

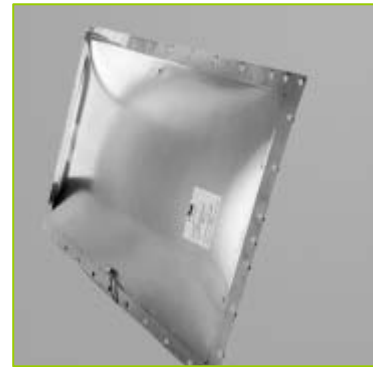
Explosion Vents

ATEX approved Explosion vents and detection.

Storage and handling of grain and powders inherently produces dusty conditions that can lead to potentially dangerous explosions. Elfab's explosion vents are designed to open at pre-determined burst pressures to protect against the severity of these explosions.

Elfab adopt and deploy its design codes to ensure they comply with all relevant legislation. Elfab is unique in having its panels approved as a "protective System" II GD (when used with an Elfab approved Frame).

Elfab's flat panels offer an economic and efficient means of protecting plant from overpressure caused by an explosion. Domed panels bring the additional benefit of enhanced operating performance under cyclic pressure, back pressure and vacuum conditions.

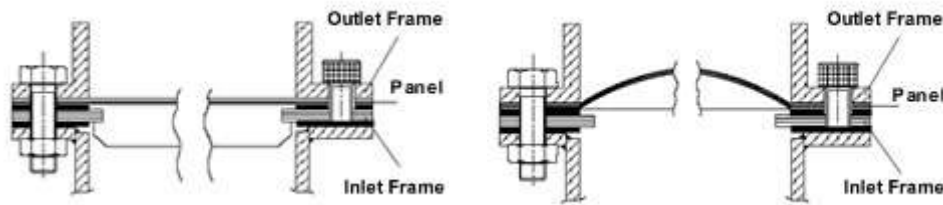


- Fail-Safe rapid full venting
- Maintenance free
- Non-fragmenting design
- Vacuum and back pressure capability
- High temperature capability
- Excellent corrosion resistance
- Dust tight seal
- Low installation costs

Explosion Vents

Specifications	
Size Range (Standard Vent Area)	0.02 m ² to 2.03 m ²
Set Pressure Range (Standard)*	0.05 barg & 0.1barg (0.7psig & 1.45psig)
Temperature Range	-40°C to +250°C (-40°F to +482°F)
Fragmentation on Burst	No
Vacuum Service	Back Pressure Capable
Material Range	Stainless Steel as Standard. Others Available
Designs	Rectangular, Circular, Trapezoidal

*Elfab's Explosion Vents are manufactured in set burst pressures 0.05barg and 0.1barg. Other pressures may be available. Please contact us for more information.



Flat panels offer an economic and efficient means of protecting plant from overpressure caused by an explosion.

Domed panels bring the additional benefit of enhanced operating performance under cyclic pressure, back pressure and vacuum conditions.

The issue of relief area required by the wide variety of applications is addressed by offering custom sizes in the following designs: square, rectangular, trapezoidal and circular vents sizes across an extensive range of sizes.

Elfab has unique 3D laser cutting and testing facilities that enable us to produce competitively priced, certified opening bursting panels in any configuration and in any bolt pattern.

Domed Explosion Vent - Standard Sizes

Type	External Dimensions mm	Internal Dimensions mm	Vent Area m ²	Product Code
Rectangular Domed	2120x1120	2020x1020	2.03	VNT-XSD
Rectangular Domed	1580x1080	1500x1000	1.48	VNT-XSD
Rectangular Domed	1220x1220	1140x1140	1.27	VNT-XSD
Rectangular Domed	1604x842	1524x762	1.14	VNT-XSD
Rectangular Domed	1100x1100	1020x1020	1.02	VNT-XSD
Rectangular Domed	1000x1000	920x920	0.83	VNT-XSD
Rectangular Domed	850x850	770x770	0.58	VNT-XSD
Rectangular Domed	1000x666	920x586	0.52	VNT-XSD
Rectangular Domed	1100x600	1000x500	0.48	VNT-XSD
Rectangular Domed	750x750	670x670	0.44	VNT-XSD
Rectangular Domed	735x735	655x655	0.42	VNT-XSD
Rectangular Domed	1000x500	920x420	0.37	VNT-XSD
Rectangular Domed	690x590	610x510	0.30	VNT-XSD
Rectangular Domed	735x455	655x375	0.24	VNT-XSD
Rectangular Domed	500x500	420x420	0.17	VNT-XSD
Rectangular Domed	455x455	395x395	0.15	VNT-XSD
Rectangular Domed	455x300	395x240	0.09	VNT-XSD
Rectangular Domed	260x220	180x140	0.02	VNT-XSD

Elfab can manufacture Explosion Vents outside of these standard sizes. Please contact us for other requirements.

Support Frames and Gaskets

Steel, stove enamelled frames are available for installation of all panels. The frames have built-in support bars to prevent panel implosion. Support bar configurations can be designed to suit specific vacuum and back pressure requirements.

Vent Sizing

Over the years, many methods have been adopted for sizing vents. At Elfab we are able to calculate sizes using any of the recognised methods. Our standard method is to use "Win-Vent" sizing software.

H and D

Height and diameter of vessel (or equivalent)

Kst

Maximum rate of pressure rise of media (dp/dt) as determined from tests in 1m³ vessel

Pred

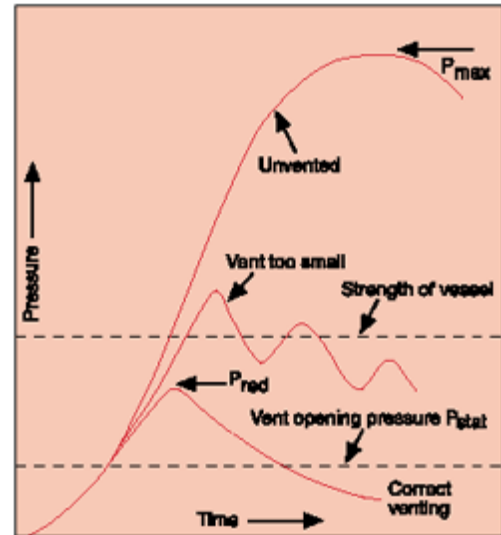
Maximum pressure permitted in the event of an explosion.

Pstat

is also required for sizing, being the set pressure of the panel. Elfab can provide this information.

Pmax

Maximum pressure reached during an explosion in a closed vessel, based on 1m³ vessel tests (is only required if using Scholl equation stated in VDI 3673)



Under severely turbulent conditions, an explosion may be much more violent than conditions assumed in the above methods. These circumstances need to be identified, as larger vent areas are required.

Explosions, when they occur, should be vented direct to atmosphere. The discharge must be to a safe place and may require a duct. The length and configuration of duct may significantly affect the relief and must be taken into account when calculating vent area.

Elfab are able to offer advice on the application and sizing of explosion vents, based upon many years of experience and involvement in the latest developments in this field.

Flo-Tel™ Detection

Elfab is unique in supplying a burst panel detection, ATEX approved to category II 1GD EEx ia IIC. EC-Type Examination Certificate ITS03 ATEX 11359, as standard with its panels. (Must be connected to an intrinsically safe circuit)

ELECTRICAL INFORMATION TEMPERATURE LIMITS

Panel Flo-Tel™ should be connected to an Intrinsically safe supply that is compatible with values:

$U_i = 30\text{v}$.

$I_i = 100\text{mA}$.

$P_i = 0.75\text{W}$.

Supplied with a 2m cable. -100°C to 200°C



Domed Explosion Vent - Standard Sizes

Type	External Dimensions mm	Internal Dimensions mm	Vent Area m ²	Product Code
Round Domed	1220	1100	0.93	VNT-XRD
Round Domed	1090	1000	0.77	VNT-XRD
Round Domed	990	900	0.62	VNT-XRD
Round Domed	890	800	0.49	VNT-XRD
Round Domed	784	700	0.37	VNT-XRD
Round Domed	695	610	0.28	VNT-XRD
Round Domed	609	550	0.23	VNT-XRD
Round Domed	578	500	0.19	VNT-XRD
Round Domed	553	450	0.15	VNT-XRD
Round Domed	473	400	0.12	VNT-XRD
Round Domed	423	350	0.09	VNT-XRD
Round Domed	390	300	0.07	VNT-XRD

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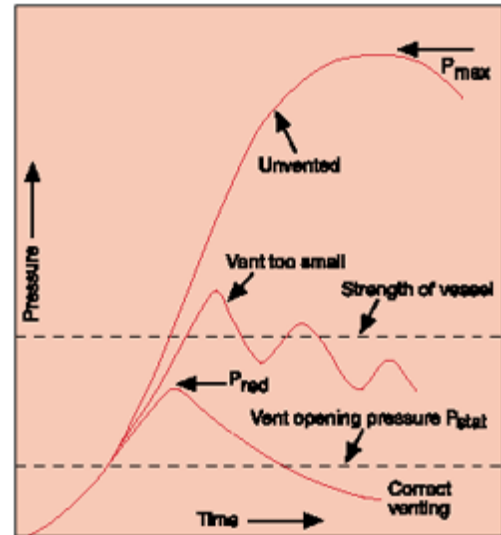
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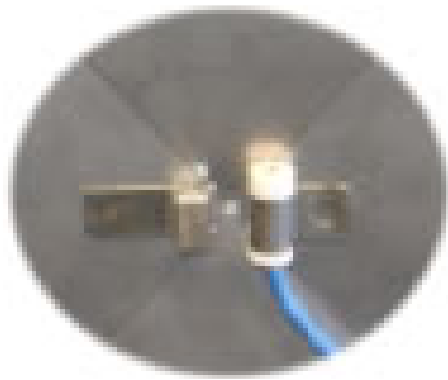
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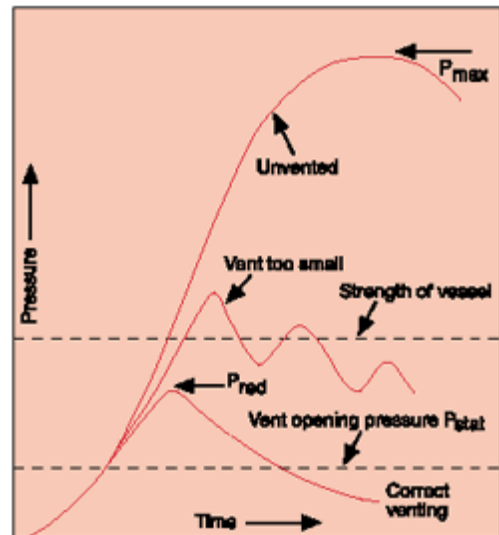
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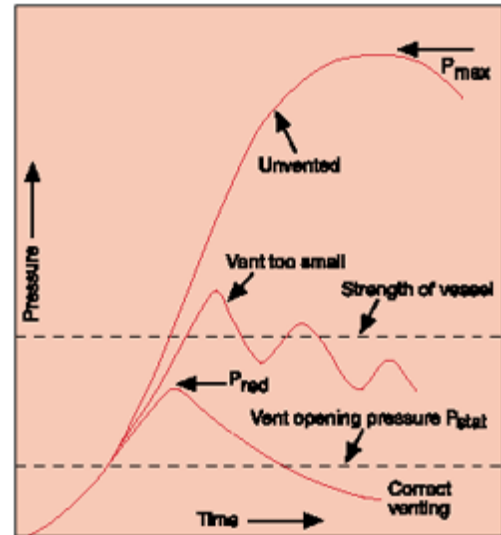
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