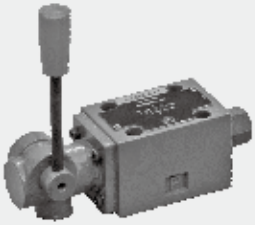
4/3, 4/2 and 3/2 directional valve with mechanical, manual operation

2.3

Type WMM6...L6X

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



Contents

Features

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

Function and configurations

Directional Valves with Mechanical and Manual Operation type WMM6...L6X, are direct operated spool valves which switch the flow fluid by rotating the handle to move the spool axially. They have 2-position, 3-position as well as various spool symbols, optional detent or return spring. And they are sub-plate mounting.

Type WWM.../

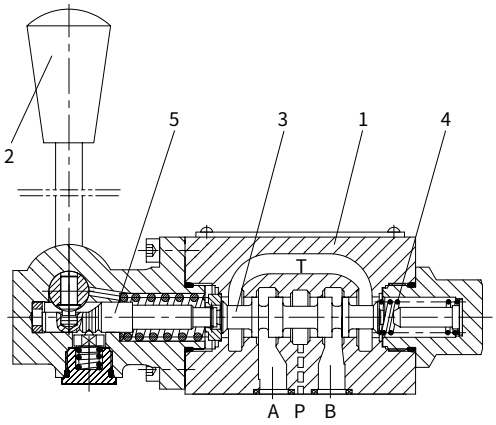
It consists of housing (1), hand lever (2), control spool (3), one or two return springs (4) and push rod (5). In the non-operated condition the control spool (3) is held in the neutral or starting position by the return springs (4). When the hand lever (2) is pushed to right or left, the hand lever (2) acts at the push rod (5) by hinge and direct controls the spool (3), at that time, the spool (3) moves to an expected position. When the handle returns to Zero position, spool returns to normal position by return spring. The switched position is operated by the hand lever.

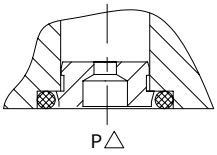
Type WWM.../F

Their operating principle is basically same as the type WWM.../, and they are fitted with 2 or 3 switched positions and a detent, so all the switched positions are fixed.

Cartridge throttle

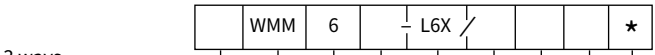
The use of a throttle insert is required, when, due to given operating conditions, flows can occur during the switching processes that exceed the performance limit of the valve.
These throttles are to be inserted into the P-channel of the directional valve.





Cartridge throttle

Ordering code



3 ways
(version A and B) =3
4 ways =4

Handle operation

Nominal size 6 =6

Symbols e.g. C, E, EA, EB etc. see below

Series L60 to L69 =L6X
(L60 to L69:unchanged installation
and connection dimensions)

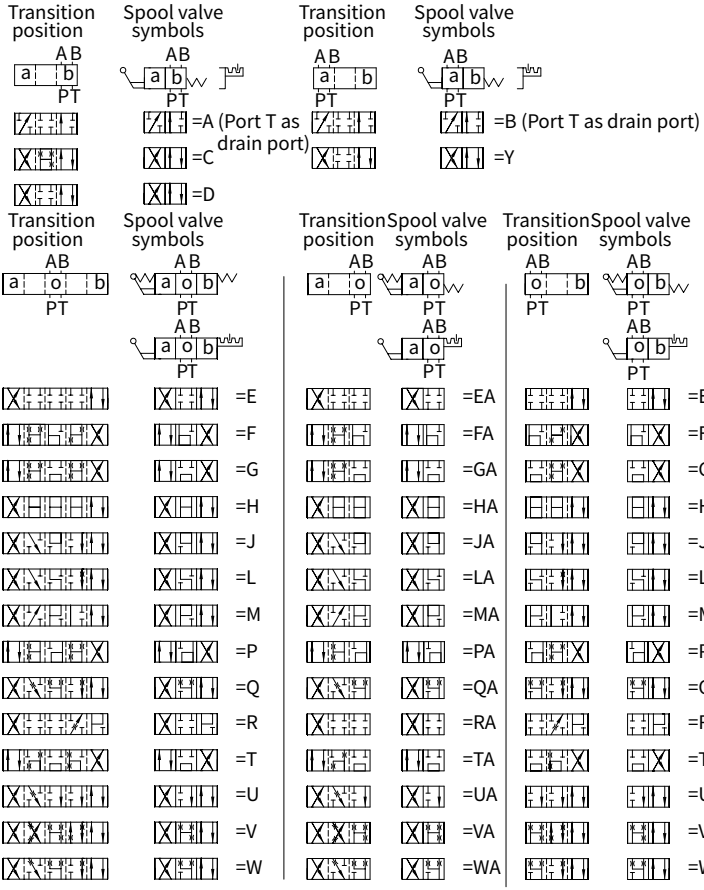
Further details in clear text

No code = NBR seals
V = FKM seals

No code = Wthout cartridge throttle
B08 = Throttle - Φ0.8 mm
B10 = Throttle - Φ1.0 mm
B12 = Throttle - Φ1.2 mm

No code = Return spring
F = With detent

Symbols



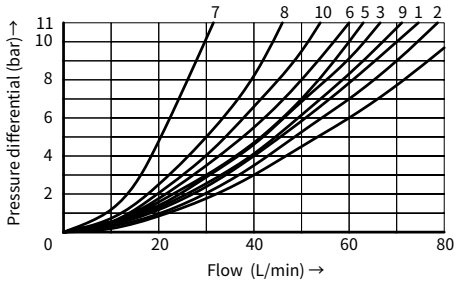
Technical data

Fixing position			Optional
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
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
Fluid			Mineral oil for NBR and FKM seal
			Phosphate ester for FKM seal
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
Weight		kg	1.6

02

Characteristic curves

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



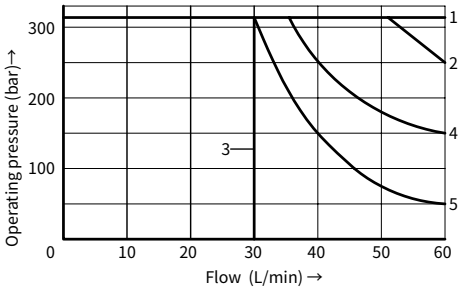
7 Symbol "R" in switched positions B → A
8 Symbol "G" and "T" in neutral position P → T
9 Symbol "H" in neutral position P → T

Spool symbol	Flow direction			
	P to A	P toB	A toT	B toT
A B	3	3	-	-
C	1	1	3	1
D Y	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
J Q	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

Operating limitations

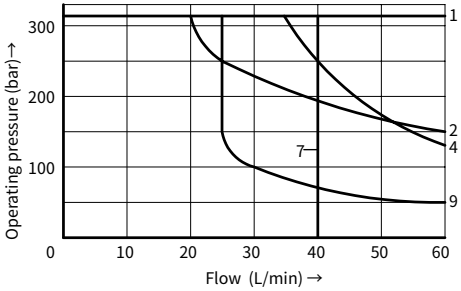
The switching function of the valves depends on the filtration. To achieve the specified admissible flow values, we recommend full flow filtration with 25 µm. The flow forces acting within the valves also affect the flow performance. With 4 way valves the specified flow data thus apply to normal operation with 2 volume flow directions (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 certain 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).

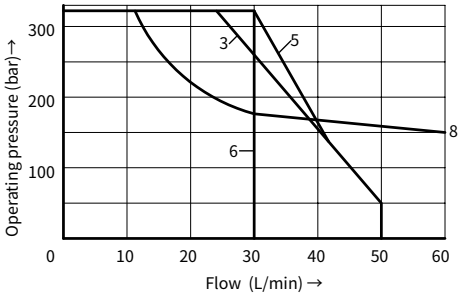
Without detent



Curve		Spool symbol
Without detent	1	M E,J L,Q,U,W C,D,Y,G H,R
	2	A,B
	3	V
	4	F,P
	5	T

With detent

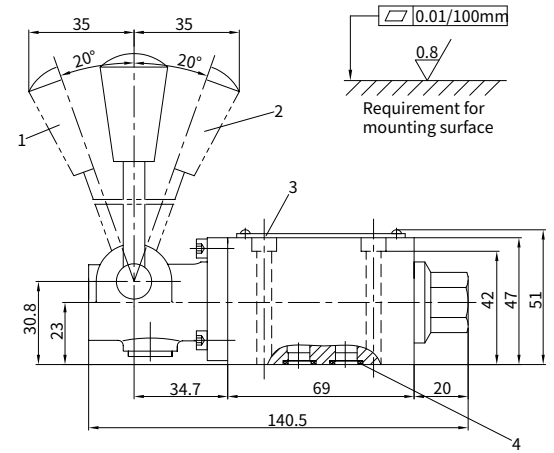


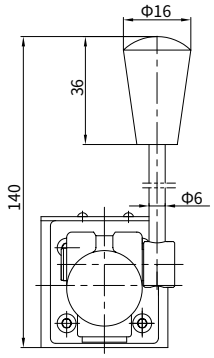


Curve		Spool symbol
With detent	1	M H,C D,Y
	2	E,J,Q,L U,W
	3	A,B
	4	G,T
	5	F
	6	V
	7	P
	8	R
	9	T

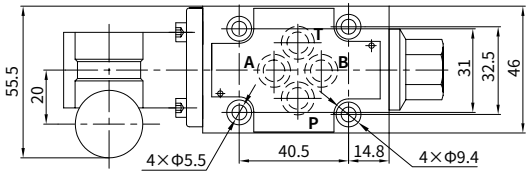
Unit dimensions

(Dimensions in mm)

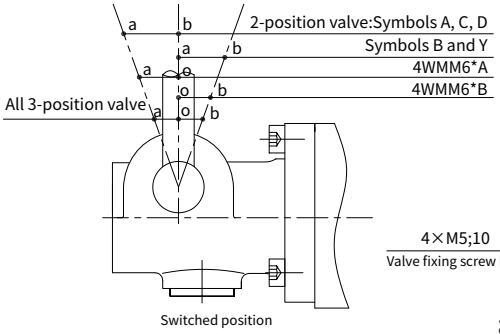


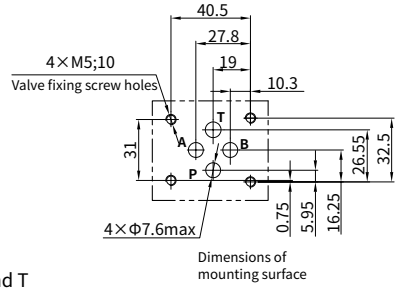


Valve fixing screws:
M5×50 GB/T 70.1-10.9,
Tightening torque M_A=9 Nm
must be ordered separately



It must be ordered separately if connection plate is needed.
Type :
G341/01(G1/4), G341/02 (M14×1.5)
G342/01(G3/8), G342/02 (M18×1.5)
G502/01(G1/2), G502/02 (M22×1.5)





1 Switched position b → a, o → a
2 Switched position a → b, o → b
3 Nameplate
4 O-ring 9.25×1.78 for ports A, B, P and T