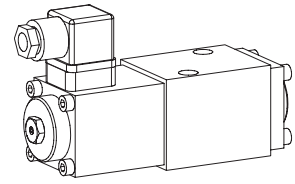


Solenoid operated spool valve

- 4/2-way impulse valve, detented
- 4/3-way with spring centred mid position
- 4/2-way with spring reset
- $Q_{max} = 30 \text{ l/min}$ $p_{max} = 250 \text{ bar}$

NG5

DESCRIPTION

Spool valve in flange design NG5 with 4 ports. Solenoid to standard VDE 0580. Direct operated solenoid valve in 5 chamber design. Spool detented or with spring reset. Wet pin type solenoid. Precise spool fit, low leakage, long life time. Threaded ports through additional base plate. Spool made from hardened steel, body from high quality cast steel. Wide range of standard and special voltages. The valve body is painted, end cover and solenoid are zinc coated.

FUNCTION

The solenoid shifts the spool into the corresponding position.

- 4/2-way detented spool valve:
2 solenoids and 2 detented positions. With the solenoids deenergised the spool remains in the last switched position.
- 4/2-way spool valve:
1 solenoid and 2 spool positions, spring offset. With the solenoid deenergised the spool returns to the offset position.
- 4/3-way spool valve:
2 solenoids and 3 spool positions, spring centered. With the solenoids deenergised the spool returns to the center position.

APPLICATION

Solenoid operated spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors. Direction of movement depends on the position of spool and its flow symbol. Please pay attention to the performance limits and leakage of the valves. Solenoid operated spool valves are suitable for machine tools and handling systems.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
ELECTRICAL CONTROL	2
SOLENOID DESCRIPTION	2
TYPE LIST/ DESIGNATIONS OF SYMBOLS	2
CHARACTERISTICS	2/3
DIMENSIONS	3
PARTS LIST	3
ACCESSORIES	3

TYPE CODE

	A M 4 <input type="text"/> - <input type="text"/> # <input type="text"/>										
Interface											
Solenoid SIN45V											
Number of control ports											
Description of symbols acc. to table 1.2-52/2											
Standard-nominal voltage U_N :	<table border="0" style="display: inline-table; vertical-align: top;"> <tr> <td style="padding-right: 10px;">12 VDC</td> <td style="border: 1px solid black; padding: 2px;">G12</td> </tr> <tr> <td>24 VDC</td> <td style="border: 1px solid black; padding: 2px;">G24</td> </tr> <tr> <td>110 VAC</td> <td style="border: 1px solid black; padding: 2px;">R110</td> </tr> <tr> <td>115 VAC</td> <td style="border: 1px solid black; padding: 2px;">R115</td> </tr> <tr> <td>230 VAC</td> <td style="border: 1px solid black; padding: 2px;">R230</td> </tr> </table>	12 VDC	G12	24 VDC	G24	110 VAC	R110	115 VAC	R115	230 VAC	R230
12 VDC	G12										
24 VDC	G24										
110 VAC	R110										
115 VAC	R115										
230 VAC	R230										
Design-Index (Subject to change)											

GENERAL SPECIFICATIONS

Description	4/2-, 4/3-way spool valve
Nominal size	NG5
Construction	Direct operated spool valve
Operating method	Solenoid
Mounting	Flange 2 fixing holes for socket head cap screws M5x50
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferably horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (screw quality 8.8)
Weight: 4/2-way impuls	$m = 2,6 \text{ kg}$
4/3-way	$m = 2,6 \text{ kg}$
4/2-way (1 solenoid)	$m = 2,0 \text{ kg}$

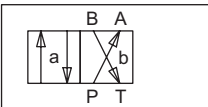
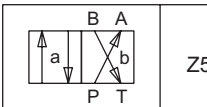
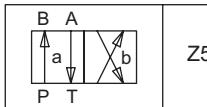
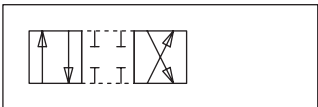
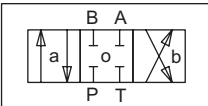
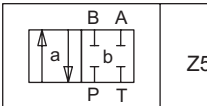
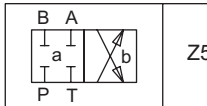
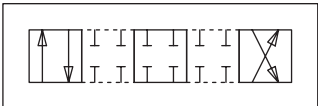
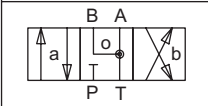
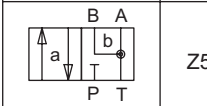
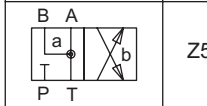
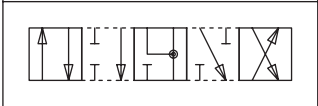
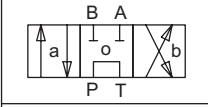
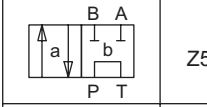
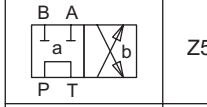
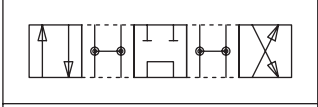
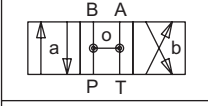
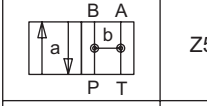
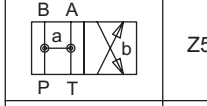
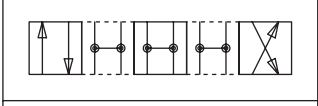
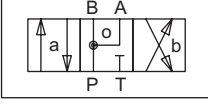
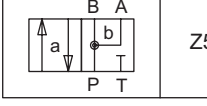
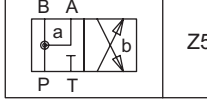
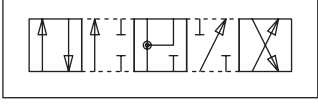
HYDRAULIC SPECIFICATIONS

Hydraulic medium	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
Working pressure	
in port P, A, B	$p_{max} = 250 \text{ bar}$
Tank pressure	
in port T	$p_{max} = 160 \text{ bar}$
Max. volume flow	$Q_{max} = 30 \text{ l/min}$
Leakage volume flow	see characteristics

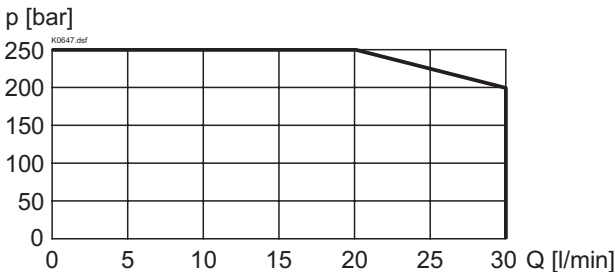
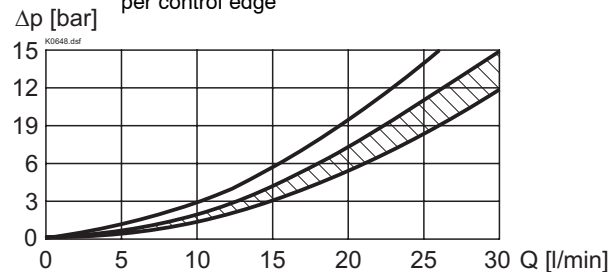
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight	Voltage tolerance	±10% of nominal voltage
Standard-nominal voltage	$U_N = 12$ VDC	Protection class	IP 65 to EN 60529
	$U_N = 24$ VDC	Relative duty factor	100% DF (see data sheet 1.1-430)
	$U_N = 110$ VAC*	Switching cycles	15'000/h
	$U_N = 115$ VAC*	Operating life	10^7 (number of switching cycles, theoretically)
	$U_N = 230$ VAC*	Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43650, (2P+E), other connections on request.
	AC = 50 to 60 Hz	Solenoid version:	SIN45V (data sheet 1.1-120)
	* Rectifier integrated in the plug.		
	Other nominal voltages and nominal performances on request.		


TYPE LIST / DESIGNATION OF SYMBOLS

4/2-way valve impulse	4/2-way valve with spring reset operation A-side	4/2-way valve with spring reset operation B-side	Transitional functions
 J50	 Z50a	 Z50b	
4/3-way valve spring centered			
 D51	 Z51a	 Z51b	
 D52	 Z52a	 Z52b	
 D53	 Z53a	 Z53b	
 D54	 Z54a	 Z54b	
 D55	 Z55a	 Z55b	

CHARACTERISTICS Oil viscosity $\nu = 30$ mm²/s

 $p = f(Q)$ Performance limits with standard voltage -10%

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


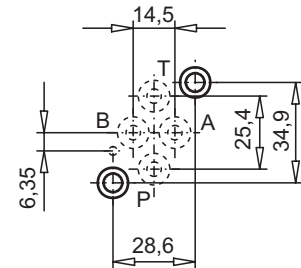
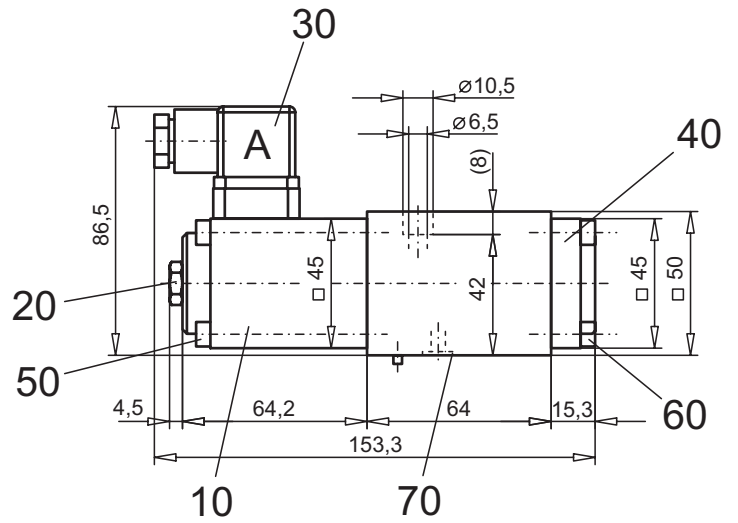
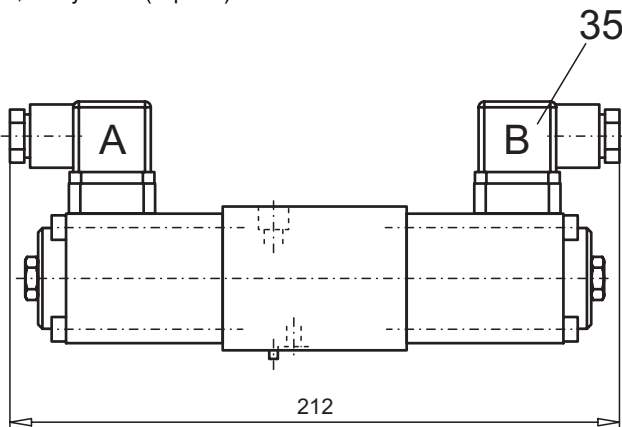
— Pressure drop for valves with no. 3 spool and flow P to T only.

 Pressure drop spread, valid for all symbols, P-A, P-B, A-T and B-T.

DIMENSIONS

 4/3-way valve (spring centered)
 4/2-way valve (impulse)

4/2-way valve (spring reset)


PARTS LIST

Position	Article	Description
10	260.6 ...	Solenoid SIN45V
20	253.8001	Plug with integrated manual override HB6
30	219.2001	Electric plug A (grey)
35	219.2002	Electric plug B (black)
40	58.4200	Cover
50	246.2160	Socket head cap screw M5x60 DIN 912
60	246.1117	Socket head cap screw M5x16 DIN 912
70	160.2093	O-ring ID 9,25x1,78

ACCESSORIES

 Threaded connecting plates, Multi-flange subplates and
 Longitudinal stacking system see Reg. 2.9

Technical explanation see data sheet 1.0-100E