+357 96 030922
info@marketpublishers.com

AI Precision Forging Cells Market Forecasts to 2032 – Global Analysis By Forging Type (Closed-Die Precision Forging, Open-Die Precision Forging, Warm & Hot Precision Forging, Cold Precision Forging, Isothermal Forging and Hybrid & Multi-Material Precision Forging), Automation Level, Equipment Type, Technology, End User, and By Geography.

https://marketpublishers.com/r/A386C0DF2714EN.html
Date: December 2025
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: A386C0DF2714EN

Abstracts

According to Stratistics MRC, the Global AI Precision Forging Cells Market is accounted for $1.4 billion in 2025 and is expected to reach $4.5 billion by 2032 growing at a CAGR of 18% during the forecast period. AI Precision Forging Cells are advanced manufacturing units that integrate artificial intelligence with high-pressure forging processes. They autonomously adjust temperature, pressure, and die alignment to achieve optimal material strength and dimensional accuracy. By continuously analyzing sensor data, these cells detect micro-defects and correct them in real time. Their adaptive algorithms enable production of complex metal components with minimal waste, ensuring uniformity and resilience across aerospace, automotive, and industrial applications where precision and durability are critical.

According to the Fraunhofer Institute for Production Technology, the integration of real-time AI process control is enabling zero-defect forging of high-performance aerospace components, reducing material waste by over 30%.

Market Dynamics:

Driver:

+357 96 030922
info@marketpublishers.com

Rising adoption of automated forging

Rising adoption of automated forging continues to accelerate market penetration as industries shift toward high-throughput, AI-enabled metal forming systems that ensure tighter tolerances and minimal material waste. Manufacturers are increasingly deploying intelligent forging cells to streamline production workflows, reduce human error, and achieve real-time quality optimization. This demand is further propelled by the automotive, aerospace, and heavy engineering sectors, which require enhanced consistency in micro-precision components. Collectively, these dynamics strengthen overall market expansion globally.

Restraint:

High integration costs for robotics

High integration costs for robotics remain a major challenge, as small and mid-scale manufacturers struggle to justify upfront capital expenditure for AI-driven forging infrastructure. The need for advanced sensors, adaptive control units, and real-time machine-learning platforms significantly increases deployment expenses. Additionally, compatibility issues with legacy machinery further inflate conversion costs and prolong implementation timelines. These financial barriers limit broader adoption across cost-sensitive industries, thus slowing the commercialization of fully automated precision forging ecosystems.

Opportunity:

Growth in adaptive manufacturing systems

Growth in adaptive manufacturing systems presents substantial potential as industries increasingly seek flexible, intelligent forging lines capable of dynamically adjusting parameters. AI-based models can refine temperature profiles, deformation pathways, and die-pressure behaviors, enabling part-specific optimization in real time. Such advancements support mass customization, reduce scrap rates, and enhance material efficiency, making the technology attractive for high-complexity components. As digital-twin infrastructures mature, manufacturers gain pathways for predictive maintenance and accelerated production cycles, creating a fertile landscape for market expansion.

Threat:

+357 96 030922
info@marketpublishers.com

Competition from low-cost machining

Competition from low-cost machining poses a persistent risk, particularly as alternative fabrication methods continue to evolve with cheaper tooling solutions. Traditional machining providers offer flexible production capabilities without the need for complex automated forging setups, attracting cost-driven buyers. Furthermore, additive manufacturing advancements increasingly challenge forged micro-components in certain use-cases. These competing pathways may divert investment away from AI-enabled forging cells, threatening long-term market positioning for precision forging technologies.

Covid-19 Impact:

The Covid-19 pandemic disrupted global forging operations as supply-chain bottlenecks, workforce shortages, and restricted manufacturing activity slowed deployment of AI-driven forging systems. Demand for precision components in automotive and aerospace temporarily declined, delaying investment cycles for automated forging cells. However, the crisis also accelerated digital transformation momentum, as manufacturers adopted remote monitoring, predictive analytics, and automated workflows to enhance resilience. Spurred by post-pandemic recovery, industries increasingly prioritize AI-enabled forging solutions to mitigate future operational vulnerabilities and stabilize production efficiency.

The closed-die precision forging segment is expected to be the largest during the forecast period

The closed-die precision forging segment is expected to account for the largest market share during the forecast period, owing to its ability to produce highly accurate, dimensionally consistent parts with superior mechanical strength. Industries such as aerospace, defense, and automotive increasingly rely on closed-die methods for critical high-load components. AI integration further enhances cycle efficiency, die-life prediction, and consistency across production batches. This convergence of precision and automation strongly positions closed-die forging as the dominant segment throughout the forecast horizon.

The fully automated forging cells segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the fully automated forging cells segment is predicted to

+357 96 030922
info@marketpublishers.com

witness the highest growth rate, reinforced by rising adoption of smart robotics, closed-loop feedback systems, and self-optimizing forging algorithms. Manufacturers are rapidly transitioning toward systems capable of autonomous adjustment of force, temperature, and stroke profiles. This reduces operator dependency, minimizes defects, and significantly increases throughput. As industries prioritize digital transformation, fully automated forging cells emerge as the fastest-expanding technology category.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, ascribed to strong automotive production bases, expansion of aerospace machining hubs, and substantial government investments in industrial automation. China, Japan, and South Korea lead in robotics integration, accelerating demand for AI-enabled forging solutions. The region's cost-competitive manufacturing landscape further supports large-scale adoption. These factors collectively reinforce Asia Pacific's dominant position in the global market.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR associated with growing adoption of advanced manufacturing technologies, strong aerospace and defense component demand, and rapid integration of AI-driven production systems. The U.S. and Canada are increasingly investing in smart factories, enabling widespread deployment of intelligent forging cells. Strategic focus on reshoring precision manufacturing further accelerates market momentum, supporting North America's position as the fastest-growing regional market.

Key players in the market

Some of the key players in AI Precision Forging Cells Market include ABB, Siemens, Fanuc, Yaskawa Electric, KUKA, Schuler Group, SMS Group, Mitsubishi Electric, Hitachi Industrial Equipment, Komatsu, Danfoss, Bosch Rexroth, Rockwell Automation, Hexagon Manufacturing Intelligence, Mazak, Okuma, DMG Mori, and Atlas Copco

Key Developments:

In November 2025, ABB unveiled its next-generation AI-powered robotic forging cell integrating vision, mobility, and generative AI to enhance precision and adaptability in industrial forging operations. The system is designed to reduce cycle times and improve

+357 96 030922
info@marketpublishers.com

quality consistency across automotive and aerospace applications.

In October 2025, Siemens announced new AI-driven industrial automation partnerships aimed at accelerating adoption of intelligent forging cells. The initiative focuses on embedding adaptive control architectures and real-time analytics into forging platforms, enabling manufacturers to achieve higher efficiency and predictive maintenance.

In September 2025, Fanuc, KUKA, and Yaskawa Electric were highlighted in global robotics reports for advancing next-generation AI robotics in automotive manufacturing. Their forging cell innovations emphasize collaborative robotics, machine learning integration, and smart factory connectivity, supporting large-scale automotive production lines.

Forging Types Covered:

- Closed-Die Precision Forging
- Open-Die Precision Forging
- Warm & Hot Precision Forging
- Cold Precision Forging
- Isothermal Forging
- Hybrid & Multi-Material Precision Forging

Automation Levels Covered:

- Semi-Automated Forging Cells
- Fully Automated Forging Cells
- Lights-Out Autonomous Forging Units
- Robotic-Assisted Forging Lines
- Digital Twin-Enabled Forging Systems

+357 96 030922
info@marketpublishers.com

Equipment Types Covered:

- Forging Presses
- Hammer & Hydraulic Systems
- Manipulators & Robotic Arms
- Tooling & Die Systems
- Process Monitoring & Control Devices

Technologies Covered:

- AI-Powered Deformation Prediction Models
- Computer Vision-Based Defect Detection
- Real-Time Process Optimization Algorithms
- Adaptive Thermal Control Systems
- IoT Sensors & Smart Tooling
- Edge Computing for High-Speed Forging

End Users Covered:

- Forging Manufacturers
- Automotive OEMs
- Aerospace OEMs
- Metal Fabrication Facilities

+357 96 030922
info@marketpublishers.com

- Defense Production Units
- Research & Technology Centers

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia

+357 96 030922
info@marketpublishers.com

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends

+357 96 030922
info@marketpublishers.com

- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

+357 96 030922
info@marketpublishers.com

Contents

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

11 KEY DEVELOPMENTS

12 COMPANY PROFILING

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+357 96 030922
info@marketpublishers.com

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: AI Precision Forging Cells Market Forecasts to 2032 – Global Analysis By Forging Type (Closed-Die Precision Forging, Open-Die Precision Forging, Warm & Hot Precision Forging, Cold Precision Forging, Isothermal Forging and Hybrid & Multi-Material Precision Forging), Automation Level, Equipment Type, Technology, End User, and By Geography.

Product link: https://marketpublishers.com/r/A386C0DF2714EN.html

Price: US$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/A386C0DF2714EN.html