Hydraulic and Pneumatic Directional Valve

Model: WH/WP6...X

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

Contents

Features

- Direct operated directional spool valve
- Operating types:
  Pneumatic (WP)
  Hydraulic (WH)
- Subplate mounting
- Porting pattern to DIN 24340 form A and ISO4401

Function description, sectional drawing

The WH/WP are directional spool valves with fluid logic actuation. It is used to control the opening, closing and direction of the flow.

The valve mainly consists of valve body (1), one or two control pistons (2), valve spool (3), and one or two reset springs (4).

Model WH and WP

When there is no pressure oil in the control piston (2), the valve spool (3) is held in the middle or initial position by the reset spring (4). After the pressure oil acts on the control piston (2), the piston (2) pushes the valve spool (3) to move from the stationary position to the required position, thereby opening the required flow section. If the pressure oil is removed, the valve spool (3) is pushed back to the original position by the reset spring (4).

Model WH.../O and WP.../O (Only for symbols A, C, D)

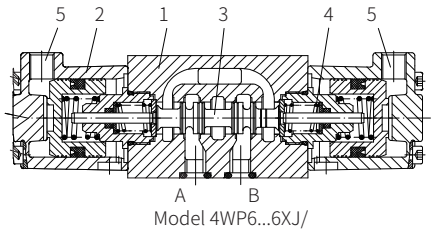
The directional valve operated by hydraulic pressure has no definite switching position in its original state when operation without reset spring and detent.

Model WH.../OF and WP.../OF (Only for symbols A, C, D)

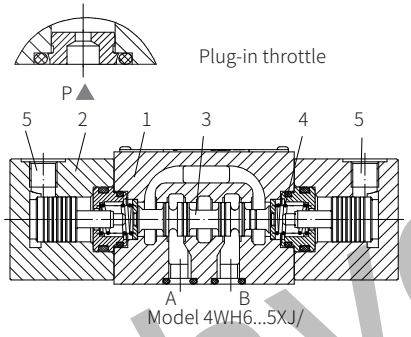
The the valve spool of the hydraulic pressure operated directional valve can be held in any switching position when operation with detent.

Plug-in throttle

Due to working conditions limitations, the flow rate may exceed the value of the performance curve during the switching process. Therefore, it is necessary to install a plug-in throttle in the channel P of the control valve.

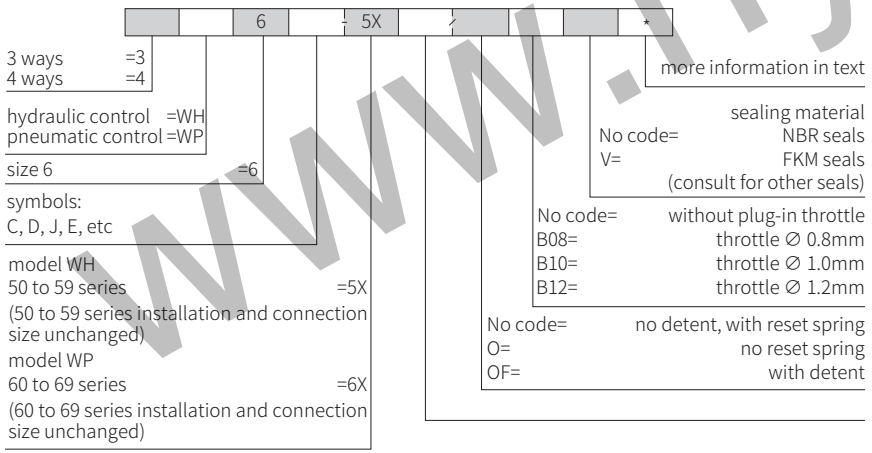


Model 4WP6...6XJ/

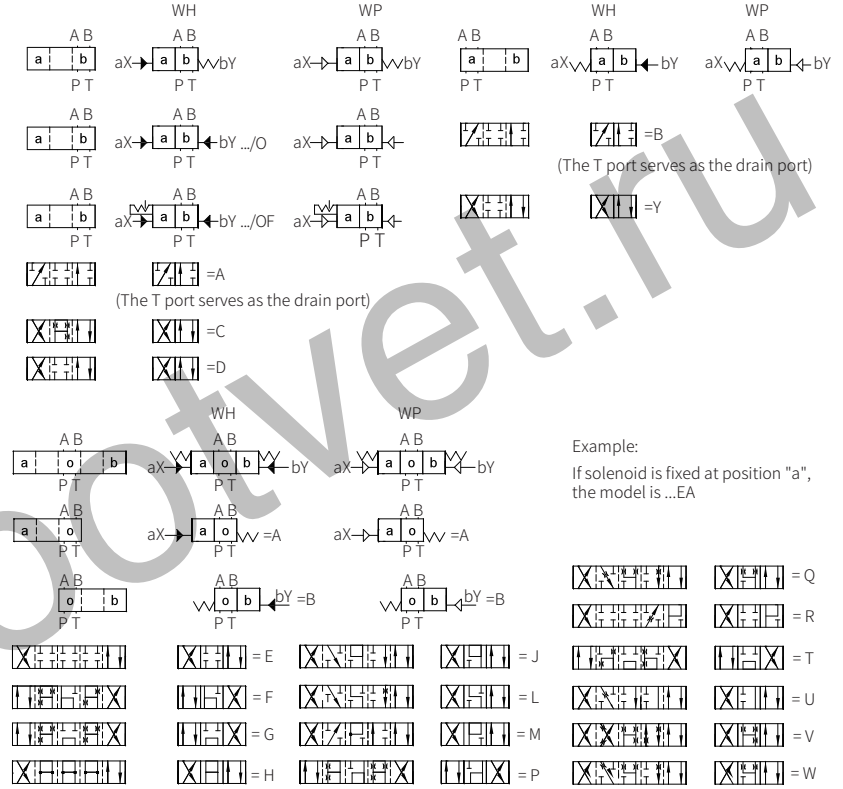


Model 4WH6...5XJ/

Models and specifications



Functional symbols

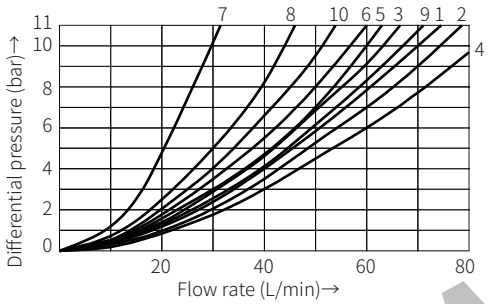


Technical parameters

Valve type			WP	WH
Weight	1 operating cylinder	kg	1.8	2.0
	2 operating cylinder	kg	2	2.2
Oil temperature range		℃	-30 to +80 (NBR seal)	
			-20 to +80 (FKM seal)	
Max. working pressure	oil port A, B, P	bar	315	
	oil port T	bar	160	
Minimum control pressure		bar	4	6-10
Maximum control pressure		bar	10	200
Maximum flow		L/min	60	
Effective over-flow section (neutral position)	Type W	mm^2	3% of the nominal cross-section	
	Type Q	mm^2	6% of the nominal cross-section	
Control pressure		bar	Minimum 6 to 10>return oil pressure, maximum 200	
Working medium			Mineral oil, Phosphate ester	
Viscosity range		mm^2/s	2.8 to 500	
Cleanliness of oil			The maximum allowable pollution level of oil is ISO4406 Class 20/18/15	

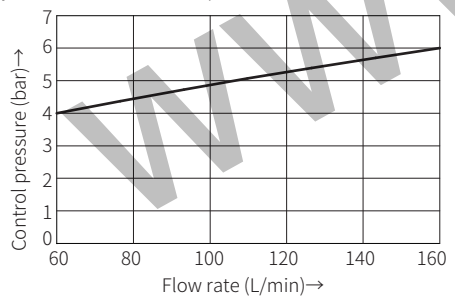
Characteristic curve

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



Function symbol	Flow direction			
	P to A	P to B	A to T	B to T
A B	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

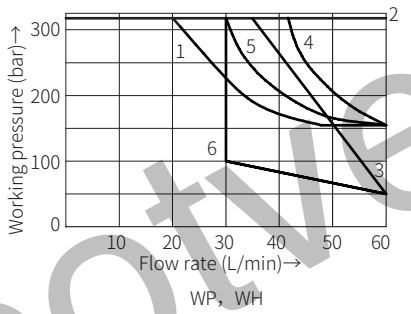
7 Symbol "R" in the switching position B → A
8 Symbols "G" and "T" in the middle position P → T
9 Symbol "H" in the middle position P → T



If the pressure of the return oil (tank) increases, the minimum control pressure must be increased according to this curve.

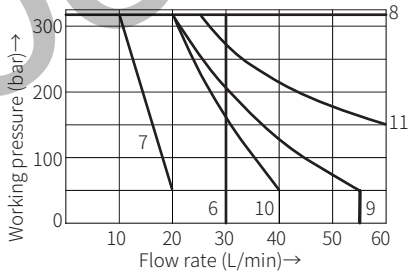
Characteristic limit

Due to blockage, the working performance of this type of valve is related to the filtration accuracy. In order to obtain the given allowable flow value, it is recommended to use a full flow filtration of 25um. The various forces inside the valve also affect its working limit. Therefore, for a four-way valve, the given flow value is the value under normal conditions when both flow channels are working (for example, P To A and simultaneously return from B to T).
If only one direction of flow is needed, the A or B ports of the four-way valve is blocked and used as a three-way valve, the flow rate may be very small in severe cases

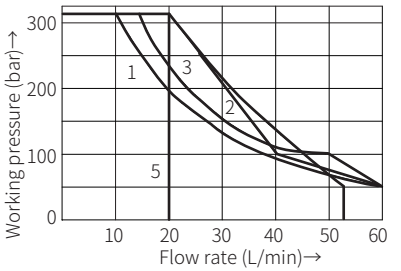


WP，WH

Characteristic curve	Function symbol
1	A，B
2	A/O, C, C/O, D, D/O, E, G, H, J, L, M, Q, U
3	F, P
4	R
5	T
6	V



WP，WH

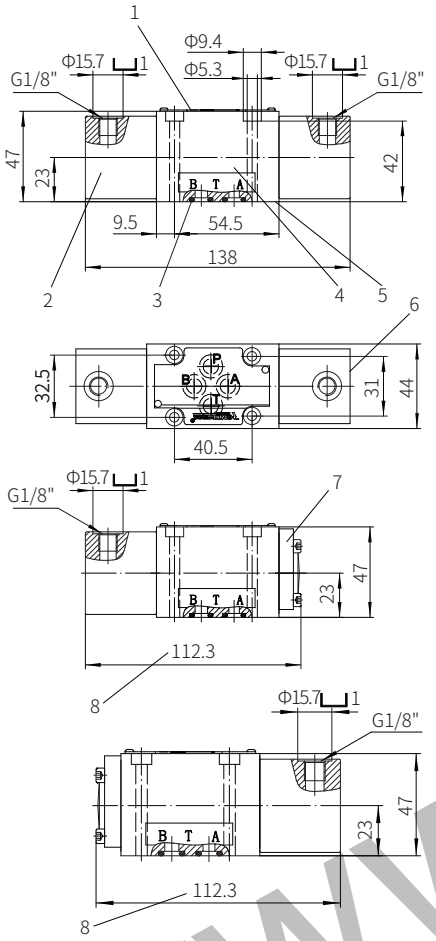


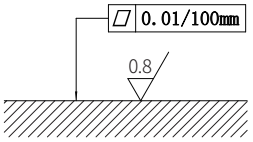
WP，WH

Control pressure 6 bar>T-port pressure		
Characteristic curve		Function symbol
Reset 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

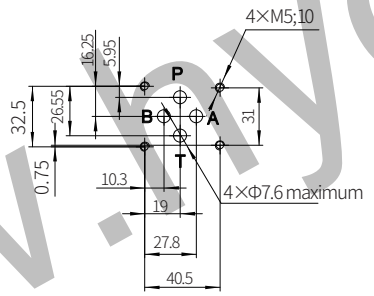
Control pressure 10 bar>T-port pressure		
Characteristic curve		Function symbol
Reset Spring	1	A, B
	8	C, D, Y, E, G, H, J, L
		U, M, Q, V, W
	9	F, P
	10	R
	11	T
.../OF... .../O...	8	A, C, D

Model WH6...5XJ/...





Required surface finishing of mating components



1 Name plate
2 Actuation cylinder "b"
3 O-ring 9.25x1.78 (for oil ports P, A, B, T)
4 Valve body
5 Connection surface
6 Actuation cylinder "a"
7 Cover plate for 2-position valve
8 Size of 2-position valve

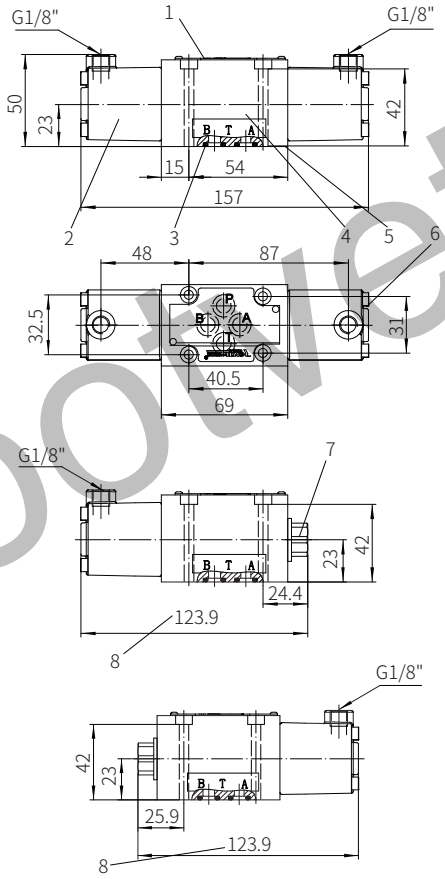
Valve fixing screw
M5x50-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm

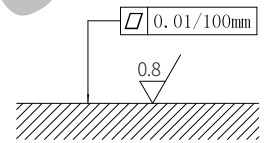
It must be ordered separately
if connection subplate is needed.
Subplate model:
G341/01 (G1/4") ; G341/02 (M14x1.5)
G342/01 (G3/8") ; G342/02 (M18x1.5)
G502/01 (G1/2") ; G502/02 (M22x1.5)

Component size Size unit: mm

01

Model WP6...6XJ/...





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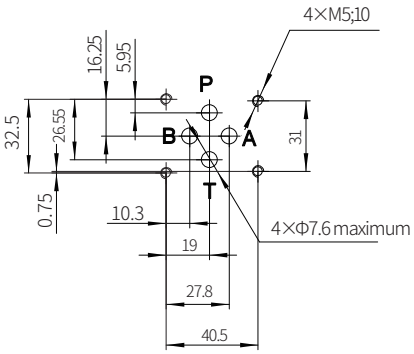

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