

MILLIPORE



Milli-Q® Advantage A10
Water Purification Systems



User-adapted ultrapure water



GIVING YOU

THE ADVANTAGE

As a scientist today, you face many challenges. You're responsible for delivering high quality technical results—but now at an even faster pace. You also have to comply with a growing number of quality and regulatory standards, while working in a laboratory where space may be limited. Resulting from on-going dialogues with scientists like you, Millipore continues to develop water systems that improve your work environment.

The Milli-Q Advantage system has been designed especially for you. This system delivers high quality water adapted to today's lab environment.





A NEW APPROACH

Advanced technology meets total flexibility.

The Milli-Q Advantage system simplifies your daily life in the lab by utilizing two distinct components:

- > The Milli-Q production unit is a compact system that can be placed either on the bench, under the bench or on a wall—wherever it best suits you.
- > The Q-POD® (Quality-Point-of-Delivery) unit provides final polishing at the point-of-use, delivering ultrapure water adapted to your specific needs.

The revolutionary Q-POD technology empowers you with convenient and flexible dispensing options. Up to **three Q-POD units** can be used with each Milli-Q Advantage system at different locations within the same laboratory.

Can you envision a laboratory environment where the ultrapure water source is flexible enough to support a variety of daily activities?

...YOU PURIFY Appropriate water quality

Depending on your application, specific contaminants can affect your results. The Milli-Q Advantage system offers a unique range of final purifiers for complete peace of mind.



IMPROVING THE WAY...



...YOU CONTROL Required information

The Milli-Q Advantage system provides relevant data about the water quality and system status.

- > The Q-POD unit's multicolor graphic display allows easy interaction with the system and provides information about water quantity and quality.
- > The primary graphic screen on the Milli-Q production unit details the system's operation and performance for managing routine maintenance and troubleshooting procedures.

...YOU OPERATE Flexible water delivery

Working both intuitively and precisely, the Q-POD unit is always within your reach. Select a very precise volume through the autofill key or manually press the plunger.





DESIRED WATER QUALITY

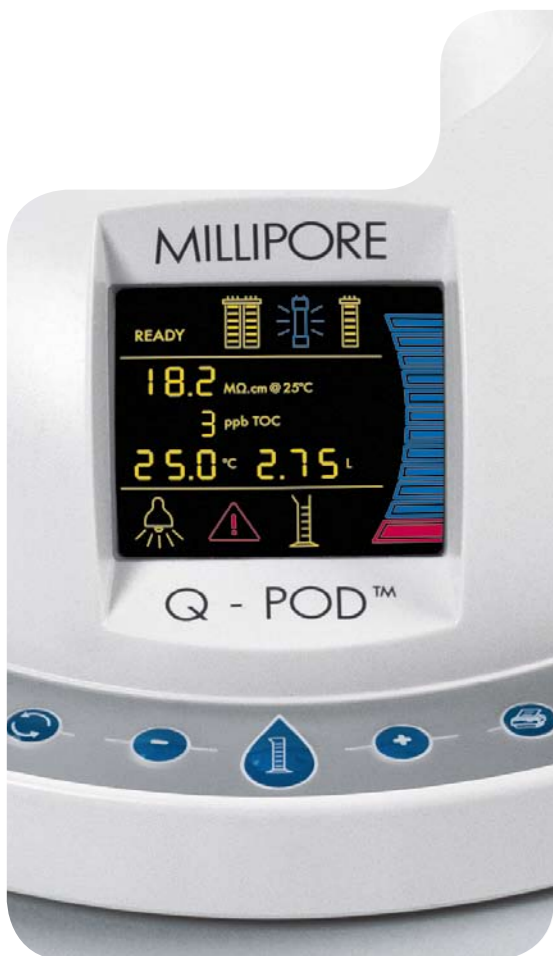
You just choose the appropriate media that remove the specific contaminants which may affect your results depending on the application.

For example, the Millipak® filter with the Millipore Express® membrane (0.22 µm) produces particulate- and bacteria-free ultrapure water for analytical applications such as spectrophotometry, spectroscopy and chromatography. The BioPak™ ultrafilter, while removing particulates and bacteria, produces pyrogen- and nuclease-free ultrapure water for biochemical applications.



PRACTICALITY CONVENIENT DELIVERY

Daily performance is facilitated by having ultrapure water and information conveniently delivered at the point-of-use.



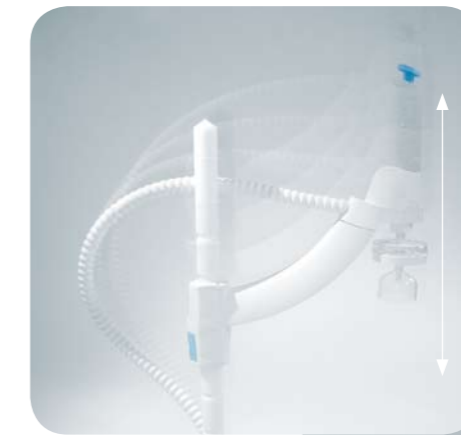
EASY DATA ACCESS

Following your own workflow, relevant data is accessible conveniently.

See essential information on the Q-POD unit screen at any time. All critical information, including water quality, system status and warnings, is summarized on the multicolor graphic display. The water quality status also can be printed directly from the Q-POD unit.

Control system use and maintenance on the water production unit screen. The main graphic screen on the production unit displays details of the system's operation and performance. Graphics assist the user in performing specific tasks, including maintenance procedures.

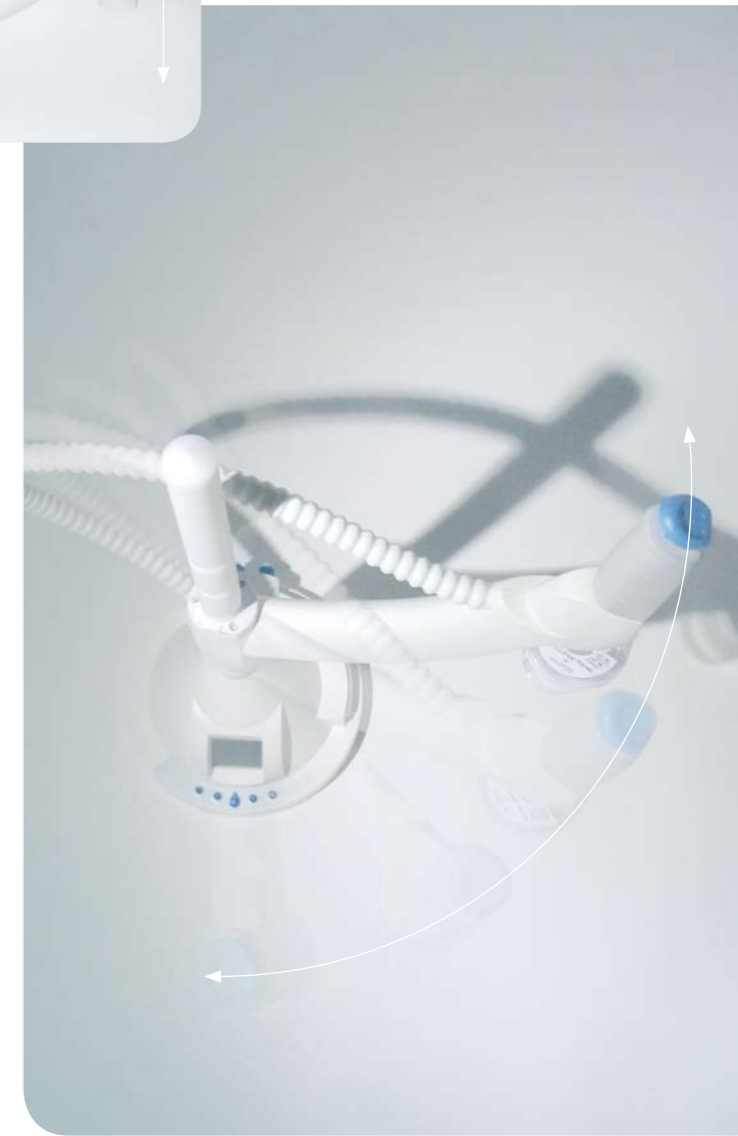
Protect access to critical information. An ID code and password ensure that only the designated user can access fields containing critical information, such as water quality set points.



Adjust the Q-POD unit arm (rotation and height) for all commonly-used laboratory glassware and plasticware.

Set the optimized water quality before delivery by pressing the water recirculation button on the base of the Q-POD unit.

Select the desired volume by simply using the + and - keys and then pressing the central key. The last delivered volume is recorded to facilitate re-use.



ENHANCED FLEXIBILITY

Your work is enhanced through convenient and adaptable dispensing.



Move the Q-POD dispenser from the arm for **varying water delivery**:

- > low-flow
- > medium-flow
- > high-flow (up to 2 l/min)

QUALITY OPTIMIZED PURIFICATION

The most reliable ultrapure water quality depends on building an optimized purification sequence.

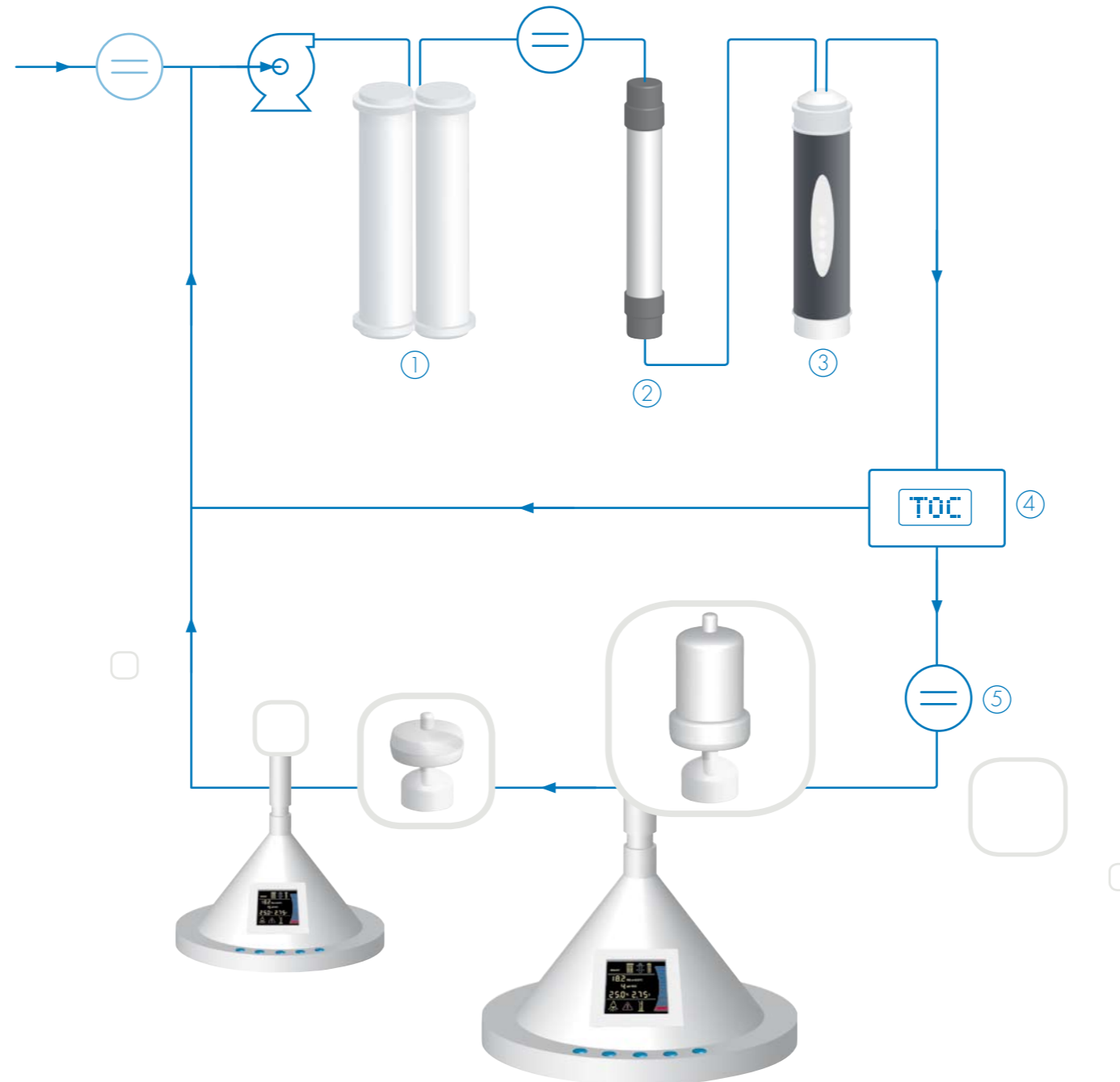
REQUIRED PURIFICATION STEPS...

You need a flexible system that can match the diversity of your applications. This is possible with a variety of purification media!

- > Pure water, ideally from an Elix® purification system, enters the Q-Gard® pretreatment pack (1) which is chosen based on the feed water source.
- > Pretreated water then passes into a dual wavelength UV lamp (2), which ensures organic molecule oxidation and bacteria destruction.
- > Next, the Quantum® polishing cartridge (3) removes ionic and organic contaminants below trace levels to match the water quality required for your application.

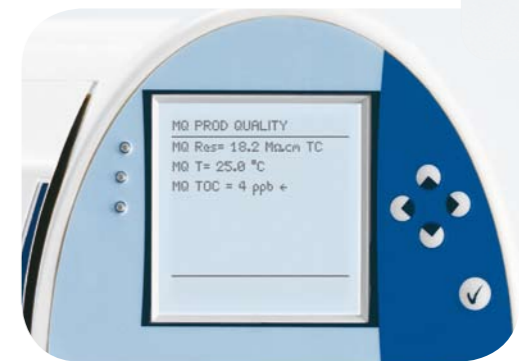


Both the Q-Gard and Quantum cartridges enable full traceability.



...UP TO THE POINT OF DELIVERY

The ultrapure water produced by the system recirculates through a loop up to the Q-POD unit, where the final purification step required for your particular application occurs.



UNDER CONTROL

The measurement of both organic and ionic quality of produced water occurs at the outlet of the system, through the appropriate calibrated meters:

- > Accurate Total Oxidizable Carbon (TOC) monitor (4)
- > High-sensitivity resistivity cell (5)



TOTAL CONTROL

Double monitoring allows control over both ionic and organic contaminants that can impact your results.



PREVENTING ORGANIC BREAKTHROUGH

The proper measurement of TOC levels is key for confirming that the system's organic removal process is operating within specifications.

The integrated TOC meter accurately monitors from 1 to 999 ppb. The design takes into account USP <643> suitability requirements.

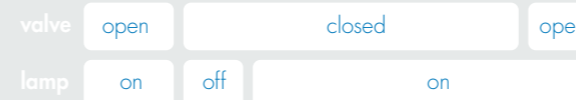
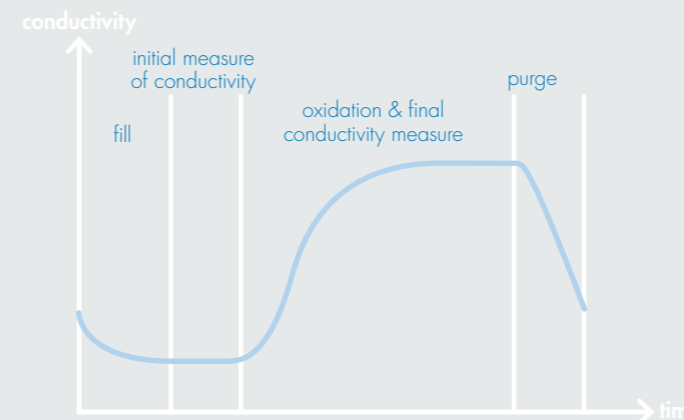
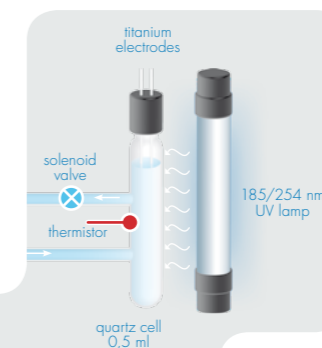
TOC measurements are performed automatically on a continuous basis during production and intermittently during periods of non-use. This lets you check the organic content of the water regularly, while avoiding the risk of your work being compromised by an undetected organic breakthrough.



ALLOWING SENSITIVE IONIC DETECTION

Milli-Q Advantage systems' high precision resistivity meters have specific features to ensure that the value displayed on the screen is meaningful:

- Patented cell design with coaxial electrodes to warrant cell constant stability
- Flow-through design to make sure that the measure is representative of the actual ionic concentration in water
- Low cell constant (0.01 cm⁻¹) to ensure optimum measurement accuracy of low ionic contamination as required by ASTM norm D 1125-95 (1999)
- Temperature measurement with a 0.1 °C resolution for proper report of temperature-compensated resistivity, as recommended in ASTM norm D 1125-95 (1999)
- Automatic warning messages if the resistivity measure is compromised by a defect
- Design allows TOC suitability test to be performed as required by USP (§ 645).



> The TOC monitor uses a 0.5 ml quartz cell to capture ultrapure water.

> When the A10® UV lamp is on, photocatalytic oxidation of organic compounds occurs.

> The end product of organic oxidation is carbon dioxide, which dissolves in water and causes conductivity to increase. This change in conductivity (temperature-compensated to 25 °C) is monitored continually by the titanium electrodes in the TOC monitor.

> A set of algorithms confirms complete oxidation and calculates the carbon level associated with this conductivity change.

ADVANCED TECHNICAL SUPPORT

Millipore application specialists provide information about system use and application insights as well as how to select the best services related to your particular situation.

COMPREHENSIVE SERVICE PROGRAM

Choose the services you need from Millipore's comprehensive service program.

This program covers all your requirements every step of the way:

- > Installation
- > Technical and scientific assistance
- > Preventive maintenance visits
- > Troubleshooting visits
- > Customized user training
- > Verification and/or calibration of monitoring devices
- > Pharmacopeia suitability tests
- > Validation support
- > Maintenance plans



QUALIFICATION EXPERTISE

Millipore's Qualification Program facilitates laboratory validation procedures.

Validation support is provided by trained Millipore Field Service Support Engineers using calibrated equipment and Qualification Workbooks.

With more than 10 years' experience in water system qualification services, Millipore can assist you in complying with regulatory standards applicable to your industry.

PRODUCT SPECIFICATIONS

Milli-Q Advantage A10 System
Product Water Specifications

Parameter	Value
Resistivity	18.2 MΩ.cm at 25 °C
TOC	≤ 5 ppb
Particulates* (> 0.22 μm/ml)	< 1 particulate/ml
Bacteria*	< 1 cfu/ml
Pyrogens (endotoxins)*	< 0.001 EU/ml
RNases*	< 0.01 ng/ml
DNases*	< 4 pg/μl
Flow Rate	up to 2 l/min

*Test conditions with the appropriate Q-POD final polisher. These values are typical and may vary depending on the nature and concentration of contaminants in the feed water.

Milli-Q Advantage A10 System
Specifications

Parameter	Value
Production unit dimensions (H x W x D)	497 x 332 x 360 mm (19.5 x 13 x 14.2 in)
Q-POD delivery unit dimensions (H x D)	579 x 230 mm (22.8 x 9 in)
Production unit weight	15 kg (33 lb)
Production unit operating weight	19 kg (41.9 lb)
Q-POD delivery unit weight	5 kg (11 lb)
Q-POD delivery unit operating weight	5.5 kg (12.1 lb)
Distance from production unit to Q-POD	2.9 m (9.5 ft)
Dispenser tubing length	80 cm (31.5 in)
Electric power cable length	2.9 m (9.5 ft)
Electric power supply voltage	100 – 230 V +/- 10 %
Electric power supply frequency	50 – 60 Hz

Feed water connector: ½" Gaz
Milli-Q Advantage A10 main unit data connection: Ethernet (RJ45)
Q-POD data connection: Parallel port (25-pin D-Sub)

ALL-INCLUSIVE SYSTEM CERTIFICATES

To assist you in following industry requirements, Milli-Q Advantage systems are delivered with specific Certificates of Quality and Calibration for temperature, resistivity and TOC meters. Millipore's manufacturing site is ISO® 9001 v.2000 and ISO 14001 certified.

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Visit www.millipore.com/bioscience for more details.

ORDERING INFORMATION

To order a Milli-Q Advantage A10 system and associated consumables, please contact your local Millipore subsidiary, or visit our dedicated web page at:

www.millipore.com/advantage

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