



VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY: BURLA

P.O: Engineering College Burla (Siddhi Vihar), Dist: Sambalpur

Odisha– 768018, India

Website : www.vssut.ac.in, E-mail: registrar@vssut.ac.in, Ph:(0663)2430573,Fax-2430592

Ref: No: VSSUT/MME/ 2760 /2017

Date: 28/08/2017

TENDER CALL NOTICE

Sealed Bids (properly stitched separately) in two separate covers (**Technical Bid and Price Bid**) are invited by the “**The Registrar, Veer Surendra Sai University of Technology, Odisha**” from the manufacturers/authorized distributors/ dealers for supply of Instrument, equipment of reputed make (National/ International) for the Department of Metallurgical & Materials Engineering, VSSUT Burla, Odisha. The list of equipment and their technical specifications are mentioned below.

The list of Equipment

Sl. No	Description	Quantity	Remarks
1.	Potentiostat	1 No.	Annexure -VI
2.	Branson Ultrasonicator	1 No.	Annexure –VII
3.	Multiport Corrosion Cell Chamber	1 No.	Annexure –VIII
4.	Autoclave	1 No.	Annexure –IX
5.	ICP - Optical Emission Spectrometer	1 No.	Annexure –X
6.	Metal Casting Machine/Metal Solidification Set Up	1 No.	Annexure –XI
7.	Two Chamber Muffle Furnace	1 No.	Annexure –XII
8.	Hydraulic Powder Compacting Press	1 No.	Annexure –XIII
9.	Dilatometer	1 No.	Annexure –XIV
10.	Salt Bath Furnace (2 Pot)	1 No.	Annexure –XV
11.	Erichsen Cupping Tester	1 No.	Annexure –XVI
12.	Torsion Tester	1 No.	Annexure –XVII

The Bidders may download the **Tender Documents** directly from the website available at <http://www.vssut.ac.in> and the Tender cost fee of Rs.1000/- (Non-refundable) by way of separate Demand Draft drawn in favour of “**The Registrar, Veer Surendra Sai University of Technology, Burla**” payable at **SBI, Burla** should be enclosed along with the Bid. The Tender cost fee and the EMD amount should be submitted separately in separate demand drafts. In case of any bid clarification, responsibility lies with the bidders to collect

the same from the website and the purchaser shall have no responsibility for any delay/ omission on part of the bidder.

TIME SCHEDULE:

- a) Price of bidding document: Rs.1000/- (Non-refundable)
- b) Date of commencement of downloading bidding document 30.08.2017 at 11.00 AM
- c) Last date and time for Receipt of bids 10.10.2017 up to 5.00 PM
- d) Time and date of opening of Tender & technical bid 12.10.2017 at 11.30 AM
- e) Place of opening of tender and address for communication and receipt of bid documents

THE REGISTRAR

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, ODISHA

At- Burla, Po-Burla Engineering College, Dist-Sambalpur-768018,

Tel. No-0663-2430211 Fax No-0663-2430204


REGISTRAR
VSSUT Burla
REGISTRAR
V.S.S. University of Technology
Burla, Sambalpur, Odisha-768018
REGISTRAR
VSSUT Burla

General Terms and Conditions

GENERAL TERMS & CONDITIONS OF CONTRACT FOR SUPPLY, INSTALLATION AND DEMONSTRATION OF THE INSTRUMENTS, EQUIPMENT REQUIRED FOR DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING, VSSUT, BURLA, ODISHA.

1. Document Establishing Bidder's Eligibility & Qualification

The Bidders shall furnish as part of the Bid the following Documents establishing Bidder's eligibility and qualification to the Purchaser's satisfaction.

- 1.1 Manufacturer / Authorized Distributor / Dealer having valid license / certificates for the quoted item and the direct Importers holding valid Import License Manufacturer / Authorized Distributor / Dealer of the product are eligible to participate in the Bid.
- 1.2 Bidders should have **ISI or equivalent** certification for quoted instruments and equipment. However, the Purchaser shall have the right to consider the items where ISI or equivalent certification is not applicable.
- 1.3 The Bidder whether manufacturer/ distributor/ dealer must have experience of supply and installation of the quoted items in reputed Government Institutions / Public Undertakings / reputed Private Institutions within India during last preceding 3(Three) years reckoned from the date of bid opening and the details must be submitted along with documentary proof.
- 1.4 The Bidders shall have to produce document in support of their service associates **nearest to Bhubaneswar/ Sambalpur**, Odisha.
- 1.5 Bidder shall have to provide operational Training for instruments/equipment to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days whichever is suitable to Purchaser**.
- 1.6 The Bidder shall quote items of one reputed Brand/model with all accessories in complete to perform functionality of Equipment/Machinery.
- 1.7 Manufacturer has to submit copy of Industry Registration of quoted products and Tax Registration Certificate issued from Competent authority. In case of Authorized Distributor / Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.

2. Document Establishing Goods Eligibility

The instruments and equipment offered against the schedule of requirement of instruments, equipment should be in accordance with the stipulated specifications and of one reputed brand/model

- 2.1 The documentary evidence establishing the brand and the model may be in the form of literature, pamphlets, manuals, drawing, circuit diagram etc.

- 2.2 Detailed description of instruments and equipment with essential technical and performance characteristics may also be furnished.
- 2.3 The Bidders should clearly mention in their bid regarding the compatibility of the various equipment or the individual units.
- 2.4 The quantity shown in the bid can be increased or decreased to any extent depending upon the actual requirement.
- 2.5 The instruments and equipment should have testing certificate for its satisfactory functioning.

3. Technical Bid (COVER - A)

The following document should be submitted in Cover-A.

- 3.1 Earnest Money Deposit
- 3.2 Technical details of the equipment and machineries as per **Annexure-V**
- 3.3 Copy of the manufacturing license/ import license/ Authorized Distributor/ Dealer certificates
- 3.4 Copy of the authorization from the Manufacturing Company in case of Authorized Distributor /Dealer.in **Annexure-III** along with Manufacturer Industry Registration and Tax Registration Certificate.
- 3.5 VAT/ST clearance certificate up to **date** where applicable.
- 3.6 Performance/ Market standing certificate establishing that the Bidders have executed supply of similar items as mentioned in Schedule of Requirement of instruments and equipment to different Govt. Organizations/ Government PSUs / reputed Private Institutions. (proof of documents)
- 3.7 Copy of the IT PAN Card.
- 3.8 Detail name, address, telephone no. fax, e-mail of the firm and of the Director/ Managing Director/ Proprietor of the firm (As per **Annexure IV**)
- 3.9 Address, Telephone No., e-mail, Fax of the Branch Office/ Contact Person/ Liaisoning Office in Odisha. (As per **Annexure IV**)
- 3.10 Power of Attorney/ Authorization to a person for liaisoning and monitoring the business on behalf of the manufacturer / bidder but not entitled to raise the bills.
- 3.11 Document if any to establish the reorganization of the manufacturing unit in respect of ISO or equivalent.
- 3.12 **The original bid document signed & sealed by authorized person in each page as a token of acceptance of all terms and conditions of the tender with original receipt.**
- 3.13 Documentary evidence establishing that the instruments & equipment and ancillary services to be supplied by the Bidders shall confirm to the Bidding Document
- 3.14 Any deviation in the specification of the item including standard accessories / optional accessories in complete for functionality of Machine should be marked in **bold letters**.
- 3.15 Details of foundation drawing for instruments and equipment, if any, should be provided.

- 3.16 The details of the service station / service associates nearest to Bhubaneswar/Sambalpur shall have to be submitted to qualify in the technical bid.
- 3.17 Willingness to provide operational Training for Machineries to one Official of each consignee at Suppliers Plant or Consignee site **at least for 7 days whichever is suitable to Purchaser.**
4. **Price Bid (COVER – B)**
- 4.1 The hard copy of price bid giving the rates for various instruments & equipment and other items should be submitted along with sealed soft copy of **price bid in Excel format through CD/Pen drive** both in separate sealed cover here in after called **Cover B (Price Bid). Price Bid (Cover - B)** of the bidders who qualify in **Technical Bid (Cover – A)** will only be opened and will be communicated through **E-mail/Fax.**
- 4.2 The price of each item shall be quoted as per the prescribed Price Schedule Format at **Annexure-I** along with price break up of custom duty, Excise Duty, CST, Packing, Forwarding and Handling charges, Insurance charges, ET, freight up to destination including unloading, VAT, commissioning including testing and training with total price per item at **FOR** destination. The bidders are required to submit the individual price of each instrument(s) and equipment(s) as indicated in the schedule of requirements.
- 4.3 Each quoted item and all accessories should cover the warranty / guarantee for **2(two)** year from the date of commissioning (**Annexure-II**).
- 4.4 The **Cover B** of the technically qualifying bidders shall be only opened at the Office of the “**The Registrar, Veer Surendra Sai University of Technology, Burla**” on the date and time to be communicated to them after technical evaluation of **Cover A** by **E-mail/Fax.**
- 4.5 The cost of standard accessories shall be included in basic price and optional accessories shall have to be quoted separately.
- 4.6 The bidders are required to submit the list of the spare parts required for the machine as well as the list of the dealers/ Distributors of the spare parts nearest to Bhubaneswar, Odisha for its availability.

5 BID CONDITIONS

- 5.1 The bidders should verify the sites of existing laboratories of Department of Metallurgical & Materials Engineering, VSSUT, Burla and the proposed lay out Plan indicating the location of each unit for necessary Technical Evaluation. The scope of Supply as mentioned in the schedule of requirements if not sufficient for full function of the Equipment/Machinery should be intimated in writing with the technical bid.
- 5.2 The quoted rate shall not vary with the quantum of order placed or destination point.
- 5.3 A copy of the original bid conditions and the schedules should be signed by the bidder at the bottom of each page with the office seal duly affixed and returned along with the bid. Bid schedule should be duly filled in

with an **index** and **page number** for the documents, enclosures & EMD etc. **Paging** must be done for all the documents submitted.

5.4 Bids should be type written or Computerized and every correction/ over writing in the bid should invariably be attested with signature of the bidder with date before submission of the bids to the authorities concerned. No revision of price upward or downward will be allowed once the bid is opened. However, the purchaser shall have the right for considering the exchange rate of foreign currencies on verification of documents.

5.5 Language of Bid

The Bid prepared by the bidders and all correspondence and document relating to the bid exchanged by the Bidders and the *Purchaser*, shall be written in the English language. Supporting document and printed literature furnished by the Bidders may be written in another language provided they are accompanied by an accurate translation of the relevant passages in the English language in which case, for purposes of interpretation of the Bid, the English translation shall govern.

5.6 Bid Price

- The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialling, dating and re-writing.
- All duties, taxes, and other levies payable on the raw materials and components, job contract shall be included in the total price. VAT in connection with the sale shall be shown separately.
- The rates quoted by the bidders shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- The price shall be quoted in Indian Rupees (Preferably).
- Prices will be quoted on F.O.B. destination as well as estimated CIP Burla basis for imported goods, Indian Agency commission/rebate payable to Indian Agent, if any, shall be shown separately and that will be payable in equivalent rupee directly to Indian Agent. The supplier shall be responsible to get the goods air – freighted /sea freighted & air insured/marine insured up to the Institute.

5.7 VAT/ST clearance

Copies of valid VAT clearance Certificates shall be furnished by the Bidders and the originals of the above certificates shall be produced to the purchaser before placement of notification of award if asked for by the Purchaser.

5.8 EMD

All bidders are required to submit EMD **not less than 1% of the quoted amount** in shape of **Demand draft** drawn in favour of “**The Registrar, Veer Surendra Sai University of Technology, Burla**” payable at **SBI, Burla** only. The EMD shall be in Indian Rupees.

NOTE: Non-submission of EMD or submission of less EMD than the desired one shall result in rejection of Bid. The EMD deposited against other Bids cannot be adjusted or considered for this Bid. No interest is payable on EMD.

5.9 SUBMISSION OF BIDS

Sealing and Marking of Bids

Bid should be submitted in two Bid system containing two parts as detailed below.

Sealed Cover-A: Technical Bid.

Sealed Cover-B: Price Bid (hardcopy & sealed soft copy in CD/pen drive)

Both the sealed envelopes should then be put in one outer cover and each cover should have the following indication:

- i) Name of Dept.: _____
- ii) Reference No of Bid _____
- iii) Bid regarding _____
- iv) Due date & time for submission of the Bid _____
- v) Due date & time for opening of the Bid _____
- vi) Name of the Firm _____

NOTE:

A. Bids submitted without following two Bid system procedures as mentioned above will be summarily rejected.

B. Please Note that **prices should not be indicated in the Technical Bid**. The Prequalification document including EMD as required in the Bid document should invariable be accompanied with the Technical Bid (Cover A).

The outer envelope shall indicate the name and address of the bidders to enable the bid to be returned unopened in case it is declared “late”. If the cover containing the outer envelope is not sealed and marked as required, **Purchaser** will assume no responsibility for the bid’s misplacement or premature opening.

The above procedure shall be adopted both for the Technical bid and price bid separately. Telex, cable, email or facsimile bids will be rejected.

5.10 Deadline for Submission of Bids

Bids must be received by the **Purchaser** at the address specified not later than the time and date specified in the Invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the **Purchaser**, the bids will be received up to the appointed time on the next working day.

The *Purchaser* may, at its discretion, extend this deadline for submission of bids by amending the bid document, in which case all previous rights and obligations of the purchasers and bidders will remain same till the extended date.

5.11 Modification and Withdrawal of Bids

No Modification and Withdrawal of Bids is allowed between the interval of time of submission and the last date and time of the bids.

No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidders on the bid form.

5.12 BID OPENING

5.13 The *Purchaser* will open all bids, in the presence of bidder's representatives who choose to attend at **11.30 AM on dated 12.10.2017** at the Office of the “**The Registrar, Veer Surendra Sai University of Technology, Burla**”.

5.14 The bidder's representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the *Purchaser*, the bids shall be opened at the appointed time and location on the next working day.

5.15 The bidder's names, and the presence or absence of the requisite EMD and such other details as the *Purchaser*, at its discretion, may consider appropriate will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the bidders.

5.16 Acceptance of the Bid

- Bidders submitting bids would be considered who have considered and accepted all terms and conditions. No enquiries, verbal or written, shall be entertained in respect of acceptance or rejection of the bid.
- Genuine equipment and instrument etc. should be supplied. Bidders should indicate the source of supply i.e. name and address of the manufacturers from whom the items are to be sourced.
- Supply of equipment means – Installation and Commissioning (except civil works), Demonstration as well as Training at site. **No separate charges will be paid on this account.**

5.17 Rejection of the Bid

The Bid document shall be out-rightly rejected under following stipulation and no correspondence will be entertained whatsoever.

- If the Bidders has not furnished the required **Tender paper cost** and **EMD**
- If the Bidders has not submitted the Price as per the prescribed format **Annexure-I**
- **Manufacturing Authorization Annexure-III and in case of Authorized Distributor / Dealer/Suppliers have to submit Manufacture authorization along with copy of above documents of Manufacture Industry.**

- If the bid is not supplemented with breakup of standard accessories / Optional accessories & cost of AMC separately for three years after completion of warranty period.
- Photo copy of the up-to-date valid manufacturing license/ import license (if it is imported) /dealership certificate/Distributor certificate of the product along with Tax Registration Certificate of Manufacturer issued from competent authority.
- If the bidders, whether manufacturer or authorized distributor/ dealer have not supplied the required quantity for qualification as per the eligibility criteria and not submitted the performance statement at **Annexure-IV with supporting documents.**
- If the quoted product of the bidders not confirms to technical specification with complete accessories for functional Equipment/Machinery and standard of workmanship required by the Purchaser.
- If the bidder has not furnished technical details of the equipment's with **one make & model** as per **Annexure-V.**
- **If bidder will quote items of more than one make/model.**
- If the bidder has not furnished detailed mandatory drawings, **catalogue**/, Foundation drawings & schedule of supply of items, if required.
- If the bidders have not agreed to give **bid validity.**

5.18 Purchaser's Right to Accept any Bid and to Reject any Bid

The Purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all the bids without assigning any reason thereof at any time prior to award of Contract, without thereby incurring any liability to the affected Bidders or Bidders on the grounds of such action of the purchaser. In case no bidder qualifies as per qualifying criteria and standards, purchaser may at his discretion relax qualification criteria for award of contract.

5.19 Evaluation and Comparison of Bids

The comparison shall be of FOR destination price basis including the price of all costs wherever applicable as well as duties and taxes (**but excluding VAT**) paid or payable on Machineries, instruments & equipment incorporated or to be incorporated in the items including the warrantee/guarantee period from the date of installation.

- The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services.
- The purpose of bid evaluation is to determine substantially responsive bid with the lowest evaluated cost, but not necessarily the lowest submitted price, which should be recommended for award.
- Evaluation of bids should be made strictly in terms of the provisions in the bid document to ensure compliance with the commercial and technical aspects.

- The past performance of the suppliers will be taken into account while evaluating the bids.
- Cost of the inland transportation, insurance and other costs within the Purchaser's Country incidental to delivery of the goods to their final destination;
- Delivery schedule offered in the bid;
- Deviations in payment schedule from that specified in the General Terms & Conditions of Contract;
- The availability in the Purchaser's country of spare parts and after-sales services for the goods offered in the bid;
- The projected operating and maintenance costs during the life of the equipment/ goods.
- The performance and productivity of the equipment/ goods offered;
- The quality and adaptability of the equipment/ goods offered.
- Any other point as deemed proper to be incorporated by the evaluation committee.
- **Alternative options of offer shall not be allowed.**
- Each Bidder shall submit only one quotation with one make & model.
- The quotation would be evaluated separately for each item
- Sales Tax in connection with sale of goods shall not be taken into account in evaluation.
- Negotiation shall be made with the lowest evaluated bidder.
- Lowest evaluated price shall be taken in to consideration, but not the lowest quoted price.
- Willingness to provide operational Training to one Official of each consignee at consignee site for at least **7 days whichever is suitable to Purchaser.**

6.0 Supply Conditions

6.1 Delivery of Goods

The delivery of goods shall be made by the supplier to the Consignee in accordance to the order placed as shall be detailed in the Schedule of requirements & technical specifications.

6.2 Instruments, Equipment Demonstration cum Inspection

Purchaser reserves the right to ask for demonstration cum inspection of the instruments & equipment where ever applicable.

6.3 Inspection/ Test/Training

The supplier shall get each equipment inspected in manufacturer's works and submit a test certificate (New & Unused) and also guarantee/warranty certificate that the equipment confirms to laid down specifications.

The supplier shall invite the purchaser for pre-dispatch inspection. The Purchaser or his representative shall have the right to inspect/ examine/ test the goods in conformity with the contract awarded/supply order during

the production or before dispatch from the manufacturer's premises. Such inspection and clearance will not prejudice the right of the consignee to inspect and test the equipment on receipt at destination.

The inspection/examination/ test may be conducted in the premises of the Supplier or at the goods final destination or at the premises of the consignee, as will be decided by the Purchaser.

The purchaser's right to inspect/ examine/test & where necessary to reject the instruments & equipment after the arrival of the goods at the final destination, shall in no way be limited or waived by the reason of the goods having been inspected and tested by the manufacturer previously. In case of rejection of the goods at the final destination after inspection and test as stipulated above and in case any inspected/ tested goods fail to confirm to the specification/ working condition, the purchaser may reject them and the supplier shall replace/ repair the same free of cost.

6.4 Warrantee Period (Comprehensive)

The Bidders must quote for a minimum period of **3 (Three) years** of comprehensive **warranty** from the date of completion of the satisfactory commissioning as per (**Annexure-II**). This also includes all accessories related to instruments & equipment quoted for.

6.5 Payment Terms

- The supplier shall submit all bills in triplicate on printed forms to the University.
- The billing must be done with Odisha State VAT billing.
- The supplier must submit valid and up-to-date VATCC and copy of IT return along with the bill before release of payment.
- The University will make payments through account payee Cheque drawn on SBI Burla, in Indian Rupees. No interest on any deferred claim arising out of this purchase shall be payable in any case whatsoever.
- No payment will be made for instruments rejected at site during demonstration.
- The prices charged by the supplier for instruments delivered and services performed under the contract shall not be higher from the prices quoted by the supplier in this Tender.
- The 100% of the billed amount will be released only after 30 days of receipt of instruments in good conditions and successful performance on site from the final date of demonstration as per the specifications.

Payment Terms for imported instruments:

- In case of imported instruments, the mode of payment will be through TT (Telegraphic transfer) after receipt of instruments in good conditions and successful performance and demonstration as per the specifications.
- However, Indian Agency Commission or Technical Services charges would be paid in Indian rupee after satisfactory receipt & installation of goods at site. Indian Agency Commission should be declared in the

price bid. If Indian agency commission is not mentioned in the price bid no claim for it shall be admissible afterward.

6.6 Transportation

The Supplier shall be required to meet all transport and storage expenses until commissioning of the instrument(s) / equipment covered in the contract.

6.7 Taxes and Duties

The Supplier shall be entirely responsible for payment of all Taxes, Duties etc. incurred until delivery of the contract goods to the Consignee subject to recovery afterwards in the bill as claimed in the Bid offer.

VAT as applicable is payable, to the suppliers of the State of Odisha if claimed in the Bid offer.

VAT/ CST will be paid to the Suppliers of the outside State other than Odisha, if claimed in the Bid offer.

Any revision of VAT/ CST shall automatically be taken into account.

Entry Tax, if paid by the Supplier, at the local (destination head) Corporation/ Municipality/ NAC is allowed once only on production of money receipt for such payment, if claimed in the Bid offer. Any other statutory levy imposed by the Govt. of India/ Govt. of Odisha from time to time will be considered extra on demand with adequate proof thereof The service tax and the work contract tax shall be levied (Wherever applicable). Income Tax as applicable shall be deducted at source.

6.8 Incidental Services

The Supplier shall be required to provide any or all of the following services: (The cost should be included in the quoted Price)

- Furnishing of detailed literature/pamphlets/ circuit diagram/ operation & maintenance manual / drawings (as applicable) for each appropriate unit of supplied goods.
- Furnishing of tools required for assembly and / or maintenance of the supplied goods.
- Performance or supervision of on-site assembly and the supplied goods.
- Performance or supervision or maintenance and/ or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty/ guarantee obligations under the contract.
- **Training of the Purchaser's personnel at the Supplier's plant and / or on site, in assembly, start up, operation, maintenance and/ or repair of the supplied goods is mandatory.** A maintenance contract for the goods supplied, if required by the user beyond the warranty period shall be on mutually agreed upon terms between the user and supplier. The cost of such maintenance contract shall not be included in the Bid cost.

6.9 Period of Validity of Bids

- The bid rates should be kept open/ valid for a period of **180** days from the date the Bids are opened.
- A bid valid for a shorter period i.e less than **180** days shall be rejected, as nonresponsive.

- In absence of any indication of the date of validity in the bid, it will be presumed that the offer will remain valid for the minimum period i.e. **180** days as prescribed above.
- In exceptional circumstances the purchaser may solicit the bidders consent for extension of the period of validity. If agreed upon, the bid security so deposited shall also be suitably extended.

6.10 Commissioning Period

Maximum commissioning period is **30 days** from the date of supply OR **120 days from the date of issue of Purchase Order** failing which the purchaser will have the right to impose penalty for the delay period @ **0.5% per week of the contract value of item/items excluding taxes from the bill amount subject to maximum of 10%**. However, Registrar has right to extend the delivery period/commissioning period in special cases.

6.11 Penalty against Non Supply

In case of non-supply of Stores within the due date i.e. within the date of delivery the EMD deposited by the bidder shall be forfeited.

6.12 Rejected items

No payment shall be made for rejected supplied items. Rejected items must be removed by the bidders within two weeks of the date of rejection at their own cost and replace immediately. In case these are not removed these will be auctioned by the purchaser (at the risk and responsibility of the suppliers) without any further notice.

6.13 Annual Maintenance Contract

The Cost of Annual maintenance contract for next 3 years after warranty period shall be submitted as per the **Annexure at I(b)**. The after sales service during and after the warranty / guarantee period should be available from companies own engineers.

6.14 Jurisdiction of the Court

The Purchaser and the Supplier shall agree that the competent Court at Sambalpur shall have the jurisdiction to try and decide anything between the parties and they may approach the Competent Court at Sambalpur if required at any time



REGISTRAR
VSSUT Burla
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V.S.S. University of Technology
Burla, Sambalpur, Odisha-768078

**REGISTRAR
VSSUT, Burla**

ANNEXURE-I (a)

PRICE SCHEDULE (ITEM WISE) PRICE SCHEDULE (ITEM WISE)

Item Serial No	Item Description	Country of origin with make & model	Quantity & Unit								
				Exware house/ Ex-showroom/ Off-the-shelf (a)	Excise duty/Costum duty, if any (b)	Packing & Forwarding (c)	Inland transportation, insurance and other local csts incidental to delivery (d)	CST/ Entry tax, if any (e)	Unit price (a+b+c+d+e)	VAT (f)	Total Price (a+b+c+d+e+f)

ANNEXURE-I (b)

**PRICE SCHEDULE (ITEM WISE) - B
PRICE SCHEDULE FOR ANNUAL MAINTANCE CONTRACT AFTER COMPLETION OF WARRANTY PERIOD.**

Sl.No	Brief description of Goods Total annual	Quantity in nos.				Annual Maintenance Contract cost 3 years i.e. 3x (4a+4b+4c)	
			1st yr.	2nd yr.	3rd yr.		
1	2	3	4	5			
			(a)	(b)	(c)		

After Completion of warranty period

Note: -

1. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
2. The cost of Annual Maintenance Contract (AMC) which includes preventive maintenance including testing & calibration as per technical/ service/ operational manual, labour and spares, after satisfactory completion of warranty period may be quoted for next 3 years on yearly basis for complete equipment and turnkey (if any).
3. The cost of AMC may be quoted along with taxes applicable on the date of bid opening. The taxes to be paid extra, to be specifically stated. In absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
4. Cost of AMC will not be added for Ranking/Evaluation purpose. However, the cost of AMC for lowest evaluated bidder is subject to negotiation.
5. The payment of AMC will be made as per payment terms of the bid document.
6. The uptime warranty and down time penalty shall be as per the bid document.
7. All software update should be provided free of cost during AMC period.
8. The stipulations in Technical Specification will supersede above provisions.
9. The supplier shall keep sufficient stock of spares require during Annual Comprehensive Maintenance Contract period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and get them custom cleared and pay all necessary duties.

Place:

Date:

Signature of Bidder
Business Address
Seal of the Bidder

ANNEXURE - II

WARRANTY MAINTENANCE CONTRACT AGREEMENT.

THIS AGREEMENT made the.....day of, 20__ between the “**The Registrar, Veer Surendra Sai University of Technology, Burla**” (hereinafter "the Purchaser") of the one part and M/s..... (here in after called "the Supplier") of the other part: WHEREAS the Purchaser invited bids for certain Goods & ancillary services viz, supply and commissioning of the instruments & equipment at Bhubaneswar including Comprehensive Warranty Maintenance Services and has accepted a bid by the Supplier for the instruments & equipment specified below at the Consignee site including Comprehensive Warranty maintenance Services for a period of 2 (Two) year from the date of installation & commissioning of the instruments & equipment as per award of Contract No..... dated

Name of the Equipment & machineries Qty

(To be filled in as per details of goods in the award of Contract)

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. Maintenance Services shall consist of Preventive and Corrective maintenance of equipment specified above & will include repair and replacement of parts free of cost.
2. Preventive maintenance, monthly once, which includes:
 - 2.1 Check-up to ensure that device connection is proper, cabling is at proper condition etc.
 - 2.2 Cleaning of the above instruments & equipments and checking the System Performance.
3. The Supplier is to furnish the tentative schedule of the preventive maintenance of Warranty Maintenance Contract (WMC) to be carried out.
- 4 The parts replaced must be new parts or equivalent in performance to new parts.
5. The Supplier will also provide the same maintenance service in case of the movement of equipment from the place of original installation to a different place or location, if the equipment is shifted by the Purchaser to another place or location at the cost and risk of the purchaser.
6. Any complaint informed through telephone must be acknowledged with a Complaint No. by the Supplier which will be noted by Consignee. All further contact with the Supplier on such complaint will be initiated through that Complaint No. Once rectification done, that No. will be cancelled by both parties. A register is to be maintained by the Supplier where complaints are to be noted along with Complaint No.
7. The maintenance shall normally be done at the earliest.
8. The Service Engineer of the Supplier will be allowed to handle the respective plant & machineries only in presence of the officer in charge at the Consignee site.
9. The Supplier should ensure that maintenance job is not hampered/delayed due to paucity of spares/inadequate manpower etc.
10. The Supplier should submit the services call report, to the Consignee for each and every service call without fail.
11. The Supplier evaluation data format for the WMC of Consignee systems may be filled up for necessary action.

12. All formats after filled up should be signed at the end of each page by the Supplier.

13. After completion of the work/repair/maintenance, the Purchaser shall issue a certificate of completion to the supplier to that effect.

Signature

For the Purchaser

Name:

Designation:

Address:

Telephone No:

Signature

For the Supplier

Name:

Designation:

Address:

Telephone No:

ANNEXURE-III

MANUFACTURES' AUTHORISATION FORM

No. _____ / Date _____ /

To

The Registrar,
VSSUT Odisha
Burla, Sambalpur.

Dear Sir, Bid No. _____

We _____ who are established and reputable manufacturers of _____ having factories at _____ (Address of Factory) do thereby authorize M/s. _____ (Name and address of Agent) to submit a bid and sign the contract with you against the above bid.

* No company or firm or individual other than M/s. _____ are authorized to bid and conclude the contract in regard to this business against this specific invitation for bid.

We hereby extend our full guaranty and warranty as per general conditions of contract for the goods and services offered by the above firm against this bid.

Yours faithfully,
(Signature for and on behalf of Manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person, competent and having the power of attorney to bind the manufacturer. It should be included original by the Bidders in its bid.

- This para should be deleted for simple items where manufacturers sell the product through different stockiest.
- The Supplier/Managing Director of the Company (if the supplier is a Company) or the Power of Attorney Holder having specific power to sign the contract can only sign the contract/execute the agreement.

ANNEXURE-IV

DETAILS OF THE BIDDERS

Bid Reference No.

Name and address of the Bidder:

01 Name of the bidder

- a) Full postal address
- b) Full address of the premises
- c) Telegraphic address
- d) Telephone number
- e) Fax number
- f) E mail:
- g) PAN No
- h) TIN No

02 Total annual turn-over (value in Rupees)

03 Quality control arrangement details

04 Test certificate held

- a) Type test
- b) BIS/ISO certification
- c) Any other

05 Details of staff

- a) Technical
- b) Skilled
- c) Unskilled

06 Branch Office/ Contact Person/ Liaisoning Office in Odisha.

- a) Address
- b) Telephone No.
- c) e-mail,
- d) Fax

Signature and seal of the Bidder

ANNEXURE-V

Technical details of the Equipment's to be supplied by the bidder

Bid Sl No. of the item	Tender specification	Bidders Specification with make and model no (Enclose manufactures catalogue / brochure for each item)	Deviation if any With university specification

Signature and seal of the Bidder

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY: BURLA



P.O: Engineering College Burla (Siddhi Vihar), Dist: Sambalpur
Odisha- 768018, India

Ref: VSSUT/MME/ 2760 /2017

Date: 28/08/2017

TENDER CALL NOTICE

Sealed tenders are invited from original manufacturers/authorized dealers for the supply of instruments/equipments for different laboratories of the **Dept. of Metallurgy & Materials Engineering**”, VSSUT, Burla, Sambalpur, Odisha. The tenders shall reach the office of the undersigned through **Speed/Registered** post only **on or before 10.10.2017 5:00 PM**.

For more details, please visit our university website www.vssut.ac.in. The authority the reserve right to accept or reject all the tenders without assigning any reason thereof.


REGISTRAR
VSSUT Burla
REGISTRAR
V.S.S. University of Technology
Burla, Sambalpur, Odisha-768018
REGISTRAR

No. VSSUT/MME/ 2760(5) /2017

Date: 28/08/2017

Copy to: -

1. M/s Display Lines, 219, Saheed Nagar, Bhubaneswar – 751007 with request to publish the above advertisement in one issue of the “all Odisha daily edition of The Samaja” and “all India edition of The Times of India” at the I & PR approved/lowest rate. The bill may be sent in triplicate along with a copy of the paper in which the publication is made.
2. University Notice Board of VSSUT, Burl a.
3. Dean F & P, with a request to upload the notice & documents in the university.
4. PA to Registrar for information & record. This is issued based on UNIVERSITY FUND, Letter No: VSSUT/F&P – 124/1657/ 2017 Dated: 03.08.2017 and subsequent approval of Hon’ble Vice-Chancellor in **Note Page No:1/ File No: VSSUT/MME/737/2017** of Dept. of MME.
5. PA to Vice – Chancellor for kind information to Hon’ble Vice – Chancellor.


REGISTRAR
VSSUT Burla
REGISTRAR
V.S.S. University of Technology
Burla, Sambalpur, Odisha-768018
REGISTRAR

POTENTIONSTAT
Technical Specifications

Sl No.	SPECIFICATIONS	PARAMETERS
1.	Maximum output current	± 2 a
2.	Maximum output voltage	± 30 v
3.	Potentiostat	Yes
4.	Galvanostat	Yes
5.	Potential range	± 10 v
6.	Applied potential accuracy	$\pm 0.2\%$ of setting 2 mv
7.	Applied potential resolution	150 μ v
8.	Measured potential resolution	300 or 30 μ v
9.	Current ranges	10 na to 1 A in nine ranges
10.	Applied and measured current accuracy	$\pm 0.2\%$ of current and $\pm 0.2\%$ of current range
11.	Applied current resolution	0.015% of current range
12.	Measured current resolution	0.0003% of current range
13.	- at current range of 10 na	30 fa
14.	Potentiostat bandwidth (1)	>1 mhz
15.	Potentiostat risetime/falltime (1 V step, 10-90%) (1)	< 250 ns (with external source)
16.	Potentiostat modes	High speed/ high stability
17.	Input impedance of electrometer	> 1 T Ω //< 8 pf
18.	Input bias current @25°C	< 1 pa
19.	Bandwidth of electrometer	> 4 mhz
20.	IR-compensation	Depending on selected range: 0 Ω -20 Ω at 1 A range to 0 Ω -200 M Ω at 10 na range, current interrupt and positive feedback available
21.	Resolution	0.025%
22.	Four electrode control	Yes
23.	Front panel meter	Potential and current
24.	Analog outputs (BNC connector)	Potential, current and optionally charge
25.	Control voltage input	Yes
26.	Multichannel option	Multiplewe option
27.	Booster option	Yes
28.	Analog integrator	Optionally available
29.	Time constants	10 and 100 ms, 1 and 10 s
30.	Interfacing	Usb
31.	A/D converter	16-bit with software programmable gains of 1, 10 and 100
32.	Auxiliary input channels	2
33.	D/A converter	16-bit, four channels (optionally eight)

34.	Auxiliary output channel	1
35.	Digital I/O lines	48
36.	(W x D x H)	51.5 x 41.6 x 16 cm ³
37.	Weight	18 kg
38.	Power requirements	247 w100-240 v, 50/60 hz
Current booster 20 A		
39.	maximum output current and voltage	± 20 A and ± 20 V
40.	maximum output power	400 w
41.	bandwidth	20 khz
42.	current measurement	1% of full scale = 20ma
43.	dimensions (W x D x H)	52 x 42 x 17 cm ³
44.	weight	Approx. 25 kg

ULTRASONICATOR
Technical Specifications

Sl No.	SPECIFICATIONS	PARAMETERS
1.	Tank Size:	19.5" (L) x 11.5" (W) x 6" (D)
2.	Capacity:	5.5 Gallons
3.	Weight:	26 lbs.
4.	Overall Size:	24" (L) x 18" (W) x 14 1/2" (H)
5.	Voltage:	120V
6.	Frequency:	40 kHz
7.	Drain:	Yes
8.	Voltage	120V

MULTIPOINT CORROSION CHAMBER
Technical Specifications

Sl No.	SPECIFICATIONS	PARAMETERS
1.	Dimensions	
2.	Working Volume	Between 400 mL and 1200 mL
3.	Size (standard/jacketed)	Approximately 15/21 cm diameter by 42/45 cm high (including electrodes/adapters)
Working electrode port		
4.	Type	24/40 Standard Taper Ground Glass
5.	Adaptor (S)	24/40 to 8 mm tube, Teflon
Reference electrode port		
6.	Type	SJ 15/28 ball joint includes an adapter and standard reference electrode bridge tube
7.	Reference Electrode Diameter	9 - 11.5 mm (when used with the bridge tube)
8.	Bridge tube termination in electrolyte	3.5 mm diameter
Counter electrode port		
9.	Type	#7 Ace-Thread
10.	Counter Electrode (S)	30 cm (12 in.) graphite rod
Gas flow port		
11.	Type	24/40 - equipped with two-way gas flow adapter (purge/blanket)
Spare port		
12.	Type	14/20 - supplied with several polyethylene stoppers
13.	Type	#7 Ace-Thread (2x)
Chemical compatibility		
14.	Wetted Materials	ACE FETFE
15.	Non-Wetted Materials	Above, plus nylon, polypropylene, stainless steel

AUTOCLAVE
Technical Specifications

Sl No.	SPECIFICATION	PARAMETERS
1.	Type	Vertical top loading
2.	Materials of construction	Stainless steel
3.	Design temperature	250 ^{°c}
4.	Design pressure	1070KPA
5.	Working temperature	200-250 ^{°c}
6.	Working pressure	1050KPA
7.	Temperature accuracy	±1
8.	Temperature control	Automatic pre-setting digital temperature controller cum indicator with suitable J type of temperature range 0-250 °c
9.	Insulation	The entire system must be insulated suitable
10.	Pressure controller	Automatic digital display controller cum indicator with suitable transducer
11.	Safety device	Automatic temperature and pressure safety device including and excess pressure release valve
12.	Time programmer	Yes
13.	Volume	1-2 litres
14.	Purpose	Pressure leaching of ore /minerals

ICP - OPTICAL EMISSION SPECTROMETER
Technical Specifications

SI No.	SPECIFICATION	PARAMETERS
1.	Inductive coupled plasma for multi elements analysis	Yes
2.	Power efficiency must be greater with negligible variation in output power stability	Yes
3.	Fully pc controlled and full automatic operation ignition and switch off of plasma	Yes
4.	Dual monochromatic spectrometer optical resolution of minimum 0.009 nm or better at 200 nm	Yes
5.	Instrument shall get stabilized in less than 10-15 minutes from cold start and ready for analysis	Yes
6.	In software all standard condition of various elements shall be built in and one can select these condition by entering elements involved	Yes
7.	Software must have built in various mode of analysis like methods ,elements , text , analyze format ,data reprocessing, report, spectrum, result, analyst ,optimize	Yes
8.	Peristaltic pump :integrated four channels ,computer controlled pump with variable speeds	Yes
09.	Accuracy and stability of wavelength with an optical bench does not required thermostetting	Yes
10.	Wave length range cover wide range	Yes
11.	Three independent gas flow control for plasma ,auxiliary ,nebulizer system	Yes
12.	Peltier cooled CCD array detector with high quantum efficiency offering reduced warm up time and signal integration mode for best detection limit	Yes
13.	Capability to measure plasma radially ,axially and both in single mode with RF power up to 1500 watt in axial, radial & duo mode	Yes
14.	RF generator must be solid state with fast impedance matching for various matrix	Yes
15.	Nebulizer must be cross flow design, highly resistance to corrosion from various chemicals.	Yes

16.	Injector for various application	Yes
17.	Plug and play torch and simple maintenance	Yes
18.	Built in all safety interlocks for water, argon , plasma ,gas	Yes
19.	Precision auto alignment for reproducible torch positioning	Yes
20.	Dual back ground correction as standard	Yes
21.	Design for analysis of most difficult samples without dilution	Yes
22.	Nebulizer shall be as cross flow design for corrosion resistance for aqueous applications	Yes
23.	Measurements shall be made in both radial and axial direction	Yes
24.	Hybrid vapor generator	Yes
25.	Power requirement	240 V Ac , 50/60 HRZ
26.	Branded PC(1),argon gas cylinder(1), nitrogen gas cylinder with double stage SS regulator (2) Exhaust Hood online UPS(1)	Yes
27.	The software should be based on Industry Standard MS- Windows Environment (Windows latest). All the results and spectras should be stored on to the Hard Disk.	Yes
28.	Standard solution for calibration / validation to be mentioned separately in the offer.	Yes
29.	Chiller (Poly science or equivalent make) for RF Generator shall be supplied along with basic system.	Yes
30.	Standard sample for demonstration -2-3 samples	Yes

METAL CASTING MACHINE/CASTING SET UP
Technical Specifications

Sl No	SPECIFICATION	PARAMETERS
1.	Atmosphere	Partial atmospheric control with Ar with gas flow controllers to mix the gases when required
2.	Stirrer:	Variable stirrer speed from 0—1500 RPM with digital indication. ♦ Stirrer blades are interchangeable ♦ Stirrer Lifting & Lowering is motorized, switches provided in control panel
3.	Autonomous water cooling	Yes
4.	Power supply	220V ~ ±10%/50Hz
5.	Maximum power consumption	More than 3 kW
6.	Minimum alloy quantity in the crucible	500 gm
7	Maximum alloy quantity in the crucible	1kg or above
8.	Crucible material	High quality high refractoriness material for ferrous alloy solidification
9.	Maximum time for full melting	Standard
10.	Dimension	Standard
11.	Casting	Manual
12	Material of construction	Corrosion resistance
13	Surface finish of product	Good
14	Purpose :Alloy to be cast	Ferrous and nonferrous both
15	Solidification time	Standard /and manual
16	Flexibility to cast various sizes from one machine.	Yes
17	Well insulated	Yes

TWO CHAMBER MUFFLE FURNACE
Technical Specifications

Sl No.	SPECIFICATION	PARAMETERS
1.	Furnace type	Two Number Chamber Furnace , 1400°C And 1100°C
2.	Working Hot Zone	150mm Wide X 150mm Depth X 200mm Hight Each
3.	Construction of the Furnace	The furnace casing should be fabricated from mild steel plates of thickness of at least 1.6 mm. The outside of the furnace should be suitably powder coated to prevent corrosion and rusting. 4
4.	Insulation	Refractory materials used for insulation should have low heat capacity leading to the skin temperature not more than 40°C above ambient. The insulation should have low shrinkage as compared to conventional ceramic fiber blankets.
5.	Maximum temperature	1500°C & 1200°C
6.	Continuous working temperature	1350°C & 1000°C
7.	Heating element	Silicon Carbrite Solid Type And Kanthal Nicrom Ware
8.	Furnace KW rating	18KW. App.
9.	Voltage	415VAc, +/- 10%, 50Hz, +/-5%, three phase supply for the zone
10.	Type of temperature control	Microprocessor based PID Programmable controller.8 segment. MAKE MAXTHERMO
11.	Number and location of the thermocouples	PT-pt rh13% (Type R) & k-typel in pure Alumina Sheath inserted into the heating cavity surrounding the hot zone portion of the Furnace Tube through roof of the Furnace cavity connected with required length of Compensating Cable. Two Nos
12.	Heating rate	The heating element must be able to support heating rates of at least 10 Deg. C/minute in the temperature range of 8 Deg. C. 800 Deg. C. and heating rate of at least 5oC/minute above
13.	Temperature Accuracy	Within $\pm 5^{\circ}\text{C}$ for central 250 mm at maximum temperature after a maximum of two hours of soaking time
14.	Temperature control system	The furnace should be provided with automatic temperature control system consisting of following: One automatic PID type programmable temperature indicating controller capable of running a heating/cooling program with at least “8” segments. One thyristor the thyristor should be phase angle fired and suitable for either 4 to 20 mA or 0 to 10V DC

DOUBLE POT SALT BATH FURNACE (800°C & 1200°C)**Technical Specifications**

Sl No.	PARTICULARS	SPECIFICATION
1.	Description	Pit type salt bath furnace up to 800°C & 1200°C (double pot)
2.	Working Zone Dimension	Inner dia – 250 mm, Depth - 500 mm
3.	Maximum Temperature	One pot must be 900-1200°C and Second pot 300-800°C
4.	Mechanical structure	The furnace should have two main mechanical structures. The inner body should consist of the insulation, heating element etc. with Dia – 250 mm. Depth – 500 mm-working space. The outer body is to be provided for natural draught air cooling facility. Bothe the structures are to be constructed with suitable material.
5.	Thermal Insulation	Proper insulation is to be provided to prevent the heat loss preferably ceramic materials. Provide cooling fan to ensure best performance during continuous operation.
6.	Thermo couple	K-type thermocouple to be provided for temperature sensor for both 800°C & 1200°C or any latest thermocouple must be provided for temperature sensor
7.	Heating Element	Kanthal A1 heating coil for 800°C and SiC heating coil for 1200°C
8.	Power supply	Design machine for single phase 230V AC, 50Hz, ½ PH, with Neutral. Load – 4 KW (approx)
9.	Control Panel	Control panel should consist with of digital ammeter, digital voltmeter, PID digital controller, ON/OFF switches, Indicating Lamps, Fuses, Wiring cable etc., Magnetic contactor, Indicating lamp, Manual power regulator
10.	Thyristor	Thyristor power drive is to be provided for controlled power supply to the heating elements & safe operation.
11.	PID controller	Digital microprocessor based PID controller should be provided to control the furnace temperature with accuracy $\pm 1^\circ\text{C}$
12.	Melting Pot	For melting the salt suitable pot is to be provided
13.	Painting	First rust protective primer coat & Finally heat resistant spray painting finish
14.	Safety	Safety features to be provided like MCB for OL tripping, Digital safety controller for over temp. Furnace will be trip where TC will be broken. Furnace power is to be cut off if door is opened.
15.	Standard Accessories must supplied with this furnace	<ol style="list-style-type: none"> 1. Kanthal A1 heating coil – 1Set 2. Inner pot – 2 No. for 800°C & 2 No. for 1200°C 3. Thermocouple – 1 No. 4. Spare Thyristor – 2 Nos. 5. Salt – Sodium cyanide – 5kg 6. Tempering salt – 5kg
16.	The supplier	<ol style="list-style-type: none"> 1. Supplier should have commissioned at least 5 no. machines to reputed research/ government establishments 2. At least 3 user performance certificate for similar type of machines to be attached to the quotation.

		<p>3. Manufacturer of machine should provide certificate on their letter head for “Spares and parts can be supplied up to 10 years from date of supply.</p> <p>4. Supplier Will provide certificate of calibration and inspection</p>
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General Conditions

1. Calibration certificate and test certificate shall be supplied with the equipment.
2. During the entire test cycle, the furnace should be protected from shock or vibration
3. Standard accessories (consisting of items mentioned) are to be supplied at VSSUT, Burla FREE OF COST by the service engineer of the supplier.
4. Optional items are to be quoted; important spares are to be quoted. Any other items required at the time of installation and initial running of the furnace are to be quoted.
5. All manuals (Mechanical, Electrical, Operational, Maintenance, and part manual etc.) for the machine to be provided
6. Transportation cost by the supplier. Delivery on site including unloading and placement at site should be supplier responsibility
7. All onsite installation drawing to be given well in advance. Civil work and electric requirement to be clearly specified.
8. Minimum two years’ comprehensive warranty to be given by the supplier.

HIGH VACUUM TIGHT HORIZONTAL PUSH ROD DILATOMETER
Technical Specifications

SI No	ITEM DESCRIPTION
1.	Horizontal design with motorized pushrod Design
2.	Temperature range: RT up to 1600°C, contact force up to 600 cN should be possible.
3.	Horizontal Sample holders and push rod: Alumina (Al ₂ O ₃) (i) Sample holder for measurements of liquid samples must be optionally available. (ii) Sample holder for measurements of thin films must be optionally available. (iii) Sample holder for measurements in penetration mode must be optionally available (iv) Rod type sample holders should be available
4.	Sample thermocouple: S-type (Pt10%Rh-Pt) to measure the maximum temperature provided (to be located at the sample)
5.	Power supply: To be connected with 220 Volts, AC and 50 Hz; Single Phase Power Line
6.	Sample dimensions length: from 50 µm to 52 mm. and diameter up to 12mm (19mm should be possible optionally)
7.	Measuring range: Up to 5000 µm
8.	Instrument (Δ l)Resolution: 0.125 nm/digit
9.	Accuracy (i) Thermal expansion values: +/-1 % or better (ii) Temperature: +/-0.5°C for characteristic temperatures
10.	Sample supporting rings : 6 mm and 8 mm semi-circular of alumina (Al ₂ O ₃)
11.	Calibration standards: Alumina (Al ₂ O ₃) with data table and certificate [Required 02 Nos.]
12.	Calibration: For both Temperature and Thermal expansion
13.	Atmosphere: Normal air, inert, oxidizing, reducing, static and dynamic & vacuum tight system.
14.	Heating and cooling rates: 0.01°C /min to 50°C /min
15.	<i>Following dilatometer analysis feature should be available:</i> (i) Plotting of absolute or relative expansion/shrinkage curves (ii) Correction Options: (a) Correction of the system's own expansion behavior either with a calibration measurement or correction, and (b) Offset correction. (iii) Semi-automatic routines for determination of onset peak and end temperature (iv) Glass transition (T _g) and Dilatometric softening points (T _d) determination. (v) Automatic glass softening point detection and system shutdown. (vi) Calculation and graphical representation of expansion coefficients. (vii) Analysis of sintering temperatures. (viii) Automatic determination of the shrinkages during a sintering step. (ix) Rate controlled temperature management for optimization of sintering. (x) macro recorder should be available for automatic evaluation and data export functions.
16.	Following software features should be available:

	<p>(i) State of art WINDOWS 7 Software, curve comparison up to 64 curves and up to 255 segments programmable</p> <p>(ii) Integrated routines for system calibration,</p> <p>(iii) Automatic correction of sample holder expansion,</p> <p>(iv) Automatic evaluation of characteristic temperatures,</p> <p>(v) Automatic softening point cut off,</p> <p>(vi) Possibility to detect exothermic and endothermic effects through software along with length change (DTA).</p> <p>(vii) Advanced software like kinetics compatibility.</p> <p>Software for study and evaluation of the sintering/crystallization kinetics including Model-free reactions, non-linear regression steps, etc.</p>
17.	Spares, Suitable PC to be compatible with software's provided, Color desk jet / laser jet printer & UPS with 30 mints back up for PC.
18.	UPS for the whole system of appropriate capacity to be provided
19.	All accessories & consumables required for trouble free operation of the system to be quoted optionally
20.	Installation at site, & warranty for 3 year.
21.	AMC for five years after warranty to be quoted separately.
22.	Operation & service manual to be provided.

DIGITAL TORSION TESTING MACHINE
Technical Specifications

Sl No.	PARTICULARS	SPECIFICATION
1.	Description	Digital Torsion Testing Machine Torsion Testing Machine is designed for conducting Torsion and Twist on various metals and non-metals
2.	Technical Specifications	<ul style="list-style-type: none"> • Maximum Capacity: 1000 Nm (50/100/150/200/500/1000) N.m • Least Count: 0.01 Nm • Torsion Speed: 1.5 rpm (reverse) • Maximum Clearance: 500 mm between grips • Grips for square and round specimens: 5 – 15 mm • Grips for flat specimens: 5 -12 x 40 mm • Angle of Twist Resolution: 0.1 Degree • Torque resolution: 0.01% of machine capacity for entire range
3.	Power Supply	AC 220V \pm 10%, 50Hz
4.	Desirable Requirements	<ul style="list-style-type: none"> • Suitable for Torsion and Twist test on both metallic and non-metallic materials • Torque should be measured by Torque cell & Angle of twist measure by Rotary encoder. • Provision for display of Torque & Angle of twist on LCD on DAS. • Facility for connecting the DAS Panel to Computer. Special comprehensive software for torsion test to be provided. • Accuracy of Torque measurements \pm 1 % above 1/5th of the range
5.	Standard Accessories	<ul style="list-style-type: none"> • PC – Win 7 64-bit OS, Intel Core i5 Processor, 4 GB RAM, 500 GB HDD, 17” LED Monitor, APC-UPS, LaserJet color Printer. -1 set • Machine & Instruction Manual – 3 set (manual should be self-explanatory instructed with simple calculations)
6.	Other Accessories	<ul style="list-style-type: none"> • Calibration Certificate, Std. Specimen set of different lengths and shapes of different materials • Ex: Square bar, Round bar, Flat sample
16.	The supplier	<ul style="list-style-type: none"> • Supplier should have commissioned at least 5 no. machines to reputed research/ government establishments • At least 3 user performance certificate for similar type of machines to be attached to the quotation. • Manufacturer of machine should provide certificate on their letter head for “Spares and parts can be supplied up to 10 years from date of supply. • Supplier Will provide certificate of calibration and inspection

ERICHSEN CUPPING TESTING MACHINE
Technical Specifications

Sl. No	PARAMETERS	REQUIREMENTS
1.	Description	Suitable for cupping test on sheet metal of ferrous and nonferrous alloys.
2.	Sheet thickness	0.1 mm to 2.0 mm
3.	Width of sample	70mm to 90mm
4.	Blank holder force	10 kN
5.	Drawing force	30 kN (min)
6.	Rate of forming	5 mm/min to 20 mm/min
7.	Punch stroke (Depth of forming)	Upto 18 mm
8.	One turn of hand wheel	1.25 mm advance
9.	Least count of depth of penetration measurement	0.1 mm
10.	Dia of spherical end of the punch	20 +/- 0.05 mm
11.	Bore dia. of dies	27 +/- 0.05 mm
12.	Bore dia. of blank holder	33 +/- 0.1 mm
13.	Outer dia. of dies	55 +/- 0.1 mm
14.	Outer dia. of blank holder	55 +/- 0.1 mm
15.	Medium of Lubrication	Graphite grease
16.	Device to view forming	<ul style="list-style-type: none"> • Back mirror with lamp assembly should be attached with the machine to see the failure of specimen • The big handle and intermediate gearing should be provided to make easy pressing and swelling out of the charged sheet metal by the punch.
17.	Other Accessories	<ul style="list-style-type: none"> • Calibration Certificate, Std. Specimen set of different lengths of different materials must be provide. • All accessories, attachments including instruction manual, canvas cover etc. must be provided
18.	The supplier	<ul style="list-style-type: none"> • Supplier should have commissioned at least 5 no. machines to reputed research/ government establishments • At least 3 user performance certificate for similar type of machines to be attached to the quotation. • Manufacturer of machine should provide certificate on their letter head for “Spares and parts can be supplied up to 10 years from date of supply. • Supplier Will provide certificate of calibration and inspection

HYDRAULIC POWDER COMPACTING PRESS
Technical Specifications

Sl No.	PARTICULARS	SPECIFICATION
1.	Description	Hydraulic Powder Compacting Presses It is ideally suited for production of powder metallurgy parts, ceramic & cermet parts, carbon & carbide parts etc.
2.	Technical Specifications	<ul style="list-style-type: none"> • Capacity: 25Ton • Platen Size (mm): 250 X 250 • Day Light Gap (mm): 250 • Stroke (mm):200 • Bore/ Ram Dia (mm):150 • Approach speed (mm/sec): 25 to 30 • Pressing speed(mm/sec): 5 to 8 • Return speed(mm/sec): 30 to 40 • Pressure Kg/Cm²: 210 • Motor H.P: 3
3.	Desirable Requirements	<ul style="list-style-type: none"> • Powder Compacting Press is capable of forming complex shape moulded parts with uniform density throughout a varying cross section and can handle different range of powder materials. • In these presses, powder is pushed into cavity and the compound into the shape of the product. • These powder compacting machines can also efficiently handle different types of raw materials such as - Iron, Copper, Ferrite, Ceramic, Tungsten carbide • Powder Compacting Press is used in various industries viz. tabled making, brake lining etc.
4.	Standard Accessories	<ul style="list-style-type: none"> • Multi-platen adapters provided for presses to meet complicated stepper products. • Rotary encoder, PLC and LCD displays come installed for providing easy setting as well as controlling of the press. • Machine & Instruction Manual – 3 set (manual should be self-explanatory instructed)
5.	Other Accessories	<ul style="list-style-type: none"> • Calibration Certificate, Std. Specimen set of different lengths and shapes of different materials • Ex: Square bar, Round bar, Flat sample
6.	The supplier	<ul style="list-style-type: none"> • Supplier should have commissioned at least 5 no. machines to reputed research/ government establishments • At least 3 user performance certificate for similar type of machines to be attached to the quotation. • Manufacturer of machine should provide certificate on their letter head for “Spares and parts can be supplied up to 10 years from date of supply. • Supplier Will provide certificate of calibration and inspection