

Water Purification Systems

Specification

TYPE II water purification system:

Type II System should be capable of producing 10-15Megaohm resistivity with pre-treatment cartridge, Reverse Osmosis, Electro Deionization with feed water acceptance of upto 2000micro Siemens conductivity , Fouling Index (SDI) < 12, Total Chlorine < 3 ppm and TOC <2000 ppb.

STAGE 1	* 2 Stage pre-treatment system
PREFILTER	* 5 micron and 1 micron wrapped type depth filter
	* One Pressure gauges
	* Less than 50 Db noise levels
	* Automatic low/high pressure cut off
	* DC pump with 0-2 pressure at 120L /hr
	* Inlet screen filter to DC pump
	* Optional filters : 0.5 micron
	* Optional filters : Activated carbon
STAGE 2	* Pre-treatment cartridge with anti scaling compound, 0.5micron filter and activated carbon. Should contain RFID tag for easy traceability.
	* Pump with unique temperature feed back mechanism
STAGE 3	* High flux Thin film composite polyamide RO membrane with 94- 99% rejection
	* Recovery loop with capillary tube and diaphragm valve
	* Conductivity cells before and after RO would provide the efficiency of the membrane in rejecting the contaminants as well as the permeate water quality.
STAGE 4	* Electro deionization module with auto regeneration by a weak electric current, eliminating the need for chemical regeneration or replacement of DI resin cartridges .
	EDI (Electro Deionisation) module that should not require softening pre-treatment.
	* Carbon beads at cathode of the EDI module to prevent scaling of the module
	* Permeate divert valve which will divert low quality water to the drain .
	* Coaxial resistivity cell with a flow through design and a cell constant of 0.01cm^{-1}
	UV lamp 254 nm to remove germicidal effect before entering the tank [Optional]
	*Display both compensated and non-compensated temperature accurate within $\pm 0.1^{\circ}\text{C}$.
RESORVIOR	cylindrical 50 LITER PE reservoir with a conical bottom
	Sensor rod float switch, programmed to have high and low level cut off based on water level in the tank
Type I water purification system	
Type I water should be produced from two stage mixed bed ion exchange and activated carbon cartridge, and an option for final filter.	
STAGE 5	Type II water should pass through feed water specific cartridge for removal of trace contaminants.
	* cartridge must attach to the water system without treaded fittings, screws, clamps, or locking tabs.
	* To prevent deterioration of water quality during periods of non-use, the ultrapure water system will be able to recirculate water to maintain high water quality.

	Multi colour monitor displaying : resistivity, level of water in reservoir, volume dispensed and other alarms.
STAGE 6	* Final Filters Options : a) Pharmaceutical grade , final filter with 0.22micron membrane filter in stack disc configuration

Pure (Type II) water:

Resistivity.....10- 15 Mega Ohms @ 25 deg C
TOC (ppb)< 30
Flow Rate (L/hr).....3
Silica Rejection.....99.9%

UltraPure (Type I) water:

Ultrapure Water (Type 1) Flow Rate (L/min)..... upto 1 (Programmable flow rate)
Ultrapure Water Resistivity (MΩ·cm at 25°C).....18.2
Microorganisms (cfu/mL).....<0.1
Particulates < 0.22 μm (/ mL).....< 1
TOC Level(ppb)..... 10 ppb

To comply with Standard requirements, the resistivity meter shall be able to display the non-temperature-compensated resistivity.

1. ***water purification system meets internationally-recognized safety norms, shall be listed with Underwriters Laboratories (both UL and ULC), and will carry the CE mark, indicating compliance with European Union EC Directives.***
2. ***The water system will incorporate a built-in Quick Reference Guide for immediate understanding of the main operations.***