

Indian Institute of Technology-Delhi
Department of Chemical Engineering

Notice Inviting Quotations

Ref: IITD/CHE/VVB/2012-13/ECT+ERT

Date of Submission: 08 February 2013

Due date: 01 March 2013

Department of Chemical Engineering invites sealed quotations for “**Electrical Resistance and Capacitance Tomography Systems**” with the specifications and terms and conditions as given below. The technical and commercial bids must be submitted in separate sealed envelopes subscribed with “**Technical Bid**” or “**Commercial Bid**” as appropriate. Both the technical and commercial bids should be enclosed in an envelope subscribed “**Quotation for Electrical Resistance and Capacitance Tomography Systems**” and should be submitted to Dr. Vivek V. Buwa, Department of Chemical Engineering, IIT Delhi, New Delhi 110016, latest by **5.00 pm on 1st March 2013.**

Electrical Resistance Tomography (ERT) and Electrical Capacitance Tomography (ECT) Instrument:

Option (I): Single modality ERT and ECT instrument	Qty
1. Single modality ERT instrument <ul style="list-style-type: none">• capable of using at least 128 electrodes in different arrangements (32x4 planes, 16x8 planes, 8x 16 planes) and with acquisition rates of 25fps @32 electrodes, 50 fps @16 electrodes, 250 fps @8 electrodes or higher• with PC with pre-loaded with complete ERT software package with additional modules/algorithms for high hold up measurements• additional software license	01
2. Single modality ECT instrument <ul style="list-style-type: none">• capable of using at least 24 electrodes in different arrangements (24x 1 plane, 12x2 planes, 8x3 planes) and with acquisition rates of 25 fps @24 electrodes, 50 fps @12 electrodes and 100 fps @8 electrodes or higher• with PC with pre-loaded with complete ECT software package with additional modules/algorithms for high hold up measurements• additional software license	01

Option (II): Dual modality ERT and ECT instrument	Qty
1. Dual modality ERT+ECT instrument <ul style="list-style-type: none">• capable of using at least 32 ERT electrodes in different arrangements (32x1 plane, 16x2 planes, 8x 4 planes) and acquisition rates of 25 fps @32 electrodes, 50fps @16 electrodes and 250 fps @8 electrodes or higher• capable of using at least 24 ECT electrodes in different	01

<p>arrangements (24x1 plane, 12x2 planes, 8x 3 planes) and acquisition rates of 25 fps @24 electrodes, 50 fps @12 electrodes and 100 fps @8 electrodes or higher</p> <ul style="list-style-type: none"> • with PC with pre-loaded with complete ERT and ECT software packages with additional modules/algorithms for high hold up measurements • additional software licenses 	
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Sensors for ERT and ECT instruments:

Description	Qty
1. Pre-fabricated sensors for ERT instrument	
(a) Custom-made circular sensor to perform measurements on 200 mm OD acrylic column (with 2 m cables)	02
(b) Adapters for high hold-up measurements (one per sensor or plane) for sensor mentioned in 1(a)	02
(c) Custom-made circular sensor to perform measurements on 100 mm OD acrylic column (with 2 m cables)	02
(d) Adapters for high hold-up measurements (one per sensor or plane) for sensor mentioned in 1(c)	02
2. Pre-fabricated sensors for ECT instrument	
(a) Custom-made circular sensor to perform measurements on 100 mm OD acrylic column (with 2 m cables)	02
(b) Adapters for high hold-up measurements (one per sensor or plane) for sensor mentioned in 2(a)	02
(c) Custom-made circular sensor to perform measurements on 150 mm OD acrylic column (with 2 m cables)	02
(d) Adapters for high hold-up measurements (one per sensor or plane) for sensor mentioned in 2(c)	02
(e) Custom-made circular sensor to perform measurements on 50 mm OD acrylic column (with 2 m cables)	02
(f) Adapters for high hold-up measurements (one per sensor or plane) for sensor mentioned in 2(e)	02
3. Additional electrodes with 2 m cable to fabricate ERT sensors (16x2 planes).	32
4. Additional electrodes with 2 m cable to fabricate ECT sensors (16x2 planes)	32

Warranty: Three years on-site comprehensive warranty should be provided. AMC price beyond 3 years should be mentioned separately.

Training & commissioning

The supplier should commission the system at IIT Delhi and train the users.

Technical bid:

A detailed technical proposal comprised of technical specifications/information on aforementioned systems and sensors should be provided. The proposal must be certified by

the OEM and should contain at least the following information in addition to all other relevant technical information.

(a) Product brochures/technical document on single modality ERT and ECT instrument and dual modality ERT and ECT instrument with following details:

- Numbers of sensors and planes that the single modality ERT, the single modality ECT and the dual modality ERT+ECT instruments can support
- Possible electrode arrangements (no. of planes and no. of electrodes per plane)
- Offline and online data (frame) acquisition rates for each of the aforementioned electrode arrangements.
- Types of data and their formats that can be accessed (e.g. processed data, raw data etc)
- Image reconstruction software and algorithms they are based on
- Calibration or verification/benchmarking data on spatial and temporal measurements performed using ERT and ECT instruments for some standard test cases

(b) Product brochures/technical document on sensors for ERT and ECT instruments:

- Numbers of electrodes per sensor
- Nature of technical support on fabrication of ERT and ECT sensors using the additional electrodes

(c) List of customers in India to whom similar systems have been supplied in past five years. The specifications of systems supplied with the copy of purchase order may please be provided.

(d) All information mentioned in items marked * in the terms and conditions provided below.

Price bid:

- (a) The price bid should contain separate prices for single modality ERT, the single modality ECT and the dual modality ERT+ECT instruments.
- (b) For sensors with different dimensions mentioned above, price per sensor should be quoted.
- (c) All information mentioned in items marked ** in the terms and conditions provided below.

Terms and conditions

(a) IIT Delhi is exempted from paying custom duty under notification No.51/96 (partially or fully) and necessary "Custom Duty Exemption Certificate" can be issued after providing following information.

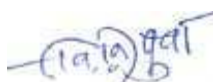
- Shipping details i.e. Master Airway Bill No. and House Airway No. (if exists)
- Forwarder details i.e. Name, Contact No., etc.

Custom Duty Exemption Certificate will be issued to the shipment in the name of the Institute and Bills of Entry should be submitted to IIT Delhi later on.

(b) Either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid, but both cannot bid simultaneously for the same item/product in the same tender. If an agent submits bid on behalf of the Principal/OEM, the same agent shall

not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

- (c) If the bidder is an authorized dealer of any manufacturer, the authorized Indian dealership certificate from the principal should be enclosed. **Similarly, proprietary certificate for proprietary items should be provided.** *
- (d) IIT Delhi is exempted from paying Excise Duty and necessary Excise Duty Exemption Certificate will be provided for which following information is required.
- Quotation with details of Basic Price, Rate & Amount on which ED is applicable.
- (e) Please quote prices of imported items at FOB (Freight on Board) IIT Delhi inclusive of all taxes, freight, delivery, installation and onsite training charges. The quotation should provide the total price of the system including all taxes and transportation charges. **
- (f) Payment Options: Letter of Credit: 90% payment against shipping documents & balance 10% after satisfactory installation. For large purchase i.e. costing over Rs. 1 crore, 100% payment be made through LC. **
- (g) Quotations must be valid for at least three months from the date of NIQ and prices quoted shall be firm for the bid validity period. *
- (h) Terms of warranty and delivery schedule should be clearly mentioned. *
- (i) A special discount/rebate wherever admissible keeping in view that supplies are being made for educational purpose in respect of public institution of national importance may please be indicated. **
- (j) Authority of IIT Delhi reserves the right to reject any or all quotations without assigning any reasons.



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