Model **HB**

BI-DIRECTIONAL KNIFE GATE VALVE

The HB model knife gate is a bi-directional valve designed for general industrial service applications. The design of the body and seat assures non-clogging shut off on suspended solids in industries such as:

- Wastewater treatment plants
- Chemical plants
- Food and Beverage
- Etc.

Sizes

DN 80 to DN 600
Larger diameters on request

Working pressure and temperatures

DN 80 to DN 600: 16/20 bar

GJS 400: -10°C / 80°C

Standard flange drilling

EN-1092 PN10 / PN 16
ASME B16.5 (class 150)

Other flange drillings available on request such as, AS 2129 Table D & E, ...

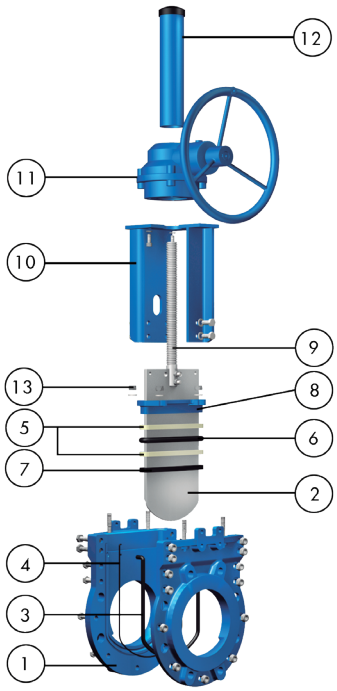
Directives

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

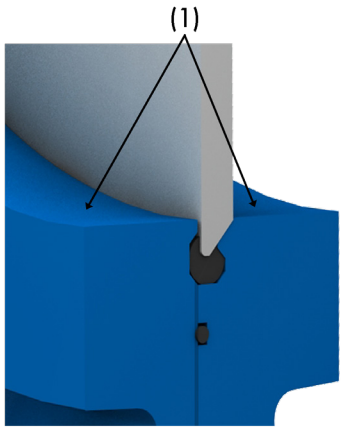


Part		Materials
1	Body	GJS400
2	Gate	AISI 304 (1.4301)
3	Seat round cord	NBR
4	Body round cord	NBR
5	Packing	PTFE Impreg. Synth. Fibre (ST)+O-ring
6	Packing round cord	NBR
7	Packing resilient	NBR
8	Gland follower	A216 WCB
9	Stem	Stainless Steel
10	Yoke	Carbon Steel - Epoxy Coated
11	Bevel gear	-
12	Stem protector	Carbon Steel - Epoxy Coated

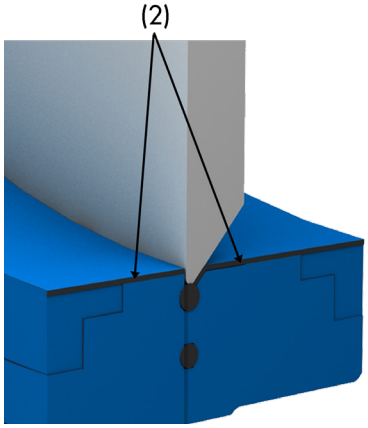
DESIGN FEATURES

Body

Wafer style cast split body, both internally machined with reinforced ribs in larger diameters for extra body strength and with a secondary body seal arrangement for leak containment. In GJS400 ductile iron material as standard, also available in carbon steel and various stainless steel grades, from CF8M to 2205 and 2507 duplex materials. Full bore design, available with special design configurations for severe abrasive, erosive and corrosive applications, such as Tungsten Carbide material overlays of the bore and seat pocket and hardened rotatable wear rings, flush with the valve bore.



(1) Tungsten carbide coating



(2) Tungsten carbide coating wear rings

The body and seal design allow a perfect adjustment of the body- gate-seal, reducing the torque that keeps the tightness and avoiding any build up of solids that would prevent valve from closing

Gate

Stainless steel gate, as standard. Gate is polished on both sides for a greater seal between the gate with both the packing and the seat. Gate is fully guided in the body along the whole valve stroke to avoid gate fluttering and to ensure maximum tightness. In AISI 304 stainless steel as standard, also available in different stainless steel grades from AISI 316 to 2205 and 2507 duplex materials and 17-4PH. Stellite gate tip options also available

Seat

Unique resilient seat design for all sizes, mechanically locked in the internal groove of valve bodies

Packing

Long-life packing with several layers of braided fibre plus an O-ring, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials

DESIGN FEATURES

Stem
The standard stainless steel stem offers a high and long corrosion resistant life available in different stainless steel grades from AISI 304 and AISI 316 to 2205 and 2507 duplex materials and 17-4PH

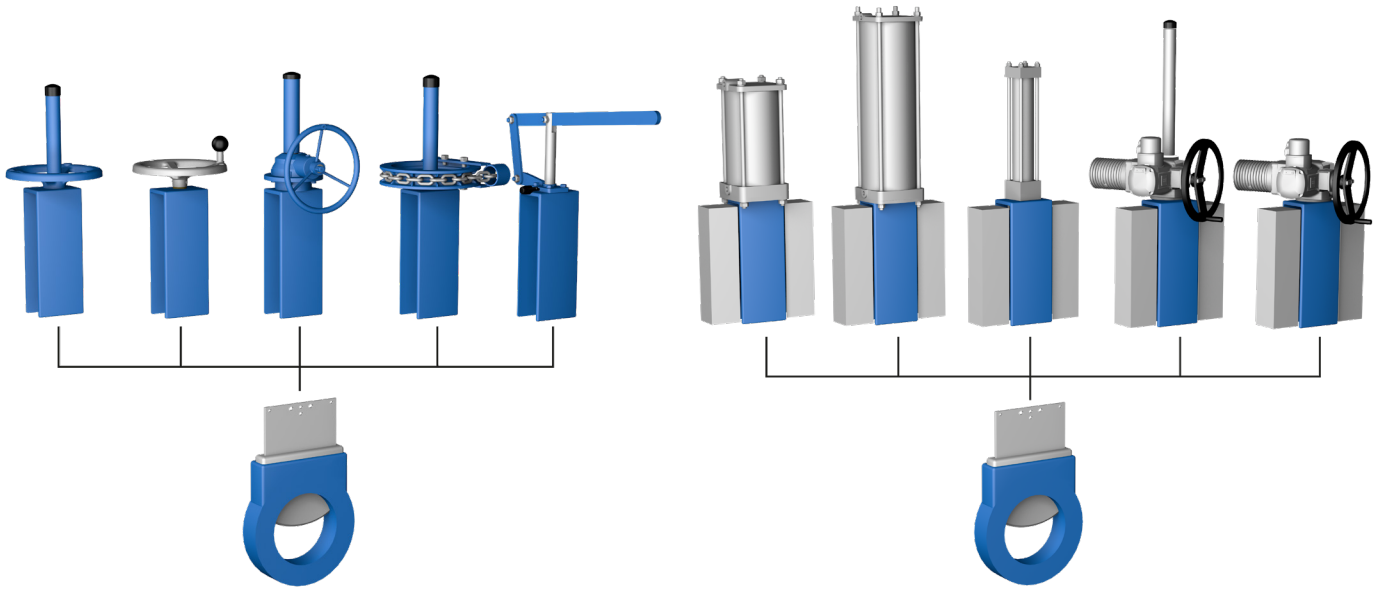
Yoke or actuator support
Made of Epoxy coated steel (stainless steel available on request). Compact design makes it extremely robust even under the most severe conditions

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 product. 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

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

Mechanical Stops
Mechanical Stops can be added to limit stem travel at a certain stroke %

Actuator manual override (Fig. 1)
Pneumatic and electric actuators can be equipped with manual overraide handwheels to manually operate the actuators in emergency situations on maintenance operations

Stem extensions and floor stand (Fig. 2)
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

Fig.1

Fig.2

SEAT/SEAL TYPES

Material	Max.T (°C)
NBR (N)	120

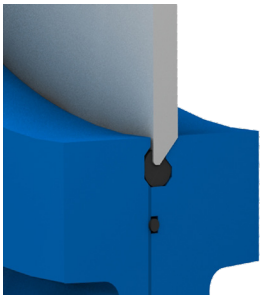
More details and other materials under request

PACKING TYPES

Material	Max.T (°C)	pH
PTFE impregn.synth fibre (ST)	250	2-13
Dynapack (DP)	270	2-14

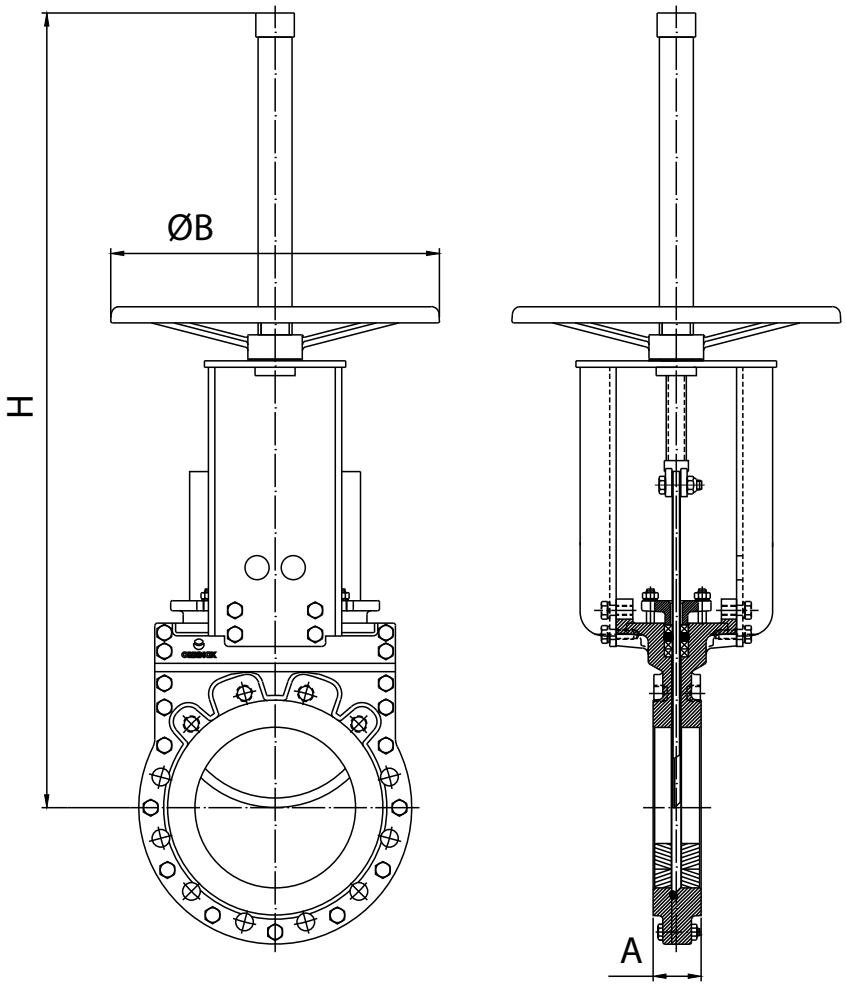
All types include an elastomere O-ring (same material as seal). Standard packing: ST

SEAT CONFIGURATIONS/DESIGNS

Type	Features	
Resilient seat	Bidirectional bubble tight shutt-off seat. The seal is mechanically secured in between the split bodies to prevent any seal movement	

HANDWHEEL RISING STEM

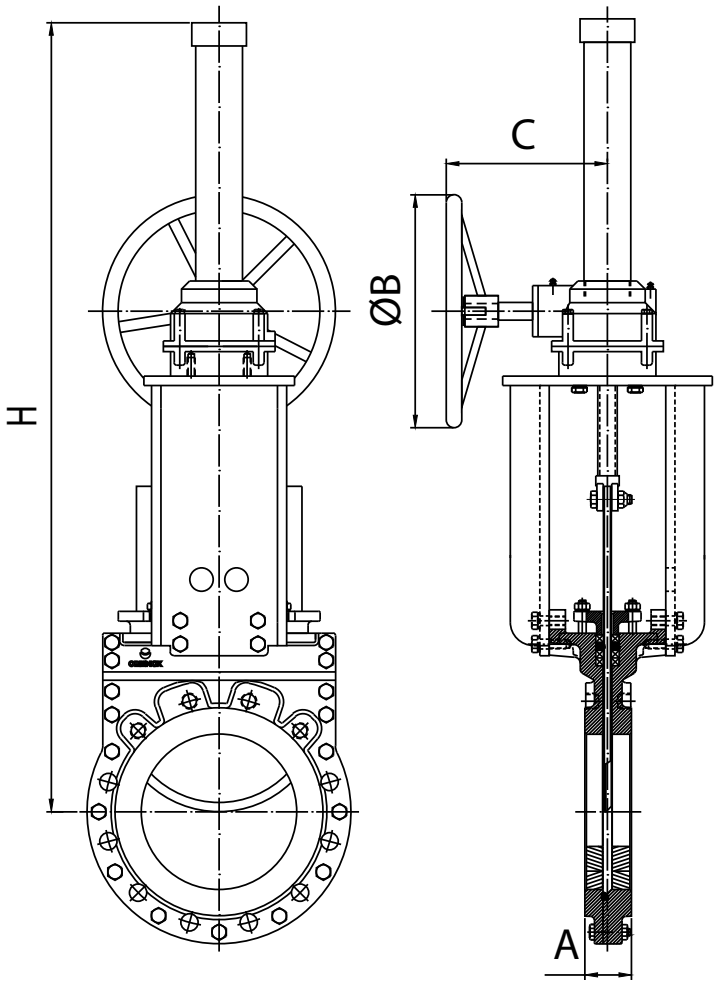
Manual actuator available from DN 80 to DN 150 and recommended with gearbox from DN 150 and above



DN	A	H	ØB
80	46	465	225
100	52	505	225
150	56	900	225

BEVEL GEAR

Manual actuator recommended for valves larger than DN 150. Available for configurations with different reduction ratios

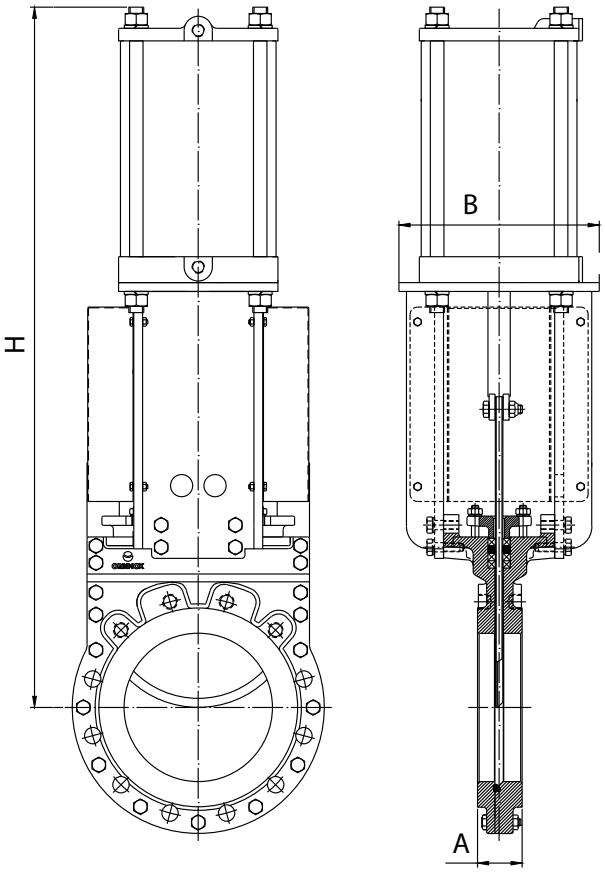


DN	A	H	ØB	C
150	56	930	300	263
200	60	1030	300	263
250	68	1100	300	263
300	78	1190	300	263
350	78	1720	450	263
400	102	1820	450	263
450	114	1900	450	263
500	127	2315	650	263
600	154	2570	1000	263

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 80 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



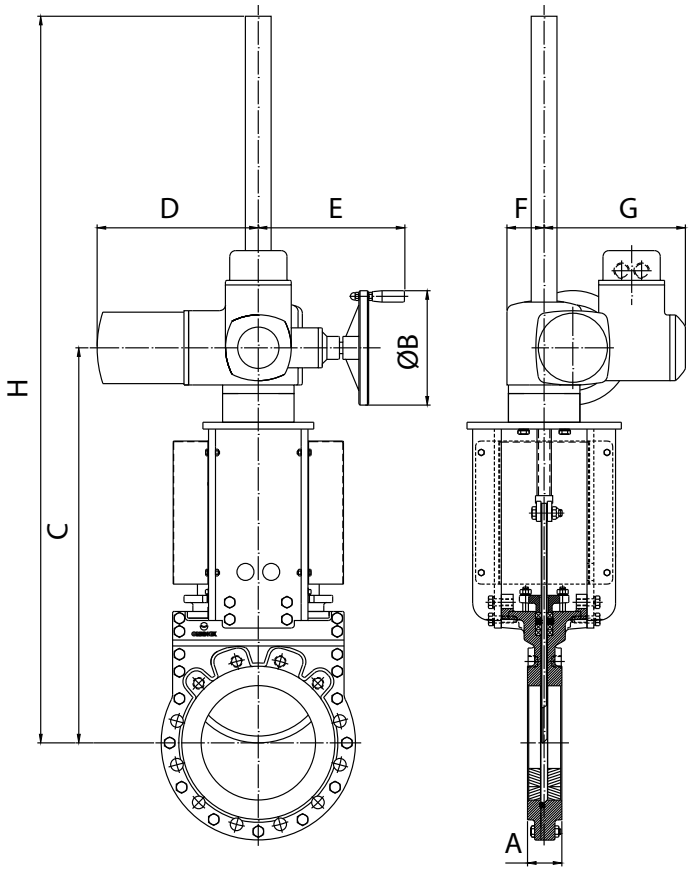
DN	A	B	H	"Standard Cyl. 16 bar"	Connect.	"Standard Cyl. 20 bar"	Connect.
80	46	110	505	C100	1/4"G	C100	1/4"G
100	52	110	560	C100	1/4"G	C100	1/4"G
150	56	175	885	C160	1/4"G	C160	1/4"G
200	60	250	1005	C200	3/8"G	C200	3/8"G
250	68	270	1206	C200	3/8"G	C250	3/8"G
300	78	290	1340	C250	3/8"G	C250	3/8"G
350	78	385	1635	C300	1/2"G	C300	1/2"G
400	102	444	1759	C300	1/2"G	C350	3/4"G
450	114	515	1850	C350	3/4"G	C400	3/4"G
500	127	515	2020	C400	3/4"G	C400	3/4"G

ELECTRIC ACTUATOR RISING STEM

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from DN 80 to DN 600, both for rising stem and non-rising stem configurations and with manual overrides.

Knife gate valves with a wide range of electric actuator brands available

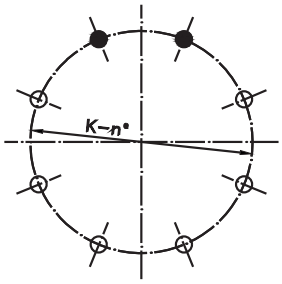
For valves installed in a horizontal position, actuator supports to plant structure is recommended



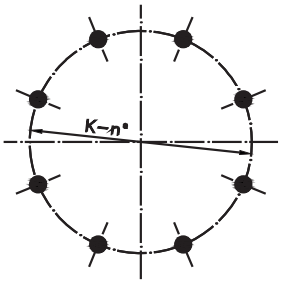
DN	A	C	ØB	H	D	E	F	G
80	46	415	160	970	265	249	62	238
100	52	460	160	1015	265	249	62	238
150	56	609	160	1165	265	249	62	238
200	60	722	200	1285	282	254	65	248
250	68	770	200	1360	282	254	65	248
300	78	860	200	1450	282	254	65	248
350	78	1045	315	1650	385	336	91	286
400	102	1152	315	1755	385	336	91	286
450	114	1228	315	1930	385	336	91	286
500	127	1314	400	2415	385	336	91	286
600	154	1540	400	2645	385	336	91	286

FLANGE AND BOLTING DETAILS EN-1092 PN10

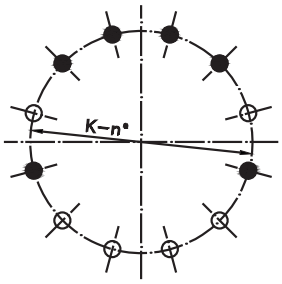
DN	K	nº	M	T	⌖ ⊕
80	160	8	M16	12	2 - 6
100	180	8	M16	12	2 - 6
150	240	8	M-20	14	8 - 0
200	295	12	M-20	14	6 - 6
250	355	12	M-24	15	8 - 4
300	410	12	M-24	18	6 - 6
350	470	16	M-24	18	10 - 6
400	525	16	M-27	18	8 - 8
450	585	20	M-27	25	12 - 8
500	650	20	M-30	31	12 - 8
600	770	20	M-33	34	12 -8



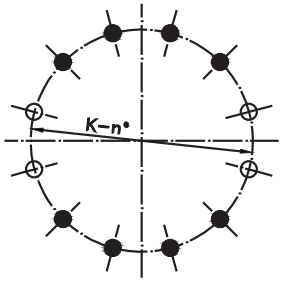
DN 80-100



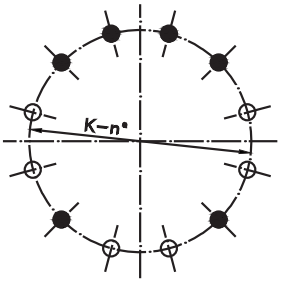
DN 150



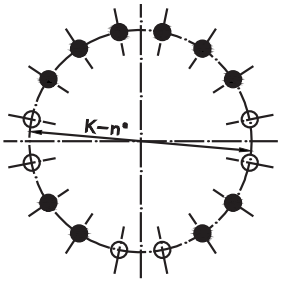
DN 200



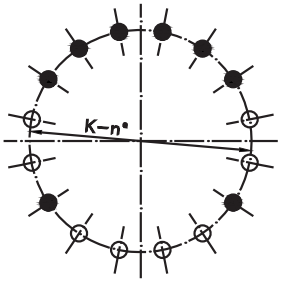
DN 250



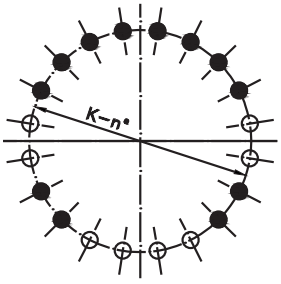
DN 300



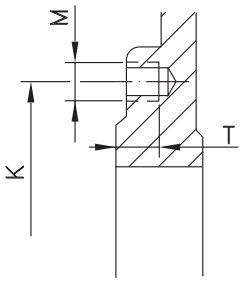
DN 350



DN 400



DN 450-600

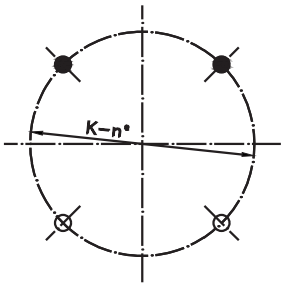


BLIND TAPPED HOLES

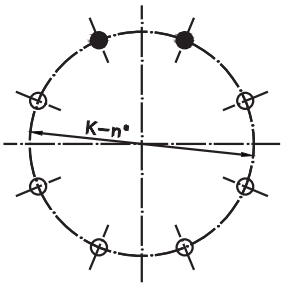
THROUGHGOING BOLTS

FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150

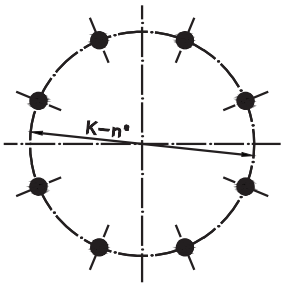
DN	K	nº	M	T	⌖ ⊕
3″	6″	4	5/8″ - 11 UNC	1/2″	2 -2
4″	7 1/2″	8	5/8″ - 11 UNC	1/2″	2 -6
6″	9 ½″	8	3/4″ - 10 UNC	9/16″	8- 0
8″	11 ¾″	8	3/4″ - 10 UNC	9/16″	4 -4
10″	14 ¼″	12	7/8″ - 9 UNC	9/16″	8 -4
12″	17″	12	7/8″ - 9 UNC	11/16″	6 -6
14″	18 ¾″	12	1″ - 8 UNC	11/16″	6 -6
16″	21 ¼″	16	1″ - 8 UNC	11/16″	8 -8
18″	22 ¾″	16	1 1/8″ - 7 UNC	1″	8 -8
20″	25″	20	1 1/8″ - 7 UNC	1 1/4″	12 -8
24″	29 ½″	20	1 1/4″ - 7 UNC	1 5/16″	12 -8



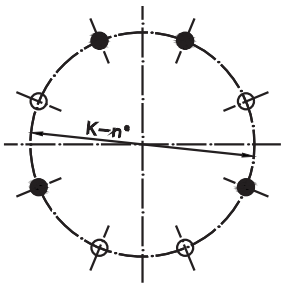
DN 3"



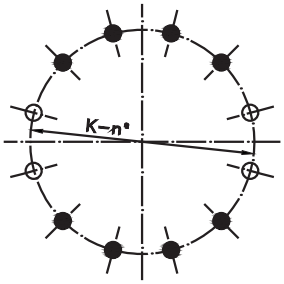
DN 4"



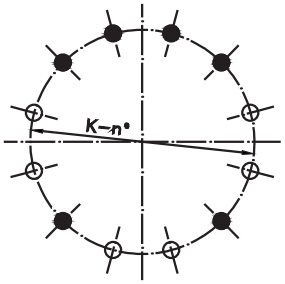
DN 6"



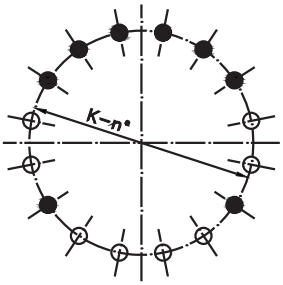
DN 8"



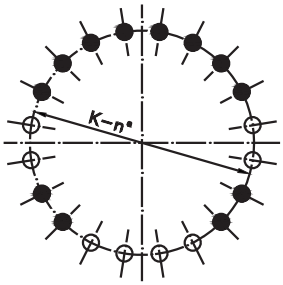
DN 10"



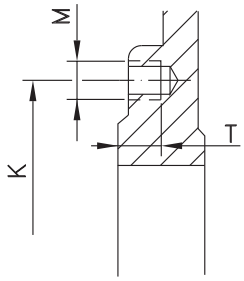
DN 12-14"



DN 16-18"



DN 20-24"



BLIND TAPPED HOLES

THROUGHGOING BOLTS