

Desalination Technologies Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Reverse Osmosis, Electrodialysis, Nanofiltration, Ultrafiltration, Multi-Stage Flash Distillation, Multi-Effect Distillation), By Source of water (Seawater, Brackish Water, River Water & Surface Water, Wastewater), By End-Use Industry (Municipal, Industrial, Military & Defense, Construction, Others), By Region & Competition, 2020-2030F

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#### **Abstracts**

#### **Market Overview**

The Global Desalination Technologies Market was valued at USD 25.35 billion in 2024 and is projected to reach USD 41.00 billion by 2030, growing at a CAGR of 8.18% during the forecast period. Driven by increasing water scarcity, urbanization, and industrialization—especially in arid and semi-arid regions—desalination technologies are becoming an essential part of global water security strategies. These technologies convert seawater, brackish water, and wastewater into potable or process-grade water, addressing the growing demand across municipal, industrial, and agricultural sectors. Key markets include the Middle East, North Africa, Asia Pacific, and parts of the Americas, where investments in desalination infrastructure are accelerating. Reverse Osmosis (RO) leads the market due to its scalability and energy efficiency, while thermal technologies like Multi-Stage Flash (MSF) and Multi-Effect Distillation (MED) remain prevalent in energy-rich regions. Technological advancements in membranes,



energy recovery, and smart monitoring are improving operational efficiency and reducing environmental impact, making desalination more sustainable and cost-effective.

### **Key Market Drivers**

Increasing Global Water Scarcity

Escalating water scarcity is a major driver of the desalination technologies market. According to the United Nations, over 2.3 billion people live in water-stressed regions as of 2024, a figure expected to grow with climate change and rising populations. More than 40% of the global population faces seasonal or monthly water shortages. Desalination offers a reliable alternative to conventional water sources, especially in countries like Saudi Arabia, the UAE, Israel, and parts of India and China. Saudi Arabia, for instance, meets nearly 60% of its domestic water needs through desalination. As groundwater depletion and erratic rainfall patterns worsen, desalination emerges as a long-term, scalable solution to secure freshwater access in vulnerable areas.

## **Key Market Challenges**

High Energy Consumption and Carbon Footprint

High energy requirements represent a significant challenge for desalination technologies, particularly thermal processes such as MSF and MED. Although RO is more energy-efficient, it still consumes 2.5–3.5 kWh per cubic meter of water—considerably more than traditional treatment methods. This leads to higher carbon emissions, especially in regions where power generation is fossil-fuel-based. A desalination plant relying on non-renewable energy can emit up to 1.5 kg of CO? per cubic meter of water. While solar and other renewable-powered desalination options are being explored, high capital costs and intermittency issues limit their widespread adoption. Balancing freshwater production with environmental goals remains a critical concern for governments and industry stakeholders alike.

### **Key Market Trends**

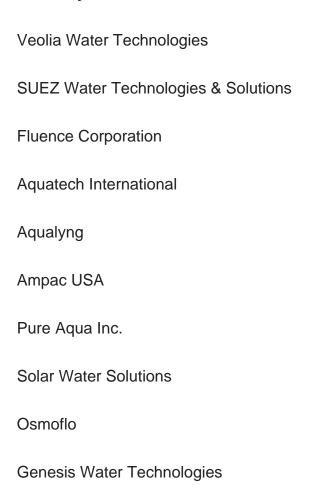
Advancements in Membrane Technologies

Ongoing innovation in membrane materials is a defining trend in the desalination technologies market. RO continues to dominate due to its energy advantages, but new



developments are making the process even more efficient. Advanced membranes—such as those made from graphene oxide, aquaporin proteins, and nanocomposites—offer higher permeability, improved salt rejection, and stronger resistance to fouling. Graphene-based membranes, for example, can deliver up to 50% more water throughput compared to conventional membranes. Additionally, low-pressure RO membranes are being adopted to reduce energy consumption, particularly in brackish water and decentralized applications. Automation and AI-based monitoring are extending membrane lifespans by enabling predictive maintenance and optimizing cleaning cycles, further reducing operational costs and downtime.

## **Key Market Players**



## Report Scope:

In this report, the Global Desalination Technologies Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:



Desalination Technologies Market, By Technology:						
Reverse Osmosis						
Electrodialysis						
Nanofiltration						
Ultrafiltration						
Multi-Stage Flash Distillation						
Multi-Effect Distillation						
Desalination Technologies Market, By Source of Water:						
Seawater						
Brackish Water						
River Water & Surface Water						
Wastewater						
Desalination Technologies Market, By End-Use Industry:						
Municipal						
Industrial						
Military & Defense						
Construction						
Others						
Desalination Technologies Market, By Region:						
North America						

North America



	United States						
	Canada						
	Mexico						
Europe							
	Germany						
	France						
	United Kingdom						
	Italy						
	Spain						
South America							
	Brazil						
	Argentina						
	Colombia						
Asia-Pacific							
	China						
	India						
	Japan						
	South Korea						
	Australia						



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Saudi Arabia

**UAE** 

South Africa

## **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies presents in the Global Desalination Technologies Market.

#### **Available Customizations:**

Global Desalination Technologies Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

# **Company Information**

Detailed analysis and profiling of additional market players (up to five).



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