

UO-ED 50 - 1,200 Z CD

Counterpressure RO units with duplex softener

The ready-to-connect combi unit includes a pre-filter, a backflow preventer, a duplex water softener, a limitron hardness control device and a counterpressure reverse osmosis unit. It is used for the desalination of water with a salinity of up to 1,000 mg/l . It is designed for a permeate counterpressure of 4 bars and can be operated with up to 7 bars. The unit is equipped with a compact rotary vane pump (unit size 50 and 150) or a high-quality centrifugal pump (unit size 300 - 1,200) as well as a full-flow diaphragm pressure vessel. The microprocessor controller RO digital enables fully automatic operation with logging of all relevant operating data and freely adjustable limit values.

BENEFITS

- Ready-to-connect unit including pre-treatment
- Simple installation on site with only four connection points (drinking water, permeate, waste water, socket)
- Design with minimal dead zones and hygienic operation to meet the requirements of air conditioning applications
- Transport of permeate over several floors possible, no permeate storage required
- Versatile RO digital controller with logging of operation data and many parametrisation options

APPLICATIONS

- Continuous water softening and desalination
- For the direct supply of e.g. air-conditioning systems such as humidifiers with water according to VDI 6022



UO-ED 300 Z CD

UO-ED 50 - 1,200 Z CD

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DESCRIPTION

Counterpressure reverse osmosis with pre-treatment as combi unit

- Stainless steel base frame with plastic front, powder-coated steel panel (only RO part)
- Pre-filter (100 µm) with two manometers, backflow preventer
- Water meter-controlled duplex softener with limitron hardness control device
- Pre-filter RO (5 µm) with two glycerine-filled pressure gauges, low-maintenance valve block hard nickel-plated
- High-pressure pump as low-noise, multi-stage centrifugal pump (from size 300 on, others with rotary vane pump)
- Low pressure element(s) with PA/PS composite membrane in stainless steel pressure vessels
- Control cabinet with lockable main switch and power section for controlling the high-pressure pump (from size 300 on, smaller units with connecting cable (3 m), 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 and permeate
- Valves for adjusting the flow rates of permeate and concentrate
- Permeate check valve per pressure vessel, flow sensors for permeate and concentrate
- Pressure sensors for pump inlet pressure, operating and concentrate pressure
- Conductivity measurement of permeate with temperature compensation
- Full-flow permeate diaphragm pressure vessel (from size 300 on, forced flow vessel for sizes 50/150)
- PR permeate recirculation and ARA connection fittings for a MRA manual cleaning system

RO digital microprocessor controller

- Fully automatic monitoring and control of the unit, easy menu-guided operation 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 to increase the desalination rate

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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 ₂)	< 25 mg/l
Silt density index (SDI)	< 3
Feed water temperature	5 – 35 °C
Feed water pressure	4 – 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.	4 - 7 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 (at 4 bars)	kW / V / Hz	feed/permeate/conc.	W x D x H	
UO-ED 50 Z CD	0.25 / 230 / 50	DN 20 / DN 15 / DN 15	1,700 x 800 x 1,560	420 250
UO-ED 150 Z CD	0.55 / 230 / 50	DN 20 / DN 15 / DN 15	1,700 x 800 x 1,560	420 251
UO-ED 300 Z CD	1.50 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	1,810 x 800 x 1,680	420 252
UO-ED 600 Z CD	1.50 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	1,900 x 800 x 1,750	420 253
UO-ED 900 Z CD	2.20 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	1,900 x 800 x 1,750	420 254
UO-ED 1200 Z CD	2.20 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	2,040 x 800 x 2,000	420 255