

Solenoid operated spool valve stainless

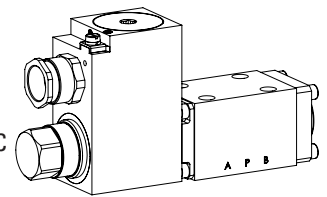
Flange construction

- ◆ 4/2-way impulse valve
- ◆ 4/3-way with spring centred mid position
- ◆ 4/2-way with spring reset
- ◆ $Q_{max} = 50 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

NG6

ISO 4401-03

- ⊕ 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 solenoid spool valve with 4 connections in 5 chamber design. With the solenoids deenergised, the spool is held in the center position by the spring (4/3), or switched back to the offset position (4/2). With the impulse spool (4/2), the spool is held in the switching position by the detent. 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. Spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors.

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

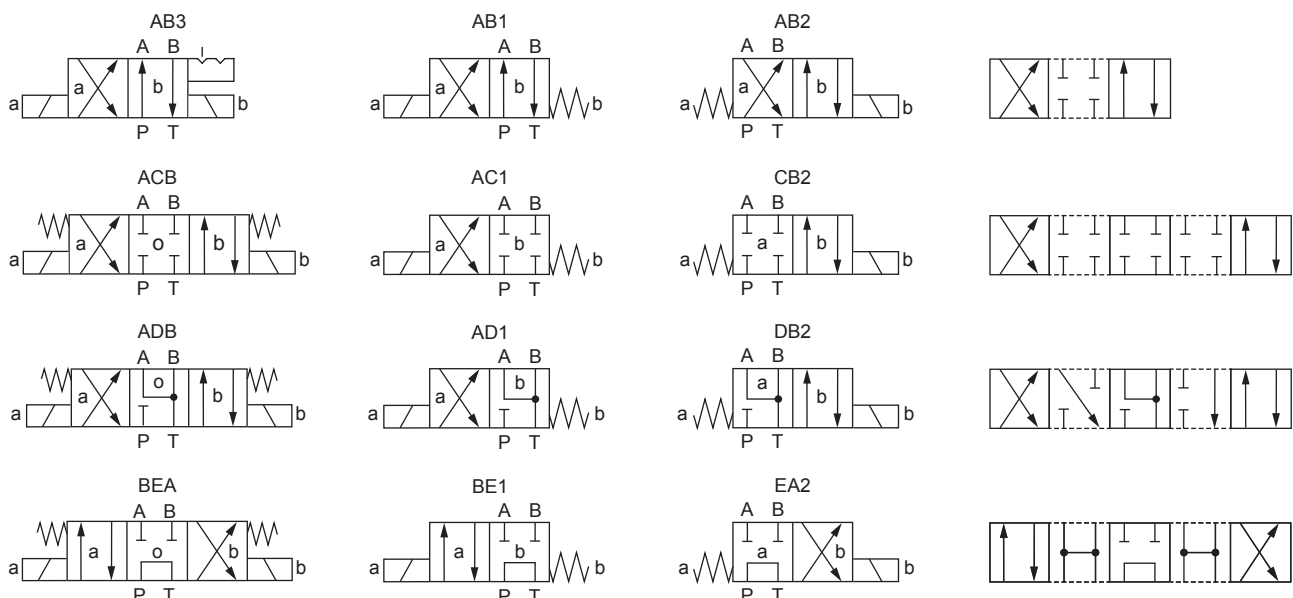
ACTUATION

| | |
|------------|--|
| 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



TYPE CODE

| | | | |
|---|---|---|--|
| | | WD Y F A06 - <input type="checkbox"/> - <input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> # <input type="checkbox"/> | |
| Pool valve direct operated | | | |
| Explosion proof execution Ex d | | | |
| Flange construction | | | |
| International standard interface ISO, NG6 | | | |
| Designation of symbols acc. to table | | | |
| Nominal voltage U_N | 12 VDC <input type="checkbox"/> G12 24 VDC <input type="checkbox"/> G24 | 115 VAC <input type="checkbox"/> R115 230 VAC <input type="checkbox"/> R230 | |
| Nominal power P_N | 9 W <input type="checkbox"/> L9 15 W <input type="checkbox"/> L15 17 W <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, CCC, EAC <input type="checkbox"/> Australia <input type="checkbox"/> AU MA <input type="checkbox"/> MA | UL / CSA <input type="checkbox"/> UL | |
| Sealing material | NBR <input type="checkbox"/> FKM (Viton) <input type="checkbox"/> D1 NBR 872 <input type="checkbox"/> y-Z604 | (only with 15 W) | |
| Stainless | with K8 coil <input type="checkbox"/> K9 with K9 coil <input type="checkbox"/> K10 | (not for UL execution) | |
| Design index (subject to change) | | | |

1.3-34S

GENERAL SPECIFICATIONS

| | |
|---------------------|--|
| Designation | 4/2-, 4/3-spool valve |
| Construction | Direct operated |
| Mounting | Flange construction |
| Nominal size | NG6 according to ISO 4401-03 |
| Actuation | Ex-protection switching solenoid |
| Ambient temperature | Operation as T6 -25...+40 °C (L9) Operation as T4 -25...+90 °C (L9) -25...+70 °C (L15 / L17) -40...+70 °C (L15 / L17) |
| Weight | 2,8 kg (1 solenoid) 4,6 kg (2 solenoids) |
| MTTFd | 150 years |

HYDRAULIC SPECIFICATIONS

| | |
|--------------------------|--|
| Working pressure | $p_{max} = 350$ bar |
| Tank pressure | $p_{Tmax} = 200$ bar |
| Maximum volume flow | $Q_{max} = 50$ l/min, see characteristics |
| Leakage oil | See characteristics |
| Fluid | Mineral oil, other fluid on request |
| Viscosity range | 12 mm ² /s...320 mm ² /s |
| Temperature range fluid | Operation as T6 NBR -25...+40 °C (L9) FKM -20...+40 °C (L9) Operation as T4 NBR -25...+70 °C (L9 or L15 / L17) FKM -20...+70 °C (L9 or L15 / L17) NBR 872 -40...+70 °C (L15 / L17) |
| Contamination efficiency | Class 20 / 18 / 14 |
| Filtration | Required filtration grade $\beta_{10...16} \geq 75$, see data sheet 1.0-50 |

ELECTRICAL SPECIFICATIONS

| | |
|--------------------------|--|
| Protection class | IP65 / 66 / 67 |
| Relative duty factor | 100 % DF |
| Switching frequency | 12'000 / 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, 1.1-183S and 1.1-184


SEALING MATERIAL

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

SURFACE TREATMENT

-The valve body, the cover and the socket head screws are made of stainless steel

-The slip-on coil and the armature tube are zinc nickel coated

Optionally K10:

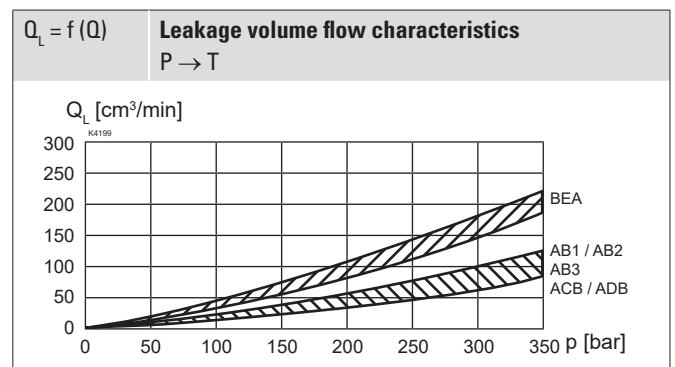
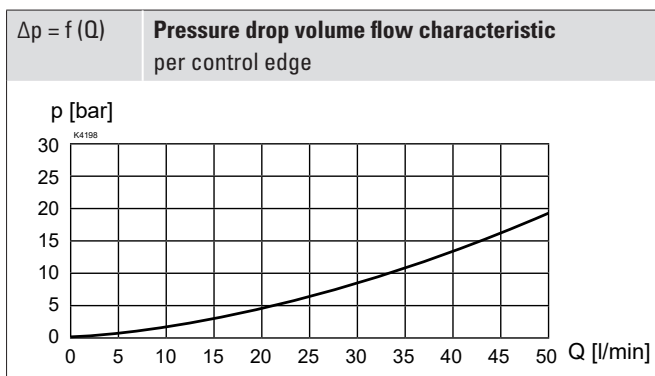
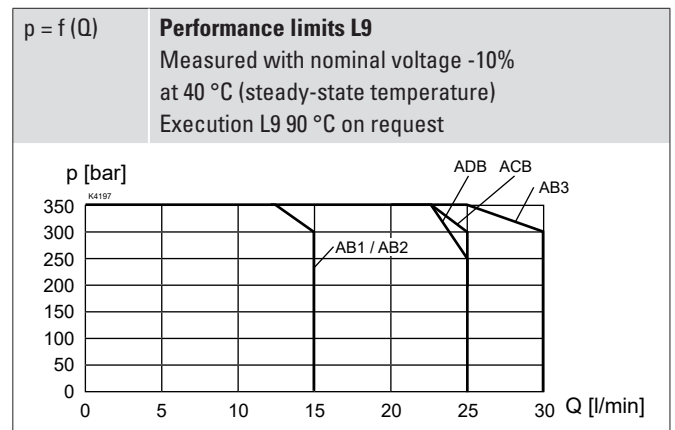
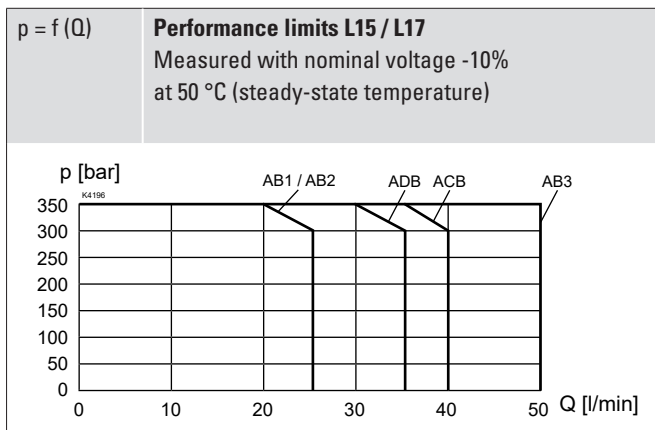
-The coil is made of stainless steel

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.


PERFORMANCE SPECIFICATIONS

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



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



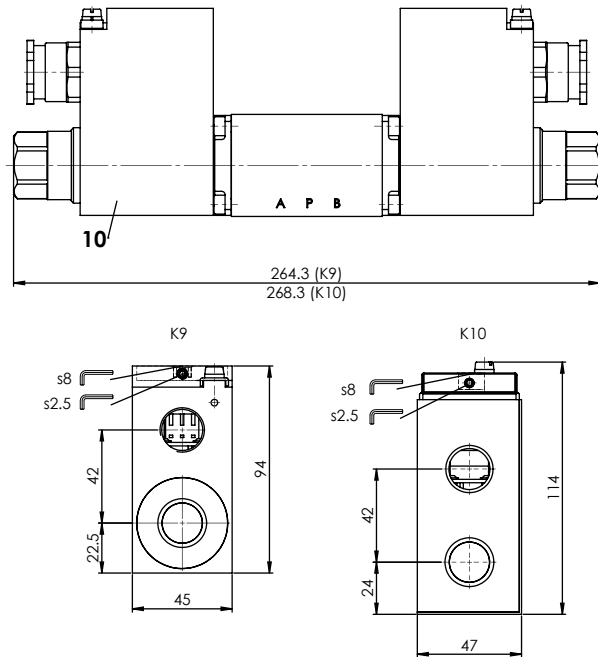
Attention! For valves for the temperature ranges „-40 °C to...“ (Z604) the leakage volume flow can be up to eight times higher.



DIMENSIONS

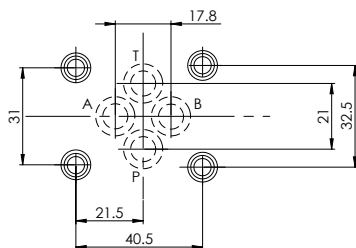
4/3-way spool valve (spring centring)

4/2-way spool valve (impulse)



Dimensions of the solenoid coil, refer to data sheet 1.1-183, 1.1-183S and 1.1-184

HYDRAULIC CONNECTION



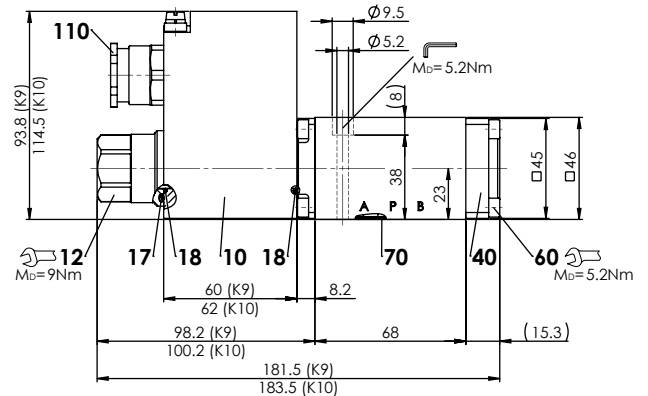
STANDARDS

| | |
|--------------------------|---------------------------------|
| Explosion protection | Directive 2014 / 34 / EU (ATEX) |
| Flameproof enclosure | EN / IEC / UL 60079-1, 31 |
| Cable entry | EN 60079-0, 1, 7, 15, 31 |
| Mounting interface | ISO 4401-03 |
| Protection class | EN 60 529 |
| Contamination efficiency | ISO 4406 |

ACCESSORIES

| | |
|------------------------|--------------------|
| Technical explanations | Data sheet 1.0-100 |
| Filtration | Data sheet 1.0-50 |
| Relative duty factor | Data sheet 1.1-430 |

4/2-way spool valve (spring reset)



Note!



The K9 coil (K10 valve) is 1 mm larger than the valve body. Usually, a distance plate is necessary.

PARTS LIST

| Position | Article | Description |
|----------|----------|--|
| 10 | 263.6... | Solenoid coil MK.45 / 18 x 60 |
| 12 | 154.2201 | Knurled nut Ex M18 x 1,5 x 30 |
| 17 | 160.2251 | O-ring ID 25,07 x 2,62 (NBR) |
| 18 | 160.2170 | O-ring ID 17,17 x 1,78 (NBR) |
| 40 | 058.4232 | Cover 45 / 45 x 17,5 K9 |
| 60 | 246.2516 | Socket head screw M5 x 16 A4 DIN 912 |
| 70 | 160.2093 | O-ring ID 9,25 x 1,78 (NBR) „-25 °C to...“ |
| | 160.7092 | O-ring ID 9,25 x 1,78 (NBR) „-40 °C to...“ |
| | 160.6092 | O-ring ID 9,25 x 1,78 (FKM) |
| 110 | 111.1080 | Cable gland M20 x 1,5 |

INSTALLATION NOTES

| | |
|-------------------|--|
| Mounting type | Flange mounting 4 fixing holes for socket head screws M5 x 45 |
| Mounting position | Any, preferably horizontal |
| Tightening torque | Fixing screws $M_0 = 5,1 \text{ Nm}$ (screw quality A4) $M_0 = 9 \text{ Nm}$ knurled nut |

Note!



The length of the fixing screw depends on the base material of the connection element.

Attention!



For stack assembly please observe the remarks in the operating instructions