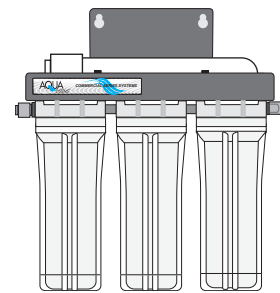
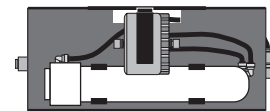
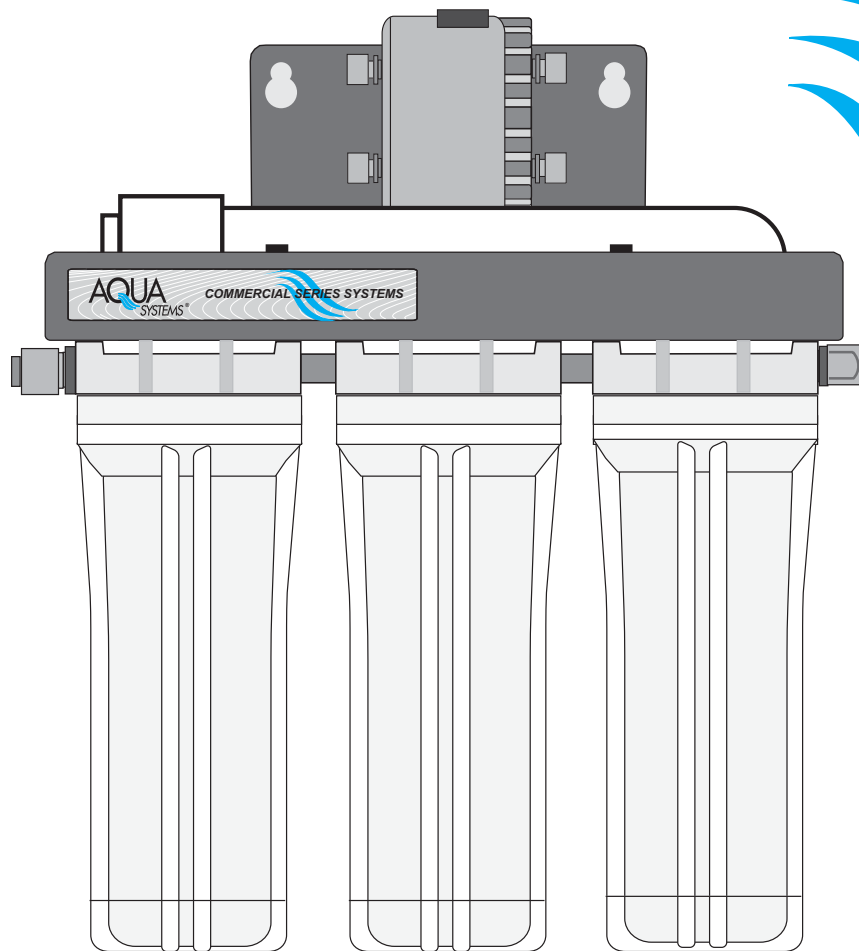


AQLP Series

Light Commercial Reverse Osmosis System



Installation, Operation,
and Service Manual

AQUA
SYSTEMS®

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Introduction

The AQLP Series reverse osmosis system is designed to provide an ample supply of high purity water in larger household and small institutional applications. The system operation is fully automatic when used with pressurized storage tanks. AQLP series reverse osmosis systems are not supplied with faucets, storage tanks or post filters since these items vary due to application needs. This design allows the AQLP to be customized to each individual application.

The AQLP Series RO units also serve many other applications such as office drinking water systems, lab make up water, restaurant ingredient water, ice - maker systems, plant watering systems, and any application requiring up to 100 gallons per day of high quality water (The model number indicates the rated capacity).

This manual is designed primarily for use by the water treatment professional and / or equipment installer who is already familiar with RO system installation and sound plumbing practices.

Application Guidelines

The performance of the AQLP is in direct proportion to the characteristics of the feed water. When sizing and installing a reverse osmosis system it is important to test and record the pressure, temperature, and the TDS of the feed water as these are the factors that will affect the production of the system. Equally important is the quality of the feed water, so testing of the feed water is essential to verify the feed water is within the parameters listed below, or so that the proper pretreatment can be prescribed. Note that membrane failure due to fouling is not covered under the system warranty.

Operating Parameters

Feed Chemistry

Feed TDS	Up to 2000ppm
Feed pH	4 - 11
Chlorine	< 2 ppm*
Hardness	< 10 gpg**
Iron	0.1 ppm
Hydrogen Sulfide	None

* The pre carbon filters must be maintained to protect the membrane.

** Soft water feed is recommended.

Operating Parameters (con't)

Operating Specifications

	AQLP 100 ASO	AQLP 100 w/ Perm Pump
Membrane Type	TFC	TFC
Typical Rejection	> 96%	> 96%
Feed Temperature	40 - 80° F	40 - 80° F
Feed Pressure	40 - 90 psi	40 - 90 psi
Production (gal/day)*	up to 100	up to 100
Recovery*	Appr. 30%	Appr. 30%
Full Tank Pressure	60% of Feed	90% + of Feed

* Rated membrane production is based on industry standards of 60 psi., 77° F, and 500 ppm TDS feed water. Actual production may vary according to local water conditions and variations in membranes.

Note: The Permeate Pump model's production will be greater than the ASO model's production due the pump eliminating back pressure on the membrane as the pressurized storage tank fills.

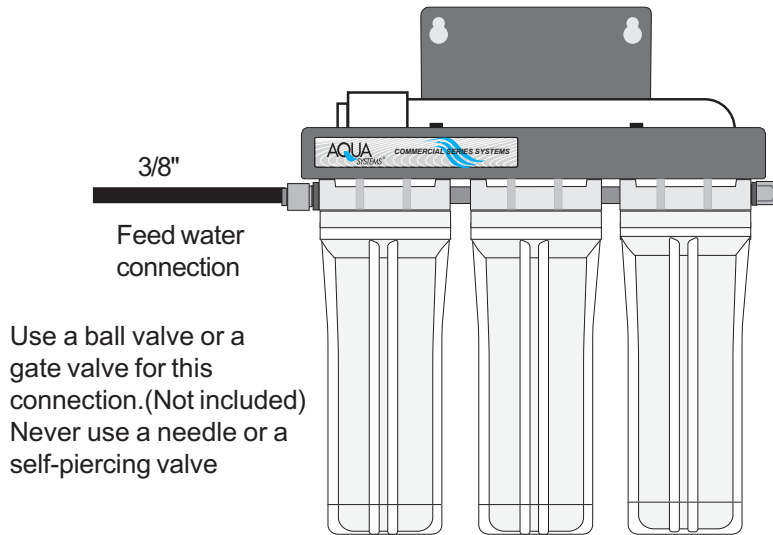
Storage Tank Preparation

Storage tanks generally are not sanitized from the factory. The tank should be sanitized prior to installing the tank by introducing one teaspoon of household bleach per 5 gallons of storage capacity into the tank.

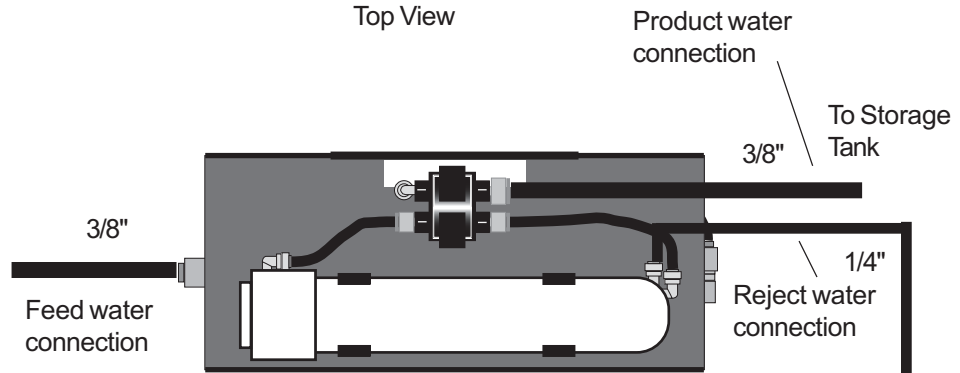
Check the air precharge in the storage tank with a tire pressure gauge. The pressure in an empty tank should be 7 - 12 lbs. depending on the feed pressure and the application.

Installation Procedure

Front View



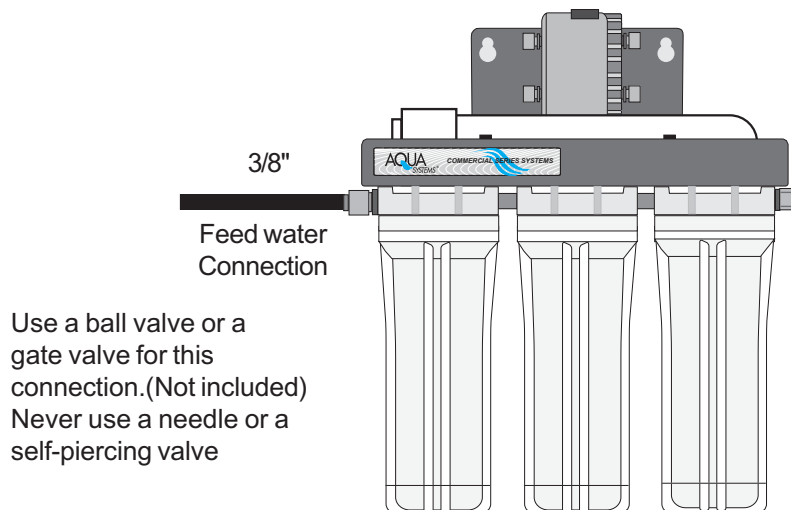
Top View



Make sure the drain connection has an approved air gap. If the drain line is longer than 10 feet, convert the 1/4" drain line to 3/8".

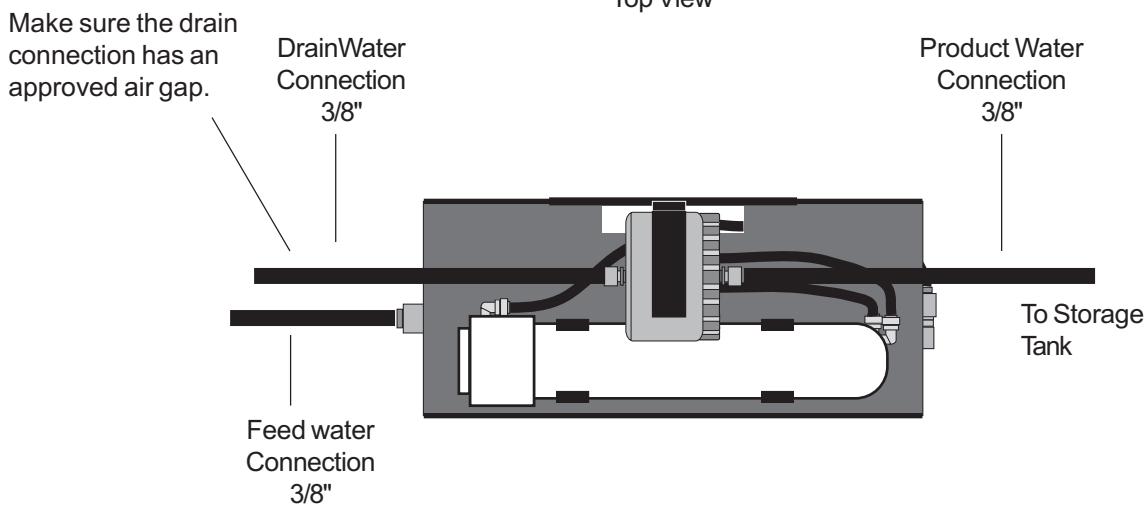
Installation Procedure (con't)

Front View



Note:
Outlet connections on the Permeate Pump must always be at the top of the pump.

Top View



Installation Procedure (con't)

Inspect the area that the AQLP RO system will be installed. Note where the feed and drain connections will be, also where the storage tank(s) will set. Then place the AQLP in a suitable place that is easily accesible for service. Note that drinking water applications require the addition of a post filter after the storage tank sized to the requirements of the product service flow.

Feedwater Connection

Make the connection on a cold water supply line (< 80° F) with a ball valve or a gate valve. Never use a needle or self-piercing valve. Connect and use 3/8" O.D. tubing to the feed connection on the AQLP system. On a long tubing run it is beneficial to install a ball valve on the feed line near the RO to aid in filter changes.

Drain Connection

Connect 1/4" O.D. tubing (3/8" on the Permeate Pump model) to the drain connection on the AQLP and run it to the appropriate drain to be used.

Note: Make sure an approved air gap exists between the RO system and the drain opening to meet local plumbing codes.

If the tubing run on the drain connection is longer than 10 feet, convert the 1/4" tubing to 3/8" tubing to the drain connection. This will eliminate any backpressure due to the drain tubing and also will help in preventing the drain from plugging.

Installation Procedure (con't)

Product Water Connection

Connect 3/8" O.D. tubing to the product water connection on the AQLP system and run to a tee at the inlet of a pressurized storage tank. The tee should be above the inlet valve to the storage tank so the tank can be isolated from the system in servicing situations.

End Use Connections

Run the lines from the storage tank to the final points of use.

Make sure the tubing size from the storage tank is of sufficient size to provide adequate flow and pressure to each point of use.

The tubing used must be of non metal material, i.e. PVC or polyethene, and if the system is for drinking water, the tubing must be FDA approved.

Drinking water applications also require that a carbon post filter be installed after the storage tank or before each point of use.

Start Up Procedure

Check that all tubing connections have been made. Close the valve to the storage tank. This will allow the lines to pressurize without waiting to fill the tank.

Turn on the feedwater valve and allow the system to start up. Wait several minutes for the air to escape from the system and for the system to pressurize the product tubing.

Check all the fittings for leaks and make repairs if necessary. If a leak is discovered at one of the John Guest™ fittings, simply remove the tubing from the fitting and cut 1/4" off the end of the tubing. Replace the tubing into the fitting, turn the system back on, and recheck for leaks.

Turn on the valve to the storage tank (with sanitizer in the tank, see page 4) and allow the system to fill the tank. After the tank is full, the system should be fully drained one time to flush the sanitizer from the system. When the tank refills, it will be ready to use.

Check all applicable operating parameters (feed pressure and temperature, hardness, feed TDS, pH, free chlorine, etc.) and record for future reference. This will be of help in future maintenance and in troubleshooting.

Maintenance

Regular maintenance is essential to the performance and longevity of the AQLP system. The maintenance consists of changing the pre filters, changing the post filter if so equipped, and sanitizing the system. The filters should be changed every 3 months to 1 year, depending on the quality of the feed water. The system should be sanitized at least annually. Contact your dealer or the factory for information in determining the frequency of maintenance.

Prefilter Replacement

Turn off the feedwater and the storage tank valves. De-pressurize the system by opening one the point of use faucets until the flow stops.

Locate the sediment filter sump and unscrew the sump by turning it clockwise (top view) until it is off. Empty the water from the sump and discard the filter. Clean the sump with warm water and soap, inspect the o-ring, and put 1/2 teaspoon of household chlorine bleach into the sump. Set a new sediment filter into the sump and screw the sump onto the filter head until snug. Be careful not to overtighten the sump.

Next, locate the pre carbon filters (if so equipped) and unscrew the sumps clockwise (top view) until they are off. Empty the water from the sumps and discard the filters. Clean the sumps with warm water and soap, inspect the o-rings. Put new carbon filters into the sumps and then put 1/2 teaspoon of household chlorine bleach into the center of each carbon filter. Screw the sumps onto the filter heads until snug. Be careful not to overtighten the sumps.

Maintenance (Con't)

Postfilter Replacement (if equipped)

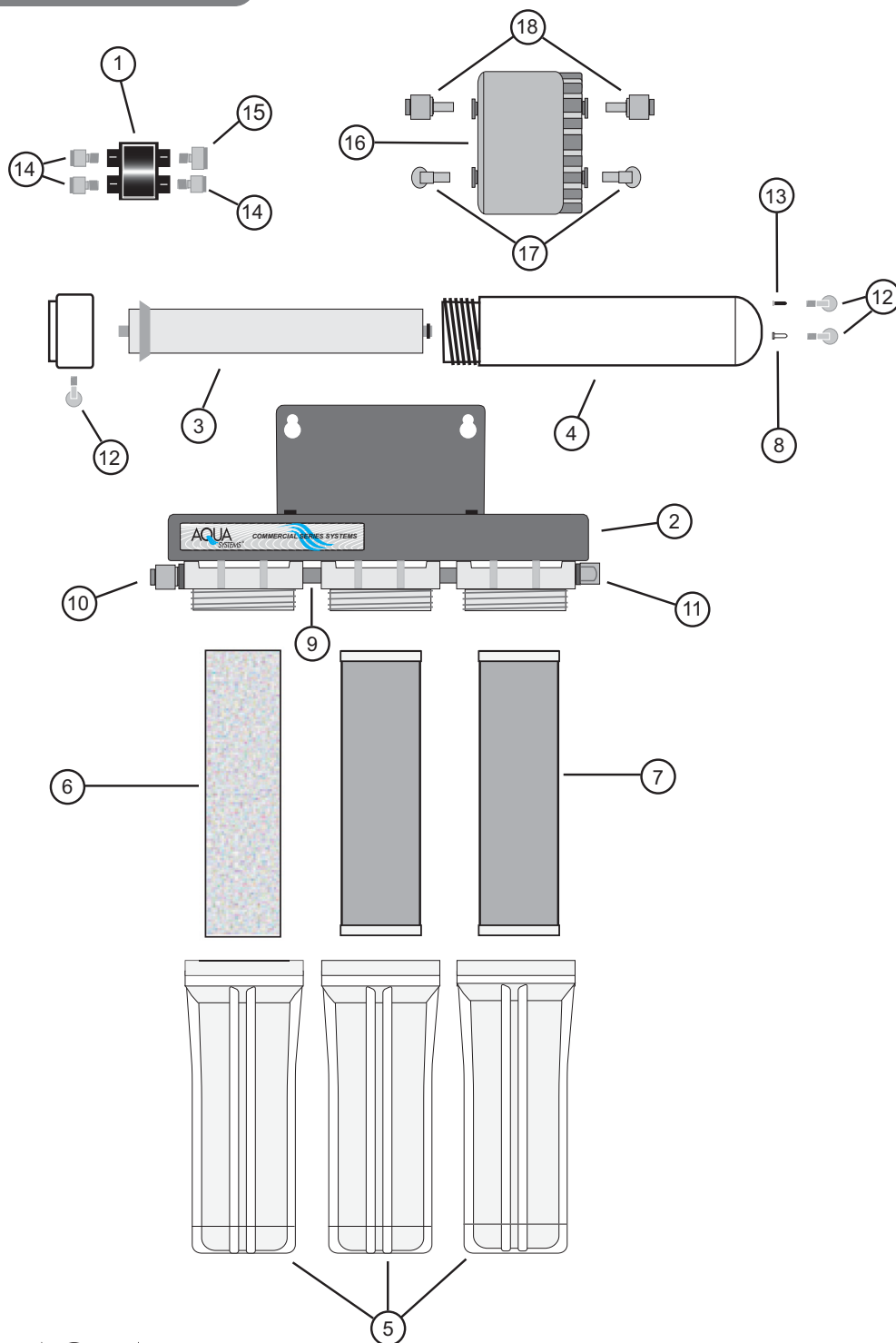
If the AQLP is installed with a post filter (carbon filter after the storage tank), change the post filter at least annually.

When replacing the post filter it is highly recommended to sanitize the storage tank. Before sanitizing the tank, make sure the tank is empty of water. Then check the air precharge and add air if necessary. The normal precharge is 7psi to 12 psi depending on the application. Call your dealer or the factory for recommended precharge pressure. Sanitize the tank by introducing 1 teaspoon of household chlorine bleach for every 5 gallons of storage capacity into the tank.

To replace the filter, turn off the storage tank valve and open a point of use faucet until the flow stops. Leaving the faucet open, unscrew the filter sump clockwise (top view) and remove the sump. Empty the water from the sump and discard the filter. Clean the sump with warm water and soap, and inspect the o-ring. Put a new carbon filter into the sump and then put 1/2 teaspoon of household chlorine bleach into the center of the carbon filter. Screw the sump onto the filter head until snug. Be careful not to overtighten the sump.

Turn the system on, open the storage tank valve, and after 5 minutes close the faucet that was left open. Let the tank fill, then drain the system through a faucet one time. When the systems fills again, it will be ready for use.

Parts Diagram



Parts List

Item	Part Number	Description	Models	Qty
1	21902000	Automatic Shut Off (ASO)	ASO Models	1
2	01330065	System Bracket	All Models	1
3	22146070	100gpd TFC Membrane	All Models	1
4	21002500	Membrane Housing Assy	All Models	1
5	01120050	Filter Housing Assy	All Models	3
6	01220151	Pre Sediment Filter	All Models	1
7	01220170	Pre Carbon Filter	All Models	2
8	21002220	Membrane Check Valve	All Models	1
9	08703507EP	3/8" x 1 1/2" Nipple	All Models	2
10	20050091	3/8" x 3/8" Male Connector	All Models	1
11	20050101	1/4" x 3/8" Male Ell	All Models	1
12	2005011.5	1/4" x 1/8" Male Ell	All Models	3
13	20930150	Reject Flow Control	All Models	1
14	20050104	1/4" x 1/8" Male Connector	ASO Models	3
15	20050105	3/8" x 1/8" Male Connector	ASO Models	1
16	21201009	Permeate Pump	Perm Pump Model	1
17	20050206	1/4"Tube x 1/4" Tube Stem Ell	Perm Pump Model	2
18	22302018	3/8"Tube x 1/4" Tube Stem Ell	Perm Pump Model	2
*	21201010	Permeate Pump Mounting Clip	Perm Pump Model	1
*	21002501	Membrane Mounting Clip	All Models	2
*	21902100	ASO Mounting Clip	ASO Models	1

* Not Shown in Diagram

Notes:

Warranty

Aqua Systems, Avon, Indiana warrants this water treatment system as stated herein:

From the date of installation, when we receive any part (or parts) described below, during the specified period below, which we find defective because of faulty materials or workmanship we will repair or replace the part (or parts) and return it to the customer. The customer pays only freight to and from our repair facility and local labor and / or service charges.

- One Year On All Parts
- Ninety Days on the Membrane Element

General Conditions:

The performance of the RO system is directly related to the quality of the feed water. The feed water must meet the operating parameters for the feed water quality. Filter cartridges are warranted for defects in material and workmanship only, as the service life of the cartridges varies due to local water conditions. System or membrane failure due to fouling is not warranted. The customer is responsible to provide pretreatment to meet feed water quality parameters.

Damage to any part of this water treatment system because of misuse, misapplication, neglect, alteration, accident, installation or operation contrary to our printed instructions, or damage caused by accident, freezing, flood, fire or Acts of God, is not covered by this warranty. In all such cases, regular parts and service charges apply.

We assume no warranty liability in connection with this water treatment system other than specified herein. This warranty is in lieu of all other warranties, expressed or implied, including warranties of fitness for a particular purpose. We do not authorize any person or representative to assume for us any other obligations on the sale of this water treatment system.

This warranty becomes effective on the installation date of the covered system. Should a malfunction occur, contact Aqua Systems or an authorized dealer. Warranty Returns must be accompanied by a copy of the original sales order showing the dealers name and the purchasers name and address. This warranty applies to the original owner at the original location.