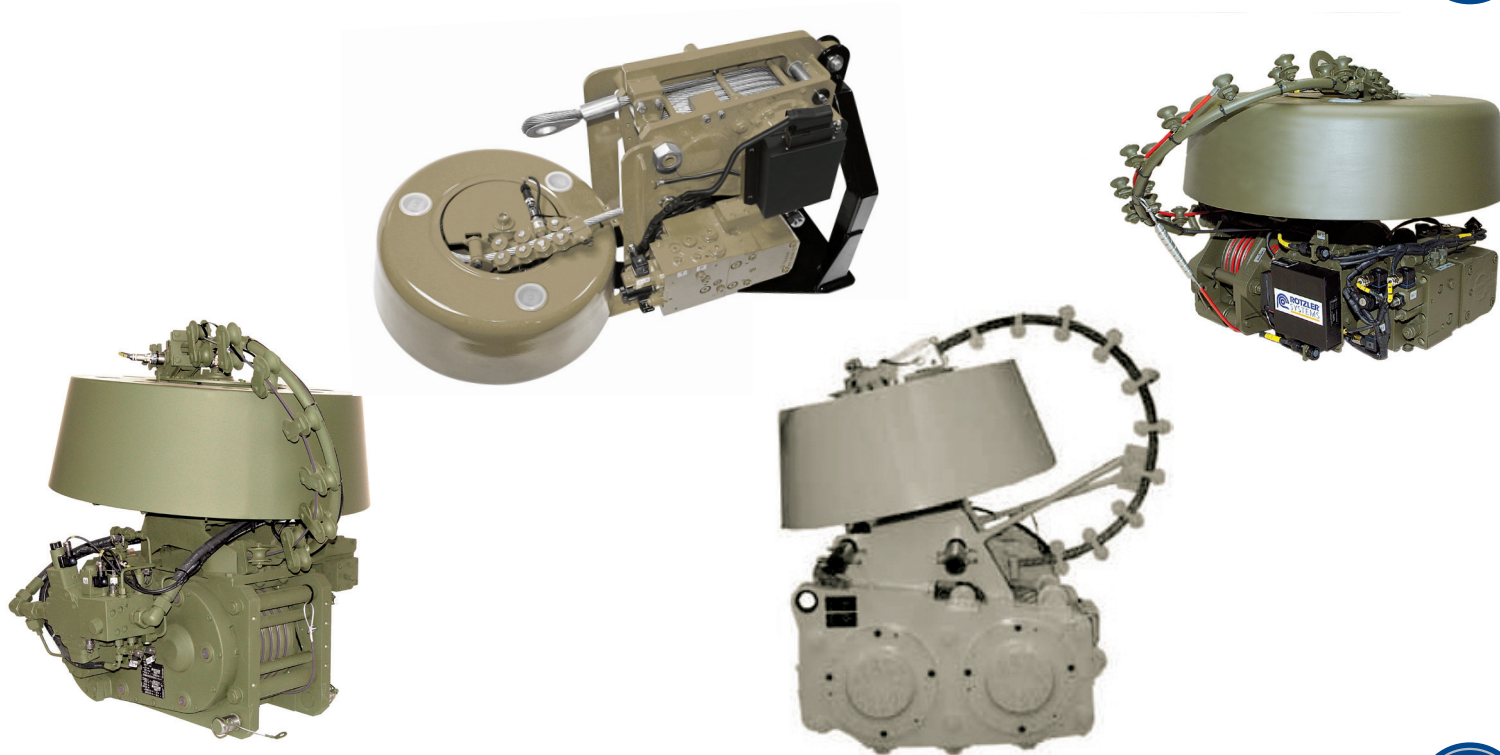


ROTZLER TREIBMATIC winches Version /7

Premium quality for premium recovery solutions
TREIBMATIC TR 030, TR 080, TR 200, TR 350



ROTZLER Safety+



ROTZLER Performance+



ROTZLER Operation+



ROTZLER Optiweight+



ROTZLER Value+



1. Why TREIBMATIC?

Premium quality for premium recovery solutions	3
ROTZLER TREIBMATIC – Product description	3
The TREIBMATIC concept	3
ROTZLER TREIBMATIC – The applications	3
ROTZLER TREIBMATIC – The winch models	4
Standard features for superior requirements	4
ROTZLER TREIBMATIC vs. drum winch	4
Good reasons for the OEM	5
Good reasons for the user	5
Installation Examples	5

2. Technical Information and Data

General technical description	
Winch	6
Digital electronic control system	6
Storage drum	6
Designated use	7
Theoretical using time	7
TREIBMATIC Scheme	7
Ambient Conditions	
Temperature Range	8

Fluids

Gear oil specification	8
Lubricating grease	8
Hydraulic oil	8
Operating viscosity range and limits	8
Recommended hydraulic oil / fields of application	8
Hydraulic oil temperature	8

Technical data

TREIBMATIC TR 030 winches	9
TREIBMATIC TR 080 winches	10
TREIBMATIC TR 200 winches	11
TREIBMATIC TR 350 winches	12

3. Service

ROTZLER based:	
Quality seal for premium recovery systems	13
Contact data	13

1. Why TREIBMATIC?

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

3

Premium quality for premium recovery solutions

The global success of the ROTZLER TREIBMATIC hydraulic winches has many good reasons.

With the highest safety standards provided for heavy duty pulling applications, such as recovery and self-recovery, ROTZLER TREIBMATIC is the reliable solution for OEMs and users all over the world.

ROTZLER's unique TREIBMATIC concept offers key benefits for the OEM and user in comparison to conventional drum winches. OEMs constantly face the challenge of integrating more equipment whilst optimising weight. The modular and space-saving TREIBMATIC design is the perfect solution for all applications, where maximum performance with the smallest possible space and weight claim are required. This is why our international customers depend on ROTZLER TREIBMATIC winches.

ROTZLER TREIBMATIC winches ensure safety, flexibility, reliability and performance on the state-of-the-art technology level.

ROTZLER TREIBMATIC Product description

The ROTZLER TREIBMATIC hydraulic winches consist of a special twin capstan pulling unit with a separate rope storage container and a precise digital control system. The unique TREIBMATIC design results in less rope wear and therefore less costs whilst providing increased safety.

The powerful yet compact twin capstan winch module ensures that the maximum rated pulling force and speed are available along the entire rope length, unlike typical drum winch designs where the pulling force decreases per rope layer. The twin capstan design also eliminates rope crushing and the typical spooling problems associated with drum winches and requires no extra spooling devices or extra space along the rope path when installed in a vehicle. The two grooved drums ensure optimised rope life by preventing any contact between the rope windings. The unique rope storage system feeds the rope from the winch module without tension into a special storage drum, preventing the coils and layers of rope from being crushed and without the need for a separate drive system. This system not only reduces rope wear to a minimum but also ensures the maximum installation flexibility. A choice of different storage capacities allow more flexibility regarding to long rope lengths.

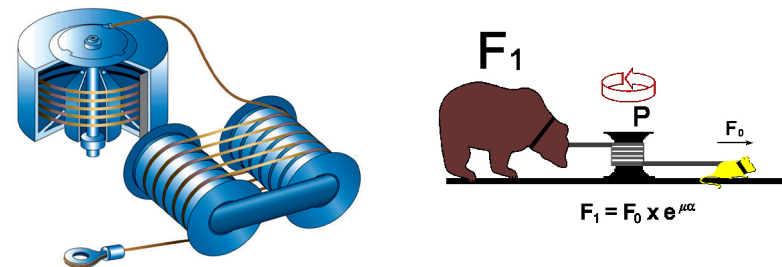
Both modules can be installed separately from each other which gives a high flexibility during the installation and meets the space claim requirements on most vehicles without any problems.

A multi-disc static brake coupled with a dynamic load holding brake ensures safe and reliable working in all pulling applications including self recovery on slopes or recovery of other vehicles on slopes.

The digital operation system provides optimum operator support by combining precise, responsive winch control with self monitoring safety functions and visual user support direct at the hand held control unit.

Due to its low operating costs and extremely long service life, the TREIBMATIC winch is also a highly cost-effective choice.

The TREIBMATIC Concept



ROTZLER TREIBMATIC – The applications

The ROTZLER TREIBMATIC winches have been developed for the use in both professional commercial and military applications. As a result, the products can be found in a large variety of different applications from fire and rescue trucks to heavy armored recovery tanks.

ROTZLER TREIBMATIC winches can be found all over the world in countries such as Canada, the United States of America, Korea, Singapore, Malaysia, India, Thailand, Australia, Oman, Italy, Switzerland, Austria, England, Spain, France, Germany and many others.

1. Why TREIBMATIC?

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

4

ROTZLER TREIBMATIC – The winch models

The TREIBMATIC series is available with the following pulling forces:

Winch model	Pulling force	Typical applications
• TR 030	70 kN	<ul style="list-style-type: none"> • self recovery of 4 x 4 and 6 x 6-vehicles • recovery of passenger cars and light trucks
• TR 080	110 kN	<ul style="list-style-type: none"> • self recovery of 6 x 6 and 8 x 8-vehicles
• TR 200	250 kN	<ul style="list-style-type: none"> • recovery of medium wheeled vehicles
• TR 200	300 kN	<ul style="list-style-type: none"> • recovery of medium tracked vehicles
• TR 350	400 kN	<ul style="list-style-type: none"> • recovery of heavy tracked vehicles

The table above is only a guideline. ROTZLER will be pleased to review specific project details and recommend the most suitable solution.

Standard features for superior requirements

The ROTZLER TREIBMATIC winches consists of:

- Efficient gearbox with hardened and ground teeth
- Storage drum to house the rope
- Grooved, hardened capstan drums
- Hydraulically released holding brake to securely hold the nominal load
- High-performance hydraulic motors
- Load and high speed mode, providing two speed options
- Counterbalance valve for controlled lowering of the load
- Digital electronics, enabling precise, highly-responsive winch control
- End-of-rope monitor, providing timely electronic warning

ROTZLER TREIBMATIC vs. drum winch

For highly integrated and demanding vehicle concepts, the ROTZLER TREIBMATIC winches provide vehicle designers and body builders with the full advantages of its modular design:

- small space claim
- separate components (winch, storage drum)
- no rope spooling angles required
- no rope spooling device required
- low operating weight
- constant pulling force allows installation design to be dimensioned precisely

Additional benefits by using the TREIBMATIC instead of drum winches are approved by thousands of winch operators all over the world:

- easy and safe operation
- constant pulling force
- constant rope speed
- no rope spooling problems
- no tension required during rewinding of rope
- short setup time

1. Why TREIBMATIC?

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

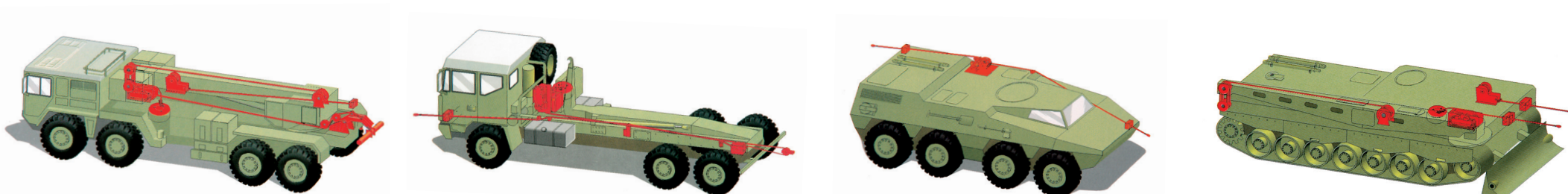
Good reasons for the OEM

- Highest safety standards
- Modular components (winch, storage drum)
- Space-saving in-vehicle integration
 - Flexible, quick and easy installation
 - Customer-specific systems
- Weight-optimized
- Digital operation system
 - In service all over the world
 - Complete range of options and accessories
- Reliable quality, assured by Rotzler's unique test center
- Extensive range of winches with maximum pulling forces from 50 kN to 350 kN
- Complies with european and international safety standards

Good reasons for the user

- Constant pulling force along the entire rope length
- Fast rope speed
- No rope spooling problems
- Extended rope life due to storage without tension
 - No tension required during rewinding of rope
- Short setup time
- Easy and safe operation by visual user guidance support via LCD display
- Full function remote control option
- Operating unit with integrated emergency stop
 - Self-monitoring functions ensure maximum safety
- Long service life and low maintenance
- Complies with european and international safety standards

Installation Examples



General technical description

Winch:

- high quality planetary gear reduction (TR 030 - spur gear), with hardened and ground gears
- grooved, hardened capstans
- aluminum structure for low operating weight
- hydraulically released spring applied holding brake to safely hold the rated load
- high quality hydraulic motor for improved performance
- counterbalance valve to safely control paying out of the loaded rope
- 2 speed performance for TR 080, TR 200 (optional for TR 030)
electronic, hydraulically controlled load modes give maximum performance. In the high speed mode a reduced load can be pulled. When the load increases beyond the maximum in this mode the winch automatically changes modes to slow speed, where the rated load can be pulled. The change of modes from fast to slow does not require to stop the recovery process and can be controlled both automatically and manually. Changing from slow to fast is done manually only and is only possible when the winch is not operated.
- horse power control option (TR 200, TR 350, others upon request):
maximum performance based on the hydraulic power installed in the vehicle is the result of this versatile feature. The electronic / hydraulic control system automatically adjusts the displacement of the hydraulic motor depending on the load on the winch rope. Starting at the minimum winch speed at full load up to the maximum winch speed possible, the winch offers higher rope speed with decreasing loads. Typically the duration of recovery tasks can be reduced since the full load is very often only required on the first few meters of the recovery operation. After that the load required to pull the casualty decreases which allows operating at higher rope speeds.

Digital electronic control system:

- The winch is equipped with an electronic / hydraulic proportional winch control as standard. This allows a very sensitive control of the load. The winch is operated by means of a remote control, which also indicates the operating condition of the winch. An illuminated LCD-display shows which functions are activated and their current operational status. The control system constantly monitors the winch, allowing the operator to fully concentrate on the recovery operation. In addition an emergency-stop button is provided to shut off power in critical situations.
- Rope end sensor
Usually the operator must stop paying out rope once the colored rope end mark is visible. As this takes the operators attention away from the actual recovery task or other winch work, there is a chance that it might not be seen. The rope end sensor indicates that the maximum rope length is paid out and sends a signal to the electronics. As a result the winch is stopped and consequently only paying-in is possible.
- Radio remote control (optional)
This is the most convenient way to operate a winch. The radio remote transmitter which is attached to a belt, worn around the waist, is connected to the standard operating unit. The receiver is connected directly to the winch control box. This system retains all of the original functions and reduces risk of operator error.

Storage drum:

- various storage drums sizes for different rope lengths are available.
The unique storage drum is powered only by the rope being pushed into the drum. The rope is stored without tension in the drum, resulting in extended rope life. To securely hold the storage drum while the vehicle is driving, a hydraulically released, spring applied holding brake is fitted to the storage drum. The rope end sensor is part of the storage drum assembly.
- powered storage drums for extremely long rope lengths can be provided upon request

2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

7

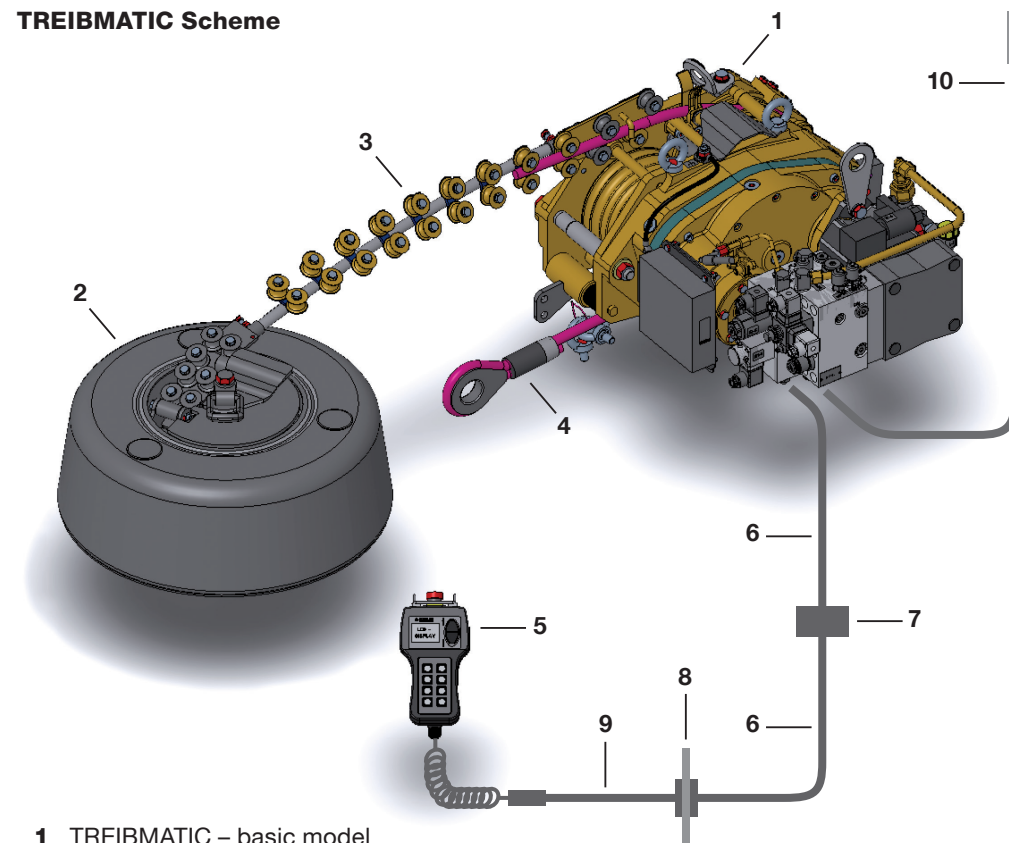
Designated use

The use as determined is moving (pulling and lowering) loads adhering to the ground up to an inclination of 45° as specified for each winch type and under the attention of the given installation regulations as well as of the safety notes. Passenger transport, towing work, hoisting work or any other use with TREIBMATIC winches is prohibited. The use as determined also includes the related equipment manufacturer's recommendations regarding installation, operation and maintenance.

Theoretical using time

TREIBMATIC winch type	TR 030 / 080 / 200 (200 kN) / 350	TR 200 (250 kN)
class of operating time	T1	T0
theoretical service life (years)	13.3 ... 6.4	13.3 ... 6.6
average daily running time (h)	0.12 - 0.25	< 0.12
calculated total running time (h)	400	200
load spectrum	L1	L1
protection type	IP67	IP 67

TREIBMATIC Scheme



- 1 TREIBMATIC – basic model
- 2 Storage drum
- 3 Rope guidance through roller path / rope guide spring
- 4 Rope
- 5 Remote control
- 6 Umbilical cord
- 7 Cable connector for umbilical cord
- 8 Bulkhead cable connector
- 9 Extension cable for remote control
- 10 Power supply cable

2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

8

Ambient conditions

Temperature range

The ROTZLER TREIBMATIC winches are designed for operation in a temperature range/ ambient temperature of -40 °C up to +63 °C and can be stored by a temperature of -40 up to + 63°C. Please contact Rotzler regarding applications involving extreme temperatures, vibrations, jerks, sand, dust, sea water or any other extreme environmental conditions.

Fluids

Gear oil specification

Before delivery standard ROTZLER TREIBMATIC winches were filled with Renolin CLPF 320 Super gear oil. Recommended gear oil for alternative filling and during oil change: SAE 75 W90 - API-GL5.

Specification	SAE 75W-90
mil. spec.	API- GL 5
specific weight at 15° C	0,90 g/ml
viscosity at 40° C	92 mm ² /s
viscosity at 100° C	11 mm ² /s
pour-point	-27°C
flash point	+240°C

Lubricating grease

For all standard applications, commercially available multi-purpose grease can be used.

Hydraulic oil (not supplied by ROTZLER)

The integrated hydraulic components are designed for the use with hydraulic oil on mineral oil basis according to DIN 51525.

Operating viscosity range and limits

The viscosity of the hydraulic fluid should be chosen in correspondence with a consideration to the ambient temperature and the viscosity requirements of the pumps and motors.

Optimum viscosity range

$$vis_{opt} = 25 - 45 \text{ mm}^2/\text{s (cSt)}$$

Limiting viscosity range

$$vis_{min/max} = 10 \text{ mm}^2/\text{s (cSt)} - 1000 \text{ mm}^2/\text{s (cSt)}$$

(cSt).

Maximum starting viscosity

$$vis_{start} = 1600 \text{ mm}^2/\text{s (cSt)}. *$$

Maximum permissible leakage oil temperature

$$T_{max} = +90^\circ \text{ C}$$

*) Warm-up phase required. Please contact ROTZLER for details

Recommended hydraulic oil / fields of application

H-LP 22 : for Nordic conditions
 H-LP 32 or 46 : for Central and Southern Europe conditions
 H-LP 68 or 100 : for tropical conditions

NATO OIL H-540 : universal use

NATO OIL H-544 : universal use

NATO OIL H-515 : universal use

Hydraulic oil temperature

At normal operation of the winch system hydraulic oil temperatures should be between + 30° C and + 60° C. If the oil temperature is too low respectively too high, the sealing rings will lose their sealing characteristics and the durability of the hydraulic oil will be reduced.

2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

9

Winch

Performance data*

Max. load	70 kN
Nominal load in low gear	58 kN
Nominal load in high gear	12 kN
Nominal rope speed low gear	10 m/min
Nominal rope speed high gear	30 m/min
Weight (winch, approx.)	103 kg
Weight (winch, rope, st. drum, approx.)	175 / 179 / 201 kg

Dimensions**

Winch length approx.	520 mm
Winch height approx.	440 mm
Winch width approx.	405 mm

Hydraulic System*

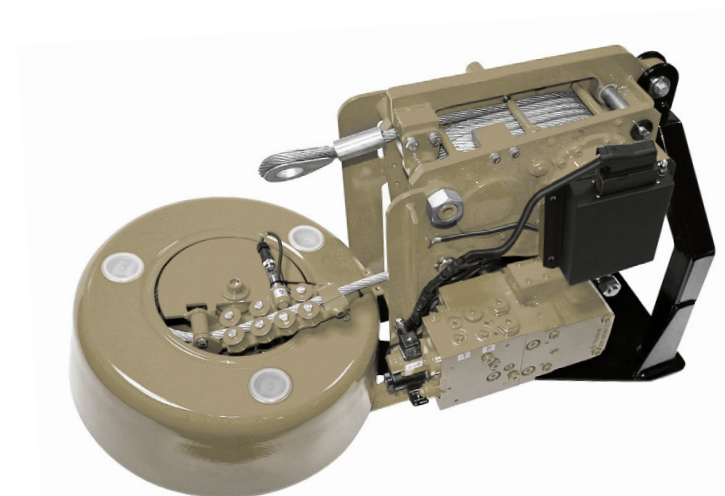
Max. oil pressure***	240 bar
Max. volume flow***	50 l/min
Min. volume flow	8 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

Rope / Storage Drum

Rope diameter	13 mm
Total rope length****	60 / 65 / 90 m
approx. usable length	90 %
Rope weight	50 / 54 / 75 kg
Drum weight	22 / 22 / 23 kg
Drum diameter	470 / 470 / 520 mm
Drum height	265 / 265 / 265 mm



* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design.

*** Peak pressure at winch start-up.

A separate drain line direct from the winch to the tank is required.

The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 **TR 080** TR 200 TR 350 winches

10

Winch

Performance data*

Max. load	110 kN
Nominal load in low gear	91 kN
Nominal load in high gear	15 kN
Nominal rope speed low gear	8 m/min
Nominal rope speed high gear	28 m/min
Weight (winch, approx.)	140 kg
Weight (winch, rope, st. drum, approx.)	233 / 242 / 281 kg

Dimensions**

Winch length approx.	515 mm
Winch height approx.	318 mm
Winch width approx.	580 mm

Hydraulic System*

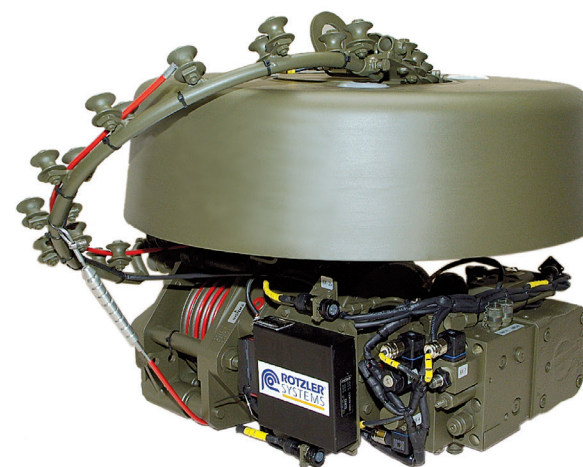
Max. oil pressure***	240 bar
Max. volume flow***	60 l/min
Min. volume flow	10 l/min

Electrical system

Rated voltage	24 V DC
Fuse	7,5 A

Rope / Storage Drum

Rope diameter	16 mm
Total rope length****	60 / 70 / 90 m
approx. usable length	90 %
Rope weight	70 / 75 / 110 kg
Drum weight	23 / 27 / 31 kg
Drum diameter	520 / 570 / 650 mm
Drum height	265 / 265 / 265 mm



* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design.

*** Peak pressure at winch start-up.
A separate drain line direct from the winch to the tank is required.
The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

11

Winch

Performance data*	200 kN type	250 kN type
Max. load	250 kN	300 kN
Nominal load in low gear	208 kN	250 kN
Nominal load in high gear	45 kN	55 kN
Nominal rope speed low gear	13 m/min	12 m/min
Nominal rope speed high gear	40 m/min	35 m/min
Weight (winch, approx.)	535 kg	550 kg
Weight (winch, rope, st. drum, approx.)	845 / 896 / 1.042 kg	840 / 895 / 995 kg

Dimensions**

Winch length approx.	740 mm	740 mm
Winch height approx.	630 mm	630 mm
Winch width approx.	990 mm	990 mm

Hydraulic System*

Max. oil pressure***	350 bar	330 bar
Max. volume flow***	150 l/min	170 l/min
Min. volume flow	15 l/min	20 l/min

Electrical system

Rated voltage	24 V DC	24 V DC
Fuse	7,5 A	7,5 A

* All data are based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design

*** Peak pressure at winch start-up.
A separate drain line direct from the winch to the tank is required.
The winch can be supplied for installation with a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

Rope / Storage Drum	200 kN type	250 kN type
Rope diameter	24 mm	26 mm
Total rope length****	75 / 90 / 110 / 120 / 130 m	60 / 75 / 100 / 110 m
approx. usable length	90 %	90 %
Rope weight	220 / 266 / 315 / 360 / 385 kg	210 / 260 / 340 / 370 kg
Drum weight	90 / 95 / 115 / 135 kg	90 / 95 / 115 / 135 kg
Drum diameter	700 / 800 / 900 / 1000 mm	700 / 800 / 900 / 1000 mm
Drum height (max.)	505 / 505 / 505 / 505 mm	505 / 505 / 505 / 505 mm



2. Technical Information and Data

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 **TR 350** winches

12

Winch

Performance data*

Max. load	400 kN
Nominal load in low gear	350 kN
Nominal load in high gear	35 kN
Nominal rope speed low gear	10 m/min
Nominal rope speed high gear	80 m/min
Weight (winch, approx.)	1,150 kg
Weight (winch, rope, st. drum, approx.)	1,960 / 2,180 kg

Dimensions**

Winch length approx.	1.055 mm
Winch height approx.	680 mm
Winch width approx.	1.090 mm

Hydraulic System*

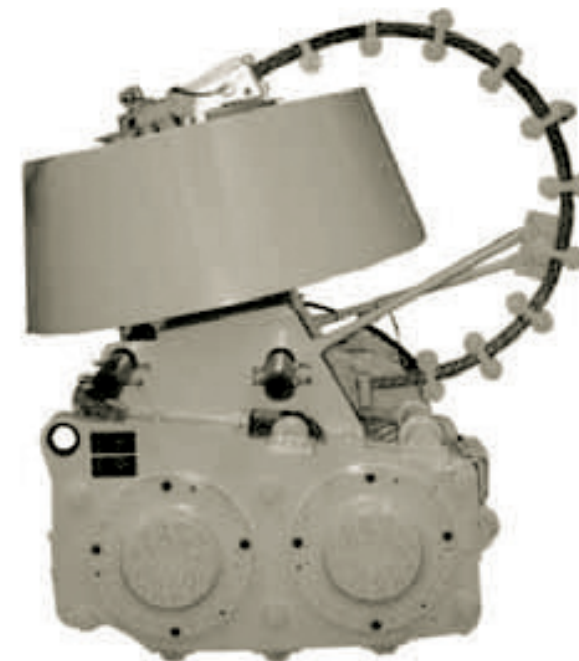
Max. oil pressure***	350 bar
Max. volume flow***	200 l/min
Min. volume flow	20 l/min

Electrical system

Rated voltage	24 V DC
Fuse	8 A

Rope / Storage Drum

Rope diameter	33 mm
Total rope length****	120 / 160 m
approx. usable length	90 %
Rope weight	670 / 890 kg
Drum weight	140 / 140 kg
Drum diameter	1,150 / 1,150 mm
Drum height	590 / 590 mm



* All data is based on an oil viscosity of 39 cSt, an ambient temperature of 23 °C and a back pressure not exceeding 10 bar (148 psi). All data and dimensions are to be understood as approx. numbers only and subject to change without prior notice.

** Dimensions vary according to customer specific design.

*** Peak pressure at winch start-up.

A separate drain line direct from the winch to the tank is required.

The winch can be supplied in two versions: for installation with a constant pump or a load sensing pump system.

**** Depends on the storage capacity of the storage drum and the length of rope guide.

3. Service

Premium quality for premium recovery solutions

TREIBMATIC TR 030 TR 080 TR 200 TR 350 winches

13

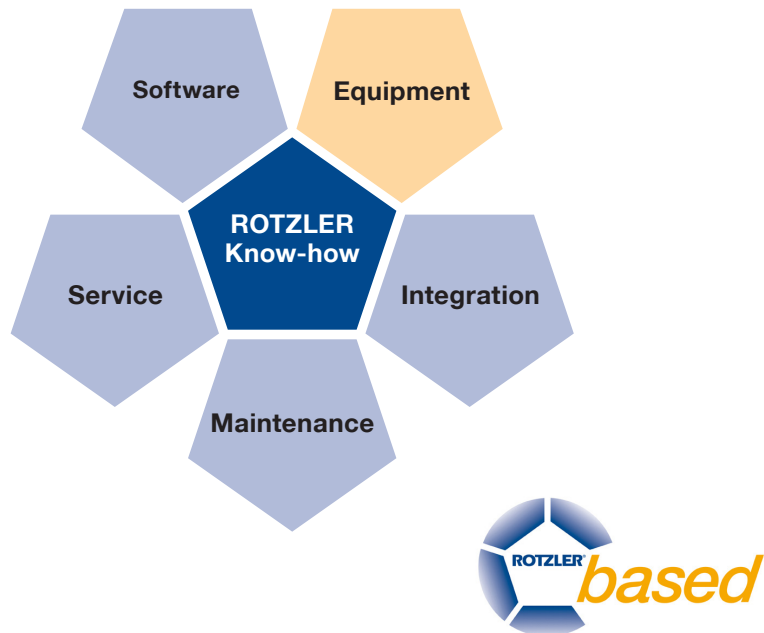
ROTZLER based: Quality seal for premium recovery systems

ROTZLER provides all you need for successful pulling and recovery applications:

Winches, accessories, electronics, customised development and recovery systems designed to meet the demanding application requirements.

For recovery vehicles, ROTZLER has developed a broad package including solutions for hydraulic, electronic and operation, products, support and software development. The quality seal „ROTZLER based“ stands for optimised performance, user friendly operation, on-target maintenance, outstanding functional availability and excellent value for money.

TREIBMATIC recovery winches are an essential part of ROTZLER based premium recovery systems.



ROTZLER – your expert for winch systems

Our international team of experts offers you competent service and optimised application solutions to meet your specific requirements.

Please call us or send us an e-mail for detailed information about Rotzler's products and services or customized solutions:

ROTZLER GMBH + CO. KG, Germany

Technical Sales Support
Phone +49(0)7627 701-133
Fax +49(0)7627 701-198

After Sales Services
Phone +49(0)7627 701-112
Fax +49(0)7627 701-266

info@rotzler.de
www.rotzler.de

ROTZLER INC., Canada

Customer Service
Phone +1 604 940-7134
Fax +1 604 940-7135

rotzler.canada@rotzler.de
www.rotzler.com

ROTZLER KOREA LTD.

Phone +82 55 282 5067
Fax +82 55 600 6220

rotzler.korea@rotzler.com
www.rotzler.com

ROTZLER Deutschland GmbH + Co. KG

Winches, Capstans and Winch systems
Robert-Bosch-Strasse 4
79585 Steinen
Germany
Phone +49(0)7627 701-0
Fax +49(0)7627 701-166
info@rotzler.de

ROTZLER Canada Inc.

Unit 122, 7350 - 72nd Street
Delta, B.C. V4G 1H9
Canada
Phone +1 604 940-7134
Fax +1 604 940-7135
rotzler.canada@rotzler.de

ROTZLER Korea Ltd.

SK Technopark Mecha Zone #308
77-1, Seongsan-dong, Seonsangu,
Changwon, Gyeongnam 642-971
Korea
Phone+82 55 282 5067
Fax +82 55 600 6220
rotzler.korea@rotzler.com

ROTZLER India Pvt. Ltd.

S 806, Manipal Center,
No. 47, Dickenson Road
560042 Bangalore
India
Phone +91 80 40963642
info@rotzler.com