

# Over 100-Year History of Toyo Denki Seizo K.K.

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.

to high economic growth

## 1918–1949



Group photo of our employees with technical advisors from the partner British Dick Kerr company.

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

**1919** ● Operation started at Yokohama Factory



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

**1920** ● Control equipment and traction motor delivered directly to Keihan Electric Railway Co.

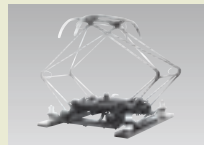
**1921** ● Development of pantograph, first in Japan

**1926** ● Start of manufacturing of three-phase current commutator motor (Schrage-type, later 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 Japan, and delivery to Sagami Railway

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



Early domestic pantograph



Three-phase current commutator motor (Schrage-type, later AS motor)

From foundation to postwar

## 1950–1989

**1950** ● Development of ST-type three-phase AC commutator motor (200-horsepower) (patented)

**1952** ● Development of Parallel cardan drive device with hollow shaft, first in Japan

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

**1959** ● Completion of Automatic Train Stop (ATS)

**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

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



Parallel cardan drive device with hollow shaft



Japan National Railway 151 series limited express train “Kodama”



Electric towing locomotive for the Panama Canal



Japan National Railway Series 0 Shinkansen

From postwar reconstruction

**1969** ● Completion of automotive brake test equipment

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

**1973** ● Completion of commuter pass 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

● Delivery of world-first superimposed field excitation equipment 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 to Tokyu Electric Railway Co.

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

Global expansion and to the next 100 years

## 1990–2023

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

● Development of intelligent door system, first in Japan

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

**1997** ● Completion of in-train ticket issuing machine with support for automatic ticket checker

**1998** ● Delivery of electric equipment for Propulsion controller for Beijing Subway’s East-West Line train



Beijing subway east-west line train

**2000** ● Completion of permanent-magnet synchronous 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 Pismo goes into service (delivery of automatic Commuter pass issuing machine with support for smart card passes and smart card charge machines to station facilities)

**2008** ● Start of sales of the VF66 inverter

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

**2014** ● Delivery of electrical machinery for Joetsu and Hokuriku Shinkansen E7

**2018** ● May, Shiga-Ryuo Plant completed  
● June, Toyo Denki Seizo K.K. 100th anniversary

● Order received for consigned research and development of superconducting flywheel power storage system for railways

**2022** ● Delivery of automobile testing system using in-wheel-well dynamo

● First remote monitoring system installed in VVVF equipment for Aichi Rapid Transit Co.

● Transitioned to Standard Market of the Tokyo Stock Exchange

**2023** ● Received order for electrical equipment for newly built railway vehicles for Indonesian commuter railways



Los Angeles County Metropolitan Transportation Bureau P3010 LRV



In-wheel-well dynamo