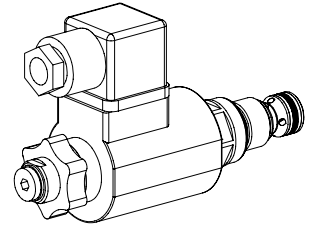


**Solenoid poppet valve cartridge**  
**2/2- and 3/2-way version**

- Direct operated
- $Q_{max} = 20 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

**M18x1,5**  
 ISO 7789

**DESCRIPTION**

Direct operated 2/2- and 3/2-way poppet valve in screw-in cartridge with thread M18 x 1,5 for cavity to ISO 7789, (3/2-way type to Wandfluh standard). The 2/2-way type can be supplied in a „normally closed“ and „normally open“ version. There are two versions of the slip-on coil. The coil type „M“ with steel housing and the more economical type „K“ with plastic moulded coil with the same performance as the steel type. The coil may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

**FUNCTION**

The pressure tight switching solenoid and in turn the spring on the opposite side shift the guided poppet into an either open or closed position. Due to the equal-area- and balanced-poppet-design there are no undesired opening or closing forces. Fluid may pass the poppet valve in both directions. The poppet piston is sealed by an o-ring. The seat with metallic seal closes leak free in both directions.

**APPLICATION**

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

**TYPE CODE**

S - P - S PM18 -  -  /   35 #

Poppet valve					
Direct operated					
Super-solenoid					
Screw-in cartridge M18x1,5					
2/2-way, „normally closed“		<input type="checkbox"/> BA			
2/2-way, „normally open“		<input type="checkbox"/> AB			
3/2-way		<input type="checkbox"/> FG			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	110 VAC	<input type="checkbox"/> R110	
	24 VDC	<input type="checkbox"/> G24	115 VAC	<input type="checkbox"/> R115	
			230 VAC	<input type="checkbox"/> R230	
Slip-on coil	Plastic housing	<input type="checkbox"/> K	(only for 12 VDC and 24 VDC available)		
	Metal housing round	<input type="checkbox"/> M			
Electric connection	Connector socket EN 175301-803 / ISO 4400	<input type="checkbox"/> D			
	Connector socket AMP Junior-Timer	<input type="checkbox"/> J			
Coil version					
Design-Index (Subject to change)					

**GENERAL SPECIFICATIONS**

Description	Direct operated 2/2- and 3/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity to ISO 7789 (3/2-way type to Wandfluh standard)
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M18x1,5
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque	$M_D = 30 \text{ Nm}$ for cartridge $M_{Dmax} = 5 \text{ Nm}$ or coil retaining nut
Masse	$m = 0,43 \text{ kg}$ version with plastic coil $m = 0,57 \text{ kg}$ version with steel coil
Volume flow	any (note performance limits)

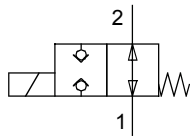
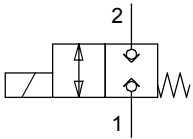
**HYDRAULIC SPECIFICATIONS**

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, classe 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$ ) see data sheet 1.0-50/2
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 15 \text{ l/min}$
Max. volume flow	$Q_{max} = \text{up to } 20 \text{ l/min}$
Pressure drop	$\Delta p = < 16 \text{ bar}$ with 15 l/min

**SYMBOLS**

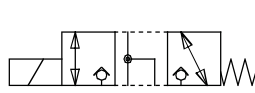
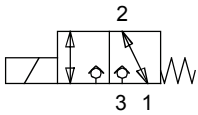
SDSPM18-BA...

SDSPM18-AB...



SDSPM18-FG...

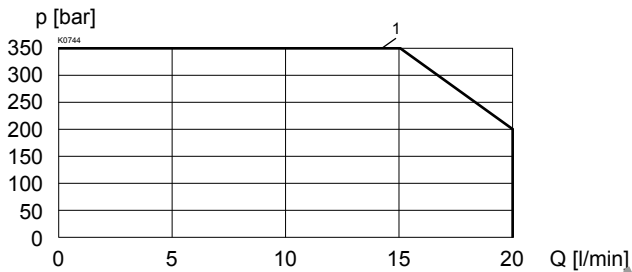
Transitional function „FG“


**ELECTRICAL CONTROL**

Construction	solenoid, wet pin, push type, pressure tight with exchangeable slip-on coil
Standard nominal voltage:	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$ * Rectifier integrated in connector socket Other nominal voltages and wattages on request
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	IP 65 acc. to EN 60529 (if correctly mounted)
Relative duty cycle	100% DF (see data sheet 1.1-430)
Switching cycles	5000/h
Operating life	$10^7$ (number of switching cycles, theoretically)
Connections/Power supply	Versions see type code
Solenoid type:	
- Steel coil (M.S35/16)	data sheet 1.1-170
- Plastic coil (K.35/16)	data sheet 1.1-172

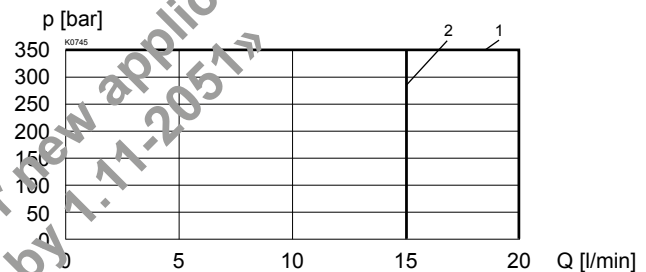
**CHARACTERISTICS** oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 

$p = f(Q)$  Performance limits at 10% under voltage  
 2/2-way type, „normally closed“ [BA]



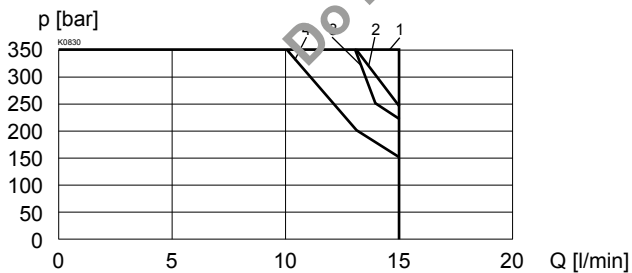
Version	Flow direction	
	1 → 2	2 → 1
SDSPM18-BA-.../„M“	1	1
SDSPM18-BA-.../„K“	1	1

$p = f(Q)$  Performance limits at 10% under voltage  
 2/2-way type, „normally open“ [AB]



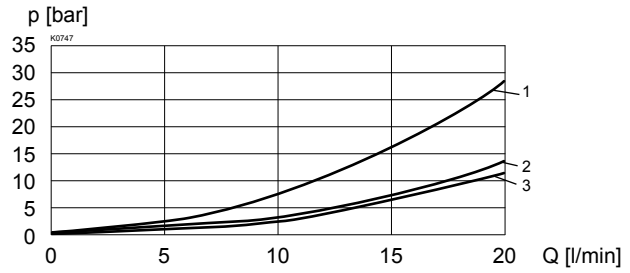
Version	Flow direction	
	1 → 2	2 → 1
SDSPM18-AB-.../„M“	2	1
SDSPM18-AB-.../„K“	2	1

$p = f(Q)$  Performance limits at 10% under voltage  
 3/2-way type [FG]



Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDSPM18-FG-.../„M“	3	1	1	2
SDSPM18-FG-.../„K“	3	1	1	4

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



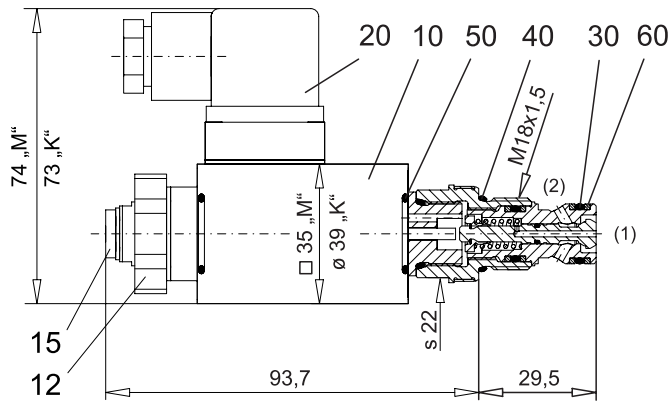
Version	Flow direction		
	1 → 2	2 → 1	3 → 2
SDSPM18-BA-...	2	2	-
SDSPM18-AB-...	2	2	-
SDSPM18-FG-...	3	3	1

**REMARK!**

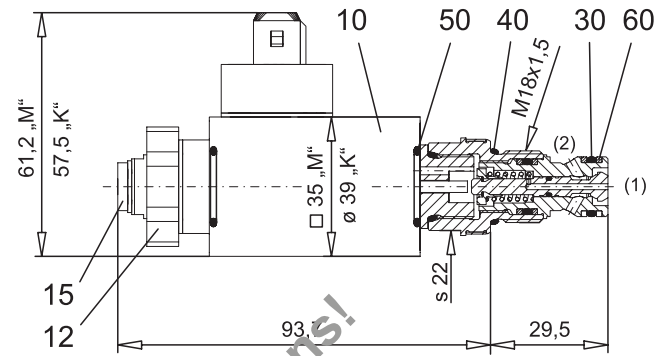
Depending on application the volume flow may be increased but during shifting the total volume flow (3 → 2 and 2 → 1) must not be higher than  $Q = 20 \text{ l/min}$

**DIMENSIONS / SECTIONAL DRAWING**

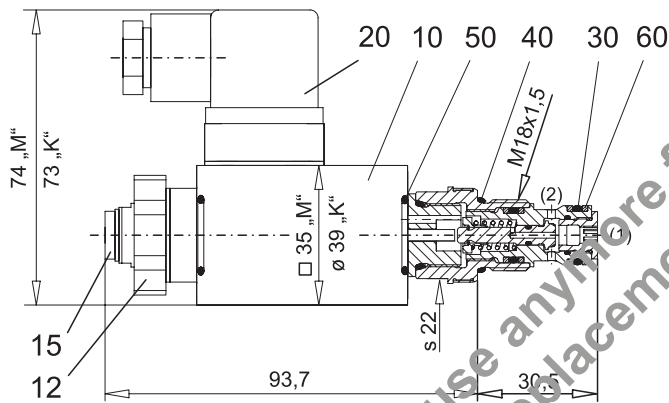
2/2-way version, „normally closed“ [BA]  
with DIN connector socket



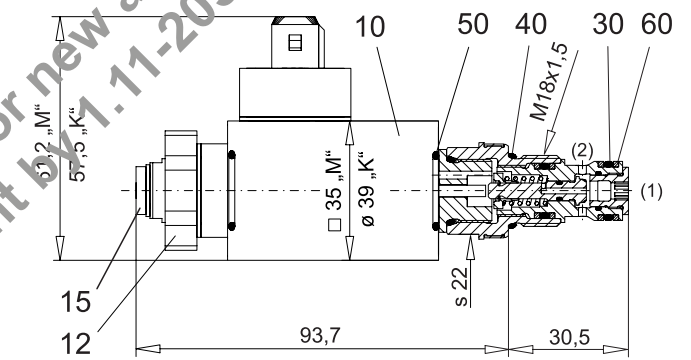
2/2-way version, „normally closed“ [BA]  
with Junior-Timer connector socket



2/2-way version „normally open“ [AB]  
with DIN connector socket

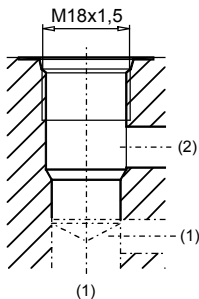


2/2-way version „normally open“ [AB]  
with Junior-Timer connector socket



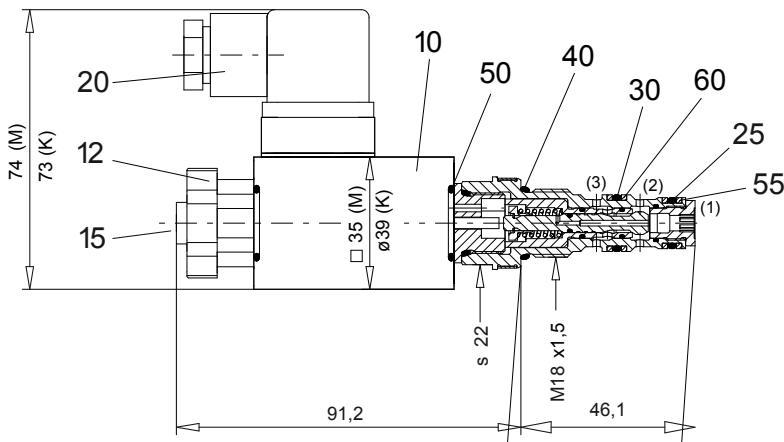
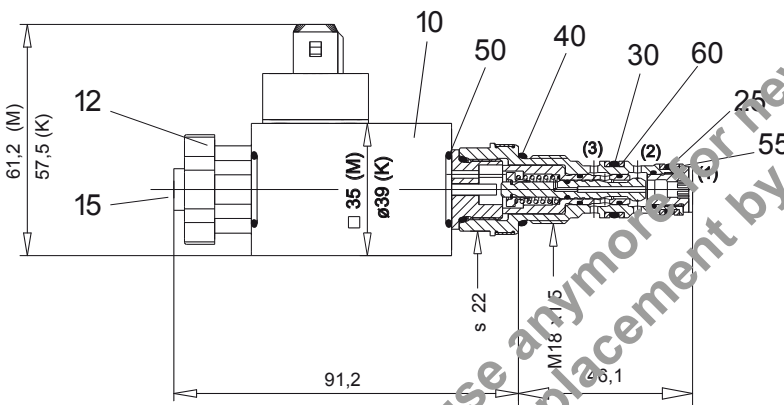
**CAVITY**

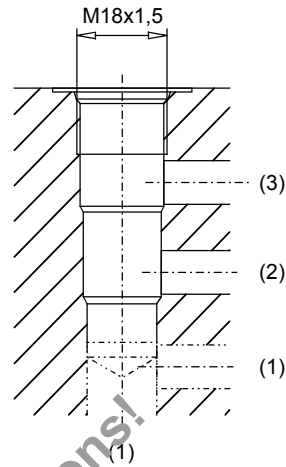
Cavity drawing for 2/2-way version  
to ISO 7789-18-01-0-98



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

**DIMENSIONS / SECTIONAL DRAWING**

 3/2-way version  
 with DIN connector socket

 3/2-way version  
 with Junior-Timer connector socket

**CAVITY**

 Cavity drawing for 3/2-way version  
 to Wandfluh standard

 For detailed cavity drawing and cavity tools  
 see data sheet 2.13-1020

**PARTS LIST**

Position	Article	Description
10	260.4... 260.4... 206.23... 206.23..	Coil complete MDS35/16-... Coil complete MJS35/16-... Coil complete KD35/16-... Coil complete KJ35/16-...
12	154.2601	Knurled nut M16 x 1 x 18
15	239.2033	Plug HB0 (incl. seal)
20	219.2002	Plug
25	160.2093	O-ring ID 9,25 x 1,78
30	160.2111	O-ring ID 11,11 x 1,78
40	160.2156	O-ring ID 15,60 x 1,78
50	160.6156	O-ring viton ID 15,60 x 1,78
55	049.3137	Back-up ring RD 10,6 x 13,5 x 1,4
60	049.3156	Back-up ring RD 12,1 x 15 x 1,4

**ACCESSORIES**

 Cartridge built-in flange- or sandwich body  
 Flange valve on request  
 Sandwich valve on request

Technical explanation see data sheet 1.0-100