



The REVERSE OSMOSIS SYSTEM

*Chosen by 8-9 people out of 10
when seeking the best quality and
the best value.*

Installation

- Reverse Osmosis (RO) process is recognised internationally as one of the most efficient methods of water purification for New Zealand, being capable of removing the widest range of contaminants - including Nitrates.
- The water is forced by water pressure, through a semi-permeable membrane (a bit like "Gladwrap") to separate molecules. Hydrogen and oxygen = pure water, passing through as crystal clear sparkling pure water for use and the unwanted contaminants and residues flushed away to waste. Spectacularly efficient filtering!
- A range of faucets are available
- Slim and compact
- W 30cm, H 31cm, D 11cm
- Tank dimensions:
W 24cm, H 37cm, D 24cm



Water Monitor

The optional water Quality Monitor has been integrated into the system. When you push the water Quality Monitor at the base of the faucet, a green light shows that the R.O. system is working fine, reducing the Total Dissolved Solids (TDS).

- The monitor compares the level of the TDS in the incoming water to the product water. If this level should ever fall below a 75% difference, an amber light will show when the Water Quality Monitor button is pushed and service may be required.
- Manufacturers of RO membranes recommend 1 – 3 years life for a membrane. Many clients are able to extend this to over 4 years by using the monitor to ensure the quality of their water is maintained at over 75% rejection of contaminants – a considerable saving on maintenance long term.
- Other faucets are available





Benefits of Reverse Osmosis Water Purification

- Purification is at a molecular level (0.0005 micron = 80,000 times smaller than anything we can see).
- Hydrogen and Oxygen passes through for consumption, but not the contaminants.
- The purified water is stored in a reservoir and replaced automatically when used.
- 2 prefilters, the Reverse Osmosis membrane and a carbon in-line 'polishing' filter give a sweet fresh taste.
- Water flows from a bench top mounted faucet with a built-in quality monitor, which at the touch of a fingertip shows the system is functioning correctly.
- Suitable for both chlorinated or non-chlorinated water.
- The best "point of use system" to safely reduce Nitrates, which affect the transfer of oxygen in the haemoglobin and is most dangerous for pregnant women and bottle-fed babies - methaemoglobinemia (commonly known as "blue baby" syndrome).
- Typical contaminant rejection percentages range to 99.7% with the average being 91.7%.
- RO uses no chemicals or electricity - only existing water pressure.
- RO water purification can be used in New Zealand residential, industrial and other situations where high quality water is needed.
- Purified water can be piped to refrigerator, icemaker, hot water dispenser etc...



Nitrate Reduction

- This is the most effective “point of use system” to safely reduce **Nitrates**, tested and validated at least 80% (which affect the transfer of oxygen in the haemoglobin and is most dangerous for pregnant women and bottle-fed babies) from water subjected to effluent spreading, often from piggeries, dairying operations, general farming, or meat processing operations in the catchment area.
- Adults may experience adverse reactions to high Nitrate levels including intestinal problems. There have also been information in research papers it may be linked with up to **15** different types of cancer.
- The American unit is tested and certified to ANSI/NSF Standard 58 for the reduction of: Arsenic, Barium, Cadmium, Chlorine, Chromium, Copper, Giardia and Cryptosporidium Cysts, Fluoride, Lead, Mercury, Nitrates, Totally Dissolved Solids and Turbidity and produces wonderfully clear, fresh-tasting, safe water, even from unsafe sources.
- The manufacturers mention to use the Reverse Osmosis system on bacterially-safe water, (as litigation is a huge industry in America), yet every water test we have ever had done for bacteria has come out **NIL**, even on surface, rural water, open to animals.

National Sanitation Foundation Testing

MICROLINE®
R.O. DRINKING WATER SYSTEM

MODEL T.F.C.—4PLF

Performance Data Sheet



Tested and Certified by NSF International against NSF/ANSI Standard 58 for the reduction of: Arsenic (Pentavalent), Barium, Cadmium, Chromium (Hexavalent), Chromium (Trivalent), Copper, Cyst, Fluoride, Lead, Nitrate, Nitrite, Radium 226/228, Selenium and TDS.
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This reverse osmosis system contains replaceable treatment components critical for effective performance. It is the user's responsibility to, and the manufacturer strongly recommends that the user, periodically test the product water to verify that system is performing satisfactorily.

A note for systems with the Water Quality Monitor:

The Water Quality Monitor has been integrated into the system cover for instant monitoring at the touch of a button. The monitor compares the level of the total dissolved solids in the incoming (feed) water versus the product water and calculates the percent rejection. The monitor is preset to indicate a level of 75% rejection. NSF/ANSI Standard 58 requires a 75% total dissolved solids rejection to pass the requirement of the standard.

A green light indicates that the percent rejection is at or above the set (desired) value and that the system is producing quality water.

An amber light indicates that the product water quality is less than acceptable. Because the Water Quality Monitor was designed to operate best while the system is making water, a false reading may occur if tested when your R.O. drinking water system is not making water. Please empty the storage tank, wait 15 minutes for the system to begin making water, and test your water quality again. If the Water Quality Monitor light is still amber, change the 9 volt battery and test your water quality again. If the Water Quality Monitor light is still amber, please contact a water treatment professional for service. The Water Quality Monitor requires a 9 volt battery, which is included.

If Microline® replacement filters and membranes are not used, health related contaminant reduction claims are invalid.

MICROLINE® R.O. DRINKING WATER SYSTEM MODEL T.F.C.-4PLF

REDUCTION PERFORMANCE CLAIMS: This system has been tested according to NSF/ANSI 58 for reduction of the substances listed below. The concentration of the indicated substances in water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 58. Testing was performed under standard laboratory conditions. Actual performance may vary.

	NSF/ANSI 58 Standard Requirements		Actual Test Results	Test Parameters:
	Influent Challenge Concentration (mg/l) ¹	Maximum Allowable Product Water Concentration (mg/l) ¹	Average % Reduction ²	
Arsenic (Pentavalent) ³	0.30 ± 10%	0.010	98	pH 7.5±0.5
Barium	10.0 ± 10%	2.0	93	Turbidity ≤ 1 NTU
Cadmium	0.03 ± 10%	0.005	98	Temperature 77°±2° F
Chromium (Hexavalent)	0.30 ± 10%	0.1	91	Pressure 50 psig
Chromium (Trivalent)	0.30 ± 10%	0.1	94	1 Unless otherwise indicated.
Copper	3.0 ± 10%	1.3	98	2 Average based upon actual test data.
Fluoride	8.0 ± 10%	1.5	95	3 This system has been tested for the treatment of water containing pentavalent arsenic (also known as As(V), As(+5), or arsenate) at concentrations of 0.30 mg/L or less. This system reduces pentavalent arsenic, but may not remove other forms of arsenic. This system is to be used on water supplies containing a detectable free chlorine residual at the system inlet or on water supplies that have been demonstrated to contain only pentavalent arsenic. Treatment with chloramine (combined chlorine) is not sufficient to ensure complete conversion of trivalent arsenic to pentavalent arsenic. Please see the Arsenic Facts section of the Performance Data Sheet for further information.
Lead	0.15 ± 10%	0.010	98	4 This system is acceptable for treatment of influent concentrations of no more than 27 mg/L nitrate and 3 mg/L nitrite in combination measured as N and is certified for nitrate/nitrite reduction only for water supplies with a pressure of 280 kPa (40 psig) or greater.
Nitrate + Nitrite (both as N) ⁴	30.0 ± 10%	10.0	80	5 The reduction of Radium was verified by using Barium as a surrogate under NSF/ANSI Standard 58.
Nitrate (as N) ⁴	27.0 ± 10%	10.0	80	
Nitrite (as N) ⁴	3.0 ± 10%	1.0	77	
Radium 226/228 ⁵	25 pCi/l ± 10%	5 pCi/l	80	
Selenium	0.1 ± 10%	0.05	96	
Total Dissolved Solids	750 ± 40 mg/l	187	93	
Cysts	50,000#/ml minimum	99.95% reduction requirement	99.99	

(The cyst reduction claim includes oocysts of Cryptosporidium and cysts of Giardia and Entamoeba.)

APPLICATION GUIDELINES/SPECIFICATIONS AND FEATURES

Water Supply Parameters	Chemical	Limit	Caution:
Water Pressure: 40–100 psig (280–690 kPa)	Hardness:	<170 mg/l	Do not use with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.
Water Temperature: 40°–100° F (4°–38° C)	Iron:	<0.1 mg/l	
pH Operating Range: 4–11	Manganese:	<0.05 mg/l	
Optimum rejection at pH: 7.0 - 7.5	Hydrogen Sulfide:	0	
Max. T.D.S. Level: 2000 ppm	Water supplies that exceed limits for Hardness, Iron, Manganese and Hydrogen Sulfide require pretreatment.		

DRINKING WATER SYSTEM ASSEMBLY COMPONENTS

Sediment Prefilter:	5 Micron Filter, Part No. S7111
Carbon Prefilter:	Activated Carbon Filter, Part No. S7125
Membrane Type:	Thin Film Composite (T.F.C.), Part No. S1448RS
In-Line Carbon Post Filter:	In-Line Activated Carbon Filter, Part No. S7206W-JG

Refer to owner's manual for proper operation, installation instructions, warranty information, service interval recommendations, parts and service availability. See the test kit(s) for sampling instructions.

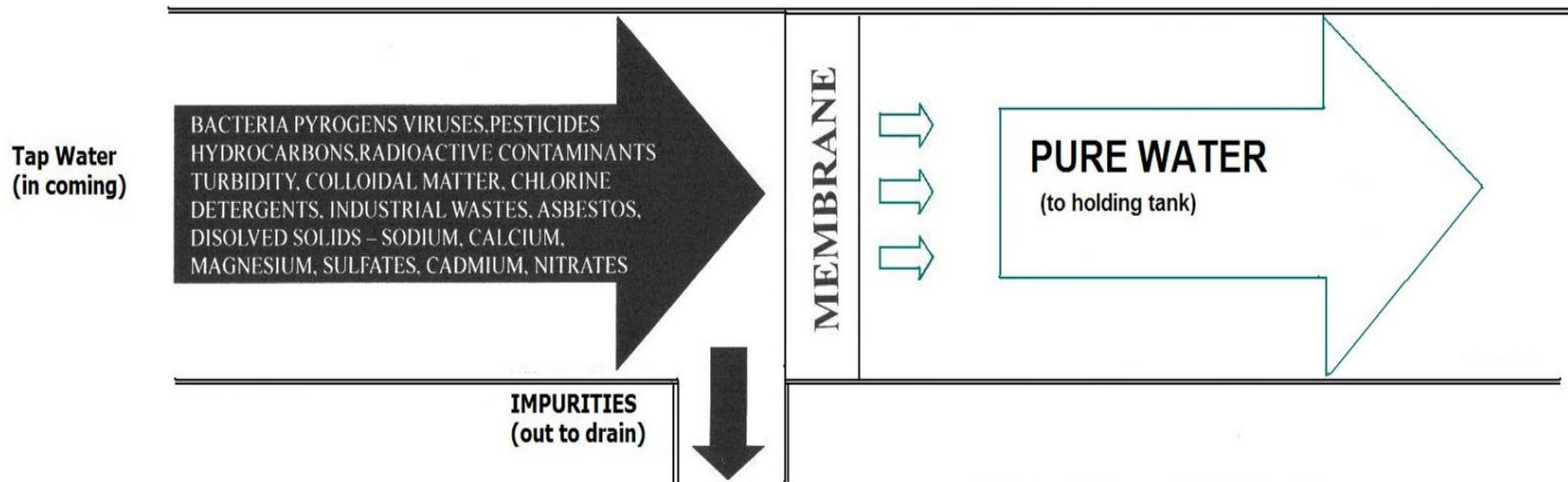
SYSTEM RATING

Average T.D.S. Reduction: 93%
System Production: 14 gallons per day (53 liters per day) **Recovery Rating:** 38% **Efficiency Rating:** 22%
 Measured at 50 psig, 77°±2°F, 750±40 mg/L T.D.S., per section 6 of NSF/ANSI standard 58 product water to pressurized storage tank. Recovery rating means the percentage of the influent water to the membrane portion of the system that is available to the user as reverse osmosis treated water when the system is operated without a storage tank or when the storage tank is bypassed. Efficiency rating means the percentage of the influent water to the system that is available to the user as reverse osmosis treated water under operating conditions that approximate typical daily usage. Sodium Chloride was used as a surrogate for T.D.S. System rating determined by laboratory testing at NSF.

MEMBRANE RATING

Membrane Production: 41-53 gallons per day (155–201 liters per day) **Membrane T.D.S. Reduction:** 96% minimum
 Note: Measured at industry standard condition of 65 psig, 77°F, 250 ppm T.D.S., and discharging to atmosphere. Actual system production and contaminant reduction will depend upon water temperature, pressure, pH and T.D.S. level, membrane variation and usage pattern.

How your unit works



ADVANTAGES:

- * Improves taste, odour and appearance
- * Highly effective purification process. Will remove the pollutants listed above and more!
- * Consumes no energy
- * Very convenient
- * Flushes away pollutants, does not collect them
- * Easy to keep clean
- * Low production cost, gives you water of a guaranteed quality for less than a cent per litre.

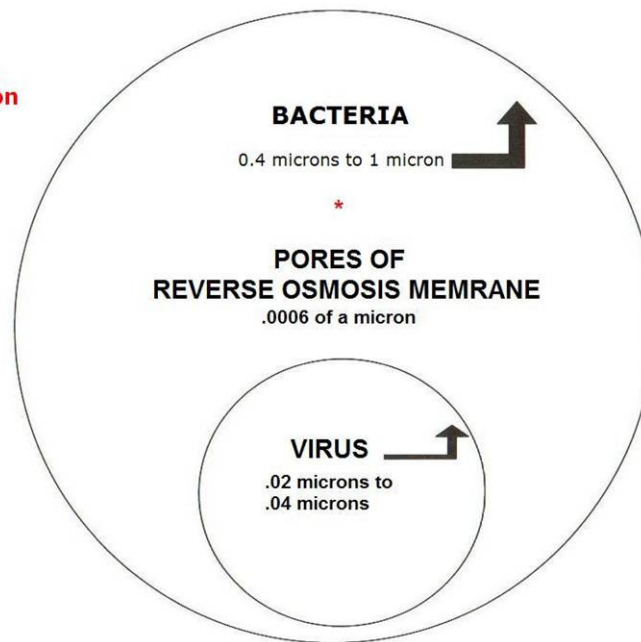
OPERATING PARAMETERS:

- * Must have water pressure of at least 40 p.s.i.
- * Cannot use hot water
- * Must not be frozen

Particle Sizes

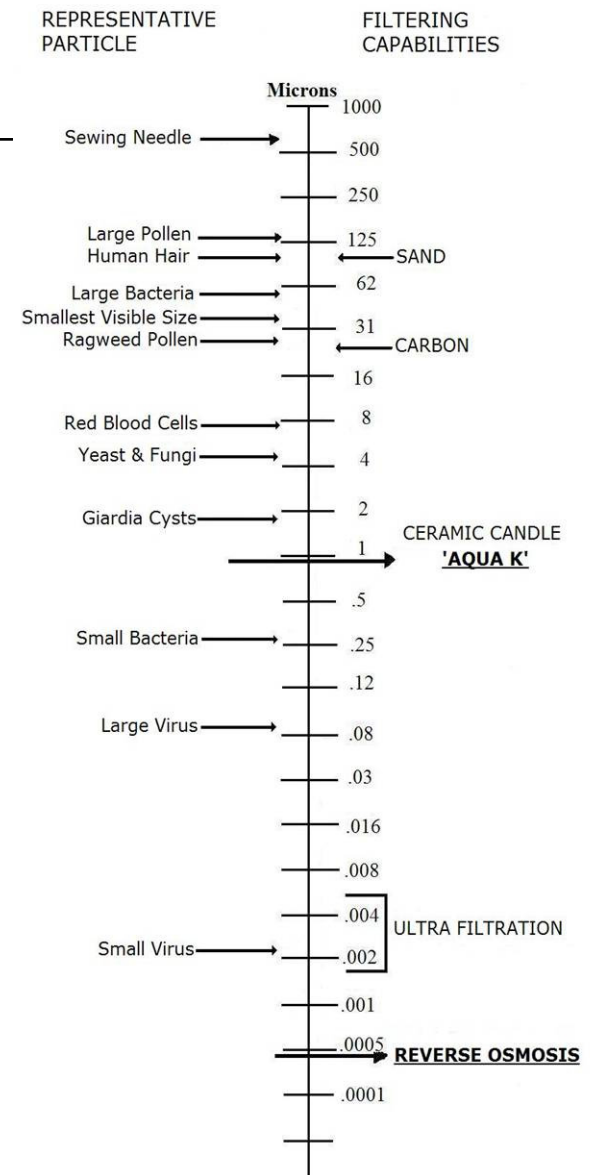
COMPARATIVE SIZES OF MATERIALS REJECTED BY A REVERSE OSMOSIS MEMBRANE

Smallest visible size is 40 times greater than the 'Bacteria' circle on the same scale



PARTICLE SIZES

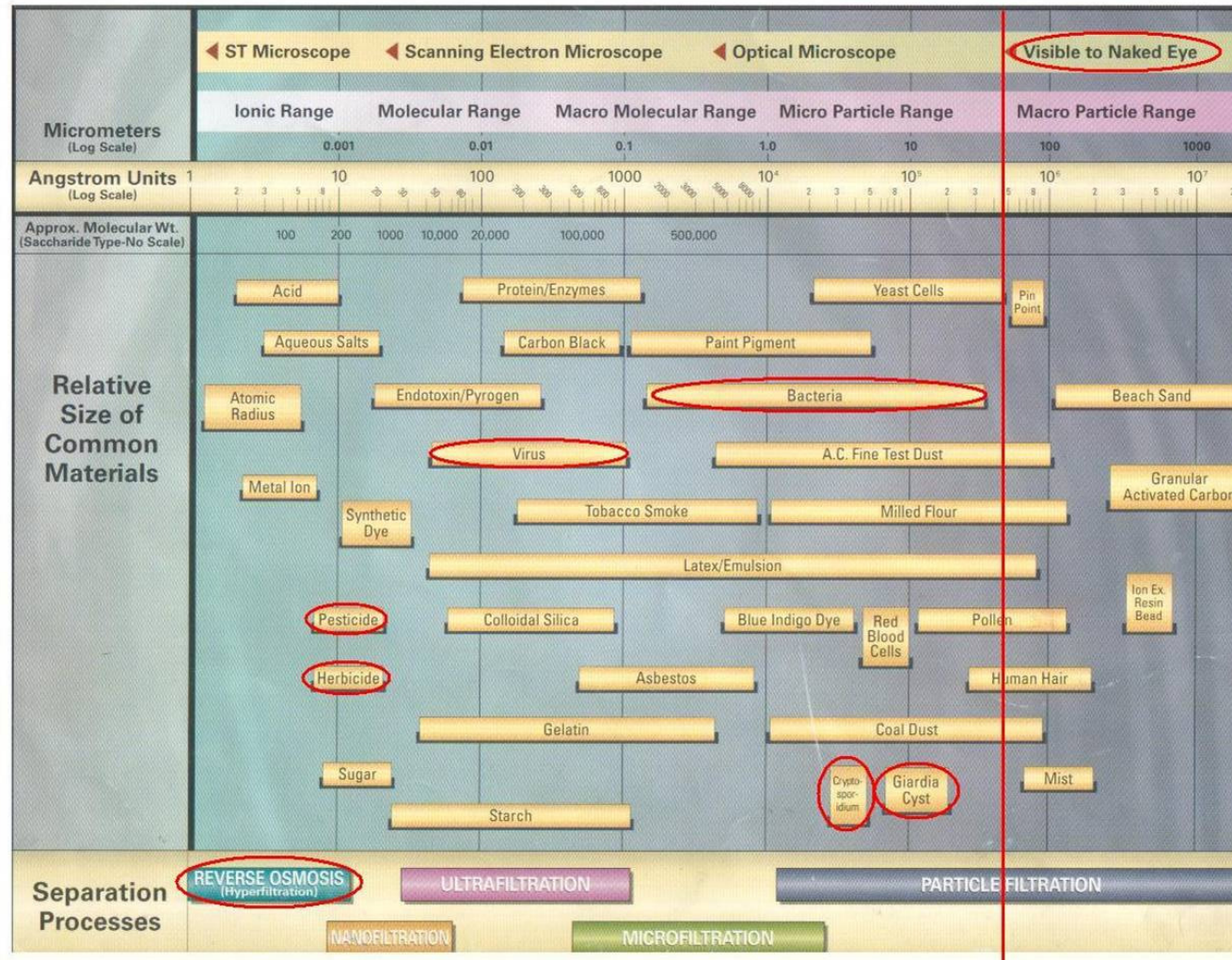
1 MICRON = 1 Millionth of a Metre



Filtration



Filtration and Separation Spectrum





Clients Comments

- 'Thank you for the newly installed filtration system. So good to have pure water instantly on hand for the kettle or drink bottle and even to go with the whiskey. We store water for emergencies, and now we know when we change the bottles that it will last longer in the containers. Many Thanks'.

C&M Christchurch

'I had the water tested for bacteria and it came back clear but our symptoms were persisting. After almost 2 months at the address and no answers I decided to pay the money and have further tests done on the water. Our tests came back showing that our water was very high in Nitrates – the levels were at 16. It also showed our water was very 'hard'. We installed a Reverse Osmosis system for our drinking water and the transformation in our daughter has been remarkable. We watched her eczema literally disappear from her body. My symptoms of nausea and lack of appetite have also disappeared. This is just our experience. For us changing our water has bought about a dramatic improvement in our health which has led me to believe that it was indeed the Nitrates that were causing our health issues. Nitrates were an issue that I was completely unaware of. We are now into our 3rd week of being healthy and happy'.

H&E Ashburton

- "We have always been very happy with your prompt efficient service. There is always help at the end of the phone if ever we have a query or need help. I don't have any suggestions for improved service you do it well. Regards"

JW Akaroa Feb 2011

- "I found Sue Kelly Water Systems online and they were the first I called in the search for the best water purification system - I was extremely impressed with the level of service to the extent that I did not call anyone else! Sue's technical knowledge of the product was clearly very good and this gave me great confidence in the product. When I ordered the product, it arrived the very next day. Sue has been available for follow up support on installation and has been wonderfully supportive; I would highly recommend Sue Kelly Water Systems!"

LD Auckland May 2011

- Thank you for being so understanding, responsive, and in the end, so generous with the upgrade to the replacement unit. Your integrity and dedication to seeing it right when the first unit proved unreliable are memorable in this day and age, and much appreciated.

CL Auckland Nov 2011



Sue Kelly

Water Systems Ltd

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