

WATEX reverse osmosis systems

Engineering solutions for drinking and process water

Commercial and industrial water demineralisation systems, engineered for reliable continuous operation.



WATEX · English · Estonia edition

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How reverse osmosis works

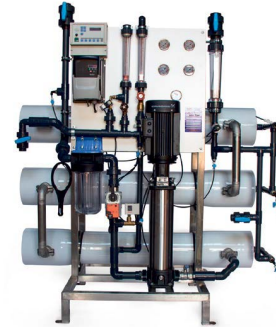
Reverse osmosis (RO) uses pressure to drive water through a semi-permeable membrane. Water molecules pass to the permeate side, while dissolved salts, heavy metals, organic compounds and microorganisms are retained and discharged in the concentrate stream. Depending on feed-water quality, temperature, pressure, membrane selection and system configuration, salt removal is typically 80–99.7%.

Benefits

- Stable high-purity water quality
- No regeneration chemicals in the RO separation stage
- Reliable, modular and serviceable design
- Automatic operation and monitoring
- Solutions tailored to the feed water and required permeate quality

Applications

- Pre-treatment for high-purity water systems
- Boiler feed and cooling-tower make-up water
- Food and beverage process water
- Steam generation and humidification
- Laboratory and pharmaceutical water preparation
- Agriculture, irrigation and other industrial processes



Selection and engineering

The correct system is selected from a water analysis and the required flow, permeate quality and operating profile. Feed-water pre-treatment protects the membranes from hardness salts, suspended solids, precipitated iron, microorganisms and free chlorine.

Reliable continuous operation

Online conductivity, pressure and flow monitoring support automatic or manual operation through the local control panel or an optional PLC/SCADA interface. Clean-in-place (CIP) equipment is available for membrane maintenance.

Water quality

Single-pass RO permeate conductivity is typically below 15 $\mu\text{S}/\text{cm}$. Double-pass RO and post-treatment by mixed-bed ion exchange or electrodeionisation (EDI) are available when lower conductivity is required.

Standard WATEX WRO range

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Unit	Flow m³/h	Flow m³/day	Power kW	Size L×H×W mm	In/out/drain mm	Weight kg
WATEX WRO1000	1	24	3	2000 × 1800 × 1000	32/25/20	240
WATEX WRO2000	2	48	3	2000 × 1800 × 1000	32/25/20	280
WATEX WRO3000	3	72	4	2000 × 1800 × 1000	32/25/20	345
WATEX WRO4000	4	96	5.5	3700 × 1800 × 1000	32/25/20	695
WATEX WRO5000	5	120	5.5	3700 × 1800 × 1000	40/40/25	750
WATEX WRO6000	6	144	5.5	3700 × 1800 × 1000	40/40/25	1600
WATEX WRO7000	7	168	7.5	3700 × 1800 × 1000	40/40/25	1650
WATEX WRO8000	8	192	11	3700 × 1800 × 1000	50/50/32	1720
WATEX WRO9000	9	216	11	3700 × 1800 × 1000	50/50/32	1780
WATEX WRO10 000	10	240	11	3700 × 1800 × 1000	50/50/32	1850
WATEX WRO12 000	12	288	11	5200 × 2000 × 1400	50/50/32	1960
WATEX WRO15 000	15	360	15	5200 × 2000 × 1400	65/65/32	2145
WATEX WRO18 000	18	432	15	5200 × 2000 × 1400	65/65/32	2300
WATEX WRO20 000	20	480	15	5200 × 2000 × 1400	65/65/32	2420
WATEX WRO25 000	25	600	22	6200 × 2000 × 1400	80/80/40	2725
WATEX WRO30 000	30	720	22	7200 × 2000 × 1400	100/80/40	3030
WATEX WRO35 000	35	840	30	7200 × 2000 × 1400	100/80/40	3395
WATEX WRO45 000	45	1080	37	9300 × 2000 × 1800	125/100/50	3640

Source brochure design basis: maximum recovery 80%, operating pressure approximately 14 bar; membrane elements 4" and 8". Final selection must be confirmed from current project data.

Engineered components



- High-pressure pumps in AISI 316 stainless steel
- AISI 316 high-pressure pipework and food-grade PVC low-pressure pipework
- 5 µm cartridge pre-filter in a clear housing
- High-rejection reverse-osmosis membranes
- Stainless-steel frame for transport and installation
- Conductivity, flow and pressure monitoring

Optional features

- CIP cleaning station and membrane preservation tank
- Chemical pre-treatment dosing
- PLC controller, process visualisation and SCADA integration
- Additional conductivity meters and pressure switches
- Electromagnetic flow meters and temperature switch
- Frequency converter for high-pressure pump control

Discuss your water-treatment project with Watex Estonia

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