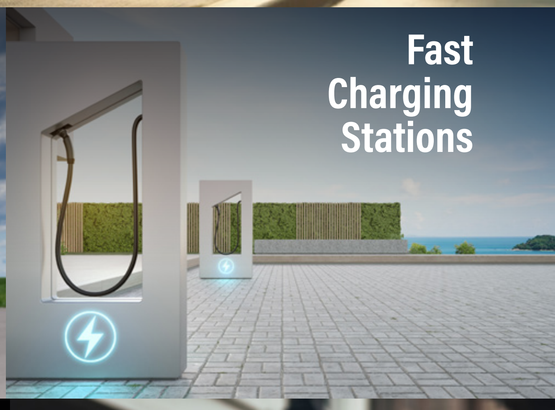
When **ELECTRIC** is a State of Mind, **CHANGE** is what you Drive.

Thermal Management for

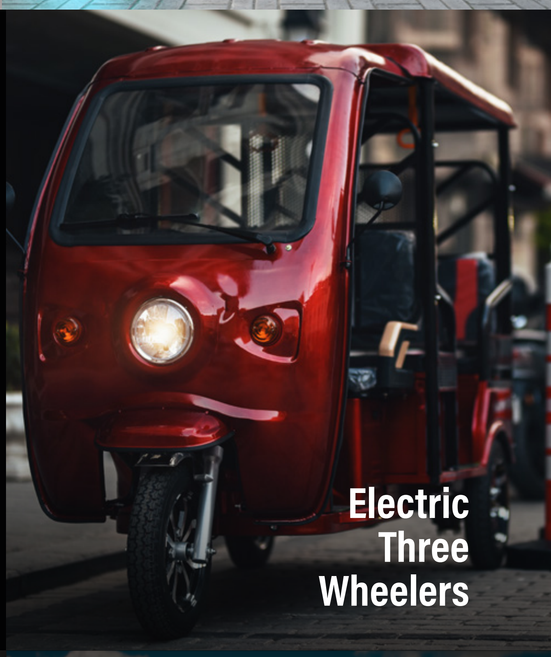
Electric Mobility | Renewable Energy Storage

ALKRAFT

SPIRIT OF CHALLENGE



MARKET SEGMENTS



LEADING THE CHARGE IN THERMAL INNOVATION

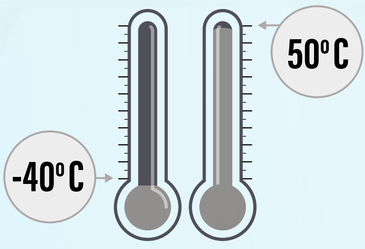
for over three decades

At Alkraft, driving change and progress through thermal innovation has been a fundamental tenet of our existence right from our founding three decades ago. Now, as the world is changing the way it drives, we are once again at the forefront, driving that change with Thermal Management Solutions for Electric Mobility and Renewable Energy Storage Applications.

With flexibility, scalability and modularity built-in to every product we design, we offer EV OEMs and Systems Aggregators fast-track prototyping and pilot launches with semi-tooled special process designs during their development and testing stages. Our deep expertise in thermal management for a wide array of applications place us in pole position to simulate, anticipate and solve thermal challenges faced by our customers. All of these when combined with our in-house capabilities in product validation for Cooling Performance and Reliability through a wide array of tests, make a complete solution suite and start-up ready model that we call an 'Electric State of Mind'.

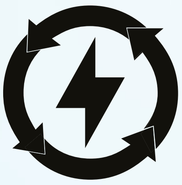
Learn more as you scroll the pages...

Battery Thermal Management Systems



Designed for Extreme Ambient Temperatures

Designed for Low Noise Levels



Designed for Low Power Consumption

High Performance to Weight Ratio

IP67 Rated for Water & Dust Resistance

Integrated Plug-n-Play System with a built-in Controller

Maintains Ideal Battery Temperature In Tandem with a Cold Plate

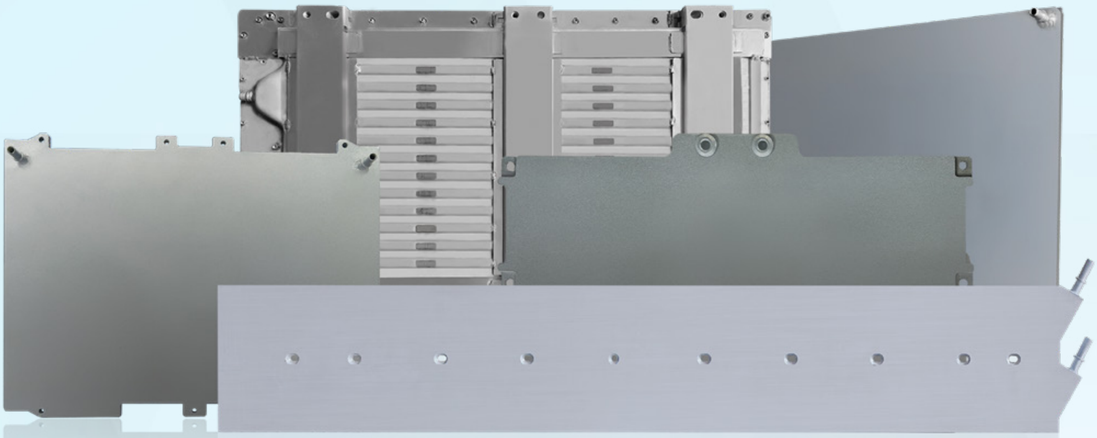
Smart Refrigeration Circuit with Multiple Modes of Functioning

Connects to Vehicle Control Unit through CAN 2.0 Interface

Alkraft's Battery Thermal Management Systems (BTMS) are fully integrated smart systems that provide cooling or heating on demand to ensure that EV batteries are maintained within their optimal operating temperature range. The temperature of lithium-ion batteries is a crucial factor in maximizing battery performance, enhancing safety, and extending its usable life. The operation of the BTMS is controlled, monitored and regulated by its control unit, which manages the cooling or heating levels dynamically based on real-time data, driving conditions, and ambient temperature.

Alkraft offers specification development, design and manufacturing for BTMS for Electric Vehicles, as well as for energy storage and power backup applications.

Cold Plates



Temperature Uniformity across Cells in a Battery Pack

Structural Rigidity to bear Battery Weight Load

Flatness to Ensure Max Surface Contact with Battery

Optimization of Design & Flow Geometry using CFD Tools

Optimization of Weight & Structural Integrity using CAE Tools

Cold Plate Types & Applications

At the core of advanced thermal management is the Cold Plate, a heat exchanger that ensures that critical systems are maintained within optimal temperatures for peak performance and reliability. Cold Plates are designed for direct contact with heat sources like EV battery packs and renewable energy storage systems. They work by efficiently absorbing and dissipating heat through a coolant that circulates within integrated flow channels.

Alkraft's expertise in thermal management and advanced CFD tools ensure that the geometry and layout of the coolant channels are highly optimized, thus enabling uniform coolant flow and efficient heat transfer. Another critical design factor is the need for a smooth and flat contact surface that enables best possible thermal contact with the heat source to reduce thermal resistance and further enhance heat transfer efficiency. These, among others are crucial considerations for optimal Cold Plate design.

Traction Motor Cooling Systems

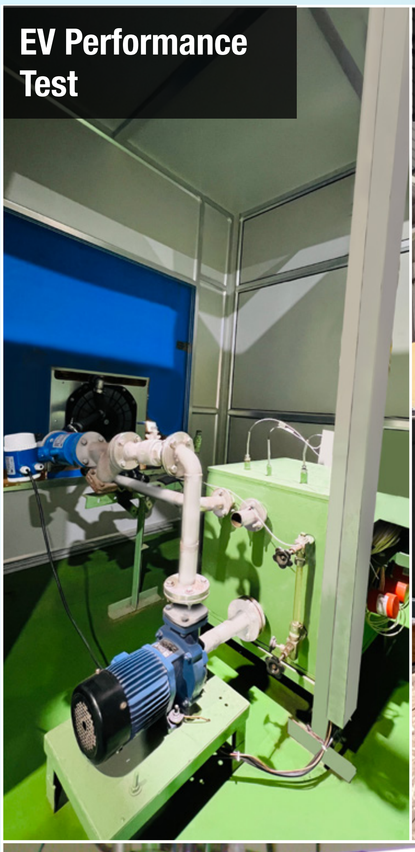
Highly Efficient Heat Dissipation in Compact & Lightweight Design

Low Noise Operation to Maintain Inherent low noise Benefits of EVs

Designed for Low Top Tank Temperatures and Low Coolant and Air Flow Conditions

The Traction Motor Cooling System keeps the EV motor operating smoothly and efficiently by ensuring that it is always within its optimal temperature range. The system can also be used to cool the power electronics in EVs. It typically consists of a brazed aluminium heat exchanger with an electrical fan that is specially designed and highly optimized for thermal performance, weight, and low noise and vibration. The system is also designed to meet the challenges of low top tank temperatures, and low coolant and air flow conditions.

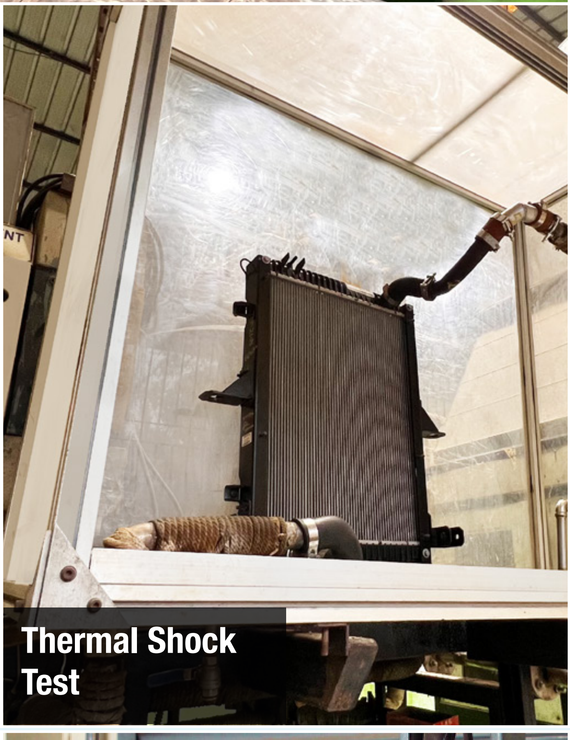
Testing Centre



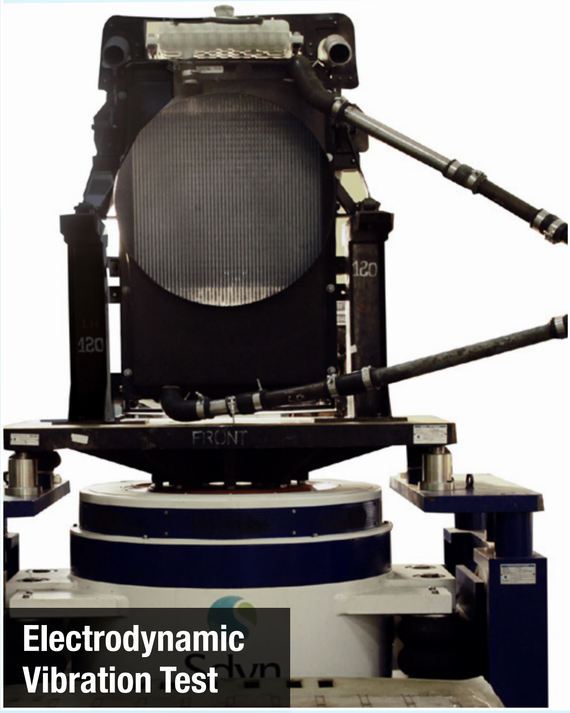
EV Performance Test

Wind Tunnel Test

Pressure Pulsation Test



Thermal Shock Test



Electrodynamic Vibration Test

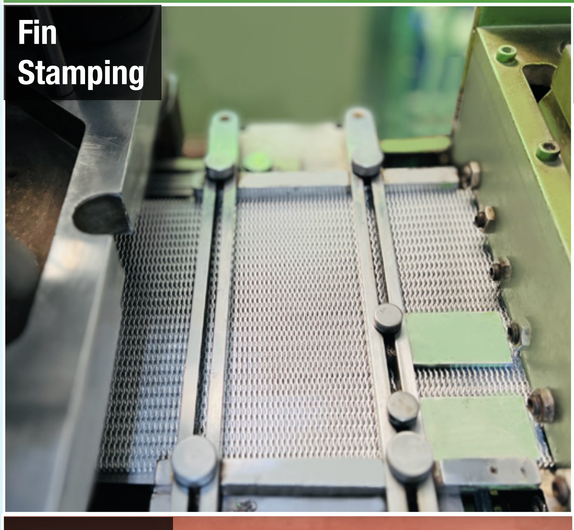
Internal Corrosion Test

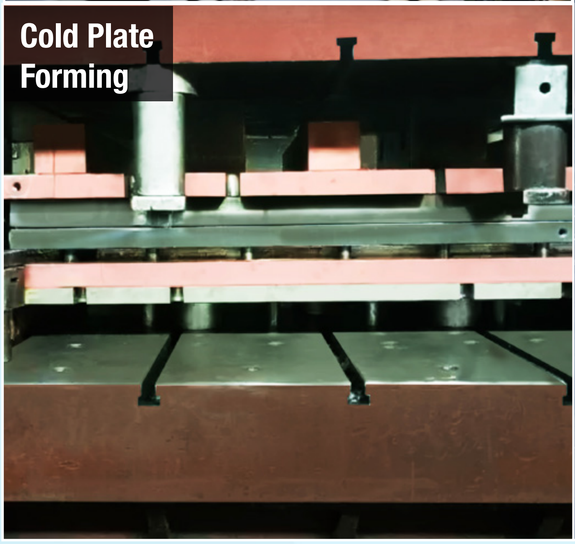
Manufacturing


Core Assembly Process


Inner Fin Inserting Machine

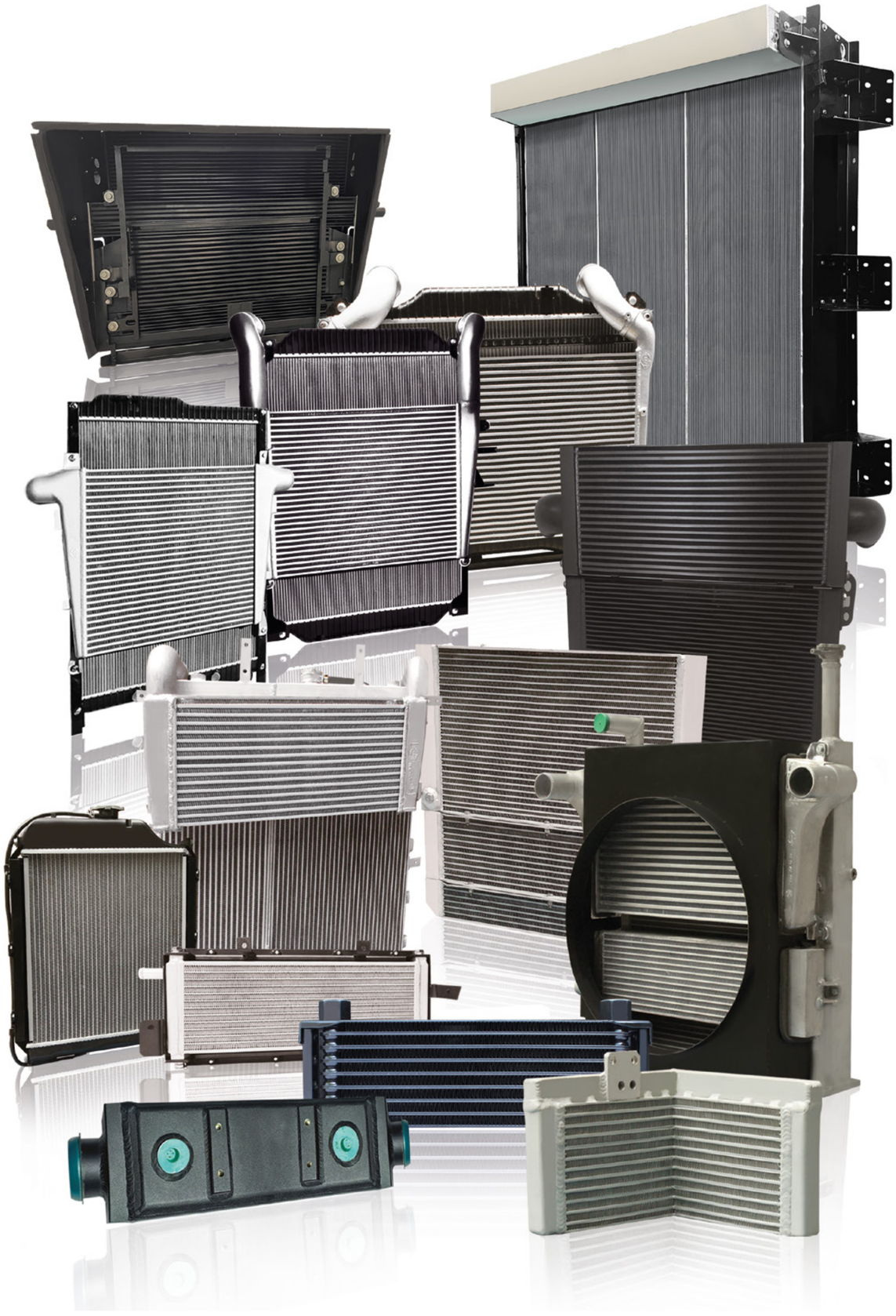

Tube Mill


Fin Stamping


Cold Plate Forming


Robotic Welding

Thermal Management Solutions For Electric, Diesel & Alternative Fuel Powertrains Across Wide Range of Industrial Segments



WHEN THE HEAT IS ON, COUNT ON US

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