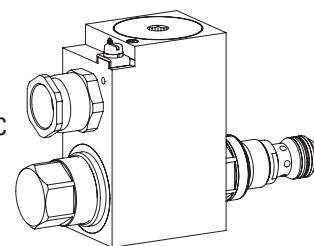


Solenoid operated poppet valve cartridge stainless

- ◆ direct operated
- ◆ 2/2- and 3/2-way
- ◆ $Q_{max} = 40 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

M22 x 1,5 ISO 7789

- ⊕ 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. 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. The stainless execution is especially suitable for the use in wet and salty environment. 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 |
| CCC | 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

ACTUATION

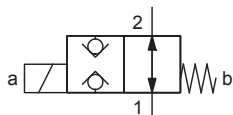
| | |
|------------|--|
| Actuation | Switching solenoid, wet pin push type, pressure tight |
| Execution | MKY45 / 18x60 (data sheet 1.1-183) MKY45 / 18x60 K9 (data sheet 1.1-183S) MKU45 / 18x60 (data sheet 1.1-184) |
| Connection | Cable gland for cable $\varnothing 6,5 \dots 14 \text{ mm}$ |

Attention! The UL execution is always supplied without cable gland

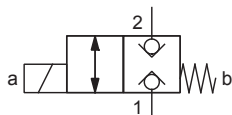


SYMBOL

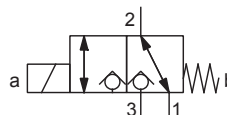
„Normally open“ AB



„Normally closed“ BA



FG



TYPE CODE

| | | | |
|--------------------------------------|------------------------------------|---|--|
| | | S D Y PM22 - <input type="text"/> - <input type="text"/> / <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> # <input type="text"/> | |
| Poppet valve | | | |
| Direct operated | | | |
| Ex-protection execution, Exd | | | |
| Screw-in cartridge M22 x 1,5 | | | |
| Designation of symbols acc. to table | | | |
| Nominal voltage U_N | 12 VDC 24 VDC | <input type="text"/> G12 <input type="text"/> G24 | 115 VAC 230 VAC |
| | | | <input type="text"/> R115 <input type="text"/> R230 |
| Nominal power P_N | 15 W 17 W 21 W | <input type="text"/> L15 <input type="text"/> L17 <input type="text"/> L21 | <i>Ambient temperature up to:</i> 70 °C 70 °C (only UL / CSA) 50 °C |
| Certification | ATEX, IECEx, EAC, CCC Australia | <input type="text"/> <input type="text"/> AU | UL / CSA <input type="text"/> UL MA <input type="text"/> MA |
| Sealing material | NBR FKM (Viton) NBR -40° C | <input type="text"/> <input type="text"/> D1 <input type="text"/> Z604 | (only with 15 W) |
| Stainless | with K8 coil with K9 coil | <input type="text"/> K9 <input type="text"/> K10 | (not for UL execution) |
| Design index (subject to change) | 1.11-2064S | | |

GENERAL SPECIFICATIONS

| | |
|---------------------|--|
| Designation | 2/2-, 3/2-way poppet valve |
| Construction | Direct operated |
| Mounting | Screw-in cartridge construction |
| Nominal size | M22 x 1,5 according to ISO 7789 |
| Actuation | Ex-protection switching solenoid |
| Ambient temperature | Operation as T4 -25...+70 °C (L15 / L17) -25...+50 °C (L21) |
| Weight | 2,00 kg (2/2-way) 2,05 kg (3/2-way) |
| MTTFd | 150 years |

HYDRAULIC SPECIFICATIONS

| | |
|--------------------------|--|
| Working pressure | $p_{max} = 350$ bar |
| Maximum volume flow | $Q_{max} = 40$ l/min, see characteristics |
| Nominal volume flow | $Q_N = 20$ l/min |
| 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 mm ² /s...320 mm ² /s |
| Temperature range fluid | NBR -25...+70 °C FKM (D1) -20...+70 °C NBR 872 (Z604) -40...+70 °C |
| Contamination efficiency | Class 20 / 18 / 14 |
| Filtration | Required filtration grade $\beta_{6...10} \geq 75$, see data sheet 1.0-50 |

ACCESSORIES

| | |
|------------------------|--------------------|
| 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 HN (K) or HG (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 | 15 W, 17 W, 21 W |
| Temperature class | Nominal power 15 W / 17 W / 21 W: T1... T4 |

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



INSTALLATION NOTES

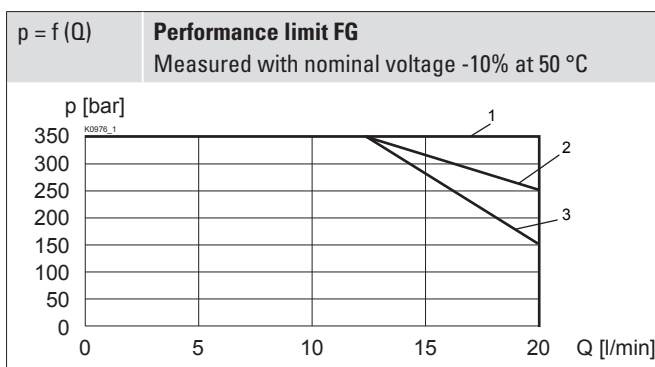
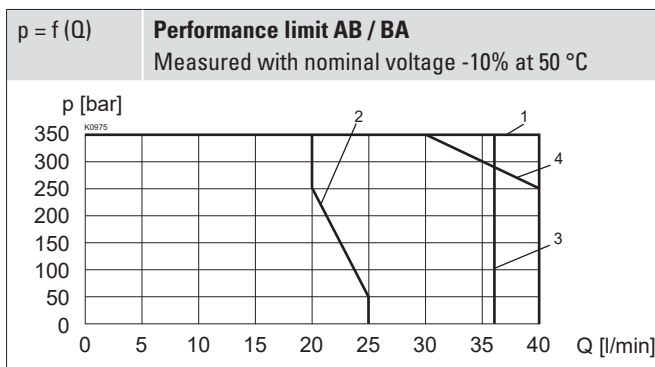
| | |
|-------------------|--|
| Mounting type | Screw-in cartridge M22 x 1,5 |
| Mounting position | Any, preferably horizontal |
| Tightening torque | $M_D = 60$ Nm Screw-in cartridge $M_D = 9$ Nm knurled nut |

Attention! For stack assembly please observe the remarks in the operating instructions



PERFORMANCE SPECIFICATIONS

Oil viscosity $\nu = 30$ mm²/s



STANDARDS

| | |
|--------------------------|---------------------------------|
| Cartridge cavity | ISO 7789 |
| 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

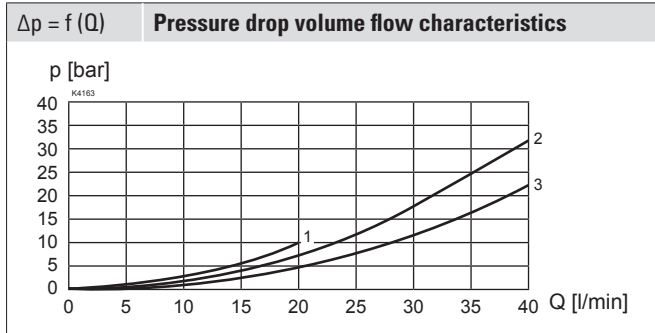
Attention! The solenoid coil must only be put into operation, if the requirements of the operating instructions supplied are observed to their full extent. In case of non-observance, no liability can be assumed.




| | 1 → 2 | 2 → 1 |
|----------------------|-------|-------|
| SDYPM22-AB-L21 | 2 | 1 |
| SDYPM22-BA-L21 | 1 | 1 |
| SDYPM22-AB-L15 / L17 | 2 | 4 |
| SDYPM22-BA-L15 / L17 | 3 | 1 |


| | 1 → 2 | 2 → 1 | 2 → 3 | 3 → 2 |
|----------------------|-------|-------|-------|-------|
| SDYPM22-FG-L21 | 3 | 1 | 1 | 1 |
| SDYPM22-FG-L15 / L17 | 3 | 1 | 1 | 2 |

PERFORMANCE SPECIFICATIONS

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


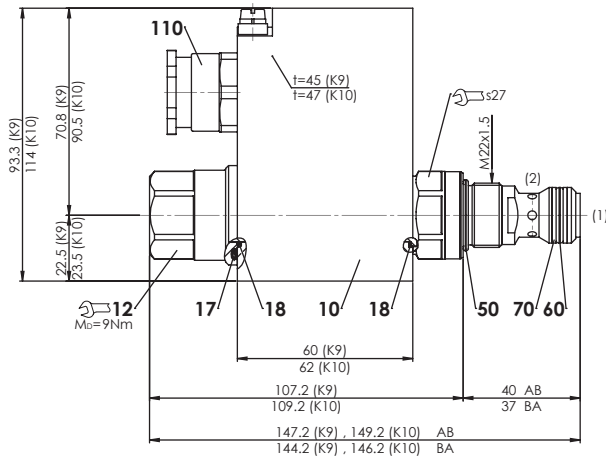
| | 1 → 2 | 2 → 1 | 2 → 3 | 3 → 2 |
|----------------|-------|-------|-------|-------|
| SDYPM22-AB-... | 3 | 2 | - | |
| SDYPM22-BA-... | 3 | 2 | - | |
| SDYPM22-FG-... | 3 | 3 | 1 | 1 |

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

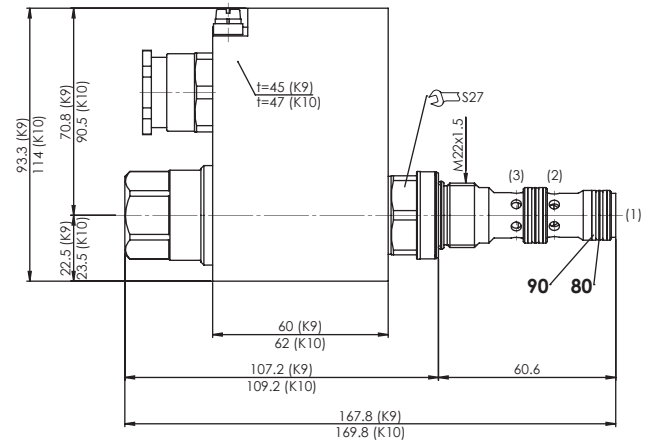
Attention!  Long periods of non-actuation can reduce the switching performance

DIMENSIONS

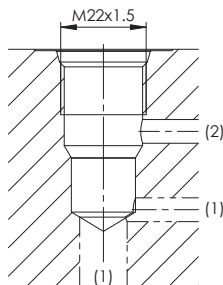
SDYPM22-AB / BA-K_




SDYPM22-FG-K_


HYDRAULIC CONNECTION

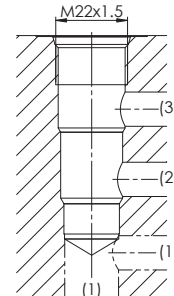
Cavity drawing according to ISO 7789-22-01-0-98




Note!  For detailed cavity drawing and cavity tools see data sheet 2.13-1008

HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789-22-04-0-98



Note!  For detailed cavity drawing and cavity tools see data sheet 2.13-1004

PARTS LIST

| Position | Article | Description |
|----------|----------|--|
| 10 | 263.6... | Solenoid coil MK.45 / 18 x 60 |
| 12 | 154.220. | Knurled nut Ex M18 x 1,5 x 30-K.. |
| 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 | 160.2188 | O-ring ID 18,77 x 1,78 (NBR) |
| | 160.6188 | O-ring ID 18,77 x 1,78 (FKM) |
| 60 | 160.2156 | O-ring ID 15,60 x 1,78 (NBR) |
| | 160.6156 | O-ring ID 15,60 x 1,78 (FKM) |
| 70 | 049.8196 | Backup ring PTSM rd 14,5 x 17,4 x 1,4 |
| 80 | 160.2140 | O-ring ID 14,00 x 1,78 (NBR) |
| | 160.6141 | O-ring ID 14,00 x 1,78 (FKM) |
| 90 | 049.8177 | Back-up ring PTSM rd 12,4 x 15,3 x 1,4 |
| 110 | 111.1080 | Cable gland M20 x 1,5 |

SURFACE TREATMENT

- ◆ The cartridge body is made of stainless steel
- ◆ 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