Isothermal Forging Market to Surpass US$ 16,461 Million, Expanding at 5.1% CAGR by 2035: Fact.MR Analysis

Rising demand for high-strength components drives growth in the isothermal forging market across aerospace, automotive, and energy industries.

ROCKVILLE, MD, UNITED STATES, July 11, 2025 /EINPresswire.com/ -- The isothermal forging market is poised for steady growth, with projections indicating a rise from USD 9,059 million in 2024 to USD 16,461 million by 2035. This expansion, occurring at a compound annual growth rate (CAGR) of 5.1% between 2025 and 2035, reflects increasing adoption across high-performance sectors.

Key drivers of this growth include the surging need for lightweight, high-strength components in aerospace and defense applications. Additionally, ongoing advancements in forging technologies—particularly those enabling precise shaping and enhanced material efficiency with superalloys and titanium—are further propelling market development.

For More Insights into the Market, Request a Sample of this Report:
https://www.factmr.com/connectus/sample?flag=S&rep_id=7517

Why Isothermal Forging Matters

1. Superior Component Integrity: The process ensures homogeneous microstructures and refined grain flow, enabling parts to endure high thermal and mechanical stresses. This is critical for safety-critical parts like jet engine disks and turbine components.

2. Precision & Material Efficiency: Near-net-shape capabilities reduce scrap and post-process machining. This adds both cost efficiency and ecological benefit.

3. Lightweight Performance: With increasing interest in fuel efficiency and emissions reduction, lightweight yet strong components forged isothermally are in high demand across aerospace and automotive industries.

Critical Market Trends

Alloy & Material Advances

Titanium and superalloys dominate the isothermal forging landscape due to their high strength-to-weight ratio and thermal resilience. Manufacturers are unlocking new applications in aerospace, energy, and defense industries.

Heating Technology Innovation

Induction heating systems are being integrated into isothermal forging equipment to enhance energy precision, boost efficiency, and reduce cycle times. The non-contact heating process enables real-time control and high-quality component outputs .

Automated & Smart Production

Manufacturers are adopting intelligent process controls, digital twins, and automation to optimize die wear, consistency, and quality, especially under stringent certification standards.

What are the regional trends of the isothermal forging market?

North America continues to lead the isothermal forging market, largely fueled by the strength of its aerospace and defense industries, particularly in the United States and Canada. Significant investments in research and development, along with advanced manufacturing capabilities, have accelerated the adoption of isothermal forging to produce high-strength, lightweight components for both commercial and military aircraft. Major OEMs and tier-1 suppliers in the region have expanded their forging capacities to meet the growing need for precision-engineered parts.

Europe closely follows as a key regional market, with Germany, France, and the United Kingdom playing pivotal roles. The region's emphasis on clean energy infrastructure and turbine production is driving demand for forged components in gas and steam turbines. Additionally, stringent EU regulations regarding fuel efficiency and emissions are prompting automotive manufacturers to turn to isothermal forging to reduce vehicle weight while maintaining performance, boosting its application across the European auto industry.

Competitive Analysis

Leading companies shaping the isothermal forging industry include Alcoa, Anchor Harvey,

Arconic Corp, ATI, Aubert & Duval, Bharat Forge Ltd, CFS Forge, H.C. Starck Solutions, Larsen & Toubro Ltd, Schuler Group, Trenton Forging, and Precision Castparts Corp. These players are at the forefront of delivering high-performance forged components across critical sectors.

The industry's momentum is fueled by growing demand for lightweight, high-strength parts in aerospace, defense, and high-performance automotive applications. As the need for material reliability, fatigue resistance, and dimensional accuracy intensifies, competition among manufacturers is increasing. Technological advancements—particularly in alloy development, precision temperature control, and automated forging systems—are enhancing product consistency and minimizing defects. To meet global sustainability targets, companies are also investing in energy-efficient processes and environmentally responsible alloy solutions. By prioritizing quality and cost-effectiveness, these firms are expanding their capabilities to serve applications where traditional forging methods cannot meet modern performance standards.

Recent Development

In April 2024, ALD Vacuum Technologies was selected by Safran to supply an advanced isothermal forging system for manufacturing rotating parts in aircraft engines. This high-performance press system enables the production of near-net-shape components, ensuring superior material properties, process control, and energy efficiency in the fabrication of aerospace-grade parts.

Segmentation of Isothermal Forging Market

By Metal Type :
Steel
Alloy Steel
Carbon Steel
Stainless Steel
Copper
Nickel
Titanium
Tungsten
Aluminium
Cobalt
Iron
Others

By Processes :
Conduction Heating

Induction Heating

By Application:
Turbine Discs
Jet Engine Components
Structural Airframe Parts
Transmission Components
Drive Shafts
Others

By End Use Vertical :
Aerospace & Defense
Agricultural Equipment
Automotive
Construction & Mining Equipment & Components
Electrical & Electronics
Energy & Power
Industrial & Manufacturing
Marine & Rail Industry
Oil & Gas

By Region :
North America
Latin America
Western Europe
Eastern Europe
East Asia
South Asia & Pacific
Middle East & Africa

Check out More Related Studies Published by Fact.MR:

Fact.MR reports that the global metal forging market is valued at US$ 103.8 billion in 2023 and is projected to reach US$ 208 billion by 2033, growing at a CAGR of 7.2% during the forecast period.

The Europe ductile iron pipes market is projected to grow from USD 1,370 million in 2025 to USD 2,147 million by 2035, reflecting a CAGR of 4.6% over the forecast period.

About Us:

Fact.MR is a distinguished market research company renowned for its comprehensive market reports and invaluable business insights. As a prominent player in business intelligence, we

deliver deep analysis, uncovering market trends, growth paths, and competitive landscapes. Renowned for its commitment to accuracy and reliability, we empower businesses with crucial data and strategic recommendations, facilitating informed decision-making and enhancing market positioning.

With its unwavering dedication to providing reliable market intelligence, FACT.MR continues to assist companies in navigating dynamic market challenges with confidence and achieving long-term success. With a global presence and a team of experienced analysts, FACT.MR ensures its clients receive actionable insights to capitalize on emerging opportunities and stay competitive.

Contact:
11140 Rockville Pike
Suite 400
Rockville, MD 20852
United States
Tel: +1 (628) 251-1583
Sales Team: sales@factmr.com

S. N. Jha
Fact.MR
+1 628-251-1583
email us here