



Explosion Vent Sizing Worksheet

General Information

Please fill in all the blanks in the below section. The information listed must be filled out in order for us to properly size your explosion vent

Required Value	Value	Unit of Measure
Process Media Name The name of the chemical or substance enclosed in the system	<input style="width: 150px; height: 20px;" type="text"/>	
Operation Pressure The vessel's pressure during normal operation	<input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Operation Temperature The vessel's temperature during normal operation	<input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Maximum Vacuum The maximum pressure on the vent in the reverse direction of operation	<input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Pstat The desired burst pressure of the explosion vents	<input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Pred 2/3 of the maximum pressure the enclosure will withstand during a deflagration	<input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>

Process Information

The above information must be filled out for any vent sizing. Once the above information is filled out section 1, 2 or 3 on page 2 must also be filled out.

Section 1 : **Low strength enclosures (Gas/Mist Process Media)** This is for enclosures capable of withstanding pressures no greater than 1.5 psi or 0.1 bar.

Section 2 : **High strength enclosures (Gas/Mist Process Media)** This is for enclosures capable of withstanding pressures greater than 1.5 psi or 0.1 bar.

Section 3 : **Dust or Hybrid mixed process media** This is for dust or hybrid mixture

Explosion Vent Sizing Worksheet (cont.)

Section 1: Low Strength Enclosure (Gas/Mist Process Media)

This is for enclosures capable of withstanding pressures no greater than 1.5psi or 0.1bar

Required Value	Value	Unit of Measure
Internal Surface Area The total area of the vessel exposed to the process media	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Fuel Constant This can be located on the MSDS for the chemical	<input style="width: 100%;" type="text"/>	$\sqrt{\text{psi}}$

General Information for Sections 2 or 3

Required Value	Value	Unit of Measure
Vessel Volume The total volume of the vessel exposed to the process media	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Vessel L/D Ratio Length / Diameter for circular enclosures or the equation to the right to determine D for non-circular enclosures	<input style="width: 100%;" type="text"/>	none
Vent Duct Length The length of any ducting attached to the explosion vent outlet	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Pmax The maximum pressure developed in an unvented vessel. See MSDS or test results	<input style="width: 100%;" type="text"/>	bar

$$D = 2\sqrt{\frac{\text{Area}}{3.14}}$$

Section 2: High Strength Enclosure (Gas/Mist Process Media)

Kg (Deflagration Index) Rate of pressure rise of the media during deflagration. See MSDS. External testing is sometimes required	<input style="width: 100%;" type="text"/>	bar-m/sec
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Section 3: Dust/Hybrid Process Media

Kst (Deflagration Index) Rate of pressure rise of the media during deflagration. See MSDS. External testing is sometimes required	<input style="width: 100%;" type="text"/>	bar-m/sec
Percent Fill (Xr)	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Qair Flow rate of air through the equipment	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>