



BS&B BESS-Saf™

Explosion Prevention and
Protection for BESS Enclosures.



Protecting battery energy storage system enclosures by following NFPA 855, NFPA 69, and NFPA 68.



BESS-Saf™ Explosion Prevention and Protection

BESS-Saf™ is a family of explosion and pressure relief vents engineered specifically to address the unique overpressure ventilation and deflagration hazards associated with battery energy storage system (BESS) applications.

Designed with BESS enclosure dynamics in mind, BESS-Saf products support controlled pressure relief to help mitigate explosion risk resulting from thermal runaway and gas generation.

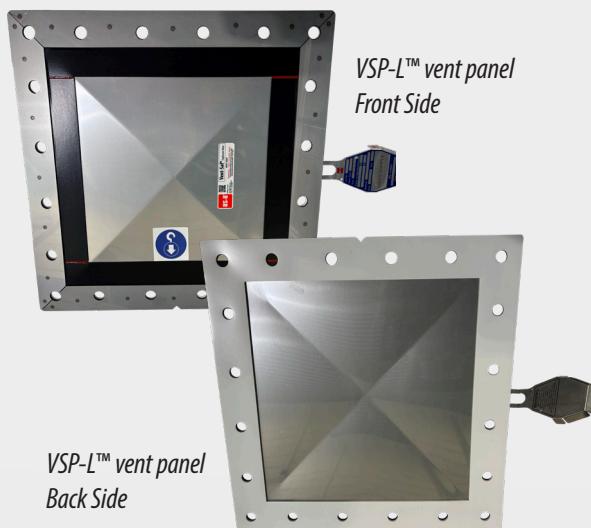
BS&B sales engineers work collaboratively with your team to identify the appropriate BESS-Saf vent configurations, sizing, and materials to support an effective venting strategy aligned with applicable codes and standards. This application-driven approach helps ensure your BESS enclosure meets the performance objectives described in NFPA 855, NFPA 69, and NFPA 68—allowing you to move forward with confidence in both safety and compliance.

NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, addresses the unique hazards inherent to battery energy storage, including thermal runaway, gas generation, overpressure, and explosion risk. Meeting these requirements is essential to protecting people, assets, and system uptime.

BS&B Safety Systems delivers proven pressure relief and explosion protection solutions engineered to mitigate these hazards at their source. Our technologies support compliance with NFPA 855 by helping control overpressure and explosion risks before they escalate—providing a critical layer of protection for modern energy storage installations.

Backed by a global team of application experts, BS&B partners with you to ensure your energy storage systems are protected safely, effectively, and in alignment with applicable codes and standards.

BESS-Saf™ Explosion Vents



VSP-L™ Explosion Vent

The VSP-L™ explosion vent is a flat stainless steel constructed explosion panel with an integrated frame and gasket. Available as a flat surface, low profile vent with cross-rib bracing for additional structural support. The vent is designed for non fragmentation.

Optional Burst Alert® sensor and thermal insulation available.

- Sizes starting at 9" x 12" (230mm x 305mm) and up.
- Burst pressures from 0.33 psi (0.022 mBar).
- Delivered ready to use with integral gaskets, water/airtight seal.
- Low inertia construction.
- Low mass supports strong dynamic performance.
- Stainless steel 304 or 316 construction standard.
- Optional insulation for thermal management



VSP-A™ Explosion Vent

The VSP-A™ breathable explosion vent is a flat single section low pressure vent with a gas permeable PTFE seal that allows at least 50% net relief area for inlet side gases to escape through. Combines passive release of combustible gas with explosion venting function if called upon.

- Sizes starting at 9" x 12" (230mm x 305mm) and up.
- Burst pressures from 0.33 psi (0.022 mBar).
- Offers excellent permeability at low pressures.
- Delivered ready to use with integral gaskets, water/airtight seal.
- Low inertia construction.
- Low mass supports strong dynamic performance

US and International Patents Pending.

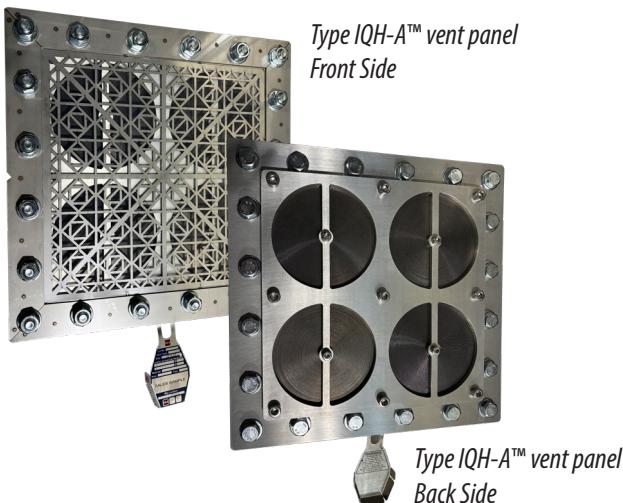


FlameFree™ Vent Type IQH-V™

The IQH-V™ Combines flame arrester technology rated for Hydrogen and other gas deflagration conditions with a VSP-L explosion vent. If hydrogen or other gases accumulate and a deflagration arises, the explosion vent opens to relieve overpressure while the integrated flame arrester quenches the flame front to mitigate the release of flame to the atmosphere.

- Sizes starting at 9" x 12" (230mm x 305mm) and up.
- Low profile design.
- Burst pressures from 0.33 psi (0.022 mBar).
- Stainless steel 304 or 316 construction standard.
- Explosion vent with integral flame arrester in one unique housing.
- Ease of mounting on vertical or horizontal surfaces.

US and International Patents Pending.



FlameFree™ Vent Type IQH-A™

The IQH- A™ combines a flame arrester rated for Hydrogen and other gas deflagration conditions with a VSP-A explosion vent. This combination offers a reliable layer of protection for enclosures exposed to deflagration and overpressure risks. The PTFE seal allows inlet side gases to escape to atmosphere while responding quickly at a defined activation pressure in case of a deflagration.

- Sizes starting at 9" x 12" (230mm x 305mm) and up.
- Low profile design.
- Burst pressures from 0.33 psi (0.022 mBar).
- Stainless steel 304 or 316 construction standard.
- Explosion vent with integral flame arrester in one unique housing. Facilitates ease of mounting.

US and International Patents Pending.



VSB™ Building Vent Low Pressure Explosion Vents

The VSB™ explosion relief vent is designed to protect building structures. The vent is constructed of light weight materials while maintaining insulation properties similar to double panel glass (typical R value of 2.7) and high impact strength.

- Low mass, simple installation.
- Designed for non fragmentation.
- Excellent insulating properties.
- Simple reset if activated by unexpected air pressure.
- Hinges from the top upon activation.
- Burst pressures from 0.3 psi (0.020 mBar).

Type VSP-AVS™ Actuated Ventilation System



The BS&B Safety Systems VSP-AVS™ Actuated Ventilation System is designed to protect Battery Energy Storage System (BESS) enclosures by actively releasing combustible hydrogen and other accumulated gases before an explosive concentration arises..

Sensors continuously monitor combustible gas concentrations inside the enclosure. When elevated gas levels are detected, an actuator opens the vent flap to safely discharge the gases. Once concentrations return to acceptable levels, the actuator closes the flap and normal operating conditions are restored. This automated cycle repeats as needed whenever elevated gas levels are detected, providing continuous protection for the enclosure.

The BESS-Saf Activation Ventilation System incorporates all four required design elements of an NFPA 69 Explosion Prevention System; sensor, controller, actuator, safety device. The VSP-AVS is custom sized to each application.

US and International Patents Pending.

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