

High-Performance Cooling Components for Photonics

Increase power output, reduce weight, and improve stability of high-power lasers.

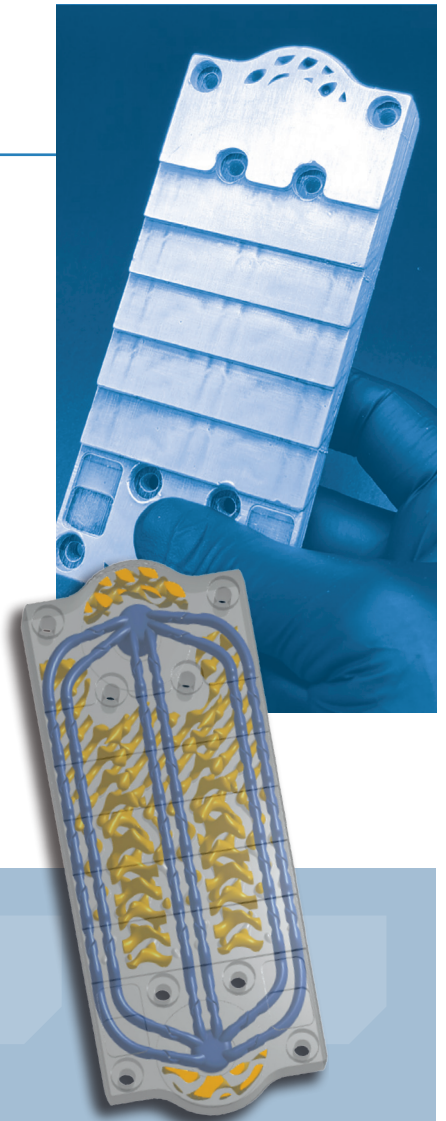
Lasers are getting smaller and hotter, making thermal management increasingly challenging. Alloy's proprietary aluminum components deliver next-generation cooling to enable high performance and stability.

Benefits

- **Exceptional heat transfer** for high-performance components
- **Improved thermal control** increases the stability and precision of the laser
- **Single-piece construction** reduces part count and eliminates the risk of leaks

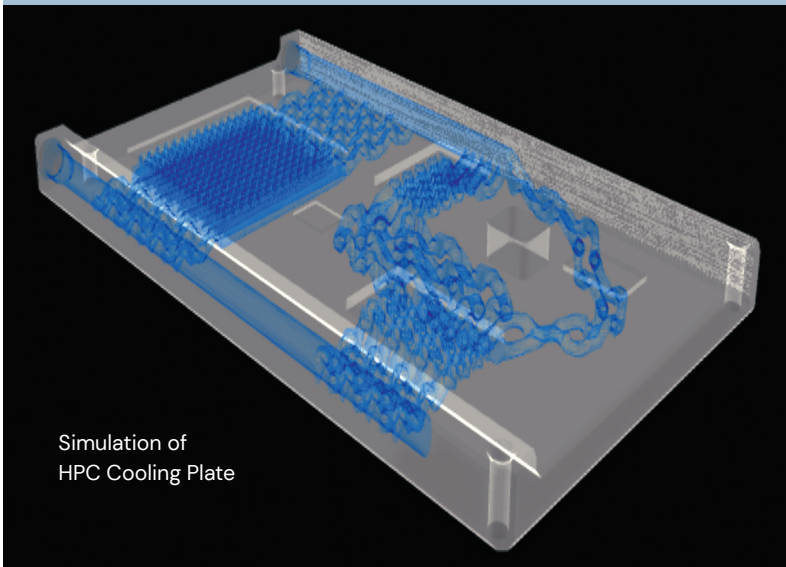
Thermal Solutions You Can't Get Anywhere Else

- Targeted cooling enables focused heat extraction
- Complex internal micro-channels increase thermal performance
- Massively parallelized flow paths reduce pressure drop
- Fully dense material is leak-tight to ultra-high vacuum



NEW LEVELS OF PERFORMANCE

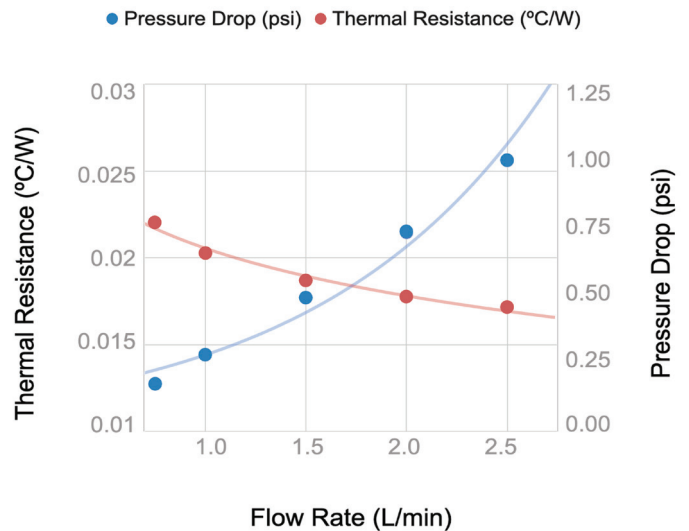
Alloy fabricates aluminum components using the **Stack Forging™** process to produce complex internal channels and eliminating the need for vacuum brazing.



The suite of solutions includes multiple options for high performance designs engineered for low pressure drop, and optimal thermal performance.

Best-In-Class Thermal Resistance and Pressure Drop*

*Results for Aluminum



Value-Added Services

- **Thermal design:** Traditional & field-based CAD
- **Simulation:** Multi-physics thermal-fluid CFD, & Thermal-structural FEA
- **Testing:** Thermal, flow, pressure and leak testing.

Applications include:

- Cold plates
- Vapor chambers
- Conformal coolant routing
- Oscillating heat pipes
- Electronics enclosures with integrated cooling



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