

 IIT PALAKKAD	भारतीय प्रौद्योगिकी संस्थान पालक्काड Indian Institute of Technology Palakkad अहलिआ एकीकृत कैम्पस, कोज़िहपारा Ahalia Integrated Campus, Kozhipara पालक्काड- 678557 Palakkad – 678 557	दूरभाषसंख्या/ Phone no: 04923 – 226300/ 590/ 586 ईमेल/ Email : purchase@iitpkd.ac.in
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Ref No: IITPKD/MECH/KESA/086/2017

Date: 15.12.2017

Due Date of the tender: 02.01.2018 @ 3 PM

TENDER FOR INVITING QUOTATIONS

Dear Sirs,

On Behalf of Indian Institute of Technology Palakkad quotations are invited for **“Mechanical lab Equipments”** confirming to the specification in the Annexure.

- Preparation of Bids:** - The tenders should be submitted **under two-bid system** (i.e.) Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. No prices should be included in technical bid. Financial Bid should indicate item – wise prices for the items mentioned in the technical bid. The technical and the financial bids should be put in separate cover and sealed. Both sealed covers should be put into a bigger cover.
- Compliance sheet for the specification & OEM Brochure has to be attached along with Technical bid. Vendor has to fill the compliance sheet and mention page number or reference number in OEM brochure. Unfilled / partial filled sheets lead to disqualification.**
- The Quotations duly sealed and superscribed on the envelope **with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. Fax and Email quotation are not acceptable.**
- The price should be quoted per unit and packing and delivery charges should be indicated separately. The offer/bids should be exclusive of Taxes and Duties, which will be paid by the purchaser as applicable. However the percentage and of taxes and duties as on date should be clearly indicated.
- The Quotations should be valid for **sixty days** from the due date and the period of delivery required should also be clearly indicated.
- Local Firms:** Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
- Outside Palakkad:** Quotations should be for **F.O.R. at IIT Palakkad**. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.

8. Goods shall not be supplied without an official supply order.
9. **Custom Duty:** Custom Duty which will be paid at a concessional rate against duty exemption certificate.
10. **Payment:** Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later. No advance payment will be made. The Tenderer have to furnish the bank details along with tender like Account No, Account Name, IFSC Code, Bank address etc.
11. **Submission of Bids:** Quotation should be sent to the following address “**The Registrar, Indian Institute of Technology Palakkad, Ahalia Integrated Campus, Kozhipara, Palakkad -678 557, Kerala**”, Phone No: 04923 226 586/590, Email: purchase@iitpkd.ac.in.
12. **Delivery Period: Delivery Clause should be indicated clearly.**
13. **Warranty : Warranty condition should be indicated.**
14. **Delay in Supply or Liquidate damages:** If the supplier fails to deliver the stores within the time specified in the purchase order, the purchaser will recover from the supplier as liquidated damages a sum of one- half of one percent (0.5%) of the P.O value of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed five percent (5%) of the P.O price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time as the missing parts are delivered.
15. **Late offer:** The quotation received after due date will not be considered. Please ensure that your offer is sent well in advance to reach the Institute by the due date.
16. **Loading and unloading charges will be borne by the supplier.**
17. **Acceptance and Rejection:** IIT Palakkad has the right to accept the whole or any parts of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully,

Encl: Specifications

Registrar, IIT Palakkad

1. Hardness tester: Digital Automatic Turret Vickers Hardness Tester With Touch Screen Display

Specifications

- Testing Force 1Kgf(9.8N), 2Kgf(19.6N), 2.5Kgf(24.5N), 3Kgf(29.4N),5Kgf(49.0N), 10Kgf(98.0N), 20Kgf(196N), 30Kgf(294N), 40Kgf (392.0N), 50Kgf (490N)
- Conversion Scale HRA, HRB, HRC, HRD, HRF, HK, HBW, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
- Mini. measuring unit 0.125µm
- Hardness measuring range 8~2900HV
- Method of testing force applied Automatic (loading, Dwelling , unloading)
- Turret Type Automatic
- Eyepiece Magnification 10X
- Objective Magnification 10x, 20x
- Total Magnification 200X (Measuring), 100X (observation)
- Dwell time 0~60s
- Data output Touch-screen display, USB disk
- Maximum specimen height 180mm
- Distance from the centre to the outer wall of the indenter 160mm
- Power supply AC220V+5% , 50-60Hz
- Dimensions 560*260*670mm
- Net Weight About 40Kg
- Accessories
 - 10x Eyepiece
 - Circular Test Table (Large & Small)
 - V Shape Test Table
 - Test Block (High & Middle Range) Each
 - Dust Cover
 - Power Cord
 - U Disk
 - Instruction Manual

2. Microscope- Vertical Metallurgical Microscope

Specifications

- Objectives: Plan EPI-5 X, Plan EPI-10X, Plan EPI-20X, Plan EPI-50X
- Eyepieces: Widefield SWH 10X
- Magnification Range: 50X - 500X (Standard)
- Eyepiece Micrometer : 10mm divided into 100 units, 25 diameter.
- Mechanical Stage: Ceramic coated flat-top stage,191mm X 126mm, 100mm X 100 mm, X - Y movement with right hand drop-down controls.
- Magnification Changer: Quintuple, nosepiece with positive precision click stops.
- Observation Tube: Trinocular Head with sliding beam splitter equipped with 30° inclined observation tubes and adjustable interpupillary distance
- Filters : Blue clear filter,20mm diameter in metal mount Green clear filter,20mm diameter in metal mount ND50 Neutral density filter,20mm diameter in metal mount Polarizing filter 20mm diameter in metal mount
- Illumination: Built in Vertical Koehler's incident illuminator with
- 6V 30W halogen automatic voltage sensing power supply
- Focusing: Low positioned, coaxial coarse and fine focus knobs with adjustable tension control
- Range of Travel: 9mm total, 1.0 mm up and 8mm down. Fine Focus: 0.2mm per revolution
- Camera Adaptor: C-Mount adaptor
- Optional Accessories
 - Plan 100X Objective (Dry)
 - Specimen Leveller
 - 0.5 x reduction lens adaptor
 - Eyepiece 15X 1 Pair

- Metallography Image Analyse Software
 - Enhanced Image Processing (For Integrating with the Microscope)
 - Phase Analysis: As per ASTM E562 Quantifies volume % like
 - Graphite, Pearlite, Ferrite, Martensite, Retained Austenite, carbide
 - Porosity etc..
 - Grain size : As per ASTM E112 Standard methods like Planimetric, Heyn Intercept, Hillard/Abrams circle intercept and manual grain analysis ALA grain size (ASTM E930) analysis
 - Inclusion rating measurement as per ASTM E45 Standard
 - Dendrite Arm Spacing for Aluminium
 - Decarburization as per ASTM E1077
 - Particle size analysis
 - Coating Thickness
 - Nodules: Nodularity %, nodule count and graphite size classes according to valid standards (ASTM A 247)
 - Graphite Flakes: Maximum flake length measurement and Form Types(ASTM A 247)
 - Measurements: like length, area, radius, distance
 - Report Generation: Exports to MS Office Excel
 - Camera: 3.1 MP CMOS

3. Metallography unit
a. Abrasive cutting machine

Specifications

- Floor model cutter for Metallographic sectioning Metals, Ceramic and mineral samples
- Rust proof Steel construction
- 3HP (2.2 k.w), 3 Phase Motor
- Cutting capacity up to 60 mm(Standard size) for standard steels
- Spindle speed 2800 rpm
- Cut-off wheel dia 10 inch; (250 mm)
- Simple Control Panel with 4 Switches - Cutting, Coolant, LED light, Emergency Stop button with Door Safety Limit Switch
- Splash Proof, corrosion resistant with see through hood
- Cooling by two water jets to provide optimum cooling
- Inbuilt movable recirculation coolant tank with 50 ltrs capacity, One large drain for coolant recirculation
- 1/3 HP Coolant Pump
- Small opening in the side wall for long jobs
- Powerful LED light in the working area provides clear illumination
- T Slot Bed: 60mm x 190mm with 8mm T-Slot
- Voltage: 415V/50 Hz (R+Y+B+N+E)
- Machine Size : 850mm x 750mm x 1550mm (LxDxH)
- With start off consumables, spares and accessories

b. General purpose belt grinder

Specifications

- Table Top Model for Pre-Grinding of Metallurgical Specimen
- ½ HP Single Phase Motor , 1440 RPM
- 100mm x 915mm Endless Belt
- Aluminium Idler Pulley Mechanism
- Simplified Belt release & Adjustment mechanism
- Easy removable Dust cover system
- Power Supply : 230V / 50 Hz (1 + N + E)
- Machine Size: 560 x 350 x 250mm
- With start off consumables, spares and accessories

c. 8 inch Double Disc Variable Speed Grinder/Polisher

Specifications

- 8 inch Double Disc Polisher
- Variable speed from 50-1000 RPM
- Rigid table top corrosion proof FRP cabinet
- 0.5HP High torque Motor
- Corrosion Resistant wash bowl free flow drain
- Flexible water jet with control valve
- Aluminium Disc "Dia (Interchangeable) 2 Nos
- Holding Band 1 No
- Stainless Steel Holding Ring (Press Type) 1 No
- Power Supply : 230 V / 50 Hz (1 + N + E)
- Machine Size:710x660x310mm
- With start off consumables, spares and accessories

d. Hydraulic Specimen Mounting press

Specifications

- Corrosion resistant steel Cabinet with built in Hydraulic system
- Individual pump and Cylinder
- Manual operation system
- Digital Temperature Indicator and digital timer
- Stainless steel body Pressure Gauge system
- Quick Ram return to speed up reloading
- 1600 Watt mould Heater
- Dovetail slot for easy changeability of Mould Assemblies
- Water Cooling System (manual)
- Timer-Buzzer indication for heating and cooling cycles
- Wide range of sample sizes can be accommodated
- Provision to accommodate 1 ½ " & 2" Mould Sizes
- 1¼" comes with the machine as a standard
- Power supply : 230V / 50Hz (1 + N + E)
- Machine Size: 490 x 620 x 590 mm
- With start off consumables, spares and accessories

4. Muffle Furnace

Specifications

- The body of the Furnace would be made out of 14Swg M.S. Sheets and supported by angles
- Insulation: The furnace shell should be lined by superior quality of bricks sufficient thickness to minimize heat loss.
- Door: A heavily Insulated door rested on heavy hinges movable on sides would be provided
- Thermocouple : CRVAL type to be placed at the center of the chamber to read the actual temperature
- Chamber Size : 150 mm height x 150 mm width x 300 mm depth
- Operating Temperature : 900 Deg C
- Maximum Temperature : 1000 Deg C
- Mains : 230 Volt
- Rating : 4 kW
- Heating Element : By Kanthal A-1
- Lining : By Refractory Bricks
- Temp -Control By : Automatic Temperature
- Controller with PID action
- Timer 999 minutes
- Control Panel Consists of Automatic Temperature
- Indicator, Contactor, on/off switch etc

