

Uni.T™ Liquid Cooling vs. Ford Mach-E Cold Plate: Equivalent Thermal Performance

OBJECTIVE

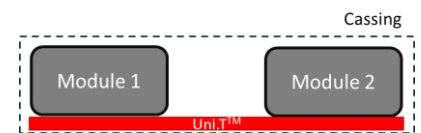
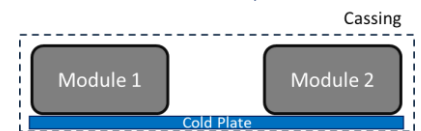
The objective of this study is to evaluate and compare the thermal performance of Uni.T™ Liquid Cooling against the existing Ford Mach-E Cold Plate system.

TEST CONDITIONS

- Room temperature: $25 \pm 3 \text{ }^\circ\text{C}$
- Charging Profile: DC fast-charge to SOC from 5% to 80%, followed by a rest period.
- Discharge Profile: Modified USABC DST profile with a 0.75C discharge rate, up to 1.55C peak, repeating the cycle 14 times.
- Temperature monitoring using BMS thermistors and thermocouples.



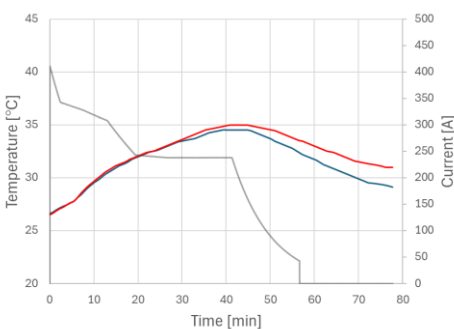
Tested Battery Pack



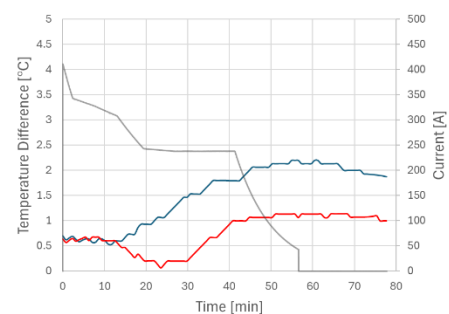
Tested Configuration

RESULTS and CONCLUSIONS

- Both Uni.T Liquid Cooling and the Mach-E Cold Plate showed comparable results in managing the temperature rise during fast charging.
- The maximum temperature and temperature spread were similar, indicating that Uni.T liquid cooling is equally effective in heat management as the Ford system.
- The testing demonstrates that Uni.T Liquid Cooling delivers comparable thermal performance to the Ford Mach-E Cold Plate system, maintaining safe temperatures during fast charging and discharging. However, Uni.T offers a key safety benefit: since the cells are not in direct contact with the liquid, it provides added protection against potential leaks or system failures, ensuring greater reliability in the long run.



Maximum Temperature during Charge



Temperature difference during charge