



Catalog #77-7012

Energy Storage Safety Systems Explosion Vents for BESS Enclosures



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Explosion Venting Protection for Battery Energy Storage Systems

BS&B manufactures Vent-Saf™ explosion vents that may be used as one of the explosion prevention and control methods for advanced Battery Energy Storage Systems (BESS). Vent-Saf explosion vents are low burst pressure membranes designed to open during an explosion (deflagration conditions) event caused by thermal reactions from release and ignition of combustible vapors, possibly from overheating batteries.

By using BS&B Vent-Saf vents, the deflagration and vapors are released through the vents, away from the BESS container, and into the atmosphere. The BESS container is protected from the damaging effects of overpressure.

Vent-Saf explosion vents are usually installed on the roof of BESS containers to safely move the explosion upward and away from the container. BS&B vents are certified to open at designated burst pressures and manufactured using the standards recommended by NFPA 855, 68, and 69; EN 14491 and EN 14797.

The BS&B global team are ready to support your application.

Typical Installation and Activation of a Vent-Saf™ Explosion Vent



VSP-L flat profile vent.

VSP vent panel installation on top of BESS enclosure.



VSP vent panel activated by internal pressure.



The BESS designer is cautioned to ensure the application environment is suitable for the relief of overpressure which will typically include the presence of a flame ball during vent panel activation.

Explosion Vent Technology		Size Range
VSP-L™ flat profile vent		Rectangular from (9"x12") to (44.5" x 68") (from 227mm x 305mm) to (from 1130mm x 1727mm)
VSM™ domed vent		Rectangular from (9"x12") to (44.5" x 68") (from 227mm x 305mm) to (from 1130mm x 1727mm)

VSM™ and VSP-L Explosion Vents

Features

- VSM™ domed vent, formed structure aids drainage
- VSP-L™ flat vent, low profile
- Delivered ready to use with integral gaskets, water/airtight seal
- Low inertia one piece metal construction
- Low mass supports strong dynamic performance
- Stainless steel 304 or 316 construction standard



Insulation

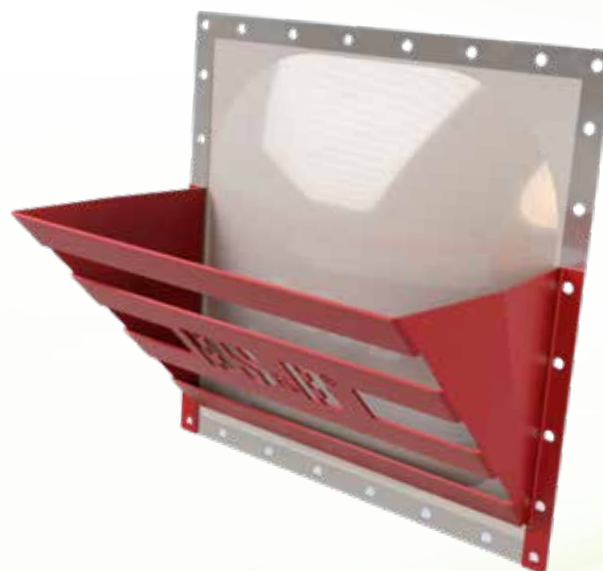
Optional insulation for thermal management.

Mounting Frames

Vent performance depends upon appropriate mounting to the BESS equipment. VSP-L & VSM vent panels are provided with an integrated outlet frame. The BESS designer must provide an appropriate inlet mounting connection – consult BS&B.

Deflectors

For vent panels applied to the sidewall of a BESS container, a deflector arrangement may be required to encourage an upward path of pressure relief and flame ball release. A deflector will reduce the effective relief area, requiring the application of additional vent panels.



Most frequently used VSM and VSP-L vent sizes			
Nominal size		Net relief area	
in	mm	in ²	cm ²
12" X 18"	305 x 457	201	1298
18" X 18"	457 x 457	306	1976
18" X 24"	457 x 610	411	2653
18" X 30"	457 x 762	516	3330
18" X 35"	457 x 889	603	3890
18" X 36"	457 x 915	621	4008
24" X 24"	610 x 610	552	3562
24" X 36"	610 x 915	834	5382
36" X 36"	915 x 915	1260	8131
44.5x68	1130 x 1727	2970	19161

All VSP-L vent panels available with 0.75 psi burst pressure (0.05 Bar) or higher. BS&B offers about 100 standard vent sizes, including round vent panels.

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