



UP 1100

UP 150 – UP 1350 RO + EDI Systems for ultra-pure water

Vertical frame system for desalination of softened drinking water operating on the principle of reverse osmosis (RO) in conjunction with the electro-deionization method (EDI).

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Unit design

Stainless steel main frame with plastic front panel housing the instruments and controls,

Pressure reducing valve to limit the input pressure, **special inlet filter** with 5 µm filter cartridge, **high-pressure pump** as rotary vane type (up to 250 l/h) or as low noise, multi-stage centrifugal type, **low energy spirally wound modules** with energy-efficient PA/PS composite membranes in GRP vessels with inliner, permeate recirculation subject to conductivity.

Electro-deionization module for continuous desalination of the RO permeate, consisting of a carefully designed robust housing containing a series of special ion selective membranes which create alternating concentrate and desalination chambers filled with mixed-bed ion exchanges resins. Two special electrodes are used to create an DC electric field across the chambers.

Valves such as sampling valves for feed water, RO permeate and EDI product, inlet solenoid valve, control valves made of stainless steel to regulate the flow rate of permeate, RO concentrate and EDI concentrate.

Pressure monitoring vibration-resistant pressure gauges for inlet and outlet pressure, pre-filter, operating pressure, RO concentrate pressure, pressure EDI feed water, inlet pressure EDI concentrate, product output pressure, pressure switch for monitoring the feed water pressure,

Flow meters for permeate, RO concentrate, EDI feed water, EDI concentrate, electrolyte, control of minimal EDI concentrate flow rate,

Permeate conductivity measurement, temperature compensated, measuring range 0 – 200 µS/cm,

Product water resistivity measurement, constant on-line with temperature compensation as defined by ASTM D 1125-95, measuring range 0 – 20 MΩ x cm.

Control cabinet with lockable main switch, **electrical switchgear** for control of the high-pressure pump, **integral power supply** for supply of voltage to the EDI module

RO 1000 microprocessor control system for fully automated monitoring and control of the system with two line text display (16 characters per line) for display of **operational status**: permeate conductivity, temperature, operating hours, password-protected programming of the operating sequences.

Malfunction displays for low pressure feed motor overload, high conductivity.

Additional connections: Inputs (low voltage) for level control with 1 or 2 float switches, shut-down by external signal (forced stop, regeneration),

Outputs for Pretreatment (230 V/50 Hz), solenoid valves for permeate discard and -recycling, and DDC (collective malfunction signal on volt-free changeover contact).

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

Options: Membrane degassing, dosing stations, concentrate flushing unit KSE, pipeworks in PP on request

The units are designed for softened feed water (< 0.1 °GH) with a maximum TDS of 1,000 mg/l, a water temperature of 15 °C, a maximum colloidal index of 3, a CO₂ content of 10 mg/l and a SiO₂ content of 20 mg/l. Under these conditions, the units still reach design product flow after three years of operation. The EDI product recovery depends on the raw water quality and the type of pre-treatment.

Technical data		UP 150	UP 250	UP 550	UP 800	UP 1100	UP 1350
Product flow rate	l/h	150	250	550	800	1,100	1,350
Resistivity EDI product (with free CO ₂)	MΩ x cm	5	5	5	5	5	5
Resistivity EDI product (without free CO ₂)	MΩ x cm	> 10	> 10	> 10	> 10	> 10	> 10
Recovery	%	70	70	70	70	70	70
Operating pressure	bar	12	12	15	15	15	16
Membrane element / number		4040 / 1	4040 / 1	4040 / 2	4040 / 3	4040 / 4	4040 / 5
Voltage	V/Hz	230/50	230/50	3 x 400/50	3 x 400/50	3 x 400/50	3 x 400/50
Power consumption	kW	1.3	1.3	4.1	4.1	4.1	4.1
Feed water connection	DN	20	20	25	25	25	25
Product water connection	DN	10	10	20	20	20	20
Waste water connection	HT	50	50	50	50	50	50
Height	mm	1,650	1,650	1,950	1,950	1,950	1,950
Width	mm	1,150	1,150	1,300	1,300	1,300	1,300
Depth	mm	700	700	850	850	850	850
Weight approx.	kg	160	170	200	230	260	280
Code no.		425 082	425 092	425 002	425 012	425 022	425 032
pH value feed water min./max. 5.0 / 9.5, feed water pressure min./max. 2/6 bar, feed water temperature min./max. 5/35 °C, ambient temperature max. 40 °C, pre-fusing max. 16 A							