

Micro Motor Market -Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 By Power Output (AC and DC), By Technology (Brushed Motor and Brushless Motor), By Power Consumption (Below 9V, 10V-20V, 21V-50V and More than 50V), By Application (Automotive, Industrial Automation, Aircraft, Construction & Mining Equipment and Others), By Region, Competition

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Abstracts

The Global Micro Motor Market reached a size of USD 45.81 billion in 2022 and is projected to grow to USD 89.62 billion by 2028, with a CAGR of 7.95% from 2022 to 2028. The micromotor market is driven by various factors, including the need for device miniaturization, the growing demand for medical implants, advancements in manufacturing technology, increased adoption of automation and robotics, and the rising popularity of electric vehicles. The market is expected to continue growing in the future due to the increasing demand for smaller, more efficient, and more precise motors. Furthermore, technological advancements and cost-effective manufacturing techniques have made micromotors more widely available and affordable, making them suitable for diverse applications in various industries.

Key Market Drivers

Rising demand and applications from a variety of markets and industries is driving the market growth

The growth and development of the micromotor market are heavily influenced by the



increasing demand for automation. Automation, which involves the use of machines and technology to carry out operations with minimal human involvement, has proven to enhance productivity, accuracy, and efficiency across various industries. Micromotors play a crucial role in automation applications due to their small size, high precision, and superior motion control capabilities. One of the key driving factors for automation is the pursuit of operational efficiency. By automating repetitive or laborintensive procedures, businesses can streamline operations, reduce manual errors, and boost productivity. Micromotors are ideal for automating systems such as conveyor belts, robotic arms, and other machinery, as they offer precise motion control in confined spaces. Cost reduction is another driving force behind automation. Companies can minimize labor expenses, eliminate material waste, and optimize resource utilization by automating certain processes. The integration of micromotors into automated systems enables effective and precise movement of parts or equipment, contributing to cost savings in infrastructure and equipment. In many industries, maintaining quality and consistency is paramount, and automation plays a crucial role in achieving those goals. By automating operations, businesses can ensure consistent output and minimize variations that may arise from human error. Micromotors provide the necessary precision and accuracy for controlling movements and actions in automated processes, resulting in reliable and excellent outcomes. This is particularly critical in sectors like manufacturing, where even slight variations can impact the quality of the final product and customer satisfaction. Safety considerations also drive the need for automation. By substituting automated devices driven by micromotors for human operators, businesses can reduce workers' exposure to potential risks in unsafe processes or environments. Robotic systems often rely on micromotors to perform tasks such as material handling, assembly, or inspection, automating hazardous jobs while maintaining a safe working environment.

Growing Trend of Industrial Automation

The demand for micromotors is being propelled by the growing automation trend in various industrial processes. To maintain competitiveness in the market, manufacturing industries are prioritizing resource optimization, waste reduction, and productivity enhancement. Industrial control and factory automation have become indispensable for industries with low profitability, such as oil & gas, metal, and packaging. The automotive industry also necessitates precise assembly to avoid costly manufacturing defects. To achieve this, factory automation devices and equipment, including 5-axis CNC systems, automated testing probes, custom conveyor belts, pick-and-place machines, and robotic welding, rely on numerous micromotors. Factory automation is predominantly observed in the manufacturing industry, ensuring swift turnaround and precise assembly. Notably,



countries like the US, Germany, China, Italy, and South Korea exhibit high levels of factory automation. The automation trend in diverse industrial processes is anticipated to fuel the demand for micromotors in the forecast period, owing to their ability to deliver the speed, precision, and control required for modern manufacturing processes.

Energy Efficiency Initiatives

Governments and international organizations have implemented regulations and standards to facilitate energy efficiency across various industries. Compliance with these regulations necessitates the utilization of energy-efficient micro motors in products and applications, propelling the widespread adoption of such motors. Furthermore, energy-efficient micro motors play a pivotal role in attaining green building certifications, such as Leadership in Energy and Environmental Design (LEED). These certifications promote environmentally responsible practices, encompassing the use of energy-efficient systems and appliances. Moreover, conscientious consumers are increasingly seeking energy-efficient products that contribute to carbon footprint reduction and lower energy costs. In response to this demand, manufacturers are integrating energy-efficient micro motors into their offerings to cater to environmentally aware customers.

Key Market Challenges

Availability of inferior products in local markets at lower prices

Organized suppliers are increasingly concerned about the availability of low-quality, locally made micromotors in the market. These micromotors, although cheaper, may not meet the required OEM specifications and can result in various issues such as reduced durability, inferior performance, and potential health risks. The Asian region, particularly China, being the largest producer of such micromotors, raises concerns about fraudulent manufacturing practices such as patent or copyright infringement, product alteration, and misrepresentation. This situation presents a significant challenge to the micromotor market, impacting its share and profitability. To overcome this challenge, micromotor manufacturers can establish strategic partnerships with OEMs and other industry players. These partnerships can include agreements on delivery schedules, pricing, and quality control measures to ensure compliance with OEM requirements. Additionally, major micromotor manufacturers can collaborate with regional administrations and business associations to create policies and initiatives that promote the growth of the regional motor manufacturing sector. This approach helps reduce reliance on imports, increase the availability of motors in local markets, and maintain



quality standards.

Counterfeit Products

Counterfeit micro motors frequently fail to meet the same rigorous quality and performance standards upheld by genuine products. They are often manufactured using inferior materials, leading to a lack of precision and reliability that authentic micro motors possess. Consequently, users may experience reduced performance, shorter lifespan, and potential safety hazards. Furthermore, the presence of counterfeit products poses a reputational risk to legitimate micro motor manufacturers. Unwitting customers who purchase counterfeit items may erroneously associate the subpar performance with the genuine brand, eroding trust and brand credibility. Additionally, the sale of counterfeit products encroaches upon the market share of genuine manufacturers, resulting in revenue losses. This, in turn, negatively impacts the profitability and investment in research and development of legitimate companies.

Key Market Trends

Internet of Things (IoT) integration with Micro Motors

IoT-enabled micro motors have the capability to be remotely controlled through smartphones, tablets, or computers. This functionality provides users with the convenience and accessibility of operating devices or systems from a distance. The integration of IoT technology in micro motors enables automation in various applications, allowing them to perform specific tasks based on predefined conditions or real-time data. This level of intelligence makes devices and systems 'smart' and autonomous. Additionally, IoT integration enables micro motors to collect and transmit real-time data on their performance, efficiency, and operating conditions. This valuable data can be analyzed to optimize motor operation, detect anomalies, and predict maintenance requirements. Furthermore, IoT-enabled micro motors can be equipped with sensors to monitor power consumption and operational efficiency, enabling optimization of energy usage and reducing power consumption. These capabilities contribute to the development of energy-efficient solutions.

Segmental Insights

Type Insights

The AC segment is expected to dominate the market during the forecast period



primarily attributed to their superior performance and energy efficiency. When compared to DC motors, AC motors boast a simpler design and fewer moving parts, rendering highly reliable and long-lasting. Furthermore, AC motors can operate at higher speeds and lower power consumption, making them invaluable for applications necessitating precise control and minimal energy usage. They are particularly well-suited for deployment in industrial and commercial settings, such as compressors, pumps, and HVAC systems, where they can deliver efficient and consistent operation. Consequently, the demand for AC micromotors is projected to escalate in the foreseeable future, fuelled by the increasing adoption of advanced automation and control systems across diverse industries.

Application Insights

Automotive segment is expected to dominate the market during the forecast period. Micro motors are indispensable components in electric drivetrains that empower various functions, including electric power steering, electric braking systems, and electric HVAC systems in EVs and hybrid electric vehicles (HEVs). These micro motors facilitate enhanced energy efficiency in automotive systems. The utilization of Brushless DC (BLDC) motors and other advanced micro motor technologies leads to reduced power consumption, consequently improving the overall energy efficiency of vehicles. Moreover, micro motors play a significant role in advanced driver assistance systems (ADAS) and safety features, powering components such as adaptive headlights, parking assist, and lane-keeping systems, thereby augmenting vehicle performance and safety.

Regional Insights

The Asia-Pacific region is projected to dominate the market throughout the forecast period. This can be attributed to the thriving consumer electronics sector, with the region serving as a global hub for manufacturing and consumption. Major players such as China, Japan, South Korea, and Taiwan contribute significantly to the production of smartphones, tablets, laptops, and other electronic devices, all of which heavily rely on micro motors. The region's growing middle-class population and increasing disposable income have further fueled the demand for consumer electronics, consequently driving the need for micro motors. Furthermore, China, Japan, India, and South Korea hold substantial positions in the global automotive market. Micro motors find extensive use in various automotive applications, including power windows, side mirrors, HVAC systems, and electric power steering. As the automotive industry continues to expand, the demand for micro motors in this region is anticipated to rise. Additionally, there has been significant growth in industrial automation and robotics across the region. Micro



motors play a critical role in actuators, precision control systems, and robotic arms. As industries progressively embrace automation to enhance efficiency and productivity, the demand for micro motors is expected to witness a notable increase.

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Key Market Players
Mitsuba Corporation
Nidec Corporation
Johnson Electric Holdings Limited
Mabuchi Motor Company Ltd
ABB Ltd.
Constar Micromotor Co Ltd
Buhler Motor GmbH
Robert Bosch GmbH
Denso Corporation
Maxon Motor AG
Report Scope:
In this report, the Global Micro Motor Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:
Global Micro Motor Market, By Power Output:
AC

Global Micro Motor Market, By Technology:

DC



Brushed Motor
Brushless Motor
Global Micro Motor Market, By Power Consumption:
Below 9V
10V-20V
21V-50V
More than 50V
Global Micro Motor Market, By Application:
Automotive
Industrial Automation
Aircraft
Construction & Mining Equipment
Others
Global Micro Motor Market, By Region:
North America
Europe
South America
Middle East & Africa
Asia Pacific



Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Micro Motor Market.

Available Customizations:

Global Micro Motor Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).



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