



2.8

4/3, 4/2 and 3/2 directional valve with fluidic operation

Type WH6...L6X

Size 6
Up to 315 bar
Up to 60L/min



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Features

- Direct operated directional spool valve
- Operating methods:
 - hydraulic (WH)
- Sub-plate mounting
- Porting pattern to DIN 24 340 Form A, and ISO 4401

Function

WH valves are fluidically operated directional spool valves. They are used for the control of stop, start and direction of a flow.

The directional valves mainly consist of housing (1), the control spool (2), one or two return springs (3), cover (4).

In the non-operated condition, control spool (3) is held by return springs (4) in the central or initial position (except for impulse spools).

Control spool (3) is shifted by the actuating elements to the required spool position.

Without return spring, without detent, type..O/...

(Only for Spool Symbol A,C,D)

When actuating elements without return springs and without detent are used, a defined spool position is not provided in the on-operated condition.

With detent, type..OF/..

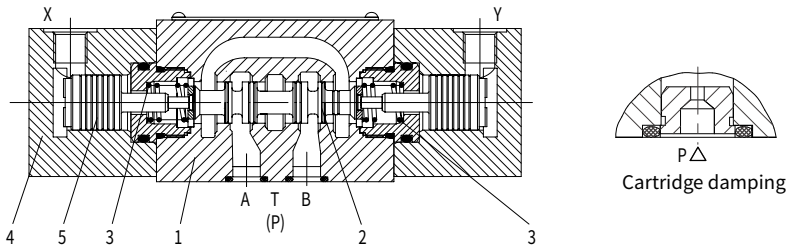
(Only for Spool Symbol A,C,D)

Directional valves with hydraulic or pneumatic actuation are also available as 2-position valves with detent. When actuating elements with detent are used, each spool position can be fixed.

Cartridge throttle

The use of a throttle insert is required when, due to the prevailing operating conditions, flows can occur during the switching process that are higher than permitted by the performance limits of the valve.

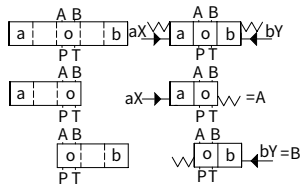
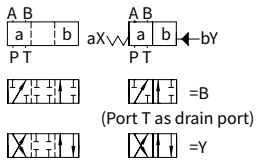
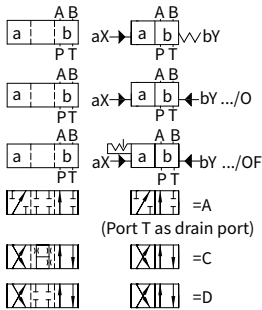
It is to be inserted in the P-channel of the directional valve.



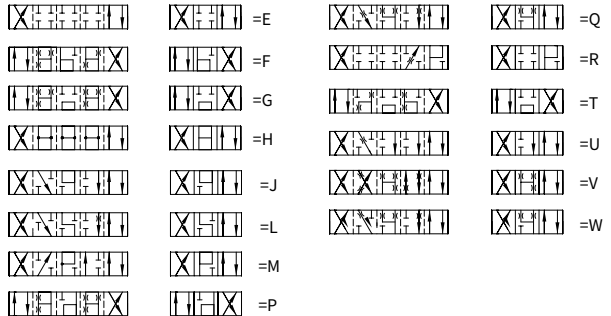
Type 4WH 6 E-L6X...

Type WH6...L6X (three-position) hydraulic directional valve With return spring

Symbols

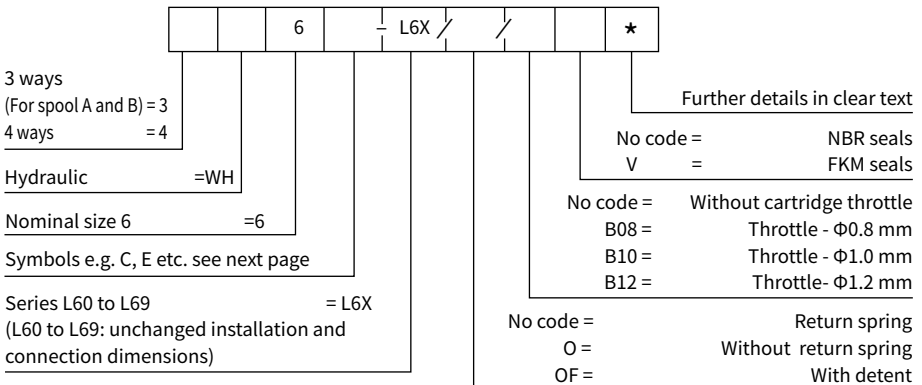


Example: If solenoid is fixed at position 'a', the ordering code is ...EA



02

Ordering code

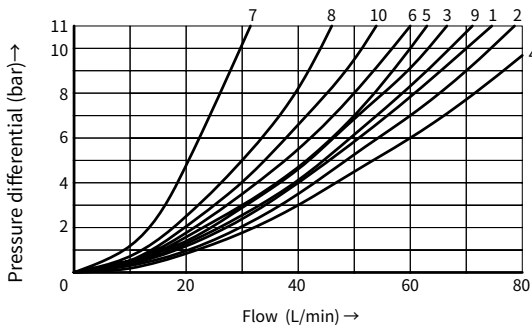


Technical data

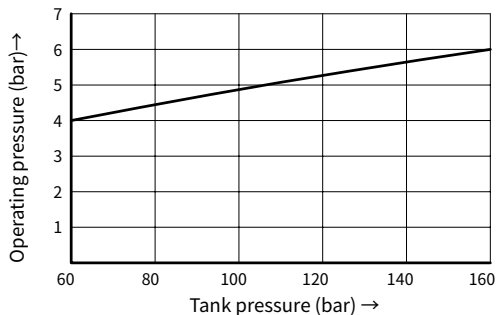
Valve type			WH
Weight	1 operating cylinder	kg	2.0
	2 operating cylinder	kg	2.2
Fluid temperature range		°C	-30 to +80 (NBR seal) -20 to +80 (FKM seal)
Max. operating pressure	Port A,B,P	bar	315
	Port T	bar	160
Min control pressure		bar	6-10
Max control pressure		bar	200
Max. flow-rate		L/min	60
Flow cross section (switching neutral position)	Type Q	mm ²	For symbol Q 6% of nominal cross section
	Type W	mm ²	For symbol W 3% of nominal cross section
Control pressure		bar	Min.6 to 10 > tank pressure, Max.200
Fluid		Mineral oil, Phosphate ester	
Viscosity range		mm ² /s	2.8 to 500
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406	

Characteristic curves

(Measured at $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using HLP46)



- 7 Symbol "R" in switched positions B → A
- 8 Symbol "G" and "T" in neutral position P → T
- 9 Symbol "H" in neutral position P → T



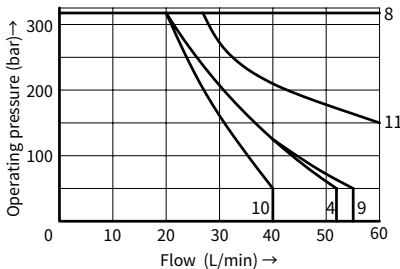
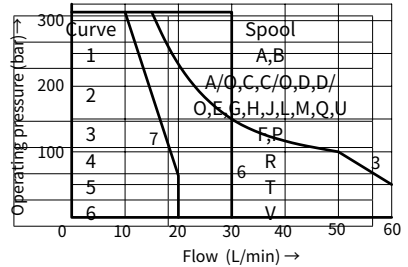
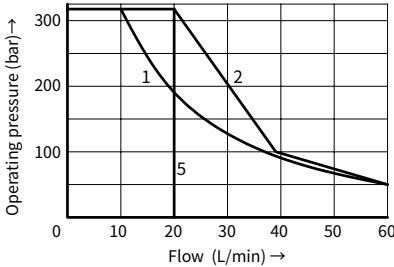
Spool	Flow direction			
	P to A	P to B	A to T	B to T
AB	3	3	-	-
C	1	1	3	1
DY	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
JQ	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	-
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

With tank pressure is increased, the minimum control pressure must be increased according to this curve.

Operating limitation

Because of the adhesive effect, the switching function of the valves depends on the filtration. In order to achieve the specified admissible flow values, we recommend full flow filtration with 25 µm. The flow forces acting within the valves also affect the flow performance. With 4 way valves the specified flow data thus apply to normal operation with 2 volume flow directions (e.g. from P to A and at the same time return flow from B to T) (see table).

If only one flow direction is available, in critical cases, the admissible flow can be significantly smaller (e.g. when using a 4 way valve as 3 way valve, due to blocked connection A or B).

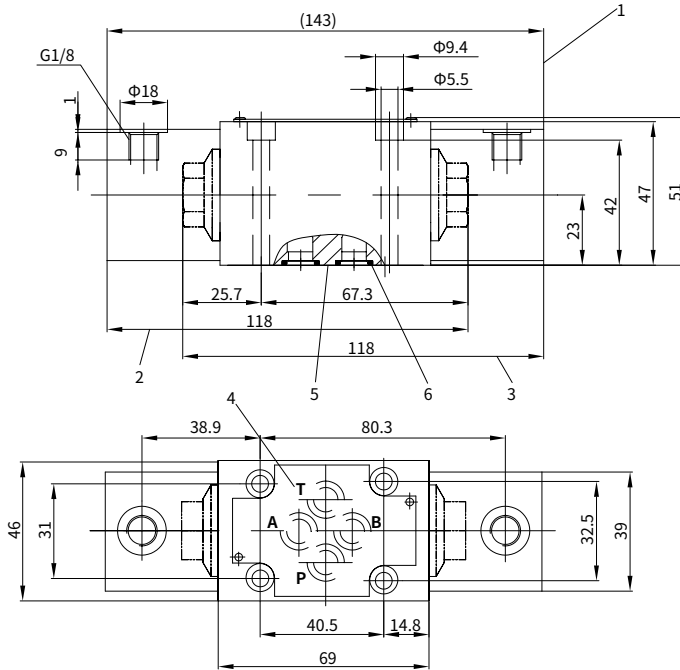


Control pressure 6bar > T-pressure		
Curve	Spool	
Return spring	1	A,B
	2	C,D,Y
	3	E,J,L,U,M,Q,V,W
	4	F,P
	5	T
	6	G,H
	7	R
.../OF... .../O...	8	A,C,D

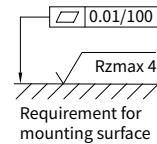
Control pressure 10bar > T-pressure		
Curve	Spool	
Return spring	1	A,B
	8	C,D,Y,E,G,H,J,L
		U,M,Q,V,W
	9	F,P
	10	R
11	T	
.../OF... .../O...	8	A,C,D

Unit dimensions (WH)

(Dimensions in mm)



- 1 Used for 3-position valve or 2-position */O, */OF
- 2 Used for 2-position *A or A,C,D
- 3 Used for 2-position *B or B,Y
- 4 Name plate
- 5 Mounting surface
- 6 With identical seal rings

**Valve mounting screws:**

Internal hexagon screw,
M5 \times 50 GB/T 70.1-10.9,
Tightening torque, $M_A = 9\text{Nm}$

**It must be ordered separately
if connection plate is needed.**

Type:

G341/01(G1/4), G341/02(M14 \times 1.5)
G342/01(G3/8), G342/02(M18 \times 1.5)
G502/01(G1/2), G502/02(M22 \times 1.5)

