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Electrical Steel Non-grain oriented (NOES) Market Forecasts to 2034 – Global Analysis By Type (Fully Processed, Semi-processed and Other Types), Thickness (0.5 mm, 0.35 mm and 0.65 mm), Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Electrical Steel Non-grain oriented (NOES) Market is accounted for $26.30 billion in 2026 and is expected to reach $49.04 billion by 2034 growing at a CAGR of 8.1% during the forecast period. The Electrical Steel Non-grain Oriented (NOES) Market refers to the industry that produces and trades non-grain oriented electrical steel, a specialized type of steel designed for use in electric power equipment. Unlike grain-oriented electrical steel, NOES exhibits isotropic magnetic properties, making it suitable for applications where magnetic flux direction varies. The key characteristics of NOES, such as low core loss and high magnetic permeability, contribute to its widespread use in electrical devices that require reliable and energy-efficient performance.

According to the April 2023 data published by the World Bank, a US-based international financial institution that provides loans and grants to the governments of low@@-@@and middle-income countries, in 2023, 56% of the world’s population or 4.4 billion inhabitants lived in urban areas and this number is expected to more than double its current size by 2050.

Market Dynamics:

Driver:

Growing demand for energy-efficient appliances

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As global concerns over sustainability and environmental impact intensify, there is a growing emphasis on enhancing the energy efficiency of electrical devices. NOES, with its superior magnetic properties, plays a crucial role in the manufacturing of transformers, motors, and generators for these appliances. The steel's low energy losses during magnetic flux cycles contribute to the overall efficiency of electrical systems. Furthermore, this heightened focus on energy conservation, coupled with stringent regulations promoting eco-friendly practices, has spurred the adoption of NOES in the production of energy-efficient appliances.

Restraint:

Volatility in raw material prices

Fluctuations in the costs of essential raw materials, such as iron ore and alloying elements, can introduce uncertainties and challenges for manufacturers. The production of high-quality electrical steel relies heavily on specific alloy compositions, and any sudden spike or decline in raw material prices directly impacts the overall production costs. This volatility can lead to increased operational expenses, making it challenging for market players to maintain stable pricing and profitability. However, manufacturers may find it difficult to plan and execute long-term strategies amid such price uncertainties, impacting their ability to offer competitive pricing in the market.

Opportunity:

Technological advancements

Ongoing innovations in manufacturing processes and materials contribute to the continuous improvement of electrical steel, enhancing its magnetic properties and overall performance. Advanced production techniques enable the fabrication of NOES with superior characteristics, such as reduced core losses and enhanced magnetic permeability. The ability to meet evolving technological demands positions NOES as a favored choice for manufacturers striving to optimize energy conversion and transmission in electrical systems.

Threat:

Competition from alternative materials

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Emerging materials and alternative electrical steels, along with advancements in composite materials, present viable options for manufacturers and end-users. These alternatives may offer improved performance characteristics, cost-effectiveness, or sustainability features, diverting demand away from traditional NOES. As industries seek innovative solutions and explore eco-friendly options, the competition intensifies, challenging the market dominance of electrical steel. Manufacturers must navigate this competitive landscape by continually enhancing the properties of NOES, optimizing production processes, and strategically positioning electrical steel in applications where its unique characteristics provide a competitive edge.

Covid-19 Impact:

The global economic slowdown induced by the pandemic led to a decrease in industrial activities and construction projects, directly affecting the demand for electrical steel. Supply chain interruptions, including delays in raw material procurement and transportation, added complexity to production processes. Furthermore, uncertainties in market conditions and financial constraints among end-users resulted in deferred investments in infrastructure and energy projects, impacting NOES demand. While the pandemic highlighted the vulnerabilities in the supply chain and manufacturing, it also underscored the importance of resilience and adaptability.

The fully processed segment is expected to be the largest during the forecast period

Fully Processed segment is expected to be the largest during the forecast period. Fully processed segments in electrical steel play a pivotal role in enhancing the efficiency and performance of electrical equipment, such as transformers and motors. These segments undergo advanced processing techniques, including annealing and surface insulation, resulting in improved magnetic properties and reduced core losses. The increased adoption of fully processed segments is attributed to their ability to meet stringent energy efficiency standards and contribute to the overall sustainability of electrical systems.

The inductors segment is expected to have the highest CAGR during the forecast period

Inductors segment is expected to have the highest CAGR during the forecast period. With an increasing emphasis on energy efficiency and the widespread adoption of renewable energy sources, the demand for high-performance inductors has surged. Inductors, essential components in electronic circuits and power systems, rely on

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electrical steel NOES for their magnetic properties. The unique characteristics of NOES, such as low core losses and excellent magnetic permeability, make it an ideal choice for inductor applications. Additionally, as industries and consumers alike prioritize compact, energy-efficient electronic devices and renewable energy infrastructure, the demand for inductors utilizing electrical steel NOES has experienced a substantial upswing.

Region with largest share:

Asia Pacific region commanded the largest share over the projected period due to the robust industrialization, rapid urbanization, and escalating demand for energy-efficient technologies in countries like China and India are major contributors to this market growth. The region's burgeoning manufacturing sector, particularly in automotive, electronics, and power generation, is driving the need for high-quality electrical steel NOES. Additionally, supportive government policies promoting infrastructure development and the increasing focus on renewable energy projects further fuel the demand.

Region with highest CAGR:

Asia Pacific region is estimated to witness lucrative growth over the extrapolated period. The growing middle-class population in the Asia Pacific region is triggering a surge in consumer electronics and appliances, driving the adoption of electrical steel NOES for efficient motors and transformers. Governments across the region are actively implementing policies and standards that mandate the use of energy-efficient materials in various industries. In countries like China and India, where industrialization is rapid and energy consumption is substantial, regulatory measures promoting the adoption of eco-friendly and energy-efficient technologies are driving the demand for electrical steel NOES.

Key players in the market

Some of the key players in Electrical Steel Non-grain oriented (NOES) market include ArcelorMittal S.A., Arnold Magnetic Technologies, Baosteel Group Corporation, Benxi Steel Group Co., Ltd, CSC Steel Sdn. Bhd., Nippon Steel Corporation, Nucor Corporation, Shougang Group, Tata Steel, Voestalpine Group and Yieh Corporation.

Key Developments:

In March 2023, United States Steel Corporation announced that manufacturing of its

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new electrical steel product, InduX, will begin in the summer of 2023 at its Big River Steel facility with the inauguration of its new non-grain oriented (NGO) electrical steel line. InduX electrical steel is a broad, ultra-thin, light-weight steel with all of the magnetic qualities required for electric vehicles (EV), generators, and transformers.

In February 2023, JFE Steel Corporation announced that it will be expanding the electrical steel sheet capacity of its West Japan Works (Kurashiki Area) for a startup in the first half of the fiscal year beginning April 2024 and that it is now planning an additional expansion for a startup in the fiscal year beginning April 2026. The further extension, which will cost around 50.0 billion yen, will increase the works' present capacity for top-grade non-oriented electrical steel sheets used in electric car main engine motors.

In April 2022, POSCO has begun construction on a new electrical steel facility. South Korea's largest steelmaker will invest 1 trillion won (US$805 million) in the construction of the factory in the southwestern port of Gwangyang, which will have a capacity of 300,000 tons of non-oriented electrical steel per year. POSCO presently manufactures about 1 million tons of both types of electrical steel each year. POSCO's current integrated steel mill in Gwangyang is the world's largest.

Types Covered:

- Fully Processed
- Semi-processed
- Other Types

Thicknesses Covered:

- 0.5 mm
- 0.35 mm
- 0.65 mm

Applications Covered:

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- Power Generation
- Inductors
- Transformers
- Other Applications

End Users Covered:

- Automotive
- Domestic Appliances
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain

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- 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

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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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 3032 and 2034
- 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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