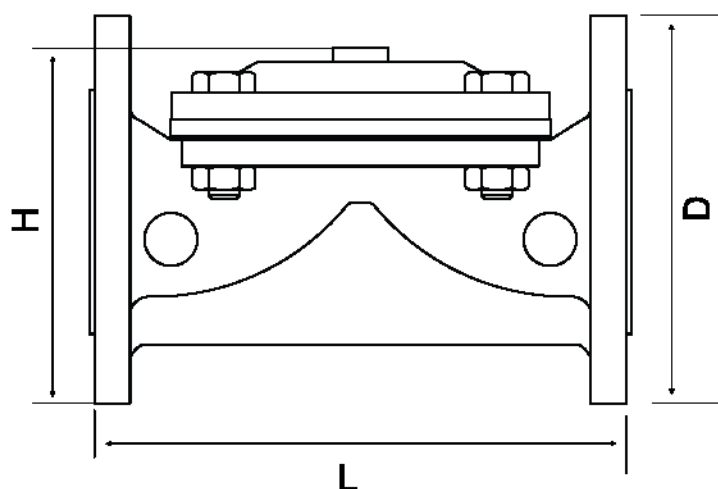




SPS - Main Valve Dimensions



DIN		D		L		H		Weight	
inch	mm	inch	mm	inch	mm	mm	inch	Lbs	kg.
2	50	6,49	165	7,87	200	5,9	150	18,7	8,5
2 1/2	65	7,28	185	8,46	215	6,1	155	22,2	11
3	80	7,87	200	11,4	290	6,7	172	46,2	2,1
4	100	8,66	220	12	305	7	180	51,7	23,5
5	125	9,84	250	14,3	365	7,87	200	61,6	28
6	150	11,2	285	15,7	400	12	305	118,8	54
8	200	13,3	340	19,2	490	15	383	237,6	108
10	250	15,5	395	21	535	17,5	445	290,4	132
12	300	17,5	445	22,8	580	19,6	495	38	175
14	350	20,6	524	25,9	660	20,4	520	462,9	210
16	400	23,4	596	27,1	690	24,6	625	507	230



SPS-PRV Pressure Reducing Valves

DESCRIPTION

SPS "PR" model pressure reducer control valve is the hydraulic control valve which reduces high upstream pressure value into desired lower pressure value by means of built-in pressure reducing pilot valves. Pressure reducer control valve controls downstream pressure value continuously and maintains it constant without being affected from flow rate and upstream pressure values. When no flow exists in the system, it is closer by itself automatically. When valve upstream pressure value decreases below adjusted downstream pressure value, it is opened fully by itself. Valve may be used in vertical and horizontal positions in the system.

SPECIFICATIONS

- **Model:** SPS-PRV
- **Pattern:** Straight
- **Control:** Diaphragm Actuated, Diaphragm Closed
- **Operate:** Pilot
- **Pressure Rate:** 16 bar
- **Body & Bonnet:** Ductile Iron (GGG/40/50)
- **Tubing:** Stainless Steel
- **Pilot&Fittings:** Brass
- **Pressure Gauge:** Glycerine (1 pc.)
- **Diaphragm:** Natural Rubber
- **Coating:** Epoxy
- **Connection:** Flanged (EN 7005-2)



HYDRAULIC PERFORMANCE

Valve	mm	40	50	65	80	80	100	125	150	200	250	300
Size	inch	1½	2	2½	3-2-3	3	4	5	6	8	10	12
Ky	m³/h @ 1 bar	35	50	50	50	130	200	200	450	800	1250	1800
CV	gpm @ 1 psi	45	60	60	60	150	231	231	520	925	1450	2080

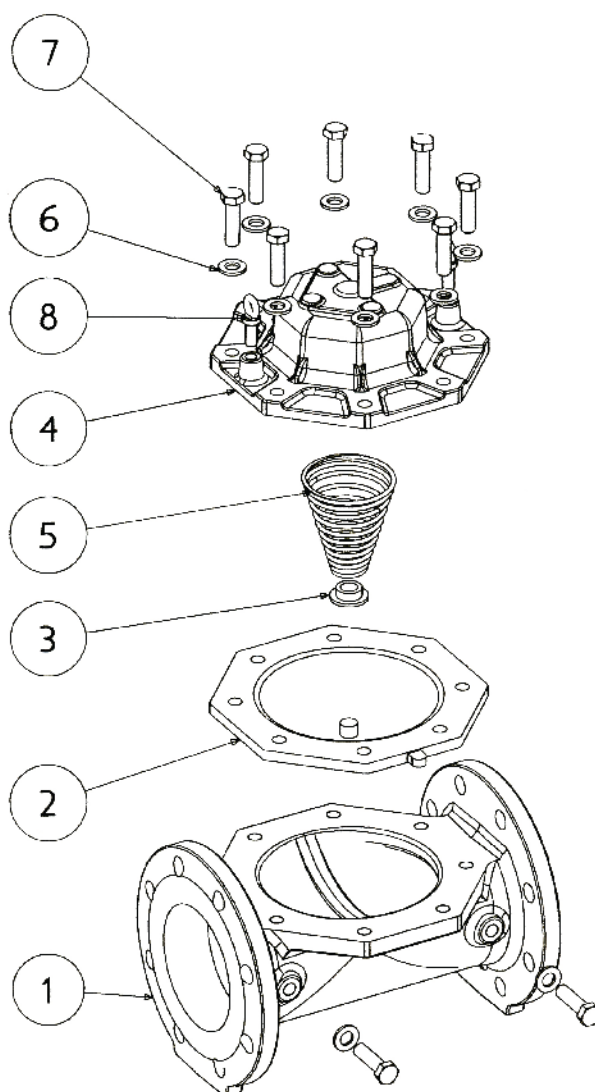
Valve Flow Coefficient

Ky: Valve Flow Coefficient (fluid passing in 1 bar pressure loss in m³/h and 1 bar) Cv: Valve Flow Coefficient (fluid passing in 1 bar pressure loss in gpm and 1 psi)

Valve Size	mm	40	50	65	80	80	100	125	150	200	250	300
	inch	1½	2	2½	3-2-3	3	4	5	6	8	10	12
Maximum Flow Continuance	m³/h	25	40	40	40	100	160	245	350	620	970	1400
	gpm	110	176	176	176	440	700	1078	1540	2730	4268	6160
Maximum Flow Intermittent	m³/h	68	109	109	109	245	273	665	955	1309	2645	3818
	gpm	300	480	480	480	1080	1200	2926	4200	5760	11640	16800



Main Parts and Technical Specification



Main Parts

No.	Part Name	Material
1	Body	GGG50/40
2	Diaphragm	Standard: Nylon reinforced Natural Rubber Optional: EPDM, Nitrile, Neoprene
3	Spring Thrust Ring	Polyamide
4	Cover	GGG50/40
5	Spring	Standard: SST 302 Optional: SST 316
6	Washer	Coated Steel
7	Bolt	Coated Steel
8	Lifting eye-bolt	Coated Steel

- Ductile Iron: DIN EN 1563
- Ductile Iron: GGG50/40
- Pressure: PN 16
- Coating: Epoxy powder inside and outside 250-300 micron



INSTALLATION

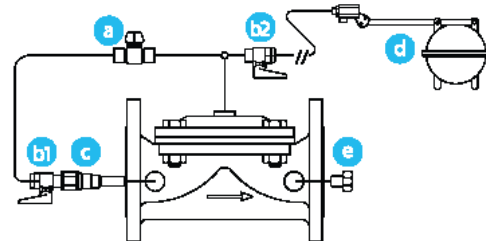
- The valve can be installed horizontally or vertically.
- Flush pipeline before installing the valve.
- Flow direction should match the engraved arrow on the bonnet.
- Installation of isolating valves; both sides, is recommended.

MAINTENANCE

- Inspect and clean the in-line filter, as water quality dictates. Unless the water is very dirty, this service should once in a few months.
- Control maximum water level a few times.



SPS - FL Float Control Level



- | | |
|--------------------------------|----------------|
| a Needle Valve | d Float |
| b Ball Valves | e Plug |
| c In-line Finger Filter | |

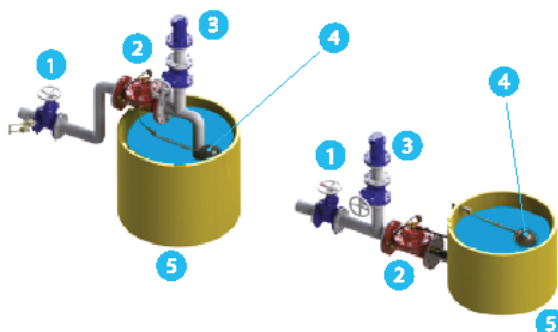
Description

SPS "FL" model float level control valve is the hydraulic control valve designed to control water level in reservoirs and tanks continuously. Main valve is controlled by 2-way modulating type float pilot valve manually. Main valve mounted on reservoir and tank upstream is closed as fully sealed without causing surge when water level reaches to maximum level. Valve opening/closing speed may be adjusted in set surge when water level reaches to maximum level. Valve opening/closing speed may be adjusted in set value. It may be used in the system by mounting horizontal or vertical positions.

Installation

- Make sure that valve is on a level with the pipeline while mounting it.
- Mount valve in direction of arrow indicated on it.
- While mounting valve on pipeline, place gasket between valve flange and pipe flange to ensure sealing and tighten the bolts as crosswise.
- Mount main valve body on tank or reservoir upstream and mount float components in tank or reservoir as fixed in desired level interval.
- It is recommended that insulation valves (butterfly or gate valves etc.), air relief valve and strainer valves will be used in line-mounting of valve (see sample montage illustration).

Typical Application



- | |
|---|
| 1 Isolation Valve (Gate, Butterfly Valve etc.) |
| 2 Modulating Type Float Level Control Valve |
| 3 Air Valve |
| 4 Float |
| 5 Water Tank |



SPS - FL Float Control Level

Adjustment

- Mount float pilot valve indicated with "d" as fixed according to water level in tank or reservoir.
- Connect one end of hydraulic pressure signal tube supplied with valve to ball valve indicated with "b2" and other end to float pilot valve.
- Open ball valves indicated with "b1" and "b2".
- Needle valve indicated with "a" is used for adjusting opening/closing speed adjustment of main valve.

Maintenance

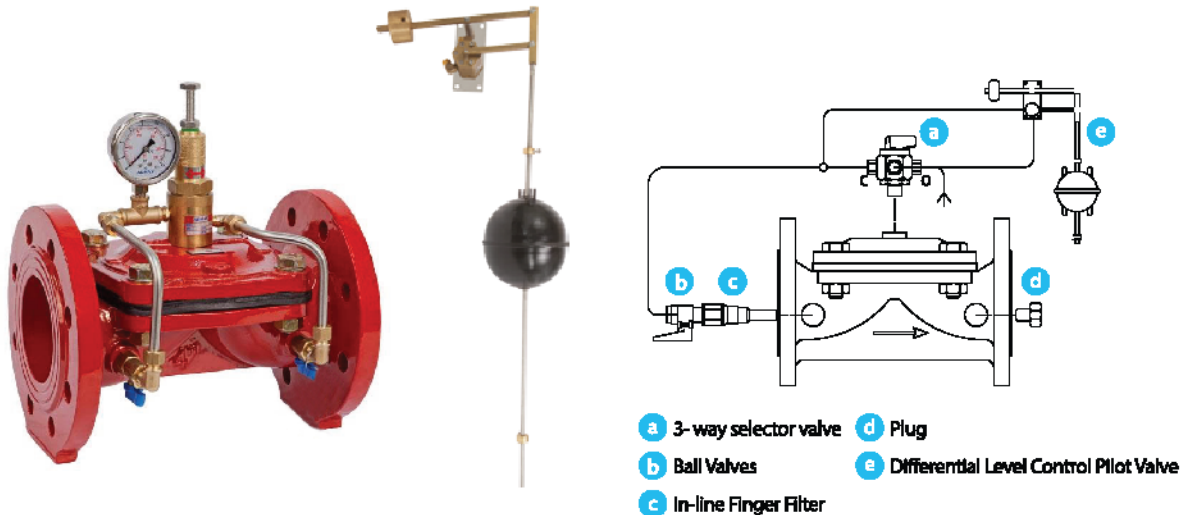
- Check finger filter indicated with "c" according to water quality and clean it. Do not make cleaning more than one within a few months unless water is too dirty.
- Drain water within actuator and pilot valves of valves not used in winter.

Troubleshooting

Failure	Causes	Correcting/Repair
Valve not opening	<ul style="list-style-type: none"> • "b2" ball valve maybe closed. • Line pressure may be low. • Level of float pilot valve is not fixed. • Float Pilot valve may be clogged. 	<ul style="list-style-type: none"> • Check "b2" ball valve and open if it is closed. • Check valve upstream pressure and ensure necessary upstream pressure. • Fix lever of float pilot valve to desired level. • Clean it.
Valve not closing	<ul style="list-style-type: none"> • Diaphragm may be punctured. • Foreign substances may exist in diaphragm seat. • Needle valve may be closed. • Float Pilot Valve may be failed. 	<ul style="list-style-type: none"> • Check diaphragm and replace with the new one if it is punctured. • Check diaphragm seat and remove foreign substances if any. • Check needle valve and open it by one or two turns if it is closed. • Replace with the new one.



SPS - DFL Differential Float Level



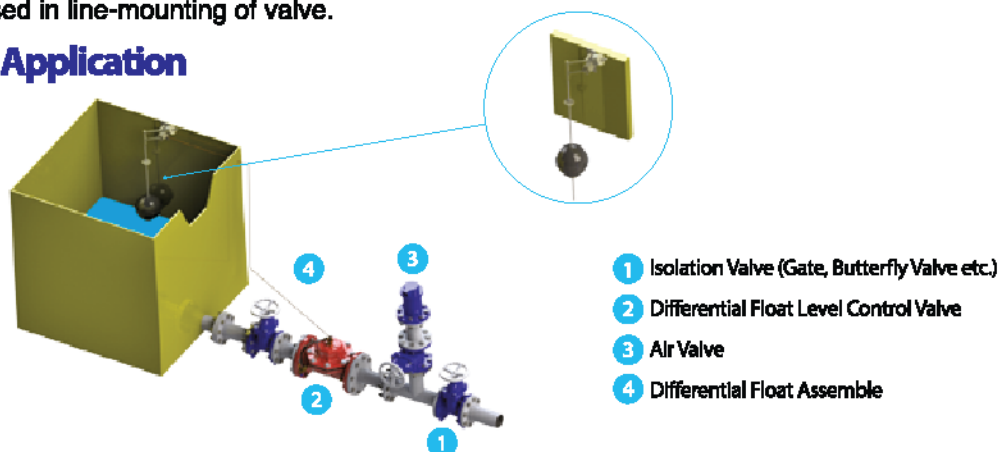
Description

SPS "DFL" model float control valve is the hydraulic control valve designed to control water level in reservoirs and tanks in desired ranges. Main valve is closed as wholly sealed without surge when water reach desired level thanks to 4/3 way differential control pilot. Max. and min. water level in reservoir may be adjusted to desired value in a wide range. Thanks to this feature, pump does not put into/out of service frequently during level control of reservoir fed by pump. Valve controls water level and keeps it in desired range without being affected from flow rate and pressure changes. It may be used easily in reservoirs and tanks fed from both top and bottom.

Installation

- Make sure that valve is on a level with the pipeline while mounting it.
- Mount valve in direction of arrow indicated on it.
- While connecting valve on pipeline, place gasket between valve flange and pipe flange to ensure sealing and tighten the bolts as crosswise.
- Mount valve body in reservoir upstream and float components as fixed in desired level interval.
- It is recommended that insulation valves (butterfly or gate valves etc.), air relief valve and strainer valves will be used in line-mounting of valve.

Typical Application





SPS - DFL Differential Float Level

Adjustment

- Mount differential float pilot valve indicated with "e" as fixed according to water level in reservoir or tank.
- Mount hydraulic pressure signal pipe on 3-way selector valve as described below;

Auto → T Close → P Relief → V

- Open spherical valve indicated with "b1".

Pilot Valve Differential Level Range

Standard Pressure Range	5 - 120 cm	2" - 48"
Medium Pressure Range	5 - 180 cm	2" - 70"
High Pressure Range	10 - 240 cm	4" - 95"

Pilot Valve Pressure Range

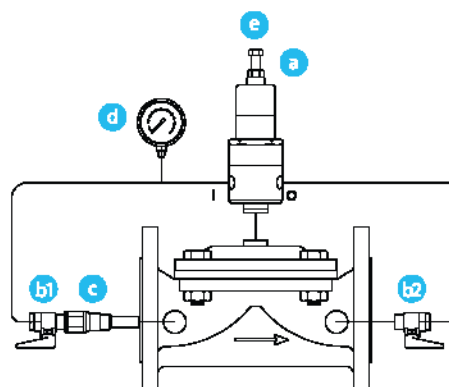
Minimum Working Pressure	0,5 bar - 7 psi
Standard	16 bar - 230 psi
Maximum Working Pressure	25 bar - 360 psi

Troubleshooting

Failure	Causes	Correcting/Repair
Valve not opening	<ul style="list-style-type: none"> • 3-Way selector valve may be closed. • Montage of differential float pilot valve may be loose. • 3-way selector valve connection of differential pilot valve may be wrong. • Line pressure may be low. 	<ul style="list-style-type: none"> • Check 3-Way selector valve and bring it into "Auto" position. • Mount differential float pilot valve as fixed. • Check hydraulic connections and correct them. • Check valve upstream pressure and ensure necessary upstream pressure.
Valve not closing	<ul style="list-style-type: none"> • Diaphragm may be punctured. • Foreign substances may exist in diaphragm seat. • Movable parts of differential float pilot valve may be clogged due to calcification. • Finger filter may be clogged. 	<ul style="list-style-type: none"> • Check diaphragm and replace with the new one if it is punctured. • Check diaphragm seat and remove foreign substances if any. • Replace differential float pilot valve. • Clean if it is clogged.



SPS - QR Quick Pressure Relief



- a Quick Pressure Relief Pilot Valve
- b Ball Valves
- c In-line Finger Filter
- d Pressure Gauge
- e Adjustment Bolt

Description

SPS "QR" model quick relief control valve is the safety control valve designed to protect system by releasing pressure surges to atmosphere quickly caused from sudden changes in water speed because pumps put into/out of service frequently in water network elevation lines. When network pressure goes beyond set point, valve opens by itself quickly and protects system by releasing over pressure. When line pressure decreases to normal level, it is closed slowly and automatically as wholly sealed without causing surge.

Installation

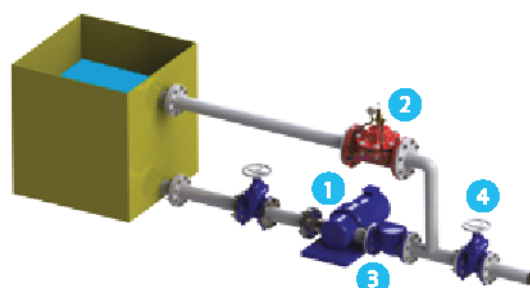
- Quick Pressure control valve is mounted on network in TE configuration.
- Since valve's function is to release pressure, valve diameter may be selected as equal to or in closest smaller size than main pipe diameter. Valve diameter should be selected as smaller than main pipe diameter. Following empirical formula may be used in determining diameter of quick pressure relief control valve. Where;

$$D = \sqrt{\frac{250 \times Q}{H_m}}$$

D = Diameter of quick pressure relief control valve in (mm)
 Q = System Flow Rate in (m³/h)
 H_m = System Operating Pressure (meter → 1 bar ≈ 10 meter)

- Valve closing time is proportional with pipe length. As system pipe length increases, valve closing time should be increased.

Typical Application



- 1 Pump
- 2 Quick Pressure Relief Valve
- 3 Check Valve
- 4 Isolation Valve (Gate, Butterfly Valve etc.)



SPS - QR Quick Pressure Relief

Adjustment

- Operate pump, open main valve on network and deliver water to the system.
- Open ball valves indicated with "b1" and "b2".
- Wait for a while until water reach valve control chamber. When water reach control chamber, pressure gauge will show a certain pressure value.
- Adjust desired upstream pressure value by means of adjustment bolt indicated with "e" on pilot valve indicated with "a" by referring pressure gauge.
- When you turn adjustment bolt clockwise, upstream pressure value will increase and when you turn adjustment bolt counter-clockwise it will decrease.
- After adjusting desired downstream pressure value, tighten contra nut below set screw. Pressure gauge will show upstream pressure value.

Pilot Valve Pressure Adjustment Range

Standard Pressure Range	5 - 160 m	7,5 - 240 psi
Medium Pressure Range	10 - 100 m	15 - 150 psi
High Pressure Range	5 - 240 m	7,5 - 360 psi

Troubleshooting

Failure	Causes	Correcting/Repair
Valve not opening	<ul style="list-style-type: none"> • Ball valves in valve downstream may be closed. • Valve upstream pressure may be too low. • Adjustment pressure of pilot valve may be higher than line pressure. • Needle valve on pilot valve may be closed. 	<ul style="list-style-type: none"> • Check ball valves and open them if they are closed. • Check your system. • Decrease adjustment pressure in accordance with adjusting instruction by means of adjustment bolt. • Open needle valve one or two tours according to system adjustment
Valve not closing	<ul style="list-style-type: none"> • Diaphragm may be punctured. • Foreign substances may exist in diaphragm seat. • Connections of pilot valves may be clogged because of foreign substances • Finger filter may be clogged. 	<ul style="list-style-type: none"> • Check diaphragm and replace with the new one if it is punctured. • Check diaphragm seat and remove foreign substances if any. • Check connections and clean. • Clean if it is clogged.
Valve does not regulate	<ul style="list-style-type: none"> • Movable parts of differential float pilot valve may be clogged due to calcification. • Set point of needle valve on pilot valve may be wrong. • Pressure gauge may be failed. 	<ul style="list-style-type: none"> • Replace it with the new one. • Close needle valve fully and open it by 1 - 2 tours. • Replace with new one.