



CENTRE OF PROPULSION TECHNOLOGY (CoPT)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI – 600036, INDIA

Ref. No. GE/ASE/1617/136/SRCH/007

Date: 04.04.2018

Due date: 19.04.2018

Item name: FLUE GAS ANALYZER - 1 No.

1. Quotations are invited in a **two bid system** for the items shown overleaf (in Annexure I). The offers / bids should be submitted as Technical bid and Financial bid separately. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and Financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Tender for supply of “FLUE GAS ANALYZER” should be written on the left side of the Outer bigger cover and sealed.
2. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
3. The total cost of the equipment in terms of CIP Chennai should be clearly mentioned.
4. Terms of warranty and guarantee should be explicitly mentioned.
5. Packing and delivery charges, customs and clearance duty should be clearly stated.
6. Goods shall not be supplied without an official supply order.
7. Local firms : Quotations should be for free delivery to this institute. If quotations for ex-godown delivery charges should be indicated separately.
8. Firms outside Chennai: Quotations should be for F.O.R. Chennai. 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.
9. IIT Madras is eligible for concessional rate of GST 5%(for purchase of materials and equipment used in research). Concessional GST certificate will be issued along with purchase order.
10. The rate of sales / general taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for sales / general taxes will be admitted at any stage and on any ground whatsoever.
11. Payment : Specify the mode of payment and if advanced payment has to be made. Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.
12. IIT Madras is eligible for concessional rate of customs duty. Necessary certificate will be issued on demand.
13. IIT Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.
14. The sealed quotation may be sent to
The Purchase Manager,
CoPT OFFICE, NCCRD Building
Behind Aerospace Engineering Dept., IIT Madras
Chennai – 600036, Ph. (O) +91-44-22579863



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Main requirements and specifications for Flue gas analyzer

1. Gas analyzers from reputed manufacturers are entertained.
2. Quantity - 1 No.
3. Efflux gases from burning Jet A-1 fuel will be fed to the analyzer. So the analyzer should be calibrated accordingly.
4. Power supply unit of 230V is required.
5. Pressure regulator is required since the inlet flue gas pressure can go up to 1.8 barg.
6. The entire unit should come inside a cabinet.
7. All the gas measurements shall come as 0 to 10 V or 4 to 20mA output, this output signal will be connected to NI data logger.
8. Labview interface is desirable.
9. Gas Dryer Unit (water condensation by rapid cooling) is required.
10. Particulate filter unit is required.
11. Gas probe not required, the interface will be a 6mm PU fitting.
12. Required spare parts shall be provided.

Gases to be measured	Range Resolution	Accuracy*
O ₂ – Oxygen	25.00% 0.01%	± 0.01% abs. or 5% rel.
CO – Carbon monoxide	20 000ppm 1ppm	± 5ppm abs. or 5% rel.
CO ₂ – Carbon dioxide	25% 0.01%	± 0.05% abs. or 5% rel.
NO – Nitric oxide	5 000ppm 1ppm	± 5ppm abs. or 5% rel.
NO ₂ – Nitrogen dioxide	4 000ppm 1ppm	± 5ppm abs. or 5% rel.
N ₂ O – Nitrous oxide	5 000ppm 1ppm	± 10ppm abs. or 5% rel.
Un-burnt or Volatile hydrocarbons	1 000ppm 1ppm	± 5ppm abs. or 5% rel.
SO ₂ – Sulphur dioxide	5 000ppm 1ppm	± 5ppm abs. or 5% rel.

*accuracy: abs - absolute, rel - relative.

Additional requirements:

1. Three -year onsite warranty should be provided after installation and commissioning of the testing facility. Technical support personnel should visit the testing facility (within a week after the complaint) to attend any break down or malfunction of the testing facility during the warranty period. Assurance in this connection should be provided by the vendor. All the expenses for installation, training and post sales technical support will be borne by the vendor. Vendors must provide free training to our technical staff for using the equipment.
2. Vendors should provide continuous technical support and maintenance of equipment.
3. Manufacturer should be in a position to supply the compatible accessories on demand for the next 15 years after the installation of the testing.



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4. Vendors will be called to visit and give presentation/demonstration on the equipment after the supply. They need to provide the approximate date for this presentation.
5. Vendors must provide detailed documentation for the equipment, including calibration certificate, design certificate.
6. Vendor should have authorised service centre in India to attend problems in the Gas analyser during and after warranty period.

Contact person details for technical clarifications:

MR. BALA DANDAYUTHAPANI

Email: baladandayuthapani@yahoo.com