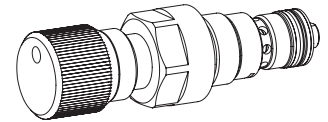


**Pressure relief cartridge stainless**

- ◆ direct operated
- ◆  $p_{max} = 400 \text{ bar}$
- ◆  $p_{Nmax} = 315 \text{ bar}$
- ◆  $Q_{max} = 25 \text{ l/min}$

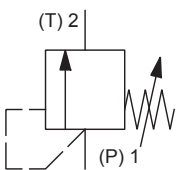
**M22 x 1,5**  
**ISO 7789**

**DESCRIPTION**

Direct operated poppet type pressure relief valve in screw-in cartridge construction for cavity according to ISO 7789. The valve is closed in the neutral position. 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. Hardened precision parts ensure virtually leakage-free closing. The hydraulically damped poppet spool provides excellent stability over the entire flow range. The stainless execution is especially suitable for the use in wet and salty environment.

**APPLICATION**

These valves are used for limiting the operating pressure in the hydraulic system. 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.

**Attention!** Not to be used in applications with periodically changing flow direction.


**SYMBOL**

**ACTUATION**

Actuation	Adjustment spindle M8 x 1
Execution	S = blockable key adjustment D = blockable knob adjustment Optionally: G = star handle adjustment
Actuation angle	$\alpha_b = 1800^\circ$ (5 rotations) $\alpha_b = 1400^\circ$ $p_N = 210 \text{ bar}$
Actuation stroke	$S_b = 5 \text{ mm}$ $S_b = 4 \text{ mm}$ $p_N = 210 \text{ bar}$

**TYPE CODE**

Pressure relief valve			B A	<input type="checkbox"/>	PM22 -	<input type="checkbox"/>	-	<input type="checkbox"/>	K9 #	<input type="checkbox"/>
Directly operated, poppet spool										
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							
	210 bar	<input type="checkbox"/>	210							
	315 bar	<input type="checkbox"/>	315							
Sealing material	NBR	<input type="checkbox"/>								
	FKM (Viton)	<input type="checkbox"/>	D1							
	NBR 872	<input type="checkbox"/>	Z604							
Stainless										
Design index (subject to change)										

2.1-540S

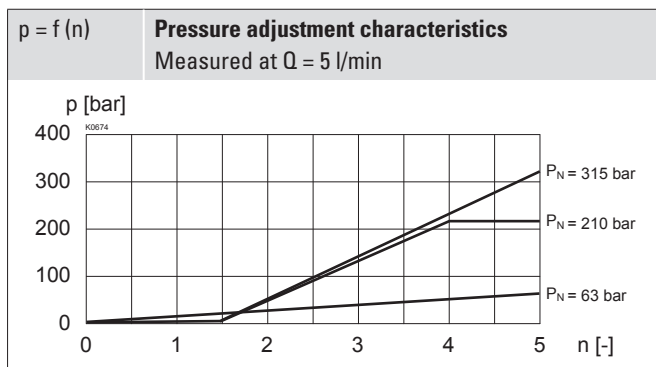
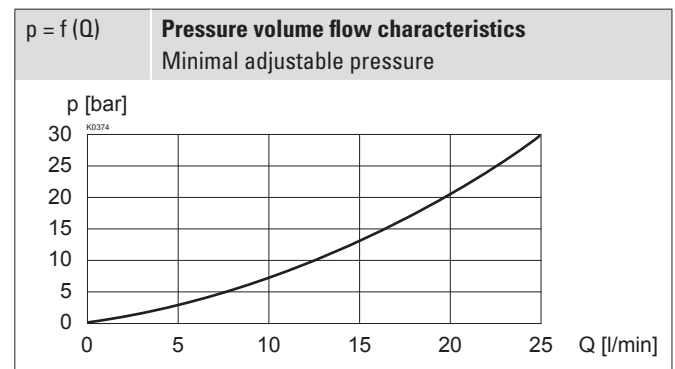
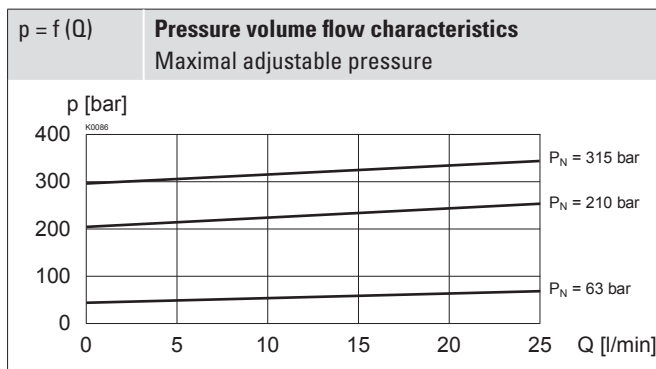
**GENERAL SPECIFICATIONS**

Designation	Pressure relief valve
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	M22 x 1,5 according to ISO 7789
Actuation	Manually
Ambient temperature	-25...+90 °C
Weight	0,19 kg key adjustment 0,20 kg control knob adjustment 0,25 kg cover
MTTFd	150 years

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 400$ bar
Tank pressure	$p_{Tmax} = p_p + 20$ bar
Nominal pressure range	$p_N = 63; 210; 315$ bar
Minimum pressure	See characteristics
Volume flow range	$Q = 0,1 \dots 25$ l/min
Leakage oil	Poppet type, max. 4 drops / min at $p_{max}$
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 $\beta_{6 \dots 10} \geq 75$ , 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 and the control knob are made of stainless steel

**STANDARDS**

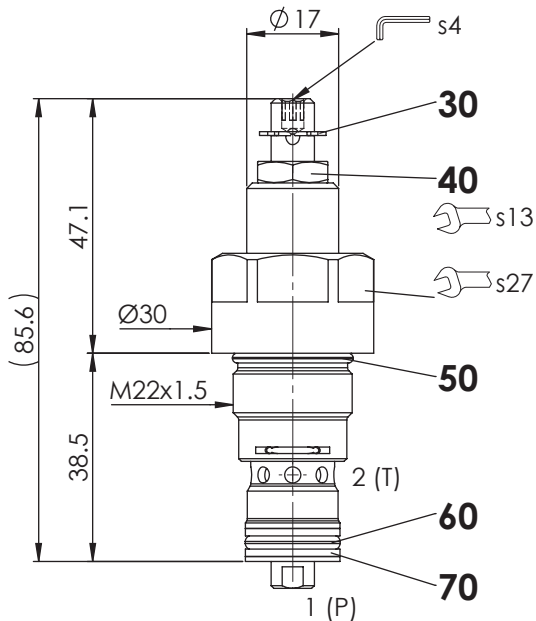
Cartridge cavity	ISO 7789
Contamination efficiency	ISO 4406

**INSTALLATION NOTES**

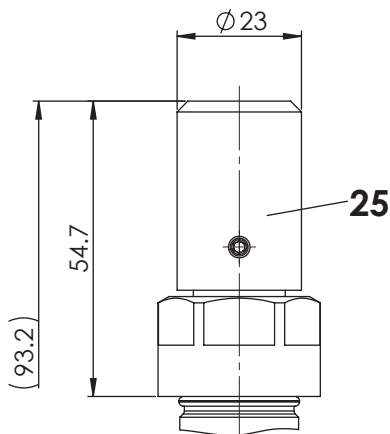
Mounting type	Screw-in cartridge M22 x 1,5
Mounting position	Any
Tightening torque	$M_D = 60$ Nm Screw-in cartridge

**DIMENSIONS**

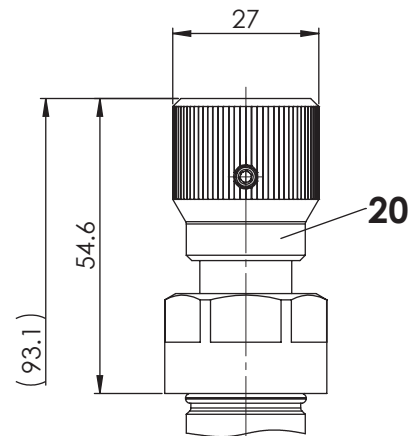
Key adjustment „S”



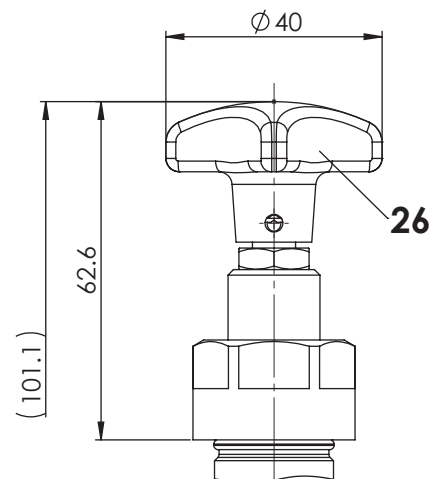
Cover „A”



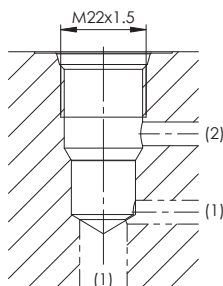
Control knob adjustment „D”



Star handle „G”


**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

Technical explanations

Data sheet 1.0-100

Filtration

Data sheet 1.0-50

**PARTS LIST**

Position	Article	Description
20	114.2228	Control knob K9
25	032.0616	Cover rd 23 / 3 x 35 K9
26	082.2004	Star handle rd 40 x 26
30	193.1062	Retainer rd 6 DIN 6799
40	154.7407	Hexagon nut M8 x 1 x 4
45	212.1486	Washer (only for $p_N = 210$ bar)
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

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