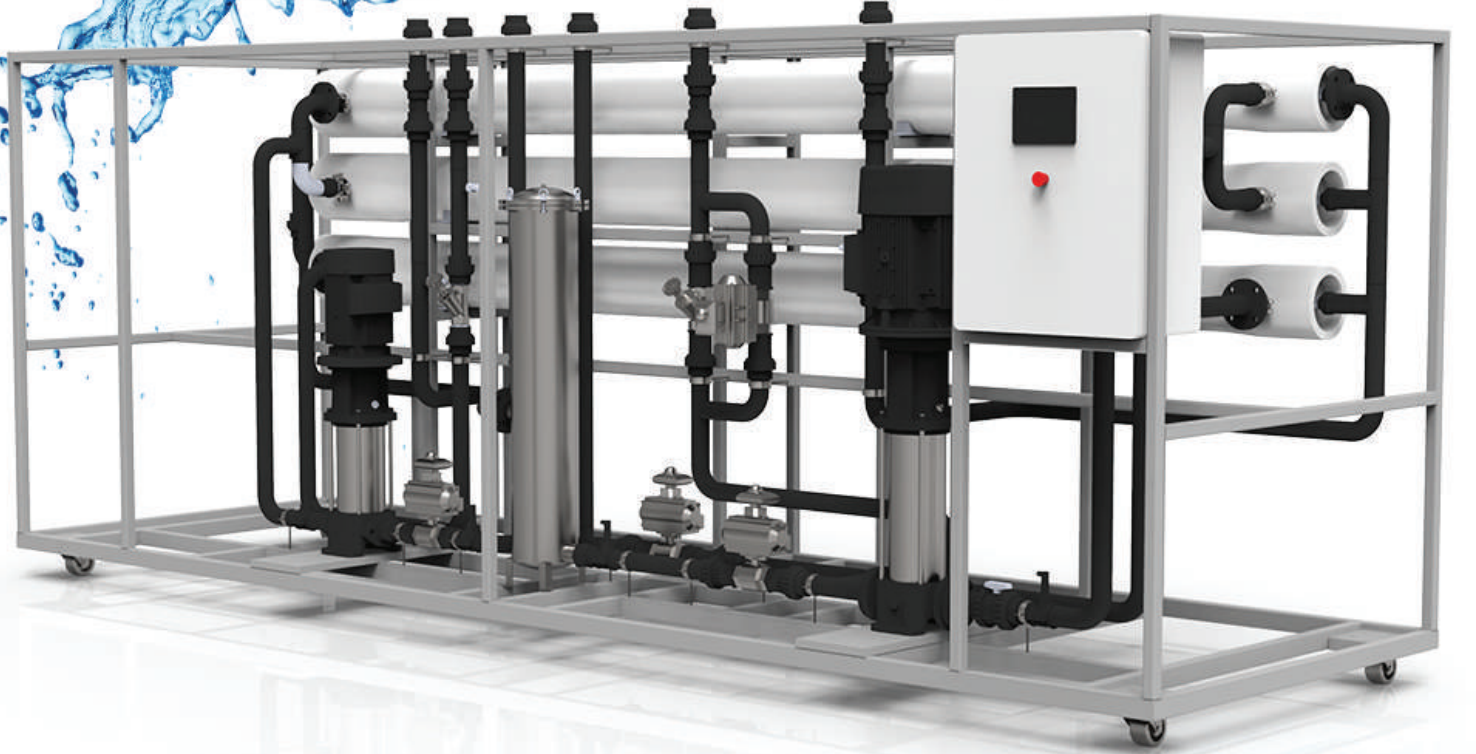


**atmosfer**  
MAKINA SANAYI VE TICARET A.S.



REVERSE OSMOSIS

## ULTIMATE SERIS WATER PURIFICATION SYSTEMS

INDUSTRIAL - DOUBLE PASS

**250-4000 LPH**

# Reverse Osmosis System

**Compact Design:** Our flagship tap and brackish water units, known as the ULTIMATE Series, are equipped with a standard pre-treatment setup, encompassing media pre-filters, chemical dosing, and antiscalant components. These systems are highly customizable to meet specific industrial requirements, allowing for tailored pre-treatment systems under certain conditions. Notably, our industrial reverse osmosis systems are among the most compact in the market, featuring state-of-the-art energy-saving membranes, robust construction, automated design, environmentally conscious operations, and long-term reliability.

- **Economical and Efficient:** The Ultimate Series industrial equipment incorporates cutting-edge RO technology to eliminate dissolved minerals, particles, organics, solids, and other water contaminants. These systems rely on RO membranes as the core separation technology, effectively removing the majority of these impurities. Atmosfer Makina, Inc. exclusively sources high-quality membranes from reputable manufacturers such as Dow Ultra Filtration, Hydranautics, and Toray.



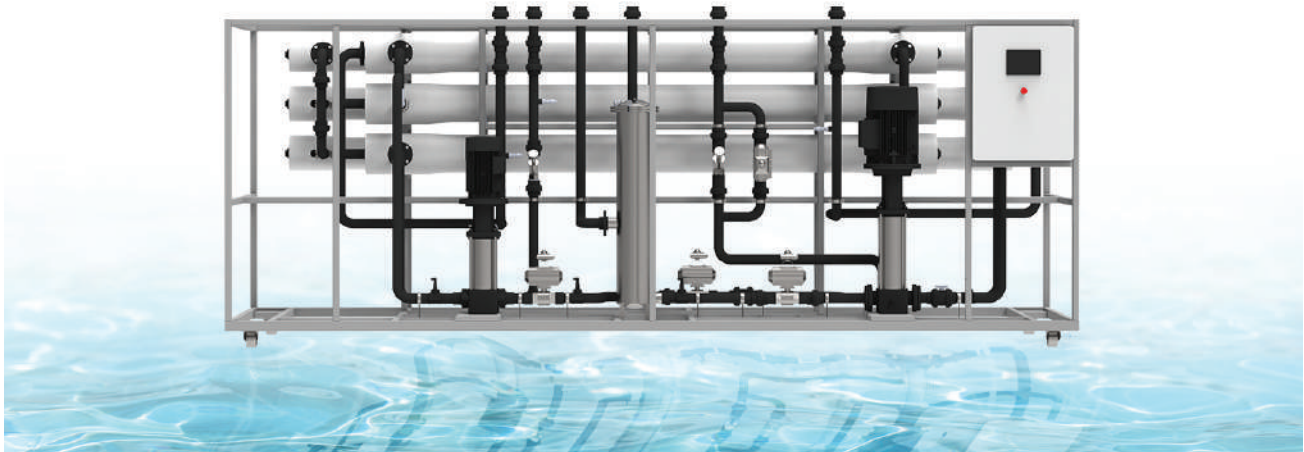
- **Containerized Systems:** At Atmosfer Makina, Inc., we offer fully containerized/mobile RO systems, where the reverse osmosis equipment is assembled within an ISO standard shipping container, creating a highly mobile system. Containerized Ultimate RO systems provide additional advantages, including easy installation, transportability, a compact footprint, and insulated weather protection.
- **High Capacity:** The ULTIMATE Series includes systems with impressive capacities, ranging from 200,000 to 900,000 gallons per day (GPD). These systems can effectively handle water with Total Dissolved Solids (TDS) levels of up to 10,000 parts per million (PPM).
- **Reverse Osmosis Functionality:** Reverse osmosis systems excel at eliminating bacteria, sugars, proteins, particles, dyes, and other constituents with a molecular weight greater than 150-250 Daltons from tap and brackish water sources. Additionally, they are capable of purifying water by removing salts and other impurities. Our ULTIMATE series, designed for tap and brackish water, comes equipped with media pre-filters, chemical dosing, and antiscalant components as standard. These systems can be tailored to meet individual customer and water application requirements.



- **Systemic Process:** The process of an industrial Ultimate RO system closely mirrors that of standard RO systems, with the main distinction being the elevated scale of water treatment and equipment involved. In the Ultimate series, high-quality equipment is utilized throughout, from the tanks to the pumps.

For reference, the reverse osmosis system follows the outlined process:

- **Pre-Chlorination Dosing:** As feed water enters the system, it is initially dosed with pre-chlorination to disinfect the water, injected into the feed stream.
- **Media Filtration:** The feed stream proceeds to a media filter, the second step in pre-treatment, which filters out contaminants larger than 10 microns.
- **Anti-scalant Treatment:** Next, anti-scalant chemicals are introduced to reduce water hardness and prevent fouling of the RO membranes.
- **RO Membrane Filtration:** The pre-treated water is then pressurized through the RO membranes, resulting in the production of purified water and a reject stream containing concentrated contaminants.
- **Disinfection (Optional):** Industrial applications typically do not necessitate water disinfection. However, depending on the specific application, a disinfection method, such as Post-Chlorination Dosing or UV Sterilization, may be employed.



## CAPACITY RANGE 8000 – 780000 LPD

**TDS 1000+ , 3000+ , & 5000+ PPM**

- |   |   |
|---|---|
| • Max. feed water temperature: 42°C               | • <b>MAX. SILICA TOLERANCE: 60 PPM @ 60% RECOVERY</b> |
| • Equipment upgrade for TDS over 5,000 ppm        | • <b>MAX. IRON CONTENT: 0.05 PPM</b>                  |
| • Hydrogen Sulfide must be removed                | • <b>FEED WATER PRESSURE: 20 TO 80 PSI</b>            |
| • Turbidity must be removed                       | • <b>OPERATING PRESSURE: 150 TO 250 PSI</b>           |
| • Feed water TDS: 0-1,000, 3,000, 5,000 ppm       | • <b>PH TOLERANCE RANGE: 3-11</b>                     |
| • Hardness over 1 GPG requires antiscalant dosing | • <b>OPERATE AT HIGHER TDS BY LOWERING RECOVERY</b>   |

# MODELS & SPECIFICATIONS

MODEL	CAPACITY (m <sup>3</sup> /h)	OPERATING PRESSURE (psi)	RECOVERY (%)	POWER (kw)	MEMBRANE AMOUNT	MEMBRA QUANTI
ULTIMATE 180	1	12	50	3	1	1
ULTIMATE 280	2	12	50	3	2	2
ULTIMATE 380	3	12	60	4	1	3
ULTIMATE 480	4	12	60	4	2	4
ULTIMATE 680	6	12	60	4	2	6
ULTIMATE 880	8	12	70	7.5	2	8
ULTIMATE 1080	10	12	70	7.5	2	10
ULTIMATE 1280	12	12	75	11	2	12
ULTIMATE 1580	15	12	75	11	3	15
ULTIMATE 1880	18	12	75	18.5	3	18
ULTIMATE 2480	24	12	75	22	4	27
ULTIMATE 3080	30	12	75	22	5	30
ULTIMATE 3680	36	12	75	30	6	36
ULTIMATE 4280	42	12	75	30	7	42
ULTIMATE 4880	48	12	75	30	8	48
ULTIMATE 6080	60	12	75	37	10	60
ULTIMATE 7280	72	12	75	45	12	72
ULTIMATE 9680	96	12	75	55	16	96



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