

Oildyne

Compact Fluid Power Systems

Catalog HY22-1121/US



 **WARNING**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

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Parker Hannifin Corporation
Oildyne Division
Minneapolis, MN 55428 USA

INTRODUCTION	2
108 SERIES POWER UNITS	
AC and DC Motors, up to 2.8 lpm (3/4 gpm), up to 241 bar (3500 psi).....	3-10
165 SERIES POWER UNITS	
DC Motors, up to 5.3 lpm (1.4 gpm), up to 241 bar (3500 psi).....	11-18
550 SERIES POWER UNITS	
AC Motors, up to 11.4 lpm (3 gpm), up to 207 bar (3000 psi).....	19-28
MINIATURE PISTON PUMPS	
AC and DC Motors, up to .865 cc/rev (.01 in ³ /rev), up to 276 bar (4000 psi)	29-34
3-PISTON CARTRIDGE PUMPS	
Custom DC Motors, up to .33 cc/rev (.02 in ³ /rev), up to 276 bar (4000 psi).....	35-36
750 SERIES HAND PUMPS	
5.9 cc/stroke (05. in ³ /stroke), up to 172 bar (2500 psi), built-in 4-way Valve.....	37-40
09 SERIES HYDRAULIC GEAR MOTORS	
1.48 cc/rev (.09 in ³ /rev), up to 345 bar (5000 psi), up to 25000 rpm	41-42
PRESSURE SWITCHES	
Up to 345 bar (5000 psi), Single or Duplex Models	43-46
DC MOTOR INFORMATION	
Duty cycle, On-time graphs	47
OFFER OF SALE	48

Oildyne Division

The Oildyne Division of Parker Hannifin Corporation has been manufacturing top quality, compact hydraulic products since 1955. Anywhere in the world, wherever there is a need for a compact fluid power system solution requiring flows up to 3 gallons per minute and pressures to 5000 PSI, Oildyne can provide the answer from concept to completion. We're a company dedicated to providing solutions to today's needs for high pressure, space saving hydraulic installations.

A new state-of-the-art manufacturing facility has been home to Oildyne since January 1999. A QS9000 approach to delivering Premier Customer Service is supported by a dedicated team of design, manufacturing, and quality engineers using the latest technologies and equipment. Oildyne pioneered miniaturization of hydraulic components and now offers this expertise to you.

Our customers large and small are in such diverse industries as marine, recreational vehicles, automotive, medical, material handling, construction equipment, turf care, aircraft, industrial equipment, logging, trucks, rescue equipment and many more. Expand your hydraulic usage into this fast growing area of compact fluid power systems with Oildyne.



Oildyne

108 Series Hydraulic Power Units

Pressures to 241 bar (3500 psi)

Flows to 2.8 lpm ($\frac{3}{4}$ gpm)





108 Series Self-contained Hydraulic Power Units

Our compact 108 Series power units let you put the power where you need it. They're completely self-contained with an AC or DC motor, gear pump, reservoir, internal valving, load hold checks and relief valves.

The 108 Series models are designed for intermittent service and come in four standard pump sizes which produce flows of .0098, .0187, .0246, and .0321 cubic inches per revolution. Locking check valves are available in all models. Performance will vary with the type of fluid used. Several hydraulic circuits are available.

108 Series units are available with single- or bi-directional rotation. Single units are commonly used to charge accumulators, power one-direction hydraulic motors and cylinders, provide pilot flow to servo valves, pressurize lube systems and supply multi-

Typical applications

Positioning

- Hydraulic door operators
- Conveyor belt tensioners
- Medical chairs, beds, and equipment

Recreational Vehicles

- Leveling
- Slideouts
- Tent Trailers

Clamping

- Tool fixtures and jigs
- Hydraulic brakes
- Crimping tools
- Arbor presses
- Truck restraints

Cycling

- Garbage compactors
- Valve operators
- Press controls
- Packing equipment
- Indexing tables

Lifting

- Handicap lifts
- Scissor lift tables
- Pallet movers

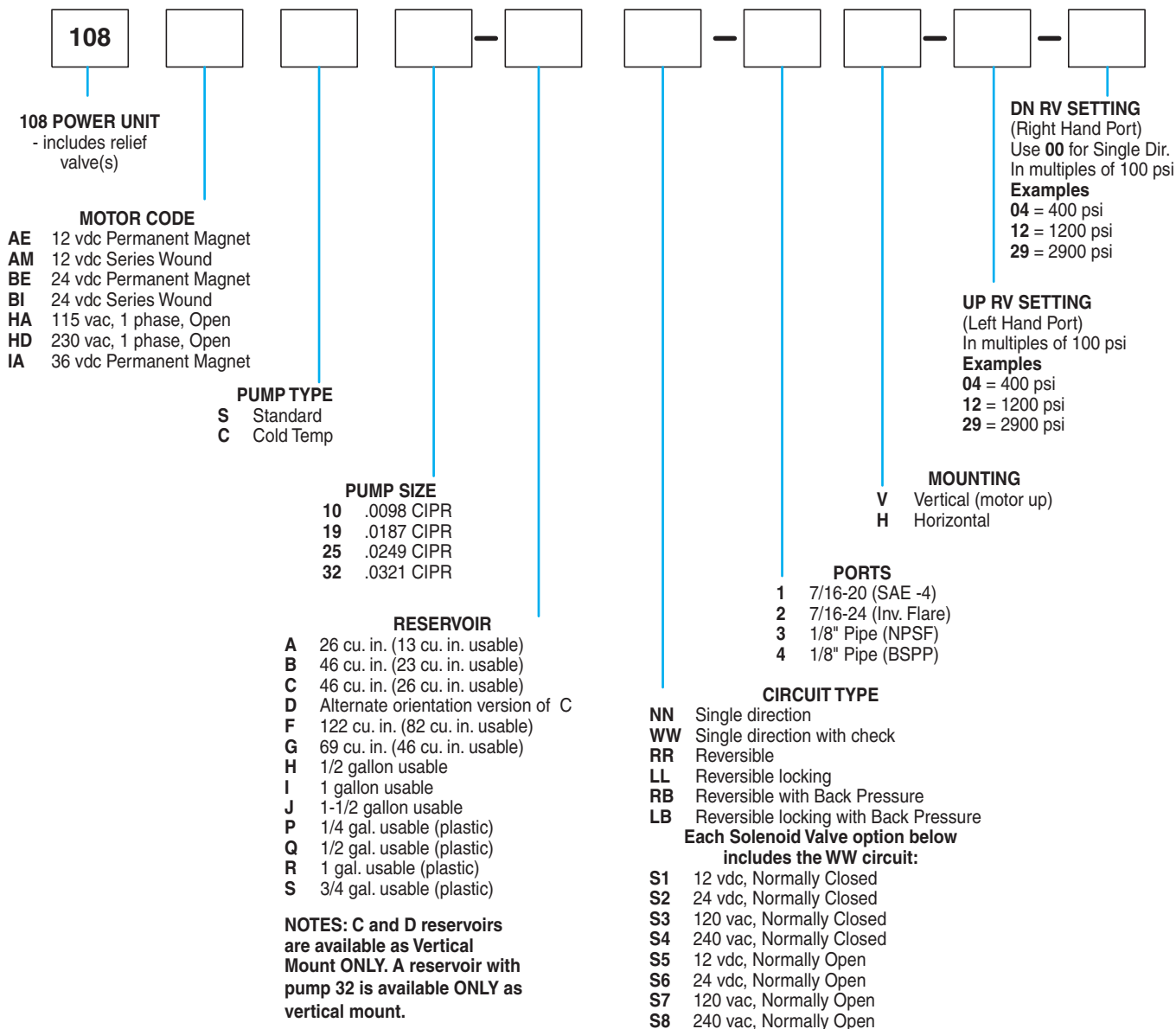
function circuits with external valving.

Bi-directional, reversible units operate double-acting cylinders and two-way motors.

We'd like to work with you on your special hydraulic applications. Our people know small hydraulics. We know how to design them, how to make them and how to apply them. Therefore, we can offer you a practical, economical solution to your fluid power problems.

Oildyne has pioneered top quality, compact hydraulic components since 1955. We can provide standard products or custom design high pressure, space saving solutions to your specific needs.

Standard Product Ordering Code



ORDERING CODE INSTRUCTIONS

Select the model code needed based on catalog information. All boxes above must be filled in before Oildyne can process the order. If the power unit is a single direction unit use '00' for the DN (Right Hand) relief valve box.

Hydraulic Fluid

ATF, OD18, or other clean hydraulic oil with a viscosity of 150 to 300 SUS at 38°C (100°F) is acceptable. If another type of fluid is needed, please consult the factory.

Temperature Range

Normal operating range is +20°F to +140°F. Please review your application with the factory for uses below -7°C and over +60°C (+20°F and over +140°F).

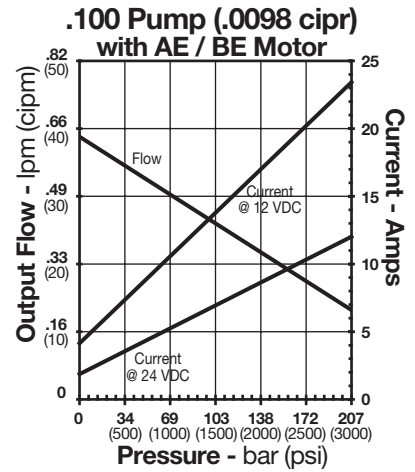
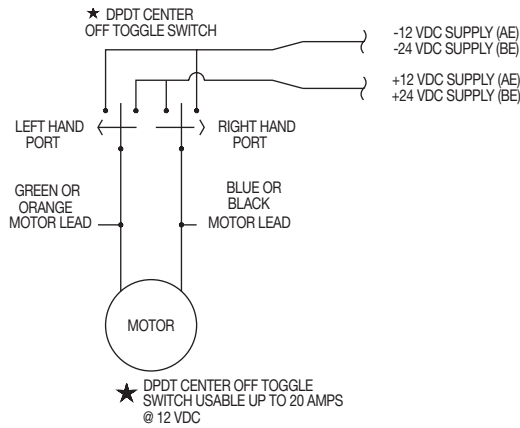
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12/24 V DC Permanent Magnet Motor • Code AE • BE

Motor Type: AE and BE
 For intermittent duty cycles.



Wiring Diagram: AE • BE

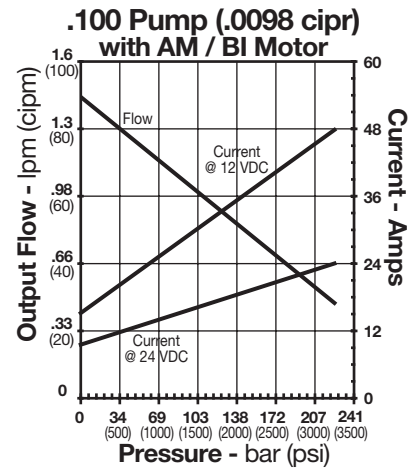
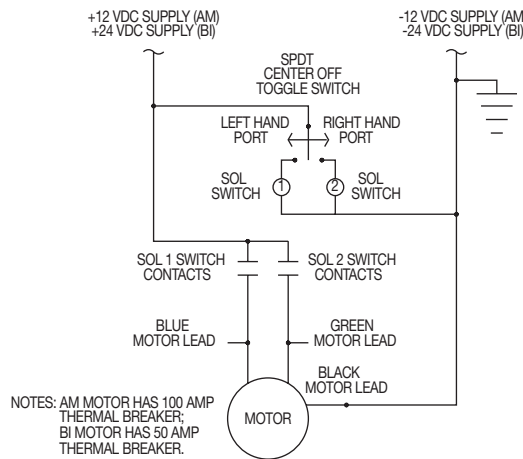


12/24 V DC Series Wound Motor • Code AM • BI

Motor Type: AM and BI
 For intermittent duty cycles.



Wiring Diagram: AM • BI

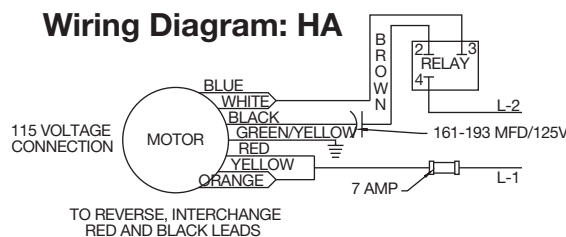


115/230 V AC Capacitor Start Motor • Code HA • HD

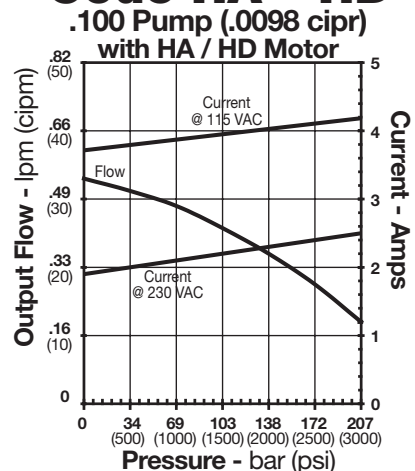
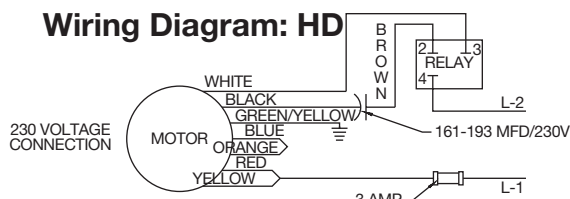
Motor Type: HA and HD
 Dual voltage 1/3 HP, 60/50 hz, 3450/2850 rpm, intermittent duty, single phase, open frame. Capacitor and relay included.



Wiring Diagram: HA

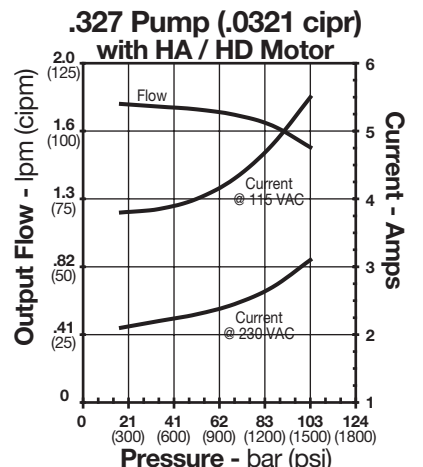
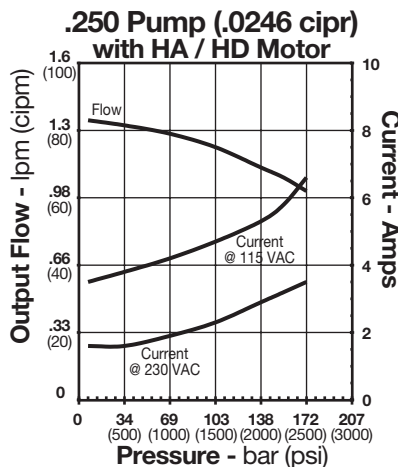
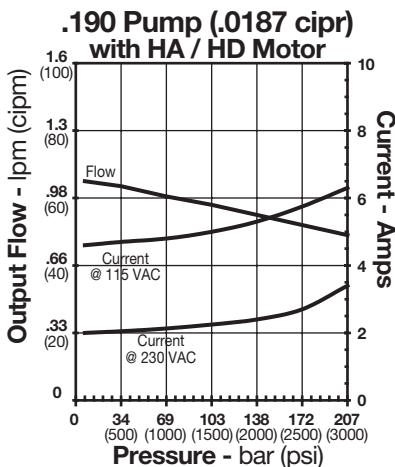
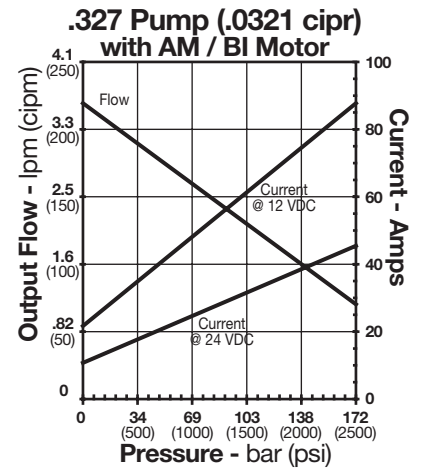
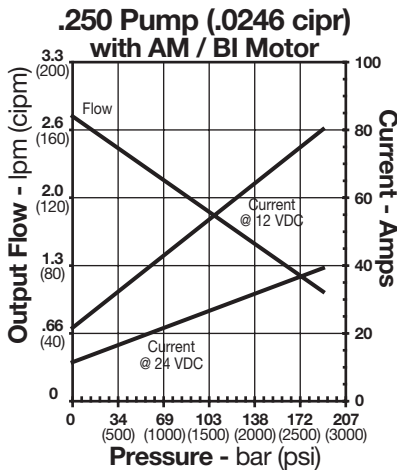
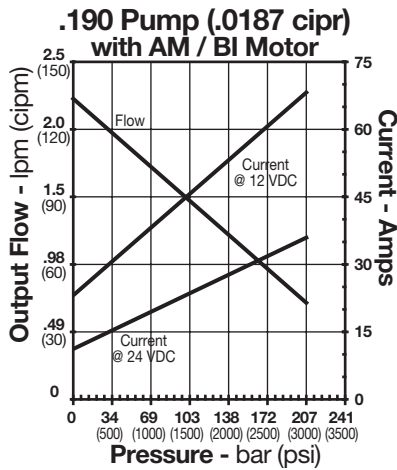
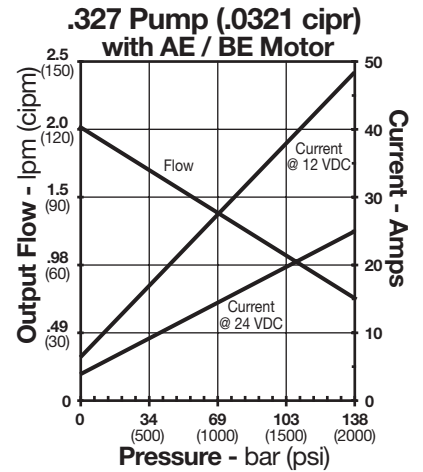
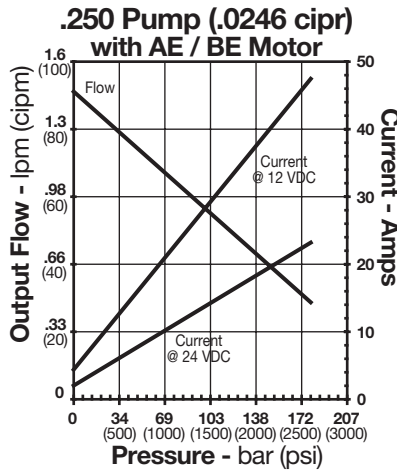
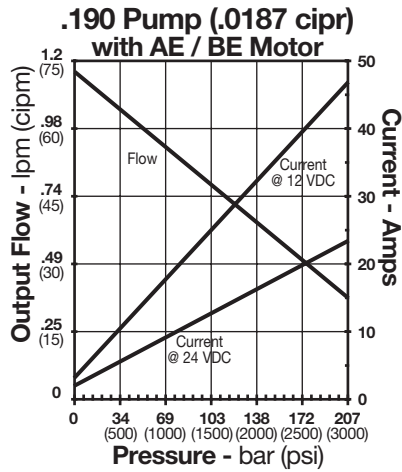


Wiring Diagram: HD

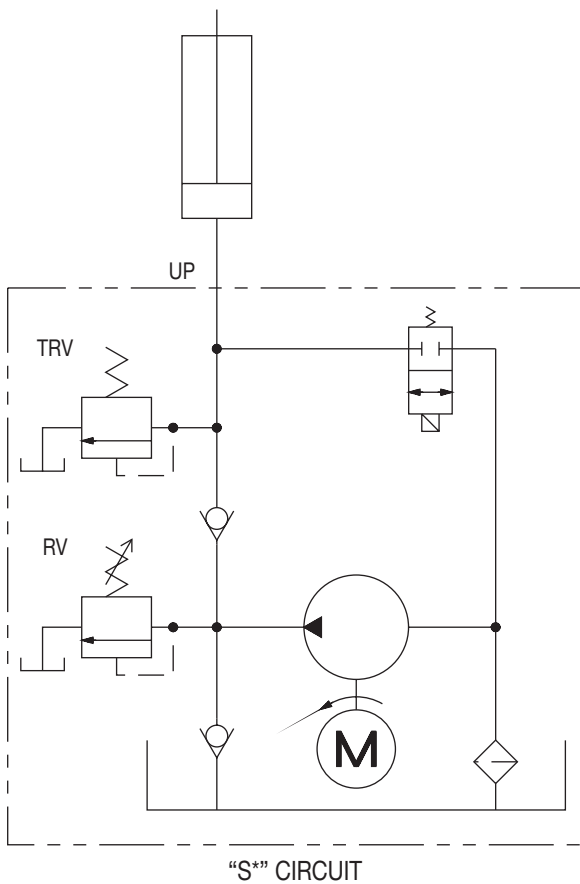
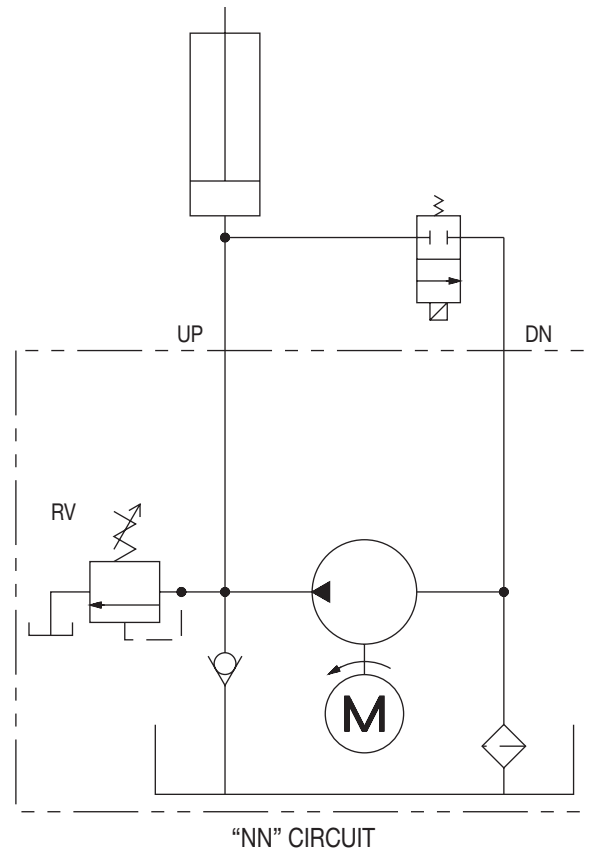
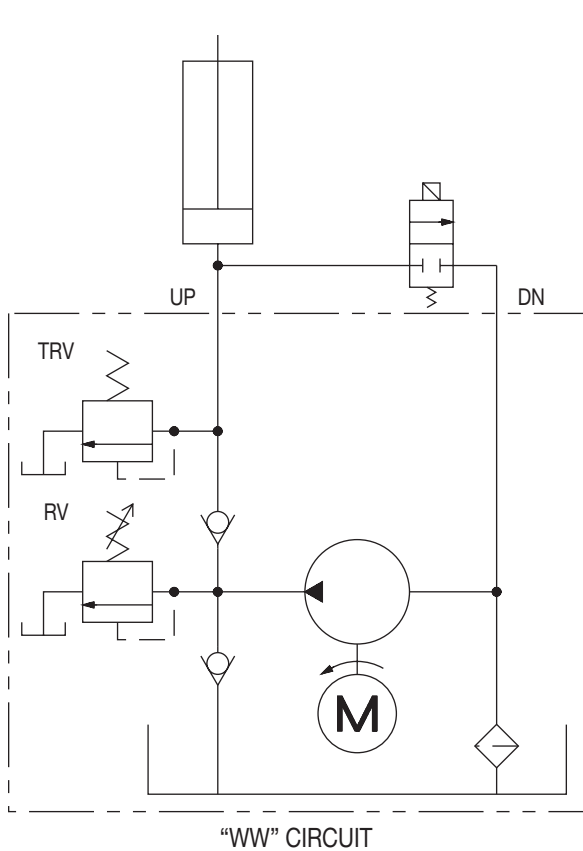


Note: 50 hz performance is 83% of curves shown.

Performance data based on ATF @ 21°C (70°F)



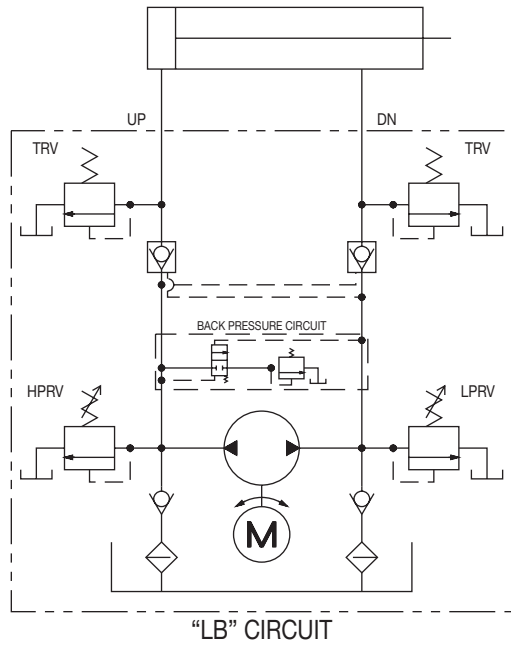
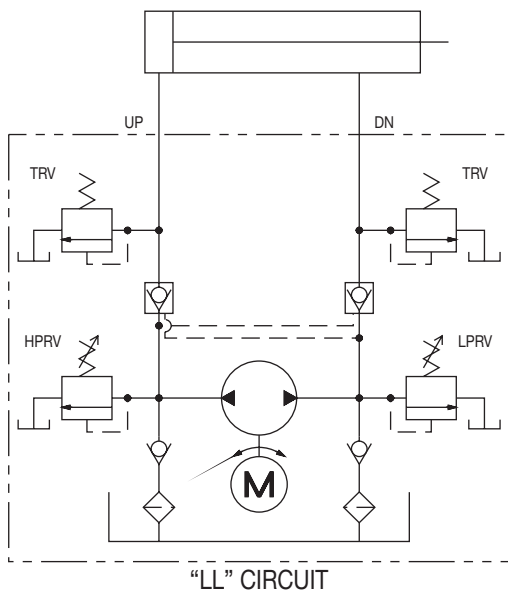
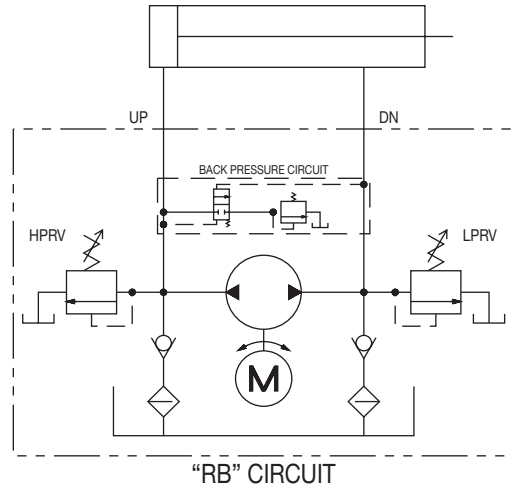
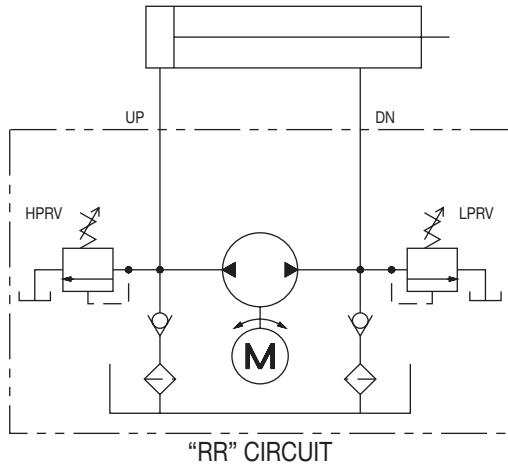
Note: Performance data is for reference only.



Thermal Relief Valves— Why?

The thermal relief valve's (TRV) purpose is to allow a bleed off of built up pressure due to thermal expansion of the fluid or to act as a (limited) shock load protection, should a cylinder in the system get bumped.

The thermal relief valve is included in circuits using a pilot operated check valve. The single direction units get one; the reversing units get two. It is located between the check valve and the 108 Series pump outlet port. It is a fixed relief valve with a pressure setting approximately 100-140 bar (1500-2000 psi) above the system relief valve pressure.



Back Pressure Circuits— Why?

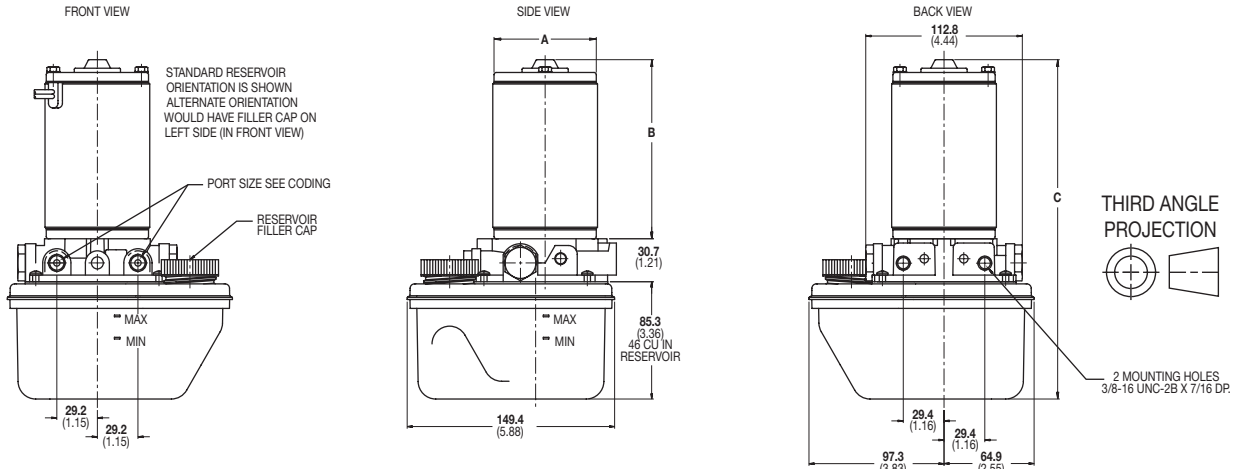
The basic reversible circuit is essentially a closed loop. The oil returning from the system is fed back into the pump inlet. When a cylinder is being retracted more oil is being returned to the power unit than is leaving it due to the rod volume. This results in the DN side relief valve cracking open allowing the rod volume of oil to go back to the tank. The larger the rod volume the more open the relief valve will be. In many applications this is not a problem. However, if work is being done on the retract stroke, or if a pressure switch is used to signal the cylinder is fully retracted, the back pressure circuit is required. This circuit allows the rod volume of

oil to return to the reservoir through a special shuttle spool, before it reaches the pump. Full relief valve pressure is then available to retract the cylinder, also preventing a pressure switch from tripping before the full retract position is achieved.

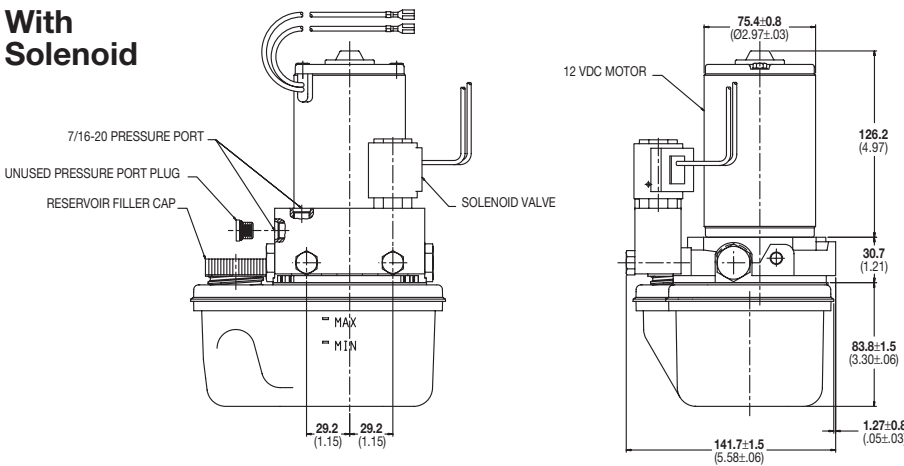
Recommended uses:

- In systems where work is being done on the retract stroke
- Where a pressure switch is used to signal the full retract position
- In systems requiring a faster retract than extend speed

Overall Dimensions



With Solenoid

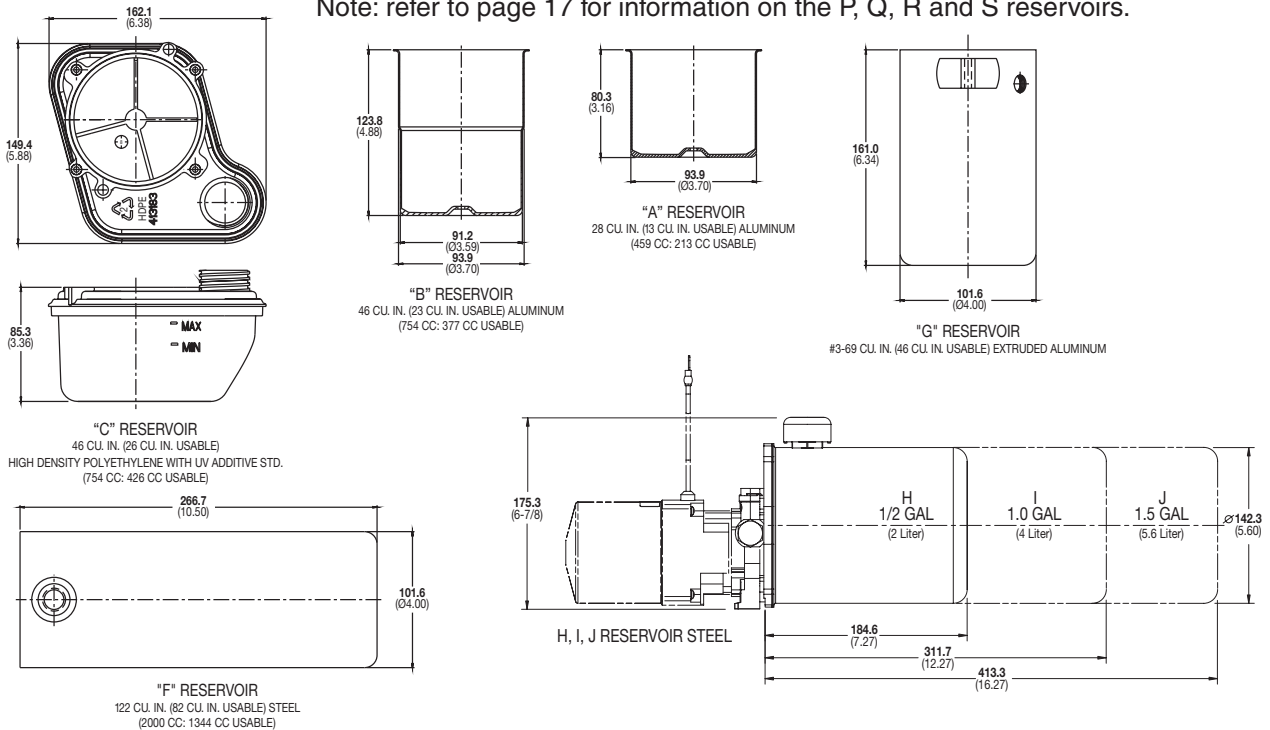


Motor Dimensions ± 1.3 (± 0.50)			
	A	B	C
AE/BE	75.4 (2.97)	126.2 (4.97)	241.3 (9.50)
AM/BI	95.8 (3.77)	151.4 (5.96)	266.4 (10.49)
IA	75.4 (2.97)	128.8 (5.07)	244.1 (9.61)
HA/HD	100.1 (3.94)	161.0 (6.34)	276.4 (10.88)

Note: All dimensions in mm (inches).

Reservoir Dimensions

Note: refer to page 17 for information on the P, Q, R and S reservoirs.



Oildyne

165 Series Hydraulic Power Units

Pressures to 241 bar (3500 psi)
Flows to 5.4 lpm (1.4 gpm)



Power Unit Features

We are pleased to introduce our new 165 Series power units. The 165 Series power units let you put more power where you need it. As big brother to our successful 108 Series, the 165 Series is completely self-contained with a DC motor, gear pump, reservoir, internal valving, load hold checks and relief valves.

The 165 Series units are designed for intermittent duty and are available in three standard pump sizes producing flows of .032, .050 and .065 cubic inches per revolution. The units are available for single or bi-directional application with a number of hydraulic circuit options similar to our 108 Series.

Single direction units are commonly used to charge accumulators, power single direction hydraulic motors and single acting cylinders, as well as multi- function circuits with external valving.

Bi-directional units are commonly used to operate double acting cylinders and reversible motors.

We look forward to working with you on your specific applications. As pioneers and specialists in the design and manufacture of high quality compact hydraulic systems, we are well qualified to offer practical and economical solutions to your fluid power problems.

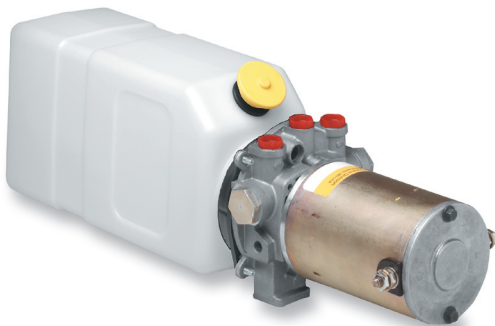
Your local Parker sales representative will be pleased to provide further information.

Features

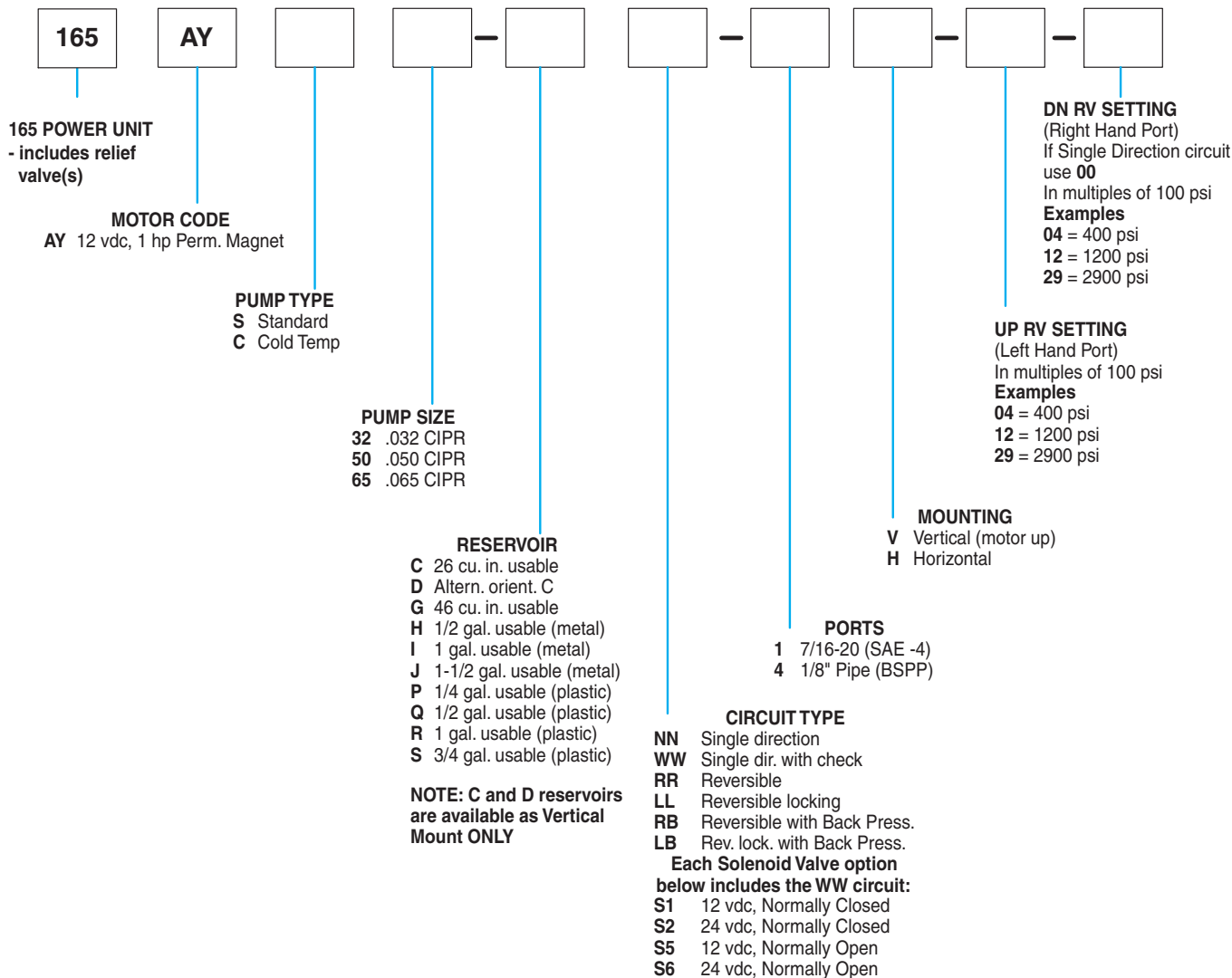
- 1 hp, 12 vdc motor
- 3 pump sizes
- Variety of circuits
- Many reservoir choices
- 241 bar (3500 psi) capability
- Soft seat load hold valves
- Vertical and horizontal mounting

Typical Applications

- Wheelchair lifts
- Scissors lift tables
- RV levelers
- RV room slides
- Cab tilts
- Mobile sign lifts
- Boat lifts
- Pallet movers
- Yours?



Standard Product Ordering Code



ORDERING CODE INSTRUCTIONS

Select the model code needed based on catalog information. All boxes above must be filled in before Oildyne can process the order. If the power unit is a single direction unit use '00' for the DN (Right Hand) relief valve box.

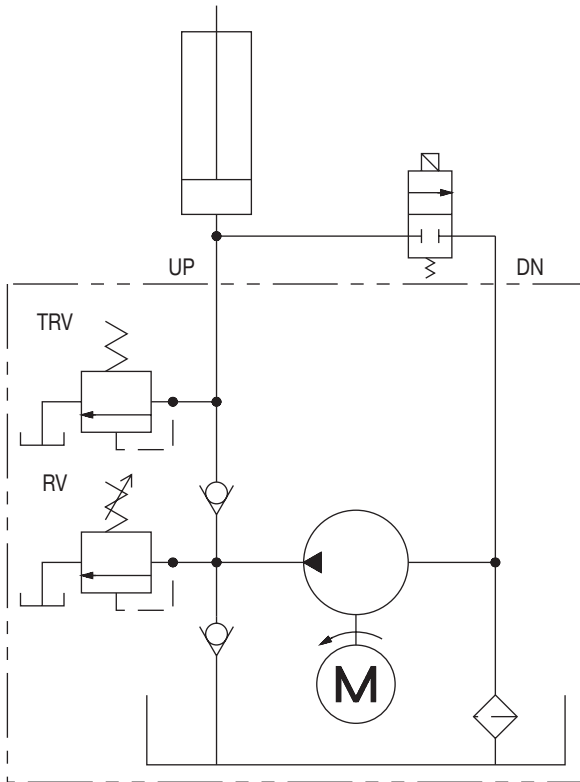
Hydraulic Fluid

ATF, OD18, or other clean hydraulic oil with a viscosity of 150 to 300 SUS at 38°C (100°F) is acceptable. If another type of fluid is needed, please consult the factory.

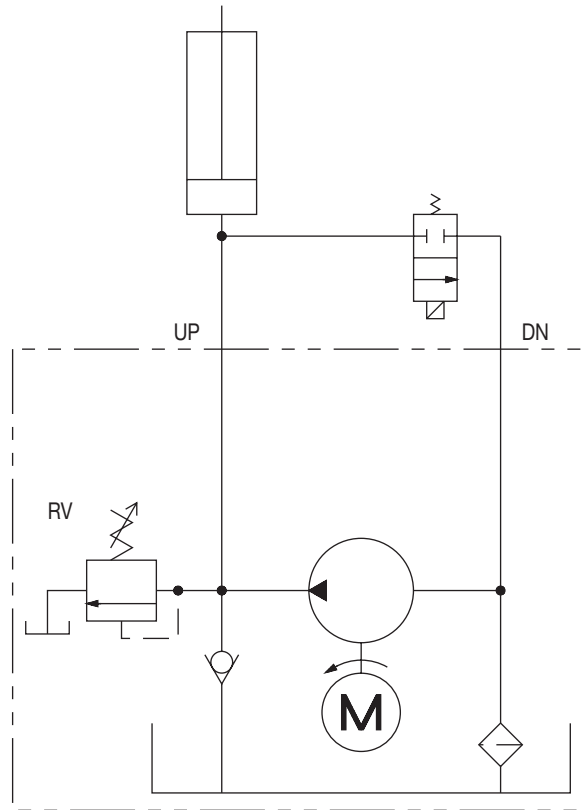
Temperature Range

Normal operating range is +20°F to +140°F. Please review your application with the factory for uses below -7°C and over +60°C (+20°F and over +140°F).

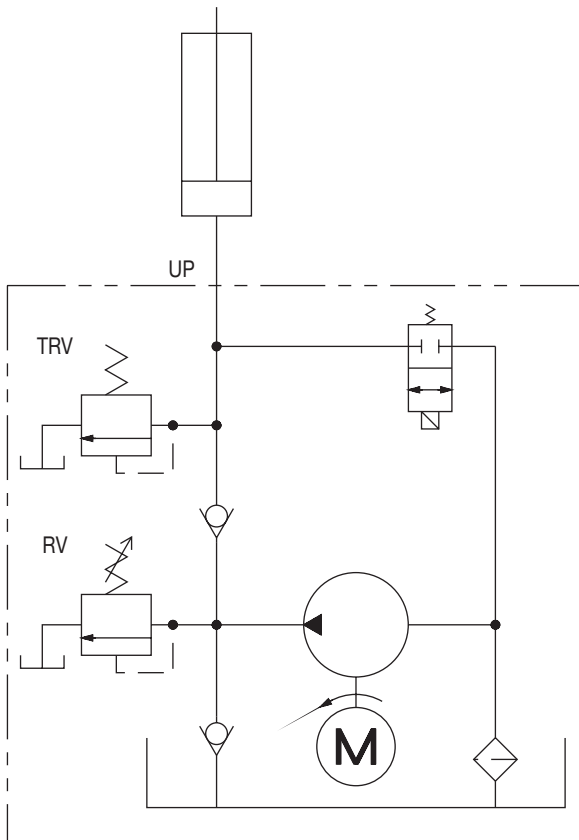
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“WW” CIRCUIT



“NN” CIRCUIT

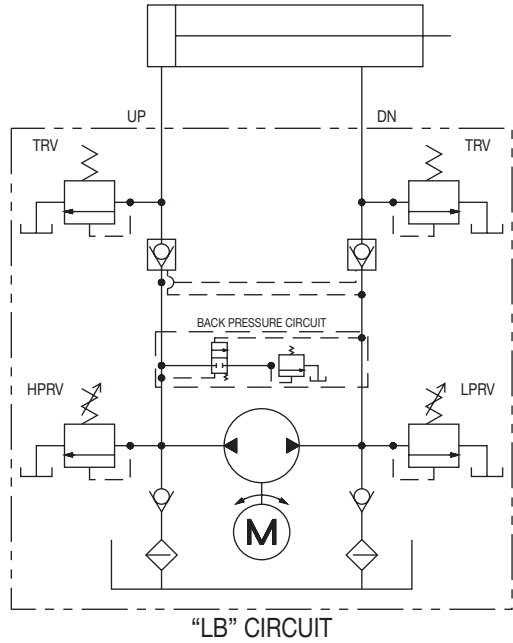
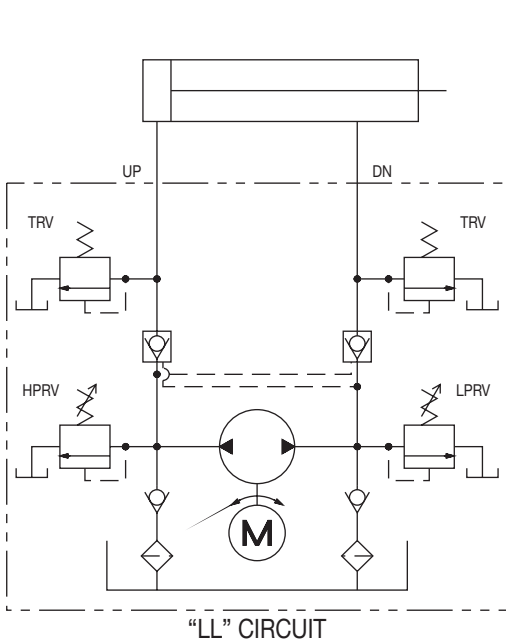
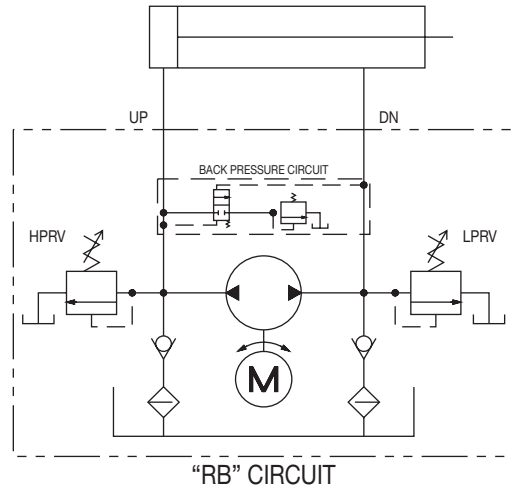
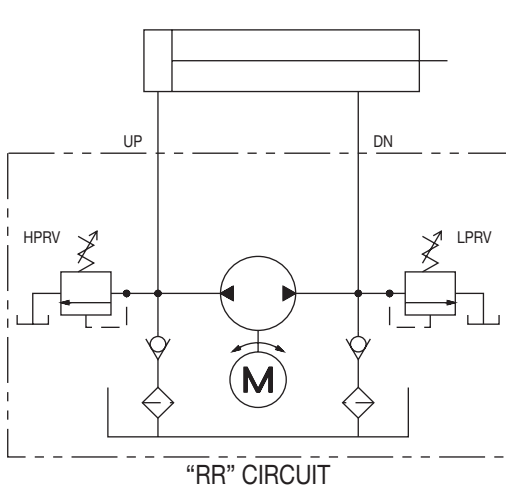


“S*” CIRCUIT

Thermal Relief Valves— Why?

The thermal relief valve's (TRV) purpose is to allow a bleed off of built up pressure due to thermal expansion of the fluid or to act as a (limited) shock load protection, should a cylinder in the system get bumped.

The thermal relief valve is included in circuits using a pilot operated check valve. The single direction units get one; the reversing units get two. It is located between the check valve and the 165 Series pump outlet port. It is a fixed relief valve with a pressure setting approximately 100-140 bar (1500-2000 psi) above the system relief valve pressure.



Back Pressure Circuits— Why?

The basic reversible circuit is essentially a closed loop. The oil returning from the system is fed back into the pump inlet. When a cylinder is being retracted more oil is being returned to the power unit than is leaving it due to the rod volume. This results in the DN side relief valve cracking open allowing the rod volume of oil to go back to the tank. The larger the rod volume the more open the relief valve will be. In many applications this is not a problem. However, if work is being done on the retract stroke, or if a pressure switch is used to signal the cylinder is fully retracted, the back pressure circuit is required. This circuit allows the rod volume of

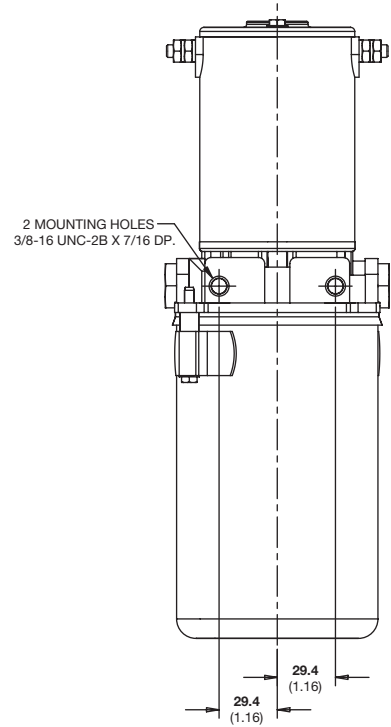
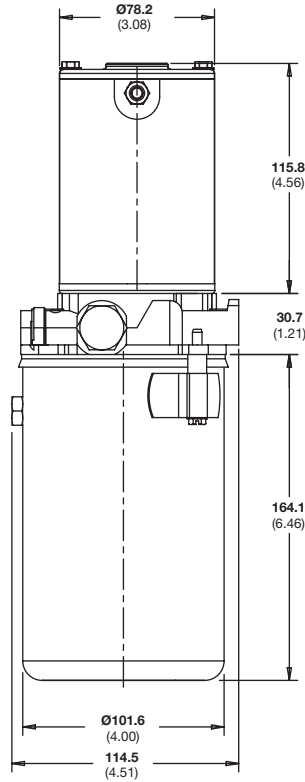
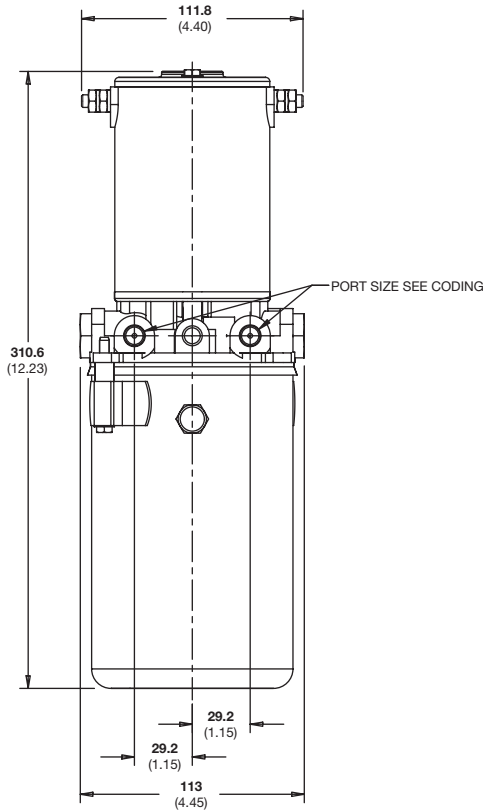
oil to return to the reservoir through a special shuttle spool, before it reaches the pump. Full relief pressure is then available to retract the cylinder, also preventing a pressure switch from tripping before the full retract position is achieved.

Recommended uses:

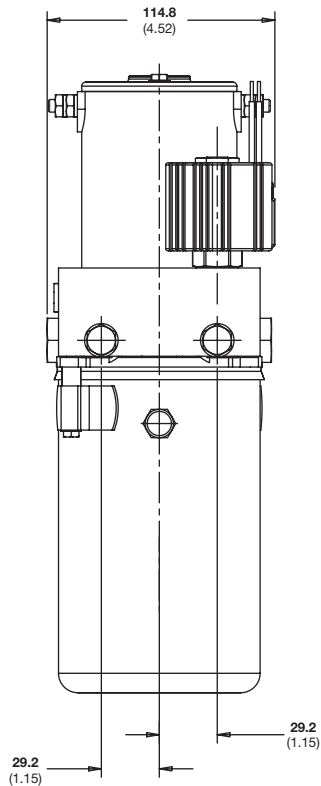
- In systems where work is being done on the retract stroke
- Where a pressure switch is used to signal the full retract position
- In systems requiring a faster retract than extend speed

Dimensions

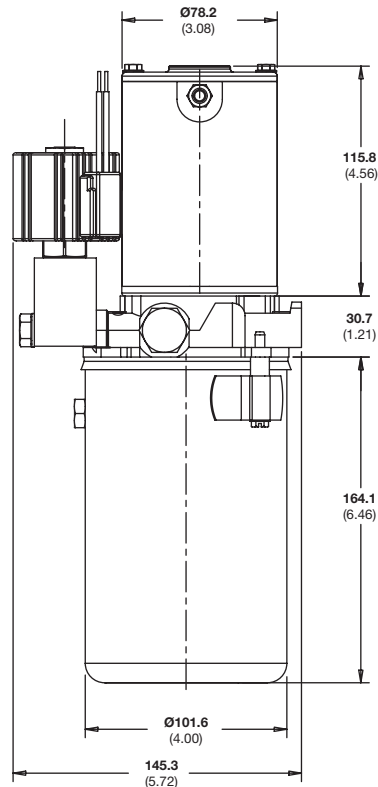
Shown with "G" reservoir



THIRD ANGLE
 PROJECTION



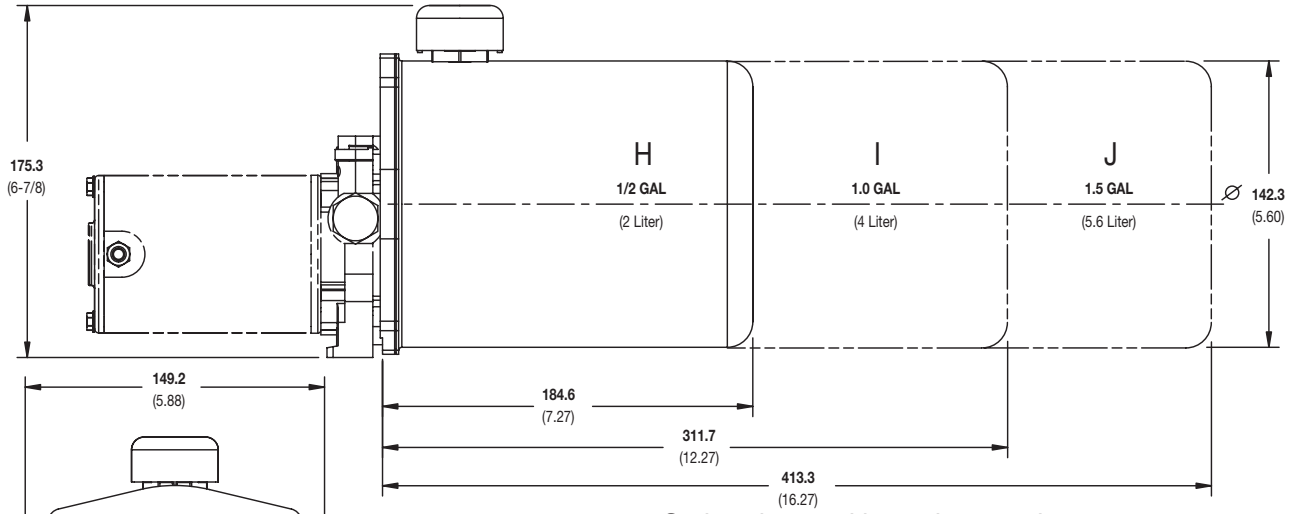
Shown with "G"
 reservoir and
 solenoid valve
 option



Motor terminals are 1/4-20 UNC-2A.

Note: All dimensions in mm (inches).

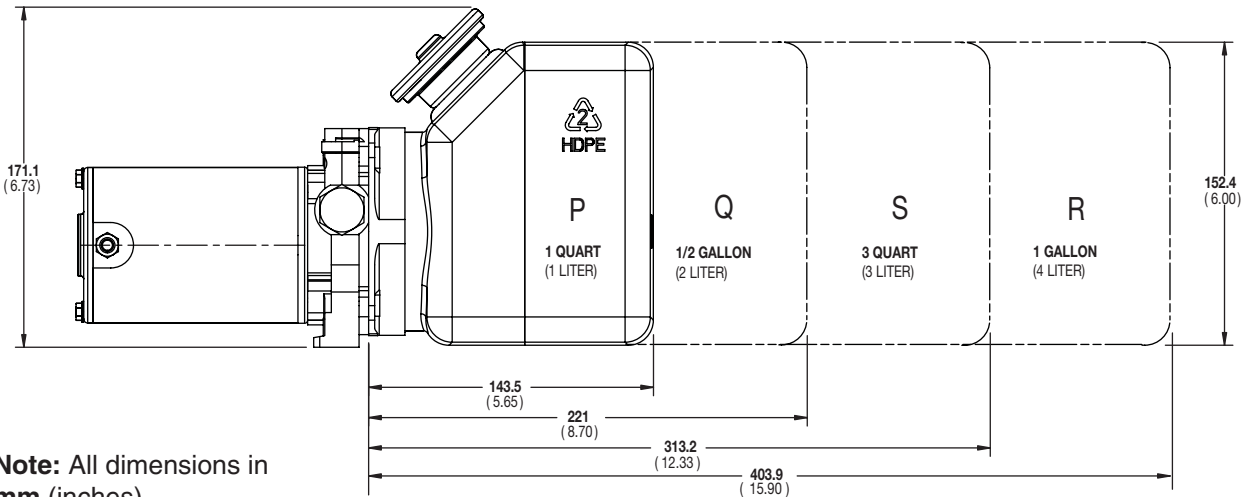
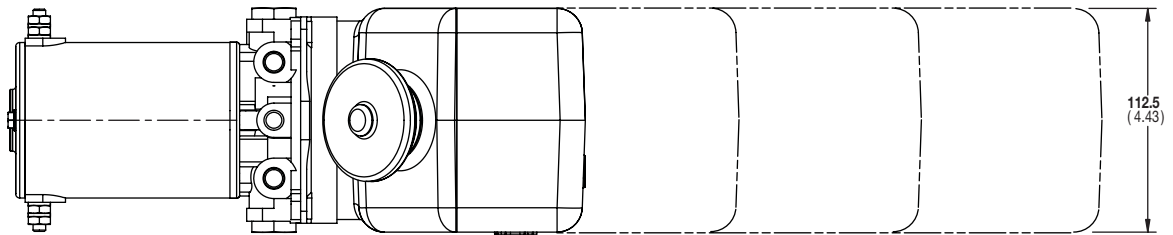
Dimensions



165 Series shown with steel reservoirs

Motor end view of
 above drawing

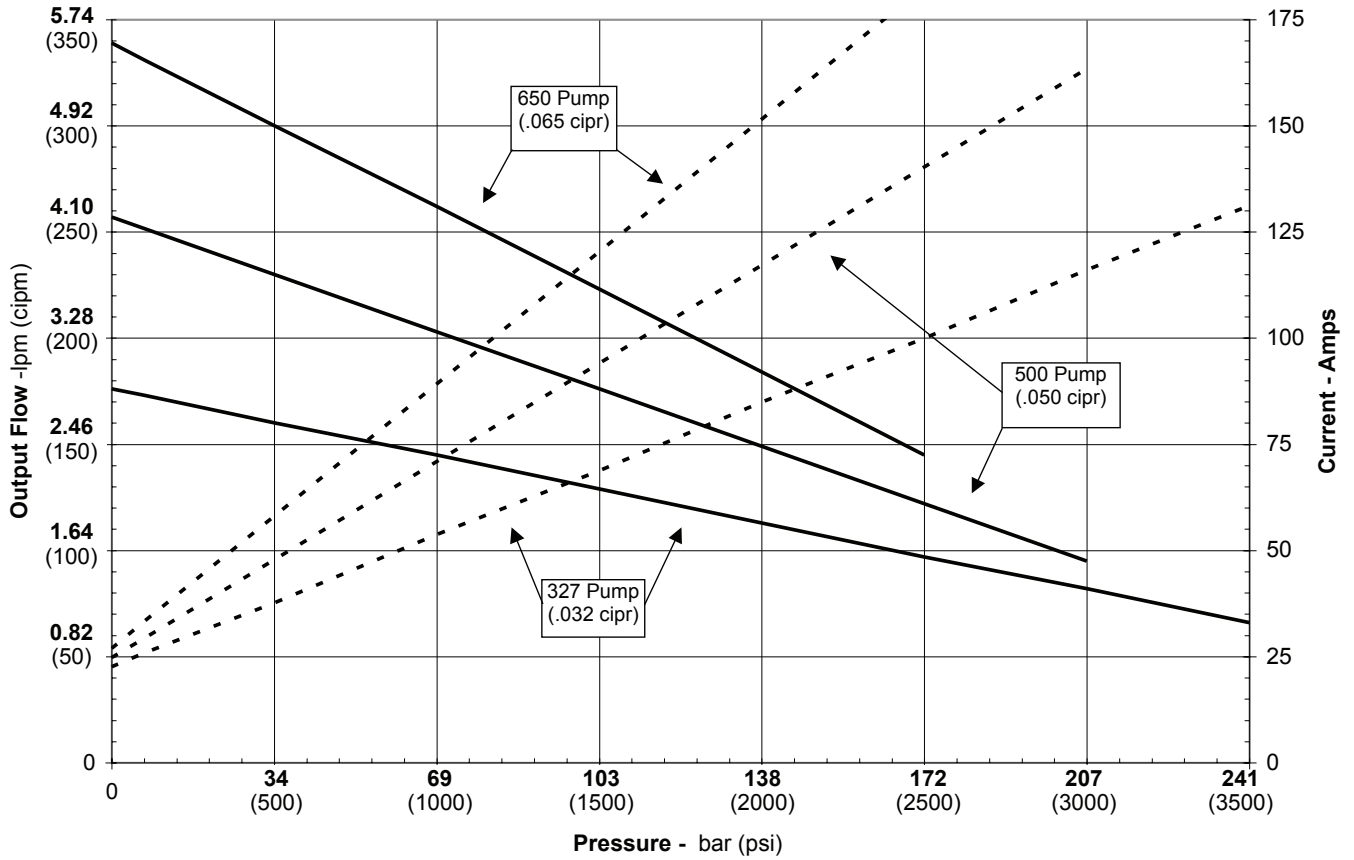
165 Series shown with plastic reservoirs



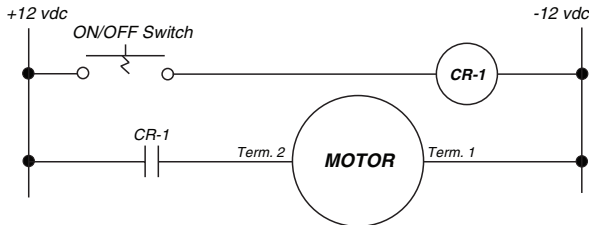
Note: All dimensions in
 mm (inches).

Performance data based on ATF @ 21°C (70°F)

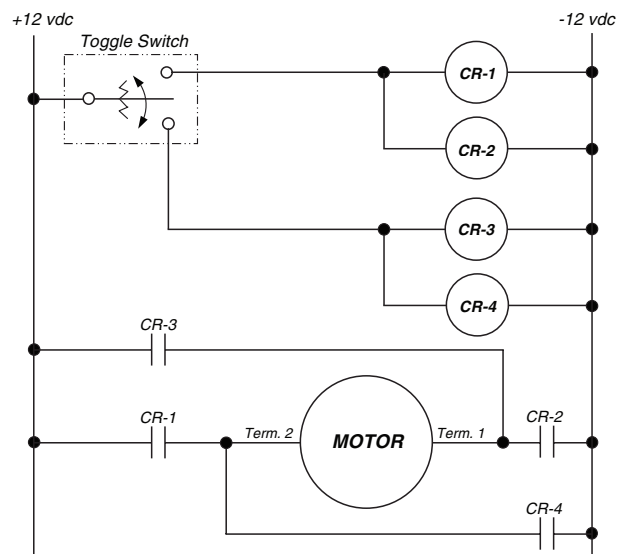
165 Series Performance



“AY” Wiring Diagram
 -Single Direction



“AY” Wiring Diagram
 -Reversible



Note: Performance data is for reference only

Oildyne

550 Series Hydraulic Power Units

*Pressures to 207 bar (3000 psi)
Flows to 11.4 lpm (3 gpm)*



550 Series Hydraulic Power Units

We are pleased to introduce our new 550 Series AC hydraulic power units. The 550 Series combines the features and benefits our customers and markets have requested in a durable and economical package.

The integral motor, pump and reservoir are complemented with a full line of Parker D03 and cartridge valve options. Add a linear or rotary actuator and you have a complete hydraulic system solution for your application.

These high quality power units are ideal for industrial machine tool clamping circuits, dock levelers, food processing, hose crimping, scissor lift, presses, and a myriad of AC applications. Let them go to work for you.

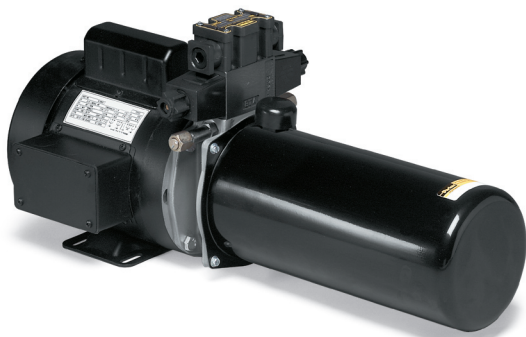
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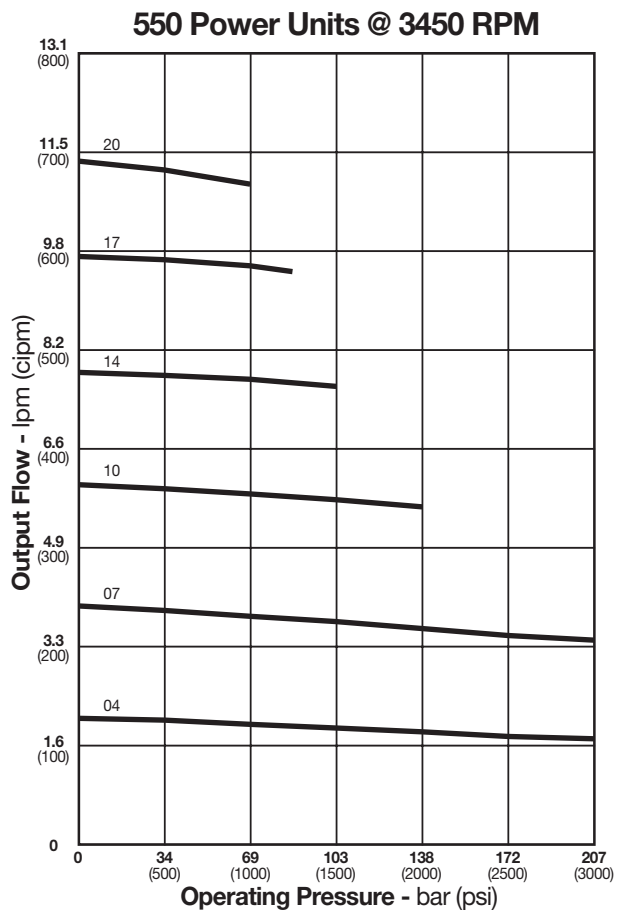
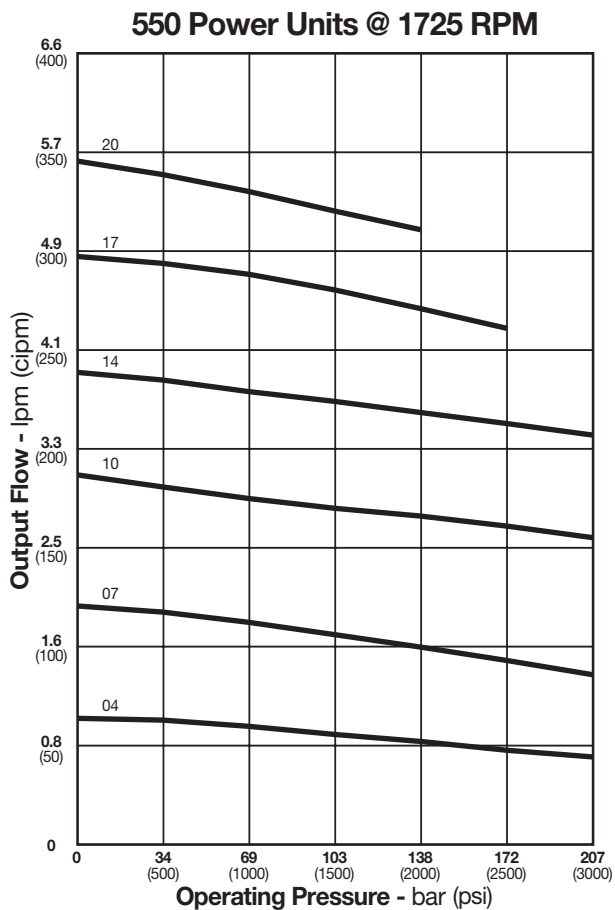
Typical Applications

- Machine tool clamping
- Dock levelers
- Man lifts
- Scissors lifts
- Wheelchair lifts
- Trash compactors
- Hose crimpers
- Boat lifts
- Presses
- Commercial ovens

Features

- Numerous motors up to 3 hp
- 6 pump sizes – flows from 1 to 11.4 lpm (1/4 to 3 gpm)
- Externally adjustable relief valve
- Variety of reservoirs
- 207 bar (3000 psi) capability
- D03 pad or standard P and T ports





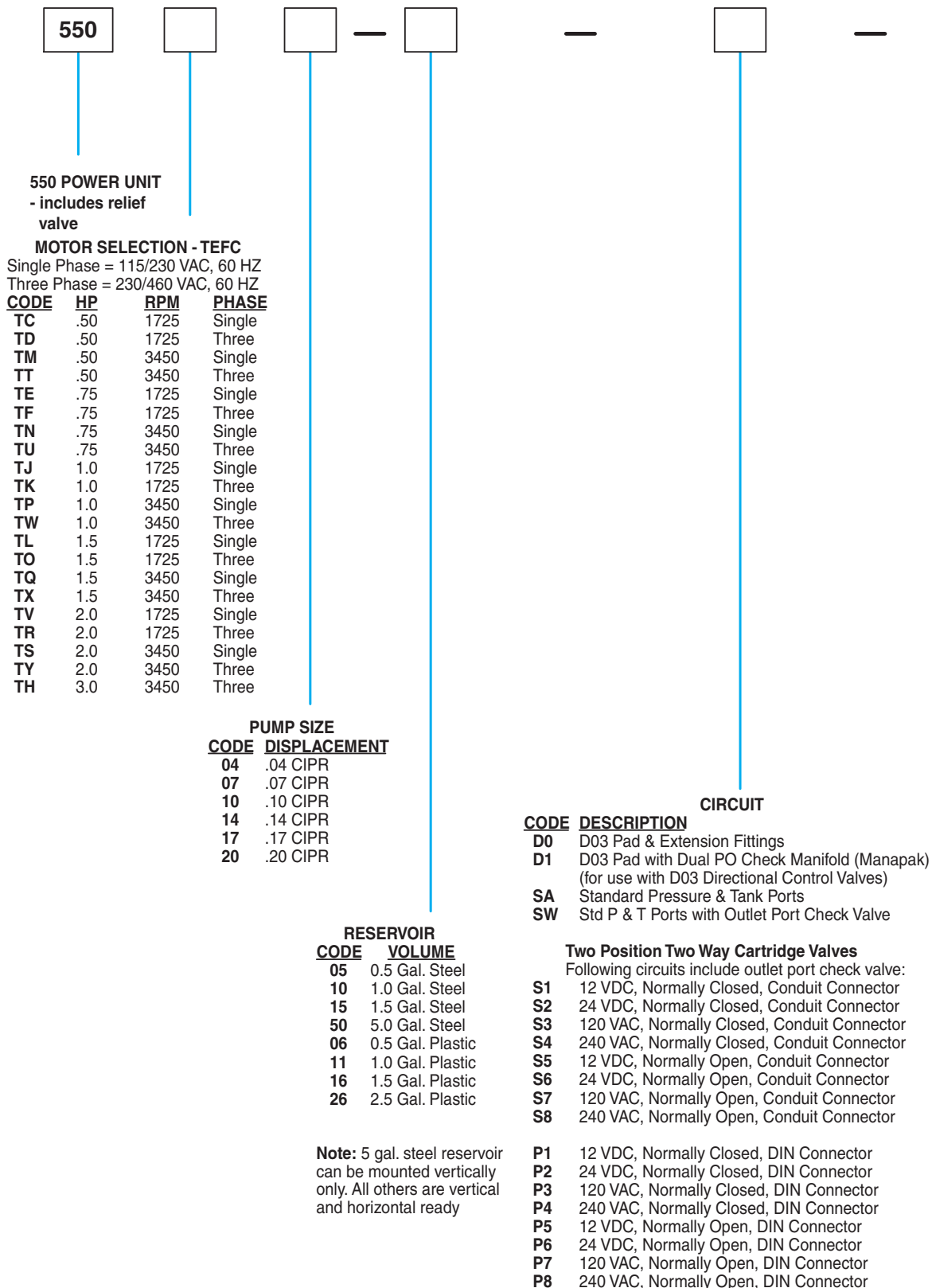
Performance data based on ATF @ 21°C (70°F)

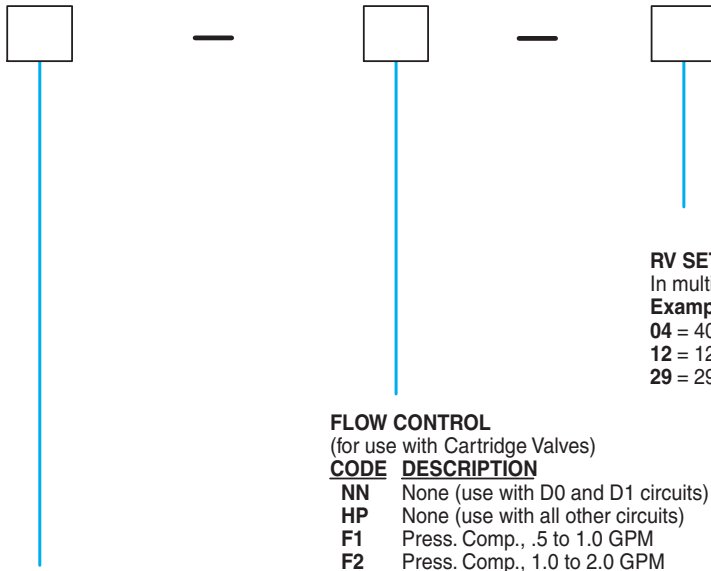
Motor Horsepower Recommendations at Flow/Pressure

Pump Size	Nominal GPM		Pressure (PSI)					
	@1725	@3450	500	1000	1500	2000	2500	3000
04	1/4		.50 HP	.50 HP	.50 HP	.50 HP	.50 HP	.50 HP
04		1/2	.50 HP	.50 HP	.50 HP	.75 HP	1.0 HP	1.0 HP
07	1/2		.50 HP	.50 HP	.50 HP	.75 HP	1.0 HP	1.0 HP
07		1	.50 HP	.75 HP	1.0 HP	1.5 HP	2.0 HP	2.0 HP
10	3/4		.50 HP	.50 HP	.75 HP	1.0 HP	1.5 HP	1.5 HP
10		1 1/2	.50 HP	1.0 HP	1.5 HP	2.0 HP	3.0 HP	3.0 HP
14	1		.50 HP	.75 HP	1.0 HP	1.5 HP	2.0 HP	2.0 HP
14		2	.75 HP	1.5 HP	2.0 HP	3.0 HP		
17	1 1/4		.50 HP	1.0 HP	1.5 HP	2.0 HP	2.0 HP	
17		2 1/2	1.0 HP	2.0 HP	3.0 HP			
20	1 1/2		.50 HP	1.0 HP	1.5 HP	2.0 HP		
20		3	1.0 HP	2.0 HP	3.0 HP			

Note: Performance data is for reference only

Standard Product Ordering Code





RV SETTING
In multiples of 100 psi
Examples
04 = 400 psi
12 = 1200 psi
29 = 2900 psi

FLOW CONTROL
(for use with Cartridge Valves)
CODE DESCRIPTION
NN None (use with D0 and D1 circuits)
HP None (use with all other circuits)
F1 Press. Comp., .5 to 1.0 GPM
F2 Press. Comp., 1.0 to 2.0 GPM

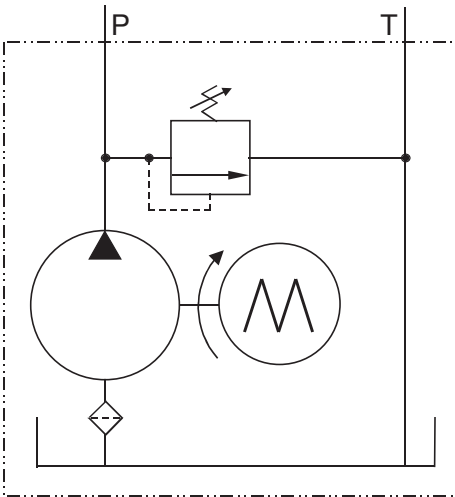
4-WAY VALVE (ALL D03 SIZE)

CODE DESCRIPTION (For use only with Circuit Codes D0 and D1)

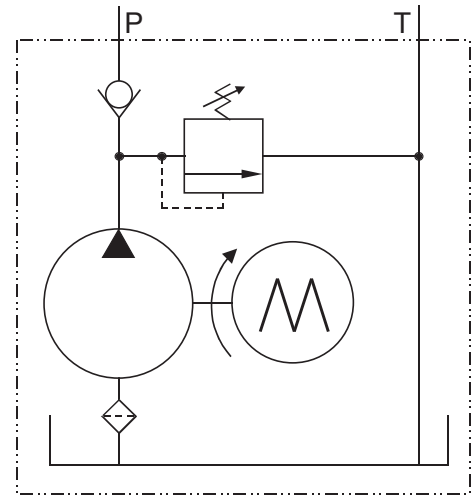
NNN	No 4-Way Valve Included
01Y	Closed Center, 120 VAC, Conduit Connectors
01T	Closed Center, 240 VAC, Conduit Connectors
01K	Closed Center, 12 VDC, Conduit Connectors
01J	Closed Center, 24 VDC, Conduit Connectors
02Y	Open Center, 120 VAC, Conduit Connectors
02T	Open Center, 240 VAC, Conduit Connectors
02K	Open Center, 12 VDC, Conduit Connectors
02J	Open Center, 24 VDC, Conduit Connectors
07Y	Float Center, 120 VAC, Conduit Connectors
07T	Float Center, 240 VAC, Conduit Connectors
07K	Float Center, 12 VDC, Conduit Connectors
07J	Float Center, 24 VDC, Conduit Connectors
08Y	Tandem Center, 120 VAC, Conduit Connectors
08T	Tandem Center, 240 VAC, Conduit Connectors
08K	Tandem Center, 12 VDC, Conduit Connectors
08J	Tandem Center, 24 VDC, Conduit Connectors
30Y	Single Solenoid, 120 VAC, Conduit Connector
30T	Single Solenoid, 240 VAC, Conduit Connector
30K	Single Solenoid, 12 VDC, Conduit Connector
30J	Single Solenoid, 24 VDC, Conduit Connector
Y01	Closed Center, 120 VAC, Hirschmann w/out Plugs
T01	Closed Center, 240 VAC, Hirschmann w/out Plugs
K01	Closed Center, 12 VDC, Hirschmann w/out Plugs
J01	Closed Center, 24 VDC, Hirschmann w/out Plugs
Y02	Open Center, 120 VAC, Hirschmann w/out Plugs
T02	Open Center, 240 VAC, Hirschmann w/out Plugs
K02	Open Center, 12 VDC, Hirschmann w/out Plugs
J02	Open Center, 24 VDC, Hirschmann w/out Plugs
Y07	Float Center, 120 VAC, Hirschmann w/out Plugs
T07	Float Center, 240 VAC, Hirschmann w/out Plugs
K07	Float Center, 12 VDC, Hirschmann w/out Plugs
J07	Float Center, 24 VDC, Hirschmann w/out Plugs
Y08	Tandem Center, 120 VAC, Hirschmann w/out Plugs
T08	Tandem Center, 240 VAC, Hirschmann w/out Plugs
K08	Tandem Center, 12 VDC, Hirschmann w/out Plugs
J08	Tandem Center, 24 VDC, Hirschmann w/out Plugs
Y30	Single Solenoid, 120 VAC, Hirschmann w/out Plug
T30	Single Solenoid, 240 VAC, Hirschmann w/out Plug
K30	Single Solenoid, 12 VDC, Hirschmann w/out Plug
J30	Single Solenoid, 24 VDC, Hirschmann w/out Plug

Hydraulic Fluid
Any clean hydraulic oil with a viscosity of 150 to 300 SUS at 38°C (100°F) is acceptable. If another type of fluid is needed, please consult the factory.

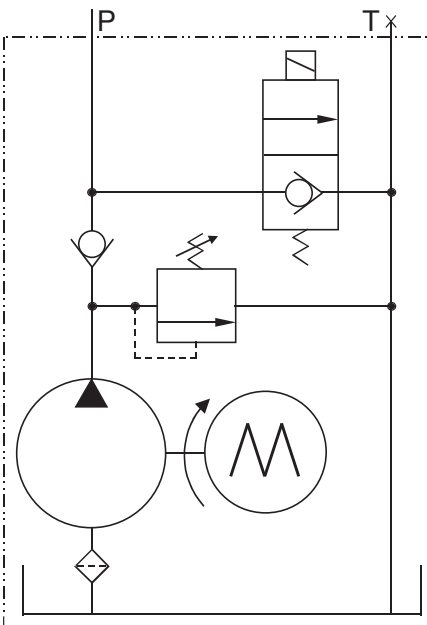
Temperature Range
Normal operating range is -7°C to 60°C (+20°F to +140°F). Please consult the factory for applications outside this range.



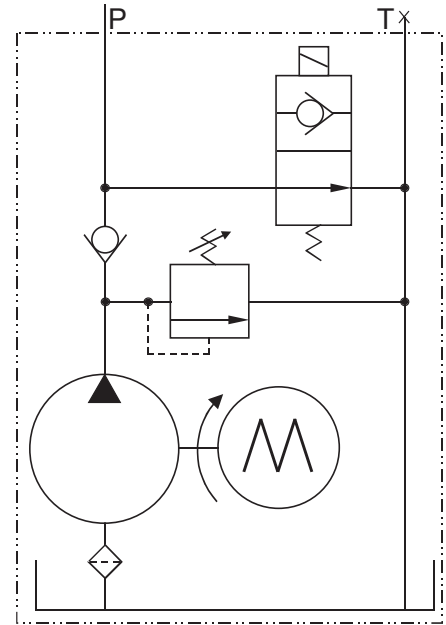
"SA" CIRCUIT



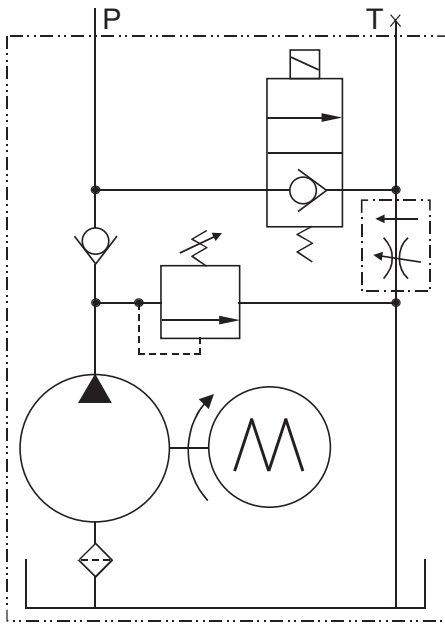
"SW" CIRCUIT



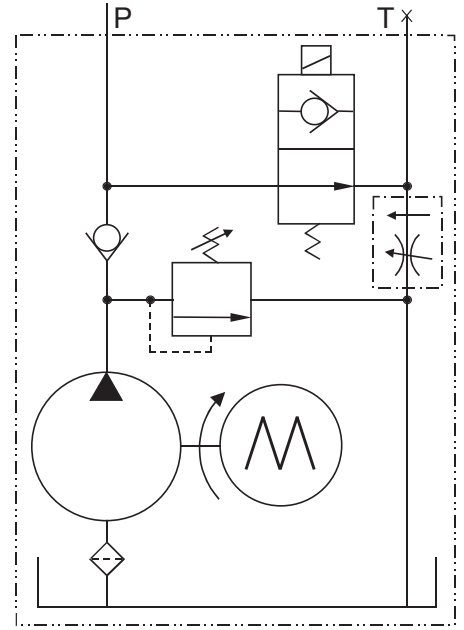
"S1-S4, P1-P4" CIRCUITS



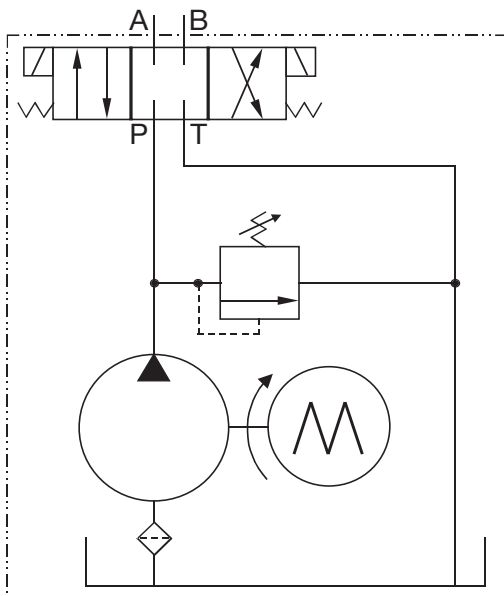
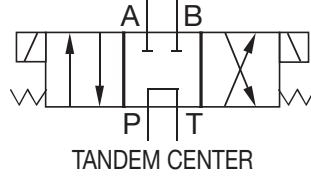
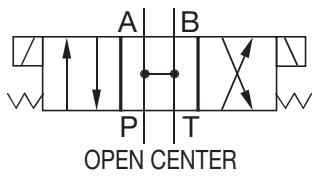
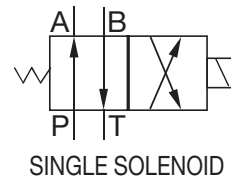
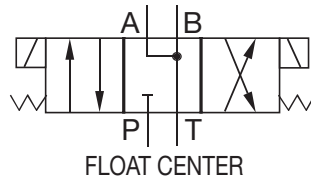
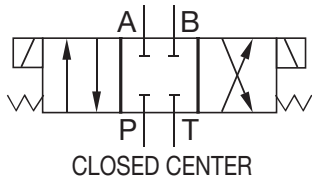
"S5-S8, P5-P8" CIRCUITS



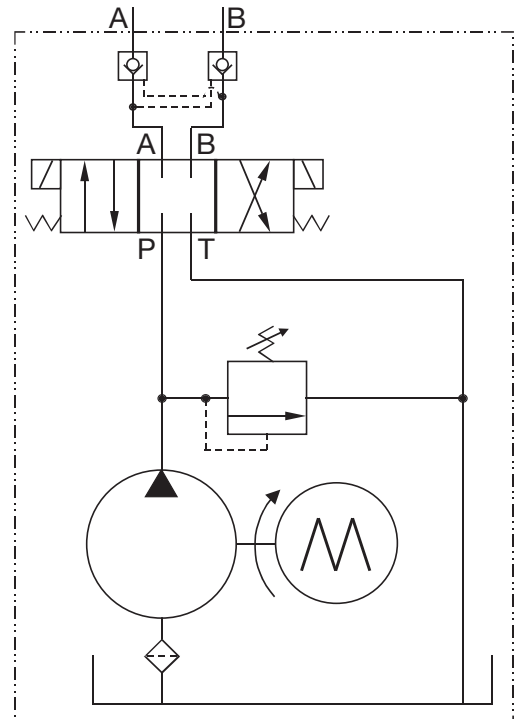
“S1-S4, P1-P4” CIRCUITS WITH
 PRESSURE COMPENSATED FLOW
 CONTROL F1 OR F2



“S5-S8, P5-P8” CIRCUITS WITH
 PRESSURE COMPENSATED FLOW
 CONTROL F1 OR F2

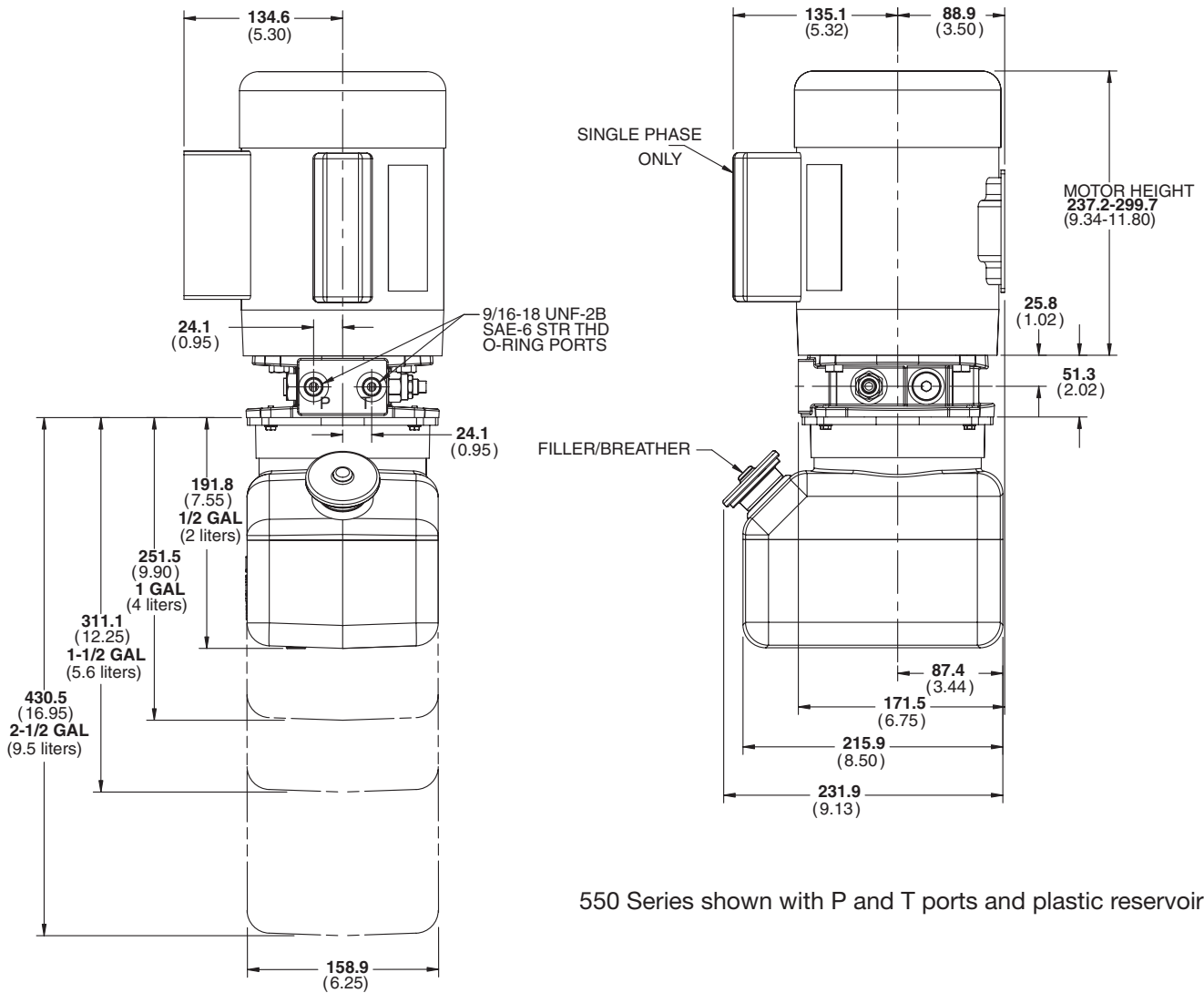


“D0” CIRCUIT (D03 VALVE TO BE SELECTED)



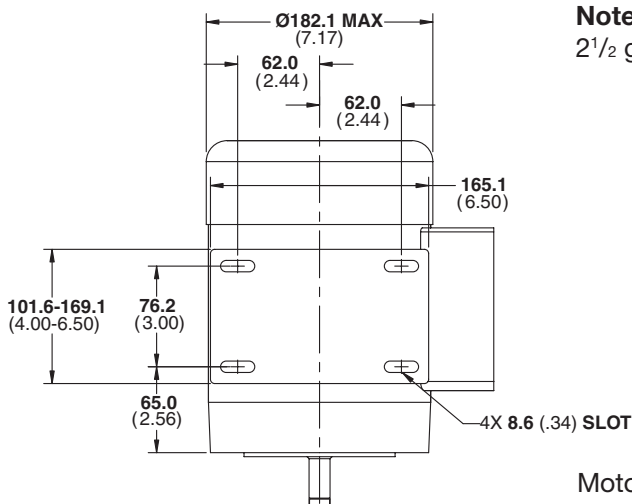
“D1” CIRCUIT INCLUDES MANAPAK DUAL P0
 CHECK VALVE (D03 VALVE TO BE SELECTED)

Dimensions

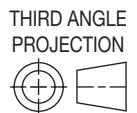


550 Series shown with P and T ports and plastic reservoir

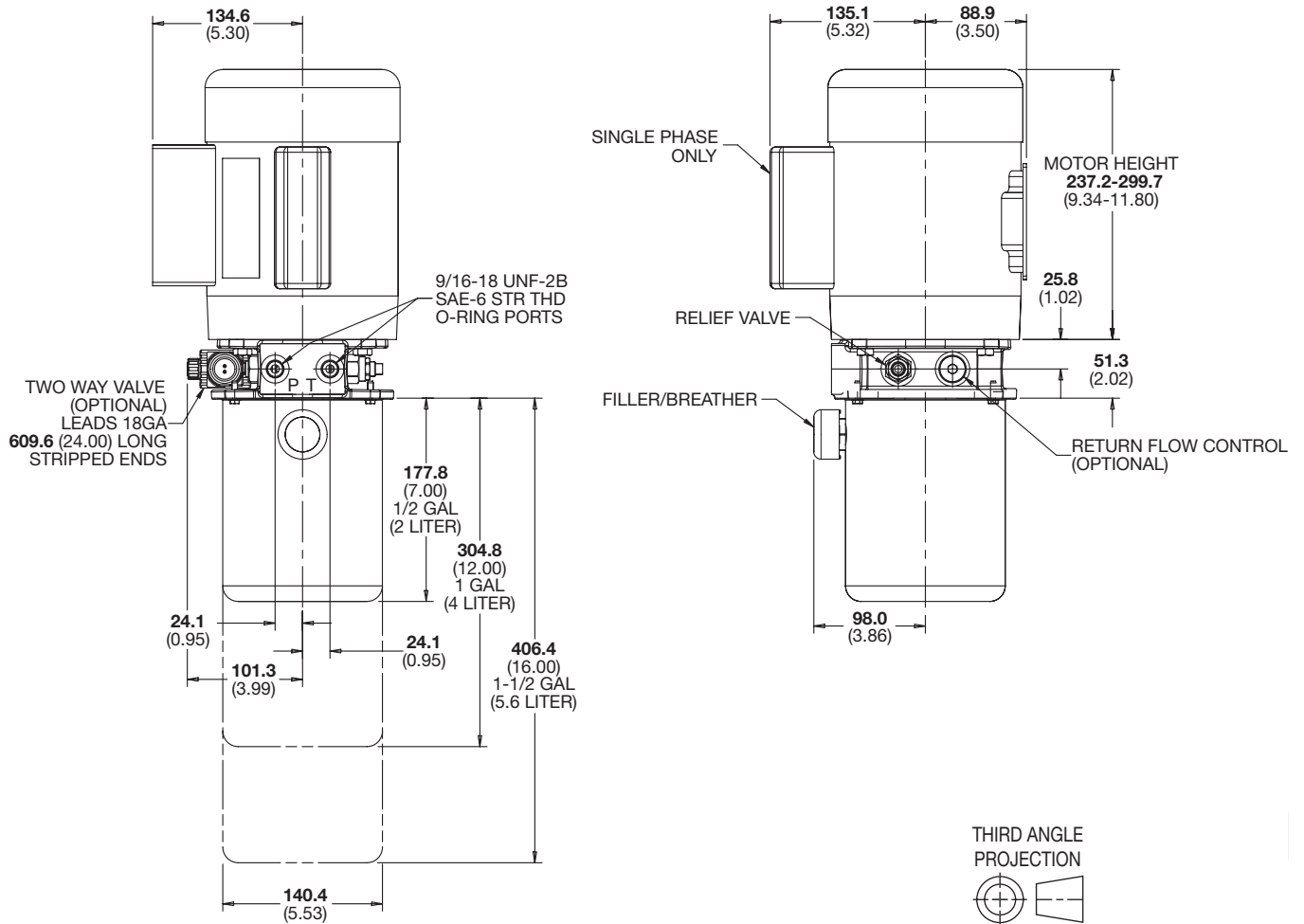
Note: When mounted in the horizontal configuration the 2 1/2 gallon plastic reservoir must be supported



Motor foot dimensions are common to all 550 Series electric motors

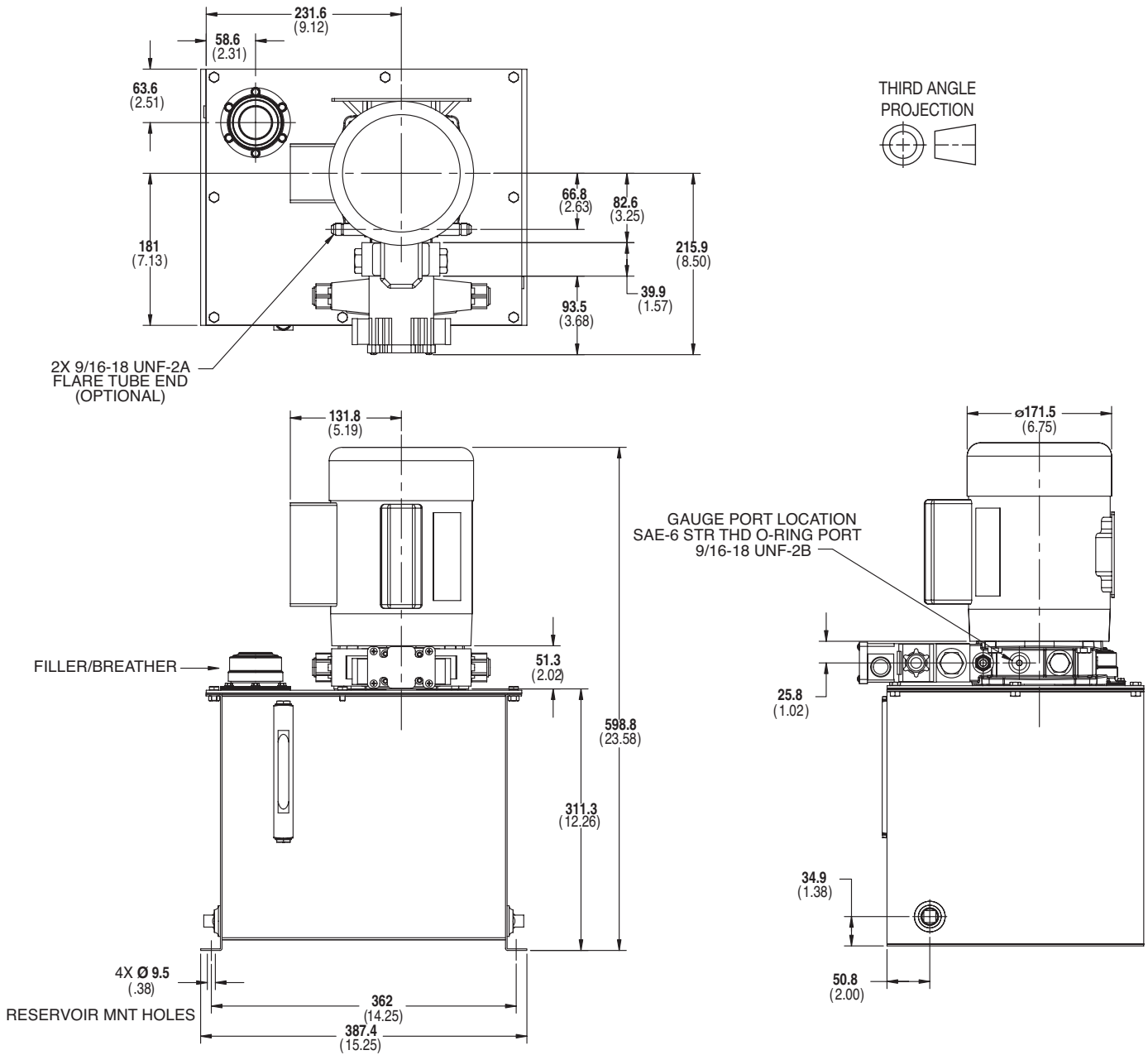


Note: All dimensions in mm (inches).



550 Series shown with optional solenoid 2-way valve and steel reservoirs

Note: All dimensions in mm (inches).



550 Series shown with D03 valve, Manapak block and 5 gallon reservoir

Note: All dimensions in mm (inches).

Oildyne

Miniature Piston Pumps 5 Piston Design

*Pressures to 276 bar (4000 psi)
Displacements from .156cc/rev
to .865cc/rev (.01 to .05 in³/rev)*



Pumping Efficiencies to 90% Allow You to Effectively Use .156 to .865 cc Flow Per Rev. at Pressures to 276 bar (4000 psi)

Once in a great while there's a breakthrough design whose versatility opens broad new opportunities. Oildyne's mini pumps are a prime example.

Mini pumps pump or meter hydraulic oil, brake fluid, and Mil 5606 with equal ease. Need greater versatility?

These fixed displacement axial piston pumps are efficient and powerful too. Tests run on 78 SUS viscosity fluid at 100°F @ 3000 psi showed 90 percent volumetric

efficiency. Capable of 276 bar (4000 psi) operation, mini pumps are available in nine model sizes from .156 to .865 cc per revolution displacement.

Compact size, versatility, efficiency, power and speed are quietly combined in a very cost competitive package in Oildyne's mini pumps. They're suitable for most applications requiring compact power including automotive, marine, medical and military uses.

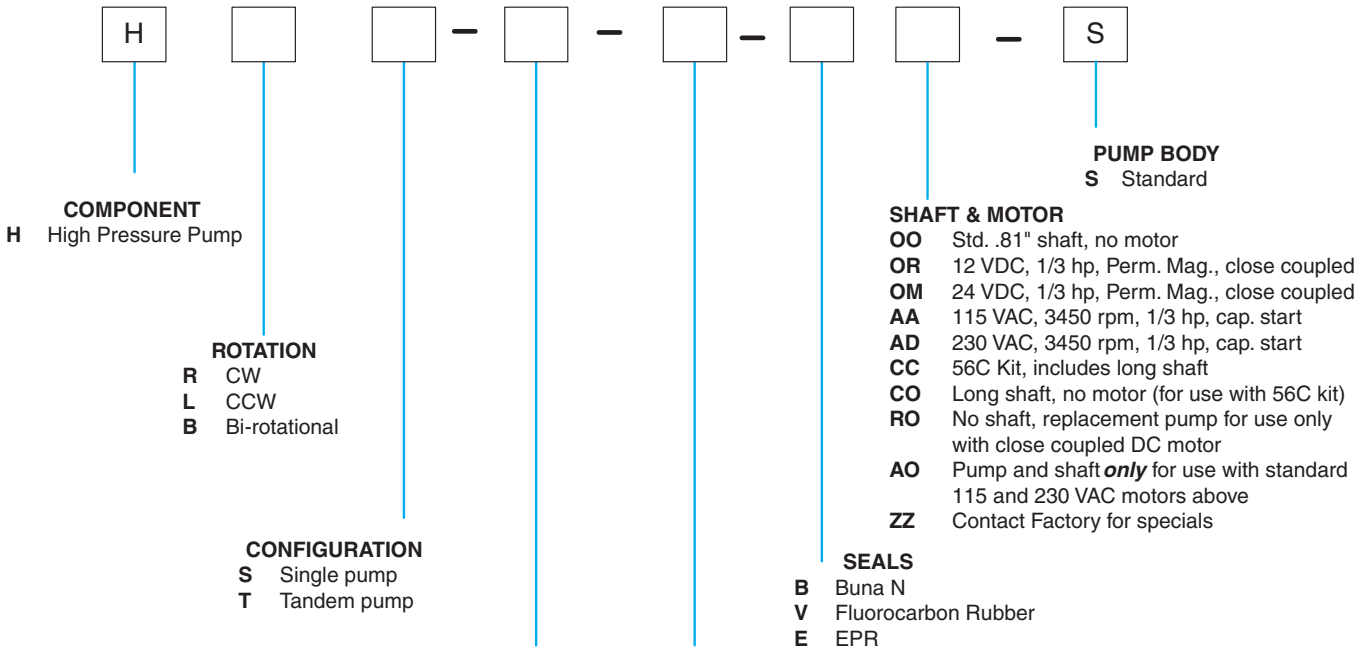
Mini Pump Features

- .156 to .865 cc displacement per revolution.
- Designed for open circuit systems
- Fixed displacement - Output is controlled by motor speed
- Operating temperature range -40°C to +149°C (-40°F to +300°F).
- Naturally aspirated to 5000 rpm and above depending upon viscosity
- Porting on sides or rear
- Will operate efficiently on extremely thin (1 cS) fluid
- Multiple pumps, special configurations and bi-directional pumps are available on special order.

General Specifications

Model	156	206	259	311	346	417	519	692	865
Displacement In ³ per rev.	.0095	.0126	.0158	.0190	.0211	.0255	.0317	.0422	.0527
cc /rev	.156	.206	.259	.311	.346	.417	.519	.692	.865
GPM @ 3000 RPM	.123	.163	.205	.247	.274	.330	.411	.548	.685
cc/min @ 3000 RPM	467	618	778	934	1038	1252	1557	2076	2590
Max RPM @ rated pressure W/O supercharge	4400	4200	4000	3800	3800	3700	3700	3600	3500
Operating Pressure (psi)									
Continuous	3500	3500	3500	3500	3500	3500	3500	3250	3000
Intermittent	3750	3750	3750	3750	3750	3750	3750	3500	3500
Maximum	4000	4000	4000	4000	4000	4000	4000	3750	3500

Standard Product Ordering Code



SINGLE or 1st PUMP SIZE		2nd PUMP SIZE	
CODE	DISP.	CODE	DISP.
156	.156 cc/rev	000	Single pump
206	.206 cc/rev	156	.156 cc/rev
259	.259 cc/rev	206	.206 cc/rev
311	.311 cc/rev	259	.259 cc/rev
346	.346 cc/rev	311	.311 cc/rev
417	.417 cc/rev	346	.346 cc/rev
519	.519 cc/rev	417	.417 cc/rev
692	.692 cc/rev	519	.519 cc/rev
865	.865 cc/rev	692	.692 cc/rev
		865	.865 cc/rev

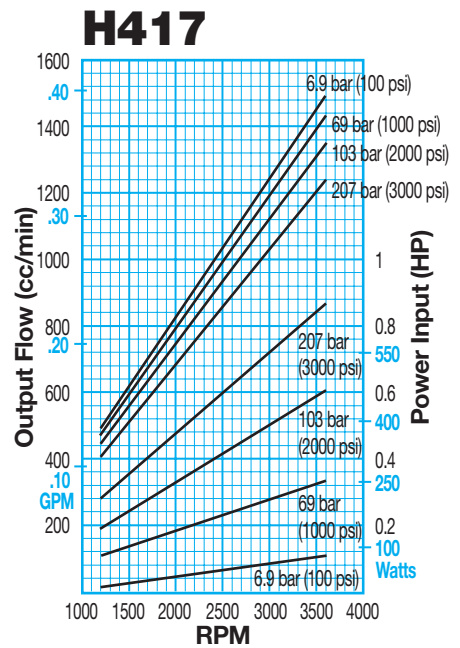
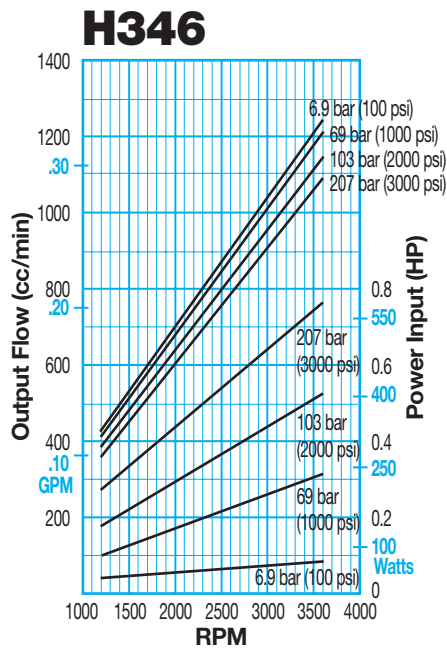
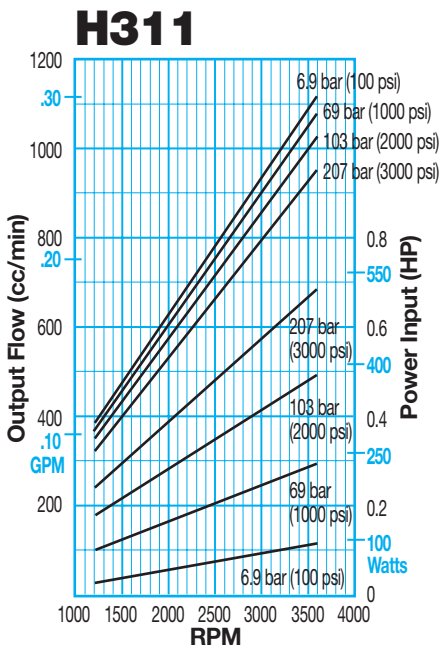
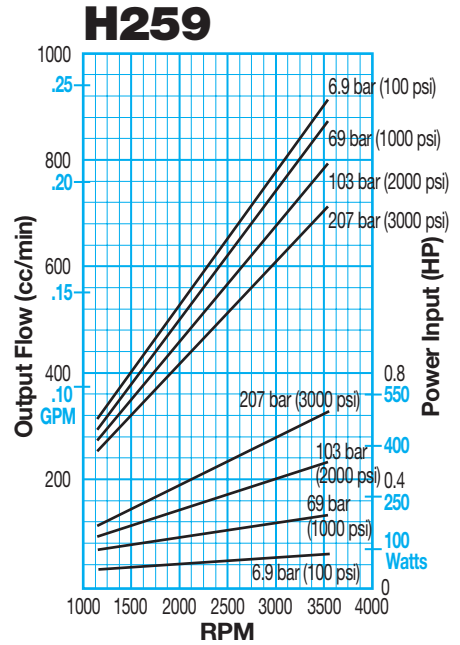
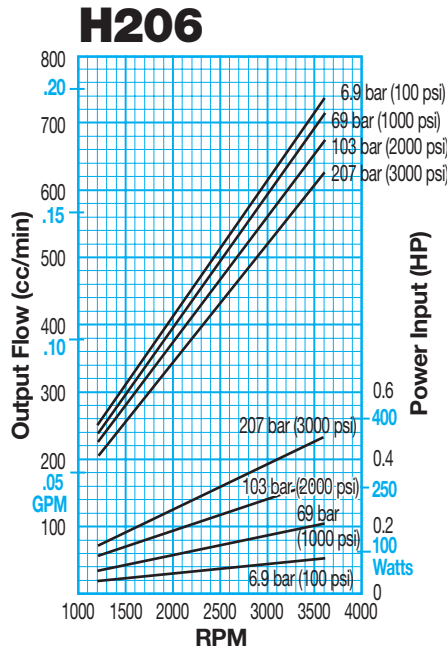
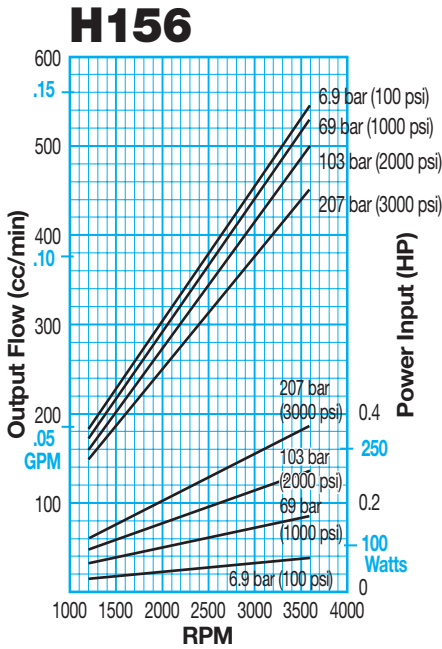
NOTES:

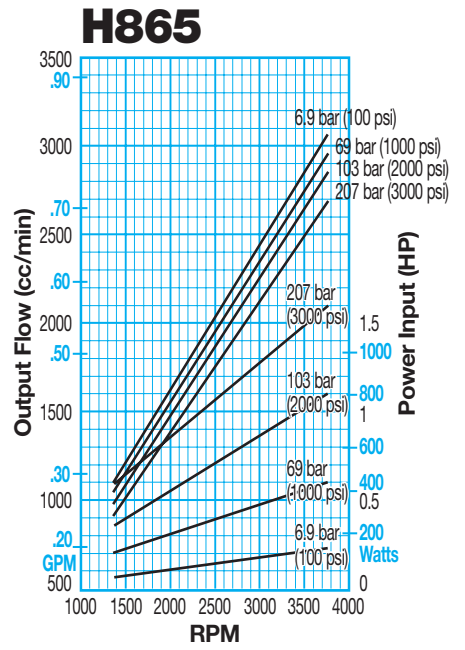
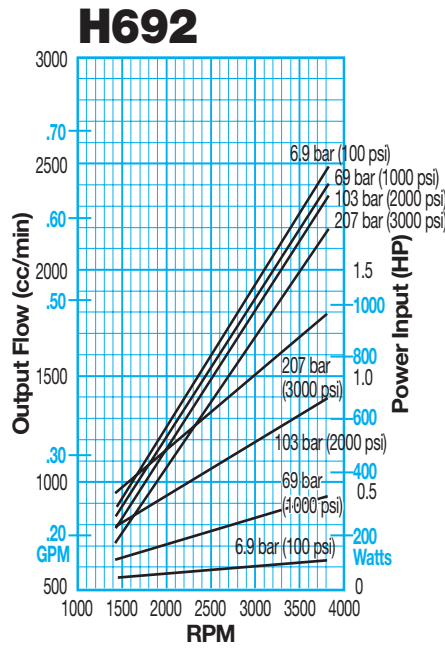
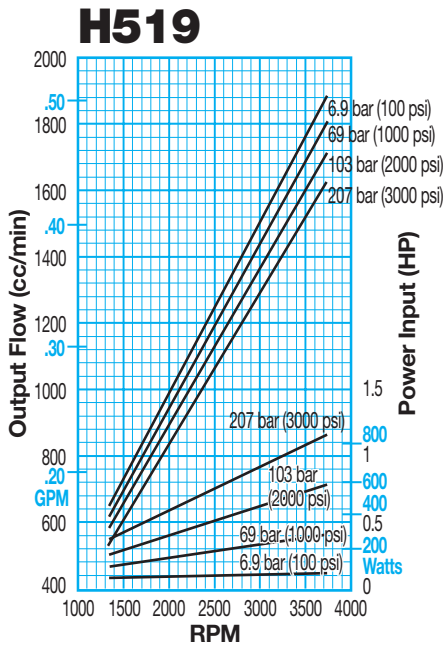
1. Tandem pumps must have larger displacement called out first
2. Tandem pumps are not available with the standard AC or DC motors - only plain shaft or 56C Kit
3. Drive shaft input torque must be under 3.5 n-m (525 in-oz) [equivalent to HRS865 operating at 207 bar (3000 psi); refer to catalog performance curves for torque data]
4. Bi-rotational pumps require the side port as case drain
5. For configurations not shown above please contact Oildyne

Performance Data

Performance data shown are the average results based upon a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with oil at 78 SUS at 38°C (100°F).

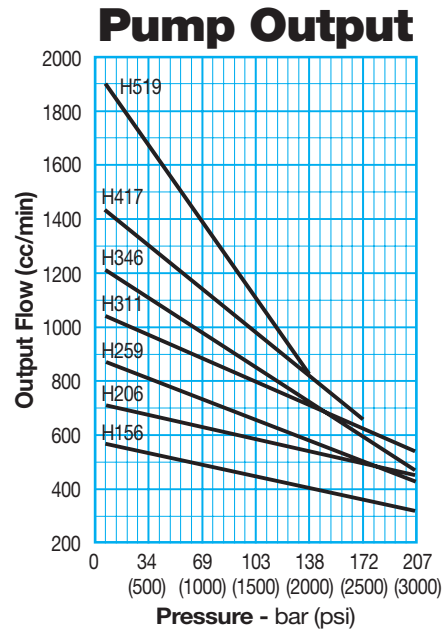
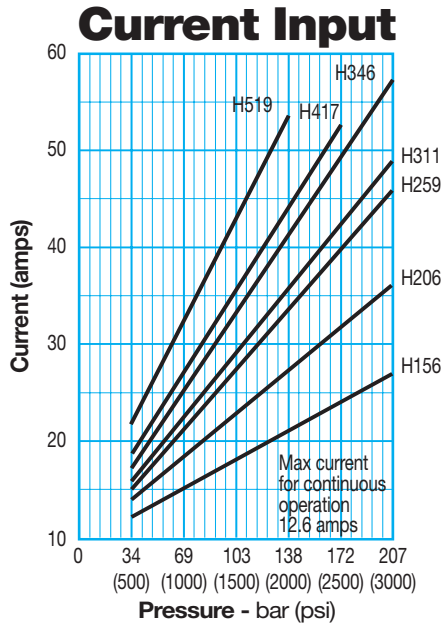
In accordance with our policy of continuing product development, we reserve the right to change specifications shown without notice.





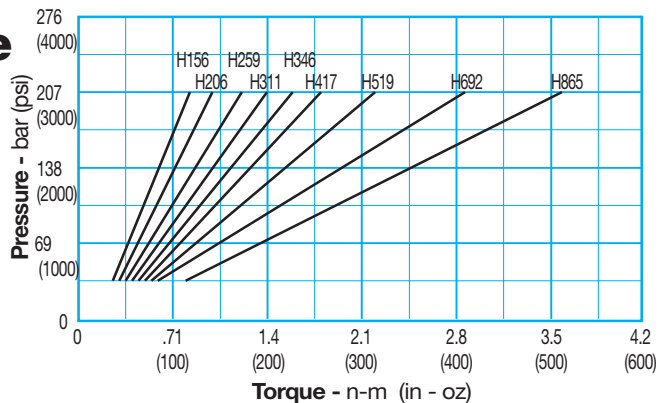
Typical Performance Data

at 12 VDC as assembled with a standard DC motor

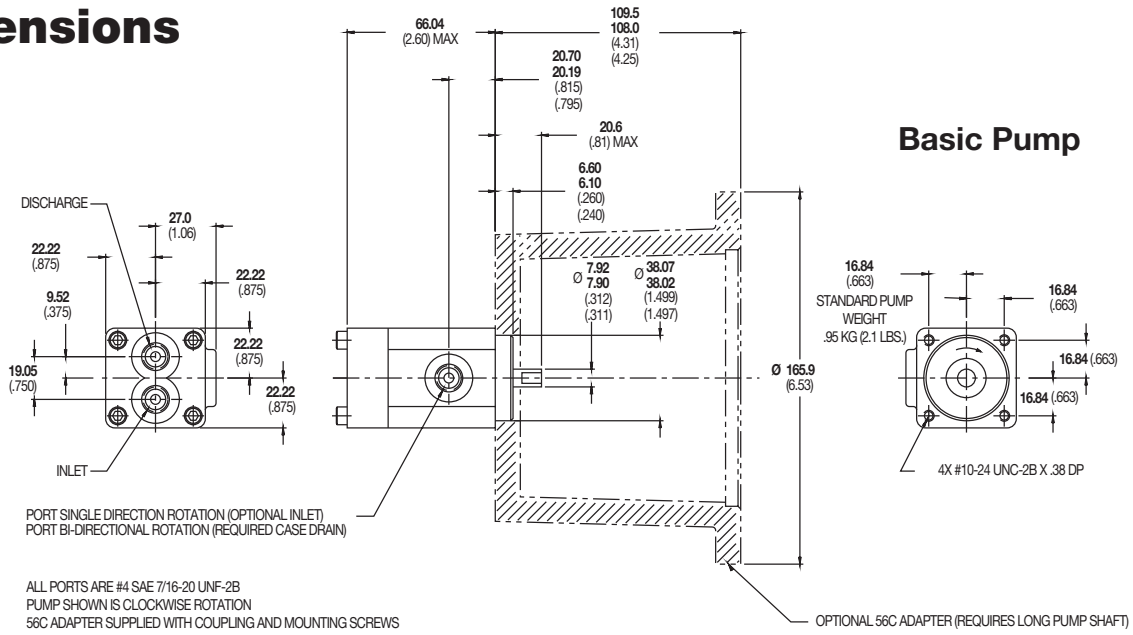


Average Input Torque

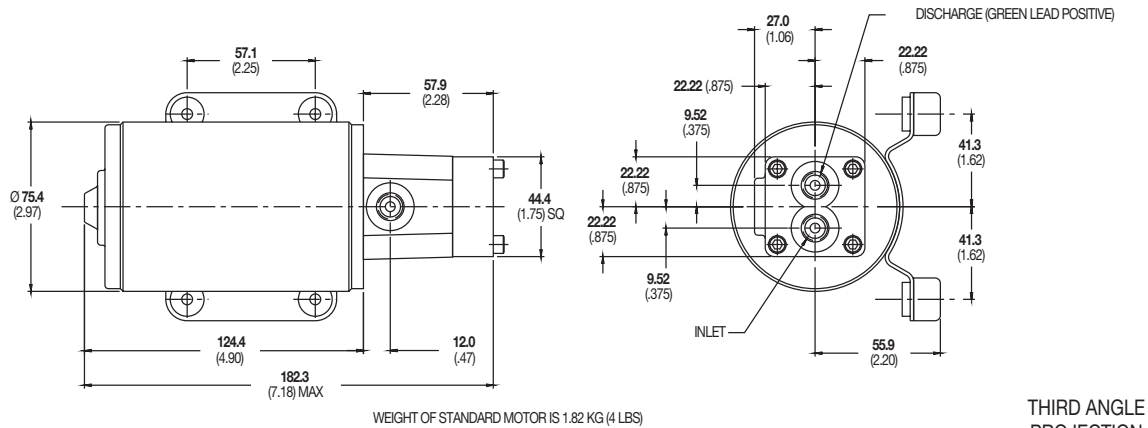
Speed: 3000 RPM



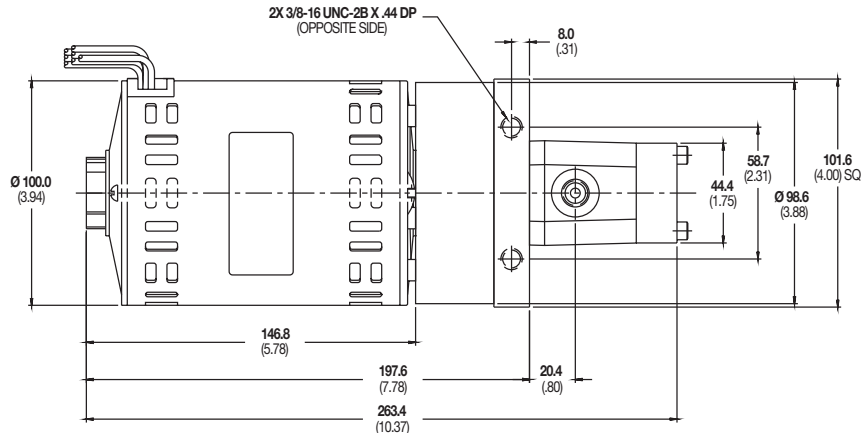
Dimensions



Standard 1/3 HP DC Permanent Magnet Motor With Pump



Standard 1/3 HP AC Motor With Pump



Note: All dimensions in mm (inches).

Compact Fluid Power Redefined by the Oildyne Cartridge Piston Pump

This Oildyne cartridge pump raises the standard for compact fluid power! This three-piston cartridge pump is an efficient, fixed-displacement pump that provides high performance at a very economical price. Pressure ratings of up to 276 bar (4000 psi), driven speeds of up to 5000 rpm, and the ability to provide a variety of seal types make

this the solution to your unique applications. The uni-directional pump is capable of pumping fluids ranging in viscosity from solvents to thick fluids.

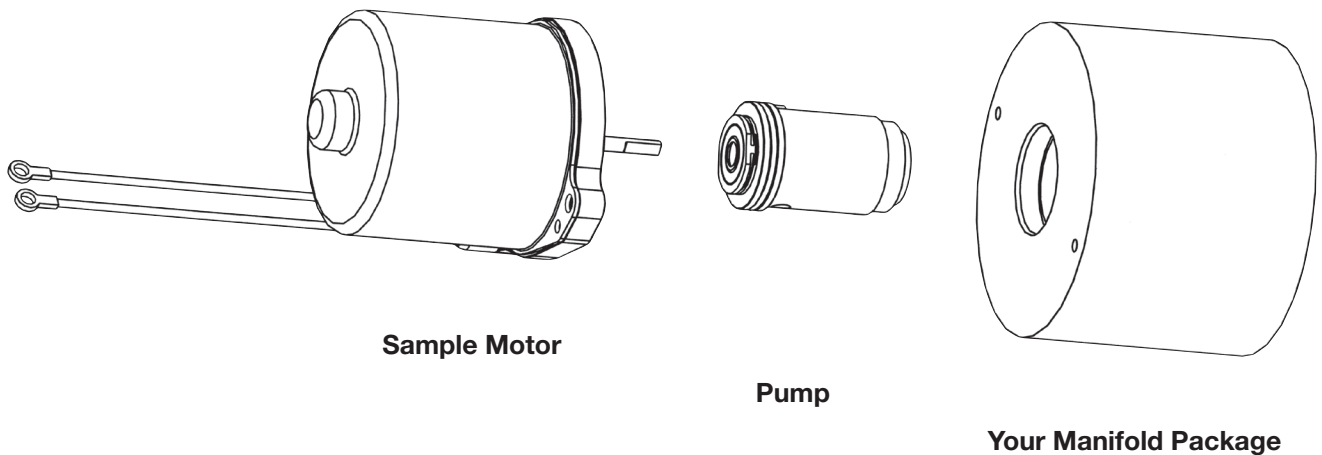
The three-piston cartridge pump maintains the performance and flexibility of the Oildyne five-piston, stand-alone pump while reducing the overall package dimensions.

This ultra-compact piston pump, approximately 33 mm (1.3") in diameter and 51 mm (2") long, is designed to fit into your specially machined manifold allowing for a custom package that fits your space needs.

A variety of displacements can be produced all within the existing physical size. (The internal cam angle determines the displacement.)



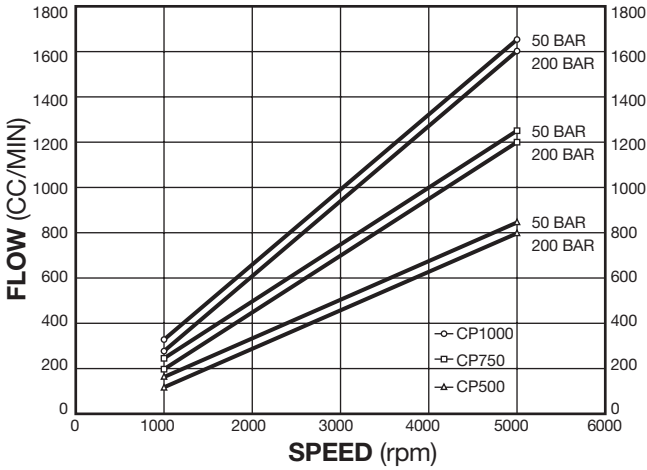
(ACTUAL SIZE PHOTO)



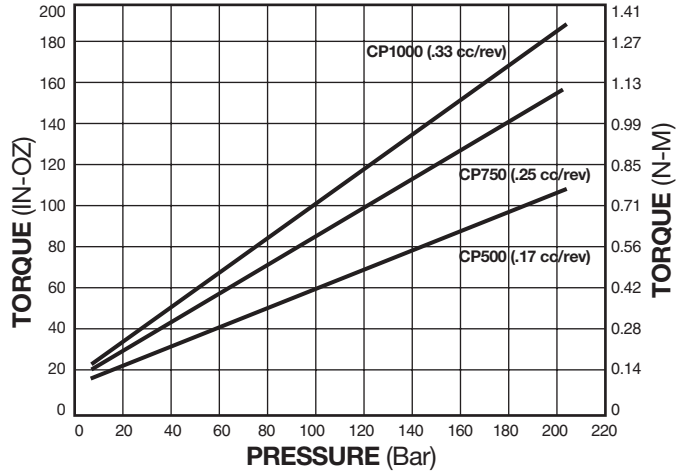
Technical Information

Representative Performance Characteristics

Cartridge pump flow at 23°C on DOT 3 brake fluid

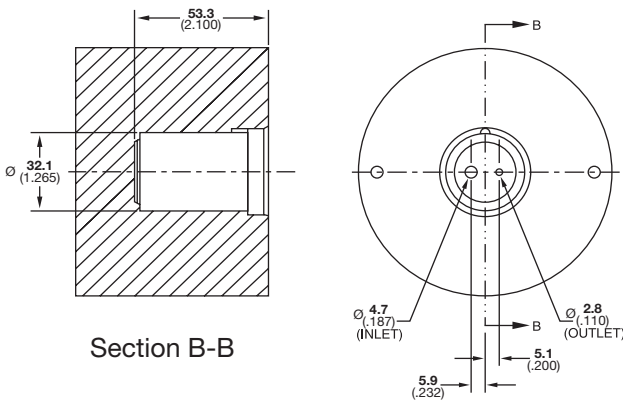


Cartridge pump input torque at 23°C on DOT 3 brake fluid

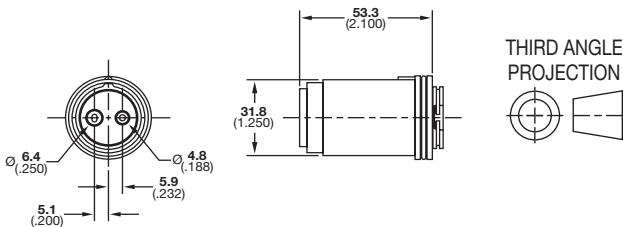


Cartridge Pump Dimensions

(with sample manifold requirements)
All dimensions in mm (inches)



Sample Manifolding Requirements



Cartridge Dimensions
(All Displacements)

Specifications

Displacements: .1 cc/rev. (.006 in³/rev.) to .33 cc/rev. (.020 in³/rev.)

Speeds: Up to 5000 rpm maximum

Pressures: 207 bar (3000 psi) maximum continuous
276 bar (4000 psi) maximum intermittent

Temperature Ranges: Up to 120°C (250°F)

Seals Available: Variety

Fluids Compatibility: Variety

Specifications subject to change without notice.
Performance data is for reference only.

This cartridge piston pump continues Oildyne's tradition of producing innovative products which can be customized to specific industries. Please call us to discuss how this cartridge pump can be used in your unique application.

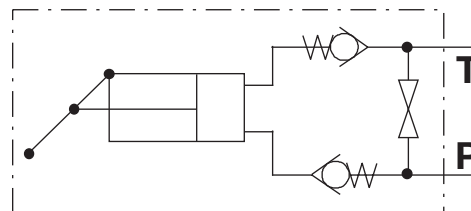
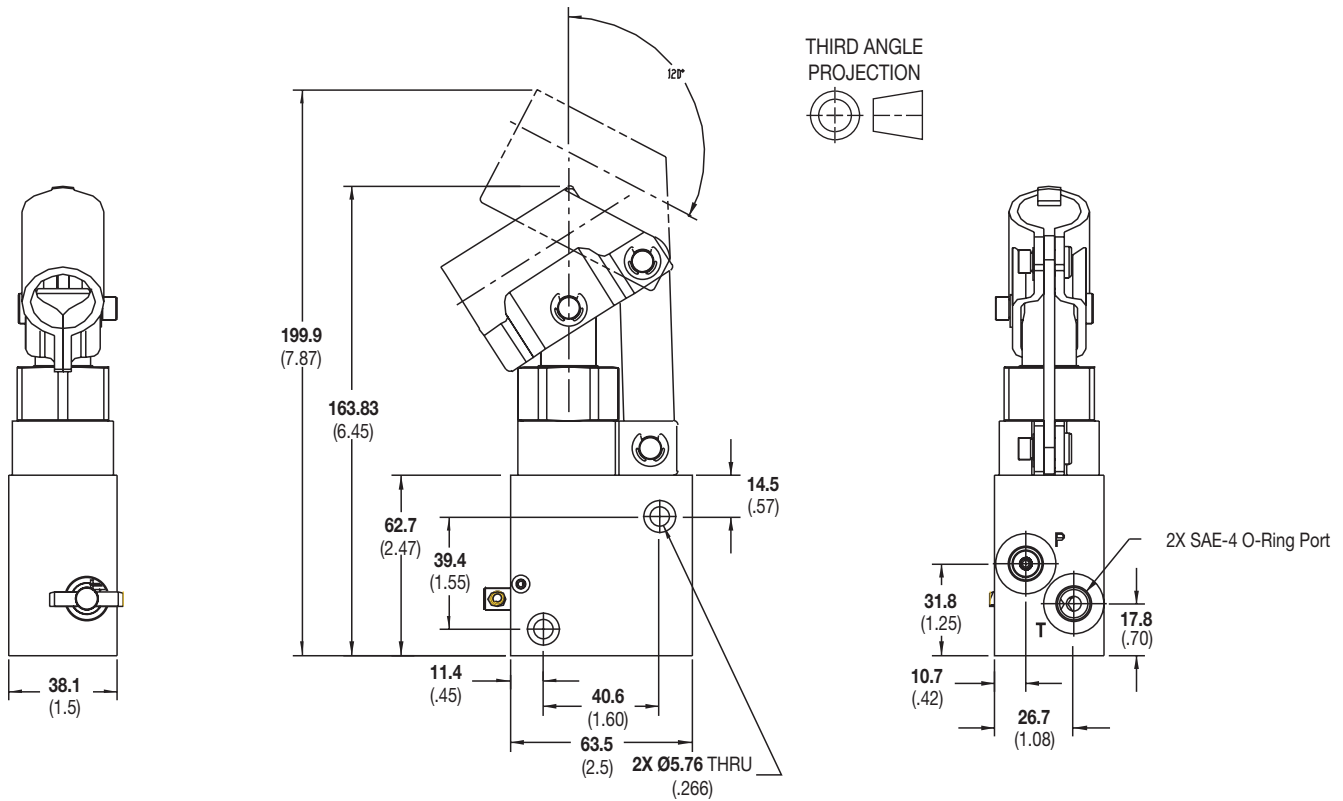
Oildyne

750 Series Hand Pumps for Single and Double Acting Cylinder Applications

Pressure to 172 bar (2500 psi)



Hand Pump Dimensions



Circuit

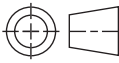
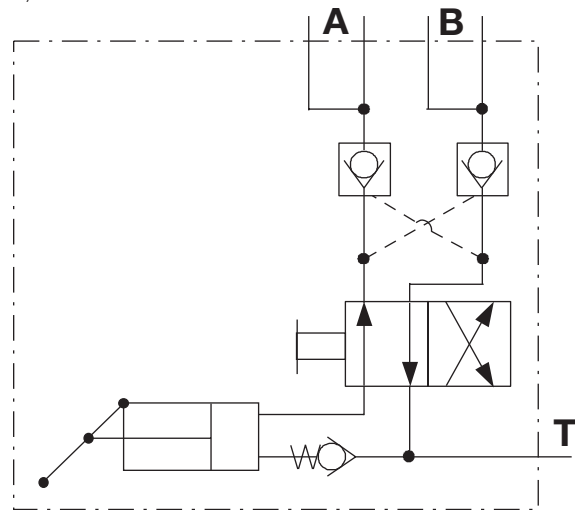
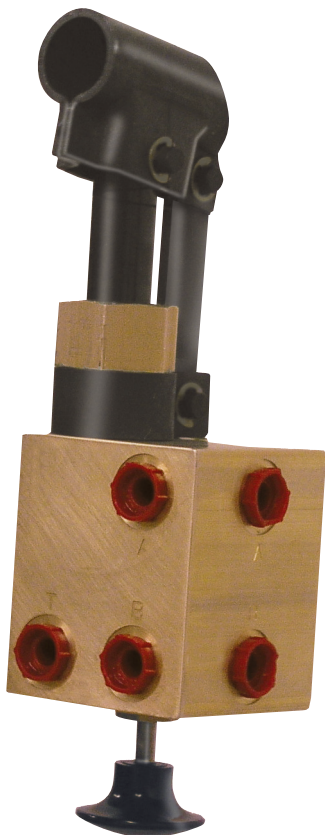
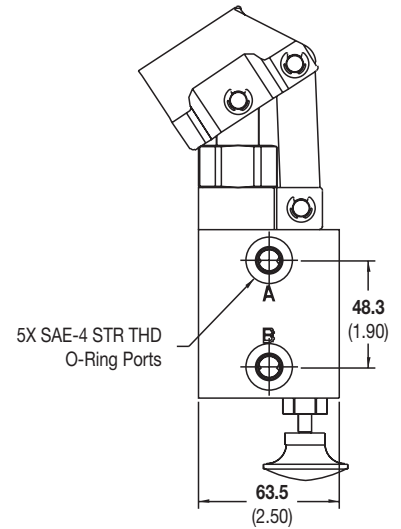
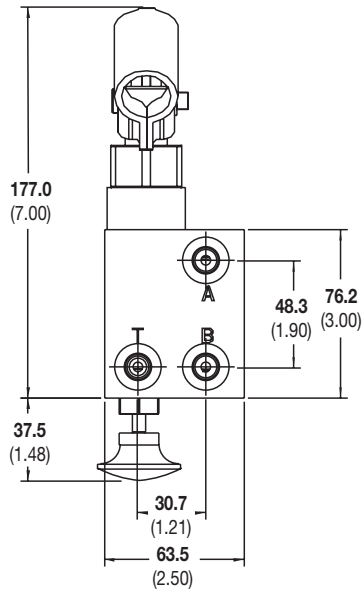
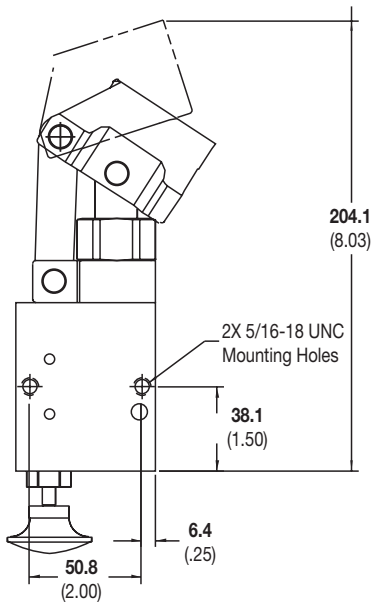
Model 750-1 Hand Pump

- 8.2 cc/Stroke (.5 in³/Stroke)
- Suitable for use in Single Acting Cylinder circuits
- Metering release valve for controlled return of fluid

Note: Specifications subject to change without notice.

Hand Pump Dimensions

THIRD ANGLE
 PROJECTION

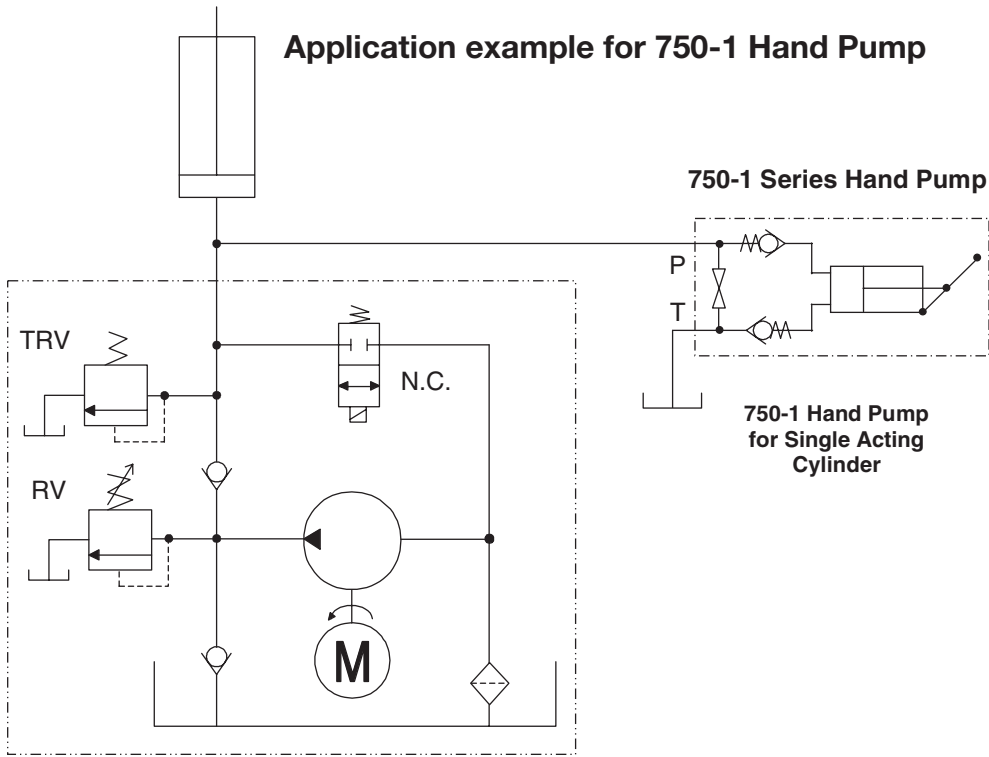
Circuit

Model 750-2 Hand Pump

- 8.2 cc/Stroke (.5 in³/Stroke)
- Suitable for use in Double Acting Cylinder circuits
- Integral double pilot operated check valves (with soft face seal poppets) hold the load and isolate the hand pump when not in use

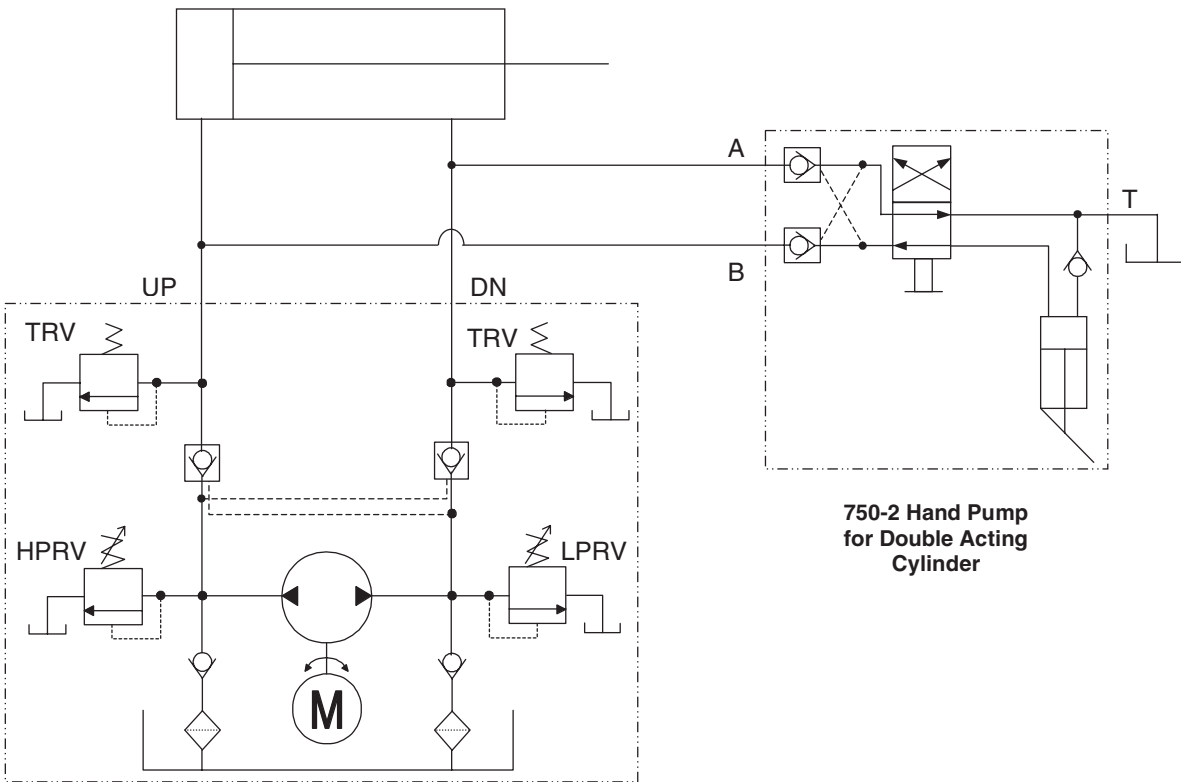
Note: Specifications subject to change without notice.

Application example for 750-1 Hand Pump



108/165 Series Single Direction with 2-way valve

Application example for 750-2 Hand Pump



750-2 Hand pump used with a reversible locking power unit

Oildyne

09 Series Hydraulic Gear Motor

Pressures to 345 bar (5000 psi)

Speeds to 25,000 rpm

Torque to 7.3 n-m (65 in-lbs)



- Concentric Center Drive
- Face or Flange Mounting
- Instantly Reversible
- Variety of Shaft Options
- Compact Size

Motor Data

Rotation - Bi-Directional

Displacement - 1.48 cc/rev (.09 cipr)

Torque - Approximately 1.47 n-m/70 bar (13 in-lbs/1,000 psi)

Max Speed - 25,000 rpm

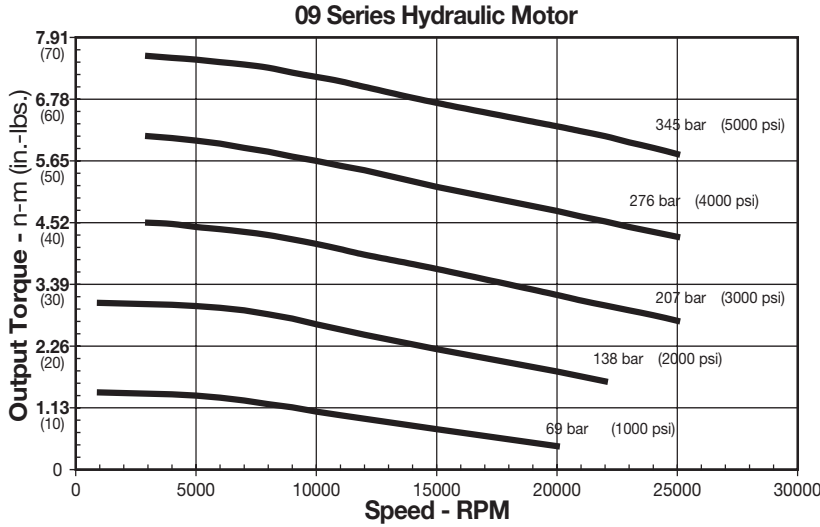
Max Pressure - 345 bar (5,000 psi)

Max Torque - 7.3 n-m (65 in-lbs)

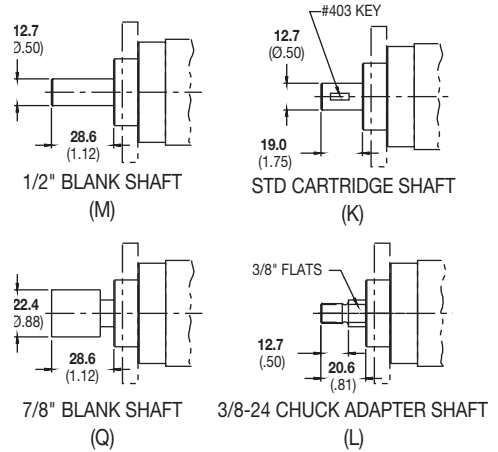
Starting Torque - Approximately 1.36 n-m/70 bar (12 in-lbs/1,000 psi)

Static Slip - 541 cc/70 bar (33 CIPM/1,000 psi)

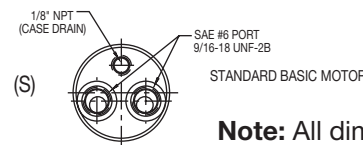
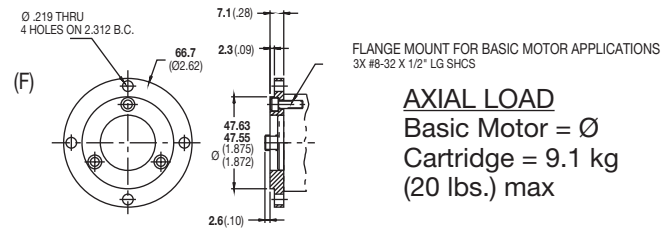
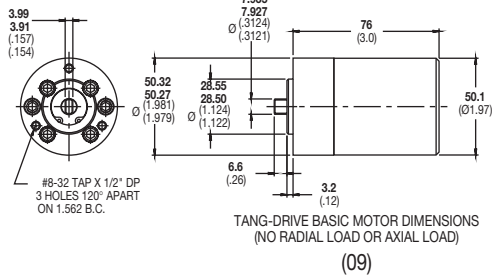
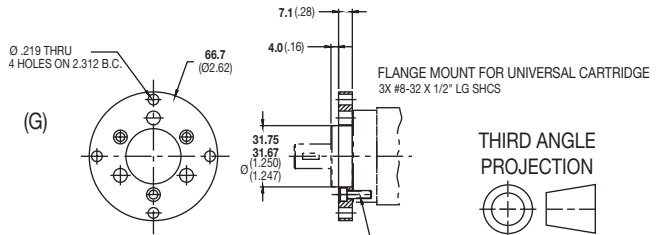
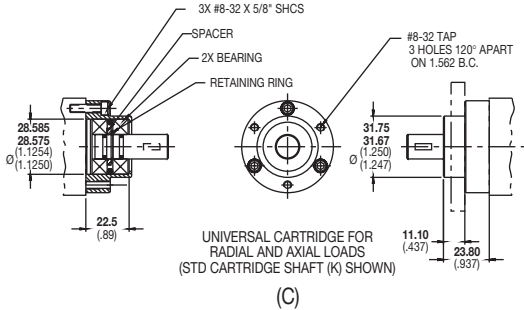
Performance



Shaft Options



Dimensions



AXIAL LOAD
 Basic Motor = Ø
 Cartridge = 9.1 kg (20 lbs.) max

RADIAL LOAD
 Basic Motor = Ø
 Cartridge = 23 kg (50 lbs.) max

Note: All dimensions in mm (inches).

Standard Product Ordering Code

09 S - G - C K - P

- Basic Motor**
09
- Porting**
A — Auto Case Drain — Single Rotation Only (Specify Rotation From Shaft End)
S — Case Drain
- Mounting**
D — Face Mounting — Basic Motor
E — Face Mounting — Cartridge Motor
F — Flange Mounting — Basic Motor
G — Flange Mounting — Cartridge Motor
- Cartridge**
C — Universal Cartridge
N — Basic Motor W/O Cartridge
- Seals (Fluid)**
P — Oil
T — Other (Specify)
- Shaft**
B — Basic Motor Shaft
K — Cartridge Shaft Extension — Std.
L — Cartridge Shaft Extension — 3/8-24
M — Cartridge Shaft Extension — 1/2" Blank
Q — Cartridge Shaft Extension — 7/8" Blank

Note: Specifications subject to change without notice. Performance data is for reference only.

Oildyne

***Pressure Switches
For AC Power***

3.4-345 bar (50-5000 psi) Range



Pressure Switch Features

- **Versatile**

Our designs allow the switches to be used in any mounting orientation. They can sense hydraulic fluid pressure or air/gas pressure. A simple spring change allows the same basic switch to be used through a wide range of pressure settings.

- **Durable**

Heavy-duty electrical contacts are rated for 15 amps at 125, 250 or 460 VAC. Normally open and normally closed contacts are provided.

- **Reliable**

Repeatability is accomplished through a combination of a PTFE seal and a hardened, nickel-plated steel piston. This use of low-friction materials and the design of the unique PTFE seal (or diaphragm*) prevents the piston from sticking. Repeatability, sensitivity and reliability are excellent. Limited piston movement prevents inertial forces from damaging the piston stop.

*Used for lower pressure differential applications.

Typical Applications

Pressure switches sense when a pre-selected fluid pressure is reached or lost and make or break an electrical circuit. Their operation can stop or start a machine's cycle, actuate indicator lights or sequential operations. Properly installed, their operation is automatic and limited by your imagination and need.

- **Spring Range**

Duplex models contain two separate switches which can be activated by one or two sensing ports depending on the subplate configuration. See dimensional data for options.

- **Environmentally Resistant**

Environmentally resistant models are available on special order for certain hazardous location service.

Subplates

Subplates are available for in-line mounting of Oildyne pressure switches. This allows further flexibility in mounting to existing equipment. Ports in 1/8 NPT or 7/16-20 (SAE-4) straight thread are standard. The duplex switch has two types of subplates, one with a port for each side of the switch, the other with one port only, for both sides of the switch.

Single Switch

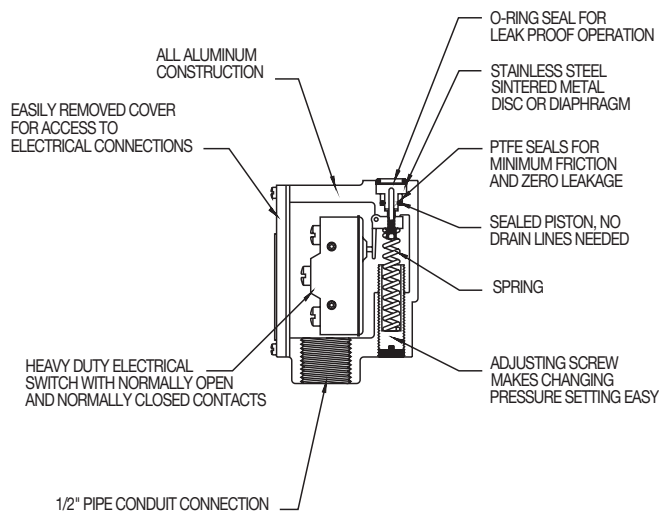


Duplex Switch



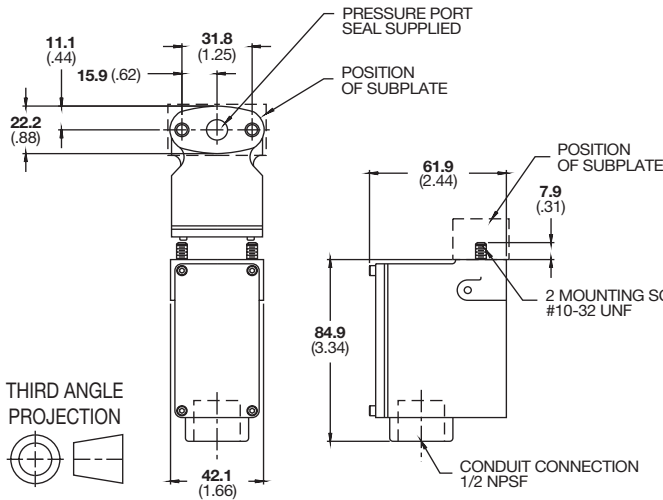
Triplex Switch

Construction



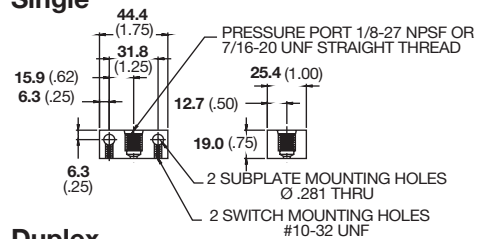
Dimensions

Single Pressure Switch

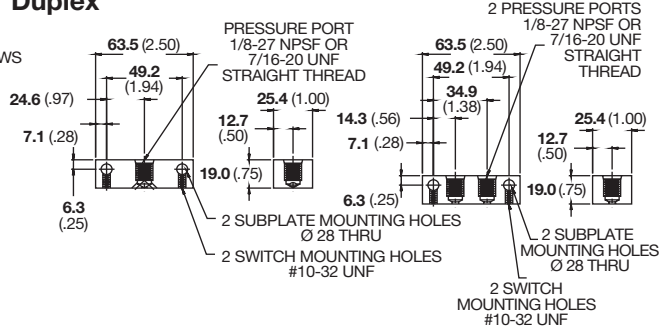


Subplates (Single & Duplex)

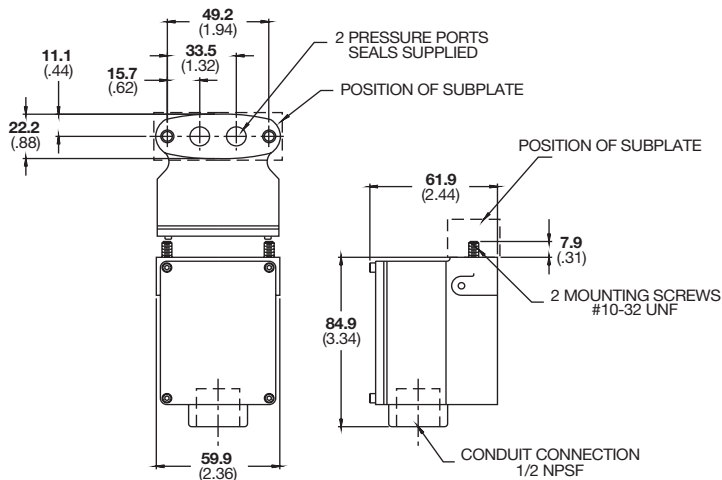
Single



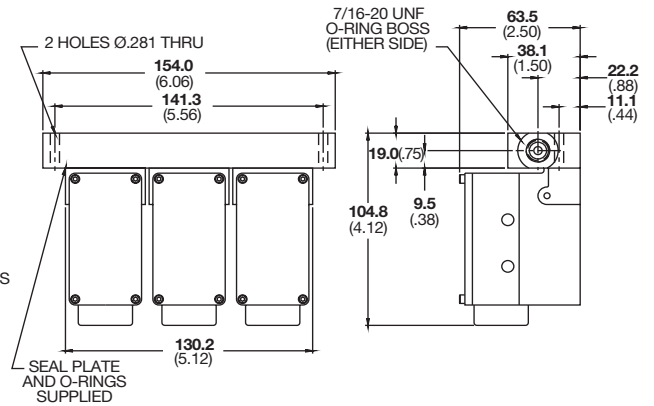
Duplex



Duplex Pressure Switch

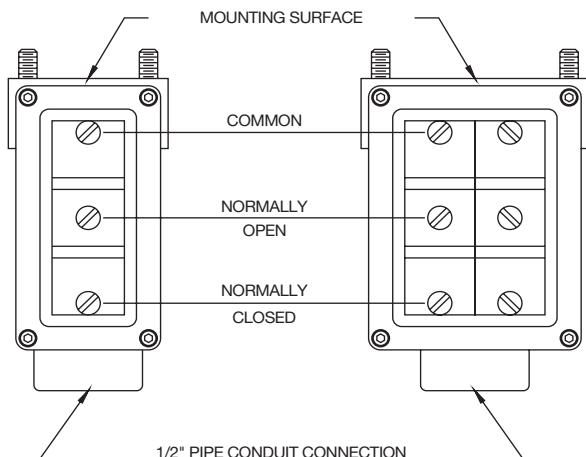


Triplex Pressure Switch



Note: All dimensions in mm (inches).

Wiring



Weight

Single

Standard .3 kg (10 oz.)

Duplex

Standard .4 kg (14 oz.)

Electrical Duty

Single pole, double throw element, U.L. rated for 15 amps at 125, 250 or 460 VAC. Electrical leads are not normally furnished with the switch.

Recommended Oil

Any clean hydraulic fluid. Standard Buna N seals supplied, optional fluorocarbon rubber seals also available.

Spring Selection Guide

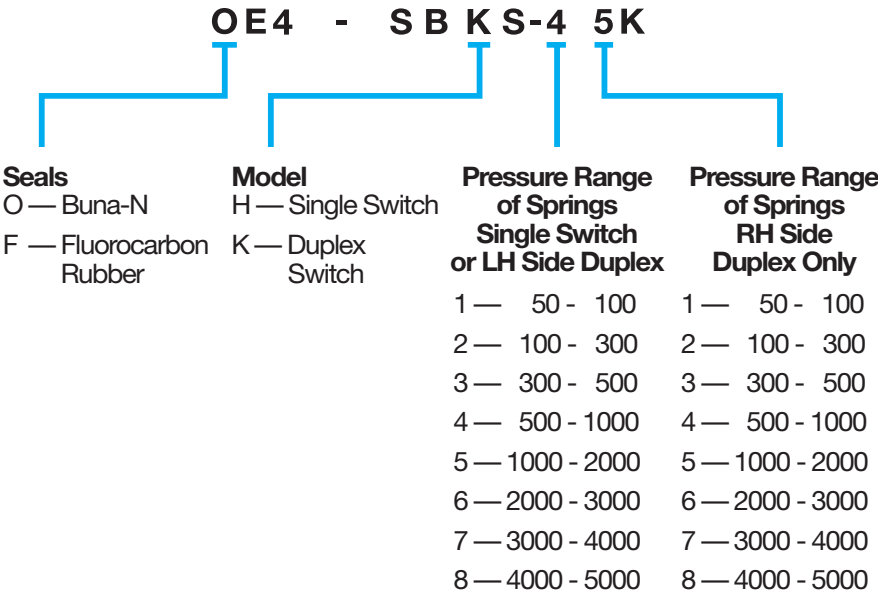
Spring Number	Spring Range	Adjustment Range	Repeatability Plus or Minus	Differential Range	Spring Color
1	50 - 100 psi	50 to 100 psi	2 psi	50 to 90 psi	Green
2	100 - 300 psi	75 to 300 psi	4 psi	50 to 100 psi	Black
3	300 - 500 psi	150 to 500 psi	5 psi	50 to 125 psi	Red
4	500 - 1000 psi	200 to 1000 psi	8 psi	50 to 150 psi	Blue
5	1000 - 2000 psi	300 to 2000 psi	15 psi	75 to 250 psi	White
6	2000 - 3000 psi	400 to 3000 psi	20 psi	75 to 250 psi	Yellow
7	3000 - 4000 psi	500 to 4000 psi	25 psi	125 to 350 psi	Orange
8	4000 - 5000 psi	500 to 5000 psi	50 psi	150 to 450 psi	Pink

Note: 100 psi = 6.9 bar.

Differential

This is the pressure required to open and close the switch contacts. It is a constant value dependent on the characteristics of the switch. The differential will be in the range as shown on the above table. For minimum differential, select the lightest spring including the maximum setting desired.

Standard Product Ordering Code



Single Switch

PK-01B Subplate (1/8" Pipe)
PK-50B Subplate (SAE-4 Str. Thd.)

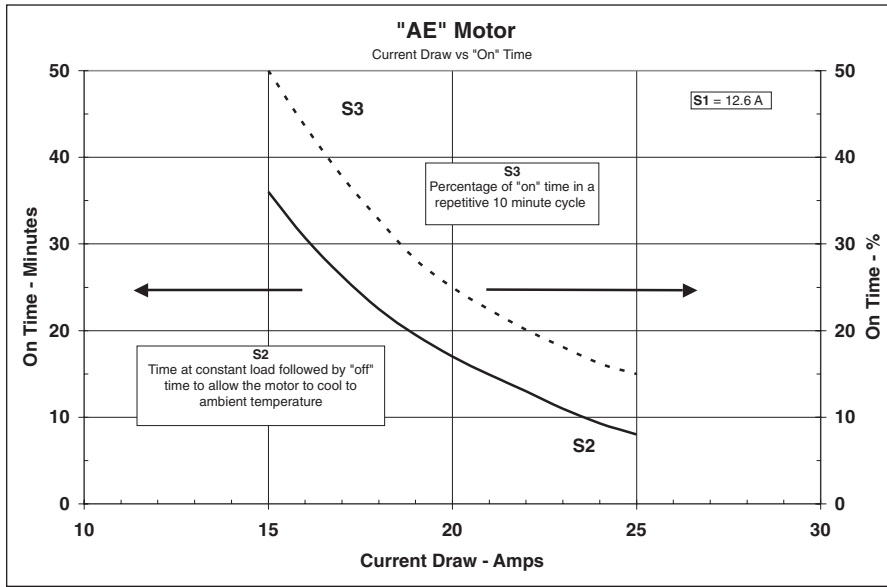
Duplex Switch

PK-01C Subplate (1/8" Pipe) Two Ports
PK-50C Subplate (SAE-4 Str. Thd.) Two Ports
PK-01D Subplate (1/8" Pipe) One Port
PK-50D Subplate (SAE-4 Str. Thd.) One Port

Triplex

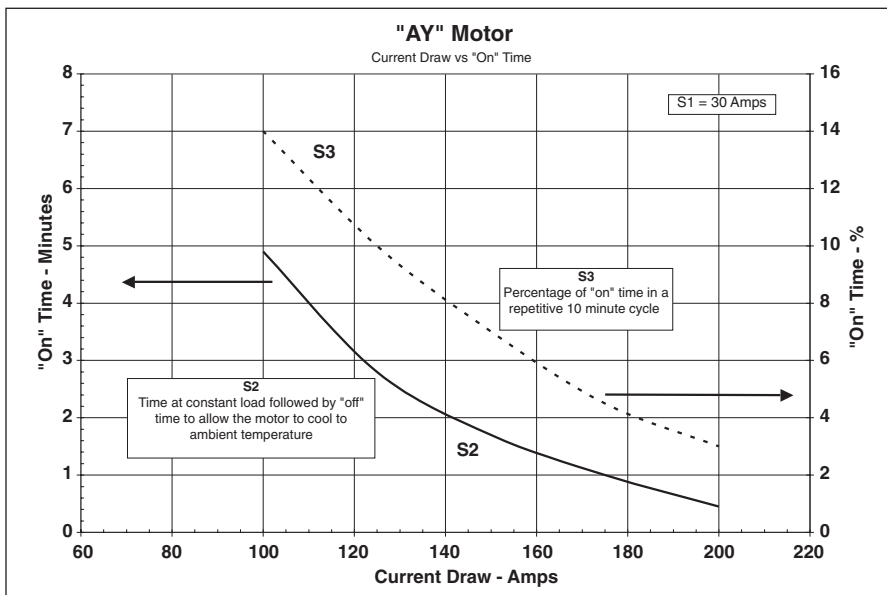
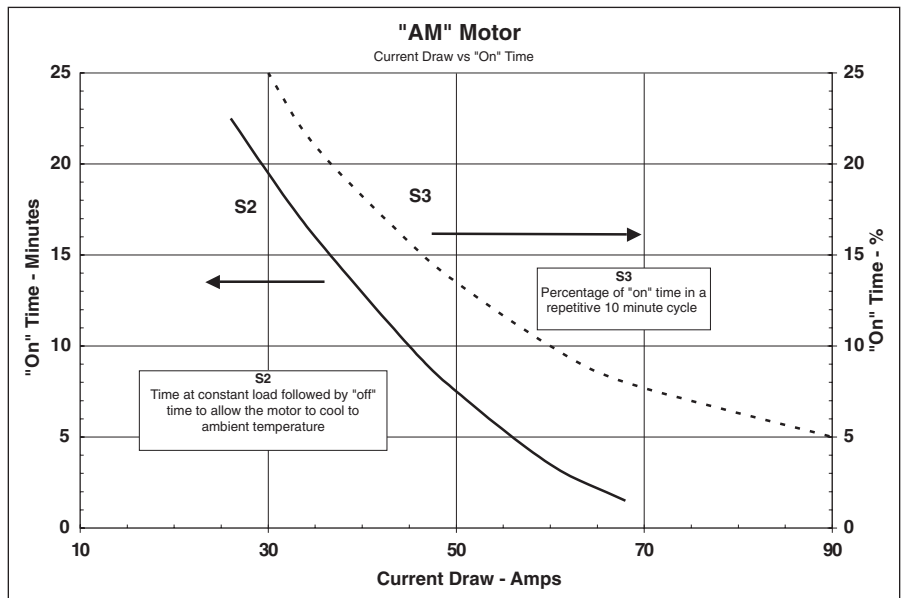
Specify Subplate PK-50H (SAE-4 Str. Thd.) and Three Single Switch Specifications from Chart at Left.

DC Motor Information



Duty Cycle information for 108 Series, 12 vdc – AE motor (Permanent Magnet). Maximum current draw for continuous operation is 12.6 amps.

Duty Cycle information for 108 Series, 12 vdc – AM motor (Series Wound). This motor is not capable of continuous operation.



Duty Cycle information for 165 Series, 12 vdc – AY motor (Permanent Magnet). Maximum current draw for continuous operation is 30 amps.

NOTE: This motor performance data is for reference ONLY. The user must make final acceptance and approval of the individual components as well as the system after testing their performance and endurance in the entire application, under all conditions that might be encountered.

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2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from the Company. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

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6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other

property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

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12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.



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Parker Hannifin Corporation

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