



Picture: UO 1650 AS



## AS and AS/FU Series: 1650 - 3100 l/h Antiscalant-based Low Pressure RO systems

Low energy consumption with frequency controlled pump (AS/FU): savings potential up to 30%  
 Low pressure systems for desalination of hardness stabilized drinking water (by antiscalant dosing) with a salt content of < 1000 mg/l. With RO 1000 and horizontal 8" modules.

### AS- and AS/FU-systems already contain:

- Control for metering pump Dosin AS-K
- Concentrate flushing device KSE
- Preparation for injection point
- Connection Set for manual cleaning unit, ARA

### Advantages AS/FU systems:

- Optimized energy and operation cost by adapted pump capacity and full use of net pressure
- Short payback period
- Reduced maintenance, particularly quiet
- Future-proof by efficiency class IE 3

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## Antiscalant-based Low Pressure RO systems

### Unit design

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

**Special inlet filter** with 5 µm-filter cartridge,

**high pressure pump** low noise, multi-stage centrifugal type (incl. frequency converter for AS/FU systems),

**low energy spirally wound modules** with energy-efficient PA/PS composite membranes in GRP vessels with inliner.

Valves such as sampling valves for feed water and permeate (for each pressure vessel), inlet solenoid valve, valves made of stainless steel to regulate the flow rate of permeate, concentrate and concentrate recirculation.

**Pressure gauges** for inlet and outlet pressure pre-filter, pump pressure, operating pressure and concentrate pressure, pressure switch for monitoring the feed water pressure.

**Flow meters** for permeate, concentrate and concentrate recirculation flow rate.

**Conductivity measurement** permeate, temperature compensated, measuring range 2 - 200 µS/cm.

**Connection set** for cleaning device, T-piece for injection point, concentrate flushing device

**Control cabinet** with lockable main switch, electrical switchgear for control of the high-pressure pump and antiscalant dosing unit.

**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).

Technical Data AS and AS/FU		UO 1650 AS	UO 2200 AS	UO 2500 AS	UO 3100 AS
Permeate flow rate	l/h	1,650	2,200	2,500	3,100
Min, salt rejection	%	97	97	97	97
Recovery	%	75	75	75	75
Operating pressure	bar	12,0	12,0	12,0	11,5
Membrane element/number		4040 / 6	4040 / 8	4040 / 9	4040 / 12
Voltage	V/Hz	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50	3 x 400 / 50
Motor power	kW	2.2	2.2	3.0	3.0
Pre-fusing	A	16	16	16	16
Feedwater connection	DN	32	32	32	32
Permeate/concentrate connection	DN	25 / 25	25 / 25	25 / 25	25 / 25
Dosing point connection	R	½"	½"	½"	½"
Conductivity range	µS/cm	2 – 200	2 – 200	2 – 200	2 – 200
Height	mm	1,650	1,650	1,650	1,650
Width	mm	2,550	2,550	3,550	3,550
Depth	mm	700	700	700	700
Weight approx.	kg	240	320	340	380
<b>Code no. AS Series</b>		381 500	381 510	381 520	381 530
<b>Code no. AS/FU Series</b>		381 507	381 517	381 527	381 537

All installation sizes: Min./max. feed water pressure 2 / 6 bar, Min./max. feed water temperature 5 / 35 °C, Max. ambient temperature 40 °C, pH 3 - 11