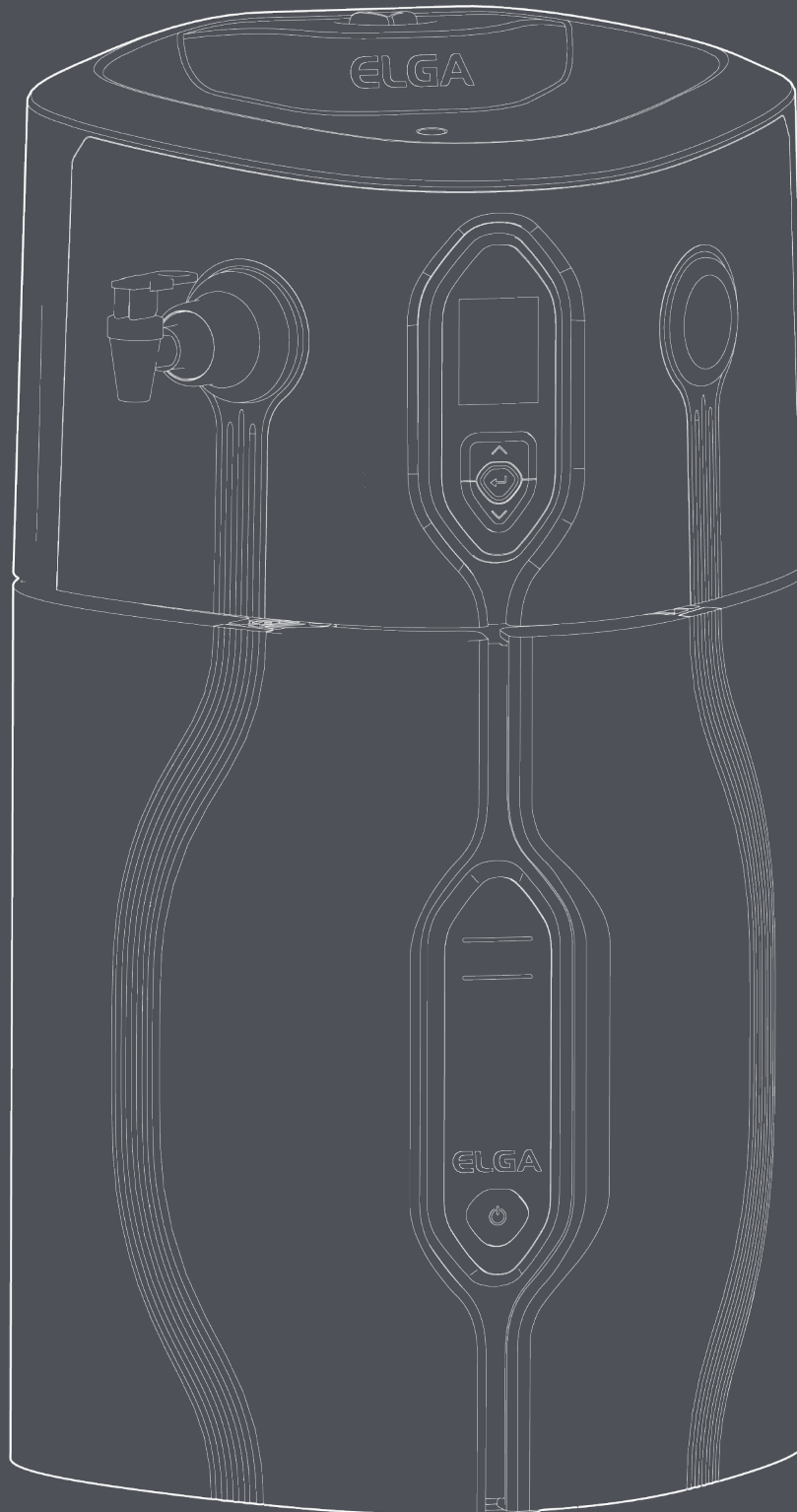


# CHORUS 1 COMPLETE WITH TOC OPERATOR MANUAL



MANU41984  
Version 3



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## 1.1 Use of this Manual

This manual contains full details on operation of the **Chorus 1 Complete with TOC System**. If this system is used contrary to the instructions in this document, then the safety of the user may be compromised.

## 1.2 Customer Support

Service support and consumable items are available from ELGA LabWater. Refer to customer service contact details shown at the end of this publication.

## 1.3 Product Range

This Operator Manual has been prepared for the **Chorus 1 Complete with TOC** product model.  
PURELAB® **Chorus 1 Complete with TOC** PC120COBPM1-TOC

**Chorus 1 Complete with TOC** products are designed to be safe, however, it is important that personnel working on these systems 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 instructions could result in injury or fatality.



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

## 2.1 Environment

The system should be installed on a flat, level surface, in a clean, dry environment. The system is designed to operate safely under the following conditions:

- Indoor use
- Altitude up to 2000m
- Ambient Temperature Range 5°C - 40°C
- Storage Conditions 2°C - 50°C
- Maximum Relative Humidity 80% @ 31°C decreasing linearly to 50% @ 40°C non-condensing
- The system is in installation Category II, Pollution Degree 2, as per IEC 61010-1.



**CAUTION!** Failure to follow the environmental specification could result in damage to the system.

## 2.2 Electricity

The appliance coupler (mains lead) and power supply connected to the rear of the unit can be removed to isolate the power supply. If access to this is restricted then it is recommended that access to the supply socket is easily available.

It is essential that the electrical supply to the **Chorus 1 Complete with TOC System** is isolated before any items are changed or maintenance work performed. The ON/OFF switch is located on the front face of the system. The mains power lead is located on the rear of the unit, to the right hand side.



**WARNING!** Only use the appliance coupler (mains lead) and power supply provided. The use of these will ensure adequate earth protection is provided. If the equipment is used in a manner not specified by ELGA Veolia, the protection provided by the equipment may be impaired. Position the power supply so that it cannot come into contact with water.



**WARNING!** Always ensure that the electrical power supply is isolated before working inside the product.

## 2.3 Water

The mains water supply pressure should be isolated and residual pressure released prior to removal of any cartridges or carrying out work on the system. Switching off the electrical supply will isolate the source of pressure, but pressure trapped within the system should be released by opening the dispense tap until water flow stops.

## 2.4 Ultraviolet Light



**WARNING!** Under no circumstances should the lamp be connected and activated when outside the housing. Exposure could cause serious injury to eyes and skin. Ensure the UV lamp is disposed of in accordance with local regulations.

## 2.5 Control of Substances Hazardous to Health (COSHH)

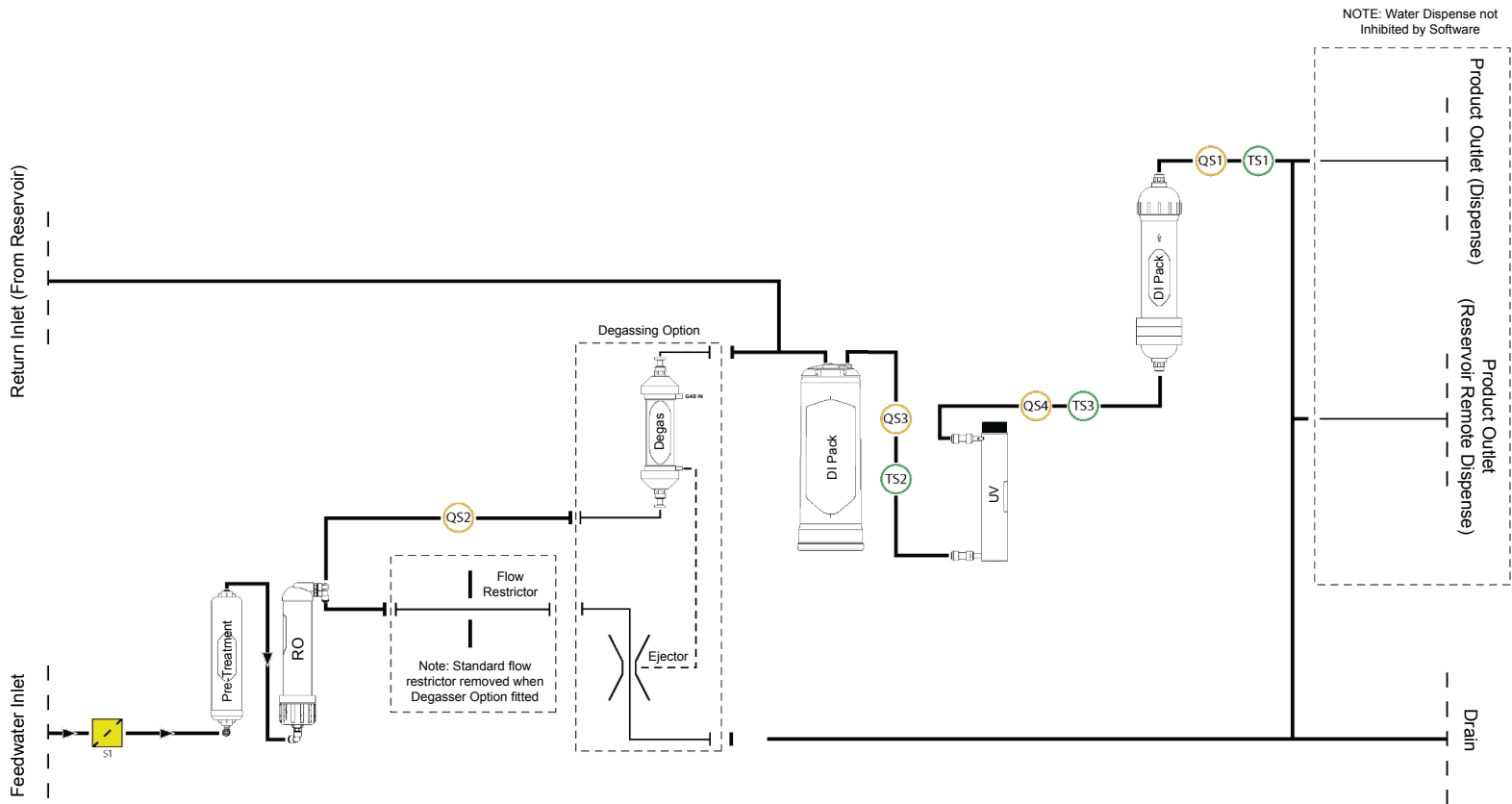
Material safety data sheets covering various aspects of the product are available where applicable upon request. Contact your local supplier or distributor. Purification Pack data is also available on request.

## 2.6 Lifting the Unit



**WARNING!** Unit weighs 18kg - DO NOT attempt to lift alone. Failing to follow proper lifting techniques could result in injury.

This unit is not to be lifted by 1 person. Please follow correct lifting techniques. The use of correct lifting equipment is recommended.



### 3.2 Process Description

The product consists of a single box solution where all purification technologies are included inside. This includes a combination of the following water technologies:

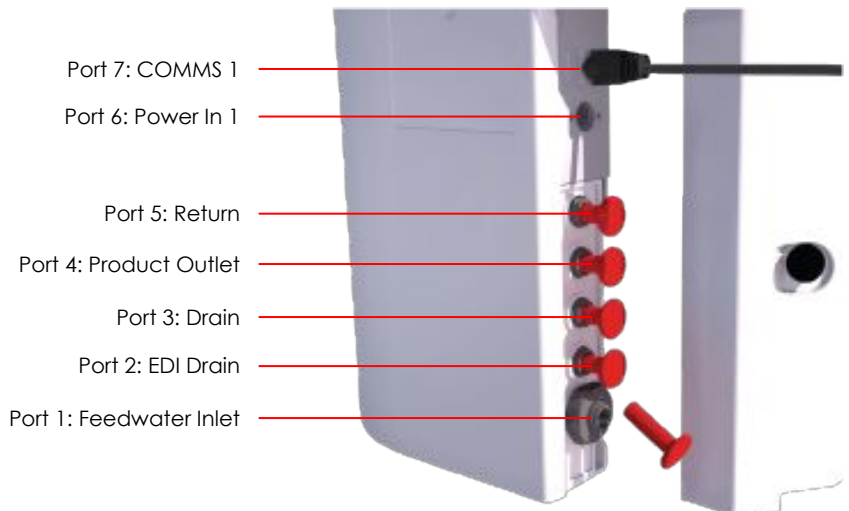
- Pre-treatment and reverse osmosis.
- Degassing available as an optional extra, retrofit kit.
- Recirculation of the purified water through the reservoir ensuring repeated exposure to ultraviolet photo-oxidation and deionisation technologies.
- Additional Point of Use filter are available.

The system is designed to operate from pressurised potable water supply (drinking water) and produces up to 20 liters per hour of reverse osmosis grade water which is further purified and circulated through a treated water reservoir. A user interface displays the system status and provides control by means of three function buttons.

## 4.1 Unpacking the Chorus 1 Complete with TOC

The following items are supplied:

- 1) **CHORUS 1 Complete with TOC**
- 2) Purification Pack (LC275)
- 3) TOC Deionising Cartridge (LC323)
- 4) 24 Vdc Power Supply
- 5) Installation Kit LA762



## 5.1 Positioning the PURELAB® Chorus 1 Complete with TOC

Before commencing with installation and operation of the Chorus system, please read and observe the following points.

### 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 system and any connections directed to drain should have an air-break.

### Potable Feed Water (drinking water)

The feed water should be of good quality and comply with specifications provided. This should enter the system via an 8mm O/D semi rigid tube, and should be in the temperature range 1 to 40°C.

Pressurized feeds, for maximum inlet pressure please refer to, Section 14 Technical Specifications.

Higher feedwater pressures must be reduced using a pressure reducing valve, See Section 6.1 Water, Power and COMMS Connections.

Reservoir feeds to the Chorus system should be positioned at the same height or above the system to provide a positive flooded inlet pressure.

Refer to section 9 Options to move Dispense Tap.

Refer to section 9 Options to remove Non-return valve if required.

## 6.1 Water, Power and COMMS Connections

Once **Chorus 1 Complete with TOC system** has been positioned either on a bench, wall or reservoir mounted it should be connected as follows:

- Feedwater Inlet (Potable Water Supply)
- Drain
- Product Outlet to Reservoir
- Return from Reservoir (Recirculation loop)
- Reservoir High Flow Outlet (Washer Feed)
- COMMS Connections

### Step 1 - Water Connections - Feedwater

1. REMOVE the plug and connect the feedwater inlet (port 1) using tube supplied.

Ensure the tube is not kinked or twisted when the unit is in its final position.

If the unit is installed under the bench, allow sufficient slack in the flexible hoses.

If the water supply is at a pressure greater than 2 bar (30 psi), fit a pressure regulator (LA512 0-5bar). Most commercial and domestic water supplies will be >2 bar, please follow below.

2. CONNECT tube from the feedwater inlet (port) into LA512 Pressure regulator.
3. CONNECT tube from LA512 Pressure regulator into 8mm flow Reducer, (Potable Feedwater Supply) (Fig 1)

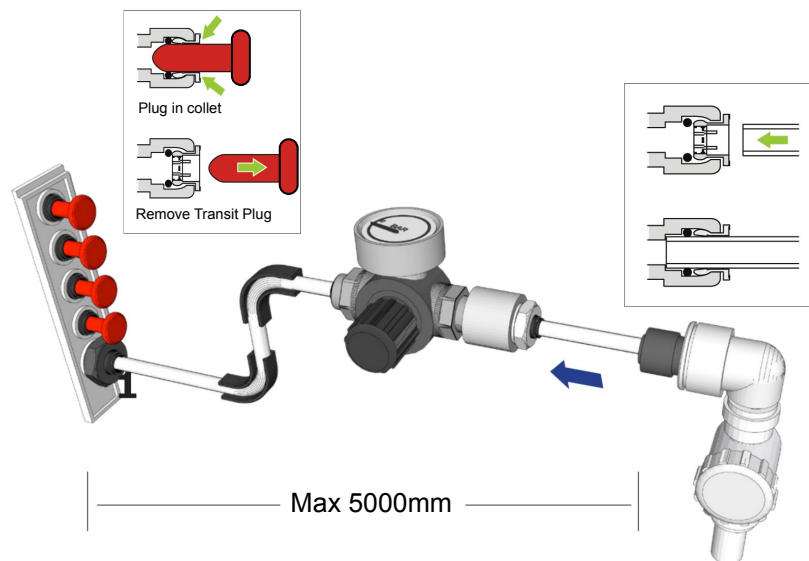


Fig 1

## 6.2 Water Connections - Drain

1. REMOVE the plug and connect the Drain (port 3) to local drain with tube supplied.

## 6.3 Water Connections - Product Outlet to reservoir

1. REMOVE the transit plug from Product Outlet (port 4)
2. REMOVE the transit plug from Reservoir Inlet (port 1↑)
3. Using the tube supplied, CONNECT the Product Outlet (port 4) to Reservoir Inlet connector (port 1↑) (Fig 1)

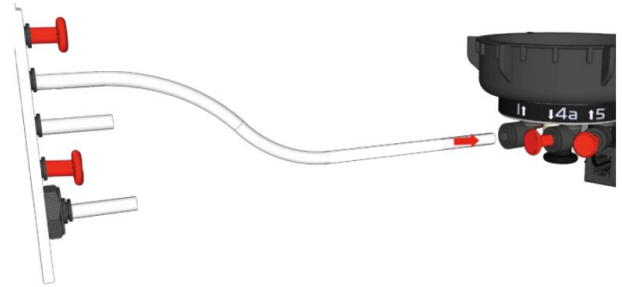


Fig 1

## 6.4 Water Connections - Return / Feed from Reservoir (Recirculation Loop)

1. REMOVE the transit plug from Return Inlet (port 5)
2. REMOVE the transit plug from Reservoir Outlet (port 4a↓)
3. Using the tube supplied, CONNECT the Return Inlet (port 5) to the shut-off valve
4. CONNECT the shut-off valve to the Reservoir Inlet connector using the tube supplied (port 4a↓) (Fig 2)

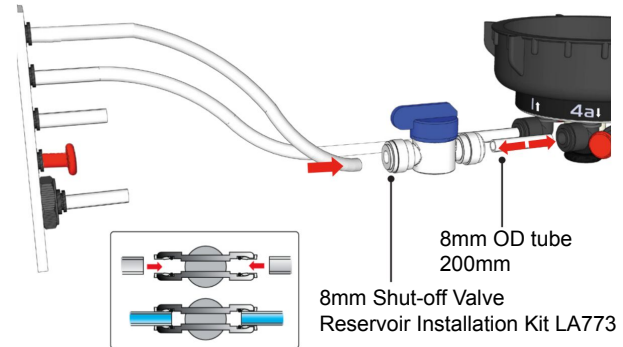


Fig 2

### Optional Section For 15mm Valve

## 6.5 Water Connections - Reservoir High Flow Outlet

1. REMOVE the black transit plug from Reservoir High Flow Outlet (located under port 4a↓, see Fig 3)
2. CUT a clean square end on an 15mm OD semi rigid tube, long enough to reach the Reservoir High Flow Outlet (Fig 4) OR use an Speedfit X plain stem WFLX51.
3. CONNECT to 15mm Stem Elbow and Tap.

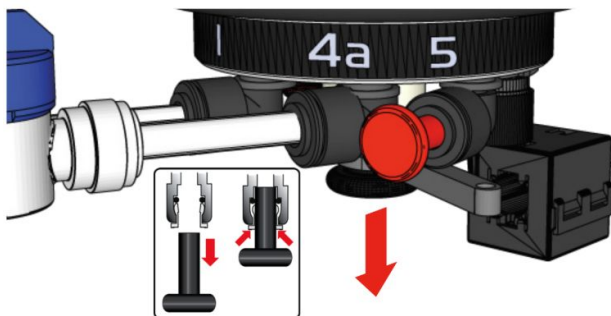


Fig 3

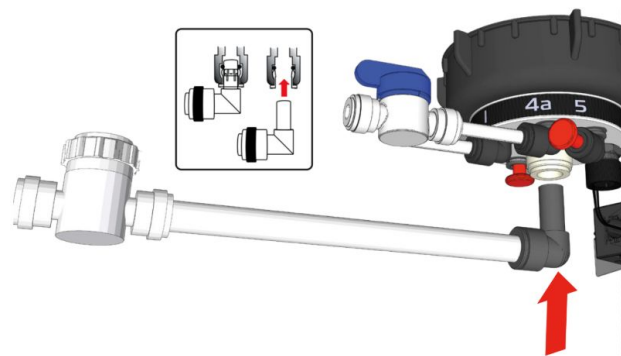


Fig 4



**WARNING!** Only use the appliance coupler (mains lead) and power supply provided. The use of these will ensure adequate earth protection is provided. If the equipment is used in a manner not specified by ELGA, the protection provided by the equipments may be impaired. Position the power supply so that it cannot come into contact with water.



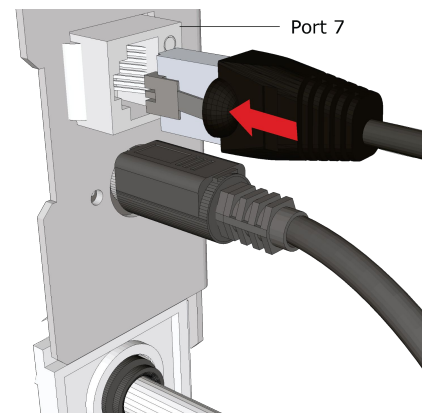
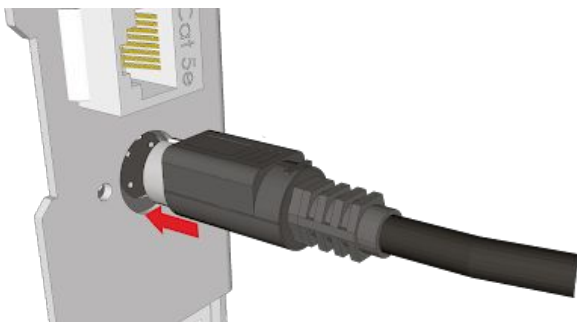
**WARNING!** This appliance **MUST** be earthed. Please ensure connection to an earthed outlet.

## 6.6 Electrical Connections - Power Connection

1. REMOVE the Power Pack from the consumables tray.
2. INSERT Power cable, making sure the pins are aligned correctly.
3. PLUG the mains lead into the Chorus Power Pack
4. PLUG the mains AC lead into the socket **DO NOT TURN ON**

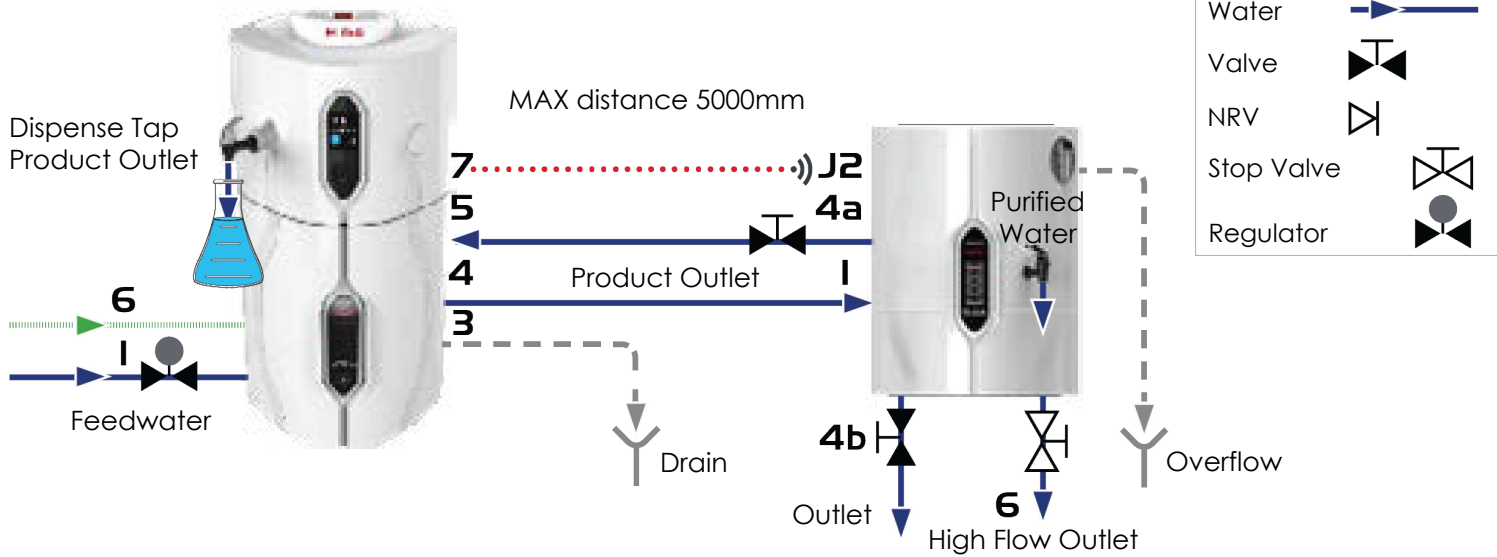
## 6.7 Electrical Connections - Communications Connections

1. Using the Reservoir Installation Kit supplied, INSERT the Black COMMS cable into port 7, "CLICK" to secure.
2. CONNECT the other end of the COMMS cable into Reservoir comms (port J2), "CLICK" to secure.



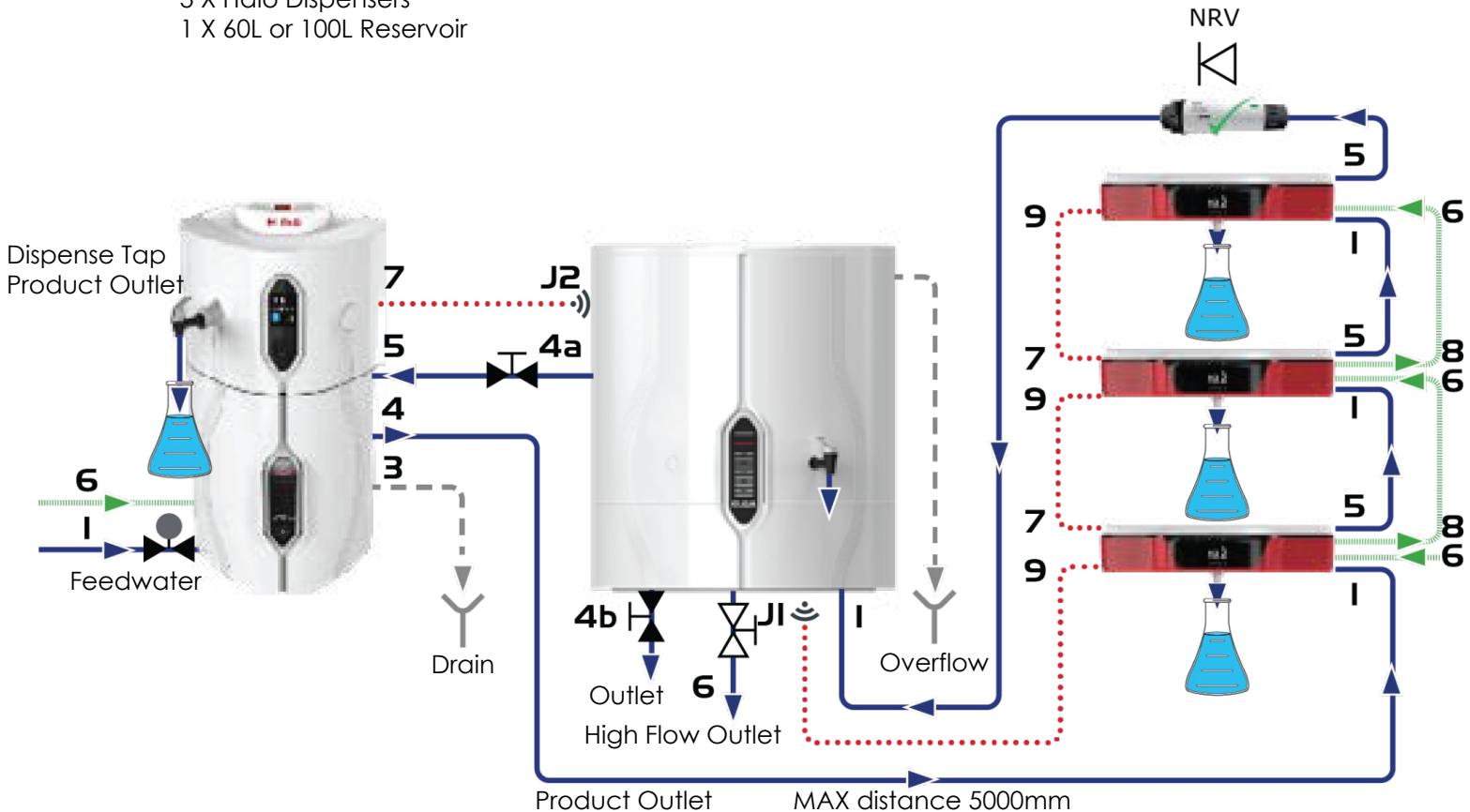
## 7.1 Standard Configurations:

Example one: 1 X PURELAB Chorus 1 Complete with TOC  
1 X Reservoir



Reservoir positioning  
- MAX H 2000mm above bench  
- MAX D 1000mm below bench

Example two: 1 X PURELAB Chorus 1 Complete with TOC  
3 X Halo Dispensers  
1 X 60L or 100L Reservoir



## 7.2 Consumables and Accessories

CONSUMABLES (Supplied)				
Quantities	Part No.	Description	Typical Service Life*	Max. Shelf Life
1	LC241	Pre-Treatment	6 months	2 years
1	LC322	RO Module	2 years	2 years
1	LC275	Purification Pack	6 months	2 years
1	LC323	TOC Deionising Cartridge	12 months	2 years
1	LC272	Bypass/Sanitisation Block	N/A	N/A
1	LC197 (Biofilter) or LC145 (0.2 µm)	Point of Use Filter (Optional)	3 months	2 years
1	LC181	Degasser (Optional)	2-3 years	2 years
1	LC216	Composite Vent Filter (CVF)	6 months	2 years
1	LC210	UV Lamp	12 - 18 months	5 years
1	Chlorine Tablets: ELGA® CT1 or **Effersan™	Sanitisation Chemicals	Typical usage; 1 per month (as required)	2 years / see bottle

\*Service Life is an estimate only, and will depend on the application and feed water quality.

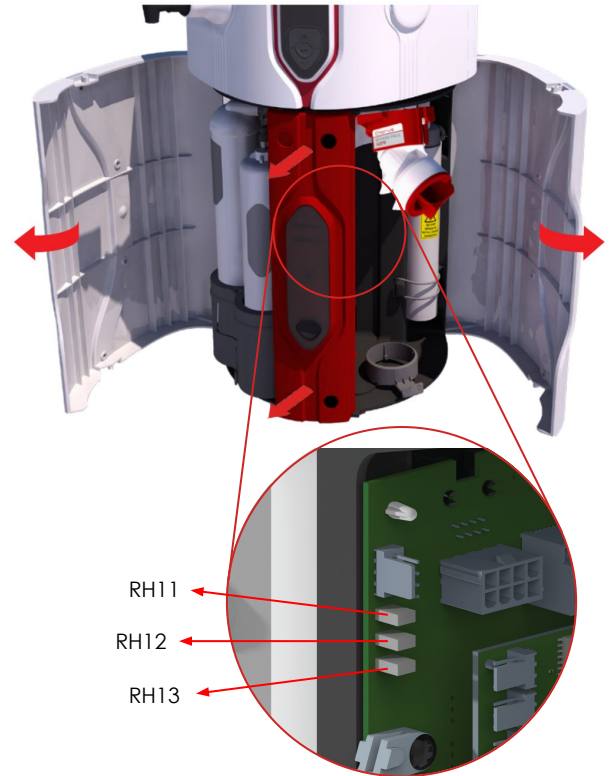
\*\*Effersan is an EPA approved sanitant for use in the USA

ACCESSORIES (Not Supplied)			
Part No.	Description	Typical Service Life*	Max Shelf Life
LA795	Chorus Wall Mounting	N/A	N/A

## 8.1 Commissioning

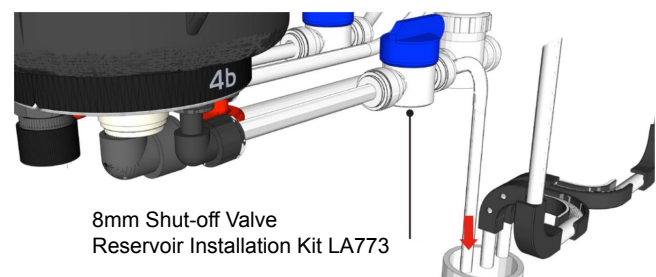
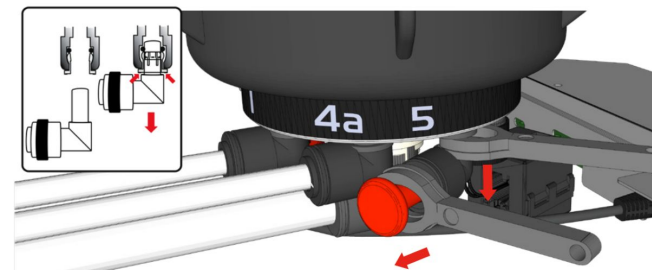
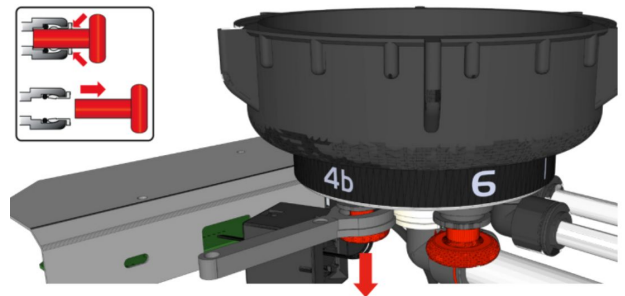
### Step 1 - Start up Procedure

1. OPEN **Chorus 1 Complete with TOC** outer doors.
2. If inhibit mode is required, remove red front facia by turning both quarter-turn latches on the right hand side and pulling the facia away from the unit, and remove link from RH12 insert link into RH13. (See image on right hand side)
3. Replace red front facia and secure quarter-turn latches.
4. Bypass Pack LC272 (located on the right side of the unit) should be pre-installed ready for commissioning procedure, along with the DI bypass tubing (located on the left hand side).
5. TURN ON the feedwater supply to the system. Regulate as required to ensure rated feedwater pressure is not exceeded.
6. SWITCH ON Power socket, PRESS Process button (ON).
7. SELECT LANGUAGE drop down MENU options. UP and DOWN arrows and PRESS Accept to enter.



### Step 2 - Opening Reservoir Drain Valve

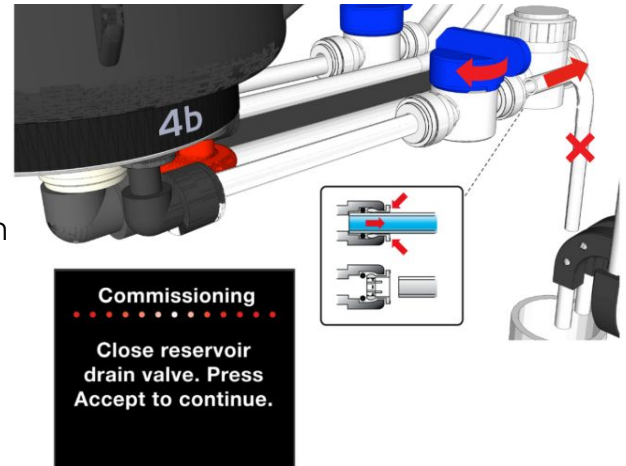
1. REMOVE and RETAIN Reservoir transit plug Port 4b ↓.
2. REMOVE Port 5 transit plug and Stem elbow. RE-USE Stem elbow in Port 4b ↓ and INSERT transit plug into Port 5.
3. CONNECT a Manual Valve from Reservoir Installation Kit LA773 into the stem elbow (Port 4b ↓).
4. INSERT free end of the Manual Valve tube directly into waste water pipe (Air Break not required).



5. After 60 minutes commissioning cycle, CLOSE (Manual Valve) Reservoir Outlet Port 4b ↓ and REMOVE drain tube from waste water pipe.



**Caution!** The TOC Deionising Cartridge (LC323) and the DI Purification Pack (LC275) **MUST** be installed before pack flush is started.



### Step 3 - Installing the TOC Deionising Cartridge (LC323)

1. For the installation process, please refer to Section 10.2, page 23.

### Step 4 - Removing LC272 Bypass Block and Fitting a New Pack Purification Pack.

1. Follow on screen instructions. Pressure / air is released through the Dispense Tap.
2. PUSH both clips inwards to release LC272 Bypass Block from Position 1 inside **Chorus 1 Complete with TOC** and PULL DOWN to remove.
3. For installation of LC275 Purification Pack, please see Section 10.3, page 23
4. PRESS Accept to continue. RESERVOIR will begin filling to 15 litres of RO water. Progress shown on the illuminated Reservoir display.
5. PRESS the Accept button to start the rinse process
6. Once the reservoir is completely empty, PRESS accept and follow on screen instructions.

Commissioning is completed. Chorus will now be refilling the reservoir to 100%.

## 8.2 Setup Menu Options

PRESS and HOLD Accept for 2 Seconds to enter Main Menu. Scroll UP and Down and PRESS Accept to choose an option.

- Set Alarms: - Water Purity Alarm - **Chorus 1 Complete with TOC**: 1 - 17 Mega Ohms MΩ.cm in 1 Mega Ohms MΩ.cm Increments. (**Chorus 1 Complete with TOC** default alarm point 10.0MΩ.cm)
- Water Temp Alarm Select to either 30°C, 35°C or 40°C. (Default 35°C).
- Set Time: Manual adjustment time and date.
- Display Units: Mega Ohms MΩ.cm or Micro Siemens μS.
- **Chorus 1 Complete with TOC** (Dispense Inhibit) TOC alarm - 5 (default setting)
- **Chorus 1 Complete with TOC** TOC alarm - Off (default setting)

### 9.1 Dispense Tap Positioning

Step 1 - Disconnect Electrical and Water supply



**WARNING!** Check that the mains electrical power and feedwater supplies are switched off before internal maintenance work is performed.

Step 2 - Disconnecting the Dispense Tap

1. OPEN the outer doors on the Chorus.
2. UNSCREW both quarter turns to release the lid from the chassis, using a flat headed screwdriver. (Fig 1)
3. LIFT and REMOVE the lid. Ensure the lid is placed on a flat level surface to avoid damage.
4. LOCATE the Dispense Tap tubing. (Fig 2)
5. UNSCREW the locking nut (Counter clockwise) to loosen the Dispenser Tap from its current position. SLIDE the locking nut down to the Non-Return-Valve. (Fig 3)
6. DISCONNECT tubing with the flow bend first before unplugging the stem elbow connection. ROTATE the disconnected tubing away for clearance. (Fig 4)
7. DISCONNECT the stem elbow from the Dispense Tap. (Fig 4)



Fig 1

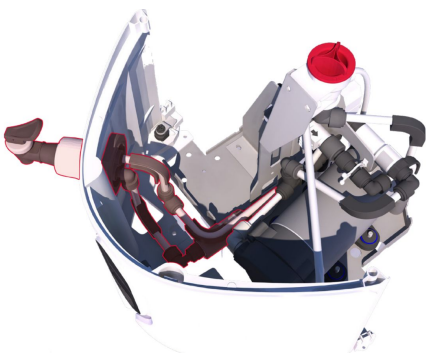


Fig 2

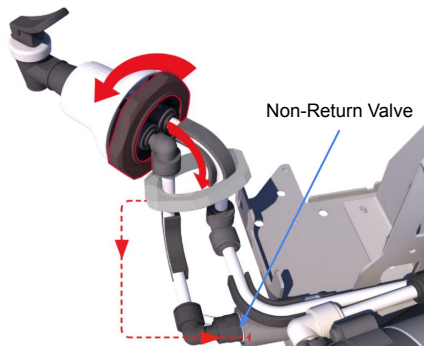


Fig 3

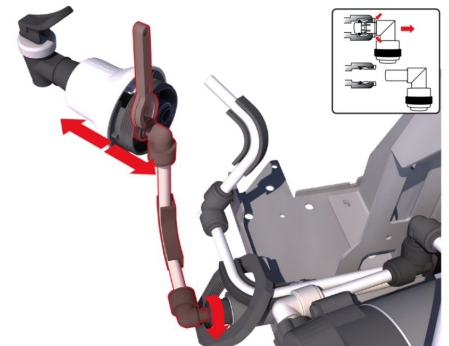


Fig 4

Step 3 - Connecting the Dispense Tap

1. MOVE the Dispense Tap from the LEFT side to its new dispense location on the RIGHT side. REMOVE the white blanking cap by PULLING firmly to release the clips. (Fig 5)
2. MOVE and INSERT the white blanking cap into LEFT Dispense Tap hole. PUSH firmly to secure into place. (Fig 5)
3. INSERT the Dispense Tap through the RIGHT side.
4. ROTATE the Dispense tubing over to the Dispense Tap on the RIGHT hand side. (Fig 6)
5. ADJUST and ROTATE the Dispenser tubing so they sit parallel to each other. (Fig 7)
6. CONNECT tubing with the stem elbow connection before connecting the flow bend tubing. If Dispense Tap ports are oriented in a vertical position then it would be the bottom port.
7. INSERT the tube with the Flow Bend connector into the Dispense Tap.
8. COMPLETED Dispense Tap water connections.
9. MOVE locking nut along the tubing and onto the thread of the Dispense Tap. TIGHTEN the Locking nut (hand tight ONLY) to secure the Dispense Tap.

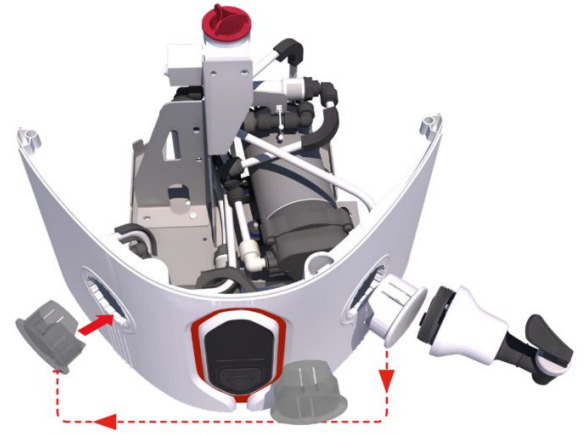


Fig 5

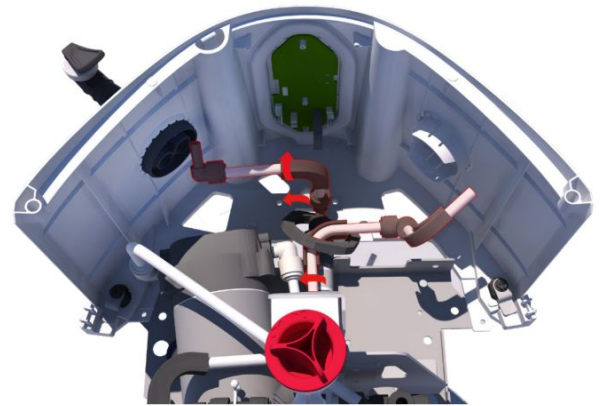


Fig 6

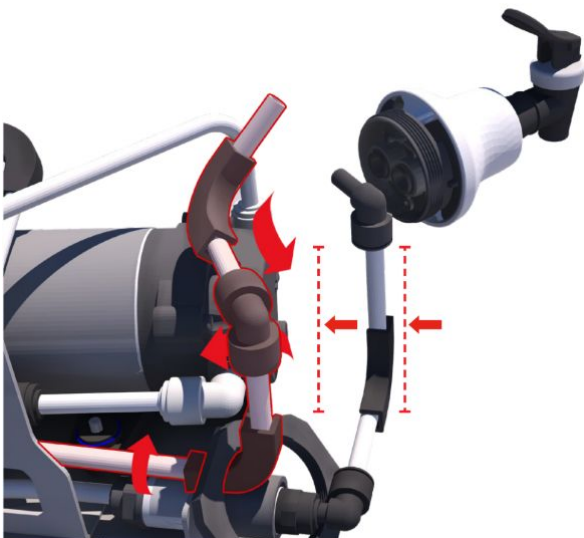


Fig 7



Fig 8

**9.2 Repositioning of non-return valve if operating with one or more external dispensers (see system configuration example 2)**

Step 1 - Disconnect Electrical and Water supply

1. STOP Chorus system. PRESS Process button ONCE.
2. SWITCH OFF electrical supply.
3. ISOLATE / CLOSE feedwater supply at the Emergency Shut-off Valve.
4. REDUCE pressure on the Pressure Regulator and TURN the dial anticlockwise to 0 BAR.
5. RELIEVE any residual pressure from the system by opening the dispenser tap.

Step 2 - Removing Non Return Valve

1. OPEN the outer doors. UNSCREW both quarter turns to release the lid from the chassis. (Fig 1)
2. REMOVE the lid and place on a flat level surface.
3. Disconnect stem elbow from the dispenser tap.
4. ROTATE NRV tubing clockwise.
5. USE the tubing key to disconnect the NRV from the 8mm tubing.



Fig 1

Step 3 - DISMANTLE the Non-Return Valve tubing

1. REMOVE the stem elbow from the NRV.
2. REMOVE the stem elbow and flow bend from the tubing. DISPOSE of the stem elbow and small section of tubing.

Step 4 - Inserting a new section of tubing.

1. CUT a piece of 8mm OD tube 395mm in length.
2. REMOVE the old section of 8mm tubing from the back. DISPOSE of tubing.
3. INSERT new 395mm long section of tube into the equal elbow that was connected to the NRV.
4. USE the removed flow bend and one from Basic Installation kit LA762 to bend the tube into shape.
5. COMPLETED Non-Return-Valve removal as below.

### 10.1 Cleaning Inlet Strainer Assembly

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



**WARNING!** Always check the mains electrical power and feedwater supplies are switched off before cleaning inlet strainer.

**Step 1 - Disconnect Electrical and Water supply**

1. STOP Chorus system. PRESS Process button ONCE.
2. SWITCH OFF electrical supply.
3. ISOLATE / CLOSE feedwater supply at the Emergency Shut-off Valve.
4. REDUCE pressure on Pressure Regulator TURN the dial anticlockwise to - 0 bar. (Fig 1)
5. RELIEVE any residual pressure from the system by opening the Dispenser Tap.
6. DISCONNECT Port 1: Feedwater supply tube.

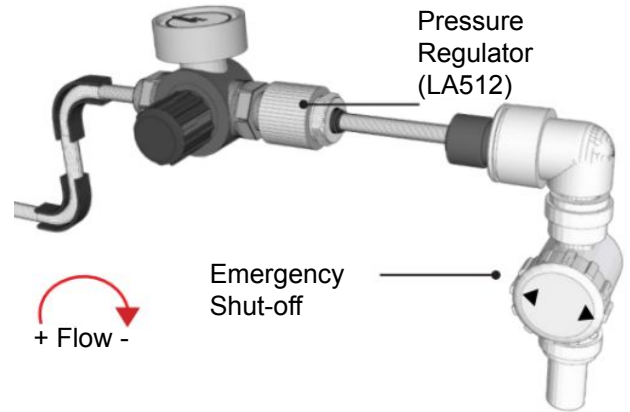


Fig 1

**Step 2 - Remove the Inlet Strainer**

1. UNSCREW Inlet Strainer using a spanner.
2. REMOVE Mesh Filter.
3. CHECK Mesh Filter for signs of wear or damage, replace or clean as necessary by rinsing with water.

**Step 3 - Replace the Inlet Strainer (Fig 2)**

1. INSERT Mesh Filter into PORT 1. ENSURE it's facing the correct direction.
2. SCREW IN Inlet Strainer Assembly (Hand Tight) and LOCK 1/2 turn to the right.
3. RECONNECT Port 1 tube to Assembly.
4. RE-ESTABLISH the potable feedwater water supply.
5. SWITCH ON / PLUG IN electrical supply.
6. START Chorus system. PRESS Button.

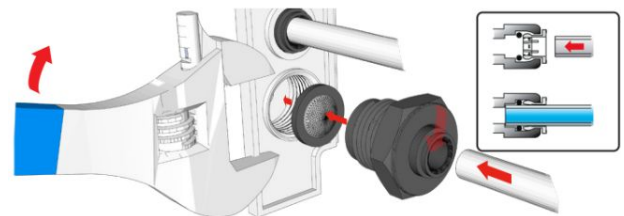


Fig 2

## 10.2 Installing/Replacing TOC Deionising Cartridge (LC323)

*Note: When replacing the TOC Deionising Cartridge (LC323), skip to Step 5.*

Removing the Bypass tubing:

1. LOCATE the bypass tubing on the left side of the unit.
2. REMOVE the black upper bracket, holding the packs in place. Set to one side. (Fig 1)
3. DISCONNECT the bypass tubing from the top and bottom elbow fittings, leaving the fittings attached to the bypass tubing (Fig 2).
4. REMOVE bypass tubing and connected fittings from unit
5. UNPACK new DI Purification Pack and REMOVE red transit plugs. Ensure the foam rings are attached to the outside of the new pack.
6. PLACE pack into position and CONNECT the tubing to top and bottom. (Fig 3)
7. REPLACE the black upper bracket, sliding the bracket down the packs to the base of the unit and clicking firmly into place, ensuring a tight seal around each pack. (Fig 4)

*Note: Connect the upper bracket to the consumables higher up as it will be easier to install.*



Fig 1



Fig 2

## 10.3 Installing/Replacing DI Purification Pack (LC275)

When a purification pack is fitted into the system it will record the serial number of the Purification Pack. After 12 months a reminder is displayed to replace the Purification Pack. Status light will be blinking white showing system needs attention. Its essential to maintain system performance.

To replace the Purification Pack, SELECT Change Purification Pack in the MAIN MENU. PRESS and HOLD Accept button for 2 seconds to enter MAIN MENU. Scroll DOWN and PRESS Accept.

1. UNPACK a new Purification Pack and REMOVE red transit plugs before installing into Position 1.
2. REMOVE old Purification Pack from Position 1.
3. INSERT new Purification Pack into Position 1.
4. Follow on screen instructions

System can now be switched on, and commissioning will begin. Please follow on screen instructions. Pack Reminders are automatically reset.



Fig 3



Fig 4

### 10.4 Replacing Pre-treatment Cartridge (LC241)

Pre-treatment pack and Composite vent filter (CVF) have a run time measured to give a reminder for when they require changing. This is to maintain optimum water purification performance. When 6 months is reached the filter change reminder is active. Status light will be blinking white showing system needs attention. There is no reminder for replacing the RO Module (LC322) but it is recommended that they are replaced during this procedure when their service life has expired.



Fig 1

To replace the Filters, SELECT Change Filters in the MAIN MENU. PRESS and HOLD Accept button for 2 seconds to enter MAIN MENU. Scroll DOWN and PRESS Accept.

#### Changing Pre-treatment Cartridge (Fig 1)

1. OPEN left side door to Chorus.
2. REMOVE the Upper Bracket. PUSH in bracket sides PULL out to REMOVE. (Fig 3)
3. DISCONNECT LC241 Pre-treatment Cartridge. (Fig 1)
4. INSERT new LC241 Pre-treatment Cartridge into position and connect tubing.

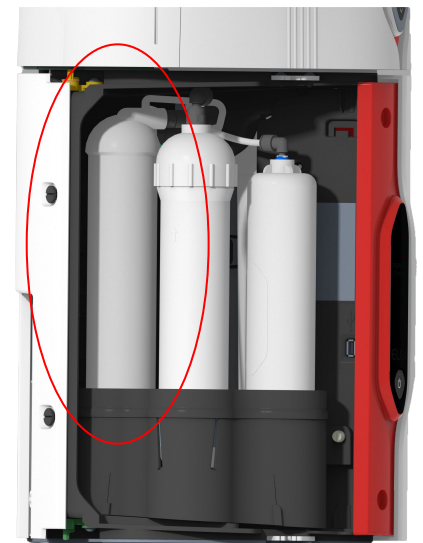


Fig 2

### 10.5 Replacing RO Module (LC322) (Fig 2).

1. OPEN left side door to Chorus
2. REMOVE the Upper Bracket. PUSH in bracket sides PULL out to REMOVE. (Fig 3)
3. DISCONNECT RO Module water connections. (Fig 4)
4. UNPACK new RO Module and REMOVE red transit plugs before installing into the RO holder.
5. RE-USE Foam support on new RO Module.
6. RECONNECT RO water connections.
7. REPLACE Upper Bracket.
8. OPEN Manual valve Reservoir Outlet Port 4b and INSERT tube to waste water pipe. Allow reservoir to empty to drain.



Fig 3

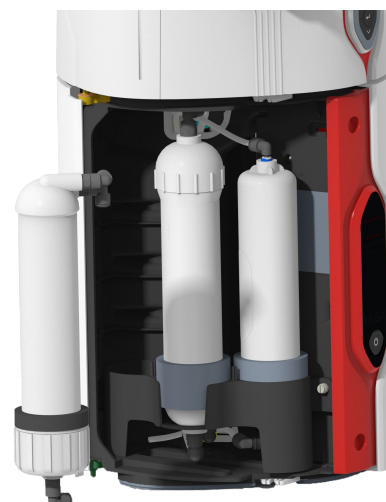


Fig 4

### 10.6 Replacing Ultraviolet Lamp (LC210)



**WARNING!** UV-C radiation is harmful to the eyes and skin. It is strongly recommended that while handling the UV lamp, cut-resistant gloves are worn. Mercury is a hazard, DO NOT break. Lamp contains a small amount of mercury. May cause redness or irritation as a result of contact with skin or eyes.

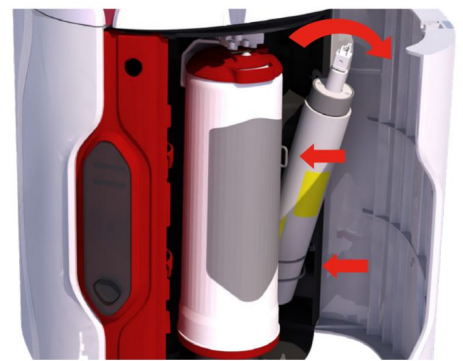
When 18 months is reached the UV lamp change alarm is active (Reminder displayed). Status light will be blinking white showing system needs attention.

#### Step 1 - Disconnect Mains Electrical Supply

1. STOP Chorus system. PRESS Process button (OFF).
2. SWITCH OFF electrical supply at the mains.
3. RELIEVE any residual pressure from the system. (Open Dispense Tap)

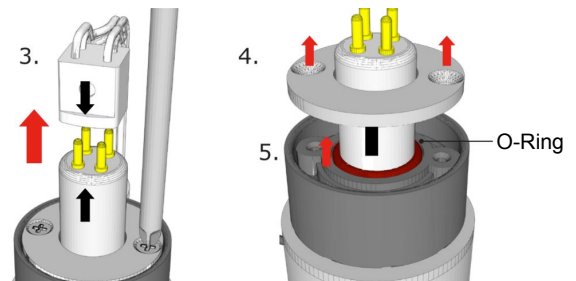
#### Step 2 - Removing the UV Lamp

1. OPEN the front right door panel.
2. REMOVE top and bottom retaining bands and tilt housing for better access. (Fig 1)
3. UNPLUG white lamp plug fitted to the top of the UV lamp.
4. UNSCREW securing plate with a phillips screwdriver.
5. REMOVE securing plate and CHECK O-ring for deterioration during use over the last 18 months. RE-USE or REPLACE O-ring.
6. REMOVE old UV Lamp.




#### Step 3 - Fitting a new UV Lamp

1. UNPACK new UV lamp. Take care not to touch the surface of the glass. Ideally handle with soft cloth and wipe the surface with alcohol wipe supplied before fitting into the housing.
2. RE-FIT O-ring and SLIDE in the new UV lamp.
3. SCREW in securing plate with a phillips screwdriver. CONNECT the white lamp plug.
4. RE-FIT top and bottom retaining bands.
5. PLUG IN Mains and PRESS Process button (ON).
6. Reset UV lamp reminder via the Main Menu.



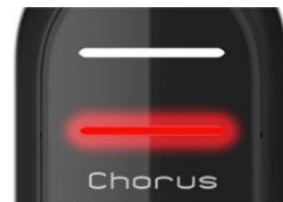
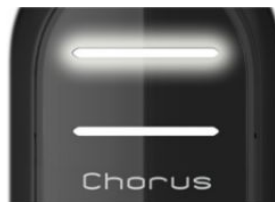
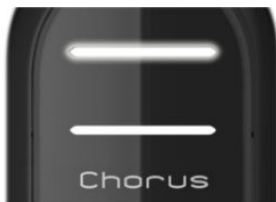
### 10.7 Cleaning the Exterior

When cleaning the units exterior surfaces, a clean damp cloth should be used to remove any dust or other particles.

Problems	Action
No Display Message	Check mains supply and lead. Check the power lead is fitted correctly into Port 6, 'CLICK' to secure. Check that the mains power is switched on.
Reservoir Low Level Alarm 	The reservoir will automatically refill. If not activate 'Trigger Refill' via Main Menu. Check that display is showing reservoir filling. Check feedwater supply. Check connections to reservoir.
UV Lamp Failure Alarm	Check that all electrical connections have been secured. Follow UV lamp replacement procedure when applicable. see Section 10.6 - Replacing the Ultraviolet Lamp.
Ion-exchange Cartridge Replacement Reminder	Replace DI Purification Pack (LC275) and TOC Deionising Cartridge (LC323). (See Sections 10.2 and 10.3.)
Cartridge Capacity Warning (QS3)	Replace DI Purification pack (LC275). (See Section 10.3 - Replacing the DI Purification Pack). When LC275 requires replacement, the system is not able to calculate TOC.
Pre-treatment cartridge and CVF replacement alarm	Replace Pre-treatment and CVF filters (See Section 10.4 - Replacing the Pre-Treatment Cartridge (LC241)).
Water Purity Alarm (QS1)	If not in Inhibit mode, check alarm set value is correct via Main Menu - Water Purity (only possible when not in Inhibit mode). Allow unit to recirculate. If alarm persists replace DI Purification Pack (LC275) and TOC Deionising Cartridge (LC323). (See Sections 10.2 and 10.3.) If problem persists beyond that expected from normal operating conditions, contact your local distributor.
Reservoir Level Disconnect Alarm Fault	Check that the level sensor is correctly connected. If problem persists contact your local distributor.
Output Flow Below Specification	Check supply pressure (See Section 5.1 - Positioning Chorus 1 Complete with TOC, page 11). Check the inlet strainer - (See Section 10.1 - Cleaning Inlet Strainer Assembly.) Check the inlet strainer on the pressure regulator. Contact service technician to fit or replace booster pump. No flow from the dispense tap, recirculation pump needs replacing. Contact a service technician. 0.2µm filter fouled, replace filter.
UV Replacement Alarm	Replace UV lamp, (See Section 10.6 - Replacing the ultraviolet lamp).
Unit Noisy	Open front doors and remove the top cover, secure pipework to stop vibration.
Not Inhibiting / Inhibit not functional	Check the links are correctly inserted and are in the correct locations (RH11 and RH13) (See page 17 for link locations).
Unit not dispensing when requested	If inhibit mode is enabled, unit will only dispense when TOC and purity are at acceptable levels. For TOC levels please see TOC alarm settings.  If inhibit mode is NOT enabled, check to see if RH13 is plugged in. If so, disconnect. (See page 17 for RH13 location).

### Display Lights




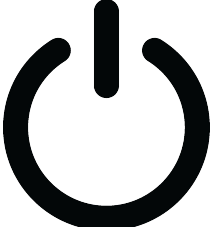
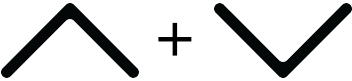
Light State	Colour	Meaning
Constant	White	Signifying water purity, unit is operating correctly
Blinking	White	Consumables are nearing the end of useful life (Reminder)
Constant	Red	Alarm. System needs immediate attention
Blinking	Red	Warning. System in clean cycle (Commissioning)
Constant	Red / White	Diagnostics. Module Identify active.
Blinking (Alternating)	Red / White	Software / Firmware update in progress



### Display Symbols

Water Purity MΩ - 1 to 18.2 MΩ Chorus Complete (flashes red when the water Purity Alarm is active Default: 10.0 MΩ)	<b>18.2</b> → <b>10.0</b>
Water Purity μS/cm - 0.05 μS/cm (Optional set-up)	<b>0.055</b>
Alarms and information displayed on an scroll bar.	Cycle: Time - Temperature - System OK - Alarm Action - TOC
Reservoir level and fill status shown on the display. (Reservoir symbol flashes red. This indicates the level in the reservoir is low)	
Processing Symbol	
Continuous Recirculation	

Control Button Features

Button (or Combination)	Function	Function	Operation
	Scroll Up	Scroll up in a Main Menu or increment increase in feature	PRESS, or PRESS and HOLD to scroll
	Accept	Acknowledges and inputs or enters into a menu	PRESS to enter/accept. PRESS and HOLD for 3 seconds to enter Main Menu
	Scroll Down	Scroll down in a menu or increment decrease in features	PRESS, PRESS and HOLD to scroll
	Process Button	A method for instigating/stopping normal process operation. On / Off	PRESS (at any time)
		To enter or exit the commissioning procedure	PRESS and HOLD for 10 seconds (at any time)
	Scroll up and Scroll Down	Sets the system into snooze mode	PRESS and HOLD for 3 seconds (will not go into snooze if Reservoir is calling to be filled)

### 13.1 Software Update

Software Update - Firmware File Upload (Requires a USB Memory Stick)

Approximate duration: 25 minutes

Updating your Chorus improves stability - functionality. Please make sure the Flash USB memory stick is empty before downloading the latest version of software from

ELGA® Labwater website: [www.elgalabwater.com/en-gb/customize](http://www.elgalabwater.com/en-gb/customize)

1. PRESS Process button ONCE (OFF).
2. OPEN left side door.
3. INSERT a Flash USB memory stick into the USB port with the latest version of UPDATE.ENC.
4. USB Main Menu will appear, SELECT 'Software Update' PRESS Accept to begin.
5. Software update in progress, please wait, Status light and Warning light will be blinking red and white.
6. ONCE Software Update is complete, Chorus will power down. Process button (ON) Software version no. is display on Start-up screen.
7. Software update complete. Normal operation resumes.

### 13.2 Advanced Data Logging

Advanced data logging allows the user to adjust when data is recorded and adjust the intervals. When a USB flash drive is present the data logging menu can be accessed through the USB Menu.

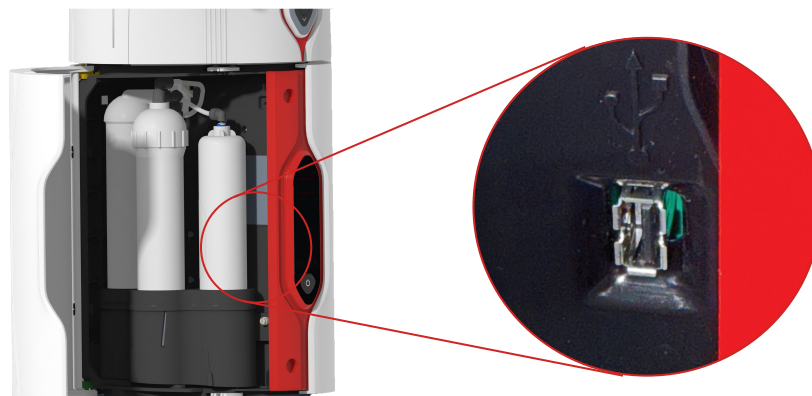
The options are as follows:

- 5 seconds
- 30 seconds
- 1 minute
- 5 minutes
- 15 minutes
- 30 minutes
- 1 hour

Time and date are accurately recorded for each entry to the log with advanced logging. Columns have appropriate titles and units of measure stated.

1. INSERT a Flash USB memory stick into USB port.
2. PRESS Accept to enter Data Logging options.
3. SELECT interval data recording time. (See above options)
4. RECORDING in progress.
5. To Finish Data Recording PRESS DOWN button and REMOVE USB stick.
6. Data file can be viewed using Microsoft Excel.

*Note:* All USB connections to non-powered devices only.



**Product Specifications**

Warranty Period	12 months
Mains Input	100-240 Vac (+/- 10%), 50/60Hz
Power Rating	155VA
Maximum noise (dBA)	<45
Height	679mm (26.7")
Width	376mm (14.8")
Depth	353mm (13.9)
Pipework connections (general)	8mm OD tube
Pipework connections (High flow outlet of reservoir)	15mm OD tube
Reservoir Volumes (Litres)	15, 30, 60, 100

**Environment Conditions**

Maximum Temperature (°C)	40
Minimum Temperature (°C)	5
Maximum Humidity	80% non-condensing
Storage Conditions	Clean, Dry, Indoors

**Feedwater Quality**

Source	Potable Water
Pressure	Max Pressure: 2 bar (30 psi) Min Pressure: 0.2 bar (3 psi) LA512 Fitted when inlet pressure >2.0bar (30psi)
Conductivity	2000µS/cm
Free / total chlorine max. (ppm)	0.5
CO2 max. (ppm)	30
CO2 recommended (ppm)	<20
Heavy metals	0.05
Silica (ppm)	30
Temperature (°C)	1-40

**Product Specifications**

Boost Pump	Yes
Flow Rate (l/hr)	20
Max. usage (l/day)	480
Dry Weight (kg)	17.4

**Product Water Specifications**

Model	PC120COBPM1-TOC
Dispense Flow Rate (L/Min)	≤ 1.5
pH	Effectively Neutral
Inorganics at 25°C	Up to 18.2
Temperature (°C)	Ambient
Total Organic Carbon (TOC)	<5 ppb
Bacterial Spec	<0.001 CfU/ml with POU filter LC134 or Biofilter LC197
Endotoxin	<0.001 EU/ml with Biofilter LC197
Particles*	0.2µm
Dnase	<5 pg/ml
Rnase	<1 pg/ml

\*With a Point-of-Use filter fitted

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## 15.2 Water System Limited Warranty

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

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