

Model Ser.90 (BC)

SQUARE PORT KNIFE GATE VALVE

The Series 90 (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 6in x 6in (150mm x 150mm) to 24in x 24in (600mm x 600mm)
other dimensions on request

Working pressure and temperatures

Fabricated valves
6in x 6in (150mm x 150mm) to 24in x 24in (600mm x 600mm): 15psi (1 bar)

For specific tightness requirements contact ORBINOX technical department

Carbon Steel: 14°F (-10°C) / 176°F (80°C)
AISI 316: -4°F (-20°C) / 176°F (80°)

Standard flange connection

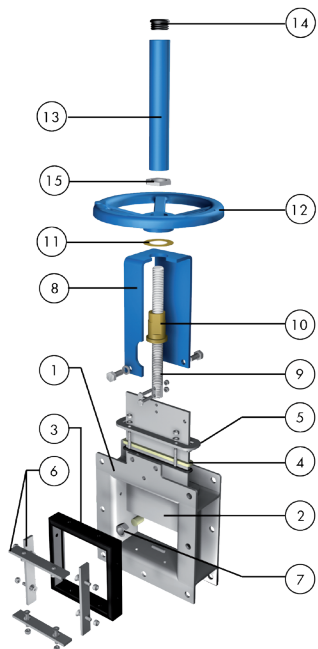
Please refer to the table on page BC-7
Other flange connections available on request

Directives

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



STANDARD PARTS LIST



Part	Cast Iron
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

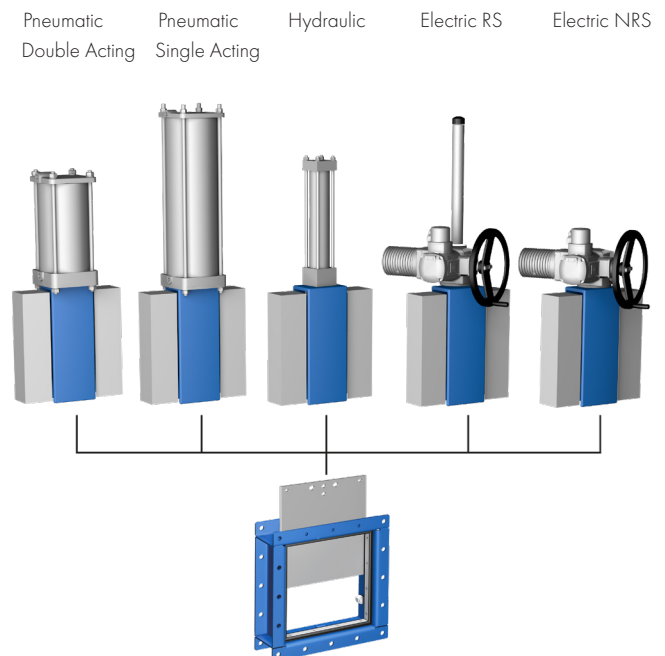
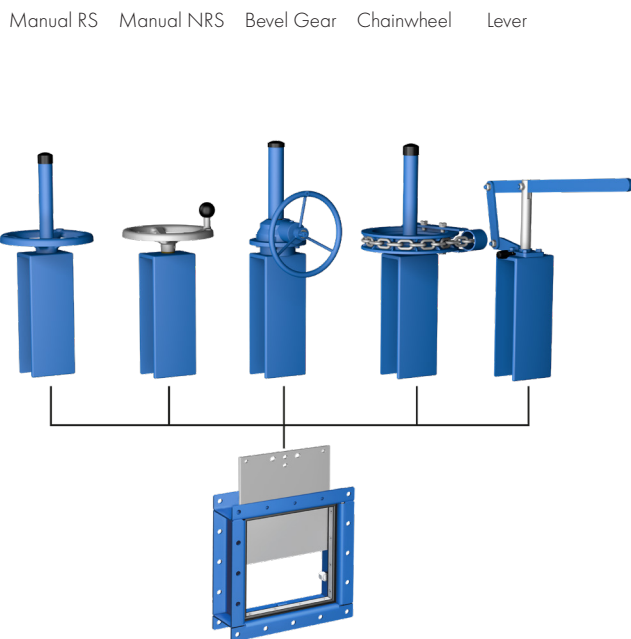
The Epoxy coating on all ORBINOX cast iron and carbon steel valve bodies and components is electrostatically applied making the valves to be corrosion resistant with a high quality finished surface. The ORBINOX standard colour is RAL-5015 blue

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. *ONLY IN EUROPE

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

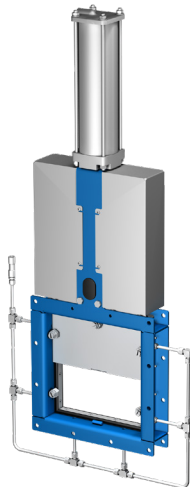


Fig.2

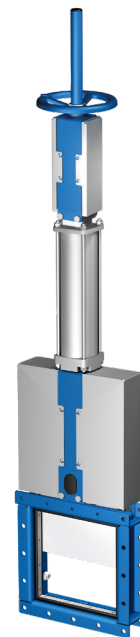


Fig.3

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 override 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. (°F)	Max.T. (°C)	Applications
Metal/Metal	>482	>250	High temp./Low tightness
EPDM (E)	248	120	Acids and non mineral oils.
NBR (N)	248	120	Resistance to petroleum products.
FKM-FPM (V)	392	200	Chemical service / High temp.
VMQ (S)	482	250	Food service / High temp.
PTFE (T)	482	250	Corrosion resistance


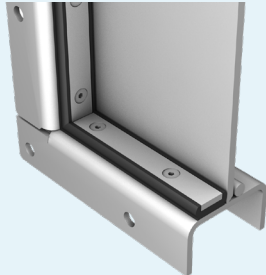
More details and other materials under request

PACKING TYPES

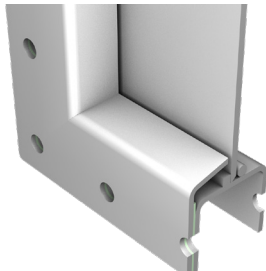
Material	Max.T. (°F)	Max.T. (°C)	pH
PTFE impregn. synth. fibre (ST)	482	250	2-13
Braided PTFE (TH)	500	260	0-14
Graphited (GR)	1112	600	0-14
Ceramic fibre (FC)	2192	1200	- - -

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

SEAT/SEAL TYPES

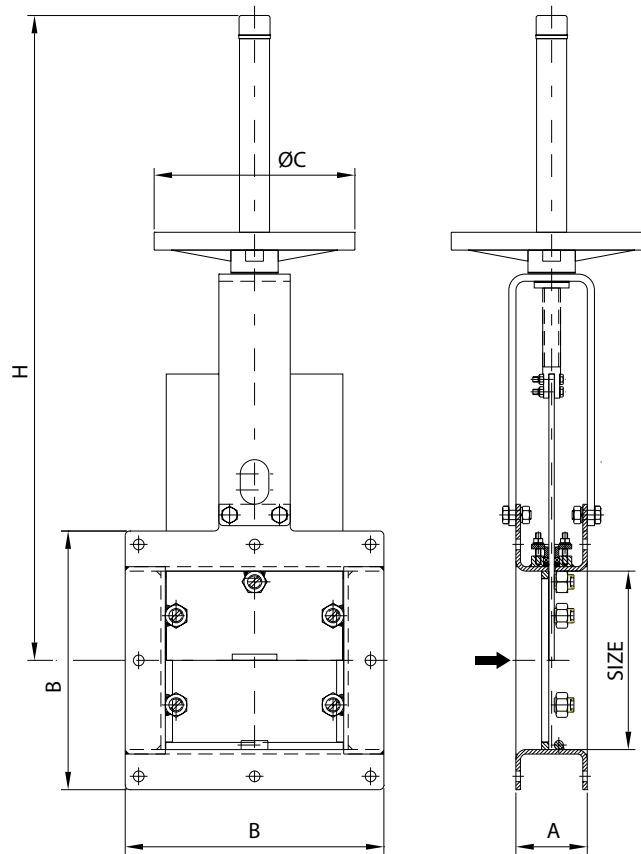
Type	Features	
Metal / Metal	<ul style="list-style-type: none"> -High temperature applications -High density media applications 	
Resilient	<ul style="list-style-type: none"> - Temperature limitations according to seat material selected. Review the temperature chart or contact our technical department for more information - Replaceable seal retainer plates 	

OTHER SEAT FEATURES

Type	Features	
Deflection cone C	<ul style="list-style-type: none"> - 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 6inx6in(150 x 150mm) to 24inx24in(600 x 600mm)

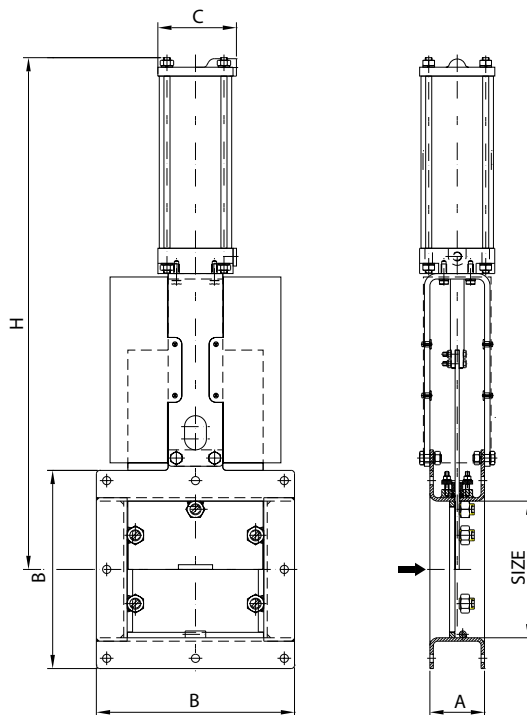


SIZE	A	B	ØC	H	Weight (lbs./kg.)
6"x6"/150x150	3,14/80	9,44/240	8,86/225	22,83/580	51/23
8"x8"/200x200	3,14/80	11,42/290	12,20/310	29,13/740	60/27
10"x10"/250x250	3,14/80	13,38/340	12,20/310	36,02/915	71/32
12"x12"/300x300	3,14/80	15,35/390	12,20/310	38,97/990	84/38
14"x14"/350x350	4/100	17,72/450	16,14/410	45,87/1165	128/58
16"x16"/400x400	4/100	19,68/500	16,14/410	48,82/1240	146/66
18"x18"/450x450	4/100	21,65/550	16,14/410	54,72/1390	166/75
20"x20"/500x500	4/100	23,62/600	16,14/410	62,00/1575	188/85
24"x24"/600x600	4/100	27,55/700	16,14/410	67,91/1725	243/110

PNEUMATIC CYLINDER



With a double-acting pneumatic cylinder as standard, it is available in sizes from 6inx6in(150 x 150mm) bis 24inx24in(600 x 600mm). 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 85psi/(6 bar) air supply, see ORBINOX Pneumatic Cylinder Catalogue for more information.

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



SIZE	A	B	C	H	Connect.	Weight (lbs./kg.)
6"x6"/150x150	3,14/80	9,44/240	4,52/115	23,81/605	1/4" G	55/25
8"x8"/200x200	3,14/80	11,42/290	4,52/115	29,52/750	1/4" G	66/30
10"x10"/250x250	3,14/80	13,38/340	4,52/115	34,44/875	1/4" G	77/35
12"x12"/300x300	3,14/80	15,35/390	4,52/115	39,37/1000	1/4" G	92/42
14"x14"/350x350	4/100	17,72/450	5,51/140	45,43/1154	1/4" G	138/63
16"x16"/400x400	4/100	19,68/500	5,51/140	50,35/1279	1/4" G	158/72
18"x18"/450x450	4/100	21,65/550	5,51/140	55,27/1404	1/4" G	176/80
20"x20"/500x500	4/100	23,62/600	6,89/175	60,78/1544	1/4" G	216/98
24"x24"/600x600	4/100	27,55/700	6,89/175	70,62/1794	1/4" G	275/125

FLANGE AND BOLTING DETAILS

DN	A x A	n° 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

