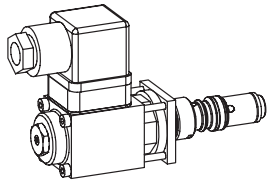
Proportional 2-way flow control valve
Screw-in cartridge
- **Direct operated, pressure compensated**
- **Q_{max} = 6,3 l/min, p_{max} = 350 bar**
- **$Q_{N\ max}$ = 6,3 l/min**

M18x1,5
Wandfluh standard



DESCRIPTION
Direct operated, pressure compensated proportional flow regulating valve, as a screw-in cartridge with a thread M18x1,5 for cavity acc. to Wandfluh standard. 3 flow ranges are available. The volume flow is adjusted by a proportional solenoid (VDE standard 0580). A progressive increase in volume flow and reduced hysteresis are characteristic of this valve. The cartridge body and the solenoid made of steel are zinc coated and therefore rust-protected.

FUNCTION
The force controlled proportional solenoid running in the fluid acts directly on the control spool wich opens the triangular shaped throttling notches in the cartridge body. The throttle opening, and therefore the flow volume changes proportionally to the current absorption of the proportional solenoid. If pressure in the system changes the pressure compensator will change the area of the oil passage to an extend as to keep the pressure drop over the restrictor constant. When the solenoid is without courrent, the control spool is held in the closed position by a spring. To control the valve Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION
The 2-way flow control valve is designed to keep the oil flow to any actuator constant irrespectiv of the load. Proportional flow control valves are suitable for precise feed control system where the supply volume flow needs to be kept constant even when the load fluctuates. The screw-in cartridge is very suitable for mounting in control blocks.

CONTENTS

TYPE CODE

Q Z P PM18 - [ ] - [ ] # [ ]

Flow control valve		
2-way		
Proportional		
Screw-in cartridge M18x1,5		
Nominal volume	Q_N = 2 l/min	2
	Q_N = 4 l/min	4
	Q_N = 6,3 l/min	6,3
Nominal voltage, type of current	U_N = 12 VDC	G12
	U_N = 24 VDC	G24
Design-Index (Subject to change)		

GENERAL SPECIFICATIONS

Description	2-way proportional flow control valve
Construction	Screw-in cartridge for cavity acc. to Wandfluh standard
Operations	Proportional solenoid
Mounting	Screw-in thread M18x1,5
Ambient temperature	-20...50°C
Mounting position	any
Fastening torque	M_D = 30 Nm for screw-in cartridge M_D = 1,2 Nm (Qual. 8.8) for solenoid screws
Weight	m = 0,7 kg

ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight.	
Standard-Nominal voltage	U_N = 12 VDC	U_N = 24 VDC
Limiting current	I_G = 1080 mA	I_G = 540 mA
Relative duty factor	100% DF (see data sheet 1.1-430)	
Protection class	IP 65 to EN 60 529	
Connection/Power supply	Over device plug connection to ISO 4400 / DIN 43 650 (2P+E)	

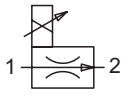
Other electrical specifications see data sheet 1.1-90 (PI29V)

HYDRAULIC SPECIFICATIONS

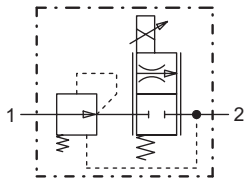
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade ß6...10≥75) see data sheet 1.0-50/2
Viscosity range	12 mm²/s...320 mm²/s
Fluid temperature	-20...+70°C
Peak pressure	p_{max} = 350 bar
Nominal volume flow	Q_N = 2 l/min, Q_N= 4 l/min, Q_N = 6,3 l/min
Max. Volume flow	Q_{max} = 6,3 l/min
Min. Volume flow	Q_{min} = 0,02 l/min
Leakage volume flow	see characteristics
Resolution	1 mA
Repeatability	≤ 1 % *
Hysteresis	≤ 3 % *
	* at optimal dither signal

SYMBOLS

simplified

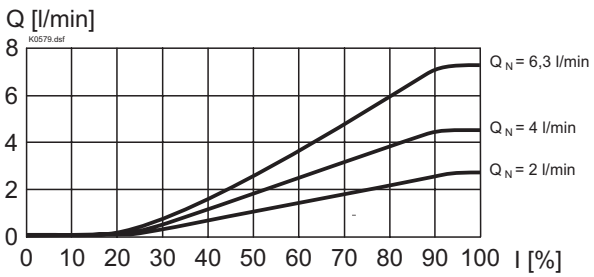


detailed

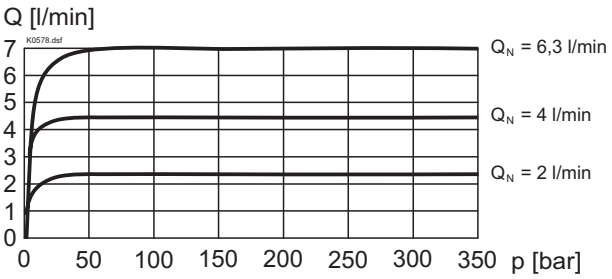


CHARACTERISTICS Oil viscosity υ = 30mm²/s

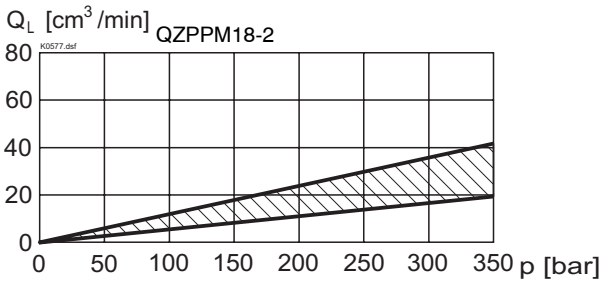
Q = f (I) Volume flow adjustment characteristics



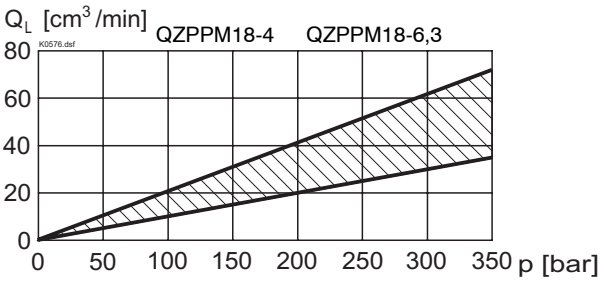
Q = f (p) Volume flow pressure characteristics



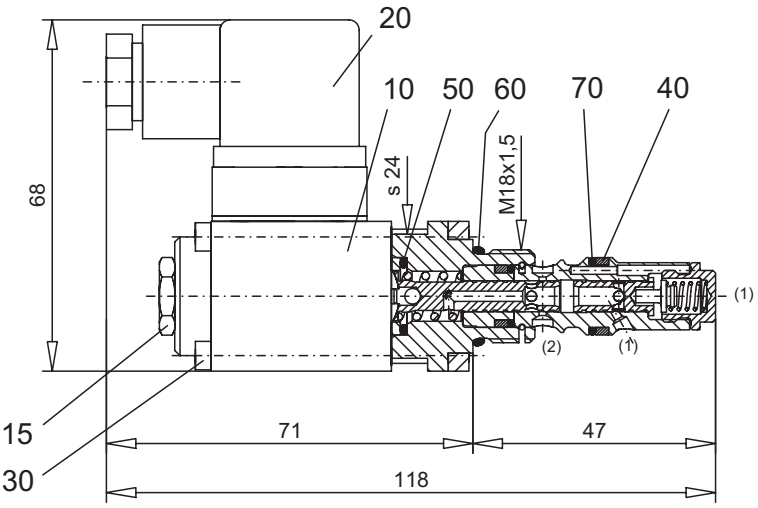
Q_L = f (p) Leakage volume flow characteristics



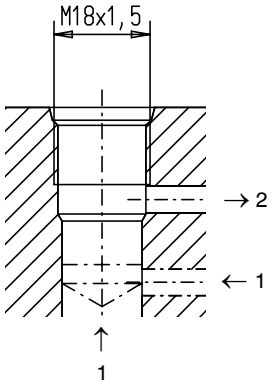
Q_L = f (p) Leakage volume flow characteristics



DIMENSIONS/SELECTIONAL DRAWING



Cavity drawing acc. to
Wandfluh standard



For detailed cavity drawing
see data sheet no. 2.13-1038

PARTS LIST

Position	Article	Description
10	256.2453	Proportional solenoid PI29V-G24
	256.2418	Proportional solenoid PI29V-G12
15	253.8000	Plug with integrated manual override HB4,5
20	219.2002	Plug (black)
30	246.0151	Cyl. screw M3x50 DIN 912
40	160.2111	O-ring ID 11,11x1,78
50	160.2120	O-ring ID 12,42x1,78
60	160.2156	O-ring ID 15,60x1,78
70	049.3156	Back-up ring RD 12,1x15x1,4

ACCESSORIES

Proportional amplifier Register 1.13

Technical explanation see data sheet 1.0-100E