

Reverse Osmosis Units



UO 50 combi – UO 500 combi

Reverse Osmosis Units

UO 50 combi – UO 500 combi

Stand-type units for desalination of drinking water according to German drinking water regulations (free chlorine not detectable), operating on the principle of reverse osmosis. These units include the water pretreatment components.

Unit design

Stainless steel base frame with plastic front panel to house the instruments and controls. **Prefilter** with 100 µm filter cartridge and 2 pressure gauges, **pipe separator** (EA1) according to DIN 1988 part 4, **softener**, compact design, **hardness monitoring unit limitron** for continuously monitoring of feedwater hardness, in case of hard water the reverse osmosis shuts-down, **special inlet filter**, with 5 µm filter cartridge and 2 pressure gauges, **high pressure pump**, rotary-vane type, **high performance wound module(s)** with PA/PS composite membranes in GRP pressure vessel(s) with inline.

Valves and instruments including feedwater sampling valve, solenoid inlet valve, feedwater pressure switch, 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.

Microprocessor control system, as described below, connecting cable (3 m) with 16 A – 6 h CEE three-pole plug.

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

RO 500 microprocessor control system for fully automated monitoring and control of the reverse osmosis unit with **two-digit alphanumeric display** of permeate conductivity, forced stop and full tank, **malfunction signals**: low pressure, hard water and high conductivity, **LEDs** for operation and disinfection, **inputs** (low voltage) for level control with 1 or 2 float switches, hardness monitoring unit (the RO 500 controller includes control functions for the limitron hardness monitoring unit), shut-downs by external signal (forced stop, regeneration), **outputs** for softening unit (230 V/50 Hz) and DDC (collective malfunction signal on floating changeover contact).

During the regeneration cycle of the water softener, no permeate is produced. The softener of the type UO 50 combi is time-controlled, the types UO 100 through UO 500 combi are water-meter-controlled. The integral system makes piping of the individual components on site unnecessary.

Technical Data		UO 50 combi	UO 100 combi	UO 250 combi	UO 300 combi	UO 400 combi	UO 500 combi
Permeate flow rate	l/h	50	100	250	300	400	500
Min. salt rejection	%	97	97	97	97	97	97
Recovery	%	75	75	75	75	75	75
Operating pressure	bar	14.0	12.0	11.0	11.0	10.0	10.0
Membrane element/number		2540/1	2540/1	4040/1	4040/1	4040/2	4040/2
Voltage	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50
Motor power	kW	0.3	0.55	0.55	0.55	0.55	0.55
Pre-fusing	A	16	16	16	16	16	16
Feedwater connection	DN	20	20	20	20	20	20
Permeate/conc. connection	DN	10/50	10/50	10/50	10/50	10/50	10/50
Conductivity range	µS/cm	1–99	1–99	1–99	1–99	1-99	1-99
Min./max. feedwater press.	bar	3/6	3/6	3/6	3/6	3/6	3/6
Min./max. feedwater temp.	°C	5/35	5/35	5/35	5/35	5/35	5/35
Max. ambient temperature	°C	40	40	40	40	40	40
pH		3–11	3–11	3–11	3–11	3-11	3-11
Capacity of softener	°dH x m ³	60	120	120	120	120	120
	mol x m ³	10.7	21.4	21.4	21.4	21.4	21.4
Salt stock	kg	75	60	60	60	60	60
Height	mm	1,700	1,700	1,700	1,700	1,700	1,700
Width	mm	760	760	760	760	760	760
Depth	mm	700	700	700	700	700	700
Weight approx.	ca. kg	130	135	140	142	155	157
Code no.		420 077	420 078	420 070	420 117	420076	420121

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

Subject to modification. 08-06