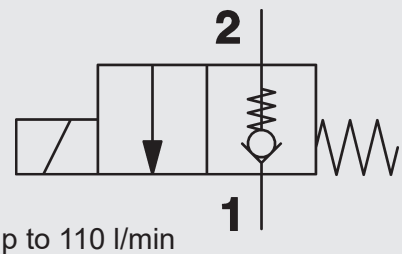
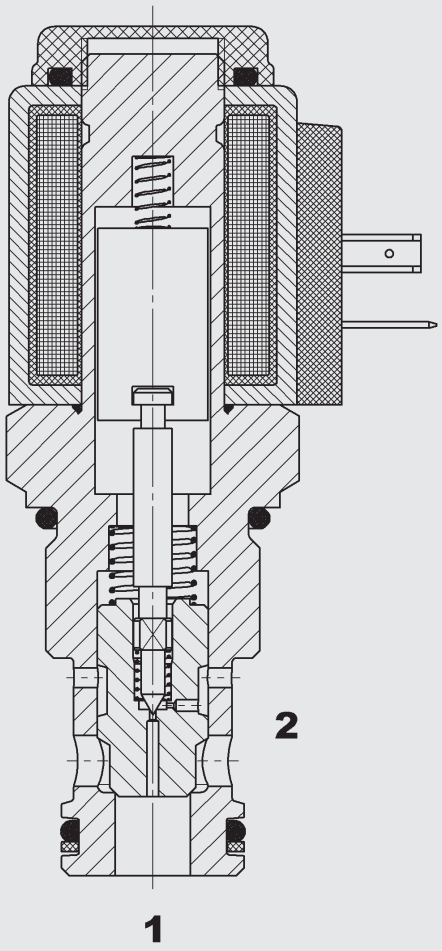


up to 110 l/min
up to 350 bar

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

WSM12120Z-01

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 1.
In the opposite direction, oil can flow freely through the valve. The valve piston opens at a differential pressure of approx. 1.5 bar (check function). When energized, there is free flow through the valve from port 2 to port 1.
Return flow from port 1 to 2 is not possible.
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

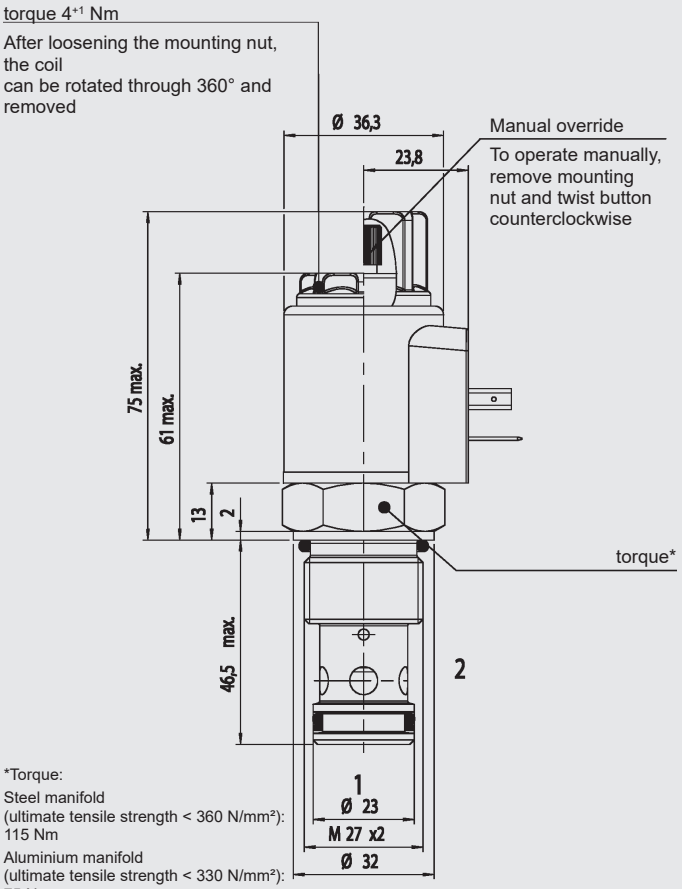
- Coil seals protect the solenoid system
- Excellent switching performance by high power HYDAC solenoid
- Exposed surfaces zinc-nickel plated for increased corrosion protection (1.000 h Salt spray test)

SPECIFICATIONS*

Operating pressure:	max. 350 bar	
Nominal flow:	max. 110 l/min	
Internal leakage:	Leakage-free max. 5 drops/min (0.25 cm^3/min) at 350 bar	
Media operating temperature range:	min. -30 °C to max. +100 °C	
Ambient temperature range:	min. -30 °C to max. + 60 °C	
Operating fluid:	Hydraulic oil to DIN 51524 Part 1, 2 and 3	
Viscosity range:	min. 7.4 mm^2/s to max. 420 mm^2/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	
Materials:	Valve body:	free-cutting steel
	Poppet:	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:	12120	
Weight:	Valve complete:	0.46 kg
	Coil only:	0.19 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 at 12 V DC 0.8 A at 24 V DC	
Response time: (at p_{max}, Q_{max}, ν = 34 mm^2/s)	energized:	approx. 35 ms
	de-energized:	approx. 70 ms
	substantially extended response times possible at other operating conditions	
Voltage tolerance:	± 15 % of the nominal voltage	
Coil duty rating:	Continuous up to max. 115 % of the nominal voltage at 60 °C ambient temperature	
Coil type:	Coil...-40-1836	

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

DIMENSIONS



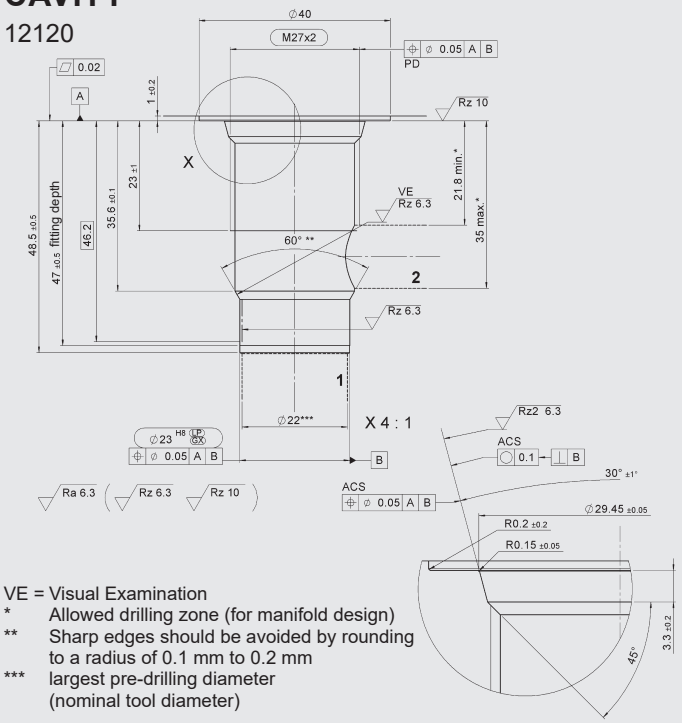
*Torque:
Steel manifold
(ultimate tensile strength < 360 N/mm²): 115 Nm
Aluminium manifold
(ultimate tensile strength < 330 N/mm²): 75 Nm
(tool acc. to DIN EN ISO 6789, tool type II class A or B)

For further informations see brochure No. 53.000 "Conditions and instructions for valves"

millimeter
subject to technical modifications

CAVITY

12120



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 (shank MK3)	172880
Reamer	1014207

millimeter
subject to technical modifications

MODEL CODE

WSM12120Z – 01 M – C – N – 24 DG

Basic model
Directional poppet valve, metric

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.
WSM12120Z-01-C-N-12DG	3230865
WSM12120Z-01-C-N-24DG	3230870
WSM12120Z-01-C-N-230AG	3230869

Other models on request

Standard in-line bodies

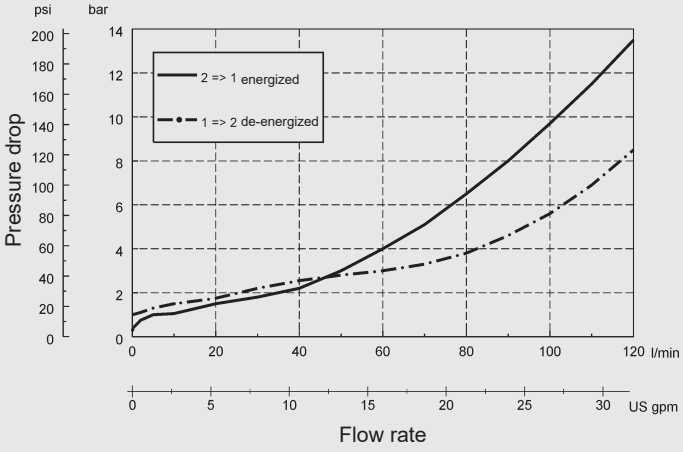
Code	Part No.	Material	Ports	Pressure
R12120-10X-01	396708	Steel, zinc-plated	G3/4"	350 bar
R10120-01X-01	396707	Steel, zinc-plated	M27x2	350 bar

Seal kits

Code	Material	Part No.
SEAL KIT 10120-NBR	NBR	3454001
SEAL KIT 10120-FKM	FKM	3454002

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.

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