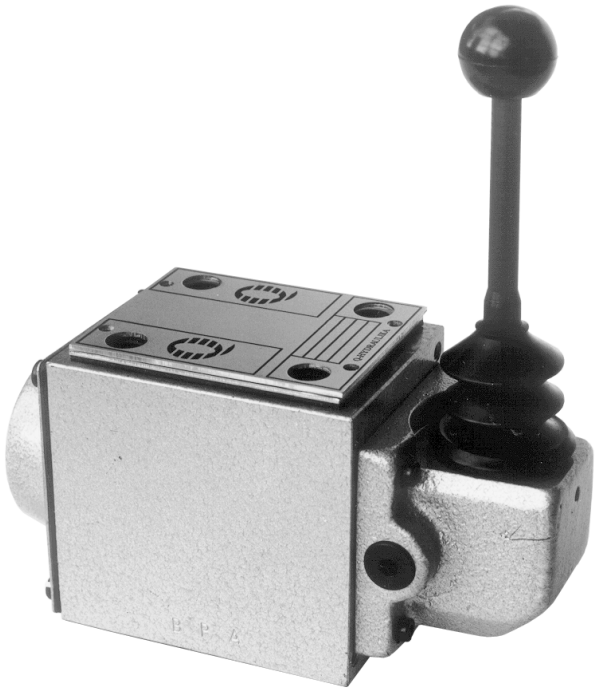
Directional spool valve type WMM 10 hand lever operated

WK 450 760

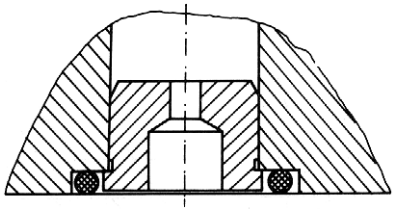
Size 10	31,5 MPa	100 dm³/min

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).



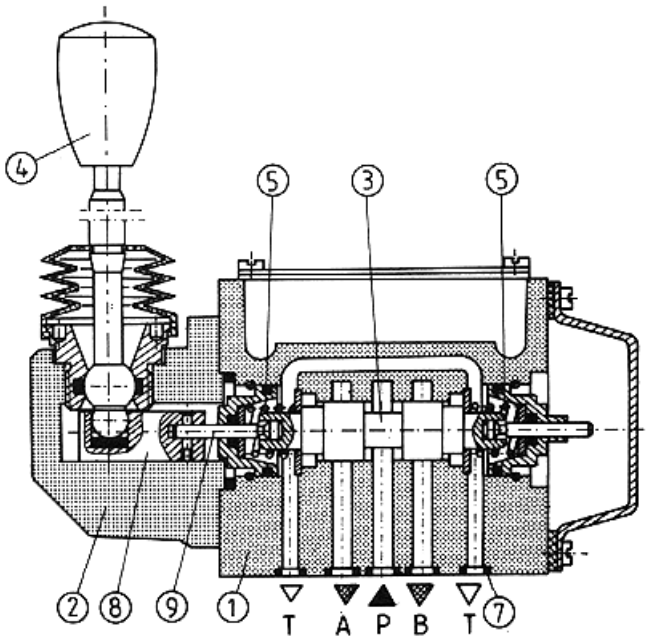
DESCRIPTION OF OPERATION



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. Movement of the spool follows change in the position of the hand lever 4 with aid of the pin 8 and the lifter 9. The control spool together with control elements are returned to its rest position by the centering springs 5 - in version with return springs.

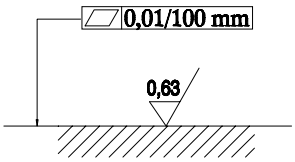
The sealing O-rings 7 are put between the valve and a subplate to prevent leakage.



TECHNAICAL DATA

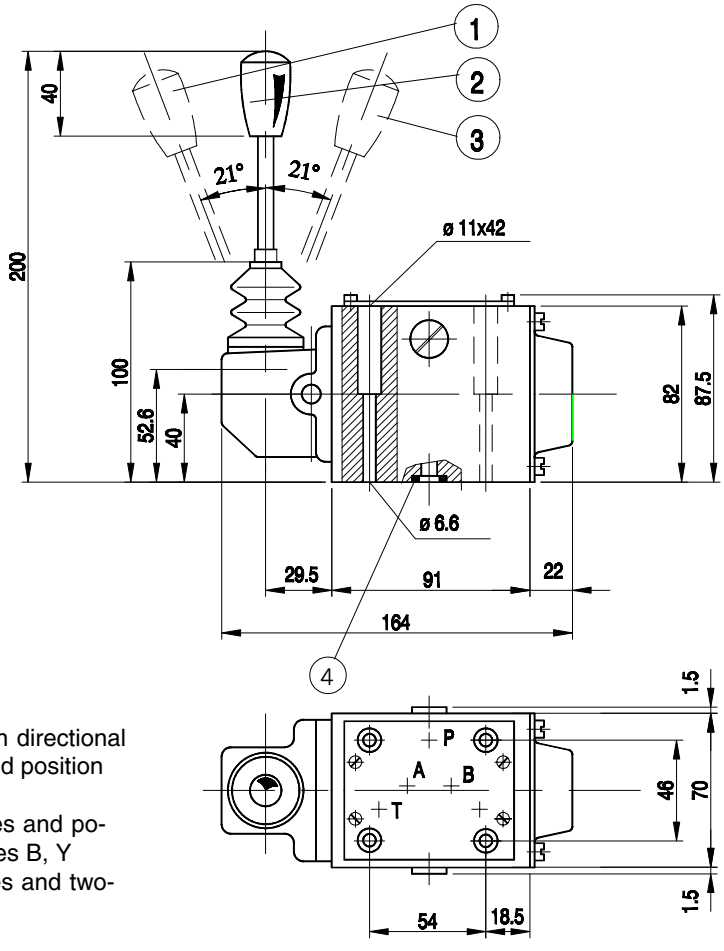
Hydraulic fluid	Mineral oil, phosphate ester	
Required filtration	up to 16 μm	
Recommended filtration	up to 10 μm	
Nominal fluid viscosity	37 mm^2 at temp. of 328 K	
Viscosity range	2.8 to 380 mm^2/s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	243 - 343 K	
Maximum 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
Force on hand lever	16 - 23 N for version with detent 20 - 27 N for version with spring centering	
Weight	4.0 kg	

OVERALL AND MOUNTING DIMENSIONS



Admissible surface roughness and flatness deviation for a subplate face.

Note : For control spools B, Y cover with hand lever on the other side.

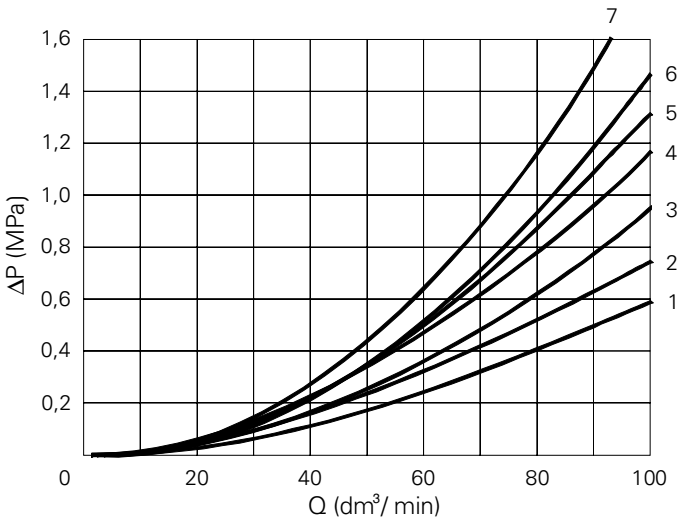


1 - Position ,,a'' for three-position and two-position directional valves and spool types A, C, D, C/OF, D/OF and position ,,b'' for spool types B, Y
2 - Position ,,0'' for three-position directional valves and position ,,a'' for two-position valves and spool types B, Y
3 - Position ,,b'' for three-position directional valves and two-position valves and spool types C/OF, D/OF
4 - O-ring 12 × 2 - 5 pieces

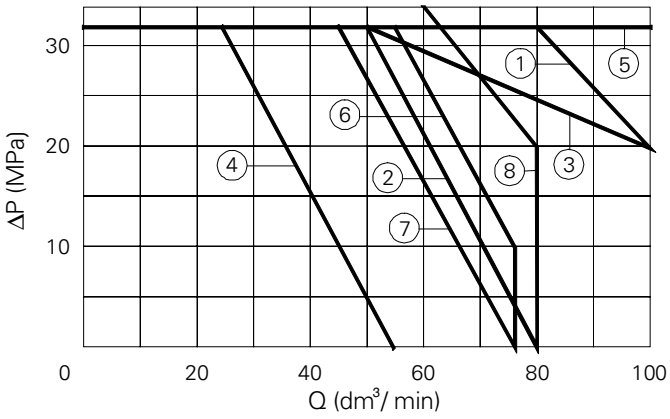
PERFORMANCE CURVES : measured at ν = 41 mm²/s and T = 323 K

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	-	-



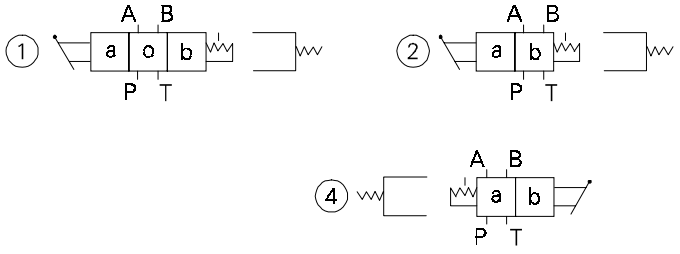
Flow limits



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

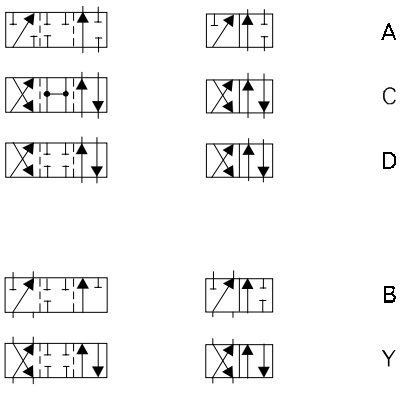
SCHEMES

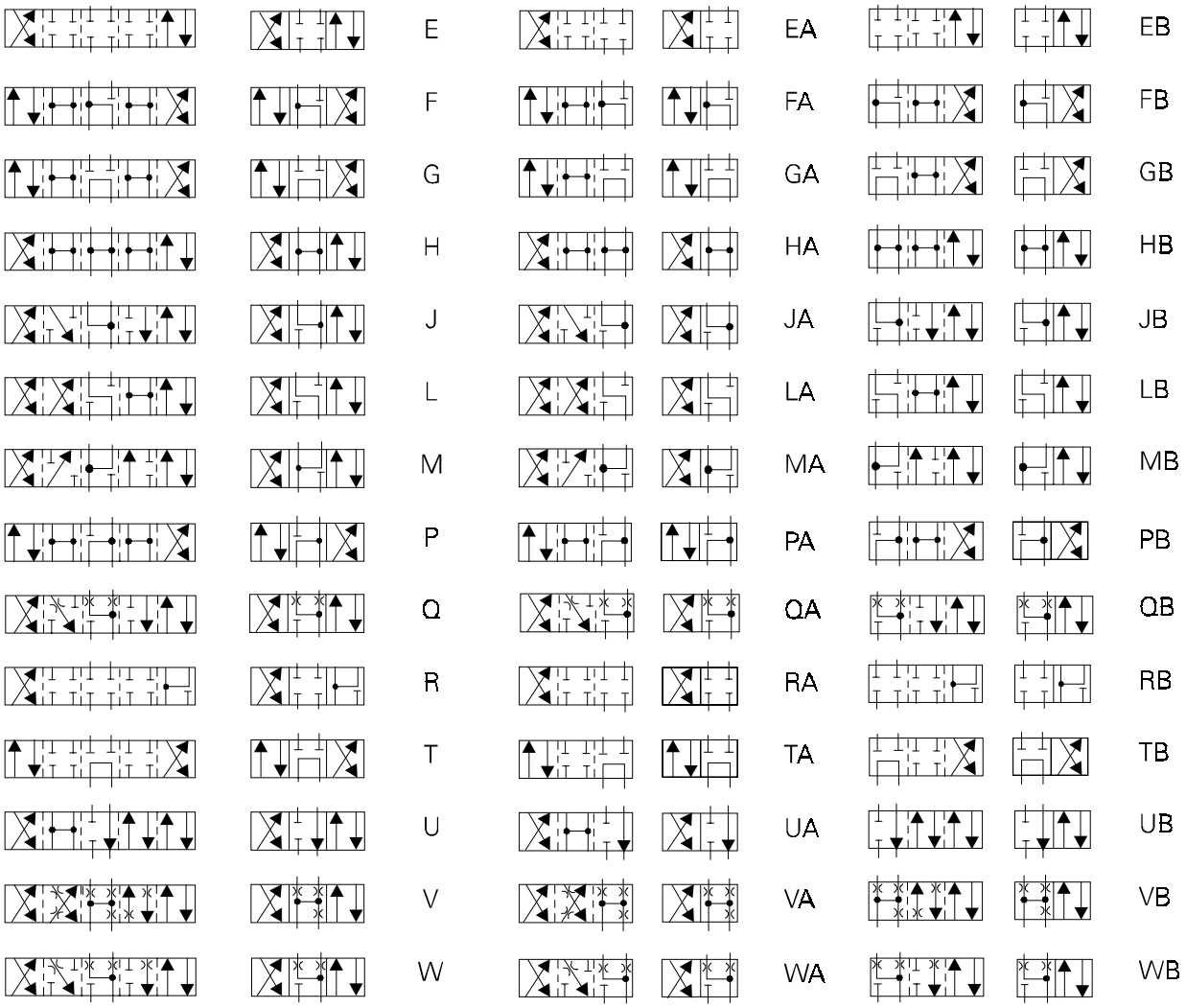
1 - Three-position directional valve
2 - Two-position directional valve, spool types A, C, D
3 - Two-position directional valve, spool types B, Y



Schemes for control spools

Two-position





HOW TO ORDER

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

	WMM	10						*

Number of service ports
3 = 3
4 = 4

Control spool type
See schemes on page 3 and above

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

Control spool positioning
Spring centering = with no designation
With detent = F

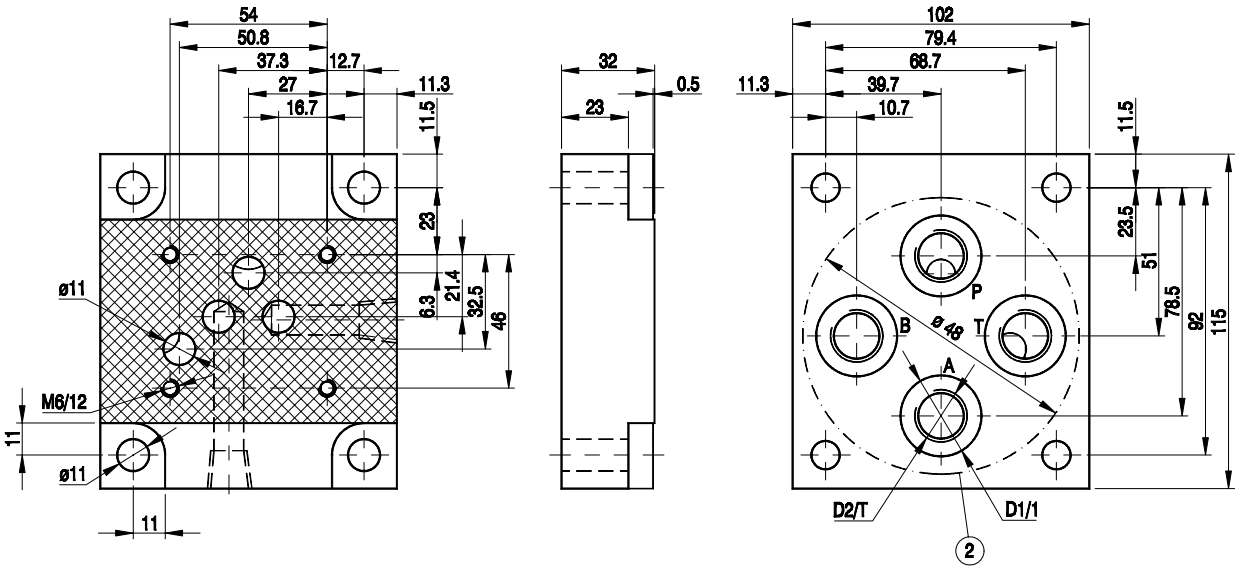
Throttle insert
Without throttle insert = with no code
Throttle insert ∅ 0.8 mm = B08
Throttle insert ∅ 1.0 mm = B10
Throttle insert ∅ 1.2 mm = B12
Throttle insert ∅ 3.0 mm = B30

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

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

Coding example : 4 WMM 10 E50

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

Q-HYDRAULIKA, Rakovník
Rabasova 2281, 269 01 Rakovník, tel./fax: 313 514 718
e-mail: info@q-hydraulika.cz, www.q-hydraulika.cz