

- MIL approved
- Direkt solenoid operated directional spool valve
- Mounting pattern to DIN 24 340 form A 6 and ISO 4401-AB-03-4-A subplates see page RE 59 052 (separate order)
- Hand lever operated



Directional valves are used to control the stop, start and direction of a flow of fluid.

These directional valves consist basically of the housing (1), an operating element (2) (reinforced hand lever), the control spool (3) and the two return springs (4).

At rest, the control spool (3) is held in the centre position or in the start position by the return springs.

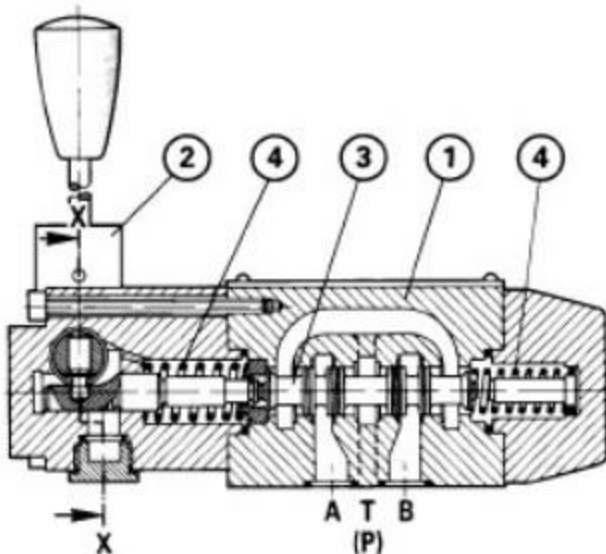
The control spool is then moved to the required position by the hand lever.

Detents

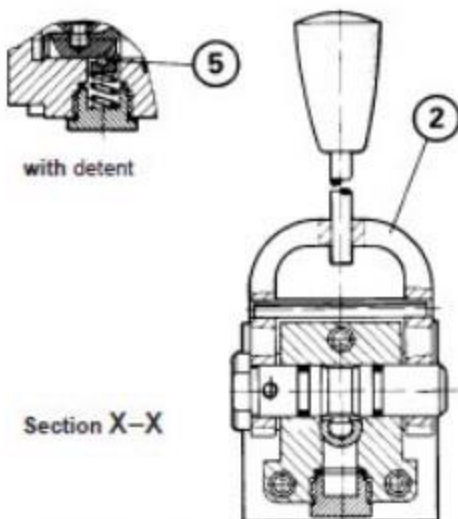
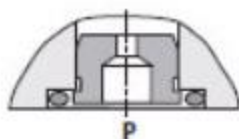
Directional valves with a hand lever may be supplied as 2 position or 3 position valves. Dependent on the type of valve, models equipped with detents (5) may be detented in any required position.

Plug-in orifice

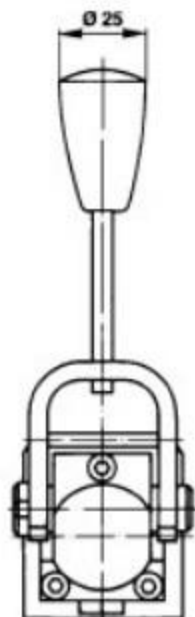
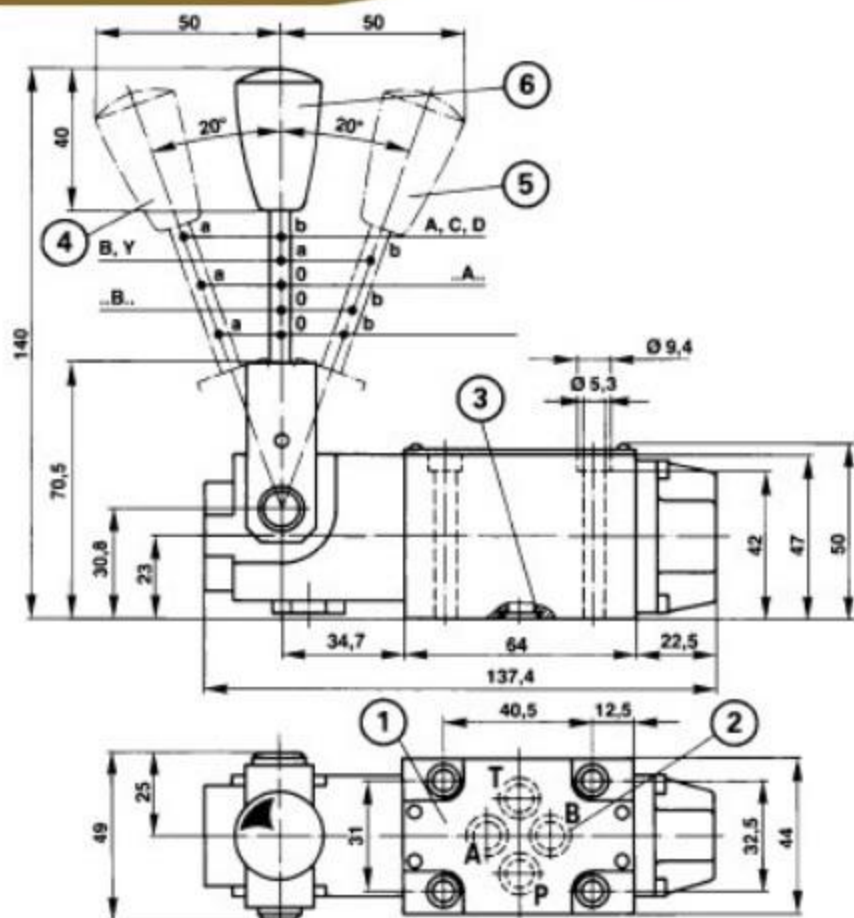
A plug-in throttling orifice is required if flow may occur during the switching operation, which exceed the power limits of the valve. The orifice is plugged into the P port.



Plug-in orifice



Section X-X



- 1 Name plate
2 Connections to DIN 24 340 Form A6 and ISO 4402-AB-03-4-A

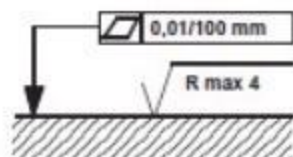
Subplates:

- G 341/01 MIL15 (1/4" BSP)
- G 341/02 MIL15 (M14 x 1,5)
- G 342/01 MIL15 (3/8" BSP)
- G 342/02 MIL15 (M 18 x 1,5)
- G 502/01 MIL15 (1/2" BSP)
- G 502/02 MIL15 (M 22 x 1,5)

to data sheet RE 59 052 and valve fixing screws
4 off M5 x 50 DIN 912-10.9-A3C,
(tightening torque $M_A = 8,9$ Nm)
must be ordered separately.

- 3 O-Ring 9,25 x 1,78 for ports A, B, P and T
4 Spool position a
5 Spool position b
6 Spool position 0, a and b (a and b for 2-pos.-valve)

Surface finish required for mounting surface



WMM	6	5X	/				*
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3 usable ports = 3

4 usable ports = 4

Hand lever operated = WMM

Spool symbol (B, C, E, EA, EB, etc.)

For possible spools, see below

Series 50 to 59 = 5X

(50 to 59 = installation details remain unchanged)

with spring return = No code

with detent = F

Further details in clear text

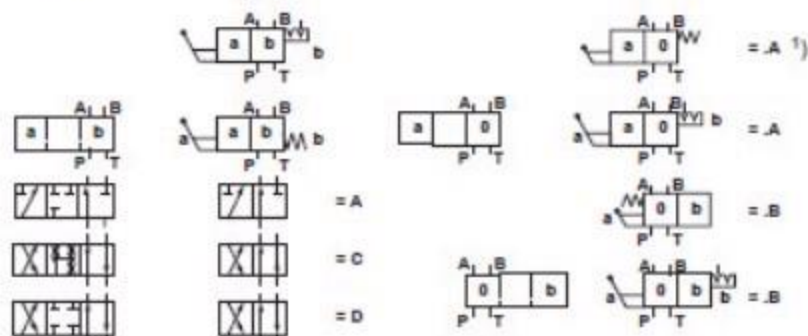
SO86 = Reinforced hand lever
SO107 = lockable detent

No code = NBR seals, for suitable fluids,
see technical data

V = Viton seals suitable for
Phosphate ester (HFD-R)

No code = no plug in orifice
B 08 = 0,8 mm throttle
B 10 = 1,0 mm throttle
B 12 = 1,2 mm throttle

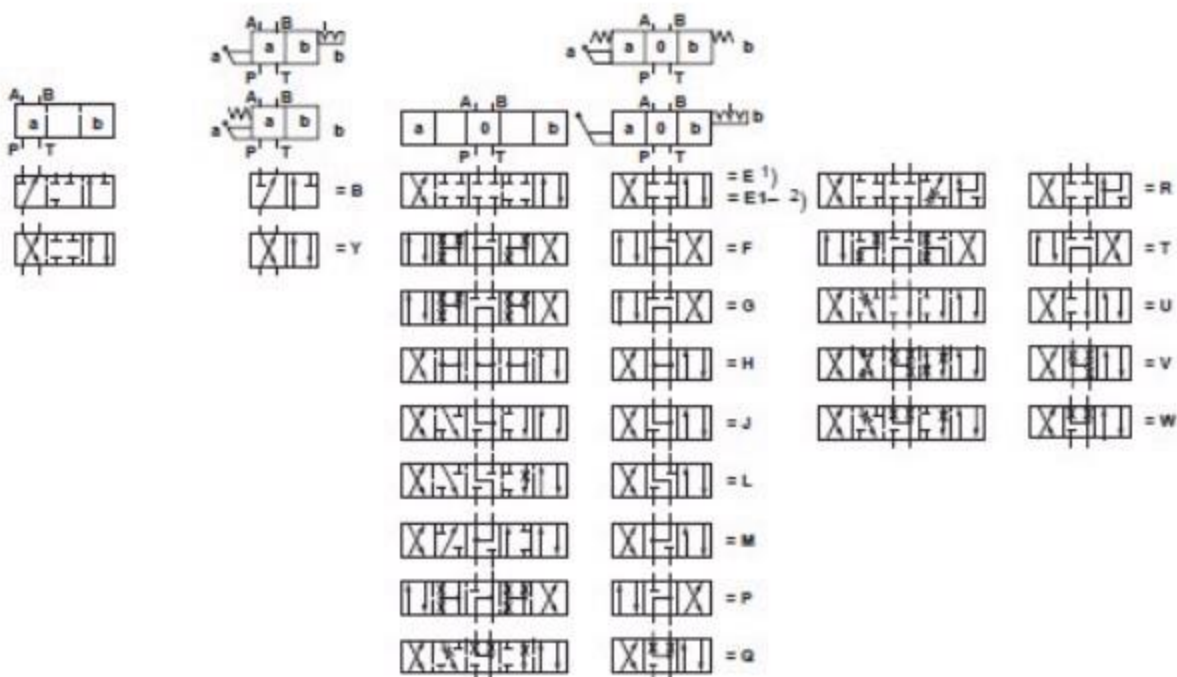
Symbols



Note:
Ensure no pressure intensification occurs in single rod cylinders

¹⁾ Example:
Symbol E, with spool position "a"
Ordering code ..EA..

²⁾ Spool E1-
= P → A/B pre-opening



Fluid: HLP mineral oil to DIN 51 524, part 2
 MIL-H-5606 (H 515)
 MIL-H-8083 (C 835)
 MIL-H-13919 (H 540)
 MIL-H-17872 (H 573)
 DEF-STAN 91-31 (H 576 or OM 33)
 Phosphate ester (HFD-R)

Viscosity range: 5 to 1000 mm²/s
 2.8 to 2500 mm²/s with certain performance restrictions

Fluid cleanliness:
 The maximum degree of contamination of the fluid is to NAS 1638 class 9. To achieve this, we recommend a filter with a minimum retention rate of $\beta_{10} \geq 100$.

Temperature range:
 - Ambient temperature: -33 °C to + 70 °C
 - Fluid temperature: NBR -33 °C to + 80 °C
 FPM -20 °C to + 120 °C
 - Storage temperature: -40 °C to + 80 °C

High temperatures: to MIL-STD-810 D
 Method 501.2, Procedure II
 Category:
 Hot / Induced Condition (+ 70 °C)

Low temperatures: to MIL-STD-810 D
 Method 502.2, Procedure II
 Climatic region: Basic Cold (-35 °C)

Salt spray: to MIL-STD-810 D
 Method 509.2, Section II, Procedure I
 - Cabinet temperature + 35 °C
 - Concentration of salt solution 5 % NaCl
 - Exposure duration 48 hours

Vibration: to MIL-STD-810 D
 Method 514.3, Category 5 (Random Noise)
 15 to 89 Hz 0,04 g²/Hz
 89 to 300 Hz + 4 dB/Oct.
 300 to 1000 Hz 0,2 g²/Hz
 1000 to 2000 Hz - 6 dB/Oct.

Shock: to Federal German Naval Construction Standard [BV 043]
 Class I, External Structural Member
 1 brief half sine shock pulse 400 g, 2 ms, on each axis in each direction
 1 sustained half sine shock pulse 130 g, 6 ms, on each axis in each direction

Hydraulic

Max. operating pressure:
 Port A, B, P, up to 315 bar
 Port T: up to 160 bar
 (For spool types A and B port T must be used as drain port, if the operating pressure is above the permissible tank pressure.)

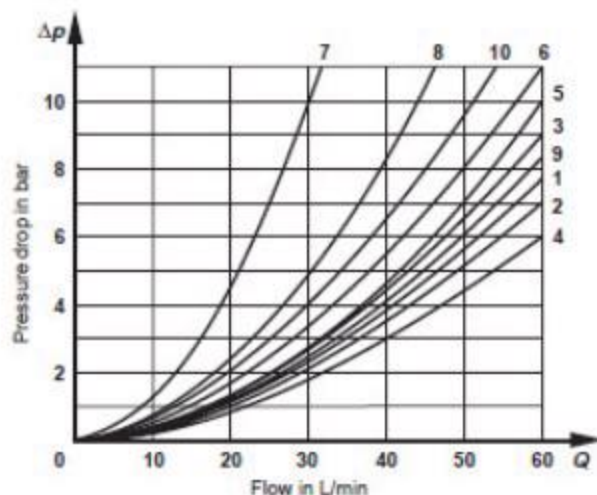
Max through flow:
 60 L/min

Opening to flow (Position 0):
 for spool Q approx. 6 % of nominal
 for spool W approx. 3 % of nominal

Operating force:
 without tank pressure approx. 20 N
 with 150 bar tank pressure approx. 30 N

Weight: approx. 1,4 kg

Δp -Q-Curves (measured at $v = 41 \text{ mm}^2/\text{s}$ and $t = 50 \text{ }^\circ\text{C}$)



Symbol	Flow direction			
	P-A	P-B	A-T	B-T
A	3	3	-	-
B	3	3	-	-
C	1	1	3	1
D	5	5	3	3
E	3	3	1	1
F	1	3	1	1
G	6	6	9	9
H	2	4	2	2
J	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
Q	1	1	2	1
R	5	5	4	-
T	10	10	9	9
U	3	3	9	4
V	1	2	1	1
W	1	1	2	2
Y	5	5	3	3

7 Symbol "R" in switching positions A - B
 8 Symbol "G" and "T" in neutral position P - T