

## **[BOT]**

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#### **1 Specifications of Water Purification System**

The system should include a comprehensive and optimized sequence of water purification and monitoring technologies in a single unit, allowing both pure Water(Type II) using **EDI Technology** and ultrapure water ( Type I) to be produced directly from tap.

A digitally controlled Water Softener kit with a capacity of 200 L/ Hr should be provided along with the system to ensure the consistent good feed water quality to the water purification system and reduce the consumable cost.

It should provide purified water through a remote Point-of-Delivery unit with a built-in high precision resistivity sensor with cell constant of 0.01 cm<sup>-1</sup> to measure the quality of ultrapure water just prior to the dispensing and should offer volumetric dispensing and calibration. The dispenser should be 360 degree-rotatable and detachable from its support for effortless and instant dispensing with maximum flexibility. The system must be quoted with 2<sup>nd</sup> remote dispenser under optional.

The quality of ultrapure water produced should be suitable for critical applications such as HPLC, ICP, GC, AAS, ICP-MS, mammalian cell culture, PCR, and molecular biology etc.

A Prefiltration kit comprising of Polypropylene Depth Filter, 10 inches, 10 µm, Polypropylene Depth Filter, 10 inches, 1 µm , & Activated Carbon Cartridge, 10 inches, should be supplied to protect the system from gross impurities.

The high quality RO module should remove 95-99% of ions and at least 99% of all dissolved organics, bacterial and particles from the water

**Product water Flow rate & Quality ( TYPE II):**

EDI product water should meet or exceeds Type II water quality as defined by ASTM, CAP, CLSI and ISO 3696 / BS 3997 and should also comply with the Purified Water requirements from the European and U.S. Pharmacopoeia.

EDI water (Type II ) 10 L -15L/hr or more

EDI water resistivity ( @ 25° C ): > 5 MΩ·cm (typically 10 - 15 MΩ·cm)

The system should have 185nm/254nm Dual wavelength UV lamp to eliminate bacterial and residue organics.

The system should come with a 30-40liter conical bottomed PE tank with a liquid level sensor and a tank vent filter with CO2 scavenger to prevent pure water from contamination by the surrounding air.

**It should have** Flexible choices of final filters to remove specific contaminants for multiple applications.

It should have Large LCD screens on both the water system and the POU dispenser.

**Product water Flow rate & Quality ( TYPE I):**

Ultrapure water (Type I ) Flow rate : 1.5 L/min

Ultrapure water resistivity ( @ 25° C ) : 18.2 MΩ·cm

TOC < 5 ppb

Particles in ultrapure water: ( > 0.2 μm ) < 1/ml ( with a 0.2 μm final filter or terminal ultrafiltration cartridge )

Microorganisms: < 1 cfu/ml ( with a 0.2  $\mu$ m final filter or terminal BioPak ultrafiltration cartridge )

Pyrogens (endotoxins): < 0.001 Eu/ml ( with a terminal BioPak cartridge )

The BiopPak Should produce : RNase-free water (< 0.01 ng / mL) and DNase-free water (< 4 pg /  $\mu$ L) .

## **2. SPECIFICATION OF -20° C DEEP FREEZER**

- Upright Static freezer with micro processor controller along with temperature display on top of the door.
- Tropicalized to perform at 43° C or above ambient temperature
- Dimension [W×D×H (cm)] ≤ 22 x 24 x 57
- ≥245 litre Capacity with ≥5 Shelves or Drawers
- Sealed shelves or drawers which prevent frost loss
- Temperature range inside the freezer -16°C to -25°C
- Programmable high or low temperature alarm and door open alarm.
- Convenient to move; preferable with wheels
- Quick freezing function along with programmable auto defrost function.
- Power consumption ≤ 0.80 units/24 hours.
- Thickness of insulation ≥ 80 mm along with inside temperature holding time ≥ 16 hours
- Noise level ≤45 decibel
- CFC free refrigerant like R600a or better
- Equipped with external compressor, fan motor.
- Products must be CE, ISO Certified.

### **3. SPECIFICATION OF -86° C DEEP FREEZER**

- Stainless steel interior and painted steel board exterior
- Front lockable door design with full height handle and vacuum release port
- Two-times foaming technology with double silicon gasket seal
- Adjustable stainless steel shelves with
- Inner door Insulation thickness: 100 - 155 mm, Polycarbonate/ Polyurethane insulated inner doors
- Low-noise compressor within 58-60dB, heavy-duty & commercially-available in market.
- Digital temperature display and Microprocessor-based temperature controller.
- Two units of Danfoss compressor in parallel connection to reduce noise and improve the cooling rate EBM fan electromotor.
- Unique refrigeration circulation and unipolar compressor oil-lubricated technology
- Mixed Refrigerant: CFC Free R134a, R404a, R23, R410A, N2
- In built Temperature printer which record 7 days data
- USB port compatible with capacity of USB DRIVE of 16GB
- 72 hours battery backup for printer and controller display
- Keyboard lock and password protected configuration page
- 4 units casters for easy handling
- Safety functions: audible and visual alarm for high or low temperature, power failure, low battery, door open, filter blocking, system failure, Built in Diagnostic Software system with alarm function to provide fault codes to trace and solve system errors.

### **Technical Specification:**

- Capacity (L) : 388 L
- Temp. range : -10°C to -86°C
- Internal Dimension (W x D x H) : 740x450x1200 mm
- Overall Dimension (W x D x H) : 940x840x1999 mm
- Drawers/Shelves 3 inner chambers
- Power supply : 220V/110V, 50Hz
- Weight (Net/ Gross: 330/360 kg

#### **4. CULTURE LAB AND INOCULATION CHAMBER: 15 ft. X 15 ft.**

1. Dehumidifier
  - Robust and Sturdy Performance
  - Inbuilt Hygrometer for RH monitoring
  - Maximum Uptime Performance
  - Automatic Start
  - Excellent build quality with wheels / castors
2. Timer : Digital Timers
3. Proper Illumination/light control panel
4. Fully Air Conditioned with all aseptic features.
5. Customised Stain less steel racks with ladder etc.
6. Laminar Air Flow: 3.5 ft. x 1.5 ft. x 4.5 ft. or Standard Size