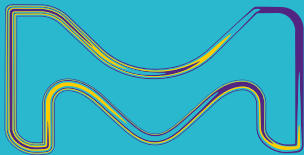


The Authentic Milli-Q® Ultrapure Experience Designed for Modern-Day Heroes

Milli-Q®

EQ 7000

Ultrapure water
purification system



The life science business of Merck KGaA,
Darmstadt, Germany operates as MilliporeSigma
in the U.S. and Canada.

Milli-Q®
Lab Water Solutions

Scientists Face Many Challenges. Water Should Not Be One of Them.

To deliver reliable, high-quality scientific results, you require consistently high-quality ultrapure water.

The **Milli-Q® EQ 7000 ultrapure water system** is designed to produce consistent ultrapure water quality [resistivity 18.2 MΩ·cm @ 25 °C; total organic carbon (TOC) ≤ 5 ppb] that can be adapted to each user's specific application requirements. Plus, a range of intelligent design features make it effortless to dispense water as needed and where needed in the lab.

An ultrapure water system designed by scientists, for scientists.

Convenient Q-POD® dispensing

- 3 flow rates or one-touch volumetric dispensing
- Dispenser mounts where you want, up to 3 m from the system
- Confidence as you work with 'Check & Dispense' lights

Flexibility that adapts to your needs

- Multiple space-saving setups: on or under the bench, or on the wall
- Customize water quality with application-specific final filters
- Hands-free dispensing foot pedal option



Control at your fingertips

- Large, intuitive touchscreen simplifies system use and data access
- Screen mounts where you want, up to 3 m from the system

At-a-glance quality monitoring

- Rapid quality monitoring assures your every dispense
- Inline proprietary TOC indicator measures at the point of use

Enjoy confidence in Milli-Q® quality...

- High-quality ultrapure water at predictable running costs
- Expert support throughout system lifetime
- Full range of services, including timesaving MyMilli-Q™ digital services

...and be supported in your sustainability goals

- >10% overall energy savings*
- 20% reduced plastic weight*
- 25% smaller footprint*
- Minimal water and energy consumption when not used for extended periods

* Vs. our previous generation Milli-Q® Reference system.

Flexibility that Fits Your Space & Needs

Choose an installation option that works for you

The Milli-Q® EQ 7000 system can be installed in a **compact benchtop configuration**, with the Q-POD® point of dispense and touchscreen directly fixed to the production unit, or you can establish a **wall-mounted setup**, with the dispenser and/or screen installed up to 3 m distance from the main unit.

Production unit installation options

- Benchtop
- Under bench
- Wall mounted

Q-POD® dispenser & touchscreen options:

- System mounted
- Wall mounted, up to 3 m from the system

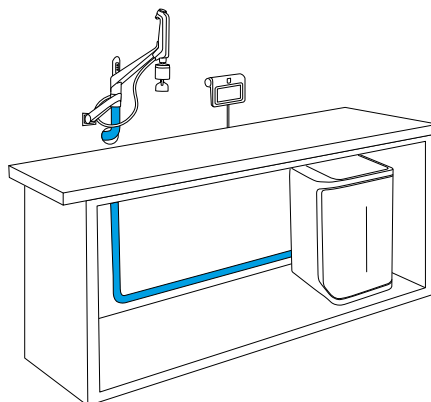
Pure water* feed options from a:

- Distribution loop
- Milli-Q® pure water storage solution

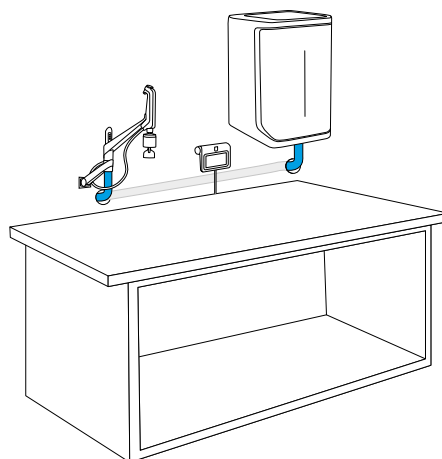


Compact benchtop setup

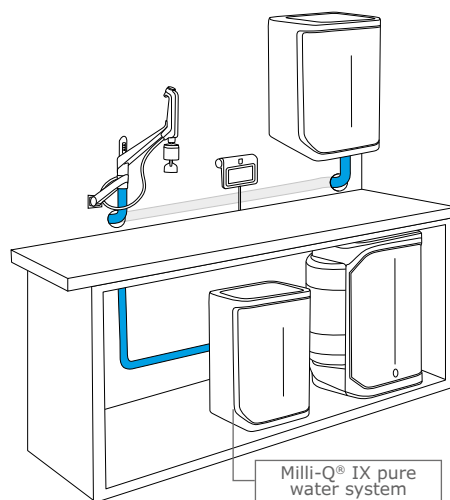
This all-in-one configuration gives you flexibility to position the dispenser wherever is convenient for your lab (on the left or right side, and at the top or bottom of the system).



Save space by placing the system on the wall or under the bench.



Feed pure water from a pressurized loop or storage tank.



Milli-Q® IX pure water system

* Feed water must be pretreated with one of the following purification technologies: Elix® electrodeionization (EDI), deionization (DI), reverse osmosis (RO), or distillation.

Easy & Agile Dispensing...

Convenience

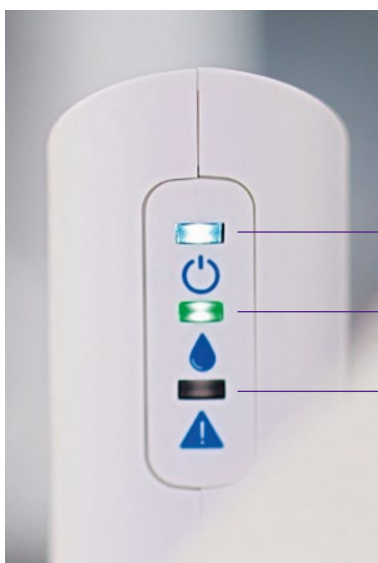
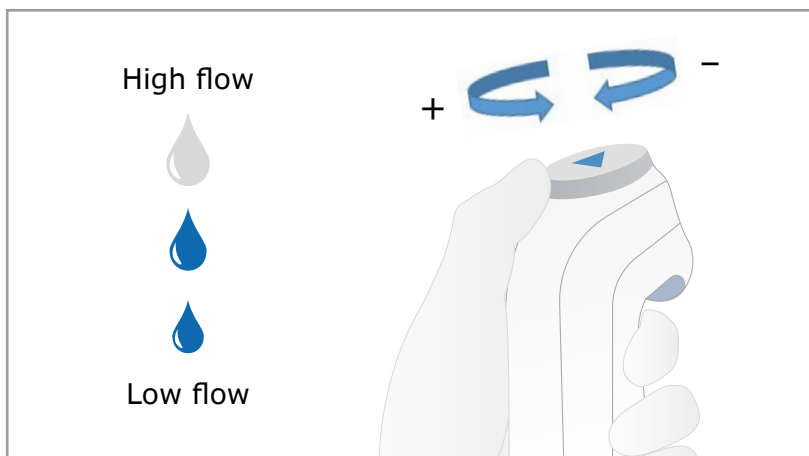
- Easy-to-use Q-POD® ultrapure water dispenser
- 3 manually controlled flow rates
 - Low, Medium, High (up to 2 L/min)
 - Adjust with your thumb
- One-touch volumetric dispensing
 - Quickly select from a pre-set menu of volumes, or customize to your needs
 - From 100 ml to 25 L, in 100 mL increments

Flexibility

- Wall- or system-mounted setup options (see page 3)
- Q-POD® dispenser rotates on a fixed arm for convenient filling
- Unhook the Q-POD® dispenser from its magnetic hold for agile manipulation

Confidence

Check & Dispense lights on the Q-POD® arm rapidly confirm that your every dispense is a high-quality dispense.



System power

Water quality

System status



Try the foot pedal option for hands-free dispensing.

Leave your hands free to do other things, or simply avoid touching the dispenser, supporting lab sanitary protocols. A simple tap of your foot starts and stops the flow of water.

...With All Information at Your Fingertips

User-friendly touchscreen interface

Navigate and control your Milli-Q® EQ 7000 system efficiently and effortlessly with its 7" (~18 cm) colored, touchscreen.

Intuitively organized menus help you quickly find what you're looking for, including:

- System information and controls
- Water quality monitoring
- Dispense options
- Purification cartridge status
- Data access and reports

At-a-glance quality monitoring

Essential water quality information is conveniently in view on the touchscreen interface:

- Resistivity and temperature
- TOC indication (see page 7 for more information)
- Application POD-Pak installed
- Water recirculation status

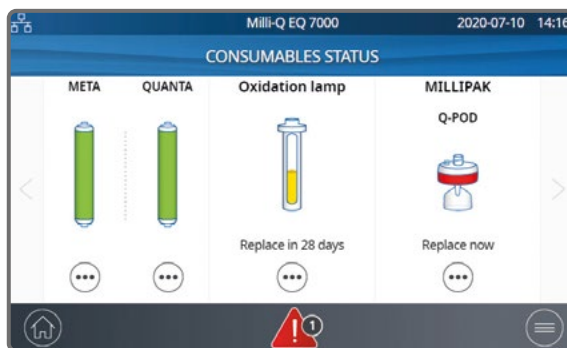
After each dispense, updated resistivity and temperature measurements and the TOC indication are displayed on the screen.

Intuitively organized system menus support ease of use and greater lab efficiency.

Colored icons display the status of installed purification cartridges.

Essential water quality information is in view.

Just tap or swipe to control and monitor your system and its data.



A USB port supports easy data export.

Connect to simplified system monitoring & data management

Connect your Milli-Q® EQ 7000 system to an authorized network or device:

- Local network (DHCP protocol/fixed IP address) via an Ethernet port
- Laptop with a fixed IP address

Connectivity facilitates:

- Remote system monitoring and control
- Rapid data access
- Paperless data management

Alternatively, data can be transferred to a USB key from the port on the touchscreen.

Support for Your Sustainability Goals



At Milli-Q® Lab Water Solutions, we are proactively engaged in reducing the environmental impact of our products and supporting your efforts to identify more sustainable solutions. All our products are produced at our ISO 14001 certified manufacturing site and all our systems comply with critical environmental regulations and directives, such as RoHS, REACH and WEEE.

We are proud of the innovation and design features that give the Milli-Q® EQ 7000 system a reduced environmental footprint vs. our previous generation Milli-Q® Reference system:

Reduced plastic and size

- **20%** reduced plastic weight
- Up to **25%** smaller footprint
- **33%** smaller and lighter purification cartridges. Smaller beads of IQnano® ion-exchange media reduce the bed volume and improve kinetics within the IPAK Quanta® and IPAK Meta® polishing cartridges.
- **>50%** plastic by weight from suppliers following the *Together for Sustainability* approach, audited by EcoVadis.

Reduced electricity consumption

- **>10%** overall energy savings
- **Lab Close mode** saves energy and reduces wear of system components as recirculation is reduced to once a day during long periods of inactivity. The system automatically resumes hourly recirculation 24 hours prior to resuming lab activity, ensuring the system is ready for use.

In 2020, Merck KGaA, Darmstadt, Germany was awarded a Platinum status from EcoVadis, placing us in the top 1% of all companies assessed.



Discover our [Sustainability Brochure](#) to learn how our innovative purification technologies and design features can support your lab's desire to make a difference.

Easy Upkeep & Carefree Maintenance

We've made the Milli-Q® EQ 7000 system easy to use and carefree to maintain so that your valuable resources can focus on what truly matters – accurate scientific results.



- **Automated quality upkeep**, including a recirculation loop and Lab Close mode, ensure that water quality is preserved when the system is not in use
- **Automatic alerts** notify you when purification cartridges need replacing to avoid risk of impacting major components
- **Coordinated, once-a-year** purification cartridge replacements minimize hassle
- **Onscreen wizards** guide you to perform simple maintenance and troubleshooting procedures in-house
- **Twist & Lock** cartridge replacements can be confidently performed by anyone in the lab in a few minutes
- **Predictable** operating costs

Twist & Lock cartridge design makes consumable changes easy and fast.



To replace purification cartridges, scan the QR code to be automatically connected to: SigmaAldrich.com/mymilliqconsumables

Work Confidently with Authentic Milli-Q® Ultrapure Water

The Milli-Q® EQ 7000 system produces ultrapure water that exceeds the requirements of the most demanding norms and can be adapted to your specific applications. (See page 10 for details on how water is purified and delivered by the system.)

Water quality grade

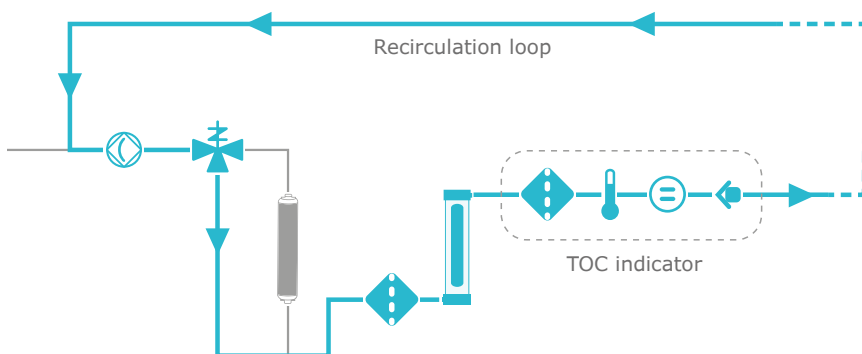
With respect to daily, freshly produced water, the Milli-Q® EQ 7000 system is intended to dispense ultrapure water that meets or exceeds water quality specifications described by the organizations below:

| Organization | Water quality/grade |
|---|--|
| European Pharmacopoeia | Purified water in bulk |
| U.S. Pharmacopeia | Purified water in bulk |
| Japanese Pharmacopoeia | Purified water |
| Chinese Pharmacopoeia | Purified water |
| ASTM® D1193 | Type I water |
| ISO 3696 | Grade 1 water |
| Chinese National Standard GB/T 6682 | Grade 1 water |
| Chinese National Standard GB/T 33087 | Ultrapure water |
| JIS K 0557 | A4 water |
| Clinical and Laboratory Standards Institute (CLSI®) | Clinical Laboratory Reagent Water (CLRW) |

Rapid, inline Milli-Q® TOC indicator

To ensure the reliability of your organic-sensitive applications, such as HPLC, the Milli-Q® EQ 7000 system integrates a new, proprietary TOC indicator that assures organic contamination is ≤ 5 ppb. This inline indicator provides TOC at the point of use, so you're certain every dispense is an optimal dispense.

| Parameter | Milli-Q® TOC Indicator |
|-------------------------------|---|
| Monitoring frequency | At dispense |
| Accuracy | Accurate indication within the range |
| TOC values display | ≤ 5 ppb, if 0–5 ppb ≤ 10 ppb, if 6–10 ppb >10 –999 ppb, a whole number is displayed |
| TOC measuring process | Inline, post-dispense |
| Photooxidation UV lamp | Low pressure mercury lamp, 185 nm |
| UV lamp replacement frequency | Once every 2 years |



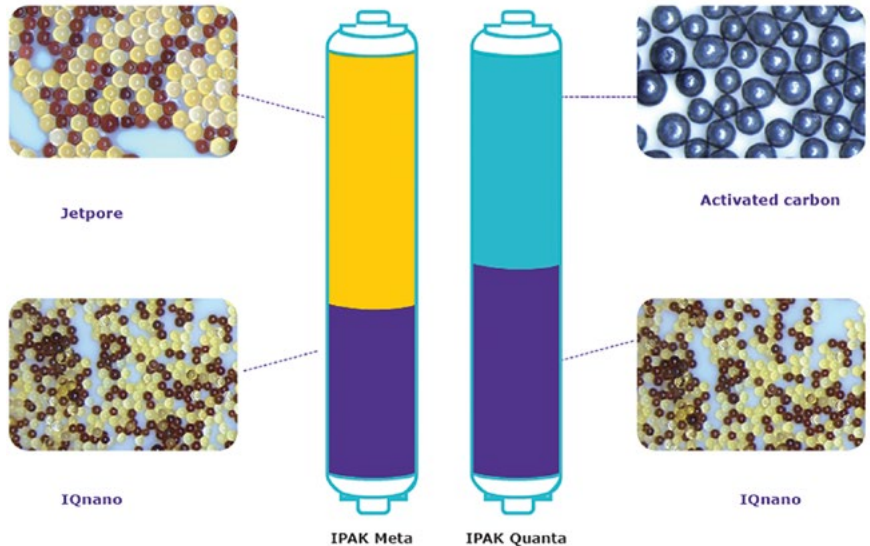
Milli-Q® TOC Indicator

Once a dispense is complete, product water flows through the recirculation loop inside the system to the UV oxidation lamp, bypassing the IPAK Meta® polishing cartridge. UV radiation oxidizes neutral organics into charged molecules, increasing water conductivity. This change is detected by an intermediate resistivity sensor and is converted by an algorithm to a TOC value. The TOC indication appears on the touchscreen monitor after each dispense.

A Powerful Combination of Purification Media

Slim IPAK Meta® and IPAK Quanta® cartridges are designed to function as a pair. The cartridges use a combination of Jetpore® mixed-bed ion-exchange resin and innovative IQnano® ion-exchange media to provide exceptional performance.

The IQnano® media's smaller bead size significantly improves the resin's kinetic properties. This reduces media needs dramatically: 33% less than former Milli-Q® cartridges — while still achieving ion removal down to trace level.



Match Water Quality to Your Needs

Application POD-Paks are final filters that adapt water quality to specific application needs. Each targets specific contaminants and removes them right at the Q-POD® dispenser.



Millipak® & sterile Millipak® Gold 0.22 µm filters
to remove bacteria and particulates from water.

Biopak® ultrafiltration polisher
for critical applications requiring pyrogen-, nuclease-, protease- and bacteria-free water.

Other available POD-Paks include:

- **EDS-Pak® polisher** for endocrine disruptor experiments
- **LC-Pak® polisher** for trace and ultra-trace organic analyses
- **VOC-Pak® polisher** for analysis of volatile organic compounds

All Application POD-Paks feature:

- e-Sure tags give full data traceability and consumable status monitoring
- Easy snap-into-place installation
- Dispensing protective bell

Trust Best-in-Class Milli-Q® Services

And save time with MyMilli-Q™ digital services

From installation and training to yearly check-ups and our timesaving digital solutions, with Milli-Q® Services you receive best-in-class service and support from the people who designed and built your system.

Quality certified & globally harmonized expertise

- Only Milli-Q®-certified field service engineers install, maintain and repair our systems
- Genuine parts from our ISO 9001-certified manufacturing site
- In compliance with our worldwide, auditable Standard Operating Procedures
- Standardized visit reports and traceable records of care

Installation & user training

- Highly trained engineers efficiently install your system, supplying all components required
- Receive user training and advice on how to use your system

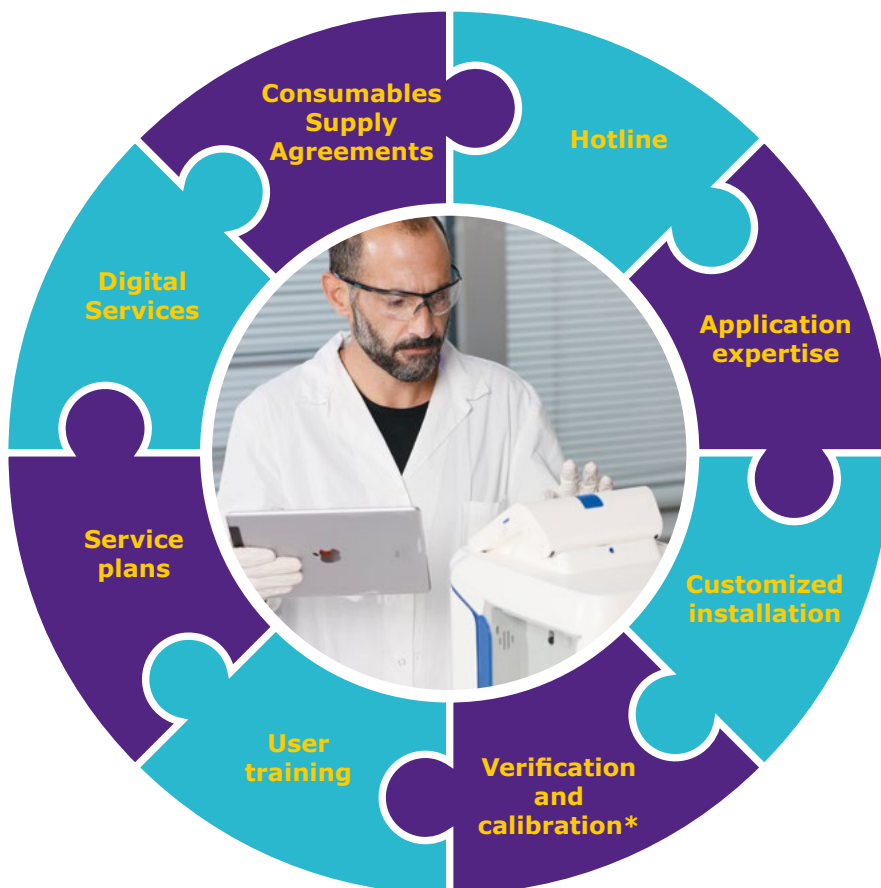
Milli-Q® Service Plans & support options to meet any lab's needs

To ensure your Milli-Q® system continuously operates at optimum efficiency, we provide a range of service plans and options that can be tailored to suit your application, compliance and budgetary requirements. All Milli-Q® Service Plans include an annual preventive maintenance visit from one of our engineers and access to our cloud-based digital service portal, MyMilli-Q™ online solution.

Milli-Q® digital services

Log into **MyMilli-Q™ online solution** to streamline the care of your Milli-Q® systems:

- Track service history and reports
- Manage purification cartridge deliveries
- Plan maintenance visits
- Renew service contracts and Consumable Supply Agreements
- Notifications by email/SMS



Discover more:
SigmaAldrich.com/Milli-QServices

* For the Milli-Q® EQ 7000 system, applies to temperature and conductivity cells.

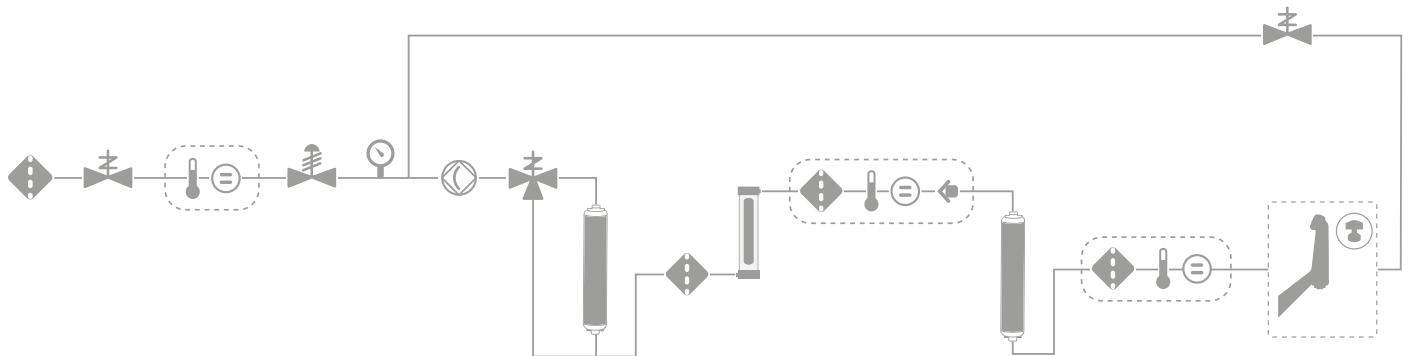
Technical Appendix

Milli-Q® EQ 7000 ultrapure water system

The Milli-Q® EQ 7000 system manages the production and the distribution of ultrapure (Type 1) water from a purified water source, such as a PE tank, the Milli-Q® IX/IQ tank, or a pressurized loop.

Water is purified to a resistivity of 18.2 MΩ.cm at 25°C and TOC ≤ 5 ppb. During dispense, water is sent through a small recirculation loop to the Q-POD® dispenser where a final purification step—the Application POD-Pak—removes specific contaminants just before water leaves the system.

Flow schematic



Strainer filter



Pressure sensor



UV lamp, 185 nm



Solenoid valve



Pump



TOC indicator



Conductivity / resistivity cell



3-way valve



Q-POD dispenser



Pressure regulator (option)



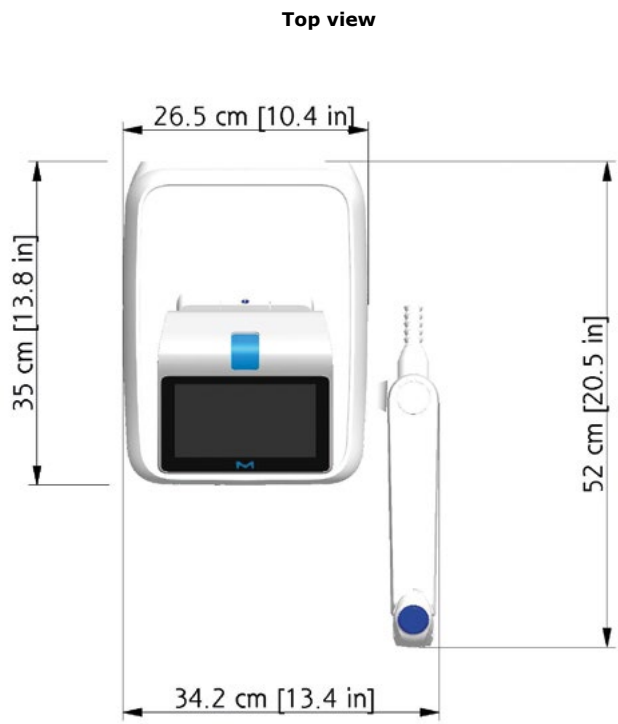
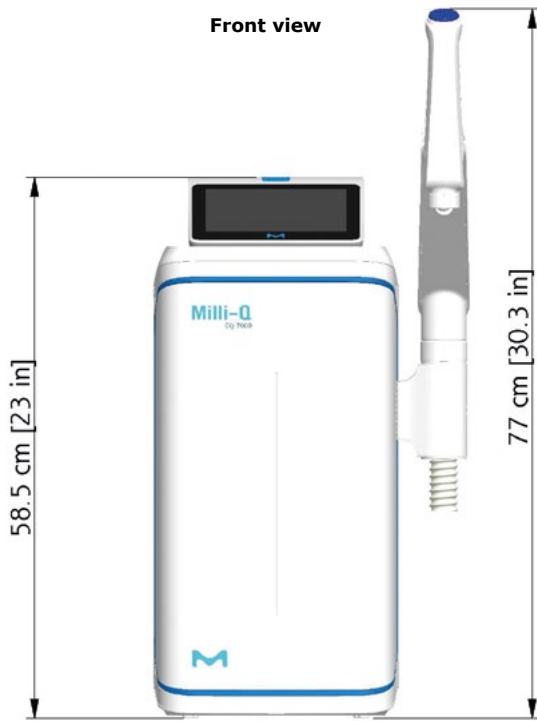
IPAK cartridge



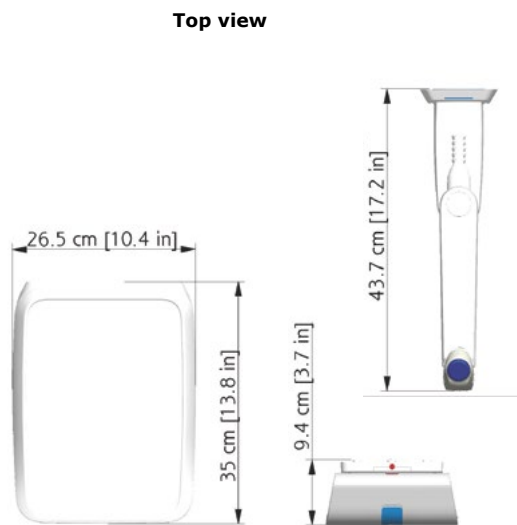
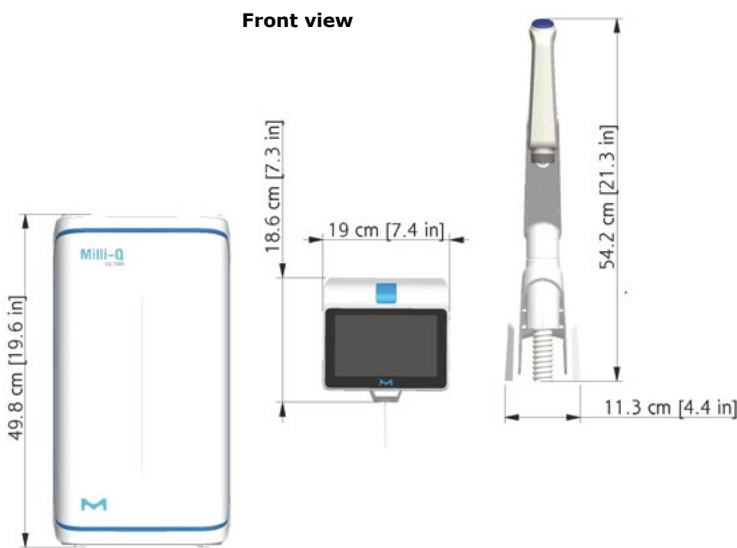
Application POD-Pak

Purification unit specifications

Compact benchtop solution



Remote wall-mounted solution



Tubing and port requirements

| Parameter | Description |
|--|---|
| Feed water connection | ½" Gaz |
| Distance from feed water port | Maximum 5 m (16.4 ft) |
| Distance from purification unit to wall-mounted Q-POD® dispenser | Maximum 3 m (9.8 ft) |
| Power entry | Connection IEC13 |
| ON/OFF switch | Available on the unit |
| Water sensor port | Fits with standard leak detector (Cat. No. ZWATSENA1) |
| Ethernet port | IEEE P802.3 |

Electrical connections and specifications

| Parameter | Description |
|-------------------------|-----------------------------------|
| Power source voltage | 100–240 VAC ± 10% |
| Power frequency | 50–60 Hz ± 2 Hz |
| Power used | Maximum 115 VA |
| Power cord length | 2.5 m (8.2 ft) plug: IEC13 female |
| Operational temperature | 4–40 °C (39–104 F) |
| Altitude | Up to 3000 m (9842 ft) |

Weights

| System type | Dry weight | Shipping weight | Operating weight |
|---|-------------------|-------------------|-------------------|
| Purification unit (compact configuration) | 14.0 kg (30.9 lb) | 15.6 kg (34.4 lb) | 18.0 kg (39.7 lb) |
| Purification unit | 12.0 kg (26.5 lb) | 15.6 kg (34.4 lb) | 16.7 kg (36.8 lb) |
| Q-POD® dispenser | 1.2 kg (2.7 lb) | 1.5 kg (3.3 lb) | 1.2 kg (2.7 lb) |
| HMI touchscreen | 0.58 kg (1.3 lb) | 0.67 kg (1.5 lb) | 0.58 kg (1.3 lb) |



HMI touchscreen specifications

Screen descriptions and functionalities

| Parameter | Description |
|------------------------|---|
| Capacitive touchscreen | Size: 7" (18 cm); Resolution: 800 x 480 |
| USB port | USB 2.0 Highspeed standard |
| Display in 9 languages | Chinese / English / French / German / Italian / Japanese / Portuguese / Russian / Spanish |

Water specifications international conformity

Feed water requirements

| | |
|----------------------------|---|
| Feed water quality | Pretreated water using electrodeionization (EDI), deionization (DI), reverse osmosis (RO), or distillation technologies |
| Pressure* | < 6 bar |
| Temperature | 5–35 °C (41–95 F) |
| Conductivity | ≤ 100 µS/cm at 25 °C (as NaCl) |
| Total Organic Carbon (TOC) | < 50 ppb |

* For pressures below 0 bar, the system will operate, but product flow rate may be lower.

Ultrapure, Type 1 water specifications¹ (from Q-POD® dispenser)

| | |
|------------------------------------|--|
| Resistivity ² | 18.2 MΩ·cm at 25 °C |
| Conductivity | 0.055 µS/cm at 25 °C |
| TOC | ≤ 5 ppb |
| Particles ³ | No particles with size > 0.22 µm |
| Bacteria | < 0.01 cfu/mL (< 10 cfu/L) ⁽⁴⁾ < 0.005 cfu/mL (< 5 cfu/L) ⁽⁵⁾ |
| Pyrogens (endotoxins) ⁶ | < 0.001 EU/mL |
| RNases ⁶ | < 1 pg/mL |
| DNases ⁶ | < 5 pg/mL |
| Proteases ⁶ | < 0.15 µg/mL |
| Flow rate | Up to 2 L/min |

1 These values are typical and may vary depending on the nature and concentration of contaminants in the feed water.

2 Resistivity can also be displayed non-temperature-compensated as required by USP.

3 With Millipak® or Millipak® Gold filter.

4 With Millipak® or Biopak® filter.

5 With Millipak® Gold filter when installed and used in a laminar flow hood.

6 With Biopak® polisher.

International regulatory requirements

EU declaration of conformity – UL safety marking

The Milli-Q® EQ 7000 system has been designed and manufactured in accordance to the international standard and test method defined by the IECCE organization according CB Scheme process. CB Scheme process was applied for electromagnetic compatibility and safety compliance.

The Milli-Q® EQ 7000 system is also subject of the UL listing Marking Program and meets the following marking and registration requirements listed below:

- UL registration can be verified on the UL website: www.ul.com
- Access to CB certificate: <http://members.iecee.org/>

We also meet the regulatory requirements of the following organizations:



Ordering information

| System | Catalog number |
|--|----------------|
| Milli-Q® EQ 7000 purification system with system-mounted dispenser and HMI touchscreen | ZEQ7000T0 |
| Milli-Q® EQ 7000 purification system with wall-mounted dispenser and HMI touchscreen | ZEQ7000TR |

| Pure water storage tanks* | Catalog number |
|------------------------------------|----------------|
| Milli-Q® storage tank top assembly | TANKT0PA1 |
| Milli-Q® storage tank, 25 L | TANKA025 |
| Milli-Q® storage tank, 50 L | TANKA050 |
| Milli-Q® storage tank, 100 L | TANKA100 |

* Also compatible with polyethylene (PE) storage tanks or distribution loop.

| Purification consumables & Application POD-Paks | Catalog number |
|---|----------------|
| IPAK Meta®/IPAK Quanta® consumable kit | IPAKKITA1 |
| Millipak® 0.22 µm filter | MPGP002A1 |
| Millipak® Gold 0.22 µm sterile filter | MPGPG02A1 |
| Biopak® polisher | CDUFBI0A1 |
| LC-Pak® polisher | LCPAK00A1 |
| EDS-Pak® polisher | EDSPAK0A1 |
| VOC-Pak® polisher | V0CPAK0A1 |
| UV lamp | ZEQ7UVLP0 |

For easy consumable ordering, visit
[SigmaAldrich.com/mymilliqconsumables](https://www.sigmaaldrich.com/mymilliqconsumables)

| Accessories | Catalog number |
|---|---------------------|
| Wall-mounting kits for Q-POD® dispenser and touchscreen | WMEQ0RKT + WMEQ0DKT |
| System wall mounting bracket | SYSTFIXA1 |
| Water sensor | ZWATSENA1 |
| Foot pedal | ZEQ7FTPDL |
| Internal pressure regulator + Feed conductivity cell | ZEQ7C0NDC |
| Internal pressure regulator | ZF3000810 |
| Alarm relay cable | ZMQ0ALCA1 |

Milli-Q®

Lab Water Solutions

For more information, please visit our website:
SigmaAldrich.com/milliqeq7000

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