



ADVANCED COOLING TECHNOLOGIES

TWO-PHASE COLD PLATES

REVOLUTIONIZING DIRECT-TO-CHIP COOLING FOR EXTREME POWER DENSITIES

CPU/GPU/ASIC/DIMM Cooling
• Beyond 7,500 W TDP

ACT's two-phase cold plates unlock higher compute density with less than half the flow of single-phase designs. For AI, HPC, and GPU workloads beyond 7,500 W TDP, they sustain $>500 \text{ W/cm}^2$ and $0.080^\circ\text{C}\cdot\text{cm}^2/\text{W}$ at less than 0.8 LPM/kW, keeping performance strong—even with facility water exceeding 40°C .

The result? Cooler operation, tighter footprints, and lower pumping power—ready for AI scale-out and tomorrow's highest-density racks.

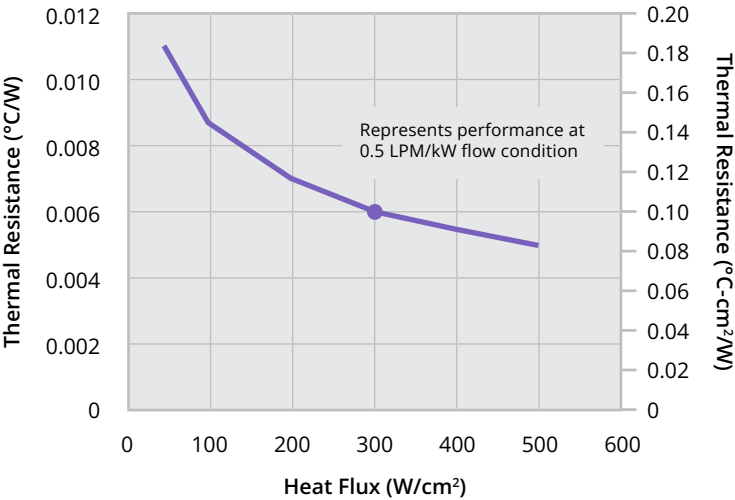


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TWO-PHASE PERFORMANCE ADVANTAGE

Cold Plate Performance*



*All performance data shown using R515B for two-phase cold plates

Ultra-High Heat Flux Capability

Handles over 500 W/cm²—empowering next-generation CPU, GPU, ASIC, and DIMM designs.

Ultra-Low Thermal Resistance

Achieves 0.080°C·cm²/W at 500 W/cm² and 0.8 LPM/kW flow rate. Outperforms single-phase cold plates with less than 50% of the flow.

Facility-Level Efficiency

Optimized for facility water more than 40°C—cutting chiller costs and boosting PUE.

Compact & Scalable Integration

Compatible with multiple form factors and rack architectures. Modular by design for easy scalability across high-density systems.

SPECIFICATIONS

TECHNICAL

Maximum Heat Flux	>500 W/cm ²
Thermal Resistance	0.080°C·cm ² /W
Flow Rate	<0.8 LPM/kW
Operating Fluid Temperature Range	20°C–60°C
Facility Water Temperature (Recommended)	>40°C
Coolant Types	R515B, R513A, R1336mzz(Z), R1233zd(E)
Material/Construction	Copper/Brass
Compatibility	CPU/GPU/ASIC/DIMM form factors
Design Variants	Custom and standard footprints available

COMPARATIVE PERFORMANCE

	Two-Phase Cold Plate	Single-Phase Cold Plate
Maximum Heat Flux	>500 W/cm ²	~250 W/cm ²
Thermal Resistance	0.080°C·cm ² /W	~0.150°C·cm ² /W
Flow Rate	<0.8 LPM/kW	>1.5 LPM/kW
Facility Water Temperature (Recommended)	>40°C	≤30°C



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ISO 9001 & AS9100 Certified
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