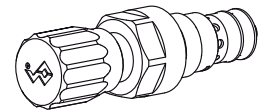


**Pressure relief valve  
Screw-in cartridge**

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

**M22x1,5**  
 ISO 7789

**DESCRIPTION**

Direct operated pressure relief valve as screw-in cartridge with a thread M22x1,5 and cavity according to ISO draft 7789. The valve is available in two 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, 210 and 315 bar. The cartridge body made of steel is galvanized and therefore rust-protected.

**FUNCTION**

When the set operating pressure is reached, the poppet spool opens and connects the protected line with the return line to the tank. By means of the adjusting mechanism, the poppet spool is pressed onto a seat which is screwed into the lower cartridge opening by a helical spring. The poppet spool is opened and closed hydraulically damped. This makes the operation of this cartridge very stable. Thanks to the poppet/spool principle and the direct operation, these pressure relief valves are rapid acting and free of leakage oil. The reduced diameter of the seat produces a higher pressure drop and a lower flow throughput performance than pilot operated valves of the same size.

**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 NG4, NG6 and NG10 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**

GENERAL SPECIFICATIONS.....	1
HYDRAULIC SPECIFICATIONS.....	1
SYMBOL.....	1
MECHANICAL ACTUATION.....	1
CHARACTERISTICS.....	2
DIMENSIONS.....	2
PARTS LIST.....	2
ACCESSORIES.....	2

**TYPE CODE**

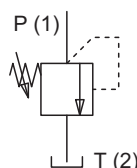
Pressure relief valve	B	A	<input type="checkbox"/>	PM22 -	<input type="checkbox"/>	#	<input type="checkbox"/>
Direct operated, poppet spool							
Types of adjustment: Key	S						
Control knob	D						
Cover	A (see data sheet 2.0-50)						
Screw-in cartridge M22x1,5							
Pressure range:	$p_N = 63 \text{ bar}$	<input type="checkbox"/>	63				
	$p_N = 210 \text{ bar}$	<input type="checkbox"/>	210				
	$p_N = 315 \text{ bar}$	<input type="checkbox"/>	315				
Design-Index (Subject to change)							

**GENERAL CHARACTERISTICS**

Description	Direct operated pressure relief valve
Construction	Screw-cartridge for cavity acc. to ISO 7789
Mounting	Screw thread M22x1,5
Ambient temperature	-20...+50°C
Mounting position	any
Fastening	$M_D = 50 \text{ Nm}$
Weight	$m = 0,19 \text{ kg}$ (key) $m = 0,20 \text{ kg}$ (control knob)

**HYDRAULIC CHARACTERISTICS**

Hydraulic fluid	Mineral oils, other fluids on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$ ) 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	$p_{max} = 400 \text{ bar}$ $p_{Tmax} = p_p + 20 \text{ bar}$
Nominal pressure range	$p_N = 63 \text{ bar}$ , $p_N = 210 \text{ bar}$ , $p_N = 315 \text{ bar}$
Minimum pressure	see characteristics
Volume flow	$Q = 0,1...25 \text{ l/min}$
Leakage volume flow	Maximum 4 drops/min (up to 80% of the adjusted pressure)

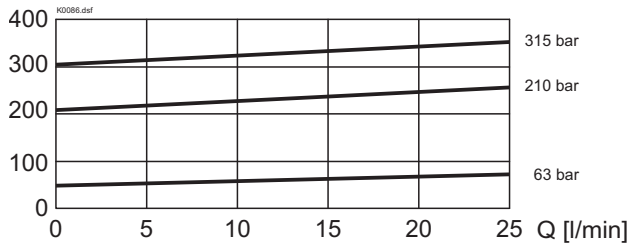
**SYMBOL**

**MECHANICAL ACTUATION**

Mechanical types of operation in 3 different versions:

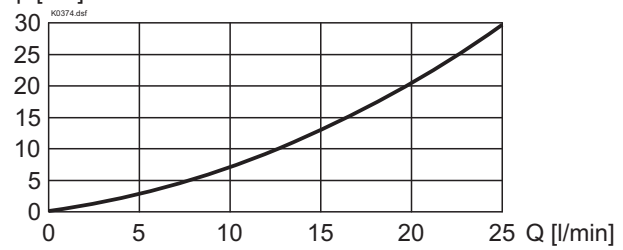
- |                            |  |
|----------------------------|--|
| S                          | = Key adjustment by means of Span key and Allen key                        |
| D                          | = Control knob adjustment  |
| Actuation stroke $S_b$     | = 5 mm   |
| Actuation angle $\alpha_b$ | = 180° (5 revolutions)<br>at $p_N = 210 \text{ bar}$ 1400° (4 revolutions) |

**CHARACTERISTICS** Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 

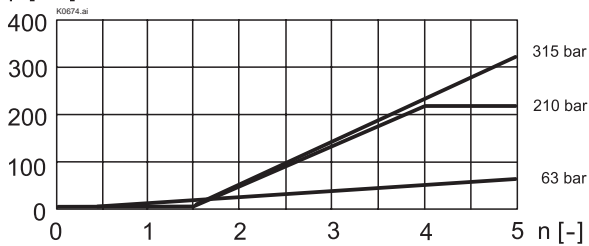
$p = f(Q)$  Pressure volume flow characteristics  
 (Maximal adjustable pressure)



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

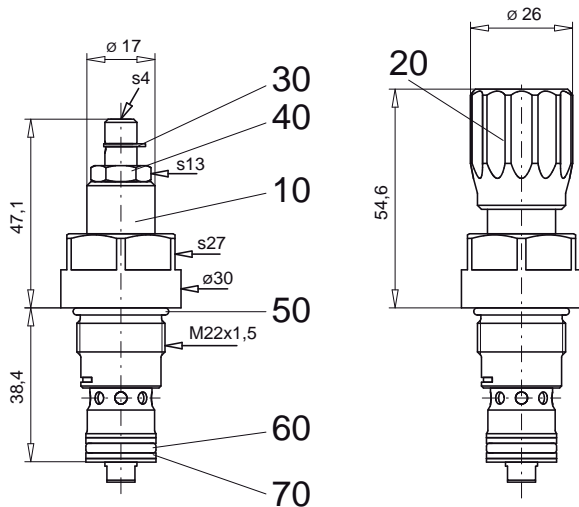
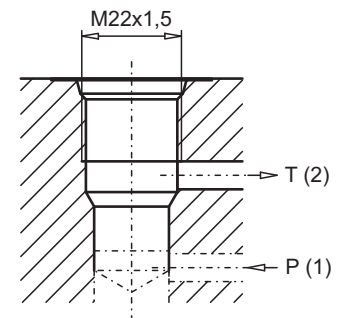


$p = f(n)$  Pressure adjustment characteristics  
 (at  $Q = 5 \text{ l/min}$ )


**DIMENSIONS**

Screw adjustment "S"

Knob adjustment "D"


 Cavity drawing to  
 ISO 7789-22-02-0-98


Detailed cavity drawing and cavity tools see data sheet 2.13-1003.

**PARTS LIST**

Position	Article	Description
10	592.4303	BA.PM22-63 pre-mounted
	592.4304	BA.PM22-210/350 pre-mounted
20	114.2224	Knob
30	193.1061	Safety plate RD6 DIN 6799
40	153.1402	Hexagonal nut 0,5D M8x1
50	212.1486	Plate (only for $p_N = 210 \text{ bar}$ )
60	160.2188	O-ring ID 18,77x1,78
70	160.2140	O-ring ID 14,00x1,78
80	049.3177	Back-up ring RD 14,6x17,5x1,4

**ACCESSORIES**

Cartridge built into flange- or sandwichbody:

Flange valve

register 2.1

Sandwich valve

register 2.1

Technical explanation see data sheet 1.0-100E