

Milli-Q® Integral Water Purification Systems or Equivalent

SYSTEM SPECIFICATIONS

Product Water Quality with Suitable Tap Water Feed

Pure (Type II) water:

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| Pure Water (Type II) Typical Production Rate (L/h) | |
| ZRXQ003T0..... | 3 |
| ZRXQ005T0..... | 5 |
| ZRXQ010T0..... | 10 |
| ZRXQ015T0..... | 15 |
| Pure Water (Type 2) Typical Water Delivery Flow Rate from E-POD (L/min)..... | up to 2 |
| Pure Water Resistivity (MΩ·cm at 25°C)..... | > 5 |
| Microorganisms (cfu/mL) –with Millipak or Biopak end filter | < 1 |
| Particulates < 0.22 µm (/ mL) –with Millipak or Biopak end filter | < 1 |
| Pyrogen Levels (EU/mL) – with Biopak end filter | <0.001 |
| RNase Level (ng/mL) – with Biopak end filter | < 0.01 |
| DNase Level (pg/µL) – with Biopak end filter | < 4 |
| TOC (ppb) | < 30 |

UltraPure (Type I) water:

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| Ultrapure Water (Type 1) Flow Rate (L/min)..... | 0.05 to 2 |
| Ultrapure Water Resistivity (MΩ·cm at 25°C)..... | 18.2 |
| Microorganisms (cfu/mL) –with Millipak or Biopak end filter | < 1 |
| Particulates < 0.22 µm (/ mL) –with Millipak or Biopak end filter | < 1 |
| Pyrogen Levels (EU/mL) – with Biopak end filter | <0.001 |
| RNase Level (ng/mL) – with Biopak end filter | < 0.01 |
| DNase Level (pg/µL) – with Biopak end filter | < 4 |
| TOC (ppb) | < 10 |

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- **To guarantee compliance with minimum laboratory safety requirements, and to ensure that the water purification system meets internationally-recognized safety norms, the water purification system shall be listed with Underwriters Laboratories (both UL and ULC), and will carry the CE mark, indicating compliance with European Union EC Directives.**
 - **For complete lab autonomy and best adaptation to laboratory water needs, the water purification system will deliver pure & ultrapure water directly from tap water.**

- The system shall be comprised of a single water purification unit containing reverse osmosis, electro-deionisation, ion-exchange and activated carbon technologies and polishing device.
- To reduce the consumable replacement, the water system will include an EDI (ElectroDeionisation) module that does not require softening pre-treatment.
- To facilitate installation in the laboratory and minimize the occupied bench space, the water purification and water delivery functions of the water purification system will be separated.
- The ultrapure water system delivery unit will dispense ultrapure water in two modes easily accessible: variable flow and volumetric dispensing
- The ultrapure water system delivery unit is designed so that regular lab containers, such as cylinders and flasks, can be filled without the need to hold them. The system will also incorporate a volumetric dispensing function capable of automatically dispensing of ultra pure water from 0.1 L up to 60 L .
- To avoid maintenance errors and to improve traceability, the internal primary consumable water purification cartridges will have a built-in RFID tag
- The ultrapure water system delivery unit will be adapted to easy ultrapure water dispense in all containers regularly used in the laboratory
- The ultrapure water system delivery unit will incorporate a fully comprehensive, graphic color LCD display to provide information 1) on system status and performance parameters, 2) on routine maintenance needs, and 3) on alarms for troubleshooting in the event of system malfunction. Graphic icons and operating control values must also be available as standard.
- The ultrapure water system built-in resistivity and TOC monitors will be calibrated according to international norms and standards.

- To comply with USP requirements, the resistivity meter shall be able to display the non-temperature-compensated resistivity.
- The internal primary consumable water purification cartridge must attach to the water system without treaded fittings, screws, clamps, or locking tabs.
- To ensure on-time reordering of the pre-treatment consumables, the system will have automatic warnings.
- The ultrapure water system will have a 2 years life time built-in UV lamp with emission at 185 and 254 nm wavelength.
- The water system will have a built-in delivery pump for optimum ultrapure water delivery.
- The internal pumps will be low voltage DC pumps for virtually silent operation.
- 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.
- The system will have a choice of point-of-use final filter options, including a 0.22 micron final filter, a point-of-use ultrafilter, and an FDA-registered medical device, to meet individual needs.
- The water system will incorporate a built-in Quick Reference Guide for immediate understanding of the main operations.
- There will be constant communication between the ultrapure water system and the feed tank to ensure that there is always a constant supply of water to the polishing portion of the system.
- The water purification system will automatically stop water delivery should a consumable not be in place.
- The water purification system will have a special mode for short periods of non usage (up to one month).

- **To prevent bacteria development in the storage tank, the system will combine a 254 nm UV lamp sanitizing water at the inlet of the tank and a 254 nm UV lamp inside the tank for prevention of biofilm development.**

Additional Specifications

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| DIMENSIONS (Cabinet): | Height: 19.7" (500 mm) Width: 13.1" (332 mm) Depth: 19.0" (484 mm) |
| DIMENSIONS (Delivery Unit): | Width: 9.0" (230 mm) Height: 22.8" (579 mm) |
| ELECTRICAL REQUIREMENTS: | GFI circuit recommended, with recommended receptacle location approx. 3 feet from unit. 90 - 255 VAC / 50-60 Hz (2 Amp fuse) |
| WATER CONNECTIONS: | Inlet: 8 mm OD polyethylene ½" Gaz RO reject: 8 mm OD polyethylene EDI reject: 6 mm OD polyethylene EDI Product: 8 mm OD polyethylene Q-POD 8 mm OD polyethylene |
| MINIMUM INLET PRESSURE: | 1 to 6 bar |
| RECOMMENDED FEED TEMPERATURE: | 5°C – 35°C (41°F – 95°F) |
| RECOMMENDED FEED WATER: | Tap (drinkable) water (EPA norms) |