Hydraulic-operated Check Valve

Model: SV/SL6...6X

- Size 6
- Maximum working pressure 315 bar
- Maximum working flow 60 L/min

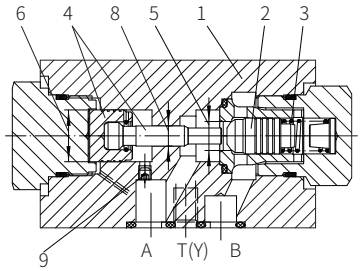
Contents

Features

- Hydraulic-operated check valve
- Connection dimensions according to DIN 4401-03-02-0-05
- Subplate mounting
- With or without drain port as required
- With or without pre-opening port as required
- Various opening pressures

Function description, sectional drawing

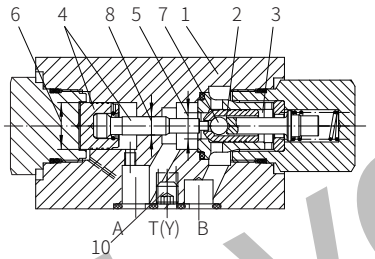
The SV and SL valves are hydraulic-operated check valve for subplate mounting. It is used for leakage-free blocking of one working port even in the event of long-term shutdowns.
The valve mainly consists of valve body (1), seat poppet (2), compression spring (3), control spool (4) and an optional pre-opening ball seat valve (7). The seat valve allows the fluid to flow from A to B without external pilot pressure.
Condition: PA>PB+cracking pressure (compression spring). In the opposite direction, the seat valve is hydraulically closed.
The high pilot pressure at port X moves the control spool (4) in the direction of the seat valve and pushed the seat poppet (2) away from its seat. This enables free flow in both directions (actively hold open).
In order to ensure that the seat valve opens actively, the pressure conditions on both sides of the control spool (4) are same important as the area ratio on the seat poppet (2) or (7).



Model SV6PB...-6XJ/

Therefore, it results different types as below:
-SV (large spool surface A_2(6) connected to P_A) or
-SL (small front surface A_4(8) connected to P_A,
- Models with pre-opening "A" and without pre-opening "B"

Model "A" with pre-opening
The valve is equipped with an additional pre-opening. By applying pressure to the port X, the control spool (4) will move to the right. In this way, the ball (7) and the seat poppet (2) will be pushed out of the valve seat successively.



Model SL6PA...-6XJ/

Note!
Model "A":
Due to the using of a two-stage structure with enlarged opening control area ratio, safe unloading is also possible with lower pilot pressures.

5 area A1 (seat poppet)
6 area A2 (control spool
7 area A3 (ball)
8 area A4 (control spool)

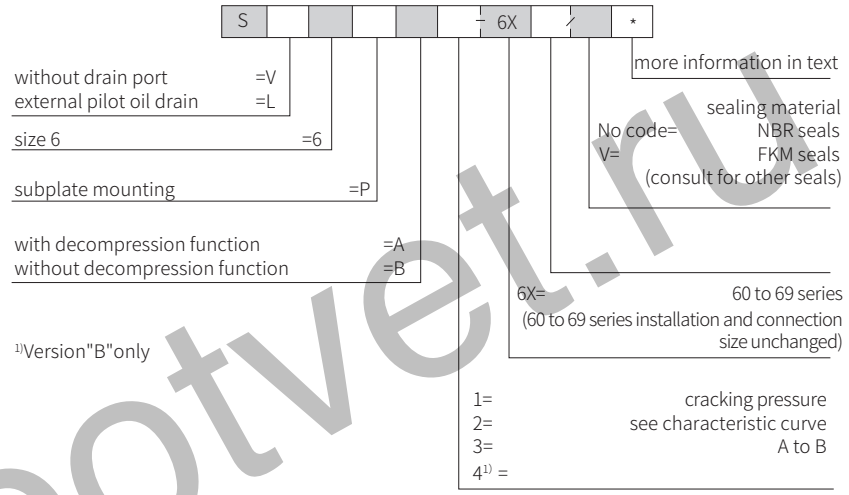
Type	Plug (9)	Plug (10)
SV	M3 (open)	M6 (closed)
SL	M3 (closed)	M6 (open)

Avoidance of switching shocks due to the attenuation of the pressure volume on the actuator side.

Model "B":
When the valve without pre-opening, it may suddenly unloaded the contained pressure volume. The resulting switching shocks may not only creates noise but also wears of mounting components early.

The conversion between SV type and SL type can be achieved by replacing the plugs (9) and (10). One of the plugs must always be installed!

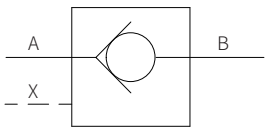
Models and specifications



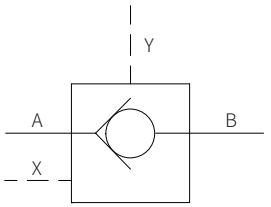
[1]Version"B"only

Functional symbols

Model SV (without drain port)



Model SL (with drain port)

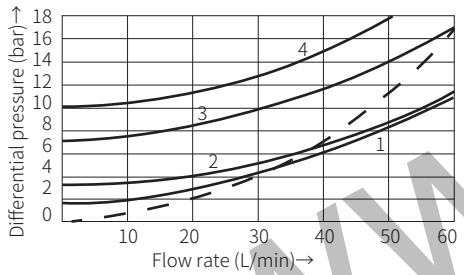


Technical Parameters

Weight		kg	About 0.8
Installation location			Optional
Flow direction			Free flow from A to B, flow from B to A under hydraulic operation
Environment temperature range		°C	-30 to +80 (NBR seal)
			-20 to +80 (FKM seal)
Maximum working pressure		bar	315
Maximum flow		L/min	60
Pilot pressure		bar	5 to 315
Viscosity range		mm^2/s	2.8 to 500
The maximum allowable pollution level of hydraulic oil - cleanliness class 20/18/15 to ISO 4406			
Pilot flow	Oil port X	cm^3	0.68
	Oil port Y (model SL only)	cm^3	0.58
Control area ratio	Model "A"		A3/A2:1/13
	Model "B"		A1/A2:1/3
			A4/A2:1/7

Characteristic curve

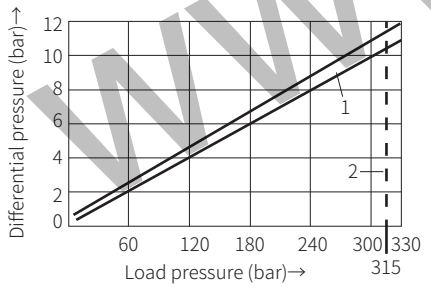
(Measured when using HLP46, ϑ_{oil}=40°C ± 5°C)



A to B

1 Cracking pressure 1.5 bar
2 Cracking pressure 3 bar
3 Cracking pressure 7 bar
4 Cracking pressure 10 bar

B to A

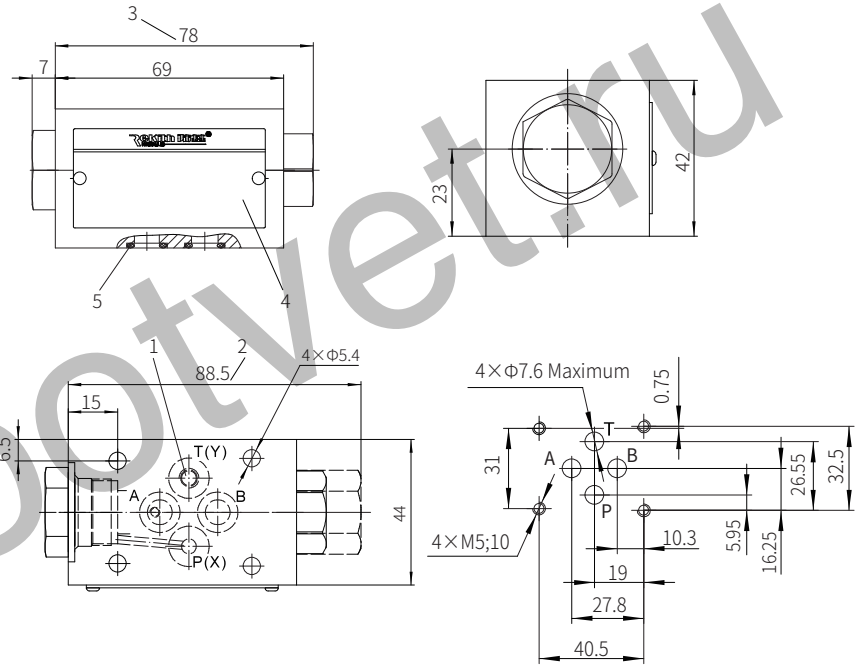


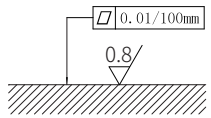
1 Tolerance zone
2 Limit value

Component size

Size unit: mm

Model SV/SL6...6XJ/...





Required surface finishing of mating components

1 Port Y (M6; closed for model SV)
2 Size of model SV/SL6PA
3 Size of model SV/SL6PB
4 Name plate
5 O-ring 9.25X1.78

It must be ordered separately if connection subplate is needed.
Subplate model:
G341/01 (G1/4") ; G341/02 (M14×1.5)
G342/01 (G3/8") ; G342/02 (M18×1.5)
G502/01 (G1/2") ; G502/02 (M22×1.5)

Valve fixing screw
M5x50-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm