

# Directional poppet valves bidirectional

## Type WVH-4B-Bi

NG 4 Bieri

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

### Features

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

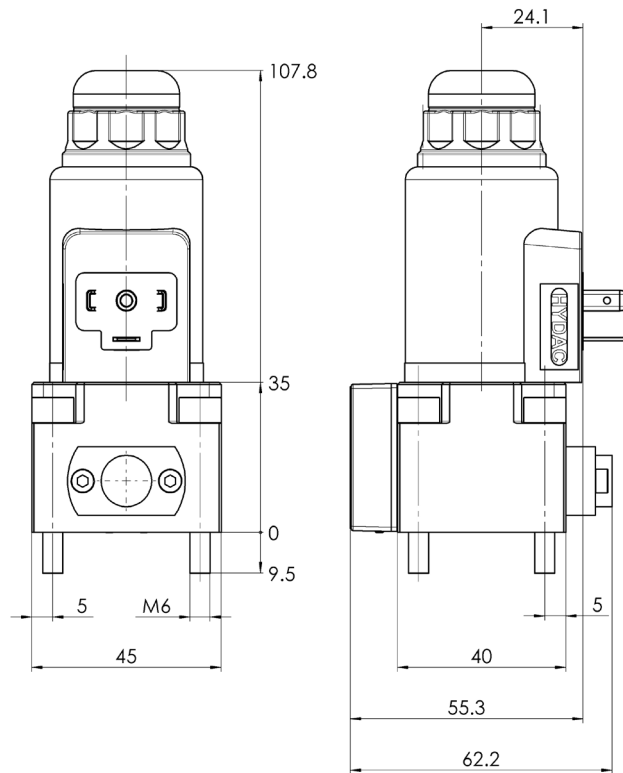
## Product information

Valve type	2/2		3/2 <sup>1)</sup>	
Control function	WO	WS	N	L
Part No. 24 VDC	4002620	4002624	4002628	4002628
Part No. 110 VDC	on request	on request	on request	on request
Part No. 230 VDC	on request	on request	on request	on request
Symbol				

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

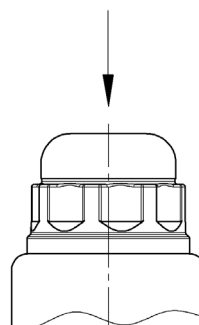
To achieve function „L“, connection **3** (valve side) must be mounted to **P** (connecting plate), respectively connection **1** (valve) to **T** (plate). To achieve function „N“, connection **1** (valve side) must be mounted to **P** (connecting plate), respectively connection **3** (valve) to **T**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

## Dimensional drawings

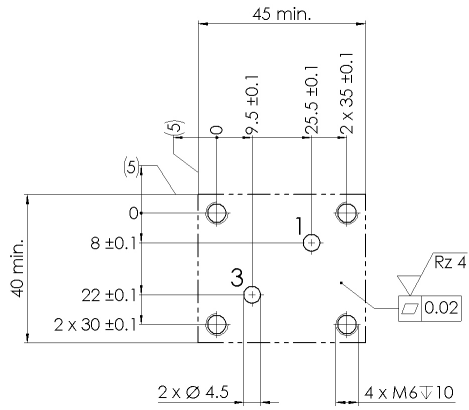


### Manual override

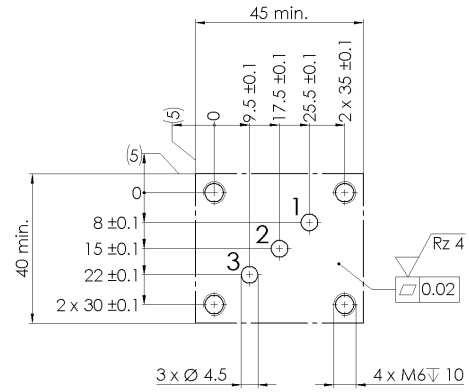
F = 45 N



Drilling pattern 2/2 directional poppet valves

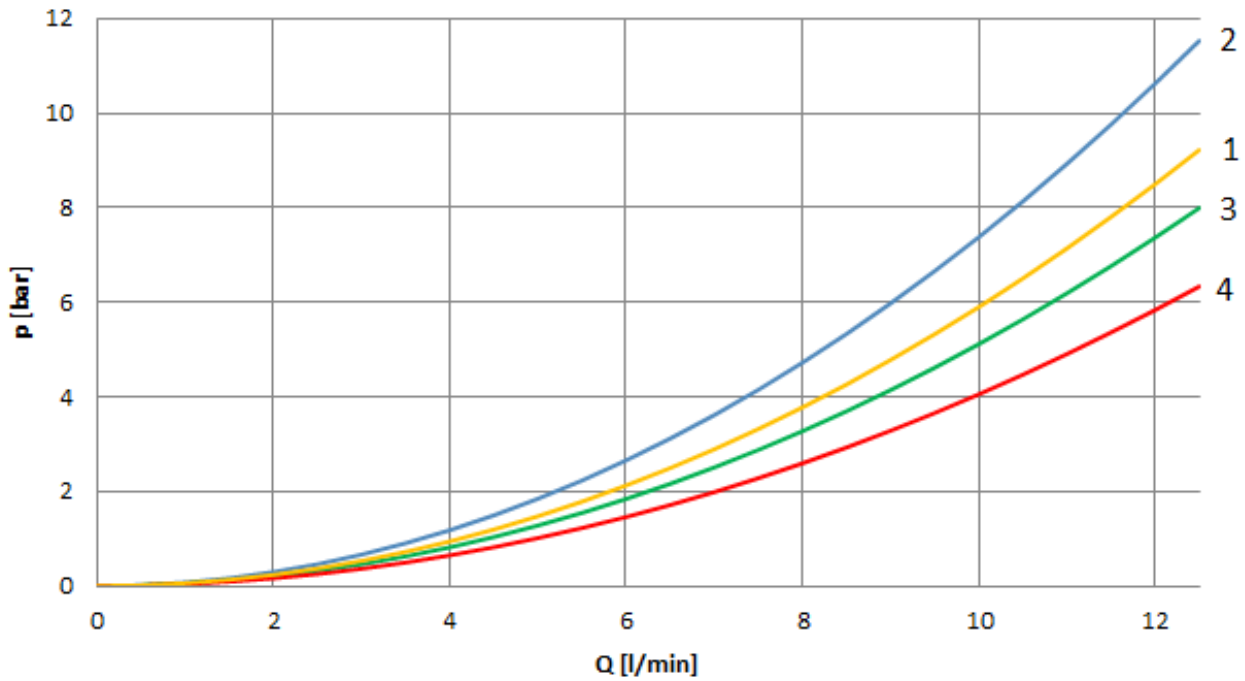


Drilling pattern 3/2 directional poppet valves



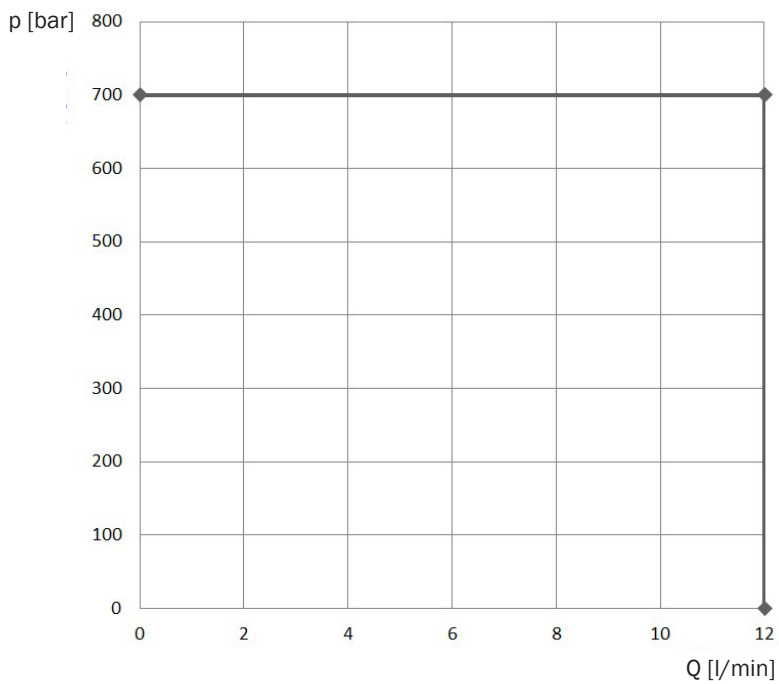
Pressure drop

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



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		

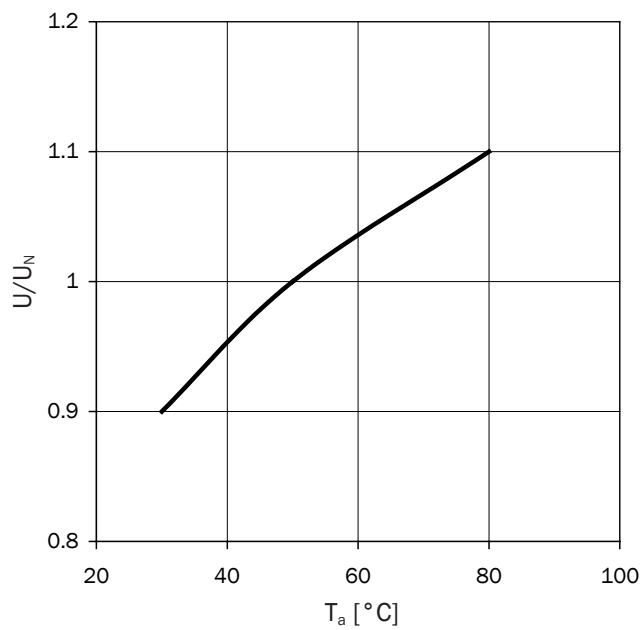
## Hydraulic switching capacity



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**

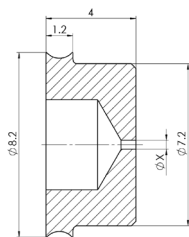
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**Accessoires**

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	on request
Orifice insert Ø 0,5 (fitting in connection T)	BLM-4-0,5-A*00	All	on request
Orifice insert Ø 0,6 (fitting in connection T)	BLM-4-0,6-A*00	All	on request
Orifice insert Ø 0,7 (fitting in connection T)	BLM-4-0,7-A*00	All	on request
Orifice insert Ø 0,8 (fitting in connection T)	BLM-4-0,8-A*00	All	on request
Orifice insert Ø 1,0 (fitting in connection T)	BLM-4-1,0-A*00	All	on request

\* Orifice insert and check valves cannot be installed directly in the valve (**ZP700 required**).

**Dimensional drawing**



**Symbol**

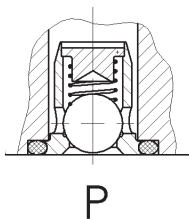


Item description	Type code	For valve type	Part-Nr.
Adapter plate	ZP700-4-X-X-V-A*00	All	4400112
4 x socket head screw ISO 4762-M6 x 65 for ZP700	-	All	4362502

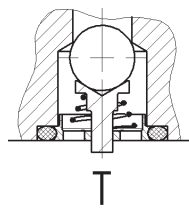
Item description	Type code	For valve type	Part No.
Check valve (fitting in connection P)	RVH700-4B-D6,5-X-A*00	2/2, 3/2-N	on request
Return pressure stop (fitting in connection T)	RDH700-4B-D6,5-X-A*00	2/2, 3/2-N	on request

**Dimensional drawing**

**Check valve**



**Return pressure stop**



**Symbol**

**Check valve**



**Return pressure stop**



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Item description	Part No.
1 x Plug for solenoid grey	6132484
1 x Plug for solenoid black	on request
1 x Power reduction plug LRS2 KPL Z4 TR 2POL LED	4747017

**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	3546095
1 x Solenoid 110 VAC	3547372
1 x Solenoid 230 VAC	3547373
1 x Pole tube nut	on request
1 x O-Ring for pole tube nut	on request

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

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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.