

EUROWATER

A GROUP OF CO-OPERATING EUROPEAN WATER TREATMENT SPECIALISTS

CUSTOMER INFORMATION

EUROTEC SERIES 04 REVERSE OSMOSIS PLANTS



APPLICATION FIELDS

- **COOLING AND BOILER FEEDWATER**
- **PROCESS WATER FOR PHARMACEUTICAL AND CHEMICAL INDUSTRIES**
- **RINSE WATER FOR PRODUCTION OF ELECTRONICS, GLASS AND MIRRORS**
- **WATER FOR TECHNICAL RINSE AND WASHING PROCESSES**

EUROTEC REVERSE OSMOSIS PLANTS

The product range for EUROTEC reverse osmosis plants comprises the plant series L4, 01, 02, 03, and 04 with flow rates from 30 l/hour to 60 m³/hour. For specific information about series L4, 01, 02, and 03 we refer to the individual brochures.

SERIES 04. 28-48 MEMBRANES

This series is designed for flow rates from 28 to 60 m³/hour. The plants are equipped with eight inch membranes. There are four membranes in each pressure vessel.

The series follows our basic principles on construction and design.

CAPACITY

The plant capacity depends upon pressure, salt content and temperature of the feedwater. The capacity increases with increasing pressure and temperature and decreasing salt content. The table states the standard capacity for each type.

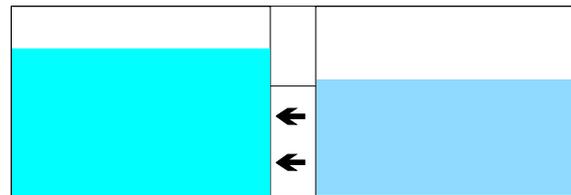
| TYPE | STANDARD CAPACITY m ³ /hour |
|-------|---|
| 04-28 | 28-35 |
| 04-32 | 32-42 |
| 04-36 | 36-45 |
| 04-40 | 40-50 |
| 04-44 | 44-55 |
| 04-48 | 48-60 |

INDIVIDUAL PLANTS

The plants are designed according to demand. Standard modules can be composed and extended as required and we are open to discussion of the final design.

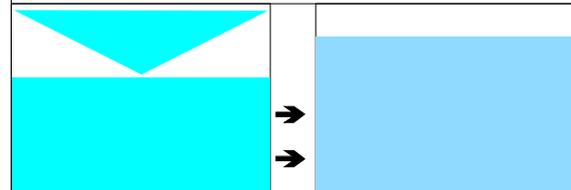
CONSTRUCTION EXAMPLE

The pictures on the front show four plants each with 32 membranes. The capacity is 40 m³/hour per plant. The plants measure 5.5 metres long, 2.2 metres high, and 1.75 metres wide.



OSMOSIS

When a semi-permeable membrane separates two solutions with different salt concentrations, pure water from the low concentrated side will pass through the membrane to reach an equilibrium in salt concentration on both sides.



REVERSE OSMOSIS

By applying pressure on the more concentrated solution, the water flow is reversed and pure water is forced through the membrane into the less concentrated solution.

PRINCIPLE OF OPERATION

Pretreated water is pumped into the membrane housings along the membrane surface. Pure water is permitted to pass through the membrane while ionic, organic, colloidal and bacterial contaminants are swept away in concentrated solution. Consequently, a reverse osmosis system always creates two continuously exit streams: pure water (permeate) and brine (concentrate). Normally up to 80 per cent of the feedwater can be removed as permeate.

DEMINERALIZATION

Salts are repelled from the surface of the membrane while water molecules are allowed to diffuse freely through the membrane creating a purified product stream. Higher valence ions (salts) are rejected to a greater degree. Average rejection of dissolved salts ranges between 98 and 99 per cent.

PRETREATMENT

Proper pretreatment of the feedwater to a RO system is an essential factor for smooth long-term operation. Clogging of the membranes by suspended solids, scale-forming minerals and other impurities has to be prevented by appropriate measures. Hardness minerals can be removed in a softener, suspended solids in a mechanical filter while free chlorine can be removed in an activated carbon filter. As an alternative to softening, dosing of anti-scaling agents can be used.

POLISHING

Polishing of permeate in a mixed-bed plant or an EDI plant is normally required when high purity water is needed.

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