



A cylindrical test sample is placed in the safety enclosure inside the environmental chamber.

The **Cold Testing Facility** is a highly insulated environmental chamber constructed with internal walls that produce an impressive net insulation value approximately equal to R50 (as specified in home building practices in the USA).

Inside the environmental chamber is a 59 inch (150 cm) ID steel safety enclosure with reinforced ends that can accommodate samples up to 48 inches (122 cm) in diameter. It is equipped with energy absorbing bumpers and saddles that secure the sample while under test. The entire safety enclosure is designed for service to -60°F (-50°C) including fracture strength and toughness.

The cooling system is a cascaded refrigeration system capable of developing air temperatures as low as -103°F (-75°C) or as high as 350°F (177°C). The conditioned air is channeled to the environmental chamber where the entire test article, and the safety enclosure, is cooled to the desired testing temperature. The energy being carried to or from the test article is distributed via a forced air conduction system.



A view of the flanged end of a test vessel and the energy absorbing bumpers.

Specifications:

Maximum Test Article Size	5 ft x 5 ft x 34 ft
Temperature Range	-75°C to 177°C
Heat capacity depends on temperature	
Heat Extraction at 0°C	8 Tons per hour
Heat Extraction at -40°C	6 Tons per hour
Maximum Heat Injection Rate	27 kW
Safety Enclosure Sample Capacity	48 in. OD x 24 ft length

- * Heat conduction performed through forced air heating and cooling.
- * Pressure Cycles: up to 1900 psi with a displacement of approx. nine gallons at a rate of two per minute.
- * Pressure Capabilities: 50,000 psi with liquids and 30,000 psi with gas.

