

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



SPRIT OF CHALLENGE



Thermal Management for
Electric Mobility | Renewable Energy Storage



**Electric
Passenger
Vehicles**



**Plugin
Electric
Trucks**



**Fuel Cell
Electric
Trucks**

MARKET SEGMENTS



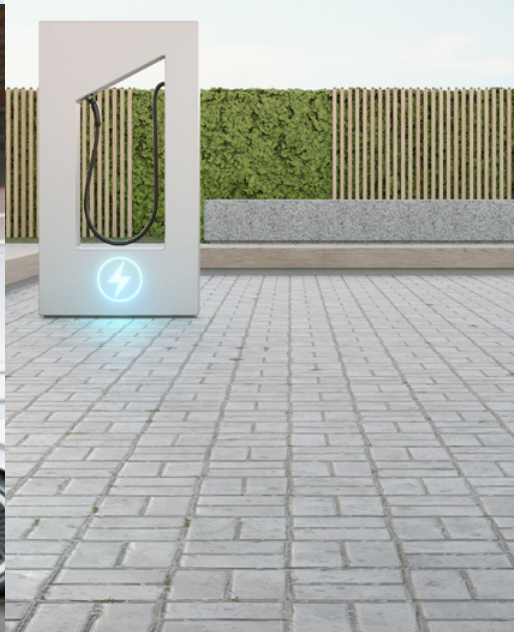
**Fast
Charging
Stations**



**Electric
Three
Wheelers**



**Light
Electric
CVs**



**Renewable
Energy
Storage**

LEADING THE CHARGE IN THERMAL INNOVATION

for over three decades

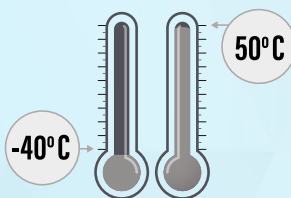
At Alkraft, driving change and progress through thermal innovation has been a fundamental tenet of our existence right from our founding three decades ago. Now, as the world is changing the way it drives, we are once again at the forefront, driving that change with Thermal Management Solutions for Electric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



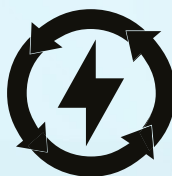
Battery Thermal Management Systems



Designed for
Extreme Ambient
Temperatures



Designed for
Low Noise
Levels



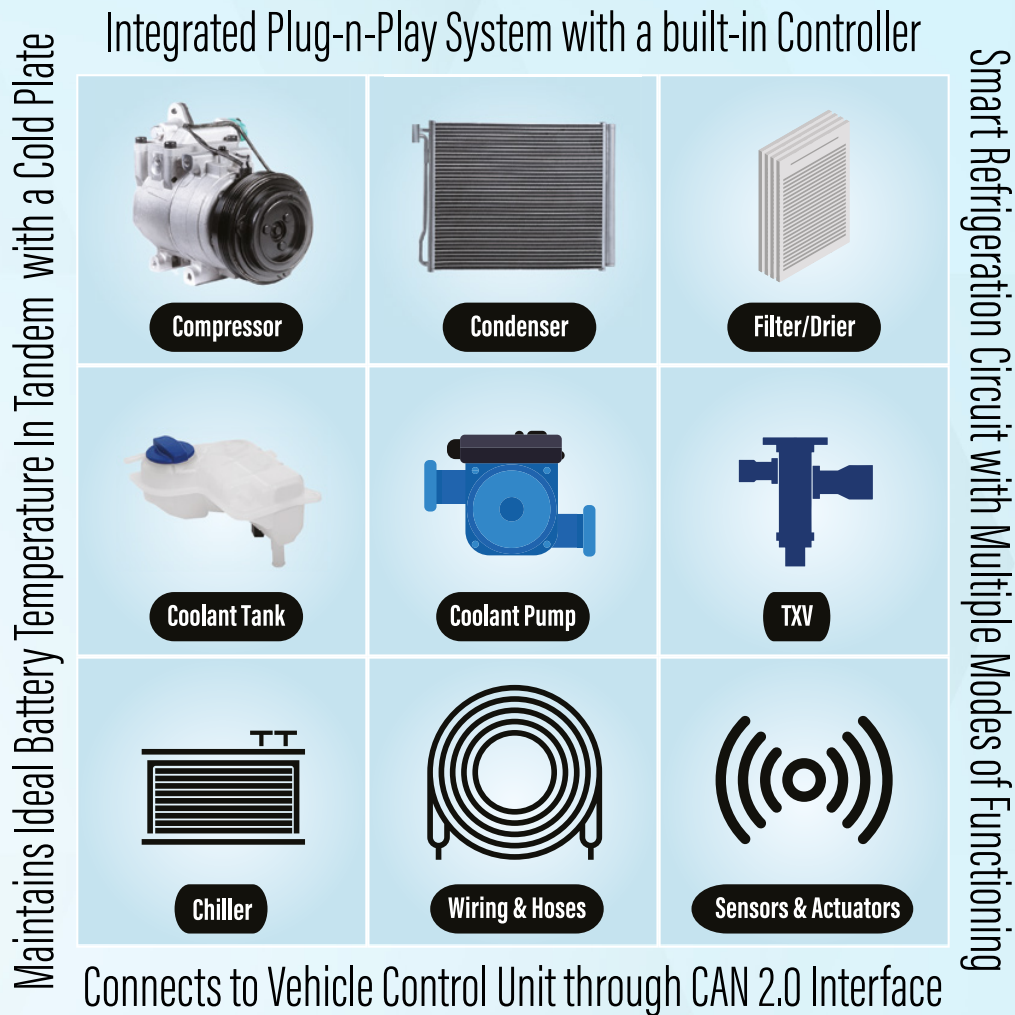
Designed
for Low Power
Consumption



High
Performance
to Weight Ratio



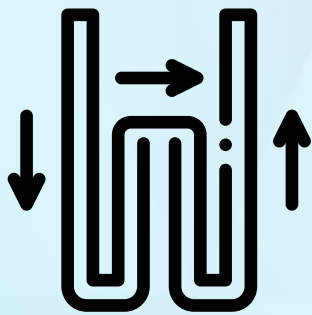
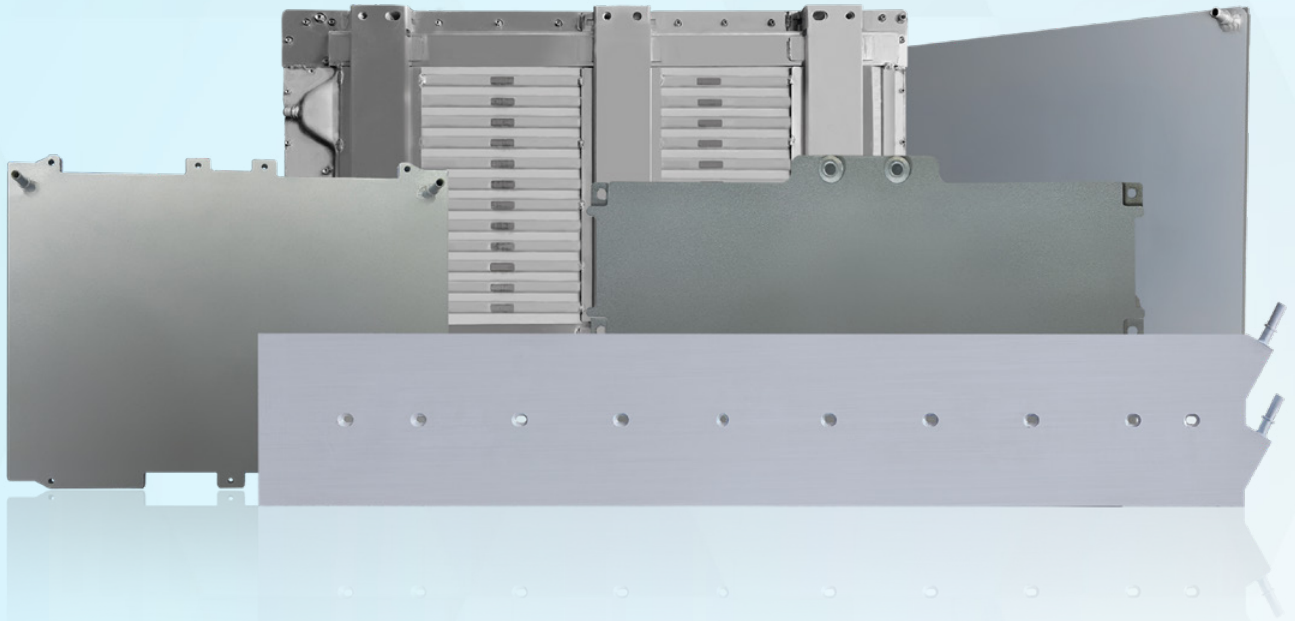
IP67 Rated
for Water & Dust
Resistance



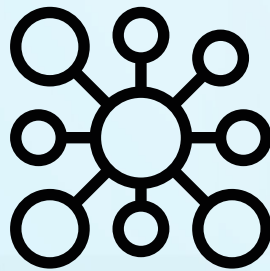
Alkraft's Battery Thermal Management Systems (BTMS) are fully integrated smart systems that provide cooling or heating on demand to ensure that EV batteries are maintained within their optimal operating temperature range. The temperature of lithium-ion batteries is a crucial factor in maximizing battery 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.

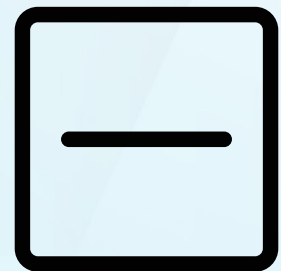
Cold Plates



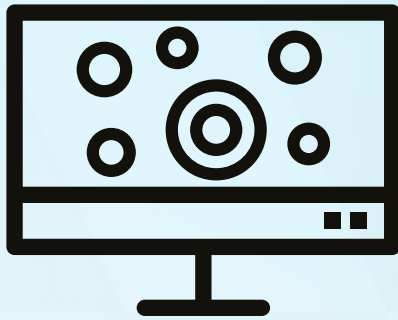
Temperature
Uniformity across
Cells in a Battery Pack



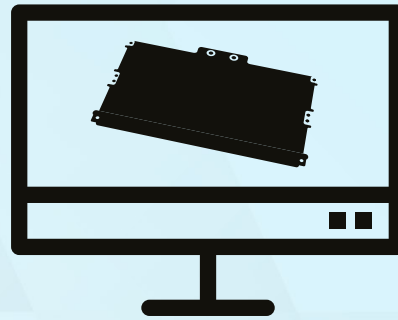
Structural
Rigidity to bear
Battery Weight Load



Flatness to
Ensure Maximum Surface
Contact with Battery



Optimization of Design &
Flow Geometry using
CFD Tools



Optimization of Weight &
Structural Integrity using
CAE Tools

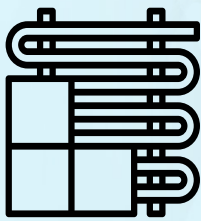
Cold Plate Types & Applications



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**



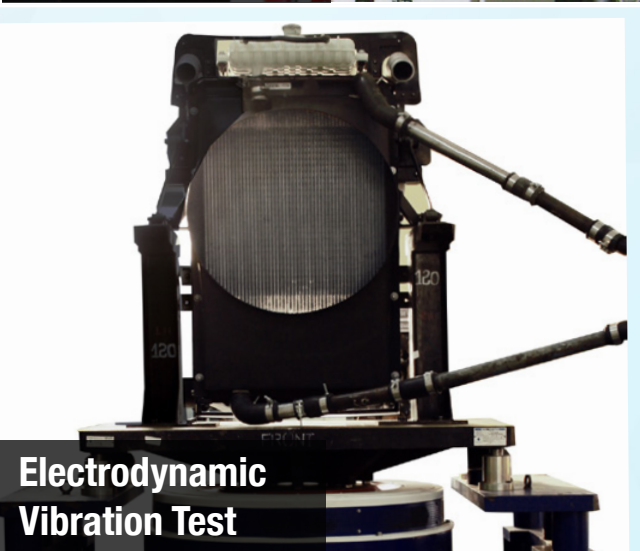
**Pressure Pulsation
Test**



**Thermal Shock
Test**



**Electrodynamic
Vibration Test**



**Internal Corrosion
Test**



Manufacturing

**Core Assembly
Process**



**Inner Fin Inserting
Machine**



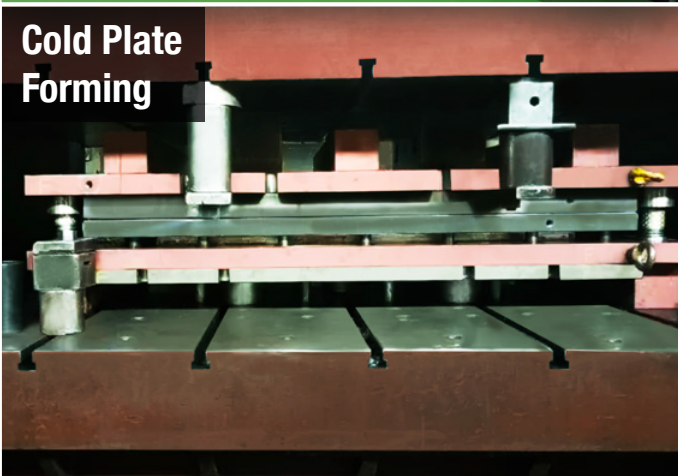
**Tube
Mill**



**Robotic
Welding**



**Cold Plate
Forming**





**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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