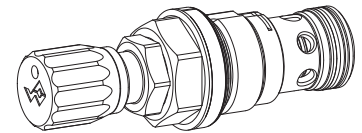


**Pressure relief valve
Screw-in cartridge**

- Pilot operated
- $Q_{max} = 230$ l/min
- $p_{max} = 400$ bar
- $p_{Nmax} = 350$ bar

M33x2
 ISO 7789

DESCRIPTION

Pilot operated pressure relief valve as screw-in cartridge with a thread M33x2 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. 2 standard pressure levels are available: 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. Cavity tools are available for hire or sale for machining aluminium or steel. See register 2.13.

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

TYPE CODE

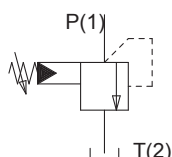
Pressure relief valve				B	V	<input type="checkbox"/>	PM33	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Pilot operated											
Type of adjustment	Key	<input type="checkbox"/>	S								
	Control knob	<input type="checkbox"/>	D								
	Cover	<input type="checkbox"/>	A	(see data sheet 2.0-50)							
Screw-in cartridge M33x2											
Pressure range p_N	160 bar	<input type="checkbox"/>	160								
	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 M33x2
Ambient temperature	-25...+50°C
Mounting position	any
Fastening	$M_d = 80$ Nm
Weight	$m = 0,32$ kg
MTTFd	150 years

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 ² /s...320 mm ² /s
Fluid temperature	-25...+70°C
Peak pressure	$p_{max} = 400$ bar $p_{Tmax} = p_p + 20$ bar
Nominal pressure range	$p_N = 160$ bar, $p_N = 350$ bar
Minimum pressure	see characteristics
Volume flow	$Q = 0,2...230$ l/min
Leakage volume flow	see characteristics

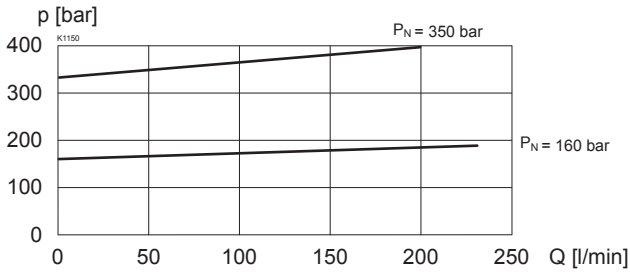
SYMBOL

MECHANICAL ACTUATION

Mechanical types of operation in 2 different versions:

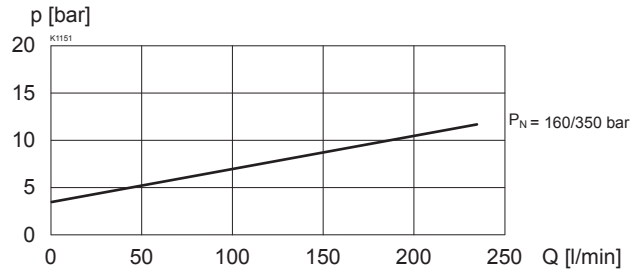
- S = Key adjustment by means of Span key and Allen key
- D = Control knob adjustment, fixed
- Actuation stroke $S_b = 5$ mm
- Actuation angle $\alpha_b = 180^\circ$ (5 revolutions)

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

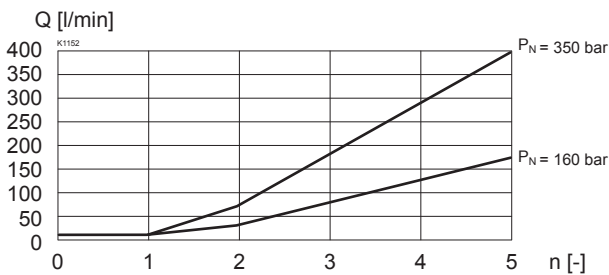
$p = f(Q)$ Pressure volume flow characteristics
(Maximal adjustable pressure)



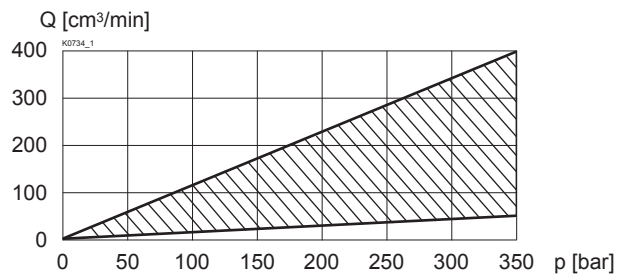
$p = f(Q)$ Pressure volume flow characteristics
(Minimal adjustable pressure)



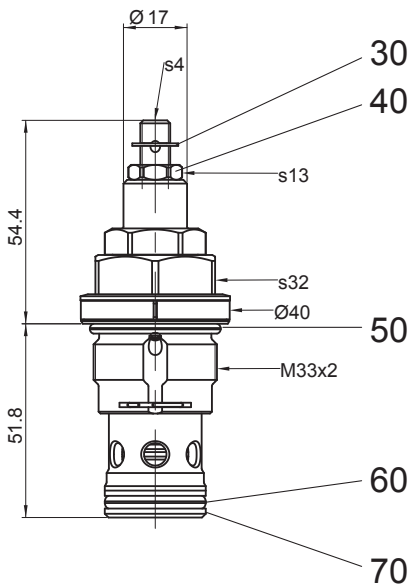
$p = f(n)$ Pressure adjustment characteristics
(at $Q = 30 \text{ l/min}$)



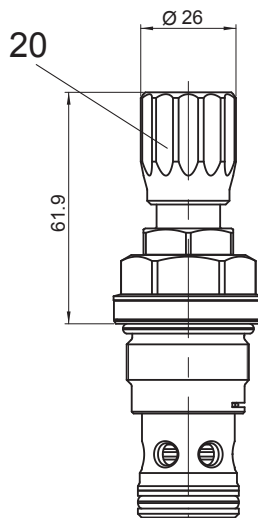
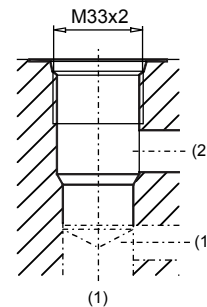
$Q_L = f(p)$ Leakage volume flow characteristics
[P (1) → T (2)]


DIMENSIONS

Screw adjustment "S"



Knob adjustment "D"


 Cavity drawing to
ISO 7789-33-02-0


Detailed cavity drawing and cavity tools see data sheet 2.13-1041.

PARTS LIST

Position	Article	Discription
20	114.2224	Knob
30	193.1061	Safety plate RD6 DIN 6799
40	153.1402	Hexagonal nut 0,5D M8x1
50	160.2298 160.6296	O-ring ID 29,82x2,62 (NBR) O-ring ID 29,82x2,62 (FKM)
60	160.2219 160.6216	O-ring ID 21,89x2,62 (NBR) O-ring ID 21,89x2,62 (FKM)
70	049.3277	Back-up ring RD 22,5x27 x 1,4

ACCESSORIES

Line mount body

Data sheet 2.9-200

Technical explanation see data sheet 1.0-100