

FAST TRACK™ 8800

8801 Series Fatigue Testing Systems

Precision Testing for a Diverse Range of Dynamic Applications



8801 Series - Versatile Fatigue Testing in a Compact System

The Instron® 8801 series of servohydraulic testing systems have been developed to meet the challenging demands of a varied range of both static and dynamic testing requirements. The 8801 series provides complete testing solutions to satisfy the needs of advanced materials and component testing, and is ideally suited for fatigue testing and fracture mechanics. The compact design of the 8801 frame makes it ideal for installation within any laboratory environment, generally without the need for strengthened floors or raised ceiling heights.

Load Frames Designed for Precision and Performance

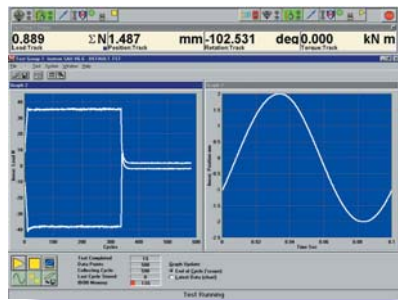
The high stiffness and precise alignment of the 8801 series ensure consistent loading is applied to specimens in both tension and compression, allowing more reliable results. A choice of maximum load capacities means that dynamic performance can be optimized for your applications. The 8801 series is available in maximum axial load capacities of either ± 50 kN (11 kip) or ± 100 kN (22 kip).



▲ 8801 testing system with 100 kN hydraulic wedge grips

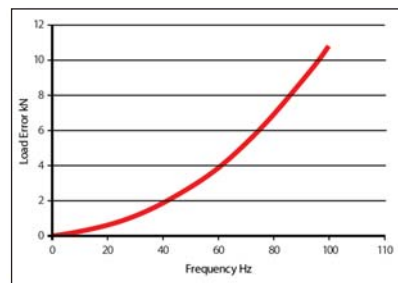
Patented Integral Inertia Compensation

During dynamic testing, particularly when the load cell is mounted on the actuator as required by many component or biomedical test applications, inertial load can be generated due to the acceleration of the grip or fixture. The patented Dynacell™, fitted as standard to the 8801 series, automatically compensates for this, providing accurate and repeatable test data you can rely on.



▲ MAX™ software displaying the effectiveness of Instron's Dynacell. The graph on the left of the screen shows the reduction in load (maximum and minimum) when the inertia compensation is activated.

The machine was running a position amplitude of 2 mm at 10 Hz with no specimen. A compression platen with a mass of 2 kg was fitted to the end of the loadcell, which was in turn fitted to the end of the actuator.



▲ Load error in a conventional load cell as a result of acceleration effects. The graph shows the measured load error as a function of test frequency for an amplitude of 1 mm on a machine fitted with 100 kN grips. Instron's Dynacell virtually eliminates this error.

Test Space to Suit Your Application

The standard vertical test space is suitable for most test requirements. Extended height frames are available also for applications requiring additional space, for example, when using an environmental chamber.

Built-In Versatility

The 8801 series features hydraulically operated lifts and locks as standard, allowing safe and rapid reconfiguration of the test set-up, with controls conveniently at hand.

The hydraulic control pod, emergency stop and actuator jog handset are also ergonomically positioned at a convenient height at the front of the load frame.



▲ Environmental chamber mounted on an extended height 8801 machine



◀ Jog handset is detachable from load frame for ease-of-use.

A Wide Range of Accessories Completes the Solution

A wide range of system options, grips, fixtures and accessories allow the 8801 series to be customized for specific applications. Whether your application demands low or high temperatures, crack measurement or complex specimen gripping geometry, Instron® offers a complete tailored solution.

Additional Channels for Data Acquisition and Control

Additional channels for data acquisition and control from items such as extensometers or Crack Opening Displacement (COD) gauges can be purchased with the 8801 system. These channels can also be used for inputs from a variety of other external devices such as temperature chambers or potential drop crack measurement systems.

Grips, Fixtures, and Accessories for Every Application

Whether your application requires static tensile grips, hydraulic grips for reverse stress testing, bend fixtures, environmental chambers or custom fixturing, there is an Instron accessory to meet your needs.



▲ +1400 °C short furnace and water-cooled hydraulic grips



▲ A COD gauge is used to measure crack opening displacement during a fatigue crack propagation test



▲ Hydraulically operated wedge grips for static and reverse stress axial testing

Choice of Controller and User Interface for Your Application and Your Budget

At the heart of the 8801 system is the FastTrack™ 8800 controller. With features such as Instron's patented adaptive control technology, 19-bit resolution across the full range of the transducers, automatic loop tuning and amplitude control, the FastTrack 8800 offers unsurpassed precision, repeatability and data integrity.

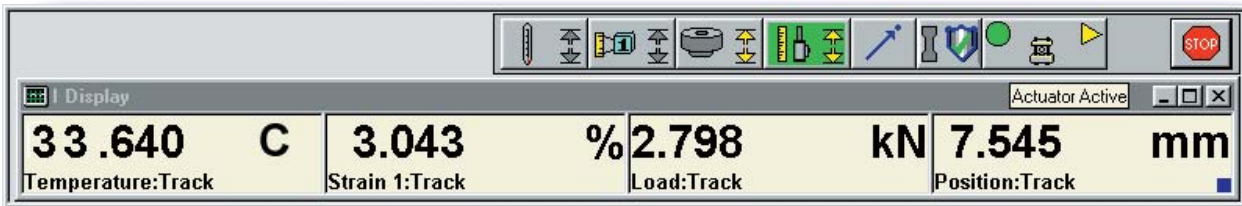
The choice of user interfaces includes standalone hard panels and the flexible Windows® based FastTrack console software interface.

Fully Flexible Software Helps You Accomplish More with Less

The FastTrack applications suite covers a broad spectrum of testing requirements. It includes flexible programs for general purpose testing, turnkey programs for specific applications and tools for developing your own programs.



◀ The FastTrack 8800 has a choice of user interfaces



Building on a Common Platform

The FastTrack 8800 family of controllers are state of the art fully digital servohydraulic controllers which utilise core technologies. When configuring the system, you simply select the best value package to suit your application; 8800LT, desktop or a tower.



Ideal for a Wide Variety of Applications

Instron® 8801 series systems are installed in large numbers around the world. At work across a wide range of industries, from academic research to high volume automotive design, they are put to use in a vast range of applications.

High-Volume Fracture Toughness Characterization of Aluminum

The use of aluminum in structural engineering applications continues to grow. Aluminum is of interest to designers of automobiles and aircraft due to its lightweight properties. Replacing steel components with aluminum leads to weight gains of around 40% to 50%, even allowing for the lower inherent strength of the material. In addition, aluminum has excellent corrosion properties, and can be recycled efficiently.

Supplying markets such as aerospace manufacturing places stringent demands on the test protocol of the primary material producer; in the air, material failure is not an option. A global primary producer of aluminum, supplying materials to the world's leading aircraft manufacturers, uses Instron 8801 series test systems to certify the fracture toughness of the materials after production.

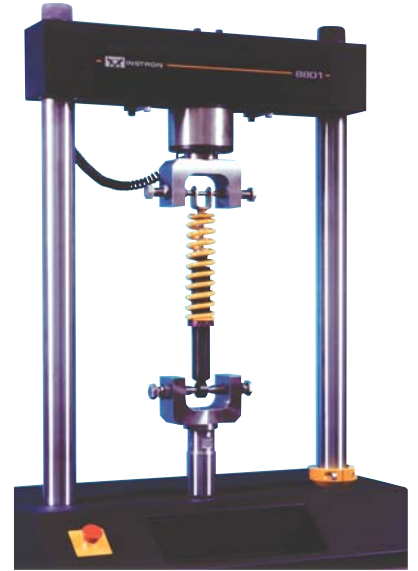
Fracture toughness characterization is performed on each material batch, which means that the laboratory has to test over two thousand samples per month. The 8801 series test systems are run using a twenty four hour a day, seven days a week test program, performing pre-cracking and K_{Ic} fracture toughness evaluation.

Versatile Facility for Automotive Component Research

A well-respected Institute of Technology located in the northern United States has installed a new laboratory dedicated to research into new automotive manufacturing technologies. With contracts from some of the world's largest vehicle manufacturers and OEMs, it is imperative that the laboratory has the capability to respond to a wide range of testing requests.

The 8801 system is fitted with an environmental chamber capable of controlling both temperature and humidity. This system is used extensively to determine the durability of polymer-based components such as drive shaft gaiters and boots, under environmental extremes.

The flexibility of the system was demonstrated when a new requirement was identified to test complete shock absorber assemblies. The large daylight of the 8801 load frame allowed the complete assemblies to be loaded.



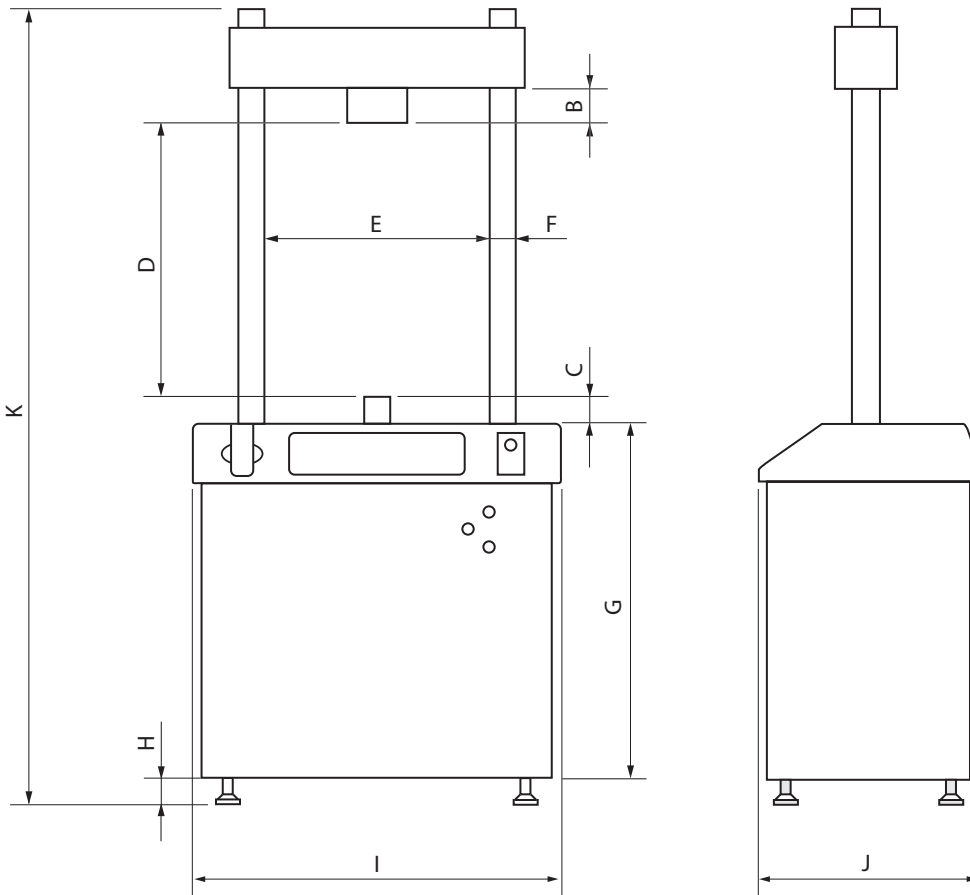
▲ A complete shock absorber assembly under test in an Instron 8801 test system



▲ Aluminum used in the production of commercial aircraft must be extensively tested for resistance to crack propagation and fracture

Specifications

Model Number	8801-A1/ A2 Standard Height	8801-A3/ A4 Extra Height
LOAD CAPACITY		
A1/ A3 Option	±50 kN (±11 Kip)	±50 kN (±11 Kip)
A2/ A4 Option	±100 kN (±22 Kip)	±100 kN (±22 Kip)
Total Actuator Stroke	±75 mm (±3 in)	±75 mm (±3 in)
(B) Loadcell Height	97 mm (3.8 in)	97 mm (3.8 in)
(C) Actuator Fully Retracted	63 mm (2.5 in)	63 mm (2.5 in)
(D) Maximum Daylight	1100 mm (43.3 in)	1480 mm (58.3 in)
(E) Column Spacing	562 mm (22.1 in)	562 mm (22.1 in)
(F) Column Diameter	70 mm (2.8 in)	70 mm (2.8 in)
(G) Table Height	890 mm (35 in)	890 mm (35 in)
(H) Feet height	85 mm (3.35 in)	60 mm (2.4 in)
(I) Overall Width	920 mm (36.2 in)	920 mm (36.2 in)
(J) Overall Depth	546 mm (21.5 in)	546 mm (21.5 in)
(K) Overall Height (Maximum)	2423 mm (95.4 in)	2778 mm (109.4 in)
Weight	600 kg (1320 lb)	625 kg (1375 lb)



▲ 8801 dimensions

EXTEND™ Upgrade Systems

Experience the benefits of the FastTrack™ 8800 systems on your existing load frames with an Instron•EXTEND upgrade system.

At Instron we are experts in upgrading material test systems. Through our EXTEND packages, we upgrade Instron and non-Instron load frames with the latest digital electronics and application software. The result is a superior system at a fraction of the cost of a new machine.

Instron has upgraded more test equipment than anyone in the industry - more than 5,000 systems and still counting. An Instron upgrade ensures your test system will be outfitted with the industry's most advanced software and electronics. Furthermore, your investment will be supported by Instron's worldwide network of experienced service engineers.



▲ Non-Instron frames that have been upgraded with FastTrack 8800 controllers



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