Directional spool valve type WE 6 electrically operated

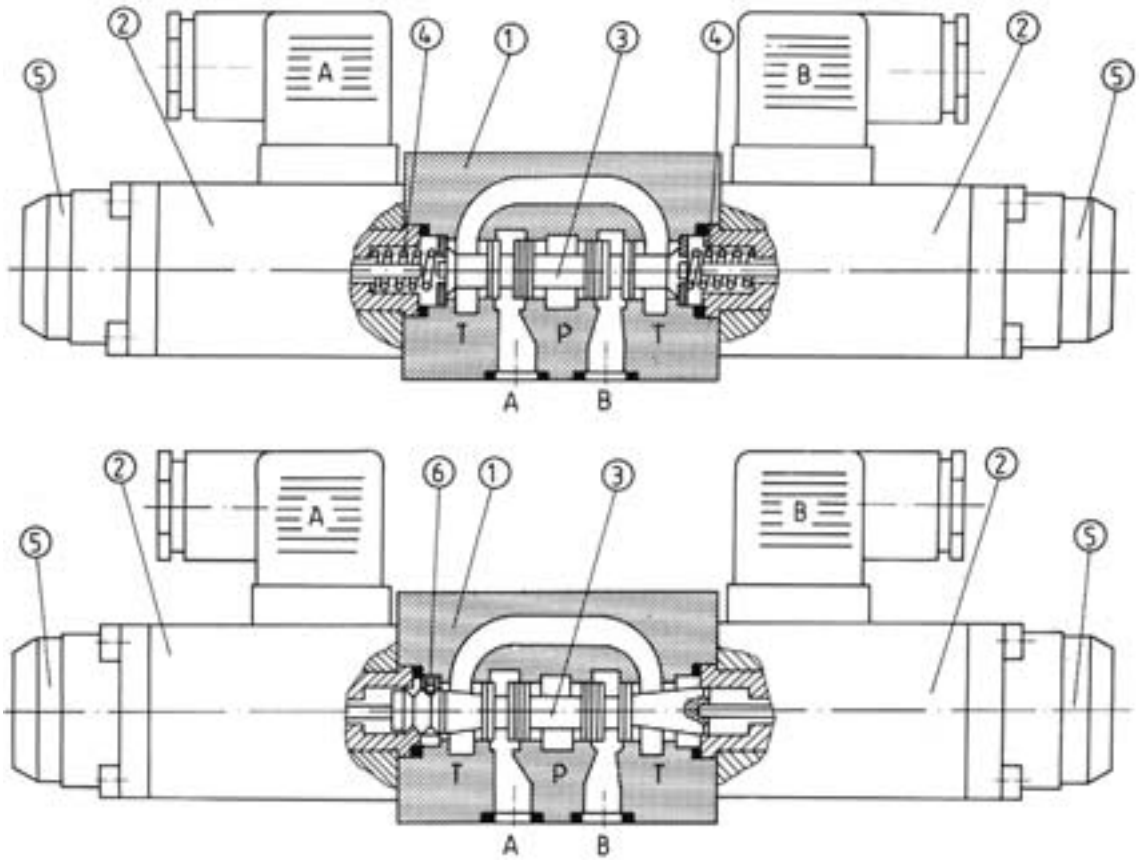
WK 450 550

04. 2001r.

Size 6	31,5 MPa	60 dm³/min

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 the force of the solenoids 2.
The return of the spool and centering are secured by the centering springs 4.

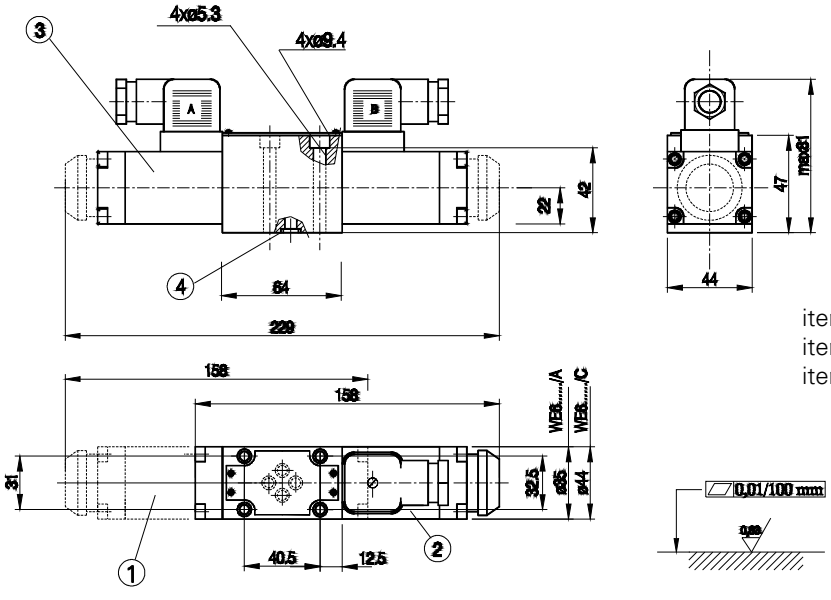
An optional emergency button 5 permits movement of the control spool without solenoid energisation.

The directional valve is available is several versions : three - position, two - position with return spring, two - position without return spring, two - position with detent.

TECHNAICAL DATA

Hydraulic fluid		Mineral oil, phosphate ester
Solenoid power	Version C	Version A
	30 W - for DC 59 VA - for AC 200 VA - (intermittent running)	26 W - for DC 46 VA - for AC (continuous) 136 VA - (intermittent running)
Switching time, on	4WE6.../A	45 ms for AC 25 ms for DC
	4WE6.../C	40 ms for AC 20 ms for DC
Switching time, off	4WE6.../A	25 ms
	4WE6.../C	20 ms
Solenoid coil temperature		up to 423 K
Solenoid switching frequency in 1/h		up to 15000 for DC up to 7200 for AC
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
Required filtration		up to 16 μm
Recommended filtration		up to 10 μm
Maximum operating pressure in ports P, A, B		31.5 MPa
Maximum operating pressure in port T		16 MPa
Insulation		IP 65
Weight with 1 solenoid		1.5 kg max
Weight with 2 solenoids		2.1 kg max

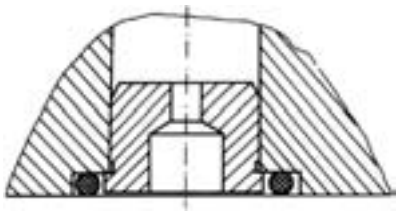
OVERALL DIMENSIONS



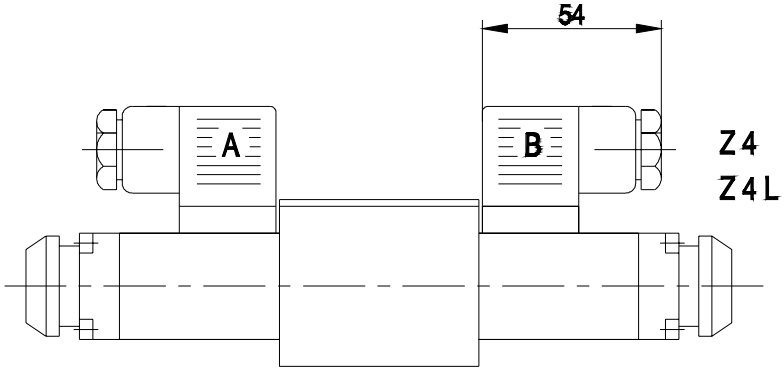
item 1, 2 - directional valve with 1 solenoid
item 3 - directional valve with 2 solenoids
item 4 - o-ring 9.2 x 1.8 - 4 pieces

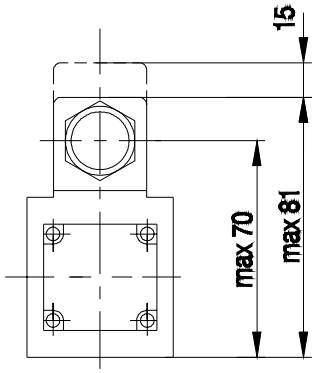
Permissible surface roughness and flatness deviation for a subplate face

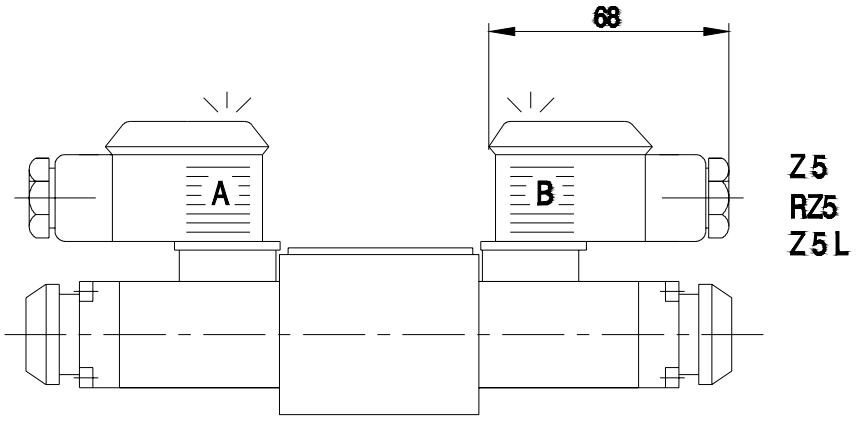
Mounting method for throttle insert in port P

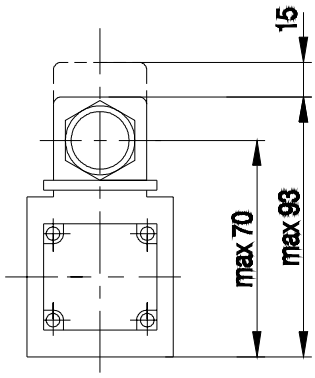


Overall dimensions for various versions



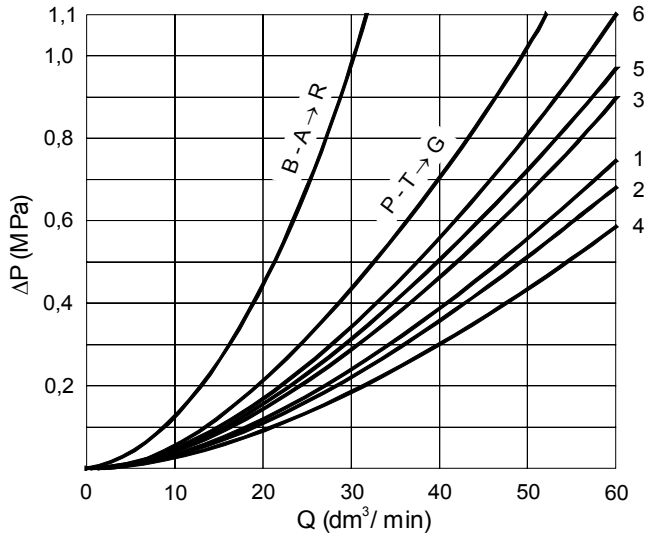






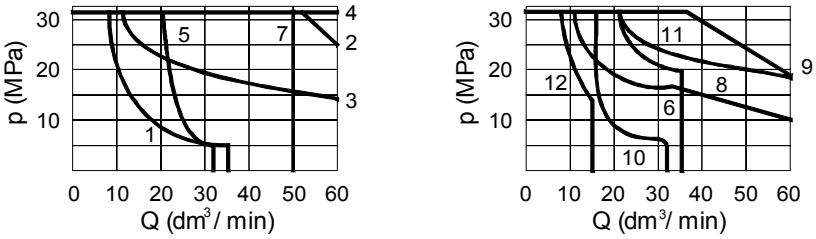
PERFORMANCE CURVES : measured at ν = 41 mm²/s and T = 323 K

Flow curves for various spool types



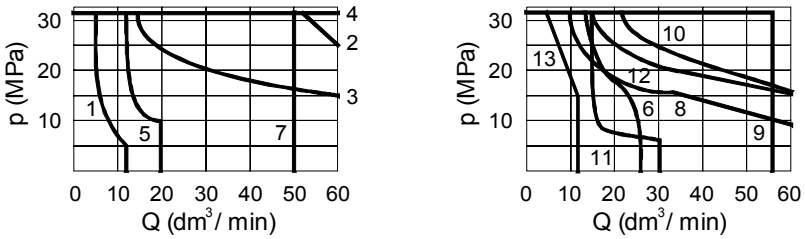
	A	B	C	D	E	F	G	H	J	L	M	P	Q	R	T	U	V	W	Y
P - A	3	3	1	5	3	2	5	2	1	1	2	2	1	5	5	3	1	1	5
P - B	3	3	1	5	3	3	3	4	1	1	4	3	1	5	3	1	2	1	5
A - T	-	-	3	3	1	3	6	2	2	2	3	3	2	4	6	3	1	2	3
B - T	-	-	1	3	1	5	6	2	1	2	3	5	1		6	3	1	2	3

Flow curves for directional control valve with DC solenoid and various spool types.



1	2	3	4	5	6	7	8	9	10	11	12
A, B	C, D, Y	E	E1,C/O, D/O, C/OF, D/OF	F, P	G	H	J, L, Q, U, W	R	V	A/O, A/OF	T

Flow curves for directional control valve with AC solenoid and various spool types

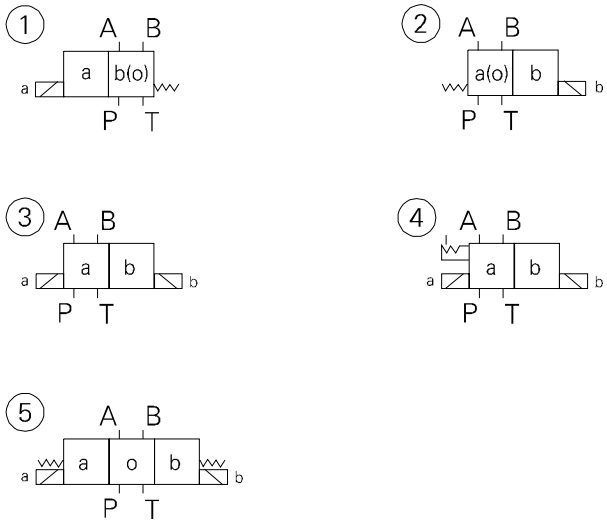


1	2	3	4	5	6	7	8	9	10	11	12	13
A, B	C, D, Y	E	E1,C/O, D/O, C/OF, D/OF	F, P	G	H	J, L, Q, U, W	M	R	V	A/O, A/OF	T

Note:
The flow limits referto typical application of 4-way directional control valve i.e. with using two lines e.g. P to A and B to T at the same time. In case of using 4-way directional control valve with one flow line e.g. P to A (B plugged) or A to T (B plugged) actual flow limits are considetably lower.

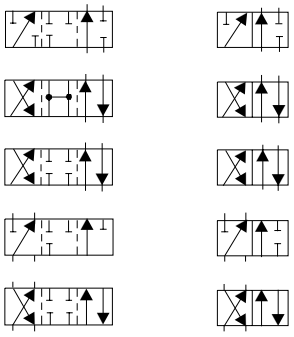
SCHEMES

Hydraulic scheme for directional control valve



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

Spool schemes



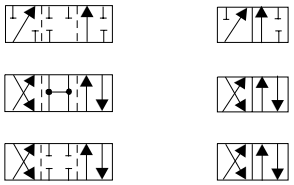
A

C — development - per scheme 1

D

B — development - per scheme 2

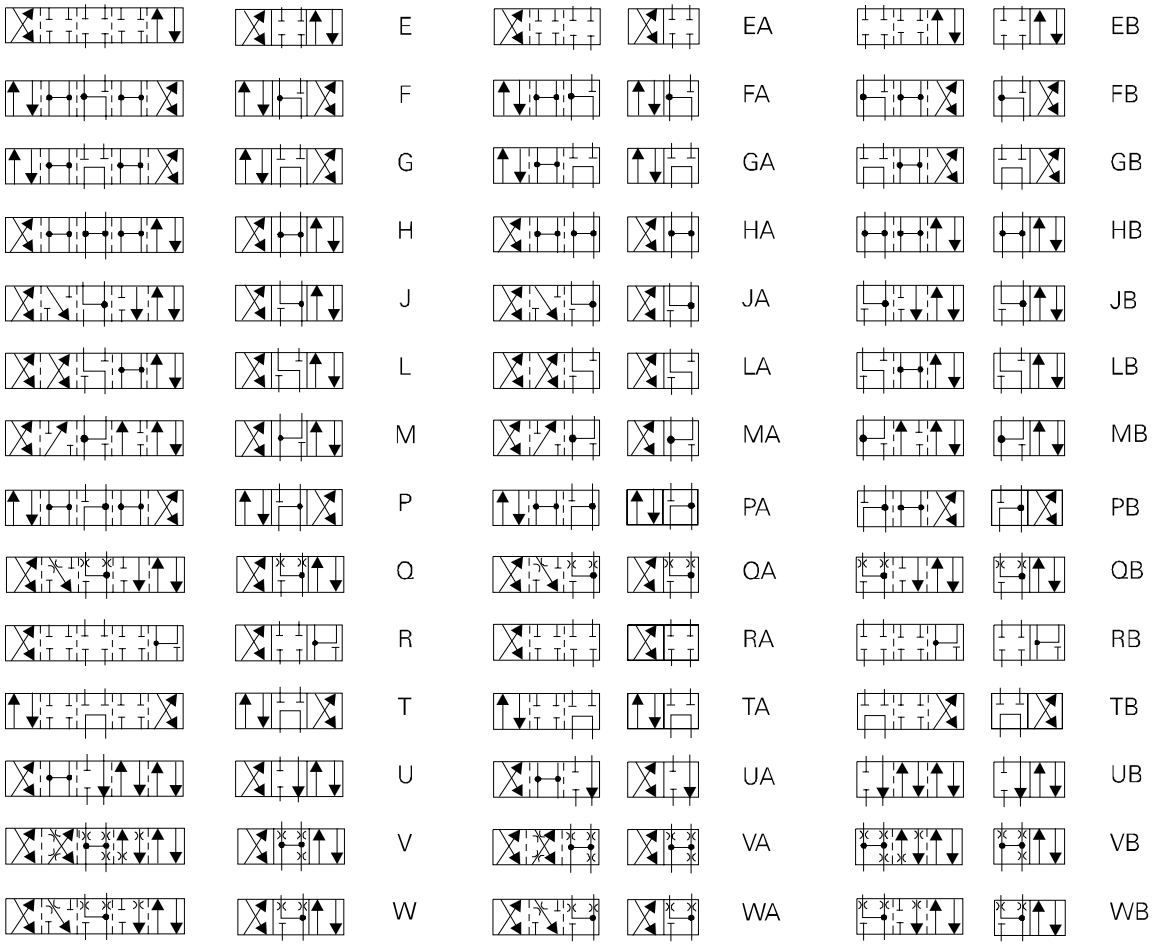
Y



A.../ 0 ; A.../ 0F

C.../ 0 ; C.../ 0F — develpment - per scheme 3 and 4

D.../ 0 ; D.../ 0F



development - per scheme 5

Note : Scheme E has version A1 with overlap positions as for spool P.
Spool W makes section open in switching position 0 in approx. 3 % of nominal section.
Spool Q makes section open in switching position 0 in approx. 6 % of nominal section.

HOW TO ORDER

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

	WE 6		/							*

Number of service ports

3	= 3
4	= 4

Control spool type

See schemes on page 6

Series number:

51	= 51

(50 - 59) - Installation and connection dimensions unchanged

Solenoid size

Solenoid ∅ 35 mm or ⁄□ 35 mm	= A**
Solenoid ∅ 44 mm or ⁄□ 44 mm	= C*

Control spool positioning

Spring centering	= with no designation
Without spring return	= O
Without spring return, with detent	= OF

Voltage for solenoids

DC voltage	12 V	= G 12
DC voltage	24 V	= G 24
DC voltage	110 V	= G 110
AC voltage	110 V - 50 Hz	= W 110 - 50
AC voltage	220 V - 50 Hz	= W 220 - 50

Manual override

With manual override	= with no designation
Without manual override	= N

Electrical connections

Small individual angled plug	= Z4
Small individual angled plug , with control lamp	= Z4L

Throttle insert

Without throttle insert	= with no designation
Throttle insert ∅ 0.8 mm	= B08
Throttle insert ∅ 1.0 mm	= B10
Throttle insert ∅ 1.2 mm	= B12
Throttle insert ∅ 1.5mm	= B15

Sealing

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

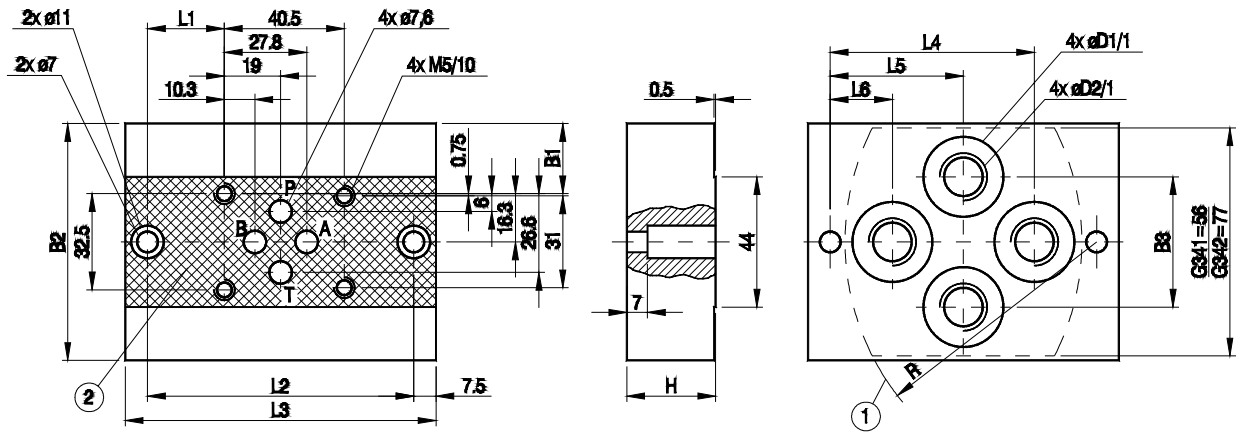
Additional requirements in clear text (to be agreed with the manufacturer)

* Recommended when pressure greater than 20 MPa

** Not available for spool type P (spool T with solenoid C only)

Coding example : 4 WE6E 5.1/G24 NZ 4

MOUNTING DIMENSIONS FOR SUBPLATE



1 - Mounting face
2 - Recess in subplate face

Subplate weight - approx. 0.8 kg

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-87/M-82302 (DIN 912)	9 Nm

Note : Subplate and mounting bolts must be ordered separately

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