

Indian Institute of Technology, Kanpur
Civil Engineering Department

Request for Proposal

The Director, Indian Institute of Technology Kanpur (IITK) invites proposal in single bid (technical & financial) format from reputed firms as follows: -

Sl. No.	Name of Work	Last Date and Time for submission of tender	Date and Time for opening of Technical Bid
1.	Design, Testing, Supply, Guarantee, Documentation and Delivery of Thermal mass Flow Meters and accessories as per Scope of supply covered in Part-I and Technical specifications covered in Part-II of this document for National Aerosol Facility at IIT, Kanpur	21.06.2018 upto 1700 Hrs Revised 27.06.2018 upto 1700 Hrs	22.06.2018 at 1500 Hrs Revised 28.06.2018 upto 1700 Hrs

The firms with at least three years relevant experience in above said work are eligible to participate. The proposal duly completed in all respect should be submitted in sealed cover duly marked, so as to reach undersigned on or before **1700hrs on 21.06.18 (extended upto 27.06.2018)**. The tender document with eligibility criteria and other details may be downloaded from www.iitk.ac.in. The Institute reserves the right to accept or reject any offer or all the offers without assigning any reasons thereto.

No. CE/NAF/2018-19/0306, dated: 30.05.2018

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SPECIFICATIONS FOR FLOW METERS

PART-I: SCOPE OF SUPPLY:

Design, manufacture, inspection, testing, delivery and guarantee of Thermal Mass Flow Meters with necessary accessories as follows. Each flow meter shall be supplied with individual detailed test reports, operating & maintenance manuals.

Sl. No.	ITEM	QUANTITY
1	Helium Thermal Mass Flow Meter (size 15NB) (FM-0101)	2
2	Helium Thermal Mass Flow Meter (size 25NB) (FM-0102)	2
3	Air Thermal Mass Flow Meter (size 15NB) (FM-0103)	1
4	Air Thermal Mass Flow Meter (size 25NB) (FM-0104)	2

PART-II: TECHNICAL SPECIFICATIONS OF THERMAL MASS FLOW METER

1.0. Technical Specifications:

1.1 Type: In-line and/or insertion type thermal mass flow meter with temperature and pressure compensation.

1.2 Pipe Size: Refer to Table – 1

1.3 Flow Ranges & Quantity: Refer to Table – 1 (**Min measurable flow to be mentioned**).

1.4 Medium: Air/Argon/Helium. Interface shall be provided to select the required gas through configuration of the meter.

1.5 Upstream Pressure: 1.0-5.0 bar a

1.6 Downstream Pressure: 1.0-5.0 bar a

1.7 Medium Temperature: -40 to 65 °C

1.8 Environment Temperature: -40 to 50°C

1.9 Relative Humidity: 5% to 90%

1.10 Power Supply: 24VDC±10%, ≥350mA or 220VAC±10%

1.11 Output: 4-20mA load resistance ≤600Ω

1.12 communication output: RS-485, MODBUS, HART

1.13 Power dissipation <8W

1.14 Display: Instant & Cumulative Flow. Flow unit shall be selectable.

1.15 Accuracy: ±0.5% of FS Value.

1.16 Rangeability: Refer to Table – 1 (**Min measurable flow to be mentioned**)

1.17 Enclosure: Explosion-proof Flame-proof: Exd II CT3

1.18 Water-proof quality: Spraying protection type IP65

1.19 M.O.C (Wetted Parts): SS 316 (or) bidder to specify

1.20 Setting on-site facility: shall be available----suited for all occasions and revise on-site according to different composition gas.

1.21 Documentation: Vendor has to supply Calibration Certificates along with Instruction and Maintenance Manual for each of the instrument being supplied.

TABLE-1

Sl. No.	Tag No.	Flow Meter Range (SLPM)*	Fluid	Line Size	Qty.	Remarks
1	FM-0101	1.5-60	Helium	15 NB	2 no.	Vendor to provide the usable range for Ar & Air
2	FM-0102	30-1200	Helium	25NB	2 nos.	Vendor to provide the usable range for Ar & Air
3	FM-0103	1.5-60	Air	15NB	1 no.	Vendor to provide the usable range for He & Ar
4	FM-0104	30-1200	Air	25NB	2 nos.	Vendor to provide the usable range for He & Ar

**Vendor should clearly specify the flow ranges and minimum measurable flow for the flow meter being offered by the vendor. A vendor also can quote for multiple options (with different offered flow ranges) with separate prices for each options. All the options will be evaluated separately.*

2.0 INSPECTION:

2.1 Pre-dispatch inspection at supplier's factory:

The facility for pre-dispatch inspection / testing for each transducer/transmitter shall be available with the supplier. Inspection of the transmitters shall be carried in presence of purchaser's representative at the supplier's factory.

The test results shall be approved by the inspector, after witnessing the test. This includes the tests for all the requirements mentioned in the above specifications. i.e.

- 1) Calibration check at rated temperature
- 2) Over pressure test
- 3) Power supply effect
- 4) Span & Zero adjustability if any

2.2 Pre-dispatch Test/inspection at NPL/IDEMI:

The suppliers, without test facility, shall arrange the testing of the each transducer/transmitter for the above mentioned tests at any of the national laboratories like NPL, Delhi or IDEMI, Mumbai and shall produce the test certificates before dispatch.

PART-III: NOTES TO THE BIDDERS

1. The compliance statement for individual quoted flow meters shall be filled in all respects, failing this quotation will not be considered for evaluation.
2. The bidder must comment point by point on acceptability or otherwise each of the clause of specification. Any deviation between specification and offered product should refer to compliance statement and are to be clearly brought out.
3. The bidder shall indicate in his quotation the delivery schedule in terms of weeks from the date of placement of the order.
4. The prices shall be quoted on Ex-works basis and shall be inclusive of packaging charges. Taxes, duties, insurance, P&F etc. shall be clearly mentioned in the bid for all the items quoted.
5. The bidder should specify the guarantee period of the instrument.
6. The bidders should quote for the accessories separately. They should also give a list of recommended spare parts for efficient use of the instrument for about 3 years and separately quote for the same.
7. Bidder should also mention all the existing test facilities available with them in their bid.
8. The bidder shall arrange for predispatch inspection at his premises, by the purchaser or his authorized representative for functional & performance verification as specified in this document. Unless the material is released for shipment by the purchaser or his authorized representative after inspection, the material should not be shipped.
9. Purchaser reserves the option to place the order for all the items or part of it. The bidder should confirm whether the prices quoted are valid for part order also.
10. *Foreign* bidders are requested to quote in *foreign exchange* as well as in *Indian Rupees* for all the items.
11. Documentation:
 - a. The bidder should provide detailed Catalog of specified type/specification sheets etc. along with the quotation.
 - b. The bidder should provide along with each instrument an operation and maintenance manual giving construction details and test certificates.