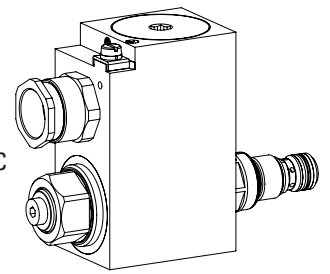


### Solenoid operated poppet valve cartridge

- ◆ solenoid actuated
- ◆ direct operated
- ◆ 2/2- or 3/2-way
- ◆  $Q_{max} = 20 \text{ l/min}$
- ◆  $p_{max} = 350 \text{ bar}$

**M18 x 1,5**  
**ISO 7789 / Wandfluh**  
**standard**

- ⊕ II 2 G Ex db IIC T6, T4
  - ⊕ II 2 D Ex tb III C T80 °C, T130 °C
  - ⊕ I M2 Ex db I Mb
- Class I Division 1  
 Class I Zone 1



### DESCRIPTION

Direct operated 2/2- and 3/2-way solenoid poppet valve in screw-in cartridge construction for cavity according to ISO 7789 / Wandfluh standard. By means of the pressure tight switching solenoid, the pressure compensated, metallically sealing poppet spool is either opened or closed. The seat spool guide is sealed by means of an O-ring. The pressure tight encapsulated Ex-protection solenoid coil prevents an explosion on the inside penetrating to the outside as well as an ignitable surface temperature.

### APPLICATION

These valves are suitable for applications in explosion-hazard areas, open cast and also in mines. Poppet valves are used where tight closing functions of the valve 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.

### CERTIFICATES

	Surface	Mining	Standard -25 °C to...	Z604 -40 °C to...
ATEX	x	x	x	x
IECEX	x	x	x	x
EAC	x	x	x	x
Australia	x	x	x	x
MA		x	x	
UL / CSA	x		x	x

The certificates can be found on [www.wandfluh.com](http://www.wandfluh.com)

### ACTUATION

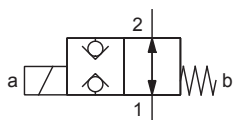
Actuation	Switching solenoid, wet pin push type, pressure tight
Execution	MKY45 / 18x60 (data sheet 1.1-183) MKU45 / 18x60 (data sheet 1.1-184)
Connection	Cable gland for cable Ø 6,5...14 mm

**Attention!** The UL execution is always supplied without cable gland

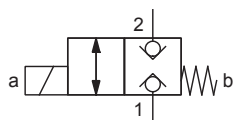


### SYMBOL

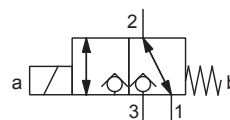
„Normally open“ AB



„Normally closed“ BA



FG



**TYPE CODE**

		S D Y PM18 - <input type="checkbox"/> - <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Poppet valve			
Direct operated			
Ex-protection execution, Exd			
Screw-in cartridge M18 x 1,5			
Designation of symbols acc. to table			
Nominal voltage $U_N$	12 VDC 24 VDC	<input type="checkbox"/> G12 <input type="checkbox"/> G24	115 VAC 230 VAC
			<input type="checkbox"/> R115 <input type="checkbox"/> R230
Nominal power $P_N$	9 W 15 W 17 W	<input type="checkbox"/> L9 <input type="checkbox"/> L15 <input type="checkbox"/> L17	<i>Ambient temperature up to:</i> 40 °C or 90 °C 70 °C 70 °C (only UL / CSA)
Certification	ATEX, IECEx, EAC Australia	<input type="checkbox"/> AU	UL / CSA <input type="checkbox"/> UL MA <input type="checkbox"/> MA
Sealing material	NBR FKM (Viton) NBR -40° C	<input type="checkbox"/> <input type="checkbox"/> D1 <input type="checkbox"/> Z604	(only with 15 W)
Design index (subject to change)	1.11-2052		

**GENERAL SPECIFICATIONS**

Designation	2/2-, 3/2-way poppet valve
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	M18 x 1,5 according to ISO 7789 / Wandfluh standard
Actuation	Ex-protection switching solenoid
Ambient temperature	<b>Operation as T6</b> -25...+40 °C (L9) <b>Operation as T4</b> -25...+90 °C (L9) -25...+70 °C (L15 / L17) -40...+70 °C (L15 / L17) In case of $U_N = 12$ VDC, the max. ambient temperature has to be reduced by 10 °C.
Weight	1,85 kg (2/2-way) 1,90 kg (3/2-way)
MTTFd	150 years

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350$ bar
Maximum volume flow	$Q_{max} = 20$ l/min, see characteristics
Nominal volume flow	$Q_N = 15$ l/min
Leakage oil	Seat tight, max. 0,15 ml / min (approx. 3 drops / min) at 30 cSt
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Temperature range fluid	<b>Operation as T6</b> NBR -25...+40 °C (L9) FKM -20...+40 °C (L9) <b>Operation as T4</b> NBR -25...+70 °C (L9 or L15 / L17) FKM -20...+70 °C (L15 / L17) FKM -20...+90 °C (L9) NBR 872 -40...+70 °C (L15 / L17)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade $\beta_{6...10} \geq 75$ , see data sheet 1.0-50

**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

**MANUAL OVERRIDE**

Screw plug (HB0), no actuation possible  
 Optionally: HB4,5, HN(K) or HR(K)  
 → See data sheet 1.1-311

## ELECTRICAL SPECIFICATIONS

Protection class	IP65 / 66 / 67
Relative duty factor	100 % DF
Switching frequency	5'000 / h
Voltage tolerance	± 10 % with regard to nominal voltage
Standard nominal voltage	12 VDC, 24VDC, 115 VAC, 230 VAC AC = 50 to 60 Hz ± 2 %, with built-in two-way rectifier
Standard nominal power	9 W, 15 W, 17 W
Temperature class	Nominal power 9 W: T1...T6 Nominal power 15 W / 17 W: T1...T4

**Note!** Other electrical specifications see data sheet 1.1-183 and 1.1-184



## 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 $M_D = 9,5$ Nm HB0 $M_D = 5,5$ Nm HB4,5

## STANDARDS

Cartridge cavity	ISO 7789 / Wandfluh standard
Explosion protection	Directive 2014 / 34 / EU (ATEX)
Flameproof enclosure	EN / IEC / UL 60079-1, 31
Cable entry	EN 60079-0, 1, 7, 15, 31
Protection class	EN 60 529
Contamination efficiency	ISO 4406

## COMMISSIONING

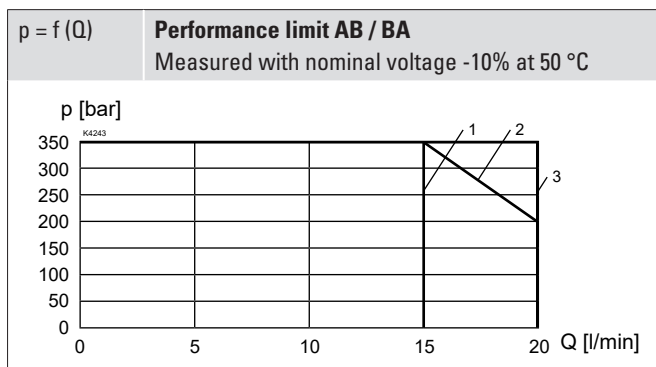
**Attention!** When commissioning, the valve must be vented under pressure (max. two rotations of screw E).



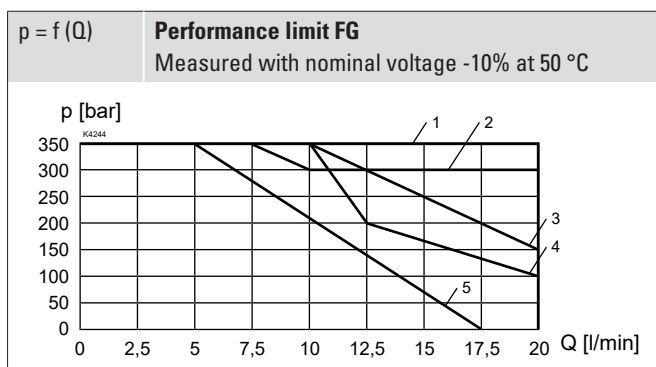
The solenoid coil must only be put into operation, if the requirements of the operating instructions supplied are observed to their full extent. In case of non-observance, no liability is assumed.

## PERFORMANCE SPECIFICATIONS

Oil viscosity  $\nu = 30$  mm<sup>2</sup>/s

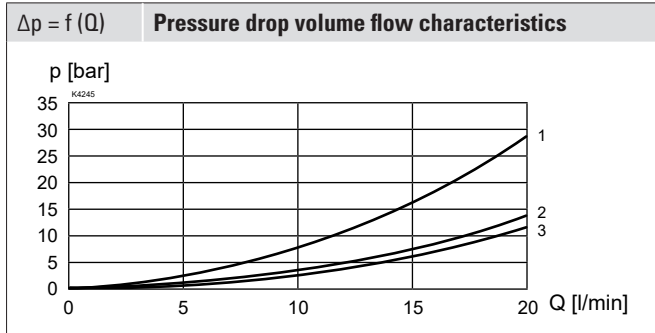


Execution	Flow direction	
	1 → 2	2 → 1
SDYPM18-AB	1	3
SDYPM18-BA	2	2



Execution	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDYPM18-FG-L9	4	1	2	5
SDYPM18-FG-L15 / L17	4	1	1	3

## PERFORMANCE SPECIFICATIONS

 Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 


Execution	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDYPM18-AB	2	2	-	-
SDYPM18-BA	2	2	-	-
SDYPM18-FG	3	3	1	1

**Note!**

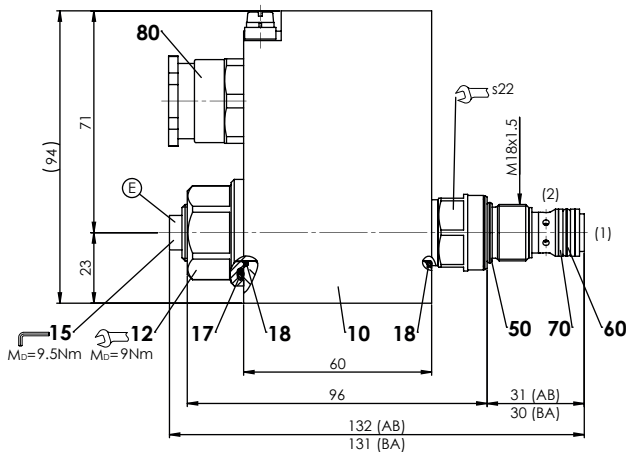

With the L15 / L17 execution for ambient temperatures up to 70 °C, the performance specifications have been evaluated with an ambient temperature of 50 °C

**Attention!**

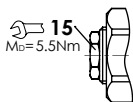

Long periods of non-actuation can reduce the switching performance

## DIMENSIONS

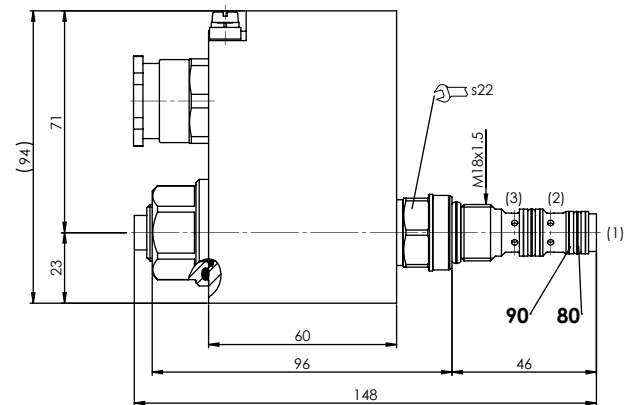
SDYPM18-AB / BA



HB4.5

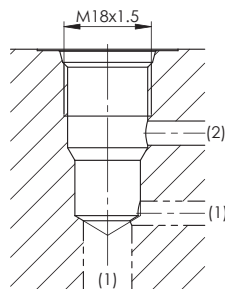


SDYPM18-FG



## HYDRAULIC CONNECTION

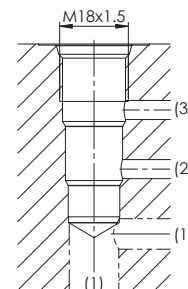
Cavity drawing according to ISO 7789-18-01-0-98


**Note!**


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

## HYDRAULIC CONNECTION

Cavity drawing according to Wandfluh standard


**Note!**


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

## PARTS LIST

Position	Article	Description
10	263.6...	Solenoid coil MK.45 / 18 x 60
12	154.2603	Knurled nut Ex M18 x 1,5 x 18
15	239.2033	Screw plug HB0 (incl. seal)
17	160.2251	O-ring ID 25,07 x 2,62 (NBR)
18	160.2170	O-ring ID 17,17 x 1,78 (NBR)
50	160.2156	O-ring ID 15,60 x 1,78 (NBR)
	160.6156	O-ring ID 15,60 x 1,78 (FKM)
60	160.2111	O-ring ID 11,11 x 1,78 (NBR)
	160.6111	O-ring ID 11,11 x 1,78 (FKM)
70	049.8156	Back-up ring PTSM rd 10,1 x 13 x 1,4
80	160.2093	O-ring ID 9,25 x 1,78 (NBR)
	160.6092	O-ring ID 9,25 x 1,78 (FKM)
90	049.8137	Back-up ring PTSM rd 8,7 x 11,6 x 1,4
110	111.1080	Cable gland M20 x 1,5

## SURFACE TREATMENT

- ◆ The cartridge body, the slip-on coil and the armature tube are zinc-nickel coated

## SEALING MATERIAL

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