E-MOBILITY PROTECTION CONCEPT

FIRE CONTAINMENT BLANKETS AND PROTECTION CONCEPTS FOR HV WORKPLACES

UP TO 1300 °C

PREMIUM FIRE PROTECTION
MADE IN GERMANY.
Most electric vehicles use lithium-ion technology (Li-Ion) for the battery. The reason is the higher power storage capacity. This is important for electric vehicles, as a good value only enables acceptable ranges. Li-Ion batteries are not only found in electric vehicles, but also in forklifts, electric bikes, laptops, mobile phones and electric tools. However, the increasingly powerful Li-Ion batteries can also be dangerous. Lithium is very reactive and highly flammable. There is always a fire risk in an accident - the thermal runaway.

**THERMAL RUNAWAY - E-BATTERIES Li-ION AND LiMH EMERGENCY**

Thermal runaway describes the destruction process of a Li-Ion battery, usually triggered by overheating. The overheating of a single cell is enough to trigger a chain reaction, that also burns the neighbouring cells. The reaction temperature of a Li-ion battery is typically 850 °C. In addition, this thermal runaway produces toxic gases and individual cells can be destroyed explosively. This leads to widespread spurtting flames. To initiate such a process, depending on the installed cell, temperatures of 100 to 250 °C are sufficient.

**OVERHEATING OF A LI-ION BATTERY CAN HAVE SEVERAL CAUSES:**

- Mechanical stress
- Deep discharge
- Warming from the outside
- Ingress of moisture
- Overheating during charging
- Overcharging

In the event of an accident in a Li-Ion battery with a high energy density, only high-temperature fabrics offer sufficient fire protection and heat protection for the best possible extension of the assistance period. The comparison shows the temperature values of a high-purity HT special fabric with a mineral coating compared to a widely available glass fabric with a silicone coating. Temperatures above 350°C cause the silicone coating to evaporate. The red bars show typical reaction temperatures for Li-Ion fires to classify an adequate protection concept.
FEATURES OF THE JUTEC FIRE CONTAINMENT BLANKETS
• made of special high-temperature fabric (RH/Q 94%)
  classified according to European fire protection test according to DIN EN 13501-1, class A1, non-combustible
• mineral vermiculite coating on both sides
• Electrostatic report according to DIN 54345-1, non-conductive
• Thermal application up to 1,300 °C, melting point 1,600 °C
• No fiber breakage when exposed to temperature changes, e.g. B. common with fiberglass ceilings
• Open-pored fabric allows the use of extinguishing and sprinkler water (cooling effect)
• Limited gas permeability prevents cover ballooning in the event of an accident
• Outstanding chemical resistance
• Double seam overlap with steel thread processing
• Fabric grammage approx. 625 g/m², thickness approx. 0.7 mm (double fabric thickness available as an option)
• Protected utility model
• Four loops at the corners with special corner reinforcement, allow for easy and safe handling

FIRE CONTAINMENT CONCEPTS AS SOLUTIONS
JUTEC has developed fire protection concepts for a wide variety of Li-Ion battery applications:

FIRE CONTAINMENT BLANKETS
• for wrecked electric vehicles

CABINET OR TROLLEY
• with fire containment blanket for wrecked electric vehicles

HV BATTERY SAFETY CABINET
• with fire containment blanket,
  Heat protection gloves and optional respirator
FIRE CONTAINMENT BLANKETS
The JUTEC fire containment blanket made of high-temperature fabrics with a vermiculite coating on both sides is flexible. Four loops on the corners with special corner reinforcement allow easy, safe handling. The blankets differ in their size and the different folds for trolleys or bags.
The fabric is classified according to the European fire protection test according to DIN EN 13501-1, non-combustible, A1. In addition, an electrostatic report (non-conductivity) is available. The fire containment blankets can be delivered as a set in a rollable trolley, transport bag or wall cabinet.

ITEM DESCRIPTION

<table>
<thead>
<tr>
<th>Order #</th>
<th>Designation</th>
<th>Blanket Dimensions</th>
<th>Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS-Set-6080-T</td>
<td>Fire Containment Blanket and Trolley in a set</td>
<td>6000 x 8000 mm</td>
<td>Audi E-Tron</td>
</tr>
<tr>
<td>BS-Set-6080-B</td>
<td>Fire Containment Blanket and bag in a set</td>
<td>6000 x 8000 mm</td>
<td>Audi E-Tron</td>
</tr>
<tr>
<td>BS-Set-6080-B-S</td>
<td>Fire Containment Blanket with surface-mounted cabinet &amp; transport bag</td>
<td>6000 x 8000 mm</td>
<td>Audi E-Tron</td>
</tr>
<tr>
<td>BS-Set-5060-T</td>
<td>Fire Containment Blanket and Trolley in a set</td>
<td>5000 x 6000 mm</td>
<td>Smart</td>
</tr>
<tr>
<td>BS-Set-5060-B</td>
<td>Fire Containment Blanket and bag in a set</td>
<td>5000 x 6000 mm</td>
<td>Smart</td>
</tr>
<tr>
<td>BS-Set-3040-T</td>
<td>Fire Containment Blanket and Trolley in a set</td>
<td>3000 x 4000 mm</td>
<td></td>
</tr>
</tbody>
</table>

Defective or contaminated blankets can be reordered!
Other dimensions available on request at short notice!

FOLDS & SETS:

- BS-Set-6080-B Fire Containment Blanket and bag in a set
- BS-Set-6080-T Fire Containment Blanket and Trolley in a set
- BS-Set-5060-T | BS-Set-3040-T Fire Containment Blanket and Trolley in a set
- BS-Set-6080-B-S Cabinet 1200 x 350 x 350 mm
HV BATTERY SAFETY CABINET

JUTEC has developed the HV safety cabinet especially for car workshops, where an increased number of damaged electric vehicles and dismantled HV batteries can be expected. In addition to the JUTEC fire containment blanket made of special high-temperature fabric with a vermiculite coating on both sides, the HV safety storage cabinet also contains additional protective equipment, such as a pair of heat protection gloves and an optional eye and breathing mask.

Surface-mounted cabinet with turning bolt
W x H x D = 300 x 810 x 220 mm
Material: metal | Colour: red
Contents:
• 1 fire containment blanket (3000 x 2700 mm) for dismantled HV batteries
• 1 pair of certified heat protection gloves CE KAT III, EN 388, EN 407 optionally:
  • 1 respirator EN 140
  • 1 protective eye mask

BENEFITS:
• Fire Prevention
• Protective fire protection
• Easiest handling
• Everything within reach

ITEM DESCRIPTION

<table>
<thead>
<tr>
<th>Order #</th>
<th>Designation</th>
<th>Blanket Dimensions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS-HV-Set-2730-H-V1</td>
<td>Surface-mounted cabinet with a small fire containment blanket, 1 pair of heat gloves</td>
<td>2700 x 3000 mm</td>
<td>for dismantled HV batteries</td>
</tr>
<tr>
<td>BS-HV-Set-2730-H-V2</td>
<td>Surface-mounted cabinet with a small fire containment blanket, 1 pair of heat gloves, 1 x respirator with protective eye mask</td>
<td>2700 x 3000 mm</td>
<td>for dismantled HV batteries</td>
</tr>
<tr>
<td>BS-HV-Set-2730-H-V3</td>
<td>Surface-mounted cabinet with a small fire containment blanket, 2 pair of heat gloves, 2 x respirator with protective eye mask</td>
<td>2700 x 3000 mm</td>
<td>for dismantled HV batteries</td>
</tr>
</tbody>
</table>

Other dimensions available on request at short notice!

BS-HV-Set-2730-H-V2
Cabinet including heat protection gloves and respirator and protection eye mask
SPECIAL SOLUTIONS
• The goal is to ensure a higher security barrier
• to prevent the flames from spreading
• Protection of the environment

WORKSHOP EQUIPMENT
Battery jobs

RECOMMENDATION
• HV set with fire protection blanket for battery modules, optionally also in a trolley

MISSION
• Use battery cover in the event of an accident - fire containment blanket flame retardant

PARKING GARAGES | UNDERGROUND GARAGES
Hotels, airports, car parks, city halls, football arenas

RECOMMENDATION
• Fire containment blanket in cabinet
• Installation near the charging stations

MISSION
• Rapid deployment - extension of the assistance period
• Fast evacuation possibility

FILLING STATIONS
Motorway filling stations and parking lots with charging stations

RECOMMENDATION
• Fire containment blanket in cabinet
• Installation near the charging stations

MISSION
• Rapid deployment - extension of the assistance period
• Fast evacuation possibility
• Prevention of flame spread to other vehicles

FIRE BRIGADE | THW | TOWING SERVICES
mobile use in the event of battery damage

RECOMMENDATION
• Fire protection blanket in the trolley or in bag on emergency vehicles

MISSION
• Securing broken-down electric vehicles directly at the place of use

CAR FERRIES | TRAIN | LOGISTICS | DISPOSAL
Vehicle transport, disposal

RECOMMENDATION
• Fire protection blanket in a trolley or bag, ceiling mounting

MISSION
• Electric vehicles next to vehicles can be secured, to prevent flames escaping and spreading
• Isolation of parking areas for electric vehicles
• JUTEC has many years of experience with technical textiles of all kinds, their processing, assembly and application.

• JUTEC is a certified supplier to industry in the areas of heat protection and occupational safety, and technical insulation. The products in this area are subject to regular testing different institutes. JUTEC’s quality management is certified according to ISO 9001:2015.

• JUTEC has over 70 industrial sewing workstations and its own prototype shop, our own CAD pattern development and 4 large-scale fabric cutting systems.