

# Model Ser.70 (CR)

## ROUND BY SQUARE PORT KNIFE GATE VALVE

The Series 70 (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)

6in/100mm to 24in/600mm  
Larger diameters on request

### Working pressure and temperatures

6in/100mm to 16in/400mm: 100psi / 7 bar  
20in/500mm to 24in/600mm: 60psi / 4bar

GJL250: 14°F (-10°C) / 176°F (80°C)  
CF8M: -4°F (-20°C) / 176°F (80°C)

### Standard flange connection

ASME B16.5 (class 150) and EN 1092 PN 10  
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 <sup>1</sup>
2 Body	EN-GJL250 / CF8M <sup>1</sup>
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 <sup>2</sup>	Galv. Steel / AISI 316 <sup>1</sup>
9 Yoke	Carbon steel / AISI 304 <sup>1</sup>
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

<sup>1</sup> Stainless steel configuration

<sup>2</sup> Not available for DN 4in/100mm

## 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 4in/100mm) 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. Standard configuration is non-rising stem. 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.\*ONLY IN EUROPE

## OTHER OPTIONS

### Other materials of constructions

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

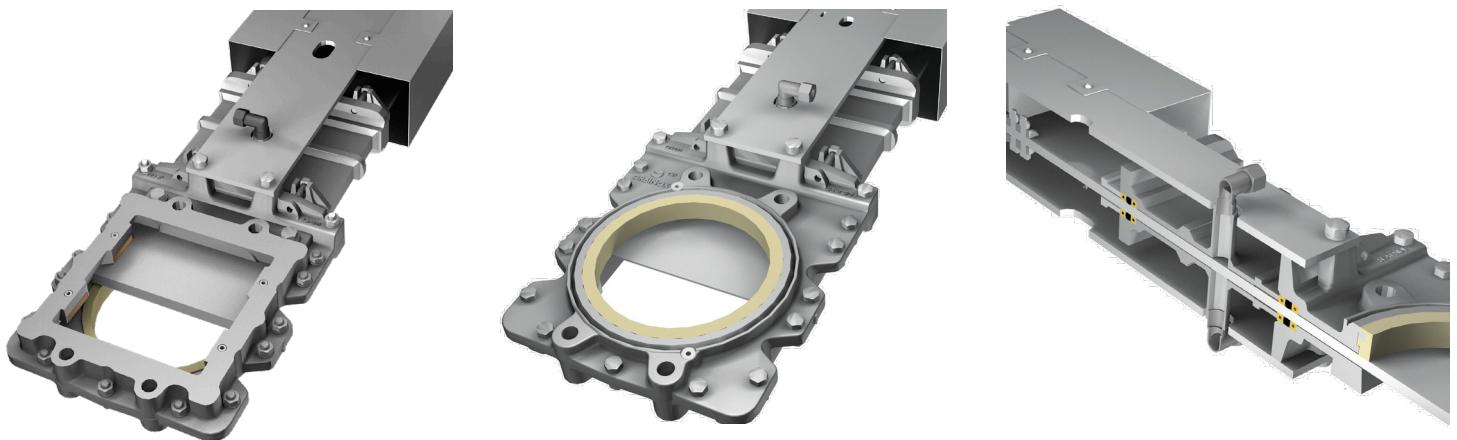
### Fabricated valves

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

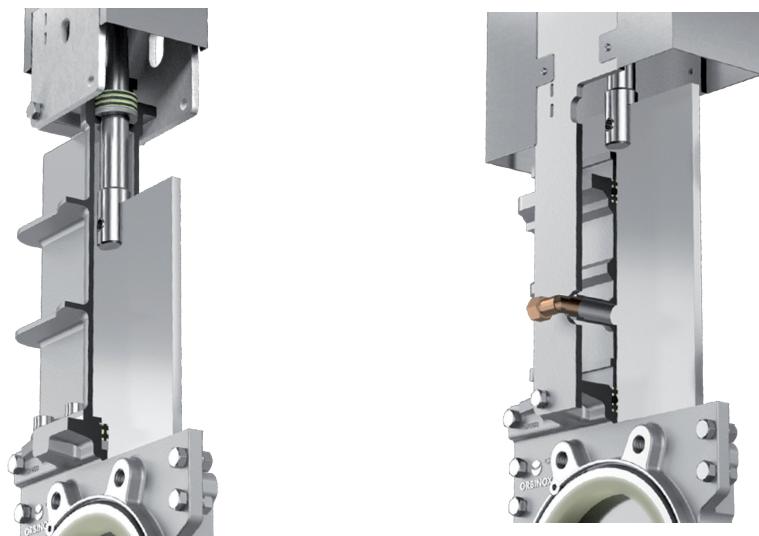
### Packing arrangement

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. (°F)	Max.T. (°C)	Applications
Polyurethane (PU)	194	90	General

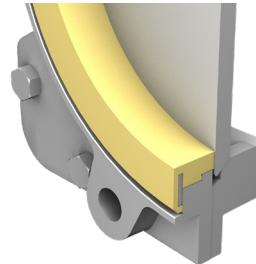
All of them are reinforced with a stainless steel core. More details and other materials on request

## PACKING TYPES

Material	Max.T. (°F)	Max.T. (°C)	pH
Dynapack (DP)	518	270	2-14
PTFE impregn. synth. fiber (ST)	482	250	2-13
Braided PTFE (TH)	500	260	0-14

## SEAT CONFIGURATIONS/DESIGNS

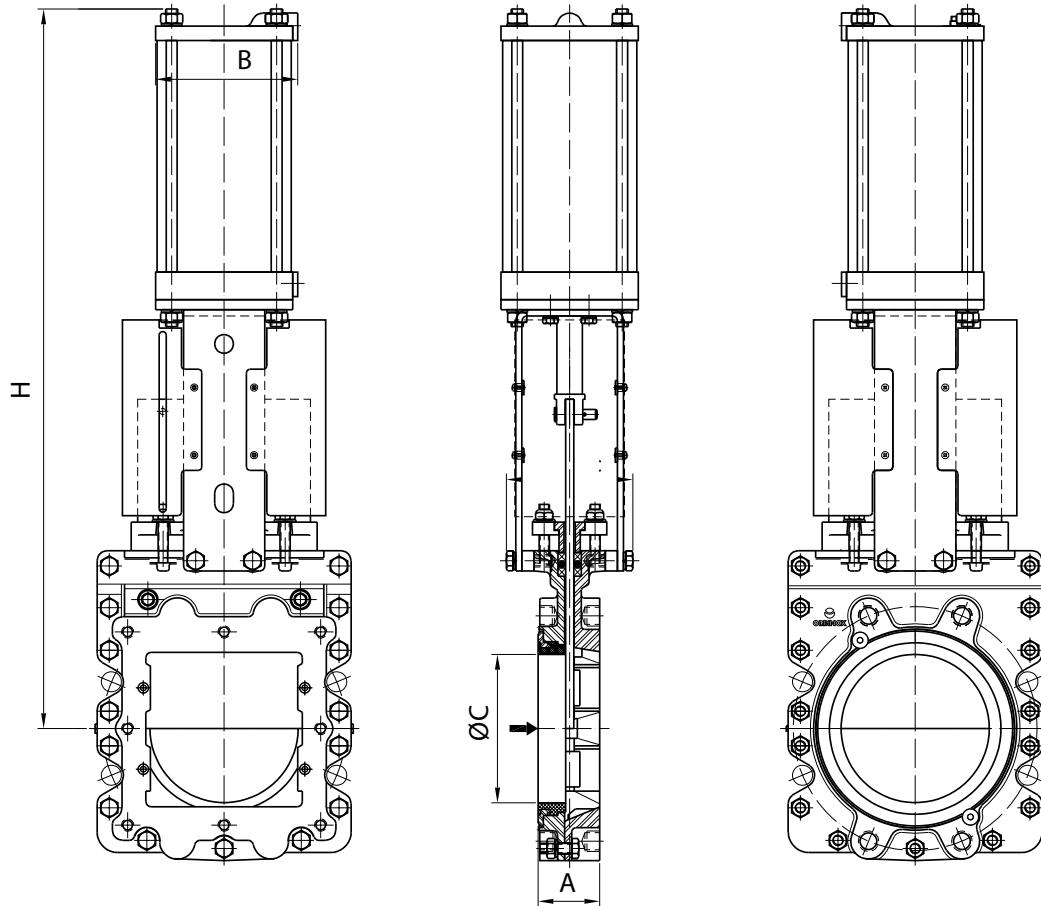
Type	Features
<b>Polyurethane</b>	The sealing of the CR valve is achieved through a high resistance polymer, which improves the watertightness at both the flange and closing area. The sleeve has a stainless core with very good resistance to pressure and working conditions



## DOUBLE ACTING PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from 4in/100mm to 24in/600mm. 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 85psi/(6 bar) air supply, see ORBINOX Pneumatic Cylinder Catalogue for more information.

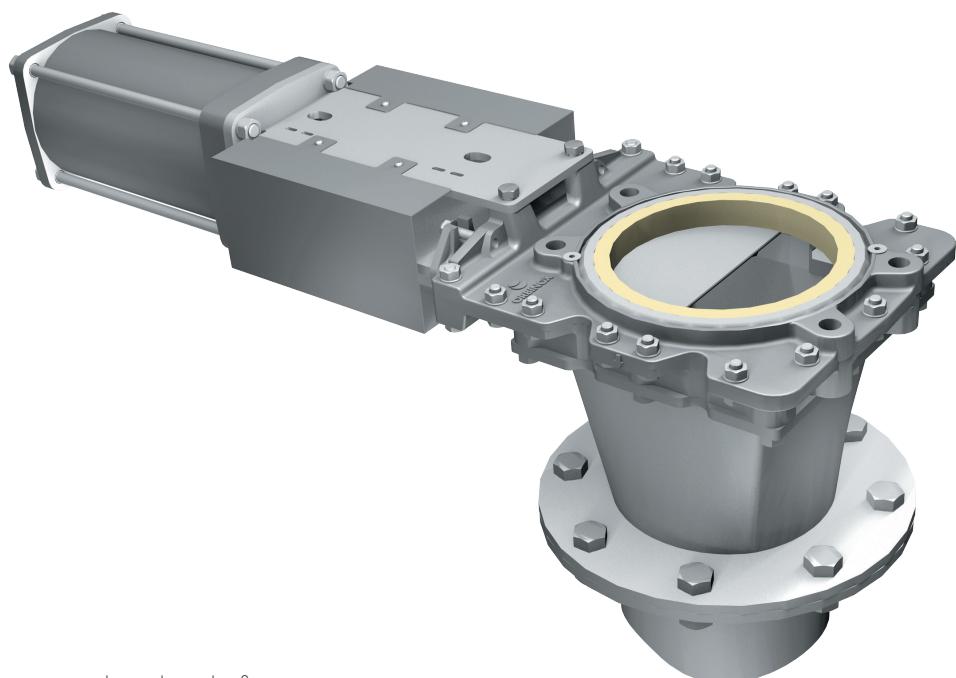
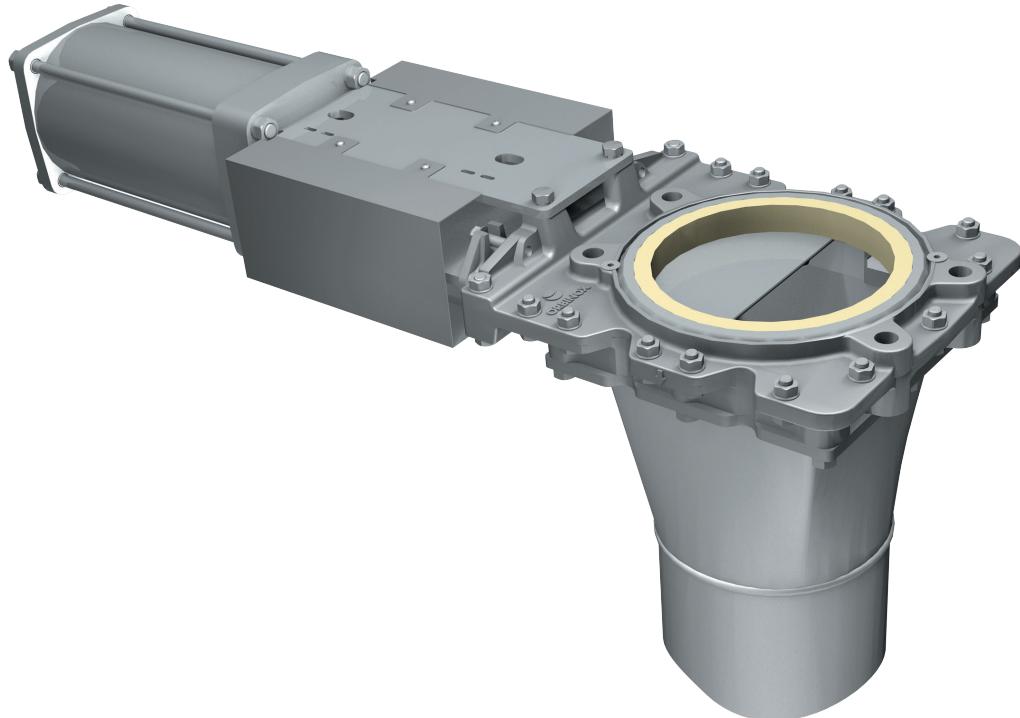
For valves installed in a horizontal position, actuator supports to plant structure is recommended



DN (in/mm)	A (in/mm)	H (in/mm)	B (in/mm)	ØC (in/mm)	Connect.	Weight (lbs./kg.)
4/100	2.03/52	22.16/563	4.52/115	3.81/97	1/4"G	77/35
6/150	2.36/60	27.87/708	5.51/140	5.75/146	1/4"G	172/78
8/200	2.36/60	34.33/872	6.89/175	7.63/194	3/8"G	196/89
10/250	2.72/69	41.49/1054	8.66/220	9.72/247	3/8"G	220/100
12/300	3.07/78	47.00/1194	8.66/220	11.73/298	3/8"G	320/145
14/350	3.07/78	57.09/1450	10.90/277	12.99/330	3/8"G	485/220
16/400	3.50/89	61.61/1565	10.90/277	15.67/398	3/8"G	591/268
20/500	4.49/114	72.24/1835	13.18/335	18.85/479	1/2"G	816/370
24/600	4.49/114	82.48/2095	13.18/335	22.75/578	1/2"G	1118/507

## TRANSITION TYPES

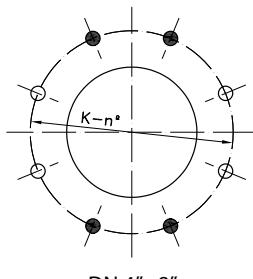
The CR valve can be supplied with a square to round transition piece, that connects the valve square outlet with the round flange or pipe



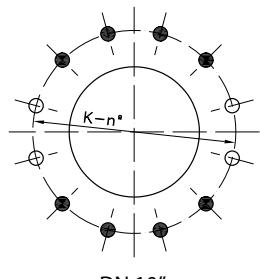
Transition piece with square connection to valve and round to flange

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

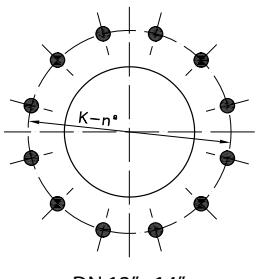
DN	K	n°	M	T	
4"	7 1/2"	8	5/8" - 11 UNC	7/16"	4-4
6"	9 1/2"	8	3/4" - 10 UNC	3/8"	4-4
8"	11 3/4"	8	3/4" - 10 UNC	5/8"	4-4
10"	14 1/4"	12	7/8" - 9 UNC	5/8"	8-4
12"	17"	12	7/8" - 9 UNC	5/8"	12-0
14"	18 3/4"	12	1" - 8 UNC	5/8"	12-0
16"	21 1/4"	16	1" - 8 UNC	7/8"	12-4
20"	25"	20	1 1/8" - 7 UNC	7/8"	16-4
24"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



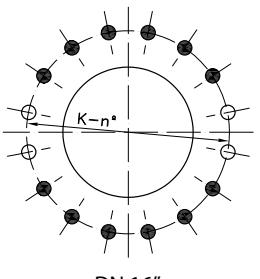
DN 4"-8"



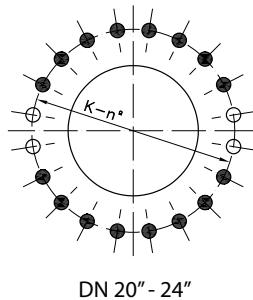
DN 10"



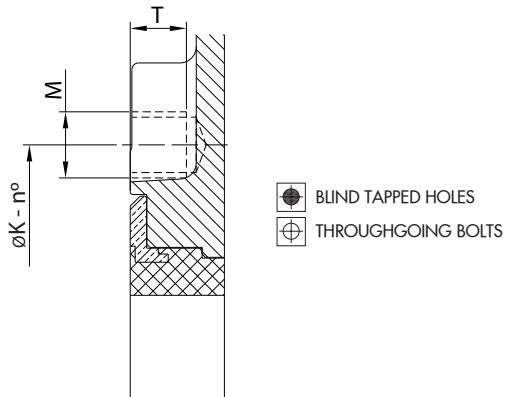
DN 12"-14"



DN 16"

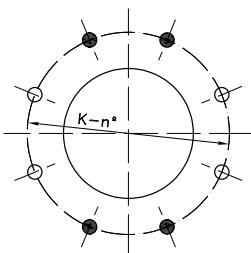


DN 20"-24"

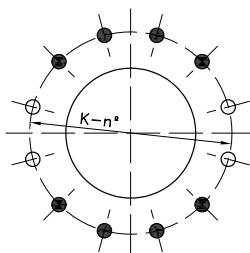


## FLANGE DRILLING ROUND INLET SIDE, EN 1092 PN10

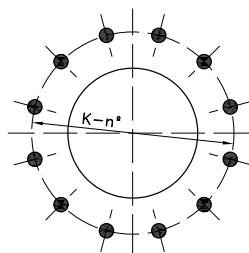
DN	K	n°	M	T	
100	180	8	M-16	11	4-4
150	240	8	M-20	13	4-4
200	295	8	M-20	16	4-4
250	350	12	M-20	16	8-4
300	400	12	M-20	16	12-0
350	460	16	M-20	17	16-0
400	515	16	M-24	22	12-4
500	620	20	M-24	22	16-4
600	725	20	M-27	22	16-4



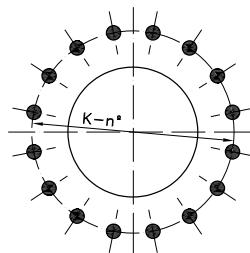
DN 100 - 200



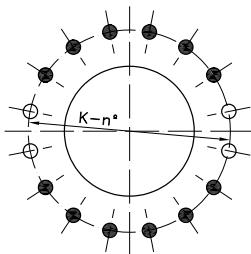
DN 250



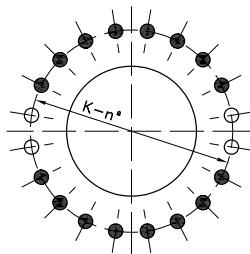
DN 300



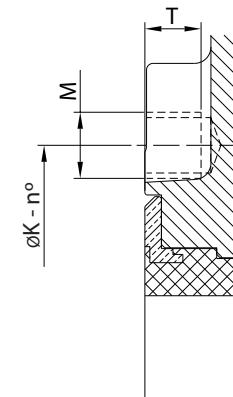
DN 350



DN 400



DN 500 - 600



-  BLIND TAPPED HOLES
-  THROUGHGOING BOLTS

## FLANGE DRILLING SQUARE OUTLET SIDE (ORBINOX IMPERIAL)

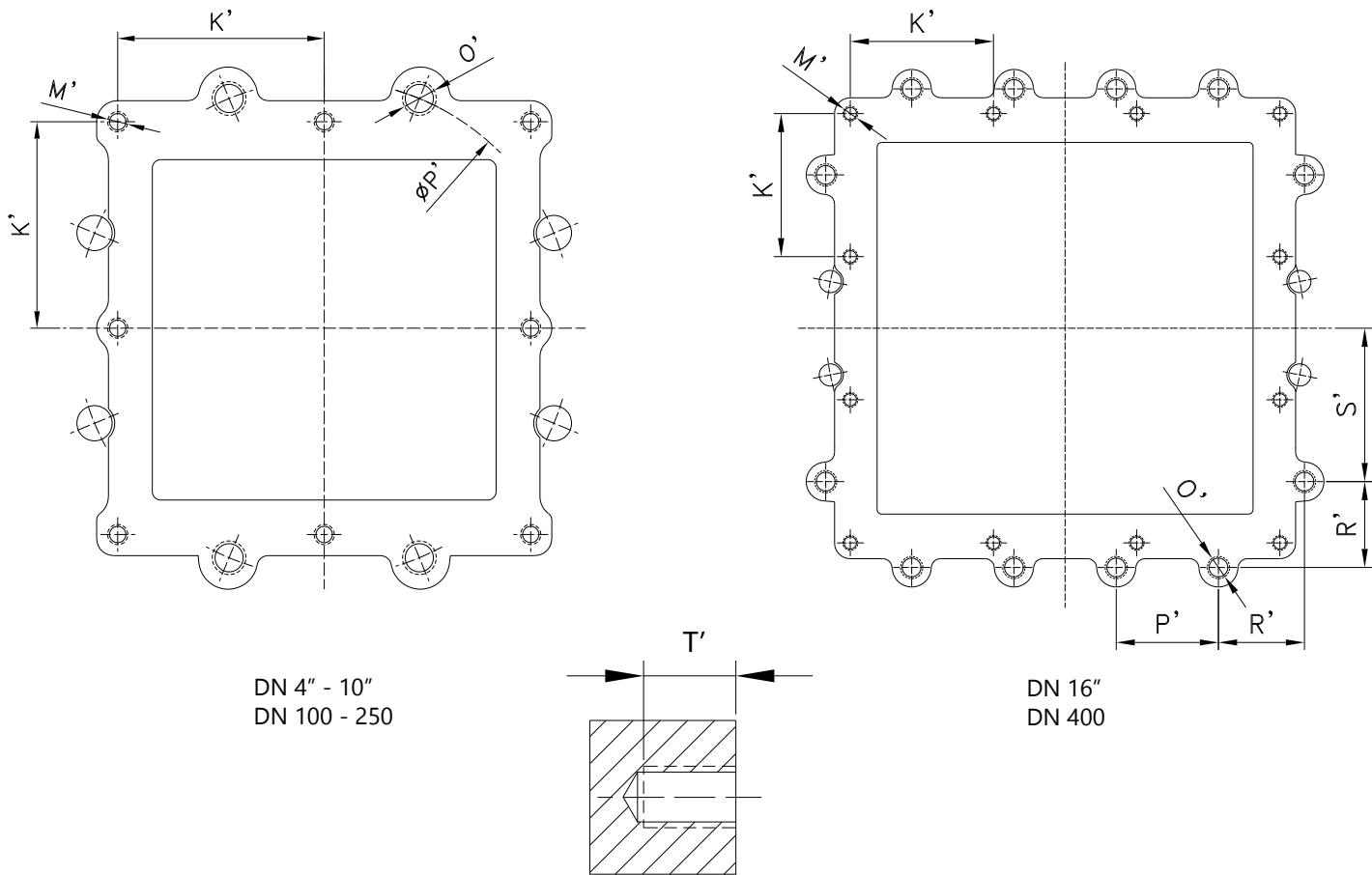
Square flanges are delivered with both OBX1 and OBX2 drillings.  
Valve installation requires either OBX1 or OBX2 drilling pattern

DN	"OBX 1"			"OBX 2"							T'
	n°	K'	M'	n°	ØP'	O'	P'	R'	S'		
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.



## 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'
	nº	K'	M'	nº	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.

