

Energy storage cabinet explosion-proof valve installation diagram

What happens if a valve gasket explodes?

In case of an explosion, the pressure wave pushes the closing device (without external energy supply) against the valve gasket. The valve is locked in this closed state, preventing the spread of flames and pressure waves.

What are the requirements in case of an explosion?

Important: The requirements in case of an explosion have priority compared to the requirements for normal operation. After the valve, the length of the pipe (min. PN1) has to be at least fivefold of the nominal diameter of the valve (5 x DN).

What happens if the safety valve outlet of LCBP explodes?

The temperature of the safety valve outlet of battery increased from 40.3 to 215.4 °C. The high temperature inside the battery ignited the electrolyte. Flames erupted from the safety valve outlet of battery, causing the FEGs in the LCBP to explode. The explosion damaged the LCBP casing, deforming the top cover and body.

What are the key codes for energy storage systems?

The key codes include NFPA 855, Standard for Installation of Stationary Energy Storage Systems 2020 edition, and the International Fire Code 2021 edition. The key product safety standard addressing ESS is UL9540, which includes large-scale fire testing to UL 9540a.

Can a PRV prevent a battery explosion?

Furthermore, the PRV was integrated with the battery management system and changed the battery charging and discharging strategy after the PRV was opened. Experimental tests confirmed the efficacy of this method in preventing explosions.

What are the requirements for a stationary battery ventilation system?

Ventilation systems for stationary batteries must address human health and safety, fire safety, equipment reliability and safety, as well as human comfort. The ventilation system must prevent the accumulation of hydrogen pockets greater than 1% concentration.

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