ELGA

MEDICA-D 7/15 - US

Operator Manual

VEOLIA WATER
Solutions & Technologies

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Version 2 – 05/17

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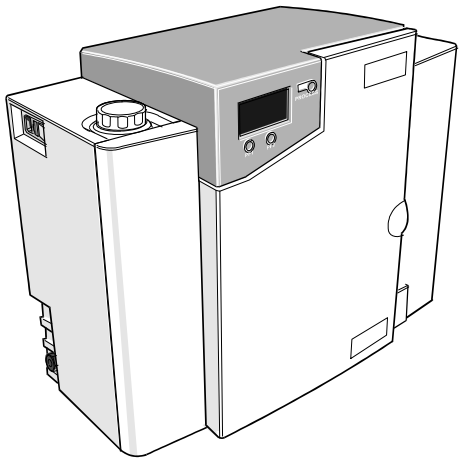
1. INTRODUCTION



MEDICA-D 7/15 US

1.1 Product Range

This Operator Manual has been prepared for the ***MEDICA-D 7/15 US*** product models.

MEDICA-D 7 MKII US

MEDICA-D 7 BP MKII US *(with boost pump)*

MEDICA-D 15 MKII US

MEDICA-D 15 BP MKII US *(with boost pump)*

These models are preferably installed with a docking vessel (DV-25) and this manual will describe that system. Where appropriate reference will be made to differences when an alternative reservoir is used.

1.2 Use of this Manual

This manual contains full details on installation, commissioning and operation of the ***MEDICA-D 7/15 US*** unit. If this unit is used contrary to the instructions in this handbook, then the safety of the user may be compromised.

1.3 Customer Support

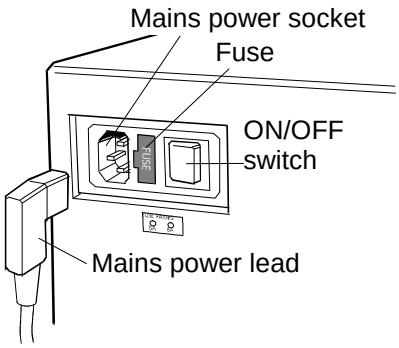
Service support and consumable items are available from your local supplier or distributor. Refer to customer service contact details shown at the end of this publication.

2. HEALTH AND SAFETY NOTES

MEDICA-D 7/15 US products have been designed to be safe, however, it is important that personnel working on these units understand any potential dangers. All safety information detailed in this handbook is highlighted as **WARNING** and **CAUTION** instructions. These are used as follows:

WARNING! **WARNINGS ARE GIVEN WHERE FAILING TO OBSERVE THE INSTRUCTION COULD RESULT IN INJURY OR DEATH TO PERSONS.**

CAUTION! **Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and processes.**



Mains Power Supply

2.1 Electricity

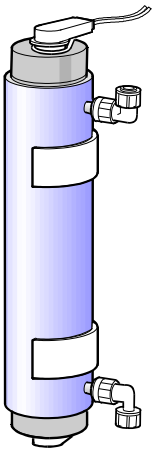
It is essential that the electrical supply to the ***MEDICA-D 7/15 US*** is isolated before any items are changed or maintenance work performed.

The ON/OFF switch is located at the left-hand side of the unit. The mains power lead is located just behind the ON /OFF switch.

WARNING! **THIS APPLIANCE MUST BE EARTHED.**

2.2 Pressure

The main water supply pressure should be isolated and residual pressure released prior to removal of any cartridges or carrying out work on the unit.



UV Lamp

2.3 Ultra-Violet Light

The ***MEDICA-D 7/15 US*** unit is fitted with an ultra-violet lamp. The UV lamp is enclosed in a stainless steel chamber ensuring the operator will not be exposed to UV light.

2.4 Sanitization Chemicals

2.4.1 Liquid sanitization.

During the sanitization cycle Minncare Cold Sterilant is used and relevant safety guidance is included in this handbook. Please refer to the manufacturer for material safety data sheets.

Minncare Cold Sterilant is EPA registered as a sterilant, high level disinfectant, and sanitizer.

Spent Minncare Cold Sterilant is acidic and requires normal neutralization as specified by your local state and local regulations.

1% of Minncare Cold Sterilant has a pH of 3.5.

2.4.2 Tablet sanitization

During the sanitization cycle **ONE** EfferSan™ multi-purpose disinfecting tablet is used and relevant safety information is included in this handbook. Please refer to the manufacturer for material safety data sheets.

2.5 Control of Substances Hazardous to Health (COSHH)

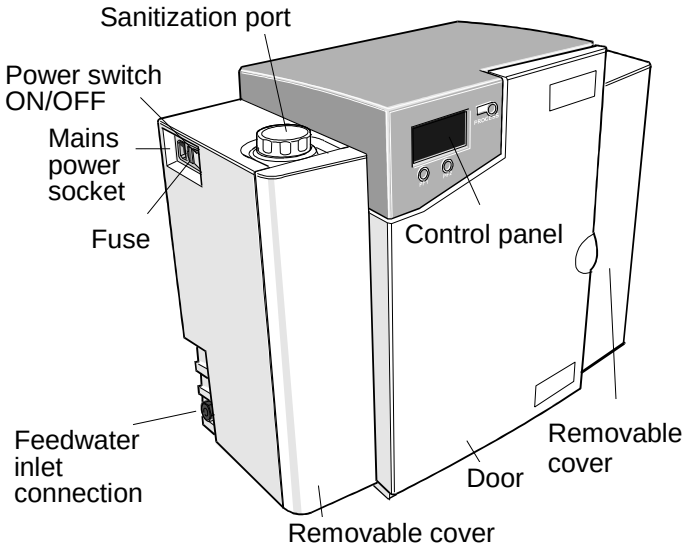
Material safety data sheets covering the various replaceable cartridges are available upon request. Contact your local supplier or distributor.

3. PRODUCT AND PROCESS DESCRIPTION

3.1 Product Description

The ***MEDICA-D 7/15 US*** water purification system has been specifically designed to provide a supply of highly purified water with reduced dissolved gas content to clinical analyzers requiring a pressurized feed.

The ***MEDICA-D 7/15 US*** can be bench or wall mounted with an optional wall mounting kit. A range of accessories are available to complement the unit. *(See Section 11 – Consumables and Accessories, for detail)*.



MEDICA-D 7/15 US *Unit*

3.2 Process Description

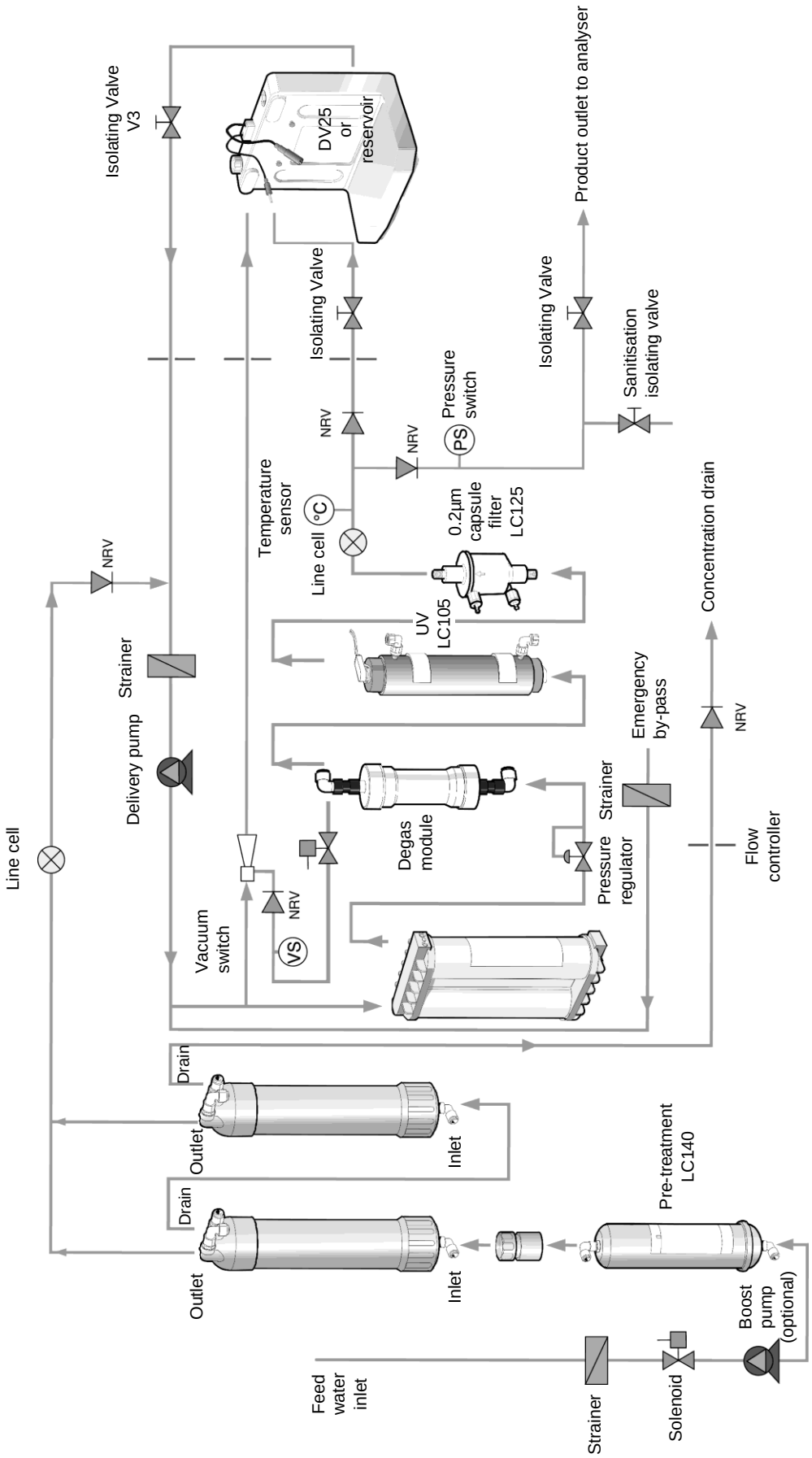
The ***MEDICA-D 7/15 US*** process links six purification technologies, reverse osmosis, adsorption, ion-exchange, vacuum deaeration, photo-oxidation and sub-micron filtration. It also incorporates a recirculation/delivery pump and an optional RO feed water boost pump.

The unit is designed to operate from a good quality potable water supply, and produces either 7 or 15 liters per hour of purified reverse osmosis grade water which is further purified and circulated through a treated water reservoir. This water is available on demand by the analyzer at up to 0.6 l/min.

A graphics screen displays the system status and provides control by means of three function buttons.

The water is processed and treated by the ***MEDICA-D 7/15 US*** unit as follows:

- Potable water enters through a strainer and inlet solenoid valve at either regulated mains water pressure, or is pumped by means of a feed water pump (optional), and passes through the pre-treatment cartridge. The pre-treatment cartridge has been designed to protect the reverse osmosis cartridges from particulate/colloidal matter and excessive free chlorine, which may be present in the incoming feed water.
- The water then passes the sanitization port and through one or two reverse osmosis cartridges, set up in series, which split the flow into permeate and concentrate streams. The permeate water is further purified whilst the waste concentrate stream is passed to drain.
- The permeate water passes through a water quality sensor which measures the conductivity of the water.
- The permeate water is drawn into the main recirculation stream by the recirculation pump together with water from the reservoir and is split into two streams. One stream is used to provide motive power to an ejector to produce a vacuum for the degasser before passing to the reservoir. The second stream passes through the recirculation purification loop.
- The partially purified water then passes through the ion-exchange cartridge which removes dissolved ionic impurities from the permeate water.
- This water is pumped directly through a degassing chamber operating under vacuum to reduce levels of dissolved gasses and then through the UV chamber where it is exposed to intense UV radiation to provide continuous bacterial control by photo-oxidation and to promote the cleavage of organic molecules.
- The purified water passes through a 0.2µm filter to remove any remaining bacteria.
- Finally, the water is passed through a:
  - Water quality sensor, which measures the resistivity of the water.
  - Temperature sensor which provides accurate temperature measurement.
- The delivery of water is controlled by means of a pressure switch which senses when the analyzer demands water.
- During periods of non-use the unit will automatically operate in intermittent recirculation mode to maintain water purity with maximum efficiency.



Process Flow Diagram – ***MEDICA-D 7/15 US***

3.3 Technical Specifications

The specifications for the ***MEDICA-D 7/15 US*** are as follows:

Feedwater		
	MEDICA-D 7 US	***MEDICA-D 15 US***
Feedwater		
Source quality	Potable mains water supply	Potable mains water supply
Fouling index-maximum	10	10
Total dissolved solids-maximum	1400µS/cm	1400µS/cm
Free chlorine - maximum	0.5ppm	0.5ppm
Heavy metals - maximum	0.05ppm	0.05ppm
Silica- maximum	30ppm	30ppm
Temperature	1 - 35°C	1 - 35°C
Flowrate (maximum requirement)	78 l/hr	85 l/hr
Feedwater Pressure		
Maximum - without internal boost pump	6.0 bar (90 psi)	6.0 bar (90 psi)
Minimum - without internal boost pump	4.0 bar (60 psi)	4.0 bar (60 psi)
Maximum - with internal boost pump	2.0 bar (30 psi)	2.0 bar (30 psi)
Minimum - with internal boost pump	Flooded suction	Flooded suction
Drain requirements (gravity fall with air gap). Maximum during service.	70 l/hr	70 l/hr

Connections		
Inlet - quick connect	8mm (5/16") OD	8mm (5/16") OD
Outlet - quick connect	8mm (5/16") OD	8mm (5/16") OD
Drain RO - quick connect	8mm (5/16") OD	8mm (5/16") OD
Analyzer feed	8mm (5/16") OD	8mm (5/16") OD
Delivery pump feed - quick connect	8mm (5/16") OD	8mm (5/16") OD
Positioning	Wall, bench or under bench mounted.	Wall, bench or under bench mounted.
Environment	Clean dry indoor. Temp 5 - 40°C. Humidity max 80% non-condensing.	Clean dry indoor. Temp 5 - 40°C. Humidity max 80% non-condensing.

Electrical Requirements	
Mains input	100-240V ac, 50-60Hz all models
System voltage	24V dc
Power consumption with boost pump	83VA
Power consumption without boost pump	60VA
Fuses	2 x T6.3 Amp
Reservoir level connection	Jack plug 3.5mm
Noise level	<45 dBA

User Interface		
Display	Continuous graphical and numerical reservoir level display. Graphical flow schematic on screen with mimic display. Intuitive icons.	
Adjustable settings	Auto restart after power failure Audible alarm Water purity units Water purity	Selectable Selectable MicroSiemens/cm or Megaohms.cm Alarm setpoints
Indicators	Reverse osmosis permeate water De-ionized water Temperature Reservoir Pre-treatment cartridge UV lamp Ion-exchange cartridge 0.2µm filter	Conductivity Temp compensated resistivity/conductivity Degrees centigrade % Full Maximum remaining life indicator Maximum remaining life indicator Maximum remaining life indicator Maximum remaining life indicator
Alarms-audiovisual	Purified water purity Reservoir Reservoir UV failure alarm Vacuum failure Pre-treatment cartridge UV lamp Ion-exchange cartridge 0.2µm filter	Outside set point alarm Low level Level control disconnect alarm Non start or current outside limits Inadequate degasser vacuum alarm Change reminder Change reminder Change reminder Change reminder
Outputs	RS232 printer connection RS232 remote display connection Volt free contact-internal	

Safety Features
Power fail safe
Boost pump protection from particulates
Delivery pump protection from particulates
Low operating voltage 24V
Audio visual alarms
Adjustable alarm settings
Emergency by-pass

Special Features
Low noise levels – minimum intrusion
Flow rate upgradable
Intermittent recirculation
Optional internal boost pump for low pressure feed waters
Optional printer kit for record of operating parameters
Optional remote display

Technologies	
Purification methods	Adsorption
	Reverse osmosis
	Ultra violet radiation-short wavelength
	Ion-exchange
	Degassing
	In-line 0.2µm filtration

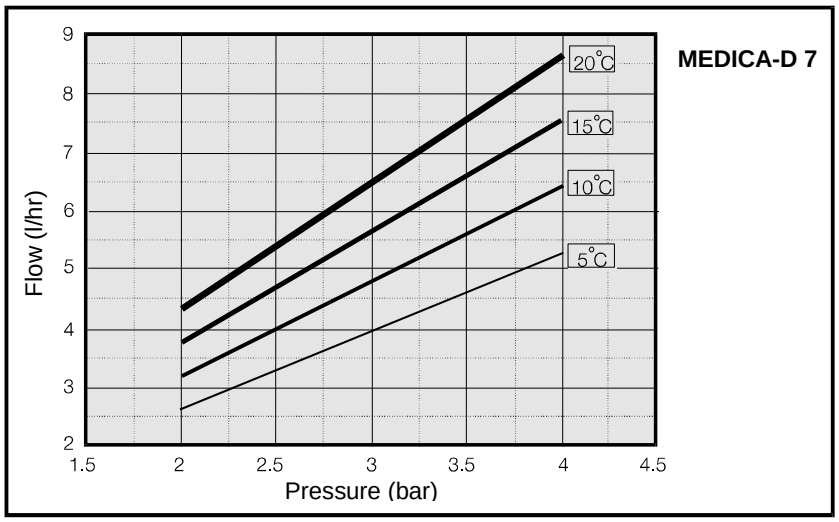
Purified Water Specification		
	MEDICA-D 7 US	***MEDICA-D 15 US***
*Make up rate	7.5 l/hr	15 l/hr
*Daily output (nominal max)	180 l/24 hour day	360 l/24 hour day
Purity (delivered to analyzer):		
Inorganic-typical	1 to >15 MΩ.cm @25°C	
Total Organic Carbon (TOC)	<30ppb	
Dissolved oxygen	5 to 7ppm	
**Bacteria	<1CFU/ml	
pH	Effectively neutral	
Particles	0.2µm filter	

* Standard conditions are 4bar inlet pressure, 0bar back pressure at 15 degrees centigrade, fed with potable water and a clean pre-treatment cartridge. Refer to flow tables outside these conditions.

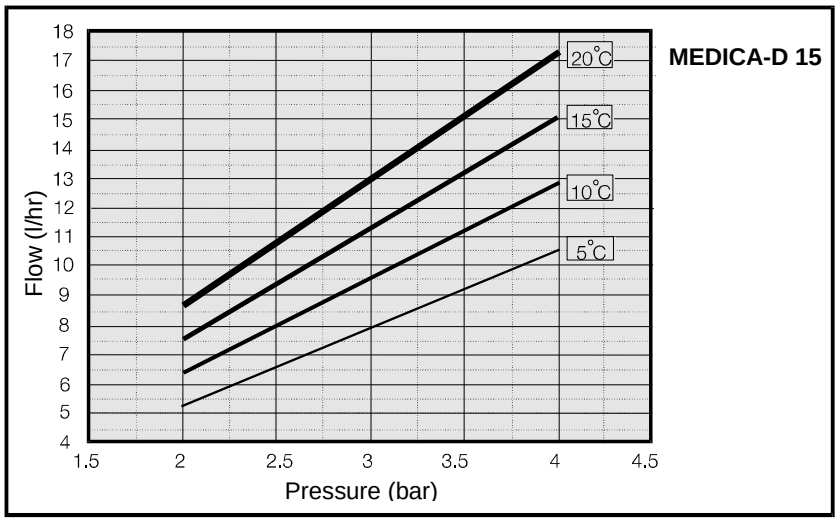
** Subject to correct operating and maintenance procedures.

As part of our policy of continual improvement we reserve the right to alter the specifications given in this document.

MEDICA-D 7/15 US Reverse Osmosis Capacity Charts

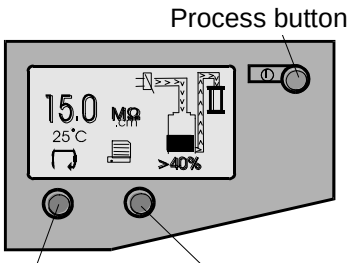


Graph 1 - Nominal Flowrate vs Inlet Pressure for ***MEDICA-D 7 US***



Graph 2 - Nominal Flowrate vs Inlet Pressure for ***MEDICA-D 15 US***

4. CONTROLS



Control Panel

The ***MEDICA-D 7/15 US*** operates with a tactile membrane touch pad control panel which has a graphics display window and three program function control buttons.

Details of how to use the controls will be given in the appropriate sections.

Control Button	Function
PROCESS	Turns the process ON/OFF

The ***MEDICA-D 7/15 US*** control panel has a range of control icons as follows:

Button	Icon	Description
LEFT		Menu
		Scroll
RIGHT		Reset
		Mute alarm
		Accept
		Printer

5. INSTALLATION INSTRUCTIONS

5.1 Unpacking the *MEDICA-D 7/15 US*

The following items should be supplied with your ***MEDICA-D 7/15 US***:

1. ***MEDICA-D 7/15 US*** unit
2. Cartridge pack LC141
3. Sanitization by-pass block fitted in the unit
4. Installation kit LA637
5. Operator manual
6. Mains lead

5.2 Positioning the *MEDICA-D 7/15 US*

Before commencing with installation and operation of the ***MEDICA-D 7/15 US*** unit, please read and observe the following points.

Environment

The unit should be installed on a flat, level surface, in a clean, dry environment. The unit can also be wall mounted against a vertical wall capable of supporting the weight (for this we recommend the use of the wall mounting kit Part No LA610).

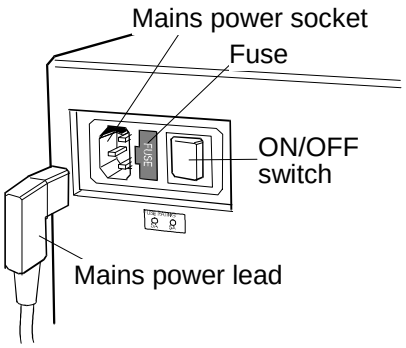
CAUTION! If unit is to be wall mounted, ensure it is mounted on a substantial brick or concrete solid wall capable of supporting the operating weight of the system. If mounting the unit on the wall, use the wall mounting kit and follow the instructions included in the kit.

Note: Refer to specifications for unit weights.

The unit is designed to operate safely under the following conditions:

- Indoor use
- Altitude up to 2000m
- Temperature range 5 - 40°C
- Maximum relative humidity 80% @ 31°C decreasing linearly to 50% @ 40°C, non-condensating

The unit is in Installation Category II, Pollution Degree 2, as per IEC1010-1.



Electrical Connections

Electrical

The units can be connected universally to any electrical supply in the range of 100 - 240V and 50 - 60Hz. The mains lead is supplied with a molded plug on one end and a molded connector to the unit on the other. The unit should be connected to an earth.

Drain

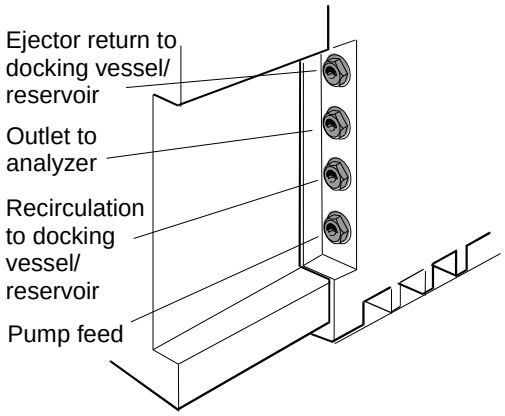
A semi rigid flexible connection to a sink or suitable drain capable of handling at least 1.5 l/min is required. The drain point should have a gravity fall below the level of the unit and any connections direct to drain should have an air-break device fitted.

Feed Water

The feed water should be of good quality and comply with specifications provided. This should enter the unit via an 8mm (5/16") O/D semi rigid tube, and should be in the temperature range 1 to 35°C.

CAUTION! **Operating temperatures outside the range 1 to 35°C will cause damage to the *MEDICA-D 7/15 US* unit.**

For pressurized feeds, the minimum direct inlet pressure is 4.0bar (60psi) and maximum inlet pressure is 6bar (90psi). Higher feed water pressures must be reduced using a pressure regulator valve (Part No. LA512).



Right-Hand Side Connections

5.3 Connecting Up the *MEDICA-D 7/15 US*

Once the ***MEDICA-D 7/15 US*** unit has been positioned either on a wall or on a bench, it should be connected as follows:

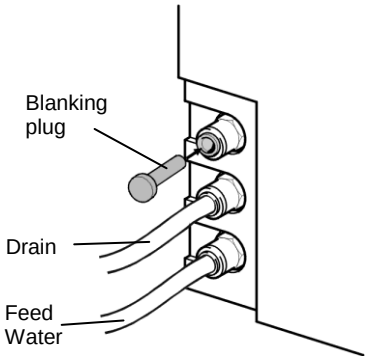
- Mains water inlet tube
- Drain
- Pump feed
- Outlet to analyzer
- Recirculation to docking vessel/reservoir
- Ejector return to docking vessel/reservoir

Step 1 - Fitting Tubes

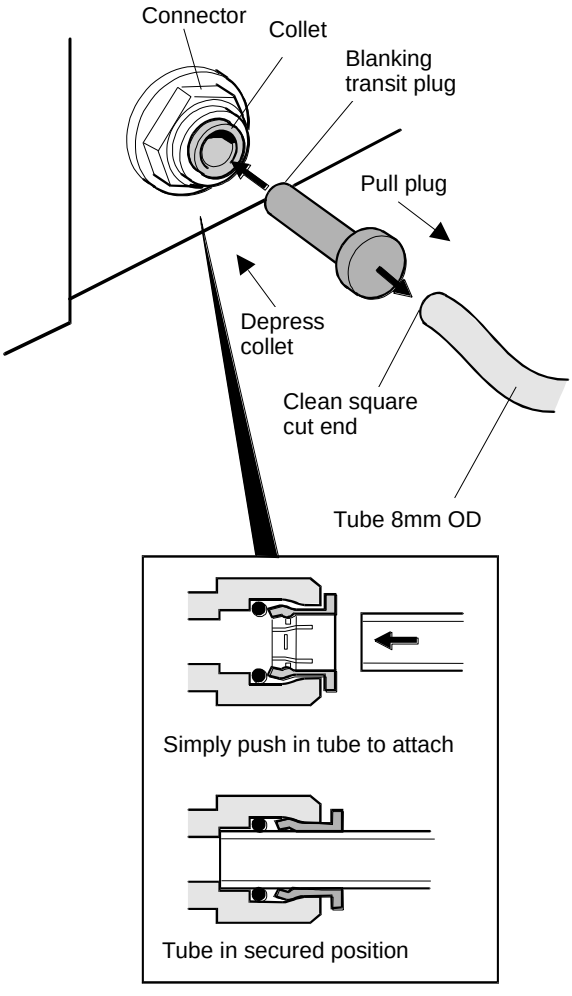
1. PUSH in collet on connector.
2. PULL out transit plug.
3. CUT a clean square end on an 8mm (5/16") O/D semi rigid tube.
4. PUSH tube into connector.

CAUTION! **Do not restrict drain line.**

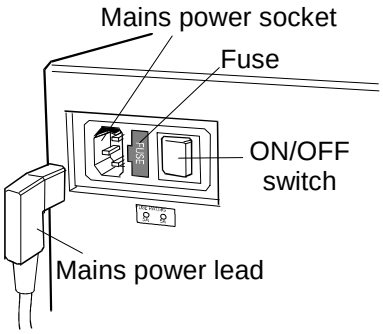
CAUTION! **If the water supply is at a pressure greater than 6bar (90psi) fit a pressure regulator (LA512).**



Feed Water Inlet Connections



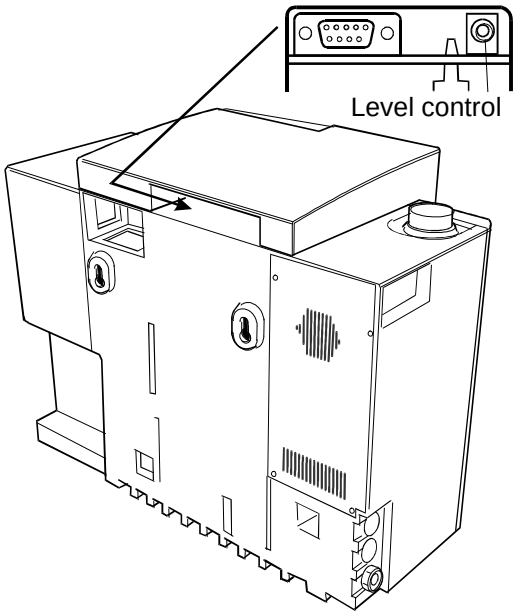
Fitting Tubes



Electrical Connections

Step 2 - Connect Electrical Supply

1. PLUG mains lead into the socket on the left hand side of the ***MEDICA-D 7/15 US*** unit.
2. PLUG mains lead into mains socket.

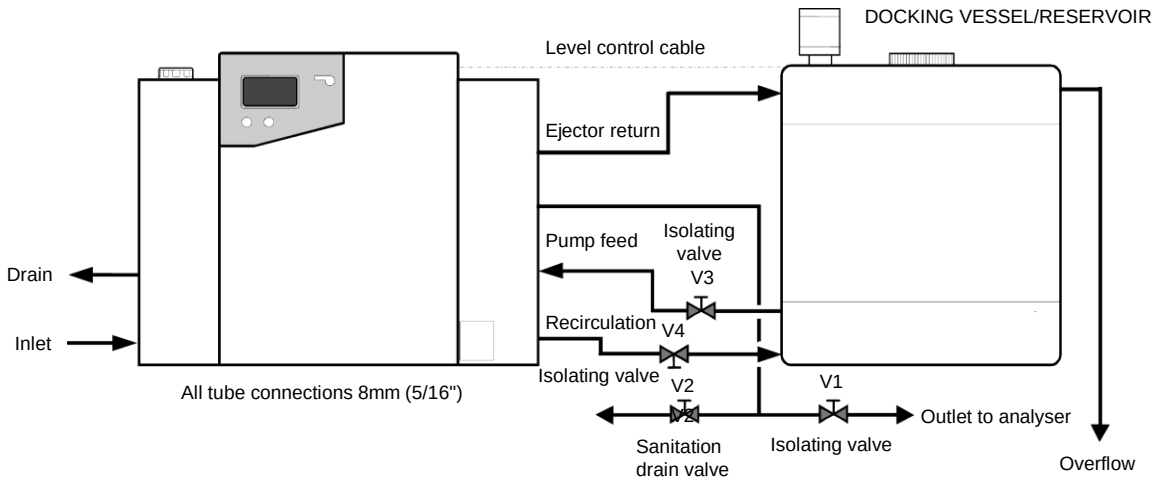


Reservoir Level Connections

Step 3 - Connect High/Low Level Switch to Reservoir

1. INSERT jack plug into the level control socket located at rear of unit & reservoir.

*Note: When installing a **MEDICA-D 7/15 US** with another reservoir the general scheme is illustrated below as are the recirculation/ delivery pump connections.*

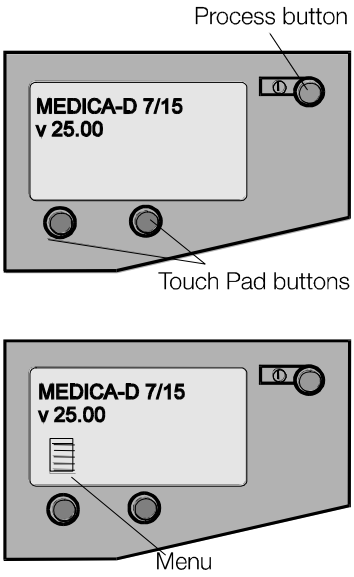


***MEDICA-D 7/15 US** Unit Installed with Docking Vessel/Reservoir*

5.4 Initial Controller Set Up

The ***MEDICA-D 7/15 US*** control panel is fitted with three control buttons. These are:

1. The PROCESS button, which switches the purification process ON and OFF.
2. Two software controlled touch pad buttons which are used to control functions for set up and process control.



Start Up Screens

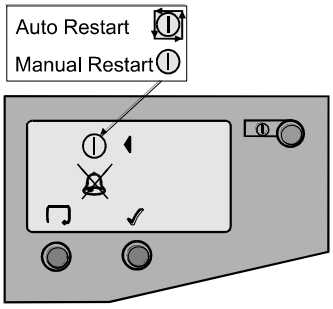
When the ***MEDICA-D 7/15 US*** unit is started for the first time after installation the following steps should be followed in order to set up system preferences:

Step 1 - Setting Up Menu Options

1. SWITCH the mains power on to initialize the controller hardware set-up sequence.

   Note: Always allow the initialization process to complete. This is indicated by the appearance of the MENU icon on the control screen.

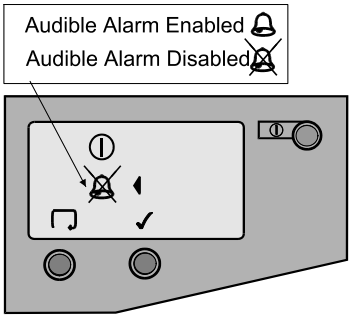
2. PRESS the MENU button to go to the next screen to activate the set-up menu sequence.
3. A series of set-up screens will now be displayed. Various control icons are used to allow you to step through the set up instruction process. These icons include:
   - A "scroll" icon indicated by an arrow ↻
   - An "accept" button indicated by a tick ✓
   - A "selection" icon indicated by a ◄



Auto/Manual Restart

Step 2 - Auto/Manual Restart

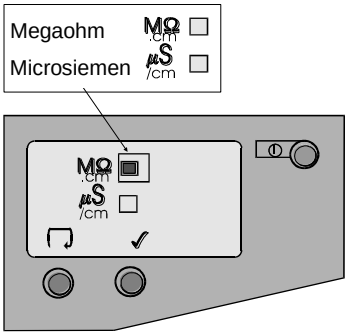
This allows the selection of the AUTO/MANUAL restart option. If auto restart is selected the unit will automatically restart after a power failure. In manual mode the unit will remain in standby. SELECT the option required using the ↻ button and ACCEPT with the tick button.



Audible Alarm Enable/Disable

Step 3 - Audible Alarm Enabled/Disabled

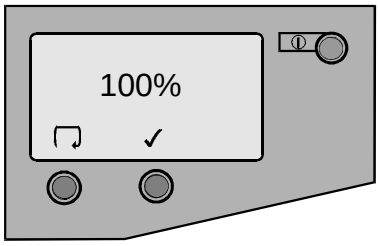
This display provides the option of either enabling the audible alarm causing it to sound or disabling the audible alarm causing it to remain muted whilst it flashes the alarm. SELECT the option required using the ↻ button and ACCEPT with the tick ✓ button.



Water Purity Settings

Step 4 - Water Purity Unit Setting

This screen allows preferred water purity unit of measure to be set, to either, **MΩ.cm** or **µS/cm**. Once selected, all future water purity measurements will be displayed with your unit of choice. SELECT the option required using the ⟲ button and ACCEPT with the 3 button.



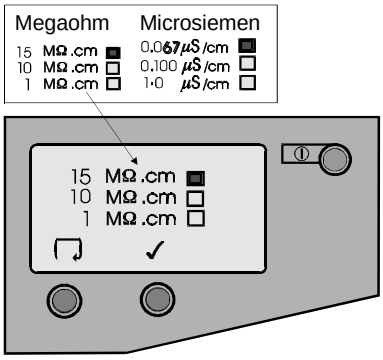
Pump Speed Setting

Step 5 - Pump Speed Setting

Adjustment of this setting should only be made under specific instructions from ELGA LabWater Technical Support.

1. Press 3 to accept.

   Note: To reset any of the set-up parameters, restart from the set up menu and follow instructions from Step 1.



Purity Alarm Setting

Step 6 - Purity Alarm Setting

This screen is used for setting the value at which the water purity alarm will activate.

If the **MΩ.cm** water purity unit setting was chosen, then the following water purity alarm choices will be displayed.

15 MΩ.cm ☐
10 MΩ.cm ☐
1 MΩ.cm ☐

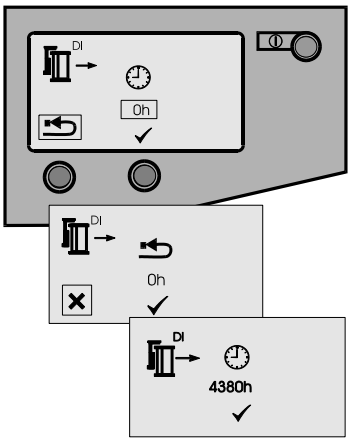
If the **µS/cm** water purity unit setting was chosen, then the following water purity alarm choices will be displayed.

0.067 µS/cm ☐
0.100 µS/cm ☐
1.0 µS/cm ☐

SELECT the alarm setting required using the ⟲ button and ACCEPT with the 3 button.

5.5 Setting Up Display and Replacement Timers

1. TURN the unit off at the power inlet module.
2. To enter the replacement timer set-up, PRESS the left hand touch pad button and at the same time TURN the power on. Graphics of the ion-exchange cartridge, UV lamp, pre-treatment cartridge and 0.2µm capsule filter are displayed with hourly timer status.



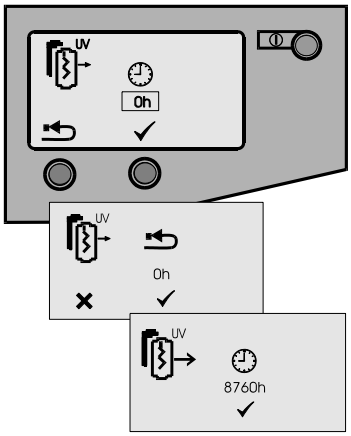
Ion-Exchange Cartridge Timer

CAUTION! **Before re-setting any of the cartridge timers, ensure that the appropriate new cartridges have been installed and securely located correctly in the *MEDICA-D 7/15 US.***

Step 1 - Ion-Exchange Cartridge Replacement Timer

Setting this screen will cause the ion-exchange cartridge timer to reset to the preset value of 4380 hours (6 months).

1. Press ✓ to jump to the next consumable or ⮌ to initiate reset.
2. Press ✓ to reset timer or press ✘ to abort reset.
3. Press ✓ to jump to the next consumable.

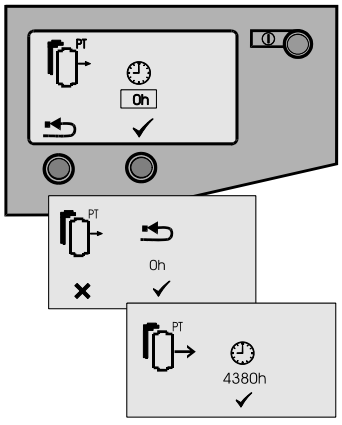


UV Lamp Replacement Timer

Step 2 - UV Lamp Replacement Timer

Setting this screen will cause the UV lamp timer to reset to the preset value of 8760 hours (1 year).

1. Press ✓ to jump to the next consumable or ⮌ to initiate reset.
2. Press ✓ to reset timer or press ✘ to abort reset.
3. Press ✓ to jump to the next consumable.

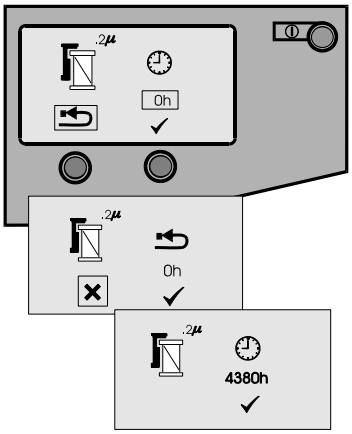


Pre-treatment Cartridge Timer

Step 3 - Pre-treatment Cartridge Replacement Timer

Setting this screen will cause the pre-treatment cartridge timer to reset to the preset value of 4380 hours (6 months).

1. Press ✓ to jump to the next consumable or ⮌ to initiate reset.
2. Press ✓ to reset timer or press ✘ to abort reset.
3. Press ✓ to jump to the next consumable.

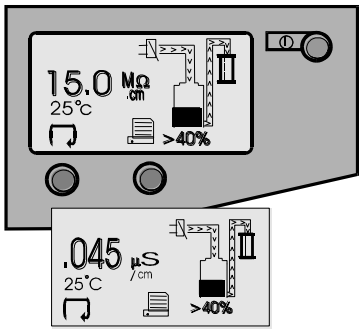


0.2µm Filter Replacement Timer

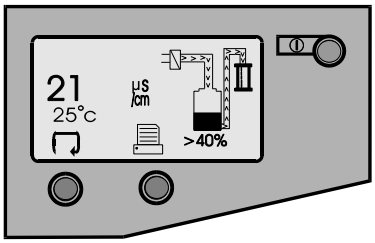
Step 4 - 0.2µm Filter Replacement Timer

Setting this screen will cause the 0.2µm filter replacement timer to reset to the value of 4380 hours (6 months).

1. Press ✓ to jump to the next consumable or ⮌ to initiate reset.
2. Press ✓ to reset timer or press ✖ to abort reset.
3. Press ✓ to jump to the next consumable.



Process On and Alternate Screen



Water Conductivity

Step 5 - Accessing the Process On Display Screens

The normal process screen will display newly installed SET-UP preferences showing the following process information:

- Output water purity
- Water temperature
- Process mimic
- Reservoir level
- Scroll ↻ and Print 🖶 icons

You can scroll through the following display screens:

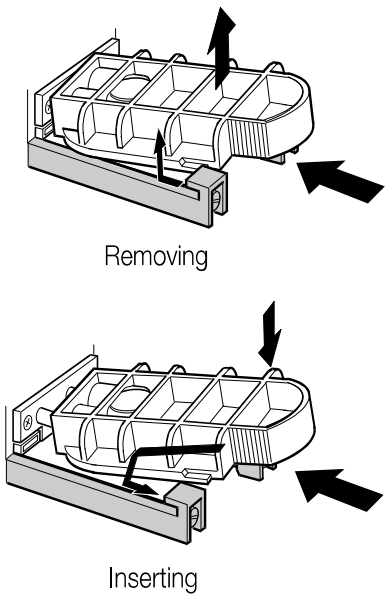
- RO water conductivity
- Ion-exchange cartridge replacement timer (hours remaining)
- UV tube replacement timer (hours remaining)
- Pre-treatment cartridge replacement timer (hours remaining)
- 0.2µm filter replacement timer

Step 6 - Report Printing *(Only if connected to LA618)*

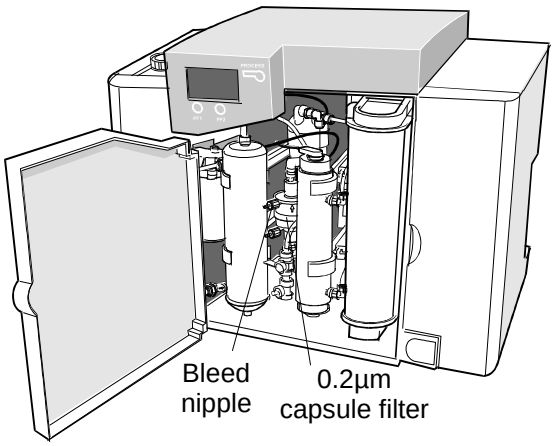
To print a report press the 🖶 icon.

5.6 Initial Start Up

1. The ***MEDICA-D 7/15 US*** should be installed correctly as described in Section 5.3.
2. Ensure analyser isolating valve (V_1) is closed.
3. TURN ON the feedwater supply to the unit and adjust the inlet pressure. The ***MEDICA-D 7/15 US*** will operate on a feedwater pressure between 4.0bar (60psi) and 6.0bar (90psi). Where feedwater pressures are inadequate an internal optional boost pump should be fitted.
4. CHECK all hose connections are watertight and that there are no leaks.
5. The ***MEDICA-D 7/15 US*** units are supplied containing traces of bacteriostatic solution which have to be rinsed out from the pipework and fittings. ENSURE that the drain tube is directed to a drain or sink.
6. LOCATE the pump feed tube and disconnect from the unit. REPLACE with a length of tubing directed to a drain or sink. ENSURE pump feed valve (V_3) is CLOSED.
7. TURN ON the electrical supply to the unit and switch the mains switch at the power inlet module on the left-hand side of the unit to the ON position.
8. Having checked that the water supply has been turned on, PRESS the PROCESS button and the unit will start.
9. LEAVE the unit running for 2 hours to drain. During this period, the bacteriostatic solution will be rinsed from the unit. For critical applications the unit should be left to rinse overnight.
10. After 2 hours, PRESS the PROCESS button to stop the unit. Re-connect the pump feed from the reservoir and ensure valve (V_3) is open.
11. The unit is supplied without the LC141 ion-exchange cartridge pack fitted but has the by-pass block in place as shown in Section 8.
12. ENSURE the cartridge by-pass block is left in place until the unit has been rinsed free of bacteriostatic solution.
13. PRESS the PROCESS button and allow the docking vessel/reservoir to fill to >40%. MUTE quality alarms.
14. OPEN the sanitisation isolating valve (V_2) and direct water to drain. The unit will alarm low level when the flush is complete. Bleed air may need to be removed from the 0.2µm capsule filter refer to step 19.
15. Close the sanitization isolating valve (V_2) and allow reservoir to fill to >40%.
16. PRESS the PROCESS button to stop unit.

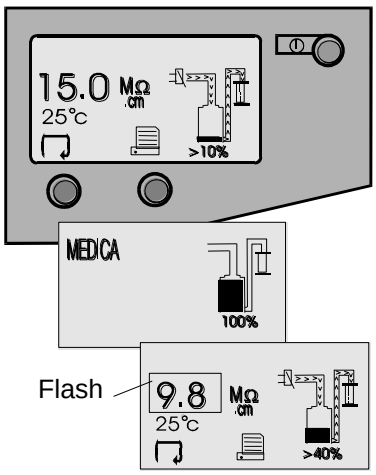


Removing & Inserting By-pass Block



Bleed Nipple

17. REMOVE the by-pass block (Store in the front door). INSERT ion-exchange cartridge LC141 (See Section 7.2 Step 3, 1-5). CLOSE front door. OPEN the sanitization isolating valve (V_2).
18. PRESS the PROCESS button to flush the LC141 ion-exchange cartridge.
19. Slowly open the upper bleed nipple on the 0.2µm capsule filter until water, free of air bubbles, flows out - use an absorbent cloth to prevent splashing of internal components.
20. After 20 minutes PRESS the PROCESS button to stop flow and close the sanitization isolating valve (V2). PRESS the PROCESS button to start the water purification. CHECK unit for leaks.
21. Allow the system to operate until the water purity indicator displays a value within acceptable operating values.
22. OPEN analyser isolating valve (V1).
23. The unit is now ready for use; it will run automatically, fill the treated water docking vessel/reservoir and recirculate intermittently.
24. When the analyzer calls for water (i.e. its inlet valve is open) the system will operate and provide water.



Normal Process Screens

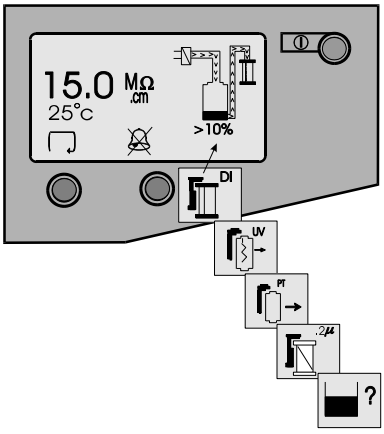
6. OPERATION

The ***MEDICA-D 7/15 US*** will run automatically and will signal alarm conditions to ensure prompt efficient system management and corrective action.

During periods of non-use the unit will automatically operate in the intermittent mode to maintain water purity. This mode will function after the reservoir has been filled and the level maintained for 60 minutes. The unit will recirculate the reservoir contents through the purification train for 5 minutes every 30 minutes. Pressing the PROCESS button at any time during this mode will initiate recirculation.

6.1 Alarm Conditions

Alarms will signal at the following conditions:



Alarm Conditions

Replace Ion-Exchange Cartridge

The ion-exchange replacement alarm is signalled by an audible alarm and flashing icon at the default settings of 4380 hrs (6 months) of use. Press the ⊠ button to mute the audible alarm. Follow the instructions to replace the Ion-exchange cartridge. *(See Section 7.2)*.

Replace UV Lamp

The UV lamp replacement alarm is signalled by an audible alarm and flashing icon at the default settings of 8760 hrs (1 year) of use. Press the ⊠ button to mute the audible alarm. Follow the instructions to replace the UV lamp. *(See Section 7.3)*.

Replace Pre-treatment Cartridge

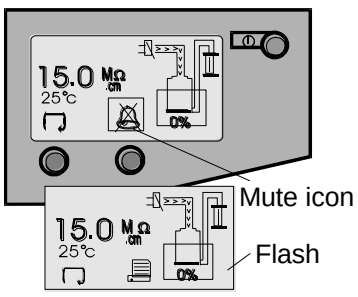
The pre-treatment cartridge replacement alarm is signalled by an audible alarm and flashing icon at the default settings of 4380 hrs (6 months) of use. Press the ⊠ button to mute the audible alarm. Follow the instructions to replace the pre-treatment cartridge. *(See Section 7.1)*.

Replace 0.2 µm Capsule Filter

The 0.2µm capsule filter alarm is signalled by an audible alarm and flashing icon at the default setting of 4380 hrs (6 months) of use. Press the ⊠ button to mute the audible alarm. Follow the instructions to replace the 0.2µm capsule filter. *(See Section 7.4).*

UV Failure

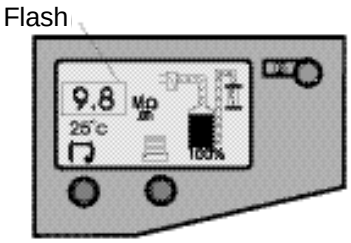
The UV failure alarm is signalled by an audible alarm and flashing cross over the replace UV icon. Press the ⊠ button to mute the audible alarm. Follow the instructions to replace the UV lamp. *(See Section 7.3)*.



Low Level Alarms / Muted

Low Level Alarm

When the low level alarm sounds, the mimic reservoir on the display will flash and a crossed bell icon mute symbol will appear. To mute the low level alarm sound Press the ⊠ button. The ***MEDICA-D 7/15 US*** will automatically refill the reservoir.



Water Purity Alarm

Water Purity Alarm

This alarm will signal if the water purity deviates from the preset parameters and will cause the water purity value to flash and an alarm to sound, until water purity improves to within acceptable purity limits. Press the ⊠ button to mute the alarm. If water purity stays outside acceptable purity limits replace the Ion-exchange pack following the instructions in *Section 7.2.*

Reservoir Level Disconnect Alarm

Reservoir Disconnect Fault Alarm

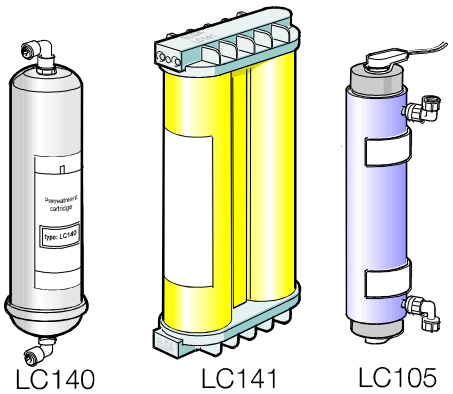
The reservoir level disconnect fault alarm condition will signal with an audible alarm and flashing icon. PRESS the ⊠ button to mute the alarm. This alarm condition will cause the process to turn off. Connect the reservoir level lead and power the unit off and on to clear the alarm.

Vacuum Fail Alarm

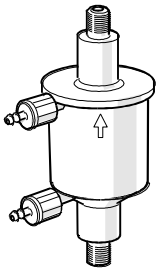
Vacuum Fail Alarm

The vacuum fail alarm will signal with an audible alarm and flashing icon of a circular vacuum gauge. This may indicate blockage of the ejector or failure of the degassing membrane.

7. MAINTENANCE



LC140 Pre-treatment cartridge | LC141 Ion-exchange cartridge | LC105 UV lamp



LC125
0.2µm capsule filter

MEDICA-D 7/15 US
Replacement Consumables

Any maintenance work not detailed in this handbook should be carried out by an approved supplier or distributor. If further information is required on any aspect of maintenance please contact Customer Service.

Identification of Consumables

There are six types of unique replacement consumables designed for use in the ***MEDICA-D 7/15 US*** units and these are illustrated with the following part numbers:

LC140	Pre-treatment cartridge
LC141	Ion-exchange cartridge
LC105	UV lamp
LC125	0.2µm capsule filter
LC136	Composite vent filter (for DV)
LC154	Degas module

To protect the inlet solenoid valve, RO boost pump (when fitted) and recirc/delivery pump from possible debris in the water, the unit incorporates two strainers.

WARNING! **ALWAYS CHECK THAT THE MAINS ELECTRICAL POWER AND FEED WATER SUPPLIES ARE SWITCHED OFF BEFORE ATTEMPTING TO CHANGE THE *MEDICA-D 7/15* CONSUMABLES.**

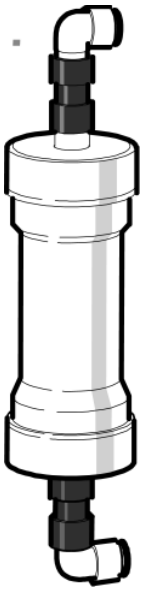
Frequency of Consumable Replacement

The following frequency of consumable replacement is recommended as a guide assuming typical usage.*

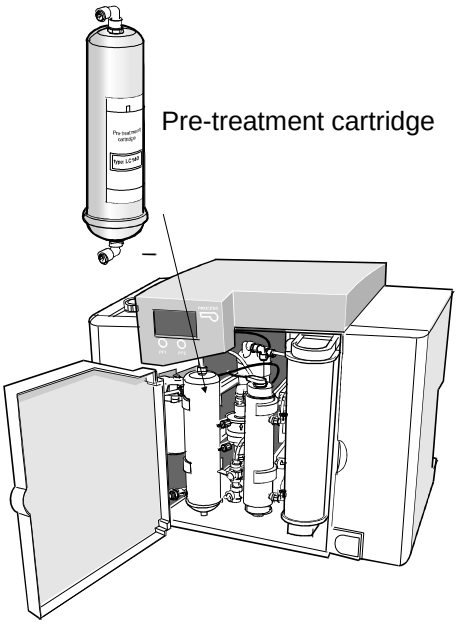
Pre-treatment	-	LC140	maximum 6 months
Ion exchange	-	LC141	maximum 6 months
UV lamp	-	LC105	maximum 12 months
0.2µm capsule filter	-	LC125	maximum 6 months
Composite vent filter	-	LC136	maximum 6 months
Reverse Osmosis	-	LC143	every 2 - 3 years (not an operator replacement item)
Degas module	-	LC154	every 2 - 3 years (not an operator replacement item)

* These frequencies are only estimates and replacement will depend on the application and feed water quality.

CAUTION! **Ensure that the display and replacement timer settings are reset after replacing consumables. (Refer to Section 5.4).**



LC154
Degas Module



Location of Pre-treatment Cartridge

7.1 Replacing the LC140 Pre-treatment Cartridge

The pre-treatment cartridge should be replaced when indicated by the change reminder.

Step 1 - Switch Unit Off

1. SWITCH the ***MEDICA-D 7/15 US*** off at the power switch at the top left hand side of the unit.
2. ENSURE pressure has dissipated from the unit by waiting several minutes before proceeding.

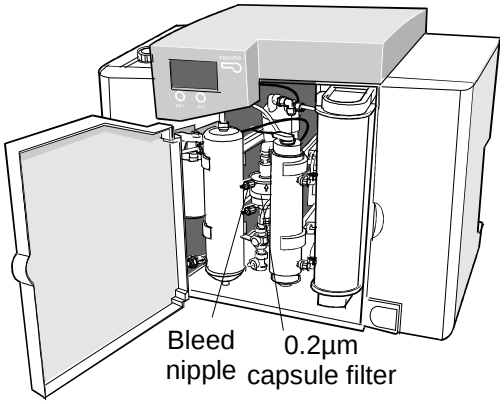
Step 2 - Remove Pre-treatment Cartridge

1. OPEN front door.
2. Identify the pre-treatment cartridge (LC140).
3. REMOVE the tube at the elbow at the bottom of the cartridge, by pushing back the retaining collet on the push fit connector and withdrawing the reducer.
4. REMOVE the tube from the elbow at the top of the cartridge.
5. REMOVE exhausted cartridge from retaining clips and discard.

   Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

Step 3 - Replacing the Pre-treatment Cartridge

1. UNPACK new cartridge and remove the two protective transit plugs sealing the inlet and outlet connection.
2. SECURE the new cartridge into its retaining clips ensuring the cartridge is the correct way up.
3. REFIT the inlet tubing into the bottom of the cartridge by pushing the reducer into the elbow connector until locked and held by the retaining collet.
4. REFIT the outlet tubing to the top of the cartridge.
5. RESET pre-treatment cartridge timer. *(See Section 5.5 - Setting Up Display and Replacement Timer).*
6. PRESS the PROCESS button to start the unit.
7. CHECK the unit for leaks and close front door.



0.2µm Capsule Filter & Bleed Nipple

7.2 Replacing LC141 Ion-Exchange Cartridge Pack

The ion-exchange cartridge pack should be replaced in the following circumstances:

- The water purity alarm monitor indicates that water purity has fallen below limits and the pack probably requires changing.
- If the system is being re-commissioned or sanitized after an extended period in which it was not used.
- When indicated by the change reminder.
- Immediately before and after use of the emergency by-pass loop.

Step 1 - Switch Unit Off

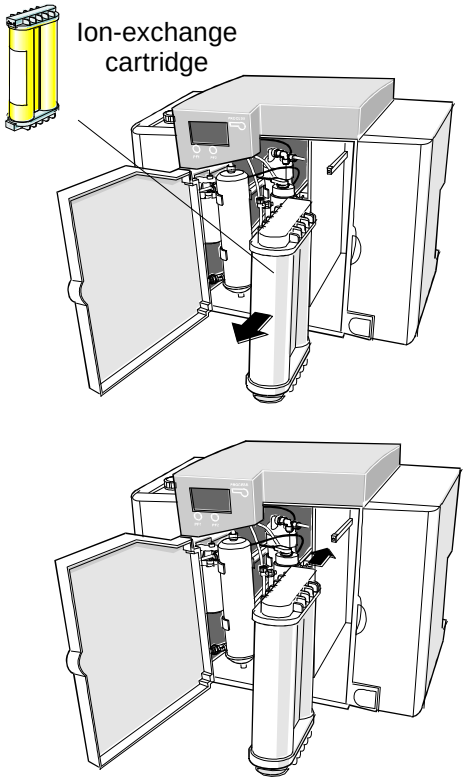
1. SWITCH the ***MEDICA-D 7/15 US*** off at the power switch at the top left hand side of the unit.
2. RELIEVE any residual pressure from the system, by waiting several minutes before proceeding.
3. Slowly OPEN the bleed nipple on the capsule filter until water flow ceases
4. USE an absorbent cloth to soak up the water and RE-TIGHTEN the bleed nipple.

WARNING! **ENSURE THE UNIT IS ISOLATED BEFORE REMOVING THE ION-EXCHANGE CARTRIDGE.**

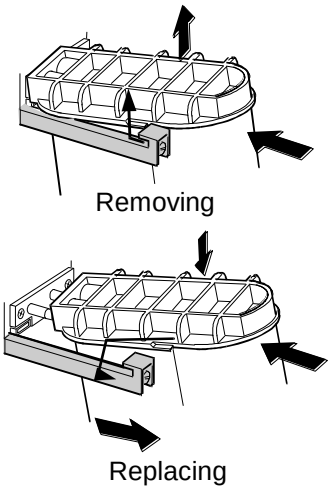
Step 2 - Remove Ion-Exchange Cartridge

1. OPEN the front door.
2. PUSH on cartridge top cap.
3. LIFT up cartridge.
4. SLIDE out cartridge.
5. DISCARD used ion-exchange cartridge.

Note: *The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.*



Removal and Fitting of Ion-Exchange Cartridge



Ion-Exchange Cartridge

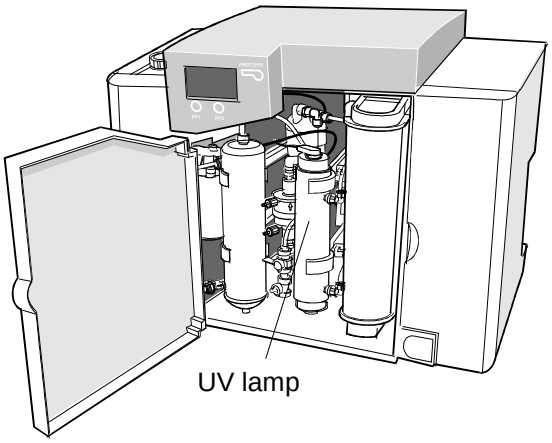
Step 3 - Replace Ion-Exchange Cartridge

1. REMOVE a new cartridge pack from its packaging.
2. REMOVE the sealing plugs from the inlet and outlet ports.
3. WET ‘O’ rings and SLIDE new cartridge into position.
4. POSITION cartridge onto spigots at rear, PUSH into unit.
5. ENSURE guide has dropped down past retainer.
6. RESET ion-exchange cartridge timer *(See Section 5.5 – Setting Up Display and Replacement Timers)*.
7. DISCONNECT the feed to the analyzer and direct to drain.
8. PRESS the PROCESS button to flush the LC141. Slowly OPEN the upper bleed nipple on the 0.2µm capsule filter until water, free of air bubbles, flows out - use an absorbent cloth to prevent splashing of internal components.
9. After 20 minutes PRESS the PROCESS button to stop flow and RECONNECT the feed to the analyzer.
10. PRESS the PROCESS button to start the water purification.
11. CHECK the unit for leaks
12. CLOSE front door.

7.3 Replacing LC105 Ultraviolet lamp

The UV lamp should be changed under the following circumstances:

- When indicated by the change reminder, due to the decline in the short wave radiation used to destroy the micro-organisms and to oxidize organics.
- If Lamp Fail alarm occurs.



Location of UV Lamp Housing

Step 1 - Switch Unit Off

1. SWITCH off the electrical supply at the mains.
2. DISCONNECT the mains plug from the unit.
3. RELIEVE any residual pressure from the system by waiting several minutes before proceeding.

Step 2 - Remove UV Unit from *MEDICA-D 7/15 US*

1. OPEN the front door panel.
2. PULL UV unit out of the top and bottom retaining clips.
3. REMOVE top and bottom spring clips.
4. UNPLUG the white lamp clip fitted to the top of the UV unit.
5. UNPLUG the white lamp clip fitted to the bottom of the UV unit.

CAUTION! **Hold on to the lamp pins in case the lamp falls out and breaks.**

Step 3 - Remove UV Lamp

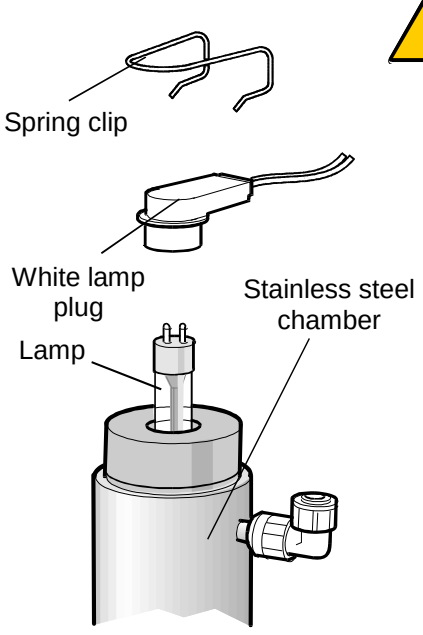
1. REMOVE old UV lamp from the center bore of the housing and discard.

   Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

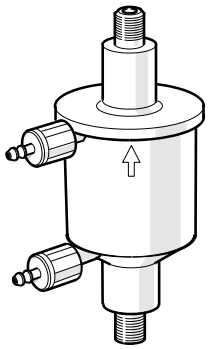
Step 4 - Replace UV Lamp

1. UNPACK new UV lamp.

CAUTION! **Take care not to touch the surface of the glass. Ideally handle with soft cloth and wipe the surface with alcohol before fitting into the housing.**



2. SLIDE the new UV lamp into the center bore of the UV housing.
3. PLUG the white lamp clip to the bottom of the UV unit.
4. REFIT retaining clip.
5. PLUG in the white lamp clip to the top of the UV unit.
6. REFIT spring clip.
7. PUSH UV unit into the retaining clips.
8. CLOSE the front door.
9. RESET UV alarm settings. *(See Section 5.5 - Setting Up Display and Replacement Timer)*.
10. PRESS the PROCESS button to start the unit.



0.2µm Capsule Filter (LC125)

7.4 Replacing the LC125 0.2µm Capsule Filter

The capsule filter should be changed under the following circumstances:

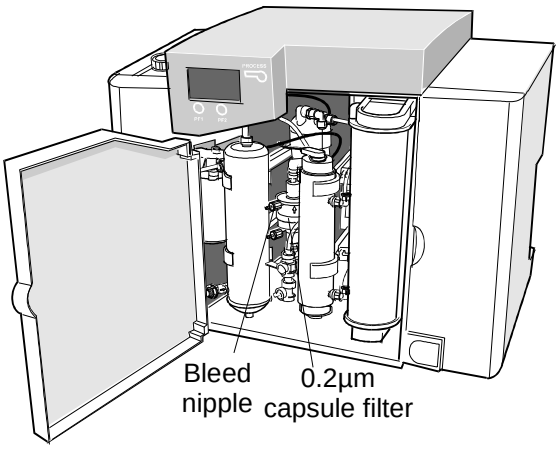
- The flow to the analyzer is insufficient indicating the 0.2µm capsule filter is fouled.
- If the system is being re-commissioned or sanitized after an extended period in which it was not used.
- When indicated by the change reminder.
- Immediately before and after use of the emergency by-pass.

Step 1 - Switch Unit Off

1. SWITCH the ***MEDICA-D 7/15 US*** off at the power switch at the top left hand side of the unit.
2. RELIEVE any residual pressure from the system by waiting several minutes before proceeding and then slowly opening the bleed nipple on the capsule filter until water flow ceases, use an absorbent cloth to soak up the water and re-tighten the bleed nipple.

WARNING! **ENSURE THE UNIT IS ISOLATED AND THE PRESSURE IS DISSIPATED BEFORE REMOVING THE 0.2µm CAPSULE FILTER.**

Step 2 - Remove 0.2µm Capsule Filter



Location of Bleed Nipple and Capsule Filter (LC125)

1. OPEN front door.
2. IDENTIFY the pre-treatment cartridge (LC140). This needs to be removed from its retaining clips to gain access to the 0.2µm capsule filter.

   Note: It is not necessary to disconnect the tubing connected to the pre-treatment cartridge (LC140).
3. IDENTIFY the 0.2µm capsule filter (LC125).
4. REMOVE the filter from its retaining clips and pull forward.
5. REMOVE the clear inlet tubing from the bottom of the filter by pushing back the retaining collet on the push fit connector and withdrawing the tubing.
6. REMOVE the clear outlet tubing from the top of the filter.
7. REMOVE the filter and discard.

   Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

Step 3 - Replacing the 0.2µm Capsule Filter

1. UNPACK new cartridge and remove the two protective transit plugs sealing the inlet and outlet connections.
2. REFIT the inlet tubing into the bottom of the filter by pushing the tubing into the connectors until locked and held by the retaining collet.
3. REFIT the outlet tubing.
4. SECURE the new filter into its retaining clips ensuring the cartridge is the correct way up.
5. REFIT the pre-treatment cartridge by pushing it back into its retaining clips.
6. RESET 0.2µm capsule filter replacement timer. *(See Section 5.5 – Setting Up Display and Replacement Timer).*
7. Follow steps 16 - 20 of *Section 5.6 Initial Start Up*.

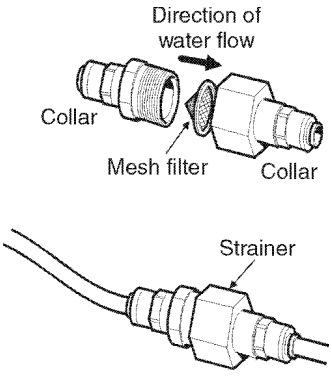
7.5 Cleaning the Inlet Strainer

The inlet strainer should be checked and cleaned every six months to ensure that the strainer does not become clogged.

Step 1 - Remove the Inlet Strainer

1. SWITCH OFF electrical supply.
2. OPEN front door.
3. ISOLATE inlet water supply.
4. REMOVE the pre-treatment cartridge from its clips and set aside to gain access to the inlet strainer.
5. DEPRESS collars on both sides of strainer and disconnect tubing.
6. REMOVE the inlet strainer from its position.

Step 2 - Dismantle the Inlet Strainer



Inlet Strainer

1. HOLD inlet strainer over a sink or receptacle.
2. UNSCREW inlet strainer.
3. REMOVE mesh filter.
4. CHECK mesh filter for signs of wear or damage, replace or clean as necessary.

Step 3 - Reassemble the Inlet Strainer

1. INSERT mesh filter into strainer, ENSURE it is facing the correct direction.
2. TIGHTEN up the inlet strainer.

Step 4 - Replace the Inlet Strainer

1. REPOSITION the inlet strainer.
2. REFIT tubes to inlet strainer, ENSURE it is facing the correct direction.
3. REPOSITION the pre-treatment cartridge into its support clips.
4. RE-ESTABLISH inlet water supply.
5. TURN on power.

7.6 Cleaning the Recirculation Strainer

The recirculation strainer should be checked and cleaned periodically to ensure that the strainer does not become clogged or broken.

Step 1 - Remove Recirculation Strainer

1. OPEN front door.
2. ISOLATE inlet water to the recirculation strainer.
3. REMOVE the ion-exchange cartridge to gain access to the recirculation strainer.
4. REMOVE the recirculation strainer by depressing the collars on either side of the strainer and disconnect tubing.

Step 2 - Dismantle the Recirculation Strainer

1. HOLD recirculation strainer over a sink or receptacle.
2. UNSCREW recirculation strainer.
3. REMOVE mesh filter.
4. CHECK mesh filter for signs of wear or damage, replace or clean as necessary.

Step 3 - Reassemble the Recirculation Strainer

1. INSERT mesh filter into strainer, ENSURE it is facing the correct direction.
2. SCREW up the recirculation strainer.

Step 4 - Replace the Recirculation Strainer

1. REPOSITION the recirculation strainer.
2. REFIT tubes to recirculation strainer, ENSURE it is facing the correct direction.
3. REPOSITION the ion-exchange cartridge into its support clips.
4. RE-ESTABLISH inlet water supply.
5. TURN on power.

7.7 Replacement of LC143 Reverse Osmosis Cartridge(s)

The purity and flow of purified water from the reverse osmosis module will often very gradually reduce over a period of months or years. Extra impurities in the water will be removed by the ion exchange pack. The reverse osmosis cartridge should be replaced if the permeate water purity or flowrate is not adequate.

For information regarding the replacement of the LC143 reverse osmosis cartridge contact Customer Service.

WARNING! **ALL NEW RO CARTRIDGES CONTAINS TRACES OF BACTERIOSTATIC SOLUTION. THE RO CARTRIDGES WILL THEREFORE REQUIRE RINSING PRIOR TO USE.**

7.8 Replacement of LC154 Degas Module

The degas module should only require replacing if a membrane fault occurs which will be identified by a continuous vacuum alarm.

For information regarding the replacement of the LC154 degas module contact Customer Service.

8. SANITIZATION PROCEDURES

8.1 Liquid sainitization

The normal sanitization procedure for the ***MEDICA-D 7/15 US*** unit is to sanitize the Reverse Osmosis (RO) module and associated pipework (**8.1.1**). If required, the unit and docking vessel/reservoir may also be sanitized (**8.1.2**).

8.1.1 Standard Sanitization.

The unit is sanitized to reduce the growth of microbiological contamination within the unit. The ***MEDICA-D 7/15 US*** has a built-in sanitization port, which allows the sterilant to be introduced into the water feeding the RO. Please read this entire section to become familiar with the procedure before you start.

The sanitization frequency required is dependent on the feedwater, local environment, usage patterns and application. As a general rule, ELGA LabWater recommends sanitization of the RO at 6 monthly intervals. However, the period between sanitizations could be extended in particular circumstances. For example, microbial growth will usually be lower with clean feed water, well-maintained pre-treatment, low temperatures and heavy usage.

WARNING! ALWAYS WEAR RUBBER GLOVES, APRON AND FACEMASK. DO NOT BREATHE FUMES OR ALLOW TO COME IN CONTACT WITH SKIN OR EYES. ALWAYS FOLLOW RECOMMENDATIONS FOUND IN THE MANUFACTURERS MATERIAL SAFETY DATA SHEET AND ANY APPLICABLE OSHA STANDARDS FOR THE CHEMICAL BEING USED.

WARNING! LABEL THE MACHINE WITH APPROPRIATE WARNING SIGNS SUCH AS “DO NOT USE/ CONTAINS STERILANT” (NOT PROVIDED)

Minncare Cold Sterilant is a Peracetic and Hydrogen Peroxide based solution.

Refer to the Minncare label for additional information and follow all applicable directions for use on the manufacturer’s label in conjunction with the following instructions.

Sanitization Port

Step 1 - Start Sanitization Cycle

1. ENSURE that the docking vessel/reservoir level indication on the graphics display is showing >10%. If display shows >40%, >70% or 100%, dispense water until display changes to >10%.
2. PRESS the PROCESS button to stop the process.
3. TURN OFF the electrical supply.
4. WAIT one minute for residual pressure to dissipate.
5. ISOLATE the pump feed line from the reservoir by closing valve V3 (see page 15) then disconnect the tube from the unit side of the valve (V3). Direct the line to drain.

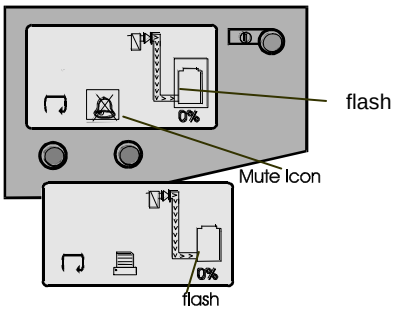
Step 2 – Pour sterilant into Sanitization Port

1. UNSCREW cap on sanitization port.
2. MEASURE out 20ml of Minncare Cold Sterilant and SLOWLY POUR into sanitization port.

   Note: It is recommended that you add the chemical in 10ml steps. If the chemical level rises too high in the sanitization port, refit the cap and then remove it. This will allow room for the remaining 10ml.
3. REFIT cap on sanitization port, hand tight.

Step 3 - Start the Sanitization Process

1. RESTORE the electrical supply.
2. PRESS the PROCESS button.
3. ALLOW the sanitization and rinsing to continue for 2 hours.
4. PRESS the PROCESS button to stop the process.
5. TURN OFF electrical supply.



Process On

Step 4 - Return to Normal Operation

1. Reconnect the pump feed to valve V3 and open the isolating valve (V3).
2. TURN ON the electrical supply.
3. PRESS PROCESS button to return to normal operation.
4. CHECK for leaks.

8.1.2 Sanitization Procedure for the unit and docking vessel/reservoir

The unit and docking vessel/reservoir may be sanitized to destroy bacteria within the pipework and filters of the unit. The complete sanitization of the system is recommended to be performed if high levels of bacterial contamination are found in the product water feeding the analyzer. Should bacterial contamination of the product water be suspected, samples should be taken by trained staff and analyzed for bacterial counts. If the counts are abnormally high, ELGA LabWater technical support or your local representative should be contacted for advice and assistance.

It is recommended that only ELGA LabWater service personnel or other fully trained staff should perform the procedure for sanitization of the unit and docking vessel/reservoir.

8.2 Tablet sanitization

8.2.1 Standard Sanitization

The unit is sanitized to reduce the growth of microbiological contamination within the unit. The ***MEDICA-D 7/15 US*** has a built-in sanitization port, which allows the sterilant to be introduced into the water feeding the RO. Please read this entire section to become familiar with the procedure before you start.

The sanitization frequency required is dependent on the feedwater, local environment, usage patterns and application. As a general rule, ELGA LabWater recommends sanitization of the RO at 6 monthly intervals. However, the period between sanitizations could be extended in particular circumstances. For example, microbial growth will usually be lower with clean feed water, well-maintained pre-treatment, low temperatures and heavy usage.

WARNING! ALWAYS WEAR RUBBER GLOVES, APRON AND FACEMASK. DO NOT BREATHE FUMES OR ALLOW TO COME IN CONTACT WITH SKIN OR EYES. ALWAYS FOLLOW RECOMMENDATIONS FOUND IN THE MANUFACTURERS MATERIAL SAFETY DATA SHEET AND ANY APPLICABLE OSHA STANDARDS FOR THE CHEMICAL BEING USED.

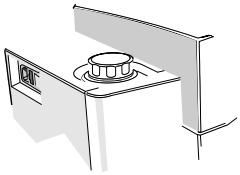
WARNING! LABEL THE MACHINE WITH APPROPRIATE WARNING SIGNS SUCH AS "DO NOT USE/ CONTAINS STERILANT" (NOT PROVIDED)

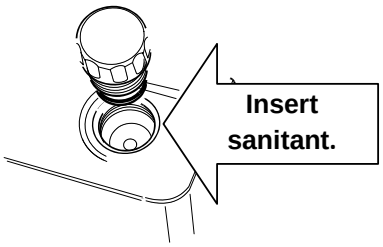
EfferSan™ is a multi-purpose disinfecting tablet.

Refer to the EfferSan™ label for additional information and follow all applicable directions for use on the manufacturer's label in conjunction with the following instructions.

Step 1 - Start Sanitization Cycle

1. ENSURE that the docking vessel/reservoir level indication on the graphics display is showing >10%. If display shows >40%, >70% or 100%, dispense water until display changes to >10%.
2. PRESS the PROCESS button to stop the process.
3. TURN OFF the electrical supply.
4. WAIT one minute for residual pressure to dissipate.
5. ISOLATE the pump feed line from the reservoir by closing valve V3 (see page 15) then disconnect the tube from the unit side of the valve (V3). Direct the line to drain.





Sanitization Port

Step 2 – Add sterilant into Sanitization Port

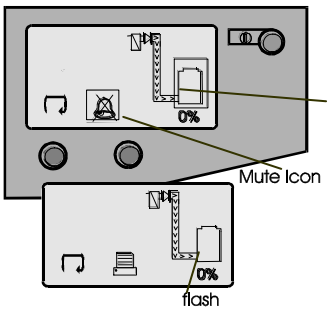
1. UNSCREW cap on sanitization port.
2. INSERT **ONE** EffetSan™ tablet into the sanitization port.
3. REFIT cap on sanitization port, hand tight.

Step 3 - Start the Sanitization Process

1. RESTORE the electrical supply.
2. PRESS the PROCESS button.
3. ALLOW the sanitization and rinsing to continue for 2 hours.
4. PRESS the PROCESS button to stop the process.
5. TURN OFF electrical supply.

Step 4 - Return to Normal Operation

1. Reconnect the pump feed to valve V3 and open the isolating valve (V3).
2. TURN ON the electrical supply.
3. PRESS PROCESS button to return to normal operation.
4. CHECK for leaks.

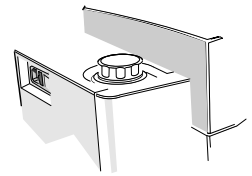


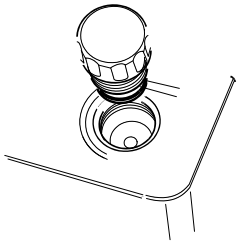
Process On

8.2.2 Sanitization Procedure for the unit and docking vessel/reservoir

The unit and docking vessel/reservoir may be sanitized to destroy bacteria within the pipework and filters of the unit. The complete sanitization of the system is recommended to be performed if high levels of bacterial contamination are found in the product water feeding the analyzer. Should bacterial contamination of the product water be suspected, samples should be taken by trained staff and analyzed for bacterial counts. If the counts are abnormally high, ELGA LabWater technical support or your local representative should be contacted for advice and assistance.

It is recommended that only ELGA LabWater service personnel or other fully trained staff should perform the procedure for sanitization of the unit and docking vessel/reservoir.





Sanitization Port

8.3 Emergency by-Pass

The ***MEDICA-D 7/15 US*** has a built in emergency by-pass. Operation of the emergency by-pass is only recommended under extreme circumstances (e.g. electrical failure). The life of consumables will be reduced and it is recommended that the ion-exchange pack be replaced before and after use of the emergency by-pass.

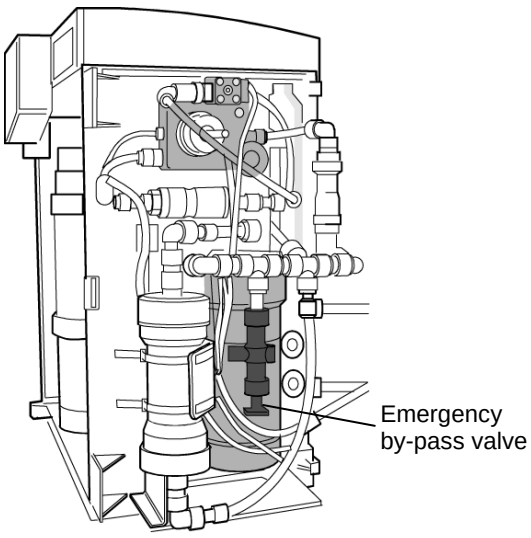
It is also recommended that the 0.2µm filter be replaced after the emergency by-pass has been used.

Step 1 - Repair

1. CONTACT your local distributor or service department to arrange repair of your ***MEDICA-D 7/15 US.***
2. CHECK that you have sufficient stock of consumables to continue the production of purified water. *(See Step 4 – Calculate Ion-Exchange Cartridge Life).*

Step 2 - Commissioning the Emergency By-pass

1. ENSURE the electrical power supply is switched off.
2. ENSURE the inlet water supply is isolated.
3. WAIT several minutes to allow the residual pressure in the inlet water supply to fall.
4. OPEN door and REMOVE two screws on right-hand side of central chamber to free cover of right-hand compartment. REMOVE cover.
5. DISCONNECT the inlet tube on the left-hand side of the ***MEDICA-D 7/15 US*** and CONNECT to the emergency by-pass connection below the black valve in the right-hand compartment.
6. RELIEVE any residual pressure in the rest of the system by slowly opening the bleed nipple on the capsule filter until water flow ceases. USE an absorbent cloth to soak up the water and RE-TIGHTEN the bleed nipple.
7. REPLACE ion-exchange cartridge pack (LC141) *(See Section 7.2).*
8. OPEN the sanitization isolating valve (V_2).
9. CLOSE the analyzer isolating valve (V_1).



Emergency By-pass Valve Location

Step 3 - Re-establishing Supply

1. RE-ESTABLISH water supply and ADJUST the feed pressure to 3bar (45psi).

CAUTION! Failure to adjust the water supply pressure to the unit will result in damage to the consumables and possible failure.

2. OPEN the black valve in the right-hand compartment.
3. ALLOW water to flow to drain for 2 minutes.
4. CLOSE the emergency by-pass valve.
5. CLOSE the sanitization isolating valve (V_2).

6. OPEN the analyzer isolating valve (V_1).
7. OPEN the emergency by-pass valve.
8. Slowly OPEN the upper bleed nipple on the 0.2µm capsule filter until water, free of bubbles, flows out. USE an absorbent cloth to prevent splashing of internal components.
9. The emergency by-pass is now operational. When the analyzer does not require water it is necessary to manually isolate the mains water supply to prevent overflow from the docking vessel.

Step 4 - Calculate Ion-Exchange Cartridge Life

1. Calculate the maximum ion-exchange cartridge pack life. Under emergency by-pass processing and with your mains water conditions, to maintain a supply purity of 1MΩ.cm to the analyzer.

$$\text{Time between pack changes} = \frac{55{,}000}{(\text{Conductivity of mains water}) \times (\text{Water consumption of analyzer l/hr})}$$

Example

Mains water conductivity = 605µS/cm

Water consumption of analyzer = 20l/hr

$$\text{Time between pack changes} = \frac{55{,}000}{605 \times 20}$$

Time between Pack changes = 4.5 hrs

In the absence of information on mains water conductivity assume a pack life of 2 hrs if the analyzer consumes 20 l/hr.

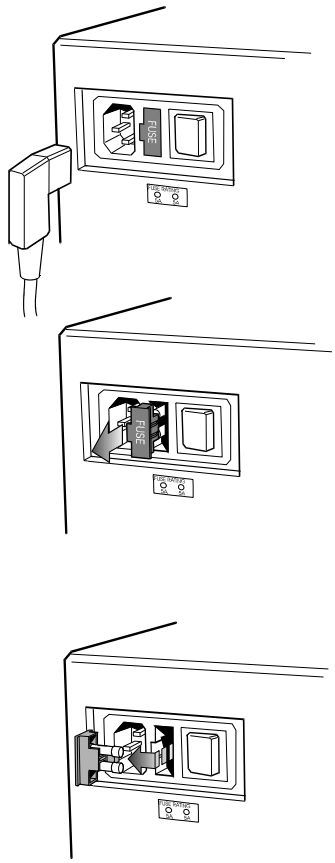
If flow starts to decline this may be solved by changing the 0.2µm filter.

Step 5 - Return to Normal Operation

1. ONCE the unit has been repaired the ***MEDICA-D 7/15* US** must be returned to normal operation.
2. RE-CONNECT the mains supply to the inlet of the ***MEDICA-D 7/15 US*** and re-adjust supply pressure.
3. ENSURE the emergency by-pass valve is closed inside the ***MEDICA-D 7/15 US*** and REPLACE right-hand cover.
4. CHANGE ion-exchange cartridge pack and 0.2µm filter. *(See Section 7.2 and Section 7.4).*
5. PERFORM 'Initial Start up' routine. *(See Section 5.6).*

9. TROUBLE SHOOTING

This section highlights the problems that could occur with the ***MEDICA-D 7/15 US*** unit and how to rectify them. The unit will normally sound an alarm and the respective icons will flash. The alarm sound can be silenced by pressing the mute button. If the unit cannot be repaired using this manual please call either your supplier or the local distributor. *(See Section 13 - Useful Contact Details).*



Fuse Removal

Problems	Action
No display message	Check mains supply and lead. Check that the mains power is switched on. Check fuse in power inlet module and replace if blown.
Reservoir low level audible alarm sounds	Press the crossed bell button to mute alarm. The reservoir will automatically refill. Check that process mimic is showing reservoir filling. Check feedwater supply. Check connections to Reservoir.
UV lamp failure audible alarm sounds	Press the crossed bell button to mute alarm. Check that all electrical connections have been secured. Follow UV lamp replacement procedure when applicable. Optionally you can temporarily continue without the UV lamp.
Ion-exchange cartridge replacement alarm	Replace Ion-exchange cartridge pack. *(See Section 7.2 - Replacing the LC141 Ion-Exchange Cartridge).*
Pre-treatment cartridge replacement alarm	Replace pre-treatment cartridge. *(See Section 7.1 - Replacing the LC140 Pre-treatment Cartridge).*
0.2µm capsule filter replacement alarm	Replace 0.2µm capsule filter. *(See Section 7.4 - Replacing the LC125 0.2µm Capsule Filter).*
Water purity alarm	Check alarm set value is correct. *(See Section 5.4, Step 5 - Purity Alarm Setting).* Allow unit to recirculate. If alarm persists replace Ion-exchange cartridge. *(See Section 7.2 - Replacing the LC141 Ion-Exchange Cartridge Pack).* If problem persists beyond that expected from normal operating conditions, then contact your local distributor.
Reservoir level disconnect fault alarm	Check that the level controls are correct. *(See Section 5.3 - Step 3 - Connect High/Low Level Switch to Reservoir).* If problem persists then contact your local distributor.
Output flow below specification	Check supply pressure. *(See Section 5.2 - Positioning the **MEDICA-D 7/15 US**).* Check RO flow-rate for the unit against the graphs shown in Section 3.3, which details treated water output vs temperature and feedwater pressure. Check the inlet strainer / delivery strainer are clean *(See Section 7.5/7.6 - Cleaning Inlet Strainer/Cleaning Recirculation Strainer).* Contact service technician to fit or replace optional booster pump. 0.2µm filter fouled, replace filter. *(See Section 7.4 - Replacing the LC125 0.2µm Capsule Filter).*
UV replacement alarm	Replace UV Lamp. *(See Section 7.3 - Replacing the Ultraviolet Lamp).*
Unit noisy	Open front door and secure pipework to stop vibration.
Vacuum alarm	Check ejector return flow is present. Remove vacuum line and check vacuum. Contact your local distributor to arrange a replacement LC154.

10. CONSUMABLES AND ACCESSORIES

Consumable	Max. Service Life*	Max. Shelf Life
LC140 (pre-treatment cartridge)	6 months	2 years
LC143 (reverse osmosis cartridge module)	Typical life 2-3 years	2 years
LC141 (ion-exchange cartridge pack)	6 months maximum	2 years
LC125 (0.2µm capsule filter)	6 months	2 years
LC105 (UV lamp)	12 months	5 years
LC154 (degas module)	Typical life 2-3 years	2 years
LC136** (composite vent filter)	6-months	2 years
LC123*** (pre-treatment filter)	6-months	2 years

* *Service Life is an estimate only, and will depend on the application and feed water quality. Care should be taken to order the correct consumable items.*

** *Required for reservoirs (LA621).*

*** *Required for optional pre-treatment filter housing (LA518).*

Accessory	Cat No
Installation kit	LA637
Installation kit (with saddle valve)	LA506
Pressure regulator valve (inlet)	LA512
Pre-treatment filter housing	LA518
Wall mounting kit (***MEDICA-D 7/15*** unit)	LA610
25 liter reservoir	LA611
40 liter reservoir	LA612
75 liter reservoir	LA613
Wall mounting kit (25 & 40 liter reservoir)	LA591
Wall mounting kit (75 liter reservoir)	LA592
Flow upgrade kit (7-15 liter per hour)	LA606
RS232 Printer kit	LA618
Chlorine test kit	TEST30679
Docking Vessel - DV25	LA621
Pre-filter (if boost pump fitted)	LA582
DV wall mount kit	LA591

11. KEY TO CONTROL PANEL

11.1 Icons

Icon	Description
	Mute alarm
	Accept
	Scroll
	Auto restart
	Manual restart
	Set up menu
	Cursor option choice
	Cursor selection choice
	Cancel
	Reset
	Printer

11.2 Alarm Conditions

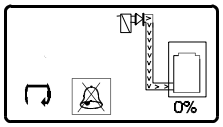
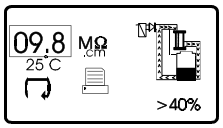
Icon	Alarm Conditions
	Replace ion-exchange pack
	Replace UV lamp
	Replace pre-treatment cartridge
	Replace 0.2µm capsule filter
	UV fail (cross flashes)
	Vacuum fail
	* Tank level – disconnect fault

* This alarm condition causes the process to stop

11.3 Replacement Timers

Replacement Timer	Icon	Preset
Ion-exchange cartridge		4380 hours (= 6 months)
UV lamp		8760 hours (= 12 months)
Pre-treatment cartridge		4380 hours (= 6 months)
Replace 0.2µm capsule filter		4380 hours (= 6 months)

11.4 Low Reservoir Level, Poor Water Quality and Standby Screens

Screen	Description
	Low level alarm
	Process on and water purity alarm
	Standby position

12. WARRANTY/CONDITIONS OF SALE

ELGA LabWater is a trading name of VWS (UK) Ltd.

General Limited Warranty

VWS (UK) Ltd warrants the products manufactured by it against defects in materials and workmanship when used in accordance with applicable instructions for a period of one year from the date of shipment for the products. VWS (UK) LTD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of the VWS (UK) Ltd products appearing in VWS (UK) Ltd's published catalogues and product literature may not be altered except by express written agreement signed by an officer of VWS (UK) Ltd. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, VWS (UK) Ltd sole obligation shall be to repair or replace, at its option, any product or part thereof that proves to be defective in materials or workmanship within the warranty period, provided the customer notifies VWS (UK) Ltd promptly of any such defect. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as VWS (UK) Ltd is willing and able to repair or replace any nonconforming VWS (UK) Ltd product or part. VWS (UK) Ltd shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by any customer from the use of its products.

Water System Limited Warranty

VWS (UK) Ltd warrants the water systems manufactured by it, BUT EXCLUDING MEMBRANES AND PURIFICATION PACKS, against defects in materials and workmanship when used in accordance with the applicable instructions and within the operating conditions specified for the systems for a period of one year from the earlier of:

a) the date of installation, or
b) the 120th day following the date of shipment.

VWS (UK) LTD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of the VWS (UK) Ltd systems appearing in VWS (UK) Ltd published catalogues and product literature may not be altered except by express written agreement signed by an officer of VWS (UK) Ltd. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorised and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, VWS (UK) Ltd sole obligation shall be to repair or replace, at its option, any product or part thereof that proves to be defective in materials or workmanship within the warranty period, provided the customer notifies VWS (UK) Ltd promptly of any such defect. The cost of labor for the first ninety (90) days of the above warranty period is included in the warranty; thereafter, labor cost shall be at the customer's expense. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as VWS (UK) Ltd is willing and able to repair or replace any nonconforming VWS (UK) Ltd system or component part. VWS (UK) Ltd shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by any customer from the use of its process systems.

Products or components manufactured by companies other than VWS (UK) Ltd or its affiliates ("Non- VWS (UK) Ltd products") are covered by the warranty, if any, extended by the Product manufacturer. VWS (UK) Ltd hereby assigns to the purchaser any such warranty; however, VWS (UK) LTD EXPRESSLY DISCLAIMS ANY WARRANTY WHETHER EXPRESSED OR IMPLIED, THAT THE NON - VWS (UK) LTD PRODUCTS ARE MERCHANTABLE OR FIT FOR A PARTICULAR PURPOSE.

NOTICE

VWS (UK) Ltd is constantly striving to improve its products and services. Consequently, the information in this document is subject to change without notice and should not be construed as a commitment by VWS (UK) Ltd. Also, VWS (UK) Ltd assumes no responsibility for any errors that may appear in this document. This manual is believed to be complete and accurate at the time of publication. In no event shall VWS (UK) Ltd be liable for incidental or consequential damages in connection with or arising from the use of this manual.

VWS (UK) Ltd. warrants its products against defects in materials and workmanship as described in the Warranty statement on the preceding pages.

13. USEFUL CONTACT DETAILS

ELGA LabWater

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High Wycombe
Bucks
HP14 3BY
UK

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Fax: +44 (0) 0203 567 7205
E-mail: techsupport@elgalabwater.com

For the address of your nearest ELGA LabWater Sales and Service office visit the country list on our website

http://www.elgalabwater.com

or contact ELGA at the number above.