

Minimum Requirements for Test Frame, Controllers and Environmental Chamber:

A) Test Stand

- Fatigue Test System - Rated 2000 lbs
- Dual Column Load Frame
- 20 inches clearance between columns
- 48" columns (44" daylight or crosshead adjustment)
- Servoactuator
 - Max speed: 10 ips
 - Stroke: 18"
 - Non rotating
- Power: 110 or 220V, max 18 amps

B) Hot/Cold Chamber:

- Temperature range -150 °C to 400 °C
- Temperature measurement and control stability ± 2 °C (Thermocouple placed in front of plenum)
- Mounted to load frame base with chamber slide (simplifies moving chamber in/out of test frame)
- Internal dimensions 8 x 8 x 30"
- Top and bottom pull rod ports with removable u-plugs
- Stainless steel exterior shell
- Stainless steel interior shell
- Door hinged on left side
- Power: max 220V, 18 amps
- Connector for temperature sensor
- Liquid Nitrogen Cooling Assembly
 - LN2 injector assembly installed
 - LN2 solenoid valve for cryogenic service
- Digital heat/cool temperature control system
- Set Point Controller with ramp to set point

- Solid state relay power control
- Viewport with heated window – compatible with laser extensometer
- LN2 Hose Accessory Kit
- Cryogenic hose 6' long 1/2-45 degree flare

C) Data Acquisition

- Load/strain signal conditioners: 3 (2mV/V)
- LVDT (or 10V analog input): 1
- 8 Ch digital output (control bits) * 8 Ch digital input (sense bits)
- E-Stop on frame
- Data Acquisition Rate (Max): 5 khz per channel
- Data Acquisition Resolution: 24 bit

D) Computer and Software

- Processor (3.0 GHz min)
- Windows 7 Professional
- 4 GB RAM (min)
- 640 GB HD (min)
- 22" Flat Panel Monitor (min)
- Ethernet port
- Keyboard & Mouse
- Ability to plot/display data and export as Excel-readable
- Software - for machine setup, servo-tuning, calibration of each channel
- Test Software includes:
 - Monotonic rate control, break detect, easy export data for analysis
 - Fatigue Test Panel - create waveforms, adjust data acquisition, bumpless & adaptive control
 - 12 month upgrades

E) Project Management Services

- Complete documentation of hardware and software

- Calibration certificate
- Phone and online support during warranty period.
- Packing
- System On-Site Services (One Day)
- Field Engineer
- Commissioning & user training
- All cables and interconnects

F) Accessories:

Laser extensometer:

- Support stand to align with and reach chamber window if frame is on 32" table top
- Non contacting Laser Extensometer
- Measurement Range 0.3 to 15 inches (8 to 127 mm)
- Resolution of 1 micron.
- Analog output
- Digital Display

Fatigue Resistant Load Cells (3)

- 1) Fatigue rating: 10-12 lb tension/compression
- 2) Fatigue rating: 25 lb tension/compression
- 3) Fatigue rating: 50 lb tension/compression
- Overload rated 150% static rating
- 5 foot cable with connector

Pull Rods

- For use in environmental chambers
- Non-corroding

Stainless Steel Screw Vise Grip

- Rated 500 lb
- For specimens up to 8 mm (0.32") thick depending on jaw selection
- Interchangeable jaws

- Wave or Corrugated Jaw
- 30x30 mm wide clamp area

Environmental Grip

- Rated +425 °C to -115 °C
- Self-aligning, self-tightening grips for elastomeric specimens up to 1/8" thick, 1" wide
- Max weight of grip + pull rod attached to load cell: 5 lbs.