

Experimental Test Facility

The Experimental Test Facility is a multidisciplinary test facility used to develop a wide range of propulsion technologies. Occupying 26,000-sq. ft. of laboratory space, the facility offers test capabilities for monopropellant, gel, and electrical propulsion systems.



Hot Fire Facility

- State-of-the-art test stands for rocket motor tests
- Digital data acquisition, analog recording on oscillograph and strip charts, and video monitoring and recording
- A 4 x 8-foot vacuum chamber configured for hot-fire testing of monopropellant, catalytic thrusters up to 15 lbf of thrust at less than 1 torr, as well as gas thrusters and gas generators
- A second 4 x 8-foot vacuum chamber configured for hot-fire testing small arcjets and for thermal vacuum testing of thrusters and other small spacecraft components at 10⁻⁶ to 10⁻⁵ torr.
- H-P basic programming capability
- Real-time graphics, complete raw data printout in engineering units for each channel, data acquisition at 3K Hz per channel, plotting of any combination of channels
- Programmable control switches with interactive LED displays
- 36 thermocouple channels available
- Direct thrust and chamber pressure (pc) measurement capability
- A high-frequency response, Honeywell oscillograph data recorder and 10-channel Omega strip chart recorders
- Fiber optic cables between computers and instrumentation for minimum noise
- Dual vacuum pumping systems capable of sustained steady-state firing at better than 100,000 feet equivalent: a 6400 cfm system for up to 5-lbf engines; a modular, 24,000 cfm system for up to 15-lbf engines
- Automatic battery backup power system
- An H-P data plotter

Cryogenic Electric Propulsion Test Stand (CEPTS)

- Space-like vacuum conditions to test electric thruster designs from 200 W to almost 10 kW
- 7 x 17-foot chamber with three 48-in. cryogenic vacuum pumps.

GELS Test Stand

- Used to study interactions of gelled propellants with various flow components

Vacuum System Capable of Pumping 5 Mole at 10 torr

- 2 - 1st stage blowers

- 1 - 2nd stage blower
- 7 - mechanical pumps
- Effluent scrubber and vent system

Electromechanical Testing

- Tensile test machine
 - Riehle Test Machine - Load capability = 160,000 lb. - force
 - MTS Test Machine - Load capability = 40,000 lb. - force
- Load measurement
 - Load cell: 10 lb. to 5,000 lb.
 - Load washer = #10 to 1.0 inch
 - Screw test machine
- Strain measurement
 - Strain gage installation and signal conditioning
- Hydraulic test
 - High pressure hydraulic stand: Load capacity = 40,000 psig
 - Hydraulic piston components: For customer built hydraulic test setup
 - Pressure gage, 5 psig to 50,000 psig
- Shaker for small components: Capability up to 25 pound weight
- Spring test machine: Spacecraft separation coil spring calibration

Facility Pressurant Service to All Test Stands

- 160,000 Ft³ LN₂/GN₂ supply
- 60,000 Ft³ Helium

Other Capabilities

- Instrumentation and control
- Computing facilities
- Design, fabrication, machining, welding and assembly
- High temperature ovens
- High speed video capability
- Digital and video editing