



Advanced Thermal & Energy Management Solutions

Braking Resistors & Electrical Coolant Heaters



ENGINEERING SOLUTIONS FOR ELECTRIFIED TRANSPORTATION

Backer develops and manufactures advanced heating and resistor solutions for electrified commercial vehicles.

With over 75 years of engineering experience, Swedish manufacturing, and automotive-focused development and validation, we support OEMs and Tier suppliers in creating reliable solutions for demanding vehicle applications.

SUPPORTING THE TRANSITION TO ELECTRIFIED VEHICLES

The shift to electrified transportation is creating new demands on vehicle performance, safety, and energy efficiency.

As battery-powered vehicles become more advanced, effective thermal management and safe energy handling become increasingly important parts of the complete vehicle system.

75
75 YEARS
Engineering Experience


Automotive
Development & Validation


High-voltage
applications


Serial
production


Swedish
Manufacturing


System
integration

Backer supports this transition with two key technologies:

Braking Resistors
When regenerative braking is limited, braking resistors convert excess electrical energy into heat, supporting safe and reliable vehicle operation.

Electrical Coolant Heaters
Power-controlled coolant heaters provide efficient heating for battery systems and vehicle cabins, supporting performance and comfort in demanding operating conditions.

Regulatory Driver
Heavy-duty commercial vehicles must maintain safe braking performance under all operating conditions.

When regenerative braking is limited, braking resistors provide a reliable way to dissipate excess energy and support compliance with braking regulations.



BACKERSHIELD™ BRAKING RESISTORS

Developed for Electrified
Commercial Vehicles

BackerShield is our braking resistor platform for battery-electric and hybrid-electric commercial vehicles.

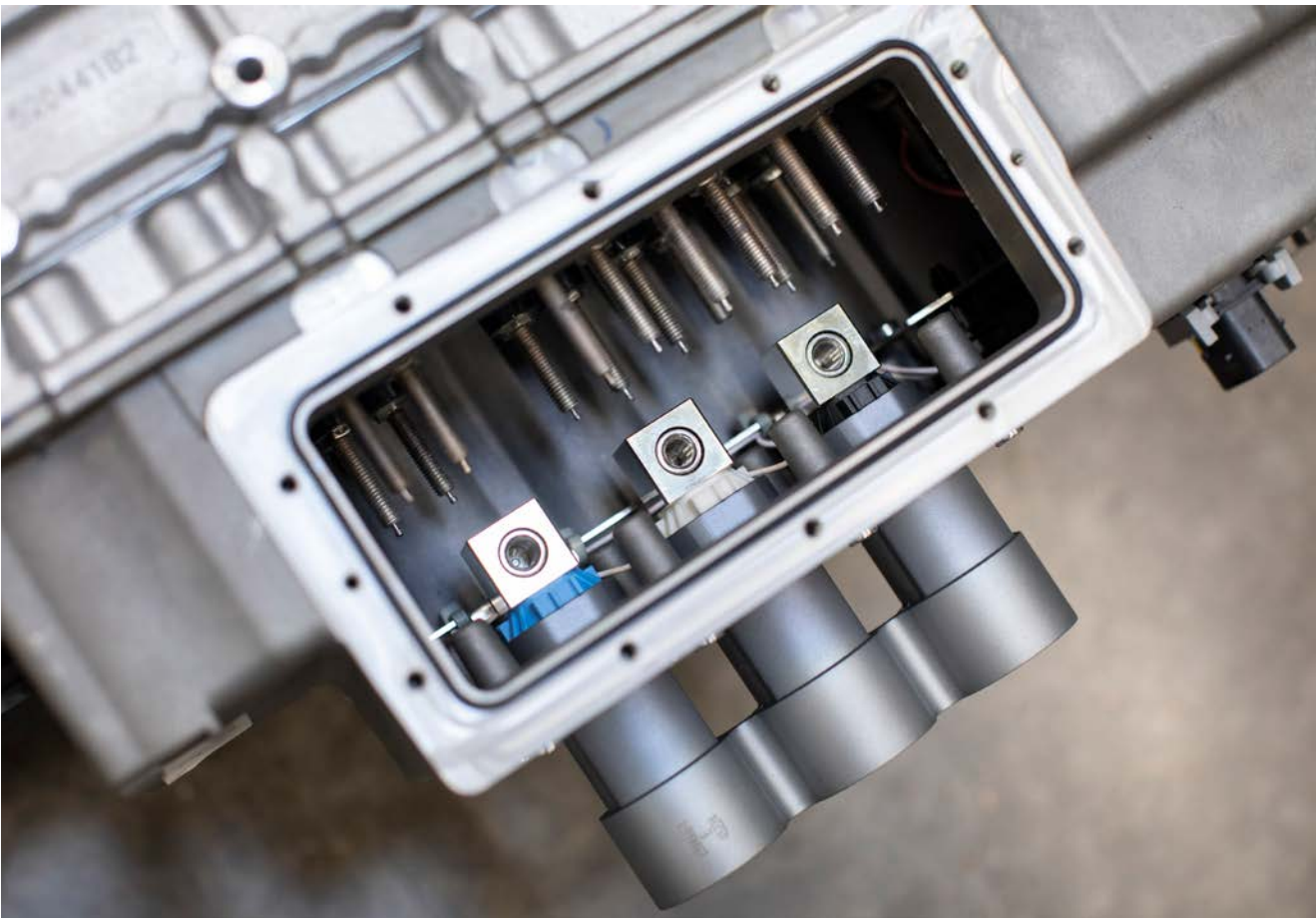
Developed for demanding automotive environments, the platform combines established resistor technology with automotive-focused engineering, testing, and validation.

Technical Highlights

- 250 kW Maximum Power
- 40°C to +100°C Operating Temperature
- 3,000+ Hours Tested at Full Continuous Load
- 10 Years Designed Vehicle Lifetime
- Three-phase HV Connection Designed for improved EMC performance
- 2x NTC Sensors Integrated temperature monitoring
- HVIL High-voltage interlock functionality
- IP6KX / X6K / X7 / X9K Protection rating

Key Benefits

- Safe dissipation of excess braking energy
- Designed for demanding automotive environments
- Liquid-cooled design
- Integrated temperature monitoring
- High-voltage interlock functionality
- Developed for long-term vehicle operation



BUILT ON DECADES OF RESISTOR EXPERIENCE

BackerShield builds on experience gained from previous resistor generations and customer-specific automotive development projects.

By bringing this knowledge into a dedicated product platform, Backer can offer braking resistor solutions developed for the demanding requirements of modern electrified commercial vehicles.



“We have been able to build on our experience from previous development projects and resistor generations to further refine and optimize the product.”

– Carl-Johan Lindegren,
Business Segment Manager Automotive

Applications

Electric trucks • Electric buses • Construction Machinery

Explore BackerShield™
Technical specifications
and product information





ELECTRIC COOLANT HEATER 10 kW

Efficient Thermal Management for Electrified Vehicles

Our power-controlled Electric Coolant Heater provides rapid and reliable heating for both battery systems and vehicle cabins.

Developed for the latest generation of electric vehicles, the heater combines high efficiency with a durable automotive design tested for demanding on-road conditions.

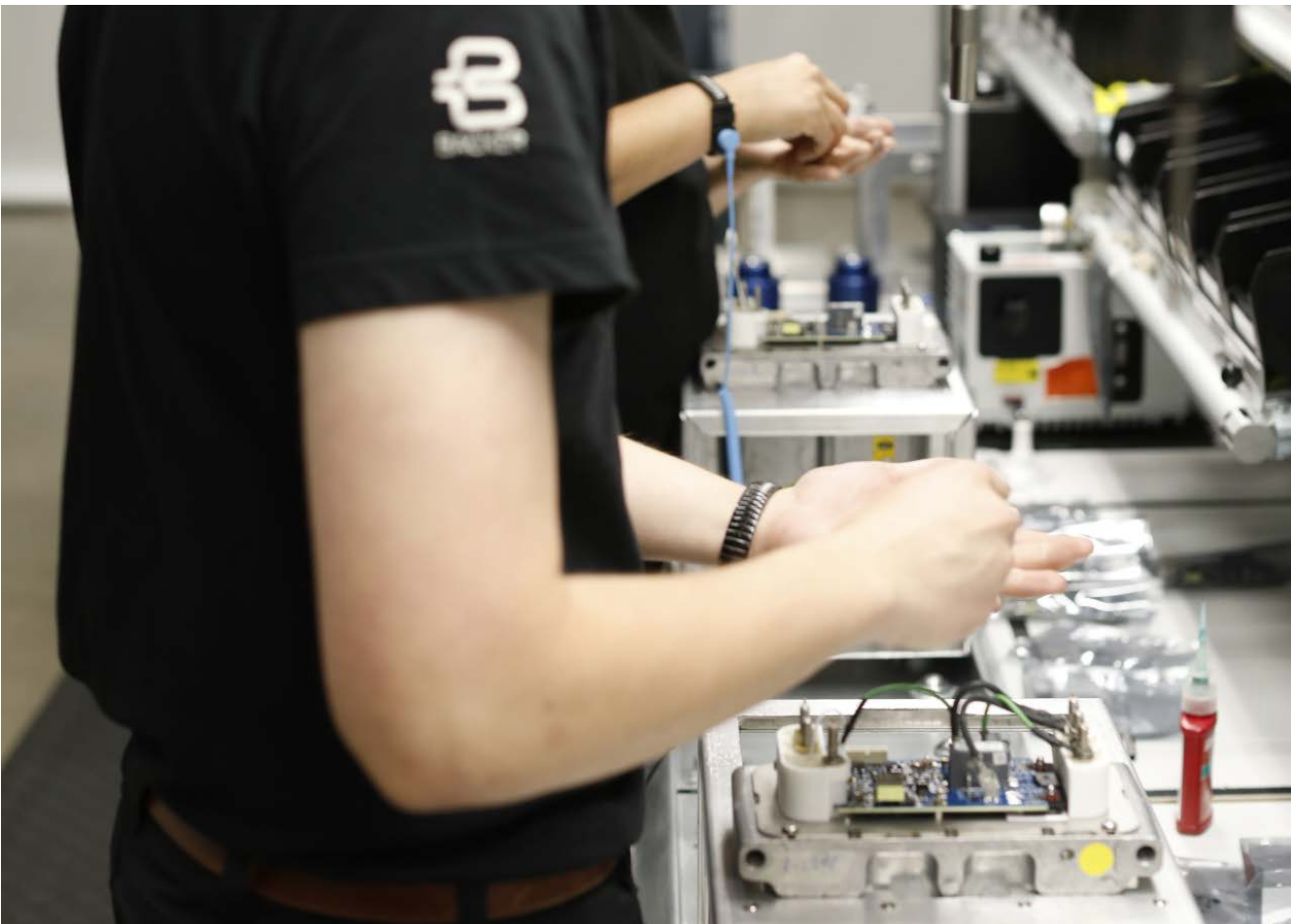
It is already in production for multiple automotive manufacturers and can be customized to meet specific customer requirements.

Technical Highlights

- 10 kW Heating Power
- 500–850 VDC High-Voltage Range
- 40°C to +85°C Operating Temperature
- IP6K9K Protection Rating
- CAN / LIN Communication
- 45,000 Hours Validated Operating Lifetime
- 13,000+ Thermal Cycles
- Up to 3.8 bar Operating Pressure

The robust design supports:

- Battery conditioning
- Cabin and passenger compartment heating
- Medium- and heavy-duty commercial vehicles
- Battery electric and hybrid-electric applications



BUILT FOR REAL-WORLD AUTOMOTIVE APPLICATIONS

Designed for demanding on-road environments, the Electric Coolant Heater has been validated for long-term durability and reliable performance throughout the vehicle’s service life.

More than 13,000 thermal cycles correspond to over 45,000 hours of lifetime, demonstrating the robustness required for demanding automotive applications.

Applications

Battery Conditioning

Provides rapid and uniform coolant heating to support battery performance in varying operating conditions.

Cabin & Passenger Heating

Provides reliable heating for cabins and passenger compartments in electric vehicles.

Commercial Vehicles

Developed for medium- and heavy-duty trucks, city buses, coaches, and other electrified vehicle applications.

Proven Automotive Performance

The Electric Coolant Heater is already in production for multiple automotive manufacturers and can be adapted to meet specific customer and vehicle requirements.



MORE THAN PRODUCTS

Engineering, Validation and Manufacturing for Electrified Transportation

Developing solutions for the automotive industry requires more than individual components. It requires an understanding of how products interact within the complete vehicle system – from thermal management and electrical interfaces to validation and long-term performance.

At Backer, engineering, testing, and manufacturing work closely together throughout the development process. This enables us to support customers from initial development and validation through industrialization and serial production.

Why Partner with Backer?

Thermal & Resistor Expertise Decades of experience in heating and resistor technology

Automotive Engineering Development focused on demanding vehicle applications

Validation & Testing Products tested for real-world automotive conditions

Swedish Manufacturing Engineering and manufacturing capabilities in Sösdala

From Development to Production Support throughout the product development process

Long-Term Partnership Supporting OEMs and Tier suppliers throughout the vehicle lifecycle



Contact

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Learn more about
BackerShield and our
automotive solutions