

MODEL**HB**

BI-DIRECTIONAL KNIFE GATE VALVE

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
- Food and Beverage
- Chemical plants
- etc.

Sizes: DN 50 to DN 300 (larger diameters on request)

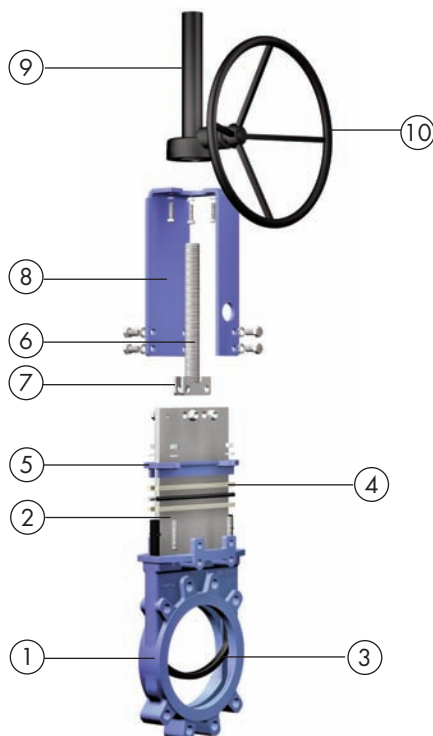
Working pressure: DN 50 to DN 300:16 kg/cm²

Standard flange connection: DIN PN 16
Other flange connections: on request

Directives: DIR 98/37/CE (MACHINES)
DIR 97/23/CE (PED)
DIR 94/9/CE (ATEX)

Face to face dimensions acc. to EN558-1 serie 20 (replaces K1 DIN3202) up to DN500.

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



STANDARD PARTS LIST

| Part: | Cast Iron: |
|-------------------|---------------------------------------|
| 1- Body | GJS400 (GGG40) |
| 2- Gate | AISI 304 |
| 3- Seat | EPDM / Nitrile |
| 4- Packing | PTFE Impreg. Synth. Fibre (ST)+O-ring |
| 5- Gland Follower | GJS400 (GGG40) |
| 6- Stem | AISI 430 |
| 7- Stem Nut | Brass |
| 8- Yoke | Carbon Steel - Epoxy Coated |
| 9- Stem protector | A570 GR.40 / 1.0044 Epoxy coated |
| 10- Bevel Gear | |



Reserves the right to change specifications without notice

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OBX 06/11 | 1st EDITION | Revision 1

HB-1

DESIGN FEATURES

BODY:

Wafer style cast **monoblock** design internally machined up to DN 500 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.

The design changes to two part bolted body internally machined from DN 600. Full port design for greater flow capacity and minimal pressure drop.

The gate guides on full stroke ensure bi-directional shutoff.

Standard EPDM o-ring on flange connection of the valve for sealing.

GATE:

Stainless steel gate, as standard.

Gate is polished on both sides for a greater seal between the gate with both packing and seat.

Gate is fully guided in the body allowing for bi-directional service.

PACKING:

Standard PTFE impregn. synth fibre (ST) with EPDM o-ring for better shut-off.

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 an 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:

Body:

- CF8M

Gate:

- AISI 316 or 316Ti
- 2205

Stem:

- AISI 316 or 316 Ti



ACTUATOR TYPES

Manual:

Handwheel (non-rising stem)
 Chainwheel (non-rising stem)
 Lever
 Bevel Gear (non-rising stem)
 Handwheel (rising stem)
 Others (square nut...)

Automatic:

Double Acting Pneumatic
 Electric (rising or non-rising stem)
 Single Acting Pneumatic
 Hydraulic

All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

SINGLE ACTING / SPRING RETURN

Supply pressure: minimum 5Kg/cm²-maximum 10Kg/cm²

Options:

- Fail open
- Fail closed

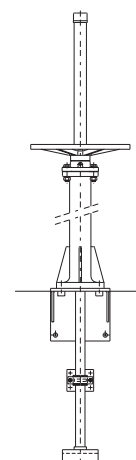
SINGLE ACTING / VOLUME TANK

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 chapter.

We recommend consultation with our technical department.

TEMPERATURE CHART

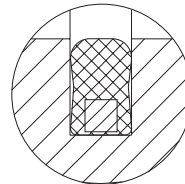
| SEAT / SEALS | | | PACKING | | |
|--|---------------|--|--|-----------------|--------|
| Material | Max.Temp.(°C) | Applications | Material | Max. Temp. (°C) | pH |
| EPDM (E) | 120 | Acid and non mineral oils. | PTFE impregn.synth fibre (ST) | 240 | 2 - 13 |
| Nitrile (N) | 120 | Resistance to petroleum products. | Dynapack (DP) | 270 | 2 - 14 |
| On request: | | | Dry cotton (AS) | 50 | 6 - 8 |
| Viton (V) | 200 | General chemical service High temperature | Braided PTFE (TH) | 260 | 0 - 14 |
| 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 provide 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.

* DN50-300: Moulded seal with an internal steel core.



ATEX

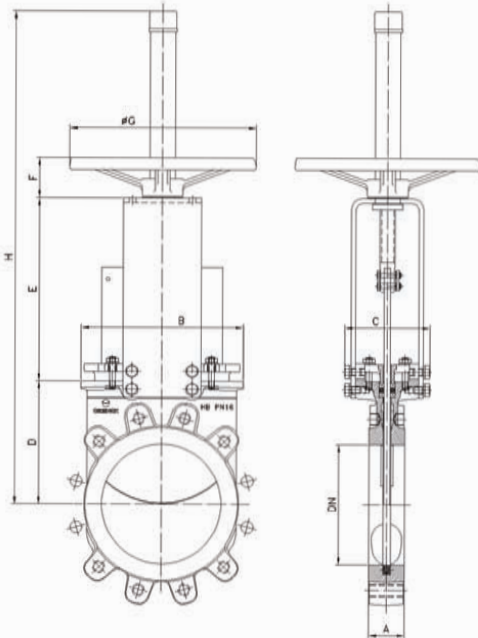


Please contact our Orbinox representative for info and availability. Some considerations:

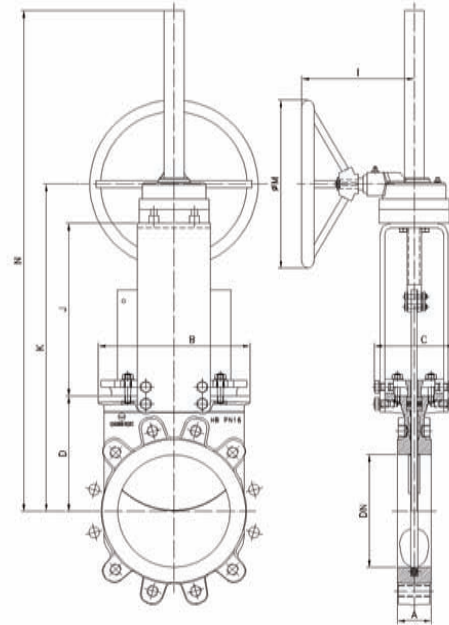
- Hand operated HB valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive. Therefore hand operated valves are suitable for ALL ATEX zones.
- Electrical, pneumatical and hydraulically operated valves must be subjected to a conformity assesment 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



GEAR



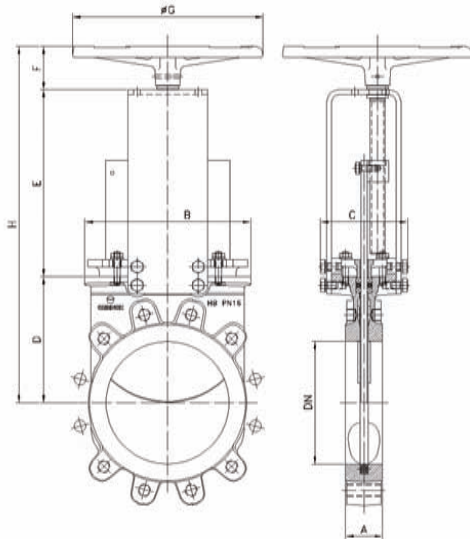
- Standard handwheel actuator
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Stem
 - Stem nut
 - Stem protector
 - Yoke
- Available from DN 50 to DN 200
- Options:
 - Locking device
 - Extensions
 - Chainwheel
 - Non-rising stem

- 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

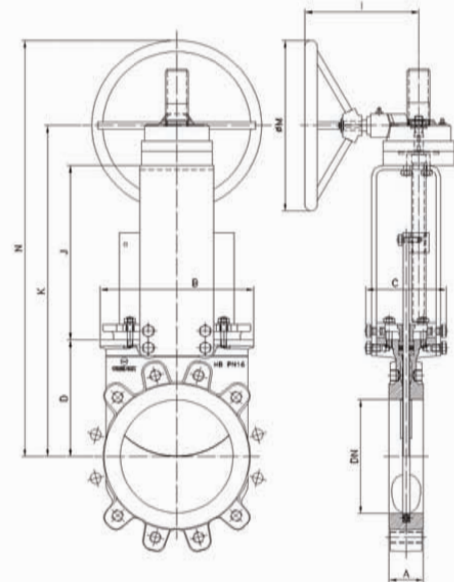
| DN | A | B | C | D | E | J | F | K | ØG | ØM | H | N | I |
|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|------|-----|
| 50 | 43 | 113 | 124 | 105 | 132 | - | 47 | - | 225 | - | 460 | - | - |
| 65 | 46 | 128 | 124 | 115 | 149 | - | 47 | - | 225 | - | 490 | - | - |
| 80 | 46 | 143 | 124 | 124 | 165 | - | 47 | - | 225 | - | 515 | - | - |
| 100 | 52 | 162 | 124 | 140 | 190 | - | 47 | - | 225 | - | 555 | - | - |
| 125 | 56 | 181 | 124 | 150 | 214 | - | 47 | - | 225 | - | 640 | - | - |
| 150 | 56 | 209 | 124 | 170 | 240 | - | 47 | - | 225 | - | 685 | - | - |
| 200 | 60 | 270 | 142 | 205 | 305 | 309 | 67 | 585 | 310 | 300 | 820 | 985 | 200 |
| 250 | 68 | 320 | 230 | 250 | - | 364 | - | 684 | - | 300 | - | 1115 | 200 |
| 300 | 78 | 425 | 250 | 290 | - | 414 | - | 805 | - | 300 | - | 1205 | 200 |

HAND OPERATED (Non-rising stem)

HANDWHEEL



GEAR



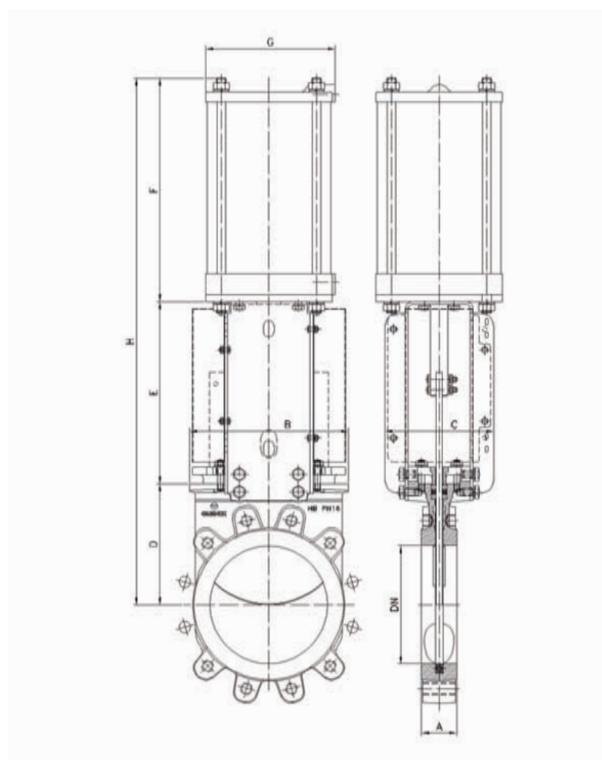
- Standard handwheel actuator
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Stem
 - Stem nut
 - Stem protector
 - Yoke
- Available from DN 50 to DN 200
- Options:
 - Locking device
 - Extensions
 - Chainwheel
 - Rising stem

- 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

| DN | A | B | C | D | E | J | F | K | ØG | ØM | H | N | I |
|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|
| 50 | 43 | 113 | 124 | 105 | 132 | - | 78 | - | 225 | - | 315 | - | - |
| 65 | 46 | 128 | 124 | 115 | 149 | - | 78 | - | 225 | - | 342 | - | - |
| 80 | 46 | 143 | 124 | 124 | 165 | - | 78 | - | 225 | - | 367 | - | - |
| 100 | 52 | 162 | 124 | 140 | 190 | - | 78 | - | 225 | - | 408 | - | - |
| 125 | 56 | 181 | 124 | 150 | 214 | - | 78 | - | 225 | - | 442 | - | - |
| 150 | 56 | 209 | 124 | 170 | 240 | - | 78 | - | 225 | - | 488 | - | - |
| 200 | 60 | 270 | 142 | 205 | 305 | 305 | 75 | 585 | 310 | 300 | - | 735 | 200 |
| 250 | 68 | 320 | 230 | 250 | - | 364 | - | 680 | - | 300 | - | 830 | 200 |
| 300 | 78 | 425 | 250 | 290 | - | 432 | - | 805 | - | 300 | - | 955 | 200 |

PNEUMATIC CYLINDER

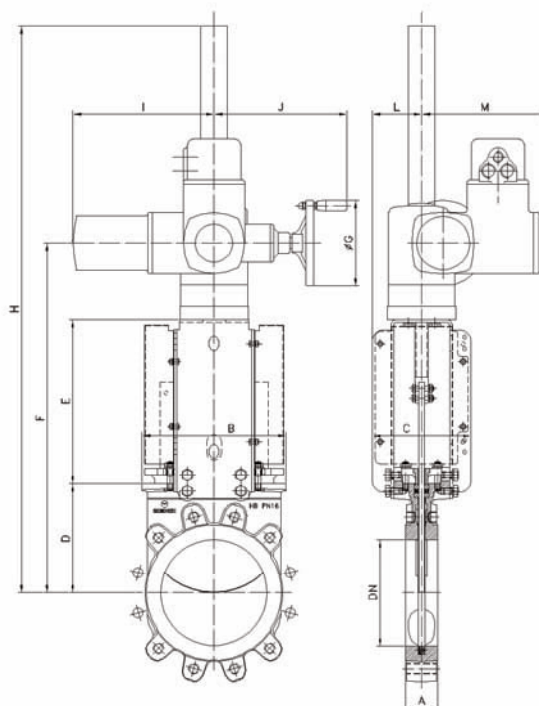
- The standard pneumatic actuator (double acting on-off cylinder) consists of:
 - Aluminium jacket and end caps
 - Stainless Steel (AISI 304) piston rod
 - Nitrile coated steel piston
- Available from DN 50 to DN 300
- Supply Pressure: minimum 3.5 kg/cm² - maximum 10 kg/cm²
Actuator designed with 6 kg/cm² air supply
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support.
- Options (on request):
 - Hard anodized jacket and covers
 - Over / Undersized cylinder
 - Stainless Steel jacket and covers
 - Manual override
 - Fail safe system
 - Travel stops
- Instrumentation (on request):
 - Positioners
 - Solenoid valves
 - Flow regulators
 - Air preparation units



| DN | A | B | C | D | E | F | G | H | Weight (kg.) | Standard Cyl | Connect. |
|-----|----|-----|-----|-----|-------|-------|-----|------|--------------|--------------|----------|
| 50 | 43 | 113 | 124 | 105 | 129 | 178 | 95 | 412 | 9 | C100/52 | 1/4" G |
| 65 | 46 | 128 | 124 | 115 | 146 | 193 | 95 | 454 | 10 | C100/67 | 1/4" G |
| 80 | 46 | 143 | 124 | 124 | 162 | 211 | 95 | 497 | 11 | C100/82 | 1/4" G |
| 100 | 52 | 162 | 124 | 140 | 187 | 231 | 115 | 558 | 13.5 | C100/102 | 1/4" G |
| 125 | 56 | 181 | 124 | 150 | 213,5 | 270,5 | 140 | 634 | 19 | C125/127 | 1/4" G |
| 150 | 56 | 209 | 142 | 170 | 237 | 296 | 175 | 703 | 22 | C160/152 | 1/4" G |
| 200 | 60 | 270 | 185 | 205 | 310 | 385 | 220 | 900 | 47 | C200/202 | 3/8" G |
| 250 | 68 | 320 | 230 | 250 | 397 | 450 | 280 | 1097 | 58 | C250/252 | 3/8" G |
| 300 | 78 | 425 | 250 | 290 | 444 | 510 | 335 | 1244 | 84 | C300/302 | 1/2" G |

ELECTRIC ACTUATOR (rising stem)

- Consists of:
 - Electric motor
 - Rising stem
 - 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
- Wide range of types and marks available to meet customer's needs.



| DN | A | B | C | D | E | F | ØG | H | I | J | L | M | StemØxpitch | Torque(Nm) |
|-----|----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-------------|------------|
| 50 | 43 | 113 | 124 | 105 | 132 | 380 | 140 | 955 | 265 | 234 | 62 | 237 | 20 x 4 | 10 |
| 65 | 46 | 128 | 124 | 115 | 149 | 407 | 140 | 980 | 265 | 234 | 62 | 237 | 20 x 4 | 10 |
| 80 | 46 | 143 | 124 | 124 | 165 | 432 | 140 | 1005 | 265 | 234 | 62 | 237 | 20 x 4 | 10 |
| 100 | 52 | 162 | 124 | 140 | 190 | 473 | 140 | 1050 | 265 | 234 | 62 | 237 | 20 x 4 | 10 |
| 125 | 56 | 181 | 124 | 150 | 214 | 510 | 160 | 1085 | 265 | 234 | 62 | 237 | 20 x 4 | 15 |
| 150 | 56 | 209 | 124 | 170 | 240 | 555 | 160 | 1130 | 265 | 234 | 62 | 237 | 20 x 4 | 20 |
| 200 | 60 | 270 | 185 | 205 | 310 | 660 | 160 | 1235 | 265 | 250 | 135 | 237 | 24 x 5 | 30 |
| 250 | 68 | 320 | 230 | 250 | 397 | 790 | 160 | 1365 | 265 | 250 | 135 | 237 | 24 x 5 | 45 |
| 300 | 78 | 425 | 250 | 290 | 444 | 890 | 200 | 1470 | 282 | 256 | 135 | 247 | 24 x 5 | 40 |

A: EN558-1 serie 20 up to DN500
 Maximum pressure torque in clean water at room temperature

Reserves the right to change specifications without notice

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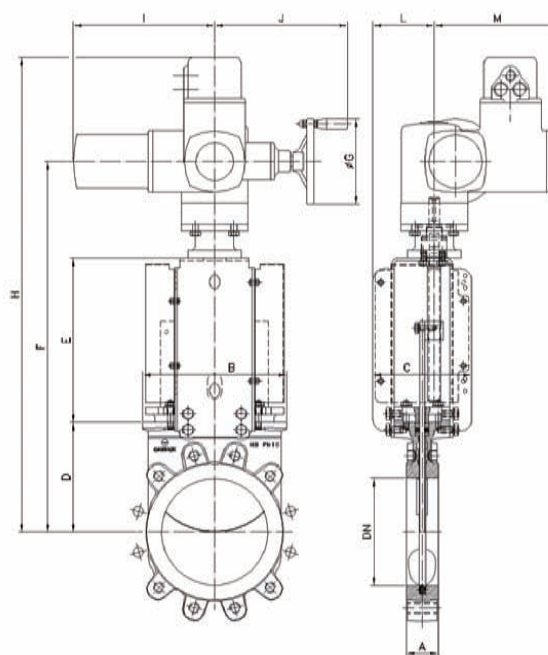
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HB-8

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ELECTRIC ACTUATOR (non-rising stem)

- Consists of:
 - Electric motor
 - Non rising stem
 - 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
- Wide range of types and marks available to meet customer's needs.



| DN | A | B | C | D | E | F | ØG | H | I | J | L | M | StemØxpitch | Torque(Nm) |
|-----|----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-------------|------------|
| 50 | 43 | 113 | 124 | 105 | 132 | 370 | 140 | 545 | 265 | 234 | 72 | 237 | 20 x 3 | 10 |
| 65 | 46 | 128 | 124 | 115 | 149 | 397 | 140 | 572 | 265 | 234 | 72 | 237 | 20 x 3 | 10 |
| 80 | 46 | 143 | 124 | 124 | 165 | 422 | 140 | 597 | 265 | 234 | 72 | 237 | 20 x 3 | 10 |
| 100 | 52 | 162 | 124 | 140 | 190 | 463 | 140 | 638 | 265 | 234 | 72 | 237 | 20 x 3 | 10 |
| 125 | 56 | 181 | 124 | 150 | 214 | 497 | 160 | 672 | 265 | 234 | 72 | 237 | 20 x 3 | 15 |
| 150 | 56 | 209 | 124 | 170 | 240 | 543 | 160 | 718 | 265 | 234 | 72 | 237 | 20 x 3 | 20 |
| 200 | 60 | 270 | 185 | 205 | 310 | 695 | 160 | 895 | 265 | 250 | 115 | 237 | 24 x 5 | 30 |
| 250 | 68 | 320 | 230 | 250 | 397 | 835 | 160 | 1030 | 265 | 250 | 140 | 237 | 24 x 5 | 45 |
| 300 | 78 | 425 | 250 | 290 | 444 | 920 | 200 | 1090 | 282 | 256 | 150 | 247 | 24 x 5 | 40 |

MODEL

HB

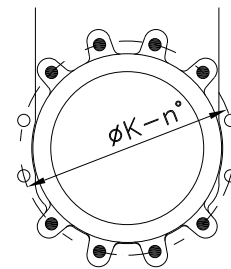


FLANGE AND BOLTING DETAILS

EN 1092-2 PN 16

| DN | K | n° | M | T | |
|-----|-----|----|------|----|----------|
| 200 | 295 | 12 | M-20 | 14 | 8 - 4 -- |
| 250 | 355 | 12 | M-24 | 18 | 8 - 4 -- |
| 300 | 410 | 12 | M-24 | 18 | 8 - 4 -- |

NOTE: Other flanges on request



DN 8" - 12"

