

Tender Notification for the Procurement of Equipment for Electrode Preparation and Battery Assembly

(Last Date for Submission: 26th Apr 2019)

Kindly send your best priced quotation for the listed Equipment for Electrode Preparation and Battery Assembly with the following technical specifications on **C.I.P. Bangalore basis**. Your quotation should clearly indicate the terms of delivery, delivery schedule, and payment terms. The tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 17:00 hours on 26th April 2019.

The bids should be addressed to:

*The Chairman,
Solid State and Structural Chemistry Unit
Indian Institute of Science (IISc)
Bengaluru, India - 560012.*

The sealed bids should be sent to:

*Naga Phani Aetukuri
Assistant Professor,
Solid State and Structural Chemistry Unit
Indian Institute of Science (IISc)
Bengaluru, India - 560012.
Ph: +91-80-2293-3534
email:phani@iisc.ac.in*

Please enclose a compliance statement along with the technical bid.

Technical Specifications for Equipment for Electrode Preparation and Battery Assembly

1. Planetary Vacuum Mixer for Mixing Electrode Powders

- 1.1. A maximum rotary speed of at least 600 rpm is required. This should be programmable and electrically operable.
- 1.2. There should be at least two stainless steel mixing containers: one with 500 mL and one with 150 mL volumes.
- 1.3. Both reverse and rotating mixing functions should be available.
- 1.4. A built-in vacuum pump should be included in the quote.
- 1.5. A graphical user interface for changing mixing parameters is preferable.
- 1.6. Mixing times should be programmable for at least 10 hours of mixing time

2. Automatic Electrode Film Coater

- 2.1. Film coater should be electrically operable.
- 2.2. The machine should have an adjustable stroke length of up to at least 250 mm and should come with a cover heater and an oil free vacuum pump.
- 2.3. Doctor blading electrodes of at least 100 mm width should be possible.
- 2.4. Heating system should have a temperature range of room temperature to at least 150°C and preferably 200°C.
- 2.5. Coating thicknesses ranging from 10 microns to 2000 microns should be possible.

3. Hot rolling press

- 3.1. The hot rolling press should be electrically operable and capable of generating electrodes that are 100 mm wide
- 3.2. The roller should be capable of heating to a temperature of at least 125°C
- 3.3. A calendering thickness of 10 to 2000 microns with an error of ~10 microns at 100 micron thickness is required.
- 3.4. A pressing force should be adequate to create uniform, optimally porous battery electrodes.

4. Coin Cell Disc Cutter

- 4.1. A manual coin cell disc cutter that can cut foils of Copper, Aluminium, Stainless Steel with battery electrode materials with thicknesses of 5 microns to 100 microns is required.

4.2. Cutting die should be changeable, in 1 mm increments, between die sizes of 3 mm diameter and 22 mm diameter. Punch dies of the following diameters should be included in the quotation: 6 mm, 8 mm, 10 mm, 12 mm, 16 mm, 18 mm and 20 mm.

4.3. This should have a small foot print to fit inside an argon-glove box system.

5. Coin Cell Crimping Machine

5.1. The coin cell crimper should be electrically operable and have dies for making CR 2032, CR 2025 and CR2016 type coin cells

5.2. The system should be small enough to fit into an inert Argon glove box

5.3. An insulating core such as PTFE is necessary to prevent coin cells from being shorted

5.4. A hydraulic pressure of up to 8 tons is required for successful crimping

5.5. Suitable analog or digital display should be provided to assess the completion of crimping process

6. Disassembling Die for Coin Cells

6.1. A suitable disassembling die, for decrimping coin cells, that is compatible with the above mentioned coin cell machine should also be quoted.

7. Components and Materials

7.1. It is necessary for us to test the equipment with potential materials and coin cell components. Therefore, *coin cell components* (including spacers, cases, springs) sufficient for 500 tests of 2032 coin cells and suitable *battery-grade aluminium, copper and stainless steel* foils compatible with the above quoted equipment should be included in the quotation. This is to facilitate immediate testing of all machinery supplied and to also ensure components compatible with the above machinery are supplied.

8. Other Terms and Conditions

8.1. All quoted machines that require electrical power should be operable at 220 V, 50 Hz frequency.

8.2. In case installation of these items is complicated, the vendor is responsible for the installation of the system at the institute.

8.3. The price quotation should include the cost of installation and training of potential users, if this is necessary.

- 8.4. For all machines, at least two-years warranty on all parts and labour should be provided. The warranty period should start from the date of installation or receipt of equipment by IISc, if installation is not necessary.
- 8.5. The quotation should include the cost for at least two preventive maintenance visits during the warranty period.
- 8.6. The vendor should have qualified technical service personnel for the equipment based in India.
- 8.7. The lead-time for the delivery of the equipment should not be more than 3 months from the date of receipt of our purchase order.
- 8.8. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason is reserved.
- 8.9. The tenderer should quote CIP Bangalore pricing, including shipping costs.