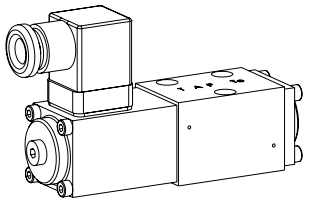
Solenoid operated poppet valve

Flange construction

- 2/2-, 3/2- and 3/4-way
- normally open and normally closed
- Q_{max} = 15 l/min
- p_{max} = 350

NG4-Mini

Wandfluh standard



DESCRIPTION

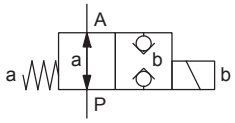
Direct operated 2/2-, 3/2 and 3/4-way solenoid poppet valve in flange construction. By means of the pressure tight switching solenoid, the poppet valve spool is opened or closed acting against the spring. Due to the poppet spool construction with pressure compensation on both sides, the flow through the valve is possible in both directions. The seat spool guide is sealed by means of an O-ring. The metallically sealing seat closes the valve virtually leak free.

APPLICATION

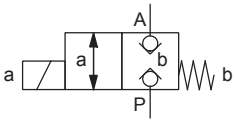
Poppet valves are used where tight closing functions of the valve are essential like leakage-free load holding, clamping or gripping. Miniature values are used where both, reduced dimensions and weight are important.

SYMBOL

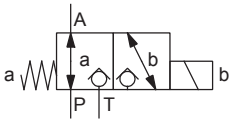
B.22040b



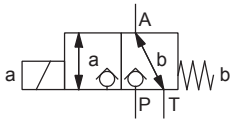
B.22041a



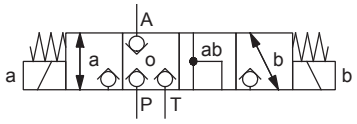
B.32040b



B.32041a



B.3404



TYPE CODE

2/2 or 3/2 way execution	B S □ 2 04 □ - □ - □ # □				
3/4 way execution	B S 3 4 04 □ - □ - □ # □				
Mounting interface acc. to Wandfluh standard					
Solenoid, Super					
2 way (connections)	2				
3 way (connections)	3				
2 switching positions					
4 switching positions					
Nominal size 4-Mini					
Normally closed	Solenoid on A-side			1a	
Normally open	Solenoid on B-side			0b	
Nominal voltage U_N	12 VDC	G12	115 VAC	R115	
	24 VDC	G24	230 VAC	R230	
Sealing material	NBR				
	FKM (Viton)	D1			
Design index (subject to change)					

1.11-2120

GENERAL SPECIFICATIONS

Designation	2/2-, 3/2- and 3/4-way poppet valve
Construction	Direct operated
Mounting	Flange construction
Nominal size	NG4-Mini according to Wandfluh standard
Actuation	Switching solenoid
Ambient temperature	-25…+70 °C
Weight	0,95 kg (2/2- and 3/2-way) 1,45 kg (3/4-way)
MTTFd	150 years

ACTUATION

Actuation	Switching solenoid, wet pin push type, pressure tight
Execution	SIS35V (Data sheet 1.1-110)
Connection	Connector socket DIN EN 175301 – 803

COMMISSIONING

Attention! When commissioning, the valve must be vented under pressure (max. two rotations of screw E).

ELECTRICAL SPECIFICATIONS

Protection class	IP65
Relative duty factor	100 % DF
Switching frequency	15'000 / h
Service life time	10^7 (number of switching cycles, theoretically)
Voltage tolerance	± 10 % with regard to nominal voltage
Standard nominal voltage	12 VDC, 24VDC, 115 VAC, 230 VAC AC = 50 to 60 Hz, rectifier integrated in the connector socket

Note! Other electrical specifications see data sheet 1.1-110

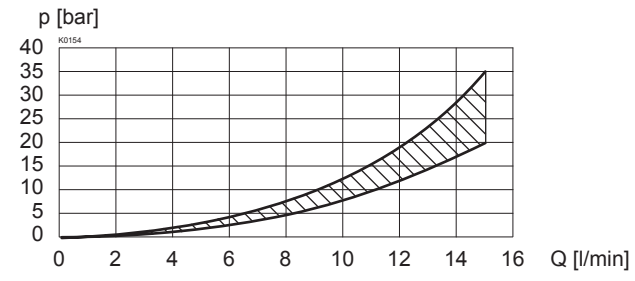
HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Maximum volume flow	Q_{max} = 15 l/min, see characteristics
Volume flow direction	Any (see characteristic)
Leakage oil	Poppet type, max. 0,05 ml / min (approx. 1 drop / min) at 30 cSt
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm²/s…320 mm²/s
Temperature range fluid	-25…+70 °C (NBR) -20…+70 °C (FKM)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade ß 10…16 ≥ 75, see data sheet 1.0-50

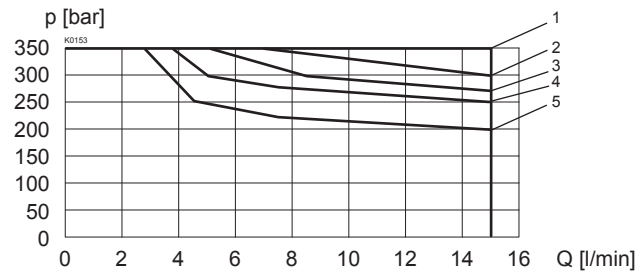
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

Δp = f (Q) **Pressure drop volume flow characteristic**



p = f (Q) **Performance limits**
Measured with nominal voltage -10%



	Flow direction			
Type	P - A	A - T	A - P	T - A
BS22041a	1	-	2	-
BS22040b	1	-	4	-
BS32041a	1	3	5	1
BS32040b	1	4	5	1
BS3404	1	1	2	2

Attention! Long periods of non-actuation can reduce the switching performance

VALVES INSTALLED

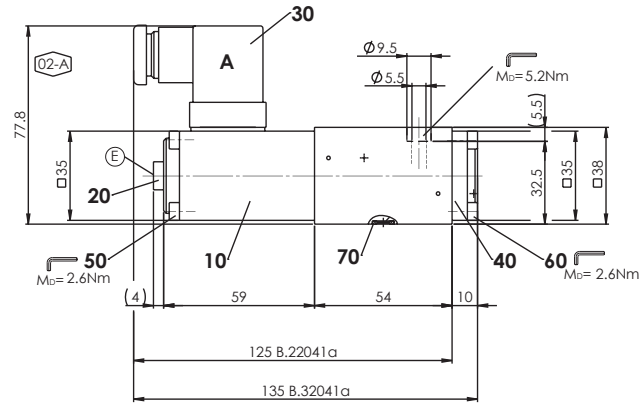
The central functioning element is the poppet valve cartridge listed below

Article	Description	Data sheet no.
2204	Solenoid poppet valve cartridge normally closed NG4	1.11-2020

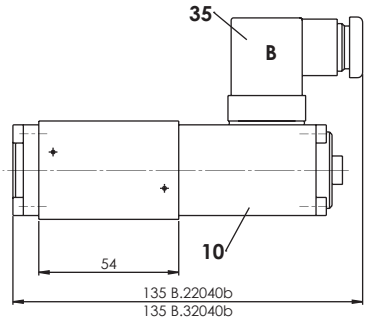
DIMENSIONS

3/2-; 2/2-way

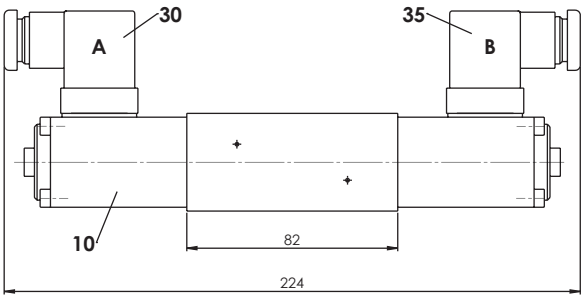
E = Air bleed screw



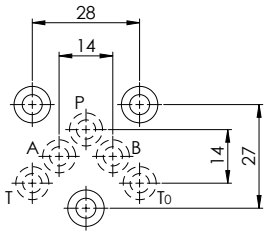
3/2-; 2/2-way



3/4-way



HYDRAULIC CONNECTION



PARTS LIST

Position	Article	Description
10	260.5...	Solenoid SIS35V
20	239.2033	Screw plug HB0 (incl. seal)
30	219.2001	Mating connector DIN EN 175301-803 grey
35	219.2002	Mating connector DIN EN 175301-803 black
40	057.4201	Cover
50	246.1161	Socket head screw M4 x 60 DIN 912
60	246.1113	Socket head screw M4 x 12 DIN 912
70	160.2052	O-ring ID 5,28 x 1,78 (NBR)
	160.6052	O-ring ID 5,28 x 1,78 (FKM)

SEALING MATERIAL

NBR or FKM (Viton) as standard, choice in the type code

STANDARDS

Mounting interface	Wandfluh standard
Solenoids	DIN VDE 0580
Connection execution D	DIN EN 175301 – 803
Protection class	EN 60 529
Contamination efficiency	ISO 4406

ACCESSORIES

Fixing screws	Data sheet 1.0-60
Threaded subplates	Data sheet 2.9-10
Multi-station subplates	Data sheet 2.9-50
Module type manifold blocks	Data sheet 2.9-90
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

MANUAL OVERRIDE

Screw plug (HB0), no actuation possible
Optionally: See data sheet 1.1-300 and 1.1-311.

INSTALLATION NOTES

Mounting type	Flange mounting 3 fixing holes for socket head screws M5 x 40
Mounting position	Any, preferably horizontal
Tightening torque	Fixing screws M_D = 5,2 Nm (screw quality 8.8, zinc coated)

Note! The length of the fixing screw depends on the base material of the connection element.

SURFACE TREATMENT

- The valve body is painted with a two component paint
- The solenoid and the cover are re zinc-nickel coated
- The socket head screws are zinc coated