

MODEL**EB**

BI-DIRECTIONAL KNIFE GATE VALVE

The EB model knife gate is a bi-directional wafer type 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
- Sludge Handling and storm tanks
- Agriculture
- Biogas plants

Sizes: DN 50 to DN 1200 (larger diameters on request)

Working pressure:

| | |
|-------------------|--------|
| DN 50 to DN 125 | 16 bar |
| DN 150 to DN 250 | 10 bar |
| DN 300 to DN 400 | 6 bar |
| DN 450 | 5 bar |
| DN 500 to DN 600 | 4 bar |
| DN 700 to DN 1200 | 2 bar |

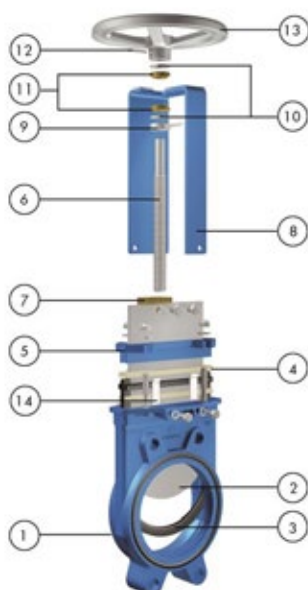
Standard flange connection:

EN 1092-2 PN 10
Other flange connections available on request

Directives: 2006/42/EC (MACHINES)
2014/68/EU (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)
2014/34/EU (ATEX)

Face to face dimensions acc. to EN558-1 series 20 (replaces DIN 3202-K1) up to DN500, for DN600 and above acc. Orbinox standard.

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



STANDARD PARTS LIST

| Part: | Materials: |
|--------------------------|---|
| 1- Body | GJL 250 (GG25) / GJS 400 (GGG40) |
| 2- Gate | AISI 304 (1.4301) |
| 3- Seat | EPDM / Nitrile |
| 4- Packing | PTFE Impreg. Synth. Fibre (ST) + EPDM O-ring |
| 5- Gland Follower | GJS400 (GGG40) |
| 6- Stem | Stainless Steel |
| 7- Stem Nut | Brass |
| 8- Yoke | Carbon Steel - Epoxy Coated |
| 9- Axial fixing bush | AISI 304 (1.4301) |
| 10- Friction washer | PET + solid lubricant |
| 11- Bushing | Bronze |
| 12- Spring Pin | AISI 420 (1.4021) (ISO 8752) |
| 13- Handwheel | DN≤310: Aluminium (AlSi12); DN≥410 GJS400 (GGG40) |
| 14- Slider (up to DN300) | Nylon |

MODEL

EB



DESIGN FEATURES

BODY:

Wafer style cast monoblock design, internally machined up to DN 500, with reinforced ribs in larger diameters for extra body strength. Special design that includes a new manufacturing process, the machining of the body inside, allowing for more control in the different dimensions tolerances. This machining results in a perfect adjustment of the body with the gate and the seal, reducing the required torque to maintain the tightness and avoiding any build-up of solids that could prevent the valve from closing. The valve design allows an end-of-line installation from DN50 to DN500. The valve design changes from DN 600 and above to a two-part bolted body, also internally machined. Full port design in all cases for greater flow capacity and minimal pressure drop. The gate is guided on the whole stroke to ensure bi-directional shutoff. Standard EPDM O-ring on both valve flange connections 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 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 an standard mounting kit for installation purposes 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 surface. 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 on some sizes

Gate:

AISI 316 or 316Ti

Stem:

AISI 316 or 316 Ti



MODEL

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ACTUATOR TYPES

MANUAL:

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

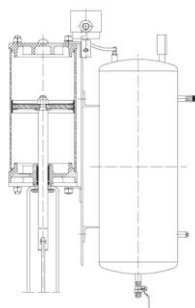
SINGLE ACTING (SPRING RETURN)

- Available from DN 50 to DN 300
- Supply pressure:
min. 5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



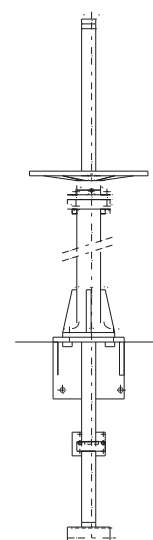
DOUBLE ACTING WITH AIR TANK

- Available for all valve sizes
- Supply pressure:
min. 3.5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



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.

For more detailed information, please contact 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 | Chemical service / High temp. | 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 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 seal is protected by the body itself.

- DN50-500: Moulded seal with an internal steel core
- DN ≥ 600: Extruded seal with an internal steel wire



ATEX



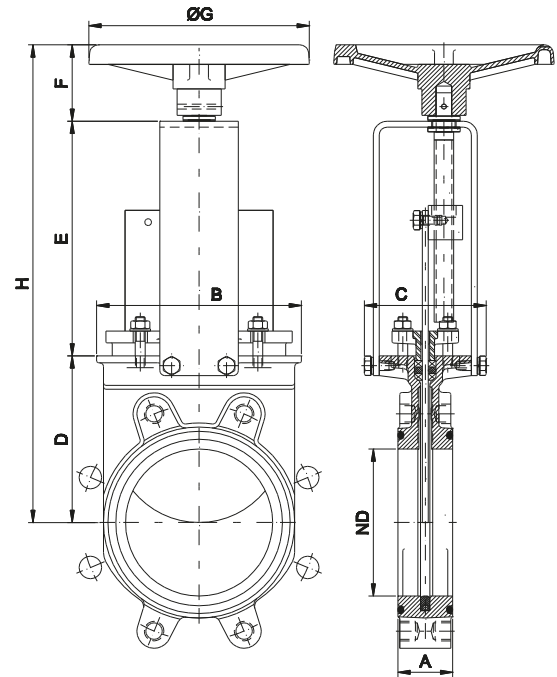
Please contact our ORBINOX representative for info and availability. Some considerations:

- Hand operated EB 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 2014/34.

MODEL**EB**

HANDWHEEL (non-rising stem)

- Standard manual actuator
- Consists of:
 - Handwheel
 - DN 50-300: Aluminium
 - DN \geq 350: GJS400 (GGG40)
 - Stem
 - Yoke bushing
 - Stem nut fixed to the gate
- Available from DN 50 to DN 600
- Options (on request):
 - Locking Device
 - Extension
 - Square Nut Drive

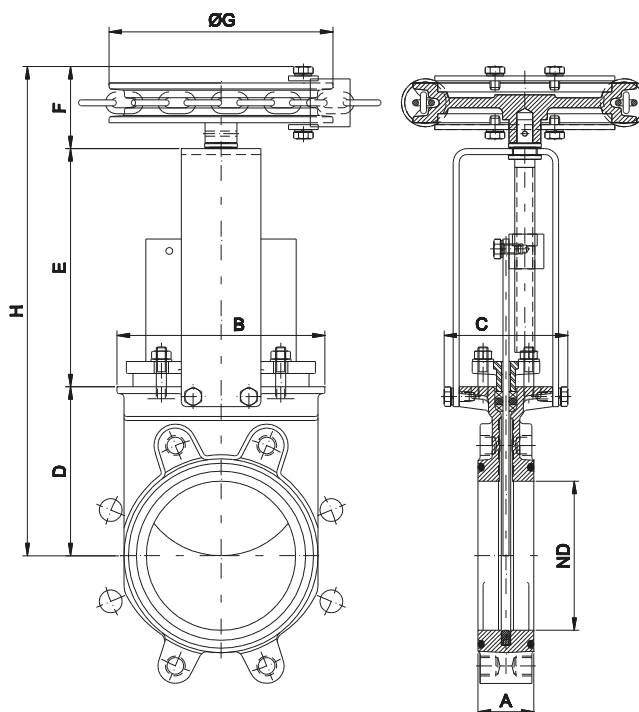


| DN | A | B | C | D | E | F | $\varnothing G$ | H | Weight (kg.) |
|-----|-----|-----|-----|-----|-----|----|-----------------|------|--------------|
| 50 | 43 | 113 | 124 | 105 | 144 | 63 | 225 | 312 | 8 |
| 65 | 46 | 128 | 124 | 115 | 161 | 63 | 225 | 339 | 9 |
| 80 | 46 | 143 | 124 | 124 | 177 | 63 | 225 | 364 | 10 |
| 100 | 52 | 162 | 124 | 140 | 202 | 63 | 225 | 405 | 12 |
| 125 | 56 | 181 | 124 | 150 | 226 | 63 | 225 | 439 | 15 |
| 150 | 56 | 209 | 124 | 170 | 252 | 63 | 225 | 485 | 17 |
| 200 | 60 | 263 | 142 | 205 | 317 | 73 | 310 | 595 | 30 |
| 250 | 68 | 315 | 142 | 250 | 372 | 73 | 310 | 695 | 42 |
| 300 | 78 | 370 | 142 | 290 | 422 | 73 | 310 | 785 | 60 |
| 350 | 78 | 420 | 197 | 325 | 509 | 98 | 410 | 932 | 90 |
| 400 | 102 | 478 | 197 | 360 | 559 | 98 | 410 | 1017 | 140 |
| 450 | 114 | 530 | 201 | 410 | 611 | 98 | 550 | 1119 | 185 |
| 500 | 127 | 584 | 201 | 450 | 671 | 98 | 550 | 1219 | 204 |
| 600 | 110 | 762 | 201 | 510 | 771 | 98 | 550 | 1379 | 230 |

A: EN558-1 series 20 up to DN500

CHAINWHEEL (non-rising stem)

- Recommended for elevated installations.
- Consists of:
 - Chainwheel: Epoxy coated Cast Iron
 - Stem
 - Yoke bushings
 - Stem nut
- Available from DN 50 to DN 600
- Options (on request):
 - Locking Device
 - Extensions and floor stands

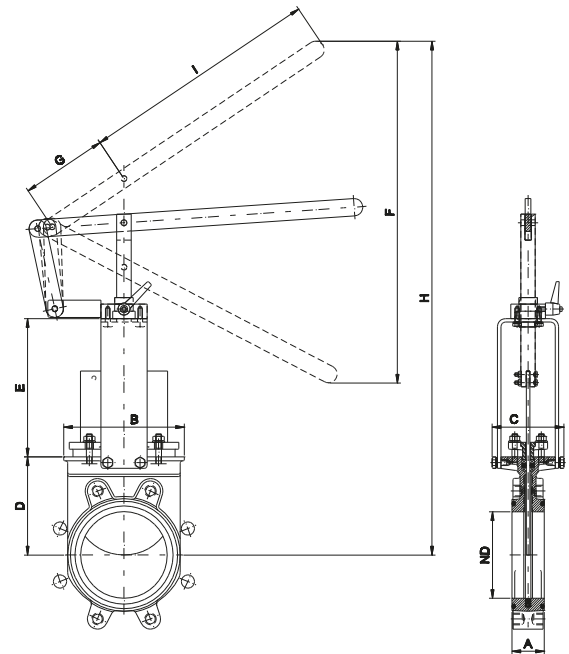


| DN | A | B | C | D | E | F | ØG | H |
|-----|-----|-----|-----|-----|-----|----|-----|------|
| 50 | 43 | 113 | 124 | 105 | 144 | 82 | 225 | 331 |
| 65 | 46 | 128 | 124 | 115 | 161 | 82 | 225 | 358 |
| 80 | 46 | 143 | 124 | 124 | 177 | 82 | 225 | 383 |
| 100 | 52 | 162 | 124 | 140 | 202 | 82 | 225 | 424 |
| 125 | 56 | 181 | 124 | 150 | 226 | 82 | 225 | 458 |
| 150 | 56 | 209 | 124 | 170 | 252 | 82 | 225 | 504 |
| 200 | 60 | 263 | 142 | 205 | 317 | 88 | 300 | 610 |
| 250 | 68 | 315 | 142 | 250 | 372 | 88 | 300 | 710 |
| 300 | 78 | 370 | 142 | 290 | 422 | 88 | 300 | 800 |
| 350 | 78 | 420 | 197 | 325 | 509 | 98 | 454 | 932 |
| 400 | 102 | 478 | 197 | 360 | 559 | 98 | 454 | 1017 |
| 450 | 114 | 530 | 201 | 410 | 611 | 98 | 454 | 1119 |
| 500 | 127 | 584 | 201 | 450 | 671 | 98 | 454 | 1219 |
| 600 | 110 | 762 | 201 | 510 | 771 | 98 | 454 | 1379 |

A: EN558-1 series 20 up to DN500

MODEL**EB****LEVER**

- Recommended for quick opening and closing.
- Consists of:
 - Lever
 - Stem
 - Yoke sleeve
 - Lever lock
- Available from DN 50 to DN 150

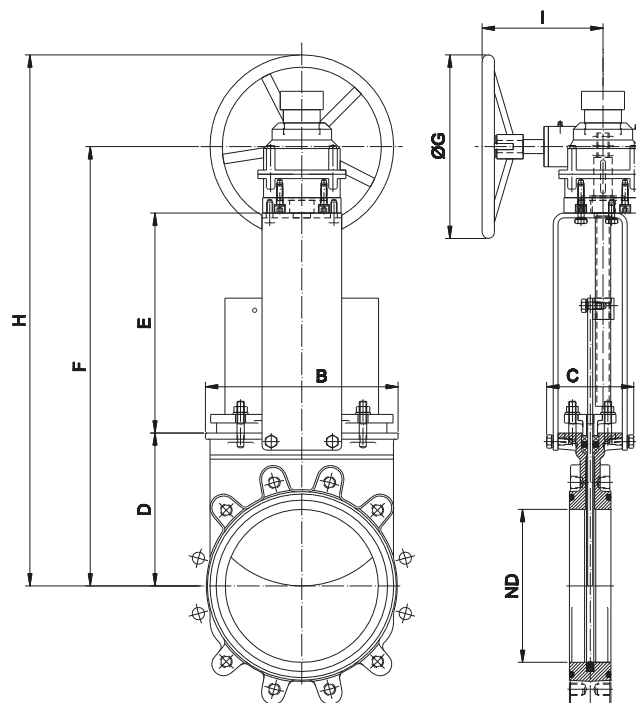


| DN | A | B | C | D | E | F | G | H | I |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 50 | 43 | 113 | 124 | 105 | 132 | 242 | 150 | 410 | 315 |
| 65 | 46 | 128 | 124 | 115 | 149 | 245 | 150 | 437 | 315 |
| 80 | 46 | 143 | 124 | 124 | 165 | 287 | 150 | 510 | 315 |
| 100 | 52 | 162 | 124 | 140 | 190 | 415 | 150 | 633 | 415 |
| 125 | 56 | 181 | 124 | 150 | 214 | 503 | 150 | 755 | 415 |
| 150 | 56 | 209 | 124 | 170 | 240 | 592 | 150 | 890 | 415 |

A: EN558-1 series 20 up to DN500

GEAR (non-rising stem)

- Recommended for valves larger than DN 350 and working pressures greater than 3,5 bar
- Consists of:
 - Stem
 - Yoke
 - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)
- Available from DN 200 to DN 1200
- Options:
 - Locking device
 - Extension and floor stand
 - Chainwheel
 - Rising stem

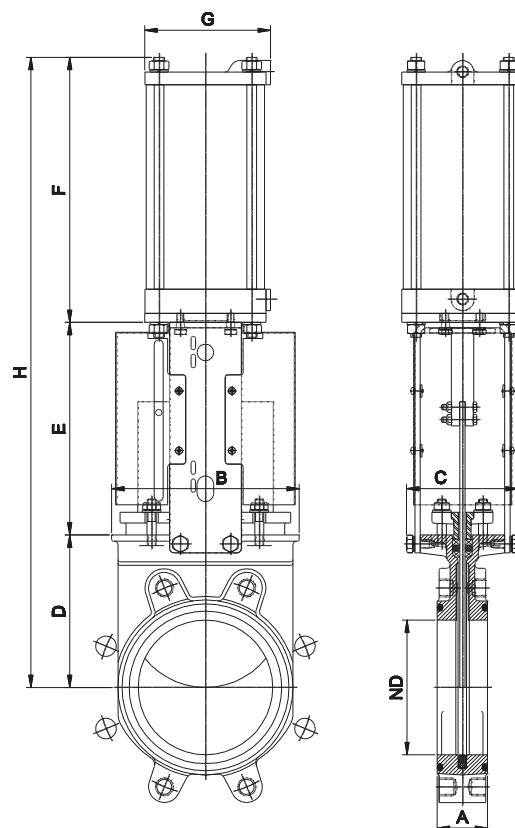


| DN | A | B | C | D | E | F | ØG | H | I |
|------|-----|------|-----|------|------|------|-----|------|-----|
| 200 | 60 | 263 | 142 | 205 | 305 | 580 | 300 | 730 | 200 |
| 250 | 68 | 315 | 142 | 250 | 360 | 680 | 300 | 830 | 200 |
| 300 | 78 | 370 | 142 | 290 | 410 | 770 | 300 | 920 | 200 |
| 350 | 78 | 420 | 197 | 325 | 490 | 890 | 450 | 1115 | 262 |
| 400 | 102 | 478 | 197 | 360 | 540 | 975 | 450 | 1200 | 262 |
| 450 | 114 | 530 | 201 | 410 | 592 | 1077 | 450 | 1305 | 262 |
| 500 | 127 | 584 | 201 | 450 | 652 | 1177 | 450 | 1405 | 262 |
| 600 | 110 | 762 | 201 | 510 | 755 | 1340 | 450 | 1565 | 262 |
| 700 | 110 | 890 | 398 | 610 | 900 | 1622 | 450 | 1847 | 308 |
| 800 | 110 | 1012 | 320 | 700 | 971 | 1847 | 650 | 2007 | 308 |
| 900 | 110 | 1112 | 320 | 785 | 1092 | 1963 | 650 | 2288 | 288 |
| 1000 | 110 | 1200 | 320 | 1120 | 1195 | 2491 | 650 | 2816 | 288 |
| 1200 | 150 | 1470 | 450 | 1340 | 1480 | 2996 | 650 | 3321 | 288 |

A: EN558-1 series 20 up to DN500

PNEUMATIC CYLINDER

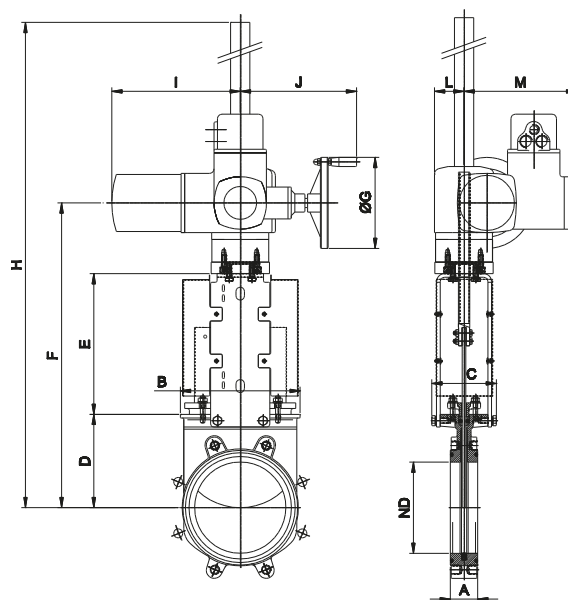
- The standard pneumatic actuator (double acting on-off cylinder) consists of:
 - $\varnothing \leq 300$: Aluminum barrels
 - $\varnothing \geq 350$: Composite barrels
 - Aluminum end covers
 - Stainless Steel (AISI 304) piston rod
 - Nitrile coated steel piston
- Available from DN 50 to DN 800
- Supply Pressure: minimum 3.5 bar - maximum 10 bar. Actuator designed with 6 bar 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
 - Stainless Steel barrel and covers
 - Over/Undersized cylinder
 - Manual override
 - Fail safe system
 - Limit switches
- 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 | 115 | 412 | 9 | C100/62 | 1/4" G |
| 65 | 46 | 128 | 124 | 115 | 146 | 193 | 115 | 454 | 10 | C100/77 | 1/4" G |
| 80 | 46 | 143 | 124 | 124 | 162 | 211 | 115 | 497 | 11 | C100/95 | 1/4" G |
| 100 | 52 | 162 | 124 | 140 | 187 | 231 | 115 | 558 | 13.5 | C100/115 | 1/4" G |
| 125 | 56 | 181 | 124 | 150 | 211 | 271 | 140 | 632 | 19 | C125/143 | 1/4" G |
| 150 | 56 | 209 | 124 | 170 | 237 | 296 | 140 | 703 | 22 | C125/168 | 1/4" G |
| 200 | 60 | 263 | 142 | 205 | 309 | 358 | 175 | 872 | 47 | C160/220 | 1/4" G |
| 250 | 68 | 315 | 142 | 250 | 364 | 428 | 220 | 1042 | 58 | C200/270 | 3/8" G |
| 300 | 78 | 370 | 142 | 290 | 414 | 478 | 220 | 1182 | 84 | C200/320 | 3/8" G |
| 350 | 78 | 420 | 197 | 325 | 500 | 549 | 277 | 1374 | 130 | C250/375 | 3/8" G |
| 400 | 102 | 478 | 197 | 360 | 550 | 599 | 277 | 1509 | 181 | C250/425 | 3/8" G |
| 450 | 114 | 530 | 201 | 410 | 598 | 680 | 382 | 1688 | 235 | C300/475 | 1/2" G |
| 500 | 127 | 584 | 201 | 450 | 658 | 730 | 382 | 1838 | 302 | C300/525 | 1/2" G |
| 600 | 110 | 762 | 201 | 510 | 758 | 830 | 382 | 2098 | 315 | C300/625 | 1/2" G |
| 700 | 110 | 890 | 380 | 601 | 875 | 985 | 444 | 2461 | 480 | C350/730 | 3/4" G |
| 800 | 110 | 1012 | 320 | 695 | 974 | 1035 | 444 | 2704 | 585 | C350/830 | 3/4" G |

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 1200
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support
- Wide ranges of types and brands 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 | 129 | 377 | 160 | 532 | 265 | 249 | 62 | 238 | 20 x 4 | 10 |
| 65 | 46 | 128 | 124 | 115 | 146 | 404 | 160 | 600 | 265 | 249 | 62 | 238 | 20 x 4 | 10 |
| 80 | 46 | 143 | 124 | 124 | 162 | 429 | 160 | 674 | 265 | 249 | 62 | 238 | 20 x 4 | 10 |
| 100 | 52 | 162 | 124 | 140 | 187 | 470 | 160 | 665 | 265 | 249 | 62 | 238 | 20 x 4 | 10 |
| 125 | 56 | 181 | 124 | 150 | 211 | 504 | 160 | 700 | 265 | 249 | 62 | 238 | 20 x 4 | 15 |
| 150 | 56 | 209 | 124 | 170 | 237 | 550 | 160 | 1120 | 265 | 249 | 62 | 238 | 20 x 4 | 20 |
| 200 | 60 | 263 | 142 | 205 | 309 | 657 | 160 | 1237 | 265 | 249 | 62 | 238 | 25 x 5 | 30 |
| 250 | 68 | 315 | 142 | 250 | 364 | 757 | 160 | 1337 | 265 | 249 | 62 | 238 | 25 x 5 | 45 |
| 300 | 78 | 370 | 142 | 290 | 414 | 847 | 160 | 1427 | 265 | 249 | 62 | 238 | 25 x 5 | 40 |
| 350 | 78 | 420 | 197 | 325 | 500 | 955 | 200 | 1535 | 283 | 254 | 65 | 248 | 35 x 6 | 70 |
| 400 | 102 | 478 | 197 | 360 | 550 | 1040 | 200 | 1620 | 283 | 254 | 65 | 248 | 35 x 6 | 90 |
| 450 | 114 | 530 | 270 | 410 | 598 | 1129 | 200 | 1724 | 283 | 254 | 65 | 248 | 35 x 6 | 110 |
| 500 | 127 | 684 | 270 | 450 | 658 | 1238 | 200 | 1833 | 283 | 254 | 65 | 248 | 35 x 6 | 95 |
| 600 | 110 | 762 | 270 | 503 | 758 | 1376 | 315 | 2093 | 389 | 336 | 91 | 286 | 35 x 6 | 140 |
| 700 | 110 | 890 | 380 | 610 | 875 | 1660 | 315 | 2800 | 389 | 336 | 91 | 285 | 40 x 7 | 120 |
| 800 | 110 | 1012 | 320 | 700 | 979 | 1849 | 315 | 2989 | 389 | 336 | 91 | 286 | 50 x 8 | 180 |
| 900 | 110 | 1112 | 320 | 785 | 1115 | 2085 | 315 | 3225 | 389 | 336 | 91 | 286 | 50 x 8 | 220 |
| 1000 | 110 | 1200 | 320 | 1120 | 1225 | 2515 | 400 | 3670 | 389 | 339 | 91 | 286 | 50 x 8 | 300 |
| 1200 | 150 | 1470 | 450 | 1340 | 1485 | 3011 | 500 | 4430 | 430 | 365 | 200 | 330 | 60 x 9 | 480 |

A: EN558-1 series 20 up to DN500

Maximum pressure torque in clean water at room temperature

MODEL**EB**

ELECTRIC ACTUATOR (non-rising stem)

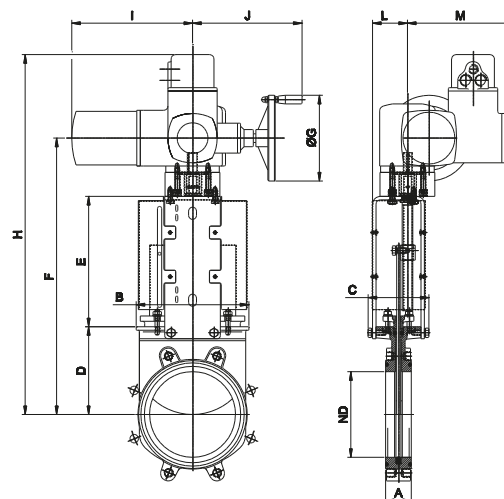
- Consists of:
 - Electric motor
 - Motor support yoke flange
acc. to ISO 5210 / DIN 3338

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

- Available from DN 50 to DN 1200

- 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



| DN | A | B | C | D | E | F | ØG | H | I | J | L | M | StemØxpitch | Torque(Nm) |
|------|-----|------|-----|------|------|------|-----|------|-----|-----|-----|-----|-------------|------------|
| 50 | 43 | 113 | 124 | 105 | 132 | 370 | 160 | 545 | 265 | 249 | 72 | 238 | 20 x 3 | 10 |
| 65 | 46 | 128 | 124 | 115 | 149 | 397 | 160 | 572 | 265 | 249 | 72 | 238 | 20 x 3 | 10 |
| 80 | 46 | 143 | 124 | 124 | 165 | 422 | 160 | 597 | 265 | 249 | 72 | 238 | 20 x 3 | 10 |
| 100 | 52 | 162 | 124 | 140 | 190 | 463 | 160 | 638 | 265 | 249 | 72 | 238 | 20 x 3 | 10 |
| 125 | 56 | 181 | 124 | 150 | 214 | 497 | 160 | 672 | 265 | 249 | 72 | 238 | 20 x 3 | 15 |
| 150 | 56 | 209 | 124 | 170 | 240 | 543 | 160 | 718 | 265 | 249 | 72 | 238 | 20 x 3 | 20 |
| 200 | 60 | 263 | 142 | 205 | 335 | 681 | 160 | 856 | 265 | 249 | 82 | 238 | 25 x 5 | 30 |
| 250 | 68 | 315 | 142 | 250 | 360 | 751 | 160 | 926 | 265 | 249 | 82 | 238 | 25 x 5 | 45 |
| 300 | 78 | 370 | 142 | 290 | 410 | 841 | 160 | 1016 | 265 | 249 | 82 | 238 | 25 x 5 | 40 |
| 350 | 78 | 420 | 197 | 325 | 487 | 925 | 200 | 1100 | 283 | 254 | 128 | 248 | 35 x 6 | 70 |
| 400 | 102 | 478 | 197 | 360 | 537 | 1010 | 200 | 1185 | 283 | 254 | 128 | 248 | 35 x 6 | 90 |
| 450 | 114 | 530 | 270 | 410 | 589 | 1112 | 200 | 1287 | 283 | 254 | 130 | 248 | 35 x 6 | 110 |
| 500 | 127 | 584 | 270 | 450 | 649 | 1212 | 200 | 1387 | 283 | 254 | 130 | 248 | 35 x 6 | 95 |
| 600 | 110 | 762 | 270 | 503 | 813 | 1500 | 315 | 1685 | 389 | 336 | 130 | 286 | 35 x 6 | 140 |
| 700 | 110 | 890 | 380 | 610 | 890 | 1680 | 315 | 1865 | 389 | 336 | 202 | 285 | 40 x 7 | 120 |
| 800 | 110 | 1012 | 320 | 700 | 980 | 1855 | 315 | 2040 | 389 | 336 | 202 | 286 | 50 x 8 | 180 |
| 900 | 110 | 1112 | 320 | 785 | 1097 | 2072 | 315 | 2257 | 389 | 336 | 202 | 286 | 50 x 8 | 220 |
| 1000 | 110 | 1200 | 320 | 1120 | 1225 | 2515 | 400 | 2700 | 389 | 339 | 202 | 286 | 50 x 8 | 300 |
| 1200 | 150 | 1470 | 450 | 1340 | 1600 | 3150 | 500 | 3335 | 430 | 365 | 284 | 330 | 60 x 9 | 480 |

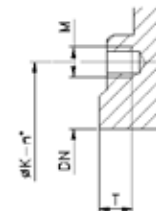
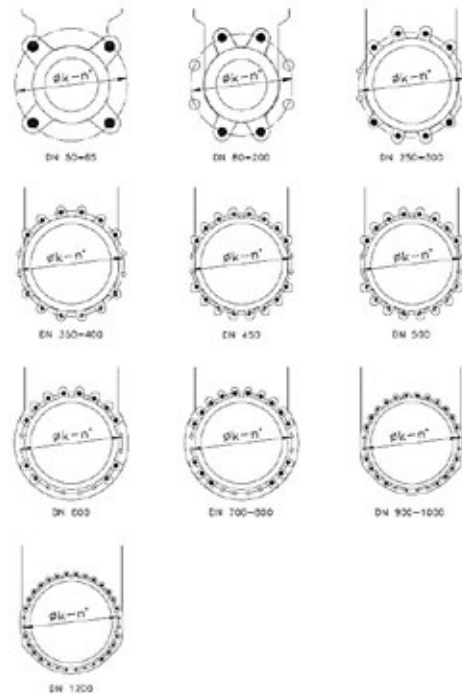
A: EN558-1 series 20 up to DN500

Maximum pressure torque in clean water at room temperature

FLANGE AND BOLTING DETAILS

EN 1092-2 PN 10

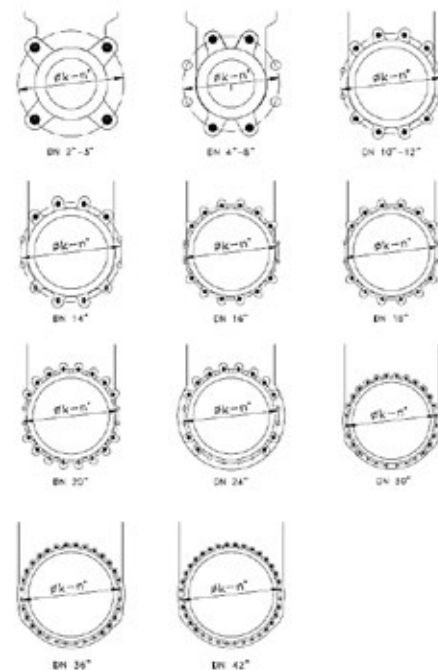
| DN | K | n° | M | T | | | |
|------|------|----|------|----|-------------|--|--|
| 50 | 125 | 4 | M-16 | 10 | 4 - 0 - 0 | | |
| 65 | 145 | 4 | M-16 | 10 | 4 - 0 - 0 | | |
| 80 | 160 | 8 | M-16 | 12 | 4 - 0 - 4 | | |
| 100 | 180 | 8 | M-16 | 12 | 4 - 0 - 4 | | |
| 125 | 210 | 8 | M-16 | 14 | 4 - 0 - 4 | | |
| 150 | 240 | 8 | M-20 | 14 | 4 - 0 - 4 | | |
| 200 | 295 | 8 | M-20 | 14 | 4 - 0 - 4 | | |
| 250 | 350 | 12 | M-20 | 18 | 8 - 0 - 4 | | |
| 300 | 400 | 12 | M-20 | 21 | 8 - 0 - 4 | | |
| 350 | 460 | 16 | M-20 | 21 | 6 - 6 - 4 | | |
| 400 | 515 | 16 | M-24 | 28 | 6 - 6 - 4 | | |
| 450 | 565 | 20 | M-24 | 30 | 12 - 4 - 4 | | |
| 500 | 620 | 20 | M-24 | 40 | 8 - 8 - 4 | | |
| 600 | 725 | 20 | M-27 | 26 | 12 - 0 - 8 | | |
| 700 | 840 | 24 | M-27 | 20 | 16 - 0 - 8 | | |
| 800 | 950 | 24 | M-30 | 20 | 16 - 0 - 8 | | |
| 900 | 1050 | 28 | M-30 | 20 | 20 - 0 - 8 | | |
| 1000 | 1160 | 28 | M-33 | 20 | 20 - 0 - 8 | | |
| 1200 | 1380 | 32 | M-36 | 35 | 22 - 0 - 10 | | |



- BLIND TAPPED HOLES
- TAPPED THROUGH
- THROUGH HOLES

ANSI B16.5 / B16.47, class 150

| DN | K | n° | M | T | | | |
|--------|---------|----|----------------|------|-------------|--|--|
| 2" | 4 3/4" | 4 | 5/8" - 11 UNC | 3/8" | 4 - 0 - 0 | | |
| 2 1/2" | 5 1/2" | 4 | 5/8" - 11 UNC | 3/8" | 4 - 0 - 0 | | |
| 3" | 6" | 4 | 5/8" - 11 UNC | 3/8" | 4 - 0 - 0 | | |
| 4" | 7 1/2" | 8 | 5/8" - 11 UNC | 3/8" | 4 - 0 - 4 | | |
| 5" | 8 1/2" | 8 | 3/4" - 10 UNC | 3/8" | 4 - 0 - 4 | | |
| 6" | 9 1/2" | 8 | 3/4" - 10 UNC | 1/2" | 4 - 0 - 4 | | |
| 8" | 11 3/4" | 8 | 3/4" - 10 UNC | 1/2" | 4 - 0 - 4 | | |
| 10" | 14 1/4" | 12 | 7/8" - 9 UNC | 3/4" | 8 - 0 - 4 | | |
| 12" | 17" | 12 | 7/8" - 9 UNC | 3/4" | 8 - 0 - 4 | | |
| 14" | 18 3/4" | 12 | 1" - 8 UNC | 7/8" | 4 - 4 - 4 | | |
| 16" | 21 1/4" | 16 | 1" - 8 UNC | 1" | 12 - 0 - 4 | | |
| 18" | 22 3/4" | 16 | 1 1/8" - 7 UNC | 1" | 8 - 4 - 4 | | |
| 20" | 25" | 20 | 1 1/8" - 7 UNC | 1" | 12 - 4 - 4 | | |
| 24" | 29 1/2" | 20 | 1 1/4" - 7 UNC | 1" | 16 - 0 - 8 | | |
| 30" | 36" | 28 | 1 1/4" - 7 UNC | 3/4" | 18 - 0 - 10 | | |
| 36" | 42 3/4" | 32 | 1 1/2" - 6 UNC | 3/4" | 22 - 0 - 10 | | |
| 42" | 49 1/2" | 36 | 1 1/2" - 6 UNC | 3/4" | 24 - 0 - 12 | | |



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 bar

Standard flange connection:

DIN PN 16
Other flange connections on request

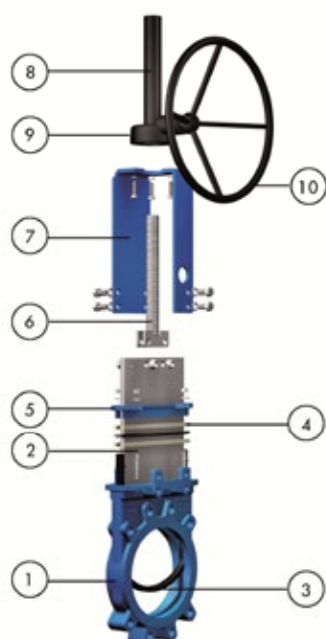
Directives:

2006/42/CE (MACHINES)
2014/68/EU (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)
2014/34/EU (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

| Part: | Materials: |
|-------------------|---------------------------------------|
| 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 | Stainless Steel |
| 7- Yoke | Carbon Steel - Epoxy Coated |
| 8- Stem protector | A570 GR.40 / 1.0044 Epoxy coated |
| 9- Bevel Gear | - |
| 10- Handwheel | A570 GR.40 / 1.0044 Epoxy coated |

MODEL

HB



DESIGN FEATURES

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:

Body:

CF8M

Gate:

AISI 316 or 316Ti
2205

Stem:

AISI 316 or 316 Ti



MODEL

HB



ACTUATOR TYPES

MANUAL

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

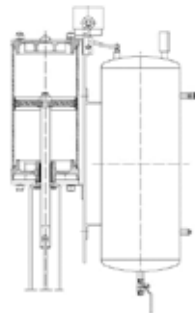
SINGLE ACTING (SPRING RETURN)

- Available from DN 50 to DN 300
- Supply pressure:
min. 5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



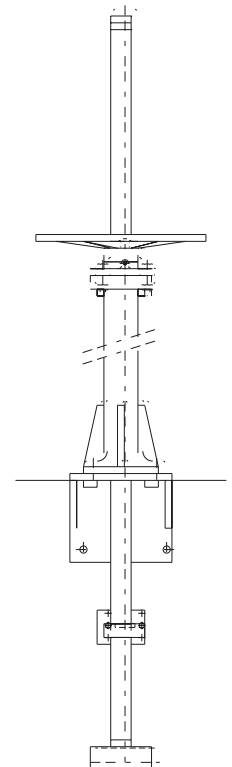
DOUBLE ACTING WITH AIR TANK

- Available for all valve sizes
- Supply pressure:
min. 3.5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



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

For more detailed information, please contact our Technical Department

MODEL**HB**

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 | Chemical service / High temp. | Braided PTFE (TH) | 260 | 0-14 |

More details and other materials on request

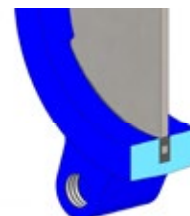
NOTE: All types include an elastomere O-ring (same material as seal), excluding TH. Standard packing: ST

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 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

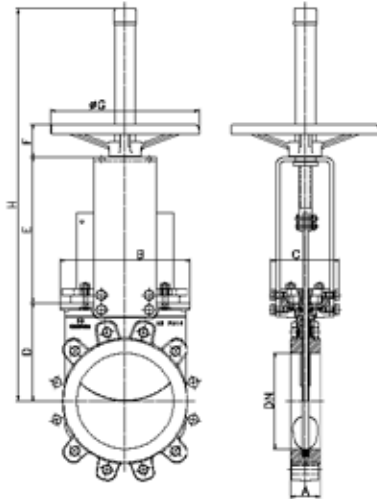


Please contact our ORBINOX representative for info and availability. Some considerations:

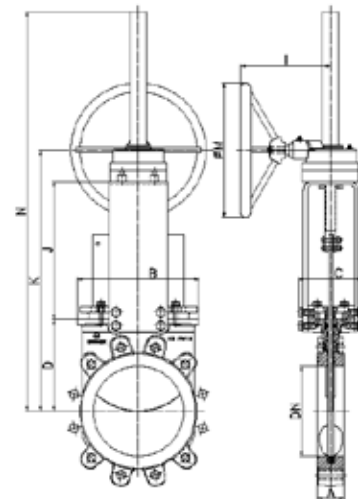
- Hand operated HB valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive. Therefore hand operated valves are suitable for ALL ATEX zones.
- Electrical, pneumatical and hydraulically operated valves must be subjected to a conformity assessment of their own and also of the whole unit valve-actuator to get EC Type Approval to Directive 2014/34.

HAND OPERATED (rising stem)

HANDWHEEL



GEAR



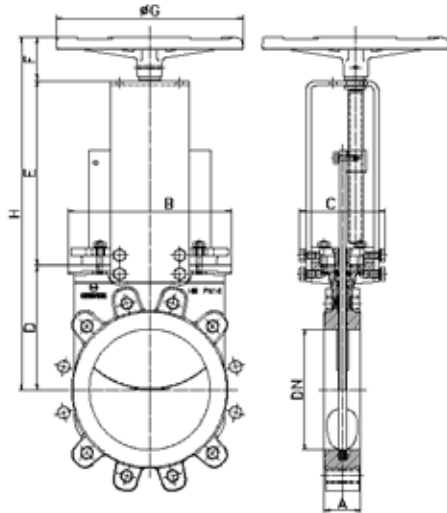
- Standard manual actuator
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Stem
 - Stem nut
 - Stem protector
 - Yoke
- Available from DN 50 to DN 200
- Options:
 - Locking device
 - Extensions
 - Chainwheel
 - Non-rising stem

- Recommended for valves larger than DN 200 and working pressures greater than 3.5 bar
- 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

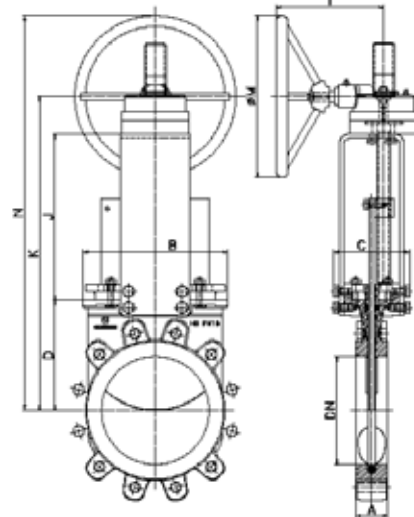
| DN | A | B | C | D | E | J | F | K | ØG | ØM | H | N | I |
|-----|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|------|-----|
| 50 | 43 | 113 | 124 | 105 | 132 | - | 47 | - | 225 | - | 460 | - | - |
| 65 | 46 | 128 | 124 | 115 | 149 | - | 47 | - | 225 | - | 490 | - | - |
| 80 | 46 | 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 | 230 | 290 | - | 414 | - | 805 | - | 300 | - | 1205 | 200 |

HAND OPERATED (non-rising stem)

HANDWHEEL



GEAR



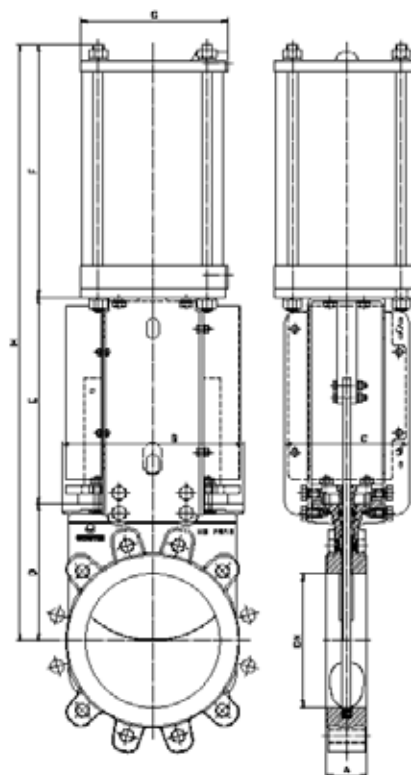
- Standard manual actuator
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Stem
 - Stem nut
 - Yoke
- Available from DN 50 to DN 200
- Options:
 - Locking device
 - Extensions
 - Chainwheel
 - Rising stem

- Recommended for valves larger than DN 200 and working pressures greater than 3.5 bar
- 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

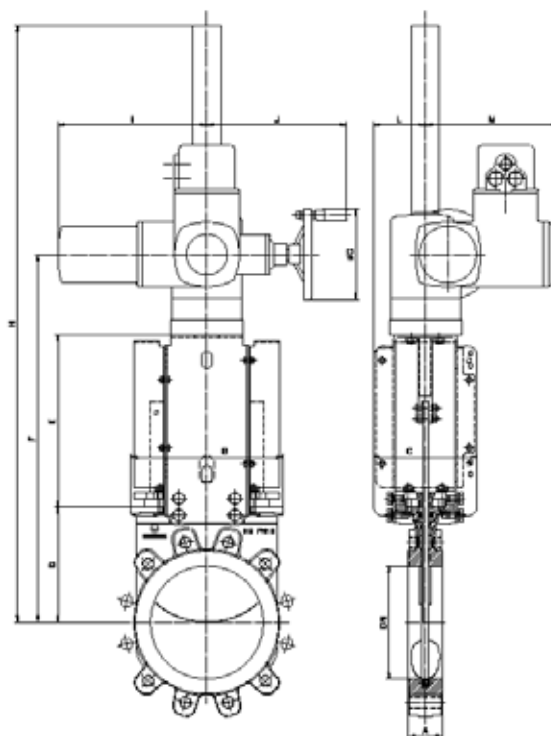
- The standard pneumatic actuator (double acting on-off cylinder) consists of:
 - DN ≤ 250: Aluminum barrels
 - DN ≥ 300: Composite barrels
 - Aluminum end covers
 - Stainless Steel (AISI 304) piston rod
 - Nitrile coated steel piston
- Available from DN 50 to DN 300
- Supply Pressure: min. 3.5 bar - max. 10 bar. Actuator designed with 6 bar 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



| DN | A | B | C | D | E | F | G | H | Weight (kg.) | Standard Cyl | Connect. |
|-----|----|-----|-----|-----|-------|-----|-----|------|--------------|--------------|----------|
| 50 | 43 | 113 | 124 | 105 | 129 | 178 | 115 | 412 | 9 | C100/62 | 1/4" G |
| 65 | 46 | 128 | 124 | 115 | 146 | 193 | 115 | 454 | 10 | C100/77 | 1/4" G |
| 80 | 46 | 143 | 124 | 124 | 162 | 211 | 115 | 497 | 11 | C100/95 | 1/4" G |
| 100 | 52 | 162 | 124 | 140 | 187 | 231 | 115 | 558 | 13.5 | C100/115 | 1/4" G |
| 125 | 56 | 181 | 124 | 150 | 213,5 | 271 | 140 | 64 | 19 | C125/143 | 1/4" G |
| 150 | 56 | 209 | 142 | 170 | 237 | 296 | 175 | 703 | 22 | C160/168 | 1/4" G |
| 200 | 60 | 270 | 185 | 205 | 385 | 385 | 220 | 900 | 47 | C200/220 | 3/8" G |
| 250 | 68 | 320 | 230 | 250 | 450 | 450 | 277 | 1097 | 58 | C250/270 | 3/8" G |
| 300 | 78 | 425 | 250 | 290 | 510 | 510 | 382 | 1244 | 84 | C300/320 | 1/2" G |

ELECTRIC ACTUATOR (rising stem)

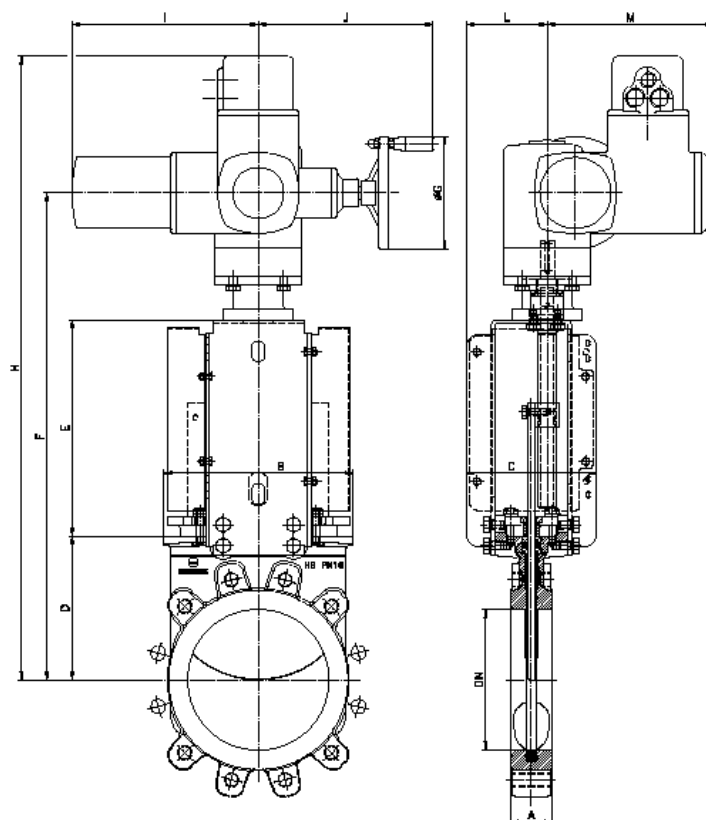
- Consists of:
 - Electric motor
 - Motor support yoke flange acc. to ISO 5210 / DIN 3338
- The standard electric motor is equipped with:
 - Manual emergency operation
 - Limit switches (open/closed)
 - Torque switches
- Available from DN 50 to DN 300
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support
- Wide range of types and brands available to meet customer's needs



| 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 | 140 | 1085 | 265 | 234 | 62 | 237 | 20 x 4 | 20 |
| 150 | 56 | 209 | 124 | 170 | 240 | 555 | 140 | 1130 | 265 | 234 | 62 | 237 | 20 x 4 | 25 |
| 200 | 60 | 270 | 185 | 205 | 310 | 660 | 160 | 1235 | 265 | 250 | 135 | 237 | 24 x 5 | 50 |
| 250 | 68 | 320 | 230 | 250 | 397 | 790 | 160 | 1365 | 265 | 250 | 135 | 237 | 24 x 5 | 75 |
| 300 | 78 | 425 | 250 | 290 | 444 | 890 | 200 | 1470 | 282 | 256 | 135 | 237 | 24 x 5 | 105 |

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






| 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 | 140 | 672 | 265 | 234 | 72 | 237 | 20 x 3 | 20 |
| 150 | 56 | 209 | 124 | 170 | 240 | 543 | 140 | 718 | 265 | 234 | 72 | 237 | 20 x 3 | 25 |
| 200 | 60 | 270 | 185 | 205 | 310 | 695 | 160 | 895 | 265 | 250 | 115 | 237 | 24 x 5 | 50 |
| 250 | 68 | 320 | 230 | 250 | 397 | 835 | 160 | 1030 | 265 | 250 | 140 | 237 | 24 x 5 | 75 |
| 300 | 78 | 425 | 250 | 290 | 444 | 920 | 200 | 1090 | 282 | 256 | 150 | 247 | 24 x 5 | 105 |

MODEL**HB**

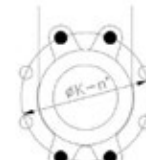
FLANGE AND BOLTING DETAILS

EN 1092-2 PN 16

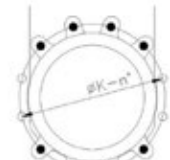
| DN | K | n° | M | T |    |
|-----|-----|----|------|----|---|
| 50 | 125 | 4 | M-16 | 10 | 4 - 0 - 0 |
| 65 | 145 | 4 | M-16 | 10 | 4 - 0 - 0 |
| 80 | 160 | 8 | M-16 | 12 | 4 - 0 - 4 |
| 100 | 180 | 8 | M-16 | 12 | 4 - 0 - 4 |
| 125 | 210 | 8 | M-16 | 14 | 4 - 0 - 4 |
| 150 | 240 | 8 | M-20 | 14 | 4 - 0 - 4 |
| 200 | 295 | 12 | M-20 | 14 | 8 - 0 - 4 |
| 250 | 355 | 12 | M-24 | 18 | 8 - 0 - 4 |
| 300 | 410 | 12 | M-24 | 18 | 8 - 0 - 4 |



DN 50-65

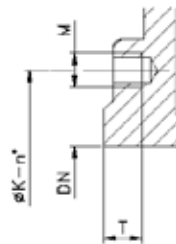





DN 80-150



DN 200-300

NOTE: Other flanges on request



-  BLIND TAPPED HOLES
-  TAPPED THROUGH
-  THROUGH HOLES



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