SPACE ENVIRONMENT SIMULATION AND TESTING LABORATORY (SESTL) CAPABILITIES

FACILITY

The Space Environment Simulation and Testing Laboratory is composed of a series of chambers ranging from small glass bell-jar chambers to a 10.5 m^3 (370 ft^3) environmental chamber that can heat and/or cool articles in a vacuum environment. The capability to heat and/or cool in a vacuum allows the support of both standard and nonstandard tests in a simulated space environment.

EQUIPMENT/CAPABILITIES

The laboratory is equipped with the following test chambers and support equipment:

- The Essex® cylindrical environmental chamber has a volume of 10.5 m^3 (370 ft^3) and can support a test article up to 1.2 by 1.2 by 1.8 m (4 by 4 by 6 ft) with a maximum weight of 907 kg (2000 lb). It can achieve vacuums from WSTF ambient atmospheric pressure of 85.3 kPa (640 torr) to as low as 1.33×10^{-5} Pa (1×10^{-7} torr), with a temperature range capability of -62 to 160 °C (-80 to 320 °F). The chamber is configured with QCM sensors to measure the outgassing rate of test articles. This chamber is also used for thermal vacuum bakeouts, and has the vacuum pumping capability to simulate spacecraft ascent pressure profiles.
- The CVI® self-heating cylindrical offgassing chamber is 1.83 m (6 ft) in diameter and 2.74 m (9 ft) long. This chamber can achieve vacuums as low as 1.33 Pa (1×10^{-2} torr), with a temperature range from ambient ~ 21 to 93 °C (70 to 200 °F).
- Three 1.8 m^3 (64 ft^3) Webber® environmental chambers are in the facility. All three chambers are temperature/altitude chambers capable of achieving a 1.33 Pa (1×10^{-2} torr) vacuum with a temperature range of ambient to 149 °C (ambient to 300 °F).
- The facility has a variety of high-vacuum, bell-jar chambers with the following capabilities:
  - The Cooke® and DTS® chambers are 300 L (10.5 ft^3), bell-jar chambers configured with QCM sensors to measure the outgassing rate of test articles and to support monitored vacuum bakes.
  - The remaining small chambers can be configured to meet almost any spacecraft test requirements.
- The laboratory is equipped with helium mass spectrometer leak detectors for finding leaks in high-vacuum and pressurized systems.

CONTACT

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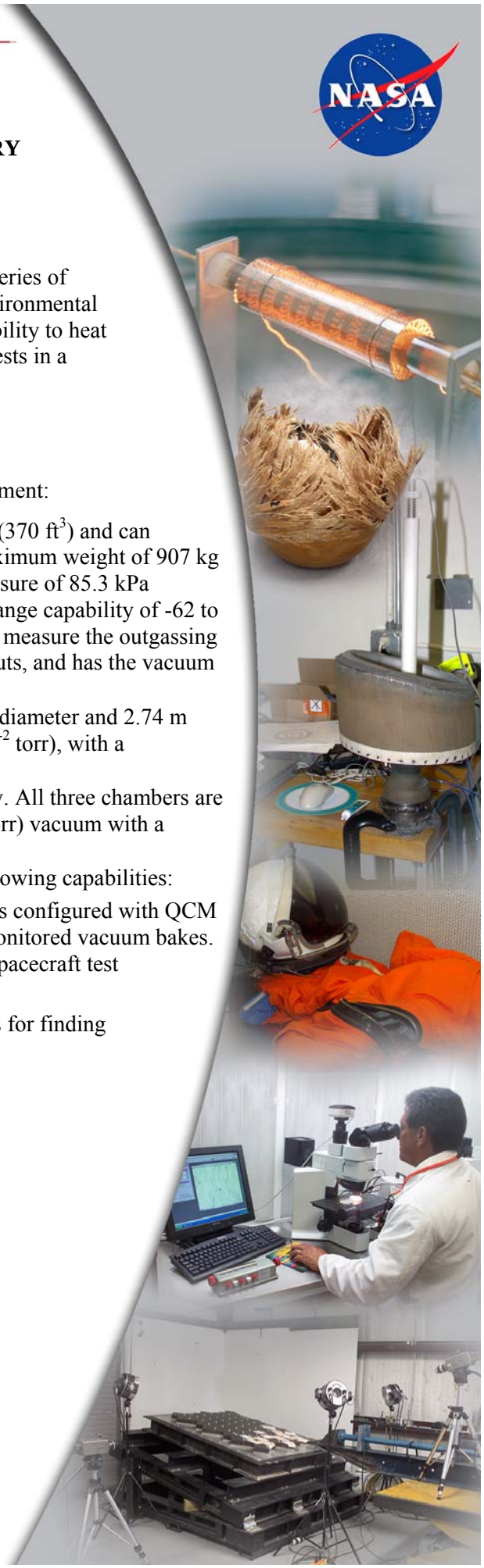
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