## **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.

## 1918~1949

- **1918** Technical cooperation with British Dick Kerr and establishment of the company with the capital of 3 million yen
  - 919 Operation started at Yokohama Factory



Yokohama factory at the start of operations

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

Railway Co.

undation to postwar

(Hodogava-ku, Yokohama) 1920 Control equipments and traction motors delivered directly to Keihan Electric

**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 AS motor Sagami Railway
- 1949 Our stocks was listed on Tokyo Stock Exchange



- **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
- 1965 Development of thyristor static Leonard equipment series, first in Japan
- **1969** Completion of automotive brake test equipment





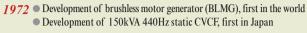








Japan National Railway Series 0 Shinkansen



- **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 Planmt was completed
  - 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
  - $1990 \sim 2022$
  - **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 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 Pasmo

goes into service (delivery of automatic commuter ticket vending 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 conductor 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 anniversarv
  - Order received for consigned research and development of superconducting flywheel power storage system for railways
- 2019 Establishment of SIAM TOYO DENKI Co., Ltd. in Thailand
- 2020 Establishment of TOYO DENKI RAILWAY SERVICE, LLC. in the U.S.
  - Delivery of electrical machinery for Tokaido and Sanyo Shinkansen N700S (mass-production model)
- 2022 Delivery of automobile testing system using in-wheel-well dynamo



Los Angeles County Metropolitan

Transportation Bureau P3010 | BV

• Transitioned to Standard Market of the Tokyo Stock Exchange

In-wheel-well dynamo







expansio