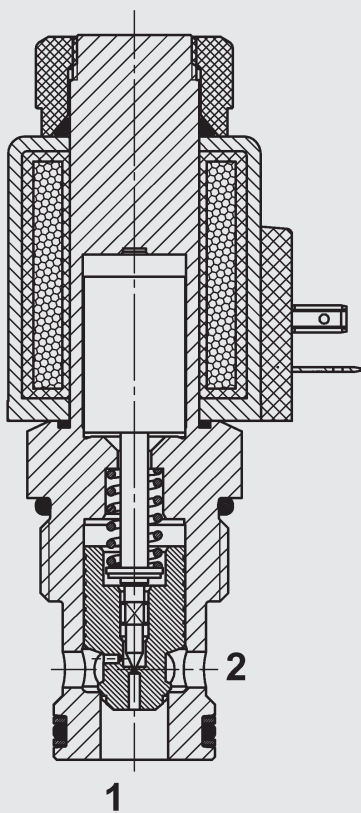


up to 200 l/min  
up to 350 bar

## FUNCTION



The proportional valve is a pilot-operated, normally closed, spring-loaded poppet-type flow control valve. It is non-compensated and its function is to smoothly control the flow from port 2 to port 1. The energization of the coil opens the pilot stage and oil flows across an orifice to the back of the main piston. The resulting pressure differential causes the main piston to follow the pilot stage and allows a nominal flow. If de-energized, there is free flow from port 1 to port 2 (see dp/-performance). If energized, flow from port 1 to port 2 is not possible.

## Proportional Flow Control Valve poppet type, pilot-operated normally closed UNF Cartridge – 350 bar PWS16Z-01

### FEATURES

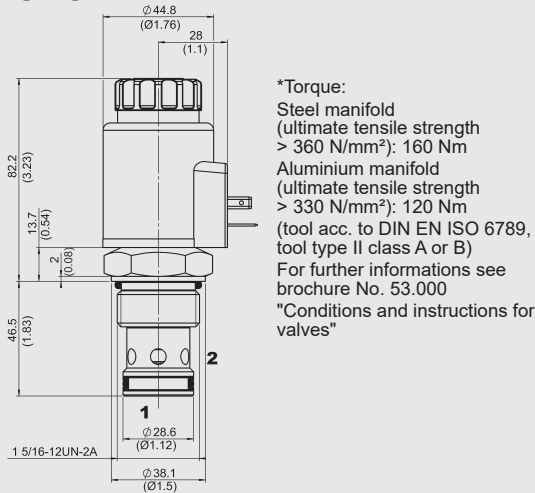
- When combined with a pressure compensator the proportional flow controller can be used as a 2-way flow regulator – for example when required to lift/lower variable loads at the same velocity.
- Stepless adjustment of the flow, depending on the coil current.
- Excellent stability throughout the entire flow range
- Excellent dynamic performance
- Coil seals protect the solenoid system
- Optional: Soft shift function with extended switching times possible
- Exposed surfaces Zinc-Nickel plated for increased corrosion protection (1.000 h Salt spray test)

### SPECIFICATIONS\*

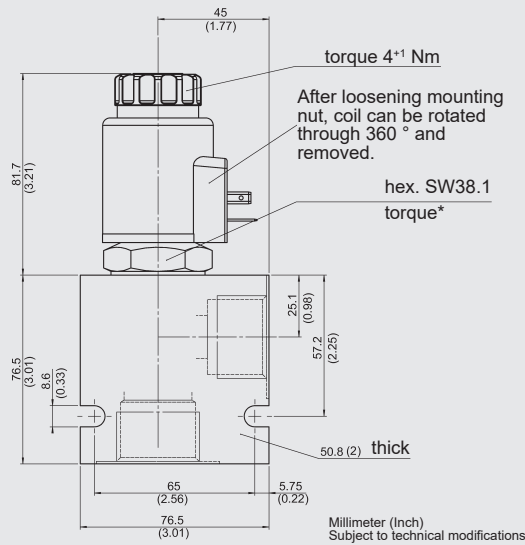
Operating pressure:	max. 350 bar
Nominal flow:	max. 200 l/min
Leakage:	Leakage-free max. 5 drops (0.25 cm <sup>3</sup> /min) at 350 bar
Media operating temperature range:	min. -20 °C to max. +100 °C
Ambient temperature range:	min. -20 °C to max. + 60 °C
Operating fluid:	Hydraulic oil to DIN 51524 Part 1, 2 and 3
Viscosity range:	min. 10 mm <sup>2</sup> /s to max. 420 mm <sup>2</sup> /s
Filtration:	Class 19/17/14 to ISO 4406 or cleaner
MTTF <sub>d</sub> :	150 – 1200 years, according to DIN EN ISO 13849-1
Installation:	No orientation restrictions
Materials:	Valve body: steel Piston: hardened and ground steel Seals: NBR (standard) FKM (optional, media temperature range -20 °C to +120 °C) Back-up rings: PTFE Coil: steel / polyamide
Cavity:	FC16-2
Weight:	0.9 kg
<b>Electrical data</b>	
Control currents:	800 mA, 19.2 Ohm (24 Volt) 1600 mA, 5 Ohm (12 Volt)
Dither frequency:	120 – 250 Hz (120 Hz recommended)
Hysteresis with dither:	6 - 8 % of Q <sub>max</sub> (for I < 70% of I <sub>nom</sub> )
Repeatability:	≤ 2 % of Q <sub>max</sub>
Reversal error:	≤ 2 % of I <sub>nom</sub>
Response sensitivity:	≤ 1 % of I <sub>nom</sub>
Type of coil:	Coil (12 or 24) P...-50-2345

\*see "Conditions and instructions for valves" in brochure 53.000

## DIMENSIONS



\*Torque:  
Steel manifold  
(ultimate tensile strength  
> 360 N/mm<sup>2</sup>): 160 Nm  
Aluminium manifold  
(ultimate tensile strength  
> 330 N/mm<sup>2</sup>): 120 Nm  
(tool acc. to DIN EN ISO 6789,  
tool type II class A or B)  
For further informations see  
brochure No. 53.000  
"Conditions and instructions for  
valves"



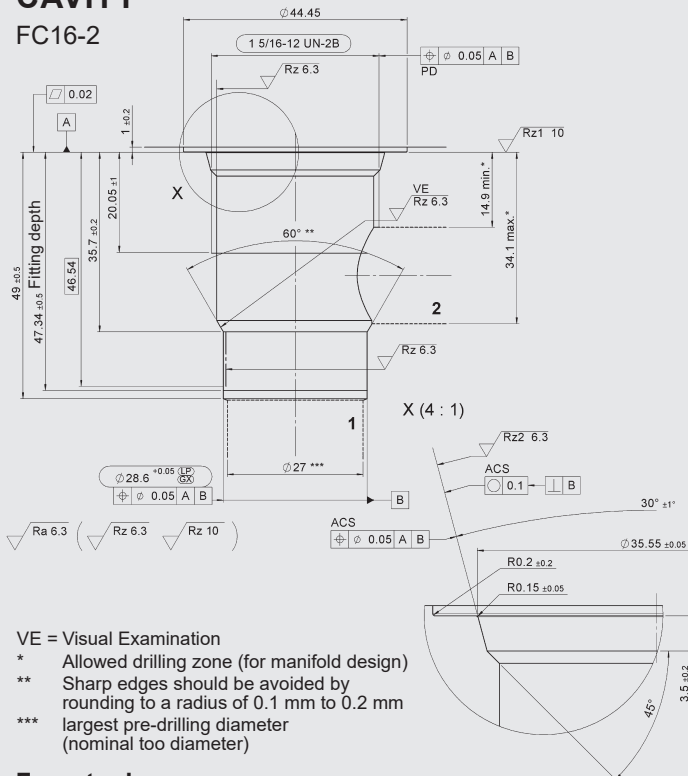
After loosening mounting  
nut, coil can be rotated  
through 360° and  
removed.

hex. SW38.1  
torque\*

50.8 (2) thick  
Millimeter (Inch)  
Subject to technical modifications

## CAVITY

FC16-2



VE = Visual Examination  
\* Allowed drilling zone (for manifold design)  
\*\* Sharp edges should be avoided by  
rounding to a radius of 0.1 mm to 0.2 mm  
\*\*\* largest pre-drilling diameter  
(nominal too diameter)

## Form tools

Tool	Part No.
Countersink	176218
Reamer	176219

Millimeter (Inch)  
Subject to technical modifications

## MODEL CODE

**PWS16Z-01 M-C-N-80-24 PG 19.2**

### Basic model

Proportional flow control valve

### Type

01 = standard

### Manual override

No details = without manual override  
M = manual override

### Body and ports

C = Cartridge only  
\*Combinations with body on request

### Seals

N = NBR (standard)  
V = FKM

### Flow rate

80 = 80 l/min at 5 bar Δp

### Coil voltage

DC: 12 = 12 Volt DC  
24 = 24 Volt DC

Other voltages on request

### Coil connectors (type 50-2345)

DC: PG = DIN connector to EN175301-803  
PL = 2 flying leads, 457 mm long; 0.75 mm<sup>2</sup>  
PN = Deutsch connector, 2-pole, axial

Other connectors on request

### Coil resistance

5.0 = 5.0 Ω (12 V)  
19.2 = 19.2 Ω (24 V)

## Standard models

Model code	Part No.
PWS16Z-01-C-N-80-12PG-5	3525225
PWS16Z-01-C-N-80-24PG-19.2	3525213

Other models on request

## Standard in-line bodies

Code	Part No.	Material	Ports	Pressure
FH162-SB8	3032496	Steel, zinc-plated	G1"	350 bar
FH162-AB8	3037193	Aluminium, anodized	G1"	210 bar

Other line bodies on request

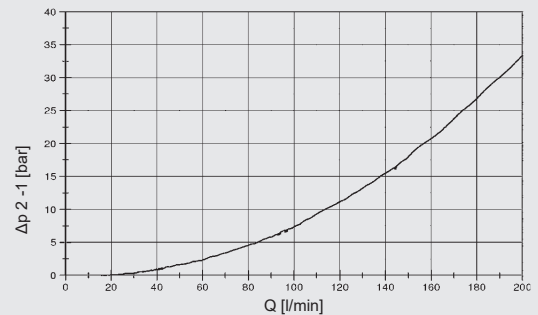
## Seal kits

Code	Material	Part No.
FS UNF 16/N	NBR	3651395
FS UNF 16/V	FKM	3651396

## TYPICAL PERFORMANCE

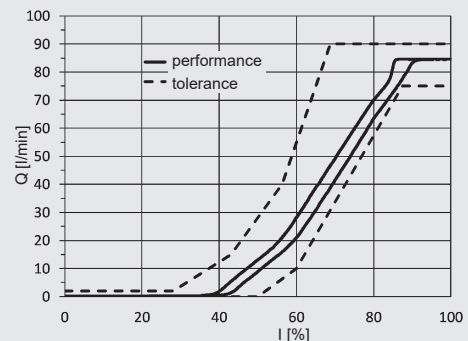
measured at  
v = 34 mm<sup>2</sup>/s, T<sub>oil</sub> = 46 °C

### Δp - Q



### Q-I

Δp = 5 bar



## NOTE

The information in this brochure relates to the  
operating conditions and applications described.  
For applications or operating conditions not  
described, please contact the relevant technical  
department.  
Subject to technical modifications.

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