Milli-Q®

SigmaAldrich.com

User Manual
Milli-Q® IQ Element

MERCK

Table of contents

INTRODUCTION

Congratulations!
Thank you for buying a Milli-Q® IQ Element unit.

Installation of this product should be followed by a qualified service representative with access to qualified installation documentation.

This user manual is a guide for use during the normal operation and maintenance of a Milli-Q® IQ Element unit. It is highly recommended to fully read this manual and comprehend its contents before handling it.

System identification

System	Catalogue number	Voltage	Frequency
Milli-Q® IQ Element unit	ZIQELEMT0	-	-

The system is electrically powered and hydraulically fed by a Milli-Q® IQ 7003/7005/7010/7015 system - or by a Milli-Q® IQ 7000 system - working themselves within the 100-240 V and 50-60Hz ranges respectively for the voltage and frequency.

Manufacturing site:
Millipore SAS, 67120 Molsheim, France

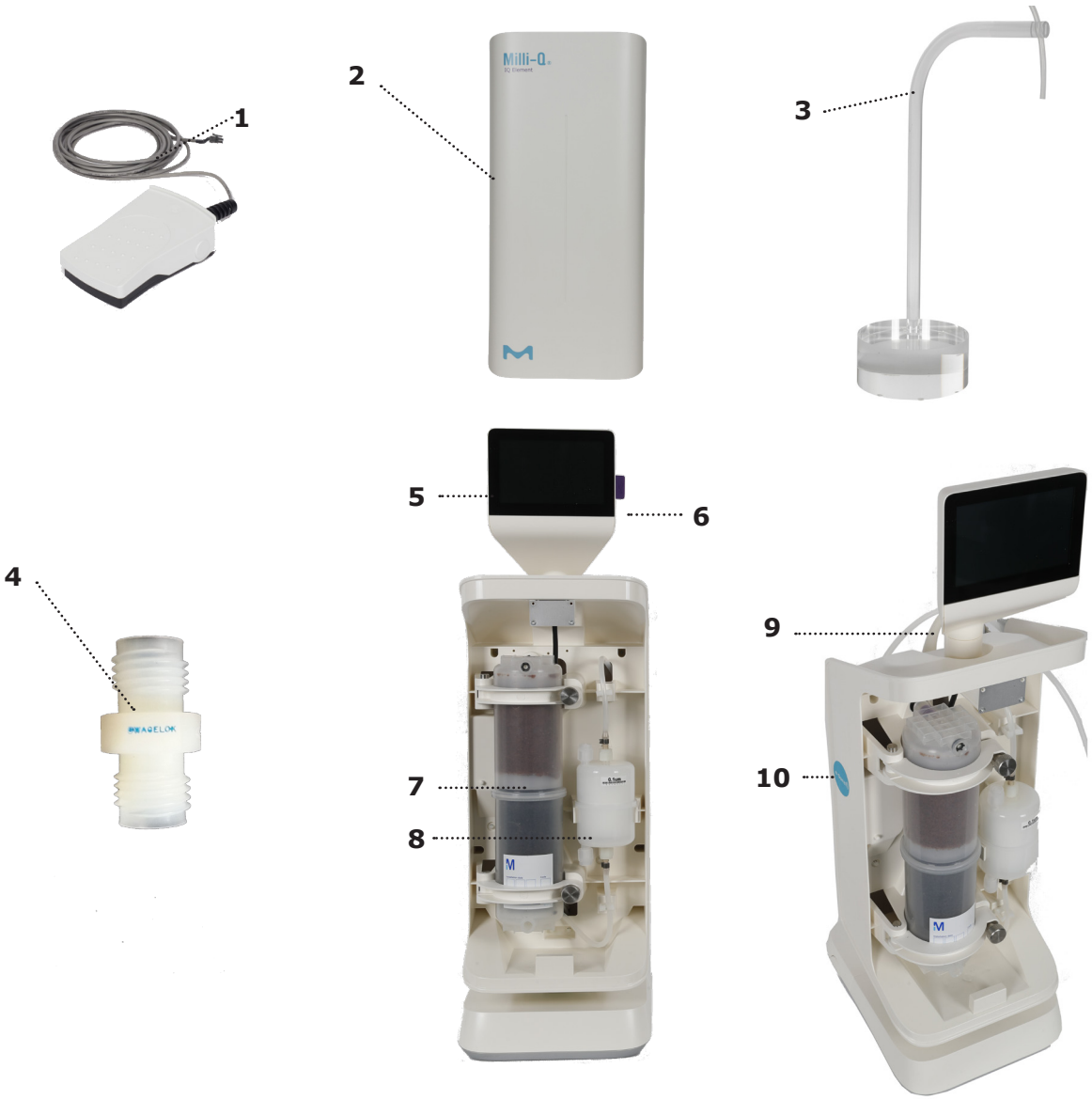
For more information on your Milli-Q system, please call your local representative or visit our website www.sigmaaldrich.com

Intended use

We do not warrant the product for any specific application. It is up to the user to determine if the quality of the water produced by the product matches their expectations, fits with norms/legal requirements and to bear responsibility resulting from the usage of the water.

The product is not intended to produce: water for injection, water for dialysis, sterile water for irrigation or injection, bacteriostatic water for injection, sterile purified water in containers, and sterile water for injection in container or ingestion. The product is not intended to be used in explosive environments according to ATEX Directive – equipment & protective systems intended for use in potentially explosive atmospheres. In addition the product is not intended as a Medical Device, including In-Vitro Devices.

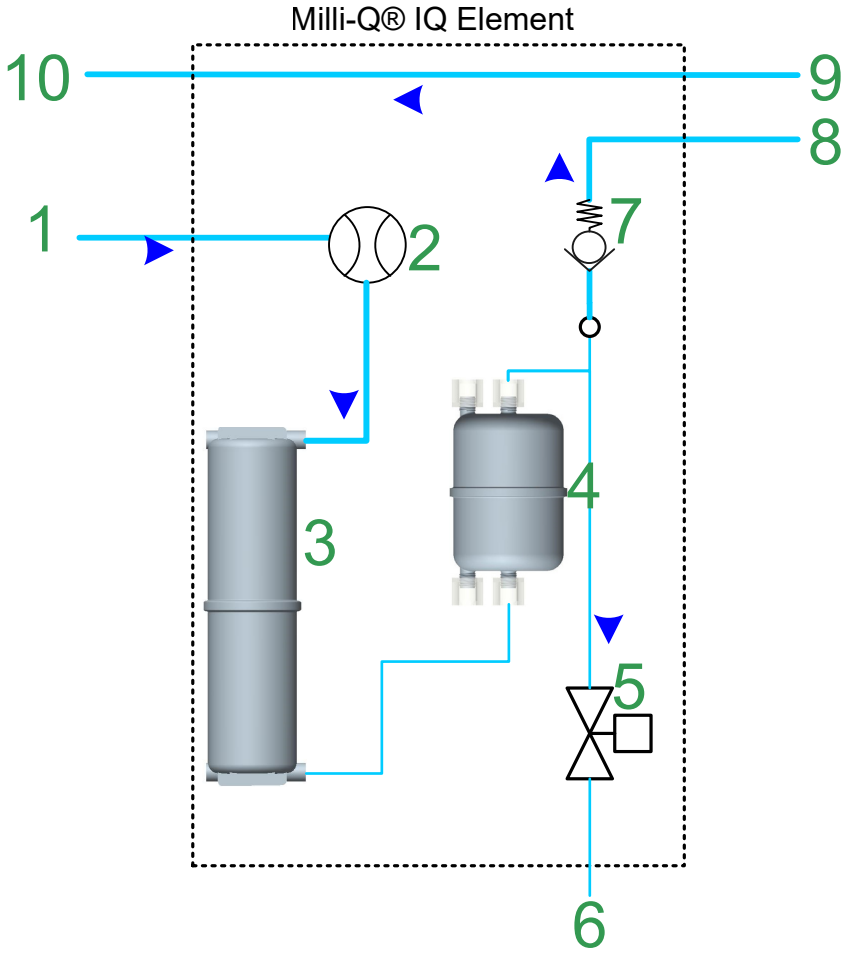
Milli-Q® IQ Element unit components



1	Foot pedal	**6**	USB port
2	Milli-Q® IQ Element unit front cover	**7**	IPAK Quanta ICP®
3	Dispensing tubing support	**8**	Optimizer LW™ final filter
4	Optimizer by-pass	**9**	Milli-Q® IQ Element unit product tubing
5	Milli-Q® IQ Element unit HMI	**10**	e-Sure tag reader

Flow schematics

Milli-Q® IQ Element unit flow schematic:

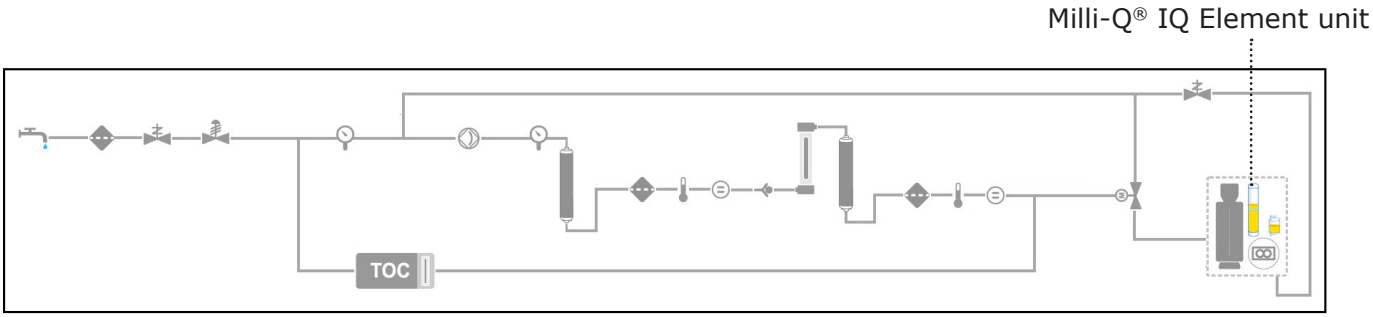


1	Connection from the Milli-Q® IQ 7000 system or the Milli-Q® 7003/7005/7010/7015 system to the Milli-Q® IQ Element unit	**6**	Milli-Q® IQ Element unit product tubing
2	Flowmeter	**7**	Check-valve
3	IPAK Quanta ICP®	**8**	Connection from the Milli-Q® IQ Element unit to a potential Q-POD®
4	Optimizer LW™ final filter	**9**	Connection from a potential Q-POD® back to the Milli-Q® IQ Element unit
5	2-ways solenoid valve	**10**	Connection from the Milli-Q® IQ Element unit back to the Milli-Q® IQ 7000 system or the Milli-Q® IQ 7003/7005/7010/7015 system

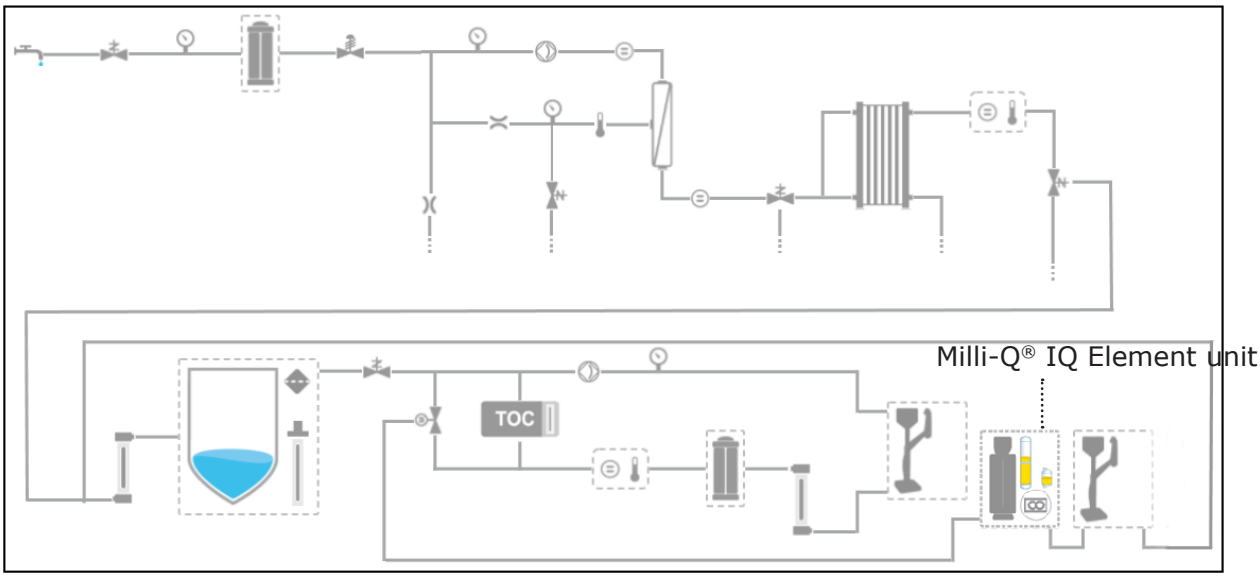
Note: If no Q-POD® is installed, 8 is directly connected to 10 and 9 doesn't exist.

Location of the Milli-Q® IQ Element unit on the system flow schematic

Milli-Q® IQ Element unit connected on a Milli-Q® IQ 7000 system:



Milli-Q® IQ Element unit connected on a Milli-Q® IQ 7003/7005/7010/7015 system:



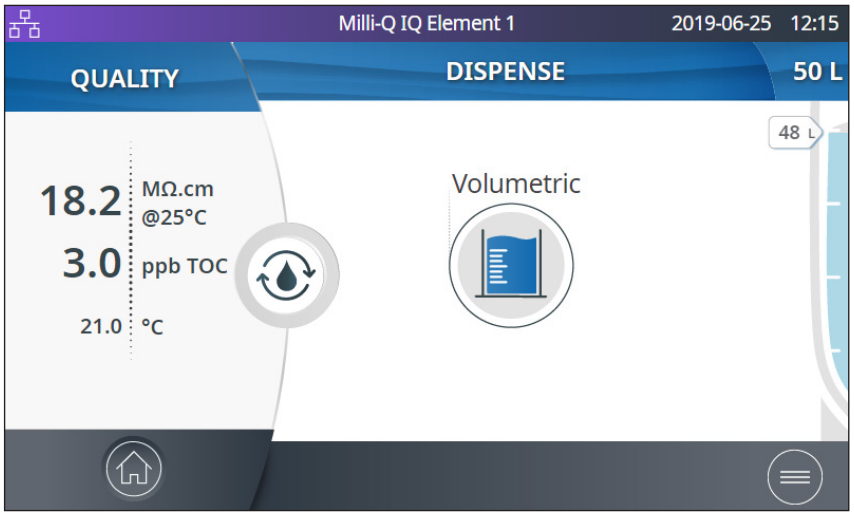
The Milli-Q® IQ Element unit is located on the distribution side of the flow schematic.

Regardless of the system type that is attached to the Milli-Q® IQ Element unit, one Q-POD® can be connected after the Milli-Q® IQ Element unit for the production of the ultrapure water. The Milli-Q® IQ Element unit must be always located as the first POD position of the ultrapure line.

QUICK START

Navigate the screen interface

HOME SCREEN



Home
- Water quality information
- Dispensing functions
- Alerts & Alarms (when applicable)
- Dispense report (when applicable)

MAIN MENUS

Menu
- Consumables
- Information
- Settings
- Maintenance
- Login

Go to Consumables Menu

Go to Information Menu

Go to Settings Menu

Go to Maintenance Menu

Login

Go to Manager access

Dispensing ultrapure water

Before dispensing

It is a good practice to always recirculate water before dispensing.

To do this, press on the recirculation icon , this also refreshes the water quality parameters:

- Product resistivity
- TOC
- Temperature

When connected to a storage tank, always make sure there is enough water present before dispensing. This information is always displayed on the main screen.

Dispensing ultrapure in free flow mode

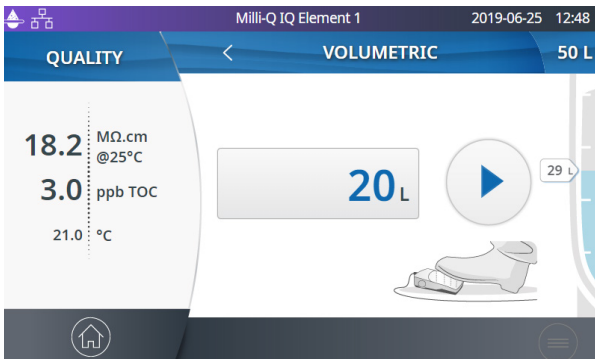
Enables a user to dispense manually in a free flow mode.

1. To dispense ultrapure water, use the food pedal switch connected to the base of the Milli-Q® IQ Element unit, as shown in the picture below.
2. Press once and quickly release to dispense in full flow.
3. Press and hold to start dispensing in drop-by-drop, keep pressing to increase the flow rate until full flow is reached. Release at the chosen flow rate.
4. Press one additional time when you wish to stop the flow dispensing.

Dispensing ultrapure water in volumetric dispensing mode

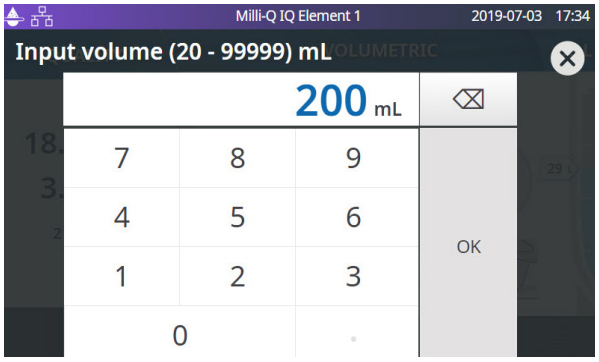
Enables a user to auto dispense a pre-selected volume (20mL to 100L). Simply press the icon of the Home screen to start a volumetric dispensing.

1- Press the pre-selected volume box to set the desired volume to dispense. If the volume is set as you expect, either press the start button on the screen or the foot pedal to initiate the dispense.

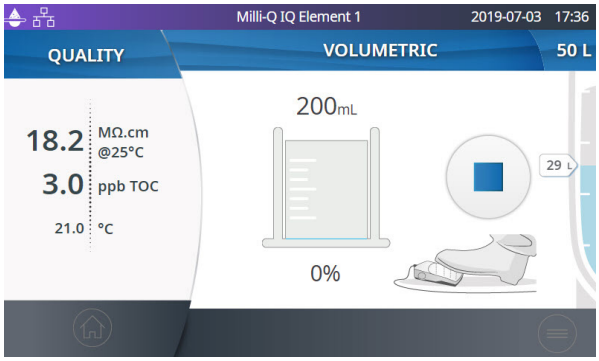


2- Select the unit.

3- Select the desired volume and press "OK" to validate.



4- Either press the stop button on the screen or the foot pedal to stop the dispense.



The system will automatically stop once the input volume is reached.

Note: The system records the last volume dispensed. To repeat a volumetric dispense, click on the start icon or the foot pedal.

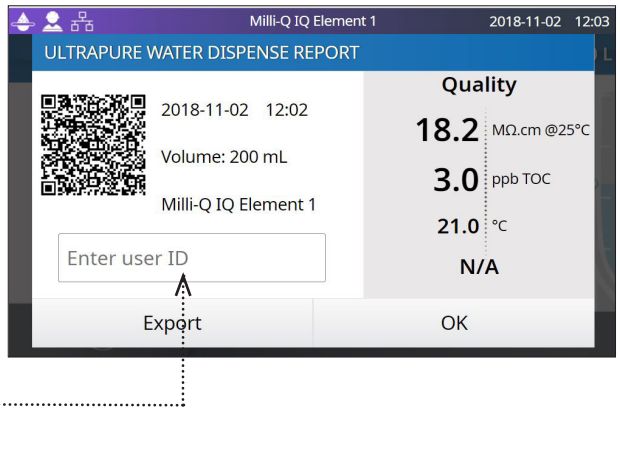
Dispense report

A dispense report is automatically produced after each dispensing operation. A dispensing operation is considered to be all dispenses with less than 10 second intervals between them. This can be interrupted at any time by pressing on the dispense report icon that becomes available on the home screen as soon as a dispense is initiated.

1. Consult the report data

Click on the dispense report icon: 

2. Personalize (assign a name or experiment number)



In the user ID field, enter the content of your choice (max 15 characters)

3. Export

- Scan the QR code from a mobile device to instantly retrieve the report.
- Click on the export button to save the report on a USB key.

4. Automatic archiving

The dispense report icon on the home screen will automatically disappear after 5 minutes of inactivity. Each dispense report, whether consulted or not, is automatically archived and can be retrieved anytime by going in the history report section available in the information menu.

Maintenance & settings

Milli-Q® IQ Element unit settings

This menu allows a user to configure all parameters specific to Milli-Q® IQ Element units and PODs. These are unique to the Milli-Q® IQ Element unit/POD that is being used to input the values.

To duplicate Milli-Q® IQ Element unit/POD parameters, the action(s) should be repeated on all other PODs.

Milli-Q IQ Element Name

This can be personalized. Click on the text box and input up to a maximum of 8 characters.

Screen brightness

Adjust to the preferred brightness from 1 to 7 using the arrows or click on the box to access the keypad and type-in the value.

Sound volume

Each Milli-Q® IQ Element unit can emit a sound when alerts/alarms are triggered. This can be activated or deactivated using the slider button. The sound can be adjusted to the desired volume by using the arrows or click on the box to access the keypad and type-in the value. By default, the sound is deactivated.

Flowmeter offset

The flowmeter has been calibrated in order to achieve volume precision of +/- 5%. In case of an obvious mistake of the flowmeter brought out with an external calibrated device, this setting provides the lab manager (by default password: PASS) the ability to adjust it by using an offset function.
Adjust the offset by using the arrows or click on the box to access the keypad and type in the value. To gain back the original calibration setting, set the value back to 0.

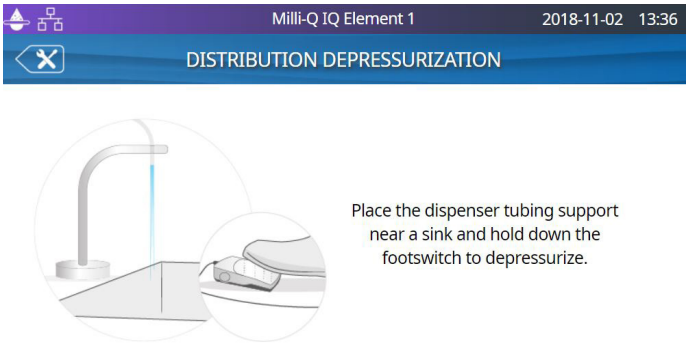
Distribution depressurization

Having a Milli-Q® IQ Element unit installed involved the use of the foot pedal to depressurize the Milli-Q® IQ 7000 system or the distribution side of the Milli-Q® IQ 7003/7005/7010/7015 system.

The distribution depressurization is available by going in "MAINTENANCE", "Depressurization".

This feature is not necessary during normal system operation. Please refer to the Milli-Q® IQ 7000 system or Milli-Q® IQ 7003/7005/7010/7015 system user manuals for more information.

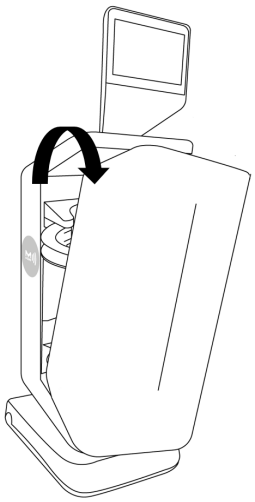
Press the "Exit maintenance" button to re-pressurize the distribution.



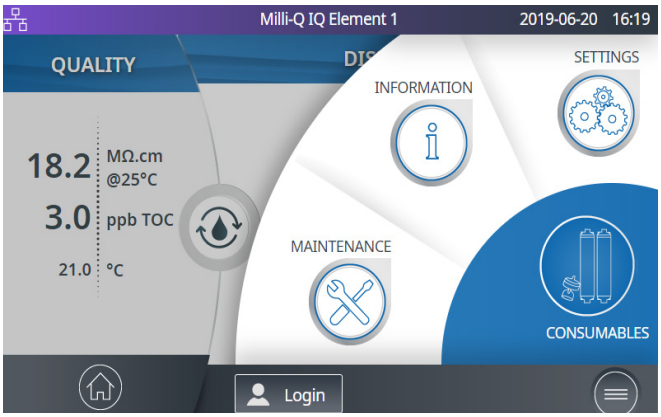
Consumables kit replacement standard operating procedure

1: Unpack the IPAK Quanta ICP® Cartridge. Write today's date on the small sticker at the bottom.

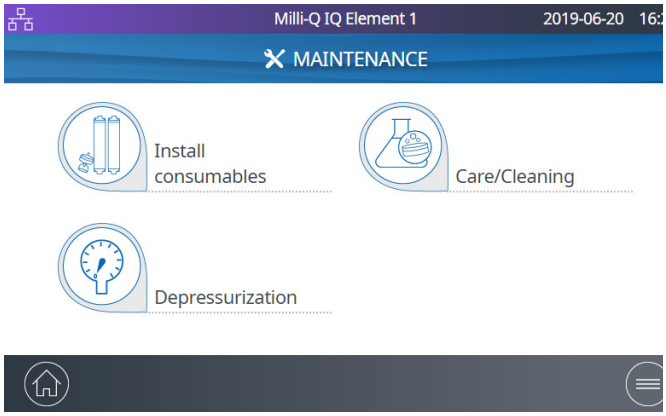
2: Remove the Milli-Q® IQ Element unit front cover.



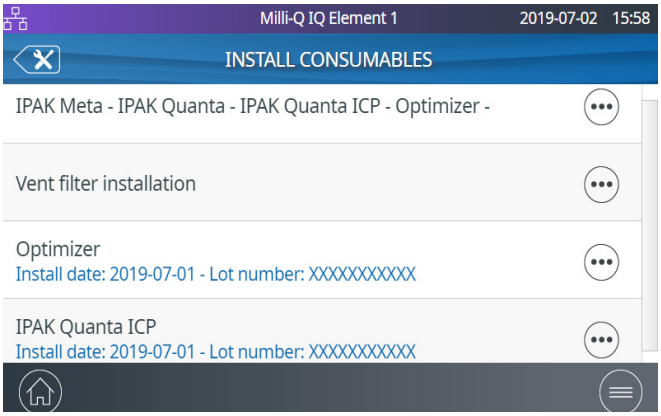
3: Click on the Menu button to access the MAINTENANCE section.



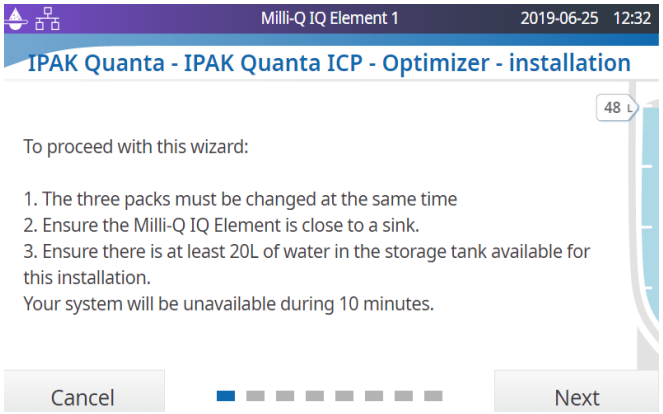
4: Click on "Install consumables".

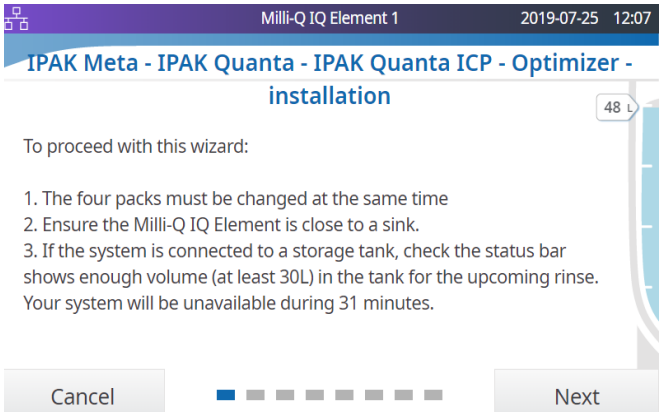


5: Depending upon the system type that feeds the Milli-Q® IQ Element unit, either click on "IPAK Meta - IPAK Quanta - IPAK Quanta ICP - Optimizer" or "IPAK Quanta - IPAK Quanta ICP - Optimizer - installation".



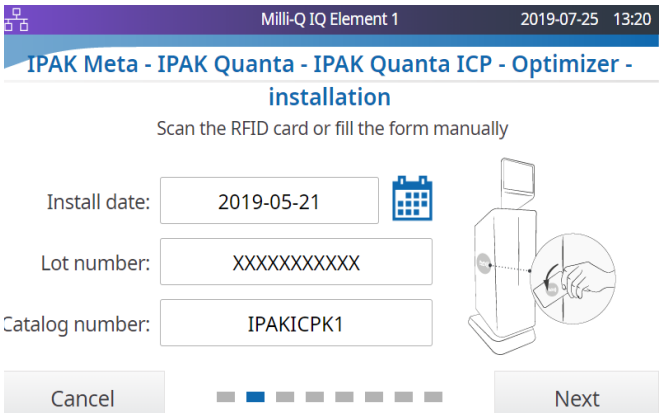
6: Depending upon the system type that feeds the Milli-Q® IQ Element unit, you now see either of both screens shown below. Be sure to meet the pre-requisite ahead of pressing "Next".

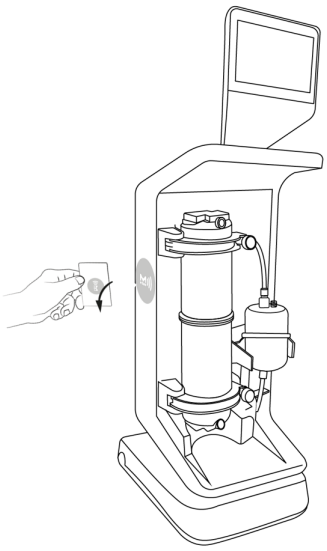




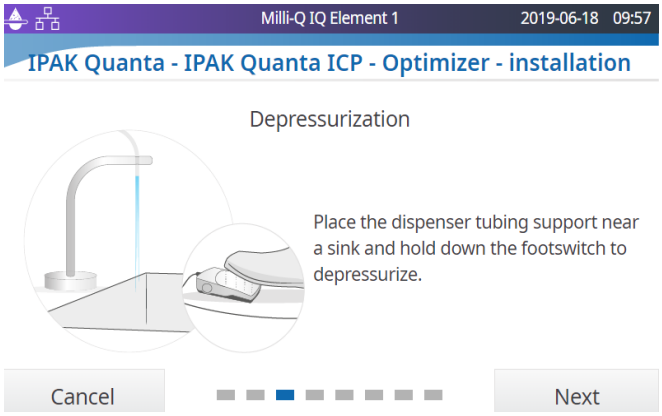
Important: In addition to the 20 L (Milli-Q® IQ 7003/7005/7010/7015) or 30 L (Milli-Q® IQ 7000) in the tank required to proceed the wizard, additional 20L will be necessary for the Optimizer™ LW final filter rinsing (step 21). If your Milli-Q® IQ Element unit is fed by a Milli-Q® IQ 7003/7005/7010/7015 and a 25L capacity tank, you will need to wait several hours for the tank to refill in order to finish the procedure depending on system flowrate capacity.

7: Scan the RFID card (delivered in the Milli-Q® IQ Element consumable kit) on the e-Sure tag to register the installation date, lot number and catalog number details. You can alternatively manually type in the information. Click on "Next" to continue.

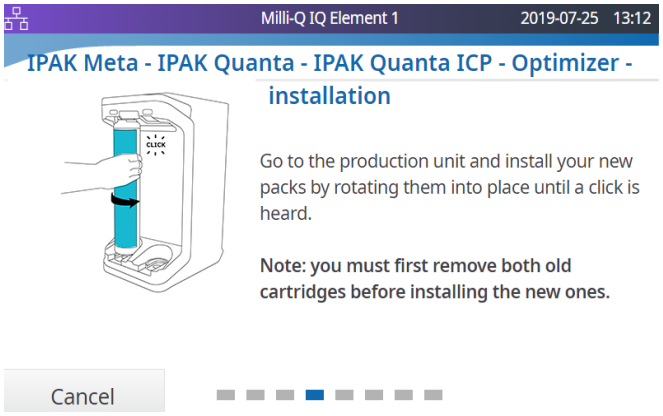




8: Depressurize using the foot pedal. Click on "Next" to continue.

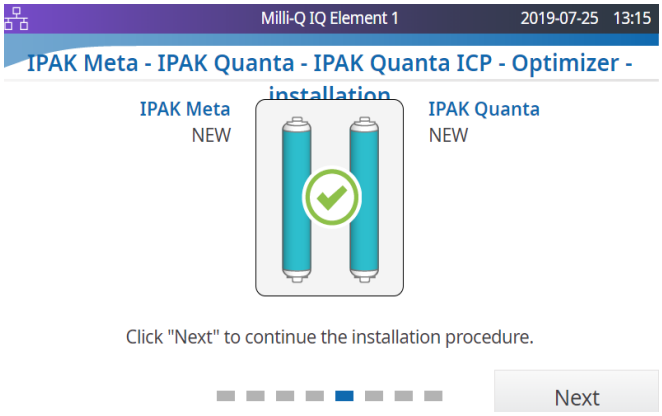


9: Replace the IPAK Quanta®. If applicable (Mil-li-Q® IQ 7000), also replace the IPAK Meta®.

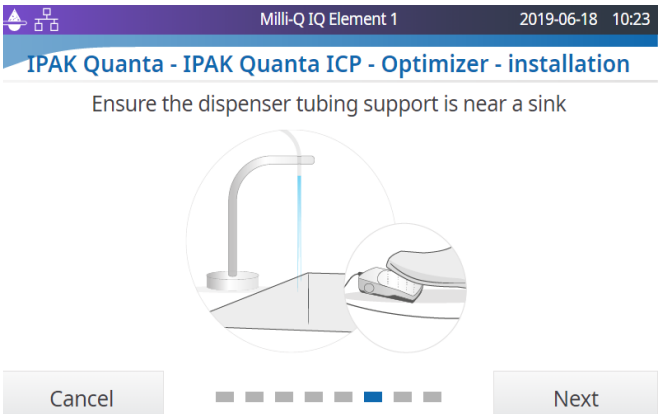


Note: More details about the IPAK Quanta® and IPAK Meta® in the IQ 7000 or IQ7003/7005/7010/7015 user manuals.

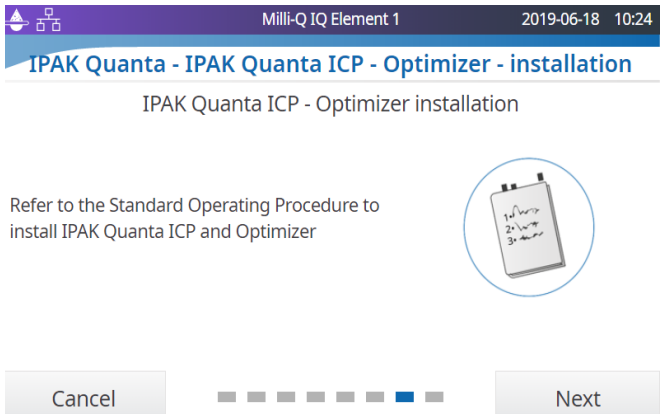
10: Once the IPAK Quanta® - and if applicable the IPAK Meta®- is/are replaced, click on "Next".



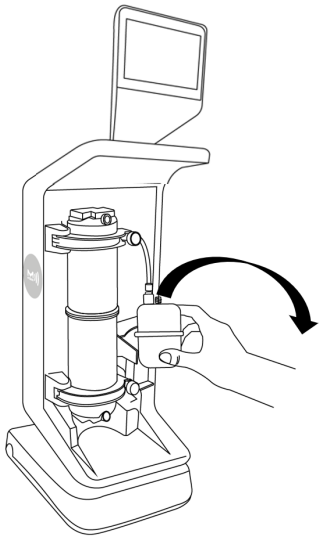
11: The end of the dispenser tubing still being over a sink, click on “Next”.



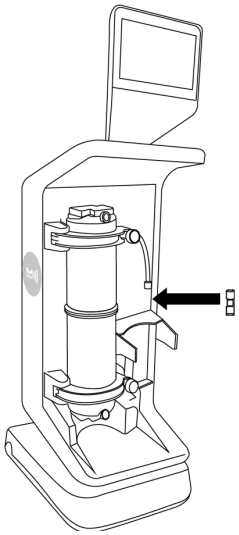
12: Click on “Next”.



13: Remove the old Optimizer LW™ final filter. Wipe the water going out from the tubings.

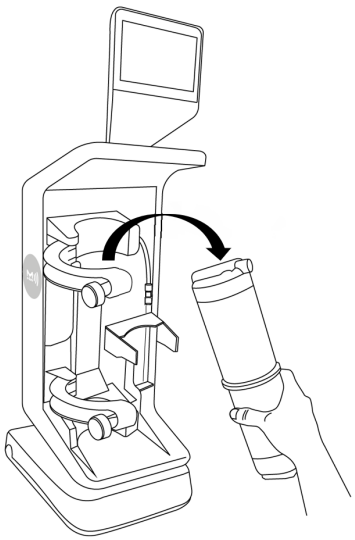


14: Install the Optimizer™ by-pass. You will normally find it in a little plastic bag attached to the product tubing.

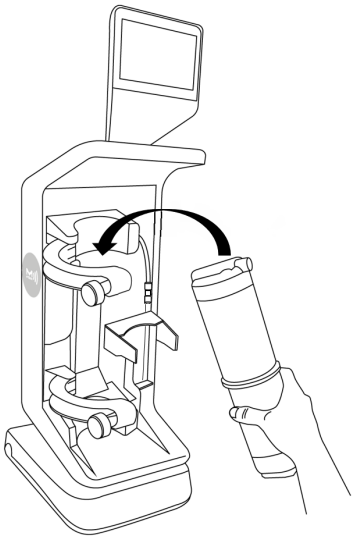


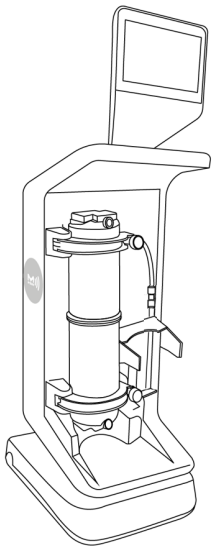
14 bis: Mind the way the cone fitting is oriented on the photograph below. The narrow circle of the cone must be oriented toward the by-pass. Same logic for the upper cone fitting.

15: Remove the old IPAK Quanta ICP®.

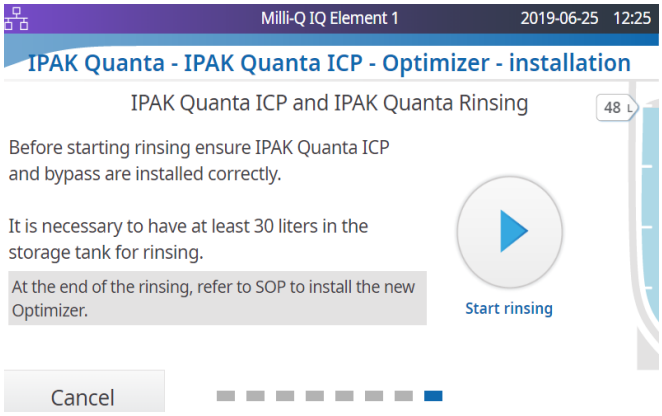


16: Install the new IPAK Quanta ICP®. Do not forget to tighten both the knobs to secure the cartridge.

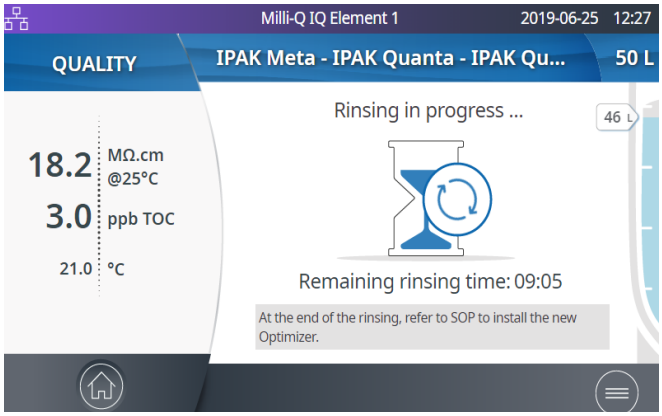




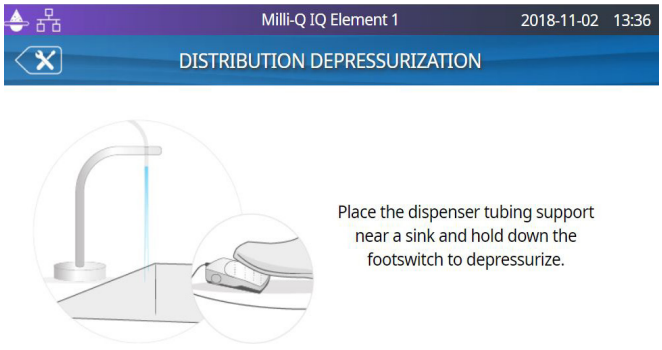
17: Click on the "Start rinsing" button.



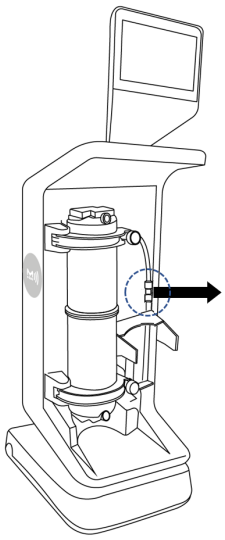
18: Use the foot pedal to proceed.



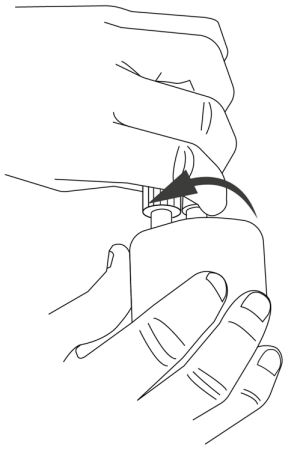
19: Wait 10 minute for the rinsing to be complete and the home screen to be displayed. Depressurize the distribution as described page 9.



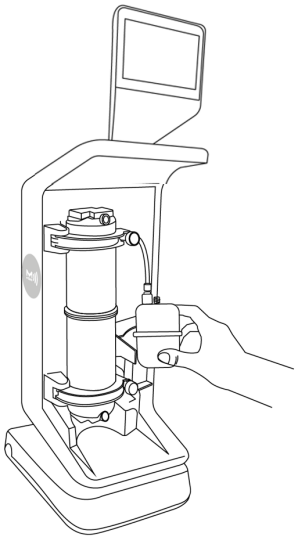
20: Remove the Optimizer™ by-pass. Keep it in a safe location for the next replacement.



21: Remove the Optimizer LW™ final filter from its packaging bag and fasten both the nuts delivered in a separate bag.

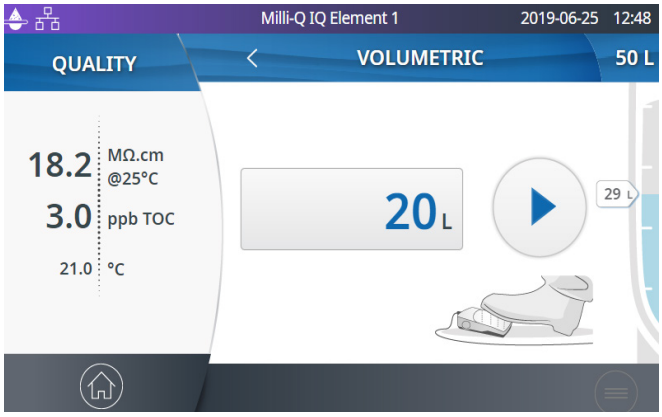


22: Install the new Optimizer LW™ final filter. Refer to step 14 bis for the correct way of connecting both the cone shape fittings.



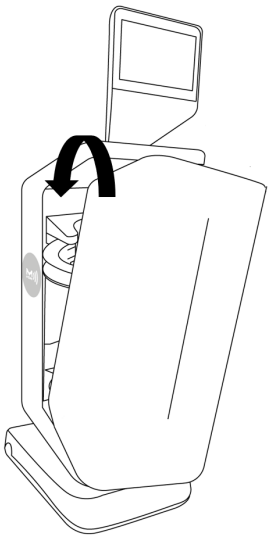
23: Press the "Exit maintenance" button on the HMI.

24: From the home screen, perform a volumetric rinsing of 20L (refer to the Quick Start chapter).



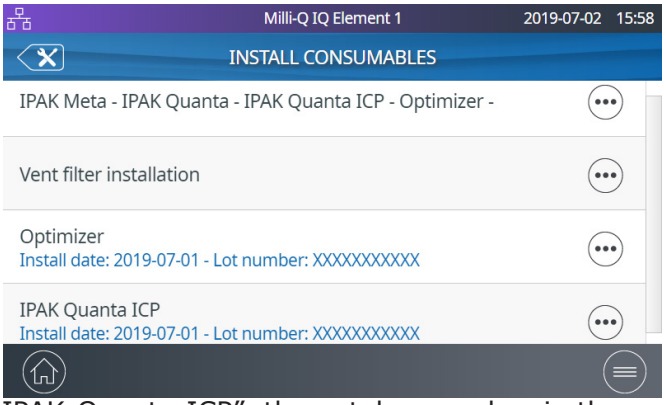
25: Purge the air out of the IPAK Quanta® ICP cartridge (refer to the dedicated chapter) and out of the Optimizer LW™ final filter by temporary loosening its the upper nut.

26 : Reinstall the Milli-Q® IQ Element unit front cover. Congratulations, you are set !



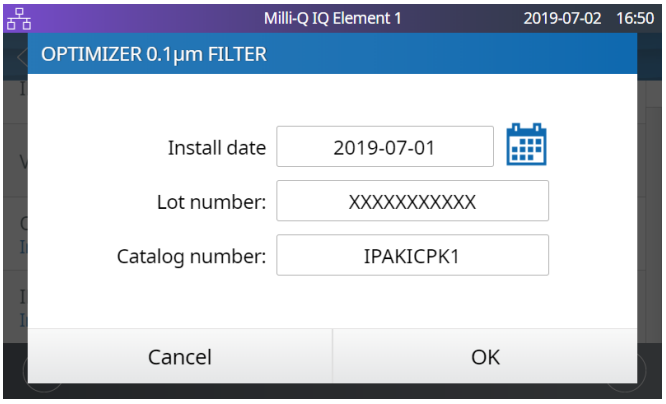
Consumables tracability

The consumable data registration is included in the "Consumables kit replacement standard operating procedure" previously described (step 7, page 11). You can re-register the consumables lot number by going in "MAINTENANCE", "Install consumables" and either "Optimizer" and/or "IPAK Quanta ICP":

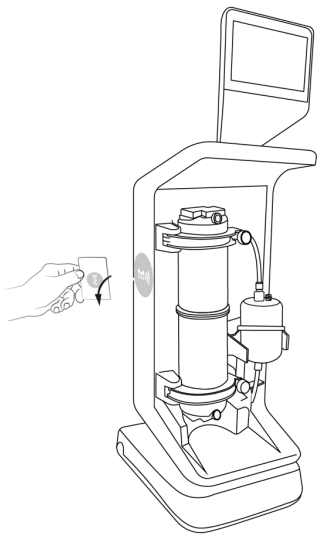


In both "Optimizer" and "IPAK Quanta ICP", the catalog number is the same: "IPAKICPK1". The lot number is the same for a given Milli-Q® IQ Element consumable kit.

Example: In "Optimizer" you can see the following screen:



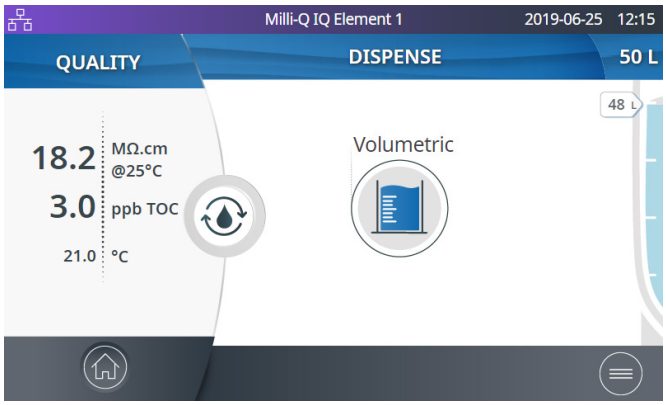
You can either manually type in or fetch the data by scanning the RFID card on the e-Sure tag reader.



If you manually type in the data, replace "XXXXXXXXXXX" by the actual lot number of the kit. You can find the serial number written on the label of the kit box. The exact same data has to be typed in/scanned in "IPAK Quanta ICP".

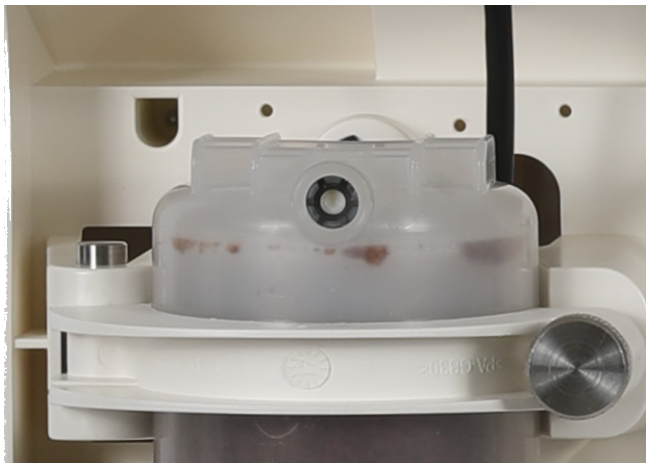
Purging air from the IPAK Quanta ICP® cartridge

1: Make sure you are not in maintenance mode. Otherwise, press the "Exit maintenance" button to go back to the home screen.



2: Get a screwdriver with a very thin shaft and small head. You can alternatively use a mechanical pencil provided that the lead is retracted.

3: Locate the small hole on the top part of the IPAK Quanta ICP® cartridge.



3: Gently insert the screwdriver into the IPAK Quanta ICP® cartridge. This will open a small vent that will expel any air in the IPAK Quanta ICP® cartridge.

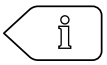
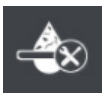
Important: Be very careful when pushing the tip of the screwdriver into the vent hole of the IPAK Quanta ICP® cartridge. The vent hole only needs to be opened a very small amount. Wear goggles.

Cleaning the external surfaces

For cleaning and disinfecting the external surfaces of the equipment, use a lint-free cloth wet with one of the following disinfecting agents:
- KLERCIDE™ Isopropanol 70% or equivalent composition
- SPOR-KLENZ® (Ready to use) or equivalent composition

Note that applying any other agent on the surfaces can damage them.

Icons

Icon	Meaning/Function	Icon	Meaning/Function
	Recirculation		Dispensing
	Volumetric dispensing		Back to main menu
	Start dispense		Stop dispense
	Alarm with number of active alarm(s)		Alert
	Home		Menu
	Storage tank		System manager logged in
	Mass storage USB connected		Ethernet - LAN status connected
	Slider ON		Slider OFF
	Back		Calendar entry
	Production Unit producing water		Production Unit standby
	Production Unit blocked		Production Unit maintenance
	Production Unit Maintenance exit		

REQUIREMENTS AND SPECIFICATIONS

System specifications

Milli-Q IQ Element water quality

Parameter	Value or range
Resistivity	18.2 Mohm.cm @ 25°C
Total Organic Carbon (TOC)	≤ 5 ppb
Flow rate	up to 1.5 L/min

Notes :

• These specifications are valid for a Milli-Q IQ Element Unit fed by water produced by a Milli-Q® IQ 7003/7005/7010/7015 system or by a Milli-Q® IQ 7000 system with a resistivity at 18.2 Mohm.cm and a TOC below 5 ppb.

• Some specifications may only be achieved after start-up and only if the system has been rinsed correctly.

Communication

Each Milli-Q® IQ Element unit has a large HD capacitive 5” touch screen (Resolution: 800*480) that allows control and monitoring of the system.

USB
The Milli-Q® IQ Element unit has a built-in USB port that offers the possibility to export the system data and/or history. The Host interface is compliant with the USB 2.0 High-speed standard.

USB keys only work when formatted FAT32. NTFS format is not compatible.

Ethernet
When connected through an Ethernet protocol, the display interface can be accessed remotely using internet web browsers.

For best browsing performance, the recommended browser is Chrome®.

RFID (case with embedded radio feature)
Use only the built-in antenna supplied. Unauthorized modification of the antenna or use of un-authorized accessories might damage the system and render it non-compliant with the EU RED directive and/or FCC regulations.

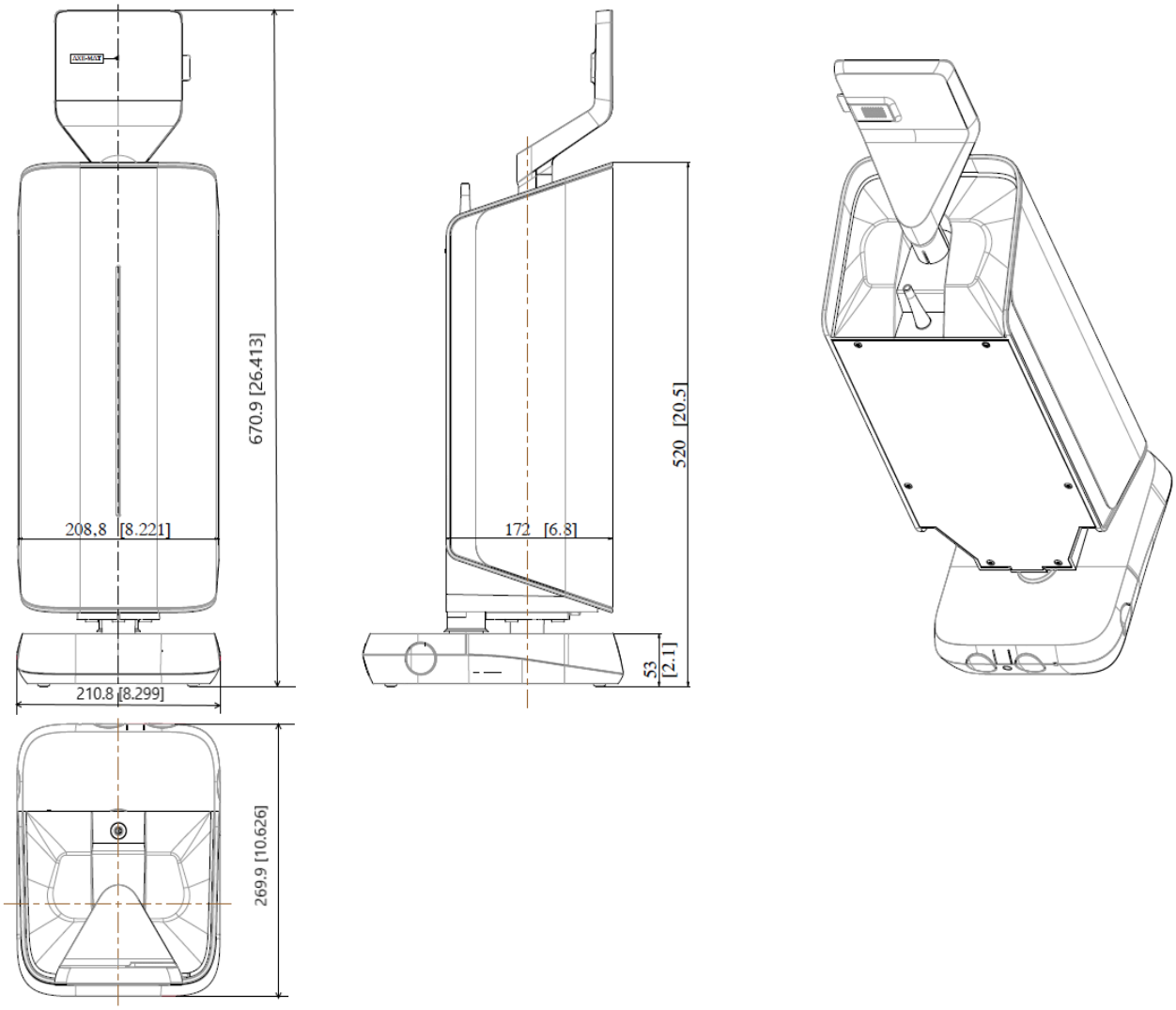
EU
We certify that these Lab Water Systems are designed and manufactured in application of the following European Council directives:
DIRECTIVE 2014/53/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC. Standards to which conformity is declared as applicable are the following. Electromagnetic compatibility and Radio spectrum Matters(ERM) tests according to standards: ETSI EN 300 330.

FCC
FCC part 15: 2014 Code of federal regulations.
Title 47 – Telecommunication chapter 1- Federal Communication Commission.
Part 15- Radio frequency devices Sub-part C- Intentional Radiators Limits and Methods of measurement of radio disturbance.

System software
System software included in this product contains copyrighted software that is licensed under the GNU GPL.

The legal notices are available in the Milli-Q® IQ Element unit display: Information menu > System app > Legal Notices.

Dimensions and weight



System Type	Dry weight	Shipping weight	Operating weight
Milli-Q IQ Element	7.5 kg (16.5 lb)	10.3 kg (22.7 lb)	9.1 kg (20.1 lb)

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Dry Weight is defined as a system without its shipping container. Consumables and accessories are not included.

Shipping Weight is defined as a dry system in its shipping container. Consumables and accessories are not included.

Operating weight is defined as a wetted system with all its consumables, but not any accessories

Recycling

Directive 2012/19/UE: For European users only

The symbol "crossed bin" on a product or its packaging indicates that the product should not be treated like household waste when discarded. Instead the product should be disposed of at a location that handles discarded electric or electronic equipment.

Proper disposal of equipment containing electric or electronic components will help to reduce pollution effects to the environment or to human health. Proper recycling of these products helps in environmental preservation and helps to protect natural resources. For more information about recycling of products containing electric or electronic components, please contact your local recycling representative or organization.

Ordering information

Accessories

Name	Catalog Number
Milli-Q IQ® Element purification system	ZIQELEMT0
Foot pedal	ZMQSFTSA1
Connector 2m System-POD	ZFC0NN2SQ
Connector 5m System-POD	ZFC0NN5SQ
Connector 2m POD-POD	ZFC0NN2QQ
Connector 5m POD-POD	ZFC0NN5QQ

Note: a Foot pedal ZMQSFTSA1 is included in the Milli-Q IQ® Element ZIQELEMT0.

Consumables – order at www.mymilliqconsumables.com

Description	Catalog Number
Milli-Q® IQ Element consumable kit	IPAKICPK1

LEGAL INFORMATION & WARRANTY

It has always been Millipore SAS policy to continuously improve its products.

The information in this document is subject to change without notice and should not be construed as a commitment by Millipore SAS. Millipore SAS assumes no responsibility for any errors that might appear in this document. This user manual is believed to be complete and accurate at the time of publication. In no event shall Millipore SAS be liable for incidental or consequential damages in connection with or arising from the use of this user manual.

Product warranty and limitation of liability

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New trademark names

The initial M, Millipore, Milli-Q, Q-POD, E-POD, A10, ech$_2$o, IPAK Gard, IPAK Quanta, IPAK Quanta ICP, Millipak, Biopak, EDS-Pak, VOC-Pak and LC-Pak are trademarks of Merck KGaA, Darmstadt, Germany.

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"QR Code is a registered trademark of DENSO WAVE INCORPORATED in Japan and other countries."

Safety information

Your Milli-Q system should be operated according to the instructions in this user manual. In particular, the hydraulic and electrical specifications should be followed and met. It is important to use this equipment as specified in this manual; using this equipment in a different manner may impair the safety precautions of the Milli-Q System.

Installation and maintenance should only be done by a qualified person. Appropriate personal protective equipment (PPE) must be worn and safe work practices must be followed.

The Milli-Q IQ Element has been tested by an independent and accredited company for compliance with EU directives related to safety and electromagnetic compatibility. The declaration of conformity is available upon request. The system has been manufactured using components and practices recommended by UL and has been cULus marked. The registration and CB certificates can be verified at www.members.IECEE.org.

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Revision: V5.0