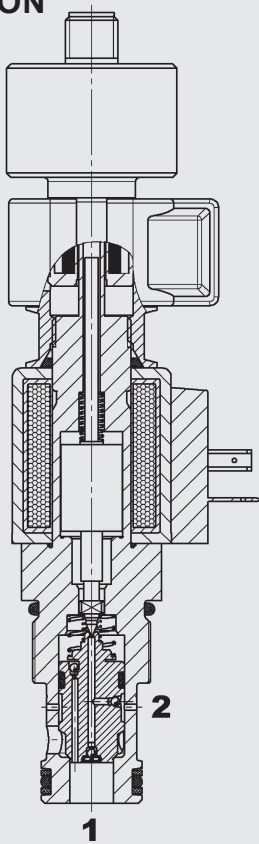


up to 100 l/min  
up to 350 bar

## FUNCTION



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

When de-energised the valve is closed in both directions - this switch position is recorded inductively.

When energised the valve allows flow in both directions. The valve opens from port 2 to 1 at a differential pressure of approx. 2 bar and approx. 3.5 bar from port 1 to 2.

**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. The switching point of the sensor is within the slider overlap of closing element. A minimum differential pressure is necessary for safe and seat-tight closing.

## 2/2 solenoid directional valve Poppet type, pilot operated Normally closed With electronic switch position monitoring Metric cartridge valve – 350 bar WSM12120W-01E

### FEATURES

- With inductive switch position monitoring
- Excellent switching performance by high power HYDAC solenoid
- Coil seals protect the solenoid system
- Wide variety of 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. 100 l/min
Internal leakage:	leakage-free, max. 5 drops/min (0.25 cm <sup>3</sup> /min) at p <sub>2</sub> = 350 bar and p <sub>1</sub> = 0 bar, v = 33 mm <sup>2</sup> /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 Teil 1, 2 and 3
Viscosity range:	min. 7.4 mm <sup>2</sup> /s to max. 420 mm <sup>2</sup> /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 <sub>d</sub> :	150 - 1200 years, according to DIN EN ISO 13849-1
Installation:	no orientation restrictions
Materials:	Valve body: steel Closing element: hardened and ground steel Seals: NBR (standard) FKM (optional, operating fluid temperature range -20 °C to +120 °C) Back-up rings: PTFE Solenoid coil: Steel / Polyamide
Cavity:	12120
Weight:	0.63 kg

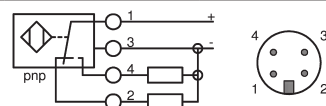
### Electrical data

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
Voltage tolerance:	± 15 % of nominal voltage
Coil duty rating:	Continuous operation up to max. 115 % of nominal voltage at 60 °C of ambient temperature
Response time: (at p <sub>max</sub> , Q <sub>max</sub> , v = 33 mm <sup>2</sup> /s)	energized: approx. 35 ms; de-energized: approx. 75 ms substantially extended response times possible at other operating conditions
Coil type:	Coil...-40-1836

### Sensor data

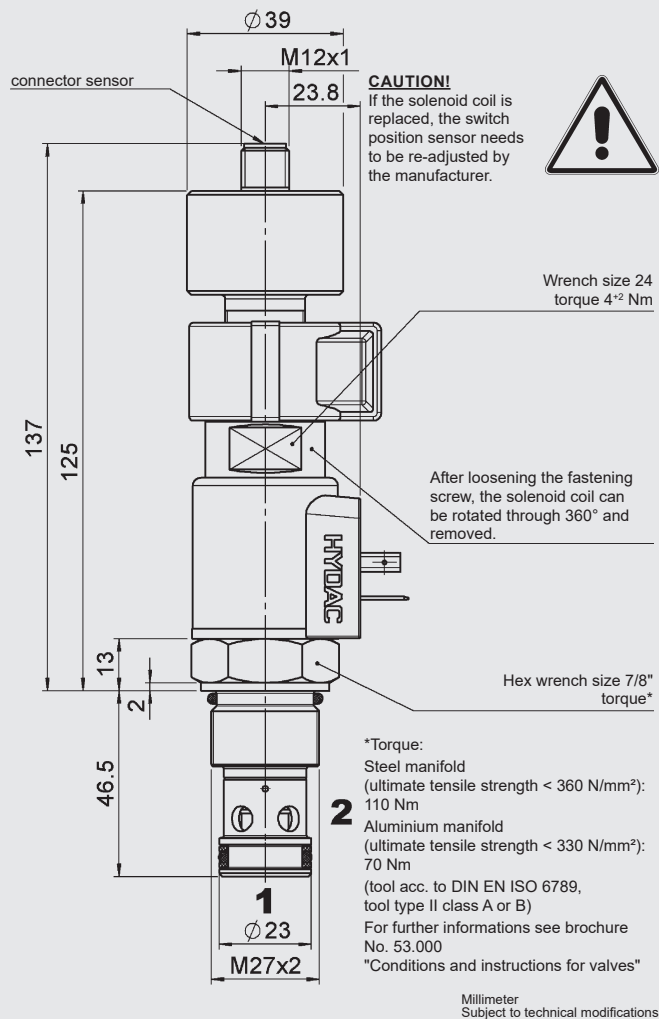
Supply voltage:	24 V: 20 to 32 V DC 12 V: 10.5 to 16 V DC
Reverse polarity protection of supply:	yes
Outputs:	2 with change-over function, PNP, positive switching
Output load:	≤ 400 mA, 100% duty
Short circuit protection:	Resistant to short circuits
Connector:	Male connector M12 x 1 (4 pole)
Protection class:	IP65 as per DIN 40050
CE conformity:	93/68/EEC 2014/30/EU
EMC:	DIN EN 61000-6-1-2-3-4
Humidity requirements:	0-95% rel. (as per DIN 40040)

Diagram:



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

## DIMENSIONS



## MODEL CODE

**WSM12120W - 01E - C - N - 24 DG - 12**

**Basic model**  
Directional poppet valve, metric

**Type**  
01E = with electronic  
switch position monitoring

**Body and ports**  
C = cartridge only

**Seals**  
N = NBR (standard)  
V = FKM

**Coil voltage**  
**DC voltage**  
12 = 12 VDC  
24 = 24 VDC

**AC voltage** (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 mm<sup>2</sup>  
DN = Deutsch connector DT04-2P, 2-pole, 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.
WSM12120W-01E-C-N-24DG	3432820
WSM12120W-01E-C-N-230AG	3689258

Other versions on request

## Standard in-line bodies

Model code	Part No.	Material	Ports	Pressure
R12120-10X-01	396708	Steel, zinc-plated	G3/4"	350 bar
R12120-10X-02	396707	Steel, zinc-plated	M27 x 2	350 bar

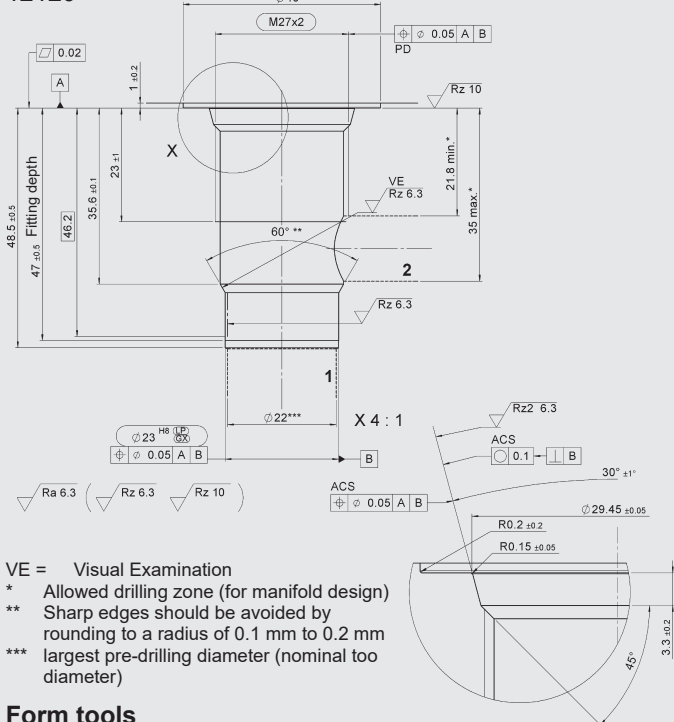
Other bodies see brochure no. EN 5.252.

## Seal kits

Model code	Material	Part No.
SEAL KIT 12120-NBR	NBR	3454001
SEAL KIT 12120-FKM	FKM	3454002

## CAVITY

12120



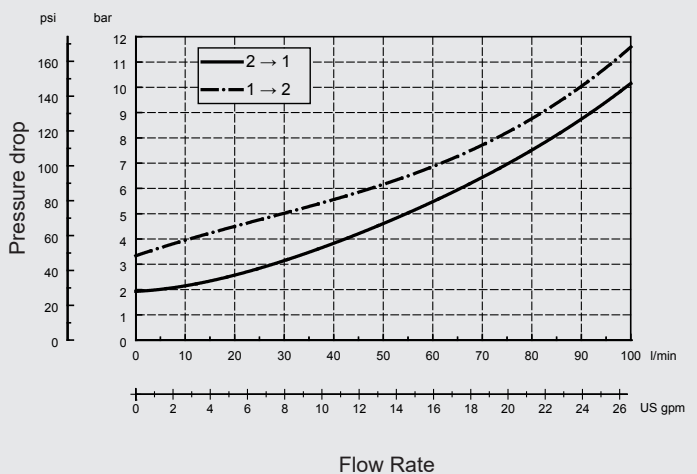
## Form tools

Tool	Part No.
Countersink (shank MK3)	172880
Reamer	1014207

Millimeter  
Subject to technical modifications

## 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.

**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