Cost of Tender Document Fee Rs.500/

NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA-136119

INVITATION OF TENDERS

Ultrasonic Stir Casting Equipment

Tender Reference	:	**MED/NITK/18/117**	
Date of Commencement for Sale of Tender Documents	:	21.12.2018	
Last date and Time for Receipt of Tenders	:	07.01.2019	Upto 2:30 P.M
Time and date of opening of Tenders	:	07.01.2018	at 3:00 P.M
Place of opening of Tenders	:	**Office of the Prof-in-Charge (Stores) NIT, Kurukshetra**	

INSTRUCTIONS TO TENDERERS
&
CONDITIONS OF CONTRACT

1. The National Institute of Technology, Kurukshetra, Haryana an Educational Institution invite tenders for Supply of Ultrasonic Stir Casting Equipment.

   The Tenders should be submitted in two parts in separate covers (Technical Bid & Financial Bid) in following manner:
   (i) Bid containing technical specifications and Earnest Money Deposit. (as per scheduled)
   (ii) Bid containing financial offer.
   (iii)
   The envelopes should be marked as Technical Bid and Financial Bid with reference number and submitted in one cover.
   The Technical Bid and Financial Bid will be opened in two stages on different dates. The bid containing technical specifications and Earnest Money deposit will be opened at 1st stage. The Financial Bid of technically qualified bidders will be opened on 2nd stage & will be intimated to only the successful bidders accordingly.
2. Tender must be sent in a properly sealed envelope with tender number and due date subscribed on the envelope addressed to the Prof-in-Charge (Stores), NIT, Kurukshetra.

3. The price should be quoted on prescribed price schedule. All corrections must be attested by the tenderer.

4. All the columns of the tender form shall be duly and properly filled in separately. The rates and units shall not be overwritten in the price schedule. The rates shall be quoted both in figures and words. The Tender should be signed by the authorized signatory of the firm with seal of the firm.

5. The tenderer shall deposit earnest money as specified in Schedule of Requirement alongwith Technical Bid in form of Account paying Bank Draft, Fixed deposit receipt, Bankers Cheque or Bank Guarantee from any Commercial Bank in favour of Director, National Institute of Technology, Kurukshetra. The tenders without Earnest Money shall be rejected. The Earnest money will remain valid for a period of 45 days beyond the final bid validity period.

6. In case the Tender Documents are downloaded from the website of the Institute for submission of the tender, the Tender Document Fee may be deposited through Demand Draft alongwith the Tender otherwise the tender may be rejected.

7. The successful tenderer shall furnish the Performance Security for an amount of 5% of total value of the equipment in form of Account Paying Bank Draft, Fixed Deposit Receipt, Bankers Cheque or Bank Guarantee from any Commercial Bank in favour of Director, National Institute of Technology, Kurukshetra for the period of completion of performance obligations and

warranty period. The Performance Security shall remain valid for a period of 60 days beyond completion of contractual obligations and warranty period.

8. The required delivery period must be mentioned against each item. After the order has been placed, the goods must be delivered within the stipulated period or by the delivery period extended by the Institute. In case of late delivery of goods, the Institute is entitled to recover as penalty from the tenderer a sum @ 0.5% of the total value of the goods per week and the maximum 10% of the total value of the goods for which the consignment is delayed beyond the due date.

9. The payment will be made after receipt of goods according to specifications, its installation and good working order. In case the goods are rejected these have to be removed by the supplier at his own cost. The rejected goods must be replaced by the supplier within 15 days of the dispatch of registered notice intimating that the goods have been rejected failing which the order may be cancelled and security forfeited.

10. No payment will be made in advance for any supplies under this tender. No claim for any duty, not stipulated in tender will be admitted at any stage.

11. The valid documentary proof of GST No. & details of Income Tax registration (PAN) should be submitted alongwith tender. The taxes must be quoted clearly and separately. If the taxes are not quoted separately, it will be presumed that the rates quoted are inclusive of taxes. The rates quoted should be firm and include all charges. The material may be dispatched "FREIGHT PAID" where the offer is F.O.R. destination. The Form D is not issued by the Institute.

12. In case of goods controlled by the Government, the tendered rates shall not be higher than the controlled rates.

13. Standard warrantee of the items should be mentioned in the tender. A list of users where similar equipment has been supplied in the past should be furnished with the tender.

14. Director of the Institute reserves the right to accept or reject any tender or to cancel the whole bidding process without assigning any reason.

15. The institute reserve the right to verify/seek confirmation of all original documentary evidence submitted by the venders in support of the tenders, specifications for eligible criteria. In case any information furnished by vender is found false/incorrect the tender will be rejected. The descriptive literature with full technical data and drawing/photos must be furnished alongwith the tender.

16. In case of dispute the decision of the Director shall be final. All above conditions will be enforced unless written orders of the Director are obtained relaxing any specific condition in any particular instance.

17. The tender shall remain valid for **90 days** from the date of opening of tender. Fax or conditional tenders shall not be accepted.

18. **Tender received beyond the fixed date and time shall not be accepted.**

19. The tenderers are required to quote their lowest rates in the very first instance and there shall be no negotiation in purchases. In case only one tender is received or only one tender remains according to specifications of the required goods, negotiations will be carried out.

20. The Specification as per list attached. The tenderer must quote all items otherwise tender will be rejected.

21. Tender Evaluation: - All bids received in time will be technically evaluated by a committee who meets our tender specification and other terms & conditions. The financial bids of those bid who are accepted by the committee will be opened.

22. Lowest Offer: - Lowest offer will be calculated on the basis of total price of all items quoted who qualifies our specification and terms conditions of our tenders. No individual item prices will be considered for comparison of prices.

PRICE SCHEDULE

Having examined the tender documents, the receipt of which is hereby duly acknowledged, we offer to supply the goods and services in conformity with the said tender documents at the rates shown below:

1	2	3	4	5	6	7	8	9	10	11
Sr.No	Particulars of the items	Unit	F.O.R	Duties inclusive, if exclusive rates be given	Packing forwarding charges if any	GST	Total Cost F.O.R Kurukshetra	Delivery Period	Particulars of Manufacturers	Remarks

N.B.: The price column should be properly filled. In case nothing is mentioned in the columns the price will be considered inclusive of Taxes Duties, packing and forwarding etc.

Signature

Dated the_____ Date of_____ **Address with seal**

SCHEDULE OF REQUIREMENTS

Sr. No.	Name of the Items	Qty.	Earnest Money (in Rs.)
1.	Ultrasonic Stir Casting Equipment	01 No.	40,000/-

Technical Specifications

Type: ***Bottom Pouring Type Sir Casting Machine with Vacuum die casting and Ultrasonic Agitator. Pouring should be controlled by electric geared motor***

Certification: ***Declaration of Conformity of European Standards (CE-Certified) for the machine. The supplier must provide the CE certification of the machine without which the bid will not be considered.***

Retort & Bottom Pouring System:

Retort:

- Should be made of stainless steel 310 grade or better material.
- Capacity: 500 gms to 2 Kg of Aluminium or Magnesium ingots

Heating System:

- Maximum working Temperature: 950±5 ^{o}C, heating by reliable material
- Heating Chamber: should be made of high temperature muffle constructed with high temperature withstanding refractory
- Insulation: High-density ceramic fiber

Bottom Pouring:

- Gate valve controlled by 3 Phase A.C Motor
- Gate valve auto stop at OPEN & CLOSE Position

Outer Shell

Shape: Cylindrical made of thick gauge mild steel sheet

Stirrer Arrangement

Blade

- **Type:** Twin Fin blade or better geometry
- **Material:** Stainless Steel 310 grade or better

Speed:

- Variable from 100 to 1500 RPM
- Motor: 3 Phase A.C motor
- Speed control: Using variable frequency drive
- Indication: Digital indication & control

Pre-heating furnace for reinforcement (Powders)

- Attached in top of the Stir Casting Furnace
- Heating chamber made of Stainless steel tube provided with a gate valve at the bottom
- Gate valve to control the flow of reinforcement into the melt.

Heating System:

- Maximum working Temperature: 800 ^{o}C
- Heating Chamber: Made of high alumina tube constructed with high temperature withstanding refractory
- Insulation: High density ceramic fiber

Gas Mixing System

- Ar for maintaining Inert Gas Atmosphere
- SF6 for maintaining the temperature in case if the temperature shoots up because of firing of Mg
- Separate S.S gas storage tank to store the input gases at the set pressure

- Digital gas mixing controller to mix the input gases to required ratio (0 to 100)
- Digital mass flow controller for the mixed gas output to the combustion chamber. The gas flow should be adjustable from 0 to 10 LPM or better range.

Control Panel: Human Machine Interface

- The human machine interface should consist of the indication & control system where all the trial details performed can be recorded and stored.

Display: Laptop or 7" touch screen control

Interface: Computer & the machine should be connected through wireless interface.

Indication & Control Parameters

- Actual Melt Temperature (PID based temperature control with facility to execute multiple programs)
- Reinforcement Temperature (PID based temperature control with facility to execute multiple programs)
- Mold Temperature (PID based temperature control with facility to execute multiple programs)
- Stirrer vertical height & speed control
- Bottom Pouring Gate Valve Control
- Gas Mixing-control

Essential Accessories & Spares required

- Spare stainless steel stirrer blades, 5 numbers
- High temperature nonstick coating, 02 nos.
- Spare Temperature Sensor, 1 no
- Gas Cylinder filled with SF6 gas, 02 nos. of commercial size
- Gas Cylinder filled with Ar gas, 02 nos .of commercial size
- S.S Double stage regulators for the above, 02 nos.
- **Die to obtain to cast of: 26mm x 300 mm long, 02 nos. (one for Al cast and one for Mg cast)**

Ultrasonic Vibrator Attachment:

In-bulit or detachable type. For uniform dispersion of the reinforcement powders in the melt of Al & Mg alloys.

Ultrasonic Power : 2500 Watts (variable in steps) or better
Ultrasonic Frequency : 20 KHz

- Motorized lifting arrangement for Horn
- Horn: Titanium or better material of adequate length, 02 Nos (extra as spare).
- Stainless steel flanges with vacuum seal arrangements to create vacuum while using ultrasonic casting.
- Air or liquid cooling arrangement to cool the ultrasonic horn

Vacuum Die Casting Attachment:

Vacuum die casting attachment should consists of Vacuum pump, Vacuum storage tank, Die holding chamber & die, Vacuum control and indication mechanism.

Specification of the attachment:

- Stainless steel vacuum chamber
- Stainless steel vacuum tank
- Vacuum: 760mm of Hg or 10^{-1} mbar

- Rotary Vacuum Pump
- **Vacuum Cast Die: 02 nos. die of proper material to form a cast of 26 mm OD x 300mm height cylindrical rod (one for Al-cast and one for Mg. cast).**
- Detachable immersion type die preheater with digital temperature indication cum control to preheat the die for 350 ^{o}C before casting.

Important Terms and Conditions:

a) **The bidder must have supplied the same equipment to at least 2 institutes of repute (IITs, NITs, DRDO Labs, and CFTIs only). Their purchase orders supporting this criterion should be provided along with bid in order to qualify for the tendering process.**
b) **Compliance statement of each specification in tabulated form needs to be provided by the bidder clearly. Without the compliance statement the offer will not be considered.**
c) **Pre-dispatch inspection to be arranged for two members of our institute with economy class air-fare with two days lodging and boarding from supplier end to insure the quality, required specifications, and performance etc. of the machine.**

Installation and Commissioning conditions:

d) The bidder should take full responsibility for supply, erection, loading, unloading of the machine, installation and training of the machine in the tribology lab of the department and performance of the machine demonstrated to the satisfaction of the users.
e) In case of any mishappening/damage to equipment and supplies during carriage from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. NIT Kurukshetra will not be liable to any type of losses in any form.
f) Necessary fittings and fixtures required for the installation will be in the scope of bidder only.
g) Any expenditure related to the travelling, boarding and lodging of the service engineers during installation and commissioning will be borne by the bidder.
h) The bidder will facilitate the installation, demonstration and training of the machine within 3 weeks after the receipt of machine in the tribology lab, Mechanical Engineering Department, NIT Kurukshetra.
i) The bidder will provide the sample consumables with suitable quantity of Al & Mg alloys and suitable quantity of reinforcements during the demonstration and training of the machine.
j) The bidder will demonstrate the performance, reliability, and safety of the machine and of the users especially for Mg-based composite during the installation and training.

Maintenance and service support conditions of the system during and after the warranty period.

k) The bidder should have the competent and reliable service network in India for quick and necessary repair and maintenance of the machine (basic machine with attachments).
l) **Complete warranty of basic machine with attachments should be of at least 3 years from the date of installation of machine in the lab**.

m) Any expenditure related to the travelling, boarding and lodging of the service engineers during the scheduled maintenance and breakdown of the equipment (basic machine with attachments) within the warranty period will be borne by the bidder.

n) The bidder will undertake the responsibility to replace or repair all faulty parts of equipment (basic machine with attachments) during the scheduled maintenance and any breakdown during the warranty period.

o) At least two scheduled preventive maintenance service visit (of basic machine with attachments) per year during the warranty period should be provided by the bidder.

p) The bidder should commit to provide maintenance service and supply necessary spares for the machine (basic machine with attachments) for at least 10 years after successful installation and commissioning.

q) The bidder will resolve any failure or breakdown of the equipment (basic machine with attachments) within **two** weeks from the day of reporting by the Professor In-charge/Technician of the lab.

r) The bidder will provide the full customer support during the working hours to resolve any problem and matter related to the working of the equipment via telephone or video conferencing.

s) Two sets of operation and maintenance manuals along with all necessary drawings should be supplied along with the machine.

t) The bidder should enclose all the relevant technical documents and catalogues for all the components.

u) Manufacturer of the machine should be certified ISO 9001:2015 and certification must be attached with the bid.

v) Offered system should be standard catalogue model.

w) Maximum education discount should be offered and rates should be FOR Kurukshetra.

x) Training to laboratory personnel to their satisfaction by the experts after the installation and commissioning at NIT Kurukshetra.

y) Prices should include the installation and training cost.

z) Should carry proper certifications like agency certificate, proprietary certificate etc.