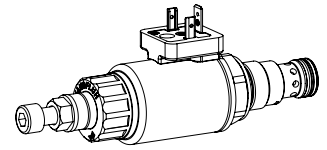


Proportional pressure relief cartridge inverse

- ◆ pilot operated
- ◆ $Q_{max} = 100 \text{ l/min}$
- ◆ $p_{max} = 400 \text{ bar}$
- ◆ $p_{Nmax} = 350 \text{ bar}$

M22 x 1,5
ISO 7789



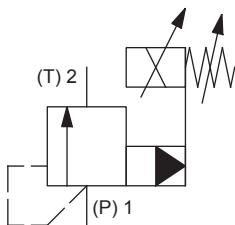
DESCRIPTION

Pilot operated proportional pressure relief valve with inverse function in screw-in cartridge construction for cavity according to ISO 7789. High flow capacity, very sensitively adjustable. When the operating pressure adjusted by means of the proportional solenoid is reached, the valve opens and connects the protected line with the drain to the tank. With the solenoid deenergised, maximum working pressure is present. If the solenoid current increases, the pressure in port P (1) drops. The back pressure in T (2) affects the pressure in P (1). For the control, Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

The electrical remote control in conjunction with process controls allows economical solutions with repeatable processes. By means of the inverse function, the maximum system pressure is maintained if the electrical valve control falls out (safety function). The screw-in cartridge is perfectly suitable for installation in control blocks and is installed in sandwich- (vertical stacked systems) and in flange plates (corresponding data sheets in this register). 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.

SYMBOL



ACTUATION

| | |
|------------|--|
| Actuation | Proportional solenoid, wet pin push type, pressure tight |
| Execution | W.S37 / 19 x 50 (Data sheet 1.1-173) M.S35 / 19 x 50 (Data sheet 1.1-174) |
| Connection | Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P |

TYPE CODE

| | | | | | |
|----------------------------------|---|----------------------------------|--------------------------------|--|--|
| | | | | B V I PM22 - <input type="text"/> - <input type="text"/> / <input type="text"/> <input type="text"/> - <input type="text"/> # <input type="text"/> | |
| Pressure relief valve | | | | | |
| Pilot operated | | | | | |
| Proportional, inverse | | | | | |
| Screw-in cartridge M22 x 1,5 | | | | | |
| Nominal pressure range p_N | 20 bar | <input type="text" value="20"/> | 200 bar | <input type="text" value="200"/> | |
| | 63 bar | <input type="text" value="63"/> | 275 bar | <input type="text" value="275"/> | |
| | 100 bar | <input type="text" value="100"/> | 350 bar | <input type="text" value="350"/> | |
| | 160 bar | <input type="text" value="160"/> | | | |
| Nominal voltage U_N | 12 VDC | <input type="text" value="G12"/> | | | |
| | 24 VDC | <input type="text" value="G24"/> | | | |
| | without coil | <input type="text" value="X5"/> | | | |
| Slip-on coil | Metal housing round | | <input type="text" value="W"/> | | |
| | Metal housing square | | <input type="text" value="M"/> | | |
| Connection execution | Connector socket EN 175301-803 / ISO 4400 | | <input type="text" value="D"/> | | |
| | Connector socket AMP Junior - Timer | | <input type="text" value="J"/> | | |
| | Connector Deutsch DT04 - 2P | | <input type="text" value="G"/> | | |
| Sealing material | NBR | <input type="text"/> | | | |
| | FKM (Viton) | <input type="text" value="D1"/> | | | |
| Design index (subject to change) | | | | | |

2.3-528

GENERAL SPECIFICATIONS

| | |
|---------------------|--|
| Designation | Proportional pressure relief valve with inverse function |
| Construction | Pilot operated |
| Mounting | Screw-in cartridge construction |
| Nominal size | M22 x 1,5 according to ISO 7789 |
| Actuation | Proportional solenoid |
| Ambient temperature | -25...+70 °C |
| Weight | 0,70 kg |
| MTTFd | 150 years |

ELECTRICAL SPECIFICATIONS

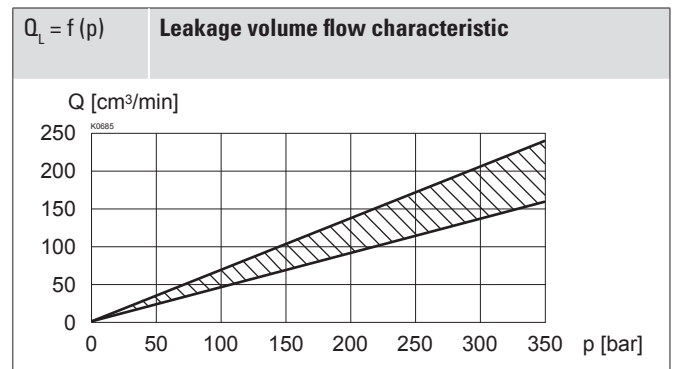
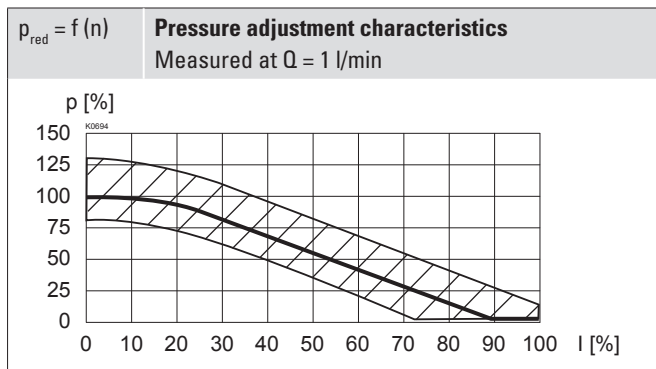
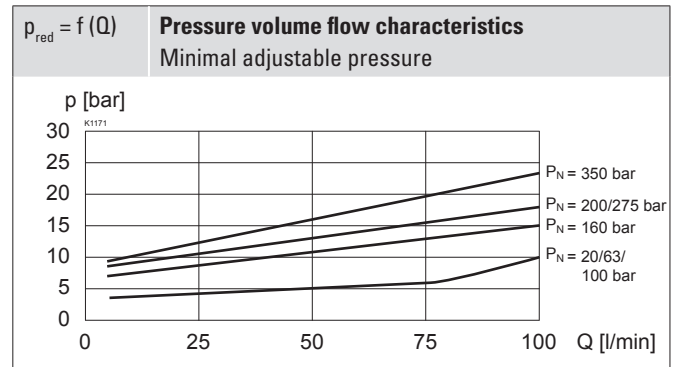
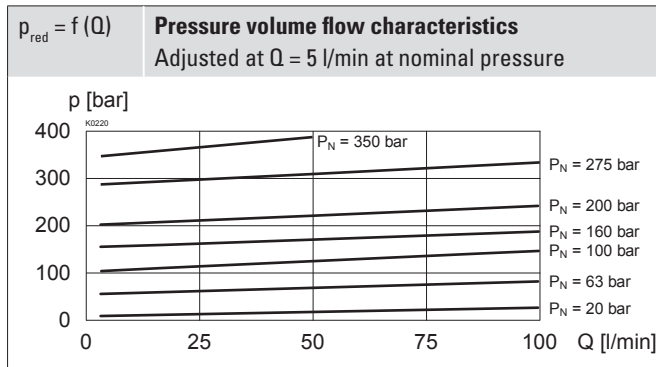
| | |
|---------------------------|--|
| Protection class | Connection execution D: IP65 Connection execution J: IP66 Connection execution G: IP67 and IP69K |
| Relative duty factor | 100 % DF |
| Standard nominal voltage | 12 VDC, 24 VDC |
| Limiting current at 50 °C | $I_G = 1320 \text{ mA } (U_N = 12\text{VDC})$ $I_G = 660 \text{ mA } (U_N = 24\text{VDC})$ |

Note! Other electrical specifications see data sheet 1.1-173 (slip-on coil W) and 1.1-174 (slip-on coil M)


HYDRAULIC SPECIFICATIONS

| | |
|--------------------------|--|
| Working pressure | $p_{max} = 400 \text{ bar}$ |
| Tank pressure | $p_{Tmax} = p_p + 20 \text{ bar}$ |
| Nominal pressure range | $P_N = 20 \text{ bar, } 63 \text{ bar, } 100 \text{ bar, } 160 \text{ bar, } 200 \text{ bar, } 275 \text{ bar, } 350 \text{ bar}$ Adjustable via adjustment screw (-20 % / +30 %) |
| Volume flow range | $Q = 5...100 \text{ l/min}$ |
| Leakage oil | See characteristics |
| Hysteresis | $\leq 4 \%$ at optimal dither signal |
| Repeatability | $\leq 3 \%$ at optimal dither signal |
| Fluid | Mineral oil, other fluid on request |
| Viscosity range | $12 \text{ mm}^2/\text{s}...320 \text{ mm}^2/\text{s}$ |
| Temperature range fluid | -25...+70 °C (NBR) -20...+70 °C (FKM) |
| Contamination efficiency | Class 18 / 16 / 13 |
| Filtration | Required filtration grade $\beta_{6...10} \geq 75$, see data sheet 1.0-50 |

PERFORMANCE SPECIFICATIONS

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

SURFACE TREATMENT

- ◆ The cartridge body made of steel and the slip-on coil are zinc-nickel coated

SEALING MATERIAL

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

STANDARDS

| | |
|--------------------------|-----------------|
| Cartridge cavity | ISO 7789 |
| Solenoids | DIN VDE 0580 |
| Connection execution D | EN 175301 – 803 |
| Protection class | EN 60 529 |
| Contamination efficiency | ISO 4406 |

INSTALLATION NOTES

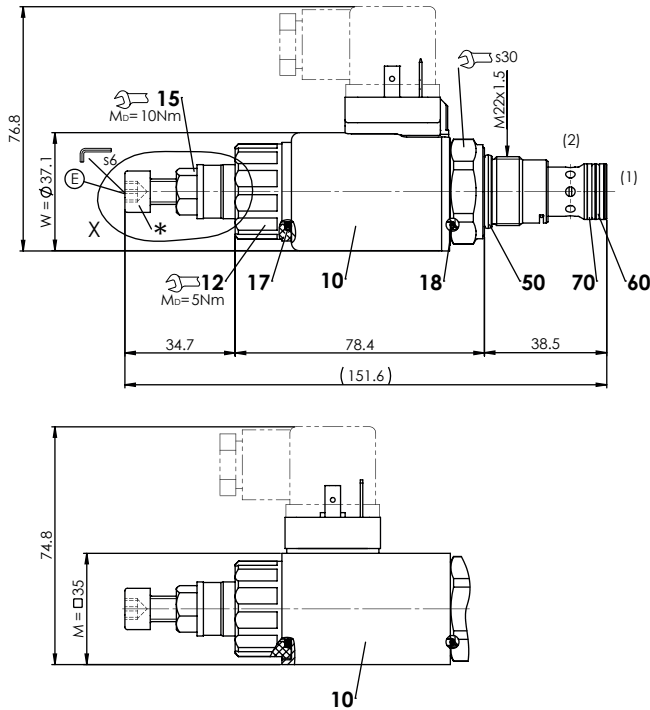
| | |
|-------------------|--|
| Mounting type | Screw-in cartridge M22 x 1,5 |
| Mounting position | Any, preferably horizontal |
| Tightening torque | $M_D = 60 \text{ Nm}$ Screw-in cartridge $M_D = 5 \text{ Nm}$ knurled nut |

ACCESSORIES

| | |
|---------------------------------------|----------------------|
| Proportional amplifier | Register 1.13 |
| Electric plug B (black) | Article no. 219.2002 |
| Flange body / sandwich plate NG4-Mini | Data sheet 2.3-720 |
| Flange body / sandwich plate NG6 | Data sheet 2.3-740 |
| Flange body / sandwich plate NG10 | Data sheet 2.3-760 |
| Threaded body | Data sheet 2.9-200 |
| Technical explanations | Data sheet 1.0-100 |
| Filtration | Data sheet 1.0-50 |

MANUAL OVERRIDE

None

DIMENSIONS


E = Air bleed screw

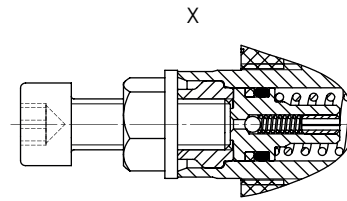
*Adjustment screw for adjusting the nominal pressure

COMMISSIONING

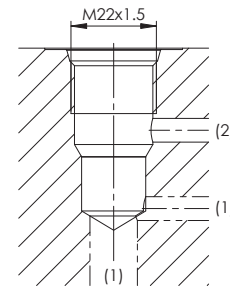
When commissioning, the valve must be vented under pressure as follows (see detail X in Dimensions):

- ◆ Loosen lock nut
- ◆ Remove screw (E)
- ◆ Push the non-return valve (with pin or hex key < 1,3 mm)
- ◆ Screw-in the screw (E)
- ◆ Adjust the required pressure and tighten the lock nut

Attention! Therewith oil flows out with the corresponding pressure! Cover with a cloth.


HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789-22-02-0-98



Note!



For detailed cavity drawing and cavity tools see data sheet 2.13-1003

PARTS LIST

| Position | Article | Description |
|----------|----------|---|
| 10 | 206.2... | W.S37 / 19 x 50 |
| | 260.5... | M.S35 / 19 x 50 |
| 12 | 154.2700 | Knurled nut |
| 15 | 153.2401 | Dichtmutter Norm „Seal-Lock“ 8 Zi - Ni M8 |
| 17 | 160.2187 | O-ring ID 18,72 x 2,62 (NBR) |
| 18 | 160.2170 | O-ring ID 17,17 x 1,78 (NBR) |
| 50 | 160.2188 | O-ring ID 18,77 x 1,78 (NBR) |
| | 160.6188 | O-ring ID 18,77 x 1,78 (FKM) |
| 60 | 160.2140 | O-ring ID 14,00 x 1,78 (NBR) |
| | 160.6141 | O-ring ID 14,00 x 1,78 (FKM) |
| 70 | 049.3177 | Back-up ring rd 14,6 x 17,5 x 1,4 |