

Principle of explosion-proof valve for new energy batteries

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.

Can lithium battery explosion proof valve be overcharged?

Starting from the external strain mechanism of the lithium battery, the strain change of the lithium battery explosion proof valve under normal conditions and overcharge is studied. Based on the comparison of the two conditions, an online warning scheme using sliding window and data standard deviation is proposed.

How does a battery safety valve work?

A safety valve was installed in the battery to prevent explosions due to excessive internal pressure. A battery tester (brand: NEWARE) overcharged the battery. Thermocouples measured the temperature. A decibel meter (brand: Delixi, model: DSM-D1) analyzed the opening duration of the battery safety valve, .

Can a PRV be opened after a battery safety valve is opened?

Experimental tests have shown that conventional PRV that rely on pressure differentials are difficult to open in time after the battery safety valve is opened. The VE generated during battery TR cannot pass through the PRV membrane. In addition, numerical studies revealed that larger sizes of PRV are better.

How does explosion-proof valve strain change?

Explosion-proof valve strain changes with the change of SOC and temperature rise of the battery, the explosion-proof valve strain changes with the SOC and monotonically increasing respectively, and with the charging and discharging cycle in the safe state and cyclic changes.

Can explosion-proof valve strain be overcharged?

Experimental curve of 0.5 C overcharge. Explosion-proof valve strain is capable of overcharging warning, but due to the installation process of strain gauges and the variability of different batteries, it is not possible to directly use the threshold value as a judgement, so the original strain data is processed first before safety warning.

The explosionproof valve is a key component for the safe pressure relief of new energy power batteries. Its quality stability directly determines the safety of new energy vehicles and ...

Automotive lithium battery explosion-proof valve will be waterproof breathable film and explosion-proof valve function into one, not only has the traditional explosion-proof valve, ...

