

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 Vortex 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/2018-19/0305, dated: 30.05.2018

Dr. S.N. Tripathi,
Civil Engineering Department,
Indian Institute of Technology Kanpur.
Email: snt@iitk.ac.in
Phone: 0512-259 7845

SPECIFICATIONS FOR FLOW METERS

PART-I: SCOPE OF SUPPLY:

Design, manufacture, inspection, testing, delivery and guarantee of Vortex 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	Steam Vortex Flow Meter (size 25NB)	2 Nos

PART-II: TECHNICAL SPECIFICATIONS OF VORTEX FLOW METER

S E N S O R	1.1	Quantity	2 Nos	
	1.2	Service	Saturated/Super heated Steam	
	1.3	Tag No	FM-0105	
	1.4	Line size	25 NB	
	1.5	End Connections	Flange connection ANSI class 300	
	1.6	Body rating	10kg/cm ²	
	1.7	Max flow rate	50 Kg/Hr	
	1.8	Accuracy	±1% of reading or better	
	1.9	Linearity	±0.5% of reading	
	1.10	Repeatability	±0.2% of reading	
	1.11	Materials	Body Gasket Shedder Housing Flanges	316SS ANSI SUS316 SS SS Al alloy 316SS
	1.12	Analog O/P		4-20mA
	1.13	Enclosure class		IP65
F L U I D	2.1	Fluid	Saturated Steam/ Super-heated Steam	
	2.2	Flow Range*	1.2 to 48 Kg/Hr at 0.5 kg/cm ² and temp 200°C and 1.2 to 48 Kg/Hr at 4 kg/cm ² and temp 200°C	
	2.3	Max operating Pressure	5.5 kg/cm ²	
	2.4	Max operating temperature	250°C	
T R A N S M I T T E R	3.1	Features+	Multivariable type with built-in temp sensor Pt1000 to obtain mass flow & temp measurement. On line temp/pressure compensation Spectral Signal Processing technology (SSP) to analyze fluid conditions & sense vortices in low flow range Advanced self diagnostics to predict & indicate pipeline vibration and abnormal flow, installation errors	
	3.2	Performance Specifications		
		Accuracy		±1% of reading
		Repeatability		±0.2% of reading
		Calibration		5 point calibration & certificate to be provided from NIST traceable flow lab
	3.3	Electrical Specifications		
		Analog		4-20mA
		Transistor Contact O/P		Pulse, Alarm, Status selectable Contact rating: 30V DC, 120mA Simultaneous output for flow rate / temperature and pulse
	3.4	Communication		HART over 1.5km
	3.5	Supply voltage		24V – 32 VDC
	3.6	Functions		Damping adjustment
				Pulse O/P

		Self diagnostics & alarm O/P in case of E ² PROM error, vibration noise, abnormal flow where O/P goes from ON to OFF
		Instrument Error Corrections for Reynolds no. and gas expansion should be possible
3.7	Data security during power faillure	Data storage by E ² PROM. No back up battery required
3.8	Downscale / Upscale burn out Selection option	In case of CPU / E ² PROM failure
3.9	Indicator	LCD display Built on transmitter with excellent readability Flow rate (%/engg units) or Temp. value, totalizer can be indicated simultaneously short messages / self diagnostics full programmable parameters like flow range, Engg. Units, medium constants.
3.10	Mounting	Detector: Flange type
3.11	Degree of protection	Water tight protection IP65

Note: *(1) *The above mentioned flow range at 0.5 Kg/cm² gauge pressure and 200 °C temperature is desired. The vendor shall specify the min flow rate measurable, if it is not possible to provide this desired low flow rate.*

* (2) *The vendor shall also confirm if the same flow meter can meet the desired range at 4 Kg/cm² gauge pressure and 200 °C temperature.*

* (3) *Vendor shall clearly specify the min and max measurable flow rate at specified pressure & temp conditions.*

INSPECTION:

Pre-dispatch inspection at supplier's factory:

The following tests shall be carried out during pre-dispatch inspection at vendor's premises. This includes the tests for all the requirements mentioned in the above specifications.

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

PART-III: NOTES TO THE BIDDERS

1. The compliance statement for 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.