

MODEL**BC****SERIES 90**

SQUARE PORT KNIFE GATE VALVE

The BC (SER.90) 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 6"x6"(150 x 150mm) to 24"x24"(600 x 600mm)
(other dimensions on request)

Working pressure:

Fabricated valves:

6"x6"(150 x 150mm) to 24"x24"(600 x 600mm): 15psi (1 kg/cm²)

Cast bodies available for higher pressure

For specific tightness requirements contact ORBINOX technical department

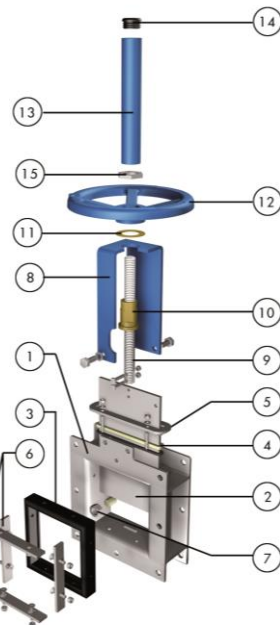
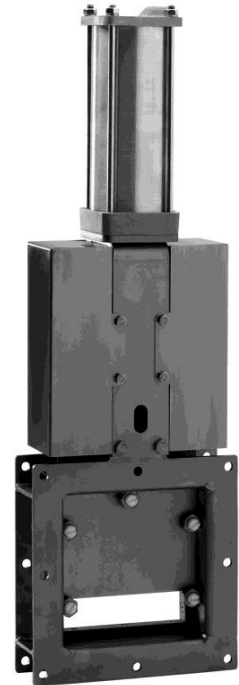
Standard flange connection:

Please refer to the table on page BC-8

Other flange connections available on request

Directives:

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



STANDARD PARTS LIST

| Part: | Material: | |
|------------------------|--|----------|
| 1- Body | Carbon Steel | AISI 316 |
| 2- Gate | AISI 304 | AISI 316 |
| 3- Seat | Metal or EPDM | |
| 4- Packing | ST | |
| 5- Gland Follower | Carbon Steel | AISI 316 |
| 6- Seal retainer plate | Carbon Steel | AISI 316 |
| 7- Slider support | Carbon Steel or AISI-316 + Nylon or PTFE | |
| 8- Yoke | Carbon Steel - Epoxy coated | |
| 9- Stem | Stainless Steel | |
| 10- Stem nut | Brass | |
| 11- Friction washer | Brass | |
| 12- Handwheel | GJS400 (GGG40) | |
| 13- Stem protector | Epoxy-coated Carbon Steel | |
| 14- Cap | Plastic | |
| 15- Nut | Zinc plated Carbon Steel | |

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



Reserves the right to change specifications without notice

ORBINOX CANADA, ORBINOX USA, ORBINOX BRAZIL, ORBINOX CHILE, ORBINOX PERU, ORBINOX SPAIN, ORBINOX UK, ORBINOX FRANCE, ORBINOX GERMANY, ORBINOX INDIA, ORBINOX CHINA, ORBINOX S.E.A.

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Rev.7

BC (SER.90)_1

MODEL

BC

SERIES 90



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.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit for installation purposes 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 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



MODEL

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OTHER OPTIONS

FLUSH PORTS:

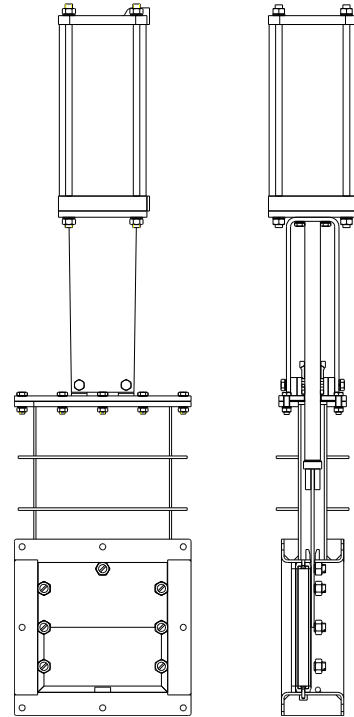
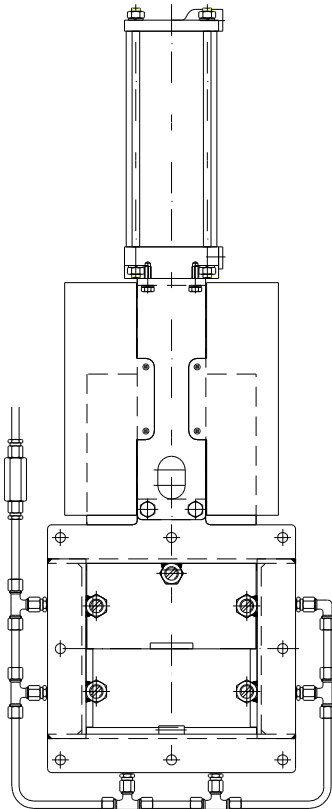
- Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing
- Purging can be made with air, steam, liquids, etc. depending on the process

SPECIAL DESIGNS:

- ORBINOX designs, produces and delivers special fabricated valves for special process conditions (big sizes, high pressures, material of construction, etc.)

CAST BODIES:

- Standard material: GG25 and CF8M. Special alloys such as 254SMO, Hastelloys, ... also available upon request



ACTUATOR TYPES

MANUAL:

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

AUTOMATIC:

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

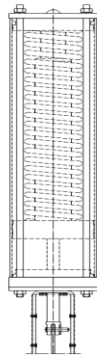
All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

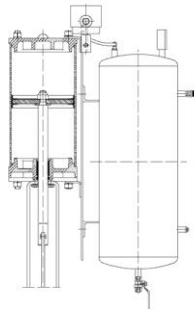
SINGLE ACTING (SPRING RETURN)

- Available from
DN 2"/50mm to DN 12"/300mm
- Supply pressure:
 - min. 75 psi/ (5 kg/cm²)
 - max. 150 psi/ (10 kg/cm²)
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



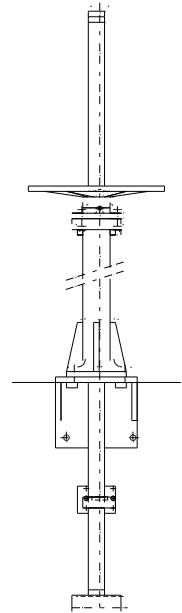
DOUBLE ACTING WITH AIR TANK

- Available for all valve sizes
- Supply pressure:
 - min. 50 psi / (3.5 kg/cm²)
 - max. 150 psi / (10 kg/cm²)
- 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(SER.10) catalog.

We recommend to contact our technical department

MODEL**BC****SERIES 90**

TEMPERATURE CHART

SEAT / SEALS

| Material | Max.T. (°F) | (°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 |

PACKING

| Material | Max.T. (°F) | (°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 | -- |

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

More details and other materials under request

SEAT TYPES



METAL / METAL

For applications with:

- High temperature
- High density media application



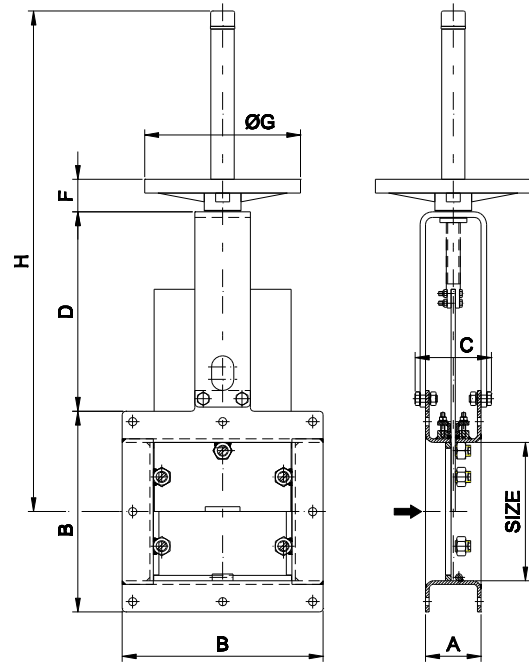
RESILIENT

• Temperature limitations according to seat material selected. Review the above chart or contact our technical department for more information

- Replaceable seal retainer plates

MODEL**BC****SERIES 90****HANDWHEEL (rising stem)**

- Standard manual actuator
- Consists of:
 - Handwheel: Epoxy coated Cast Iron
 - Yoke
 - Stem
 - Stem nut
 - Stem protector
- Available from 6"x6"(150 x 150mm) to 24"x24"(600 x 600mm)
- Options:
 - Locking Device
 - Extensions and floor stands



| SIZE | A | B | C | D | ØG | F | H | Weight (lbs./kg.) |
|-----------------|---------|-----------|----------|-----------|-----------|---------|------------|-------------------|
| 6"x6"/150x150 | 3,14/80 | 9,44/240 | 4,33/110 | 8,62/219 | 8,86/225 | 1,85/47 | 22,83/580 | 51/23 |
| 8"x8"/200x200 | 3,14/80 | 11,42/290 | 4,52/115 | 11,33/288 | 12,20/310 | 2,64/67 | 29,13/740 | 60/27 |
| 10"x10"/250x250 | 3,14/80 | 13,38/340 | 4,52/115 | 13,31/338 | 12,20/310 | 2,64/67 | 36,02/915 | 71/32 |
| 12"x12"/300x300 | 3,14/80 | 15,35/390 | 4,52/115 | 15,27/388 | 12,20/310 | 2,64/67 | 38,97/990 | 84/38 |
| 14"x14"/350x350 | 4/100 | 17,72/450 | 5,39/137 | 17,48/444 | 16,14/410 | 2,67/68 | 45,87/1165 | 128/58 |
| 16"x16"/400x400 | 4/100 | 19,68/500 | 5,39/137 | 19,44/494 | 16,14/410 | 2,67/68 | 48,82/1240 | 146/66 |
| 18"x18"/450x450 | 4/100 | 21,65/550 | 5,39/137 | 21,42/544 | 16,14/410 | 2,67/68 | 54,72/1390 | 166/75 |
| 20"x20"/500x500 | 4/100 | 23,62/600 | 5,39/137 | 23,38/594 | 16,14/410 | 2,67/68 | 62,00/1575 | 188/85 |
| 24"x24"/600x600 | 4/100 | 27,55/700 | 5,39/137 | 27,32/694 | 16,14/410 | 2,67/68 | 67,91/1725 | 243/110 |

PNEUMATIC CYLINDER

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

- $\varnothing \leq 12''/300\text{mm}$: Aluminum barrels
- $\varnothing \geq 14''/350\text{mm}$: Composite barrels
- Aluminum end covers
- Stainless steel (AISI 304) piston rod
- Nitrile coated steel piston

• Available from 6"x6"(150 x 150mm) to 24"x24"(600 x 600mm)

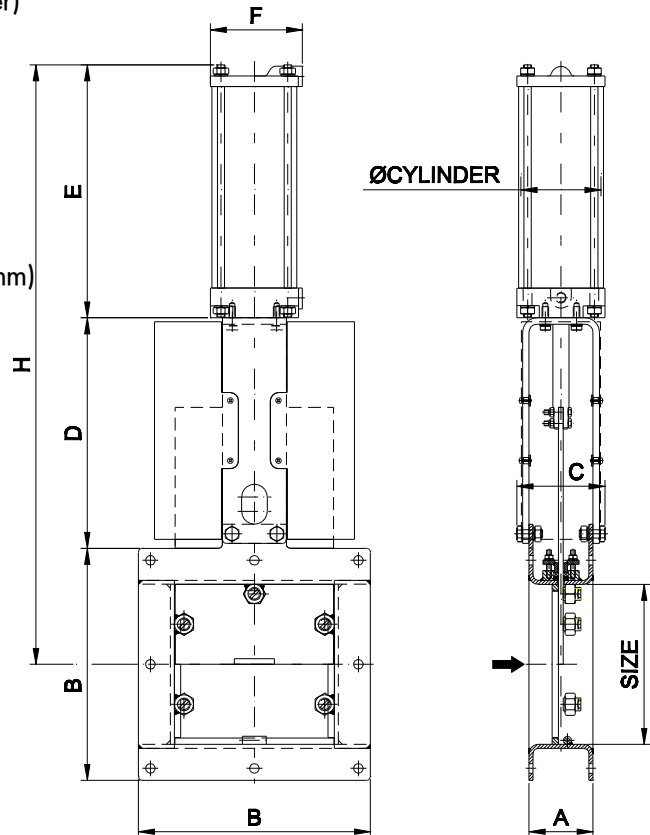
• Supply pressure: min. 50psi/(3,5 kg/cm²) - max. 150psi/(10 kg/cm²). Actuator designed with 90psi/(6 kg/cm²) air supply

• Options (on request):

- Hard anodized barrel and covers
- Stainless Steel barrel and covers
- Over/Undersized cylinder
- Manual override
- Fail safe systems
- Limit switches

• Instrumentation (on request):

- Positioners
- Solenoid valves
- Flow regulators
- Air preparation units



| SIZE | A | B | C | D | E | F | H | Weight (lbs./kg.) | Standard Cyl. | Connect. |
|-----------------|---------|-----------|----------|-----------|-----------|----------|------------|-------------------|---------------------|----------|
| 6"x6"/150x150 | 3,14/80 | 9,44/240 | 4,33/110 | 8,62/219 | 10,47/266 | 4,52/115 | 23,81/605 | 55/25 | C4"-6"/(100-150) | 1/4" G |
| 8"x8"/200x200 | 3,14/80 | 11,42/290 | 4,52/115 | 11,33/288 | 12,48/317 | 4,52/115 | 29,52/750 | 66/30 | C4"-8"/(100-200) | 1/4" G |
| 10"x10"/250x250 | 3,14/80 | 13,38/340 | 4,52/115 | 13,31/338 | 14,44/367 | 4,52/115 | 34,44/875 | 77/35 | C4"-10"/(100-250) | 1/4" G |
| 12"x12"/300x300 | 3,14/80 | 15,35/390 | 4,52/115 | 15,27/388 | 16,41/417 | 4,52/115 | 39,37/1000 | 92/42 | C4"-12"/(100-300) | 1/4" G |
| 14"x14"/350x350 | 4/100 | 17,72/450 | 5,39/137 | 17,48/444 | 19,09/485 | 5,51/140 | 45,43/1154 | 138/63 | C5"-14"/(125-355) | 1/4" G |
| 16"x16"/400x400 | 4/100 | 19,68/500 | 5,39/137 | 19,44/494 | 21,06/535 | 5,51/140 | 50,35/1279 | 158/72 | C5"-16"/(125-405) | 1/4" G |
| 18"x18"/450x450 | 4/100 | 21,65/550 | 5,39/137 | 21,42/544 | 23,03/585 | 5,51/140 | 55,27/1404 | 176/80 | C5"-18"/(125-455) | 1/4" G |
| 20"x20"/500x500 | 4/100 | 23,62/600 | 5,39/137 | 23,38/594 | 25,59/650 | 6,89/175 | 60,78/1544 | 216/98 | C6.5"-20"/(160-510) | 1/4" G |
| 24"x24"/600x600 | 4/100 | 27,55/700 | 5,39/137 | 27,32/694 | 29,52/750 | 6,89/175 | 70,62/1794 | 275/125 | C6.5"-24"/(160-610) | 1/4" G |

Note: for higher real working pressure (cast bodies), contact our technical department in order to properly oversize the actuator

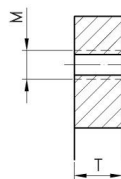
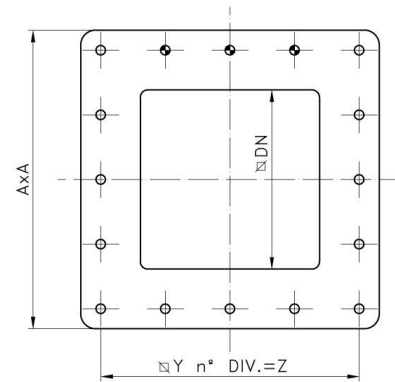
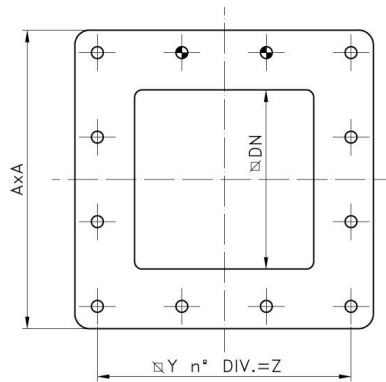
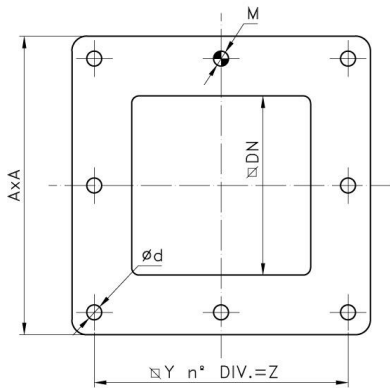
MODEL**BC****SERIES 90****FLANGE AND BOLTING DETAILS**

| DN(" /mm) | A x A (" /mm) | n° divis. to Y = Z | d | T | ⊕ ⊖ |
|------------------|----------------------|--|----------|----------|--------|
| 6"x6" /150x150 | 9,5" x9,5" /240X240 | 2 div.to to 4,15"(105mm)=8,30"(210mm) | 0,48"/12 | 0,39"/10 | 7 - 1 |
| 8"x8" /200x200 | 11,5"x11,5" /290X290 | 2 div.to to 5,15"(130mm)=10,25"(260mm) | 0,48"/12 | 0,39"/10 | 7 - 1 |
| 10"x10" /250x250 | 13,5"x13,5" /340X340 | 2 div.to to 6,10"(155mm)=12,20"(310mm) | 0,48"/12 | 0,39"/10 | 7 - 1 |
| 12"x12" /300x300 | 15,5"x15,5" /390X390 | 3 div.to to 4,80"(120mm)=14,20"(360mm) | 0,48"/12 | 0,39"/10 | 10 - 2 |
| 14"x14" /350x350 | 18"x18" /450X450 | 3 div.to to 5,52"(140mm)=16,55"(420mm) | 0,55"/14 | 0,39"/10 | 10 - 2 |
| 16"x16" /400x400 | 20"x20" /500X500 | 4 div.to to 4,65"(117,5mm)=18,50"(470mm) | 0,55"/14 | 0,39"/10 | 13 - 3 |
| 18"x18" /450x450 | 22"x22" /550X550 | 4 div.to to 5,12"(130mm)=20,50"(520mm) | 0,55"/14 | 0,39"/10 | 13 - 3 |
| 20"x20" /500x500 | 24"x24" /600X600 | 4 div.to to 5,62"(142,5mm)=22,50"(570mm) | 0,55"/14 | 0,39"/10 | 13 - 3 |
| 24"x24" /600x600 | 28"x28" /700X700 | 4 div.to to 6,60"(167,5mm)=26,38"(670mm) | 0,55"/14 | 0,39"/10 | 13 - 3 |

6"x6"(150x150mm) to
10"x10"(250x250mm)

12"x12"(300x300mm) to
14"x14"(350x350mm)

16"x16"(400x400mm) to
24"x24"(600x600mm)



TAPPED THROUGH

THROUGH HOLES