

# ROC

## REVERSE OSMOSIS WATER FILTER OPERATOR MANUAL



**STARLINE**<sup>®</sup>  
PROFESSIONAL WASH SYSTEMS

## Warnings



Before installation and commissioning, you must read the safety instructions and warnings carefully and all the warning labels attached to the equipment.

Equipment contains dangerous voltages and can be hazardous if installed or operated incorrectly. Non-compliance with warnings or failure to follow the instructions contained in this manual can result in loss of life, severe personal injury or serious damage to property.

Before installation or repair, you must read the instructions and warnings carefully and all the warning labels attached to the equipment.

All service/repair work must be carried out by qualified personnel only and ensure compliance with all local codes and standards including AS/NZS 3500.1.

## Important Information



Failure to comply (even partially) with the instructions given in this manual will invalidate the product warranty and relieves the manufacturer of any responsibility.

The alteration of machine operation, design or the replacement of parts not approved by the manufacturer may void warranties and approvals.

This machine is intended for commercial use only.

The machine is designed solely for cleaning crockery (porcelain, glass, ceramic, temperature-resistant plastics, stainless steel or similar) from the food industry.

This machine is not intended for washing: containers that do not come into contact with foodstuffs, animals, textiles or foodstuffs intended for further consumption.

We have checked that the contents of this document correspond to the model described. There may be discrepancies nevertheless, and no guarantee can be given that they are completely identical. The information contained in this document is reviewed regularly and any necessary changes will be included in the next edition. We welcome suggestions for improvement.

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# Safety Instructions

## Installation

- Use qualified, skilled personnel.
- Follow installation instructions.
- Connect to correct voltage and supply current.
- Ensure fully accessible electrical isolation switch and water supply valves.

## Training and Supervision

- Read and understand these operating instructions and train all staff.
- This appliance must not be operated by children or infirm persons.
- Machine panels must only be removed by suitably qualified and trained personnel – internal hazards may include live electrics.
- No part of this appliance is intended for use as a stepladder.

## Cartridge Replacement

- Turn off power and unplug machine from mains before replacing water filtration cartridge.
- Turn off the water valve in the tank and release water pressure from the lines.
- To replace the Pre-Filter cartridge, use the supplied wrench to open pre-filter housing.
- To replace the RO Membrane, remove top cover from ROC, press BLUE button on top of the membrane head to unlock, and then turn the RO membrane clockwise.

## Chemicals

- Commercial glasswasher detergents are hazardous – handle with care.
- Read and follow the safety information found on the labels of detergent containers and Material Safety Data Sheets.
- Use protective eyewear and clothing if decanting containers.

## Improper Use

- This unit is only intended to supply filtered water to a commercial glasswashing machine and should not be used for any other purpose.

## Cleaning

- Do not hose down the unit or splash water over the exterior.

## Water Leaks

- If the unit develops a leak disconnect the power by pulling the plug out of the wall socket, then turn off the water supply and contact your service agent.

## Service/repair

- Under no circumstances the user should attempt to carry out repairs.
- All service/repair work must be carried out by qualified personnel only.

## Power Cord Replacement

- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person in order to avoid a hazard.

## Warnings



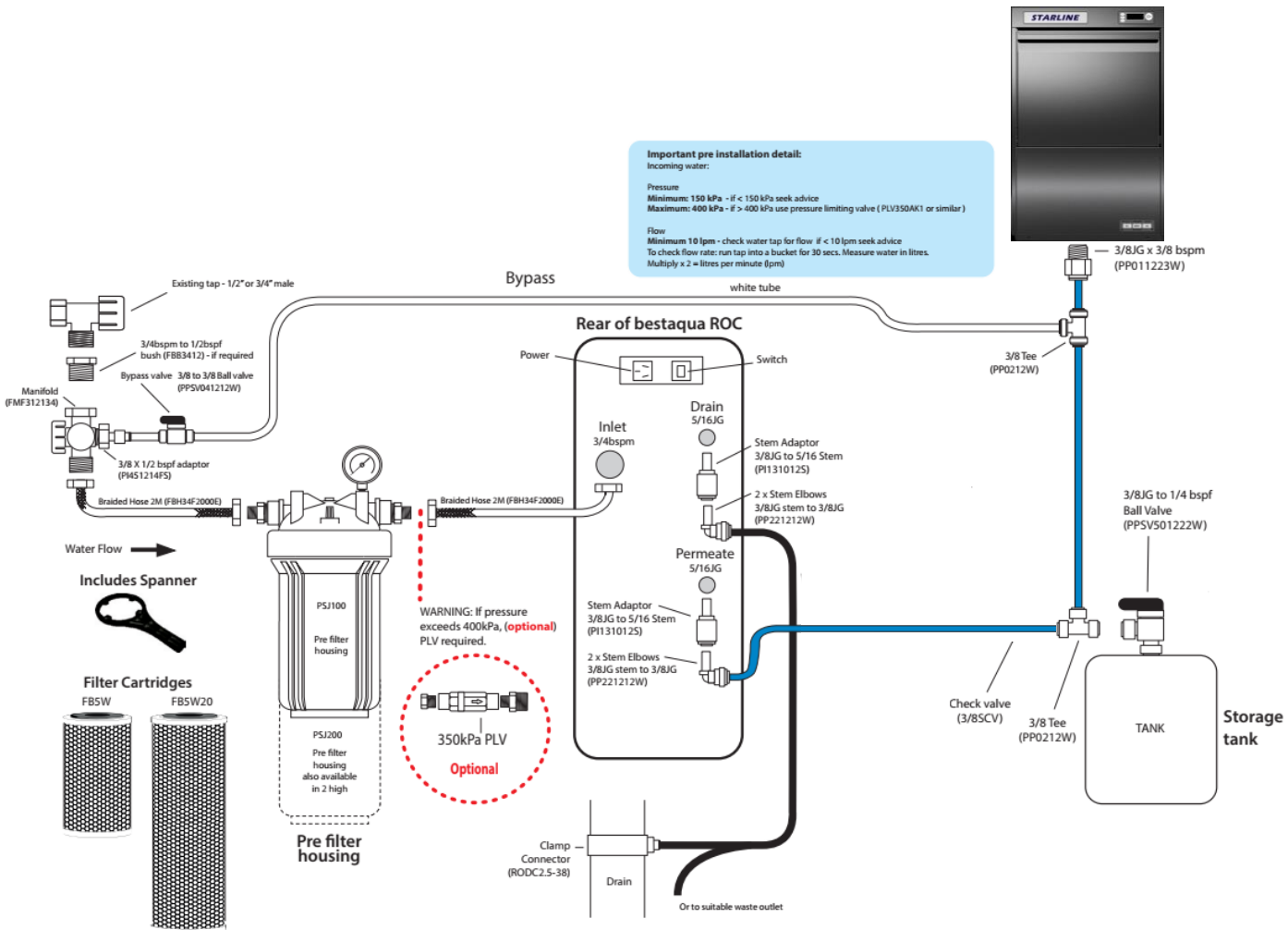
Equipment contains dangerous voltages and can be hazardous if installed or operated incorrectly. Non-compliance with Warnings or failure to follow the instructions contained in this manual can result in loss of life, severe personal injury or serious damage to property.

Installation and servicing must be carried out by a suitably qualified person in compliance with all local codes and standards including AS/NZS 3500.1.

# Installation Diagram

## ROS Installation Diagram

- Part #: SROC0020
- Date: 22/10/2020
- Version: 1-A



# Installation Instructions

## Unpack

- Unpack the unit, check for damage and complete delivery.
- It is supplied with a complete set of hoses to enable connection from water supply through to a single glasswasher.

## Positioning

- Place ROC and storage tank on sound waterproof self-draining floor.
- Either place the pre-filter on sound waterproof self-draining floor, or fix this to the wall, benching etc. with the supplied bracket.



NOTE: Use of the pre-filter is recommended to extend the useful life of the more expensive RO membrane. Use of the water storage tank is recommended to provide rapid filling at the start of the day and extend the useful life of the pump in the ROC.

## Inlet Water – Cold

- Temperature: 5°C to 20°C.
- Connection: 20 mm (3/4" BSP) male – flexible hose supplied.



NOTE: Flush supply lines before connection. Poor quality water supply or excessive water hardness may affect performance or damage the ROC filtration unit and/or the dishwasher.

NOTE: Do NOT connect to hot water. This will damage the RO membrane and significantly shorten its useful life.

- Flow rate required: minimum 10L per minute.
- Pressure required: 150kPa to 350kPa

## Power

- Electrical supply required is 1p/0.3A 230V 50Hz via switched outlet adjacent to the unit.
- Supplied with cord set including 1p/10A plug.

## Waste

- Connect bypass water output hose to a suitable drain waste.

## Installation Troubleshooting

- If machine doesn't fill after switching on power, check and ensure that cold water supply tap is open and lines have been flushed.

## Water Quality:

- Simple on site tests of the incoming Total Dissolved Solids (TDS) and outgoing TDS and pH levels should be taken and recorded during the installation of the ROC unit (see Calibration and Maintenance sections for full details).
- If there are any concerns around the water quality, a formal water test should be completed.

NOTE: While difficult to test for onsite, areas with known higher chlorine levels should have an increased frequency of Pre-Filter replacement.



NOTE: Like all RO filters, the quality of the outgoing polish-free water from the ROC unit is proportional to the quality of the incoming water. As such, sites with incoming water quality that fluctuate over time will experience fluctuations in their polish-free results when using the ROS unit.

NOTE: Post filters are available to increase the pH back up to a suitable level so as not to damage the glasswasher.

## Dishwasher Setup

- Press the UP, DOWN and START key simultaneously for a few seconds.
- Navigate through settings by pressing the POWER repeatedly till you reach Fill Timeout
- Increase the Fill Timeout value to 20 minutes by pressing the UP key.
- Press START to save changes and exit the menu

# System Calibration

## Important



To achieve optimal polish free results, Washtech have designed Starline glasswashers to be run on a specially formulated detergent and rinse fluid.

To ensure best product performance it is strongly recommended that you use a professional machine servicing agent to install and calibrate the system and service it over it's useful life. Settings will depend on machine and chemical types along with how the machine is operated.

## User Settings on your Starline Glasswasher:

- Press the UP and DOWN key simultaneously for a few seconds.
- Navigate through settings by pressing the POWER key to change the Fill Detergent (F-Det), Cycle Detergent (W-Det) and Cycle Rinse Fluid (W-Rinse Aid) injection times.
- Parameter values can be changed using the UP or DOWN keys.
- Press the START key to save changes and exit menu.
- Run multiple cycles to test the results.



NOTE: Higher dosages of high quality rinse fluid are recommended to accelerate the drying results which optimises the polish free finish. The fizz in carbonated drinks may be compromised when using alternative rinse fluids not specifically designed for use as part of a polish free system. A test should be carried out at the calibration stage to ensure that the fizz in a glass of coke, beer etc. is not impacted, with the rinse fluid dosage to be reduced if it is.

Calibrating the Service Notification to provide a reminder when the pre-filters should next be replaced and the RO membranes checked:

- Press the UP and DOWN and START keys simultaneously.
- Use the POWER key to scroll to the Service Notification section.
- Program in the correct frequency - usually between 7,500 and 18,000 cycles depending on chlorine (and TDS if tested) levels at the site - using the UP and DOWN keys to select the necessary number.
- Let the customer know to call you when the service warning is displayed so you can schedule a time to return and replace the Sediment and Carbon filter, and check the remaining life of the ROS membranes.

When using the recommended Ultimate and Optimum chemicals and the inbuilt chemical pumps, the following fill (F) and cycle (W) dosage settings should be used:

Model	F-Detergent	W-Detergent	W-Rinse Fluid
GM	23sec (9.2mL)	10sec (4.0mL)	30 sec (3.0mL)
GL	10sec (4.0mL)	10sec (4.0mL)	30 sec (3.0mL)
UD	15sec (6.0mL)	10sec (4.0mL)	30 sec (3.0mL)
UL	13sec (5.2mL)	10sec (4.0mL)	30 sec (3.0mL)
M2C	38sec (15.2mL)	10sec (4.0mL)	24 sec (2.4mL)



NOTE: The Starline Polish Free system has been successfully calibrated to work with a range of other chemicals available in the market although it has often required different dosages to do so. If in doubt, please speak with Starline directly and/or your Chemical Specialist.

NOTE: Not all chemicals available on the market will provide polish-free results however and a change in chemical types or brands may be required.

# Operator Use Guide

## ROC Operation

- Once the ROC unit has been plumbed and the water is turned on, plug the power lead for the unit into a power point and turn on the switch.
- Turn the POWER switch on the back of the ROC on.
- A green light on the front of the ROC indicates that the unit is on and operational.

NOTE: scan the following QR code for the link to download the BWT RO app which allows the performance of the unit to be monitored, and settings to be updated. To access the service menu use password 05310.



## Poor polish free results

- Before working on the ROC or glasswasher, ensure that:
  - 1) the glasswasher is being cleaned and maintained correctly,
  - 2) the correct chemicals are being used at the right dosages, and
  - 3) that nothing has changed recently e.g. moved to thinner glassware or started washing dirty cutlery through the machine rather than washing in the main dishwasher and polishing through the glasswasher.
- Check that the incoming water supply to the ROC unit is COLD. Hot water damages the RO membrane and may result in this needing to be replaced.

## Slow water flow rate from the system

- The ROC has an outgoing flow rate of approximately 2.5L/min. If the rate falls significantly below this, the cause is likely to be blocked filters needing replacement or potentially an issue with the internal pump or hoses.
- Always check the water quality inside the pre-filter and TDS differential for the system before replacing filters or membranes; and once pump and hoses have been confirmed as ok, start by replacing the pre-filter before replacing the RO membranes.



NOTE: when replacing the membranes, always replace the two pre-filters as well.

## Poor drying results

- Check the rinse fluid being used and that the correct dosages are being set. If the customer has moved to thinner glassware recently, these will take longer to dry. Either way, moving to tilt racks if they haven't already is a good way to accelerate drying and improve overall results. Drying tables are also available to further improve results.



# System Optimisation

## Chemical

- The dishwasher is supplied with Detergent and Rinse Fluid injector pumps which are easily adjustable via the control panel.
- To connect to chemicals, insert pump inlet hose into containers of commercial low foam detergent and rinse fluid. See System Calibration page for instructions on adjusting the dosages.



NOTE: Polish free results are dependent on using the right concentrations of the right chemicals. An RO system is inclusive of your glasswasher, RO unit, chemicals, operation procedures and drying area. If one of these components is altered without recalibration of the system, inferior polish free results can be expected.

## Recommended Chemicals

Starline has worked with Chemical Solutions Ltd (CSL) to develop the following chemicals to be used with a Starline Glasswasher and Starline Reverse Osmosis system.



### Ultimate Detergent

Automatic liquid detergent for commercial dish and glass machines, designed for reverse osmosis automatic glass and ware machine units. Safe when used as directed on all commercially automatically washed items. Not recommended for aluminium or sensitive metal-constructed kitchen items.

### Features & Benefits

- Delivers exceptional results.
- Ideal for use with any machine type.
- Fitted with the Kemlock closed loop system.
- Septic tank safe, when used as directed.



### Optimum Rinse Fluid

A drying aid concentrate specifically designed for reverse osmosis automatic glass and ware machine units. Significantly reduces or eliminated the requirement for post-clean drying and polishing of glass and dishware, leaving rinsed surfaces dry and spotlessly streak-free.

### Features & Benefits

- Leaves surfaces dry and spotlessly streak-free.
- Ideal for use with any machine type.
- Fitted with the Kemlock closed loop system.
- Septic tank safe, when used as directed.

## Important



If you use different chemicals, you will have to carefully recalibrate the chemical injection levels to compensate for the different formulations and concentrations. Without suitable recalibration, the polish-free results may be negatively impacted.

# System Optimisation

## Pre-rinsing

- Heavily soiled glasses such as those that contained smoothies or other granular drinks should be pre-rinsed.
- Pre-rinse glasses with fresh water only. Do not use chemicals as they will contaminate the machine.

## Machine care

- Carry out proper shut down and cleaning procedures every night to ensure optimum performance of your Starline glasswasher.
- If arm jets and filters are not adequately cleaned blockages can form. This will result in a reduction of spray area, which will reduce the amount of water and chemical dispersed over each glass ultimately having a detrimental impact on both the wash quality and the polish-free results.
- Cleaning instructions are provided with each Starline glasswasher. If you however require copies of these instructions please contact your local Starline dealer.

## Drying Time

- Even with an optimal dosage of Rinse Fluid, glasses must be given the appropriate space and time to dry.
- If space and time is an issue we recommend using both tilt racks and potentially a drying table.

## Tilt Racks

- We recommend using Tilt racks with any Starline Polish Free systems to aid in and accelerate the drying process.



NOTE: Concaved bases of glassware allow chemical saturated water to pool and not drain off of the glasses while in the machine. Once removed from the machine, if the water is allowed to run down the side of the glassware and dry, this is likely to impact the quality of the final polish free result.



## Drying Table

- Drying tables facilitate fast drying of glasses following the washing process generating a quicker polish-free glassware that's ready to be stored and/or reused.

## Replacement Filters

- Cartridge ROC Sediment/Carbon Pre-Filter 600 60548
- Cartridge ROS Membrane 600 60549

Talk to a Starline dealer about tilt rack and drying tables

# Maintenance

## Warnings



Turn off power and unplug machine from mains power supply before replacing water filtration cartridges.  
To prevent flooding turn the valve of the storage tank off before removing/replacing the cartridges.

## Scheduled Maintenance

- When using a Pre-Filter and being correctly maintained, the RO Membranes in the Starline ROC unit will last for tens of thousands of polish free glasswashing cycles.
- The Pre-Filter will need to be replaced more frequently with a standard replacement cycle every 30,000L or approximately 10,000 cycles.
- To adjust settings in the ROC, access the service menu using password: 05310; selecting save after making changes and waiting for an audible signal from the device confirming these have been accepted before selecting next or exit.

## Sediment and Carbon Pre-Filter Maintenance

- The sediment and carbon pre-filter is designed to prevent the largest of particulars from progressing through the ROC and to absorb chlorine and protect the membranes from this damaging chemical.
- While there is not a simple on site test for this, in an average to low chlorine environment, the carbon filter should last around 30,000L to 40,000L of water generated.
- The standard warning in the ROC is set to 40,000L, although for sites with average water quality at times (or if this is unknown) we recommend reducing this to 60,000L to be on the safe side.
- Replacement Part: 600 60548



NOTE: the useful life will reduce as chlorine levels in the site's water supply increase, with a strong recommendation to err on the side of caution.

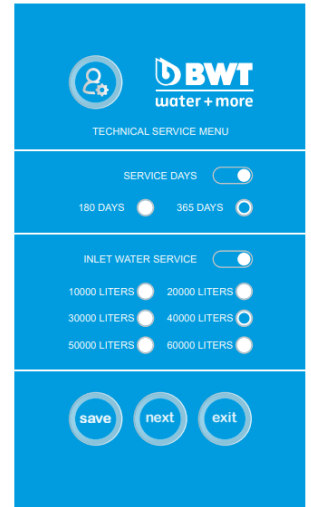
## RO Membrane Maintenance

- The RO membranes are what produce the highly filtered water necessary to generate polish free results, removing more than 90% of the dissolved solids in the water.
- When adequately protected from larger sediments and chlorine through an adequate and regular replacement rhythm of the pre-filter, the RO membrane should last at most polish-free glasswashing for years.
- The ROC has built in TDS metres on the incoming and outgoing water lines and is constantly monitoring the differential. The standard warning on the ROC is a 30% degradation in performance, although this can be increased to 40% at sites with reasonably good water quality.
- Replacement Part: 600 60549



NOTE: RO membranes must be connect to cold inlet water, and are damaged by hot incoming water.

NOTE: To replace the membrane, remove top cover from ROC, press BLUE button on top of the membrane head to unlock, and then turn the RO membrane clockwise.



### Service Days:

- default: ON / 365
- recommended: OFF

### Inlet Water Service:

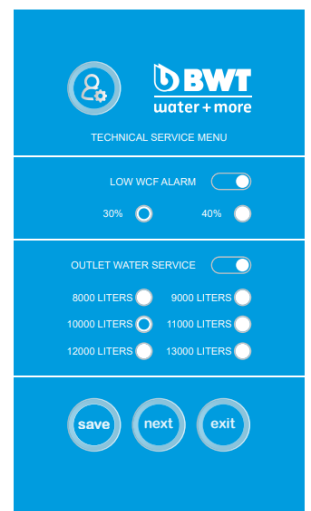
- default: ON / 40k
- recommended: ON / 60k

### Low WCF Alarm:

- default: ON / 30%
- recommended: ON / 40%

### Outlet Water Service:

- default: ON / 10,000
- recommended: OFF



# Troubleshooting

## Status and Alert LED on ROC

- Green / illuminated: Power is on and the ROC is producing purified water correctly.
- Yellow / illuminated: Power is on and the ROC is producing purified water – however, the RO results have degraded and the Membrane may need to be replaced.
- Blue / illuminated: Mobile device connected to ROC via
- Blue / flashing: Bluetooth connection interrupted
- Red / flashing: Fault – use app to diagnose cause

## Fault Messages and Corrections



System losing pressure in “Tap” mode, or permeate line leaks.

- Switch off device.
- Check for and repair leaks.
- Switch the unit back on.



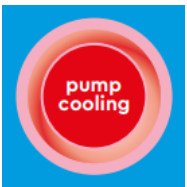
Leakage in the device itself. This may be caused by either a leak or excessive ambient humidity.

- Switch off the device.
- Check and repair any leaks.



Inlet water fault:

- Inlet water pressure too low
- Inlet water line closed off
- Inlet water lead is compromising water pressure



Running time of the pump exceeded, bi-metallic switch triggered and thermal overload protecting pump.

- Pump will cool down before switching on.
- Installing water storage tank (if not fitted) will help reduce the load on the pump and repeat overheating issues.
- Increasing tank hysteresis to between 1.6 and 1.8 bar will also minimise switching cycles on the pump



Unrecognised Fault:

- Contact Washtech immediately for further assistance.

# Notes

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