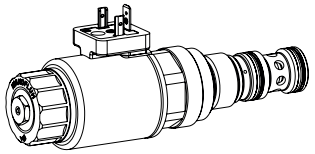
Proportional throttle cartridge with pressure relief

- direct operated
- Q_{max} = 72 l/min
- $Q_{N\,max}$ = 63 l/min
- p_{max} = 350 bar

1-1/16"-12 UN



DESCRIPTION

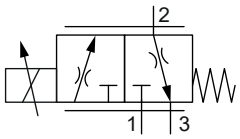
Direct operated proportional throttle valve in screw-in cartridge construction for cavity according to PU12-3S. With the solenoid de-energised, the control spool is held in the closed position by a spring. The change of the electric current is followed by a proportional volume flow change. Very sensitive opening and closing characteristics and low hysteresis are characteristics of these valves. For the control, Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

Proportional throttle valves are suitable for smooth control of movements in stationary or mobile systems. The screw-in cartridge is perfectly suitable for installation in control blocks. The third port (relief port) makes this proportional throttle valve ideal for load sensing controls, as we have a clean relief of the LS line in the de-energised position. In combination with our bypass pressure compensator (see data sheet 2.5-675), 3-way proportional flow control functions can be implemented in a highly flexible manner. In combination with our in-line pressure compensator (see data sheet 2.5-672), 2-way proportional flow control functions can be implemented.

SYMBOL

DEPPU12-...



TYPE CODE

D E P PU12 - 63 - X5 - [ ] # [ ]

Throttle valve			
With pressure relief			
Proportional			
Screw-in cartridge 1-1/16"-12 UN (PU12-3S)			
Nominal volume flow rate Q_N		63 l/min	
Nominal voltage U_N	without coil (standard)	X5	(available coils see below)
Sealing material	NBR	D0	
	FKM (Viton)	D1	
Design index (subject to change)			

2.6-545

AVAILABLE COILS

Order separate. See data sheets 1.1-181 and 1.1-182.

OPTIONAL MANUAL OVERRIDES

Order separate. See data sheet 1.1-311.
Optionally: HN20(K) or HG20 (K)

GENERAL SPECIFICATIONS

Designation	Proportional throttle valve with pressure relief
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	1-1/16"-12 UN
Actuation	Proportional solenoid
Ambient temperature	-25…+70 °C
Weight	0.59 kg
MTTFd	150 years

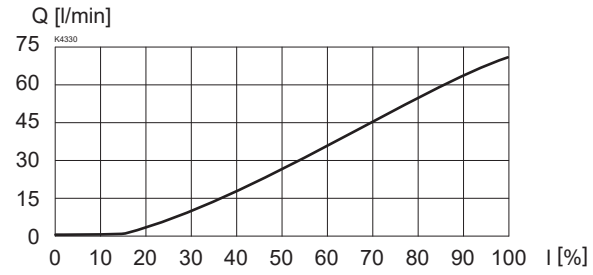
HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Maximum volume flow	Q_{max} = 72 l/min
Volume flow direction	1 → 2,, relief 2 → 3
Leakage oil	On request
Nominal volume flow range	63 l/min
Hysteresis	≤ 10 % at optimal dither signal
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm²/s…320 mm²/s
Temperature range fluid	-25…+70 °C (NBR) -20…+70 °C (FKM)
Contamination efficiency	Class 18 / 16 / 13
Filtration	Required filtration grade ß 6…10 ≥ 75, see data sheet 1.0-50

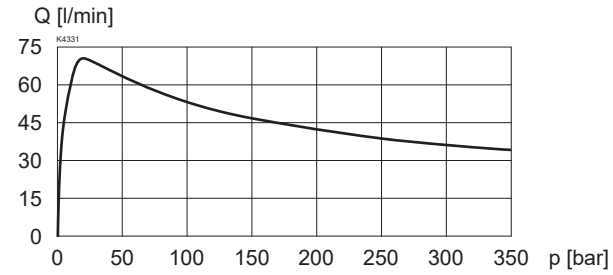
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

Q = f (I) **Volume flow adjustment characteristics**
Δp = 20 bar

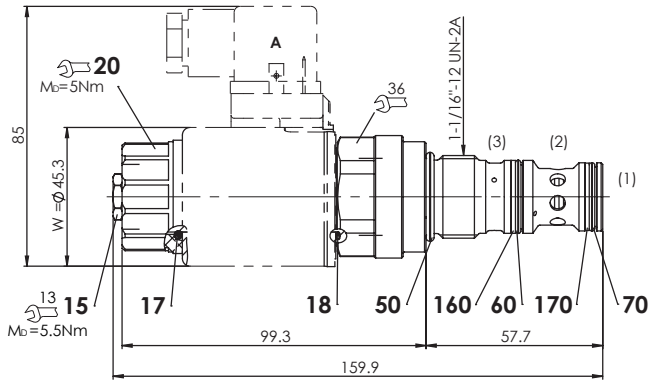


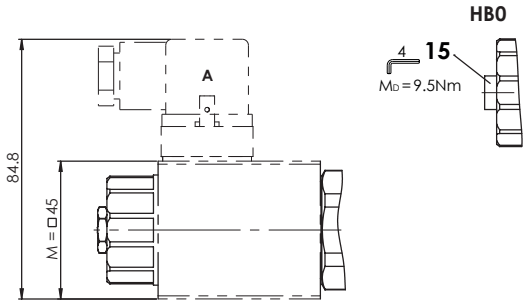
Q = f (p) **Volume flow pressure characteristics**
I = I_G



Note! Measured with coil WDS45-G24

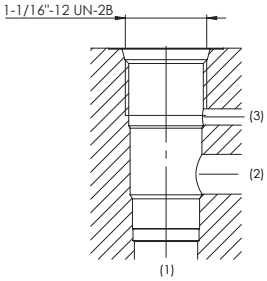
DIMENSIONS





HYDRAULIC CONNECTION

Cavity drawing according to PU12-3S



Attention! For detailed cavity drawing see data sheet 2.13-1061

PARTS LIST

Position	Article	Description
15	253.8000	Manual override HB4,5 (incl. seal)
	239.2033	Screw plug HB0 (incl. seal)
20	154.2701	Knurled nut M23 x 1,5 x 19,7
	107767	Seal kit U..PU12-3S-D0
	107768	Seal kit U..PU12-3S-D1
		Seal kit consisting of:
17		O-ring ID 22,22 x 2,62
18		O-ring ID 21,95 x 1,78
50		O-ring ID 23,81 x 2,62
60		O-ring ID 20,35 x 1,78
70		O-ring ID 18,77 x 1,78
160		Backup ring PTFE rd 20,92 x 23,82 x 1,4 slitted
170		Backup ring PTFE rd 19,35 x 22,25 x 1,4 slitted

ACCESSORIES

Flange body / sandwich plate	Data sheet 2.6-760
Threaded body	Data sheet 2.9-205
Proportional amplifier	Register 1.13
Mating connector black (B)	Article no. 219.2002
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

SEALING MATERIAL

NBR or FKM (Viton) as standard, choice in the type code

SURFACE TREATMENT

- The cartridge body is gas-nitro-carburised with post-oxidation
- The armature tube is zinc- / nickel-coated

INSTALLATION NOTES

Mounting type	Screw-in Cartridge 1-1/16"-12 UN
Mounting position	Any, preferably horizontal
Tightening torque	M_D = 80 Nm Screw-in cartridge M_D = 5 Nm knurled nut

STANDARDS / TECHNICAL INFORMATION

Cartridge cavity	PU12-3S
Solenoids	DIN VDE 0580
Connection execution D	DIN EN 175301-803
Protection class	EN 60 529
Contamination efficiency	ISO 4406