Non-Grain Oriented Electrical Steel Market Size to Exceed USD 14.59 Billion By 2034 | CAGR of 3.14%

Growth in Renewable Energy Sector Increasing Demand from Electric Vehicle Industry Government Incentives for Energy Efficiency Rapid Industrialization


Non-Grain Oriented Electrical Steel Market

NY, UNITED STATES, April 7, 2025 /EINPresswire.com/ -- Non-Grain Oriented Electrical Steel (NGOES) is a critical material used in the manufacturing of electrical equipment such as motors, transformers, and generators. Unlike Grain-Oriented Electrical Steel (GOES), which has a preferred magnetic orientation, NGOES exhibits uniform magnetic properties in all directions, making it ideal for applications requiring high efficiency and reduced energy losses.

The global Non-Grain Oriented Electrical Steel market is experiencing significant growth due to increasing demand for energy-efficient electrical devices, advancements in electric vehicle (EV) technology, and the expansion of renewable energy infrastructure. This article explores the key drivers, challenges, trends, and future outlook of the NGOES market.

The Non-Grain Oriented Electrical Steel market was valued at approximately USD 10.71 billion in 2024. It is projected to grow from USD 11.05 billion in 2025 to USD 14.59 billion by 2034, reflecting a compound annual growth rate (CAGR) of around 3.14% during the forecast period (2025–2034).

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Regional Insights

Asia-Pacific: The APAC market is expected to be driven by the increasing demand for consumer electronics and the growing infrastructure development.
North America: The region is witnessing substantial growth due to its well-established industrial base and a marked shift towards electric vehicles. The preference for EVs and the increasing sales of hybrid electric vehicles (HEVs) are pivotal factors propelling the NGOES market in North America.
Europe: European countries are actively transitioning towards renewable energy sources to meet stringent carbon emission reduction targets. This shift is anticipated to boost the demand for NGOES, essential for efficient energy conversion in renewable energy systems.

Key Market Drivers
1. Rising Demand for Energy-Efficient Electrical Equipment
Governments and industries worldwide are focusing on reducing energy consumption, leading to increased adoption of high-efficiency motors and transformers. NGOES plays a crucial role in minimizing energy losses (hysteresis and eddy current losses), making it essential for modern electrical systems.

2. Growth of the Electric Vehicle (EV) Industry
The automotive sector is rapidly shifting toward electric mobility, boosting the demand for high-performance electric motors. NGOES is widely used in EV motors due to its excellent magnetic permeability and low core loss, enhancing vehicle efficiency and battery performance.

3. Expansion of Renewable Energy Infrastructure
The increasing deployment of wind turbines and solar power systems requires efficient global electrical steel for generators and transformers. NGOES is preferred in renewable energy applications due to its ability to handle variable magnetic fields, improving energy conversion efficiency.

4. Industrial Automation and Smart Manufacturing
The rise of Industry 4.0 and automation has led to higher demand for precision motors and robotics, further driving the NGOES market. Manufacturers are investing in advanced electrical steel to improve the performance of automated systems.

Challenges in the NGOES Market

Fluctuating Raw Material Prices
The production of NGOES relies on iron, silicon, and aluminum, whose prices are subject to volatility due to geopolitical factors and supply chain disruptions. This impacts manufacturing costs and profit margins.

Competition from Alternative Materials
Advanced composites and amorphous metals are emerging as alternatives to NGOES in some applications. While NGOES remains dominant, manufacturers must innovate to maintain competitiveness.

High Production Costs
The complex manufacturing process of NGOES, involving precise alloying and annealing, leads to higher production costs compared to conventional steel. This can limit adoption in price-sensitive markets.

Competitive Landscape

Shougang Corporation
Voestalpine AG
Nippon Steel Corporation
JFE Steel Corporation
Baosteel Group
POSCO
thyssenkrupp AG
Hyundai Steel
Maanshan Iron and Steel
Handan Iron and Steel
Benxi Iron and Steel Group
Tata Steel

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Market Trends
1. Development of High-Performance NGOES Grades
Leading manufacturers, such as Nippon Steel, POSCO, and ThyssenKrupp, are investing in R&D to produce ultra-thin, high-silicon NGOES with superior magnetic properties. These advanced grades reduce energy losses in high-frequency applications.

2. Increasing Adoption in Emerging Economies
Countries like China, India, and Brazil are witnessing rapid industrialization and urbanization, leading to higher demand for electrical infrastructure. Local production of NGOES is expanding to meet domestic needs.

3. Sustainability and Recycling Initiatives
With growing environmental concerns, manufacturers are focusing on sustainable production methods and recycling scrap electrical steel to reduce carbon footprints.

Future Outlook

The NGOES market is poised for continued growth, driven by technological advancements, the global shift towards sustainable energy solutions, and the increasing adoption of electric vehicles. Companies are expected to focus on research and development to produce high-efficiency NGOES, catering to the evolving demands of various industries. Additionally, strategic investments in expanding production capacities and forming partnerships will be crucial in maintaining a competitive edge in the market.

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