

Reverse Osmosis Systems-QRO Series

Aquarius QRO reverse osmosis systems produce consistently good-quality water from most feedwater sources. Multiple treatment processes including filtration, absorption and reverse osmosis are used to remove sediment, chlorine, and up to 98% of dissolved organic and inorganic contaminants prior to storage in a sealed pressurised tank. On demand, stored RO water passes from the storage tank through a final activated carbon polishing stage and then to the outlet tap or point-of-use. Additional polishing stages are available with a choice of re-mineralisation cartridges (for Calcium and/or Magnesium addition), in-line UV sanitation, sub-micron and endotoxin-removal filters, and larger storage tanks.

The systems feature a unique moulded, multi-head design to eliminate fittings between filter heads and make for a compact, easily installed system requiring little maintenance. Systems include an automatic feedwater booster pump with low and high pressure cut-out switches. All filter cartridges and RO membranes conform to industry standard dimensions (non-proprietary) enabling rapid change-outs and re-configuration to meet different feedwaters and end-use applications. All systems have a water quality monitor to display water quality and to alert when the reverse osmosis membrane requires replacement.



QRODI standard



QRODI UV



Installation Dimensions:

QRO: 380mmx500mmx200mm (whd)
Standard 12l tank: 300mm dia. x 420mm high
Large 34l tank: 390mm dia. X 450mm high

Installation of the QRO reverse osmosis system is straightforward. Each system comes with an installation kit including tubing, drain clamp saddle, feedwater connection fittings, pressure limiting valve and a comprehensive user's manual. The storage tank and water purification stages are typically mounted under a sink or bench and connected to the existing dispensing cold-water tap or through a separate outlet tap.

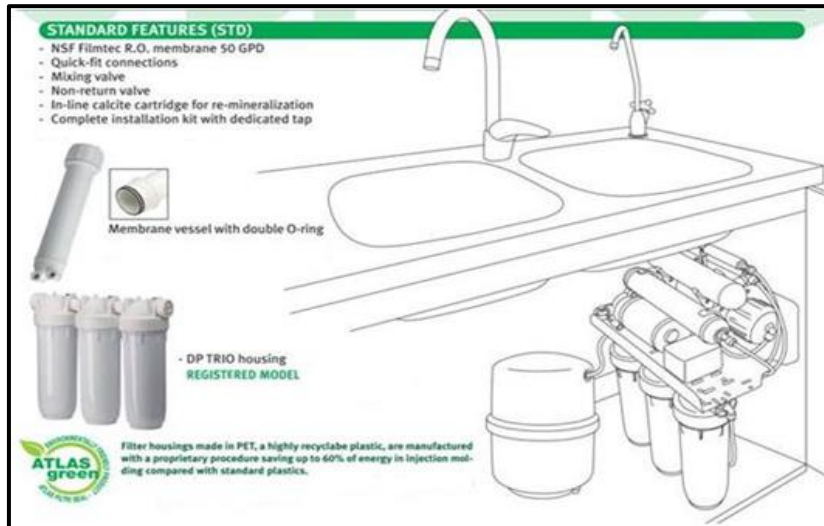


The standard QRO180M system produces 180 litres/day and includes a feedwater pressure boost pump and water quality monitor. The standard storage tank holds around 8 litres and options are available for 12, 14, 34, 40 and 60 litre storage tanks for larger systems or users with high peak loads. UV sanitation is also available if sterile water is required.

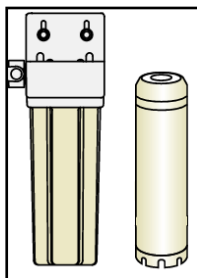
Ordering options:

Model QRO180M produces up to 280lpd and has a 12-litre tank.
Model QRO280M produces up to 280lpd and has a 34-litre tank.
Model QRO360M produces up to 360lpd and has multiple 34-litre tanks.
Model QRO600M produces up to 500lpd and has multiple 34-litre tanks.

Typical installation schematic



Optional accessories



Evolet anti-scale cartridge:

For use in areas where feedwater mineral hardness is above 100ppm to prevent scale formation on the RO membrane surface. Evolet TAC anti-scale cartridges use a unique media to convert soluble calcium and magnesium minerals into a non-adhesive form which does not adhere to membrane surfaces and is readily flushed to drain through normal RO operation. These cartridges can be incorporated into the QRO systems during manufacture, supplied complete with filter housing, or retrofitted to existing 10" filter housings.



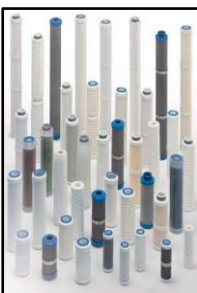
Larger Volume Storage Tanks:

Air pressure storage tanks are available with draw down volumes between 4.8 to 70 litres @ 2.76Bar. The standard supply included an 8 litre draw down volume tank. Increased storage tank capacity enables the QRODI systems to meet peak demand requirements when a large volume is required at any one time and the system is not heavily used outside peak times.



UV sanitation chambers:

These are used where applications require sterile or low bacterial content water. Chambers are installed in the dispensing line such that all water exiting the storage tank and final polishing, or post stage filter passes through the UV chamber immediately prior to use. UV sanitation systems may be retrofitted or ordered as the -UV option with new systems.



Replacement Filters

Genuine filters will keep your system operating reliably and to specification. Our sediment removal filters are of a grooved design and provide high strength and filtration area. Carbon and silver impregnated carbon filters provide de-chlorination, microbial stasis, and removal of organic contaminants. Reverse osmosis membranes have an engineered polyamide membrane surface for high flow and rejection characteristics. Final in-line deionisation cartridges remove trace levels of inorganic contaminants from the treated water and use a nuclear grade mixed-bed deionisation resin for maximum performance.



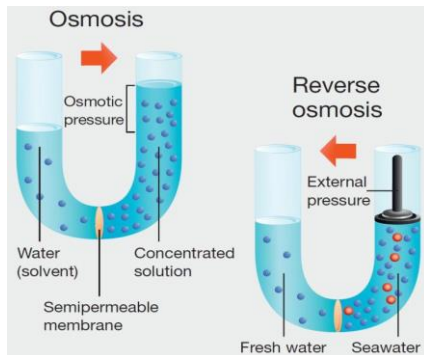
Leak detectors

Automatic leak detectors use a battery powered sensor fitted to a catch tray and a latching feedwater inlet solenoid valve. When moisture is detected in the catch tray, the solenoid valve closes and prevents further water flow to the system. Manual re-setting is required to re-start the system after the source of the leak is located and repaired.

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About Reverse Osmosis

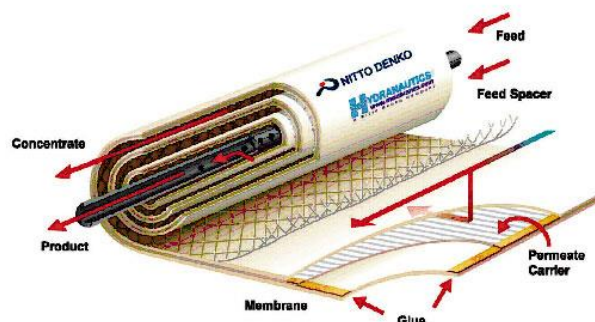
Reverse osmosis is a very mature, well developed technology whose performance is easily measured. It is the method of choice for industrial, municipal, and commercial applications when a reduction in feedwater TDS/conductivity or similar contaminants is required.



Osmosis is a term used to describe the diffusion of fluid through a semipermeable membrane from a solution with a low solute concentration to a solution with a higher concentration. Osmosis can be reversed if sufficient pressure is applied to the concentrated side of the membrane. This reversal process is used for water purification and desalination as the membrane allows only the water to pass through, but not larger molecules or ions (like salt).

For the reverse osmosis system to operate effectively, the feedwater must be filtered to remove suspended solids (to around 5 microns and then de-chlorinated). An anti-scale process may be required to remove hardness minerals (calcium, magnesium, and iron) which would otherwise increase in concentration on the waste side of the membrane to the point where they form scale and foul the membranes.

The pre-treated feedwater is pressurised and forced into a series of membrane and pressure vessel assemblies where the separation of pure water and contaminants occurs. Multiple membranes may be used for the higher flow rates and are housed in single or multi-place pressure vessels. RO membranes are available for a wide variety of feedwaters and all membranes have a similar physical structure. They differ in membrane polymer type, membrane thickness, surface area, spacer thickness, outer membrane covering and physical size. Surface modified membranes are used in more specialised areas to yield maximum stable performance.



Permeate (purified) water exiting the reverse osmosis membrane may be used directly or polished to remove trace levels of remaining contaminants through:

- Mixed-bed Deionisation for scavenging trace levels of inorganic contaminants
- Organic scavenger resins or UV photo-oxidation to reduce TOC levels.
- UV irradiation to sterilise the water.
- Membrane degassing to remove any remaining dissolved gases.

Any or all polisher stages can be incorporated into a system design to ensure that final water quality is suitable for the intended purpose.