

Product selector

We provide innovative solutions and specialize in protection equipment. Understanding this equipment and how it should be applied will ensure proper protection from any number of potential hazards. Protection from rupturing or imploding and protection from fire hazards are the major considerations. The environmental and conservation features provided by these products comply with current air quality and safety criteria. Contact our technical sales group for innovative solutions for low pressure systems protection.



Flame and detonation arresters

Explosion Group: IIA-IIB-IIB1-IIB2-IIB3
 Sizes: 1" (25mm) - 16" (400mm)
 Flange Ratings: ANSI 150-PN16
 Flange Faces: RF, FF.
 Connections: Flanged, Screwed, SW & BW
 Materials: Carbon Steel & Stainless Steel, additional metals and coating
 Arresting element: Crimped Metal Ribbon
 Atex approval for most sizes and materials



Breather valves

Sizes: 4" (100mm) - 8" (200mm)
 Setting Pressure: + 2,5mbar +50mbar
 Setting Vacuum: -2,5mbar -30mbar
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: RF, FF
 Connections: Flanged
 Materials: Carbon Steel & Stainless Steel, additional metals and coating



Pressure relief valves

Sizes: 2" (50mm) - 12" (300mm)
 Setting Pressure: +2,5mbar +50 mbar
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: RF, FF
 Connections: Flanged
 Materials: Carbon Steel & Stainless Steel, additional metals and coating



Vacuum relief valves

Sizes: 2" (50mm) - 12" (300mm)
 Setting Vacuum: -2,5mbar -30 mbar
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: RF, FF
 Connections: Flanged
 Materials: Carbon Steel & Stainless Steel, additional metals and coating

Product selector



Breather valves etfined

Sizes: 2" (50mm) - 14" (350mm)
 Setting Pressure: +2,5mbar +50 mbar
 Setting Vacuum: -2,5mbar -30 mbar
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: RF, FF
 Connection: Flanged
 Materials: Aluminium, Carbon Steel,
 Stainless Steel, additional metals and
 coating



Vent-line / In-line flame arresters

Flame arresters are at time mounted
 directly upstream or on vacuum inlet of
 breather vents.
 Sizes: 2" (50 mm) through 14" (350
 mm)



Emergency vents

Sizes: 10" (250mm) - 24" (600mm)
 Setting Pressure: +2,5mbar +30 mbar
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: RF, FF
 Connections: Flanged
 Materials: Carbon Steel & Stainless
 Steel, additional metals and coating
 Customer design solution upon request



Gauge hatches

Sizes: 4" (100mm) - 8" (200mm)
 Flange Ratings: ANSI 150 - PN16
 Flange Faces: FF
 Connections: Flanged
 Materials: Aluminium, Carbon Steel &
 Staeinless Steel, additional metals and
 coating

Flame element *Crimped-metal-ribbon (CMR)*



This element is one of the most widely used types. CMR arresters are made of alternating layers of thin, corrugated metal ribbons and flat metal ribbons of the same width, which are wound together on a mandrel to form a many-layered cylinder of the desired diameter. The thickness of the cylindrical element is equal to the ribbon width. The spaces between the corrugations and the flat ribbon provide multiple small gas passages of approximately triangular shape. Elements can be made in a variety of crimp heights, ribbon and element thicknesses, and diameters.

Some major advantages are: they can be manufactured to within close tolerances; they are sufficiently robust to withstand mechanical and thermal shocks; and they have a fairly low resistance to flow (pressure drop) because usually only about 20% of the face (cross-sectional area) of the arrester is obstructed by the ribbon. The layers of ribbon must not spring apart because this would increase the crimp height and render the device ineffective. Since effectiveness in quenching a flame diminishes rapidly with thin arresters, the elements should be at least 0.5 in. thick.



The elements are often reinforced by inserting metal rods radially through the assembly. CMR arresters may use single or multiple elements with the crimp perpendicular to the ribbon.

A drawback of CMR arrester elements is their sensitivity to damage during handling. This must be considered during maintenance. Damage may lead to either enlarged channels that allow flame penetration, or to channel collapse that increases the pressure drop. Therefore, the FNC's instructions should be strictly followed during maintenance and cleaning. Another possible problem is that the small channel size may make the elements more susceptible to fouling due to solids deposition, and regularly scheduled or predictive maintenance is essential when this is possible.

CMR elements are installed in housings in one method, the element can be removable, in which case it can be cleaned and reinstalled or replaced without taking the housing from the piping.



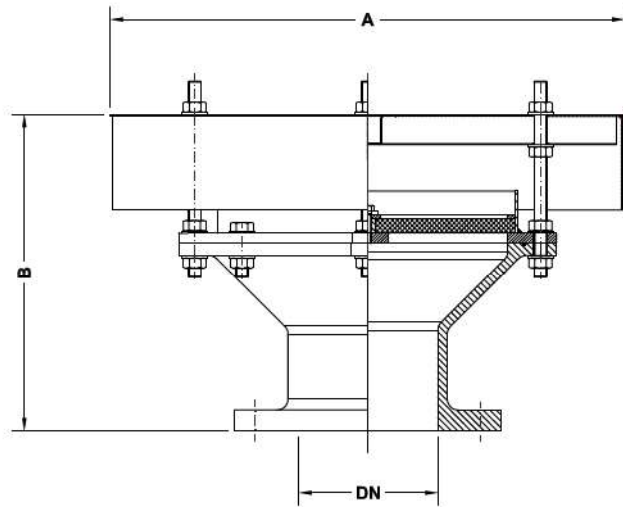
CMR arresters are used to stop deflagrations and detonations. They are especially useful for detonations, since the apertures can be made small, which is necessary to stop the flame and pressure front.

Flame arrester

End-of-line



- short-burning
- endurance burning
- deflagration



Number of flame element discs depends on max. allowable operating pressure.

Flame arresters are employed as safety device and have been manufactured by FNC for over than 50 years. Designed to stop unconfined deflagrations, and protect against fire by external sources. Due to design available with weatherhood. Upon request installed on vent vacuum inlet. Arresters elements are made of corrugated strip coiled into circular element housing. This construction is named "crimped ribbon" metal. Tested and certified to EN12874 in accordance with ATEX directive 94/9/EC approved by independent, third party approval agencies.

FEATURES

- **SIZE:** 1 " (25 mm) through 16" (400 mm)
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **FLANGE RATING:** ANSI 150, PN16
- **EXPLOSION GROUPS:** I - IIA - IIB - IIB1 - IIB2 - IIB3
- **Manufacturing comply with the requirements of Directive 94/9/EC**
- **TESTED EN12874**

PRODUCTS:

AE I FL
AE IIA FL
AE IIB3FL

DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	CARBON STL	SS	SPECIAL
weatherhood	SS	SS	SS
spacer	CS	SS	SS
gasket	NON-ASB	NON-ASB	NON-ASB
stud, nut, hex, lock washer	SS	SS	SS
housing, element	CS	SS	SS
element, flame	SS	SS	HAST
housing	CS	SS	SS/HAST

DN	25	40	50	80	100	150	200	250	300	350	400
A	160	160	230	330	400	550	700	870	1050	1250	1400
B	145	145	200	230	260	340	390	440	500	570	635
CODE	7525	7540	7502	7503	7504	7506	7508	7510	7512	7514	7516

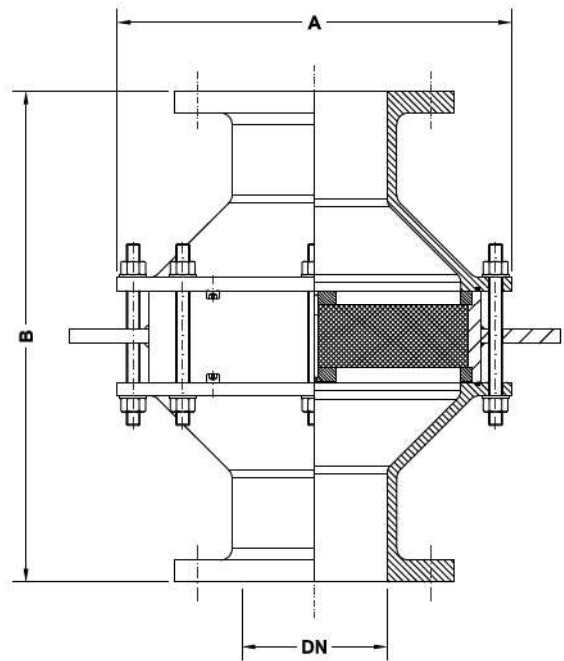
Dimensions shown are for reference only. Contact factory for certified drawings.

Bidirectional flame arrester

In-line deflagration



- short-burning
- deflagration
- endurance burning upon request



Number of flame element discs depends on max. allowable operating pressure.

In line flame arrester is fitted with two body connectors one on each side of the flame arrester housing element, prevent flame trasmission when flammable gas/air – or vapor/air – mixtures are present.

Intended function is to allow flow but prevent the transmission of flame.

Bi-directional design prevent flame trasmission from both sides. Arrester elements are made of corrugated strips coiled into circular element housing. Number of flame elements discs depends on design as well as explosion group.

Tested and certified to EN12874 in accordance with ATEX directive 94/9/EC approved by independent, third party approval agencies.

FEATURES

- **SIZE:** 1 " (25 mm) through 20" (500 mm)
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **FLANGE RATING:** ANSI 150, PN16
- **EXPLOSION GROUPS:** I - IIA - IIB - IIB1 - IIB2 - IIB3
- **Manufacturing comply with the requirements of Directive 94/9/EC**
- **TESTED EN12874**

PRODUCTS:

- AE I
- AE IIA
- AE IIB3

DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	CARBON STL	SS	SPECIAL
housing	CS	SS	SS/HAST
gasket	NON-ASB	NON-ASB	NON-ASB
housing, element	CS	SS	SS
handle/lifting lug	CS	SS	SS
element, flame	SS	SS	HAST
spacer	CS	SS	SS
stud, nut, hex, lock washer	SS	SS	SS
clamping screw	SS	SS	SS

DN	25	40	50	80	100	150	200	250	300	350	400	500
A	125	150	212	260	327	404	470	568	685	930	930	1130
B	165	165	263	304	348	472	532	592	662	865	865	976
CODE	8023	8041	8050	8080	8100	8150	8200	8250	8300	3032	3052	8510

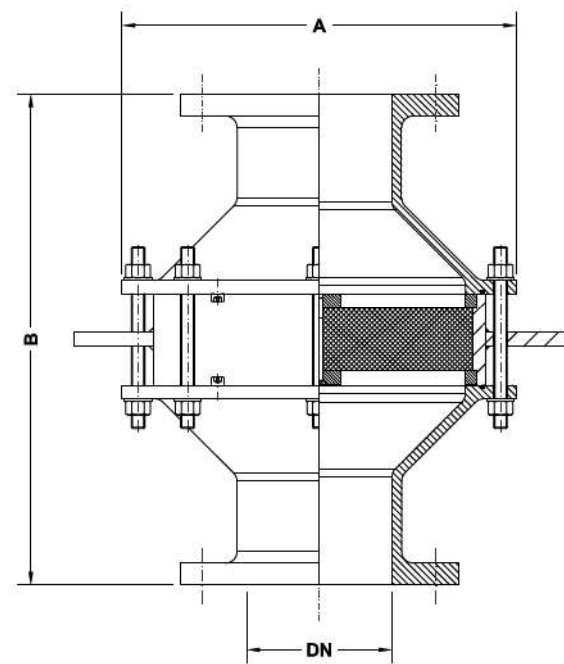
Dimensions shown are for reference only. Contact factory for certified drawings.

Bidirectional flame arrester

In-line stable, unstable detonation



- short-burning
- deflagration
- endurance burning
- stable, unstable detonation upon request



Number of flame element discs depends on max. allowable operating pressure.

A detonation flame arrester is used in all cases where sufficient "run-up" distance exist for a detonation to develop, depending on the length of piping and pipe configuration on the unprotected side of the arrester and the restriction on the protected side of the arrester.

Number of element depends on design as well as explosion group, arrester elements are made of corrugated strips coiled into circular element housing.

Tested and certified to EN12874 in accordance with ATEX directive 94/9/EC approved by independent, third party approval agencies.

FEATURES

- **SIZE:** 1" (25 mm) through 16" (400 mm)
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **FLANGE RATING:** ANSI 150, PN16
- **EXPLOSION GROUPS:** I - IIA - IIB - IIB1 - IIB2 - IIB3
- **CONFORMING ATEX 94/9/EC**
- **TESTED EN12874**

PRODUCTS:

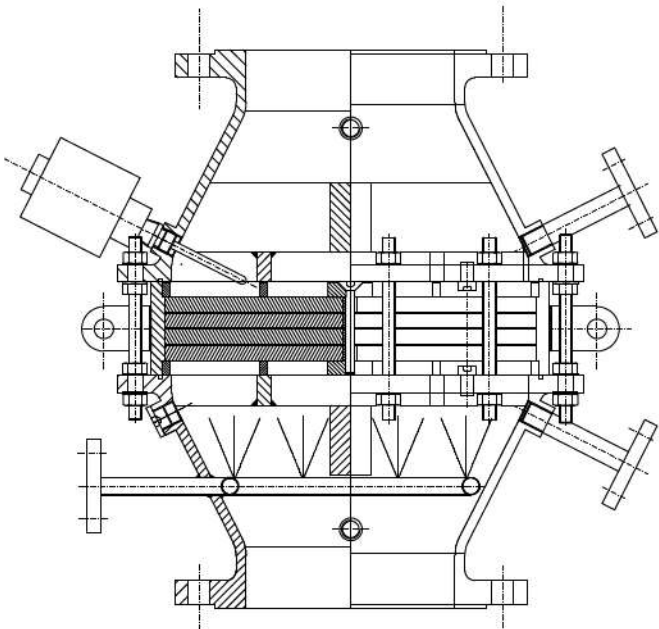
- AD IIA
- AD IIB3

DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	CARBON STL	SS	SPECIAL
housing	CS	SS	SS/HAST
gasket	NON-ASB	NON-ASB	NON-ASB
housing, element	CS	SS	SS
handle/lifting lug	CS	SS	SS
element, flame	SS	SS	HAST
spacer	CS	SS	SS
stud, nut, hex, lock washer	CS	SS	SS
clamping screw	SS	SS	SS

DN	25	40	50	80	100	150	200	250	300	350	400
A	180	180	212	260	327	404	470	568	930	930	930
B	195	195	263	304	348	488	565	625	685	897	897
CODE	8027	8043	8060	8090	8125	2906	2920	2954	2969	3030	3050

Dimensions shown are for reference only. Contact factory for certified drawings.

Special features



Flame and detonation arresters tested and certificated to EN12874 in accordance with ATEX directive 94/9/EC

Effective July 1st, 2003, all flame and detonation arresters installed in the jurisdiction of the European Economic Area must have ATEX certification.

FNC arresters have been examined according to Standard EN 12874:2001 and the certificates have been issued, assuring compliance with the Essential Health and Safety Requirements of Directive 94/9/EC. FNC flame and detonation arresters utilize the crimped metal ribbon construction. For capacities, certified drawing, weights and other features not shown in the product catalog, contact FNC

Arrestor limit for use

STANDARD EN 12874

TESTING AND CERTIFICATION

Acceptance testing which proves capacity of an arrester is the only guarantee of arrester performance, arrester should be tested to meet a recognized standard as EN 12874.

VAPOR COMPOSITION

For arrester selection gas classification used is Maximum Experimental Safe Gap (MESG).

IDENTIFICATION OF PROTECTIVE SYSTEMS AND EXPLOSION GROUP ACC. EN 12874 - BASED ON MESG

(Maximum Experimental Safe Gap)

(I) ($\Rightarrow 1.1$)	[mm]
IIA > 0.9	[mm]
IIB1 $0.9 \Rightarrow s \Rightarrow 0.85$	[mm]
IIB2 $0.85 > s \Rightarrow 0.75$	[mm]
IIB3 $0.75 > s \Rightarrow 0.65$	[mm]
IIB $0.65 > s \Rightarrow 0.5$	[mm]
IIC < 0.5	[mm]

OPERATING PRESSURE

Operating pressure of system where arrester is to be installed should not exceed the pressure at which the arrester has been tested.

LIMITS FOR USE

Operating temperature: -20°C up to $+60^{\circ}\text{C}$
 Operating pressure: 0.8 bar abs up to 1.1 bar abs

TEMPERATURE

$60^{\circ}\text{C} < T < 150^{\circ}\text{C}$ acc EN 12874
 $T > 150^{\circ}\text{C}$ based on EN 12874

PRESSURE

$1.1 \text{ bar} < p < 1.6 \text{ bar}$ acc to EN 12874
 $p > 1.6 \text{ bar}$ based on EN 12874

The FNC TPD has submitted their flame arresters and detonation arresters for inspection and testing by EU recognized, independent, third party approval agencies. We have been granted acceptance of our arresters by IBEXU in Germany.



Type examination certificate



ATEX Approval on Pressure / Vacuum Relief Valves

FNC Tank Protection Division is proud to announce conformity with European **ATEX Directive 94/9/EC**: Essential Health and Safety Requirements of the Equipment and Protective Systems in Potentially Explosive Atmospheres on the models listed below:

- series 1000
- series 2100
- series 2500
- series 3000
- series 4000
- series 5000
- series 6000



ATEX Directive 94/9/EC

Materials of Construction: This approval covers the models listed above in aluminum, carbon steel, stainless steel and "Hastelloy", and would encompass standard designs as well as designs incorporating minor modifications that would not affect the unit's pressure / vacuum relieving characteristics.

Assessment Criteria: Each of these designs has been assessed in accordance with EN13463-1:2001 Non-electrical equipment for potentially explosive atmospheres - part 1: Basic method and requirements. This assessment includes analysis of the following risks: 1) Hot surface 2) Electrostatic Discharge 3) Electrical Sparking 4) Mechanical Sparking 5) Radiation 6) Adiabatic Compression.

Labeling: All of these designs are now approved and orders shipped to territories in Europe will be supplied with a stainless steel **CE conformity tag**.

The legal requirement for the tagging is applicable to European territories.

Certification: Every unit shipped from **FNC Tank Protection Division** for the defined territories will be issued with a "**Certificate of Conformance**" in accordance with the ATEX requirements.

Validity: Equipment certification is to be renewed every **10 years** and applies to new equipment used in the production, storage, processing filling and transportation of volatile products.



NEW!

Breather valves



PV relief valves are safety equipment designed to protect tank against rupturing or imploding. As long as the tank pressure remains within the valve pressure and vacuum setting the pallets remains in contact with the seat ring and no venting or breathing take place. If direct atmosphere discharge or nitrogen is used on vacuum inlet, a flanged connection is available. PV relief valve is commonly referred to as a "breather valve" because of its primary function. Flame arrester can be mounted directly upstream of breather vent.

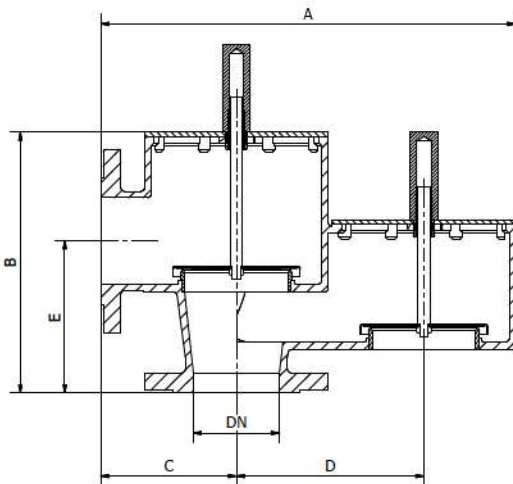
- new shape for fluid dynamic improvements
- pipeaway connection on Pressure and process side
- pallet guide outside the process

BREATHING VALVES

FEATURES

- **SIZE:** 4" (100 mm) through 8" (200 mm)
- **CONSTRUCTED:** aluminium, carbon steel, stainless steel, additional metals and coatings
- **SETTING PRESSURE:** +2,5 mbar to +50 mbar
- **SETTING VACUUM:** -2,5 mbar to -30 mbar
- **FLANGE RATING:** ANSI 150, PN16

PRODUCTS:
series 1000



DESCRIPTION

STANDARD MATERIALS OF CONSTRUCTION

DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	ALUMINUM	CARBON STL	SS
nut, hex	SS	SS	SS
cover	AL GR 356 T6	CS WCB	SS
gasket, cover	NON-ASB	NON-ASB	NON-ASB
pallet, pressure	SS	SS	SS
o-ring, plate pallet (2)	VITON	VITON	VITON
flange	SS	SS	SS
rod, guide	SS	SS	SS
stem, pressure	SS	SS	SS
body	AL GR 356 T6	CS	SS
stud - nut	SS	SS	SS

DN	4"	6"	8"
A	520	778	1010
B	327	418	484
C	170	248	330
D	235	355	460
E	191	263	305

Dimensions shown are for reference only. Contact factory for certified drawings.

Breather valves



PV relief valves are safety equipment designed to protect tank against rupturing or imploding. As long as the tank pressure remains within the valve pressure and vacuum setting the pallets remains in contact with the seat ring and no venting or breathing take place. If direct atmosphere discharge or nitrogen is used on vacuum inlet, a flanged connection is available.

PV relief valve is commonly referred to as a "breather valve" because of its primary function.

Flame arrester can be mounted directly upstream of breather vent or by means of an elbow to vacuum inlet.

FEATURES

- **SIZE:** 2" (50 mm) through 14" (350 mm)
- **CONSTRUCTED:** aluminium, carbon steel, stainless steel, additional metals and coatings
- **SETTING PRESSURE:** +2,5 mbar to +50 mbar
upon request +450 mbar
- **SETTING VACUUM:** -2,5 mbar to -30 mbar
upon request -300 mbar
- **FLANGE RATING:** ANSI 150, PN10, PN16

PRODUCTS:

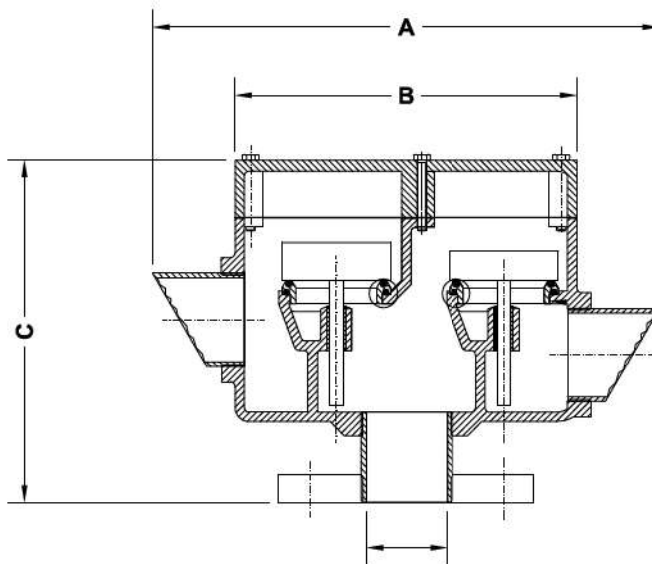
series 430
series B430
series 502
series B502

DESCRIPTION

STANDARD MATERIALS OF CONSTRUCTION

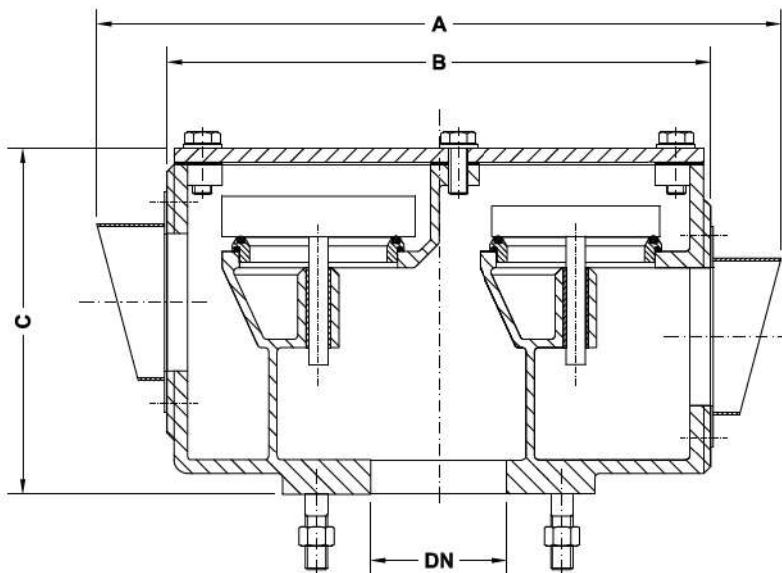
DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	ALUMINUM	CARBON STL	SS
nut, hex	SS	SS	SS
cover	AL GR 356 T6	CS	SS
gasket, cover	NON-ASB	NON-ASB	NON-ASB
pallet, pressure	SS	SS	SS
o-ring, plate pallet (2)	VITON	VITON	VITON
flange	SS	SS	SS
rod, guide	SS	SS	SS
stem, pressure	SS	SS	SS
body	AL GR 356 T6	CS	SS
stud - nut	SS	SS	SS

Breather valve *Vent to atmosphere*



DN				
DN	20	25	40	50
A	330	330	330	330
B	220	220	220	220
C	200	200	200	200
WIDTH	108	108	108	108
CODE	00430	00430	00430	00430

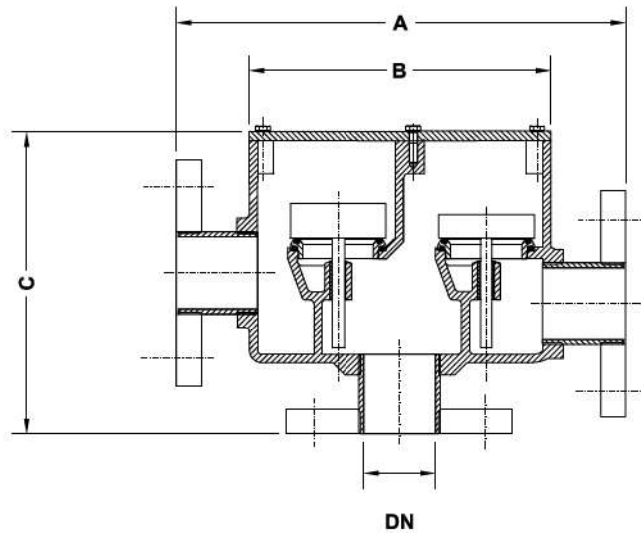
Breather valve *Vent to atmosphere*



DN	80	100	150	200	250	300	350
A	500	600	870	970	1150	1240	1460
B	320	400	600	740	850	970	1154
C	240	275	330	390	440	570	700
D	200	229	292	350	410	490	550
CODE	0502	0563	0624	1102	1118	1120	1141

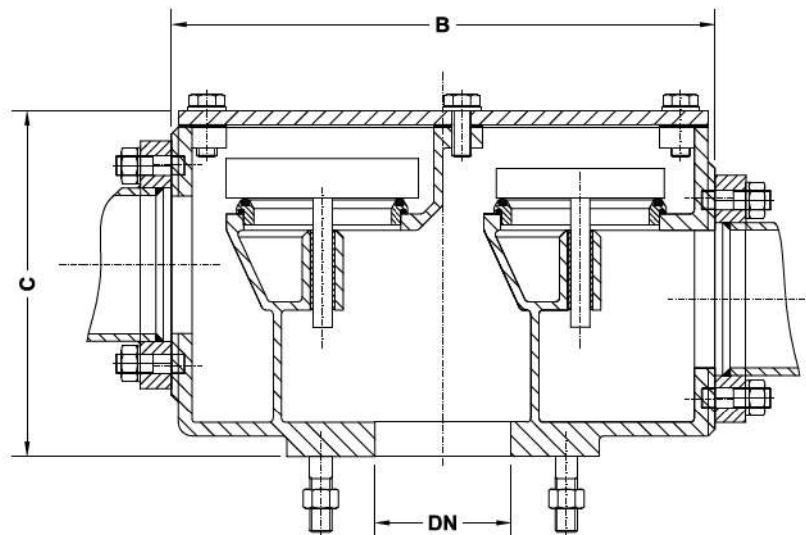
Dimensions shown are for reference only. Contact factory for certified drawings.

Breather valve *Pipe away*



DN	20	25	40	50
A	330	330	330	330
B	220	220	220	220
C	200	200	200	200
WIDTH	108	108	108	108
CODE	B0430	B0430	B0430	B0430

Breather valve *Pipe away*



DN	80	100	150	200	250	300	350
B	320	400	600	740	850	970	1154
C	240	275	330	390	440	570	700
WIDTH	200	229	292	350	410	490	550
CODE	B0502	B0563	B0624	B1102	B1118	B1120	B1141

Dimensions shown are for reference only. Contact factory for certified drawings.

Pressure Relief Valves Weight loaded



Pressure relief valves are weight loaded vents designed to prevent tank deformation caused by increase in internal pressure. When tank pressure reach valve pressure setting, weight loaded pallet is lifted allowing the excess pressure to be vented to atmosphere or to be piped-away. Pallets have knife edged ring with sealing or metal to metal. Mesh screen over inlet excludes foreign matter.

FEATURES

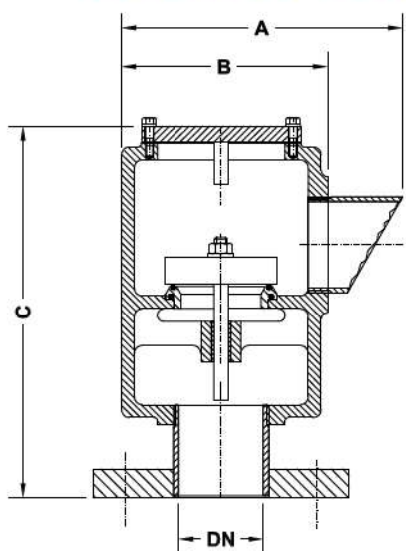
- **SIZE:** 1" (25 mm) through 14" (350 mm)
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **SETTING PRESSURE:** +2,5 mbar to +50 mbar
- **FLANGE RATING:** ANSI 150, PN16
- **ATEX manufacturing facility**
- **Tested and sized in accordance with API2000**

PRODUCTS:

- 6200 – vent to atmosphere 3/4" to 2"
- B6220 – pipe away 3/4" to 2"
- 6000 – vent to atmosphere 3" to 6 "
- B6000 – pipe away 3" to 6"
- 4000 – vent to atmosphere 8" to 14"
- B4400 – pipe away 8" to 14"
- 2100 – vent to atmosphere 2" to 8"

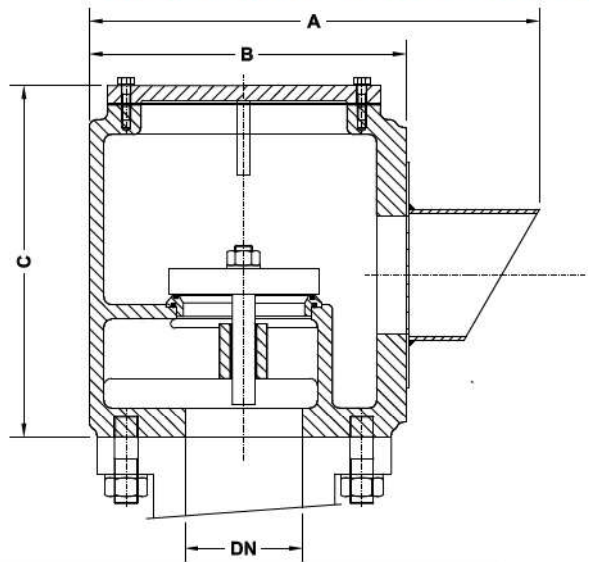
DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	ALUMINUM	CARBON STL	SS
nut, hex	SS	SS	SS
cover	AL GR 356 T6	CS	SS
gasket, cover	NON-ASB	NON-ASB	NON-ASB
pallet, pressure	SS	SS	SS
o-ring, plate pallet (2)	VITON	VITON	VITON
flange	SS	SS	SS
rod, guide	SS	SS	SS
stem, pressure	SS	SS	SS
body	AL GR 356 T6	CS	SS
stud - nut	SS	SS	SS

Pressure Relief Valves Weight loaded *Series 6000 - Vent to atmosphere*



DN	20	25	40	50
A	170	170	170	170
B	125	125	125	125
C	230	230	230	230
CODE	6200	6200	6200	6200

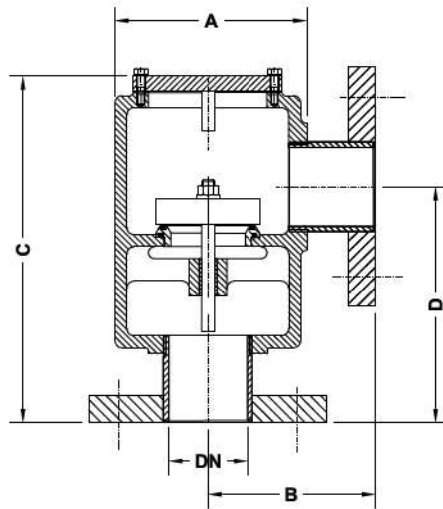
Pressure Relief Valves Weight loaded *Series 6000 - Vent to atmosphere*



DN	80	100	150
A	275	310	370
B	215	245	285
C	225	250	295
WIDTH	210	249	249
CODE	6001	6002	6003

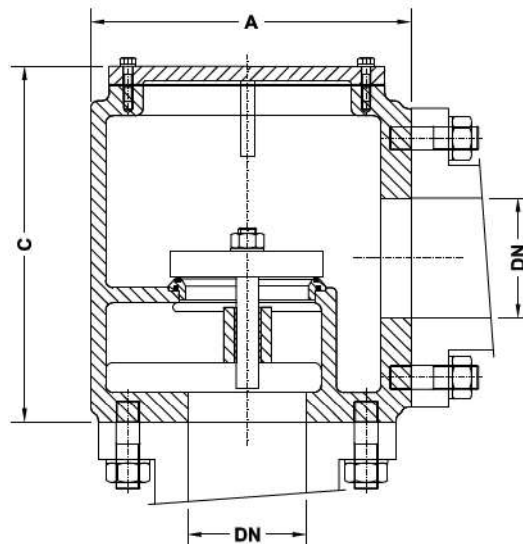
Dimensions shown are for reference only. Contact factory for certified drawings.

Pressure Relief Valves
 Weight loaded
 Series 6000 - Pipe away



DN	20	25	40	50
A	125	125	125	125
B	112	112	112	112
C	230	230	230	230
D	158	158	158	158
CODE	6220	6220	6220	6220

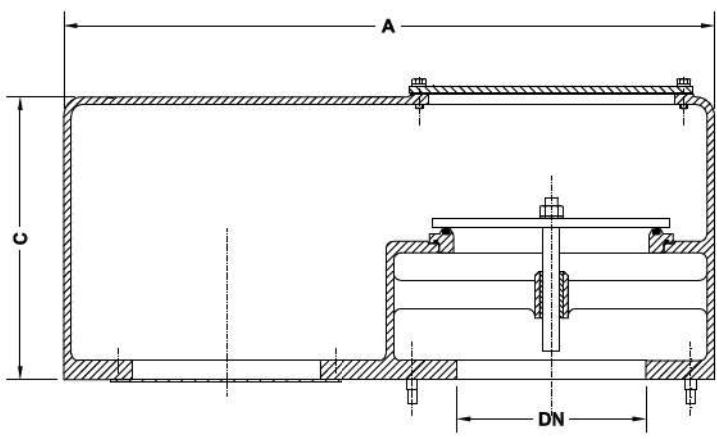
Pressure Relief Valves
 Weight loaded
 Series 6000 - Pipe away



DN	80	100	150
A	215	245	285
C	225	250	295
D	210	249	295
CODE	B6001	B6002	B6003

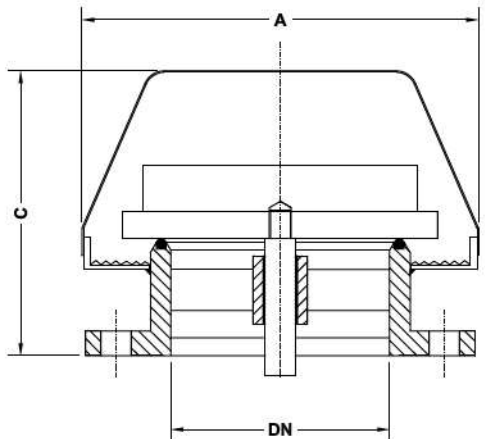
Dimensions shown are for reference only. Contact factory for certified drawings.

Pressure Relief Valves Weight loaded Series 4000 - Vent to atmosphere



DN	200	250	300	350
A	690	810	970	1070
C	300	320	330	390
WIDTH	345	408	484	534
CODE	3004	3005	3006	3007

Pressure Relief Valves Weight loaded Series 2100 - Vent to atmosphere



DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION	
	CARBON STL	SS
weatherhood	CS	SS
pallet weight	SS	SS
insert, seat	SS	SS
housing	CS	SS
screen	SS	SS
guide, stem	SS	SS
stem, pressure	SS	SS

DN	100	150	200
A	290	290	390
C	185	185	200
CODE	B2095	B2100	B2105

Dimensions shown are for reference only. Contact factory for certified drawings.

Vacuum Relief Valves Weight loaded



Vacuum relief valves are weight loaded vents designed to relieve negative pressure.

When tank vacuum reaches the valve vacuum setting the pallet is lifted from its seat ring allowing air or nitrogen to flow into the tank to relieve excess vacuum conditions, available with pipe-away feature. Pallets have knife-edged rings with sealing or metal-to-metal. Mesh screen over inlet excludes foreign matter.

FEATURES

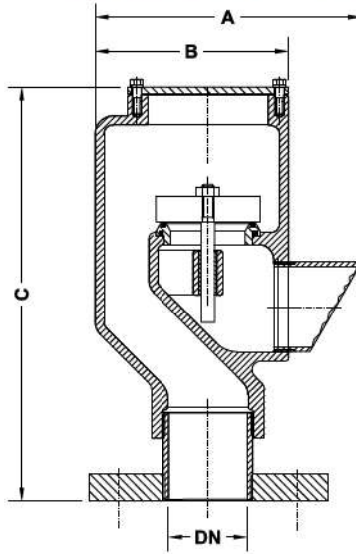
- **SIZE:** 1" (25 mm) through 14" (350 mm)
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **SETTING PRESSURE:** -2,5 mbar to -50 mbar upon request -450 mbar
- **FLANGE RATING:** ANSI 150, PN10, PN16

PRODUCTS:

- series 5200 – atmospheric inlet - 1/2" to 2"
- series B5220 – piped inlet - 1/2" to 2"
- series 5000 – atmospheric inlet - 3" to 6"
- series B5000 – flanged inlet - 3" to 6"
- series 3000 – atmospheric inlet - 8" to 14"
- series B3000 – flanged inlet - 8" to 14"

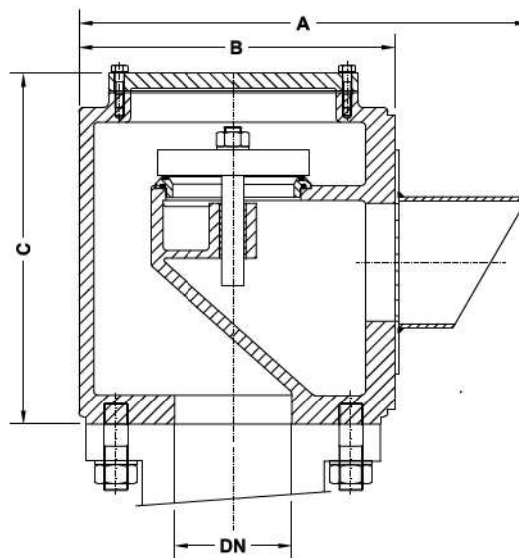
DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION		
	ALUMINUM	CARBON STL	SS
nut, hex	SS	SS	SS
cover	AL GR 356 T6	CS	SS
gasket, cover	NON-ASB	NON-ASB	NON-ASB
pallet, pressure	SS	SS	SS
o-ring, plate pallet (2)	VITON	VITON	VITON
flange	SS	SS	SS
rod, guide	SS	SS	SS
stem, pressure	SS	SS	SS
body	AL GR 356 T6	CS	SS
stud - nut	SS	SS	SS

Vacuum Relief Valves Weight loaded *Series 5000 - Vent to atmosphere*



DN	25	40	50
A	170	170	170
B	130	130	130
C	283	283	283
WIDTH	108	108	108
CODE	5200	5200	5200

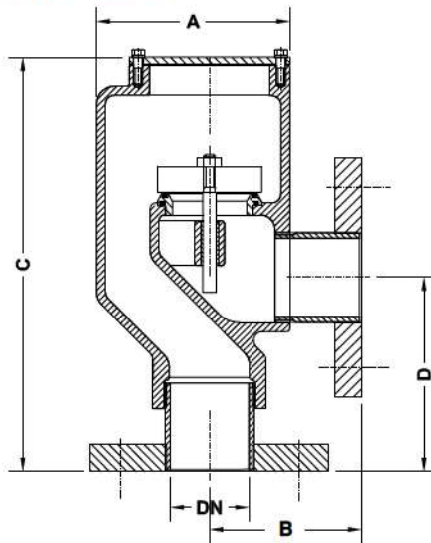
Vacuum Relief Valves Weight loaded *Series 5000 - Vent to atmosphere*



DN	80	100	150
A	265	305	380
B	215	245	310
C	225	250	320
WIDTH	210	240	285
CODE	B5001	B5002	B5003

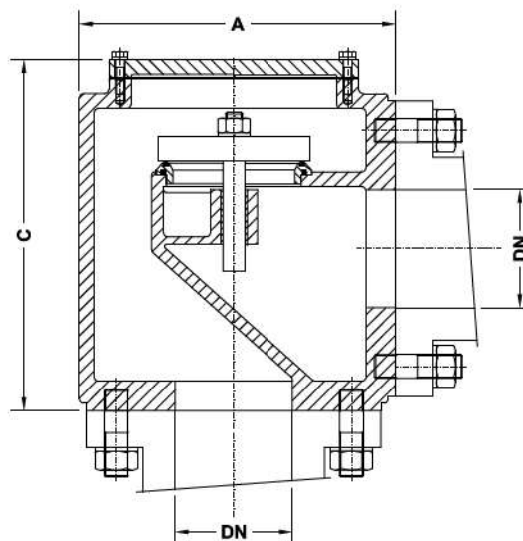
Dimensions shown are for reference only. Contact factory for certified drawings.

Vacuum Relief Valves
Weight loaded
Series 5000 - Pipe away



DN	20	25	40	50
A	130	130	130	130
B	98	98	98	98
C	283	283	283	283
D	120	120	120	120
CODE	5220	5220	5220	5220

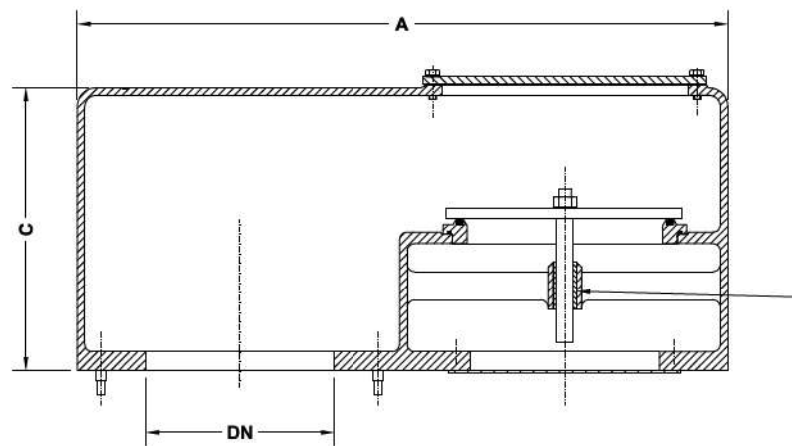
Vacuum Relief Valves
Weight loaded
Series 5000 - Pipe away



DN	80	100	150
A	215	245	310
C	225	250	320
WIDTH	210	240	285
CODE	B5001	B5002	B5003

Dimensions shown are for reference only. Contact factory for certified drawings.

Vacuum Relief Valves Weight loaded *Series 3000 - Vent to atmosphere*



DN	200	250	300	350
A	690	810	970	1070
C	300	320	330	390
WIDTH	345	408	484	534
CODE	3004	3005	3006	3007

Dimensions shown are for reference only. Contact factory for certified drawings.

Sample and Gauge hatches

Hatches are made in model: type "LP" sealed closing hatches, to keep inside the tank a pressure beyond 50-70 bar.

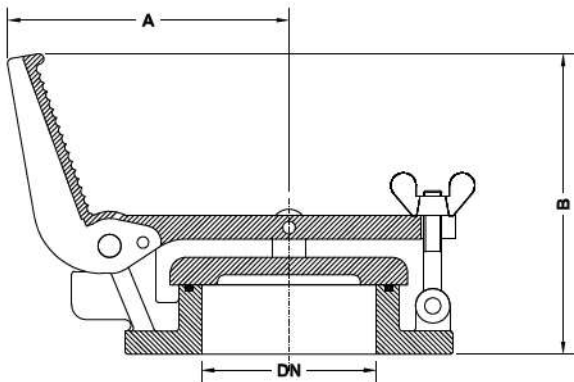


FEATURES

- **SIZE:** 4" - 8"
- **CONSTRUCTED:** Aluminium
- **FLANGE RATING:** ANSI 150LB - PN16
- **Flange Faces:** FF
- **Connections:** Flanged

PRODUCTS

Series LP



DESCRIPTION

STANDARD MATERIAL OF CONSTRUCTION

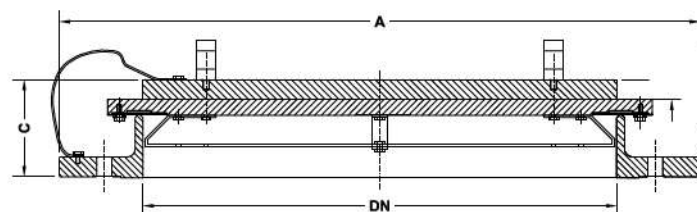
ALUMINIUM

arm	Aluminium
base	Aluminium
lid gasket	PTFE/VITON
lid	Aluminium
swing bolt	SS
roll pin	SS

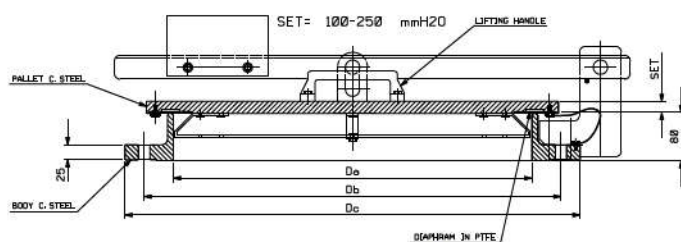
DN	4"	6"	8"
A	210	245	267
B	210	240	240
CODE	LP603	LP701	LP592

Dimensions shown are for reference only. Contact factory for certified drawings.

Emergency vents Roof Manhole Cover



Weight loaded



Weight loaded hinged

Sized to provide emergency relief due to overpressure from tank inside.

When internal pressure is beyond the capacity off breather vent.

To be used also as "manhole" with sizes 20"-24"

Venting requirements can be calculated using API2000.

Available also weight loaded hinged arm design.

FEATURES

- **SIZE:** 10" - 20" - 24"
- **CONSTRUCTED:** carbon steel, stainless steel, additional metals and coatings
- **SETTING PRESSURE:** +30mbar max
- **FLANGE RATING:** ANSI 150, PN10, PN16

PRODUCTS:

2500

DESCRIPTION	STANDARD MATERIALS OF CONSTRUCTION	
	CARBON STL	SS
cable, retention	SS	SS
body	CS	SS
diaphragm (2) (3)	Teflon® FEP	Teflon® FEP
pallet	SS	SS
weight, plate	CS	CS
plate, retainer	SS	SS
nut, hex, washer	SS	SS

DN	10"	20"	24"
A	406	715	840
C	100+S	100+S	100+S
CODE	2460	2500	2510
datasheet	25set	25set	25set

Dimensions shown are for reference only. Contact factory for certified drawings.

Special features

Blanketing system



FEATURES

- **SIZE:** 2" (50mm) - 6" (150mm)
- **CONSTRUCTED:** Aluminium, Carbon Steel & Stainless Steel, additional metals and coatings
- **FLANGE RATING:** ANSI 150LB - PN16
- **Flange Faces:** RF, FF
- **Connections:** Flanged

Vent-line / In-line flame arresters



Flame arresters are at time mounted directly upstream or on vacuum inlet of breather vents.

FEATURES

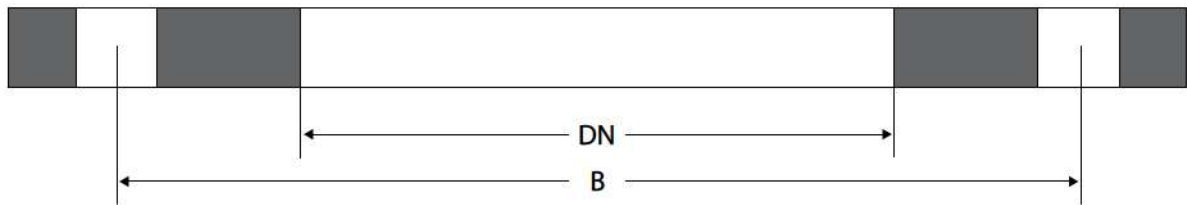
- **SIZE:** 2" (50 mm) through 14" (350 mm)



Reference list

3V GREEN EAGLE S.P.A.	CHEMICAL	FATA ENGINEERING GROUP	ENGINEERING
3V SIGMA	CHEMICAL	FELCHER LUIGI	ENGINEERING
5P ENGINEERING	BIOGAS	FISIA ENGINEERING	ENGINEERING
ABB POWER GEN.	CHEMICAL	FORMOSA	CHEMICAL
ACS DOBFAR	PHARMA	FOSTER WHEELER	ENGINEERING
ADPO	CHEMICAL	GENERAL EUROPE VACUUM	ENGINEERING
AFROS	CHEMICAL	GESCO SRL	ENGINEERING
AGIPLASS ROBASSOMERO	PETROCHEMICAL	HENKEL SPA	CHEMICAL
AGROLINZ MELANINE	CHEMICAL	HOECHST	PETROCHEMICAL
AIR LIQUIDE	CRIOGENIC	ICAP-SIRA CHEMICALS	CHEMICAL
AKZO CHEMICALS	CHEMICAL	ICC SENECA SRL	ENGINEERING
ALCAN PECHINEY	CHEMICAL	ITAL	CHEMICAL
ALFA CHEMICALS	CHEMICAL	ITALWISAD SRL	ENGINEERING
ALOSUISSE ITALIA	BIOGAS	LENNETAL	BIOGAS
ANSALDO INDUSTRIES	ECOLOGY	LS ENGINEERING SRL	ENGINEERING
API RAFFINERIA DI ANCONA SPA	PETROCHEMICAL	LUBRIZOL	CHEMICAL
ATLAS EUROPOL	CHEMICAL	LURGI	ENGINEERING
ATOFINA	PETROCHEMICAL	MAERSK OLIE OG GAS AS	ENGINEERING
AUSIMONT	CHEMICAL	NAN YA	CHEMICAL
AVENTIS	PHARMA	NEC S.R.L.	ENGINEERING
BAKELITE ITALIA	CHEMICAL	NESTE	ENGINEERING
BALLESTRA ENGINEERING	PETROCHEMICAL	NOYVALLESINA ENGINEERING SPA	ENGINEERING
BARLOCHER D	CHEMICAL	ORIL INDUSTRIE	CHEMICAL
BASF VERNICI E INCHIOSTRI SPA	CHEMICAL	OXON ITALIA SPA	CHEMICAL
BELLELI ENGINEERING	ENGINEERING	PERONI POMPE SPA	POMPS
BUHLER MIAG	CHEMICAL	POLIOLI SPA	CHEMICAL
BUSCH ITALIA	PUMPS	POLYMERLATEX SRL	CHEMICAL
BVPHARMES S.R.L.	PHARMA	POLYSYSTEMS SPA	CHEMICAL
CAFFARO	CHEMICAL	PORTO PETROLI DI GENOVA	PETROCHEMICAL
CARGILL S.R.L. DIV. CERESTAR	CHEMICAL	PPG	CHEMICAL
CGM COSTRUZIONI	ENGINEERING	PPG INDUSTRIES ITALIA SPA	PAINT
CHEMIT S.R.L.	CHEMICAL	PRAOIL OLEODOTTI ITALIANI SPA	REFINERY
CHIMEX	CHEMICAL	PRESSINDUSTRIA	ENGINEERING
CIBA SPECIALITY CHEMICALS SPA	PHARMA	PROCOS SPA	CHEMICAL
CLARIANT	CHEMICAL	PROCTER & GAMBLE ITALIA	CHEMICAL
COGNIS	CHEMICAL	RADICI CHIMICA SPA	CHEMICAL
COMBER	ENGINEERING	RHODIA SPA	CHEMICAL
COMBUSTION SERVICE SRL	ENGINEERING	ROHM AND HAAS	CHEMICAL
CRAY VALLEY ITALIA SRL	CHEMICAL	ROSETTI MARINO	ENGINEERING
CYLINGAS	ENGINEERING	SANOFI	CHEMICAL
DEC IMPIANTI	ENGINEERING	SASOL ITALY SPA	PETROCHEMICAL
DETECLINE SRL	ENGINEERING	SEKO BONO EXACTA	ENGINEERING
DIPHARMA SPA	PHARMA	SIAD MACCHINE ED IMPIANTI	CRIOGENIC
DISTILLERIE TRANI	BIOGAS	SIEMENS	ENGINEERING
DOW ITALIA SRL	CHEMICAL	SOLVAY SOLEXIS	CHEMICAL
ECOSERVIZI	ECOLOGY	TASNEE	CHEMICAL
ECOTECNICA	ECOLOGY	TECNIMONT	ENGINEERING
ENI S.P.A. DIVISIONE REFINING	REFINERY	TOTAL	PETROCHEMICAL
ENICHEM MANTOVA	CHEMICAL	TVK	CHEMICAL
ENICHEM POLIMERI	CHEMICAL	UHU	CHEMICAL
ENICHEM SYNTHESIS	CHEMICAL	VOPAK	CHEMICAL
ENOC	CHEMICAL	WESTFALIA SEPARATION	CHEMICAL
ESSECO S.R.R.	ECOLOGY	ZAMBON GROUP SPA	PHARMA
FARMABIOS S.P.A.	PHARMA	ZANELLI SRL	CHEMICAL

Flange connections



ANSI 150				
Nominal Diameter		Bolt Hole Diameter	N° of Holes	Bolt Circle Diameter
DN	Inch	B (mm)		A (mm)
15	1/2"	16,0	4	60,3
20	3/4"	16,0	4	69,8
25	1"	16,0	4	79,4
32	1,1/4"	16,0	4	88,9
40	1,1/2"	16,0	4	98,4
50	2"	19,0	4	120,6
80	3"	19,0	4	152,4
100	4"	19,0	8	190,5
150	6"	22,0	8	241,3
200	8"	22,0	8	298,5
250	10"	25,5	12	362,0
300	12"	25,5	12	431,5
350	14"	28,5	12	476,2
400	16"	28,5	16	539,7
450	18"	32,0	16	577,8
500	20"	32,0	20	635,0
600	24"	35,0	20	749,3

PN10				
Nominal Diameter		Bolt Hole Diameter	N° of Holes	Bolt Circle Diameter
DN	Inch	B (mm)		A (mm)
15	1/2"	14,0	4	65,0
20	3/4"	14,0	4	75,0
25	1"	14,0	4	85,0
32	1,1/4"	18,0	4	100,0
40	1,1/2"	18,0	4	110,0
50	2"	18,0	4	125,0
80	3"	18,0	8	160,0
100	4"	18,0	8	180,0
150	6"	22,0	8	240,0
200	8"	22,0	8	295,0
250	10"	22,0	12	350,0
300	12"	22,0	12	400,0
350	14"	22,0	16	460,0
400	16"	25,0	16	515,0
450	18"	25,0	20	565,0
500	20"	25,0	20	620,0
600	24"	29,0	20	725,0

ANSI 300				
Nominal Diameter		Bolt Hole Diameter	N° of Holes	Bolt Circle Diameter
DN	Inch	B (mm)		A (mm)
15	1/2"	16,0	4	66,7
20	3/4"	19,0	4	82,5
25	1"	19,0	4	88,9
32	1,1/4"	19,0	4	98,4
40	1,1/2"	22,0	4	114,3
50	2"	19,0	8	127,0
80	3"	22,0	4	168,3
100	4"	22,0	8	200,0
150	6"	22,0	12	269,9
200	8"	25,5	12	330,2
250	10"	28,5	16	387,3
300	12"	32,0	16	450,8
350	14"	32,0	20	514,3
400	16"	35,0	20	571,5
450	18"	35,0	24	628,6
500	20"	35,0	24	685,8
600	24"	41,5	24	812,8

PN16				
Nominal Diameter		Bolt Hole Diameter	N° of Holes	Bolt Circle Diameter
DN	Inch	B (mm)		A (mm)
15	1/2"	14,0	4	65,0
20	3/4"	14,0	4	75,0
25	1"	14,0	4	85,0
32	1,1/4"	18,0	4	100,0
40	1,1/2"	18,0	4	110,0
50	2"	18,0	4	125,0
80	3"	18,0	8	160,0
100	4"	18,0	8	180,0
150	6"	22,0	8	240,0
200	8"	22,0	12	295,0
250	10"	25,0	12	355,0
300	12"	25,0	12	410,0
350	14"	25,0	16	470,0
400	16"	29,0	16	525,0
450	18"	29,0	20	585,0
500	20"	33,0	20	650,0
600	24"	36,0	20	770,0