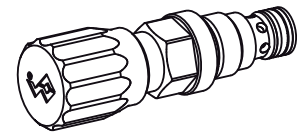


**Pressure relief valve  
Screw-in cartridge**

- Pilot operated
- $Q_{max} = 25$  l/min
- $p_{max} = 400$  bar
- $p_{Nmax} = 350$  bar

**M18x1,5**  
 ISO 7789

**DESCRIPTION**

Pilot operated pressure relief valve as screw-in cartridge with a thread M18x1,5 and cavity according to ISO draft 7789. The valve is available in 2 different setting versions: Key setting "S" and turning knob setting "D". Key adjustment "S" is also available with cover, see data sheet 2.0-50. Three standard pressure levels are available: 63, 160 and 350 bar. The cartridge body made of steel is galvanized and therefore rust-protected.

**FUNCTION**

When the set operating pressure is reached, the main spool opens and connects the protected line with the return line to the tank. These pressure relief valves consist of a main-and a pilot operation system integrated into the cartridge. The pilot operation is a direct operated pressure relief valve which acts on the main system. The helical spring of the pilot operation can be easily set to the desired operating pressure. Pilot operated pressure relief valves can be very sensitively adjusted and are suitable for large oil flows and high pressure. The very limited play of the hardened spool results in a limited oil leakage.

**APPLICATION**

For limiting the operating pressure in hydraulic systems by releasing the oil from the protected oil line P (1) to the outlet/tank return line T (2). The screw-in cartridge is very suitable for mounting in control blocks and is built into the Wandfluh miniature hydraulics NG3 and NG4 as a functional element in sandwich style plates (vertical combination) and flange-mounted valves (please refer to the separate data sheets in register 2.1). Stepped tools are available for making the receptacle bores in steel and aluminium (Hire or purchase). Please refer to the data sheets in register 2.13.

**Attention:** Should therefore not be utilized anymore in applications with periodically changing direction of flow.

**CONTENT**

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**TYPE CODE**

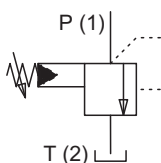
|                                  |                 |                          |                          |                         |                          |   |                          |
|----------------------------------|-----------------|--------------------------|--------------------------|-------------------------|--------------------------|---|--------------------------|
| Pressure relief valve            | B               | V                        | <input type="checkbox"/> | PM18 -                  | <input type="checkbox"/> | # | <input type="checkbox"/> |
| Pilot operated                   |                 |                          |                          |                         |                          |   |                          |
| Types of adjustment:             | Key             | <input type="checkbox"/> | S                        |                         |                          |   |                          |
|                                  | Control knob    | <input type="checkbox"/> | D                        |                         |                          |   |                          |
|                                  | Cover           | <input type="checkbox"/> | A                        | (see data sheet 2.0-50) |                          |   |                          |
| Screw-in cartridge M18x1,5       |                 |                          |                          |                         |                          |   |                          |
| Pressure range:                  | $p_N = 63$ bar  | <input type="checkbox"/> | 63                       |                         |                          |   |                          |
|                                  | $p_N = 160$ bar | <input type="checkbox"/> | 160                      |                         |                          |   |                          |
|                                  | $p_N = 350$ bar | <input type="checkbox"/> | 350                      |                         |                          |   |                          |
| Design-Index (Subject to change) |                 |                          |                          |                         |                          |   |                          |

**GENERAL CHARACTERISTICS**

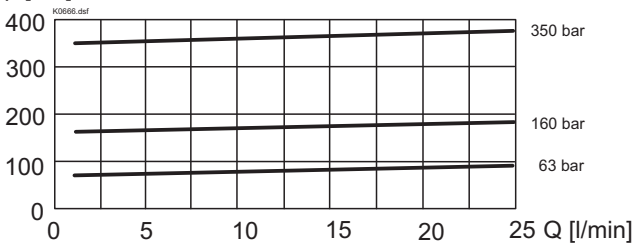
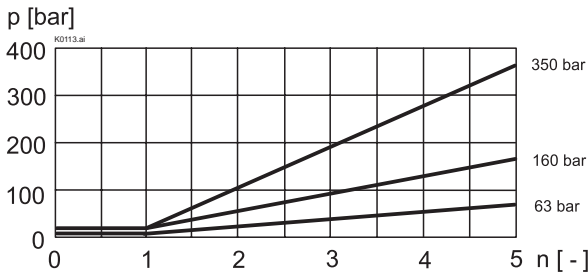
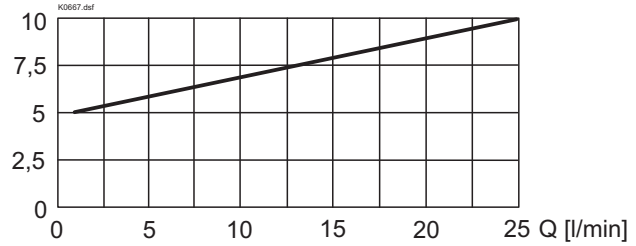
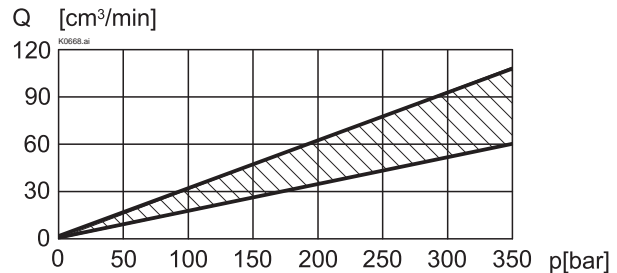
|                     |   |
|---------------------|---|
| Description         | Pilot operated pressure relief valve                |
| Construction        | Screw-cartridge for cavity acc. to ISO 7789         |
| Mounting            | Screw thread M18x1,5                                |
| Ambient temperature | -20...+50°C   |
| Mounting position   | any   |
| Fastening           | $M_D = 30$ Nm                                       |
| Weight              | $m = 0,10$ kg (key)<br>$m = 0,11$ kg (control knob) |

**HYDRAULIC CHARACTERISTICS**

|                          |  |
|--------------------------|--|
| Hydraulic fluid          | Mineral oils, other fluids on request  |
| Contamination efficiency | ISO 4406:1999, class 18/16/13<br>(Required filtration grade $\beta_{6...10} \geq 75$ )<br>refer to data sheet 1.0-50/2 |
| Viscosity range          | 12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s   |
| Fluid temperature        | -20 ...+70°C   |
| Peak pressure            | $p_{max} = 400$ bar<br>$p_{Tmax} = p_p + 80$ bar   |
| Nominal pressure range   | $p_N = 63$ bar, $p_N = 160$ bar, $p_N = 350$ bar   |
| Minimum pressure         | see characteristics  |
| Volume flow              | $Q = 0,1...25$ l/min   |
| Leakage volume flow      | see characteristics  |

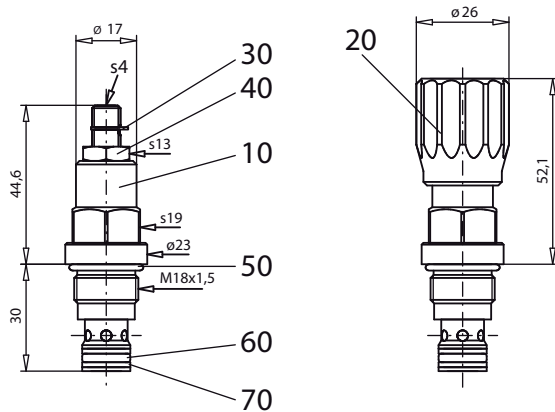
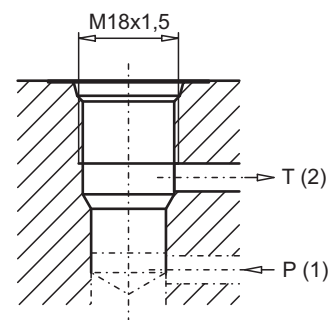
**SYMBOL**

**MECHANICAL ACTUATION**

|  |  |
|--|--|
| Mechanical types of operation in 2 different versions: |  |
| S  | = Screw adjustment<br>with fork wrench and Allen key |
| D  | = Control knob                                       |
| Actuation stroke $S_b$                                 | = 5 mm   |
| Actuation angle $\alpha_b$                             | = 180° (5 revolutions)                               |

**CHARACTERISTICS** Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 
 $p = f(Q)$  Pressure volume flow characteristics  
 (Maximal adjustable pressure)

 $p = f(n)$  Pressure adjustment characteristics  
 (at  $Q = 5 \text{ l/min}$ )

 $p = f(Q)$  Pressure volume flow characteristics  
 (Minimal adjustable pressure)

 $Q_L = f(p)$  Leakage volume flow characteristics  
 [P (1) → T (2)]

**DIMENSIONS**

Screw adjustment "S"

Knob adjustment "D"


 Cavity drawing to  
 ISO 7789-18-02-0-98

 Detailed cavity drawing and cavity  
 tools see data sheet 2.13-1001.

**PARTS LIST**

| Position | Article                          | Description   |
|----------|----------------------------------|---|
| 10       | 592.1100<br>592.1101<br>592.1102 | BV.PM18- 63 pre-mounted<br>BV.PM18-160 pre-mounted<br>BV.PM18-350 pre-mounted |
| 20       | 114.2224                         | Knob  |
| 30       | 193.1061                         | Safety plate RD6 DIN 6799   |
| 40       | 153.1402                         | Hexagonal nut 0,5D M8x1   |
| 50       | 160.2156                         | O-ring ID 15,6x1,78   |
| 60       | 160.2093                         | O-ring ID 9,25x1,78   |
| 70       | 49.3137                          | Back-up ring RD 10,6x13,5x1,4   |

**ACCESSORIES**

Cartridge built into flange- or sandwichbody:

 Flange valve  
 Sandwich valve

 register 2.1  
 register 2.1

Technical explanation see data sheet 1.0-100E