

**Milli-Q®**  
Lab Water



# Milli-Q® HR 7000 Series High-throughput central purification systems

For volumes up to  
13,000 L/day



The life science business of Merck KGaA,  
Darmstadt, Germany operates as  
MilliporeSigma in the U.S. and Canada.

**MILLIPORE  
SIGMA**

# YOUR total solution

from the people who know pure water best

Now more powerful and versatile than ever. We've redesigned our RiOs high-throughput central system to give you the **CAPACITY, CONFIGURATION** and **CONNECTIVITY** that today's lab facility needs to run smoothly.

## The new Milli-Q® HR 7000 is at the heart of any total pure water solution

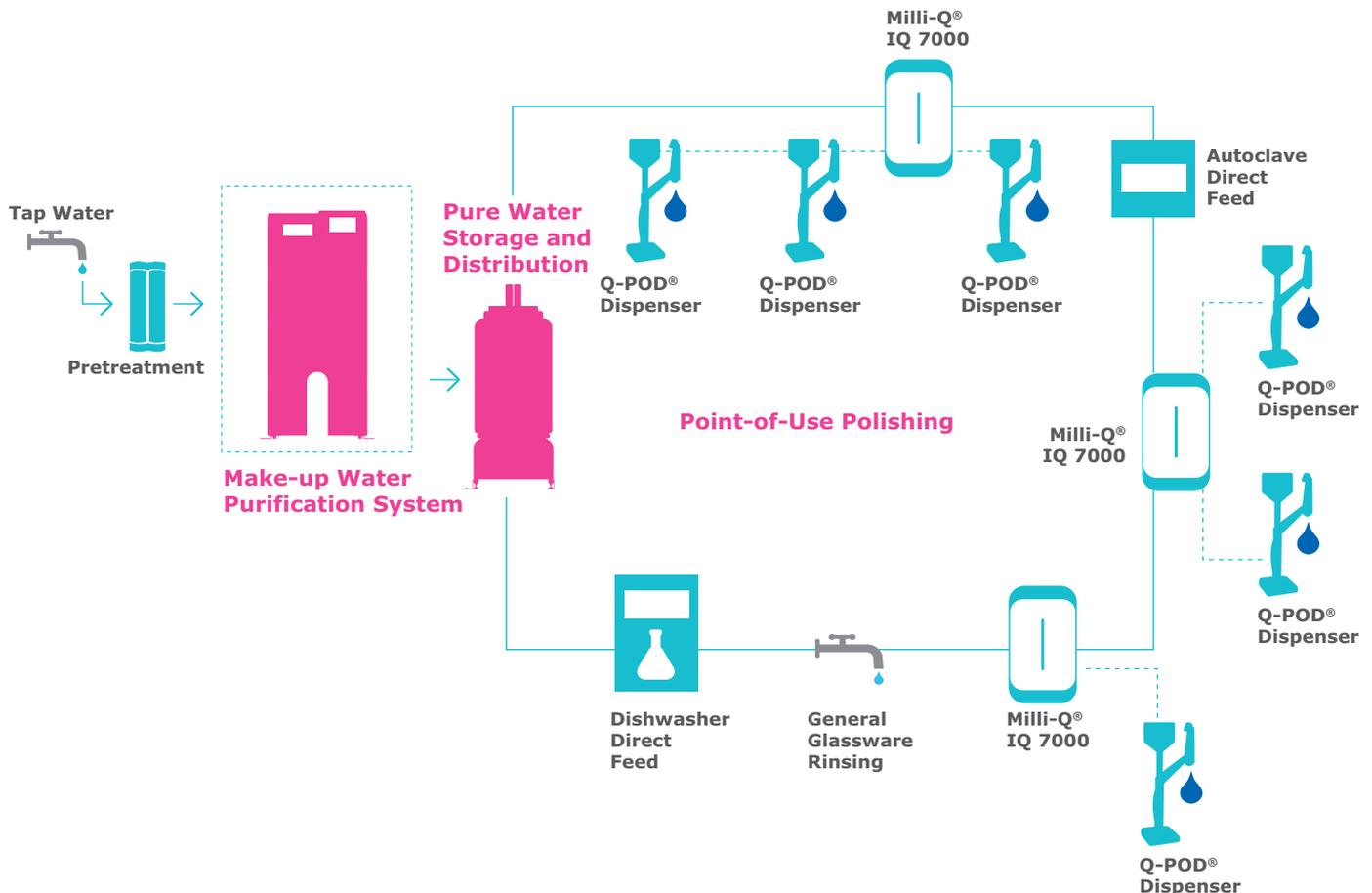
The Milli-Q® HR 7000 system provides a high-throughput standard water purification solution that can reliably meet the diverse needs for Type 3 pure water – for a single laboratory or an entire research facility.

### Reliably feed all your pure water needs:

- **Taps** on benches
- **Systems and instruments**, including dishwashers, autoclaves, clinical analyzers, heating baths, humidity chambers, ice machines, and environmental chambers
- **Point-of-use polishers** and **purification systems** to obtain ultrapure water

### Achieve higher throughput than before:

With a constant flow rate of up to **220 L/h** (between 7°C and 30°C), the system has the capacity to purify up to several thousand liters per day of Type 3 pure water from tap water. Link up to 3 units to reach up to **13 000 L/day!**



## Installation options that fit almost any configuration

The Milli-Q® HR 7000 system can be adapted to most laboratory or building configurations. It is capable of driving and controlling all ancillary equipment needed for a complete installation, including:

- Distribution pumps, single and duplex
- Reporting alarms from the pumps
- UV lamp in the distribution loop
- ASM (automatic sanitization module)
- Tank levels and alarms
- Consumable management (vent and final filters)
- 2 alarm outputs for connecting to a general BMS, LIMS or alarm, and 2 signals 4-20mA are available for monitoring
- Embedded web server technology compatible with LIMS and BMS via TCP/IP protocol
- Water detector to stop the water supply in case of a leak (option)
- Distribution loop TOC monitoring (option)
- Distribution loop Resistivity monitoring (option)

### Plug 'n' play compatibility with our SDS 500 storage, protection and distribution system

Easily connect Milli-Q® HR 7000 and SDS 500 systems for a **compact** and **clean** solution. This perfect pairing yields high storage and distribution flow possibilities.



### Trust in Pure Experience

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

MilliporeSigma provides a comprehensive range of water purification systems to fit your needs, space, building configuration, and budget.

- Customized solutions
- Valuable advice
- Comprehensive maintenance
- Qualification programs
- Budget planning

**From conception, design and installation, through to engineering expertise and technical support services, MilliporeSigma can work with you through any project for full peace of mind.**

# Peace of Mind

with state-of-the-art technology & best-in-class support

Complementary purification technologies yield reliably pure water, enhance sustainability, and reduce running costs, making your facility more **PRODUCTIVE**, **ENVIRONMENTALLY FRIENDLY** and **COST-EFFECTIVE**.

## Pretreatment is tailored to your feed water quality

### For standard water feeds:

- Progard® pretreatment cartridges remove particles (0.5 µm filter), free chlorine and colloids (activated carbon filter)
- An anti-scaling agent protects the reverse osmosis (RO) membrane in hard water areas
- Bactericidal carbon prevents bacterial growth

If your source water has a high fouling index and/or high chlorine levels, supplementary backwashing carbon filters and an ultrafiltration system can be added via an external holder.

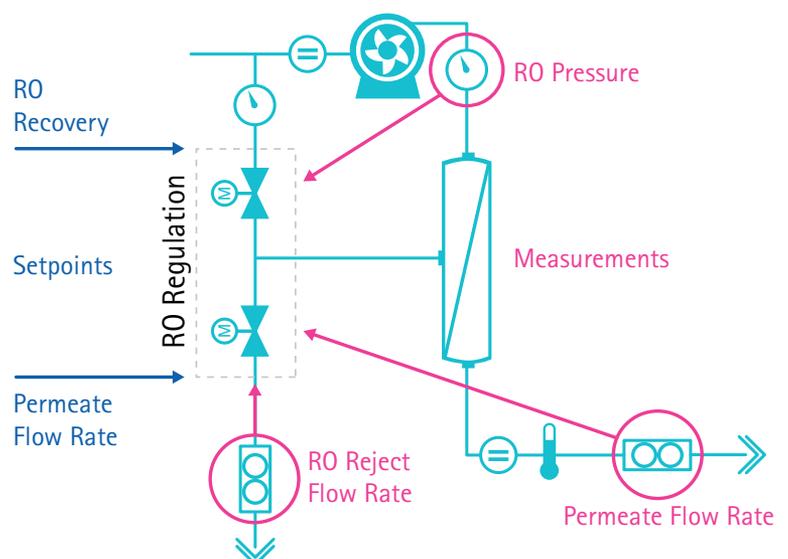
## Advanced RO & patented ERA™ technologies yield constant flow rates while reducing water consumption

### Advanced RO removes:

- 95-99% of ions
- 99% of all dissolved organics (MW >200 Da), microorganisms and particles

**ERA™ (Evolutive Reject Adjustment) technology** takes into account feed water quality (conductivity, temperature, hardness, alkalinity, CO<sub>2</sub>) 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.

- 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



Our patented ERA™ technology saves you water, time and money.

## The Milli-Q® HR 7000 system is designed for quick and easy maintenance

With its **ergonomic patented pack holder** and **helpful wizards** accessible from the touchscreen display, the new Milli-Q® HR 7000 system is quick and easy to maintain. Searching through user manuals for how to change a cartridge is no longer necessary; all instructions are at your fingertips, so you can get on with what's really important.

At <50 dB, the system is as quiet as a conversation with someone next to you.



## The unequaled quality of Milli-Q® services and support gives you total peace of mind throughout your system's lifetime

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

**Before installation**, a certified Field Service Engineer will analyze your feed water quality. During installation, the measured feed water parameters are then programmed into the Milli-Q® HR 7000 system memory, optimizing water recovery and maximizing system performance.

**Throughout the system's lifetime**, MilliporeSigma offers service plans that can be tailored to meet your specific needs. Options range from a single annual preventive maintenance visit with replacement of aging parts, to full system coverage, including qualification, calibration, and verification services.

### Our certified Field Service Engineers can provide:

- Operator training
- Technical and maintenance support
- Preventive maintenance and 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

Count on us to support your project with state-of-the-art technologies and manufacturing excellence.

# connect to the heart

## of your Milli-Q® HR 7000 system

An interactive touchscreen and modern data management capabilities facilitate **MAINTENANCE, ACCESSIBILITY** and **DATA TRACEABILITY**.

The Milli-Q® HR 7000 series of systems are equipped with an integrated and powerful control panel. This user-friendly dashboard lets you easily navigate to access all main system data. In a few intuitive taps, you can view and control:

- System settings
- Production
- Storage levels
- Distribution
- Consumables status
- Preventive alarms and alerts

### Large, colored touchscreen display panel facilitates maintenance and control

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

### No need to open a user manual to maintain the system – wizards guide you through basic maintenance

<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. A wizard will explain the maintenance procedure in easy, step-by-step instructions.</p>	
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## Full connectivity assures lab productivity

### Authorized remote access, monitoring & control

Get peace of mind, prevent breakdowns and proactively ensure lab productivity with 24/7 remote access to your facility's central water system. Authorized users can now securely access the Milli-Q® HR 7000 system's functionality and data from anywhere—a network computer, or authorized laptops, tablets or smartphones.

- Ethernet connection to internet, LIMS or BMS
- Embedded web server generates real-time web pages to monitor system operations
- Trigger alerts or alarms in case of deviation from numerous adjustable set points
- Up to 3 users may access system at the same time



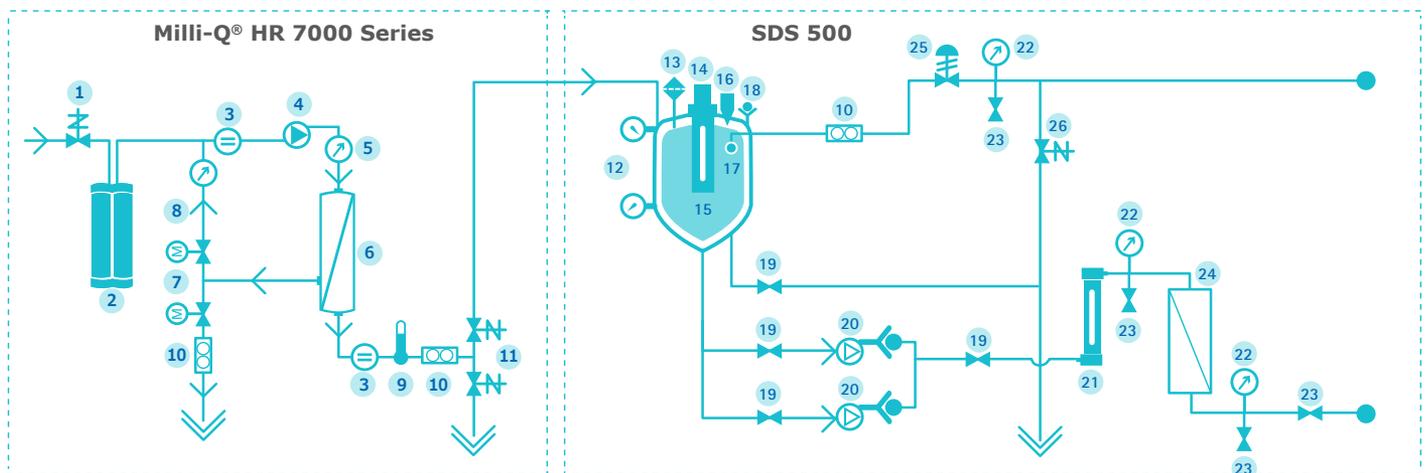
### Facilitate data management, improve traceability, and ease compliance

Easier access to your central water system and its data means better record-keeping and being more audit-ready.

- Up to 2 years of events are stored in the system and accessible via lab network or USB key
  - All running parameters are collected, including water quality, alarms and events, water usage, and consumables
- Generating automatic e-records to save time, money and paper
- Facilitate lab accreditation and re-accreditation processes (ISO 15189)

# Technical Appendix

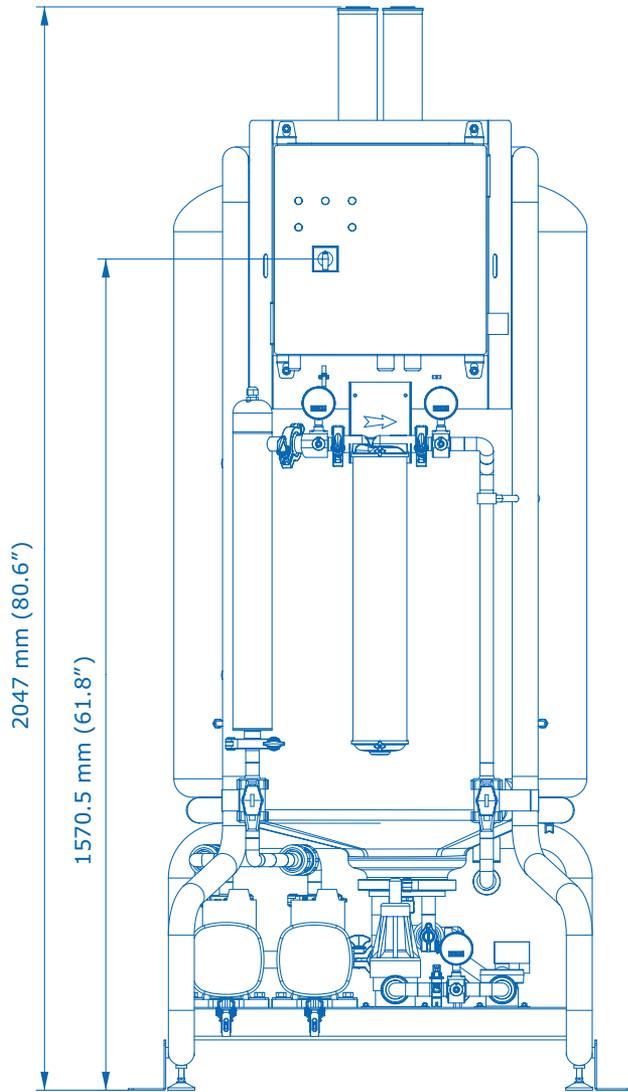
## Milli-Q® HR 7000 series Type 3 Water Purification Systems



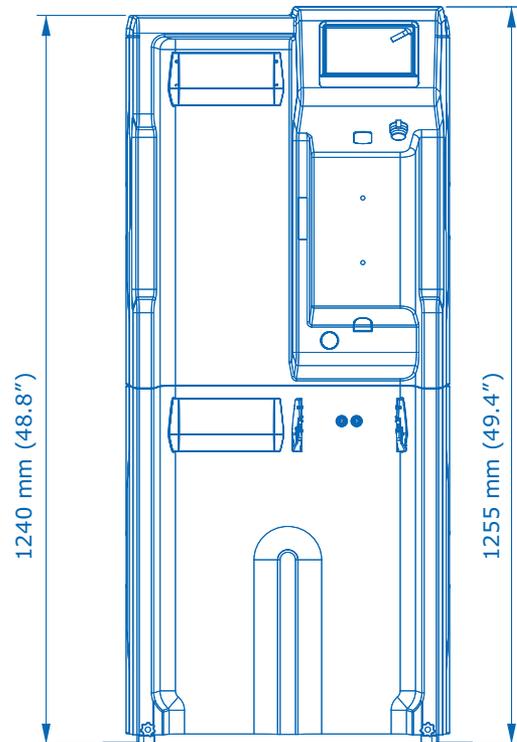
1. Inlet valve
2. Progard® pretreatment pack
3. Conductivity cell
4. RO pump
5. Pressure sensor
6. RO cartridge
7. Twin motorized valve - RO recirculation
8. RO circulation loop
9. Temperature sensor
10. Flow sensor
11. 3-way automatic rinsing valve
12. Tank level pressure sensors
13. Vent filter

14. Automatic Sanitation Module (ASM)  
(UV 254 nm; option instead of spray ball)
15. Tank
16. Overflow
17. Spray ball
18. Check valve
19. Valve
20. Distribution pump(s)
21. UV lamp (254 nm; option)
22. Pressure gauge
23. Sampling valve
24. Opticap® filter (0.22 µm)
25. Back pressure regulator
26. Automatic loop rinsing valve

## System Dimensions



**SDS 500**



**Milli-Q®  
HR 7000 Series**

## 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 <sub>3</sub> )	< 300 ppm
Silica concentration	< 30 ppm
Carbon dioxide concentration (CO <sub>2</sub> )	< 30 ppm
Langelier Saturation Index (LSI)	< 0.3
Fouling Index (FI <sub>2</sub> ) or Silt Density Index (SDI)	≤ 7(*)
Total Organic Carbon (TOC)	< 1 ppm
Free chlorine for Milli-Q® HR 7060 LC, 7120 LC, 7170, 7220 systems	< 1.5 ppm
Free chlorine for Milli-Q® HR 7060 HC, 7120 HC systems	< 1.5 ppm - 3 ppm

\* < 12 when the optional UF pretreatment is installed.

# Milli-Q® HR 7000 series

## Type 3 Water Purification Systems

### Milli-Q® HR 7000 Series Performances

Parameter	Value or Range
Conductivity	95% ionic rejection (99% particulates rejection)
Total Organic Carbon (TOC)	99% organic rejection for MW>200 Dalton

	Milli-Q® HR 7060	Milli-Q® HR 7120	Milli-Q® HR 7170	Milli-Q® HR 7220
Make-up flow rate to reservoir*	60 L/h 15.8 gal/h	120 L/h 31.7 gal/h	170 L/h 44.9 gal/h	220 L/h 58.1 gal/h

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

### Electrical Specifications

System Type	Voltage / Frequency	Power Consumption (VA)
Milli-Q® HR 7060/7120	220-240 VAC, 50/60 Hz	620
	120 VAC, 60 Hz	
	100 VAC, 50/60 Hz	
Milli-Q® HR 7170/7220	220-240 VAC, 50/60 Hz	750
	120 VAC, 60 Hz	
	100 VAC, 50/60 Hz	

### 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.

### Dimensions and Weights

	Milli-Q® HR 7060	Milli-Q® HR 7120	Milli-Q® HR 7170	Milli-Q® HR 7220
Dimensions (H x W x D) footprint	1 240 x 543 x 542 mm (48.8 x 21.4 x 21.3 in)			
Shipping weight	91 kg (207 lb)	94 kg (220 lb)	97 kg (233 lb)	103 kg (252 lb)
Dry weight	72 kg (166 lb)	75 kg (179 lb)	78 kg (192 lb)	84 kg (221 lb)

# SDS 500

## Storage, Protection & Distribution System

### SDS 500 Specifications

Tank volume	500 L (132 Gallons)
Usable water volume	400 L (105 Gallons), <i>an additional volume of 100 L is reserved for low and high level security</i>
Weight (filled with water)	660 kg (1455 lb)
Weight (empty)	Up to 140 kg (308 lb)
Dimensions H x W x D	2047 x 790 x 1082 mm (80.6 x 31.1 x 42.6 in)
Floor space required	0.85 m <sup>2</sup> (9.15 ft <sup>2</sup> )
Noise level	E.g. 45.5 dB @ 1m (BPR = 1.5b / flow rate 20 L/min) E.g. 54.7 dB @ 1m (BPR = 4b / flow rate 40 L/min)

### Pump Performances (Variable speed pumps)

Voltage / Frequency	Pump Performances
220-240 V, 50/60 Hz	Nominal: 16-40 LPM @ 1-4 bar
110-127 V, 50/60 Hz	4-9 GPM @ 14-58 psi
200 V, 50/60 Hz	Nominal: 16-40 LPM @ 1-3.5 bar*
100 V, 50/60 Hz	4-9 GPM @ 14-50 psi*

\* At 90V, performance is reduced to 16-40 LPM @ 1-3 bar (4-9 GPM @ 14-43 psi).

### Electrical Specifications

Voltage / Frequency	Maximum Power Consumption	Maximum Intensity
220-240 V, 50/60 Hz	2100 VA	< 9A
100-127 V, 50/60 Hz	2000 VA (120 V)	< 16A
	2000 VA (100 V)	< 20A

### Materials

Tank	Medium density polyethylene (MDPE)
Frame	Epoxy painted passivated steel
Valves and fittings	Polypropylene, polyamides, EPDM
Piping	Beta Polypropylene Homopolymer (Beta PP-H)
Pump wetted parts	316 SST and tungsten carbide / carbon and EPDM seals
BPR wetted parts	Polypropylene, EPDM, PTFE
Pressure gauge	Inox 316 L
Other mechanical parts	Polyethylene terephthalate (PETP)

### Plumbing Connections

Pure water inlet to tank	3/4" Sanitary TC
Tank drain	1 1/2" Sanitary TC
Tank loop inlet/return	1 1/2" Sanitary TC



For more information on the Milli-Q® HR 7000 series of systems,  
including options and accessories, please visit our website:  
[emdmillipore.com/labwater](http://emdmillipore.com/labwater)