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Global 300-700MW Steam Turbine Generator Rotor Forging Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global 300-700MW Steam Turbine Generator Rotor Forging market size was valued at US$ 206 million in 2025 and is forecast to a readjusted size of US$ 537 million by 2032 with a CAGR of 14.6% during review period.

300-700MW steam turbine generator rotor forging refers to a rotor forging integrally formed from high-purity alloy steel ingots via open-die forging, specifically designed for subcritical, supercritical and some ultra-supercritical thermal power units in the power range of 300MW to 700MW, including steam turbine rotor bodies and generator rotors. Operating speeds are 1500 r/min (half-speed) or 3000 r/min (full speed), with service temperatures of 400–565°C, and rotor weights approximately 30–80 tons. These rotor forgings are the preferred core components for coal?power unit replacement, flexibility retrofits and overseas conventional thermal power markets, and serve as the standardised, high?turnover flagship product range for large casting & forging manufacturers worldwide. The industrial significance lies in the fact that the 300-700MW range represents the largest installed capacity, the greatest number of existing units, and the most active segment for new coal?fired projects, making its rotor forgings a critical determinant of safety, economy and service life for this class of units. The supply-demand dynamics of this segment reflect the backbone of the global coal?fired power equipment industry and serve as a key benchmark for a nation’s heavy forging capability – from “able to make” to “stable batch supply”.

300-700MW steam turbine generator rotor forgings represent the largest installed base and most active replacement segment in thermal power equipment. A complete set of rotor forgings (HP?IP, LP and generator rotors) typically costs USD 2–4 million,

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depending on material grade (conventional Cr?Mo?V vs. FB2) and supplier qualification. Japan Steel Works, with its extreme manufacturing capability and long?standing dominance in nuclear and thermal rotors, commands gross margins exceeding 40%. China First Heavy Industries and Sinomach Heavy have raised their margins to 25–35% through domestic breakthroughs in FB2 rotors and monoblock LP rotors for nuclear units, while newer entrants like Taiyuan Heavy struggle with margins below 20% due to long certification cycles and capacity ramp?up. Downstream demand is driven by three forces: new plant construction in emerging markets (SE Asia, Africa, Middle East) where 300?700MW units remain the sweet spot; a wave of life?extension replacements in China, where hundreds of 300?600MW units installed between 1995?2010 are reaching 25?30 years of service; and flexibility retrofits of existing units to accommodate high shares of renewable energy, which often require rotor upgrades. In the competitive landscape, Japan Steel Works remains the global pricing and process benchmark, while China First Heavy Industries and Sinomach Heavy, with their batch FB2 supply capability and nuclear forging experience, are gradually eating into its mid?range market share. Doosan Enerbility stays competitive in Korea and selected export markets; Indian players such as Bharat Forge compete on price in low?end Middle East and African markets. Uncertainties include long?term policy pressures on new coal?fired power projects, although replacement and flexibility retrofits will sustain demand for 5?10 years; and the challenge of developing next?generation heat?resistant steels for >620°C units – if domestic R&D lags, the high?end segment may remain dependent on Japan Steel Works. Conclusion: The 300?700MW steam turbine generator rotor forging market is a stable segment propelled by three drivers – capacity expansion in developing regions, replacement of ageing units (led by China’s large installed base), and flexibility upgrades. In the medium term, it benefits from China’s massive replacement wave; in the long term, it faces headwinds from global coal?phase?down policies. Domestic breakthroughs in high?end FB2 and above rotors have been achieved, but fully substituting Japan Steel Works will still take years of operational validation.

This report is a detailed and comprehensive analysis for global 300-700MW Steam Turbine Generator Rotor Forging market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

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Global 300-700MW Steam Turbine Generator Rotor Forging market size and forecasts, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global 300-700MW Steam Turbine Generator Rotor Forging market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global 300-700MW Steam Turbine Generator Rotor Forging market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global 300-700MW Steam Turbine Generator Rotor Forging market shares of main players, shipments in revenue ($ Million), sales quantity (Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for 300-700MW Steam Turbine Generator Rotor Forging

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global 300-700MW Steam Turbine Generator Rotor Forging market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Japan Steel Works, Doosan Enerbility, China First Heavy Industries, Sinomach Heavy Equipment Group, Taiyuan Heavy Industry, Bharat Forge, Larsen & Toubro, Japan Casting & Forging, Shanghai Electric (SCF), Dongfang Electric, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

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Market Segmentation

300-700MW Steam Turbine Generator Rotor Forging market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

HP?IP Combined Rotor

LP Rotor

Generator Rotor

Market segment by Material System

Conventional Cr?Mo?V (?566°C)

FB2 (9Cr Martensitic, 620°C)

Nickel?Based / Advanced

Market segment by Application

New Plant Construction (Capacity Expansion)

Aged Unit Replacement (Life Extension)

Performance Upgrade (Efficiency/Flexibility)

Others

Major players covered

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Japan Steel Works

Doosan Enerbility

China First Heavy Industries

Sinomach Heavy Equipment Group

Taiyuan Heavy Industry

Bharat Forge

Larsen & Toubro

Japan Casting & Forging

Shanghai Electric (SCF)

Dongfang Electric

Kobe Steel

ATI

Scot Forge

Bruck GmbH

Siempelkamp Giesserei

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

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South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe 300-700MW Steam Turbine Generator Rotor Forging product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of 300-700MW Steam Turbine Generator Rotor Forging, with price, sales quantity, revenue, and global market share of 300-700MW Steam Turbine Generator Rotor Forging from 2021 to 2026.

Chapter 3, the 300-700MW Steam Turbine Generator Rotor Forging competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the 300-700MW Steam Turbine Generator Rotor Forging breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and 300-700MW Steam Turbine Generator Rotor Forging market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of 300-700MW Steam Turbine Generator Rotor Forging.

Chapter 14 and 15, to describe 300-700MW Steam Turbine Generator Rotor Forging sales channel, distributors, customers, research findings and conclusion.

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4 CONSUMPTION ANALYSIS BY REGION

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