3-WAY FLOW CONTROL VALVE

Manual control via adjusting knob – with pipe conduit installation
Mounting made front plate with flange
210 bar – up to 16 l/min

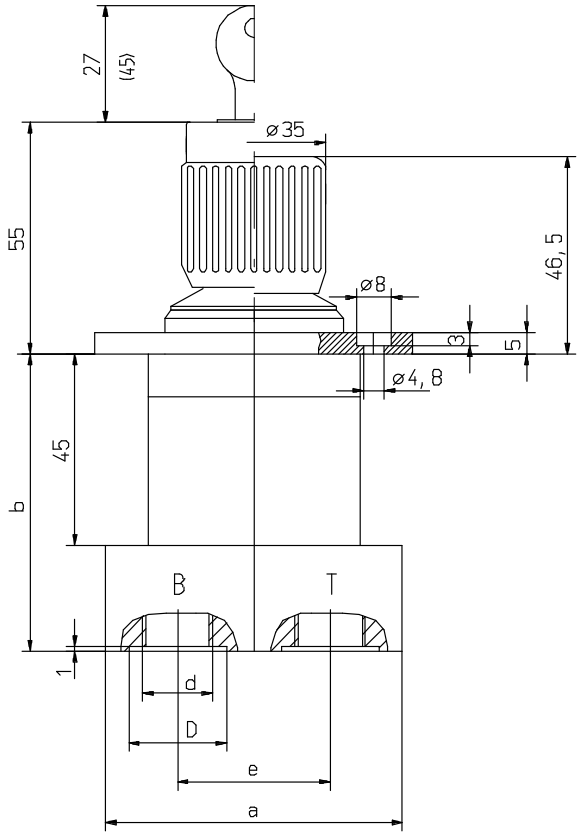
Type

31 D

3-Way flow control valves are flow control valves with - in parallel connection inserted pressure balance. The valves regulate an adjustable flow rate independently of pressure changes in the inlet, the work or the drain line automatically constantly.

FEATURES

- direct connection over pipe thread
- front panel mounting
- 7 rated setting volume flow ranges
- scaled control knob, setting angle 150°
- Standard sealing material Buna N / NBR, other materials are possible



Dimensions (mm)			
Recommended flow range. (l/min)			
	to 4	to 10	> 10
a	□50	Ø70	Ø80
b	65	70	75
c	80	80	100
D	Ø19	Ø23	Ø27
d	G1/4	G3/8	G1/2
e	□75	□75	□90
f	29	40	48
g	3.5	-	-
h	14.5	20	24
Weight (kg)			
	1.2	1.5	1.8

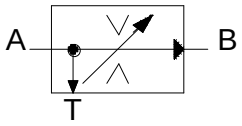
ORDER INFORMATION
The delivery scope includes for the „S“-model one safety key.

Name

3-Way flow control valve	31 D	S	16	H	4	M15

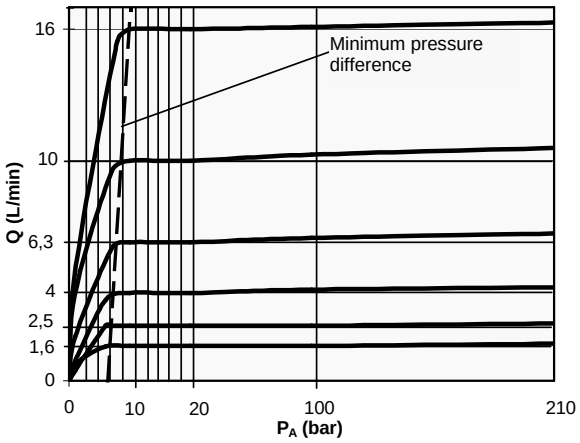
Type series
Series code letter
Actuation: Control knob without lock = **without Code**
Control knob with lock = **S**
Rated volume flow: in l/min **1; 1.6; 2.5; 4.0; 6.3; 10; 16**
Pressure stage: N = up to 100 bar; **H** = up to 210 bar
3H = up to 315 bar; **4H** = up to 450 bar
Connector size: 2 =G ¼; **3 =** G $^{3}/_{8}$; **4** = G ½
Supplementary data for special models
e.g. special sealing of Viton (FKM) = **M 15**

Characteristics

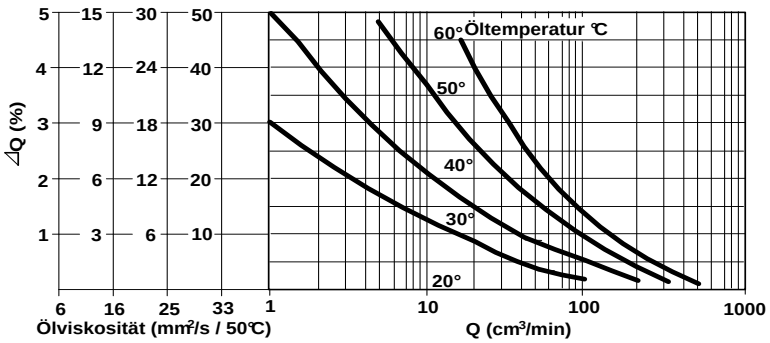
Symbol	
Design	Adjustment throttle: flat rotary valve with triangular notch, orifice design Differential pressure valve pressure balance: switched in parallel with the adjustment throttle
Mounting position	any
Direction of volume flow	A to B controlled; A to T unthrottled return flow
Ambient temperature range	-25°C to +80°C
Hydraulic fluid	Hydraulic oil according to DIN 51 524 (1,2), for other media contact Schiedrum
Controlling torque on control knob	approx. 100 Ncm
Setting angle	150°
Set pressure range	Pressure stage N = 100 bar; H =210 bar 3H = 315 bar; 4H = 450 bar
Rated volume flow	1.0 – 1.6 – 2.5 – 4.0 – 6.3 – 10 – 16 l / min.
recommended max. inlet flow	at connector size: G 1/4 = 6 l / min. G 3/8 = 12 l / min. G 1/2 = 25 l / min.

CHARACTERISTCS

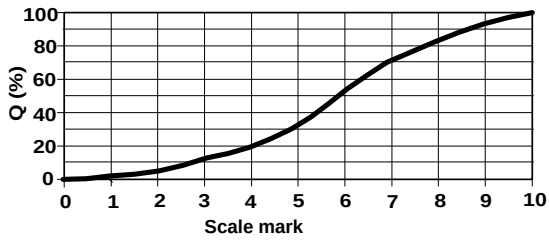
Q- Δp characteristic line; Q= f (Δp)
shows the control behaviour of the valve for the volume flow direction A to B for the various rated flow volume ranges as well as the minimum pressure difference required for the function.



Temperature influence
Figure 4 shows the variation in flow rate ΔQ in relation to the oil temperature for 4 different oil viscosity's. In this case, ΔQ is the increase in flow rate as a percentage of the preset flow rate with an oil temperature of 20°C.
The sensitivity to temperature cannot be perceived for moderate and heavy flow rates. Thin oils give the lowest variations in flow rate for low flow rates and great variations in temperature.



Q-S characteristics; Q= f (scale position)
A typical dependency of the volume flow as a function of the valve setting angle or the control knob scaling (the scare is linear).

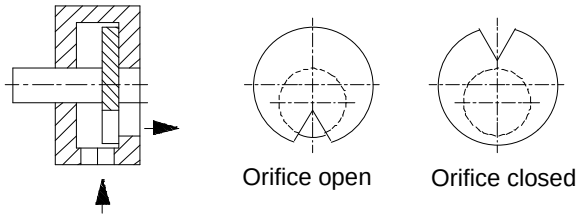


Description of the valve

Valve

The valves regulate an adjustable flow rate independently of pressure changes in the inlet, the work or the drain line automatically constantly independent of pressure variations.
Due to the Differential pressure valve (pressure balance) the volume flow is independent of pressure; it provides for a constant difference of pressure at the adjusting throttle. Due to the extremely compact design, extremely short control times of few msec obtained in case of pressure variations. The volume flow is controlled in A to B direction of flow only. The difference to the 2-way-flow control valve consists essentially of the fact that the differential pressure valve is arranged parallels to the adjusting throttle and conveys hydraulic fluid of the pump, which is oversupply flow off the 3. connection (T). The differential pressure valve is closed in neutral position. The inlet stream to the valve must be ever larger than removed in the consumer connection B.
The pump must work at this valve type about the load on connection about connection A, this guaranteed a proper effectiveness. The installation in the in inlet or supply pipe is possibly only. A parallel connection of several valves is not possible.
The remainder flow rate at the port T can be used to further consumers and may up to the height of the consumer pressure at the port A minus approx. 10 - 15 bar to be loaded.

The volume flow can be controlled infinitely by means of the control knob with a scale graduation from zero to ten. The set pressure range is from zero to the selected rated volume flow. To optimized the resolution of the adjustment, the valve be delivered with 7 different rated volume flow range between 1 and 16 l/min. Due to the aperture curve every orifice size with the adjustment range has the same sensitivity by reproduce. For a wide range of application, the rated flow is not affected by viscosity or contamination. This is achieved by setting throttle with orifice-like design developed by us. In the standard version the valves have standard sealing of Buna N (NBR).



Materials

The valve components are made of structural steel. The external valve parts are bronzed or galvanized. The flange of the mounting made front is bronzed and decorated with an aluminium orifice. All wear parts are hardened The control knob is made of aluminium, with a plastic core and the lock cylinder is made of brass.

For applications in excess of the given specification, please contact Schiedrum.
All specified parameters are partially based on long user's experience and partly on measurements made in laboratories. The data are typical of the valve and can deviate in series. All measurements were carried out on a test stand with an oil viscosity of 36mm²/sec and a filter mesh of < 10 µm. All data given here should be used as description of the product only and they are not to understand as warranty in the sense of law.