*The information and statistics set out in this section have been extracted, in part, from various official government sources and a market research report prepared by Frost & Sullivan (the "**F&S Report**") and commissioned by us. We believe that these sources are appropriate sources for such information and statistics and reasonable care has been exercised by us in selecting and identifying the named information sources, compiling, extracting and reproducing the information, and ensuring no material omission of the information. We have no reason to believe that such information and statistics are false or misleading or that any fact has been omitted that would render such information and statistics false or misleading in any material respect. Neither our Company nor the Sole Sponsor, the* **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]**, *the* **[REDACTED]** *or any of their respective affiliates or advisors has independently verified the information and statistics from official government sources, and no representation is given as to its accuracy.*

GLOBAL MAGNETIC SENSOR INDUSTRY

Definition and Overview of Magnetic Sensors

Magnetic sensors are devices that measure physical quantities such as current, position, angle and velocity by detecting changes in magnetic fields such as strength, direction and disturbance, and convert magnetic signals into measurable electrical signals such as changes in voltage, current and resistance. As critical sensory components, magnetic sensors provide non-contact and highly-reliable capabilities for detecting position, velocity, angle, current and proximity, serving as the foundation of numerous downstream industries including automotive, industrial automation, new energy and consumer electronics to achieve automation, intelligence, high-precision control and safety assurance. Magnetic sensors primarily include current sensor, motion sensor and others such as magnetic switch and magnetic head.

Depending on different technologies, magnetic sensors can be divided into Hall sensors and xMR sensors. The working principle of Hall sensors is the classical electromagnetic phenomenon known as the Hall effect, where charge carriers are deflected laterally in a magnetic field, whilst the working principle of xMR sensors is the magnetoresistance effect, where the resistance of magnetic materials changes with the magnetic field due to the quantum interaction between electron spin and magnetization direction. Depending on different material structures, xMR sensors can be further categorized into AMR anisotropic magnetoresistance ("**AMR**") sensors, giant magnetoresistance ("**GMR**") sensors, and tunnel magnetoresistance ("**TMR**") sensors. Compared with Hall sensors, xMR sensors have significant advantages in precision, power consumption, response speed and reliability in extreme environments. Therefore, xMR sensors have increasingly extensive applications in emerging cutting-edge industries such as third-generation power semiconductor, embodied intelligence, data center power supply systems, among others.

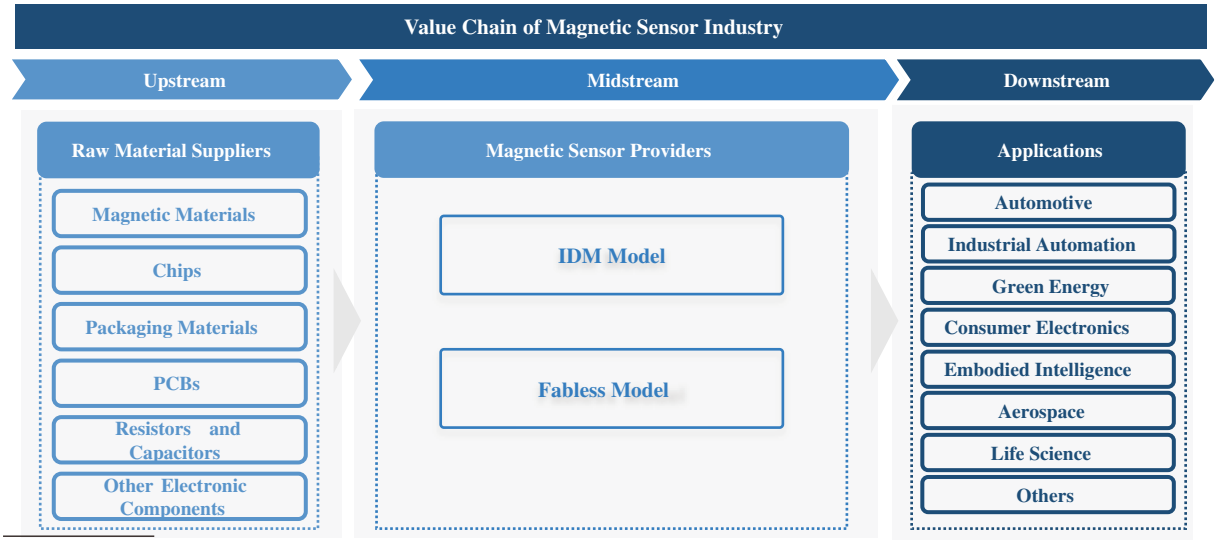
Comparison of Hall Sensors and xMR Sensors				
	Hall Sensors	xMR Sensors		
		AMR Sensors	GMR Sensors	TMR Sensors
Physical Effect	Hall effect	Magnetoresistance effect by crystallographic anisotropy	Magnetoresistance effect by spin-dependent scattering	Magnetoresistance effect by spin-dependent tunneling
Material Structure	Standard semiconductor	Single-layer thin film process	Multilayer thin film sputtering	Nano-scale insulating barrier process
Power Consumption	Require external excitation current with high power consumption	Relatively low	Relatively low	Extremely low
Precision	Relatively low	High	High	Extremely high
Response Speed	Relatively low	High	High	Extremely high
Typical Applications	Relatively low precision magnetic sensors with mature technological application	Motion sensors, electronic compass modules, mid-range magnetometers, among others	High-precision motion sensors, current sensors, hard disk drive read magnetic head, MRAM cell, among others	Ultra-high precision motion sensors, current sensors, high-density MRAM, biomagnetic sensors, among others
Pricing Range	$0.1 - $20	$1 - $30	$2 - $60	$1 - $70
Market Share*	Approximately 70%	Approximately 15%	Approximately 6%	Approximately 9%

Note: Market share is calculated in terms of the revenue of global magnetic sensor industry in 2024.

Source: *Frost & Sullivan Analysis*

Value Chain of Magnetic Sensor Industry

The value chain of magnetic sensor industry primarily involves upstream raw materials suppliers, midstream magnetic sensor providers and various downstream applications.



Source: *Frost & Sullivan Analysis*

Comparison of Operating Models in Magnetic Sensor Industry

Magnetic sensor providers mainly operate through fabless model or IDM model. The nano-multilayer film technology of xMR sensors requires atomic-level process control, with deep coordination across design, R&D and production. High-end applications of xMR sensors such as automotive and medical devices require comprehensive control of the entire processes. Therefore, the IDM model has become the inevitable choice for xMR sensor providers due to its advantages in process autonomy, high efficiency of value chain integration, and high reliability.

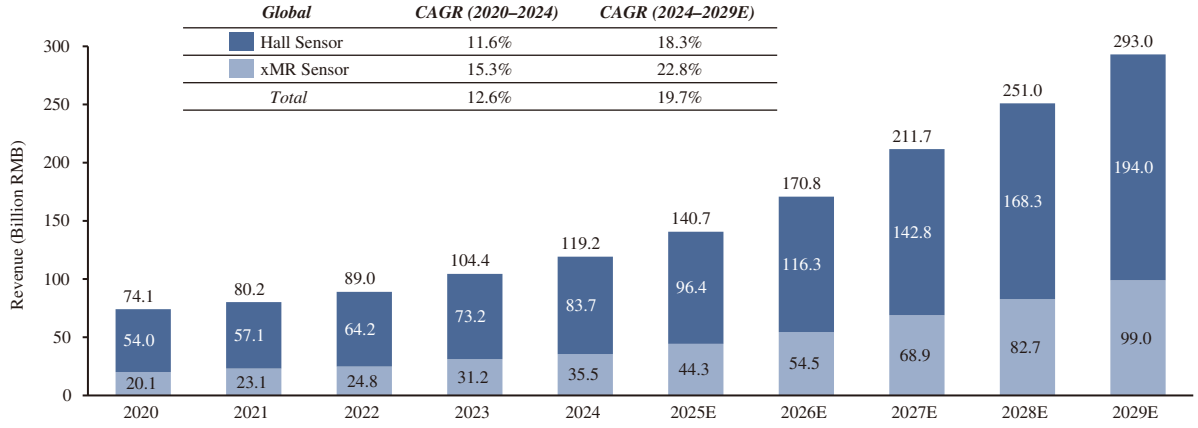
Comparison of Operating Models in Magnetic Sensor Industry		
	Fabless Model	**IDM Model**
Process and Technology Control	Focus on chip design and rely on OEMs for fabrication	Independently develop process and technology, with strong customization capability
Value Chain Coordination	Separation of design and production may increase supply chain risks	Deep collaboration can achieve closed-loop design and production
Investment and Cost Structure	Asset-light operation with low fixed costs	High fixed costs, and low marginal costs through mass production
Technical Barriers	Mainly design patents	Patents covering materials and processes, enabling rapid technical transformation
Quality Control	Rely on quality control by OEMs	Reliability assurance of entire process
Production Capacity	Constrained by production scheduling of OEMs	Independently adjust production capacity

Source: Frost & Sullivan Analysis

Market Size of Global Magnetic Sensor Industry

The historical growth of the magnetic sensor industry primarily relied on the development of downstream industries such as automotive, industrial automation, and green energy. In the forecast period, the further increase in demand from these downstream industries drives the growth of global magnetic sensor industry. Additionally, the rapid development of emerging industries such as embodied intelligence and third-generation semiconductors is expected to boost the demand and create new growth points for global magnetic sensor industry. Specifically, the accelerated construction of AI data centers promoted the rapid development of computing server power supplies that applied the third-generation semiconductors, thereby stimulating substantial demand for TMR current sensors that demonstrate significant advantages in pursuing excellent system performances including high efficiency, high power density and high-precision control. Moreover, magnetic encoders can enhance the perception capabilities and intelligence of robots, and enable them to better adapt to diverse environments and tasks, thereby promoting the widespread application of embodied intelligence in industrial production, service industry, healthcare, and daily life. Consequently, the magnetic sensor market is anticipated to grow at a faster pace during the forecast period. The following chart presents the historical and projected market size of global magnetic sensor industry in terms of revenue from 2020 to 2029:

Market Size of Magnetic Sensor Industry (Global), 2020–2029E



Source: Frost & Sullivan Analysis

Magnetic sensors primarily include motion sensors, current sensors and others. In 2024, motion sensors, current sensors and others accounted for 72.8%, 14.9% and 12.3% of the market size of global magnetic sensor industry in terms of revenue, respectively. By 2029, motion sensors, current sensors and others are expected to account for 73.4%, 19.1% and 7.5%, respectively.

Market Drivers and Future Opportunities of Magnetic Sensor Industry

Rapid growth in downstream demand. Magnetic sensors are used to detect physical information such as position, velocity, angle, current and proximity, which are widely applied in industries including green energy, automotives, industrial automation, consumer electronics, among others. The rapid development of downstream industries drives sustained growth in demand for magnetic sensors.

- *Green Energy*. Magnetic sensors are widely applied in energy conversion, safety monitoring and equipment control. With high-precision detection of current and magnetic field, magnetic sensors can significantly enhance system efficiency and reliability in green energy sector. With the application of new technologies such as perovskite photovoltaics and solid-state batteries, magnetic sensors can further facilitate technological iterations in green energy sector. By 2029, the global installed capacity of photovoltaics, wind power and energy storage is expected to reach 5,499.0GW, 2,239.0GW and 430.4GW, growing at a CAGR of 22.7%, 13.9% and 21.1% from 2024 to 2029.

- *Automotive industry.* Magnetic sensors are mainly used for motor control, battery management system ("**BMS**"), and position and velocity detection. The number of magnetic sensors used in a NEV is more than three times that in an ICE vehicle. The rapid development of NEVs has boosted demand for magnetic sensors, whilst continuous technological advancements in autonomous driving further stimulated the demand and raised higher performance requirements for magnetic sensors. From 2020 to 2024, the global NEV sales increased from 3.0 million units to 17.2 million units, with a CAGR of 54.7%, and is expected to reach 38.2 million units by 2029, growing at a CAGR of 17.3% from 2024 to 2029.

- *Industrial Automation.* Magnetic sensors are widely used in applications such as precision motion control, equipment condition monitoring, safety interlocking protection, material flow management, energy efficiency optimization, among others. The trend of unmanned and low-carbon industrial automation continues to drive the evolution of magnetic sensors

towards high precision, efficiency and intelligence. From 2020 to 2024, the market size of global industrial automation grew from RMB3.1 trillion to RMB3.6 trillion, with a CAGR of 3.8%, and is expected to reach RMB5.1 trillion by 2029, growing at a CAGR of 7.2% from 2024 to 2029.

Expansion of emerging applications. Magnetic sensors are driving breakthroughs in cutting-edge industries such as embodied intelligence, aerospace and life science. By integrating high-precision magnetic field sensing with intelligent systems, magnetic sensors enable precise control and dynamic response to the physical world.

- *Third-generation power semiconductor.* The third-generation power semiconductor devices, such as SiC and GaN, are leading the revolution in power electronics due to enhanced thermal and electronic properties, improved electrical strength and radiation resistance, energy-efficient and eco-friendly advantages, and compact device size, and are widely applied in EVs, green energy, consumer electronics, AI infrastructure and data centers, among others. The applications of third-generation power semiconductor devices raise higher requirements for key components in the systems, such as current sensors. TMR current sensors demonstrate significant advantages when used in conjunction with third-generation power semiconductor devices, and become a necessary choice when pursuing excellent system performances including high frequency, high efficiency, high power density and high-precision control. The market size of global third-generation power semiconductor devices industry in terms of revenue is expected to reach RMB278.9 billion in 2029, growing at a CAGR of 43.8% from 2024 to 2029. Therefore, the rapid development of third-generation power semiconductor device industry is expected to promote the surge in the demand for TMR current sensors.

- *Embodied intelligence.* Magnetic encoders are used for position and angle detection in robotic joints, providing critical data for precise control of robots. Magnetic encoders can enhance the perception capabilities and intelligence of robots, and enable them to better adapt to diverse environments and tasks, thereby promoting the widespread application of robots in industrial production, service industry, healthcare, and daily life. The market size of global embodied robot industry in terms of revenue is expected to increase from RMB16.6 billion in 2025 to RMB162.0 billion in 2029, growing at a CAGR of 76.7%. The rapid development of embodied robot industry is expected to stimulate enormous demand for magnetic encoders.

- *AI infrastructure and data centers.* Explosive demand for computing power and rapid technological advancements have significantly promoted the growth of data center industry in China. As high-energy-consuming infrastructure, data centers impose stringent requirements on power continuity and energy efficiency, thereby driving rapid development in the data center power supply systems industry. The market size of China's data center power supply systems is expected to reach RMB117.5 billion by 2029, growing at a CAGR of 15.1% from 2024 to 2029. The operation of data center power supply systems relies on high-precision and fast-response current sensors for real-time monitoring of load current, overload protection and energy efficiency management. In the future, with the ongoing expansion of AI computing power and continued investment in data center construction, the demand for current sensors as core components of data center power supply systems is expected to witness a rapid growth.

Technological upgrading and product iteration. Technological upgrading and product iteration in the magnetic sensor industry continuously promote the expansion of application scenarios, cost reduction and efficiency improvement. For instance, with high sensitivity, low power consumption and

temperature resistance, xMR sensors are widely applied in high-precision positioning, high-frequency systems, and devices with low power consumption, and are also expanding applications in emerging scenarios such as brain-computer interfaces and nano-level industrial positioning. Additionally, the integration of multiple physical parameter sensing on a single chip and the combination of magnetic sensors and edge computing drive the development of magnetic sensors towards miniaturization and intelligence, thereby achieving predictive maintenance while reducing system costs.

Threats and Challenges

Intensified Competition. The global magnetic sensor industry is characterised by intense competition, with a fragmented landscape of specialised magnetic sensor providers as well as large-sized semiconductor manufacturers that benefit from economies of scale, broader product portfolios and stronger bargaining power. Major downstream customers, especially in the automotive, industrial automation and consumer electronics sectors, typically have high requirements on pricing and commercial terms, and often prefer qualified suppliers with proven track records. Therefore, magnetic sensor providers are exposed to the risk of margin compression and potentially adverse impacts on revenue and profitability due to the intensified competition.

Rapid technological evolution. Magnetic sensor technologies are undergoing rapid evolution, including the transition from traditional Hall-effect sensors to higher-performance xMR sensors, and growing requirements for reliability, precision, power consumption, among others. Industry participants have to sustain high levels of R&D investment to keep pace with technological advancements and avoid product obsolescence. In addition, the magnetic sensor industry remains exposed to supply chain challenges, including fluctuations in the availability and pricing of key materials such as wafers and rare earth materials, which may adversely affect production continuity, delivery schedules and cost structures for magnetic sensor providers.

Entry Barriers of Magnetic Sensor Industry

Technology barrier. The design of magnetic sensors requires the consideration of multiple aspects such as sensitivity, temperature stability, noise suppression, among others, and market participants need to keep up with the technological development trends and promptly adjust their research directions and product strategies. For instance, TMR sensors require precise control of ferromagnetic and insulating layers at the atomic level, and rely on advanced production processes such as atomic layer deposition, which requires long-term accumulation of technical experiences. New entrants may face considerable pressures in technology research and product upgrading, making it difficult to keep pace with industry development.

Supply chain barrier. Mass production of magnetic sensors requires robust supply chain management capabilities to achieve efficient coordination of raw material procurement, logistics and production. Leading market participants have established stable and efficient supply chain systems through long-term cooperation with upstream and downstream partners or mature IDM model, which can ensure steady supply of raw materials and continuous production operation. New entrants may face challenges in establishing a reliable supply chain.

Brand and customer barriers. Renowned brands in the magnetic sensor industry can obtain customer recognition and trust more easily. Established market participants have built strong brand awareness through long-term cooperation with customers, accumulation of product and service experience, and effective market promotion. In particular, customers in the automotive, new energy and industrial automation industries have stringent requirements for stable supply and product reliability of magnetic sensors, and require magnetic sensor providers to conduct long-term and rigorous testing and verification. It is difficult for new entrants to obtain customer recognition due to lack of brand awareness.

Competitive Landscape of Global Magnetic Sensor Industry

Market participants in the global magnetic sensor industry include magnetic sensor providers that master a single or multiple technical routes, and providers that master the comprehensive magnetic sensing technology portfolio. Magnetic sensor providers that master the comprehensive magnetic sensing technology portfolio can provide flexible product offerings in response to downstream demands and develop technical solutions integrating multiple technical routes. Our Group is one of the few companies globally with complete magnetic sensing technologies including Hall sensors and xMR sensors, as of the Latest Practicable Date, possessing strong technical expertise and product capabilities.

The global magnetic sensor industry is relatively fragmented. As of December 31, 2024, there were over 200 magnetic sensor providers worldwide, among which less than 10 magnetic sensor providers including our Group possess complete magnetic sensing technologies. In terms of revenue derived from magnetic sensors in 2024, the global top ten magnetic sensor providers accounted for 31.0%, among which our Group ranked tenth, with a market share of 0.6%. Additionally, our Group ranked sixth globally among magnetic sensor IDM companies in terms of revenue in 2024.

Top Ten Providers of Magnetic Sensors in terms of Revenue (Global), 2024

Ranking	Company	Headquarters	Business Model of Magnetic Sensors	Revenue (Billion RMB)	Market Share
1	Company A	Germany	IDM	7.7	6.5%
2	Company B	Japan	IDM	6.9	5.8%
3	Company C	Japan	IDM	5.4	4.5%
4	Company D	United States	Fabless	4.7	3.9%
5	Company E	Netherlands	IDM	3.3	2.8%
6	Company F	Switzerland	Fabless	2.7	2.3%
7	Company G	United States	Fabless	2.6	2.2%
8	Company H	Belgium	Fabless	1.5	1.3%
9	Company I	United States	IDM	1.3	1.1%
10	**Our Group**	**Anhui Province, China**	**IDM**	**0.7**	**0.6%**
Top 10	—	—	—	36.8	31.0%

Notes:

(1) Company A is a group established in 1999 and listed on the Frankfurt Stock Exchange and OTCQX International over-the-counter market, engaging in the provision of automotive electronics, green industrial power, power and sensor systems and connected secure systems.

(2) Company B is a group established in 1931 and listed on the Tokyo Stock Exchange, engaging in the provision of magnetic sensors, gas sensors, current sensors and other sensing devices.

(3) Company C is a group established in 1935 and listed on the Tokyo Stock Exchange, engaging in the provision of magnet application products, sensor application products, passive components, energy application products, and other electronic components.

(4) Company D is a group established in 2013 and listed on the Nasdaq Stock Exchange, engaging in the provision of sensor integrated circuits and application-specific analog power integrated circuits.

(5) Company E is a group established in 2006 and listed on the Nasdaq Stock Exchange, engaging in the provision of high-performance mixed-signal products used in end market applications including automotive, industrial & IoT, mobile and communication infrastructure.

(6) Company F is a group established in 1983 and listed on the SIX Swiss Exchange, engaging in the provision of current and voltage transducers for industrial, renewable energy, traction and automation applications.

(7) Company G is a group established in 1985 and listed on the Nasdaq Stock Exchange, engaging in the provision of aerospace technologies, industrial automation, building automation, and energy and sustainable solution.
(8) Company H is a group established in 1989 and listed on Frankfurt Stock Exchange and Euronext Brussels, engaging in the provision of advanced integrated semiconductor devices for use in automotive electronics systems.
(9) Company I is a group established in 1965 and listed on the Nasdaq Stock Exchange, engaging in the provision of integrated circuits, software and subsystems that leverage high-performance analog, mixed-signal and digital signal processing technologies.

Source: Annual Reports; Frost & Sullivan Analysis

As of December 31, 2024, there were approximately 80 current sensor providers worldwide. In terms of revenue derived from current sensors in 2024, the global top five current sensor providers accounted for 28.1%, among which our Group ranked third, with a market share of 3.4%.

As of December 31, 2024, there were approximately 80 magnetic motion sensor providers worldwide. The market size of global magnetic motion sensor industry in terms of revenue reached RMB86.8 billion in 2024. In terms of revenue derived from magnetic motion sensors in 2024, the global top five magnetic motion sensor providers accounted for 29.8%. Our Group falls outside the top ten, with a market share of approximately 0.1%.

Top Five Providers of Magnetic Motion Sensors in terms of Revenue (Global), 2024

Top Five Providers of Current Sensors in terms of Revenue (Global), 2024

Ranking	Company	Headquarters	Revenue (Billion RMB)	Market Share
1	Company F	Switzerland	2.6	14.6%
2	Company B	Japan	0.9	5.1%
3	**Our Group**	**Anhui Province, China**	**0.6**	**3.4%**
4	Company D	United States	0.5	2.8%
5	Company C	Japan	0.4	2.2%
Top 5	-	-	5.0	28.1%

Top Five Providers of Motion Sensors in terms of Revenue (Global), 2024

Ranking	Company	Headquarters	Revenue (Billion RMB)	Market Share
1	Company A	Germany	7.5	8.6%
2	Company B	Japan	6.0	6.9%
3	Company C	Japan	5.0	5.8%
4	Company D	United States	4.2	4.8%
5	Company E	Netherlands	3.2	3.7%
Top 5	-	-	25.9	29.8%

Source: Annual Reports; Frost & Sullivan Analysis

Raw Material Prices Analysis of Global Magnetic Sensor Market

The raw materials of magnetic sensors primarily include semiconductor materials (such as silicon wafers), magnetic materials (such as rare earths), and packaging materials (such as ceramics and plastics). Due to the growing demand from downstream industries, the average price of silicon wafers increased from RMB6.2 per square inch in 2020 to RMB6.9 per square inch in 2021, and further increased to RMB7.0 per square inch in 2022. Due to the consequent oversupply, the average price of silicon wafers decreased to RMB6.3 per square inch in 2023 and RMB5.7 per square inch in 2024. Due to the surge in demand from downstream industries such as automotive and new energy sectors as well as the shortage in supply of rare earth materials, the price index of rare earth materials increased from 145.4 in 2020 to 251.9 in 2021, and further increased to 331.5 in 2022. Due to the steady increase in rare earth material production, the price index of rare earth materials decreased to 226.8 in 2023 and 167.6 in 2024.

GLOBAL XMR SENSOR INDUSTRY

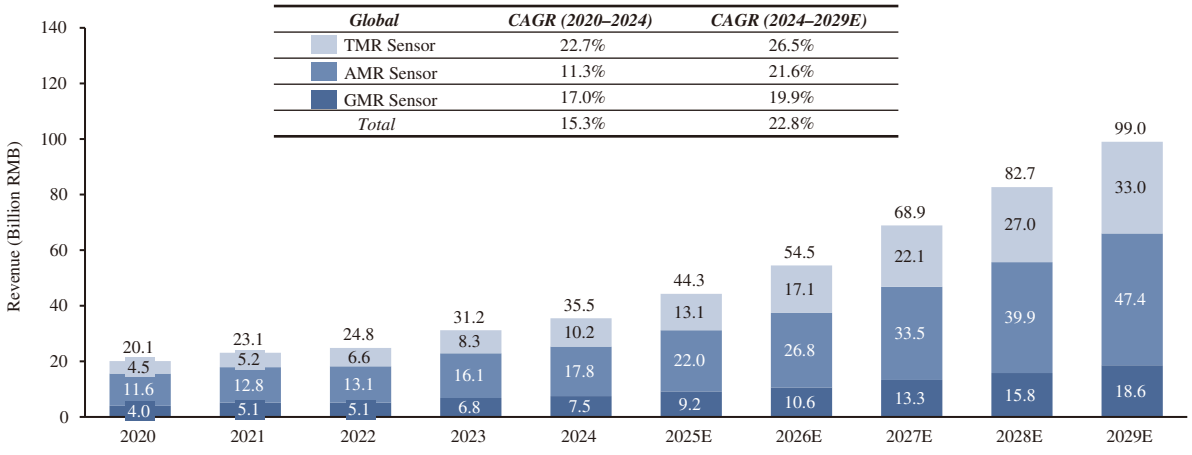
Definition and Overview of xMR Sensors

xMR sensors refer to magnetic sensors designed based on the magnetoresistance effect, which is the physical phenomenon in which the resistance of certain magnetic materials (primarily ferromagnetic materials) changes with the direction or intensity of an external magnetic field. xMR sensors accurately measure changes in the resistance value of magnetic materials to detect the direction, angle, position, current, among others, and convert into measurable electrical signals.

Market Size of Global xMR Sensor Industry

In the historical period, the applications of xMR sensors primarily include automotive and industrial automation. However, xMR sensors have significant advantages in precision, power consumption, response speed and reliability in extreme environments. Therefore, xMR sensors have increasingly extensive applications in cutting-edge industries such as third-generation power semiconductor, embodied intelligence, data center power supply systems, among others, and further expand emerging application scenarios such as space exploration, neural interfaces and superconducting quantum computing. Consequently, the xMR sensor industry is anticipated to grow at a faster pace during the forecast period due to expanding applications across various emerging industries. The following chart presents the historical and projected market size of global xMR sensor industry in terms of revenue from 2020 to 2029:

Market Size of xMR Sensor Industry (Global), 2020–2029E



Source: Frost & Sullivan Analysis

Market Drivers and Future Opportunities of xMR Sensor Industry

Expansion of high-end application scenarios. With the continuous technological advancements, xMR sensors are unlocking application scenarios and breaking through the technical boundaries of high-end applications. For instance, TMR sensors can detect nT-level weak magnetic fields, which significantly reduces the cost of portable magnetocardiography devices and enables commercialization. The nanoscale precision of xMR sensors empowers the cutting-edge manufacturing, enabling remote surgery to sense vascular wall pressure by embedding xMR sensors into robotic arm joints. Additionally, xMR sensors are expanding emerging application scenarios such as space exploration, neural interfaces and superconducting quantum computing, promoting the widespread adoption of magnetic field sensing.

Partial replacement of Hall sensors. Compared with Hall sensors, xMR sensors have significant advantages in sensitivity, power consumption, response speed, among others. In particular, Hall sensors require external circuits, which limits their performance in weak magnetic field environments. In several application scenarios of downstream industries such as automotive, consumer electronics and industrial automation, xMR sensors have gradually replaced Hall sensors. For instance, with the development of NEVs and autonomous driving technology, the requirements for the accuracy and reliability of magnetic sensors have increased. The penetration of xMR sensors in motor control, battery management and autonomous driving systems continues to increase. Moreover, the demand for precise

motion and positioning in robots and conveyor systems has increased, and xMR sensors can be used to detect the position of robotic arms and material transportation on assembly lines. Due to high precision and reliability, xMR sensors gradually become the preferred choice in industrial automation.

Competitive Landscape of Global xMR Sensor Industry

The global xMR sensor industry is relatively fragmented. As of December 31, 2024, there were approximately 80 xMR sensor providers worldwide. In terms of revenue derived from xMR sensors in 2024, the global top five xMR sensor providers accounted for 27.6%, among which our Group ranked fifth, with a market share of 1.4%. Additionally, in terms of revenue derived from xMR sensors in 2024, our Group ranked first among all Chinese xMR sensor providers.

Top Five Providers of xMR Sensors in terms of Revenue (Global), 2024

Ranking	Company	Headquarters	Revenue (Billion RMB)	Market Share
1	Company C	Japan	4.0	11.3%
2	Company A	Germany	2.7	7.6%
3	Company D	United States	1.6	4.5%
4	Company E	Netherlands	1.0	2.8%
5	**Our Group**	**Anhui Province, China**	**0.5**	**1.4%**
Top 5	—	—	9.8	27.6%

Source: Annual Reports; Frost & Sullivan Analysis

Definition and Overview of TMR Sensors

TMR sensor is currently one of the most advanced magnetic sensors, which utilizes quantum tunneling effect to achieve ultra-sensitive magnetic field detection. The core structure of TMR sensors is a magnetic tunnel junction, consisting of upper/lower ferromagnetic layers and an intermediate insulating barrier layer. TMR sensors have disruptive performance advantages in sensitivity, power consumption, frequency response and temperature stability, and can be applied in various cutting-edge applications related to high-precision magnetic field detection.

Market Size of Global TMR Sensor Industry

TMR sensors have been widely applied in automotive, industrial automation, consumer electronics and emerging fields in recent years due to the significant advantages in sensitivity, power consumption and stability. The market size of global TMR sensor industry in terms of revenue increased from RMB4.5 billion in 2020 to RMB10.2 billion in 2024, representing a CAGR of 22.7%. The market size of global TMR sensor industry in terms of revenue is expected to reach RMB33.0 billion in 2029, with a CAGR of 26.5% from 2024 to 2029.

Market Drivers and Future Opportunities of TMR Sensor Industry

TMR sensors lead the growth of xMR sensor industry. In 2024, TMR sensors accounted for 28.7% of the market size of global xMR sensor industry in terms of revenue. With the stable development of downstream industries such as automotive, new energy, industrial automation and consumer electronics, as well as the expansion of emerging applications such as embodied intelligence, aerospace and life science, the demand for TMR sensors is expected to witness a significant growth, surpassing other types of xMR sensors. By 2029, TMR sensors are expected to account for 33.3% of the market size of global xMR sensor industry.

Technological advancements. The exploration of new magnetic materials and structures is expected to achieve further breakthroughs in the performance of TMR sensors, such as the development of magnetic materials with higher magnetic reluctance and lower noise, and the design of unique magnetic tunnel junction structures. Additionally, the deep integration with other emerging technologies such as artificial intelligence, big data and edge computing will enable TMR sensors to possess stronger capabilities of intelligent perception and data processing. For instance, in the IoT application, TMR sensors can work with edge computing notes to achieve real-time data acquisition, processing and analysis, thereby improving the intelligence level and response speed of the IoT systems.

Competitive Landscape of Global TMR Sensor Industry

Due to high technical barrier, there were a limited number of TMR sensor providers worldwide. In terms of revenue derived TMR sensors in 2024, the global top five TMR sensor providers accounted for 45.1%, among which our Group ranked second, with a market share of 3.9%.

Top Five Providers of TMR Sensors in terms of Revenue (Global), 2024

Ranking	Company	Headquarters	Revenue (Billion RMB)	Market Share
1	Company C	Japan	3.5	34.3%
2	**Our Group**	**Anhui Province, China**	**0.4**	**3.9%**
3	Company A	Germany	0.3	2.9%
4	Company D	United States	0.2	2.0%
5	Company L	Jiangsu Province, China	0.2	2.0%
Top 5	—	—	4.6	45.1%

Note: Company L is a private group established in 2010, engaging in the provision of packaged chip and magnetic sensors.
Source: *Annual Reports; Frost & Sullivan Analysis*

SOURCE AND RELIABILITY OF INFORMATION

In connection with the **[REDACTED]**, we engaged an independent market research consultant, Frost & Sullivan, to conduct an analysis of, and to prepare an industry report on the industries where we operate with a commission fee of RMB380,000. Founded in 1961, Frost & Sullivan is an independent global consulting firm that conducts industry research and prepares industry report on a wide range of industries, among other services. The information from Frost & Sullivan disclosed in this document is extracted from the Frost & Sullivan Report with its consent.

In compiling and preparing the Frost & Sullivan Report, Frost & Sullivan used the following key methodologies to collect multiple sources, validate the collected data and information, and cross-check each respondent's information and expressions against those of others: (i) detailed primary research, which involved discussing the status of the industry with leading industry participants and industry experts; and (ii) secondary research, which involved reviewing published sources including reports of market participants, independent research reports and data based on Frost & Sullivan's own research database.

Frost & Sullivan adopted the following primary assumptions while making projections for preparing the Frost & Sullivan Report: (i) global economy is likely to maintain steady growth in the next decade; (ii) global social, economic and political environment is likely to remain stable in the forecast period; and (iii) market drivers such as rapid growth in downstream demand, expansion of emerging applications, technological upgrading and product iteration, and favourable policies, among others.

Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan Report. Our Directors confirm that after taking reasonable care, there is no material adverse change in the overall market information since the date of the Frost & Sullivan Report that would materially qualify, contradict, or have an impact on such information.