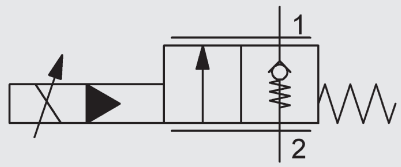
HYDAC INTERNATIONAL

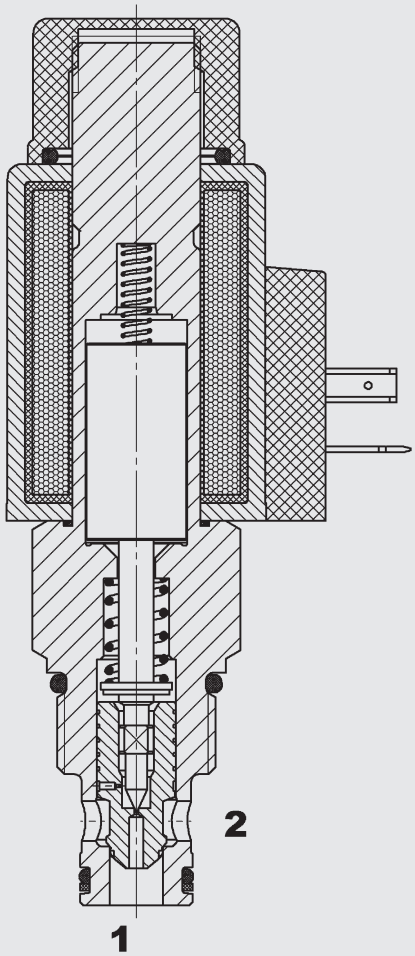
Proportional Flow Controller Poppet type, pilot-operated, Normally closed UNF Cartridge – 350 bar

PWS10Z-11



up to 100 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.

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
- On request: mechanical adjustment of one point of the curve (Version 11, not in combination with option M)
- Exposed surfaces Zinc-Nickel plated for inreased corrosion protection (1.000h Salt spray test)

SPECIFICATIONS*

Operating pressure:	max. 350 bar	
Nominal flow:	max. 100 l/min	
Internal leakage:	leakage-free max. 5 drops/min (0.25 cm³/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 mm²/s to max. 420 mm²/s	
Filtration:	Class 19/17/14 to ISO 4406 or cleaner	
$MTTF_d$:	150 - 1200 years, according to DIN EN ISO 13849-1	
Installation:	No orientation restrictions	
Material:	Valve body:	steel
	Piston:	hardened and ground steel
	Seals:	NBR (standard) FKM (optional, media temperature range -20 °C to +100 °C)
	Back-up rings:	PTFE
	Coil:	steel / polyamide
Cavity:	FC10-2	
Weight:	0.5 kg	
Electrical data		
Control current:	850 mA, 18.0 Ohm (24 Volt) 1750 mA, 4.1 Ohm (12 Volt)	
Dither frequency:	120 – 250 Hz (120 Hz recommended)	
Hysteresis with dither:	4 - 6 % of Q_{max} (für I < 70 % of I_{nom})	
Repeatability:	≤ 1.5 % of Q_{max}	
Reversal error:	≤ 2 % of I_{nom}	
Response sensitivity:	≤ 1 % of I_{nom}	
Type of coil:	Coil (12 or 24) P ...50-1836	

Note
In order to achieve optimal function, any trapped air should be vented using the bleed screw on the face of the pole tube.

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

MODEL CODE

PWS10Z - 11 M - C - N - P40 - 24 PG - 18.0

Basic model
Proportional
flow control valve

Type
11 = standard

Manual override
No details = without manual override
M = manual override

Body and ports
C = cartridge only

Seals
N = NBR (standard)
V = FKM

Flow rate
P40 = 40 l/min (progressive performance)
at Δp = 5 bar
H40 = 40 l/min (hyper-progressive performance)
other flow rates on request

Coil voltage
DC: 12 = 12 Volt DC
24 = 24 Volt DC
Other voltages on request

Coil connectors (type 50-1836)
DC: PG = DIN connector Type A to EN175301-803
PT = AMP Junior Timer, 2-pole, radial
PL = 2 flying leads, 457 mm long; 0.75 mm²
PN = Deutsch connector DT04-2P, 2-pole, axial
Other connectors on request

Coil resistance
4.1 = 4.1 Ω (12 V)
18.0 = 18.0 Ω (24 V)

Standard models

Model code	Part No.
PWS10Z-11-C-N-40-12PG-4.1	3525207
PWS10Z-11-C-N-40-24PG-18.0	3525205

Other models on request

Standard in-line bodies

Code	Part No.	Material	Ports	Pressure
FH102-SB4	3037594	Steel, zinc-plated	G1/2"	350 bar
FH102-AB4	3037777	Aluminium, anodized	G1/2"	210 bar

Other line bodies on request

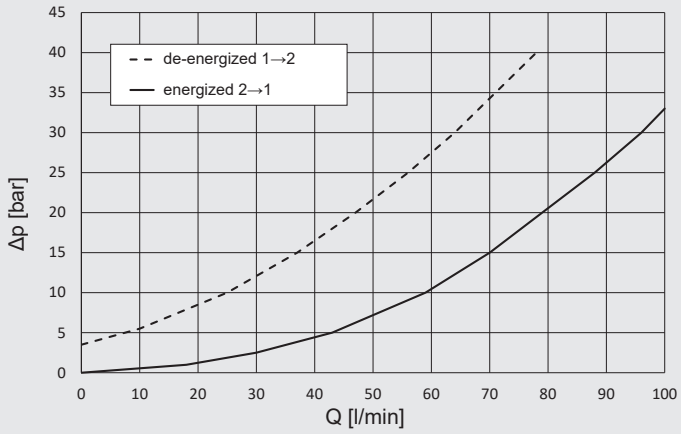
Seal kits

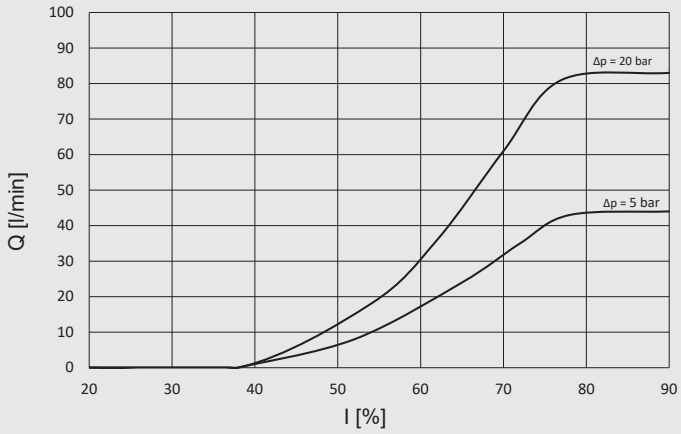
Code	Material	Part No.
FS UNF 10/N	NBR	3651557
FS UNF 10/V	FKM	3651559

TYPICAL PERFORMANCE

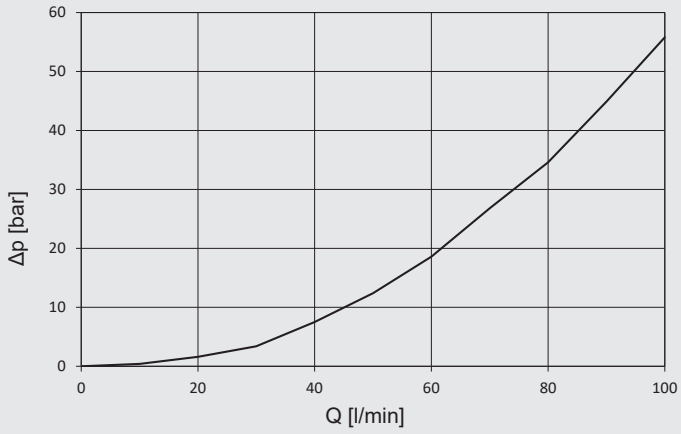
measured at ν = 34 mm²/s, T_{oil} = 46 °C

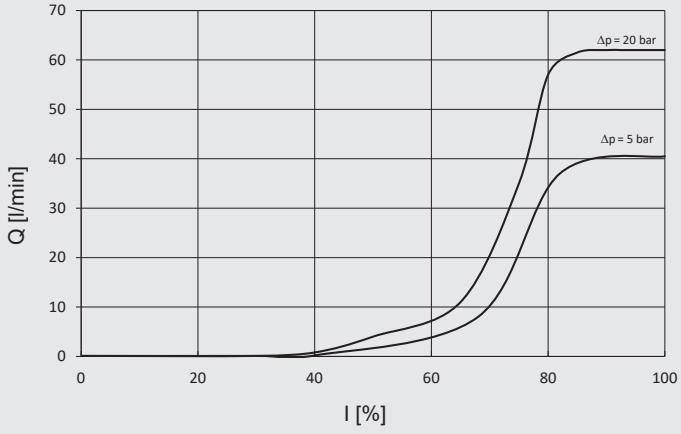
Version P



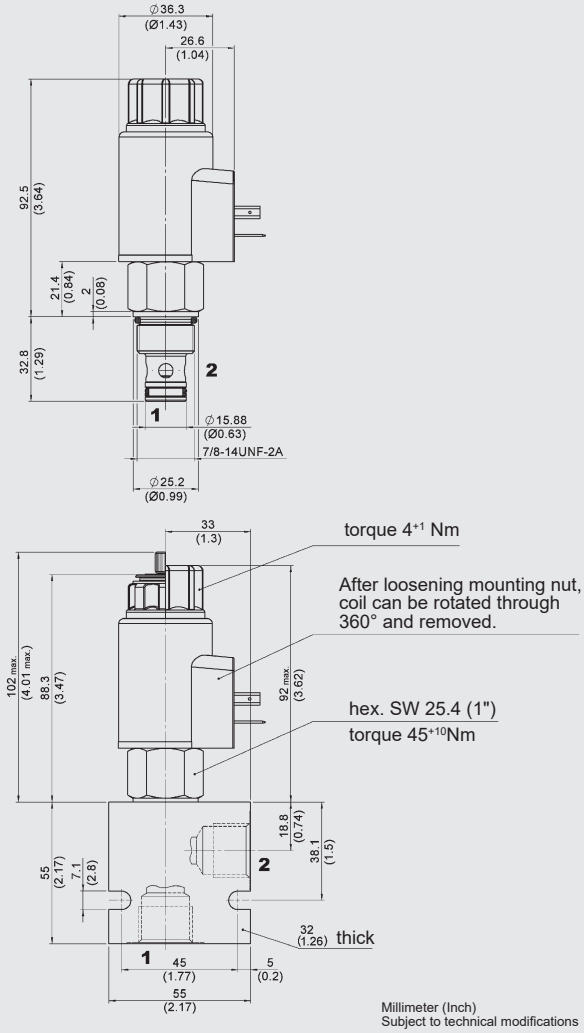


Version H





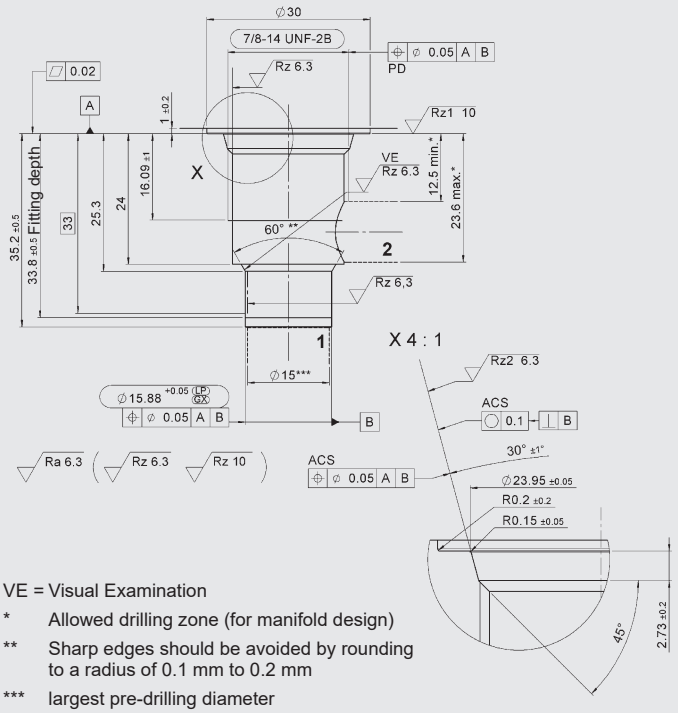
DIMENSIONS



Millimeter (Inch)
Subject to technical modifications

CAVITY

FC10-2



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 tool diameter)

Form tools

Code	Part No.
Countersink	176379
Reamer	165706

Millimeter (Inch)
Subject to technical modifications

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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