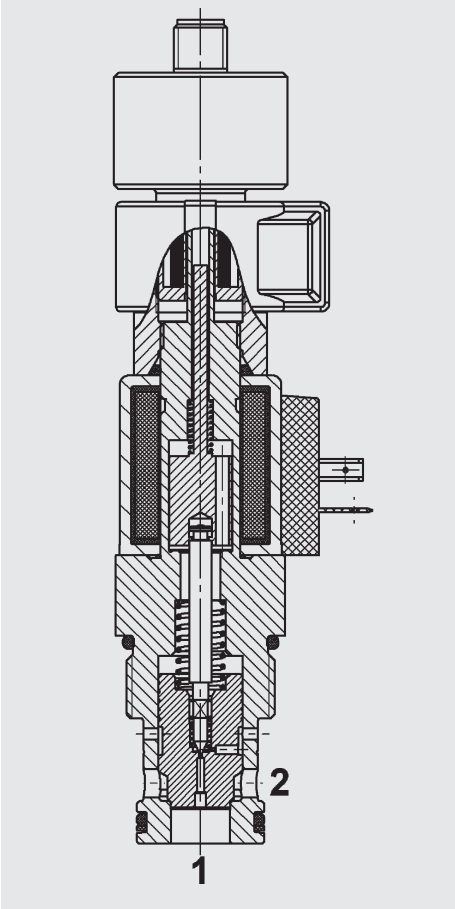


2/2 Solenoid Directional Valve Poppet Type, Pilot Operated Normally Closed With Electronic Switch Position Monitoring UNF Cartridge – 350 bar WS16Z-01E

FUNCTION



The directional valve is a pilot operated poppet valve with electronic switch position monitoring.

When de-energized the valve is closed from port 2 to port 1. Flow is possible in the opposite direction. The valve piston opens at a differential pressure of approx. 1.6 bar (check valve function). When energized, there is free flow through the valve from port 2 to port 1 at a differential pressure of approx. 1.5 bar. Flow in the reverse direction from 1 to 2 is prohibited.

Please mind: In pilot operated solenoid valves, shift performance and response times depend i.a. very much on pressure drop and volume flow during actuation. This applies particularly to valves with piston seals and/or position sensors.

FEATURES

- With integrated electronic switch position monitoring
- Excellent switching performance by high power HYDAC solenoid
- Coil seals protect the solenoid system
- Wide variety of coils and connectors available
- Exposed surfaces zinc-nickel plated for increased corrosion protection (1.000 h Salt spray test)

SPECIFICATIONS*

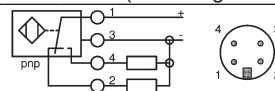
Operating pressure:	max. 350 bar
Nominal Flow:	max. 150 l/min at 280 bar; 100 l/min at 350 bar
Leakage:	leakage-free, max. 5 drops/min (0.25 cm ³ /min) at p ₂ = 350 bar and p ₁ = 0 bar, v = 33 mm ² /s
Media operating temperature range:	min. -20 °C to max. +100 °C
Ambient temperature range:	min. -20 °C to max. + 60 °C
Operating Fluid:	Hydraulic oil to DIN 51524 Part 1, 2 and 3
Viscosity range:	min. 10 mm ² /s to max. 420 mm ² /s
Filtration of operating liquid: (according to ISO 4406)	p < 210 bar: min. 20/18/15 for extended lifetime recommended 17/15/12 p > 210 bar: min. 18/16/13 for extended lifetime recommended 16/14/11
MTTF _d :	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 op. temperature range -20 °C to +120 °C) Back-up rings: PTFE Coil: steel / polyamide
Cavity:	FC16-2
Weights:	0.79 kg

Electrical data

Type of voltage:	DC: direct current solenoid AC: alternating current solenoid with a bridge rectifier built into the coil
Current draw at 20°C:	1.5 A for 12 V DC 0.8 A for 24 V DC
Voltage tolerance:	± 15 % of nominal
Coil duty rating:	Continuous up to 115 % of nominal voltage at 60 °C ambient temperature
Response time: (at p _{max} , Q _{max} , v = 33 mm ² /s)	energized: approx. 50 ms; de-energized: approx. 70 ms substantially extended response times possible at other operating conditions
Type of coil	Coil...-40-1836

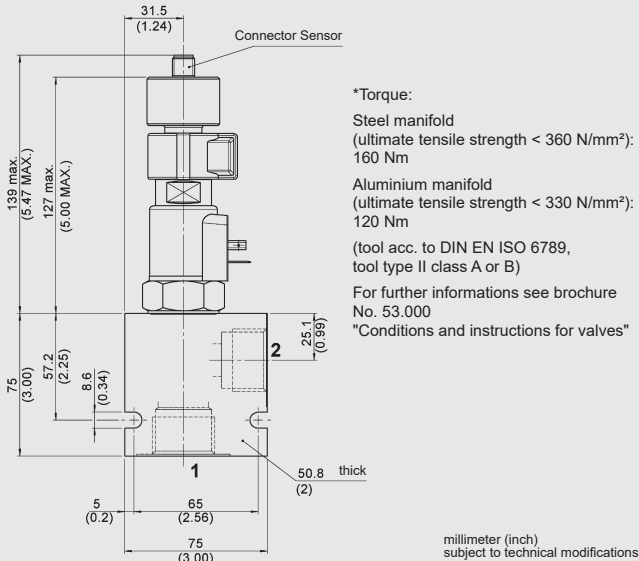
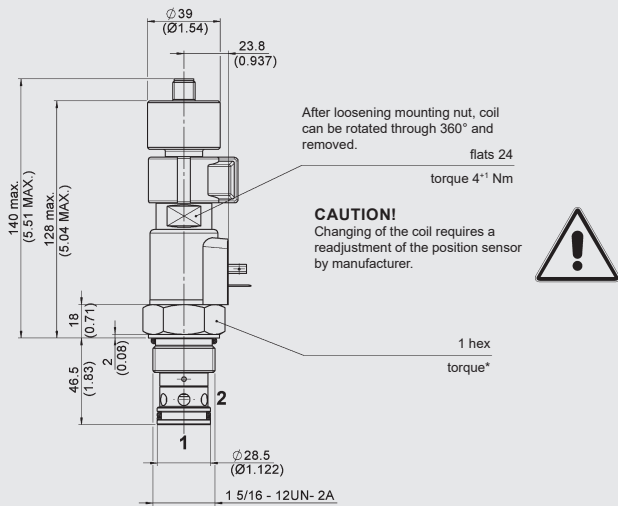
Sensor data

Supply voltage:	24 V: 20 to 32 V DC 12 V: 10.5 to 16 V DC
Reverse polarity protection of supply:	yes
Outputs:	2 with change-over function PNP positive switching
Output load:	≤ 400 mA, 100 % continuous
Short-circuit protection:	Provided
Connector:	Male connector M12 x 1 (4 pole)
Protection class:	IP65 to DIN40050
CE-conformity:	93/68/EEC 2014/30/EC
EMC:	DIN EN 61000-6-1-2-3-4
Humidity requirements:	0 - 95 % rel. (according to DIN 40040)
Sensor connections:	



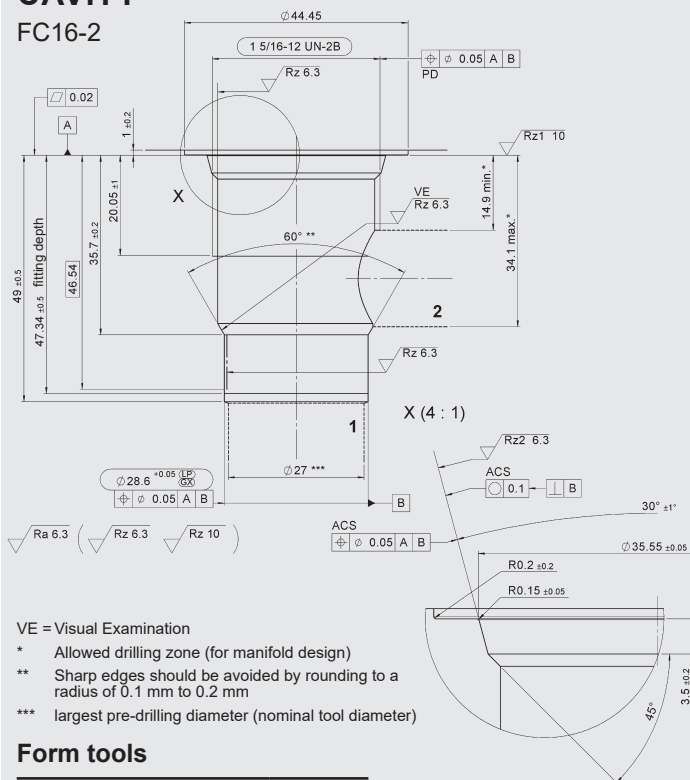
*see "Conditions and instructions for valves" in brochure 53.000

DIMENSIONS



CAVITY

FC16-2



Form tools

Tool	Part No.
Rougher	176218
Finisher	176219

millimeter (inch)
subject to technical modifications

MODEL CODE

WS16Z - 01E - C - N - 24 DG - 12

Basic model

Directional poppet valve, UNF

Type

01E = with electronic
switch position monitoring

Body and ports

C = cartridge only

Seals

N = NBR (standard)
V = FKM

Coil voltage

DC voltages
12 = 12 V DC
24 = 24 V DC

AC voltages (bridge rectifier built into the coil)

115 = 115 V AC
230 = 230 V AC

Other voltages on request

Coil connector (...-40-1836)

DC: DG = DIN connector type A to EN 175301-803
DK = KOSTAL threaded connector M27 x 1
DL = 2 Leadwires, 457 mm (18") long, 0,75 mm²
DN = Deutsch connector DT04-2P, 2pole, axial
DT = AMP Junior Timer, 2 pole, radial

AC: AG = DIN connector type A to EN 175301-803

Other connectors on request

Supply voltage for sensor

Omission = 24 V DC
12 = 12 V DC

Standard models

Model code	Part No.
WS16Z-01E-C-N-12DG	3980766
WS16Z-01E-C-N-24DG	3567554

Other models on request

Standard line bodies

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

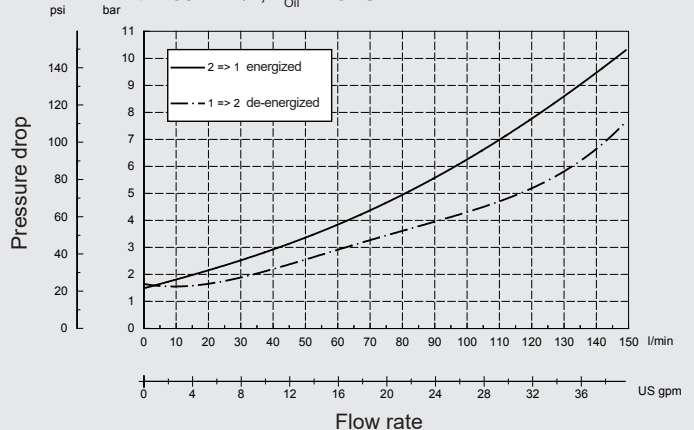
Other models on request

Seal kits

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

TYPICAL PERFORMANCE

measured at $v = 33 \text{ mm}^2/\text{s}$, $T_{\text{Oil}} = 46 \text{ }^\circ\text{C}$



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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