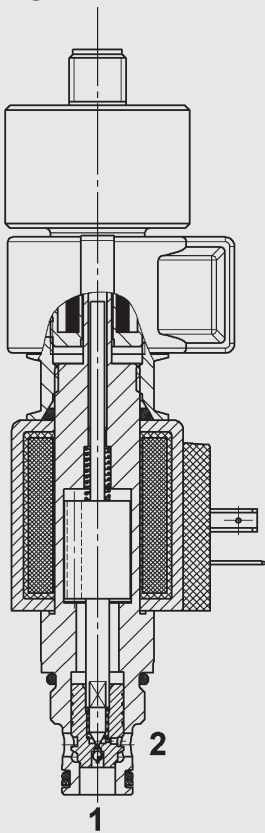


up to 40 l/min  
up to 350 bar

## FUNCTION



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

If the solenoid coil is de-energised the valve is blocked from port 2 to port 1 – this switch position is recorded inductively. In the reverse direction there is free flow through the valve. The valve poppet opens at a differential pressure of approx. 1.8 bar (check function). When energised, the valve allows flow in both directions. The valve poppet opens at a pressure difference of approx. 1.6 bar from 2 to 1 and at approx. 0.8 bar from 1 to 2.

**Hint:** switching characteristics and switching times are strongly dependent on the pressure difference and the flow rate during the switching process. This is especially the case for valves with poppet seal and/or position sensor.

## 2/2 Solenoid Directional Valve poppet type, pilot-operated normally closed (reverse flow) with electronic switch position monitoring Metric Cartridge – 350 bar WSM06020ZR-01E

### FEATURES

- With electronic 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 hr salt spray test)

### TECHNICAL DATA\*

Operating pressure:	max. 350 bar
Nominal flow:	max. 40 l/min
Internal leakage:	leak-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 = 34 mm <sup>2</sup> /s
Temperature range of operating fluid:	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. 7.4 mm <sup>2</sup> /s to max. 420 mm <sup>2</sup> /s
Filtration of operating fluid: (in acc. with ISO 4406)	p ≤ 210 bar: min. 20/18/15 recommended for extended service life 17/15/12 p > 210 bar: min. 18/16/13 recommended for extended service life 16/14/11
MTTF <sub>d</sub> :	150–1200 years, according to DIN EN ISO 13849-1
Installation position:	No orientation restrictions
Materials:	Valve body: steel Piston: hardened and ground steel Seals: NBR (standard) FKM (optional, temperature range of operating fluid -20 °C to +120 °C)
	Back-up rings: PTFE
	Solenoid coil: steel/ polyamide
Cavity:	Metric 06020
Weight:	0.5 kg

### Electrical data

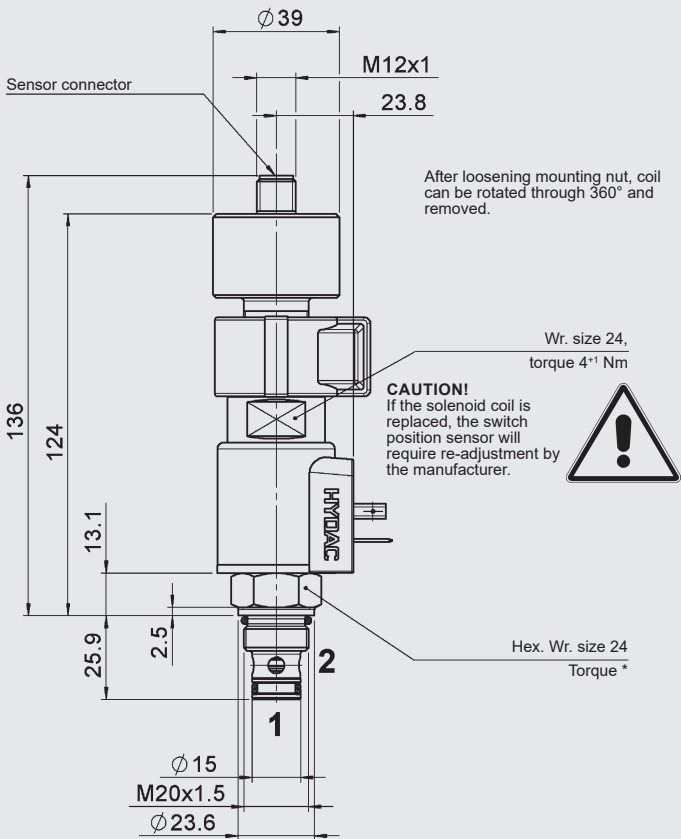
Type of voltage:	DC: DC solenoid AC: AC solenoid with rectifier integrated into the coil
Current draw at 20 °C:	1.5 A at 12 V DC 0.8 A at 24 V DC
Voltage tolerance:	± 15% of rated voltage
Coil duty rating:	Continuous up to max. 115% of rated voltage at max. 60° C ambient temperature
Response time: (at p <sub>max</sub> , Q <sub>max</sub> , v = 34 mm <sup>2</sup> /s)	Energised: approx. 20 ms; de-energised: approx. 60 ms Greatly increased reaction times are possible for 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% continuous
Short circuit protection:	Resistant to short circuits
Connector:	Round connector M12x1 (4-pin)
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

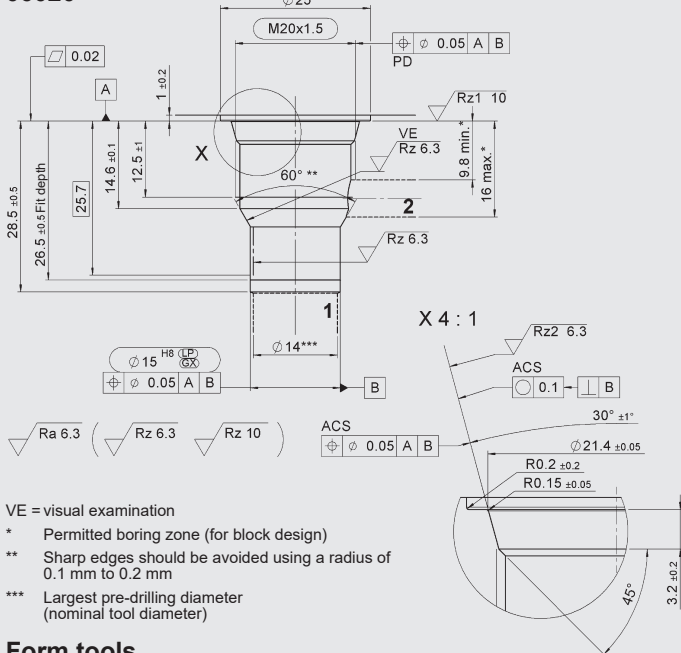


\*Torque:  
Steel housing (burst strength > 360 N/mm<sup>2</sup>): 50 Nm  
Aluminium housing (burst strength < 330 N/mm<sup>2</sup>): 35 Nm  
(Torque tool in acc. with DIN EN ISO 6789, tool type II, class A or B)  
For more information see "Operating conditions and instructions for valves" in brochure 53.000

Millimetres  
Subject to technical modifications

## CAVITY

06020



## Form tools

Tool	Part no.
Countersink (shank MK3)	170033
Reamer (shank MK2)	1000768
Tap	1002648
Plug gauge	168840

Millimetres  
Subject to technical modifications

## MODEL CODE

**WSM06020ZR - 01E - C - N - 24 DG - 12**

**Designation**  
Directional poppet valve, metric

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

**Connection type**  
C = cartridge only

**Sealing material**  
N = NBR (standard)  
V = FKM

**Coil voltage**  
**DC voltages**  
12 = 12 V DC  
24 = 24 V DC

**AC voltage** (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, design A to EN175301-803  
DK = Kostal threaded connection M27 x 1  
DL = two 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, design A to EN175301-803

Other connectors on request

**Supply voltage for sensor**  
No specification = 24 V DC  
12 = 12 V DC

## Standard models

Model code	Part no.
WSM06020ZR-01E-C-N-12DG	3980687
WSM06020ZR-01E-C-N-24DG	3963790

Other models on request

## Inline connection housings

Code	Part no.	Material	Ports	Pressure
R06020-01X-01	275266	Steel, zinc-plated	G3/8"	max. 350 bar

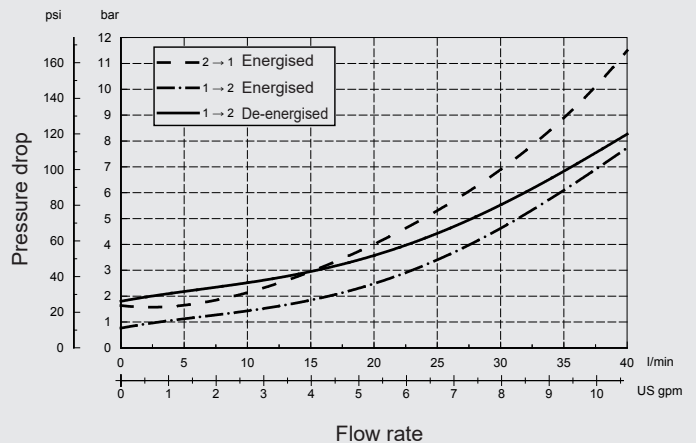
For other connection housings, see brochure no. D 5.252.

## Seal kits

Code	Material	Part no.
SEAL KIT 06020-NBR	NBR	3119017
SEAL KIT 06020-FKM	FKM	3262477

## SAMPLE CHARACTERISTICS

Measured at  $v = 34 \text{ mm}^2/\text{s}$ ,  $T_{\text{oil}} = 46^\circ \text{C}$



## Note

The information in this brochure relates to the operating conditions and applications described. For applications not described, please contact the relevant technical department.  
Subject to technical modifications.

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