

// SAFETY DEVICE FOR JOINING BATTERY CELL AND MODULE

Ref-Nr: TA-2329



HINTERGRUND

By the year 2030, the demand for electric vehicles will have increased by 16 times more than today. This leads to a need for a fast, efficient and safe production of batteries.

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An effective welding technique for connecting battery cells is laser beam welding. This process is very common for high volume applications, is characterized by a high process velocity, reproducibility and reduced heat input. The temperature gets very high within the welding zone, which leads to an increased risk of fire. The amount of security concepts is low and insufficient even though there is a huge demand.

ENTWICKLUNGSSTAND

Prototyp

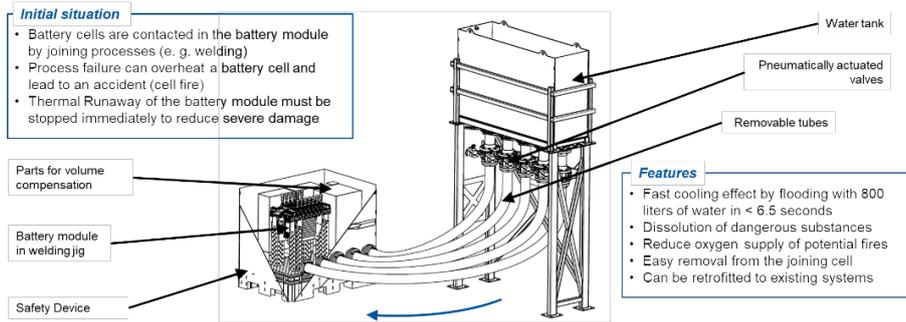
The use of high concentrated energy with active battery cells lead to a risk of a thermal runaway. A burning battery cell sets immediately toxic and dangerous gases free so there is not much time to react. It can also lead to a chain reaction (thermal runaway) which sets the whole battery module on fire and can spread to the unit.

CATEGORIES

//Maschinenbau

LÖSUNG

The battery safety device is a fire-extinguishing device and provides the solution to this problem. It protects the nearby fixture components against fire, cools down the battery module, and prevents a further chain reaction. The construction contains two tanks, one is filled with 800 Liter of water and the other contains the laser welding station. In the case of an emergency, it is filled with the water within seconds. The system is activated by the station user at the push of a button from a secure distance.



VORTEILE

- Cooling down of the burning battery cells just in seconds
- Toxic substances are washed and thinned down by flushing them with water
- Fast prevention of oxygen access
- High personal protection because of the security distance
- Simple removability of the damaged battery module

ANWENDUNGSBEREICHE

Battery production

SERVICE

- Patent applications at the German Patent and Trade Mark Office and the WIPO
- Proof of concept with dummy battery AND Ongoing research with active/burn batteries AND Prototype already built-up

RWTH Aachen University is looking for partners for patent exploitation AND for research partners for joint development AND contract research.