Resilient Modulus and Asphalt Testing System (MRT-300)

- Advanced testing for soils and Hot Mix Asphalt (HMA)
- Electro-Hydraulic or Electro-Pneumatic Digital Servo Control
- Easy to use software for automatic test performance
- Meets AASHTO, SHRP and ASTM standards
- Triaxial cells for specimens from 71 mm (2.8") to 150 mm (6") diameter
- Available Indirect Tension fixtures to perform ASTM D4123 and SHRP P-7
- Complete “turn-key” systems

DESCRIPTION

The GCTS Resilient Modulus and Asphalt Testing System boasts a modular design which allows the system to be configured to test asphalt and soil in a variety of modes. This system is based on the GCTS SCON Digital Signal Conditioning and Controller and can be supplied with pneumatic or hydraulic loader.

The GCTS Resilient Modulus software features built in AASTHO, SHRP, and NCHRP test sequences, and the capability to specify user defined sequences. Contact stress is automatically adjusted according to the above procedures as selected. Available waveforms include haversine, sine, square and triangular, along with a user defined waveform selection. Optional peak & valley compensation ensures proper and quick matching of the load parameters. Real time displays of the prescribed versus actual dynamic load or the dynamic deformation measurements by each sensor are always present. Deformation ratio of the two sensors, \( R_s \) (to ensure that the two deformation sensors are in agreement) and \( M_r \) are also calculated in real time. During export, curve fitting is done to fit the results to models that predict \( M_r \) as a function of \( \sigma_m \), \( \sigma_\alpha \), and CP (cell pressure). Four different functions are calculated automatically (as required by AASHTO and NCHRP procedures):

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M_r = K_1 (\sigma_m)^{K_2}
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M_r = K_1 (\sigma_\alpha)^{K_2}
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\[
M_r = K_1 (\sigma_\alpha)^{K_2} CP^{K_3}
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M_r = K_1 \left[ \frac{(\sigma (\Theta - 3K_6))}{(\sigma)} \right]^{K_2} \left[ \frac{\tau_{oct}}{\sigma} \right]^{K_3}
\]

For testing asphalt at different temperatures, an optional environmental chamber can be provided. This chamber can accommodate triaxial, indirect tension, beam flexural fatigue, dynamic modulus and all the other testing fixtures GCTS offers. Temperatures of -30° to +150°C (with liquid nitrogen boost) can be achieved with this option.

SPECIFICATIONS

Contact GCTS for a system proposal including specifications based on your testing requirements.