

INDIAN INSTITUTE OF TECHNOLOGY MADRAS
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V.Sathyanarayanan
Senior Manager (Project Purchase)

Ref: MEE/SUSH/025/2017
Date: 17th August 2017

Open Tender for supply of "**Custom Designed Asymmetric rolling/Roll Bonding Machine**".
Tender No: MEE/SUSH/025/2017

Due Date: 11.09.2017, 2:30pm

Technical Bid opening on 11.09.2017 at 3.30 P .m.

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, tenders are invited for the supply of "**Custom Designed Asymmetric rolling/Roll Bonding Machine** "
Tender No: MEE/SUSH/025/2017)" conforming to the specifications given in Annexure.

Instructions to the Bidder

- i Preparation of Bids:** - The 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 address either by post or by courier so as to reach the following address before the due date and time specified in the Schedule: **Senior Manager, Project Purchase, 2nd floor, IC & SR Building, I.I.T. Madras -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. **Prices:** - The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges to various Departments/Centres/Institutions. The offer/bid should be exclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately.

The price should be quoted without custom duty. I.I.T. Madras is eligible for concessional custom duty and exempted from IGST in the case of import. In case of import supply, the price should be quoted on **EX-WORXS** and **CIP** basis indicating the mode of shipment.

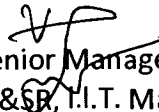
v **Agency Commission:** - Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be shown in Tender even in the case of '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 various Departments/Institutions 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 **11.09.2017** between 3.30 pm to 4.00 pm In 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 any stage without assigning any reason.**

Yours sincerely,


Senior Manager (Project Purchase)
IC&SR, I.I.T. Madras

वि. सत्यनारायणन

V.SATHYANARAYANAN

वरिष्ठ प्रबन्धक (परियोजना क्रय)

SENIOR MANAGER (PROJECT PURCHASE)

आईसी एवं एसआर केन्द्र / Centre for IC & SR

आईआईटी मद्रास/I.I.T.MADRAS-600036

SCHEDULE

Important Conditions of the tender

The due date for the submission of the tender is **11.09.2017, 2:30 pm.**

The offers / bids should be submitted in two bids system (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 Tender for supply of " **Custom Designed Asymmetric rolling/Roll Bonding Machine** " (MEE/SUSH/025/2017)" should be written on the left side of the Outer bigger cover and sealed.

2.EMD: The EMD in the form of account payee DD for 2% value of the item in favor of Registrar IIT Madras Which should be enclosed in the cover containing financial Bid. Any offer not accompanied with the EMD shall be rejected summarily as non-responsive. The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD.

EMD is exempted for Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or registered with the Central Purchase Organisation or with IIT Madras as on the date of submission of bids..

3. Performance Security:- The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply within 21 days from the issue of work/purchase order. The Performance Security should be furnished in the form of an Account Payee DD / FD Receipt from the commercial bank (or) Bank Guarantee from any nationalized bank in India.

Performance Security in the form of Bank Guarantee:- In case 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.

4. Indian agent:- 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.

The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.

5.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.

6.**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.

7.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.

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

9.**Validity:** Validity of Quotation not less than 90 days from the due date of tender.

10.**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.

11.**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.

12.**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).

13.**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.

14.**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.

15.**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).

16.**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.

17. 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.

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

19. Disputes and Jurisdiction: -

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..

- a. **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.
- b. 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.

20. 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**

**DEPARTMENT OF MECHANICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI, INDIA
DETAILED SPECIFICATIONS FOR ASYMMETRIC ROLLING AND ROLL BONDING EQUIPMENT**

Essential Specifications:

A 2Hi/4Hi convertible, rolling mill with differential speed control suitable for high precision hot and cold rolling of aluminum, magnesium, copper and their alloys, high strength materials such as stainless steels, titanium alloys, super alloys and metal matrix composites. The rolling mill should have capabilities of roll bonding, accumulative roll bonding, asymmetric rolling, high ratio differential speed rolling and conventional rolling. The rolling mill must have the following technical specification:

| Detailed specification of the primary unit: | | |
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| 1. | Maximum input thickness | 20 mm for 2-Hi 8 mm for 4-Hi |
| 2. | Minimum output thickness | <ul style="list-style-type: none"> • 0.5 mm or less for hot rolling • 0.5 mm (for high strength material), 0.35 mm (for low strength material) or less for cold rolling |
| 3. | Maximum input strip width | 150 mm |
| 4. | Maximum input strip length | 200 mm |
| 5. | Materials to be rolled | <ul style="list-style-type: none"> • Aluminum, magnesium, copper and their alloys • High strength materials such as stainless steels, titanium alloys and super alloys • Metal matrix composites |
| 6. | Maximum strip/work piece temperature | 1200°C for hot rolling(Rollers should sustain this temperature without property degradation) |
| 7. | Minimum strip temperature | Sub-zero temperature |
| 8. | Maximum peripheral speed of work roll | <ul style="list-style-type: none"> • 20 rpm for 2-Hi(differential and variable: 1-20 rpm) • 20 rpm for 4-Hi (variable: 1-20 rpm) |
| 9. | Maximum roll separating force | <ul style="list-style-type: none"> • 150 tones (~1500kN) for both 2-Hi and 4-Hi configurations |
| 10. | Roller diameter | <ul style="list-style-type: none"> • Two sets of 2-Hi rollers of diameter 300 mm and 125 mm (both for hot rolling) • One set of 4-Hi rollers with 50 mm (work roll) diameter and 300 mm (backup roll) diameter for cold rolling |
| 11. | Roller face width | 200 mm |
| 12. | Roller material | <ul style="list-style-type: none"> • Roller material used must be H13 (of hardness ~55 HRC) for hot rolling and 52100 tool steels (of hardness ~65 HRC) for cold rolling. • Roller and bearing chuck should be made from forged stock. |

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| | | <ul style="list-style-type: none"> • Suitable heat treatments should be used to obtain the desired properties and exact procedure for the same should be clearly mentioned. • Roller material should have high hot hardness at maximum operating temperature (1200°C). • The supplier should clearly mention the composition and grade of roller material with certificate from a proper authorized agency. |
| 13. | Screwdown type | Electro-mechanical (motorized, semi-automatic) |
| 14. | Roll Removal | Built in sledge – manual operation (fixed type) |
| Others(detailed specification and company details of the accessories and other equipment mentioned in this section should be provided separately) | | |
| 15. | Load, temperature and speed measurement equipment | <ul style="list-style-type: none"> • Two load cells mounted below bottom roll chock assembly for accurate measurement of roll separating force with an accuracy of $\pm 2\%$ of output. • 2 non-contact type hand held tachometers • 2 non-contact type hand held pyrometer with measurement capability from -60°C to 1500°C |
| 16. | Driving motors | 2 independent motors each 45 kW or more, AC (3-phase, 415V, 50 Hz) with variable speed control. |
| 17. | Operator control station | <p>A control station with following controls and indicators must be provided:</p> <ul style="list-style-type: none"> • Motor start/stop button • Roll gap increase / decrease push buttons • Rolling speed increase / decrease button • Motor speed indicator • Roller speed indicator • Rolling load indicator • Roll gap indicator • Lubrication start/ stop button • Emergency Switch |
| 18. | Display and recording facility | <ul style="list-style-type: none"> • Both digital display and recording facility should be provided. • It should be able to capture motor speed, roller speed, Rolling load and roll gap. • Roll gap indicator with least count of 0.02 mm. • Computer system with pre-installed data acquisition and recording software(SCADA/HMI). • There should be at least 4 extra ports to accommodate additional sensors in future, if needed. |
| 19. | Roll handling system | <ul style="list-style-type: none"> • 2 trolleys supported on rails for handling the roll assemblies. • 1 overhead cantilever crane (pillar jib crane) capable of |

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| | | lifting and transporting the roller assembly to storage area. |
| 20. | Material feeding | Two roller tables with length 0.5 m at entry and exit side for feeding to rollers. |
| 21. | Safety accessories/measures | <ul style="list-style-type: none"> • Special design/provision should be made to prevent accidents while in operation. • Guards should be provided near the rotating parts. • Both hand and foot operated “Emergency Stop” button(s) should be provided at convenient and easily accessible location. • Shear blocks should be provided to prevent the breaking of load cells (5 sets of additional shear blocks should be supplied by the supplier). • Cardan shaft/Universal shaft shall be equipped with safety devices for disengagement in the case of jamming of rollers. • Required safety accessories should be provided by the supplier. • Safety manuals and charts should be provided. • Supplier should provide safety training at the time of installation. |
| 22. | Warranty, Training and Support | <ul style="list-style-type: none"> • The cost of rolling mill and other items if any should be separately mentioned along with details of taxes. Warranty period (1 year/2year/3years) should also be mentioned. • Service response time, turn-around time & up-time of the equipment should be clearly specified. • On-site demonstration after installation must be provided with requirements for smooth and uninterrupted functioning of the rolling mill. • Service response time must be less than 72 hours. • Test Certificates of Rolls, Load cell, Motor, etc. |
| 23. | Required documents along with technical specifications | <ul style="list-style-type: none"> • The supplier must provide a comprehensive list of users of similar rolling mills in India (with their contact details including phone numbers and email addresses). • They should also submit the name(s) of the service |

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| | | <p>engineer(s) employed by them who is/are competent to service the equipment being quoted with their locations in India.</p> |
| 24. | Terms and Conditions | <ul style="list-style-type: none"> • The manufacturing date of the rolling mill should be after the order is placed. • The pricing and billing of main unit and accessories should be done separately (on individual basis). • Two-bid system will be employed: one for technical and another for commercial bid. Vendors should submit the above bid in two separate covers in accordance to the two-bid policy. • If the bids are submitted by agents then, an authorisation letter from original equipment manufacturer (OEM) should be enclosed. |
| 25. | Pre-installation requirements | <ul style="list-style-type: none"> • Pre-installation requirements such as room size, foundation, required power rating, and utility requirements are to be stated clearly and to be verified/surveyed by the supplier at the installation site. • It is the supplier's responsibility to clearly provide details of the above-mentioned requirements well before the delivery of the equipment. |
| 26. | Environmental requirements | <p>Necessary environmental requirements, i.e., temperature, humidity etc. during the operation of rolling mill should be specified clearly.</p> |
| 27. | Compliance Statement | <ul style="list-style-type: none"> • The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted. • The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent. • Features not matching – must be clearly indicated. |