

Dr. Sateesh Gedupudi

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Ref: MEE/1415/651/NFSC/SATE

Dated: 25-01-2018

Limited Tender No: ME/HTTP/SAT/1718/01

Due Date: 09.02.2018, 5pm

Technical Bid opening meeting on 12.02.2018 at 3 pm

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of “High speed camera with an accessory” conforming to the specifications given in **Annexure-I** under the following terms and conditions.

General Terms and Conditions:

(i) **Preparation of Bids:** The Limited tenders should be submitted under two-bid system, i.e., Technical bid and Financial bid.

(ii) **Delivery of the tender:** The tender, duly sealed and superscribed on the envelope with the reference No., and due date should be sent to the below mentioned addresses either by post or by courier so as to reach the following address on or before the due date and time specified above.

Dr. Sateesh Gedupudi, 201, Heat Transfer and Thermal Power Laboratory, Department of Mechanical Engineering, IIT Madras, Chennai -600 036.

(iii) **Opening of the tender:** The offer/bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and it will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The bidders will be invited for opening of Technical bids. In respect of opening of financial bid, those bidders who are technically qualified only will be invited.

(iv) **Validity:** The Quotations should be valid for at least sixty days from the tender due date.

(v) **DGS&D:** If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.

(vi) **Literature:** Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expense.

(vii) **Lead time:** Time required for delivery after the placement of order should be specified.

(viii) **Prices:**

The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to Department of Mechanical Engineering, IIT Madras. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of tax & duties should be clearly indicated. Where this is not done, no claim for Taxes will be admitted at any stage and on any ground whatsoever.

The taxes leviable should take into consideration that we are entitled to have concessional GST, for which a concessional GST will be issued at the time of final settlement of the bill.

The price should be quoted without custom duty and excise duty, since I.I.T. Madras is exempt from payment of excise duty, and the custom duty will be paid at concessional rate against duty exemption certificate.

Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown, delivery charges should be indicated separately.

Firms outside Madras: Quotations should be for F.O.R. Madras. 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.

In case of import supply, the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.

(ix) **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.

(x) **Terms of Delivery:** - The item should be supplied to our Departments as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions in the SCHEDULE.

Goods should be supplied carriage paid and insured.

(xi) **Payment:** Every attempt will be made to make partial payment within 30 days from the date of receipt of bill /acceptance of goods, whichever is later, as per the conditions specified in the SCHEDULE.

(xii) **Technical Bid Opening:** The technical bid will be opened on **12.02.2018 at 3 pm** at the Department of Mechanical Engineering, IIT Madras and the financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.

(xiii) IIT Madras reserves the full right to accept / reject any tender at any stage without assigning any reason.

Terms and Conditions (Foreign Vendors/Suppliers):

1. The total amount indicated is Ex. Works / FOB / CIF. Madras Value.
2. The consignment to be addressed to Dr. Sateesh Gedupudi, 201, Heat Transfer and Thermal Power Laboratory, Department of Mechanical Engineering, IIT Madras, Chennai -600 036, INDIA.
2. The consignment to be dispatched by surface / Air Post Parcel / Ocean Freight / Air Freight.
4. Please send three advance copies of Invoice direct to us immediately after dispatch to avoid delay in clearance. DEMURRAGE CHARGES, IF ANY, PAYABLE ON ACCOUNT OF DELAY IN RECEIPT OF ADVANCE COPIES OF INVOICE WILL BE DEBITED TO YOUR ACCOUNT.
5. The following set of documents is required in all cases:
 - a. Complete set of Clean Bill of Lading / Airway Bill / Air or surface Parcel Receipt, showing that the goods have been shipped and freight prepaid.
 - b. Insurance Policies / Certificates in duplicate covering Marine Insurance as per Institute Cargo Clauses (All risks) and perils as per Institute Strikes, Riots and Civil Commotion Clauses, War risks as per Institute, clauses. Cover for CIF value plus 10 percent.

SCHEDULE

Important Conditions of the Tender

1. The due date for the submission of the tender is **09.02.2018, 5pm.**

The offers / bids should be submitted in two bids systems (i.e.) Technical bid and Financial bid. 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 (with the 'Technical Bid' and 'Financial Bid' written on the respective covers) should be put in a bigger cover. "The Limited Tender for supply of High speed camera with an accessory (with the ref. no. or tender no.)"** should be written on the left side of the outer bigger cover and sealed. The bidder should also enclose a copy of this invitation to tender (Terms and Conditions, SCHEDULE and Annexure-I) with the SCHEDULE signed.

2. **Performance Security:** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank of India will be an acceptable.

Only after submission of Performance Security, Purchase Order/Work Order will be released / L.C will be opened.

Performance Security in the form of Bank Guarantee:- Incase the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

3. If an Indian agent is involved, the following documents must be enclosed:

- (i) Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
- (ii) Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
- (iii) The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.

4. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.

5. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.

6. Documentary proof for the claimed position and repetition accuracies must be obtained from the principals and submitted along with the relevant pages of the standards.

7. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.

8. **Validity:** Validity of Quotation not be less than 60 days from the due date of tender.

9. **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.

10. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.

11. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).

12. **Advance Payment:** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.

13. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras.

14. **Warranty/Guarantee:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately. (for more details please refer our Technical Specifications in ANNEXURE-I).

15. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.

16. **Acceptance and Rejection:** - I.I.T. 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.

17. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

18. **Disputes and Jurisdiction:** -

a. **Settlement of Disputes:** Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first

instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate one arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceedings shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai..

b. The Applicable Law: This Purchase Order shall be construed, interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.

c. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

19. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement:- It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

ANNEXURE-I

1. Specifications of High Speed Monochrome Camera to be used primarily for visualizing two-phase flows in a microchannel:

SL No	Parameter	Specification	Comments
1	Resolution	Minimum 1280 x 1024 pixels (Full resolution of 1.3 Megapixel) at 2000 fps.	
2	Frame rate	At least 2,000 fps at max resolution (1.3 MP) and 160,000 fps at reduced resolutions*	
3	Sensor	CMOS Monochrome	
4	Image Memory	Minimum 4 GB	Should be upgradable up to 32GB
5	Output	12 bit ADC	
6	Pixel Size	10 μm x 10 μm	
7	Light Sensitivity	Minimum of ISO 6400 (as per ISO 12232)	The Sensitivity is excluding IR response
8	Shutter Speed	Global electronic shutter variable down to 4 μs	Independent of frame rate
9	Camera Control	High Speed Gigabit Ethernet	
10	Ruggedization	Suitable for operation in high shock environments(tested at 100G, 10ms, 6-axes during operation)	
11	Recording	Manual and external trigger	
12	Triggering	Selectable positive or negative TTL 5Vp-p or switch closure	
12	I/O	Input: Trigger (TTL/Switch), Sync, Ready, Event, IRIG Output: Trigger, Sync, Ready, Rec, Expose	
13	Recording Modes	Start, End, Center, Manual and random recording	
14	Operating temperature	Up to 40°C	
15	Cooling	Cooling provision to maintain the camera within the	

		operating temperature range	
16	Weight	Maximum 1.5 Kg	
17	Lens mount	Interchangeable C-mount and F-mount with adapter	
18	Control software	Software compatible with Windows7/8/8.1/10	Compatible with Matlab and LabVIEW
20	Video	Ability to zoom, pan and scroll within image via keypad. Livevideo during recording.	
21	Saved image formats	BMP, TIFF, FTIF, RAW, JPEG, PNG, AVI, MOV. Images can be savedwith or without image or comment data.	
22	Timing	Internal clock and external source	
24	Data display	Frame rate, Shutter speed, Trigger Mode, Date or time, status, real time, frame count and resolution	
25	Partitioning	At least 8 segments memory for multiple recording in memory	
26	Power	Compatible with 220 V AC 50-60 Hz or DC power supply	
27	Ability to record variable region of interest		
28	Phase locking capability to be precisely synchronized to an external source such as IRIG time codes		
29	Low light mode capability to increase frame rate and shutter speed to maximum values to position and focus the camera		
31	Event Marker option to mark specific event in the image sequence in real time and immediate access through software		
33	Warranty – Minimum 1 year. Extended warranty and charges can be specified. AMC charges should also be specified.		

2. Accessory:

Tender shall clearly indicate the details and pricing information of the following accessory **separately**.

Lens - 12x with 12mm fine focus with 0.5x attachment, 1x adaptor and C-mount.

Installation & commissioning:

The camera shall be installed and commissioned at our site for free of cost by a company specialist and suitable trails shall be undertaken along with the startup training excluding commissioning hours.

Experience:

In order to get confidence of “after-sale service” of an agent/ supplier, we require that supplier/Indian agent should have had the experience of more than 10 high speed camera installations across India in reputed research organizations and CFTI (centrally funded technical institutes) academic institutes (such as IITs or IISc or IISERs or NITs across India) in last 5 years. Evidence for the same should be presented.