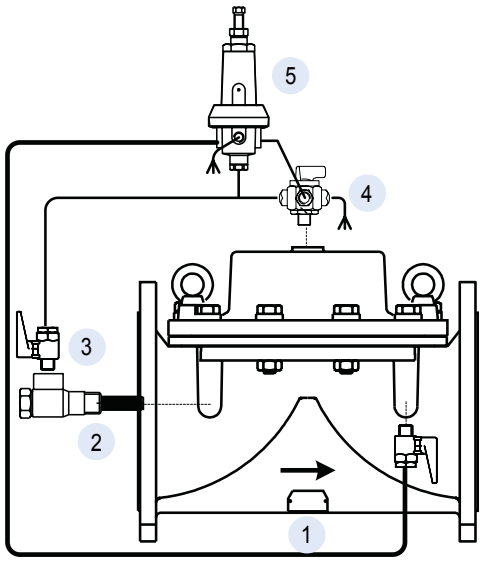
PR Pressure Reducing Valve - code 4653.PR.04-15



Description

The valve maintains a preset downstream pressure, regardless of upstream pressure or flow rate fluctuation.
The main valve is controlled by either a 3-way pilot valve (allowing full opening when upstream pressure drops below the pressure set-point), or by a 2-way pilot valve (creating a minimal differential in open position).

Features

- Accurate, stable control from no-flow to full flow
- Simple and reliable design
- Exceptionally low losses at high flow
- WRAS Approval no. 04251

Purchase Specifications

The valve will be hydraulic, direct sealing diaphragm type, which allows inline maintenance. No stem, shaft or guide bearing will be located within the water passage.
The valve will be activated by the line pressure or by an external hydraulic or pneumatic pressure. The valve will be operated by a pressure reducing pilot valve to achieve constant outlet pressure, regardless of upstream pressure or flow variations

Quick Sizing

- Valve size same as line or one size smaller
- Maximum flow speed for continuous operation 5.5 m/sec (18 ft/sec)

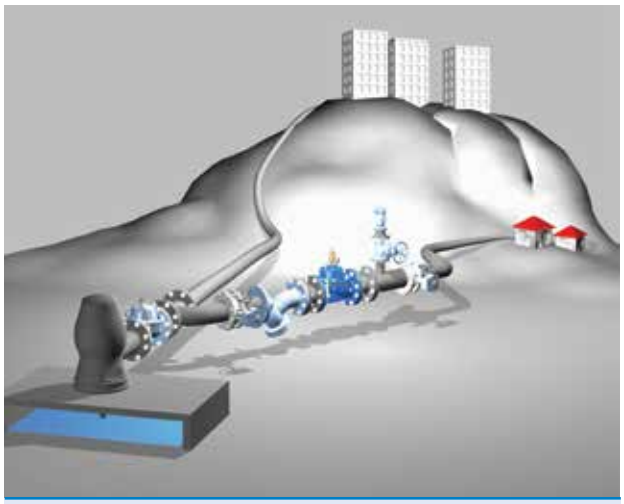
Design Considerations

- The valve should be suited for the maximal flow and allowed headloss
- In case upstream pressure may drop to the required set pressure, select 3-way control pilot
- Large pressure differentials may cause cavitation damage. Consult for solutions if such conditions are expected

Optional Control System Components:

1. Main Valve
2. Self-flushing filter
3. Cock valve*
4. Manual over-ride selector valve*
5. 3-way pilot valve (other types are optional)

* Optional component

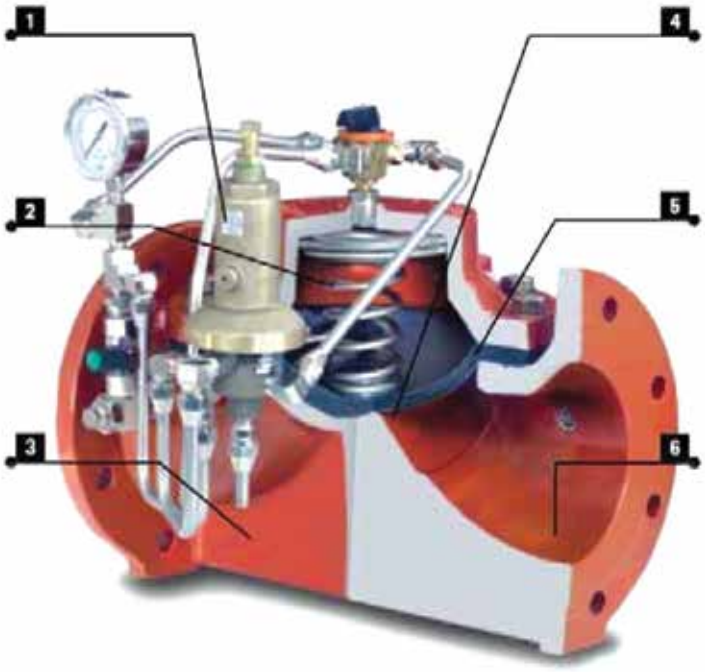


Typical Application

Pressure Reducing Valve reduces varying supply pressure to a stabilized downstream pressure.

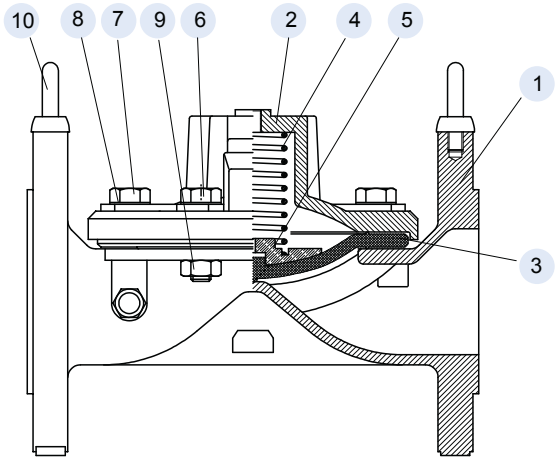
L mm	DN	code
170	1"½ BSP	4653.PR.04
200	50	4653.PR.05
214	65	4653.PR.06
285	80	4653.PR.08
305	100	4653.PR.10
365	125	4653.PR.12
390	150	4653.PR.15

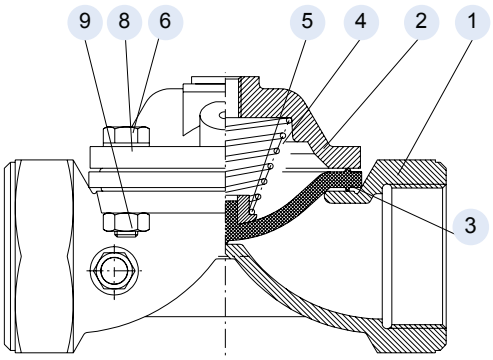
Main Components

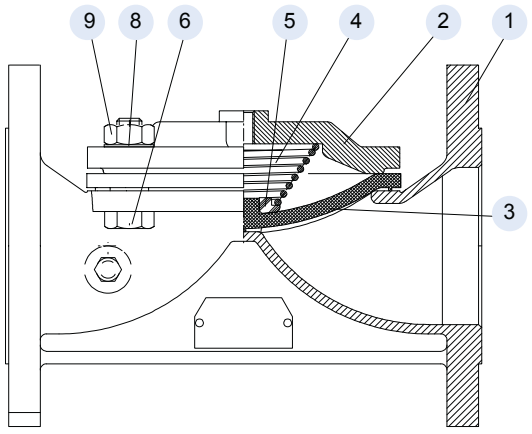


Components

Component No.	Description
1	Body
2	Bonnet
3	Diaphragm
4	Spring
5	Spring Disc
6	Bolt
7	Short Bolt
8	Washer
9	Nut
10	Suspension Ring (Hook)



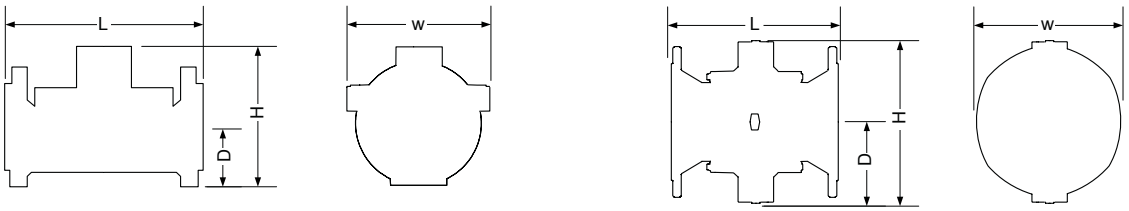




Dimensions and Weights

Straight Flow, Flanged Connection - Standard Models 16 Bar / 250 psi

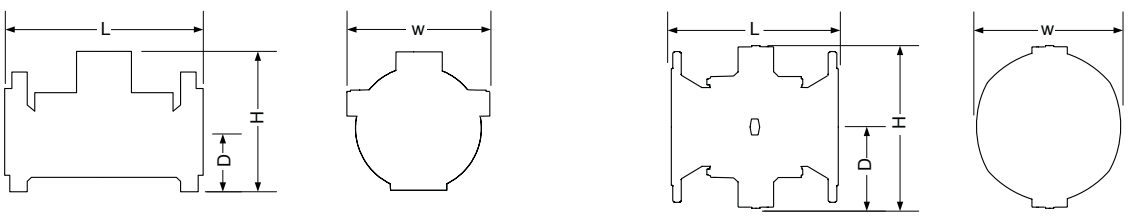
Valve Size		L		H		D		W		Weight					
										Cast Iron		Duct. Iron		Bronze	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs	kg	lbs	kg	lbs
40	1 1/2	186	7.32	153	6.02	76.5	3.01	76.5	3.01	5.8	13	6.2	14	6.5	14.3
50	2	200	7.87	166	6.54	85	3.35	166	6.54	7.2	15.8	7.7	17	8	17.6
65	2 1/2	214	8.43	185	7.28	92.5	3.64	185	7.28	10.3	22.7	10.3	22.7		
80R	3R	200	7.87	202	7.95	105	4.13	200	7.87	11	24.3	11.8	26		
80	3	285	11.22	200	7.87	105	4.13	200	7.87	17	37.5	18.2	40.1	19	42
100	4	305	12.01	230	9.06	110	4.33	230	9.06	22	48.5	24	53	24	53
150	6	390	15.35	314	12.36	145	5.71	300	11.8	46	101	49	108	51	112
200R	8R	385	15.16	350	13.78	170	6.69	365	14.4	50	110	54	119		
200	8	460	18.11	400	15.75	170	6.69	365	14.4	80	176	86	190	89	196
250	10	535	21.06	445	17.52	205	8.07	440	17.3	117	258	125	276	131	289
300	12	580	22.83	495	19.49	240	9.45	490	19.3	156	344	167	368	147	324
350	14	580	22.83	495	19.49	270	10.6	530	20.9	182	401	172	379	180	397



Straight Flow, Flanged Connection - High Pressure Models 25 Bar / 360 psi

Valve Size		L		H		D		W		Weight	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
50	2	228	8.98	169	6.65	85	3.35	175	6.9	10	22
50TH	2TH	250	8.98	120	6.65	42	1.65	175	6.9	6	13
65	2 1/2	233	9.18	185	7.28	92.5	3.64	185	7.28	14.5	32
80	3	310	12.2	237	9.33	105	4.13	200	7.87	30	66.1
100	4	356	14.02	263	10.35	120	4.72	260	10.24	38	83.8
150	6	436	17.17	378	14.88	150	5.91	320	12.6	75	165.3
200	8	530	20.87	481	18.94	180	7.09	400	15.75	123	271
250	10	636	25.04	546	21.5	215	8.46	495	19.49	190	419
400	16	709	27.91	830	32.68	310	12.2	830	32.68	433	955
450	18	715	28.15	830	32.68	340	13.39	830	32.68	460	1014
500	20	900	35.43	970	38.19	490	19.29	980	38.58	674	1486
600	24	900	35.43	970	38.19	490	19.29	980	38.58	696	1534

* TH = Threaded

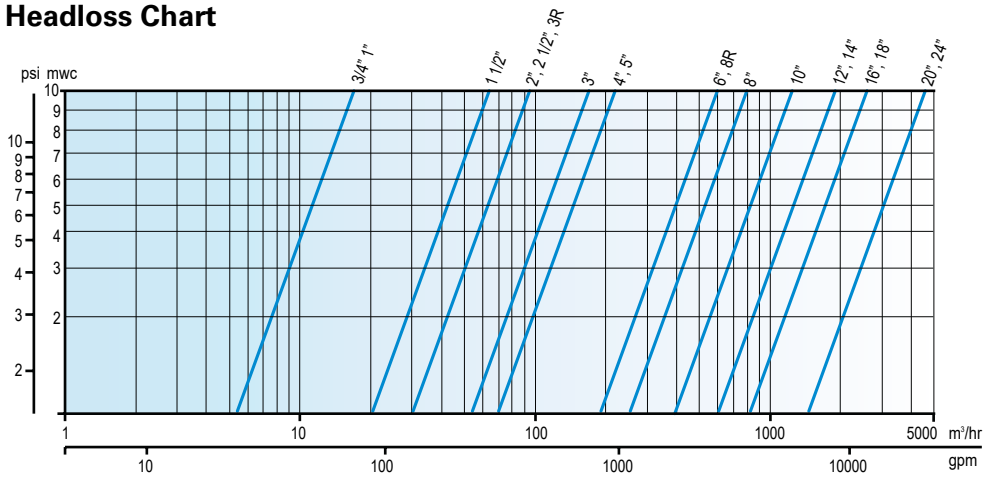
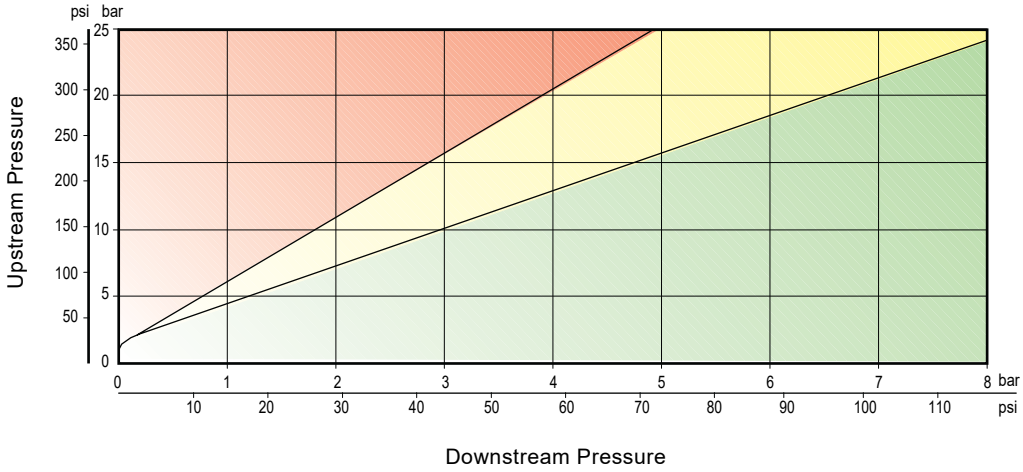


Valve Size	mm	20	25	40	50	65	80R	80	100	150	200R	200	250	300	350	400	450	500	600
	inch	3/4	1	1 1/2	2	2 1/2	3R	3	4	6	8R	8	10	12	14	16	18	20	24
Max. Flow Continuance	m³/hr	6	10	25	40	40	40	100	160	350	350	620	970	1400	1400	2500	2500	3890	5500
	gpm	26.4	44	110	176	176	176	440	700	1540	1540	2730	4268	6160	6160	11000	11000	17116	24200
Max. Flow Intermittent	m³/hr	16	27	68	109	109	109	245	273	955	955	1309	2645	3818	3818	6818	6818	10609	10609
	gpm	72	120	300	480	480	480	1080	1200	4200	4200	5760	11640	16800	16800	30000	30000	46680	46680
Minimal Flow	m³/hr	< 1																	
	gpm	< 5																	
Kv	m³/hr @ 1 bar	17	17	64	95	95	95	170	220	600	670	800	1250	1900	1900	2600	2600	4600	4600
Cv	gpm @ 1 psi	20	20	75	110	110	110	200	260	700	780	930	1460	2220	2220	3030	3030	5370	5370
Kv*	m³/hr @ 1 bar	-	-	-	78	-	-	120	200	550	-	800	1300	-	-	2600	2600	4600	4600
Cv*	gpm @ 1 psi	-	-	-	91	-	-	140	230	640	-	930	1520	-	-	3030	3030	5370	5370

* High pressure models

$$\Delta P_{(Bar)} = \left(\frac{Q[\frac{m^3}{hr}]}{Kv}\right)^2 \qquad \Delta P_{(Psi)} = \left(\frac{Q[gpm]}{Cv}\right)^2$$

Headloss Chart



Cavitation Data