

## Technical specifications of Lab Ultra Pure Water Purification System

1. The Complete Ultrapure Water system must give ASTM **Type III pure and Type I ultrapure 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-III**  
Production output: Up to 8 l/h  
Typical Conductivity: < 20  $\mu\text{S}/\text{cm}$   
Typical ion retention: Up to 98%  
Retention of dissolved organic substances: > 99 % (MW > 300 Dalton)  
Particle and microorganism retention: > 99 %  
Storage 5-8 L capacity
5. **Product Water Quality-Type-I**  
Water dispensing flow rate: Up to 1.0 l/min  
Conductivity: 0.055  $\mu\text{S}/\text{cm}$  compensated to 25°C  
Resistivity: 18.2  $\text{M}\Omega \cdot \text{cm}$  compensated to 25°C  
TOC content (system with UV lamp) < 5 ppb  
Microorganism content < 1 CFU/1,000 ml  
Particle content (> 0.2  $\mu\text{m}$ ) < 1/ml
6. The system should handle Conductivity < 1500  $\mu\text{S}/\text{cm}$ , TOC < 2000 ppb, Free chlorine < 4 ppm, Fouling Index (SDI) < 10.
7. The unit should be ideal for a daily consumption of up to 10 liters of ultrapure water with 8l/hr pure water production rate.
8. **Pretreatment Cartridge** should be a combination of spherical, catalytic-effective, activated carbon, a catalyst and a downstream reverse osmosis membrane.
9. The system should come with closed bag system of 5-8L inbuilt to store consistently high quality pure water for prolonged period and prevent Contamination by ambient air. Should have technology to avoid time consuming cleaning process as well as use of chemicals.
10. System should have a horizontally mounted **integrated UV lamp** with dual wavelength 185 and 254 nm for optimized temperature gradient and reliable results.
11. **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.
12. **Final Filter** should be 0.45+ 0.2 $\mu\text{m}$  pleated double layered sterile grade PESU membrane and should be validated according to HIMA & ASTM F-838-83 guidelines.

13. The **Life time** of various membranes and consumables **should be stated**; Pretreatment cartridge, RO membrane, Deionization cartridge, UV lamp and PESU membrane
14. System should have touch screen display with intuitive menu navigation facility for easy operation.
15. Re-circulation feature in standby mode to maintain the purity of the water.
16. The system may have the volume-controlled **dispensing function** from 50 ml to 5 l (in 50-ml-increments)
17. System should be Designed, Developed and Produced under DIN/ISO 9001 certificate Quality Management system.

**Consumables:**

18. The cost of one set of replacement consumables (cartridges) involved should be quoted.

**Warranty:**

19. The cost for extended warranty up to 3 years should be quoted

**Service:**

20. The vendor should ensure supply of spare parts and service for the quoted system for at least another 10 years.
21. The vendor will be responsible for installation, commissioning and training.
22. The vendor should have local service engineers.
23. **A Compliance sheet** against each of the above technical specification with details of the variation if any, should be provided along with the Tender bid.