Data sheet as of 03/04/2023

UO-ED 50 - 1,200 Z
Counterpressure reverse osmosis units

The counterpressure reverse osmosis is used for the desalination of softened 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

- Compact unit, ideal for confined spaces
- 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

- Desalination of softened water
- For direct supply of e.g. air-conditioning systems such as humidifiers with water according to VDI 6022

UO-ED 300 Z

UO-ED 50 - 1,200 Z
Counterpressure reverse osmosis units

DESCRIPTION

Counterpressure reverse osmosis

- Base frame with plastic front panel and high-pressure piping with orbital welding made of stainless steel
- Pre-filter (5 µm) with two glycerine-filled manometers, low-maintenance valve block hard nickel-plated
- High-pressure pump as low-noise, multi-stage centrifugal pump (from size 300 on, smaller units with rotary vane pump)
- Low pressure elements with PA/PS composite membranes in GRP 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

- Hardness control unit limitron to protect the membranes from hard water
- HR modules to increase the desalination rate

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CONDITIONS OF USE

The unit may only be used for the desalination of softened 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 (SiO2)	< 25 mg/l
Silt density index (SDI)	< 3
Feed water temperature	5 – 35 °C
Feed water pressure	2 – 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	3.6 – 9.5
pH value cleaning	2 – 12
Ambient temperature	5 – 40 °C

Product name Permeate l/h (at 4 bars)	Mains connection kW / V / Hz	Hydraulic connection feed/permeate/conc.	Dimensions in mm W x D x H	Item number
UO-ED 50 Z	0.25 / 230 / 50	DN 20 / DN 10 / DN 10	610 x 500 x 1,530	380 620
UO-ED 150 Z	0.55 / 230 / 50	DN 20 / DN 10 / DN 10	610 x 500 x 1,530	380 621
UO-ED 300 Z	1.50 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 622
UO-ED 600 Z	1.50 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 623
UO-ED 900 Z	2.20 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 624
UO-ED 1200 Z	2.20 / 3 x 400 / 50	DN 20 / DN 15 / DN 15	710 x 790 x 1,630	380 625