

# TOYO DENKI SEIZO K.K. 100 years history

On June 20, 2018, TOYO DENKI SEIZO K.K. celebrated its 100th anniversary.

Our company was founded in 1918 with the intention of “domestic production of electrical machinery for railway vehicles”. A spectacular feeling that we want to export products to domestic as well as to many Orient countries and contribute to the development of the country has come from the name of “TOYO DENKI SEIZO K.K.”. And this feeling has been handed down to successive employees, and now our products are contributing to the development of social infrastructure systems around the world.

## 1918~1949

### From foundation to postwar



Group photo of the first president, Kaichi Watanabe, and executives from the partner British Dick Kerr company.

**1918** ● Technical cooperation with British Dick Kerr and establishment of the company with the capital of 3 million yen

**1919** ● Operation started at Yokohama Factory



Yokohama factory at the start of operations (Hodogaya-ku, Yokohama)

**1920** ● Control equipments and traction motors delivered directly to Keihan Electric Railway Co.

**1921** ● Development of pantograph, first in Japan

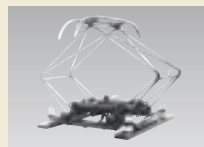
**1926** ● Start of manufacturing of three-phase commutator motor (AS motor)

**1932** ● Development of electric equipment for trolleybus, first in Japan

● Completion of controller with regeneration brake using compound motor, first in Japan

**1935** ● Development of diesel electric railcar, first in our country, and delivered to Sagami Railway

**1949** ● Our stocks was listed on Tokyo Stock Exchange



Early domestic pantograph



AS motor

## 1950~1989

### From postwar reconstruction to high economic growth

**1950** ● Development of ST type three-phase AC Commutator motor (patented)

**1952** ● Development of Cardan shaft driving device, first in Japan

**1958** ● Completion of traction motor and controller for the Japan National Railways “Kodama” limited express

**1959** ● Completion of automatic train stop

**1960** ● Completion of traction motor and drive for Shinkansen testing car

● Order received for electric towing locomotive for the Panama Canal

● Development of constant-speed operation controller for vehicle, first in Japan

● Development of hydraulic winch for ship, first in Japan

**1963** ● Delivery of pantograph for Shinkansen to Japanese National Railways



Cardan shaft driving device



Japan National Railway 151 series limited express train “Kodama”



Japan National Railway Series 0 Shinkansen

**1965** ● Development of thyristor static Leonard equipment series, first in Japan

**1972** ● Development of brushless motor generator (BLMG), first in the world  
● Development of 150kVA 440Hz static CVCE, first in Japan

**1973** ● Completion of commutation ticket issuing system

**1977** ● Completion of large high-speed automatic drafting machine

**1978** ● Developed our proprietary AFE chopper device

**1983** ● Completion of in-train ticket issuing system

**1985** ● The current Yokohama Plant was completed

**1985** ● Delivery of world-first superimposed field excitation control for 205 series electric train of Japanese National Railways

**1988** ● Completion of world-first heat-pipe type 8-unit motor batch control VVVF inverter and delivery of it to Tokyu Electric Railway Co

**1989** ● Development of small VVVF inverter using reverse conductive GTO thyristor, first in Japan



Panama Canal Agency Electric Locomotive for Dredgers

## 1990~2018

### Global expansion and to the next 100 years

**1990** ● Development of stroke switching type door closing machine, first in Japan  
● Development of intelligent door system, first in Japan

**1991** ● Development of light-weight VVVF inverter using 1,500V mass-production type reverse conductive GTO thyristor, first in our Japan

**1997** ● Completion of in-train ticket issuing machine corresponding to automatic ticket checker

**1998** ● Delivery of electric equipment for Beijing subway east-west line train

**2000** ● Completion of permanent-magnet motor (ED motor)

**2004** ● Development of electrical equipment for the world's first micro gas turbine hybrid vehicle

● Joint development of the first full-flat, super-low floor light rail vehicle (LRV) produced in Japan

● Succeeded in development and running of in-wheel motor for car

**2007** ● The new public transport smart card Pasmoo goes into service (delivery of automatic commuter ticket vending machine with support for smart card passes and smart card charge machines to station facilities)

● Start of commercial service of the new N700 series trains on the Tokaido and Sanyo Shinkansen lines (delivery of traction motors, gear units, pantographs, TD couplings, static conversion equipment, etc.)

● Start of sales of the VF66 Series general purpose inverter

**2009** ● Delivered electric machinery for Tohoku Shinkansen E5 series

**2012** ● Order receipt of handsets for conductor for JR West

**2018** ● May, Shiga Ryuo Plant completed

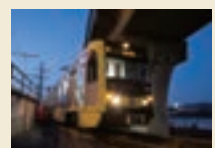
● June, Toyo Denki Seizo K.K. 100th anniversary



Beijing subway east-west line train



In-wheel motor



Los Angeles County Metropolitan Transportation Bureau P3010 LRV