

Permanent Magnet Motor Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The Permanent Magnet Motor Market is expected to register a CAGR of 10.28% over the forecast period. The COVID-19 outbreak forced several industries to halt almost every industrial operation globally. Since the raw materials were and still are bought in from China, the sourcing was affected by the United States' tariffs. Further, amidst the pandemic spread of COVID-19, the market for PMMs, which has a significant application in industries (such as the manufacturing sector) and sees substantial adoption on the industrial front, was highly impacted.

Key Highlights

Permanent magnet motors (PMM) are witnessing a significant increase in demand due to their high efficiency and throughput. These motors cover a wide range of applications, from stepping motors for wristwatches and industrial drives for machine tools to large PM synchronous motors for ship propulsion.

Electric vehicles are expected to boost the growth of the market studied over the forecast period. The number of new electric cars registered globally hit an unprecedented market share in 2021, with the developed markets supporting this trend. With leading automakers increasingly incorporating permanent magnet motors into EVs, global demand is expected to rise, driving the market's growth over the forecast period.

Neodymium magnets accounted for the largest share of the market last year, and it is expected to be the fastest-growing magnetic material segment over the forecast period. The high energy product, along with the high residual flux density of neodymium, make it a compulsive choice of material for industrial applications. Neodymium offers both high- and low-grade variants, enabling it to deliver superior performance and torque as compared to a conventional motor, thereby increasing its adoption. However, high prices and scarcity are likely to pose challenges to the growth of this material.

The increasing demand for HVAC equipment is also expected to influence the market studied. It is majorly driven by the increase in the number of new households, rising average construction spending, rapid urbanization, and growth in disposable income

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across several major economies. The increasing standards on minimum energy efficiency for appliances and equipment are also driving the growth of PMMs in HVAC equipment.

Permanent Magnet Motor Market Trends

Direct Current Motor Holds Significant Share

Permanent DC motors have been popular in the industry since the industry started shifting from induction motors. DC motors offer a few advantages, such as ease of operation, compact size, and the ability to perform without further control.

PMDC motors are highly efficient and can provide considerable power and torque in a tiny form factor. Additionally, they can be easily interfaced with batteries because they have been widely used in various applications. Their small size and ability to work with batteries make them useful in many new industries and applications, such as drones, regenerative braking, power tools, etc. PMDC motors have various applications in automobile components, which include windows and blowers used in AC and heaters, in personal computer disks and drives, as well as small power rating equipment like toys and small robots.

In recent years, the world has witnessed the advent of electric vehicles. Electric cars are often considered the future of the automotive market. Increasing adoption of PMDC motors in electric cars and increasing investments by leading players, like Tesla Motors, are expected to boost the market. The number of battery electric vehicles sold worldwide was approximately 11.3 million units in 2021, almost twice the sales of electric vehicles in 2020, as per the IEA.

Moreover, the market is witnessing a lot of developments as countries look for faster deployment of electric vehicles with an aim to move towards a sustainable future. For instance, in July 2022, IIT Kharagpur developed an indigenous, efficient, and affordable smart controller for e-rickshaws as a part of the Ministry of Electronics and Information Technology's (MeitY) program for indigenous development of electric vehicle subsystems. The smart controller uses a brushless DC motor (BLDC) powered by a direct current voltage supply.

North America Holds Significant Market Share

The North American region is expected to hold a significant share globally due to the increasing investments by market players and other organizations, coupled with government initiatives toward building an energy-efficient and sustainable environment. The strong wind energy sector is set to grow in the region and boost the growth of the permanent magnet market during the forecast period.

With the focus on energy-efficient solutions rising, industries across the region are deploying PMM across various factory operation segments, thereby augmenting the market for PMM. Canada is focusing heavily on energy consumption with programs like CIPEC (Canada Industry Program for Energy Conservation).

Geomega Resources Inc., a rare earth cleantech developer for mining and recycling, also worked with USA Rare Earth, a funding and development partner of the Round Top-Heavy Rare Earth and Critical Minerals Project West Texas, to recycle rare earth-containing production waste. This waste comes from USA Rare Earths production of sintered neodymium iron boron permanent magnets (sintered neo magnets) in the United States. Such initiatives are expected to boost the adoption of PMMs in the region, especially in this sector, which is a major industry in the region.

Furthermore, researchers at the University of Pittsburgh partnered with Powdermet Inc., an advanced materials research and development company in Ohio, to develop a rare-earth mineral-free electric motor. The project will create an electric machine that uses permanent magnets made of more abundant metals instead of rare-earth metals.

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Permanent Magnet Motor Market Competitor Analysis

The Permanent Magnet Motor Market is moderately competitive. Market incumbents can gain an advantage and garner a larger market share with innovations and investments in R&D. The intensity of competitive rivalry is expected to increase further, owing to increasing market penetration and the deployment of powerful competitive strategies by market players.

In July 2022, Collins Aerospace announced the development of the first working prototype of its 500-kilowatt electric motor for Airlander 10 aircraft in partnership with Hybrid Air Vehicles and the University of Nottingham. Collins wants the 2,000 rpm permanent magnet electric motor to have a power density of 9 kW/kg and an efficiency of 98%. He does this by using a new motor topology and a composite construction.

In May 2022, Badve Engineering, an India-based automotive manufacturer, announced a strategic partnership with EVR Motors, an Israeli start-up, to manufacture electric motor technology for India's rapidly growing two- and three-wheeled electric vehicle market. Under the partnership, Badve Group will manufacture in India EVR's proprietary Trapezoidal Stator RFPM electric motors, which measure half the weight and size of competing electric motors yet claim high power and torque performance.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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