

SEA WATER REVERSE OSMOSIS MODELS

INDUSTRIAL



System Capacities

- ⊕ The model can be designed with system capacities ranging from 75cu-m/day to 230cu-m/day.
- ⊕ Intended for sea water with a salinity of less than 39,000mg/l.
- ⊕ Capacity will vary according to the feed water TDS and temperature.
- ⊕ The pump operating pressure will vary according to the feed water quality.
- ⊕ Typically pump pressure will be in the range of 55 to 65 Bar.

Note: Customers are to request a projection and design for their particular water and specific requirements. Larger system capacities are also considered by request.

Typical Dimensions

- ⊕ RO unit : Approximate 6m (L) and 1.5m (W)
- ⊕ Overall Height: Approximate 1.6m

Models

Model	Nominal Capacity (cu-m/day)	Membranes 8" X 40
EKO SW -4	75	4
EKO SW -6	110	6
EKO SW -8	150	8
EKO SW -10	190	10
EKO SW -12	230	12

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Operating Conditions

Feed Pressure:	55 to 65 Bar
Power:	400VAC 50Hz 3 phase
Temperature range:	5°C to 30 °C
Feed pH:	4 to 8
Feed TDS:	< 39,000mg/l

Equipment

The RO unit will be pre-assembled on a structural stainless steel or coated carbon steel and will include the following main components:

- ⊕ Danfoss APP Duplex positive displacement pump
- ⊕ Danfoss ISave Duplex energy recovery device
- ⊕ Speed inverter for high pressure pump
- ⊕ Speed inverter for ISave energy recovery device
- ⊕ 40" (TM820) 8" Toray Membranes or equal
- ⊕ GRP Membrane vessels 1000psi
- ⊕ IP 65 Electrical Control Enclosure
- ⊕ PLC Based RO Control with conductivity monitor
- ⊕ Low pressure pipes & fittings in PVC
- ⊕ High pressure pipes & fittings in super duplex stainless steel
- ⊕ Pump low pressure shut off switch
- ⊕ Inlet solenoid valve
- ⊕ Fresh water flushing system
- ⊕ SSTL Inlet pressure gauge & SSTL membrane pressure gauge
- ⊕ Plastic Pre-filter housing
- ⊕ Frame for mounting above equipment in stainless steel or coated carbon steel

Pre-Treatment Information

The membranes used in most reverse osmosis system including our SWRO range, are spiral wound and made of a polyamide material. The passages within a membrane are fairly small and therefore un-dissolved materials can become dislodged inside the membrane. This leads to a potential blocking of the membrane and thus reduction of capacity. TUA Engineering designs their systems with multiple cartridges, nevertheless pre-treatment in the form of further filtration and undissolved solid removal may be required. The reject from a reverse osmosis system has an increased concentration of salts and particularly hardness salts. Care must be taken to ensure that these salts do not precipitate in the membrane since this can lead to irreversible damage. Depending on the feed water as well as the system recovery, anti-scalant chemical injection may also be required before the system as part of the pre-treatment.

Contact **TUA Engineering** for assistance on your pre-treatment requirement.