

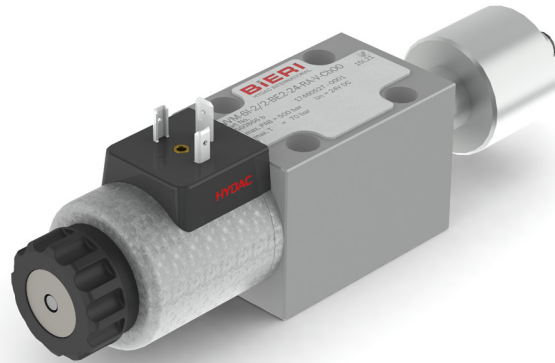
Directional poppet valves with position monitoring

Type WVM-6I-R

NG 6 ISO
up to 12 l/min, up to **500 bar**

Features

- Directly operated
- Poppet tight
- Position monitored with dirt resistant monitoring concept
- Good corrosion resistance
- High operational safety and reliable switching
- High duty cycles and long lifetime
- An overlap area on the poppet ensures that the possible flow in the switching points near the seats is limited to a minimum.
- Positive switching overlap (3/2 valves)



Applications

- Hydraulic controls according to DIN EN ISO 13849
- Controlling of cylinders in higher pressure ranges
- Clamping technology & jig construction
- Machine tools - auxiliary functions
- Forming technology - clamping
- Presses, test benches and systems
- Lifting and transport systems
- Hydraulic tools

Design

- Pressure compensated, hardened and specially grinded valve cones
- With sealed manual override
- As 2/2 or 3/2 valve with solenoid control
- 360° turnable and exchangeable plug-in coil
- Integrated check valve and orifices available
- With 1 or 2 position monitoring
- Non-contact low hysteresis transistor switches
- Return pressure stop available on request

Technical data

| | |
|--|--|
| Hydraulic fluid | mineral oil according to DIN 51524 (other fluids on request) |
| Fluid temperature range | - 20 to 80 °C |
| Ambient temperature range | - 30 to 50 °C |
| Viscosity range | 5 to 400 mm ² /s |
| Porting | NG 6 according to DIN 24340 / ISO 4401 / CETOP RP 121 H |
| Max. operating pressure connection P, A, B | 500 bar |
| Max. operating pressure connection T | 70 bar (WVM-6I-3/2-D = 500 bar) |
| Max. flow rate | 12 l/min |
| Filtration (recommendation) | according to NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12 |
| Duty cycle DC | 100% |
| Solenoid voltage (nominal power) | 24 VDC (30 W) |
| Voltage tolerance | +/- 10% |
| Switching time | 40 - 110 ms |
| Degree of protection | IP 65 according to EN 60529 / DIN 40050 (or according coil choice) |
| Weight | 1.8 kg with solenoid / 1.5 kg without solenoid |
| Material | corrosion resistant steel (Solenoid coil: ZnNi-plated (1000 h salt spray test)) |

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Type code

| | | Additional elements | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|----|---|---|---|---|---|----|---|----|---|-----|---|---|---|---|----|---|----|---|---|--|----|
| Example | | WV | M | - | 6I | - | 2 | / | 2 | - | E2 | - | 24 | - | R0A | - | V | - | A | 10 | - | RV | - | A | | 00 |
| Directional poppet valves | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Size | 500 bar | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal size | 6 ... | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connection ISO | ... I | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number of ports | 2 or 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number of positions | 2, 3 or 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control functions | See overview "Product information" | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control method | 0 without solenoid 24 solenoid 24 VDC | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monitored position | RO 0 RA a R0A 0, a | | | | | | | | | | | | | | | | | | | | | | | | | |
| Seal material | V FKM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connection for orifice | P P-connection (pressure) A A-connection B B-connection T T-connection (tank)* | | | | | | | | | | | | | | | | | | | | | | | | | |
| Orifice-Ø | 05 0.5 mm 07 0.7 mm 10 1.0 mm 14 1.4 mm 20 2.0 mm | | | | | | | | | | | | | | | | | | | | | | | | | |
| Check valve | RV plug in check valve in P-connection | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Design 00 ... 99 For internal purposes | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Index Please leave blank For internal purposes | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Design revision For internal purposes | | | | | | | | | | | | | | | | | | | | | | | | |

* Safety note: Select orifice with regard to permissible tank pressure!

Product information

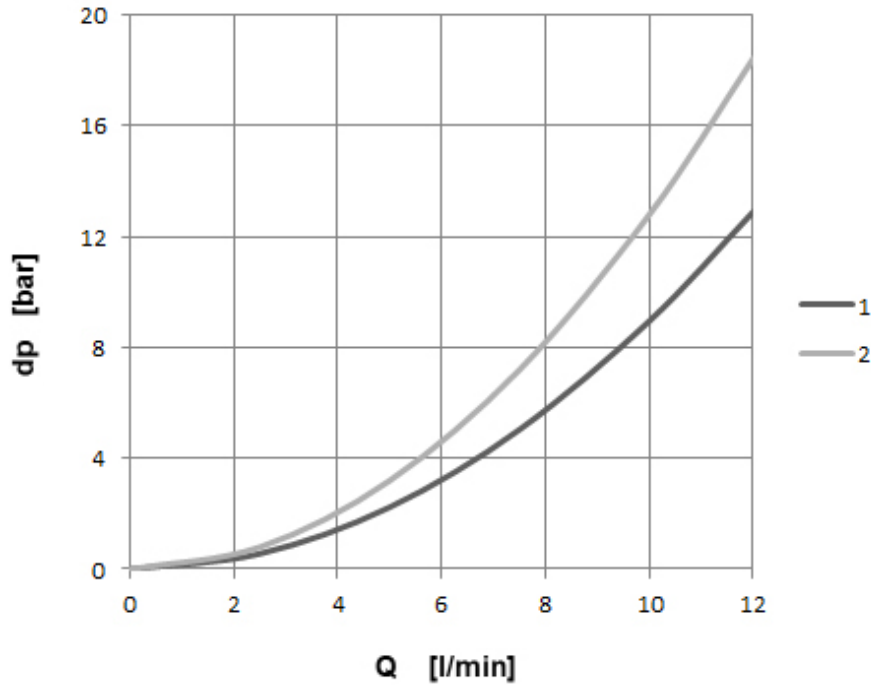
| Monitored position | R0 | RA | ROA | PIN |
|---------------------------|---------|---------|---------|----------------|
| Signal value | | | | — 2 - - - 4 |
| Valve type | 2/2 | | | |
| Control function | E2 | | | |
| Part No. without solenoid | 4560831 | 4560832 | 4560834 | |
| Part No. 24 VDC | 4450900 | 4450899 | 4450896 | |
| Symbol | | | | |
| Valve type | 2/2 | | | |
| Control function | BE2 | | | |
| Part No. without solenoid | 4560865 | 4560866 | 4560867 | |
| Part No. 24 VDC | 4450903 | 4450902 | 4450901 | |
| Symbol | | | | |
| Valve type | 2/2 | | | |
| Control function | E4 | | | |
| Part No. without solenoid | 4560869 | 4560870 | 4560871 | |
| Part No. 24 VDC | 4450892 | 4450887 | 4450885 | |
| Symbol | | | | |
| Valve type | 2/2 | | | |
| Control function | BE4 | | | |
| Part No. without solenoid | 4560872 | 4560873 | 4560874 | |
| Part No. 24 VDC | 4450895 | 4450894 | 4450893 | |
| Symbol | | | | |

| Monitored position | R0 | RA | ROA | PIN |
|---------------------------|---------|---------|---------|----------------|
| Signal value | | | | — 2 - - - 4 |
| Valve type | 3/2 | | | |
| Control function | D | | | |
| Part No. without solenoid | 4560895 | 4560896 | 4560897 | |
| Part No. 24 VDC | 4450864 | 4347427 | 4347455 | |
| Symbol | | | | |
| Valve type | 3/2 | | | |
| Control function | Y | | | |
| Part No. without solenoid | 4560898 | 4560899 | 4560900 | |
| Part No. 24 VDC | 4450863 | 4344658 | 4344641 | |
| Symbol | | | | |

Usual flow direction

Pressure drop

($v = 32 \text{ mm}^2/\text{s}$)

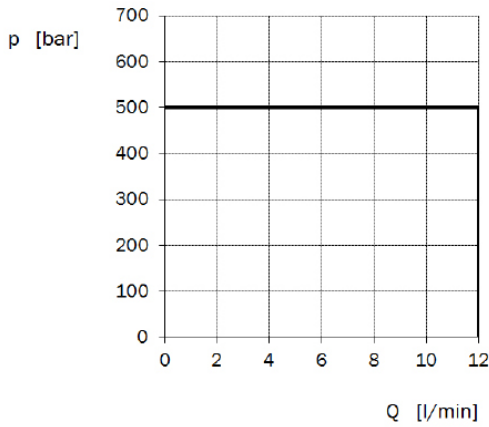


| Valve type | Control function | a | | | 0 (+) | | |
|------------|------------------|-----|-----|-----|-------|-----|-----|
| | | P-A | A-T | P-T | P-A | A-T | P-T |
| 2/2 | E2 | 2 | | | | | |
| 2/2 | BE2 | | | | 1 | | |
| 2/2 | E4 | | | 2 | | | |
| 2/2 | BE4 | | | | | | 1 |
| 3/2 | D | | 1 | | 2 | | |
| 3/2 | Y | 2 | | | | 1 | |

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Hydraulic switching capacity



Hydraulic switching capacity at rated voltage and ambient temperature $T_a = 50^\circ \text{C}$
 $v = 32 \text{ mm}^2/\text{s}$

Applies to all valves (control functions)!

Switch on current I_{ON}
 $I_{ON} \geq 0.7 \times I_N$

Switch off current I_{OFF}
 $I_{OFF} \leq 0.07 \times I_N$

Switching times

| Valve type | Control function | Switching on [ms]* | | Switching off [ms]* |
|------------|------------------|--|----------------------------|---------------------|
| | | at operating temperature ($0.7 \times I_N$) | cold ($1 \times I_N$) | |
| 2/2 | E2, BE2 | 110 | 50 | 25 |
| 2/2 | E4, BE4 | 60 | 40 | 25 |
| 3/2 | D | 110 | 50 | 25 |
| 3/2 | Y | 60 | 40 | 25 |

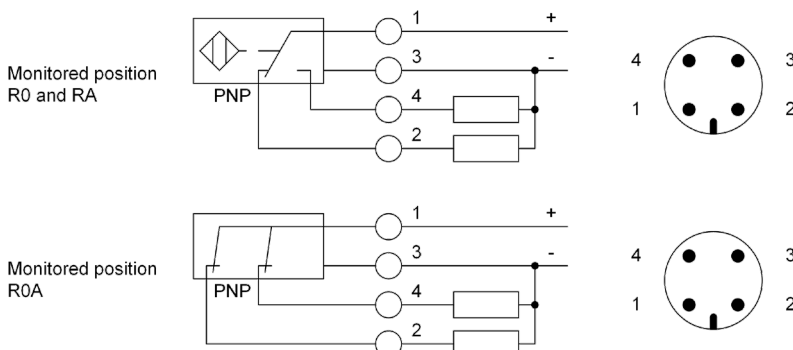
* indicative values

Data (sensor)

| | |
|-------------------------------|---|
| Voltage | 20 - 32 VDC |
| Power tolerance | +/- 10% |
| Max. output load | 400 mA each |
| Connection | M12x1/4-pole |
| Electromagnetic Compatibility | DIN EN 61000-6-1/2/3/4 |
| Permissible acceleration | 1-Point: 20g (0 ... 500 Hz), shock 50g 2-point: 5g (0 ... 500 Hz), shock 20g |
| Permissible ambient humidity | max. 95% rel. (according to DIN 40040) |

PIN configuration

| | |
|---|--|
| 1 | 24 V |
| 2 | Signal (voltage according to supply voltage) |
| 3 | 0 V |
| 4 | Signal (voltage according to supply voltage) |

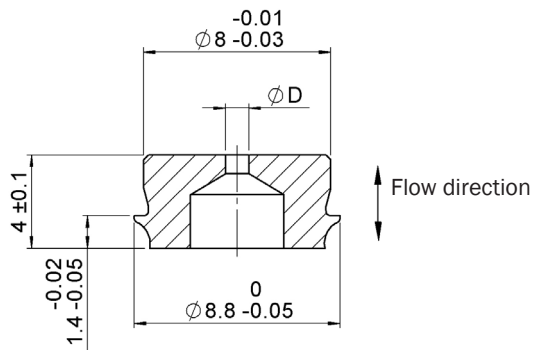


Accessories

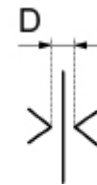
Orifice for P-, A-, B-, T-connection

| Part description | Type code | Part No. |
|---------------------------|---------------------|----------|
| Orifice \varnothing 0,5 | BL700-6-D8-0,5-A*00 | 3687934 |
| Orifice \varnothing 0,7 | BL700-6-D8-0,7-A*00 | 3687956 |
| Orifice \varnothing 1,0 | BL700-6-D8-1,0-A*00 | 3687961 |
| Orifice \varnothing 1,4 | BL700-6-D8-1,4-A*00 | 3656890 |
| Orifice \varnothing 2,0 | BL700-6-D8-2,0-A*00 | 3687970 |

Dimensional drawing



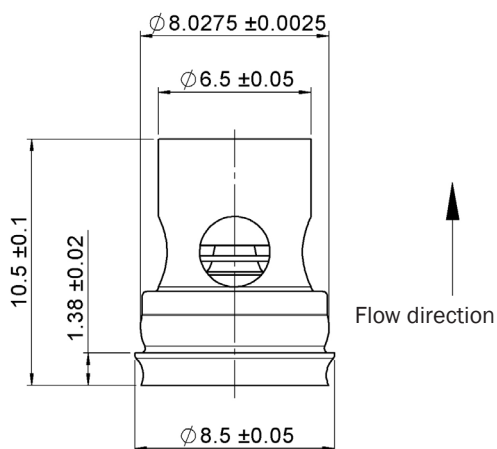
Symbol



Check valve for P-connection

| Part description | Type code | Part No. |
|---------------------------------------|-------------------|----------|
| Check valve (fitting in connection P) | RV500-6-D8-V-A*00 | 4269275 |

Dimensional drawing



Symbol

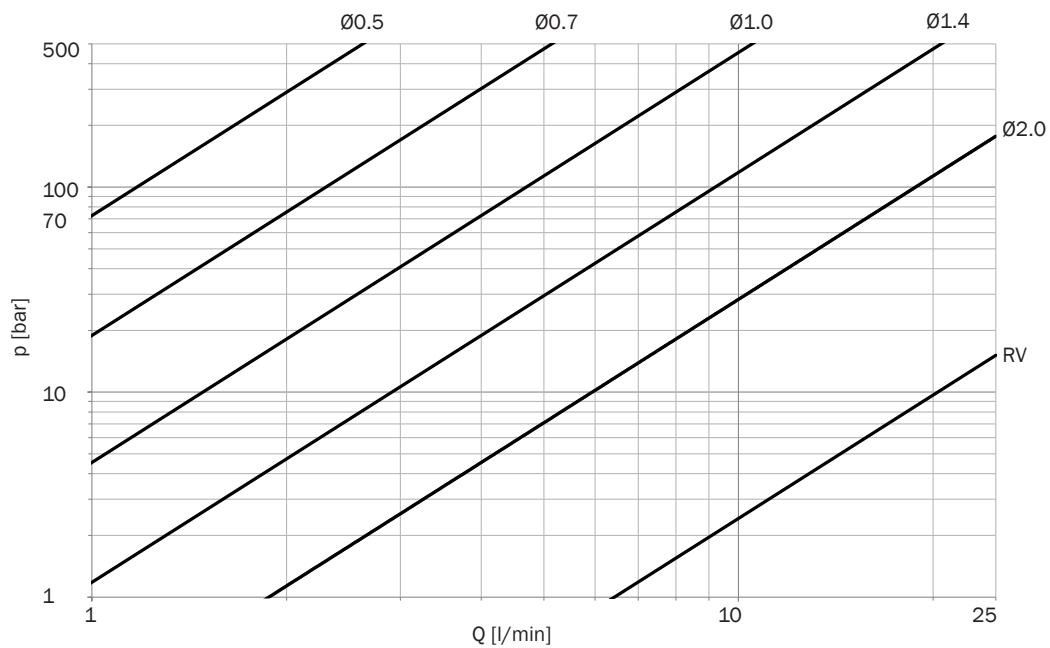


Load change B10d 6 million according to ISO 13849-1

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Drop pressure



Solenoid coil

All WVM-6I valves are supplied with solenoid coil 4244171 as standard. Optionally, other solenoid coils of the Coil-50-2345 series according to the table below can also be used.

The valve „without solenoid coil“ (control type „0“ in the type code) and the solenoid coil have separately. Coil nut and O-ring are supplied with the valve.

| Connection | DIN 436050 | Junior Timer | Litz wire | Deutsch DT04 |
|-----------------------------|----------------------|---------------|---------------------|---------------|
| Protection ¹ | radial IP65 | axial IP67 | 300 mm long IP67 | axial IP67 |
| 12 V Part No. | 4244169 | on request | on request | on request |
| 24 V Part No. | 4244171 | on request | on request | on request |
| 110 VAC Part No. | 3586364 ² | on request | on request | on request |
| 230 VAC Part No. | 3586396 ² | on request | on request | on request |

¹ Important note: The protection class applies to the solenoid coil. The precondition is the proper assembly of the mating connector and the same or better protection class of the mating connector.

² Rectifier is integrated in the solenoid coil

| Part description | Part No. |
|---|----------|
| 1 x Plug for solenoid grey | 6132484 |
| 1 x Plug for solenoid black | 3728850 |
| 1 x Plug for solenoid with rectifier / grey | 3681390 |
| 1 x Plug for solenoid with rectifier / black | 3671158 |
| 1 x LRS KPL Z4 TR 2Pol LED (power reduction plug) | 3689354 |
| 4 x Socket head screw ISO 4762-M5 x 50-12.9 | 4455691 |

Spare parts

| Part description | Part No. |
|------------------------------|----------|
| 4 x O-Ring 9,25 x 1,78, FKM | 4455692 |
| 1 x Pole tube nut | 914555 |
| 1 x O-Ring for pole tube nut | 616992 |

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The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.