Case Study

Weiss Technik Engineers Large-Scale Test Chamber for Military Vehicle Systems

WHY
An aerospace and defense customer needed a test chamber large enough to accommodate complete military vehicle systems that their existing equipment was unable to fit.

HOW
Weiss Technik designed and built a 40,000 cu ft panelized drive-in chamber with the required refrigeration capacity, incorporating advanced features like dual patented airflow trunk systems and lifting cranes.

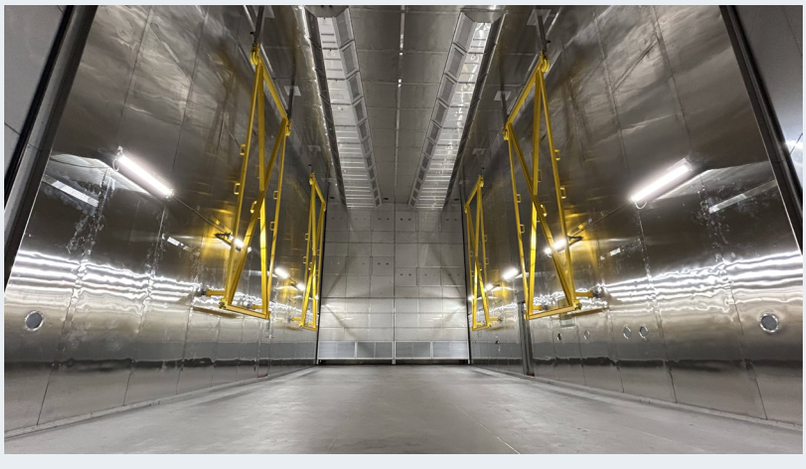
WHAT
The custom chamber enables comprehensive MIL-STD 810 testing of large military vehicles and components under controlled environmental conditions, ensuring reliable and uninterrupted testing.

WHY - the challenge.

A customer in the aerospace and defense industry faced a significant challenge: their military vehicles and components required testing in a chamber large enough to house entire vehicle systems, but their existing test chambers were too small. The chamber also needed to meet stringent refrigeration requirements to simulate environmental conditions accurately. Additionally, the test chamber had to support a wide range of MIL-STD 810 testing protocols, including solar radiation, rain, icing, freezing rain, temperature shock, etc. The customer's long duration testing necessitates a robust and reliable system that can maintain test continuity even under minor alarm conditions.

HOW - the idea.

To address these challenges, Weiss Technik proposed a large, custom, panelized walk-in drive-in chamber, designed to meet current and future size requirements. The chamber would need to be 55 feet deep, 27 feet wide, and 28 feet tall, large enough to accommodate full military vehicle systems. The design included a refrigeration capacity exceeding 2 million BTU per hour to meet the demanding environmental simulation needs.



To facilitate the handling of heavy testing equipment such as solar lights and rain heads, the chamber was equipped with two lifting cranes, each capable of lifting up to 16,000 pounds. The airflow within the chamber would be managed by dual patented airflow trunk systems to ensure precise environmental control.

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HOW
Weiss Technik designed and built a large custom panelized drive-in chamber with the required size and refrigeration capacity, incorporating advanced features like dual patented airflow trunk systems and lifting cranes.

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The custom chamber enables comprehensive MIL-STD 810 testing of large military vehicles and components under controlled environmental conditions, ensuring reliable and uninterrupted testing.

WHAT - the solution.

Weiss Technik successfully delivered a custom-built panelized walk-in/drive-in chamber that met the customer's size and performance requirements, enabling accurate simulation of extreme environmental conditions for oversized equipment. The inclusion of two heavy-duty lifting cranes enhanced operational efficiency by allowing easy installation and adjustment of testing equipment.

The dual patented airflow trunk systems ensured uniform environmental conditions throughout the chamber. Redundancy was built into the system with multiple machine packs, allowing testing to continue uninterrupted even if some units went into alarm or shut down. The drive-in chamber supports comprehensive MIL-STD 810 testing, providing the customer with a reliable and versatile testing environment.



Special Features

- Custom dimensions: 55 ft deep x 26.5 ft wide x 28 ft tall to fit complete military vehicle systems
- Refrigeration capacity exceeding 2 million BTU per hour
- Two lifting cranes with 16,000-pound lifting capacity each for handling heavy test equipment
- Dual patented airflow trunk systems for precise and uniform environmental control
- Multiple redundant machine packs to maintain continuous testing during alarms or shutdowns
- Capability to perform MIL-STD 810 testing including solar radiation, rain, icing, freezing rain, temperature shock, and humidity
- Robust design to overcome facility water issues and ensure test continuity