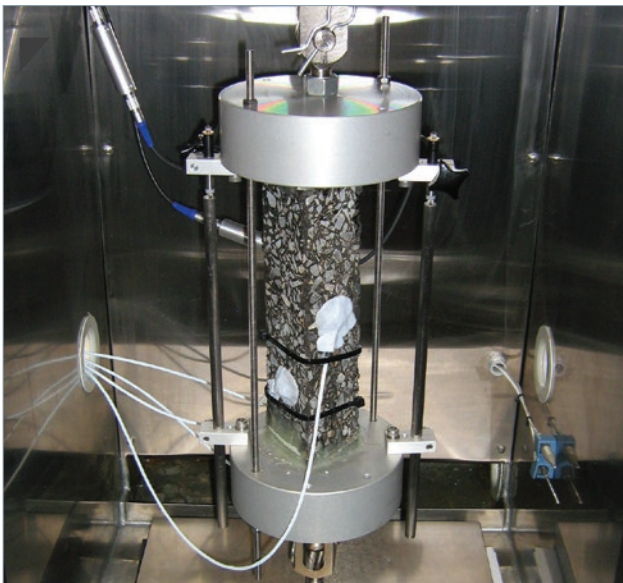


# TSRST – Thermal Stress Restrained Specimen Tensile Strength

Accessories

## ADVANCED PAVEMENTS TESTING SYSTEMS



### Measure resistance to thermal cracking of bituminous asphalt mixtures

Used in conjunction with one of IPC Global's range of Universal Testing Machines and environmental chambers, the TSRST fixture allows engineers to perform Thermal Stress Restrained Specimen Tensile Strength tests to AASHTO TP10-93 and EN 12697-46. This method determines the tensile strength and temperature at fracture of compacted bituminous asphalt mixtures by measuring the tensile load in a specimen which is cooled at a constant rate while being restrained from contraction.

#### Features

- Self-aligning couplings for true axial alignment
- 25kN capacity
- Specimen Platens 150mm dia., 50mm thick
- Invar Rods provide low thermal expansion for accurate displacement measurement over the full temperature gradient
- Use of load frame alignment for mounting specimen on platens
- Optional Specimen Alignment Stand
- Threaded rods to safely support specimen and fixture after fracture.

## Specifications

#### Test Standards

- AASHTO TP10-93
- EN 12697-46

#### Specimen Dimensions

##### Measurement

<b>Displacement Measurement</b>	2x LVDT
<b>Ranges</b>	+/- 0.5mm +/- 0.06mm +/- 2.5mm
<b>Resolution</b>	< 1µm
<b>Accuracy</b>	+/- 0.1% full scale

##### Temperature Measurement

<b>On-Specimen RTDs</b>	x3
<b>Air temperature RTD</b>	x1
<b>Range</b>	-60°C to +60°C
<b>Resolution</b>	< 0.1°C
<b>Accuracy</b>	+/- 0.5°C

#### Ordering Information

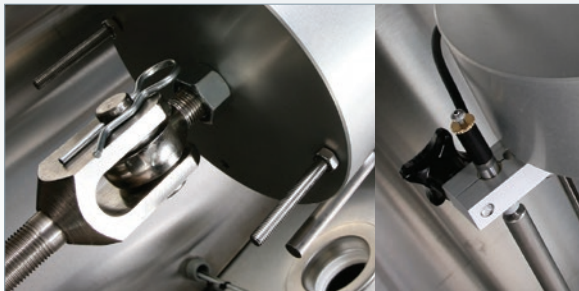
- 79-PV70640 – TSRST Kit
- 79-PV70645 – LVDT (+/-0.5mm) as per TP10-93
- 79-PV70644 – LVDT (+/-0.06mm) increased accuracy
- 79-PV70644 – LVDT (+/-2.5mm) as per EN 12697-46
- 79-PV70644 – TSRST Specimen Preparation Kit with Gluing Jig
- 79-PV70643 – TSRST Platens

Additional accessories may be required to create a working testing system. Please contact us for advice.

## How It Works

A cylindrical or prismatic asphalt specimen is fixed to the TSRST platens and an initial tensile load is applied. The specimen is then cooled at a constant rate whilst the specimen is held at a constant length. The thermally induced strain is monitored up until the point of fracture.

The results can be used in pavement design to reduce thermal cracking and improve the lifecycle of bituminous asphalt pavements.



TSRST Thermal Stress Restrained Specimen Test



TSRST Restrained Gluing Jig

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