

Transportation Business

We will promote GX in the railway transport sector through the technologies we have cultivated since our founding and through our environmentally friendly manufacturing.



Akihiro Otsuka
Executive Officer, General Manager of Transportation Business Unit

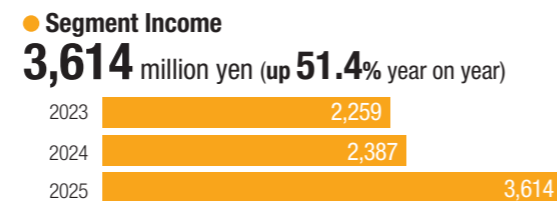
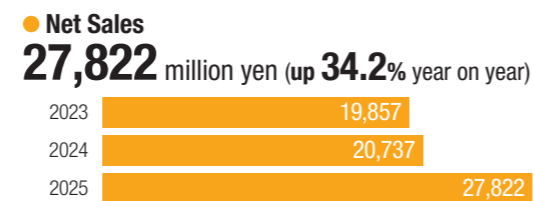
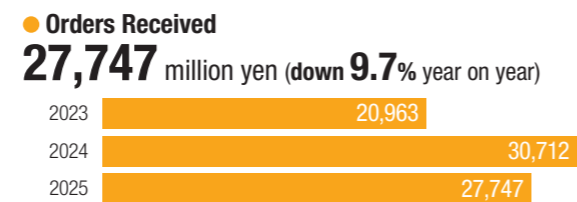
Business environment and strategy

In Japan, the number of railway passengers is trending upward amid the increase in inbound visitors and other factors, and railway operators are actively investing in rolling stock. Together with the tailwind from measures to address GX in the railway transport sector, this means demand for the Company's products is rising. Amid good earnings results among railway operators, there is robust upgrade demand for energy-conserving railcar equipment that achieves decarbonization and saves labor for GX and DX measures, and an increase in the introduction of newly built railcars and equipment replacements is anticipated.

Overseas, demand is expected to continue, centered on maintenance components for high-speed railways in China and new investment in railcars in Indonesia, and we will focus on securing repeat orders. We will also focus on trends in North America, and promote measures through an integrated production and sales system.

Furthermore, as part of our efforts aimed at increasing corporate value, we have set out improvement in profitability of this business segment as a key issue, and will strive to thoroughly improve the earnings structures of existing businesses, execute capital investment, and earn appropriate profits.

Results for FYE May 2025



Main actions

▶ Supply superior technologies as well as environmentally friendly products and services

We delivered electrical components for Keisei Electric Railway Co., Ltd.'s new rolling stock the Series 3200, and this series has been in commercial operation since February 22, 2025. The Propulsion controller adopted in the vehicles uses a low-loss semiconductor device to achieve a more compact size and reduce weight compared with conventional equipment. We also reduced power consumption by approximately 69% compared with the existing 3500 Series rolling stock.

Through these efforts, we are working to lower environmental impact by reducing power consumption and the use of worn parts while also extending the replacement cycle, thus contributing to the realization of a sustainable society.



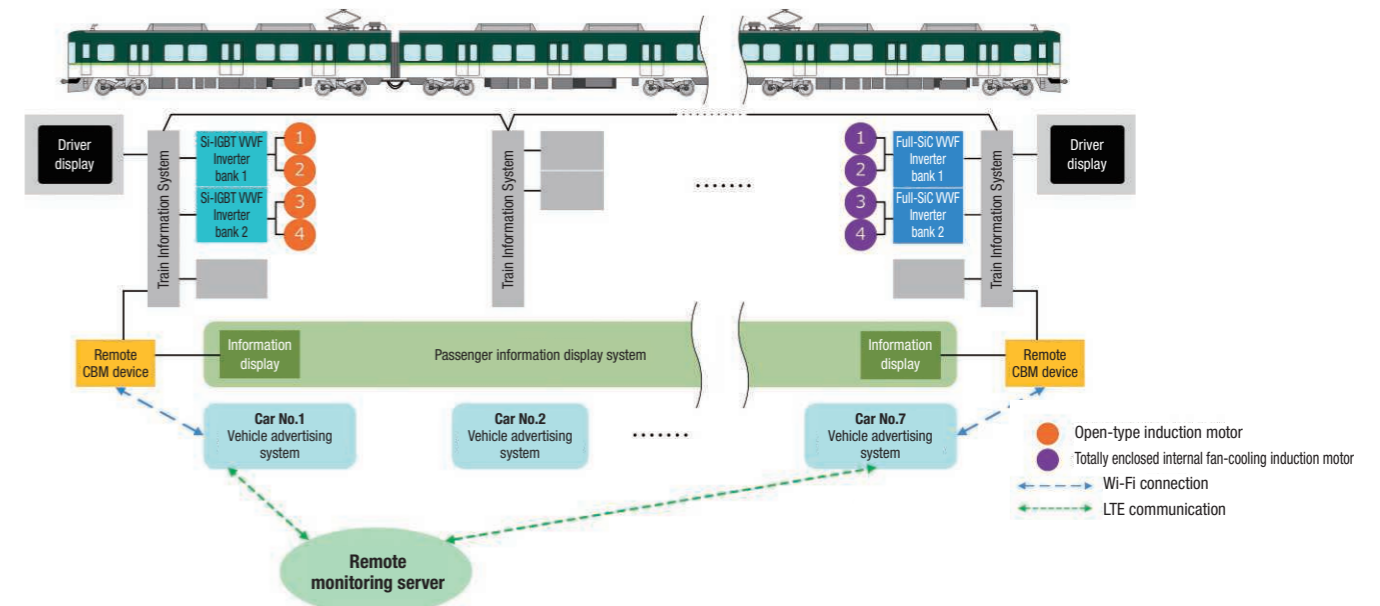
Propulsion controller (VVF inverters)



Keisei Electric 3200 Series (photo provided by Keisei Electric Railway Co., Ltd.)

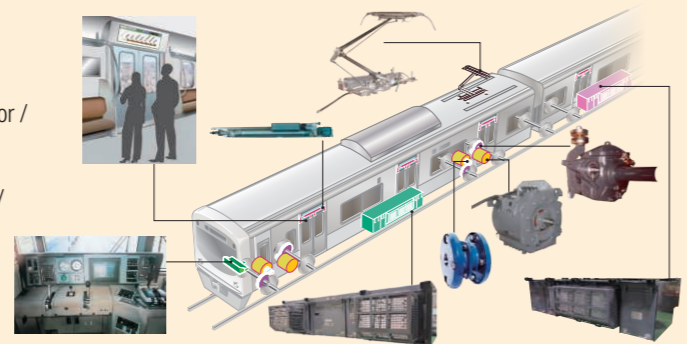
▶ Adoption of vehicle condition monitoring system in new technology development and verification of a wireless train information gathering system

TOYO DENKI SEIZO developed a wireless train information gathering system and then verified it on a train during service operations with cooperation of Keihan Electric Railway Co.,Ltd. TOYO DENKI SEIZO installed the system to a train refurbished to totally enclosed internal fan-cooled induction motors and full-SiC power modules in the propulsion system. Status data from the propulsion system were gathered by the wireless train information gathering system. TOYO DENKI SEIZO verified the data by comparing them with design data. TOYO DENKI SEIZO considers that this system is applicable to maintenance activities to find root causes of failures earlier.

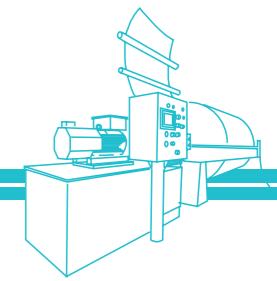


Main products

- Electrical equipment for railway vehicles
Propulsion controller / auxiliary power supplies / traction motor / driving gear units / current collector (pantograph) / train control and management systems / passenger information display systems / twin disk couplings / door operating equipment / high-speed circuit breakers, etc.
- Railway energy storage system
- Door operating equipment for buses



Industry Business



We deliver social and industrial infrastructure equipment that contributes to the realization of a sustainable society, utilizing advanced power electronics technology and superior manufacturing capabilities.



Chiaki Nakano
Executive Officer, General Manager of Industry Business Unit

Business environment and strategy

In the first half of fiscal year ended May 31, 2025, capital investment was robust, thanks to the normalization of domestic economic activity, but in the latter half of the year, unclear economic circumstances continued owing to the impact of U.S. tariffs, restrictions on the export of rare earth minerals by China, and other factors, resulting in delays and revisions to capital investment. Moreover, as the Chinese economy slowed, projects overseas stagnated and investment decisions were postponed, meaning we faced a difficult business environment.

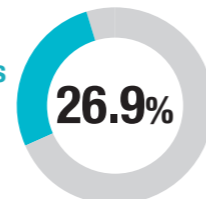
Even under these circumstances, in the Industry Business of the Company, we have been promoting the development of products that will contribute to solving social issues, centered on sustainability.

Specifically, we are enhancing our line-up of In-Tyre-House Dynamo® (ITHD®) products, developed in-house by the Company to address demand related to the electrification of automobiles. We have also developed and begun supplying the EDS and EDU series of permanent-magnet synchronous motors, which balance high efficiency with maintainability, to address demand for energy conservation and measures to address labor shortages at production sites in the manufacturing industry. We are also continuing existing initiatives, including augmenting emergency power generators, amid an increasing emphasis on being prepared for disasters and other emergencies.

In the Company's Industry Business, we aim to generate stable earnings and increase corporate value by enhancing existing businesses and creating new businesses, while contributing to the realization of a sustainable society, based on high value-added products and our manufacturing capabilities.

Results for FYE May 2025

Percentage of total consolidated net sales



Orders Received

10,986 million yen (down 9.1% year on year)



Net Sales

10,895 million yen (up 6.2% year on year)



Segment Income

1,425 million yen (up 38.2% year on year)



Main products

- **Automobile testing systems**
Various testing devices (durability, vibration, noise, etc.) for automobile components (engine, transmission, differential gear, etc.)
- **Vehicle testing systems (efficiency, advanced driver-assistance systems, etc.)**
- **Production and processing equipment drive systems**
For printing machinery / tire and rubber processing machinery / paper manufacturing machinery / films processing machinery, etc.

Power generation and power supply systems

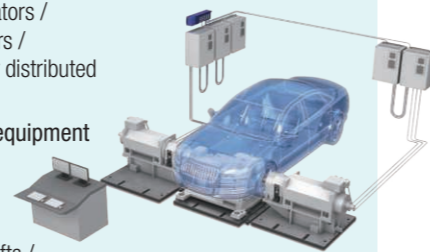
Emergency power generators / continuous-use generators / generating equipment for distributed power sources, etc.

Car-mounted electrical equipment

For automobile / construction machinery

Other

Electrical equipment for lifts / water supply and sewage equipment systems, etc.



Main actions

▶ Efforts related to vehicle testing system using In-Tyre-House Dynamo (ITHD)

As measures to address the electrification of automobiles accelerate, there is a need for more sophisticated and efficient vehicle evaluation tests, and testing systems using our proprietary ITHD are attracting attention. The structure of ITHD is such that it is affixed directly to the tire house of vehicles, meaning it can be connected directly to the hub and apply a load. As a result, a pit on the building side, which was required for existing chassis dynamometers, is no longer necessary, meaning space can be saved and installation costs can be reduced. The spinning part is not exposed, which also increases safety. Moreover, it is also suitable for transient driving conditions such as sudden acceleration and braking, and facilitates the creation of testing environments that are close to actual driving, such as the recreation of skids with vehicle models that leverage independent controls for the four wheels. In addition, as the increase in vehicle weight resulting from the installation of batteries increases the required driving power, we have also begun supplying products with a higher output of up to 160 kW in addition to the previous 94 kW. In the future, in addition to developing ITHD products for light cars and compact cars, we will also work with the Development Center to accelerate the development of testing systems for next-generation automobile, with a view to their application in advanced driver-assistance system (ADAS) tests.



ITHD (160kW)



ITHD (94kW)

▶ Development of permanent-magnet synchronous motors with enhanced energy conservation and maintainability

Frontline sites in the manufacturing industry face the pressing issue of addressing energy conservation and labor shortages, and must make facilities more efficient and reduce the burden of maintenance. To address these market needs, the Company developed the “EDS Series” and the “EDU Series” of permanent-magnet synchronous motors, which balance energy conservation and maintainability. The EDS Series are products that substantially enhance maintainability at frontline sites, while keep high levels of efficiency on par with existing EDM. The EDU Series achieves ultra-high efficiency that outperforms IE5 (Ultra Premium Efficiency), the highest global standard for efficiency, while also strengthening maintainability to make it on par with EDS. Both series are equipped with split fan covers and waste-grease scraping mechanisms as standard, making cleaning and replacement operations simpler and reducing maintenance workload. This enables us to contribute to lower running costs and the reduction of greenhouse gas emissions, achieving a balance between economic value and a lower environmental impact.

Notable features of the EDS/EDU Series

Our previous products

Grease supply opening
Waste grease collection tray (installed inside fan cover)
Waste grease opening
[Fan cover side]
[Fan cover rear]

EDS/EDU Series

Grease supply opening
Bell-shaped hole
Waste grease opening
[Fan cover side]
[Fan cover rear]

Enhanced maintainability

Smallest possible maintenance space

Photograph of EDS

See here for details of the EDS/EDU Series

ICT Solution Business



We provide railway station operating equipment systems and IoT solutions that combine ICT and mechatronics to boost operational efficiency and convenience.



Katsuya Nakashima
General Manager of ICT Solution Business Unit

Business environment and strategy

We address changes in users' needs and the challenges of business operators with railway station operating equipment systems and IoT solutions.

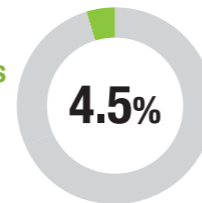
In railway station operating equipment systems, payment by public transport smart cards, as well as contactless payment by credit card, and QR Code payment are being introduced in response to changes in user needs, and such systems must also be available in multiple languages for users overseas and tourists, and linked to smartphone apps. To eliminate labor shortages, a challenge for business operators, mechanisms that make it possible to operate in ways that save labor are also required. We are actively focusing on the creation of systems to address these needs, and we will make proposals that balance higher convenience for users with better operating efficiency for business operators.

In IoT solutions, increased operational efficiency and sophistication of services through the introduction of IoT are needed, especially in logistics, manufacturing and government offices. This is the result of the increasing shortage of labor due to a shortfall in the working population and stricter labor regulations. We leverage cloud services and systems utilizing IoT terminals and mobile communication to develop solutions that enable customers to monitor and control vehicles and remote equipment so that they can improve operational efficiency, optimize maintenance, and carry out preventive and condition-based maintenance.

We will expand our business range as we strive to provide our customers with solutions that help to add value.

Results for FYE May 2025

Percentage of total consolidated net sales



Orders Received

1,581 million yen (up 29.8% year on year)



Net Sales

1,817 million yen (up 59.5% year on year)



Segment Income

543 million yen (up 72.6% year on year)

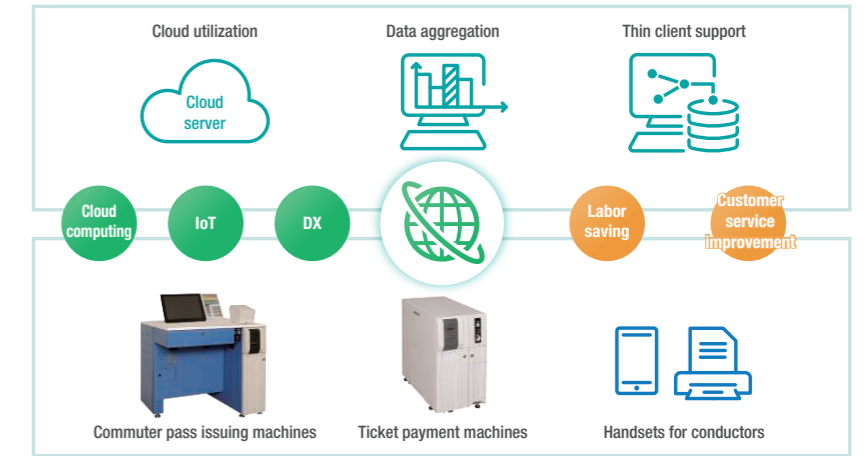


Main actions

Railway station operating equipment systems

Based on our deep insights, reliable technologies, and extensive experience accumulated in the rail transport sector, we use advanced ICT to provide railway station operating equipment systems that improve convenience for users and reduce the workload of business operators.

We utilize the cloud and IoT technology to support the creation of a DX platform for business operators with integrated measures that address everything from equipment at each station to upstream systems and smartphone apps.



In-train ticket issuing system using cashless payment terminals

We use an in-train ticket issuing app on portable general-purpose cashless payment terminals with a built-in printer function. We have also developed a sales data aggregation system that uses a cloud server, and it is used by multiple business operators.

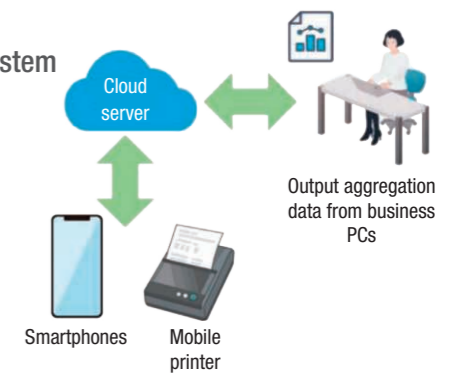
We succeeded in substantially reducing costs compared with developing specialist devices by using general-purpose terminals. We are contributing to the promotion of a cashless society by providing systems that can be introduced in a short period of time, with limited initial investment.

We will develop business processing applications tailored to customer needs so that the terminals can also be used for purposes other than in-train ticket issuing.

RIDE LEAF® smartphone-compatible, general-purpose ticket issuing system

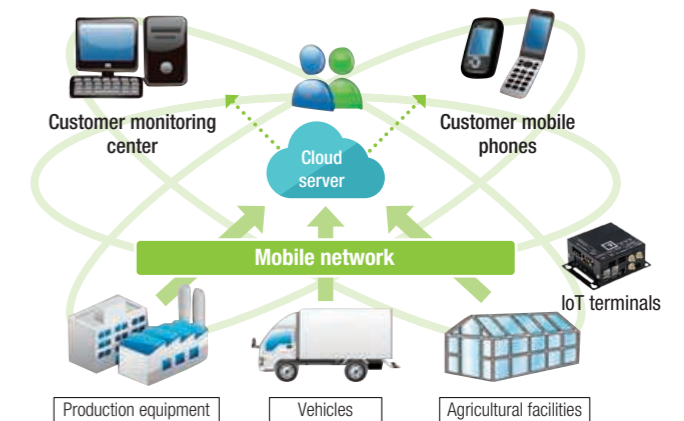
This consists of a business application for smartphones, a mobile printer and a cloud server-based system, and enables issuing and aggregation of tickets, etc. with simple operations. This product is easy to install at low cost, thanks to being limited to general-purpose hardware and simple ticketing and aggregation functions.

This system makes simple ticketing possible, and it helps save labor in issuance and aggregation work for crews and staff, facilitate work, and enhance services for users.



IoT solution

We offer diverse services with systems that combine IoT terminals, mobile networks, and cloud servers. In doing so, we provide solutions that enable customers to monitor and control vehicles and remote equipment, supporting improvements to operational efficiency, maintenance optimization, and preventive and condition-based maintenance.



Main products

- Railway station operating equipment systems
Commuter pass issuing machine / ticket payment machine / handsets for conductors / compact ticket issuing machines / judgment engines for automatic fare gate, etc.
- IoT solution (cloud-based remote monitoring and control systems)



Development Center

We will strive to explore and come up with new business ideas as we aim to expand our business range, and promote the development of new products that will lead the market.

We will leverage the Company's core "power electronics" technology to develop high-performance products compatible with superior motor drive systems and other systems, and combine them with AI and DX technology. In this way, we will create new and unprecedented value, and provide next-generation solutions.

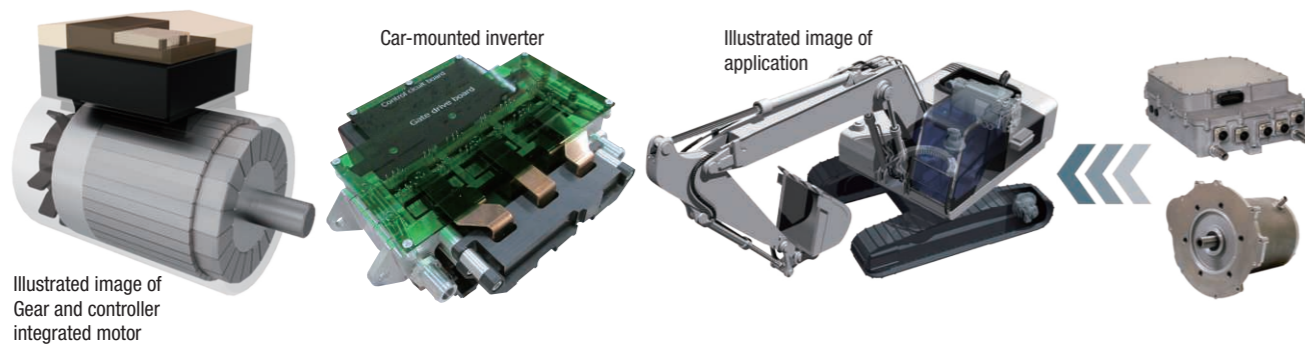
Takuya Hatakeyama

Executive Officer, Center Manager of Development Center



▶ On-demand (order-made/original) motors/inverters

We are accelerating on-demand motor/inverter development, based on our power electronics technology. We create highly efficient, energy-saving designs in line with customer specifications, and address various needs, including the mobility market and industrial machinery embedded solutions.



▶ Development of people flow and behavior analysis utilizing AI

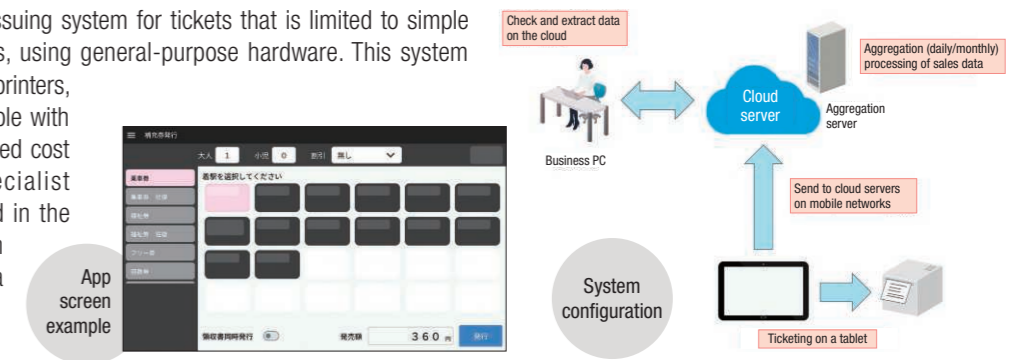
We used AI to develop systems that detect unauthorized passage through automatic ticket gates in real time. Detection results are aggregated in the cloud and can be displayed separately for normal passage and unauthorized passage. Amid the progression of the shift to unmanned stations, we support understanding of the actual status of unauthorized passage and measures to prevent it. At present, we are conducting demonstration trials at actual stations with the cooperation of business operators.



Ticket gate unauthorized passage detection system

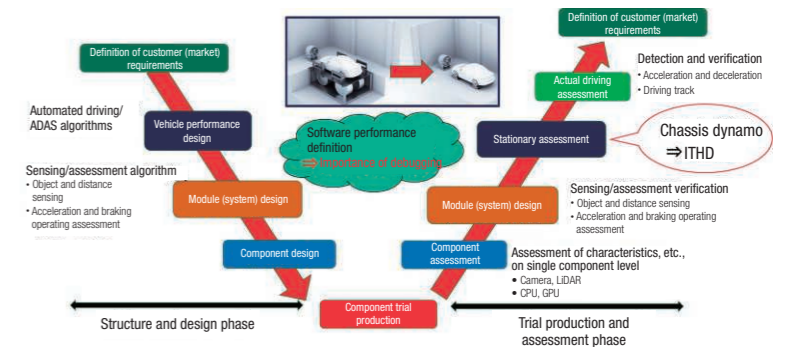
▶ Development of general-purpose issuing system for tickets compatible with business applications for tablets

We developed a general-purpose issuing system for tickets that is limited to simple ticketing and aggregation functions, using general-purpose hardware. This system consists of Android tablets, desktop printers, and the cloud, and is also compatible with code-based payment. We have solved cost challenges in our existing specialist development, and have succeeded in the introduction and cashless operation of ticketing functions for a reasonable cost.



▶ Development of vehicle testing devices that leverage an In-Tyre-House Dynamo® (ITHD®) adapted to advanced driver-assistance systems (ADAS)

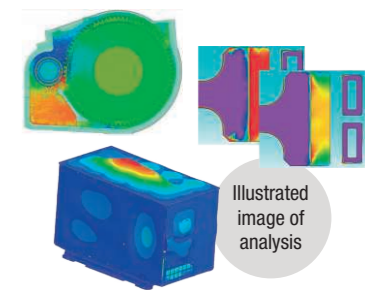
Validation of cognition, judgment and operation is required in the development of ADAS. We are working on the development by fusing physical (actual vehicles) and virtual (tires and road surface) with a newly developed high-torque, high-output In-Tyre-House Dynamo (ITHD), with the aim of realizing ADAS testing that does not involve on-road driving. In each type of testing scenario (avoidance of obstacles, full acceleration, full braking, etc.), we have confirmed that we can test road conditions and vehicle body behavior, and provide sufficient vehicle testing on two-ton class vehicles.



▶ Support for product development making full use of analytical technology

The Center supports each division across the entire company, function as a "company-wide technical support division" that inherits substantial company-wide basic fundamental technologies and analysis and survey technologies that have been cultivated.

We conduct preliminary studies, evaluations, and validations for development, design, and manufacturing through structural analysis and heat, fluid, and electromagnetic field analysis using the finite element method (FEM) and other computer-based methods.



Intellectual Property

Our intellectual property is placed as a key corporate resource. Our intellectual property department is responsible for the management of intellectual property and the development divisions in each business unit and the Development Center actively apply for patents and utility models.

In overseas markets where we aim to further expand our business in the future, we will make efforts to protect our technologies and brands.

Patent applications granted

