

Reverse Osmosis Modules

ANMD-MRS10-097 · Water & Environmental Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

Reverse osmosis (RO) modules are the core technology of modern desalination and high-purity water treatment — semi-permeable membranes that reject salts, contaminants and micro-pollutants under pressure, spanning seawater, brackish, low-energy, fouling-resistant and high-rejection specialty modules. This decision-grade study sizes the global market three ways — value, installed capacity (MLD) and modules shipped — across membrane type, application segment and application, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. RO modules underpin desalination and reuse, expanding water security, while low-energy membranes reduce the carbon cost per cubic metre.

Mapped Sustainable Development Goals:

SDG 6 Clean Water & Sanitation	SDG 9 Industry, Innovation & Infrastructure	SDG 11 Sustainable Cities & Communities	SDG 12 Responsible Consumption	SDG 13 Climate Action
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Measurable sustainability outcomes assessed:

- Potable water from seawater and ultrapure water for industry
- Membrane backbone of water reuse
- Lower carbon cost per cubic metre via low-energy membranes
- Energy intensity, replacement waste and concentrate as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	5 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Asia Pacific dominates manufacturing; the Middle East drives desalination demand; the Americas grow on reuse and industry; other regions assessed on their own merits.

MARKET OVERVIEW

From commodity membrane to performance product — where low-energy chemistry lowers lifecycle water cost.

Reverse osmosis modules are moving from commodity membranes to performance-differentiated products. Demand is driven by desalination growth, industrial high-purity needs and water reuse across the Middle East, Asia Pacific and the Americas. The market is read three ways — value, installed capacity and modules shipped — and forecast under four scenarios, each region reported separately.

- **Asia Pacific dominates manufacturing** — Japan, South Korea and China, combining the world's leading membrane producers with surging demand
- **Middle East drives desalination demand** — Saudi Arabia and the UAE, where giga-scale SWRO plants consume vast module volumes
- **Americas grow on reuse and industry** — United States, on industrial high-purity demand and potable-reuse projects
- **Low-energy and fouling-resistance are the differentiators** — advanced membranes cut energy use and cleaning frequency, lowering lifecycle water cost

REGIONAL OUTLOOK

Across seven reporting regions, the report separates leading markets from high-growth and emerging ones — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
Asia Pacific	Manufacturing leader	Japan, South Korea, China — membrane manufacturing, demand
Middle East	Desalination demand	Saudi Arabia, UAE — giga-scale SWRO consumption
North America	Reuse & industry	United States — industrial high-purity, potable reuse
Europe	Specialty demand	Germany, Spain — specialty & reuse demand
Latin America	Emerging	Chile, Brazil — mining & municipal desalination
Africa	Frontier	Egypt, South Africa — desalination, brackish treatment

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • Desalination capacity growth • Industrial high-purity & ultrapure water • Water-reuse & potable-reuse demand • Low-energy & fouling-resistant membrane gains • Falling specific energy consumption 	<ul style="list-style-type: none"> • Membrane fouling & pre-treatment needs • Energy intensity & operating cost • Membrane-replacement & disposal waste • Concentrate / brine management • Price competition & commoditisation

SEGMENTATION SNAPSHOT

By Membrane Type	Seawater RO · brackish-water RO · low-energy RO · fouling-resistant RO · high-rejection / specialty
By Application Segment	Desalination · industrial high-purity · water reuse · point-of-use
By Application	Municipal · industrial · commercial & residential
By End User	Utilities · municipalities · industry · buildings
By Business Model	Equipment sales · EPC · Water-as-a-Service
By Scale	Decentralised · commercial · municipal / utility-scale

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Reverse Osmosis Modules
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
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- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

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- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

Part V — Company, Competition, Patent and Project Intelligence

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- › Chapter 48. Corporate Directory and Company Intelligence Annex
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- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans the dominant Japanese, Korean and US membrane manufacturers and specialty-chemistry innovators. Deal activity — low-energy membrane launches, capacity expansions and desalination supply contracts — signals a market consolidating around efficiency and durability.

Representative players profiled in the full report:

DuPont de Nemours, Inc. · Toray Industries, Inc. · Nitto Denko Corporation · LG Chem, Ltd. · Toyobo Co., Ltd. · and 20+ further profiled players across membrane manufacturers and specialty-chemistry innovators.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a conditional investment view.

KEY QUESTIONS THIS REPORT ANSWERS

- How large is the global RO module market, and how fast will it grow to 2032?
- Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- How do low-energy and fouling-resistant membranes change lifecycle water cost?
- Who leads, and where is the competitive and patent white space?
- Is the investment case bankable — and under what conditions?
- How does the category align with the SDGs, water security and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability view in a single architecture.

- **Triangulated sizing** — every market read three ways so value, volume and the physical-unit views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditional investment view.

WHO SHOULD BUY THIS REPORT

Investors, manufacturers, developers, utilities, lenders and policymakers, and strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.