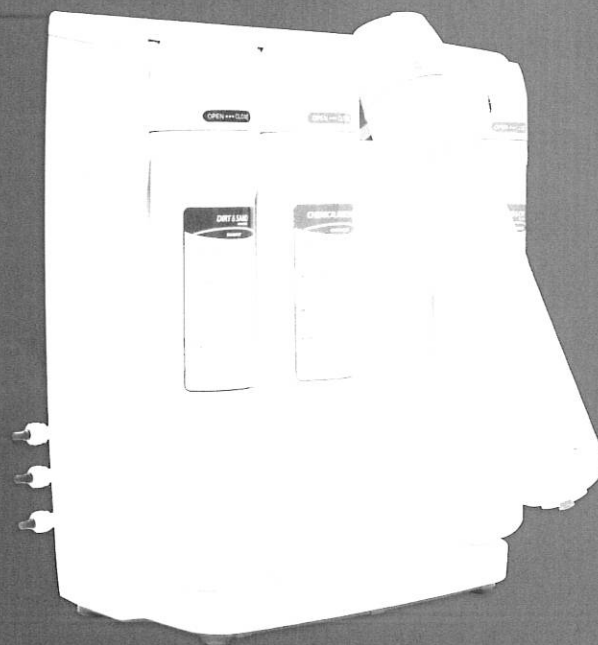


INSTALLATION & MAINTENANCE GUIDE

RO FILTRATION SYSTEM

4STAGE



Note : Please read through the instructions carefully before using or installing the product and ensure that the manual is kept in a safe place for future reference.
The system must be properly installed and located in accordance with the installation instructions before it is used.

1. Safety Instructions

Attention M9 QUICK CHANGE RO WATER FILTRATION SYSTEM Customer

This system is intended for use on potable water supplies or disinfected water containing cysts. Do not use where water is microbiologically unsafe or with water of unknown quality. If bacterial contamination is present, a recognized method of water disinfection is required.

The M9 QUICK CHANGE RO WATER FILTRATION SYSTEM contains a replaceable reverse osmosis membrane filter which is critical for the effective reduction of Total Dissolved Solids. The filtered water should be tested periodically to verify that the system is performing properly.

SAFE PRACTICES

Throughout this manual there are paragraphs set off by special headings.

Note : Note is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard. Example :

Note : The nipple must extend no more than 1 inch above the cover plate.

Caution is used when failure to follow directions could result in damage to equipment or property. Example :



CAUTION! Disassembly while under water pressure can result in flooding.

Warning!: Warning is used to indicate a hazard which could cause injury or death if ignored. Example:



WARNING! Electrical shock hazard! Unplug the unit before removing the timer mechanism or cover plates!

2. Specifications

Stage 1	Stage 2	Stage 3	Stage 4	Storage Tank	Faucet
Sediment Filter	Activated Carbon Filter	Reverse Osmosis Membrane	Activated Carbon Filter	TP-12P	NCPV 893 CP-KR01

Daily Production Rate*

L/day (G/day) 76.8(20.3)

Typical System Flow Sequence Sediment Filter → Activated Carbon Prefilter
→ Reverse Osmosis Membrane → Storage Tank
→ Activated Carbon Postfilter
→ Dispensing Faucet

Sediment Filter (Stage 1) 5 Micron

Activated Carbon Prefilter & Postfilter (Stage 2&4) Carbon Block 5 Micron

Reverse Osmosis Membrane (Stage 3) Thin Film Composite

Storage Capacity Metal - Capacity 3.2 Gallon (12 Liters)

Replacement Filter

	Purpose	Micron Rating	Capacity	Flow Rate	Working Temperature Range	Working Pressure Range	Rated Life	Stage
Sediment Filter	Sediment Reduction	5	2500 gallons (9463 liters)	0.5 gal/min (1.9 liters/min)	4-38°C (39-100°F)	30-125 psi	6 Months	1
Carbon Block Filter	Chlorine Taste and Odor	5						2&4

	Purpose	Recovery (product Water / Inlet Water)	TDS Reduction*	Rating**	Working Temperature Range	Working Pressure Range ⁽¹⁾	Rated Life	Stage
RO Membrane 50 GPD	TDS Reduction	30%	96%	50 gallons/day (189 liters/day) (No Storage Tank Attached)	4-38°C (39-100°F)	40-125 psi	24 Months	3

* The performance and life of a reverse osmosis membrane or filter element is highly dependent upon pressure, temperature and dissolved solids (TDS)

** Manufacturer's Specification only with inlet conditions of 50 psi, 25°C (77°F), going to atmosphere. The actual volume of product water and rejection percentage will vary with differences from the test conditions that membrane ratings are based upon

(1) Pressure Regulator is recommended for feed water pressures exceeding 80psi

Replacement Cartridge

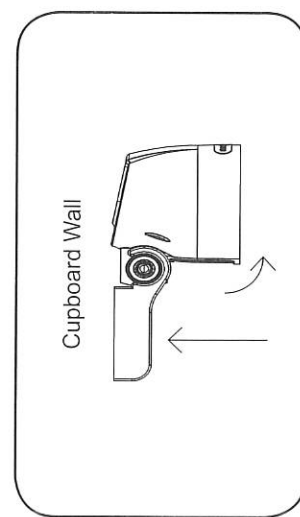
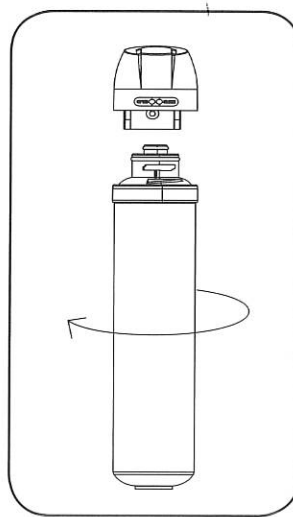
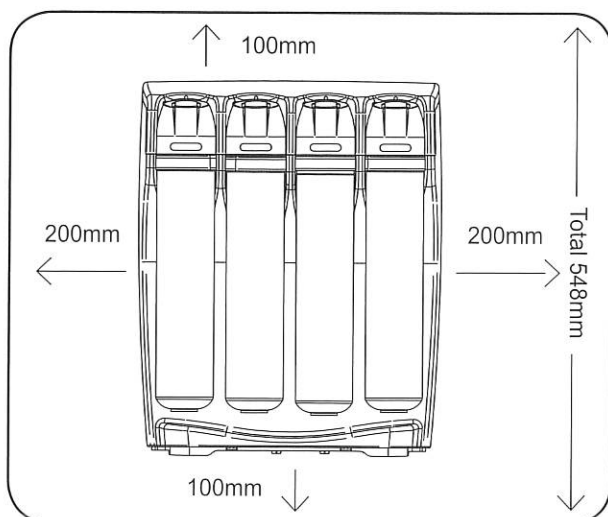
FILTER CARTRIDGES	FUNCTION	RATED LIFE	CAPACITY
Sediment filter 11"	Particulate, dirt & sand	6 months or 12 months	-
GAC (Granular Activated Carbon) filter 11"	Chlorine, taste and odor		1,500 Gallons (5,678 Liters)
Carbon block filter 11"	Particulate, dirt & sand Chlorine, taste and odor		1,500 Gallons (5,678 Liters)
RO membranes filter 11"	RO membranes	2 years	-
Sediment filter 13"	Particulate, dirt & sand	6 months or 12 months	-
GAC (Granular Activated Carbon) filter 13"	Chlorine, taste and odor		2,500 Gallons (9,463 Liters)
Carbon block filter 13"	Particulate, dirt & sand Chlorine, taste and odor		2,500 Gallons (9,463 Liters)
RO membranes filter 13"	RO membranes	2 years	-

Note : Rated life and Capacity are depending on local water conditions and level of prefiltration.

Note : The disposable filter cartridge must be replaced every 6 months or 12 months, at the rated capacity or if a noticeable reduction in flow rate occurs

Note : Performance of the reverse osmosis membrane is affected by several factors which must be considered when judging the condition of the system. The main factors which affect system performance are pressure, temperature, total dissolved solids level, recovery and pH.

Dimensions



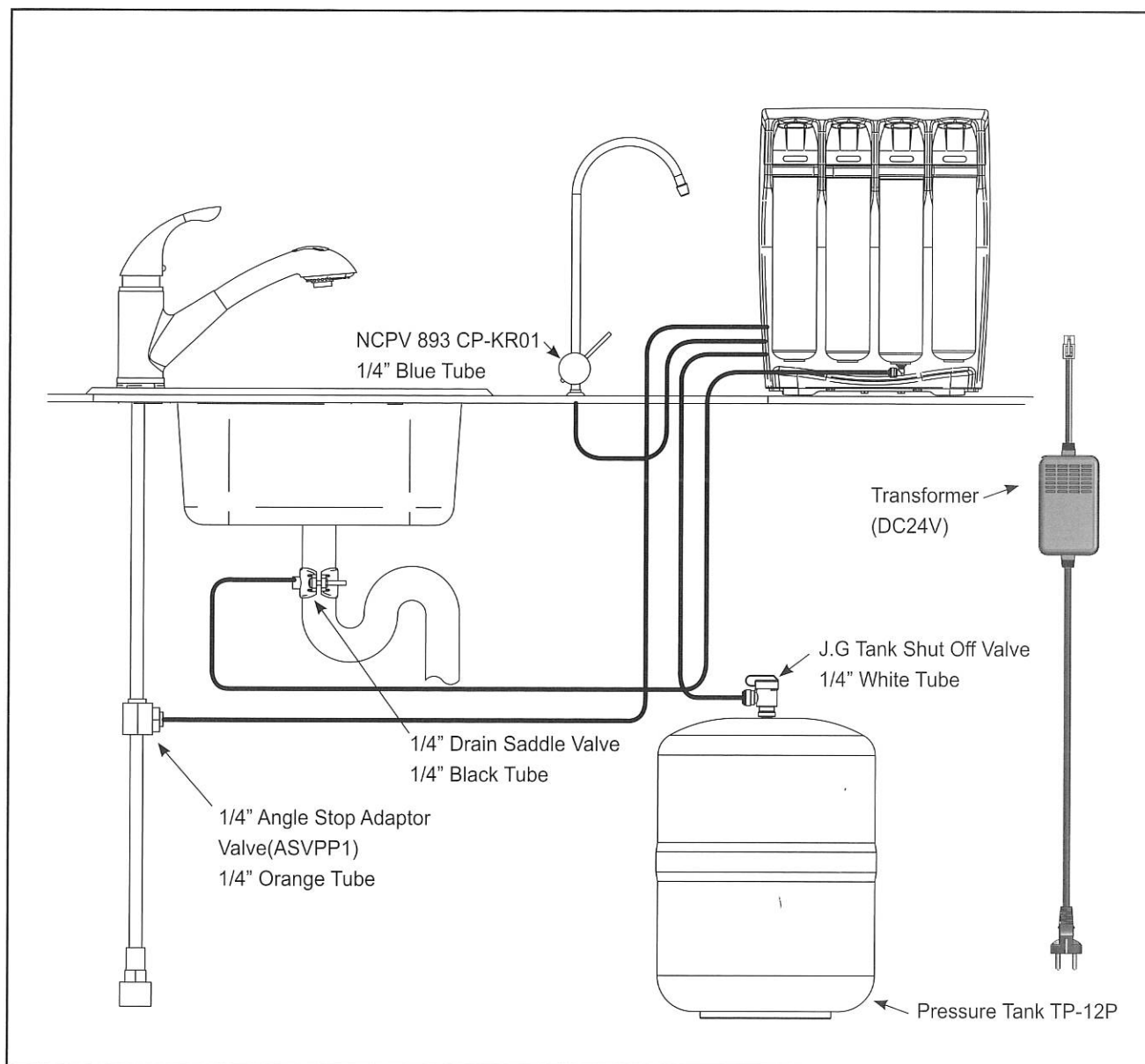
Recommended Influent Water Characteristic		Notes
System Pressure	10 - 100 psi (0.7 - 7kgf/cm ²)	1. The reverse osmosis membrane used in these systems may be damaged by chlorine. These systems include activated carbon filters which protect the membranes by reducing chlorine. Influent chlorine should not exceed 3 mg/L
Temperature	39 - 100 °F (4 - 38 °C)	
pH range	5.0 - 10.0	
Turbidity	< 10 Net Turbidity (NTU)	
Hardness (CaCO ₃)	< 300 ppm	2. Additional information on factors that affect RO performance can be found in the "Performance & Technical Information" section.
Iron (Fe)	0 - 1 ppm	
Chlorine (Cl ₂)	0 - 3 ppm (0 - 3 mg/L)	

Arsenic Facts

Arsenic (abbreviated As) is found naturally in some well water. Arsenic in water has no color, taste, or odor. It must be measured by a laboratory test. Public water utilities must have their water tested for arsenic. You can get the results from your water utility. If you have your own well, you can have the water tested. The local health department or the state environmental health agency can provide a list of certified labs. The cost is typically \$15 to \$30. Information about arsenic in water can be found on the Internet at the U. S. Environmental Protection Agency website: www.epa.gov/safewater/arsenic.html. There are two forms of arsenic: pentavalent arsenic (also called As(V), As(+5), and arsenate) and trivalent arsenic (also called As(III), As(+3), and arsenite). In well water, arsenic may be pentavalent, trivalent, or a combination of both. Special sampling procedures are needed for a lab to determine what type and how much of each type of arsenic is in the water. Check with the labs in your area to see if they can provide this type of service. Reverse osmosis (RO) water treatment systems do not remove trivalent arsenic from water very well. RO systems are very effective at removing pentavalent arsenic. A free chlorine residual will rapidly convert trivalent arsenic to pentavalent arsenic. Other water treatment chemicals such as ozone and potassium permanganate will also change trivalent arsenic to pentavalent arsenic. A combined chlorine residual (also called chloramine) may not convert all the trivalent arsenic. If you get your water from a public water utility, contact the utility to find out if free chlorine or combined chlorine is used in the water system. The QCRO4V-50 system is designed to remove pentavalent arsenic. It will not convert trivalent arsenic to pentavalent arsenic. The system was tested in a lab. Under testing conditions, the system reduced [0.30 mg/L (ppm) or 0.050 mg/L (ppm)] pentavalent arsenic to 0.010 mg/L (ppm) (the USEPA standard for drinking water) or less. The performance of the system may be different at your installation. Have the treated water tested for arsenic to check whether the system is working properly. The RO component of the QCRO4V-50 system must be replaced every three (3) years to ensure that the system will continue to remove pentavalent arsenic. The component identification and locations where you can purchase the component listed in this installation/operation manual.

3. Installation Instructions

TYPICAL INSTALLATION DIAGRAM



Step 1 - Select Component Installation Locations

- **Dispenser Faucet**
 - The faucet is designed to be mounted on the rear lip of the sink. It may be installed in an existing sprayer attachment hole or in a hole drilled at the time of installation. It may also be mounted to an adjacent counter top. It should be positioned so that water is dispensed over the sink. A 7/8" diameter hole is required.
- **Important considerations**
 - Access to the bottom (undersink) of the faucet is required for attachment of product water line.
 - There should be no undersink obstructions which would prevent smooth tubing runs to the drain connection, or RO module assembly.
- **Filter System Assembly**
 - The filter system assembly is designed to be mounted on any rigid vertical surface such as a cabinet sidewall, sheetrock in exposed stud. It should be positioned such that there is access to an inlet water source and drain. The installation should also allow convenient access for servicing.
- **Inlet Water Supply Connection**
 - Once a location is chosen for installation of the filter system assembly, select a nearby cold water line to provide the water source for the system.

Note : Follow all local plumbing codes when connecting to service water.

- **Drain Connection**
 - The most convenient entry to the drain is directly above the P-trap of the kitchen sink. However, the drain water from the system can be connected to adjacent sinks or a floor drain. Extra care should be taken when entering drains near dishwashers or food waste disposals as back flow may occur through the air gap and cause flooding.

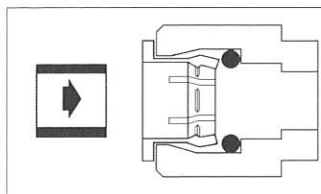
Note : Follow all local plumbing codes when connecting to drain.

Tubing Connectors

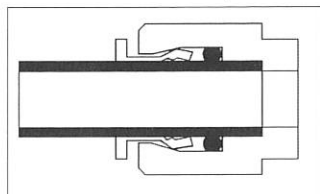
Quick-Connect Fitting

Insertion & Removal of Plastic or Copper Tubing

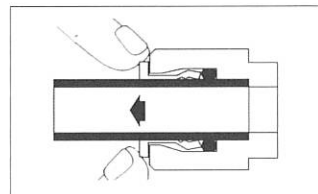
1. Simply push in tube to attach.



2. Tube is secured in position.



3. Push in collet from both sides to release tubing.

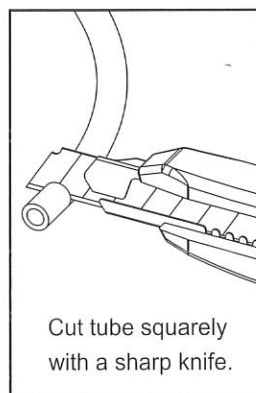


Connect :

Cut the tubing squarely with a sharp knife. Be careful not to crush the tubing. To avoid leaks, make sure the tubing end is smooth and free of burrs and abrasions. Lubricate the end of the tube with water or a light coat of silicone and push the tube end firmly into the fitting. You should feel it push past the O-ring. Avoid bending the tubing sharply away from the fitting.

Disconnect :

Hold the collar against the fitting body and pull the tube from the fitting. In the unlikely event that the connection leaks, remove and recut the tubing. Check the inside of the fitting for debris or O-ring damage. Reconnect. Push-to-connect tubing connectors grip the outside diameter of the tube. To help assure a reliable connection, it is important to use high quality tubing with a consistent outside diameter.



Cut tube squarely with a sharp knife.

Step2. Faucet Installation

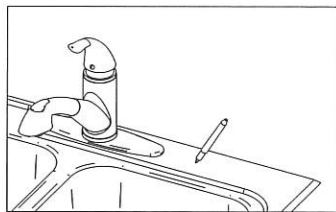
The M9 QUICK CHANGE RO WATER FILTRATION SYSTEM features reliable and convenient push-to-connect tubing connectors. Tubing is easily connected and disconnected from these fittings as follows.

To simplify its access and installation, we suggest you install the faucet on the rear lip of the sink. It should be evenly positioned with the sink faucet and spray attachment. Should the spray faucet hole not be available for the installation, the sink must be drilled.

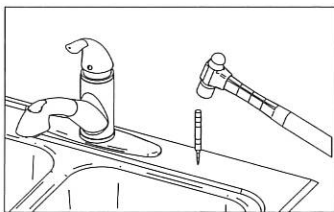
Note : It is recommended retaining the services of a professional counter top craft person when a hole is needed in granite or other specialty counter top materials.

Sink Drilling Instructions

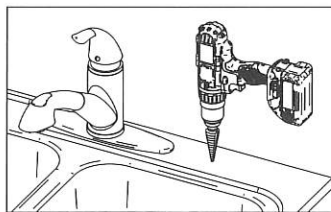
Stainless Steel Sink



1. Select and mark the proper faucet location.



2. Center punch hole to provide a starting point for your drill.

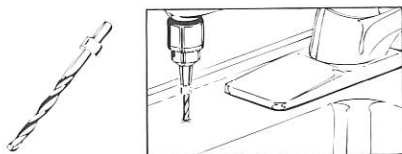


3. Drill a 7/8" hole in the sink using a stepped 7/8" drill bit. If no stepped bit is available, start by drilling a 1/4" hole. Using this hole as a starting point progressively drill larger holes. Increase drill size by 1/8" until you reach a 7/8" hole.

Porcelain Enamel Sink

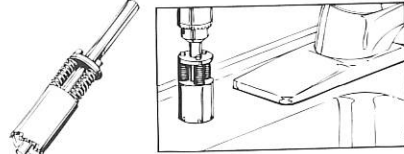
Follow these basic guidelines when drilling a porcelain sink:

▪ Pilot Drill



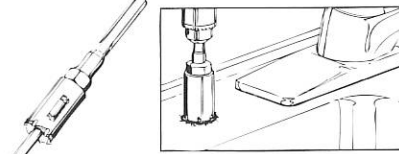
- Penetrate the porcelain to the base material.

▪ Spring Loaded Porcelain Saw



- Protect the surrounding porcelain material.

▪ Finish Hole Saw

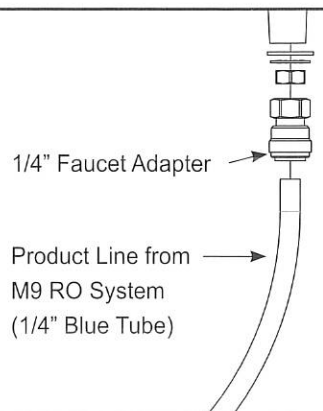


- Use the appropriate tool to drill the base material.

Take length of 1/4" blue tube and make sure it has a fresh cut and is free of foreign materials and any scratches on the outside surface. Install the tubing into the push in type fitting at the base of the faucet. Make certain that it is inserted all the way in; once inserted give it a slight pull to make sure it is locked into the fitting.

You have now completed the tubing connections.

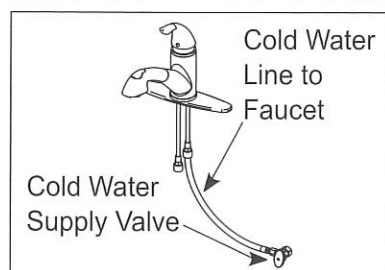
Note : To disconnect tubing from the product water fitting, hold the collet firmly against fitting body and pull the tube from the fitting. Repeated assembly and disassembly will cause wear to the inner body. Visually inspect for excessive wear and replace the inner body as needed to protect against any leaks.



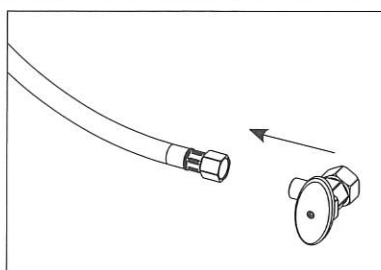
Step 3 – Install Adapter Valve on Water Supply(ASVPP1)



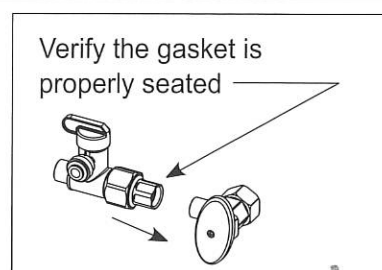
CAUTION! The Adapter valve should be connected to cold water supply only. Connection to hot water supply will damage the system and will void all warranty



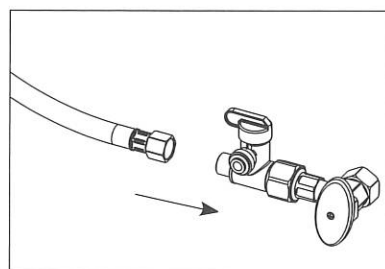
1. Shut off water at supply valve.



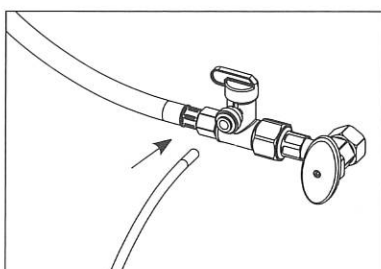
2. Disconnect hose from supply valve.



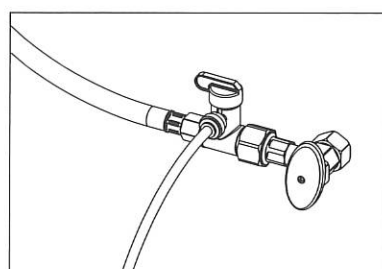
3. Install adapter valve on supply valve.



4. Connect riser hose to adapter valve.



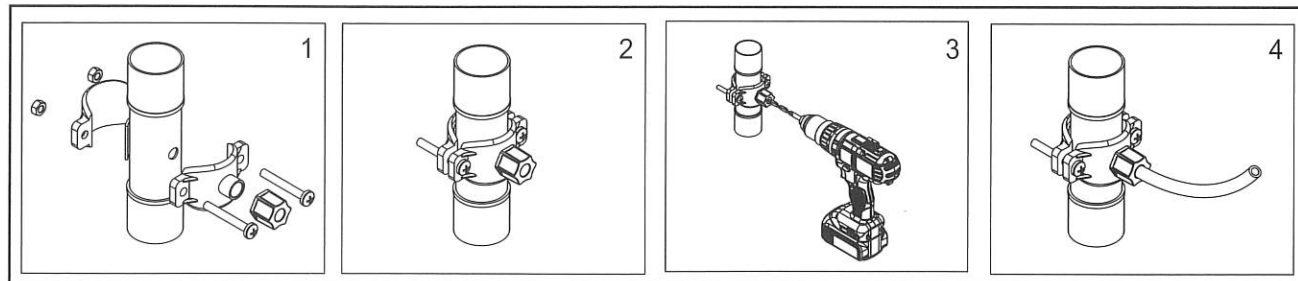
5. Insert 1/4" orange tube into quick connect fitting on valve.



6. Open the cold water supply valve and check for leaks.

Step 4 – Connect System Drain

This connection can usually be made beneath the sink. Incorrect installation may result in overflow of the air gap or excessive noise. Connections to undersink plumbing can be made with a saddle clamp designed to accept the drain tubing from the faucet. Drain Saddle Kit is supplied for 1-1/2" undersink drain plumbing. Be sure to check and follow local plumbing codes prior to installation.



1. Install the drain saddle valve on to the drain pipe. Use 1/4" saddle for drain water line.



WARNING! Do not overtighten.

2. Tighten the clamps with the help of the two bolts.



WARNING! Do not drill through both sides of pipe!.

3. For the standard faucets drill a 1/4" hole through one side of the pipe. The drill should be kept straight and centered to avoid damaging the saddle valve. Do not drill through both sides of the pipe!

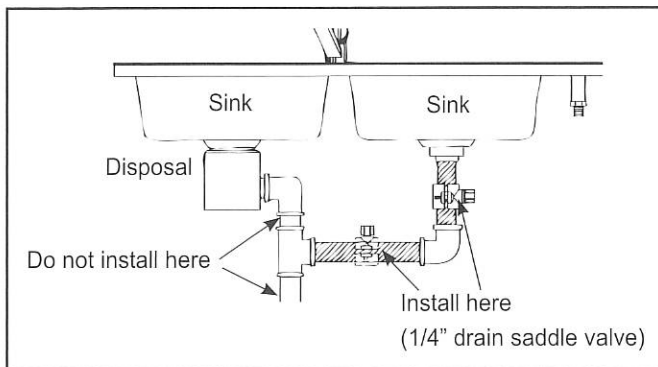
4. Attach 1/4" black tube by slipping the tube through the black compression nut and hand tighten the nut on to the saddle valve.



CAUTION! The drill should be kept straight and centered to avoid damaging the saddle valve.

Many homes are equipped with disposals and dishwashers. Home drain plumbing must be free of any blockage since this may cause a backup of dishwasher and disposal waste into the drain line and result in improper performance. To perform a simple drain check, fill the sink basin with several inches of water, pull the plug, and observe the drainage. If water backs up into the second sink (if present), or if drainage is slow or there is excessive gurgling, drain blockage may be present. Undersink drain plumbing usually resembles one of the following descriptions.

In all cases, the drain tubing from RO membrane filter should run downward, free of dips and loops. This can vent sewer gas, which will produce foul odors.



Step 5 – Start-Up

1. Sanitize the storage tank.
2. Check system to verify all components are correctly installed
3. Open inlet valve and tank valve.
4. Check system thoroughly for leaks. If any are found, shut off both inlet and tank valves and correct the issue.
5. Allow system to run & fill tank for 1-2 hours. You will hear the water running to drain while the unit is running.
Once the water stops running to drain the tank is full.
6. Open faucet to flush carbon fines & sanitization solution. Once the flow begins to slow down (around 20 minutes after opening) turn off the faucet.
7. Allow the tank to fill completely again.
8. Once full, open the faucet and allow the water to run for 24 hours to break-in the RO membrane and completely flush the system. This will allow your system to run at optimal efficiency.
9. Close faucet and allow tank to fill.
10. System is ready to use

Performance & Technical Information

The performance of the M9 RO System can be characterized and judged by the quality and quantity of the water produced by the system. By measuring the contaminant removal performance and flow rates of the system, its operating status can be easily evaluated.

Factors Which Affect Performance

Performance of the reverse osmosis membrane is affected by several factors which must be considered when judging the condition of the system. The main factors which affect system performance are pressure, temperature, total dissolved solids level, recovery and pH.

Pressure

Water pressure affects both the quantity and quality of the water produced by the RO membrane. Generally, the more water pressure, the better the performance of the system. Be careful not to go below 40 psi or exceed 100 psi, the minimum and maximum operating pressure of the system.

Temperature

The reverse osmosis process slows with decreasing temperature. To compensate, a temperature correction factor is used to adjust the actual performance of the RO membrane filter to the standard temperature of 77°F(25°C). This allows the performance of the unit to be accurately gauged against published standards. Temperature does not affect the concentrate flow rate.

Total Dissolved Solids

The minimum driving force which is necessary to stop or reverse the natural osmosis process is termed osmotic pressure. As the total dissolved solids level of the feed water increases, the amount of osmotic pressure increases and acts as back pressure against the reverse osmosis process. Osmotic pressure becomes significant at TDS levels above 500 mg/L (ppm).

Hardness

Hardness is the most common membrane fouling. If ignored, this relatively harmless component of feed water will scale a membrane over time. Use of a softener will reduce the fouling effect on a membrane. One way to detect too much hardness in the feed water is the weight of a membrane installed for a period of time. A fouled membrane (dried) will weigh significantly more than a new membrane. The increase in weight is a result of precipitated hardness inside the membrane.

Note : Increased weight of the RO cartridge may be a fouling other than hardness.

Troubleshooting Guide

If a problem cannot be corrected through the use of this troubleshooting guide :

- Serial #
- Model #

Problem	Possible Cause	Remedy
1. Insufficient quantity of product water available to service.	a. Service greater than unit's specified output.	a. Use optional large tank for more storage capacity.
	b. Insufficient feed water flow.	b. 1. Clogged shut-off valve or feed tubing ; clean out or replace. 2. Clogged prefilter; replace. 3. Clogged manifold; clean or replace.
	c. Insufficient feed water pressure	c. 1. Same as (b) above. 2. Change in line pressure; install booster pump.
	d. Increase in feed water TDS.	d. 1. Same as (a) above. 2. Install booster pump.
	e. Reduced feed water temperature.	e. Same as above.
	f. Plugged prefilter.	f. Replace filter element.
	g. Plugged polishing filter.	g. Replace polishing filter.
	h. RO membrane fouled with sediment.	h. Replace RO membrane and prefilter elements.
	i. Shutoff malfunction.	i. Clean or replace shutoff.
2. Poor product water quality.	a. All of (1) above except (a) and (e).	a. All of (1) above except (a), (e), and (g).
	b. RO membrane filter worn out.	b. Replace RO membrane.
	c. Shut off malfunction.	c. Replace shut off
3. Bad tasting product water.	a. Decrease in product quality; see (2) above.	a. Same as (2) above.
	b. Foreign matter in storage tank.	b. Clean, sanitize, and flush storage tank.
	c. Polishing filter exhausted.	c. Replace polishing filter
	d. Plugged capillary tube.	d. Replace capillary tube; replace prefilter, if necessary.
	e. Storage tank bladder is ruptured.	e. Replace storage tank and check precharge pressure.
4. External leakage.	a. Tubing not fully seated in fitting	a. Check all fittings for tightness.
	b. Tubing abraded in seal area.	b. Recut tubing and redo connection.
5. Overflow at faucet air gap (gurgling sounds).	a. Concentrate tubing plugged.	a. Clean concentrate tubing of debris.
	b. Concentrate tubing not in continuous downward slope.	b. Eliminate loops or low spots in tubing.
	c. Obstructed home drain pipe.	c. Free obstruction.
6. Foaming at faucet tip.	a. Storage tank is positioned on side (Dissolved air cannot escape.)	a. Place tank in vertical position.
7. Foaming at air-gap	a. Concentrate tubing connected to same drain line as dishwasher, etc.	a. Find different drain for system.
	b. When sink is full of soapy water and plug is pulled, can back up at air-gap.	b. Obstructed home drain, free obstruction.
	c. Obstructed home drain.	c. Free obstruction.

Problem	Possible Cause	Remedy
8. Bad smell from product water.	a. Polishing filter exhausted.	a. Replace polishing filter.
	b. Prefilter element.	b. Replace filter element.
	c. Unit needs disinfection.	c. Sanitize unit.
9. Fast flow to drain.	a. Defective flow control assembly.	a. Replace flow control assembly.
10. Black specks in product water.	a. Carbon fines.	a. Flush polishing filter.
11. Low faucet pressure.	a. Inadequate pre-charge pressure in storage tank.	a. Check tank pre-charge pressure and add air if required.
	b. Polishing filter plugged.	b. Replace polishing filter.
12. Flow control plugging.	a. Excessive turbidity.	a. Install another 5 micron filter in series with existing one or substitute carbon block filter for granular activated carbon filter.
	b. Iron fouled.	b. Pretreat for iron removal.
	c. Iron-bacteria fouled.	c. Sanitize plumbing.

4. Limited One-year Warranty

Limited One-year Warranty

Any defect in materials or workmanship in the manufactured product.

What does this warranty not cover?

1. Improper installation, delivery or maintenance.
2. Failure of the product if it is abused misused, altered, used commercially or used for other than the intended purpose.
3. Use of this product where water is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system.
4. Damage to the product caused by accident, fire, floods or acts of God.
5. Incidental or consequential damage caused by possible defects with this application, it's installation or repair.

Exclusion of Implied Warranties

Your sole and exclusive remedy is product exchange as provided in this Limited Warranty. Any implied warranties, including the implied warranties, including the implied warranties of merchantability or fitness for a particular purpose, are limited to one year or the shortest period allowed by law.

PRODUCT	4 STAGE WATER SYSTEM		TERMS OF WARRANTY
MODEL NO.	4 STAGE RO		LIMITED ONE YEAR
SERIAL NO.			
INSTALLATION DATE			
CUSTOMER NAME		TEL	

INSTALLATION & MAINTENANCE GUIDE

RO FILTRATION SYSTEM