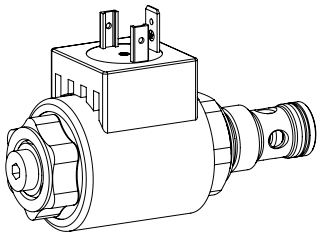
Solenoid operated poppet valve cartridge

- solenoid operated
- pilot operated
- normally open and normally closed
- 2/2-way
- Q_{max} = 50 l/min
- p_{max} = 350 bar

M18 x 1,5
ISO 7789



DESCRIPTION

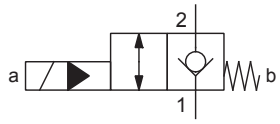
Pilot operated 2/2-way solenoid poppet valve in screw-in cartridge construction for cavity according to ISO 7789. The CB execution is closed in the energised position, the BC execution in the de-energised position. In this, the main spool closes practically leakage-free by means of the applied pressure. In the opposite flow direction, the valve opens after reaching the opening pressure.

APPLICATION

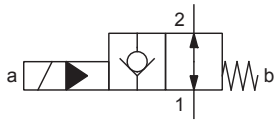
Wandfluh solenoid operated poppet valve cartridges are used where tight closing functions are essential like leakage-free load holding, clamping or gripping. For machining the cartridge cavity in steel and aluminum blocks, cavity tools are available (hire or purchase). Please refer to the data sheets in register 2.13.

SYMBOL

„Normally closed“ BC



„Normally open“ CB



TYPE CODE

S V S PM18 - ☐ - ☐ / ☐ ☐ - ☐ # ☐

Poppet valve					
Pilot operated					
Solenoid, Super					
Screw-in cartridge M18 x 1,5					
2/2 way, «normally closed»		BC			
2/2 way, «normally open»		CB			
Nominal voltage U_N	12 VDC	G12	115 VAC	R115	
	24 VDC	G24	230 VAC	R230	
	without coil	X5			
Slip-on coil	Metal housing, round	W	(only G12 and G24)		
	Metal housing, square	M			
Connection execution					
Connector socket EN 175301-803 / ISO 4400		D			
Connector socket AMP Junior-Timer		J			
Stecker Deutsch DT04-2P		G			
Sealing material	NBR				
	FKM (Viton)	D1			
Design index (subject to change)					

1.11-2080

GENERAL SPECIFICATIONS

Designation	2/2-way poppet valve
Construction	Pilot operated
Mounting	Screw-in cartridge construction
Nominal size	M18 x 1,5 according to ISO 7789
Actuation	Switching solenoid
Ambient temperature	-25…+70 °C
Weight	0,42 kg
MTTFd	150 years

ACTUATION

Actuation	Switching solenoid, wet pin push + pull type, pressure tight
Execution	W.E37 / 16 x 40 (Data sheet 1.1-169) M.E35 / 16 x 40 (Data sheet 1.1-171)
Connection	Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P

HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Maximum volume flow	Q_{max} = 50 l/min, see characteristics
Leakage oil	Poppet type, max. 0,15 ml / min (approx. 3 drops / 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

ELECTRICAL SPECIFICATIONS

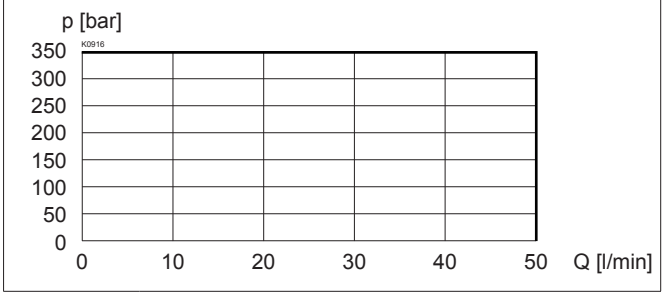
Protection class	Connection execution D: IP65 Connection execution J: IP66 Connection execution G: IP67 and IP69K
Relative duty factor	100 % DF, W.E37 only up to 50 °C
Switching frequency	5'000 / h
Service life time	10^7 (number of switching cycles, theoretically)
Voltage tolerance	± 10 % with regard 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 1.1-169 (slip-on coil W) and 1.1-171 (slip-on coil M)

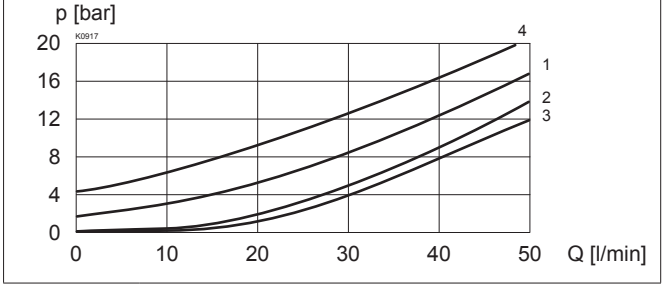
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

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



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



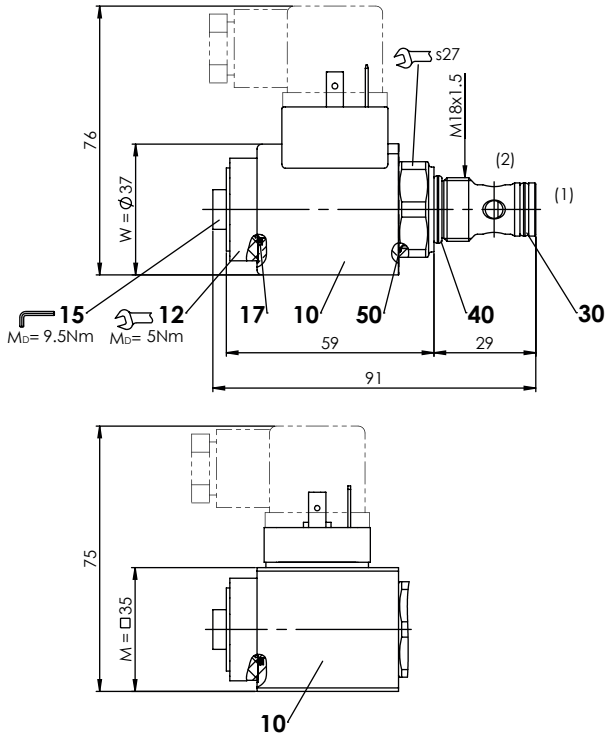
Switching times

	Type	Flow direction	Switch on	Switch off
SVSPM18	BC	2 → 1	approx. 30 ms	approx. 150 ms
	CB	2 → 1	approx. 45 ms	approx. 80 ms

Note! The switching times depend on the volume flow, pressure and viscosity. In case of very large volume flows, the switching time for closing can get considerably longer.

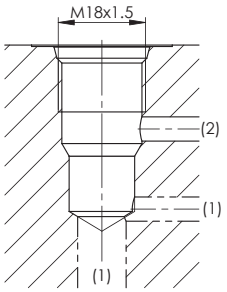
	BC	CB
de-energised 1 → 2	1	2
de-energised 2 → 1	-	3
energised 1 → 2	2	4
energised 2 → 1	3	-

DIMENSIONS



HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789–18–01–0–98



Note! For detailed cavity drawing and cavity tools see data sheet 2.13-1002

SEALING MATERIAL

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

MANUAL OVERRIDE

Optionally HN (K) or HG (K) (pushing) resp. HZ (K) (pulling)
→ See data sheet 1.1-311

PARTS LIST

Position	Article	Description
10	206.2... 260.4...	W.E37 / 16 x 40 M.E35 / 16 x 40
12	154.2600	Knurled nut M16 x 1 x 9
15	239.2033	Screw plug HB0 (incl. seal)
17	160.2156	O-ring ID 15,60 x 1,78 (NBR)
30	160.0108	O-ring ID 10,82 x 1,78 (polyurethan)
40	160.2156 160.8156	O-ring ID 15,60 x 1,78 (NBR) O-ring ID 15,60 x 1,78 (FKM)
50	160.1220	O-Ring ID 22,00 x 1,00 (NBR)

ACCESSORIES

Threaded body	Data sheet 2.9-2xx
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

INSTALLATION NOTES

Mounting type	Screw-in cartridge M18 x 1,5
Mounting position	Any, preferably horizontal
Tightening torque	M_D = 40 Nm Screw-in cartridge M_D = 5 Nm knurled nut

SURFACE TREATMENT

◆ All parts are zinc-nickel coated

STANDARDS

Cartridge cavity	ISO 7789
Solenoids	DIN VDE 0580
Connection execution D	EN 175301 – 803
Protection class	EN 60 529
Contamination efficiency	ISO 4406

Wandfluh AG Postfach CH-3714 Frutigen
Tel. +41 33 672 72 72 Fax +41 33 672 72 12 sales@wandfluh.com