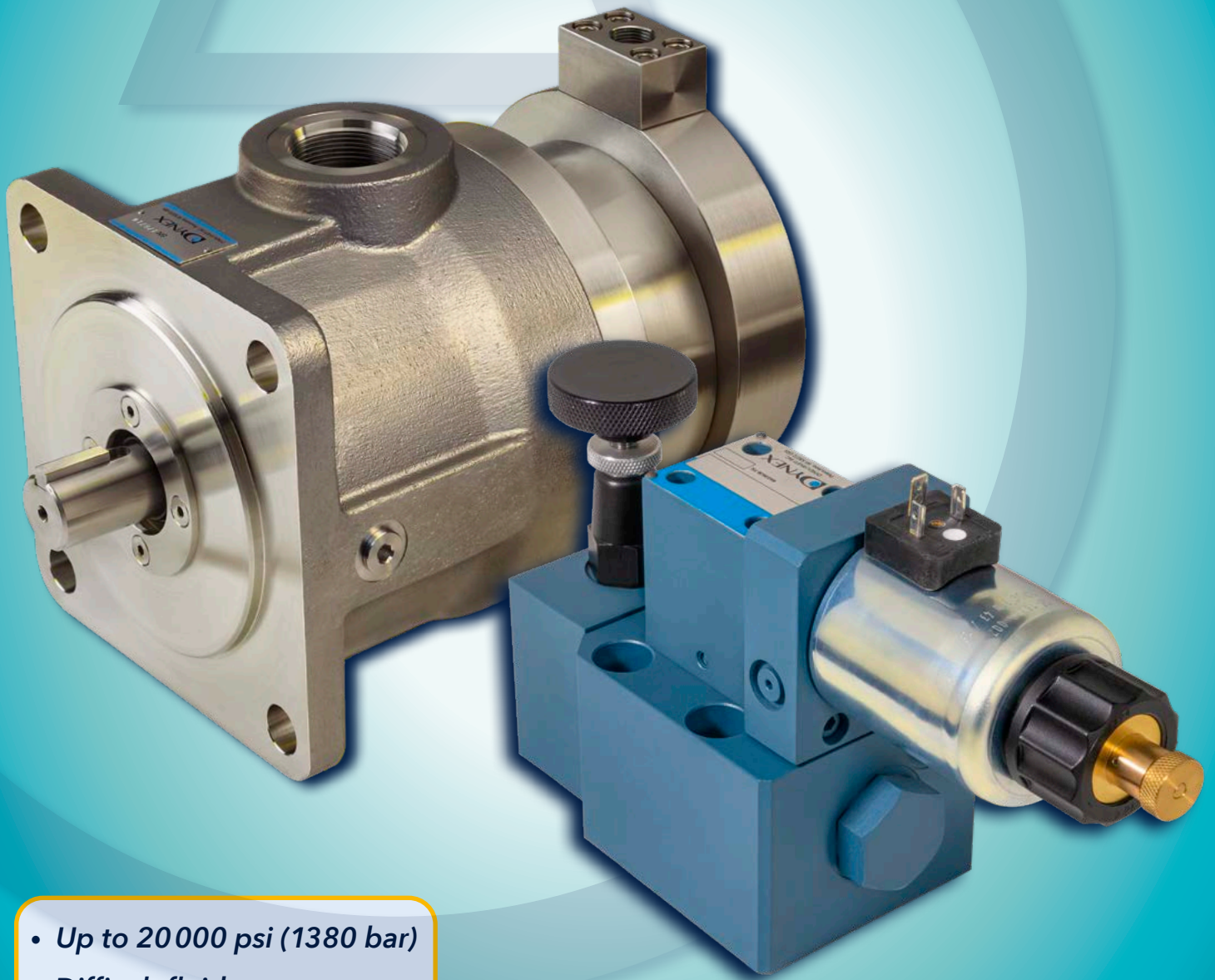


High Pressure Pumps & Valves

# Hydraulic Components for Extreme Applications



- *Up to 20000 psi (1380 bar)*
- *Difficult fluids*
- *Dirty environments*
- *Extreme temperatures*
- *Multiple function circuits*

**DYNEX**  
High Pressure Hydraulics

# Checkball Pump Advantages

*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.*

## 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)

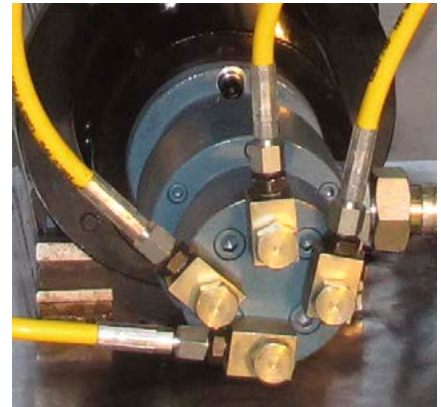
Dynex pumps operate with exceptional reliability at high pressures. Positive seating check valves provide better wear and higher efficiency. This design has a high horsepower-to-weight ratio, to handle higher loads than other pump designs.

## 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 20 000 psi (1380 bar) and compatibility with various water-based, phosphate ester and MIL-SPEC fluids makes these pumps ideal for testing aerospace components.



## 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.



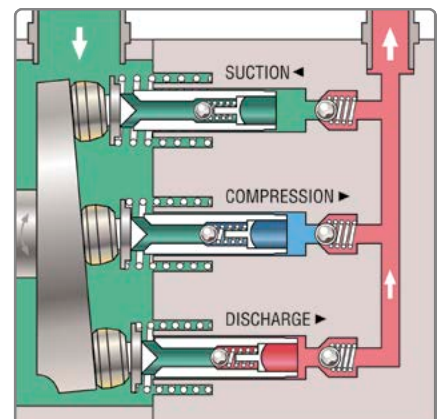
## HOW THEY WORK

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 15 000 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 <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure psi (bar)	Max Speed <sup>②</sup> rpm
	U.S. gpm (L/min)	U.S. gpm (L/min)		
PF501	0.13 (0,49)	0.16 (0,61)	8000 (560)	3600
PF504	0.21 (0,79)	0.25 (0,95)	8000 (560)	3600
PF507	0.29 (1,10)	0.35 (1,32)	8000 (560)	3600
PF510	0.42 (1,59)	0.51 (1,93)	8000 (560)	3600
PF511	0.17 (0,64)	0.21 (0,79)	8000 (560)	3600
PF514	0.27 (1,02)	0.33 (1,25)	8000 (560)	3600
PF517	0.38 (1,44)	0.46 (1,74)	8000 (560)	3600
PF520	0.56 (2,12)	0.68 (2,57)	8000 (560)	3600
PF501H	0.12 (0,45)	0.15 (0,57)	15 000 (1040)	3600
PF504H	0.20 (0,76)	0.24 (0,91)	15 000 (1040)	3600
PF507H	0.27 (1,02)	0.33 (1,25)	15 000 (1040)	3600
PF510H	0.42 (1,59)	0.50 (1,89)	15 000 (1040)	3600
PF511H	0.16 (0,61)	0.19 (0,72)	15 000 (1040)	3600
PF514H	0.27 (1,02)	0.32 (1,21)	15 000 (1040)	3600
PF517H	0.37 (1,40)	0.45 (1,70)	15 000 (1040)	3600
PF520H	0.55 (2,08)	0.66 (2,50)	15 000 (1040)	3600

<sup>①</sup> Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.

<sup>②</sup> Certain operating speeds may require a pressurized inlet.

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

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



## Minimum Inlet Pressure<sup>①</sup>

Pump Model	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) <sup>②</sup>
PF510	0 (0)	10 (0,7) <sup>②</sup>	15 (1,0) <sup>②</sup>
PF511	0 (0)	0 (0)	5 (0,4)
PF514	0 (0)	0 (0)	5 (0,4)
PF517	0 (0)	5 (0,4)	10 (0,7) <sup>②</sup>
PF520	0 (0)	10 (0,7) <sup>②</sup>	15 (1,0) <sup>②</sup>

<sup>①</sup> Values shown are based on fluid viscosity of 100 SUS (20 cSt).

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



Checkball pumps operate in some of the most difficult conditions 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



## PF1000 Series pumps

operate with higher volumetric efficiency than other pump designs. They provide long life at pressures to 10000 psi (700 bar).

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

## Specifications

Pump Model	Output Flow at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure psi (bar)	Max Speed <sup>②</sup> rpm
	U.S. gpm (L/min)	U.S. gpm (L/min)		
PF1002	1.3 (4,9)	1.5 (5,7)	8000 (560)	3600
PF1003	1.8 (6,8)	2.1 (7,9)	8000 (560)	3600
PF1004	2.2 (8,3)	2.6 (9,8)	8000 (560)	3600
PF1005	2.9 (11,0)	3.5 (13,2)	8000 (560)	2800
PF1006	3.4 (12,9)	4.1 (15,5)	8000 (560)	2800
PF1002H	1.3 (4,9)	1.5 (5,7)	10000 (700)	3600
PF1003H	1.8 (6,8)	2.1 (7,9)	10000 (700)	3600
PF1004H	2.2 (8,3)	2.6 (9,8)	10000 (700)	3600
PF1005H	2.9 (11,0)	3.5 (13,2)	10000 (700)	2800
PF1006H	3.4 (12,9)	4.1 (15,5)	10000 (700)	2800

① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.

② Certain operating speeds may require a pressurized inlet.



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



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.

## Minimum Inlet Pressure<sup>①</sup>

Pump Model	Operating Speed		
	2200 rpm psi (bar)	2800 rpm psi (bar)	3600 rpm psi (bar)
PF1002	0 (0)	0 (0)	5 (0,4)
PF1003	0 (0)	5 (0,4)	10 (0,7) <sup>②</sup>
PF1004	0 (0)	5 (0,4)	10 (0,7) <sup>②</sup>
PF1005	5 (0,4)	10 (0,7) <sup>②</sup>	–
PF1006	5 (0,4)	10 (0,7) <sup>②</sup>	–
PF1007	5 (0,4)	10 (0,7) <sup>②</sup>	–
PF1008	5 (0,4)	10 (0,7) <sup>②</sup>	–

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.

# PF1300 Series Water Glycol Pumps



## 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 15 000 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.

## Specifications

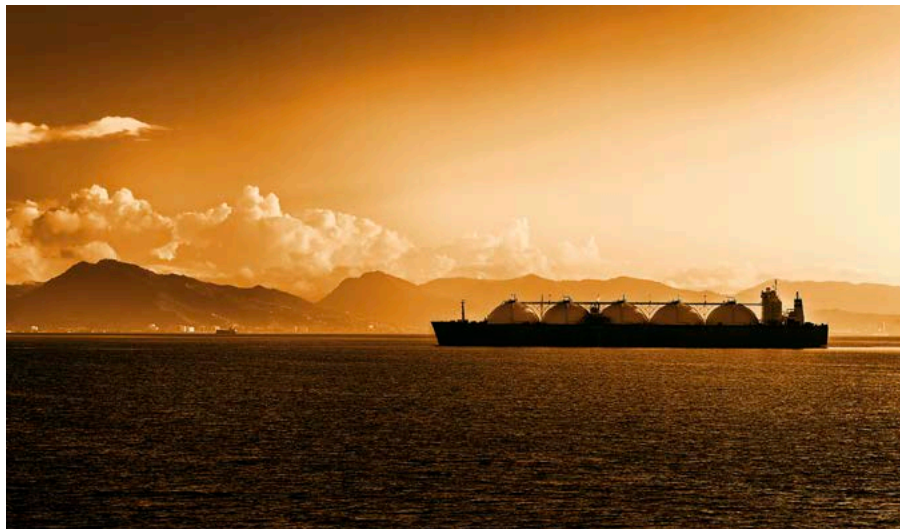
Pump Model	Output Flow at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure	Max Speed <sup>②</sup>
	U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)	rpm
PF1301	0.27 (1,02)	0.32 (1,21)	8000 (560)	1800
PF1303	0.36 (1,36)	0.43 (1,63)	8000 (560)	1800
PF1305	0.46 (1,74)	0.55 (2,08)	8000 (560)	1800
PF1308	0.61 (2,31)	0.73 (2,76)	8000 (560)	1800
PF1313	0.60 (2,27)	0.72 (2,73)	8000 (560)	1800
PF1315	0.77 (2,91)	0.92 (3,48)	8000 (560)	1800
PF1318	1.02 (3,86)	1.22 (4,62)	8000 (560)	1800
PF1320	1.18 (4,47)	1.42 (5,38)	8000 (560)	1800
PF1301H	0.23 (0,87)	0.27 (1,02)	15 000 (1040)	1800
PF1303H	0.33 (1,25)	0.39 (1,48)	15 000 (1040)	1800
PF1305H	0.44 (1,67)	0.53 (2,01)	12 000 (830)	1800
PF1308H	0.60 (2,27)	0.72 (2,73)	9000 (630)	1800
PF1313H	0.54 (2,04)	0.65 (2,46)	15 000 (1040)	1800
PF1315H	0.73 (2,76)	0.88 (3,33)	12 000 (830)	1800
PF1318H	1.01 (3,82)	1.21 (4,58)	9000 (630)	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 below.

② Certain operating speeds may require a pressurized inlet.



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.



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

## Minimum Inlet Pressure<sup>①②</sup>

Pump Model	Operating Speed		
	1200 rpm	1500 rpm	1800 rpm
	psi (bar)	psi (bar)	psi (bar)
All PF1300 Models	0 (0)	0 (0)	0 (0)

① Values shown are based on fluid viscosity of 33 SUS (1,9 cSt) and related to 1 atmosphere (29.92" Hg). Pumps using water-based fluids require a flooded inlet.

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

# PF2000 Series Pumps



## Specifications

Pump Model	Output Flow at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure	Max Speed <sup>②</sup>
	U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)	rpm
PF2005	2.5 (9,5)	3.0 (11,4)	6000 (420)	2800
PF2007	3.3 (12,5)	4.1 (15,5)	6000 (420)	2800
PF2008	4.9 (18,5)	5.9 (22,3)	6000 (420)	2400
PF2009	5.1 (19,3)	6.1 (23,1)	4000 (280)	2800
PF2012	7.1 (26,9)	8.5 (32,2)	4000 (280)	2400
PF2005H	2.5 (9,5)	3.0 (11,4)	10000 (700)	2800
PF2007H	3.3 (12,5)	4.1 (15,5)	10000 (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 10000 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" table below and refer to technical literature for complete details.  
 ② Certain operating speeds may require a pressurized inlet.



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

Up to six independent outlets can be provided from a single PF2000 checkball pump. The pictured system was used for lifting large structures with uneven loads.

A high pressure VH Series valve controls the maximum system pressure for each outlet on this multi-point lifting system. The entire system was designed and built by Dynex.



## Minimum Inlet Pressure<sup>①②</sup>

Pump Model	Operating Speed		
	2000 rpm psi (bar)	2400 rpm psi (bar)	2800 rpm 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 <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure	Max Speed <sup>②</sup>
	U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)	rpm
PF3011	6.8 (25,7)	8.1 (30,7)	8000 (560)	2800
PF3015	8.3 (31,4)	10.0 (37,9)	8000 (560)	2500
PF3017	10.0 (37,9)	12.0 (45,4)	8000 (560)	2200
PF3021	12.0 (45,4)	14.4 (54,5)	6000 (420)	2500
PF3024	14.3 (54,1)	17.2 (65,1)	6000 (420)	2200
PF3011H	6.8 (25,7)	8.1 (30,7)	10000 (700)	2800
PF3015H	8.3 (31,4)	10.0 (37,9)	10000 (700)	2500

## PF3000 Series Pumps

provide efficient power operating at pressures to 10 000 psi (700 bar). These reliable pumps are used in harsh, dirty environments around the world without concern for hydraulic failure.

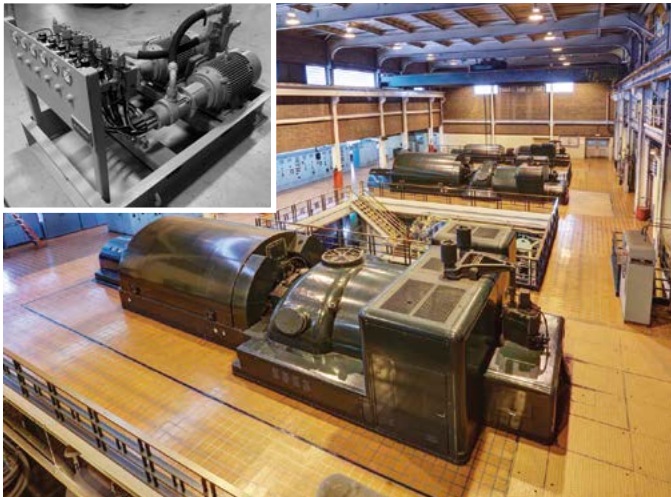
One Split-Flow<sup>®</sup> PF3000 pump can supply independent flows from up to eight separate outlets.

- ① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.  
 ② Certain operating speeds may require a pressurized inlet.

## Minimum Inlet Pressure<sup>①</sup>

Pump Model	Operating Speed				
	1500 rpm	1800 rpm	2200 rpm	2500 rpm	2800 rpm
	psi (bar)	psi (bar)	psi (bar)	psi (bar)	psi (bar)
PF3011	0 (0)	0 (0)	5 (0,4)	7 (0,5)	10 (0,7) <sup>②</sup>
PF3015	0 (0)	3 (0,2)	7 (0,5)	10 (0,7) <sup>②</sup>	-
PF3017	0 (0)	5 (0,4)	10 (0,7)	-	-
PF3021	0 (0)	3 (0,2)	7 (0,5)	10 (0,7) <sup>②</sup>	-
PF3024	0 (0)	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.



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



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



Split-Flow<sup>®</sup> 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, PF4200 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.

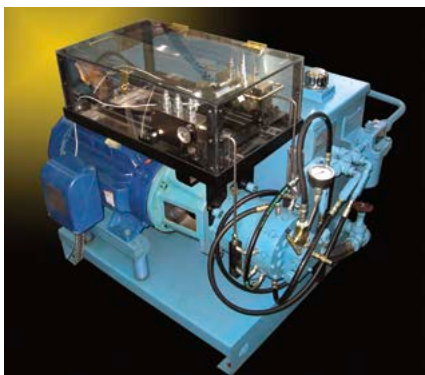
One Split-Flow® PF4000 pump can supply independent flows from up to ten separate outlets.



## 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 at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure	Max Speed <sup>②</sup>
	U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)	rpm
<i>PF4000 Series Pumps:</i>				
PF4011	6.4 (24,2)	7.7 (29,1)	8000 (560)	2400
PF4016	9.3 (35,2)	11.1 (42,0)	8000 (560)	2400
PF4018	10.3 (39,0)	12.4 (46,9)	8000 (560)	2400
PF4020	11.7 (44,3)	14.0 (53,0)	8000 (560)	2400
PF4011H	6.1 (23,1)	7.3 (27,6)	10000 (700)	2400
PF4016H	8.8 (33,3)	10.5 (39,7)	10000 (700)	2400
PF4018H	10.1 (38,2)	12.1 (45,8)	10000 (700)	2400
PF4020H	11.4 (43,2)	13.7 (51,9)	10000 (700)	2400
<i>PF4200 Series Pumps:</i>				
PF4203	1.8 (6,8)	2.2 (8,3)	8000 (560)	1800
PF4205	3.0 (11,4)	3.6 (13,6)	8000 (560)	1800
PF4208	4.3 (16,3)	5.2 (19,7)	8000 (560)	1800
PF4209	4.9 (18,5)	5.9 (22,3)	8000 (560)	1800
PF4210	5.6 (21,2)	6.7 (25,4)	8000 (560)	1800
PF4203H	1.6 (6,1)	1.9 (7,2)	20000 (1380)	1800
PF4205H	2.7 (10,2)	3.2 (12,1)	20000 (1380)	1800
PF4208H	4.1 (15,5)	4.9 (18,5)	17000 (1170)	1800
PF4209H	4.7 (17,8)	5.6 (21,2)	17000 (1170)	1800
PF4210H	5.4 (20,4)	6.5 (24,6)	15000 (1040)	1800

① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.

② Certain operating speeds may require a pressurized inlet.

## Minimum Inlet Pressure<sup>①</sup>

Pump Model	Operating Speed		
	1500 rpm psi (bar)	1800 rpm psi (bar)	2400 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) <sup>②</sup>
PF4020	5 (0,4)	10 (0,7) <sup>②</sup>	15 (1,0) <sup>②</sup>
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 10 000 psi (700 bar) and are frequently used on wellhead control systems around the world.

The exterior of this series 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.

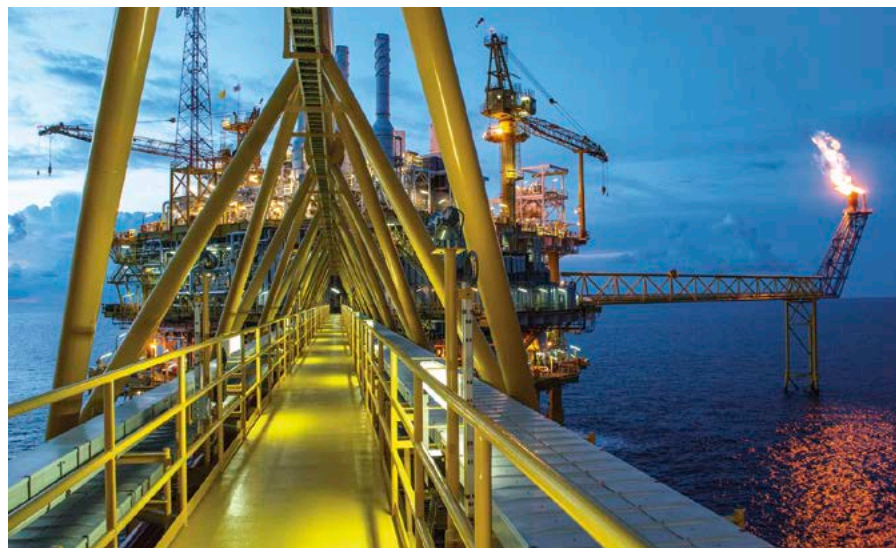
The checkball design provides a high horsepower-to-weight ratio in a very compact form.

## Specifications

Pump Model	Output Flow at 1200 rpm <sup>①</sup>		Output Flow at 1500 rpm <sup>①</sup>		Output Flow at 1800 rpm <sup>①</sup>		Max Pressure psi (bar)	Max Speed <sup>②</sup> rpm
	U.S. gpm (L/min)	U.S. gpm (L/min)	U.S. gpm (L/min)	U.S. gpm (L/min)	U.S. gpm (L/min)	U.S. gpm (L/min)		
PF4303	1.5 (5,7)	1.8 (6,8)	2.2 (8,3)	8000 (560)	1800			
PF4304	2.1 (7,9)	2.7 (10,2)	3.2 (12,1)	8000 (560)	1800			
PF4305	2.5 (9,5)	3.1 (11,7)	3.7 (14,0)	8000 (560)	1800			
PF4306	3.1 (11,7)	3.8 (14,4)	4.6 (17,4)	8000 (560)	1800			
PF4308	3.6 (13,6)	4.5 (17,0)	5.4 (20,4)	8000 (560)	1800			
PF4309	4.0 (15,1)	5.0 (18,9)	6.0 (22,7)	8000 (560)	1800			
PF4310	4.5 (17,0)	5.7 (21,6)	6.8 (25,7)	8000 (560)	1800			
PF4312	5.5 (20,8)	6.8 (25,7)	8.2 (31,0)	8000 (560)	1800			
PF4303H	1.3 (4,9)	1.7 (6,4)	2.0 (7,6)	15000 (1040)	1800			
PF4304H	2.1 (7,9)	2.6 (9,8)	3.1 (11,7)	12000 (830)	1800			
PF4305H	2.4 (9,1)	3.0 (11,4)	3.6 (13,6)	10000 (700)	1800			
PF4306H	2.9 (11,0)	3.7 (14,0)	4.4 (16,7)	10000 (700)	1800			
PF4308H	3.5 (13,2)	4.4 (16,7)	5.3 (20,1)	10000 (700)	1800			
PF4309H	3.9 (14,8)	4.9 (18,5)	5.9 (22,3)	10000 (700)	1800			
PF4310H	4.5 (17,0)	5.6 (21,2)	6.7 (25,4)	10000 (700)	1800			
PF4312H	5.4 (20,4)	6.8 (25,7)	8.1 (30,7)	10000 (700)	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 below.

② Certain operating speeds may require a pressurized inlet.



## Minimum Inlet Pressure<sup>①②</sup>

**IMPORTANT:** Pumps may require pressurized inlet conditions at higher speeds. Failure to meet minimum inlet requirements will result in flow reduction. Refer to the table.

Pump Model	Operating Speed					
	1200 rpm		1500 rpm		1800 rpm	
	psi	bar	psi	bar	psi	bar
PF4303, PF4305, PF4306	0	0	0	0	0	0
PF4304, PF4308	0	0	0	0	5 (.5)	0,4 (0,03)
PF4309	0	0	5 (0)	0,4 (0)	10 (1)	0,7 (0,07)
PF4310, PF4312	0	0	5 (0)	0,4 (0)	15 (2)	1,0 (0,14)

① Values shown are based on fluid viscosity of 33 SUS (1,9 cSt) and related to 1 atmosphere (29.92" Hg).

② Values in parentheses are for "Q" option.

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

# PF6000 Series Pumps



## PF6000 Series Pumps

provide high flow operating at pressures to 15 000 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.



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.

## Specifications

Pump Model	Output Flow at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Max Pressure	Max Speed <sup>②</sup>
	gpm (L/min)	gpm (L/min)	psi (bar)	rpm
PF6020	10.5 (39,7)	12.6 (47,7)	15 000 (1040)	1800
PF6024	12.5 (47,3)	15.0 (56,8)	15 000 (1040)	1800
PF6028	15.6 (59,1)	18.7 (70,8)	10 000 (700)	1800
PF6030	16.4 (62,1)	19.7 (74,6)	15 000 (1040)	1800
PF6033	18.3 (69,3)	22.0 (83,3)	10 000 (700)	1800
PF6042	23.9 (90,5)	28.7 (108,6)	10 000 (700)	1800
PF6046	26.1 (98,8)	31.3 (118,5)	8000 (560)	1800
PF6054	29.5 (111,7)	35.4 (134,0)	6000 (420)	2400
PF6070	39.7 (150,3)	47.6 (180,2)	6000 (420)	2300
PF6080	45.0 (170,3)	54.0 (204,4)	5500 (380)	2200

① Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.

② Certain operating speeds may require a pressurized inlet.



Dynex pumps are used on test stands where reliable performance in harsh test conditions is critical. These test stands are used in various aerospace applications, both commercial and military.

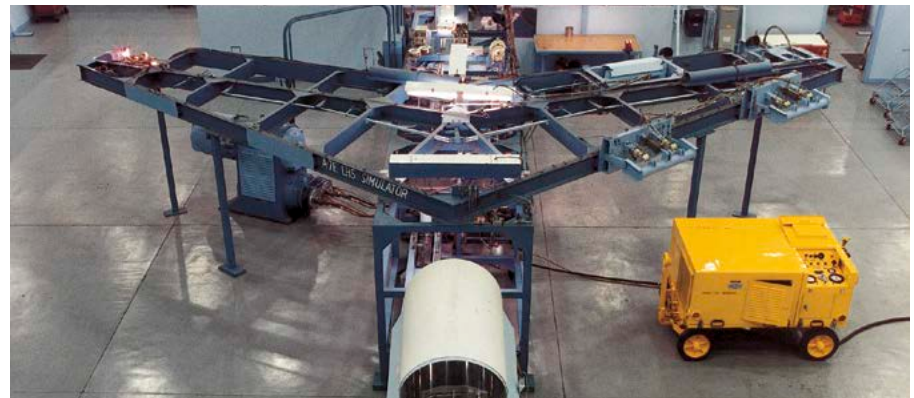
## Minimum Inlet Pressure<sup>①</sup>

Pump Model	Operating Speed		
	1500 rpm	1800 rpm	2400 rpm
	psi (bar)	psi (bar)	psi (bar)
PF6020	5 (0,4)	10 (0,7)	–
PF6024	5 (0,4)	10 (0,7)	–
PF6028	5 (0,4)	10 (0,7)	–
PF6030	5 (0,4)	10 (0,7)	–
PF6033	5 (0,4)	10 (0,7)	–
PF6042	5 (0,4)	10 (0,7)	–
PF6046	5 (0,4)	10 (0,7)	–
PF6054	5 (0,4)	5 (0,4)	10 (0,7)
PF6070 <sup>②</sup>	5 (0,4)	10 (0,7)	10 (0,7)
PF6080 <sup>②③</sup>	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, PV6000 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 8500 psi (586 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.



## Specifications

Pump Model	Output Flow at 1500 rpm <sup>①</sup>	Output Flow at 1800 rpm <sup>①</sup>	Rated Pressure psi (bar)	Max Pressure psi (bar)	Max Speed <sup>②</sup> rpm
	gpm (L/min)	gpm (L/min)			
<i>PV4000 Series Pumps (Mechanical Variable Delivery with optional Pressure Compensation):<sup>①</sup></i>					
PV4011	6.1 (23,1)	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 (37,9)	12.0 (45,4)	6000 (420)	8000 (560)	1800
PV4020	11.4 (43,2)	13.7 (51,9)	6000 (420)	8000 (560)	1800
PV4026	14.6 (55,3)	17.5 (66,2)	4000 (280)	6000 (420)	1800
PV4033	18.7 (70,8)	22.4 (84,8)	4000 (280)	6000 (420)	1800
PV4011H	5.8 (22,0)	7.0 (26,5)	8000 (560)	10000 (700)	1800
PV4016H	8.6 (32,6)	10.3 (39,0)	8000 (560)	10000 (700)	1800
PV4018H	9.7 (36,7)	11.6 (43,9)	8000 (560)	10000 (700)	1800
PV4020H	11.0 (41,6)	13.2 (50,0)	8000 (560)	10000 (700)	1800
<i>PV6000 Series Pumps (Mechanical Variable Delivery):</i>					
PV6046	25.8 (97,7)	30.9 (117,0)	6000 (420)	8500 (590)	1800
PV6054	30.4 (115,1)	36.5 (138,2)	6000 (420)	8500 (590)	1800
PV6070	39.8 (150,7)	47.8 (180,9)	6000 (420)	8500 (590)	1800
<i>PV6000 Series Pumps (Hydraulic Variable Delivery):</i>					
PV6054	29.3 (110,9)	35.1 (132,9)	6000 (420)	6000 (420)	2400
PV6070	38.7 (146,5)	46.4 (175,6)	6000 (420)	6000 (420)	2300
PV6080	44.8 (169,6)	53.8 (203,7)	5500 (380)	5500 (380)	2200

<sup>①</sup> Output flow based on typical performance at rated pressure with pressurized inlet where required. See "Minimum Inlet Pressure" table below and refer to technical literature for complete details.

<sup>②</sup> Certain operating speeds may require a pressurized inlet.



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.

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

## Minimum Inlet Pressure<sup>①</sup>

Pump Model	Operating Speed		
	1500 rpm psi (bar)	1800 rpm psi (bar)	2400 rpm 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)	–
PV4026	5 (0,4)	5 (0,4)	–
PV4033	5 (0,4)	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	8 (0,6)	10 (0,7)	–
<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) <sup>③</sup>
PV6080 <sup>②</sup>	5 (0,4)	10 (0,7)	15 (1,0) <sup>③</sup>

<sup>①</sup> Values shown are based on fluid viscosity of 100 SUS (20 cSt).

<sup>②</sup> Minimum inlet pressure for Model PV6080 operating at 1200 rpm is 5 psi (0,4 bar).

<sup>③</sup> Refer to maximum speeds indicated in the "Specifications" table.

# High Pressure Directional Control Valves



## Specifications

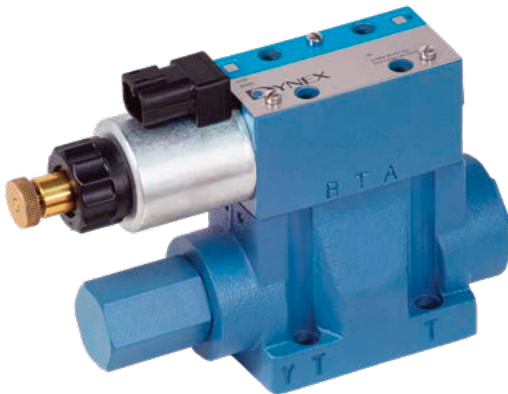
Valve Model	Mounting Pattern	Nominal Flow	Max Flow	Max Pressure
		U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)
HP03	Special High Pressure Pattern	5.0 (19)	15 (57)	10000 (700)
HP05H	D05 Pattern (with X and Y ports)	30.0 (114)	40.0 (151)	8500 (586)

**HP03** Directional Control Valves operate at pressures to 10000 psi (700 bar), double that of most other conventional subplate mounted spool valves.

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



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



**HP05H** Directional Control Valves provide high pressure, high flow capability. 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.



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

# Pressure Control Valves

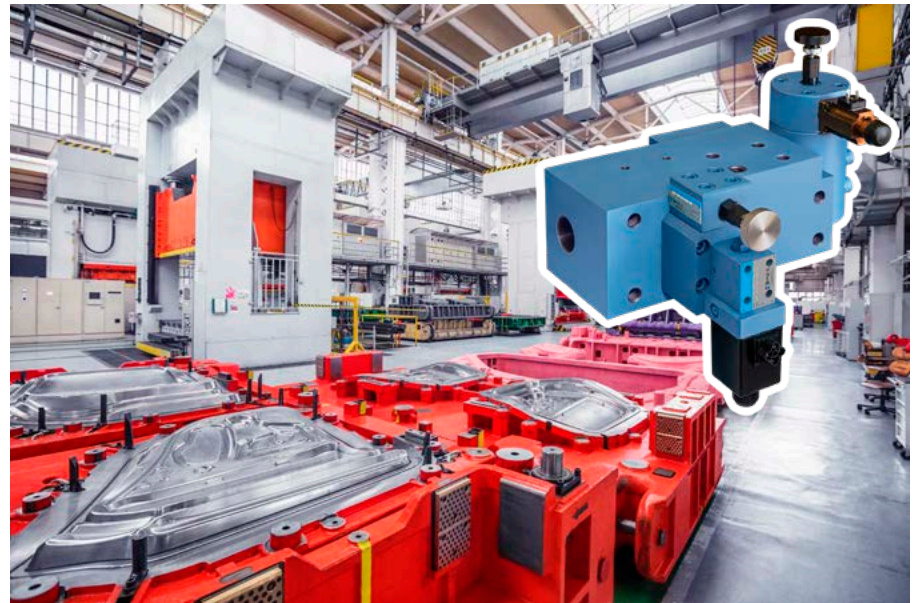


## Specifications

Valve Model	Function	Max Flow	Max Pressure
		U.S. gpm (L/min)	psi (bar)
H8819-5015	Relief	50 (190)	15 000 (1040)
H8819-7509	Relief	75 (284)	9000 (620)
VHR	Relief	30 (114)	15 000 (1040)
VHU	Unloading	30 (114)	10 000 (700)
VHD	Decompression	30 (114)	15 000 (1040)

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

They are compatible with conventional fluids and special fluids, including low viscosity, MIL-SPEC, and other phosphate ester fluids (Skydrol, etc.).



A custom designed, multi-function control system which replaces multiple components on a hydroform press retrofit application.

This custom solution provides proportional pressure control and safety relief for the 10 000 psi (700 bar) circuit in a space efficient, manifold assembly. Consolidating multiple functions into a single unit reduced plumbing and improved ease of service.



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

They are compatible with conventional fluids and special fluids, including low viscosity, MIL-SPEC, and other phosphate ester fluids (Skydrol, etc.).

This product can be used for relief, unloading, and decompression applications.

# High Pressure Valve Accessories

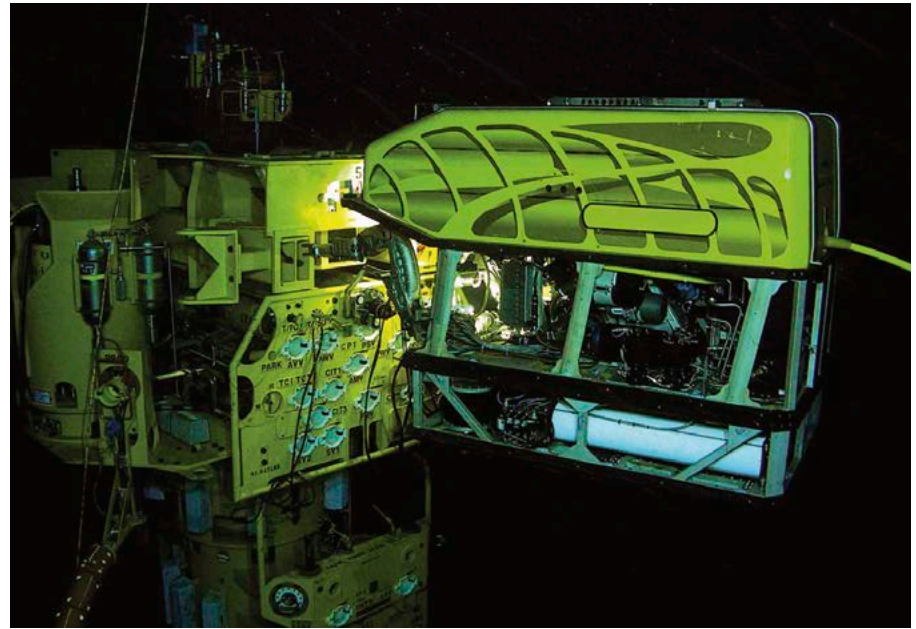


## Sandwich Valve Specifications

Valve Model (Size)	Function	Nominal Flow	Max Flow	Rated Pressure
		U.S. gpm (L/min)	U.S. gpm (L/min)	psi (bar)
VSWCH (HP03)	Check	5.0 (19)	8 (30)	10 000 (700)
VSWRL (HP03)	Relief	5.0 (19)	10 (38)	10 000 (700)

**VSW-HP03** Pattern Sandwich Valves are designed to work with our HP03 Directional Control Valves.

The functions include pilot-operated check and pressure relief.



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



**SPRV-HP03** Pattern Subplates have an integral relief valve and are for use with our HP03 Directional Control Valves.

They are also available for D03, D05, D05H, and D08 mounting patterns.

## Subplate Specifications

Valve Model (Size)	Valve Mounting Pattern	Function	Max Flow	Rated Pressure
			U.S. gpm (L/min)	psi (bar)
SPRV-D03-SAE8	D03	Relief	15 (57)	5000 (350)
SPRV-HP03-.56MP	HP03	Relief	15 (57)	10 000 (700)
SPRV-D05-SAE8	D05	Relief	40 (151)	5000 (350)
SPRV-D05H-SAE12	D05H	Relief	40 (151)	5000 (350)
SPRV-D08-SAE16	D08	Relief	90 (341)	5000 (350)

# Power Units & Systems

## **BUILDING POWER UNITS SINCE 1966**

*Dynex has been building power units at our facility in 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 common.*



**QuickPack Series** Hydraulic Power Packs provide a compact package with a small footprint. These units are typically available to ship in 5 to 10 days. Adding a motor starter will increase lead time.

### **QuickPack 5 Specifications:**

Reservoir Capacity: 5 gallons (25,6 liters)

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

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

Flow Range: 0.21 to 0.68 gpm (0,79 to 2,57 L/min) at 1800 rpm

### **QuickPack 25 Specifications:**

Reservoir Capacity: 25 gallons (94,6 liters)

Power Source: Electric (3-phase)

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

Flow Range: 1.5 to 5.9 gpm (5,7 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 400 HP (298 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

www.dynexhydraulics.com



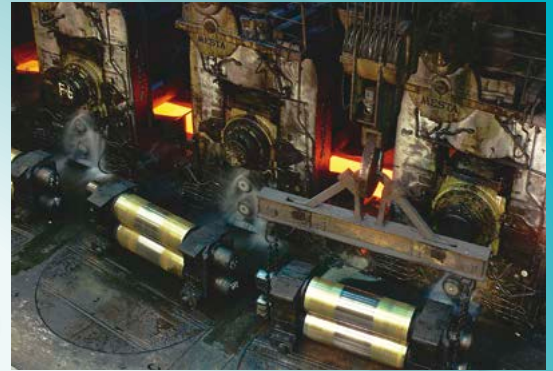
High pressure torque tools with checkball pumps provide long life, higher speed, and increased power.



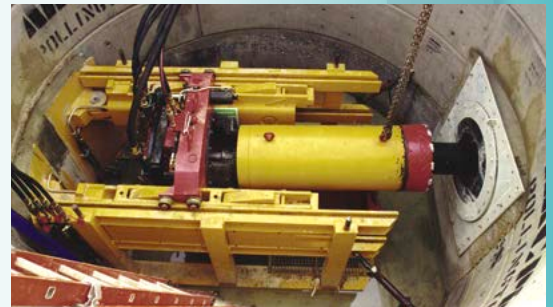
Water glycol pumps operate reliably with low maintenance on wellhead control systems.



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




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



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



One Split-Flow<sup>®</sup> pump can supply multiple jacks for accurate synchronized lifting without flow dividers.

 **DYNEX**  
High Pressure Hydraulics

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