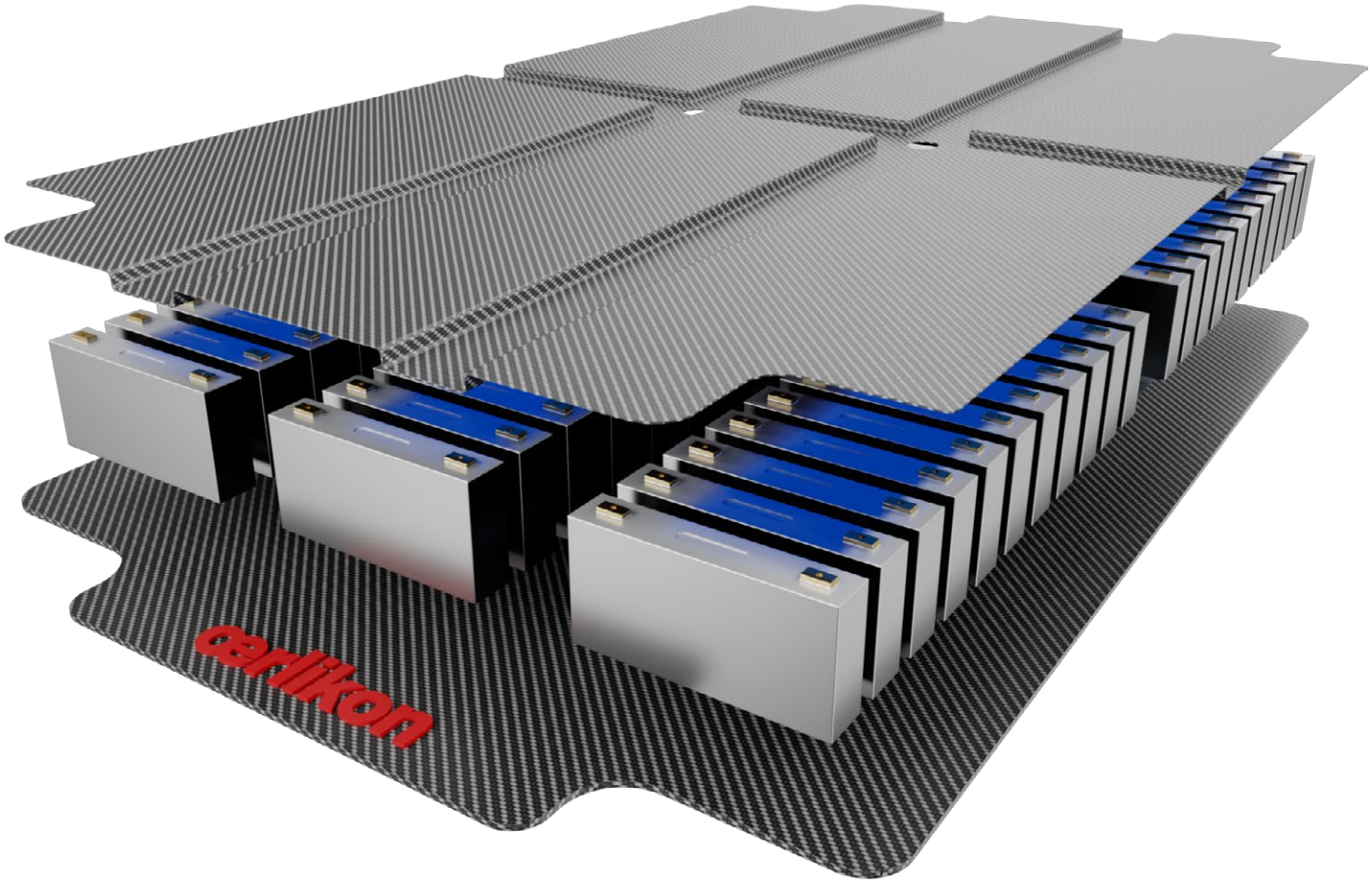
oerlikon

Thermoelectrical Barrier

Safety in Battery Electric Vehicles by Ensuring Zero Thermal Propagation



High Performance Heat Shield
with Superior Thermal and
Electrical Insulation

EV

Custom-engineered, High-Temperature Resistant Thermoelectrical Barrier

The heat shields provide high-performance thermal and electrical insulation and high velocity impact protection. Lightweight and versatile providing robust temperature resistance up to **1400°C**, coupled with superior electrical insulation to withstand up to **18 kV.**

Designed for flexibility, the heat shields can be molded into complex 3D shapes.

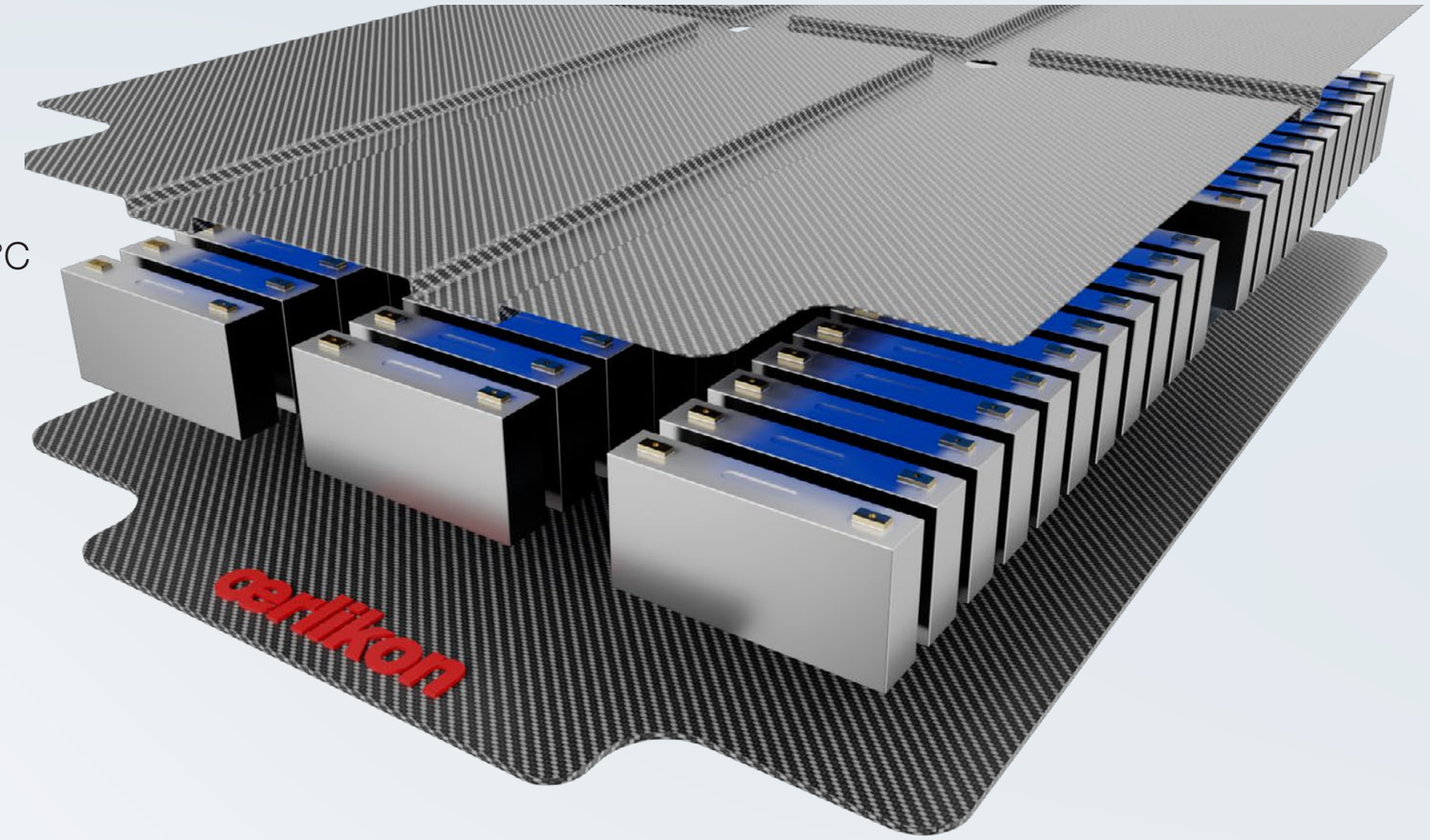
Reliable Protection for Passengers in Case of a Thermal Runaway Event

Engineerd to safegurad occupants from thermal runaway events in lithium-ion batteries, our heat shield solutions adhere to stringent regulatroy safety standards, such as GB 38031-2020, and are validated in our state-of-the-art laboratory.

Our barriers are customizable to meet specific requirements, including features such as various fixing and poka-yoke options. While maintaining a compact design for easy installation, our components are vibration-resistant in addition ensuring durability and reliability.

Benefits

- Meets highest global battery safety requirements and standards
- Superior temperature resistance up to 1400°C
- Exceptional electrical insulation up to 18kV
- High velocity particle impact protection
- 3D component design
- Ultra-thin and lightweight material
- Vibrational and fatigue resistance
- Mitigate thermal propagation
- ESG compliant
  (mica-free, non-petroleum-based material)



Material Specifications at a Glance

		HS918	HS915	HS912	HS812	HS806
Thermal Properties						
Thermal Performance @ >30 min [°C]		1400	1400	1400	1200	1000
Thermal Insulation Reverse Side Temperature [max °C] @ Front Side Temperature		 355 1200	 370 1200	 390 1200	 410 1200	 405 1000
Hot Gas Particle Impact Resistance (w/o Backing Plate) [Sec]		24	17	14	10	7
Thermal Conductivity[W/(m.k)]	25°C 300°C	0.33 0.24	0.27 0.21	0.23 0.17	0.21 0.16	0.28 0.20
UL94 Classification		V0	V0	V0	V0	V0
Electrical Properties						
Breakdown voltage [kV]	Pre-Thermal Event Post-Thermal Event	18 9	15 8	12 7	15 8	3 2
Physical Properties						
Thickness [mm]		1.8	1.5	1.2	1.1	0.6
Density [g/cm^3]		1.39	1.37	1.33	1.31	1.89
Mechanical Properties						
Tensile Strength [MPa]		40	35	30	25	27

Oerlikon superior heat resistant materials enable to meet all safety requirements within the UN GTR No. 20 regulation.

All international and national regulations are based upon strict safety requirements with a minimum of five minutes to allow the occupants safe evacuation from the vehicle before fire outspread due to a thermal event.

Regulations
China - GB 38031
Europe - ECE R100
India - AIS-038
Japan - Harmonized with UN R100
Republic of Korea - KMVSS 18-3
USA - UL2580

Zero TP!

BRO-0043.5

For more information, contact us at:
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