

Proportional throttle valves

Proportional throttle valve Screw-in cartridge

• Direct operated, not pressure compensated

- Throttle in one flow direction
- Q_{max} = 32 l/min, p_{max} = 350 bar
- Q_{N max} = 25 l/min

DESCRIPTION

Direct operated proportional throttle valve with thread M22x1,5 and cavity in accordance with ISO 7789. Three nominal flow rates are available. The volume flow is adjusted by a Wandfluh proportional solenoid (VDE standard 0580). Progressive increase and decrease of volume flow and reduced hysteresis are characteristics of this valve. The cartridge body is made of steel. Its special surface coating protects the outside against corrosion and reduces friction of the control spool. The solenoid coil is zinc-/nickel-coated.

TYPE CODE

FUNCTION

The force controlled wet pin proportional solenoid acts directly on the control spool which opens, resp., closes the openings on the cartridge body. The throttle opening, and therefore the flow volume, changes proportional you the current absorption of the proportional solenoid. When the solenoid is without current, the control spool is held in the closed position by a spring. To control the valve proportional amplifiers are available from Wandfluh (see register 1.13).

M22x1,5

ISO 7789



APPLICATION

Proportional throttle valves are suitable for precise feed control systems. Very sensitive opening and closing characteristics allow smooth control of movements in stationary or mobile installations, e.g. machine tools, public vehicles. Installation of the screw-in cartridge in control blocks as well as in the Wandfluh sandwich plates (vertical stacked systems) and flange valves of the NG4-Mini and NG6 types. size. (Please note the separate data sheets in register 2.6). Cavity tools are available for machining the cavities in steel and aluminium (hire or purchase). Please refer to the data sheets in register 2.13.

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Throttle valve								
Normally closed								
Proportional				-				
Screw-in cartridge M22x1,5								
Nominal volume flow rates	$Q_{N} = 6,3 \text{ l/min}$ $Q_{N} = 10 \text{ l/min}$ $Q_{N} = 25 \text{ l/min}$	6,3 10 25						
Standard nominal voltage U_{N}	12 VDC 24 VDC without solenoid coil	G12 G24 X5						
Slip-on coil	Metal housing, round Metal housing, square	W M*				_		
Electric connection	Connector socket EN 17 Connector socket AMP Connector Deutsch DT	75301-803 / ISO 440 Junior-Timer 04-2P	0 D J G					
Sealing material	NBR FKM (Viton)	D1					1	
Manual override	Armature tube closed (s With screwed sealing p With manual emergence	standard) lug y actuation	HB0 HB4.5					
Design-Index (Subject to change)								

* Only available in conjunction with other nominal voltages and connection versions. (See data sheet 1.1-173)

SYMBOL

«normally closed»



GENERAL SPECIFICATIONS

Description	Direct operated proportional throttle valve
Construction	Screw-in cavity acc. to ISO 7789
Operation	Proportional solenoid
Mounting	Screw-in thread M22x1,5
Ambient temperature	-2070 °C
Mounting position	any, preferably horizontal
Fastening torque	$M_{D} = 50$ Nm for screw-in cartridge
	$M_{D} = 5$ Nm for knurled nut
Weight	m = 0,57 kg
Volume flow direction	$1 \rightarrow 2$

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ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid type, pressure tight	, wet pin push
Standard nominal voltage	U = 12 VDC	U = 24 VDC
Limiting current	I _G = 1320 mA	I _G = 660 mA
Relative duty factor	100 % ED/DF (see d	ata sheet 1.1-430)
Protection class acc. to EN 60 529	Connection version D: IP 65 J: IP 66 G: IP 67 and 69K	
For further electrical specific	cations see data sheet	1.1-173 (W)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13
-	(Required filtration grade $\beta 610 \ge 75$)
	refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s320 mm ² /s
Fluid temperature	-20+70 °C
Peak pressure	p _{max} = 350 bar
Nominal volume flow rates	Q _N = 6,3 l/min, 10 l/min, 25 l/min
	at 10 bar pressure drop and I_{g}
Max. volume flow	Q _{max} = 32 l/min
Leakage volume flow	on request
Hysteresis	≤ 5%*
	* at optimal dither signal



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









Q = f (p) Volume flow pressure characteristics (I = I_{G})





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7777

and cavity tools see data sheet 2.13-1008

Cavity drawing accorging to

ISO 7789–22–01–0–98 M22x1,5

(1)

For detailed cavity drawing

DIMENSIONS / SECTIONAL DRAWINGS



Dimensions of the other connection versions see data sheet 1.1-173

PARTS LIST

Position	Article	Description
10	206.2201 206.2200	EN 175301 Solenoid coil WD37/19x50-G24 Solenoid coil WD37/19x50-G12
	206.2203 206.2202	Junior-Timer Solenoid coil WJ37/19x50-G24 Solenoid coil WJ37/19x50-G12
	206.2205 206.2204	Deutsch Solenoid coil WG37/19x50-G24 Solenoid coil WG37/19x50-G12
15	253.8000 239.2033	HB 4,5 Manual override (data sheet 1.1-300) HB 0 Plug screw (data sheet 1.1-300)
20	154.2700	Knurled nut
30	160.2187 160.6187	O-ring ID 18,72x2,62 (NBR) O-ring ID 18,72x2,62 (FKM)
40	160.2170 160.6172	O-ring ID 17,17x1,78 (NBR) O-ring ID 17,17x1,78 (FKM)
50	160.2188 160.6188	O-ring ID 18,77 x 1,78 (NBR) O-ring ID 18,77 x 1,78 (FKM)
60	160.2156 160.6156	O-ring ID 15,60 x 1,78 (NBR) O-ring ID 15,60 x 1,78 (FKM)
70	049.3196	Back up ring RD 16,1 x 19 x 1,4

ACCESSORIES

Flange-/sandwich plate Line mount body Proportional amplifier Mating connector EN 175301-803 Register 2.6 Data sheet 2.9-205 Register 1.13 Article no. 219.2002

Technical explanation see data sheet 1.0-100