

The BelGAS^{CP} P4500 series is a diaphragm operated dump valve for control of low pressure water or oil where 10 PSIG minimum pneumatic signal is available.

Applications

- Separators
- Meters
- Water Knockouts

Features

- Diaphragm Balanced Single Seat
- 10 PSIG Minimum Pneumatic Signal
- Simple Repair and Maintenance

Materials of Construction

Part	Standard Material	Optional Material
Bonnet	Ductile Iron	—
Housing	Ductile Iron	—
Body & Bonnet	Ductile Iron	—
Cage	Ductile Iron	Acetal
Diaphragm	Nitrile	Fluorocarbon
Seat	Nitrile	Polyurethane, Fluorocarbon
Gasket	Teflon®	—
Stem & Stem Guide	Stainless Steel	—
O-rings	Nitrile	Fluorocarbon

P4500 Part Number Matrix

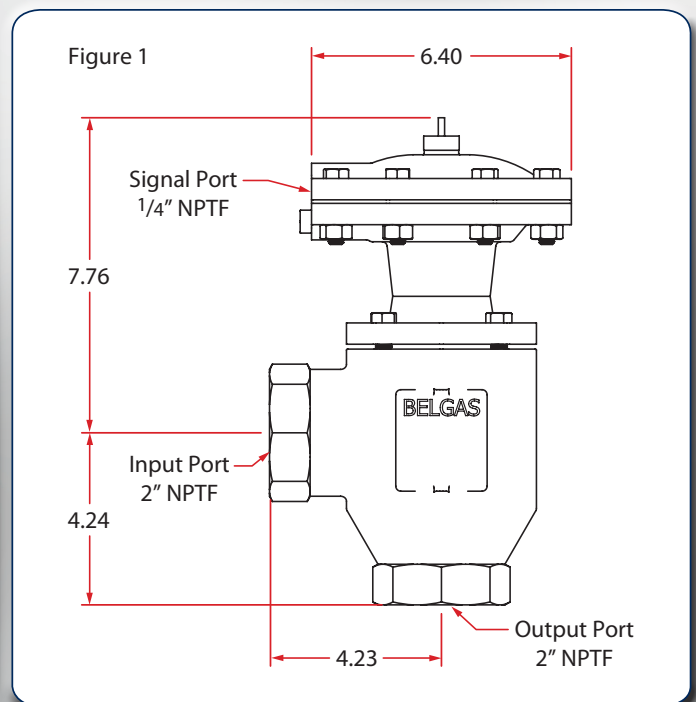
	P45	00	16	S	0	A				0	0
Style											
Diaphragm Balanced		00									
Body Size											
2" x 2"			16								
End Connection											
Female NPT				S							
Body Material											
Ductile Iron					0						
Body Style											
Angled						A					
Elastomer Material											
Nitrile							0				
Fluorocarbon								2			
Seat Material											
Polyurethane									P		
Nitrile										0	
Fluorocarbon											2
Trim Material											
Ductile Iron Cage											D
Acetal Cage											A
Pressure Open/Close											
Pressure Open											0



Specifications

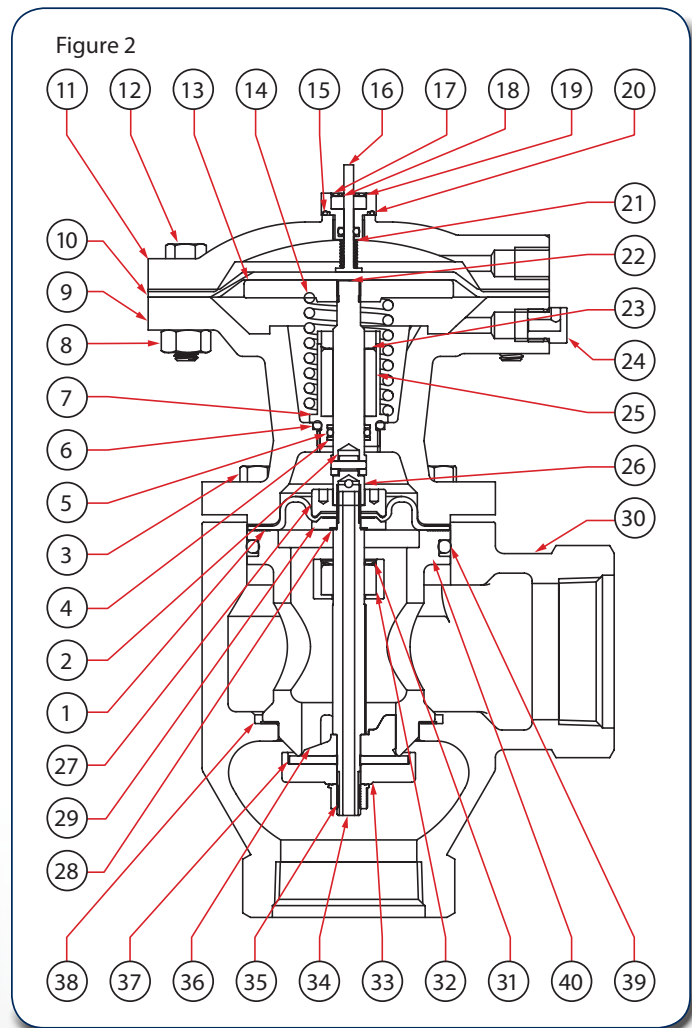
Operating Pressure	125 PSIG	
Working Pressure	400 PSIG (Max)	
Operating Temperature	225°F (107°C) (Max)	
Supply Pressure	10 to 35 PSIG	
Trim Size	2" Line Size	1.50"
Cv		23.3
Shutoff Classification	ANSI Class VI per ANSI/FCI 70-2-2013	

Dimensional Data (in.)



P4500 Parts List & Repair Kits (Figure 2)

Item	Description	Qty.	Part Number
1	Diaphragm	1	Nitrile 600-519-000
			Fluorocarbon 600-519-001
2	Pin	1	635-089-000
3	Body Screw	4	648-580-000
4	Backup Ring	2	Nitrile 649-350-000
			Fluorocarbon 649-350-001
5	O-ring	1	Nitrile 649-000-150
			Fluorocarbon 649-000-338
6	O-ring	1	Nitrile 649-309-002
			Fluorocarbon 649-296-000
7	Stem Guide	1	626-123-000
8	Heavy Hex Nut	8	634-216-000
9	Housing	1	629-266-000
10	Diaphragm	1	Nitrile 618-117-000
			Fluorocarbon 618-117-001
11	Bonnet	1	604-281-000
12	Hex Cap Screw	8	648-463-013
13	Diaphragm Plate	1	638-096-000
14	Spring	1	655-800-000
15	O-ring	1	Nitrile 649-000-008
			Fluorocarbon 649-000-211
16	Travel Indicator Stem	1	689-034-000
17	Travel Indicator Housing	1	629-278-000
18	Wiper	1	608-099-000
19	Retaining Ring	1	693-040-000
20	O-ring	1	Nitrile 649-390-000
			Fluorocarbon 649-390-001
21	Travel Indicator Spring	1	655-818-000
22	Stem	1	689-024-000
23	Retaining Ring	1	693-037-000
24	Breather Plug	1	639-144-000
25	Bushing	1	608-092-000
26	Adapter	1	653-059-000
27	Diaphragm Nut	1	634-221-000
28	Gasket Plate	1	624-114-000
29	Diaphragm Plate	1	638-093-000
30	Body	1	664-592-000
31	Retaining Ring	1	643-000-124
32	Bushing	1	608-089-000
33	Seat Disk	1	650-205-000
34	Stem	1	651-111-000
35	Lock Nut	1	634-218-000
36	Ratio Plug	1	639-146-000
37	Seat	1	Nitrile 619-075-000
			Polyurethane 619-075-001
			Fluorocarbon 619-075-002
38	Cage Gasket	1	624-113-000
39	O-ring	1	Nitrile 649-345-000
			Fluorocarbon 649-345-001
40	Cage	1	Ductile Iron 704-020-000
			Acetal 704-020-001
41	Drive Screw (Not Shown)	4	648-464-000
42	Name Plate (Not Shown)	1	632-592-000
43	Valve Position Label (Not Shown)	1	631-247-000
44	Box	1	606-205-000



Item	Description	Qty.	Part Number
45	Box Insert (Not Shown)	1	665-237-000
46	Instruction Manual (Not Shown)	1	541-244-000

Repair Kits Part Number Matrix

Elastomer Repair Kit	971450	0	2
Style			
Diaphragm Balanced, Pressure Open		0	
Line Size			
2"			2
Elastomer Material			
Nitrile			0
Fluorocarbon			2

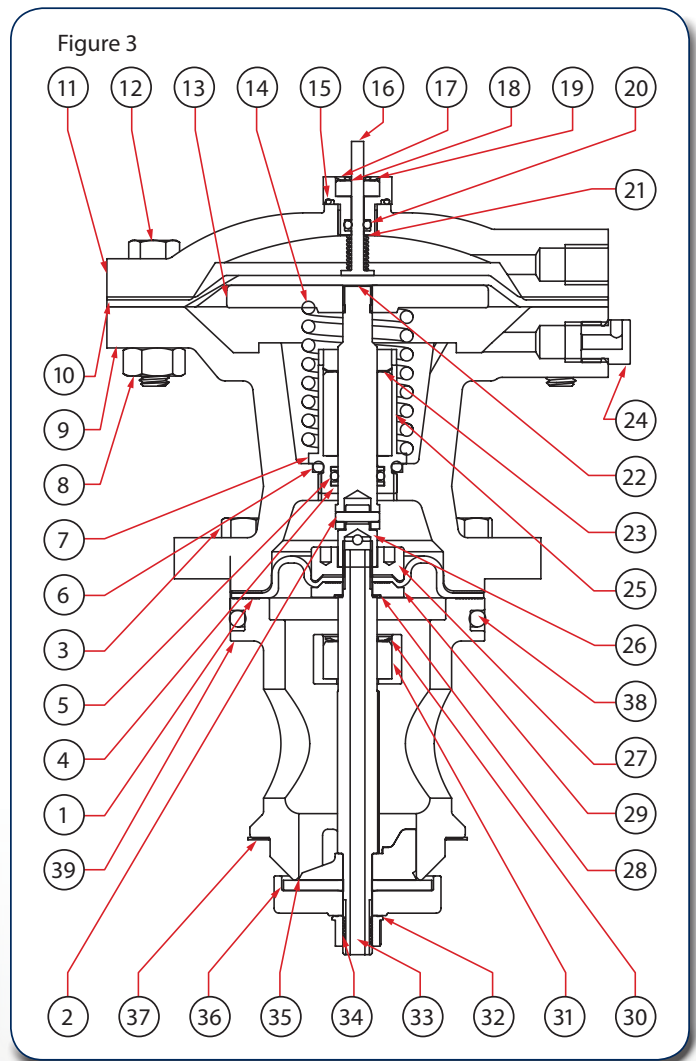
Note: Elastomer repair kits include diaphragm, o-rings, backup rings and gaskets, etc.

Trim Repair Kit	971451	0	2
Style			
Diaphragm Balanced, Pressure Open		0	
Line Size			
2"			2
Trim Material			
Nitrile Seat - Nitrile Cage O-ring			0
Fluorocarbon Seat - Fluorocarbon Cage O-ring			1
Polyurethane Seat - Nitrile Cage O-ring			2

Note: Trim repair kits include seat, seat disk, cage and lower stem, etc.

P4500 Top Works Parts List (Figure 3)

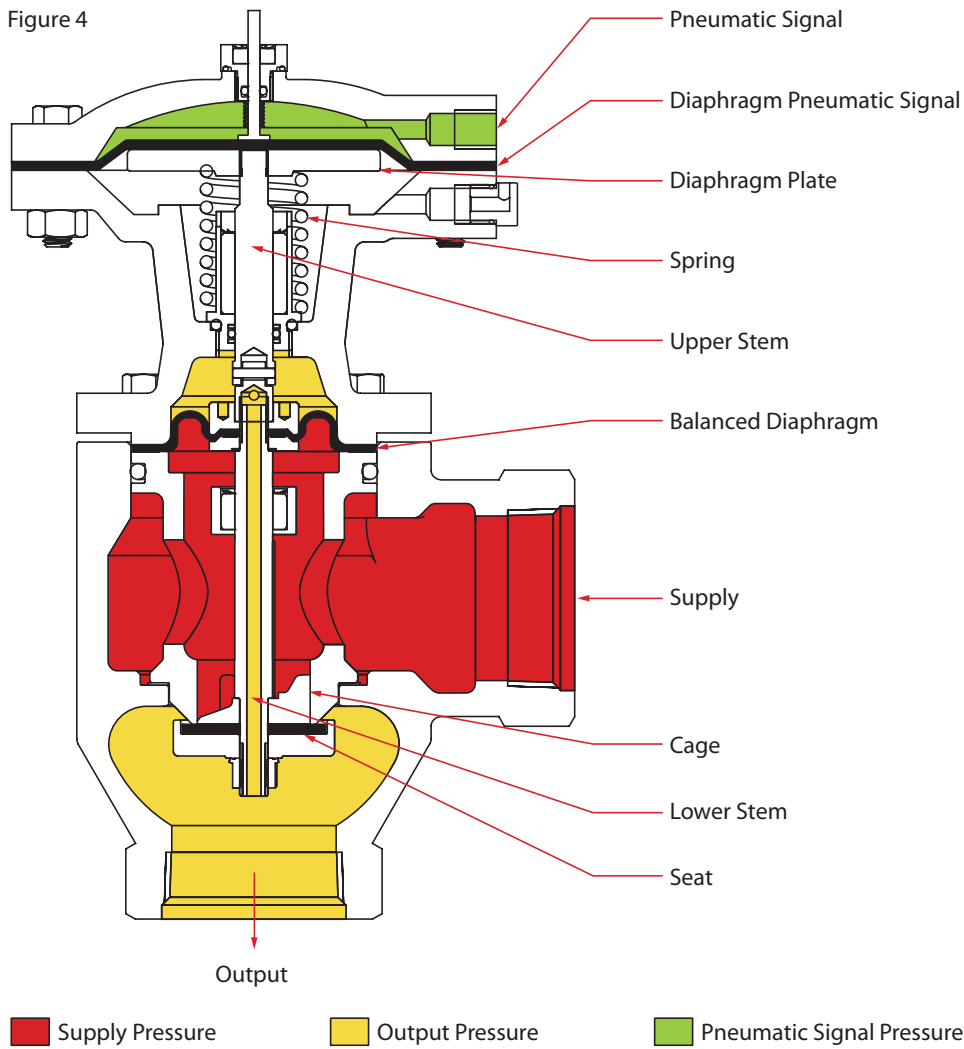
Item	Description	Qty.	Part Number
1	Diaphragm	1	Nitrile 600-519-000
			Fluorocarbon 600-519-001
2	Pin	1	635-089-000
3	Body Screw	4	648-580-000
4	Backup Ring	2	649-350-000
5	O-ring	1	Nitrile 649-000-150
			Fluorocarbon 649-000-338
6	O-ring	1	Nitrile 649-309-002
			Fluorocarbon 649-296-000
7	Stem Guide	1	626-123-000
8	Heavy Hex Nut	8	634-216-000
9	Housing	1	629-266-000
10	Diaphragm	1	Nitrile 618-117-000
			Fluorocarbon 618-117-001
11	Bonnet	1	604-281-000
12	Hex Cap Screw	8	648-463-013
13	Diaphragm Plate	1	638-096-000
14	Spring	1	655-800-000K
15	O-ring	1	Nitrile 649-000-008
			Fluorocarbon 649-000-211
16	Travel Indicator Stem	1	689-034-000
17	Travel Indicator Housing	1	629-278-000
18	Wiper	1	608-099-000
19	Retaining Ring	1	693-040-000
20	O-ring	1	Nitrile 649-390-000
			Fluorocarbon 649-390-001
21	Travel Indicator Spring	1	655-818-000
22	Stem	1	689-024-000
23	Retaining Ring	1	693-037-000
24	Breather Plug	1	639-144-000
25	Bushing	1	608-092-000
26	Adapter	1	653-059-000
27	Diaphragm Nut	1	634-221-000
28	Gasket Plate	1	624-114-000
29	Diaphragm Plate	1	638-093-000
30	Retaining Ring	1	643-000-124
31	Bushing	1	608-089-000
32	Seat Disk	1	650-205-000
33	Stem	1	651-111-000
34	Lock Nut	1	634-218-000
35	Ratio Plug	1	639-146-000
36	Seat	1	Nitrile 619-075-000
			Polyurethane 619-075-001
			Fluorocarbon 619-075-002
37	Cage Gasket	1	624-113-000
38	O-ring	1	Nitrile 649-345-000
			Fluorocarbon 649-345-001
39	Cage	1	Ductile Iron 704-020-000
			Acetal 704-020-001
40	Valve Position Label (Not Shown)	1	631-247-000



Top Works Part Number Matrix

	P45	0	2				0
Style							
Diaphragm Balanced		0					
Line Size							
2"			2				
Elastomer Material							
Nitrile				0			
Fluorocarbon				2			
Seat Material							
Polyurethane					P		
Nitrile					0		
Fluorocarbon					2		
Trim Material							
Ductile Iron Cage						D	
Acetal Cage						A	
Pressure Open/Close							
Pressure Open							0

Figure 4



Operational Principle

P4500 series motor valve has a balanced diaphragm design. The effective area of the balanced diaphragm is designed to be equal to the opening area of the cage, allowing the force from supply pressure acting on the seat to cancel out the force from the output pressure. The stem and seat position and movement will not be affected by the flow and pressure of process fluid and will only be decided by the strength of the pneumatic signal.

Before any air/gas pressure is applied on the pneumatic signal diaphragm, the upward spring force acting on the diaphragm plate ensures that the seat is firmly sealed

against the cage and no process fluid flowing out of the valve. At this time the stem of travel indicator is at "fully close" position, which is approximately 0.4" above the indicator housing.

When the air/gas pressure (10 psig minimum) is applied on the pneumatic signal diaphragm, a downward force will act on the diaphragm plate and move the stem/seat assembly away from the cage. The process fluid will start to flow out of the motor valve. As signal pressure reaches a certain level, most of the travel indicator stem will retreat into the travel indicator housing, which is at a "fully open" position.

Contact your BelGAS^{CP} representative or go to www.BelGASCP.com to learn more about our products.



**Trusted.
Proven.
Better.**

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