

## Two Point Trapezoidal Bending Beam Machine



**CRT-2PT**

***Optimisation of the setting-up time with intelligent software, and accurate temperature control with an integrated temperature cabinet***

Bending tests are widely used for measuring the stiffness modulus and assessing the fatigue resistance of asphaltic paving materials. The two-point bending test on trapezoidal specimens is, arguably, the most repeatable and reproducible bending test method detailed in the relevant EN12697 standards. In this test the specimen is mounted as a vertical cantilever. The base is fixed and the top is moved sinusoidally with a constant displacement amplitude. The trapezoidal shape ensures that the maximum values of bending stress and strain occur away from the ends of the specimen where there are likely to be stress concentrations. With the Cooper Technology equipment, two trapezoidal specimens can be tested simultaneously and stiffness modulus can be determined at a range of frequencies and temperatures. In the fatigue test the specimens are subjected to a constant strain amplitude at a selected frequency and temperature until the stiffness modulus decreases to a user-selected target level (normally 50 percent of its initial value).

### Standards

- EN 12697-24 Annex A
- EN 12697-26 Annex A
- NF-P98-260-2

### Key Features

- Rigid test frame housed within temperature cabinet
- Temperature cabinet with fan assisted air circulation and glazed viewing door
- Temperature cabinet range -20 to 30°C
- Machine designed to test two specimens simultaneously (option for 4 specimens also available)
- Frequency range from 0.5 to 30Hz
- Precise manual setting of strain amplitude
- Accurate pre-test displacement transducer adjustment using software feedback
- Two high-precision  $\pm 2.5\text{kN}$  fatigue rated piezoelectric force transducers
- High-speed control and acquisition system for interfacing to host computer
- User-friendly software for fatigue and stiffness modulus tests
- Software for automatically carrying out frequency sweeps
- Supplied with certification of calibration

## Key Uses

- Mixture design
- End product specification
- Assessment of new materials

## Software

- User friendly, intuitive and reliable Windows™ software developed using LabVIEW™
- Specifically written to meet EN 12697-24 Annex A and EN 12697-26 Annex A
- One software package performs both fatigue and complex modulus testing
- The software allows a range of strain amplitudes and frequencies to be tested
- The operator is guided through setting up the samples and performing the test
- Real-time graphs show the force and the deformation as well as the relationship between rigidity and number of cycles
- Stored test data can be analysed and compared with other test data utilising a spreadsheet package
- Utilities are included for transducer check, diagnostic routines and calibration

## Accessories

Accessories are not included in the price of main device (unless stated otherwise) and may be purchased separately if required.

|                  |   |
|------------------|---|
| CRT-2PT-4SPEC    | Add-on for 4 Trapezoidal Beams to be tested simultaneously      |
| CRT-2PT-CAPEND25 | Pair of end caps for 25mm Specimens                             |
| CRT-2PT-CAPEND50 | Pair of end caps for 50mm Specimens inc. parts for gluing frame |
| CRT-2PT-GLUE     | Trapezoidal Beam Gluing Frame                                   |
| CRT-2PT-GLUE-50  | Extra Parts for 2PT Gluing 50mm Specimens                       |
| CRT-2PT-MEAS     | Trapezoidal Beam Measuring Frame                                |
| CRT-2PT-TEMP     | 2PT Additional Temperature Probe                                |

## Specifications

Technical specifications are subject to change without notice.

|                                |                                   |
|--------------------------------|-----------------------------------|
| Force Transducer               | 2 x 2.5kN Miniature fatigue rated |
| Specimen Transducer Range mm   | ±1                                |
| Frequency Hz                   | 0.5 to 30                         |
| Temperature (integral cabinet) | -20 to 30°C                       |
| Electrical Supply <sup>1</sup> | 220-240 Volts 50 Hz @ 16A         |
| Dimension mm (WxDxH)           | 1320 x 1360 x 1950                |
| Estimated Weight Kg            | 800                               |
| PC                             | Included                          |

## Calibration & Maintenance

Calibration, Annual Service and Maintenance Contracts are available for this device.  
Please enquire for further details. Note: This device should be checked and calibrated annually.

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