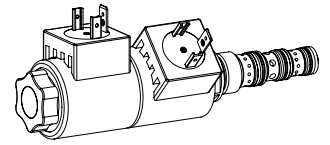


Proportional spool valve

Screw-in cartridge construction

- ◆ direct operated
- ◆ $Q_{max} = 23 \text{ l/min}$
- ◆ $Q_{Nmax} = 12 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

3/4"-16 UNF
Wandfluh standard


DESCRIPTION

Direct operated proportional spool valve in screw-in cartridge construction. Precise spool fit, low leakage, long service life time. The volume flow adjustment takes place by a Wandfluh proportional solenoid. The valve works according to the pull-push principle. With the control of the solenoids, the volume flow direction P to A or P to B can be selected. Thanks to the optimum spool form, sensitive movement processes are possible. For the control, Wandfluh proportional amplifiers are available (see register 1.13).

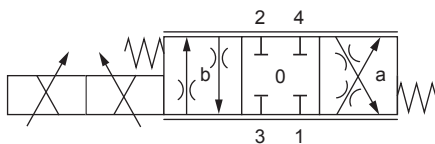
APPLICATION

Proportional spool valves are perfectly suitable for demanding tasks due to the high resolution, large volume flow and low hysteresis. The applications are in the industry as well as in the mobile hydraulics for the smooth control of hydraulic actuators. Some examples: control of the rotor blades of wind generators, forestry and earth moving machines, machine tools and paper production machines, simple position controls, robotics and fan control.

SYMBOL

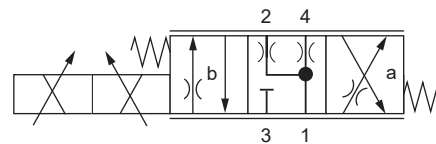
Symmetrical control

ACB-S



Meter-in control

ADB-V



TYPE CODE

| | | WD P PU08 - <input type="checkbox"/> - 12 - <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> # <input type="checkbox"/> | | | | | | | | | |
|--------------------------------------|---|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Spool valve, directly operated | | | | | | | | | | | |
| Proportional | | | | | | | | | | | |
| Screw-in cartridge 3/4"-16UNF | | | | | | | | | | | |
| Designation of symbols acc. to table | | | | | | | | | | | |
| Nominal volume flow rate Q_N | 12 l/min | | | | | | | | | | |
| Nominal voltage U_N | 12 VDC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | 24 VDC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | without coil | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Slip-on coil | Metal housing, round | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Metal housing, square | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Connection execution | Connector socket EN 175301-803 / ISO 4400 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Connector socket AMP Junior-Timer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | Connector Deutsch DT04-2P | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sealing material | NBR | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | FKM (Viton) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Manual override | without | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | with | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Design index (subject to change) | | | | | | | | | | | |

1.10-2710

GENERAL SPECIFICATIONS

| | |
|---------------------|--|
| Designation | Proportional spool valve |
| Construction | Direct operated |
| Mounting | Screw-in cartridge construction |
| Nominal size | 3/4"-16 UNF according to Wandfluh standard |
| Actuation | Proportional solenoid |
| Ambient temperature | -25...+70 °C if >50 °C, I _G is only conditionally achievable |
| Weight | 0,65 kg (W) 0,75 kg (M) |
| MTTFd | 150 years |

ELECTRICAL SPECIFICATIONS

| | |
|---------------------------|---|
| Protection class | Connection execution D: IP65 Connection execution J: IP66 Connection execution G: IP67 and IP69K |
| Relative duty factor | 100 % DF |
| Standard nominal voltage | 12 VDC, 24 VDC |
| Limiting current at 50 °C | I _G = 550 mA (W), 560 mA (M), U _N = 24VDC I _G = 1100 mA (W), 1080 mA (M), U _N = 12VDC |

Note! Other electrical specifications see data sheet 1.1-169 (slip-on coil W) and 1.1-171 (slip-on coil M)



MANUAL OVERRIDE

Optionally: HP

SURFACE TREATMENT

- ◆ The cartridge body is gas-nitro-carburised
- ◆ The armature tube is zinc coated
- ◆ The slip-on coil is zinc- / nickel-coated

STANDARDS

| | |
|--------------------------|-------------------|
| Cartridge cavity | Wandfluh standard |
| Solenoids | DIN VDE 0580 |
| Connection execution D | EN 175301 – 803 |
| Protection class | EN 60 529 |
| Contamination efficiency | ISO 4406 |

ACTUATION

| | |
|------------|--|
| Actuation | Proportional solenoid, wet pin pull and push type, pressure tight. |
| Execution | W.E37 / 16 x 40 (Data sheet 1.1-169) M.E35 / 16 x 40 (Data sheet 1.1-171) |
| Connection | Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P |

HYDRAULIC SPECIFICATIONS

| | |
|--------------------------|---|
| Working pressure | p _{max} = 350 bar |
| Tank pressure | p _{Tmax} = 250 bar |
| Maximum volume flow | Q _{max} = 23 l/min, see characteristics |
| Leakage oil | See characteristics |
| Hysteresis | ≤ 5 % at optimal dither signal |
| Fluid | Mineral oil, other fluid on request |
| Viscosity range | 12 mm ² /s...320 mm ² /s |
| Temperature range fluid | -25...+70 °C (NBR) -20...+70 °C (FKM) |
| Contamination efficiency | Class 18 / 16 / 13 |
| Filtration | Required filtration grade β _{6...10} ≥ 75, see data sheet 1.0-50 |

SEALING MATERIAL

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

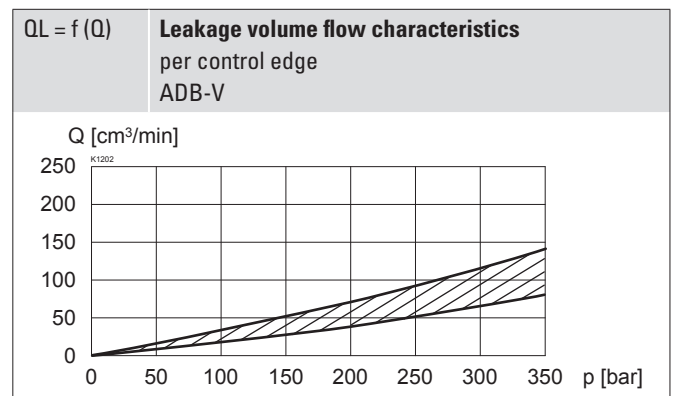
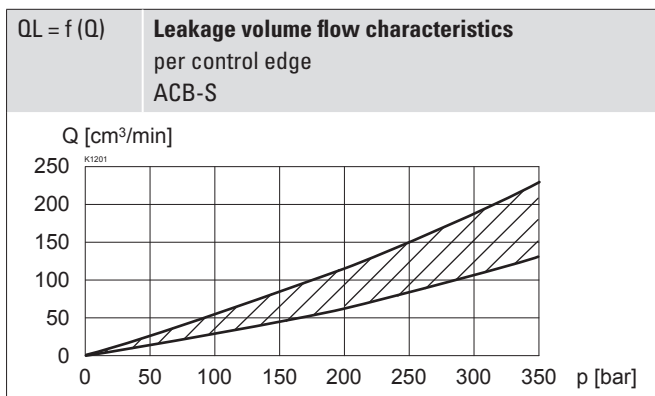
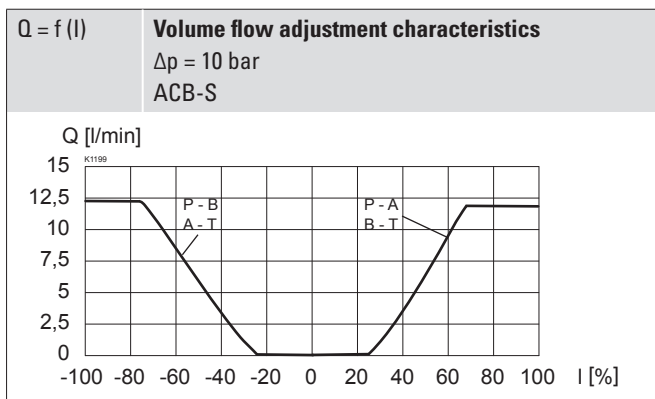
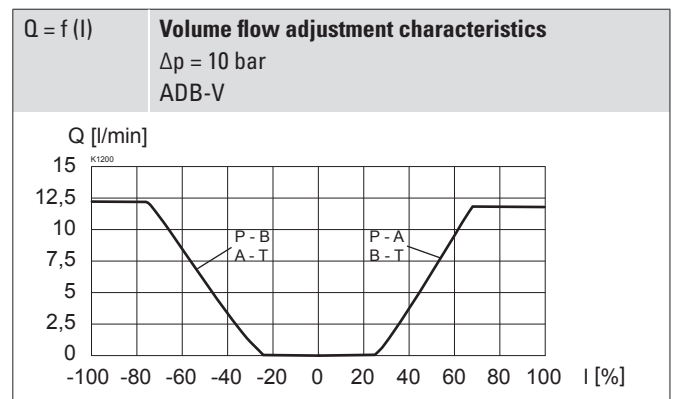
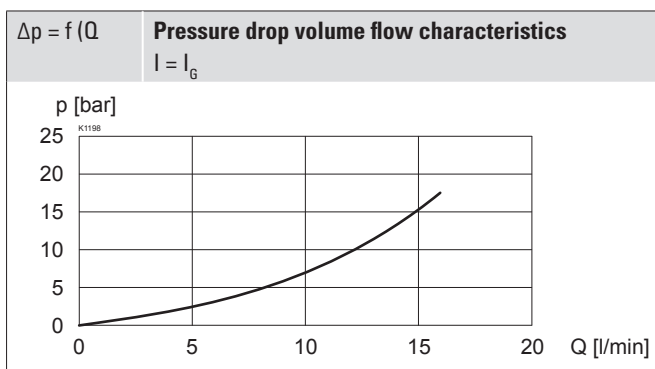
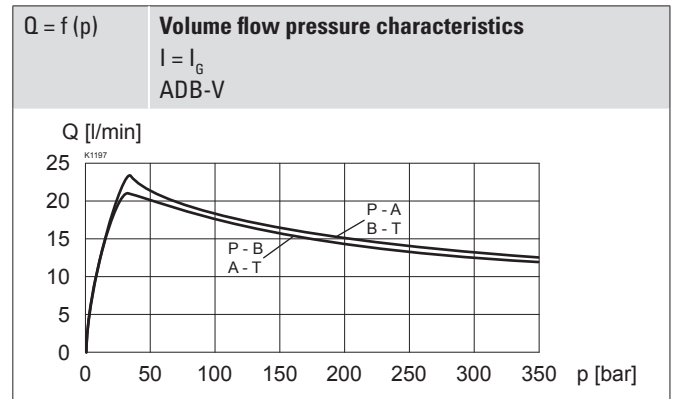
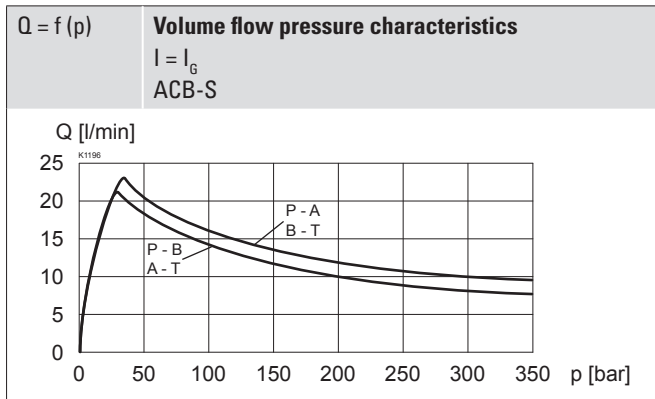
ACCESSORIES

| | |
|----------------------------|----------------------|
| Mating connector grey (A) | Article no. 219.2001 |
| Mating connector black (B) | Article no. 219.2002 |
| Technical explanations | Data sheet 1.0-100 |
| Filtration | Data sheet 1.0-50 |
| Relative duty factor | Data sheet 1.1-430 |

INSTALLATION NOTES

| | |
|-------------------|--|
| Mounting type | Screw-in cartridge type 3/4"-16 UNF |
| Mounting position | Any, preferably horizontal |
| Tightening torque | M _D = 30 Nm Screw-in cartridge M _D = 5 Nm knurled nut |

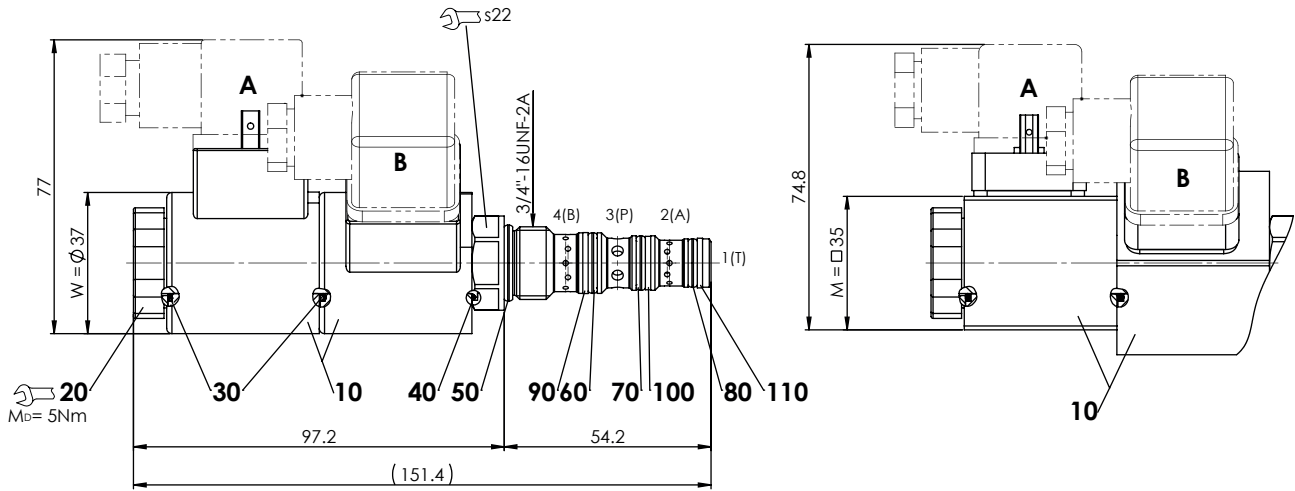
PERFORMANCE SPECIFICATIONS

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


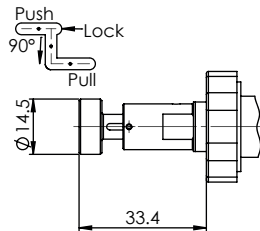
All values were measured over two control edges. The connections A and B were short-circuited.

DIMENSIONS

4/3-way spool valve (spring centred)



HP



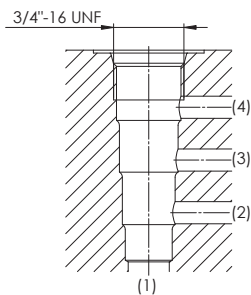
Attention!



The actuation of the manual override is possible up to a tank pressure of approx. 100 bar. The manual override cannot be retrofitted.

HYDRAULIC CONNECTION

Cavity drawing according to Wandfluh standard



Note!



For detailed cavity drawing and cavity tools see data sheet 2.13-1055 and 2.13-1056

PARTS LIST

| Position | Article | Description |
|----------|----------|--------------------------------|
| 10 | 206.2... | W.E37 / 16 x 40 |
| | 260.4... | M.E35 / 16 x 40 |
| 20 | 154.2600 | Knurled nut M16 x 1 x 9 |
| 30 | 160.2170 | O-ring ID 17,17 x 1,78 (NBR) |
| 40 | 160.1162 | O-ring ID 16,00 x 1,25 (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 | 160.2120 | O-ring ID 12,42 x 1,78 (NBR) |
| | 160.6124 | O-ring ID 12,42 x 1,78 (FKM) |
| 70 | 160.2111 | O-ring ID 11,11 x 1,78 (NBR) |
| | 160.6111 | O-ring ID 11,11 x 1,78 (FKM) |
| 80 | 160.2093 | O-ring ID 9,25 x 1,78 (NBR) |
| | 160.6092 | O-ring ID 9,25 x 1,78 (FKM) |
| 90 | 049.3166 | Backup ring rd 13,1 x 16 x 1,4 |
| 100 | 049.3146 | Backup ring rd 11,1 x 14 x 1,4 |
| 110 | 049.3136 | Backup ring rd 10 x 13 x 1,4 |