

Energy saving with frequency controlled pump: up to -30%



ND and ND/FU Series: 2000 – 3500 l/h Standard RO Systems

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.

With RO 1000 controller and horizontal 4" membranes

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Unit design

Stainless steel base frame with plastic front panel housing 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 (**incl. frequency converter for ND/FU systems**), **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, feedwater pressure switch, permeate, concentrate and concentrate recirculation flow meters, vibration-resistant pressure gauges for pump and concentrate pressure, stainless steel valves for adjustment of permeate, concentrate and concentrate recirculation flow rate.

Microprocessor control system, as described below, **electrical switchgear** 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) and process-visualisation 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), 2 universal inputs,

Outputs for softening unit (230V/50Hz), 2 solenoid valves for concentrate rinse, permeate discard and recirculation, universal output, analogue output conductivity permeate (4-20 mA) and DDC (collective malfunction signal on floating changeover contact).

Unit completely wired and pre-assembled and ready for installation. Electrical equipment in accordance with VDE 0100 part 600, VDE 113 part 1.

The unit is 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 unit still reaches design permeate flow after three years of operation. The permeate recovery depends on the raw water quality and the type of pre-treatment.

Technical Data UO ... ND and ND/FU		UO 2000	UO 2500	UO 3000	UO 3500
Permeate flow rate	l/h	2000	2500	3000	3500
Min, salt rejection	%	97	97	97	97
Recovery	%	75	75	75	75
Operating pressure	bar	14	14	14	14
Membrane element/number		4040 / 6	4040 / 8	4040 / 9	4040 / 11
Voltage	V/Hz	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Motor power	kW	3	3	4	4
Pre-fusing	A	16	16	16	16
Feedwater connection	DN	32	32	32	32
Permeate/concentrate connection	DN	25	25	25	25
Conductivity range	µS/cm	2 – 200	2 – 200	2 – 200	2 – 200
Min./max. feed water pressure	bar	2 / 6	2 / 6	2 / 6	2 / 6
Min./max. feed water temperatur	°C	5 / 35	5 / 35	5 / 35	5 / 35
Max, ambient temperature	°C	40	40	40	40
pH		3 – 11	3 – 11	3 – 11	3 – 11
Height	mm	1650	1650	1650	1650
Width	mm	2450	2450	3450	3450
Depth	mm	700	700	700	700
Weight approx.	kg	240	320	340	380
Code No. ND Series		381 301	381 311	381 321	381 331
Code No. ND/FU Series		381 305	381 317	381 327	381 335