

# Model BR

## BI-DIRECTIONAL KNIFE GATE VALVE

The BR 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:

- Pulp and Paper
- Wastewater treatment plants
- Food and Beverage
- Power plants
- Mining
- Chemical plants
- etc

### Sizes

DN 50 to DN 600  
Larger diameters on request

### Working pressure and temperatures

DN 50 to DN 250: 10 bar  
DN 300 to DN 400: 6 bar  
DN 450: 5 bar  
DN 500 to DN 600: 4 bar

GJS 400: -10°C / 80°C

### Standard flange drilling

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

### Directives

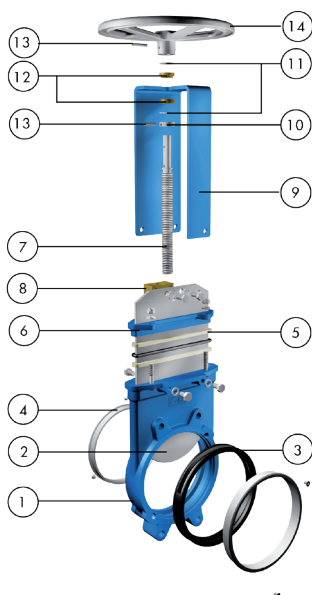
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

### Testing

All valves are tested prior to shipping in accordance with the standard EN-12266-1



## STANDARD PARTS LIST



Part	Description
1	Body EN-GJS400
2	Gate AISI 304
3	Sleeve EPDM
4	Seat ring AISI 304
5	Packing PTFE Impreg. Synth. Fibre with a EPDM O-Ring
6	Gland follower Al. (DN 50-300) or Ductile Iron (DN 350-600)
7	Stem Stainless Steel
8	Stem nut Brass
9	Yoke Epoxy-coated Carbon Steel
10	Axial fixing bush AISI 304
11	Friction washer PET+ solid lubricant
12	Guide bush Bronze
13	Spring pin AISI 420 (1.4021) (ISO 8752)
14	Handwheel DN≤310: Alum. (AlSi12); DN≥410 EN-GJS400

## DESIGN FEATURES

### Body

Wafer style cast monoblock with raised faces and reinforcing ribs in large diameters for extra body strength. Full port design for greater flow capacity and minimal pressure drop. The internal body design avoids any accumulation of solids that would prevent the valve from closing. Flush ports maybe added to allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing (purging can be made with air, steam, liquids, etc.). These bi-directional knife gate valves are not suitable for dead-end service without a slight modification or a counter flange, please contact the Technical Department at ORBINOX

### Gate

Standard AISI 304 stainless steel gate. Gate is polished on both sides for a greater seal between the gate with both packing and seat. Gate is fully guided in the body allowing for bi-directional service. The material of the gate can be changed on request for higher pressure requirements

### Seat (resilient)

Completely new design sleeve, slotted in the top half to allow the gate travel, guaranteeing full tightness with low friction. The sleeve is held by means of two seat rings which support it and also guide the gate. The resilient seat is an elastomer sleeve, also available in different materials

### Packing

Standard PTFE impregnated synthetic fibre (ST) with EPDM O-ring for better shut off, 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 long corrosion resistant life

### 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

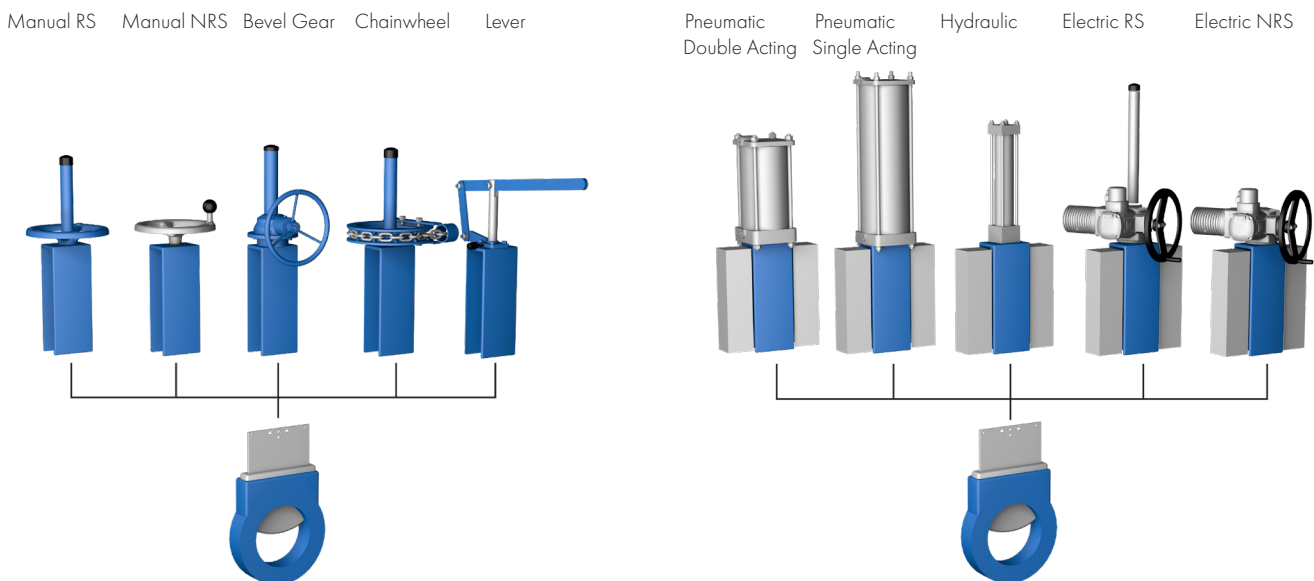
The Epoxy coating on all ORBINOX cast iron and carbon steel valve bodies and components is electrostatically applied making them corrosion resistant with a high quality finished surface. The ORBINOX standard colour is RAL-5015 blue

### 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



## 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

### 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 position

### Actuator manual override (Fig. 1)

Pneumatic and electric actuators can be equipped with manual override handwheels to manually operate the actuators in emergency situations or for 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)	Applications
EPDM (E)	120	Acids and non mineral oils
NBR (N)	120	Resistance to petroleum products
FKM-FPM (V)	200	Chemical service / High temp.

More details and other materials under request

## PACKING TYPES

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

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

## SEAT CONFIGURATIONS/DESIGNS

Type	Features
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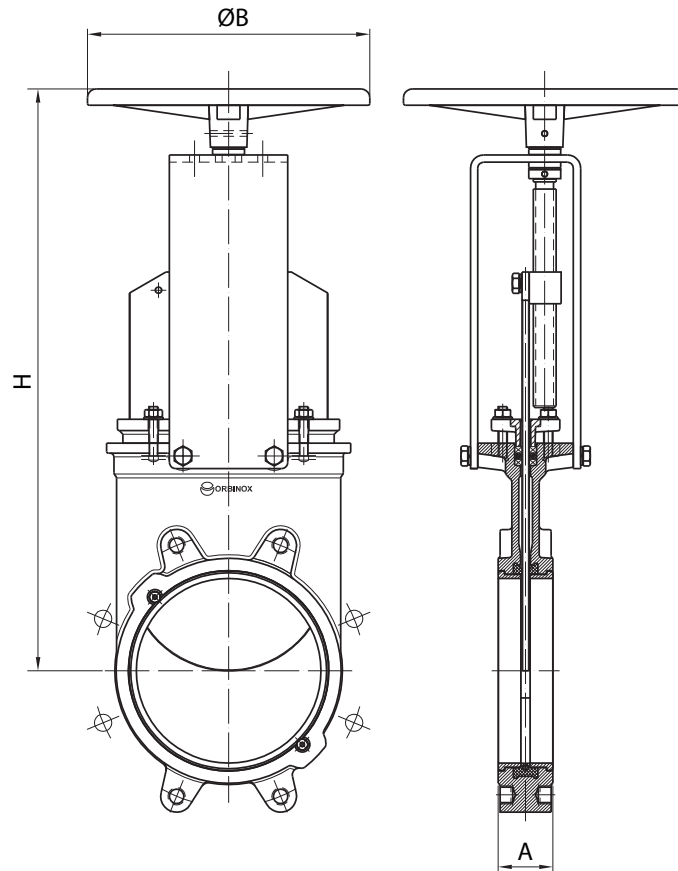
**Resilient**

The seat is a slotted sleeve on its top half and includes a metal core in the bottom half which provides a great resistance to demanding working conditions and pressures



## HANDWHEEL NON-RISING STEM

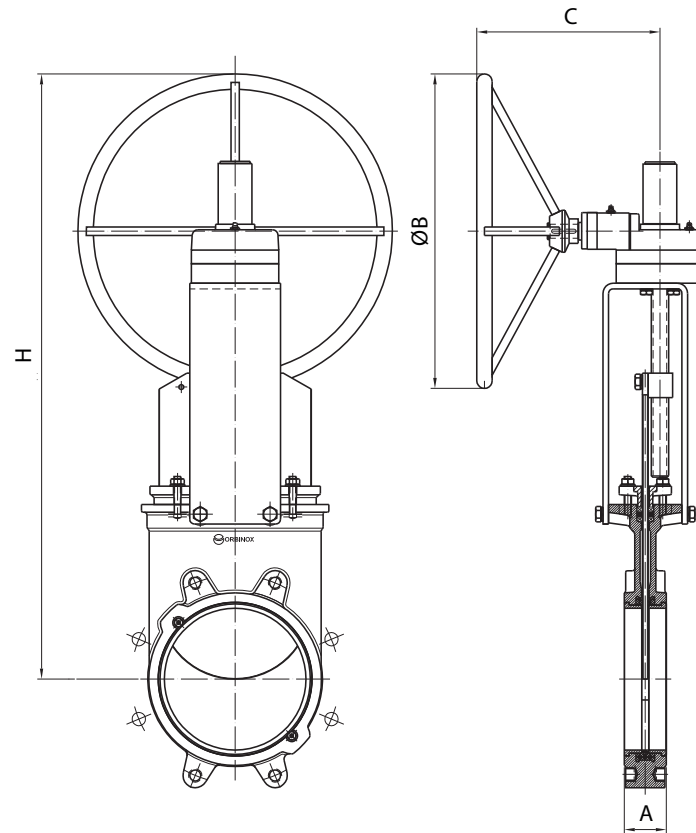
Standard manual actuator, available from DN 50 to DN 600 and recommended with gearbox from DN 350 and above



DN	A	ØB	H
50	45	225	312
80	50	225	364
100	50	225	407
125	50	225	454
150	60	225	505
200	60	310	640
250	70	310	753
300	70	310	855
350	96	410	955
400	100	410	1055
450	106	550	1151
500	110	550	1264
600	110	550	1459

## GEAR NON RISING STEM

Manual actuator recommended for valves larger than DN 150. Available both for rising stem and non-rising stem configurations and with different reduction ratios

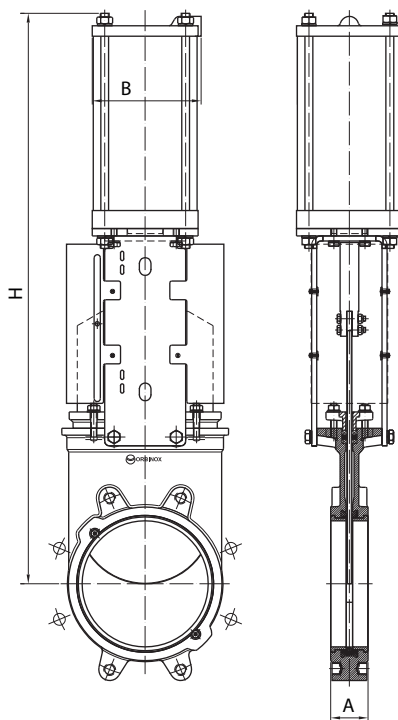


DN	A	ØB	H	C
200	60	300	775	200
250	70	300	888	200
300	70	300	990	200
350	96	450	1138	262
400	100	450	1238	262
450	106	450	1334	262
500	110	450	1447	262
600	110	450	1645	262

## PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 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



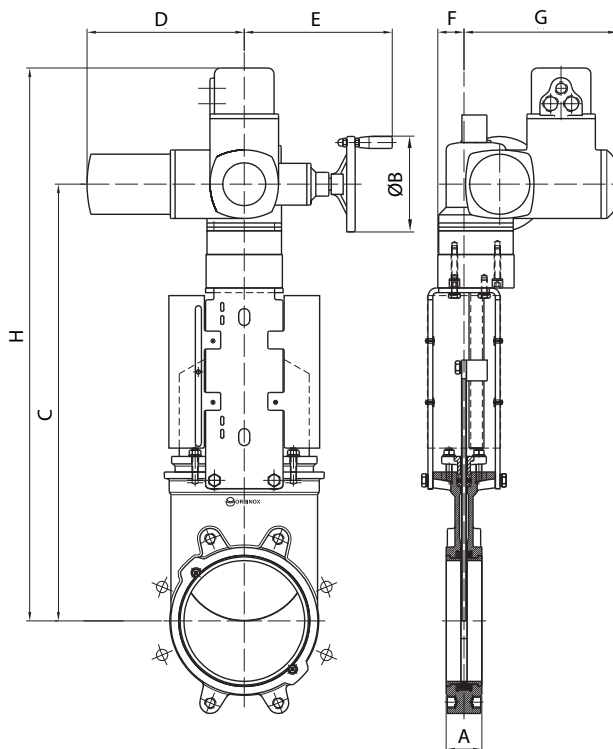
DN	A	B	H	Connect.
50	45	115	412	1/4 "G
80	50	115	497	1/4 "G
100	50	115	560	1/4 "G
125	50	140	647	1/4 "G
150	60	140	723	1/4 "G
200	60	175	917	1/4 "G
250	70	220	1100	3/8" G
300	70	220	1252	3/8" G
350	96	277	1397	3/8" G
400	100	277	1547	3/8" G
450	106	382	1722	1/2" G
500	110	382	1885	1/2" G
600	110	382	2180	1/2" G

## ELECTRIC ACTUATOR NON RISING STEM

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from DN 50 to DN 600, 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

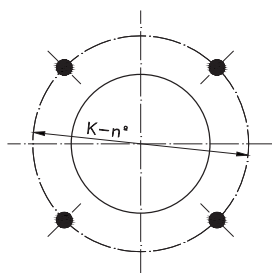


DN	A	C	ØB	H	D	E	F	G
50	45	370	160	545	265	249	72	238
80	50	422	160	597	265	249	72	238
100	50	465	160	640	265	249	72	238
125	50	512	160	687	265	249	72	238
150	60	563	160	738	265	249	72	238
200	60	726	160	901	265	249	82	238
250	70	809	160	984	265	249	82	238
300	70	911	160	1086	265	249	82	238
350	96	948	200	1123	283	254	128	248
400	100	1048	200	1223	283	254	128	248
450	106	1144	200	1319	283	254	130	248
500	110	1257	200	1432	283	254	130	248
600	110	1587	315	1772	389	336	130	286

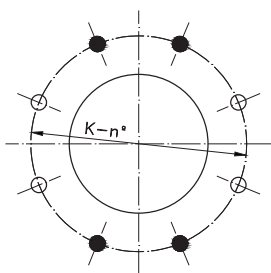


## FLANGE AND BOLTING DETAILS EN-1092 PN10

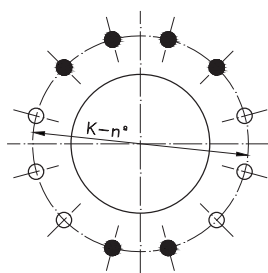
DN	K	n°	M	T	  
50	125	4	M-16	11	4 - 0 - 0
80	160	8	M-16	11	4 - 4 - 0
100	180	8	M-16	11	4 - 4 - 0
125	210	8	M-16	11	4 - 4 - 0
150	240	8	M-20	14	4 - 4 - 0
200	295	8	M-20	14	4 - 4 - 0
250	350	12	M-20	14	6 - 6 - 0
300	400	12	M-20	18	6 - 6 - 0
350	460	16	M-20	22	6 - 6 - 4
400	515	16	M-24	25	6 - 6 - 4
450	565	20	M-24	25	8 - 6 - 6
500	620	20	M-24	25	8 - 6 - 6
600	725	20	M-27	25	8 - 6 - 6



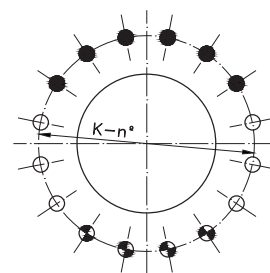
DN 50



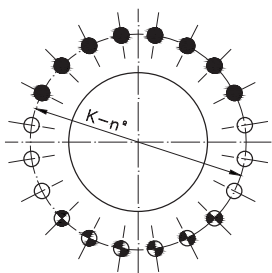
DN 80-200



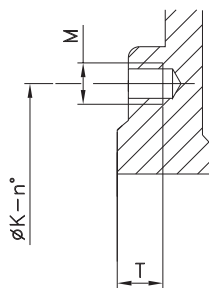
DN 250-300






DN 350-400



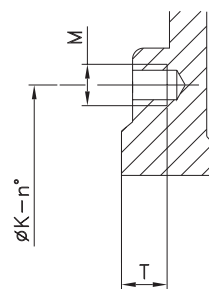
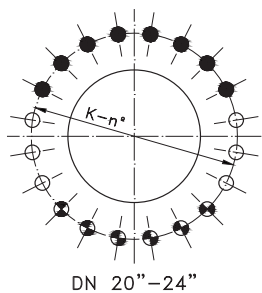
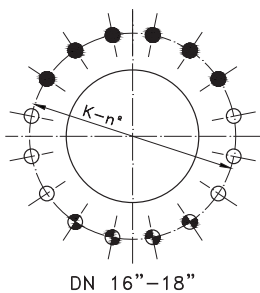
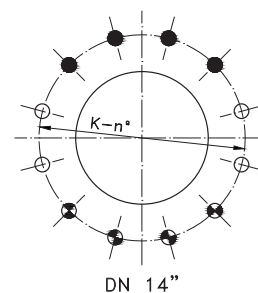
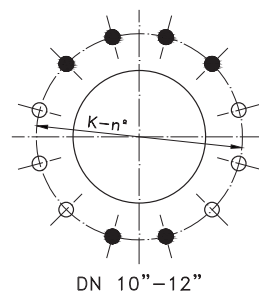
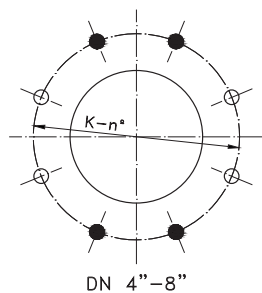
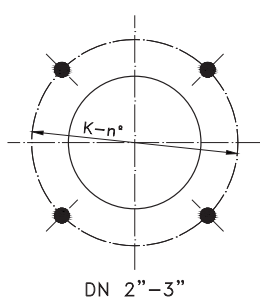
DN 450-600



-  BLIND TAPPED HOLES
-  TAPPED THROUGH
-  THROUGHGOING BOLTS

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

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



- BLIND TAPPED HOLES
- TAPPED THROUGH
- THROUGHGOING BOLTS