MODEL BR

ORBINOX
VALVE SOLUTIONS IN MORE THAN 70 COUNTRIES

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 50mm to DN 600mm (larger diameters on request)

Working pressure:

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

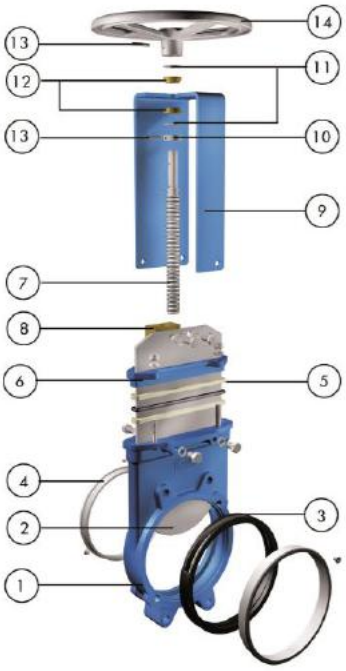
Standard flange connection:

DIN PN 10 and ANSI B16.5 (class 150)
Other flange connections available on request

Directives:

2006/42/EC (MACHINES)
2014/68/EU (PED) Fluid: Group 1(b), 2 (Cat. I. mod. A)
2014/34/EU (ATEX)

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



STANDARD PARTS LIST

Part:	Ductile Iron
1- Body	EN GJS 400 (GGG40)
2- Gate	AISI 304
3- Sleeve	EPDM
4- Seat ring	AISI 304
5- Packing	PTFE Impreg. Synth. Fibre + 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 (1.4301)
11- Friction washer	PET+ solid lubricant
12- Guide bush	Bronze
13- Spring pin	AISI 420 (1.4021) (ISO 8752)
14- Handwheel	DN≤310: Aluminium (AlSi12); DN≥410 GJS400

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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.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit to allow for 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 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.

OTHER MATERIALS:

On request, the body and the gate can be supplied in other materials.

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ACTUATOR TYPES

MANUAL:
Handwheel (non-rising stem)
Handwheel (rising stem)
Chainwheel
Lever
Bevel Gear
Others (square nut…)

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

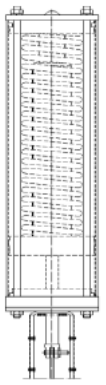
All actuators supplied by ORBINOX are interchangeable

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

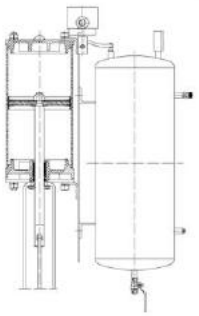
SINGLE ACTING / SPRING RETURN

- Available from DN 50mm/2" to DN 300mm/12"
- 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

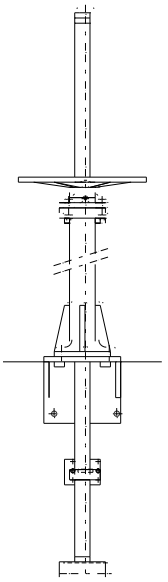
- Available for all valve sizes
- Supply pressure: min. 3.5 bar - max. 10 bar
- Options:
  - Pneumatic or electric fail open
  - Pneumatic or electric fail close
  - Other options on request



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 chapter

For more detailed information, please contact our Technical Department

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TEMPERATURE CHART

SEAT / SEALS

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 upon request

PACKING

Material	Max.T.(°C)	pH
Dry cotton (AS)	50	6 - 8
PTFE impregn. synth. fibre (ST)	240	2 - 13
Braided PTFE (TH)	260	0 - 14
Graphited (GR)	600	0 - 14
Ceramic fibre (FC)	1200	---

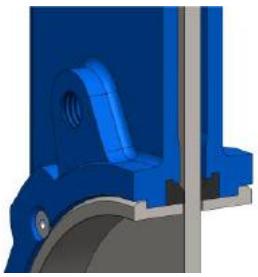
NOTE: all types include an elastomere O-ring (same material as seal), excluding TH, GR and FC

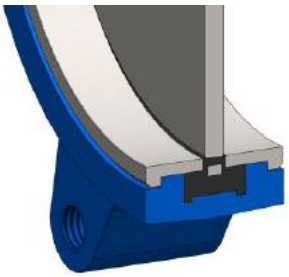
SEAT TYPES

Resilient seat:

The new seat (patent pending) 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. The seat is held by means of two stainless steel rings. This design provides watertightness in both directions while avoiding any buildup of solids that could prevent the valve from closing. The seat can be supplied in different resilient material qualities







ATEX

Please contact our ORBINOX representative for info and availability. Some considerations:

- Hand operated BR valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive. Therefore hand operated valves are suitable for ALL ATEX zones
- Electrical, pneumatical and hydraulically operated valves must be subjected to a conformity assessment of their own and also of the whole unit valve-actuator to get EC Type Approval to Directive 2014/34.

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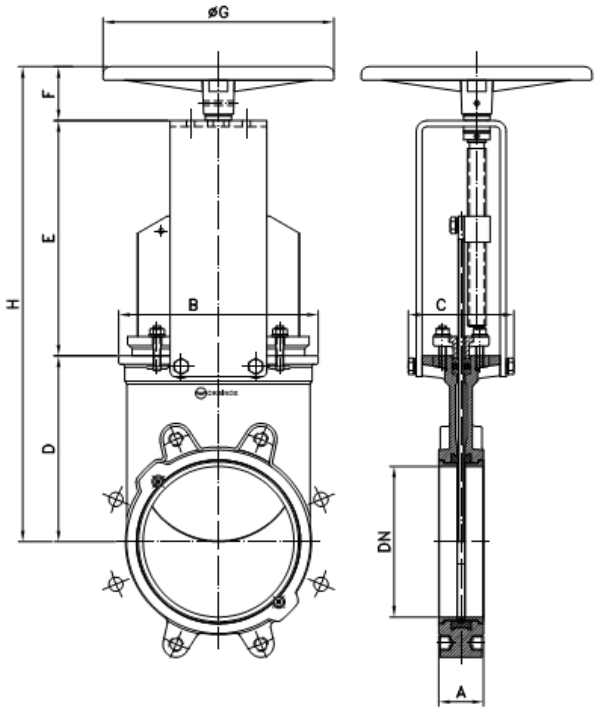
HANDWHEEL (non-rising stem)

- Standard manual actuator

- Consists of:
  - Handwheel
    - DN 50-300: Aluminum
    - DN ≥ 350: EN GJS 400 (GGG40)
  - Stem
  - Stem nut
  - Yoke

- Available from DN 50 to DN 600

- Options (on request):
  - Locking Device
  - Extensions
  - Square Nut Drive
  - Chainwheel



DN (mm)	A	B	C	D	E	F	øG	H
50	45	124	125	105	144	63	225	312
80	50	149	125	124	177	63	225	364
100	50	169	125	142	202	63	225	407
125	50	190	125	165	226	63	225	454
150	60	217	125	190	252	63	225	505
200	60	268	142	250	317	73	310	640
250	70	356	142	308	372	73	310	753
300	70	396	142	360	422	73	310	855
350	96	429	197	348	509	98	410	955
400	100	472	197	398	559	98	410	1055
450	106	527	270	442	611	98	550	1151
500	110	592	270	495	671	98	550	1264
600	110	695	270	590	771	98	550	1459

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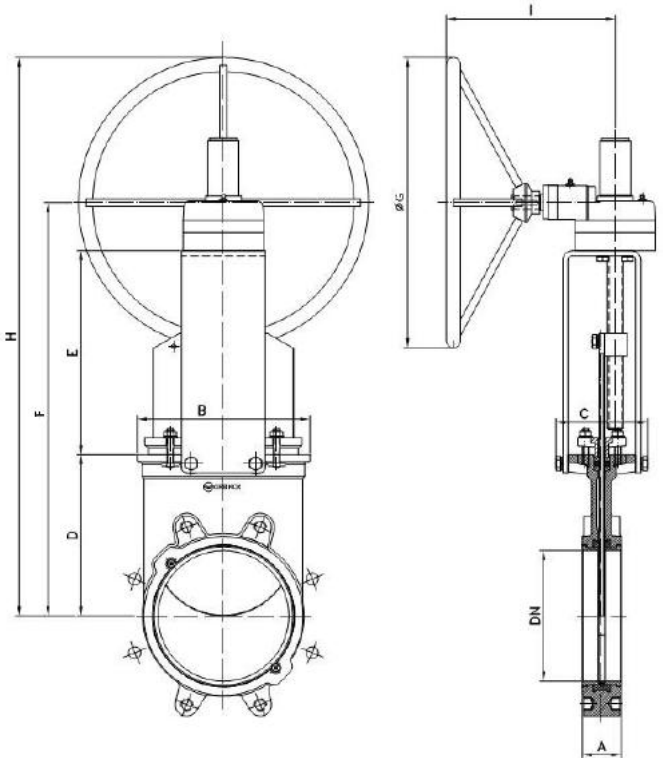
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GEAR (non-rising stem)

- Gearbox is optional above DN 150mm

- Consists of:
  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)

- Options:
  - Chainwheel
  - Locking Device
  - Extensions



DN (mm)	A	B	C	D	E	F	ØG	H	I
200	60	268	142	250	305	625	300	775	200
250	70	356	142	308	360	738	300	888	200
300	70	396	142	360	410	840	300	990	200
350	96	429	197	348	490	913	450	1138	262
400	100	472	197	398	540	1013	450	1238	262
450	106	527	270	442	592	1109	450	1334	262
500	110	592	270	495	652	1222	450	1447	262
600	110	695	270	590	755	1420	450	1645	262

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PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - Ø≤300: Aluminum barrels
  - Ø≥350: Composite barrels
  - Aluminum end covers
  - Stainless Steel (AISI 304) piston rod
  - Nitrile coated steel piston

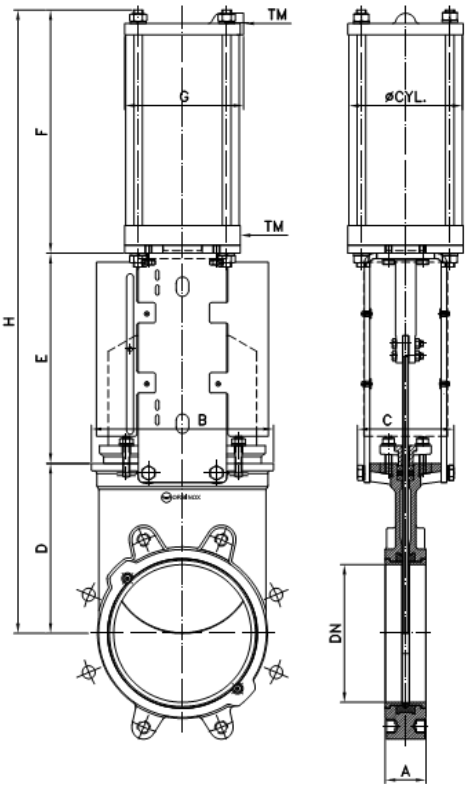
- Available from DN 50 to DN 600

- Supply Pressure: min. 3.5 bar - max. 10 bar. Actuator designed with 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 systems
  - Travel stops

- Instrumentation (on request):
  - Positioners
  - Solenoid valves
  - Flow regulators
  - Air preparation units



DN (mm)	A	B	C	D	E	F	G	H	Standard Cyl	Connect.
50	45	124	125	105	129	178	115	412	C100-62	¼" G
80	50	149	125	124	162	211	115	497	C100-95	¼" G
100	50	169	125	142	187	231	115	560	C100-115	¼" G
125	50	190	125	165	211	271	140	647	C125-143	¼" G
150	60	217	125	190	237	296	140	723	C125-168	¼" G
200	60	268	142	250	309	358	175	917	C160-220	¼" G
250	70	356	142	308	364	428	220	1100	C200-270	3/8" G
300	70	396	142	360	414	478	220	1252	C200-320	3/8" G
350	96	429	197	348	500	549	277	1397	C250-375	3/8" G
400	100	472	197	398	550	599	277	1547	C250-425	3/8" G
450	106	527	270	442	600	680	382	1722	C300-475	½" G
500	110	592	270	495	660	730	382	1885	C300-525	½" G
600	110	695	270	590	760	830	382	2180	C300-625	½" G

Reserves the right to change specifications without notice

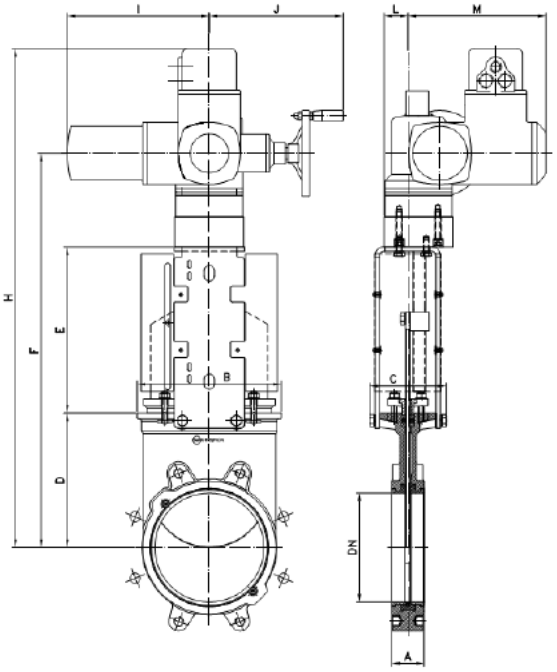
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ELECTRIC ACTUATOR (non-rising stem)

- 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 50 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(mm)	A	B	C	D	E	F	ØG	H	I	J	L	M	StemØxpitch	Torque (Nm)
50	45	124	125	105	132	370	160	545	265	249	72	238	20 x 3	10
80	50	149	125	124	165	422	160	597	265	249	72	238	20 x 3	10
100	50	169	125	142	190	465	160	640	265	249	72	238	20 x 3	10
125	50	190	125	165	214	512	160	687	265	249	72	238	20 x 3	15
150	60	217	125	190	240	563	160	738	265	249	72	238	20 x 3	20
200	60	268	142	250	335	726	160	901	265	249	82	238	25 x 4	30
250	70	356	142	308	360	809	160	984	265	249	82	238	25 x 4	45
300	70	396	142	360	410	911	160	1086	265	249	82	238	25 x 4	40
350	96	429	197	348	487	948	200	1123	283	254	128	248	35 x 6	70
400	100	472	197	398	537	1048	200	1223	283	254	128	248	35 x 6	90
450	106	527	270	442	589	1144	200	1319	283	254	130	248	35 x 6	110
500	110	592	270	495	649	1257	200	1432	283	254	130	248	35 x 6	95
600	110	695	270	590	813	1587	315	1772	389	336	130	286	35 x 6	140

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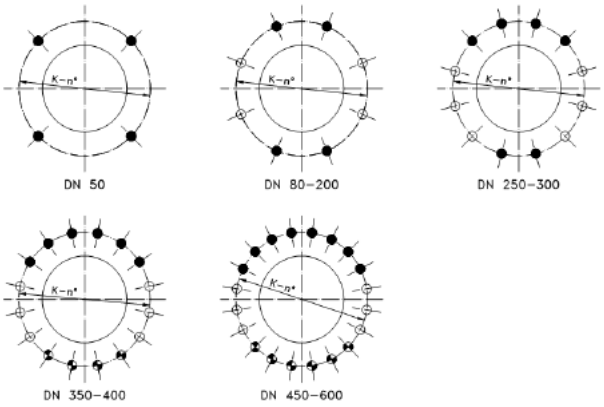
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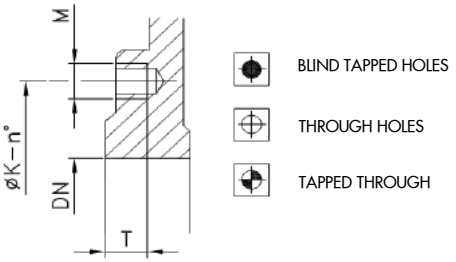
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FLANGE AND BOLTING DETAILS

EN 1092-2 PN10

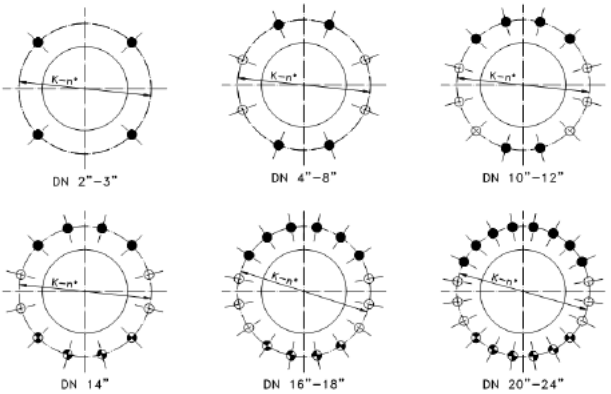
DN	K	nº	M	T	⌖ ⊕ ⌖
50	125	4	M-16	11	4 - 0 - 0
80	160	8	M-16	11	4 - 4 - 0
100	180	8	M-16	11	4 - 4 - 0
125	210	8	M-16	11	4 - 4 - 0
150	240	8	M-20	14	4 - 4 - 0
200	295	8	M-20	14	4 - 4 - 0
250	350	12	M-20	14	6 - 6 - 0
300	400	12	M-20	18	6 - 6 - 0
350	460	16	M-20	22	6 - 6 - 4
400	515	16	M-24	25	6 - 6 - 4
450	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





ANSI B16.5, class 150

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



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FLUID CONTROL