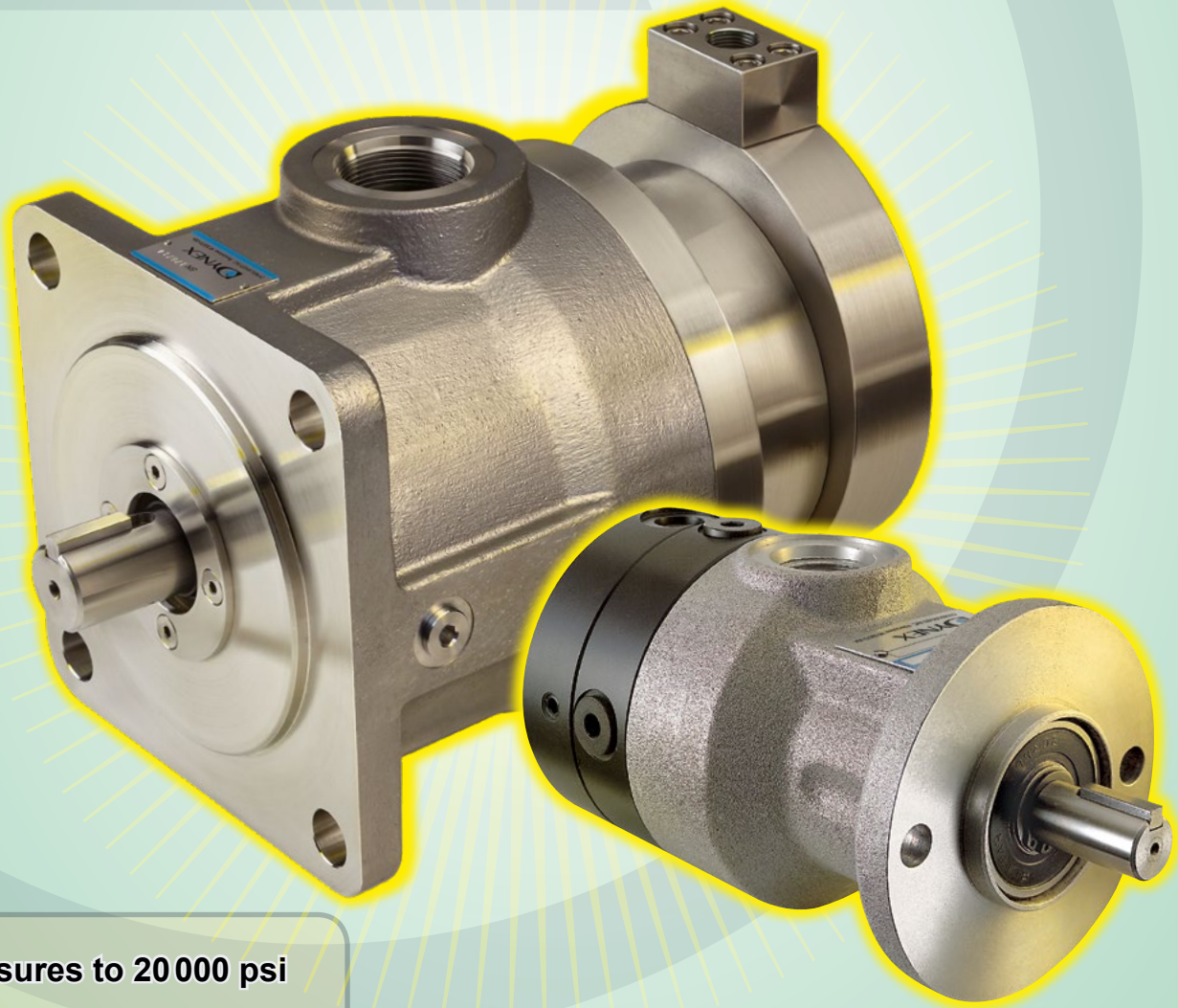


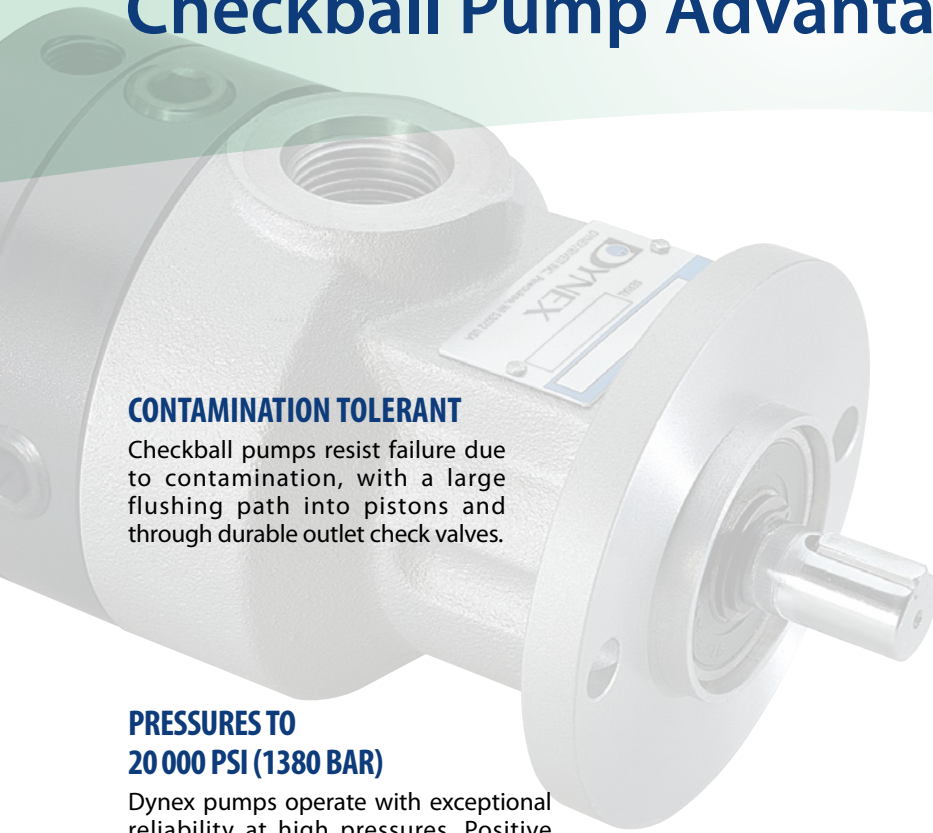


Hydraulic Components for Extreme Applications



- Pressures to 20000 psi
- Difficult fluids
- Dirty environments
- Extreme temperatures
- Multiple function circuits

Checkball Pump Advantages



CONTAMINATION TOLERANT

Checkball pumps resist failure due to contamination, with a large flushing path into pistons and through durable outlet check valves.

PRESSURES TO 20 000 PSI (1380 BAR)

Dynex pumps operate with exceptional reliability at high pressures. Positive seating check valves provide better wear and higher efficiency. This design has a high horsepower-to-weight ratio, to handle higher loads than other pump designs.



BI-DIRECTIONAL ROTATION

Our fixed displacement pumps provide constant flow direction regardless of drive shaft rotation.

COMPATIBILITY WITH A WIDE RANGE OF FLUIDS

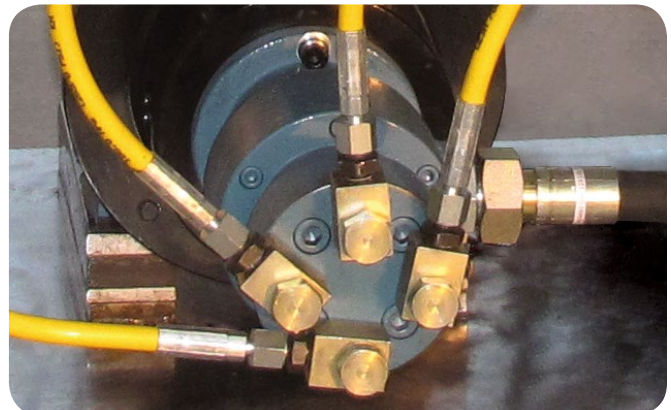
Checkball pumps provide reliable operation with extended life on R & D and production test stands. Pressure capability to 20000 psi (1380 bar) and compatibility with various water-based, phosphate ester and MIL-SPEC fluids makes these pumps ideal for testing aerospace components.

The checkball pump design provides extremely reliable operation with little reduction in efficiency over the life of the pump. When other pumps fail, checkball pumps continue to operate, even at high pressures, in dirty environments, and with long, difficult duty cycles.

MULTIPLE FLOWS FROM ONE PUMP

The output from each piston in a Dynex pump can be isolated from the other pistons. This allows one multiple-outlet pump to replace up to ten pumps.

Flow from each outlet can operate at different pressures. Piston outputs can be combined to supply different displacements. In circuits requiring synchronized movement, flow accuracy is greater than flow dividers.

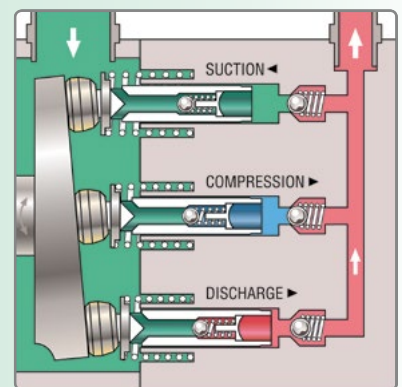


HOW THE PUMPS WORK

During pump operation, a fixed-angle wobble plate rotates and imparts a reciprocating motion to the pistons in a stationary barrel.

During its suction stroke, each piston is filled through its inlet check valve.

During compression, the inlet check valve closes and pressure in the pumping chamber rises until it exceeds load pressure. The outlet checkball then opens and fluid is pumped out of the chamber.



The outputs from each piston are combined into either a single outlet or multiple outlets.

PF500 Series Pumps



PF500 Series pumps, with power requirements as low as 0.75 HP (0.6 kW), are used in remote locations with limited power supply. These compact pumps operate in adverse environments at pressures to 15000 psi (1040 bar).

One Split-Flow® PF500 pump can supply independent flows from up to four separate outlets.

Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure psi (bar) | Maximum Intermittent Pressure psi (bar) | Maximum Speed rpm |
|------------|--------------------------------|--------------------------------|-----------------------------|--|----------------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| PF501 | 0.17 (0,66) | 0.21 (0,79) | 8000 (560) | 8000 (560) | 3600 |
| PF504 | 0.27 (1,04) | 0.33 (1,25) | 8000 (560) | 8000 (560) | 3600 |
| PF507 | 0.38 (1,45) | 0.46 (1,74) | 8000 (560) | 8000 (560) | 3600 |
| PF510 | 0.57 (2,14) | 0.68 (2,57) | 8000 (560) | 8000 (560) | 3600 |
| PF501H | 0.17 (0,66) | 0.21 (0,79) | 10000 (700) | 15000 (1040) | 3600 |
| PF504H | 0.27 (1,04) | 0.33 (1,25) | 10000 (700) | 15000 (1040) | 3600 |
| PF507H | 0.38 (1,45) | 0.46 (1,74) | 10000 (700) | 15000 (1040) | 3600 |
| PF510H | 0.57 (2,14) | 0.68 (2,57) | 10000 (700) | 15000 (1040) | 3600 |

^① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.



PF500 Series pumps are used on portable power packs for high torque tools where higher speed or more power is required.

Minimum Inlet Pressure^{①②}

| Pump Models | Operating Speed | | |
|-------------|-----------------------|-----------------------|-----------------------|
| | 1800 rpm psi (bar) | 2800 rpm psi (bar) | 3600 rpm psi (bar) |
| PF501 | 0 (0) | 0 (0) | 5 (0,4) |
| PF504 | 0 (0) | 0 (0) | 5 (0,4) |
| PF507 | 0 (0) | 5 (0,4) | 10 (0,7) |
| PF510 | 0 (0) | 10 (0,7) | 15 (1,0) |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

^② Inlet pressures higher than 10 psi (0,7 bar) require a high pressure shaft seal.



With low input power requirements, these pumps are used in solar-powered systems for actuating valves in remote locations.



Checkball pumps operate in some of the most difficult conditions and with challenging fluids like phosphate ester fire resistant fluids, or with low viscosity fluids. Some models are specially designed for use in low temperature environments.

PF1000 Series Pumps



Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure | Maximum Intermittent Pressure | Maximum Speed |
|------------|--------------------------------|--------------------------------|----------------|-------------------------------|---------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| PF1002 | 1.2 (4,7) | 1.5 (5,7) | 6000 (420) | 8000 (560) | 3600 |
| PF1003 | 1.7 (6,6) | 2.1 (7,9) | 6000 (420) | 8000 (560) | 3600 |
| PF1004 | 2.1 (8,2) | 2.6 (9,8) | 6000 (420) | 8000 (560) | 3600 |
| PF1005 | 2.9 (11,0) | 3.5 (13,2) | 6000 (420) | 8000 (560) | 2800 |
| PF1006 | 3.4 (12,9) | 4.1 (15,5) | 6000 (420) | 8000 (560) | 2800 |
| PF1007 | 4.1 (15,7) | 5.0 (18,9) | 4000 (280) | 6000 (420) | 2800 |
| PF1008 | 4.9 (18,6) | 5.9 (22,3) | 4000 (280) | 6000 (420) | 2800 |
| PF1002H | 1.2 (4,7) | 1.5 (5,7) | 6000 (420) | 10000 (700) | 3600 |
| PF1003H | 1.7 (6,6) | 2.1 (7,9) | 6000 (420) | 10000 (700) | 3600 |
| PF1004H | 2.1 (8,2) | 2.6 (9,8) | 6000 (420) | 10000 (700) | 3600 |
| PF1005H | 2.9 (11,0) | 3.5 (13,2) | 6000 (420) | 10000 (700) | 2800 |
| PF1006H | 3.4 (12,9) | 4.1 (15,5) | 6000 (420) | 10000 (700) | 2800 |

PF1000 Series pumps operate with higher volumetric efficiency than other pump designs. They provide long life at pressures to 10 000 psi (700 bar).

One Split-Flow[®] PF1000 pump can supply independent flows from up to four separate outlets.

^① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.



Test systems use Split-Flow[®] four-outlet PF1000 Series pumps for simultaneous testing of four components.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|------------|-----------------|-----------|-----------|
| | 2200 rpm | 2800 rpm | 3600 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| PF1002 | 0 (0) | 0 (0) | 5 (0,4) |
| PF1003 | 0 (0) | 5 (0,4) | 5 (0,4) |
| PF1004 | 0 (0) | 5 (0,4) | 10 (0,7) |
| PF1005 | 5 (0,4) | 10 (0,7) | – |
| PF1006 | 5 (0,4) | 10 (0,7) | – |
| PF1007 | 5 (0,4) | 10 (0,7) | – |
| PF1008 | 5 (0,4) | 10 (0,7) | – |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

^② Inlet pressures higher than 10 psi (0,7 bar) require a high pressure shaft seal.



Transfer tables in marine shipyards use Split-Flow[®] pumps to supply consistent flow for synchronized lifting. High pressure multiple-outlet pumps used for lifting and skidding of heavy loads provide greater accuracy with lower cost than flow dividers.



The checkball pump design ensures proper internal lubrication for long life operation in vertical-mounted pump applications.

PF1300 Series Water Glycol Pumps



Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Maximum Pressure psi (bar) | Rated Speed rpm | Maximum Speed rpm |
|------------|-------------------------------|-------------------------------|-------------------------------|--------------------|----------------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| PF1301 | 0.26 (0,98) | 0.31 (1,18) | 8000 (560) | 1800 | 1800 |
| PF1303 | 0.36 (1,35) | 0.43 (1,63) | 8000 (560) | 1800 | 1800 |
| PF1305 | 0.45 (1,70) | 0.55 (2,08) | 8000 (560) | 1800 | 1800 |
| PF1308 | 0.60 (2,30) | 0.73 (2,76) | 8000 (560) | 1800 | 1800 |
| PF1313 | 0.59 (2,23) | 0.72 (2,72) | 8000 (560) | 1800 | 1800 |
| PF1315 | 0.76 (2,87) | 0.91 (3,45) | 8000 (560) | 1800 | 1800 |
| PF1318 | 1.01 (3,82) | 1.21 (4,58) | 8000 (560) | 1800 | 1800 |
| PF1320 | 1.18 (4,47) | 1.42 (5,37) | 8000 (560) | 1800 | 1800 |
| PF1301H | 0.23 (0,87) | 0.28 (1,06) | 15 000 (1040) | 1800 | 1800 |
| PF1303H | 0.33 (1,25) | 0.39 (1,47) | 15 000 (1040) | 1800 | 1800 |
| PF1305H | 0.44 (1,66) | 0.52 (1,97) | 10 000 (700) | 1800 | 1800 |
| PF1308H | 0.60 (2,27) | 0.72 (2,72) | 9000 (630) | 1800 | 1800 |
| PF13013H | 0.55 (2,08) | 0.65 (2,46) | 15 000 (1040) | 1800 | 1800 |
| PF1315H | 1.01 (2,76) | 0.87 (3,29) | 12 000 (830) | 1800 | 1800 |
| PF1318H | 1.19 (4,50) | 1.20 (4,54) | 9000 (630) | 1800 | 1800 |

PF1300 Series Pumps are compatible with water glycol as well as a variety of water-based, and other low-lubricity fluids. They can operate at pressures to 15000 psi (1040 bar) on wellhead control systems around the world.

The Dynex single-fluid design eliminates the need for a separate lubrication circuit resulting in less space, labor, piping, and lower ongoing maintenance cost.

These pumps use the pumped fluid to lubricate their internal bearings. This design prevents cross-fluid contamination, which can occur in other designs requiring a secondary oil for lubrication.

The checkball design provides a high horsepower-to-weight ratio in a very compact form.

^① Output flow based on typical performance using 33 SUS (1,9 cSt) water glycol fluid at maximum pressure with flooded inlet. See "Minimum Inlet Pressure" table at left.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|---------------|-----------------|-----------|-----------|
| | 1200 rpm | 1500 rpm | 1800 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| PF1300 Series | 0 (0) | 0 (0) | 0 (0) |

^① Values shown are based on fluid viscosity of 33 SUS (1,9 cSt). Pumps using water-based fluids require a flooded inlet.

^② Inlet pressures higher than 10 (0,7 bar) require a high pressure shaft seal.



Dynex pumps are chosen for critical applications that support the production of oil & natural gas.



Dynex single-fluid water glycol pumps provide reliable, low-cost operation, with reduced maintenance on wellhead control systems both on- and offshore around the world.

PF2000 Series Pumps



Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure | Maximum Intermittent Pressure | Maximum Speed |
|---|-------------------------------|-------------------------------|----------------|-------------------------------|---------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| <i>S.A.E. Ports:</i> | | | | | |
| PF2005 | 2.5 (9,5) | 3.0 (11,4) | 6000 (420) | 6000 (420) | 2800 |
| PF2007 | 3.4 (12,9) | 4.1 (15,5) | 6000 (420) | 6000 (420) | 2800 |
| PF2008 | 4.9 (18,6) | 5.8 (22,0) | 5000 (350) | 6000 (420) | 2400 |
| PF2009 | 5.1 (19,2) | 6.1 (23,1) | 3000 (210) | 4000 (280) | 2800 |
| PF2012 | 7.1 (26,8) | 8.5 (32,2) | 3000 (210) | 4000 (280) | 2400 |
| <i>Coned and Threaded or B.S.P. Outlet Ports:</i> | | | | | |
| PF2005H | 2.5 (9,5) | 3.0 (11,4) | 6000 (420) | 10 000 (700) | 2800 |
| PF2007H | 3.4 (12,9) | 4.1 (15,5) | 6000 (420) | 10 000 (700) | 2800 |

PF2000 Series Pumps are used in high pressure applications for extreme conditions including dirt, high temperatures, and long, difficult duty cycles. These pumps operate reliably at pressures to 10 000 psi (700 bar).

One Split-Flow® PF2000 pump can supply independent flows from up to six separate outlets.

^① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.



Dynex PF2000 Series pumps are used for rock crusher control systems operating in adverse conditions prone to contaminated fluid.

In press applications, these pumps operate at pressures to 10 000 psi (700 bar). Two-outlet Split-Flow® models supply full flow for rapid cylinder movement, and then reduced flow at high pressure for high force pressing.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|------------|-----------------|-----------|-----------|
| | 2000 rpm | 2400 rpm | 2800 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| PF2005 | 0 (0) | 3 (0,2) | 5 (0,4) |
| PF2007 | 0 (0) | 3 (0,2) | 5 (0,4) |
| PF2008 | 0 (0) | 5 (0,4) | – |
| PF2009 | 0 (0) | 3 (0,2) | 5 (0,4) |
| PF2012 | 0 (0) | 5 (0,4) | – |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

^② Inlet pressures higher than 10 psi (0,7 bar) require a high pressure shaft seal.



PF3000 Series Pumps



Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure psi (bar) | Maximum Intermittent Pressure psi (bar) | Maximum Speed rpm |
|------------|-------------------------------|-------------------------------|-----------------------------|--|----------------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| PF3011 | 6.7 (25,5) | 8.1 (30,7) | 6000 (420) | 8000 (560) | 2800 |
| PF3015 | 8.3 (31,5) | 10.0 (37,8) | 6000 (420) | 8000 (560) | 2500 |
| PF3017 | 10.0 (37,8) | 12.0 (45,4) | 6000 (420) | 8000 (560) | 2200 |
| PF3021 | 12.0 (45,4) | 14.4 (54,5) | 4000 (280) | 6000 (420) | 2500 |
| PF3024 | 14.3 (54,2) | 17.2 (65,1) | 4000 (280) | 6000 (420) | 2200 |
| PF3011H | 6.7 (25,5) | 8.1 (30,7) | 6000 (420) | 10000 (700) | 2800 |
| PF3015H | 8.3 (31,5) | 10.0 (37,8) | 6000 (420) | 10000 (700) | 2500 |

PF3000 Series Pumps provide efficient power operating at pressures to 10000 psi (700 bar). These reliable pumps are used in harsh, dirty environments around the world without concern for hydraulic failure.

One Split-Flow[®] PF3000 pump can supply independent flows from up to eight separate outlets.

^① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.



Dynex components are valued for their durability and contamination tolerance. They are used on applications like high pressure bearing lift systems for power generation turbines.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|---------------------|-----------------------|-----------------------|-----------------------|
| | 1800 rpm psi (bar) | 2200 rpm psi (bar) | 2500 rpm psi (bar) |
| PF3011 ^③ | 0 (0) | 5 (0,4) | 7 (0,5) |
| PF3015 | 3 (0,2) | 7 (0,5) | 10 (0,7) |
| PF3017 | 5 (0,4) | 10 (0,7) | – |
| PF3021 | 3 (0,2) | 7 (0,5) | 10 (0,7) |
| PF3024 | 5 (0,4) | 10 (0,7) | – |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

^② Inlet pressures higher than 10 psi (0,7 bar) require a high pressure shaft seal.

^③ Minimum inlet pressure for Model PF3011 operating at 2800 rpm is 10 psi (0,7 bar).



PF3000 Series pumps with four outlets operate at high pressure on lubrication systems. These Split-Flow[®] pumps simplify the circuit with less components and piping.



Split-Flow[®] pumps used for heavy lifting with strand jacks eliminate the need for cranes. In this application, PF3000 Series pumps with eight outlet ports replace flow dividers, providing increased output flow accuracy and consistent synchronized movement.

PF4000 Series Pumps



PF4000 Series Pumps operate reliably at pressures to 10 000 psi (700 bar). In this design, the pistons ride on a rotating thrust-bearing plate for reduced internal loading and long life operation.

One Split-Flow® PF4000 pump can supply independent flows from up to ten separate outlets.

PF4200 Series Pumps are capable of pressures to 20 000 psi (1380 bar). These pumps provide long life in conditions of severe heat and contamination, where dust and dirt cannot be totally removed by filtration. They operate reliably with low lubricity, low viscosity fluids, including diesel calibration fluid, Skydrol and other phosphate ester fluids, and other fire-resistant fluids.

Specifications

| Pump Model | Output Flow | | Rated Pressure psi (bar) | Maximum Intermittent Pressure psi (bar) | Maximum Speed rpm |
|-----------------------------|---|---|-----------------------------|--|----------------------|
| | at 1500 rpm U.S. gpm (L/min) ^① | at 1800 rpm U.S. gpm (L/min) ^① | | | |
| <i>PF4000 Series Pumps:</i> | | | | | |
| PF4011 | 6.4 (24,2) | 7.7 (29,1) | 6000 (420) | 8000 (560) | 2400 |
| PF4016 | 9.2 (35,0) | 11.1 (42,0) | 6000 (420) | 8000 (560) | 2400 |
| PF4018 | 10.3 (39,1) | 12.4 (46,9) | 6000 (420) | 8000 (560) | 2400 |
| PF4020 | 11.6 (44,1) | 14.0 (53,0) | 6000 (420) | 8000 (560) | 2400 |
| PF4011H | 6.0 (23,0) | 7.3 (27,6) | 10 000 (700) | 10 000 (700) | 2400 |
| PF4016H | 8.7 (33,1) | 10.5 (39,7) | 10 000 (700) | 10 000 (700) | 2400 |
| PF4018H | 10.0 (38,1) | 12.1 (45,8) | 8000 (560) | 10 000 (700) | 2400 |
| PF4020H | 11.4 (43,2) | 13.7 (51,9) | 8000 (560) | 10 000 (700) | 2400 |
| <i>PF4200 Series Pumps:</i> | | | | | |
| PF4203 | 1.8 (6,9) | 2.2 (8,3) | 8000 (560) | 8000 (560) | 1800 |
| PF4205 | 3.0 (11,4) | 3.6 (13,6) | 8000 (560) | 8000 (560) | 1800 |
| PF4208 | 4.3 (16,4) | 5.2 (19,7) | 8000 (560) | 8000 (560) | 1800 |
| PF4209 | 4.9 (18,6) | 5.9 (22,3) | 8000 (560) | 8000 (560) | 1800 |
| PF4210 | 5.6 (21,1) | 6.7 (25,4) | 8000 (560) | 8000 (560) | 1800 |
| PF4203H | 1.5 (5,9) | 1.9 (7,2) | 15 000 (1040) | 20 000 (1380) | 1800 |
| PF4205H | 2.6 (10,0) | 3.2 (12,1) | 15 000 (1040) | 20 000 (1380) | 1800 |
| PF4208H | 4.0 (15,4) | 4.9 (18,5) | 12 000 (830) | 17 000 (1170) | 1800 |
| PF4209H | 4.6 (17,6) | 5.6 (21,2) | 12 000 (830) | 17 000 (1170) | 1800 |
| PF4210H | 5.4 (20,4) | 6.5 (24,6) | 10 000 (700) | 15 000 (1040) | 1800 |

^① Output flow based on typical performance at rated pressure with pressurized inlet where required, See "Minimum Inlet Pressure" the table to left.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|------------|-----------------------|-----------------------|-----------------------|
| | 1500 rpm psi (bar) | 1800 rpm psi (bar) | 3600 rpm psi (bar) |
| PF4011 | 0 (0) | 0 (0) | 5 (0,4) |
| PF4016 | 0 (0) | 0 (0) | 5 (0,4) |
| PF4018 | 0 (0) | 5 (0,4) | 10 (0,7) |
| PF4020 | 5 (0,4) | 10 (0,7) | 15 (1,0) |
| PF4203 | 0 (0) | 0 (0) | - |
| PF4205 | 0 (0) | 0 (0) | - |
| PF4208 | 0 (0) | 5 (0,4) | - |
| PF4209 | 5 (0,4) | 10 (0,7) | - |
| PF4210 | 5 (0,4) | 10 (0,7) | - |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

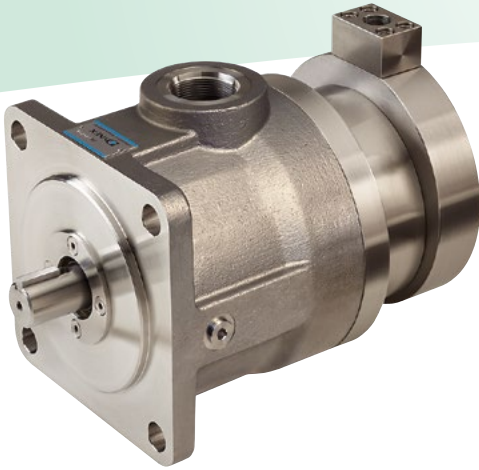
^② Inlet pressures higher than 10 psi (0,7 bar) require a high pressure shaft seal.



High pressure PF4200 Series motor/pump sets used in steel mills supply the lubrication systems on finishing stands. These pumps can withstand severe heat and are more resistant to contamination failure than other pump designs which are larger and more costly.

Dynex pumps operate with exceptional performance in test stand applications. High pressure capability with a wide range of fluids provides longer service life than other pump designs.

PF4300 Series Water Glycol Pumps



PF4300 Series Pumps are compatible with water glycol as well as a variety of water-based and other low lubricity fluids. They operate at pressures to 10000 psi (700 bar) and are frequently used on wellhead control systems around the world.

The exterior of this line of pumps is made of stainless steel.

The Dynex single-fluid design eliminates the need for a separate lubrication circuit, resulting in less space, labor, piping, and lower ongoing maintenance cost.

These pumps use water glycol to lubricate their internal bearings. This design prevents cross-fluid contamination, which can occur in other designs requiring a secondary oil for lubrication.

The checkball design provides a high horsepower-to-weight ratio in a very compact form.

Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Maximum Pressure psi (bar) | Rated Speed rpm | Maximum Speed rpm |
|------------|-------------------------------|-------------------------------|-------------------------------|--------------------|----------------------|
| | U.S. gpm (L/min) ^① | U.S. gpm (L/min) ^① | | | |
| PF4303 | 1.8 (6,9) | 2.2 (8,3) | 8000 (560) | 1200 | 1800 |
| PF4304 | 2.7 (10,1) | 3.2 (12,1) | 8000 (560) | 1200 | 1800 |
| PF4305 | 3.1 (11,7) | 3.7 (14,0) | 8000 (560) | 1200 | 1800 |
| PF4306 | 3.8 (14,5) | 4.6 (17,4) | 8000 (560) | 1200 | 1800 |
| PF4308 | 4.5 (17,0) | 5.4 (20,4) | 8000 (560) | 1200 | 1800 |
| PF4309 | 5.0 (18,9) | 6.0 (22,7) | 8000 (560) | 1200 | 1800 |
| PF4310 | 5.7 (21,4) | 6.8 (25,7) | 8000 (560) | 1200 | 1800 |
| PF4312 | 6.8 (25,9) | 8.2 (31,0) | 8000 (560) | 1200 | 1800 |
| PF4303H | 1.6 (6,2) | 2.0 (7,5) | 15 000 (1040) | 1200 | 1800 |
| PF4304H | 2.5 (9,5) | 3.1 (11,7) | 12 000 (830) | 1200 | 1800 |
| PF4305H | 2.9 (11,0) | 3.6 (13,6) | 10 000 (700) | 1200 | 1800 |
| PF4306H | 3.7 (13,9) | 4.4 (16,6) | 10 000 (700) | 1200 | 1800 |
| PF4308H | 4.3 (16,5) | 5.3 (19,9) | 10 000 (700) | 1200 | 1800 |
| PF4309H | 4.8 (18,2) | 5.9 (22,3) | 10 000 (700) | 1200 | 1800 |
| PF4310H | 5.5 (21,0) | 6.7 (25,3) | 10 000 (700) | 1200 | 1800 |
| PF4312H | 6.7 (25,6) | 8.1 (30,7) | 10 000 (700) | 1200 | 1800 |

^① Output flow based on typical performance using 33 SUS (1,9 cSt) water glycol fluid at maximum pressure with flooded inlet. See "Minimum Inlet Pressure" table at left.

Minimum Inlet Pressure^{①②}

| Pump Model | Operating Speed | | |
|------------|-----------------|-----------|-----------|
| | 1200 rpm | 1500 rpm | 1800 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| PF4303 | 0 (0) | 0 (0) | 0 (0) |
| PF4304 | 0 (0) | 0 (0) | 5 (0,4) |
| PF4305 | 0 (0) | 0 (0) | 0 (0) |
| PF4306 | 0 (0) | 0 (0) | 0 (0) |
| PF4308 | 0 (0) | 0 (0) | 5 (0,4) |
| PF4309 | 0 (0) | 5 (0,4) | 10 (0,7) |
| PF4310 | 0 (0) | 5 (0,4) | 15 (1,0) |
| PF4312 | 0 (0) | 5 (0,4) | 15 (1,0) |

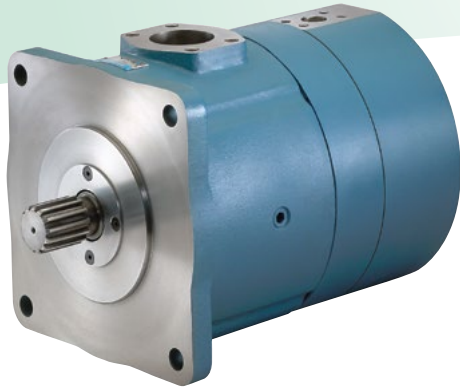
^① Values shown are based on fluid viscosity of 33 SUS (1,9 cSt). Pumps using water-based fluids require a flooded inlet.

^② Inlet pressures higher than 10 (0,7 bar) require a high pressure shaft seal.



Dynex water glycol pumps provide reliable, low-cost operation, with reduced maintenance on deepwater wellhead control systems around the world.

PF6000 Series Pumps



PF6000 Series Pumps provide high flow operating at pressures to 15000 psi (1040 bar). They are ideal for extreme conditions including dirty environments, extreme temperatures, and long, difficult duty cycles.

One Split-Flow® PF6000 pump can supply independent flows from up to ten separate outlets.

Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure | Maximum Intermittent Pressure | Maximum Speed |
|--|--------------------------|--------------------------|----------------|-------------------------------|---------------|
| | gpm (L/min) ^① | gpm (L/min) ^① | | | |
| <i>Outlet Block with Coned and Threaded Port: ②</i> | | | | | |
| PF6023 | 10.5 (40,0) | 12.7 (48,0) | 15 000 (1040) | 15 000 (1040) | 1800 |
| <i>Outlet Block with S.A.E., Coned and Threaded, or B.S.P. Port: ②</i> | | | | | |
| PF6033 | 18.3 (69,3) | 22.0 (83,2) | 10 000 (700) | 10 000 (700) | 1800 |
| PF6046 | 26.0 (98,7) | 31.3 (118,4) | 8000 (560) | 8000 (560) | 1800 |
| <i>Standard S.A.E. 4-Bolt Flange Outlet Port:</i> | | | | | |
| PF6054 | 29.5 (111,6) | 35.4 (134,0) | 6000 (420) | 6000 (420) | 2400 |
| PF6070 | 39.6 (150,1) | 47.6 (180,1) | 6000 (420) | 6000 (420) | 2300 |
| PF6080 | 45.0 (170,3) | 54.0 (204,4) | 5500 (380) | 5500 (380) | 2200 |

① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.

② Outlet block kits must be ordered separately. Coned and Threaded outlet port uses Autoclave Medium Pressure, Butech M/P, or equivalent fitting. B.S.P. outlet port uses British Standard Pipe fitting.



Dynex high pressure pumps have been used on industrial presses since 1960. Some pumps, operating at pressures to 15 000 psi (1040 bar), have been in use for 60 000 hours without failure.



Dynex pumps are used on test stands where reliable performance in harsh test conditions is critical. These test stands are used in various industries including commercial and military aircraft.

Minimum Inlet Pressure^①

| Pump Model | Operating Speed | | |
|----------------------|-----------------|-----------|-----------|
| | 1500 rpm | 1800 rpm | 2400 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| PF6023 | 5 (0,4) | 10 (0,7) | – |
| PF6033 | 10 (0,7) | 15 (1,0) | – |
| PF6046 | 5 (0,4) | 10 (0,7) | – |
| PF6054 | 5 (0,4) | 5 (0,4) | 10 (0,7) |
| PF6070 ^② | 5 (0,4) | 10 (0,7) | 10 (0,7) |
| PF6080 ^{②③} | 5 (0,4) | 10 (0,7) | 15 (1,0) |

① Values shown are based on fluid viscosity of 100 SUS (20 cSt). All PF6000 Series pumps have high pressure shaft seals.

② Maximum speed is 2200 rpm for model PF6070 and 2300 rpm for model PF6080.

③ Minimum inlet pressure for Model PF6080 operating at 1200 rpm is 5 psi (0,4 bar).



PV4000-6000 Series Variable Delivery



PV4000 Series Pumps supply infinitely variable flow controlled by the linear movement of a volume stem control.

PV6000 Series Pumps are rugged pumps designed to handle high loads and extreme operating conditions.

Models with an integral pressure compensator efficiently override the volume control to smoothly and quietly regulate delivery at a preset pressure up to 8000 psi (560 bar).

On hydraulic variable delivery pumps, output is regulated by an external low-pressure control signal supplied to a control port in the cover. One Split-Flow® PV6000 pump can supply two variable flows, or one fixed and one variable flow. Each output is independently controlled.



Dynex variable delivery pumps provide long service life on test stands for the challenging requirements of aerospace testing.

Specifications

| Pump Model | Output Flow at 1500 rpm | Output Flow at 1800 rpm | Rated Pressure | Maximum Intermittent Pressure | Maximum Speed |
|--|--------------------------|--------------------------|----------------|-------------------------------|---------------|
| | gpm (L/min) ^① | gpm (L/min) ^① | | | |
| <i>PV4000 Series Pumps (Mechanical Variable Delivery with optional Pressure Compensation):</i> | | | | | |
| PV4011 | 6.1 (23,0) | 7.3 (27,6) | 6000 (420) | 8000 (560) | 1800 |
| PV4016 | 8.9 (33,7) | 10.7 (40,5) | 6000 (420) | 8000 (560) | 1800 |
| PV4018 | 10.0 (37,8) | 12.0 (45,4) | 6000 (420) | 8000 (560) | 1800 |
| PV4020 | 11.4 (43,1) | 13.7 (51,8) | 6000 (420) | 8000 (560) | 1800 |
| PV4011H | 5.8 (22,0) | 7.0 (26,4) | 8000 (560) | 10 000 (700) | 1800 |
| PV4016H | 8.6 (32,4) | 10.3 (38,9) | 8000 (560) | 10 000 (700) | 1800 |
| PV4018H | 9.7 (36,6) | 11.6 (43,9) | 8000 (560) | 10 000 (700) | 1800 |
| PV4020H | 11.0 (41,6) | 13.2 (49,9) | 8000 (560) | 10 000 (700) | 1800 |
| <i>PV6000 Series Pumps (Mechanical Variable Delivery with Pressure Compensation):</i> | | | | | |
| PV6046 | 25.9 (98,1) | 31.1 (117,7) | 6000 (420) | 8500 (590) | 1800 |
| PV6054 | 30.5 (115,5) | 36.7 (138,9) | 6000 (420) | 8500 (590) | 1800 |
| PV6070 | 40.0 (151,4) | 48.0 (181,7) | 6000 (420) | 8500 (590) | 1800 |
| PV6089 | 51.2 (193,8) | 61.4 (232,4) | 6000 (420) | 6000 (420) | 1800 |
| <i>PV6000 Series Pumps (Hydraulic Variable Delivery):</i> | | | | | |
| PV6054 | 29.5 (111,6) | 35.4 (134,0) | 6000 (420) | 6000 (420) | 2400 |
| PV6070 | 39.6 (150,1) | 47.6 (180,1) | 6000 (420) | 6000 (420) | 2300 |
| PV6080 | 45.0 (170,3) | 54.0 (204,4) | 5500 (380) | 5500 (380) | 2200 |

^① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" the table below.

Minimum Inlet Pressure^①

| Pump Model | Operating Speed | | |
|---|-----------------|-----------|-----------|
| | 1500 rpm | 1800 rpm | 2400 rpm |
| | psi (bar) | psi (bar) | psi (bar) |
| <i>PV4000 Series Pumps (Mechanical Variable):</i> | | | |
| PV4011 | 0 (0) | 0 (0) | – |
| PV4016 | 0 (0) | 0 (0) | – |
| PV4018 | 0 (0) | 5 (0,4) | – |
| PV4020 | 0 (0) | 5 (0,4) | – |
| <i>PV6000 Series Pumps (Mechanical Variable):</i> | | | |
| PV6046 | 3 (0,2) | 5 (0,4) | – |
| PV6054 | 3 (0,2) | 5 (0,4) | – |
| PV6070 ^② | 8 (0,6) | 10 (0,7) | – |
| PV6089 ^③ | 10 (0,7) | 15 (1,0) | – |
| <i>PV6000 Series Pumps (Hydraulic Variable):</i> | | | |
| PV6054 | 5 (0,4) | 5 (0,4) | 10 (0,7) |
| PV6070 | 5 (0,4) | 10 (0,7) | 10 (0,7) |
| PV6080 ^③ | 5 (0,4) | 10 (0,7) | 15 (1,0) |

^① Values shown are based on fluid viscosity of 100 SUS (20 cSt).

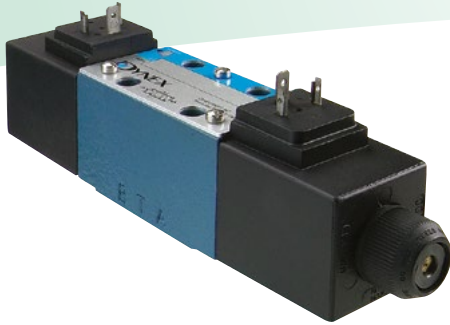
^② Minimum inlet pressure for Model PV6070 operating at 1200 rpm is 3 psi (0,2 bar).

^③ Minimum inlet pressure for Model PV6089 and PV6080 operating at 1200 rpm is 5 psi (0,4 bar).



Variable delivery PV6000 Series pumps used on drill rigs power the drill rotation, drill pressure, mast movement, and propulsion. They've proven to be rugged and reliable even when subjected to shock, vibration, and long duty cycles.

High Pressure Directional Control Valves



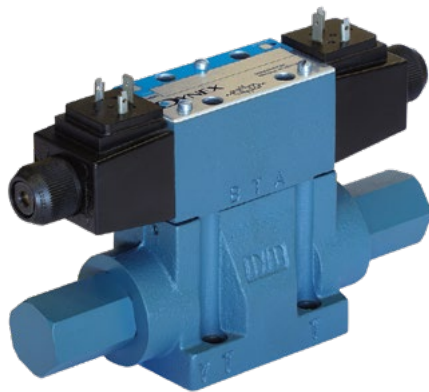
HP03 Directional Control Valves operate at pressures to 10 000 psi (700 bar), double that of most other conventional subplate mounted valves.

Actuator options include: Manual Lever, Direct Solenoid, Hydraulic Piloted, and Air Piloted models.



HP05 Directional Control Valves operate at pressures to 8000 psi (560 bar).

Actuator options include: Direct Solenoid, Hydraulic Piloted, and Air Piloted models.



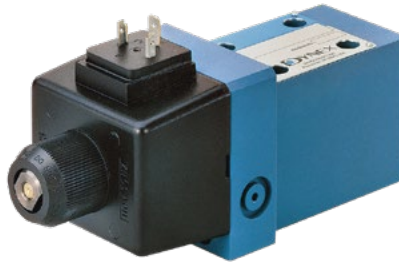
HP05H Directional Control Valves provide high pressure capability greater than D05H valves. The valve's low pressure drop is enhanced with the use of the Dynex standard subplate, which takes advantage of the valve's special double tank port design.

Actuator options include: Solenoid piloted, Hydraulic Piloted, and Air Piloted models.

Specifications

| Valve Model | Mounting Pattern | Nominal Flow ^① | Max Flow ^① | Rated Pressure |
|-------------|----------------------------------|---------------------------|-----------------------|----------------|
| | | U.S. gpm (L/min) | U.S. gpm (L/min) | psi (bar) |
| HP03 | Special High Pressure Pattern | 5.0 (19) | 15 (57) | 10 000 (700) |
| HP05 | Special High Pressure Pattern | 5.0 (19) | 25.0 (95) | 8 000 (560) |
| HP05H | D05 Pattern (with X and Y ports) | 30.0 (114) | 40.0 (151) | 8 500 (586) |
| VST22 | Special HP03 Pattern | 5.0 (19) | 5.0 (19) | 10 000 (700) |
| VST23 | Special HP03 Pattern | 5.0 (19) | 5.0 (19) | 10 000 (700) |
| VST Vent | Special HP03 Pattern | 1.0 (3,8) | 1.0 (3,8) | 15 000 (700) |

^① Output flow based on typical performance at max pressure.



VST Seated Directional Control Valves Are available in the following models:

Two position, two-way valves
– for low-flow venting functions.

Two position, three-way valves
– for load holding functions.

VSTV Vent valves – rated for: 1 gpm at 15 000 psi (3,8 L/min at 1040 bar).



Our high pressure valves are used on a wide variety of industrial and mobile applications including portable tools.



With some of the highest pressure ratings available, Dynex valves have been used for decades in many industrial applications like presses.

Pressure Control Valves



Specifications

| Valve Model | Function | Max Flow ^① | |
|-------------|---------------------------|-----------------------|-----------------------------|
| | | U.S. gpm (L/min) | Rated Pressure psi (bar) |
| H8819-5015 | Relief | 50 (57) | 15 000 (1040) |
| H8819-7509 | Relief | 75 (284) | 9 000 (620) |
| VHR | Relief | 30 (114) | 15 000 (1040) |
| VHU | Unloading | 30 (114) | 15 000 (1040) |
| VHD | Decompression | 30 (114) | 15 000 (1040) |
| V(*) | Relief/Sequence/Unloading | 30 (114) | 9 000 (620) |
| VR | Relief | 8 (30) | 10 000 (700) |

① Output flow based on typical performance at max pressure.

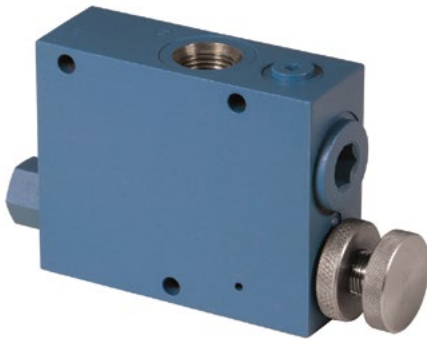
H8819 Series High pressure/High-Flow Relief Valves. Available in Manual, Electrohydraulic Proportional Control, or Electric Vent Option.

Compatible with conventional fluids and special fluids, including or with low viscosity, military fluids, Skydrol and other phosphate ester fluids.

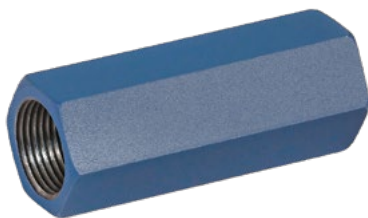


VH Series High pressure Control Valves. Available in Manual, Electrohydraulic Proportional Control, or Electric Vent Option.

Compatible with conventional fluids and special fluids, including low-viscosity, military fluids, Skydrol, and other phosphate ester fluids.



V* Series Pilot Operated Relief Valves. Functions available: Relief, Sequence, Unloading. Max. Pressure 9000 psi (620 bar)



VR Series Direct Acting Relief Valves. Max. Pressure 10 000 psi (700 bar) Factory set. Available in line connected.



A high pressure VH Series valve controls the maximum system pressure for each outlet on this multi-point lifting system.

High Pressure Valve Accessories



VSW-HP03 Pattern Sandwich Valves for our high pressure HP03 Directional Control Valves.

Functions include:
Check, Relief.



VSW-HP05 Pattern Sandwich Valves for our high pressure HP05 Directional Control Valves.

Functions include:
Check, Decompression, Relief.



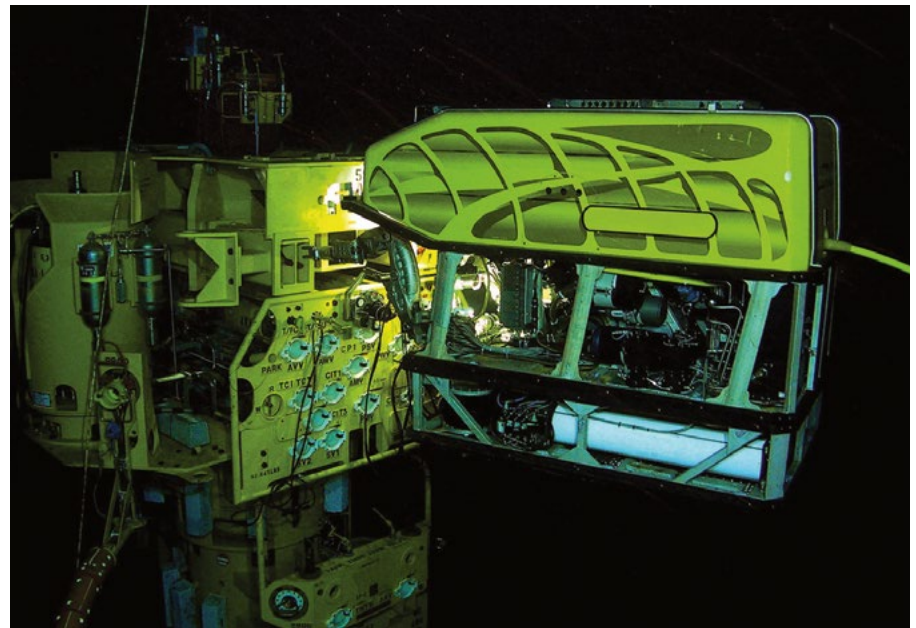
SPRV-HP03 Pattern Subplate Valves with integral Relief for use with our high pressure HP03 Directional Control Valves.

Also available for D03, D05, D05H, and D08 mounting patterns.

Sandwich Valve Specifications

| Valve Model (Size) | Function | Nominal Flow ^① | Max Flow ^① | Rated Pressure |
|--------------------|---------------|---------------------------|-----------------------|----------------|
| | | U.S. gpm (L/min) | U.S. gpm (L/min) | |
| VSWCH (HP03) | Check | 5.0 (19) | 15 (57) | 10 000 (700) |
| VSWRL (HP03) | Relief | 5.0 (19) | 15 (57) | 10 000 (700) |
| VSWCH (HP05) | Check | 5.0 (19) | 25.0 (95) | 8 000 (560) |
| VSWD (HP05) | Decompression | 5.0 (19) | 25.0 (95) | 8 000 (560) |
| VSWRL (HP05) | Relief | 5.0 (19) | 25.0 (95) | 8 000 (560) |

^① Output flow based on typical performance at max pressure.



Dynex high pressure components are part of a remotely controlled intervention tool for offshore platforms.

Subplate Specifications

| Valve Model (Size) | Valve Mounting Pattern | Function | Max Flow ^① | Rated Pressure |
|--------------------|------------------------|----------|-----------------------|----------------|
| | | | U.S. gpm (L/min) | psi (bar) |
| SPRV-D03-SAE8 | D03 | Relief | 15 (57) | 5 000 (345) |
| SPRV-HP03-.56MP | HP03 | Relief | 15 (57) | 10 000 (700) |
| SPRV-D05-SAE8 | D05 | Relief | 20 (76) | 5 000 (345) |
| SPRV-D05H-SAE12 | D05H | Relief | 40 (151) | 5 000 (345) |
| SPRV-D08-SAE168 | D08 | Relief | 90 (341) | 5 000 (345) |

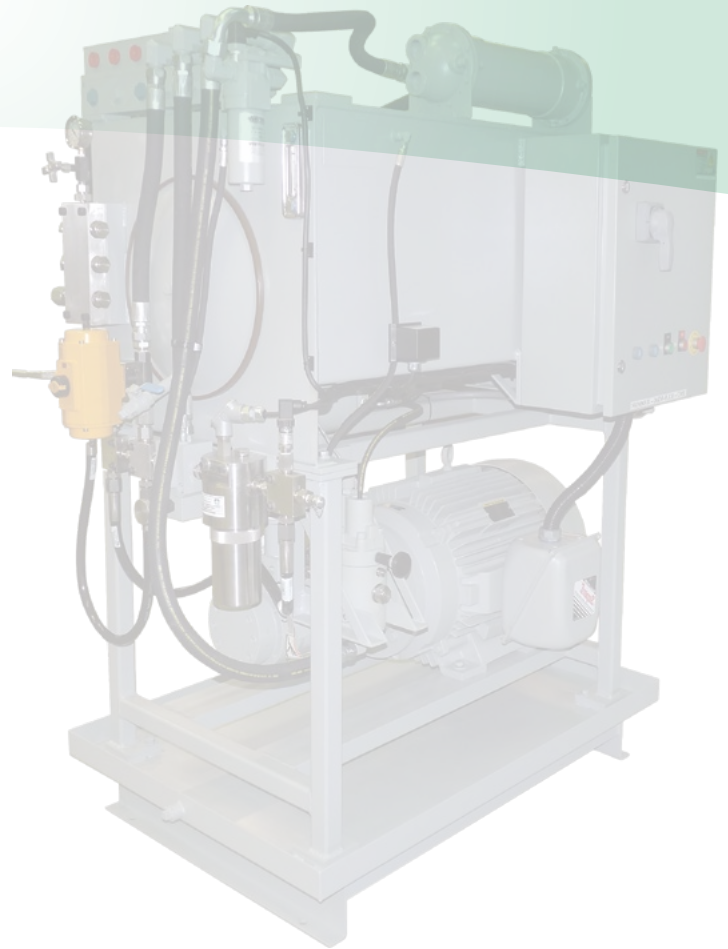
^① Output flow based on typical performance at max pressure.

Power Units & Systems

BUILDING POWER UNITS SINCE 1966

Dynex has been building power units at our facility in Ashland, Massachusetts since 1966.

Anything from standard, fast turn-around units, to specialized systems designed for your specific requirements are built at our fabrication facility. Units for use with a wide range of fluids or high pressures are not uncommon.



QuickPack Series Hydraulic Power Packs provide a compact package with a small footprint. These units are typically available to ship in 3 to 4 days. Adding a motor starter will increase lead time.

Specifications:

Reservoir Capacity: 5 gallons (25,6 liters) – 25 gallons (94,6 liters)

Power Source: Electric (Single- or 3-phase)

Max Pressure: Up to 5000 psi (350 bar) or 10 000 psi (700 bar)

Flow Range: 0.21 to 5.9 gpm (0,79 to 22,3 L/min) at 1800 rpm



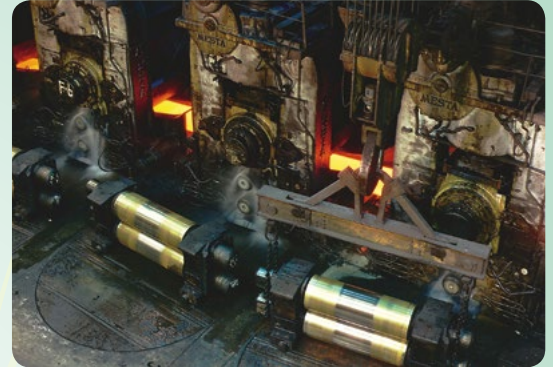
Custom Power Units are fabricated to meet exact customer requirements, with flows to 200 gpm (757 L/min) and pressures to 15 000 psi (1040 bar). Select prime movers to 200 HP (150 kW) and reservoirs to 1000 gallons (3785 L).

Applications range from test systems, high pressure hydrostatic roll balance and lubrication systems, to power packs for high-torque tools. They are used in the oil & gas industry, in construction and lifting, in jacking and tunneling systems, and in mining applications.

Hydraulic Components for Extreme Applications



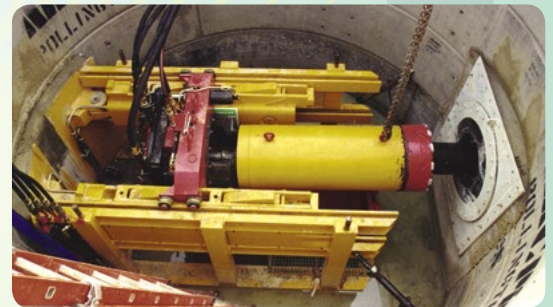
High pressure torque tools with checkball pumps provide long life, higher speed, and increased power.



In steel mills, pumps withstand severe heat and dirty conditions supplying bearing lubrication systems.



Water glycol pumps operate reliably with low maintenance on wellhead control systems.



Pumps operate at pressures to 10 000 psi (700 bar) in harsh, dirty conditions on pipe jacking systems.



High pressure pumps perform exceptionally with a wide range of fluids in harsh test stand applications.



One Split-Flow[®] pump can supply multiple jacks for accurate synchronized lifting without flow dividers.

www.dynexhydraulics.com

DYNEX
High Pressure Hydraulics

USA Headquarters
770 Capitol Drive
Pewaukee, WI 53072
Tel: 262-691-0300
FAX: 262-691-0312
E-mail: sales@dynexhydraulics.com

Power Units & Systems
54 Nickerson Road
Ashland, MA 01721
Tel: 508-881-5110
E-mail: ashland@dynexhydraulics.com

European Sales
Unit C5 Steel Close, Little End Road,
Eaton Socon, St Neots,
Cambs. PE19 8TT United Kingdom
Tel: +44 (0) 1480 213980 FAX: +44 (0) 1480 405662
E-mail: sales@dynexhydraulics.co.uk