

Steam Turbine Market Report by Exhaust Type (Condensing, Non-Condensing), Capacity (Less than 120 MW, 121-350 MW, 351-750 MW, More than 750 MW), Technology (Steam Cycle, Combined Cycle, Cogeneration), Application (Power Generation, Petrochemicals, Oil & Gas, and Others), and Region 2024-2032

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Abstracts

The global steam turbine market size reached US\$ 25.8 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 35.6 Billion by 2032, exhibiting a growth rate (CAGR) of 3.5% during 2024-2032. The steam turbine market growth is driven by the increasing demand for power generation, growing industrialization and economic growth, rising renewable energy integration, rapid technological advancements, the escalating need to upgrade or replace existing steam turbines.

Steam Turbine Market Analysis:

Major Market Drivers: The increasing demand for electricity and the shift towards renewable energy sources are some of the major market drivers.

Key Market Trends: The rise of distribution generation and the increasing investments in renewable energy are the market trends.

Geographical Trends: Asia Pacific is dominating the market, driven by rapid industrialization and increasing power demand.

Competitive Landscape: Arani Power Systems Limited, Doosan Infracore Power, Elliott Company (Ebara Corporation), and Fuji Electric Co. Ltd. are some of the key market players.

Challenges and Opportunities: The intense competition and price pressures are posing challenges for the market. Rapid innovations in the product technology are offering

opportunities for the market to grow.

Steam Turbine Market Trends:

Increasing demand for electricity

The increasing demand for electricity is bolstering the market. The International Energy Agency predicts that worldwide energy consumption will increase by 4.6% in 2021, more than what it was in 2018. A steam turbine is a generator that generates mechanical or rotational energy by heating water. Steam turbines generate the majority of the world's electricity, accounting for 45% of the nation's electricity in 2021. The majority of steam turbines include a boiler, which burns fuel to generate hot water and steam in a heat exchanger. The steam then supplies power to the turbine, which, in turn, drives a generator. The majority of the United States' largest electric power facilities use steam turbines. This increasing usage of the turbine to generate electricity is driving the steam turbine market share.

Growing demand for onsite power generation

Due to growing demand for on-site power generation and favorable growth prospects in steam-intensive industries, the industrial applications of steam turbines are expected to increase. As steam turbine demand is witnessing a growth in its usage in sugar plants, refineries, pulp and paper industries, and chemical facilities, its market share will also grow. Favorable policies on expanding power generation capacity will help business dynamics meet rising electricity consumption and close the demand-supply gap. The increased use of super and ultra-supercritical technologies, as well as the conversion of existing power plants into combined cycle systems, are two significant factors driving product adoption. Rising government initiatives to establish a sustainable energy network and energy-efficient technology will energize sector dynamics even more.

Rising number of power plants

A rise in the number of power plants is expected to be commissioned to compensate for the energy shortage and this is projected to propel the demand for these turbines in the coming years. In 2022, the United States emerged as North America's largest market. One of the primary reasons for the expanding demand for these turbines in the United States is the increased number of combined-cycle natural gas plants in the country, which are reliable sources of energy. The country's policymakers are focusing on establishing sustainable energy-producing plants. This is expected to increase the number of steam turbine installations in the United States in the future years, catalyzing

the steam turbine market revenue.

Steam Turbine Market Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the market, along with forecasts at the global, regional, and country levels for 2024-2032. Our report has categorized the market based on exhaust type, capacity, technology, and application.

Breakup by Exhaust Type:

Condensing
Non-Condensing

Condensing dominates the market

The report has provided a detailed breakup and analysis of the market based on the exhaust type. This includes condensing and non-condensing. According to the report, condensing represented the largest segment.

The condensing segment is the largest segment of the steam turbine market overview and it is expected to register the highest CAGR during the forecast period. The noncondensing steam turbine uses high-pressure steam and exhausts lower-pressure steam to a header. To recover condensate, the condensing turbine exhausts to a surface condenser, which is typically a large exchanger with an associated hot well and can also take the form of an air fan. Condensing steam turbines are used when steady power production and steam extraction at a specific pressure are required. Steam may be used to extract the greatest energy due to the significant enthalpy difference between its initial and final conditions. Condensing steam turbines are commonly employed for cogeneration, in which the turbine produces the central power and meets the steam needs of the process plant.

Breakup by Capacity:

Less than 120 MW
121-350 MW
351-750 MW
More than 750 MW

121-350 MW holds the largest share in the market

A detailed breakup and analysis of the market based on the capacity have also been provided in the report. This includes less than 120 MW, 121-350 MW, 351-750 MW, and more than 750 MW. According to the report, 121-350 MW accounted for the largest market share.

The steam turbine market report shows that 121-350 MW is leading the market in capacity range. This is due to its versatility and energy efficiency. The turbines within this range are used for generating electricity in power plants. They are mainly used in large-scale industrial applications. They can produce a large amount of power which makes them important in meeting the energy needs worldwide. Furthermore, these turbines are also integrated with renewable energy sources, which, in turn, increases their demand in the market.

Breakup by Technology:

- Steam Cycle
- Combined Cycle
- Cogeneration

Steam cycle holds the maximum share in the market

A detailed breakup and analysis of the market based on the technology have also been provided in the report. This includes steam cycle, combined cycle, and cogeneration. According to the report, steam cycle accounted for the largest market share.

The steam turbine market forecast shows that the steam cycle is the leading segment. The steam cycle, like the PWR, is two-loop, with the primary pressurized heavy-water loop transmitting heat energy to a loop of ordinary water to generate steam. Conventional steam-cycle plants are utilized to generate energy from vapor-dominated reservoirs. Steam is extracted from the wells, cleaned to eliminate any entrained sediments, and routed directly to a steam turbine. The steam cycle also helps in converting thermal energy into mechanical energy and then into electricity.

Breakup by Application:

- Power Generation
- Petrochemicals
- Oil & Gas

Others

Power generation holds the biggest share in the market

A detailed breakup and analysis of the market based on the application have also been provided in the report. This includes power generation, petrochemicals, oil & gas, and others. According to the report, power generation accounted for the largest market share.

Power generation is leading the market. It is positively impacting the steam turbine market outlook. Factors such as natural gas combined cycle plants, thermal coal plants, and rising emphasis on uninterrupted power supply are expected to propel the demand for these turbines in power generation. With growing urbanization, increasing demand for energy, and rising government efforts to promote industrialization and infrastructure development activities, the need for power generation is escalating. This, in turn, is catalyzing the product demand. Furthermore, the integration of turbines with renewable energy sources further expands the market growth.

Breakup by Region:

North America

United States

Canada

Asia-Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

Asia Pacific leads the market, accounting for the largest steam turbine market share

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific accounted for the largest market share.

Asia Pacific is leading the market. The region is witnessing various steam turbine market recent developments, which, in turn, are propelling the market. With the increase in worldwide power demand, proposed thermal facilities such as Bangladesh's Phulari Coal Powered Plant and India's Patratu Super-Thermal Power Plant (Coal) are expected to keep the steam turbine sector growing. China is the world's largest builder of thermal power facilities, and it already makes extensive use of steam turbines. To address the need for electricity, ultra-supercritical coal facilities like Fuyang Power Station and Huadian Laizhou Power Station were built. This, in turn, offers significant opportunities for emerging steam turbine market trends.

Competitive Landscape:

The market research report has provided a comprehensive analysis of the competitive landscape. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

Arani Power Systems Limited

Doosan Infracore Power

Elliott Company (Ebara Corporation)

Fuji Electric Co. Ltd.

General Electric Company

MAN Energy Solutions SE (Volkswagen AG)

Mitsubishi Heavy Industries Ltd

Shanghai Electric Group Company Limited

Siemens Energy AG

Toshiba Corporation
Turbine Generator Maintenance Inc.
Turbocam Inc.

(Please note that this is only a partial list of the key players, and the complete list is provided in the report.)

The steam turbine companies are heavily investing in research and development to increase their product lines, which will help the market grow even further. Some of the leading market players are also adopting strategic initiatives to expand their worldwide footprint, including new product launches, agreements, mergers and acquisitions, partnerships, increased investments, and collaboration with other companies. Competitors in the industry are also focusing on offering cost-effective turbines to expand and maintain their position in an increasingly competitive and rising market environment. Another strategy adopted by the market players in the global industry is to produce locally to reduce operating costs. The market offers steam turbine market recent opportunities for domestic and global companies. To increase their global reach and client base, key market players are also focusing on product innovation.

Steam Turbine Market News:

February 26, 2024: Doosan Infracore Power has signed a contract to supply a steam turbine for a waste-to-energy power plant in the United States. This will be the company's first project outside of Europe with Covanta, the waste facility operator.

May 7, 2024: Elliott Company announced that it has been contracted to provide a motor-driven recycle compressor with a variable frequency drive (VFD) for the Sustainable Fuel Development Project (SFP) by TTCL Public Company Limited.

April 5, 2024: Fuji Electric Co. Ltd. announced the launch of the HPnC Series, a new series of large-capacity industrial IGBT* modules for applications including power converters for solar and wind power generation systems.

Key Questions Answered in This Report

1. What was the size of the global steam turbine market in 2023?
2. What is the expected growth rate of the global steam turbine market during 2024-2032?
3. What are the key factors driving the global steam turbine market?
4. What has been the impact of COVID-19 on the global steam turbine market?
5. What is the breakup of the global steam turbine market based on the exhaust type?
6. What is the breakup of the global steam turbine market based on the capacity?

7. What is the breakup of the global steam turbine market based on the technology?
8. What is the breakup of the global steam turbine market based on the application?
9. What are the key regions in the global steam turbine market?
10. Who are the key players/companies in the global steam turbine market?

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