



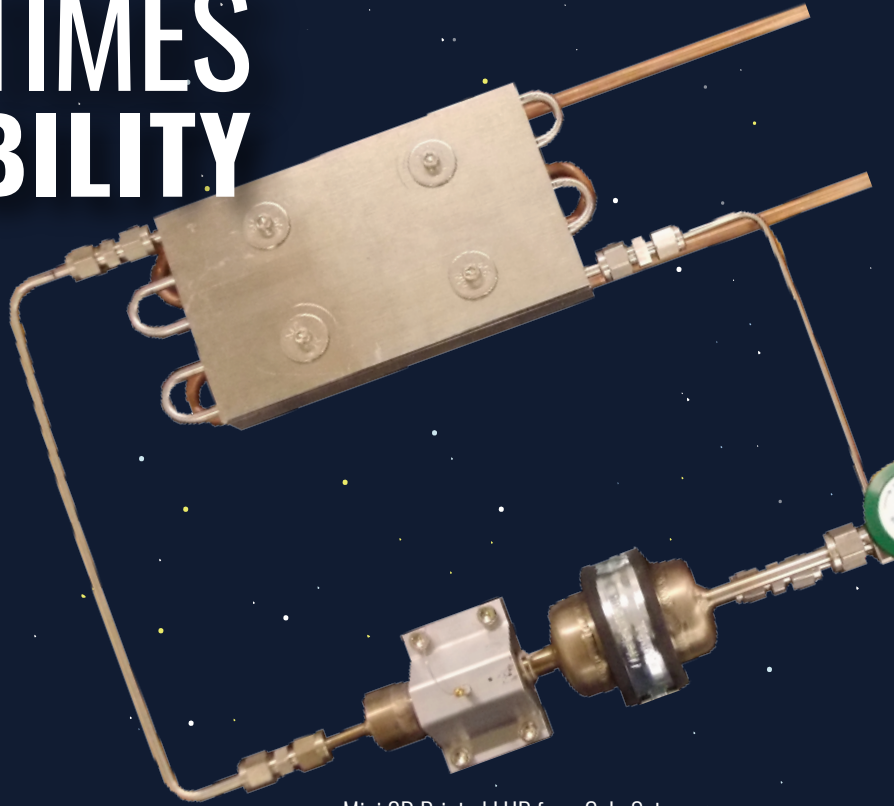
ADVANCED COOLING TECHNOLOGIES

The Thermal Management Experts | [www.1-ACT.com](http://www.1-ACT.com)

# 3D PRINTED LOOP HEAT PIPES FASTER LEAD TIMES HIGHER RELIABILITY

## LOOP HEAT PIPE INNOVATION

Loop heat pipes are now available in a 3D printed version offering you faster lead times and higher reliability with the elimination of the knife-edge seal. If your system needs a thermal solution that is higher power or you need deployability, 3D printed loop heat pipes may be the best option. ACT engineers can help you determine if this solution will work for you.



Mini 3D Printed LHP for a CubeSat

HIGHLY SCALABLE



READ TECHNICAL PAPERS  
ABOUT LOOP HEAT PIPES

Advanced Cooling Technologies, Inc. | 1046 New Holland Avenue, Lancaster, PA 17601, USA

Phone: 717.295.6061 | Fax: 717.295.6064 | ISO 9001 & AS9100 Certified | ITAR Registered

# DEPOLYABILITY & HIGHER POWER

COST

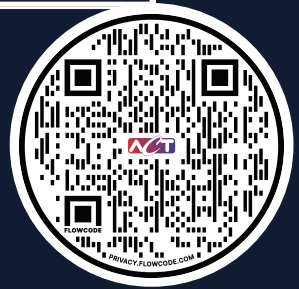
LHP + QUAL.
LHP + RECURRING
3D PRINTED LHP + QUAL.
3D PRINTED LHP + RECURRING

SCHEDULE

LHP + QUAL.
LHP + RECURRING
3D PRINTED LHP + QUAL.
3D PRINTED LHP + RECURRING

## TECHNOLOGY DETAILS

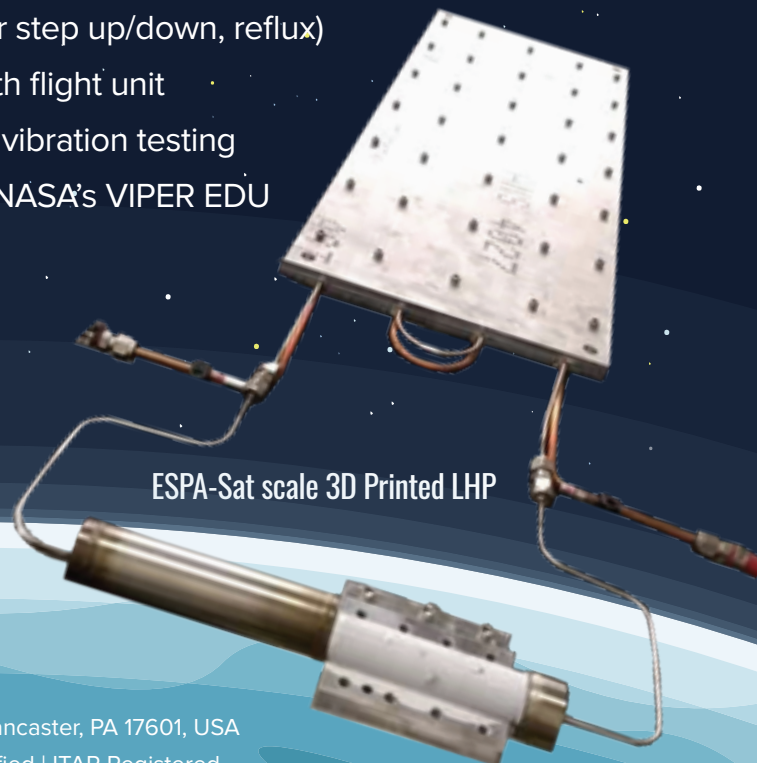
- Low-cost, rapidly-manufacturable, high-conductance flexible thermal link
- Enables deployable radiators for high-performance small spacecraft
- Potentially 3-5x improvement in spacecraft heat rejection over SoTA
- Conformal thermo-structural geometry design for added mass and volume savings
- High impact: terrestrial, LEO/GEO, cis-lunar, lunar, and deep space applications



CONTACT US

## TESTING

- Heat Transport Capacity > 450 W (propylene charge)
- Evaporator conductance > 50 W/ °C (development unit)
- Extensive development testing (startup, power step up/down, reflux)
- Significantly higher conductance expected with flight unit
- Successful accelerated life testing, shock and vibration testing
- Successful thermal-vacuum testing as part of NASA's VIPER EDU



ESPA-Sat scale 3D Printed LHP