

## Pressure relief cartridge

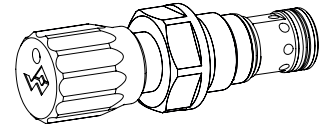
### Seat tight

- ◆ pilot operated
- ◆  $p_{max} = 450 \text{ bar}$
- ◆  $p_{Nmax} = 420 \text{ bar}$
- ◆  $Q_{max} = 100 \text{ l/min}$

### DESCRIPTION

Pilot operated pressure relief valve in screw-in cartridge construction for cavity according to ISO 7789. High flow capacity, very sensitively adjustable. If the pressure in P (1) exceeds the adjusted value of the valve, the excessive pressure is drained to T (2). The back pressure at T (2) is added to the adjusted value. T (2) can be charged up to the maximum. Hardened precision parts ensure virtually leakage-free closing. Rapid switching with low hysteresis and excellent stability over the whole flow range.

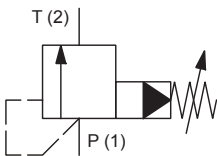
**M22 x 1,5**  
**ISO 7789**



### APPLICATION

These valves are used for limiting the operating pressure in the hydraulic system or for protection against pressure peaks. Can be used in double pressure relief switches. 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	Adjustment spindle M8 x 1
Execution	S = blockable key adjustment D = blockable knob adjustment Optionally: K = lockable adjustment G = star handle adjustment → see Data sheet 2.0-50
Actuation angle	$\alpha_b = 1800^\circ$ (5 rotations)
Actuation stroke	$S_b = 5 \text{ mm}$

### TYPE CODE

Pressure relief valve				B	C	<input type="checkbox"/>	PM22	-	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Pilot operated, seat tight													
Type of adjustment	Key	<input type="checkbox"/>	S										
	Control knob	<input type="checkbox"/>	D										
	Cover	<input type="checkbox"/>	A										
Screw-in cartridge M22 x 1,5													
Nominal pressure range $p_N$	63 bar	<input type="checkbox"/>	63										
	160 bar	<input type="checkbox"/>	160										
	350 bar	<input type="checkbox"/>	350										
	420 bar	<input type="checkbox"/>	420										
Sealing material	NBR	<input type="checkbox"/>											
	FKM (Viton)	<input type="checkbox"/>	D1										
Design index (subject to change)													

2.1-538

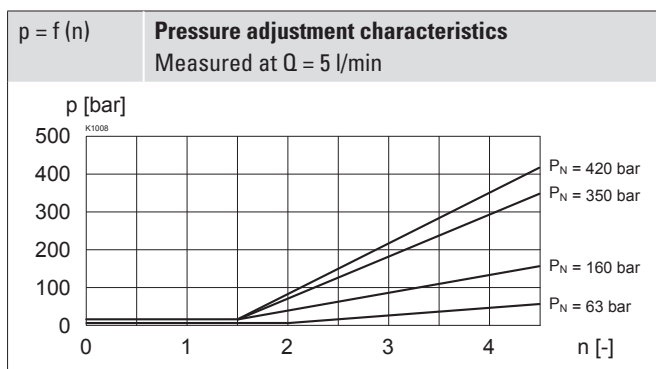
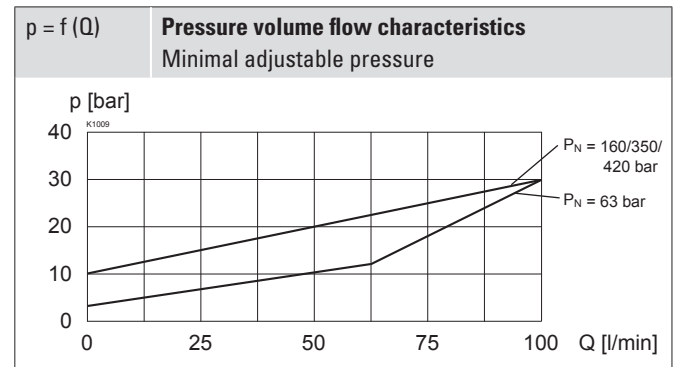
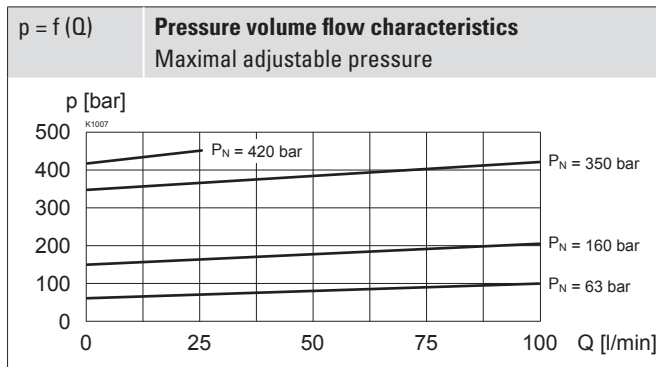
**GENERAL SPECIFICATIONS**

Designation	Pressure relief valve
Construction	Pilot operated, seat tight
Mounting	Screw-in cartridge construction
Nominal size	M22 x 1,5 according to ISO 7789
Actuation	Manually
Ambient temperature	-25...+90 °C
Weight	0,15 kg key adjustment 0,16 kg control knob adjustment 0,21 kg cover
MTTFd	150 years

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 450$ bar
Tank pressure	$p_{Tmax} = 450$ bar
Nominal pressure range	$p_N = 63; 160; 350; 420$ bar
Minimum pressure	See characteristics
Volume flow range	$Q = 0,2...100$ l/min
Leakage oil	Seat tight, max. 0,15 ml / min (approx. 3 drops / min) at 30 cSt
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Temperature range fluid	-25...+90 °C (NBR) -20...+90 °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  $\nu = 30$  mm<sup>2</sup>/s

**SEALING MATERIAL**

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

**SURFACE TREATMENT**

- ◆ The cartridge body is zinc-nickel coated
- ◆ The control knob is made of plastic

**STANDARDS**

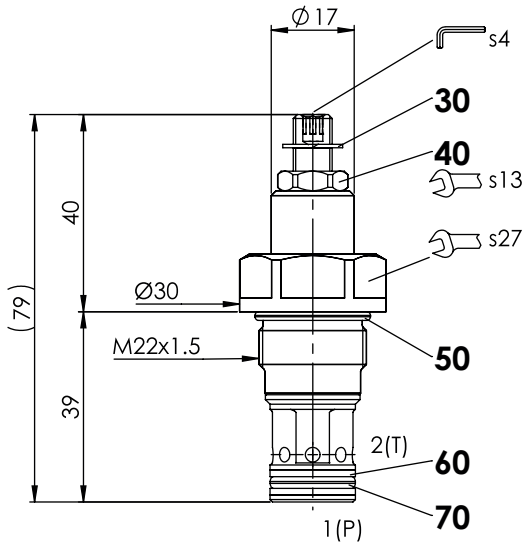
Cartridge cavity	ISO 7789
Contamination efficiency	ISO 4406

**INSTALLATION NOTES**

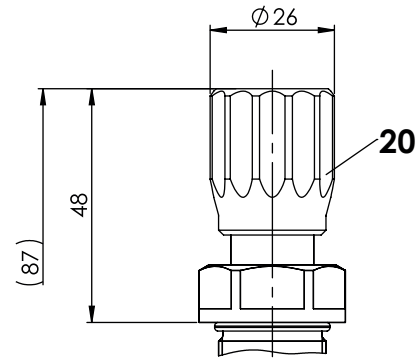
Mounting type	Screw-in cartridge M22 x 1,5
Mounting position	Any, preferably horizontal
Tightening torque	$M_D = 60$ Nm Screw-in cartridge

**DIMENSIONS**

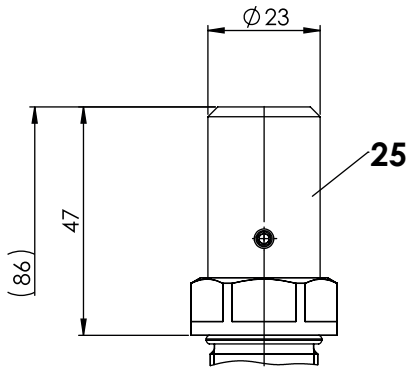
Key adjustment «S»



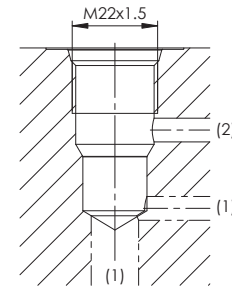
Control knob adjustment «D»



Cover «A»


**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

**ACCESSORIES**

Types of adjustment for screw-in cartridges	Data sheet 2.0-50
Flange body / sandwich plate NG4-Mini	Data sheet 2.1-620
Flange body / sandwich plate NG6	Data sheet 2.1-640
Flange body / sandwich plate NG10	Data sheet 2.1-660
Threaded body	Data sheet 2.9-200
Technical explanations	Data sheet 1.0-100
Hydraulic fluids	Data sheet 1.0-50
Filtration	Data sheet 1.0-50

**PARTS LIST**

Position	Article	Description
20	114.2224	Control knob
25	032.0611	Cover rd 23 / 3 x 35
30	193.1061	Retainer rd 6 DIN 6799
40	153.1402	Hexagon nut 0,5d M8 x 1
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