

Indian Institute of Technology Delhi
Centre for Energy Studies

NOTICE: INVITING QUOTATION

Date: 07.10.2013

Due date: 21.10.2013

Sealed quotations are invited for the item "**Eddy Current Dynamometer for IC Engine**" and technical specifications of the item are given below. The quotations should be submitted in a sealed cover (separate bids: technical and commercial) to Dr. K. A. Subramanian, Associate Professor, Room No.414, Block V, Centre for Energy Studies, Indian Institute of Technology Delhi, Hauz Khas, New Delhi-110016 on or before **21.10.2013 (Monday)**. The late submission will not be entertained. The item consists of two major components; (1) Eddy current dynamometer and (2) Dynamometer control system.

Application of eddy current dynamo meter : Single cylinder diesel engine
(Max. power: 7.5 bhp @ 3600 rpm,
Max. Torque: 18 Nm @ 2400 rpm)

The detailed technical specifications of the item are given below;

Technical specifications

(1) Eddy Current Dynamometer

- (i) Operating power : ≥ 10 kW
- (ii) Operating speed : ≥ 6000 rpm
- (iii) Operating torque : ≥ 40 N-m
- (iv) Accuracy of torque : ≤ 0.4 of Full scale torque
- (v) Accuracy of speed : ≤ 1 RPM
- (vi) Dynamometer shaft rotational direction : Bi-directional (The Dynamometer should be suitable for absorbing and measuring power in both directions of rotation)
- (vii) Dynamometer must consist of cooling liquid filtering unit, water pressure indicator, and flow control valves.
- (viii) Dynamometer should meet the above mentioned engine's power and torque range.
- (ix) Dynamometer should be supplied with Calibration unit which comprises of calibration arms, weight pan assembly, and set of calibration weights.

(2) Dynamometer Control System

- (i) Mode of operations : Multi mode operation such as Constant Torque Mode, Constant Speed Mode
- (ii) Digital display parameters : Torque in N-m, Speed (RPM), Power (kW) etc.

- (iii) Torque display accuracy : ≤ 0.4 % of Full Scale Torque.
 - (iv) RPM display accuracy : ≤ 0.4 % of Full Scale RPM
 - (v) Safety Trip features : Low Cooling Water Pressure, High Water Outlet Temperature, Engine Overload Setting, Various messages and safety alarms etc.
 - (vi) Operating voltage : 0 to 12V DC
 - (vii) Power supply : 220 - 230 V AC; 50 Hz
 - (viii) Dynamometer control unit should be fitted on rigid panel cabinet.
- (3) Accessories : Cardan Shaft and Safely Guards including Universal joint
 - (4) Warranty : 1 Year standard warranty and 2 Years extended warranty.
 - (5) Any proof (PO/Invoice) of past selling of the similar Dynamometer to at least two OEMs/Institutes/Organizations should be provided.

Note: The Dynamometer should preferably be certified by the National/International agency.

Terms and conditions covering submission of quotations

1. Please submit the TECHNICAL and FINANCIAL bids in two separate sealed envelopes. Mark the two envelopes clearly as "Technical Bid" and "Financial Bid". Both the sealed envelopes should be sent in a single sealed envelope, with clearly marked as "Quotation for -----". The quote should reach the following address on or before (date: 03.10.2013) up to 5.30 P.M.
 Name:
 Address:
2. Price quoted: The rates quoted must be FOB/CIF IIT Delhi, inclusive of Installation charges.
3. Quote should be in Indian Rupees as well as US Dollars and to be valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India.
5. If the quote is being submitted by the representative of the principals/manufactures themselves, a valid Agency ship/Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of the Principals should be enclosed.
6. Complete set of manuals for the operation and servicing of equipment should be given. All circuit diagrams, other mechanical and electrical schematics must be provided to main unit, sub systems and accessories.
7. Spare set: - A complete set of spares and consumables should be supplied for three years of trouble free operation.

8. Clearly specify the installation requirement – such as space, power, frequency, environment (Temperature and humidity) etc.
 9. If the items quoted are proprietary in nature, please enclose proprietary certificate from the principals stating “certified that ----- is a proprietary item of M/s. ----- and no other manufacture make these items”.
 10. If the bidder is Indian agent, the agency certificate should be enclosed.
 11. Please produce compliance certificate for the specification.
 12. Delivery period: 4-6 weeks on receipt of PO.
 13. Authority of IIT Delhi reserves the right to reject any or all quotations without assigning any reasons.
 14. Validity of quotations: Quotations will be considered valid for 3 months from the date of receipt unless otherwise stated.
 15. Correspondence: No correspondence regarding acceptance or rejection of a quotation will be entertained.
 16. Samples: Samples when asked for will invariably be made available and sent along with the quotations.
 17. Method of submission: Quotations should be sent in a sealed cover, indicating of OUR N.I.Q. REFERENCE NUMBER AND DUE DATE FOR OPENING as otherwise these will not be considered.
- The envelope must contain two SEPARATE bids:
- (i) Commercial bid
 - (ii) Technical bid
18. Rejection: The quotation not conforming to the set procedures mentioned above will be rejected.
 19. Discount/Rebates: Special discount/rebate wherever admissible keeping in view that the items are being supplied to an Educational Institution of National importance may be indicated.
 20. Excise duty (ED) exemption certificate will be provided by IIT Delhi.

Prof.T.S.Bhatti
Chairman

Prof. M.G.Dastidar
Member

Dr. Ashu Verma
Member

Dr. K.A. Subramanian
Member