

Single Shaft Turbine Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented, By Type (Gas Turbines, Steam Turbines, Hydraulic Turbines, Wind Turbines, and Others), By Power Rating (Up to 50 MW, 50-100 MW, 100-300 MW, 300-500 MW, 500-700 MW, Above 700 MW, and Others), By End-User Industry (Power Generation, Oil & Gas, Industrial, Aviation, Marine, and Others), By Application (Power Plants, Oil & Gas Industry, Chemical Industry, Steel Industry, Mining Industry, Aviation, and Marine), By Region & Competition, 2021-2031F

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Abstracts

The Global Single Shaft Turbine Market is anticipated to grow from USD 3.44 Billion in 2025 to USD 4.79 Billion by 2031, demonstrating a 5.67% CAGR. This market is characterized by the widespread adoption of heavy-duty turbine configurations, where the compressor, rotor, and power output sections share a continuous shaft, primarily for constant-speed power generation. The market is primarily driven by the increasing global demand for reliable baseload electricity and the essential requirement for grid inertia to balance the expansion of intermittent renewable energy sources. Furthermore, the industrial sector's growing reliance on high-efficiency combined heat and power (CHP) systems acts as a strong catalyst for these thermally efficient units. However, the market faces a significant challenge from fuel price volatility, which can disrupt operational economics and delay capital-intensive infrastructure projects. For instance,

global natural gas demand increased by 1.9% to 4,122 billion cubic meters in 2024, with power generation being the largest consumer, highlighting the market's vulnerability to fluctuating feedstock costs and potentially restricting future investments.

Market Driver

The primary forces propelling the Global Single Shaft Turbine Market are escalating global electricity consumption and rapid urbanization. As emerging economies industrialize and urban populations grow denser, the need for reliable, high-capacity baseload power generation intensifies, creating a demand for the robust grid inertia that heavy-duty single shaft turbines provide. This surge in demand is evident in record procurement activities, such as GE Vernova's 22 GW of gas turbine orders in 2024, and a 4.3% rise in global electricity demand in the same year, as reported by the International Energy Agency. Concurrently, the accelerated adoption of single-shaft combined cycle power plants, driven by their superior thermal efficiency and compact footprint, is reshaping the market. This configuration reduces construction complexity and capital expenditures compared to multi-shaft alternatives, making it particularly valuable for space-constrained projects requiring high power density, as demonstrated by Mitsubishi Power's completion of eight M701JAC units for a 5,300 MW project in Thailand.

Market Challenge

Fuel price volatility presents a significant barrier to the Global Single Shaft Turbine Market, fundamentally destabilizing the financial models crucial for capital-intensive power projects. Given that these heavy-duty turbines are integral to natural gas-fired baseload generation, rapid fluctuations in fuel costs render operational expenses unpredictable. This unpredictability elevates the Levelized Cost of Electricity (LCOE) and diminishes the competitive advantage of these assets compared to renewable alternatives. Consequently, utility companies and independent power producers encounter heightened financial risks, often leading to the postponement of capacity expansions as they struggle to forecast long-term returns in an erratic pricing environment. This economic pressure is reflected in consumption trends, such as a 2.6% year-on-year decrease in natural gas consumption in the European Union in November 2025, according to the Gas Exporting Countries Forum, signaling reduced reliance on gas-dependent infrastructure due to market instability.

Market Trends

The single shaft turbine sector is experiencing significant advancements driven by two key trends aimed at addressing evolving environmental standards. First, manufacturers are integrating hydrogen-ready combustion capabilities, redesigning combustors to accommodate the distinct thermal properties of low-carbon fuels. This technological evolution allows operators to future-proof heavy-duty assets against stringent decarbonization policies by enabling a seamless transition from natural gas to hydrogen without necessitating machinery replacement. An example is Mitsubishi Power securing a contract for H-25 turbines capable of ammonia co-firing for a factory in Taiwan. Second, the industry is prioritizing retrofitting existing fleets for carbon capture compatibility to extend asset life under new environmental regulations. This involves installing post-combustion capture technologies on single shaft units, thus retaining the critical grid inertia of heavy-duty rotors while significantly reducing emissions. A notable initiative includes Capsol Technologies' agreement to deploy its CapsolGT system, which captures over 95% of CO₂ emissions from simple-cycle turbines, for a U.S. utility project.

Key Market Players

Toshiba Corporation

Harbin Electric Corporation

Bharat Heavy Electricals Limited

Hitachi Limited

Kirloskar Brothers Limited

Ansaldo Energia S.p.A.

ANDRITZ AG

Siemens AG

GE Vernova Group

Voith GmbH & Co. KGaA

Report Scope

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

Single Shaft Turbine Market, By Type

- Gas Turbines
- Steam Turbines
- Hydraulic Turbines
- Wind Turbines
- Others

Single Shaft Turbine Market, By Power Rating

- Up to 50 MW
- 50-100 MW
- 100-300 MW
- 300-500 MW
- 500-700 MW
- Above 700 MW
- Others

Single Shaft Turbine Market, By End-User Industry

- Power Generation
- Oil & Gas

Industrial

Aviation

Marine

Others

Single Shaft Turbine Market, By Application

Power Plants

Oil & Gas Industry

Chemical Industry

Steel Industry

Mining Industry

Aviation

Marine

Single Shaft Turbine Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Single Shaft Turbine Market.

Available Customizations:

Global Single Shaft Turbine 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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