

Model TL

THROUGH CONDUIT KNIFE GATE VALVE

The TL model knife gate is a bi-directional 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 and Paper
- Wastewater treatment plants
- Chemical plants
- Power plants
- etc.

Sizes

DN 50 to DN 1000
Larger diameters on request

Working pressure and temperatures

DN 50 to DN 125: 10 bar
DN 150 to DN 250: 8 bar
DN 300 to DN 400: 6 bar
DN 450: 5 bar
DN 500 to DN 600: 4 bar
DN 700 to DN 1000: 2 bar

GJL250 / GJS400: -10°C / 80°C
CF8M: -20°C / 80°C

Standard flange drilling

EN-1092 PN10
ASME B16.5 (class 150)
Other flange drillings available on request

Directives

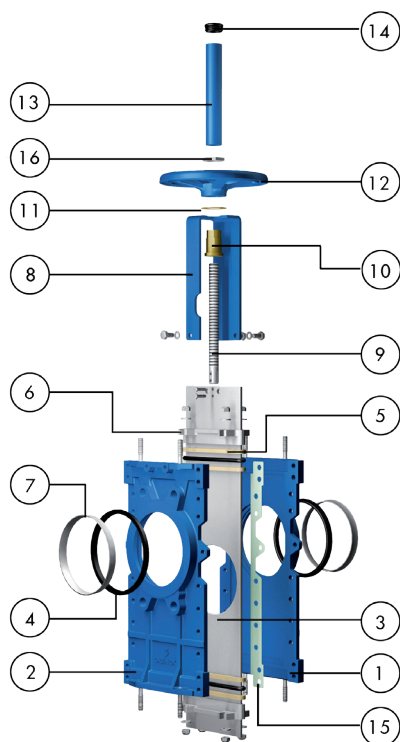
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

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 / EN-GJS400 / CF8M ¹
2	Body EN-GJL250 / EN-GJS400 / CF8M ¹
3	Gate AISI 304 / AISI 316 ¹
4	Seat Metal or EPDM
5	Packing PTFE Impreg. Synth. Fibre (ST)+O-ring
6	Gland follower Aluminium (DN50-300) / EN-GJS400 (DN350-1000) / CF8M ¹
7	Seat retainer ring AISI 304 / AISI 316 ¹
8	Yoke Epoxy-coated Carbon Steel
9	Stem Stainless Steel
10	Stem nut Brass
11	Friction washer Brass
12	Handwheel EN-GJS400
13	Stem protector Epoxy-coated Carbon Steel
14	Cap Plastic
15	Gasket Aramid fibres
16	Nut Zinc plated Carbon Steel

¹ Stainless steel configuration

DESIGN FEATURES

Body

Wafer style cast two-part bolted body, both internally machined, with reinforcing ribs in larger diameters for extra body strength. The stainless steel version valves include 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

Selfcleaning 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 design that mechanically locks the seal in the interior of the valve body with a stainless steel retainer ring. Standard EPDM also available in different materials such as Viton, PTFE, etc.

Packing

Double stuffing box with several layers of braided fibre plus an EPDM o-ring, with an easy access and adjusting 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

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

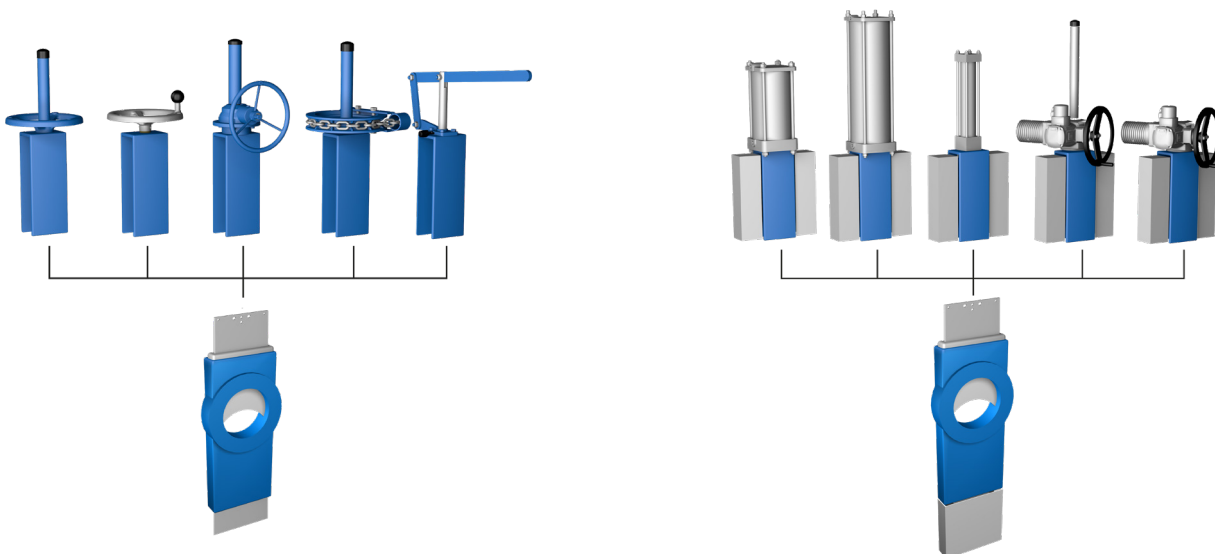
ORBINOX automated valves are provided with gate guards in accordance with EU Safety Standards. The design feature prevents any objects from being caught accidentally while the gate is moving

Actuators

ORBINOX offers a complete range of actuator solutions, including manual, pneumatic, electric and hydraulic actuators

Manual RS Manual NRS Bevel Gear Chainwheel Lever

Pneumatic Double Acting Pneumatic Single Acting Hydraulic Electric RS Electric NRS



OTHER OPTIONS

Other materials of construction

Ductile iron, carbon steel, special stainless steels (Duplex, ...), 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)

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, hard-chroming, carbides, ...), against corrosion and against adherence

Bonnet

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

Diamond port

Better regulation precision for some specific applications

Locking device

The valve can be designed with a locking pin system to block the gate in emergency situations or for maintenance operations

Flush ports

Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. Depending on the process, purging can be made with air, steam, liquids, etc.

Actuator manual override

Pneumatic and electric actuators can be equipped with manual override handwheels to manually operate the actuators in emergency situations on maintenance operations

Stem extensions and floor stand

Extensions for valve operation when valves are installed in positions below operation level are available, including wall brackets and different types of pedestals for actuators

Accessories for pneumatic valve automation

Limit and proximity switches, solenoid valves, positioners, flow regulations, air filter units, silencers, junction boxes

SEAT/SEAL TYPES

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

More details and other materials under request

PACKING TYPES

Material	Max.T (°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	- - -

All types include an elastomere O-ring (same material as seal), excluding TH, GR and FC

SEAT CONFIGURATIONS/DESIGNS

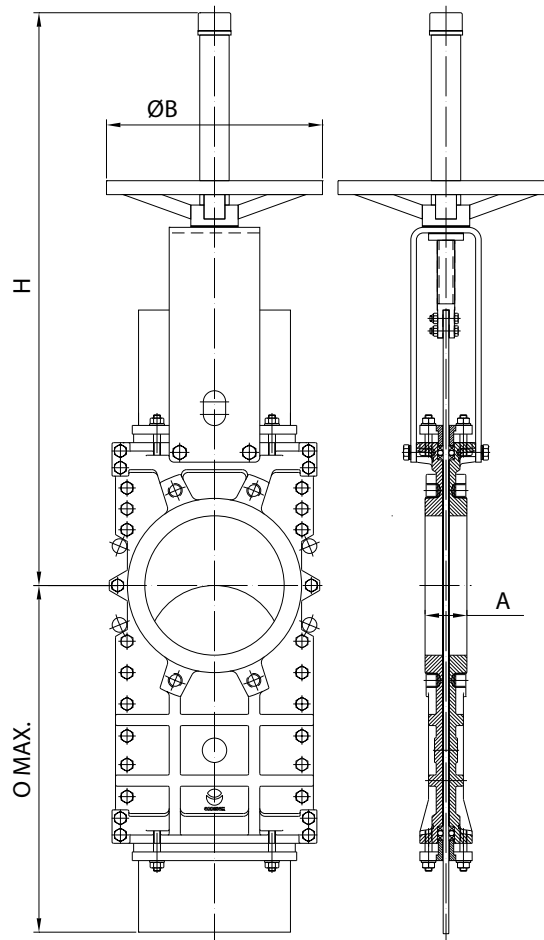
Type	Features	Cast Iron	Stainless Steel
Metal / Metal	<ul style="list-style-type: none"> - High temperature applications - When full tightness is not required - Stainless steel version: includes HMW polyethylene seat sliders that ensure a smoother gate traveling 		 <small>DN 50 - 150</small> <small>DN 200 - 600</small>
A Ring Resilient	<ul style="list-style-type: none"> - Standard resilient seat design, consists of an elastomer seal fixed to the valve body with a replaceable stainless steel retainer ring - See temperature chart for seat materials - Stainless steel version: includes HMW polyethylene seat sliders that ensure a smoother gate traveling 		 <small>DN 50 - 150</small> <small>DN 200 - 600</small>
B Ring Resilient	<ul style="list-style-type: none"> - Resilient seat design with an elastomer seal fixed to the valve body with two replaceable reinforced seal retainer rings that protect the seat in abrasive services. - See temperature chart for seat materials - Stainless steel version: includes HMW polyethylene seat sliders that ensure a smoother gate traveling 		 <small>DN 50 - 150</small> <small>DN 200 - 600</small>
B Ring Metal / Metal	<ul style="list-style-type: none"> - Two replaceable reinforced "B" type rings protect the seat in abrasive services - Stainless steel version: includes HMW polyethylene seat sliders that ensure a smoother gate traveling 		 <small>DN 50 - 150</small> <small>DN 200 - 600</small>

OTHER SEAT FEATURES

Type	Features	Cast Iron	Stainless Steel
Deflection cone C	<ul style="list-style-type: none"> - Used to protect valve seats and internals - Material: AISI 316, Ni-Hard, etc. - Face-to-face dimension increases: <ul style="list-style-type: none"> DN 50 to DN 250, X = 9mm DN 300 to DN 600, X = 12mm Larger diameters on request 		

HANDWHEEL RISING STEM

Standard manual actuator, available from DN 50 to DN 600 and recommended with gearbox from DN 300 and above



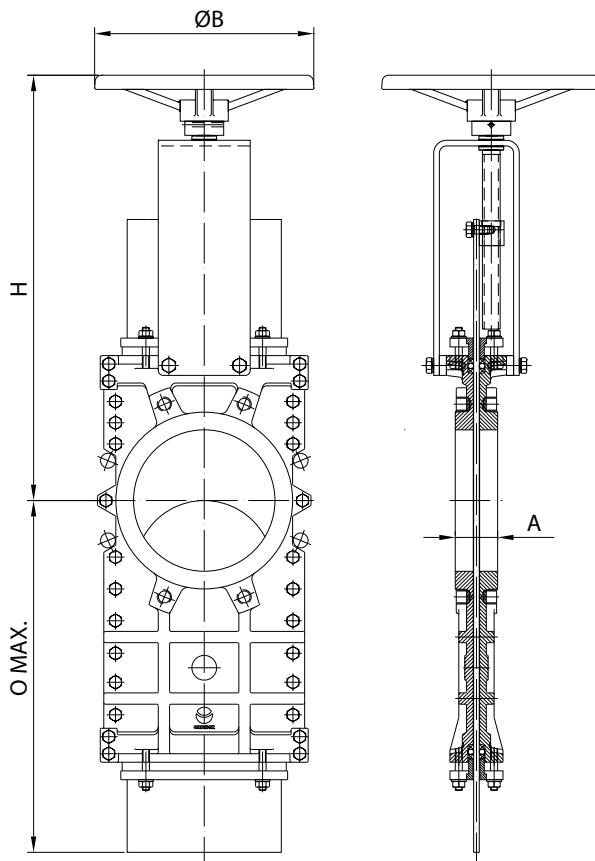
DN	A	ØB	H	O max.	Weight (Kg)
50	40	225	429	232	12
65	40	225	451	255	14
80	50	225	476	310	16
100	50	225	517	367	20
125	50	225	601	432	29
150	60	225	652	497	35
200	60	310	822	635	62
250	70	310	1017	777	89
300	70	310	1102	905	110
350	96	410	1286	1047	174
400	100	410	1386	1171	266
450	106	550	1583	1301	326
500	110	550	1673	1461	372
600	110	550	1963	1711	445

Other diameters on request

HANDWHEEL NON-RISING STEM

Recommended for installation where space is limited, available from DN 50 to DN 600 and recommended with gearbox from DN 350 and above.

Aluminium handwheel for DN 50 to DN 300 valves and EN-GJS400 from DN 350 and above

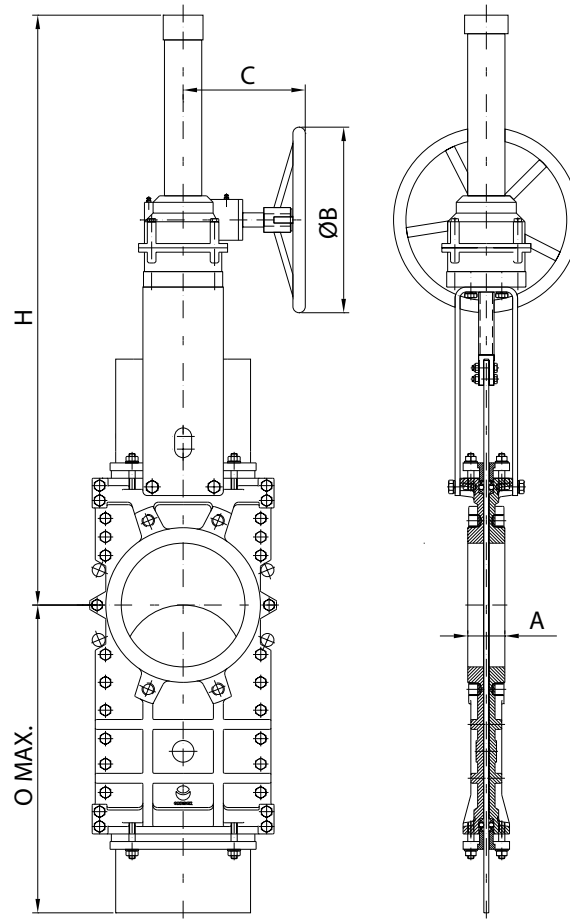


DN	A	ØB	H	O max.
50	40	225	317	232
65	40	225	339	255
80	50	225	364	310
100	50	225	405	367
125	50	225	439	432
150	60	225	490	497
200	60	310	595	635
250	70	310	690	777
300	70	310	775	905
350	96	410	907	1047
400	100	410	1007	1171
450	106	550	1129	1301
500	110	550	1219	1461
600	110	550	1399	1711

Other diameters on request

BEVEL GEAR

Recommended for valves larger than DN 350. Available both for rising stem and non-rising stem configurations and with different reduction ratios

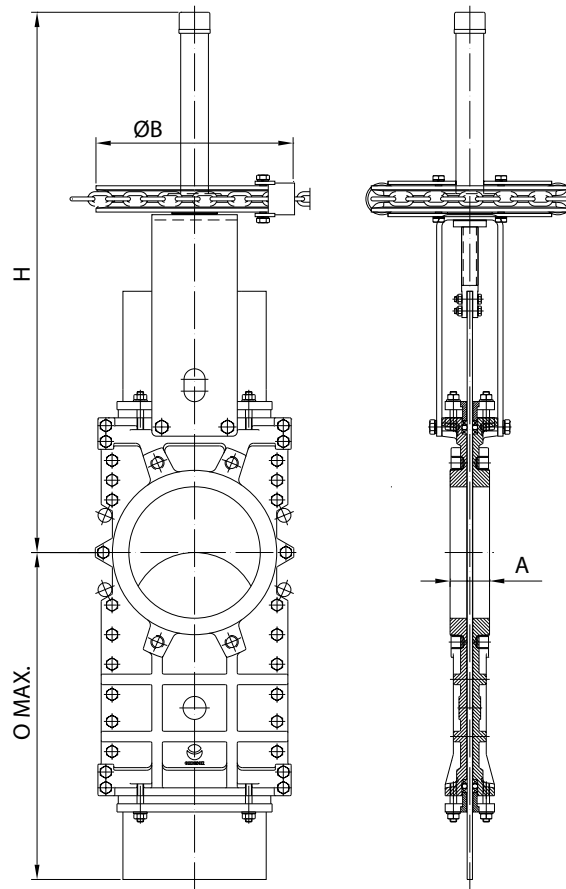


DN	A	ØB	H	C	O max.
200	60	300	994	200	635
250	70	300	1089	200	777
300	70	300	1154	200	905
350	96	450	1536	270	1047
400	100	450	1636	270	1171
450	106	450	1758	270	1301
500	110	450	1848	270	1461
600	110	450	2028	270	1711

Other diameters on request

CHAINWHEEL

Recommended for elevated installations. The handwheel is replaced by a chainwheel to accommodate the chain. Available both for rising stem and non-rising stem and for sizes from DN 50 to DN 600



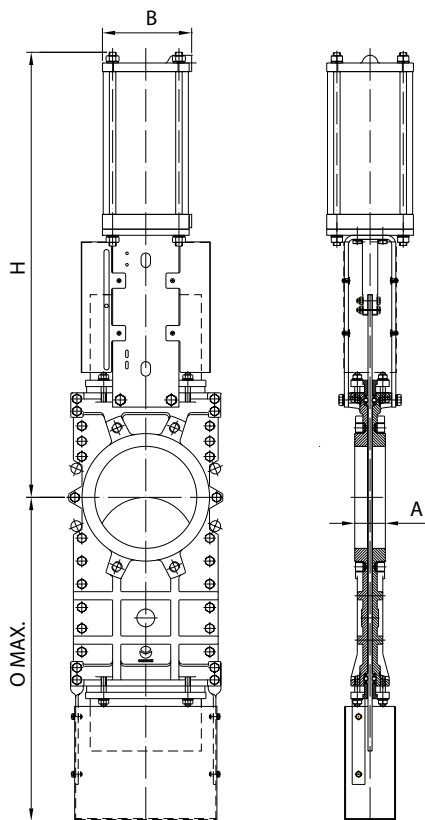
DN	A	ØB	H	O max.
50	40	225	429	232
65	40	225	451	255
80	50	225	476	310
100	50	225	518	367
125	50	225	601	432
150	60	225	652	497
200	60	300	822	635
250	70	300	1017	777
300	70	300	1102	905
350	96	454	1285	1047
400	100	454	1385	1171
450	106	454	1577	1301
500	110	454	1672	1461
600	110	454	1962	1711

Other diameters on request

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 to DN 800. 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	B	H	O max.	Connect.	Weight (Kg)
50	40	115	417	232	1/4" G	14
65	40	115	454	255	1/4" G	16
80	50	115	497	310	1/4" G	18
100	50	115	558	367	1/4" G	23
125	50	140	632	432	1/4" G	34
150	60	140	708	497	1/4" G	41
200	60	175	872	635	1/4" G	73
250	70	220	1037	777	3/8" G	105
300	70	220	1172	905	3/8" G	128
350	96	277	1359	1047	3/8" G	207
400	100	277	1509	1171	3/8" G	300
450	106	382	1708	1301	1/2" G	378
500	110	382	1848	1461	1/2" G	445
600	110	444	2206	1711	3/4" G	619
700	110	444	2490	2000	3/4" G	1215
800	110	444	2730	2400	3/4" G	1430

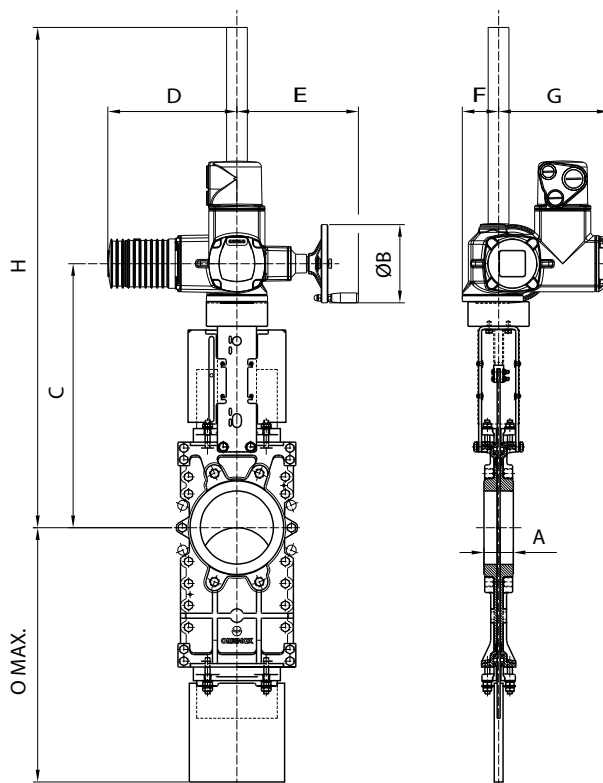
Other diameters on request

ELECTRIC ACTUATOR

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from DN 50 to DN 800, both for rising stem and non-rising stem configurations and with manual overrides.

Wide range of electric actuator brands available



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



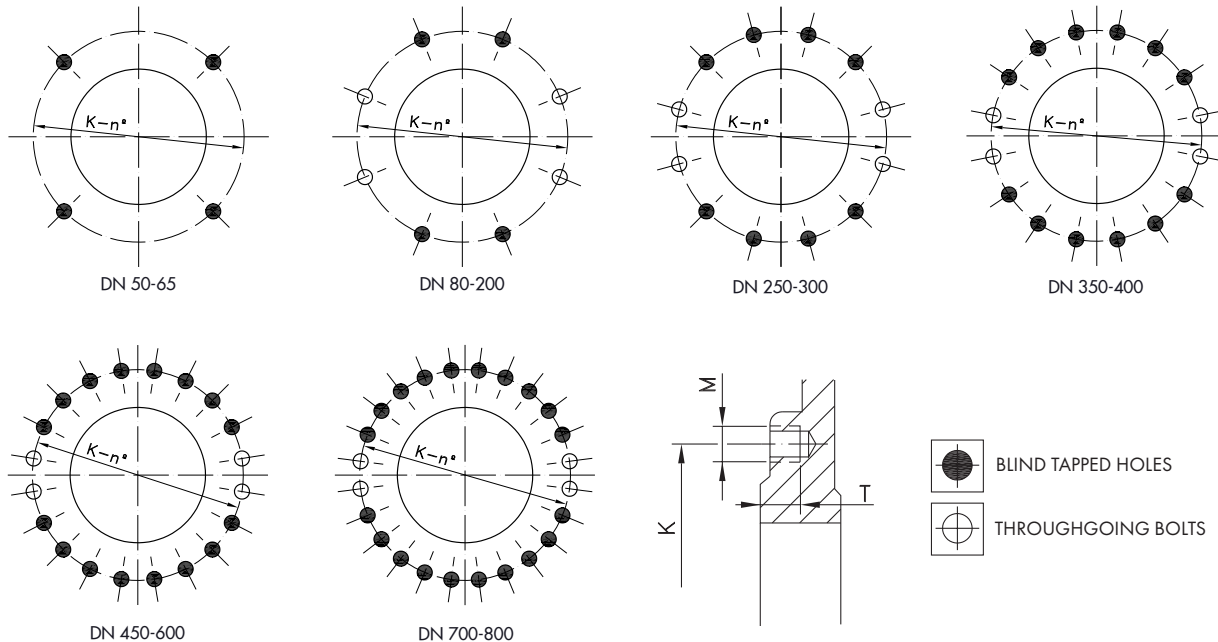
DN	A	C	ØB	H	O max.	D	E	F	G
50	40	357	160	547	232	265	249	62	238
65	40	379	160	549	255	265	249	62	238
80	50	404	160	574	310	265	249	62	238
100	50	445	160	615	367	265	249	62	238
125	50	479	160	649	432	265	249	62	238
150	60	530	160	1100	497	265	249	62	238
200	60	632	160	1252	635	265	249	62	238
250	70	739	200	1319	777	283	254	65	248
300	70	824	200	1409	905	283	254	65	248
350	96	940	200	1525	1047	283	254	65	248
400	100	1085	315	1670	1171	389	336	91	248
450	106	1203	315	1803	1301	389	336	91	286
500	110	1293	315	1893	1461	389	336	91	286
600	110	1505	315	2065	1711	389	336	91	286
700	110	1652	400	2735	2000	389	336	91	286
800	110	1802	400	2885	2400	389	336	91	286

Other diameters on request

FLANGE AND BOLTING DETAILS EN-1092 PN10

DN	K	n°	M	T	 
50	125	4	M-16	11	4 - 0
65*	145	4	M-16	11	4 - 0
80	160	8	M-16	14	4 - 4
100	180	8	M-16	14	4 - 4
125	210	8	M-16	14	4 - 4
150	240	8	M-20	18	4 - 4
200	295	8	M-20	18	4 - 4
250	350	12	M-20	22	8 - 4
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	25	16 - 4
700	840	24	M-27	22	20 - 4
800	950	24	M-30	22	20 - 4

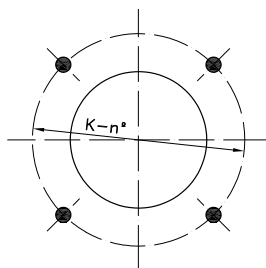
* Flange drilling of DN 65 PN10/16 according to EN-1092 allow 4 or 8 drills. ORBINOX designs of DN 65 PN10/16 have 4 drills



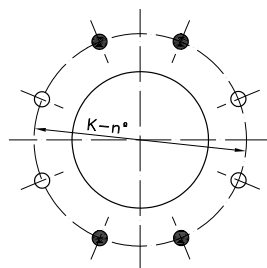
FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150*

DN	K	n°	M	T	 
2"	4 3/4"	4	5/8" - 11 UNC	7/16"	4 - 0
2 1/2"	5 1/2"	4	5/8" - 11 UNC	7/16"	4 - 0
3"	6"	4	5/8" - 11 UNC	9/16"	4 - 0
4"	7 1/2"	8	5/8" - 11 UNC	9/16"	4 - 4
5"	8 1/2"	8	3/4" - 10 UNC	9/16"	4 - 4
6"	9 1/2"	8	3/4" - 10 UNC	11/16"	4 - 4
8"	11 3/4"	8	3/4" - 10 UNC	11/16"	4 - 4
10"	14 1/4"	12	7/8" - 9 UNC	7/9"	8 - 4
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	16"	12 - 4
18"	22 3/4"	16	1 1/8" - 7 UNC	7/9"	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"	16 - 4
28"	34"	28	1 1/4" - 7 UNC	7/8"	24 - 4
32"	38 1/2"	28	1 1/2" - 6 UNC	7/8"	24 - 4

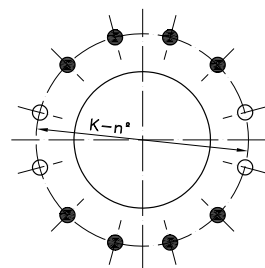
* From NPS 24, acc. to ASME B16.47 Series A (class 150)



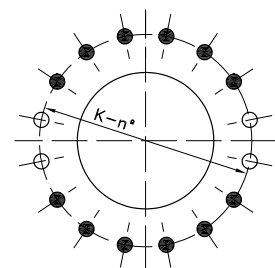
DN 2" - 3"



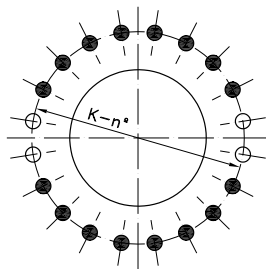
DN 4" - 8"



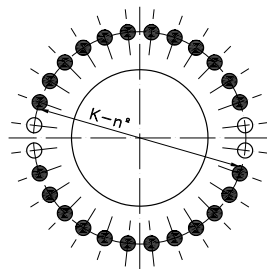
DN 10" - 14"



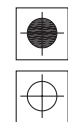
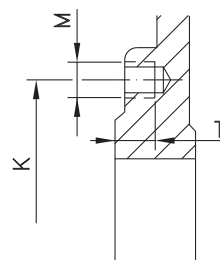
DN 16" - 18"



DN 20" - 24"



DN 28" - 32"



BLIND TAPPED HOLES

THROUGHGOING BOLTS