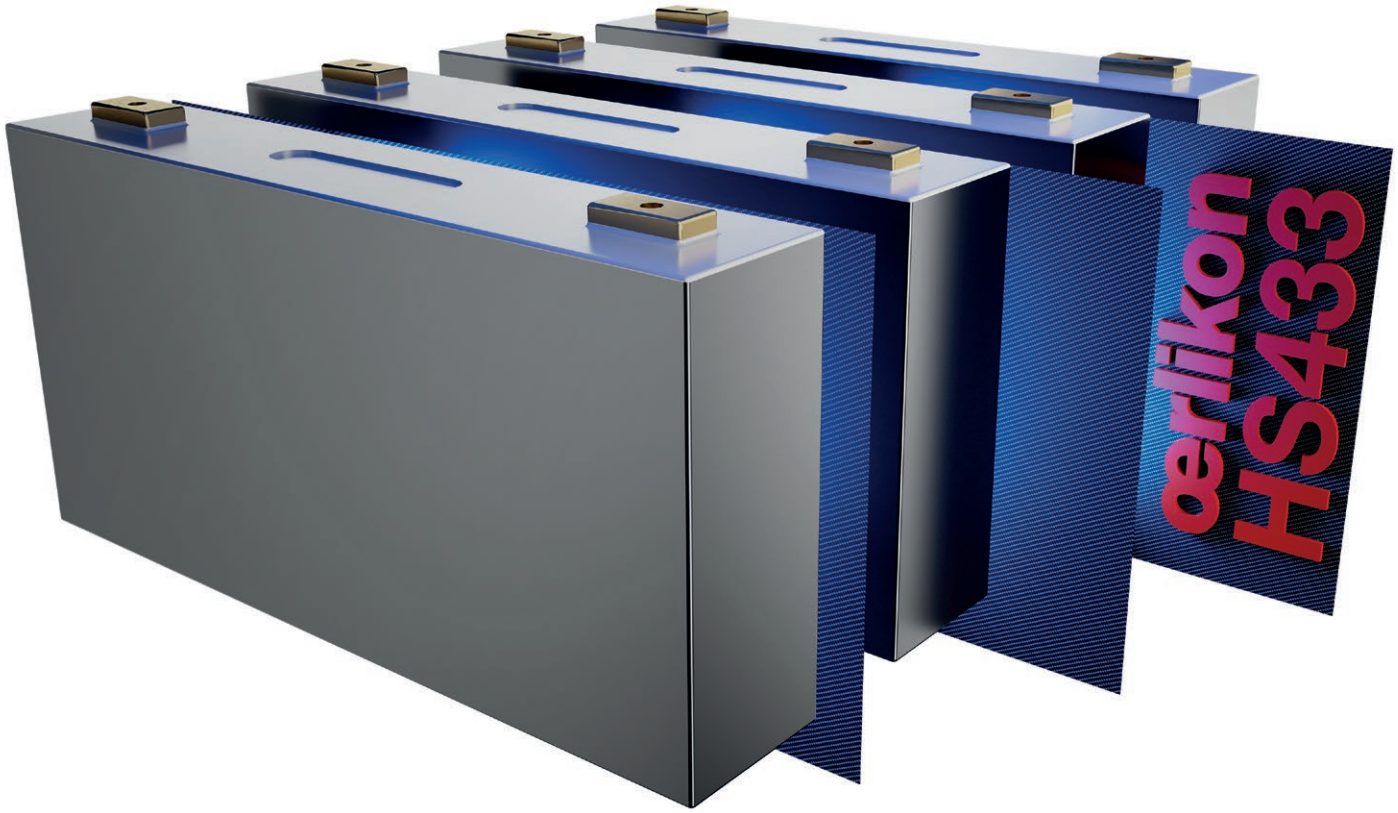
oerlikon

Cell Separators

Safety in Battery Electric Vehicles by Ensuring Zero Thermal Propagation

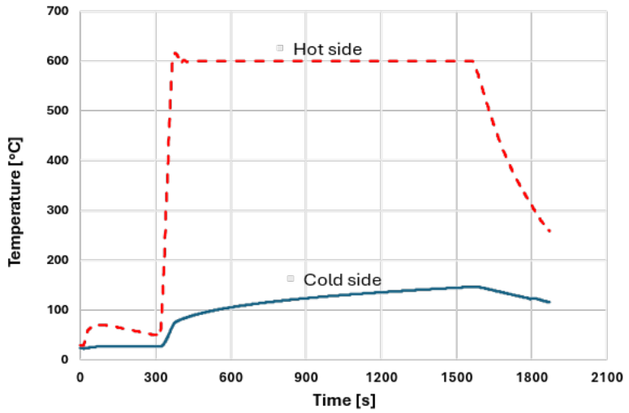


Multi-functional Cell Separator
Combining Swelling Compensation
with Thermal Insulation

EV

Custom-engineered Separators Preventing Thermal Propagation in Cell Stacks

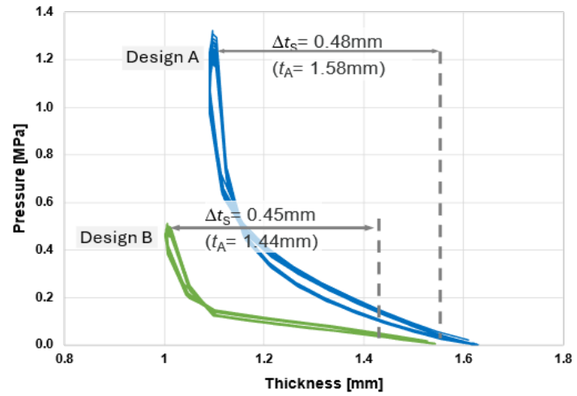
The series of cell separators provides high-performance thermal insulation and superior mechanical performance. They provide robust temperature insulation, coupled with superior mechanical performance and class-leading electrical insulation to withstand up to 32 kV. Designed for maximum energy density, our cell separators can be **engineered** to meet specific requirements.



Data reflects customer specific requirements

Multi-functional Cell Separator Providing Swelling Compensation for Lifetime Cycle Stability

The cell separator also incorporates a crucial feature: swell compensation. This accommodates module pack breathing caused by charging/ discharge, providing sustained protection throughout the life cycle and maximizing pack energy density. It can be **customized** to accommodate different compression rates based on specific module requirements, enhancing the safety and longevity of the energy storage system.



Benefits

Zero TP!

Designed to **mitigate thermal propagation** in prismatic cells

Integrated Swelling Compensation

Combines **thermal isolation** up to 700°C with **mechanical swelling compensation**

Space Savings Potential

Ultra-thin and lightweight from **1.4 mm** thickness (scalable to requirements)

UL Classified

Meets **UL94-V0** flammability Safety Standard

Superior Mechanical Properties

Consistent mechanical characteristics over its lifetime, **maximizing pack energy density**

Fully Customizable

Thermal and mechanical properties can be **customized** to suit the cell and module requirements

Material Specifications at a Glance*

Thermal Properties

	HS433		Test Method
	Applied Surface Pressure	Temperature on the Cold Side @ 200s	
Heat transfer measurement, linear increasing temperature to 700°C “Hot Side” [°C]	0.05 MPa 0.37 MPa 0.74 MPa	89 92 99	ST-I-DE-017
UL94 Classification	V0		UL94

Electrical Properties

Breakdown Voltage [kV]	>32		ST-I-DE-015

Mechanical Properties

Thickness [mm]	Pre-assembled Assembled	1.55 1.40	ISO 23529
Swelling Compensation [µm]	Between 0.2 and 1.0 MPa	410	ISO 23529
Compression Set [µm]	After 1.0 MPa for 48 hours	<15	ISO 23529

*Based on one design, can be engineered to meet individual requirements

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-0045.2

For more information, contact us at:
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