

PONDICHERRY UNIVERSITY

R.V.Nagar, Kalapet, Puducherry- 605014

Date 21-06-2019

Tender Notification

Sub: Pondicherry University- Supply & Installation of following equipment under Department of Science and Technology (DST-MES & DST-RFBR) funded project -Sealed Quotations called for – reg.

Sealed quotation are invited from reputed manufacturers / authorized dealers of reputed manufacturers for Supply & Installation of following equipment as per following specifications

LIST OF EQUIPMENTS:

Sr. No	Name of the equipment	Quantity
1.	Battery Cycler (Imported)	1
2.	Electrode fabrication equipments (Imported) a) Electrode coating machine b) Calendaring / hot rolling machine c) Electrode Die Cutter	1
3.	Laboratory Scale semi Automated Agitated Nutsche Filter Dryer (Indigenous)	1

1. Technical Specifications for Battery Cycler (IMPORTED)

Hardware specifications:

- 8-Independent channel.
- Voltage Measuring Range 0.8V~5V or more.
- Discharge voltage range: Min Voltage 0.7V @ Accuracy $\pm 0.02\%$ of FS Stability
- Current Measuring Range: with atleast 4 ranges or more
- Current measurement bandwidth: 100nA or lower to 5A or higher
- Note: At least 4 ranges to be provided between these ranges.
- Current Accuracy $\pm 0.02\%$ of FS Stability
- Rise time: 100uS
- voltage 4-wireconnecting
- Data acquisition speed: minimum 100 data / sec.

Software specifications:

- Direct current Internal resistance provision should available.
- Data recording variables: Current / Voltage / with time.

- Charge Mode: CCC,CCC&CVC
- Discharge Mode: CCD,CPD,CRD
- End Conditions: Voltage、 Current、 Relative Time、 Capacity
- Cycle No.: 1~65535 or more
- Steps for each cycle 255or more
- Nested Function: 4levels of loops or more
- Power-off data protection
- Off-line Operating
- User-defined safety (upper and lower) tolerance of current, voltage, Current and voltage fluctuation and Capacity Upper Limit

Important Note: For operating above software need to provide suitable **desktop computer** (Dell/HP) with integrated CPU monitor. A detailed demo must be given on software & hardware capabilities of the instrument. Electrical power supply of the instrument should be 220-240V, 50Hz.

2. Technical Specifications for Electrode fabrication equipments

Electrode coating machine :

- With touch screen interface to control coating machine operations.
- Should be equipped with suitable Vacuum pump
- Coating Speed : 0~200mm/s
- Max Stroke: 250mm
- Vacuum plate: equipped with vacuum aluminum plate
- Dimension of vacuum plate: L410mm×W200mm×H30mm
- Coating thickness: 0.01 ~3.5mm adjustable
- Heating system: room temperature~200°C.Digital displayed thermostat, the accuracy is±1°C
- Power supply: 220V/50Hz

Calendaring / hot rolling machine

Electric hot rolling press machine equipment used battery materials, in lab under a certain hot temperature. The rolling thickness should be regulated and easy to operate. Equipment is especially used for thickness reduction and density increase of clean energy material Li-battery electrodes

- Roller diameter: 2~Φ96mm
- Feeding Speed: 0~10mm/s
- Roller hardness: HRC62
- Roller finish : Ra > 0.8
- Pressing thickness: 0~2mm, adjustable.
- Pressing sheet width: 0~150mm
- Roller placing: vertical placed
- Rolling temperature: room temperature~120°C, adjustable, digital display

- Operating method: electrical
- Voltage and Frequency: AC220V/50Hz

Electrode Die Cutter: Electrode die cutter for cutting coin cell electrode & separator battery research.

- High Accuracy, die should be free from burrs, rags and dents .
- It should cut various of battery material with thickness 0.005-0.5mm .
- Cutting die : $\phi 3 \sim \phi 24\text{mm}$,
- Small dimension, convenient operation, quick and flexible use into glovebox.
- The machine body should be made of anti-corrosion material.

3. Technical Specifications for Laboratory Scale Semi Automated Agitated Nutsche Filter-Cum-Dryer: Either Glass or AISI SS 316 (INDIGENOUS)

- (i) **Laboratory scale semi Automated Agitated Nutsche Filter Dryer System** with vertical movement, Detachable Bottom Type, Heated Shaft & Blades, GMP Construction should be provided
- (ii) Working volume should be **1 Ltr to 10 Ltrs** slurry volume (Volume above filter plate. Maximum Cake Holding Capacity **5 Ltrs**)
- (iii) Designed Temperature: Room temperature to **180°C**
- (iv) Design pressure should be **-1 to 4 bar**
- (v) Should be electric agitation only
- (vi) Filter Area should be **0.1 m²** and more with batch size 1 to 3Kg cake
- (vii) Construction of Main shell will be either **double wall glass** or **AISI SS 316**, The standard Torispherical Top Dished end welded with main shell should be provided
- (viii) **Agitator Shaft & Blade** should be Solid& Sturdy design, special **S- shaped agitator/** Impeller is very effective & suitable for multiple operation like mixing, dispersion should be provided & should be possible squeezing, blending, drying and discharging. Manually operated, up-down agitator, manually operated Open and close discharge valve. Manually operated detachable bottom mounted on wheel
- (ix) Jacket should be **SS 304** will be welded on main shell
- (x) Must be provide double dry mechanical seal with bellow of AISI SS 316, for shaft sealing
- (xi) RPM of Agitator 8 – 10 RPM, Vertical Stroke of Agitator should be manually 100 mm
- (xii) Manually Bottom of the vessel is flat, detachable having SS304 plate of 8mm Thick. Bottom to be hold in position by SS 316 clamp bolts

- (xiii) **Detachable Bottom:** Manually Bottom of the vessel is flat, detachable having SS304 plate of ~ 8mm Thick. Bottom to be hold in position by SS 316 clamp bolts
- (xiv) Discharge valve should be **100** mm NB, hydraulic operated plug type discharge valve, flushed with inside of vessel. The hinged type valve mounted with shell to be open for complete cleaning
- (xv) **Filter System** should be 10 micron Non woven type PP Filter cloth, silicon lined to be used as filter media with SS clamps along with SS 316 wire mesh screen. An arrangement will should be provided to draining the mother liquid through the bottom in the form of SS 316 pipe manifold
- (xvi) **Top Assembly** should consist of drive unit mounted on a rigid **frame that Moves up and down on Single-pillar** guide bars along with the agitator assembly
- (xvii) **Drives and control** of 0.25HP X 1440RPM Hindustan/ Bharat Bijlee make Non Flameproof motor, Nord Make/ Standard make Inline helical gear box Suitable Gear Box along with necessary accessories should be provided
- (xviii) **Insulation &Gasket & O- Ring** The shell, Top Dish and product filter to be insulated with 50mm LRB mineral wool and is covered / clad by SS 304 x 3mm thick sheet & PTFE Gasket/ Silicon Rubber food grade.
- (xix) **Material of Construction** : All wetted & product contact parts like shell, shaft, Agitator, Nozzle, Bolt & Nuts and other contact parts will be made of SS 316 quality material. Support lugs, Nut & Bolts, pipe, motor base plate will also be made of SS 304 quality material
- (xx) **Operating Panel:** Non flame proof mounted adjacent to machine having On/Off push controls for agitator, power pack, reverse forward etc. Power pack panel should be provided which includes MCB's for motor, Contractor and Overload relays, indicating lamps, timer with pulsating arrangement for dust collector
- (xxi) **Condenser & Receiver** condenser / Heat exchanger, shell & Tube type made out of AISI SS304 seamless tube having 0.5 Sq meter as heat transfer capacity Condensate Receiver made out of AISI SS 304 of 10 Ltrs capacity
- (xxii) Fittings/ Instrumentations: Temperature gauge for both shell and limpet of dryer. Vacuum Gauge for shell. N₂ purging/ vent / drain arrangement On/Off valve with timer for N₂ purging to dust collector. Limit switch for man-hole interlock with main shaft motor.

- (xxiii) **Finish:** All dryer internal/ contact parts surface are polished to **Mirror finish** of 240 Gritt & External surface are buffed to matt finish of 180 Gritt
- (xxiv) **Testing & Safety:** Hydro test for **Jacket** is carried out at **1.5 Kg/Sq cm**, and main shell (i.e dryer is tested for leak under vacuum/ hydro test). Pressure relieve valve for the hydraulic power pack. Mechanical stopper for the vertical movement of the agitator. Electrical overload relays with circuit breakers for all the motors Limit switch will be provided for discharge valve cover and detachable bottom
- (xxv) Accessories Jacketed dust collector with PP filter and air/N₂ purging arrangement. Spray assembly for cake washing provided on top dish. Rotary Union installed on top of agitator for hollow agitator
- (xxvi) **Warranty:** The instrument should have warranty for a trouble free operation and Performance for a minimum period of **3 years**

TERMS AND CONDITIONS

General Information:

- a) Last date and time of receipt of the Quotations: **July 8th, 2019, 3.30 PM**
- b) Date and Time of Opening of the Quotations: **July 8th, 2019, 4.30 PM**
- d) Quotation / Tender Document fee: Rs. 500/-
- e) EMD rates: 2.5% of the quoted price for each equipment.
- f) **Two bid systems have to be strictly followed.** One for Technical bid and another for commercial bid and each bid should be submitted in separate sealed covers.
- g) However, the tender document fee and EMD as specified above should be remitted by each firm/bidder, collectively for all their bids advertised under this tender.
- h) Quoting merely the lowest price does not confer any right to any bidder for award of supply order. The University's Purchase Committee, reserves the right to select the equipment any bid under the grounds of specification compliance, technologically advanced quality, proven performance track record, brand reputation, service backup support & training, offer of additional / special features, compatibility with the existing System, etc.
- i) The Tender Document Fee and EMD should be submitted in a separate cover superscribing **Bank Demand Draft** and **which should be enclosed with the technical bid.**
- j). The Photo Copies of the Bank Instruments on payment of EMD should be attached with each bidding covers.
- k) The tender / quotation must be submitted along with the stipulated tender document fee and EMD in the sealed cover, super-scribing the name of the Department / Centre for whose equipments the tender is quoted for.

- l) The cover should also contain the information like, Name of the Equipment and Serial Number of Equipments for which the bids are submitted. The name and address of the bidder should also be mentioned at the from address space.
- m) The tenders should be addressed to the Principal Investigator, Pondicherry University.

The examples for super-scribing the envelopes of the different categories of tenders are given below:

Tender submitted under two bid system for the <u>Centre for Nanoscience and Technology</u>	
Name of the Equipment: _____	To
	Dr. A. VadivelMurugan Associate Professor, Principal Investigator (DST-MES), Centre for Nanosciene and Technology, Madajeet School of Green Energy Technology Building, Room No. G-6 & 7, Pondicherry University, R.V. Nagar, Kalapet, Puducherry – 605014.
From Supplier's Address	

In case of local delivery, all tenders are to be dropped in the tender box placed at the Information Facilitation Counter, Bharat Ratna Dr. B. R. Ambedkar Administrative Block, Pondicherry University, R.V. Nagar, Kalapet, Puducherry – 605 014.

n) Quotations will not be accepted through fax / e-mail.

II. Common Conditions (Import or Indigenous)

1. Purchase of Quotation Document:

The Quotation / Tender document can be downloaded from the University website www.pondiuni.edu.in or procured from the Pondicherry University on payment of fee as specified above, by means of a D.D, drawn in favor of **The Finance Officer, Pondicherry University, payable at Puducherry**. The downloaded application should be accompanied with the quotation document fee, in the form of a Demand Draft.

2. Price Schedule

The rates should be quoted for a single unit and also for the total quantity required by the University. The price should include the delivery, installation, training charges, etc. at the respective Department,

Pondicherry University. The prices quoted shall remain firm until the equipment is supplied to the respective Department, Pondicherry University.

3. Quoting the Core price & Tax, Duties, Discount etc.

The taxes / duties / discounts, if applicable, are to be explicitly and separately shown in the bid.

4. Eligibility:

The firm must have the requisite domain expertise with regard to supply, installation and post sale service of the items they are quoting. The firm should have been in existence for at least six years as on the date of this quotation and must have executed at least three orders for this kind of equipment during the last three years. Company should be ISO certified. The firm should have not incurred any loss in the last three years.

5. Installation:

The engineer should install the equipment **free of cost** at the site. However, utilities like power, water, air etc. will be provided.

1. Delivery:

Within 3 months from the date of receipt of approved drawings.

5. Duty Exemption

The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, vide their Notification No.10/97 dt. 01-03-1997 and 51/96 dated 23.07.96 respectively, in respect of

- a) Scientific and technical instruments, apparatus, equipment, Software including computers.
 - b) Accessories and spare parts of goods specified in (a) above and consumables.
 - c) Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, microchips etc.
 - d) Prototypes.
- Customs duties at Indian port, if any, will be to the account of the University.

6. WARRANTY:

- i) The equipments covered under the purchase order, when installed, shall be warranted for the quality, workmanship, trouble free operation and performance for a period of at **least 36 months** from the date of putting the system into operation at the Centre for Nanoscience and Technology, Pondicherry University, or at least 42 months from the date of receipt of the last lot of the consignment in India.
- ii) If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges including shipping cost both ways.
- iii) Complete technical specifications to be included in the Technical bid.

- iv) The necessary service support should be provided by Bidder during the agreement period.
- v) The training should be provided by the supplying companies for a minimum period of two days from the date of installation with an expert team.
- vi) Technical post sale support by email and telephone will be provided during the period.
- vii) Operating Manual should be provided in English.
- viii) A clear statement regarding availability of after-sales service and availability of spare-parts for next 5 to 10 years should be included.
- ix) A recent customer list (within last five years) with contact details including email address is to be submitted with technical bids / bids as the case may be.
- x) If the equipment is proprietary a product, a proprietary product certificate should be enclosed.
- xi) The information pertaining to infrastructural, power and any other requirement for satisfactory installation and commissioning of the whole system must be provided by the bidder, at least 30 days in advance of the installation to be commenced if purchase order is issued.
- xii) The equipment must operate at 230V/50 Hz single phase and / or equivalent three phase electrical power.
- xiii) If the bidder is an authorized representative in India, they are requested to inform their technical ability to take care of the problems in the system, if developed later within the warranty and outside the warranty period. The responsibility of the Indian agent must be clearly specified.
- xiv) The bidder from abroad shall obtain, if required, export permission from the appropriate authorities in his country or the country of origin for items to be shipped to India in case of items to be imported. The University shall provide necessary information if required for this purpose.
- xv) The validity of the each quotation should be at least for SIX MONTHS from closing date.**
- xvi) The offers will not be considered if received after the bid closing date and time.
- xvii) The offers received through telex / telefax / e-mail will not be accepted by the University under any circumstances.
- xviii) The University shall not be responsible for any delay / loss or non-receipt of quotations by post / courier service.
- xix) No unsolicited correspondence shall be entertained after the submission of the offer.
- xx) If an order is placed with the firm, the purchase shall be governed by an agreement as per the University rules in force at the time.
- xxi) Additional terms and conditions will be incorporated in the purchase order, if needed, to safe guard the interests of the University.
- xxii) Quotation is not transferable.

xxiii) In case of any dispute in respect of the quotation, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.

7. Power to reject the offer:

- i) Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. Any offer containing incorrect and incomplete information shall be liable for rejection.
- ii) No Agency commission will be paid to any authorized agent in India.
- iii) Liquidated damages: Timely supply of the ordered items, installation, commissioning (wherever is applicable) and training etc. is the essence of the contract. In case of failure to supply within the time specified in the Purchase order, a penalty / LD of 0.5% of the total value per week or a part thereof shall be levied subject to a maximum of 7.5% in respect of items which are not supplied. The decision of Pondicherry University shall be final in this regard.
- iv) Bidder(s) must be authorized business partners of Global / National service providers of the respective equipment.
- v) The Bidders must enclose authorization letter from the respective global / national service providers of the above equipments particularly mentioning an undertaking that in case of default by the Bidder, they (Global Service Provider) shall take over all the responsibilities of the Bidder.
- vi) The Bidder should not be involved in any Bankruptcy filing for protection from it.
- vii) The training should be provided by the supplying companies on the specimen and operation of the equipments for a minimum period of two weeks from the date of installation with an expert team.
- viii) For any clarification with respect to technical specifications, please contact the PI of the project as per the details given below: -

Sl. No.	Name of the Department/Centre	Name of the PI	Contact Details
01.	Centre for Nanoscience and Technology	Dr. A.VadivelMurugan Associate Professor & PI	+91 9488566463

III. Specific Conditions for Imported Equipments

1. Payment of EMD:

The Quotation must be accompanied by EMD as stated above, by means of a Demand Draft, drawn in favor of **The Finance Officer, Pondicherry University, payable at Puducherry. The Small Scale units**

are exempted from payment of EMD provided they enclose the proof of their exemption Certificate issued by the competent authority.

2. Payments terms:

- i) Normally a letter of Credit will be opened for 90% of CIP price, on receipt of order acknowledgement. However, 100% of the LC also be considered, if the supplier provide Bank Guarantee towards performance Security for the 10 % of the total cost of the equipment to cover the Warranty Period.
- ii) Bank charges in India shall be borne by the purchaser and outside India shall be borne by the contractor / supplier.
- iii) The offer must be in English. The rates should be indicated both in figures and words against item specified in the given table. It is preferable that the price be quoted in Rupees or in US Dollars or in major foreign currencies.
- iv) The total cost should be quoted for FOB as well as CIF – Pondicherry University.
- v) However, the price quoted under FOB or should also include the following cost if they are required during the initial stage:
 - a) Local freight / insurance for Chennai airport to University laboratory.
 - b) Installation cost if any.
 - c) Cost of consumables which are required for the equipment for initial operation upto a reasonable time.
- vi) In case of the Principal supplier of foreign country unable to meet the conditions stated at para no.4, the local agent / dealer should fulfill the above said conditions in respect of Local Insurance, Freight, safety transport and installation, etc.
- vii) The bidder from within India shall obtain the requisite approval for Imports etc., if required.
