

ETEK 3000

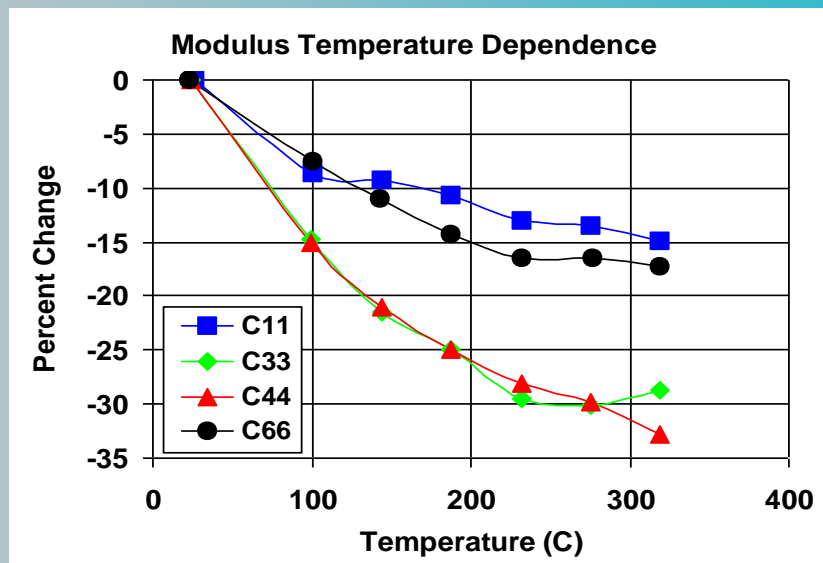
ELEVATED TEMPERATURE ELASTIC KONSTANT MEASUREMENT SYSTEM

ETEK 3000 is an ultrasonic system which simplifies and speeds the measurement of material elastic properties at elevated temperatures. **ETEK 3000's** unique Windows[®]-based system is the first of its kind to combine advanced ultrasonic instrumentation with temperature and pressure control. The elastic constants and engineering constants of materials (including complex composites) are readily determined from ultrasonic transit time measurements by operators unfamiliar with ultrasonics.

ETEK 3000 integrates advanced ultrasonic instrumentation with temperature control, coupling force, and sample thickness monitoring to provide an automated system for elastic constant measurements. The **ETEK 3000** uses precise ultrasonic velocity measurements to determine the elastic properties of materials. By exploiting the fundamental relationship between sound speed and the elastic constants, the engineering constants, i.e. Young's modulus, shear modulus, and Poisson's ratio, are determined. **ETEK 3000** operates at elevated temperatures up to 600°F (320°C). An option is available to measure as low as -25°C. This advanced ultrasonic system reduces test time and sample preparation. **ETEK 3000** is applicable to all solids but is optimal for anisotropic composites where the cost of using conventional methods is prohibitive.



TEMPERATURE DEPENDENCE IN-PLANE & OUT-OF-PLANE ELASTIC CONSTANTS



INDUSTRIAL MEASUREMENT SYSTEMS, INC.

2760 BEVERLY DRIVE # 4

AURORA, ILLINOIS 60502 USA

PHONE: 630-236-5901 FAX: 630-236-5982

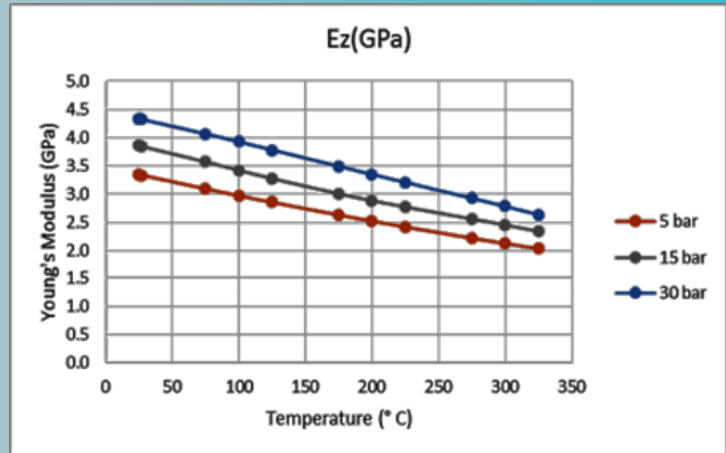
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GRAPHICAL INTERFACE

Single screen graphical user interface allows operator to set all ultrasonic and thermal parameters. Features include automatic gain control, signal averaging and gate tracking functions. Help file with images is available at any point to guide the user through transducer set-up and data collection.

Improved user-interface conveniently places the most commonly used controls within easy operator access. Multiple file feature reduces time spent changing samples and transducers. Integrated data collection, storage, and processing requires no additional software to process data, make measurements, and view reports.

OUT-OF-PLANE YOUNG'S MODULUS WITH TEMPERATURE & PRE_LOAD



SPECIFICATIONS

Computer Module & Measurement

Software:

- Personal Computer
- 17" monitor
- Keyboard, hard drive,
- Windows 7 Pro or Windows 10 Pro
- Measurement & control software
 - Graphical user interface
 - Automatic peak detection & tracking
 - Coupling pressure calculation
 - Temperature control
 - Variable hold time
 - Automated sequences and AGC
 - Modulus Calculations

E3000

Test station:

- High energy ultrasonic spike pulser
- Broadband receiver (80 dB dynamic range)
- High speed A/D board (100 MHz).
- Compression measurement platform
- Coupling force monitor
- Sample heater
- Sample holders and clamping mechanism
- Temperature controller (RT to 320°C)
- Four elevated temperature UT sensors
- Four ambient UT sensors

Physical/ Environmental

Power Requirements: 220/120 V, 50/60 Hz,

Ambient Operating Temperature: 0 to 40°C

Physical Dimensions

Test Station 60cm x 50cm x 50cm



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