

Permanent Magnet Motor - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Permanent Magnet Motor Market size is estimated at USD 48.34 billion in 2024, and is expected to reach USD 77.71 billion by 2029, growing at a CAGR of 9.96% during the forecast period (2024-2029).

The market growth is driven by growing demand for electric vehicles and increased adoption in the industrial sector. Advancement in motor efficiency further fuels the adoption of permanent magnetic motors in end-user verticals.

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.
- 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 across several major economies. The increasing standards on minimum energy efficiency for appliances and equipment are also

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driving the growth of PMMs in HVAC equipment.

-The increasing price of raw materials due to geopolitical concerns and scarcity of minerals sources results in increasing price of motors, which is expected to restrict market growth. Also, the limited availability of rare-earth metals further create challenges for the motor manufacturers and increase the production cost.

-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.

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 ratings 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 7.3 million units in 2022, increase from around 4.6 billion in 2021, 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

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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.

Permanent Magnet Motor Industry Overview

The Permanent Magnet Motor Market is highly 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.

- July 2023 - Delta Line announced a new range of brushed permanent magnet DC motors in three sizes 52DI, 42DI, and 63DI. These new motors feature nominal torque up to 0.22Nm in 52mm, 0.06Nm in 42mm, and 0.27Nm in 63mm.

- 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.

Additional Benefits:

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

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