



**Directional control valves  
mechanical operation Type 4WMU/R**

RE 22275/12.2004

Size 6 , 10

up to 31.5 MPa

up to 120L/min

Replaces:  
RE 22275/05.2001

**Features:**

- Direct operated directional spool valve with adjustable roller operation
- Roller lever assembly may be stepped in 90°
- Radial forces absorb reliably (up to 30° )
- 19 kinds standard spool function

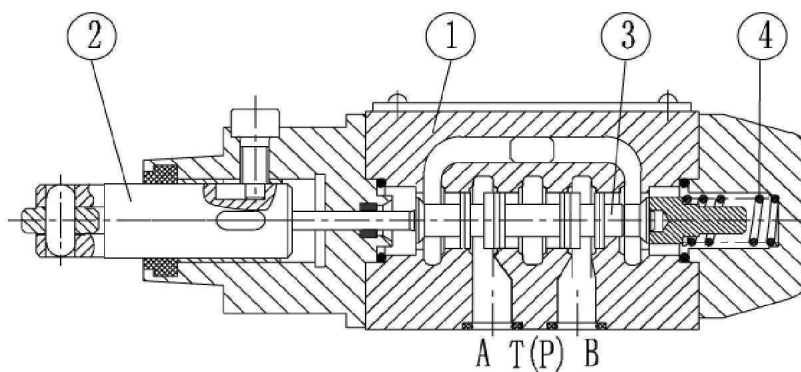


**Funtion,section**

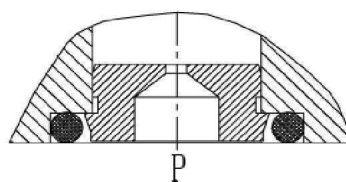
Directional valves type WMR are roller operated directional valves.

They basically consist of the housing (1), the roller lever (2), the control spool (3) and the return spring (4).

A plug-in throttle is required if flow greater than the permitted value may occur while the valve spool is being from one position to another. The plug-in orifice is fitted in the P port of the directional valve.



Type 4WMR6



Cartridge throttle

## Ordering details



3 service ports = 3  
4 service ports = 4



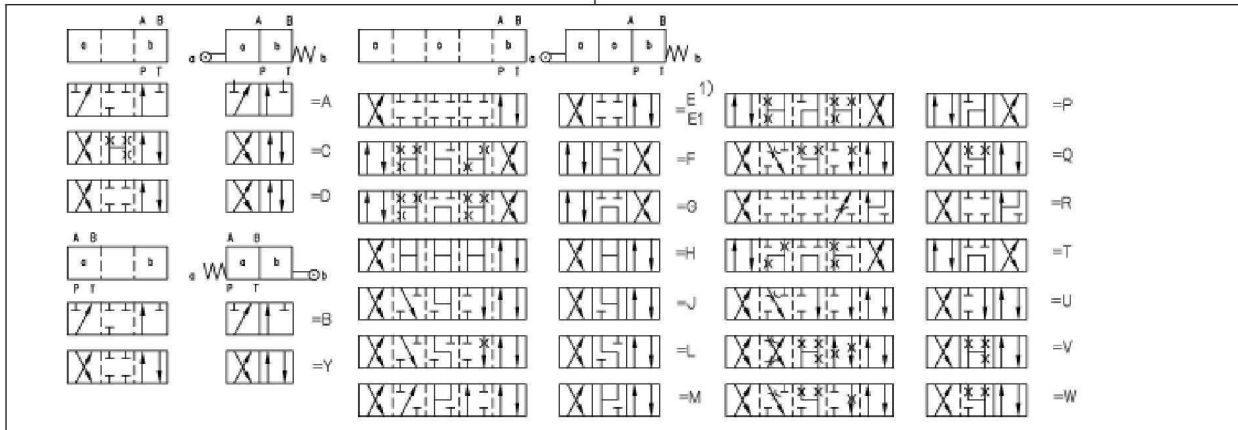
Size 6 = 6  
Size 10 = 10

Further details in clear text

No code = mineral oils  
V = phosphate ester

No code = Without throttle insert  
B08 = Throttle  $\Phi$  0.8 mm  
B10 = Throttle  $\Phi$  1.0 mm  
B12 = Throttle  $\Phi$  1.2 mm

50 = Series 50 to 59  
(50 to 59: unchanged installation and connection dimensions)  
(for size 6)  
30 = Series 30 to 39  
(30 to 39: unchanged installation and connection dimensions)  
\* (for size 10)



1) Symbol E1:P to A and B with pre-opening

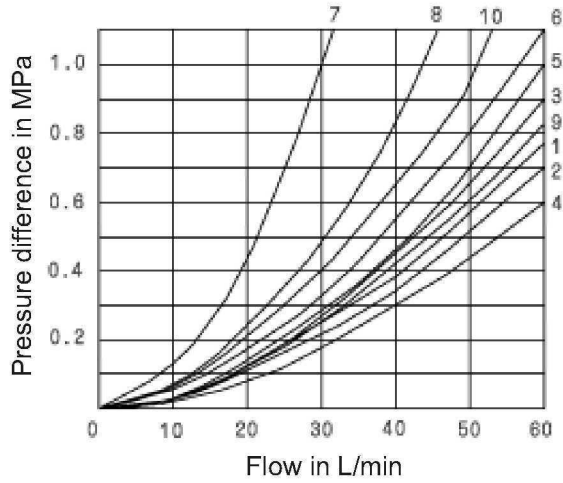
Warning: please consider pressure intensification with single rod cylinders

## Technical data

Size	6		10	
Operating ports A, B, P (MPa)	up to 31.5			
Pressure port T (MPa)	up to 6		up to 16	
In symbols A and B, the T port must be used as a drain connection if the operating pressure is above the pressure permitted at the T port				
Max. flow (L/min)	up to 60		up to 120	
Flow cross section (control position 0)	for symbol Q, 6% of nominal cross section			
	for symbol W, 3% of nominal cross section			
Pressure fluid	mineral oils or phosphate ester			
Pressure fluid temperature range (° C)	- 30 to + 80			
Viscosity range (mm <sup>2</sup> /s)	2.8 to 500			
Weight (kg)	approx. 1.4		approx. 3.3	
Operating force at roller lever (N)	at zero tank pressure	100 to 121	two positions valve	70 to 140
	at a pressure	184 to 205	three positions valve	70 to 175

**Characteristic curves** (measured at  $v = 41 \text{ mm}^2/\text{s}$  and  $t = 50 \text{ }^\circ\text{C}$ )

WM<sub>U</sub><sup>R</sup><sub>6</sub>

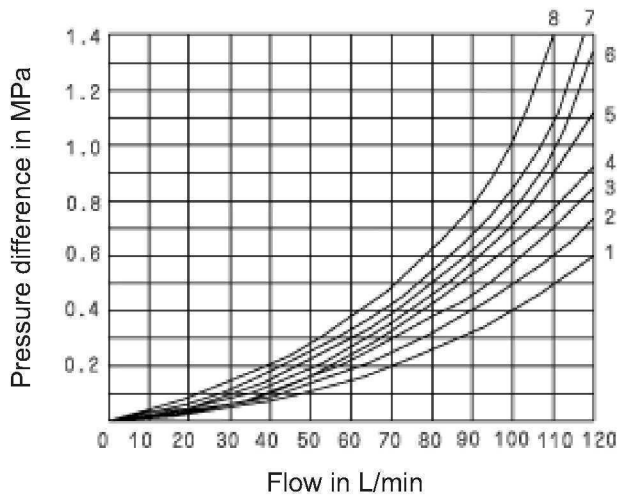


Symbols	Direction of flow			
	P → A	P → B	A → T	B → T
A	3	3	-	-
B	3	3	-	-
C	1	1	3	1
D	5	5	3	3
E	3	3	1	1
F	1	3	1	1
G	6	6	9	9
H	2	4	2	2
J	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
Q	1	1	2	1
R	5	5	4	-
T	10	10	9	9
U	3	3	9	4
V	1	2	1	1
W	1	1	2	2
Y	5	5	2	3

7. Symbol "R" with position A-B

8. Symbols "G" and "T" with mid position P-T

WM<sub>U</sub><sup>R</sup><sub>10</sub>



Symbols	Direction of flow			
	P → A	P → B	A → T	B → T
A	4	3	-	-
B	3	4	-	-
C	3	3	4	4
D	3	3	5	5
Y	4	4	6	6
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

7. Symbol "R" with position A-B

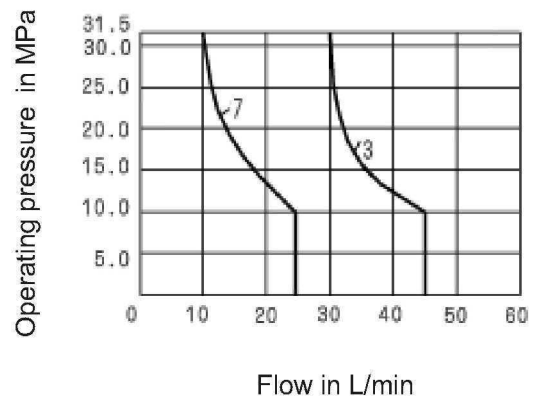
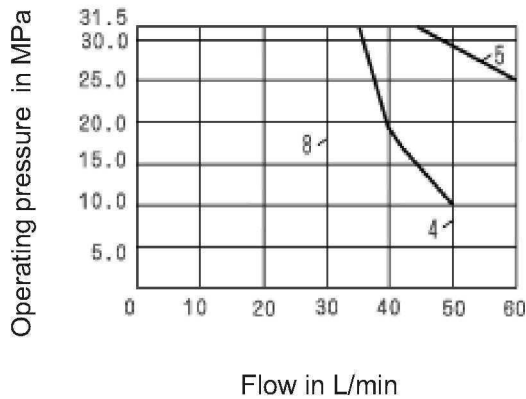
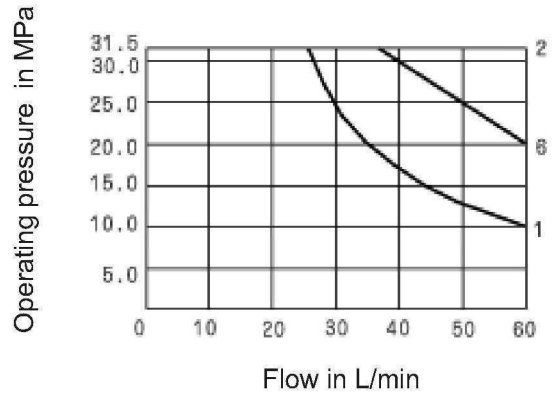
8. Symbols "G" and "T" with mid position P-T

**Performance limits** (measured at  $v=41\text{mm}^2/\text{s}$  and  $t=50^\circ\text{C}$ )

The operation of the valve is dependent upon the effect of filtration. In order to achieve the given permissible flow rates, full flow filtration  $20\mu\text{m}$  is required. The flow forces operating within the valve influence the valve performance. For 4 way valves, the flows given are valid for normal operation with 2 directions of flow (e.g. from P to A and from B to T). If only one flow path is operative e.g. if port A or B is blocked and the valve is used as a 3 way valve, the permissible flows can be very much lower.

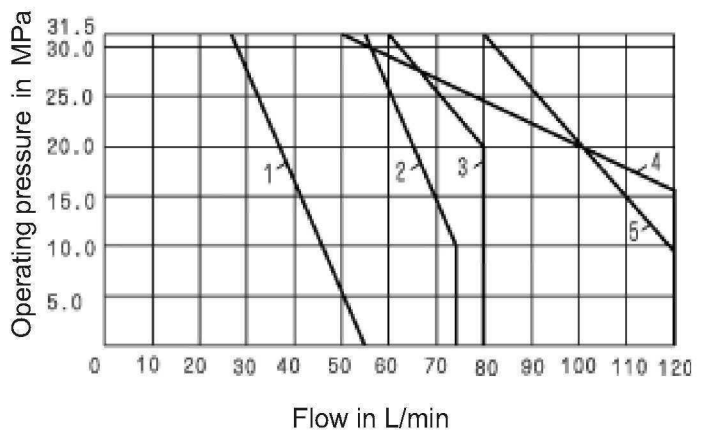
WM<sup>R</sup><sub>U</sub> 6

Curve	symbol
1	A, B
2	C, D, Y, E, E1, H, M, Q, U, W
3	F, P
4	G
5	J, L
6	R
7	T
8	V



WM<sup>R</sup><sub>U</sub> 10

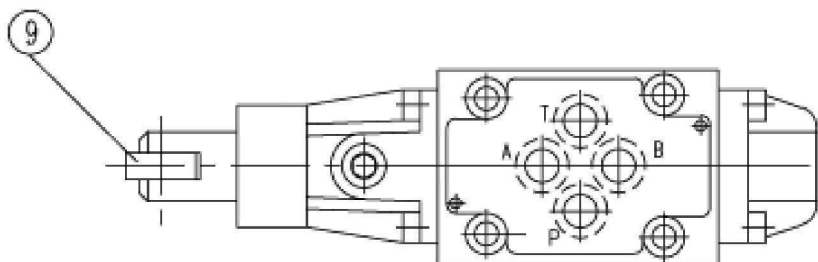
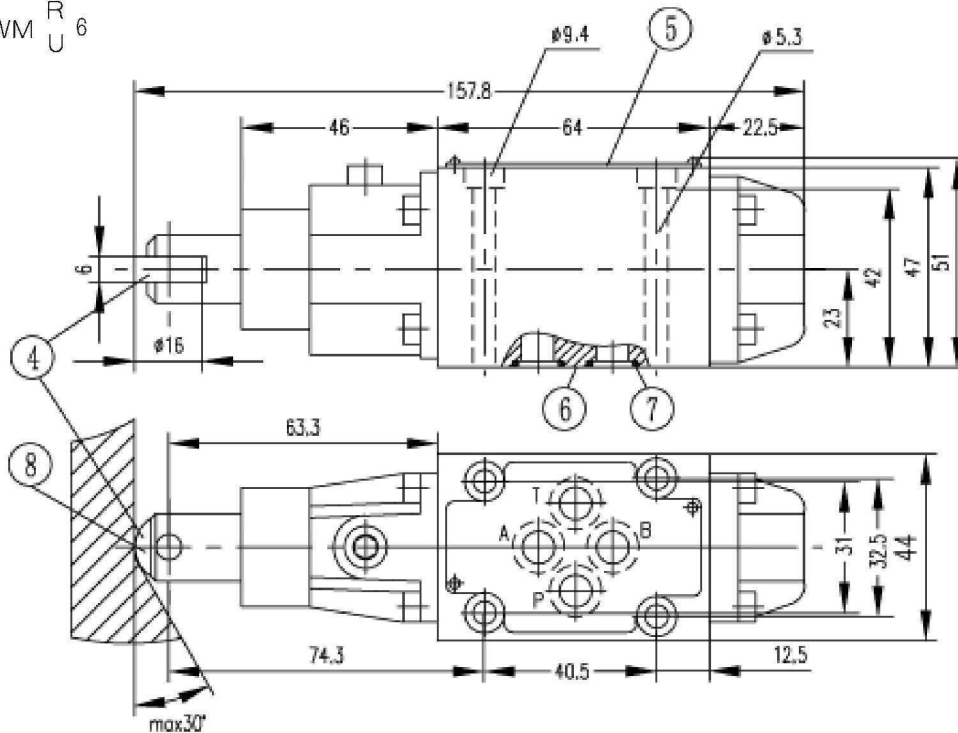
Curve	Symbol
1	A, B
2	H
3	F, G, P, R, T
4	J, L, Q, U, W
5	C, D, E, M, V, Y



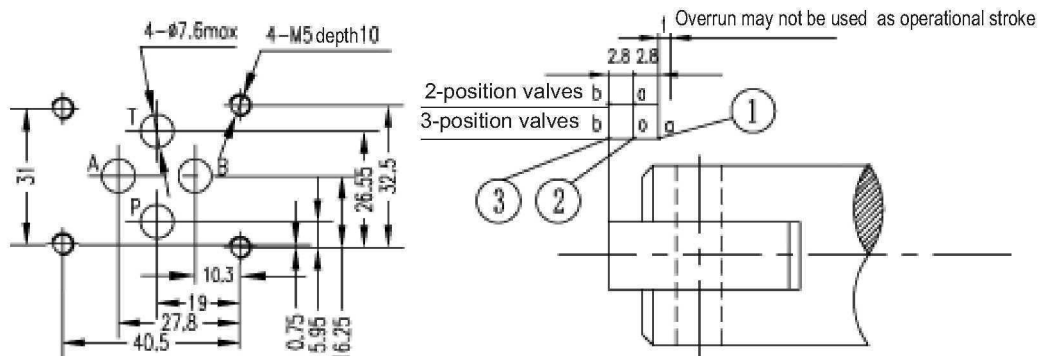
**Unit dimensions**

**(Dimensions in mm)**

WM R 6  
U



Roller lever assembled next to B end in 2-position valves of spools B.Y



Subplates: see page 205

G341/01 (G1/4"); G341/02 (M14X1.5)

G342/01 (G3/8"); G342/02 (M18X1.5)

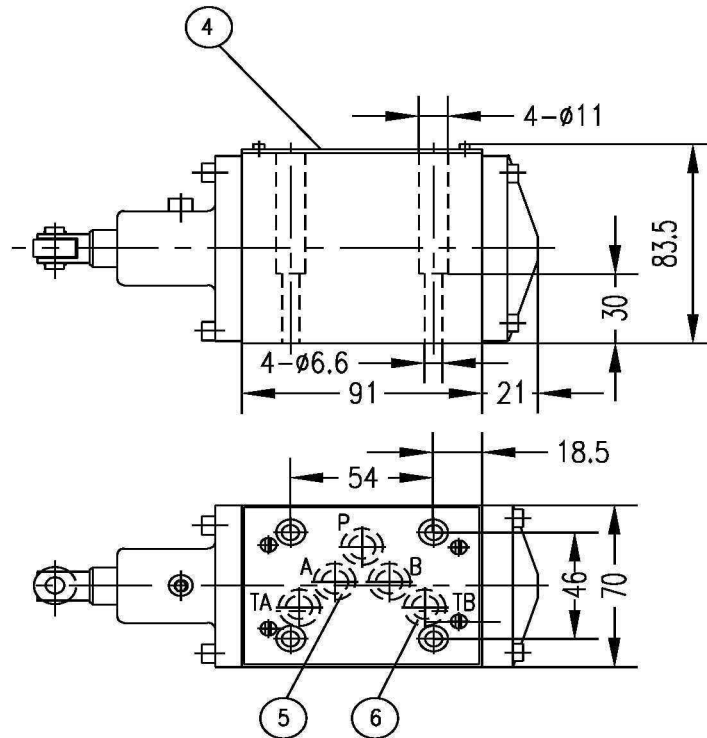
G502/01 (G1/2"); G502/02 (M22X1.5)

- 1, Spool position "a"
- 2, Spool position "o" and "a" (for 2-position valve)
- 3, Spool position "b"
- 4, Roller lever assembly may be stepped in 90°
- 5, Nameplate
- 6, Connection surface
- 7, O-ring 9.25X1.78 (for ports A, B, P, and T)
- 8, WMR, the code "R"
- 9, WMU, the code "U"

**Unit dimensions**

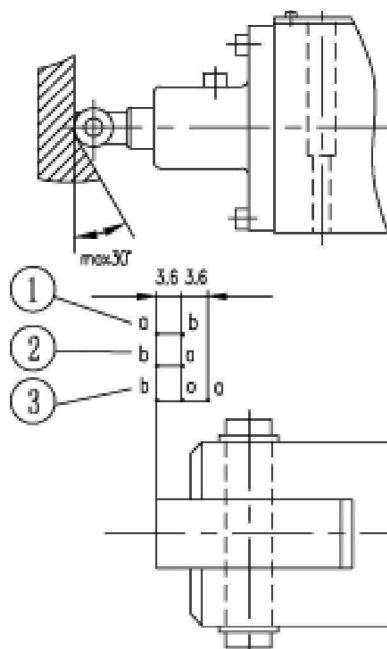
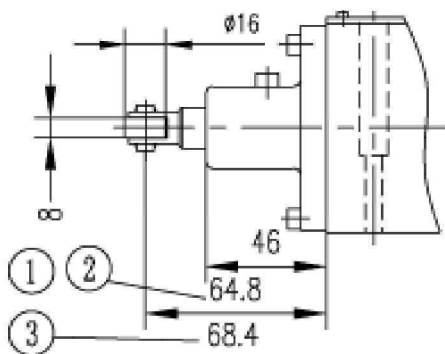
**(Dimensions in mm)**

WM<sub>U</sub> R<sub>10</sub>



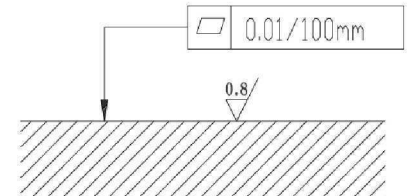
WMR

WMU



Roller lever assembled next to B end in 2-position valves of spools B.Y

Required surface finish of mating piece



Subplates: see page 206

- G66/01 (G3/8"); G66/02 (M18X1.5)
- G67/01 (G1/2"); G67/02 (M22X1.5)
- G534/01 (G3/4"); G534/02 (M27X2)

- 1, Two position valve (B, Y)
- 2, Two position valve (A, C, D)
- 3, Three position valve
- 4, Nameplate
- 5, O-ring 12X2 (for ports A, B, P, and T)
- 6, Adjunctive port T can be connected with ZDR10D... in special condition

## Notice

1. The fluid must be filtered. Minimum filter fineness is 20  $\mu\text{m}$ .
2. The tank must be sealing up and an air filter must be installed on air entrance.
3. Products without subplate when leaving factory, if need them, please ordering specially.
4. Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.
5. Roughness of surface linked with the valve is required to  $\frac{0.8}{\nabla}$ .
6. Surface finish of mating piece is required to 0.01/100mm.