

# RO4 and RO8 Range

## Applications

Derwent's range of R/O's are developed to meet the demands of industry and commerce, this range utilises the most modern technology and computerised design facilities. Reverse Osmosis pre-treatment and post treatment options include :-

- Multimedia filters
- Carbon filters
- Water softeners
- Chemical dosing
- Mixed bed polishers
- Raw water break tanks
- UV Treatment
- Permeate storage and distribution
- Automatic membrane cleaning



## Reverse Osmosis and Membranes and Housings

Polyamide thin film composite membranes are used as standard contained in glass reinforced housings. These membranes give consistent results with outstanding system performance. Polyamide thin film elements are also recommended for multi element housings containing three or more membrane elements as they are designed to withstand higher pressure drops. Our elements and r/o systems are also designed with energy and high rejection rates in mind to give the most cost effective solution to the customer.

## Reverse Osmosis

A central control panel houses the conductivity meter which monitors the water quality leaving the plant and a PLC (programmable logic controller) to control the system. The main feed pump starter is in the control panel and protected by an inlet water pressure switch. Flow rates are adjusted by regulating valves checked against inline flow meters for permeate and concentrate flows. One or more 5 micron cartridge filters are installed in a filter housing at the inlet to the plant. These filters protect the RO membranes. Their operation is monitored by pressure gauges and the low pressure alarm after the filters.

## Reverse Osmosis Multistage Pumps

We use Grundfos vertical multistage centrifugal pump fitted with a standard Grundfos motor. The pump is easy to service with stay bolts securing the chamber stack and outer sleeve between the pump head and base. All pumps are equipped with a maintenance free mechanical shaft seal.

## Reverse Osmosis Skid Mounting

The plant is mounted on a mild steel skid, protected by a two-pack epoxy finish. Stainless steel is used on the smaller range. Before despatch, the plant is thoroughly works-tested.

## Technical Specification

Model No	RO4/1	RO4/2	RO4/3	RO4/4	RO4/5
Permeate Flow (litres /hr)	200	400	600	800	1000
Feed Flow (litres / hr)	270	533	800	1066	1330
Elements (4") Qty	1	2	3	4	5
Inlet (")	3/4	3/4	3/4	3/4	3/4
Outlet (")	1/2	1/2	1/2	1/2	1/2
Drain (")	1/2	1/2	1/2	1/2	1/2
Motor Power (Kw)	1.1	1.1	1.5	2.2	2.2
Length (mm)	600	600	600	600	600
Width (mm)	500	550	550	550	550
Height (mm)	1540	1540	1540	1540	1540
Operating Pressure (bar)	12	12	12	12.3	12.5



Model No	RO8/2	RO8/3	RO8/4	RO8/5	RO8/6	RO8/9	RO8/12	RO8/18
Permeate Flow m3/hr	2.0	3.5	5.0	6.0	7.0	10.5	13.0	18.0
Feed Flow m3/hr	2.7	4.7	6.6	8.0	9.3	14.0	17.3	24.0
Elements (8") Qty	2	3	4	5	6	9	12	18
Inlet (")	1	1 1/2	1 1/2	1 1/2	2	2	2	1/2
Outlet (")	1	1	1	1 1/2	1 1/2	1 1/2	2	2
Drain (")	1	1	1	1	1	1	1	1 1/2
Motor Power (KW)	3.0	4.0	5.5	5.5	7.5	11.0	11.0	11.0
Length (mm)	1800	2400	3400	3400	3400	3400	4500	7000
Width (mm)	800	800	800	800	800	800	800	800
Height (mm)	1900	1900	1900	1900	1900	1900	1900	1900
Operating Pressure (Bar)	7.5	8.5	9.0	9.2	9.0	9.0	8.7	8.7

### RO Sizing

Our sizing calculations are based on running the reverse osmosis systems with a low, but typical, feed temperature of 10oC and allow for the plant to achieve the design flow after 3 years normal running. We always check the design by simulating the performance of each plant on the given water feed conditions, which enables us to predict the quality of the treated water.

### RO Sizing

Exceptionally good water is obtained when the permeate water from an RO is further processed by passing it through a second system. The reject water from the second system is totally recovered and fed back to the first RO. Each two pass system is individually designed to optimise its performance.



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