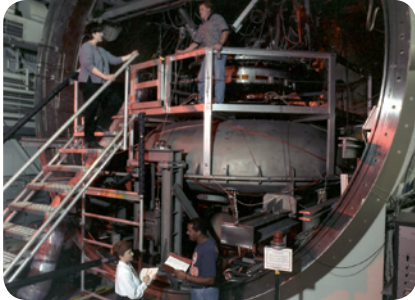




NASA MARSHALL SPACE FLIGHT CENTER: THE CHAMBER V-20 THERMAL VACUUM FACILITY

A Part of NASA's Strategic Capabilities Assets Program



Chamber V-20 is a 20-foot thermal vacuum facility located at the NASA Marshall Space Flight Center (MSFC) Environmental Test Facility (ETF) in Huntsville, Alabama.

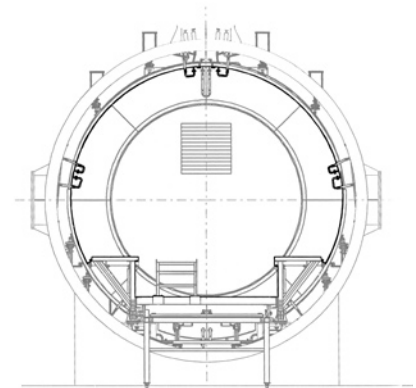
The pumping system for V-20 includes three 36-inch cryopumps, two maglev turbopumps, and one regular turbopump. With its large vacuum capacity, V-20 was manifolded to the V-11 chamber to enable simulation of rapid depressurization typical of a Shuttle launch.

Chamber V-20 previously housed the International Space Station (ISS) Common Berthing Mechanism (CBM). This test setup was responsible for the assembly-level qualification test of the CBM required prior to its purchase from Boeing by NASA. During missions utilizing a CBM, V-20 was brought to conditions simulating the ISS orbit, and the CBM inside was used to simulate activities onorbit. Any problems encountered onorbit could be quickly simulated and resolved at MSFC, thereby providing realtime guidance to the ISS astronauts. The ETF and Boeing supported three successful missions in this manner.

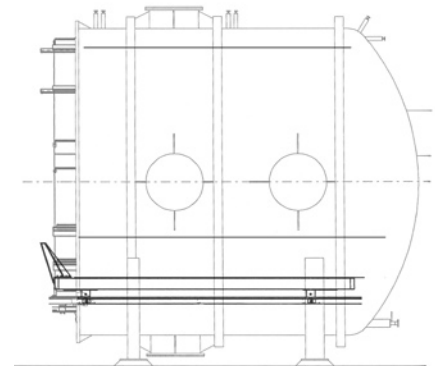
The most unique aspect of V-20 is its 6-DOF mechanism. This mechanism made V-20 the only chamber in the world with the capability to perform actual fly-in and mating of hardware in a simulated space environment.

FACILITY CAPABILITIES:

Overall dimension	20 feet in diameter x 28 feet deep
Test article area	17 feet wide x 22 feet deep (see illustration)
Data system	Pacrats IFIX
Temperature range	-170° C to +200° C
Pressure	1 x 10 ⁻⁶ Torr
Thermocouples	486
LN ₂ shroud	Yes
Lamps	Nine zones, each with 6 – 1600 watt infrared (IR) bulbs
RGA	Yes
TQCM	Yes
Internal camera	IR and color
Facility Applications	Commercial, military, and NASA programs



VIEW LOOKING EAST
OPEN END OF CHAMBER WITH HEAD REMOVED



VIEW LOOKING NORTH

CONTACT INFORMATION

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