The HB model knife gate is a bi-directional valve designed for general industrial service applications. The design of the body and seat assures non-clogging shut off on suspended solids in industries such as:

- Wastewater treatment plants
- Chemical plants
- Food and Beverage
- Etc.

**Sizes:**

DN 50 to DN 300 (larger diameters on request)

**Working pressure:**

DN 50 to DN 300 16 kg/cm²

**Standard flange connection:**

DIN PN 16

Other flange connections on request

**Directives:**

2006/42/CE (MACHINES)

97/23/CE (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)

94/9/CE (ATEX)

Face to face dimensions acc. to EN558-1 series 20 (replaces K1 DIN3202) up to DN300

All valves are tested prior to shipping in accordance with the standard developed by the Quality Control Department at ORBINOX

### STANDARD PARTS LIST

<table>
<thead>
<tr>
<th>Part</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Body</td>
<td>GJS400 (GGG40)</td>
</tr>
<tr>
<td>2- Gate</td>
<td>AISI 304</td>
</tr>
<tr>
<td>3- Seat</td>
<td>EPDM / Nitrile</td>
</tr>
<tr>
<td>4- Packing</td>
<td>PTFE Impreg. Synth. Fibre (ST)+O-ring</td>
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<tr>
<td>5- Gland Follower</td>
<td>GJS400 (GGG40)</td>
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<tr>
<td>6- Stem</td>
<td>AISI 430</td>
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<tr>
<td>7- Yoke</td>
<td>Carbon Steel - Epoxy Coated</td>
</tr>
<tr>
<td>8- Stem protector</td>
<td>A570 GR.40 / 1.0044 Epoxy coated</td>
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<tr>
<td>9- Bevel Gear</td>
<td>-</td>
</tr>
<tr>
<td>10- Handwheel</td>
<td>A570 GR.40 / 1.0044 Epoxy coated</td>
</tr>
</tbody>
</table>
**BODY:**
Wafer style cast monoblock design internally machined up to DN 300 with reinforced ribs in larger diameters for extra body strength. It allows its installation as end of line from DN50 to DN300. The design has been developed by a new manufacturing process that machines the inside part of the body, allowing more control in the different dimension tolerances. This allows a perfect adjustment of the body-gate-seal, reducing the torque that keeps the tightness and avoiding any build up of solids that would prevent valve from closing.

**GATE:**
Stainless steel gate, as standard. Gate is polished on both sides for a greater seal between the gate with both the packing and the seat. Gate is fully guided in the body along the whole valve stroke in order to avoid gate fluttering and to ensure maximum tightness.

**PACKING:**
Standard PTFE impregnated synthetic fibre (ST) with EPDM O-ring, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials.

**NON RISING STEM:**
The standard stainless steel stem offers a high and long corrosion resistant life.

**ACTUATORS:**
All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit for easy installation on site.

**YOKE or ACTUATOR SUPPORT:**
Made of EPOXY coated steel (stainless steel available on request). Compact design makes it extremely robust even under the most severe conditions.

**EPOXY COATING:**
The epoxy coating on all ORBINOX cast iron and carbon steel valve bodies and components is electrostatically applied making the valves to be corrosion resistant with a high quality finished product. The ORBINOX standard colour is RAL-5015 blue.

**GATE SAFETY PROTECTION:**
ORBINOX automated valves are provided with gate guards in accordance with EU Safety Standards. The design feature prevents any objects from being caught accidentally while the gate is moving.

**OTHER MATERIALS:**
On request, following materials can be also supplied:

<table>
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<tr>
<th>Body:</th>
<th>Gate:</th>
<th>Stem:</th>
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<td>AISI 316 or 316 Ti</td>
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## ACTUATOR TYPES

### MANUAL
- Handwheel (rising & non-rising stem)
- Chainwheel (non-rising stem)
- Lever
- Bevel Gear (rising & non-rising stem)
- Others (squyare nut, …)

### AUTOMATIC:
- Electric (rising & non-rising stem)
- Pneumatic (single & double-acting)
- Hydraulic

All actuators supplied by ORBINOX are interchangeable.

## FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

### SINGLE ACTING (SPRING RETURN)
- Available from DN 50 to DN 100
- Supply pressure: min. 5 kg/cm² - max. 10 kg/cm²
- Options:
  - Fail open
  - Fail closed

### SINGLE ACTING (VOLUME TANK)
- Available for all valve sizes
- Standard for valve sizes DN>100mm
- Options:
  - Pneumatic Failsafe
  - Pneumatic or Electric Failsafe

## ACCESSORIES

- Mechanical stops
- Locking device
- Manual override
- Solenoid valves
- Positioners
- Limit switches
- Proximity switches
- Floor stands
- Stem extensions

Wide range of valve extensions available

For further information about fail safe systems and valve extensions, please see EX catalogue.
TEMPERATURE CHART

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<tr>
<th>SEAT / SEALS</th>
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<th>PACKING</th>
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<tr>
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<td>Braided PTFE (TH)</td>
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</table>

More details and other materials on request

NOTE: All types include an elastomere O-ring (same material as seal), excluding TH. Standard packing: ST

SEAT TYPES

RESILIENT SEAT

This is the standard seat. The joint is seated on the body, fitted with a metallic core, in contact with the gate all over its perimeter. This layout provides an adequate watertightness and seamless liquid flow on both ways, avoiding at the same time any build-up of solids that would prevent the valve from closing. The o-ring is protected by the body itself.

* DN 50-300: Moulded seal with an internal steel core.

ATEX

Please contact our ORBINOX representative for info and availability. Some considerations:

• Hand operated HB valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive. Therefore hand operated valves are suitable for ALL ATEX zones.
• Electrical, pneumatical and hydraulically operated valves must be subjected to a conformity assessment of their own and also of the whole unit valve-actuator to get EC Type Approval to Directive 94/9.
Hand Operated (rising stem)

### Handwheel
- Standard manual actuator
- Consists of:
  - Handwheel: Epoxy coated Cast Iron
  - Stem
  - Stem nut
  - Stem protector
  - Yoke
- Available from DN 50 to DN 200
- Options:
  - Locking device
  - Extensions
  - Chainwheel
  - Non-rising stem

### Gear
- Recommended for valves larger than DN 200 and working pressures greater than 3.5 kg/cm²
- Consists of:
  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)
- Available from DN 200 to DN 300
- Options:
  - Locking device
  - Extensions
  - Chainwheel
  - Non-rising stem

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</table>
HAND OPERATED (non-rising stem)

• Standard manual actuator

• Consists of:
  - Handwheel: Epoxy coated Cast Iron
  - Stem
  - Stem nut
  - Yoke

• Available from DN 50 to DN 200

• Options:
  - Locking device
  - Extensions
  - Chainwheel
  - Rising stem

• Recommended for valves larger than DN 200 and working pressures greater than 3.5 kg/cm²

• Consists of:
  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)

• Available from DN 200 to DN 300

• Options:
  - Locking device
  - Extensions
  - Chainwheel
  - Rising stem

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Reserves the right to change specifications without notice

ORBINOX S.A. Pol. Ind. s/n-20270 ANDETA (Spain) Tel.: +34 943 698030 - Fax: +34 943 653066 e-mail:orbinox@orbinox.com www.orbinox.com
ORBINOX CANADA, ORBINOX USA, ORBINOX BRAZIL, ORBINOX SPAIN, ORBINOX UK, ORBINOX FRANCE, ORBINOX GERMANY, ORBINOX INDIA, ORBINOX CHINA, ORBINOX S.E.A.
PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - DN ≤ 250: Aluminum barrels
  - DN ≥ 300: Composite barrels
  - Aluminum end covers
  - Stainless Steel (AISI 304) piston rod
  - Nitrile coated steel piston

- Available from DN 50 to DN 300

- Supply Pressure: min. 3.5 kg/cm² - max. 10 kg/cm². Actuator designed with 6 kg/cm² air supply

- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support

- Options (on request):
  - Hard anodized barrel and covers
  - Over / Undersized cylinder
  - Stainless Steel barrel and covers
  - Manual override
  - Fail safe system
  - Limit switches

- Instrumentation (on request):
  - Positioners
  - Solenoid valves
  - Flow regulators
  - Air preparation units

<table>
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<th>B</th>
<th>C</th>
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<th>E</th>
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Reserves the right to change specifications without notice
ELECTRIC ACTUATOR (rising stem)

• Consists of:
  - Electric motor
  - Motor support yoke flange
    acc. to ISO 5210 / DIN 3338

• The standard electric motor is equipped with:
  - Manual emergency operation
  - Limit switches (open/closed)
  - Torque switches

• Available from DN 50 to DN 300

• For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support

• Wide range of types and brands available to meet customer’s needs
**MODEL HB**

**ELECTRIC ACTUATOR (non-rising stem)**

- Consists of:
  - Electric motor
  - Motor support yoke flange  
    acc. to ISO 5210 / DIN 3338

- The standard electric motor is equipped with:
  - Manual emergency operation
  - Limit switches (open/closed)
  - Torque switches

- Available from DN 50 to DN 300

- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support

- Wide range of types and brands available to meet customer’s needs

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# Flange and Bolting Details

## EN 1092-2 PN 16

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**NOTE:** Other flanges on request.

![Flange Diagram](image-url)