

Technical requirements for battery sealing equipment

Why do batteries need to be sealed?

The sealing components used also have to be chemically stable toward organic electrolytes. In addition, during the battery's entire service life, the sealing material must not leach out contaminating substances into the battery electrolyte as this could have a long-term negative influence on the cells' electrochemistry.

What is the minimum protection rating for battery housing gaskets?

In general, automotive applications require at least protection rating IP67 (ISO 20653:2006 - 08) for battery housing gaskets. Thus, the battery housing must be dust-proof and also resistant to outside water pressure of 0.1 bar for at least 30 minutes.

What are cell sealing components?

The following pages will discuss the main sealing components for cells and the entire battery system. Cell sealing components must electrically isolate the two pole connectors from each other. The sealing components used also have to be chemically stable toward organic electrolytes.

Can a seal design improve battery cooling cycles for electric vehicles?

Kritzer P, Clemens M, Heldmann R (2011) Innovative seals: a robust and reliable seal design can provide efficient battery cooling cycles for electric vehicles and hybrid electric vehicles. Engine Technology International, June 2011, p. 64

What type of sealing is used for power electronics?

The sealings to connect power electronics are usually integrated directly into the plug. Silicon rubber-based components are used for this application in most cases. They have increased resistance toward high electrical voltages, and their surface does not carbonize, as opposed to carbon-based polymers.

What are the components of a battery system?

Furthermore, there are several "sealing-like" components such as pressure-equalizing elements, system overpressure valves, and fixation elements for the individual cells. All housing system gaskets must protect the battery interior over the entire service life against splash oil, splash water, and wading water.

Seals can, and must, substantially contribute toward fulfilling these tough requirements. The following pages will discuss the main sealing components for cells and the ...

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For EV battery manufacturing, particularly in the context of lithium-ion battery cells and packs, the following general guidelines might apply: Cell Manufacturing: The cell manufacturing process for lithium-ion batteries requires a high level of ...

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