

THERMAL PERFORMANCE TO CONQUER THE EXTREMES



SPIRIT OF CHALLENGE



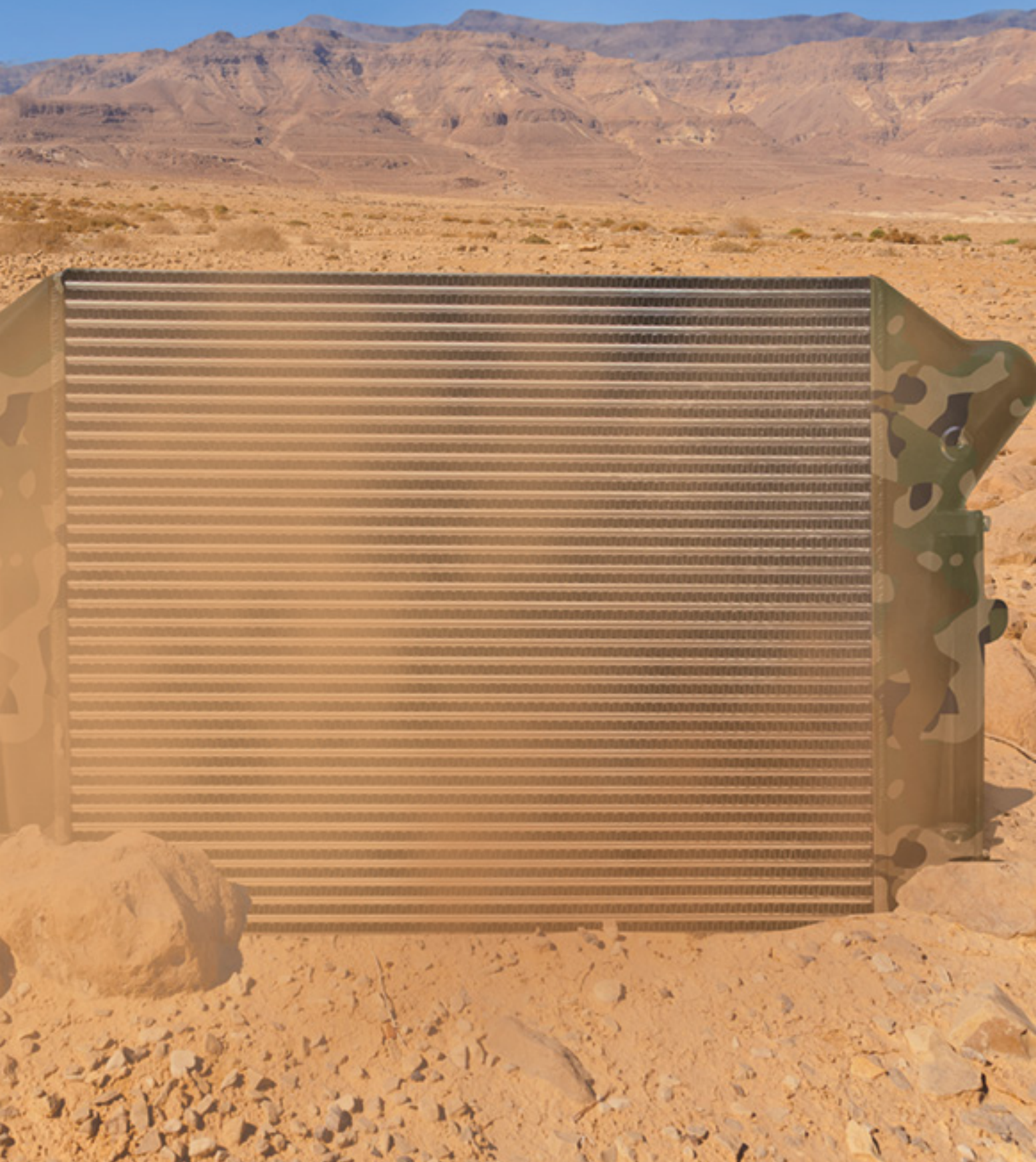
TAKES TO THE DESERT

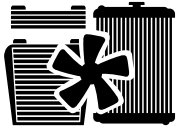
Alkraft's Heat Transfer Systems for Armoured Vehicles and Military Trucks are designed and built from the ground up for optimal thermal performance, even in the harshest of operating environments and weather conditions. As an established Thermal Management partner to a number of defence vehicle OEMs around the world, our products and systems have been validated and proven to perform by decades of heat transfer data from diverse environments.

Our proprietary tube and fin geometries offer advanced anti-clog properties for best-in-class reliability, along with class-leading durability due to the use of Super-Long-Life Aluminium Alloys. We have Plate-Bar, Tube-Fin and Drawn-Cup core configurations for a wide variety of customer requirements.

Our industry-leading products and systems, along with our comprehensive design, development and testing services makes Alkraft the partner that Defence Vehicle OEMs can count on for end-to-end Thermal Management solutions.

LIKE FISH TO WATER





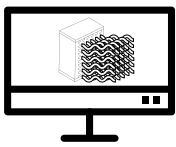
Bespoke Packaging of Complex Systems

Alkraft has successfully deployed advanced Thermal Systems with as many as eight heat exchangers packaged together as a single high-performance unit.



Performance Optimization using CFD Techniques, with Improved In-Cab Air Flow Management

Alkraft supports OEMs to optimise cooling efficiencies using CFD to simulate performance. We also optimise in-cab air flow by minor tweaking of cab designs and support in fan selection.



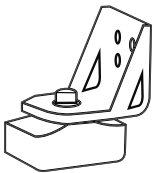
Thermal Challenges Solved with Proprietary Solutions

With a wealth of heat transfer data and proprietary thermal design software, Alkraft can engineer solutions for thermal challenges for any application.



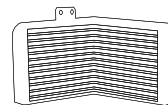
On-Site Testing Support & Design Benchmarking

Alkraft supports customers in optimising cooling system under-hood packaging, conducting on-site tests, and in benchmarking designs with field reliability data.



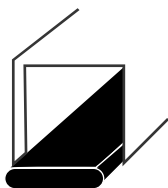
Design Support for Special Anti-Vibration Mounts using CAE

Alkraft's product validation experts can help design optimal anti-vibration mounts using CAE techniques to reduce vibration levels and extend product life.



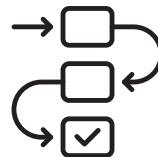
Innovative Design Solutions for Constrained Spaces

Alkraft's expertise in product design for constrained spaces has resulted in unique styles of heat exchangers including L-shaped and curved products.



Flexible Manufacturing Lines

Alkraft has flexible manufacturing lines to produce low volume, multi-variety batches of heat exchangers for niche customer requirements.



Just-In-Time Supplies from Satellite Plants & Warehouses

Alkraft has satellite assembly plants and warehouses spread across India for Just-In-Time supplies to customers, thus enabling deep manufacturing efficiencies.



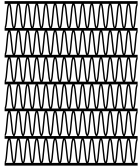
High Performance Heat Transfer Systems



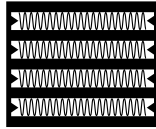
Reliable Operation & Best-In-Class Durability



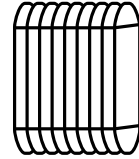
Designed & Built for Armoured Vehicles and Other Military Land Vehicles



Tube Fin Cores



Bar Plate Cores



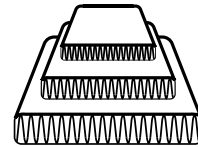
Drawn Cup Cores



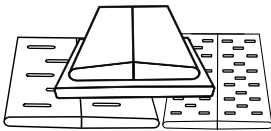
Extruded Tubes for Radiators



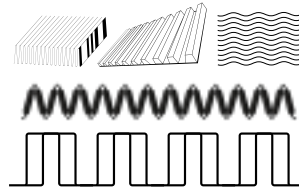
Multi-Port Extruded Tubes for Charge Air Coolers



Stuffed Tube Configurations for Charge Air Coolers in Various Sizes



Proprietary Folded Tubes in Super Long Life Aluminium Alloys for High Strength and Durability



Wide Range of Fin Geometries for Various Operating Environments

Three Decades of Thermal Management Excellence.

Countless Vehicles that Count on it Everyday.

PRODUCTS

Radiators	Charge Air Coolers
Cooling System Modules	
Air & Water Cooled Oil Coolers For Hydraulic Oil Steering Oil Transmission Oil Transfer Case Oil Rear Differential Oil	
Fuel Coolers	Cabin Demisters



Military Trucks

Armoured Vehicles

Special Land Vehicles

APPLICATIONS



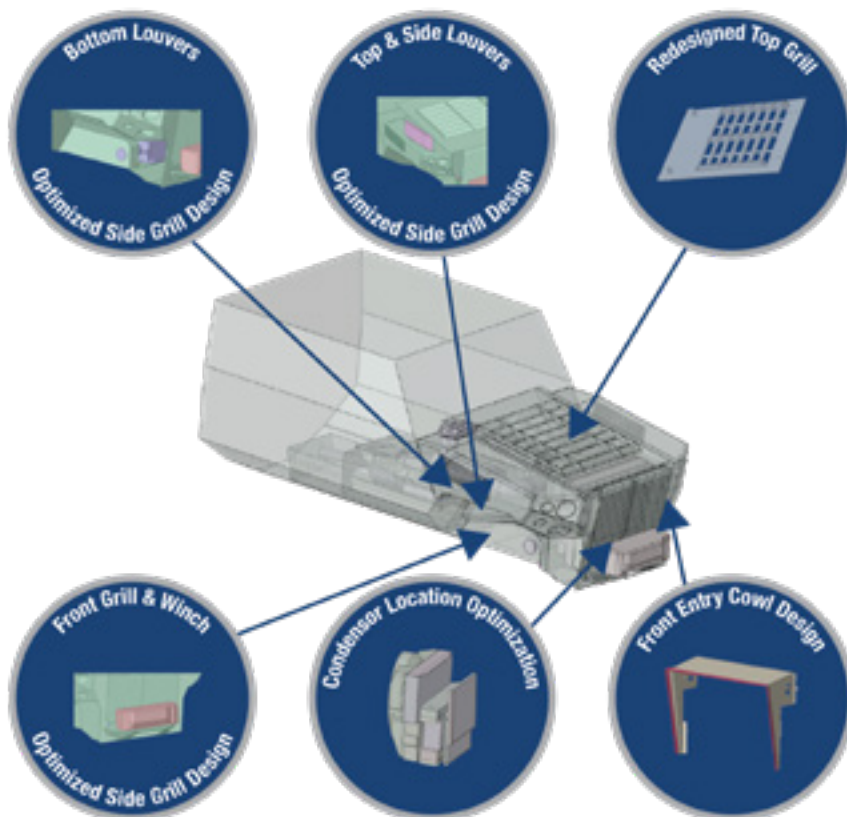
HIGH PERFORMANCE THERMAL MANAGEMENT SYSTEM WITH MULTIPLE INTEGRATED HEAT EXCHANGERS FOR 350 HP TO 1500 HP ARMoured VEHICLE



Featured here is a high performance Thermal Management System for Armoured Vehicles that Alkraft has designed and developed for operating in extreme desert environments. The key challenges encountered were the ambient temperature which could reach 55°C, hot winds and high dust levels, and highly restricted airflow in the vehicle due to the nature of its build. The System integrates multiple heat exchangers to operate seamlessly in cooling different parts of the vehicle's drivetrain.

The system has been packaged together with the front entry and fan cowl, and is designed for ease of assembly on the OEM production line. In order to enhance the efficiency and thermal performance of the system, Alkraft worked closely with the customer, running multiple CFD simulations to optimize air flow within the vehicle hull which resulted in a number of design optimizations on louvers, vents and grills. The result was a well integrated system that was finely customized for the vehicle, delivering unparalleled thermal performance and clearing its desert trial in the very first attempt.

AIR FLOW DESIGN OPTIMIZATION OF VEHICLE HULL



PRODUCTS & SYSTEMS FOR ELECTRIC VEHICLES

Traction Motor Cooling Systems



Cold Plates



Battery Thermal Management Systems



COMMERCIAL VEHICLE HEAT TRANSFER SYSTEMS

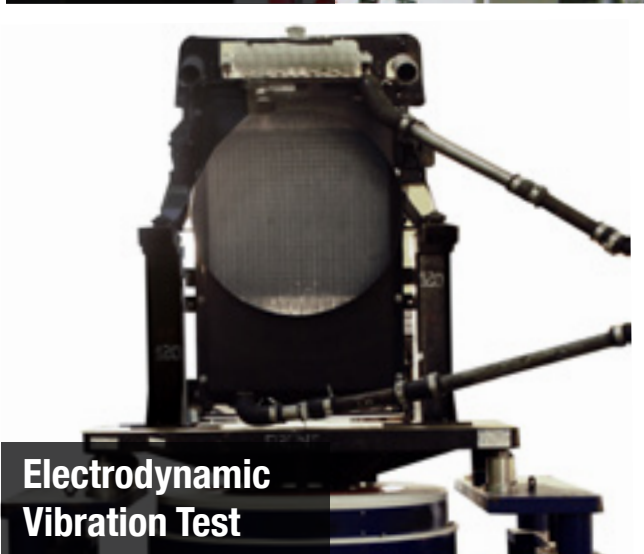


Radiators	Charge Air Coolers
Cooling System Modules	
Air & Water Cooled Oil Coolers For Hydraulic Oil Steering Oil Transmission Oil Transfer Case Oil Rear Differential Oil	
Fuel Coolers	Cabin Demisters

HEAT TRANSFER SYSTEMS FOR CONSTRUCTION, INDUSTRIAL & MATERIAL HANDLING EQUIPMENT



Testing Centre



Manufacturing

Core Assembly Process



Inner Fin Inserting Machine



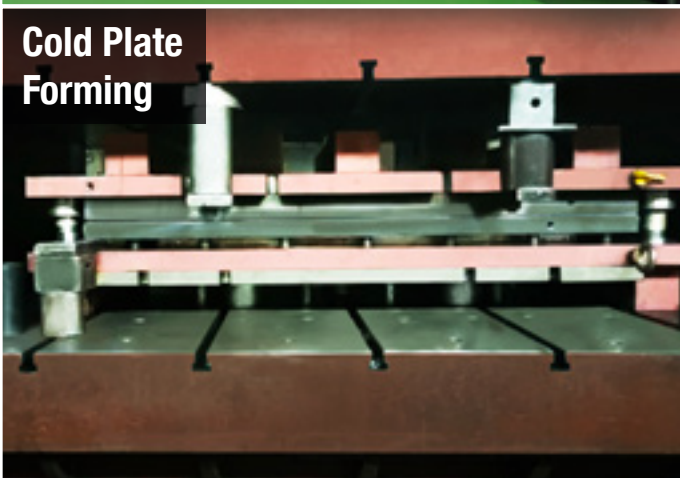
Tube Mill



Robotic Welding



Cold Plate Forming





SPIRIT OF CHALLENGE

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