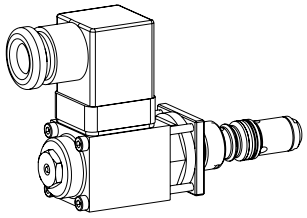
Proportional 2-way flow control cartridge

- direct operated
- Q_{max} = 2 l/min
- $Q_{N\,max}$ = 2 l/min
- p_{max} = 350 bar

M18 x 1,5
Wandfluh standard



DESCRIPTION

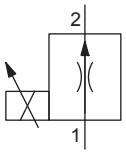
Direct operated, pressure compensated proportional flow control valve in screw-in cartridge construction for cavity according to Wandfluh standard. When the solenoid is deenergised, the control spool closes practically leakage-free. The change of the electric current is followed by a proportional volume flow change. From the input (1), the fluid flows over the control and throttling spool to the controlled output (2). For the control, Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

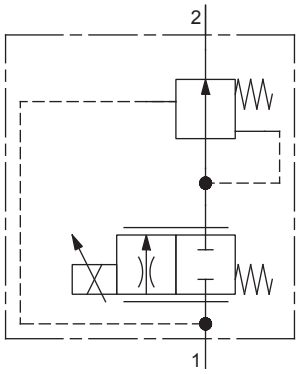
Proportional flow control valves are suitable for precise speed control, where the load current has to be maintained constant independent of the input and output pressure. The screw-in cartridge is perfectly suitable for installation in control blocks. For machining the cartridge cavity in steel and aluminum blocks, cavity tools are available (hire or purchase). Please refer to the data sheets in register 2.13.

SYMBOL

Simplified



Detailed



ACTUATION

Actuation	Proportional solenoid, wet pin push type, pressure tight
Execution	PI29V (Data sheet 1.1-90)
Connection	Connector socket EN 175301 – 803

TYPE CODE

Q Z P PM18 - ☐ - ☐ - ☐ # ☐

Flow control valve		
2-way		
Proportional		
Screw-in cartridge M18 x 1,5		
Nominal volume flow rate Q_N	2 l/min	2
Nominal voltage U_N	12 VDC	G12
	24 VDC	G24
Sealing material	NBR	
	FKM (Viton)	D1
Design index (subject to change)		

2.6-610

GENERAL SPECIFICATIONS

Designation	Proportional 2-way flow control valve
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	M18 x 1,5 according to Wandfluh standard
Actuation	Proportional solenoid
Ambient temperature	-25…+70 °C
Weight	0,70 kg
MTTFd	150 years

ELECTRICAL SPECIFICATIONS

Protection class	IP65
Relative duty factor	100 % DF
Service life time	10^7 (number of switching cycles, theoretically)
Voltage tolerance	± 10 % with regard to nominal voltage
Standard nominal voltage	12 VDC, 24 VDC
Limiting current at 50 °C	I_G = 1080 mA (12 VDC) I_G = 540 mA (24 VDC)

Note! Other electrical specifications see data sheet 1.1-90

HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Maximum volume flow	Q_{max} = 2 l/min
Minimum volume flow	Q_{min} = 0,02 l/min
Volume flow direction	1 → 2
Leakage oil	See characteristics
Nominal volume flow range	Q_N = 2 l/min
Hysteresis	≤ 3 % at optimal dither signal
Repeatability	≤ 1 % 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

ACCESSORIES

Proportional amplifier	Register 1.13
Threaded body	Data sheet 2.9-205
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50

MANUAL OVERRIDE

HB4,5 as standard

SURFACE TREATMENT

◆ The cartridge body and the solenoid are zinc-nickel coated

SEALING MATERIAL

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

INSTALLATION NOTES

Mounting type	Screw-in cartridge M18 x 1,5
Mounting position	Any, preferably horizontal
Tightening torque	M_D = 40 Nm Screw-in cartridge M_D = 1,2 Nm solenoid screws

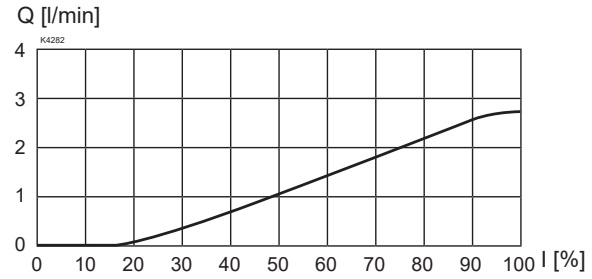
STANDARDS

Cartridge cavity	ISO 7789
Solenoids	DIN VDE 0580
Connection execution D	EN 175301 – 803
Protection class	EN 60 529
Contamination efficiency	ISO 4406

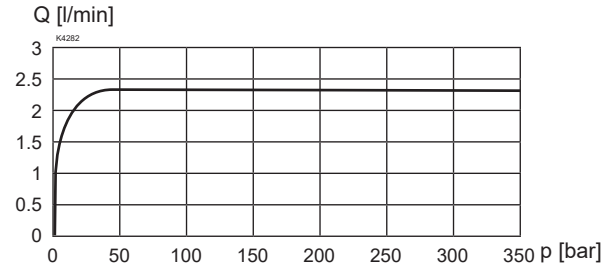
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

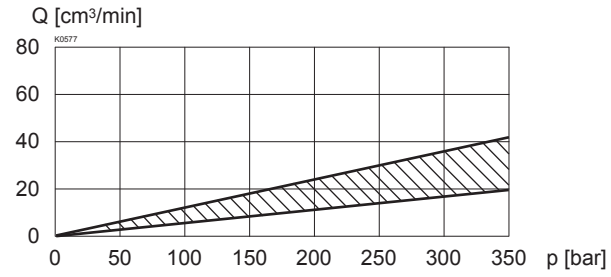
Q = f (I) Volume flow signal characteristics



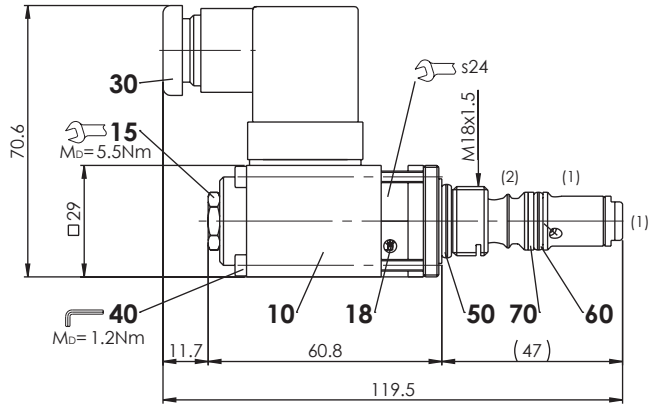
Q = f (p) Volume flow pressure characteristics



Q_L = f (p) Leakage volume flow characteristics

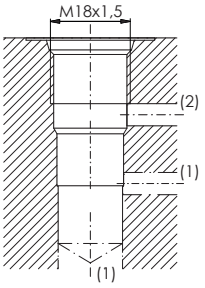


DIMENSIONS



HYDRAULIC CONNECTION

Cavity drawing according to Wandfluh standard



Note! For detailed cavity drawing and cavity tools see data sheet 2.13-1038

PARTS LIST

Position	Article	Description
10	256.2418	Proportional solenoid PI29V-G12
	256.2453	Proportional solenoid PI29V-G24
15	253.8000	Manual override HB4,5
18	160.2120	O-ring ID 12,42 x 1,78 (NBR)
30	219.2002	Electric plug B (black)
50	160.2156	O-ring ID 15,60 x 1,78 (NBR)
	160.6156	O-ring ID 15,60 x 1,78 (FKM)
60	160.2111	O-ring ID 11,11 x 1,78 (NBR)
	160.6111	O-ring ID 11,11 x 1,78 (FKM)
70	049.3156	Backup ring rd 12,1 x 15 x 1,4