

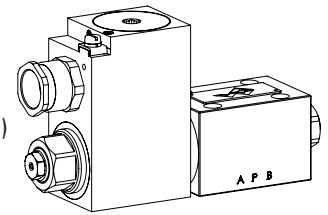
Solenoid operated spool valve for the temperature range -60 °C

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

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



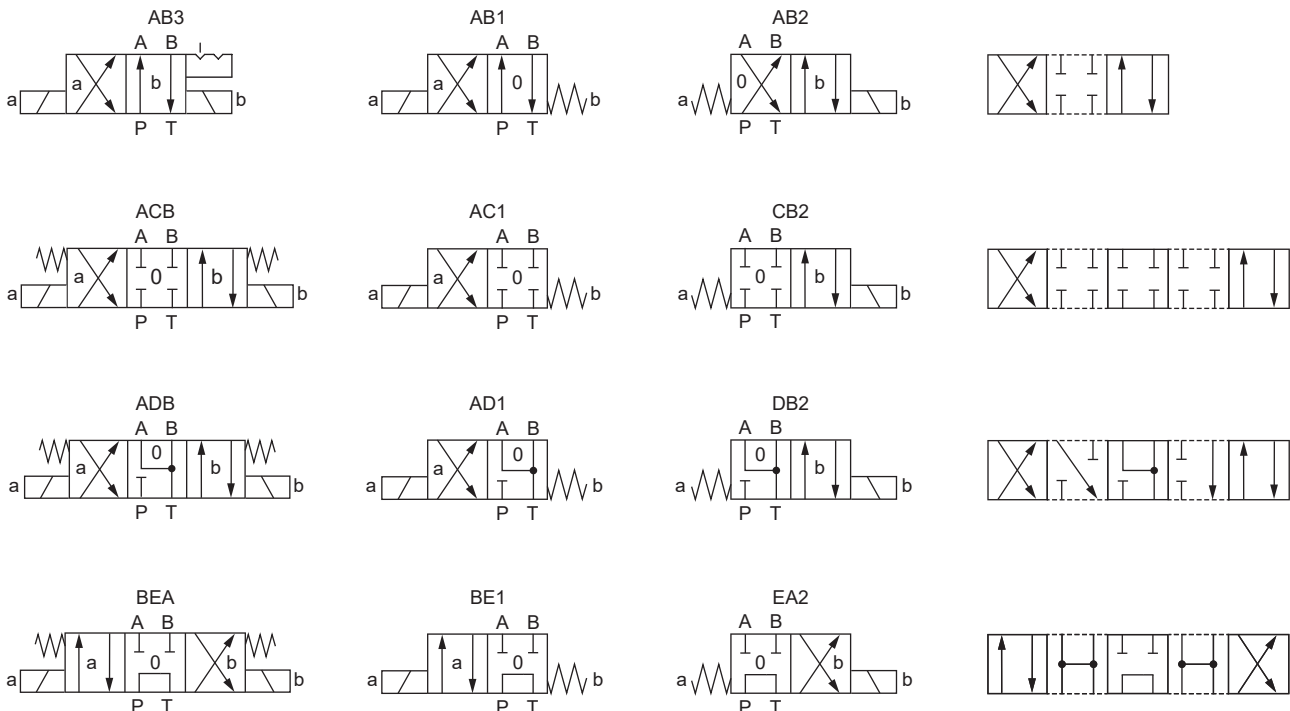
DESCRIPTION

Direct operated 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. Spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors.

SYMBOL



TYPE CODE

| | | | |
|---|--|---|-----------------------------------|
| Pool valve direct operated | | WD Y F A06 - <input type="text"/> - y - <input type="text"/> / <input type="text"/> / <input type="text"/> - Z591# <input type="text"/> | |
| Explosion proof execution Ex d | | | |
| Flange construction | | | |
| International standard interface ISO, NG6 | | | |
| Designation of symbols acc. to table | | | |
| Pool clearance | | | |
| Nominal voltage U _N | 12 VDC <input type="checkbox"/> G12 | 115 VAC <input type="checkbox"/> R115 | |
| | 24 VDC <input type="checkbox"/> G24 | 230 VAC <input type="checkbox"/> R230 | |
| Nominal power P _N | 15 W <input type="checkbox"/> L15 | | |
| Certification | ATEX, UKEX, IECEx, CCC, EAC <input type="checkbox"/> | USA / Canada <input type="checkbox"/> UC-M187 | India <input type="checkbox"/> PE |
| Sealing material / Temperature range | -60...+70 °C | | |
| Design index (subject to change) | 1.3-33 | | |

CERTIFICATES

| | Surface | Mining | Z591 -60 °C to... |
|--------------|---------|--------|----------------------|
| ATEX / UKEX | x | x | x |
| IECEx | x | x | x |
| USA / Canada | x | | x |
| CCC | x | x | x |
| EAC | x | x | x |
| PESO | x | | x |

The certificates can be found on www.wandfluh.com

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 T4 -60...+70 °C (L15) |
| Weight | 2,8 kg (1 solenoid) 4,6 kg (2 solenoids) |
| MTTFd | 150 years |

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


HYDRAULIC SPECIFICATIONS

| | |
|-----------------------------|--|
| Working pressure | p _{max} = 350 bar |
| Tank pressure | p _{Tmax} = 100 bar |
| Maximum volume flow | Q _{max} = 50 l/min, see characteristics |
| Leakage oil | On request |
| Fluid | Mineral oil, other fluid on request |
| Viscosity range | 12 mm ² /s...320 mm ² /s |
| Temperature range fluid | Operation as T4 -60...+70 °C (L15) |
| Contamination efficiency | Class 20 / 18 / 14 |
| Filtration | Required filtration grade β 10...16 ≥ 75, see data sheet 1.0-50 |

ELECTRICAL SPECIFICATIONS

| | |
|--------------------------|--|
| Protection class | IP67 |
| 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 | 15 W |
| Temperature class | Nominal power 15 W: T1...T4 |

Note! Other electrical specifications see data sheet 1.1-183



MANUAL OVERRIDE

HB6-Z591 for „-60...+70 °C“

SURFACE TREATMENT

- ◆ The valve body is painted with a two component paint
- ◆ The armature tube and the plug screw are zinc-nickel coated

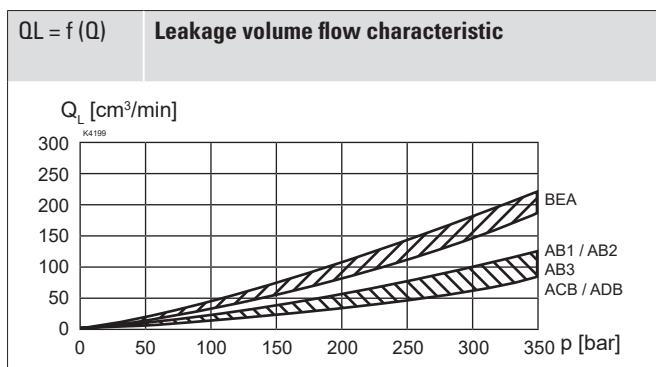
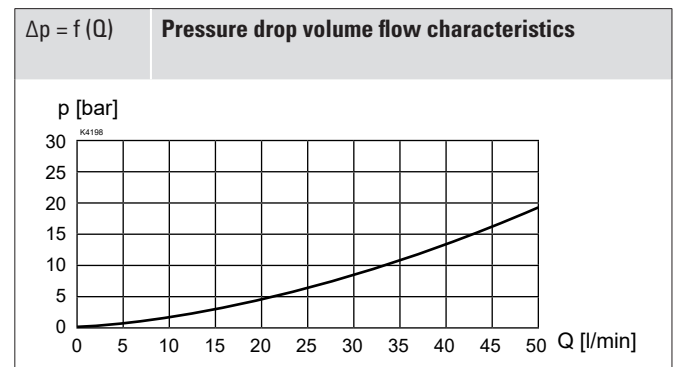
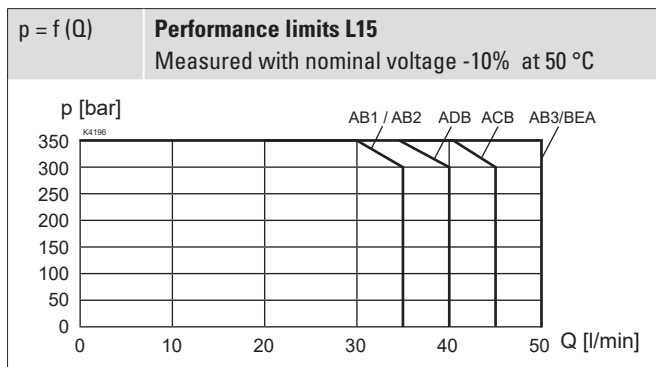
COMMISSIONING

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



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 |

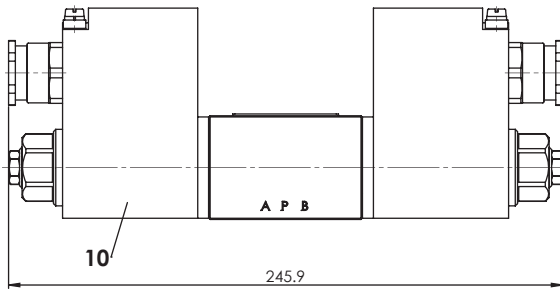
ACCESSORIES

| | |
|-----------------------------|--------------------|
| Fixing screws | Data sheet 1.0-60 |
| Threaded subplates | Data sheet 2.9-30 |
| Multi-station subplates | Data sheet 2.9-60 |
| Module type manifold blocks | Data sheet 2.9-100 |
| Technical explanations | Data sheet 1.0-100 |
| Filtration | Data sheet 1.0-50 |
| Relative duty factor | Data sheet 1.1-430 |

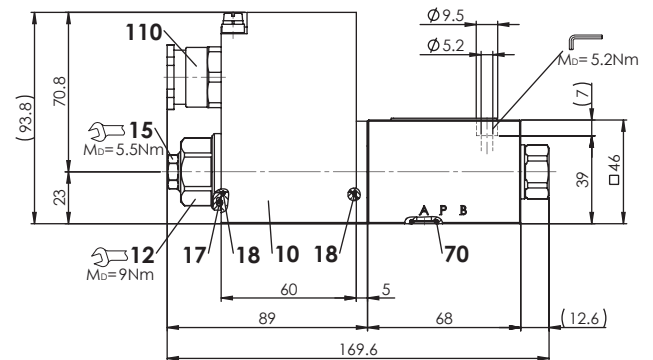
DIMENSIONS

4/3-way spool valve (spring centring)

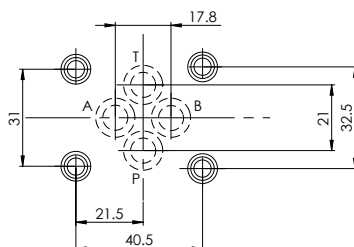
4/2-way spool valve (impulse)



4/2-way spool valve (spring reset)



HYDRAULIC CONNECTION



PARTS LIST

| Position | Article | Description |
|----------|----------------------|--|
| 10 | 263.64.. 263.68.. | Solenoid coil MK.45 / 18 x 60-... / L15-M238 |
| 12 | 154.2603 | Knurled nut Ex M18 x 1,5 x 18 |
| 15 | 253.8028 | HB6-Z591 |
| 110 | 111.1080 | Cable gland M20 x 1,5 |
| - | | Seal kit |

Seal kit consisting of:

| | | |
|----|--------|-------------------------------|
| 17 | O-ring | ID 25,07 x 2,62 (NBR) |
| 18 | O-ring | ID 17,17 x 1,78 (polyurethan) |
| 70 | O-ring | ID 9,25 x 1,78 (polyurethan) |

SEALING MATERIAL

NBR as standard

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 $M_D = 5,1$ Nm (screw quality A4) $M_D = 9$ 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