

## Asphalt Pavement Thermal Testing System (TSRST)



### CRT-APTTS

***Optimise low temperature performance of asphaltic concrete mixtures. Complies with AASHTO TP10 and EN 12697-46***

The Thermal Stress Restrained Specimen Test (TSRST) is used to determine the low temperature cracking susceptibility of asphalt concrete. In the early 1990s the TSRST was developed by OEM with Oregon State University (OSU) as part of the Strategic Highway Research Program. The test method became AASHTO TP10. The TSRST test has also been included as one of the tests within EN12697-46. OEM-Cooper have developed the TSRST device to perform tests included in this standard. Now as a multi-purpose low temperature testing machine, the TSRST has been renamed the Asphalt Pavement Thermal Testing System (APTTS). With over 20 years of experience, and as the original developers of the TSRST OEM-Cooper are the recognized world experts in the field.

### Standard

- AASHTO TP10
  - Thermal Stress Restrained Specimen Test (TSRST)
- EN 12697 46
  - Uniaxial Tension Stress Test (UTST) □ Thermal Stress Restrained □ Specimen Test (TSRST) □ Relaxation Test (RT) □ Tensile Creep Test (TCT)
- AASHTO TP XX (2012)

### Key Features

- Cool or heat an asphaltic concrete specimen at a constant temperature
- Simulate actual field conditions with user programmable temperature profiles
- Perform cyclic temperature testing
- Minimises radial and/or transverse forces with dual clevis and rod end assemblies

### Key Uses

- Determines the failure characteristics of Asphaltic Concrete (AC) specimens when cooled below freezing according to a user defined temperature profile

- Evaluates low temperature performance of field cores from existing roads
- Test laboratory compacted cores of new or experimental mixes
- Demonstrates the effects on low temperature performance of modified binders and from adding modified to standard binders

## Software

User friendly, intuitive and reliable Windows™ software developed using LabVIEW™.



## Accessories

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

CRT-APTTT-AC	Air Dryer and Chiller System Cryogenic air cooled version
CRT-APTTT-PREP	Specimen Preparation Kit
CRT-APTTT-UTST	Uniaxial Tensile Stress Test according to EN 12697-46
CRT-APTTT-TCT	Tensile Creep Test according to EN 12697-46
CRT-APTTT-RT	Relaxation Test according to EN 12697-46
CRT-APTTT-TSRST	TRSRST according to EN 12697-46
CRT-APTTT-TSRST_A	TRSRST according to AASHTO TP10

## Specifications

Technical specifications are subject to change without notice.

Specimen dimensions (W x D x H)

Prismatic mm	40 x 40 x 160 – 60 x 60 x 250
Cylindrical mm	Ø 40 x 160 – Ø 60 x 250
Temperature °C	-50 to +50
Force kN	-50 to +50
Screw jack travel mm	±150
Transducers Displacement (AASHTO TP10)	
Range mm	±0.5
Resolution µm	0.05
Accuracy	±0.1% Full Scale
Transducers Displacement (EN 12697-46)	
Range mm	±2.5
Resolution µm	0.05
Accuracy	±0.1% Full Scale
Transducers Load	
Range kN	22.5
Resolution µm	0.5 N
Accuracy	±0.1% Full Scale
Transducers Temperature	
Range °C	-70 °C to + 180
Resolution °C	0.1
Accuracy °C	0.3
Cooling agent	Liquid nitrogen (LN2) or air chiller

<sup>1</sup> others available upon request

## Calibration & Maintenance

Calibration, Annual Service and Maintenance Contracts are available for this device. Please enquire for further details.

Note: This is a precision piece of testing equipment. It should be checked by a trained engineer annually.