HYDAC INTERNATIONAL

4/2 and 4/3-directional spool valves lever operated
4WMH 6 to 10

DESCRIPTION

HYDAC 4/2- and 4/3- directional spool valves of the 4WMH series are directional valves for oil hydraulic systems, which are used for direction control of oil flow.

The valve is operated by a hand lever.
The mechanism pushes the control piston of the valve to the respective position to obtain the desired flow paths.

FEATURES

- Interface to ISO 4401
- Versions with two or three switching positions, with return spring or mechanical detent
- Valve body with high stability and low flow losses
- NG6: Position of the hand lever can be turned by 180°

CONTENT

MODEL CODE

4WMH 6 E – F 01 / V

Type
Manually operated directional valves with hand lever and 4 main ports

Nominal size (NG)
6, 10

Spool types
see page 3

Design
Not specified = with return spring
F = withoud spring, with detent

Series
01 = determined by the manufacturer

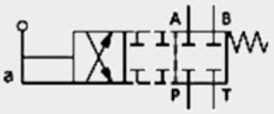
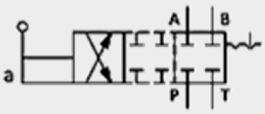
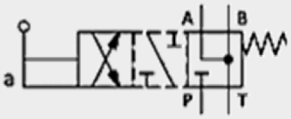
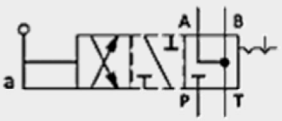
Sealing material
V = FKM (standard)
N = NBR

ACCESSORIES

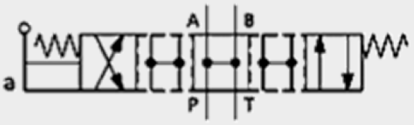
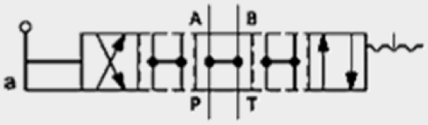
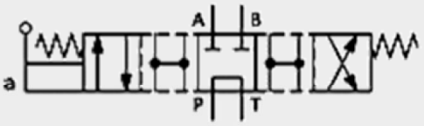
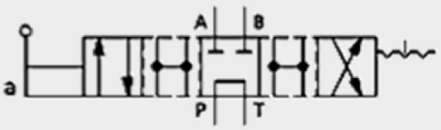
	Designation	Part no.
Seal kits	NG6: 9,25 x 1,78 80 Sh NBR	3492432
	9,25 x 1,78 80 Sh FKM	3120269
	NG10: 12,42 x 1,78-NBR -80Sh	4348706
	12,4 2x 1,78-FKM -80Sh	4348705
Mounting screws (4 pcs)	NG6: DIN EN ISO 4762 - M5 x 50 - 10.9	4312231
	NG10: DIN EN ISO 4762 - M6 x 40 - 10.9	3524314

SPOOL TYPES / SYMBOLS

4/2- DIRECTIONAL SPOOL VALVES

Type	Symbol with intermediate position
D	
D-F	
C	 NG6 only
C-F	 NG6 only
EA	
EA-F	
HA	
HA-F	
JA	
JA-F	
GA	
GA-F	

4/3- DIRECTIONAL SPOOL VALVES

Type	Symbol with intermediate position
E	
E-F	
H	
H-F	
J	
J-F	
G	
G-F	

FUNCTION

The manually operated directional spool valve of the 4WMH series are used for directional control of flow.

The valves consists of a valve casing (1) and a valve piston (2).

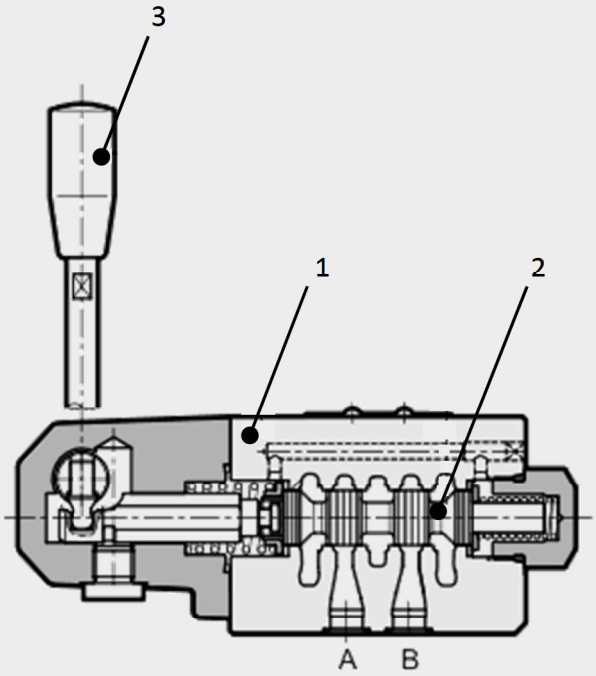
Depending on the version, the valve is equipped with a return spring or a detent (option F).

The valve piston is held in its initial position by the return spring.
The valve is operated by a hand lever (3).
The mechanism pushes the control piston of the valve to the respective position to obtain the desired flow paths.

The hand lever is locked with option F, so the is held in its position.

If the lever is returned after actuation, the piston is moved back to its initial position by the return spring.

SECTION VIEW



TECHNICAL DATA *

General specifications			
		Nominal size	
		6	10
MTTFd		150 - 1200 years, according to DIN EN ISO 13849-1:2016; Table C.1, confirmation of ISO 13849-2:2013; Tables C.1 and C.2	
Ambient temperature	[°C]	-20 to +60	
Installation position		without detent: no orientation restrictions with detent: horizontal (direct axis)	
Weight	[kg]	1,3	4,2

Hydraulic specifications			
		Nominal size	
		6	10
Operating pressure port A, B, P	[bar]	350	320
Operating pressure port T		210	160
Flow range	[l/min]	see Performance on page 5	
Operating fluid		Hydraulic oil to DIN 51524 part 1, 2 and 3	
Viscosity range	[mm²/s]	10 to 400 (25 is recommended)	
Permitted contamination level of operating fluid		class 20/18/15 to ISO 4406	
Sealing material		FKM (standard), NBR	

*see "Conditions and instructions for Valves"" in brochure 53.000

PERFORMANCE

The performance curves represent the valve's areas of application for different spool types depending on flow rate and operating pressure. The values are taken according to ISO 6403 standard, with mineral oil viscosity of 36 mm²/s, at an operating temperature of 50 °C and filters according to ISO4406:1999 class 18/16/13.

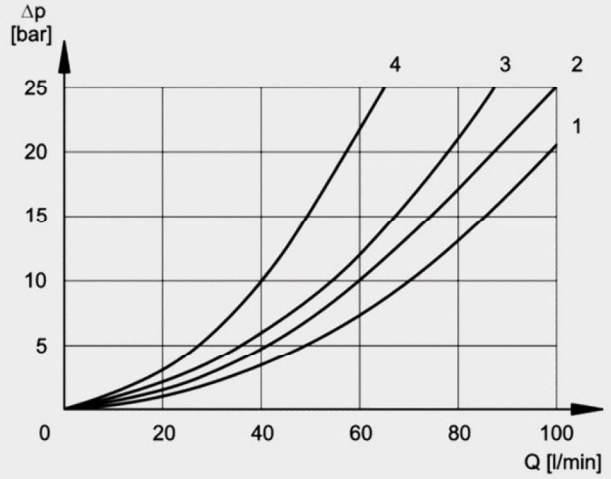
HINT

The values in the diagrams are valid for normal operation. The performance limits can be reduced considerably, e.g. if a 4-directional valve with blocked port A or B is operated.

NG6

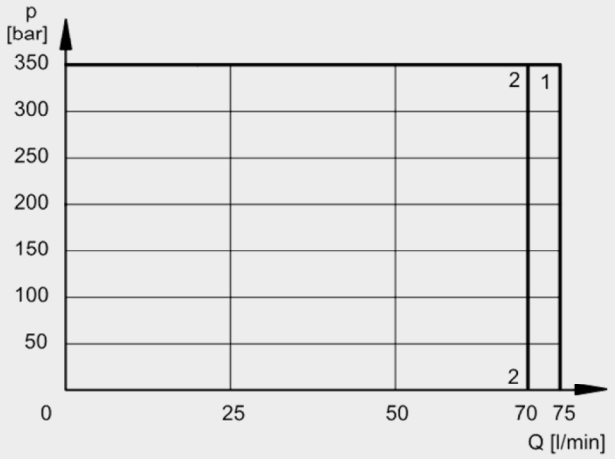
Pressure drop

measured at v = 36 mm²/s, T= 50 °C



Performance limits

measured at v = 36 mm²/s, T= 50 °C



Performance assignment to the associated spools:

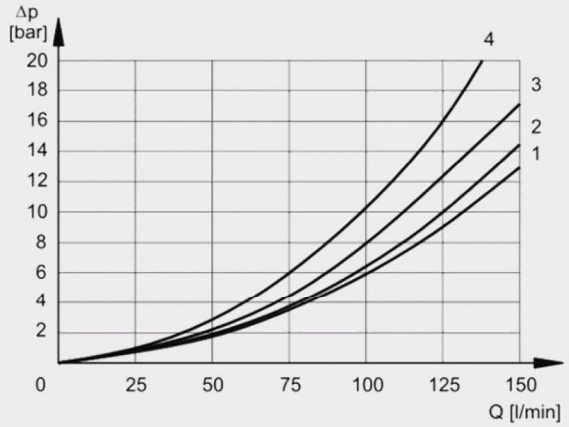
spool	Pressure drop					Performance limits (P-A/P-B)
	P-A	P-B	A-T	B-T	P-T	
E, EA	2	2	3	3		1
H, HA	1	1	3	3	(2)	1
J, JA	3	3	1(3)	1(3)		1
G, GA	4	4	4	4	(3)	2
D	3	3	3	3		1
C	2	2	2	2		1

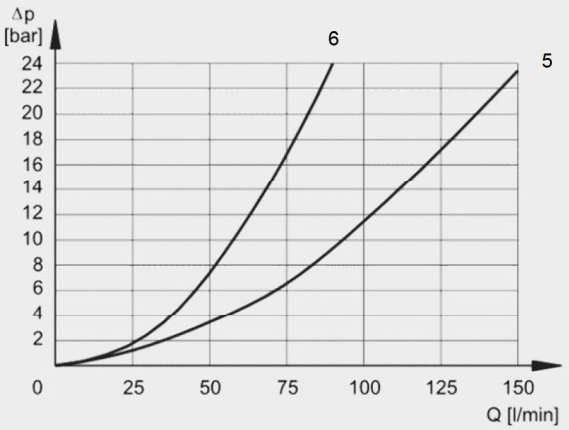
(*): valve in basic position

NG10

Pressure drop

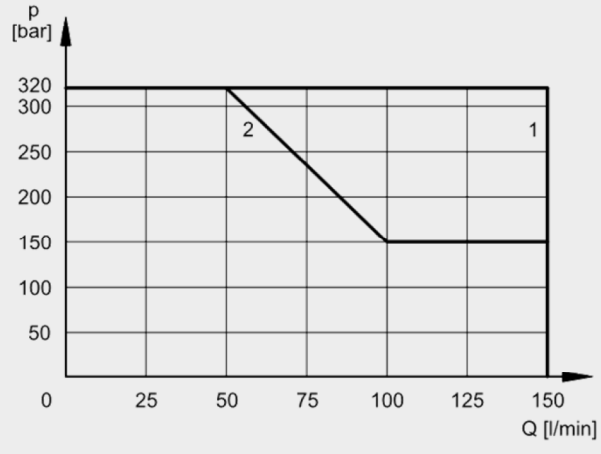
measured at v = 36 mm²/s, T= 50 °C





Performance limits

measured at v = 36 mm²/s, T= 50 °C



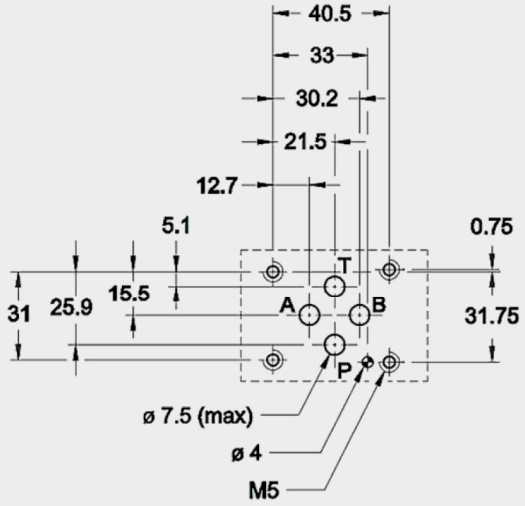
Performance assignment to the associated spools:

spool	Pressure drop					Performance limits (P-A/P-B)
	P-A	P-B	A-T	B-T	P-T	
E, EA	2	2	1	1		1
H, HA	3	3	1	1	(5)	1
J, JA	3	3	2(6)	2(6)		1
G, GA	1	1	2	2	(5)	2
D	3	3	2	2		1

(*): valve in basic position

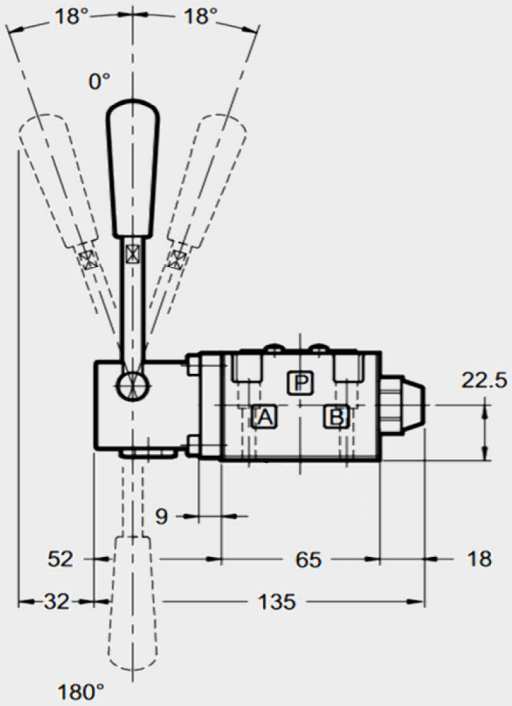
DIMENSIONS NG6

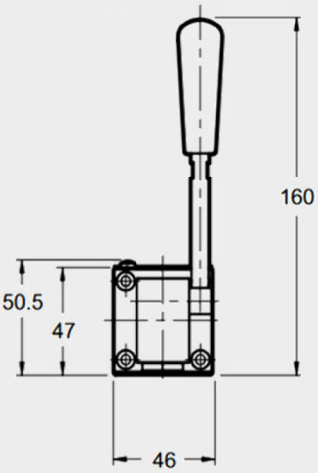
Interface to ISO 4401-03-02-0-05



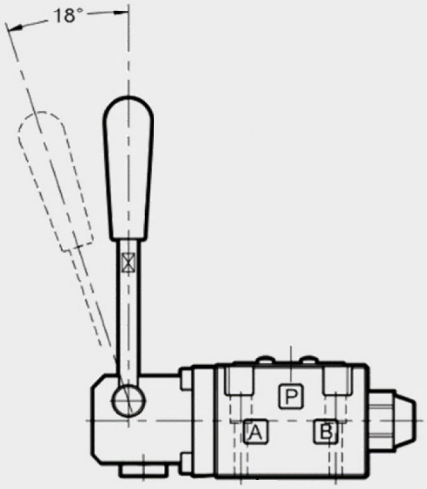
Mounting screws:
(not included in delivery)
DIN EN ISO 4762- M5x30- 8.8
Torque: 5 Nm

4/3-way

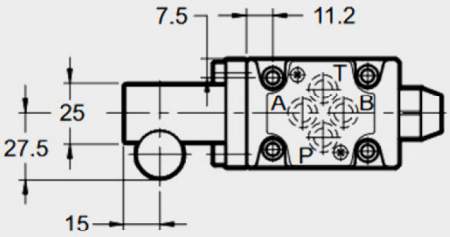




4/2-way

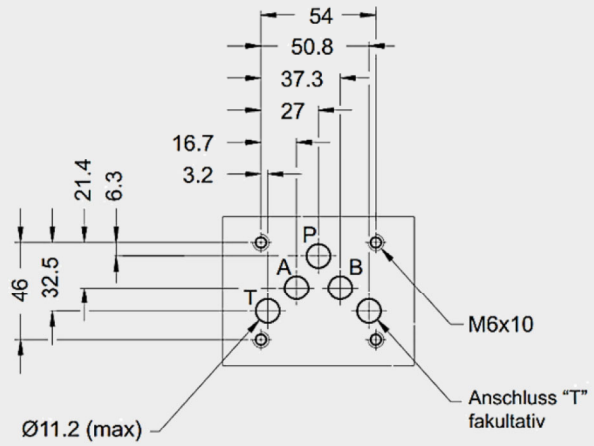


HINT
The valve is supplied with the hand lever pointing orthogonally to the interface. The lever can be turned 180° for different applications.



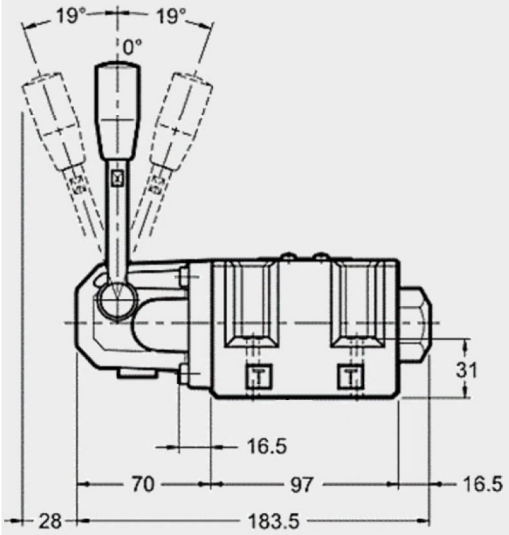
DIMENSIONS NG10

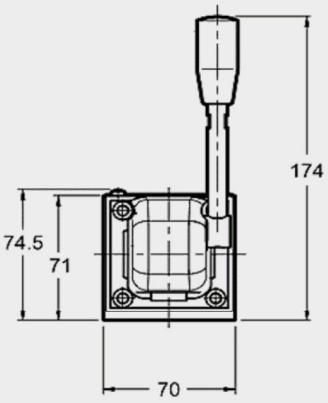
CETOP 4.2-4-05-320



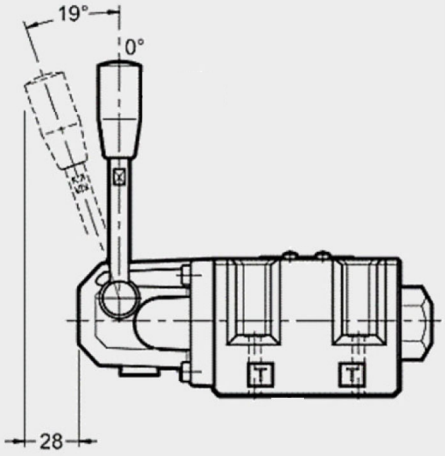
Mounting screws:
(not included in delivery)
DIN EN ISO 4762- M6x40- 8.8
Torque: 8 Nm

4/3-way

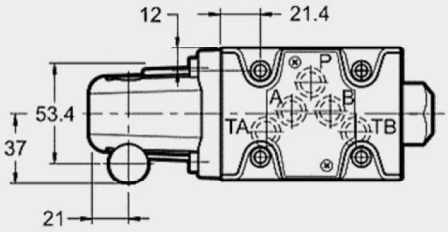




4/2-way



HINT
The orientation of the hand lever can not be changed.



Note
The information in this brochure relates to the operating conditions and applications described. For applications not described, please contact the relevant technical department.
All technical details are subject to change without notice.