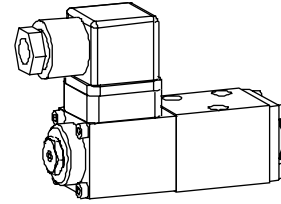


Solenoid operated spool valve

- 4/2-way impulse valve
- 4/3-way with spring centred mid position
- 4/2-way with spring reset
- $Q_{max} = 15 \text{ l/min}$, $p_{max} = 315 \text{ bar}$

NG3-Mini[®]


DESCRIPTION

Direct solenoid operated spool valve with a 5 annular chamber body design. Solenoid wet pin oil immersed armature type. Precision honed spool for low leakage. Low pressure drop due to the body design and spool profiling. Spool is of hardened steel, body is of high grade hydraulic cast iron for long service life. The valve is of flange-type design for direct mounting onto threaded subplates or more complex manifolds.

FUNCTION

- 4/2-way detent spool valve:
4 ports directional control valve with 2 position detented spool. With the solenoids de-energised the spool remains in the last switched position.
- 4/2-way spool valve:
4 ports 2 position spool valve, spring offset. With the solenoid deenergised the spool returns to the offset position.
- 4/3-way spool valve:
4 ports 3 position spool valve, spring centered. With the solenoids deenergised the spool returns to the center position.

APPLICATION

These solenoid operated directional control valves are mainly used for diverting and preventing fluids flows in hydraulic systems. There are now many more applications that can be catered for due to the high flow characteristics and low pressure drop of this new directional control valve. Mini-3 valves are used where both, reduced dimensions and weight are important.

CONTENT

GENERAL SPECIFICATIONS	1.2-26/1
HYDRAULIC SPECIFICATIONS	1.2-26/1
ELECTRICAL CONTROL	1.2-26/2
TYPE LIST / DESIGNATION OF SYMBOLS	1.2-26/2
CHARACTERISTICS	1.2-26/2 1.2-26/3
DIMENSIONS	1.2-26/3
PARTS LIST	1.2-26/3
ACCESSORIES	1.2-26/3

TYPE CODE

			B	M	4		-		#	
Interface										
Medium-solenoid										
Number of control ports										
Description of symbols acc. to table 1.2-26/2										
Standard- nominal voltage U_N	12VDC	G12								
	24VDC	G24								
	110VAC	R110								
	115VAC	R115								
	230VAC	R230								
Design-Index (Subject to change)										

GENERAL SPECIFICATIONS

Description	4/2-, 4/3-spool valve
Nominal size	NG3-Mini to Wandfluh norm
Construction	Direct operated spool valve
Operation	Solenoid
Mounting	Flange
	3 fixing holes for socket head cap screws M4x30
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferably horizontal
Fastening torque	$M_D = 2,8 \text{ Nm}$ (screw quality 8.8)
Weight: 4/2-way impulse	$m = 0,65 \text{ kg}$
4/3-way	$m = 0,65 \text{ kg}$
4/2-way (1 solenoid)	$m = 0,50 \text{ kg}$

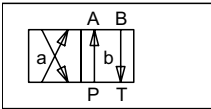
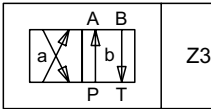
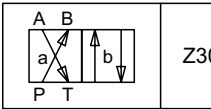
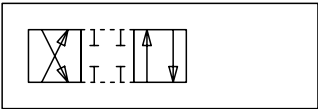
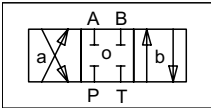
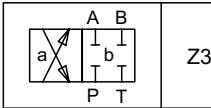
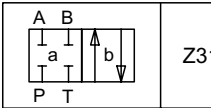
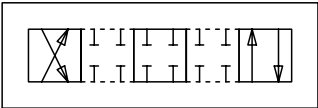
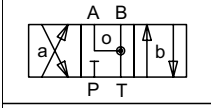
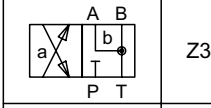
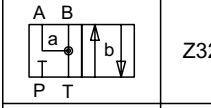
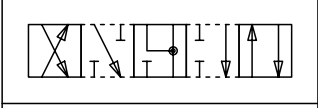
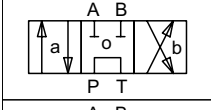
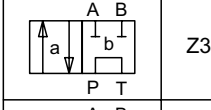
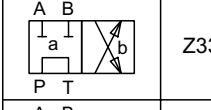
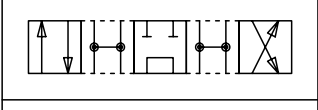
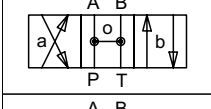
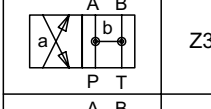
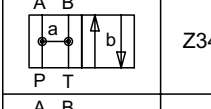
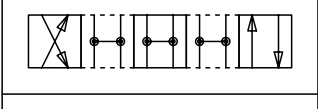
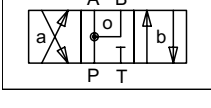
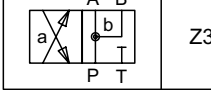
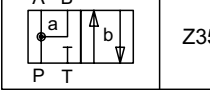
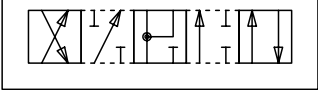
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406, classe 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	$p_{max} = 315 \text{ bar}$
Tank pressure in port T	$p_{max} = 100 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$, see characteristics
Leakage volume flow	see characteristics

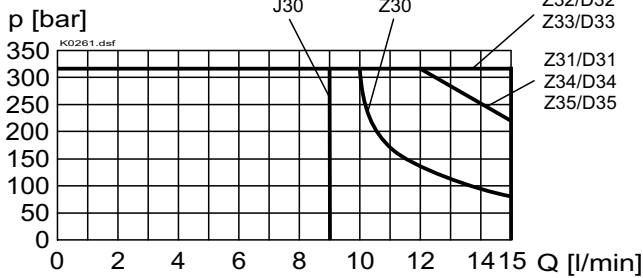
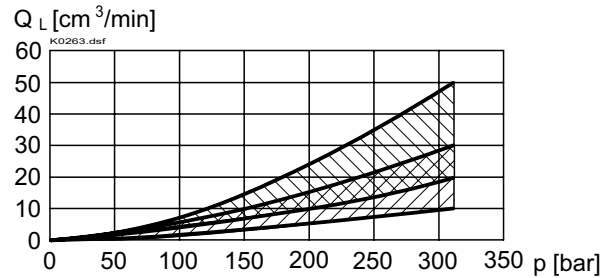

ELECTRICAL CONTROL


Construction	Solenoid, wet pin push type, pressure tight	Voltage tolerance	±10% of nominal voltage
Standard-nominal voltage	$U_N = 12$ VDC $U_N = 24$ VDC $U_N = 110$ VAC* $U_N = 115$ VAC* $U_N = 230$ VAC* AC = 50 bis 60 Hz * Rectifier integrated in the plug, other nominal voltages and nominal performances on request	Protection class	IP 65 to DIN 40050
		Relative duty factor	100% DF (see data sheet 1.1-430)
		Switching cycles	15'000/h
		Operating life (number of switching cycles)	10 ⁷
		Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request.
		Solenoid connection:	SIN29V (data sheet 1.1-80)

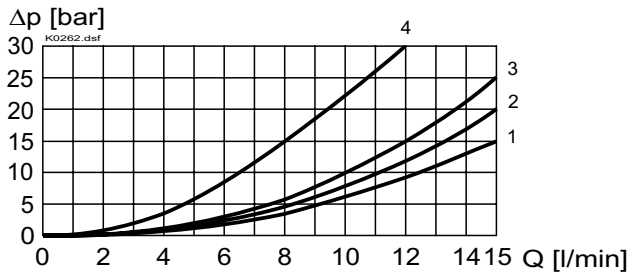
TYPE LIST / DESIGNATION OF SYMBOLS

4/2-way valve impulse	4/2-way valve with spring reset operation A-side	operation B-side	Transitional functions
 J30	 Z30a	 Z30b	
4/3-way valve spring centered			
 D31	 Z31a	 Z31b	
 D32	 Z32a	 Z32b	
 D33	 Z33a	 Z33b	
 D34	 Z34a	 Z34b	
 D35	 Z35a	 Z35b	

CHARACTERISTICS Oilviscosity $\nu = 30$ mm²/s

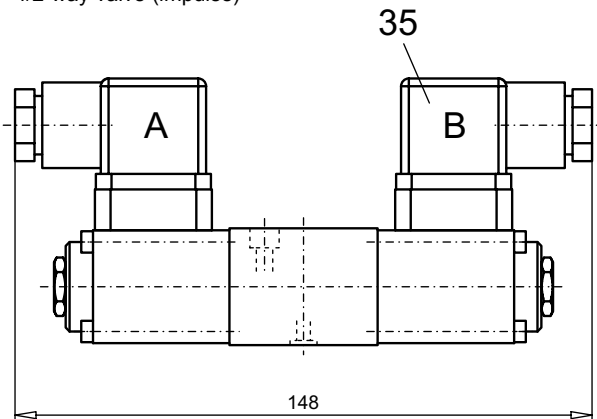
 $p = f(Q)$ Performance limits with standard voltage -10%

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

 Leakage envelope J30/Z30/D31/D32/D34/D35

 Leakage envelope D33

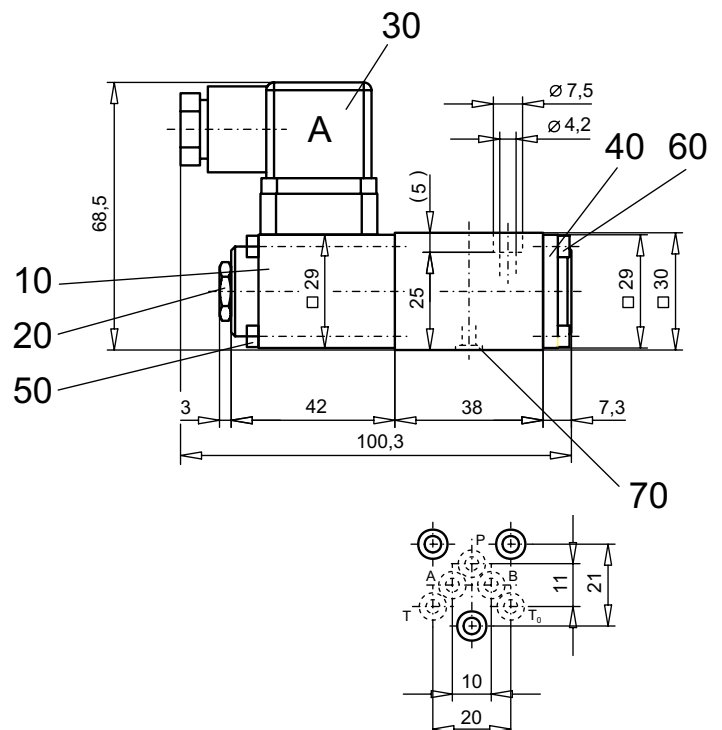
$\Delta p = f(Q)$ Pressure drop volume flow characteristics


Symbol	Pressure drop Curve no.	Volume flow direction				
		P - A	P - B	P - T	A - T	B - T
Z30/J30	3	3	3	-	2	2
D31/Z31	3	3	3	-	2	2
D32/Z32	3	3	3	-	1	1
D33/Z33	4	4	4	3	4	4
D34/Z34	4	4	4	3	1	1
D35/Z35	2	2	2	-	2	2

DIMENSIONS

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


4/2-way valve (spring reset)


PARTS LIST

Position	Article	Description
10	260.2 ...	Solenoid SIN29V
20	253.8000	Plug with integr. manual override HB4,5
30	219.2001	Electric plug A (grey)
35	219.2002	Electric plug B (black)
40	56.4200	Cover
50	246.0140	Socket head cap screw M3x40 DIN 912
60	246.0108	Socket head cap screw M3x8 DIN 912
70	160.2045	O-ring ID 4,50x1,50

ACCESSORIES

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

Technical explanation see data sheet 1.0-100E