CLOSE LOOP UNIVERSAL TESTING MACHINE (INSTRON)

SERVO CONTROLLED CLOSE LOOP UTM

Max Capacity : 250 Ton

Experiment : To determine the tensile strength

Year of Purchase: 2005

Cost : 0.30 Lac

Instron high capacity systems are servo hydraulic fatigue testing systems that perform high force static and dynamic tests on specimens up to 5000 kN. These machines use the same software, electronics, and interfaces as all of our general hydraulic fatigue machines, which ensures continuity and consistent experience across machines in your laboratory. Instron will also provide support from dedicated project engineers to design and manufacture high capacity machines and accessories to meet your needs.

COMMON FEATURES

- High-stiffness, precision aligned load frame with induction hardened chrome plated columns and actuator in upper crosshead.
- Designed for both dynamic and static testing on a variety of materials and components.
- Choice of actuator stroke, hydraulic configuration, and dynamic performance to suit the application
- T-Slot base and other test space configurations available.
- Adjustable upper crosshead with hydraulic lifts and lock fitted as standard with optional Telescopic lift cylinders on some Models.
- Patented Dynacell™ Advanced dynamic force rated load cell up to 2500 kN.
- Pressure transducers for load measurement available as an alternative for larger capacities.
- Compatible with a range of high capacity grips, fixtures, environmental chambers, video extensometers, protective enclosures, and other accessories.

RANGE

- 4-column 8806 system is rated at ±2500 kN (±560 kip)

CONTROLLER AND SOFTWARE

The Instron high capacity machines are supplied with a digital 8800MT controller that provides consistent user experience across all Instron fatigue systems. The 8800MT controller features automatic loop tuning, amplitude control specimen protect, 19-bit resolution across the full range of transducers, and adaptive control technology. It also allows access to **Series IX etc.** application specific software, such as the Low Cycle Fatigue or Fracture Mechanics suite

HIGH CAPACITY FATIGUE TESTING

Materials can fail prematurely if they are exposed cyclic loading for a certain period of time, even if the operating stress profile is lower than the yield stress, this is known as fatigue. It is one of the main focuses

in material testing in terms of determining a product's life cycle, and it provides insight into how the materials will fail, allowing engineers to take this information into account when designing a product. Fatigue rated testing machines are used to perform fatigue tests. They can characterize the fatigue life of different materials, verify computational life cycle models of materials and ensure components behave accordingly under cyclic loading. The dynamic capacity required to test high-performance metals and engineering alloys is significantly higher than that of compliant polymers, bringing the need for high capacity fatigue systems that have enough dynamic load capacity to test a wide range of old and newly developed metals, alloys and components.

HIGH CAPACITY FATIGUE APPLICATIONS AND RESEARCH AREAS INCLUDE:

- Characterization of high-performance materials under cyclic loading
- Determining the cumulative damage of components
- Weight reduction of components
- Microstructure refinement of spring steel
- Thermally induced strain and stress profiles of materials

BENEFITS

- Hydraulic actuators with hydrostatic bearings for axial alignment and side load protection operating at 210 bar and a seal-less 280 bar actuators for high performance and high lateral stiffness, depending on your testing requirement.
- Hydraulic crosshead lifts and clamps, allowing easy and accurate adjustment of daylight depending on the size of fixtures and specimen.
- Versatile test space with a t-slot table for component tests.
- Same controls and software as lower capacity general fatigue machines, giving a seamless transition between different systems .
- Actuator in upper crosshead with IGUS chain hose management to prevent overhanging cables around the machine.

HIGH CAPACITY LOAD STRINGS FOR APPLICATION

As well as providing comprehensive support throughout the specification, design, and installation of your high capacity machine, Instron will be able to provide a range of high capacity accessories to support your testing application.

- High Capacity Compression Platens.
- 1.0 MN R-Curve 16'' Panel Grips.
- 2.5 MN Side-Action Hydraulic Grips.

FRAME SPECIFICATION (8806 H2)

Daylight opening (Maximum between Table & crosshead)	mm in	4000 157
Dynamic Load Capacity	kN kIP	±2500 ±560
Actuator Stroke (Total)	mm in	250 9.8
Configuration	4-Column High-Stiffness Load Frame with Actuator in Upper Crosshead.	
Lifts and Locks	Hydraulically-Powered Lifts and Locks (Telescopic lift cylinders as an option).	
Load Cell	Patented2 Dynacell™ Fatigue-Rated Load Cell Mounted to Upper Crosshead with Capacity to Suit Actuator.	

Load Weighing Accuracy	±0.5% of Indicated Load or ±0.005% of Load Cell Capacity (1-100%), Whichever is Greater.	
Operating Environment	+10 to +38°C (+50 to +100°F) with 10 to 90% Humidity Non-Condensing.	
Hydraulic Pressure Supply (Required)	Bar Psi	207 3000
Frame Stiffness (at 1 m Daylight)	kN/mm	4200
Frame Weight (Approximate guidance only)	Kg lb	16000 35300