Solenoid Operated Directional Valve

Model: WE10...3X



♦ Size 10

Maximum working pressure 315 bar
Maximum working flow 120 L/min

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Features

- Solenoid operated directional spool valve
- Wet-pin DC or AC solenoids
- The solenoid coil can be rotated by 90°
- Replace the coil without releasing the oil
- Individual or central electrical connection, optional
- Optional manual emergency operation

Function description, sectional drawing

The WE10 directional valve is a directional spool valve operated by solenoids, It controls the opening, closing, and flow direction of the liquid flow.

The directional valve is mainly composed of valve body (1), one or two solenoids (2), control spool (3), and one or two reset springs (4). Without power on, the control spool (3) is under the action of the reset spring (4), it is in the middle or original position (except impulse type). The control spool (3) is operated by the wet-pin solenoid (2).

To ensure proper function, the pressure chamber of the solenoid must be filled with oil. The force of solenoid (2) acts on control spool (3) and push it from the stationary position to the terminal position. In this way, the pressure oil flows from P to A and B to T, or from P to B and A to T. After the solenoid (2) powered off, the reset spring (4) push the control spool (3) towards the middle position. As an optional "emergency manual operation" (5), it can change the position of control spool (3) without solenoids.



Model WE10... 3XJ/OF... (impulse spool valve), with detent

(Only for symbols A, C and D)

This model is a two-position directional valve with two solenoids and detents, In this way, the control spool can be held in any position and the solenoids do not need to be continuously energized.

Plug-in throttle valve (model 4WE10.../.../B...)

If the flow exceeds the power limit of the valve during the direction changing process under the given working conditions, it is recommended to insert a plug-in throttle into port P.

Model WE10... 3XJ/O... type (Only for symbols A, C and D) This model is a directional vale with two solenoids, two-position switch but no detent. Regardless of its position, one of the solenoids must be powered on, and there is no exact switching position when power is off.



Model 4WE10...3XJ/OF... (Impulse spool valve)



with hidden manual emergency operation =N9 (standard) no manual emergency operation =No code

Models and specifications

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Function symbols



Overview					
Installation position			Optional		
Environment temperature range °C		-30 to +50 (NBR seal)			
		-20 to +50 (FKM seal)			
Weight			Central connection	Individual connection	
Valve with one	e solenoi	d kg	4.4 (DC); 3.6 (AC)	4.3 (DC); 3.5 (AC)	
Valve with two	solenoid	s kg	6.0 (DC); 4.4 (AC) 5.9 (DC); 4.3 (AC)		
Hydraulic					
Maximum port A.	B、 P	bar	315		
working pressure	port T	bar	210 (DC), 160 (AC)	1.4	
			When the working pressure exceeds the		
			allowable pressure, port 1 must be used as drain		
Maximum flow		/min	120		
Flauren symphol V		mm ²	11 (A/P_T) 10 2 (D_A	/P)	
section symbol W		mm ²	$25 (A/B \rightarrow T)$	/D)	
(spool position 0) symbol 0		mm ²	$5.5(A/B \rightarrow T)$		
		111111	J.J (A/ D→1)		
			Fast living organisms Deg	ccordance with DIN 51524; raded oil according to	
			VDMA 24568; HETG (Rape	seed oil) ¹⁾ ; HEPG(Polyeth-	
			yleneglycol) ²⁾ ; HEES (Synt	thetic Fats) 2)	
Oil temperature range		°C	-30 to +80 (NBR seal)		
			-20 to +80 (FKM seal)		
Viscosity range	n	nm²/s	2.8 to 500		
Cleanliness of oil		The maximum allowable pollution level of oil is			
Electrical			SO4406 Class 20 / 18 / .	15	
Voltage type			DC	AC	
Voltage available 4)		V	12, 24, 42, 60, 96, 110.	42, 110, 220, 230	
		·	180, 205, 220	50/60Hz	
Allowable voltage tolerance	9	%	± 1	0	
Power consumption		W	35	-	
Holding power		VA	-	90	
Impact power		VA	-	550	
Power rate			Continuous	s operation	
Switching time	On	ms	45 to 60	15 to 25	
to ISO6403	Off	ms	20 to 30	20 to 30	
Switching frequency	Tir	nes/h	to 15000	to 7200	
Protection class to DIN 40050 ⁵⁾			IP 65		
Insulation grade VDE 0580			F	Н	
Maximum coil temperature	6)	°C	150	180	

1) For NBR seal and FKM seal.

Technical parameters

2) Only for FKM seal.

3) The oil must meet the cleanliness degree requested by the components in the hydraulic system. Effective oil filtration can prevent failure and increase the service life of the components.

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Characteristic curve

(Measured when using HLP 46, $\vartheta_{\rm oil}$ = 40°C ± 5°C)

Open position		P to A	B to A	A to T	P to T
R		-	9	-	-
Open position	P to A	P to B	B to T	A to T	P to T
F	4	-	-	9	9
Р	-	5	8	-	10
G, T			-	-	9
Н			-	-	3

symbol Pto A Pto B Ato T B to T A,B 3 3 - - C 3 3 4 5 D,Y 5 5 6 6 E 1 1 4 4 F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 3 3		Function	Flow direction			on
A,B 3 3 - - C 3 3 4 5 D,Y 5 5 6 6 E 1 1 4 4 F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		symbol	P to A	P to B	A to T	B to T
C 3 3 4 5 D,Y 5 5 6 6 E 1 1 4 4 F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		A, B	3	3	-	-
D,Y 5 5 6 6 E 1 1 4 4 F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		С	3	3	4	5
E 1 1 4 4 F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 3 3		D, Y	5	5	6	6
F 2 3 7 4 G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		E	1	1	4	4
G 3 3 6 7 H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		F	2	3	7	4
H 1 1 6 7 J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		G	3	3	6	7
J 1 1 3 3 L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		Н	1	1	6	7
L 2 2 3 5 M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		J	1	1	3	3
M 1 1 4 5 P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		L	2	2	3	5
P 4 2 5 7 Q 1 2 1 3 R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		М	1	1	4	5
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	T	Р	4	2	5	7
R 3 6 4 - T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5		Q	1	2	1	3
T 3 3 6 7 U,V 2 2 3 3 W 2 2 4 5	ъТ	R	3	6	4	-
U,V 2 2 3 3 W 2 2 4 5	_	Т	3	3	6	7
W 2 2 4 5	,	U, V	2	2	3	3
		W	2	2	4	5

Characteristic limit

(Measured when using HLP 46, ϑ_{oil} = 40°C ± 5°C)

The indicated limit applies to two flow directions (e.g. from P to A and simultaneous return oil flow from B to T).

Due to the effect of hydraulic power inside the valve, the allowable power will be significantly reduced when there is only one flow direction (e.g. from P to A, and the B oil port is closed). The power limit is measured when the solenoid is at the operating temperature, at 10% below the standard voltage and without tank preloading.

ne standard voltage and without tank preloadir



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Characteristic curve	Function symbol
1	C, C/O, C/OF D, D/O, D/OF Y, M
2	E
3	A/O, A/OF L, U, J, Q, W
4	Н
5.0	R, L ² , U ²
6	G
7	Т
8	F, P
9	A, B
10	V

 Return oil flow (Independent from area ratio)
Applicable only in the middle position

Characteristic limit

(Measured when using HLP 46, ϑ_{oit} = 40°C ± 5°C)

Valve with AC solenoid



Characteristic curve Function symbol C, C/O, C/OF D, D/O, D/OF 1 E, L U, Q, W М 3 4 A, B 5 A/O, A/OF, J 6 G 7 F, P 8 V 9 Т Н 11 R 12¹ L. U

Applicable only in the middle position 42V, 50Hz; 110V, 50Hz; 120V, 60Hz; 127V, 50Hz; 220V, 50Hz; 240V, 60Hz;



Characteristic curve	Function symbol
1	C, C/O, C/OF D, D/O, D/OF Y
2	A/O, A/OF
3	E
4	М
5	V
6	H

42V, 60Hz; 110V, 60Hz; 127V, 60Hz; 220V, 60Hz;

Please consult us for the power limit of the special valve spools!

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Component size

Valve with DC or AC rectified solenoid

Size unit: mm

Size unit: mm

Valve with AC solenoid



72.5) 40 8 3 ġ 10 5 4 0.01/100mm 0.8/ Required surface finishing of mating components 50.8 37.3 27 16.7 4×M6/12

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Valve fixing screw M6x40-10.9 grade GB/T70.1-2000 Tightening torque M_A=13.7Nm It must be ordered separately if

connection subplate is needed. G66/01 (G3/8"); G66/02(M18x1.5) G67/01(G1/2"); G67/02 (M22x1.5) G534/01 (G3/4"); G534/02 (M27x2)

166.9

5×Φ10.5

Maximum