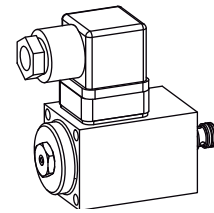


**Proportional pressure control valve  
 Slip-in cartridge construction**

- Direct-operated
- $Q_{max} = 3 \text{ l/min}$
- $p_{max} = 450 \text{ bar}$
- $p_{Tmax} = 20 \text{ bar}, p_{N \text{ red } max} = 48 \text{ bar}$


**DESCRIPTION**

Direct-operated proportional pressure control cartridge for cavity MDPPR11 PI35. Due to the very compact installation dimensions, new application possibilities are offered. As standard versions, two pressure ranges are available. The adjustment is done by means of a Wandfluh proportional solenoid (VDE-Standard 0580). The solenoid as well as the housing bottom made of steel are zinc coated and therefore rust-protected.

**FUNCTION**

The proportional pressure control valve controls the pressure in the connection A (1). Solenoid power and the pressure in the connection A (1) increase proportionally to the solenoid current. The valve operates to a great extent independent of the pressure in the connection P (2). The increase of the pressure in the connection A (1) to over the set value, e.g. by an active consumer, is prevented by diverting excess oil to the tank T (3). The back pressure in T influences the pressure in A (1). With a current-free solenoid, the oil freely flows from the consumer connection A to the connection T. For driving the valve, Wandfluh proportional amplifiers are available (see Register 1.13).

**APPLICATION**

The compact valve has its application in hydraulic systems, in which the pressure frequently has to be varied. The facility of electric remote control of the valve, in conjunction with process control systems, makes economical solutions with repetitive sequences possible. Application fields are the pilot-operation of proportional spool valves, the driving of control pumps and motors as well as the controlling of the contact pressure of disc brake coatings. With the compact valve a minimum control oil volume is achieved.

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**TYPE CODE**

	M	D	P	PR11	-		-		#	
Pressure reducing valve										
Direct operated										
Proportional										
Slip-in cartridge diameter 11 mm										
Standard nominal pressure range $p_{N \text{ red}}$ = 25 bar								25		
$p_{N \text{ red}}$ = 48 bar								48		
Standard nominal voltage $U_N$ = 12 VDC								G12		
$U_N$ = 24 VDC								G24		
Design-Index (Subject to change)										

**GENERAL SPECIFICATIONS**

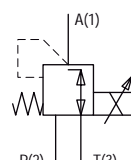
Denomination	Direct operated proportional pressure reducing valve
Construction	Slip-in cartridge for cavity acc. to Wandfluh-standard
Actuation	Proportional solenoid
Mounting	min. 2 head screws crosswise M4x60
Ambient temperature	-20...50 °C
Mounting position	any
Fastening torque	$M_D = 2,8 \text{ Nm}$ (quality 8.8)
Weight	$m = 0,45 \text{ kg}$

**HYDRAULIC SPECIFICATIONS**

Fluid	Mineral oil, other fluid 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)
Oil temperature	Acrylnitril -25...+70 °C
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Maximum pressure	$p_{max} = 450 \text{ bar}$ (final testing at WAG up to 350 bar)
Minimum pressure in T (3)	$p_{Tmax} = 20 \text{ bar}$
Nominal pressure range	$p_{N \text{ red}} = 25 \text{ bar}, p_{N \text{ red}} = 48 \text{ bar}$
Volume flow range	25 bar $Q = 0-1 \text{ l/min}$ $p \rightarrow A$ $A \rightarrow T$ 48 bar $Q = 0-3 \text{ l/min}$
Pressure decrease 1 → 3	$\Delta p_{red \text{ min.}} <$ lower than nominal pressure at nominal volume flow
Leakage volume flow	see characteristics
Hysteresis	≤ 4% (at optimal dither signal)

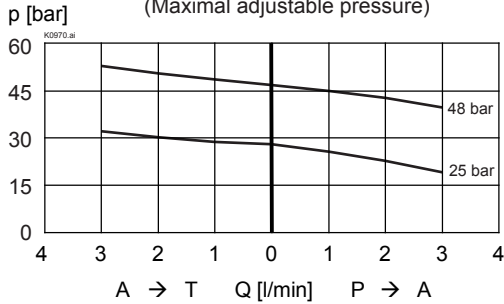
**ELECTRICAL SPECIFICATIONS**

Construction	Proportional solenoid, wet pin push type, pressure tight	
Standard nominal voltage	$U = 12 \text{ VDC}$	$U = 24 \text{ VDC}$
Limiting current	$I_G = 1250 \text{ mA}$	$I_G = 680 \text{ mA}$
Relative duty factor	100% ED/DF	
Protection class	IP 65 acc. to EN 60 529	
Connection/Power supply	Over device plug connection to EN 175301-803 (DIN 43650) ISO 4400	

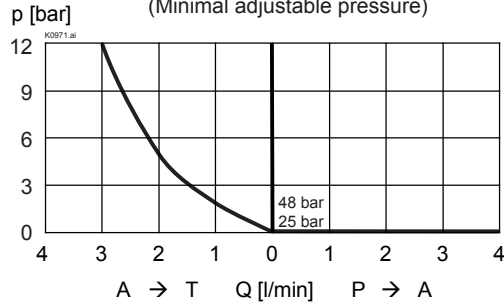
**SYMBOL**


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

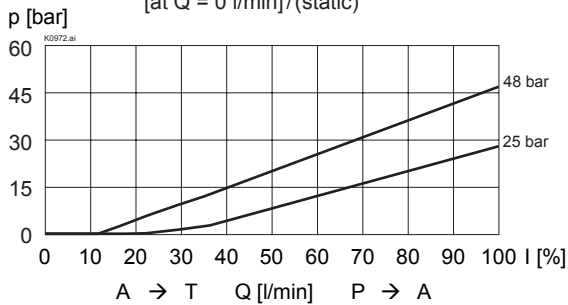
$p_{\text{red}} = f(Q)$  Pressure volume flow characteristics  
(Maximal adjustable pressure)



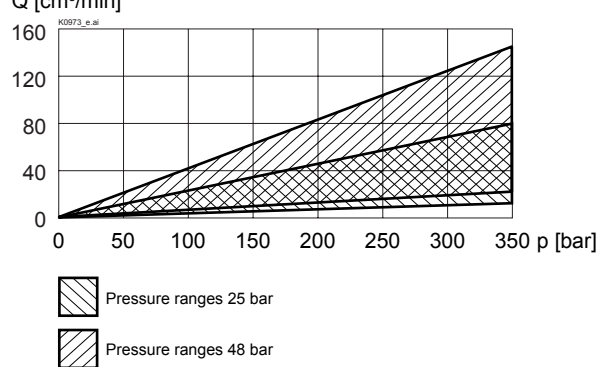
$p_{\text{red}} = f(Q)$  Pressure volume flow characteristics  
(Minimal adjustable pressure)



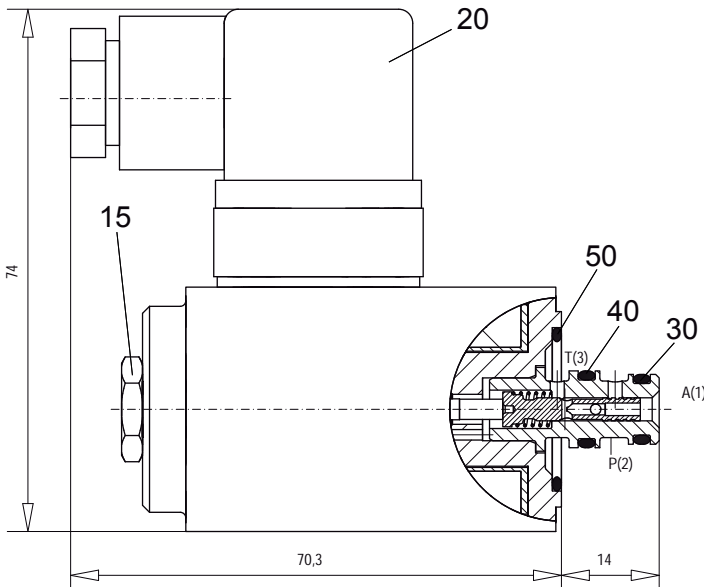
$p_{\text{red}} = f(I)$  Pressure adjustment characteristics  
[at  $Q = 0 \text{ l/min}$ ] / (static)



$Q_{\text{st+L}} = f(p_{\text{red}})$  Pilot- and leakage volume flow characteristic  
[P (2) → T (3)]



**DIMENSIONS/SECTIONAL DRAWINGS**



**PARTS LIST**

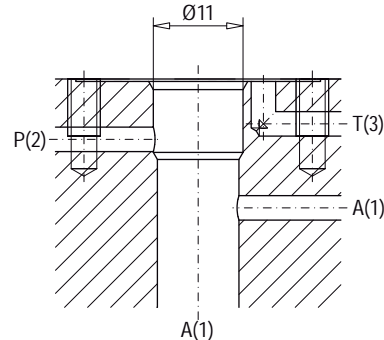
Position	Article	Description
15	253.8000	Mounted screw with integrated manual override HB 4,5
20	219.2002	Plug (black)
30	160.0060	O-ring ID 6,07 x 1,78
40	160.0071	O-ring ID 7,65 x 1,78
50	160.2204	O-ring ID 20,35 x 1,78

**ACCESSORIES**

Proportional amplifier register 1.13

Technical explanation see data sheet 1.0-100

Cavity drawing acc. to Wandfluh standard



For detailed cavity drawing see data sheet 2.13-1044