

THROUGH CONDUIT KNIFE GATE VALVE

The TH model knife gate is a bi-directional high pressure wafer valve designed for media with high consistency. The double seat design assures a non-clogging shut off on either normal or reverse flow. The valve is used in a wide range of demanding applications in industries such as:

- Pulp & Paper
- Wastewater Treatment Plants
- Chemical plants
- Power Plants
- Etc.

Sizes:

DN 300 to DN 1000 (larger diameters on request)

Working pressure:

DN 300 to DN 800 10 bar

DN 900 to DN 1000 6 bar

* For higher pressures, please contact ORBINOX

Standard flange connection:

DIN PN 10 and ANSI B16.5 (class 150)

Other flange connections are available on request

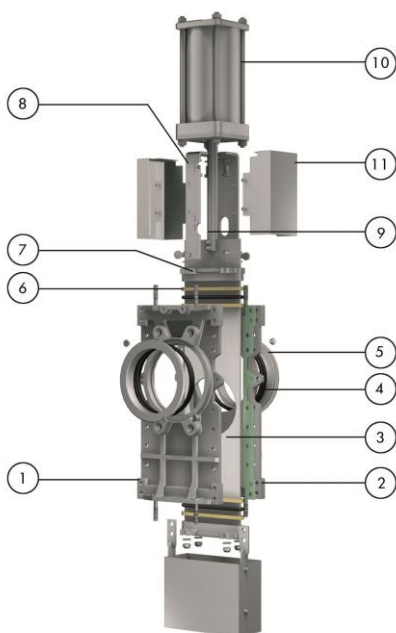
DIN PN 16

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: | Stainless Steel: |
|-------------------|--|
| 1- Body | CF8M / AISI 316 |
| 2- Body | CF8M / AISI 316 |
| 3- Gate | AISI 316 |
| 4- Seat | PTFE |
| 5- "K" Ring | AISI 316 |
| 6- Packing | Dynapack (Graphite impregnated PTFE and Aramid yam combination with an elastomeric core) + (EPDM O-ring) |
| 7- Gland Follower | CF8M / AISI 316 |
| 8- Yoke | AISI 304 (1.4301) |
| 9- Piston Rod | AISI 304 (1.4301) |
| 10- Cylinder | Aluminum |
| 11- Gate guards | AISI 304 (1.4301) |

DESIGN FEATURES

BODY:

Wafer style cast two-part bolted stainless steel body, both internally machined, with reinforcing ribs in larger diameters for extra body strength. Internal high density polyethylene sliders (HMWPE) that ensure smoother gate traveling. Full port design to allow a greater flow capacity and to guarantee a minimal pressure drop.

SELF-CLEANING GATE:

Stainless steel as standard. One piece through-going gate with o-port design. When closing, the gate cuts and moves a disc of material downwards, which is again returned to the flow when opening. Gate is polished on both sides to avoid jamming and to ensure a greater seal between the gate with both packing and seat. The thickness and/or the material of the gate can be changed on request for higher pressure requirement.

SEAT: (resilient)

Unique resilient seat design for all sizes, that mechanically locks the seal in the internal of the valve body with a cast, easy to replace, stainless steel seat ring. PTFE as standard, also available in different materials such as EPDM, NBR, Viton, Polyurethane, etc.

PACKING:

Long-life packing with several graphite impregnated PTFE and Aramid yarn combination with an elastomeric core, 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 kit for installation purposes on site.

YOKE or ACTUATOR SUPPORT:

Made of stainless steel. Compact design makes it extremely robust even under the most severe conditions.

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

Gate guards for actuators with proximity switches (Fig.1)

It has been made a special design which allows horizontal and parallel mounting of the proximity switches including protection to them

Flush ports:

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:

Special alloys such as AISI 317 (1.4449), 254SMO (1.4547), Hastelloys, etc.

Fabricated valves:

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



Fig.1

SURFACE TREATMENTS

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

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

We recommend to contact our technical department.

ACTUATOR TYPES

MANUAL:

Handwheel (rising & non-rising stem)

Chainwheel

Bevel Gear

Others (square nut...)

AUTOMATIC:

Electric (rising & non-rising stem)

Double Acting Pneumatic

Hydraulic

All actuators supplied by ORBINOX are interchangeable

ACCESSORIES

Mechanical stops

Locking device (Fig.1)

Manual override

Solenoid valves

Positioners

Limit switches

Proximity switches

Floor stands

Stem Extensions

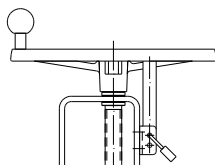
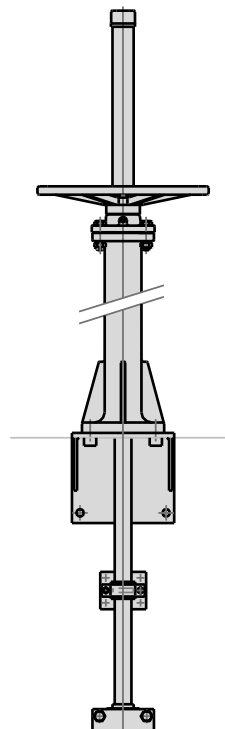


Fig.1



Wide range of extensions available

For further information about fail safe systems and valve extensions, see EK catalogue

For more detailed information, please contact our Technical Department

TEMPERATURE CHART

SEAT / SEALS

PACKING

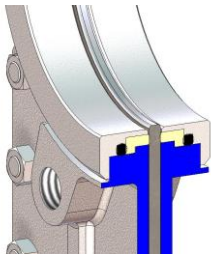
| Material | Max.T(°C) | Applications |
|-------------|-----------|----------------------------------|
| Metal/Metal | >250 | High temp./Low tightness |
| EPDM (E) | 120 | Acids and non mineral oils |
| NBR (N) | 120 | Resistance to petroleum products |
| FKM-FPM (V) | 200 | Chemical service/High temp.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

| Material | Max.T(°C) | pH |
|--------------------|-----------|------|
| Dynapack (DP) | 270 | 2-14 |
| 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)

More details and other materials under request

SEAT TYPES



TYPE "K" SEAT (PTFE)

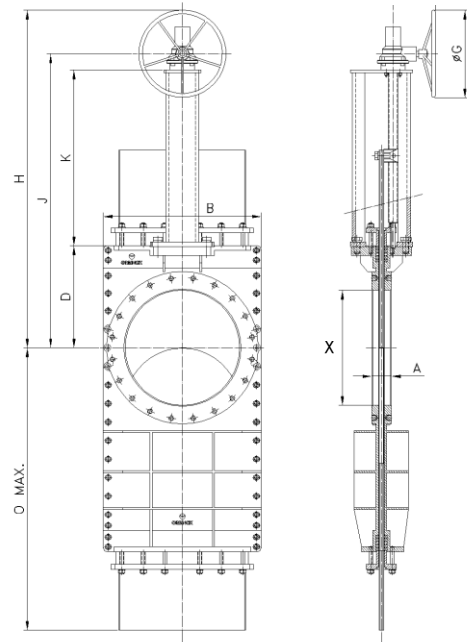
- Replaceable resilient PTFE + O-ring seats
- Replaceable stainless steel rings

BEVEL GEAR (non-rising stem)

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

- Available from DN 300 to DN 1000

- Options (on request):
 - Locking Device
 - Chainwheel
 - Extension
 - Rising stem



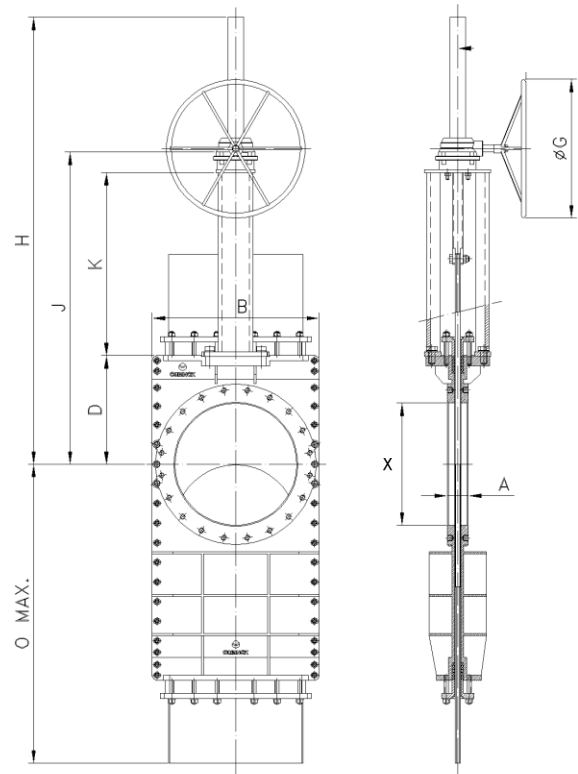
| DN | X | A | B | D | J | K | ØG | H | O max. |
|------|-----|-----|------|-----|------|------|-----|------|--------|
| 300 | 302 | 78 | 410 | 280 | 810 | 420 | 310 | 822 | 905 |
| 350 | 332 | 78 | 473 | 300 | 900 | 490 | 410 | 897 | 1047 |
| 400 | 380 | 89 | 538 | 350 | 1000 | 540 | 410 | 997 | 1171 |
| 450 | 420 | 89 | 588 | 420 | 1125 | 595 | 550 | 1120 | 1301 |
| 500 | 490 | 114 | 740 | 490 | 1215 | 655 | 550 | 1210 | 1575 |
| 600 | 540 | 122 | 754 | 530 | 1395 | 755 | 550 | 1389 | 1711 |
| 700 | 665 | 128 | 860 | 650 | 1615 | 855 | 650 | 997 | 2005 |
| 800 | 760 | 128 | 964 | 740 | 1805 | 955 | 650 | 1120 | 2295 |
| 900 | 880 | 128 | 1070 | 845 | 2010 | 1055 | 650 | 1210 | 2585 |
| 1000 | 970 | 128 | 1180 | 955 | 2220 | 1155 | 650 | 1389 | 2875 |

BEVEL GEAR (rising stem)

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

- Available from DN 300 to DN 1000

- Options (on request):
 - Locking Device
 - Chainwheel
 - Extension
 - Non-rising stem



| DN | X | A | B | D | J | K | ØG | H | O max. |
|------|-----|-----|------|-----|------|------|-----|------|--------|
| 300 | 302 | 78 | 410 | 280 | 810 | 420 | 310 | 1102 | 905 |
| 350 | 332 | 78 | 473 | 300 | 900 | 490 | 410 | 1286 | 1047 |
| 400 | 380 | 89 | 538 | 350 | 1000 | 540 | 410 | 1386 | 1171 |
| 450 | 420 | 89 | 588 | 420 | 1125 | 655 | 550 | 1583 | 1301 |
| 500 | 490 | 114 | 740 | 490 | 1395 | 755 | 550 | 1673 | 1575 |
| 600 | 540 | 122 | 754 | 530 | 1615 | 855 | 550 | 1963 | 1171 |
| 700 | 665 | 128 | 860 | 650 | 1615 | 855 | 650 | 2300 | 2005 |
| 800 | 760 | 128 | 964 | 740 | 1805 | 955 | 650 | 2640 | 2295 |
| 900 | 880 | 128 | 1070 | 845 | 2010 | 1055 | 650 | 2980 | 2585 |
| 1000 | 970 | 128 | 1180 | 955 | 2220 | 1155 | 650 | 3310 | 2875 |

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 300 to DN 1000

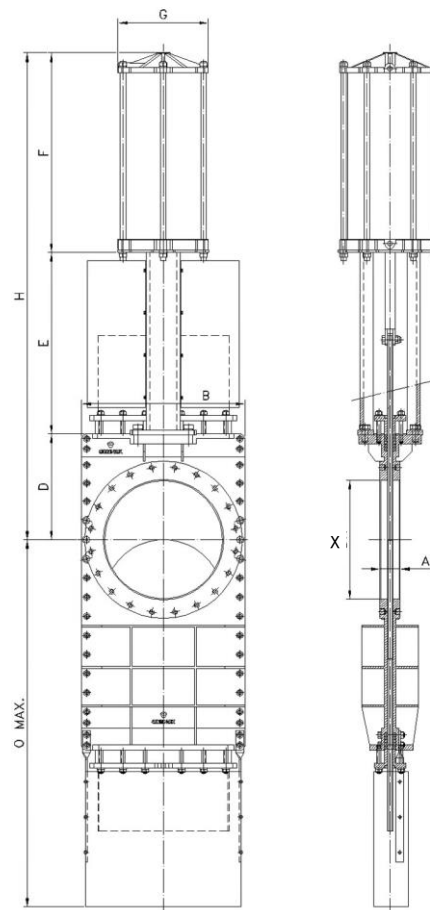
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support

- Options (o request):

- Gate guards for proximity switches (see pag. 3)
- Hard anodized jacket and covers
- Stainless Steel jacket and covers
- Manual override
- Fail Safe System
- Limit switches

- Instrumentation (on request):

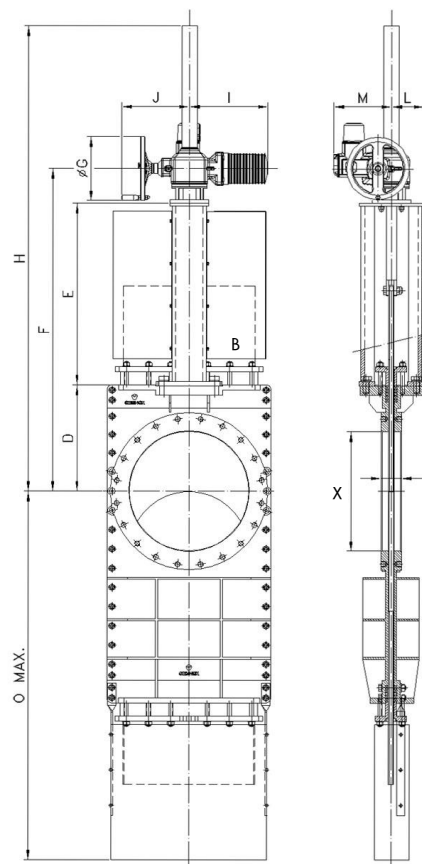
- Positioners
- Solenoid valves
- Flow regulators
- Air preparation units



| DN | X | A | B | D | O max. | E | F | G | H | Standard Cyl. | Connect. |
|------|-----|-----|------|-----|--------|------|------|-----|------|---------------|----------|
| 300 | 302 | 78 | 410 | 280 | 905 | 414 | 478 | 220 | 1172 | C200/320 | 3/8" G |
| 350 | 332 | 78 | 473 | 300 | 1047 | 510 | 535 | 277 | 1344 | C200/375 | 3/8" G |
| 400 | 380 | 89 | 538 | 350 | 1171 | 560 | 585 | 277 | 1494 | C250/425 | 3/8" G |
| 450 | 420 | 89 | 588 | 420 | 1301 | 608 | 665 | 382 | 1693 | C250/475 | 1/2" G |
| 500 | 490 | 114 | 740 | 490 | 1575 | 754 | 715 | 382 | 1959 | C300/525 | 1/2" G |
| 600 | 540 | 122 | 754 | 530 | 1711 | 796 | 880 | 444 | 2206 | C350/625 | 3/4" G |
| 700 | 665 | 128 | 960 | 650 | 1820 | 855 | 980 | 444 | 2485 | C350/725 | 3/4" G |
| 800 | 760 | 128 | 964 | 740 | 1930 | 955 | 1080 | 444 | 2775 | C350/825 | 3/4" G |
| 900 | 880 | 128 | 1070 | 845 | 2040 | 1055 | 1180 | 444 | 3080 | C400/925 | 3/4" G |
| 1000 | 970 | 128 | 1180 | 955 | 2135 | 1155 | 1280 | 444 | 3390 | C400/1025 | 3/4" G |

ELECTRIC ACTUATOR (rising stem)



- Consists of:
 - Electric motor
 - Motor support yoke
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 300 to DN 1000
- 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
- Option:
 - Non-rising stem

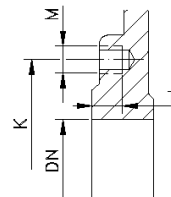
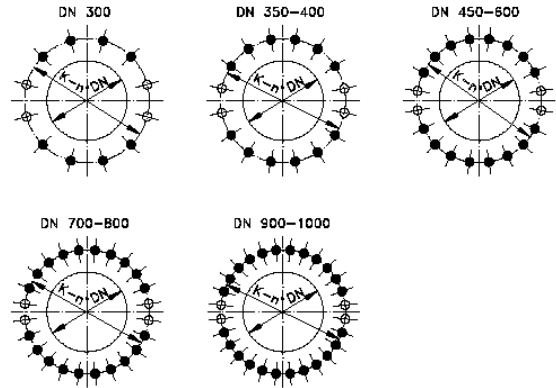




| DN | X | A | B | D | E | F | ØG | H | O max. | I | J | L | M | Torque (Nm) |
|------|-----|-----|------|-----|------|------|-----|------|--------|-----|-----|-----|-----|-------------|
| 300 | 302 | 78 | 410 | 280 | 420 | 849 | 200 | 1434 | 905 | 282 | 256 | 62 | 247 | 60 |
| 350 | 332 | 78 | 473 | 300 | 490 | 930 | 200 | 1515 | 1047 | 282 | 256 | 65 | 247 | 60 |
| 400 | 380 | 89 | 538 | 350 | 540 | 1030 | 315 | 1615 | 1171 | 282 | 256 | 65 | 247 | 60 |
| 450 | 420 | 89 | 588 | 420 | 595 | 1193 | 315 | 1793 | 1301 | 385 | 325 | 65 | 285 | 120 |
| 500 | 490 | 114 | 740 | 490 | 655 | 1283 | 315 | 1883 | 1575 | 385 | 325 | 90 | 285 | 250 |
| 600 | 540 | 122 | 754 | 530 | 755 | 1443 | 315 | 2143 | 1711 | 385 | 325 | 90 | 285 | 250 |
| 700 | 665 | 128 | 860 | 630 | 855 | 1660 | 400 | 2300 | 1820 | 385 | 332 | 90 | 285 | 500 |
| 800 | 760 | 128 | 964 | 740 | 955 | 1850 | 500 | 2640 | 1930 | 510 | 355 | 115 | 310 | 500 |
| 900 | 880 | 128 | 1070 | 845 | 1055 | 2060 | 500 | 2980 | 2040 | 510 | 355 | 115 | 310 | 650 |
| 1000 | 970 | 128 | 1180 | 955 | 1155 | 2300 | 500 | 3310 | 2135 | 510 | 355 | 115 | 310 | 1000 |

FLANGE AND BOLTING DETAILS



EN 1092-2 PN10

| DN | K | n° | M | T |   |
|------|------|----|------|----|---|
| 300 | 400 | 12 | M-20 | 22 | 8 - 4 |
| 350 | 460 | 16 | M-20 | 28 | 12 - 4 |
| 400 | 515 | 16 | M-24 | 28 | 12 - 4 |
| 450 | 565 | 20 | M-24 | 32 | 16 - 4 |
| 500 | 620 | 20 | M-24 | 32 | 16 - 4 |
| 600 | 725 | 20 | M-27 | 32 | 16 - 4 |
| 700 | 840 | 24 | M-27 | 32 | 20 - 4 |
| 800 | 950 | 24 | M-30 | 32 | 20 - 4 |
| 900 | 1050 | 28 | M-30 | 32 | 24 - 4 |
| 1000 | 1160 | 28 | M-33 | 32 | 24 - 4 |



-  BLIND TAPPED BOLTS
-  THROUGH BOLTS

ANSI B16.5, class 150

| DN | K | n° | M | T |   |
|-----|---------|----|----------------|--------|---|
| 12" | 17" | 12 | 7/8" - 9 UNC | 7/9" | 8 - 4 |
| 14" | 18 3/4" | 12 | 1" - 8 UNC | 7/9" | 8 - 4 |
| 16" | 21 1/4" | 16 | 1" - 8 UNC | 7/9" | 12 - 4 |
| 18" | 22 3/4" | 16 | 1 1/8" - 7 UNC | 1 1/4" | 12 - 4 |
| 20" | 25" | 20 | 1 1/8" - 7 UNC | 1 1/4" | 16 - 4 |
| 24" | 29 1/2" | 20 | 1 1/4" - 7 UNC | 1 1/4" | 16 - 4 |
| 28" | 36 1/2" | 28 | 1 1/2" - 6 UNC | 1 1/4" | 24 - 4 |
| 32" | 41 3/4" | 28 | 1 1/2" - 6 UNC | 1 1/4" | 24 - 4 |
| 36" | 46" | 32 | 1 1/2" - 6 UNC | 1 1/4" | 28 - 4 |
| 40" | 50 3/4" | 36 | 1 1/2" - 6 UNC | 1 1/4" | 32 - 4 |

