Directional spool valve type WH 6 hydraulically operated

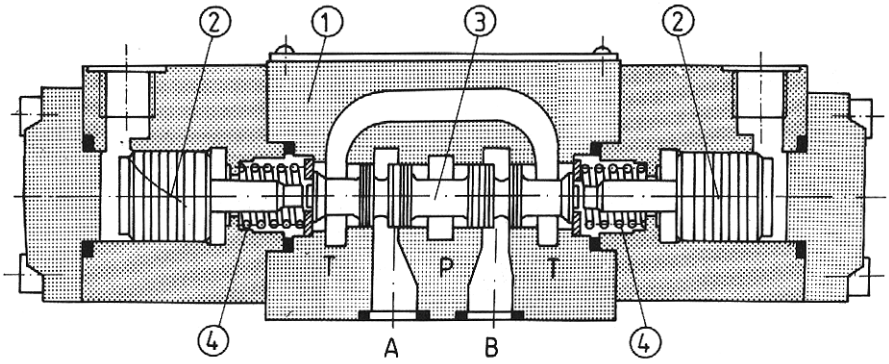
WK 450 394

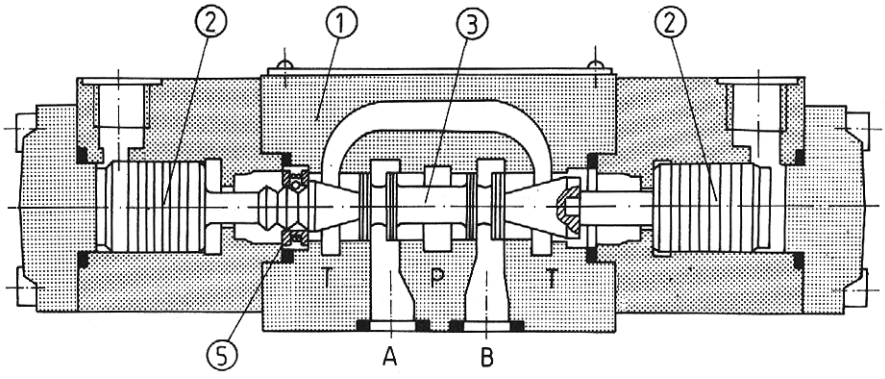
Size 6	31,5 MPa	60 dm³/min

04.1999r.

Directional control valves afford possibilities for controlling start, stop and direction of flow of a pressure fluid and thus accordingly start, stop and direction of movement of a user (cylinder or hydraulic motor).
The directional valves may be mounted in hydraulic systems in any desired position together with a subplate.
Sealing of mating faces is made by using O-rings which are included with the valve.

DESCRIPTION OF OPERATION



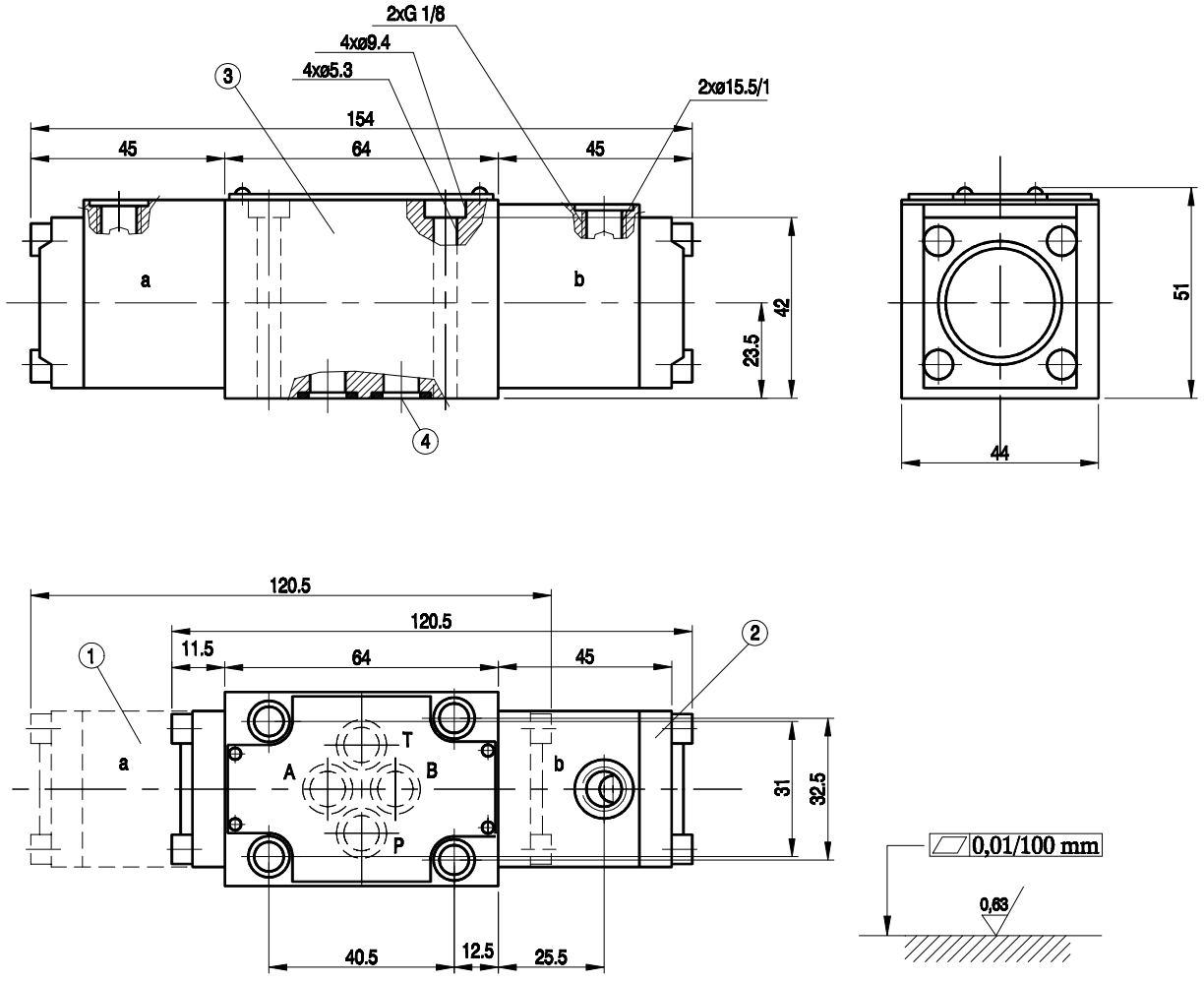


The directional valve is switched by changing the position of the spool 3 which moving along its axis separates or connects ports A, B, P or T in the housing 1. The spool is shifted by means of the pilot pistons 2. The centering springs 4 cause the spool to move back to its neutral position.
The directional valve is available in several versions : three-position, two-position with return spring, two-position without return spring and two-position with detent.

TECHNICAL DATA

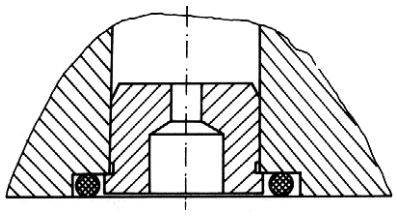
Hydraulic fluid	Mineral oil, phosphate ester	
Required filtration	up to 16 μm	
Recommended filtration	up to 10 μm	
Nominal fluid viscosity	37 mm^2 at temp. of 328 K	
Viscosity range	2.8 to 380 mm^2/s	
Optimum working temperature (fluid in a tank)	313 - 328 K	
Fluid temperature range	243 - 343 K	
Maximum operating pressure	Port P, A, B	Port T
	31.5 MPa	16 MPa
Minimum pilot pressure	0.6 - 1 MPa	
Maximum pilot pressure	20 MPa	
Weight - one pilot port	1.3 kg	
Weight - two pilot ports	1.8 kg	

OVERALL DIMENSIONS



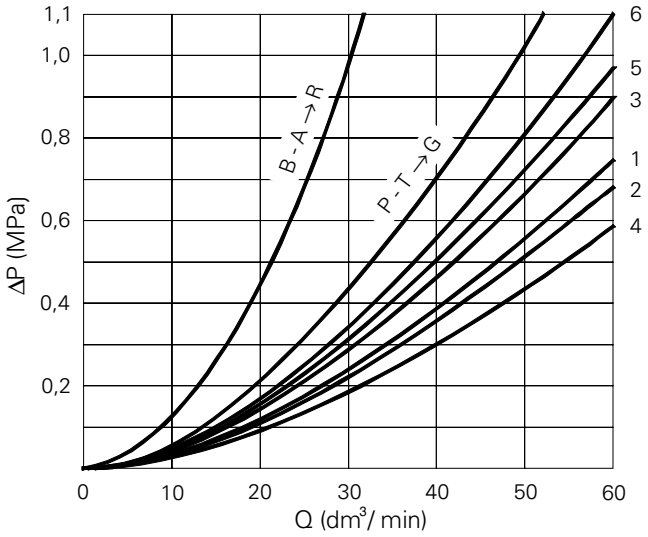
Permissible surface roughness and flatness deviation for a subplate face.

item 1, 2 - directional valve with one pilot port
item 3 - directional valve with two pressure ports
item 4 - o-rings 9.2 × 1.8 - 4 pcs



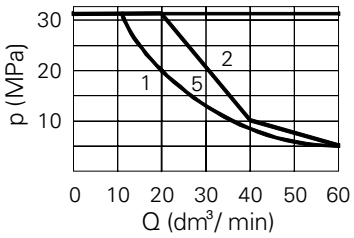
Mounting method for throttle insert

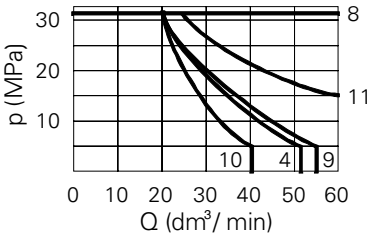
PERFORMANCE CURVES : measured at ν = 41 mm²/s and T = 323 K

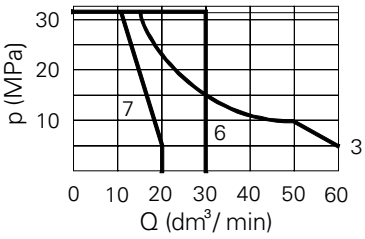


	A	B	C	D	E	F	G	H	J	L	M	P	Q	R	T	U	V	W	Y
P - A	3	3	1	5	3	2	5	2	1	1	2	2	1	5	5	3	1	1	5
P - B	3	3	1	5	3	3	3	4	1	1	4	3	1	5	3	1	2	1	5
A - T	-	-	3	3	1	3	6	2	2	2	3	3	2	4	6	3	1	2	3
B - T	-	-	1	3	1	5	6	2	1	2	3	5	1		6	3	1	2	3

Flow curves for various spool types





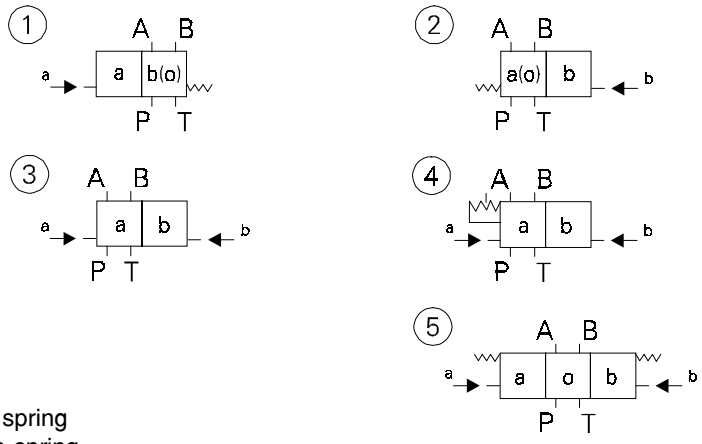


p = 0,6 MPa		p = 1 MPa	
1	A,B	1	A,B
2	C,D,Y	8	C,D,Y ,E,G,H,J
3	E,J,L,U,M,Q,V,W,E1	8	L,U,M,Q,V,W,E1
4	F,P	9	F,P
5	T	10	R
6	G,H	11	T
7	P	-	-
8	A,C,D .../O	8	A,C,D .../ O .../ OF

Flow curve for various spool types at pilot pressure 0.6 MPa and 1 MPa

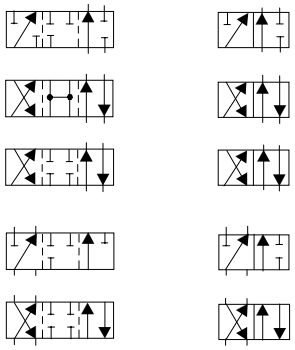
SCHEMES

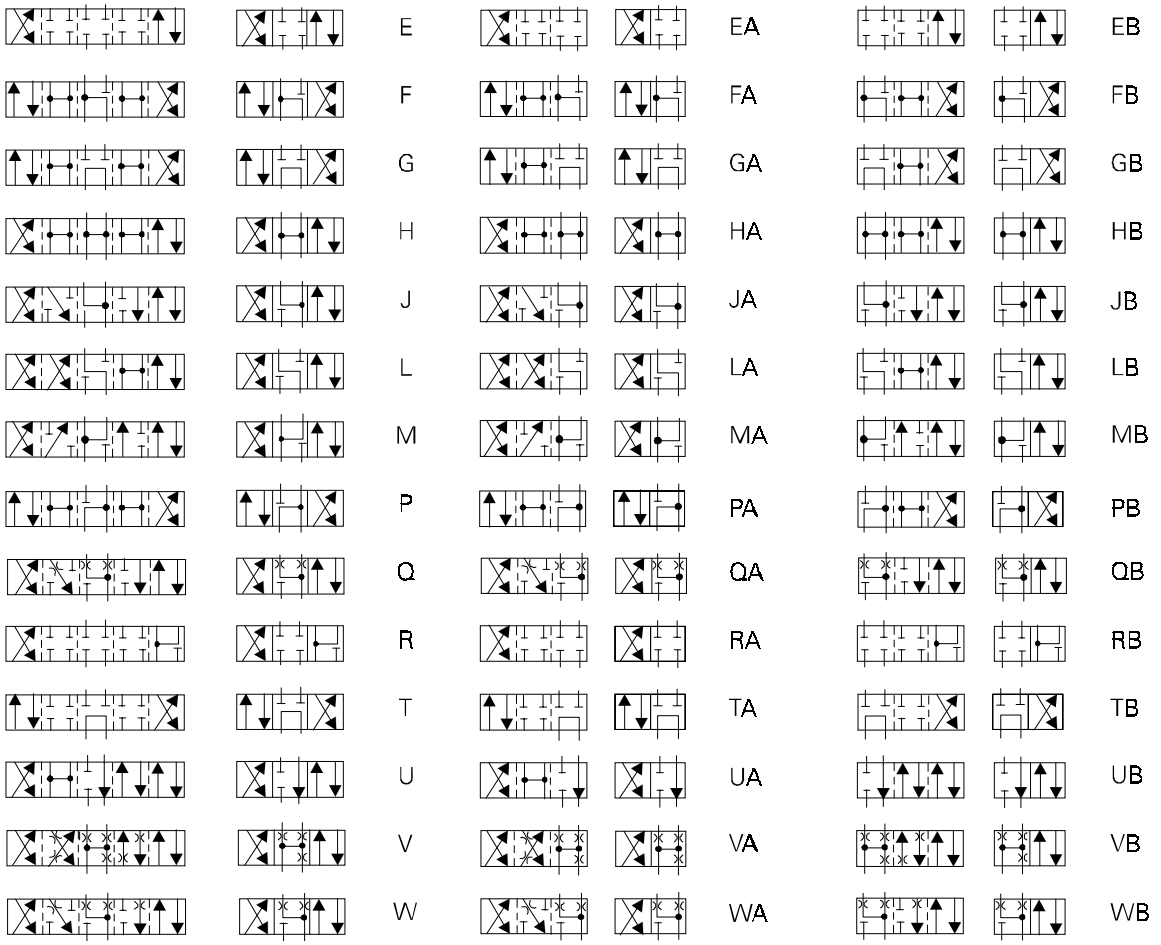
Hydraulic scheme for directional valve



item 1, 2 - two -position directional valve with return spring
item 3 - two -position directional valve without return spring
item 4 - two -position directional valve without return spring with detent
item 5 - three -position valve spring centered

Spool schemes

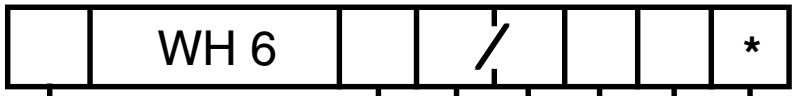




Note : Scheme E has version E1 with overlap positions as for spool P.
Spool type W makes section open in neutral position in approx. 3 % of nominal section.
Spool type W makes section open in neutral position in approx. 6 % of nominal section.

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 spool type

See spool schemes on page 5

Series number

51	= 51

(50 - 59) - installation and connection dimensions unchanged

Control spool positioning

Spring centering	= with no code
Without return springs	= O
Without return springs, with detent	= OF

Throttle insert

Without throttle insert	= with no design.
Throttle insert ∅ 0.8	= B08
Throttle insert ∅ 1.0	= B10
Throttle insert ∅ 1.2	= B12

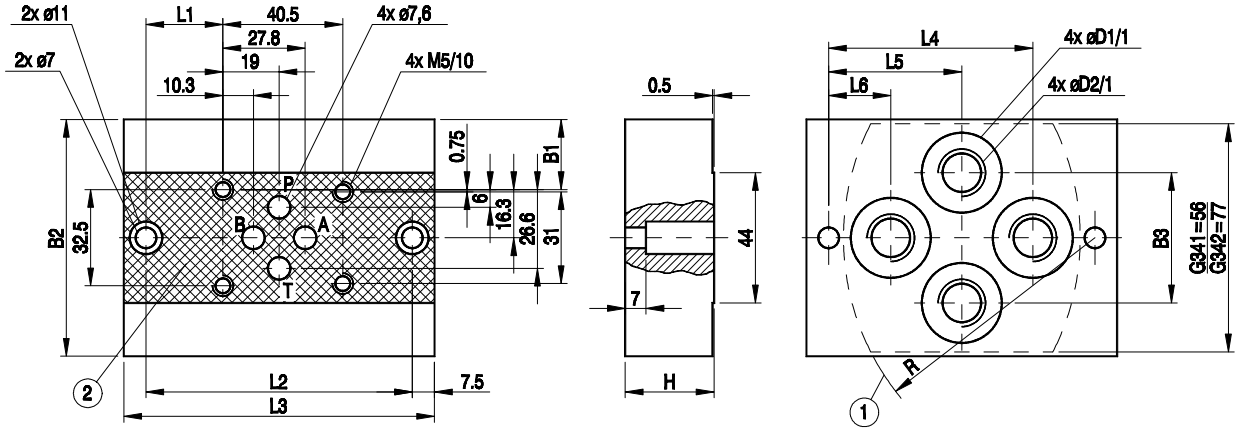
Sealing

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 : 4WH6E51/B08

MOUNTING DIMENSIONS FOR SUBPLATE



Subplate weight - approx. 0.8 kg

1 - Mounting face
2 - Recess in subplate face

Type	B1	B2	B3	L1	L2	L3	L4	L5	L6	H	D1	D2	R	T
G341/01	12.7	58	34	21	80	95	55	40	25	25	22	G1/4	70	13
G342/01	23.7	80	44	26	90	105	69	45	21	30	28	G3/8	85	13
G341/02	12.7	58	34	21	80	95	55	40	25	25	22	M14×1.5	70	15
G342/02	23.7	80	44	26	90	105	69	45	21	30	27	M16×1.5	85	16

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

Note : Subplate and mounting bolts must be ordered separately

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