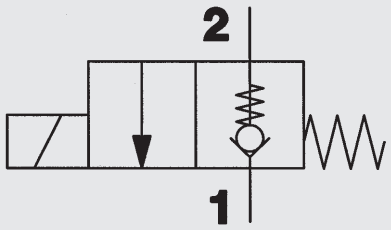
HYDAC INTERNATIONAL

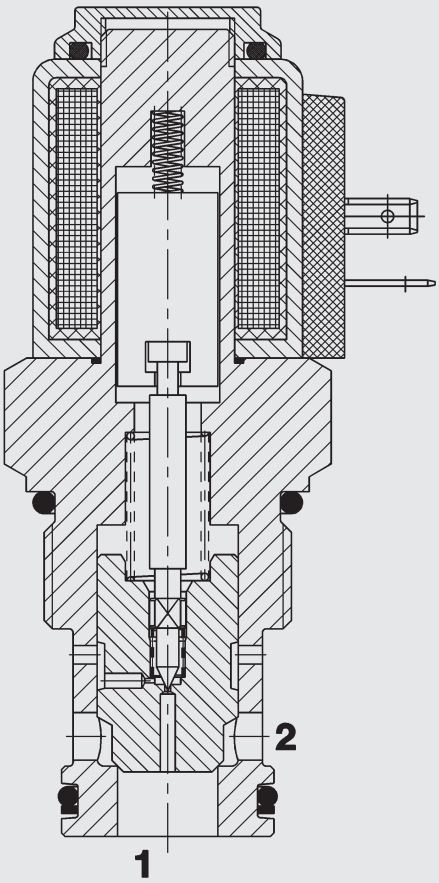
2/2 Solenoid Directional Valve Poppet Type, Pilot Operated Normally Closed UNF Cartridge – 350 bar

WS16Z-01



up to 150 l/min
up to 350 bar

FUNCTION



The directional valve is a pilot operated valve in poppet style.
When the solenoid coil is not energized, the valve is closed from port 2 to port 1. Flow is permitted from port 1 to port 2.
When energized, there is free flow through the valve from port 2 to port 1. Return flow from port 1 to 2 is prevented.
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.

FEATURES

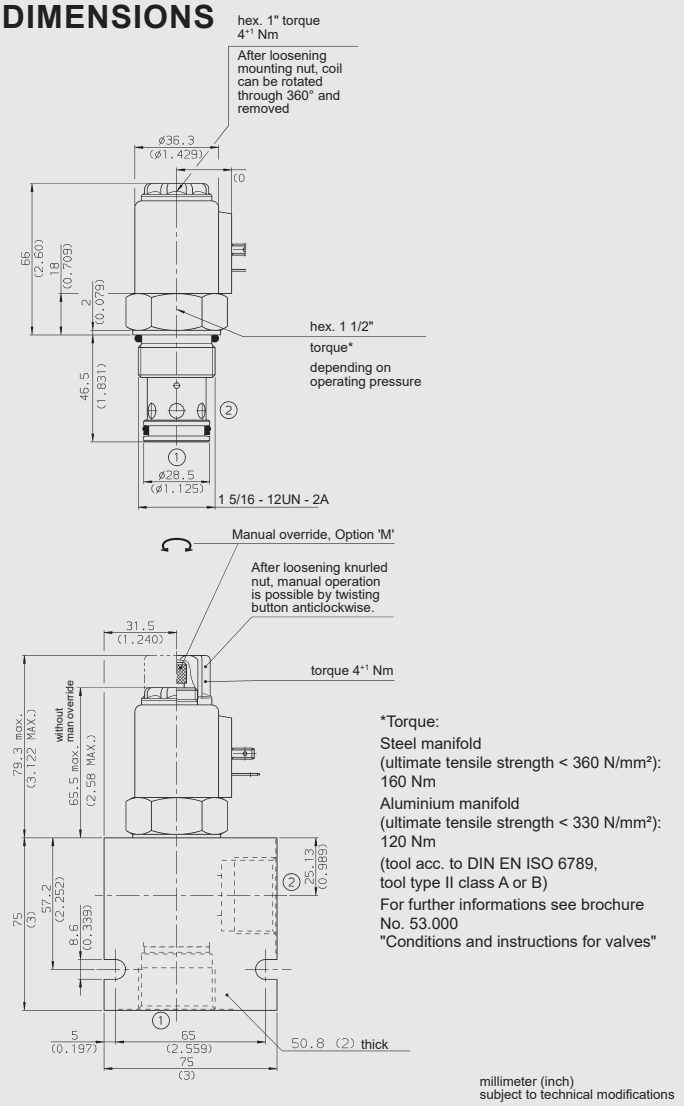
- Coil seals protect the solenoid system
- Wide variety of connectors available
- Excellent switching performance by high power HYDAC solenoid
- Exposed surfaces zinc-nickel plated for increased corrosion protection (1.000 h Salt spray test)

SPECIFICATIONS*

Operating pressure:	350 bar	
Nominal flow:	max. 150 l/min up to 280 bar max. 100 l/min from 280 to 350 bar	
Internal leakage:	Leakage-free max. 5 drops (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:	7.4 to 420 mm²/s	
Filtration:	Class 21/19/16 according 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
	Poppet:	hardened and ground steel
	Seals:	NBR (standard) FKM (optional, media temperature range -20 °C to 120 °C)
	Coil:	Steel/Polyamide
Cavity:	FC16-2	
Weight:	Valve complete:	0.62 kg
	Coil only:	0.19 kg
Electrical data		
Response time: (at p_{max}, Q_{max}, ν = 34 mm²/s)	energized:	approx. 50 ms
	de-energized:	approx. 35 ms
	substantially extended response times possible at other operating conditions	
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 at 12 V DC 0.8 A at 24 V DC	
Voltage tolerance:	± 15 % of nominal voltage	
Coil duty rating:	Continuous up to max. 115 % of nominal voltage at max. 60 °C ambient temperature	
Coil type:	Coil…-40-1836	

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

DIMENSIONS

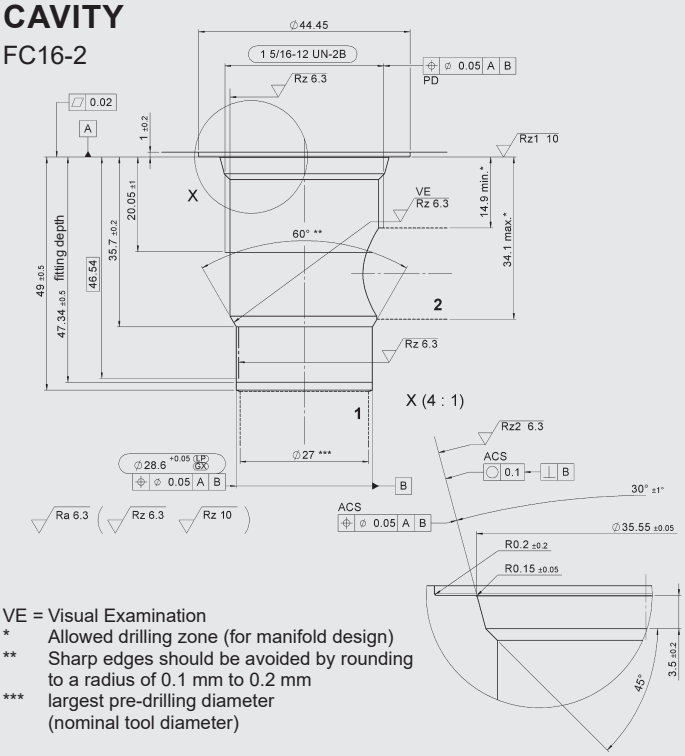


*Torque:
Steel manifold
(ultimate tensile strength < 360 N/mm²):
160 Nm
Aluminium manifold
(ultimate tensile strength < 330 N/mm²):
120 Nm
(tool acc. to DIN EN ISO 6789,
tool type II class A or B)
For further informations see brochure No. 53.000
"Conditions and instructions for valves"

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 tool diameter)

Form tools

Tool	Part No.
Countersink	176218
Reamer	176219

millimeter (inch)
subject to technical modifications

MODEL CODE

WS16Z – 01 M – C – N – 24 DG

Basic model
Directional poppet valve, UNF

Type
01 = standard

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

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 connectors (type 40-1836)
DC: DG = DIN connector type A to EN 175301-803
DK = KOSTAL threaded connection M27x1
DL = 2 flying leads, 457 mm long, 0.75 mm²
DN = Deutsch connector, 2-pole, axial
DT = AMP Junior Timer, 2-pole, radial
AC: AG = DIN connector type A to EN 175301-803
Other connectors on request

Standard models

Model code	Part No.
WS16Z-01-C-N-12DG	3049464
WS16Z-01-C-N-24DG	3049480
WS16Z-01-C-N-230AG	3049517

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

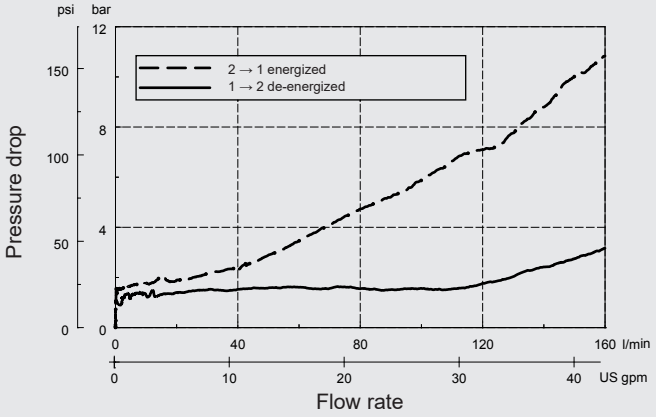
Other models on request

Seal kits

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

TYPICAL PERFORMANCE

Measured at ν = 34 mm²/s, T_{oil} = 46 °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.

HYDAC Fluidtechnik GmbH
Justus-von-Liebig-Str.
D-66280 Sulzbach/Saar
Tel: 0 68 97 /509-01
Fax: 0 68 97 /509-598
E-Mail: valves@hydac.com