



## Realizing the NIDEC Group as a strong technical group

— Pursuing technology that contributes to the interests of both the company and society —

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### Generating business from research institutes

In order for our company, the world's No.1 comprehensive motor manufacturer, to achieve further evolution, it is important for us to realize our vision as a business creator by bringing together the technologies of all the companies in our group. We have research institutes in Keihanna, Kyoto Prefecture, and Shin-Kawasaki, Kanagawa Prefecture, and we would like to develop the activities of these research institutes in areas that are closer to business. By having our research centers engage in business with a broad perspective, our company will be able to achieve self-reliance and autonomous growth, and we will be able to achieve even higher performance and profits.

The mindset of the personnel at the research institute is an important factor in terms of self-reliance

and autonomous growth. We want the people involved in research and development to have the mindset of a manager who can create new businesses from scratch. In order to raise their mindset to the level of a manager, they must pay attention to the technologies they are researching. It is essential that each researcher pays close attention to their surroundings and always seeks to understand how a single technology can be related to many businesses and lead to business opportunities. In this way, a web of research and development will be woven throughout the entire group, enabling all technologies to be closely and organically combined. We believe that this "organic combination of composite technologies" is the foundation for realizing the NIDEC Group as a strong technology group.

From solving problems at your feet to creating next-generation technologies that generate profits

#### Key Issues

- 1 Accelerating the development of cutting-edge products
- 2 New Markets Case Support
- 3 Assisting E-Axle Production and Development
- 4 Horizontal deployment of productivity improvement measures and cost reduction strategy
- 5 Strengthening the analysis of technical and market information
- 6 Deepening of medium- to long-term development themes
- 7 Establishment of a global collaboration CTO cross-sectional technology review
- 8 Minimizing business risk

### Finding core competence through the organic combination of technologies

If you look at the NIDEC Group, you will see that various technologies and know-how essential to manufacturing have been cultivated at each company and each base, including not only motor-related technologies but also elemental technologies, software technologies, sensing technologies, production technologies, and even quality control. As mentioned above, the role of the future research institute will be to take a bird's-eye view of these technologies and organically combine them. In order for our company to survive in the future market environment, we must not only focus on the component and hardware aspects of motors, but also on the overall system, which is a collection of technologies including software such as electronic control. I believe that the process of developing a system, through which different technologies are combined more deeply and efficiently, gives rise to a company's unique technology, or core competence. Even if each technology is commonplace, a system that has been brought together through core competence cannot easily imitate. Such highly perfected systems not only give rise to new business, but also lead to next-generation technologies that can contribute to solving social issues.

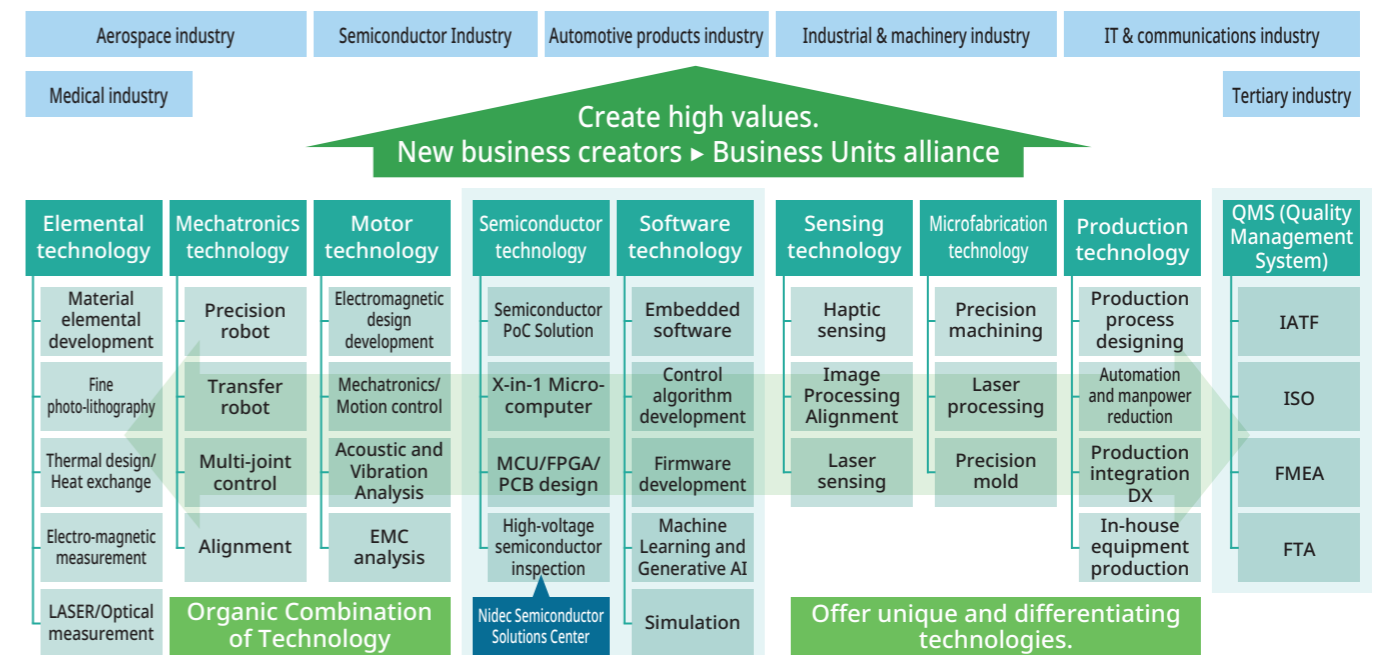
### Creating next-generation technologies that generate profits

The NIDEC Group is able to develop its business into a wide range of business areas, with its core competence extracted from the organic combination of motors and various technologies. In particular, we believe that we can create new businesses in the three elements or five Areas focus based on market trends that we presented to you in July this year, with the aim of realizing a "Circular Society".

Among these, the business area that will support the Base of AI Society is particularly important. The demand for AI servers is continuing to expand, and as AI evolves and becomes more widespread, it is thought that AI itself will bring about further demand for AI and advanced data processing. As a result, it is expected that the business domain related to AI will grow explosively. The NIDEC Group has semiconductor inspection technology and thermal management technology for data servers that are essential for manufacturing AI, and while continuing to respond to social demand and solve problems, we are also researching and pursuing new technologies that will contribute to the development of an AI society in the future.

When we add up the size of all the markets we can enter in this way, we estimate that it will be on the order of 1,000 trillion yen. Even if we can capture just a few percent of that market, it will be a major step towards achieving the NIDEC Group's target of 10 trillion yen in sales by fiscal 2030. In order for the NIDEC Group to achieve further growth as "NIDEC of Technology" in the future, our research institute will pursue technologies that contribute to the interests of both the company and society.

### Organic Combination of NIDEC Core Competencies



## Materiality Initiatives

### Pursue product safety and quality

#### Materiality

- Create a database for chemical substances contained in products to make it easier for the development department to determine the choice of materials, and shift to an environment-oriented development system
- Implement quality management reforms in the automotive-related business, and establish an overall quality control organization and system by FY2025
- Conduct assessment of all newly developed products and all products during the manufacturing process to reduce product safety risks



Products

#### Background to the identification of materiality

In our wide-ranging product lineup and supply, we are working to ensure quality and safety in all aspects of our operations, from product design and component selection to disposal and recycling, in response to customer requirements and relevant laws and regulations.

If we are unable to respond to the growing social demand for environmentally friendly product development, we may lose business opportunities due to our failure to comply with chemical substance laws and regulations in each country. In addition, as the automotive products business has grown to account for more than 20% of the NIDEC Group's consolidated sales, if we are unable to meet the quality needs of our customers in the automotive industry, there is a possibility that the NIDEC brand's credibility will decline due to product defects and recalls.

#### Initiatives in FY2023

The Small Platform Motor & Solutions Business Unit, which operates businesses in environmentally advanced countries such as EU countries and has many customers with a high awareness of environmental issues, has already complied with current regulations. However, it is expected that legal regulations and social demands will become even stricter in the future, so we are working to reduce the amount of lead used in materials that are difficult to replace and to curb CO<sub>2</sub> emissions by recycling resin materials in advance of the laws, regulations and demands of each country. Specifically, we are promoting the replacement of steel materials used in products for some customers with low-lead materials. We are making proposals, particularly to customers in the IT industry, and have received orders for low-lead materials for new products to be released in FY2023. In terms of promoting the use of recycled resin materials, we have proposed and shipped products that has increased the use of recycled

resin materials to 50% to some customers, and we are currently evaluating the characteristics of these products, including their reliability. Toward the future, we will continue to develop products that use recycled resin materials and promote these to our customers.

Meanwhile, in the Automotive Motor & Electronic Control Business Unit, where quality requirements are even stricter, we are working to ensure high product and process quality through the Quality Management audit of project deliverables conducted by the Quality Assurance Department in the development of new projects. We have introduced a system in which the Quality Assurance Department, which is an internal third party, carefully examines and evaluates the deliverables (project tasks) of all departments. This initiative is implemented in line with the project plan, and by obliging the reporting of results to top management, we are improving the quality of product development and strengthening activities to prevent product safety risks within the Automotive Products Division.

The global quality management division, which was established as a cross-sectional function to oversee quality across the entire company, holds regular meetings attended by the quality assurance departments of each NIDEC Group company, and works to understand the quality situation at each company and share best practices across the company. In the product development flow of the entire NIDEC Group, we are promoting the maintenance of standard documents that guide basic quality assurance practices, from understanding customer requests to product and manufacturing process design, and after-sales service after mass production, and ensuring that these are thoroughly implemented in each business entity.

#### Toward the future

With regard to reducing the environmental impact of substances in the Small Platform Motor & Solutions Business Unit, we recognize the importance of initiatives to address PFAS (Per and Polyfluoroalkyl substances: a general term for organic fluorine compounds containing two or more fluorine atoms), which has been attracting increasing attention in Japan and overseas in recent years. We will aim to become a leading environmental company by promoting activities to prevent the use of materials containing PFAS, as well as the unintentional use or contamination of products with these materials.

In addition, the Automotive Motor & Electronic Control Business Unit will continue to use the mechanisms it has introduced to reduce product safety risks, and will conduct 100% product assessments of new developments and manufacturing processes.

The Global Quality Management Division will oversee quality assurance for the entire NIDEC Group, without regard to business unit or company boundaries.

### Respond to changes in the technological environment and the industrial structure

#### Materiality

- Continuously launch new products that lead the Five Big Waves to resolve social issues
- Continue to pursue the high efficiency and miniaturization of motors that contribute to energy and resource saving



Products

\* The Five Big Waves: Five business areas related to global social issues and their growth markets, which we place particular emphasis on in the medium-term strategic goal Vision2025.

#### Background to the identification of materiality

In order to realize a sustainable society, our company is working to promote the development of products and technologies that will help solve global social issues through our products and business activities. One of the risks of not taking this approach is the loss of business opportunities due to our inability to provide products that meet the needs of customers and markets.

#### Initiatives in FY2023

In order to continuously promote CO<sub>2</sub> emission reduction activities through product development and business activities, we are calculating the CO<sub>2</sub> emissions of our main products based on LCA (Life Cycle Assessment) and organizing them by product group. We are accumulating this information and using it in product design with consideration for reducing environmental impact, and are working to promote environmental value.

#### Toward the future

We will strive to develop products and technologies that contribute to reducing the environmental impact on society and our customers, and aim to promote the widespread use of these products. Specifically, we will promote research and development that contributes to energy and resource conservation, CO<sub>2</sub> emissions reduction, and improved recyclability through the development of more efficient motors and products that are smaller, lighter, thinner, and more compact.

#### "SynRA™" high-efficiency motor that reduces electric power consumption

The high-efficiency synchronous reluctance motor "SynRA™"<sup>\*1</sup>, which was launched in 2022, does not use magnets and achieves the highest level of efficiency class IE5<sup>\*2</sup> in international high-efficiency standards. This motor combines the basic principles of a synchronous reluctance motor with those of a

cage-type induction motor, and achieves high efficiency by using a special reluctance design for the rotor. In the future, it is expected that there will be increasing demand for reducing the electric power consumption of motors due to factors such as high-efficiency regulations for industrial motors in various countries, the environment, and rising energy prices, and there are high expectations for the application of the "SynRA™" to various uses.

In May 2024, we concluded a Memorandum of Understanding (MOU) with the Metal Industries Research & Development Centre (MIRDC) of Taiwan on technical development, manufacturing, application, etc. of products related to high-efficiency motor systems. We will continue to expand the range of applications for industrial motors through cooperation with MIRDC, starting with pumps for water treatment facilities.

We believe that the widespread use of the high-efficiency "SynRA™" motor, which reduces electric power consumption, will make a significant contribution to reducing the burden on the global environment, and we will continue to promote further research and development in the future.

\*1 SynRA (Synchronous Reluctance Motor with Aluminum Cage Rotor)  
\*2 IE5: IE is an efficiency level defined in the International Electrotechnical Commission's (IEC) energy efficiency guidelines for motors (IEC60034-30-2), with IE5 being the highest efficiency level.



High-efficiency Synchronous Reluctance Motor "SynRA™"



Signing of MOU for cooperation in the development, manufacturing, and application of high-efficiency motor system-related products



## Protect and utilize intellectual properties

### Materiality

Transform our IP portfolio to one that responds to social and business changes, including decarbonization and power and manpower saving, and use the new IP portfolio



Products

### Background to the identification of materiality

Our company is working on product development, seeing the business opportunities arising from the “Five Big Waves” that include issues such as decarbonization, saving electric power, and reducing the need for manpower as opportunities. If the transformation of our IP portfolio is delayed, there is a concern that our competitiveness will decline and our contribution to society will be impeded, so it is important to protect the results of product development with intellectual property rights and to transform them in a timely manner.

### Initiatives in FY2023

In FY2023, we continued to build and manage IP portfolios that match each stage of the product lifecycle, and to utilize these rights. We also conducted thorough prior research into the intellectual property rights of other companies, and proceeded with our business activities while respecting these rights. In addition, we strengthened our activities to analyze market trends and other information using intellectual property information, and we implemented activities to build a stronger intellectual property portfolio based on this information.

As the volume of data handled in AI-based processing is expected to increase even further in the future, there is a problem with the heat generated by the semiconductor processors and other devices used to process this data, and there is a growing demand for water-cooling module products with high cooling capacity in data centers that use large numbers of these devices. By analyzing the technologies of various companies for each product issue, such as improving cooling performance and achieving high reliability, we have been able to quickly identify areas where we can make a greater contribution to society and move forward with patent applications. As a result of these activities, we have been able to strengthen our intellectual property portfolio related to technologies such as pumps, power supplies, and circuit boards, which are features of our products and contribute to system redundancy.

As a result of these activities, we were able to build and transform our SDG-related intellectual property portfolio,

centered on the “Five Big Waves”, towards the realization of a sustainable society, and maintain a high ratio of 56%.

Keeping with last year, we were selected as one of the “Top 100 Global Innovators 2024” by Clarivate. This award selects the top 100 innovative companies and organizations in the world by analyzing intellectual property based on four evaluation criteria: success rate, geographical investment, influence, and scarcity.

### Other awards

- Two inventions by the NIDEC Group received the “Kyoto Invention Association Chairman’s Award” and “Invention Encouragement Award” at the 2023 Kinki Local Commendation for Invention.
- Two inventions by the NIDEC Group received the “Excellence Award” and “Award” at the 67th Kyoto Prefecture Commendation for Invention.

### Toward the future

We will continue to transform and utilize our intellectual property portfolio in response to business changes. We will also further invigorate our intellectual property analysis activities, which we have been strengthening up to now, and by conducting analysis activities that utilize intellectual property information from the early stages of the product lifecycle, we will accurately grasp the social trend information obtained from these activities and promote the development of new products that contribute to the realization of a sustainable society. Through such activities, we aim to “contribute to the business through the creation of intellectual added value”, and we will also strive to improve the value of intellectual property through the establishment of an organization of intellectual property professionals and the creation of an internationally competitive intellectual property portfolio.



### Intellectual property activities in line with the product lifecycle

