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LIQUID DUMP VALVES PNEUMATIC OPERATED

**PISTON BALANCED FAIL OPEN
MODEL PB**

APPLICATIONS:

Used as oil or water dump valves on separators, treaters, knockouts, and other similar liquid accumulators where a reduced signal pressure is available.

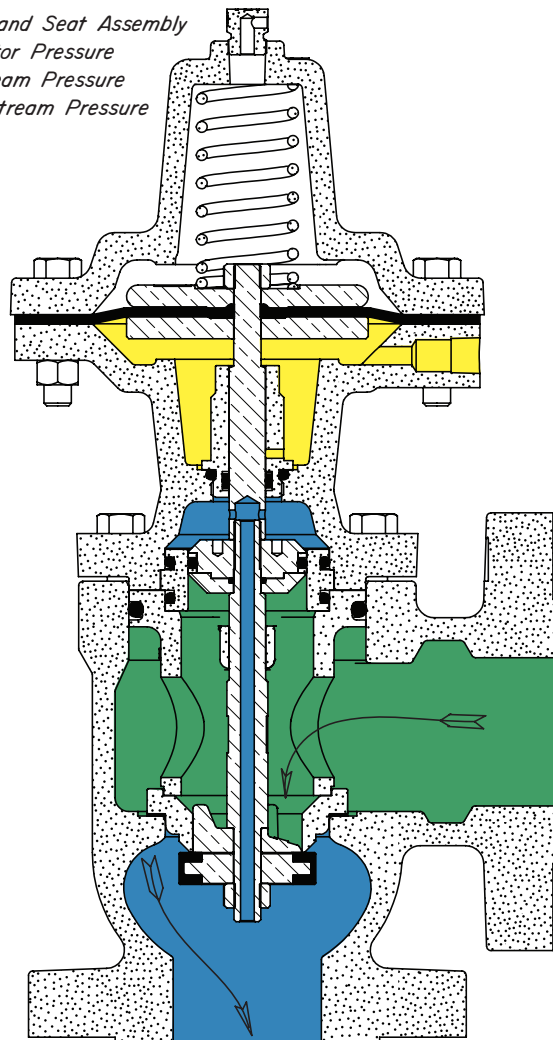
FEATURES:

- Piston balanced seat assembly
- 10 psig minimum actuating pressure
- Fail Open service.
- All internal parts can be removed with valve in-line
- Reinforced oil resistant synthetic rubber diaphragms & seats

CERTIFICATIONS:

Canadian Registration Number (CRN):
0C15804.24567890NTY (Ductile)
Kimray is an ISO 9001- certified manufacturer.

- Stem and Seat Assembly
- Actuator Pressure
- Upstream Pressure
- Downstream Pressure



Standard Configuration Code †	Order Code	Line Size	Connection Type	Body Type	Max Δ P psig	Max. W.P. psig ††	Cv	Cf
DPB2SAADF4S	ELB	2"	NPT	Angle	500	500	23.3	0.79
DPB2SATDF4S	EYB			Thru				
DPB2ARADF4S	ELD		150RF	Angle				
DPB2ARTDF4S	EYD			Thru				
DPB3SAADF4S	ELH	3"	NPT	Angle	250	250	43.8	
DPB3SATDF4S	EYH			Thru				
DPB3ARADF4S	ELJ		150RF	Angle				
DPB3ARTDF4S	EYJ			Thru				
DPB4ARADF4S	ELN	4"	150RF	Angle			70.1	
DPB4ARTDF4S	EYN			Thru				

NOTES:

For standard & optional seals, metals, Cf Cv values, material specifications & dimensions see technical data on pages 04:I - 04:III
† For Corrosive service remove last "S" & replace with "C"
† For KimCoat option remove last "S" & replace with "K"
† For code builder see page 04:00.2
†† Max W.P. values based on -20°F to 100°F.

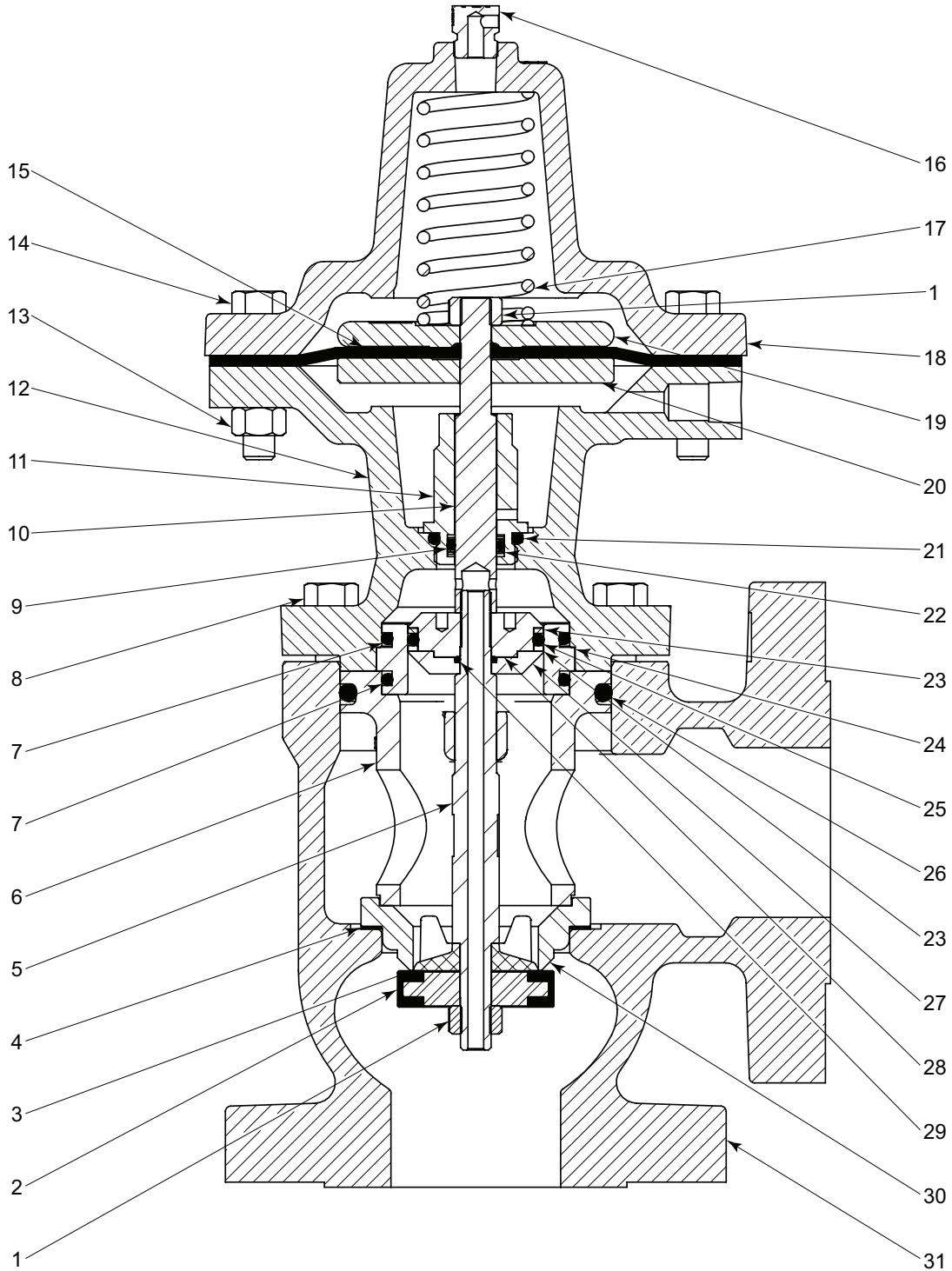
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LIQUID DUMP VALVES PNEUMATIC OPERATED

KIMRAY INC.®

PISTON BALANCED FAIL OPEN
MODEL PB PARTS DRAWING



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LIQUID DUMP VALVES PNEUMATIC OPERATED

**PISTON BALANCED FAIL OPEN
MODEL PB PARTS LIST**

ITEM	QTY.	DESCRIPTION	PART NO.					
			STANDARD			CORROSIVE		
			2 INCH	3 INCH	4 INCH	2 INCH	3 INCH	4 INCH
1	2	Lock nut ◊ *	173	906		173SS6	906SS6	
2	1	Seat ◊ *	7498HSN	7499HSN	----	7498HSN	7499HSN	----
		Seat ◊ *	----	----	165HSN	----	----	165HSN
		Seat disc ◊	----	----	160	----	----	160
3	1	Ratio plug ◊	332DEL	333DEL	334	332DEL	333DEL	334
4	1	Gasket ◊ *	276	277	309	276	277	309
5	1	Stem ◊	1809	327	328	1809SS6	327SS6	328SS6
6	1	Cage ◊	1751	1759	1761	1751	1759	1761
7	2	O-Ring ◊ *	774HSN	329HSN	1872	774HSN	329HSN	1872
8	(Qty)	Bolt	1672 x (6)		1672 x (8)	1672 x (6)		1672 x (8)
9	1	O-Ring *	154HSN	155HSN	155	154HSN	155HSN	155
10	1	Stem	2019	2394		2019SS6	2394SS6	
11	1	Stem guide	2463	2464		2463SS6	2464SS6	
12	1	Housing	1689	1868D	1869D	1689 ‡	1868D ‡	1869D ‡
13	(Qty)	Nut	241 x (8)		241 x (10)	241 x (8)		241 x (10)
14	(Qty)	Bolt	236 x (8)		191 x (10)	236 x (8)		191 x (10)
15	1	Diaphragm *	7053	743		7053	743	
16	1	Breather plug	147			147		
17	1	Spring	723	724		723	724	
18	1	Bonnet	1665	1655		1665 ‡	1655 ‡	
19	1	Upper diaph. Plate	732	1476		732	1476	
20	1	Lower diaph. Plate	737	738		737	738	
21	1	O-Ring *	1107HSN	639HSN	639	1107HSN	639HSN	639
22	2	Back up *	149T	150T		149T	150T	
23	2	Back up ◊ *	1685	1870	1871	1685	1870	1871
24	1	Cylinder ◊	1679	1861	1865SS6	1679SS6	1861SS6	1865SS6
25	1	O-Ring ◊ *	808HSN	802HSN	2083	808HSN	802HSN	2083
26	1	O-Ring ◊ *	329HSN	330HSN	331	329HSN	330HSN	331
27	1	Piston seal retainer ◊	1806	1860	1864SS6	1806SS6	1860SS6	1864SS6
28	1	Piston ◊	1807	1859	1863SS6	1807SS6	1859SS6	1863SS6
29	1	O-Ring ◊ *	265HSN	154HSN	154	265HSN	154HSN	154
30	1	Removable seat ◊	1752PH	1760PH	1762PH	1752PH	1760PH	1762PH
31	1	Body						
		NPT Angle	1819	2379	----	1819 ‡	2379 ‡	----
		NPT Thru	3081	3086	----	3081 ‡	3086 ‡	----
		150RF Angle	4348	2382	2383	4348 ‡	2382 ‡	2383 ‡
		150RF Thru	3083	3087	3090	3083 ‡	3087 ‡	3090 ‡
2	Lifting Ring (not shown)	7559			7559			
					‡ Coated Parts available with "K" service type			
Cage Assemblies			CBH1	CBI1	CBJ1	CBH1S6	CBI1S6	CBJ1S6
◊ These parts are stocked as Cage Assemblies.								
Repair Kits			RFQ	RTS	RTU	RFQ	RTS	RTU
* These parts are recommended spare parts and are stocked as repair kits.								

Table 1 - Flow Coefficient(Cv) for Pneumatic Dump Valves													
Line Size	Trim Size in. (mm)	Trim Type	Cf	Valve Opening Percentage									
				10	20	30	40	50	60	70	80	90	100
Diaphragm Balanced													
2"	1 1/2 in (38mm)	Linear (Nominal)	0.79	5.0	8.5	11.7	14.6	17.0	19.0	20.5	21.6	22.6	23.3
3"	2 1/4 in (57 mm)		0.79	6.7	11.1	15.6	20.3	24.8	29.2	33.4	37.2	40.7	43.8
4"	3 in (76 mm)		0.79	12.0	18.9	25.8	32.8	39.9	46.9	53.7	60.0	65.7	70.1
6"	4.88 in (124 mm)		0.79	14.2	21.0	31.6	61.2	98.3	139	179	217	250	277
Low Pressure High Volume Piston Balanced Throttling													
2" thru	1 1/2 in (38mm)	Linear (Nominal)	0.75	5.7	8.4	12.0	14.9	17.6	19.8	22.3	24.4	26.2	28.9
	2 in (51 mm)		0.75	8.3	15.3	21.5	27.2	31.6	36.0	39.3	41.6	44.0	45.8
2" angle	1 1/2 in (38mm)		0.75	3.7	7.9	12.5	15.7	18.6	21.4	24.1	27.2	30.1	33.3
	2 in (51 mm)		0.75	9.7	16.1	23.3	29.2	35.1	39.3	43.6	46.5	49.4	51.4
3" thru	2 in (51 mm)		0.75	11.6	21.5	30.5	38.6	45.7	51.3	55.6	59.1	61.6	64.0
	3 in (76 mm)		0.75	17.0	32.3	46.0	58.6	70.4	79.6	87.4	94.0	98.7	103
3" angle	2 in (51 mm)		0.75	12.5	22.9	32.2	41.8	49.4	56.2	60.8	65.3	68.4	71.7
	3 in (76 mm)		0.75	18.8	34.8	49.0	63.7	75.6	86.7	93.9	101	107	113
4" thru	3.75 in (95 mm)		0.75	17.8	32.9	48.6	61.2	73.1	84.8	94.5	102	108	114
	3 in (76 mm)		0.75	22.7	42.0	61.3	76.2	91.3	106	118	128	135	142
4" angle	3.75 in (95 mm)		0.75	18.4	35.5	52.0	67.9	84.7	96.4	110	120	130	137
	3 in (76 mm)		0.75	23.6	44.7	64.2	83.2	103	117	132	142	154	162
Piston Balanced Throttling													
2"	2 in (51 mm)	Linear (Nominal)	0.75	6.6	12.3	18.4	24.2	29.5	34.1	38.0	41.2	44.0	47.0
3"	3 in (76 mm)		0.75	12.7	18.7	29.0	41.0	52.9	63.4	71.9	78.4	83.7	89.0
4"	3 in (76 mm)		0.75	11.7	18.1	24.8	36.8	58.3	86.1	114	137	152	160

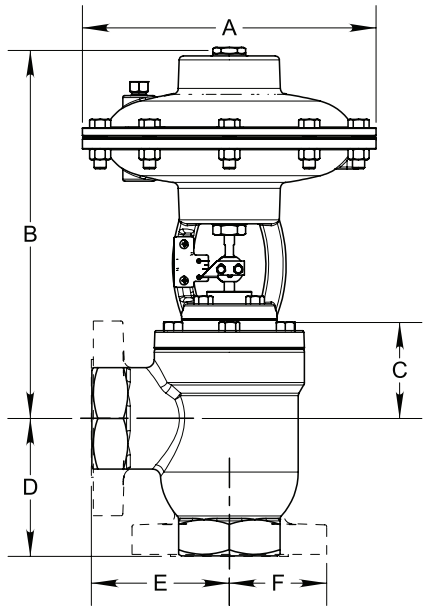
Kimray flow equations conform to ANSI/ISA - 75.01.01-2002
Kimray inherent flow characteristics conform to ANSI/ISA 75.11.01 -1985

LIQUID DUMP VALVES PNEUMATIC OPERATED

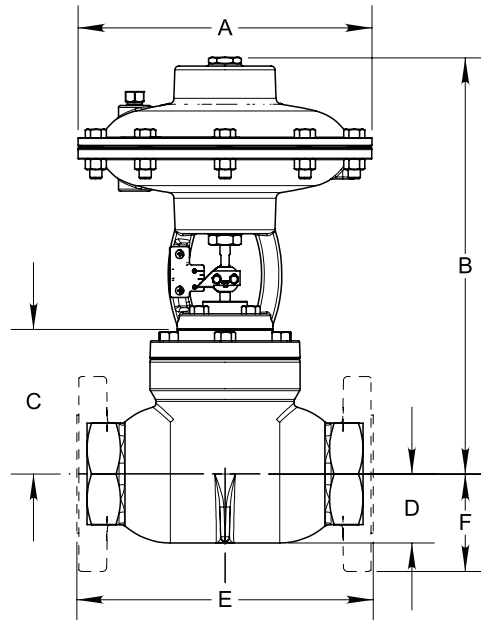


DIMENSIONS

PH ANGLE DIMENSIONS



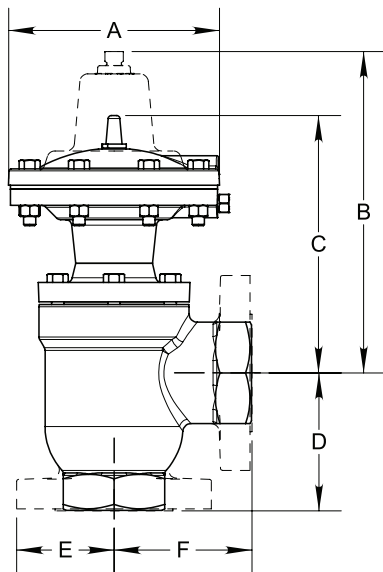
PH THRU DIMENSIONS



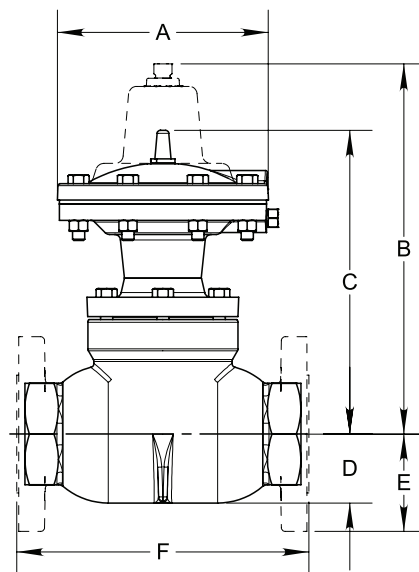
VALVE	A	B	C	D	E	F
2" SA & AR	9 1/16	11 9/32	2 29/32	4 1/4	4 1/4	3
3" SA & AR	12 7/8	15 9/32	4 1/32	5 1/2	5 1/2	3 3/4
4" AR	12 7/8	15 5/32	3 7/8	6 1/2	6 1/2	4 1/2

VALVE	A	B	C	D	E	F
2" SA	9 1/16	12 13/16	4 7/16	2 1/8	8 1/2	3
2" AR	9 1/16	12 13/16	4 7/16	2 1/8	9 1/8	3
3" SA	12 7/8	17 5/32	5 29/32	2 7/8	12	3 3/4
3" AR	12 7/8	17 5/32	5 29/32	2 7/8	12 3/16	3 3/4
4" AR	12 7/8	15 5/32	6 7/32	3 21/32	15	4 1/2

PD, PE ANGLE DIMENSIONS



PD, PE ANGLE DIMENSIONS



VALVE	A	B	C	D	E	F
2" SA & AR	6 1/2	9	8 1/2	4 1/4	3	4 1/4
3" SA & AR	8 1/2	11 3/4	10 1/4	5 1/2	3 3/4	5 1/2
4" SA & AR	8 1/2	12 1/2	11	6 1/2	4 1/2	6 1/2
6" SA & AR	10 3/4	—	19 3/4	10 1/4	5 1/2	7 11/16

VALVE	A	B	C	D	E	F
2" SA	6 1/2	10 3/8	9 7/8	2 1/8	—	8 1/2
2" AR	6 1/2	10 3/8	9 7/8	—	3	9
3" SA	8 1/2	13 5/16	11 9/16	2 7/8	—	12
3" AR	8 1/2	13 5/16	11 9/16	—	3 3/4	12 3/16
4" SA	8 1/2	14 7/8	13 3/8	—	4 1/2	15 1/8
6" SA	10 3/4	—	19 3/4	—	5 1/2	22

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LIQUID DUMP VALVES PNEUMATIC OPERATED

SEALS SPECIFICATIONS

Table 2 - Seal Options		
Part	Standard Material	Optional Material
O-rings	HSN	FKM
Diaphragm	HSN	FKM
Seat	HSN	FKM

Table 3 - Seal Specifications			
		HIGHLY SATURATED NITRILE	FKM
Kimray Suffix		HSN	V
Resistance	Abrasion	G-E	G
	Acid	G-E	G-E
	Chemical	F	E
	Cold	G	P
	Flame	P	E
	Heat	E	E
	Oil	E	E
	Ozone	G	G-E
	Set	G	G-E
	Tear	F	F
	Water/Steam	E	P
	Weather	G	E
	CO2	G	G
	H2S	F	P
	Methanol	E	P
Properties	Dynamic	G	G
	Electrical	F	F
	Impermeability	G	G
	Tensile Strength	G-E	G
	Temp. Range		-20° to +300°F
		-29° to +149°C	-26° to +204°C
RATINGS: P-POOR, F-FAIR, G-GOOD, E-EXCELLENT			

LIQUID DUMP VALVES PNEUMATIC OPERATED

MATERIAL SPECIFICATIONS



Table 5 - Material Options - Diaphragm Balanced

Part Description	Standard Material	Corrosive Material
Body	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Ratio Plug	2 & 3 inch Delrin (ASTM D4181), 4 & 6 inch (ASTM A395)	17-4PH (ASTM A564)
Cage	2 & 3 inch Delrin (ASTM D4181), 4 & 6 inch (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Stem	303SS (ASTM A582)	316SS (ASTM A479)
Bonnet	Ductile (ASTM A395)	Ductile (ASTM A395) + Kimcoat
Piston	303SS (ASTM A582)	316SS (ASTM A479)
Cylinder	303SS (ASTM A582)	316SS (ASTM A479)

Table 6 - Material Options - Low Pressure High Volume

Part Description	Standard Material	Erosive Material	Corrosive Material
Body	Ductile (ASTM A395)		
Bonnet	Ductile (ASTM A395)		
Cylinder	303SS (ASTM A582)		316SS (ASTM A479)
Piston	303SS (ASTM A582)		316SS (ASTM A479)
Ratio Plug	303SS (ASTM A582)	D-2 (ASTM A681)	316SS (ASTM A479)
Removable Seat	303SS (ASTM A582)	D-2 (ASTM A681)	316SS (ASTM A479)
Stuffing Box	Ductile (ASTM A395)		
Stuffing Box Stem	17-4PH (ASTM A564)		316SS (ASTM A479)
Piston Stem	303SS (ASTM A582)		316SS (ASTM A479)
Seat Disc	316SS (ASTM A479)		

LIQUID DUMP VALVES PNEUMATIC OPERATED



CODE BUILDER D SERIES

Series:

D = Dump Valve

Model:

PD = Pneumatic Operated Diaphragm Balanced Fail Close
PE = Pneumatic Operated Diaphragm Balanced Fail Open

Line Size:

2 = 2 NPS
3 = 3 NPS
4 = 4 NPS
6 = 6 NPS (PD ONLY)

End Connection:

SA = FNPT (2 & 3 NPS only)
AR = 150RF

Body Type:

A = Angle
T = Thru

Shell Material:

D = Ductile Iron
E = Ductile Iron w/Coating

Inner Valve Size:

F = Full Port
R = Reduced Port (PP only)

Actuator:

P = Pneumatic

Service Type:

S = Standard
C = Corrosive

D PD 2 SA A D F 1 S

Options: Additional cost and lead times will apply
If multiple options required input in sequential order
Leave blank if no options required

- 1 = NACE Certification (Corrosive Option Only)
- 2 = Hydrostatic Test Certification
- 3 = MTR (Shell Components)
- H = HSN Elastomers
- V = FKM Elastomers
- X = Export (Hydrostatic test, MTR & 3.1)

Not all selections available on all products listed.
See product pages 04:10.1 - 04:10.7 & 04:30.1 - 04:40.7
for available options