Securities ID code:6859

Reference

Company Presentation and Business Overview

ESPEC CORP.
November 20, 2026

Company Profile

【Industry-leading manufacturer of environmental test chambers】

Name	ESPEC CORP.
Head Office	3-5-6, Tenjinbashi, Kita-ku, Osaka
Representative	President Satoshi Arata
Established	July 25, 1947
Incorporated	January 13, 1954
Paid-up Capital	¥6,895 million
Issued shares	23,781,394 Shares
Employees	1,898 (consolidated)
Main Business	Manufacture and Sales of Environmental Test Chambers, Energy Device Equipment, Semiconductor Equipment and Plant Factory. After-sales Service, Laboratory Testing Services and others.



Head Office

Share of Environmental Test Chambers

Over 30% worldwide, Over 60% domestic

* Market shares are ESPEC estimates

(As of March 31, 2026)

History of Environmental Test

What is Environmental Test

Test to analyze and evaluate effects of environmental factors such as temperature, humidity, pressure, and vibration on various industrial products like electronic components in order to ensure product quality.

1950s
The environmental test was JIS-standardized in Japan for consumer products.




1970s–1990s
"Reliability" and "quality control" became important issues in product development. Demand increased dramatically due to a rapid shift toward computerization and the use of electronic components.





Present
Demand is expanding in the development fields of AI/IoT and next-generation automobiles against the backdrop of digitalization and decarbonization.



1961 Japan's First Environmental Test Chamber



Low Temperature & Humidity Chamber "Lucifer"

Worldwide Market Share No.1

Over 60% domestic

Over 30% worldwide

* Market shares are ESPEC estimates

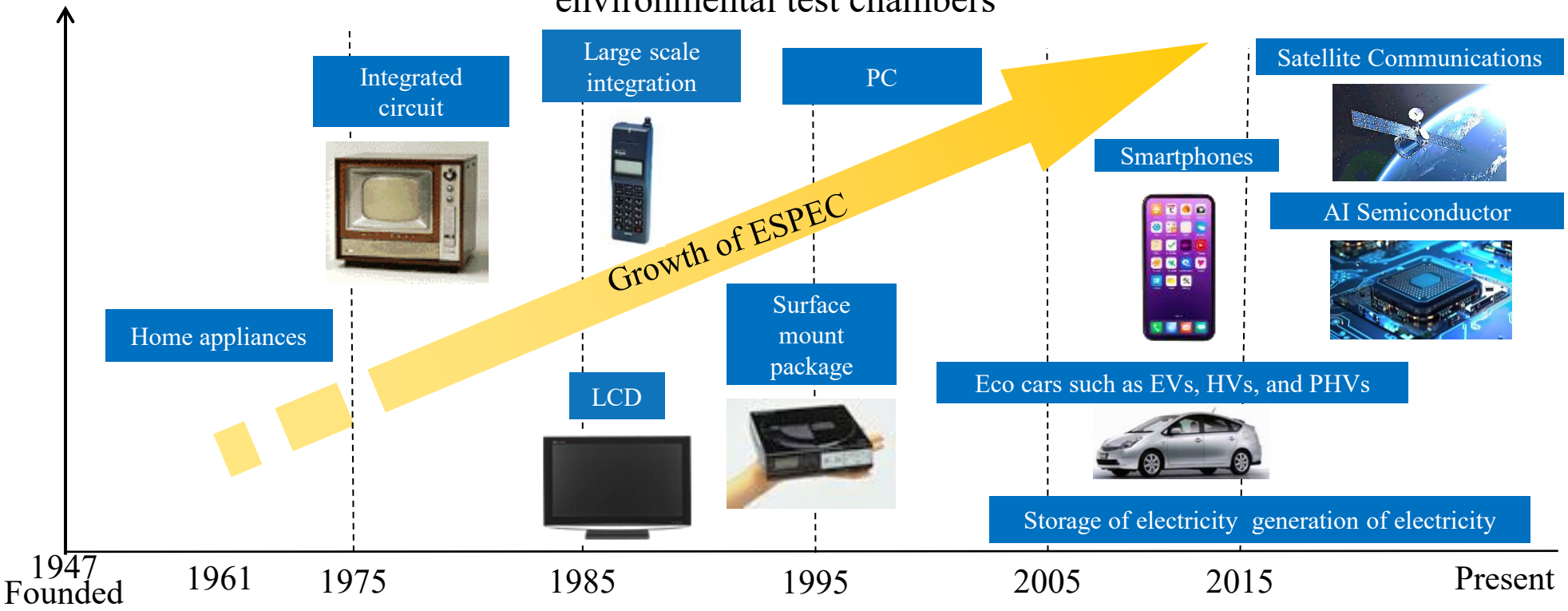
Consecutively selected as a winner of Ministry of Economy, Trade and Industry (METI)
"Global Niche Top Companies Selection 100" (FY 2013, FY 2020)



Temperature & Humidity Chamber "Platinous J series"

Transition in Business

Expanding business based on the “environmental creation technology” refined during the course of developing environmental test chambers



Business expansion

1961 Environmental test chambers developed



1982 Launching of the semiconductor equipment business



1986 Launching of the FPD Equipment business



1994 Launching of the measurement system business



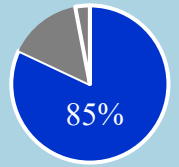
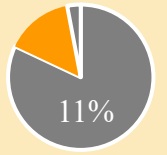
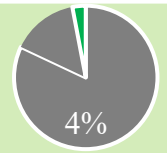
2011 Launching of the energy device equipment business



2015 Launching of battery safety testing business



Summary of ESPEC Business (Per Market / Use)

		Main Products	Market	Use	Sales Composition (FY2025)
Equipment Business	Environmental Test Chambers	- Temperature & humidity chamber - Walk-in type temperature & humidity chamber - Thermal shock chamber - Combined temperature & humidity chamber - Bench-top type temperature & humidity chamber - HALT test system - HAST chamber	- Electronic component and equipment market - Automobile market - Semiconductor market - Satellite Communications market - Pharmaceuticals and foods market	- For R&D about 70% - For credibility and evaluation about 20% - For production and inspection about 10%	
	Energy Device Equipment	- LIB charge-discharge cycle evaluation equipment - LIB safety evaluation system - Fuel cells evaluation system	- Next generation automobile market - Secondary batteries market - Fuel cells market	- For R&D - For credibility and evaluation - For safety evaluation - For production	
	Semiconductor Equipment	- Burn-in system - Semiconductor evaluation system	- Semiconductor market - Electronic component and equipment market - Automobile market	- For R&D - For credibility and evaluation - For production and inspection	
Service Business	After-sales Service and Engineering	- Repairs and preventive maintenance - Inspection and calibration - Construction around equipment	- Electronic component and equipment market - Automobile market - Semiconductor market - Aerospace equipment	—	
	Laboratory Testing Services and Facility Rentals	- Laboratory testing services - Resale - Equipment rental - Calibration		- For R&D - For credibility and evaluation	
Other Business	Environmental Conservation	Reforestation (Tree planting), Waterfront biotope restoration, Urban greening			
	Plant Production Systems	Plant factory, Research seedling cultivation systems			

Business Overview: Equipment Business

Providing comprehensive environmental testing solutions that support the development of advanced technologies

* Market shares are ESPEC estimates

Environmental Test Chambers

Over 60% market share in Japan and over 30% worldwide*

Providing products that support advanced technology development, reliability evaluation, production, and inspection processes across a wide range of fields, including electronic components, electronic devices, automobiles, semiconductors, satellite communications, pharmaceuticals, and foods.

Offering a diverse lineup according to temperature, humidity, pressure ranges, temperature change rate, size, and other requirements



Platinous J Series Temperature & Humidity Chambers



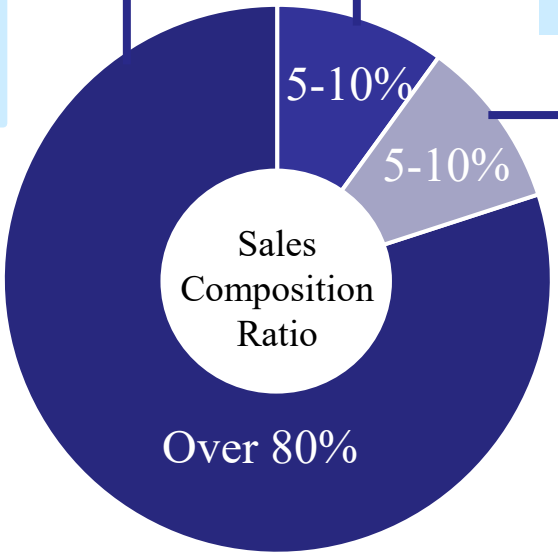
Thermal Shock Chamber



Walk-In Temperature & Humidity Chamber



Bench-top Type Temperature & Humidity Chamber



Semiconductor Equipment

Providing burn-in systems that sort good and defective products in semiconductor inspection processes, as well as measurement systems that evaluate the electrical characteristics of semiconductors, electronic components, and other products.



Measurement & Evaluation System



Burn-in Chamber

Energy Device Equipment

Providing rechargeable battery charge-discharge cycle test systems that evaluate the performance and service life of rechargeable batteries, safety evaluation systems, and fuel cell evaluation systems.



Rechargeable Battery Charge-Discharge Evaluation System



Temperature Chamber For Charge-Discharge Testing

Business Overview: Service Business

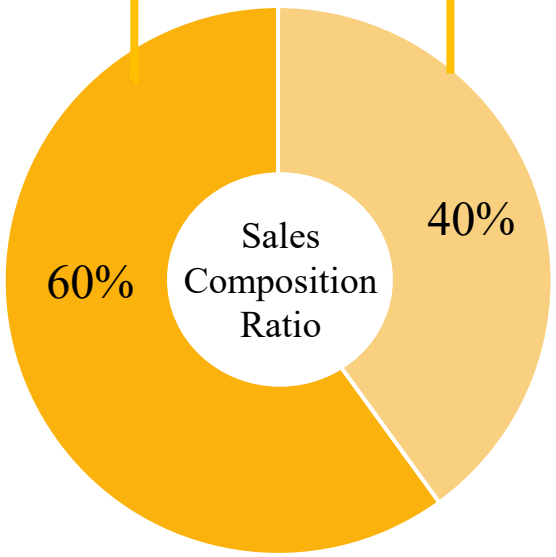
Providing services that resolve customer issues and offering total support for customer testing in accordance with various standards

After-Sales Service and Engineering

- Provide product maintenance and preventive maintenance so customers can use the equipment with confidence.
- Provide installation and relocation, peripheral construction work, and sales of peripheral equipment.
- Provide cloud-based network services.







Laboratory Testing Services and Facility Rentals

- Propose optimal solutions for the evaluation needs specific to each industry and conduct customers' environmental testing on their behalf at the Company's test laboratories.
- Provide rental and resale of environmental test chambers, as well as calibration services for measurement instruments.

Testing areas for laboratory testing services:
- Automobiles
- Rechargeable batteries
- Aviation and electric vertical takeoff and landing aircraft (eVTOLs)
- Electronic components and electronic devices
- Semiconductors, etc.



Five locations in Japan (Utsunomiya, Tokoname, Toyota, Kariya, and Kobe)
Test laboratories established at two locations in China (Shanghai and Suzhou) and one location in Thailand

GREEN POWER

Laboratory testing service in Japan powered 100% by renewable energies

Business Overview: Other Business

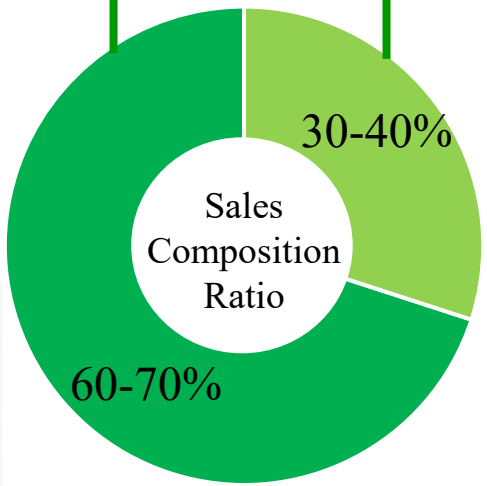
Plant Production Systems

Provide plant factories that control light, temperature, humidity, nutrients, as well as seedling cultivation systems for research purposes.





Experimental System for Analyzing Responses of Dryland plants to Climate Changes
(Arid Land Research Center, Tottori University)



Environmental Conservation

Forest and waterfront development focused on local species.



ESPEC's Strengths

Top Market Share

- Share of Environmental Test Chambers:
  Over 30% worldwide, Over 60% domestic (ESPEC estimates)
- First in Japan to develop environmental test chambers, rapidly established a brand in Japan and overseas and have held the top market share for many years

Technological Capabilities Product and Service Capabilities

- Developed a variety of products with high quality and meeting customer requirements
- Production technology capabilities that enable high-mix, low-volume production
- Total solutions for environmental tests, including products, laboratory testing services and technical support, and after-sales service capabilities

Global Structure

- Provide products globally that comply with the needs of respective countries through an extensive global network

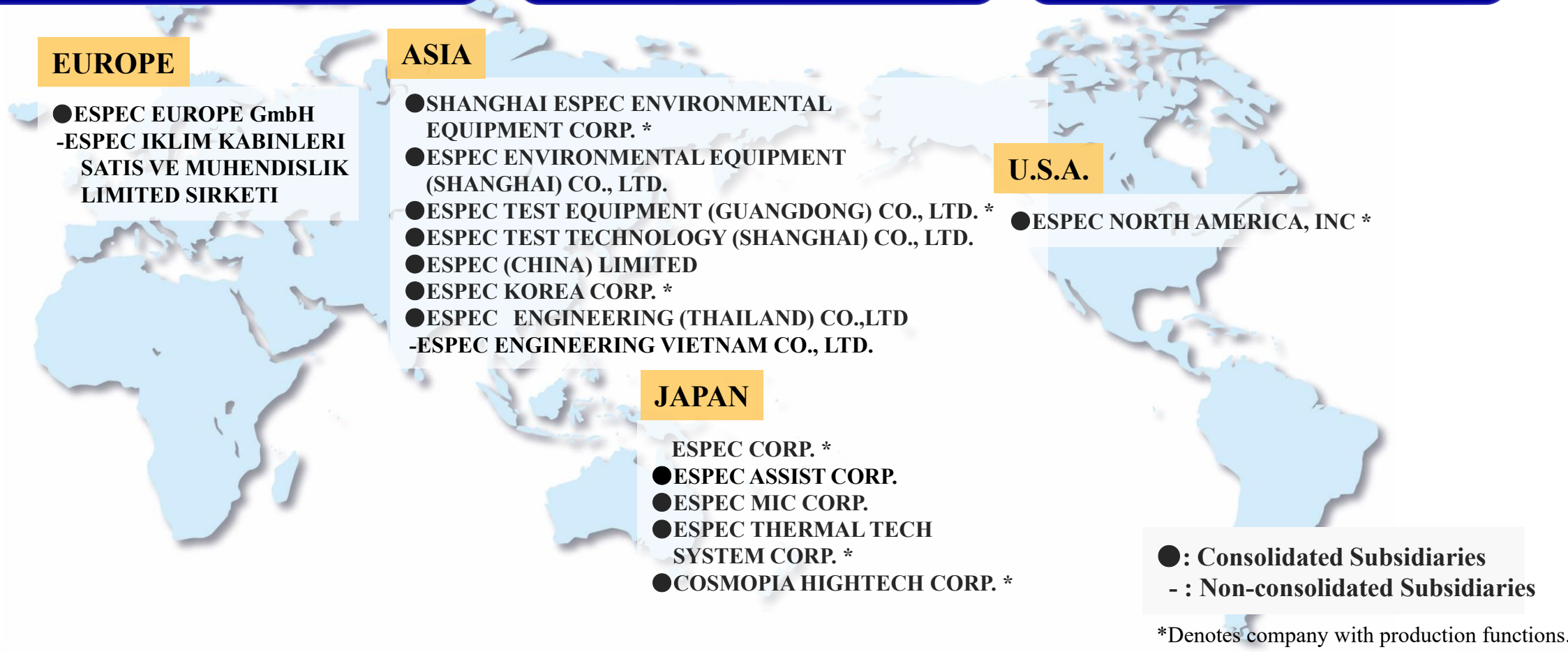
  Consolidated subsidiaries: 13 (9 overseas, 4 domestic)
  Overseas production bases: North America 1 company,
  China 2 companies, South Korea 1 company
  Overseas network: 50 locations (countries or territories), 44 companies

Global Network

Consolidated Subsidiaries
13 companies
(Global 9 companies, Domestic 4 companies)

Global Network
50 locations
44 companies

Business Facilities in Japan: 16
Domestic Agencies in Japan: 46



EUROPE

●ESPEC EUROPE GmbH
-ESPEC IKLIM KABINLERI SATIS VE MUHENDISLIK LIMITED SIRKETI

ASIA

●SHANGHAI ESPEC ENVIRONMENTAL EQUIPMENT CORP. *
●ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO., LTD.
●ESPEC TEST EQUIPMENT (GUANGDONG) CO., LTD. *
●ESPEC TEST TECHNOLOGY (SHANGHAI) CO., LTD.
●ESPEC (CHINA) LIMITED
●ESPEC KOREA CORP. *
●ESPEC ENGINEERING (THAILAND) CO.,LTD
-ESPEC ENGINEERING VIETNAM CO., LTD.

JAPAN

ESPEC CORP. *
●ESPEC ASSIST CORP.
●ESPEC MIC CORP.
●ESPEC THERMAL TECH SYSTEM CORP. *
●COSMOPIA HIGHTECH CORP. *

U.S.A.

●ESPEC NORTH AMERICA, INC *

●: Consolidated Subsidiaries
- : Non-consolidated Subsidiaries

*Denotes company with production functions.

Target Markets

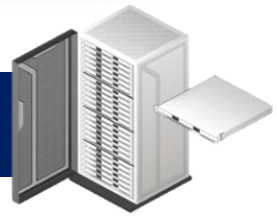
< AI Semiconductor Market >
Servers, Semiconductors, Electronic components, Electronic materials

As generative AI spreads throughout society, demand is increasing for environmental testing aimed at evaluating the reliability of AI servers and the semiconductors, electronic components, and electronic materials that comprise them.



Data centers

AI Servers



<Main Customers>
- Server manufacturers
- High-performance computing (HPC) manufacturers

<Main Applications>
Durability (environmental resistance) evaluation
Reliability evaluation



For AI Servers
Walk-in Temperature & Humidity Chamber for High Heat-generation Loads

Semiconductors

GPUs, memory, logic

<Main Customers>
- Semiconductor manufacturers
- Foundries



<Main Applications>
Accelerated stress testing
Screening (inspection)



Rapid-rate Thermal Cycle Chamber

Electronic components

Capacitors, semiconductor boards, power supplies

<Main Customers>
- Electronic component manufacturers
- Semiconductor board manufacturers



<Main Applications>
Electrical characteristic evaluation (conductivity, etc.)
Operational testing



Highly Accelerated Stress Test System (HAST Chamber)

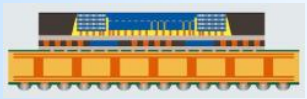


Measurement & Evaluation System

Electronic materials

Board materials, insulating materials

<Main Customers>
- Material manufacturers (base materials, resist materials, molding materials, etc.)



<Main Applications>
Material property evaluation (moisture absorption, etc.)
Storage testing



Burn-in Chamber

Target Markets

< AI Semiconductor Market >
Optical-Electrical Convergence Technology (Co-Packaged Optics, CPO)

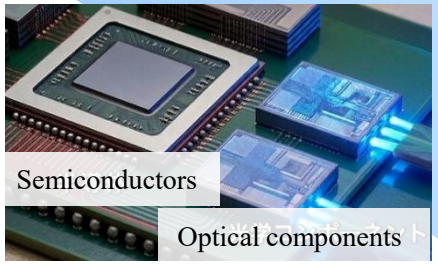
Co-packaged optics (CPO) integrates semiconductors and optical communication components on a common package substrate. This technology is gaining attention for reducing server power consumption and increasing communication speeds. Demand for environmental testing is also growing for the development and reliability evaluation of optical components and packaging technologies.



Data centers

AI Servers

Optical-Electrical Convergence Technology (Co-Packaged Optics)



Semiconductors and optical components integrated on the same package substrate

Semiconductors

GPU・CPU



<Main Customers>
- Semiconductor manufacturers
- Foundries

<Main Applications>
Package reliability evaluations



Thermal Shock Chambers



Rapid-rate Thermal Cycle Chambers

Optical components

Modulators, detectors, connectors



<Major customers>
- Electronic component manufacturers
- Electric cable manufacturers

<Main Applications>
Durability evaluations (temperature and humidity)
Reliability evaluations



High-power Temperature & Humidity Chamber



Bench-top Type Temperature (& Humidity) Chambers

Target Markets

< Satellite Communications Market >
Artificial satellites (Low earth orbit), Satellite-mounted equipment and components

In the field of commercial satellite communications technology led by private operators, demand is increasing for environmental testing to evaluate the reliability of low earth orbit (LEO) satellites and communication equipment, semiconductors, and electronic components installed in artificial satellites.



Artificial satellites

Low earth orbit (LEO) satellites

Altitude: Several hundred to 2,000 km
Ground coverage area: Radius of several hundred km

<Main Customers>
- Communications satellite manufacturers

<Main Applications>
Durability (environmental resistance) evaluation
Reliability evaluation



HALT/HASS Reliability Testing System

Satellite-mounted equipment

Power supplies, communication equipment, attitude control systems

<Main Customers>
- Power supply equipment manufacturers
- Communication equipment manufacturers
- Observation equipment manufacturers

<Main Applications>
Durability (environmental resistance) evaluation
Reliability evaluation

Satellite-mounted components

Semiconductors, solar panels, batteries

<Main Customers>
- Semiconductor manufacturers
- Electronic component manufacturers
- Battery manufacturers

<Main Applications>
Qualification testing
Screening (inspection)



HALT/HASS
Reliability Testing System



Thermal Shock Chamber



Global-N
Temperature Cycling Chambers



Platinous Series
Temperature and Humidity Chambers



Constant-pressure
Temperature & Humidity Chamber MZ Series

Equipment Business/Service Business: All Weather Simulation Chamber (in the Kobe R&D Center)

Opened the world's first All Weather Simulation Chamber
Encouraging open innovation and strengthening environmental creation technology

(Mar. 2021)

Replicates dynamic climate environments with high-precision control and variation of seven environmental factors (temperature, humidity, snow, fog, rain, sunlight and wind)

■ All Weather Simulation Chamber





Test chamber: Width 6 m x Depth 9 m x Height 3 m
A black coating is applied to suppress the diffuse reflection of light.

■ Examples of tests in dynamic environments



(1) Tests to replicate the change from sleet to snow

Snow with different amounts of water content can be replicated, including snowfall at temperatures around 0°C, which is close to snowfall in a natural environment. By controlling the snow quality and temperature, the laboratory replicates the change from sleet to snow. The laboratory can confirm the performance of automated driving sensors for which snow accretion has become a problem.



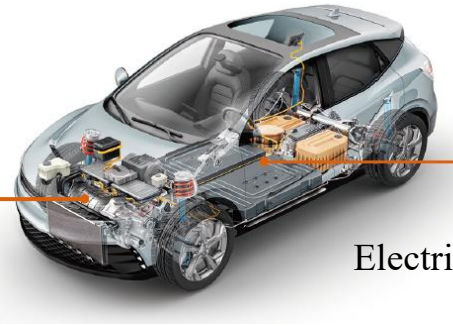
(2) Experiment to replicate the change from rain to fog

The laboratory controls the thickness, temperature and humidity of fog and replicates the change from rain to fog. The laboratory can confirm the performance of automated driving sensors in response to the effects of fog.

Equipment Business: Usage Case with Environmental Test Chambers

Ensure reliability of new technologies and new products by repeatedly testing each component, module and finished product

In-vehicle parts/electrical components
・ECU ・Inverter
・Converter ・Sensor ・Motor etc.



Automotive Batteries
・Lithium-ion battery
・All solid-state battery etc.

Electric Vehicle (EV) image

Representative Examples for Environmental Testing

Device	Process/Test Condition		Our Products
【Power Device】 	Inspection	■Thermal shock test: －40℃⇔＋125℃	Thermal shock chamber
		■High temperature exposure: ＋175℃、＋85℃	(Compact size) Oven
		■Burn-in test	Burn-in chamber
【In-vehicle Sensor】 	Inspection	■Temperature cycle test of printed circuit board: －40℃⇔＋110℃	Temperature & humidity chamber (Platinous) /Oven
		■ Temperature characteristic test after soldering: Linear change between -30℃ and +85℃	Burn-in chamber, Rapid-rate thermal cycle chamber
	Evaluation	■ Thermal shock test : －30℃⇔RT⇔＋80℃、－55℃⇔＋155℃	Thermal shock chamber
【CCD／CMOS】 	Production	■ Diffusion Test: +150℃	Compact size Oven
		■ Drying after cleaning: +85℃	Clean Oven
	Evaluation	■Screening: ＋85℃	Temperature chamber (Platinous)／Burn-in chamber
	Inspection	■Temperature and humidity test: ＋85℃／＋85%rh、＋60℃／90%rh	Temperature & humidity chamber (Platinous)
		■Acceleration test: ＋120℃／100%rh	HAST chamber
		■ Thermal shock test : －40℃⇔＋125℃、－20℃⇔＋85℃	Thermal shock chamber

Equipment Business: Main New Products

Release Date	Name of product	Features
Aug.2026	Equipped with CO_2 refrigerant “R-744” Platinous J Series Low Temperature (& Humidity) Chamber Environmental Stress Chamber AR Series	- Launched a total of 8 chamber models for the European market. - Comes standard with the CO_2 refrigerant “R-744,” a natural refrigerant with an extremely low GWP* value of “1.”
Jul. 2026	Low-Voltage Insulation Reliability Evaluation System AMI-SPM	- Addresses insulation degradation occurring under low-voltage conditions - Enables insulation reliability evaluation in the actual usage environment for increasingly miniaturized advanced packaging
Jul. 2026	Low-Current Conductor Reliability Evaluation System AMR-SPM	- Applies a minute current that does not place excessive stress on samples - Enables both low-current application and high-precision measurement, which are required for joint evaluation in advanced packaging
Dec. 2025	Walk-in Temperature & Humidity Chamber for High Heat-generation Loads	- Handling high heat-generation loads for AI server reliability testing - Enables testing compliant with ASHRAE standards used for server reliability evaluation
Oct. 2025	Highly Accelerated Stress Test System (HAST Chamber) Model supporting large substrates	- Meeting testing demands in the AI semiconductor and autonomous driving markets - Capable of evaluating a large number of samples in a single test, and improving testing efficiency
Apr. 2025	Ultra-Low-Temperature Shock Freezer	- Preservation of perishable food freshness through rapid freezing to an ultra-low temperature of -70℃ - Automatically completes the entire process of food freezing, storing, defrosting and reheating
Apr. 2025	Rapid-Rate Thermal Cycle Chamber High-Performance Model	- Capable of specimen temperature ramp control at a rate of 20K/min - Complies with semiconductor package reliability test standards and international standards for electronics and automotive markets, among others

*GWP : Global Warming Potential. The smaller the value, the less environmental impact.

Equipment Business: New Product Introduction 1

Highly Accelerated Stress Test System (HAST Chamber) EHS-222M-L

- In October 2025, we added the EHS-222M-L model, which supports testing of large substrates, to the Highly Accelerated Stress Test System (HAST Chamber) lineup
- Capable of evaluating a large number of samples in a single test
- Contributes to shorter development cycles and higher reliability for electronic components

Highly Accelerated Stress Test System
EHS-222M-L



Rapid-Rate Thermal Cycle Chamber TCC-151W-20

- In April 2025, a high-performance model capable of controlling specimen temperature at 20 K/min was added to the lineup of rapid-rate thermal cycle chambers
- Complies with international standards such as semiconductor package reliability test standards and standards for electronics and automotive markets
- Comes standard with low-GWP* refrigerant “R-449A”

Rapid-Rate Thermal Cycle Chamber
TCC-151W-20



* Metric for expressing the warming potential of greenhouse gases relative to carbon dioxide. The smaller the value, the lower the environmental impact.

Equipment Business: New Product Introduction 2

Launched low temperature (& humidity) chambers Platinous J Series ECO Type with low-GWP refrigerant

- In November 2024, launched the ECO Type in the Platinous J Series, the global standard model for environmental test chambers
- Proprietary refrigeration technology reduces power consumption by up to 70% compared to conventional models, contributing to the reduction of greenhouse gas emissions by adopting low- GWP* refrigerant “R-449A”



Low Temperature (& Humidity) Chambers
Platinous J Series ECO Type

First domestic launch by COSMOPIA HIGHTECH of a rapid temperature change device using low-GWP refrigerant

- In October 2024, COSMOPIA HIGHTECH, part of our Group, launched the first domestic rapid temperature change device equipped with low-GWP* refrigerant “R-473A”
- Complies with international test standards and contributes to the reduction of greenhouse gas emissions



Rapid Temperature Change Device
Premium Excellent Series
(EC-28PXHH)

*GWP：Global Warming Potential. The smaller the value, the less environmental impact.

Equipment Business: New Product Introduction 3

Commissioned Measurement Services

Contribute to improving the accuracy of thermal analysis CAE and heat dissipation design of semiconductor packages, mounting substrates, etc.

(Expansion in Jan. 2025)

- Thermal Dependent Warpage Measurement Service
  - Visualize the warpage deformation of semiconductor packages and mounting substrates
  - Supports reflow oven temperature environment (-40℃ to +260 ℃)
  - Supports large substrate sizes up to 300 mm
- Thermal Image Analysis Service
  - Visualize the temperature distribution of specimens under constant temperature environment (-40 ℃ to +100 ℃)



Thermal Dependent Warpage Measurement Service

-70°C Ultra-Low Temperature Shock Freezer for delicious rapid freezing

- In April 2025, launched the “Ultra-Low Temperature Shock Freezer” capable of freezing food rapidly at -70°C, preserving freshness even for perishable items
- Enables freezing in a low airflow environment, preventing food from drying out, and allows a seamless process from freezing to thawing and reheating in a single unit



Ultra-Low Temperature Shock Freezer

Equipment Business: Examples of Products Delivered

(Delivered in Jul. 2018)

Walk-in Type Temperature (& Humidity) Chamber, for building materials

Uses:

Reproduce the environment inside apartments (temperature and humidity) and outdoors (weather such as rain, snow, and sunlight), conduct performance evaluations and durability tests of building materials for sash, balcony, etc.



Walk-in Type Temperature (& Humidity) Chambers, for use for building materials



Temperature (& Humidity) Chambers are movable so that building materials for testing can be easily changed



Furnished with irradiation equipment and watering (rain) equipment, to reproduce an outdoor weather environment

Equipment Business: Usage Case with Energy Device Equipment

Charge-discharge Cycle Evaluation Equipment

Equipment for ensuring the reliability and safety of lithium-ion secondary batteries for next-generation vehicles (e.g., hybrid and electric vehicles)

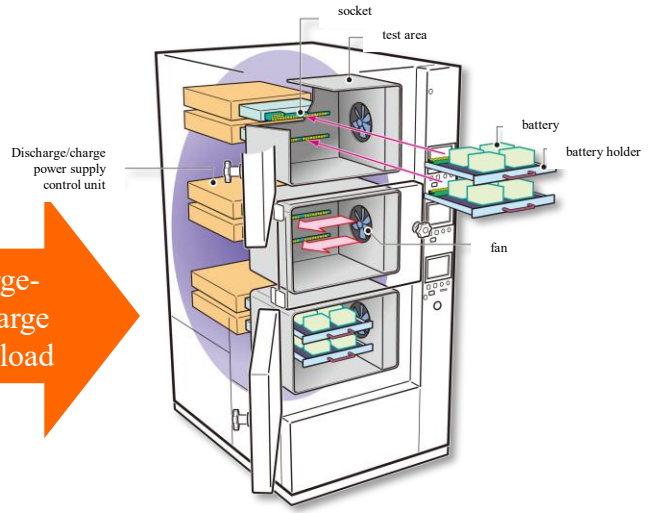


Secondary Battery Charge-Discharge Evaluation System

Secondary Batteries



Charge-discharge cycle load



Checking the charge-discharge characteristics of secondary batteries

Evaluating the performance and life of secondary batteries

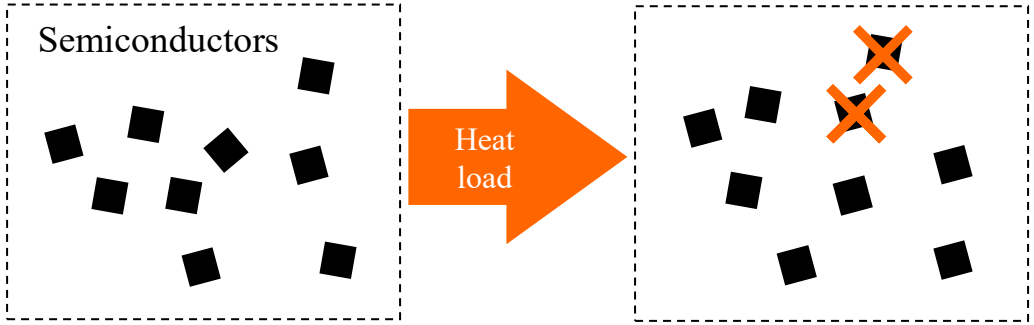
Equipment Business: Usage Case with Semiconductor Equipment

Screening

Eliminate defective products to maintain initial-period quality at the final inspection stage of semiconductor device manufacturing



Burn-In Chamber



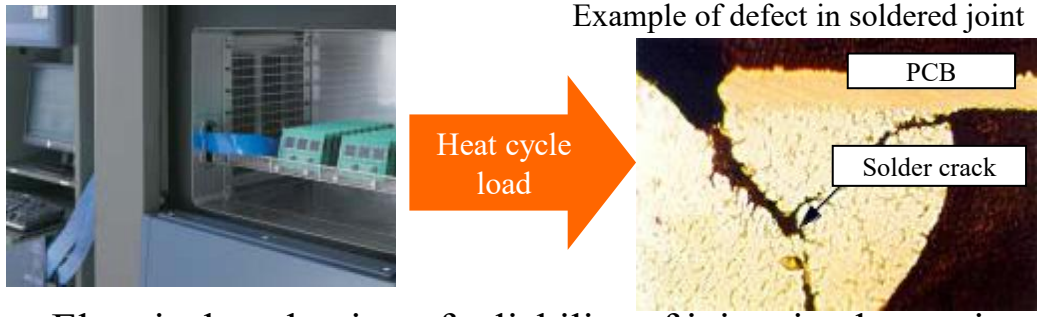
Elimination of latent early failures

Reliability Evaluation

Used to evaluate basic failure patterns to ensure reliability in the development of new technologies



Conductor Resistance Evaluation System



Electrical evaluation of reliability of joints in electronic parts

Service Business: Features of Maintenance Agreement Services

Stable operation of equipment

A service engineer checks and diagnoses equipment once a year, replaces wear parts, and supports the stable operation of equipment.

Remote monitoring of equipment / email notification of abnormalities



The operational status of equipment can be checked from a PC. Email notification when an abnormality occurs.

Reduction of downtime



Quickly solve equipment abnormalities through advance diagnosis using equipment data.

Shift to fixed maintenance costs



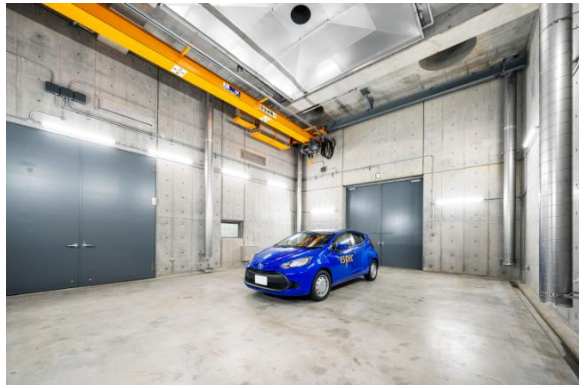
Enables fixed maintenance costs with no emergency repair costs incurred. Also reduces the work involved in managing equipment.

Service Business: Laboratory Testing Services

Aichi xEV Battery Safety Test & Certification Center, One of Japan's Largest Dedicated Automotive Rechargeable Battery Testing Centers

- Supports larger and higher capacity automotive rechargeable batteries with cutting-edge testing facilities.

- In the large-scale safety testing chambers, it is possible to conduct various safety tests simulating thermal runaway, as required for stationary batteries.



A safety testing room that can accommodate one car

NITE* "Safety Guidelines for Battery Energy Storage Systems for Public Procurement and Critical Infrastructure" One-stop service from testing to certification

* National Institute of Technology and Evaluation, an incorporated administrative agency.

- In collaboration with TÜV SÜD Japan, provide integrated services from testing to certification for five safety requirements (seismic shock resistance, fire propagation resistance, rainwater immersion resistance, saltwater immersion resistance, and drop resistance).

- Help ensure the safety and reliability of battery energy storage systems, which are critical social infrastructure.



Fire resistance test in progress

Other Business: Environmental Preservation/Plant Production Systems

At Expo 2025 Osaka-Kansai
cooperating in venue greening and aquaponics exhibitions

■Provision of planted mats and seedlings at the venue

- Supplying mats planted with Japanese native cogon grass and seedlings of silver grass for the “Grand Ring”, and wild grasses and aquatic plants to border the pond’s edge in the “Forest of Tranquility”.
- Also supplying for the EXPO National Day Hall, Hungary Pavilion, Kuwait Pavilion, Signature Pavilions, etc.



The Grand Ring

■Cooperation in exhibitions at the Osaka Healthcare Pavilion

- Collaboration with the Osaka Metropolitan University R&D Center for the Plant Factory to support aquaponics exhibits.
- Provision of vegetable cultivation technologies and expertise.

What is aquaponics?
A recycling production system that combines hydroponics and land-based cultivation. Bodily waste from fish is decomposed by microorganisms and used as a source of nutrients needed to grow plants. This enables vegetables to be grown either without using chemical fertilizers or reducing the amount of their use.



Aquaponics “Cradle of Life”

INQUIRIES:

ESPEC CORP.

Sustainability Management Department

IR & Public Relations Group

E-mail : ir-div@espec.jp

Website: https://www.espec.co.jp/english/