

Amorphous Metal Market Forecasts to 2032 – Global Analysis By Type (Iron-Based Amorphous Alloys, Cobalt-Based Amorphous Alloys, Nickel-Based Amorphous Alloys, Zirconium-Based Amorphous Alloys, and Other Types), Form, Application, and By Geography

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Abstracts

According to Statistics MRC, the Global Amorphous Metal Market is accounted for \$2.8 billion in 2025 and is expected to reach \$5.1 billion by 2032, growing at a CAGR of 8.8% during the forecast period. The amorphous metal market focuses on metallic materials that possess a non-crystalline structure, which imparts unique mechanical and magnetic properties. This market includes various forms, such as ribbons, powders, and bulk materials, utilized in electronics, transformers, medical devices, and consumer products. The benefits of these materials comprise high strength, excellent corrosion resistance, low magnetic losses, and enhanced durability, which facilitate the creation of more efficient electrical components and high-performance parts in advanced engineering applications.

According to Materials Research Society (MRS) studies, amorphous metals exhibit 2–3× higher strength, ~60% higher elastic strain, and lower magnetic losses than crystalline alloys.

Market Dynamics:

Driver:

Demand for energy-efficient transformers and high-performance electronics

The primary market driver is the escalating demand for energy-efficient transformers and advanced electronics. Amorphous metals, with their superior magnetic properties and reduced core losses, are becoming indispensable in modern power distribution networks seeking to minimize energy waste. Furthermore, the push for sustainable infrastructure globally mandates the adoption of these high-performance materials, directly translating into robust market growth as utilities and manufacturers upgrade their systems for efficiency and regulatory compliance.

Restraint:

Competition from advanced crystalline alloys

Intense competition from advanced crystalline alloys, particularly nanocrystalline materials, poses a significant restraint. These competitors often offer a more attractive balance of magnetic performance, mechanical strength, and manufacturability for certain applications. Additionally, the well-established supply chains and lower perceived risk associated with traditional crystalline alloys can deter potential adopters, limiting the market penetration of amorphous metals in price-sensitive or performance-critical segments.

Opportunity:

Development of new alloy compositions for specific high-value applications

The market presents a substantial opportunity through the targeted development of novel alloy compositions. Manufacturers can unlock high-value applications in aerospace, medical devices, and specialized defense systems by engineering materials with customized properties such as enhanced corrosion resistance, greater tensile strength, or specific magnetic saturation. This focus on application-specific innovation allows companies to move beyond commoditized competition and secure premium margins in niche, technologically demanding sectors.

Threat:

Raw material price volatility

Price volatility of key raw materials, including iron, boron, and silicon, represents a persistent threat to market stability. These fluctuations can unpredictably impact

production costs and profit margins for amorphous metal producers. Moreover, such volatility complicates long-term pricing strategies and contract negotiations with large OEMs, potentially making amorphous metal solutions less economically attractive compared to alternative materials with more stable input costs.

Covid-19 Impact:

The COVID-19 pandemic initially disrupted the amorphous metal market through severe supply chain bottlenecks and a temporary slowdown in key end-use industries like automotive and industrial manufacturing. However, the crisis also demonstrated the need for resilient and efficient energy infrastructure, accelerating long-term investments in grid modernization and renewable energy projects. The market demonstrated a strong recovery, driven by pent-up demand and sustained focus on energy efficiency goals in economic stimulus packages worldwide.

The ribbons/strips segment is expected to be the largest during the forecast period

The ribbons/strips form is projected to hold the largest market share, owing to its direct application in the cores of distribution transformers and electronic components. The widespread global adoption of energy-efficient transformers, where amorphous metal ribbons provide unparalleled loss reduction, fuels this segment's dominance. Their commercial viability and proven performance in mass-produced electrical applications ensure continued, high-volume consumption, solidifying this product form's central role in the industry.

The automotive & transportation segment is expected to have the highest CAGR during the forecast period

The automotive & transportation segment is anticipated to register the highest growth rate. This increase is mainly due to the fast shift to electric vehicles, which need better soft magnetic materials for parts in electric motors, onboard chargers, and high-frequency inductors. Also, the push to make vehicles lighter for better battery range opens up new chances for using amorphous metals in building and engine parts, making this area a major opportunity for growth.

Region with largest share:

Asia Pacific is expected to command the largest market share, anchored by massive investments in power grid infrastructure and industrial manufacturing within China,

India, and Japan. The region's aggressive targets for renewable energy integration and grid efficiency, coupled with its dominance in electronics production, creates sustained, high-volume demand for amorphous metals. This established industrial base and focus on infrastructure development provide a formidable foundation for market leadership.

Region with highest CAGR:

Asia Pacific is forecast to exhibit the highest compound annual growth rate. Burgeoning automotive production, particularly electric vehicles, and continuous expansion in the consumer electronics sector propel this accelerated growth. Furthermore, supportive government policies will catalyze the adoption of amorphous metal solutions by promoting energy efficiency and modernizing aging power distribution networks across emerging economies in the region at a pace exceeding other global markets.

Key players in the market

Some of the key players in Amorphous Metal Market include Proterial, Ltd., VACUUMSCHMELZE GmbH & Co. KG, Aichi Steel Corporation, TDK Corporation, Toshiba Materials Co., Ltd., Heraeus Holding GmbH, China Amorphous Technology Co., Ltd., Advanced Technology & Materials Co., Ltd., BOMATECH AG, AMES S.A., Qingdao Yunlu Advanced Materials Technology Co., Ltd., Amorphology, Inc., Sumitomo Electric Industries, Ltd., MK Magnetics, Inc., and Bomatech (Hori) AG.

Key Developments:

In November 2025, Bomatec (Hori) AG introduced the new sustainable heavy-rare-earth-free magnet solutions, applying amorphous and advanced alloys for e-mobility and renewable energy.

In July 2025, Amorphology, Inc. introduced the new partnership with Liquidmetal Technologies, advancing domestic amorphous metal manufacturing for aerospace, defense, and medical industries.

In May 2025, Toshiba Materials Co., Ltd. introduced the new PCIM 2025 exhibit of AMOBEADS™ and SPIKE KILLER™ amorphous noise suppression devices, designed for power electronics and semiconductors.

In October 2024, Proterial, Ltd. introduced the new Life Cycle Assessment (LCA) Report for MaDC-A™ amorphous alloy transformer cores, highlighting reduced standby power

consumption and contribution to decarbonization.

Types Covered:

Iron-Based Amorphous Alloys

Cobalt-Based Amorphous Alloys

Nickel-Based Amorphous Alloys

Zirconium-Based Amorphous Alloys

Other Types

Forms Covered:

Ribbons/Strips

Wires

Powders

Thin Films & Coatings

Bulk Metallic Glasses (BMGs)

Applications Covered:

Electrical & Electronics

Automotive & Transportation

Aerospace & Defense

Medical & Healthcare

Consumer Electronics

Sporting Goods

Industrial Machinery

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

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

- 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

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