AXIAL/TENSION/COMPRESSION FATIGUE TESTING
SYSTEM - INSTRON

Manufacturer: Instron
Type/Model: 8801
Axial force: +/-100 kN (+/- 22Kip) (22,500 lbf)

The Instron is a servo-hydraulic tension/compression/fatigue test machine. It uses a hydraulic pump and a series of computer controlled valves to control the force of an actuator. It has the capability to test a variety of materials up to loads of 22,500lbs. The machine can be used for experiments to define the properties of various materials. UAH has two types of grips used in separate applications. For room temperature, hydraulic grips are used, and for elevated temperatures mechanical grips are used to hold test specimens. RFAL can provide custom test fixtures and testing/characterization of materials. While in test RFAL has the ability to take strain gauge measurements for a detailed result of the stress.

Examples:
- Static tensile testing of unidirectional E-glass composite with fiber waviness.
- Static tensile testing under a -200°C steady state of IM7 carbon fiber composite.
- Static tensile/compression/temp testing of Omni directional carbon fiber weaves.

ADDITIONAL ADAPTERS

Test Oven: ATS
Type/Model: 3710 Series
Service Temperature: -100° to +315° C (-150° to +600° F)
Internal Dimensions: 14” W x 14” D x 26” H
Cooling Method: LN2

The oven adapter for the Instron 8801 has the capability of subjecting test coupons to thermal loads of -100°C to 315°C. This testing capability is important for understanding the thermal effects on a material under stress. RFAL has the capability to perform data capture and analysis for elevated temperature- Low temperature soak materials testing.

Examples:
- Thermal testing of omnidirectional weave carbon fiber composites @ -65°C & 135°C
Furnace Manufacturer: ATS
Type/Model: 3210
Max Temperature: 1100° C
Dimensions: 3-3/4” ID x 12” OD x 16” long
Heated Length: 12” long

The split tube furnace has the ability to mount to the Instron 8801 and is used for studying elevated temperature effects on materials under stress. The furnace adds custom testing for materials of lower strength by modifying the furnace fixture.