SERIES 70

ROUND BY SQUARE PORT KNIFE GATE VALVE

The **SERIES 70** knife gate is a water valve designed for handling difficult applications. This valve is suitable for use in recycle applications, like junk or sand traps of pulpers, high consistency cleaners,… or as silo outlet with solid material.

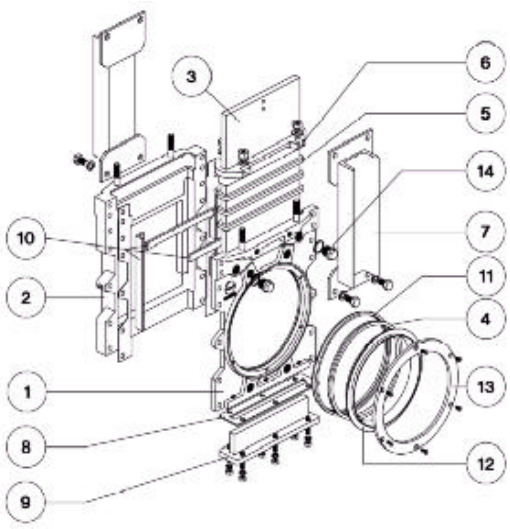
The two piece body with round inlet and square outlet (larger than the inlet) assures non-jamming.

Sizes: 4'' to 24'' (larger diameters on request)

Working pressure : Sizes 4'' to 24'' : 150 PSI

Standard Flange Connection: DIN PN 10 and ANSI B16.5 (class 150) / on valve inlet only

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



STANDARD PARTS LIST

Part:	Cast Iron	Stainless Steel:
1 & 2 - Body	GG25	CF8M
3 - Gate	AISI 304	AISI 316
4 - Seat	EPDM	
5 - Packing	AH	NT
6 - Gland Follower	CF8M	
7 - Support Plates	Carbon Steel / Epoxy Coated	
8 - Gasket	Rubber	
9 - Bottom Cover	CF8M	
10 - Sliders	Brass	
11 - Seat Ring	Bronze	
12 - Conic Ring	Stainless	
13 - Retainer Ring	AISI 304	AISI 316
14 - Cap	Galv. Steel	AISI 316

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SERIES 70

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DESIGN FEATURES

BODY:

- **Two-part bolted body**, internally machined, with reinforced ribs in larger diameters for extra body strength.
- Internal replaceable gate guides allow for smoother gate travel.
- The square outlet (larger than the round inlet) avoids build-up of contamination such as staples, wire,….
- The standard bottom clean-out port allows for a quick inspection of the internals of the body.
- For the most severe applications, the body has standard flush ports to flush out solids that may interfere with the gate travel.

GATE:

- Standard stainless steel gate.
- Gate is polished on both sides for a greater seal between the packing and the seat.
- The gate thickness is over sized for longer life.

SEAT: (resilient)

- Unique design that mechanically locks the seal in the internal of the valve body between two bronze or stainless steel rings. This design protects the seat area for a longer life.
- Standard EPDM also available in different materials such as Viton, PTFE, etc…

BOTTOM COVER:

- Easy inspection of the body internals and also allows for removal of any foreign material caught inside.

PACKING CHAMBER:

- Standard braided fibre (PTFE impregnated for CF8M body) with EPDM O-ring for better shutoff.
- Long-life braided packing is available in a wide range of materials.

STEM:

- Corrosion resistance stainless steel stem.
- Single pitch Acme thread reduces torque on handwheel operator and eliminates installation of a gear operator on larger diameters.
- Standard stem protector on all handwheel actuators gives additional protection against dust while the valve is in the open position.

YOKE & SUPPORT PLATES:

- EPOXY coated steel (stainless steel available on request).
- Compact design makes it extremely robust even in the most severe conditions.

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.

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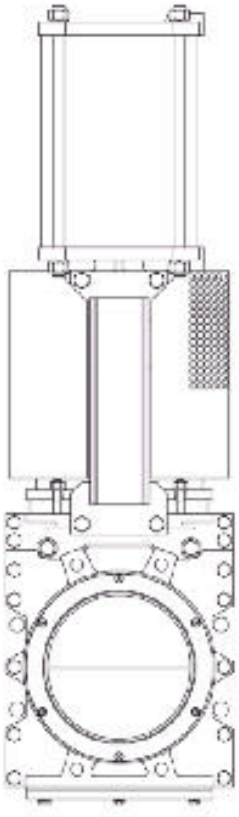
OTHER OPTIONS

OTHER MATERIALS OF CONSTRUCTION:

- 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, pressures, 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...).

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ACTUATOR OPTIONS

STANDARD ACTUATOR

- Double Acting Pneumatic

OTHER ACTUATORS AVAILABLE

- Handwheel (rising & non-rising stem)
- Chainwheel
- Lever
- Bevel Gear
- Other (square nut...)
- Electric
- Single Acting Pneumatic
- Hydraulic

All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves.

SINGLE ACTING / SPRING RETURN

Available up to size 8''

Supply Pressure: Minimum 75 PSI
Maximum 100 PSI

Options:

- Fail open
- Fail close

SINGLE ACTING / VOLUME TANK

Available in all sizes.

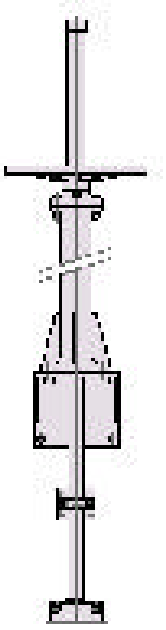
Supply Pressure: Minimum 50 PSI
Maximum 100 PSI

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
- Stems 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.

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SERIES 70

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SEAT / SEALS

Material	Max.Temp.(ºC)	Applications
EPDM (E)	120	Acids and non mineral oils
Nitrile (N)	120	Resistance to petroleum products
Viton (V)	200	General chemical service. High temperature
PTFE (T)	250	Corrosion resistance

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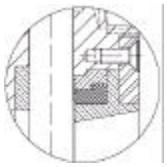
More details and other materials on request.

PACKING

Material	Max.Temp.(ºC)	pH
Tallowed cotton (AH)		6 – 8
Dry cotton (AS)		6 – 8
PTFE impregn. Natural fibre (NT)		4 – 12
PTFE impregn. Synth fibre (ST)		2 – 13
Braided PTFE (TH)		0 - 14

NOTE: all types include an elastomer O-ring (same material as seal), excl. TH

SEAT



- The seal is mounted between two bronze or stainless steel (on request) rings to the body by means of a stainless steel retainer ring.
- This system offers a long life and allows the maintenance of the valve.

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SERIES 70

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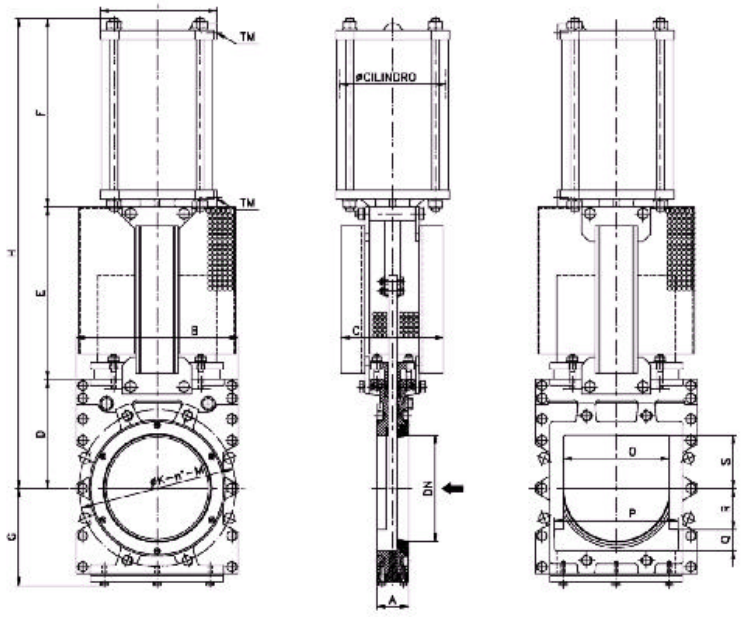
DOUBLE ACTING PNEUMATIC CYLINDER

- The 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 2'' to 24'', larger on request.
- Supply Pressure: minimum 40 PSI - maximum 150 PSI
- Reinforced design of support plates (U-type) is standard starting from 8''.
- Instrumentation and options on request:
- Instrumentation:
  - Positioners
  - Solenoid valves
  - Flow regulators
  - Air preparation units



SIZE	A	B	C	D	E	F	G	H	I	O	P	Q	R	S	Weight(lbs)	StandardCyl	Connect
2''	1.6	6.0	3.5	4.3	5.3	6.7	3.1	16.3	3.7	2.0	2.9	0.7	0.7	1.0	31	C80/62	1/4'' G
3''	2.0	7.5	3.5	4.9	6.6	8.1	4.3	19.6	4.5	3.1	4.1	0.9	1.2	1.6	44	C100/95	1/4'' G
4''	2.0	8.3	3.5	5.5	7.6	8.9	5.2	22.0	4.5	3.9	4.8	0.9	1.6	2.0	77	C100/115	1/4'' G
5''	2.0	9.3	4.1	6.9	9.2	10.5	5.7	26.6	5.5	4.9	6.1	1.1	2.0	2.5	112	C125/143	1/4'' G
6''	2.4	10.2	4.6	7.3	10.8	11.7	6.0	29.8	6.9	5.9	7.1	1.4	2.2	3.0	172	C160/162	1/4'' G
8''	2.4	12.3	4.8	8.1	12.8	14.0	7.2	34.8	8.7	7.9	9.2	1.6	3.0	3.9	196	C200/212	3/8'' G
10''	2.8	14.6	10.1	9.8	15.7	17.0	8.9	42.6	10.9	9.8	11.2	1.6	4.0	4.9	220	C250/265	3/8'' G
12''	2.8	16.7	11.4	13.4	17.7	20.0	10.2	51.1	15.0	11.8	13.1	1.6	5.0	5.9	319	C300/315	1/2'' G
14''	3.8	19.7	11.4	14.6	20.7	22.0	11.3	57.2	15.0	13.8	15.2	1.8	5.9	6.9	449	C300/362	1/2'' G
16''	3.9	22.2	11.4	15.7	23.0	25.9	12.6	64.6	17.5	15.7	17.3	1.8	6.9	7.9	590	C350/418	3/4'' G
20''	4.3	26.4	11.4	17.7	27.6	30.4	14.8	86.0	20.3	19.7	21.3	2.0	8.7	9.8	814	C400/520	3/4'' G
24''	4.3	30.7	11.4	20.1	31.5	34.4	16.9	75.7	20.3	23.6	25.2	2.4	10.2	11.8	1096	C400/620	3/4'' G

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FLANGE AND BOLTING DETAILS

DIN PN10

DN	K	nº	M	T	
50	125	4	M-16	8	4 - --
65	145	4	M-16	8	4 - --
80	160	8	M-16	8,7	4 - 4
100	180	8	M-16	8,7	4 - 4
125	210	8	M-16	8,7	4 - 4
150	240	8	M-20	10,3	4 - 4
200	295	8	M-20	12	4 - 4
250	350	12	M-20	12	8 - 4
300	400	12	M-20	12	8 - 4
350	460	16	M-20	15	12 - 4
400	515	16	M-24	15	12 - 4
450	565	20	M-24	15	16 - 4
500	620	20	M-24	22,2	16 - 4
600	725	20	M-27	22,2	16 - 4

ANSI B16.5, class 150

DN	K	nº	M	T	
2''	4 3/4''	4	5/8'' UNC	5/16''	4 - --
2 1/2''	5 1/2''	4	5/8'' UNC	5/16''	4 - --
3''	6''	4	5/8'' UNC	11/32''	4 - --
4''	7 1/2''	8	5/8'' UNC	11/32''	4 – 4
5''	8 1/2''	8	3/4'' UNC	11/32''	4 – 4
6''	9 1/2''	8	3/4'' UNC	15/32''	4 – 4
8''	11 3/4''	8	3/4'' UNC	15/32''	4 – 4
10''	14 1/4''	12	7/8'' UNC	15/32''	8 – 4
12''	17''	12	7/8'' UNC	15/32''	8 – 4
14''	18 3/4''	12	1'' UNC	19/32''	8 – 4
16''	21 3/4''	16	1'' UNC	19/32''	12 – 4
18''	22 3/4''	16	1 1/8'' UNC	19/32''	12 – 4
20''	25''	20	1 1/8'' UNC	7/8''	16 – 4
24''	29 1/2''	20	1 1/4'' UNC	7/8''	16 - 4

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