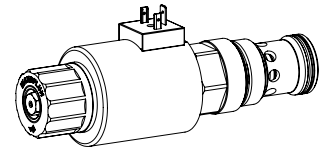


Proportional 2-way flow control cartridge

- ◆ direct operated
- ◆ $Q_{max} = 170$ l/min
- ◆ $Q_{Nmax} = 160$ l/min
- ◆ $p_{max} = 350$ bar

M42 x 2
ISO 7789

DESCRIPTION

Direct operated, pressure compensated proportional flow control valve in screw-in cartridge construction for cavity according to ISO 7789. With the solenoid deenergised, 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. 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.

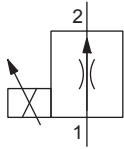
TYPE CODE

		Q N P PM42 -		-		/		-		#	
Flow control valve											
Normally closed											
Proportional											
Screw-in cartridge M42 x 2											
Nominal volume flow rate Q_N	100 l/min	<input type="text" value="100"/>									
	160 l/min	<input type="text" value="160"/>									
Nominal voltage U_N	12 VDC	<input type="text" value="G12"/>									
	24 VDC	<input type="text" value="G24"/>									
	without coil	<input type="text" value="X5"/>									
Slip-on coil	Metal housing round	<input type="text" value="W"/>									
	Metal housing square	<input type="text" value="M"/>									
Connection execution	Connector socket EN 175301-803/ISO 4400	<input type="text" value="D"/>									
	Connector socket AMP Junior - Timer	<input type="text" value="J"/>									
	Connector Deutsch DT04-2P	<input type="text" value="G"/>									
Sealing material	NBR	<input type="text"/>									
	FKM (Viton)	<input type="text" value="D1"/>									
Manual override		<input type="text" value="HC8,5"/>									
		<input type="text" value="HB0"/>									
Design index (subject to change)											

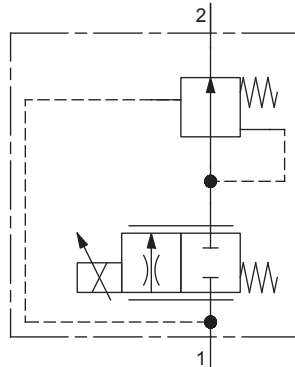
2.6-690

SYMBOL

Simplified



Detailed QN...


GENERAL SPECIFICATIONS

Designation	Proportional 2-way flow control valve
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	M42 x 2 according to ISO 7789
Actuation	Proportional solenoid
Ambient temperature	-25...+70 °C
Weight	2,26 kg
MTTFd	150 years

ACTUATION

Actuation	Proportional solenoid, wet pin push type, pressure tight
Execution	W.E64 / 31 x 72 (Data sheet 1.1-190) M.A60 / 31 x 72 (Data sheet 1.1-193)
Connection	Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P

HYDRAULIC SPECIFICATIONS

Working pressure	$p_{max} = 350$ bar
Maximum volume flow	$Q_{max} = 170$ l/min
Minimum volume flow	$Q_{min} = 0,5$ l/min
Volume flow direction	1 → 2
Leakage oil	See characteristics
Nominal volume flow range	$Q_N = 100; 160$ l/min
Hysteresis	≤ 7 % at optimal dither signal
Repeatability	≤ 3 % at optimal dither signal
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm ² /s...320 mm ² /s
Temperature range fluid	-25...+70 °C (NBR) -20...+70 °C (FKM)
Contamination efficiency	Class 18 / 16 / 13
Filtration	Required filtration grade $\beta_{6...10} \geq 75$, see data sheet 1.0-50

MANUAL OVERRIDE

HC8,5

Optionally: Screw plug (HB0), no actuation possible

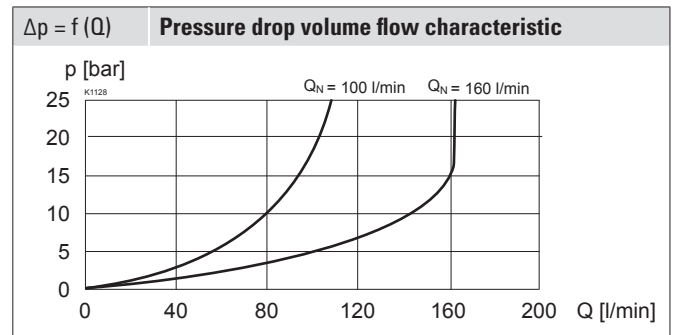
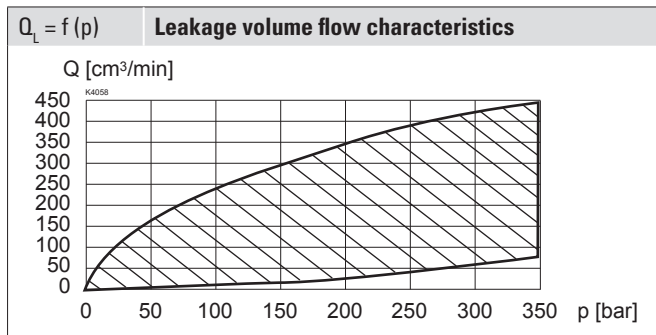
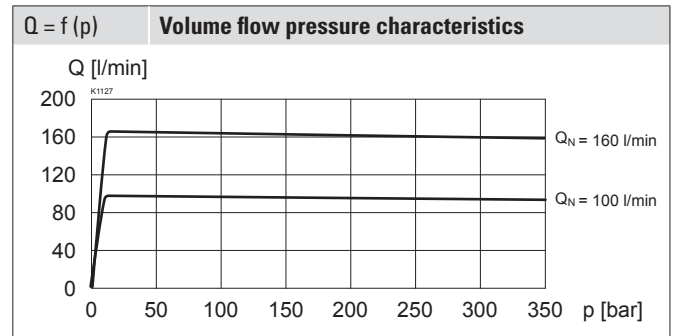
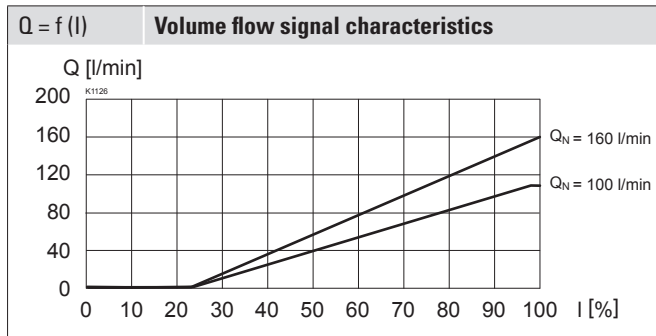
ELECTRICAL SPECIFICATIONS

Protection class	Connection execution D: IP65 Connection execution J: IP66 Connection execution G: IP67 and IP69K
Relative duty factor	100 % DF
Standard nominal voltage	12 VDC, 24 VDC
Limiting current at 50 °C	$I_G = 2255$ mA ($U_N = 12$ VDC) $I_G = 1105$ mA ($U_N = 24$ VDC)

Note!


Other electrical specifications see data sheet 1.1-190 (slip-on coil W) and 1.1-193 (slip-on coil M)

PERFORMANCE SPECIFICATIONS

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

ACCESSORIES

Proportional amplifier	Register 1.13
Electric plug B (black)	Article no. 219.2002
Threaded body	Data sheet 2.9-205
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50

SURFACE TREATMENT

- ◆ The cartridge body is gas-nitro-carburised
- ◆ The armature tube and the slip-on coil are zinc- / nickel-coated

SEALING MATERIAL

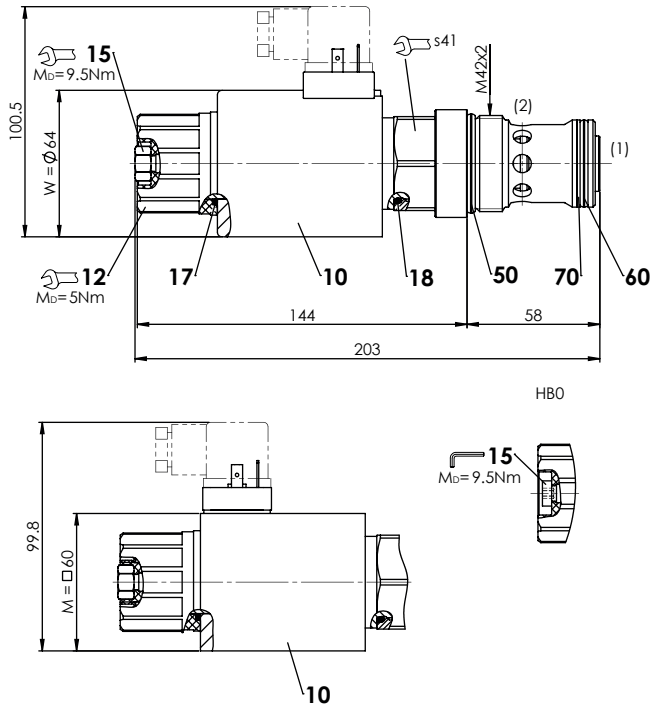
NBR or FKM (Viton) as standard, choice in the type code

INSTALLATION NOTES

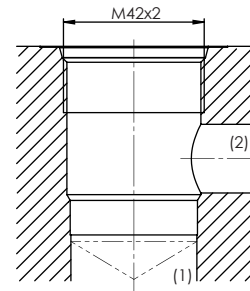
Mounting type	Screw-in cartridge M42 x 2
Mounting position	Any, preferably horizontal
Tightening torque	$M_D = 280 \text{ Nm}$ Screw-in cartridge $M_D = 5 \text{ Nm}$ knurled nut $M_D = 9,5 \text{ Nm}$ HB0 $M_D = 5,5 \text{ Nm}$ HC8,5

STANDARDS

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

DIMENSIONS

HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789-42-01-0-07


Note!


For detailed cavity drawing and cavity tools see data sheet 2.13-1050

PARTS LIST

Position	Article	Description
10	206.3...	W.E64 / 31 x 72
	260.9...	M.A60 / 31 x 72
12	154.2706	Knurled nut
15	253.8022	HC8,5 manual override
	239.2033	HBO Screw plug
17	160.2282	O-ring ID 28.24 x 2.62 (NBR)
50	160.2377	O-ring ID 37,77 x 2,62 (NBR)
	160.8378	O-ring ID 37,77 x 2,62 (FKM)
60	160.2329	O-ring ID 32,99 x 2,62 (NBR)
	160.6325	O-ring ID 32,99 x 2,62 (FKM)
70	049.3384	Backup ring rd 33,5 x 38 x 1,4