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[www.PathwayControl.com](http://www.PathwayControl.com)

## 8100 Series

### Two Way, High Pressure Valve

#### Application:

This valve is used for on-off or throttling control of water, oil or gas on high pressure applications. Oil and gas production separators, gas scrubbers or any type liquid accumulators are a few typical applications where this valve is ideally suited. By adding a pressure pilot to control this valve, it may be used as a back pressure or pressure reducing valve.

#### Operation:

In a normally closed application, a spring exerts a force onto the top side of the diaphragm, pushing the plug against the seat. To open the valve, pressure is applied to the lower side of the diaphragm overcoming the force imposed by the spring and lifting the plug from the seat. This allows flow through the valve. In a normally open application, the procedure is reversed.

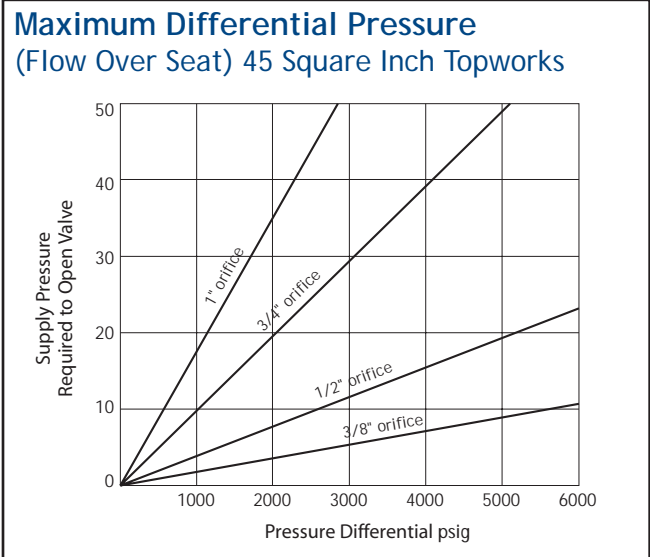
#### Features:

- Optional flow patterns with "T" body. Straight through or angle flow for easy installation.
- Easily serviced with the internal parts removable from the top of the valve without removing the body from the line.
- 17-4 PH heat treated stainless steel trim is standard. Available in carbide, carbide coated or soft trim to fit your application.
- Long packing life provided by stainless steel stem working in a replaceable bushing.
- Self lubricating TFE stem packing assures a positive seal without maintenance.
- Easy trim replacement without dismantling the topworks.



#### Maximum Pressure Differential: Flow Under Seat

Orifice	Topworks 23 sq.in.	Topworks 45 sq. in	Topworks 62 sq. in.
1/4"	4000 psig	6000 psig	6000 psig
3/8"	4000 psig	6000 psig	6000 psig
1/2"	2500 psig	2800 psig	6000 psig
3/4"	-	1200 psig	3000 psig
1"	-	700 psig	1750 psig



For 23 sq. in. topworks, multiply supply pressure by 1.96.  
 For 62 sq. in. topworks, multiply supply pressure by 0.73.  
 Maximum trim size on valve with 23 sq. in. topworks is 1/2".

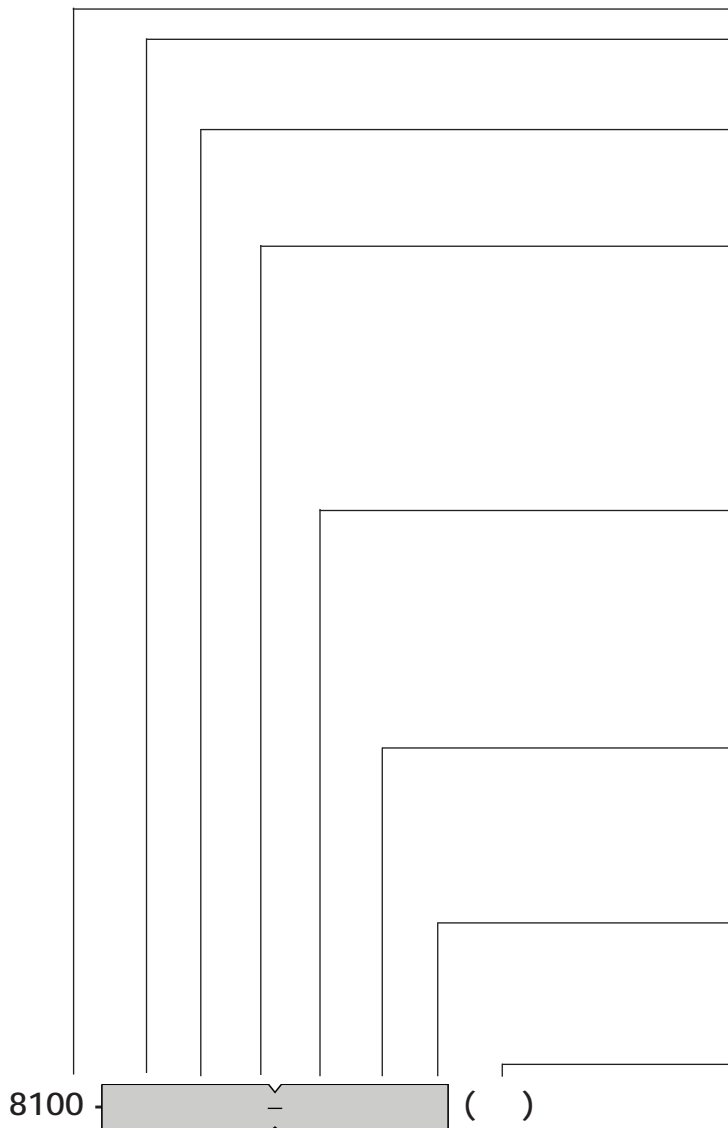
## 8100 Series

### Two Way, High Pressure Valve

**Specifications:**

<b>Size:</b>	<b>1" Tee Body</b>	<b>2" Tee Body</b>
<b>Working Pressure:</b>	6000 psig (4000 psig on 23 sq. in. topworks)	3000 psig
<b>Temperature:</b>	-20°F to +180°F; available to +450°F	
<b>Topworks:</b>	Pressed steel with nylon reinforced nitrile diaphragm; 50 psig maximum supply pressure.	
<b>Effective Area:</b>	Choice of 23 sq. in., 45 sq. in. or 62 sq. in.	
<b>C<sub>v</sub> Factor - Orifice:</b>	<b>Angle</b>	<b>Globe</b>
	<b>Angle</b>	<b>Globe</b>
1/4" .....	2.3 .....	1.9 .....
3/8" .....	4.6 .....	4.2 .....
1/2" .....	8.3 .....	7.4 .....
3/4" .....	15.0 .....	12.8 .....
1" .....	21.0 .....	16.1 .....
<b>Trim:</b>	17-4 PH stainless steel or carbide, snap acting or throttling	
<b>Material:</b>		
Body:	Cast steel	
Stem:	Stainless steel	
Packing:	TFE V	

**Ordering Chart:**



**8100 Series, Two Way, High-Pressure Valve**

**Size:**

- 1 - 1"
- 2 - 2"

**Connection:**

- 1 - Threaded
- 3 - Flanged, specify type\*
- 4 - Beveled for weld

**Topworks:**

- 1 - Spring top (45 sq. in.)
- 2 - Spring under (45 sq. in.)
- 3 - Pressure balanced (45 sq. in.)
- 4 - Spring top (23 sq. in.) 4000 psig MWP
- 6 - Spring top (62 sq. in.)
- 7 - Spring under (62 sq. in.)
- 8 - Pressure balanced (62 sq. in.)
- 9 - Spring under (23 sq. in.) 4000 psig MWP

**Trim Type:**

- 1 - Snap acting (stainless steel)
- 2 - Throttling (stainless steel)
- 3 - Snap acting (carbide)
- 4 - Throttling (carbide)
- 5 - Options (specify your requirements)
- 6 - Snap acting (carbide - K coating)
- 7 - Throttling (carbide - K coating)

**Trim Size:**

- 1 - 1/4"
- 2 - 3/8"
- 3 - 1/2"
- 4\*\* - 3/4"
- 6\*\* - 1" (not available in carbide)

**Other:**

- 1 - No visual indicator
- 2 - Visual indicator
- 4 - Open yoke (high temperature)
- 5 - Options (see common options list)

**Option Number:**

- ( ) - Pathway will assign an option number based on specified requirements.

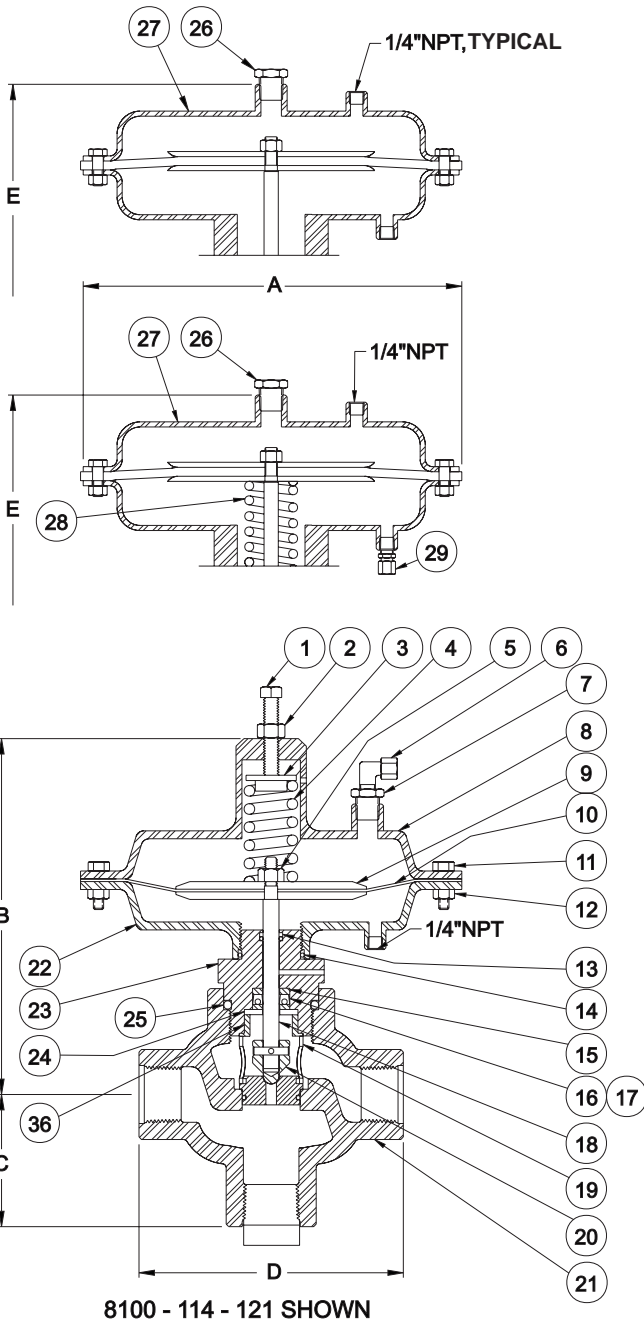
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Example: 8100-111-121

\*Flanged models available in 150# to 1,500# RF or RTJ.  
 \*\* Not available on 23 sq. in. topworks.

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### Two Way, High Pressure Valve



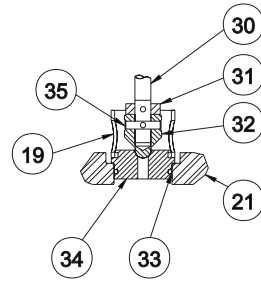
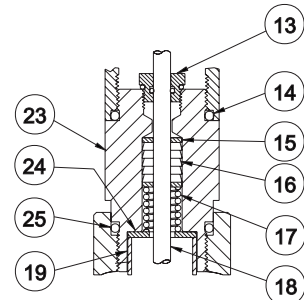
#### Dimensions

Size	1" - 23	1" - 45	1" - 62	2" - 45	2" - 62
A	9"	10 1/2"	13 1/16"	10 1/2"	13 1/16"
B	8 3/8"	11 1/8"	14 3/4"	11 3/8"	15"
C	2 1/8"	2 1/8"	2 1/8"	3 1/2"	3 1/2"
D	6 1/4"	6 1/4"	6 1/4"	7"	7"
E	7"	9 5/8"	11 3/4"	9 7/8"	12"

#### Flanged Models

Flange	Face to Face	W.P. @ 100°F
1" 150# RF or RTJ	7"	275 psig
2" 150# RF or RTJ	7-1/2"	275 psig
1" 300# RF or RTJ	7-1/4"	720 psig
2" 300# RF or RTJ	7-7/8"	720 psig
1" 600# RF or RTJ	7-3/4"	1440 psig
2" 600# RF or RTJ	8-3/8"	1440 psig
1" 900# RF or RTJ	8-5/8"	2160 psig
2" 900# RF or RTJ	9-3/4"	2160 psig
1" 1500# RF or RTJ	8-5/8"	3600 psig
2" 1500# RF or RTJ	9-3/4"	3000 psig

Special Face to Face available on flanged and beveled connections.



#### CAUTION:

Remove spring tension by backing off adjustment screw OR apply air pressure under diaphragm BEFORE removing topworks. Otherwise, trim will be damaged!

## 8100 Series Two Way, High Pressure Valve

Model	23 sq. in. top	45 sq. in. top	62 sq. in. top			
Item	Part #	Part #	Part #	Description	Material	Qty
1	10209	10210	10213	Adjustment Screw	Plated	1
2	10177	10177	10182	Jam Nut	Plated	1
3	20673	20628	20602	Spring Retainer	Carbon Steel	1
4	10066	10075	10061	Spring	Oil Tempered Steel	1
5	10172	10172	10172	Lock Nut	Plated	1
6	23339	23339	23339	Vent Assembly	Plated	1
7	10748	10748	10748	Bushing	Plated	1
8	30043	30045	30051	Upper Diaphragm Housing	Fabricated Carbon Steel	1
9	20622	20696	20696	Diaphragm Plate	Cold Rolled Steel Plate	2
10	10100	10094	10028	Diaphragm	Nylon Reinforced Nitrile	1
11	10206	10207		Cap Screw	Plated	12
			10207	Cap Screw	Plated	16
12	10175	10175		Hex Nut	Plated	12
			10175	Hex Nut	Plated	16
13		21521	21521	Packing Gland Assembly	Brass/Nitrile	1
	10119			O-Ring	Nitrile	1
	10120			O-Ring Backup	TFE	2
14	10363	10149	10149	O-Ring	Nitrile	1
15	20694	20694	20694	Packing Follower	Brass	2
16	10159			Packing	Molythane	1
		10153	10153	Packing	TFE	1
17		10076	10076	Packing Spring	316 ss	1
18	20424	20697	20698	Stem, Hard Trim	303 ss	1
19	20606	20693	20693	Cage	Carbon Steel	1
20	See Trim Chart			Trim Set	See Chart	1
21	See Body Chart			Body	Cast Steel	1
22	30332	30056	30052	Lower Diaphragm Housing	Fabricated Carbon Steel	1
23	31104			Packing Block	303 ss	1
		30021	30021	Packing Block	Plated	1
24	20608			Packing Retainer	Carbon Steel	1
		10082	10082	Packing Retainer	Plated	1
25	10149	10149	10149	O-Ring	Nitrile	1
26	10346	10346	10346	Plug	Plated	1
27	30012	30049	30101	Upper Diaphragm Housing	Fabricated Carbon Steel	1
28	10076			Spring	316 ss	1
		10074	10061	Spring	Oil Tempered Steel	1
29	23338	23338	23338	Vent Assembly	Plated	1
30		21194	21343	Stem, Soft Trim	303 ss	1
31		20949	20949	Travel Stop	303 ss	1
32		See TrimChart		Plug, Soft Trim	See Chart	1
33		10128	10128	O-Ring	Nitrile	1
34		See Trim Chart		Seat	See Chart	1
35		10712	10712	Pin	18-8 ss	1
36	20607			Spacer	Carbon Steel	1
	10016	10016	10016	Name Plate <i>(not shown)</i>	18-8 ss	1
	10324	10324	10324	Drive Screw <i>(not shown)</i>	18-8 ss	2

### Trim Chart - 8100 Series

Description	1/8"	1/4"	3/8"	1/2"	3/4"	1"
17-4 ss, Snap	20730	20731	20732	20733	20734	20735
17-4 ss, Throttling	20736	20737	20738	20739	20740	20741
Carbide, Snap	20742	20743	20744	20745	20746	
Carbide, Throttling		20749	20750	20751	20752	
Carbide K Coated, Snap	23767	23768	23769	23770	23771	23772
Carbide K Coated, Throttling	23779	23780	23781	23782	23783	23784
Acetal Plug, Snap		20779	20780	20781	20782	20783
Acetal Plug, Throttling		20797	20798	20799	20800	20801
Seat <i>(for Soft Trim)</i>		20755	20756	20757	20758	20759

### Body Chart - 8100 Series

Description	1"	2"
NPT Threaded	30022	30023
Beveled for weld	30866	30019
Flanged, 150# RF	40912	40898
Flanged, 300# RF	40099	40104
Flanged, 600# RF	40100	40105
Flanged, 600# RTJ	40102	40107
Flanged, 1500# RF	40101	40106
Flanged, 1500# RTJ	40103	40108

*Other Flange Options Available. Contact Pathway.*