

Steam Turbine Market Sets New Record, Projected at USD 22.4 Billion By 2032 at 2.6% CAGR: AMR

Steam Turbine Market to Witness Exponential Growth by 2032

PORTLAND, OREGON, UNITED STATES, November 15, 2023 / EINPresswire.com/ -- Several advancements are taking place to improve the thermal efficiency of power plant systems, which involve enhancing characteristics such as temperature and pressure of steam. Moreover, with growing electricity requirements, the demand for steam



turbines is expected to increase simultaneously, thus contributing to the growth of the global market. The <u>steam turbine market</u> was valued at \$17.5 billion in 2022, and is estimated to reach \$22.4 billion by 2032, growing at a CAGR of 2.6% from 2023 to 2032.

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The rise in demand for energy and the reduction in fossil-based energy generation are the upcoming trends of Steam Turbine Market in the world."

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A steam turbine is a mechanical equipment, which operates by using heat sources such as gas, coal, nuclear, or solar to heat water to extremely high temperatures until it is converted into steam. As steam flows past a turbine's spinning blades, the steam expands and cools. During this process, heat energy is transformed into mechanical energy, which is subsequently converted into electrical

energy. The growth of the global steam turbine market is majorly driven by an increase in demand for thermal power generation and electric supply. In addition, rapid oil & gas and power demand in developing countries is also steam turbine market trends that augment the market growth.

Furthermore, the surge in energy demand and steady investment in the expansion of the power industry is expected to have a positive impact on the demand for steam turbines. Moreover, the global market is expected to witness notable growth due to an increase in efforts to reduce energy demand & supply gaps as well as the development of thermal power projects.

In addition, robust economic growth and regulatory standards promoting the use of lowemission fuels such as natural gas & biomass in steam turbines notably contribute toward the steam turbine market growth. However, the implementation of stringent government regulations to reduce reliance on traditional energy sources such as coal-fired power generation and their replacement with renewables hinders the steam turbine market growth. Moreover, the competitive cost of renewable technologies impedes the growth of the global steam turbine market.

Moreover, an increase in interest in energy optimization and rapid development in turbine manufacturing technology, as well as a focus on cogeneration power plants in the sugar and steel industries are anticipated to have a favorable impact on the development of the global market during the forecast period. Furthermore, the market growth is driven by an increase in regulatory initiatives to minimize carbon emissions as well as increased investments in the development of large-scale thermal power plants in developing countries.

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The global steam turbine market analysis is done based on design, end-use industry, forging capacity, and region. By design, the market is bifurcated into impulse and reaction. The impulse segment dominated the steam turbine market share for 2022. It is also expected to grow at a higher pace during the steam turbine market forecast period. The increase in use of reaction turbines in power generation applications due to their high efficiency and low noise levels is the major factor contributing to the growth of the steam turbine market.

Moreover, the surge in investment by developing countries toward coal, gas, and nuclear-based power generation plants boosts market growth. Furthermore, the presence of large reserves of coal and gas in Asia-Pacific and the increase in demand for reaction turbines from the oil & gas industry augment the growth of the market. As demand for power increases, the demand for reaction turbines is anticipated to escalate simultaneously, which, in turn, is expected to offer the steam turbine market opportunities for growth.

Competitive Analysis:

The Steam Turbine industry's key market players adopt various strategies such as product launches, product development, collaboration, partnership, and agreements to influence the market. It includes details about the key players in the market's strengths, product portfolio,

market size and share analysis, operational results, and market positioning.

Some of the major key players in the global Steam Turbine market include,

Arani Power Systems Ltd.
Mitsubishi Power Americas, Inc.
TURBOCAM, Inc.
Toshiba Corporation
Chola Turbo Machinery International Pvt. Ltd.
Doosan Skoda Power s.r.o.
Elliott Group
General Electric
Siemens Energy AG
Turbine Generator Maintenance Inc.

In terms of the end-use industry, it is fragmented into power generation, petrochemical, oil & gas, and others. The power generation segment dominated the steam turbine market share in 2022 and is projected to maintain its dominance throughout the forecast period. According to the Central Electricity Authority (CEA), total power generation from thermal, hydro, and nuclear plants was estimated to be around 1,381.83 million units during 2020–2021. As per the same source, power generation demand from thermal, hydro, and nuclear plants is expected to grow by 7.85% by 2022. As demand for power increases, the requirement for steam turbines is expected to escalate significantly, as steam turbines help in power generation. This factor is likely to contribute toward the steam turbine industry's growth.

By forging it is bifurcated into large forging and ultra-large forging. The large forging segment dominated the market share for 2022 and is expected to continue its dominance during the forecast period. Rotor shafts are one of the critical components in a steam turbine. They transfer the rotational motion from the turbine to the generator. Large forgings are used to manufacture these shafts due to their superior strength and resistance to fatigue. The size and weight of the rotor shaft forgings can vary depending on the turbine's power output and design requirements. Casings, which enclose and support the internal components of a steam turbine, are also typically made using large forgings.

These forgings provide the necessary structural integrity to contain the high-pressure steam and rotational forces within the turbine. Blades and diaphragms, responsible for the efficient conversion of steam energy into mechanical energy, are another important application for large forgings. These components often require precise shaping and profiling to optimize aerodynamic performance. Large forgings allow the production of blades and diaphragms with the necessary strength and dimensional accuracy. Large forgings used in steam turbines are typically made from specialized alloys such as low-alloy steels or high-temperature alloys.

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Key findings of the study

- By design, the impulse segment is estimated to display the highest growth rate, in terms of revenue, registering a CAGR of 2.8% from 2023 to 2032.
- On the basis of the end-use industry, the power generation segment is anticipated to exhibit the highest CAGR of 3.0% from 2023 to 2032.
- Asia-Pacific garnered the highest share in 2022, in terms of revenue, and is expected to grow at a CAGR of 3.1%.

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