

## Reverse Osmosis Units



Permeate back pressure up to 7 bar

UO-ED 30 - UO-ED 850

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**Stand-type unit** for desalination of softened drinking water according to German drinking water regulations (free chlorine not detectable), operating on the principle of reverse osmosis.

The reverse osmosis units type UO-ED are designed for supply of permeate with a backpressure of up to 7 bar. Therefore they are perfectly suitable for permeate supply for different points of use (e.g. humidifiers). An electrical signal for demand of permeate is not necessary.

### Unit design

**Stainless steel base frame** with plastic front panel to house the instruments and controls.

**Special inlet filter** with 5 µm-filter cartridge and 2 pressure gauges, **High pressure pump**, low-noise, multi-stage centrifugal type, **Low energy wound modules** with energy saving PA/PS composite membranes in GRP pressure vessels with inliner.

**Valves and instruments** including feedwater sampling valve, solenoid inlet valve, pressure switches for feed water and permeate, permeate and concentrate flow meter, vibration-resistant pressure gauges for pump and concentrate pressure, stainless steel valves for adjustment of permeate and concentrate flow rate, solenoid valves for internal permeate recirculation or permeate supply, **diaphragm pressure vessel for permeate**.

**Microprocessor control system**, as described below, **Electrical switch gear** for control of the high pressure pump, lockable main switch. Connecting cable (3 m) with 16 A - 6 h CEE five-pole plug.

**RO 1000 microprocessor control system** for fully automated monitoring and control of the reverse osmosis unit **with two-line LCD** (16 characters per line) of

**Operating data:** permeate conductivity (temperature-corrected), permeate temperature, operating hours,

**Malfunction signals:** low pressure, hard water, motor overload, high conductivity prealarm, high conductivity fault, **status signals:** permeate discard, permeate recycling, concentrate displacement, concentrate rinse, intermittent rinse during shut-down, shut-down by external signal (forced stop, regeneration),

**LEDs** for operation, malfunction, regeneration, discard, disinfection and full tank.

**Inputs** (low voltage) for level control with 1 or 2 float switches, hardness monitoring unit (the RO 1000 control system includes control functions for the limitron hardness monitoring unit), shut-downs by external signal (forced stop, regeneration),

**Outputs** for softening unit (230V/50Hz), 2 solenoid valves for concentrate rinse, permeate discard and recycling and DDC (collective malfunction signal on floating changeover contact).

Technical Data		UO-ED 30	UO-ED 90	UO-ED 170	UO-ED 340	UO-ED 500	UO-ED 660	UO-ED 850
Perm. flow rate a 7 bar backpress.	l/h	30	90	170	340	500	660	850
Perm. flow rate a 4 bar backpress.	l/h	48	140	290	580	800	1.000	1.180
Min. salt rejection	%	97	97	97	97	97	97	97
Recovery	%	80	80	80	80	80	80	80
Operating pressure	bar	12 - 14	12 - 14	13 - 15	13 - 15	13 - 15	13 - 15	14 - 16
Membrane element/num.		2540 / 1	4040 / 1	4040 / 1	4040 / 2	4040 / 3	4040 / 4	8040 / 1
Voltage	V/Hz	230/50	230/50	3x400/50	3x400/50	3x400/50	3x400/50	3x400/50
Motor power	kW	0.25	0.55	2.2	2.2	2.2	2.2	4.0
Pre-fusing	A	16	16	16	16	16	16	16
Feedwater connection	DN	20	20	20	20	20	25	25
Permeate/concentrate conn.	DN	15/15	15/15	15/15	15/15	15/15	15/15	15/15
Conductivity range	µS/cm	2 - 200	2 - 200	2 - 200	2 - 200	2 - 200	2 - 200	2 - 200
Min./max. feedwater press.	bar	2 / 6	2 / 6	2 / 6	2 / 6	2 / 6	2 / 6	2 / 6
Min./max. feedwater temp.	°C	5 / 35	5 / 35	5 / 35	5 / 35	5 / 35	5 / 35	5 / 35
Max. ambient temperature	°C	40	40	40	40	40	40	40
pH		3 - 11	3 - 11	3 - 11	3 - 11	3 - 11	3 - 11	3 - 11
Height	mm	1,640	1,640	1,640	1,640	1,640	1,640	1,850
Width	mm	600	600	600	600	890	930	600
Depth	mm	660	660	800	800	800	800	1,030
Weight approx.	kg	90	120	140	180	220	260	300
Code no.		380 570	380 571	380 572	380 573	380 574	380 575	380 576

The units are designed for a maximum TDS of 1,000 mg/l, a water temperature of 15°C, a maximum colloidal index of 3 and free permeate outlet. Under these conditions, the units still reach design permeate flow after three years of operation. The permeate recovery depends on the raw water quality and the type of pre-treatment.

Subject to modification. 08-06