

Model CR

ROUND BY SQUARE PORT KNIFE GATE VALVE

The CR model knife gate is a wafer valve designed for the use in difficult applications. This valve is generally suitable for recycling applications, such as junk or sand traps of pulpers, high density cleaners (HDC) or as silo outlet with solid material. The two piece body with round inlet and square outlet (larger than the inlet) ensures non-jamming.

Sizes

DN 100 to DN 600
Larger diameters on request

Working pressure and temperatures

DN 100 to DN 400: 7 bar
DN 500 to DN 600: 4 bar

GJL250: -10°C / 80°C
CF8M: -20°C / 80°C

Standard flange connection

EN 1092 PN10 and ASME B16.5 (class 150)
on valve inlet only
Others: on request

Option: For the square outlet, ORBINOX can also design a square-to-round transition piece

Directives

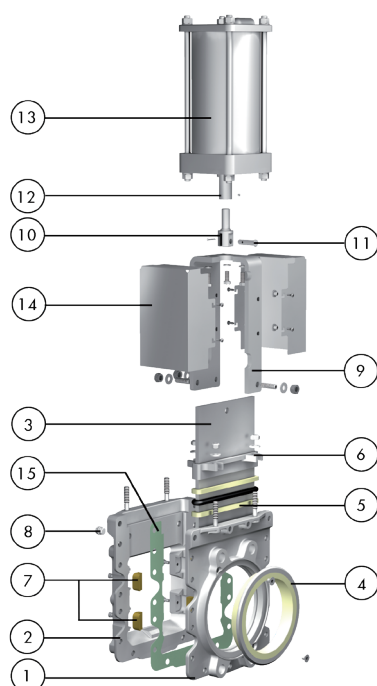
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

Testing

All valves are tested prior to shipping in accordance with the standard EN-12266-1



STANDARD PARTS LIST



| Part | Description |
|--------------------|---|
| 1 Body | EN-GJL250 / CF8M ¹ |
| 2 Body | EN-GJL250 / CF8M ¹ |
| 3 Gate | 2205 (1.4462) |
| 4 Sleeve | Polyurethane rubber |
| 5 Packing | Dynapack (Graphite impregnated PTFE and Aramid yarn combination with an elastomeric core) |
| 6 Gland follower | CF8M |
| 7 Sliders | Bronze |
| 8 Cap ² | Galv. Steel / AISI 316 ¹ |
| 9 Yoke | Carbon steel / AISI 304 ¹ |
| 10 Clevis | 17-4 PH |
| 11 Pin | AISI 304 |
| 12 Piston rod | AISI 304 |
| 13 Cylinder | Aluminium |
| 14 Gate guards | AISI 304 |
| 15 Gasket | Aramid fibres |

¹ Stainless steel configuration

² Not available for DN 100

DESIGN FEATURES

Body

Cast two-part bolted body, internally machined and with reinforcing ribs in larger diameters for extra body strength. The internal replaceable gate guides allow for smoother gate traveling. The square outlet (reinforced with sliders) prevents the build-up of contaminants such as staples, wires, etc. For the most severe applications, the body includes standard flush ports (not available for DN 100) to flush out the solids that may interfere with the gate traveling

Gate

Duplex stainless steel gate, oversized thickness and polished on both sides, increases its wearing resistance and prevents damage to the seat. This design also allows to perfectly cut through the fluid

Seat/Polyurethane sleeve

The seat is composed of a highly resistant, long-lasting sleeve, made of polyurethane and with a stainless steel core. This design allows for easy sleeve replacement and avoids gasket installation between the flange and the valve

Stem

The standard stainless steel stem offers a long corrosion resistant life. For those pneumatic actuated valves, stem linkage is provided by means of a stainless steel coupling and a pin (Fig. 1)



Fig.1

Packing

Long-life packing with several graphite impregnated PTFE and Aramid yarn combination with an elastomeric core, together with an easy adjusting and access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials

Yoke or actuator support

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

Other materials of constructions

Special stainless steels and alloys such as AISI 317, 254SMO, Hastelloys, etc.

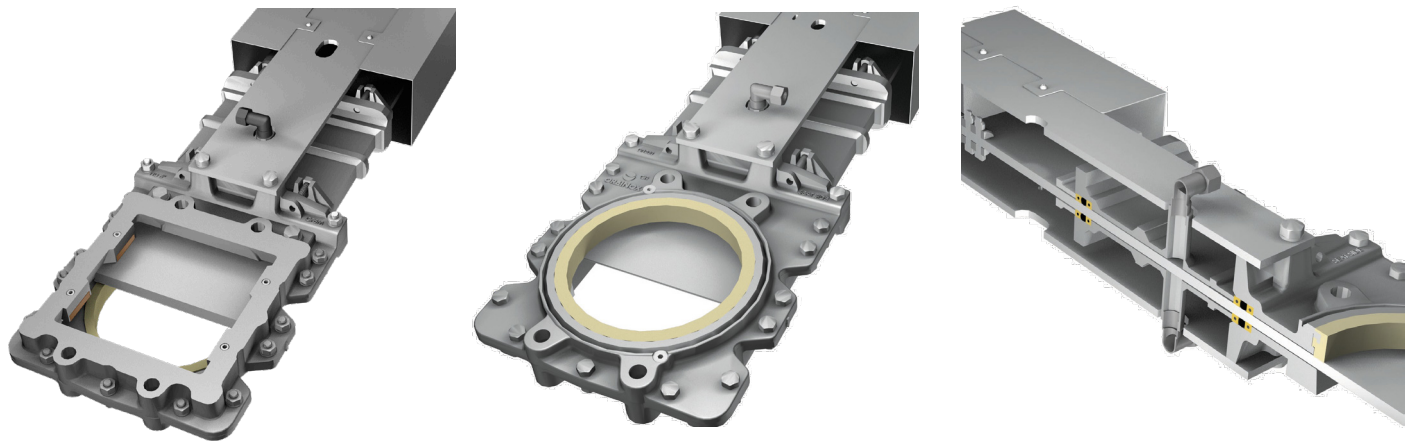
Fabricated valves

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

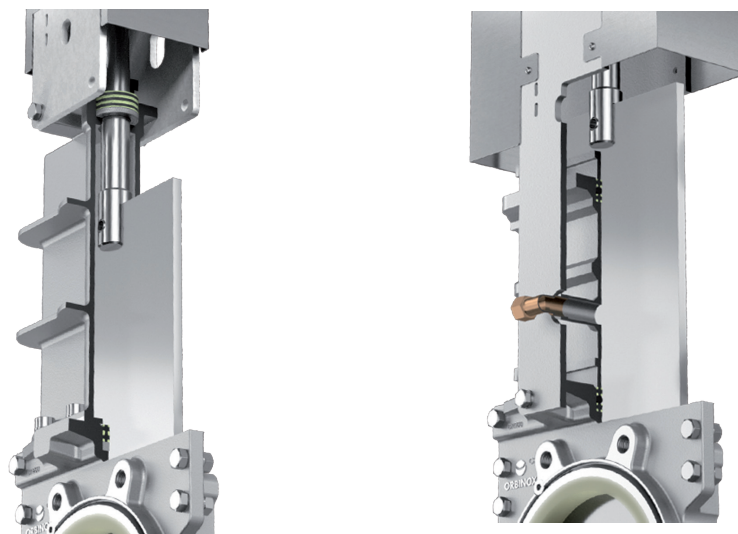
Packing arrangement

Valve can be assembled with double packing or bonnet for a better performance of the valve

Double Packing



Bonnet



SEAT/SEAL TYPES

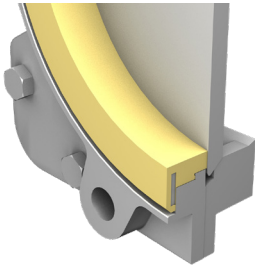
| Material | Max.T. (°C) | Applications |
|-------------------|-------------|--------------|
| Polyurethane (PU) | 90 | General |

All of them are reinforced with a stainless steel core. More details and other materials on request

PACKING TYPES

| Material | Max.T. (°C) | pH |
|---------------------------------|-------------|------|
| Dynapack (DP) | 270 | 2-14 |
| PTFE impregn. synth. fiber (ST) | 250 | 2-13 |
| Braided PTFE (TH) | 260 | 0-14 |

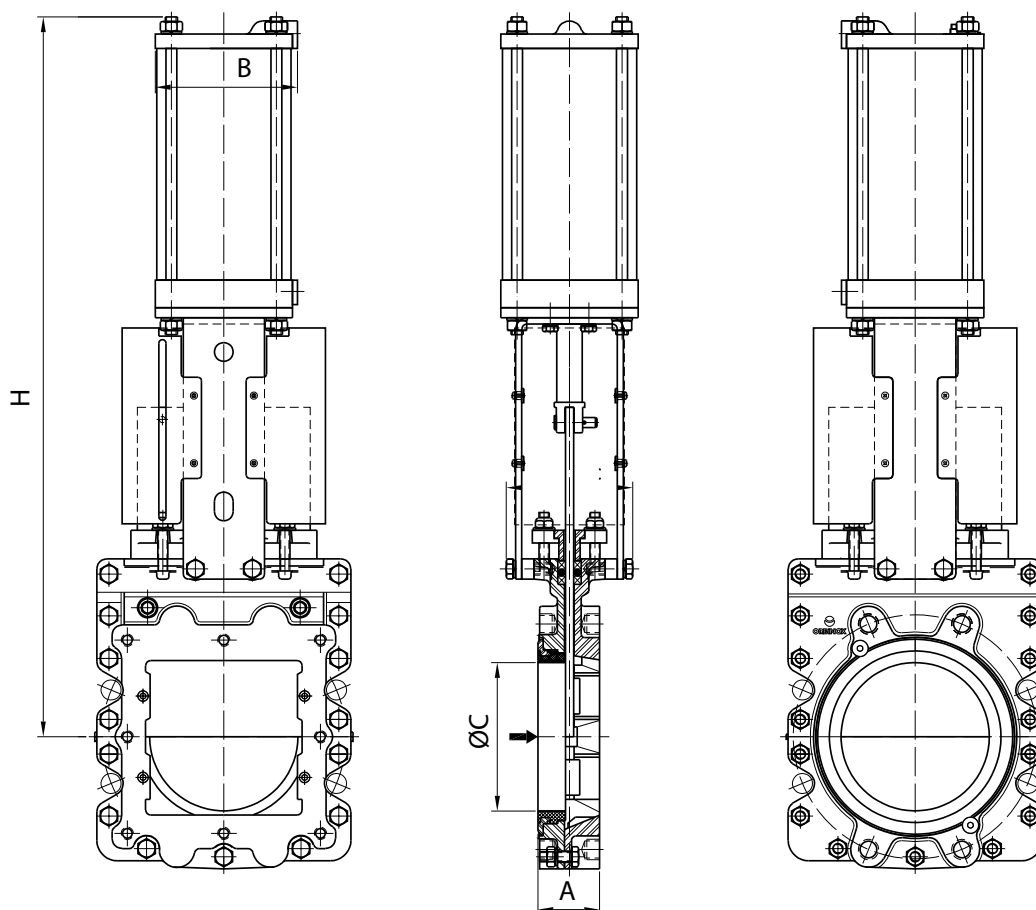
SEAT CONFIGURATIONS/DESIGNS

| Type | Features |
|--------------|---|
| Polyurethane | <div><p>The sealing of the CR valve is achieved through a high resistance polymer, which improves the watertightness at both the flange and closing area. The sleeve has a stainless core with very good resistance to pressure and working conditions</p></div> |

DOUBLE ACTING PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 100 to DN 600. Single-acting pneumatic cylinders, manual overrides, fail-safe systems as well as a wide variety of pneumatic accessories for valve automation available. Actuator sized for 6 bar air supply, see ORBINOX Pneumatic Solutions Catalogue for more information

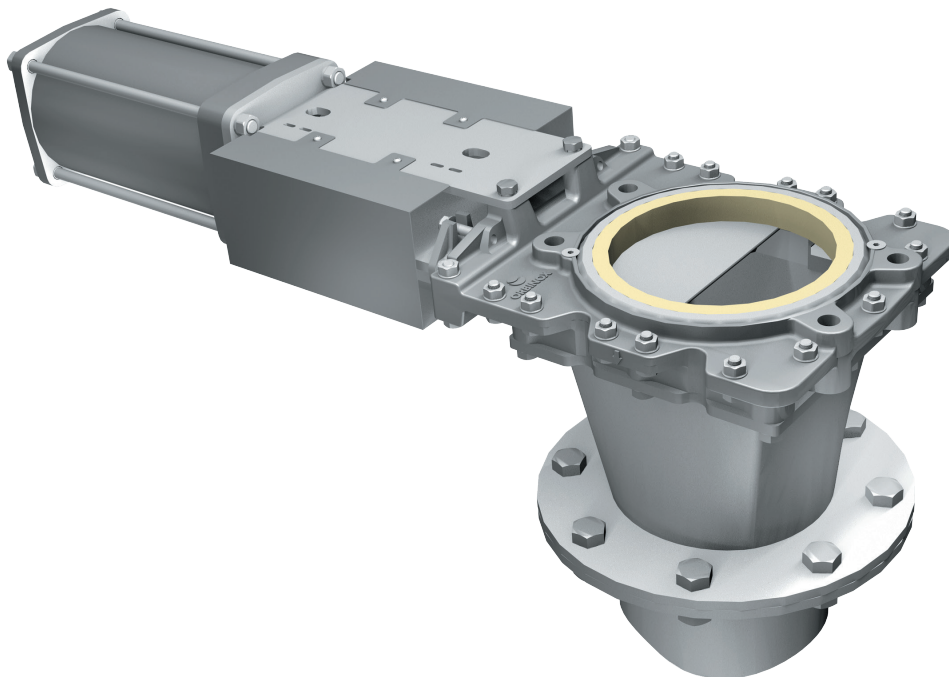
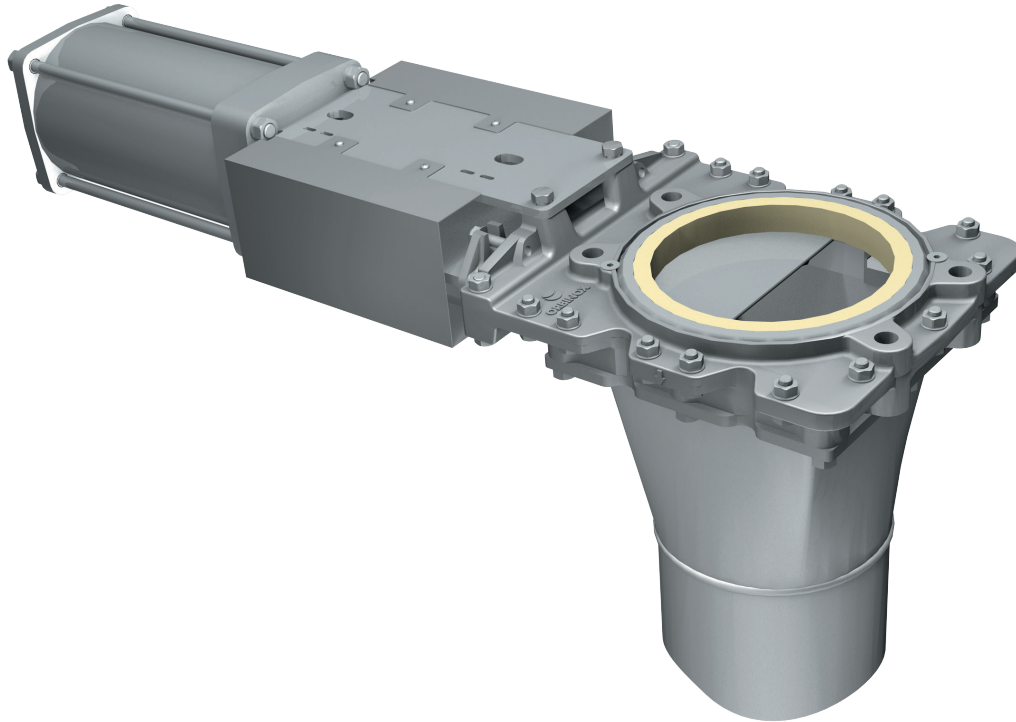
For valves installed in a horizontal position, actuator supports to plant structure is recommended



| DN | A | H | B | ØC | Connect. | Weight (Kg.) |
|-----|-----|------|-----|-----|----------|--------------|
| 100 | 52 | 569 | 115 | 97 | 1/4"G | 35 |
| 150 | 60 | 708 | 140 | 146 | 1/4"G | 78 |
| 200 | 60 | 872 | 175 | 194 | 3/8"G | 89 |
| 250 | 69 | 1054 | 220 | 247 | 3/8"G | 100 |
| 300 | 78 | 1194 | 220 | 298 | 3/8"G | 145 |
| 350 | 78 | 1450 | 277 | 330 | 3/8"G | 220 |
| 400 | 89 | 1565 | 277 | 398 | 3/8"G | 268 |
| 500 | 114 | 1855 | 382 | 479 | 1/2"G | 370 |
| 600 | 114 | 2115 | 382 | 578 | 1/2"G | 507 |


TRANSITION TYPES

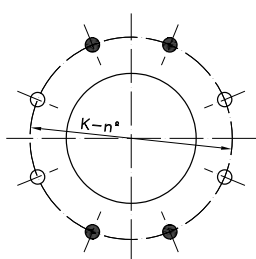
The CR valve can be supplied with a square to round transition piece, that connects the valve square outlet with the round flange or pipe



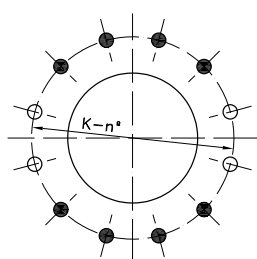
Transition piece with square connection to valve and round to flange

FLANGE DRILLING ROUND INLET SIDE, EN 1092 PN10

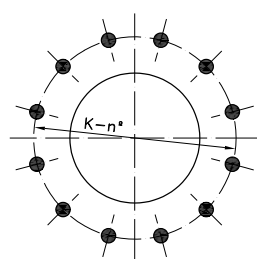
| DN | K | n° | M | T |  |
|-----|-----|----|------|----|---|
| 100 | 180 | 8 | M-16 | 11 | 4-4 |
| 150 | 240 | 8 | M-20 | 13 | 4-4 |
| 200 | 295 | 8 | M-20 | 16 | 4-4 |
| 250 | 350 | 12 | M-20 | 16 | 8-4 |
| 300 | 400 | 12 | M-20 | 16 | 12-0 |
| 350 | 460 | 16 | M-20 | 17 | 16-0 |
| 400 | 515 | 16 | M-24 | 22 | 12-4 |
| 500 | 620 | 20 | M-24 | 22 | 16-4 |
| 600 | 725 | 20 | M-27 | 22 | 16-4 |



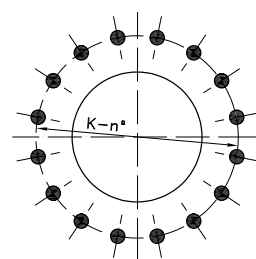
DN 100 - 200



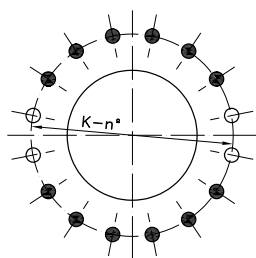
DN 250



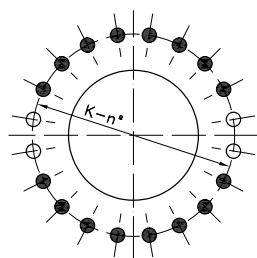
DN 300



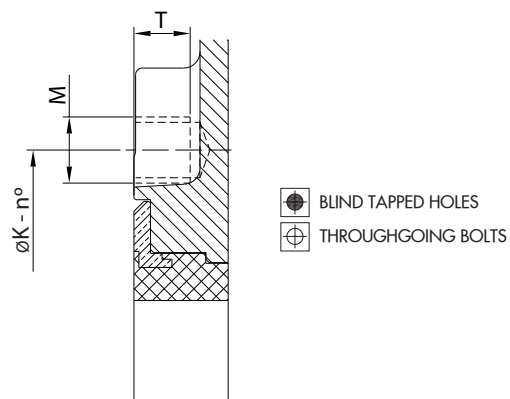
DN 350




DN 400

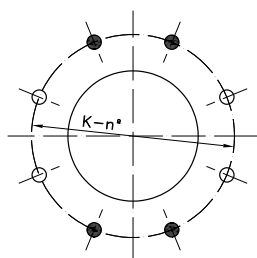


DN 500 - 600

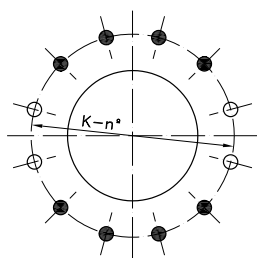


FLANGE DRILLING ROUND INLET SIDE, ASME B16.5, CLASS 150

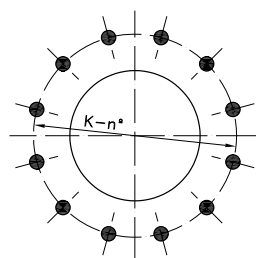
| DN | K | n° | M | T |  |
|-----|---------|----|----------------|-------|---|
| 4" | 7 1/2" | 8 | 5/8" - 11 UNC | 7/16" | 4-4 |
| 6" | 9 1/2" | 8 | 3/4" - 10 UNC | 3/8" | 4-4 |
| 8" | 11 3/4" | 8 | 3/4" - 10 UNC | 5/8" | 4-4 |
| 10" | 14 1/4" | 12 | 7/8" - 9 UNC | 5/8" | 8-4 |
| 12" | 17" | 12 | 7/8"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



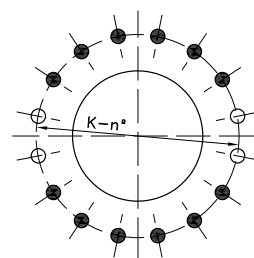
DN 4" - 8"



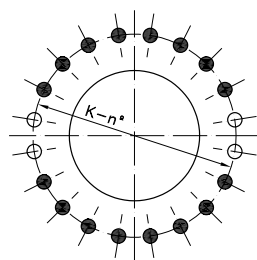
DN 10"



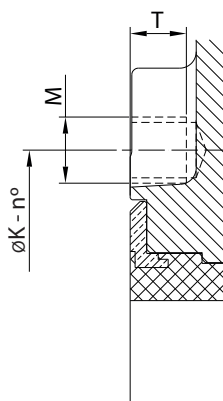
DN 12" - 14"





DN 16"




DN 20" - 24"



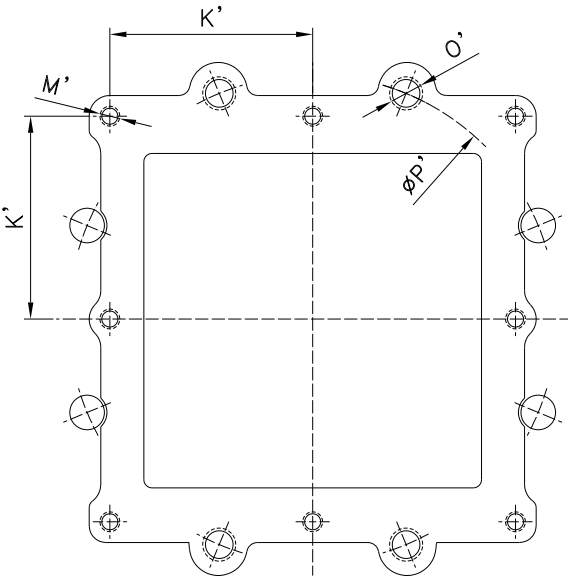
-  BLIND TAPPED HOLES
-  THROUGHGOING BOLTS

FLANGE DRILLING SQUARE OUTLET SIDE (ORBINOX METRIC)

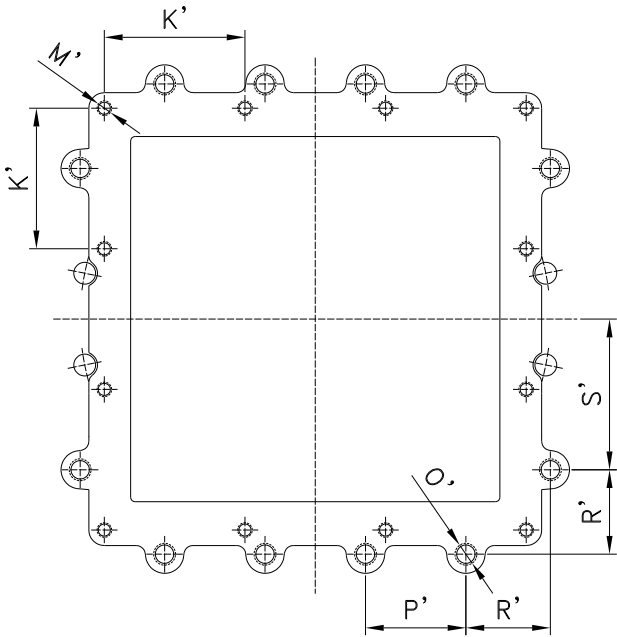
Square flanges are delivered with both OBX1 and OBX2 drillings.
Valve installation requires either OBX1 or OBX2 drilling pattern

| DN | "OBX 1" | | | "OBX 2" | | | | | | | T' |
|-----|---------|-------|-------|---------|-----|-----|--|-----|------|-----|----|
| | n° | K' | M' | n° | ØP' | O' |  | P' | R' | S' | |
| 100 | 8 | 70 | M12 | 8 | 180 | M16 | 4-4 | - | - | - | 11 |
| 150 | 8 | 95 | M12 | 8 | 240 | M20 | 4-4 | - | - | - | 13 |
| 200 | 8 | 122,5 | M12 | 8 | 295 | M20 | 4-4 | - | - | - | 16 |
| 250 | 8 | 150 | M12 | 8* | 350 | M20 | 4-4 | - | - | - | 16 |
| 300 | 12 | 124 | M12 | - | - | - | - | - | - | - | 16 |
| 350 | 12 | 137 | M16 | - | - | - | - | - | - | - | 22 |
| 400 | 12 | 154 | M16 | 16 | - | M24 | 12-4 | 110 | 92,5 | 165 | 22 |
| 500 | 12 | 187 | M16 | - | - | - | - | - | - | - | 22 |
| 600 | 16** | 170** | M16** | - | - | - | - | - | - | - | 22 |

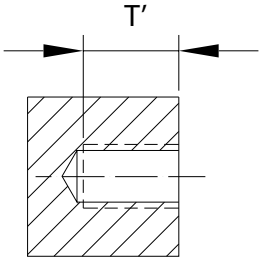
"OBX2" drilling up to DN 200 (included) matches with PN-10 flange drilling.
*DN 250 "OBX2" drilling is the flange drilling of PN-10 but without drillings located at 45°.
**This drilling is only valid for CF8M body. For other body materials please check with ORBINOX representative.



DN 100 - 250
DN 4" - 10"




DN 400
DN 16"



FLANGE DRILLING SQUARE OUTLET SIDE (ORBINOX IMPERIAL)

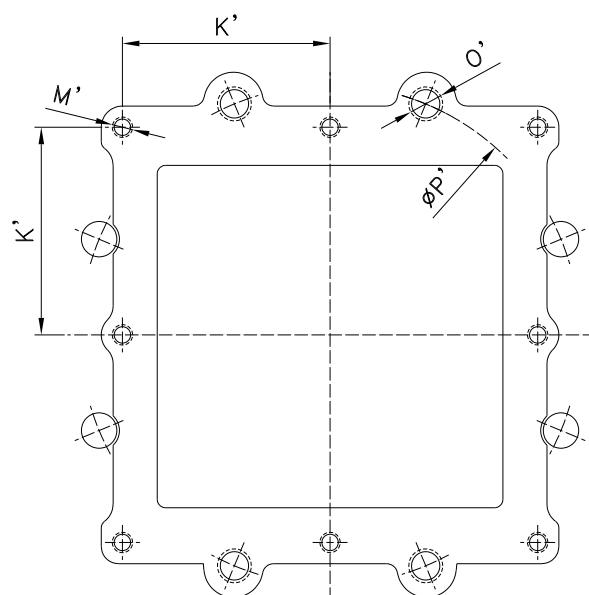
Square flanges are delivered with both OBX1 and OBX2 drillings.
Valve installation requires either OBX1 or OBX2 drilling pattern

| | "OBX 1" | | | "OBX 2" | | | | | | | |
|-----|---------|--------|-----------|---------|---------|-------------|--|------|------|------|------|
| DN | n° | K' | M' | n° | ØP' | O' |  | P' | R' | S' | T' |
| 4" | 8 | 2,75 | 1/2"-13 | 8 | 7 1/2" | 5/8"-11 UNC | 4-4 | - | - | - | 0,43 |
| 6" | 8 | 3,74 | 1/2"-13 | 8 | 9 1/2" | 3/4"-10 UNC | 4-4 | - | - | - | 0,51 |
| 8" | 8 | 4,82 | 1/2"-13 | 8 | 11 3/4" | 3/4"-10 UNC | 4-4 | - | - | - | 0,62 |
| 10" | 8 | 5,90 | 1/2"-13 | 8* | 14 1/4" | 7/8"-9 UNC | 4-4 | - | - | - | 0,62 |
| 12" | 12 | 4,88 | 1/2"-13 | - | - | - | - | - | - | - | 0,62 |
| 14" | 12 | 5,39 | 5/8"-11 | - | - | - | - | - | - | - | 0,86 |
| 16" | 12 | 6,06 | 5/8"-11 | 16 | - | 1"-8 UNC | 12-4 | 4,33 | 3,64 | 6,49 | 0,86 |
| 20" | 12 | 7,36 | 5/8"-11 | - | - | - | - | - | - | - | 0,86 |
| 24" | 16** | 6,69** | 5/8"-11** | - | - | - | - | - | - | - | 0,86 |

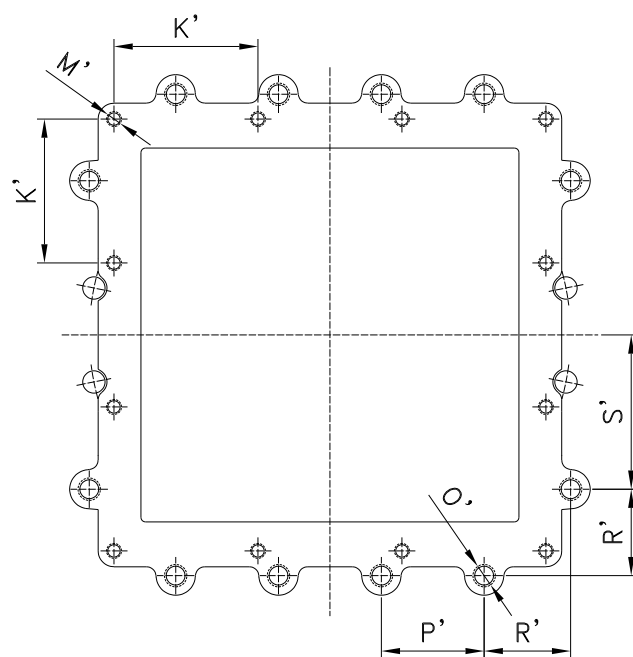
"OBX2" drilling up to DN 8in (included) matches with ASME B16.5 Class 150 flange drilling.

*DN 10in "OBX2" drilling is the flange drilling of ASME B16.5 CLASS 150 but without drillings located at 45°.

**This drilling is only valid for CF8M body. For other body materials please check with ORBINOX representative.



DN 4" - 10"
DN 100 - 250



DN 16"
DN 400

