

BURNER SHUT-OFF KNIFE GATE VALVE

The CX model knife gate is an uni-directional full flange valve designed for multiple purpose industrial service applications especially for burner shut off, coal feeder discharge, mill outlet, coal pulverized feed isolation, etc. The valve complies with NFPA 85.

Sizes: DN 200mm/8" to DN 900mm/36" (larger diameters on request)

Working pressure:

| | |
|------------------------------|--------|
| DN 200mm/ 8" to DN 250mm/10" | 10 bar |
| DN 300mm/12" to DN 400mm/16" | 6 bar |
| DN 450mm/18" | 5 bar |
| DN 500mm/20" to DN 900mm/36" | 4 bar |

Standard flange connection:

DIN PN 10 and ANSI B16.5 (class 150)
Other flange connections available on request

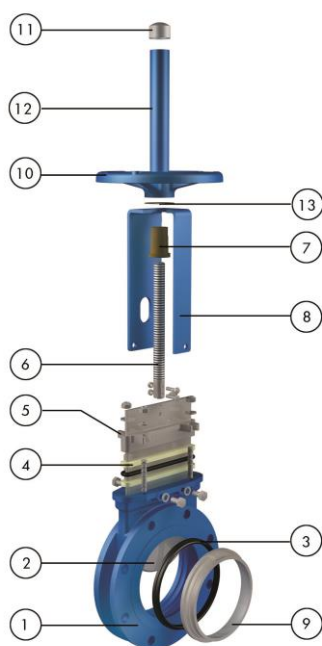
Other flange connections available on request

| | | |
|----------------|-----------|-----------|
| DIN PN 6 | DIN PN 16 | DIN PN 25 |
| BS "D" and "E" | ANSI 125 | |

Directives: For EU Directives and other Certificates, please see the document: Directives and Certificates Compliance - Knife Gate Valves - Catalogues and Datasheets



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



STANDARD PARTS LIST

Part:

| | | |
|---------------------|--|----------|
| 1- Body | A216WCB / CF8M | |
| 2- Gate | AISI 304 | |
| 3- Seat | Metal/Metal or EPDM | |
| 4- Packing | PTFE Impreg. Synth. Fibre (With a EPDM O-Ring) | |
| 5- Gland Follower | Alum. (DN 50 to DN 300) or Ductile Iron (DN 350 a DN 1200) | CF8M |
| 6- Stem | Stainless Steel | |
| 7- Stem nut | Brass | |
| 8- Yoke | Epoxy-coated Carbon Steel | |
| 9- "A" ring | AISI 304 | AISI 316 |
| 10- Handwheel | Ø ≤ 310: Ductile Iron / Ø ≥ 410: GJL 250 (GG25) | |
| 11.- Cap | Plastic | |
| 12- Stem Protector | Epoxy-coated Carbon Steel | |
| 13- Friction Washer | Brass | |

DESIGN FEATURES

BODY:

Full flange style cast monoblock with raised face, with reinforced ribs in larger diameters for extra body strength. Internal cast-in gate wedges and guides allows for tighter shut-off. Full port design for greater flow capacity and minimal pressure drop. Internal design avoids any build up of solids that would prevent valve from closing. Body bore is optionally coated with tungstene carbides. Face-to-face according to MSS-SP-81 standard.

GATE:

Stainless steel gate as standard.

Gate edge stellited for resistance against abrasive flow media.

Gate is polished on both sides to avoid jamming and seat damage.

Bottom of the gate edge is machined to a bevel to cut through solids for a tighter seal in the closed position. On request: thickness and/or material of the gate can be changed for higher pressure requirement.

SEAT: (resilient)

Unique design that mechanically locks the seat in the internal of the valve body with a stainless steel retainer ring. Rings are optionally coated with tungstene carbides.

Standard EPDM also available in different materials such as Viton, PTFE, etc.

PACKING:

Long-life packing with several layers of braided fibre plus an 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.

STEM:

The standard stainless steel stem offers a long corrosion resistant life.

For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust while the valve is in the open position.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with an standard mounting 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 OPTIONS

Bonnet (Fig.1):

Assures tight sealing to atmosphere for using with hazardous gas or fluids.
Reduces packing maintenance.

V-port:

60 degree and pentagonal port design.
Selection depends on the desired fluid control type.

Flush ports (Fig.2):

Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing.

Purging can be made with air, steam, liquids, etc. depending on the process

Other materials of construction:

Ductile iron, carbon steel, stainless steel (AISI 317,...), special alloys (254SMO, Hastelloys), etc.

Fabricated valves:

ORBINOX designs, produces and delivers special fabricated valves for special process conditions (big sizes and/or high pressures).

EXT (full lug design):

Modified version of the EX model with full lug design for end of line applications.

Standard flange connection from DIN PN 10, ANSI 150, to AS "D".

Sizes available up to DN 600.

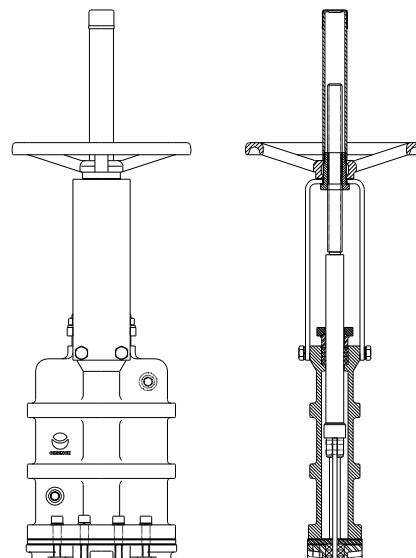


Fig.1

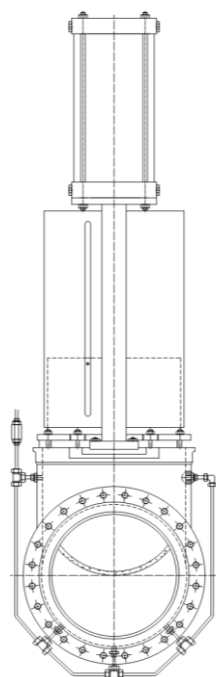


Fig.2

SURFACE TREATMENTS

Valve components can be protected or coated for a longer life expectancy, depending on the valve application and the service conditions.

At ORBINOX we can offer alternative treatments and coatings for the different valve components to improve the properties against abrasion (Stellite, Polyurethane...), corrosion (Halar, Rilsan, Galvanised...) and adherence (Polishing, PTFE...).

MODEL

CX

ACTUATOR TYPES

MANUAL:

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

AUTOMATIC:

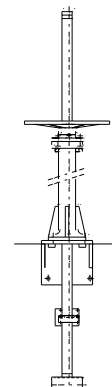
Electric
Pneumatic
Hydraulic

All actuators supplied by ORBINOX are interchangeable

ACCESSORIES:

Mechanical Stops
Actuator manual override
Positioners
Proximity Switches

Locking device
Solenoid valves
Limit Switches
Floor stands



Wide range of valve extensions available



Standard
Handwheel
(Rising Stem)



Handwheel
(Non Rising
Stem)



Pneumatic
Cylinder



Electric



Lever

TEMPERATURE CHART

SEAT / SEALS

PACKING

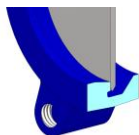
| Material | Max.Temp.(°C) | Applications |
|-------------|---------------|----------------------------------|
| Metal/Metal | >250 | High temp. Low tightness |
| EPDM (E) | 120 | Acids and non mineral oils |
| NBR (N) | 120 | Resistance to petroleum products |
| FKM-FPM (V) | 200 | Chemical service / High temp. |
| VMQ (S) | 250 | Food service / High temperature |
| PTFE (T) | 250 | Corrosion resistance |

| Material | Max.Temp.(°C) | pH |
|---------------------------------|---------------|------|
| PTFE impregn. synth. fibre (ST) | 250 | 2-13 |
| Braided PTFE (TH) | 260 | 0-14 |
| Graphited (GR) | 600 | 0-14 |
| Ceramic fibre (FC) | 1200 | -- |

NOTE: all types include an elastomere O-ring (same material as seal), excluding TH, GR and FC.

More details and other materials under request.

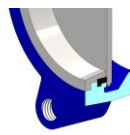
SEAT TYPES



METAL / METAL

For applications with:

- High temperature
- High density media application
- When full tightness is not required

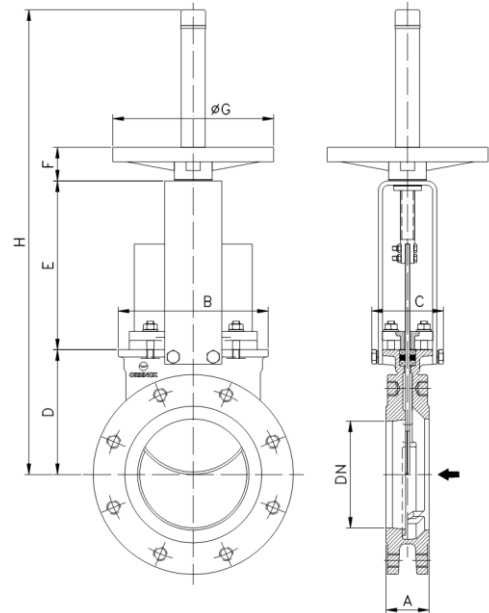


TYPE "B" SEAT (resilient)

- Temperature limitations according to the selected seat material. Review the above chart or contact our Technical Department for more information.
- Replaceable and reinforced seat ring available in different materials and coatings, like tungstene carbides, etc.

HANDWHEEL (rising stem)

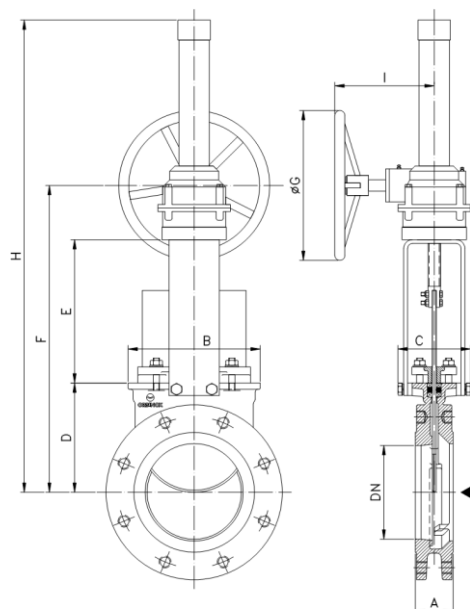
- Standard handwheel actuator.
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Stem
 - Stem nut
 - Stem protector
- Available from DN 200mm/8" to DN 900mm/36"
- Options:
 - Locking Device
 - Extensions



| DN (mm/") | A | B | C | D | E | F | ØG | H | Weight(kg) |
|-----------|-----|-----|-----|-----|-----|----|-----|------|------------|
| 200/8" | 70 | 247 | 122 | 203 | 309 | 67 | 310 | 820 | 32 |
| 250/10" | 70 | 298 | 122 | 233 | 345 | 67 | 310 | 986 | 47 |
| 300/12" | 76 | 349 | 122 | 273 | 390 | 69 | 410 | 1071 | 65 |
| 350/14" | 76 | 391 | 193 | 312 | 433 | 66 | 410 | 1245 | 95 |
| 400/16" | 89 | 439 | 193 | 347 | 478 | 66 | 410 | 1325 | 122 |
| 450/18" | 89 | 483 | 197 | 415 | 552 | 67 | 550 | 1510 | 160 |
| 500/20" | 114 | 542 | 197 | 450 | 611 | 67 | 550 | 1617 | 202 |
| 600/24" | 114 | 637 | 197 | 501 | 697 | 67 | 550 | 1883 | 290 |

GEAR

- Recommended for valves larger than DN 350/14" and working pressures greater than 3.5 bar
- Consists of:
 - Stem
 - Yoke
 - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)
- Available from DN 200mm/8" to DN 900mm/36"
- Options:
 - Locking device
 - Extension
 - Chainwheel
 - Non-rising stem

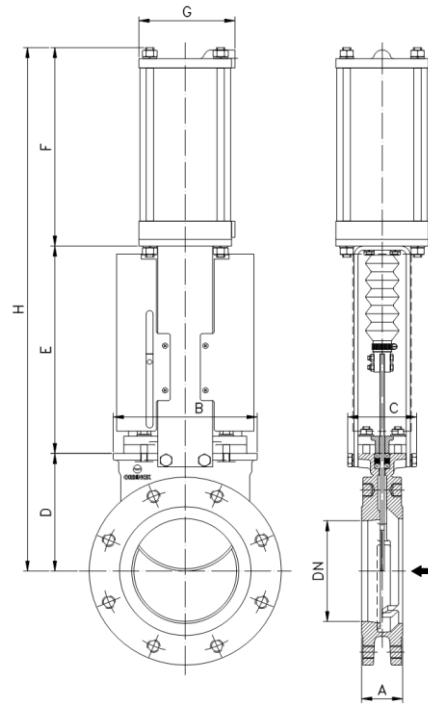


| DN(mm/") | A | B | C | D | E | F | ØG | H | I |
|----------|-----|-----|-----|-----|------|------|-----|------|-----|
| 200/8" | 70 | 247 | 122 | 203 | 309 | 582 | 300 | 992 | 200 |
| 250/10" | 70 | 298 | 122 | 233 | 345 | 648 | 300 | 1060 | 200 |
| 300/12" | 76 | 349 | 122 | 273 | 390 | 733 | 300 | 1143 | 200 |
| 350/14" | 76 | 391 | 197 | 312 | 430 | 790 | 450 | 1489 | 270 |
| 400/16" | 89 | 439 | 197 | 347 | 475 | 870 | 450 | 1570 | 270 |
| 450/18" | 89 | 483 | 201 | 415 | 518 | 984 | 450 | 1615 | 270 |
| 500/20" | 114 | 542 | 201 | 450 | 558 | 1092 | 450 | 1810 | 280 |
| 600/24" | 114 | 637 | 201 | 501 | 663 | 1248 | 650 | 1879 | 290 |
| 750/30" | 117 | 842 | 320 | 624 | 871 | 1597 | 650 | 2650 | 413 |
| 900/36" | 117 | 970 | 320 | 779 | 1046 | 2135 | 650 | 3135 | 442 |

*custom face to face available

PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
 - $\varnothing \leq 300\text{mm}/12''$: Aluminum barrels
 - $\varnothing \geq 350\text{mm}/14''$: Composite barrels
 - Aluminum end caps
 - Stainless steel (AISI 304) piston rod
 - Nitrile coated steel piston
- Available from DN 200mm/8" to DN 900mm/36"
- 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: - Hard anodized jacket and covers
 - Over / Undersized cylinder
 - Stainless steel jacket and covers
 - Manual override
 - Fail safe system (Page EX-14)
 - Travel stops
- Instrumentation (on request):
 - Positioners
 - Solenoid valves
 - Flow regulators
 - Air preparation units

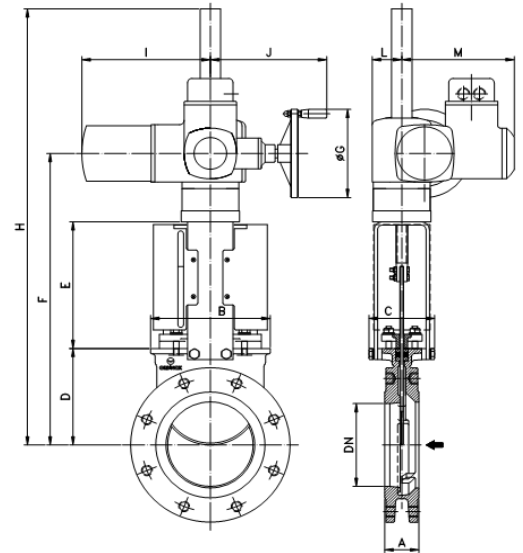


| DN(mm/') | A | B | C | D | E | F | G | H | Weight(kg) | Standard Cyl | Connect. |
|----------|-----|-----|-----|-----|------|------|-----|------|------------|--------------|----------|
| 200/8" | 70 | 247 | 122 | 203 | 309 | 358 | 175 | 870 | 46 | C160/220 | 1/4" G |
| 250/10" | 70 | 298 | 122 | 233 | 345 | 428 | 220 | 1006 | 70 | C200/270 | 3/8" G |
| 300/12" | 76 | 349 | 122 | 273 | 390 | 478 | 220 | 1141 | 89 | C200/320 | 3/8" G |
| 350/14" | 76 | 391 | 193 | 312 | 459 | 549 | 277 | 1320 | 135 | C250/375 | 3/8" G |
| 400/16" | 89 | 439 | 193 | 347 | 478 | 599 | 277 | 1424 | 162 | C250/425 | 3/8" G |
| 450/18" | 89 | 483 | 197 | 415 | 552 | 680 | 382 | 1647 | 212 | C300/475 | 1/2" G |
| 500/20" | 114 | 542 | 197 | 450 | 611 | 730 | 382 | 1791 | 290 | C300/525 | 1/2" G |
| 600/24" | 114 | 637 | 197 | 501 | 697 | 830 | 382 | 2028 | 375 | C300/625 | 1/2" G |
| 750/30" | 117 | 842 | 320 | 624 | 940 | 985 | 444 | 2549 | 645 | C350/730 | 3/4" G |
| 900/36" | 117 | 970 | 320 | 775 | 1100 | 1202 | 515 | 3077 | 780 | C400/930 | 3/4" G |

*custom face to face available

ELECTRIC ACTUATOR

- Consists of:
 - Electric actuator
 - 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 200mm/8" to DN 900mm/36"
- Wide range of types and marks available to meet customer's needs
- Option:
 - Non rising stem





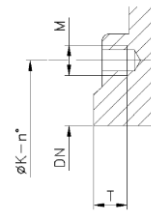
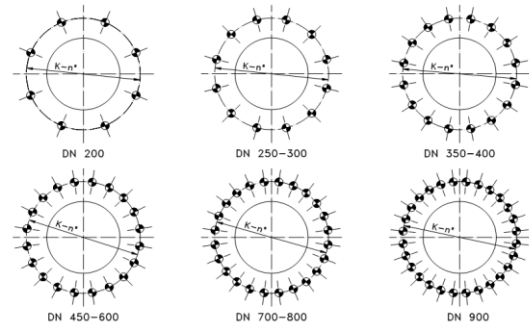
| DN(mm/") | A | B | C | D | E | F | ØG | H | I | J | L | M | stem Ø x picht | Torque(Nm) |
|----------|-----|-----|-----|-----|------|------|-----|------|-----|-----|-----|-----|-------------------|------------|
| 200/8" | 70 | 247 | 122 | 203 | 309 | 667 | 160 | 1255 | 265 | 249 | 62 | 238 | 25 x 5 | 30 |
| 250/10" | 70 | 298 | 122 | 233 | 345 | 733 | 160 | 1321 | 265 | 249 | 62 | 238 | 25 x 5 | 45 |
| 300/12" | 76 | 349 | 122 | 273 | 390 | 793 | 200 | 1381 | 283 | 254 | 65 | 248 | 25 x 5 | 70 |
| 350/14" | 76 | 391 | 193 | 312 | 433 | 875 | 200 | 1463 | 283 | 254 | 65 | 248 | 35 x 6 | 110 |
| 400/16" | 89 | 439 | 193 | 347 | 478 | 955 | 315 | 1543 | 389 | 336 | 91 | 286 | 35 x 6 | 160 |
| 450/18" | 89 | 483 | 270 | 415 | 552 | 1142 | 315 | 1870 | 389 | 336 | 91 | 286 | 35 x 6 | 190 |
| 500/20" | 114 | 542 | 270 | 450 | 611 | 1222 | 400 | 1950 | 389 | 339 | 91 | 286 | 35 x 6 | 270 |
| 600/24" | 114 | 637 | 270 | 501 | 697 | 1444 | 400 | 2172 | 389 | 339 | 91 | 286 | 40 x 7 | 450 |
| 750/30" | 117 | 842 | 320 | 624 | 883 | 1779 | 500 | 2832 | 430 | 365 | 117 | 303 | 50 x 8 | 550 |
| 900/36" | 117 | 970 | 320 | 779 | 1046 | 2035 | 500 | 3080 | 430 | 365 | 117 | 303 | 60 x 9 | 850 |



*custom face to face available

FLANGE AND BOLTING DETAILS



EN 1092-2 PN10

| DN | K | n° | M | T |   |
|-----|------|----|------|----|---|
| 200 | 295 | 8 | M-20 | 12 | 2 - 6 |
| 250 | 350 | 12 | M-20 | 12 | 4 - 8 |
| 300 | 400 | 12 | M-20 | 12 | 4 - 8 |
| 350 | 460 | 16 | M-20 | 15 | 6 - 10 |
| 400 | 515 | 16 | M-24 | 15 | 4 - 12 |
| 450 | 565 | 20 | M-24 | 15 | 6 - 14 |
| 500 | 620 | 20 | M-24 | 22 | 6 - 14 |
| 600 | 725 | 20 | M-27 | 22 | 6 - 14 |
| 900 | 1050 | 28 | M-30 | 32 | 10 - 18 |



-  BLIND TAPPED HOLES
-  TAPPED THROUGH

ANSI B16.5, class 150(*)

| DN | K | n° | M | T |   |
|-----|---------|----|------------|--------|---|
| 8" | 11 3/4" | 8 | 3/4" UNC | 15/32" | 2 - 6 |
| 10" | 14 1/4" | 12 | 7/8" UNC | 15/32" | 4 - 8 |
| 12" | 17" | 12 | 7/8" UNC | 15/32" | 4 - 8 |
| 14" | 18 3/4" | 12 | 1" UNC | 19/32" | 4 - 8 |
| 16" | 21 1/4" | 16 | 1" UNC | 19/32" | 4 - 12 |
| 18" | 22 3/4" | 16 | 1 1/8" UNC | 19/32" | 6 - 10 |
| 20" | 25" | 20 | 1 1/8" UNC | 7/8" | 6 - 14 |
| 24" | 29 1/2" | 20 | 1 1/4" UNC | 7/8" | 6 - 14 |
| 30" | 36" | 28 | 1 1/4" UNC | 1 1/8" | 10 - 18 |
| 36" | 42 3/4" | 32 | 1 1/2" UNC | 1 1/4" | 10 - 22 |

