



# Uni.T™ : Lose the Glycol, Keep the Cool

Uni.T™ thermal management solution

Liquid cooling is the automotive industry standard for battery thermal management—powerful, but **heavy, complex**, and filled with **flammable coolant** running through the pack.

Uni.T™ changes that. It **efficiently pulls heat** from the cells and **transfers it outside** the battery pack, where any cooling system—**liquid or air**—can safely reject it. By removing coolant from inside the pack, **Uni.T boosts safety, simplifies design, and even makes high-performance air cooling a realistic, cost-effective alternative.**

## Objectives

Introduce a **new cooling paradigm** by substituting traditional liquid-cooling in automotive applications with an innovative **Uni.T and air-cooling** solution.

## Test Conditions

We compared the cooling performance of:

1. An original Ford Mach-E system using a cold plate and a liquid loop
2. A modified Ford Mach-E system using Calogy's Uni.T technology and an external air-cooled heat sink => **no liquid coolant involved**

**Current Profile:** Fast charge 250A CC/CV

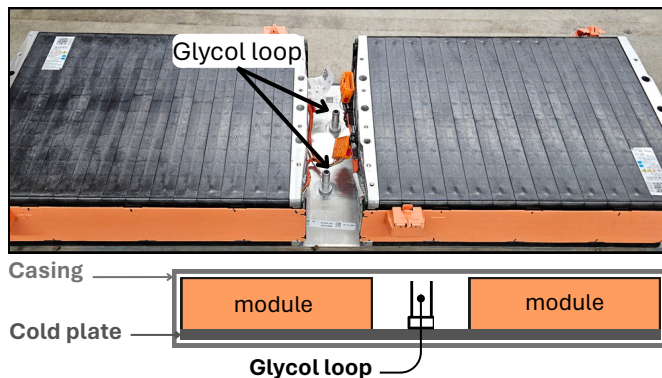
**SOC:** from 5% to 80%

**C-rate:** 0.8C avg.

**Ambient temperature:** 27°C

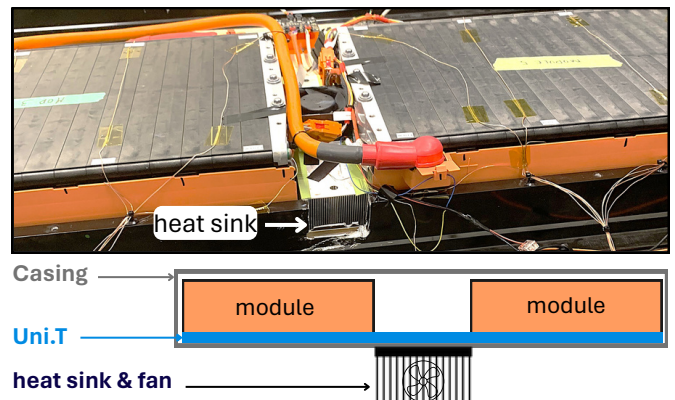


### 1. Test reference ▶ liquid inside casing

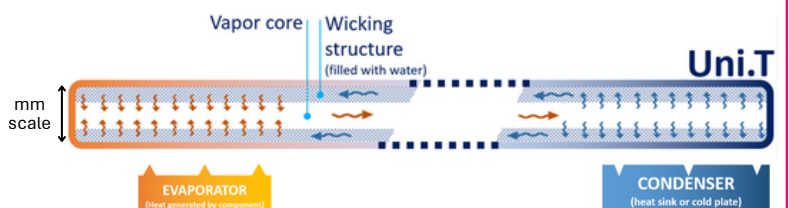


VS.

### 2. Test with Uni.T ▶ no liquid inside casing



**Uni.T™** is Calogy's groundbreaking modular and scalable cooling technology trapping 2-phase flow within a plate, acting as a thermal superconductor.





# Test conclusions

## Conclusions

Equivalent cooling performance

Uni.T reduces temperature non-uniformity between cells by **up to 50%** vs. cold plate

With air-cooled Uni.T, no liquid loop, leading to fewer components

## Operational benefits

Safe fast charge

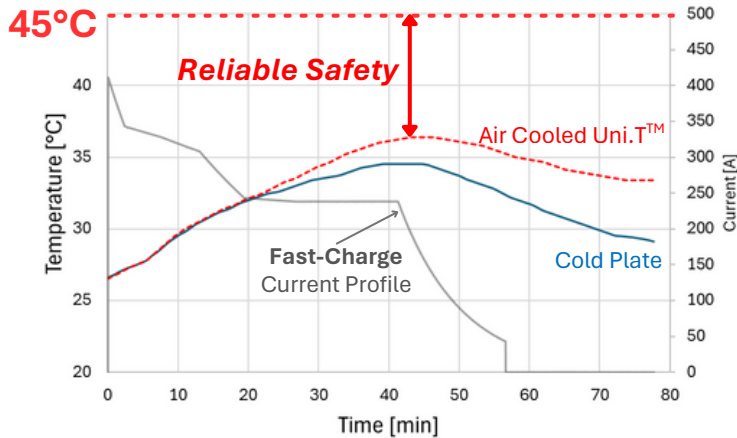
Battery lifetime improved

40% cost reduction  
10% weight reduction

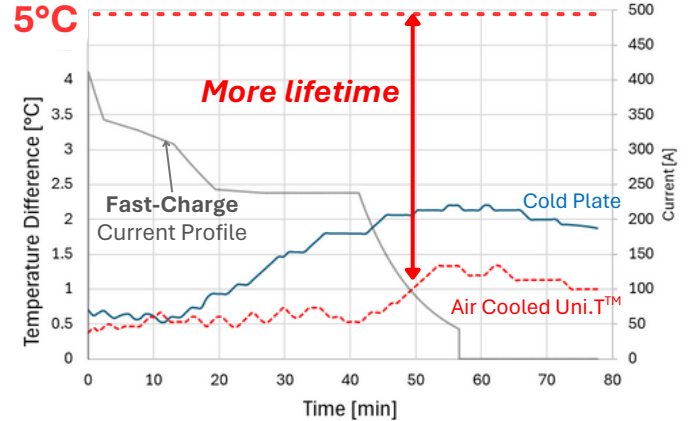
➔ LOWER COST AND WEIGHT WITHOUT COMPROMISING COOLING PERFORMANCE

# Test Results

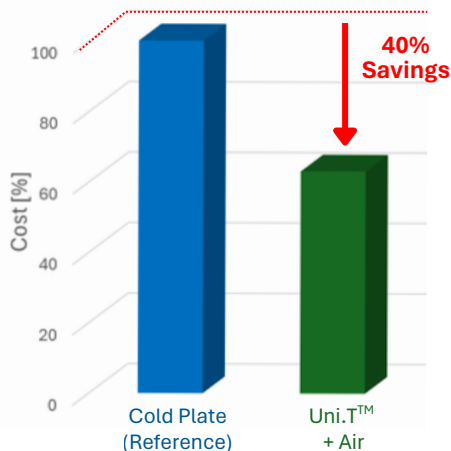
Maximum Temperature during Fast-Charge



Temperature difference during Fast-Charge



Independent cost assessment\*



Independent weight assessment\*

