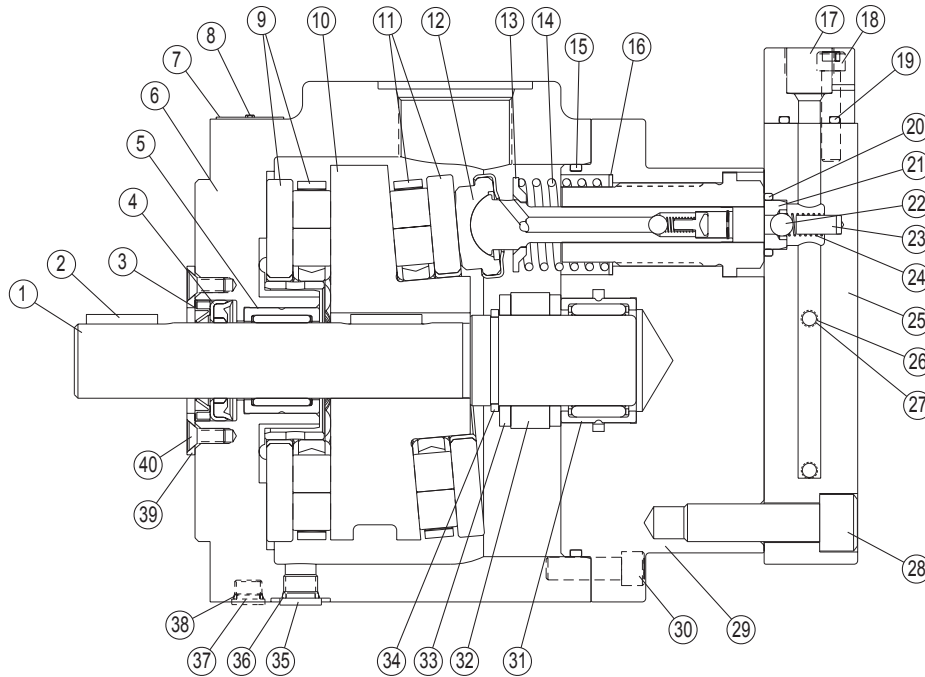




**CHECKBALL PISTON PUMPS  
PF4300 SERIES, 23 DESIGN**



**TABLE A – PARTS LIST**

ID Number	Part Number	Part Description	Quantity Required
1	See Table B	Shaft	1
2	1024.325	Key (Internal and External) <sup>①</sup>	1 or 2
3	See Table C	Wiper	1
4	See Table C	Shaft Seal	1
5	431.520	Shaft Bearing (Housing)	1
6	3169.900	Housing	1
7	1151.026	Nameplate	1
8	1001.003	Screw (Nameplate)	2
9	1100.155	Thrust Bearing Set <sup>②</sup>	1
10	See Table D	Wobble (Cam) Plate	1
11	1117.155	Thrust Bearing Set <sup>②</sup>	1
12	See Table E	Piston Subassembly <sup>③</sup>	3, 5 or 6
13	See Table E	Piston Retainer <sup>③</sup>	3, 5 or 6
14	See Table E	Spring (Piston Return) <sup>③</sup>	3, 5 or 6
15	See Table C	O-ring (Housing/Barrel)	1
16	1111.132	Washer	3, 5 or 6
17	See Table F	Outlet Block	1
18	See Table F	Socket-head Capscrew <sup>④</sup>	4
19	See Table F	O-ring (Outlet Block)	1
20	See Table C	O-ring (Outlet Seat) <sup>⑤</sup>	3, 5 or 6
21	See Table E	Outlet Seat <sup>⑤</sup>	3, 5 or 6
22	See Table E	Checkball (Outlet) <sup>⑤</sup>	3, 5 or 6
23	See Table E	Outlet Stop Pin	3, 5 or 6
24	See Table E	Spring (Outlet) <sup>⑤</sup>	3, 5 or 6
25	See Table G	Cover Assembly Kit	1

ID Number	Part Number	Part Description	Quantity Required
26	See Table G	Set Screw <sup>⑥</sup>	1 or 2
27	See Table G	Ball	1 or 2
28	3413.028	Socket-head Capscrew <sup>⑦</sup>	5 or 6
29	See Table D	Barrel	1
30	3071.028	Socket-head Capscrew <sup>⑧</sup>	10
31	1041.155	Shaft Bearing (Barrel)	1
32	1119.132	Thrust Sleeve	1
33	1042.155	Thrust Washer	2
34	1081.049	Retaining Ring	1
35	1564.006	Plug (Drain Port) <sup>⑩</sup>	3
36	See Table C	O-ring (Drain Port Plug)	3
37	1565.006	Plug (Vertical Mounting) <sup>⑩</sup>	1
38	See Table C	O-ring (Vertical Mounting)	1
39	1067.048	Screw (Retainer Plate) <sup>⑪</sup>	4
40	1486.101	Retainer Plate (Shaft Seal)	1

- ① Spline shaft models ("S" Code) have one key (internal only).
- ② One set consists of one thrust bearing and one thrust plate.
- ③ Quantity determined by number of pistons in model. Refer to Table E.
- ④ Apply anti-seize compound to threads and shoulder. Torque to 18 lb-ft (24 N-m).
- ⑤ Torque to 15 lb-ft (20 N-m).
- ⑥ Five-piston models require 5 capscrews. Three-piston and six-piston models require 6 capscrews. Refer to Table E.
- ⑦ Apply anti-seize compound to threads and shoulder. Torque to 140 lb-ft (190 N-m).
- ⑧ Apply anti-seize compound to threads and shoulder. Torque to 32 lb-ft (43 N-m).
- ⑨ Torque to 18 lb-ft (25 N-m).
- ⑩ Torque to 100 lb-in (11,3 N-m).
- ⑪ Apply Loctite #242 or equivalent. Torque to 100 lb-in (11,3 N-m).

**TABLE B – SHAFT OPTIONS**

Shaft Code	Part Description	Part Number
No Code	1.250 Inch Diameter, Keyed	1194.288
S	1.250 Inch Diameter, Spline	1195.288

**TABLE C – SEAL KITS**

Seal Code	Description	Kit Number
D	Standard: Buna-N (Nitrile) with Polyurethane (Disogrin®) o-rings in the cover	KP43009018
XD	Fluorocarbon (Viton® or Fluorel®) with Polyurethane (Disogrin®) o-rings in the cover and High Pressure Shaft Seal	KP43009019
XE	All EPR with High Pressure Shaft Seal <sup>①</sup>	KP43009012
XV	Fluorocarbon with High Pressure Shaft Seal	KP43009011

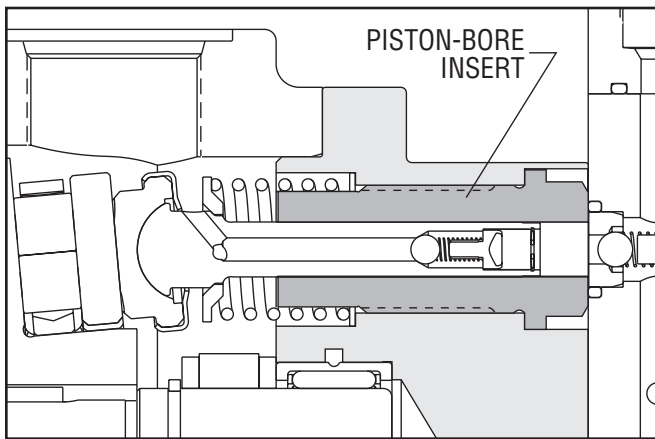
<sup>①</sup> Shaft seal wiper not required nor included for models with EPR seals. Contact the Dynex Sales department for recommended operating conditions with EPR seals.

**TABLE D – WOBBLE (CAM) PLATE/BARREL OPTIONS**

Output Flow Code	Part Number Wobble (Cam) Plate	Barrel
03	1170.101	3166.900
04	428.392	3166.900
05	1170.101	3167.900
06	1170.101	3168.900
08	428.392	3167.900
09	1237.101	3167.900
10	1139.101	3167.900
12	1139.101	3168.900

**SERVICE NOTES**

The barrel for Design 23 models includes integral piston-bore inserts, as shown below. This barrel is factory-assembled and finished. It must be ordered as a complete assembly.



The Design 23 barrel with piston-bore inserts is not field-serviceable and must be ordered as a complete assembly.

**TABLE E – PISTON, COVER AND OUTLET CHECK KITS**

Output Flow Code	Number of Pistons	Number of Kits Required	Kit Number	
			Piston Kit	Outlet Check Kit
Standard Models				
03	3	1	KP43039040	KP43039020
04	3	1	KP43039040	KP43039020
05	5	1	KP43059040	KP43059020
06	6	2	KP43039040 <sup>①</sup>	KP43039020
08	5	1	KP43059040	KP43059020
09	5	1	KP43059040	KP43059020
10	5	1	KP43059040	KP43059020
12	6	2	KP43039040 <sup>①</sup>	KP43039020
"Q" Option Models				
03	3	1	KP43039041	KP43039020
04	3	1	KP43039041	KP43039020
05	5	1	KP43059041	KP43059020
06	6	2	KP43039041 <sup>①</sup>	KP43039020
08	5	1	KP43059041	KP43059020
09	5	1	KP43059041	KP43059020
10	5	1	KP43059041	KP43059020
12	6	2	KP43039041 <sup>①</sup>	KP43039020
Split-Flow® Models				
06	6	2	①	KP43039020
12	6	2	①	KP43039020

<sup>①</sup> Choose output flow code 06 or 12, Standard or "Q" Option piston kits (2 required).

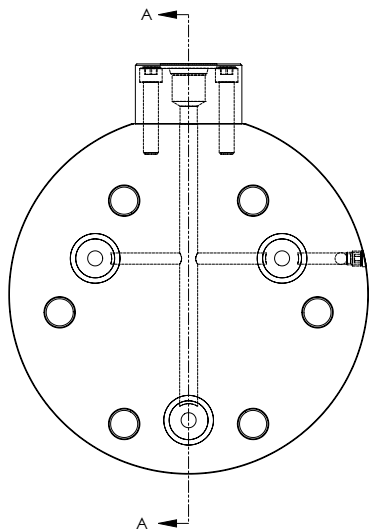
**TABLE F – OUTLET BLOCKS<sup>①</sup>**

Port Code	Port Type	Seal Type	Kit Number
No Code	SAE	XV	KP94081081
		XE	KP94081082
		D/XD	KP94081088
A	Coned and Threaded	XV	KP94082091
		XE	KP94082092
		D/XD	KP94082098
B	BSPP	XV	KP94083081
		XE	KP94083082
		D/XD	KP94083088

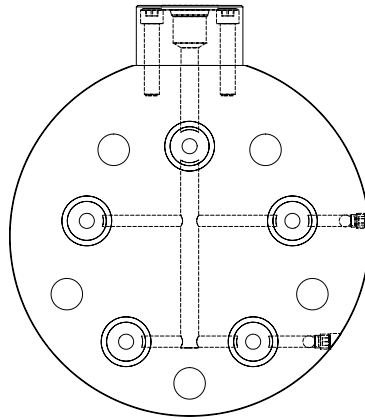
<sup>①</sup> Two outlet blocks are required for Split-Flow® models.

**TABLE G – COVER ASSEMBLY**

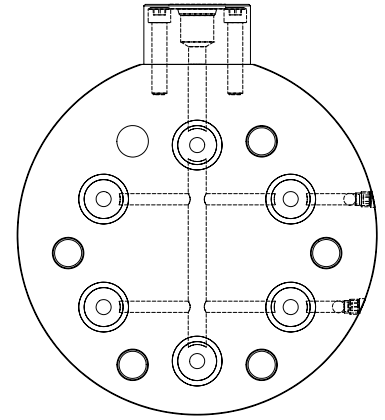
<b>KP43</b>	*	*	*	*	<b>23</b>																				
Cover Kit Pump Family	Seals	Ports	Pistons	Flow Options	Design Number																				
	<table border="1"> <tr><td>V</td><td>Viton</td></tr> <tr><td>D</td><td>Disorgin</td></tr> <tr><td>E</td><td>EPR</td></tr> </table>	V	Viton	D	Disorgin	E	EPR	<table border="1"> <tr><td>S</td><td>SAE #8</td></tr> <tr><td>A</td><td>3/4 MP Autoclave</td></tr> <tr><td>B</td><td>G1/2 (BSPP)</td></tr> </table>	S	SAE #8	A	3/4 MP Autoclave	B	G1/2 (BSPP)	<table border="1"> <tr><td>3</td><td>5</td><td>6</td><td>6 (3 x 3 SF)</td></tr> </table>	3	5	6	6 (3 x 3 SF)	<table border="1"> <tr><td>Full Flow</td><td>0</td></tr> <tr><td>Split Flow 3 x 3</td><td>3</td></tr> </table>	Full Flow	0	Split Flow 3 x 3	3	
V	Viton																								
D	Disorgin																								
E	EPR																								
S	SAE #8																								
A	3/4 MP Autoclave																								
B	G1/2 (BSPP)																								
3	5	6	6 (3 x 3 SF)																						
Full Flow	0																								
Split Flow 3 x 3	3																								



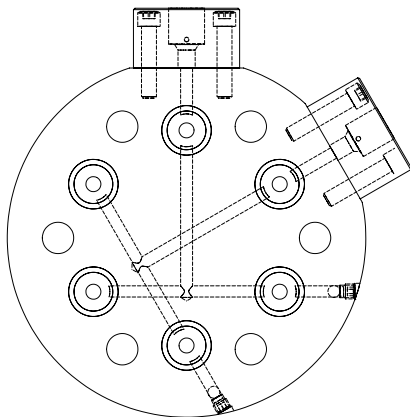
**3-PISTON FULL FLOW**



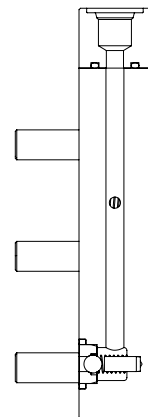
**5-PISTON FULL FLOW**



**6-PISTON FULL FLOW**



**6-PISTON SPLIT-FLOW 3 X 3**



**SIDE VIEW**

# TYPICAL MODEL CODE

PF43

03

H - S D A

33

23

Pump Type	
PF43	Fixed Displacement Checkball Pump

Output Flow <sup>①②③</sup> (At 1800 rpm)	
03	Standard: 2.2 gpm (8,3 L/min) "H" option: 2.0 gpm (7,6 L/min)
04	Standard: 3.2 gpm (12,1 L/min) "H" option: 3.1 gpm (11,7 L/min)
05	Standard: 3.7 gpm (14,0 L/min) "H" option: 3.6 gpm (13,6 L/min)
06	Standard: 4.5 gpm (17,0 L/min) "H" option: 4.4 gpm (16,7 L/min)
08	Standard: 5.4 gpm (20,4 L/min) "H" option: 5.3 gpm (20,1 L/min)
09	Standard: 6.0 gpm (22,7 L/min) "H" option: 5.9 gpm (22,3 L/min)
10	Standard: 6.8 gpm (25,7 L/min) "H" option: 6.7 gpm (25,4 L/min)
12	Standard: 8.2 gpm (31,0 L/min) "H" option: 8.1 gpm (30,7 L/min)

① Output flows based on typical performance at maximum pressure. Refer to performance curves for flows at lower pressures and speeds.

② Models PF4303 and PF4304 have three pistons; models PF4305, PF4308, PF4309 and PF4310 have five pistons; models PF4306 and PF4312 have six pistons.

③ "H" option not available with "Q" option.

Operating Pressure	
No Code	Standard Pressure
H	High Pressure <sup>①</sup>
Q	Standard Pressure <sup>②</sup>

① Requires "A" or "B" port option.

② With improved suction capability. Maximum pressure 8000 psi (560 bar).

Split-Flow <sup>®</sup> Options	
No Code	Full flow from single outlet
Split-Flow <sup>®</sup> Cover Models: <sup>①</sup>	
33	Three-piston output + three-piston output

① Only available with six-piston models PF4306 and PF4312.

Design Number
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Ports	
No Code	Inlet No. 24 SAE; Outlet No. 8 SAE <sup>①</sup>
A	Inlet No. 24 SAE; Outlet 9/16 Medium Pressure Coned and Threaded, .8125-16 UN-2B Threaded <sup>②</sup>
B	Inlet No. 24 SAE; Outlet G 1/2 (BSPP) <sup>③</sup>

① Not recommended for operation above 8000 psi (560 bar). Contact the fitting manufacturer for the pressure rating of the fitting.

② High pressure port uses Autoclave Medium Pressure, Butech M/P or equivalent fitting.

③ Outlet port uses British Standard Pipe Parallel fitting. Not recommended for operation above 10 000 psi (700 bar).

Seals	
D	Standard: Buna-N (Nitrile) with Polyurethane (Disogrin <sup>®</sup> ) o-rings in the cover
XD	Fluorocarbon (Viton <sup>®</sup> or Fluorel <sup>®</sup> ) with Polyurethane (Disogrin <sup>®</sup> ) o-rings in the cover and High Pressure Shaft Seal
XE	All EPR (Ethylene Propylene Rubber) with High Pressure Shaft Seal <sup>①</sup>
XV	All Fluorocarbon (Viton <sup>®</sup> or Fluorel <sup>®</sup> ) with High Pressure Shaft Seal

① Contact the Dynex Sales department for recommended operating conditions with EPR seals.

Drive Shaft	
No Code	Keyed, 1.250 inch (31,75 mm) diameter
S	SAE Spline, 1.248/1.247 inch (31,7/31,67mm) diameter standard SAE 14 tooth, 12/24 DP 30° involute spline



## USA Headquarters

770 Capitol Drive  
Pewaukee, WI 53072  
Tel: +1 (262) 691-0300  
Fax: +1 (262) 691-0312  
sales@dynexhydraulics.com



## Power Units & Systems

54 Nickerson Road  
Ashland, MA 01721  
Tel: +1 (508) 881-5110  
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) 01480 405662  
sales@dynexhydraulics.co.uk



## Middle East Sales

JAFZA 1, Tower A, 11th Floor  
Jebel Ali Freezone  
Dubai, UAE  
Tel: +971 547422353  
UAEsales@dynexhydraulics.com

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