

Directional poppet valves bidirectional

Type WVH-4B-Bi

NG 4 Bieri

up to 12 l/min, up to **700 bar**

Features

- Directly operated
- Seat tight
- Good corrosion resistance
- Bidirectional (flow in both directions, independent of pressure port)
- Low pressure drop
- Dead space optimized (for applications with grease)
- Compact
- Low weight



Applications

- Controlling of cylinders in higher pressure ranges as full replacement for spool valve technology (especially for seat tight holding and bending)
- In machine tools, hoisting technology, test stands and rescue devices
- Power units (e.g. as with limited space conditions or weight reduction)
- Use of high viscosity fluids / grease
- Use in lubrication systems

Design

- With hardened cones and seats
- 360° turnable and exchangeable plug-in coil
- Mounting on single subplates as "stand-alone" valves or in valve banks with subplates (see technical data sheets EAP-4B and APH/X-4B)
- As 2/2, 3/2 valve with solenoid actuation

Technical data

| | |
|----------------------------------|--|
| Hydraulic fluid | mineral oil according to DIN 51524 / Grease according to class NLGI 2 |
| Fluid temperature range | -20 to 80 °C (down to -40 °C on request) |
| Ambient temperature range | -30 to 50 °C (down to -40 °C on request) |
| Viscosity range | 5 mm ² /s to class NLGI 2 |
| Porting | NG 4 according to Bieri standard |
| Max. operating pressure | 700 bar |
| Max. flow rate / mass flow | 12 l/min (Grease: approx. 2.5 kg/min) |
| Filtration (recommendation) | according NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12 |
| Duty cycle DC | 100% |
| Solenoid voltage (nominal power) | 24 VDC (27.2 W) / 110 VAC (25 W) / 230 VAC (25 W) |
| Voltage tolerance | +/- 10% |
| Switching time | 40 - 120 ms |
| Degree of protection | IP 63 according to EN 60529 / DIN 40050 (IP 65 on request) |
| Weight | 0,85 kg |
| Material | corrosion-resistant steel (coil housing: ZnFe - corrosion protection) |

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Type code

| Example | | WV | H | 4B | 2 | / | 2 | WS | 24 | BI | V | A | | 00 | |
|----------------------------------|--|----|---|----|---|---|---|----|----|----|---|---|--|----|---|
| Directional poppet valves | | | | | | | | | | | | | | | Design 00 ... 99 For internal purposes |
| Size | 700 bar | | | | | | | | | | | | | | |
| Nominal size | 4 ... | | | | | | | | | | | | | | |
| Connection Bieri | ... B | | | | | | | | | | | | | | |
| Number of ports | 2 or 3 | | | | | | | | | | | | | | Index Please leave blank For internal purposes |
| Number of positions | 2 | | | | | | | | | | | | | | |
| Control function | See overview "Product informations" | | | | | | | | | | | | | | |
| Control method | 24 solenoid 24 VDC 110 solenoid 110 VAC 230 solenoid 230 VAC | | | | | | | | | | | | | | |
| Technical design | Bidirectional | | | | | | | | | | | | | | |
| Seal material | V FKM other seal materials on request | | | | | | | | | | | | | | |

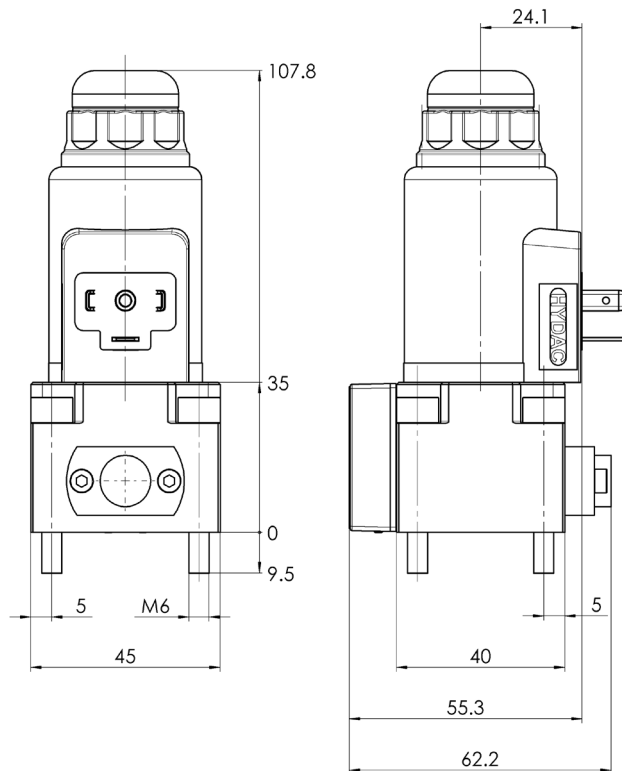
Product information

| Valve type | 2/2 | | 3/2 ¹⁾ | |
|------------------|---------|---------|-------------------|---------|
| Control function | WO | WS | N | L |
| Part No. 24 VDC | 4002620 | 4002624 | 4002628 | 4002628 |
| Part No. 110 VDC | 4014031 | 4014033 | 4014048 | 4014048 |
| Part No. 230 VDC | 4002891 | 4014034 | 4002892 | 4002892 |
| Symbol | | | | |

¹⁾ **Attention:** Valve body needs to be turned 180° to change over control position N or L

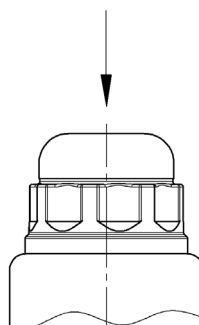
To achieve function „L“, connection **3** (valve side) must be mounted to **P** (connecting plate), respectively connection **1** (valve) to **T** (plate). To achieve function „N“, connection **1** (valve side) must be mounted to **P** (connecting plate), respectively connection **3** (valve) to **T** (plate)

Dimensional drawings

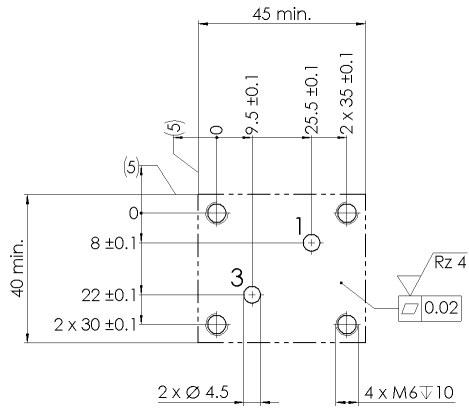


Manual override

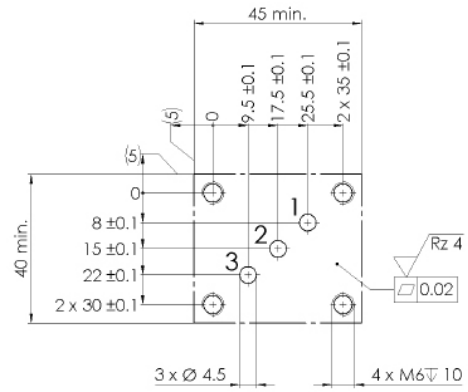
F = 45 N



Drilling pattern 2/2 directional poppet valves

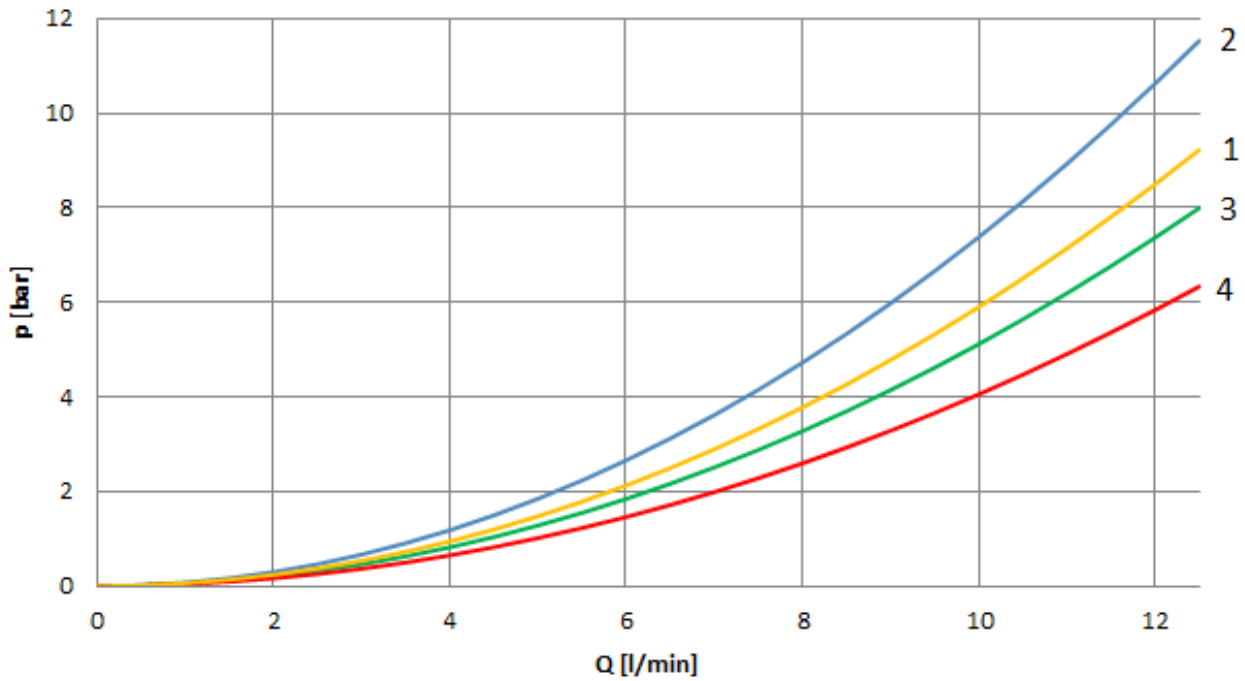


Drilling pattern 3/2 directional poppet valves



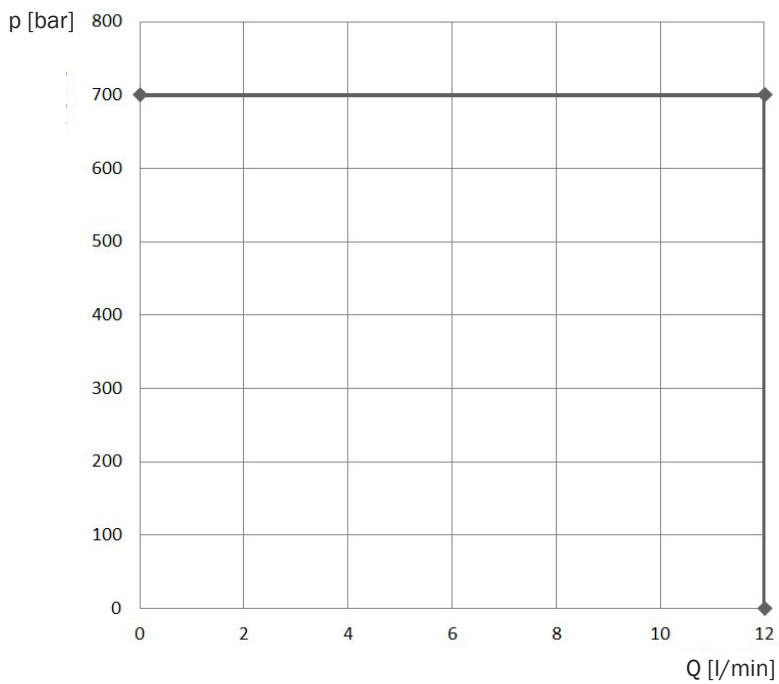
Pressure drop

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



| Valve type | Control function | 1 - 2 | 2 - 1 | 2 - 3 | 3 - 2 | 1 - 3 | 3 - 1 |
|------------|------------------|-------|-------|-------|-------|-------|-------|
| 2/2 | WO | | | | | 1 | 1 |
| 2/2 | WS | | | | | 1 | 1 |
| 3/2 | L | 2 | 4 | 3 | 2 | | |
| 3/2 | N | 2 | 4 | 3 | 2 | | |

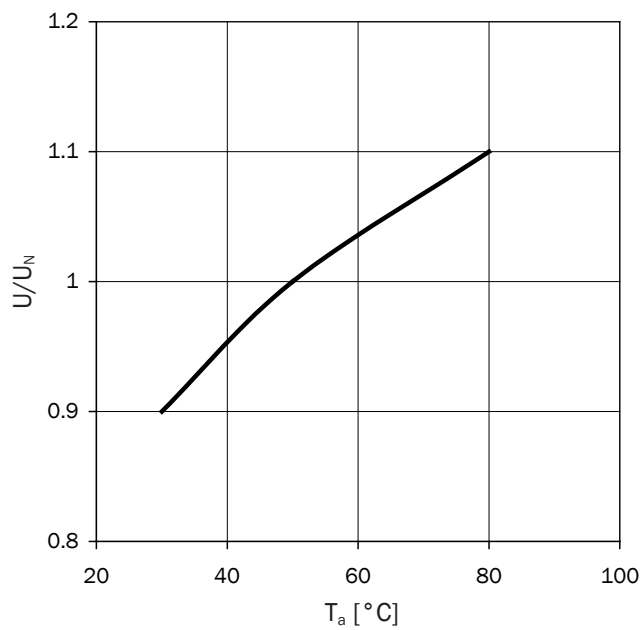
Hydraulic switching capacity



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

Applies to all control functions!

Operating voltage



Operating voltage for reaching the hydraulic switching capacity at deviating ambient temperatures

Type WVH-4B-Bi

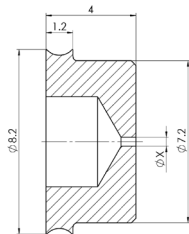
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Accessoires

| Item description | Type code | For valve type | Part No. |
|--|----------------|----------------|----------|
| Orifice insert Ø 0,4 (fitting in connection T) | BLM-4-0,4-A*00 | All | 4002279 |
| Orifice insert Ø 0,5 (fitting in connection T) | BLM-4-0,5-A*00 | All | 4002353 |
| Orifice insert Ø 0,6 (fitting in connection T) | BLM-4-0,6-A*00 | All | 4002354 |
| Orifice insert Ø 0,7 (fitting in connection T) | BLM-4-0,7-A*00 | All | 4002355 |
| Orifice insert Ø 0,8 (fitting in connection T) | BLM-4-0,8-A*00 | All | 4002356 |
| Orifice insert Ø 1,0 (fitting in connection T) | BLM-4-1,0-A*00 | All | 4002357 |

* Orifice insert and check valves cannot be installed directly in the valve (**ZP700 required**). Use of Check valves and Return pressure stop not possible with 3/2-L (also with ZP700).

Dimensional drawing



Symbol

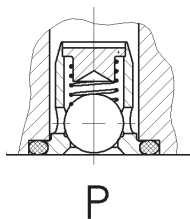


| Item description | Type code | For valve type | Part-Nr. |
|--|--------------------|----------------|----------|
| Adapter plate | ZP700-4-X-X-V-A*00 | All | 4400112 |
| 4 x socket head screw ISO 4762-M6 x 65 for ZP700 | - | All | 4362502 |

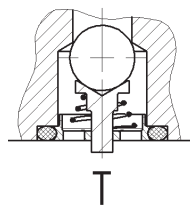
| Item description | Type code | For valve type | Part No. |
|--|-----------------------|----------------|----------|
| Check valve (fitting in connection P) | RVH700-4B-D6,5-X-A*00 | 2/2, 3/2-N | 3680704 |
| Return pressure stop (fitting in connection T) | RDH700-4B-D6,5-X-A*00 | 2/2, 3/2-N | 3687580 |

Dimensional drawing

Check valve



Return pressure stop



Symbol

Check valve



Return pressure stop



| Item description | Part No. |
|--|----------|
| 1 x Plug for solenoid grey | 6132484 |
| 1 x Plug for solenoid black | 3728850 |
| 1 x Plug for solenoid with integrated reduction of performance | 3689354 |

Spare parts

| Item description | Part No. |
|--|----------|
| 3 x O-Ring 6,07 x 1,78, FKM | |
| 1 x O-Ring 26,7 x 1,78, FKM | 4477135 |
| 1 x O-Ring 17,96 x 2,62, FKM | |
| 4 x Socket head screw ISO 4762-M6 x 35 - A2-70 | 4478218 |
| 1 x Solenoid 24 VDC | 915142 |
| 1 x Solenoid 110 VAC | 3547372 |
| 1 x Solenoid 230 VAC | 3547373 |
| 1 x Pole tube nut | 4422997 |
| 1 x O-Ring for pole tube nut | 629833 |

Further fastening elements, tie bolts, subplates and single subplates please see technical data sheets APH/X-4B or EAP-4B.