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| <br>IIT PALAKKAD | भारतीय प्रौद्योगिकी संस्थान पालक्काड<br><b>Indian Institute of Technology Palakkad</b><br>अहलिआ एकीकृत कैम्पस, कोज़िपारा<br>Ahalia Integrated Campus, Kozhipara<br>पालक्काड- 678557<br>Palakkad – 678 557 | दूरभाषसंख्या/ Phone no:<br>04923 – 226300/590/586<br>ईमेल/ Email :<br>purchase@iitpkd.ac.in |
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Ref No: IITPKD/MECH/PSM/125/2017

Date: 28.02.2018

Due Date of the tender: 15.03.2018 @ 3 PM

**TENDER FOR INVITING QUOTATIONS**

Dear Sir,

On Behalf of Indian Institute of Technology Palakkad quotations are invited for “**80 kW Eddy current dynamometer (Water Cooled) for Engine Applications**” confirming to the specification in the Annexure.

- 1. 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.
- 2. 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.**
- 3. 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.
- 4. The Quotations** should be valid for **sixty days** from the due date and the period of delivery required should also be clearly indicated.
- 5. Local Firms:** Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
- 6. 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.
- 7. Goods** shall not be supplied without an official supply order.

8. **Custom Duty:** Custom Duty which will be paid at a concessional rate against duty exemption certificate. The price indicated should be CIF/CIP Kochi.
9. **Concessional GST@ 5% will be paid extra against Government Notification No.47/2017, dated 14.11.2017**
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](mailto:purchase@iitpkd.ac.in).
12. **Delivery Period:** The quotation should indicate clearly when delivery and installation to be made.
13. **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.**
14. **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.
15. **Loading and unloading charges will be borne by the supplier.**
16. **Warranty:** Warranty Clause should be indicated clearly.
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,



Registrar, IIT Palakkad

Encl: Specifications

## SPECIFICATION SHEET FOR 80 kW EDDY CURRENT DYNAMOMETER

1. Eddy current dynamometer (Water Cooled)
  - Rated absorption power = 80 kW
  - Maximum torque = 160 Nm
  - Maximum torque at speed = 3000 RPM
  - Maximum speed = 12000 RPM
  - Torque measurement precision =  $\pm 0.25$  FS%, 0.1 Nm resolution.
  - Speed measurement precision =  $\pm 0.5$  FS %, 1RPM resolution.
  - Reaction type torque sensor to measure torque, having 2 mV/Voutput.
  - 60 – 2 Tooth wheel with magnetic pick up sensor to measure speed.
  - Torque calibrating arms.
  - Magnetic heavy duty water strainer filter. Water flow switch
  - MS Shaft guard, openable with hinges.
  
2. Dynamometer controller  
PC Based Dynamometer Data Acquisition & Control system, Floor standing control panel PC Based Control Panel, consisting of:
  - Dynamometer Control Circuit.
  - Constant Speed Mode – N.
  - Constant Torque Mode – T.
  - N / T Mode Selector switch.
  - Interlock with Temp Sensor & Water
  - Terminals, connector, Mains isolator.
  - PC based set up, PCI Card with necessary Digital & Analogue.
  - Inputs & outputs, Engine TEST software developed using National Instruments LAB VIEW, Facility to View / Print observation table and save the acquired data of Torque (Nm) & Speed (RPM), Mechanical Power of Engine, Temp Measurement Data in Tables & Graphs for Torque - Speed, Power - Speed, Power - Torque, Temp – Torque or Custom Curves, etc. in MS Excel format.
  - Torque, Speed, HP/KW, All temperature displayed on monitor & stored in tabular & graph formats in MS Excel.
  - Auto/Manual selector switch. (Manual Mode is redundant to Auto Mode.
  - Mode. In case PC system for Auto mode fails, Dynamometer still can be operated in Manual mode
  - Manual Dynamometer control should be available.
  
3. Cable loom with conduit of 15m length with all accessories.
4. Engine starting system with starter.
5. Throttle actuator with potentiometer.
6. Shut down actuator.
7. T'slot bed for engine mounting with mechanical jacks
8. Gravimetric fuel consumption unit
9. Installation: Installation, Mounting & Erection, Wiring, Commissioning and necessary civil work etc. will be done by the supplier.

### **Qualification Requirements**

Only those bidders fulfilling the following criteria should respond to the tender.

1. The bidder should be either an Original Equipment Manufacturer (OEM) Eddy Current Dynamometer or should be an authorized representative (provide documentary proof) of an OEM.
2. The bidder should be a company registered under the Companies Act, 1956/2013 OR a Limited Liability Partnership /a registered partnership firm OR a sole-proprietorship entity. Appropriate Registration incorporation certificate must be submitted.
3. The bidder must have a registered office in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh/Maharashtra or Kerala. Certificate of registration for the offices to be provided.
4. The bidder must also have a service center in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh or Kerala. Certificate of registration for the centers to be provided. Details about scope of service activities provided by the service centres must be provided. The contact details of the service engineers must be provided.
5. The bidder must be in existence in the business of supplying Eddy Current Dynamometer for a minimum period of 5 previous financial years (before or since 01 April 2012). Documentary evidences of experience must be provided.
6. The bidder should have implemented orders of Eddy Current Dynamometer during previous three financial years (01 April 2014 – 31 March 2017). Copies of the most recent purchase orders and certificates of successful implementation must be included. Copies of financial statements or evidence of turnover must be furnished.
7. The bidder should have documentary evidence of having supplied at least 3 No. of Eddy Current Dynamometer to a Centrally Funded Technical Institution (e.g., IIT, NIT, IISc, IISER, etc.) or premier automotive industries in the recent past. The bidder must provide a certificate of satisfactory performance of the supplied equipment from the institute to which they have recently supplied. Contact details of the faculty-in-charge of the installed setup must also be provided.
8. Compliance sheet for the technical specification and OEM Brochure have to be attached along with the Technical bid. Vendor has to fill the compliance sheet and mention page number or reference number in OEM brochure. Unfilled / partially filled sheets lead to disqualification.
9. The bidder must provide detailed specification of each equipment/item. Model numbers, data sheets and brochures must be included for all equipment quoted, system and all accessories. Specifications corresponding to quoted model number must be available publicly via OEM's website for scrutiny. If not, bid can be disqualified on technical grounds.
10. Service and warranty for a minimum period of three years for the equipment must be provided. AMC for additional three years must be quoted separately.