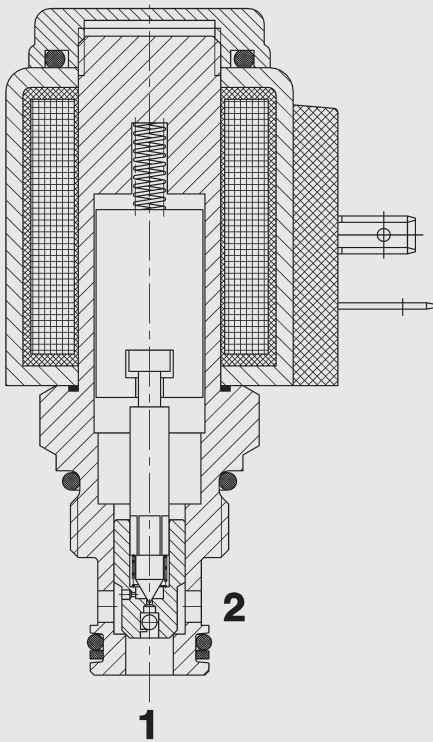


up to 40 l/min  
up to 350 bar

## FUNCTION



When the solenoid coil is not energized, the valve is closed from port 2 to port 1. In the reverse direction there is free flow through the valve. The valve piston opens at a differential pressure of approx. 1.5 bar (check function). When energized the valve allows flow in both directions.  
**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.

## 2/2 Solenoid Directional Valve Poppet Type, Pilot Operated Normally Closed (Reverse Flow) Metric Cartridge – 350 bar WSM06020ZR-01

### FEATURES

- Excellent switching performance by high power HYDAC solenoid
- Wide variety of connectors available
- Coil seals protect the solenoid system
- Compact design enables space-saving installation in connection housings and control blocks
- Exposed surfaces zinc-nickel plated for increased corrosion protection (1.000 h Salt spray test)

### SPECIFICATIONS\*

|                                    |   |
|------------------------------------|---|
| Operating pressure:                | max. 350 bar  |
| Nominal flow:                      | max. 40 l/min   |
| Internal leakage:                  | Leakage-free<br>max. 5 drops/min (0.25 cm <sup>3</sup> /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:                   | min. 10 mm <sup>2</sup> /s to max. 420 mm <sup>2</sup> /s   |
| Filtration:                        | Class 21/19/16 according to ISO 4406 or cleaner   |
| MTTF <sub>d</sub> :                | 150 - 1200 years,<br>according to DIN EN ISO 13849-1  |
| Installation:                      | No orientation restrictions   |
| Materials:                         | Valve body: free-cutting steel<br>Poppet: hardened and ground steel<br>Seals: NBR (standard)<br>FKM (optional, media temperature range -20 °C to +120 °C)<br>Back-up rings: PTFE<br>Coil: steel / polyamide |
| Cavity:                            | 06020   |
| Weight:                            | Valve complete: 0.33 kg<br>Coil only: 0.19 kg   |

### Electrical data

|  |   |
|--|---|
| Type of voltage:   | <u>DC</u> : direct current solenoid<br><u>AC</u> : alternating current solenoid with a bridge rectifier built into the coil             |
| Current draw at 20 °C:   | 1.5 A at 12 V DC<br>0.8 A at 24 V DC  |
| Voltage tolerance:   | ± 15 % of the nominal voltage   |
| Coil duty rating:  | Continuous up to max. 115 % of the nominal voltage at 60 °C ambient temperature   |
| Response time:<br>(at p <sub>max</sub> , Q <sub>max</sub> , v = 34 mm <sup>2</sup> /s) | energized: approx. 35 ms<br>de-energized: approx. 50 ms<br>substantially extended response times possible at other operating conditions |
| Coil type:   | Coil...-40-1836   |

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

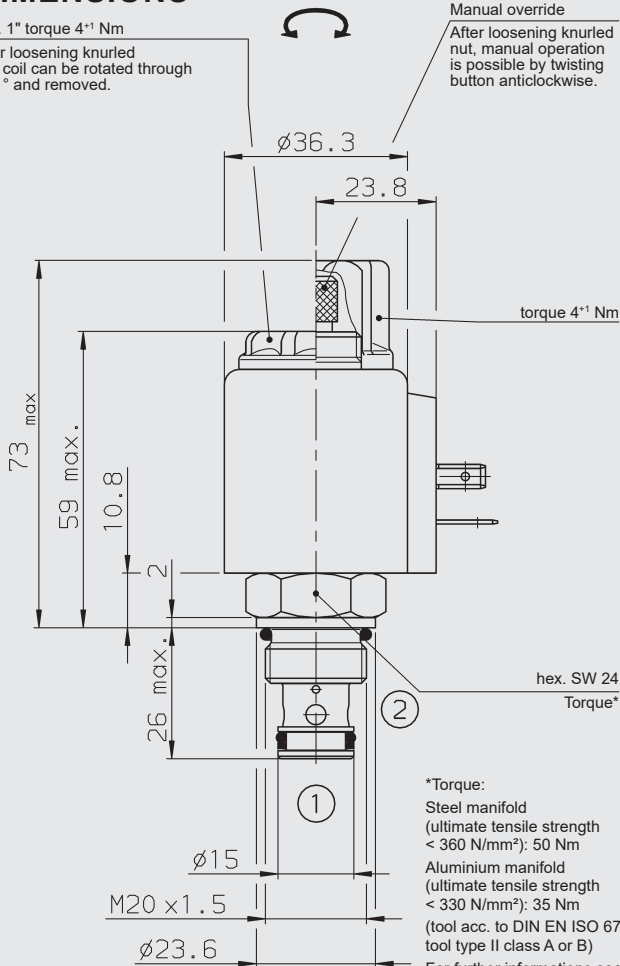
## DIMENSIONS

hex. 1" torque 4<sup>±1</sup> Nm

After loosening knurled nut, coil can be rotated through 360° and removed.

Manual override

After loosening knurled nut, manual operation is possible by twisting button anticlockwise.

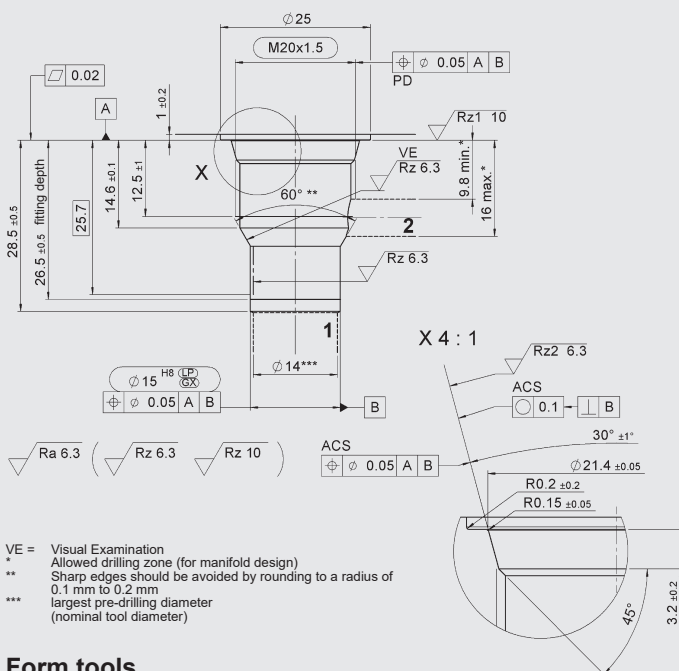


\*Torque:  
Steel manifold  
(ultimate tensile strength < 360 N/mm<sup>2</sup>): 50 Nm  
Aluminium manifold  
(ultimate tensile strength < 330 N/mm<sup>2</sup>): 35 Nm  
(tool acc. to DIN EN ISO 6789, tool type II class A or B)  
For further informations see brochure No. 53.000  
"Conditions and instructions for valves"

millimeter  
subject to technical modifications

## CAVITY

06020



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) | 170033   |
| Reamer (shank MK2)      | 1000768  |

millimeter  
subject to technical modifications

## MODEL CODE

**WSM06020ZR - 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 EN175301-803

DT = AMP Junior Timer, 2 pole, radial

DK = Kostal threaded connection M27 x 1

DL = 2 flying leads, 475 mm long

DN = Deutsch connector, axial

AC: AG = DIN connector type A to EN175301-803

Other connectors on request

## Standard models

| Model code              | Part No. |
|-------------------------|----------|
| WSM06020ZR-01-C-N-24DG  | 3055535  |
| WSM06020ZR-01-C-N-230AG | 3055533  |
| WSM06020ZR-01-C-N-12DN  | 4223696  |

## Standard in-line bodies

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

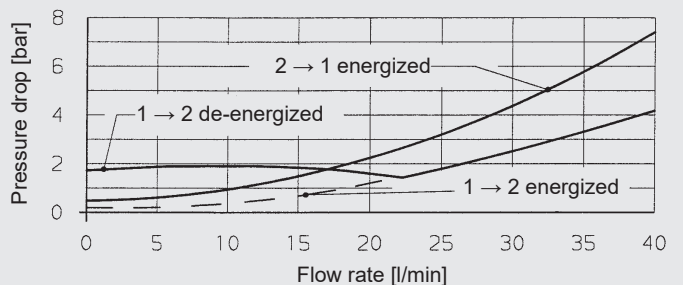
Other housings on request

## Seal kits

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

## TYPICAL PERFORMANCE

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 or operating conditions not described, please contact the relevant technical department.  
Subject to technical modifications.

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