oseco pressure intelligence

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		
Operation Pressure The vessel's pressure during normal operation		
Operation Temperature The vessel's temperature during normal operation		
Maximum Vacuum The maximum pressure on the vent in the reverse direction of operation		
Pstat The desired burst pressure of the explosion vents		
Pred 2/3 of the maximum pressure the enclosure will withstand during a deflagration		

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)

The 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		
Fuel Constant This can be located on the MSDS for the chemical		$\sqrt{psi}$

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		
Vessel L/D Ratio Length / Diameter for circular enclosures or the equation to the right to determine D for non-circular enclosures		none
Vent Duct Length The length of any ducting attached to the explosion vent outlet		
Pmax The maximum pressure developed in an unvented vessel. See MSDS or test results		bar

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

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		bar-m/sec

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		bar-m/sec
Percent Fill (Xr)		
Qair Flow rate of air through the equipment		

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