

BG-RO-501

RO PURIFIER

Installation, operation &
maintenance manual

Reverse osmosis water purification system



**RO
WATER
PURIFIER**

MULTI STAGE REVERSE OSMOSIS PURIFIER



**MULTI STAGE
PURIFICATION**

1. INTRODUCTION

Thank you for choosing this reverse osmosis (RO) water purification system.

This is a standard, multi-stage reverse osmosis system designed to provide purified drinking water. The system uses pre-filtration, reverse osmosis and post-filtration to reduce contaminants and improve the taste and quality of the treated water.

Please read this manual carefully before installing or operating the system. Following the correct installation, start-up and maintenance procedures will help ensure reliable operation and extend the service life of the system.

FILTRATION STAGES

Stage 1 – Spun PP Sediment filter

Removes larger suspended particles and sediment from the incoming water.

Stage 2 – Granular Activated Carbon (gac) filter

Reduces chlorine, odours, unpleasant tastes and certain organic contaminants.

Stage 3 – Carbon Block (cto) filter

Provides additional reduction of chlorine, odours, unpleasant tastes and fine particles.

Stage 4 – Reverse Osmosis (RO) membrane

Reduces dissolved solids, salts, heavy metals, bacteria and other contaminants present in the feed water.

Stage 5 – Inline Taste & Odour-filter

Improves the taste and odour of the treated water before it reaches the faucet.

Optional stage 6 – Mineral filter

May be fitted as an optional post-treatment stage to add selected minerals back into the treated water.

2. PACKAGE CONTENTS

Before beginning installation, check that all components are present.

- | | |
|---------------------------------------|------------------------------|
| 1. Feed Water Valve | 10. Flow Restrictor |
| 2. Tee Fitting | 11. Drain Restrictor |
| 3. PP Spun Filter | 12. High Pressure Switch |
| 4. Granular Carbon Filter | 13. Ball Valve |
| 5. Carbon Block Filter | 14. Pressure Tank |
| 6. 4 Way valve | 15. T33 Inline Carbon Filter |
| 7. Auto Shut Off Valve/Solenoid Valve | 16. Faucet |
| 8. Membrane Housing | 17. Fittings and tubing |
| 9. RO Membrane | |

If any component is missing or damaged, contact your supplier before proceeding with installation.

3. TECHNICAL SPECIFICATIONS

SPECIFICATION	DETAILS
Ro membrane	50/75/100/150/200gpd
Maximum recommended feed tds	<1000 ppm
Maximum chlorine level	<0.2 Ppm*
Min pressure	50kPa
Max pressure	600kPa
Average ro rejection rate	up to 98%*
Feed water temperature	5°C–45°C

4. BEFORE YOU START

Read this manual completely before beginning installation or operating the system.

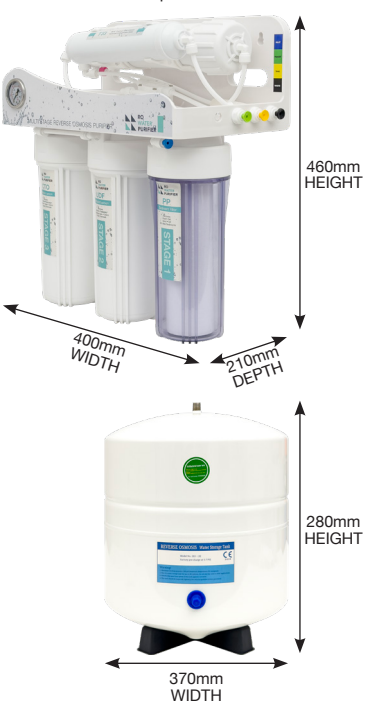
Failure to follow the installation and operating instructions may result in incorrect operation, water leakage or damage to the system.

IMPORTANT REQUIREMENTS

- Install the system using a cold, potable water supply only.
- Do not connect the system to a hot water supply.
- Feed water temperature must be between 5°C and 45°C.
- Feed water pressure must remain within the operating pressure specified for the system.
- If the incoming water pressure exceeds the maximum allowable pressure, a pressure-reducing valve may be required.
- Do not install the system on visibly contaminated water sources such as raw sewage.
- Well water or other non-potable water sources may require additional pre-treatment before being connected to the ro system.
- All components and tubing must be protected from freezing temperatures and direct sunlight.

NOTE: Water quality and usage will affect filter and membrane service life. Filter replacement intervals provided in this manual are guidelines only.

NOTE: Leave enough space on the side of the unit for all water and power connections.



Disclaimer: Limits apply to water quality and quantity that the unit can handle. Have your water tested before installation to ensure that it is the right solution. It is important to note that the volume and quality of water will greatly influence the working of the unit and lifetime of parts.

5. SAFETY INSTRUCTIONS

Please observe the following safety precautions during installation and operation.

WARNING

- Do not disassemble, modify or tamper with the internal components of the system.
- Do not operate the unit if any component is damaged.
- Do not cover the system. Adequate ventilation is required for heat dissipation.
- Do not place objects on top of the unit.
- Do not operate the system outside the recommended pressure and temperature limits.
- Never connect the system to a hot water supply.
- Keep the electrical components and power connections dry.
- Keep the system and all small components out of reach of children.

Failure to follow these precautions may result in equipment damage, water leakage, electric shock, fire or personal injury.

6. HOW THE SYSTEM WORKS

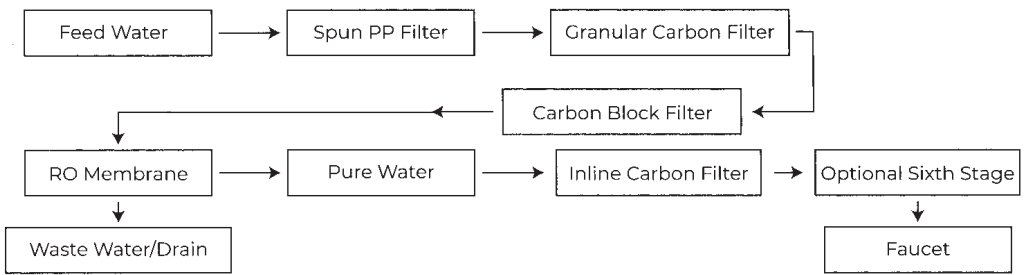
The system treats incoming water through a series of filtration stages.

First, sediment and larger particles are removed by the pp sediment filter. The water then passes through activated carbon filters, which reduce chlorine, odours, tastes and certain organic contaminants.

The pre-treated water then enters the ro membrane. The ro membrane removes a large proportion of dissolved contaminants and dissolved solids from the water.

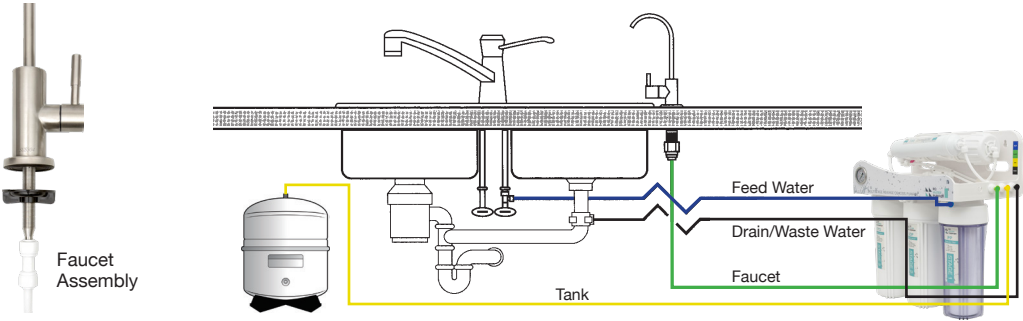
The purified water is then passed through the post-filter before being delivered to the drinking water faucet.

The system also produces reject water during the reverse osmosis process. This water is discharged to the drain.



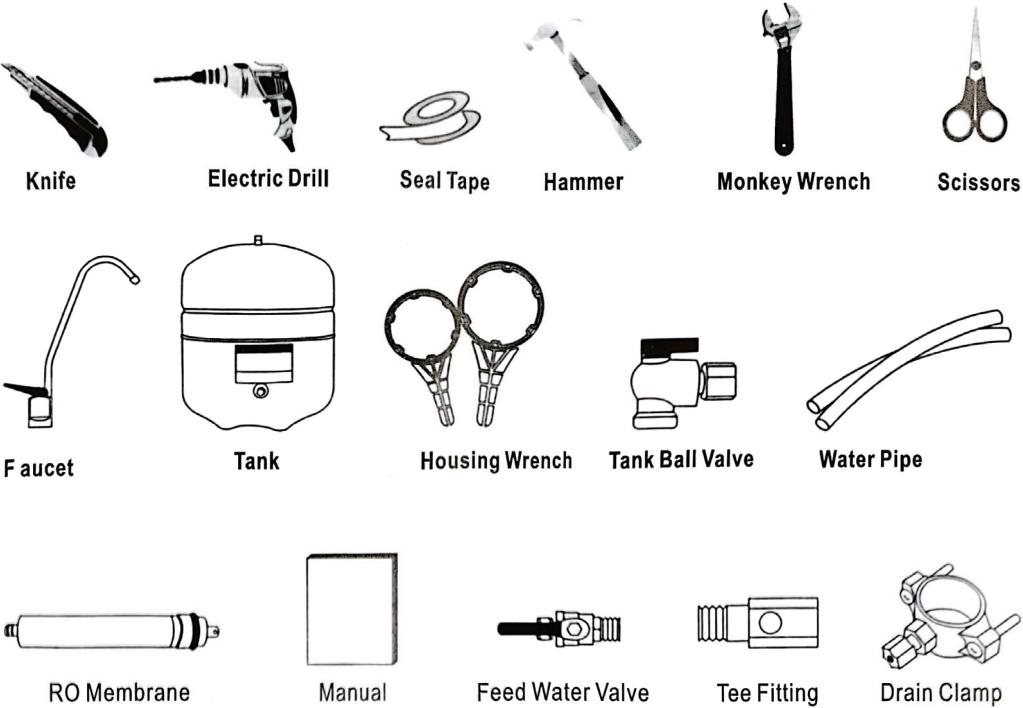
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7. INSTALLATION



Required tools and materials. Depending on the installation location, the following tools may be required:

- Adjustable spanner • Drill • 6 mm drill bit for drain clamp installation • 12 mm drill bit for faucet installation
- Screwdriver • Ptfе/teflon tape • Sharp utility knife or tubing cutter • Container or bucket for flushing



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8. UNIT PLACEMENT

The RO unit may be installed upright or horizontally, depending on the available space and the configuration of the unit.

The system may be installed:

- Inside a cabinet
- Under a kitchen sink
- Beside the cabinet
- In another suitable protected location

When selecting the installation location, ensure there is:

- Access to a cold potable water supply.
- Access to a suitable drain connection.
- Enough space to access the filters and housings for future maintenance.
- Sufficient space around the unit for inspection and servicing.

The feed water connection should be positioned as close to the unit as reasonably possible.

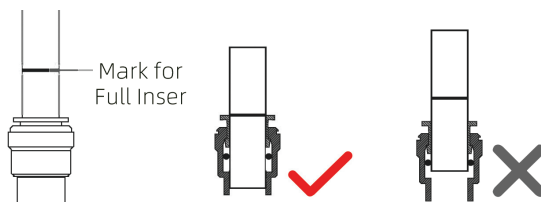
IMPORTANT: do not install the unit where it will be exposed to freezing temperatures, excessive heat or direct sunlight.

9. TUBING CONNECTIONS

The system uses quick-connect fittings. Always ensure tubing is inserted fully into the fitting.

- Quick-connect fittings
- Cut the tubing squarely.
- Push the tubing firmly into the fitting until it is fully seated.
- Gently pull on the tubing to confirm that it is securely locked into position.
- Check the connection for leaks once the water supply is turned on.

NOTE: incorrectly installed tubing can cause leaks, poor system performance or loss of water pressure.

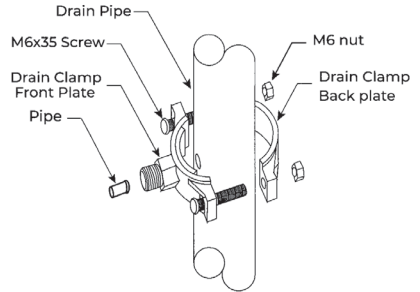


10. DRAIN CLAMP INSTALLATION

The drain clamp provides a connection for the reject water produced by the ro system.

Procedure

- Position the drain clamp on the drainpipe above the drain trap.
- Tighten the drain clamp securely.
- Using the drain clamp as a guide, mark the position of the tubing hole.
- Drill a 6 mm hole through one side of the drainpipe only.
- Do not drill through both sides of the drainpipe.
- Insert the reject-water tubing into the drain clamp connection.
- Connect the other end of the tubing to the appropriate reject-water outlet on the ro system.
- Check the connection to ensure the tubing is secure.



IMPORTANT: When cutting ro tubing, always make a clean, straight cut. Angled or damaged tubing ends may result in poor connections and leaks.

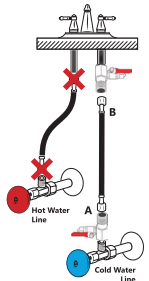
The tubing should run continuously downward toward the drain connection. Avoid creating low points or sagging sections in the tubing, as these may cause excessive noise while reject water is flowing to the drain.

11. FEED WATER VALVE AND TEE FITTING

The feed water valve provides the connection between the household cold-water supply and the ro system.

Procedure

- Shut off the household water supply before beginning installation.
- Install the tee fitting according to the installation diagram.
- Apply ptfе/teflon tape to the threaded connections where required.
- Install the feed water valve onto the tee fitting.
- Ensure all threaded connections are securely tightened.
- Connect the white feed water tubing from the ro system to the feed water valve.
- Ensure the tubing is fully inserted and securely connected.
- Turn on the water supply slowly.
- Check all connections for leaks.



CAUTION: The ro system must be connected to a cold-water supply. Hot water can damage the filters, ro membrane and other components of the system. Using softened feed water may help extend the service life of the ro membrane.

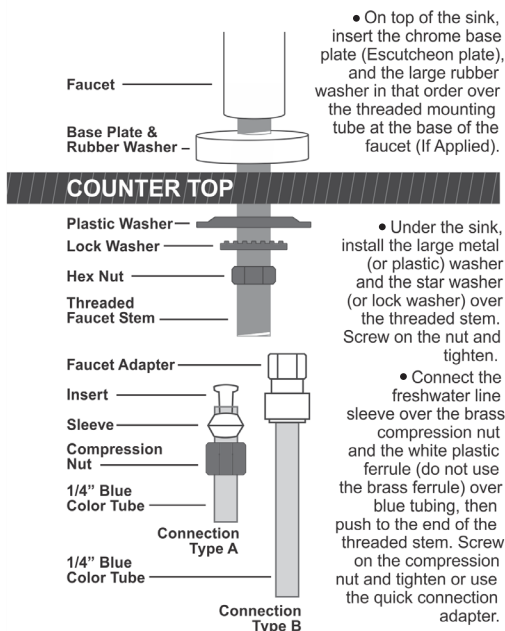
Disclaimer: Limits apply to water quality and quantity that the unit can handle. Have your water tested before installation to ensure that it is the right solution. It is important to note that the volume and quality of water will greatly influence the working of the unit and lifetime of parts.

12. FAUCET INSTALLATION

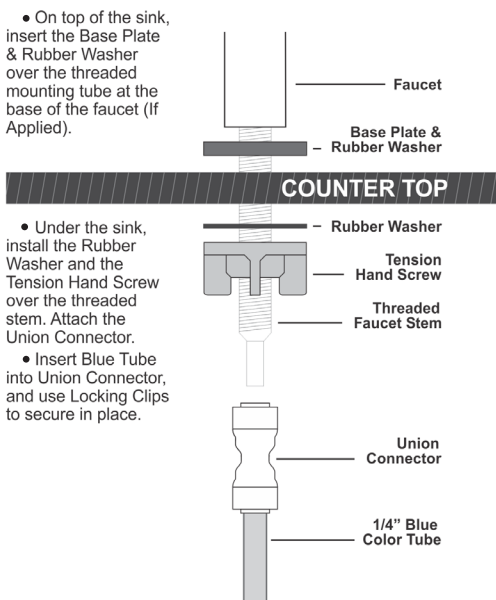
Procedure

- Required Tools and Materials. The following tools and materials may be required: Hand drill
 - Appropriate drill bit or hole saw suitable for the countertop material
 - Pipe cutter
 - PTFE (Teflon) tape / thread seal tape
 - Needle-nose pliers
 - Purified water faucet kit
 - PE tubing
- Determine the most suitable location for the faucet on the countertop or sink.
- NOTE: If a suitable pre-existing hole, is available, it may be used to install the faucet.
- Drill a suitable hole using the appropriate hole saw for the countertop or sink material.
- Remove any drilling debris and clean the area around the hole.
- Remove the mounting nut from the faucet stem. Slide the stainless-steel base plate onto the threaded stem with the flat side to the top, removing any protective film if present. Then slide the large rubber washer onto the stem with flat side to the bottom. Insert the faucet stem through the drilled hole in the counter top or sink.
- From underneath the countertop or sink, install the thin rubber washer onto the threaded stem. Secure the faucet assembly by tightening the plastic mounting nut. Ensure that the faucet is firmly secured and does not rotate.
- Cut a suitable length of PE tubing. Connect one end of the tubing to the faucet and the other end to the pure water outlet on the main unit using the appropriate quick-connect fittings.

Version 1



Version 2 - Quick Connect



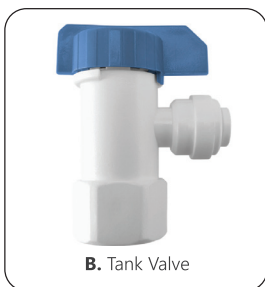
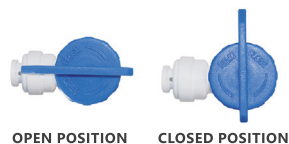
13. STORAGE TANK INSTALLATION AND CONNECTION

The storage tank is used to store purified water produced by the RO system. Follow the steps below to install and connect the tank correctly.

- **Position the Storage Tank.** Place the storage tank on a stable, level surface close to the RO purifier. Ensure that there is sufficient space around it for inspection, servicing and connection of the tubing.
- **Install the Tank Valve.** Ensure that the tank valve is in the closed position before connecting the tank. If the tank valve has not been installed, screw the valve onto the threaded connection on the top of the tank. Apply PTFE (Teflon) tape to the threaded connection if required. Tighten the valve securely by hand and then tighten it slightly further with a suitable wrench if necessary. Do not overtighten, as this may damage the tank or valve.
- **Connect the PE Tubing.** Cut the PE tubing cleanly and squarely. Ensure that the end of the tubing is smooth and free from damage. Push one end of the PE tubing firmly into the quick-connect fitting on the tank valve until it is fully inserted. Gently pull the tubing outward to confirm that it is securely locked into the fitting.
- **Connect the Tank to the RO Purifier.** Connect the other end of the PE tubing to the pure water outlet of the RO purifier. Ensure that the tubing is routed neatly and is not kinked, crushed or sharply bent.
- **Open the Tank Valve.** Once all connections have been completed and checked, slowly open the tank valve. Inspect the tank valve, tubing connections and the purifier connection for leaks. If a leak is detected, close the tank valve and water supply immediately. Correct the connection before continuing operation.
- **Initial Tank Filling.** Allow the RO system to produce purified water and fill the storage tank. During the initial installation, discard the first tank of purified water before drinking. This helps flush any remaining preservative solution, carbon fines or manufacturing residues from the system.

After the first tank has been filled, open the purified water faucet and allow the tank to drain completely. Repeat the filling and draining process if specified by the filter or membrane manufacturer's commissioning instructions.

IMPORTANT: Do not operate the system with the tank valve closed when the RO system is designed to fill the storage tank. Ensure that the tank valve is fully open during normal operation.



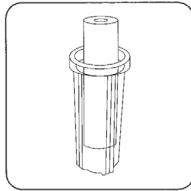
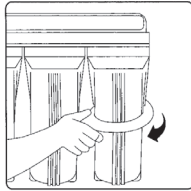
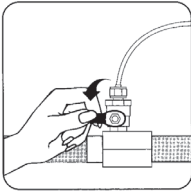
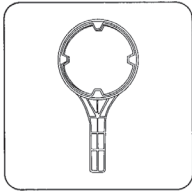
Disclaimer: Limits apply to water quality and quantity that the unit can handle. Have your water tested before installation to ensure that it is the right solution. It is important to note that the volume and quality of water will greatly influence the working of the unit and lifetime of parts.

14. INSTALLING THE PRE-FILTERS

Filter order: From the feed-water side, the filters must be installed in the following order: **PP • GAC • CTO**

Procedure: IMPORTANT: do not overtighten the filter housings.

- Remove the filter cartridges from their packaging.
- Confirm that the correct filter cartridge is being installed in each housing.
- Remove packaging from filters before inserting into the housings.
- Install the PP filter in the first housing.
- Install the GAC filter in the second housing.
- Install the CTO filter in the third housing.
- Ensure each cartridge is correctly seated.
- Install 2x Orings per housing as supplied.
- Install the filter housings.
- Hand-tighten each housing securely.
- Use the supplied housing wrench only if additional tightening is required.
- Ensure each housing is correctly aligned and level to reduce the possibility of leaks.



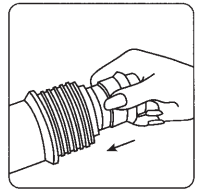
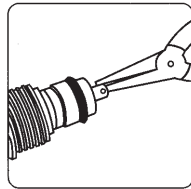
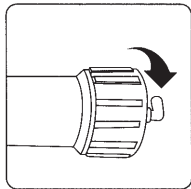
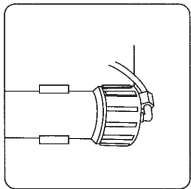
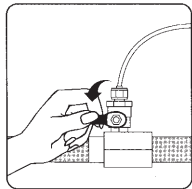
15. RO MEMBRANE INSTALLATION

The RO membrane must be installed correctly before the system is placed into normal operation.

IMPORTANT: the pre-filters must be flushed thoroughly before the ro membrane is placed into normal operation.

Procedure

- Remove the ro membrane housing cap using the supplied housing wrench.
- Remove the ro membrane from its packaging.
- Inspect the membrane and sealing rings for damage.
- Insert the ro membrane into the membrane housing.
- Ensure the end of the membrane with the two small o-rings is inserted into the housing first.
- Push the membrane firmly into position.
- Refit the membrane housing cap.
- Tighten the cap securely using the supplied wrench.
- Do not overtighten.



16. INITIAL SYSTEM START-UP AND PRE-FILTER FLUSHING

The pre-filters must be flushed before the ro membrane is put into normal operation.

This removes carbon fines, manufacturing residue and other particles that may be present in new filter cartridges.

Pre-filter flushing procedure

- Ensure the ro membrane is isolated from the water flow according to the system connection diagram.
- Open the main water supply.
- Open the feed water valve.
- Allow water to flow through the three pre-filters.
- Direct the pre-filter outlet water into a suitable container or drain.
- Continue flushing until the water runs clear and is visibly free of carbon fines or particles.
- Once flushing is complete, reconnect the tubing to the ro membrane inlet.
- Check all tubing connections.
- Open the required valves.

WARNING: do not use the water collected during the initial filter-flushing process for drinking or cooking.

17. INITIAL RO SYSTEM FLUSH

Once the pre-filters have been flushed and the ro membrane has been correctly connected:

- Open the feed water valve.
- Allow the system to operate.
- Wait approximately 2 minutes before opening the drinking water faucet.
- Open the drinking water faucet.
- Allow the system to flush continuously for approximately 10–15 minutes.
- Discard all water produced during this initial flush.
- Do not consume the water during the initial flushing period.

18. PRESSURE TANK FLUSHING

After the initial system flush, allow the system to operate until the pressure tank is full.

The tank will take approximately 1 Hours to fill, depending on feed-water pressure, water temperature, membrane condition and system configuration.

Procedure

- Allow the system to operate until the pressure tank is full.
- Once the tank is full, open the drinking water faucet.
- Allow the tank to discharge completely.
- Close the faucet once the tank is empty.
- Allow the tank to fill again.
- Once the second fill cycle is complete, the system can be placed into normal operation.



IMPORTANT: discard the water from the initial tank flush. It should not be consumed.

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19. REGULAR OPERATION

Once installation and initial flushing have been completed, the system is ready for normal operation. For systems equipped with a pump and automatic controls:

- Ensure the feed water valve is open.
- Open the drinking water faucet.
- The system will begin producing purified water.
- Close the faucet when sufficient water has been dispensed.
- The system will stop automatically when the required operating conditions are met.

20. FILTER MAINTENANCE

Regular filter replacement is essential for maintaining water quality and system performance.

Filter life depends on:

- Feed-water quality
- Feed-water pressure
- Water consumption
- Sediment levels
- Chlorine levels
- Hardness
- System operating conditions

The following replacement intervals are guidelines only.

Recommended replacement intervals

PP SEDIMENT FILTER

Replace every 3–6 months, or sooner if required.

CARBON FILTERS

Replace every 3–6 months, or sooner if required.

RO MEMBRANE

Replace approximately every 18–24 months, or when performance has deteriorated.

INLINE CARBON POST-FILTER

Replace every 6–12 months, or sooner if required.

Actual replacement intervals may vary according to the quality of the incoming water and the amount of water consumed. If in doubt, contact your supplier or a qualified water-treatment technician.

21. LONG-TERM SHUTDOWN

If the system will not be used for an extended period:

- Close the feed water valve.
- If required, drain the system and pressure tank.
- Protect the system from freezing temperatures and direct sunlight.

When restarting the system to service after an extended shutdown, repeat the appropriate flushing procedure described in the initial system start-up section before consuming the water.

22. FILTER REPLACEMENT

Procedure

- Close the feed water valve.
- Open the drinking water faucet.
- Allow the system to depressurise and drain.
- Close the faucet.
- Remove the filter housings or filter cartridges, depending on the system configuration.
- Remove the used filter cartridges.
- Install the replacement filters in the correct order:

PP • GAC • CTO

- Reconnect all tubing and fittings.
- Ensure all connections are secure.
- Open the feed water valve slowly.
- Check all filter housings and tubing connections for leaks.
- Flush the new pre-filters thoroughly before returning the system to normal operation.

NOTE: refer to the tubing connection diagrams in the installation section when reconnecting quick-connect fittings.

23. RO MEMBRANE REPLACEMENT

Procedure

- Close the feed water valve.
- Open the drinking water faucet.
- Allow the system to depressurise.
- Close the faucet.
- Disconnect the tubing from the ro membrane housing if required.
- Remove the ro membrane housing cap using the supplied wrench.
- Remove the used ro membrane.
- Inspect the membrane housing and sealing surfaces.
- Install the new ro membrane in the correct orientation.
- Ensure the membrane is fully seated.
- Refit the membrane housing cap.
- Reconnect all tubing.
- Open the feed water valve slowly.
- Check all connections for leaks.
- Flush the system thoroughly before consuming the purified water.

Follow the initial flushing procedure described in this manual whenever a new ro membrane is installed.

24. TROUBLESHOOTING

The following table provides basic troubleshooting guidance.**Procedure**

PROBLEM	CAUSE	SOLUTION
No purified water	Water supply is turned off	Open the feed water valve and check the household water supply.
No purified water	Feed water line is blocked.	Check the feed water tubing for restrictions or blockages.
No purified water	Feed water valve is blocked.	Check the feed water valve and clean or replace it if necessary.
Low purified-water production	Low feed-water pressure.	Check the incoming water pressure and ensure it is within the recommended operating range.
Low purified-water production	Pre-filters are blocked.	Replace the pre-filter cartridges.
System does not shut off	Automatic shut-off control is not functioning correctly.	Have the automatic shut-off system inspected, repaired or replaced if necessary.
No reject water to drain	Blocked drain flow restrictor.	Inspect the drain flow restrictor and replace it if necessary.
Tubing connection leaks	Tubing is incorrectly installed.	Remove and reinstall the tubing correctly.
Tubing connection leaks	Tubing is damaged.	Replace the damaged section of tubing.

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25. SAFETY AND SERVICE

This appliance is designed to operate according to the instructions and specifications provided in this manual.

Do not operate the system outside of its specified operating conditions.

Do not modify or tamper with the system. Unauthorised modifications may result in equipment damage, water leakage, electric shock, fire or personal injury and may void the warranty.

Electrical safety

- Confirm that the electrical supply is suitable before connecting the system.
- Incorrect voltage may damage the system and create a fire or electrical-shock hazard.
- Do not use the system if the power cord, plug or electrical components are damaged.
- If the power cord is damaged, disconnect the unit from the electrical supply immediately and discontinue use.
- Keep electrical connections dry at all times.
- Water temperature

Do not connect the ro system to a hot-water supply.

The system is designed for use with cold potable water within the specified temperature range.

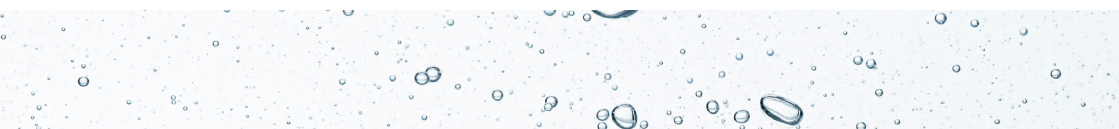
Service

If the system requires repair or service that cannot be safely completed using the procedures in this manual, contact your supplier or a qualified water-treatment service technician.

26. SAFETY WARNINGS & PRECAUTIONS

WARNING: Failure to follow these instructions may result in equipment damage, water leakage, electric shock, fire or personal injury. This appliance is not intended to be operated, serviced or maintained by children or by persons with reduced physical, sensory or mental capabilities unless they have been given appropriate supervision or instruction by a responsible person.

- Children must be supervised to ensure they do not play with or operate the system.
- Keep small components, tubing, fittings and filter cartridges away from children.
- Persons who may have difficulty safely operating or servicing the system should only use it under appropriate supervision.
- Installation, servicing and filter replacement should be carried out by a responsible adult or suitably qualified person.
- Ensure the feed water shut-off valve and electrical isolation point remain accessible to a responsible adult in case of an emergency.



EMERGENCY SHUT-OFF

If you notice a leak, electrical fault, unusual noise, smoke or other unsafe condition:

1. **CLOSE** the feed water valve.
2. **DISCONNECT** the electrical supply if safe to do so.
3. **DO NOT** operate the system.
4. Contact your supplier or a qualified service technician.

IMPORTANT: Water and electricity can be dangerous. Always shut off the water and electrical supply before servicing the system.

27. IMPORTANT REMINDER

For the best performance and longest service life:

- Use only cold potable feed water.
- Maintain the recommended feed-water pressure.
- Replace filters at the recommended intervals.
- Flush new filters before normal operation.
- Replace the ro membrane when required.
- Inspect the system regularly for leaks.
- Keep the system protected from freezing temperatures and direct sunlight.
- Follow all electrical safety precautions.
- Do not modify or bypass system safety controls.

Proper installation and regular maintenance are essential for reliable operation and consistent purified-water quality.



Service & Maintenance Record

[illegible]

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