

Magnetostrictive Material Market Forecasts to 2032 - Global Analysis By Material Type (Rare Earth Magnetostrictive Materials, Iron-Based Alloys, Ferrite Magnetostrictive Materials, Amorphous & Nanocrystalline Alloys, and Magnetostrictive Composites & Thin Films), Product Form (Rods & Bars, Plates & Sheets, Powders & Microspheres, and Tubes & Specialized Geometries), Application, End User, and By Geography

<https://marketpublishers.com/r/M99EC5EB2451EN.html>

Date: January 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: M99EC5EB2451EN

Abstracts

According to Statistics MRC, the Global Magnetostrictive Material Market is accounted for \$2.0 billion in 2025 and is expected to reach \$3.8 billion by 2032, growing at a CAGR of 9.4% during the forecast period. The magnetostrictive material focuses on materials that change shape in response to magnetic fields and generate magnetic responses under mechanical stress. Sensors, actuators, sonar systems, and precision control devices all use these materials. Growth is driven by demand for high-precision sensing, industrial automation, defense and marine applications, smart manufacturing, and increasing adoption of advanced materials in energy and aerospace systems.

Market Dynamics:

Driver:

High precision and reliability requirements in sensors and actuators

The escalating demand for high-accuracy sensing and motion control systems across

the aerospace, automotive, and medical sectors is a primary driver for this market. Magnetostrictive materials, such as Terfenol-D, provide exceptional sensitivity and rapid response times, which are essential for precision positioning in robotics and advanced submicron machining. Furthermore, their solid-state nature ensures high reliability and a long operational lifespan compared to traditional mechanical systems. This inherent durability makes them the preferred choice for mission-critical applications where failure is not an option. Additionally, the shift toward Industry 4.0 is further accelerating the integration of these high-performance materials.

Restraint:

High cost of rare-earth-based materials

A significant bottleneck for the widespread adoption of giant magnetostrictive materials is the prohibitive cost of essential rare-earth elements like terbium and dysprosium. These elements are expensive to extract and refine, directly inflating the final price of high-strain alloys. Consequently, many cost-sensitive industries still favor piezoelectric or electromagnetic alternatives, despite their performance limitations. Moreover, the intensive processing required to produce these specialized materials adds another layer of financial burden to the manufacturing cycle. Furthermore, small and medium-sized enterprises often find the high initial capital investment a deterrent, which limits market penetration in emerging industrial sectors globally.

Opportunity:

Energy harvesting from vibrations in industrial and automotive settings

The ability of magnetostrictive materials to convert mechanical stress into electrical energy presents a lucrative opportunity in the field of vibration energy harvesting. As industries move toward self-powered wireless sensor nodes for structural health monitoring, these materials offer a robust alternative to batteries. In automotive settings, capturing wasted kinetic energy from engine vibrations or suspension movements can significantly improve overall vehicle efficiency. Additionally, the lack of depolarization issues compared to piezoelectric materials gives magnetostrictive harvesters a distinct advantage in harsh, high-vibration environments.

Threat:

Supply chain risk and price volatility of rare earth elements

Trade tensions and export restrictions from dominant producing nations often lead to unpredictable price spikes and material shortages. This volatility makes it challenging for manufacturers to maintain stable pricing and long-term production schedules. Furthermore, geopolitical instability can disrupt the flow of raw materials overnight, forcing companies to seek expensive alternatives or risk project delays. Further restricting the worldwide supply of these essential elements and possibly raising overhead costs are the increasingly stringent environmental regulations pertaining to rare-earth extraction.

Covid-19 Impact:

The COVID-19 pandemic caused significant short-term disruptions in the magnetostrictive material market, primarily due to the sudden halt in industrial manufacturing and global logistics. Factory closures led to a sharp decline in demand from the automotive and aerospace sectors. Furthermore, mining operations faced labor shortages and operational restrictions, causing delays in the supply of raw rare-earth materials. However, the market recovered as industries pivoted toward automation and remote monitoring solutions. This transition highlighted the long-term necessity of resilient, high-precision sensing technologies in a post-pandemic world.

The rods & bars segment is expected to be the largest during the forecast period

The rods & bars segment is expected to account for the largest market share during the forecast period, as they provide the most efficient geometry for longitudinal strain applications. Furthermore, the ease of integrating these standardized forms into existing industrial machinery simplifies the design process for engineers. Additionally, advancements in material processing have improved the uniformity and performance of large-scale rods.

The industrial manufacturing & automation segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the industrial manufacturing & automation segment is predicted to witness the highest growth rate as manufacturers seek to enhance production speed and accuracy. Also, adding magnetostrictive parts to feedback control systems enables immediate changes, which helps cut down on waste and downtime. Additionally, the expansion of the electronics assembly sector further fuels this segment's growth.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. This leading position is supported by the presence of major aerospace and defense contractors who utilize these materials in sonar systems and vibration damping. Furthermore, the region's robust research and development infrastructure fosters continuous innovation in material science and smart systems. Additionally, the high adoption rate of advanced medical devices and precision surgical tools in the United States significantly contributes to market revenue. Moreover, government initiatives promoting clean energy and high-tech manufacturing continue to bolster the domestic demand for magnetostrictive solutions.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. This accelerated growth is driven by the massive expansion of the automotive and consumer electronics industries in China, India, and Japan. Furthermore, the region's status as a global hub for rare-earth production provides local manufacturers with a competitive advantage in terms of material availability and cost. Additionally, increasing investments in industrial automation and the rapid rollout of 5G infrastructure are creating new avenues for magnetostrictive sensor applications. Moreover, supportive government policies focused on "Made in China 2025" and similar initiatives are propelling technological advancements.

Key players in the market

Some of the key players in Magnetostrictive Material Market include TdVib, LLC, Metglas, Inc., VACUUMSCHMELZE GmbH & Co. KG, Arnold Magnetic Technologies Corporation, TDK Corporation, Cedrat Technologies SA, Mide Technology Corporation, Griem Advanced Materials Co., Ltd., Gansu Tianxing Rare Earth Functional Materials Co., Ltd., Advanced Cerametrics, Inc., LORD Corporation, Kyocera Corporation, Hitachi Metals, Ltd., Emerson Electric Co., and Kenco Engineering Co.

Key Developments:

In December 2025, Arnold Magnetic Technologies Corporation introduced the new rare-earth supply agreement with Less Common Metals and Solvay, reinforcing secure inputs for high-performance magnetic alloys used alongside magnetostrictive devices.

In November 2025, VACUUMSCHMELZE GmbH & Co. KG (VAC) introduced the new rare-earth supply partnerships (Aclara, Torngat Metals) to strengthen advanced magnetic material development that underpins magnetostrictive systems.

Material Types Covered:

Rare Earth Magnetostrictive Materials

Iron-Based Alloys

Ferrite Magnetostrictive Materials

Amorphous & Nanocrystalline Alloys

Magnetostrictive Composites & Thin Films

Product Forms Covered:

Rods & Bars

Plates & Sheets

Powders & Microspheres

Tubes & Specialized Geometries

Applications Covered:

Sensors & Transducers

Actuators & Motors

Sonar & Underwater Acoustics

Energy Harvesting Systems

Structural Health Monitoring (SHM)

End Users Covered:

Automotive

Aerospace & Defense

Industrial Manufacturing & Automation

Healthcare & Medical Devices

Consumer Electronics

Energy & Power

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

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Application Analysis
- 3.7 End User Analysis
- 3.8 Emerging Markets
- 3.9 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL MAGNETOSTRICTIVE MATERIAL MARKET, BY MATERIAL TYPE

- 5.1 Introduction
- 5.2 Rare Earth Magnetostrictive Materials
- 5.3 Iron-Based Alloys
- 5.4 Ferrite Magnetostrictive Materials
- 5.5 Amorphous & Nanocrystalline Alloys
- 5.6 Magnetostrictive Composites & Thin Films

6 GLOBAL MAGNETOSTRICTIVE MATERIAL MARKET, BY PRODUCT FORM

- 6.1 Introduction
- 6.2 Rods & Bars
- 6.3 Plates & Sheets
- 6.4 Powders & Microspheres
- 6.5 Tubes & Specialized Geometries

7 GLOBAL MAGNETOSTRICTIVE MATERIAL MARKET, BY APPLICATION

- 7.1 Introduction
- 7.2 Sensors & Transducers
- 7.3 Actuators & Motors
- 7.4 Sonar & Underwater Acoustics
- 7.5 Energy Harvesting Systems
- 7.6 Structural Health Monitoring (SHM)

8 GLOBAL MAGNETOSTRICTIVE MATERIAL MARKET, BY END USER

- 8.1 Introduction
- 8.2 Automotive
- 8.3 Aerospace & Defense
- 8.4 Industrial Manufacturing & Automation
- 8.5 Healthcare & Medical Devices
- 8.6 Consumer Electronics
- 8.7 Energy & Power

9 GLOBAL MAGNETOSTRICTIVE MATERIAL MARKET, BY GEOGRAPHY

- 9.1 Introduction

9.2 North America

9.2.1 US

9.2.2 Canada

9.2.3 Mexico

9.3 Europe

9.3.1 Germany

9.3.2 UK

9.3.3 Italy

9.3.4 France

9.3.5 Spain

9.3.6 Rest of Europe

9.4 Asia Pacific

9.4.1 Japan

9.4.2 China

9.4.3 India

9.4.4 Australia

9.4.5 New Zealand

9.4.6 South Korea

9.4.7 Rest of Asia Pacific

9.5 South America

9.5.1 Argentina

9.5.2 Brazil

9.5.3 Chile

9.5.4 Rest of South America

9.6 Middle East & Africa

9.6.1 Saudi Arabia

9.6.2 UAE

9.6.3 Qatar

9.6.4 South Africa

9.6.5 Rest of Middle East & Africa

10 KEY DEVELOPMENTS

10.1 Agreements, Partnerships, Collaborations and Joint Ventures

10.2 Acquisitions & Mergers

10.3 New Product Launch

10.4 Expansions

10.5 Other Key Strategies

11 COMPANY PROFILING

- 11.1 TdVib, LLC
- 11.2 Metglas, Inc.
- 11.3 VACUUMSCHMELZE GmbH & Co. KG
- 11.4 Arnold Magnetic Technologies Corporation
- 11.5 TDK Corporation
- 11.6 Cedrat Technologies SA
- 11.7 Mide Technology Corporation
- 11.8 Grirem Advanced Materials Co., Ltd.
- 11.9 Gansu Tianxing Rare Earth Functional Materials Co., Ltd.
- 11.10 Advanced Cerametrics, Inc.
- 11.11 LORD Corporation
- 11.12 Kyocera Corporation
- 11.13 Hitachi Metals, Ltd.
- 11.14 Emerson Electric Co.
- 11.15 Kenco Engineering Co.

List Of Tables

LIST OF TABLES

Table 1 Global Magnetostrictive Material Market Outlook, By Region (2024?2032) (\$MN)

Table 2 Global Magnetostrictive Material Market Outlook, By Material Type (2024?2032) (\$MN)

Table 3 Global Magnetostrictive Material Market Outlook, By Rare Earth Magnetostrictive Materials (2024?2032) (\$MN)

Table 4 Global Magnetostrictive Material Market Outlook, By Iron-Based Alloys (2024?2032) (\$MN)

Table 5 Global Magnetostrictive Material Market Outlook, By Ferrite Magnetostrictive Materials (2024?2032) (\$MN)

Table 6 Global Magnetostrictive Material Market Outlook, By Amorphous & Nanocrystalline Alloys (2024?2032) (\$MN)

Table 7 Global Magnetostrictive Material Market Outlook, By Magnetostrictive Composites & Thin Films (2024?2032) (\$MN)

Table 8 Global Magnetostrictive Material Market Outlook, By Product Form (2024?2032) (\$MN)

Table 9 Global Magnetostrictive Material Market Outlook, By Rods & Bars (2024?2032) (\$MN)

Table 10 Global Magnetostrictive Material Market Outlook, By Plates & Sheets (2024?2032) (\$MN)

Table 11 Global Magnetostrictive Material Market Outlook, By Powders & Microspheres (2024?2032) (\$MN)

Table 12 Global Magnetostrictive Material Market Outlook, By Tubes & Specialized Geometries (2024?2032) (\$MN)

Table 13 Global Magnetostrictive Material Market Outlook, By Application (2024?2032) (\$MN)

Table 14 Global Magnetostrictive Material Market Outlook, By Sensors & Transducers (2024?2032) (\$MN)

Table 15 Global Magnetostrictive Material Market Outlook, By Actuators & Motors (2024?2032) (\$MN)

Table 16 Global Magnetostrictive Material Market Outlook, By Sonar & Underwater Acoustics (2024?2032) (\$MN)

Table 17 Global Magnetostrictive Material Market Outlook, By Energy Harvesting Systems (2024?2032) (\$MN)

Table 18 Global Magnetostrictive Material Market Outlook, By Structural Health

Monitoring (SHM) (2024?2032) (\$MN)

Table 19 Global Magnetostrictive Material Market Outlook, By End User (2024?2032) (\$MN)

Table 20 Global Magnetostrictive Material Market Outlook, By Automotive (2024?2032) (\$MN)

Table 21 Global Magnetostrictive Material Market Outlook, By Aerospace & Defense (2024?2032) (\$MN)

Table 22 Global Magnetostrictive Material Market Outlook, By Industrial Manufacturing & Automation (2024?2032) (\$MN)

Table 23 Global Magnetostrictive Material Market Outlook, By Healthcare & Medical Devices (2024?2032) (\$MN)

Table 24 Global Magnetostrictive Material Market Outlook, By Consumer Electronics (2024?2032) (\$MN)

Table 25 Global Magnetostrictive Material Market Outlook, By Energy & Power (2024?2032) (\$MN)

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

I would like to order

Product name: Magnetostrictive Material Market Forecasts to 2032 - Global Analysis By Material Type (Rare Earth Magnetostrictive Materials, Iron-Based Alloys, Ferrite Magnetostrictive Materials, Amorphous & Nanocrystalline Alloys, and Magnetostrictive Composites & Thin Films), Product Form (Rods & Bars, Plates & Sheets, Powders & Microspheres, and Tubes & Specialized Geometries), Application, End User, and By Geography

Product link: <https://marketpublishers.com/r/M99EC5EB2451EN.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/M99EC5EB2451EN.html>