



EIE INSTRUMENTS PVT. LTD.
(An ISO 9001:2015 Certified Company)

DILATOMETER-DETERMINATION OF LINEAR THERMAL EXPANSION-1000 °C



For Determination of Linear Thermal Expansion Characteristics of Refractory, Ceramic and Similar Materials. **Complies with or is suitable for testing in accordance with:** ASTM E228, ASTM E831, ASTM C372, ASTM C326, ASTM C531, ASTM C878, ISO 11359-2, ISO 17562, ISO 7991, ISO 10545-8, JIS R1618, DIN 51045, DIN 52324, EN 821-1

Applications

The Computerized Dilatometer is designed for precise measurement of the linear expansion and contraction of materials as a function of temperature. It is suitable for testing refractory products, ceramics, glass, minerals, building materials, metals, and other engineering materials for quality control, research, and product development.

Technical Specifications

Furnace Assembly

- Compact floor/bench-mounted design with approximate dimensions of **250 × 1000 × 300 mm**.
- Heavy-duty **double-wall mild steel construction** with precision fabrication, durable powder-coated finish, and corrosion-resistant exterior.
- High-efficiency **low thermal mass zirconia blend fibre board insulation** ensures excellent thermal stability, fast heating response, and reduced heat loss.

Corporate Office:

A-1301, BVR Ek, Opp. Hotel Inder Residency,
Near Gujarat College, Ellisbridge,
Ahmedabad-380 006.
Phone : (079) 6621 1234
Website : www.eieinstruments.com

Calibration Laboratory:

Survey No. 1098, Nr. Mahakali Temple,
Opp. Primary School, Village Kubadthal,
Tal-Daskroi, Ahmedabad-382 433.
Phone: (079)-3520 8300
E-mail : info@eieinstruments.com

GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
IEC No. : 0813026598 Dt. 04/03/2014
CIN No. : U29199GJ2004PTC045078
TAN No. : AHME00572F



- Furnace mounted on **precision linear bearing wheels with stainless steel guide rails**, enabling smooth movement and accurate positioning during specimen loading and testing.

Heating System

- High-performance **single-end Silicon Carbide (SiC) heating element** provides uniform and reliable heating.
- Operates on **230 V AC, Single Phase, 50 Hz**, with approximately **5 A** current consumption.
- **Maximum Operating Temperature: 1000°C**
- Optimized furnace design ensures excellent temperature uniformity throughout the heating zone.

Temperature Control System

- Advanced **PID Programmable Digital Temperature Controller** with **K-Type Thermocouple** for accurate temperature regulation.
- **Temperature Control Accuracy: $\pm 1^{\circ}\text{C}$**
- Separate **independent over-temperature safety controller** with air-break magnetic contactor protects the furnace in the event of thyristor malfunction or overheating.
- **Phase-angle controlled Thyristor power regulator** with isolation transformer provides smooth and precise heating control.
- Front panel indications include:
 - Digital Ammeter
 - Digital Voltmeter
 - Mains Power Indicator
 - Heating Output Indicator
- Independent switches provided for:
 - Main Power
 - Heating Output
- Complete electrical protection through dedicated **input and output fuse protection**.

Linear Expansion Measurement System

- High-precision **LVDT (Linear Variable Differential Transformer)** based displacement measurement system.
- **Measurement Resolution/Accuracy: 1 Micron**
- **Measurement Range: 0 to 2000 Microns**
- Real-time expansion values displayed on both the digital display and computer interface.
- Data acquisition and graphical analysis through dedicated **LABVIEW-based software**.
- Software features include:
 - Real-time displacement vs. temperature plotting
 - Automatic data logging
 - Test report generation
 - Graphical analysis
 - Data export for further processing
- Compatible with Windows-based PC.

Specimen Specifications

Corporate Office:

A-1301, BVR Ek, Opp. Hotel Inder Residency,
Near Gujarat College, Ellisbridge,
Ahmedabad-380 006.
Phone : (079) 6621 1234
Website : www.eieinstruments.com

Calibration Laboratory:

Survey No. 1098, Nr. Mahakali Temple,
Opp. Primary School, Village Kubadthal,
Tal-Daskroi, Ahmedabad-382 433.
Phone: (079)-3520 8300
E-mail : info@eieinstruments.com

GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
IEC No. : 0813026598 Dt. 04/03/2014
CIN No. : U29199GJ2004PTC045078
TAN No. : AHME00572F



EIE INSTRUMENTS PVT. LTD.
(An ISO 9001:2015 Certified Company)

- Recommended specimen size:
 - **10 × 10 × 45 mm (±2 mm)**
- Sample holder tube and measuring probe manufactured from **high-purity fused quartz** for excellent dimensional stability at elevated temperatures.

Calibration

The instrument is supplied with calibration certificates for:

- **LVDT (Linear Expansion Measurement)**
- **Temperature Measurement (Thermocouple)**

Calibration is traceable to national/international standards.

Electrical Requirements

- Power Supply: **230 V AC, Single Phase, 50 Hz**
- Connected Load: Approximately **5 A**

Standard Supply

- Computerized Dilatometer
- Silicon Carbide Heating Element
- Quartz Sample Tube
- Quartz Probe Assembly
- LVDT Measuring System
- PID Temperature Controller
- Thermocouple
- LABVIEW-Based Operating Software
- Power and Interface Cables
- User Manual
- Calibration Certificates

Optional Accessories (Available at Extra Cost)

- Desktop Computer with **Intel® Core™ i5 or i3 Processor**, minimum **4 GB RAM** (or latest equivalent configuration)
- Printer for report generation
- UPS (Uninterruptible Power Supply)
- Additional fused quartz sample tubes
- Spare fused quartz probes
- Spare Silicon Carbide heating elements
- Additional thermocouples
- Annual calibration and preventive maintenance services
- Software upgrades and extended warranty packages

Corporate Office:

A-1301, BVR Ek, Opp. Hotel Inder Residency,
Near Gujarat College, Ellisbridge,
Ahmedabad-380 006.
Phone : (079) 6621 1234
Website : www.eieinstruments.com

Calibration Laboratory:

Survey No. 1098, Nr. Mahakali Temple,
Opp. Primary School, Village Kubadthal,
Tal-Daskroi, Ahmedabad-382 433.
Phone: (079)-3520 8300
E-mail : info@eieinstruments.com

GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
IEC No. : 0813026598 Dt. 04/03/2014
CIN No. : U29199GJ2004PTC045078
TAN No. : AHME00572F