

# UO-D 120 - 500 C

## Reverse osmosis units with simplex softener

The ready-to-connect combi unit includes a pre-filter, a backflow preventer, a simplex water softener, a limitron hardness control device and a reverse osmosis unit with cover. It is used for the desalination of water with a salinity of up to 1,000 mg/l and is equipped with a compact rotary vane pump. The RO digital microprocessor controller enables fully automatic operation with logging of all relevant operating data and freely adjustable limit values. The unit can be connected to the central control system via an optional Profinet interface.

### BENEFITS

- Complete pre-treatment integrated, can be connected directly to the drinking water network
- Simple installation on site with only four connection points (drinking water, permeate, waste water, socket)
- Beautifully designed reverse osmosis cover
- Versatile RO digital controller with logging of operation data and many parametrisation options

### APPLICATIONS

- Discontinuous water softening and desalination
- Suitable for all commercial and industrial applications with discontinuous water demand (e.g. nightly shut-down)



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### DESCRIPTION

Reverse osmosis with pre-treatment as combi unit

- Compact RO unit with plastic designer cover
- Stainless steel base frame, RO part on powder-coated steel panel
- Prefilter (100 µm) with two manometers, backflow preventer
- Volume-controlled simplex softener ECOTROL-E with limitron hardness control unit
- Pre-filter RO (5 µm) with two glycerine-filled manometers
- High-pressure pump as a rotary vane pump
- Low pressure element(s) with PA/PS composite membrane in stainless steel pressure vessel(s)
- Connection cable (3 m) with 16 A - 6 h CEE plug, 3-pin
- Unit incl. piping and wiring, electrical construction acc. to VDE 0100 Part 600, VDE 0113 Part 1
- Unit tested, parameterised and conserved in own test field

Fittings and instrumentation

- Inlet solenoid valve and sampling valves for feed water, soft water and permeate
- Valves for adjusting the flow rates of permeate and concentrate
- Pressure sensors for pump inlet pressure and operating pressure
- Flow sensors for permeate and concentrate
- Conductivity measurement of permeate with temperature compensation
- Connection fittings for a manual cleaning system

RO digital microprocessor controller

- Fully automatic monitoring and control of the unit
- Easy menu-guided operation of the controller with six buttons
- Four-line illuminated display and two LEDs as local signals for operation and fault
- Languages of the plain text display: German / English / French / Spanish
- Circular storage of operation data (1,960 data sets) with adjustable storage interval
- Operational reliability through adjustable limit values with fault message and display
- Password-protected programming of operating parameters

Available inputs

- DIGITAL: external stop (e.g. in case of interrupted feed water supply), motor protection / hard water, 2x level permeate tank (tank min / max) and 3x universal input (configurable)
- ANALOGUE: Level permeate tank (4 - 20 mA)

Available outputs

- DIGITAL: collective fault signal, universal output (configurable)
- ANALOGUE: conductivity permeate, measuring range 1 - 999 µS/cm (4 - 20 mA)

Optionally available

- HR modules for increasing salt rejection rate from 97 % to > 98.5 % (slightly lower permeate capacity)
- PR permeate recirculation, VSE blending device, Profinet interface

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### CONDITIONS OF USE

The unit may only be used for the desalination of feed water with drinking water quality or appropriately pre-treated well or surface water. The unit is designed for a salinity (TDS) of 1,000 mg/l and a temperature of 15 °C. Under these conditions, the projected permeate output is achieved even after three years of operation. The permeate yield depends on the raw water quality and the pre-treatment. The following parameters must be maintained in the feed water:

Free chlorine	not detectable
Iron (Fe)	< 0.2 mg/l
Manganese (Mn)	< 0.05 mg/l
Silica (SiO <sub>2</sub> )	< 25 mg/l
Silt density index (SDI)	< 3
Feed water temperature	5 – 35 °C
Feed water pressure	3 – 6 bar
Pressure fluctuation	± 0.5 bar

### TECHNICAL DATA OF SERIES

Controller	RO digital
Desalination rate min.	97 %
Permeate recovery	75 – 80 %
Permeate back pressure max.	0.3 bar
pH value operation	6.5 – 9.5
pH value cleaning	2 – 12
Ambient temperature	5 – 40 °C

Product name	Mains connection	Hydraulic connection	Dimensions in mm	Item number
Permeate l/h	kW / V / Hz	feed/permeate/conc.	W x D x H	
UO-D 120 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 211
UO-D 300 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 212
UO-D 500 C	0.55 / 230 / 50	DN 20 / DN 10 / HT 50	1,130 x 780 x 1,520	420 213