Model **BC**

SQUARE PORT KNIFE GATE VALVE

The BC model knife gate is a fabricated square or rectangular port low-pressure valve for highly solid loaded fluids or solids, mainly used in bulk handling and silo outlet applications in industries such as:

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

Sizes

From 150 x 150 to 600 x 600
other dimensions on request

Working pressure and temperatures

Fabricated valves
From 150 x 150 to 600 x 600: 1 bar

For specific tightness requirements contact ORBINOX technical department

Carbon Steel: -10°C / 80°C
AISI 316: -20°C / 80°C

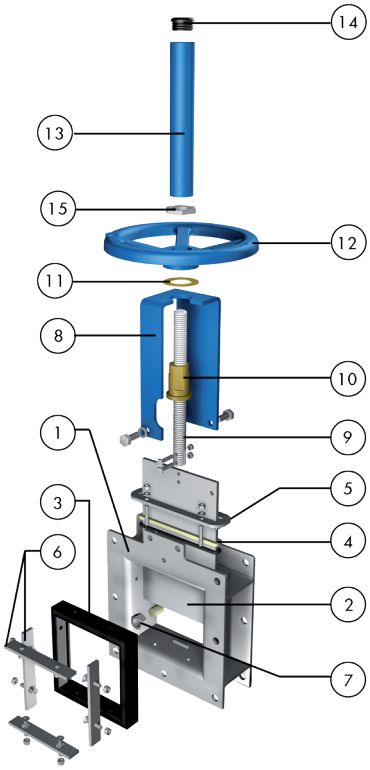
Standard flange connection

Please refer to the table on page BC-7
Other flange connections available on request

Directives

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

STANDARD PARTS LIST



Part		Material
1	Body	Carbon Steel / AISI 316[1]
2	Gate	AISI 304 / AISI 316[1]
3	Seat	Metal/Metal or EPDM
4	Packing	ST
5	Gland follower	Carbon Steel / AISI 316[1]
6	Seal retainer plate	Carbon Steel / AISI 316[1]
7	Slider support	Carbon Steel or AISI-316 + Nylon or PTFE
8	Yoke	Epoxy-coated Carbon Steel
9	Stem	Stainless Steel
10	Stem nut	Brass
11	Friction washer	Brass
12	Handwheel	EN-GJS400
13	Stem protector	Epoxy-coated Carbon Steel
14	Cap	Plastic
15	Nut	Zinc Plated Carbon Steel

[1] Stainless steel configuration

DESIGN FEATURES

Body
Fabricated design. Internal gate wedges and guides for tighter shut off. Square or rectangular port design for higher flow capacity and minimal pressure drop. Internal design avoids any build up of solids that would prevent valve from closing

Gate
Stainless steel gate as standard. Gate is polished on both sides to avoid jamming and seat damage

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

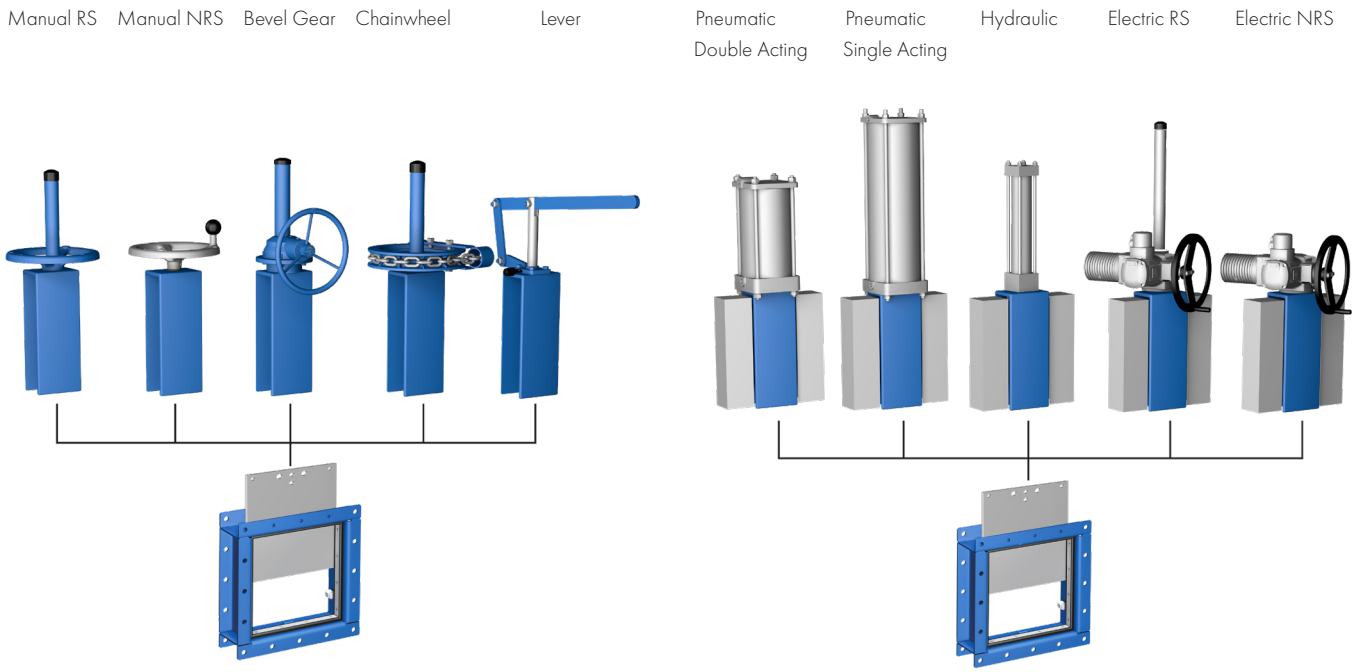
Stem
The standard stainless steel stem offers a long corrosion resistant life. For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust whilst the valve is in the open position

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 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 trapped 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

Bonnet (Fig. 1)
Assures tight sealing to atmosphere. Reduces packing maintenance

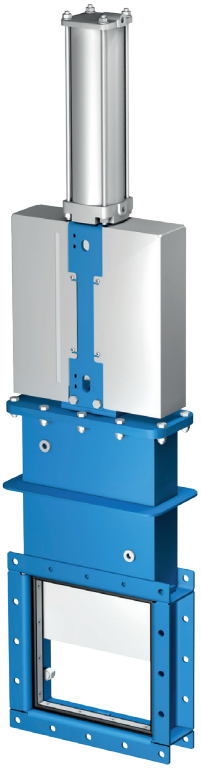


Fig.1

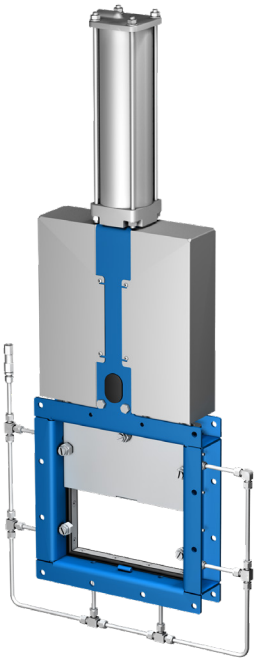


Fig.2

Fig.3

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

Flush ports (Fig. 2)
Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. Depending on the process, purging can be made with air, steam, liquids, etc.

Mechanical stops
Mechanical stops can be added to limit stem travel at a certain stroke position

Actuator manual override (Fig. 3)
Pneumatic and electric actuators can be equipped with manual overraide handwheels to manually operate the actuators in emergency situations or for maintenance operations

Accessories for pneumatic valve automation
Limit and proximity switches, solenoid valves, positioners, flow regulations, air filter units, silencers, junction boxes

SEAT/SEAL TYPES

Material	Max.T. (°C)	Applications
Metal/Metal	>250	High temp./Low tightness
EPDM (E)	120	Acids and non mineral oils.
NBR (N)	120	Resistance to petroleum products.
FKM-FPM (V)	200	Chemical service / High temp.
VMQ (S)	250	Food service / High temp.
PTFE (T)	250	Corrosion resistance

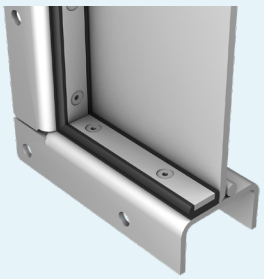
More details and other materials under request

PACKING TYPES

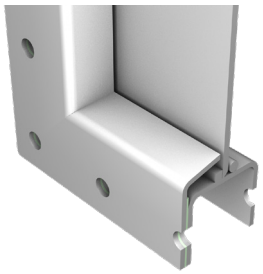
Material	Max.T. (°C)	pH
PTFE impregn. synth. fibre (ST)	250	2-13
Braided PTFE (TH)	260	0-14
Graphited (GR)	600	0-14
Ceramic fibre (FC)	1200	- - -

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

SEAT/SEAL TYPES

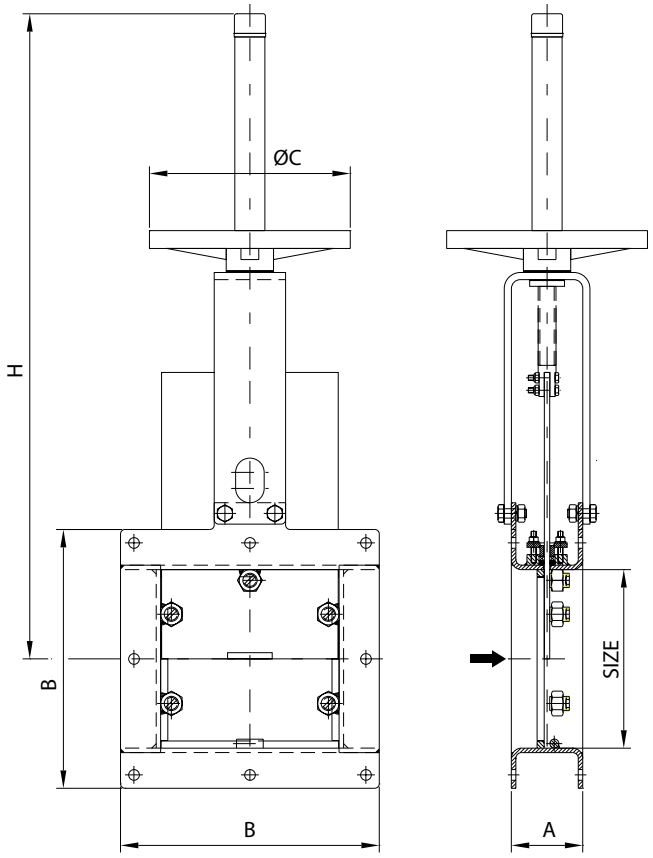
Type	Features	
Metal / Metal	-High temperature applications -High density media applications	
Resilient	- Temperature limitations according to seat material selected. Review the temperature chart or contact our technical department for more information - Replaceable seal retainer plates	

OTHER SEAT FEATURES

Type	Features	
Deflection cone C	- Used to protect valve seats and internals from wear deflecting the media away from them - Material: carbon steel, AISI 316, etc. - Face-to-face dimension increases	

HANDWHEEL RISING STEM

Standard manual actuator available from DN 150 x 150 to DN 600 x 600

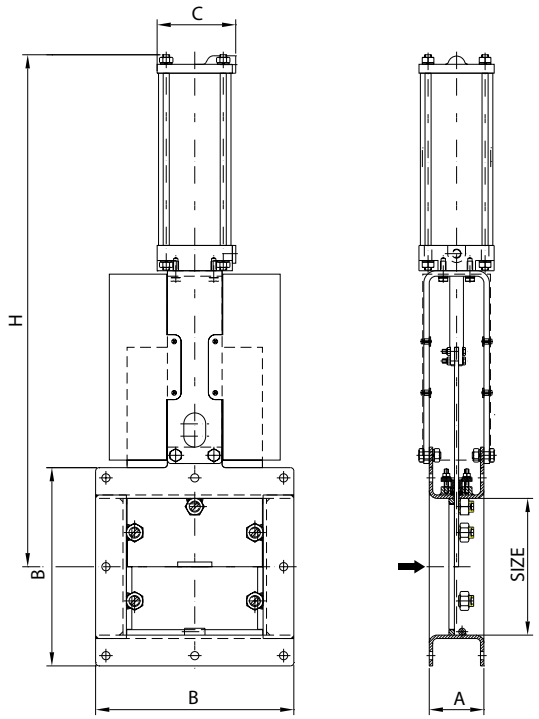


SIZE	A	B	ØC	H	Weight (Kg)
150 x 150	80	240	225	580	23
200 x 200	80	290	310	740	27
250 x 250	80	340	310	915	32
300 x 300	80	390	310	990	38
350 x 350	100	450	410	1165	58
400 x 400	100	500	410	1240	66
450 x 450	100	550	410	1390	75
500 x 500	100	600	410	1575	85
600 x 600	100	700	410	1725	110

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from 150 x 150 to 600 x 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

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

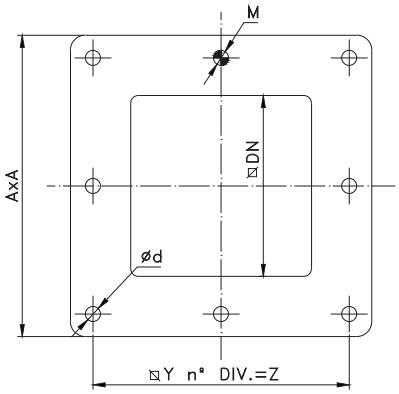


SIZE	A	B	C	H	Connect.	Weight (Kg)
150 x 150	80	240	115	605	1/4" G	25
200 x 200	80	290	115	750	1/4" G	30
250 x 250	80	340	115	875	1/4" G	35
300 x 300	80	390	115	1000	1/4" G	42
350 x 350	100	450	140	1154	1/4" G	63
400 x 400	100	500	140	1279	1/4" G	72
450 x 450	100	550	140	1404	1/4" G	80
500 x 500	100	600	175	1544	1/4" G	98
600 x 600	100	700	175	1794	1/4" G	125

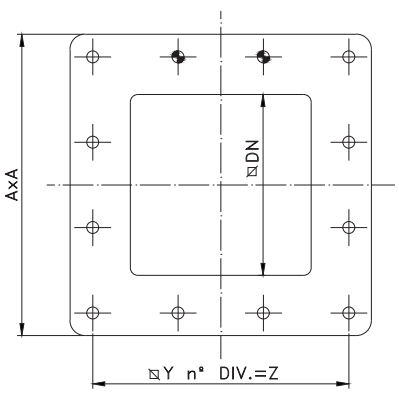
FLANGE AND BOLTING DETAILS

DN	A x A	nº divis. to Y =Z	M	d	T	⌖ ⌖
150 x 150	240 x 240	2 div.to 105=210	M-10	12	10	7 - 1
200 x 200	290 x 290	2 div.to 130=260	M-10	12	10	7 - 1
250 x 250	340 x 340	2 div.to 155=310	M-10	12	10	7 - 1
300 x 300	390 x 390	3 div.to 120=360	M-10	12	10	10 - 2
350 x 350	450 x 450	3 div.to 140=420	M-12	14	10	10 - 2
400 x 400	500 x 500	4 div.to 117,5=470	M-12	14	10	13 - 3
450 x 450	550 x 550	4 div.to 130=520	M-12	14	10	13 - 3
500 x 500	600 x 600	4 div.to 142,5=570	M-12	14	10	13 - 3
600 x 600	700 x 700	4 div.to 167,5=670	M-12	14	10	13 - 3

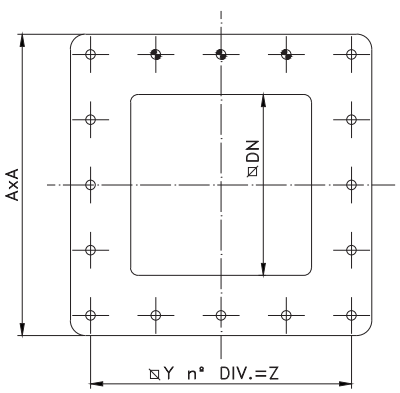
150X150 - 250X250

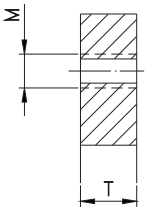


300X300 - 350X350



400X400 - 600X600





⌖ THROUGHGOING BOLTS

⌖ TAPPED THROUGH