

Material Specifications at a Glance*

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

Electrical Properties

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

Thickness [mm]	Pre-assembled	1.55	ISO 23529
	Assembled	1.40	
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 legislation.

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



For more information, contact us at:
insulation@oerlikon.com



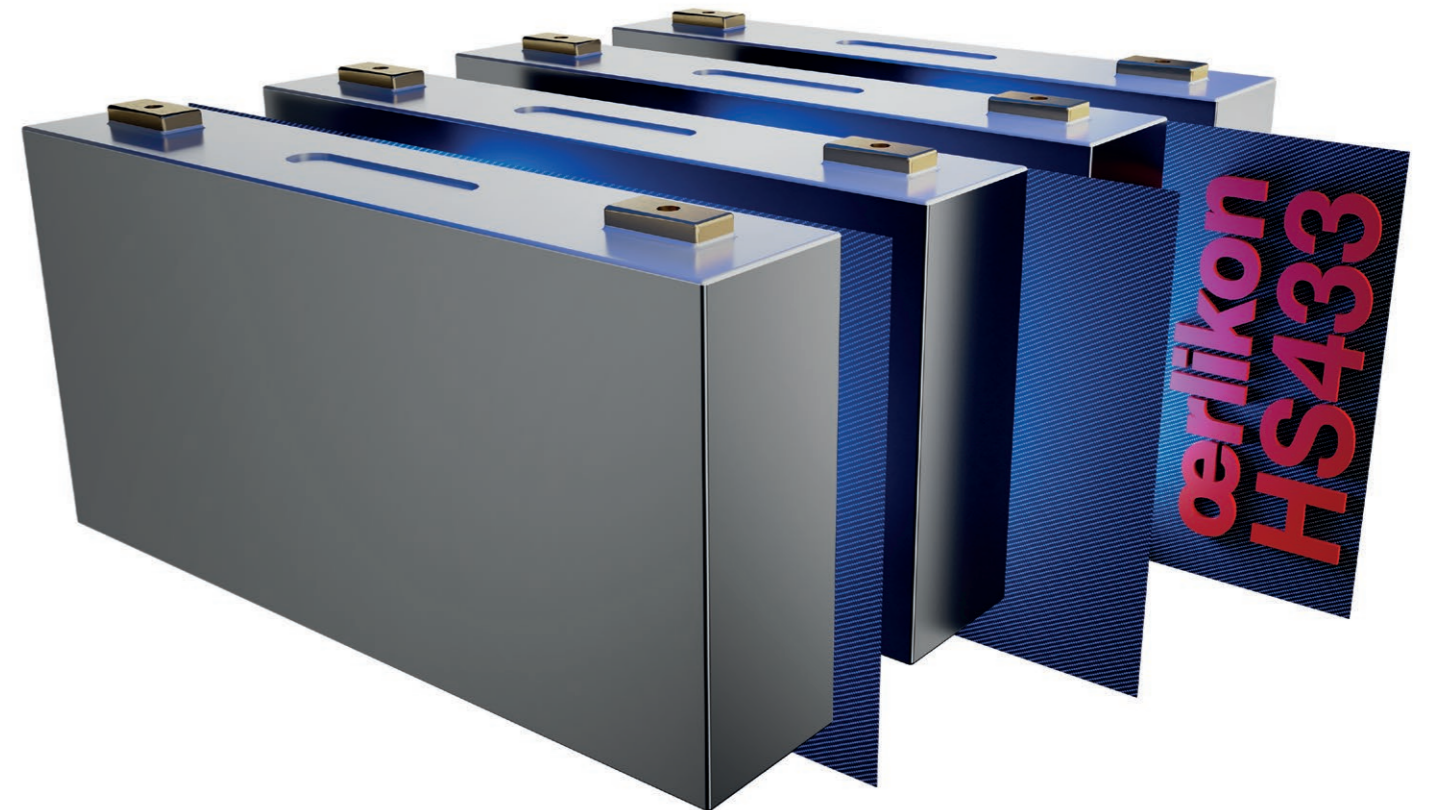
BRO-0045.1

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Cell Separators

Safety in Battery Electric Vehicles
by Ensuring Zero Thermal Propagation
and Enabling Limp Home Driving Mode



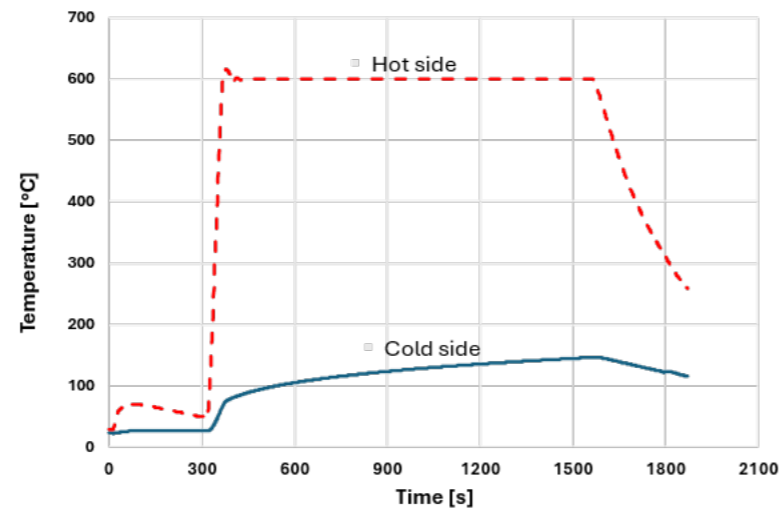
HS433

Multi-functional Cell Separator
Combining Swelling Compensation
with Thermal Insulation



Custom-engineered Separators Preventing Thermal Propagation in Cell Stacks

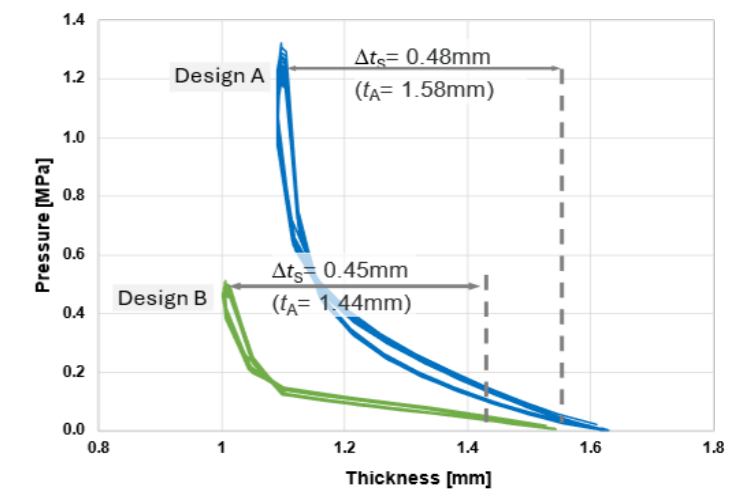
The series of cell separators provides high-performance thermal insulation and superior mechanical performance. They provide robust temperature insulation, coupled with superior mechanical performance and class-leading electrical insulation to withstand up to 32 kV. Designed for maximum energy density, 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/discharging, 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

Space Savings Potential

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

Superior Mechanical Properties

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



Integrated Swelling Compensation

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

UL Classified

Meets **UL94-V0** flammability Safety Standard

Fully Customizable

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