Water Purification System

Purpose
To purify water for laboratory use

Specifications:

Brief Description of the System	• Microprocessor controlled water purification system involving reverse osmosis (RO) and a series of filter/ion-exchange cartridge arrangements for preparing reagent grade water from domestic water supply tap • The whole system will consist of the RO unit, a tank (RO tank) for storing the permeate from the RO unit, ultrapure water purification unit, conductivity/resistivity monitors, and related microprocessor controls • The RO unit, RO tank and the ultra-purification unit, should all be of the same make
Operational requirements	• The complete unit should work on (220 ± 10) volts, 50 Hz power supply • The system should operate on municipal water supply which will be made available to the system from an overhead tank • It should be able to operate further inlet water quality of Total Dissolved Solids (TDS) up to 2000 ppm, and free chlorine upto 0.3 ppm.
Technical Specifications – RO Unit	• The material should not include any glass or fragile components • The system should provide a product flow rate of at least 35 litres/hr • It should be capable of removing at least 95% of ionized solids, at least 99% bacteria and at least 99% organics from the feed water • The system should provide this performance over at least 80% of the total water purification life of the RO cartridge involved in the unit • The RO system should also include provision of a tank of at least 90 litres water storage capacity for storing the RO water • Any opening to the atmosphere if existing in the tank should have a proper cover or protection against dust entry • Provision of withdrawing water from this tank for laboratory use as well as for feeding to the ultra-purification system should be existing

	• Should have arrangements for direct continuous displays for the conductivities of the incoming feed water and outgoing permeate, as well as percent rejection from the RO unit. • The system should have microprocessor controlled arrangements for automatic cut offs when (i) there is inadequate water in the feed water line and (ii) when the RO tank is full to the capacity.
Ultrapure Unit	• The system should be push button start operating on the RO feed and provide a product water (continuously) of at least 35 litre/hour of the under mentioned quality: - A resistivity of at least 18 megohm cm (at 25C) - Total carbon content less than 50 ppb - Free of colloidal particles • The above mentioned quality should be obtained over at least 80% of the water treatment capacity of the cartridges involved in the unit. • There should be an arrangement for the continuous digital display of the resistivity of the product water, with a facility to read the temperature of the product water whenever felt necessary by the operator • Arrangements should also be available for the calibration checks/recalibration of the resistivity meter • Microprocessor controlled arrangements should be provided for an automatic cut off when the water level in the RO tank goes below the cut off level.
Quality Certificate	• Installation qualification, operational qualification and performance qualification certificate from NABL Accredited Laboratory or US-EPA certificate of performance
Additional Items to be Supplied	• Operation and maintenance manual • RO membrane - 1 No. • Set of Cartridges for the ultrapure unit - 1 set. • Any other spares and consumables for two years operation of the system considering the expiry dates