
MILLIPORE
Milli-Q
Advantage
MILLIPORE

DESIRED WATER QUALITY

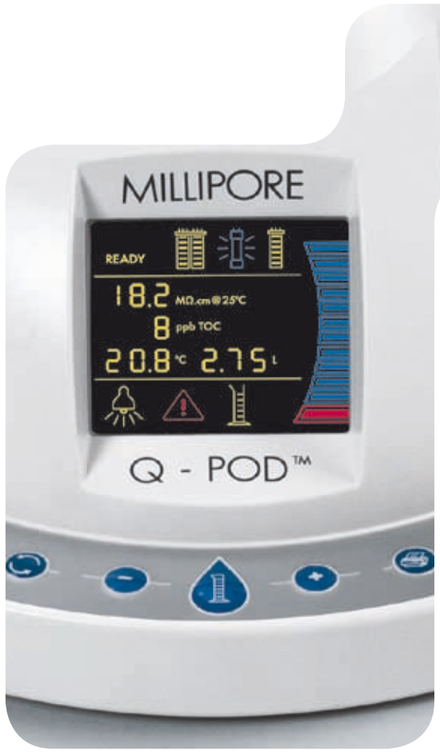
You just choose the appropriate media that remove the specific contaminants which may affect your results depending on the application.

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…

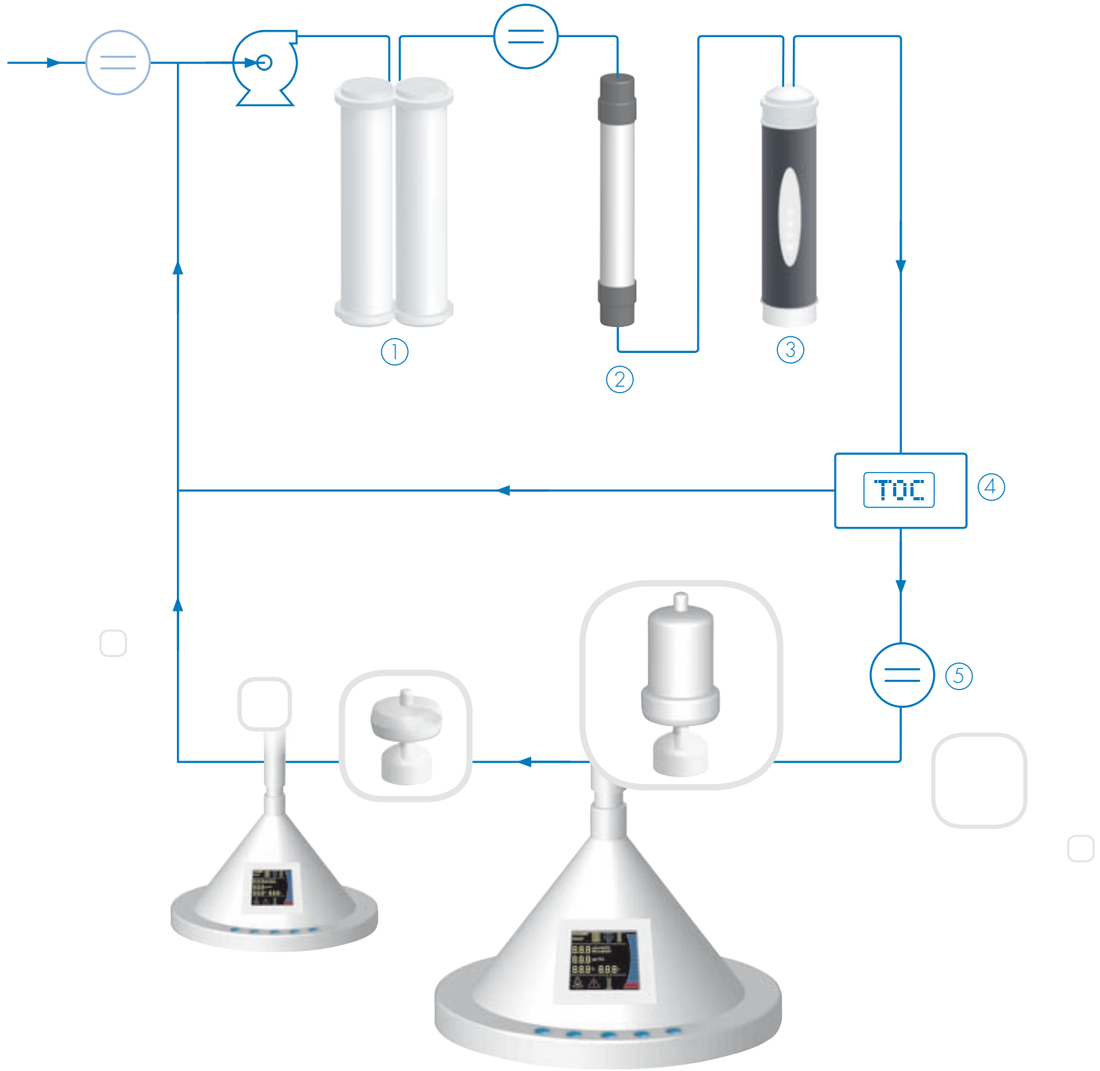
You need a flexible system that can match the diversity of your applications. This is possible with a variety of purification media!

> Pure water, ideally from an Elix® purification system, enters the Q-Gard® pretreatment pack (1) which is chosen based on the feedwater source.

> Pretreated water then passes into a double wavelength UV lamp (2), which ensures organic molecule oxidation and bacteria destruction.

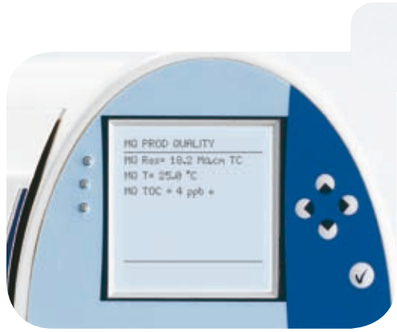
> Next, the Quantum™ polishing cartridge (3) removes ionic and organic contaminants below trace levels to match the water quality required for your application.

Both the Q-Gard and Quantum cartridges incorporate Millipore's eSure™ technology, which enables 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 Organic Carbon (TOC) monitor (4)

> High-sensitivity resistivity cell (5)

TOTAL CONTROL

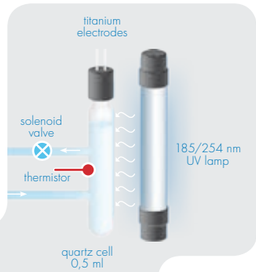
Double monitoring allows control over both ionic and organic contaminants that can impact your results.

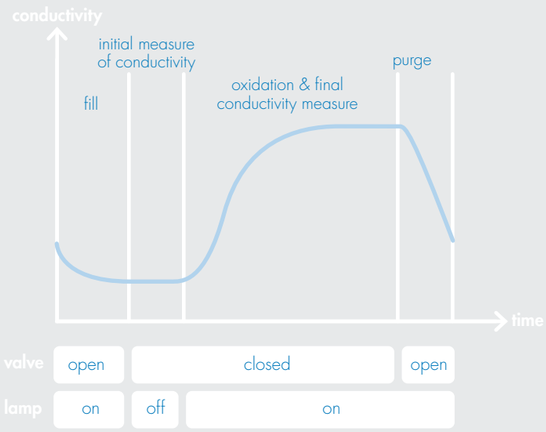
PREVENTING ORGANIC BREAKTHROUGH

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.





- 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.

ALLOWING SENSITIVE IONIC DETECTION

The most sensitive resistivity measurement is key for you to check that ionic contamination of ultrapure water remains at the sub-ppb level.

Millipore and the PTB (German national metrological institute) have developed a unique method based on a primary cell that allows calibration of instruments used in a low conductivity range (<1 µS/cm at 25 °C).

Milli-Q Advantage resistivity meters are calibrated according to this method, which ensures full traceability using an internationally recognized standard.

The design of this high-precision resistivity meter takes into account USP® <645> suitability requirements.

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 particulates/ml
Bacteria*	< 1 cfu/ml
Pyrogens (endotoxins)*	< 0.001 EU/ml
RNases*	< 0.01 ng/ml
DNases*	< 4 pg/ml
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 feedwater.

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

Feedwater 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.