

Materials Handling Equipment

As a market leader with an extensive knowledge of global logistics needs, Toyota Industries provides a range of materials handling equipment, mainly lift trucks, and logistics solutions to customers.



Medium-Term Direction of Business

We will work to develop and propose new products and services incorporating cutting-edge technologies through the proactive use of open innovation and co-creation with customers.

Our goal is to become the logistics solutions partner of the first choice for customers by meeting their wide-ranging needs and helping them increase their logistics efficiencies based on the Toyota Industries Group's comprehensive strengths covering both the lift trucks and logistics solutions fields. At the same time, we aim to resolve social issues and realize a sustainable society through logistics.

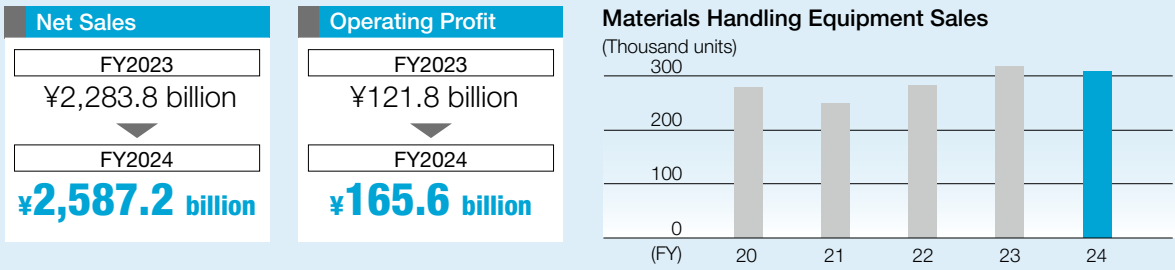
Business Characteristics

Strengths	
<ul style="list-style-type: none">• An extensive logistics-related product lineup both for lift trucks (internal-combustion type, electric type, fuel cell (FC) type, etc.) and logistics solutions products (automated storage and retrieval systems, automatic guided vehicle (AGV) systems, automated lift trucks, etc.)• High technological capabilities, including those linked to environmental and safety performance• Production know-how that ensures high levels of quality and production efficiency• Global, well-developed production, sales and service networks	<ul style="list-style-type: none">• An extensive value chain encompassing in-house development and production of engines, motors and other key components; total after-sales services including maintenance and inspections as well as operational management; and sales financing operations offering more options in sales• No. 1^{*1} in lift truck unit sales in the world• A wealth of experience and know-how as well as a global network in the Logistics Solutions Business• Software development capability to create such systems as a warehouse management system

*1: Survey by Toyota Industries Corporation

Opportunities
<ul style="list-style-type: none">• An expansion of global logistics volume in line with an increase in the world population and economic growth• Growing need for products with energy-saving features and low environmental impact that contribute to carbon neutrality• Growing needs for higher logistics efficiencies, automation and labor saving prompted mainly by soaring labor costs and labor shortages• Increased recognition that logistics is an essential business

Risks	
<ul style="list-style-type: none">• Restrained capital investment due mainly to a slowing economy and disasters• Weaker sales due to intensifying competition• Change in business environment triggered by an expanding market of low- to mid-priced lift trucks	<ul style="list-style-type: none">• Suspension of production caused by supply chain disruptions• Weaker demand for internal-combustion lift trucks resulting from more stringent environmental regulations• Emergence of next-generation robotics products as an alternative to lift trucks



Business Overview in Fiscal 2024

Although the demand surge that continued up to the previous fiscal year slowed down, sales in the lift truck market in 2023 remained strong at around 2 million units. However, unit sales of our lift trucks in fiscal 2024 dropped 9,000 units, or 3%, to 308,000 units year on year due to the incident of our legal violations in engine certification in Japan. After-sales services and sales of parts, on the other hand, were favorable. In the Logistics Solutions Business, orders increased following the resumption of investment in warehouse logistics and on the back of steady airport-related investment. Capitalizing on this development, we have sought to further strengthen our business through collaboration with our subsidiaries engaging in logistics solutions operations in Europe and the United States. As a result, net sales in fiscal 2024 increased ¥303.4 billion, or 13%, from the previous fiscal year to ¥2,587.2 billion.

Business Structure

Toyota Industries' Materials Handling Equipment Business is operated under a two-organization structure: Toyota Material Handling Group (TMHG) responsible for the Lift Truck Business and Toyota Automated Logistics Group (TALG) engaging in the Logistics Solutions Business. TMHG and TALG collaborate to achieve overall growth of the Materials Handling Equipment Business while reinforcing individual businesses.

Toyota Material Handling Group (TMHG)

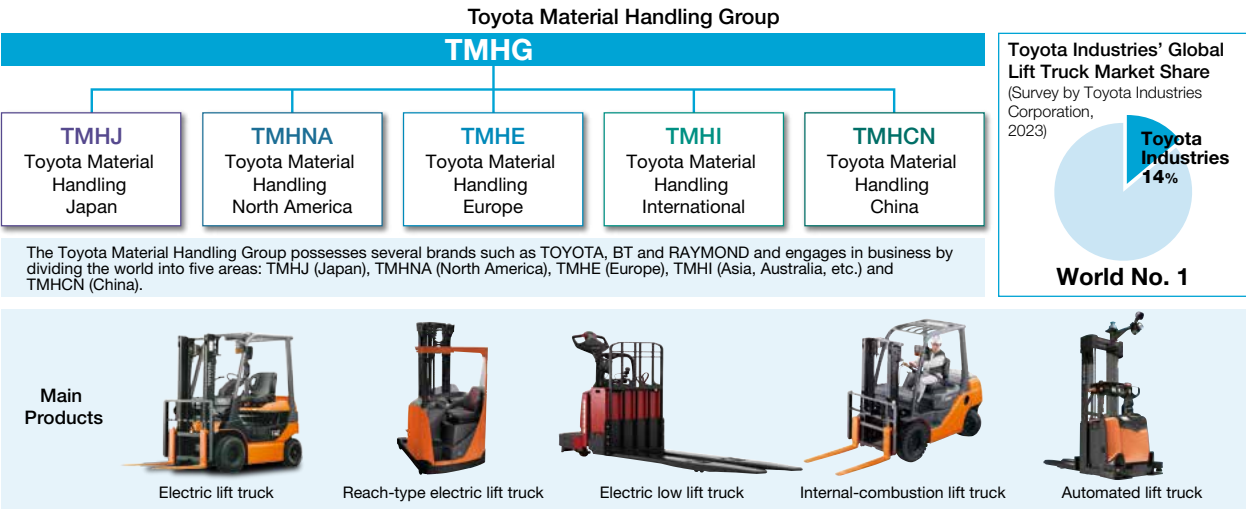
As a market leader in the materials handling equipment and logistics fields, Toyota Industries' comprehensive strengths lie in its ability to respond to specific and ever-changing needs of customers on a global scale. We assist customers worldwide in attaining greater logistics efficiencies by delivering optimal solutions to each logistics site. Under the TMHG management structure, we engage in the Lift Truck Business under the TOYOTA, BT, RAYMOND, CESAB and Tailift brands. Mutually utilizing the development and sales strengths of each brand, TMHG is promoting business globally.

We primarily carry out product development in three regions, namely Japan, North America and Europe. Based on this structure, we develop and manufacture products in each region, which are matched to the specific local needs and characteristics, and ensure quick product delivery to customers. At the same time, we seek greater product appeal by conducting in-house development and production of such key components as engines and motors, which greatly influence the performance of lift trucks.

On the sales front, we are offering products and logistics improvement solutions optimally matched to individual customers' logistics sites. Simultaneously, we are responding to needs for fleet management that optimizes the operation of multiple lift trucks for customers conducting business globally. In terms of services, we have established a structure to provide swifter and more efficient after-sales services by centrally and digitally managing information on lift trucks owned by customers and their history of repairs while assigning experienced and highly skilled personnel and utilizing leading-edge information

technology (IT). As another effort, we are putting in place a structure to offer extensive after-sales services by establishing a system to certify dealers' after-sales service facilities and offering programs to train service staff so that customers can use our products with an increased sense of reassurance. We are also strengthening our internal sales financing operations mainly in Europe, the United States and other developed countries in order to flexibly respond to customers' diverse needs for fund procurement. Additionally, TMHG is collaborating with TALG to create synergies between the lift trucks and logistics solutions fields in development and other domains.

While continuously offering products that will contribute to the safety of customers' logistics sites, we are improving the energy-saving performance and enhancing our electric lift truck lineup. We are also promoting the development of autonomous driving technology as a response to growing needs for greater logistics efficiencies mainly driven by labor shortages. In addition to supplying high-quality products, we consider our strength to be able to support customers throughout our entire value chain, which encompasses everything from providing after-sales services through our extensive networks to offering sales financing operations. Going ahead, we will work to expand business through the development and sales of lift trucks boasting excellent environmental performance and autonomous driving technology. At the same time, we will work to contribute to the development of a sustainable society that enables the enrichment of lives by reusing batteries and making efforts in other aspects.



Toyota Automated Logistics Group (TALG)

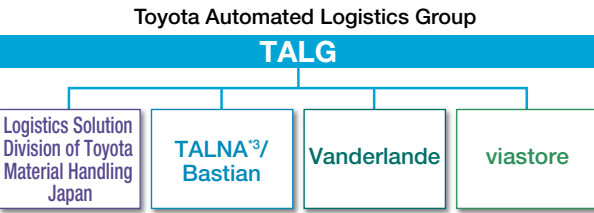
The need to respond to labor environment issues caused by chronic labor shortages and to reduce costs has, in turn, necessitated greater logistics efficiencies and solutions for more advanced logistics issues. Amid this environment, we go a step beyond just providing a broad range of materials handling equipment and associated software programs and are reinforcing our Logistics Solutions Business to more meticulously satisfy each customer's varying needs by leveraging our logistics improvement know-how accumulated to date.

We are also working to centrally manage the know-how gained from solutions we have provided in the past. For repeat orders, we offer efficient and optimum solutions by leveraging our accumulated know-how according to the needs of the customers.

Under the TALG management structure, the Logistics Solution Division of Toyota Material Handling Japan, U.S.-based Bastian Solutions LLC, Netherlands-based Vanderlande Industries Holding B.V. and Germany-based viastore^{*2} are collaborating in development, sales and other

activities to expand business while leveraging their individual strengths.

Looking ahead, we will endeavor to increase customer value by offering optimum solutions for customers' increasingly sophisticated and diversifying needs through collaboration within the Toyota Industries Group.



^{*2}: Logistics system integrator in Germany, viastore is a collective name for four companies: viastore SYSTEMS GmbH, viastore SOFTWARE GmbH, viastore International GmbH and Buck Engineering GmbH.

^{*3}: Toyota Automated Logistics North America (Holding Company of Bastian)



Business Activities in Fiscal 2024

As we have confirmed a regulatory violation related to Japan's emissions certification for lift truck engines, we have suspended the shipment of lift trucks equipped with these engines for the Japanese market since March 2023. As described in the Initiatives for Preventing Recurrence (P. 14–15), we have been steadily promoting measures to prevent the recurrence of the engine certification issue. Based on the concept of creating a mechanism for engaging in proper manufacturing with integrity, we are developing standardized and clearly defined development, certification and quality assurance processes while strengthening check and monitoring functions in the development and certification processes.

Although the demand surge that continued up to the previous fiscal year slowed down, unit sales of lift trucks in 2023 remained strong at around 2 million units. Amid this environment, we worked to enhance the product appeal of our mainstay lift trucks and expand sales. We also strove to offer reliable after-sales services, enhance responsiveness to large-order customers and provide solutions for logistics issues through the introduction of optimally packaged systems. In the field of lift trucks, we made efforts to increase our product lineup in each region and promoted the development of autonomous driving technology internally and with external organizations. We also worked to reinforce our IT-based services, enhance safety and augment our competitiveness in the environmental field mainly through electrification in order to ensure a more accurate response to the needs of individual customers.

In the logistics solutions field, we have been fostering cooperation in sales activities by mutually supplying equipment and systems while encouraging each TALG company to leverage its strengths to bolster business. We have also been accelerating coordinated activities such as promoting collaborative efforts by TMHG and TALG in the planning and development fields. As specific examples, we have been promoting cooperation mainly with T-Hive B.V., a company newly established in the Netherlands, in the development of a seamless control system encompassing all autonomous vehicles, as well as collaboration with viastore in small- to medium-scale projects in Europe.

Activities of TMHG

Japanese Market

In 2023, unit sales in the Japanese lift truck market fell below 80,000 units for the first time in seven years, declining 15% year on year to 73,000 units. The decline was caused by a drop in sales of internal-combustion lift trucks, which resulted from the suspension of the shipment of our lift trucks following our legal violations of engine certification. Unit sales of Toyota Industries' lift trucks decreased 27% from the previous fiscal year to 36,000 units, but maintained the top position^{*4} in fiscal 2024 for the 58th consecutive year.

The diversification of customer needs, heightened on the back of changes such as an expansion of the e-commerce market, labor shortages and growing safety consciousness, has further accelerated. As the leading manufacturer of materials handling equipment, Toyota Industries has been proactively promoting the development and release of new products that lead to resolving issues facing customers.

Amid the accelerated move in Japan toward achieving carbon neutrality, Toyota Industries released three models of electric lift trucks (geneB, Ecore and Rinova) from April to May 2023, which are equipped with a lithium-ion battery. In addition to lithium-ion batteries' customer-oriented benefits, such as quick charging and no need for battery refill liquid, superb truck-battery communication allows a visual check of the remaining battery level and any irregularities. The models are also equipped with safe and battery-friendly charging functions with better operability during charging.



In September 2023, we rolled out the updated High Pick Lift series of electric order pickers (0.7 to 1.5 tons) with even better safety and reliability functions. The lineup was also enhanced with the addition of a compact type with the ability to turn in a small space. Moreover, we have developed the MEGALORE stationary storage battery system, which reuses the ENELORE lithium-ion batteries for lift trucks. By reusing batteries reaching their replacement time as a stationary storage battery system, for which demand is on the rise, we are contributing to the establishment of a recycling system of lithium-ion batteries for lift trucks and wider use of storage batteries.



improvement of customer productivity. Raymond is also contributing to the further improvement of customer safety by releasing an electric low lift truck that offers improved energy efficiency and easier operability and launching a service to support driving in dangerous areas by linking the telematics function with the real-time location measurement system.



■ European Market

In 2023, the European lift truck market contracted due mainly to a weaker appetite for capital investment. Toyota Industries continued production at a high level to reduce the backlog of orders from the previous fiscal year and posted unit sales of 104,000 units in fiscal 2024, up 5% from the previous fiscal year.

In response to the accelerating trend toward carbon neutrality in Europe, Toyota Industries has been working to expand the lineup of products equipped with lithium-ion batteries and released a high-output counterbalanced lift truck, pallet truck with high energy efficiency and electric stacker to meet the needs of environmentally conscious customers.

In terms of environmental initiatives, electricity used at all

European bases has been completely switched to renewable energy by selecting the optimum method matched to each base's energy situation.



New pallet truck

■ ALOMA*5 and Chinese Markets

Toyota Industries covers the ALOMA markets of some 60 countries in Asia, Latin America, Oceania, the Middle East and Africa as well as the Chinese market. We are serving these markets with a lineup consisting of TOYOTA, BT, RAYMOND and Tailift brands.

The ALOMA market in 2023 fell from 2022, during which expansion continued on the rebound to the COVID-19 pandemic, and unit sales were down 20% year on year to 57,000 units. Unit sales in China also declined 11% year on year, affected by changes in the country's economic trends and new emissions regulations.

Under such circumstances, we are working to expand the introduction of lithium-ion batteries to meet the needs for electrified equipment whose demand is expected to increase. Additionally, we newly released in the ALOMA region our SEnS+ (Sense Plus) operator assist system that detects pedestrians and objects behind the lift truck to contribute to customers' safe operations.

In addition, jointly with dealers, Toyota Industries operates a program to promote sales activities with a focus on logistics improvement solutions and has been making proposals to visualize customers' logistics sites, improve their safety and reduce costs. Through the program, we have been strengthening our relationships of trust with customers and have successfully expanded our business domains.

In the field of after-sales services, we are working to establish a structure to provide swifter and more efficient

after-sales services by centrally and digitally managing information on lift trucks owned by customers and their history of repairs. We are putting in place a structure to offer extensive after-sales services by establishing a system to certify dealers' after-sales service facilities and offering programs to train service staff so that customers can use our products with an increased sense of reassurance.

As a total solutions partner capable of satisfying diverse logistics needs, we will make concerted efforts with dealers in each country to undertake various initiatives.



SEnS+

*5: ALOMA is a Toyota Industries term for Asia, Latin America, Oceania, the Middle East and Africa.

Activities of TALG

■ Logistics Solution Division of Toyota Material Handling Japan

In recent years, labor shortages and an increase in logistics volume following an expansion of the e-commerce market have resulted in a growing need for automated and more efficient operations in the logistics industry. To respond to such issues facing customers, we have enhanced our product lineup to cover every logistics system, from autonomous lift trucks and AGVs to the leading-edge systems for use in large-scale e-commerce distribution

centers, and have been receiving increasing orders for these products.

In Japan, the work style reform-related law that went into effect in 2024 has aggravated the shortage of truck drivers. At relay centers mandated to be set up in accordance with the law, there is an urgent need for better efficiency and labor savings in truck loading and unloading operations. Automation of truck loading and unloading operations using lift trucks has lagged even at cutting-edge distribution centers. To counter these issues, we developed an

autonomous lift truck capable of conducting these operations and carried out a feasibility test in 2023. We have also been promoting the development of autonomous models for in-plant and airport towing tractors to lead the automation of materials handling equipment.

As for e-commerce distribution centers where a higher level of automation is required, we have many large-scale projects and have introduced Vanderlande's latest system for the first time in Japan.

■ Bastian

Bastian, mainly operating in the North American market, has been responding to the logistics automation needs of customers in a broad range of fields, including the retail, e-commerce and manufacturing sectors. The business environment was difficult in fiscal 2024, as a heightened sense of uncertainty about the future has caused some customers to take a cautious stance toward capital investment. Against this backdrop, Bastian has been enhancing the lineup of its own products and moving ahead with the in-house development and production of key products to help customers solve issues more quickly and flexibly.

Bastian exhibited its new automated lift truck and autonomous mobile robot, both developed in-house, at a large-scale logistics trade show held in the summer of 2023 in the United States and started their sales afterward. In fall

2023, the company constructed a conveyor manufacturing facility in India to set up a structure to stably and more quickly supply quality products at lower prices to customers outside the United States. It also increased the number of software engineers in India, who will engage in operations related to the United States, to reduce costs by increasing the operational efficiency of the entire company.



Bastian's automated lift truck

■ Vanderlande

Vanderlande, offering logistics solutions globally, has been engaging in business targeting the warehouse logistics, parcel/postal service and airport industries. In seeking to partner with customers, it provides comprehensive services, from consulting and solution development to after-sales services.

Even though economic uncertainty made some customers more cautious about making capital investments, there was a sign of modest recovery in the warehouse logistics and parcel/postal service sectors. The company has been successfully expanding its business domains through collaboration within the Toyota Industries Group as the Logistics Solution Division of TMHJ and Bastian have received orders for large-scale projects using Vanderlande's systems in the Japanese and North American markets.

In the airport business, demand has been showing a steady recovery as people resumed activities in the post-

COVID-19 period, and Vanderlande received multiple large-scale orders. Leveraging digital technology, the company provides solutions to monitor systems to detect and make a pre-emptive response to an irregularity, thus responding to customer needs to counter chronic labor shortages and reduce costs.



Vanderlande's security screening system

■ viastore

viastore mainly engages in the in-house development of software for controlling and managing various materials handling equipment and small- to medium-sized automated storage and retrieval systems. It provides its products to a wide range of sectors from retail to manufacturing, logistics and food, primarily in Europe. In particular, it has strengths in automation that links multiple processes, such as storage and transportation, with optimal materials handling

equipment and software, garnering high acclaim in the market.

The company also combines software programs of Toyota Industries Group companies to propose solutions matched to customer needs. It has received multiple small- to medium-scale orders in Europe through collaboration with Toyota Material Handling Europe (TMHE) and has been making concrete accomplishments in North America by actively working with Bastian.

Automobile

Link to product details



In the fields ranging from vehicles to engines, car air-conditioning compressors and electronic devices, Toyota Industries continues to meet the expectations and trust of its customers.

Business Characteristics

Strengths

- An agile structure to undertake all aspects from planning and development to production within a plant (Vehicle)
- Highest-level production efficiency and quality among all Toyota-affiliated automobile body manufacturers (Vehicle)
- Know-how on the development and production of diesel engines and turbochargers (Engine)
- Highly efficient production of high-quality gasoline engines, including those for use in hybrid electric vehicles (HEVs) (Engine)
- Excellent product development capability centered around fuel efficiency and car electrification (Car air-conditioning compressor)
- Global top-share^{*1} products for use in a full range of vehicles, from internal-combustion vehicles to HEVs, plug-in hybrid electric vehicles (PHEVs), battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs) (Car air-conditioning compressor)

- *Monozukuri* (manufacturing) using equipment created in-house to produce high-quality products and flexibly accommodate changes in production volume (Car air-conditioning compressor)
- Technical expertise in electronics accumulated through handling projects for Toyota Motor Corporation (TMC), external sales and in-house projects (Electronics)
- Development and production of electronic components and devices for electrified vehicles, with top-level quality (Electronics)
- Material synthesis technology, simulation technology for examining materials and structures and analysis technology (Battery)

^{*1}: Survey by Toyota Industries Corporation

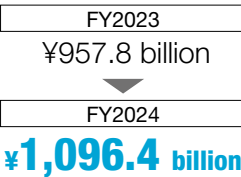
Opportunities

- Increasing needs for fuel-efficient products due to stricter environmental regulations and growing environmental consciousness
- Sales expansion in each sector in line with growth of the automobile market

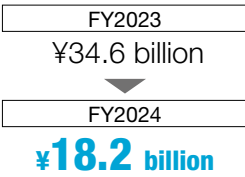
Risks

- Shrinking of the automobile market caused by economic slowdown
- Customers becoming less willing to buy fuel-efficient products following less stringent environmental regulations
- A drop in product competitiveness due to the yen's appreciation or inflation
- Suspension of production caused by supply chain disruptions

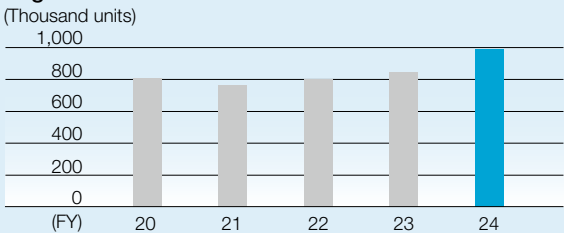
Net Sales



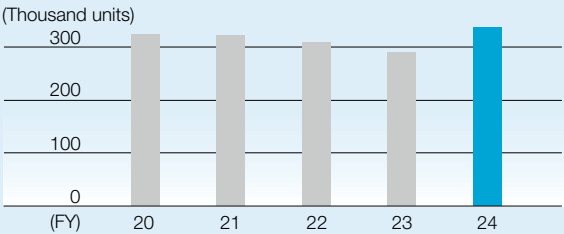
Operating Profit



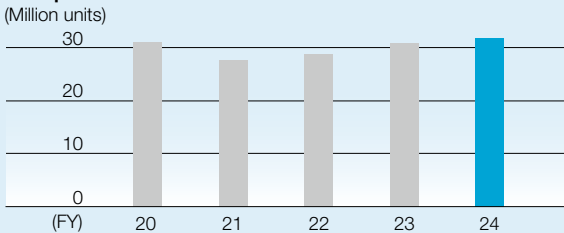
Engine Sales



Vehicle Sales



Compressor Sales



Vehicle

Medium-Term Direction of Business

We will contribute to TMC as a development and production base of compact sports utility vehicles (SUVs) by leveraging our comprehensive strengths derived from the highest level of safety, environment, quality, cost and delivery (SEQCD) among all Toyota-affiliated automobile body manufacturers and through greater collaboration within the Toyota Industries Group.

Business Overview in Fiscal 2024

In fiscal 2024, sales of the RAV4 decreased in Japan, but thanks to an increase in the overseas market, unit sales increased by 47,000 units, or 16%, to 337,000 units. Net sales increased by ¥17.7 billion, or 21% year on year, to ¥100.8 billion.

Constructing a New Vehicle Parts Distribution Center on the Land Adjacent to the Nagakusa Plant

Toyota Industries has constructed a new distribution center on the land adjacent to the Nagakusa Plant, which manufactures the RAV4, and will start its operation in fiscal 2025. By relocating the existing, distant vehicle parts distribution base^{*1} to the adjacent land, we will eliminate inter-site truck transportation to increase the efficiency of parts delivery and reduce their CO₂ emissions. Traffic on the surrounding roads is also expected to decrease, as the distribution center is connected to the Nagakusa Plant by a bridge. The center combines our comprehensive strengths, including the technologies of TMHJ, which offers logistics solutions globally,

the Toyota Production System (TPS) and the Nagakusa Plant's improvement capabilities, thus realizing highly efficient logistics. The center will also use solar energy for its electricity to reduce its environmental footprint.



^{*1}: Currently, parts are temporarily stored in a distribution base in Handa City, Aichi Prefecture, and transported to the Nagakusa Plant by dedicated trucks.

Newly constructed distribution center

Displaying Two RAV4 Models at Tokyo Auto Salon 2024

Under the mantra "Make even better SUVs" to see a smile of joy from our customers, we are working with TMC to make the RAV4 a more attractive SUV. At the Tokyo Auto Salon 2024, we once again displayed two models of the RAV4. One is a customized model presenting the "OffPake+ (Offroad Package Plus)," a service to tailor the vehicle's external parts according to customers' preferences. The other is the DIRT RUNNER CONCEPT, a new concept model based on the RAV4 PHEV with a strong driving appeal. Both captivated visitors with

attractive presentations of how the possibility of the RAV4 can be expanded. To ensure customers' smiles of joy with our RAV4, we will continue to plan various campaigns with their point of view in mind.



DIRT RUNNER CONCEPT (left) and model showcasing the "OffPake+" service (right)

Karakuri Workshop to Increase Improvement Capabilities of Production Sites for Greater Monozukuri Competitiveness

In 2022, Toyota Industries' Vehicle Division set up the *Karakuri* Workshop to nurture human resources capable of solving difficulties facing production sites. So far, it has educated more than 100 persons a year. It provides experience-based education using actual, non-powered demonstration machines that utilize the principle of leverage, pulleys and the like to increase the improvement capabilities of production sites and ultimately achieve greater *monozukuri* competitiveness. These day-to-day improvement efforts have yielded a result. At the Karakuri KAIZEN^{*2} Exhibition 2023 hosted by the Japan Institute of Plant Maintenance, our system to smoothly return

empty boxes (a project of the Assembly Section of the Manufacturing Department, Vehicle Division) received an Excellent Karakuri Kaizen Award from among 351 projects from 86 companies.



Award recipients

^{*2}: Achieving *kaizen* (improvement) at low cost by *karakuri* (Japan's traditional, non-powered mechanical systems that utilize gravity, the principle of leverage, etc.)

Engine

As described in the Initiatives for Preventing Recurrence (P. 14–15), we have been steadily promoting measures to prevent the recurrence of the engine certification issue. Based on the concept of creating a mechanism for engaging in proper manufacturing with integrity, we are developing standardized and clearly defined development, certification and quality assurance processes while strengthening check and monitoring functions in the development and certification processes.

Business Overview in Fiscal 2024

Unit sales in fiscal 2024 totaled 987,000 units, an increase of 140,000 units, or 17%, from the previous fiscal year due mainly to a growth in sales of gasoline engines. As a result, net sales increased by ¥8.4 billion, or 3% year on year, to ¥330.8 billion.

Engines for Automobiles

■ Diesel Engines

Even amid the accelerated progress in vehicle electrification, there is diverse and strong demand, mainly in emerging countries, for diesel engines, which boast high durability and superb running performance, as a power unit suited for SUVs and such commercial vehicles as pickup trucks.

Compliant with fuel efficiency and emissions regulations in various regions and countries, the in-line 4-cylinder GD diesel engine, which constitutes one of our mainstay engines, has been introduced in more than 150 countries around the world, mainly in Asia and Latin America, and fitted in nine

vehicle models, including TMC's Innovative International Multipurpose Vehicle (IMV) series targeting emerging countries and the HiAce.

The V-type 6-cylinder F33A diesel engine, another mainstay product of ours, is fitted in the Land Cruiser "300." Adoption of the twin turbo developed in-house contributes to an exhilarating sense of acceleration. It also realizes high levels of environmental performance and quiet operation while allowing the vehicle to maintain the output and rough-surface running performance required of the Land Cruiser.

■ Gasoline Engines

The gasoline engines that we produce under consignment from TMC, namely the 2.5-liter A25A and 2.0-liter M20A, are mainly fitted in the RAV4 and HARRIER, which are achieving robust sales. Developed based on the Toyota New Global Architecture (TNGA)*1 concept, these engines offer both excellent driving performance and environmental performance. Responding to the advancement of car electrification, we have also added an HEV version of the

A25A engine to our lineup.

In response to the growing demand in the Indian market for engines for use in HEVs, Toyota Industries Engine India Pvt. Ltd. (TIEI), a consolidated subsidiary in India, commenced production of the 1.5-liter M15A and 2.0-liter M20A engines in August 2022.

*1: Development policy and method for vehicle creation based on a modular platform

Engines for Industrial Fields

Toyota Industries' engines for industrial fields are used for a wide variety of applications, including our lift trucks, and adopted by many manufacturers of GHPs*2, CHPs*3, generators and construction machinery.

*2: Short for gas heat pump; air conditioner driven by a gas engine
*3: Short for combined heat and power; co-generation system

Car Air-Conditioning Compressor

Medium-Term Direction of Business

In a future society in which significant advancement in car electrification and autonomous technology is expected, we aim to leverage our core compression technology and become an innovative component supplier. We will further enhance our capability to develop products that offer excellent fuel efficiency, quieter operation, compactness, light weight and easier vehicle mounting. In addition, with the aim of satisfying the needs of a broader variety of customers, we will utilize our accumulated technologies to expand our development domain into core components for drive systems.

Business Overview in Fiscal 2024

In fiscal 2024, unit sales of car air-conditioning compressors increased 912,000 units, or 3%, from the previous fiscal year to 31.849 million units due to higher sales mainly in North America and Europe. Net sales were up ¥36.4 billion, or 9% year on year, to ¥466.1 billion.

Environment Surrounding the Automobile Market

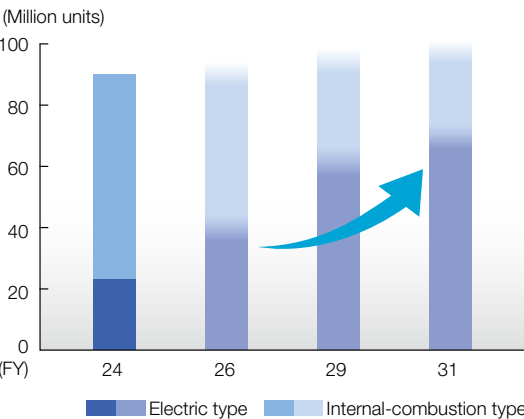
The car air-conditioning compressor market is recovering as the automobile production sites are no longer facing semiconductor supply constraints. In the mid-to-long term, the market is expected to continuously grow with the sales

of automobiles showing a modest increase globally. In particular, the expansion of automobile sales in China and the Asian region is becoming the trigger to drive the market.

Expansion of Electrified Vehicle Market

Demand for electrified vehicles has been growing globally. In step with this trend, demand for electric compressors is expected to exceed the demand for compressors for internal-combustion vehicles in fiscal 2029. Anticipating progress in electrification, we are enhancing our electric compressor lineup and strengthening our production structure globally to increase sales to customers around the world.

Demand Forecast by Compressor Type*1



Expansion from Air Conditioner Parts to Core Components of Electrified Vehicles Driven by Diversifying Needs

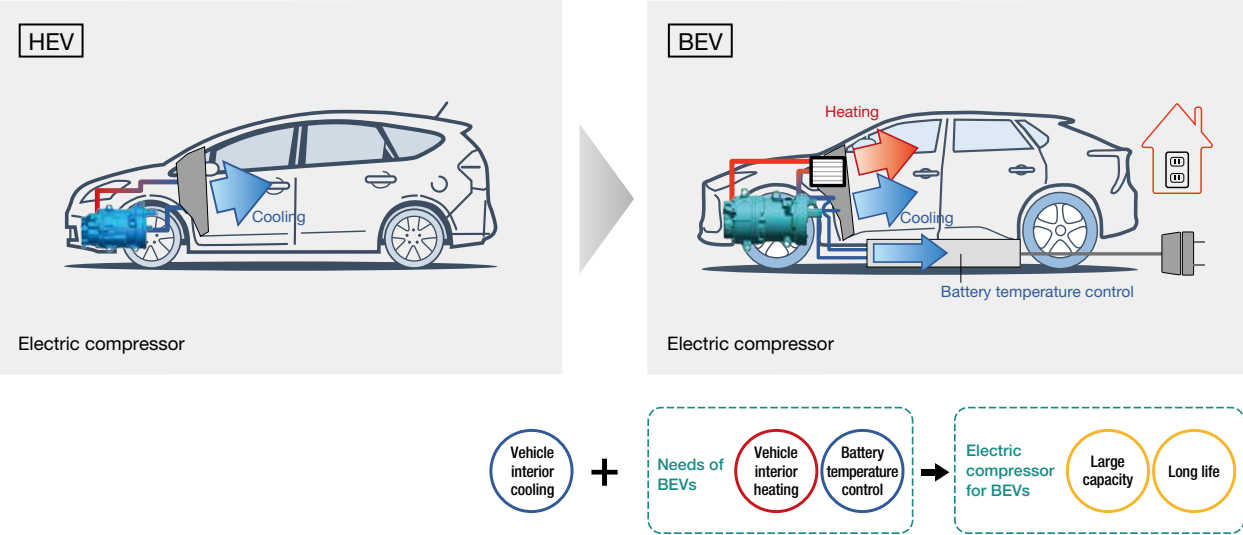
With the growth in electrified vehicles, there have been new challenges for BEVs as vehicles, creating a need for electric compressors to diversify. In response, we are rolling out new products tailored to such new needs by utilizing our product development capabilities cultivated to date.

As electrified vehicles need to secure a heat source that substitutes for the exhaust heat of the engine when running a heater, it has become necessary to operate the compressor during the cooling and heating of the vehicle interior. With the addition of heat pump heating, which takes heat from the air, it is now required to extend compressors' uptime and range

of use. As such, we are working to improve the reliability of electric compressors and achieve higher efficiency to reduce the impact on vehicle driving range.

To prevent battery performance deterioration and shortened life during high-power operation and quick charging of vehicles, compressors also need to provide a function for cooling the battery in addition to heat-pump air-conditioning. We have developed and released large-capacity electric compressors as a core component of electrified vehicles, thereby satisfying the varying needs of electrified vehicles with our extensive product lineup.

Notional image



Establishing Stronger Global Production and Supply Structures

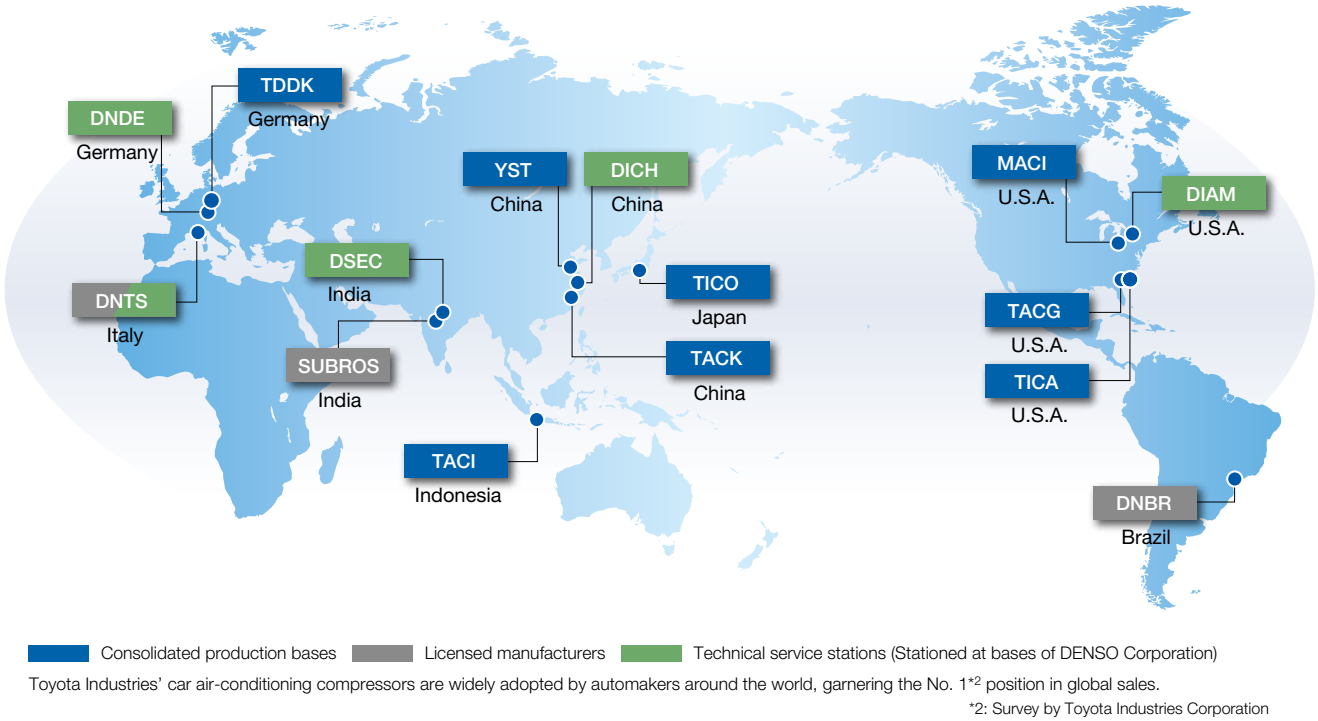
With the trend toward more stringent fuel efficiency regulations and car electrification, the car air-conditioning compressor market is expected to witness fluctuations in demand for compressors both for internal-combustion vehicles and electrified vehicles. In response, we are building a production structure less vulnerable to changes in production volume through such measures as automating our plants to reduce manpower, designing mixed lines that enable the production of a wide variety of products and creating a framework to increase production capacities in the coming phases.

Meanwhile, following the rapidly increasing popularity of electrified vehicles, we initiated local production in China

at TD Automotive Compressor Kunshan Co., Ltd. (TACK) in March 2020 and at Yantai Shougang TD Automotive Compressor Co., Ltd. (YST) in June 2021.

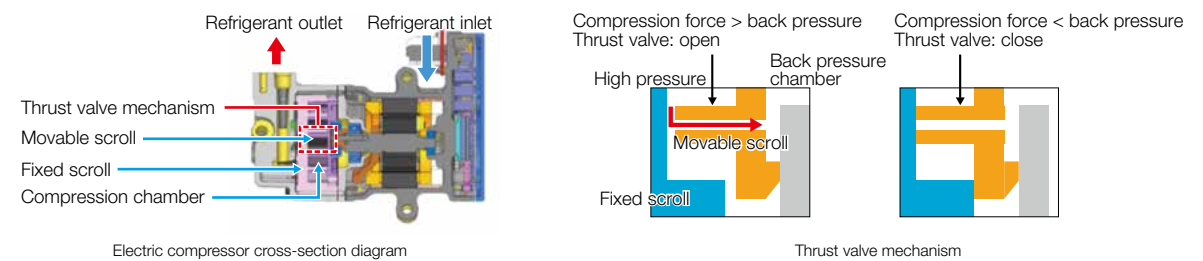
Moreover, local production of electric compressors is also planned in Europe and North America, where sales of electrified vehicles are expected to increase in the future. In 2025, we will launch production at TD Deutsche Klimakompressor GmbH (TDDK) in Europe and Michigan Automotive Compressor, Inc. (MACI) in North America. Our global production capacity will then increase to a level reaching 12 million units and respond to demands from customers across the world.

Worldwide Bases of Car Air-Conditioning Compressors (As of March 31, 2024)



TOPIC Winning the Grand Prize in Aichi Prefecture Commendation for Invention at the Aichi Invention Award and an Invention Prize in the National Commendation for Invention 2023

The back pressure adjustment mechanism adopted in our electric compressors has won the Grand Prize in Aichi Prefecture Commendation for Invention at the Aichi Invention Award and an Invention Prize in the National Commendation for Invention 2023. Our electric compressors are a scroll type because this type excels in quietness of operation, size and efficiency. In this compressor structure, however, compression force causes a movable scroll to move away from a fixed scroll, necessitating the application of back pressure from behind the movable scroll to achieve efficient compression. Our invention adopts a thrust valve that utilizes the axial migration of the movable scroll itself to introduce back pressure directly from the compression chamber into the back pressure chamber and constantly apply optimum pressure to the movable scroll against the fixed scroll. The two awards have highly recognized the ability of the mechanism to achieve greater efficiency and save electricity as well as its high adoption rate in electric compressors. Toyota Industries will continue to contribute to the realization of a recycling-based society through the development of electric compressors.



Electronic Devices and Other Products

Medium-Term Direction of Business

While the boom in BEV sales over the past few years has somewhat leveled off, the global momentum toward a decarbonized society continues to grow. Consequently, sales of various electrified vehicles, including HEVs, PHEVs, BEVs and FCEVs, are expected to increase. The Electronics and Battery divisions will continue to leverage their cultivated technologies to develop new products and strive to contribute to car electrification and society across a broad range of fields.

Business Overview in Fiscal 2024

Higher sales of batteries and DC-DC converters resulted in an increase in net sales by ¥76.0 billion, or 62%, over the previous fiscal year, reaching ¥198.5 billion.

Electronics

Contributing to the World with Electrified Vehicles

Toyota Industries has developed and manufactured power electronics products such as on-board chargers, DC-DC converters and AC inverters for electrified vehicles sold by TMC and other automakers, accumulating and advancing its power electronics technologies along the way. Leveraging these technologies and experiences, we developed a bidirectional charger for PHEVs, which integrates the functions of an on-board charger and AC inverter. This integrated charger, which is 20% smaller compared to mounting the two devices separately, is installed in TMC's new Prius PHEV released in March 2023. The AC inverter for electrified vehicles can supply 1,500 W of electricity, equivalent to household power outlets, allowing almost all 100-V home electrical appliances to be used. It has

been highly recognized by customers for its use in outdoor activities and as an emergency power source during disasters. Moving forward, toward the realization of a carbon-neutral society, we will continue to support the widespread use of electrified vehicles through the provision of power electronics products.



Newly developed unit integrating an on-board charger and AC inverter



TMC's Prius PHEV

Establishing a New Plant: Toyota Industries' First DC-DC Converter Production in the United States

To respond to the expanding sales of TMC's electrified vehicles in North America, Toyota Industries will construct its first DC-DC converter manufacturing plant in the United States, within the site of TD Automotive Compressor Georgia, LLC (TACG)*1 in Georgia. Scheduled for completion in April 2025, the new plant will serve as the Georgia production base for Toyota Industries Electric Systems North America, Inc. (TIESNA)*2 and is expected to produce approximately 500,000 units annually starting in July 2025. In November 2023, a groundbreaking ceremony was held, attended by 52 guests and relevant parties, including Bob Kosek, Division Director of Global Commerce at the Georgia Department of Economic Development, and Consul General Mio Maeda of the Consulate General of Japan in Atlanta. Amid the growing demand for electrified vehicles

in North America, we are already discussing plans for further capacity increases and expansion of the items to be manufactured at the plant.

*1: Production and sales base of the Compressor Division

*2: Sales company in North America of the Electronics Division, headquartered in Michigan, the United States



Groundbreaking ceremony for the new Georgia plant (November 2023)



Rendering of the new Georgia plant

Batteries

Increasing Models Equipped with Our Bipolar Nickel-Metal Hydride Batteries

In fiscal 2022, Toyota Industries newly established the Battery Division and commenced production of bipolar nickel-metal hydride batteries for HEVs at the Kyowa Plant. In fiscal 2023, we newly constructed the Ishihama Plant in Aichi Prefecture to add a production line.

We successfully commercialized the battery by establishing a proprietary development method by thoroughly working to refine our technologies cultivated to date, including battery material synthesis technology, simulation technology for examining materials and structures and analysis technology.

In the newly developed battery, a cathode is applied to one side of a metal component called a current collector and an anode to the other. Several of these modules, which are known as "bipolar electrodes," are stacked together to form a battery. The battery has been made smaller as it requires fewer parts. In addition, the wider electrical path and simple structure reduce resistance within the battery, allowing large currents to flow quickly. This means that they can produce higher outputs compared to conventional nickel-metal hydride batteries.

The bipolar nickel-metal hydride battery, which achieves both superior driving and environmental performance, is currently fitted in the Aqua, Crown (Crossover/Sports

models), Alphard and Vellfire as well as Lexus RX, LM and LBX. Going ahead, we will continue to respond to future increases in demand and increase the number of models fitted with the battery.

As we proceed with various initiatives toward carbon neutrality, we will contribute to the more widespread popularity of TMC's electrified vehicles with our bipolar nickel-metal hydride batteries, which provide new value to electrified vehicles.



Battery production lines in the Kyowa Plant

Adding a Second Production Line to the Ishihama Plant

In response to the more widespread use of HEVs and an increase in models fitted with our batteries, we added another facility to the Ishihama Plant that went into operation in October 2022. This second production line started operation in January 2024.

The production capacity of the second line is 240,000 units per year, and, together with the Kyowa Plant and the Ishihama Plant's first production line, we have boosted our total annual capacity to 720,000 units*3.

The design of our bipolar nickel-metal hydride batteries allows them to be adaptable to a wide range of vehicles, from compact to large ones, because their output can be modified by just changing the number of modules to be stacked depending on the vehicle.

Toyota Industries will work to ensure stable supply as well as to enhance its lineup of batteries so that they can be used in a range of electrified vehicles.



Ishihama Plant

*3: Units calculated based on the number of modules stacked in a battery to be fitted in the Aqua

Textile Machinery

Link to
product
details



Carrying on the philosophy of founder Sakichi Toyoda, which reflects his strong commitment to manufacturing, Toyota Industries responds to a broad range of needs with its extensive product lineup, from air-jet looms to ring spinning frames and roving frames.

Medium-Term Direction of Business

Needs are expected to increase further for textile machinery offering superior environmental performance. Toyota Industries' products are highly acclaimed by customers for their excellent reliability and productivity as well as energy-saving performance. We will continue to develop energy-saving and other innovative technologies and seek to achieve further growth and evolution as a leading manufacturer of textile machinery.

Business Characteristics

Strengths

- Broad product lineup both in the spinning and weaving machinery fields
- Global, well-developed service network
- Ability to develop products that excel in reliability, energy-saving performance and versatility

Opportunities

- A rise in textile demand in line with an increase in the world population
- Further increasing applications in the industrial materials field
- Increasing needs for high-quality and highly functional yarn and textile products, following the economic growth of emerging countries

Risks

- Changes in each government's policies concerning promotion of the country's textile industry
- Weaker sales due to intensifying competition
- A decline in capital investment due to economic slowdown and raw cotton and/or yarn price fluctuations

Net Sales

FY2023

¥84.3 billion

FY2024

¥93.3 billion

Operating Profit

FY2023

¥7.8 billion

FY2024

¥8.0 billion

Business Overview in Fiscal 2024

The market was strong in Asia, including India, which is our primary market. Increases in sales of weaving and spinning machinery pushed up net sales by ¥9.0 billion, or 11% year on year, to ¥93.3 billion.

Participating in Exhibitions in Milan and Shanghai

In June 2023, Toyota Industries participated in ITMA 2023, an international textile and garment technology exhibition held for the first time in four years in Milan, Italy, and displayed the JAT910, a new air-jet loom released in 2022. Air-jet looms are our mainstay product in the Textile Machinery Business, and the new JAT910 model was highly regarded by customers for its newly developed features that contribute to energy savings amid surging energy costs worldwide.

As for the Helix innovative spinning frame under development, we presented our progress and explained its innovativeness, which will possibly offer productivity far greater than that of ring spinning frames. Many customers voiced their high expectations for the product.

In November 2023, we also participated in ITMA ASIA + CITME 2022*, an international textile machinery exhibition held in Shanghai, China, and just as in Milan displayed the JAT910 air-jet loom. It was for the first time in five years that we displayed an actual machine.

We received many guests from China as well as India and

Pakistan and showcased the loom's greater environmental performance, the ability to improve the efficiency of plant operations and the high productivity and versatility of our original electronic shedding technology. We successfully gained their recognition as a brand distinct from other companies.

Going forward, we will continue to demonstrate our technological capabilities that satisfy customer needs through participation in exhibitions and various other opportunities to present our products and work to reinforce our brand strength to gain even greater trust from customers.

* Postponed and held in 2023 due to the COVID-19 pandemic



JAT910 air-jet loom