

Calorimeter Testing



A vehicle's cooling system isn't proven until it performs under real heat, airflow, and operational stress. Systems that look strong in development can fail when extremes collide. At the Air Flow Laboratory (AFL), we push vehicle cooling systems to their limits to uncover true performance boundaries and ensure they deliver under real-world conditions. As an ISO/IEC 17025-accredited laboratory, AFL evaluates radiators, oil coolers, charge air coolers, ballistic grilles, and full heat exchanger packs. Our testing identifies vulnerabilities, optimizes thermal efficiency, and validates durability—so your vehicle stays mission-ready, no matter the environment.

Partner with AFL to validate your design, mitigate thermal risk, and deliver vehicle mobility systems that maintain performance when conditions are at their worst.

Our Specialized Cooling and Airflow Testing Services

AFL provides a comprehensive suite of component-level testing capabilities focused on one objective: delivering actionable, defensible data to ensure cooling systems perform under real operational stress.

Cooling System Endurance Testing: Proving Thermal Reliability

A vehicle's mobility depends on its ability to manage heat continuously, not just momentarily. AFL evaluates radiators, oil coolers, charge air coolers, and ballistic grilles under simulated real-world conditions with controlled airflow and thermal loads. Testing exposes weaknesses in heat rejection capacity, airflow restriction, and durability before they degrade performance or cause mission failure.

- **Benefit:** Field cooling systems with proven reliability and reduced risk of heat-induced mobility loss.

Thermal Performance Mapping: Optimizing Heat Rejection Under Load

Unlock the full capability of your cooling architecture. AFL conducts detailed thermal performance mapping of individual components and complete heat exchanger packs—testing up to three heat exchangers simultaneously. This approach reveals interactions, performance margins, and degradation under realistic operating conditions.

- **Benefit:** Optimize cooling efficiency, preserve powertrain performance, and maintain mobility under extreme thermal demand.

Development & Validation Testing: Engineering for Real-World Robustness

The decisive thermal advantage is engineered here. As an ISO/IEC 17025–accredited laboratory, AFL provides unbiased first article testing and ongoing production quality surveillance to ensure compliance with demanding military standards such as **MIL-PRF-62259** and **MIL-DTL-62006C**. Our controlled testing accelerates development while eliminating uncertainty in cooling and airflow performance.

- **Benefit:** Reduce development risk, guarantee standards compliance, prevent overheating failures, and extend system service life.

With unique Army testing capabilities, accredited processes, and deep technical expertise, the Air Flow Laboratory ensures vehicle cooling and airflow systems are ready for the realities of operational heat, restriction, and endurance.

AFL - Calorimeter: Validated cooling performance for uncompromised vehicle mobility.