



ACT (Advanced Cooling Technologies)

United States · founded 2003 · 1-act.com

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WITH DATASHEETS

newspacemarket.com/companies/act-advanced-cooling-technologies/

as of 20 August 2026

ACT (Advanced Cooling Technologies)

Advanced Cooling Technologies, Inc. (ACT) is a premier thermal management solutions company focusing on custom applications of two-phase heat transfer technology. Started in 2003 as an R&D company, ACT has grown into a leading manufacturer of thermal management products for diverse industries and applications, including satellites, military vehicles, medical devices and imaging equipment, primary calibration equipment, and HVAC systems. ACT offers a complete range of thermal engineering services — from initial concept generation and product design through high-volume production of fully integrated thermal management solutions. The company supports customers at every stage of the design cycle, providing performance and cost-optimized technologies tailored to each application's unique requirements. In the space sector, ACT designs and manufactures heat pipes, loop heat pipes, cold plates, and other thermal control hardware deployed on numerous commercial and government satellite missions, combining the technical depth of an established industry leader with the responsiveness of a smaller specialized company.

This profile is generated from the live NewSpace Market catalogue. Specifications are as published by the manufacturer; every product links to a page where a request for quotation reaches the company directly.

SERVICES

Services

Custom Heat Pipe Assembly Manufacturing ACT manufactures custom heat pipe assemblies tailored to specific design requirements for system-ready solutions.	Engineering Services ACT provides engineering services including spare parts, return & repair, and field servicing to expand ROI.
Passive Thermal Control System Enhancement ACT enhances and optimizes passive thermal control systems to expand their operational limits for customers.	Product Development ACT offers custom-engineered product development to solve specific thermal management challenges for customers.
Thermal Management Strategy Optimization ACT collaborates with customers to optimize thermal management strategies for unique system requirements.	

Product catalogue



ACT (ADVANCED COOLING TECHNOLOGIES)

Composite Structures and Assemblies

Advanced composite structural solutions for space and aerospace applications including spacecraft bus structures, solar array substrates, booms, and support structures with maximum

Manufacturing Process	5-axis CNC machining, autoclave cure, aerospace-grade bonding
Material Systems	CFRP, aluminum honeycomb, hybrid composites
Applications	Bus structures, payload structures, solar array substrates, booms
Quality Certification	AS9100D

price on request



ACT (ADVANCED COOLING TECHNOLOGIES)

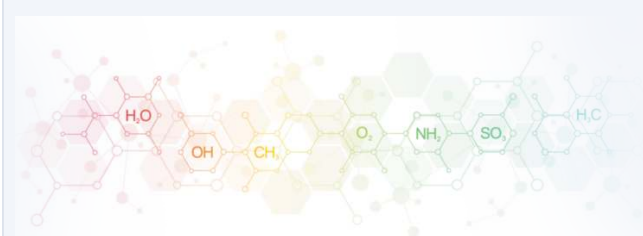
Constant Conductance Heat Pipes (CCHPs)

Precision-engineered aerospace CCHPs with over 118 million space flight hours heritage, manufactured under ISO 9001:2015 and AS9100D certified quality systems.

Space Flight Hours Heritage	118,664,340+ hours
Quality Certification	ISO 9001:2015, AS9100D
Welding Standard	AWS D17.1
Leak Detection Method	Helium mass spectrometer
Fluid Purity Process	Triple distillation

price on request

[datasheet](#)



ACT (ADVANCED COOLING TECHNOLOGIES)

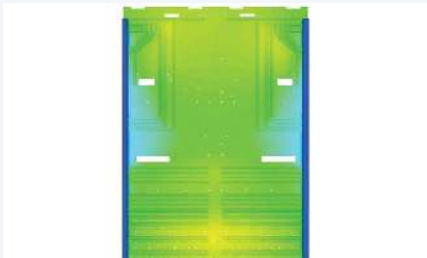
High-Temperature Heat Pipes

Alkali metal heat pipes operating from 400°C to 1,100°C using potassium, NaK, or sodium in stainless steel or Haynes envelopes for nuclear space power, solar thermal, and hypersonic

Potassium Operating Range	400–1,000°C
NaK Operating Range	500–800°C
Sodium Operating Range	500–1,100°C
Envelope Materials	Stainless Steel, Inconel Alloy 600, Haynes
IFL Temperature Uniformity	±0.1°C
HPBC Temperature Uniformity	0.05–0.1°C
PCHP Set Point Stability	±0.01°C

price on request

[datasheet](#)



ACT (ADVANCED COOLING TECHNOLOGIES)

HiK Plates / Heat Pipe Assemblies

Custom heat spreaders with embedded copper-water heat pipes offering effective thermal conductivities of 10,000–100,000 W/m·K, designed to collect and move heat from multiple components

Operating Temperature Range	20–150°C
Effective Thermal Conductivity	10,000–100,000 W/m·K
Outer Diameter Range	1/16" (1.5 mm) to 1.5" (38 mm)
Cross-Section Geometry	Round, rectangular, or flattened
Surface Coating Options	Nickel or tin
Freeze-Thaw Tolerance	Yes

price on request

[datasheet](#)

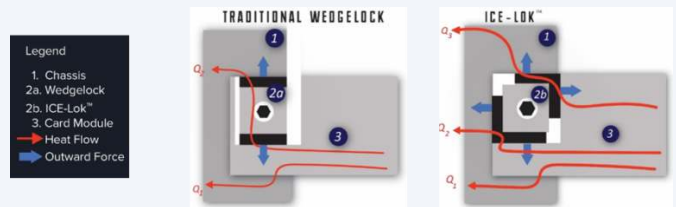


ACT (ADVANCED COOLING TECHNOLOGIES) Honeycomb Radiator Panels

Aluminum honeycomb sandwich panels serving dual roles as spacecraft structural shells and heat rejection radiators, with embedded CCHPs, high-conductivity face sheets, and selectab

Core Material	Aluminum honeycomb sandwich
Face Sheet Enhancement	High-conductivity, optional embedded CCHPs
Surface Finish	Selectable emissivity coatings
Compatible Orbit Classes	LEO, ME0, GE0, deep space
Scalability	CubeSat-class to GE0 bus panels

price on request



ACT (ADVANCED COOLING TECHNOLOGIES) ICE-Lok Thermally Enhanced Wedge Locks

Patented Isothermal Card Edge wedge locks that reduce card-to-chassis thermal resistance by over 33% vs. standard wedge locks, VITA 48.2 compliant with spaceflight heritage for Spa

Thermal Resistance Reduction vs. COTS	> 33%
Temperature Reduction (100 W system)	> 10°C vs. standard 3/8" wedge locks
Standard Compliance	VITA 48.2
Compatible Card Formats	VITA 3U, 6U, 9U
ICE-Lok 250 Series	7, 9, 11 wedges (1/4" width)
ICE-Lok 375 Series	5, 7, 9 wedges (3/8" width)
Shock/Vibration Qualification	Military aircraft, Delta IV, Atlas V

price on request

[datasheet](#)



ACT (ADVANCED COOLING TECHNOLOGIES) Loop Heat Pipes (LHPs)

High-capacity two-phase heat transport devices that move larger amounts of heat over longer distances than conventional heat pipes, with sintered nickel, hybrid, and 3D-printed wic

Ammonia Operating Range	-40°C to 70°C
Titanium/Water Variant Range	70°C to 250°C
Traditional Wick Pore Radius	~1 μm
3D-Printed Wick Pore Radius	~8–10 μm
3D-Printed Wick TRL	6
Quality Certification	AS9100

TRL 6

price on request

[datasheet](#)



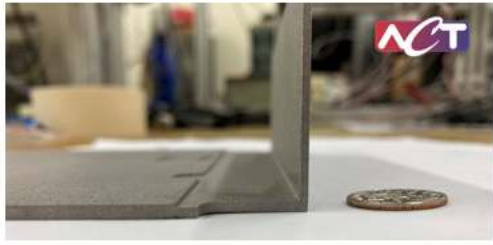
ACT (ADVANCED COOLING TECHNOLOGIES) Phase Change Material (PCM) Heat Sinks

High-performance PCM thermal energy storage devices that absorb pulsed or duty-cycled heat loads with minimal temperature rise, for single and two-phase liquid cooling loops.

Thermal Storage Advantage	1–2 orders of magnitude higher than sensible energy storage
Typical PCM Thermal Conductivity (paraffin)	< 1 W/m·K
Enhancement Structures	Fins, embedded heat pipes, metal foams
Manufacturing	Aluminum vacuum brazing, hermetic sealing, precision PCM charging

price on request

[datasheet](#)



ACT (ADVANCED COOLING TECHNOLOGIES)

Pulsating Heat Pipes (PHPs)

Pulsating Heat Pipes (PHPs), also called Oscillating Heat Pipes (OHPs), are passive two-phase heat transport devices that operate through self-excited oscillation of liquid slugs a

Wick Structure	None (wickless)
Minimum Device Thickness	< 3 mm
Maximum Transport Distance	> 1 m
Compatible Working Fluids	Ammonia, propylene, R245fa, acetone

price on request



ACT (ADVANCED COOLING TECHNOLOGIES)

Space Copper-Water Heat Pipes (SCWHPs)

Flight-proven copper-water heat pipes for high heat flux satellite electronics cooling, capable of handling up to 50 W/cm² with first flight heritage from ISS in 2017.

Heat Flux Capability	Up to 50 W/cm ²
Temperature Gradient (typical)	2–5°C
Wicking Capability Against Gravity	Up to 10 inches
Minimum Bend Radius	3× OD
Generation	GEN III manufacturing process
First Flight	2017, ISS (APT _x experiment)
Quality Certification	ISO 9001:2015, AS9100D

price on request

[datasheet](#)



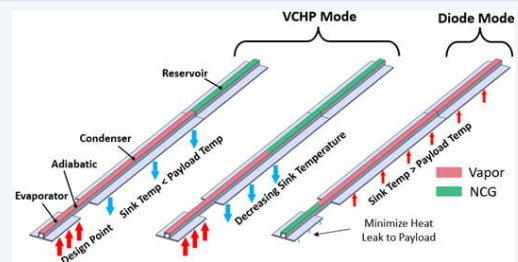
ACT (ADVANCED COOLING TECHNOLOGIES)

Space Liquid Cooling Systems

Custom single-phase liquid cooling loops for spacecraft applications, integrating cold plates, accumulators, cooling lines, and heat exchangers to manage high-heat-flux electronics

Cooling Type	Single-phase liquid (pumped fluid loop)
Components	Cold plates, accumulators, cooling lines, heat exchangers, liquid cooled chassis
Accumulator Functions	Pressure control, volume compensation, transient dampening

price on request



ACT (ADVANCED COOLING TECHNOLOGIES)

Thermo-Modulating Heat Pipes (TMHPs)

A dual-mode spacecraft thermal device combining VCHP and thermal diode functions in a single gas-charged aluminum-ammonia design, eliminating the separate NCG reservoir for reduced

Working Fluid / Envelope	Aluminum-ammonia
NCG Reservoir	Integrated (no separate reservoir)
Demonstrated Load (VCHP Mode)	~36 W
Operating Modes	VCHP mode (forward); Diode mode (reverse blocking)
Control Method	Passive (Non-Condensable Gas)

price on request

[datasheet](#)



ACT (ADVANCED COOLING TECHNOLOGIES)
Vapor Chambers

Planar two-phase heat spreaders with effective thermal conductivities of 5,000–200,000 W/m·K, available in standard copper/water and advanced low-CTE aluminum nitride ceramic varia

Standard Planar Dimensions	Up to 10" × 20"
Standard Heat Flux	> 100 W/cm²
Standard Thermal Resistance	< 0.08°C/W
Effective Thermal Conductivity Range	5,000–200,000 W/m·K
Low-CTE Variant Max Heat Flux	> 700 W/cm² (1 cm² area)
Low-CTE Variant Total Power	Up to 2,000 W (at 500 W/cm²)
Low-CTE Variant CTE	~5.5 ppm/°C

price on request



ACT (ADVANCED COOLING TECHNOLOGIES)
Variable Conductance Heat Pipes (VCHPs)

Passive spacecraft thermal control devices combining two-phase working fluid with a Non-Condensable Gas reservoir to automatically regulate evaporator temperature across wide power

Effective Thermal Conductivity	10,000 to 100,000 W/m·K
Control Method	Passive (Non-Condensable Gas)
Material Systems Available	Aluminum-ammonia; Copper-monel/water; Sodium-Haynes
Quality Certification	ISO 9001:2015, AS9100D

price on request

[datasheet](#)

Contact ACT (Advanced Cooling Technologies)

Open the company profile on NewSpace Market to see full specifications and datasheets, and to send a request for quotation that reaches the manufacturer directly.

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<https://www.1-act.com>