

## **REVERSE OSMOSIS MEMBRANE INFORMATION**

GrowMax Water utilizes high performance TFC (Thin Film Composite) spiral bound membranes in all of our Garden Reverse Osmosis Systems.

We would like to provide the following information to our GrowMax Water customers, to help better understand their reverse osmosis systems. The information provided is valid for ALL reverse osmosis membranes, whether supplied by GrowMax Water or other manufacturers.

GrowMax Water reverse osmosis systems use 150 GPD (Gallon per Day) membranes for the POWER GROW, MEGA GROW and MAXQUARIUM.

This is the HIGHEST PRODUCTION MEMBRANE currently available in this size and configuration, without using much higher cost membranes that require much higher inlet pressures, pumps and motors.

The 150 GPD specification is made by the Membrane Manufacturer and is based on the following parameters:

- 1 - Water Temperature: 25° C
- 2 - Water Pressure: 60 psi (4.3 kg/cm<sup>3</sup>)
- 3 - TDS (Total Dissolved Solids): 500 ppm (0.7 EC)

Therefore the production will increase or decrease according to variations in the above water conditions. Example:

Water production will decrease by 3.6% for each degree below 25° C. So, if your water temperature is 15°C, then; 10° (less) x 3.6% = 36% decrease. Now, 20 L/h can be about 13 L/h.

1 - Or if the temperature is even lower, let's say 10°C, then: 15° (less) x 3.6% = 54% decrease. 20 L/h can now be as low as 9 L/h.

2 - Also, at the same time if the inlet pressure is lower than 60 psi (4,3 kg) then your production will also decrease.

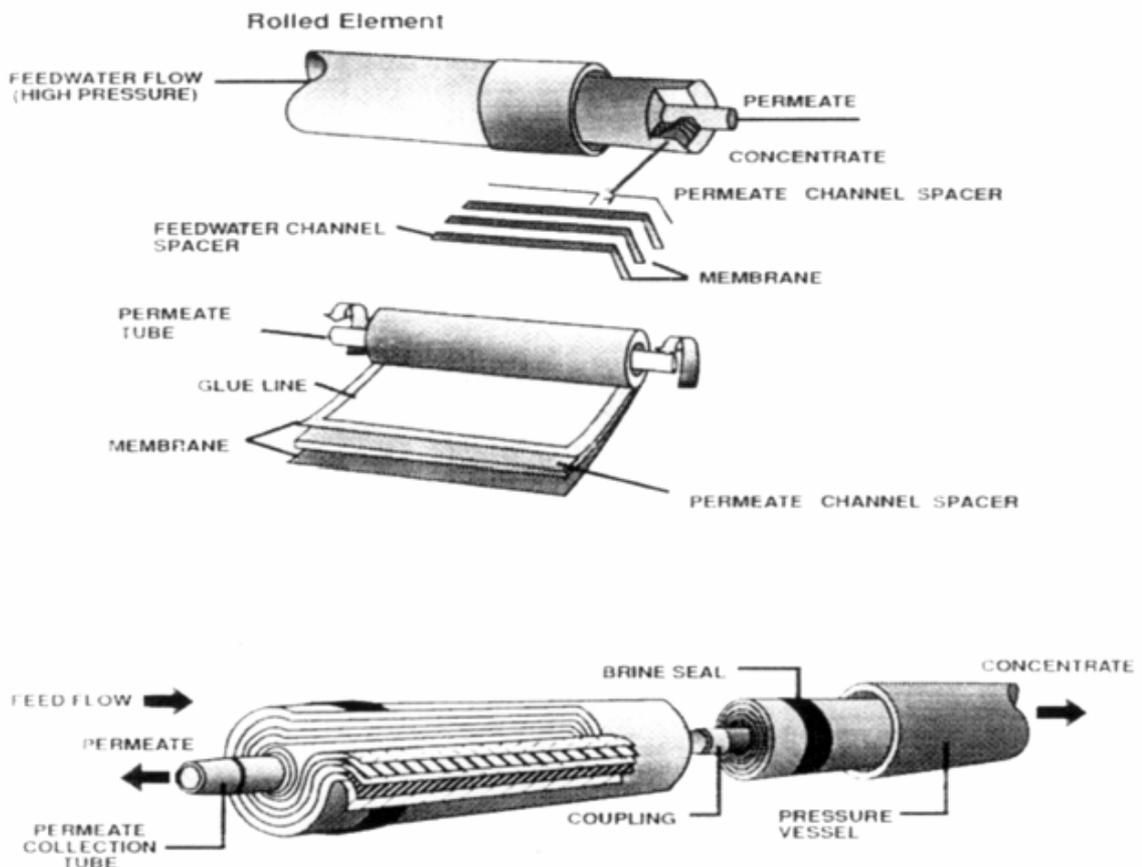
3 - Also if the TDS is higher than 500 ppm (EC higher than 0.7), then again, you will have another lower production rate. The higher the EC, more inlet water pressure is needed.

Growmax Water has designed its reverse osmosis systems for the Hydroponic and Gardening markets. Because we are not using pressurized holding tanks, different from residential RO units, we have designed our units to REJECT MUCH LESS water than with conventional units.

Most RO systems are designed to reject 4:1, 5:1, 6:1 or more. This means for each liter of water produced, 4, 5 or 6 times of the amount of water is needed and is sent to the drain (or garden).

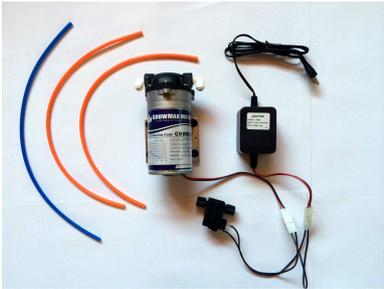
GrowMax units are designed to reject ONLY 2:1. This saves a lot of water!

However, the downside to this design is that if the TDS or EC is very high, more than 500 ppm (> 0.7 EC) then the lifespan of the reverse osmosis membrane can be diminished.



Solutions that we can offer to our customer:

1) You can add a GrowMax Water Booster Pump to your RO system, to increase your water pressure. Both pumps will raise the water pressure 40 psi (aprox.) above the inlet pressure.



**GMWROPUMPKIT** – Pump Kit for low inlet pressure installations.

For use with POWER GROW and MAXQUARIUM.



**GMWROPUMPKIT-HF** – High flow Pump Kit for low inlet pressure installations.

For use with MEGA GROW.

2) You can change out the FLOW RESTRICTOR in your unit, to a larger flow restrictor, to allow for more water rejection to the drain, thus helping to prolong the life of your membrane. See optional Flow Restrictor table below:

System                      Flow Restrictor Change option

POWER GROW	400ml	550ml
MEGA GROW	550 ml	800ml
MAXQUARIUM	400 ml	550ml



GMWFR400



GMWFR550



GMWFR800