



No.RARS /SZ(7)/2886/17

Date:05/01/2022

E-TENDER NOTICE

E- Tenders are invited for the supply and installation of following Equipments for Regional Agricultural Research Station(Southern Zone), College of Agriculture, Vellayani, as per the technical specifications and the terms and conditions below:

Specifications:

1. pH meter

- 1.Type: Microprocessor based with digital display
2. Display: pH.mV and temperature

pH:

Range	:0 to 14 pH
Resolution	:0.01 pH
Stability	: 0.01pH per hour
Relative Accuracy	: ± 0.02 pH ± 1 Digit
Slope	:85% to 115%
Standard Buffers	:7 .000, 4 .000 ,9.183 pH
Buffer Deviation	: ± 0.5 pH

mV

Range	:0 to ± 1999.9 mV
Resolution	: 0.1mV
Accuracy	: ± 0.5 mV ± 1 Digit or $\pm 0.05\%$ of reading

Temperature

Compensation	: Auto/Manual
Range	: 0 to 99.9°C
Resolution	: 0.1°C
Accuracy	: ± 0.5 °C ± 1 Digit

Display : 7 segment 7 digitLED

Warranty: Not less than 3 years from the date of installation

Note: Kindly provide at least 10 users list who are using the same instrument within Kerala

2. EC meter

1. Type: Microprocessor based bench type with digital display
2. Micro controller-based Conductivity Meter with cells (1 CC and 0.1 CC)

Specifications for: -

Conductivity:

Range : 0.1 μ S to 100mS(6 decadic ranges)

Resolution : 0.001 μ S

Accuracy : $\pm 1\%$ of F.S. ± 1 Digit

Temperature

Resolution : 0.1 $^{\circ}$ C

Accuracy : $\pm 0.2^{\circ}$ C ± 1 Digit

Cell Constant : Acceptable from 0.1 to 5.0

Printer port : Epson compatible 80 column dot matrix

Auto Temp. Compensation: 0 $^{\circ}$ C to 100 $^{\circ}$ C with PT 100 sensor

Display : 7 Digits, 7 Segment LED with Automatic decimal point selection

Accessories : i) Conductivity cell (1CC and 0.1CC)

ii) Temperature probe (PT-100 Sensor)

iii) Stand & Clamp.

Warranty: Not less than 3 years from the date of installation

Note: Kindly provide at least 10 users list who are using the same instrument within Kerala

3. Flame photometer

1. Micro controller- based Flame photometer with auto ignition
2. The Instrument should have:

- Accuracy: 2%
- Determination up-to five elements with single aspiration
- Calibration standard up-to five point.
- Auto Ignition and Auto Gas cut-off
- Gas leak sensor
- Separate login for Administrator and Guest
- Results of a measurement taken earlier can be recalled and displayed (Max.Results Storage: 500)
- Graphics LCD readout (240 x 128 Dot)
- Online reading facility

Sensitivity of calibration

Elements	Minimum(ppm)	Maximum(ppm)
Na	0.2	100
K	0.1	100
Ca	3	300

- Curve fitting accuracy: + 2% on full scale
- Filters: Na, K, Ca
- Sample volume: Approx. 3mL
- Aspiration Time: Five element analysis within 20 second on single aspiration
- Accessories: Glass beaker (10 Number), Compressor, Gas valve, Instruction manual

4. UV- Visible Spectrophotometer

1. Optics: Double beam spectrometer with concave holographic grating single monochromatic with 1100 lines / mm or more. Beam splitter must be half-silvered mirror.
2. Sources: Pre-aligned deuterium and tungsten and tungsten halogen lamps with automatic source change.
3. Detector: Solid state detector/ PMT
4. Wavelength range: 190 - 1100 nm
5. Stray radiation must be minimum 0.02 % T at 220, 340, 370 nm
6. Wavelength accuracy: +/- 0.1nm
7. Wavelength repeatability: must be minimum +/- 0.1 nm at D2 peak 656.1 nm
8. Bandpass (Variable): 0.5, 1, 2, 5, 20 nm
9. Baseline flatness with Slit of 0.5 nm must be ± 0.00005 A
10. Photometric repeatability: +/-0.001 A at 1 A.
11. Photometric accuracy ± 0.004 Abs
12. Photometric stability ± 0.00015 Abs/ hour
13. Photometric noise less than ± 0.00005
14. Baseline flatness ± 0.001 A
15. Resolution should be minimum 0.5 nm
16. Stability must be minimum 0.00015 A/hour (At 500 nm, 2 s responses) or better
17. Noise level: at 500nm RMS and slit of 1nm must be minimum 0.00003A or better
18. Software: Windows based operating Software. Should provide recording, manipulation and storage of spectral data. It should have complete controlling of instruments and accessories of spectrometers.
19. Drift: Less than 0.002 Abs./hour at 340 and 400 nm
20. Power requirements: 220 V AC
21. Accessories:
 - a. Quartz cuvette 10mm path length- 1 pair.
 - b. PC with latest configuration and printer to be quoted

Warranty: At least 3 years from the date of installation

Note: Kindly provide at least 5 users list who are using the same instrument within Kerala

5. Refrigerated Centrifuge

1. Multipurpose laboratory centrifuge with microprocessor –based memory, digital timer and digital RPM with LCD indicator
2. Maximum RPM: 10000
3. Interchangeable rotor head: 6 X 50 mL and 12 X 15mL
4. Centrifuge design: Bench top
5. Display type: LCD
6. Parameters to be displayed by the digital display: RPM, RCF, Set time, Run time
7. Power supply: 230 Volts 50 Hz AC \pm 10%
8. Length of Power cord: approx.3 meters
9. Accessories *viz.*, polypropylene tubes and rubber adapter should be supplied

Note: Kindly provide at least 5 users list who are using the same instrument within Kerala

Warranty period at least 3 years from the date of installation

6. Horizontal shaker

1. Compact Bench top shaker with temperature control range from Ambient to 60⁰C
2. Orbital shaking with orbit diameter of 25 mm
3. Temperature control accuracy \pm 0.5⁰C of set point
4. Speed 50-350 rpm with accuracy of \pm 2 rpm
5. LED display for temperature and speed
6. Universal platform and clamps to hold flasks of various capacity
7. Automatic restart after power interruption
8. Thermostat cut off for over temperature protection
9. Noiseless operation
10. Operational voltage – 230V, 50 Hz
11. Quote for the price of CMC/AMC per year after the expiry of standard warranty
12. Compatible stabilizer
13. Should meet CSA/ UL/ CE standards
14. Display parameters: Temperature, speed and time
15. Suitable for various types of laboratory glassware

Two years standard warranty from the date of installation

Note: Kindly provide at least 5 users list who are using the same instrument within Kerala

7. Microscope (2 Nos.)

1. Binocular upright research microscope with infinity optical system
2. Should be able to perform bright field, dark field and phase contrast applications.
3. LED illumination - high intensity, uniform (uniform illumination throughout the field even at low magnifications).
4. Universal condenser.
5. Nosepiece - Quintuple or above to accommodate 5 or more objectives at a time.
6. Eyepieces - 10X with Field of view greater than 22mm with diopter adjustments.
7. Objectives – Plan Achromat or equivalent, 4x/5x; 10x; 20x, 40x and 100x (Oil immersion). Objectives 10X, 20X, 40X & 100X should be phase contrast. All objectives including oil-immersion objective should be compatible for use with cover slip (0.17mm).
8. Right Hand Stage holder with specimen holder with refocusing stage mechanism
9. The microscope to be upgradable to Fluorescence Attachment
10. Other essential accessories like, centering telescope, stage micrometer, immersion oil and required filters etc.

Should provide at least 2-year warranty and 3-year free service for the entire system from the date of installation

8. BOD Incubator

1. Size: Minimum of 55x55x90cm with temperature controller and accessories to cut off automatically either heating or cooling when ambient temperature increases or decreases from set value.
2. Cabinet double walled, outer wall made of stone enamel painted sheet steel and inner wall made of stainless steel sandwiched by 75 mm thick superfine mineral wool.
3. Working chamber with three removable perforated anodized aluminum trays and with full view inner acrylic door. Outer double walled metal door with magnetic gasket, lock and key and door operated illumination lamp.
4. Temperature thermostatically controllable between 5 to 50 °C with +/- 1°C accuracy.
5. Circulator fan inside the chamber.
6. Temperature of chamber should be indicated on a 0 to 50 °C calibrated thermometer.
7. A quiet running sealed compressor with protective devices and fan cooled condensing coil.
8. Control panel with indicators for main, heating/cooling, voltmeter, temp. setting knob and mains switch.
9. Connecting cord with plug and adapter to work on 220 V AC.
10. Must have Lock and buzzer alarm for door
11. Should have CFC free refrigeration system

Warranty: at least 2 years from the date of installation

9. Water bath

1. Rectangular 350x400x100 mm with 12 holes
2. Double walled outer MS inner SS
3. Thermostatic temperature control ambient to 100°C
4. Top cover and concentric rings made of SS
5. Electrical requirements- 220 V AC.

Warranty: at least 2 years from the date of installation

10. Hot plate (2 Nos.)

1. Body: MS, Heater top: SS
2. Size: 75 cm x 30 cm
3. Power rating: 2 KW, Heating levels: 3 (selectable)
4. Thermostatic temperature control
5. Chemical resistant top plate, easy to clean
6. Uniform heat distribution over entire heating surface

Warranty: at least 2 years from the date of installation

11. Grinding mill

1. Speed of grinding spindle: 1400 rpm or more
2. Power of grinding wheel: 5 HP
3. Input power supply: 220 V AC
4. Easy loading and unloading
5. Less noise generating

Warranty: at least 2 years from the date of installation

12. High speed stirrer

1. A microprocessor-based control for user settable constant speed stirring.
2. Continuous speed variation without need to stop the stirrer.
3. Constant stirring speed even with changing viscosities.
4. Less noise generation
5. Input power supply- 220 V AC, 50 Hz
5. **Warranty: at least 2 years from the date of installation**

13. Vacuum pump

1. Vacuum pump shall be suitable to accomplish continuous demanding operation, preferably with variable frequency drive/variable speed arrangements.
2. Pump characteristic must be provided for various inlet pressures. Product catalog of the offered pump shall be submitted along with the offer.
3. The pump mechanism shall be smooth and quiet with noise levels below 70 dB at 1-meter distance.
4. Cooling arrangements: Water cooled
5. Pump shall be supplied as a complete assembled unit, ready for operation.
6. Input power supply- 220 V AC, 50 Hz

Warranty: at least 2 years from the date of installation

14. Muffle furnace

1. Controller: Should be microprocessor based & at least 8 segments programmable or equivalent controller with necessary safety features. Programmable temperature controller with heating rate control from 10°C/min to 40°C/min. (Fast heating rate would be preferable).
2. Heating element: Kanthal A1 and backed by high temperature ceramic insulation
3. Safety: Over temperature protection and over load protection (Safety Controller) should be provided.
4. Door safety switch must be provided so that it disconnects power supply to heating element when door opens.
5. Should be equipped with digital over temperature protection circuit to fail safe in the event of a controller malfunction
6. Critical electronics component and heating elements protected by a 35A circuit breaker
7. Maximum temperature-1200 °C
8. High purity insulation material with efficient low thermal insulation.
9. Model- Bench top model

Warranty: at least 2 years from the date of installation

15. Double distillation unit with auto cut off facility (2 Nos.)

- 1.Heater Tube: Quartz / Silica /Glass
2. Double Distillation Unit Output:2.5Liter/hour or 3.5Liter/hour
3. Demountable Boiler Panel Series
4. High purity distillate
5. Long life spiral heater
6. Free from heavy metals
7. Distillate should be PYROGEN FREE
8. Organic Matter: NIL
9. Low temperature distillate.

Warranty: at least 2 years from the date of installation

16. Hot air oven

1. Model-Memmert type with circulating fan
2. Body: MS outside, SS lined
3. Size: 50 x 50 x 75 (cm)
4. Power: 1.5 – 2.0 KW
5. Fitted with Thermostat thermocouple
6. Analogue indicator thermometer
7. Indicator for power
- 8.Capacity- 250 Liter.
9. Temp range: ambient +5°C to 200°C.
10. Control accuracy: $\pm 0.5^{\circ}\text{C}$.
11. Uniformity: ± 2.0 at 100°C
12. Minimum 3 No. of shelves with height adjustable in 25mm steps.
13. Automatic cut off of heater and blower when door opened.
- 14.Digital PID temperature controller with timer, alarms and auto tuning.
15. Aero dynamic internal design for achieving horizontal air circulation.
16. Solid and plain bottom without electrical.
17. Outer body made of G.I Epoxy Coated
18. Inner body made of Stainless steel with clear bottom
19. CE certified.
20. AMC charges to be indicated.

Warranty period- minimum 2 years from the date of installation.

17. Laminar air flow

1. Laminar Cabinets, Inner Chamber and Outer Chamber made of stainless steel high efficiency particulate air filters, to achieve efficient air purification
2. Working area: 4 ft x 2 ft x 2 ft
3. Pre-filters made of high - grade nylon net fixed in S.S. frame for first stage air purification through blower system.
4. Closed Inner Chamber fitted with HEPA having very accurate performance rate of air filtration.
5. Working area of laminar airflow cabinets illuminated by fluorescent light; cabinets operated at 230V, Single Phase 50Hz AC Supply.
6. Fitted with UV Germicidal lamp for sterilization.
7. Fitted with acrylic front door sliding type
8. Variable speed blower control and Lab event timer
9. Low noise level

Warranty - minimum 2 years from the date of installation

18. Autoclave (Vertical, Capacity 30 Litre)

1. The autoclave should have single lever lock for lid with pressure interlock. The heaters should not start if lid is open.
2. Safe and sturdy chamber manufactured to ASME standards
3. External and internal chamber, lid along with all wetted parts and carrier should be fabricated with stainless steel.
4. SS Lid manufactured by hydraulic die-press. Should be fitted with pressure gauge, pressure safety valves, vacuum breaker/purge valve, manual exhaust valve
5. Instrument should be capable of conducting full pressure cycle automatically
6. Spring loaded safety valve for over pressure.
8. Pressure gauge with temperature readout
9. Microprocessor controlled
10. Independent over temperature safety cut out.
11. Castors for easy movement with break/lock.
12. Temperature range: 122 to 160 °C

Warranty: At least 2 years from the date of installation

19. Deionizer

1. The system must give Type II pure water from a single system with Tap water as the feed source.

2. Prefilter: It should come with integrated booster pump and should produce water that qualifies feed water requirement of the main system to ensure minimum recurring cost down the line. It should consist of water softener and should be customized based on feed tap water quality test report.

3. Preferred water purification methods: Adsorption by means of spherical activated carbon, catalyst, reverse osmosis, ion exchange, optional UV irradiation, and end-position particle sterile filtration

4. Product Water Quality-Type-II (Analytical grade water)

Production output: Not less than 5 L/hour

Typical Conductivity: < 20 μ S/cm

Typical ion retention: Up to 98%

TOC: <30 ppb

Bacteria level:<10 cfu/ mL

6. Feed water conductivity acceptance upto 2000 micro Siemens

7. Pretreatment Cartridge should be a combination of spherical, catalytic-effective, activated carbon, a catalyst and a downstream reverse osmosis membrane.

8. Electrical feed voltage; 100-230V +/- 10% and 50-60 Hz

9. Detailed indication of all the components, accessories and consumables to be mentioned separately in the technical bid.

10. Deionization cartridge should consist of catalytic activated carbon with ultrapure mixed bed ion exchange resin to deliver long lasting performance and low-maintenance operation. The flow inside the cartridge should be top-down to produce ideal purification kinetics and prevent any mixing of cleaning media.

11. The life time of various membranes and consumables should be stated; Pretreatment cartridge, RO membrane, Deionization cartridge, UV lamp and PESU membrane

12. System should have touch screen display with intuitive menu navigation facility for easy operation.

13. Re-circulation feature in standby mode to maintain the purity of the water.

14. The system may have the volume-controlled dispensing function

Warranty -minimum of 3 years from the date of installation

20. Precision electronic balance (Accuracy: 0.0001 g)

1. Type: Microprocessor based, digital with backlit display
2. Accuracy: 0.0001 g
3. Capacity: 0.0001 to approximately 200 g
4. Functions: Self diagnosis, auto calibration, full range taring and parts counting
5. Power supply: 220 V
6. Plate material: Stainless steel

Warranty: 3 years from the date of installation

21. Precision electronic balance (Accuracy: 0.01 g)

1. Capacity: 0.01- approximately 300 g
2. Calibration: Internal
3. Accuracy: 0.01 g
4. Type of Weighing Scale: Digital
5. Plate material: Stainless steel

Warranty: 3 years

22. Top pan balance

1. Specification -Type - electronic, single pan
2. Capacity - up to 5000 gm
3. Resolution - 100 mg
4. Pan size -Minimum 150 mm, + 20mm diameter
5. Display - LCD
6. Power supply - 220 V+ 25% ,47 to 53 Hz AC power
7. Auto zero tare function
8. Removable stainless steel tray
9. Overload protection
10. Auto calibration facility

Warranty- Minimum 2 years from the date of installation

Instructions to the bidders

- Bid documents including the Bill of Quantities (BoQ) can be downloaded free of cost from the e- Government Procurement (e-GP) Website www.etenders.kerala.gov.in.
- All bid documents are to be submitted online only and in the designated cover(s)/envelope(s) on above website.
- Price Bid shall be submitted only through online.
 - Rates quoted should be valid for a minimum period of 3 months from the date of opening the e-tender.
 - Tenders not stipulating period of firmness of rates and with price variation clause and/or subject to prior sale condition are liable to be rejected.
 - The equipment should be delivered and installed at the expenses of the successful bidder.
 - Rate quoted should be inclusive of all charges such as packing, forwarding, freight, loading/unloading/handling or installation charges and Government duties leviable, if any.
 - The supplier has to make his own arrangement for the ordinary / special tools, machinery, and other consumables required for successful completion of installation and testing.
- **Payment of fee:** Tender submission fee & EMD shall be remitted online during the time of tender submission.
- **Scanned Documents to be submitted online:**
 - Company Data sheets, Brochures & other documents such as relevant technical literatures, drawings, pamphlets containing all the relevant technical specifications of the equipment duly signed by the bidder on each page.
 - Tender form: Each and every pages of the tender form should be attested after reading the conditions provided.
 - Duly filled and signed preliminary agreement of the bid executed in Kerala stamp paper worth Rs.200/-.
 - Bids received online without the scanned copy of preliminary agreement will not be considered.
 - Users list of the equipment, if any.
 - Copy of up-to-date GST registration certificate & PAN of the bidder
 - Supporting document regarding service support
 - Authorization certificate if the bidder is a dealer
 - Valid EMD exemption certificate from the Store Purchase Department, Govt. of Kerala, if the firm is exempted from payment of EMD.
 - Undertaking to the effect that the bidder is not Debarred/ Blacklisted or Banned from any University/ Government Institute / PSU.
 - Purchase Order and performance certificate of the quoted model of Equipment from three reputed customers, preferably University/ Government Institute / PSU, if any.

• As per DSIR registration, the University is eligible for relaxation in GST as per

Integrated Tax (Rate) dated 14.11.17. Necessary documents for availing GST exemption will be provided to the successful bidder.

- **Quoting of equipment:** Only the best model fitting the specification must be quoted.
 - Vendors if quoted for lower end model while the same manufacturer is having better model meeting the above tender specifications, the technical committee shall take decision to disqualify.
 - The products should be nationally / internationally branded and CE certified.
 - The bids should be sent only for equipment model available in the market and supplied to a number of customers. Tenders with market standing with proven quality and durability only will be entertained.

- **Service:** The firms or companies bidder should ensure on site service support for the equipment.
- The maximum period required for delivery and installation of the article should be mentioned.
- Availability of the spares for the entire instrument for a period of at least 10 years should be ensured.
- If any license or permit is required, Bidders must specify in their tender and also state the authority to whom application is to be made.
- Details required for e-payment (Details of bank account having core banking facility and e- mail address of the bidder) shall be furnished along with the tender.
 - Payments will be made only after the supply is actually verified and taken to stock.

- **Warranty & AMC: As mentioned in the specification.**
 - Details of extended warranty if any, rate for extended warranty, rate for annual maintenance cost after warranty period etc. should be mentioned in the bid document.
 - If the Supplier, having been notified, fails to rectify the defect(s) within one to two week's time, the warranty will be extended to the extent of instrument lying idle without repair.
 - All parts of the instrument, accessories, and supporting instruments should be covered under the warranty.

- Bidders not accompanied by these details will be rejected.
- Associate Director of Research, RARS (SZ), College of Agriculture, Vellayani shall have no obligation to convey reason for rejection of any bid. It shall be open for Associate Director of Research, Vellayani to reject even the lowest bidder in the interest of the University and no reason need be given thereof.
- The undersigned shall not be responsible for any failure, malfunction or breakdown of the electronic system while downloading or uploading the documents by the Bidder during the e-procurement process.
- On receipt of purchase order, the supplier shall execute an agreement in Kerala stamp paper worth Rs.200/- at own cost and furnish a Performance Security of 5% of the cost.

- Withdrawal from the tender after it is accepted or failure to supply within a specified time or according to specifications will entail cancellation of the order and attract legal procedures as per the agreement.
- All subsequent Government orders connected to tenders and any revision in the rates of taxes would also be applicable to this tender.
- In addition to these all other General Conditions annexed in the Store Purchase Manual of Government of Kerala are also applicable to this tender.

Tender details	
Tender inviting Authority	The Associate Director of Research, RARS(SZ), College of Agriculture, Vellayani
Location of supply and installation	Department of Post Harvest Technology, College of Agriculture, Vellayani, Thiruvananthapuram – 695 522
Date of Publication of Tender	05/01/2022 5.00 pm
Last Date and Time of Receipt of Tenders	25/01/2022 2.00 pm
Date and Time of Opening of Bid	26/01/2022 2.30 pm If the tender opening date happens to be on a holiday or non-working day due to any other valid reason, the tender opening process will be done on the next working day at same time and place.
Earnest money deposit (EMD)	29700/-
Tender submission fee	5310/- (inclusive of GST)
Validity Period of Bid	90 days.
Period of supply and installation	Within three weeks from date of purchase order
Mode of submission of Bid	Online through the website www.etenders.kerala.gov.in only
Performance Security	5% of the quoted amount
Submission of performance security	Within 21 days from date of issue of purchase order

Further details on the tender process can be had from the office of Associate Director of Research, RARS(SZ), Vellayani during the office hours between **10.00 am and 5.00 pm.** (Mob:9995341071).


 for Associate Director of Research