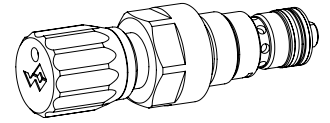


### Pressure relief cartridge

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

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



### DESCRIPTION

Direct operated poppet type pressure relief valve as screw-in cartridge 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). Changing back pressure at T (2) influences the adjusted value. Hardened precision parts ensure virtually leakage-free closing. The hydraulically damped poppet spool provides excellent stability over the entire flow range.

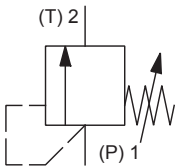
### APPLICATION

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	S = lockable key adjustment D = Lockable knob adjustment
Execution	Adjustment spindle M8 x 1
Actuation angle	$\alpha_b = 1800^\circ$ (5 rotations) $\alpha_b = 1400^\circ$ $p_N = 210$ bar
Actuation stroke	$S_b = 5$ mm $S_b = 4$ mm $p_N = 210$ bar

### TYPE CODE

Pressure relief valve	B A		<input type="checkbox"/>	PM22 -	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<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	315 bar	<input type="checkbox"/>	315			
	210 bar	<input type="checkbox"/>	210	350 bar	<input type="checkbox"/>	350			
Sealing material	NBR	<input type="checkbox"/>							
	FKM (Viton)	<input type="checkbox"/>	D1						
	NBR 872	<input type="checkbox"/>	Z604						
Design index (subject to change)									

2.1-540

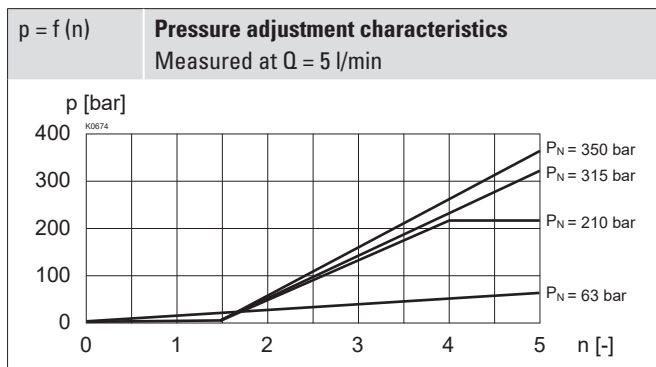
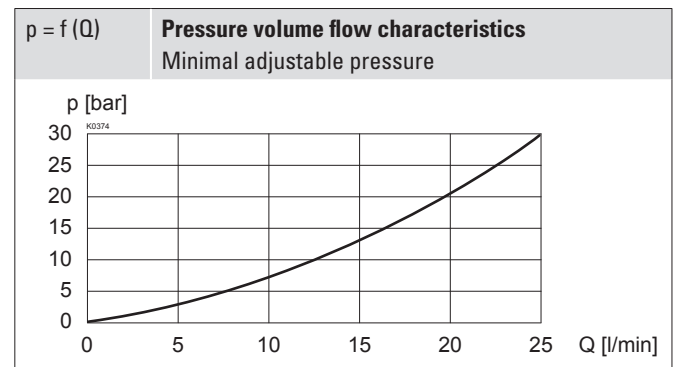
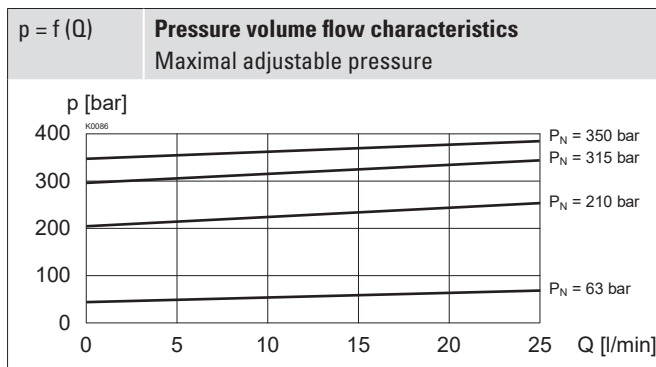
**GENERAL SPECIFICATIONS**

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	$p_{T\max} = p(1) + 20$ bar (valve closed)
Nominal pressure range	$p_N = 63; 210; 315; 350$ 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 is zinc-nickel coated
- ◆ The control knob is made of plastic

**STANDARDS**

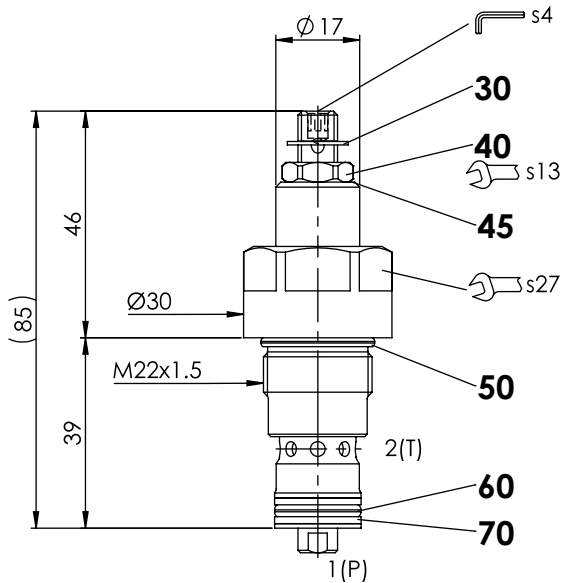
Cartridge cavity	ISO 7789
Contamination efficiency	ISO 4406

**INSTALLATION NOTES**

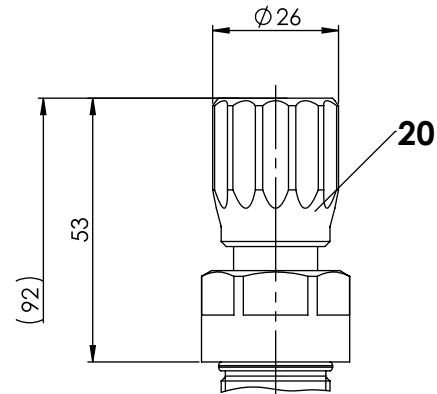
Mounting type	Screw-in cartridge M22 x 1,5
Mounting position	Any
Tightening torque	$M_D = 60$ Nm Screw-in cartridge

**DIMENSIONS**

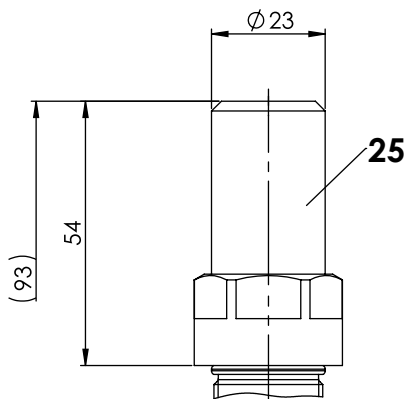
Key adjustment «S»



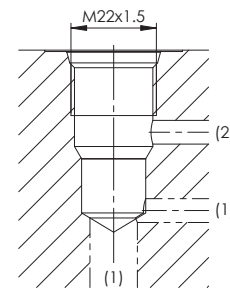
Control knob adjustment «D»



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**
**Pressure relief valve**

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

**Back pressure valve**

Sandwich plate NG4-Mini Data sheet 2.1-720

Sandwich plate NG6 Data sheet 2.1-740

Sandwich plate NG10 Data sheet 2.1-760

Types of adjustment for screw-in cartridges Data sheet 2.0-50

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
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