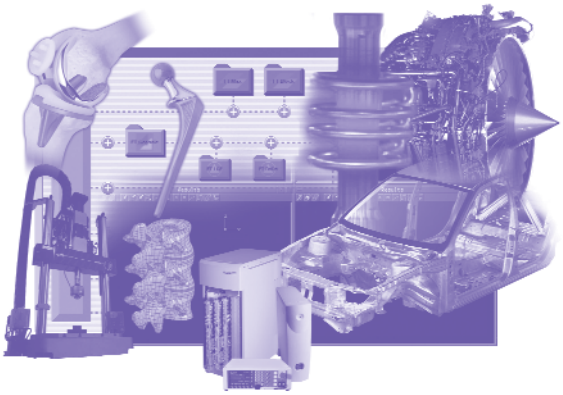

ETMT8800 Electrothermal Mechanical Test System

The Next Generation

Instron® has recently introduced the ETMT8800. This product was developed in conjunction with the National Physical Laboratory (NPL).

The new system, building on previous successes, retains the flexible and intuitive software interface of its predecessor but now features significantly enhanced control capabilities, coupled with a larger, more versatile test frame. A range of proprietary multi-axial general purpose fatigue software further extends system functionality.

By basing the ETMT8800 on the their advanced 8800 digital controller and Microtester™ test frame, Instron has developed a system with unrivalled thermomechanical capabilities, available in an affordable benchtop package. The basic system is provided with a polycarbonate enclosure with the provision for gas purging to low purity levels, whilst for those working with reactive materials a high integrity evacuable capsule is available.

Dynamic Performance to 3 kN

Using miniature test pieces, the system is capable of achieving fatigue loading rates of 20 N/sec to 1000 N/sec and heating and cooling rates of up to 200 °C/sec and 100 °C/sec respectively.

The system is designed for full reverse stress loading to 3 kN and is supplied with a direct resistance heating system capable of producing specimen temperatures of up to 1500 °C.

Extensive Multifunctional Capability

The ETMT 8800 can perform a wide range of experiments, broadly categorized into three types:

- Measurement of mechanical properties
- Measurement of physical properties
- Measurement of micro structural stability under thermal exposure

The ETMT can be operated in such a way that both uniaxial monotonic, creep or fatigue behaviour can be studied, either with in-phase or out-of-phase applied stresses and temperatures. Analyses and models have also been developed to acquire thermal property and modulus data as a function of temperature.

The system has been used to measure and study the Thermo-Mechanical Fatigue (TMF) properties of nickel based superalloys, hardmetals (eg tungsten carbide) and lead-free solders. In addition it has determined resistivity, thermal expansion coefficients and phase transformations in a variety of materials including steels, titanium alloys and intermetallics.

▲ **Multiproperty software**

▲ **ETMT8800 shown without enclosure or evacuable capsule**

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