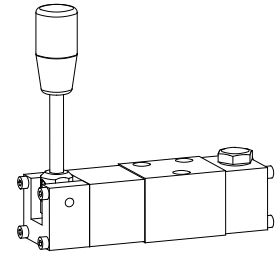


Spool valve
Hand- or roller operated

- 4/2- and 4/3-way detendet
- 4/3-way with spring centred mid position
- 4/2-way with spring reset
- $Q_{max} = 8 \text{ l/min}$, $p_{max} = 350 \text{ bar}$

NG3-Mini[®]

DESCRIPTION

Spool valve NG3-Mini, flange type in accordance to Wandfluh standard with 4 connections, directly operated by hand or roller, in 5 chamber system. The hand lever valve is available with locked spool or with spring reset. The dancing roller valve only has a spring reset facility. Precise spool fit, little leakage, long life. Threaded connection by means of additional connecting plate. Hardened steel spool, the valve body being made from a high quality casting suitable for hydraulic applications. The valve body is painted, the end cover and lever housing are zinc-coated.

FUNCTION

When actuated, the lever or roller displaces the spool to the corresponding switching position.

- 4/2- and 4/3-way manual valves with spring, 1 lever and 2 or 3 switching positions. The spring presses the spool back into the home position.
- 4/2- and 4/3-way manual lever valve with lock, 1 lever and 2 or 3 switching positions. The lock holds the spool in the last position selected.
- 4/2-way dancing roller valve, 1 dancing roller and 2 switching positions. The spring presses the spool back to the starting position.

APPLICATION

Mechanically operated spool valves are mainly used to control the direction of movement and retain hydraulic cylinders and motors. The direction of movement is determined by the position of the valve spool and its symbol. Mechanically operated valves are particularly suitable for use in installations where no control current is available or for applications in areas where there is a risk of explosion (chemical industry, tunnel construction). Mini-3 valves are used where both, reduced dimensions and weight are important.

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TYPE CODE

WD	<input type="checkbox"/>	F	A03	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Spool valve direct operated							
Hand operated spring centered	<input type="checkbox"/>	H					
Hand operated detented	<input type="checkbox"/>	G					
Roller operated, spring reset	<input type="checkbox"/>	T					
Flange type							
Interface NG3-Mini							
Type charts/Symbols acc. to table on page 1.5-15/2	a-side	<input type="checkbox"/>	1				
	b-side	<input type="checkbox"/>	2				
Design-Index (Subject to change)							

GENERAL SPECIFICATIONS

Description	4/2-, 4/3-way-valve
Nominal size	NG3-Mini to Wandfluh standard
Construction	Direct operated spool valve
Operations	Hand operated (hand lever) or roller
Mounting	Flange 3 fixing holes for socket head cap screws M4x30
Connections	Threaded connection plates Multi-flange plates, Manifolds Longitudinal stacking system
Ambient temperature	-20...50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 2,8 \text{ Nm}$ (screw quality 8.8)
Weight: Hand lever	$m = 0,62 \text{ kg}$
Roller	$m = 0,55 \text{ kg}$

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Operating pressure in port P, A, B	$p_{max} = 350 \text{ bar}$ ($p_T < 20 \text{ bar}$) $p_{max} = 315 \text{ bar}$ ($p_T > 20 \text{ bar}$) $p_{Tmax} = 100 \text{ bar}$
Tank pressure in port T	
Max. volume flow	$Q_{max} = 8 \text{ l/min}$
Leakage volume flow	see characteristics

CONTROL MECHANICAL

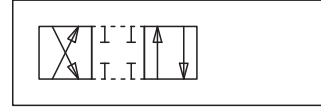
Angle (Hand lever)	$\alpha_b = 13,5^\circ$
Stroke (roller)	$S_b = 1,7 \text{ mm}$
Force: - Hand lever	$F_b = 15 - 20 \text{ N}$
- roller	$F_b = 90 - 120 \text{ N}$

TYPE LIST / DESIGNATION OF SYMBOLS

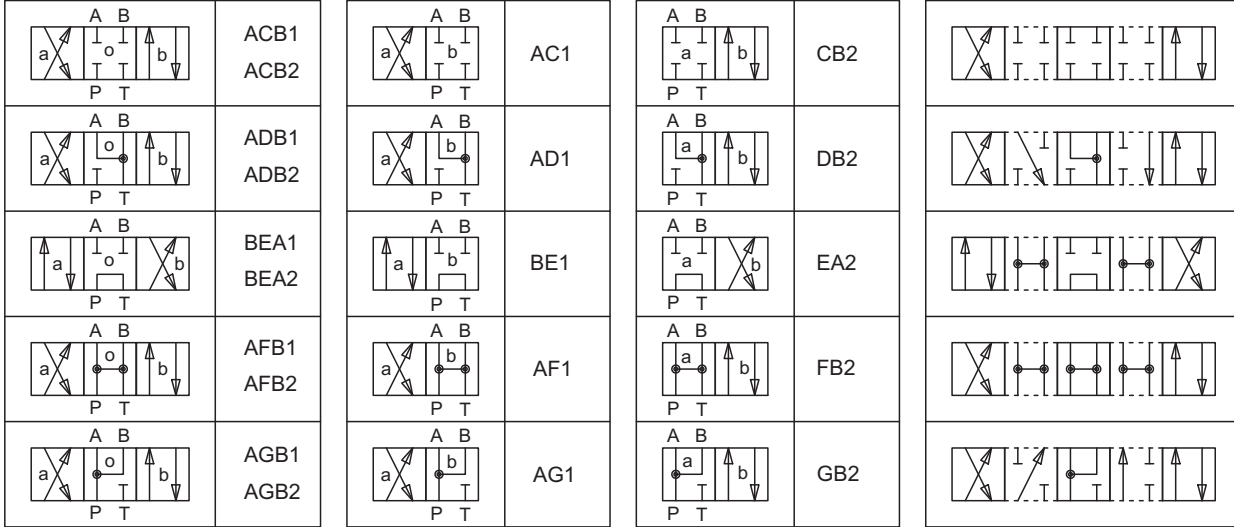
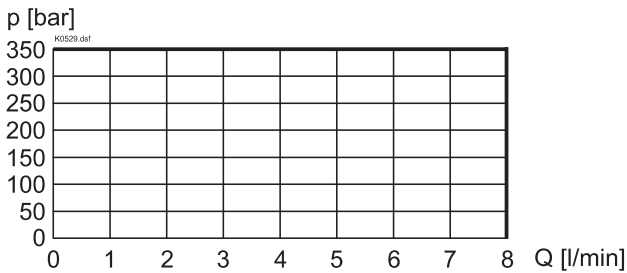
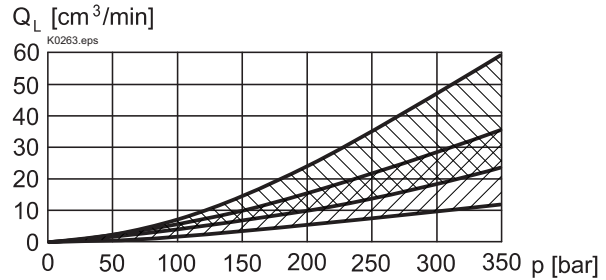
4/2-way valve with spring reset or detented



Transitional functions



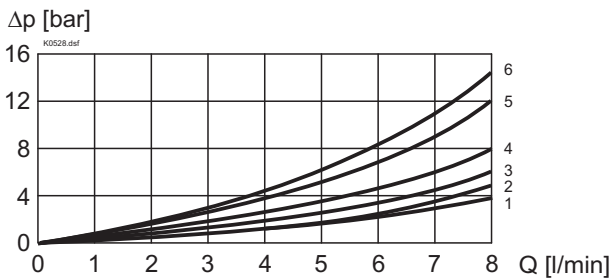
4/3-way valve spring centered or detented


CHARACTERISTICS Oilviscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits

 $Q_L = f(p)$ Leakage volume flow characteristics per control edge


Leakage envelope AB1/ACB/ADB/AFB/AGB



Leakage envelope BEA

 $\Delta p = f(Q)$ Pressure drop volume flow characteristics


Symbol	Volume flow direction				
	P - A	P - B	P - T	A - T	B - T
AB1/AB2	4	4	-	3	3
ACB1/ACB2/AC1/CB2	4	4	-	2	2
ADB1/ADB2/AD1/DB2	3	3	-	2	2
BEA1/BEA2/BE1/EA2	6	6	4	5	5
AFB1/AFB2/AF1/FB2	2	2	1	2	2
AGB1/AGB2/AG1/GB2	3	3	-	3	3

