

INDUSTRY OVERVIEW

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OVERVIEW OF GLOBAL MOTOR MARKET

Definition and Classification

An electric motor is formally defined as an electromechanical device that converts electrical energy into mechanical energy. The fundamental operating principle for most motors involves the interaction between a magnetic field and an electric current to generate force, typically in the form of rotational torque, to drive a connected mechanical load. As foundational components of modern technology, electric motors are integral to a vast array of applications spanning industrial machinery, consumer electronics, automotive systems, and medical devices.

The classification of electric motors is governed by internationally recognized standards established by the International Electrotechnical Commission (IEC), which provides a comprehensive framework for rotating electrical machinery under its IEC 60034 series of standards. While motors can be categorized by various technical attributes, a commonly adopted method within the industry, based on physical size, classifies them by the outer diameter of the motor stator core. Generally:

- (i) *Large Motors*: Stator core outer diameter exceeding 1,000 mm.
- (ii) *Medium Motors*: Stator core outer diameter ranging from 500 mm to 1,000 mm.
- (iii) *Small Motors*: Stator core outer diameter ranging from 100 mm to 500 mm.
- (iv) *Micro Motors*: Stator core outer diameter of less than 100 mm.

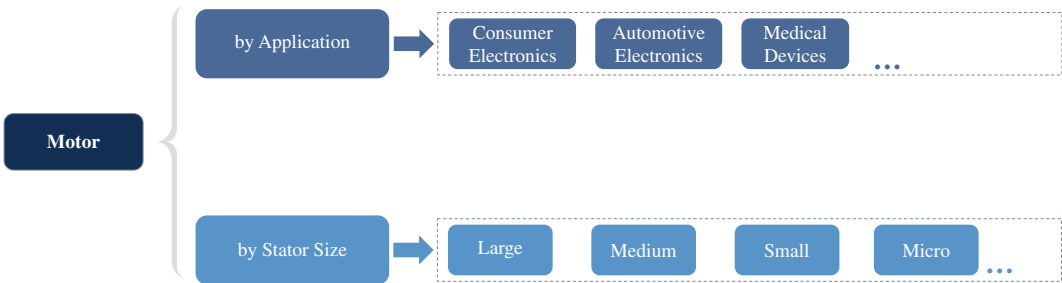


Fig 1. Classification of Motor

Source: Frost & Sullivan

Market Drivers of Global Motor Market

The global motor industry is experiencing sustained growth driven by several transformative technological and societal trends. These drivers are not merely increasing the aggregate volume of motors required but are fundamentally reshaping the technological requirements and application landscape for motor systems across all size categories.

The global transition to electric mobility stands as one of the significant drivers for the electric motor market. According to the International Energy Agency (IEA), this transition creates a dual demand shock: a quantitative increase in the number of motors required and a qualitative demand for higher-

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performance, more efficient traction motors. An average electric vehicle contains not just one primary traction motor but a multitude of smaller motors for auxiliary functions, creating further demand across the motor size spectrum. This electrification trend extends beyond passenger vehicles to encompass commercial vehicles, two-wheelers, and other emerging mobility solutions, collectively driving sustained demand for motors of all sizes.

The consumer electronics sector is driving a fundamental expansion in motor demand, characterized not merely by volume growth but, more critically, by increased functionality. This expansion directly translates to an increased density of precision micro motors per device. The primary areas of focus for this technological advancement are smartphones, wearable devices, and the burgeoning Internet of Things (IoT) ecosystem. The camera module, in particular, has become a focal point of innovation, driving significant demand for high-performance Voice Coil Motors (VCM) and Optical Image Stabilization (OIS) systems enabled by highly precise VCM actuators. The broader IoT landscape represents the next major growth frontier for motors, encompassing a vast range of applications from smartwatches and fitness trackers to medical sensors and smart home devices, all of which rely on micro-motors for their core functions.

Increasingly stringent Minimum Energy Performance Standards (MEPS) are driving the global transition from conventional motors to premium-efficiency models. Regulatory bodies worldwide, including the U.S. Department of Energy and the European Commission, are mandating higher efficiency classes (e.g., IE3, IE4, and the emerging IE5 class under the IEC framework). These regulations create a predictable replacement cycle for industrial motors and drive innovation in motor technology, including the adoption of permanent magnet synchronous motors and advanced electronic controls, to reduce energy losses and lower the total cost of ownership for end-users.

Market Size of Global and China Motor Market

The global motor market has demonstrated significant and sustained growth, underpinned by the key secular trends of transportation electrification, the functional upgrading of consumer electronics, and the implementation of stringent energy efficiency regulations worldwide. According to Frost & Sullivan, the market size, in terms of revenue, grew from approximately USD116.3 billion in 2020 to USD165.8 billion in 2025, representing a historical compound annual growth rate (CAGR) of 7.4%. This growth reflects the increasing pervasiveness of electric motors across a wide range of economic sectors. Looking forward, the market is projected to continue its expansion, reaching an estimated USD230.1 billion by 2030, with a forecast CAGR of 6.0% from 2026 to 2030. This continued growth is expected to be driven by the deepening penetration of electric vehicles and the ongoing expansion of industrial automation and smart devices.

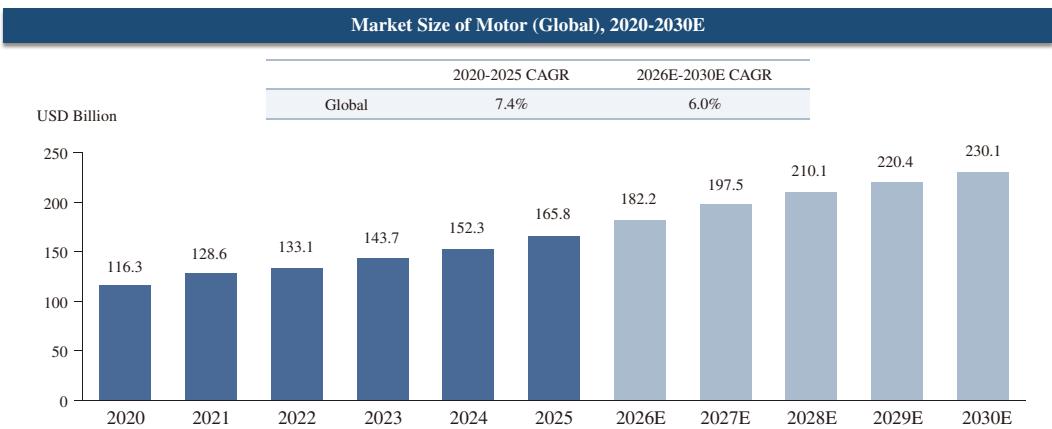


Fig 2. Market Size of Motor (Global)

Source: Frost & Sullivan

China represents a significant and rapidly growing segment of the global motor market. The market in China grew from approximately USD37.6 billion in 2020 to USD55.3 billion in 2025. It is forecast to reach USD78.8 billion by 2030, exhibiting a forecast CAGR of 6.5% from 2026 to 2030. This

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indicates that China’s motor market is expected to grow at a faster pace than the global average, driven by strong domestic demand in the electric vehicle and industrial automation sectors, as well as supportive government policies. As a result, China’s share of the global motor market is projected to increase from approximately 32.3% in 2020 to 34.3% by 2030, reinforcing its position as a key global manufacturing hub and end-market.

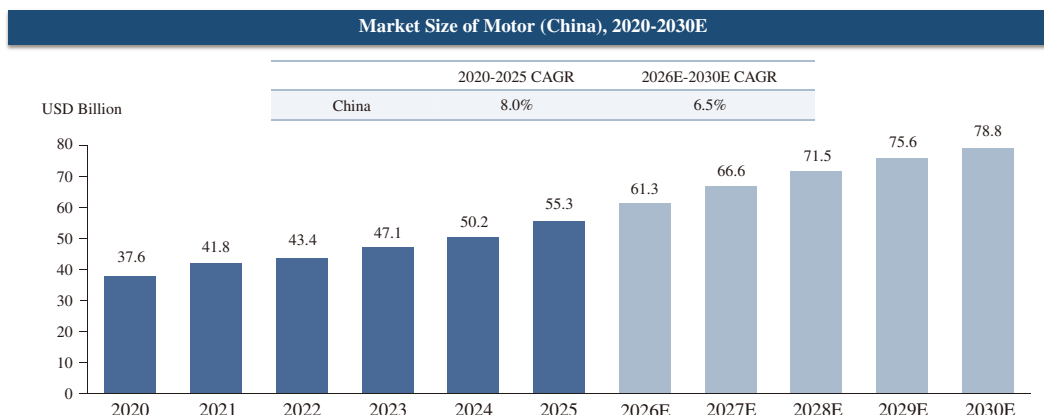


Fig 3. Market Size of Motor (China)

Source: Frost & Sullivan

OVERVIEW OF GLOBAL MICRO MOTOR MARKET

Definition and Classification

A micro motor is a small electric motor designed to produce accurate, high-speed rotation with minimal size and power consumption. The micro motor industry is classified under established industrial classification systems, falling under HSIC Version 2.0 Code 2710 (Manufacture of electric motors, generators, transformers and electricity distribution and control apparatus) in Hong Kong SAR, and NAICS Code 335312 (Motor and Generator Manufacturing) and SIC Code 3621 (Motors and Generators) in North America. A micro motor is generally characterized as an electric motor with a stator core outer diameter of less than 100 mm or a drive shaft center height not exceeding 71 mm. This definition, while not universally standardized across all jurisdictions, is widely accepted within industry practice and technical literature.

Performance metrics for miniature motors commonly adopted within the industry typically encompass miniaturization, power consumption, dynamic performance, and reliability. Specific examples include: physical dimensions, weight, rated power, conversion efficiency, rotational speed (no-load/loaded), rated torque, positioning accuracy, response speed, stroke length, noise level, vibration amplitude, IP rating, and life decay, temperature drift.

Beyond miniature motors, two additional categories of smaller, more technologically advanced motors exist. However, their commercial maturity and mass production scale fall significantly below that of miniature motors, and they are not covered in detail here. One category comprises ultra-miniature piezoelectric/hollow-cup motors, featuring diameters of ϕ 1–3mm and nanometer-level precision. These are used in medical endoscopes and precision optics but suffer from high costs and limited mass production. The other category includes nano-electrostatic motors (<1 μ m) and molecular motors (<100nm), which remain at the laboratory exploration stage and currently lack large-scale commercial viability. For micro motors, classification by application is a common approach:

By types of imaging application:

Imaging Motors: This category encompasses specialized micro motors that are integral to the functionality of camera modules. The technical demands of these applications-extreme precision, rapid response, and silent operation within a highly constrained physical space-have given rise to a distinct class of actuators.

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- (i) *AF Micro Motor:* Autofocus (AF) micro motors are specialized actuators, typically Voice Coil Motors (VCMs), designed to precisely move lens elements within a camera module to achieve sharp focus on a subject. These motors must provide rapid, accurate, and repeatable linear motion within an extremely compact form factor. The performance of AF systems is a critical differentiator in the smartphone market, driving continuous innovation in VCM design. As a prime example of a high-growth imaging application, the AF motor market will be discussed in further detail in the subsequent section.
- (ii) *OIS Micro Motor:* Optical Image Stabilization (OIS) micro motors are sophisticated actuators that physically move either the lens assembly or the image sensor to compensate for hand tremors and other movements during image or video capture. These systems require extremely precise and responsive multi-axis control, governed by complex algorithms, to counteract unwanted motion in real-time, thereby preventing blurred images and shaky video footage.
- (iii) *Other Imaging Micro Motors:* This category includes other specialized imaging micro motor such as periscope motor, zoom motor, and variable aperture motor, etc. Periscope motors, used in high-end smartphones, control the positioning of optical elements in periscope-type camera modules, which employ prisms and mirrors to refract light paths and achieve high-magnification optical zoom in a compact form factor. Zoom micro motors, used in a camera module, drive the movement of lens groups within a camera module to enable optical zoom capabilities, requiring precise, and controlled motion. And the variable aperture motor precisely controls the aperture opening and closing to regulate light intake, offering greater flexibility and adaptability for cinematography.

By types of non-imaging application:

Non-imaging Motors: This category includes a diverse range of micro motors used for control and actuation in applications outside of image capture, where precision, reliability, and efficiency are paramount.

- (i) *Positioning Control Micro Motor:* Its core function is to achieve precise positioning, displacement, or angular adjustment across diverse applications, including: Stepper motors provide incremental positioning through discrete stepping motion, used for positioning in industrial, office automation equipment, and security surveillance devices. They feature high torque, long travel, high reliability, and self-locking capability. Actuator motors for position adjustment in smart home systems and automotive electronics’ intelligent cockpits, alongside brushless DC motors, servo motors, and cup motors for transmission and displacement drive in robotic joints, dexterous hands, or end-effector components.
- (ii) *Power Feedback Micro Motor:* It provides sustained mechanical power or interactive sensory feedback. Vibration motors generate tactile feedback in consumer electronics and gaming peripherals. BLDC motors with electronic commutation deliver high efficiency, extended lifespan, and low noise. These motors serve as propulsion systems for propellers and gimbal stabilization in drones and eVTOL aircraft for low-altitude economy applications, and power cooling fans in automotive electronics and computer hardware systems.
- (iii) *Other Non-Imaging Micro Motors:* Specialized motors comprise precision instrument actuators for scientific equipment demanding micron-level accuracy, and biocompatible implantable motors for medical devices such as cardiac assist systems and prosthetic actuators.

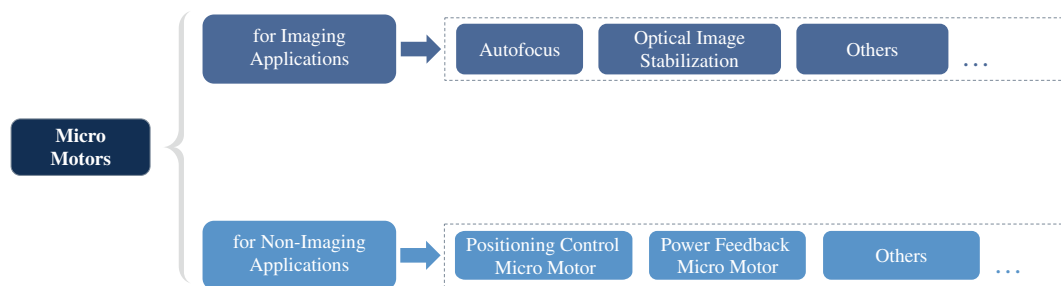


Fig 4. Classification of Micro Motor

Source: Frost & Sullivan

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Market Drivers of Global Micro Motor Market

The micro motor market is propelled by powerful secular trends across its primary end-markets. While applications in the automotive and medical sectors provide stable, long-term demand, the consumer electronics sector serves as the principal engine of growth, characterized by high-volume production, rapid innovation cycles, and a continuous drive for functional integration. The consumer electronics industry fosters a self-reinforcing growth cycle for the micro motor market, where the relentless pursuit of miniaturization and enhanced functionality creates ever-expanding demand for smaller, more precise, and more powerful actuators.

The fundamental trend of device miniaturization is a primary catalyst for micro motor demand. Consumer preferences have shifted decisively towards portability and seamless technology integration into daily life, intensifying the pressure on Original Equipment Manufacturers (OEMs) to reduce device size and weight. This trend extends beyond merely making existing devices smaller; it is fundamentally enabling entirely new product categories that were previously not technologically feasible. From camera autofocus mechanisms in smartphones to haptic feedback systems in smartwatches and gaming controllers, micro motors serve as the essential actuators that translate digital commands into physical motion, enabling the modern consumer electronics experience. This dynamic creates a virtuous cycle: as micro motors become smaller and more capable, they enable the creation of new device categories (e.g., wearable health monitors, augmented reality glasses), which in turn expands the total addressable market for micro motors.

As electronic devices become smaller, consumer expectations for functionality increase, leading to a proliferation of features within a single device. Each new function – be it an advanced camera feature, a sophisticated haptic response, or a cooling fan in a compact gaming device – typically requires its own dedicated micro motor for actuation. This creates a “one-to-many” relationship between a consumer product and its internal motors, where the sale of a single device translates into the sale of multiple micro motors. Modern smartphones exemplify this trend, often housing numerous micro motors to power complex camera systems (autofocus and optical image stabilization), haptic feedback engines, and other mechanical functions. This increasing motor content per device serves as a robust volume multiplier for the micro motor market, decoupling market growth from mere unit sales of end-products.

The demand for high-quality mobile imaging has become a significant specific driver for a category of high-performance micro motors. Optical Image Stabilization (OIS) systems, which counteract hand tremors by physically moving the lens or sensor with extreme precision, are now a standard feature in mid- to high-end smartphones. The adoption of OIS is driven not merely by technical specifications, but by tangible user benefits amplified by two key societal and technological trends: the rise of video-centric social media platforms and the deployment of 5G networks that enable seamless high-definition video sharing. These trends have elevated video capture quality from a niche professional concern to a mainstream consumer expectation, directly driving demand for the precision voice coil motors that enable OIS functionality.

Additionally, as the iteration space for traditional innovation dimensions of mobile phone imaging (chips, lenses) is gradually narrowing, the imaging motor has been upgraded to the core innovation carrier of mobile phone imaging. Its functional iteration directly addresses core pain points such as shooting focusing, anti-shake, and high-magnification zoom, and is a key support for the differentiated experience of mobile phone imaging. Meanwhile, the role of the image motor in a single device has shifted from an auxiliary component to a high-value core. With the upgrade of functions and configurations, its value weight in the mobile phone imaging system has continued to increase, eventually becoming the core driver for upgrading the mobile phone imaging experience and competing in the market.

In the non-imaging micro motor segment, robust demand growth is driven by distinct trends across several key end-markets, including industrial automation, and robotics. These applications collectively represent a significant and expanding opportunity for the micro motor industry.

Industrial automation represents a significant driver for non-imaging micro motors. The global transition of many industries into the digital and automated age has been marked by a substantial surge in demand for industrial robots and automation systems. This growth is propelled by the accelerating shift towards Industry 4.0, the pursuit of manufacturing efficiency, and the increasing adoption of collaborative robots in factories and logistics operations. Brushless DC micro motors are critical enablers of precise motion control, multi-axis coordination, and real-time feedback systems required in modern industrial automation. These high-performance motors provide the reliability, efficiency, and control precision necessary for diverse manufacturing applications, including automotive, electronics, and precision assembly. The deployment of brushless micro motors spans a wide range of industrial automation

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equipment, from conveyor systems to precision positioning mechanisms, where their superior performance characteristics – high efficiency, extended operational life, low noise, and reliability – are essential for demanding industrial environments.

Robotics and medical applications represent another significant driver for non-imaging micro motors. The robotics sector is experiencing substantial growth, driven by an aging global population, rising incidence of chronic diseases, and surging demand for minimally invasive surgical procedures. Medical robotics encompasses a wide range of technologies that help healthcare professionals deliver more precise, efficient, and minimally invasive care, supporting surgical procedures, patient rehabilitation, patient assistance, and pharmaceutical automation. Technological advancements in surgical robotics, improvements in reimbursement frameworks, and expanding adoption of robotic solutions in hospitals and ambulatory surgery centers are fueling this expansion. Additionally, collaborative robots in manufacturing and service robots in various applications continue to expand the addressable market. Brushless DC (BLDC) motors are particularly well-suited for these applications, delivering the smooth, responsive, and reliable actuation required for dexterous robotic manipulation, surgical control, and precision positioning. These motors excel in scenarios demanding fast response times, smooth operation, and compact form factors – characteristics essential for robotic hands, surgical instruments, prosthetics, and other precision robotic systems. Equipped with closed-loop feedback and precise position control, brushless DC (BLDC) motors further enhance the capabilities of robotic systems by enabling real-time adjustment and dynamic control.

Market Size of Global and China Micro Motor Market

The global micro motor market, a specialized and technologically advanced segment of the broader motor industry, has experienced robust growth. The core driving factors include the explosive demand from downstream sectors such as new energy vehicles, consumer electronics, and industrial automation, as well as technological upgrades such as OIS and brushless motor that enhance product value. The global “carbon neutrality” policies and energy efficiency standards promote the penetration of efficient products. Emerging scenarios such as humanoid robots and the Internet of Things have also opened up additional growth opportunities. Multiple factors working together have driven the expansion of the market. According to Frost & Sullivan, the global market size for micro motors increased from USD23.0 billion in 2020 to USD35.2 billion in 2025, corresponding to a historical CAGR of 8.9%. The market is forecast to sustain this growth, expanding to an estimated USD53.6 billion by 2030, at a forecast CAGR of 8.3% for the period from 2026 to 2030. This growth trajectory underscores the rising importance of micro motors as enabling components for high-value functionalities in a wide range of products.

By imaging and non-imaging applications, the imaging applications segment outpaced the overall market, expanding at a CAGR of 10.3%, while the non-imaging applications segment grew at a CAGR of 8.5%. The imaging applications segment is expected to continue its strong performance with a forecast CAGR of 8.0%, compared to 8.3% for the non-imaging segment. This sustained, differentiated growth underscores the rising importance of micro motors in a wide range of non-imaging scenarios and advanced imaging systems.

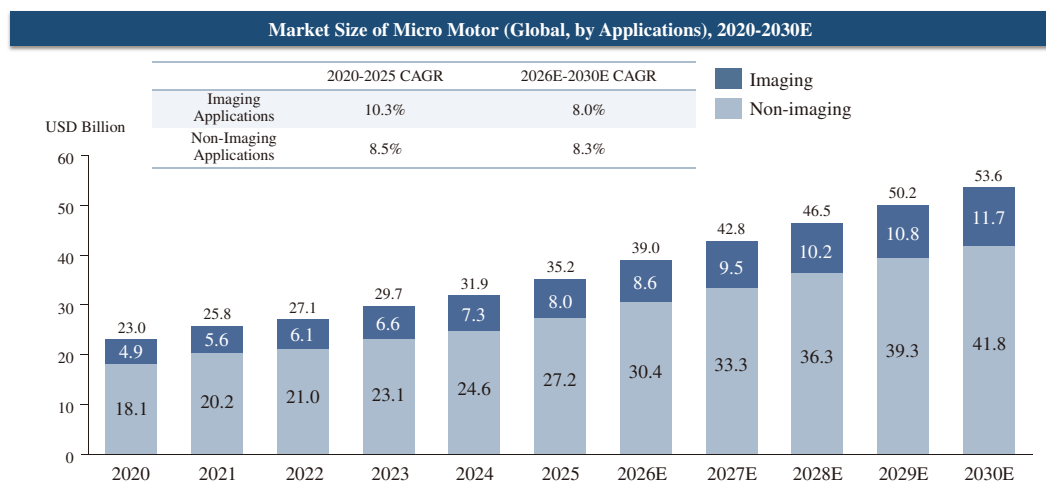


Fig 5. Market Size of Micro Motor by Application (Global, by Applications)

Source: Frost & Sullivan

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More specifically, in terms of downstream application industries for micro motors, smartphones and automobiles dominate the market, while sectors such as handheld imaging, robotics are experiencing rapid growth.

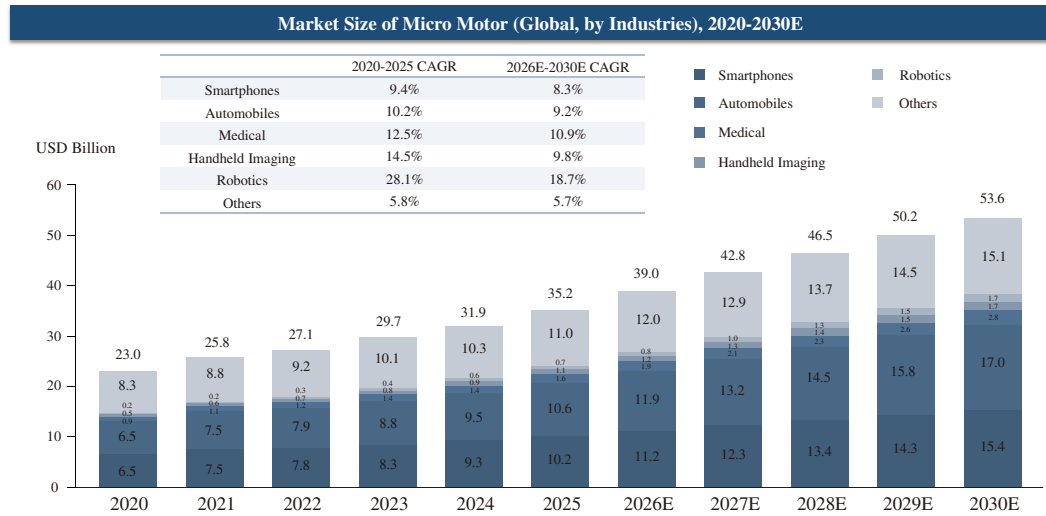


Fig 6. Market Size of Micro Motor (Global, by Industries)

Source: Frost & Sullivan

China has established itself as a globally significant market for the manufacturing and consumption of micro motors, a position that is expected to strengthen further. The micro motor market in China expanded at a remarkable historical CAGR of 10.2% from USD9.2 billion in 2020 to USD15.0 billion in 2025. The market is projected to reach USD23.6 billion by 2030, growing at a forecast CAGR of 9.2% from 2026 to 2030. This expansion has resulted in China's share of the global micro motor market increasing from approximately 40.1% in 2020 to 42.5% in 2025. This share is forecast to further consolidate, reaching approximately 44.4% by 2030. In addition to being driven by global common factors, the Chinese micro-motor market has achieved growth by relying on a complete domestic industrial chain, advantages in new energy vehicles and intelligent manufacturing, as well as domestic demand market explosion and export growth. Policy support has accelerated domestic substitution, and the combination of domestic enterprises' global expansion has made it a core engine for global market growth.

From the perspectives of both imaging applications and non-imaging applications, the Chinese micro-motor market has shown a higher growth rate in imaging application scenarios. The market size increased from USD1.5 billion in 2020 to USD2.7 billion by 2025, with a CAGR of 12.6%. It is expected to grow to USD4.4 billion by 2030, with a CAGR of 10.3%. The non-imaging applications, relying on the huge domestic demand in automotive, smart home, and industrial automation, have provided a solid growth foundation for the market.

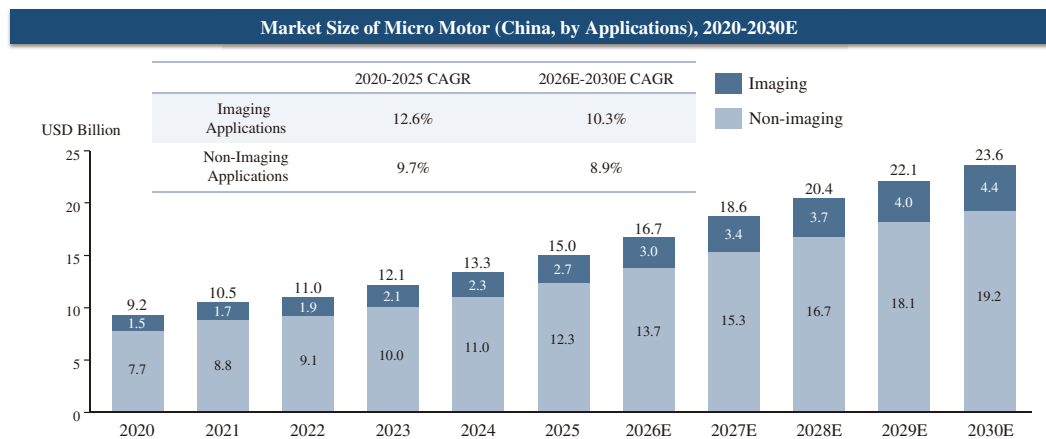


Fig 7. Market Size of Micro Motor (China, by Applications)

Source: Frost & Sullivan

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From the perspective of downstream sub-industry applications, smart phones and automobiles remain the main components of China’s micro-motor market. The applications in the medical and handheld imaging industries are growing rapidly, while the robot industry applications, as an important emerging scenario, have demonstrated strong growth potential in recent years.

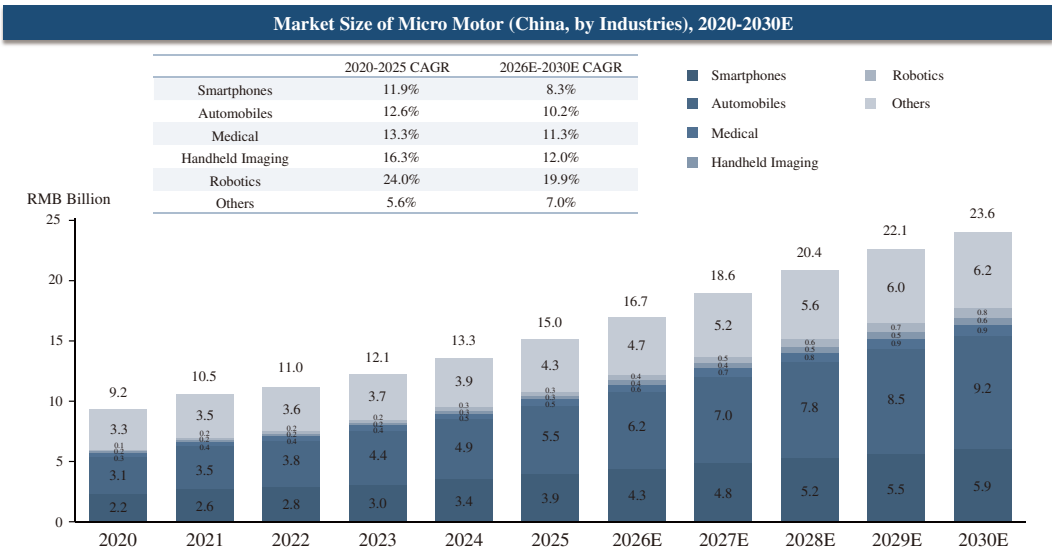


Fig 8. Market Size of Micro Motor (China, by Industries)

Challenges and Constraints of Global Micro Motor Market

While the micro motor market benefits from strong demand drivers, it faces significant structural challenges that are particularly acute due to the technical precision required and the competitive dynamics of key end-markets.

The challenge in micro motor development stems from fundamental physics. As motors shrink, their behavior is governed by scaling laws that create non-linear and often counter-intuitive problems. The core trade-off involves balancing size, power output, and efficiency. Achieving high power density – the ratio of power output to volume – becomes increasingly difficult as components miniaturize. For instance, as electromagnetic coils shrink, their electrical resistance increases disproportionately, leading to higher heat generation and lower efficiency, which in turn can impact performance and reliability.

As consumer electronics manufacturers demand ever-smaller, more powerful, and cost-effective components, micro motor producers are pushed against the fundamental limits of electromagnetic design, thermal management, and precision manufacturing. These technical challenges are compounded by intense price competition and a fragile global supply chain for key materials, creating a high-pressure environment where success requires navigating a complex web of interconnected constraints.

The micro motor market faces significant margin pressure from two primary sources. First, intense price competition, particularly from Asian manufacturers, continuously erodes gross profit margins. Second, production costs remain elevated due to the use of specialized materials and precision engineering requirements. This cost pressure is further exacerbated by price volatility in rare earth elements and other key raw materials, creating ongoing cost uncertainty and limiting pricing flexibility.

High-performance micro motors, particularly used in smartphones and precision applications, rely heavily on neodymium-iron-boron (NdFeB) permanent magnets. These magnets, which provide superior magnetic flux density in compact form factors, require rare earth elements such as neodymium, dysprosium, and terbium. For micro motor manufacturers, this dependency translates into exposure to price volatility, potential supply disruptions, and geopolitical risk. While research into rare-earth-free motor technologies is ongoing, including initiatives supported by government research programs, these alternatives have not yet achieved the performance density required for many micro motor applications.

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OVERVIEW OF GLOBAL IMAGING MOTOR MARKET

Definition and Classification

The **imaging motor** is a precision component used to drive the movement of the camera lens or sensor to achieve functions such as autofocus (AF), optical image stabilization (OIS), and zoom. It is a core component of camera module and one of the important representatives of micro motors. It can be classified by different standards:

- (i) **According to their functional implementation**, imaging motors can be categorized into autofocus motors, optical image stabilization motors, and others such as zoom motors, periscope motors, and variable aperture motors.
- (ii) **According to their driving principles or technical implementation methods**, imaging motors can be categorized into: Voice Coil Motors (VCM), Piezoelectric Motors (PZT), Shape-Memory-Alloy Motors (SMA), etc.
- (iii) **According to application scenarios**, imaging motors can be specifically applied in consumer electronics (including smartphones, cameras, AR/VR devices, handheld imaging devices, drones, etc.), security surveillance, automotive electronics, medical devices, industrial equipment, and other scenarios.

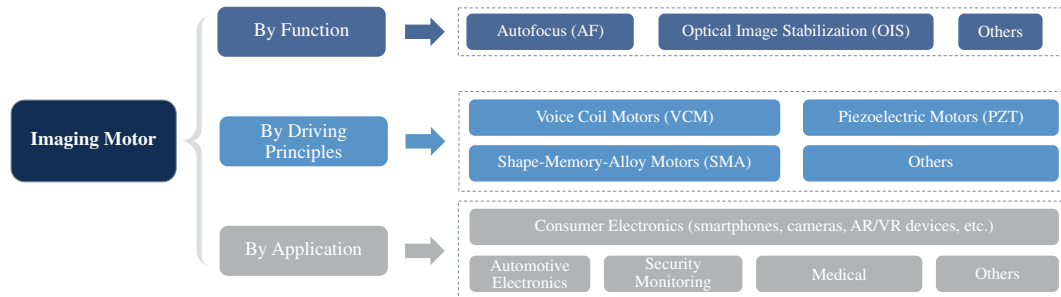


Fig 9. Classification of Imaging Motor

Source: Frost & Sullivan

Industry Chain of Global Imaging Motor Market

The upstream of the Imaging motor industry chain includes two types: raw material suppliers and core component suppliers. The midstream includes professional image motor manufacturers that focus on the research and development and production of image motors. And module integration manufacturers that integrate motors with lenses, image sensors, infrared filters and other components into camera modules. The downstream is the terminal application scenarios, including such as consumer electronics (smartphones, digital/action cameras, etc.), automotive electronics, medical care, security monitoring, etc.

Within the imaging motor industry, the vast majority of midstream professional motor manufacturers adopt a business model oriented toward end customers, with their operations focused on addressing the product requirements of end-brand manufacturers. Typically, end-user brands – such as smartphone manufacturers and other handheld imaging device makers – first engage with professional imaging motor suppliers to discuss their motor requirements, core technical specifications, and underlying needs. After assessing the suppliers’ technical capabilities and willingness to collaborate, these brands evaluate factors like pricing and technical proficiency before finalizing agreements. Subsequently, the terminal manufacturer selects the corresponding camera module supplier, and the three parties – the terminal manufacturer, camera module supplier, and motor manufacturer – jointly finalize the product design. Finally, camera module manufacturers procure components from designated motor suppliers as specified by terminal brands, driving the integration of modules.

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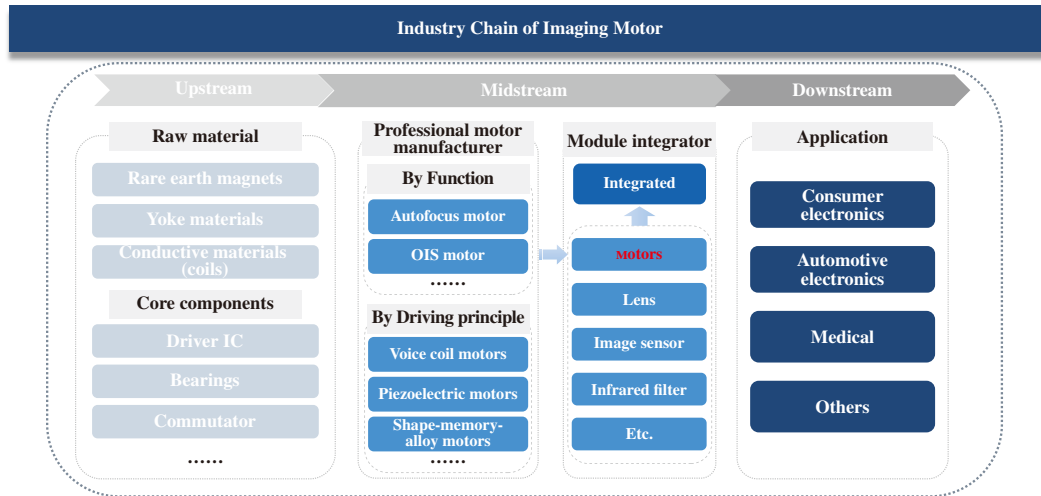


Fig 10. Industry Chain of Imaging Motor Market

Source: Frost & Sullivan

Drivers of Global Imaging Motor Market

The global imaging motor market is primarily driven by several core factors: market demand, technological advancements, policy initiatives and the industrial supply chain:

From a market demand perspective, the global imaging motor market is primarily driven by two factors: increased penetration of imaging motors in the smartphone sector and expanding demand in non-mobile imaging applications.

- (i) **Multi-camera solutions and high-end motor products are gradually becoming popular in the field of smart phones.** The consumer electronics industry is undergoing a structural shift from quantity to quality. While the average number of cameras in smartphones has seen slight adjustments, competition in single-camera performance continues to intensify. High-pixel sensors are steadily increasing their market share, with 50-megapixel and higher-resolution products becoming mainstream. The penetration rate of 100-megapixel-level products is gradually expanding, compelling motors to upgrade toward higher precision and faster response speeds. The adoption rate of closed-loop motors and piezoelectric motors in flagship models continues to rise. Simultaneously, the proliferation of foldable smartphones is driving VCMs toward thinner, more integrated designs. Optical image stabilization and millisecond-level responsiveness have become standard features in flagship models. The integration of computational photography with AI-powered dynamic tracking algorithms further boosts the penetration of high-performance products like ultrasonic motors.
- (ii) **Expanding Imaging Demand Beyond Mobile Phones.** Automotive intelligence is creating a new demand. Leveraging the precise imaging capabilities of in-vehicle cameras, systems such as intelligent driving, cockpit interaction, and driving safety are rapidly advancing, driving the penetration of imaging motor applications. Emerging applications continue to proliferate. AR/VR devices significantly increase demand for miniature dynamic focusing motors to resolve visual convergence-accommodation conflicts. Medical endoscopic surgical robots and industrial visual inspection equipment rely on ultrasonic motors for micrometer-level control. Meanwhile, the dynamic tracking function of drone gimbals steadily boosts demand for magnetic levitation focusing motors. This multi-scenario expansion injects fresh vitality into the market.

From a technological development perspective, the global imaging motor market is primarily influenced by the continuous evolution of VCM technology and the parallel advancement of diverse drive technologies such as piezoelectric drives, shape-memory-alloy motors, and MEMS actuators.

- (i) **Multi-Technology Synergy Drives Innovation in Imaging Motor Industry Upgrades.** Imaging motor focusing technology undergoes continuous iteration, achieving ongoing

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optimization in long stroke, high thrust, rapid response, and low power consumption. It adapts to large-aperture lenses, complex periscope optical structures, and high-speed motion imaging demands. ① Compared to traditional horizontally stacked lens assemblies, the periscope structure achieves vertical space-saving optical path folding through reflective prisms. By employing long-stroke precision displacement control, the periscope motor effectively resolves the trade-off between module thickness and zoom travel. ② Sensor-Shift image stabilization utilizes high-frequency micro-movements of the sensor to achieve stabilization, reducing the structural burden on motors. ③ The variable aperture motor precisely adjusts the opening and closing of the aperture blades through electromagnetic, or piezoelectric driving methods. It features precise adjustment, rapid response and compact structure, and can meet the imaging requirements of multiple scenarios and optimize image performance. ④ Through deepened collaboration with ISP chips, module manufacturers, and motor suppliers, it integrates drive strategies with AI scene recognition, enabling the periscope motor to adaptively adjust parameters. This collaborative multi-dimensional optimization spurs advanced features like auto-tracking autofocus, elevating imaging motors from passive execution components to active intelligent nodes. This evolution fuels innovation, upgrades, and steady growth in the global imaging motor market.

- (ii) ***Parallel Development of Diverse Drive Technologies.*** While VCM remains dominant, alternative technologies like piezoelectric motors, shape-memory-alloy motors, and MEMS actuators are gradually complementing it in specific applications. Piezoelectric and thin-film actuators hold potential in ultra-slim devices, while MEMS solutions are gaining attention in new lightweight optical systems like AR/XR and drones. Multiple drive approaches are forming a coexisting, specialized ecosystem across different scenarios.

From a policy and industrial chain perspective, the global imaging motor market is primarily driven by several factors: localization within the imaging and optical industries, the proliferation of in-vehicle cameras spurred by autonomous driving policies, and technological breakthroughs enabled by advancements in precision manufacturing capabilities.

- (i) ***Localization of the Imaging and Optical Industry Chain.*** Governments worldwide have incorporated optical sensing capabilities into strategic industrial planning, driving localized production of key components like lenses, actuators, and camera modules while fostering coordinated development across the industry chain. In emerging markets such as China and India, the pace of local substitution has accelerated significantly. This trend has spurred imaging motor manufacturers to enhance their self-reliance in magnetic materials, winding, structural components, and packaging, leading to supply chain shifts and industrial clustering effects.
- (ii) ***Intelligent Driving Policies Drive Adoption of In-Vehicle Cameras.*** Automotive safety regulations in Europe, the US, and China are progressively mandating active safety systems like AEB, DMS, and BSD as standard equipment. This directly increases the number of in-vehicle cameras from the traditional 1–3 units to 6–12 units, with advanced autonomous driving scenarios requiring over 20 cameras. In-vehicle cameras have evolved from fixed-focus to autofocus capabilities and integrated OIS functionality, propelling imaging motors into the automotive-grade market. This shift demands higher standards for reliability, temperature adaptability, and lifespan, consequently elevating their market value.
- (iii) ***Precision Manufacturing Capabilities Drive Technological Breakthroughs.*** Global investments in precision manufacturing, high-end equipment, and material processes have enhanced magnetic material performance, improved coil winding efficiency, optimized packaging structures, and established high-consistency mass production capabilities. These advancements collectively elevate the overall performance and cost structure of the imaging motor industry, further boosting market penetration and strengthening competitive barriers.

Challenges and Constraints of Global Imaging Motor Market

In addition, the global imaging motor market is also confronted with numerous constraints, such as fluctuations in downstream demand, technical barriers, long customer certification cycles, and increasingly strict compliance requirements:

- (i) ***Technical Barriers and Patent Constraints.*** Core technologies and patents for global imaging motors are primarily concentrated among leading companies in Japan and South Korea. The top manufacturers hold certain technical advantages in critical areas. Domestic

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manufacturers still have relatively weak technological foundations, with certain core technologies lagging behind international giants, resulting in a lack of competitiveness for high-end products. Furthermore, the rapid advancement of emerging alternative technologies like MEMS poses iterative pressure on traditional drive technologies. Companies must continuously invest substantial R&D funds to keep pace with the pace of technological change.

- (ii) **High-end Application Barriers and Lengthy Certification Cycles.** With the widespread adoption of multi-camera systems and the advancement of high-end imaging capabilities, brand manufacturers have significantly raised their demands for imaging motors in terms of reliability, shock resistance, low power consumption, and miniaturization. High-end products must undergo rigorous module validation and full-device certification cycles, often requiring considerable time from sample introduction to mass production. Moreover, replacement costs are high once these components are adopted. This creates substantial barriers to entry for newcomers and mid-to-low-end suppliers seeking to rapidly penetrate the high-end market, effectively establishing clear customer and application barriers.
- (iii) **Compliance Requirements and Standard Adaptation Pressure.** Increasingly stringent global environmental and compliance policies necessitate additional investments in emission-reduction technologies like clean substitutes and electrification. The ongoing tightening of EU standards such as RoHS and REACH has increased technical modification and production costs. Simultaneously, significant variations in compliance standards across different application fields create challenges for customized R&D and certification. Emerging technologies like piezoelectric motors lack unified standards, resulting in insufficient product compatibility and limited market acceptance. Addressing these standard adaptation challenges is urgently needed.

Market Size of Global Imaging Motor

The global imaging motor market size reached approximately USD4.9 billion in 2020 and grew to USD8.0 billion by 2025, with a CAGR of 10.3%. Key drivers include increased penetration in the consumer electronics sector and the expansion of emerging application scenarios, while policy support and supply chain assistance have further propelled this growth. The market is expected to continue growing between 2026 and 2030, with a projected CAGR of 8.0%, reaching approximately USD11.7 billion by 2030. The development of high-end motor products such as piezoelectric motors, periscope motors, and OIS will unlock new growth opportunities.

In terms of the three major segments within the global imaging motor market, autofocus motor (AF) sub-market hold the largest share and optical image stabilization motor (OIS) sub-market represent the fastest-growing segment. Autofocus motor (AF) sub-market grew from USD3.0 billion in 2020 to USD4.5 billion in 2025, achieving a CAGR of 8.4%. It is expected to reach USD5.8 billion by 2030. Optical image stabilization motor (OIS) sub-market grew from USD1.4 billion in 2020 to USD2.6 billion in 2025, achieving a CAGR of 13.5%. It is expected to reach USD4.3 billion by 2030.

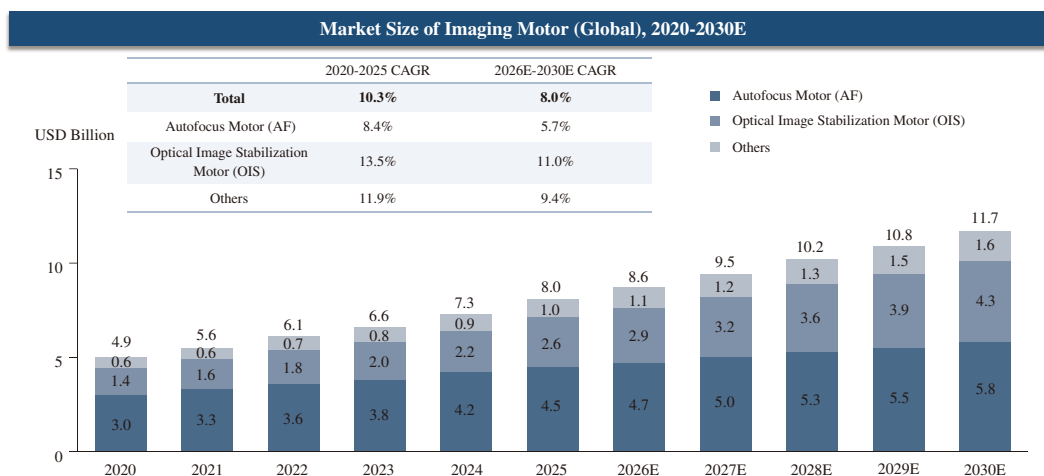


Fig 11. Market Size of Imaging Motor (Global)

Source: Frost & Sullivan

INDUSTRY OVERVIEW

Market Size of Imaging Motor in China

The China’s imaging motor market size reached approximately RMB10.6 billion in 2020 and grew to RMB19.2 billion by 2025, with a CAGR of 12.7%. Compared to the global market, China’s imaging motor market demonstrates greater growth potential. The market is expected to maintain its growth trajectory from 2026 to 2030, with a projected CAGR of 10.3%, reaching approximately RMB31.4 billion by 2030.

In terms of the major segments within the China’s imaging motor market, the autofocus motor (AF) sub-market grew from RMB6.3 billion in 2020 to RMB10.6 billion in 2025, achieving a CAGR of 10.9%. It is expected to reach RMB15.9 billion by 2030. The optical image stabilization motor (OIS) sub-market grew from RMB3.6 billion in 2020 to RMB7.3 billion in 2025, achieving a CAGR of 15.3%. It is expected to reach RMB13.1 billion by 2030.

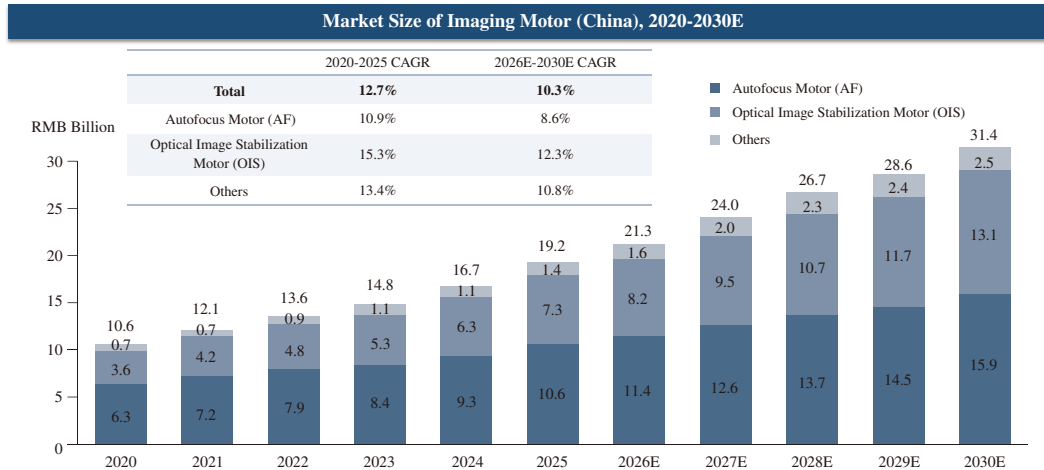


Fig 12. Market Size of Imaging Motor (China)

Source: Frost & Sullivan

Future Trends of Global Imaging Motor Market

The high-end development of image modules drives the imaging motor to upgrade towards higher precision, miniaturization and low power consumption. The global intelligent terminal imaging system is continuously evolving towards large sensor sizes, large apertures, multi-camera structures and long focal length capabilities, making it an inevitable trend for the imaging motor to achieve higher precision, speed and stability under volume constraints. The increased requirements for continuous autofocus, motion capture and video portrait shooting in high-end models have driven the imaging motor to further develop towards miniaturization, high thrust, low power consumption and higher response speed.

The application scenarios have expanded and extended to multiple fields. Consumer electronics remain the core application market. The trend of multi-camera and high-pixel smartphones is driving the continuous growth of demand for imaging motors. The demand for ultra-thin motors in foldable phones further promotes technological innovation. Automotive electronics have become a new growth engine, with the demand for customized image modules in in-vehicle cameras, lidars and ADAS systems surging. Meanwhile, the rise of emerging fields such as AI glasses, AR/VR devices, medical precision instruments, and industrial automation inspection equipment has opened up diversified application Spaces for imaging motors. Meanwhile, as the scope for iteration in traditional mobile imaging innovations – such as chips and lenses – gradually narrows, imaging motors have evolved into the core engine of mobile imaging innovation. With ongoing upgrades in functionality and configuration, their value weight within mobile imaging systems will continue to rise, transforming them into high-value cores.

The process of domestic substitution continues to accelerate. Domestic enterprises have been making continuous breakthroughs in technological research and development as well as capacity layout, gradually breaking the monopoly of overseas brands in the high-end market. By increasing investment in research and development, domestic manufacturers have achieved technological breakthroughs in high-end products such as optical image stabilization motors and long-zoom integrated periscope motors. The performance of some of these products has reached the international advanced level. With the support of policies and the improvement of the industrial chain, it will further promote the development of domestic production.

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Environmental protection regulations are strengthening the promotion of green transformation in materials, processes and supply chains. The increasingly strict global environmental protection regulations have imposed new regulatory requirements on imaging motors in terms of raw material selection, metal electroplating processes, energy efficiency, and waste disposal, driving the supply chain towards green manufacturing and low-carbonization. Products that comply with RoHS, REACH, EU battery regulations and energy efficiency and safety standards of various countries will be more competitive in the market. Manufacturers with sustainable material substitution and green production certifications will have more opportunities in the international market.

COMPETITIVE LANDSCAPE

Ranking of Imaging Motor Providers Globally

The competition in the image motor market is intense, and the industry as a whole shows a pattern where Japanese and Korean manufacturers have a leading edge, while domestic manufacturers are rapidly catching up: Japanese and Korean enterprises (such as company A, company B, company C, etc.) still hold a leading position in the global market based on their early layout and technological accumulation. Meanwhile, domestic manufacturers (such as our Group, company F, company H etc.) are accelerating breakthroughs in mid-to-high-end fields such as OIS and telephoto lenses, and have formed differentiated competition.

Market Players	Business Scale (2025)	Sales Territory	Sales Volume (2024)	Price Range (USD/unit)	Product Type	Technical Capabilities
Company A	Global total revenue in 2025 is approximately 1,019.5 billion yen. It holds a 14.4% share in the imaging motor market.	Global (Japan, South Korea, China, Europe and America)	Approximately 550 million units	AF/OIS: approx. \$0.8–5.0;	AF VCM, Closed-Loop OIS, Dual-Axis OIS	Leading global patent portfolio, specializing in high-precision micro-coil electromagnetic drive technology with mature expertise in large-aperture lens actuation and low-power high-precision focus control; robust patent layout for leaf-spring VCMs; ball-guide OIS technology ranks among the world's best in addressing friction challenges for heavy-load lenses (large-sensor formats).
Company B	Global total revenue in 2025 is approximately 1,664.4 billion yen. It holds a 10.7% share in the imaging motor market.	Global (Japan, China, Southeast Asia)	Approx. 400 million units	AF/OIS: approx. \$0.6–4.5;	Closed-Loop VCM, Sensor-Integrated OIS	Focuses on miniaturization and high integration design, mastering advanced closed-loop control and OIS integration technology. Products primarily utilize electromagnetic drive structures, with core strengths in precision assembly and automated production lines.
Company C	Global total revenue in 2025 is approximately 13,397.2 billion Korean won. It holds a 10.6% share in the imaging motor market.	Global (South Korea, China, Europe and America)	Approx. 400 million units	AF/OIS: approx. \$0.7–4.8;	AF, Ball-Bearing OIS, Periscope, Continuous Zoom	Strong OIS algorithm + module integration capabilities, employing advanced packaging processes for lenses and drive chips. Ball Guide support technology can drive heavy lenses with leading response speed and precision.
Company D	Global total revenue in 2025 is approximately 849.8 billion Korean won. It holds a 4.7% share in the imaging motor market.	Global (South Korea, China, Southeast Asia)	Approx. 170 million units	AF/OIS: approx. \$0.6–3.5;	AF VCM, Ball-Bearing OIS, Folded Zoom	Performance stability metrics rank above average. As one of the few companies globally holding core patents for “ball-bearing OIS motors,” our products exhibit low friction loss and extended lifespan. Primarily relying on mechanical structures and magnetic circuit design without wafer-level processes, our core strengths lie in ball bearings and OIS algorithms.
Company E	The global total revenue for 2025 is approximately 21,896.6 billion Korean won. It holds a 3.9% share in the imaging motor market.	Global (South Korea, China, Europe and America)	No standalone imaging motor shipments; primarily integrated module shipments	AF/OIS: approx. \$0.8–4.5;	Module Integration, Sensor-Shift, Continuous Zoom Motor	Emphasizes closed-loop control and high AF yield rates, with mature OIS solution technology. Utilizes advanced wafer-level processes for lens and sensor packaging, and high-precision packaging technology for driver chips.
Our Group	The global total revenue for 2025 is approximately RMB2.0 billion. It holds a 3.3% share in the imaging motor market.	Mainly China, Japan	Approx. 200 million units	AF/OIS: approx. \$0.2–6.5;	OIS, AF, periscope motor, variable aperture motor, continuous zoom, stepper motor, BL DC motor, etc.	Holds over 938 authorized patents, achieving OIS motor precision of 2 μm and stabilization angles up to ±2°. Focuses on precision machining and electromagnetic design, with OIS accuracy reaching internationally leading levels.
Company F	This company is an unlisted company. It holds a 3.0% share in the imaging motor market in 2025.	Mainly China	Approx. 330 million units	AF/OIS: approx. \$0.2–2.8;	AF dominant, limited SMA OIS, periscope motor, variable aperture motor, telephoto periscope motor	Possesses nearly 1,600 patents, emphasizing precision machining and material innovation without wafer-level processes. Core strengths lie in shape memory alloys and periscope structures.
Company G	The global total revenue for 2025 is approximately 2,504.8 billion yen. It holds a 2.2% share in the imaging motor market.	Global (dominated by Japan and China)	Approx. 130 million units	AF/OIS: approx. \$0.7–4.3;	AF, OIS, closed-loop, periscope motor	One of Japan's leading high-end OIS/imaging stabilization motor manufacturers. Following acquisition by domestic firms, its technological capabilities are progressively integrating into the domestic supply chain. Technical reserves span suspension wires, ball bearings, shape memory alloys, and piezoelectric multi-path solutions. Advanced wafer-level processes are employed in driver chip and sensor packaging, achieving micron-level positioning accuracy.
Company H	This company is an unlisted company. It holds a 2.3% share in the imaging motor market in 2025.	Mainly China	Approx. 180 million units	AF/OIS: approx. \$0.4–3.0;	AF, OIS, closed-loop, periscope motor	200+ patents, focusing on low-friction, high-precision structural design. Primarily relies on precision machining without disclosed wafer-level processes, mainly utilizing traditional stamping/injection molding techniques.

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Market Players	Business Scale (2025)	Sales Territory	Sales Volume (2024)	Price Range (USD/unit)	Product Type	Technical Capabilities
Company I	This company is an unlisted company. It holds a 1.9% share in the imaging motor market in 2025.	Mainly China	Approx. 280 million units	AF/OIS: approx. \$0.2–2.6;	AF-dominant, gradually incorporating OIS	400+ patents, primarily based on electromagnetic drive structures without wafer-level manufacturing. Core strengths lie in automated production lines and structural design.
Company J	This company is a non-listed company. It holds a 1.8% share in the imaging motor market in 2025.	Mainly China	Approx. 250 million units	AF/OIS: approx. \$0.2–2.5;	AF-dominant, limited OIS	100+ patents, piezoelectric motors incorporate MEMS processes but do not disclose wafer-level precision, primarily traditional VCM technology.
Company K	The total global revenue in 2025 was approximately RMB332.3 billion. It holds a 1.6% share in the imaging motor market.	Global (China, Europe and America)	Approx. 110 million units	AF/OIS: approx. \$0.3–3.0;	AF, OIS	Possesses precision manufacturing, system-in-package (SiP), and automated production line capabilities, with imaging motors centered on module integration.
Company L	The total global revenue in 2025 was approximately RMB31.8 billion. It holds a 1.5% share in the imaging motor market.	Global (China, Europe and America)	Approx. 130 million units	AF/OIS: approx. \$0.3–2.5;	AF-camera module integration, OIS-camera module integration	Possesses wafer-level processing capabilities in optical lens manufacturing; employs advanced packaging for imaging motor driver chips with leading precision.
Company M	The total global revenue in 2025 was approximately RMB43.2 billion. It holds a 1.4% share in the imaging motor market.	Global (China, Europe and America)	Approx. 90 million units	AF/OIS: approx. \$0.3–3.0;	Primarily modules, AF, with OIS motor and periscope motor R&D	Features integrated design of proprietary motors and optical modules; utilizes advanced wafer-level processes in optical lenses; incorporates high-precision packaging for imaging motor driver chips with module-coordinated optimization.

Fig 13. Comparison of Main Imaging Motor Providers (Global)

Source: Frost & Sullivan

The global imaging motor market exhibits a relatively concentrated competitive landscape. The top ten major manufacturers collectively hold approximately 57.2% of the market share, demonstrating a significant advantage for leading players. The top 10 manufacturers – Company A, Company B, Company C, Company D, Company E, our Group, Company F, Company G, Company H and Company I – have established a considerable gap with other players. Domestic manufacturing enterprises such as our Group, Company F, Company H and Company I have demonstrated strong competitive advantages in the global market.

Among them, our Group has established technological leadership through substantial R&D investment, developed a comprehensive product portfolio, and built a stable customer base. By diversifying its offerings across both mobile and non-mobile applications, it has achieved leading competitiveness, securing the 6th position in the global imaging motor market with a 3.3% market share.

Ranking	Company	Market share (by Revenue)
1	Company A	14.4%
2	Company B	10.7%
3	Company C	10.6%
4	Company D	4.7%
5	Company E	3.9%
6	Our Group	3.3%
7	Company F	3.0%
8	Company G	2.3%
9	Company H	2.2%
10	Company I	1.9%
Others		42.8%
Total		100%

Fig 14. Top 10 Imaging Motor Providers by Revenue in 2025 (Global)

Source: Frost & Sullivan

Note: Company A was established in 1948 and listed on the Tokyo Stock Exchange in Japan. It is mainly engaged in the production of automotive electronic information equipment and electronic components and other products.

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Company B was established in 1954 and was once listed on the Tokyo Stock Exchange in Japan. It mainly deals in electrical machinery and equipment, measuring machinery and equipment, optical machinery and equipment, etc.

Company C was founded in 1973 and listed on the Korea Exchange (KRX). It is an international manufacturer of high-tech electronic components and mechanical components.

Company D was established in 1981 and listed on the Korea Exchange (KRX). It is mainly engaged in the processing and production of electronic components, spare parts, nano products and related parts.

Company E is an electronic component and material manufacturing company, established in 1970. Its headquarters is located in South Korea and it is listed on the Korea Exchange (KRX).

Company F was established in 2011, with its headquarters located in Liaoning Province, China. Its main business is the production and sale of ultra-small autofocus motors for mobile device cameras.

Company G was founded in 1935 and is listed on the Tokyo Stock Exchange in Japan and the New York Stock Exchange. It is a globally renowned manufacturer of electronic raw materials and electronic components.

Company H was established in 2009 and is located in Shanghai, China. It is mainly engaged in the research and development, production and sales of micro motors in camera modules.

Company I was established in 2012, with its headquarters located in Henan Province, China. Its main business is the research and development, design, production and sales of autofocus drive motors for micro cameras.

Ranking of Imaging Motor Providers in China

From the perspective of the top 10 major players in China’s imaging motor market, they collectively account for approximately 73.5% of the market share. The industry concentration is slightly higher than that of the global market and relies on further channel penetration and product optimization. From the perspective of leading companies, Company A tops the list with a 10.2% market share, followed by our Group, Company B, Company C, Company F, and holding 9.8%, 8.7%, 8.7% and 8.0% market shares respectively. The leading enterprises have a more obvious advantage and have already created a certain gap between them and those with lower rankings. From the perspective of market participant composition, domestic manufacturers hold a certain share of the global market. Companies such as our Group, Company F, and Company H have established strong competitive advantages.

Ranking	Company	Market share (by Revenue)
1	Company A	10.2%
2	Our Group	9.8%
3	Company C	8.7%
4	Company B	8.7%
5	Company F	8.0%
6	Company D	7.0%
7	Company H	6.7%
8	Company I	5.3%
9	Company J	5.1%
10	Company G	3.9%
Others		26.5%
Total		100%

Fig 15. Top 10 Imaging Motor Providers by Revenue in 2025 (China)

Source: Frost & Sullivan

Note: Company J was established in 2013, with its headquarters located in Guangdong, China. It is mainly engaged in the research and development, production and sales of autofocus motors for mobile phone cameras.

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Ranking of Optical Image Stabilization (OIS) Motor Providers Globally

The top ten major manufacturers in the global optical image stabilization (OIS) motor market collectively account for approximately 62.2% of the market share, indicating a relatively high market concentration. From the top five manufacturers, including Company A, Company C, Company B, our Group, and Company D, etc., among the leading players, Japanese and South Korean enterprises still dominate, followed closely by Chinese enterprises.

Domestic manufacturers such as our Group (5.6%), Company F (3.1%) and Company H (2.3%) have secured a foothold in the global market through technological breakthroughs, entering the supply chains of leading global smartphone brands and top-tier module manufacturers.

Ranking	Company	Market share (by Revenue)
1	Company A	15.5%
2	Company C	11.4%
3	Company B	10.9%
4	Our Group	5.6%
5	Company D	5.5%
6	Company E	3.6%
7	Company F	3.1%
8	Company G	2.6%
9	Company H	2.3%
10	Company M	1.8%
Others		37.8%
Total		100%

Fig 16. Top 10 Optical Image Stabilization (OIS) Motor Providers by Revenue in 2025 (Global)

Source: Frost & Sullivan

Note: The global (and Chinese) OIS motor market referenced in this report does not include periscope motors. Company M was established in 1984, with its headquarters located in Zhejiang Province, China. It is listed on the Hong Kong Stock Exchange and is mainly engaged in the research and development, production and sales of optical and optoelectronic related products.

Ranking of Optical Image Stabilization (OIS) Motor Providers in China

The top ten major manufacturers in the China’s optical image stabilization (OIS) motor market collectively account for approximately 81.5% of the market share, indicating a high market concentration. From the perspective of leading companies, our Group tops the list with a 14.0% market share, followed by Company A, Company B, Company D, Company C, and holding 13.0%, 10.2%, 9.0% and 8.5% market shares respectively. Among these leading players, Chinese players form the core component, dominating the vast majority of the market, with the remainder comprised of Japanese and Korean players. This demonstrates that domestic substitution is steadily advancing.

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Specifically, leading enterprises have gained a more pronounced advantage, establishing a significant gap with their lower-ranked counterparts. Through technological breakthroughs, they have secured a firm foothold in the global market and successfully entered the supply chain systems of world-leading brand manufacturers.

Ranking	Company	Market share (by Revenue)
1	Our Group	14.0%
2	Company A	13.0%
3	Company B	10.2%
4	Company D	9.0%
5	Company C	8.5%
6	Company F	7.7%
7	Company H	5.6%
8	Company G	4.9%
9	Company M	4.4%
10	Company I	4.1%
Others		18.5%
Total		100%

Fig 17. Top 10 Optical Image Stabilization (OIS) Motor Providers by Revenue in 2025 (China)

Source: Frost & Sullivan

Overview of Raw Material Price Fluctuations

The metal raw materials of imaging motor mainly include aluminum alloy, copper, permanent magnetic materials, etc. Aluminum alloy, due to its lightweight, medium strength and easy processing characteristics, is mainly used in the structural support components of image motors, such as motor housings and bases, anti-shake brackets, etc. Copper, due to its high electrical conductivity, is mainly used in electromagnetic drive components, such as coil winding and conductive terminals. Over the past three years, the price of copper has maintained a relatively steady growth trend due to technological upgrades and growing downstream demand, while the price of aluminum alloy have fluctuated slightly but remained relatively stable.

Price Trends of Raw Materials for Imaging Motor Industry, 2020-2025

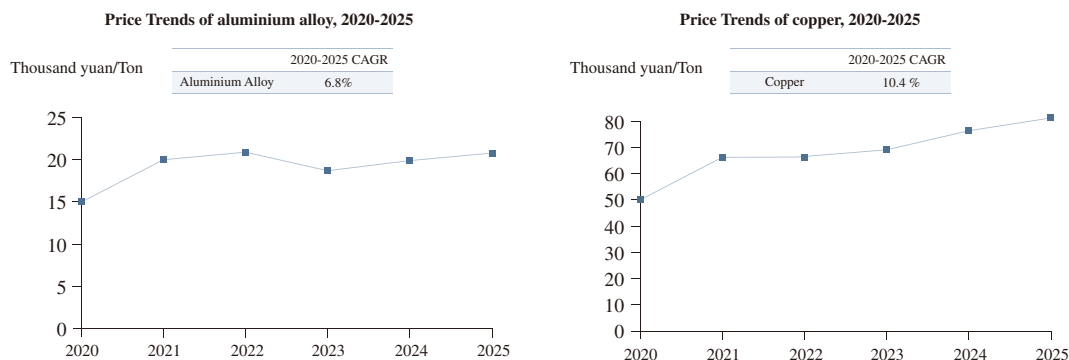


Fig 18. Price trends of raw materials for Imaging Motor Industry

Source: Frost & Sullivan

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SOURCE OF INFORMATION

The Company has commissioned Frost & Sullivan, an independent market research and consulting company, to conduct an analysis of, and to prepare a report on the global motor market, global micro motor market, global imaging motor market. The report prepared by Frost & Sullivan for the Company is referred to in this document as the Frost & Sullivan Report. The Company paid Frost & Sullivan a fee of RMB600,000 which the Company believes reflects market rates for reports of this type.

Founded in 1961, Frost & Sullivan has 40 offices with more than 2,000 industry consultants, market research analysts, technology analysts and economists globally. Frost & Sullivan’s services include technology research, independent market research, economic research, corporate best practices advising, training, client research, competitive intelligence and corporate strategy.

The Frost & Sullivan Report includes information on global motor market, global micro motor market, global imaging motor market as well as other economic data, which have been quoted in the document. Frost & Sullivan’s independent research consists of both primary and secondary research obtained from various sources in respect of the target market. Primary research involved in-depth interviews with leading industry participants and industry experts. Secondary research involved reviewing company reports, independent research reports and data based on Frost & Sullivan’s own research database. Projected data were obtained from historical data analysis plotted against macroeconomic data with reference to specific industry-related factors. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan Report, various official government publications and other publications.

In compiling and preparing the Frost & Sullivan Report, Frost & Sullivan has adopted the following assumptions: (i) Global and China’s economy is likely to maintain a steady growth in the next decade; and (ii) Global and China’s social, economic and political environment is likely to remain stable in the forecast period, which ensures the stable and healthy development of global motor market, global micro motor market, global imaging motor market.