INDIAN INSTITUTE OF TECHNOLOGY MADRAS
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Prof. Soundarapandian S
Project Coordinator

Ref: MEE/SSOU/2019/LASER
Dated: 28.11.2019

Limited Tender No: MEE/SSOU/2019/LASER

Due Date: 05.12.2019, 5:00pm

Pre-Bid meeting: - Not required.

Technical Bid opening meeting on Due Date: 06.12.2019, 4:00pm

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of "**HIGH POWER LASER**" conforming to the specifications given in **(Annexure-I).**

Instructions to the Bidder

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 shall be sent to the below-mentioned addresses either by post or by courier so as to reach the following address before the due date and time specified in our Schedule:
Prof. Soundarapandian.S
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 called for.

IV. **Price:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to **Department of Mechanical Engineering.**

The offer/bid should be exclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately. IIT Madras is eligible for concessional GST and relevant certificate will be issued.

In case of import supply, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not

exceeding 5%) and the price should be quoted on EX-WORKS and CIP (stating the Cost, Insurance, Freight separately) and indicating the mode of shipment.

V. **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.

VI. **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.

VII. **Technical Bid Opening:** The technical bid will be opened on **06.12.2019, 4:00pm** 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.

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

Yours sincerely,

Prof. Soundarapandian.S
Department of Mechanical Engineering,
IIT Madras
Chennai - 600 036.

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **05.12.2019, 5.00pm.**
   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 should be put in a bigger cover. The Limited Tender for supply of "**HIGH POWER LASER"** should be written on the left side of the Outer bigger cover and sealed.

2. If an Indian agent is involved, the following documents must be enclosed:
   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.
   - ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.

3. 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.

4. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid

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

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

7. **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. If there is delay, the penalty will be @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IITM, the PO would be cancelled, and liquidated damages will be enforced.

8. **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.

9. **Payment**: -

    i. 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).

    ii. **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.

10. **On-site Installation**: - The equipment or machinery has to be installed or commissioned by the successful bidder within number of days (as prescribed by PI's) from the date of receipt of the item at site of IIT Madras.

11. **Warranty/Guarantee**: - Supplier must provide two years standard warranty for offered system. (For more details please refer our Technical Specifications -Annexure-I).

12. **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.

13. **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.

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

15. **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.

16. 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

2000W Fiber laser with field detachable and field replaceable fiber delivery cable (in field) having QBH compatible connectors and water cooled. This laser should be compatible with attachments for welding, cutting, deep engraving, micro texturing, additive manufacturing, etc. The laser power, beam spot, wavelength, pulse width and repetition rate should be adjustable. It should be compatible with inert gas, multi-sensors (camera, temperature, pressure, velocity, force, etc.). The laser will be used for multiple applications therefore it should be compatible with controller, DAQ, softwares, etc.

S No	Spec	Required Spec
	Laser emitting wavelength	940-1100 nm
	Output power	2000 W (Max.)
	Power stability	1 %
	Max. Repetition rate	5kHz
	Max. pulse width	100ns - 100 µs
	Polarization	Unpolarized, 10% DOP
	Mode of operation	CW and pulsed
	Wall plug efficiency	Minimum 30% and above
Delivery fiber specification		
	Fiber core size	Should be adjustable with fiber core size of 50 µm, 100 µm, 200 µm and above
	Numerical aperture	0.2
	Beam parameter products	Should be adjustable from 1.5 to 7 mm mrad
	Connectors	Standard QBH at both end interlock
	Maximum bend radius (static)	100 mm
	Maximum bend radius (Dynamic)	200 mm
	Length	20 m and above
Laser Mechanical Specification		
	Laser dimension (W×D×H)	Less than 500×850×200 mm^3
	Laser weight	< 75 kg
	Laser “Cold Start” Temperature	20°C
Electrical input specification		
	Operating Voltage, 3-phase	400-480 VAC, 50/60 Hz
	Frequency	50 Hz
	Maximum Power Consumption	5200 W
Cooling specification		
	Method	Tap or DI-water
	Water Temperature *always above dew point	Min - 21*°C Max – 25 °C
	Flow	10 liter/min and above
	Pressure drop	Min – 1.5 bar Max – 3.5 bar
	Chiller Cooling Capacity	2.5 kW

Delivery		
	Invoice	Should be valid for 90 days
	Deliver the laser in onsite	Should be in 6-8 weeks
Environmental specification		
	Operating temperature	15 to 35^{o}C
	Storage temperature	-15 to 65^{o}C
	Operating humidity	10 to 90% non-condensing
Dual loop laser chiller unit specification		
	Cooling capacity	< 3.3 kW
	Coolant	De-Ionized (DI) water
	Capacity (reservoir)	~ 25 liter
	Coolant flow	12 liter/min
	Electrical input	400VAC ± 10%
	Max. current consumption	< 5.5 A
Interface for laser		
	The laser should be controlled by control box for independent operation. Also, the system should be controlled using external analog and digital signals. RS485 serial communication is used for controlling and monitoring the laser via MODBUS interface.	
Safety features		
	Protective housing Visible emission indicator (with 5s delay) Remote interlock Master key actuation switch Manual reset mechanism CDRH and OSHA complaint Safety interlocks Fiber interlocks	
Technical requirements		
	The laser should be field serviceable	
	The fiber delivery must be field detachable and field replaceable with industrial standard QBH-connector at both ends.	
	The laser should be capable of processing highly reflective materials like copper, brass and Al, supplier should give warranty of laser while processing these materials.	
	The supplier must have trained service engineers to offer laser	

	system for local service support and their training certificate must be included along with technical bid for offered model.	
	The laser design should be modular to allow field repair by simply swap one of the few modules (pump module, combiner module, active fiber module, controller unit)	
	The laser diode bar should be with micro-optics pump engine design to eliminate numerous fiber splicing from the single emitter which enables the field service capability by simple optical alignment.	
	The supplier must give the reference list of their customer/user including reputed government organization, institution and industrial customers.	
	The process interlock and system interlock timing signal information should also be attached with offer.	
	Supplier must provide two years standard warranty for offered system.	
	The supplier should be able to demonstrate the laser in operation at the time of installation at our site and laser parameters such as power, frequency and pulse width variation must be clearly shown during the same time.	
	The offered system should be compatible with all industrial scale processing heads.	
	The offered laser system must be vertically integrated system where all components manufactured by same manufacturer.	
	Supplier must provide the details of electrical input in their offer with approx. weight	

	of laser system and requirement of base which the laser will be mounted is also required to be mentioned in offer.	
	Full service backup including repairing/reconditioning of the laser and chilling system should be available at least 10 years from the date of installation of laser system.	
	The laser designed should be suitable for various industrial applications such as heat treatment, welding, cutting, deep engraving, micro texturing, cladding, additive manufacturing, etc.	