

Automatic Control Valve

Pressure Reducing Valve

model: IV-ACV-1001



Description of Pressure Reducing Valve

Pressure Reducing Valve controls and maintains a preset reduced outlet pressure despite varying inlet pressures.

Downstream pressure setting is always below upstream pressure.

The outlet pressure can be adjusted at any time by removing the tamperproof cover on the pilot valve and rotating the hexagon screw. Turn clockwise to increase the pressure.

- Accurate downstream pressure characteristics
- Compact, with no large springs
- Controllable, ancillary pilot valves control main valve

Two factory fitted pressure gauges are supplied with each PRV, which indicate the supply and outlet pressure. Gauge isolating valves are provided for extra security and maintenance.

A strainer should be installed upstream of the Pressure Reducing Valve. Upstream and downstream Servicing valves (Gate Valve) are strongly recommended to avoid draining for maintenance.

Applications

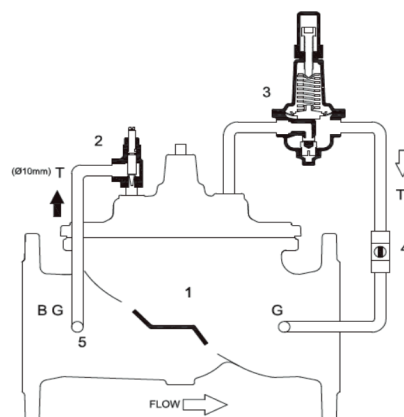
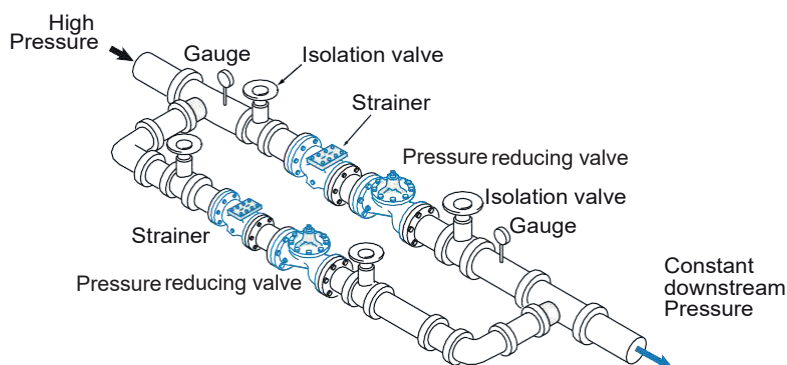
- Reducing excessive mains pressure
- Controlling pump outlet pressure
- Pressure regulation per floor
- Water conservation



model: IV-ACV-1001

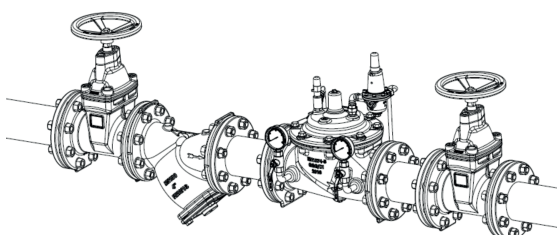
Installation

- Confirm the flow direction of pipeline must meet the arrow of Pressure Reducing Valve.
- Enough space for adjustments and disassembly.
- Install the isolation valves in both inlet and outlet of Pressure Reducing Valve.
- Install the strainer before Pressure Reducing Valve.
- better function if the valve is installed horizontally.
- After installation, clean the pipeline and strainer.

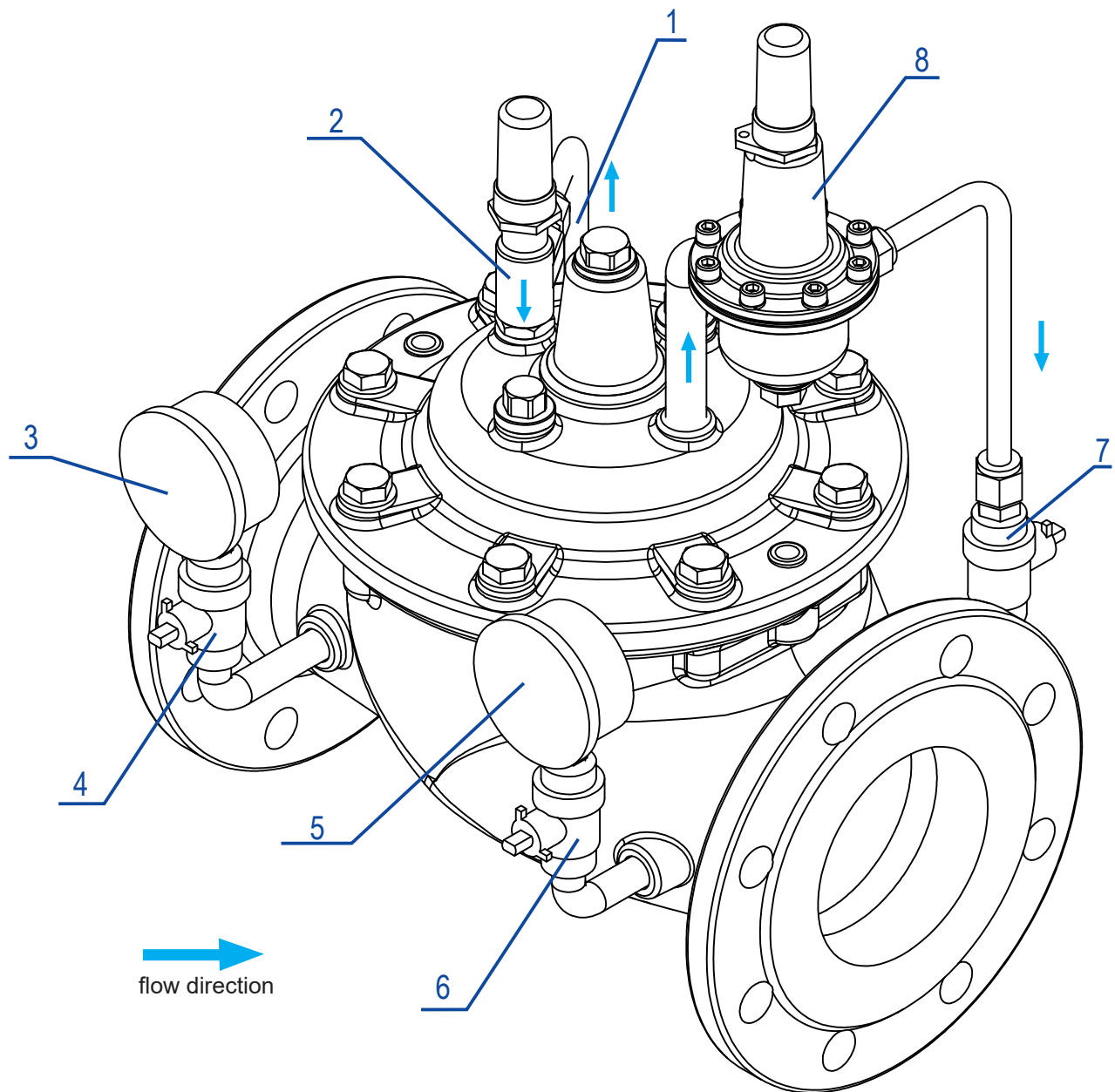


General parts

- Main valve
- Throttle
- Needle valve
- Pressure reducing
- pilot valve
- Ball valve
- Filiter



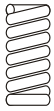
Hydraulic circuit



Item	Description	Material
1	Y-STRAINER	STAINLESS STEEL 304
2	NEEDLE VALVE	STAINLESS STEEL 304
3	PRESSURE GAUGE	STAINLESS STEEL 304
4	2-WAY BALL VALVE	STAINLESS STEEL 304
5	PRESSURE GAUGE	STAINLESS STEEL 304
6	2-WAY BALL VALVE	STAINLESS STEEL 304
7	2-WAY BALL VALVE	STAINLESS STEEL 304
8	PRESSURE REDUCING PILOT type P.200	STAINLESS STEEL 304

Pressure Reducing Pilot

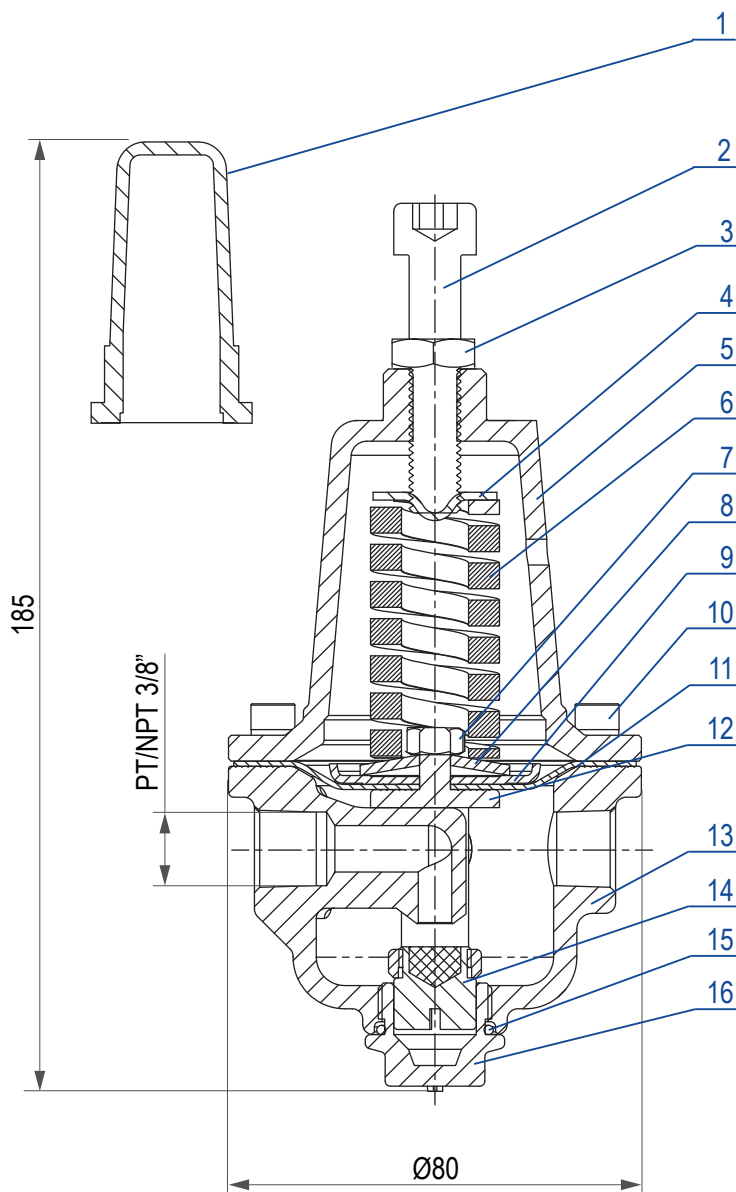
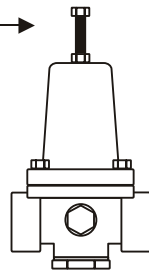
P.200



Pilot Regulation Ranges:

- standard: 2,0 ÷ 11,0 bar

Adjustment screw



No.	Parts name	Material
1	Cap	ABS
2	Adjusting screw	Stainless steel
3	Jam nut	Stainless steel
4	Spring guide	Stainless steel
5	Bonnet	Stainless steel
6	Spring	Cr-VA
7	Nut	A2
8	Washer	A2
9	Fixing Holder	Stainless steel
10	Screw	A2
11	Diaphragm	NBR+Nylon
12	Yoke	Stainless steel
13	Body	Stainless steel
14	Disc	SUS304+NBR
15	Gasket	PTFE
16	Plug	Stainless steel

Automatic Control Valve

Automatic control valve is a hydraulically operated, diaphragm actuated, globe pattern valve, which consists of three major components: body, cover and diaphragm assembly. Diaphragm assembly is the only moving part. The Valve is designed all internal parts can be replaced without removing the valve from the pipeline. Drop-right



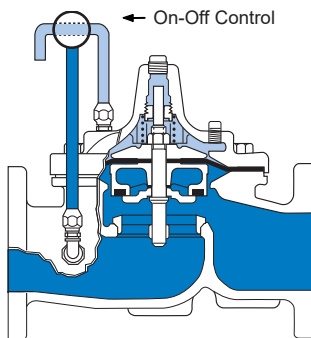
Technical features:

Type:	Globe pattern Automatic Control Valve
Design & Test	EN1074-1&5, EN1349, EN12266-1&2
Sizes:	DN50-600
Working Pressure:	10 bar / 16 bar / 25 bar
Flange Drilling:	EN1092-2 / BS4504 - PN10/16/25 / ASME B16.1/16.42
Temperature rating:	0-80 ° C
Application:	clean water, drinking water
Face To Face:	EN558 Series S1
CV Testing:	ISA 75.02 and EN 1267
Test Pressure:	Pressure Testing to EN 1074-1&5, EN 12266-1&2 Shell Test : 1.5 X PN Seat Test : 1.1 X PN
Sizing:	ISA 75.02 / EN 1267
Coating:	Fusion bonded epoxy coating min 250 microns WRAS approved
Optional Feature:	1. Anti-cavitation 2. Position Indicator

Material Specifications:

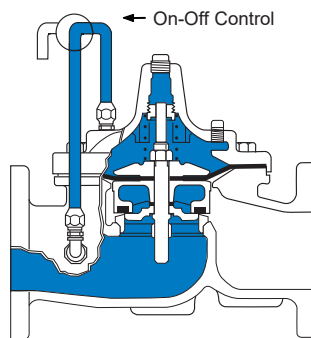
Body, Bonnet	Ductile iron EN1563 ENGJS 500-7
Disc & Diaphragm plate:	Ductile iron EN1563 ENGJS 500-7
Seat Ring	ASTM, A351 / A351M - CF8 / CF8M
Seal Ring & O-Rings:	EPDM
Diaphragm:	EPDM Rubber with Nylon Fiber
Stem:	SS304/SS316/SS316L
Spring	SS304/SS316/SS316L
Bush	Brass/Bronze
Fasteners	A4-70 / A2-70

Principle of Operation



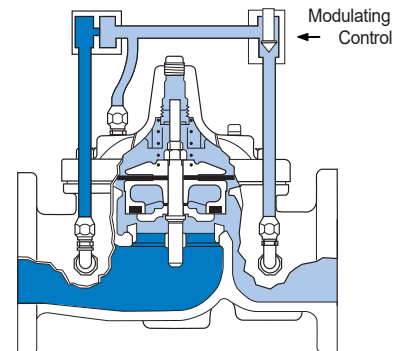
Full Open Operation

When pressure in the cover chamber is relieved to a zone of lower pressure, the line pressure at the valve inlet opens the valve, allowing full flow.



Tight Closing Operation

When pressure from the valve inlet is applied to the cover chamber, the valve closes drip-tight.



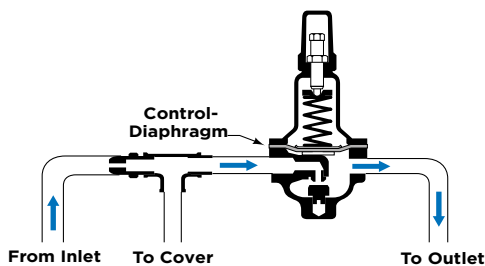
Modulating Action

The valve holds any intermediate position when operating pressures are equal above and below the diaphragm. Pilot Control will allow the valve to automatically compensate for line pressure changes.

Automatic controls by combining varies pilots

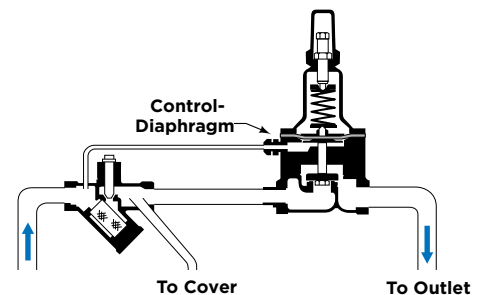
Pressure Reducing

Outlet pressure on control diaphragm causes the main valve to hold a steady outlet pressure.



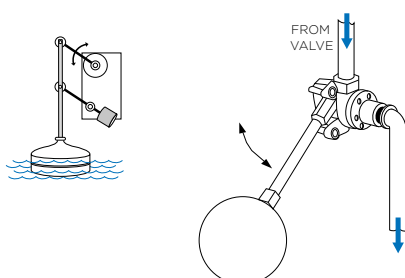
Pressure Relief/Sustaining

Inlet pressure on control diaphragm causes the main valve to hold a steady inlet pressure.



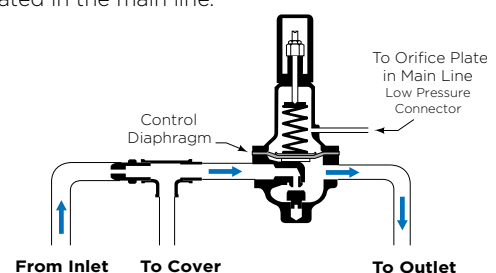
Liquid Level Controller

Slight changes in flow through the float control causes main valve to counteract changes in reservoir level so liquid level is held constant.

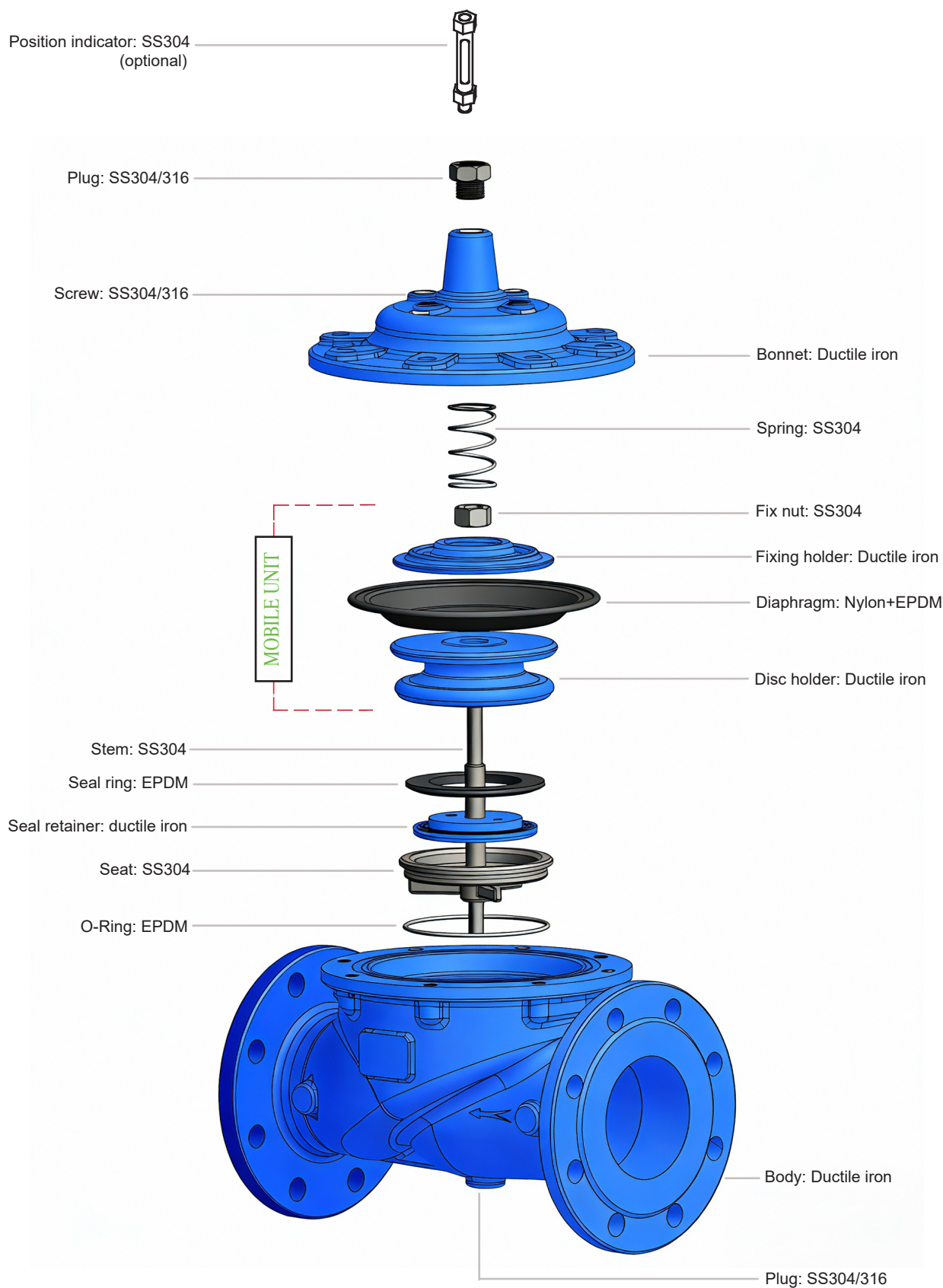


Rate of Flow Controller

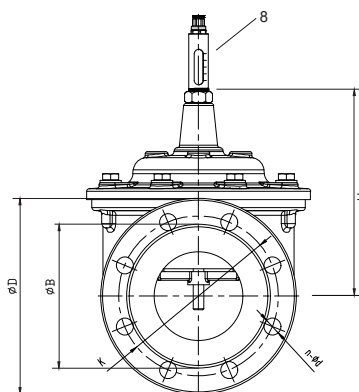
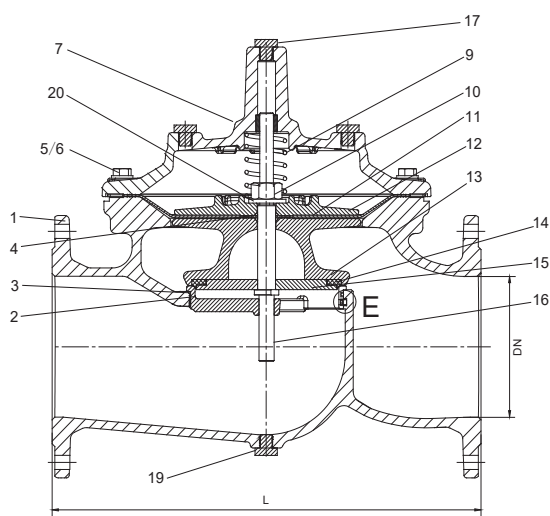
Limits the maximum flow rate by changes to the main valve counteract any slight changes in differential pressure across an orifice plate located in the main line.



Main Valve components



Main Valve DN50-300



E

DN50-150

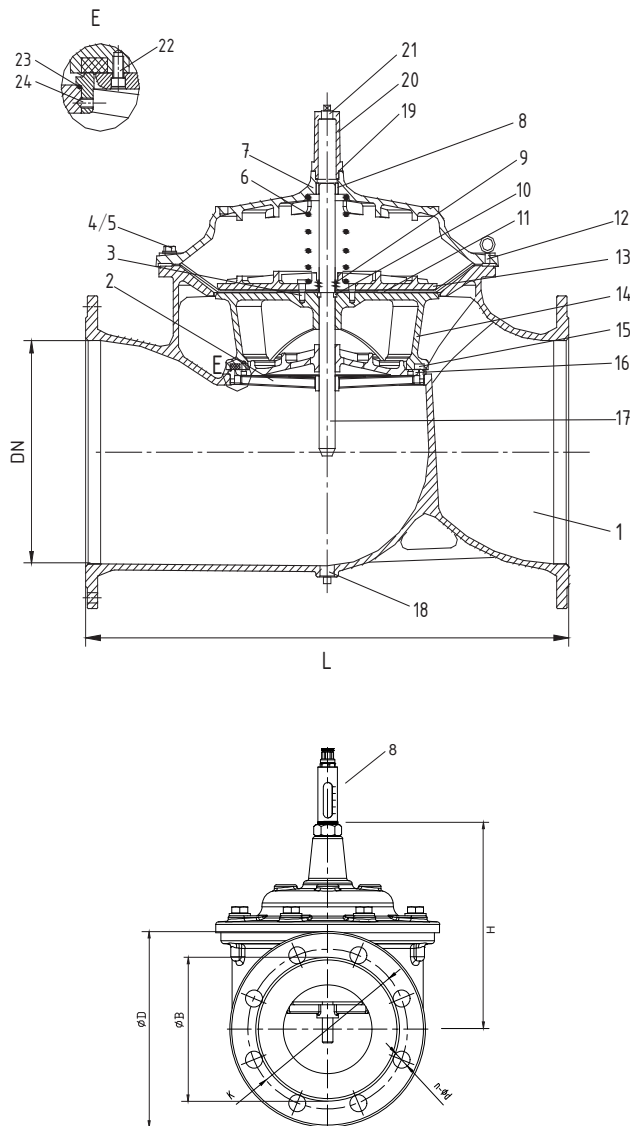
DN200-300



No.	Description	Material	Standard
1	Body	Ductile Iron	GJS 500-7
2	Seat	Stainless Steel	AISI 304/316
3	O-ring	Rubber	NBR
4	O-ring	Rubber	NBR
5	Bolt	Stainless Steel	A2/A4
6	Washer	Stainless Steel	A2/A4
7	Bonnet	Ductile Iron	GJS 500-7
8	Position indicator (optional)	Stainless Steel	C61900
9	Spring	Stainless Steel	AISI 304/316
10	Caulking Nut	Stainless Steel	A4
11	Diaphragm	Nylon Reinforced Rubber	EPDM +Nylon Fabric
12	Fixing holder	Ductile Iron	GJS 500-7
13	Disc Holder	Ductile Iron	GJS 500-7
14	Seal	Rubber	EPDM
15	Seat Retainer	Stainless Steel	AISI 304/316
16	Stem	Stainless Steel	AISI 304/316
17	Plug	Stainless Steel	AISI 304/316
18	Screw	Stainless Steel	A2/A4
19	Plug	Stainless Steel	A2/A4
20	Washer	Stainless Steel	A2/A4

DN	L	H	ØD			ØK			N-Ød			ØB		
			PN10	PN16	PN25	PN10	PN16	PN25	PN10	PN16	PN25	PN10	PN16	PN25
50	230	160	165	165	165	125	125	125	4-Ø19	4-Ø19	4-Ø19	Ø99	Ø99	Ø99
65	290	180	185	185	185	145	145	145	4-Ø19	4-Ø19	8-Ø19	Ø118	Ø118	Ø118
80	310	220	200	200	200	160	160	160	8-Ø19	8-Ø19	8-Ø19	Ø132	Ø132	Ø132
100	350	230	220	220	235	180	180	190	8-Ø19	8-Ø19	8-Ø23	Ø156	Ø156	Ø156
125	400	280	250	250	270	210	210	220	8-Ø19	8-Ø19	8-Ø28	Ø156	Ø156	Ø156
150	480	335	285	285	300	240	240	250	8-Ø23	8-Ø23	8-Ø28	Ø211	Ø211	Ø211
200	600	425	340	340	360	295	295	310	8-Ø23	12-Ø23	12-Ø28	Ø266	Ø266	Ø274
250	730	535	405	405	425	350	355	370	12-Ø23	12-Ø28	12-Ø31	Ø319	Ø319	Ø330
300	850	595	460	460	485	400	410	430	12-Ø23	12-Ø28	16-Ø31	Ø370	Ø370	Ø389

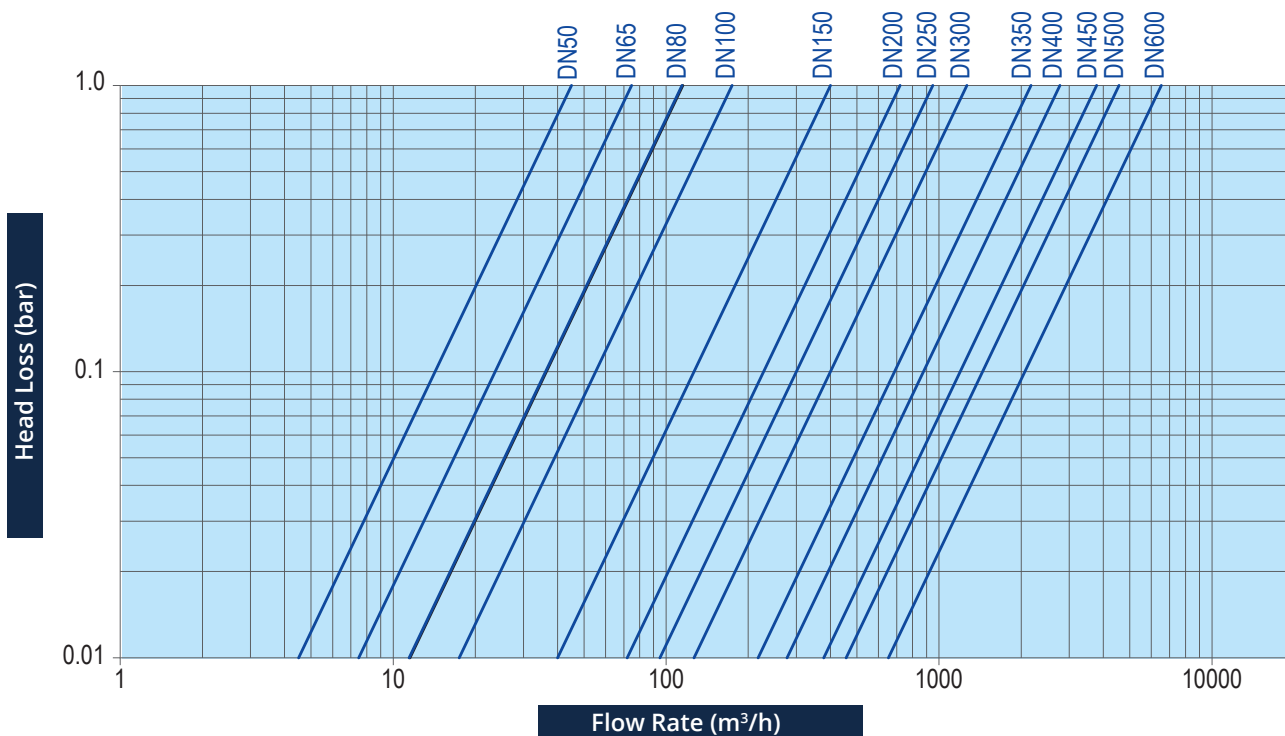
Main Valve DN350-800



No.	Description	Material
1	Body	Ductile iron GJS500-7
2	Seat	AISI 304/316
3	Screw	A2/A4
4	Screw	A2/A4
5	Screw	A2/A4
6	Spring	A2/A4
7	Bonnet	Ductile iron GJS500-7
8	Bush	Position indicator (optional)
9	O-Ring	Rubber NBR/EPDM
10	Fix Washer	Brass
11	Diaphragm	EPDM +Nylon Fabric
12	Lift bolt	A2/A4
13	Fixing holder	Ductile iron GJS500-7
14	Dsic holder	Ductile iron GJS500-7
15	Seal	Rubber NBR
16	Seal retainer	Ductile iron GJS500-7
17	Stem	AISI 304/316
18	Plug	AISI 304/316
19	O-ring	Rubber NBR
20	Cap	Ductile iron GJS500-7
21	Plug	A2/A4
22	Screw	A2/A4
23	O-ring	Rubber NBR
24	Screw	A2/A4

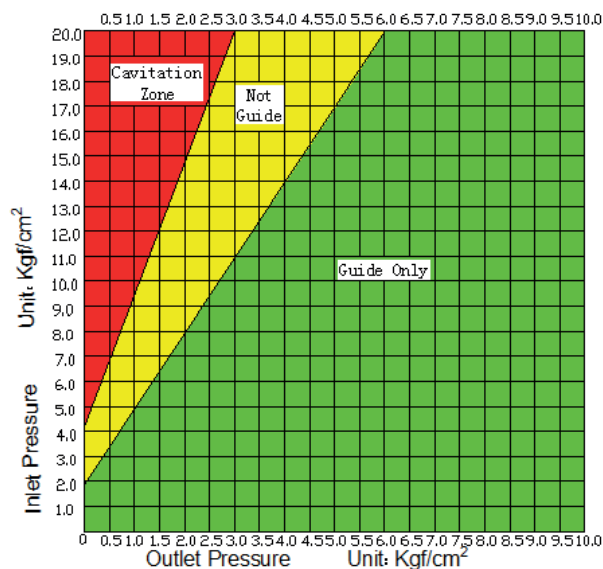
DN	L	H	ØD		ØK		N-Ød		ØB	
			PN10	PN16	PN10	PN16	PN10	PN16	PN10	PN16
350	980	715	520	520	460	470	16-Ø23	16-Ø28	429	429
400	1100	750	580	580	515	525	16-Ø28	16- Ø31	480	480
450	1200	805	640	640	565	585	20-Ø28	20-Ø31	530	548
500	1250	880	715	715	620	650	20-Ø28	20-Ø34	582	609
600	1450	1050	840	840	725	770	20-Ø31	20-Ø37	682	720
700	1650	1100	910	910	840	840	24-Ø31	24-Ø37	682	720
800	1850	1260	1025	1025	950	950	24-Ø34	24-Ø40	901	901

Head Loss Diagram



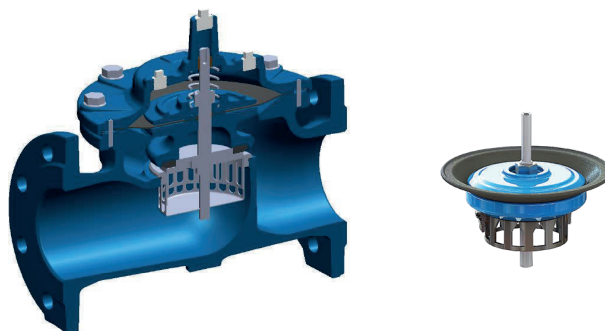
Cavitation Guide Chart

This chart used as a guide to the proper selection of the pressure drop. When pressure drop is too big, velocity of flow across the seat will be very fast, then cavitation occurs, also with shaking and noise. The valve should be used in the green zone to guarantee continue working.



Anti-cavitation solution

The anti-cavitation mold is designed for application where there is a high potential for damage from cavitation, which provides optimum internal pressure control through a unique anti-cavitation trim design. Relieving the damage of cavitation with multi stage pressure reducing.



Trouble shooting

Issues	No.	Probable Cause	Solution
Main valve fails to open	1	No pressure at valve inlet	Check inlet pressure
	2	Main valve diaphragm assembly inoperative	Disassemble, clean stem, replace detective parts
	3	Pilot not opening: No spring compression	Tighten adjusting screw
	4	Ball valve in pilot system closed	Open it
	5	Spring guide not in place	Assemble properly
	6	Pilot yoke dragged	Assemble properly
Main valve fails to close	1	Foreign matter between disc and seat,worn disc. Scale on stem or worn diaphragm,	Disassemble main valve, remove matter,clean parts and replace defective parts
	2	Needle valve closed	Open it properly
	3	Pilot remain open:Spring compressed solid,Mechanical obstruction,	Disassemble and remove obstruction
	4	Worn disc	Disassemble and replace
	5	Yoke dragged	Assemble properly
	6	Worn Diaphragm	Disassemble and replace
Fails to regulate	1	Air in main valve cover and/or tubing	Loosen top cover plug or fittings and bleed air
	2	Pilot yoke dragged on inlet nozzle,	Assemble properly
	3	Pilot spring not in correct range to control	Change spring

Automatic Control Valve

Pressure Reducing Valve

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