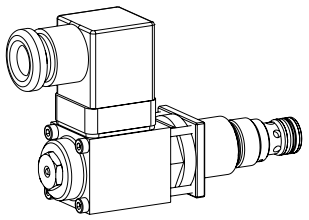
## Proportional pressure relief cartridge

- pilot operated
- $Q_{max}$ = 25 l/min
- $p_{max}$ = 350 bar
- $p_{N\,max}$ = 315 bar

**M18 x 1,5**
**ISO 7789**



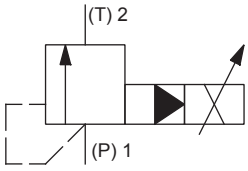
## DESCRIPTION

Pilot operated proportional pressure relief valve 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. 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. 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 | PI29V (Data sheet 1.1-90) |
| Connection | Connector socket EN 175301 – 803 |

## TYPE CODE

B V P PM18 - ☐ - ☐ - ☐ # ☐

| | | | | |
|---|---|---|---|---|
| Pressure relief valve | | | | |
| Pilot operated | | | | |
| Proportional | | | | |
| Screw-in cartridge M18 x 1,5 | | | | |
| Nominal pressure range $p_N$ | 20 bar | 20 | 200 bar | 200 |
| | 100 bar | 100 | 315 bar | 315 |
| Nominal voltage $U_N$ | 12 VDC | G12 | | |
| | 24 VDC | G24 | | |
| Sealing material | NBR | | | |
| | FKM (Viton) | D1 | | |
| Design index (subject to change) | | | | |

2.3-510

## GENERAL SPECIFICATIONS

| | |
|---|---|
| Designation | Proportional pressure relief valve |
| Construction | Pilot operated |
| Mounting | Screw-in cartridge construction |
| Nominal size | M18 x 1,5 according to ISO 7789 |
| Actuation | Proportional solenoid |
| Ambient temperature | -25…+70 °C |
| Weight | 0,38 kg |
| MTTFd | 150 years |

## HYDRAULIC SPECIFICATIONS

| | |
|---|---|
| Working pressure | $p_{max}$ = 350 bar |
| Tank pressure | $p_{T\,max} = p_P + 80$ bar |
| Nominal pressure range | $P_N$ = 20 bar, 100 bar, 200 bar, 315 bar |
| Volume flow range | Q = 0,3...25 l/min |
| Leakage oil | See characteristics |
| Hysteresis | ≤ 2 % at optimal dither signal |
| Repeatability | ≤ 1 % at optimal dither signal |
| Fluid | Mineral oil, other fluid on request |
| Viscosity range | 12 mm²/s…320 mm²/s |
| Temperature range fluid | -25…+70 °C (NBR)<br>-20…+70 °C (FKM) |
| Contamination efficiency | Class 18 / 16 / 13 |
| Filtration | Required filtration grade ß 6…10 ≥ 75, see data sheet 1.0-50 |

## ELECTRICAL SPECIFICATIONS

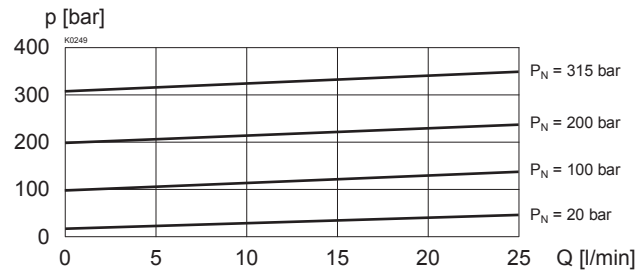
| | |
|---|---|
| Protection class | IP65 |
| Relative duty factor | 100 % DF |
| Service life time | $10^7$ (number of switching cycles, theoretically) |
| Voltage tolerance | ± 10 % with regard to nominal voltage |
| Standard nominal voltage | 12 VDC, 24 VDC |
| Limiting current at 50 °C | $I_G$ = 1080 mA (12 VDC)<br>$I_G$ = 540 mA (24 VDC) |

**Note!** Other electrical specifications see data sheet 1.1-90

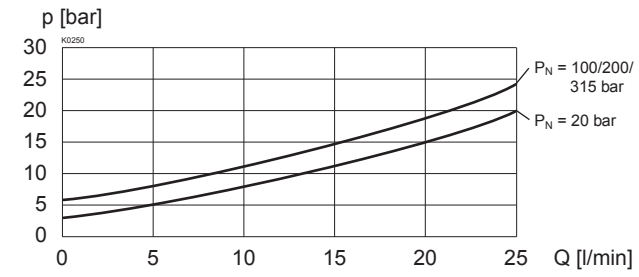
## PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

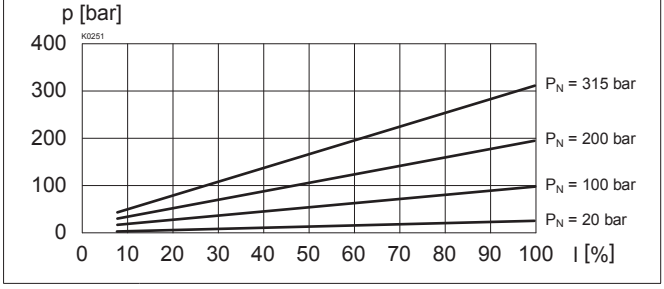
$p_{red} = f(Q)$ **Pressure volume flow characteristics**
Maximal adjustable pressure



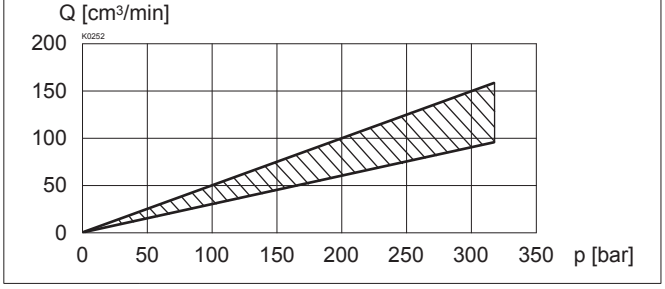

$p_{red} = f(Q)$ **Pressure volume flow characteristics**
Minimal adjustable pressure



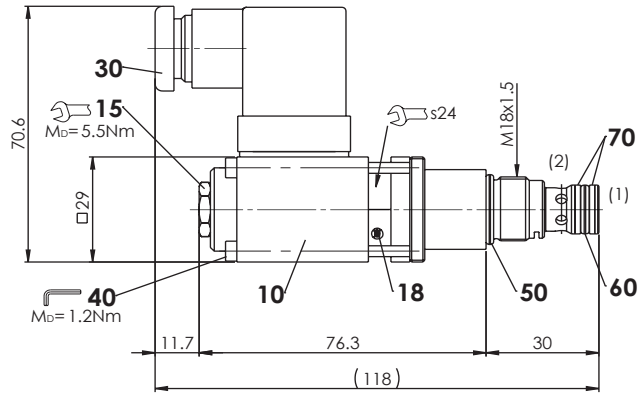

$p_{red} = f(n)$ **Pressure adjustment characteristics**
Measured at Q = 1 l/min




$Q_L = f(p)$ **Leakage volume flow characteristic**

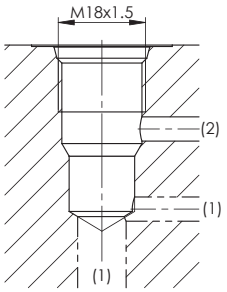


## DIMENSIONS




## HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789–18–02–0–98




**Note!** For detailed cavity drawing and cavity tools see data sheet 2.13-1001

## PARTS LIST

| Position | Article | Description |
|---|---|---|
| 10 | 256.2418 | Proportional solenoid PI29V-G12 |
| | 256.2453 | Proportional solenoid PI29V-G24 |
| 15 | 253.8000 | Manual override HB4,5 |
| 30 | 219.2002 | Electric plug B (black) |
| 40 | 246.0151 | Socket head screw M3 x 50 DIN 912 |
| | 251.1005 | Seal kit B.PPM18 |
| | 251.1007 | Seal kit B.PPM18.D1 |

**Seal kit consisting of:**

| | | |
|---|---|---|
| 18 | O-ring | ID 12,42 x 1,78 |
| 50 | O-ring | ID 15,60 x 1,78 |
| 60 | O-ring | ID 9,25 x 1,78 |
| 70 | Back. ring | PTFE rd 10,6 x 13,5 x 1,4 |

## ACCESSORIES

| | |
|---|---|
| Proportional amplifier | Register 1.13 |
| Flange body / sandwich plate NG3-Mini | Data sheet 2.3-700 |
| Threaded body | Data sheet 2.9-200 |
| Technical explanations | Data sheet 1.0-100 |
| Filtration | Data sheet 1.0-50 |

## MANUAL OVERRIDE

HB4,5 as standard

## SURFACE TREATMENT

- All external parts of the cartridge as well the solenoid 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 M18 x 1,5 |
| Mounting position | Any, preferably horizontal |
| Tightening torque | $M_D$ = 40 Nm Screw-in cartridge<br>$M_D$ = 1,2 Nm solenoid screws |