

# PORTLAND CEMENT CONCRETE

COEFFICIENT *of* THERMAL EXPANSION

# CTE



## Flexible

Specified in the Mechanistic Empirical Design Guide, the Coefficient of Thermal Expansion (CTE) of Portland Cement Concrete is used in concrete pavement design to account for the stresses caused by temperature changes experienced by the pavement structure. This flexible system allows users to test one, two, or three concrete cylinders simultaneously in compliance with AASHTO T336 or Texas DOT's TEX-428-A.

# PORTLAND CEMENT CONCRETE

## COEFFICIENT *of* THERMAL EXPANSION

# CTE



### Specifications

#### Power

115 VAC, 16.4 A, 60 Hz, 1 ph  
240 VAC, 1 A, 60 Hz, 1 ph

**Weight** ≈300 lbs.

#### Waterbath

18 gallons / 68 liters  
33" L x 16" W x 35" H (838 mm L x 406 mm  
W x 889 mm H)  
Holds 3 specimens

#### Specimen Fixture

Corrosion Resistant Alloy with Submersible  
Transducer

### Input Parameters:

- Specimen Length & ID
- Temperature Set Points
- Equilibrium Requirement
- Test Stop Criteria

### Data:

- Bath Temperature
- Specimen Length for up to 3 Specimens

### Output:

- Formatted Excel Spreadsheet  
Time, Temperature, Change in Length,  
CTE

### Circulator

Temperature Range: 10 - 50°C (50 -122°F)  
Resolution: ±0.1°C  
Heating: 10° to 50°C ≈3.5 hours  
Cooling: 50° to 10°C ≈2 hours  
Dimensions: ≈29" L x 14.5" W x 24" H

### Specimen Size

Diameter: 75 -160 mm  
Length: 168 -188 mm

**Calibration Standard:** Titanium

**Verification Standard:** 304 Stainless Steel

### Minimum Computer Requirements:

- 1 GHz P4 or equal, 2 GB RAM
- 10 MB available HD space
- MS Windows 10/8/7/XP SP3, 32 or 64 bit
- 1024 x 768 minimum display resolution
- MS Excel 2003 or later

### Standards

AASHTO T336  
TEX-428-A