

PINCH VALVE

The PA model pinch valve is a heavy-duty enclosed construction full bore valve that employs elastomer sleeves for flow shut-off and control in applications with abrasive and corrosive slurries. The sleeve is the only part in contact with the media, no other mechanical parts are required, and it is a maintenance free part. The PA pinch valve is mainly used in industries such as:

- Mining
- Chemical plants
- Pulp and paper
- Etc.
- Power plants
- Wastewater treatment
- Cement and ceramic

Sizes:

DN 1"/25mm to 12"/DN 300mm

Working pressure:

DN 1"/ 25mm to 6"/150mm 150 psi / 10 bar

DN 8"/200mm 125 psi / 8.5 bar

DN 10"/250mm to 12"/300mm 100 psi / 7 bar

Standard Flange connection:

DIN PN 10 and ANSI B16.5 (class 150)

Directives:

2006/42/CE (MACHINES)

2014/68/EU (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)

Main features:

- Bi-directional operation, both for on/off and throttling service
- Clog resistant, 100% full bore design with no flow restrictions and turbulence, and self-cleaning
- Enclosed body, protecting the sleeve from outside conditions
- Sleeve is the only part exposed to the line process, no other mechanical parts required
- Single and double pinch closing mechanisms
- No packing, therefore drop-tight to the outside
- Reduced process downtime and maintenance cost with easy and quick replacement
- Manual and pneumatic (single and double acting) actuators. Electric and hydraulic actuators available upon request
- Same face-to-face distance as that for gate, plug or ball valves up to 6"/DN150
- Operation under vacuum conditions feasible

All ORBINOX valves are tested prior to shipping

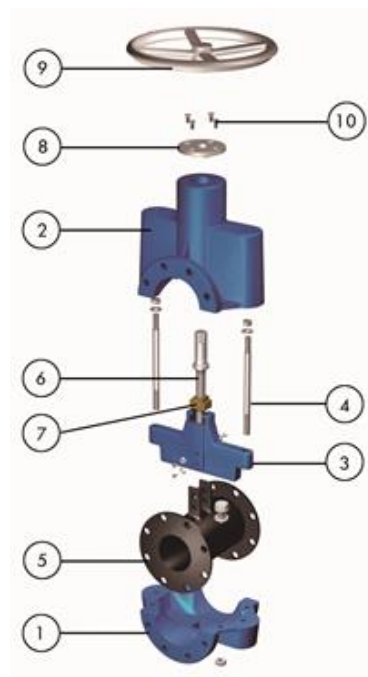


DESIGN FEATURES

PINCH CONFIGURATION:

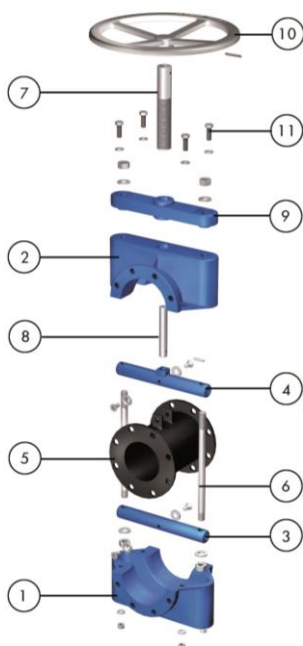
ORBINOX PA pinch valve has been conceived with one single pinch bar configuration for small sizes up to DN 4"/100 and with a double pinch rod configuration for sizes from DN 6"/150 to DN 12"/300.

Single pinch:



STANDARD PART LIST	
Part	Materials
1-Lower body	Ductile iron GJS 400
2-Upper body	Ductile iron GJS 400
3-Pinch bar	Up to DN80-A216 WCB / DN100- ductile iron GJS 400
4-Tie rod	AISI 430
5-Sleeve	Natural Rubber/EPDM
6-Stem	AISI 430
7-Drive nut	Brass
8-Retainer	Mild steel
9-Handwheel	Aluminium
10-Fasteners	Carbon steel CL-8

Double pinch:



STANDARD PART LIST	
Part	Materials
1-Lower body	Ductile iron GJS 400
2-Upper body	Ductile iron GJS 400
3-Lower pinch rod	Carbon steel A106 Gr. B
4-Upper pinch rod	Carbon steel A106 Gr. B
5-Sleeve	Natural Rubber/EPDM
6-Tie rod	AISI 430
7-Stem	Carbon steel A106 Gr. B
8- Pipe bushing	AISI 430
9-Support	Ductile iron GJS 400
10-Handwheel	Aluminium
11-Fasteners	Carbon steel CL-8

DESIGN FEATURES

BODY:

Two cast part body design for installation between flanges, designed for heavy duty applications. The enclosed construction protects the sleeve from ambient conditions and avoids premature sleeve wear.

As standard cast in ductile iron, other materials or fabricated construction also available upon request.

SLEEVE:

The heart of the PA pinch valve a flexible, long-lasting, self-cleaning rubber sleeve available in a wide variety of elastomers suitable for any application. The sleeve is the only part exposed to the slurry materials, therefore avoiding body wear. The choice of the correct elastomer material can achieve longer-lasting performance. Self-cleaning by flexing the sleeve with opening /closing cycles prevents build-up scaling deposits. The full bore design without any pockets or cavities also avoids any slurry accumulation.



PINCH SYSTEM:

Single plug for sizes up to DN 4"/100 and double pinch rod system in mild steel construction. Stainless steel tie rods for sizes from DN 6"/150 up to DN 12"/300. Heavy-duty design for high cycle operation conditions.

STEM:

Made of stainless steel to provide high resistance to corrosion and a long life.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with an standard mounting kit for installation purposes on site.

YOKE or ACTUATOR SUPPORT (PNEUMATIC AND ELECTRIC ACTUATORS):

Made of steel (stainless steel available on request) and epoxy coated. The robust design and high rigidity make them suitable for most adverse operating conditions

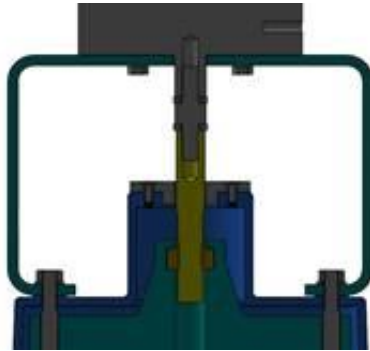
EPOXY COATING:

The epoxy coating on all ORBINOX cast iron and carbon steel 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.

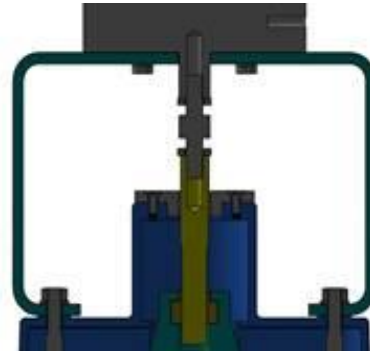
OTHER OPTIONS

Stroke adjustment unit:

For pneumatic valve configurations a stroke adjustment unit is available for an easy and user-friendly on-site valve stroke adjustment.



Before adjustment



After adjustment

Other materials of constructions:

Other materials may be used, such aluminium or different stainless steels, etc.

Fabricated valves:

ORBINOX designs, produces and delivers special fabricated valves for special process conditions (big sizes and/or high pressures)

We recommend to contact our technical department

ACTUATOR TYPES

MANUAL:
Handwheel
Bevel Gear



AUTOMATIC:
Pneumatic (single & double-acting)
Electric
Hydraulic (optional)



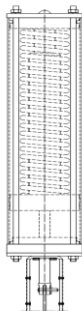
All actuators supplied by ORBINOX are interchangeable

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

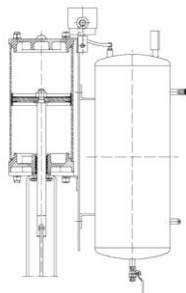
SINGLE ACTING (SPRING RETURN)

- Available from DN 1"/25 to DN 12"/300
- Supply pressure:
60 psi / 4 bar to 110 psi / 7,5 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



DOUBLE ACTING WITH AIR TANK

- Available for larger valve sizes
- Supply pressure:
60 psi / 4 bar to 110 psi / 7,5 bar
- Options:
 - Pneumatic or electric fail open
 - Pneumatic or electric fail close
 - Other options on request



ACCESSORIES

- Manual override
- Solenoid valves
- Positioners
- Limit switches
- Proximity switches

Applications

TEMPERATURE CHART

SLEEVES

SLEEVES

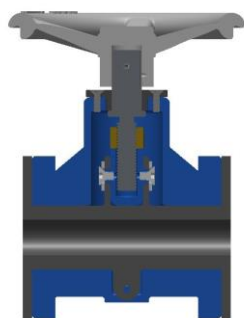
Material	Min/Max T.(°F)	Min/Max T.(°C)	Applications
Natural rubber	-22/176	-30/80	Mildly acid resistant Mid & highly abrasion resistant
White natural rubber	14/176	-10/80	Food & pharma
CR (N)	-13/221	-25/105	Diluted acid resistant/caustic soda Water treatment
SBR	-40/230	-40/110	Good resistance to abrasion, aging, temperature and chemicals

Material	Min/Max T.(°F)	Min/Max T.(°C)	Applications
NBR (N)	-14/194	-10/90	Oil, fats, fuels, lubricant
CSM (H)	5/230	-15/110	Acid resistant
EPDM	-22/284	-30/140	Chemical applications, green liquor
FKM-FPM (V)	14/356	-10/180	Aromatics chlorine/high temp.
VMQ (S)	-148/428	-100/220	High temperatures

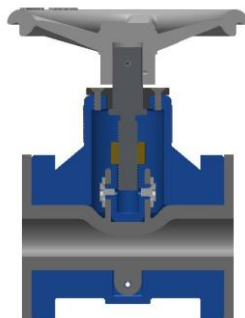
SLEEVES

The sleeve is the only part in contact with the media, no other mechanical parts are required. No special maintenance operations must be observed. The closing of the PA pinch valve is achieved by a single pinch bar up to DN 4"/100 or a double pinch rod from DN 6"/150. The sleeve is clog resistant and 100% full-bore

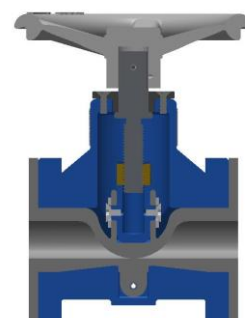
Single pinch:



OPEN

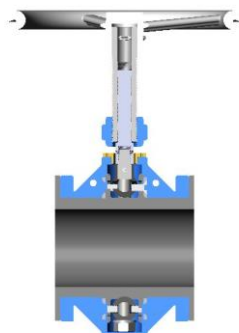


INTERMEDIATE

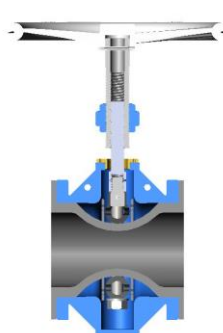


CLOSED

Double pinch:



OPEN



INTERMEDIATE

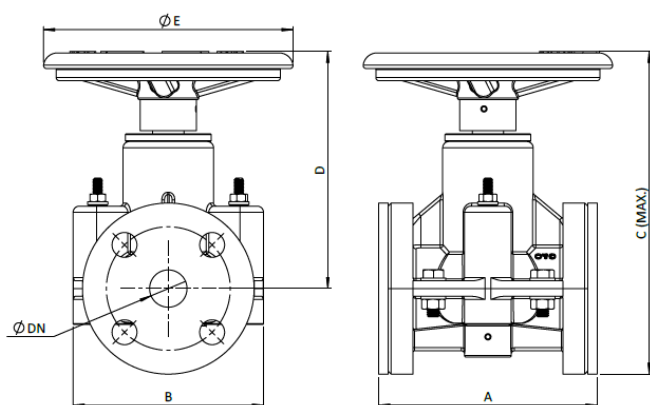


CLOSED

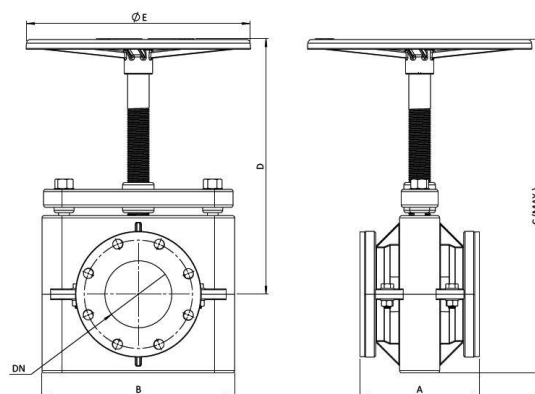
HANDWHEEL

- Available from DN 1"/25 to DN 12"/300
- Options (on request):
 - PVC bellow
 - Bevel gear

DN 1"/25 - DN 4"/100



DN 6"/150 - DN 12"/300



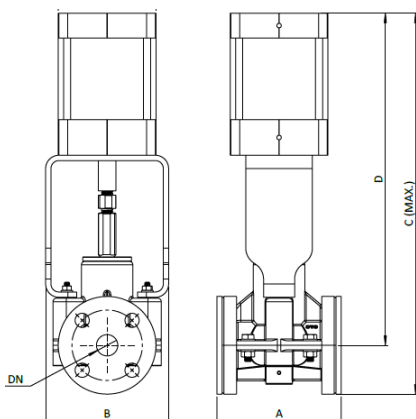
DN	A	B	C	D	ØE	Weight (kg.)
25	140	125	230	155	140	5
40	165	190	275	190	140	10
50	178	225	335	230	250	16
65	190	265	370	245	250	20
80	203	300	450	290	250	25
100	229	350	510	365	355	42
150	266	430	710	510	610	80
200	406	550	850	620	610	140
250	508	635	930	670	610	175
300	609	880	1050	750	610	210

DN	A	B	C	D	ØE	Weight (lbs)
1"	5,5	4,9	9	6,1	5,5	11
1 1/2"	6,5	7,4	10,8	7,4	5,5	22
2"	7	8,8	13,1	9	9,8	35
2 1/2"	7,4	10,4	14,5	9,6	9,8	44
3"	7,9	11,8	17,7	11,4	9,8	55
4"	9	13,7	20,0	14,3	13,9	93
6"	10,4	16,9	27,9	20	24	176
8"	15,9	21,6	33,4	24,4	24	309
10"	20	24,1	36,6	26,3	24	386
12"	23,9	34,6	41,3	29,5	24	463

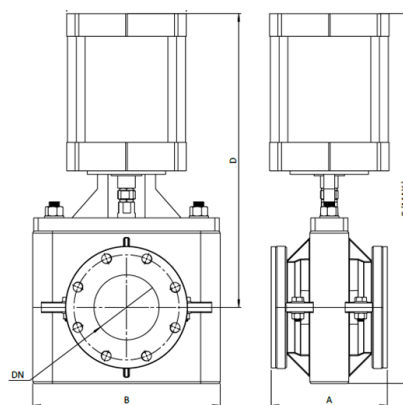
PNEUMATIC ACTUATOR

- The standard pneumatic actuator (double acting cylinder) consists of:
 - Aluminium barrels
 - Aluminium end caps
 - Stainless Steel (AISI 304) piston rod
 - Nitrile coated steel piston
 - PVC bellows
- Available from DN 1"/25 to DN 12"/300
- Supply Pressure: 60 psi / 4 bar to 110 psi / 7,5 bar
- Reinforced design of support plates is standard from DN 8"/200
- Options (on request):
 - Hard anodized barrel and covers
 - Stainless steel barrel and covers on request
 - Manual override
 - Fail-safe systems
- Instrumentation (on request):
 - Positioners
 - Flow regulators
 - Solenoid valves
 - Air preparation unit
- Note: in order to guarantee the correct functioning of the pneumatic cylinder for the catalogue pressures, a supply pressure of 60 psi / 4 bar to 110 psi / 7,5 bar is required. For lower pressures, we recommend to contact our technical

DN 1"/25 - DN 4"/100



DN 6"/150 - DN 12"/300



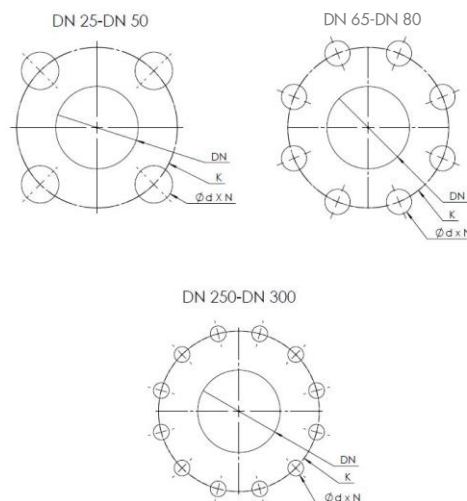
DN	A	B	C	D	Air pressure (bar)	Weight (kg.)
25	140	130	450	375	4 to 7.5 bar	6
40	165	190	510	415	4 to 7.5 bar	10
50	178	225	580	480	4 to 7.5 bar	16
65	190	265	645	510	4 to 7.5 bar	22
80	203	300	740	575	4 to 7.5 bar	29
100	229	350	850	705	4 to 7.5 bar	43
150	266	430	920	745	4 to 7.5 bar	125
200	406	550	1170	945	4 to 7.5 bar	160
250	508	635	1250	930	4 to 7.5 bar	190
300	601	880	1350	1050	4 to 7.5 bar	230

DN	A	B	C	D	Air pressure (psi)	Weight (lbs)
1"	5,5	5,1	17,7	14,7	60 to 110 psi	13
1 1/2"	6,5	7,4	20	16,3	60 to 110 psi	22
2"	7	8,8	22,8	18,9	60 to 110 psi	35
2 1/2"	7,4	10,4	25,3	20	60 to 110 psi	49
3"	7,9	11,8	29,1	22,6	60 to 110 psi	64
4"	9	13,7	33,4	27,7	60 to 110 psi	95
6"	10,4	16,9	36,2	29,3	60 to 110 psi	276
8"	15,9	21,6	46	37,2	60 to 110 psi	353
10"	20	25	49,2	36,6	60 to 110 psi	419
12"	23,6	34,6	53,1	41,3	60 to 110 psi	507

FLANGE AND BOLTING DETAILS

EN 1092-2 PN10

DN	K	M	ød	⊕
25	85	M-12	14	4
40	110	M-12	18	4
50	125	M-16	18	4
65	145	M-16	18	8
80	160	M-16	18	8
100	180	M-16	18	8
150	240	M-20	22	8
200	295	M-20	22	8
250	350	M-20	22	12
300	400	M-20	22	12



ANSI B16.5, class 150

DN	K	M	ød	⊕
1"	79.4	M-12	16	4
1 1/2"	98.4	M-12	16	4
2"	120.7	M-16	19	4
2 1/2"	139.7	M-16	19	4
3"	152.4	M-16	19	4
4"	190.5	M-16	19	8
6"	241.3	M-19	22.2	8
8"	298.5	M-19	22.2	8
10"	362	M-22	25.4	12
12"	431.8	M-22	25.4	12

