

Selecting a Water System to Feed Laboratory Washers

Scrupulously clean labware is a pre-requisite for reliable and accurate experimental results. Water plays an important role in the cleaning process: it activates powdered detergents, dissolves water-soluble contaminants, provides mechanical force and heat during wash steps, and finally, rinses all traces of detergent and process chemicals as well as emulsified or suspended contaminants. Selecting the right water purification system to pair with your laboratory washer will ensure consistent cleaning performance and efficiency throughout your washer's lifetime.

Tap water contains small amounts of contaminants which may affect both the glassware cleaning process and the washer itself. Washer manufacturers generally recommend the use of softened or purified water for effective pre-cleaning and wash cycles, and to protect the washer from harmful deposits. Use of softened water can also reduce detergent costs since hardness ions may decrease detergent effectiveness by binding with surfactants and preventing them from dispersing soils. For the final rinse cycle(s), purified water is particularly recommended to ensure the thorough removal of chemical residues, as well as traces of detergent and cleaning fluids from the cleaned items. Purified water also prevents the introduction of any new contamination that could originate from the rinse water itself and interfere with subsequent experiments.

The following water contaminants should therefore be controlled:

- **Hardness ions** (calcium, magnesium salts) can cause scale deposits inside hot water hoses, around spray nozzles and on heating elements, leading to increased heating and maintenance costs of the washer. In addition, if these ions are not properly removed from the water used in final rinse cycle, "water spots" will appear on the labware once it dries.
- **Chloride** may cause localized corrosion (pitting), even on stainless steel, if in high concentration.
- **Particles and metallic compounds** may form deposits inside the washer and damage moving parts. They may also deposit and cause discoloration or corrosion of stainless steel items in the wash load.
- **Silica** may deposit and cause discolorations inside the washer and on the labware being washed.
- **Organics** may interfere with detergent effectiveness. If water containing organics or **bacteria** and their **by-products** is used for rinsing, residues may affect analyses subsequently performed with the labware.

Selecting a reliable source of pure deionized water with low levels of all these contaminants will ensure not only the thorough and efficient cleaning of labware, but will also decrease the risk of washer downtime, reduce maintenance costs, and contribute to extending its lifetime.

The Milli-Q® IX water purification system delivers constant-quality pure water meeting the specifications of ASTM® D1193 Type II reagent-grade water, which is measured by dependable water quality monitoring. The system's ease of use and maintenance, flexible installation options, robustness and durability make it the perfect partner of laboratory washers in delivering thoroughly clean labware.

For added convenience and efficiency, a dedicated pump-based solution can be added to the water purification system. This quiet and compact 'washer distribution kit' ensures the washer is automatically supplied with pressurized pure water from a storage tank, and is easy to install wherever it is best suited (wall-mounted, or on or under a bench).



Advance your Purpose

With the Milli-Q® IX 7003/05/10/15

Pure Water System

Increase lab productivity

- Easy to use and maintain
- Smart touchscreen interactions
- Configuration flexibility (wall mount, benchtop, under bench)
- Dedicated washer distribution device

Assure quality and simplify traceability

- Constant, reliable pure water quality
- Continuous quality monitoring
- Paperless data management
- Automatic e-record archiving

Prevent disruptions. Extend lifetime. Optimize your investment.

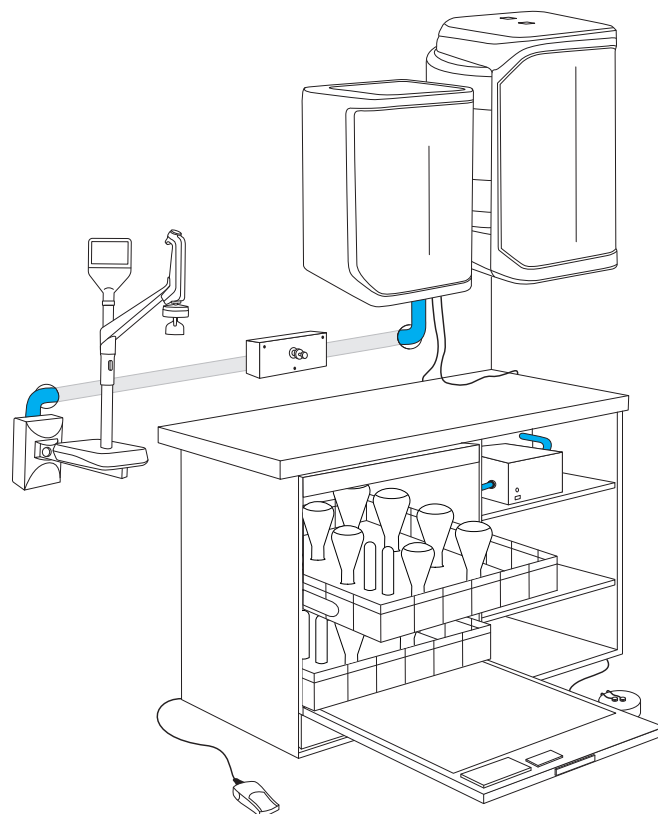
- Sturdy and durable system
- Certified field service engineers
- Service Plans for preventive maintenance and protection
- Online contract management

Reduce environmental impact and running cost

- UV lamps free of mercury
- Reduced water consumption
- No need for chemical regeneration

Additional accessories available:

sanitary sampling valve, water sensor, foot pedal



Water quality specifications

Pure, Type 2 water specifications¹

Resistivity at 25°C	>5 MΩ·cm; typically 10–15 MΩ·cm
Conductivity at 25°C	0.2 µS/cm; typically 0.1 µS/cm
TOC	≤30 ppb
Production flow rate	3 L/h (Milli-Q® IX 7003) 5 L/h (Milli-Q® IX 7005) 10 L/h (Milli-Q® IX 7010) 15 L/h (Milli-Q® IX 7015)
Storage capacity	25 L tank 50 L tank 100 L tank

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



**Design that supports
your sustainability initiatives.**

For more information, contact your local Lab Water Solutions expert or visit:
SigmaAldrich.com/Milli-Q-IX

