

**GOVERNMENT ENGINEERING COLLEGE,
THRISSUR**

NOTICE INVITING TENDER

No.D1/807/19/GECTCR

Dated: 18/02/19

Tender No. : D1/106 /18-19

Superscription : Purchase of Copper Strip Corrosion Test Apparatus,
Cloud and Pour Point Apparatus and Oxidation Stability
Apparatus for Mechanical Engg. Dept. of this institution

Bidding fees : Rs. 1000/-
EMD required : Rs.6450/-
Address of the Officer to : THE PRINCIPAL, GOVERNMENT
whom hardcopy is to ENGINEERING COLLEGE,
be sent. THRISSUR-680009

Specification Details

| Sl.No. | Description of Item | Qty. |
|--------|---------------------------------------|------|
| 1 | Copper Strip Corrosion Test Apparatus | 1 |
| 2 | Cloud and pour Point Apparatus | 1 |
| 3 | Oxidation Stability Apparatus | 1 |

E-tender Details

| | |
|-------------------------|--|
| Tender Reference Number | D1/807/2019/GECTCR |
| Tender ID | 2019_DTE_270849_1 |
| Title | Purchase of Equipments |
| Work Description | Purchase of Equipments for Mechanical Engineering Department |

Critical Dates

| | | | |
|-------------------------------------|----------------------|-----------------------------------|----------------------|
| Publish Date | 23-Feb-2019 03:00 PM | Bid Opening Date | 14-Mar-2019 11:00 AM |
| Document Download / Sale Start Date | 23-Feb-2019 03:00 PM | Document Download / Sale End Date | 11-Mar-2019 04:00 PM |
| Clarification Start Date | 23-Feb-2019 03:00 PM | Clarification End Date | 11-Mar-2019 04:00 PM |
| Bid Submission Start Date | 23-Feb-2019 03:00 PM | Bid Submission End Date | 11-Mar-2019 04:00 PM |

General conditions

1. The unit price, all other charges such as delivery, transporting, packing, shipping, loading and unloading charges etc, and GST must be shown separately and should be furnished unambiguously.
2. Payment will be made only after the successful supply, installation and testing.
3. F.O.R: Govt. Engineering College, Thrissur.
4. Agreement: Preliminary Agreement in Rs.200/- Kerala Stamp Paper.
5. Date of opening of tender: In case the proposed date declared as holiday, the tender will be opened on the next working day.
6. After E-tendering the hard copy of all documents should be submitted before the date of opening of the tender to the Principal, Government Engineering College, Thrissur.
7. Items to be supplied at Chemical Engineering Department of Govt. Engineering College, Thrissur.
8. The items should have a minimum guarantee period of one year from the date of installation and successful performance.
9. Installation, successful demonstration and training required.
10. Delivery Period: Immediately after the date of receipt of supply order.
11. 5% security deposit along with agreement should be furnished within a month/fortnight from the date of receipt of supply order.
12. Only GST Registered firms should participate in the tender.

NB: The Tender procedure will be made as per Rules mentioned in the Revised Store Purchase Manual. The bidders should participate this tender through E-Tendering System. Tender cost and EMD should be submitted only through online. For more details Contact Ph.0487 2334144.

Principal

DETAILED SPECIFICATION

Technical Specifications: Could and Pour point Apparatus

| | |
|------------------|--|
| Insulation | : PUF insulation |
| Temperature | : With minimum temperature of -30°C Temp. |
| Accuracy | : Within $\pm 1^\circ$ C Temp. |
| Resolution | : 0.1° C |
| Compartment size | : 200 mm diameter x 175 mm Height |
| Compressor | : Emersion make compressor with CFC Free refrigerant |
| Power supply | : 230 V, single phase, 50 Hz |
| Overall Height | : 1045 mm approx |
| Overall Width | : 600 mm approx |
| Overall Length | : 450 mm approx |
| Refrigeration | : Hermetically sealed Emersion make compressor, overload protector, fan motor, Dan Foss made dryer, condenser which are safely placed below the chamber. |

Technical Specifications : Copper strip Corrosion Test Apparatus

- Compact and unique design
- Aesthetical exterior appearance
- Double walled water bath
- Inner chamber is made of mirror polished - Stainless steel 304 grade material from corrosion resistance effect.
- Exterior body is fabricated from Mild steel material which is powder coated in attractive Shades
- Gap between inner chamber and exterior body is supplied with 65 mm thick insulation to prevent thermal heat loss.
- Temperature of the bath is controlled by Micro-Processor Based Auto-Tune Digital PID Temperature Controller Cum Indicator.
- Operating temperature : 5 °C above ambient to 100 °C
- Temperature resolution : 0.1 °C

- Temperature control accuracy : ± 0.5 °C at 50 °C & 100 °C
- Immersion Heaters are of stainless steel material which are fitted within the chamber

Following Accessories will be the part of standard supply

- 1) Copper Corrosion test vessel, stainless steel with O rings, screw type cap, for use up to 100 si - 1 No
- 2) Laminated double sided comparison chart INDIAN - 1 No.
- 3) Copper Strips, 3" x 0.5" x 12 SWG, pack of 3.
- 4) Bench top vice to hold up to 5 strips for polishing.
- 5) Test Tubes of 25 mm diameter & height 150 mm pack of 10.
- 6) Test Tube stand, to hold 3 test tubes of 25 mm diameter & height 150 mm.
- 7) Silicon Carbide Paper, 10 each of 100/150/240.
- 8) Silicon Carbide Powder, 150 mesh, 1 kg.
- 9) Thermometers as per ASTM 12C/IP 64C

Technical Specification of Oxidative testing Apparatus

1. OXIDATION STABILITY OF MINERAL INSULATING OIL (TRANSFORMER OIL) - (ASTM D2240) Make: EIE INSTRUMENTS Compliance with following international standards ASTM D2440, IP 280 Introduction This test method determines the resistance of mineral transformer oils to oxidation under prescribed accelerated aging conditions. Oxidation stability is measured by the propensity of oils to form sludge and acid products during oxidation. Significance & Use A test specimen of mineral transformer oil is oxidized at bath temperature of 110 °C/95 °C, in the presence of a copper catalyst coil, by bubbling oxygen through duplicate test specimens for 72 and 164 h, respectively. The oil is evaluated at the end of each aging period by measuring the amount of sludge and acid formed. The test specimen is diluted with n-heptane and the solution filtered to remove the sludge. The sludge is then dried and weighed. Brief Construction Details The complete unit comprises of following main parts and accessories 1) Oil bath Double walled oil bath with inlet provision Rectangular shape Stainless steel structure Outer body fabricated from Stainless Steel - 304 Inner chamber fabricated from Stainless Steel - 316 Heavy insulation between inner chamber and exterior body Inner chamber is fitted with efficient heating element and PT-100 Sensor Bath temperature is controlled by Microprocessor based dual display PID Temperature indicator cum controller Temperature control accuracy : ± 0.5 °C Temperature display : LED Temperature range : 5 °C above ambient to 200 °C Supplied with over temperature protection safety 2) Oil Receptacle and Head 4 no's of test tube Made of borosilicate glass Provided with B -24 cones having the following dimensions: Overall Length : 210 ± 2.0 mm External diameter : 25 ± 0.5 mm Wall thickness : 1.25 ± 0.2 mm Height of head : 28 ± 2.0 mm Side outlet tube : 5.0 mm outside diameter 3) Oxygen inlet tube (Delivery Tube) Dimensions External dia : 5.0 ± 0.4 mm Wall thickness : 0.8 ± 0.1 mm Inside diameter : 3.0 ± 0.1 mm The test tube is fitted with a Drechsel head to which is attached the inlet tube which will extended within 2.5 ± 0.5 mm of the bottom and its end ground at an angle of 30° to the horizontal axis. 4) 4 nos. Metallic Copper Catalyst of

following dimension Copper catalysts consist of a wire of non - annealed commercial electrolytic copper of diameter between 1.00 and 1.02 mm. And wire shall have a length of 305 ± 1.0 mm rolled into a spiral of approximately 20 mm external diameter and 50 mm in length. 5) 4 nos. rotameters (flow meters) of following features These are rotameter type flow meters with the capacity to measure the flow rate of oxygen in the range (1 ± 0.1) litre / hour in case of ASTM D2440 test method or (3 ± 0.1) litre / hour in case of ASTM D943 test method. Following accessories will be the part of standard supply – Oil bath for the immersion of 4 standard test-tubes held by a double bottom
– Stainless steel structure – Insulated double wall – Four independent flow-meters that transfer oxygen at (1 ± 0.1) l/h or (3 ± 0.1) l/h rate – Heavy duty motor stirrer – Outlet system – Complete of glassware.