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Forged Steel Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product Type (Seamless Rolled Rings, Open Die Forgings, Closed Die Forgings), By Application (Automotive, Aerospace, Oil and Gas, Power Generation, Construction, Agriculture, General Industrial Equipment), By End User (Original Equipment Manufacturers, Aftermarket), By Region & Competition, 2020-2030F

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Abstracts

Market Overview

Global Forged Steel Market was valued at USD 78.62 billion in 2024 and is expected to reach USD 103.48 billion by 2030 with a CAGR of 4.53% during the forecast period.

The Forged Steel Market refers to the global industry involved in the production, distribution, and application of steel products manufactured through the forging process. Forged steel is created by shaping steel under high pressure using hammers, presses, or dies to enhance its mechanical properties such as strength, toughness, and fatigue resistance. This process eliminates internal voids and gas pockets, resulting in highly durable and reliable components. Forged steel is widely utilized in industries that demand performance under extreme conditions, including automotive, aerospace, oil and gas, power generation, construction, and heavy machinery manufacturing. Its application ranges from gears, shafts, and crankshafts to flanges, rings, and pressure vessel components.

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The Forged Steel Market is expected to rise steadily due to multiple demand-side and supply-side factors. On the demand side, the growing global infrastructure development, increasing automotive production, and expanding aerospace sector are significantly driving the need for strong and resilient components. The rise in electric vehicle adoption is also generating new requirements for lightweight, high-performance forged parts in drivetrains and suspension systems. Furthermore, the oil and gas industry continues to rely on forged steel for pipelines, drilling tools, and valves that can withstand high pressure and corrosive environments.

On the supply side, advancements in forging technology—such as automated forging systems, near-net-shape forging, and computer-controlled processes—are enhancing production efficiency, precision, and material utilization. This enables manufacturers to deliver customized forged components that meet industry-specific standards and tolerances. Additionally, the growing emphasis on material sustainability and lifecycle performance is encouraging the use of forged steel due to its recyclability and long service life.

Emerging economies, particularly in Asia Pacific and the Middle East, are expected to contribute significantly to market growth due to increasing industrialization, urbanization, and defense spending. Overall, the Forged Steel Market is well-positioned for long-term expansion, supported by strong end-user demand, technological innovation, and the essential role of forged components in critical industrial applications.

Key Market Drivers

Increasing Demand from Automotive Industry Propels Forged Steel Market Growth

The automotive industry's robust growth is a primary driver for the Forged Steel Market, as forged steel components are critical for manufacturing high-strength, durable parts essential for vehicle safety and performance. Forged steel is widely used in producing engine components, transmission systems, crankshafts, connecting rods, and chassis parts due to its superior mechanical properties, including high tensile strength and fatigue resistance. The global surge in vehicle production, particularly in emerging economies like China and India, fuels demand for forged steel, as automakers prioritize lightweight, high-strength materials to meet fuel efficiency and emission standards.

For instance, regulations like the Euro 7 emissions standards in Europe and India’s Bharat Stage VI norms require advanced engine designs, increasing reliance on forged steel for precision components. The rise of electric vehicles (EVs) further amplifies this

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demand, as EV powertrains require specialized forged parts like gears and axles to handle high torque and stress. The automotive sector's focus on reducing vehicle weight to enhance efficiency drives innovation in forging processes, such as precision forging, which minimizes material waste and enhances component performance. Additionally, the trend toward autonomous vehicles necessitates reliable, high-quality forged components to ensure safety in advanced driver-assistance systems (ADAS).

The Asia-Pacific region, accounting for a significant share of global vehicle production, leads in forged steel consumption, with China producing over 27 million vehicles annually. The shift toward sustainable manufacturing also encourages automakers to invest in forged steel, as it offers recyclability and durability, aligning with environmental goals. As global automotive production continues to grow, driven by rising consumer demand and technological advancements, the Forged Steel Market is poised for sustained expansion, supported by the industry's need for high-performance, cost-effective materials to meet stringent regulatory and performance requirements.

In 2024, global automotive production reached 92 million vehicles, with approximately 65% of vehicles incorporating forged steel components for critical systems like engines and transmissions. China alone accounted for 27.8 million vehicles, with over 18 million using forged steel parts, reflecting a 12% increase in demand from 2023. In India, 4.5 million vehicles utilized forged steel, driven by compliance with Bharat Stage VI norms, contributing to 8,000 metric tons of forged steel consumption.

Key Market Challenges

Volatility in Raw Material Prices and Supply Chain Disruptions

One of the most critical challenges faced by the global Forged Steel Market is the persistent volatility in the prices of raw materials, particularly iron ore, steel scrap, and alloying elements such as nickel, chromium, and molybdenum. These materials form the foundational inputs for producing forged steel products, and any significant fluctuation in their cost structure can directly impact manufacturing profitability, pricing strategies, and long-term production planning. The global steel supply chain remains highly sensitive to geopolitical tensions, environmental policies, currency fluctuations, and trade regulations. For instance, unexpected sanctions on key steel-producing nations or restrictions on metal exports can disrupt supply continuity and create sharp pricing disparities across regional markets.

In addition, the logistics and transportation sector, which forms a vital component of the

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raw material and finished product supply chain, often experiences delays, increased freight costs, and capacity shortages—further compounding the uncertainty in procurement and delivery timelines. The recent examples of global port congestion, container shortages, and fuel price surges have underscored the vulnerability of the supply chain to both macroeconomic shocks and localized disruptions. These challenges are particularly pronounced for small and mid-sized forging enterprises, which may lack the financial flexibility to absorb cost escalations or maintain diversified supplier relationships.

Furthermore, the lack of long-term raw material contracts and the commoditized nature of steel exacerbate market unpredictability. Manufacturers may face difficulties in securing consistent input quality or volumes, leading to production halts or quality inconsistencies. In regions with underdeveloped infrastructure or limited local raw material sources, reliance on imports increases lead times and exposes businesses to exchange rate risks. This volatility in input costs and supply chain reliability poses a major obstacle to sustainable growth, profitability, and competitive pricing in the Forged Steel Market, especially in highly fragmented and price-sensitive industry segments.

Key Market Trends

Increased Demand from Renewable Energy and Electric Vehicle Sectors

The global transition toward renewable energy and electric mobility is significantly reshaping demand dynamics in the Forged Steel Market. As governments, corporations, and consumers intensify their commitment to reducing carbon emissions and embracing sustainable technologies, industries such as wind energy, solar power, and electric vehicle manufacturing are witnessing substantial growth. These sectors require high-performance forged steel components due to their need for structural integrity, wear resistance, and the ability to perform reliably under varying load and environmental conditions.

In the renewable energy sector, forged steel is critical in the production of wind turbine shafts, gearboxes, bearings, and foundation components. The increasing installation of large-scale onshore and offshore wind farms has created strong demand for heavy-duty forged parts that can withstand harsh operating conditions, including high torque and saltwater exposure. Similarly, in the solar energy sector, forged components are used in tracking systems, support structures, and mounting equipment, where strength and durability are essential for long-term performance.

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In the electric vehicle industry, the need for lightweight yet robust components has led to the integration of forged steel in drive systems, suspension parts, transmission assemblies, and braking systems. Unlike traditional cast or machined components, forged parts offer superior fatigue strength and reduced failure risks, which are crucial in electric mobility applications that involve high torque and frequent regenerative braking cycles. Furthermore, as electric vehicle manufacturers scale up production to meet growing global demand, the volume of forged steel components required is expected to rise proportionally.

This trend is further supported by government incentives, emission regulations, and infrastructure investments that are accelerating the shift toward clean energy and electrified transportation. As these industries continue to expand, the Forged Steel Market is poised to benefit from increasing orders for precision-engineered, high-performance forged products that support the global sustainability agenda.

Key Market Players

Scot Forge

Bharat Forge Limited

Nippon Steel Corporation

KOBE STEEL, LTD.

VDM Metals GmbH (Acerinox Group)

Arconic Corporation

Allegheny Technologies Incorporated (ATI)

American Axle & Manufacturing Holdings, Inc.

China First Heavy Industries (CFHI)

Ellwood Group, Inc.

Report Scope:

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

Forged Steel Market, By Product Type:

Seamless Rolled Rings

Open Die Forgings

Closed Die Forgings

Forged Steel Market, By Application:

Automotive

Aerospace

Oil and Gas

Power Generation

Construction

Agriculture

General Industrial Equipment

Forged Steel Market, By End User:

Original Equipment Manufacturers

Aftermarket

Forged Steel Market, By Region:

North America

United States

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- Canada
- Mexico

Europe

- Germany
- France
- United Kingdom
- Italy
- Spain

South America

- Brazil
- Argentina
- Colombia

Asia-Pacific

- China
- India
- Japan
- South Korea
- Australia

Middle East & Africa

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Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Forged Steel Market.

Available Customizations:

Global Forged Steel 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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