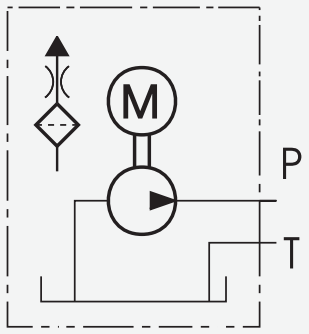
HYDAC INTERNATIONAL

HP Series
High Pressure Power Units

HYDAC "HP" Series high pressure power units are designed to provide a stand alone high pressure hydraulic power source with controls and reservoir all in a rugged modular construction.



Ratings:

- Maximum Pressure: 10,000 PSI
- Maximum Flow: 0.82 GPM
- Short term / Intermittent duty

FEATURES

High Pressure
High pressure piston pump elements can provide system pressures to 10,000 psi.

Compact
Pump and motor are internal to the tank. Unit can be portable or installed as an integral part of a new design or existing machine.

Low Noise
Pump and motor are oil-immersed, dampening vibration and noise.

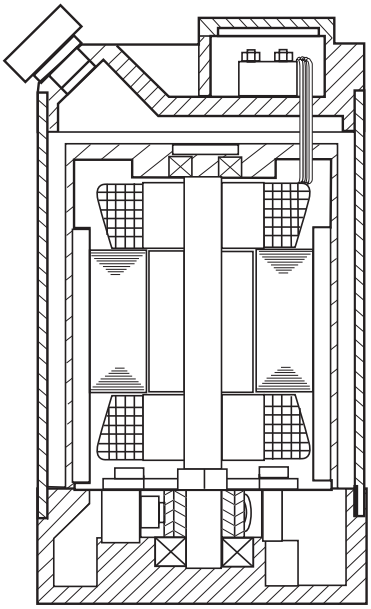
Complete Package
Modular design of controls allows for simple or complex circuit solutions all from one source.

Heavy, Rugged Design
Cast foot housing and thick-walled steel tank provide a tough, yet attractive, power unit.

Global Service & Availability
HYDAC is an international company with world-wide resources to service your needs.

FUNCTION

An electric, oil-immersed motor directly drives a triple element piston pump. Motors with output ranges of 0.38 to 1.50 HP at 1800 RPM are used. This results in an offering of many combinations that can be adapted to specific applications.



An extensive choice of control packages are available. Standard control blocks and a modular stacking valve system are available. Special customer specific manifolds are built to provide low cost solutions in quantity applications.

HP Series power units are rated for short term (S2) or intermittent (S3) duty. These ratings are detailed in this brochure.

Additional assistance with selection and application of all HYDAC products is available by contacting your local distributor or regional HYDAC sales manager.

HYDAC

Contents

HP Series

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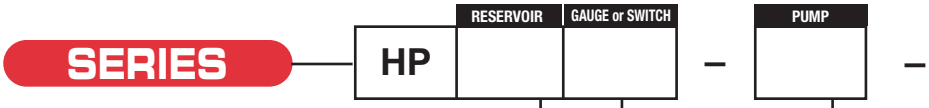
Model Code / Ordering Information



RESERVOIR

Code	Filling Volume (gallons)	Usable Volume (gallons)	
		Without fluid level switch	With fluid level switch
0	.28	.18	Not Available
1	.62	.41	.33
1H	1.04	Not Available	.75
2	1.04	.72	.57
2H	1.82	Not Available	1.22

FLUID LEVEL GAUGE OR LOW LEVEL SWITCH

Code	Description
OMIT	No gauge or switch
F*	Fluid level gauge
O*	Fluid level switch

*Code F and O - not available on HP0.

PUMP

HP0

Code	Flow Rate (GPM)	Single Phase Motor .38 HP			3 Phase Motor .44 HP		
		Pressure (PSI)	Load (AMP)		Pressure (PSI)	Load (AMP)	
			110V	220V		230V	460V
.36	0.09	7900	6.4	3.2	9400	3	1.5
.62	0.16	4700	6.4	3.2	5600	3	1.5
.95	0.24	3000	6.4	3.2	3400	3	1.5
1.50	0.39	1700	7.0	3.5	2300	3	1.5
1.95	0.51	1400	7.0	3.5	1700	3	1.5

HP1/HP1 H

Code	Flow Rate (GPM)	Single Phase Motor 1.0 HP			3 Phase Motor 1.0 HP		
		Pressure (PSI)	Load (AMP)		Pressure (PSI)	Load (AMP)	
			110V	220V		230V	460V
.60	0.15	10000	11.6	5.8	10000	3.6	1.8
1.00	0.26	6500	11.6	5.8	8700	4.8	2.4
1.50	0.39	4300	11.6	5.8	5500	4.8	2.4
2.40	0.62	2700	11.6	5.8	3600	5.0	2.5
3.15	0.82	1800	11.6	5.8	2600	5.0	2.5

HP2/HP2 H

Code	Flow Rate (GPM)	Single Phase Motor 1.5 HP			3 Phase Motor 1.5 HP		
		Pressure (PSI)	Load (AMP)		Pressure (PSI)	Load (AMP)	
			110V	220V		230V	460V
.60	0.15	10000	11.6	5.8	10000	3.8	1.9
1.00	0.26	10000	16.6	8.3	10000	5.0	2.5
1.50	0.39	6500	16.2	8.1	6500	5.4	2.7
2.40	0.62	4300	17.4	8.7	5000	6.2	3.1
3.15	0.82	3300	17.4	8.7	3600	6.2	3.1

MOTOR – BREATHER THERMAL SWITCH + CONTROLS

THERMAL SWITCH

Code	Type
OMIT	Without Switch
TS	With Switch

Thermal switch actuates at 175°F. Thermal switch can provide a degree of safety against problems associated with operating the units beyond their intended use.

BREATHER

Code	Type
OMIT	HP0 Standard Cap
	HP1/HP2 Standard
1	HP0 BF4, 10 micron
	HP1/HP2 BF4, 10 micron

MOTOR

HP0

Code	Phase	Voltage
34	Three	230V - 60HZ
36		460V - 60HZ
80	Single	115V - 60HZ
81		220V - 60HZ

HP1/HP1 H

40	Three	220-230/ 440-460V - 60HZ
85	Single	110-115V 220-230V - 60HZ

HP2/HP2 H

40	Three	220-230/ 440-460V - 60HZ
85	Single	110-115V 220-230V - 60HZ

CONTROLS

Modular Construction Allows for a Wide Selection of Control Options

GR

Basic Module includes: relief valve used when no other control values are to be mounted on the unit. See Pg. 6.

SW3

Lifting/Lowering Module mainly for single acting cylinders. See Pg. 7.

SB3

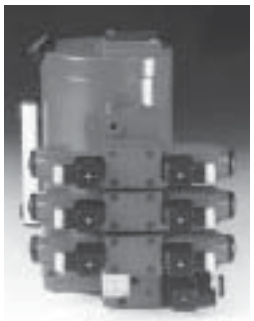
Multi-function module with pressure switch. See Pg. 8.

CER

Build on module with the capability to mount a single station valve with NFPA D03 Interface. See Pg. 8.

CL

Stacking modules designed for multi-station mounting of spool valves with NFPA D03 Interface. See Pg. 9.



L

Base module with relief and check valve to mount "L" series modular stacking valves. See pg. 10.

HP Series

APPLICATIONS

- **Machine Tool Clamping**
- **Special Machines and Fixtures**
- **Hydraulic Hand Tools, requiring high pressure**
- **Safety Circuits**
- **Dental Chairs**
- **Hospital Beds**
- **Braking Circuits**

DUTY RATINGS

S2 - Short Term Operation
The unit operates for a short period of time, reaching its maximum thermal limit. During time at rest, the unit is allowed time to cool to ambient temperature. This type of operation is usually random, not cyclical. S2= approximately 5 minutes at full load

S3 - Intermittent Operation
The unit operates in a continuous cycle of run time and idle time. During time at rest, it is not allowed to cool to ambient temperature. However, the unit has cooled sufficiently to allow for the next load cycle without exceeding the thermal limit. S3= approximately 10% on-time per total cycle

Specifications / Engineering Data

GENERAL

Construction	Triple element pistion pump directly driven by an oil immersed AC motor. Steel reservoir and cast foot housing.			
Pressure	Up to 10,000 PSI (700 bar)			
Flow Rate	Up to 0.82 GPM (3.1 LPM)			
Mounting Type	4 mounting holes through the cast foot housing		HP0	0.26” (6.6mm)
			HP1 and HP2	0.35” (9.0mm)
Weight	**HP0**	**17**	All weights are without controls or oil.	
	HP1/HP1H	**30**		
	HP2/HP2H	**57**		
Mounting Position	Unit must be mounted vertically			
Seals	BUNA N			

FLUID SPECIFICATIONS

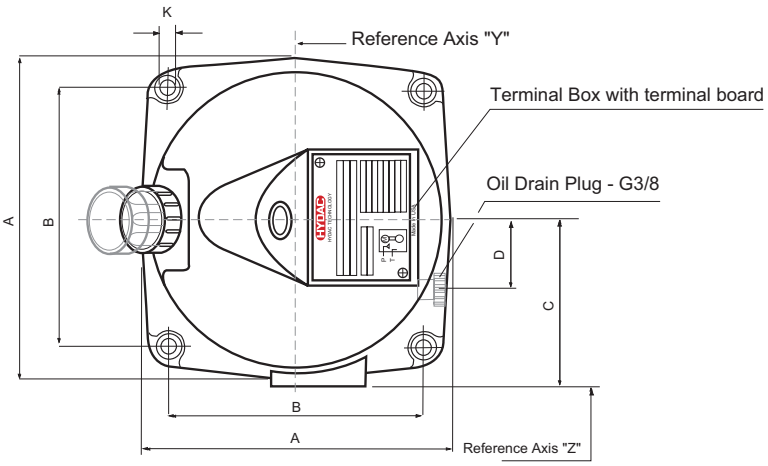
Operating Fluid	Antiwear type industrial hydraulic oils
Viscosity Range	Minimum : 50 ssu Maximum: 3700 ssu Optimum : 55 to 925 ssu
Filtration	Maximum permissable contamination : ISO 19/16
Oil Temperature	-4° F to 176° F (-20° C to 80° C)

ELECTRICAL SPECIFICATIONS

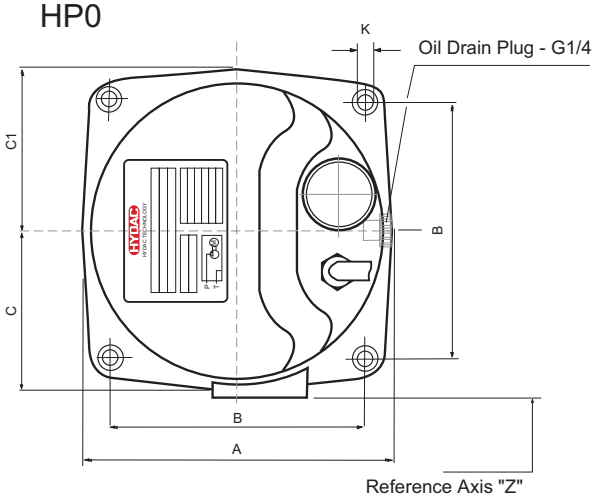
Motor	Voltage	3-Phase Motor	Please see page 3 for individual motor voltages.
		Single Phase	
	Amp Draw	See Page 2	
	Connection Type	Terminal strip in terminal box	
	Terminal Box	DIN 40050-IP54	
	Motor Rotation	CW or CCW is acceptable (pump flow internally controlled to the pressure connection)	
Thermal Switch	Actuating Temperature	175° F (80° C)	
	Switchback Hysterisis	20° - 50° F	
	Maximum Voltage	250V AC / 60V DC	
	Contact	Normally closed	
	Connection	In terminal box	
Fluid Level Switch	Contact Load	8 Watts maximum	
	Contact	Opens at minimum oil level	
	Switching Current	.2 Amps	

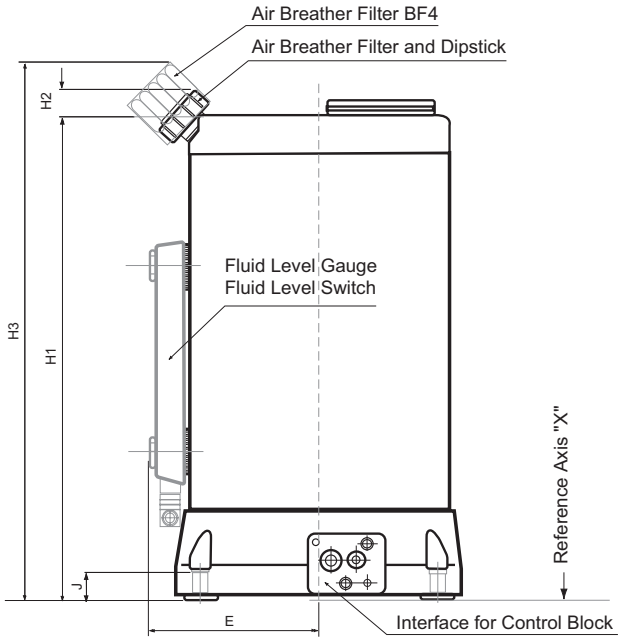
HP Series Dimensions

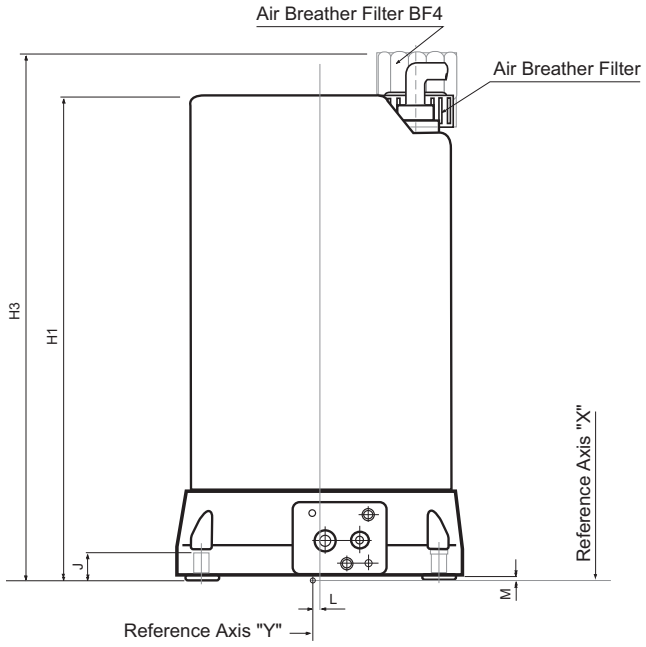
all models of
HP1 & HP2



HP0







HP SERIES

(inches)

Model	A	B	C	C1	D	E		H1	H2	H3	J	K	L	M
						GAUGE	SWITCH							
HP0	5.12	3.86	2.68	2.56	—	—	—	8.12	—	9.11	.51	.26	.10	.08
HP1	6.46	4.92	3.35	—	1.57	4.21	4.53	11.1	.590	12.4	.59	.35	—	—
HP1 H								15.4		16.7				
HP2	7.48	6.14	3.86	—	1.97	4.61	4.92	12.4	.590	13.8	.59	.35	—	—
HP2 H								17.8		19.1				

(mm)

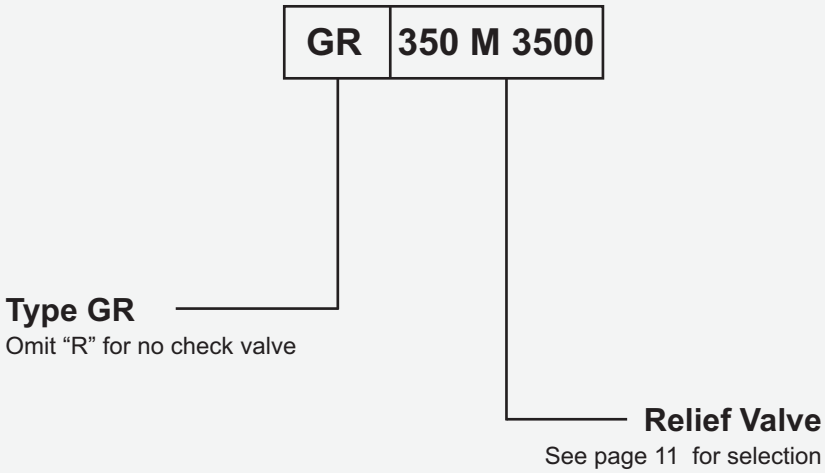
Model	A	B	C	C1	D	E		H1	H2	H3	J	K	L	M
						GAUGE	SWITCH							
HP0	133	98	68	65	—	—	—	206	—	232	13	6.6	2.5	2
HP1	164	125	85	—	40	107	115	281	15	315	15	9	—	—
HP1 H								390		424				
HP2	190	156	98	—	50	117	125	316	15	350	15	9	—	—
HP2 H								450		484				

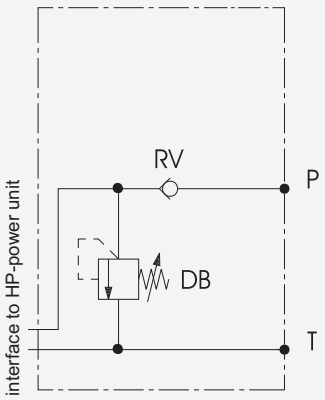
Reference lines X, Y and Z are used to calculate installation dimensions when the "L" Series Modular Stacking Valve System is used.

Control Options

Base module with an integral pressure relief valve and check valve. The unit has SAE O-Ring ports for use with a basic hydraulic circuit when control valves will not be mounted on the power unit.

Model Code Example

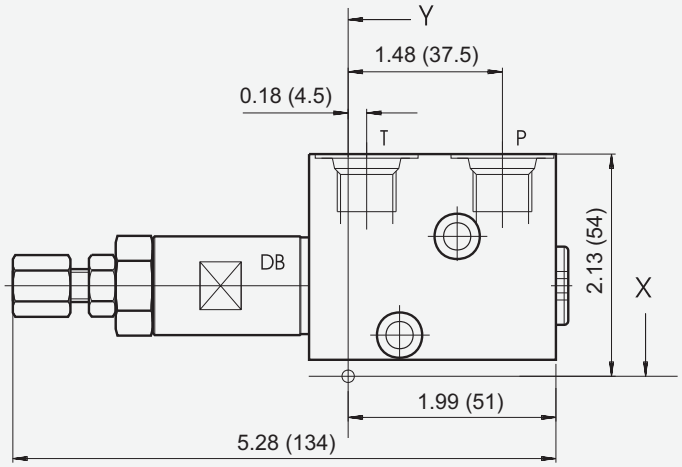




Maximum Pressure = 9000 PSI (630 bar)

Dimensions

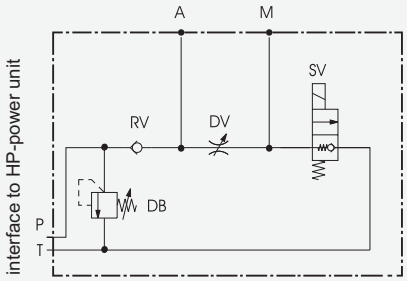
in (mm)



Port T,P = SAE 6
Installation dimension "Z" : 1.18 (30)

CONTROL TYPE SW3

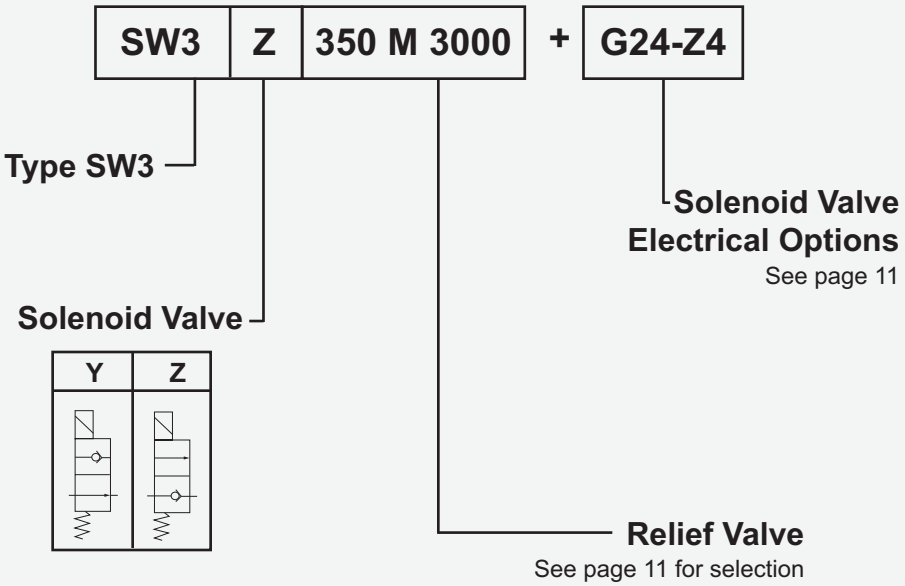
Lifting-lowering module for controlling single-acting cylinders. Includes relief, check, speed control and 2 position / 2 way solenoid valve.



Maximum Pressure = 5000 PSI (350 bar)

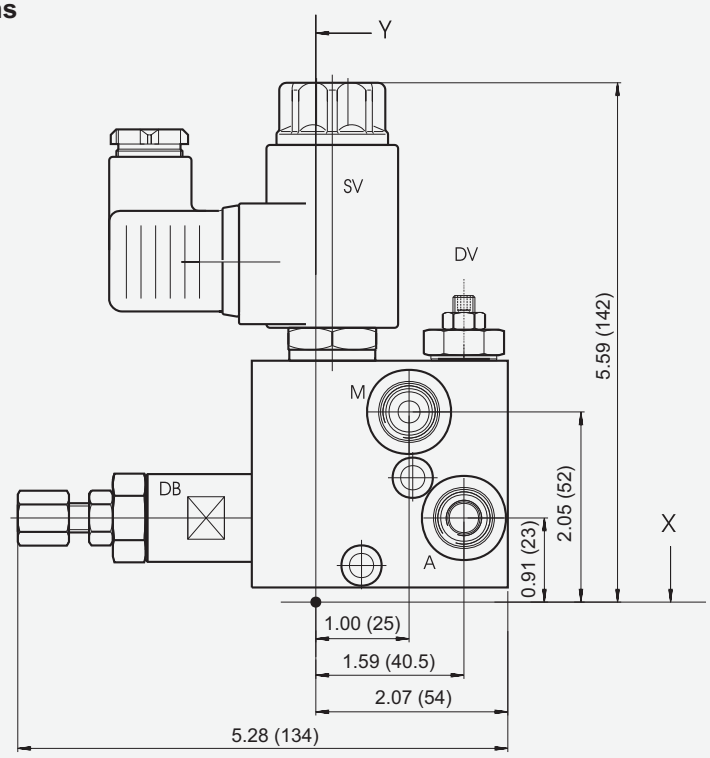
Control Options

Model Code Example



Dimensions

in (mm)

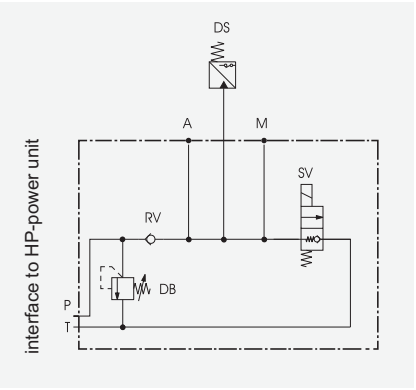


Port A, M = SAE 6

Installation dimension "Z" : 1.69 (43)

CONTROL TYPE SB3

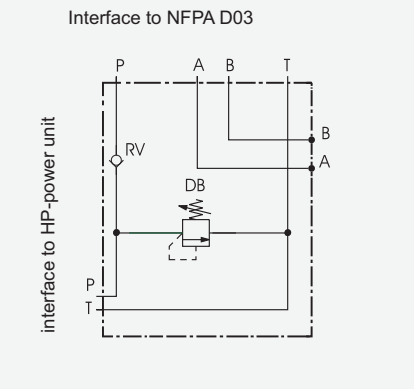
Pressure Control Module for single-acting cylinders. A pressure switch is included.



Maximum Pressure = 5000 PSI (350 bar)

CONTROL TYPE CER

Base module with pressure relief and check valve. Provides a single- station mounting of an NFPA DO3 valve.



Maximum Pressure = 5000 PSI (350 bar)

Control Options

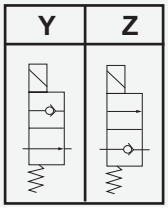
Model Code Example

SB3	Z	-	6	200 M 2500	G12L

Type SB3

Solenoid Valve

Y	Z

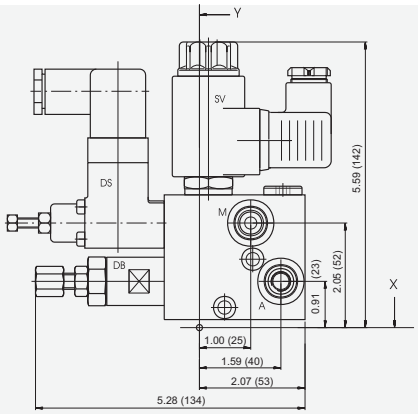


Pressure Switch
See page 11 for selection

Relief Valve
See page 11 for selection

Solenoid Valve Electrical Options
See page 11 for selection

Dimensions
in (mm)



Port A, M = SAE 6
Installation dimension "Z" : 1.69 (43)

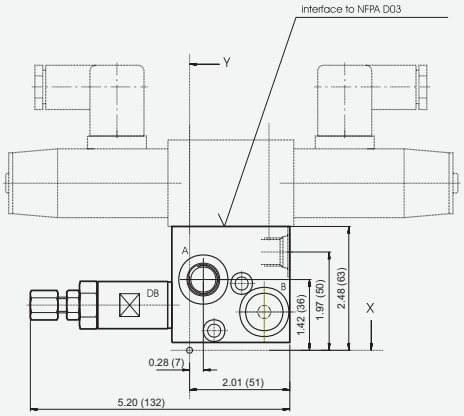
Model Code Example

CER	200 M 2000

Type CER
Omit "R" for no check valve

Relief Valve
See page 11 for selection

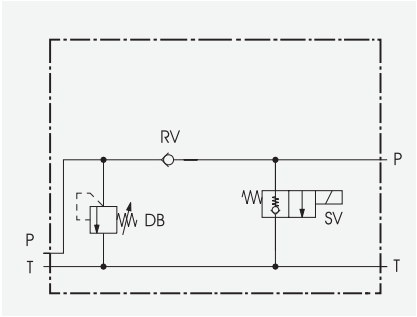
Dimensions
in (mm)



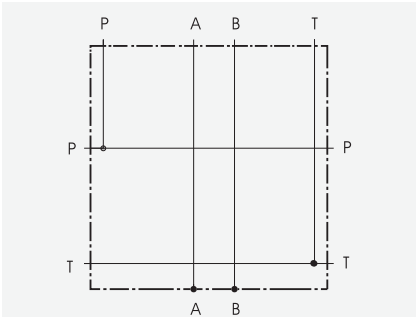
Port A, B = SAE 6
Installation dimension "Z" : 2.09 (53)

CONTROL TYPE CL

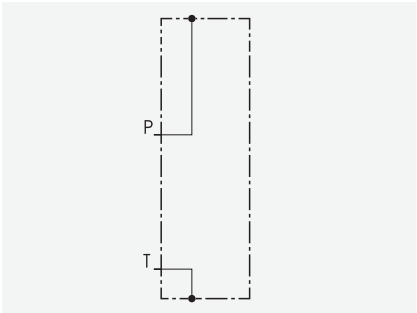
Provides up to 6 station mounting of NFPA DO3 valves. Basic module has a system relief valve, 2 position/2 way solenoid dump valve and a check valve. The number of stations must be specified, along with an end module for capping the system. The entire system is then fixed with tie rods.



Maximum Pressure = 5000 PSI (350 bar)



Each stacking module has an NFPA DO3 mounting interface and SAE O-ring ports.



End plate to cap the stack of valves.

Control Options

Model Code Example

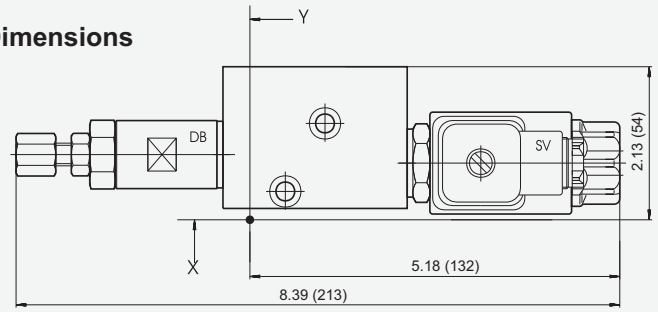
CL	3	R	200 M 2500	Z	-	G12L	+	PL

- **Type CL**
- **Number of Stations**
- **Check Valve**
  Omit "R" for no check valves
- **Relief Valve**
  See page 11 for selection
- **Solenoid Valve**
- **Solenoid Valve Electrical Options**
  See page 11 for selection

Y	Z

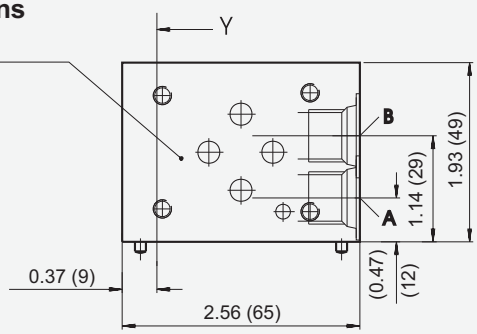
- **End Module**

CL Base Model Dimensions
in (mm)



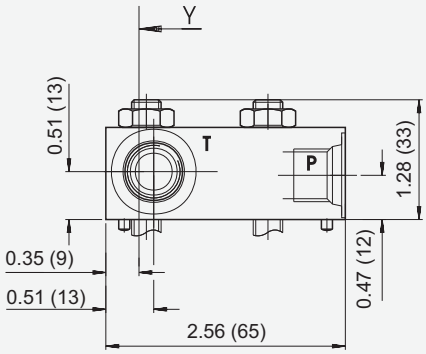
Installation dimension "Z" : 3.46 (88)

CL Stacking Module Dimensions
in (mm)



Port A, B = SAE 6
Installation dimension "Z" : 1.97 (50)

CL End Plate Dimensions
in (mm)



Port T,P = SAE 6
Installation dimension "Z" : 1.97 (50)

CONTROL TYPE L

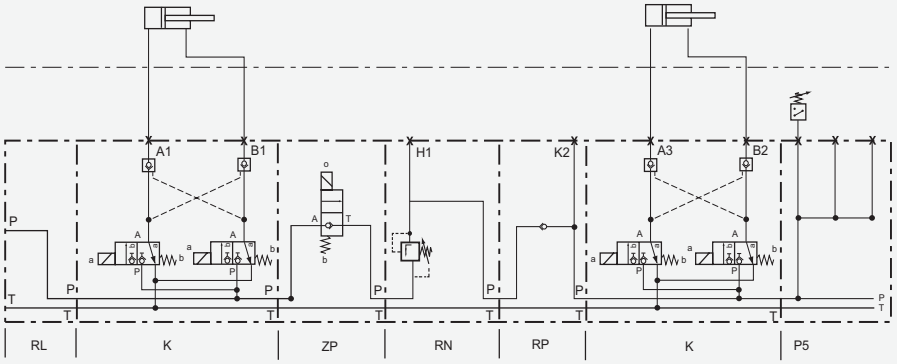
Control Type "L" is a modular stacking valve system that offers a variety of cartridge valve control modules that are stacked together to build a working hydraulic circuit. The valve stack is assembled with two tie rods.

Up to 20 modules may be tied together to provide a nearly unlimited amount of unique solutions for simple or complex applications.

Valve modules include a wide variety of pressure and directional controls featuring 100% continuous duty-rated coils and leak-free performance. This system is ideal for clamping and load holding applications.

Control type "L" is detailed in HYDAC Catalog #HHD-L.03/98. A model code selected there can be added to the end of the power unit model code to specify a complete system.

Control Type "L" Application - Sample Circuit



SPECIAL

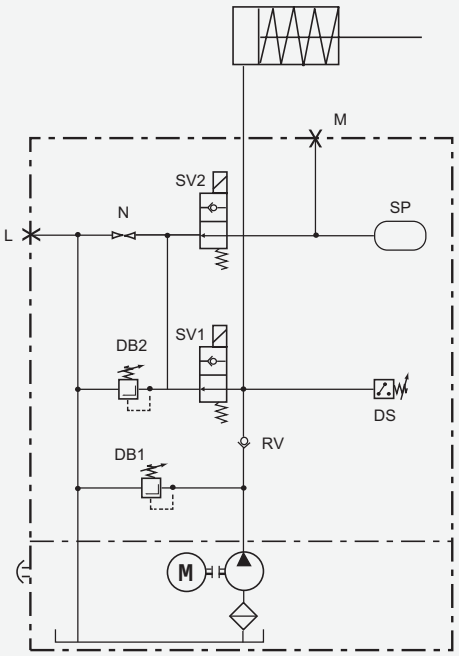
Customized control packages can be designed and then flange mounted to the hydraulic power unit to meet customer specific needs.

As seen in this catalog, several control options are available. These are designed to handle the most common hydraulic circuits and are produced and supplied as standard components.

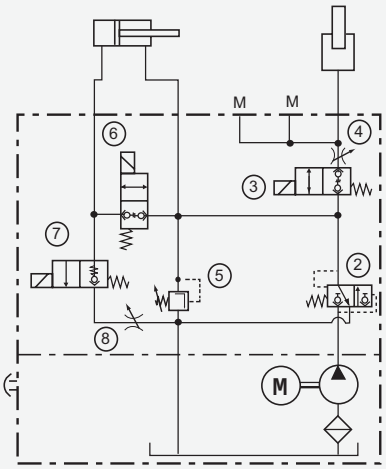
Special designs are implemented in situations where our standard module offering does not meet the application needs. Particularly when low cost / high volume requirements are involved; or, when physical size, weight, and appearance are factors.

Please contact your distributor sales representative or HYDAC directly for assistance with Special Controls.

Specially Designed System - Example



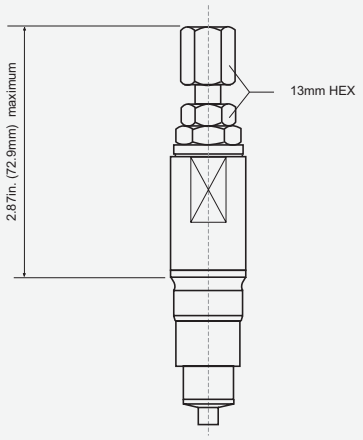
Hydraulic Braking Circuit



Dock Leveler Circuit

PRESSURE RELIEF VALVE

Dimensions
in (mm)



Model Code Example

350 M	3500

Pressure Range

Code	Range
200 M	up to 2900 PSI
350 M	up to 5000 PSI
630 M	up to 9000 PSI

Pre-Set Relieving Pressure
State cracking pressure in PSI.
Omit - valve will be set to maximum pressure capability of the pump/motor combination selected.

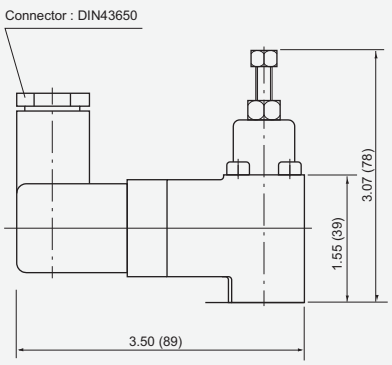
ELECTRICAL OPTIONS

Selection Table

Code	Voltage	Connection Type
G12-Z4	12V DC	3-Pin DIN43650-AF2P611
G12L	12V DC	4 inch Flying Leads
G24-Z4	24V DC	3-Pin DIN43650-AF2P611
G24L	24V DC	4 inch Flying Leads
W110-Z4	110V AC	3-Pin DIN43650-AF2P611
W230-Z4	230V AC	3-Pin DIN43650-AF2P611

PRESSURE SWITCH

Dimensions
in (mm)



Selection Chart

Code	Adjustment
5	up to 700 PSI
6	up to 2900 PSI
7	up to 5070 PSI
8	up to 9000 PSI

Switch is supplied with electrical connector.

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