



EXPLOSION PROTECTION

- VENTING PANELS
- FLAMELESS VENTING
- EXPLOSION VENTING DEFLECTORS
- EXPLOSION ISOLATION VALVE
- EXPLOSION DIVERTERS

VENTING PANELS

Venting panels are the most popular way to protect enclosures (such as dust collectors, silos etc) against dangerously high pressure increase caused by explosions inside those enclosures.

Venting panels work as weak surfaces installed in the walls of enclosures. When an explosion occurs venting panels open rapidly and release the explosion pressure and flame with burning particles outside the enclosure. The pressure inside the enclosure is lowered to a safe level.

However, in order to make the whole venting process safe, it is **neccessary to calculate the venting area accurately for a given enclosure or do tests, which determine the pressure resistance of the enclosure.**

Data needed for the calculations include: dust characteristic parameters such as explosivity class, and also dimensions and shape of the enclosure, static activation overpressure and dust cloud conditions inside the enclosure.

In other words the size and number of venting panels which should be installed on a given device to protect it against effects of an explosion.



Venting panel model VL

- integrated flange
- black EPDM gasket
- Max pressure: 50 mbar



SHAPES AND DIMENSIONS OF VIGILEX PANELS

VL



- flat panel with integrated flange
- Max vacuum: 50 mbar

VL-S



- flat panel without flange
- Max vacuum: 50 mbar

VL SANITARY



- panel for sanitary use
- Max vacuum: 50 mbar

VD



- domed panel with flange
- Max vacuum: 50 mbar

VL-R



- curved panel
- Max vacuum: 50 mbar

VD-HV



- domed panel
- Max vacuum: 200-600 mbar



CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X



PANEL VIGILEX VL

The VIGILEX VL panels are suitable for all applications with low vacuum or working pressure (up to 50 % of static burst pressure) such as elevators, conveyors, silos, cyclones.

- stainless steel 304L
- black EPDM gasket (-40°C+80°C)
- integrated stainless steel



Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VL	rectangular, square, round	0,1 - 0,5 bar (±15%)	80 – 100%	50 mbar	500 bar.m/s

» ADDITIONAL OPTIONS

- panel made of stainless steel 316L
- silicone white FDA gasket FDA 1935/2004 CE (-60°C+200°C)
- high temperature resistant graphite gasket (-200°C+500°C)
- integrated flange made of stainless steel 316L

» CERTIFICATES



- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X



PANEL VIGILEX VL-S

The VIGILEX VL-S panel is a low-cost solution suitable for all applications with low vacuum or working pressure (up to 50 % of static burst pressure) such as elevators, conveyors, silos, cyclones.

- stainless steel 304L
- black EPDM gasket (-40°C+80°C)
- without flange



Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VL-S	rectangular, square, round	0,1 - 0,5 bar (±15%)	80 – 100%	50 mbar	500 bar.m/s

» ADDITIONAL OPTIONS

- panel made of stainless steel 316L
- silicone FDA gasket 1935/2004 CE (-60°C+200°C)
- high temperature resistant carbon gasket (-200°C+500°C)

» CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X



PANEL VIGILEX VL-SANITARY

The VL-SANITARY panels are designed especially for hygienic applications in food or pharmaceutical industry. Dedicated to protect systems with low vacuum or working pressure (up to 50 % of static burst pressure) such as spray dryers. The advanced technology prevents contaminations.



- stainless steel 316L
- food approved Blue FKM gasket (-10°+250°C): FDA, 1935/2004CE
- integrated stainless steel 316L flange
- clean design and bacteriological barrier

Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VL-SANITARY	rectangular, square	0,1 - 0,5 bar (±15%)	80 – 100%	50 mbar	500 bar.m/s



» CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X
- EHEDG: C1900020
- INERIS 08ATEXQ406



PANEL VIGILEX VD

The VIGILEX VD is a domed panel, designed to protect industrial plants with a vacuum and pulsating processes. The domed design is optimal for pneumatic operated vessels like filters and cyclones with strong vibration.

- stainless steel 304L
- black EPDM FDA gasket (-40°C+80°C)
- integrated stainless steel flange



Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VL-D	rectangular, square, round	0,1 - 0,5 bar (±15%)	80 – 100%	200 mbar	500 bar.m/s

» ADDITIONAL OPTIONS

- panel made of stainless steel 316L
- white silicone FDA gasket 1935/2004 CE (-60°C+200°C)
- high temperature resistant graphite gasket (-200°C+500°C)
- integrated stainless steel 316L flange

» CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X



PANEL VIGILEX VL-R

The VIGILEX VL-R panel is a curved panel shaped in accordance to customers' need. Suitable for all applications with low vacuum or working pressure (up to 50 % of static burst pressure) such as elevators, conveyors, silos, cyclones.



- stainless steel 304L
- black EPDM FDA gasket (-40°C+80°C)
- integrated stainless steel flange
- curved - radius on request

Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VL-R	rectangular, square	0,1 - 0,5 bar (±20%) 0,1 - 0,5 bar (±15%)	80 – 100%	50 mbar	500 bar.m/s

» ADDITIONAL OPTIONS

- panel made of stainless steel 316L
- white silicone FDA gasket 1935/2004 CE (-60°C+200°C)
- high temperature resistant graphite gasket (-200°C+500°C)
- integrated stainless steel 316L flange

» CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X
- INERIS 08ATEXQ406



PANEL VIGILEX VD-HV

The VIGILEX VD-HV is a strong domed panel for plants where operating pressure gets close to burst pressure, or where high vacuum pressure may exist and also where venting panels are exposed to pulsation work such as reverse jet cleaning systems on high vacuum dust collectors.



- stainless steel 304L
- black EPDM FDA gasket(-40°C+80°C)
- integrated stainless steel flange
- curved - radius on request

Panel	Available shapes	Pstat@22°C	Efficiency ratio	Max vacuum	Kst Max
VD	rectangular, square, round	0,1 - 0,5 bar (±15%)	80 – 100%	200 mbar	500 bar.m/s

» ADDITIONAL OPTIONS

- stainless steel 316L
- white silocone FDA gasket 1935/2004 CE (-60°C+200°C)
- high temperature resistant graphite gasket (-200°C+500°C)
- integrated stainless steel 316L

» CERTIFICATES

- Ex II GD
- EN 14 491
- EN 14 994
- EN 14 797
- EN 1127.1
- INERIS 15ATEX0001X



VIGIFLAM VQ - FLAMELESS EXPLOSION VENTING

The flameless explosion venting device VIGIFLAM VQ eliminates the spread of flame and arrests burning particles of the explosion.

VIGIFLAM VQ can be used indoors and outdoors which makes the installation designing process much easier. The device is designed to be used with the following venting panels: VL (flat) and VD (domed) panel types, and also with VL-R (curved) panels for cylindrical vessels.

We offer two versions:

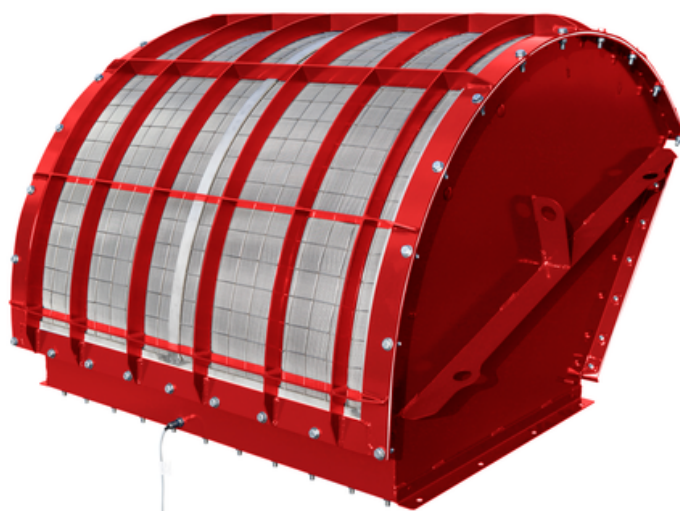
- VIGIFLAM VQ LW light weight - Pred: 0,5 bar
- VIGIFLAM VQ HW heavy weight - Pred: 2,3 bar

VIGIFLAM VQ LW	Kst max 500	Pmax≤10 bar	Pred≤0,5 bar	Pstat = 0,1 do 0,3 bar
VIGIFLAM VQ HW	Kst max 500	Pmax≤10 bar	Pred≤2,3 bar*	Pstat = 0,1 do 0,3 bar

*Pred <1,85 dla VQ > 586x920

» CERTIFICATES

- Ex II GD
- EN II 2 D
- EN 16009
- INERIS 14ATEX0049X
- INERIS 08ATEXQ406



FLAMELESS VENTING

VIGIFLAM VQ SPECIFICATION

VIGIFLAM VQ	IN COMBINATION WITH VENTING PANEL		BOLTS	
MODEL	NOMINAL SIZE	SURFACE	QTY	SIZE
170 x 470 mm	170 x 470 mm	0,0785 m2	20	M10 x 30
270 x 458 mm	270 x 458 mm	0,1220 m2	22	M10 x 30
300 x 500 mm	300 x 500 mm	0,1480 m2	24	M10 x 30
305 x 610 mm	305 x 610 mm	0,1840 m2	26	M10 x 30
350 x 650 mm	350 x 650 mm	0,2250 m2	26	M10 x 30
490 x 590 mm	490 x 590 mm	0,2865 m2	32	M10 x 30
610 x 610 mm	610 x 610 mm	0,3695 m2	32	M10 x 30
457 x 890 mm	457 x 890 mm	0,4040 m2	34	M10 x 30
586 x 920 mm	586 x 920 mm	0,5360 m2	42	M10 x 30
645 x 1130 mm	645 x 1130 mm	0,7250 m2	34	M10 x 30
920 x 920 mm	920 x 920 mm	0,8425 m2	50	M10 x 30
1130 x 1130 mm	1130 x 1130 mm	1,2720 m2	58	M10 x 30



ADVANTAGES

- inspection window (with VQ LW only)
- access door
- additional options:
 - protective cover
 - valve made of stainless steel



EXPLOSION VENTING DEFLECTORS - VIGISPACE

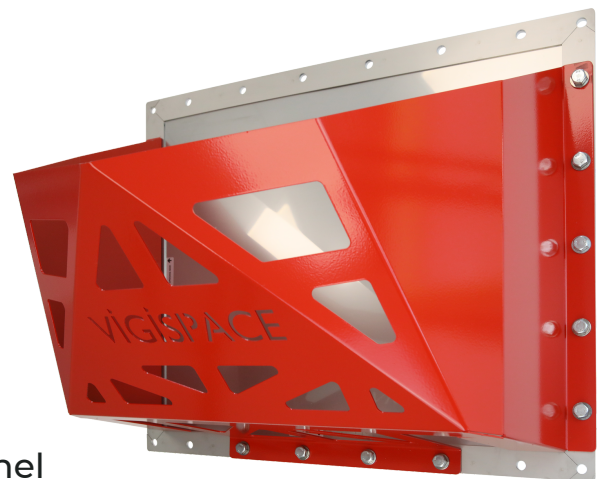
In order to protect people and facilities against explosions that might happen when working with explosive dust, the flame and pressure of explosion need to be guided into a safety area - the VIGISPACE explosion venting deflector is a perfect solution to do that.

When explosion occurs, explosion venting panels open up and release the explosion into the environment. The released pressure and flames are a deadly danger for people and a risk of damage of neighbouring facilities, parked vehicles, etc.

To avoid such risks it is best to instal the VIGISPACE deflector, which limits the opening angle of the explosion venting panel and guides the explosion upwards. By decreasing the size of the defined dangerous area (where explosion is released into), VIGISPACE helps to reduce the required safety zone to a minimum and increases the usable operating space. By guiding the explosion upwards, the VIGISPACE deflector provides maximum protection for people, buildings, machines and vehicles.

» CHARACTERISTICS:

- $K_{st} \max \leq 200 \text{ bar/s}$
- $P_{\max}: 10 \text{ bar}$
- $P_{\text{red of the enclosure}}: \leq 0,7 \text{ bar}$
- Discharge angle: 35° w góre
- $P_{\text{stat}}: \leq 0,1 \text{ bar}$
- Hydraulic diameter: $D_h \leq 1,2 \text{ m}$
- Efficiency: 60%
- Working temperature: depends on panel



- » VIGISPACE can be used with Vigilex VL and VD venting panels only.



VIGIFLAP - EXPLOSION ISOLATION VALVE

VIGIFLAPs are non-return flap valves designed to prevent the overpressure and flames caused by explosion inside enclosed vessels (such as dust collectors or silos) from spreading along the connected pipelines.

In case of explosion, the flap is closed instantly by a shock wave and remains locked preventing the spread of the overpressure and flames to other parts of the system. After activation, the flap valve can be unlocked manually only.

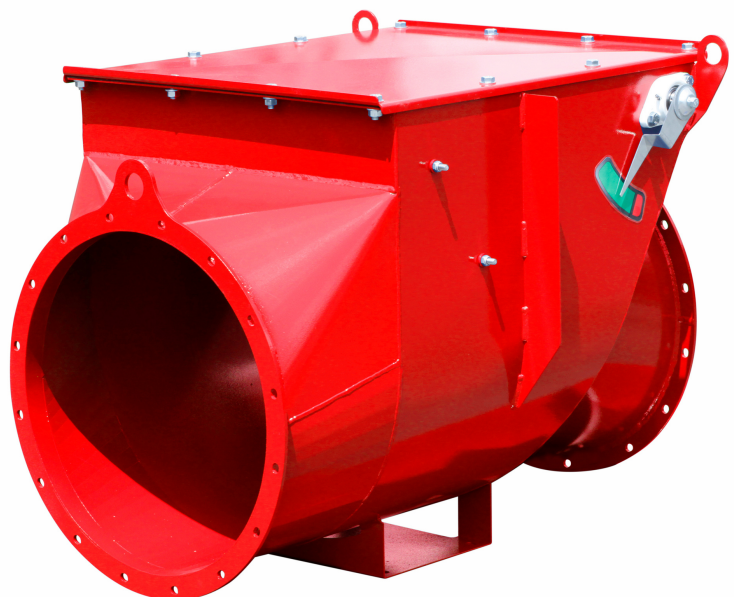
The VIGIFLAP valves are installed on pipelines at a specified distance from the protected vessel, either in horizontal or vertical position, thanks to which they work as a multilevel protection of a dedusting system.

» **STANDARD VERSION**

- Body made of carbon steel, painted
- Flap made of stainless steel
- Diametres from Ø160mm to Ø800mm
- EPDM FDA gasket: -30°C to +70°C
- ISO and ANSI flange design
- Inductive sensor (non ATEX) closing indication sensors in case of explosion or overpressure

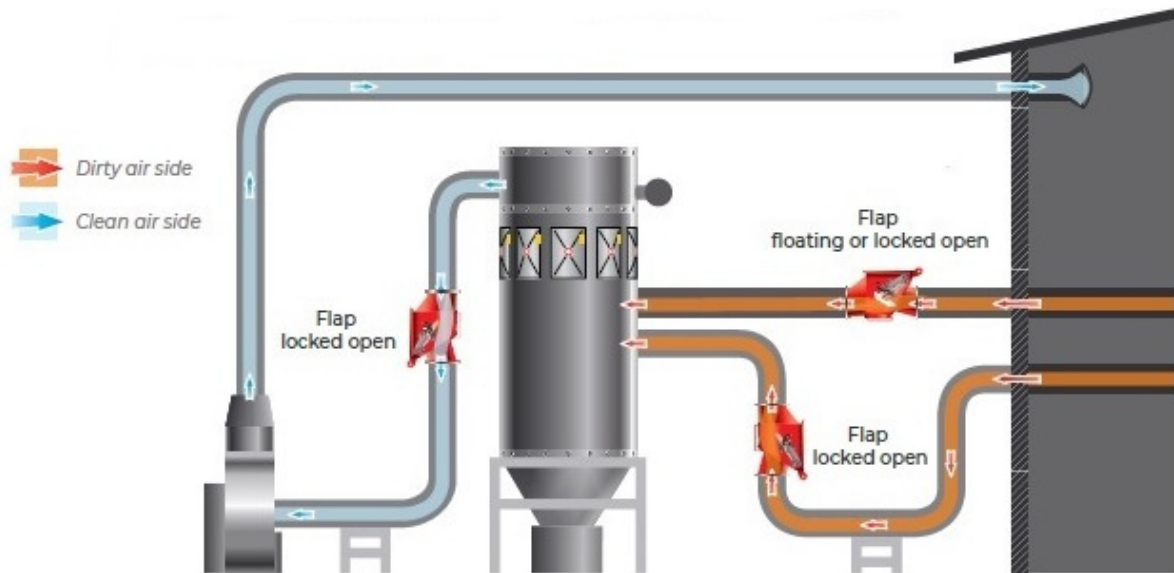
» **CERTIFICATES**

- INERIS 19ATEX0016X
- 2014/34/UE
- EN16447, EN 15089
- EN 1127-1, EN 14460
- NFPA 69:2019
- INERIS 08ATEXQ406
- ISO9001:2015



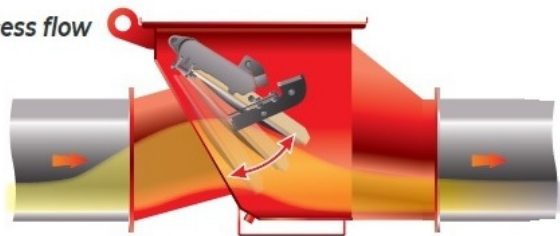
ISOLATION FLAP VALVE - EXPLOSION ISOLATION

The VIGIFLAP valves can be installed on both dirty or clean air side of a dust collector, and what differentiates them from other valves available on the market, they can be installed in both horizontal and vertical position. Below VIGIFLAP installation postions are presented:



1 *Flap is held open by process flow*

INSTALLATION
WITH
FLOATING FLAP



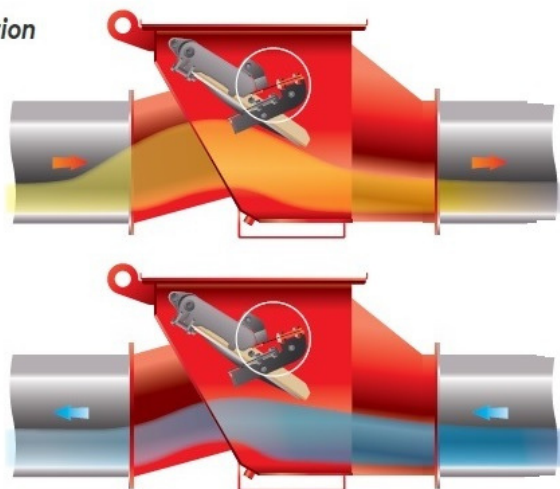
2 *Flap locked in open position*

INSTALLATION
WITH FLAP
LOCKED OPEN

Locked
open flap for
dirty airside

OR

Locked
open flap for
clean airside



ISOLATION FLAP VALVE - EXPLOSION ISOLATION

When explosion occurs, the VIGIFLAP is instantly closed by the pressure wave and is blocked in this position. In order to open the flap again, it needs to be done manually.



In order to obtain the ATEX certificate for the VIGIFLAP (nr 19ATEX0016X) explosion tests had to be carried out in accordance with EN 16447:2014. The explosion testing was performed in the most extreme conditions and as close to real life conditions as possible to make sure VIGIFLAP valves provide best protection against explosion. Therefore, the testing was carried out:

- with the VIGIFLAP installed on a pipe with a long pipe line behind the valve, not at the end of a pipeline - see the photo below
- with the flap of the valve in a completely open position
- the protected vessel used for testing was equipped with venting panels (just as it is in reality) in each test.



Photos taken during testing of VIGIFLAP d800 mm
(protected vessel of 10m³, dust Kst250 bar.m/s)



V-DEX EXPLOSION DIVERTERS

V-DEX diverters are used to deflect and vent explosions propagating along the ducts. They prevent the spread of flames and overpressure to connected vessels.

MODEL	KST MAX 500	Pred. Max	PMAX	PYŁ
V-DEX	$St2 \leq 300 \text{ bar.m/s}$	0,8 bar	$\leq 12 \text{ bar}$	every kind of dust

» STANDARD VERSION

- body made of carbon painted steel
- equipped with VD venting panel (domed)

» ADDITIONAL OPTIONS

- body made of stainless steel
- discharging duct

» CERTIFICATES

- EN 14797
- EN 14491



ATEX PROTECTIVE SYSTEMS AND DEVICES

- decompressive panels
- flameless venting device
- explosion deflectors
- explosion isolation rotary valves
- explosion isolation flap valves
- explosion diverters

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