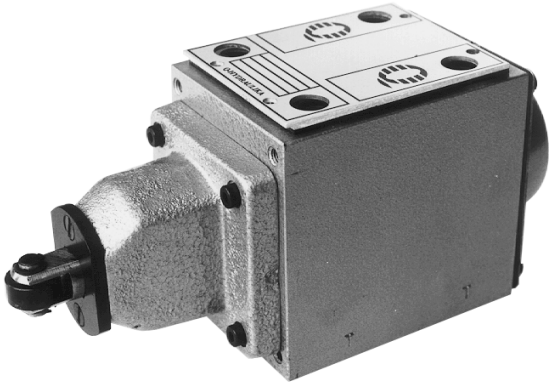
Directional spool valve type WM $^{R}_{U}$10 roller operated

Size 10	31,5 MPa	100 dm³/min

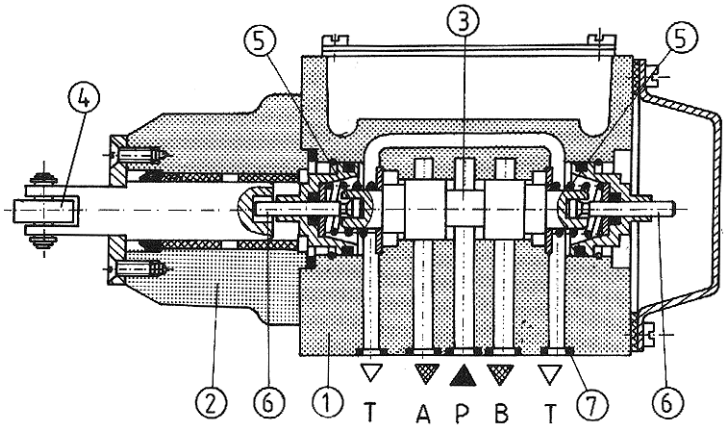
WK 450 760

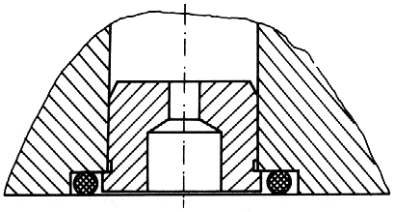
04.1999r.

Directional spool valves are used to control the direction of fluid flow and thus the direction of movement or holding position of a user (cylinder or hydraulic motor).



DESCRIPTION OF OPERATION





Throttle insert in port P

Annular ports are made around the longitudinal bore in the housing 1. The annular ports cut through the longitudinal bore forming control lands in the housing. The moveable control spool 3 is placed in the main port. If the spool is shifted, it connects or separates the ports in the housing. Various control functions result directly from the shape of the control spool. Shift of the spoolis caused by movement of the spindle ended with the roller 4. The movement is transferred via the lifter 5 to the spool. The roller is controlled by a moveable cam. Return of the whole mechanism is by spring 4.

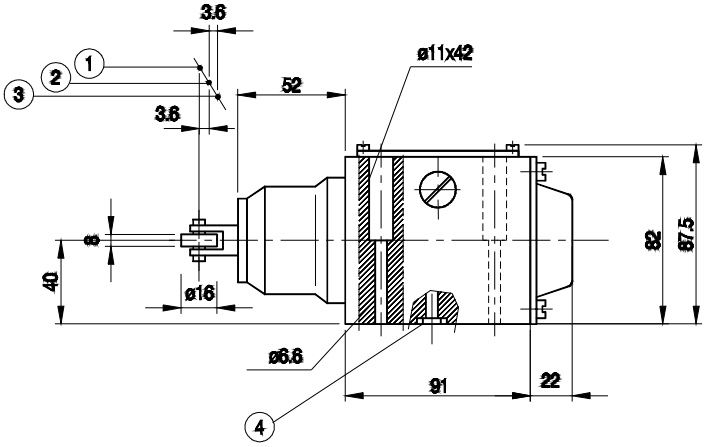
Sealing of the directional valve to a subplate is achieved by means of suitable rings 7.

TECHNAICAL DATA

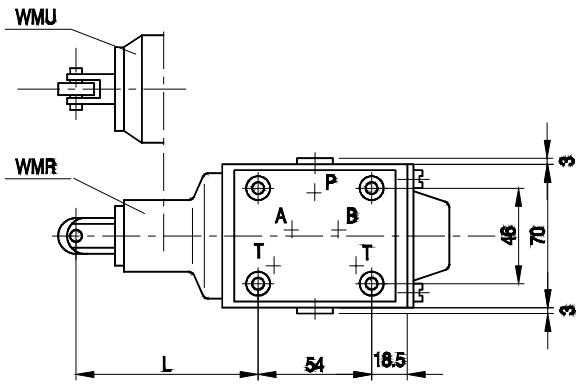
Hydraulic fluid	Mineral oil, phosphate ester	
Required filtration	up to 16 μm	
Recommended filtration	up to 10 μm	
Nominal fluid viscosity	37 mm^2 at temp. of 328 K	
Viscosity range	2.8 to 380 mm^2/s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	243 - 343 K	
Maximum admissible operating pressure	Ports P, A, B	Port X
	31.5 MPa	15 MPa
Flow section in position ,,0''	Spool type W	Spool type Q
	3 % of nominal section	6 % of nominal section
Operating force	Two-position valve	Three-position valve
	70 - 120 N	70 - 160 N
Maximum control cam lift	30°	
Weight	3.6 kg	

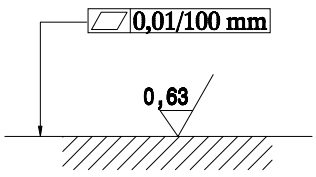
OVERALL AND MOUNTING DIMENSIONS

1 - Position ,,b'' for three-position directional valves
2 - Position ,,0'' for three-position directional valves and position ,,b'' for two-position valves
3 - Position ,,a'' for three-position directional valves and two-position directional valves
4 - O-ring 12 × 2 - 5 pieces



	L
Three - position directional valve	86.9
Two - position directional valve	83.3

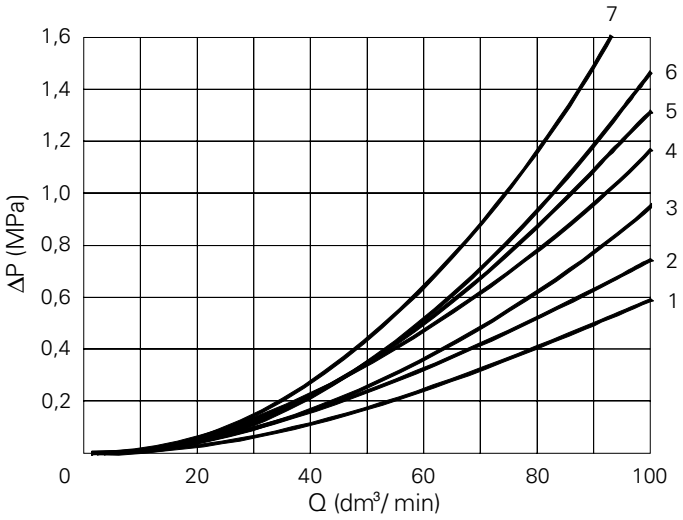




Admissible surface roughness and flatness deviation for a subplate face.

PERFORMANCE CURVES : measured at ν = 41 mm²/s and T = 323 K

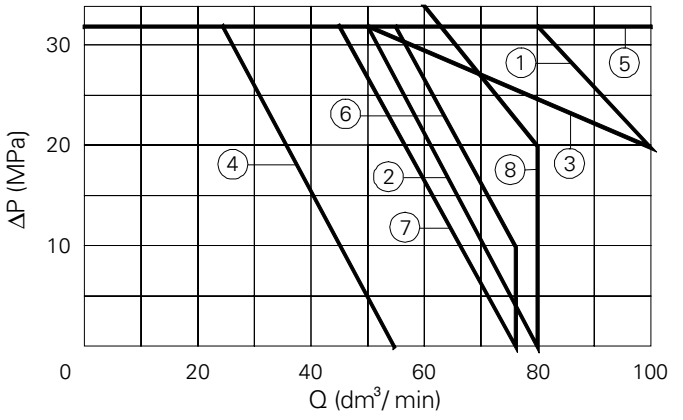
Flow resistance for various spool types



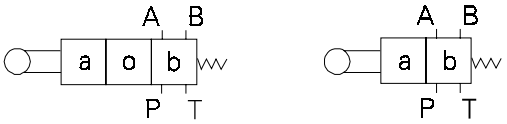
Spool type	Flow direction					
	P-A	P-B	A-T	B-T	P-T	A-B
A	2	2	-	-	-	-
B	2	2	-	-	-	-
C	2	2	3	3	-	-
D	2	2	3	3	-	-
E	2	2	4	4	-	-
F	2	3	3	5	-	-
G	3	3	4	6	4	-
H	1	1	4	5	-	-
J	2	2	3	3	-	-
L	2	2	3	5	-	-
M	1	1	5	5	-	-
P	3	2	5	3	-	-
Q	2	2	4	4	-	-
R	2	4	3	-	-	7
T	3	5	5	6	4	-
U	2	2	3	5	-	-
V	2	2	4	4	-	-
W	2	2	5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

Flow limits

1 - Spool types C, D, E, M, V
2 - Non applicable to WMR 10
3 - Spool types J, L, Q, U, W
4 - Spool types A
5 - Non applicable to WMR 10
6 - Spool type H
7 - Non applicable to WMR 10
8 - Spool type F, G, P, R, T

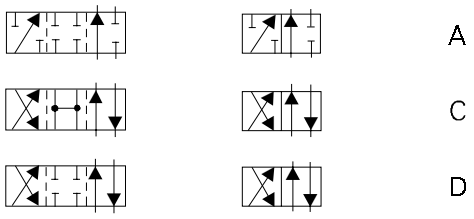


SCHEMES

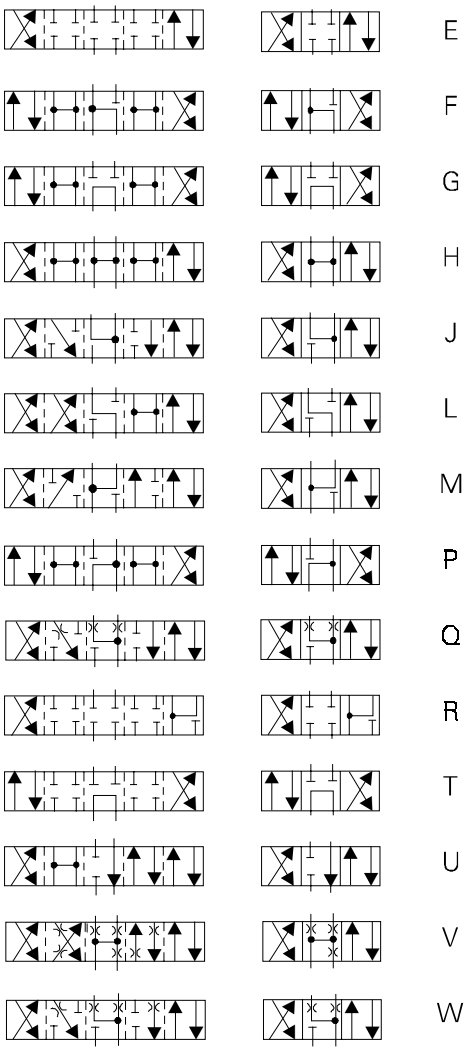


Scheme for three-position and two-position directional valve, mechanically operated by roller.

Schemes for control spools



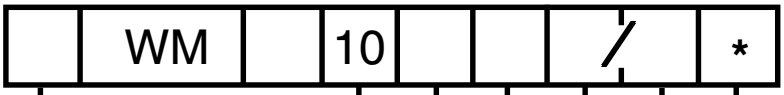
Two-position



Three-position

HOW TO ORDER

Orders coded in the way showed below should be forwarded to the manufacturer.



Number of service ports
3 = 3
4 = 4

Control element position
Normal version = R
Operation plane of roller turned through an angle of 90° = U

Control spool type
See schemes on page 4

Additional requirements in clear text (to be agreed with the manufacturer)

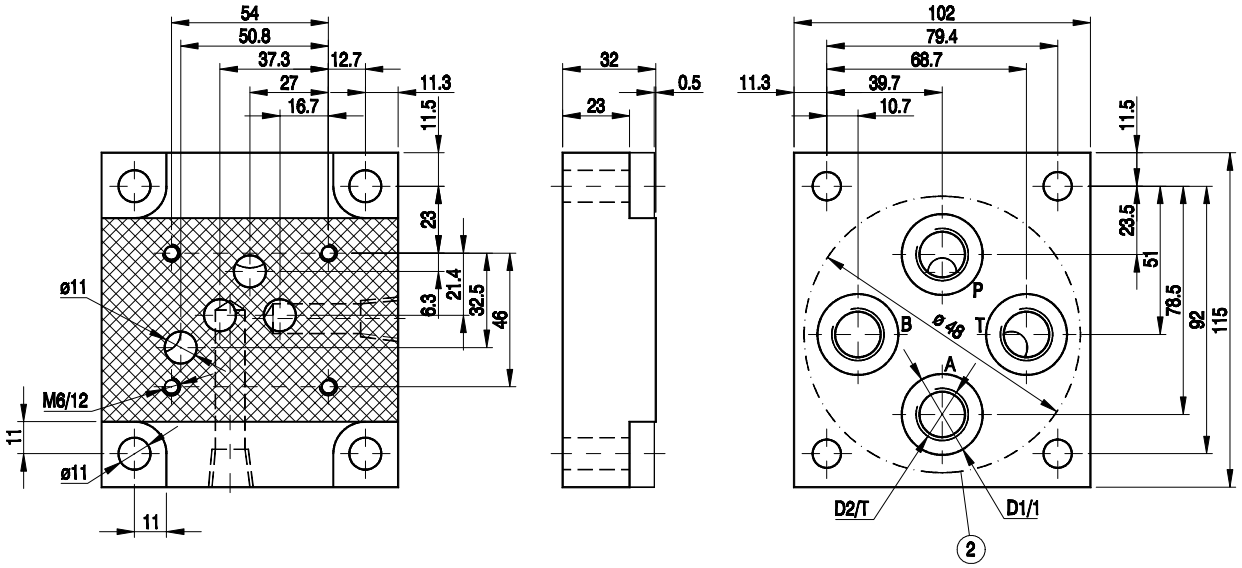
Sealing
For fluids on mineral oil base = with no designation
For fluids on phosphate ester base = V

Throttle insert
Without throttle insert = with no code
Throttle insert ∅ 0.8 mm = B08
Throttle insert ∅ 1.0 mm = B10
Throttle insert ∅ 1.2 mm = B12
Throttle insert ∅ 3.0 mm = B30

Series number:
50 = 50
(50 - 59) - Installation and connection dimensions unchanged

Coding example : 4 WMR 10 E 50

MOUNTING DIMENSIONS FOR SUBPLATE



Subplate type	D1	D2	T	Weight	Mounting bolts	Md
G 89/01	25	G 1/4	12	2.3 kg	4 x M6 x 50 - 10.9 PN-87/M-82302 (DIN 912)	15 Nm
G 66/01	28	G 3/8	12			
G 67/01	34	G 1/2	14			
G 67/02	36	M22x1.5	17			

Note : Subplate and mounting bolts must be ordered separately

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