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## 8950 Series Back Pressure or Pressure Reducing, Overbalanced Valve

### Application:

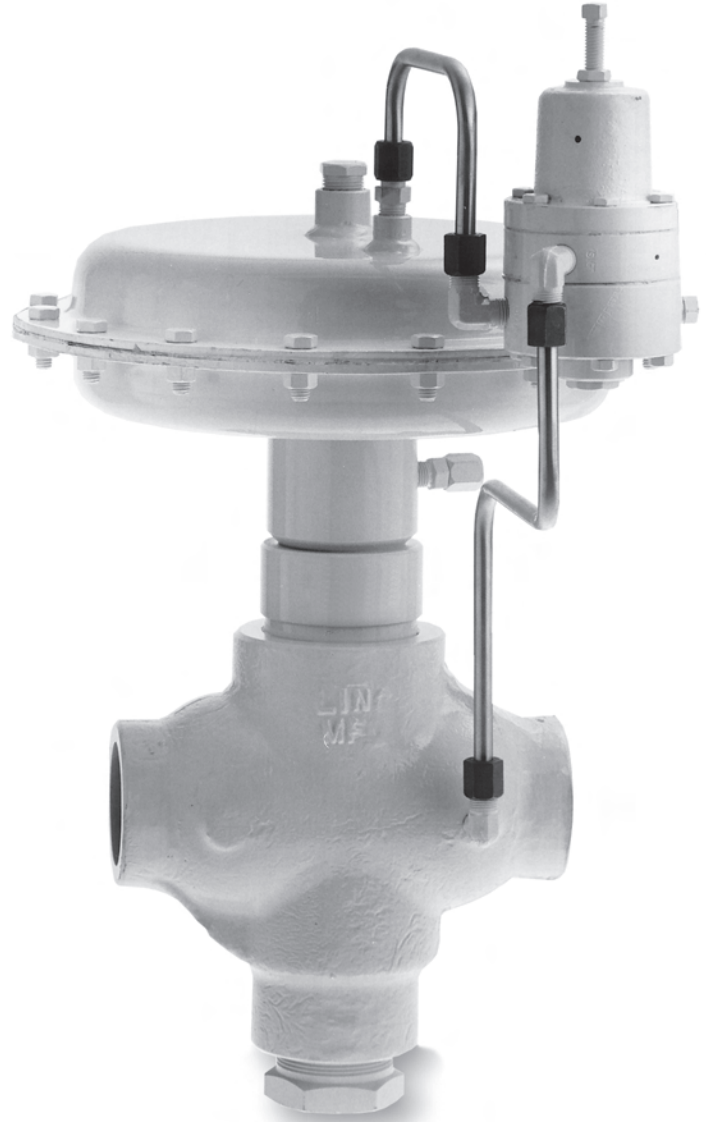
This Series can maintain a constant pressure upstream (back pressure) or downstream (pressure reducing). The back pressure unit is used to maintain pressure on separators, vessels or any location where constant pressure is vital. The pressure reducing version is suited on gas lift operations to protect surface equipment and to replace fixed orifice devices. The 8950 Series is available in a 316L stainless steel 2" body to CF8M specification.

### Operation:

Upstream pressure is applied to the plug and the piston. The piston is larger than the plug on the pressure reducing valve causing it to fail closed. It is smaller on the back pressure valve causing it to fail open. Pressure to be controlled is monitored by a pressure pilot. Output from the pilot throttles the valve to maintain a desired pressure.

### Features:

- Fail safe operation by sizing the piston to the application.
- Soft trim provides tight shut off.
- Easy maintenance because the trim is replaceable from the top of the valve without having to remove the valve body from the line.
- Stainless steel stem, piston housing and seat.
- Self-lubricating seal on the piston means less service.
- Bypass system is available.
- Available in a 316L stainless steel 2" body to CF8M specification.



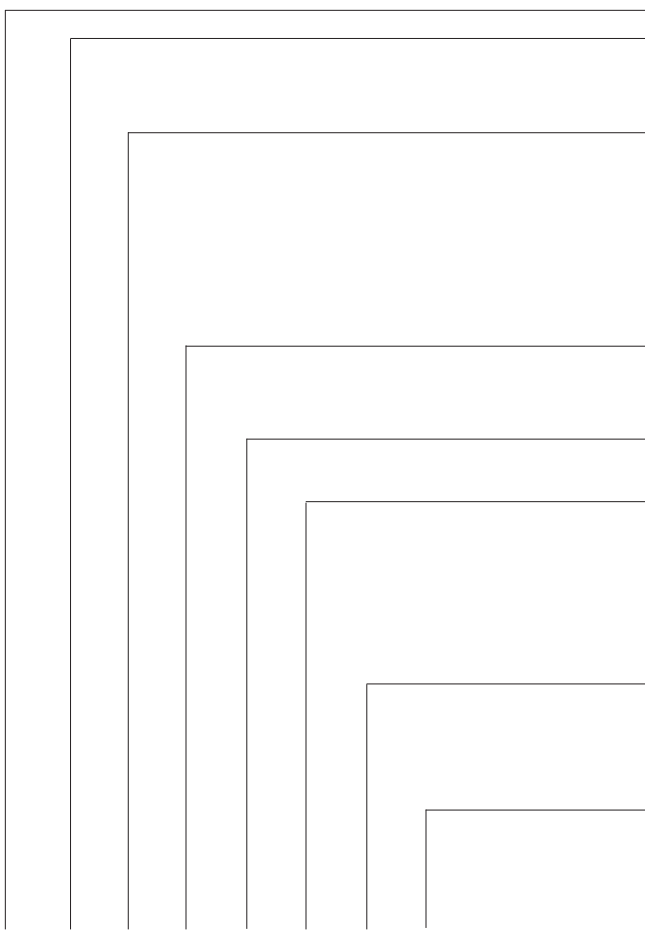
## 8950 Series

### Back Pressure or Pressure Reducing, Overbalanced Valve

**Specifications:**

Size:	1"	2"
Working Pressure:	1500 psig	1500 psig
Temperature:	-20°F to +180°F; available to +240°F	
Topworks:	Pressed steel with nylon reinforced nitrile diaphragm. 50 psig maximum supply pressure.	
Effective Area:	45 sq. in.	62 sq. in.
C <sub>v</sub> Factor :	18	48
Trim:		
Seat:	Stainless steel, removable.	
Plug:	Steel with molded nitrile standard; optional fabricated acetal, polyurethane or TFE inserts.	
Material:		
Body:	Cast steel standard, available in 316L stainless steel (2" size)	
Stem:	Stainless steel	
Packing:	Poly Pak	
Packing Block:	Stainless steel	

**Ordering Chart:**



**8950 Series: Overbalanced control pressure valve**

**Size:**

- 1 - 1"
- 2 - 2"

**Connection:**

- 1 - Threaded
- 3 - Flanged specify type\*
- 4 - Beveled for weld
- 6 - 2" threaded 316L ss (CF8M)
- 8 - 2" flanged 316L ss (CF8M)
- 9 - 2" beveled for weld, 316L ss (CF8M)

**Type:**

- 3 - Back pressure
- 4 - Pressure reducing

**Trim Seat:**

- 1 - Removable, stainless steel

**Trim Plug:**

- 1 - Steel with molded nitrile
- 2 - Acetal (insert)
- 3 - Polyurethane (insert)
- 4 - TFE (glass filled - insert)
- 5 - Options (*see common options list*)

**Other:**

- 1 - No visual indicator
- 2 - Visual indicator
- 5 - Options (*see common options list*)

**Option Number:**

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

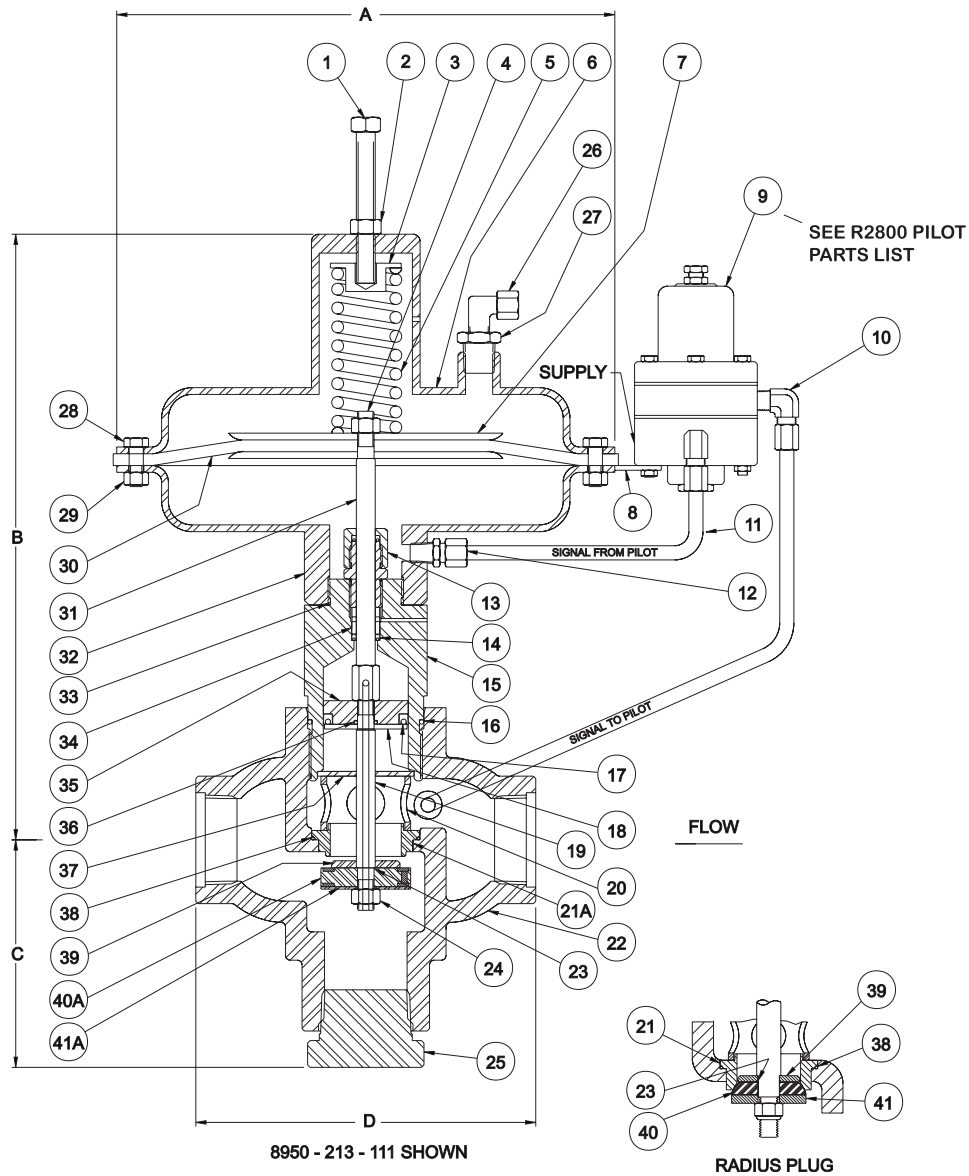
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**Example: 8950-213-121**

\*flanged models available in 150# to 1,500# RF or RTJ.  
 Specify pressure required.  
 Maximum controlled pressure with 2800 Series Pilot is 350#.  
 Higher pressures available with alternate Pilots.

## 8950 Series

### Back Pressure, Overbalanced Valve



### Flanged Models

Flange	Face to Face	W.P. @ 100° F
1" 150# RF or RTJ	6 3/4"	275 psig
1" 300# RF or RTJ	6 3/4"	720 psig
1" 600# RF or RTJ	6 3/4"	1440 psig
1" 900# RF or RTJ	7 1/4"	1500 psig
1" 1500# RF or RTJ	7 1/4"	1500 psig
2" 150# RF or RTJ	9 5/8"	275 psig
2" 300# RF or RTJ	10 1/4"	720 psig
2" 600# RF or RTJ	10 3/8"	1440 psig
2" 900# RF or RTJ	12"	1500 psig
2" 1500# RF or RTJ	12"	1500 psig

### Dimensions

Size	1"	2"
A	10 1/2"	13 1/16"
B	11 1/8"	15 1/2"
C	3 1/8"	6 1/8"
D	6 1/4"	9"

Special Face to Face available on flanged and beveled connections.

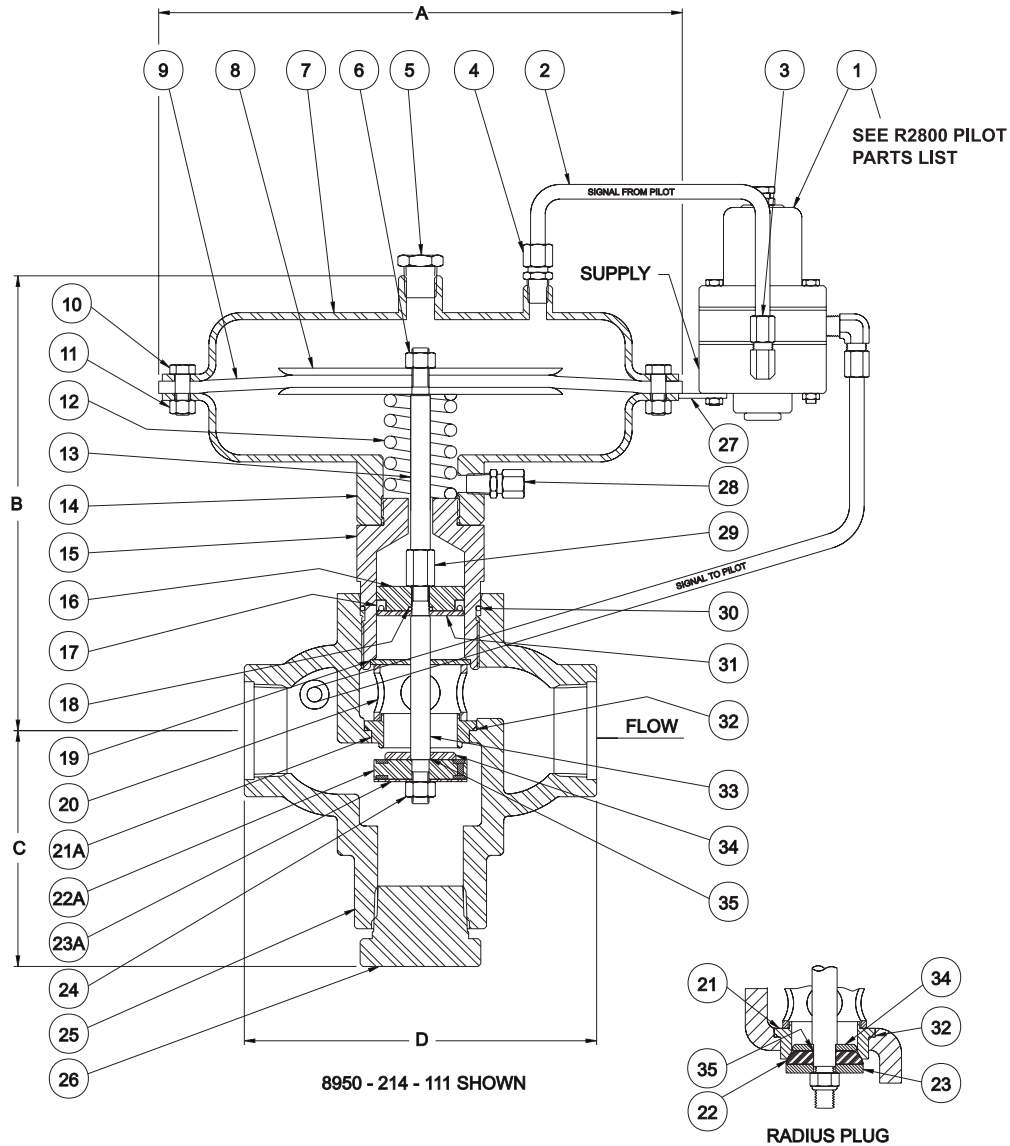
**8950 Series**  
Back Pressure, Overbalanced Valve

Model Item	1" Part #	2" Part #	Description	Material	Qty
1	10210	10213	Adjustment Screw	Plated	1
2	10177	10182	Jam Nut	Plated	1
3	20628	20602	Spring Retainer	Carbon Steel	1
4	10172	10172	Lock Nut	Plated	1
5	10075	10043	Spring	Oil Tempered Steel	1
6	30045	30051	Upper Diaphragm Housing	Fabricated Carbon Steel	1
7	20696	20696	Diaphragm Plate	Cold Rolled Carbon Steel Plate	2
8	20888	20888	Bracket	Carbon Steel	1
9	30222	30222	Pilot Assembly	See R2800 Parts List	1
10	11000	11000	Tubing Elbow	Plated	3
11	18365	18365	Tubing	316 ss	1
12	11001	11001	Tubing Fitting	Plated	1
13	21669	21669	Packing Gland Assembly	Brass/Nitrile	1
14	10156	10156	Packing	Molythane	1
15	30060	30063	Packing Housing	303 ss	1
16	10149	10140	O-Ring	Nitrile	1
17	10158	10164	Packing	Molythane	1
18	20322	20340	Packing Retainer	Brass	1
19	20321	20339	Lower Stem	303 ss	1
20	20712	20666	Cage	Carbon Steel	1
21	20514	20331	Seat (Radius Plug)	303 ss	1
21A	20699	20330	Seat (Molded Plug)	303 ss	1
22	See Chart Below		Body	Cast Steel	1
23	10111	10111	O-Ring	Nitrile	1
24	10181	10181	Lock Nut	18-8 ss	1
25	10224	10225	Pipe Plug	Carbon Steel	1
26	23339	23339	Vent Assembly	Plated	1
27	10748	10748	Bushing	Plated	1
28	10207	10207	Cap Screw	Plated	12
28		10207	Cap Screw	Plated	16
29	10175		Hex Nut	Plated	12
29		10175	Hex Nut	Plated	16
30	10094	10028	Diaphragm	Nylon Reinforced Nitrile	1
31	20472	20342	Upper Stem	303 ss	1
32	30056	30052	Lower Diaphragm Housing	Fabricated Carbon Steel	1
33	10149	10149	O-Ring	Nitrile	1
34	20324	20343	Packing Spacer	Brass	1
35	20323	20341	Piston	Brass	1
36	10121	10121	O-Ring	Nitrile	1
37	20713	10367	Travel Stop	Carbon Steel	1
38	10134	10132	O-Ring	Nitrile	1
39	20471	20338	Throttling Plug	303 ss	1
40	21599	20329	Plug	Polyurethane, Radius	1
	21718	21150	Plug	Acetal, Radius	1
		23747	Plug	Glass Filled TFE, Radius	1
40A	20710	20326	Plug	Molded Nitrile	1
41	20719	20325	Plug Backup Plate	303 ss	1
41A	20711		Plug Backup Plate (Nitrile Plug)	303 ss	1
		20327	Plug Backup Plate (Nitrile Plug)	Carbon Steel	1
	10016	10016	Name Plate (not shown)	18-8 ss	1
	10324	10324	Drive Screw (not shown)	18-8 ss	2

Body Chart	Description
30122	40063 ..... NPT Threaded
40465	41426 ..... Flanged, 150# RF
40121	40137 ..... Flanged, 300# RF
40124	40140 ..... Flanged, 600# RF
40130	40146 ..... Flanged, 600# RTJ
40127	40143 ..... Flanged, 1500# RF
40133	40149 ..... Flanged, 1500# RTJ

*Other Flange Options Available, Contact Pathway.*

## 8950 Series Pressure Reducing Valve



### Flanged Models

Flange	Face to Face	W.P. @ 100° F
1" 150# RF or RTJ	6 3/4"	275 psig
2" 150# RF or RTJ	9 5/8"	275 psig
1" 300# RF or RTJ	6 3/4"	720 psig
2" 300# RF or RTJ	10 1/4"	720 psig
1" 600# RF or RTJ	6 3/4"	1440 psig
2" 600# RF or RTJ	10 3/8"	1440 psig
1" 900# RF or RTJ	7 1/4"	1500 psig
2" 900# RF or RTJ	12"	1500 psig
1" 1500# RF or RTJ	7 1/4"	1500 psig
2" 1500# RF or RTJ	12"	1500 psig

### Dimensions

Size	1"	2"
A	10 1/2"	13 1/16"
B	11 7/8"	12 1/2"
C	3 1/8"	5 1/16"
D	6 1/4"	9"

Special Face to Face available on flanged and beveled connections.

**8950 Series**  
**Pressure Reducing Valve**

Model 1"	2"				
Item	Part #	Part #	Description	Material	Qty
1	30222	30222	Pilot Assembly	See R2800 Parts List	1
2	18365	18365	Tubing	304 ss	1
3	11000	11000	Tubing Elbow	Plated	3
4	11001	11001	Tubing Fitting	Plated	1
5	10346	10346	Plug	Plated	1
6	10172	10172	Lock Nut	Plated	1
7	30049	30101	Upper Diaphragm Housing	Fabricated Carbon Steel	1
8	20696	20696	Diaphragm Plate	Cold Rolled Carbon Steel Plate	2
9	10094	10028	Diaphragm	Nylon Reinforced Nitrile	1
10	10207		Cap Screw	Plated	12
		10207	Cap Screw	Plated	16
11	10175		Hex Nut	Plated	12
		10175	Hex Nut	Plated	16
12	10074	10043	Spring	Oil Tempered Steel	1
13	20717	20328	Upper Stem	303 ss	1
14	30056	30052	Lower Diaphragm Housing	Fabricated Carbon Steel	1
15	30059	30091	Piston Housing	303 ss	1
16	20715	20336	Piston	Brass	1
17	10160	10161	Packing	Molythane	1
18	10121	10121	O-Ring	Nitrile	1
19	20713	10367	Travel Stop	Carbon Steel	1
20	20712	20666	Cage	Carbon Steel	1
21	20514	20331	Seat (Radius Plug)	303 ss	1
21A	20699	20330	Seat (Molded Nitrile Plug)	303 ss	1
22	21599	20329	Plug	Polyurethane, Radius	1
	20718	21150	Plug	Acetal, Radius	1
		23747	Plug	Glass Filled TFE, Radius	1
22A	20710	20326	Plug	Molded Nitrile	1
23	20719	20325	Plug Backup Plate	303 ss	1
23A	20711		Plug Backup Plate (Molded Plug)	303 ss	1
		20327	Plug Backup Plate (Molded Plug)	Carbon Steel	1
24	10181	10181	Lock Nut	18-8 ss	1
25	See Chart Below		Body	Cast Steel	1
26	10224	10225	Plug	Carbon Steel	1
27	20888	20888	Bracket	Carbon Steel	1
28	23338	23338	Vent Assembly	Plated	1
29	20716	20716	Stem Connector	303 ss	1
30	10149	10140	O-Ring	Nitrile	1
31	20714	20337	Piston Retainer	Brass	1
32	10134	10132	O-Ring	Nitrile	1
33	20319	20332	Lower Stem	303 ss	1
34	20471	20338	Throttling Plug	303 ss	1
35	10111	10111	O-Ring	Nitrile	1
	10016	10016	Name Plate (not shown)	18-8 ss	1
	10324	10324	Drive Screw (not shown)	18-8 ss	2

Body Chart	Description	
30123	40135	NPT Threaded
40466	44322	Flanged, 150# RF
40122	44322	Flanged, 300# RF
40125	40141	Flanged, 600# RF
40131	41047	Flanged, 600# RTJ
40128	41044	Flanged, 1500# RF
40134	40150	Flanged, 1500# RTJ

*Other Flange Options Available, Contact Pathway*

## R2800 Series Pressure Pilot

### Application:

The output from this pressure pilot can be used to throttle control valves to maintain a constant field adjustable pressure setting. The 2800 Series are used with both back pressure valves and pressure reducing valves. The pilot will control pressure on separators, vessels, flow lines or any location where the pressure must be maintained at a constant level.

### Operation:

The signal pressure is applied to two opposing diaphragms. The upper diaphragm is larger than the lower diaphragm. As a result, signal pressure tries to move the diaphragm assembly up. Adjustable spring tension opposes this movement.

The diaphragm assembly moves upward when the pressure is sufficient to overcome this spring tension. This closes the supply and opens the output port to exhaust. The opposite occurs when signal pressure decreases. The diaphragm assembly moves downward closing the exhaust, then opening the supply valve. This combination creates a throttling action that maintains a desired output for the pressure setting required. Output from 0 to full supply pressure is proportional-to-signal pressure.

The 2800 Series is a non-bleed, reverse acting type pilot.





## R2800 Series Pressure Pilot

### Specifications:

#### Pressure:

<i>Signal:</i>	25 psig to 350 psig maximum, liquid or gas
<i>Supply:</i>	5 to 50 psi, air or gas
<i>Output:</i>	0 to full supply

**Temperature:** -20°F to +180°F; available to 240°F

#### Material:

<i>Body:</i>	Center housing: aluminum (available in stainless steel)
	Lower housing: aluminum
	Spring housing: cast iron

*Plug:* Stainless steel

*Seat:* Stainless steel

*Diaphragm:* Nylon reinforced nitrile (available in fluorocarbon)

**Connections:** All 1/4" NPT

### Ordering Chart:

R2800 Series: Pressure pilot

#### Type:

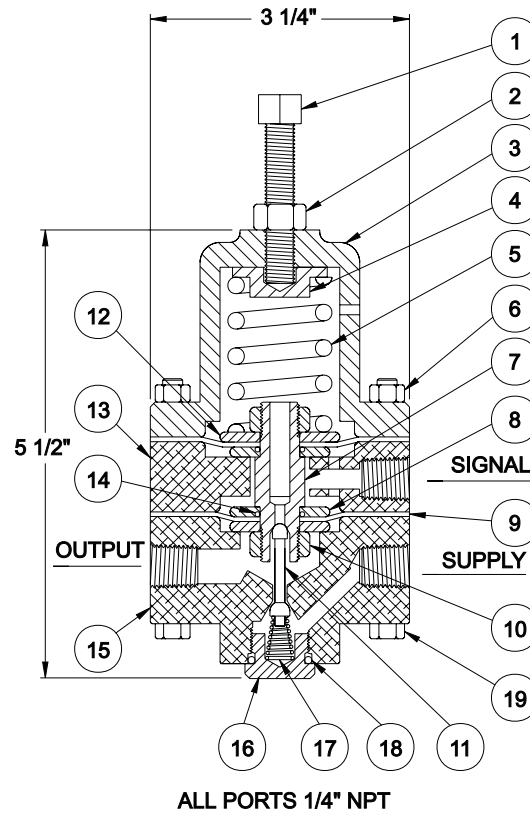
- 01 - Standard
- 05 - Options (*see common options list*)

#### Option Number:

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

R2800-  ( )  
Example: R2800-01

## R2800 Series Pressure Pilot



Model Item	R2800 Part #	Pressure Actuated Pilot Description	Material	Qty
1	10209	Adjustment Screw	Plated	1
2	10177	Jam Nut	Plated	1
3	20352	Spring Housing	Cast Iron	1
4	20673	Spring Retainer	Carbon Steel	1
5	10067	Spring	316 ss	1
6	10200	Cap Screw	Plated	5
7	20669	Upper Seat	303 ss	1
8	20672	Small Diaphragm Plate	303 ss	3
9	10102	Diaphragm	Nylon Reinforced Nitrile	2
10	10183	Jam Nut	18-8 ss	2
11	20649	Plug	303 ss	1
12	20671	Large Diaphragm Plate	Carbon Steel	1
13	20351	Spacer Ring	Aluminum	1
14	10114	O-Ring	Nitrile	2
15	20350	Body	Aluminum	1
16	20670	Plug	Brass	1
17	10068	Spring	316 ss	1
18	10124	O-Ring	Nitrile	1
19	10168	Hex Nut	Plated	7
20	10329	Cap Screw (not shown)	Plated	1