

Indian Institute of Technology Delhi

Centre for Energy Studies

NOTICE: INVITING QUOTATION

Date: 18.07.2013

Due date: 1.08.2013

Sealed quotations are invited for the item "**Gas mass flow meter for internal combustion engines**" 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 **1.08.2013 (Thursday)**. The late submission will not be entertained.

Item name : Gas mass flow meter for internal combustion engines

Technical specifications

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|---------|---|---|
| (i) | Application | : Internal combustion engines |
| (ii) | Working fluid/gas | : Hydrogen |
| (iii) | Flow meter principle | : Coriolis flow |
| (iv) | Flow meter major components | : Flow sensor and Transmitter |
| (v) | Gas flow rate range (Hydrogen) | : 0.5 to 5 kg/hr (Working range) |
| (vi) | Mass flow accuracy | : $\leq 2\%$ at minimum flow rate and $\leq 0.4\%$ at maximum flow rate |
| (vii) | Mass flow repeatability | : $\pm 2\%$ of rate |
| (viii) | Operating pressure | : 3 bar Absolute |
| (ix) | Maximum pressure | : 50 bar Absolute |
| (x) | Flow line size | : 1/6" to 1/4" |
| (xi) | Operating temperature range | : 0°C to 50°C |
| (xii) | Maximum operating temperature | : 80°C |
| (xiii) | Humidity | : 10 – 90 % RH |
| (xiv) | Transmitter display | : LCD |
| (xv) | Output Interface | : Modbus (or) RS 232 |
| (xvi) | Operating voltage | : 220.... 260 VAC, 50-60 Hz |
| (xvii) | Configuration facility | : Flow meter should be configurable through display |
| (xviii) | Software for parallel monitoring and recording the data | : For trouble shooting, configuration, data logging and communication with PC |

- (xix) Extra accessories : All necessary subcomponents such as RS 232 convertor, power supply cables, adapters, connecting tubes, electrical cables, housings, mounting kit, couplings etc. should be provided
- (xx) Warranty : 1 Year standard warranty and 3 Years extended warranty.
- (xxi) The flow meter should be certified by the National/International agency.
- (xxii) Any proof (PO/Invoice) of past selling of the similar flow meter to at least two OEMs should be provided.
- (xxiii) Detailed technical specification including calibration chart should be provided.

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: 1.08.2013) 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

Dr.Vamsi K. Komarala
Member

Dr. Ashu Verma
Member

Dr. K.A. Subramanian
Member