# nichicon

Corporate Profile


We dedicate ourselves to creating valued products
that will contribute to a brighter future for society.


Achieving carbon neutrality
Energy self-sufficiency
Electricity preparedness for
unexpected power outages


Further move to electric vehicles
and electrification of vehicles


Further acceleration of
data processing

Greater availability of
advanced medical care

Capacitors

Circuit Products

Energy storage system

Specialty power supplies for research, medical, and industrial applications

# Mission Statement

**We dedicate ourselves to creating valued products that will contribute to a brighter future for society. We strive to attain a better global environment, to live up to our ethical and social responsibilities and to diligently work to exceed the expectations of our customers, shareholders and employees. With heart and soul we aim to maximize our corporate value by the way of “ko-do” (Think and Work).**

“ko-do” (Think and Work): NICHICON has coined this word (in the Japanese origin), which refers to thinking and working.

# Management policy

**Top Notch Management ——**

## First-class performance in every aspect of our business, including quality, cost, delivery, service, and technology

“Top notch” means “first class,” or “the best.” At Nichicon, we offer our customers value that exceeds their expectations, shifting our focus from conventional manufacturing of products to creating new technologies that give inspiration, while transitioning from manufacturing to creation.

# Message from the Chairman and the President

**“We dedicate ourselves to creating valued products that will contribute to a brighter future for society.” ——**

“We dedicate ourselves to creating products that will contribute to a brighter future for society.” Working from this mission statement, the Nichicon Group has built its capacitor and NECST businesses, and created technologies that contribute to the achievement of a sustainable society by developing and providing innovative products.

Our mission goes beyond simply manufacturing to the creation of technologies that will form a better and more sustainable society by achieving SDGS, as well as the provision of solutions with value.

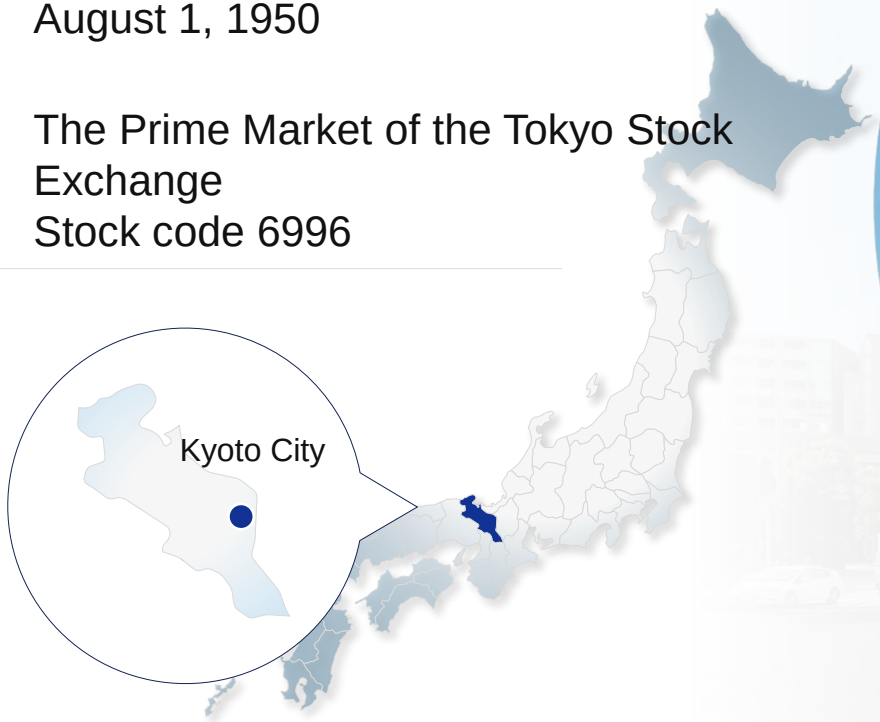
As a creative business, we are committed to bringing satisfaction and inspiration to our customers.

Katsuhiko Mori
Representative Director, President

Ippei Takeda
Representative Director and Chairman

# Corporate Data

| | |
|---|---|
| Corporate Name | NICHICON CORPORATION |
| Head Office Location | Karasumadori Oike-agaru, Nakagyo-ku, Kyoto, 604-0845 Japan |
| Established | August 1, 1950 |
| Listings | The Prime Market of the Tokyo Stock Exchange<br>Stock code 6996 |




# Corporate Data

### Capital Stock

**14,286**

million yen

As of March 31, 2024

### Net Sales (Consolidated)

**181,643**

million yen

Fiscal year ended March 31, 2024

### Overseas sales ratio

**47.9%**

Fiscal year ended March 31, 2024

### Shareholders' equity ratio

**53.6%**

As of March 31, 2024

### Employees (Consolidated)

**5,394**

As of March 31, 2024

### Business bases

**43** bases in **11** countries

As of March 31, 2024

### Number of group companies

**28**

As of March 31, 2024

# Business

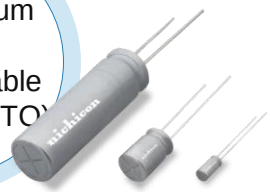
## Capacitor Business

Capacitor

Nichicon’s core business is the production of digital devices such as aluminum electrolytic capacitors, conductive polymer aluminum solid electrolytic capacitors, film capacitors, and small Li-ion rechargeable batteries

Film capacitors

Small Lithium Titanate Rechargeable Batteries(LTO)



Aluminum electrolytic capacitors

Power capacitors


## NECST Business

Nichicon Energy Control System Technology

Nichicon’s growth businesses are focused on core line of circuit products, including energy storage systems for home, public, and industrial use, various types of power supplies, function modules, and capacitor applied application-related equipment

Vehicle-to-Home (V2H) systems

Household energy storage systems

Public and industrial power storage systems

EV and PHV Quick Charger

# Target markets

## Capacitor Business

Capacitor

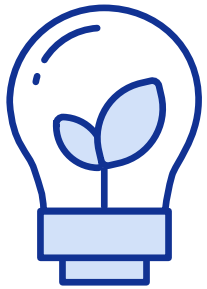
Nichicon’s core business is the production of digital devices such as aluminum electrolytic capacitors, conductive polymer aluminum solid electrolytic capacitors, film capacitors, and small Li-ion rechargeable batteries

## NECST Business

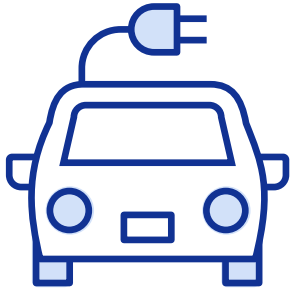
Nichicon Energy Control System Technology

Nichicon’s growth businesses are focused on core line of circuit products, including energy storage systems for home, public, and industrial use, various types of power supplies, function modules, and capacitor applied application-related equipment

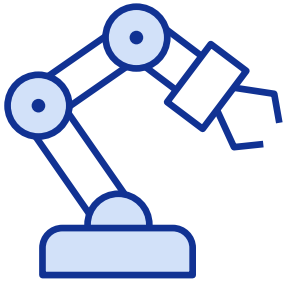
**Energy, the environment (ecology) and medical equipment**



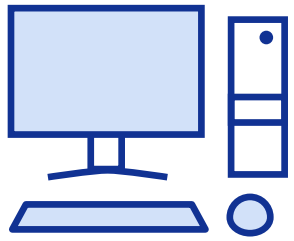
**Automotive & railway-car related appliances**



**Household electrical appliances and industrial inverters**



**Information and communications equipment**



# Values we provide society and our customers

## Capacitor Business

Capacitor

Nichicon's core business is the production of digital devices such as aluminum electrolytic capacitors, conductive polymer aluminum solid electrolytic capacitors, film capacitors, and small Li-ion rechargeable batteries

## NECST Business

Nichicon Energy Control System Technology

Nichicon's growth businesses are focused on core line of circuit products, including energy storage systems for home, public, and industrial use, various types of power supplies, function modules, and capacitor applied application-related equipment

**Energy, the environment (ecology) and medical equipment**

**Automotive & railway-car related appliances**

**Household electrical appliances and industrial inverters**

**Information and communications equipment**

## Values we provide society and our customers

| Achieving carbon neutrality | Expanding the functions of information and communications equipment | Facilitating advanced medicine | Improving the quality of life | Providing aid to post-disaster reconstruction activities |
|---|---|---|---|---|
| **Clean energy** **Energy savings** | **Comfort** | **Safety and security** | **Safety and security** | **Safety and security** **BCP** |

## Developing innovative products and technologies

Nichicon has released a succession of innovative products, including industry-leading household energy storage systems that were the first to bring solar-generated electricity for use at night to the market, V2H systems that were the first in the world to allow households to use electricity from electric and plug-in hybrid vehicles, the Tribrid Energy Storage System™ that allows households and electric vehicles to use electricity generated from solar power.

# Features



## Strong presence thanks to development of innovative products and technologies

### No.1 in Japan

Cumulative sales of household energy storage batteries


### Unique

Small Lithium Titanate Rechargeable Batteries(LTO)

### No. 1 share in Japan

Accelerator power supplies for medical facilities and academic research

### World-first

Development of the EV Power Station, the Vehicle-to-Home (V2H) system that allows power supply from electric vehicles

### Unique

Developed the Tribrid Energy Storage System™, which allows electricity generated with solar power to be used in households or in electric vehicles

# Features



## Contributing to society as a creation business

We seek to go beyond simply making good products, aiming to create the values needed by society and our customers to create tangible products that are capable of changing the world. For example, the energy storage products from our NECST business is an example of our contribution to society as a creative business.


Power Movers used in areas struck by Typhoon Rai in the Philippines (December 2021)

## Cultivating diverse human resources

We see our personal as our greatest asset. Nichicon hires and promotes a diverse array of human resources, where each person's unique abilities are actively demonstrated. The company offers a variety of human resource development programs that cover everything from the basics to high-level content. A unique feature is our cooperation with universities to offer training in MOT (Management of Technology). MOT produces engineers who understand management and managers who understand the value of technology.

## Engaging in active R&D activities including industry-academia collaboration

To meet the challenges of creating new value and expand the scope of our business, our own our research and development teams are working with technology promotion organizations, companies in other industries, and universities to develop the technology for tomorrow.

Examples)

- ✓ Institute of Industrial Science, The University of Tokyo/Nichicon Industry-Academia Cooperative Research Agreement
- ✓ Participation in business associated with the development of technologies for energy demand conversion and use through large-scale P2G systems aimed at achieving carbon neutrality in the Green Innovation Fund
- ✓ Next-generation power semiconductor SiC power conversion modules: Participation in a Super Cluster program from the Japan Science and Technology Agency
- ✓ Maintenance-free electronic shelf tag system utilizing film-type perovskite solar cells: Enecoat Technologies Co., Ltd,, Ricoh Electronic Devices Co., Ltd.
- ✓ ”VSI” Metamaterial heat dissipation sheet: Okitsumo Inc., KISCO LTD.

## Making aggressive capital investment and R&D investment

In recent years, demand for aluminum electrolytic capacitors and EV film capacitors has seen particular growth. To meet supply needs we invested 16.2 billion yen in fiscal 2023 to increase and expand production capacity. We are also actively investing in research and development and technology development in anticipation of new business growth. This will lead to the creation of groundbreaking products and technologies, as well as greater competitiveness.

Kameoka factory

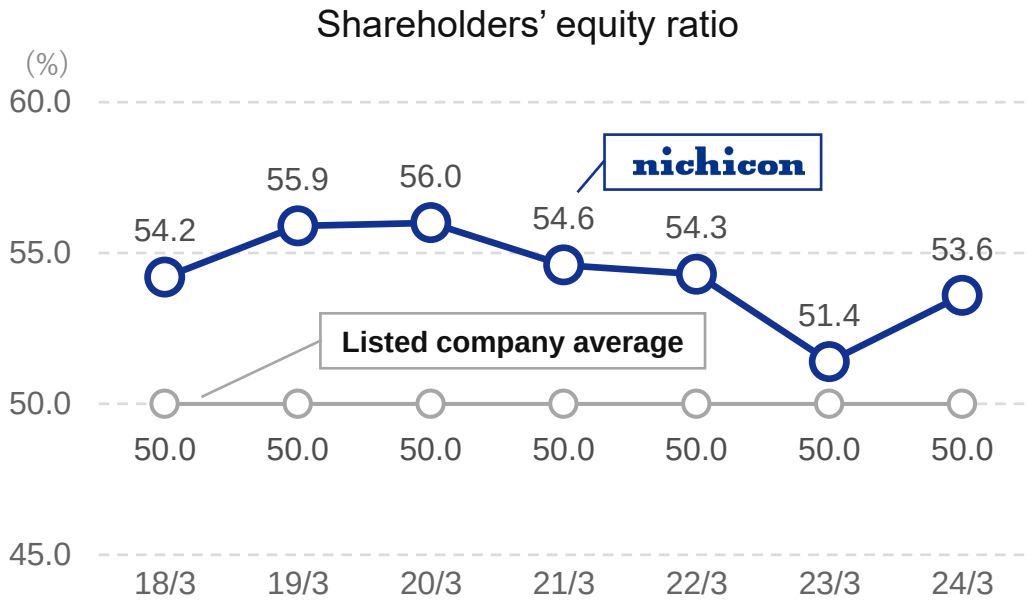
Wuxi factory (China)

# Features



## Building a sound financial base

In order to launch bold, aggressive business strategies that can yield further growth, a strong financial position is essential. Nichicon maintains steady financial strength and excellent company soundness; for example, while the ratio of shareholders' equity is approximately 50% on average among listed companies in Japan, the Nichicon group has a corresponding ratio of 53.6%.



## Promoting DX for reforming manufacturing and making operations more efficient

In June 2021, we established a Digitalization Promotion Office, and began engaging in DX initiatives. The initiatives are working to streamline and rationalize the operations of each division, while creating innovation and new business. By improving our earning potential, we will make financial resources available for R&D investment and secure high-quality human resources for our next stage of growth.

# The future of Nichicon

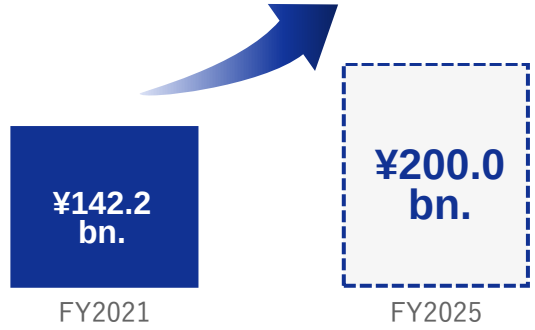
## “Vision 2025”

**Medium-term Growth Targets**

**— Managerial targets for fiscal 2025 —**

Consolidated net sales

¥200 billion




Consolidated operating income margin

10% or more


Annual capital expenditure

¥10 billion yearly

# The future of Nichicon

## “Vision 2025”

### Medium-term Growth Targets

**— Growth strategies that leverage the Nichicon’s strengths —**

» Systems for producing and selling a broad range of aluminum electrolytic capacitors in Japan and abroad

**Focus on growth markets and strategically strengthen and expand our business base**

» Independently develop and produce electric and hybrid vehicle film capacitors made from metallized film

**Take the growth in demand as an opportunity for growth and invest management resources actively**

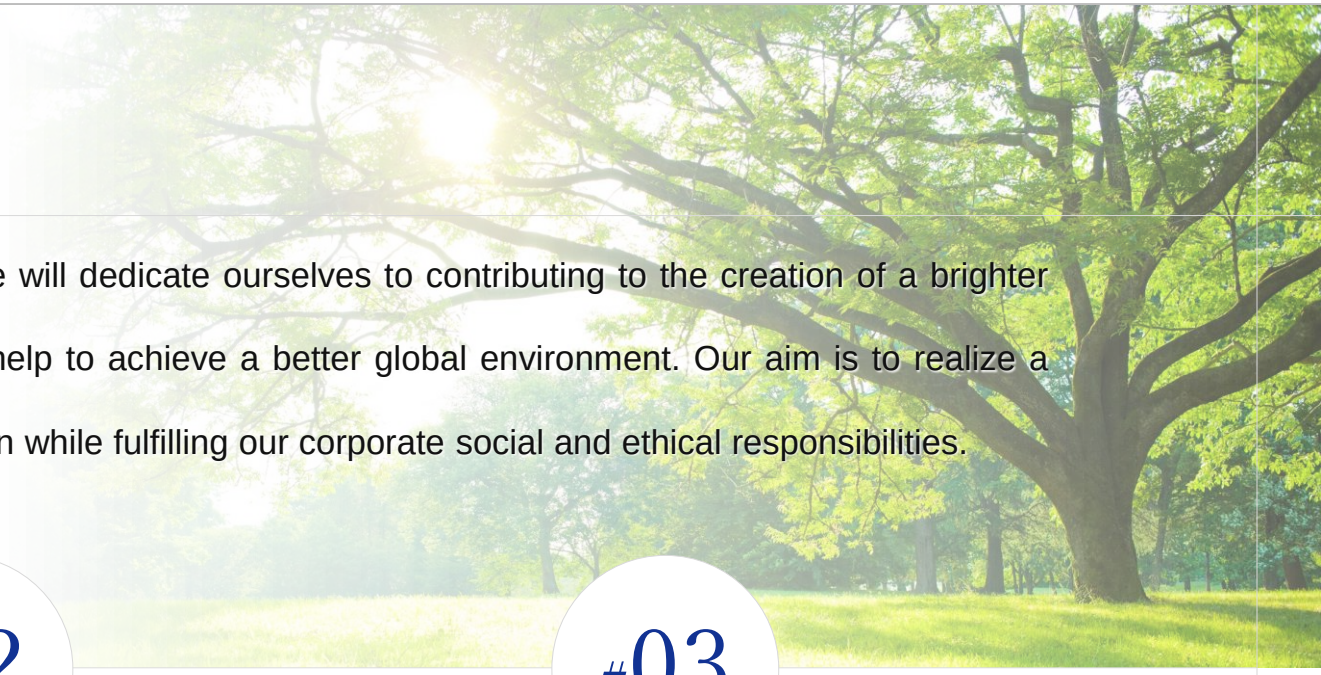
» Broad lineup of energy and environment-related products in the NECST business and power supply technologies covering everything from switching power supplies to applied systems

**Respond to the megatrend of decarbonization by expanding value-creating business through alliance strategies and solutions and further improvements to our product lineup**

» Framework for development of innovative, unique, leading products and technologies such as small Li-ion rechargeable batteries, household energy storage systems, and V2H systems

**Further accelerate development of products that help solve social issues**

# Sustainability Policy



Following the Nichicon Group Mission Statement, we will dedicate ourselves to contributing to the creation of a brighter future society through the creation of products that help to achieve a better global environment. Our aim is to realize a sustainable society and increase corporate recognition while fulfilling our corporate social and ethical responsibilities.

## #01

By combining a wide range of technologies starting from material development to system design, Nichicon is helping solve social issues such as climate change. By promoting digital transformation and innovation, we are helping to create a brighter future.

## #02

We value dialogue and cooperation with all stakeholders, creating shared value, and developing fair and highly transparent management.

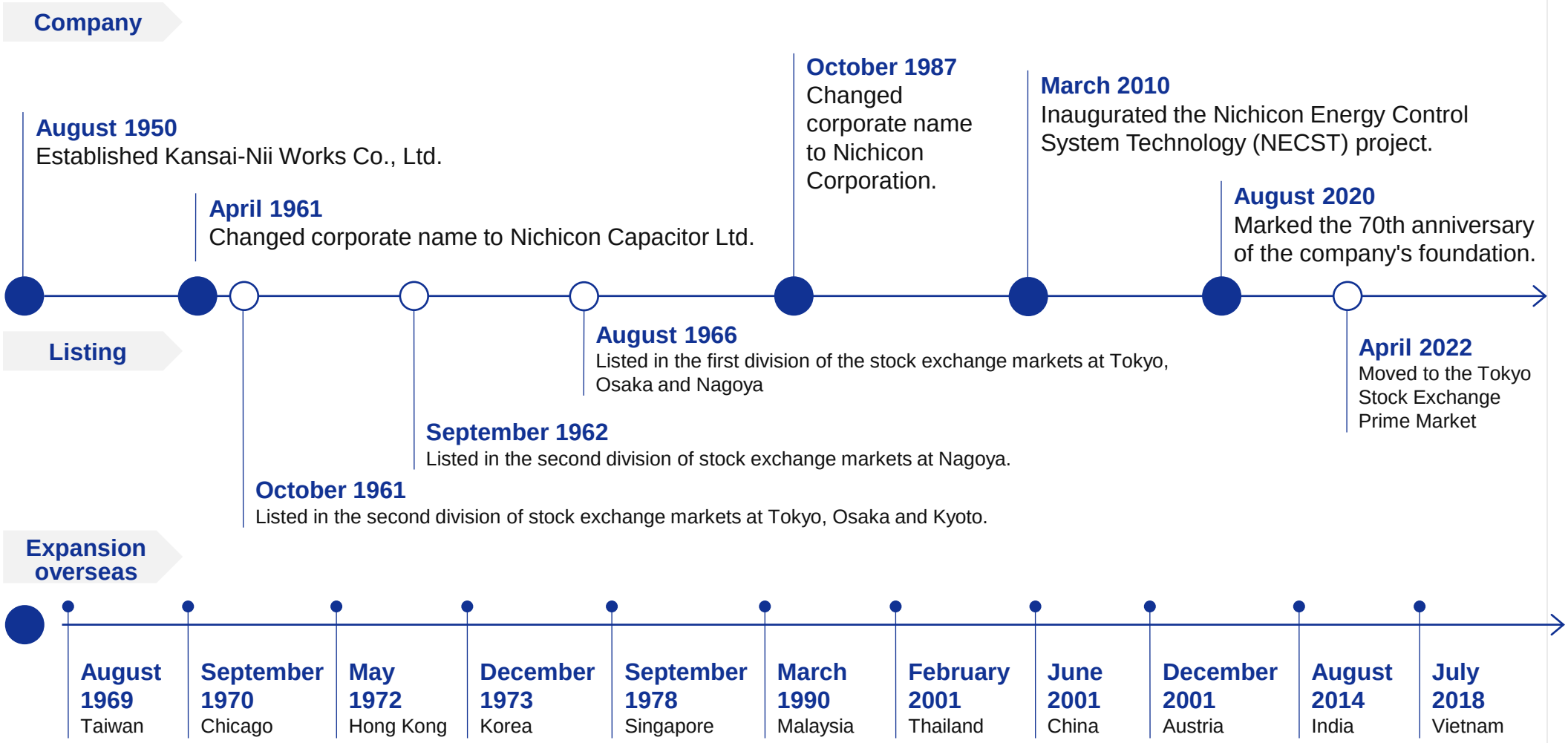
## #03

Our goal is to increase customer satisfaction by respecting human rights, ensuring diversity, developing human resources, and top notch management, and aiming for corporate development and the happiness of all employees.

nichicon

# Appendices

# History



# Awards, commendations and external evaluations

April 2006

**2006 Minister of Education, Culture, Sports, Science and Technology Award science and technology**

Research on induced acceleration in high-energy circular accelerators

June 2007

**Minister of Economy Trade and Industry Award**

Voltage sag compensator using electric double layer capacitors as the storage modules
(Japan Electrical Construction Equipment and Materials Fair 2007)

December 2010

**Letter of appreciation from the Minister of Education and the Minister of Development of Space Technology**

Nichicon's contribution of the EM series plastic film capacitors which were installed in the asteroid probe Hayabusa

June 2011

**Award of Environment Minister**

Low-Voltage EV Quick Charging Station utilizing solar power with storage functions
(Japan Electrical Construction Equipment and Material Fair 2011)

July 2012

**Renewable Energy Promotion Prize**

Energy-generating / Energy-storing type energy management system
(JECA Fair 2012)

October 2012

**Semi-Grand-Prix Award at the "CEATEC AWARD 2012"**

EVPower Station and Home Power Station

January 2013

**METI Minister's Award Energy Conservation Prize**

Nissan Motor Co., Ltd., wins award for "LEAF to Home" power supply system using a Nichicon EV power station

April 2013

**MEXT Prize in the 42nd Japan Industrial Grand Prix**

Jointly awarded with SACLA, RIKEN's X-ray free electron laser (XFEL) facility

October 2013

**Semi-Grand-Prix Award at the "CEATEC AWARD 2013"**

Smart Agriculture Network System : Emergence of Senary Industries in Opposition to TPP (Trans-Pacific Partnership)

# Awards, commendations and external evaluations

July 2014

**Encouragement Prize**

Lithium-ion battery type voltage sag compensator for power outages (JECA FAIR 2014)

October 2017

**Semi-grand-prix at "CEATEC AWARD 2017"**

Tribrid Energy Storage System™

October 2020

**Good Design Award**

New type of EV quick charger co-developed with Tokyo Electric Power Company Holdings and e-Mobility Power Company

October 2020

**Ranked 3rd out of 1000 companies by market capitalization in Japan as one of the "Most promising companies in the future by AI"**

November 2020 issue of Forbes JAPAN

November 2020

**Awarded "Actions for Climate Change 2020" by Minister of the Environment**

For social contributions related to disaster management and reductions in greenhouse gas emissions achieved through innovative technological development


October 2021

**Ranked 3rd in the "Japio-SDGs Patent Index", which lays emphasis on the evaluation of SDGs**

Ranked 3rd in the electronic components, devices, and electronic circuits manufacturing category

# Awards, commendations and external evaluations

November 2021

**Awarded “Kinki Region Invention 2022 by Minister of Education, Culture, Sports, Science and Technology”**

Metalized film cpacitor

February 2024

**New Energy Foundation Chairman’s Award at the 2023 New Energy Awards**

DC-linked industrial energy storage system

February 2024

**Received an "A-minus" rating in the Climate Change Report 2023 published by CDP**

June 2024

**Awarded Minister of the Environment Award (JECA FAIR 2014)**

EV Power Station VSG3- 666CN7"

nichicon

# Capacitor Business

## Capacitor

# Characteristics

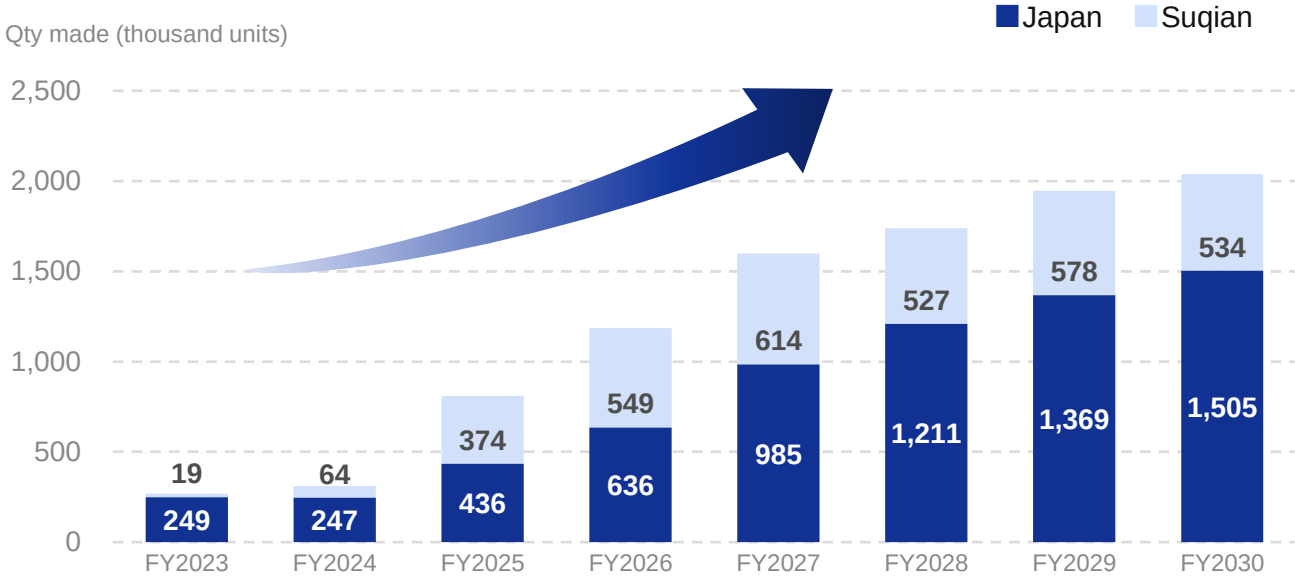


## Growing demand for film capacitors for vehicle use due to the ongoing shift to electric vehicles

Film capacitors are important for motor-driven inverters used in xEVs (EVs, HVs, PHVs). Nichicon's advanced design and analytical/simulation capabilities are powering rapid growth in global sales of these components. Going forward, we anticipate the shift to EVs around the world will drive further growth in the eco-friendly vehicle market.

In addition to our main factory, Nichicon Kusatsu, we began production in Nagano, Japan in April 2021, and in Suqian, China, in April 2020. During fiscal 2022 we will improve our production systems to allow global production of 400,000 units monthly (300,000 in Japan, and 100,000 in China), allowing us to deal with the constantly increasing demand for xEV(EV/HV/PH) film capacitors in Japan, China, North America, and Europe.

**Trends in xEV film capacitor production**



# Characteristics

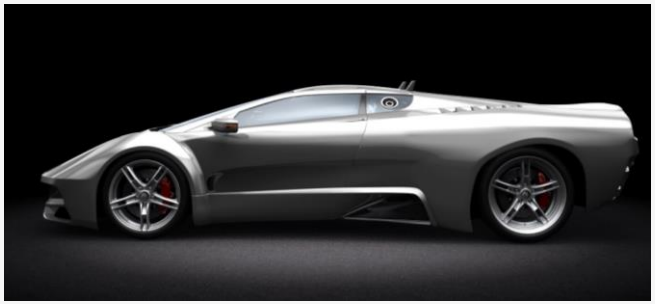


## Growing demand for aluminum electrolytic capacitors for vehicle use due to the progress of electrification

The growing popularity of environmentally friendly vehicles such as BEV/HEV/PHEV brings with it new electronic control units (ECU), sensors, display panels, and operating devices. These electronic control units are mainly used in the engine compartment, and development to integrate the functions of multiple ECUs into a single ECU is accelerating. The increasing number and improving performance of electronic control units is driving the growth in demand for capacitors, which are passive components.

Vehicles are continuing to evolve in answer to societal requirements such as demands from users and the need to be environmentally friendly, and in some cases due to political requirements. Tier-X makers have developed a range of ECUs to meet these needs, and the presence and development of passive “capacitors” is essential to this. Nichicon is continuing development of aluminum and hybrid aluminum electrolytic capacitors to meet market needs, which we supply to many Tier-X manufacturers.

**GXC series** conductive polymer hybrid aluminum electrolytic capacitors



### Sample Applications

**Powertrain**
- Electric power steering
- Power control unit
- Transmission / Gearbox Control
- DC/DC converter

**Automotive lightings**
- LED head lamp
- Lear lamp (filament bulb, LED)
- Turn signals
- Leveling/infrared /sensor/ wipers

**Safety electronics**
- ADAS (advanced driver assistance system)
- Airbag
- ABS (anti-lock brake system)
- ESP (electronic stability program)
- Pedestrian protection unit

**Body and chassis**
- Car audio
- Instrument cluster
- ACC (Automatic Cruising Control)
- Body computer, power window

# Characteristics



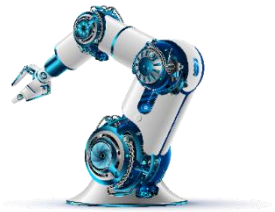
**Nichicon screw terminal/snap-in terminal type aluminum electrolytic capacitors are used in industrial equipment and environmentally-friendly energy devices requiring high capacitance and output**

Inverter power source

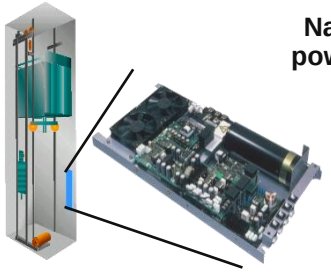
Power source backup (UPS)

Natural energy (Solar/wind power generation and power conditioning systems)

EV quick chargers



Industrial robot



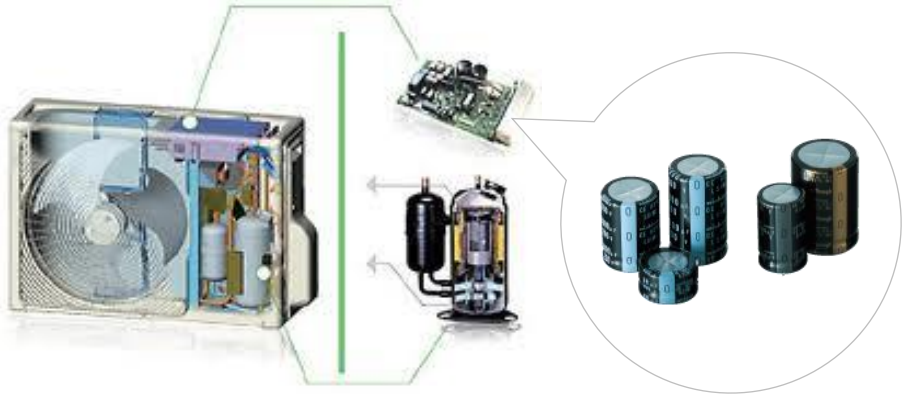
Elevators

# Characteristics



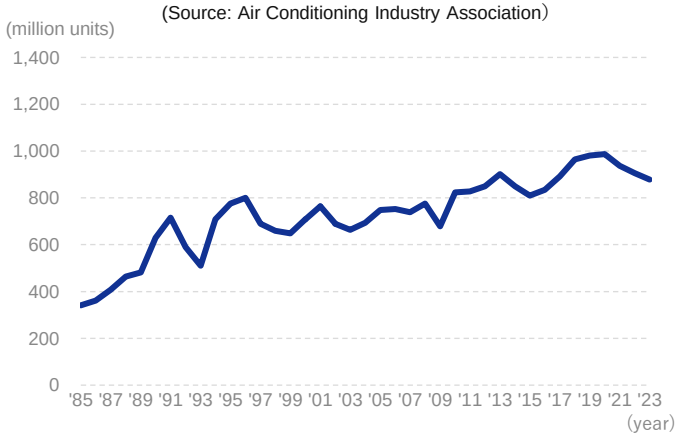
## Acquiring a large share of the air conditioner market

The shift to multi-unit air conditioners in Japan and the worldwide move to inverter-based air conditioning has brought steady growth in shipments of inverter air conditioners since they first arrived on the market in 1985, and the demand for the capacitors used in the outdoor units for air conditioners has also grown in Japan. Nichicon offers a range of products customized for specific uses. Products with a compact body and reduced numbers of components are associated with reduced set size, and low-loss products for energy conservation and high ripple in air conditioners.

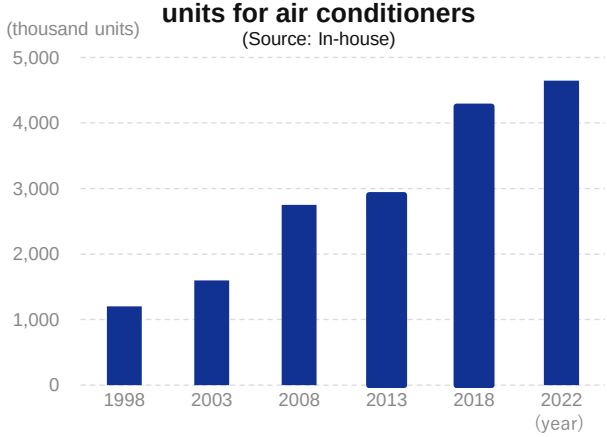


**Worldwide air conditioner shipments**
(Source: Air Conditioning Industry Association)


**Air conditioner shipments in Japan**
(Source: Air Conditioning Industry Association)




**Shipments of capacitors for outdoor units for air conditioners**
(Source: In-house)



# Characteristics

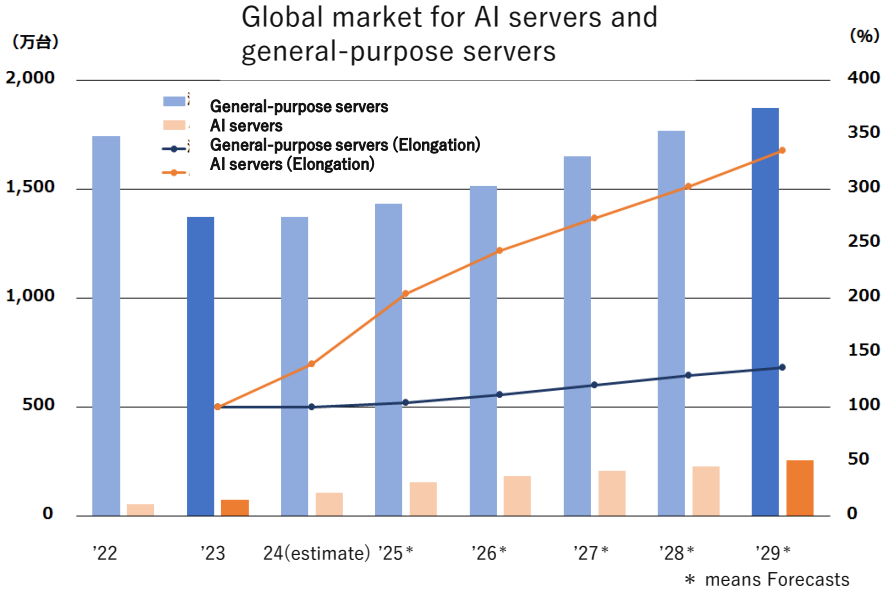


## Developing and providing capacitors optimized for Generative AI servers, base stations, and data centers

Although the markets for computers and communication devices such as smartphones is expected to remain strong after 2020, no significant market expansion is anticipated. However, a high level of growth is forecast for vehicles, aerospace, medical care, industrial applications and consumer products is anticipated going forward.

Long term, the focus on internet applications will give way to IoT devices. These trends will be driven by the spread of AI technology and 5G/6G (next-generation mobile communications systems), and supported by improved, larger scale data servers and the shift to smart grids, along with an expansion in the number of these devices. With the adoption of IoT in every industry where many IoT devices are connected to the internet, servers, data centers, and base stations are essential, and capacitors are essential to these devices.

Conductive polymer aluminium solid electrolytic capacitors




Source：Fuji Chimera Research Institute" 2024Worldwide Electronics Market Generl Survey"

### Target markets

#### Generative AI Server markets (Data centers/Cloud services)

**Server trends**

- High-speed processing: Increased power consumption
- Highly functional: Increased LSI load current
  Lower LSI voltage
  Lower impedance drive circuitry

**Trends in demands for capacitors**

- Low ESR
- Long life (105℃/125℃)

#### Base station (5G) market

**Base station trends**

- Spread of small base stations
- Spread of local 5G

**Base station trends**

- Large capacity/Low ESR
- Highly reliable (Long life at high temperature)

*Maximum temperature for use of 125℃, product life of more than 10 years at 85℃
*Highly heat- and moisture-resistant—85% humidity at 85℃

# Characteristics



**Small lithium titanate rechargeable batteries(LTO)**

Increased power demand due to new functions created the need for a product such as the SLB series. Switching from electric double layer capacitors to our SLB allows usage for up to 10 hours!

Features

Rapid charge/discharge: Compatible with rapid charge and discharge at 20C rate

Low-temperature performance: Can be charged/discharged at low temperatures (-30℃)

Safety: Low probability of rupture or ignition, even when an internal short circuit is forced

Long-life: Maintains 80% or more of capacity after 18,000 charge/discharge cycles

[Conditions] Temperature: 25℃, voltage range 1.8 to 2.8 V, discharge rate: 10C, Break: 0 secs

## Galaxy series

Galaxy Note10 ・ Note10+ / Galaxy Note20 ・ Note20 Ultra / Galaxy S22 Ultra / Galaxy S23 Ultra

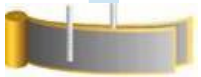
## Galaxy S pen

Samsung Electronics Co., Ltd.

# Development and production system

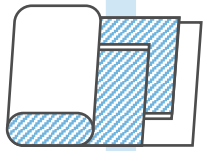
## Strengthen the production system through vertical integration, and promote product development

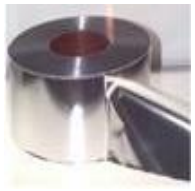
### Aluminum electrolytic capacitors

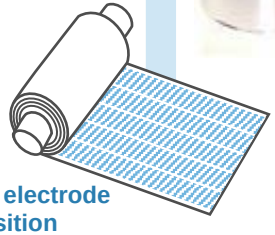




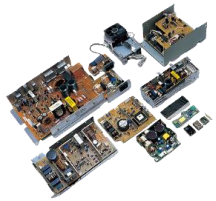

### Film capacitors






### Circuit Products



**Nichicon (Kusatsu) Corporation**
- Public and industrial power storage systems
- Accelerator power supplies

**Nichicon (Kameoka) Corporation**
- Quick chargers
- Function modules
- Power modules
- Car charger

**Power Supply Center**
**Nichicon (Wakasa) Corporation**
- Home Power Station
- Switching power supplies

**Become**

**no. 1**

**in customer satisfaction**

nichicon

# NECST Business

## Nichicon Energy Control System Technology

# History of the NECST business

~2000 | 2011 | 2013 | 2015 | 2017

**1994**
Pulse electromagnetic power supplies

**2004**
Storage-type solar power generation system

**2007**
Momentary voltage sag compensator

**2008**
Charge/discharge power supplies for Li-ion batteries

**2009**
On-board chargers

**2011**
Small quick chargers

**2012**
EVPower Station

**2012**
Household energy storage system

**2012**
Power outage compensator

**2013**
Public and industrial power storage systems

**2014**
Separate-type public and industrial power storage

**2015**
Ultra-small quick chargers

**2015**
SiC power conversion module (Super Cluster program)

**2016**
Hybrid energy storage systems


**2017**
Tribrid Energy Storage System™


**2017**
Power Mover


**2017**
Portable energy storage system

**2017**
SiC power conversion module (NEDO)

# History of the NECST business

2018 → 2021 → 2022 → 2023 →

**2018**
EV Power Station

**2021**
Single function storage system
U4M1

**2022**
Tribrid Energy Storage System

**2023**
New V2H System Product:
EV Power Station

**2018**
Single function storage system
U3S1

**2021**
Power Mover Lite


**2022**
DC-linked industrial
energy storage system

**2023**
Developed solar
power conditioner

**2019**
Single function storage system
U2X1

**2021**
200kW output
multi
quick chargers

**2022**
100kW and 50kW
quick chargers

# Characteristics

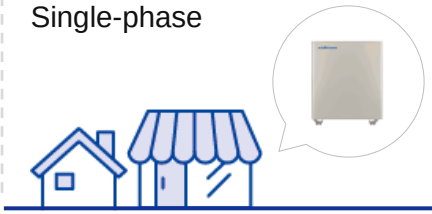


## Lineup covering everything from home to industrial/public facility use

Nichicon energy storage systems store electricity generated using renewable energy sources that can then be used at night or during power outages.  Since 2012 we were the first in the industry to market energy storage systems for home use, and we have expanded our product lineup to include everything from portable systems to 500 kWH class units for large-scale generation projects.

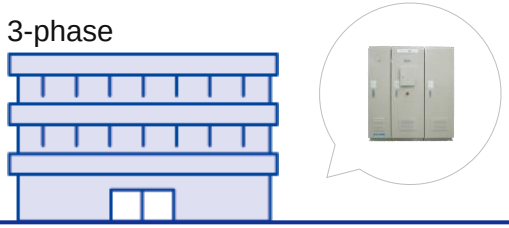
### Small-scale facility
**-15 kWh class**
- Meeting halls, daycare centers
- Private facilities / homes

Single-phase



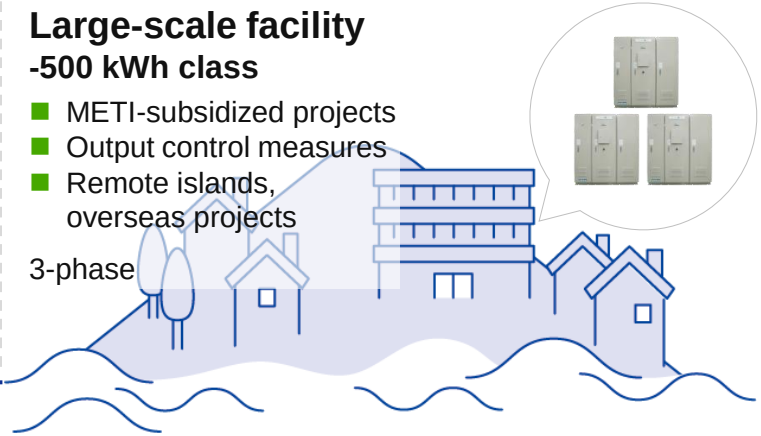
### Medium-scale facility
**-130 kWh class**
- Schools, govt. buildings, public facilities
- Housing complexes, commercial facilities

3-phase



### Large-scale facility
**-500 kWh class**
- METI-subsidized projects
- Output control measures
- Remote islands, overseas projects

3-phase

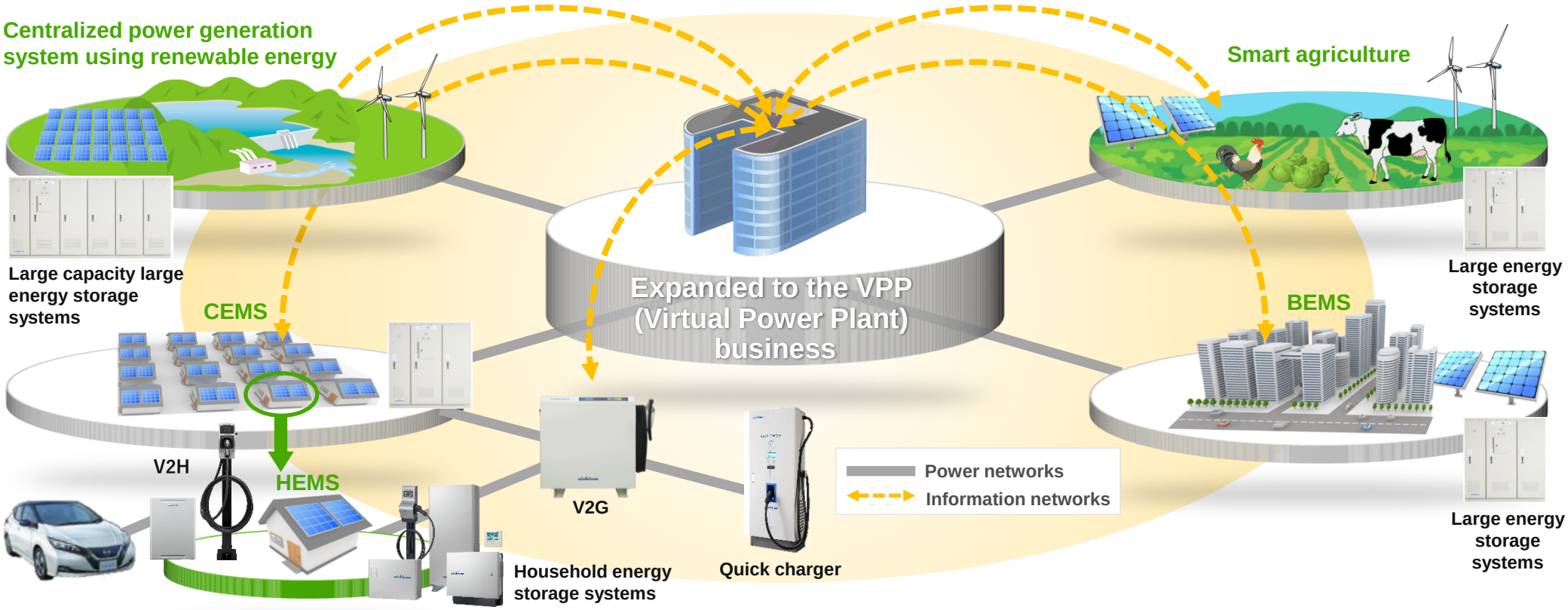


# Characteristics



## Helping to achieve smart cities and societies through distributed power networks intended to offer local production of electricity for local consumption

**Environmentally friendly societies seeking local production of electricity for local consumption, in which renewable energy, as Nichicon sees it, takes a leading role**

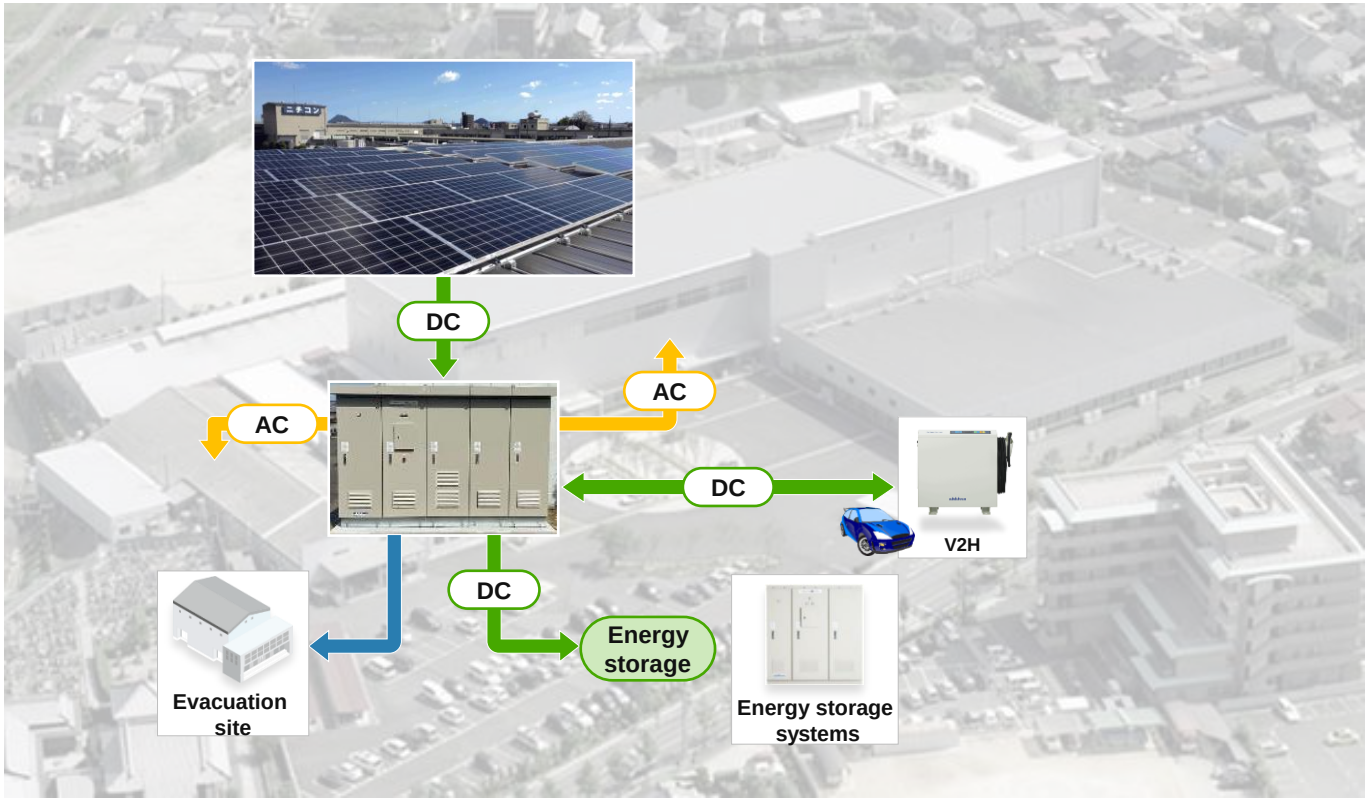


# Characteristics



## Nichicon Kameoka project to bring together NECST products is underway

Installed “DC Link Integration System” to provide flexible distribution of DC power between multiple buildings
(Also intended for use in proof-of-concept for energy management control)




### Normal operations

- Conserving energy and reducing CO2 emissions using solar power generation
- Direct current is used as-is to charge energy storage systems and EVs, with priority given to direct current electricity from solar power

### During power outages

- Priority use of electricity from storage systems and solar power generation for emergency load. Supply from EVs when this is insufficient (possible for extended periods)
- Solar power used to charge EVs, and to supply electricity to disaster preparedness sites

# Characteristics

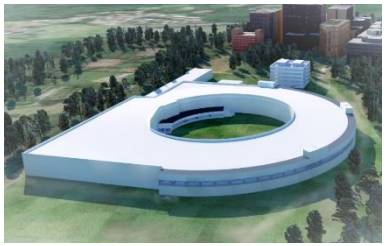


## Nichicon leverages power supply technologies acquired from RIKEN Spring 8/SACLA to provide supplies that offer stable, reliable light sources

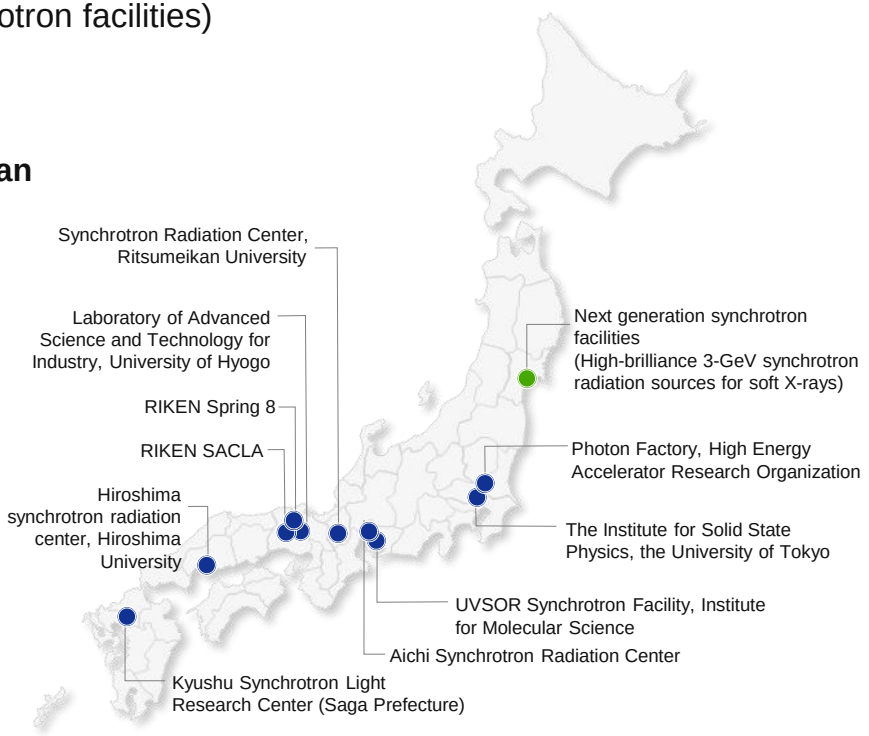
From 2020 to 2022, we will start design and production of the latest accelerator power supplies for high-brilliance 3-GeV synchrotron radiation sources for soft X-rays (at next generation synchrotron facilities)

### Radiation facilities in Japan

High-Brilliance 3-GeV Synchrotron Radiation Sources NanoTerasu



Source: National Institute of Quantum Science and Technology website




### Areas where next generation synchrotron radiation is anticipated to be beneficial

# Characteristics



## We have delivered power supplies to 15 of 26 cancer particle therapy facilities in Japan


Source: Nagoya Proton Therapy Center

### Japan

**Installations: 15 facilities**

**Installed at 16 of 20 cancer particle therapy facilities in Japan**

Recent installations in Japan
- Osaka Heavy Ion Therapy Center
- Kyoto Prefectural University of Medicine
- East Japan Heavy Ion Center, Faculty of Medicine, Yamagata University

### Overseas

**Installations: 9 facilities**

**Overseas installations are increasing, mainly in North America**

# Characteristics



## Public and industrial power storage systems

BCP/Disaster countermeasures

## Household energy storage system

First to be JET certified

## V2H system EVPower Station

First commercial version in the world
First to be JET certified

## Quick chargers

Lightweight and space conserving

High-Brilliance 3-GeV Synchrotron Radiation Sources
NanoTerasu

Accelerator power supplies


Accelerator power supplies for medical facilities (Particle beam cancer therapy facilities)