

Parts					Test
No.	Parts name	Material	Standard	Grade	
1	Cover	Ductile iron	BS 2789	500/7	
2	Spring	Stainless steel	BS 970 - part 1	420S37	
3	Disc	Brass	BS 1400	AB1	
4	Diaphragm	Reinforced Synthetic Rubber	BS 2494	EPDM	
5	Stem	Stainless steel / cast steel	BS 970 - part 1	420S37	
6	Disc	Ductile iron or brass / cast steel	BS 1400 / BS 1769	AB1	
7	Seal	Reinforced Synthetic Rubber	BS 2494	EPDM	
8	Body	Ductile iron	BS 2789	500/7	
9	Seal disc	Gunmetal	BS 1400	LG2	
10	Pilot valve	Brass			

Test					
	Norminal pressure		1.0MPa	1.6MPa	2.5MPa
	Shell pressure		1.5MPa	2.4MPa	3.75MPa
	Seal test pressure		1.1MPa	1.76MPa	2.75MPa
	Maximum inlet pressure		1.0Mpa	1.6MPa	2.5MPa
	Adjustable outlet pressure ranges		0.09 ~ 0.8MPa	0.10 ~ 1.2MPa	0.15~1.6MPa
	Max. Temperature		70°C		
	Suitable medium		water		

Designs	
1	Flange face to face according to ANSI B16.10 / BS 1868 / ISO 5752 - 10
2	Flange drilled according to BS4504 / DIN 2501, PN10 / PN16 / PN25
3	Inspection and test according to BS 6755
4	Internal and external coating by fusion bonded epoxy powder 250 micron thickness

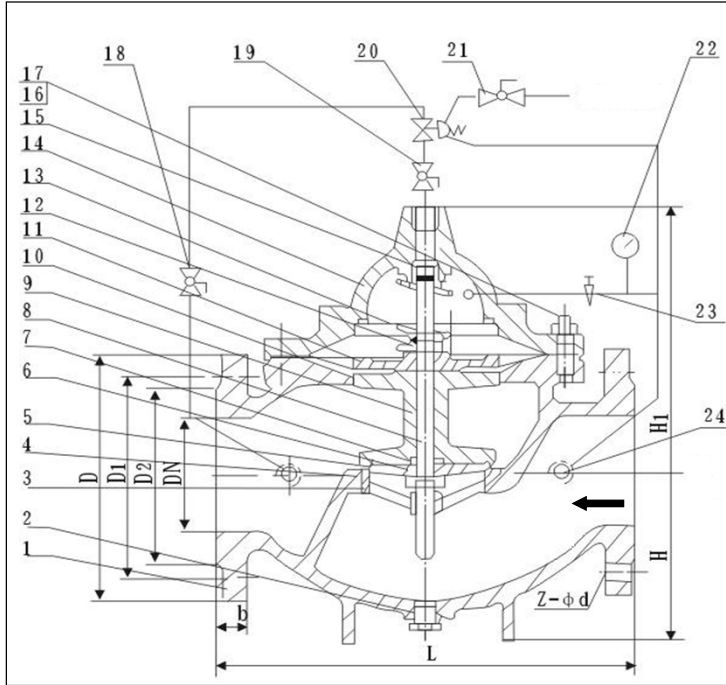
Dimensions			Dimensions of Flange (PN10 / PN16 / PN25)				Unit : mm
DN	L	H	Dia. of flange	Nos. of hole	Dia. of hole	P.C.D.	
			PN10 / PN16 / PN25	PN10 / PN16 / PN25	PN10 / PN16 / PN25	PN10 / PN16 / PN25	
50	205	305	165 / 165 / 165	4 / 4 / 4	18 / 18 / 18	125 / 125 / 125	
65	216	312	185 / 185 / 185	4 / 4 / 8	18 / 18 / 18	145 / 145 / 145	
80	260	354	200 / 200 / 200	8 / 8 / 8	18 / 18 / 18	160 / 160 / 160	
100	292	457	220 / 220 / 235	8 / 8 / 8	18 / 18 / 22	180 / 180 / 190	
125	330	517	250 / 250 / 270	8 / 8 / 8	18 / 18 / 26	210 / 210 / 220	
150	356	575	285 / 285 / 300	8 / 8 / 8	22 / 22 / 26	240 / 240 / 250	
200	500	730	340 / 340 / 360	8 / 12 / 12	22 / 22 / 26	295 / 295 / 310	
250	605	810	395 / 405 / 425	12 / 12 / 12	22 / 26 / 30	350 / 355 / 370	
300	698	1030	445 / 460 / 485	12 / 12 / 16	22 / 26 / 30	400 / 410 / 430	
350	787	1095	505 / 520 / 555	16 / 16 / 16	22 / 26 / 33	460 / 470 / 490	
400	914	1150	565 / 580 / 620	16 / 16 / 16	26 / 30 / 36	515 / 525 / 550	
450	978	1165	615 / 640 / 670	20 / 20 / 20	26 / 30 / 36	565 / 585 / 600	

Operation Principles

The pressure relief valve is installed and connected to the pipe end that to ensure upstream pipe pressure maintaining at desired pressure. The relief valve will be activated to relief water pressure when upper stream pressure is higher than pilot valve (20) preset pressure limit. Until the upper stream water pressure drops below to preset pressure of pilot valve (20), the relief valve will close slowly. As a pressure relief valve the main purpose is to eliminate input flow pressure (**supply**) higher than the output flow pressure (**demand**). Example of application, at initial stage of fire fighting system and water pump's output flow. For pressure sustaining application, relief valve is connected to the pipe. When the upper stream pressure is lower than the preset pressure on pilot valve, the valve disk is at fully closed mode. When pressure at upper stream is higher than pilot valve (20) preset pressure, the disc will be open and supply water to the lower stream. This is to sustain the required water pressure at the upper stream. The application function is applied to low water pressure environment to improve and sustain the required water pressure. In the event of fire fighting, water is over drawn caused low water pressure and with pressure sustaining valve the required water pressure is maintained in the pipe.

Parts

This unit is consist of pressure relief valve as a main valve, pilot valve, needle valve, pressure gauge meter and ball valve. Pilot valve, needle valve, ball valve and pressure gauge meter are connected to the pressure relief valve. Hence it is called pilot control valve system, the detail schematic diagram as below :



1	Body
2	Plug Screw
3	Seat
4	O Ring
5	O Ring
6	O-Ring Seal
7	O Ring
8	Stem
9	Valve Disk
10	Diaphragm
11	Diaphragm Pressing Plate
12	Nut
13	Spring
14	Bonnet
15	Regulated Cover
16	Nut
17	Bolt
18	Ball Valve
19	Ball Valve
20	Relief Pilot Valve
21	Ball Valve
22	Pressure Gauge Meter
23	Needle Valve
24	Strainer

Installation and Tuning

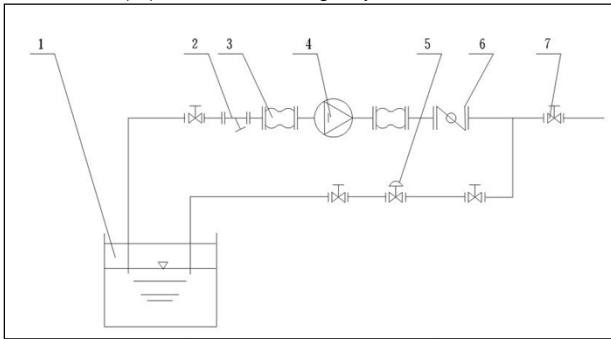
1. The appropriate installation method of pressure relief valve is installed to the same level with pipe and bonnet facing top. It is a must to ensure there is no debris inside the pipe, valve must be installed to the pipe at correct direction according to the arrow marking on valve body. Pressure Relief Valve after installation onto pipe the mechanical strain stress must not exert on valve body and internal valve parts.

2. Install the valves in this sequence : before Pressure Relief Valve is gate valve and Y-strainer; after Pressure Relief Valve install a gate valve for easy maintainance and repair.

3. Please ensure needle valve (23) is fully closed, open half-turn (180°) before tuning. Ball valve (21) is in fully closed mode. Other ball valve is in fully open mode. When performing pressure tuning, loosen the NUT of regulate valve under handwheel. Turn the pilot valve handwheel clock-wise to increase pressure. Turn handwheel counter clock-wise to decrease pressure. Tighted the nut after tuning the required water pressure.

4. The pipe must be clean before use pressure relief valve.

5. The strainer (24) need to be clean regularly .



Pressure relief valve installation Diagram

1	Water Tank
2	Filter
3	Flexible Joint
4	Water pump
5	Pressure Relief Valve
6	Silent check valve
7	Resilient seat gate valve

Maintenance

Pressure reducing valve using water for lubrication purpose, no lubrication oil is needed to lubricate the valve. Please follow below procedure if valve parts damage.
 (Parts that easy to damage : diaphragm and gasket. Metal parts are rarely damage) Firstly, close up the gate valve at the front and back of the pressure reducing valve. Loosen the nut on bonnet top to release pressure inside bonnet. When the pressure become zero, loosen all the screw and nut. Also the brass pipe on the valve. Take out the bonnet and spring gently. Then, take off shaft, diaphragm etc. Beware that do not damage the diaphragm. Visual inspection on these parts, if there is no damages, please do not disassemble these parts. If there are damage on diaphragm or gasket, loosen nut on the shaft and remove them accordingly. Then replace them with new parts. Also inspect the valve inlet for any damages. Then clear up debris inside the valve. Re-assemble the valve parts accordingly.

Troubleshooting List

Defect Cases	Possible causes	Solutions
Pressure Reducing valve unable to reduce pressure	Install valve upside down	Turn over and reinstall
	Main valve diaphragm crack / damage	Replace new diaphragm
	Needle valve in close condition	Open needle valve
	Ball valve in close condition	Open ball valve
	Pilot diaphragm crack / damage	Replace new diaphragm
Pressure Reducing Valve noisy while operating	Debris / object in valve body	Clear out object inside valve body
	Valve disc close rapidly in abnormal speed	Regulate needle valve opening percentages