



# EIE INSTRUMENTS PVT. LTD.

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# Organization's ISO 9001:2015 Certificate

**QUALITY MANAGEMENT SYSTEM**

## Certificate of Registration



This is to Certify That The Quality Management System of

### EIE INSTRUMENTS PVT. LTD.

13th FLOOR, 1301/A, BVR EK, OPP INDER RESIDENCY HOTEL, NR. WESTEND HOTEL, ELLISBRIDGE, AHMEDABAD - 380006, GUJARAT, INDIA.

has been assessed and found to conform to the requirements of

## ISO 9001:2015

for the following scope :

MANUFACTURER & SUPPLIER OF LABORATORY TESTING INSTRUMENTS.

<b>Certificate No</b>	<b>23DQLL85</b>		
Initial Registration Date	: 14/10/2023	Issuance Date	: 14/10/2023
Date of Expiry*	: 13/10/2026		
1st Surve. Due	: 14/09/2024	2nd Surve. Due	: 14/09/2025

  
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**ROHS Certification Pvt. Ltd.**  
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e-mail : [info@rohscertification.co.in](mailto:info@rohscertification.co.in) | website : [www.rohscertification.co.in](http://www.rohscertification.co.in)  
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CB-QMS-035

 EIE INSTRUMENTS PVT. LTD.	<b>Operation &amp; Maintenance Instruction Manual</b>	
	<b>Equipment Name:</b> Vicat Softening Point Test Apparatus	<b>Equipment Serial Number:</b>
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## Forward

Dear valued customer,

We are thankful of you for your keen interest in our company products. We hope you enjoy using them and find them to be helpful and reliable. We greatly appreciate your business and the opportunity you have provided us to assist you. You have joined a selected group of customers who have switched to the technologically superior and quality enhanced laboratory testing products.

Time has changed, so does the technology. Your purchase lists you on the cutting edge of the 21<sup>st</sup> century technology. To help you get the most out of your EIE Instruments Pvt. Ltd. products, we have created this instruction manual that is an excellent way of expressing and maintaining your trust in EIE's - superior quality testing products. Our continued efforts and commitment are to provide you with the best and efficient services after sales, prompt attention and the highest level of customer satisfaction. If for any reasons, you have questions or comments, we are delighted to hear from you. We welcome your feedback for further improvement in our product(s). We would be happy to help you in any way we can. You can contact us on [+91-9909903582](tel:+91-9909903582) or send us an email at [service@eieinstruments.com/kunal@eieinstruments.com](mailto:service@eieinstruments.com/kunal@eieinstruments.com). You can expect us to respond to your call or email within 24-48 working hours.

Once again, we would like to thank you for your trust and kind patronage. We look forward to serve you better in the future.

Yours sincerely,

EIE Instruments Private Limited



EIE INSTRUMENTS PVT. LTD.

### Operation & Maintenance Instruction Manual

Equipment Name: Vicat Softening Point Test Apparatus

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## 1 General Description

**EIE – HDT/VSP Instrument** is used for determining the deflection temperature limit for specific application and comparing the heat softening characteristics of thermoplastic material at a constant load in oil media up – to 300 °C.

Plastic materials, being heat sensitive in nature, have a lot of bearing on thermal environment for their performance. Though their behavior in thermal conditions is very complex, some simple yield tests are used to predict its behavior and performance in a given condition.

Vicat softening Point or Heat Deflection Temperature is one of such yield points, very commonly used for engineering plastics. Vicat test consists of penetrating a unit size indenter in a plastic surface with predefined load under constant rate of environmental temperature rise.

Heat distortion test, as it is sometimes called, consists of deflecting a simply supported beam of test material under similar heating conditions and with a predefined stress application.

## 2 Technical Specifications

### 2.1 Electrical Specifications

- POWER SOURCE : 230Volts, 50 Hz, Single phase AC supply
- TEMPERATURE RANGE : Ambient to 300°C (Working Range)
- TEMPERATURE ACCURACY :  $\pm 1$  °C or Better Result
- TEMPERATURE RESOLUTION : 0.1°C
- TEMPERATURE CONTROL : Microprocessor Based PID – Controller.
- DIAL GAUGE : 01 No. (To measure penetration).
- STIRRER : 01 No. For Uniformity
- RATE OF TEMPERATURE RISING :  $50 \pm 5$  °C per Hour

### 2.2 Mechanical Specifications

- OUTER BODY : M. S (Dully Painted in attractive shades)
- INNER TANK (BATH) : Stainless steel of high grade
- WEIGHTS : 5 KGS with Indenter
- BATH CAPACITY : 10 – 12 liters



### 3 Delivery and Uncrating of the Apparatus

1. Inspect equipment and shipping crate immediately upon receipt. If any damage is apparent, immediately discuss it with the delivery person and contact the transportation company immediately. Make notes of any damages on the bill of landing.
2. Retain all shipping material for later inspection.
3. Check packing slip carefully and ensure all materials have been received as indicated in packing slip.
4. Remove packing strip from surroundings of the instrument and all its accessories. Please inspect and note whether any part of the instrument is damaged or any accessory is missing according to packing slip? If it is so, then immediately make note of it and report to the manufacturer.
5. Due to the vibration incurred during shipping and handling, it is possible that mechanical connection could become loose. Inspect all connection to ensure that they are secure.
6. After visual inspection, if everything is found to be okay, transit the instrument to suitable safe place where it is intended to install. **Caution: Handle with care.**
7. Recycle the packing material. Do not throw it away for environment protection.

#### 3.1 How to Make the Instrument Ready for the Use?

- 1) Place the equipment on a plain, even and sturdy surface leaving approx. 4"-5" inch space away from the wall.
- 2) Do not use equipment in a corrosive environment. A corrosive environment may lead to poor performance and deterioration of unit.
- 3) Keep instrument away from draft, sunlight, water or near a place of equipment, which emits heat as well as electromagnetic conduction emission.
- 4) Keep the standard operating manual handy while operating on the apparatus.

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#### 4 Indenter Assembly Along with Dial Gauge

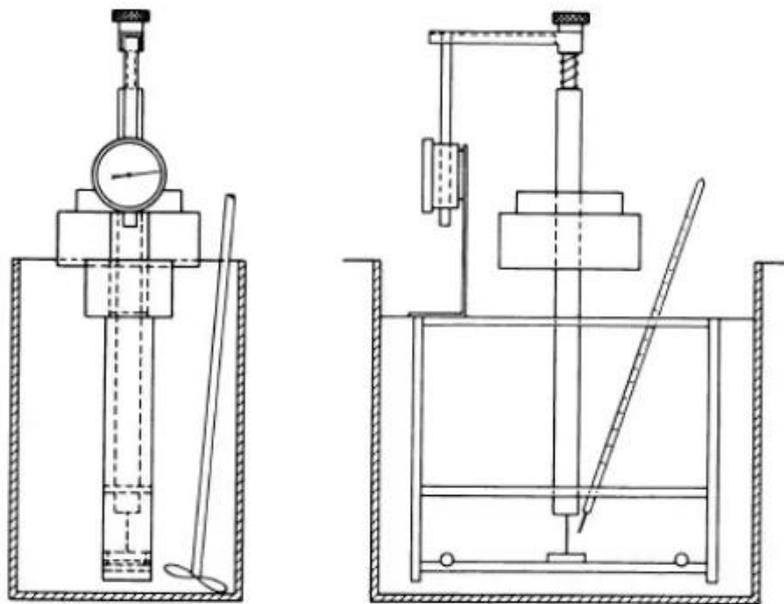


Figure 1: Structure of the penetrating assembly

#### 5 Brief Construction Details

- 1) **EIE – Vicat Softening Point Tester** of single stand is Compact table top Model. The unit is designed as per **IS: 2530 (1963)**.
- 2) Precise temperature control is obtained by Digital temperature controller with constant rate of rise i.e.  $50 \pm 5$  °C per hour.
- 3) Sample Holding assembly along with Indenter for penetration and a dial gauge is provided for measuring the penetration in “mm”.
- 4) **EIE – VST/HDT** is supplied with doubled wall layer, separate inner container and external body fitted with thick insulation so that they don't have direct contact with each other.
- 5) Internal bath is made up of high quality stainless steel so as to keep the container corrosion free for long lasting, highly finished in order to eliminate sharp edges.
- 6) External cases are constructed of mild steel and undergone with strong seamless welding, covered with thick layer of finished & attractive powder coating paint. This provides robust and heat resistant surface having long lasting attractive finish.
- 7) A high speed stirrer with a motor is fitted to the unit for continuous stirring and to maintain a uniform temperature throughout the chamber.
- 8) Especially designed and adjustable footrest which keeps the unit in correct equilibrium.



## 6 Introduction to the Temperature Controller



Figure 2: Digital temperature controller

**SET:** To enter in parameter setting mode.

**UP:** To increase the numeric value as per requirement is setting mode.

**DOWN:** To decrease the numeric value as per requirement is setting mode.

**ENT/HOLD:** To save the entered data in setting mode.

### 6.1 Adjustment of the Control Parameter

- Press “SET key” once, parameter window will open, using UP/DOWN button set desired test temperature as desired. After that, press the “ENT/HOLD key” to save the set temperature value.
- Ramp value is factory set, do not disturb it.



## 7 Standard Test Process

### 7.1 Preparation of Test Specimen/Sample

- Specimen (Sample) must be 3 – 6.4 mm in thickness, having an area of at least 10 × 10 mm with flat and parallel surface.
- Prepare two test specimen of same sample.
- Annealing: Immerse the test specimens in boiling distilled water for 10 minutes, after that cool it in air.

### 7.2 Operating Method of the Unit

- 1) Mount the sample (Specimen) horizontally under the indenter (Station).
- 2) Pour 10 – 12 liters of oil (Either transformer oil or Silicon oil) in the bath.
- 3) Immerse the assembly (station) in the bath.
- 4) Connect the main chord to properly grounded outlet and turns “ON” mains switch.
- 5) Set desired temperature as per selected specimens and the temperature will rise as per the set temperature rate. (i.e.  $50^{\circ} \pm 5^{\circ}\text{C}$  per Hour).
- 6) Now turn “ON” heater’s switch and stirrer motor (For uniform heating throughout).
- 7) After the bath temperature raised to  $50^{\circ} \pm 5^{\circ}\text{C}$ , apply the load of 5 kg on the station.
- 8) Immediately set the dial gauge to “0”.
- 9) As the temperature is nearer to desired softening temperature, carefully check the penetration as indicated in dial gauge.
- 10) Record the temperature of bath at which the indenting tip has penetrated “1 mm”.
- 11) Perform the same test for two test specimens.
- 12) Vicat softening Point of two test specimens, will not differ between themselves by more than  $2^{\circ}\text{C}$ .

**NOTE: If penetration is above 1 mm in the sample, change the sample. That sample is considered as failed, therefore re-conduct the test with a new sample.**

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## 8 Maintenance & Services

- 1) The equipment must be kept in sturdy ground and properly bolted down for vibration free working.
- 2) Installed environment should be free from dust and moisture to prevent corrosion.
- 3) To avoid electrical shock, the instrument must always use a properly grounded electrical outlet and the correct voltage supply.
- 4) Always disconnect from power supply prior to maintenance and service.
- 5) Install a suitable servo controlled voltage stabilizer in case the voltage fluctuates beyond the safety limits.
- 6) Clean the penetration assembly every day after use.
- 7) Ensure the power connection is proper before the start of the day's work.
- 8) Switch off the power supply after the use by switching off the switch, mounted on the control panel as well as the mains.
- 9) Maintain a safe distance of at least 5" to 6" from the wall while installing the unit. Keep the instrument tidy, clean and dry with mint cream. Before initiating the fresh day, use preferably clean soft cloth. Brush up the unit body as to maintain its finishing.
- 10) Disassembly of this equipment is strictly limited to the qualified personnel and licensed engineers only.
- 11) In case of any difficulty, please do not try to repair without consulting the manufacturer, especially when the instrument is under the warranty period.

EIE Instruments Pvt. Ltd.



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# Warranty Certificate

Your EIE product is guaranteed to be free from defects in materials and workmanship for one (1) year under normal use from the date of purchase. This warranty does not apply to any product damaged by accident, misuse, mishandling, abuse, negligence, transit, improper line voltage, drop, fire, flood or if the products were altered or repaired by anyone other than the qualified service personnel. The liability of EIE Instruments is limited to repair or replacement and under no circumstances shall EIE be liable for any collateral consequential damages or loss. This guarantee specifically excludes the expendables and consumables. All warranty claims must be directed to your corresponding purchase organization that is responsible for the sale of this equipment. The users are responsible for shipping expense. The warranty cards which are not signed and stamped by the actual user will be treated as void. The warranty card should accompany the defective products sent for repair, without which no claims would be entertained. Please detach the below warranty card from following cut-line.

.....

Attributes	Details
Name of the company	
Address	
Telephone number	
Mobile number	
Email address	
Date of purchase	
Product model	
Serial Number	
Bill or cash memo number	

This card should be detached, filled in properly and posted within 15 days from the date of purchase otherwise the warranty becomes invalid.

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## – End of the document –

If you have any note or queries,

Please write to us at [info@eieinstruments.com](mailto:info@eieinstruments.com), Thank you!

Our other range of products...

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#### Calibration Laboratory

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