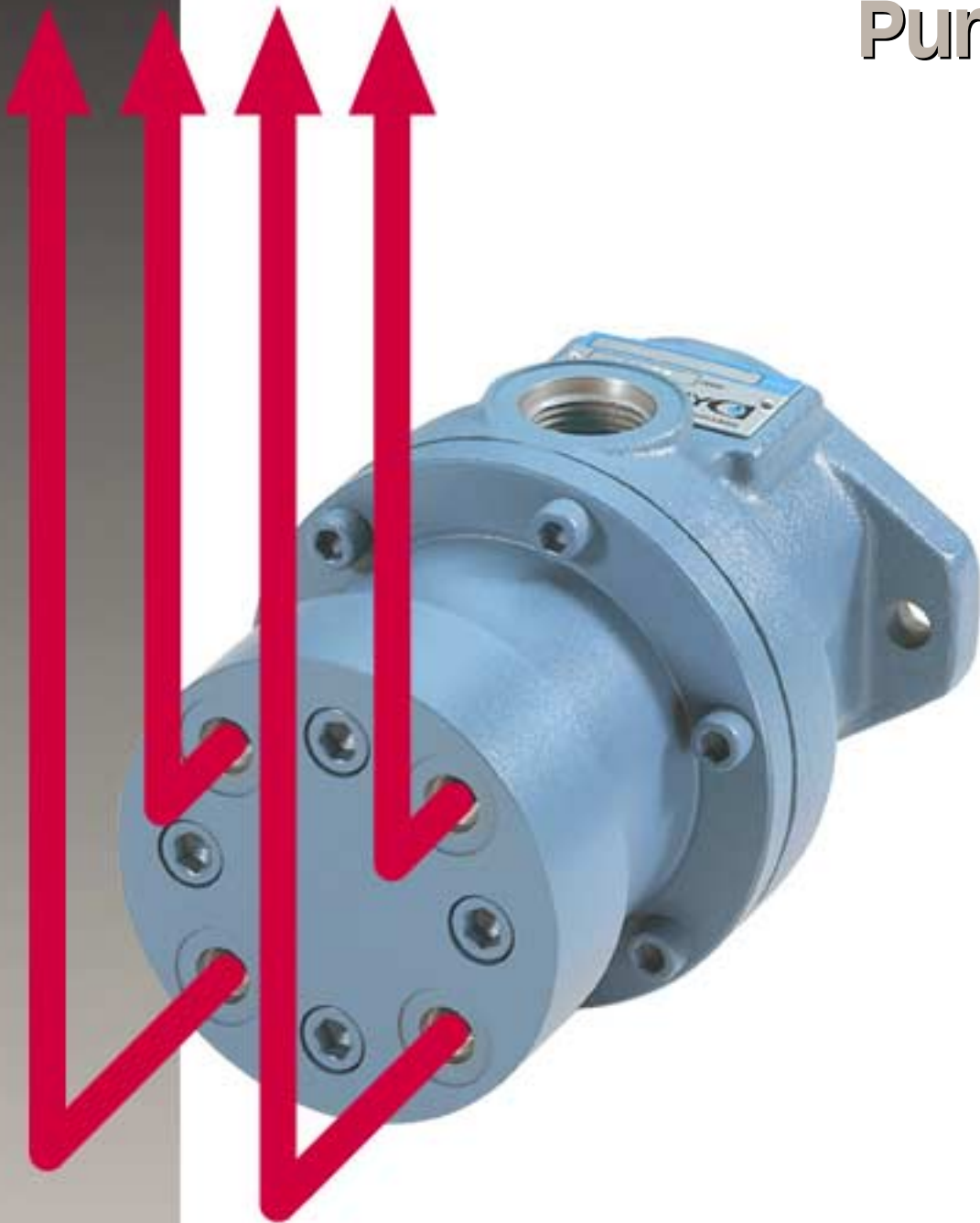


# SPECIFICATIONS

## Split-Flow Pumps



# GENERAL INFORMATION

## Hydraulic Products Used With Confidence Throughout the World



Dynex manufactures hydraulic components and systems which operate under difficult conditions including high pressure, contamination, dirty environments, fluids with low lubricity, extreme temperature variations and long duty cycles.

High flow piston pumps and control valves operate with extended life at pressures from 6000 to 20 000 psi (420 to 1380 bar).

The company's history dates to 1884. The two divisions, Dynex and Rivett, were incorporated as Dynex/Rivett Inc. in 1977. Today, customers use high-performance Dynex products for stronger, more efficient and reliable designs — for machines that can be used with confidence around the world.

We are committed to responding to customers' special requirements. Our flexible product design and manufacturing can shorten new-product development time, as well as support regular production needs.

For more information  
visit our web site:  
[www.dynexhydraulics.com](http://www.dynexhydraulics.com)

#### **BROCHURE NOTES:**

*Maximum pressures indicated throughout are the maximum intermittent pressures a component can sustain for occasional, short periods of operation without appreciably reducing the life expectancy. Contact the Dynex sales department for a review of any application which requires operating above the rated pressures, flows, speeds or higher than normal operating temperatures.*

*Specifications shown were in effect when published. Since errors or omissions are possible, contact your sales representative for the most current specifications before ordering. Dynex reserves the right to discontinue products or change designs at any time without incurring any obligation.*

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# SPLIT-FLOW CHECKBALL PUMPS

## Split-Flow® Pumps Provide Flexibility to Simplify Circuits

### ISOLATED PUMPING CHAMBERS

The unique *Split-Flow*® checkball design isolates the pumping chambers, allowing the output of each piston to be used separately.

Individual outputs are grouped together in the pump cover or barrel, providing smooth, multiple flows to meet system requirements.



All pistons can be isolated, supplying up to ten independent flows, for example, from a ten piston pump.

### TYPICAL CIRCUITS

#### Multiple Function Systems

One pump can simultaneously supply independent flows to multiple functions in a circuit with separate loads.

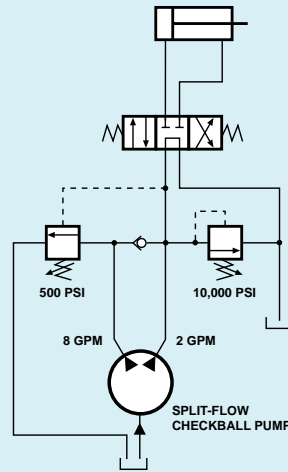
These pumps can reduce system costs by supplying independent, fixed or variable flows to multiple functions in a system. A single pump can eliminate separate dedicated pumps or mechanical gear boxes.

The result is a simplified circuit, with fewer components and less piping.

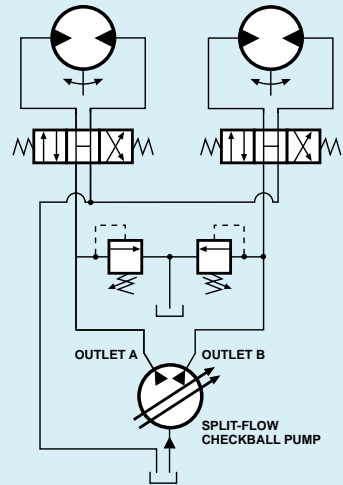
#### Hi-Lo Circuit

*Split-Flow*® pumps can efficiently supply flow in a circuit with changing flow and pressure requirements.

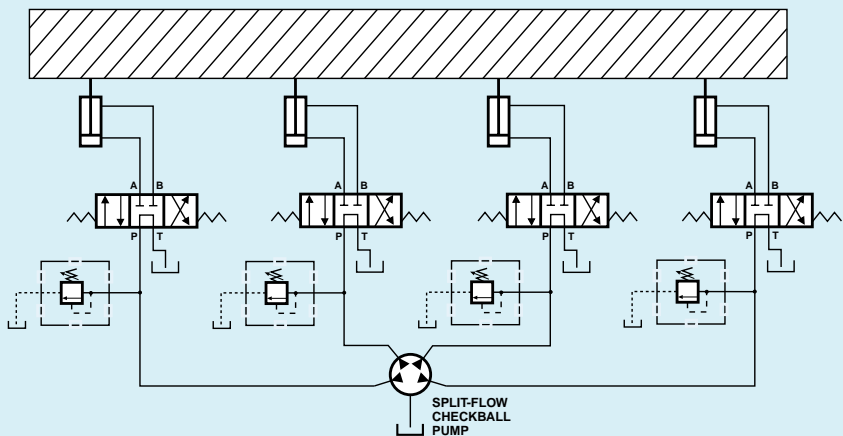
These pumps are ideal for clamping, pressing and high torque tool applications. Combined flow from both pump outlets is supplied to the actuator, until load pressure rises to the unloading valve setting, for example, 500 psi (35 bar).



TYPICAL HI-LO CIRCUIT



TYPICAL 2-FUNCTION CIRCUIT



FOUR OUTLET 8 PISTON PUMP PROVIDES SYNCHRONIZED CYLINDER MOVEMENT

The higher output flow, 8 U.S. gpm (30 L/min), is then unloaded to tank. The remaining 2 U.S. gpm (8 L/min) is supplied at high pressure up to the relief valve setting of 10 000 psi (700 bar).

#### Synchronous Movement

*Split-Flow*® pumps can be used for synchronous movement of cylinders and motors without using flow dividers. They provide unique advantages for lifting, jacking and skidding operations, increasing the flexibility of systems for handling heavy loads.

The pumps provide greater accuracy than flow dividers which operate over a narrow band width and are likely to

have flow variations in the secondary branches, especially when cascaded in series circuits.

#### Hydrostatic Drive Circuits

A typical open-loop circuit uses a ten piston PV6000 hydraulic variable pump with two outlets. Each five piston pump output supplies independent variable flow to a motor.

Dynex DP Series valves in the circuit control the low pressure signals which regulate the independent pump outputs. As a result, the speed of each motor is controlled by its own variable supply.

Refer to *dynexpespvspecs.pdf* for information on PV6000 hydraulic variable pumps and volume controls.

# SPLIT-FLOW PUMP SELECTION

## Selecting Split-Flow® Pump Models

### ISOLATOR VALVE MODELS

The checkball design, with its isolated pumping chambers, allows the output of each piston to be used separately.

One or more individual pistons can be isolated from the main outlet. Up to ten separate outlet flows are possible, for example, from a 10 piston pump.

Note that high pressure pump models are limited to a maximum pressure of 6000 psi (420 bar) when using isolator valves.

The table below lists pump series available with isolators valves.

### SPLIT-FLOW-COVER MODELS

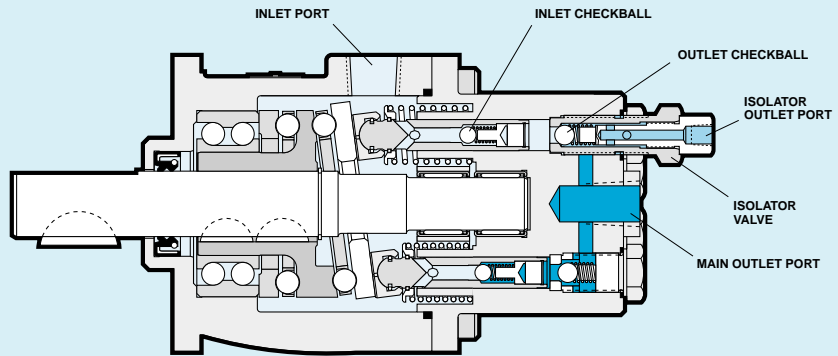
In split-flow-cover models, the individual outputs are grouped together in the pump cover or barrel providing smooth, multiple outlet flows. Select from various piston flow splits to match requirements.

For example, an eight piston PF3000 Series pump is available as a 4+4 split. The output of the four even numbered pistons (2 through 8) is combined separately from that of the four odd numbered pistons (1 through 7). Individual portions of a circuit are supplied by the output from each group of four pistons.

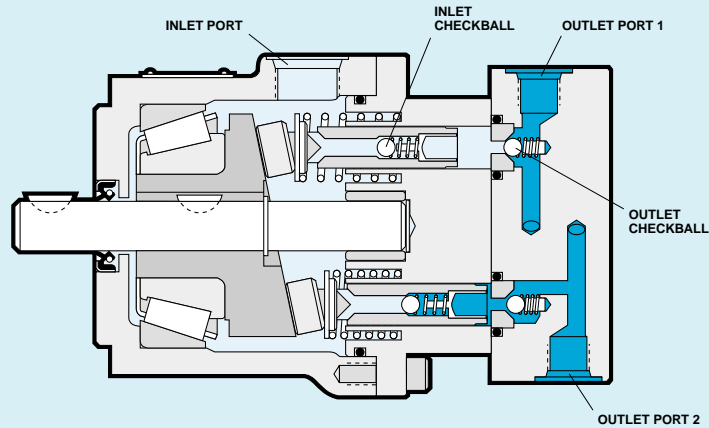
Other splits available for this pump include a 5+3 split, a 6+2 split or a 7+1 split, as well as an eight-way (8x1) split with separate outputs from each of the eight pistons.

On PV6000 Series hydraulic variable pumps, each output can be independently controlled. Two control pressure signals are directed to the rear pump cover to independently control the variable delivery mechanism of each variable output.

The table on page 5 lists the most common split-flow-cover models.



MODEL PF2006 WITH ISOLATOR VALVE



PF1000 SERIES WITH SPLIT-FLOW-COVER

### ISOLATOR VALVE MODELS

Pump Series <sup>①</sup>	Number of Pistons	Rated Flow Per Piston <sup>②</sup>				Isolator Valve Model Number <sup>④</sup>	Port Size
		1200 rpm		1800 rpm			
		U.S. gpm	L/min	U.S. gpm	L/min		
PF2006 <sup>③</sup>	6	0.45	1,70	0.67	2,54	VC2006-1872	1/8 N.P.T.F.
PF2008 <sup>③</sup>	6	0.64	2,42	0.97	3,67	VC2008-1256	1/4 N.P.T.F.
PF4011	10	0.50	1,89	0.75	2,84	VC4015-1845	S.A.E. No. 4
PF4015	10	0.70	2,65	1.05	3,97	VC4015-1845	S.A.E. No. 4
PF4021	10	1.00	3,78	1.50	5,68	VC4015-1844	S.A.E. No. 4
PF4018, PV4018	10	0.85	3,22	1.27	4,81	VC6046-1755	S.A.E. No. 6
PF4026, PV4026	10	1.21	4,58	1.81	6,85	VC6046-1755	S.A.E. No. 6
PF4033, PV4033	10	1.48	5,60	2.22	8,40	VC6046-1755	S.A.E. No. 6
PF6033	10	1.61	6,09	2.42	9,16	VC6033-1756	S.A.E. No. 6
PF6046	10	2.13	8,06	3.20	12,11	VC6046-3205	S.A.E. No. 8

① Contact your sales representative for complete model numbers and a review of your application.

② Output flow based on typical performance at rated pressure with pressurized inlet where required.

③ These models are special mounting.

④ Note that high pressure pump models are limited to a maximum pressure of 6000 psi (420 bar) when using isolator valves.

# SPLIT-FLOW SELECTION

## SPLIT-FLOW-COVER MODELS

Pump Series <sup>①</sup>	Number of Pistons	Number of Pistons per Outlet (Port Size)		Rated Flow per Outlet <sup>②</sup>							
				At 1200 rpm				At 1800 rpm			
				Outlet 1		Outlet 2		Outlet 1		Outlet 2	
				Outlet 1	Outlet 2	U.S. gpm	L/min	U.S. gpm	L/min	U.S. gpm	L/min
PF1002	4			0.47	1,78	0.47	1,78	0.70	2,65	0.70	2,65
PF1003	4	2 Pistons	+ 2 Pistons	0.70	2,65	0.70	2,65	1.05	3,97	1.05	3,97
PF1004	4	(S.A.E. No. 4)	(S.A.E. No.4)	0.85	3,22	0.85	3,22	1.28	4,84	1.28	4,84
PF1006	4			1.20	4,54	1.20	4,54	1.80	6,81	1.80	6,81
PF1002	4			0.70	2,65	0.23	0,87	1.05	3,97	0.35	1,32
PF1003	4	3 Pistons	+ 1 Piston	1.05	3,97	0.35	1,32	1.58	5,98	0.52	1,97
PF1004	4	(S.A.E. No. 8)	(S.A.E. No.4)	1.28	4,84	0.43	1,63	1.92	7,27	0.64	2,42
PF1006	4			1.80	6,81	0.60	2,27	2.70	10,22	0.90	3,41
PF2007	6			1.37	5,19	1.37	5,19	2.05	7,76	2.05	7,76
PF2008	6	3 Pistons	+ 3 Pistons	1.93	7,31	1.93	7,31	2.90	10,98	2.90	10,98
PF2009	6	(S.A.E. No. 8)	(S.A.E. No.8)	1.93	7,31	1.93	7,31	2.90	10,98	2.90	10,98
PF2012	6			2.83	10,71	2.83	10,71	4.25	16,09	4.25	16,09
PF2007	6			1.82	6,89	0.91	3,44	2.73	10,33	1.37	5,19
PF2008	6	4 Pistons	+ 2 Pistons	2.58	9,77	1.29	4,88	3.87	14,65	1.93	7,31
PF2009	6	(S.A.E. No. 6)	(S.A.E. No.6)	2.58	9,77	1.29	4,88	3.87	14,65	1.93	7,31
PF2012	6			3.78	14,31	1.89	7,15	5.67	21,46	2.83	10,71
PF2007	6			2.28	8,63	0.46	1,74	3.42	12,94	0.68	2,57
PF2008	6	5 Pistons	+ 1 Piston	3.22	12,19	0.64	2,42	4.83	18,28	0.97	3,67
PF2009	6	(S.A.E. No. 8)	(S.A.E. No.4)	3.22	12,19	0.64	2,42	4.83	18,28	0.97	3,67
PF2012	6			4.72	17,87	0.94	3,56	7.08	26,80	1.42	5,37
PF3011	8			2.75	10,41	2.75	10,41	4.15	15,71	4.15	15,71
PF3015	8	4 Pistons	+ 4 Pistons	3.27	12,38	3.27	12,38	4.90	18,55	4.90	18,55
PF3017	8	(S.A.E. No. 8)	(S.A.E. No.8)	3.90	14,76	3.90	14,76	5.85	22,14	5.85	22,14
PF3021	8			4.90	18,55	4.90	18,55	7.35	27,82	7.35	27,82
PF3011	8			3.46	13,10	2.08	7,87	5.19	19,64	3.11	11,77
PF3015	8	5 Pistons	+ 3 Pistons	4.08	15,44	2.45	9,27	6.12	23,16	3.68	13,93
PF3017	8	(S.A.E. No. 12)	(S.A.E. No.8)	4.88	18,47	2.92	11,05	7.31	27,67	4.39	16,62
PF3021	8			6.12	23,16	3.68	13,93	9.19	34,78	5.51	20,86
PF3011	8			4.15	15,71	1.38	5,22	6.22	23,54	2.08	7,87
PF3015	8	6 Pistons	+ 2 Pistons	4.90	18,55	1.63	6,17	7.35	27,82	2.45	9,27
PF3017	8	(S.A.E. No. 12)	(S.A.E. No.6)	5.85	22,14	1.95	7,38	8.78	33,23	2.92	11,05
PF3021	8			7.35	27,82	2.45	9,27	11.02	41,71	3.68	13,93
PF3011	8			4.84	18,32	0.69	2,61	7.26	27,48	1.04	3,94
PF3015	8	7 Pistons	+ 1 Piston	5.72	21,65	0.82	3,10	8.58	32,48	1.22	4,62
PF3017	8	(S.A.E. No. 12)	(S.A.E. No.6)	6.82	25,81	.98	3,71	10.24	38,76	1.46	5,53
PF3021	8			8.58	32,45	1.22	4,64	12.86	48,68	1.84	6,96
PF4011	10			2.50	9,46	2.50	9,46	3.75	14,19	3.75	14,19
PF4015	10	5 Pistons	+ 5 Pistons	3.50	13,25	3.50	13,25	5.25	19,87	5.25	19,87
PF4021	10	(S.A.E. No. 8)	(S.A.E. No.8)	5.00	18,92	5.00	18,92	7.50	28,39	7.50	28,39
PF4011	10			3.50	13,25	1.50	5,68	5.25	19,87	2.25	8,52
PF4015	10	7 Pistons	+ 3 Pistons	4.90	18,55	2.10	7,95	7.35	27,82	3.15	11,92
PF4015	10	(S.A.E. No.8)	(S.A.E. No.8)	4.90	18,55	2.10	7,95	7.35	27,82	3.15	11,92
PF4018, PV4018	10			4.23	16,01	4.23	16,01	6.35	24,03	6.35	24,03
PF4026, PV4026	10	5 Pistons	+ 5 Pistons	6.03	22,82	6.03	22,82	9.05	34,25	9.05	34,25
PF4033, PV4033	10	(S.A.E. No. 12)	(S.A.E. No.12)	7.40	28,01	7.40	28,01	11.10	42,01	11.10	42,01
PF6033	10			8.07	30,54	8.07	30,54	12.10	45,80	12.10	45,80
PF6046	10	5 Pistons	+ 5 Pistons	10.67	40,39	10.67	40,39	16.00	60,56	16.00	60,56
PF6046	10	(1 Inch Flange) <sup>③</sup>	(S.A.E.No.12)	10.67	40,39	10.67	40,39	16.00	60,56	16.00	60,56
PF6054, PV6054	10			11.67	44,17	11.67	44,17	17.50	66,24	17.50	66,24
PF6070, PV6070	10	5 Pistons	+ 5 Pistons	16.33	61,81	16.33	61,81	24.50	92,73	24.50	92,73
PV6080	10	(1 Inch Flange) <sup>③</sup>	(1 Inch Flange) <sup>③</sup>	18.33	69,38	18.33	69,38	27.50	104,09	27.50	104,09

① PF1, PF2 and PF3 Series pumps are also available with all pistons isolated. For complete model numbers for all split-flow-cover models and a review of your application, contact your Dynex sales representative.

② Output flow based on typical performance at rated pressure with pressurized inlet where required.

③ Pattern for standard S.A.E. 4-bolt flange.