

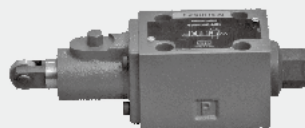


4/3, 4/2 and 3/2 directional valve with mechanical, manual operation

2.6

Type WMR(U)6...L6X

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



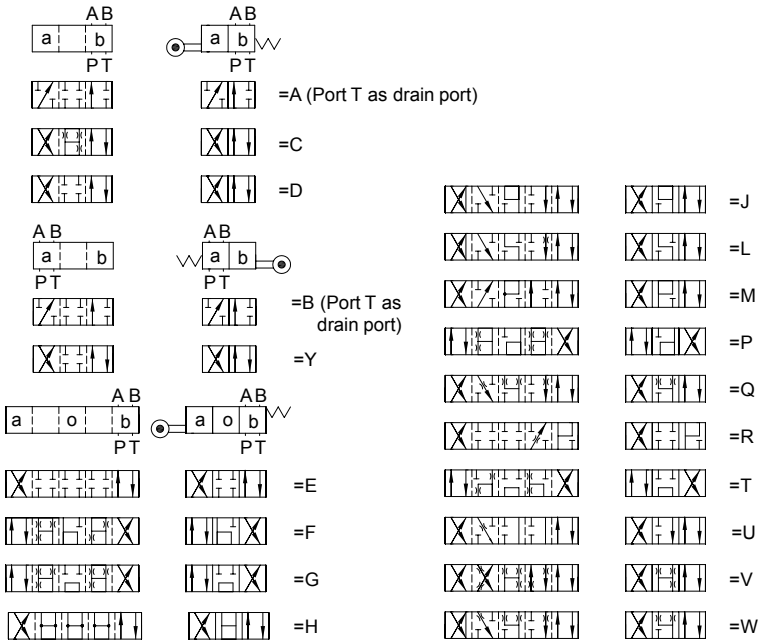
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Features

- Direct operated directional spool valves with mechanical, manual operation
- Roller plunger
- 19 versions of spools, optional

Symbols



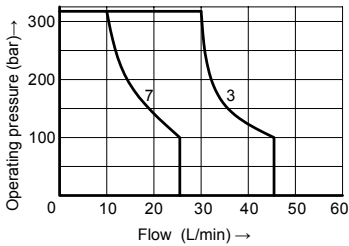
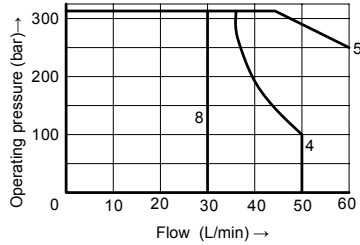
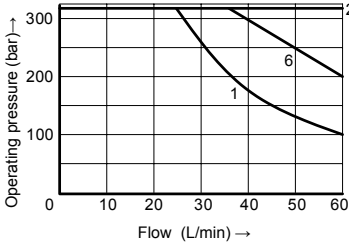
Technical data

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 60
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, Phosphate ester
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	1.4

Operating limitation

Because of the adhesive effect, the switching function of the valves depends on the filtration. In order 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).

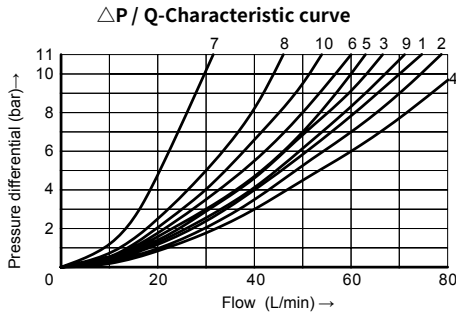
If only one flow direction is available, in critical cases, the admissible flow can be significantly smaller (e.g. when using a 4 way valve as 3 way valve, due to blocked connection A or B).



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

Characteristic curves

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

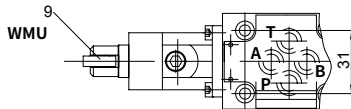
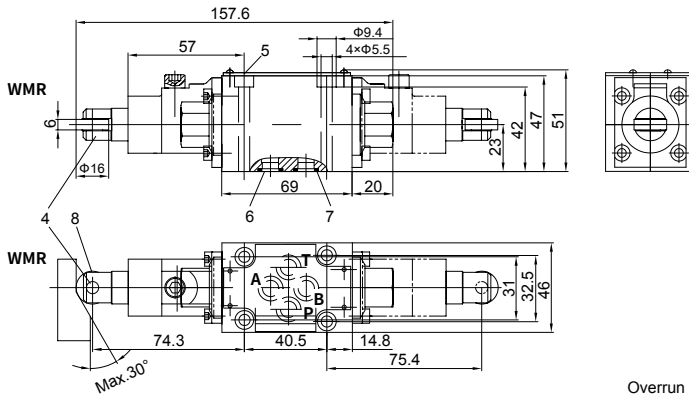


- 7 Symbol "R" in switched positions B → A
- 8 Symbol "G" and "T" in neutral position P → T
- 9 Symbol "H" in neutral position P → T

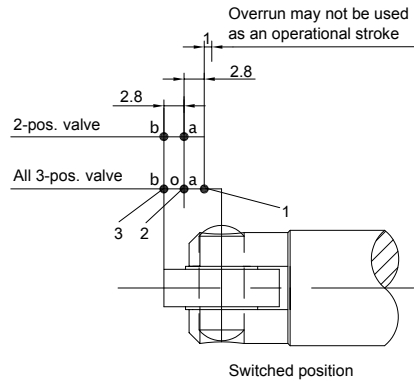
Spool symbol	Flow direction			
	P to A	P to B	A to T	B to T
AB	3	3	-	-
C	1	1	3	1
DY	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
J Q	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	-
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

Unit dimensions

(Dimensions in mm)



- 1 Switched position 0 → a
- 2 Switched position b → a, a → 0, b → 0
- 3 Switched position 0 → b, a → b
- 4 Pin
- 5 Nameplate
- 6 Mounting surface
- 7 O-ring 9.25 × 1.78, for ports A, B, P and T
- 8 Roller
- 9 Push rod



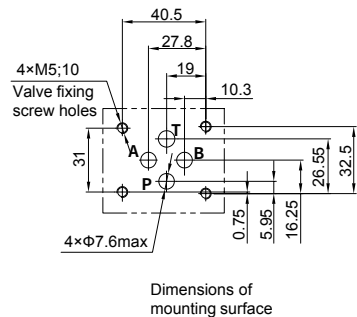
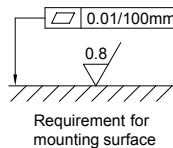
It must be ordered separately, if connection plate is needed.

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)

Valve mounting screws:

Internal hexagon screw
 M5 × 50 GB/T 70.1-10.9,
 Tightening torque, $M_A=9Nm$
 must be ordered separately.



02

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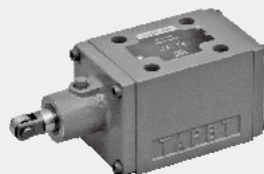


4/3, 4/2 and 3/2 directional valve with mechanical, manual operation

2.7

Type WMR(U)10...L3X

Size 10
Up to 315bar
Up to 120L/min



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Unit dimensions	05

Features

- Direct operated directional spool valves with mechanical, manual operation
- Roller with 90° rotating
- 19 versions of spools, optional

Function

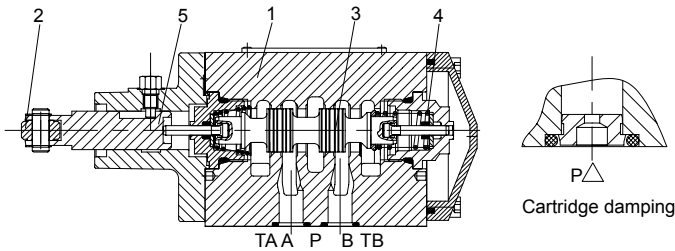
Directional valves, type WMR/U10.. are mechanical directional spool valves with roller/plunger. There are 2 position 3 way, 2 position 4 way and 3 position 4 way valves with many versions of spool symbols, and the roller/plunger can be rotated by 90° .

The valves consist basically of the housing (1), roller/plunger (2) , spool (3), return springs (4), and pushing rod (5). In the unoperated condition, the spool (3) is held in the initial position by the return spring, while in operated condition, the spool (3) is pushed to the expected position by roller/plunger (2) conquering the return springs (4).



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.

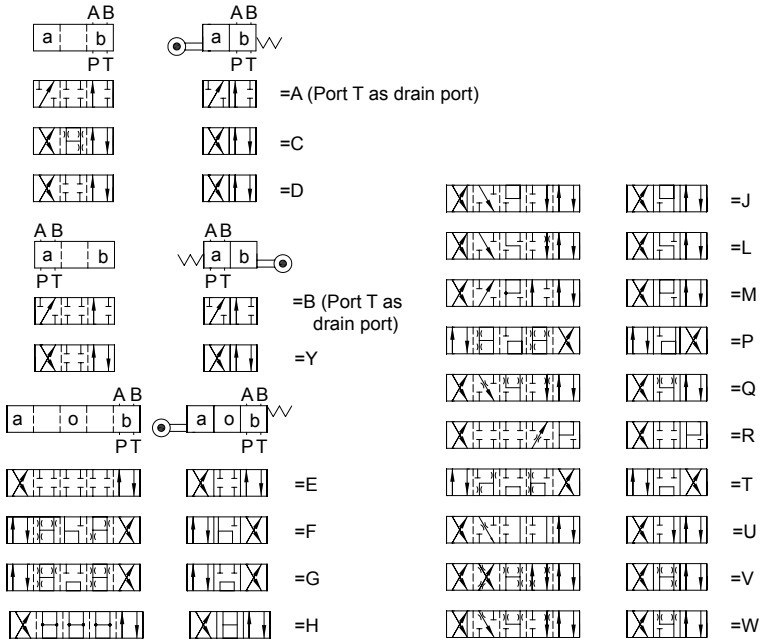
These throttles are to be inserted into the P-channel of the directional valve.



Ordering code

WM	10	- L3X /	*
3 ways (version A and B) =3 4 ways =4			Further details in clear text
 Roller fixed horizontal =R  Roller fixed vertically =U Roller and push rod see 'Unit dimensions'			No code = NBR seals V = FKM seals
Nominal size 10 =10			No code = Without cartridge throttle B08 = Throttle - Φ 0.8 mm B10 = Throttle - Φ 1.0 mm B12 = Throttle- Φ 1.2 mm
Symbols e.g. C, E etc.see next page			L3X = Series L30 to L39 (L30 to L39: unchanged installation and connection dimensions)

Symbols



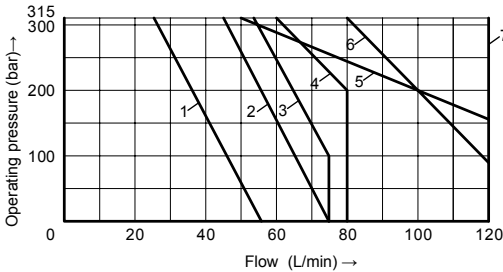
Technical data

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 60
Max. flow-rate	L/min	120
Flow cross section (switching neutral position)	Type V	mm ² for symbol V 11(A/B to T) 10.3(P to A/B)
	Type W	mm ² for symbol W 2.5(A/B to T)
	Type Q	mm ² for symbol Q 5.5(A/B to T)
Fluid		Mineral oil, Phosphate ester
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	4

Operating limitation

Because of the adhesive effect, the switching function of the valves depends on the filtration. In order 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).

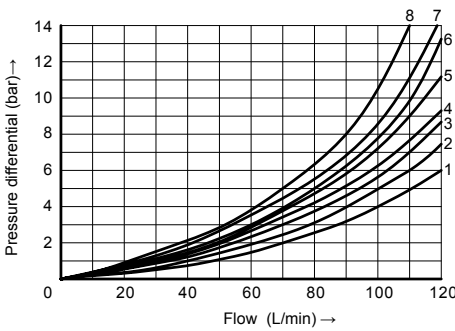
If only one flow direction is available, in critical cases, the admissible flow can be significantly smaller (e.g. when using a 4 way valve as 3 way valve, due to blocked connection A or B).



Curve	Spool symbol
1	A,B
2	A/O
3	H
4	F,G,P,R,T
5	J,L,Q,U,W
6	C,D,E,M,Y,Y
7	C/O,C/OF; D/O,D/OF

Characteristic curves

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



8 Symbols "G" and "T" in mid position (P → T)

8 Symbol "R" in position (A → B)

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

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