Model **IB**

BI-DIRECTIONAL KNIFE GATE VALVE

The IB model knife gate is a bi-directional stainless steel 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:

- Pulp and Paper
- Petrochemical
- Bulk handling
- Wastewater treatment plants
- etc.

Sizes

DN 50 to DN 700
Larger diameters on request

Working pressure and temperatures

DN 50 to DN 700: 10 bar

CF8M: -20°C / 80°C

Standard flange drilling

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

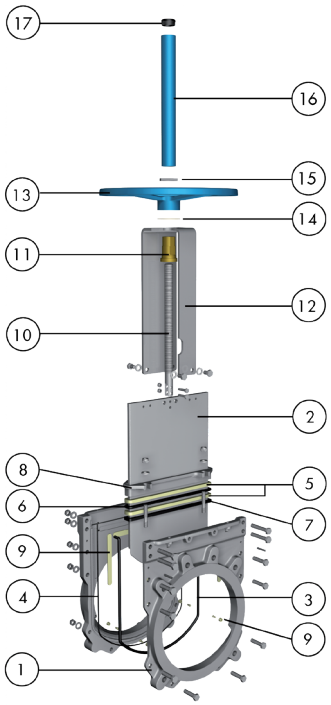
Directives

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		Materials
1	Body	CF8M
2	Gate	AISI 316
3	Seat	NBR
4	O-ring	NBR
5	Packing	PTFE Impreg. Synth. Fibre (ST)
6	Packing O-ring	NBR
7	Packing resilient	NBR
8	Gland follower	CF8M
9	Sliders	Glass filled PTFE
10	Stem	Stainless Steel
11	Stem nut	Brass
12	Yoke	AISI 304
13	Handwheel	EN-GJS400
14	Friction washer	Brass
15	Nut	Zinc Plated Carbon Steel
16	Stem protector	Carbon steel - Epoxy coated
17	Cap	Plastic

DESIGN FEATURES

Body
Wafer style stainless steel split body with a secondary body seal arrangement for leak containment. 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 316 stainless steel as standard, also available in higher-grade stainless steel options

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

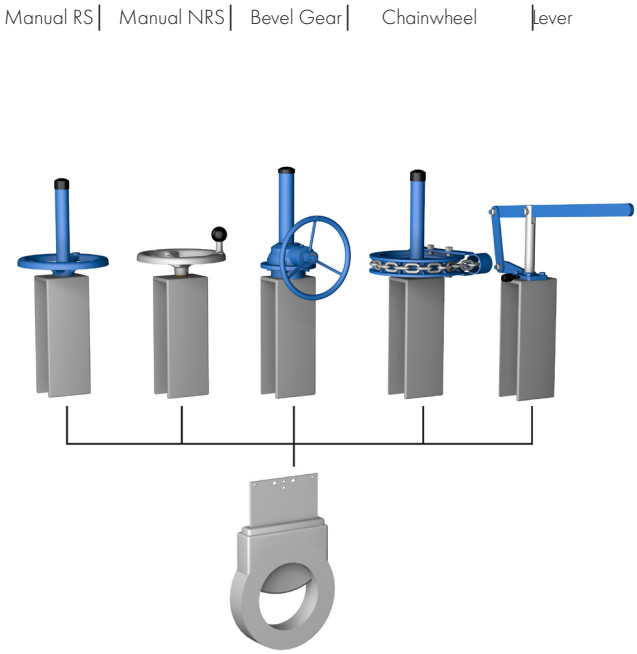
Packing
Long-life packing with several layers of braided fibre plus an O-ring, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials

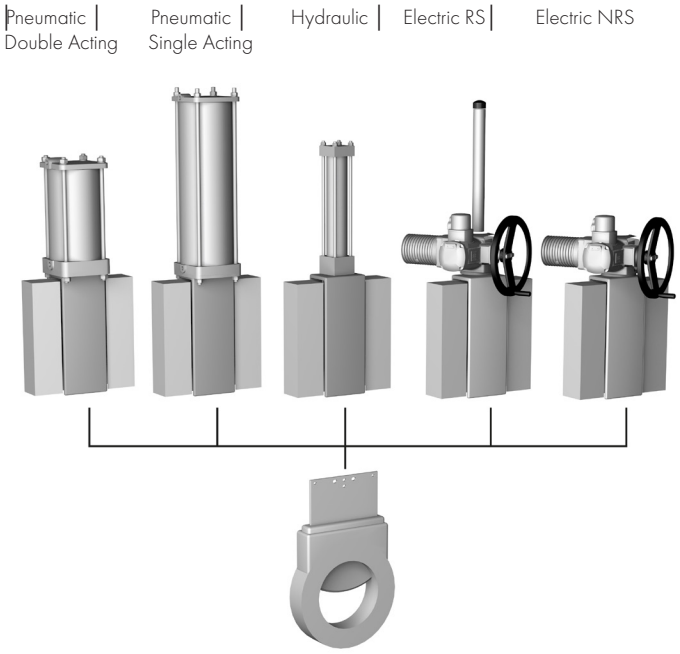
Stem
The standard stainless steel trapezoidal thread stem offers a long corrosion-resistant life. For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust while the valve is in the open position

Yoke or actuator support
Made of stainless steel (Epoxy coated steel available on request). 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

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





OTHER OPTIONS

Other materials of construction
Special stainless steels (Duplex, superduplex ...), 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

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

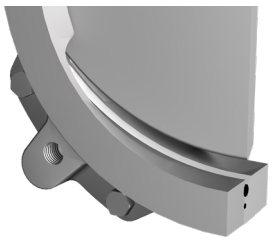
Other materials under request (AFLAS, etc.)

PACKING TYPES

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

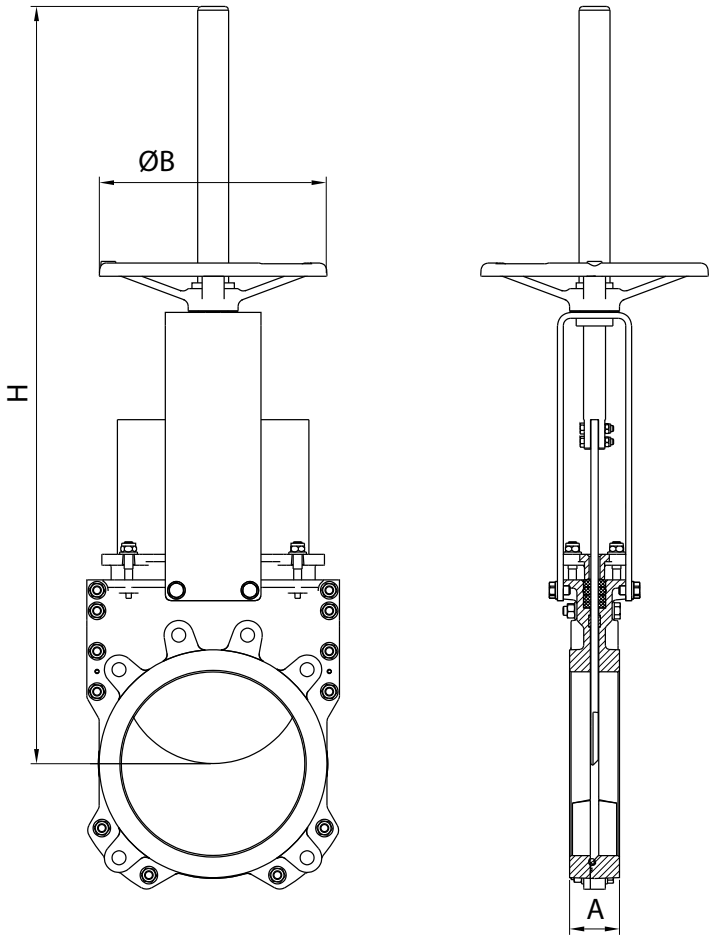
All types include an elastomere O-ring (same material as seal). Standard packing: ST

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 50 to DN 600 and recommended with gearbox from DN 300 and above

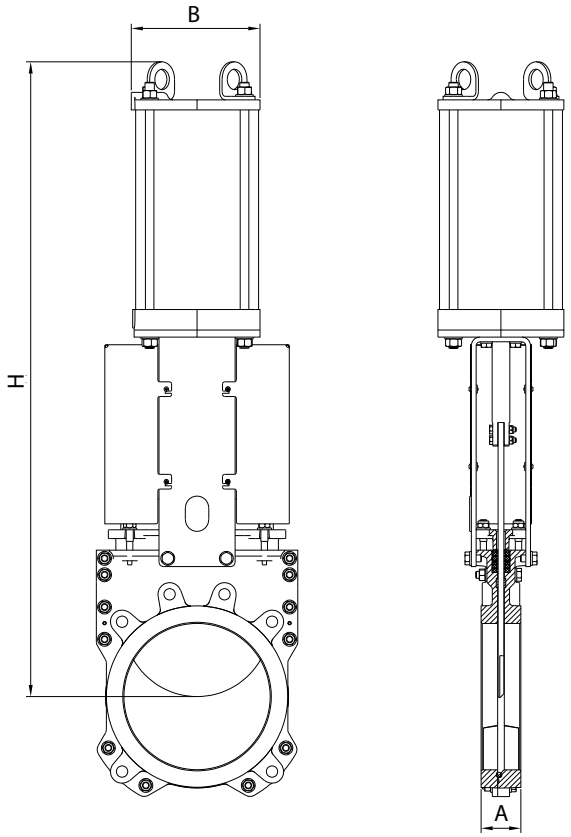


DN	A	H	ØB
50	43	420	225
80	46	475	225
100	52	520	225
150	56	652	225
200	60	822	310
250	68	1022	310
300	78	1122	410
350	78	1323	410
400	89	1427	410
450	89	1594	550
500	114	1707	550
600	114	2022	550

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 to DN 700. 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	Connect.
50	43	115	420	1/4"G
80	46	115	505	1/4"G
100	52	115	560	1/4"G
150	56	140	708	1/4"G
200	60	175	872	1/4"G
250	68	220	1042	3/8"G
300	78	220	1192	3/8"G
350	78	277	1387	3/8"G
400	89	277	1541	3/8"G
450	89	382	1710	1/2"G
500	114	382	1873	1/2"G
600	114	382	2178	1/2"G
700	165	530	3350	3/4"G

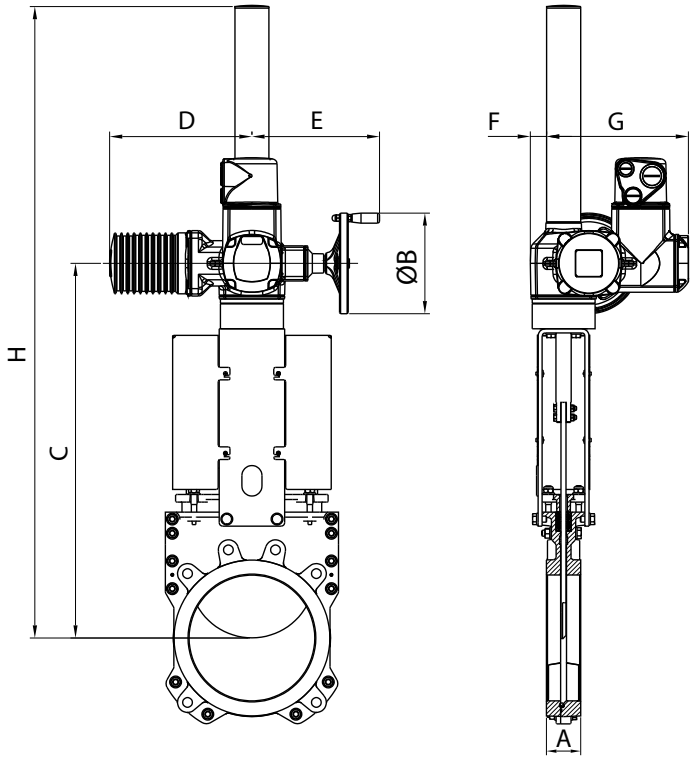
Note: pneumatic cylinder sizing for sizes DN 300mm and above are based on EX pressure ratings

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 700, 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

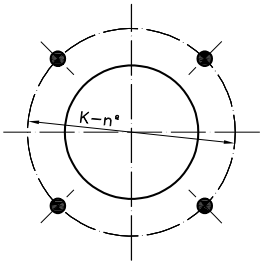
For valves installed in a horizontal position, actuator supports to plant structure is recommended



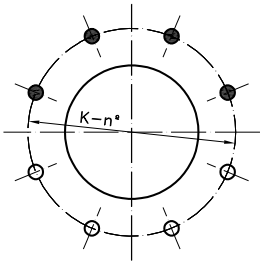
DN	A	C	ØB	H	D	E	F	G	Torque (Nm)
50	43	377	160	547	265	249	62	238	10
80	46	429	160	599	265	249	62	238	10
100	52	470	160	640	265	249	62	238	10
150	56	555	160	1055	265	249	62	238	20
200	60	669	160	1169	265	249	62	238	30
250	68	769	160	1269	265	249	62	238	45
300	78	869	200	1369	283	254	65	248	40
350	78	940	200	1440	283	254	65	248	70
400	89	1044	315	1544	389	336	91	286	90
450	89	1172	315	1672	389	336	91	286	110
500	114	1280	400	1780	389	339	91	286	95
600	114	1565	400	2065	389	339	91	286	140
700	165	1763	500	2846	430	365	117	303	490

FLANGE AND BOLTING DETAILS EN 1092 PN10

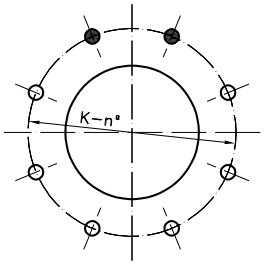
DN	K	nº	M	T	⌖ ⊕
50	125	4	M16	14	4 - 0
80	160	8	M16	14	4 - 4
100	180	8	M16	12	2 - 6
150	240	8	M-20	12	2 - 6
200	295	8	M-20	14	4 - 4
250	350	12	M-20	20	6 - 6
300	400	12	M-20	22	6 - 6
350	460	16	M-20	18	8 - 8
400	515	16	M-24	20	8 - 8
450	565	20	M-24	18	10 - 10
500	620	20	M-24	29	12 - 8
600	725	20	M-27	26	12 -8
700	840	24	M-27	35	20 - 4



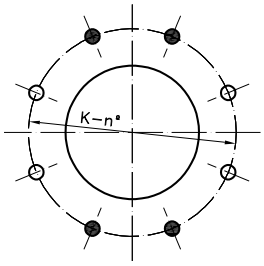
DN 50



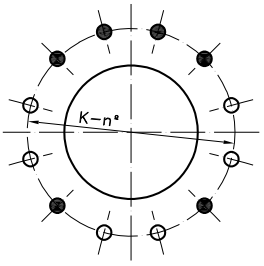
DN 80



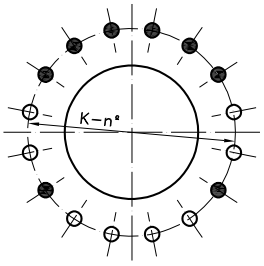
DN 100–150



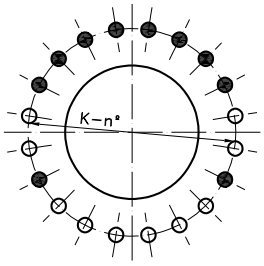
DN 200



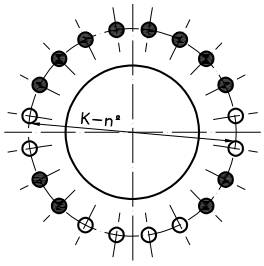
DN 250–300



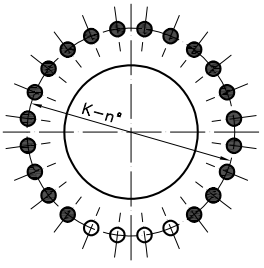
DN 350–400



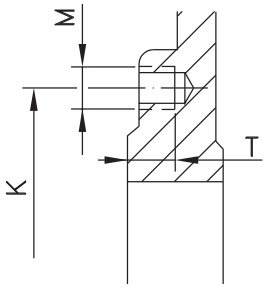
DN 450



DN 500–600



DN 700



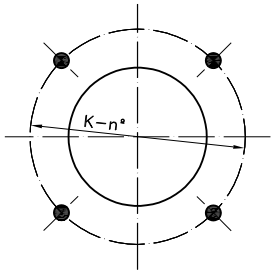
BLIND TAPPED HOLES

THROUGHGOING BOLTS

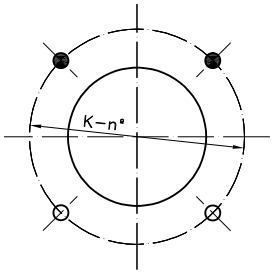
FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150*

DN	K	nº	M	T	⌖ ⊕
2"	4 ¾"	4	5/8" - 11 UNC	1/2"	4- 0
3"	6"	4	5/8" - 11 UNC	1/2"	2 -2
4"	7 ½"	8	5/8" - 11 UNC	1/2"	2 -6
6"	9 ½"	8	3/4" - 10 UNC	1/2"	2 -6
8"	11 ¾"	8	3/4" - 10 UNC	1/2"	4 -4
10"	14 ¼"	12	7/8" - 9 UNC	3/4"	6 -6
12"	17"	12	7/8" - 9 UNC	7/8"	6 -6
14"	18 ¾"	12	1" - 8 UNC	7/8"	6 -6
16"	21 ¼"	16	1" - 8 UNC	3/4"	8 -8
18"	22 ¾"	16	1 1/8" - 7 UNC	3/4"	8 -8
20"	25"	20	1 1/8" - 7 UNC	1"	12 -8
24"	29 ½"	20	1 1/4" - 7 UNC	1"	12 -8
28"	34"	28	1 1/4" - 7 UNC	1 1/4"	18 -10

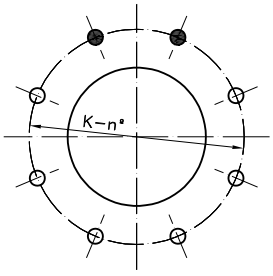
* From NPS 24, acc. to ASME B16.47 Series A (class 150)



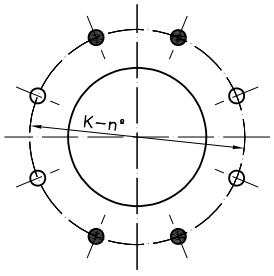
DN 2"



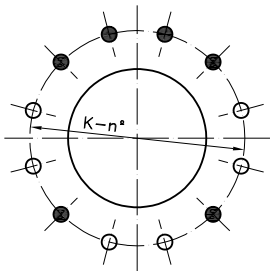
DN 3"



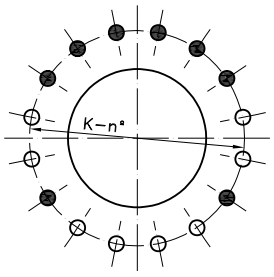
DN 4"–6"



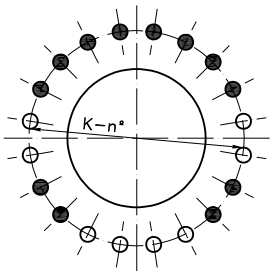
DN 8"



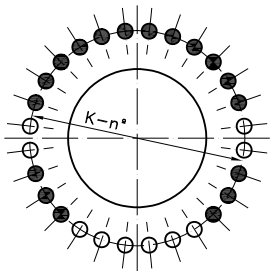
DN 10"–14"



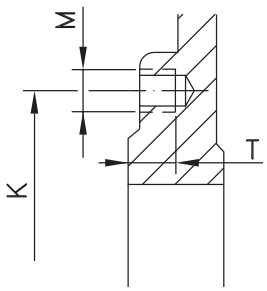
DN 16"–18"



DN 20"–24"



DN 28"



BLIND TAPPED HOLES

THROUGHGOING BOLTS