

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:

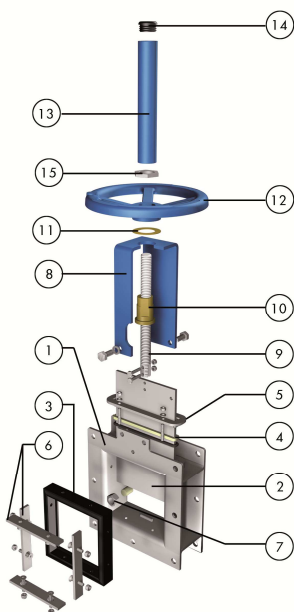
2006/42/EC (MACHINES)

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:	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	



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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



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OTHER OPTIONS

FLUSH PORTS:

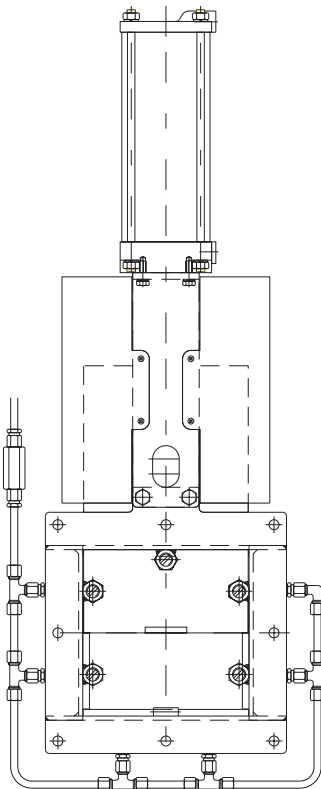
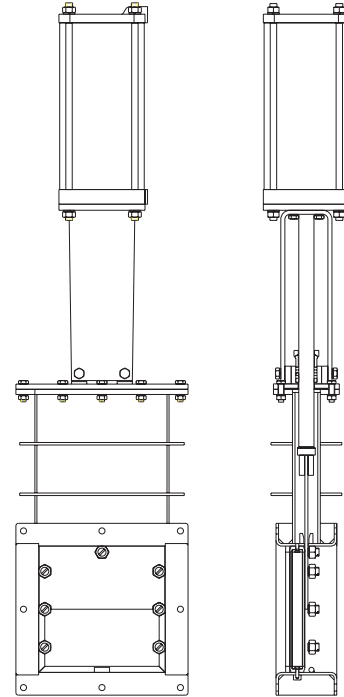
- Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing
- Purging can be made with air, steam, liquids, etc. depending on the process

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



ATEX



Please contact our ORBINOX representative for info and availability.

Some considerations:

- Hand operated BC (SER.90) 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
- Electrically, pneumatically 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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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

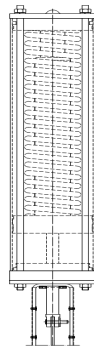
All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

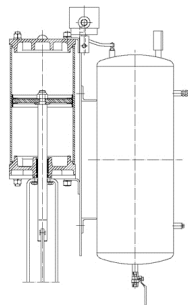
SINGLE ACTING (SPRING RETURN)

- 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



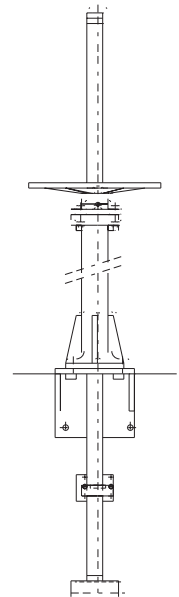
DOUBLE ACTING WITH AIR TANK

- 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
Nitrile (N)	248	120	Resistance to petroleum products
Viton (V)	392	200	Chemical service / High temp.
Silicone (S)	482	250	Food service / High temp.
PTFE (T)	482	250	Corrosion resistance

PACKING

Material	Max.T. (°F)	(°C)	pH
Dry cotton (AS)	122	50	6-8
PTFE impregn. synth. fibre (ST)	464	240	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

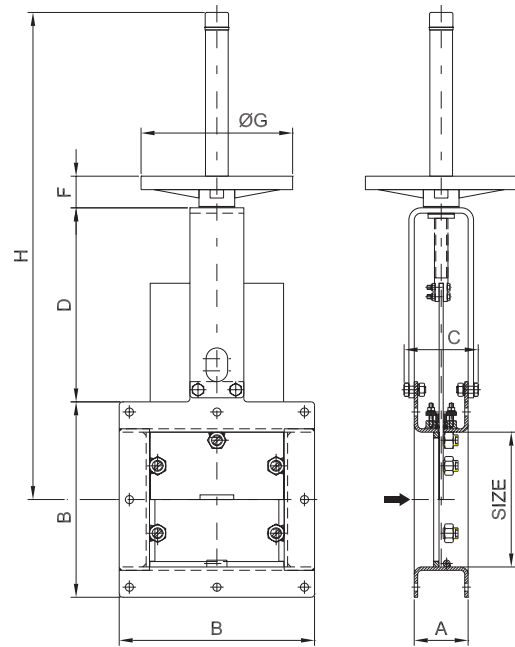


RESILIENT

- 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

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PNEUMATIC CYLINDER

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

- DN ≤ 10"/250mm: Aluminum barrels
- DN ≥ 12"/300mm: 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)

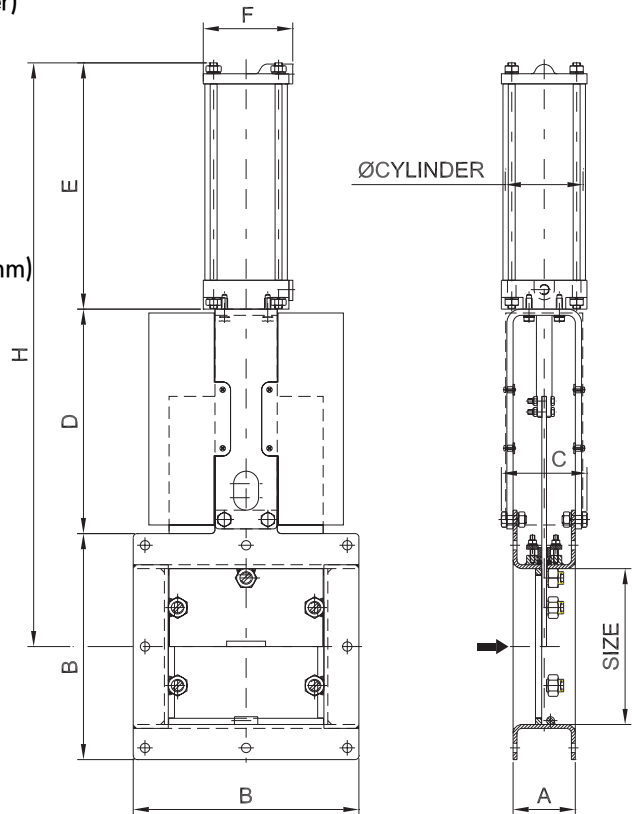
• Supply pressure: min. 50psi/(3,5 kg/cm²) - max. 150psi/(10 kg/cm²). Actuator designed with 90psi/(6 kg/cm²) air supply

• 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)	¼" 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)	¼" 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)	¼" 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)	¼" 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)	¼" 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)	¼" 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)	¼" 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)	¼" 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)	¼" G

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

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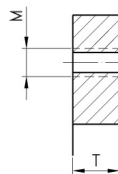
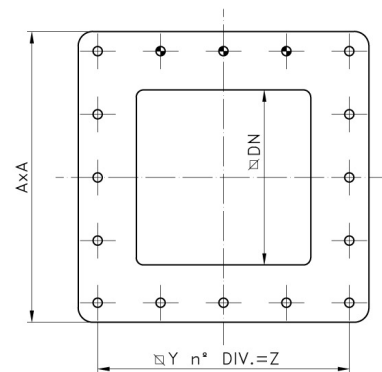
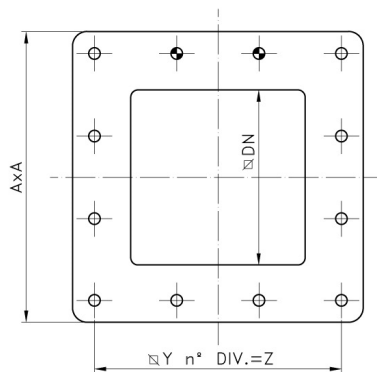
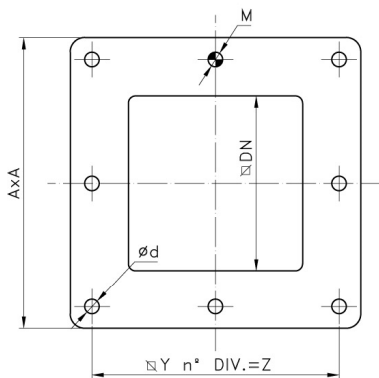
FLANGE AND BOLTING DETAILS

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