

## **Stepper Motor - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)**

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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### **Report description:**

The Stepper Motor Market size is estimated at USD 1.11 billion in 2024, and is expected to reach USD 1.30 billion by 2029, growing at a CAGR of 3.08% during the forecast period (2024-2029).

A stepper motor is an electromechanical system that transduces an electrical signal into a mechanical one. These motors are designed to accomplish a discrete movement and reach a precise position. This movement in stepper motors is achieved by using a magnetic field provided by coils and sensed by magnets, which force the rotating part to respond and align itself in the lowest energy state (equilibrium), giving motion. Hence, stepper motors are generally composed of a fixed part (i.e., the stator) made of cyclically energized coils and a moving part (i.e., the rotor) made of ferromagnetic material or magnets.

#### Key Highlights

- The low cost and precise movement features of stepper motors significantly expand their application area. Currently, stepper motors are available in many familiar industrial and commercial applications. Some typical domestic applications of these motors include applications in air conditioning louvers, driving electrically operated drapes, turning pipe valves on or off, and the zoom and autofocus mechanisms in digital or phone cameras. Furthermore, in the commercial sector, these motors can commonly be found in ATMs, rotating security cameras, etc.
- A significant driving factor behind the growth of the market studied is the efforts being made by industrial organizations to accelerate their digital transformation, which includes the shift toward the "Industry 4.0" concept, which governs a higher adoption of automation, robotics, and advanced solutions, such as AI and IIoT, in industrial setups. Considering the benefits, governments across various countries are also taking initiatives to promote the adoption of advanced manufacturing and industrial solutions.
- Over the years, the medical equipment market has witnessed significant growth, driven by technological development, the

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growing desire of government entities across various countries to offer high-quality healthcare infrastructure, and the growing awareness among consumers regarding personal healthcare devices.

-Stepper motors are among the most widely used motors across various end-user industries, as these motors offer excellent speed control, repeatability of movement, and precise positioning. Additionally, the absence of any contact brush makes these motors highly reliable as it minimizes mechanical failure and maximizes the operation lifespan of the motor.

-A notable impact of COVID-19 has been observed in the market study as the widespread lockdown imposed across various parts of the world significantly disrupted the supply chain of various industries, especially during the initial phase. Industrial, automotive, manufacturing, etc., were among the majorly impacted sectors. As these are among the major end consumers of stepper motors, such trends brought a minor slowdown in demand for stepper motors. However, the overall demand for these motors was largely unaffected by the pandemic. Further, with COVID cases almost diminishing and industries and the market demand returning to pre-COVID level, the market studied is expected to grow during the forecast period.

## Stepper Motor Market Trends

### Hybrid Type of Motors to Witness Significant Growth

- A hybrid stepper motor is a combination of a permanent magnet type motor and a variable reluctance motor, as the rotor in hybrid stepper motors is magnetized axially, much like the permanent magnets in stepper motors. Still, the stator is electromagnetically charged like a variable reluctance stepper motor. It has a higher output torque, a higher pulse rate, quicker acceleration and response, less noise, and better performance delivery because it operates on the combined principles of permanent-magnet and variable-reluctance variants. Additionally, they are incredibly dependable and require little maintenance, owing to their sturdy and straightforward construction.

- A key feature of a hybrid stepper motor is its ability to operate in either a two-phase or three-phase configuration. Two-phase stepper motors use two stator windings that are alternately energized to rotate the rotor by attracting and repelling each other. In contrast, three-phase stepper motors use three stator windings that are energized sequentially, causing the rotor to rotate multiple steps per revolution.

- Industrial robotics options are becoming very popular as a result of the fast advancement of the robotics and automation industry, as evidenced by their extensive deployment in the manufacturing sector. The development of hybrid stepper motors depends on the advantages of industrial robots, such as their suitability as independent vehicles and the provision of private assistance on the floor.

- Moreover, despite the global economic challenges, the IFR World Robotics 2023 report reveals a positive future for the industrial robot installation sector. In 2024, industrial robot installations in Asia/Australia will reach 370,000 units, accounting for the highest.

### Asia-Pacific is Expected to Witness Significant Growth

- The Asia-Pacific region anticipates the dominance of the global market, primarily due to the presence of countries like Japan, China, India, and South Korea. These countries are renowned for their electronic materials industry, significantly contributing to the market's interest in this region. Moreover, the region's continuous investments in sectors like Medical and Robotic industries are projected to augment the market's prospects further.

- Furthermore, there has been a substantial increase in the implementation of robotics in different sectors within India in recent times. Robot Systems India Pvt Ltd reports that the Indian manufacturing sector has witnessed a remarkable surge in the adoption of robotics, with an impressive installation of approximately 5,500 robots in 2022. This substantial growth signifies a highly

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promising future for the robotics industry in India. Additionally, the continuous advancements in cutting-edge technology and manufacturing capabilities are anticipated to propel the growth of the robotic industry in the region, consequently generating a surge in market demand.

- Despite the robotic industry, the market for stepper motors is also significantly expected to increase owing to rising developments in the region's medical industry. The demand for medical equipment is experiencing a significant surge due to the rapidly growing population and the escalating healthcare expenditure in countries such as India, China, and other nations.

- For instance, as per the Government of India, the valuation of the Indian medical devices and equipment market stands at USD 11 billion and is estimated to reach USD 50 billion by 2025. This industry has been witnessing consistent growth owing to heightened investments. The government has implemented the Production Linked Incentive Schemes to encourage local manufacturing, which provides financial incentives amounting to USD 400 million for medical devices. As a result, numerous companies are making significant investments to augment the production capacities of healthcare equipment.

## Stepper Motor Industry Overview

The stepper motor market is highly fragmented, with major players such as Kollmorgen (Regal Rexnord Corporation), Faulhaber, Oriental Motor Co. Ltd, ASPINA Group (Shinano Kenshi Co. Ltd), and Schneider Electric SE. Partnerships, innovations, investments, and acquisitions are among the strategies used by market participants to improve their product offerings and gain a sustainable competitive advantage.

- December 2023 - Kollmorgen launched the P80360 stepper motor, a cutting-edge solution that incorporates closed-loop operation to enable real-time position correction. This advanced drive not only offers versatile programming capabilities and extended positional control but also guarantees enhanced reliability and efficiency through its closed-loop feedback system. With a phase current capacity of up to 3A peak and an input voltage range of 100-240 VAC single-phase, the P80360 stepper drive is compatible with all stepper motors.

- October 2023 - FAULHABER unveiled the AM3248 stepper motor, showcasing its remarkable speed and torque. This new motor outperforms similar models by five times with an impressive capability of reaching up to 10,000 rpm. Despite its compact 32 mm diameter, it delivers exceptional performance, making it an ideal choice for various applications, including aerospace, laboratory automation, large optical systems, the semiconductor industry, robotics, and 3D printing.

### Additional Benefits:

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

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