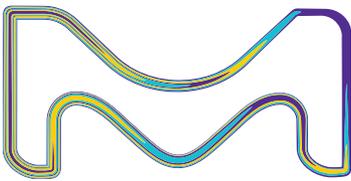


intelligent, complete & compact

Milli-Q® HX 7000 SD Series
All-in-One Central Pure Water Systems



Remote Services Capable



MilliporeSigma is the U.S.
and Canada Life Science
business of Merck KGaA,
Darmstadt, Germany.

Milli-Q®
Lab Water Solutions

complete, compact, connected & customizable

Your Pure Water Solution for up to 3000 L/day

The Milli-Q® HX 7000 SD series represents a modern range of high-throughput water purification systems. These systems provide a complete, compact, connected

and fully-customizable pure water solution for large laboratories requiring a few hundred to up to 3000 L per day of Type 2 pure water.

Key features and benefits include:

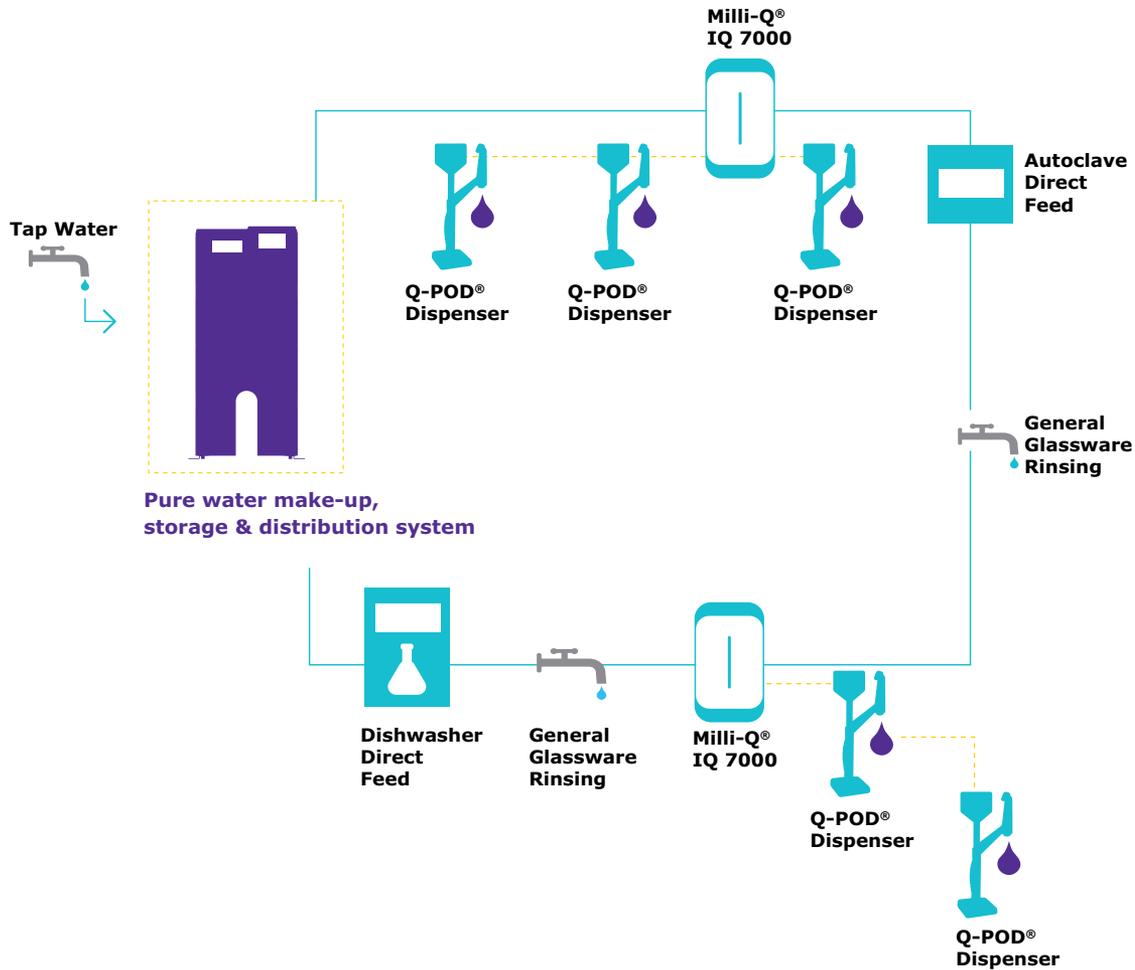
- An optimal combination of purification technologies for constant, reliable production of pure water
- State-of-the-art sustainable technologies that are environmentally responsible and provide low and predictable running costs
- Integrated 140 L reservoir with pump for protected storage and up to 20 L/min distribution
- A compact, all-in-one system that optimizes your lab's space
- A range of options and accessories to adapt to your requirements and environment
- Interactive touchscreen interface for rapid data access, intuitive navigation and easy maintenance
- MyMilli-Q™ Remote Care monitoring and service capability supports maximum lab productivity
- Milli-Q® Services and Service Plans give peace of mind throughout system lifetime
- Design that meets strict regulatory guidelines and supports lab accreditation

With a Milli-Q® HX 7040/7080/7120/7150 SD system, you can count on a robust water purification solution that is designed to meet your laboratory's current and future requirements.



Reliably feed all your pure water needs

- **Equipment and instruments** including dishwashers, autoclaves, clinical analyzers, heating baths, and environmental and humidity chambers
- **Taps** on benches for general glassware rinsing and buffer and media preparation
- **Point-of-use polishers and purifications systems** to obtain ultrapure water



Trust in Pure Experience

For over 50 years, we have been the partner of choice for water purification systems and services for lab scientists who need to assure the quality and reliability of results.

We provide a comprehensive range of water purification systems to fit your needs, laboratory space, building configuration, and budget.

- Customized solutions
- Valuable advice
- Comprehensive maintenance
- Qualification programs
- Budget planning
- Remote & proactive service capabilities

From conception, design and installation, through to engineering expertise and technical support services, our specialists in pure water solutions can work with you through any project for full peace of mind.

A COMPLETE PURE WATER SOLUTION

Cover the full spectrum of your pure water needs. Milli-Q® HX 7000 SD systems contain an optimized sequence of state-of-the-art purification technologies, an integrated 140 L storage reservoir and distribution pump, plus remote monitoring and control capabilities.

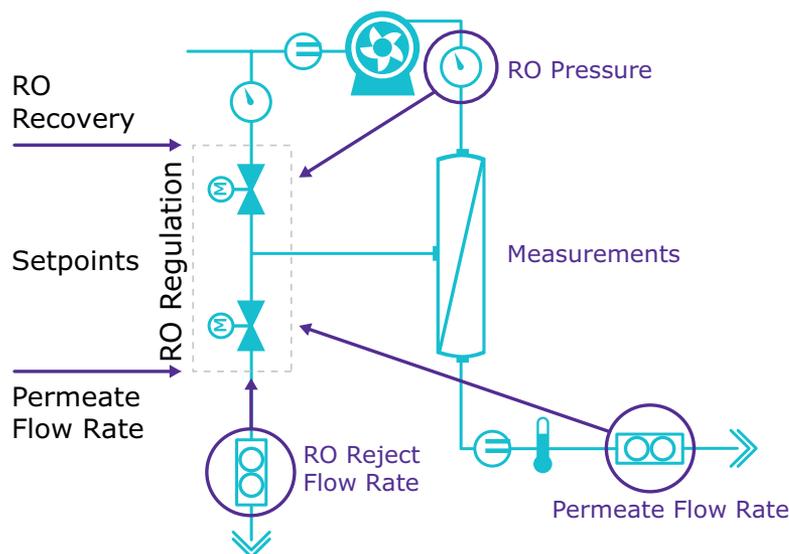
Pretreatment is tailored to your feed water quality.

- Progard® cartridges remove particles (0.5 µm filter), free chlorine and colloids (activated carbon filter)
- Anti-scaling agent protects the RO membrane from hard water
- Bactericidal carbon prevents bacterial growth
- Backwashing carbon filters and ultrafiltration can be added if high fouling index and/or high chlorine levels

Advanced RO & E.R.A.® technologies yield constant flow rates while reducing water consumption and associated costs.

- Advanced RO (reverse osmosis) removes 95-99% of ions, and 99% of all dissolved organics (MW >200 Da), microorganisms and particles.
- E.R.A.® (Evolutive Reject Adjustment) technology takes into account feed water quality (conductivity, temperature, hardness, alkalinity, CO₂) to automatically optimize water recovery (between 45% and 75%) and reduce water consumption by up to 50% compared to other RO systems of similar throughput.

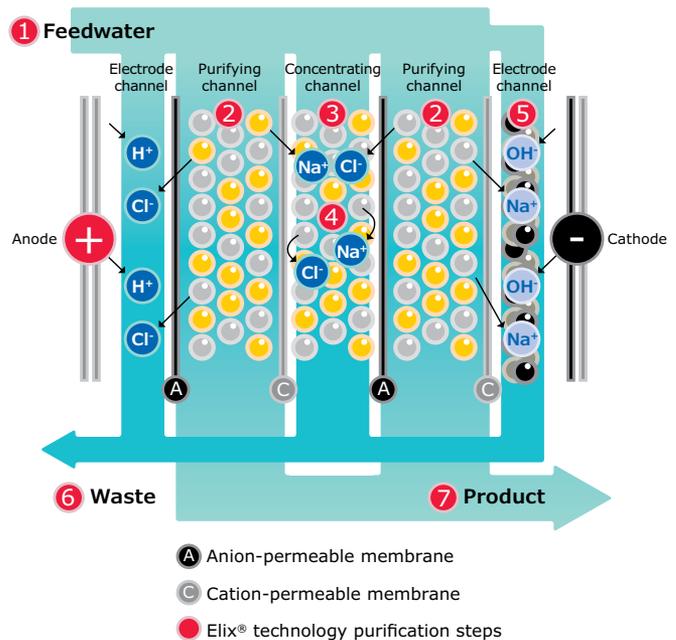
E.R.A.® technology saves you water, time and money.



- Achieve constant flow and water recovery rates, regardless of feed water temperature
- Eliminate manual valve adjustments due to temperature fluctuations
- Reduce maintenance time and the risk of human error
- Increase RO cartridge lifetime, reducing consumables waste
- Optimize your system's uptime and reliability

The Elix® EDI module produces consistently high-quality pure water with no maintenance and at low and predictable running costs.

- Our Elix® electrodeionization (EDI) module removes remaining ions to produce constant-quality pure water, regardless of feed water quality (conductivity, CO₂ levels) or RO cartridge performance
- The module continuously self-regenerates its ion exchange resins via a small electrical field
- Eliminates the need for:
 - Hazardous chemical regeneration procedures
 - Replacement of costly resins
 - Changing DI cartridges
 - Adding softeners
- This reduces maintenance time and ensures low and predictable running costs



Elix® module: Our unique EDI technology is based on anion-permeable and cation-permeable membranes and high-quality ion-exchange resin. Water produced by the Elix® module enters the reservoir with resistivity greater than 5 MΩ·cm @ 25 °C (typically up to 15 MΩ·cm @ 25 °C)*.

UV lamps provide full bacterial control.

The new Milli-Q® HX 7000 SD series is designed to maintain the best water quality at each step in the pure water process.

- During water production, a built-in 254 nm bactericidal UV lamp inactivates bacteria and reduces the need for frequent system sanitization.
- Within the distribution loop, a UV lamp (option) irradiates circulating water before feeding out to instruments and equipment, or returning to the reservoir.

As a result, the water’s bacterial count is reduced by a log of 4⁺, making it well-suited for bacteria-sensitive applications.



*When CO₂ dissolved in feed water is less than 30 ppm.

†E.g., In a well-designed and maintained distribution loop, a bacterial count of 10,000 cfu/mL is reduced to 1 cfu/mL, irrespective of the system’s nominal flow rate.

Pure water produced by the Milli-Q® HX 7000 SD system meets or exceeds water quality levels described by the following organizations:

Organization	Water Quality / Grade
European Pharmacopoeia	Purified water
United States Pharmacopoeia	Purified Water
Japanese Pharmacopoeia	Purified Water
Chinese Pharmacopoeia	Purified Water
ISO 3696	Grade 2 Water
ASTM® D1193	Type II Water
JIS K 0557	A3 Water
Chinese National Standard GB/T 6682	Level 2 Water

Minimum specifications for different water types*

Contaminant	Parameter (unit)	Type 3	Type 2	Type 1
Ions	Resistivity (MΩ·cm)	> 0.05	> 1.0	> 18.0
Organics	TOC (ppb)	< 200	< 50	< 10
Pyrogens	EU/mL	NA	NA	< 0.03
Particulates	Particulates > 0.2 µm (units/mL)	NA	NA	< 1
Colloids	Silica (ppb)	< 1000	< 100	< 10
Bacteria	Bacteria (cfu/mL)	< 1000	< 100	< 1

*These values are provided only as guidelines, as some specific laboratory applications may require a quality superior to the quality indicated by the norms.



In an optimal configuration that includes an Opticap® filter, UV lamp and a well-designed and maintained loop, product water from the Milli-Q® HX 7000 SD system meets or exceeds relevant standards and Pharmacopoeia listed above at all points of use.

integrated convenience

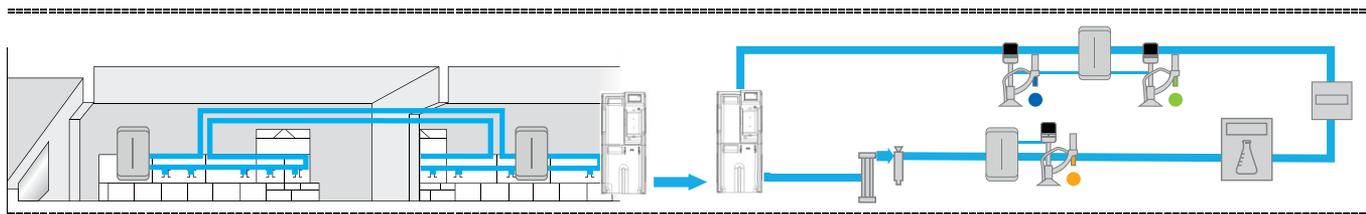
Milli-Q® HX 7000 SD systems are complete with an integrated storage reservoir and distribution pump, for convenient and compact protection and circulation of your pure water.

An integrated 140 L reservoir, made of high purity polyethylene, contains numerous critical design features to reliably store and protect your pure water quality.

- Vent filters protect against airborne contamination
- Differential pressure sensors ensure accurate level sensing and prevent overflow
- Hermetically sealed with no overflow to the drain prevents bacterial contamination
- Automatic drain function helps with system maintenance and to refresh the reservoir water, ensuring high quality water even on low-use days
- Sanitary sampling ports and connections provide safe and reliable water sampling and circulation to the accessory panel

The distribution pump provides a flow of up to **20 L/min** for a loop of up to **50 m long**. This enables one Milli-Q® HX 7000 SD system to reliably supply the pure water needs of a large laboratory or an entire floor of a building.

Milli-Q® HX 7000 SD system with distribution to a large lab or building floor.



Milli-Q® IQ 7000 system

Q-POD® dispenser

Dishwasher direct feed

Autoclave

Milli-Q® HX 7000 SD system

Opticap® final filtration

UV

Millipak® Filter Units
HPLC, Buffer and Media Prep

BioPak® Polisher
Nuclease- and Protease-free water, Buffer and Media Prep (Stem Cells)

EDS-Pak® Polisher
Environmental analysis

LC-Pak® Polisher
UHPLC, LC-MS

intuitive operation

A superior communications interface facilitates navigation, data access and control.

With its large interactive touchscreen, the system is designed for intuitive operation, with all information needed for daily operation available at a glance. Users can quickly navigate among several views to see data, including:

- Production status
- Storage levels
- Dispensing status
- System settings
- Consumables status
- Preventative alarms and alerts

<p>System status zone</p>	
<p>Large display shows water qualities and distribution process</p>	
<p>Clear, visible status of all consumables</p>	
<p>Notification zone for alerts and alarms</p>	

<p>If a consumable change is required, the system will display a yellow, blinking alert 15 days in advance. Just touch the yellow alert to open a new screen...</p>	
<p>Now you can view and control your system's interface remotely via MyMilli-Q™ Remote Care. See pages 9-10 for more information.</p>	

...where a wizard will explain the maintenance procedure in easy, step-by-step instructions.



connectivity Assures productivity



Discover MyMilli-Q™ Remote Care — an online monitoring and service capability that supports your lab's maximum productivity.

What can MyMilli-Q™ Remote Care help you to achieve?

- **Assure productivity 24/7.** Access real-time system information, water quality data and more from anywhere at any time for 24/7 confidence in your lab's performance.
- **Save time.** In the event you need support, your interaction with Milli-Q® Services is streamlined as MyMilli-Q™ Remote Care provides our service organization a secure and direct view of your system information. Our service teams can remotely diagnose and potentially repair your system, avoiding the need to wait for a service visit.
- **Maximize uptime.** Receive notification of alerts and alarms allowing you to promptly and remotely manage your system, either independently or with our remote assistance.
- **Easier data traceability & accreditation.** Audit preparation and lab accreditation have never been so effortless as data are automatically saved and can be easily accessed, searched and retrieved. Choose to download a standard Quality Report, or to create your own tailored reports.

Equipment Details

 ZLXLS61040 FOBB91500D	Equipment name	Product Catalog	Serial	Asset number	Location	City
	Milli-Q® HX 7040 SD 120V 60 HZ	Number	ZLXLS61040	Bat1 SF 237	Training Hub	Guyancourt
	Building	Floor	Room	Install date	Has connectivity	Software Package
	BAT 1	Second Floor	237	Nov-16-2023	Yes	52

Authorise remote software update

Peripheral Devices | My Contracts | File Management | Water Information | Diagnostic Information | Process Information | Inventory Information

The MyMilli-Q™ Remote Care customer home page can be accessed online 24/7.

NEW!

Proactive alarm monitoring and Remote Health Check services assure operational efficiency

Get ultimate risk prevention with our new, unique digital services. These proactive services prevent issues before they impact lab operations, minimizing the risk of a costly disruption.

Speak with your local lab water representative to find out if these services are available in your country.

MyMilli-Q™ Remote Care facilitates data traceability & eases accreditation

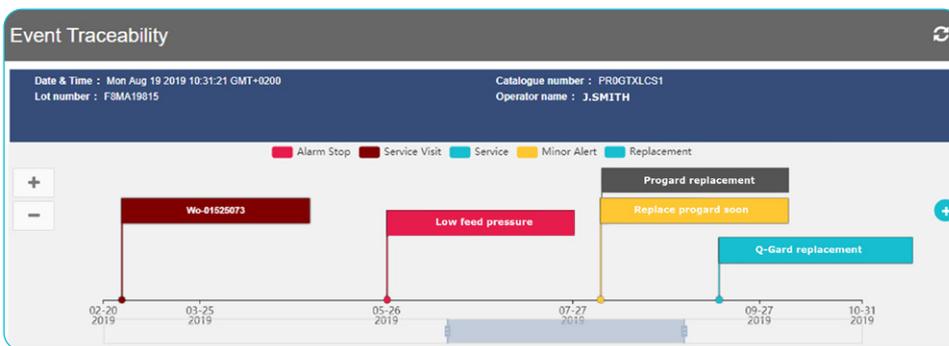
Water is a reagent whose quality must be documented for laboratories seeking accreditation (or reaccreditation) to the ISO 15189:2012 standard.

To facilitate compliance with worldwide regulatory organization guidelines, Milli-Q® HX 7000 SD systems allow for full monitoring capabilities as well as automatic e-record archiving both:

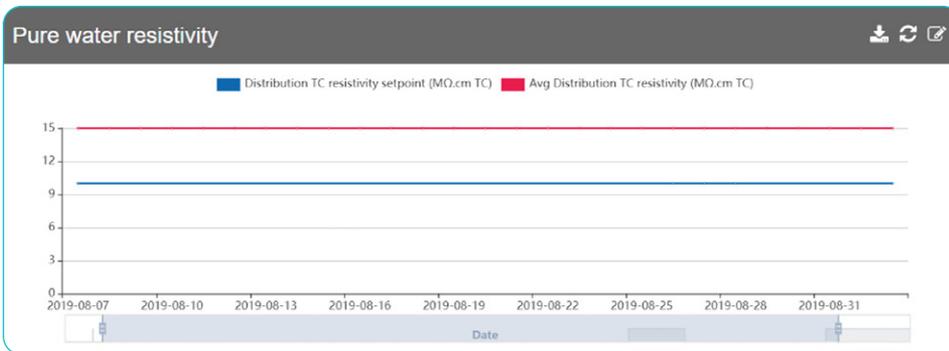
- **Directly in the system** — data are retrievable by USB key or via your lab's intranet connection.
- **In the cloud** when MyMilli-Q™ Remote Care is activated.

E-record archiving supports traceability of all water-related daily operations, measurements and events. It saves time and is less expensive to manage versus paper documentation, as it removes the need for daily checks of the water purification system, hand-recording of parameters in a lab book, and physically archiving years of paper data.

With the user-friendly MyMilli-Q™ web interface and MyMilli-Q™ Remote Care service feature, data management is greatly simplified. Your system and water data are readily accessible and rapidly searchable, graphable and reportable — from anywhere at any time.



An interactive Event Traceability tool lets you view events by type and over the timeline you specify. View past events (alarms, alerts, consumable replacements, service visits, custom events) and plan for future system maintenance. Click on any event and its details are displayed in the blue banner above the timeline. In this example, a Progard® cartridge was replaced by J.SMITH on Aug 19, 2019.



Water quality parameters (resistivity, temperature, TOC) are graphed over the timeline of your choice and can be easily downloaded.

Service Visit

Type	Number	Scheduled Date	Scheduled Time	Attachments
Preventive Maintenance	WO-12245070	Oct-21-2024	10:00:00	
Repair	WO-22158799	Oct-29-2024	11:00:00	
Repair	WO-14567890	Oct-31-2024	12:00:00	
Repair	WO-45678901	Oct-26-2024	10:00:00	

The system automatically stores a fully traceable—and easily retrievable—record of service history. In addition to archiving data, MyMilli-Q™ online tool lets you streamline contract management. You'll be able to schedule maintenance visits, manage consumable deliveries and renew your service contracts, all online.

Learn more at SigmaAldrich.com/mymilli-q

customizable to fit your requirements

The Milli-Q® HX 7000 SD series is modular, allowing you to select just the options and accessories you need to meet your specific requirements and to improve water quality monitoring.

UV lamp (57W)	<ul style="list-style-type: none">• High energy lamp with the capacity to irradiate circulating water, limiting bacterial growth in the loop and reservoir• Placed in the distribution loop• Wall panel or stand alone
Opticap® 0.22 µm filter	<ul style="list-style-type: none">• Pharmaceutical grade filter for final filtration of bacteria and particulates before water is delivered• Placed in the distribution loop• Wall panel or stand alone
Resistivity monitor	<ul style="list-style-type: none">• Verifies resistivity level of water in the loop• Installed within the purification system
Online TOC monitor	<ul style="list-style-type: none">• Verifies TOC (Total Organic Carbon) level of system water is <500 ppb. Save time and money verifying TOC levels remain at low and stable levels, and avoid the need for duplicate assays or repeated instrument calibrations• Installed within the purification system
Resistivity booster	<ul style="list-style-type: none">• Ensures better resistivity water in the loop and reservoir• Installed within the purification system
On-demand feed option	<ul style="list-style-type: none">• Enables another system in the loop (e.g. analyzer) to drive on-demand water distribution
Sanitary sampling ports	<ul style="list-style-type: none">• For safe and reliable water sampling for microbiological analysis
Alarm outputs	<ul style="list-style-type: none">• Allow remote monitoring of alerts and alarms through an external device and/or via the MyMilli-Q™ Remote Care service feature



The resistivity booster may be easily installed on the front of the Milli-Q® HX 7000 SD system. Our ergonomic and patented pack-locking mechanism allows for rapid replacement when needed.



The loop panel with Opticap® filter and UV lamp, may be wall-mounted or stand-alone.

Trust in best-in-class Milli-Q® services

And save time with MyMilli-Q™ digital services

At each stage of your project (conception, design and installation) to everyday use, we offer comprehensive, high quality support services that can be customized to meet your needs.

- **Before installation**, a certified field service engineer analyzes your feed water quality.
- **During installation**, feed water parameters are programmed into system memory to optimize water recovery and maximize system performance.
- **Throughout system lifetime**, apply the **Milli-Q® Service Plan** that meets your lab's needs, from a single annual Preventive Maintenance Visit with replacement of aging parts, to full system coverage, including proactive alarm monitoring.
- **Choose from a range of additional options**, including qualification, calibration and verification services, scheduled consumables shipments, and sanitization.

Our Milli-Q® certified field service engineers can provide:

- Operator training
- Technical and maintenance support
- Preventive maintenance
- Customized services, such as conductivity and temperature meter verification
- Assistance to help you successfully perform the Installation Qualification (IQ), Operational Qualification (OQ) and maintenance program within a cGMP and/or GLP environment

Log into the MyMilli-Q™ platform to streamline the care of your Milli-Q® system fleet:

- Track service history & reports
- Plan maintenance visits
- Manage consumable deliveries
- Renew service contracts
- Remotely monitor, control & service your system (via the MyMilli-Q™ Remote Care feature, see pages 9-10)



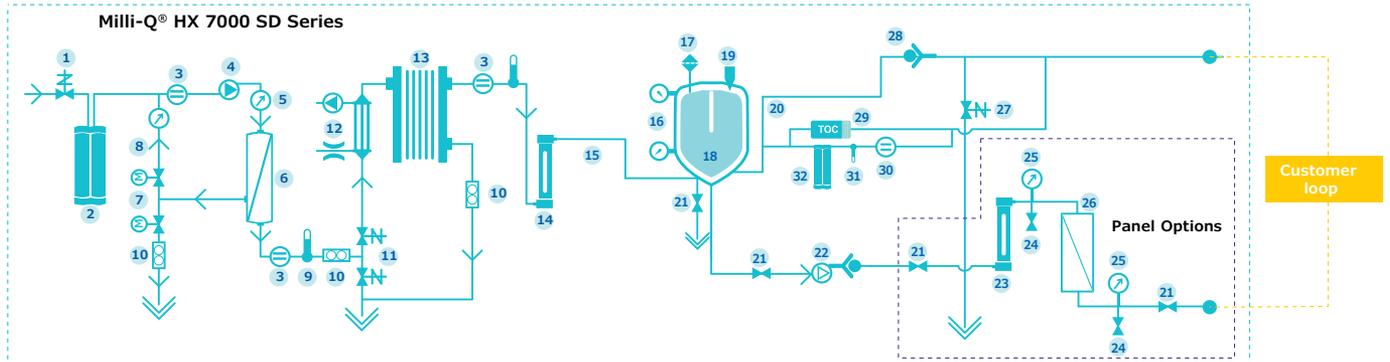
SigmaAldrich.com/milli-qservices

Technical Appendix

Milli-Q® HX 7000 SD series

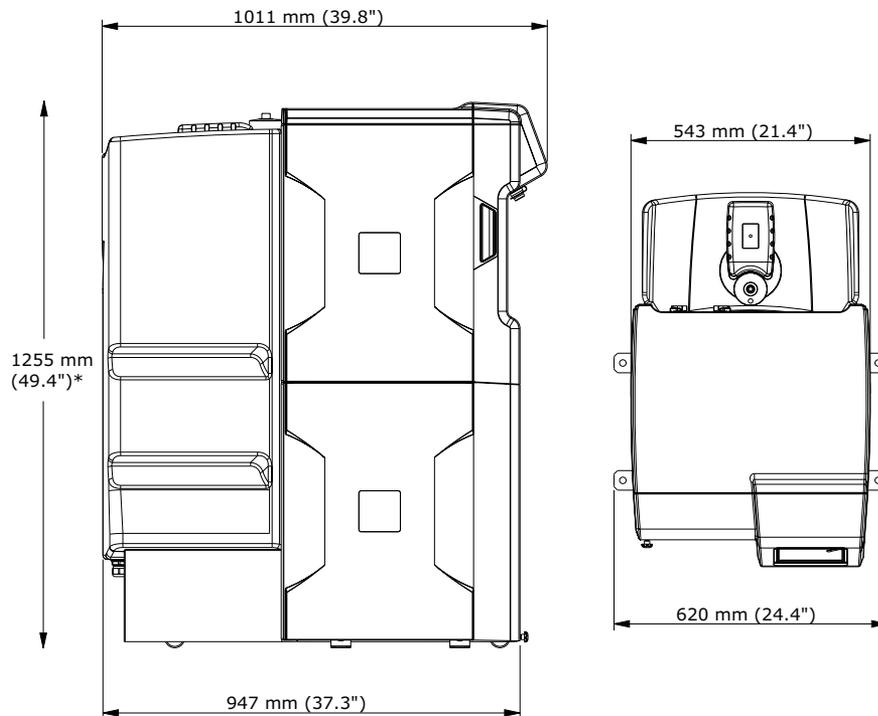
Type 2 Water Purification Systems

Flow Schematic of Purification Process



- | | | |
|--------------------------------------------|---------------------------------|---------------------------------------|
| 1. Inlet valve | 12. Degassing unit (option) | 23. UV lamp (254 nm; option) |
| 2. Progard® pretreatment pack | 13. Elix® module | 24. Sampling valve |
| 3. Conductivity cell | 14. UV lamp (254 nm) | 25. Pressure gauge |
| 4. RO pump | 15. Feed by the bottom | 26. Opticap® filter (0.22 µm; option) |
| 5. Pressure sensor | 16. Tank level pressure sensors | 27. Automatic loop rinsing valve |
| 6. RO cartridge | 17. Vent filter | 28. Spring-loaded check valve |
| 7. Twin motorized valve - RO recirculation | 18. 140 L tank | 29. TOC monitor (option) |
| 8. RO circulation loop | 19. Overflow | 30. Resistivity cell (option) |
| 9. Temperature sensor | 20. Return to the bottom | 31. Temperature cell (option) |
| 10. Flow sensor | 21. Valve | 32. Resistivity booster (option) |
| 11. 3-way automatic rinsing valve | 22. Distribution pump | |

System Dimensions



*Vent filter TANKVNT01: + 48 mm

Feed Water Requirements

Parameter	Value or range
Pressure	2 – 6 bar
Flow rate	> 10 L/min at 2 bar
Feed water type	Potable water
Temperature	5 – 35 °C
Conductivity	10 – 2000 µS/cm at 25 °C
pH	4 – 10
Hardness (as CaCO ₃)	< 300 ppm
Silica concentration	< 30 ppm
Carbon dioxide concentration (CO ₂)	< 30 ppm
Langelier Saturation Index (LSI)	< 0.3
Fouling Index (FI _s) or Silt Density Index (SDI)	≤ 7(*)
Total Organic Carbon (TOC)	< 1 ppm
Free chlorine for Milli-Q® HX 7040 (LC), 7080 (LC), 7120, 7150 SD systems	< 1.5 ppm
Free chlorine for Milli-Q® HX 7040 (HC), 7080 (HC) SD systems	≥ 1.5 and < 3 ppm

* < 12 when the optional UF pretreatment is installed.

Milli-Q® HX 7000 SD Series Performance

In an optimal configuration that includes an Opticap® filter, UV lamp and a well-designed and maintained loop, product water from the Milli-Q® HX 7000 SD system meets or exceeds the relevant standards and Pharmacopeia listed on page 6 of this brochure at all points of use.

Typical water quality measures with a well-designed and maintained distribution loop of 20 meters:

	Stand-alone system	System + resistivity booster	System + UV lamp	System + UV lamp + Opticap® filter
Resistivity (@25 °C)	> 1 MΩ.cm	10-15 MΩ.cm	> 1 MΩ.cm	> 1 MΩ.cm
Conductivity (@25 °C)	< 1 µS/cm	0.07-0.1 µS/cm	< 1 µS/cm	< 1 µS/cm
Total Organic Carbon (TOC)	< 50 ppb	< 50 ppb	< 50 ppb	< 50 ppb
Bacteria count	-	-	≤ 10 cfu/mL	≤ 1 cfu/mL*
Dissolved silica	≤ 3 ppb	≤ 3 ppb	≤ 3 ppb	≤ 3 ppb

* Sampled after Opticap® filter.

Electrical Specifications

System type	Voltage & frequency	Power consumption (VA)
Milli-Q® HX 7040/7080 SD	220-240 VAC @ 50/60 Hz	1000
	120 VAC @ 60 Hz	
	100 VAC @ 50/60 Hz	
Milli-Q® HX 7120/7150 SD	220-240 VAC @ 50/60 Hz	1500
	120 VAC @ 60 Hz	
	100 VAC @ 50/60 Hz	

The source of electrical power must be earth grounded.

General Specifications

Noise level	< 50 dB at 1 meter
Communication protocol	TCP/IP/CGI, embedded web server and HTML 5 embedded website*
Communication ports	Ethernet, USB 2.0
Languages	English, French, Spanish, Portuguese, Italian, German, Russian, Chinese, Japanese

* No additional software needed for remote control.

System type	Make-up flow rate to reservoir*	Dry weight	Shipping weight	Operating weight
Milli-Q® HX 7040 SD	40 L/h (10.6 gal/h)	97 kg (214 lb)	116 kg (256 lb)	247 kg (545 lb)
Milli-Q® HX 7080 SD	80 L/h (21.1 gal/h)	106 kg (234 lb)	125 kg (276 lb)	256 kg (567 lb)
Milli-Q® HX 7120 SD	120 L/h (31.7 gal/h)	114 kg (251 lb)	133 kg (293 lb)	264 kg (582 lb)
Milli-Q® HX 7150 SD	150 L/h (39.6 gal/h)	126 kg (278 lb)	145 kg (320 lb)	276 kg (608 lb)

* Nominal flow rates ± 10% between 10 and 35 °C. Additional deviation of -3% per °C from 10 °C to 5 °C.

Storage & Distribution

Tank Specifications

Material	High purity polyethylene
Built-in reservoir volume (net)	140 L (37 gal)

Distribution Pump Performance (Centrifugal)

Flow Rate	Pressure
5 LPM / 1.32 GPM	2.2 bar / 32 psi
15 LPM / 3.96 GPM	1.9 bar / 28 psi
20 LPM / 5.28 GPM	1.6 bar / 23 psi

Plumbing Connections

Inlet (feed water connection)	3/4" BSP
Loop start/return	1 1/2" Sanitary TC
Drains	3/8"

Part numbers (accessories, consumables, options)

Consumables

PR0GTXLCS1	Progard® XL-S-C Pretreatment
PR0GTXLCS2	Progard® XL-S-CL Pretreatment Qty 2
TANKVNT01	Vent filter 0.22 µm
TANKVNT02	Vent filter 0.22 µm with CO ₂ trap

System Options

ZLXLSDISCAB	On-demand feed option
ZLXLDEGK2	Degasser upgrade kit (Elix®/AFS® 40-150)
TANKLKXL1	Water sensor
TANKLK002	Additional water sensor
ZLXLALCAB	Alarm output - 2x 24 Vdc 4 W, 2x 4-20 mA
ZLXL000PR	XL feed pressure regulator 0-25 bars
ZLXL00ESVSD	External solenoid valve
AIRGAPXL2	Air gap 2 inlets D10
ZLXLSDCV15	High-pressure loop check valve

System Care Options

ZLXLCLPAK	RO regeneration tool
ZWACID012	ROCare A - Acid pouch for RO (12)
ZWBASE012	ROCare B - Base pouch for RO (12)
ZWCL01F50	ROProtect C - Chlorine tablets (48 tabs)
5874316024	ROProtect CR - Chlorine tablets (US and Mexico only - 24 tabs)
5874316024C	ROProtect CR - Chlorine tablets (Canada only - 24 tabs)

Loop Water Quality Monitoring Options

ZKITRES00SD	Resistivity kit for high-throughput systems
ZKITRES01SD	Resistivity kit & boost for high-throughput systems
ZKITRES01T0CSD	Resistivity boost & TOC monitor for high-throughput systems

Loop Care Options

QGARDTXL04	Q-Gard® XL-4LPM polishing cartridge
ZLXLSDL00PKIT	Loop panel assembly kit
ZLXLKITU57	UV loop kit 57 W
ZLXLKITU57L1	UV lamp 254 nm 57 W
ZLXLSDL00PFEET	Support for loop panel assembly kit
KVGLA1TTT1	Opticap® XLT10 Durapore® 0.22 µm 1-1/2" TC/TC
MPESP18N	Sanitary sampling valve (stainless steel)

Pre-Treatment Options

ZUFPREUN0	UF Pretreatment unit 3/4"
ZUFPREUN8	Installation kit for UF Pretreatment
ZLXLPTCAB	External Pretreatment-XL system cable
ZLXLPTFSW	Flow switch for pretreatment unit

Milli-Q®

Lab Water Solutions

MilliporeSigma
400 Summit Drive
Burlington, MA 01803

SigmaAldrich.com/labwater

For more information on Milli-Q® HX 7000 SD systems, please visit:
SigmaAldrich.com/milli-q-hxsd

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