

Desalination System Market By Technology (Membrane-Based (RO) , Thermal Mechanical Vapor Compression, Thermal Multi-Effect Distillation, Others) , By Process (Reverse Osmosis, Solar Distillation, Nanofiltration, Electrodialysis, Gas Hydrate Formation) By Application (Municipal, Industrial, Others) : Global Opportunity Analysis and Industry Forecast, 2024-2033

Market Report | 2024-11-01 | 320 pages | Allied Market Research

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Report description:

The desalination system market was valued at \$1.4 trillion in 2023, and is projected to reach \$3.3 trillion by 2033, growing at a CAGR of 8.9% from 2024 to 2033.

A desalination system is a technology designed to remove salts, minerals, and other impurities from seawater or brackish water to produce freshwater suitable for human consumption, industrial use, and agricultural irrigation. These systems employ various processes, including thermal methods like multi-stage flash distillation (MSF) and membrane-based approaches such as reverse osmosis (RO). By addressing water scarcity challenges, desalination systems have become a vital solution in regions with limited access to freshwater resources.

Increase in global water scarcity, driven by population growth, urbanization, and depleting freshwater resources, is a primary factor driving the adoption of desalination systems. According to a study published by the UN Environment Program in 2024, approximately 2.4 billion people individuals currently live in water-stressed countries. In addition, industrial sectors such as oil and gas, power generation, and pharmaceuticals require a reliable supply of high-quality water for their operations, boosting the demand for desalination systems. For instance, thermal power plants often rely on desalinated water for cooling purposes. In addition, climate change-induced droughts and erratic rainfall patterns have intensified the need for alternative water sources, making desalination a viable solution to mitigate water shortages. Furthermore, governments worldwide are increasingly supporting desalination projects through subsidies, public-private partnerships, and policy frameworks to ensure water security in arid and semi-arid regions. For example, the Kingdom of Saudi Arabia has invested heavily in desalination to address its water

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scarcity issues. Additionally, in 2021, Saudi Arabia's Saline Water Conversion Corporation set a Guinness World Record for the lowest energy consumption in a desalination plant, achieving 2.27 kWh per cubic meter of desalinated water. Rapid growth of urban areas, especially in developing regions, has led to a surge in demand for potable water, further fueling the market for desalination systems. However, high initial investments required for setting up desalination plants hampers the market growth. Alternative water management strategies, such as water conservation, wastewater recycling, and rainwater harvesting, may offer more cost-effective or environmentally friendly solutions compared to desalination in certain regions, further restraining the market growth. On the contrary, innovations in desalination technologies, such as energy-efficient reverse osmosis membranes, hybrid systems, and renewable energy-powered desalination plants, have significantly improved the cost-effectiveness and environmental sustainability of these systems. Such developments are expected to open new avenues for the expansion of the global market during the forecast period.

□ The global desalination system market is segmented into technology, process, application, and region. By technology, the market is classified into membrane-based (RO), thermal mechanical vapor compression (MVC), and thermal multi-effect distillation (MED), and others. Depending on process, it is divided into reverse osmosis, solar distillation, nanofiltration, electrodialysis, and gas hydrate formation. On the basis of application, it is categorized into municipal, industrial, and others. Region wise, the market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Key Findings

By technology, the membrane-based (RO) segment held the highest market share in 2023, and is expected to maintain its leadership status from 2024 to 2033.

On the basis of process, the reverse osmosis segment was the major shareholder in 2023, and is anticipated to continue to follow a similar trajectory over the upcoming years.

Depending on application, the municipal segment garnered the largest share in 2023, and is projected to continue the same trend throughout the forecast period.

Region wise, Middle East & Africa dominated the market, in terms of revenue, in 2023.

□

Competition Analysis

The major players operating in the global desalination system market include Veolia Environment S.A., Suez S.A, Doosan Heavy Industries & Construction Co., Ltd, Abengoa S.A., Acciona, S.A., Toray Industries, Inc, Aquatech International LLC, Biwater Holdings Limited, Hyflux Ltd., and Xylem. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships to sustain the intense competition and gain a strong foothold in the global market.

□

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- Additional country or region analysis- market size and forecast
- Expanded list for Company Profiles
- Historic market data
- Key player details (including location, contact details, supplier/vendor network etc. in excel format)
- SWOT Analysis

Key Market Segments

By Technology

- Membrane-Based (RO)
- Thermal Mechanical Vapor Compression
- Thermal Multi-Effect Distillation
- Others

By Process

- Reverse Osmosis
- Solar Distillation
- Nanofiltration
- Electrodialysis
- Gas Hydrate Formation

By Application

- Municipal
- Industrial
- Others

By Region

- North America
- U.S.
- Canada
- Mexico
- Europe
- France
- Germany
- Italy
- Spain
- UK
- Rest of Europe
- Asia-Pacific
- China
- Japan
- India
- South Korea
- Australia
- Rest of Asia-Pacific
- LAMEA
- Brazil

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- South Africa
- Saudi Arabia
- Rest of LAMEA
- Key Market Players
- Veolia Environment S.A.
- Suez S.A
- Doosan Heavy Industries & Construction Co., Ltd
- Abengoa S.A.
- Acciona, S.A.
- Toray Industries, Inc
- Aquatech International LLC
- Biwater Holdings Limited
- Hyflux Ltd
- Xylem

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