



भारतीय प्रौद्योगिकी संस्थान मद्रास चेन्नै 600 036
INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036
 भंडार एवं क्रय अनुभाग
STORES & PURCHASE SECTION
 दूरभाष: (044) 2257 8285 / 8286 / 8287 / 8288 फैक्स: (044) 2257 8292 / 2257 8082
 Telephone : (044) 2257 8293, 8287, 8285, 8286
 email ID- adstores@iitm.ac.in



A.V. Sudarsanam

Dated : 13.02.2015

Deputy Registrar (Stores & Purchase)

Tender No. SPS / ME / 006 / 2014 - 15 / SPL

**Due Date: 06.03.2015
before 3.00 p.m**

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, I invite you to tender separately for supply of each of the following item:

Sl. No.	Item
1.	Constant Temperature Hotwire Anemometer (CTA) Systems
2.	Mini LDV System
3.	CW Fibre Laser (300W-500W)

confirming to the specifications enclosed.

A.	LAST DATE for receipt of Tender	: 06.03.2015 before 3.00 p.m
	Submission of Tender	<p>: Both Technical Bid & Price Bid should be in separate cover with specification on the cover as "Technical Bid" & "Price Bid" as the case may be for each and every item separately.</p> <p>Both the independent covers for each item should be placed in one separate big cover and sealed with the superscription on the left hand side OPEN TENDER FOR SUPPLY OF i) Constant Temperature Hotwire Anemometer (CTA) Systems ii) Mini LDV System ; iii) CW Fibre Laser (300W-500W) mentioning the name of the item due on 06.03.2015 at 3.00 p.m.</p> <p>The tender cover should be sent to:</p> <p>Ms. V.G. BHOOMA, IRPS REGISTRAR INDIAN INSTITUTE OF TECHNOLOGY MADRAS CHENNAI-600 036</p> <p>Right is reserved to ignore any tender which fails to comply with the above instructions. Tender should be sent either by REGISTERED POST ACKNOWLEDGEMENT DUE OR THROUGH MESSENGER. If the Tender is sent through Messenger, the same has to be dropped in the TENDER BOX marked Stores & Purchase kept for this purpose in the STORES & PURCHASE SECTION (3rd Floor of Administrative Building) before 3.00 PM on due date 06.03.2015.</p> <p>If it is by post (Registered Post or Speed post only) the same should reach before 3.00 p.m. i.e on the last date 06.03.2015 otherwise it will be summarily rejected.</p>

			<p>THE INSTITUTE SHALL NOT BE RESPONSIBLE FOR THE LATE RECEIPT OF TENDER ON ACCOUNT OF POSTAL OR ANY OTHER DELAY. THE TENDER BOX WILL BE CLOSED EXACTLY AT 3 P.M. ON 06.03.2015 SHARP.</p>
B.	Earnest Money Deposit (EMD)	:	<ul style="list-style-type: none"> ☞ EMD @ 2% of the equipment value quoted has to be paid along with the tender for each and every item separately by way of Demand Draft only. ☞ To be calculated based on the highest value quoted, among all configurations, by the bidder. ☞ Performance guarantee @3% of the equipment value quoted in addition to above 2% EMD has to be submitted by way of bank guarantee by the successful bidder only. ☞ Demand Draft may be drawn in favour of "The Registrar, IIT Madras" payable at Chennai. ☞ The EMD should be put in a separate cover and should be enclosed in the technical bid cover only, else the bid is likely to be rejected due to non- enclosure of EMD. The EMD cover will be opened along with the commercial bid only after technical \ evaluation of the bids
C.	Marking on Technical Bid	:	<ul style="list-style-type: none"> ➤ For each item/configuration separate Technical Bid envelope should be used. ➤ The technical bid cover of each and every item should clearly be marked with the item name. ➤ The technical bid covers of each and every item should be put in separate one big cover superscribed "Technical Bid" for – Item Name ➤ All technical bid should have the page-wise heading as "Technical Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.
D.	Marking on Price Bid	:	<ul style="list-style-type: none"> ➤ For each item/configuration separate Price Bid envelop should be used. ➤ The price bid cover of each and every item should clearly be marked with the item name. ➤ The price bid covers of the various items should be put into one big cover superscribed "Price Bid". ➤ All financial bid should have the page-wise heading as "Financial Bid" and page no. in all pages with seal and signature of authorized signatory. The total no. of pages should be mentioned at the last page of the documents.
E.	Agency Commission		<ul style="list-style-type: none"> ➤ The financial bid should clearly state (below the total price quoted) if the quoted amount includes agency commission. ➤ If yes, state the percentage of commission. ➤ This will be paid in INR only after satisfactory installation. ➤ The quote value + agency commission, if any, will be taken for comparison purpose.
F.	Tender document fee		<ul style="list-style-type: none"> ➤ The tender document fee of Rs.525/-(inclusive of VAT @ 5%) (Non-refundable) for each and every item should be drawn in the form of DD (obtained on or after the date of advertisement) in favour of "The Registrar, IIT Madras" payable at Chennai, and the same should be enclosed only in the technical bid cover. ➤ No separate tender documents will be issued by us. The same can be downloaded from our institute website: http://tenders.iitm.ac.in
G.	For all the imported components		<ul style="list-style-type: none"> ➤ Quote should be in US dollars.

2.	<p>Preparation of Tender:</p> <ul style="list-style-type: none"> a) The Schedule to the Tender form should be returned intact whether you are quoting for any item or not. Pages should not be detached and when items are not being tendered for, the corresponding space should be defaced by some such words as 'not quoting'. b) In the event of space on the schedule form being insufficient for the required purpose, you have to submit the rates in the letter head of your company clearly mentioning S.No. and other relevant particulars. Each such additional page must be numbered consecutively, bear the Tender Number and be fully signed by you. In such cases reference to the additional pages must be made in the tender form. c) If any modification of the schedule is considered necessary, you should communicate the same by means of a separate letter sent with the Tender within due date. d) You should quote your product as per our specification requirements by mentioning our requirements and your offer side by side and the rate should be in total as per our requirements. We will not make any calculation if you have mentioned the rates of items separately. e) In case, your product specification does not exactly match our requirements, you may quote for your product, but you must highlight the deviation in specification point by point. f) If you need to add any item to your system in order to meet our specification requirements, you are required to quote for your basic system separately and also to quote the total value of the system including the option required to suit our requirements. Otherwise, your tender will not be considered at all. g) Wherever applicable you are required to clearly indicate the Part No./Model No./Brand Name etc. If such details are not included, it will be presumed that your offer is not for branded item, but for generic only, and compared accordingly. h) The offer/bids should be submitted in two bid system i.e. Technical Bid and Price Bid in a separate cover. The technical bid should consist of all technical details along with catalogue, commercial terms and conditions. Financial bid should indicate item-wise price for all the items mentioned in the technical bid. i) The Technical bid cover will be first opened and evaluated. In the primary screening, technical bid of only those who satisfy the eligibility criteria will be evaluated. The Price bid of only those bidders whose technical bid is found to be technically adequate by the Committee will be opened.
3.	<p>Signing of Tender:</p> <p>The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the schedule to the Tender are not fully filled in or not duly signed/authenticated. Specific attention is drawn to the delivery dates and important conditions referred to in Annexure enclosed herewith. Each page of the tender documents required to be signed and bears the official seal of the tenderers.</p>
4.	<p>Period for which the offer will remain open:</p> <ul style="list-style-type: none"> (i). Firms tendering should note the period for which it is desired that their offers should remain open for acceptance. If the firms are unable to keep their offers open for the specified period they should specifically state the period for which their offers are being considered provided, however, the day up to which the offer is to remain open being declared closed holiday for the Indian Institute of Technology Madras, the offer shall remain open for acceptance till the next working day. (ii). Quotations qualified by such vague and indefinite expressions such as 'subject to immediate acceptance', 'subject to prior sale' will not be considered.
5.	<p>Opening of Tenders:</p> <p>You are at liberty to be present or authorize a representative to be present at the opening of the tender at the time and date specified in the Schedule.</p>

6.	<p>Prices:</p> <p>The prices quoted must be net per unit shown in the schedule and must include all packing and delivery charges and other statutory levies. Refund on account of returnable packages (if any) are to be separately specified. Price and refunds must be clearly shown in figures and worked in Indian currency. The prices quoted by the Tenderer should be inclusive of Sales Tax/VAT and other statutory levies (and should be clearly stated to be so) which will be paid by the Purchaser/if legally leviable at the rate ruling on the date of supply as specified in the Acceptance of Tender. The percentage of tax etc. included in the price should be indicated in clear terms. If the inclusive price is not given, we will treat your offered rate as inclusive rate and comparison be made with others. If at the time of comparison of your offer without taxes etc. is happen to be lowest, you are bound to supply as per the offered rate, i.e. without taxes etc.</p> <p>Hence you are requested to be careful while quoting for tender. The price should be without customs duty and excise duty since IIT Madras is fully exempted from payment of excise duties and also eligible for payment of concessional customs duty against submission of Essentiality Certificate. The customs duty will be payable / reimbursable by us at the time of clearance on production of necessary proof. Hence these duties need not be included in the price while quoting. Necessary document will be provided at appropriate time. No price revision, changes in the specification already given or changes in the terms and conditions etc. during the period is acceptable.</p> <p>We are eligible for concessional VAT/CST on submission of concessional certificate. The Institute is not authorized to issue C or D forms of Sales tax certificate. Hence VAT/CST should be charged at concessional rates as applicable to educational and research institutions run without profit motives, for which necessary certificate will be issued on demand at the time of retirement of documents/payment, wherever applicable.</p> <p>Regarding Service Tax, it is informed that as per Government of India circular reference No. 172/07/2013-ST dated 19.09.2013, the services provided to education institutions are exempted from Service Tax. Exemption certificate will be issued separately. This aspect may be taken care of while quoting for Installation charges, etc.. If the taxation authority insist for service tax inspite of Exemption Certificate, it will be reimbursed to your Company at a later date against proof of payment document.</p>
7.	<p>Terms of Delivery:</p> <p>Supply, Installation and Commissioning are required by date(s) specified in the Schedule of Tender. If, however, it is not possible for you to effect supply, installation and commissioning by the date(s), you should specify the date(s) by which you can guarantee supply, installation and commissioning in the prescribed schedule to the Tender.</p>
8.	<p>Right of Acceptance:</p> <p>The Indian Institute of Technology Madras, Chennai-600 036 does not pledge itself to accepting the whole or any part of the Tender or portion of the quantity offered.</p>
9.	<p>Communication of Acceptance:</p> <p>Acceptance by the Purchaser will be communicated by Post, if required, and the Company's acceptance communicated to us formally in writing. In case where acceptance is communicated by Telegram or letter by Speed Post, the formal Acceptance of Tender will be forwarded to you as soon as possible but the instructions contained in the Telegram or Speed Post letter should be accepted upon immediately.</p>
10.	<p>The Institute shall not be responsible for the late receipt of tender documents due to postal and or any other delay.</p>

Yours faithfully,

Deputy Registrar (Stores & Purchase Section)

Indian Institute of Technology Madras, Chennai 600 036
Stores & Purchase Section

SCHEDULE TO INVITATION OF TENDER NO	:	SPS / ME / 006 / 2014 - 15 /SPL
LAST DATE & TIME FOR RECEIPT OF TENDER	:	06.03.2015 at 3.00 p.m.
TIME & DATE OF OPENING OF TENDER	:	06.03.2015 at 4.00 p.m.

In the event of the date of opening of tender being declared a closed holiday for the Indian Institute of Technology Madras the due date for opening will be following working day.

The Tender shall remain open for acceptance/validity till: _____

S.No.	Description	Quantity	Price	
			US Dollars	In Indian Rupee

As per the eligibility criteria & specifications (page 7 to 12 at the end) and terms & conditions (page 7 to 9) at the end attached herewith

IMPORTANT TO NOTE:

1. All tender documents should be filled in signed and returned.
2. Tenderer must state categorically whether or not his offer is exact to tender specifications and indicate deviations, if any failing which his offer will be ignored.
3. Your offer should be accompanied by catalogue of the equipments.
4. Delivery should be effected within the time frame as given in Important Condition No.7
5. **FAX/Email/Telegram quotations will not be accepted.**

NOTE: ONE AGENT CAN NOT REPRESENT FOR TWO SUPPLIERS OR QUOTE ON THEIR BEHALF AT ONE TIME IN THE SAME TENDER. In case of import all the particulars required for opening Letter of Credit should be furnished in clear terms. After opening of L/C, based on our tender, no more requests for amendment of L/C will be entertained. Total inclusive price to be quoted should be in nearest Rupee (Supply, installation and commissioning at IIT Madras).

IMPORTANT CONDITIONS:

The following instructions are to be followed meticulously **FAILING WHICH YOUR OFFER WILL NOT BE CONSIDERED:**

1.	Please mention the Part No., Model No. & Make wherever required and also CST/VAT No and Area Code failing which your quotation will be rejected. All of your future correspondences including Invoices should bear the CST/VAT No. and Area Code.
2.	Withdrawal of a Model quoted is acceptable ONLY IF accompanied by a certificate from the manufacturer to that effect. Correspondence in this connection must be addressed to DR (Stores & Purchase). The offer of higher configuration in lieu of withdrawal model will be accepted only if there is no change in the price offered.
3.	Quotations should be submitted in Arrack Sealed Cover (Sealing Wax). The quotation should be typed in the space provided in the downloaded format only. No manual entries are accepted and this will be rejected at the opening stage itself. Quotes given by the tenderers in their own format/letter heads will not be considered at all.
4.	Warranty should be in clear terms. Indicate price change (if any) for extra year warranty.
5.	In case of Import, the Insurance & Freight Charges should not exceed 6% of FOB Value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-Works pricing is considered.
6.	Quotations will be accepted only from manufacturers for branded items. If they are not in a position to quote, they may authorize only one exclusive Accredited Resellers/Channel Partners/Deluxe Premium Service Partners, who may

	<p>quote along with proof for authorization.</p> <ol style="list-style-type: none"> Two bid processes (separate sealed envelopes of technical and financial bids in the cover) is open to original equipment manufacturers (OEMs) only. Each OEM can, however, nominate one third party agent (TPA) to represent them during the bidding process. Either the Indian Agent on behalf of principal / OEM or the principal itself can bid but both cannot bid simultaneously for the same item / product in the same tender. Documentary evidence for the following shall be included along with the covering letter. <ol style="list-style-type: none"> TPA shall produce authorization from the OEM they represent. OEM / TPA shall be an ISO certified company.
7.	The Vendor / Supplier / Manufacturer shall provide detailed service and users manual for the standardized components like PC, Power Supply , etc. The list is indicative and not exhaustive.
8.	<p>Delivery Period for Import & Indigenous Items:</p> <p>For Indigenous Items: Items should be delivered within a week. For Imports - Items should be delivered within a reasonable time. The actual time to be specified clearly. No further extension of time will be allowed.</p> <p>For Import Items: The order acknowledgement should be issued by Fax within 3 days, and the item should be airlifted within 15 days from the date of receipt of the Letter of Credit copy / copy of DD, as the case may be.</p> <p>Non delivery of items will lead to cancellation of Purchase Order without any notice. In addition, action may be taken for removing them from our mailing list in respect of future enquiry.</p>
9.	IIT Madras is exempted from the Payment of Excise Duty and also eligible for payment of concessional customs duty against submission of Essentiality Certificate. I.I.T. will make necessary arrangements for the clearance of imported goods at Airport. Hence, the price should not include the above charges.
10.	<p>No Advance Payment will be made for Indigenous purchase. 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. Normally for more than USD 2001, payment will be made by Letter of Credit only. 90% payment will be made initially by Letter of Credit and balance 10% will be paid only after satisfactory installation and commissioning on the same LC. Demurrage charges (if any) will be deducted from the balance 10%. Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit. In respect of Import of less than USD 2001 Wire Transfer at 90% can be made against Proforma Invoice on an undertaking from the principal that the items will be exported within 10 days. The balance 10 % will be made by wire transfer after satisfactory installation of the systems. Demurrage charges (if any) will be deducted from the balance 10%</p>
11.	Item should be commissioned immediately after receipt of item failing which legal action will be taken against the successful bidder.
12.	You must give an undertaking to the effect that “in case of downward price movements during the period, the firm promises to pass on the advantage to IIT Madras”. Your quotation will be summarily rejected, if the undertaking does not accompany the quotation.
13.	In terms of Rule 160 (ii) of General Financial Rules, 2005 the bidder shall be at liberty to question the bidding conditions, bidding process and / or rejection of its bid.

**Deputy Registrar
(Stores & Purchase)**

ANNEXURE
INSTRUCTIONS & SPECIAL CONDITIONS

(To be returned by Tenderer along with the Tender duly signed)

1.	<p>GENERAL:</p> <p>Tenderer should furnish a clear declaration as follows: We declare that I am/we are</p> <ul style="list-style-type: none"> i) Accredited Agents of the suppliers aboard; ii) Authorized Agents of the Projects & Equipment Corporation of India Ltd., iii) Eligible for import of Scientific Equipment from East European Countries; iv) Holders in stock of the stores tendered for <p>(Strike out whichever is not applicable)</p>
2.	<p>CONDITIONS OF CONTRACT:</p> <p>Printed or cyclostyled or such terms and conditions of the tenderer, not appearing in the body of the tender will not be considered as forming part of the tender. Tenderer should quote on the basis of the conditions referred to in Para of the invitation to tender and tender papers. In case these terms and conditions are not acceptable to the tenderer, he should specifically state the deviation(s) there from in the body of the tender.</p>
3.	<p>DEVIATION FROM SPECIFICATIONS:</p> <p>It is in the interest of the tenderer to study the specifications in the tender schedule thoroughly before quoting so that, if any deviations are made by the tenderer, the same are prominently brought out in the body of the tender. If you need to add any optional items to your system in order to meet our specifications, you are requested to quote for the total including the option required to suit our requirements; otherwise, your tender will not be considered at all.</p>
4.	<p>PRICE:</p> <ul style="list-style-type: none"> i) Prices must be in Rupees and Paisa if the import is from the East European Countries. For import from General Currency Area, the price may be indicated in foreign Currency (both F.O.B. & C.I.F. CHENNAI by Air/Sea). The price should be without Customs Duty and Excise Duty since IIT Madras is exempted from the payment of Excise Duties and also eligible for concessional Customs Duty against submission of Essentiality Certificate. ii) AGENCY COMMISSION [(Refer page no.2 (E))] iii) The unit prices should be for the same unit as indicated in the Schedule to tender enquiry and not for any other unit. iv) Prices quoted should be for supply, installation and commissioning in I.I.T. Madras. v) Discount, if any, should be indicated prominently. vi) Offers should normally be on firm price basis. If the tenderer cannot quote firm prices, variable prices with a ceiling have to be indicated. If the variation price be lower than the price stated in the quotation, the purchaser should have the benefit of lower price.
5.	<p>TRANSIT INSURANCE: The Purchaser will not pay separately for Transit Insurance.</p>
6.	<p>PAYMENT:</p> <ul style="list-style-type: none"> i) Payment will be made only after completion of supply, installation and commissioning of the systems to the entire satisfaction of the Purchaser. ii) If the payment is desired to be made to their Principals directly, the same will be made against Irrevocable Letter of Credit only. For more details, see the accompanying note on "Important Conditions". iii) No Advance Payment will be made either for Indigenous Purchase or Import. iv) Advance dispatch details like Invoice copy, Airway Bill No., Packing List and flight No. should be sent immediately after shipment for early clearance and also make suitable arrangements for sending Cargo Arrival Notice (CAN) in time. Demurrage charges, if any, on account of delay in receipt of above will be debited to supplier's account.

7.	TENDERER SHALL SUBMIT ALONG WITH HIS TENDER: <ol style="list-style-type: none"> I. Submission of Income Tax clearance certificate is not required. However, they have to quote their PAN No. II. Name and full address of the Banker and their swift code. III. Proof of having ISO 9002 or other equivalent certification given by appropriate authorities. IV. Proof of registration with sales tax /VAT authorities like registration number, range etc. in clear terms.
8.	EARNEST MONEY DEPOSIT (EMD): Refer page no.2 (B) <ul style="list-style-type: none"> ➤ This Earnest Money will be returned to the unsuccessful tenderers after the final disposal of the tenders. EMD will not carry any interest. ➤ The EMD along with Performance Guarantee will be retained in the case of successful tenderers till the warranty period. ➤ EMD will not be waived under any circumstances. ➤ EMD will be forfeited in the case of non-execution of the order within the due date. ➤ Non submission of EMD will lead to rejection of tender at the opening stage itself.
9.	DISTRIBUTORSHIP CERTIFICATE: Sole selling Agents/Distributors of a particular make should submit a Certificate from their Principals to the effect that they are the authorized Agents of the Manufacturers and that they are authorized to import and supply the equipment to IIT Madras.
10.	GUARANTEE: The tenderer has to declare that the goods sold to the buyer under this contract shall be of the best quality and workmanship and shall be strictly in accordance with the specifications. Tenderer should indicate the period for which the said goods/articles would continue to conform to the specifications.
11.	JURISDICTION: All questions, disputes, or differences arising under, out of or in connection with the contract, if concluded, shall be subject to the exclusive jurisdiction at the place from which the acceptance of Tender is issued.

ACKNOWLEDMENT

It is hereby acknowledged that we have gone through all the points listed under "Instructions & Special Conditions" outlined above, and those in the accompanying note on "Important Conditions", and we agree to abide by them under the penalty of permanent disqualification for Tender participation and for related penal actions for non-abidance of the conditions.

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

TERMS & CONDITIONS for Rupee quote

1.	Sales tax	IIT will issue concessional sales Tax certificate for purchase of scientific and research items. IIT is not eligible to issue "C" or "D" form. Percentage of tax if applicable- may be mentioned.
2.	Validity	Should be mentioned clearly
3.	Service charges	Extra, if applicable
4.	Freight charges	Extra, if applicable
5.	Customs duty	IIT is eligible for concessional customs duty. The necessary certificate will be issued for clearance.
6.	Excise duty	IIT is fully exempted from excise duty. The necessary certificate will be issued for clearance.
7.	Discount	Should be stated in clear terms / percentage of discount should be stated.
8.	Warranty	May be stated clearly.
9.	Payment terms	- do -
10.	Delivery period	- do -
11.	AMC	May be stated clearly.
12.	Any other details	Separate sheet may be attached.

TERMS & CONDITIONS for Foreign quote

1.	Price	Please state whether the price quoted by you is Ex-works / FOB / CIF / CIP / FCA etc. For quote received in Ex-works / FOB / FCA etc. value, for freight, insurance etc. additional 10% of quote value will be added and comparison will be made accordingly for CIF / CIP at the prevailing exchange rate on the date of opening of tender (i.e.) on 13.10.2014.
2.	Validity	Should be mentioned clearly
3.	Customs duty	IIT is eligible for concessional customs duty. The necessary certificate will be issued for clearance.
4.	Discount	Should be stated in clear terms / percentage of discount should be stated.
5.	Warranty	May be stated clearly.
6.	Payment terms	- do -
7.	Delivery period	- do -
8.	AMC	May be stated clearly.
9.	Any other details	Separate sheet may be attached.

SPECIFICATIONS

CONSTANT TEMPERATURE HOT WIRE ANEMOMETER (CTA) SYSTEM

S.No	SPECIFICATION	DETAILS
1.	Constant temperature Hot Wire Anemometer (CTA) system with necessary hardware and interface	- 4 to 6 multichannel system with built-in signal conditioners. -Temperature monitoring capability. -Interfaced through USB or LAN connection.
2.	Velocity, bandwidth and drift	3 velocity components. Bandwidth : 100-250kHz, max 400kHz Drift : 0.5 \square V per $^{\circ}$ C .
3.	Application Software	Probe calibration, acquisition of data, data conversion and data reduction capability. Adaptable with windows XP, Vista and Windows 7.
4.	Probes and probe supports	Single wire, Cross wire and three wire probes and probe supports (minimum 230mm length).
5.	Automatic hot-wire anemometer calibrator with 3-D manipulator	-Velocity range: 0.02m/s to >300m/s. -pitch, yaw, roll manipulator.
6.	3D traversing mechanism with controller.	Range: 600mm x 600mm x 600mm With Probe support holder.
7.	Coated Tungsten wire	5 μ m diameter and 3m length spool.
8.	Hot film Probes, support and related instrumentations.	Single film and Bi-directional film probes and probe supports
9.	Fiber probes , support and necessary instrumentations.	Single and Bi-directional probes and probe support.
10.	High Temperature hot-wire probe, probe support and necessary instrumentations.	Temperature withstanding capability Up to 700 $^{\circ}$ C

Technical Specification for mini-LDV – (Qty – 1 No.)

1. To be able to measure 2 components of velocity in a given flow field. The system must include provisions for add ons to measure the 3rd component of velocity if required at a later date
2. Stand-off distance in air: upto 220 mm required
3. Probe volume diameter: ≤ 300 microns at 220 mm working distance
4. Probe volume length: ≤ 3 mm at 220 mm working distance
5. Frequency shifter required for near-zero mean measurements for both components
6. Laser power: 60 – 150 mW each
7. Probe cable length: 3 m (minimum)
8. Data logger, supporting computer and software to be included in the cost
9. Power cables and connecting cables to computers to be provided
10. No alignment should be required for the 2 beams
11. Velocity range: -10m/s to 240 m/s or better
12. Lightweight probe heads of less than 2 kg each are required
13. Should work with air/gases/liquids and over temperature range of 20 to 50 deg.C
14. 3-axis traversing system should be provided with computer control
15. Accuracy in velocity measurement: 99 % or better

Additional requirements

Installation shall be part of the tender. Performance must be demonstrated after installation.

Software features:

1. Shall provide data logging ability over three components of velocity and time of arrival of the particle
<ul style="list-style-type: none">• Shall include post processing ability to output mean and other measures of the distribution
<ul style="list-style-type: none">• Shall have a provision to output raw data file from the measurement
<ul style="list-style-type: none">• To be able to interface with 3- axis traversing system to log position of the LDV

Continuous Wave (CW) Fiber Laser

Basic requirements

Emission Wavelength	:	1064nm or 1070 nm
Output Power (Average)	:	300 Watts to 500 Watts (Average Power)
Output power stability	:	$\pm 1\%$ or less
Mode of Operation	:	Continuous Wave / Pulsed mode
Beam quality	:	Single mode (Gaussian or Uniform) / Multimode
Modulation Frequency	:	30 to 50 kHz
Beam divergence	:	0.4 milliradian or less
Operating Voltage	:	220 VAC, 50 Hz
Cooling method:		Air cooled (or) Water cooled

Two sets of operating and maintenance manuals

Indicate the diameter of laser beam delivered

Other requirements (Optional)

1. Optics and other accessories for materials processing applications with their cost
2. Warranty for three years
3. Additional requirements for its up-gradation to higher powers
4. Frequency doubling to generate laser at 532 nm or 535 nm
5. Standard length of fiber and other options
6. Working (or) Room temperature
7. Life of laser at standard operating conditions

Specify the following

1. Power consumption
2. Space and other utilities required
3. After sales support