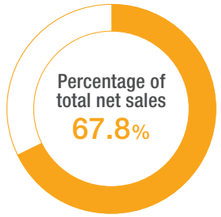
Business Report

Electrical equipment for rail vehicles that responds to robust demand for railway infrastructure development in global market

Business Overview

We delivered electrical equipment including motors for the Hokuriku Shinkansen, which started its service in March 2015. Overseas, we received orders for subway contracts in Southeast Asia and the Middle East and got started in preparation for service launch from 2017. In the future, we will pursue overseas expansion even more aggressively as a driver of growth through means such as expansion of maintenance business for the Beijing Subway.

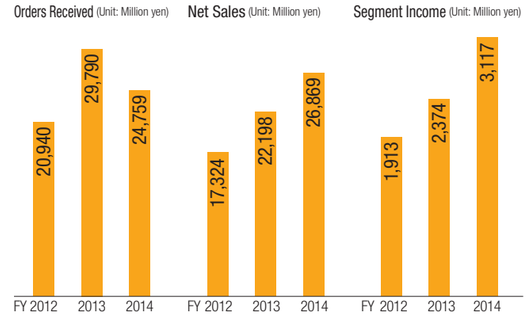


Results for fiscal 2014

Orders Received
24,759 million yen
(Down 16.9% year on year)
While orders increased in Japan, overseas orders decreased due to a rebound from major orders received in the previous year and a delay in contracts that were scheduled.

Net Sales
26,869 million yen
(Up 21.0% year on year)
While sales decreased slightly in Japan, revenue increased significantly as a result of growth in subways and high-speed railroad in China.

Segment Income
3,117 million yen
(Up 31.3% year on year)
Profits increased as the effects of significant increase in revenue and improved profitability at factories absorbed negative factors such as an increase in expenses.



TOPICS

Jointly developed high-speed circuit breakers for control devices with Hitachi

We agreed to a business and capital alliance involving the overseas electrical equipment for rail vehicle business with Hitachi on October 2010, and both companies have since promoted activities including order-taking, the joint development of products, and joint purchases. Recently, we have jointly developed a high-speed circuit breaker for control devices such as VVVF inverters, and we exhibited this product at the world's largest railway technology trade fair, InnoTrans2014, which was held in Berlin, Germany in September 2014. This product has attracted the attention of many customers, and we have received many inquiries from not only overseas, but also from Japanese railway operators and electrical manufacturers.

We will fully utilize the resources of both companies as we work to expand this business.


High-speed circuit breakers

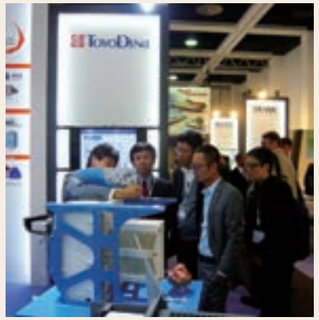
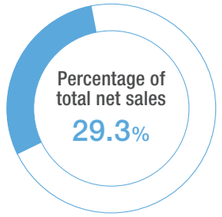


Exhibit at InnoTrans2014

Enhance functions of high-efficiency inverters and contribute to further energy savings for production facilities

Business Overview

In our "VF66 series" of intelligent inverters, we now support distributed power source systems such as wind power generation and hydropower generation by adding a lineup that supports interconnected systems. For factories in areas such as Southeast Asia, we will actively work to receive orders for systems such as "biomass power generation systems" that serve as independent power generation facilities as we also work to expand the power generation business.

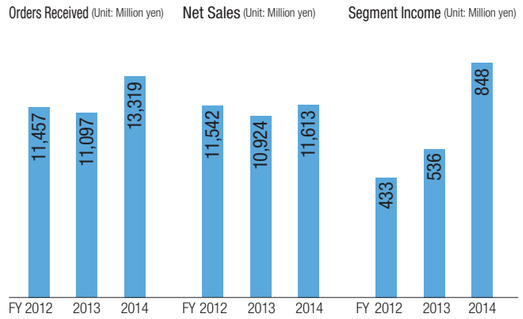


Results for fiscal 2014

Orders Received
13,319 million yen
(Up 20.0% year on year)
There was a significant increase in orders received for testing systems for automobile development and infrastructure-related, and the levels were back to those before the bankruptcy of Lehman Brothers.

Net Sales
11,613 million yen
(Up 6.3% year on year)
While sales for processing equipment were sluggish, revenue increased as a result of strong sales for testing systems for automobile development.

Segment Income
848 million yen
(Up 58.1% year on year)
Profits increased due to the contribution of increased revenue, improved profitability at factories, and increased earnings at subsidiaries.



TOPICS

DC drive mode of the intelligent inverter VF66B

Direct current motors (DC motors) were used as the main type of variable-speed drive from the 1970s to the first half of the 1990s, and they were adopted in various production facility lines in combination with thyristor Leonard equipment.

The DC drive mode of our latest inverter "VF66B" helps to control investment costs as DC drive mode can convert control equipment into an inverter with the DC motors as is for equipment using DC motors that continues to operate. This can also lead to gradual updates to AC motors, which is the next step.

In addition, the introduction of the DC drive mode will not only enable total digital control for all forms of control, but also make equipment more high performance through adoption of various latest networks and PLC.

Going forward, we will support the needs of customers with the products that leverage our advanced motor drive technologies.

Update steps through the introduction of the VF66B DC drive mode

*ED motor: our permanent magnet-type high-efficiency motor

Provision of railway station operating equipment that achieve multi-functions and a compact size and IoT/M2M solutions in various fields

Business Overview

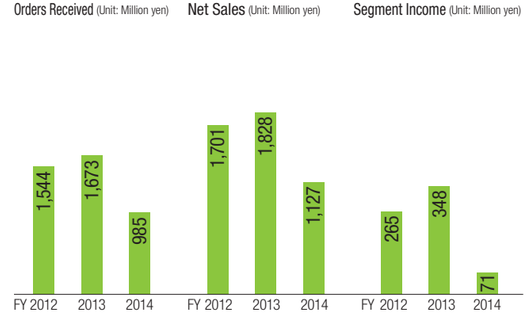
We develop and manufacture railway station operating equipment that can achieve mechanization and reduction of labor in railway station operations of railway operators. We also contribute to improvements of efficiency in operations through IoT/M2M solutions and power visualization solutions using mobile phone networks and cloud servers which enable monitoring and control to be conducted at the same time.

Results for fiscal 2014

Orders Received
985 million yen
(Down 41.1% year on year)
Orders for both railway station operating equipment and remote monitoring equipment decreased.

Net Sales
1,127 million yen
(Down 38.3% year on year)
Sales decreased for the same reason underlying the decrease in orders received.

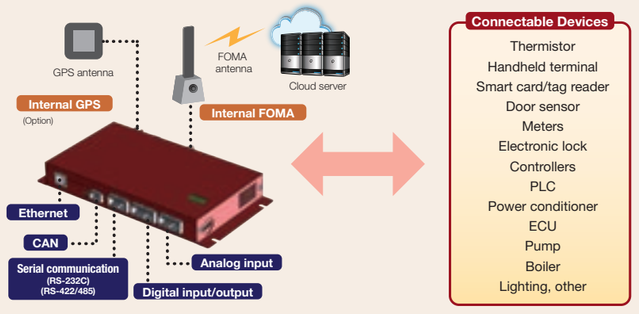
Segment Income
71 million yen
(Down 79.5% year on year)
Profits declined sharply due to decreased revenue.



TOPICS

New product, "IORemoter," terminal that supports remote monitoring and control system

We have developed the "IORemoter," an IoT/M2M terminal with cloud service and multiple interfaces. This product supports analog input, digital input and output, serial communication, as well as CAN and Ethernet, and because it has cleared stringent vibration test it can also be used for the monitoring of moving bodies such as automobiles and trains. We will continue to provide products that contribute to improvements of efficiency in the operations of customers.



Entering the maintenance business for electrical equipment for the Beijing Subway

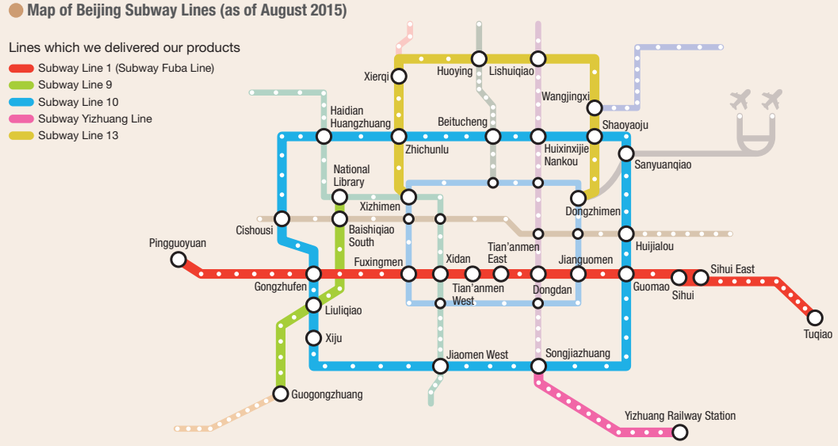
Business Overview

We have developed business in China with a focus on delivering electrical equipment for high-speed rail and subway vehicles up until now, and in August 2014, we established the new company Beijing Jingche Shuangyang Traction System Co., Ltd., and entered the maintenance business.

We are a manufacturer with a top share that delivers over 30% of the electrical equipment used in the Beijing Subway. Backed by this track record, we will capture all of the rapidly-increasing demand for the overhaul of electrical equipment for the Beijing Subway and we will work to further expand our business.

TOPICS

Map of Beijing Subway Lines (as of August 2015)



Details of the new company

Company name	Beijing Jingche Shuangyang Traction System Co., Ltd.
Location	No.9 Kechang 2nd Street, East District, Economy Technology Development Zone Metro Industrial Park B2-3, Beijing
Date of establishment	August 19, 2014
End of the fiscal year	December 31
Capital	20 million RMB
Description of business	Maintenance of urban transit vehicle traction system equipment; sales, import, and export of related equipment; and ancillary work
Investment ratio	Toyo Denki (Beijing) Co., Ltd.* 50% Others 50% *A wholly-owned subsidiary of Toyo Denki Seizo K.K.

R&D to support the development of social infrastructure and supporting frameworks

Research and Development

The Group's R&D activities are based on seeking to create products that fully satisfy our customers and challenging the creation and expansion of these products, and we actively promote development of technologies of our existing businesses and basic technology developments that support this development as well as development of new products that expand our businesses.

Results and topics from fiscal 2014

Segment	Project	Description
Transportation Systems	Fully enclosed induction traction motor	Commenced deployment of fully enclosed induction traction motor for trains with both outer and inner fans to customers. In particular, an inner fan type for narrow gauges was fully launched on an operating line in Japan for the first time.
	Guidance display system development	Adopted guidance display system for rail vehicles jointly developed with FUJI ELECTRIC CO., LTD., to actual vehicles.
	Electrical equipment for high-speed new transportation systems	Developed electrical equipment for high-speed new transportation systems (propulsion equipment, power supply, etc.) and implemented tests on actual vehicles equipped with the developed equipment.
Industrial Systems	Expansion of water cooling ED motors lineup	Expanded the lineup of water cooling ED motors set and sold for models of 45KW and above as low-noise motor support to cover the 22KW class.
	Development of Control Circuit less electric power generators	Developed the Control Circuit less electric power generators that can be operated without electric power generator control equipment (inverters) as low cost products for distributed power source systems.
Information Equipment Systems	New remote monitoring terminal	Completed development of a new remote monitoring terminal (product name: IORemoter).As an IoT/M2M device, we will work to deploy it not only as environmental monitoring equipment, but also as vehicle monitoring equipment for automobiles, rail vehicles, etc.
Research Laboratory	Research on practical application of Wireless In-Wheel Motor	Conducted industry-academia joint research together with the University of Tokyo and NSK Ltd. A method in which electric power is delivered wirelessly from the body to motors and inverters stored inside the wheel was applied to a small passenger vehicle which was then run for the first time in the world.

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 our research laboratory and the development divisions in each business unit actively apply for patents and utility models.

In the overseas markets which we expect to further expand our businesses, we have started to actively engage in activities concerning our intellectual property in order to protect our technologies and brand.

Patent applications granted