

SQUARE PORT KNIFE GATE VALVE

The **SERIES 90** knife gate is a square port low-pressure valve for solid loaded fluids, mainly used in bulk handling and silo outlet applications in industries such as:

- Power Plants
 - Food and Beverage
 - Chemical Plants
- Waste Water treatment Plants
 - Mining
 - etc.

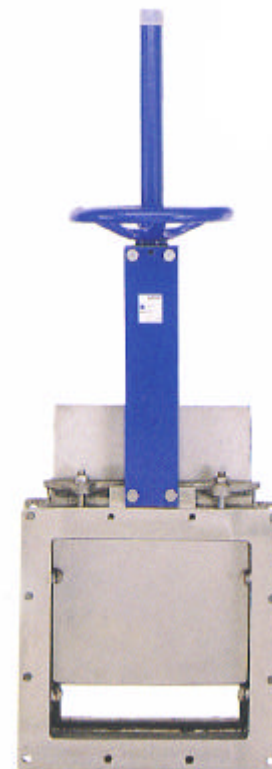
Sizes: Size 8" x 8" to Size 24" x 24" (larger diameters on request)

Working Pressure:	Size 8" x 8" :	35 PSI
	Size 10" x 10" :	30 PSI
	Size 12" x 12" :	30 PSI
	Size 14" x 14" :	21 PSI
	Size 16" x 16" :	21 PSI
	Size 18" x 18" :	18 PSI
	Size 20" x 20" :	14 PSI
	Size 24" x 24" :	14 PSI

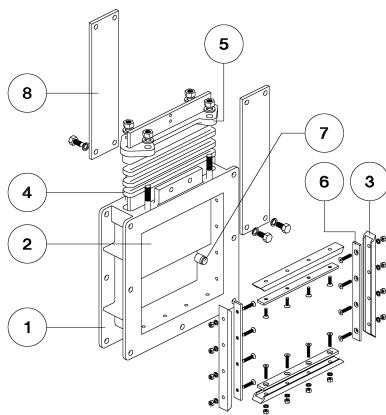
Standard Flange Connection:

Please refer to the table on page 90-8.

Note: Other flange connections are available on request.



STANDARD PARTS LIST



Part:	Cast Iron:	C. Steel:	Stainless Steel:
1- Body	GG25	A216WCB	CF8M
2- Gate	AISI 304	AISI 316	AISI 316
3- Seat	Metal or Resilient (EPDM Std.)		
4- Packing	AH		NT
5- Gland Follower	S.G. Iron	A216WCB	CF8M
6- Seat Retainer Plate	C. Steel	C. Steel	AISI 316
7- Slider Support	AISI 316 + Polyethylene		
8- Support Plates	Carbon Steel - Epoxy coated		

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

ORBINOX reserves the right to change specifications without notice. OBX 1/01 4TH EDITION



DESIGN FEATURES

BODY:

- Cast monoblock design.
- Internal cast gate wedges and guides allow for tighter shut off.
- Square port design for greater flow capacity and minimal pressure drop.
- Internal design avoids any build up of solids that would prevent valve from closing.

GATE:

- Standard stainless steel gate.
- Gate is polished on both sides for a greater seal between the packing and the seat.
- Bottom of the gate edge is machined to a bevel to shear off the solids during the final closing stage.

PACKING CHAMBER:

- Long-life packing with several lines of braided fiber plus an EPDM O-ring, 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.
- A standard nipple is fitted located on the handwheel assembly to lubricate the stem whilst operating the valve for easier operation and a longer life.
- For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust while the valve is in the open position.

ACTUATORS:

- All Orbinox actuator models are supplied with a standard mounting kit to allow easy installation on site.

YOKE & SUPPORT PLATES:

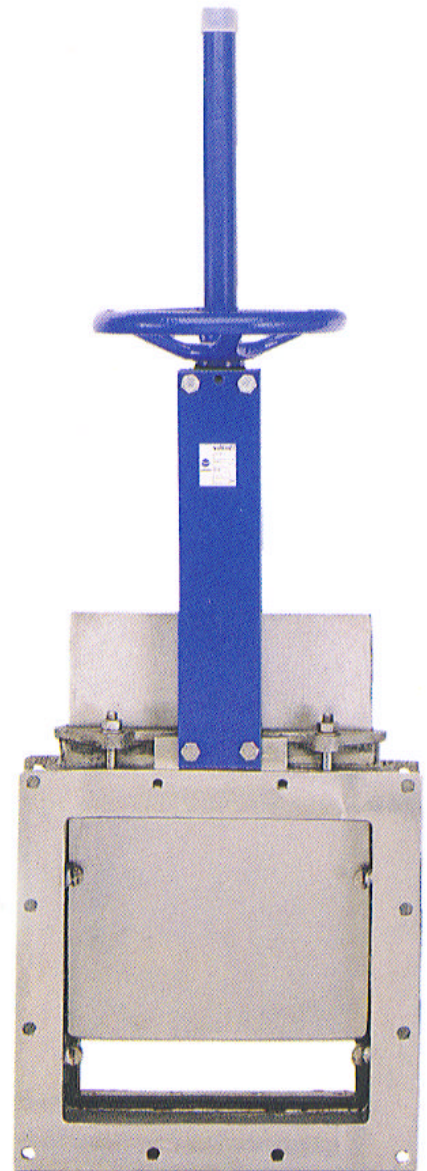
- EPOXY coated steel (stainless steel available on request).
- Compact design makes it extremely robust even in the most severe conditions.
- Reinforced design is standard starting from size 14" x 14".

EPOXY COATING:

- The electrostatic applied epoxy coating on all ORBINOX cast iron and carbon steel valve bodies and components make the valves corrosion resistant.

GATE SAFETY PROTECTION:

- Gate guards are available upon request for areas where safety is a concern.
- The design feature prevents any objects from getting caught accidentally while the gate is moving.



OTHER OPTIONS

FLUSH PORTS:

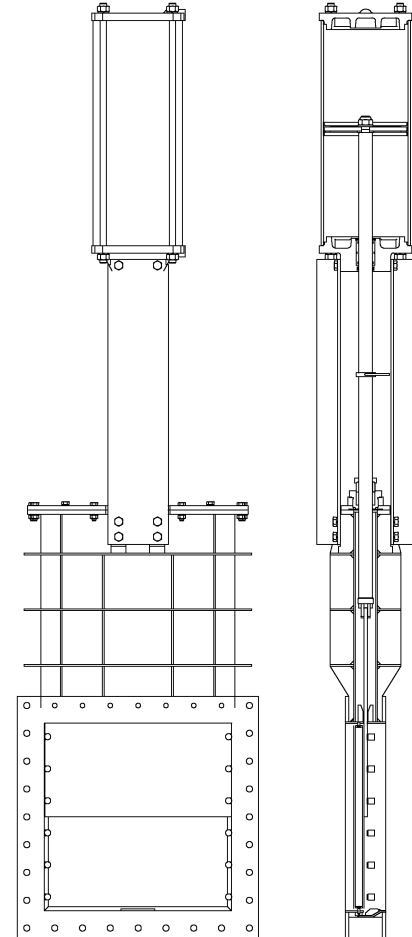
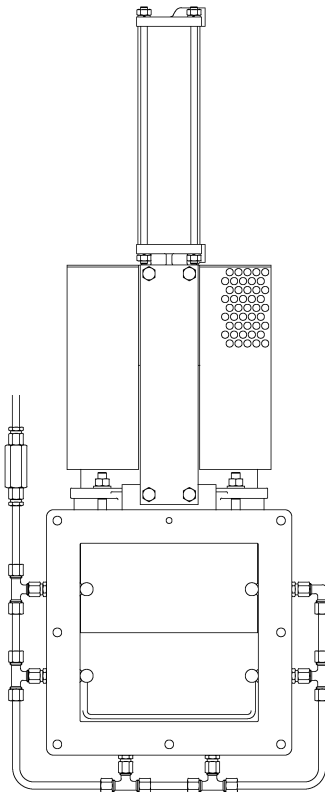
- Allows for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing fully.
- Purging can be with air, steam, liquids, etc. Depending on the process.

OTHER MATERIALS OF CONSTRUCTION AVAILABLE:

- Special alloys such as AISI 317, 254SMO, Hastelloys, Titanium, etc.

FABRICATED VALVES:

- Orbinox is equipped for in house fabrication of special valves.
- Design is based on application, diameter, pressure, material of construction, etc.,



SURFACE TREATMENTS

Valve components can be protected or coated for a longer life expectancy, depending on the application and the service conditions.

At Orbinox we can offer treatments and coatings for the valve components to improve the properties against abrasion (stellite, polyurethane...), corrosion (Halar, Rilsan, galvanized...) and adherence (polishing, PTFE...).



ACTUATOR OPTION

- Handwheel (rising or non-rising stem)
- Chainwheel
- Lever
- Bevel Gear
- Others (square nut...)
- Electric
- Double Acting Pneumatic
- Single Acting Pneumatic
- Hydraulic

All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves.

SINGLE ACTING / SPRING RETURN

Available in sizes 2" to 8".

Supply Pressure: Minimum 75 PSI
Maximum 100 PSI

Options: Fail open
Fail closed

SINGLE ACTING / VOLUME TANK

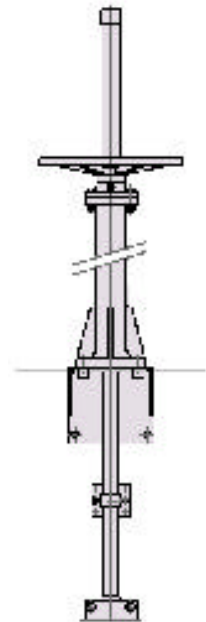
Available in all sizes.

Supply Pressure: Minimum 50 PSI
Maximum 100 PSI

Options: Pneumatic Fail safe
Electro pneumatic Fail safe

ACCESSORIES

- Mechanical Stops
- Locking Device
- Actuator Manual Override
- Solenoid Valves
- Positioners
- Limit Switches
- Electric Controls
- Floor Stands
- Stem Extensions



Wide range of valve extensions available.

For further information about fail safe systems and valve extensions, please refer to SERIES 10 section

For additional information, please consult the factory.



SEAT / SEALS			PACKING		
Material	Max.Temp.(°F)	Applications	Material	Max.Temp.(°F)	pH
Metal/Metal	250	High temp. Low tightness.	Tallowed cotton (AH)	50	6 - 8
EPDM (E)	120	Acids and non mineral oils.	Dry cotton (AS)	50	6 - 8
Nitrile (N)	120	Resistance to petroleum products.	PTFE impregn. Natural fibre (NT)	120	4 - 12
Viton (V)	200	General chemical service. High temperature.	PTFE impregn. Synth. Fibre (ST)	240	2 - 13
Silicone (S)	250	Food service / High temperature	Braided PTFE (TH)	260	0 - 14
PTFE (T)	250	Corrosion resistance.	Graphite (AG)	300	4 - 12
			Ceramic fibre (FC)	1200	--

More details and other materials on request.

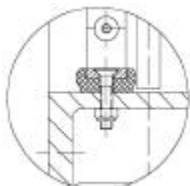
NOTE: Above includes an elastomer O-ring (same material as seal), excluding TH, AG and FC.

SEAT TYPES



METAL / METAL

- High temperature
- High density media application
- Positive shut off



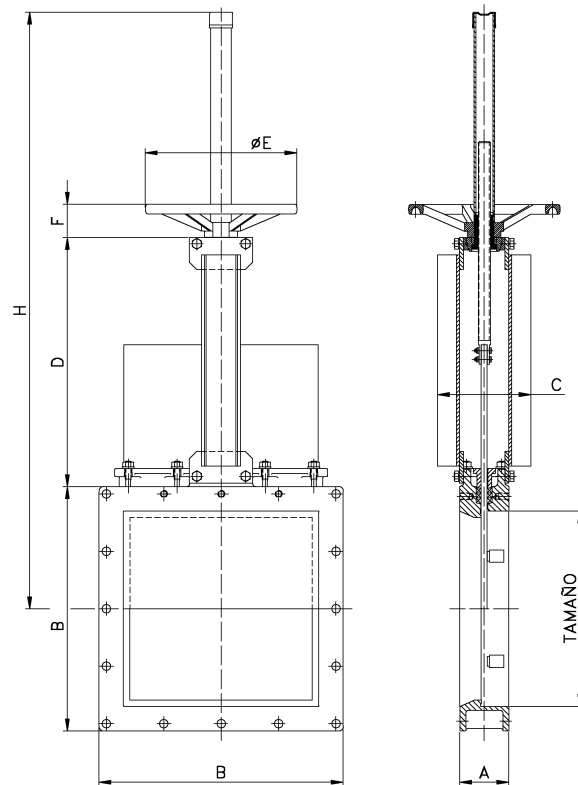
RESILIENT

- Temperature limitations according to seat material selected. Consult the above chart or our technical department for more information.
- Replaceable seal retainer plates.



HANDWHEEL (rising stem)

- Standard handwheel actuator.
- Consists of:
 - Handwheel: Epoxy coated Cast Iron or Steel
 - Stem
 - Stem nut
 - Stem protector
 - Grease nipple
- Options:
 - Locking Device
 - Stem Extension
- Valve sizes available in 8" to 24", larger on request.
- For other options and dimensions, please consult our technical department.



SIZE	A	B	C	D	E	F	H	Weight(lbs)
8"	3.1	11.4	4.1	11.4	9.8	2.0	27.2	59
10"	3.1	13.4	4.1	13.4	9.8	2.0	34.1	70
12"	3.1	15.4	4.1	15.4	9.8	2.0	37.0	84
14"	3.9	17.7	7.4	18.1	11.8	2.5	45.1	128
16"	3.9	19.7	7.4	20.1	11.8	2.5	48.0	145
18"	3.9	21.7	7.4	22.0	11.8	2.5	53.0	165
20"	3.9	23.6	7.4	25.8	16.1	3.3	60.6	187
24"	3.9	27.6	7.4	28.5	16.1	3.3	69.8	242



PNEUMATIC CYLINDER

- Standard pneumatic actuator(double acting on-off cylinder) consists of:

- Carbon steel construction
- Stainless (AISI 304) piston rod
- Nitrile coated steel piston

- Valve sizes available in 8" to 24", larger on request.

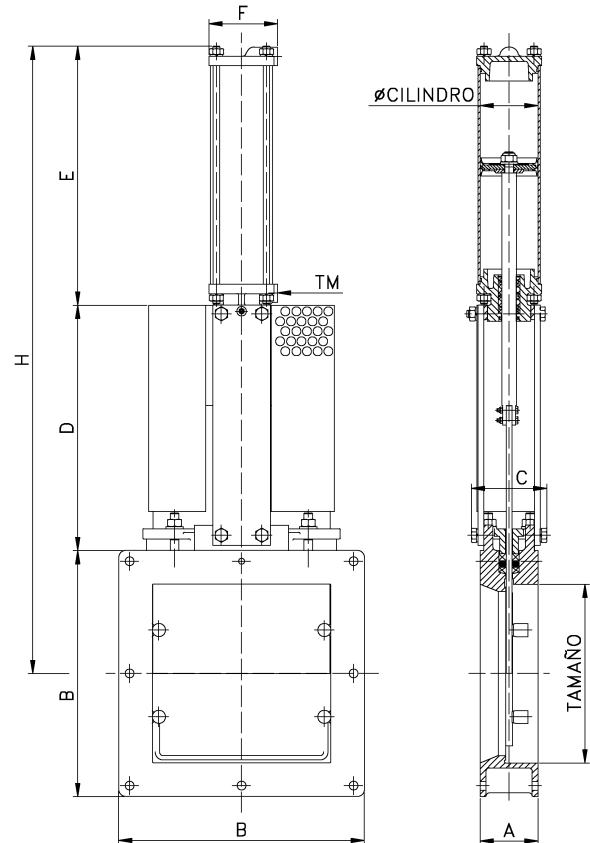
- Supply Pressure: minimum 40 PSI - maximum 150 PSI

- **All valves installed in a horizontal position, pneumatic actuators must be supported.**

- NOTE: Depending on the application and service conditions, Orbinox can supply larger bore size cylinders. The table below shows the most commonly used bore sizes. Please consult our technical department for maximum differential pressure and minimum air supply for all pneumatic operated knife gate valves.

- Instrumentation and options on request.

- For other instrumentation and options, please consult our technical department.



SIZE	A	B	C	D	E	F	H	Weight (lbs)	Standard Cyl.	Connect.
8"	3.1	11.4	4.1	11.4	12.1	3.7	29.2	66	4" Bore	1/4" NPT
10"	3.1	13.4	4.1	13.4	14.1	3.7	34.1	77	4" Bore	1/4" NPT
12"	3.1	15.4	4.1	15.4	16.1	3.7	39.1	92	4" Bore	1/4" NPT
14"	3.9	17.7	7.4	18.1	18.9	5.5	45.8	139	4" Bore	1/4" NPT
16"	3.9	19.7	7.4	20.1	20.9	5.5	50.7	158	5" Bore	1/4" NPT
18"	3.9	21.7	7.4	22.0	23.2	5.5	56.1	176	5" Bore	1/4" NPT
20"	3.9	23.6	7.4	25.8	25.4	6.9	63.0	216	6" Bore	1/4" NPT
24"	3.9	27.6	7.4	28.5	29.3	6.9	71.7	275	7" Bore	1/4" NPT



FLANGE AND BOLTING DETAILS

SIZE	A x A	no divis. To Y - Z	d	
6" x 6"	240 x 240	2 div. to 105 = 210	12	1 - 7
8" x 8"	290 x 290	2 div. to 130 = 260	12	1 - 7
10" x 10"	340 x 340	2 div. to 155 = 310	12	1 - 7
12" x 12"	390 x 390	3 div. to 120 = 360	12	2 - 10
14" x 14"	450 x 450	3 div. to 140 = 420	14	2 - 10
16" x 16"	500 x 500	4 div. to 117.5 = 470	14	3 - 13
18" x 18"	550 x 550	4 div. to 130 = 520	14	3 - 13
20" x 20"	600 x 600	4 div. to 130 = 520	14	3 - 13
24" x 24"	700 x 700	4 div. to 167.5 = 670	14	3 - 13

