

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
- Food and Beverage
- Chemical plants
- Etc.

Sizes:

DN 80 to DN 600 (larger diameters on request)

Working pressure:

DN 80 to DN 600 16 / 20 bar

Standard flange connection:

EN 1092 PN 16 and ASME B16.5 (class 150)
Other flange connections on request

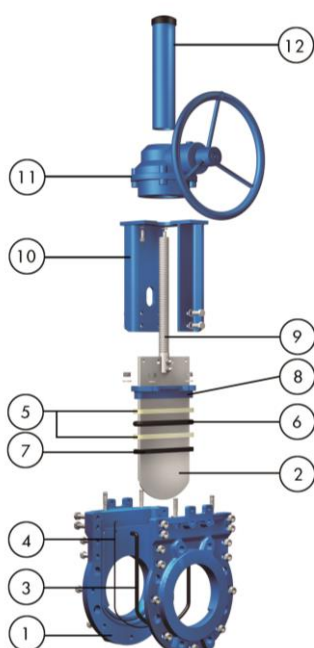
Directives:

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



Face to face dimensions acc. to EN558-1 (series 20)

All valves are tested prior to shipping in accordance with the standard developed by the Quality Control Department at ORBINOX



STANDARD PARTS LIST

Part:	Materials:
1- Body	GJS400
2- Gate	AISI 304
3- Seat Round Cord	NBR
4- Body Round Cord	NBR
5- Packing	PTFE Impreg. Synth. Fibre
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. It allows its installation as end of line. 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 in order to avoid gate fluttering and to ensure maximum tightness.

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 stem offers a high and long corrosion resistant life.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit for easy installation on site.

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.

OTHER MATERIALS:

On request, following materials can be also supplied:

Gate:

AISI 316 or 316Ti
2205

Stem:

AISI 316 or 316 Ti



ACTUATOR TYPES

MANUAL

- Bevel Gear (rising & non-rising stem)
- Chainwheel (non-rising stem)
- Others (square nut, ...)

AUTOMATED:

- Electric (rising & non-rising stem)
- Pneumatic (single & double-acting)
- Hydraulic

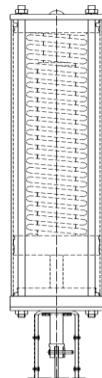
All actuators supplied by ORBINOX are interchangeable

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

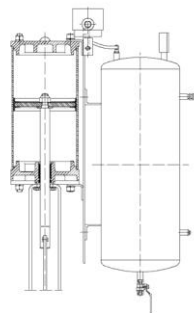
SINGLE ACTING (SPRING RETURN)

- Available from DN 80 to DN 200
- Supply pressure:
min. 5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



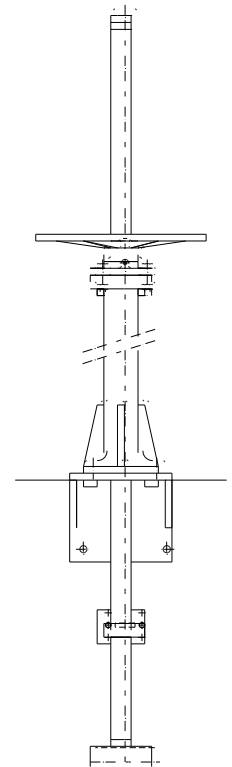
DOUBLE ACTING WITH AIR TANK

- Available for all valve sizes
- Supply pressure:
min. 3.5 bar - max. 10 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



ACCESSORIES

- Mechanical stops
- Locking device
- Manual override
- Solenoid valves
- Positioners
- Limit switches
- Proximity switches
- Floor stands
- Stem extensions



Wide range of valve extensions available

For further information about fail safe systems and valve extensions, please see EX catalogue

For more detailed information, please contact our Technical Department

TEMPERATURE CHART

SEAT / SEALS

Material	Max.Temp.(°C)	Applications
NBR (N)	120	Resistance to petroleum products

More details and other materials on request

PACKING

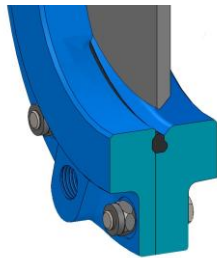
Material	Max.Temp.(°C)	pH
PTFE impregn.synth fibre (ST)	250	2-13
Dynapack (DP)	270	2-14
Braided PTFE (TH)	260	0-14

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

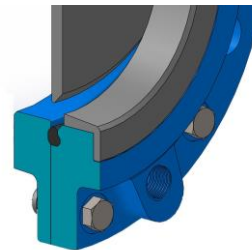
SEAT TYPES

RESILIENT SEAT

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

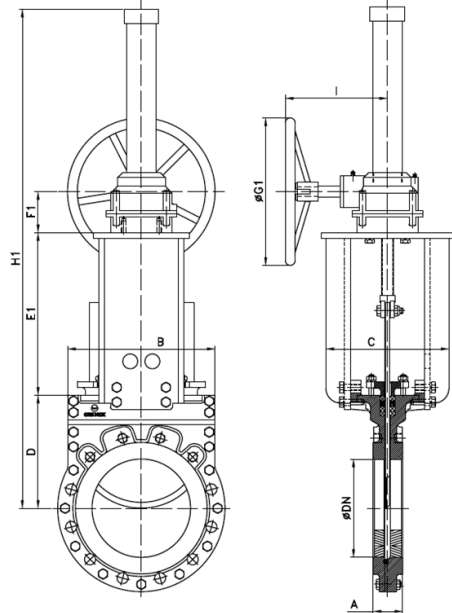
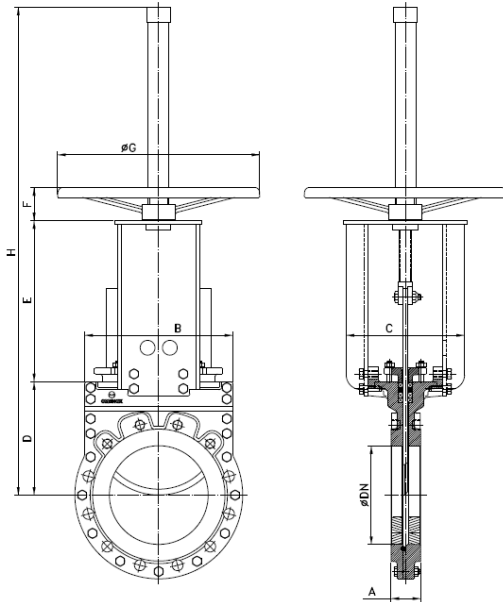


Standard



Option: wear ring to protect seat and body in preferred seating direction

HAND OPERATED (rising stem)



- Consists of:
 - Epoxy coated cast iron handwheel
 - Yoke
 - Stem and stem nut
 - Stem protector
- Available from DN 80 to DN 150 (larger sizes on request)
- Options (on request):
 - Locking device
 - Extensions
 - Chainwheel
 - Non-rising stem
- Note: bevel gear is recommended for valve sizes DN>150 (full force on handwheel > 250 N)

- Recommended for valves larger than DN 150
- Consists of:
 - Stem and stem protector
 - Yoke
 - Bevel Gear Actuator with Handwheel
- Available from DN 150 to DN 600
- Options (on request):
 - Locking device
 - Extensions
 - Chainwheel
 - Non-rising stem

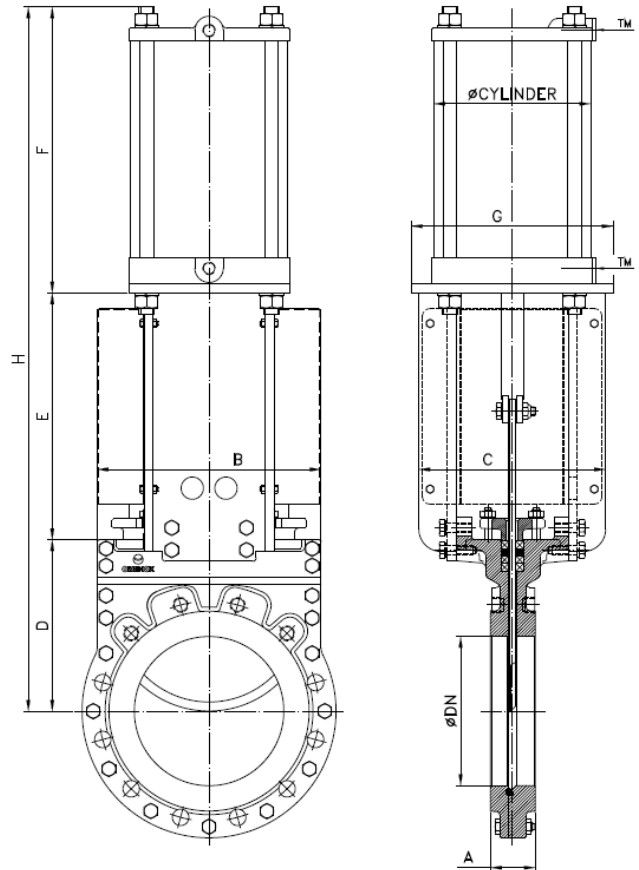
DN	A	B	C	D	E	E1	F	F1	H	H1	ØG	ØG1	I
80	46	155	125	125	152	160	47		465	-	225	-	-
100	52	180	125	140	182	190	47		505	-	225	-	-
150	56	250	164	188	250	240	47	45	900	930	225	300	263
200	60	300	250	230	-	337	-	45	-	1030	-	300	263
250	68	360	270	270	-	370	-	45	-	1100	-	300	263
300	78	425	270	305	-	426	-	45	-	1190	-	450	263
350	78	485	290	388	-	482	-	84	-	1720	-	450	263
400	102	535	290	415	-	565	-	84	-	1820	-	450	263
450	114	585	360	450	-	604	-	84	-	1900	-	450	263
500	127	635	380	490	-	668	-	102	-	2315	-	650	263
600	154	747	380	585	-	796	-	102	-	2570	-	650	263

PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:

- $\varnothing \leq 300$: Aluminum barrels
- $\varnothing \geq 350$: Composite barrels
- Aluminum end covers
- Stainless Steel (AISI 304) piston rod
- Nitrile coated steel piston

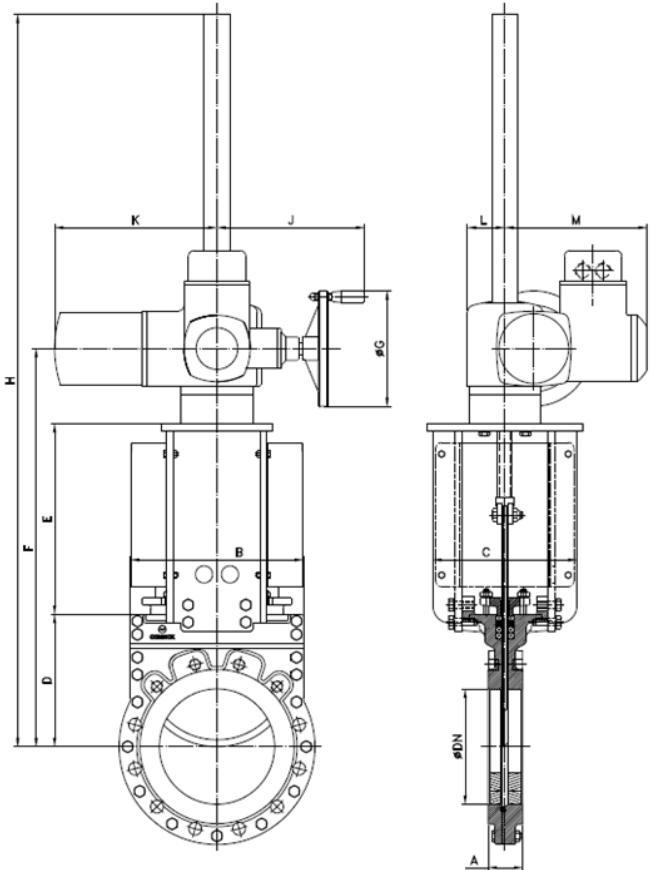
- Available from DN 80 to DN 600
- Actuator sized for 6 bar air supply
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support
- Options (on request):
 - Hard anodized barrel and covers
 - Over / Undersized cylinder
 - Stainless Steel barrel and covers
 - Manual override
 - Fail safe system
 - Limit switches
- Instrumentation (on request):
 - Positioners
 - Solenoid valves
 - Flow regulators
 - Air preparation units



DN	A	B	C	D	E	F	G	H	Standard Cyl. 16 bar	Connect.	Standard Cyl. 20 bar	Connect.
80	46	155	125	125	160	220	110	505	C100	1/4"G	C100	1/4"G
100	52	180	125	140	190	230	110	560	C100	1/4"G	C100	1/4"G
150	56	250	164	188	392	305	175	885	C160	1/4"G	C160	1/4"G
200	60	300	250	230	398	377	250	1005	C200	3/8"G	C200	3/8"G
250	68	360	270	270	480	456	270	1206	C200	3/8"G	C250	3/8"G
300	78	425	270	305	530	505	290	1340	C250	3/8"G	C250	3/8"G
350	78	485	290	388	615	632	385	1635	C300	1/2"G	C300	1/2"G
400	102	535	290	415	680	664	444	1759	C300	1/2"G	C350	3/4"G
450	114	585	360	450	630	770	515	1850	C350	3/4"G	C400	3/4"G
500	127	635	380	490	700	830	515	2020	C400	3/4"G	C400	3/4"G

ELECTRIC ACTUATOR (rising stem)



- Consists of:
 - Electric motor
 - Motor support yoke flange acc. to ISO 5210 / DIN 3338
- The standard electric motor is equipped with:
 - Manual emergency operation
 - Limit switches (open/closed)
 - Torque switches
- Available from DN 80 to DN 600
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support
- Wide range of types and brands available to meet customer's needs

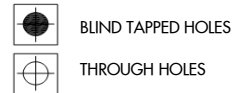
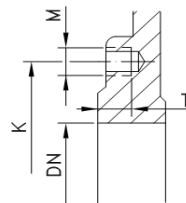
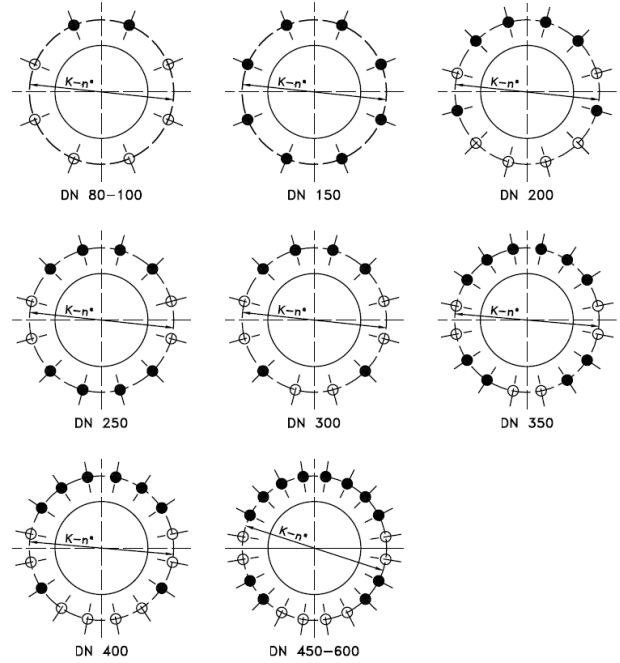


DN	A	B	C	D	E	F	ØG	H	K	J	L	M
80	46	155	125	125	160	415	160	970	265	249	62	238
100	52	180	125	140	190	460	160	1015	265	249	62	238
150	56	250	164	188	392	609	160	1165	265	249	62	238
200	60	300	250	230	398	722	200	1285	282	254	65	248
250	68	360	270	270	480	770	200	1360	282	254	65	248
300	78	425	270	305	530	860	200	1450	282	254	65	248
350	78	485	290	388	615	1045	315	1650	385	336	91	286
400	102	535	290	415	680	1152	315	1755	385	336	91	286
450	114	585	360	450	630	1228	315	1930	385	336	91	286
500	127	635	380	490	700	1314	400	2415	385	336	91	286
600	154	747	380	585	840	1540	400	2645	385	336	91	286



FLANGE AND BOLTING DETAILS

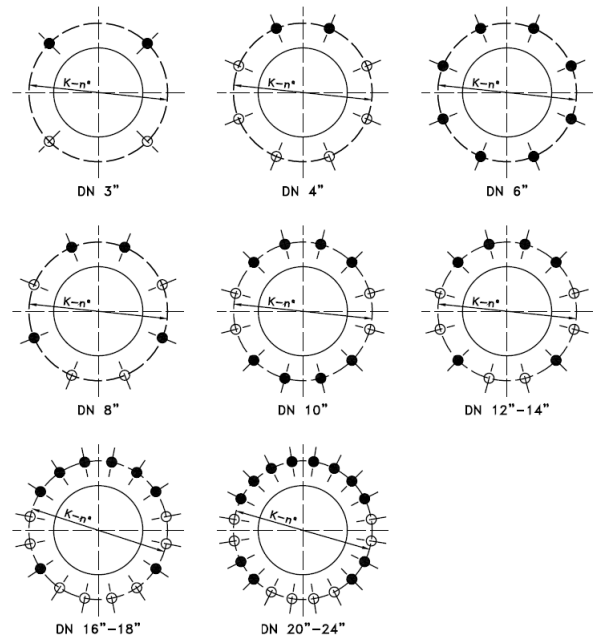
EN 1092 PN 16

DN	K	n°	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



ASME B16.5 (class 150)

DN	K	n°	M	T	 
3"	6"	4	5/8"UNC	1/2"	2 - 2
4"	7 1/2"	8	5/8"UNC	1/2"	2 - 6
6"	9 1/2"	8	3/4" UNC	9/16"	8 - 0
8"	11 3/4"	8	3/4" UNC	9/16"	4 - 4
10"	14 1/4"	12	7/8" UNC	9/16"	8 - 4
12"	17"	12	7/8" UNC	11/16"	6 - 6
14"	18 3/4"	12	1" UNC	11/16"	6 - 6
16"	21 1/4"	16	1" UNC	11/16"	8 - 8
18"	22 3/4"	16	1 1/8" UNC	1"	8 - 8
20"	25"	20	1 1/8" UNC	1 1/4"	12 - 8
24"	29 1/2"	20	1 1/4" UNC	1 5/16"	12 - 8





TN-KGV-010

TECHNICAL NOTE

Electric motor valves

Rev	Description	Date	Rev	Description	Date
J	VG,WG,HG,HB, Number of turns	09/08/2022	A		02/2009
			B	Modulating service	23/02/2011
			C	Non rising stem coupling	17/07/2012
			D	Stem 40x7 for ET DN600, page 6/6 (A coupling)	03/04/2014
			E	Models updated. HK/WG/BR/BT included .Page 3/6	23/09/2016
			F	EB page 2/6	30/11/2018
			G	From 24x5/36x6 to 25x5/35x6 stems	09/12/2019
			H	TK16. NRS stem	02/03/2021
			I	ET/BT/EW	30/11/2021

ELECTRIC ACTUATORS

MODEL: **HB**

DN	Working Pressure (bar)	Required Torque Nm	Stem	Actuator @ 45rpm	Max actuator Torque Nm	Speed (mm/min)	Closing time (min)	Number of turns	Coupling -Rising stem-	Flange connection
80 (3")	16/20	20	20x4	SA 07.2	30	180	0,6	27	A (1)	F10
100 (4")	16/20	20	20x4	SA 07.2	30	180	0,8	36	A (1)	F10
150 (6")	16/20	40	25x5	SA 07.6	60	225	0,9	41	A (1)	F10
200 (8")	16/20	50	25x5	SA 07.6	60	225	1,1	50	A (1)	F10
250 (10")	16/20	99	35x6	SA 10.2	120	270	1,2	54	A (1)	F10
300 (12")	16/20	115	35x6	SA 10.2	120	270	1,3	59	A (1)	F10
350 (14")	16/20	175	40x7	SA 14.2	250	315	1,3	59	A (1)	F14
400 (16")	16/20	220	40x7	SA 14.2	250	315	1,6	72	A (1)	F14
450 (18")	16/20	330	50x8	SA 14.6	500	360	1,4	63	A (1)	F14
500 (20")	16/20	400	50x8	SA 14.6	500	360	1,6	72	A (1)	F14
600 (24")	16/20	670	60x9	SA 16.2	1000	405	1,6	72	A (1)	F16

(1) Nut and stem designs are different for RS and NRS. See details in page 9/9