

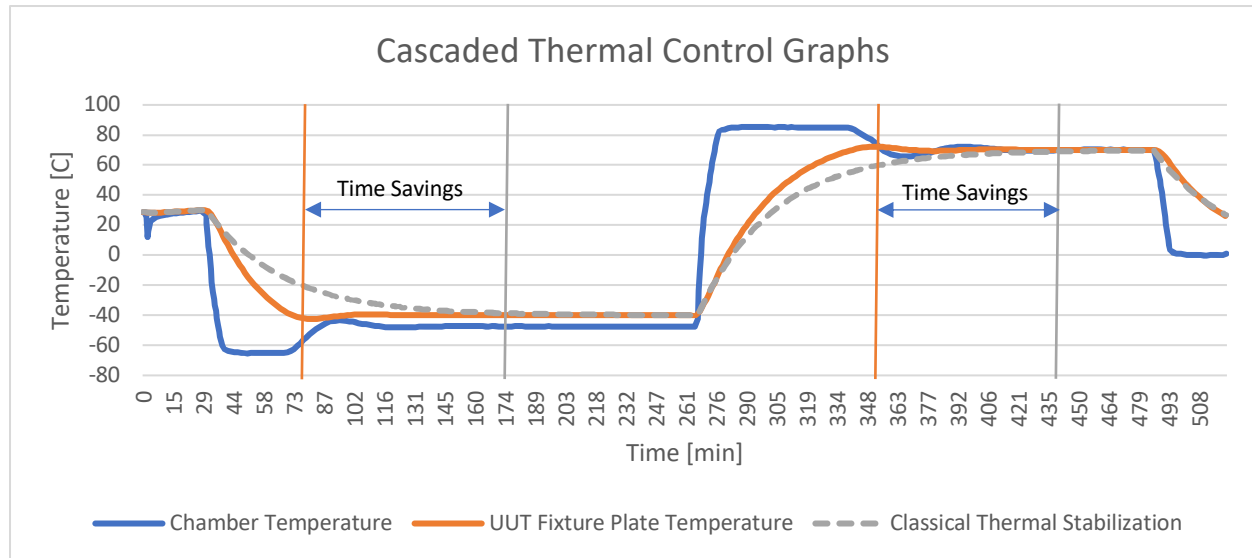
Ideal Aerosmith Thermal Chamber Advantage



Cascade/Dual-Loop Temperature Control

In the systems equipped with a thermal chamber, the cascade/dual-loop control provides a significantly faster temperature stabilization for the UUTs (units under test) than what is possible with traditional thermal control. This is achieved by overdriving the chamber ambient temperature past the UUT desired set point value by a predetermined amount, increasing the thermal transfer between the chamber ambient air and the thermal load (UUTs, mounting plate, and the table top), resulting in the UUT stabilizing at the desired temperature in a reduced time.

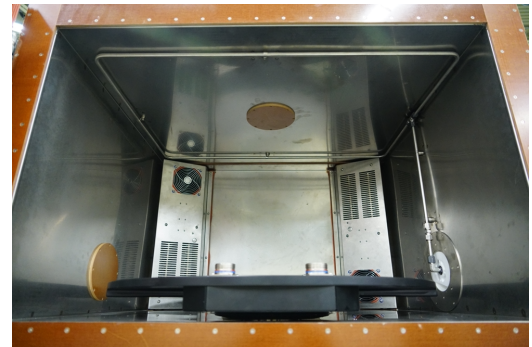
The cascade control monitors both the chamber ambient temperature and that of the base plate to prevent exceeding the UUTs temperature ratings. The graph shown below demonstrates how the cascade control works on a real product. The dashed line represents the thermal stabilization achievable with a classical control, based on the thermal constant derived from the real data.



The cascade thermal control is a proven technology that has been used by Ideal Aerosmith for a wide range of applications and delivered to many customers over the years. The savings achieved by the significant test time reduction result in many cases in a rapid ROI (return on investment).

LN2 Multi-Port Distribution System

The innovative distribution system injects LN2 (liquid nitrogen) into the thermal chamber through a multi-port tube rather than a single nozzle. The main advantages include a better thermal uniformity inside the chamber, eliminating LN2 pooling, and considerably reducing the acoustic noise, especially when coupled with proportional cryogenic valves. A video of this sub-system can be found at Ideal's YouTube Channel (<https://tinyurl.com/yy8y3yrv>).



Efficient Thermal Chamber Design

The Ideal Aerosmith thermal chambers rely on well-proven designs, which include 3-inch-thick walls with foam insulation, heated shafts and LN2 lines, and various fail-safe trip points. The wall design significantly reduces the heat transfer to the ambient air and the heated shafts and LN2 line are being monitored to prevent frost or condensation from forming on sensitive surfaces.

For questions about our Inertial Test Systems or Test Solutions please contact us at 701-757-3400 or by email at sales@idealaero.com.

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