

Hydraulic and Pneumatic Directional Valve

Model: WH/WP6...XJ



01

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

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Features

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

Functional 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)

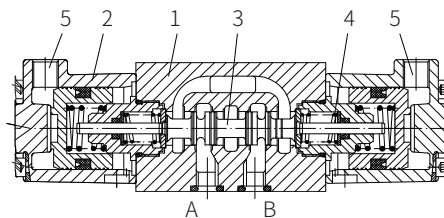
The directional valve operated by hydraulic pressure has no definite switching position in its original state when operation without reset spring and detent.

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

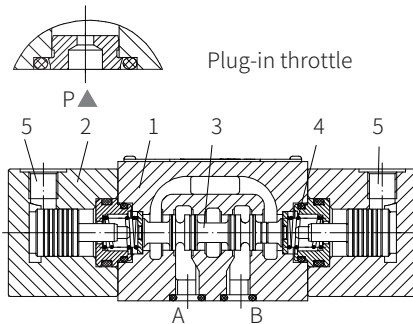
The the valve spool of the hydraulic pressure operated directional valve can be held in any switching position when operation with detent.

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/

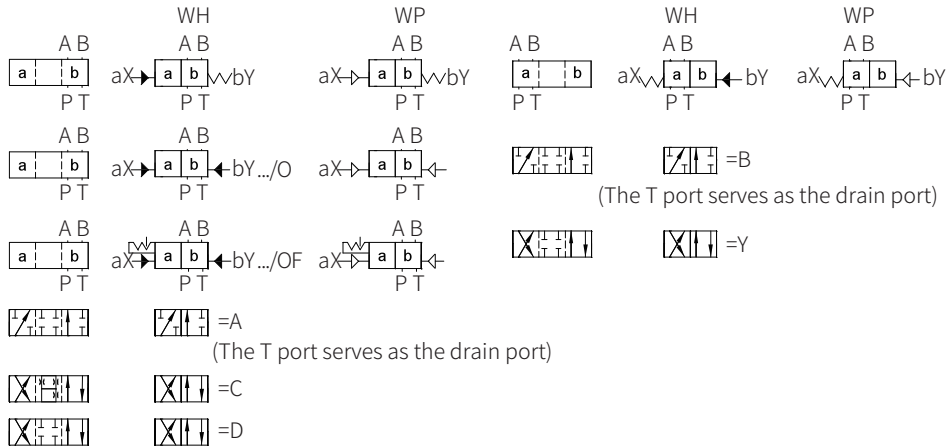


Model 4WH6...5XJ/

Models and specifications

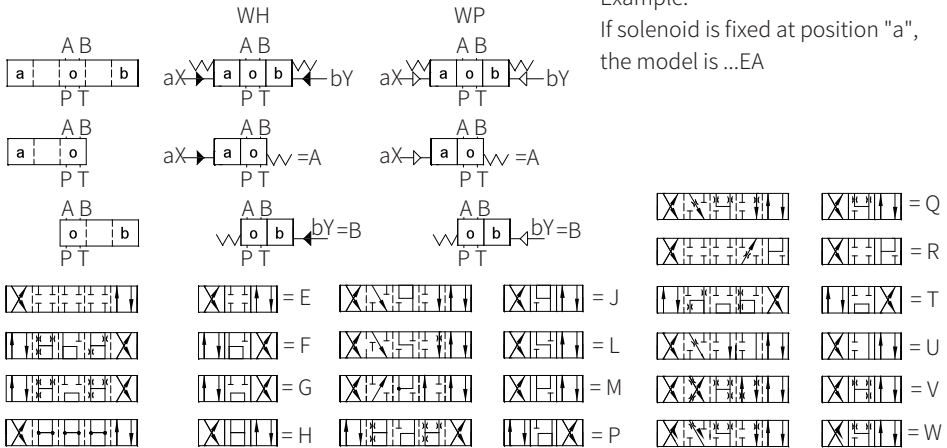
		6	-5X	J		*
3 ways	=3					more information in text
4 ways	=4					sealing material
hydraulic control	=WH				No code=	NBR seals
pneumatic control	=WP				V=	FKM seals
size 6	=6					(consult for other seals)
symbols: C, D, J, E, etc					No code=	without plug-in throttle
model WH					B08=	throttle Ø0.8mm
50 to 59 series	=5X				B10=	throttle Ø1.0mm
(50 to 59 series installation and connection size unchanged)					B12=	throttle Ø1.2mm
model WP					No code=	no detent, with reset spring
60 to 69 series	=6X				O=	no reset spring
(60 to 69 series installation and connection size unchanged)					OF=	with detent
				J=		Rekith

Functional symbols



Example:

If solenoid is fixed at position "a",
the model is ...EA

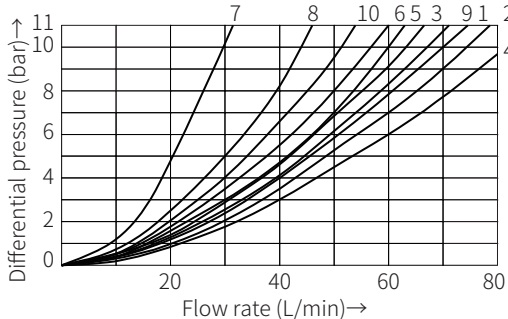


Technical Parameters

Overview			
Valve type	WP	WH	
Weight	1 operating cylinder kg	1.8	2.0
	2 operating cylinder kg	2.0	2.2
Oil temperature range	°C	-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)	mm ²	3% of rated cross-sectional area for symbol W	
		6% of rated cross-sectional area for symbol Q	
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

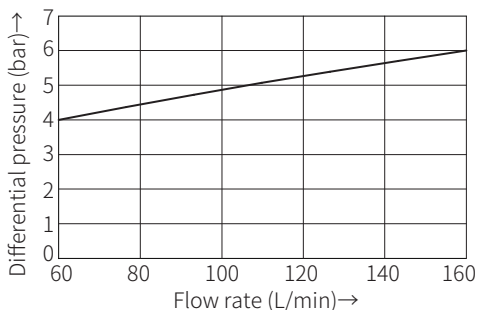
(Measured when using HLP46, $t_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$)



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

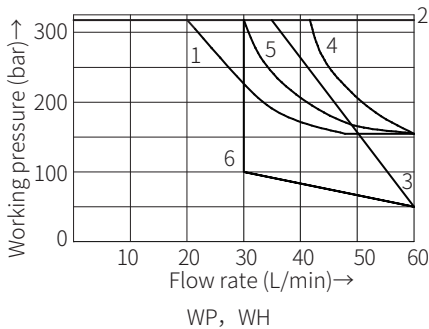


Function symbol	Flow direction			
	P-A	P-B	A-T	B-T
AB	3	3	-	-
C	1	1	3	1
DY	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
JQ	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	-
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

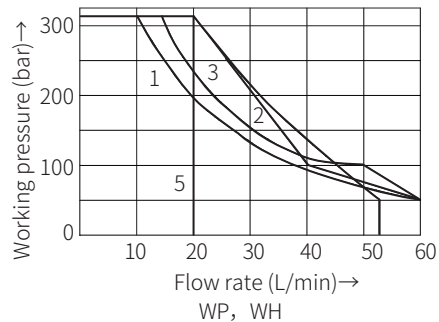
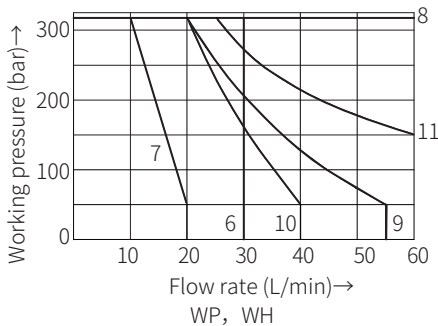
If the pressure of the return oil (tank) increases, the minimum control pressure must be increased according to this curve.

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 25µm. 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



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



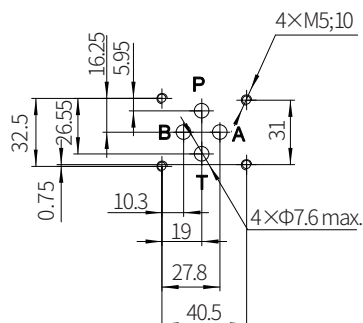
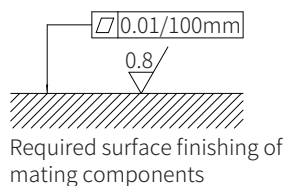
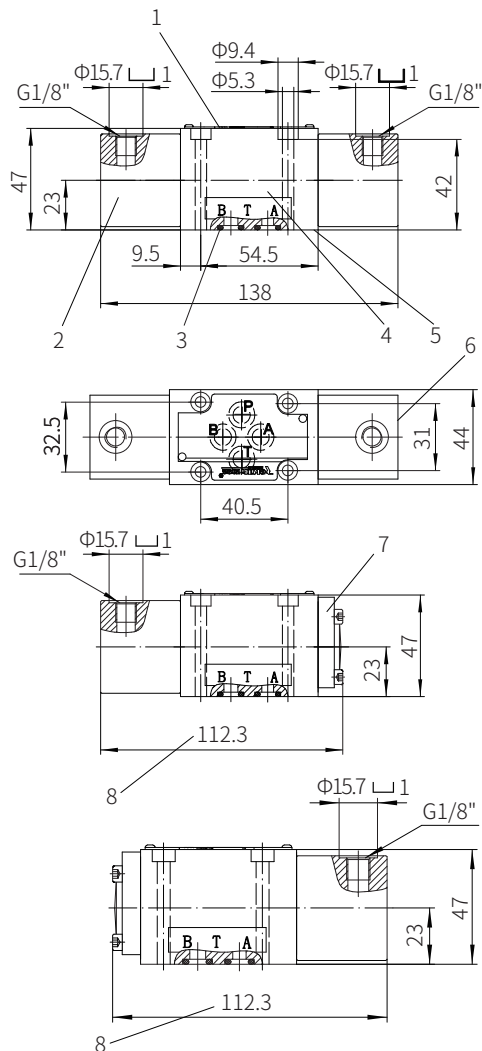
Control pressure 6 bar>T-port pressure		
Characteristic curve	Function symbol	
Reset Spring	1	A, B
	2	C, D, Y
	3	E, J, L, U, M, Q, V, W
	4	F, P
	5	T
	6	G, H
	7	R
.../OF... .../O...	8	A, C, D

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

Component size

Size unit: mm

Model WH6...5XJ/...



- 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

M5×50-10.9 grade GB/T70.1-2000

Tightening torque $M_A = 7.8 \text{ Nm}$

It must be ordered separately
if connection subplate is needed.

Subplate model:

G341/01 (G1/4") ; G341/02 (M14x1.5)

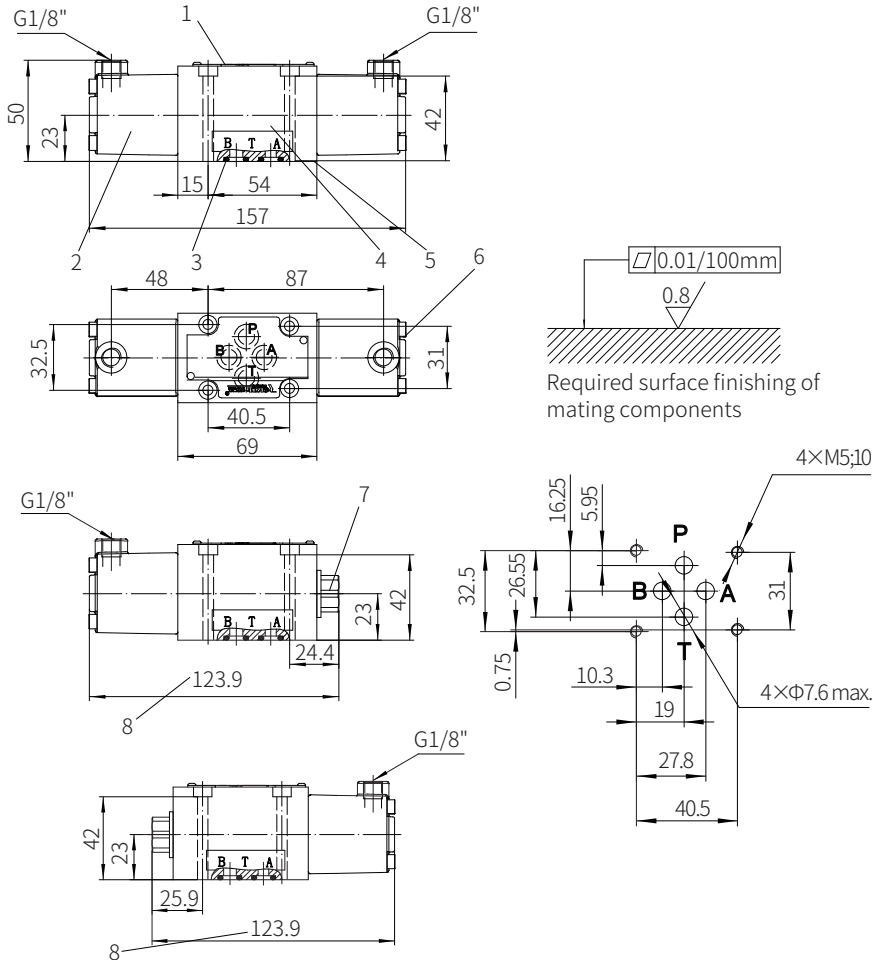
G342/01 (G3/8") ; G342/02 (M18x1.5)

G502/01 (G1/2") ; G502/02 (M22x1.5)

Component size

Size unit: mm

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G342/01 (G3/8") ; G342/02 (M18x1.5)
G502/01 (G1/2") ; G502/02 (M22x1.5)