



WMM...type Manual Operated Directional Control Valve



WMM16, 25, 32 type

Size 16 , 25, 32
Max. Working Pressure: 315 bar
Max. Flow: 450L/min

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Features

- Direct operating directional spool valves with mechanical,manual operation
- For sub-plates mounting
- Hand lever
- Porting pattern confirms to DIN 24 340 form A, and ISO 4401

Function and configurations

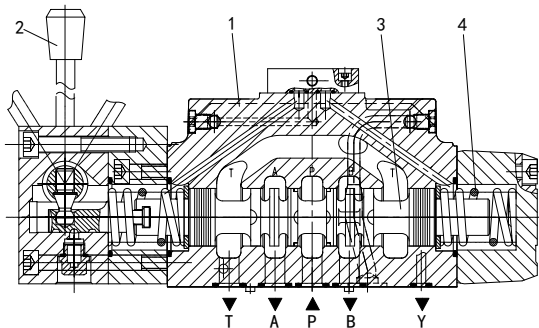
WMM type valves are hand lever operation directional spool valves. They control the start, stop and direction of a flow. The directional valves basically comprise of a valve housing (1), handle (2), control spool (3), one or two return springs (4).

In the unoperated condition the control spool (3) is held in the neutral or its initial position by the return springs (4). The control spool (3) is actuated by the hand lever (2) via a joint and a pin. The spool is moved from the initial position to the switched position.

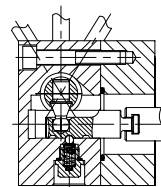
After the hand lever (2) has been returned to the zero switched position, the spool (3) is returned to the neutral position via the return springs (4).

4WMM.../F... (With the detent)

The directional valves with one detect, 2 or 3 switched position, can be orientated at any switched position.



Type 4WMM...7XJ

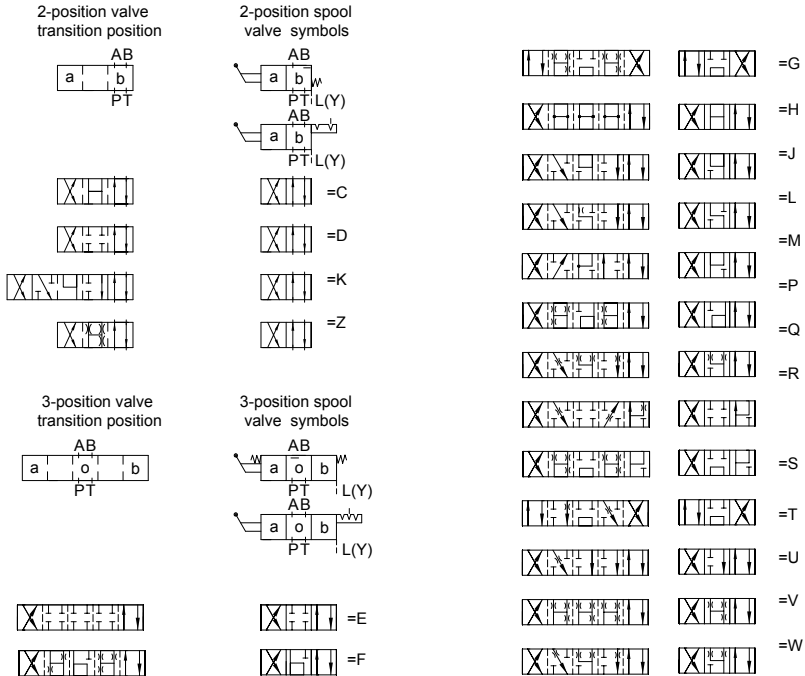


Type 4WMM...7XJ/F
(with detent)

Specification

4	WMM		- 7XJ /		*
4 ways	= 4				Further details in clear text
Nominal size 16	=16			No code =	NBR seals
Nominal size 25	=25			V =	FKM seals
Nominal size 32	=32			No code =	Return spring
Symbols e.g. C, E etc. see below				F =	With detent
				7XJ =	Series 70J to 79J
					(70J to 79J: unchanged installation and connection dimensions)

Symbols



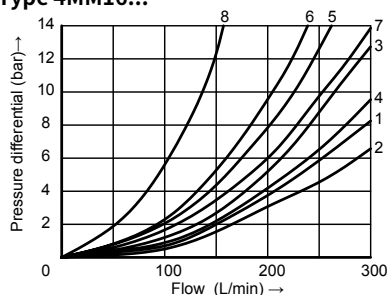
Technical data

Nominal size		16	25	32
Weight	kg	Approx.8	Approx.12.2	Approx.49
Actuation force –with spring return	N	Approx.75	Approx.105	Approx.170
–with detent	N	Approx.75	Approx.105	Approx.170
Actuation angle about the neutral position	°	2 × 26°	2 × 32°	2 × 30°
Max.operating pressure port A,B,P	bar	315		
Port T	bar	250		
Fluid		Mineral oil suitable for NBR and FKM seal		
		Phosphate ester for FKM seal		
Fluid temperature range	°C	-30 to +80 (NBR seal)		
		-20 to +80 (FKM seal)		
Viscosity range	mm ² /s	2.8 to 380		
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406		

Characteristic curves

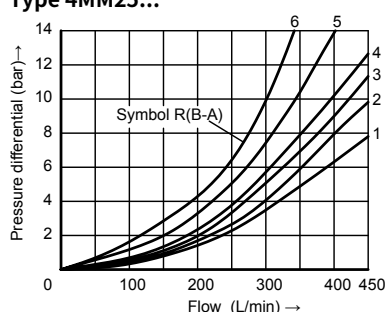
(Measured at $t=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using HLP46)

Type 4MM16...



Spool symbol	Flow direction				
	P to A	P to B	A to T	B to T	P to T
E, Y, D	1	1	1	3	-
F	2	2	3	3	-
G, F	5	1	3	7	6
H, C, Q	2	2	3	3	-
J, K, L	1	1	3	3	-
M, W	2	2	4	3	-
R	2	2	4	-	-
U	1	1	4	7	-
S	4	4	4	-	8

Type 4MM25...



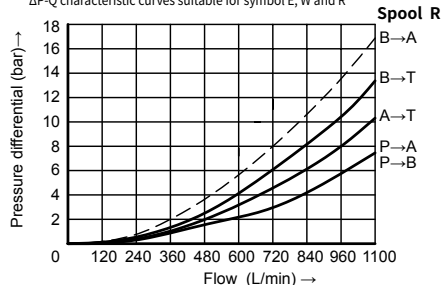
Spool symbol	Flow direction				
	P to A	P to B	A to T	B to T	P to T
E	2	2	1	4	-
F	1	2	1	2	4
G	2	2	2	4	6
H	2	2	1	3	2
J	2	2	1	3	-
L	2	2	1	2	-
M	2	2	1	4	-
P	2	2	1	4	6
Q	2	2	1	4	-
R	1	2	1	-	-
T	2	2	2	4	5
U	2	2	1	4	-
V	2	2	1	4	-
W	2	2	1	3	-

4 spools L neutral position A - T

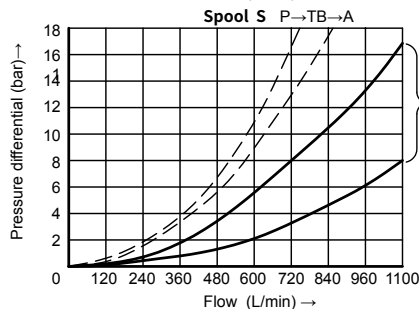
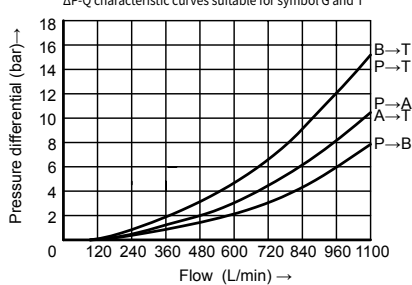
6 spools U neutral position B - T

Type 4MM32...

ΔP-Q characteristic curves suitable for symbol E, W and R



ΔP-Q characteristic curves suitable for symbol G and T



Others symbols' characteristic curve

Characteristic curves (Measured at t=40°C ±5°C , using HLP46)

The switching performance of the valves depends on the filtration. 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. If only one flow direction is available, in certain cases, the admissible flow can be significantly smaller.

Nominal size 16

Allowing flow qv L/min, 2-position valve						Allowing flow qv L/min, 3-position valve					
Symbol	Operating pressure P bar					Symbol	Operating pressure P bar				
	70	140	210	280	315		70	140	210	280	315
Return spring						Return spring					
C	300	300	300	260	220	E,H,J,L,M,Q,R,U,W	300	300	300	300	300
D	300	300	210	190	160	F,P	300	300	210	190	170
K	300	300	200	150	130	G,S,T	300	300	220	210	180
Z	300	240	190	170	150	V	300	260	200	180	170
With detent						With detent					
C,D,K,Z	300	300	300	300	300	E,H,J,L,M,Q,R,U,W	300	300	300	300	300
						F,P	300	300	280	230	230
						G,S,T	300	300	230	230	230
						V	300	300	250	230	230

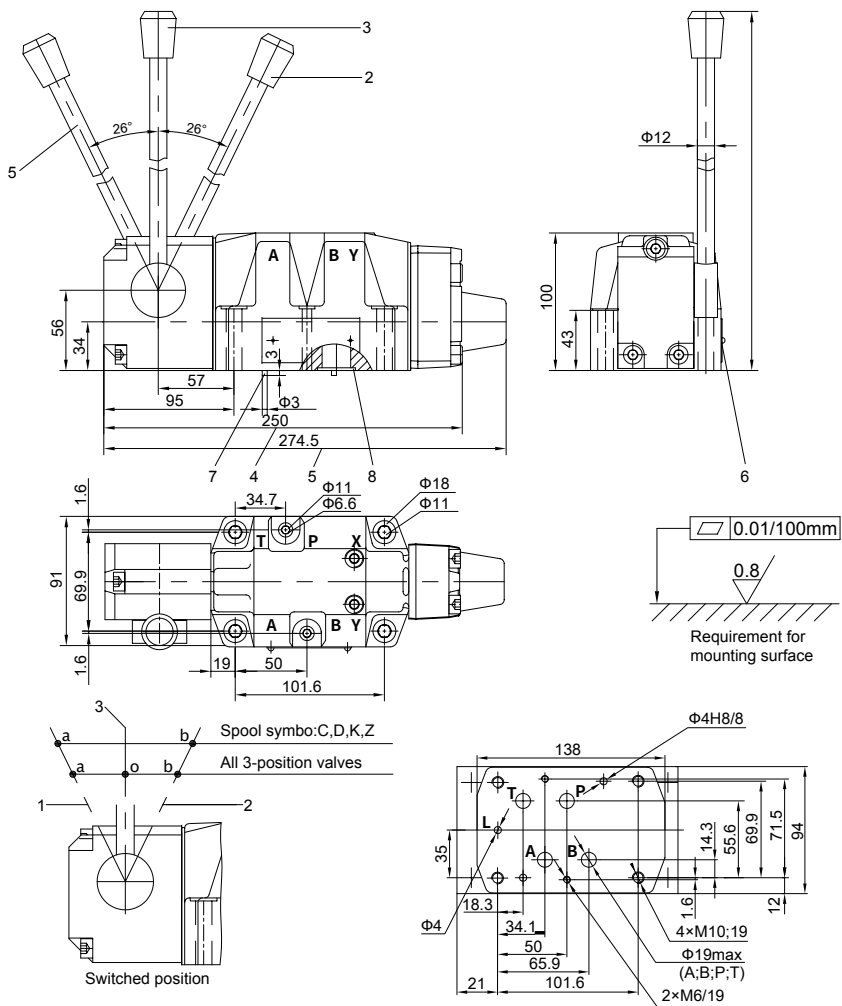
Nominal size 25

Allowing flow qv L/min, 2-position valve						Allowing flow qv L/min, 3-position valve					
Symbol	Operating pressure P bar					Symbol	Operating pressure P bar				
	70	140	210	280	315		70	140	210	280	315
Return spring						Return spring					
C	450	300	250	200	180	E,J,L,M,Q,R,U,W	450	450	450	450	450
D	350	300	275	250	200	F	450	250	200	135	110
K	200	150	140	130	120	G,T	450	330	290	230	180
Z	300	270	240	220	200	H	450	450	400	400	350
						P	450	310	240	215	150
						V	450	310	280	270	200
With detent						With detent					
C, D, K, Z	450	450	450	450	450	E, F, G, H, J, L, M, P, Q, R, T, U, W	450	450	450	450	450
						V	450	450	400	350	300

Nominal size 32

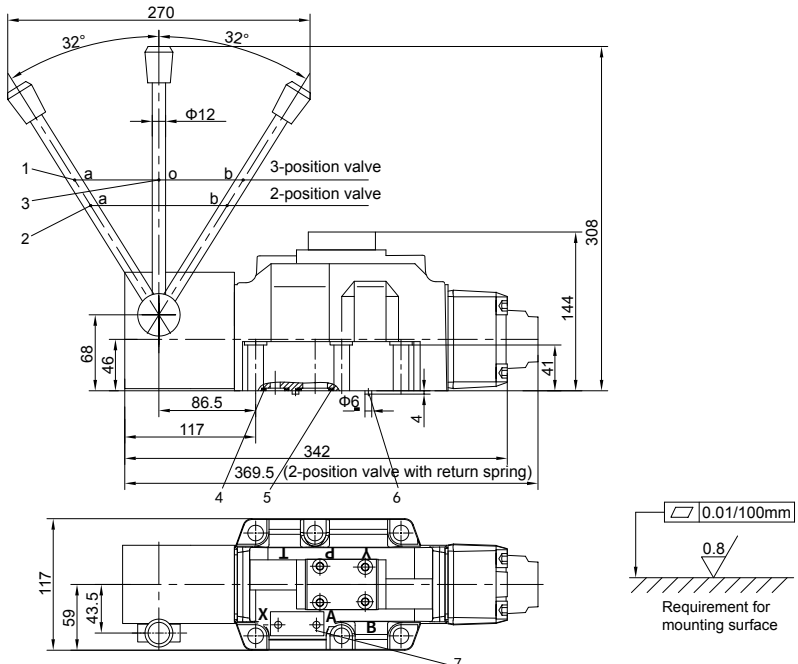
2-position and 3-position valves with spring return					
Flow L/min	When...(bar)				
Spool symbol	70	140	210	280	315
E,J,L,M,Q, R,V,U,W	1100	1050	860	750	680
F,G,H,S,T C,D,K,Z	650	450	370	320	280
2-position and 3-position valves with detent					
All symbols	1100	1050	860	750	680

Unit dimensions: nominal size 16

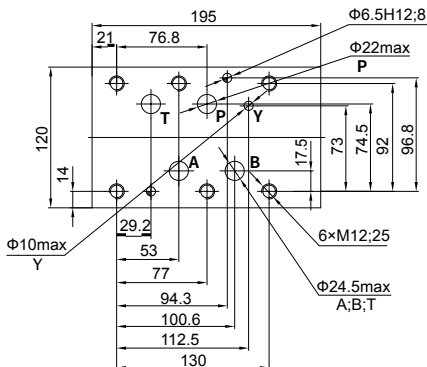


- 1 Switched position a
- 2 Switched position b
- 3 Switched position 0 (a and b for 2-position valve)
- 4 2-position and 3-position valves with detent, 3-position valve with spring centered
- 5 2-position valve with return spring
- 6 Nameplate
- 7 2 locating pins 3x8
- 8 O-ring 22x2.5 (ports A, B, P and T)
O-ring 10x2 (port L)

Unit dimensions: nominal size 25

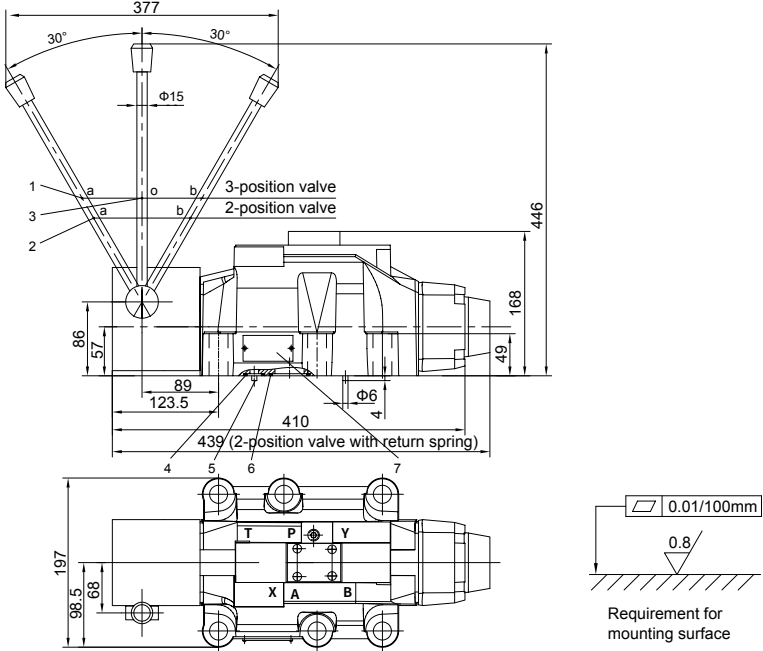


Port X and L unavailable, port Y is used as drain port



- 1 Switched position a
- 2 Switched position b
- 3 Switched position 0
- 4 O-ring 19×3 (ports X and Y)
- 5 O-ring 27×3 (ports A, B, P and T)
- 6 2 locating pins 6×12
- 7 Nameplate

Unit dimensions: nominal size 32



Port X and L unavailable, port Y is used as drain port

- 1 Switched position a
- 2 Switched position b
- 3 Switched position o
- 4 O-ring 19×3 (ports X and Y)
- 5 2 locating pins 6×12
- 6 O-ring 42×3 ports A, B, P and T)
- 7 Nameplate

