.71	970	745	-	2382				
0.78	970	745	-	2172				
0.87	970	745	-	1952				
0.95	970	745	-	1795				
1.1	970	745	-	1593				
1.2	970	745	-	1463				

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W37R17, n _e =1700 rpm					970 lb-in
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M
1.3	970	745	-	1298	
2.3	970	745	-	754	
2.5	970	745	-	669	
 2  2					
1.4	970	745	-	1173	
1.6	970	745	-	1063	
1.8	970	745	-	956	
2.0	970	745	-	854	
2.8	970	745	-	600	
3.2	970	745	-	532	
3.6	970	745	-	472	
3.9	970	745	-	434	
4.4	970	745	-	384	
4.7	970	745	-	359	
5.2	970	745	-	327	
5.9	970	745	-	286	
6.4	970	745	-	267	
7.3	970	745	-	233	
8.2	970	745	-	207	
9.2	970	745	-	184	
11	970	745	-	160	
12	970	745	-	141	
14	970	745	-	125	
16	970	745	-	109	
18	970	745	-	96	
21	970	745	-	82	
23	795	810	-	73	
27	795	810	-	63	
32	795	810	-	53	
35	795	810	-	48	

W47, n _e =1700 rpm					1590 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M
 2									
23	1590	1440	-	74.98					
25	1590	1440	-	68.93					
29	1590	1370	-	58.98					
33	1590	1280	-	51.12					
36	1590	1240	-	47.78					
41	1590	1160	-	41.30					
48	1590	1070	-	35.09					
54	1410	1150	-	31.62					
54	1590	1010	-	31.33					
62	1410	1080	-	27.41					
64	1590	930	-	26.76					
66	1410	1040	-	25.62					
68	1590	900	-	25.07					
77	1410	980	-	22.15					
90	1410	900	-	18.82					

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W47, n _e =1700 rpm					1590 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M DRN90S	DRN90L	DRN100LM DRN100L	DRN112M
101	1410	860	-	16.80					
118	1410	795	-	14.35					
126	1410	770	-	13.44					
138	970	950	-	12.30					
150	1410	705	-	11.32					
159	970	900	-	10.66					
171	970	870	-	9.96					
197	970	820	-	8.61					
232	970	770	-	7.32					
260	970	735	-	6.53					
305	970	690	-	5.58					
325	970	670	-	5.23					
386	970	625	-	4.40					
437	970	595	-	3.89					
520	970	550	-	3.27					



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W47R17, n _e =1700 rpm					1590 lb-in				
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	φ _(/R) °	i	DR63S DRS71S DRS71M	DRN80M			
					2 3				
0.35	1590	1440	-	4815					
0.41	1590	1440	-	4173					
0.44	1590	1440	-	3870					
0.47	1590	1440	-	3598					
0.51	1590	1440	-	3354					
0.54	1590	1440	-	3171					
0.62	1590	1440	-	2748					
0.70	1590	1440	-	2425					
0.75	1590	1440	-	2258					
0.81	1590	1440	-	2111					
0.87	1590	1440	-	1959					
0.95	1590	1440	-	1797					
1.1	1590	1440	-	1595					
1.1	1590	1440	-	1486					
1.2	1590	1440	-	1448					
1.5	1590	1440	-	1170					
2.3	1590	1440	-	754					
					2 2				
1.3	1590	1440	-	1290					
1.4	1590	1440	-	1183					
1.6	1590	1440	-	1042					
1.8	1590	1440	-	956					
2.0	1590	1440	-	869					
2.6	1590	1440	-	661					
2.9	1590	1440	-	596					
3.2	1590	1440	-	536					
3.6	1590	1440	-	473					
3.9	1590	1440	-	434					
4.4	1590	1440	-	386					
4.7	1590	1440	-	359					

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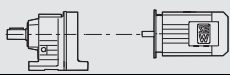

W47R17, n _e =1700 rpm					1590 lb-in	
n _a rpm	T _{aMax} lb-in	F _{Ra} lb	Φ _(/R) '	i	DR63S DRS71S DRS71M	DRN80M
5.3	1590	1440	-	318		
5.8	1590	1440	-	291		
6.3	1590	1440	-	270		
6.4	1590	1440	-	265		
7.2	1590	1440	-	237		
8.1	1590	1440	-	210		
9.3	1590	1440	-	183		
11	1590	1440	-	159		
12	1590	1440	-	141		
14	1410	1500	-	124		
14	1590	1440	-	120		
16	1410	1500	-	105		
18	1410	1500	-	95		
20	1410	1500	-	85		
22	1410	1500	-	77		
24	1410	1500	-	72		

12.3 W.. DRS/DRN.. Selections by HP

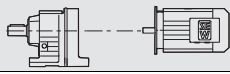

P_m = 0.16 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
5.1	920	327	765	1.05							
5.9	800	286	810	1.20							
6.3	770	267	820	1.25							
7.2	675	233	850	1.45							
8.1	570	207	870	1.70							
9.1	515	184	880	1.85							
10	490	160	890	2.0		W	37R17	DR	63S4	29	871/882
12	430	141	900	2.2		WF	37R17	DR	63S4	29	872/882
13	385	125	900	2.5		WA	37R17	DR	63S4	29	874/882
15	345	109	910	2.8		WAF	37R17	DR	63S4	29	872/882
17	305	96	910	3.2							
21	260	82	920	3.7							
23	270	73	920	3.0							
27	240	63	920	3.3							
32	200	53	920	3.9							
35	190	48	920	4.2							
24	285	69.05	920	3.4							
27	265	63.33	920	3.7		W	37	DR	63S4	22	871
31	230	53.92	920	4.2		WF	37	DR	63S4	22	872
36	200	46.49	920	4.8		WA	37	DR	63S4	22	874
44	168	37.88	930	5.8		WAF	37	DR	63S4	22	872
49	173	34.52	930	4.6							
53	160	31.67	930	5.0							
15	295	75.00*	675	2.1		W	30	DR	63M6	20	867
18	275	60.00*	675	2.2		WF	30	DR	63M6	21	868
34	185	32.50*	675	3.4		WA	30	DR	63M6	19	870
40	173	27.50*	675	3.6		WAF	30	DR	63M6	20	869
22	205	75.00*	675	3.0							
28	191	60.00*	675	3.2		W	30	DR	63S4	20	867
35	166	48.00*	675	3.7		WF	30	DR	63S4	21	868
43	150	39.00*	675	4.1		WA	30	DR	63S4	19	870
52	126	32.50*	675	4.9		WAF	30	DR	63S4	20	869
15	265	75.00*	495	1.30		W	20	DR	63M6	15	864
18	235	60.00*	495	1.50		WF	20	DR	63M6	15	865
34	196	32.50*	495	1.80		WA	20	DR	63M6	14	866
40	165	27.50*	495	2.1		WAF	20	DR	63M6	14	865
22	187	75.00*	495	1.90							
28	164	60.00*	495	2.2							
35	150	48.00*	495	2.4							
43	137	39.00*	495	2.6							
52	133	32.50*	495	2.7							
61	112	27.50*	495	3.1		W	20	DR	63S4	15	864
69	101	24.50*	495	3.5		WF	20	DR	63S4	15	865
86	87	19.50*	495	3.6		WA	20	DR	63S4	14	866
102	76	16.50*	495	3.5		WAF	20	DR	63S4	14	865
117	70	14.33	495	3.8							
164	52	10.25*	455	4.2							
205	43	8.20*	425	4.1							
256	36	6.57	400	4.9							

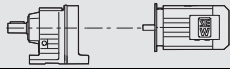

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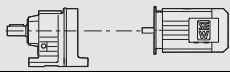

P_m = 0.25 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
5.3	1600	318	1440	1.00							
6.3	1350	270	1480	1.15	X						
7.2	1270	237	1490	1.25	X						
8.1	1110	210	1510	1.45	X						
9.3	950	183	1540	1.65	X						
11	860	159	1550	1.85	X	W	47R17	(E)DRS	71S4	46	877/882
12	770	141	1560	2.1	X	WF	47R17	(E)DRS	71S4	47	878/882
14	795	124	1580	1.80	X	WA	47R17	(E)DRS	71S4	43	879/882
14	655	120	1580	2.4	X	WAF	47R17	(E)DRS	71S4	45	878/882
16	670	105	1590	2.1	X						
18	635	95	1600	2.2	X						
20	555	85	1600	2.5	X						
22	515	77	1610	2.7	X						
24	465	72	1610	3.0	X						
8.2	950	207	755	1.00	X						
9.2	860	184	790	1.10	X						
11	800	160	810	1.20	X						
12	710	141	840	1.35	X						
14	635	125	860	1.55	X	W	37R17	(E)DRS	71S4	34	871/882
16	570	109	870	1.70	X	WF	37R17	(E)DRS	71S4	34	872/882
18	505	96	880	1.90	X	WA	37R17	(E)DRS	71S4	34	874/882
21	435	82	900	2.2	X	WAF	37R17	(E)DRS	71S4	34	872/882
23	450	73	890	1.75	X						
27	400	63	900	2.0	X						
32	335	53	910	2.4	X						
35	310	48	910	2.5	X						
23	510	74.98	1600	3.1	X						
25	470	68.93	1600	3.4	X	W	47	(E)DRS	71S4	40	877
29	410	58.98	1610	3.9	X	WF	47	(E)DRS	71S4	41	878
33	360	51.12	1620	4.4	X	WA	47	(E)DRS	71S4	37	879
36	340	47.78	1620	4.7	X	WAF	47	(E)DRS	71S4	38	878
41	295	41.30	1570	5.3	X						
54	250	31.62	1460	5.6	X						
25	440	69.05	900	2.2	X						
27	410	63.33	900	2.4	X						
32	355	53.92	910	2.7	X						
37	310	46.49	910	3.1	X						
45	260	37.88	920	3.7	X	W	37	(E)DRS	71S4	28	871
49	265	34.52	920	3.0	X	WF	37	(E)DRS	71S4	28	872
54	245	31.67	920	3.2	X	WA	37	(E)DRS	71S4	28	874
61	197	27.78	920	4.9	X	WAF	37	(E)DRS	71S4	28	872
63	210	26.96	920	3.8	X						
73	185	23.25	930	4.3	X						
80	155	21.33	930	6.3	X						
90	152	18.94	930	5.2	X						
23	320	75.00*	675	1.95	X						
28	295	60.00*	675	2.1	X						
35	255	48.00*	675	2.4	X						
44	230	39.00*	675	2.7	X						
52	196	32.50*	675	3.2	X						
62	181	27.50*	675	3.4	X	W	30	(E)DRS	71S4	25	867
69	168	24.50*	675	3.7	X	WF	30	(E)DRS	71S4	26	868
87	142	19.50*	675	4.4	X	WA	30	(E)DRS	71S4	25	870
104	122	16.33	675	4.3	X	WAF	30	(E)DRS	71S4	26	869
119	111	14.33	675	4.8	X						
166	83	10.25*	675	5.3	X						
207	68	8.20*	660	5.2	X						
259	57	6.57	615	6.2	X						
14	480	75.00*	675	1.30		W	30	DR	63L6	21	867
18	440	60.00*	675	1.40		WF	30	DR	63L6	22	868
33	295	32.50*	675	2.1		WA	30	DR	63L6	21	870
39	275	27.50*	675	2.2		WAF	30	DR	63L6	22	869

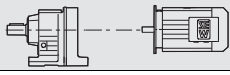

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P_m = 0.25 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
23	290	75.00*	495	1.20	X				
28	250	60.00*	495	1.40	X				
35	230	48.00*	495	1.50	X				
44	210	39.00*	495	1.65	X				
52	205	32.50*	495	1.70	X				
62	174	27.50*	495	2.0	X	W	20	(E)DRS 71S4	20 864
69	157	24.50*	495	2.2	X	WF	20	(E)DRS 71S4	20 865
87	134	19.50*	495	2.3	X	WA	20	(E)DRS 71S4	19 866
103	117	16.50*	495	2.3	X	WAF	20	(E)DRS 71S4	19 865
119	108	14.33	490	2.5	X				
166	81	10.25*	445	2.7	X				
207	66	8.20*	415	2.7	X				
259	56	6.57	395	3.2	X				

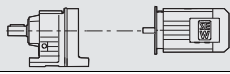

P_m = 0.33 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
9.3	1300	183	1480	1.20	X				
11	1170	159	1500	1.35	X				
12	1040	141	1520	1.50	X				
14	1080	124	1540	1.30	X	W	47R17	(E)DRS 71S4	46 877/882
14	890	120	1550	1.75	X	WF	47R17	(E)DRS 71S4	47 878/882
16	910	105	1560	1.55	X	WA	47R17	(E)DRS 71S4	43 879/882
18	850	95	1570	1.65	X	WAF	47R17	(E)DRS 71S4	45 878/882
20	750	85	1580	1.90	X				
22	700	77	1590	2.0	X				
24	635	72	1600	2.2	X				
14	860	125	790	1.10	X				
16	770	109	820	1.25	X				
18	690	96	840	1.40	X	W	37R17	(E)DRS 71S4	34 871/882
21	590	82	870	1.65	X	WF	37R17	(E)DRS 71S4	34 872/882
23	610	73	860	1.30	X	WA	37R17	(E)DRS 71S4	34 874/882
27	540	63	880	1.45	X	WAF	37R17	(E)DRS 71S4	34 872/882
32	460	53	890	1.70	X				
35	425	48	900	1.85	X				
15	990	74.98	1530	1.60		W	47	DRS 71S6	40 877
16	920	68.93	1540	1.75		WF	47	DRS 71S6	41 878
						WA	47	DRS 71S6	37 879
						WAF	47	DRS 71S6	38 878
23	670	74.98	1580	2.4	X	W	47	(E)DRS 71S4	40 877
25	625	68.93	1580	2.5	X	WF	47	(E)DRS 71S4	41 878
29	540	58.98	1600	2.9	X	WA	47	(E)DRS 71S4	37 879
33	475	51.12	1600	3.3	X	WAF	47	(E)DRS 71S4	38 878
36	445	47.78	1610	3.5	X				
25	580	69.05	870	1.65	X				
27	540	63.33	880	1.80	X				
32	470	53.92	890	2.1	X				
37	410	46.49	900	2.4	X				
45	340	37.88	910	2.8	X				
49	350	34.52	910	2.3	X				
54	325	31.67	910	2.4	X				
61	260	27.78	920	3.7	X	W	37	(E)DRS 71S4	28 871
63	280	26.96	920	2.8	X	WF	37	(E)DRS 71S4	28 872
73	240	23.25	920	3.3	X	WA	37	(E)DRS 71S4	28 874
80	200	21.33	920	4.8	X	WAF	37	(E)DRS 71S4	28 872
90	200	18.94	920	4.0	X				
109	168	15.67	910	4.7	X				
122	150	13.89	880	5.3	X				
134	144	12.70	870	4.3	X				
146	132	11.65	850	4.7	X				
159	116	10.67	810	6.8	X				
171	113	9.92	800	5.5	X				

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P_m = 0.33 HP												
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs				
15	615	75.00*	675	1.00		W	30	DRS	71S6	25	867	
18	570	60.00*	675	1.10			WF	30	DRS	71S6	26	868
34	380	32.50*	675	1.60			WA	30	DRS	71S6	25	870
45	330	24.50*	675	1.85			WAF	30	DRS	71S6	26	869
56	280	19.50*	675	2.2								
23	420	75.00*	675	1.45	X	W	30	(E)DRS	71S4	25	867	
28	390	60.00*	675	1.60	X		WF	30	(E)DRS	71S4	26	868
35	335	48.00*	675	1.85	X		WA	30	(E)DRS	71S4	25	870
44	305	39.00*	675	2.0	X		WAF	30	(E)DRS	71S4	26	869
52	255	32.50*	675	2.4	X							
62	235	27.50*	675	2.6	X							
69	220	24.50*	675	2.8	X							
87	188	19.50*	675	3.3	X							
104	161	16.33	675	3.3	X							
119	146	14.33	675	3.6	X							
166	110	10.25*	675	4.0	X							
207	90	8.20*	655	3.9	X							
259	75	6.57	615	4.7	X							
322	56	10.25*	360	4.0			W	20	DRS	71S2	20	864
402	46	8.20*	335	3.9			WF	20	DRS	71S2	20	865
502	38	6.57	315	4.6		WA	20	DRS	71S2	19	866	
						WAF	20	DRS	71S2	19	865	
40	340	27.50*	495	1.05		W	20	DRS	71S6	20	864	
45	305	24.50*	495	1.15			WF	20	DRS	71S6	20	865
56	265	19.50*	495	1.15			WA	20	DRS	71S6	19	866
77	210	14.33	495	1.25			WAF	20	DRS	71S6	19	865
107	161	10.25*	495	1.35								
134	133	8.20*	465	1.35								
167	112	6.57	445	1.60								
28	330	60.00*	495	1.05	X	W	20	(E)DRS	71S4	20	864	
35	305	48.00*	495	1.15	X		WF	20	(E)DRS	71S4	20	865
44	275	39.00*	495	1.25	X		WA	20	(E)DRS	71S4	19	866
52	270	32.50*	495	1.30	X		WAF	20	(E)DRS	71S4	19	865
62	225	27.50*	495	1.55	X							
69	205	24.50*	495	1.70	X							
87	177	19.50*	495	1.75	X							
103	155	16.50*	495	1.70	X							
119	142	14.33	480	1.85	X							
166	106	10.25*	435	2.1	X							
207	87	8.20*	410	2.0	X							
259	73	6.57	390	2.4	X							

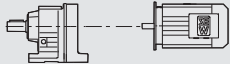

P_m = 0.50 HP												
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs				
14	1400	120	1470	1.15	X	W	47R17	(E)DRS	71S4	46	877/882	
16	1430	105	1490	1.00	X		WF	47R17	(E)DRS	71S4	47	878/882
18	1320	95	1510	1.05	X		WA	47R17	(E)DRS	71S4	43	879/882
20	1170	85	1530	1.20	X		WAF	47R17	(E)DRS	71S4	45	878/882
22	1080	77	1540	1.30	X							
24	990	72	1550	1.40	X							
21	930	82	765	1.05	X		W	37R17	(E)DRS	71S4	34	871/882
32	720	53	830	1.10	X	WF	37R17	(E)DRS	71S4	34	872/882	
35	660	48	850	1.20	X	WA	37R17	(E)DRS	71S4	34	874/882	
						WAF	37R17	(E)DRS	71S4	34	872/882	
15	1500	74.98	1450	1.05		W	47	DRS	71M6	43	877	
16	1390	68.93	1470	1.15			WF	47	DRS	71M6	44	878
19	1210	58.98	1500	1.30			WA	47	DRS	71M6	39	879
22	1060	51.12	1520	1.50			WAF	47	DRS	71M6	41	878
23	1000	47.78	1530	1.60								

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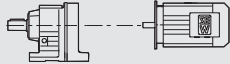

P_m = 0.50 HP							m lbs	
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®			
23	1020	74.98	1530	1.55	X			
25	940	68.93	1540	1.70	X			
29	820	58.98	1560	1.95	X			
33	720	51.12	1560	2.2	X			
36	680	47.78	1530	2.3	X			
41	595	41.30	1480	2.7	X			
48	515	35.09	1420	3.1	X			
54	500	31.62	1390	2.8	X			
54	460	31.33	1370	3.4	X	W 47	(E)DRS 71S4	40 877
62	435	27.41	1340	3.2	X	WF 47	(E)DRS 71S4	41 878
64	400	26.76	1310	4.0	X	WA 47	(E)DRS 71S4	37 879
66	410	25.62	1310	3.4	X	WAF 47	(E)DRS 71S4	38 878
68	375	25.07	1290	4.2	X			
77	355	22.15	1260	3.9	X			
90	305	18.82	1200	4.6	X			
101	275	16.80	1160	5.1	X			
118	235	14.35	1110	6.0	X			
138	215	12.30	1080	4.5	X			
159	188	10.66	1030	5.2	X			
171	176	9.96	1010	5.5	X			
27	820	63.33	800	1.20	X			
32	710	53.92	840	1.35	X			
37	625	46.49	860	1.55	X			
45	520	37.88	880	1.85	X			
49	530	34.52	880	1.50	X			
54	490	31.67	890	1.60	X			
61	390	27.78	900	2.5	X			
63	420	26.96	900	1.90	X	W 37	(E)DRS 71S4	28 871
73	365	23.25	910	2.2	X	WF 37	(E)DRS 71S4	28 872
80	310	21.33	910	3.1	X	WA 37	(E)DRS 71S4	28 874
90	300	18.94	910	2.6	X	WAF 37	(E)DRS 71S4	28 872
109	250	15.67	880	3.1	X			
122	225	13.89	850	3.5	X			
134	215	12.70	850	2.8	X			
146	200	11.65	830	3.1	X			
159	176	10.67	790	4.5	X			
171	171	9.92	790	3.6	X			
199	148	8.55	755	4.2	X			
28	590	60.00*	675	1.05	X			
35	510	48.00*	675	1.20	X			
44	465	39.00*	675	1.35	X			
52	390	32.50*	675	1.60	X			
62	360	27.50*	675	1.70	X	W 30	(E)DRS 71S4	25 867
69	335	24.50*	675	1.85	X	WF 30	(E)DRS 71S4	26 868
87	280	19.50*	675	2.2	X	WA 30	(E)DRS 71S4	25 870
104	240	16.33	675	2.2	X	WAF 30	(E)DRS 71S4	26 869
119	220	14.33	675	2.4	X			
166	166	10.25*	675	2.7	X			
207	136	8.20*	645	2.6	X			
259	114	6.57	605	3.1	X			
135	169	24.50*	445	2.1				
169	144	19.50*	415	2.2		W 20	DRS 71S2	20 864
200	125	16.50*	400	2.1		WF 20	DRS 71S2	20 865
230	114	14.33	385	2.3		WA 20	DRS 71S2	19 866
322	85	10.25*	350	2.6		WAF 20	DRS 71S2	19 865
402	69	8.20*	330	2.5				
502	58	6.57	310	3.0				
62	345	27.50*	495	1.00	X			
69	310	24.50*	495	1.15	X			
87	265	19.50*	490	1.15	X	W 20	(E)DRS 71S4	20 864
103	230	16.50*	470	1.15	X	WF 20	(E)DRS 71S4	20 865
119	215	14.33	455	1.25	X	WA 20	(E)DRS 71S4	19 866
166	161	10.25*	420	1.35	X	WAF 20	(E)DRS 71S4	19 865
207	132	8.20*	395	1.35	X			
259	111	6.57	380	1.60	X			

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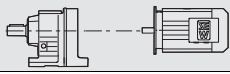

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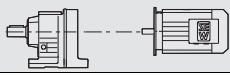

P_m = 0.75 HP											
n_a rpm	T_a lb-in	i ratio	F_{Ra}¹⁾ lb	SEW SF f_B	HazLoc -NA®					m lbs	
22	1570	51.12	1440	1.00							
23	1480	47.78	1460	1.05							
27	1300	41.30	1480	1.20		W	47	DRS	80S6	48	877
32	1120	35.09	1450	1.40		WF	47	DRS	80S6	49	878
35	1120	31.62	1450	1.25		WA	47	DRS	80S6	45	879
36	1010	31.33	1420	1.55		WAF	47	DRS	80S6	46	878
41	970	27.41	1410	1.45							
44	910	25.62	1390	1.55							
23	1530	74.98	1450	1.05	X						
25	1420	68.93	1470	1.10	X						
29	1240	58.98	1480	1.30	X						
33	1090	51.12	1440	1.45	X						
35	1020	47.78	1430	1.55	X	W	47	(E)DRS	71M4	43	877
41	900	41.30	1380	1.75	X	WF	47	(E)DRS	71M4	44	878
48	775	35.09	1330	2.0	X	WA	47	(E)DRS	71M4	39	879
53	755	31.62	1330	1.85	X	WAF	47	(E)DRS	71M4	41	878
54	700	31.33	1300	2.3	X						
62	660	27.41	1280	2.1	X						
66	620	25.62	1260	2.3	X						
45	785	37.88	820	1.25	X						
53	740	31.67	830	1.05	X						
61	590	27.78	870	1.65	X						
63	640	26.96	860	1.25	X						
73	555	23.25	870	1.45	X						
79	465	21.33	890	2.1	X						
89	455	18.94	880	1.75	X						
108	380	15.67	840	2.1	X	W	37	(E)DRS	71M4	30	871
122	340	13.89	820	2.3	X	WF	37	(E)DRS	71M4	30	872
133	325	12.70	830	1.90	X	WA	37	(E)DRS	71M4	30	874
145	300	11.65	810	2.0	X	WAF	37	(E)DRS	71M4	30	872
158	265	10.67	765	3.0	X						
170	255	9.92	775	2.4	X						
198	220	8.55	740	2.8	X						
242	183	6.97	700	3.4	X						
293	152	5.77	660	4.1	X						
331	135	5.11	635	4.6	X						
431	104	3.93	585	5.9	X						
52	585	32.50*	675	1.05	X						
61	545	27.50*	675	1.15	X						
69	505	24.50*	675	1.20	X	W	30	(E)DRS	71M4	28	867
103	365	16.33	675	1.45	X	WF	30	(E)DRS	71M4	29	868
118	330	14.33	675	1.60	X	WA	30	(E)DRS	71M4	28	870
165	250	10.25*	670	1.75	X	WAF	30	(E)DRS	71M4	28	869
206	205	8.20*	630	1.70	X						
257	173	6.57	595	2.0	X						
105	305	32.50*	675	2.0							
124	275	27.50*	675	2.2							
140	255	24.50*	675	2.4		W	30	DRS	71M2	28	867
175	215	19.50*	655	2.8		WF	30	DRS	71M2	29	868
209	187	16.33	625	2.8		WA	30	DRS	71M2	28	870
239	169	14.33	600	3.1		WAF	30	DRS	71M2	28	869
334	126	10.25*	550	3.5							
417	103	8.20*	515	3.4							
520	87	6.57	480	4.1							

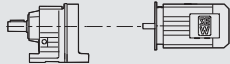

P_m = 1.0 HP

n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
33	1440	35.09	1330	1.10							
37	1300	31.33	1310	1.20							
42	1250	27.41	1310	1.15							
44	1130	26.76	1270	1.40							
45	1170	25.62	1300	1.20							
46	1060	25.07	1260	1.50							
53	1020	22.15	1260	1.40							
62	870	18.82	1220	1.60		W	47	DRN	90S6	67	877
69	785	16.80	1190	1.80		WF	47	DRN	90S6	68	878
81	680	14.35	1150	2.1		WA	47	DRN	90S6	64	879
87	635	13.44	1130	2.2		WAF	47	DRN	90S6	66	878
103	540	11.32	1080	2.6							
109	540	10.66	1110	1.80							
117	505	9.96	1090	1.90							
135	440	8.61	1050	2.2							
159	375	7.32	1000	2.6							
178	335	6.53	970	2.9							
30	1600	58.98	1350	1.00							
34	1400	51.12	1320	1.15	X						
37	1320	47.78	1310	1.20	X						
42	1160	41.30	1280	1.35	X						
50	1000	35.09	1240	1.60	X						
55	970	31.62	1250	1.45	X						
56	900	31.33	1220	1.75	X						
64	850	27.41	1210	1.65	X	W	47	(E)DRN	80M4	53	877
65	780	26.76	1180	2.0	X	WF	47	(E)DRN	80M4	54	878
68	800	25.62	1190	1.75	X	WA	47	(E)DRN	80M4	50	879
70	735	25.07	1160	2.2	X	WAF	47	(E)DRN	80M4	52	878
79	695	22.15	1160	2.0	X						
93	595	18.82	1110	2.4	X						
104	535	16.80	1080	2.6	X						
142	415	12.30	1030	2.3	X						
164	360	10.66	990	2.7	X						
176	340	9.96	970	2.9	X						
55	870	21.33	785	1.10							
74	725	15.67	830	1.10							
84	645	13.89	840	1.25		W	37	DRN	90S6	54	871
109	505	10.67	800	1.60		WF	37	DRN	90S6	54	872
136	425	8.55	800	1.45		WA	37	DRN	90S6	54	874
167	350	6.97	760	1.75		WAF	37	DRN	90S6	54	872
202	290	5.77	720	2.1							
228	255	5.11	700	2.4							
56	850	31.33	790	1.15	X						
63	765	27.78	820	1.25	X						
75	715	23.25	840	1.10	X						
82	600	21.33	830	1.60	X						
92	590	18.94	830	1.35	X						
112	490	15.67	795	1.60	X						
126	440	13.89	775	1.80	X	W	37	(E)DRN	80M4	41	871
164	340	10.67	730	2.3	X	WF	37	(E)DRN	80M4	41	872
176	330	9.92	750	1.85	X	WA	37	(E)DRN	80M4	41	874
205	285	8.55	720	2.1	X	WAF	37	(E)DRN	80M4	41	872
251	235	6.97	680	2.6	X						
304	196	5.77	645	3.2	X						
343	174	5.11	620	3.6	X						
446	134	3.93	575	4.6	X						
547	110	3.20*	540	5.7	X						
406	147	8.55	590	4.2							
499	120	6.97	555	5.2		W	37	DRN	80MS2	41	871
603	100	5.77	525	6.2		WF	37	DRN	80MS2	41	872
680	89	5.11	505	7.0		WA	37	DRN	80MS2	41	874
886	68	3.93	465	9.1		WAF	37	DRN	80MS2	41	872
1085	56	3.20*	435	11							

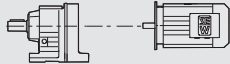

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P_m = 1.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
107	470	16.33	675	1.10	X	W	30	(E)DRN	80M4	38	867
122	430	14.33	675	1.25	X						
171	320	10.25*	645	1.35	X						
214	260	8.20*	610	1.35	X						
266	220	6.57	575	1.60	X						
						WF	30	(E)DRN	80M4	39	868
						WA	30	(E)DRN	80M4	38	870
						WAF	30	(E)DRN	80M4	38	869

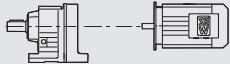

P_m = 1.5 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs			
50	1490	35.09	1080	1.05	X	W	47	(E)DRN	90S4	67	877
56	1340	31.33	1070	1.20	X						
64	1270	27.41	1100	1.10	X						
66	1160	26.76	1050	1.35	X						
69	1190	25.62	1090	1.20	X						
70	1090	25.07	1040	1.45	X						
80	1030	22.15	1060	1.35	X						
94	890	18.82	1030	1.60	X						
105	795	16.80	1010	1.75	X						
123	685	14.35	970	2.1	X						
131	645	13.44	960	2.2	X						
143	625	12.30	990	1.55	X						
156	545	11.32	920	2.6	X						
165	540	10.66	960	1.80	X						
177	505	9.96	940	1.90	X						
205	440	8.61	900	2.2	X						
241	375	7.32	860	2.6	X						
270	335	6.53	830	2.9	X						
83	890	21.33	710	1.10	X	WF	37	(E)DRN	90S4	54	871
112	735	15.67	715	1.10	X						
127	655	13.89	700	1.20	X						
165	510	10.67	675	1.55	X						
178	495	9.92	710	1.25	X						
206	425	8.55	685	1.45	X						
253	350	6.97	655	1.75	X						
306	290	5.77	620	2.1	X						
345	255	5.11	600	2.4	X						
449	200	3.93	560	3.1	X						
551	164	3.20*	525	3.8	X						
407	215	8.55	575	2.8							
500	180	6.97	540	3.4							
604	149	5.77	515	4.2							
682	133	5.11	495	4.7							
888	102	3.93	455	6.1							
1090	84	3.20*	430	7.4		WAF	37	DRN	80M2	41	872
107	605	32.50*	665	1.00							
127	545	27.50*	630	1.15							
142	505	24.50*	615	1.20							
213	365	16.33	570	1.45							
243	330	14.33	555	1.60							
340	245	10.25*	515	1.80							
425	200	8.20*	485	1.75							
530	171	6.57	460	2.1							



P_m = 2.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
66	1540	26.76	930	1.05	X				
70	1450	25.07	930	1.10	X				
80	1380	22.15	970	1.00	X				
94	1180	18.82	950	1.20	X				
105	1060	16.80	940	1.35	X				
123	910	14.35	910	1.55	X				
131	850	13.44	900	1.65	X	W	47	(E)DRN 90L4	74 877
156	725	11.32	870	1.95	X	WF	47	(E)DRN 90L4	75 878
166	720	10.66	930	1.35	X	WA	47	(E)DRN 90L4	71 879
177	675	9.96	910	1.45	X	WAF	47	(E)DRN 90L4	73 878
205	585	8.61	880	1.65	X				
241	495	7.32	840	1.95	X				
270	445	6.53	810	2.2	X				
317	380	5.58	780	2.5	X				
338	355	5.23	765	2.7	X				
166	675	10.67	615	1.15	X				
207	570	8.55	655	1.10	X	W	37	(E)DRN 90L4	61 871
254	465	6.97	625	1.35	X	WF	37	(E)DRN 90L4	61 872
306	385	5.77	600	1.60	X	WA	37	(E)DRN 90L4	61 874
346	340	5.11	580	1.80	X	WAF	37	(E)DRN 90L4	61 872
450	265	3.93	545	2.3	X				
552	215	3.20*	515	2.9	X				
410	290	8.55	555	2.1		W	37	DRN 90S2	54 871
503	235	6.97	530	2.6		WF	37	DRN 90S2	54 872
608	198	5.77	500	3.1		WA	37	DRN 90S2	54 874
686	176	5.11	485	3.5		WAF	37	DRN 90S2	54 872
893	135	3.93	450	4.6					
1095	111	3.20*	425	5.6					



12

P_m = 3.0 HP									
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®			m lbs	
123	1370	14.35	790	1.05	X				
131	1290	13.44	790	1.10	X				
156	1090	11.32	780	1.30	X				
205	880	8.61	830	1.10	X				
241	750	7.32	800	1.30	X	W	47	(E)DRN 100LM4	98 877
270	670	6.53	775	1.45	X	WF	47	(E)DRN 100LM4	100 878
316	575	5.58	750	1.70	X	WA	47	(E)DRN 100LM4	95 879
337	535	5.23	735	1.80	X	WAF	47	(E)DRN 100LM4	97 878
400	455	4.40	705	2.1	X				
453	400	3.89	680	2.4	X				
539	335	3.27	650	2.9	X				
412	430	8.55	525	1.40		W	37	DRN 90L2	61 871
506	355	6.97	500	1.75		WF	37	DRN 90L2	61 872
611	295	5.77	480	2.1		WA	37	DRN 90L2	61 874
690	260	5.11	465	2.4		WAF	37	DRN 90L2	61 872
898	200	3.93	435	3.1					
1100	165	3.20*	410	3.8					

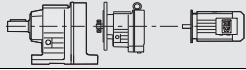

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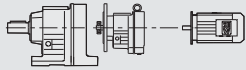

P_m = 4.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
270	890	6.53	740	1.10	X						
316	765	5.58	715	1.25	X	W	47	(E)DRN	100L4	98	877
337	715	5.23	705	1.35	X	WF	47	(E)DRN	100L4	100	878
400	605	4.40	680	1.60	X	WA	47	(E)DRN	100L4	95	879
453	535	3.89	660	1.80	X	WAF	47	(E)DRN	100L4	97	878
540	450	3.27	630	2.1	X						
505	475	6.97	475	1.30		W	37	DRN	100LM2	85	871
610	390	5.77	460	1.55		WF	37	DRN	100LM2	85	872
688	350	5.11	445	1.75		WA	37	DRN	100LM2	85	874
896	270	3.93	420	2.3		WAF	37	DRN	100LM2	85	872
1100	220	3.20*	400	2.8							

P_m = 5.0 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
315	960	5.58	680	1.00	X						
336	900	5.23	675	1.10	X	W	47	(E)DRN	100L4	98	877
399	760	4.40	650	1.30	X	WF	47	(E)DRN	100L4	100	878
452	670	3.89	635	1.45	X	WA	47	(E)DRN	100L4	95	879
538	565	3.27	610	1.70	X	WAF	47	(E)DRN	100L4	97	878
629	485	5.58	590	2.0		W	47	DRN	100L2	98	877
671	455	5.23	580	2.1		WF	47	DRN	100L2	100	878
797	380	4.40	555	2.5		WA	47	DRN	100L2	95	879
902	335	3.89	540	2.9		WAF	47	DRN	100L2	97	878
1075	285	3.27	515	3.4							

P_m = 5.4 HP											
n _a rpm	T _a lb-in	i ratio	F _{Ra} ¹⁾ lb	SEW SF f _B	HazLoc -NA®					m lbs	
338	960	5.23	660	1.00	X						
402	810	4.40	640	1.20	X	W	47	(E)DRN	112M4	120	877
455	720	3.89	625	1.35	X	WF	47	(E)DRN	112M4	120	878
542	605	3.27	605	1.60	X	WA	47	(E)DRN	112M4	115	879
						WAF	47	(E)DRN	112M4	120	878
636	515	5.58	580	1.90		W	47	DRN	112M2	120	877
680	485	5.23	570	2.0		WF	47	DRN	112M2	120	878
807	410	4.40	550	2.4		WA	47	DRN	112M2	115	879
913	360	3.89	530	2.7		WAF	47	DRN	112M2	120	878
1085	300	3.27	510	3.2							

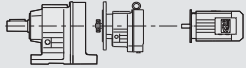

12.4 W.. R.. DRS/DRN.. Selections by torque / low output speed

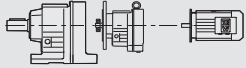

T_{a max} = 795 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
23 27	73 63	810 810	W	37R17	DRS	71S4	34	871/882
			WF	37R17	DRS	71S4	34	872/882
			WA	37R17	DRS	71S4	34	874/882
			WAF	37R17	DRS	71S4	34	872/882
32 35	53 48	810 810	W	37R17	DRS	71M4	37	871/882
			WF	37R17	DRS	71M4	37	872/882
			WA	37R17	DRS	71M4	37	874/882
			WAF	37R17	DRS	71M4	37	872/882

T_{a max} = 970 lb-in								
n_a rpm	i	F_{Ra}⁽¹⁾ lb					m lbs	
0.38	4402	745						
0.44	3795	745						
0.51	3272	745						
0.58	2899	745						
0.66	2558	745						
0.71	2382	745	W	37R17	DR	63S4	29	871/882
0.77	2172	745	WF	37R17	DR	63S4	29	872/882
0.86	1952	745	WA	37R17	DR	63S4	29	874/882
0.94	1795	745	WAF	37R17	DR	63S4	29	872/882
1.1	1593	745						
1.1	1463	745						
1.3	1298	745						
2.2	754	745						
2.5	669	745						
1.4	1173	745						
1.6	1063	745						
1.8	956	745						
2.0	854	745						
2.8	600	745	W	37R17	DR	63S4	29	871/882
3.2	532	745	WF	37R17	DR	63S4	29	872/882
3.6	472	745	WA	37R17	DR	63S4	29	874/882
3.9	434	745	WAF	37R17	DR	63S4	29	872/882
4.4	384	745						
4.7	359	745						
5.1	327	745						
6.0	286	745						
6.4	267	745						
7.3	233	745						
8.2	207	745	W	37R17	DRS	71S4	34	871/882
9.2	184	745	WF	37R17	DRS	71S4	34	872/882
11	160	745	WA	37R17	DRS	71S4	34	874/882
12	141	745	WAF	37R17	DRS	71S4	34	872/882
14	125	745						
16	109	745						
18	96	745						
21	82	745	W	37R17	DRS	71M4	37	871/882
			WF	37R17	DRS	71M4	37	872/882
			WA	37R17	DRS	71M4	37	874/882
			WAF	37R17	DRS	71M4	37	872/882

12

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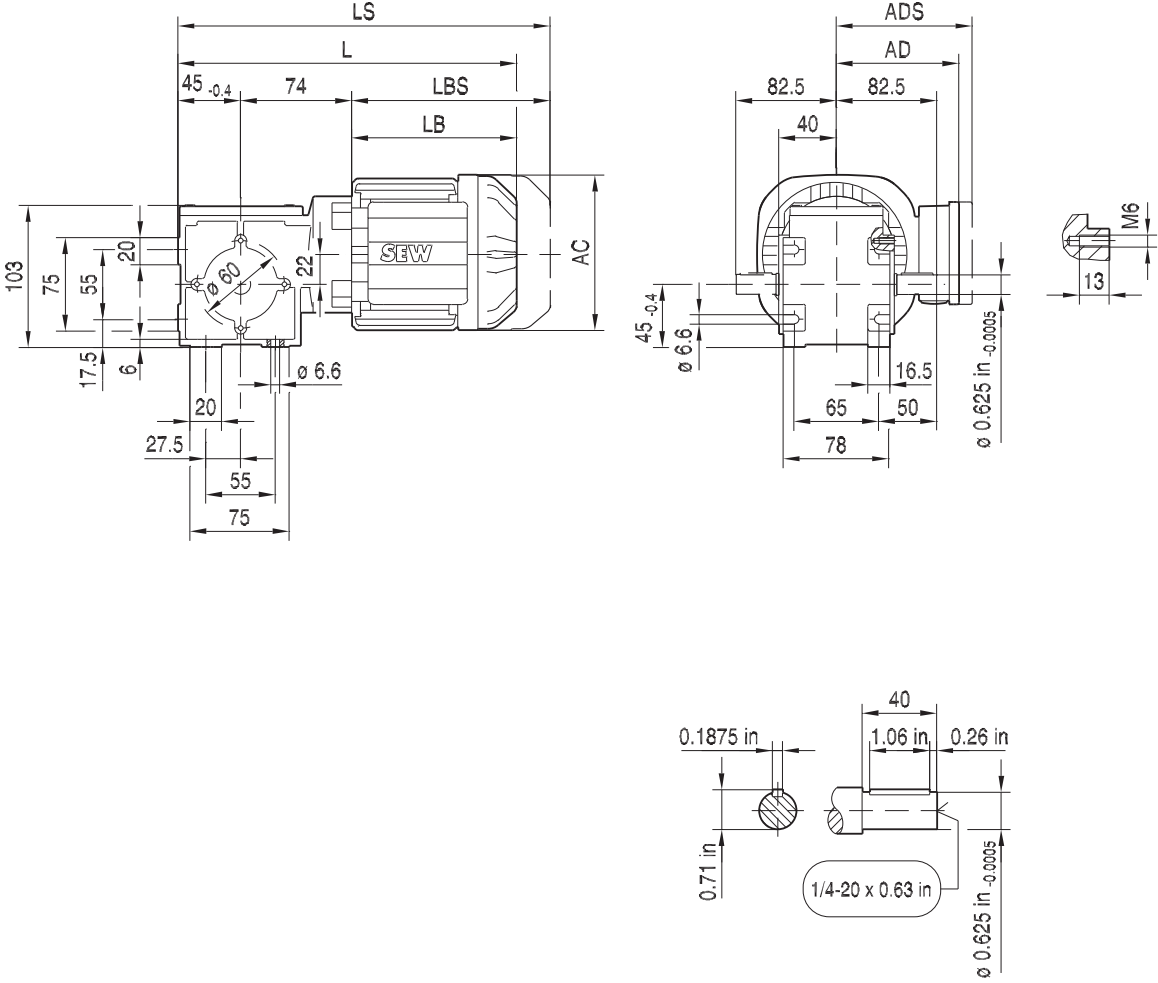
T_{a max} = 1410 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
14 16	124 105	1490 1490	W	47R17	DRS	71S4	46	877/882
			WF	47R17	DRS	71S4	47	878/882
			WA	47R17	DRS	71S4	43	879/882
			WAF	47R17	DRS	71S4	45	878/882
18 20 22 23	95 85 77 72	1490 1490 1490 1490	W	47R17	DRS	71M4	49	877/882
			WF	47R17	DRS	71M4	50	878/882
			WA	47R17	DRS	71M4	46	879/882
			WAF	47R17	DRS	71M4	48	878/882

T_{a max} = 1590 lb-in								
n_a rpm	i	F_{Ra}¹⁾ lb					m lbs	
0.35	4815	1440						
0.40	4173	1440						
0.43	3870	1440						
0.47	3598	1440						
0.50	3354	1440						
0.53	3171	1440						
0.61	2748	1440						
0.69	2425	1440	W	47R17	DR	63S4	41	877/882
0.74	2258	1440	WF	47R17	DR	63S4	42	878/882
0.80	2111	1440	WA	47R17	DR	63S4	38	879/882
0.86	1959	1440	WAF	47R17	DR	63S4	40	878/882
0.93	1797	1440						
1.1	1595	1440						
1.1	1486	1440						
1.2	1448	1440						
1.4	1170	1440						
2.2	754	1440						
1.3	1290	1440						
1.4	1183	1440						
1.6	1042	1440	W	47R17	DR	63S4	41	877/882
1.8	956	1440	WF	47R17	DR	63S4	42	878/882
1.9	869	1440	WA	47R17	DR	63S4	37	879/882
2.5	661	1440	WAF	47R17	DR	63S4	39	878/882
2.8	596	1440						
3.1	536	1440						
3.6	473	1440						
3.9	434	1440						
4.4	386	1440						
4.7	359	1440						
5.3	318	1440	W	47R17	DRS	71S4	46	877/882
5.8	291	1440	WF	47R17	DRS	71S4	47	878/882
6.3	270	1440	WA	47R17	DRS	71S4	43	879/882
6.4	265	1440	WAF	47R17	DRS	71S4	45	878/882
7.2	237	1440						
8.1	210	1440						
9.3	183	1440						
11	159	1440						
12	141	1440						
14	120	1440	W	47R17	DRS	71M4	49	877/882
			WF	47R17	DRS	71M4	50	878/882
			WA	47R17	DRS	71M4	46	879/882
			WAF	47R17	DRS	71M4	48	878/882

12.5 W.. DRS/DRN.. Dimensions

W10..

20 042 00 16



12

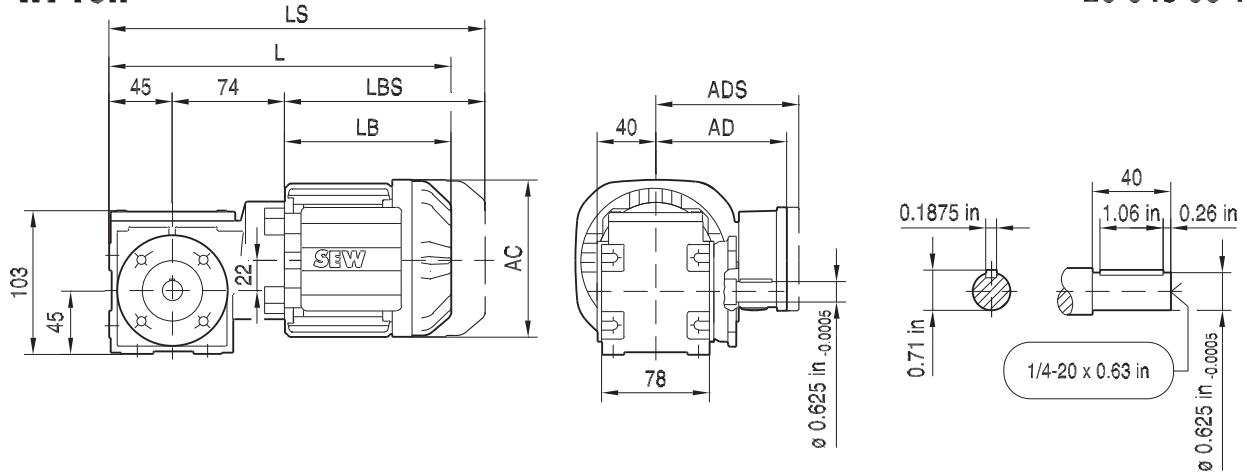
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(→ 163)	DT56..							
AC	109							
AD	87							
ADS	87							
L	255							
LS	291							
LB	136							
LBS	172							

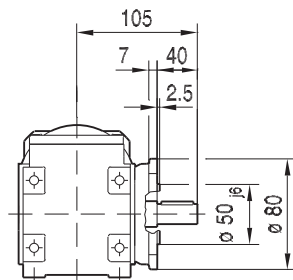
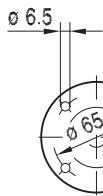
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WF10..

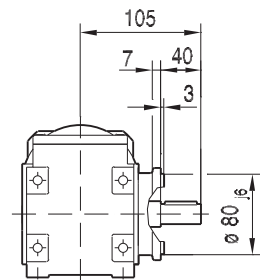
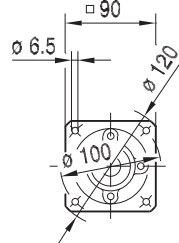
20 043 00 16



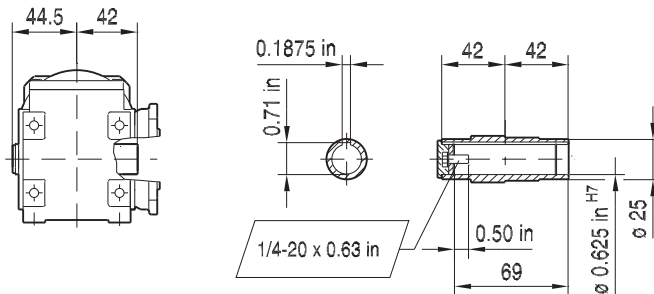
ø 80



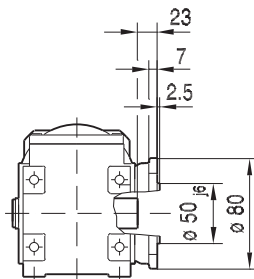
ø 120



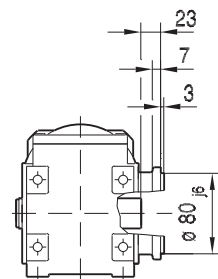
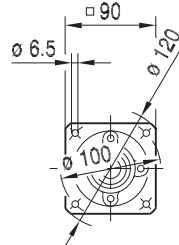
WAF10..



ø 80



ø 120

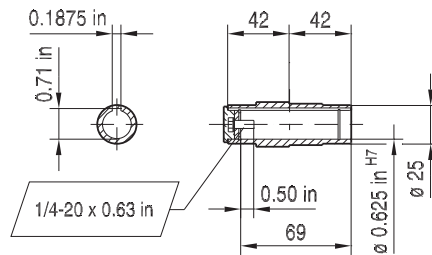
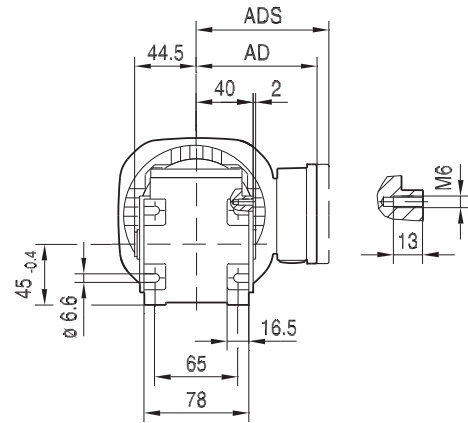
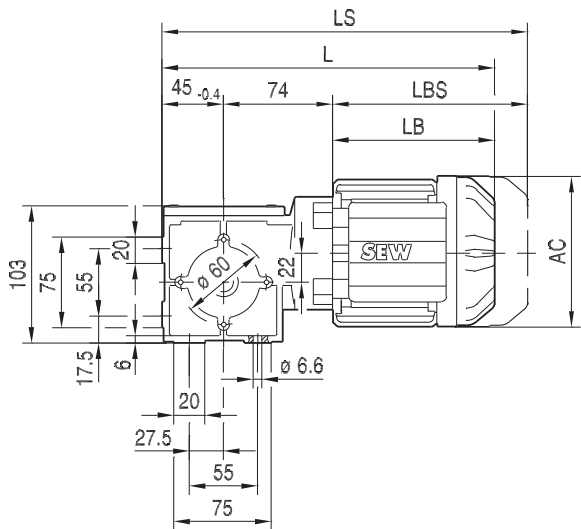
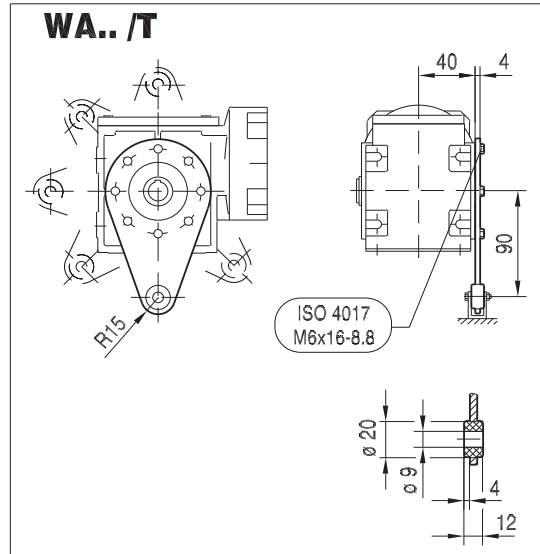


(→ 163)	DT56..						
AC	109						
AD	87						
ADS	87						
L	255						
LS	291						
LB	136						
LBS	172						

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WA10..

20 044 00 16



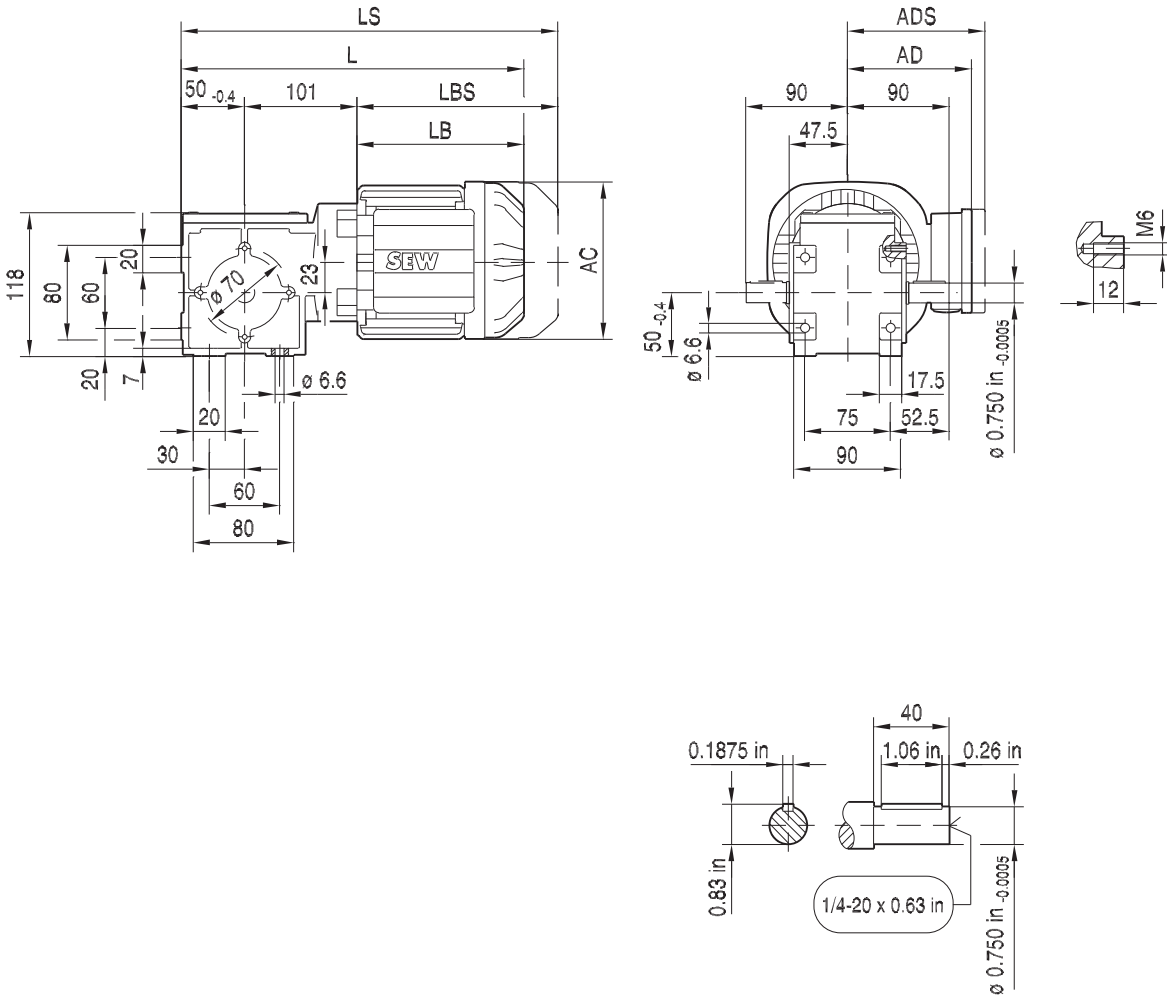
(→ 163)	DT56..						
AC	109						
AD	87						
ADS	87						
L	255						
LS	291						
LB	136						
LBS	172						

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.

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W20..

20 045 00 16^L

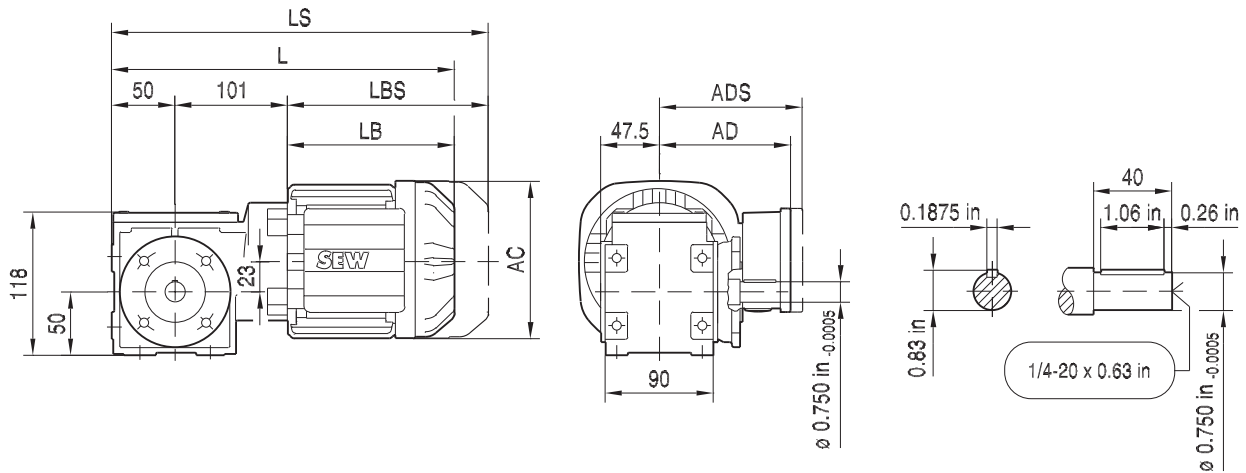


(→ 163)	DR63	DRS71S	DRS71M				
AC	132	139	139				
AD	105	119	119				
ADS	105	129	129				
L	300	311	336				
LS	355	379	404				
LB	149	160	185				
LBS	204	228	253				

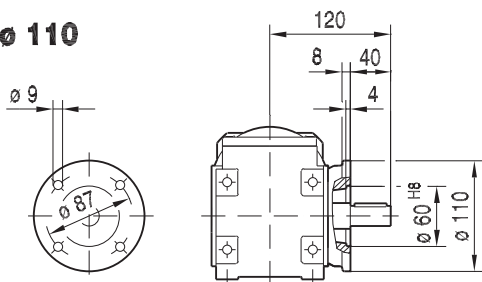
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WF20..

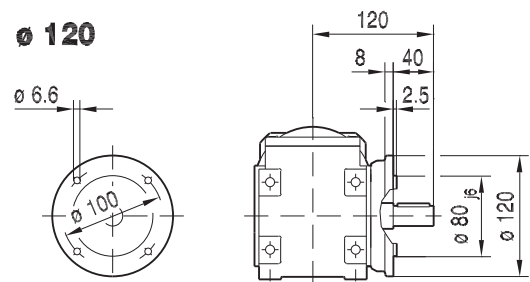
20 046 00 16



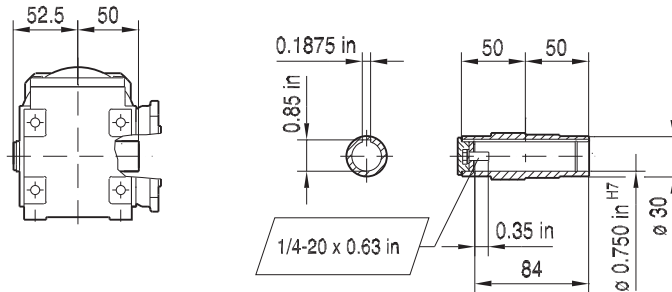
Ø 110



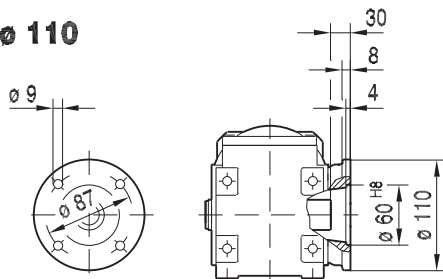
Ø 120



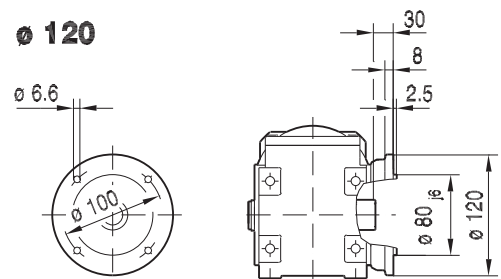
WAF20..



Ø 110



Ø 120



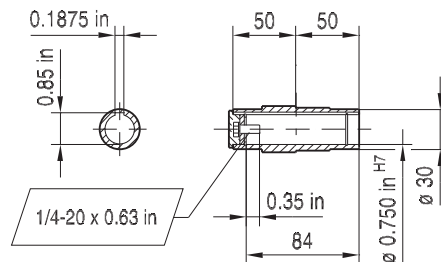
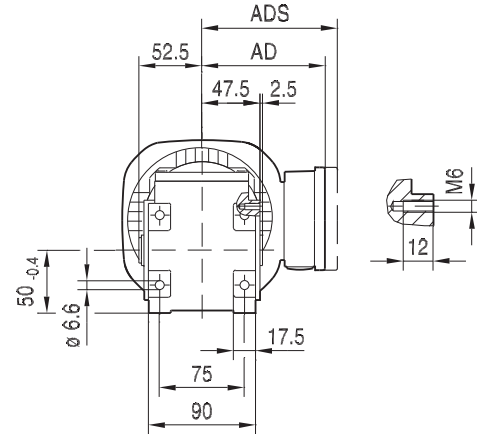
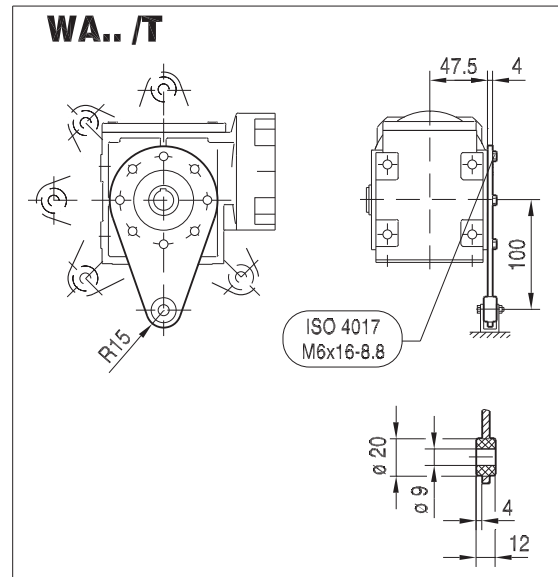
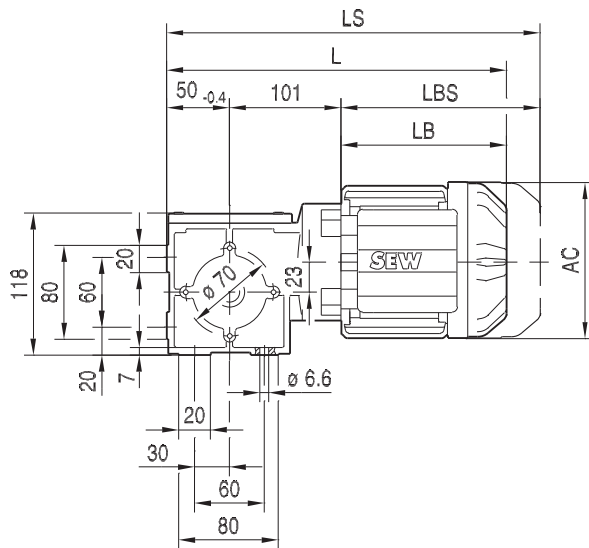
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M				
AC	132	139	139				
AD	105	119	119				
ADS	105	129	129				
L	300	311	336				
LS	355	379	404				
LB	149	160	185				
LBS	204	228	253				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WA20..

20 047 00 16



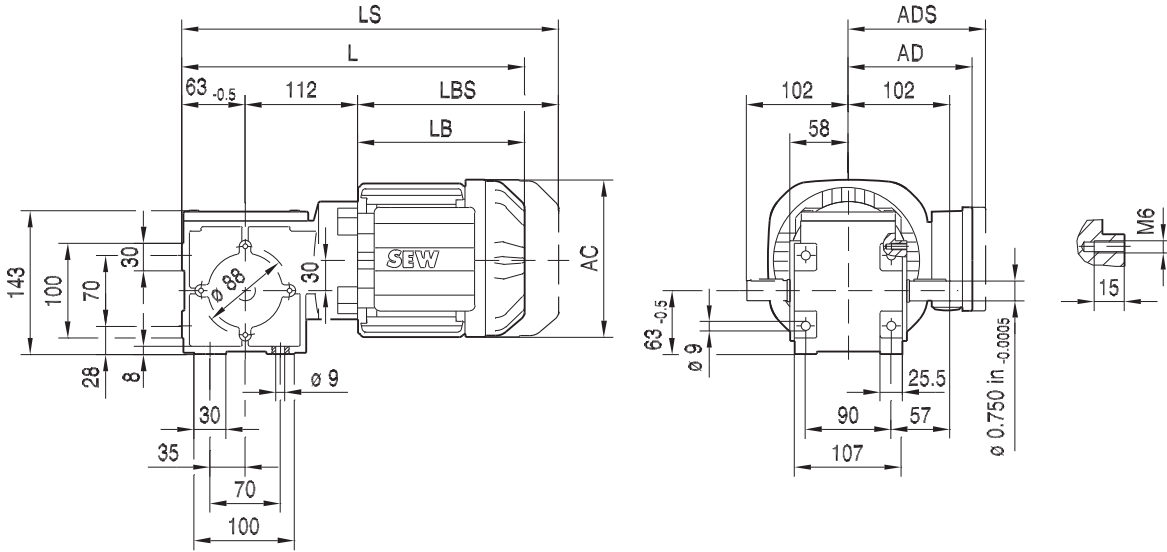
(→ 163)	DR63	DRS71S	DRS71M				
AC	132	139	139				
AD	105	119	119				
ADS	105	129	129				
L	300	311	336				
LS	355	379	404				
LB	149	160	185				
LBS	204	228	253				

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.

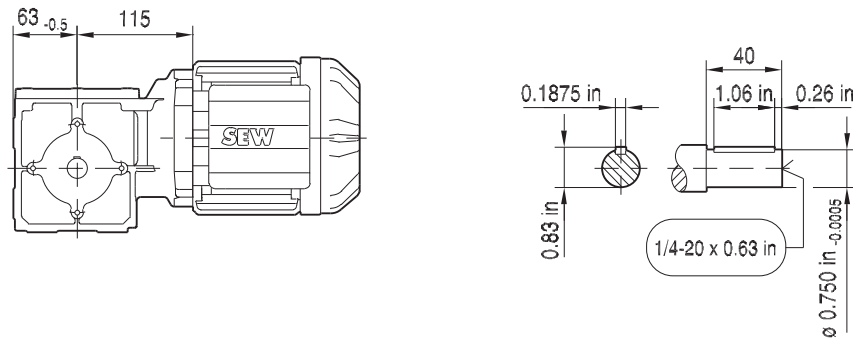
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20 048 00 16

W30..



DRN80..



12

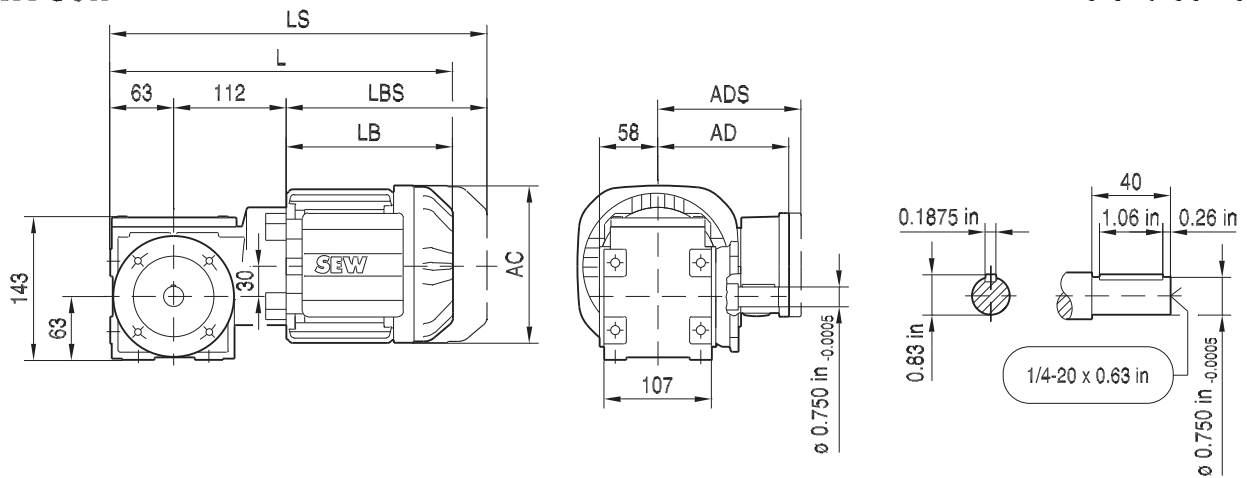
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(→ 163)	DR63	DRS71S	DRS71M	DRN80M				
AC	132	139	139	156				
AD	105	119	119	128				
ADS	105	129	129	139				
L	324	335	360	410				
LS	379	403	428	491				
LB	149	160	185	235				
LBS	204	228	253	316				

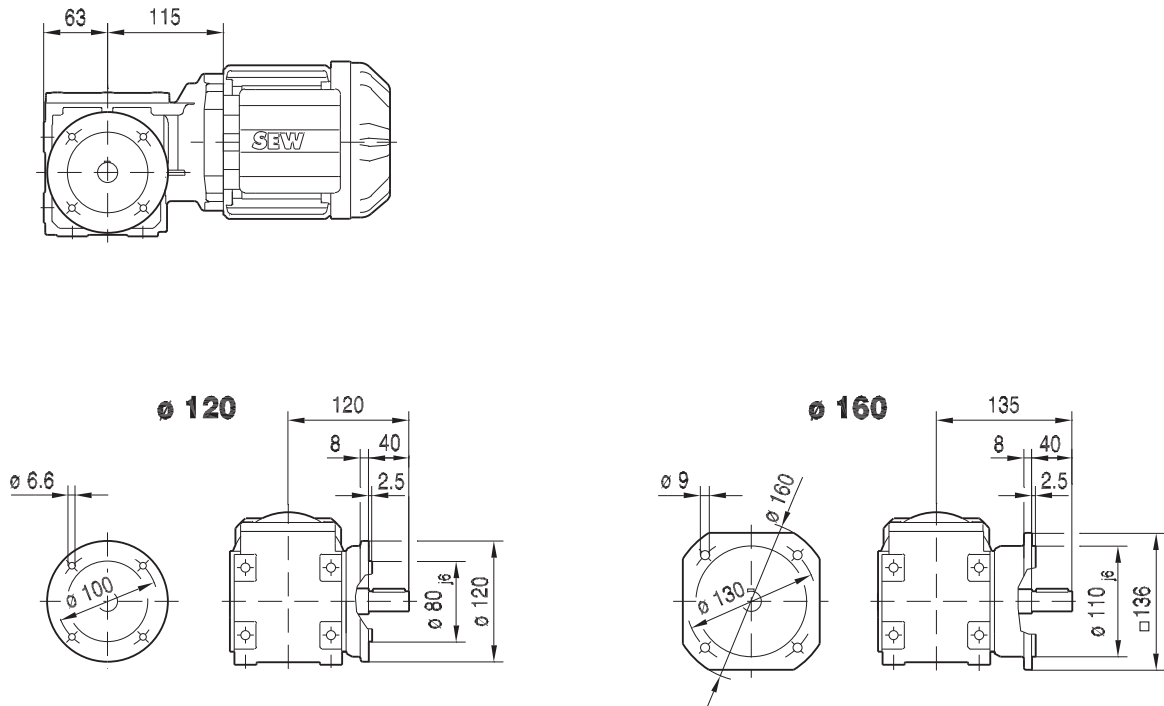
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WF30..

20 049 00 16



DRN80..

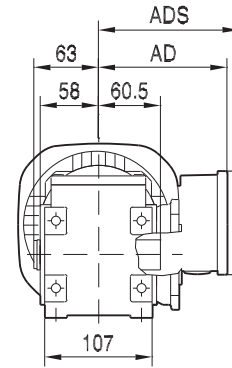
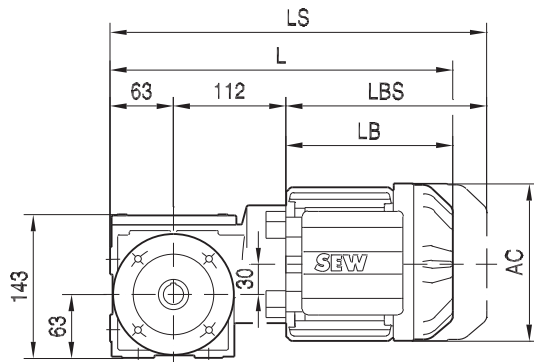


(→ 163)	DR63	DRS71S	DRS71M	DRN80M			
AC	132	139	139	156			
AD	105	119	119	128			
ADS	105	129	129	139			
L	324	335	360	410			
LS	379	403	428	491			
LB	149	160	185	235			
LBS	204	228	253	316			

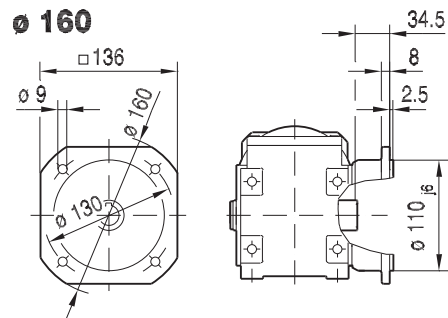
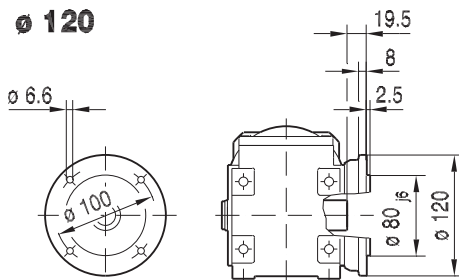
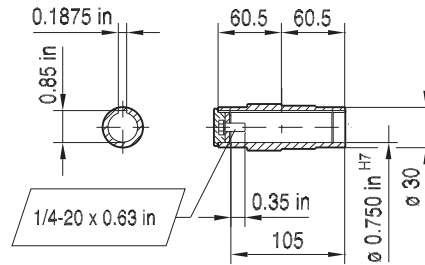
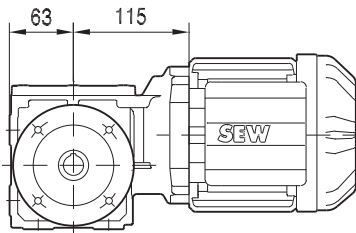
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WAF30..

20 050 00 16



DRN80..



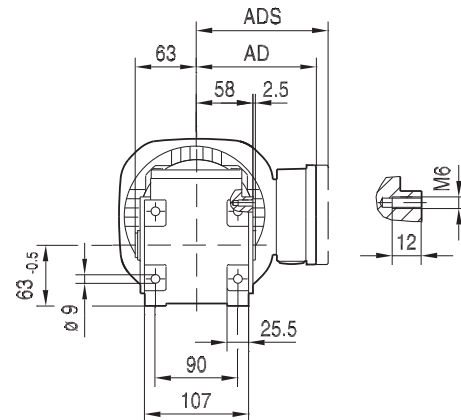
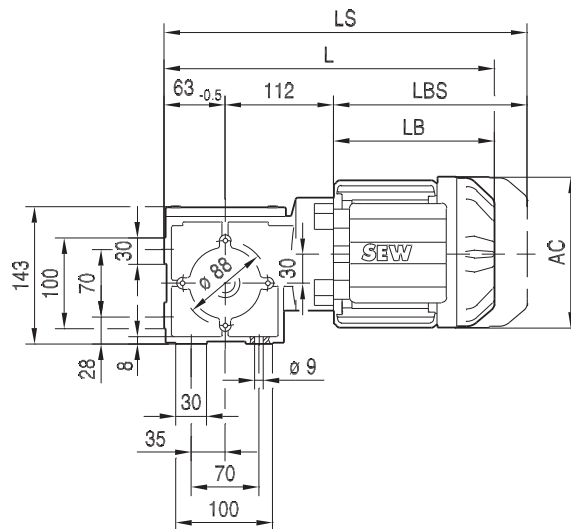
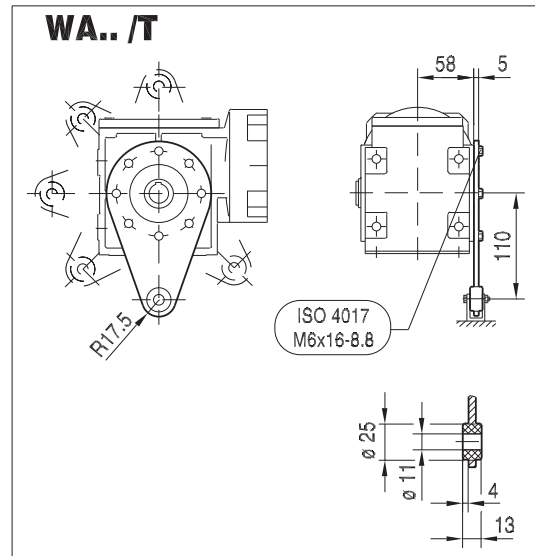
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80M			
AC	132	139	139	156			
AD	105	119	119	128			
ADS	105	129	129	139			
L	324	335	360	410			
LS	379	403	428	491			
LB	149	160	185	235			
LBS	204	228	253	316			

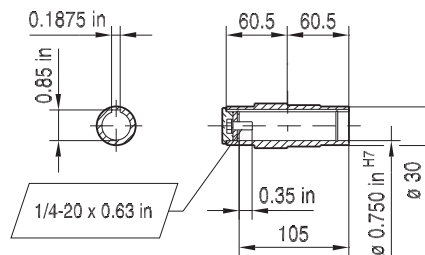
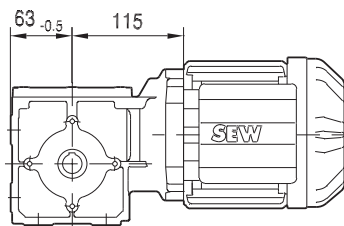
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.

WA30..

20 051 00 16^L

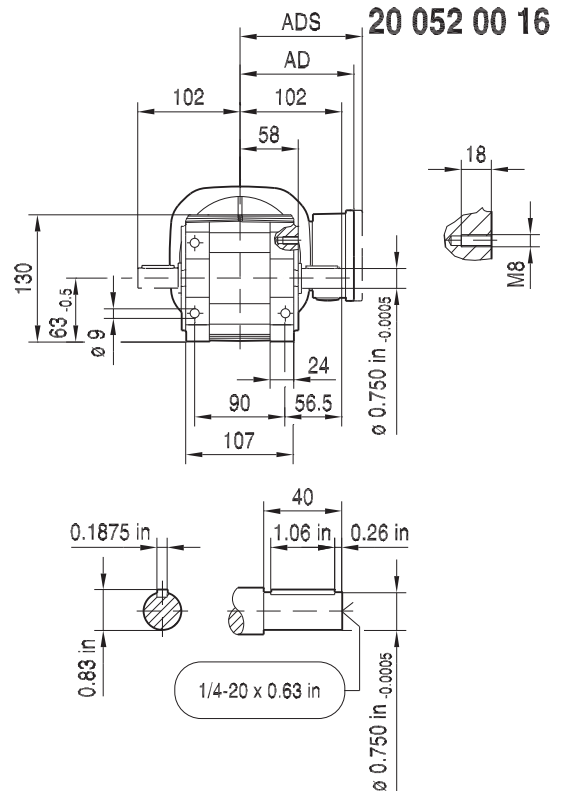
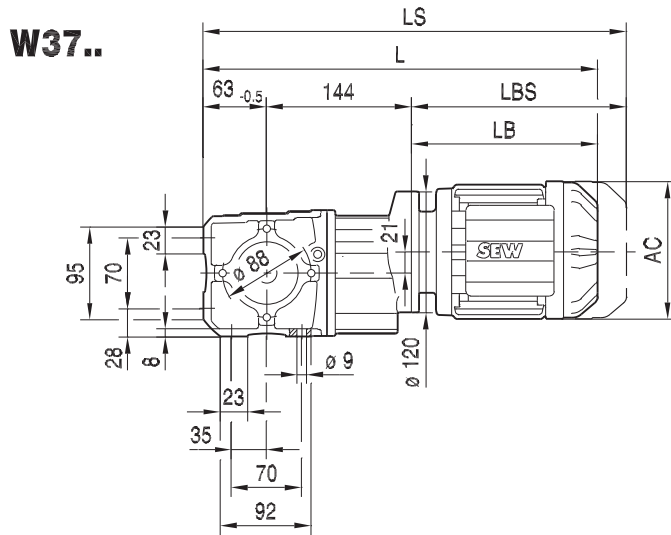


DRN80..

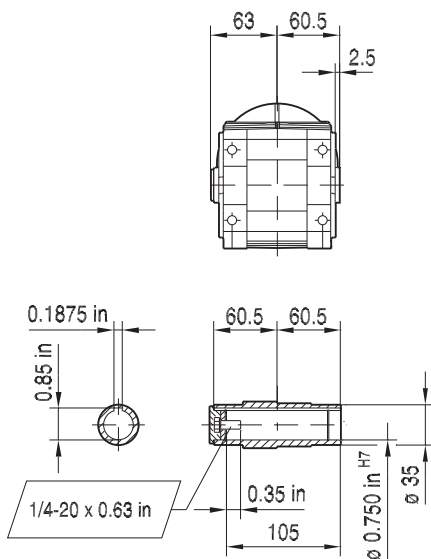


(→ 163)	DR63	DRS71S	DRS71M	DRN80M			
AC	132	139	139	156			
AD	105	119	119	128			
ADS	105	129	129	139			
L	324	335	360	410			
LS	379	403	428	491			
LB	149	160	185	235			
LBS	204	228	253	316			

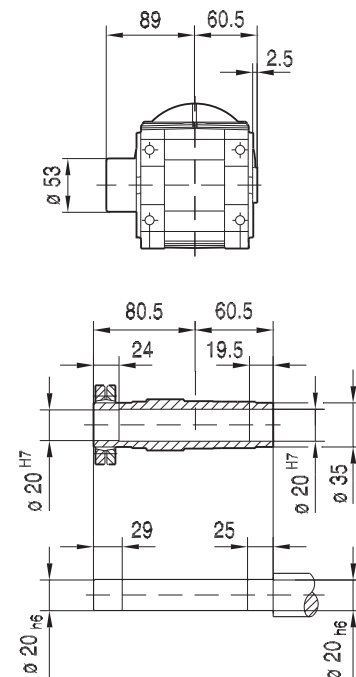
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.



WA37B..



WH37B..



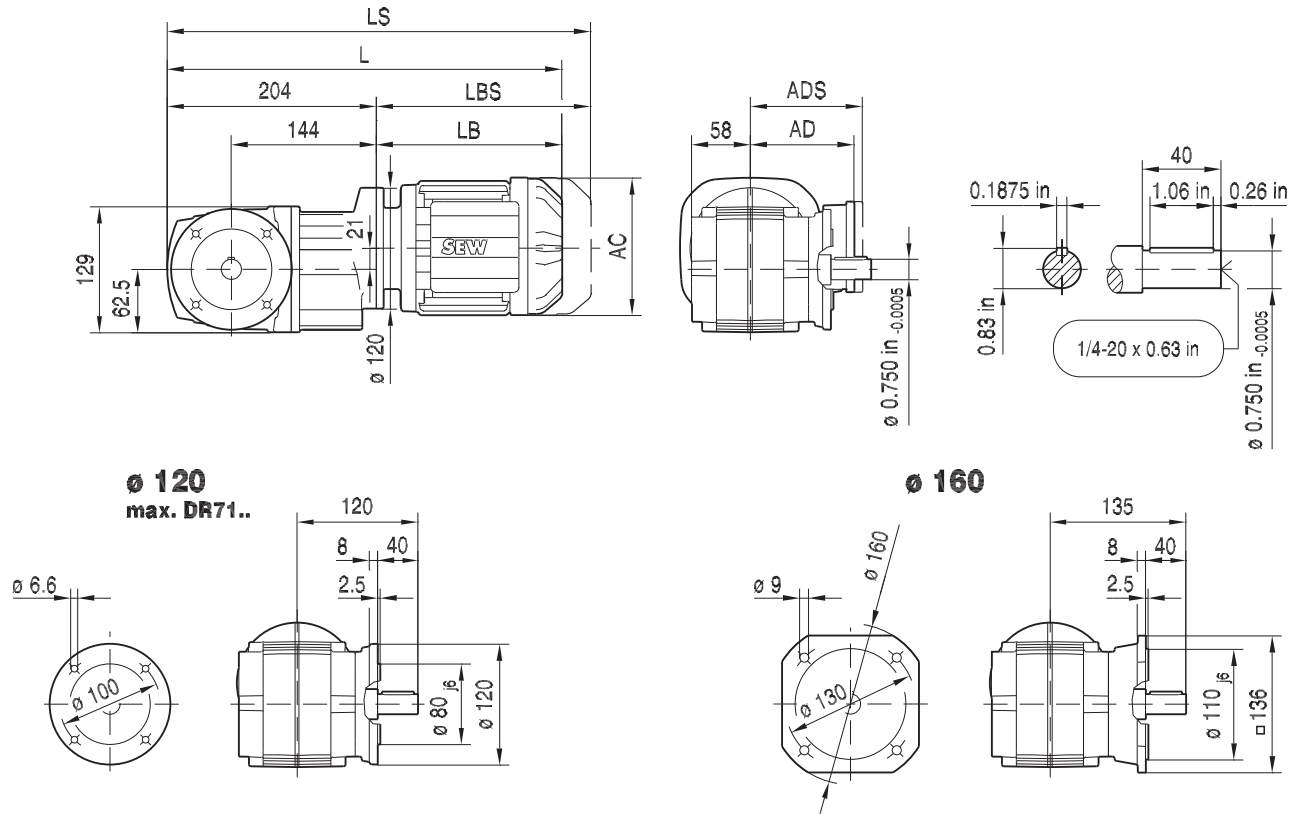
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	398	409	434	461	489	490	522
LS	453	477	502	542	570	584	616
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

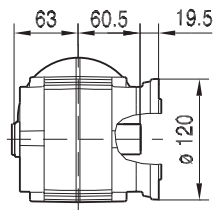
20 053 00 16

WF37..

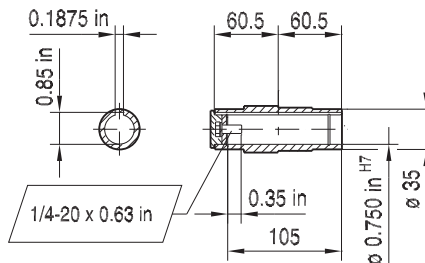
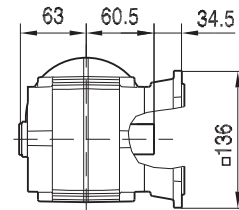


WAF37..

$\phi 120$
max. DR71..



$\phi 160$

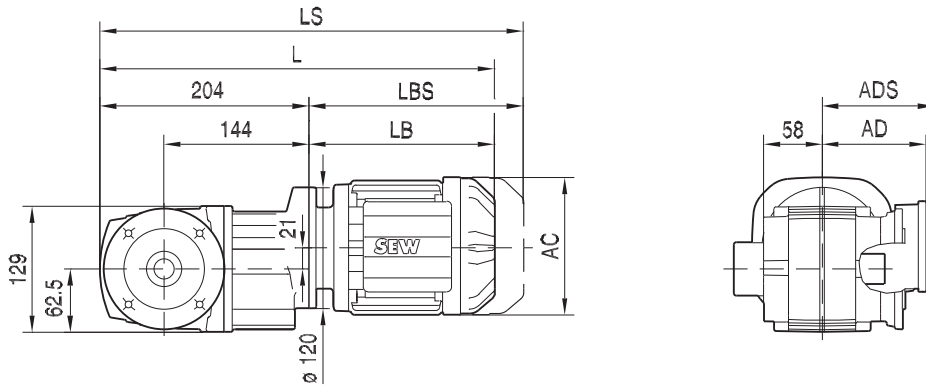


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	395	406	431	458	486	487	519
LS	450	474	499	539	567	581	613
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

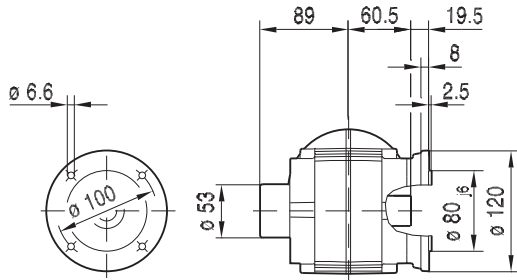
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

20 054 00 16

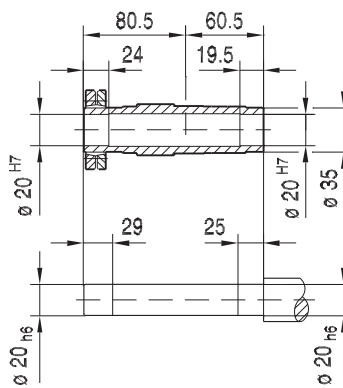
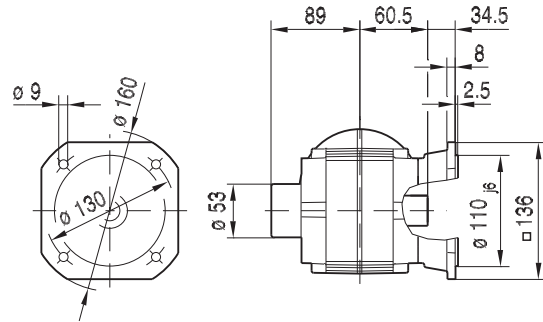
WHF37..



∅ 120
max. DR71..



∅ 160

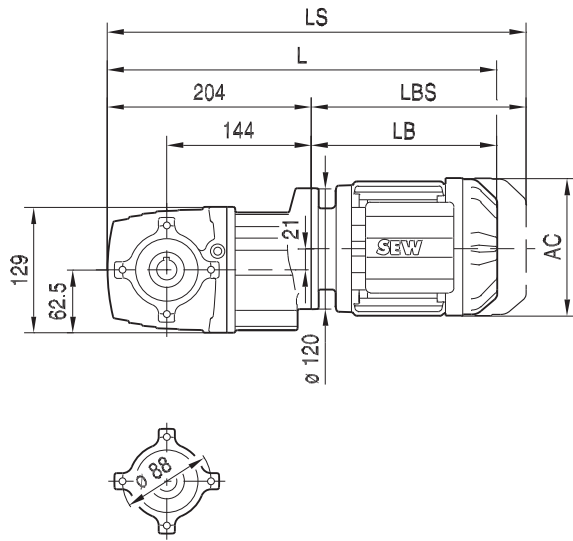


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	395	406	431	458	486	487	519
LS	450	474	499	539	567	581	613
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

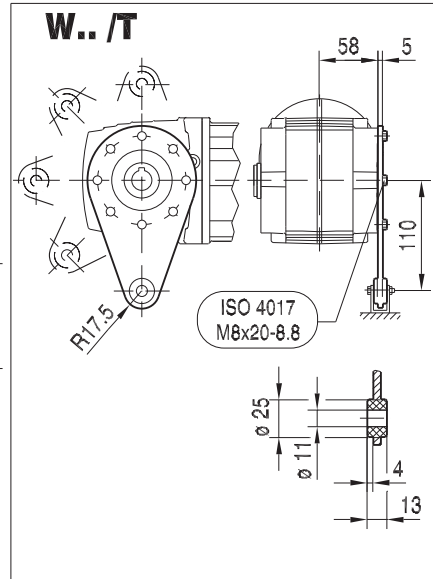
Dimensions in mm unless noted as inch. For tolerances, see page 163.

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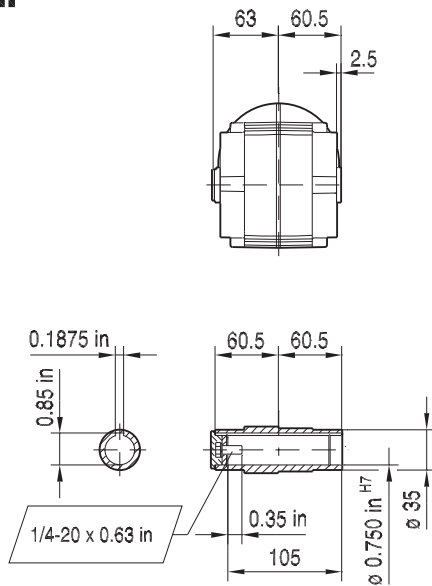
WA37..



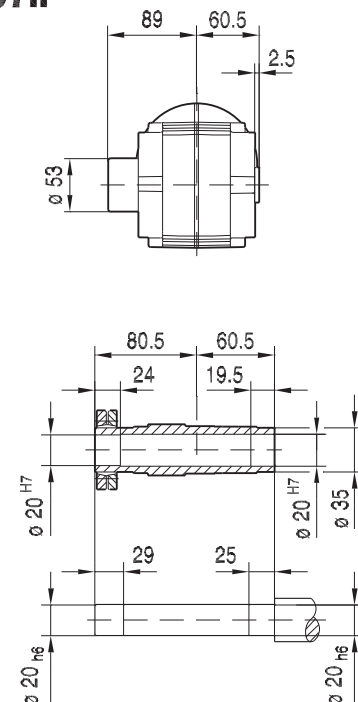
20 055 00 16



WA37..



WH37..

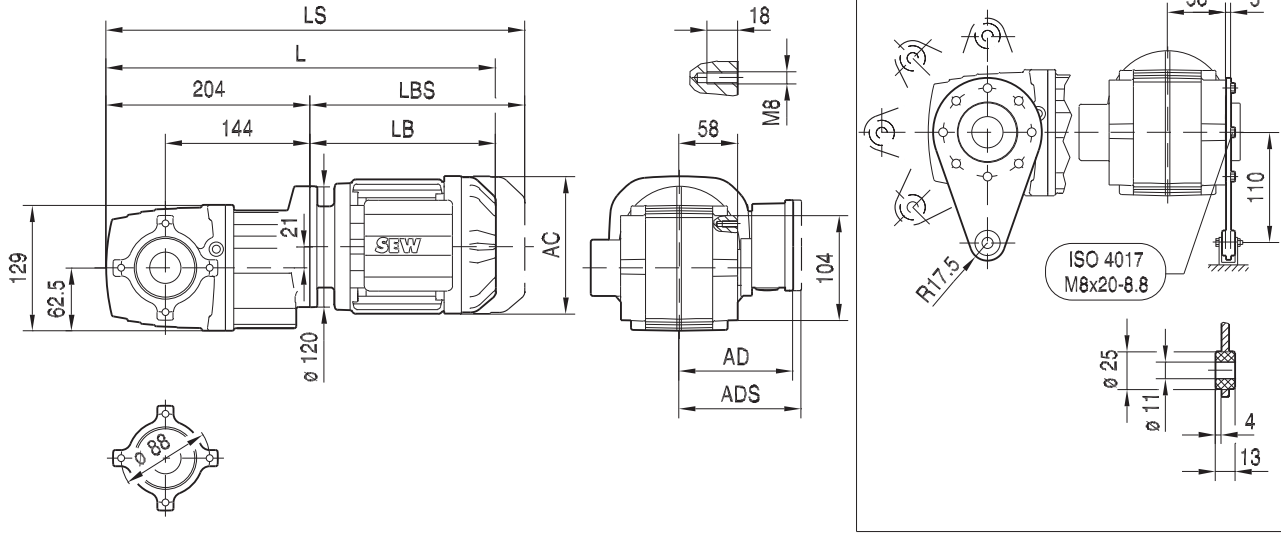


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	395	406	431	458	486	487	519
LS	450	474	499	539	567	581	613
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.

WT37..

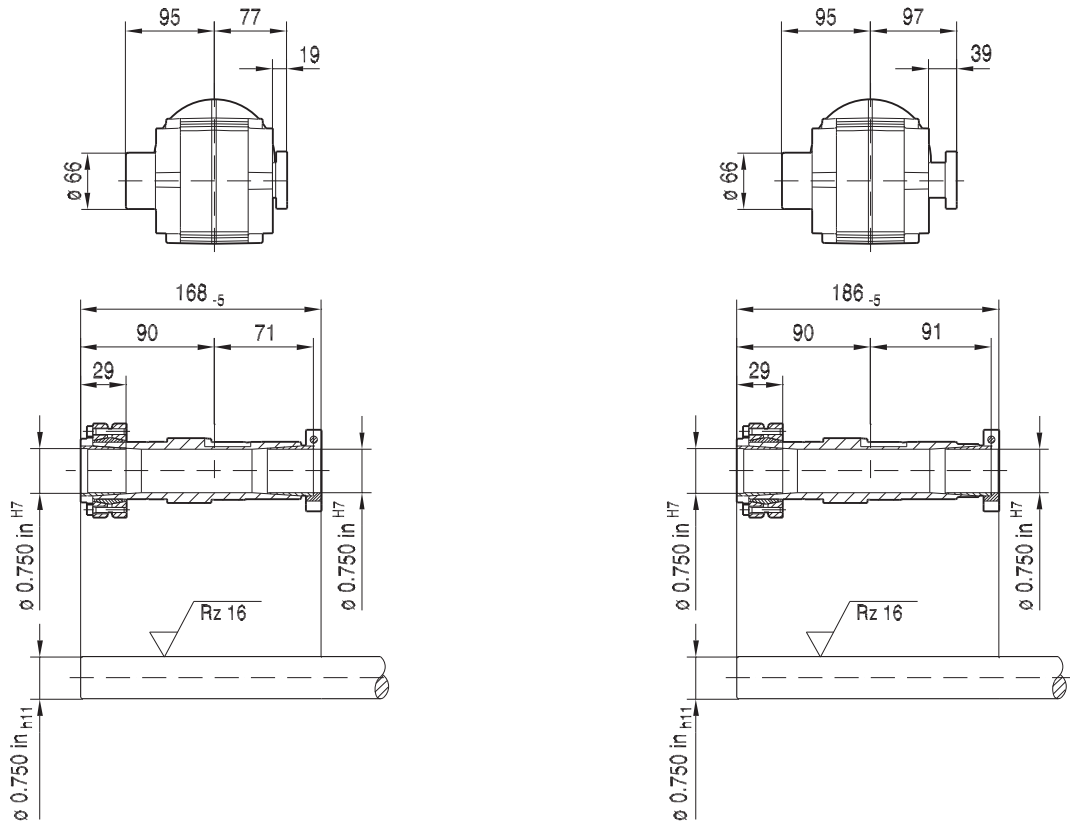
20 056 00 16



12

NON-Symmetrical

Symmetrical



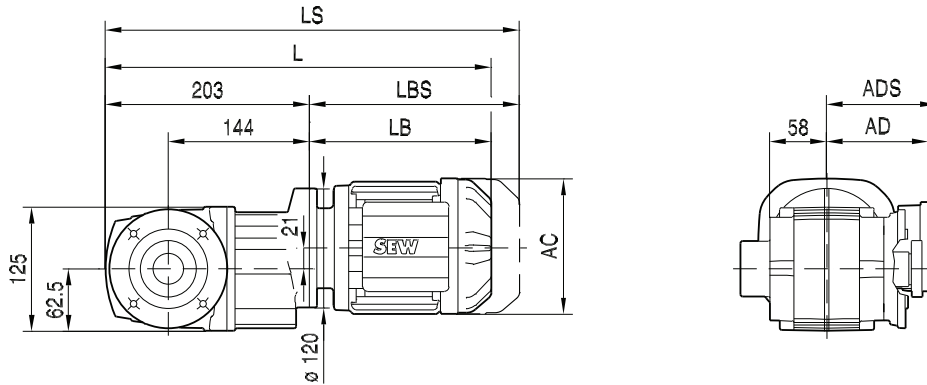
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	395	406	431	458	486	487	519
LS	450	474	499	539	567	581	613
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 887. For tolerances, see page 163.

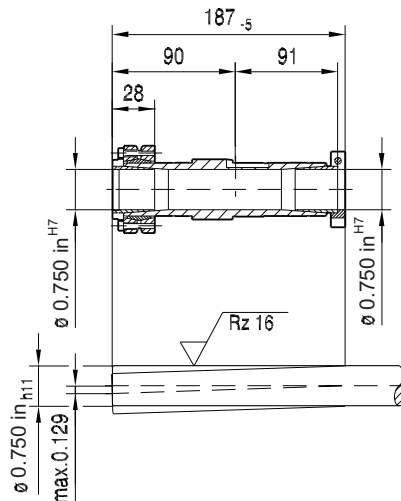
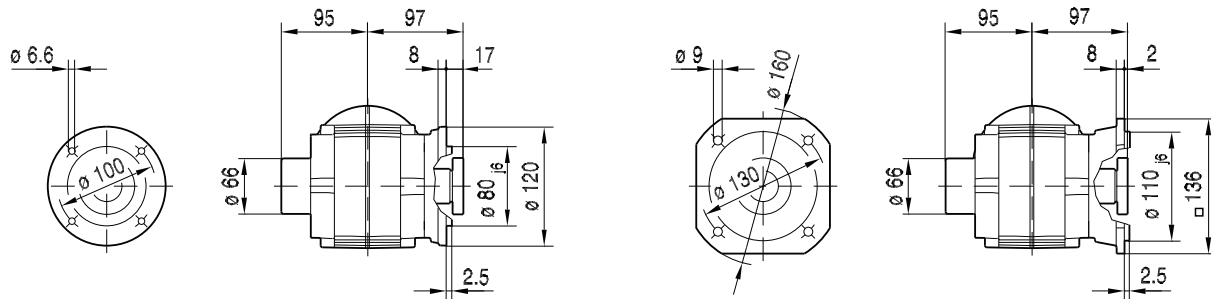
20 030 01 14 US

WTF37..



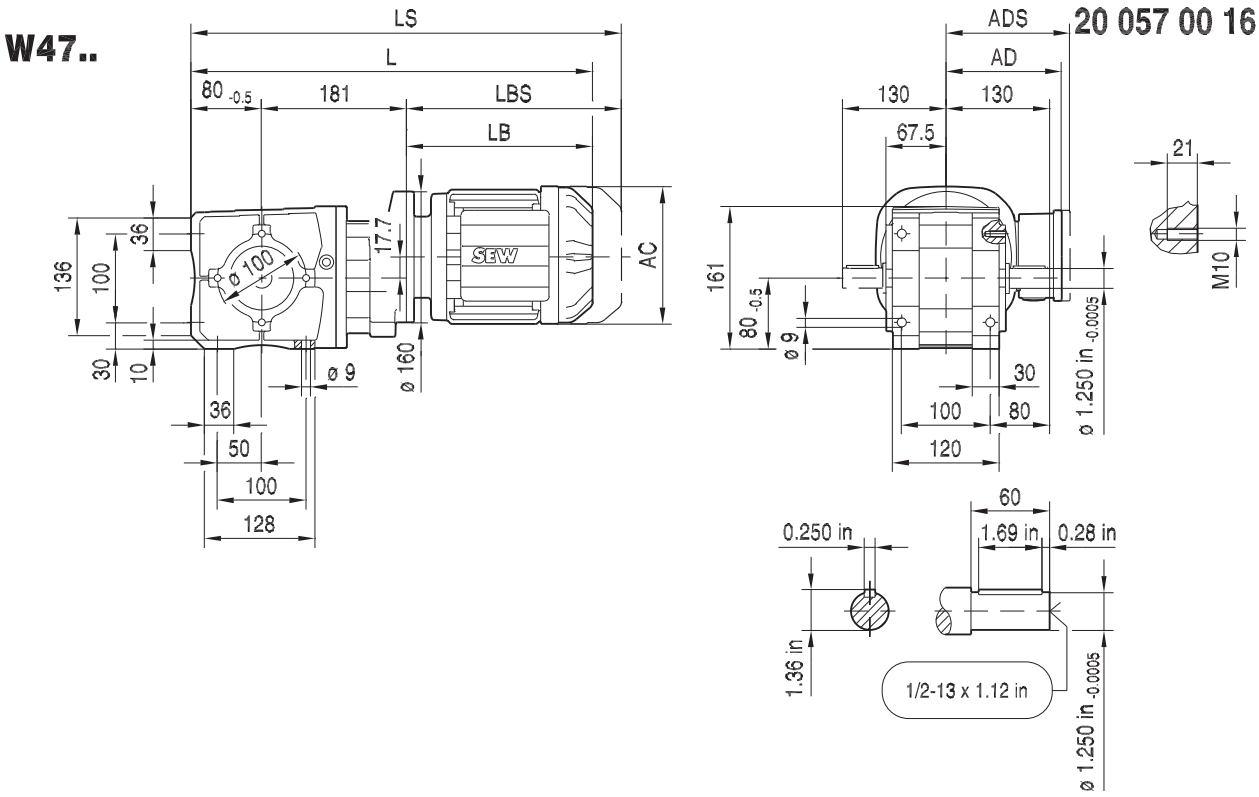
∅ 120
max. DR71..

∅ 160

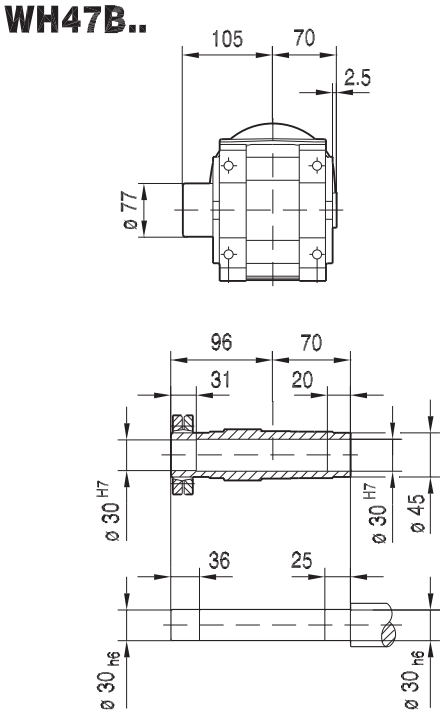
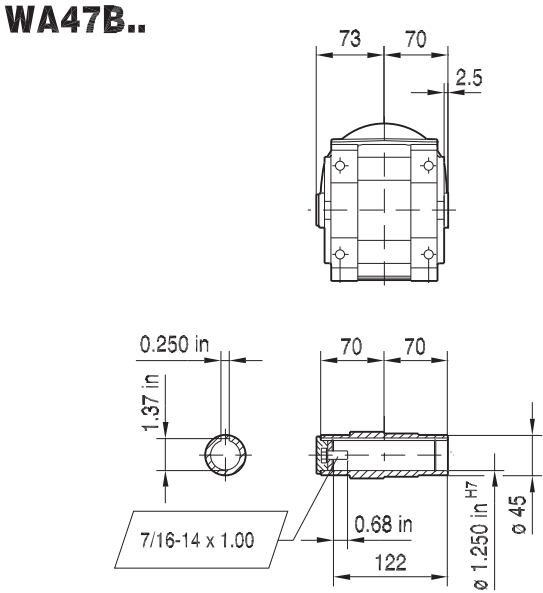


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L
AC	132	139	139	156	156	179	179
AD	105	119	119	128	128	140	140
ADS	105	129	129	139	139	150	150
L	395	406	431	458	486	487	519
LS	450	474	499	539	567	581	613
LB	191	202	227	254	282	283	315
LBS	246	270	295	335	363	377	409

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 887. For tolerances, see page 163.



12



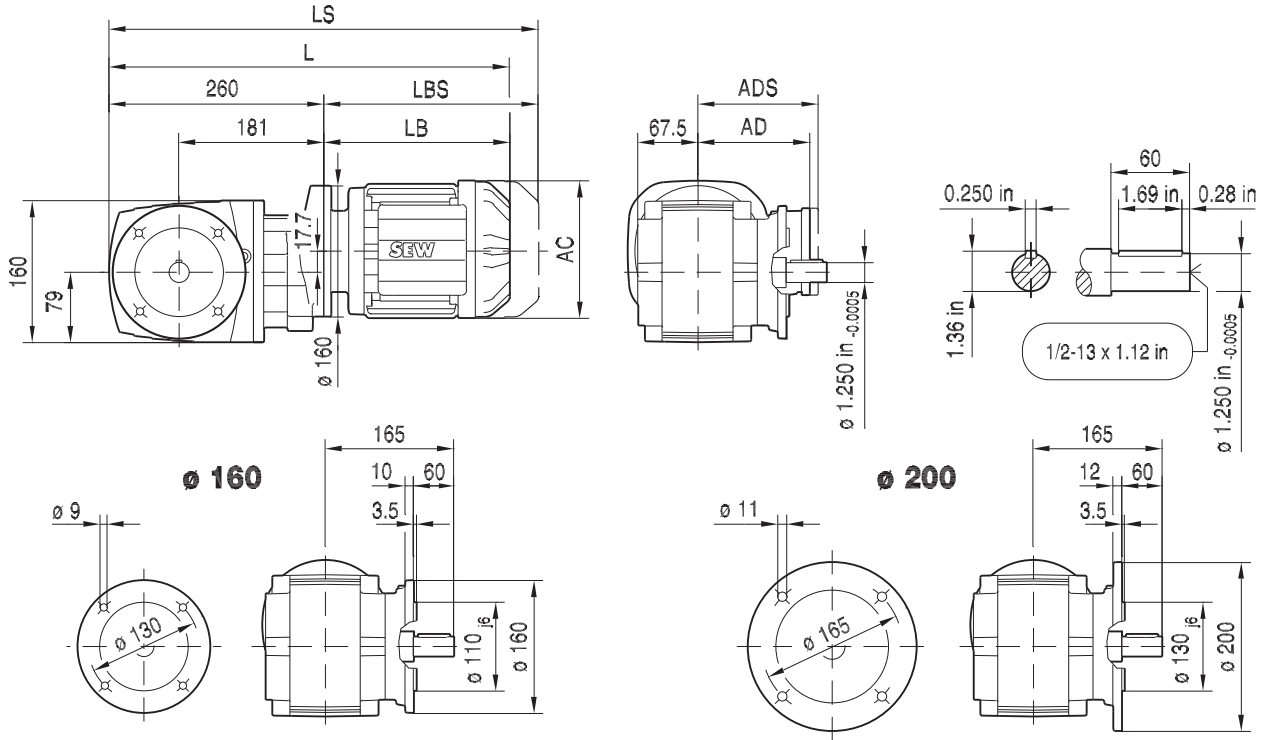
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(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	156	179	179	197	221
AD	105	119	119	128	128	140	140	157	170
ADS	105	129	129	139	139	150	150	158	172
L	446	457	482	508	536	538	570	616	647
LS	501	525	550	589	617	631	663	710	759
LB	185	196	221	247	275	277	309	355	386
LBS	240	264	289	328	356	370	402	449	498

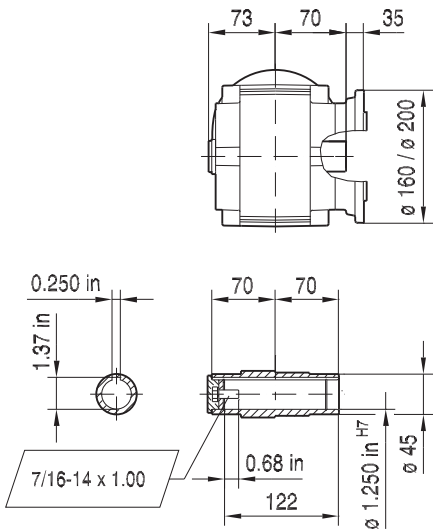
Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

20 058 00 16

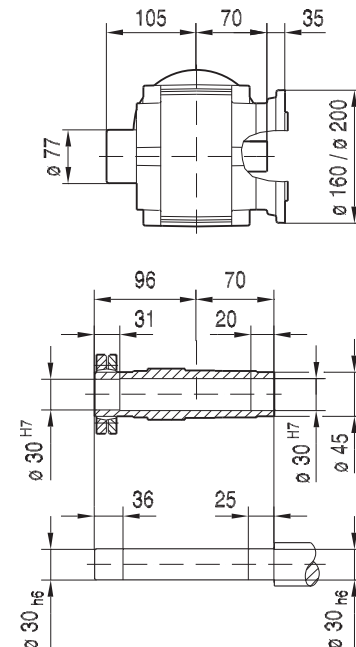
WF47..



WAF47..



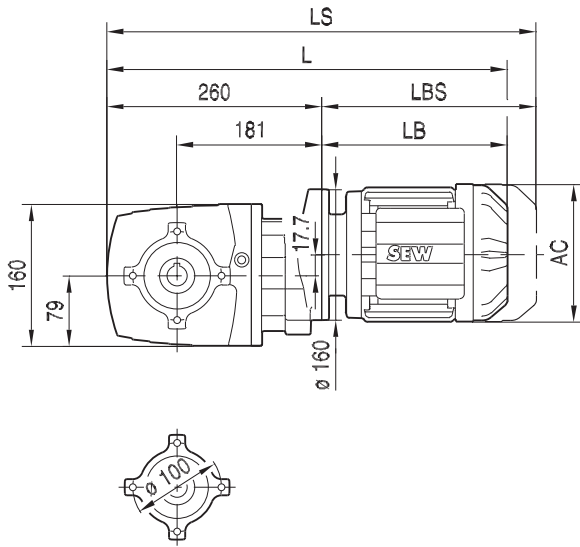
WHF47..



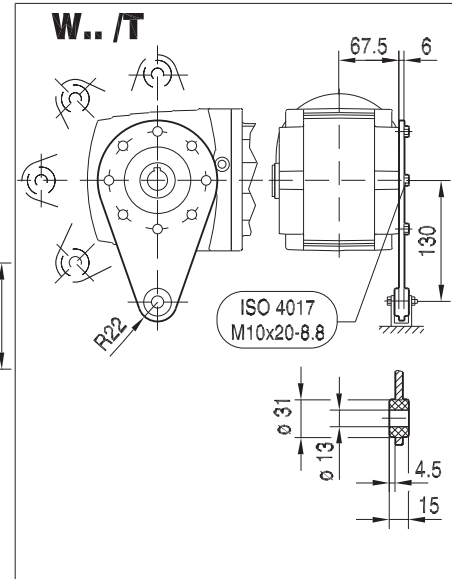
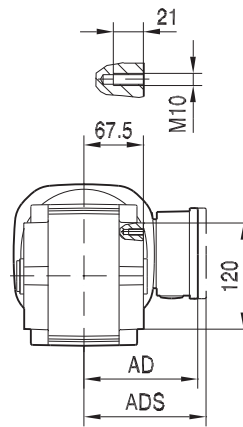
(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	156	179	179	197	221
AD	105	119	119	128	128	140	140	157	170
ADS	105	129	129	139	139	150	150	158	172
L	445	456	481	507	535	537	569	615	646
LS	500	524	549	588	616	630	662	709	758
LB	185	196	221	247	275	277	309	355	386
LBS	240	264	289	328	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 883. For tolerances, see page 163.

WA47..

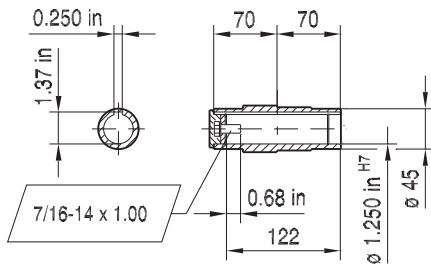
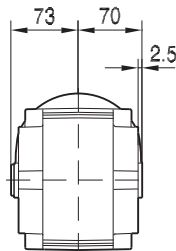


20 059 00 16

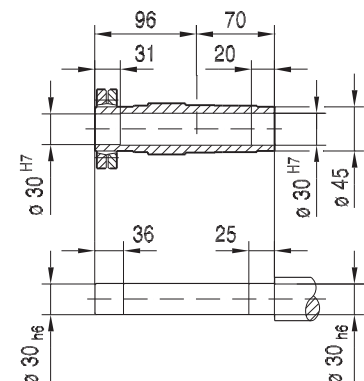
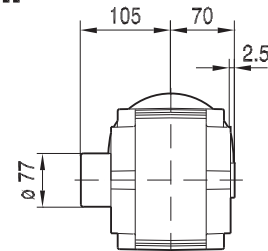


12

WA47..



WH47..



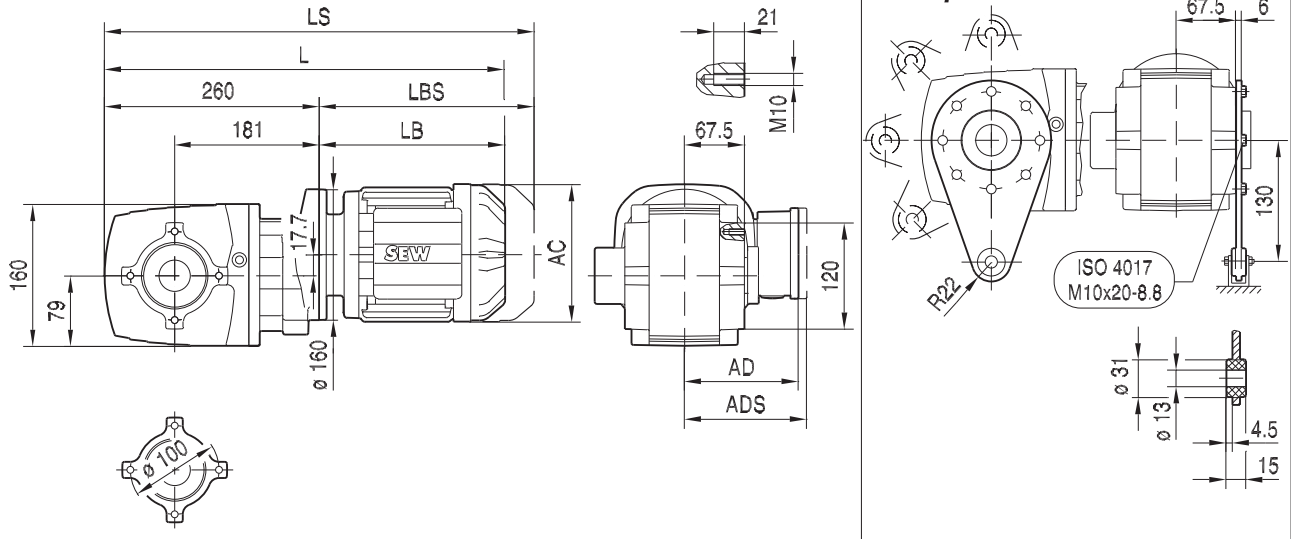
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	156	179	179	197	221
AD	105	119	119	128	128	140	140	157	170
ADS	105	129	129	139	139	150	150	158	172
L	445	456	481	507	535	537	569	615	646
LS	500	524	549	588	616	630	662	709	758
LB	185	196	221	247	275	277	309	355	386
LBS	240	264	289	328	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 885. For tolerances, see page 163.

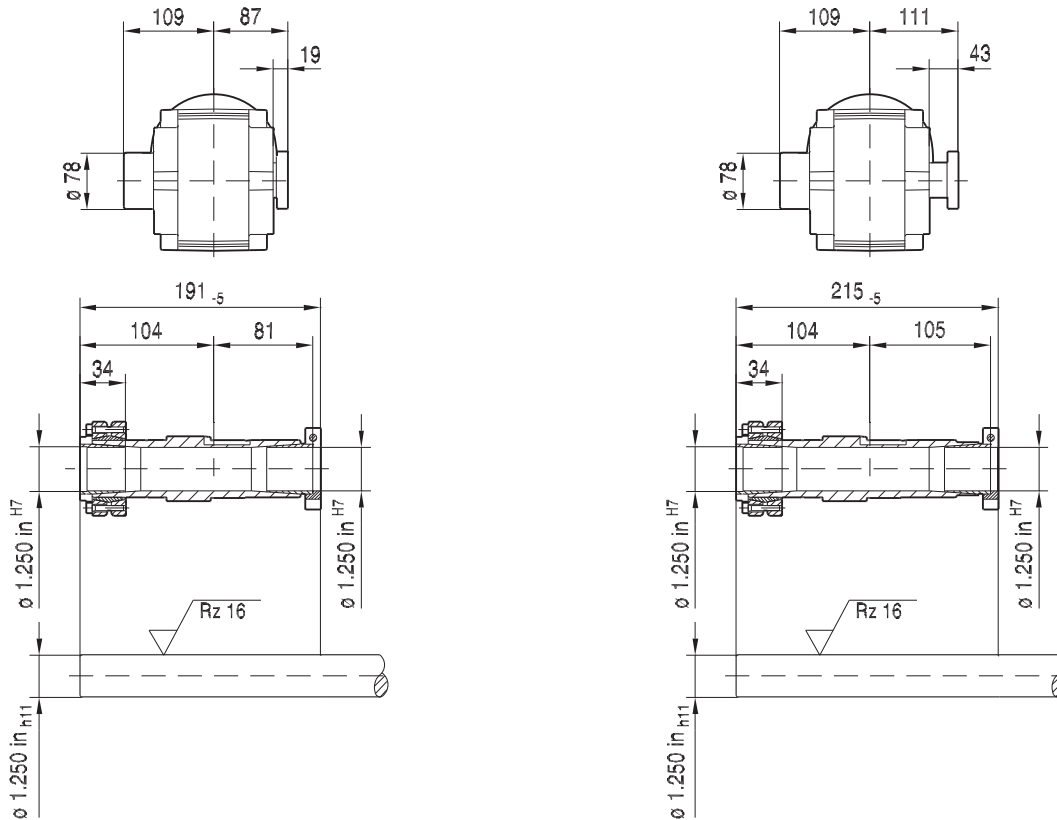
WT47..

20 060 00 16



NON-Symmetrical

Symmetrical

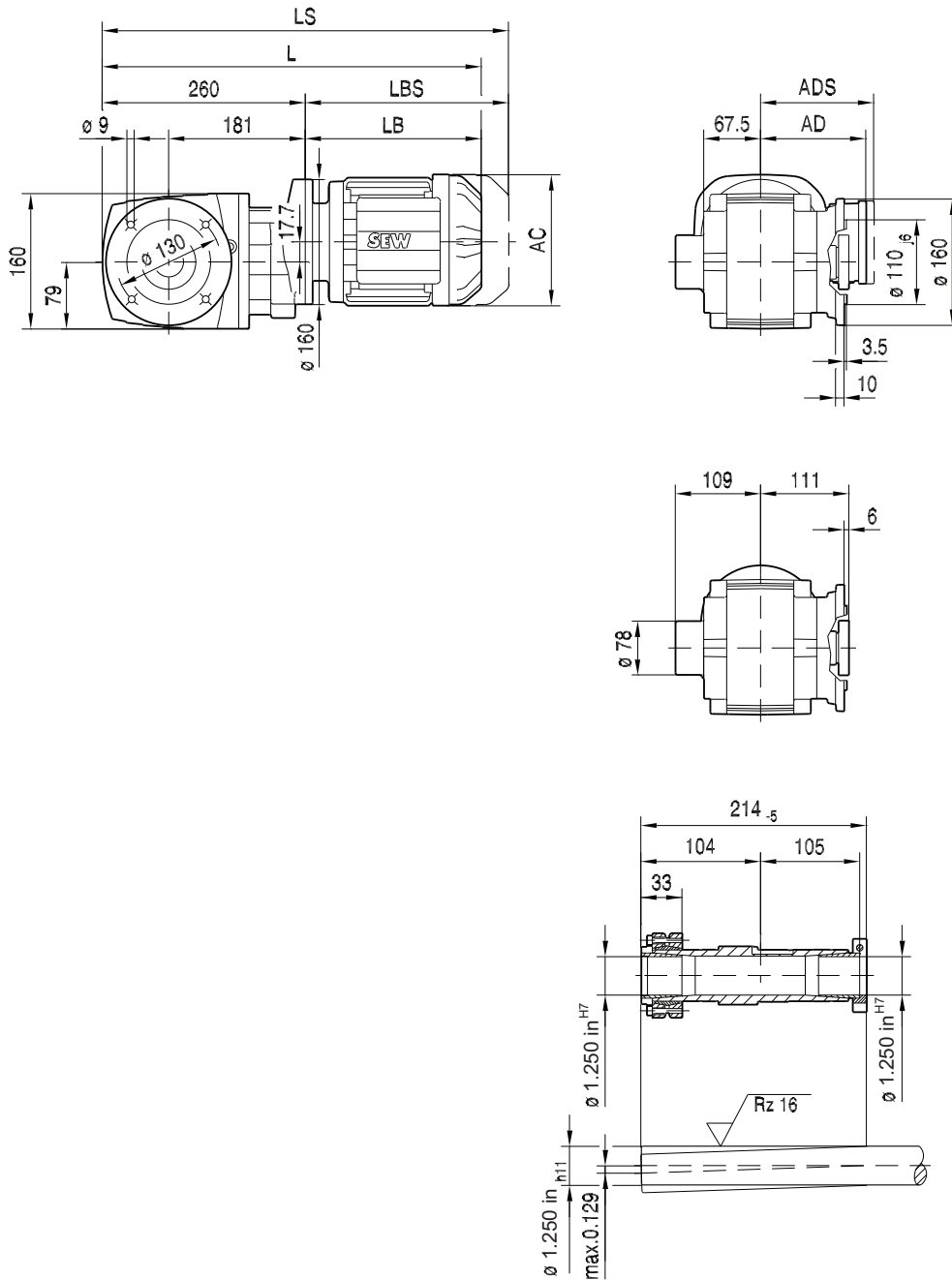


(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	156	179	179	197	221
AD	105	119	119	128	128	140	140	157	170
ADS	105	129	129	139	139	150	150	158	172
L	445	456	481	507	535	537	569	615	646
LS	500	524	549	588	616	630	662	709	758
LB	185	196	221	247	275	277	309	355	386
LBS	240	264	289	328	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 887. For tolerances, see page 163.

20 031 01 14 US

WTF47..



12

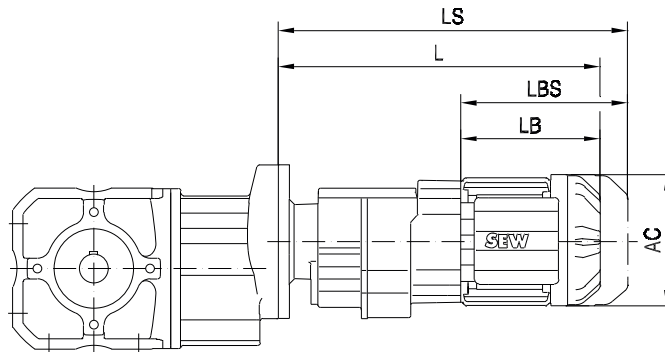
21933480/EN-US - 04/2018

(→ 163)	DR63	DRS71S	DRS71M	DRN80MS	DRN80M	DRN90S	DRN90L	DRN100L/LM	DRN112M
AC	132	139	139	156	156	179	179	197	221
AD	105	119	119	128	128	140	140	157	170
ADS	105	129	129	139	139	150	150	158	172
L	445	456	481	507	535	537	569	615	646
LS	500	524	549	588	616	630	662	709	758
LB	185	196	221	247	275	277	309	355	386
LBS	240	264	289	328	356	370	402	449	498

Dimensions in mm unless noted as inch. For all available output shaft diameters, see page 887. For tolerances, see page 163.

12.6 W.. R.. DRS/DRN.. Compound dimensions

20 018 00 09

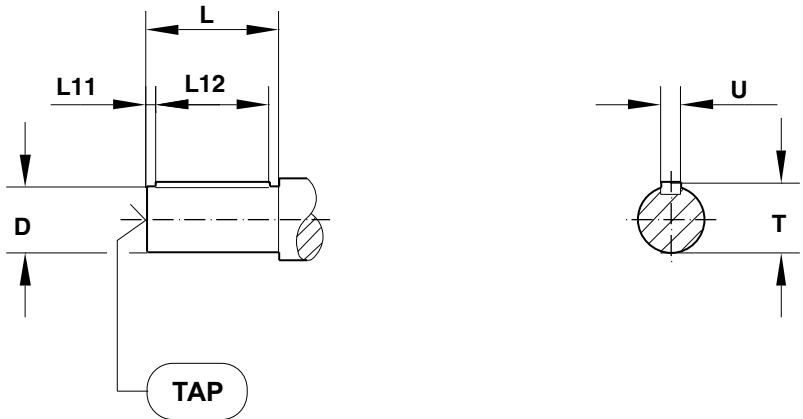


All dimensions shown in mm.

Gear	Motor	AC	L	LS	LB	LBS
W..37R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	253
W..47R17	DR63	132	324	379	149	204
	DRS71S	139	335	403	160	228
	DRS71M	139	360	428	185	253

12.7 Output shaft sizes

12.7.1 Solid Shafts – Inch

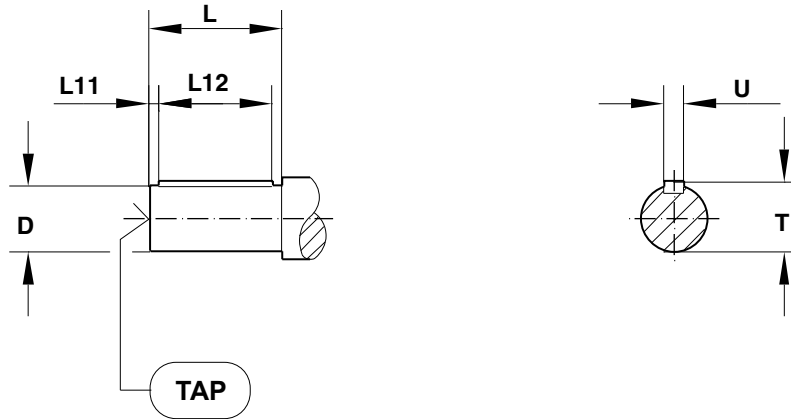


Model	All dimensions in inches						
	D	T	U	L ¹	L11	L12	TAP
W10	0.625	0.71	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W20	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W30	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W37	0.750	0.83	3/16	1.57	0.25	1-1/16	1/4 - 20 x 0.63
W47	1.250	1.36	1/4	2.36	0.26	1-11/16	1/2 - 13 x 1.12

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¹Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

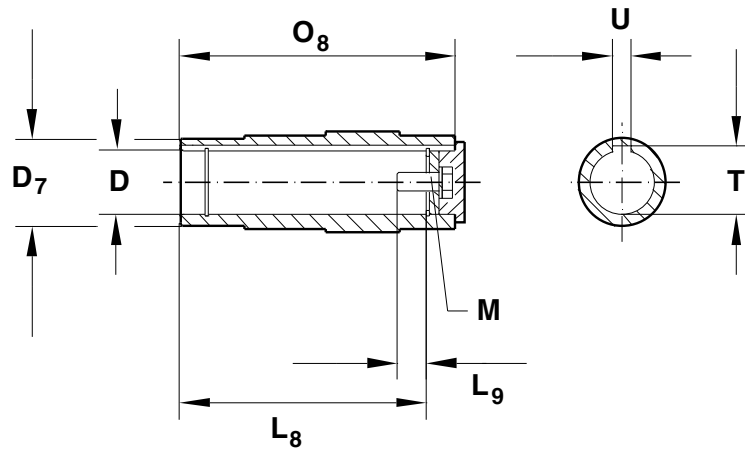
12.7.2 Solid Shafts – Metric



Model	All dimensions in mm						
	D	T	U	L ¹	L11	L12	TAP
W10	16	18	5	40	4	32	M5 x 12.5
W20	20	22.5	6	40	4	32	M6 x 16
W30	20	22.5	6	40	4	32	M6 x 16
W37	20	22.5	6	40	4	32	M6 x 16
W47	30	33	8	60	3.5	50	M10 x 22

¹Longer shafts to match obsolete gear unit designs (ie: SF60, SF62) are available for flanged units.

12.7.3 Hollow Shaft – Inch

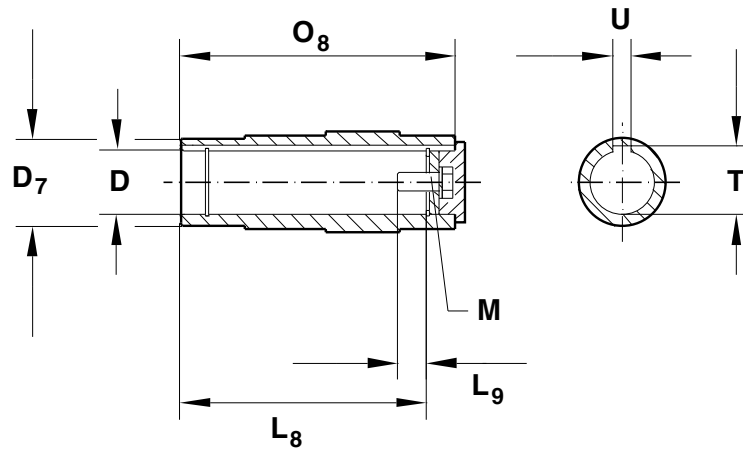


Note:

To aid in the future removal of your machine’s solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in inch							
	D	D7	O8	T	U	L8	L9	M
WA10	0.625	0.98	3.31	0.71	3/16	3.11	0.50	1/4 - 20 x 5/8
WA20	0.75	1.18	3.94	0.85	3/16	3.31	0.35	1/4 - 20 x 5/8
WA30	0.75	1.18	4.76	0.85	3/16	4.13	0.35	1/4 - 20 x 5/8
WA37	0.75	1.38	4.76	0.85	3/16	4.13	0.35	1/4 - 20 x 5/8
WA47	1.00	1.77	5.51	1.12	1/4	4.80	0.68	3/8 - 16 x 1
	1.25	1.77	5.51	1.37	1/4	4.80	0.68	7/16 - 14 x 1

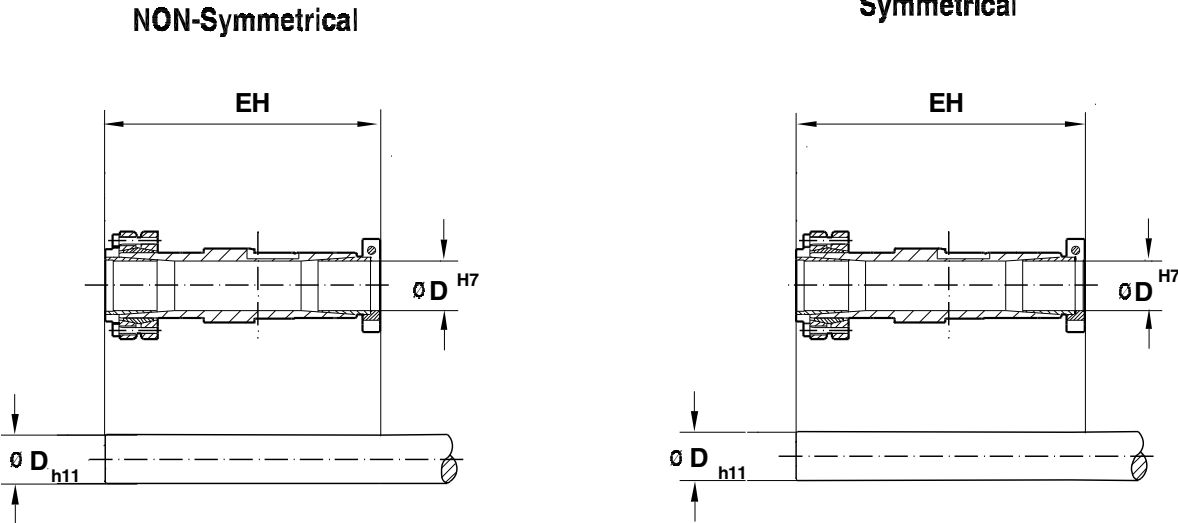
12.7.4 Hollow Shaft – Metric

**Note:**

To aid in the future removal of your machine's solid shaft from a hollow shaft gear unit, please see SEW-EURODRIVE design recommendations on page 121.

Model	All dimensions in mm							
	D	D7	O8	T	U	L8	L9	M
WA10	14	25	84	16.3	5	69	10	M5 x 16
	16	25	84	18.3	5	69	8	M5 x 12
WA20	18	30	100	20.8	6	84	9	M6 x 16
	20	30	100	22.8	6	84	8	M6 x 16
WA30	20	30	121	22.8	6	105	8	M6 x 16
WA37	20	35	121	22.8	6	105	8	M6 x 16
	25	35	121	27	8	105	17	M10 x 25
WA47	30	45	140	33.3	8	122	17	M10 x 25

12.7.5 TorqLOC® keyless hollow shaft



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Model	D (in)						D (mm)			EH (in)	
	Inch Bores						Metric Bores			NON-Symmetrical	Symmetrical
WT37	0.625	0.6875	0.750	-	-	20	-	-	6.54	7.33	
WT47	1.00	1.1875	1.25	-	-	25	30	-	6.69	7.63	

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13 Motor and brake data – 60Hz

13.1 Symbols used in motor data tables

The following table lists the symbols used in the motor tables.

BE..	Brake size used
$\cos\varphi$	Power factor
NEMA Code Letter	NEMA designation of locked rotor amps per HP
h^{-1}	Per hour
J_{Mot}	Mass moment of inertia of the motor without brake
J_{BMot}	Mass moment of inertia of the brakemotor
J_Z	Mass moment of inertia for cast iron fan (flywheel)
m_{Mot}	Mass of the motor without brake
m_{BMot}	Mass of the brakemotor
n_N	Rated speed
$\eta_{50\%}$	Efficiency at 50% of the rated power
$\eta_{75\%}$	Efficiency at 75% of the rated power
$\eta_{100\%}$	Efficiency at 100% of the rated power
I_N	Rated current
I_A/I_N	Starting current ratio
P_N	Rated power
T_B	Braking torque
T_N	Rated torque of motor
T_A/T_N	Starting torque ratio
T_H/T_N	Ramp-up torque ratio
T_K/T_N	Breakdown torque ratio
Z_0 BG	Switching frequency (per hour) for operation with BG brake control
Z_0 BGE	Switching frequency (per hour) for operation with BGE brake control

13.2 3600 rpm

13.2.1 Technical data – 2 pole

Motor	P _N		T _N lb-in	n _N rpm	I _N 230V A	I _N 460V A	I _N 575V A	cosφ	η _{50%} %	η _{75%} %	η _{100%} %	I _A /I _N
	kW	HP										
DR63S2	0.18	0.25	4.58	3320	0.78	0.39	0.31	0.88	-	-	-	4.6
DR63M2	0.25	0.33	6.48	3260	1.13	0.57	0.45	0.86	-	-	-	3.5
DR63L2	0.37	0.50	9.65	3250	1.60	0.8	0.64	0.87	-	-	-	3.8
DRS71S2	0.18	0.25	4.6	3300	0.96	0.48	0.38	0.90	-	-	-	3.2
DRS71S2	0.25	0.33	6.4	3300	1.32	0.66	0.53	0.90	-	-	-	3.2
DRS71S2	0.37	0.50	9.5	3300	1.9	1.15	0.76	0.89	-	-	-	3.2
DRS71M2	0.55	0.75	13.6	3420	2.2	1.33	0.88	0.83	73.5	76.3	75.5	5.8
DRN80MS2	0.75	1	18.2	3476	2.8	1.39	1.11	0.82	79.7	84.8	82.5	7.4
DRN80M2	1.1	1.5	26.5	3485	3.85	1.94	1.55	0.83	82.3	84.1	84.0	8.2
DRN90S2	1.5	2	36	3505	5.3	2.65	2.15	0.81	83.7	85.6	85.5	8.3
DRN90L2	2.2	3	53	3525	7.4	3.7	2.95	0.85	84.7	86.4	86.5	9.8
DRN100LM2	3	4	72	3517	10.2	5.1	4.05	0.83	88.0	89.1	88.5	10.2
DRN100L2	3.7	5	89	3508	11.6	5.8	4.65	0.88	88.6	89.1	88.5	11.0
DRN112M2	4	5.4	95	3552	13	6.5	5.2	0.86	87.4	88.6	88.5	10.1
DRN132S2	5.5	7.5	131	3544	16.4	8.2	6.6	0.92	89.0	89.7	89.5	11.0
DRN132S2	7.5	10	179	3545	24.5	12.2	9.7	0.85	89.6	90.4	90.2	9.3

13.2.2 Additional data – 2 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot}	J _{Mot}	J _Z	BE..	Z ₀ BG BGE	T _B	m _{BMot}	J _{BMot}
	kW	HP											
DR63S2	0.18	0.25	2.4 2.2	2.3	G	14	0.0085	-	BR03	4000 -	14	18	0.0114
DR63M2	0.25	0.33	2.2 1.9	2.0	E	14	0.0085	-	BR03	3600 -	21	18	0.0114
DR63L2	0.37	0.50	2.1 1.9	2.0	E	15	0.0104	-	BR03	3200 -	28	19	0.0133
DRS71S2	0.18	0.25	2.2 1.9	2.0	E	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71S2	0.25	0.33	2.2 1.9	2.0	F	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71S2	0.37	0.50	2.2 1.9	2.0	E	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71M2	0.55	0.75	3.1 1.9	2.5	H	20	0.0171	-	BE05	2000 3300	31	25	0.0153
DRN80MS2	0.75	1	3.2 2.9	3.4	K	25	0.044	0.090	BE05	960 2720	44.5	33	0.0476
DRN80M2	1.1	1.5	3.7 3.0	3.6	K	31	0.0573	0.090	BE1	800 2080	62	39	0.0608
DRN90S2	1.5	2	3.3 2.7	3.5	K	43	0.126	0.237	BE1	480 1040	89	50	0.13
DRN90L2	2.2	3	3.1 2.1	3.5	L	50	0.157	0.237	BE2	- 800	124	60	0.169
DRN100LM2	3	4	3.8 2.8	4.2	M	72	0.213	0.347	BE2	- 600	177	82	0.224
DRN100L2	3.7	5	4.2 3.4	4.1	M	75	0.263	0.347	BE2	- 600	177	85	0.274
DRN112M2	4	5.4	3.1 1.4	4.1	L	98	0.422	0.467	BE5	- 320	250	115	0.433
DRN132S2	5.5	7.5	3.3 2.1	4.2	L	125	0.571	0.467	BE5	- 240	355	140	0.583
DRN132S2	7.5	10	3.6 2.4	4.6	L	125	0.571	0.467	BE5	- 240	485	140	0.583

13.3 1800 rpm

13.3.1 0.25 to 125 HP Technical data – 4 pole

Motor	P _N		T _N	n _N	TEFC Speed Range ¹⁾	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
DR63S4	0.12	0.16	6.04	1680	300-1800	0.68	0.34	0.27	0.69	-	-	-	3.6
DR63M4	0.18	0.25	9.38	1620	300-1800	0.96	0.48	0.39	0.78	-	-	-	3.2
DR63L4	0.25	0.33	13.2	1600	300-1800	1.19	0.60	0.48	0.81	-	-	-	3.1
DRS71S4	0.18	0.25	8.94	1710	300-1800	0.88	0.44	0.35	0.70	69.0	73.0	74.0	4.8
DRS71S4	0.25	0.33	12	1700	300-1800	1.14	0.57	0.46	0.74	69.9	74.4	75.3	4.6
DRS71S4	0.37	0.50	18.4	1700	300-1800	1.84	0.92	0.74	0.69	66.6	71.3	72.3	4.2
DRS71M4	0.55	0.75	27.5	1690	300-1800	2.5	1.25	1	0.71	73.5	76.0	75.4	4.3
DRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
DRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
DRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
DRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
DRN100L4 ²⁾	2.2	3	105	1765	550-1800	8.3	4.15	3.35	0.74	87.5	89.2	89.5	9.4
DRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
DRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
DRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
DRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
DRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
DRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
DRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
DRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
DRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
DRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
DRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
DRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
DRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
DRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
DRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
DRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan

2) Replaced by DRN100LM4

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13.3.2 0.25 to 125 HP Additional data – 4 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot}	J _{Mot}	J _Z	BE..	Z ₀ BG BGE	T _B	m _{BMot}	J _{BMot}
	kW	HP											
DR63S4	0.12	0.16	2.4 2.2	2.4	G	13	0.0085	-	BR03	8000	21	17	0.0114
DR63M4	0.18	0.25	1.8 1.7	1.8	E	13	0.0085	-	BR03	8000	28	17	0.0114
DR63L4	0.25	0.33	1.8 1.7	1.8	D	15	0.0104	-	BR03	8000	28	18	0.0133
DRS71S4	0.18	0.25	2.5 2.3	2.6	H	17	0.0122	-	BE05	4800 7600	40	22	0.0153
DRS71S4	0.25	0.33	1.9 1.9	2.5	H	17	0.0122	-	BE05	4800 7600	40	22	0.0153
DRS71S4	0.37	0.50	1.9 1.9	2.5	G	17	0.0122	-	BE05	4800 7600	44.5	23	0.0153
DRS71M4	0.55	0.75	2.2 2.1	2.4	G	20	0.0171	-	BE1	3300 8800	89	26	0.0202
DRN80M4	0.75	1	3.7 3.0	4.2	M	31	0.0587	0.090	BE1	2600 6600	89	39	0.0622
DRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	0.237	BE2	1800 4800	124	53	0.139
DRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	0.237	BE2	1800 4700	177	60	0.171
DRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	0.347	BE5	- 3700	250	85	0.229
DRN100L4	2.2	3	3.7 2.2	4.2	M	75	0.265	0.347	BE5	1400 3700	250	88	0.279
DRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	0.467	BE5	- 2300	485	115	0.433
DRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	0.467	BE11	- 1700	710	155	0.596
DRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	1.115	BE11	- 900	970	200	0.956
DRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	1.115	BE11	- 780	970	220	1.09
DRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	-	BE20	- 720	1330	325	2.08
DRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	-	BE20	- 640	1770	360	2.61
DRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	-	BE20	- 400	1770	415	4.02
DRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	-	BE30	- 380	2650	470	4.95
DRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	-	BE32	- 400	3550	740	6.86
DRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	-	BE32	- 180	3550	800	10.9
DRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	-	BE32	- 160	4450	800	10.9
DRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	-	BE60	- 120	5300	1300	22
DRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	-	BE62	- 120	8900	1330	22.6
DRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	-	BE62	- 63	8900	1580	29.9

13.3.3 150 to 300 HP Technical data – 4 pole

460V:

Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
DRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
DRN315ME4	132	175	460V	6200	1791	350-1800	205	0.86	95.4	96.0	96.2	8.3
DRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
DRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
DRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
DRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	8.1
DRN315H4	225	300	460V	10600	1790	350-1800	345	0.85	95.4	96.1	96.2	7.3

1) T_N = constant, using standard fan

575V:

Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
DRN315L4	150	200	575V	7100	1788	350-1800	180	0.88	95.4	96.1	96.2	7.3
DRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	6.7

1) T_N = constant, using standard fan

13.3.4 150 to 300 HP Additional data – 4 pole

460V:

Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DRN315S4	110	150	460V	3.3 2.5	3.5	H	1910	55.6	BE122	42	10600	2210	58
DRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE122	33	14200	2480	69.7
DRN315L4	150	200	460V	3.4 2.7	3.8	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315L4	-	225	460V	3.2 2.6	3.6	G	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	225	300	460V	3.7 2.8	3.8	H	2510	83.5	BE122	18	17700	2800	85.9

575V:

Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DRN315L4	150	200	575V	3.1 2.5	3.5	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	200	275	575V	3.3 2.5	3.3	J	2510	83.5	BE122	18	17700	2800	85.9

13.4 1800 rpm – HazLoc-NA®

13.4.1 0.25 to 125 HP Technical data – 4 pole

HazLoc-NA® Motor	P _N		T _N	n _N	TEFC Speed Range ¹⁾	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
EDRS71S4	0.18	0.25	8.94	1710	300-1800	0.88	.44	0.35	0.70	69.0	73.0	74.0	4.8
EDRS71S4	0.25	0.33	12	1700	300-1800	1.14	0.57	0.46	0.74	69.9	74.4	75.3	4.6
EDRS71S4	0.37	0.50	18.4	1700	300-1800	1.84	0.92	0.74	0.69	66.6	71.3	72.3	4.2
EDRS71M4	0.55	0.75	27.5	1690	300-1800	2.5	1.25	1	0.71	73.5	76.0	75.4	4.3
EDRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
EDRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
EDRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
EDRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
EDRN100L4 ²⁾	2.2	3	105	1765	550-1800	8.3	4.15	3.35	0.74	87.5	89.2	89.5	9.4
EDRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
EDRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
EDRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
EDRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
EDRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
EDRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
EDRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
EDRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
EDRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
EDRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
EDRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
EDRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
EDRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
EDRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
EDRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
EDRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan

2) Replaced by EDRN100LM4

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13.4.2 0.25 to 125 HP Additional data – HazLoc-NA® 4 pole

HazLoc-NA® Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP										
EDRS71S4	0.18	0.25	2.5 2.3	2.6	H	17	0.0122	BE05	1500	40	23	0.0153
EDRS71S4	0.25	0.33	1.9 1.9	2.5	H	17	0.0122	BE05	1500	40	23	0.0153
EDRS71S4	0.37	0.50	1.9 1.9	2.5	G	17	0.0122	BE05	1500	44.5	23	0.0153
EDRS71M4	0.55	0.75	2.2 2.1	2.4	G	20	0.0171	BE1	1500	89	26	0.0202
EDRN80M4	0.75	1	3.7 3.0	4.2	M	31	0.0587	BE1	1060	89	39	0.0622
EDRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	BE2	770	124	53	0.139
EDRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	BE2	750	177	60	0.171
EDRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	BE5	590	250	85	0.229
EDRN100L4	2.2	3	3.7 2.2	4.2	M	75	0.265	BE5	590	250	88	0.279
EDRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	BE5	370	485	115	0.433
EDRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	BE11	270	710	155	0.596
EDRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	BE11	140	970	200	0.956
EDRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	BE11	120	970	220	1.09
EDRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	BE20	120	1330	325	2.08
EDRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	BE20	100	1770	360	2.61
EDRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	BE20	60	1770	415	4.02
EDRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	BE30	60	2650	470	4.95
EDRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	BE32	60	3550	740	6.86
EDRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	BE32	30	3550	800	10.9
EDRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	BE32	25	4450	800	10.9
EDRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	BE60	20	5300	1300	22
EDRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	BE120	20	7100	1330	22.6
EDRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	BE120	10	8900	1580	29.9

13.4.3 150 to 275 HP Technical data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
EDRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
EDRN315ME4	132	175	460V	6200	1791	350-1800	200	0.86	95.4	96.0	96.2	8.3
EDRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
EDRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
EDRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
EDRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	9.4

1) T_N = constant, using standard fan

575V:

HazLoc-NA® Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
EDRN315S4	110	150	575V	5200	1788	350-1800	130	0.88	95.3	95.8	95.8	6.6
EDRN315ME4	132	175	575V	6200	1791	350-1800	159	0.86	95.1	96.0	96.2	8.3
EDRN315L4	150	200	575V	7100	1789	350-1800	179	0.87	95.4	96.1	96.2	7.9
EDRN315L4	-	225	575V	7900	1789	350-1800	189	0.87	95.6	96.2	96.2	7.5
EDRN315H4	185	250	575V	8800	1790	350-1800	220	0.87	95.7	96.2	96.2	7.3
EDRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	7.5

1) T_N = constant, using standard fan

13.4.4 150 to 275 HP Additional data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
EDRN315S4	110	150	460V	3.3 2.5	3.5	H	1920	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	460V	3.4 2.7	3.8	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	460V	3.2 2.6	3.6	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE120	5	8900	2730	84.9

575V:

HazLoc-NA® Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
EDRN315S4	110	150	575V	2.8 2.1	3.0	H	1910	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	575V	3.9 2.9	4.1	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	575V	3.4 2.6	3.6	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	575V	3.2 2.4	3.4	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	575V	3.6 2.8	3.7	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	575V	3.4 2.6	3.4	H	2510	83.5	BE120	5	8900	2730	84.9

13.5 1200 rpm

13.5.1 Technical data – 6 pole

Motor	P _N		T _N	n _N	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP	lb-in	rpm	A	A	A		%	%	%	
DR63S6	0.09	0.12	6.8	1110	0.66	0.33	0.27	0.64	–	–	52.8	2.95
DR63M6	0.12	0.16	9.12	1110	0.98	0.49	0.39	0.67	–	–	50.2	2.9
DR63L6	0.18	0.25	13.8	1100	1.35	0.68	0.54	0.65	–	–	53.8	2.9
DRS71S6	0.18	0.25	13.8	1100	0.95	0.48	0.38					
DRS71S6	0.25	0.33	19.2	1100	1.3	0.65	0.52	0.71	64.2	68.2	66.0	2.9
DRS71M6	0.37	0.50	28.5	1100	1.8	0.9	0.72	0.72	67.8	71.3	70.0	3.5
DRS80S6	0.55	0.75	42.2	1120	2.65	1.32	1.06	0.71	71.0	73.9	72.0	3.9
DRN90S6	0.75	1	54	1165	3.6	1.8	1.44	0.63	79.1	82.6	82.5	5.6
DRN112M6	1.1	1.5	79	1183	5.1	2.55	2.05	0.61	84.6	86.9	87.5	7.9
DRN112M6	1.5	2	107	1181	6.7	3.35	2.7	0.63	86.1	88.2	88.5	7.7
DRN132S6	2.2	3	158	1179	9.8	4.9	3.95	0.63	87.2	89.2	89.5	6.7
DRN132S6	3	4	215	1178	13.3	6.7	5.3	0.63	87.6	89.4	89.5	6.9
DRN132M6	3.7	5	265	1182	17.7	8.8	7.1	0.59	86.8	89.0	89.5	6.7
DRN132M6	4	5.4	285	1181	18.4	9.2	7.4	0.61	87.4	89.2	89.5	6.4
DRN160M6	5.5	7.5	390	1185	21	10.4	8.3	0.72	88.4	90.4	91.0	8.6
DRN160M6	7.5	10	540	1182	28.5	14.2	11.3	0.73	89.2	90.8	91.0	8.0

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13.5.2 Additional data – 6 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot}	J _{Mot}	J _z	BE..	Z ₀ BG BGE h ⁻¹	T _B	m _{BMot}	J _{BMot}
	kW	HP											
DR63S6	0.09	0.12	2.3 2.3	2.6	E	13	0.0128	-	BR03	16000 -	22	17	0.0157
DR63M6	0.12	0.16	2.7 2.6	2.8	E	13	0.0128	-	BR03	16000 -	28	17	0.0157
DR63L6	0.18	0.25	2.5 2.5	2.6	E	15	0.0161	-	BR03	16000 -	28	18	0.0190
DRS71S6	0.18	0.25	1.7 1.7	2.0	E	17	0.0197	-	BE05	5600 12800	44.5	23	0.0228
DRS71S6	0.25	0.33	1.7 1.7	2.0	E	17	0.0197	-	BE05	5600 12800	44.5	23	0.0228
DRS71M6	0.37	0.50	1.9 1.9	2.1	F	20	0.0281	-	BE1	5280 12000	89	26	0.0312
DRS80S6	0.55	0.75	1.8 1.8	2.2	F	26.5	0.0378	0.090	BE1	5280 12000	89	35	0.0484
DRN90S6	0.75	1	2.4 2.3	3.0	J	43	0.128	0.237	BE2	1920 4000	124	53	0.139
DRN112M6	1.1	1.5	2.5 1.8	3.9	M	98	0.422	0.467	BE5	- 2080	177	115	0.433
DRN112M6	1.5	2	2.5 1.9	3.8	M	98	0.422	0.467	BE5	- 2080	250	115	0.433
DRN132S6	2.2	3	2.7 2.4	3.9	K	125	0.582	0.467	BE5	- 1840	355	140	0.593
DRN132S6	3	4	2.7 2.5	4.0	L	125	0.582	0.467	BE5	- 1840	485	140	0.593
DRN132M6	3.7	5	3.4 2.8	3.3	L	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN132M6	4	5.4	3.2 2.6	3.1	K	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN160M6	5.5	7.5	2.9 1.3	4.4	L	255	3.05	-	BE20	- 960	970	325	3.2
DRN160M6	7.5	10	2.9 1.3	4.2	L	255	3.05	-	BE20	- 960	1330	325	3.2

13.6 Brakes

13.6.1 Working and holding brake

The BE.. brakes are suitable for both line-operated motors (non-controlled applications) and inverter-operated motors (controlled applications).

Working brake:

With line-operated motors, the brake is used for stopping the motor during full load motor speed. A working brake is normally larger than a holding brake, since it requires more work to stop the motor.

Holding brake:

With inverter-operated motors, the brake is primarily used to hold the load and to prevent the motor from rotating. The motor is stopped electronically by an inverter. Thus, the brake activates when the motor speed is typically < 20 rpm. Braking at full load motor speed could take place, but only during emergency stopping. Holding brakes are normally smaller in size, since they don't require as much torque.

13.6.2 Brake sizes

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Depending on the application and how the brake is being used (working or holding brake), several brake sizes are available for each motor.

The following table shows the possible combinations of motor and brake.

Brake	DRS71	DRN80	DRN90	DRN100	DRN112 DRN132S	DRN132M DRN132L	DRN160 DRN180	DRN200 DRN225	DRN250 DRN280	DRN315
BE05										
BE1										
BE2										
BE5										
BE11										
BE20										
BE30										
BE32										
BE60 ¹⁾										
BE62 ¹⁾										
BE120 ¹⁾										
BE122 ¹⁾										

1) Not available as BE.. safety brake

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13.6.3 Brake torques

Depending on the application and how the brake is being used (working or holding brake), several braking torques are available for each motor.

The following table shows the available braking torques, depending on the brake size.

Braking Torque, T_B		BE05	BE1	BE2	BE5	BE11	BE20
lb-in	Nm						
16 ¹⁾	1.8 ¹⁾						
22 ¹⁾	2.5 ¹⁾						
31	3.5						
44	5						
62	7						
88	10						
124	14						
177	20						
248	28						
354	40						
487	55						
708	80						
974	110						
1326	150						
1770	200						

1) Not available for BE.. safety brakes

Braking Torque, T_B		BE30	BE32	BE60	BE62	BE120	BE122
lb-in	Nm						
664	75						
885	100						
1328	150						
1770	200						
2655	300						
3540	400						
4425	500						
5310	600						
7080 ¹⁾	800 ¹⁾						
8850 ¹⁾	1000 ¹⁾						
10620 ¹⁾	1200 ¹⁾						
14160 ¹⁾	1600 ¹⁾						
17700 ¹⁾	2000 ¹⁾						

1) Not available for BE.. safety brakes

13.6.4 Brake coil data

The following tables list the operating currents of the brakes at various voltages.

Legend

- P_B Electric power consumption in the brake coil in W.
 V_N Nominal voltage (nominal voltage range) of the brake in V (AC or DC).
 I_H Holding current of the brake current in the supply cable to the SEW brake control, in ampere r.m.s.
 I_{DC} Direct current in ampere in the brake cable with direct DC voltage supply. Or, direct current in ampere in the brake cable with DC 24 V supply via BS24, BSG, or BMV.
 I_B Acceleration current in ampere (AC or DC) when operated with SEW brake control for high-speed excitation.
 I_B/I_H Inrush current ratio ESV.
 I_B/I_{DC} Inrush current ratio ESV for DC 24 V supply with BSG or BMV.

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BE05, BE1, BE2

		BE05, BE1		BE2	
Rated brake coil power, P_B		32 W		43 W	
Inrush current ratio, ESV		4		4	
Nominal Voltage, V_N		BE05, BE1		BE2	
AC V	DC V	I_H	I_{DC}	I_H	I_{DC}
		A ac	A dc	A ac	A dc
24 (23–26)	10	2.25	2.9	2.95	3.8
60 (57-63)	24	0.9	1.17	1.18	1.53
120 (111-123)	48	0.45	0.59	0.59	0.77
184 (174-193)	80	0.29	0.37	0.38	0.49
208 (194-217)	90	0.26	0.33	0.34	0.43
230 (218-243)	96	0.23	0.3	0.3	0.39
254 (244-273)	110	0.2	0.27	0.27	0.35
290 (274-306)	125	0.18	0.24	0.24	0.31
330 (307-343)	140	0.16	0.21	0.21	0.28
360 (344-379)	160	0.14	0.19	0.19	0.25
400 (380-431)	180	0.13	0.17	0.17	0.22
460 (432-484)	200	0.11	0.15	0.15	0.19
500 (485-542)	220	0.1	0.13	0.14	0.18
575 (543-600)	250	0.09	0.12	0.12	0.16

BE5, BE11, BE20, BE30, BE60, BE62

		BE5	BE11	BE20	BE30 BE32	BE60 BE62
Rated brake coil power, P_B		49 W	77 W	100 W	120 W	195 W
Inrush current ratio, ESV		5.9	6.6	7.5	8.5	9.2
Nominal Voltage, V_N		BE5	BE11	BE20	BE30 BE32	BE60 BE62
AC V	DC V	I_H	I_H	I_H	I_H	I_H
		A ac	A ac	A ac	A ac	A ac
60 (57-63)	24	1.28	2.05	2.55	–	–
120 (111-123)	–	0.64	1.04	1.28	1.66	–
184 (174-193)	–	0.41	0.66	0.81	1.05	–
208 (194-217)	–	0.37	0.59	0.72	0.94	1.5
230 (218-243)	–	0.33	0.52	0.65	0.84	1.35
254 (244-273)	–	0.29	0.47	0.58	0.75	1.2
290 (274-306)	–	0.26	0.42	0.51	0.67	1.12
330 (307-343)	–	0.23	0.37	0.46	0.59	0.97
360 (344-379)	–	0.21	0.33	0.41	0.53	0.86
400 (380-431)	–	0.18	0.3	0.37	0.47	0.77
460 (432-484)	–	0.16	0.27	0.33	0.42	0.68
500 (485-542)	–	0.15	0.24	0.29	0.38	0.6
575 (543-600)	–	0.13	0.22	0.26	0.34	0.54

BE120, BE122

		BE120, BE122
Rated brake coil power, P_B		220 W
Inrush current ratio, ESV		6
Nominal Voltage, V_N		BE120, BE122
AC V		I_H
		A ac
230 (218-243)		1.45
254 (244-273)		1.30
290 (274-306)		1.16
360 (344-379)		0.92
400 (380-431)		0.82
460 (432-484)		0.73
500 (485-542)		0.65
575 (543-600)		0.58

13.7 Rectifiers and brake control

13.7.1 Cabinet installation

The following tables list the technical data of brake control systems for installation in the control cabinet.

Series	Function	Voltage	Holding current I_{Hmax} [Amps]	Type
BMS..	Half-wave rectifier <u>without</u> electronic switching.	AC 230 – 575 V	1.0	BMS 1.4
		AC 150 – 500 V	1.5	BMS 1.5
		AC 42 – 150 V	3.0	BMS 3
BME..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BME 1.4
		AC 150 – 500 V	1.5	BME 1.5
		AC 42 – 150 V	3.0	BME 3
BMH..	Half-wave rectifier with electronic switching and heating function	AC 230 – 575 V	1.0	BMH 1.4
		AC 150 – 500 V	1.5	BMH 1.5
		AC 42 – 150 V	3.0	BMH 3
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit	AC 230 – 575 V	1.0	BMP 1.4
		AC 150 – 500 V	1.5	BMP 1.5
		AC 230 – 575 V	2.8	BMP 3.1
		AC 42 – 150 V	3.0	BMP 3
BMK..	Half-wave rectifier with electronic switching, control input (DC 24V) and cut-off in the DC circuit	AC 230 – 575 V	1.0	BMK 1.4
		AC 150 – 500 V	1.5	BMK 1.5
		AC 42 – 150 V	3.0	BMK 3
BMKB..	Half-wave rectifier with electronic switching, control input (DC 24V), rapid stop, and LED status display	AC 150 – 500 V	1.5	BMKB1.5
BMV..	Brake control unit with electronic switching, control input (DC 24V), and rapid stop	DC 24 V	5.0	BMV 5
BST..	Safe brake control with electronic switching, control input (DC 24V), and safe control input (DC 24V). Supply via inverter DC link.	AC 460 V	0.6	BST 0.6S
		AC 400 V	0.7	BST 0.7S
		AC 230 V	1.2	BST 1.2S

13.7.2 Terminal box installation

The following tables list the technical data of brake control systems for installation in the terminal box of the motor.

Series	Function	Voltage	Holding current I_{Hmax} [Amps]	Type
BG..	Half-wave rectifier <u>without</u> electronic switching	AC 230 – 575 V	1.0	BG 1.4
		AC 150 – 500 V	1.5	BG 1.5
		AC 24 – 150 V	3.0	BG 3
BGE..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BGE 1.4
		AC 150 – 500 V	1.5	BGE 1.5
		AC 42 – 150 V	3.0	BGE 3
BS..	Terminal block with varistor protection circuit	DC 24 V	5.0	BS24
BSG..	Brake control unit with electronic switching and rapid stop	DC 24 V	5.0	BSG
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit.	AC 230 – 575 V	2.8	BMP 3.1

13.7.3 Rectifier/brake compatibility

		BE05 BE1 BE2	BE5 BE11 BE20	BE30 BE32	BE60 BE62	BE120 BE122
Control Cabinet	BMS..		–	–	–	–
	BME..					–
	BMH..					–
	BMP..					–
	BMP 3.1	–	–	–		
	BMK..					–
	BMV..			–	–	–
	BST..				–	–
Terminal Box	BG..		–	–	–	–
	BGE..					–
	BS..		–	–	–	–
	BGS..			–	–	–
	BMP3.1	–	–	–	1)	

13

- Available
- 1) Possible only with DRN250 – DRN280
- Not available

As a standard, BG.. and BGE.. are supplied preconnected in the terminal box for cut-off in the AC circuit.

INFORMATION



Brake control systems for installation in the control cabinet are available with all standard motor plug connectors and cage clamp options.

Brake control systems for installation in the motor terminal box can be combined with most plug connectors and cage clamps /KCC. However, there may be space restrictions when using the /KC1 option or with customer-specific plug connectors.

There may also be restrictions in combinations with additional electrical options (such as motor protection, strip heater, built-in encoder). In some cases, a larger terminal box may be necessary.

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Sales	Sofia	BEVER-DRIVE GmbH Bogdanovetz Str.1 1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@bever.bg
Cameroon			
Sales	Douala	SEW-EURODRIVE S.A.R.L. Ancienne Route Bonabéri P.O. Box B.P 8674 Douala-Cameroun	Tel. +237 233 39 02 10 Fax +237 233 39 02 10 info@sew-eurodrive-cm
Chile			
Assembly Sales Service	Santiago de Chile	SEW-EURODRIVE CHILE LTDA Las Encinas 1295 Parque Industrial Valle Grande LAMPA Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 2757 7000 Fax +56 2 2757 7001 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl
China			
Production Assembly Sales Service	Tianjin	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 78, 13th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25323273 http://www.sew-eurodrive.cn info@sew-eurodrive.cn
Assembly Sales Service	Suzhou	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267922 guangzhou@sew-eurodrive.cn
	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Dev Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Taiyuan	SEW-EURODRIVE (Taiyuan) Co., Ltd. No.3, HuaZhang Street, TaiYuan Economic & Technical Dev Zone ShanXi, 030032	Tel. +86-351-7117520 Fax +86-351-7117522 taiyuan@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478388 Fax +86 27 84478389 wuhan@sew-eurodrive.cn
	Xi'An	SEW-EURODRIVE (Xi'An) Co., Ltd. No. 12 Jinye 2nd Road Xi'An High-Technology Industrial Dev Zone Xi'An 710065	Tel. +86 29 68686262 Fax +86 29 68686311 xian@sew-eurodrive.cn
Sales Service	Hong Kong	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 36902200 Fax +852 36902211 contact@sew-eurodrive.hk

Colombia			
Assembly Sales Service	Bogota	SEW-EURODRIVE COLOMBIA LTDA. Calle 17 No. 132-18 Interior 2 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sew@sew-eurodrive.com.co
Croatia			
Sales Service	Zagreb	KOMPEKS d. o. o. Zeleni dol 10 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr
Czech Republic			
Assembly Sales Service	Hostivice	SEW-EURODRIVE CZ s.r.o. Floriánova 2459 253 01 Hostivice	Tel. +420 255 709 601 Fax +420 235 350 613 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz
	Drive Service Hotline / 24 Hour Service	+420 800 739 739 (800 SEW SEW)	Service Tel. +420 255 709 632 Fax +420 235 358 218 servis@sew-eurodrive.cz
Assembly Service	Plzeň	SEW-EURODRIVE CZ s.r.o. Areal KRPA a.s. Zahradni 173/2 326 00 Plzeň	Tel. +420 378 775 320 Fax +420 377 970 710 sew@sew-eurodrive.cz
Denmark			
Assembly Sales Service	Copenhagen	SEW-EURODRIVEA/S Geminivej 28-30 2670 Greve	Tel. +45 43 95 8500 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Egypt			
Sales Service	Cairo	Copam Egypt for Engineering & Agencies Building 10, Block 13005, First Ind Zone, Obour City Cairo	Tel. +202 44812673 / 79 (7 lines) Fax +202 44812685 http://www.copam-egypt.com copam@copam-egypt.com
Estonia			
Sales	Tallin	ALAS-KUUL AS Reti tee 4 75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 http://www.alas-kuul.ee veiko.soots@alas-kuul.ee
Finland			
Assembly Sales Service	Hollola	SEW-EURODRIVE OY Vesimäentie 4 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Service	Hollola	SEW-EURODRIVE OY Keskikankaantie 21 15860 Hollola	Tel. +358 201 589-300 Fax +358 3 780-6211 http://www.sew-eurodrive.fi sew@sew.fi
Production Assembly	Karkkila	SEW Industrial Gears Oy Santasalokatu 6, PL 8 03620 Karkkila, 03601 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 http://www.sew-eurodrive.fi sew@sew.fi
France			
Production Sales Service	Hagenau	SEW-USOCOME 48-54 route de Soufflenheim B. P. 20185 67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocom.com sew@usocom.com
Production	Forbach	SEW-USOCOME Zone industrielle Technopôle Forbach Sud B. P. 30269 57604 Forbach Cedex	Tel. +33 3 87 29 38 00

France			
	Brumath	SEW-USOCOME 1 Rue de Bruxelles 67670 Mommenheim Cedex	Tel. +33 3 88 37 48 00
Assembly Sales Service	Bordeaux	SEW-USOCOME Parc d'activités de Magellan 62 avenue de Magellan – B. P. 182 33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME 75 rue Antoine Condorcet 38090 Vaulx-Milieu	Tel. +33 4 74 99 60 00 Fax +33 4 74 99 60 15
	Nantes	SEW-USOCOME Parc d'activités de la forêt 4 rue des Fontenelles 44140 Le Bignon	Tel. +33 2 40 78 42 00 Fax +33 2 40 78 42 20
	Paris	SEW-USOCOME Zone industrielle 2 rue Denis Papin 77390 Verneuil l'Étang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
Gabon			
Sales	Libreville	SEW-EURODRIVE SARL 183, Rue 5.033.C, Lalala à droite P.O. Box 15682 Libreville	Tel. +241 03 28 81 55 +241 06 54 81 33 http://www.sew-eurodrive.cm sew@sew-eurodrive.cm
Germany			
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Production / Industrial Gears	Bruchsal	SEW-EURODRIVE GmbH & Co KG Christian-Pähr-Str. 10 76646 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-2970
Production	Graben	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf P.O. Box Postfach 1220 – D-76671 Graben-Neudorf	Tel. +49 7251 75-0 Fax +49 7251-2970
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Service Competence Center	Mechanics / Mechatronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 scc-mechanik@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 scc-elektronik@sew-eurodrive.de
Drive Technology Center	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 30823 Garbsen (Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 dtc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dankritzer Weg 1 08393 Meerane (Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 dtc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 85551 Kirchheim (München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 dtc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 40764 Langenfeld (Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 dtc-west@sew-eurodrive.de
Drive Center	Berlin	SEW-EURODRIVE GmbH & Co KG Alexander-Meißner-Straße 44 12526 Berlin	Tel. +49 306331131-30 Fax +49 306331131-36 dc-berlin@sew-eurodrive.de
	Ludwigshafen	SEW-EURODRIVE GmbH & Co KG c/o BASF SE Gebäude W130 Raum 101 67056 Ludwigshafen	Tel. +49 7251 75 3759 Fax +49 7251 75 503759 dc-ludwigshafen@sew-eurodrive.de
	Saarland	SEW-EURODRIVE GmbH & Co KG Gottlieb-Daimler-Straße 4 66773 Schwalbach Saar – Hülzweiler	Tel. +49 6831 48946 10 Fax +49 6831 48946 13 dc-saarland@sew-eurodrive.de

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	Würzburg	SEW-EURODRIVE GmbH & Co KG Nürnbergerstraße 118 97076 Würzburg-Lengfeld	Tel. +49 931 27886-60 Fax +49 931 27886-66 dc-wuerzburg@sew-eurodrive.de
Great Britain			
Assembly Sales Service	Normanton	SEW-EURODRIVE Ltd. DeVilliers Way Trident Park Normanton West Yorkshire WF6 1GX	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk
Service Competence Center	Southern England	SEW-EURODRIVE Ltd. Unit 41 Easter Park Benyon Road Silchester Reading Berkshire RG7 2PQ	Tel. +44 1189 701-699 Fax +44 1189 701-021
Greece			
Sales	Athens	Christ. Boznos & Son S.A. 12, K. Mavromichali Street P.O. Box 80136 18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Hungary			
Sales Service	Budapest	SEW-EURODRIVE Kft. Csillaghegyi út 13. 1037 Budapest	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 http://www.sew-eurodrive.hu office@sew-eurodrive.hu
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavik	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
India			
Registered Office Assembly Sales Service	Vadodara	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 3045200 Fax +91 265 3045300 http://www.seweurodriveindia.com salesvadodara@seweurodriveindia.com
Assembly Sales Service	Chennai	SEW-EURODRIVE India Private Limited Plot No. K3/1, Sipcot Industrial Park Phase II Mambakkam Village Sriperumbudur - 602105 Kancheepuram Dist, Tamil Nadu	Tel. +91 44 37188888 Fax +91 44 37188811 saleschennai@seweurodriveindia.com
	Pune	SEW-EURODRIVE India Private Limited Plant: Plot No. D236/1, Chakan Industrial Area Phase- II, Warale, Tal- Khed, Pune-410501, Maharashtra	Tel. +91 21 35 628700 Fax +91 21 35 628715 salespune@seweurodriveindia.com
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavik	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
Indonesia			
Sales	Medan	PT. Serumpun Indah Lestari Jl.Pulau Solor no. 8, Kawasan Industri Medan II Medan 20252	Tel. +62 61 687 1221 Fax +62 61 6871429 / +62 61 6871458 / +62 61 30008041 sil@serumpunindah.com serumpunindah@yahoo.com http://www.serumpunindah.com

Indonesia			
	Jakarta	PT. Cahaya Sukses Abadi Komplek Rukan Puri Mutiara Blok A no 99, Sunter Jakarta 14350	Tel. +62 21 65310599 Fax +62 21 65310600 csajkt@cbn.net.id
	Jakarta	PT. Agrindo Putra Lestari JL.Pantai Indah Selatan, Komplek Sentra Industri Terpadu, Pantai indah Kapuk Tahap III, Blok E No. 27 Jakarta 14470	Tel. +62 21 2921-8899 Fax +62 21 2921-8988 aplindo@indosat.net.id http://www.aplindo.com
	Surabaya	PT. TRIAGRI JAYA ABADI Jl. Sukosemolo No. 63, Galaxi Bumi Permai G6 No. 11 Surabaya 60111	Tel. +62 31 5990128 Fax +62 31 5962666 sales@triagri.co.id http://www.triagri.co.id
	Surabaya	CV. Multi Mas Jl. Raden Saleh 43A Kav. 18 Surabaya 60174	Tel. +62 31 5458589 Fax +62 31 5317220 sianhwa@sby.centrin.net.id http://www.cvmultimas.com
Iceland			
Sales	Reykjavik	Varma & Vélaverk ehf. Knarrarvogi 4 104 Reykjavik	Tel. +354 585 1070 Fax +354 585)1071 http://www.varmaverk.is vov@vov.is
Ireland			
Sales Service	Dublin	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 http://www.alperton.ie info@alperton.ie
Israel			
Sales	Tel Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il
Italy			
Assembly Sales Service	Milan	SEW-EURODRIVE di R. Blicke & Co.s.a.s. Via Bernini,14 20020 Solaro (Milano)	Tel. +39 02 96 980229 Fax +39 02 96 980 999 http://www.sew-eurodrive.it milano@sew-eurodrive.it
Ivory Coast			
Sales	Abidjan	SEW-EURODRIVE SARL Ivory Coast Rue des Pêcheurs, Zone 3 26 BP 916 Abidjan 26	Tel. +225 21 21 81 05 Fax +225 21 25 30 47 info@sew-eurodrive.ci http://www.sew-eurodrive.ci
Japan			
Assembly Sales Service	Iwata	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp hamamatsu@sew-eurodrive.co.jp
Kazakhstan			
Sales	Almaty	SEW-EURODRIVE LLP 291-291A, Tole bi street 050031, Almaty	Tel. +7 (727) 350 5156 Fax +7 (727) 350 5156 http://www.sew-eurodrive.kz sew@sew-eurodrive.kz
	Tashkent	SEW-EURODRIVE LLP Representative office in Uzbekistan 96A, Sharaf Rashidov street, Tashkent, 100084	Tel. +998 71 2359411 Fax +998 71 2359412 http://www.sew-eurodrive.uz sew@sew-eurodrive.uz
	Ulaanbaatar	IM Trading LLC Naryn zam street 62 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Fax +976-77109997 imt@imt.mn

Kenya			
Sales	Nairobi	SEW-EURODRIVE Pty Ltd Transnational Plaza, 5th Floor Mama Ngina Street P.O. Box 8998-00100 Nairobi	Tel. +254 791 398840 http://www.sew-eurodrive.co.tz info@sew.co.tz
Latvia			
Sales	Riga	SIA Alas-Kuul Katlakalna 11C 1073 Riga	Tel. +371 6 7139253 Fax +371 6 7139386 http://www.alas-kuul.lv info@alas-kuul.com
Lebanon			
Sales (Lebanon)	Beirut	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 510 532 Fax +961 1 494 971 ssacar@inco.com.lb
Sales (Jordan, Kuwait , Beirut Saudi Arabia, Syria)		Middle East Drives S.A.L. (offshore) Sin El Fil. B. P. 55-378 Beirut	Tel. +961 1 494 786 Fax +961 1 494 971 http://www.medrives.com info@medrives.com
Lithuania			
Sales	Alytus	UAB Irseva Statybininku 106C 63431 Alytus	Tel. +370 315 79204 Fax +370 315 56175 http://www.irseva.lt irmantas@irseva.lt
Macedonia			
Sales	Skopje	Boznos DOOEL Dime Anicin 2A/7A 1000 Skopje	Tel. +389 23256553 Fax +389 23256554 http://www.boznos.mk
Malaysia			
Assembly Sales Service	Johor	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my
Mongolia			
Technical Office	Ulaanbaatar	IM Trading LLC Naryn zam street 62 Union building, Suite A-403-1 Sukhbaatar district, Ulaanbaatar 14230	Tel. +976-77109997 Tel. +976-99070395 Fax +976-77109997 http://imt.mn/ imt@imt.mn
Morocco			
Sales Service	Mohammedia	SEW-EURODRIVE Morocco Parc Industriel CFCIM, Lot 55 and 59 Bouskoura	Tel. +212 522 88 85 00 Fax +212 522 88 84 50 http://www.sew-eurodrive.ma sew@sew-eurodrive.ma
Namibia			
Sales	Swakopmund	DB Mining & Industrial Services Einstein Street Strauss Industrial Park Unit1 Swakopmund	Tel. +264 64 462 738 Fax +264 64 462 734 anton@dbminingnam.com
Netherlands			
Assembly Sales Service	Rotterdam	SEW-EURODRIVE B.V. Industrieweg 175 3044 AS Rotterdam Postbus 10085 3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 Service: 0800-SEWHELP http://www.sew-eurodrive.nl info@sew-eurodrive.nl
	Auckland	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz

New Zealand			
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 30 Lodestar Avenue, Wigram Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Nigeria			
Sales	Lagos	Greenpeg Nig. Ltd Plot 296A, Adeyemo Akapo Str. Omole GRA Ikeja Lagos-Nigeria	Tel. +234-701-821-9200-1 http://www.greenpeg ltd.com bolaji.adekunle@greenpeg ltd.com
Norway			
Assembly Sales Service	Moss	SEW-EURODRIVE A/S Solgaard skog 71 1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no
Pakistan			
Sales	Karachi	Industrial Power Drives Al-Fatah Chamber A/3, 1st Floor Central Commercial Area, Sultan Ahmed Shah Road, Block 7/8, Karachi	Tel. +92 21 452 9369 Fax +92-21-454 7365 sew eurodrive@cyber.net.pk
Paraguay			
Sales	Fernando de la Mora	SEW-EURODRIVE PARAGUAY S.R.L De la Victoria 112, Esquina nueva Asunción Departamento Central Fernando de la Mora, Barrio Bernardino	Tel. +595 991 519695 Fax +595 21 3285539 sewpy@sew-eurodrive.com.py
Peru			
Assembly Sales Service	Lima	SEW EURODRIVE DEL PERU S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe
Philippines			
Sales	Makati	P.T. Cerna Corporation 4137 Ponte St., Brgy. Sta. Cruz Makati City 1205	Tel. +63 2 519 6214 Fax +63 2 890 2802 mech_drive_sys@ptcerna.com http://www.ptcerna.com
Poland			
Assembly Sales Service	Łódź	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 92-518 Łódź	Tel. +48 42 293 00 00 Fax +48 42 293 00 49 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
	Service	Tel. +48 42 293 0030 Fax +48 42 293 0043	24 Hour Service Tel. +48 602 739 739 (+48 602 SEW SEW) serwis@sew-eurodrive.pl
Portugal			
Assembly Sales Service	Coimbra	SEW-EURODRIVE, LDA. Av. da Fonte Nova, n.º 86 3050-379 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt info sew@sew-eurodrive.pt
Service Competence Center	Lisbon	SEW-EURODRIVE, LDA. Núcleo Empresarial I de São Julião do Tojal Rua de Entremuros, 54 Fracção I 2660-533 São Julião do Tojal	Tel. +351 21 958-0198 / +351 939 598 717 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
Romania			
Sales Service	Bucharest	Sialco Trading SRL str. Brazilia nr. 36 011783 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

Russia			
Assembly Sales Service	St. Petersburg	ЗАО «СЕВ-ЕВРОДРАЙФ» а. я. 36 195220 Санкт-Петербург	Tel. +7 812 3332522 / +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru
Senegal			
Sales	Dakar	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 http://www.senemeca.com senemeca@senemeca.sn
Serbia			
Sales	Belgrade	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor 11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.rs
Singapore			
Assembly Sales Service	Singapore	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com
Slovakia			
Sales	Bratislava	SEW-Eurodrive SK s.r.o. Rybničná 40 831 06 Bratislava	Tel. +421 2 33595 202, 217, 201 Fax +421 2 33595 200 http://www.sew-eurodrive.sk sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 Mobile +421 907 671 976 sew@sew-eurodrive.sk
Slovenia			
Sales Service	Celje	Pakman - Pogonska Tehnika d.o.o. Ul. XIV. divizije 14 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net
South Africa			
Assembly Sales Service	Johannesburg	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 248-7289 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 bgriffiths@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 48 Prospecton Road Isipingo Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 902 3815 Fax +27 31 902 3826 cdejager@sew.co.za
	Nelspruit	SEW-EURODRIVE (PROPRIETARY) LIMITED 7 Christie Crescent Vintonia P.O.Box 1942 Nelspruit 1200	Tel. +27 13 752-8007 Fax +27 13 752-8008 robermeyer@sew.co.za

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	Busan	SEW-EURODRIVE KOREA CO., LTD. 28, Noksansandan 262-ro 50beon-gil, Gangseo-gu, Busan, Zip 618-820	Tel. +82 51 832-0204 Fax +82 51 832-0230

Spain

Assembly Sales Service	Bilbao	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es
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Sri Lanka

Sales	Colombo	SM International (Pte) Ltd 254, Galle Raod Colombo 4, Sri Lanka	Tel. +94 1 2584887 Fax +94 1 2582981
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Swaziland

Sales	Manzini	C G Trading Co. (Pty) Ltd PO Box 2960 Manzini M200	Tel. +268 2 518 6343 Fax +268 2 518 5033 engineering@cgtrading.co.sz
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Sweden

Assembly Sales Service	Jönköping	SEW-EURODRIVE AB Gnejsvägen 6-8 553 03 Jönköping Box 3100 S-550 03 Jönköping	Tel. +46 36 34 42 00 Fax +46 36 34 42 80 http://www.sew-eurodrive.se jonkoping@sew.se
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Switzerland

Assembly Sales Service	Basel	Alfred Imhof A.G. Jurastrasse 10 4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch
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Taiwan

Sales	Taipei	Ting Shou Trading Co., Ltd. 6F-3, No. 267, Sec. 2 Tung Huw S. Road Taipei	Tel. +886 2 27383535 Fax +886 2 27368268 Telex 27 245 sewtwn@ms63.hinet.net http://www.tingshou.com.tw
	Nan Tou	Ting Shou Trading Co., Ltd. No. 55 Kung Yeh N. Road Industrial District Nan Tou 540	Tel. +886 49 255353 Fax +886 49 257878 sewtwn@ms63.hinet.net http://www.tingshou.com.tw

Tanzania

Sales	Daressalam	SEW-EURODRIVE PTY LIMITED TANZANIA Plot 52, Regent Estate PO Box 106274 Dar Es Salaam	Tel. +255 0 22 277 5780 Fax +255 0 22 277 5788 http://www.sew-eurodrive.co.tz info@sew.co.tz
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Thailand

Assembly Sales Service	Chonburi	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com
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Tunisia

Sales	Tunis	T. M.S. Technic Marketing Service Zone Industrielle Mghira 2 Lot No. 39 2082 Fouchana	Tel. +216 79 40 88 77 Fax +216 79 40 88 66 http://www.tms.com.tn tms@tms.com.tn
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Turkey

Assembly	Kocaeli-Gebze	SEW-EURODRIVE Hareket	Tel. +90 262 9991000 04
Sales		Sistemleri San. Ve TIC. Ltd. Sti	Fax +90 262 9991009
Service		Gebze Organize Sanayi Böl. 400 Sok No. 401	http://www.sew-eurodrive.com.tr
		41480 Gebze Kocaeli	sew@sew-eurodrive.com.tr

Ukraine

Assembly	Dnipropetrovsk	ООО «СЕВ-Евродрайв»	Tel. +380 56 370 3211
Sales		ул. Рабочая, 23-В, офис 409	Fax +380 56 372 2078
Service		49008 Днепропетровск	http://www.sew-eurodrive.ua
			sew@sew-eurodrive.ua

Uruguay

Assembly	Montevideo	SEW-EURODRIVE Uruguay, S. A.	Tel. +598 2 21181-89
Sales		Jose Serrato 3569 Esquina Corumbe	Fax +598 2 21181-90
		CP 12000 Montevideo	sewuy@sew-eurodrive.com.uy

Uzbekistan

Technical Office	Tashkent	SEW-EURODRIVE LLP	Tel. +998 71 2359411
		Representative office in Uzbekistan	Fax +998 71 2359412
		96A, Sharaf Rashidov street,	http://www.sew-eurodrive.uz
		Tashkent, 100084	sew@sew-eurodrive.uz

Vietnam

Sales	Ho Chi Minh City	Nam Trung Co., Ltd Huế - South Vietnam / Construction Materials 250 Binh Duong Avenue, Thu Dau Mot Town, Binh Duong Province HCM office: 91 Tran Minh Quyen Street District 10, Ho Chi Minh City	Tel. +84 8 8301026 Fax +84 8 8392223 khanh-nguyen@namtrung.com.vn http://www.namtrung.com.vn
	Hanoi	MICO LTD Quảng Trị - North Vietnam / All sectors except Construction Materials 8th Floor, Ocean Park Building, 01 Dao Duy Anh St, Ha Noi, Viet Nam	Tel. +84 4 39386666 Fax +84 4 3938 6888 nam_ph@micogroup.com.vn http://www.micogroup.com.vn

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