

**Centre for Applied Research in Electronics
Indian Institute of Technology Delhi**

13th February 2014

The Centre for Applied Research in Electronics is planning to purchase an **Ultra Pure Water Purification System** for MEMS & SAW Process Laboratory. Quotations for suitable systems matching the desired specifications and following IIT Delhi norms are hereby invited for the purchase.

Complete requirements of Ultra Pure Water Purification System are listed below:

- 1) **Feed Water Specifications :**
 - a) Water Quality : Potable tap water
 - b) Fouling Index (SDI): 12.
 - c) Free Chlorine: < 3 ppm.
 - d) Conductivity: < 2000 uS/cm.
- 2) **Product Water Specifications:**
 - a) Resistivity: 18.2 MΩ.cm at 25 °C.
 - b) TOC: < 5 ppb.
 - c) Bacteria: < 0.1 cfu/mL.
 - d) Pyrogen: 0.001 Eu/mL.
 - e) RNase: < 0.01 ng/mL.
 - f) Flow Rate: 5L/Hour at 25 °C.
- 3) **System Power:** 220 V; 50 Hz.
- 4) Ultrapure Water Purification system should be Class 100 clean room compatible.
- 5) System should have Pretreatment cartridge with antiscaling compound and silver impregnated carbon to avoid the need for extra softener.
- 6) High flux thin film composite polyamide RO membrane with 94- 99% rejection.
- 7) Conductivity meter before and after RO to measure the performance of the system.
- 8) System should have a Recirculation loop with capillary tube and diaphragm valve to reduce wastage of water.
- 9) Permeate divert valve Preventing premature exhaustion of downstream purification system.
- 10) System should have a built-in tank of at least 50 litres to store purified water.
- 11) System should have a Recirculation Pump with unique temperature feedback mechanism to maintain constant flow rate both at high and low temperature conditions.
- 12) Coaxial resistivity cell with a flow through design and a cell constant of 0.01cm^{-1} for accurate measurement of product water resistivity.
- 13) System should have 185/254nm dual wavelength UV lamp and remote dispenser.
- 14) System should display both compensated and non-compensated temperature accurate within $\pm 0.1^\circ\text{C}$ (GLP compliant).
- 15) Final filter with 0.22 micron membrane filter in stack disc configuration for removal of bacteria and particulates.
- 16) System should have an ultra filtration (UF) cartridge with LRV is between 5.6 and 7.65 over challenge range of 220 and 22000 Eu/mL.

- 17) On site validation of the system with complete IQ, OQ, PQ and MP procedures.
- 18) System operation display should depict water quality / temperature compensation / product unit / pressure units / pack lifetime.
- 19) On demand demonstration of the system over compliance.
- 20) **Warranty: Minimum 1 year.** (For next 2 years should be quoted as option)
- 21) All the components of the Ultra Pure Water Purification system should be of the single original equipment manufacturer (OEM) and quoted as a stand-alone system.
- 22) Make (with country of manufacturing) and model of the sub-components/parts used in the system should be clearly mentioned.

ADDITIONAL OPTIONS:

These may be quoted separately as optional capabilities of the equipment. All options must be fully compatible with the above specified configuration.

1. The stand-alone Ultra Pure Water Purification System may have an extra pre-treatment cartridge with a 3 micron and a 1 micron PP depth filter to ensure longer RO membrane life.
2. Spares not included in the above system and needed for normal or additional operation for one year should be mentioned separately.
3. AMC: For additional three years without spares.

The suppliers/manufacturers are requested to submit quotations (*financial and technical bids in separate sealed covers and again sealed in one envelope*) for the above mentioned equipment with specifications as per our NIQ or better by **5:00 PM, 3rd March 2014**

I. ALL BIDS MUST HAVE THE FOLLOWING INFORMATION.

1. *Supplier must mention the following details about the warranty:* Number of years, starting date (from the date of installation). Additional charges in case extended warranty is required. Also mention if different components have different periods of warranty.
2. Warranty at customer site.
3. Please indicate the critical spares and their expected life time.
4. Quote the prices of listed accessories separately.
5. Delivery period must be clearly mentioned.
6. Validity of the quotations should be at least for 90 days.
7. All quotations must be FCA or Freight on Receipt
8. Please provide user list of similar systems installed within India and abroad.
9. Specification compliance certificate
10. Bank details on which the letter of credit is to be issued
11. The letter of credit will be opened for 100% of the cost of the system. 90% of the amount will be released after the receipt of shipping documents. The balance 10% will be released within one month of successful demonstration at the site of installation.
12. Information for the wire transfer details should also be provided.
13. The information on utility facilities, foot print of the machine and the weight of the system must be provided in the technical bid.

II. PLEASE NOTE THE FOLLOWING POINTS.

1. Mode of payment will be through letter of credit in case of imported items.
2. The Institute has the right to accept or reject any or all quotations without assigning any reasons.
3. The bidder must submit quotation for atleast one fully integrated equipment, excluding the optional items. The quotation submitted with the pricing details of individual component will not be considered.
4. Since, the equipment is meant for teaching purpose in a reputed educational institute in India, a special price discount may be offered.

The sealed quotations must be submitted to:

Prof. B. S. Panwar
Block III, Room 212 / 213
Centre for Applied Research in Electronics
Indian Institute of Technology Delhi
Hauz Khas, New Delhi – 110016 (India)

For any clarification please send E-mail to: bspanwar@care.iitd.ernet.in

DEADLINE for submitting the quotations: 5:00 PM, 3rd March 2014