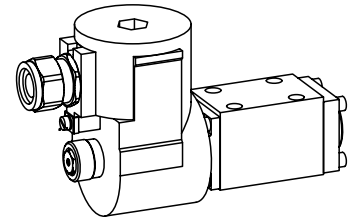


Proportional directional valve

- not pressure compensated
- $Q_{max} = 40 \text{ l/min}$
- $Q_{Nmax} = 25 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
 ISO 4401-03


II 2 G
EEx d II C

DESCRIPTION

Direct operated proportional spool valve in flange design NG6 acc. to ISO 4401-03/7790 with 4 ports. The spool valve is designed to the 5 chamber principle. The volume flow is adjusted by explosion proof proportional solenoid. Low pressure drop due to the body design and spool profiling. The spool is made of hardend steel. The body made of high grade hydraulic casting for long service life is painted.

EEx: in accordance with european standards EN 50014, EN 50018

d: flameproof enclosure

Group II C: (gas group II A, II B)

for all applications except mining

Zone 1 (and 2): explosive mixtures present intermittently

EC-type examination certificate:

Execution T6: PTB 98 ATEX 1008

FUNCTION

Proportionally to the solenoid current spool stroke, spool opening and valve volume flow will increase. Proportional directional valves NG6 are not load-compensated. The optimum spool shape and progressive characteristics curve allow fine motion control. To control the valve Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

Proportional directional spool valves are well suited for demanding applications where high resolution, high volume flow and low hysteresis are requested. The facility for remote control and signal processing from process control systems enable elegant, comfortable solutions to problems. These valves are suitable for hazardous areas in off-shore and ship-building applications as well as in chemical, oil and gas industry.

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TYPE CODE

| | | | | | | | | | | | | | |
|--|---------|--------------------------|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|----------|---|--------------------------|
| Proportional directional valve | WDB | F | A06 | - | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | - | G24 / T6 | # | <input type="checkbox"/> |
| Flange construction | | | | | | | | | | | | | |
| International standard interface ISO, nominal size 6 | | | | | | | | | | | | | |
| Description of symbols acc. to table 1.10-86/2 | | | | | | | | | | | | | |
| Nominal volume flow Q_N : | 5 l/min | <input type="checkbox"/> | 10 l/min | <input type="checkbox"/> | 16 l/min | <input type="checkbox"/> | 25 l/min | <input type="checkbox"/> | | | | | |
| (at 20 bar pressure drop) | | | | | | | | | | | | | |
| Standard nominal voltage U_N : | 24 VDC | | | | | | | | | | | | |
| Execution: | T1...T6 | | | | | | | | | | | | |
| Design-Index (Subject to change) | | | | | | | | | | | | | |

GENERAL SPECIFICATIONS

| | | | |
|-----------------------------|--|------------|--|
| Nominal size | NG6 acc. to ISO 4401-03/7790 | | |
| Designation | 4/2-, 4/3-way proportional directional valve | | |
| Construction | Direct operated spool valve | | |
| Mounting | Flange, 4 fixing holes for socket head cap screws M5x50 | | |
| Fastening torque | $M_b = 5,5 \text{ Nm}$ (screw qual. 8.8) | | |
| Pipe connection | Connection plates Multi-station flange subplate Longitudinal stacking system | | |
| Mounting position | any, preferably horizontal | | |
| Admissible ambient temp. *: | | | |
| Execution T6 | -20...+90 °C (operation as T1...T4) -20...+40 °C (operation as T5/T6) | | |
| Weight: | 4/2-way | m = 2,8 kg | |
| | 4/3-way | m = 4,8 kg | |

HYDRAULIC SPECIFICATIONS

| | | |
|--------------------------|--|--|
| Fluid | Mineral oil, other fluid on request | |
| Contamination efficiency | ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$) refer to data sheet 1.0-50/2 | |
| Viscosity range | 12 mm ² /s...320 mm ² /s | |
| Admissible fluid temp.*: | | |
| Execution T6 | -20...+70 °C (operation as T1...T4) -20...+40 °C (operation as T5/T6) | |
| Working pressure | $p_{max} = 350 \text{ bar}$ (connections P, A, B) | |
| Tank pressure | $p_{max} = 160 \text{ bar}$ (connection T) | |
| Nominal volume flow | $Q_N = 5 \text{ l/min}, 10 \text{ l/min}, 16 \text{ l/min}, 25 \text{ l/min}$ | |
| Max. volume flow | see characteristic | |
| Leakage volume flow | on request | |
| Hysteresis | $\leq 5 \%$ ** ** at optimal dither signal | |

* Deviating pressure medium - or ambient temperatures are possible for special arrangements after checking and authorisation by a responsible inspector. Measures for the prevention of the exceeding of the admissible solenoid surface - and internal temperatures can be: a good ventilation, low ambient temperatures (for higher pressure medium temperatures), limitation of the maximum possible power supply voltage, a short switching-on duration, installation on large heat dissipating blocks, etc. The responsibility in all cases lies with the operator, resp. with his inspector.

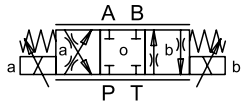

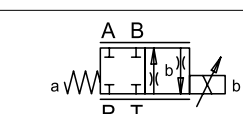
ELECTRICAL SPECIFICATIONS

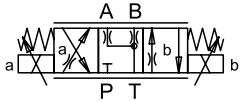
| | |
|--------------------------|---|
| Construction | Proportional solenoid, wet pin push type, pressure tight |
| Standard nominal voltage | $U_N = 24$ VDC wired with VDR |
| Limiting current | T6: $I_G = 260$ mA |
| Relative duty factor | 100% ED |
| Protection class | IP 65 acc. to EN 60 529 |
| Connection/Power supply | Through cable entry for cable $\varnothing 11 \dots 14$ mm |
| Temperature class | (acc. to EN 50014) |
| Execution T6 | T1...T6 |
| Performance limit | |
| Execution T6 | 6 W at $I_G = 260$ mA |

START-UP

Information concerning the installation and commissioning is contained in the operating instructions supplied together with the solenoid coil.

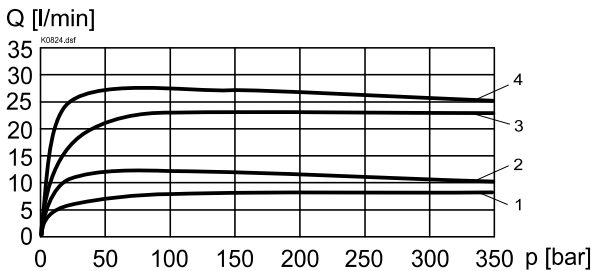
TYPE CHARTS / DESIGNATIONS OF SYMBOLS

| | |
|---|--|
|  | ACB - S S = Symmetrical control mode |
|  | AC1 - S S = Symmetrical control mode |
|  | CB2 - S S = Symmetrical control mode |

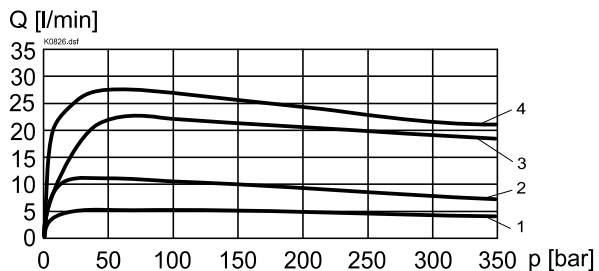
| | |
|--|---|
|  | ADB - V V = Meter-in control mode |
|--|---|

CHARACTERISTICS oil viscosity $\nu = 30$ mm²/s

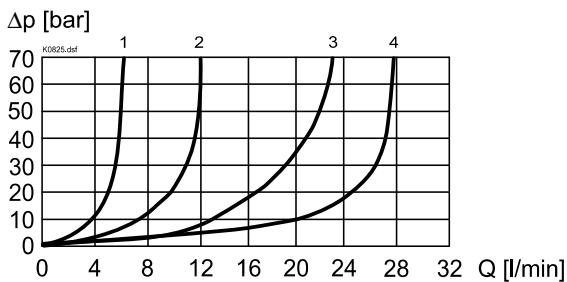
$Q = f(p)$ Volume flow pressure characteristics ($l = l_G$)
[Types: ACB-S, AC1-S, CB2-S]



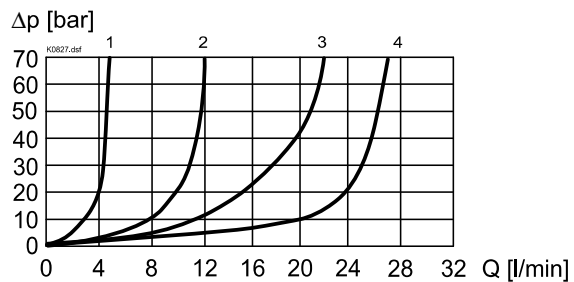
$Q = f(p)$ Volume flow pressure characteristics ($l = l_G$)
[Type: ADB-V]



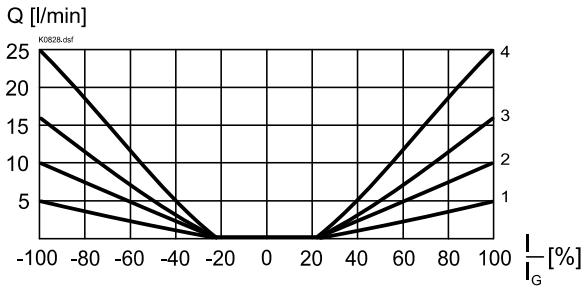
$\Delta p = f(Q)$ Pressure loss/flow characteristics ($l = l_G$)
[Types: ACB-S, AC1-S, CB2-S]



$\Delta p = f(Q)$ Pressure loss/flow characteristics ($l = l_G$)
[Type: ADB-V]



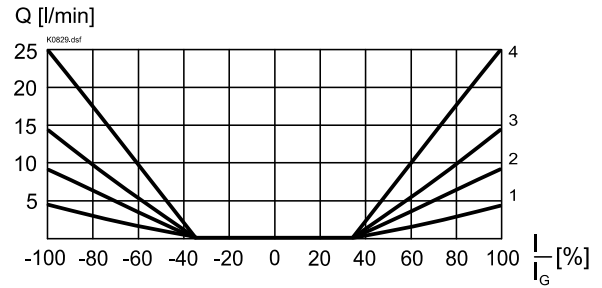
Q = f (l) Volume flow adjustment characteristics ($\Delta p = 20$ bar)
 [Types: ACB-S, AC1-S, CB2-S]



Legend:

- 1: $Q_N = 5$ l/min 3: $Q_N = 16$ l/min
 2: $Q_N = 10$ l/min 4: $Q_N = 25$ l/min

Q = f (l) Volume flow adjustment characteristics ($\Delta p = 20$ bar)
 [Type: ADB-V]

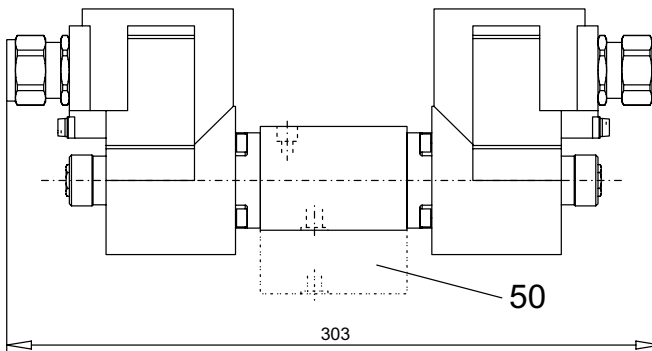


NOTE!

All values measured over 2 metering edges,
 A and B ports linked

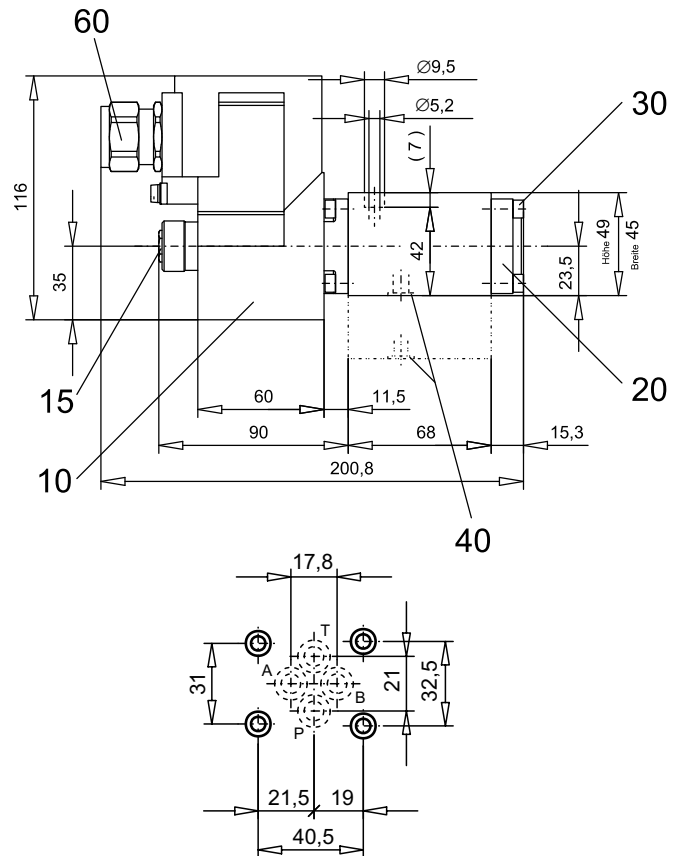
DIMENSIONS

4/3-way valve



Order distance plate ADP6/30 separatly

4/2-way valve



PARTS LIST

| Position | Article | Description |
|----------|----------|--|
| 10 | 207.5... | Coil type EExd |
| 15 | 253.8001 | Plug with integrated manual override HB6 |
| 20 | 058.4211 | Cover |
| 30 | 246.2117 | Socket head cap screw M5x16 DIN 912 |
| 40 | 160.2093 | O-Ring ID 9,25x1,78 |
| 50 | 173.3453 | Distance plate ADP6/30 |
| 60 | 111.1080 | Cable entry brass M20 |

ACCESSORIES

Sub-plates
 Proportional-amplifier

Register 2.9
 Register 1.13

Technical explanation see data sheet 1.0-100E