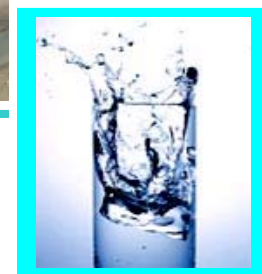


NR- RO for POTABLE WATER



NR- Reverse Osmosis (RO) system
for municipal water treatment plants

..... from the company trusted worldwide.



NR-RO (REVERSE OSMOSIS) SYSTEM FOR POTABLE WATER

Napier Reid designs and manufactures NR-RO brand reverse osmosis plants to produce potable water. The NR-RO plants are individually designed as per client's requirements.

The NR-RO system can very effectively treat surface and ground water to produce potable water. The pores of a NR-RO membrane are approximately 0.0005 micron in size while viruses are 0.02 to 0.4 micron and bacteria are from 0.2 to 1 micron. (Note: Granular media remove contaminants 10 micron and higher). Hence, the system can very effectively remove up to 99.99% of bacteria and viruses like E-Coli, cryptosporidium and giardia cyst. The NR-RO system very effectively removes dissolved minerals and metals like aluminum, arsenic, barium, cadmium, copper, chromium, chlorides, fluorides, magnesium, iron, lead, manganese, mercury, nitrate, silver, sulphate and zinc. It removes contaminants that cause taste, color and odor problems, asbestos, total dissolved solids (TDS), herbicides and pesticides. In combination with Granular Activated Carbon treatment process, it can remove VOC's like benzene, trichloroethylene, trihalomethanes and radon.

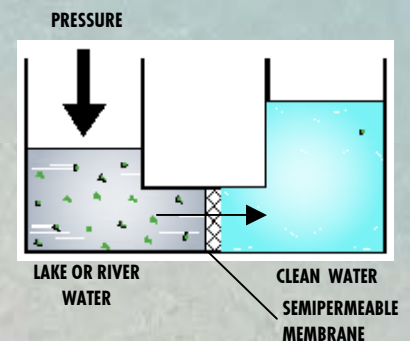
- Removes up to 99.99% of bacteria and viruses like E.Coli, cryptosporidium and giardia
- System designed for long membrane life
- Very stable and reliable process
- High degree of automation for least operator attention

How it Works

The NR-RO system works on the principle of reverse osmosis.

Reverse Osmosis (RO) Process:

In the RO process, pressure is applied to reverse the natural osmosis process. When high pressure is applied in the higher concentrate solution, the semi-permeable membrane allows the water to migrate from high concentrated solution to dilute solution while retaining the contaminants. This process is known as reverse osmosis. The microscopic pores on the membranes allow the water molecules to pass through while contaminants having higher molecular weight are prevented.

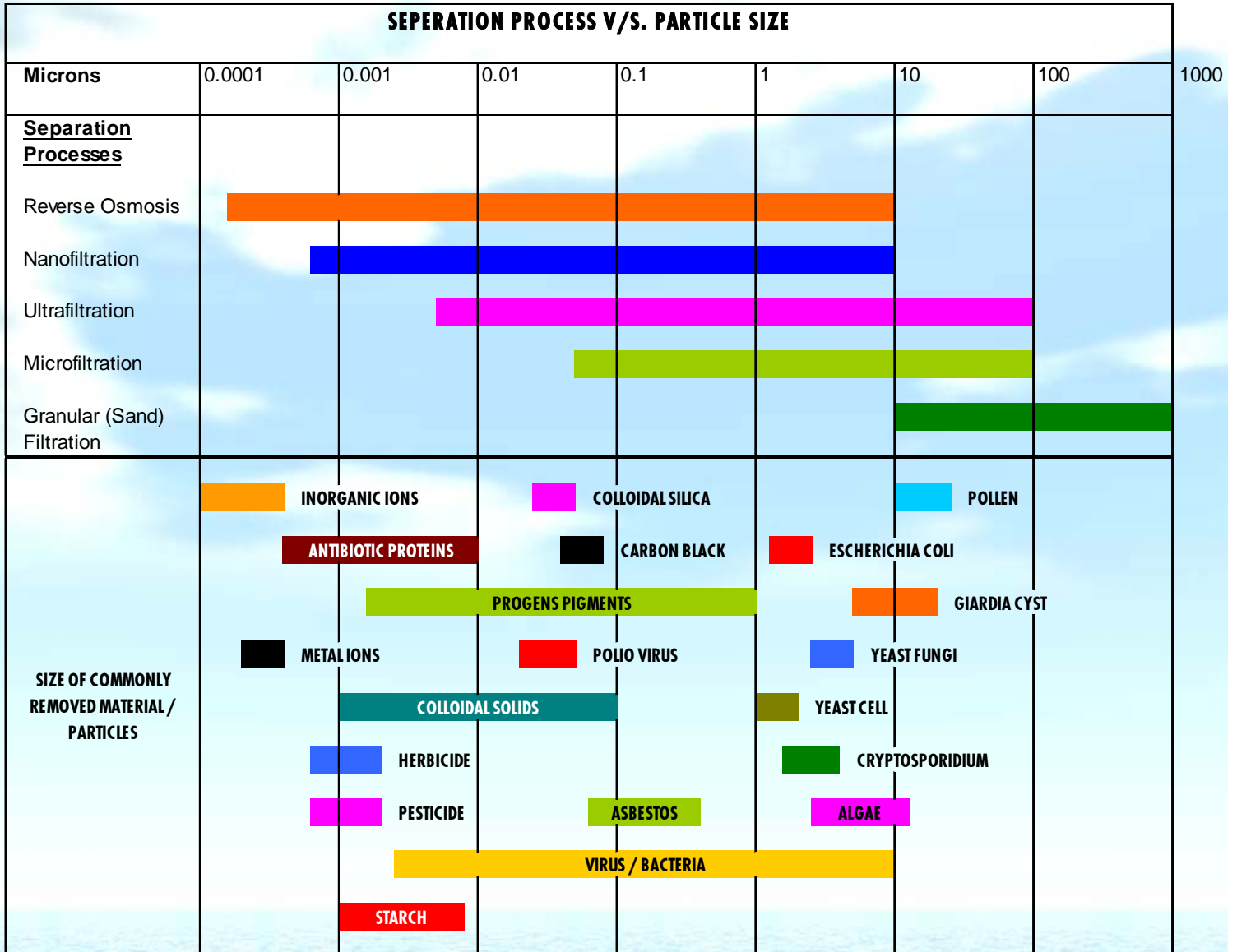


REVERSE OSMOSIS PROCESS

The NR-RO system consists of semi-permeable membrane, which allows only pure water to pass through it. It rejects the contaminants that are too large to pass through the microscopic pores. In the cross flow mode of operation, the fluid passes through the membrane, and some fluid continues downstream, sweeping the rejected contaminants away from the membrane. Thus, the membrane continuously cleans itself.

The necessary driving force to push the fluid through the membrane is provided by high-pressure pumps.

Reverse Osmosis Filtration for Potable Water



Typical Design / Operating Parameters of NR-RO:

- **Operating Pressure:** 75 - 500 psi
- **Filtration:** 0.0005 micron
- **Mode of operation:** Cross flow
- **Product Recovery:** 75 to 90%
- **Contamination Rejection:** up to 99.99%
- **Capacity:** 10 m3/day to 5000 m3/day



Reverse Osmosis Filtration for Potable Water

FEATURES OF NR-RO SYSTEM:

- Skid mounted system for ease of transportation and installation
- Robust, high efficiency multistage reverse osmosis pumps to feed influent
- Stainless steel / Fiberglass RO pressure vessels
- Thin film composite RO membranes for up to 99.99% rejection of total dissolved solids (TDS), organics, bacteria, viruses and other contaminants
- High water recovery rate
- High level of automation and instrumentation with PLC for system monitoring and control

ADVANTAGES OF NR-RO SYSTEM:

- Well-designed system for least maintenance and long life
- High quality membranes having high chemical tolerance, good mechanical strength and easy to clean
- Simple to operate and maintain
- Reliable in performance and operation stability
- Requires minimal operator attention
- Compact, requires very less foot-space compared to other processes
- Modular design, for ease in future expansion

About Napier-Reid

over 60 years of excellence in water & wastewater

Napier-Reid is located in the greater Toronto area in the Province of Ontario, Canada. We supply engineering services and process equipment for water and wastewater treatment.

We have the technology, resources and experience to design, manufacture and implement innovative water and wastewater treatment solutions worldwide. We have completed over 2900 projects since our inception in 1950. These stand as a testament to our ongoing commitment to providing the highest quality service, products and after sales support in the industry. Our capabilities include engineering, manufacturing, installation and field support. We have in-house personnel for complete mechanical, electrical and instrumentation process and control system design. As a manufacturer, our designs focus on cost-effective solutions, simplicity of installation and ease of maintenance.

Napier-Reid has developed an excellent team with many years experience. We have a well-deserved reputation for innovation, service and integrity. A significant portion of Napier-Reid's business is now exported to countries such as the Caribbean, Central America, Venezuela, Middle East, Egypt, Indonesia, Russia, Poland and Nigeria. Some of these projects are financed by Canadian government or International financing institutes. As a Canadian manufacturer, we are eligible for Canadian governmental funding and EDC export credit. We have the capability to handle a large range of projects, from engineering, equipment supply, installation, start-up, to turnkey projects. Let Napier-Reid be your single solution for water and wastewater purification.



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