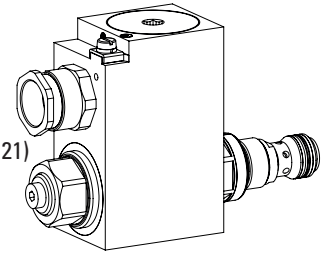


Solenoid operated poppet valve cartridge

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

M22 x 1,5 ISO 7789

Ex db IIC T6, T4 Gb (Zone 1)
 Ex tb III C T80 °C, T130 °C Db (Zone 21)
 Ex db I Mb
 ⓧ 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, Group A, B, C, D T4
 Class II & III, Division I, Group E, F, G T4



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. 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 / UKEX | 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 | |
| USA / Canada | x | | x | x |
| PESO | x | | x | x |

The certificates can be found on www.wandfluh.com

ACTUATION

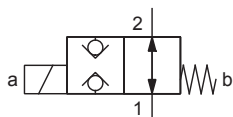
| | |
|------------|---|
| Actuation | Switching solenoid, wet pin push type, pressure tight |
| Execution | MKY45 / 18x60 (data sheet 1.1-183) |
| Connection | Cable gland for cable Ø 6,5...14 mm |

Attention! The UC execution is always supplied without cable gland

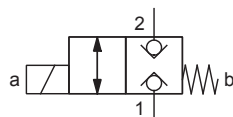


SYMBOL

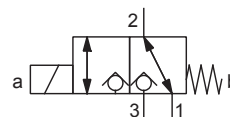
„Normally open“ AB



„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 <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | 115 VAC <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | |
| | 24 VDC <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | 230 VAC <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | |
| Nominal power P_N | 15 W <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | <i>Ambient temperature up to:</i> | | |
| | 21 W <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | 70 °C | | |
| | | | 50 °C | | |
| Certification | ATEX, UKEX, IECEx, EAC, CCC <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | USA / Canada <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | |
| | Australia <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | India <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | |
| | MA <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | | | |
| Sealing material | NBR <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | | | |
| | FKM (Viton) <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | | | |
| | NBR -40° C <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | (only with 15 W) | | |
| Armature tube | with screw plug HB0 <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | | | |
| | with manual override <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | | | |
| Design index (subject to change) | | | | | |
| 1.11-2064 | | | | | |

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) -25...+50 °C (L21) |
| Weight | 1,90 kg (2/2-way) 1,95 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

| | |
|------------------------|--------------------|
| 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 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, 21 W |
| Temperature class | Nominal power 15 W / 21 W: T1...T4 |

Note! Other electrical specifications see data sheet 1.1-183



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.

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 |

INSTALLATION NOTES

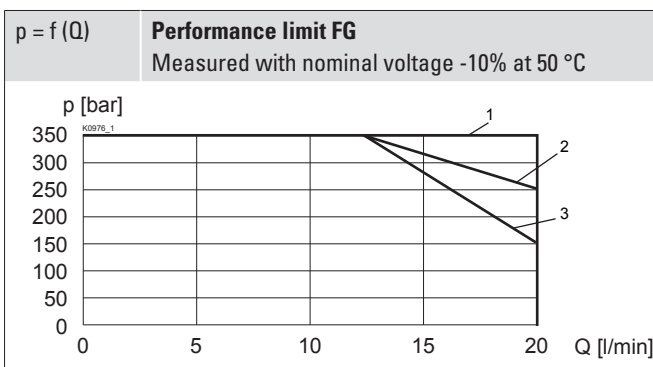
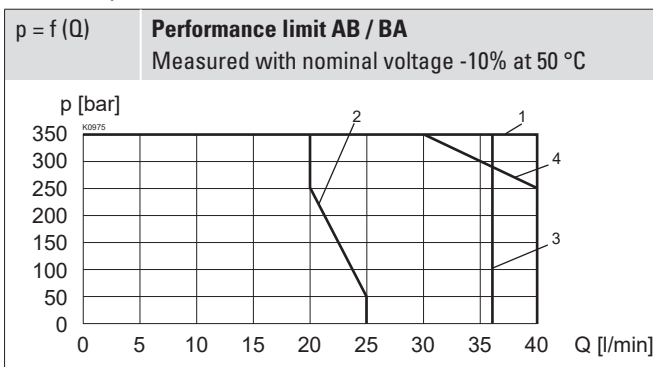
| | |
|-------------------|--|
| Mounting type | Screw-in cartridge M22 x 1,5 |
| Mounting position | Any, preferably horizontal |
| Tightening torque | $M_D = 60$ Nm Screw-in cartridge $M_D = 9$ Nm knurled nut |

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



PERFORMANCE SPECIFICATIONS

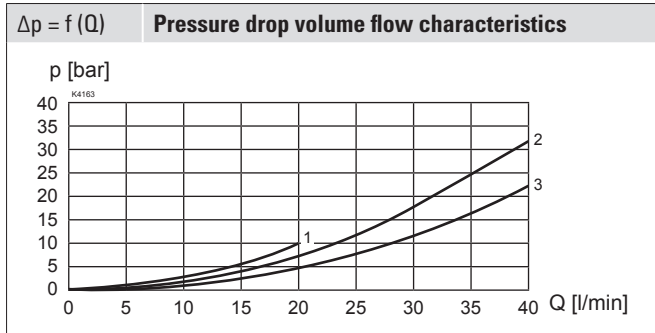
Oil viscosity $\nu = 30$ mm²/s



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

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



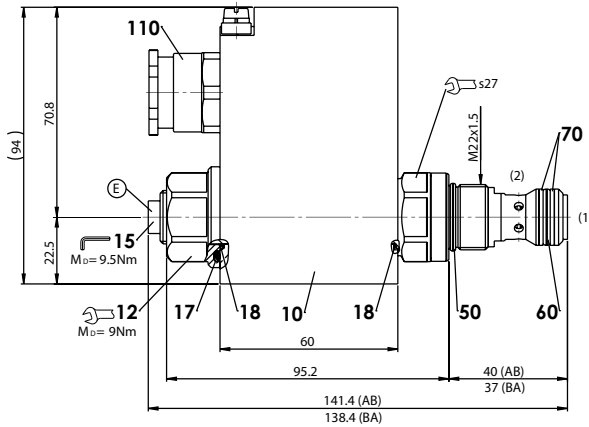
Note! With the L15 execution for ambient temperatures up to 70 °C, the performance specifications have been evaluated with an ambient temperature of 50 °C



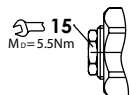
Attention! Long periods of non-actuation can reduce the switching performance

ABMESSUNGEN

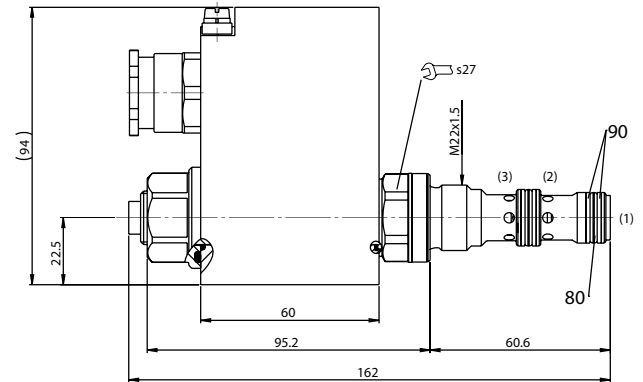
SDYPM22-AB / BA



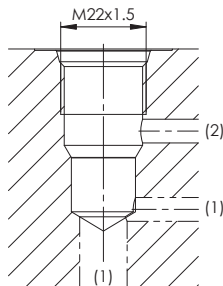
HB4,5



SDYPM22-FG


HYDRAULISCHER ANSCHLUSS

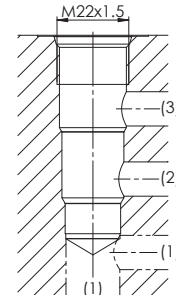
Senkungszeichnung nach ISO 7789-22-01-0-98



Hinweis! Detaillierte Senkungszeichnung und Senkungswerkzeug siehe Datenblatt 2.13-1008

HYDRAULISCHER ANSCHLUSS

Senkungszeichnung nach ISO 7789-22-04-0-98



Hinweis! Detaillierte Senkungszeichnung und Senkungswerkzeug siehe Datenblatt 2.13-1004

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) |
| 110 | 111.1080 | Cable gland M20 x 1,5 |
| - | 251.3040 | Seal kit SDYPM22 |
| - | 251.3023 | Seal kit SDYPM22-D1 |

Seal kit consisting of:

| | | |
|----|-----------|-------------------------|
| 17 | O-ring | ID 25,07 x 2,62 |
| 18 | O-ring | ID 17,17 x 1,78 |
| 50 | O-ring | ID 18,77 x 1,78 |
| 60 | O-ring | ID 15,60 x 1,78 |
| 70 | B-up ring | PTFE rd 16,1 x 19 x 1,4 |
| 80 | O-ring | ID 14,00 x 1,78 |
| 90 | B-up ring | PTFE rd 14,1 x 17 x 1,4 |

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