Directional spool valve type WM$^{R}_{U}$ 5 roller operated

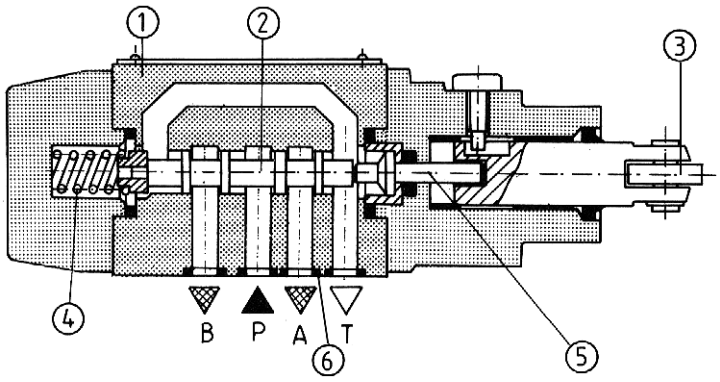
Size 5 | **31,5 MPa** | **16 dm³/min**

WK 450 199

04 1999

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



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 2 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 shape of the control spool.

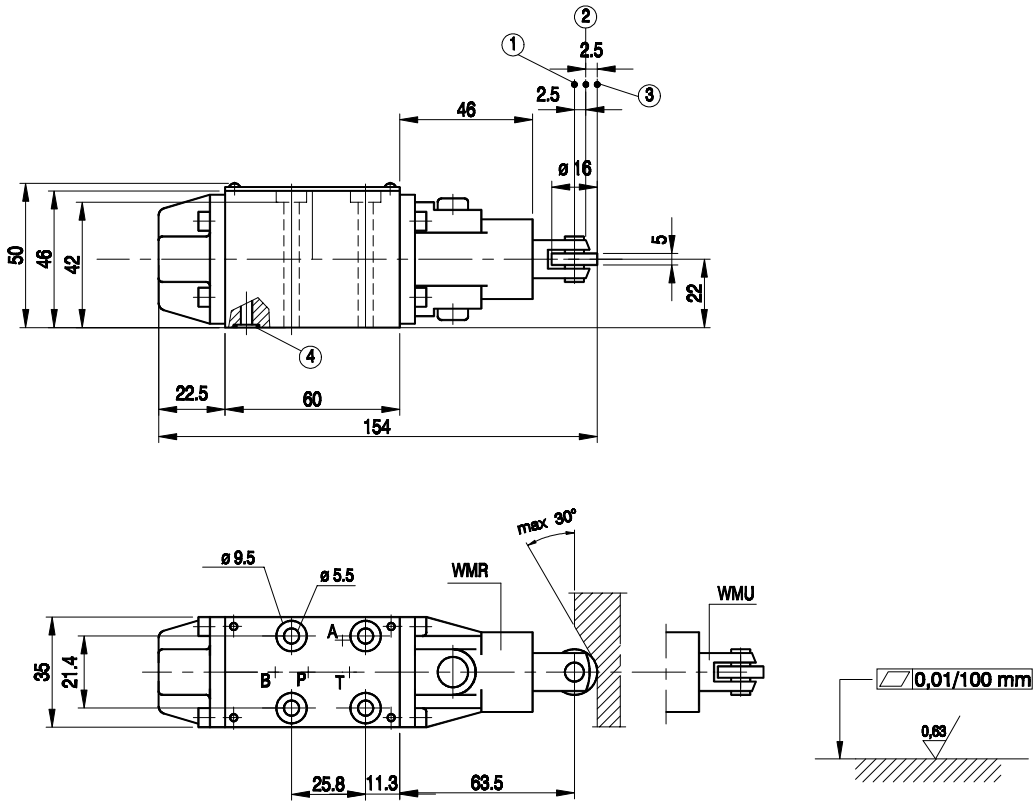
The shift of the spool is caused by movement of the control element ended with the roller 3. The movement is transferred via the follower 5 to the spool. The roller is controlled by a moveable cam. Return of the whole operating mechanism is by the spring 4.

Sealing of the directional valve to a subplate is achieved by means of suitable rings 8.

TECHNICAL DATA

Hydraulic fluid	Mineral oil, phosphate ester	
Required filtration	up to 16 μm	
Recommended filtration	up to 10 μm	
Nominal fluid viscosity	37 mm² at temp. of 328 K	
Viscosity range	2.8 to 380 mm²/s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	243 - 343 K	
Maximum operating pressure	Port P, A, B	Port T
	31.5 MPa	6 MPa
Flow section in position ,,0''	Spool type W	Spool type Q
	3 % of nominal section	6 % of nominal section
Force affecting roller	35-45 N for 3-position, 25-35 N for 2-position	
Weight	1 kg	

OVERALL AND MOUNTING DIMENSIONS

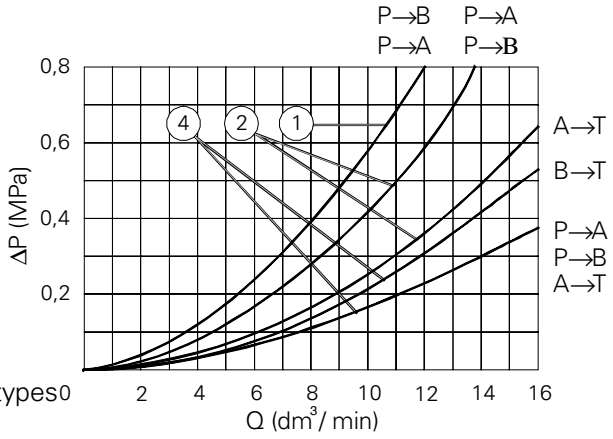


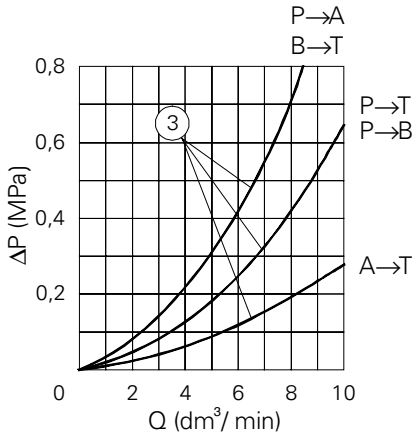
1 - Position ,,a'' for two- and three - position directional valves
2 - Position ,,0'' for three-position directional valves and position ,,b'' for two - position directional valves
3 - Position ,,b'' for two- or three-position directional valves
4 - O-ring 7 × 1.5 - 4 pieces

Admissible surface roughness and flatness deviation for a subplate face

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

Pressure drop related to flow for various spool types

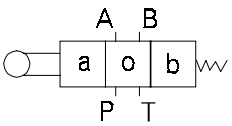


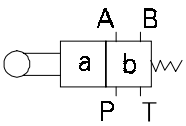


1 - Spool type B
2 - Spool type R
3 - Spool type G
4 - Other spool types

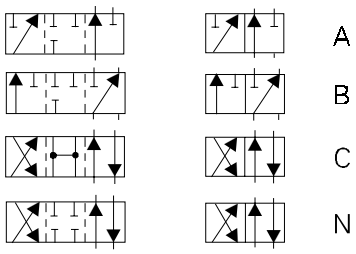
SCHEMES

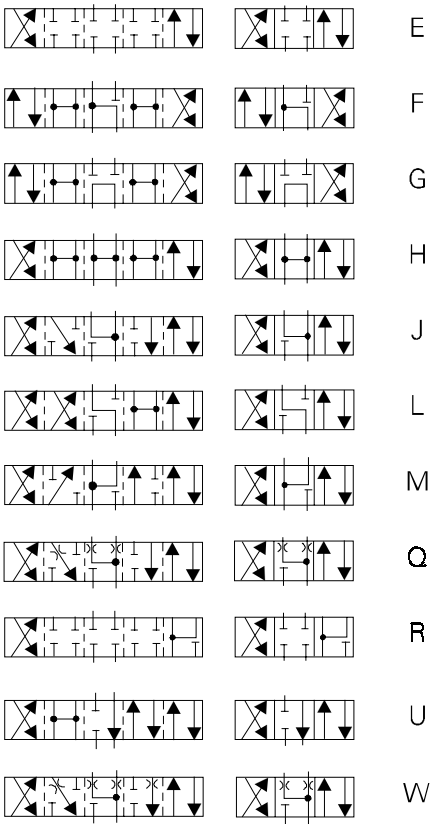
Scheme for two - and three - position directional control valve rotary operated





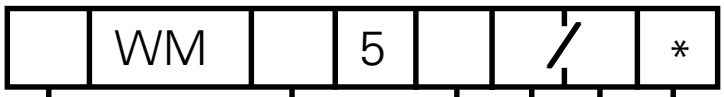
Schemes for control spools





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
Roller operation in plane inversed by 90° = U

Control spool type
See schemes above

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

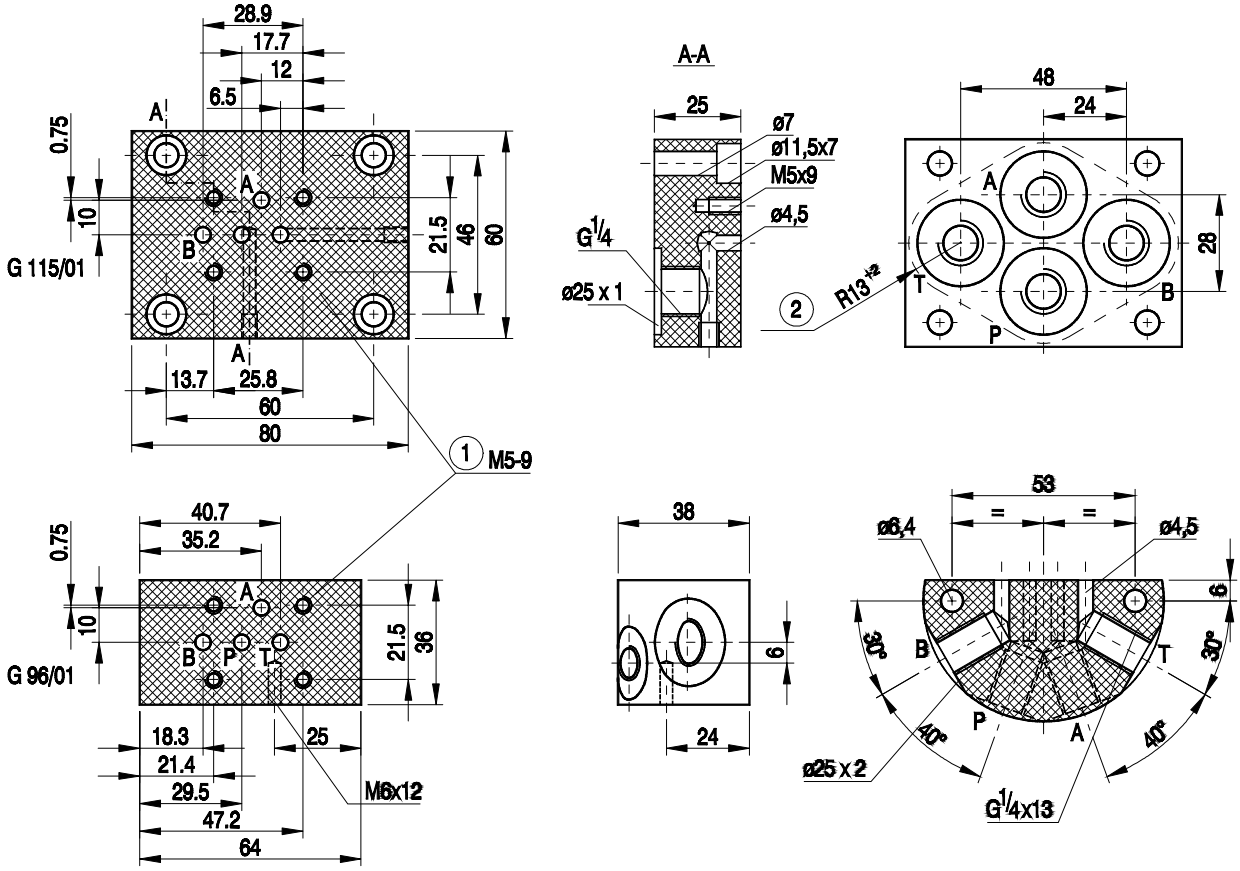
Sealing
For fluids on mineral oil base
= with no designation
For fluids on phosphate ester base = V

Series number
1.2 = 1.2
(1.0 - 1.9) - Installation and connection dimensions unchanged

Coding example : 4WMR5E1.2

MOUNTING DIMENSIONS FOR SUBPLATE

1 - Mounting face
2 - Recess in subplate face



Subplate weight - approx. 0.7 kg

Note : Subplate and mounting bolts must be ordered separately

Bolts mounting valve to subplate	Torque
4 × M5 × 50 -10.9 per PN-74/M-82302 (DIN 912)	9 Nm

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