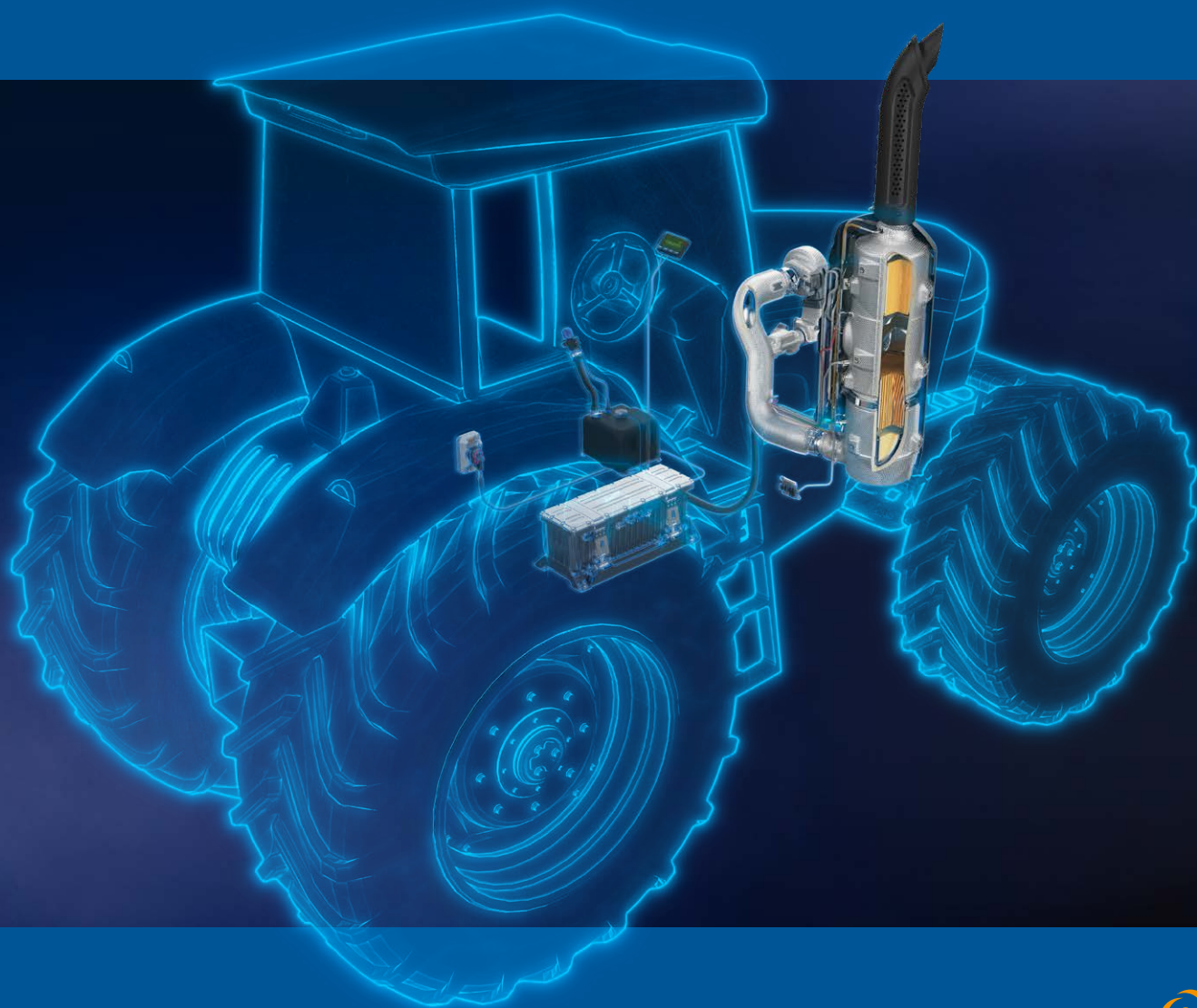


# ZERO EMISSIONS

Emission Control • Thermal Components • Electric Powertrain





# PROVENTIA EMISSION CONTROL

## The right track for a sustainable future

*In non-road applications, ICE engines will be used as power sources but in combination with hybrid systems and used with renewable fuels. Strict emissions regulations, energy efficiency, and CO<sub>2</sub> reduction targets mean that emission control solutions will be needed in future off-road machines too. Proventia provides the most innovative systems and components for reducing harmful emissions and for improving the energy efficiency of machines.*

# Ultra-low emissions solutions for a sustainable future

**A**t Proventia, we design and manufacture exhaust aftertreatment systems that deliver the highest levels of reliability and performance in all operating environments.

Proventia provides full-scale engineering expertise in the integration of emissions reduction technologies to meet the most demanding regulations and tightest spaces of agricultural, construction, mining, and material handling machinery, for instance.

Harsh environments and wide operating windows are just a few of the challenges that we solve when designing exhaust aftertreatment systems. Proventia's EAT systems minimize all emissions, including CO<sub>2</sub>. We improve fuel economy and make machines more energy efficient, also adding value to end-users.

## Agile and innovative in-house product development process

### The winning factors of Proventia Emission Control

- Strong design and engineering expertise
- Innovative, patented solutions with tailoring options
- Complete systems with intelligent controls, (Dosing Control Unit, DCU)
- Long track record in NRMM emission control
- Efficient manufacturing



## Our offering for non-road engine and machine manufacturers

ENGINEERING  
SERVICES

PROTOTYPE  
MANUFACTURING

TESTING &  
VALIDATION  
SERVICES

TAILORED HIGH-  
QUALITY EATS





# PROVENTIA THERMAL COMPONENTS

## Keeping temperatures under control

*High-temperature insulation is an essential part of making safe, energy-efficient, and environmentally friendly machines and vehicles. Efficient insulation is especially important in hybrid and electric applications. It is a game-changing asset that facilitates creative designs for technologically complex machines. Our insulation solutions – simple modular coverings or fully integral, shaped systems – are also visually attractive, eye-catching and highly suited to valuable applications. Proventia Thermal Components protect people, machines, vehicles, and all temperature-sensitive components.*

# High-temperature insulation for demanding on and off-road applications

**W**ith thermal management, we retain the temperature where it is needed, such as in exhaust systems or we protect components from heat. Our success in thermal management is based on our long experience, agile engineering, and fast process from prototypes to serial products.

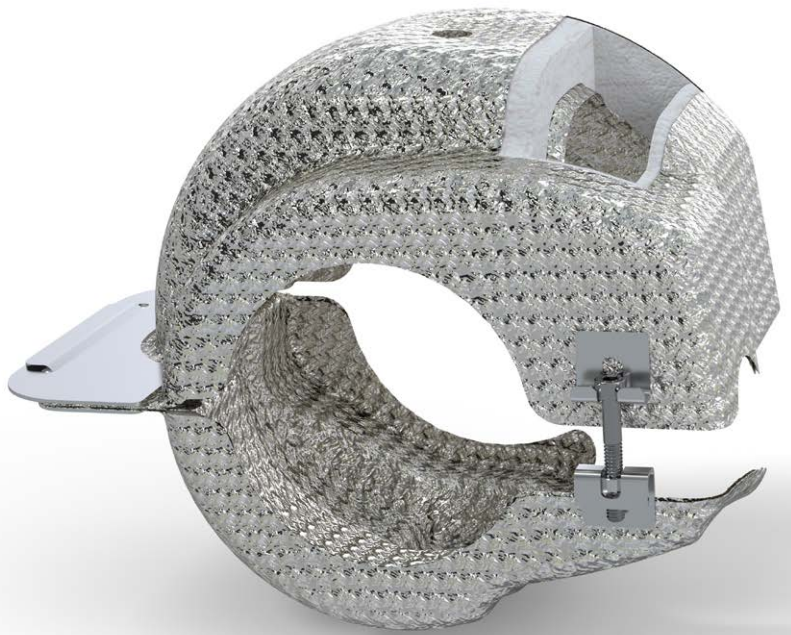
Flexibility and listening to the customer describe not only our engineering but also our manufacturing. We can produce limited runs of a few hundred parts up to large-scale production.

We can take care of the whole insulation process for the customer and even more – when assembling the insulation, we can also install other third-party components, which will make customers' processes quicker and easier in their factory.

## The winning factors of Proventia Thermal Components

- High-quality insulation solutions for efficient thermal management
- Strong expertise and experience in machine and vehicle technology
- Rapid prototyping and validation
- Fast process from prototypes to serial products
- Flexible, cost-effective manufacturing

**For protection, efficiency  
and the environment**



## Modular insulation coverings



## Shaped heat shields



## Fully integrated insulation solution







# PROVENTIA ELECTRIC POWERTRAIN

## Power to admire

*In non-road machines, electric technologies are gaining ground. Electrification enables operational cost savings and increases productivity, leading to CO<sub>2</sub> savings. The electrification of non-road machines is a major step towards a zero-emissions future – and that's where the Proventia Electric Powertrain comes in. At Proventia Electric Powertrain we offer high-power batteries for hybrid and electric non-road applications.*

# Robust high-power batteries for hybrid and electric machines

**A**t Proventia, we have combined our excellence in electric vehicle battery testing and expertise in non-road machine powertrains to master the battery systems for machines in the harshest operating environments. Our lithium-ion battery solution is the perfect match for electrifying the machine powertrain.

In hybrid systems, peak power can be produced with electricity. This means smaller combustion engines, lower fuel consumption, a simpler emission control system, and less emissions.

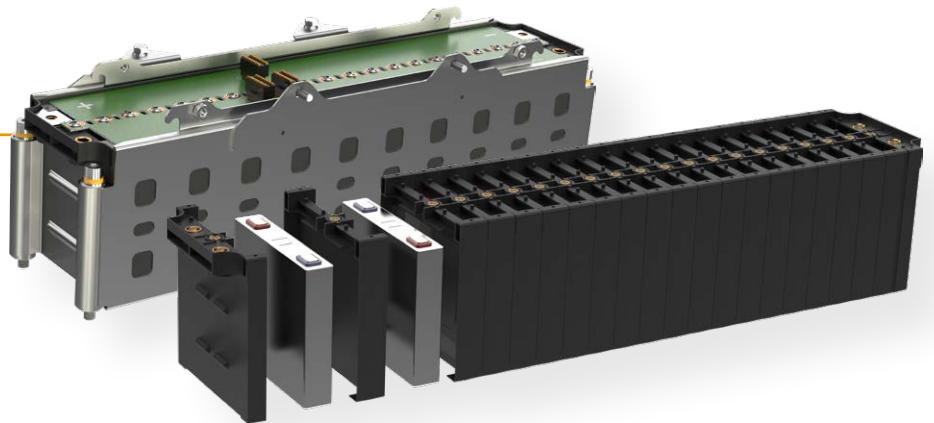
With flexible tailoring of capacity and voltage, we can meet the strictest requirements for hybrid and full electric machines.

## The winning factors of Proventia batteries

- Robust construction
- Wide operating temperature window
- Safe LTO technology – no bursting, no fire
- Superior lifetime in cyclic use

---

**Standard module or flexible tailoring of module size**

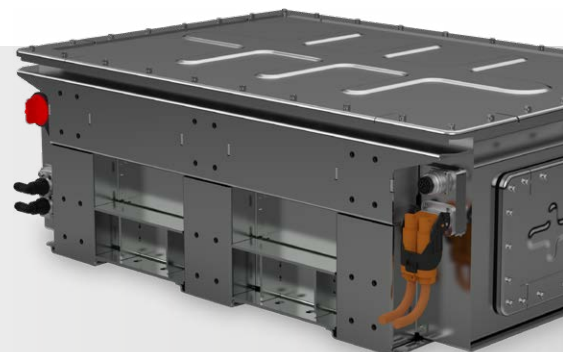


---

**ePRO48** lithium-ion battery for mild hybrid powertrains and other 48V subsystems

---

**ePRO500+** high-voltage lithium-ion battery platform for hybrid and full electric machines





**PROVENTIA** provides the world's most innovative systems and components for reducing harmful emissions and improving the energy efficiency of the machine and heavy vehicle powertrains.

**Proventia Group Oyj | Proventia Oy**

Tietotie 1, 90460 Oulunsalo, Finland | Tel. +358 20 781 0200 | [sales@proventia.com](mailto:sales@proventia.com) | [info@proventia.com](mailto:info@proventia.com) | [proventia.com](http://proventia.com)