



Thermal Management Systems

Higher heat removal and better survivability
in aerospace and defense environments



ENGINEERING YOUR SUCCESS.

Parker thermal management systems offer higher heat removal, greater design flexibility and survivability for rugged environments

The Parker Aerospace thermal management systems (TMS) team offers the broadest range of thermal management solutions available, whether it is at the component, board, module, enclosure, or system levels.

Decades of engineering and operational experience have led to a proven track record of reliable, robust, and cost-effective solutions in a wide range of aerospace and defense applications – leadership that is a result of integrating Parker's advanced cooling systems capability with its acquisition of SprayCool™ in 2010.

Proven solutions

Aerospace and defense electronics are driving significant increases in power densities, resulting in thermal management challenges across a wide range of applications. Our TMS team delivers advanced solutions with tremendous size, weight, and power (SWaP) advantages for mission-critical applications such as:

- Radar and electronic warfare
- Signals processing
- Power electronics
- Command and control
- Mission processing
- Communications
- Video and image processing



Defense and intelligence applications

From ground combat vehicles to high-altitude unmanned aircraft, our cooling solutions enable electronics survivability in the harshest environments, examples of which include:

- RQ-4 Global Hawk (ASIP)
- MQ-4C Broad Area Maritime Surveillance (BAMS)
- MQ-1 Sky Warrior (TRACER)
- MQ-9 Reaper
- U-2 Dragon Lady (ASIP)
- MQ-1 Predator
- EA-6B Prowler
- UH-60 Black Hawk (HALS)
- Expeditionary Fighting Vehicle (EFV)
- Medium Extended Air Defense System (MEADS)
- Command Post Platform-Light (CPP-L)
- Future Combat Systems (FCS)
- Multifunction Utility/Logistics and Equipment (MULE) vehicle



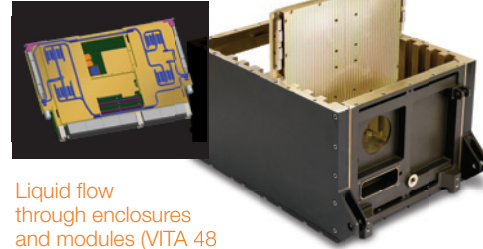


Liquid cooled racks



Single-phase and two-phase coldplates and spray modules

SprayCool™ enclosures



Liquid flow through enclosures and modules (VITA 48 or custom)

Total systems integration

As a part of Parker Hannifin Corporation, the TMS team is able to package a broad range of products into comprehensive systems. Applying our engineering expertise, we can solve your thermal management challenges, delivering complete systems solutions that are **reliable, robust, and cost-effective**.

In addition to our thermal management products, Parker's systems can include:

- Pumps, motors, and controllers
- Power and control electronics valves
- Hose and tubing
- Quick disconnects and fluid connectors
- Seals and advanced polymers
- Filtration
- Thermal interface materials
- EMI isolation products and systems

Heat collection

Thermal management systems and components

Parker's TMS team provides customers with products and solutions for both **heat collection** and **heat rejection**. These products are designed to be either stand-alone solutions or can be integrated into larger environmental control systems. Scalability is also an important consideration, and Parker's products provide growth capability to leverage a customer's initial investment.

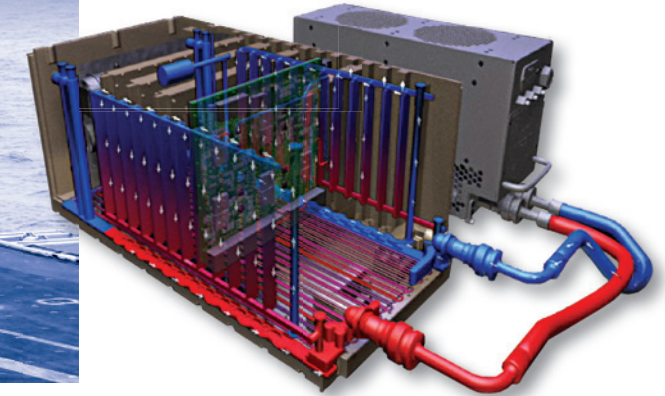


Photo courtesy of U.S. Army

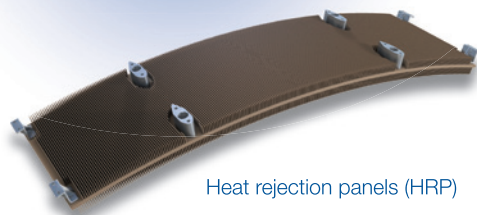
Photo courtesy of U.S. Air Force

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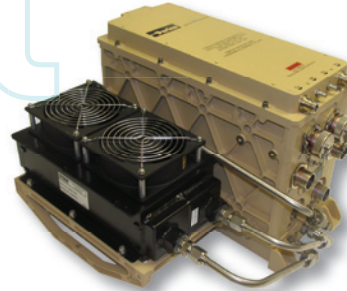
Photo courtesy of U.S. Navy



Heat rejection



Heat rejection panels (HRP)



Heat exchanger assemblies



Heat rejection units (HRU)

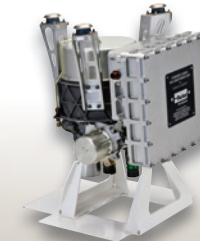
Smart pumps (packaged motors, controllers, and pumps)



A380 supplemental cooling system pump



Pod radar cooling pump



787 primary electronics cooling system (PECS)

Parker TMS products are compatible with a variety of liquid cooling fluids including:

- Polyalphaolefin (PAO)
- Ethylene glycol/water (EGW)
- Propylene glycol/water (PGW)
- Fluorinert™
- Galden®

Fluorinert™ is a trademark of 3M. Galden® is a registered trademark of Solvay Plastics.

Worldwide customer support

Parker Aerospace's Customer Support Operations provide spares, repairs, and aftermarket support services for all Parker Aerospace systems and components. Working in partnership with our customers to develop comprehensive programs tailored to fit their special needs, we offer a full spectrum of service and support from one central organization. Our 24/7 industry-leading support services include:

- Online inventory
- Overhaul and repair services
- Engineering support
- Technical data
- Training
- Field service support
- Customized spares programs
- Warranty administration
- Ground-support equipment
- Technical data
- Reliability management, engineering assistance, and in-region support



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