Milli-Q® Reference Water Purification System
The reference for ultrapure water systems
Scientists today face many challenges. As always, they need to deliver high quality technical results. But now, they must do so at a faster pace, while meeting increasing standards and often operating in laboratories with limited space.

Millipore designed the Milli-Q Reference system to address these needs. From pure water, the system produces ultrapure water adapted to your specific applications and exceeding the requirements of the most demanding norms.

We’ve achieved all this with a new purification strategy. Water is purified in a first step to reach a resistivity of 18.2 MΩ cm at 25 °C and a TOC value below 5 ppb. This water is sent through a small recirculation loop to the POD pak, where a final purification step, critical for specific experiments, removes contaminants just before water leaves the system.

The flow schematic on the next page shows how the water is purified and delivered by the system.
MILLI-Q REFERENCE SYSTEM AT A GLANCE

- POD Pack adapted to specific contaminants removal
- Q-Gard® pretreatment pack adapted to pure feed water quality
- Large digital & graphic screen with detailed procedures for full online support
- Quantum® polishing cartridge adapted to general application
- Quick reference Guide with all needed information in left door
- Consistent delivery of Ultrapure quality water adapted to your needs
- Dispenser on support adapted to glassware height and shape for automatic volume delivery
- Range of accessories & options

INSIDE THE MILLI-Q REFERENCE SYSTEM

1 = Feed Water
2 = Inlet Solenoid Valve
3 = Feed conductivity cell (option)
4 = Delivery Pump
5 = Q-Gard Pack
6 = Intermediate Conductivity cell
7 = UV Lamp 185/254 nm
8 = Quantum Cartridge
9 = Product resistivity cell
10 = Product water Point Of Delivery
11 = POD Pak
12 = Recirculation Solenoid valve
13 = Check valve
Access to water system data is structured simply, so you can save time instead of searching endless numbers for the one you want.

The Main Screen on the production unit delivers detailed information in (local language) on system operation and performance. Clear graphics help you perform specific tasks such as maintenance. From the same screen, you can even print reports on the system’s water quality and history.

Fields related to critical information such as the definition of water quality set points are accessible only to the designated responsible user and are protected by an identification code and a password.

Alerts & alarms are clearly visible on the system’s main screen and can be enhanced by a buzzer.

A Quick Reference Guide located in the door of the Milli-Q Reference water system provides additional support for retrieving information. The system comes with a complete and detailed user manual in 8 languages on CD-ROM. A printed manual contains essential information (in local language).
EASY AND REDUCED MAINTENANCE

Maintaining the Milli-Q Reference system won’t take time away from your research. Maintenance frequency is minimal, and the procedures are simplified to the utmost.

Millipore provides a comprehensive range of service programs performed by certified Millipore field service support engineers to thoroughly maintain and validate your Milli-Q system, complying with your industry’s regulatory standards.

The service program portfolio covers all maintenance requirements such as installation, customized user training, scientific and technical support, troubleshooting, preventive maintenance visits, and all validation requirements using ad hoc calibrated equipment, procedures, workbooks and suitability tests within a GxPs environment.

SERVICE

- You can replace the Q-Gard pretreatment pack or the Quantum polishing cartridge in less than 5 minutes. These consumables have an RFID tag, automatically registering the catalog and lot number of the new unit in the system’s memory, so that you can quickly and easily maintain traceability.
- Replacing the POD pak takes less than 2 minutes.
- The UV lamp built inside the system is designed to last at least 2 years.
- The system will alert you to replace consumables or schedule service visits at least 15 days before maintenance is actually required, so you’ll never be without the water you need.

TOTAL WATER SOLUTIONS

To get the best results from your Milli-Q Reference system, Millipore recommends feeding it with pure water produced by RiOs™ (Type 3) or Elix® (Type 2) water systems.
**Feed Water Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value &amp; Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed water quality</td>
<td>Elix, Rios, distilled or DI water with conductivity &lt; 100 µS/cm and TOC &lt; 50 ppb</td>
</tr>
<tr>
<td>Feed water connection</td>
<td>1/2 in Gaz M</td>
</tr>
<tr>
<td>Feed water pressure*</td>
<td>0 – 0.3 bar</td>
</tr>
<tr>
<td>Feed water temperature</td>
<td>5 – 35 °C</td>
</tr>
</tbody>
</table>

* For pressure above 0.3 bar, a pressure regulator needs to be installed upstream of the system; for pressures between 0 and 0.2 bar, the system will operate, but product flow rate may be lower.

**Product Water Quality**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value &amp; Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual dispense flow rate</td>
<td>Adjustable between 50 and 2000 mL/min</td>
</tr>
<tr>
<td>Automatic dispense volume</td>
<td>100 mL</td>
</tr>
<tr>
<td></td>
<td>250 mL to 5 L by 250 mL increments</td>
</tr>
<tr>
<td></td>
<td>5 L to 60 L by 1 L increments</td>
</tr>
<tr>
<td>Volumetric dispense accuracy</td>
<td>CV &lt; 3% for volumes between 250 mL and 60 L</td>
</tr>
<tr>
<td>Volumetric dispense dispersion</td>
<td>CV &lt; 3% for volumes between 250 mL and 60 L</td>
</tr>
<tr>
<td>Resistivity*</td>
<td>18.2 MΩ.cm at 25 °C</td>
</tr>
<tr>
<td>TOC**</td>
<td>≤ 5 ppb (µg/L)</td>
</tr>
<tr>
<td>Bacteria ***</td>
<td>&lt; 0.1 cfu/mL</td>
</tr>
<tr>
<td>Pyrogens (endotoxins)****</td>
<td>&lt; 0.001 Eu/mL (pyrogen-free)</td>
</tr>
<tr>
<td>RNases****</td>
<td>&lt; 0.01 ng/mL (RNase-free)</td>
</tr>
<tr>
<td>DNases****</td>
<td>&lt; 4 pg/mL (DNase-free)</td>
</tr>
</tbody>
</table>

* Resistivity can be displayed temperature-compensated at 25 °C or non-temperature-compensated as required by USP
** TOC spec – Test conditions: Milli-Q Reference system equipped with Q-Gard T1 pack and Quantum TEX cartridge, feedwater produced by Elix system with resistivity > 1 MΩ.cm at 25 °C, TOC < 30 ppb. Product water quality may vary due to local feed water conditions.
*** Results with Millipak Express 40 or BioPak® final polisher in place
**** Results with BioPak final polisher in place

**Certification**

The Milli-Q Reference system is delivered with a Certificate of Conformity ensuring that it has been built and tested fully assembled following Millipore Standard Operating Procedures and a Certificate of Calibration for the temperature and resistivity meters built in the system. The Milli-Q Reference consumables are automatically delivered with a Certificate of Quality.Millipore’s manufacturing site is ISO 9001 v.2000 and ISO 140001 certified.

A report on conformity of Milli-Q Reference water quality to Type 1 water quality as described by ASTM®, ISO® 3696 and CLSI® norms and to Purified Water as described in USP and EP is available upon request.
ACCESSORIES

Customize your Milli-Q Reference system to meet your specific needs.

Space Savers

Save your bench space for your crucial experiments by removing the arm and dispenser from the Milli-Q Reference system and mounting it on the Q-POD support. Place the water purification cabinet under your bench, or high on a wall, freeing your bench for your research. More space savers include:

- Milli-Q Reference Wall Mounting Bracket
- Q-POD Wall Mounting Bracket
- Increase access to water from your bench
- Save even more space

Q-POD Dispenser: Water delivery at your fingertips

The ultrapure water produced in the cabinet is sent in a small recirculation loop to the outlet of the Q-POD dispenser. Water is delivered from the Q-POD outlet.

The Q-POD dispenser is loaded with convenient features:

- Variable water flow (slow flow to 2 L/min) controlled by plunger
- Hand-held gun dispensing option to facilitate washing applications
- Volumetric dispense control with + and – buttons to select dispensed volume
- Q-POD mast and gun support arm designed to accommodate all sizes of glassware – 250 mL cylinder, 5 L flask, or even a 30 L carboy.
- Multicolor graphic display shows at a glance that the water quality is within specification and the system is operating without alarms.
- Printer connection to instantly record water quality history

System Protectors

Sensors can help keep your Milli-Q Reference system running with minimal vigilance on your part.

- Water Sensor – Placed on the floor, this sensor stops water feed to the system if there is water on the floor. No more water spills, even if users forget to stop water delivery while filling containers.
- Feed Water Conductivity Meter – If ionic contamination of feed water exceeds specifications, causing high conductivity, an alarm will alert you.
- Level Sensor – If your Milli-Q Reference system is fed from a Millipore tank, this electronic connector transfers tank level information to the Milli-Q system. The sensor stops water feed from an empty tank and lets you check water levels in the tank before sourcing water, preventing air from entering the system.
- Silicone Q-POD Cover – The Q-POD dispenser is designed to operate in a wet environment. However, this silicone cover protects your Q-POD from harsh chemicals, solutions or solvents.

Footswitch

Connect the footswitch to the base of the Q-POD dispenser or directly to the Milli-Q system for hands-free water delivery: press once to start and once to stop.
Advancing Life Science Together™


RESEARCH.

Millipore provides a range of products and solutions to help scientists in their complex research work. For example, we supply differentiated products and services to support highly technical areas of research like protein research and cell biology.

DEVELOPMENT.

Millipore delivers products, expertise and services that help companies to efficiently move drug targets into clinical development and develop processes that enable the production of these drugs in large volumes once they’re approved.

PRODUCTION.

Millipore helps ensure that life-saving drugs are pure and safe by providing products and expertise to drug development companies, helping them to purify and remove contaminants in the manufacturing process.

Millipore, BioPak, Millipak, Milli-Q, Q-POD, Q-Gard, Quantum, and Elix are registered trademarks of Millipore Corporation.

RiOs, the M mark and Advancing Life Science Together are trademarks of Millipore Corporation.

ASTM, ISO, and CLSI are registered trademarks of their respective owners.

Lit. No. PB0015EN00 Rev. A  Printed in U.S.A.  3/09  LW-SBU-09-01334
© 2009 Millipore Corporation, Billerica, MA. All rights reserved.

www.millipore.com/offices