

Securities ID code:6859

Results Briefing for the Nine Months Ended December 31, 2021

ESPEC CORP.
February 18, 2022

Financial Result for the Nine Months Ended December 31, 2021

Orders Received increased substantially due to recovery of the global economy, while production decreased due to a shortage of electronic components. Although sales increased year on year, operating profit declined because of an increase in selling, general and administrative expenses.

	Year on Year	Comparison with Forecasts (Announced in November, 2021)
■ Orders Received	○ Increased substantially in the Equipment Business (mainly environmental test chambers)	○ Continued strong performance in the Equipment Business (mainly environmental test chambers)
■ Net Sales	○ Declined in Other Business, but increased in the Equipment Business (mainly environmental test chambers) and Service Business	✕ Below forecast with no progress made toward the normalization of component procurement
■ Operating Profit	✕ Decreased due to an increase in selling, general and administrative expenses	✕ Below forecast due to a shortfall in net sales and an increase in selling, general and administrative expenses
■ Ordinary Profit, Profit Attributable to Owners of Parent	✕ Decreased due to the decrease in operating profit	✕ Below forecast due to the decrease in operating profit

■ On February 10, the Company announced downward revisions to its full-year profit forecast based on 3rd quarter results. No revision made to initial forecast for year-end dividends (¥18 interim dividend, ¥42 year-end dividend, and ¥60 annual dividend).

Summary of Profits and Losses

(Millions of yen)

	FY 2020 3Q Results	FY 2021 3Q Results	Year on Year
Orders Received	27,448	38,752	41.2%
Net Sales	26,526	28,131	6.1%
Cost of Net Sales	17,401	18,337	5.4%
Cost Rate	65.6%	65.2%	0.4pt amelioration
Gross Profit	9,125	9,794	7.3%
SG&A	7,794	8,621	10.6%
Operating Profit	1,330	1,172	-11.9%
Ordinary Profit	1,491	1,386	-7.0%
Profit Attributable to Owners of Parent	943	834	-11.6%

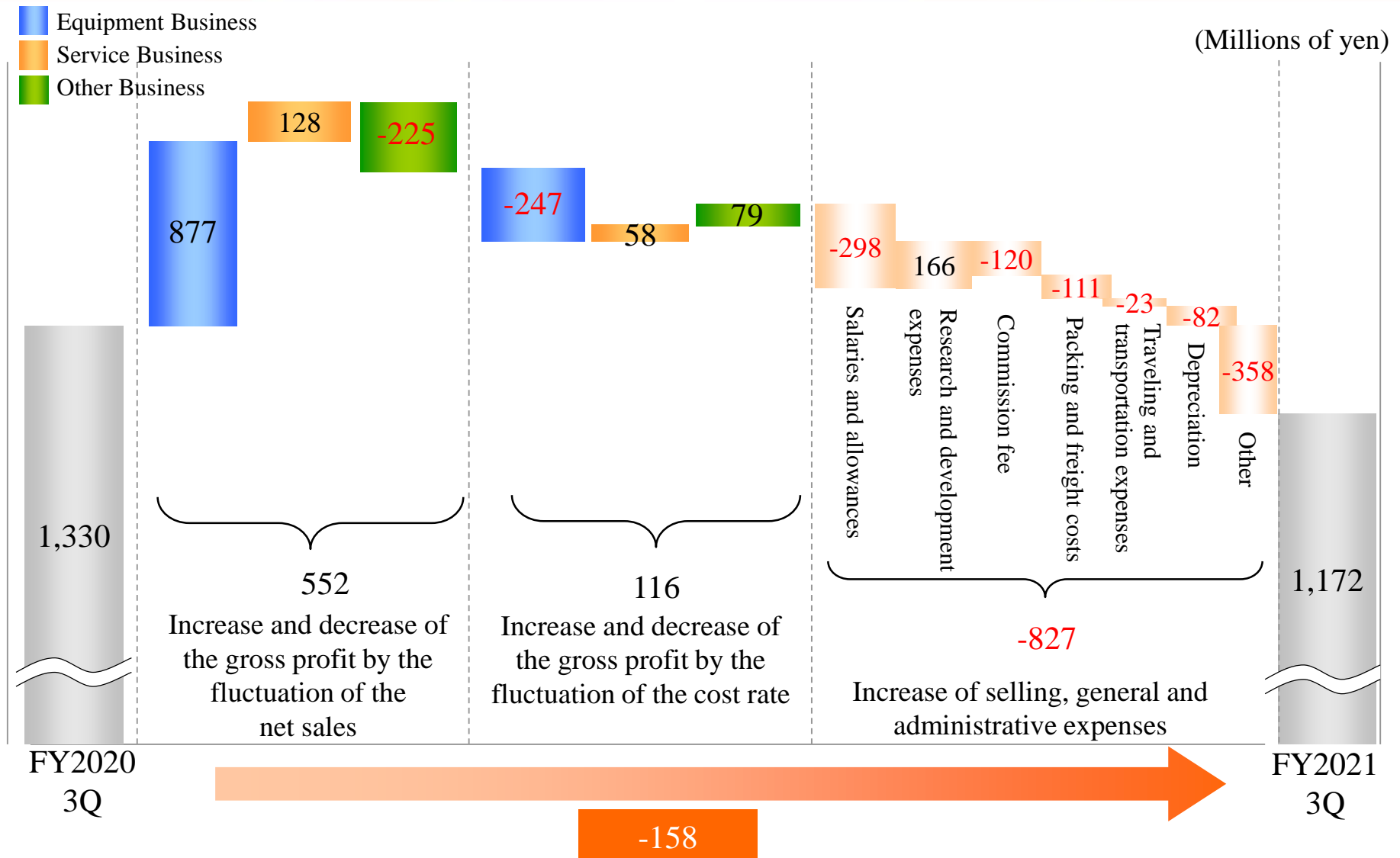
From July 2021, ESPEC THERMAL TECH SYSTEM CORP. has been included in the scope of consolidation.

Performance by Segment

(Millions of yen)

Segment		FY 2020 3Q Results	FY 2021 3Q Results	Year on Year
Equipment Business	Orders Received	22,340	33,007	47.8%
	Net Sales	20,745	23,237	12.0%
	Operating Profit	1,073	951	-11.4%
Service Business	Orders Received	4,567	4,993	9.3%
	Net Sales	4,114	4,472	8.7%
	Operating Profit	191	311	63.1%
Other Business	Orders Received	778	956	22.9%
	Net Sales	1,848	612	-66.9%
	Operating profit	64	-89	-
Elimination	Orders Received	-237	-205	-
	Net Sales	-182	-190	-
	Operating Profit	1	-0	-
Total	Orders Received	27,448	38,752	41.2%
	Net Sales	26,526	28,131	6.1%
	Operating Profit	1,330	1,172	-11.9%

Analysis of Operating Profit Increase and Decrease Factor



Totals have been calculated using the gross profit per net sales rate.

Equipment Business

(Millions of yen)

	FY 2020 3Q Results	FY 2021 3Q Results	Year on Year
Orders Received	22,340	33,007	47.8%
Net Sales	20,745	23,237	12.0%
Operating Profit	1,073	951	-11.4%
Profit Margin(%)	5.2%	4.1%	

Environmental Test Chambers

- In Japan, orders received increased year on year both for highly versatile standardized products and customized products, but net sales decreased.
- In overseas markets, orders-received were strong. Net sales increased year on year in China, North America, Europe, Southeast Asia and Taiwan, but decreased in South Korea.

Energy Device Equipment

- Orders received and net sales both increased year on year and orders were acquired for evaluation systems for secondary batteries due to recovery in automotive-related investment.

Semiconductor Equipment

- Orders received were largely unchanged year on year due to investment related to memory and automobiles continued, but net sales decreased.

Service Business

(Millions of yen)

	FY 2020 3Q Results	FY 2021 3Q Results	Year on Year
Orders Received	4,567	4,993	9.3%
Net Sales	4,114	4,472	8.7%
Operating Profit Profit Margin(%)	191 4.6%	311 7.0%	63.1%

After-Sales Service and Engineering

- Both orders received and net sales increased year on year due to a strong performance in preventive maintenance services, such as maintenance agreements.

Laboratory Testing Services and Facility Rentals

- Both orders received and net sales increased year on year as laboratory testing services, centered on automotive-related matters, recovered in Japan, and performed steadily in China.

Other Business

(Millions of yen)

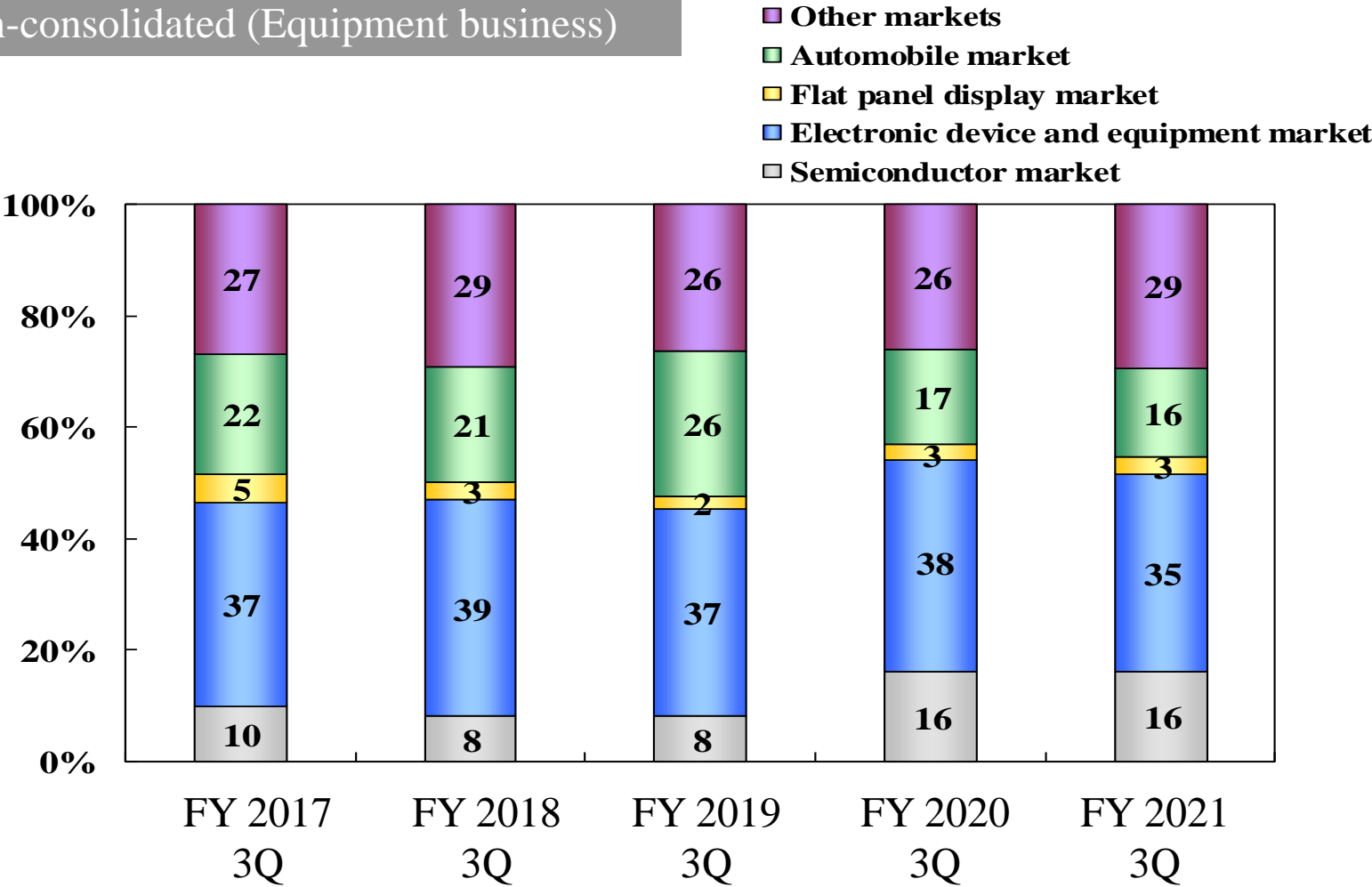
	FY 2020 3Q Results	FY 2021 3Q Results	Year on Year
Orders Received	778	956	22.9%
Net Sales	1,848	612	-66.9%
Operating Profit	64	-89	-
Profit Margin(%)	3.5%	-14.7%	-

Environmental Preservation, Plant Production Systems

- Orders received increased year on year as orders were captured for plant factories, in addition to an increase in the reforestation (tree planting) and waterside project businesses.
Net sales decreased because there was a large plant factory project in the same period of the previous fiscal year.

Breakdown of Sales by Market

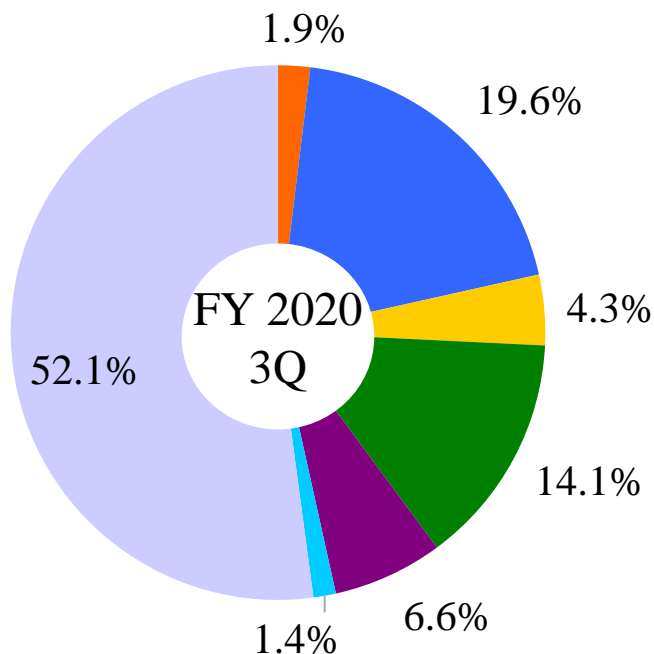
Non-consolidated (Equipment business)



Sales by Region

FY 2020 3Q

Overseas sales ratio: 47.9%



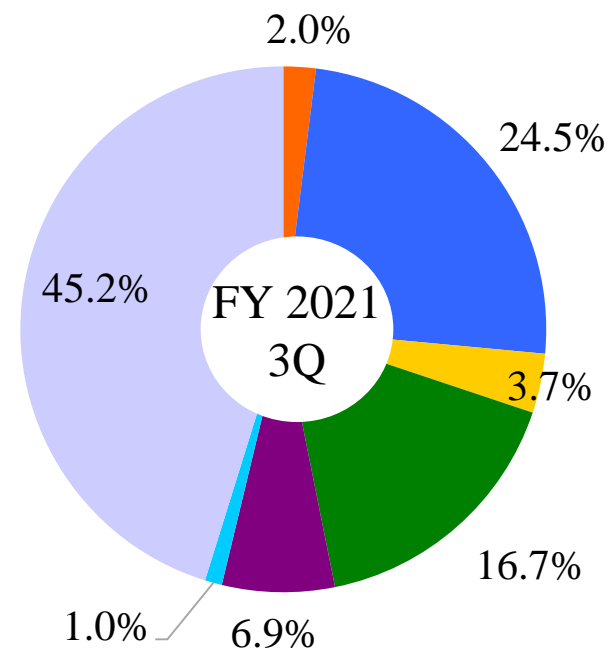
Total: 26,526 million yen

(Overseas sales: 12,703 million yen)

FY 2021 3Q

Overseas sales ratio: 54.8%

- Taiwan
- China
- South Korea
- Europe & America
- South East Asia
- Other
- Japan



Total: 28,131 million yen

(Overseas sales: 15,420 million yen)

Full-Year Forecasts for Fiscal 2021

(Millions of yen)

	FY 2020	FY 2021			
	Full Year Results	3Q Results	Forecast (Revised on February 10)		
			4Q	Full Year	Year on Year
Orders Received	37,580	38,752	12,048	50,800	35.2%
Net Sales	38,668	28,131	14,069	42,200	9.1%
Gross Profit Profit Margin (%)	13,412 34.7%	9,794 34.8%	4,506 32.0%	14,300 33.9%	6.6%
SG&A SG&A Ratio (%)	10,839 28.0%	8,621 30.6%	3,279 23.3%	11,900 28.2%	9.8%
Operating Profit Profit Margin(%)	2,572 6.7%	1,172 4.2%	1,228 8.7%	2,400 5.7%	-6.7%
Ordinary Profit Profit Margin(%)	2,840 7.3%	1,386 4.9%	1,214 8.6%	2,600 6.2%	-8.5%
Profit Attributable to Owners of Parent Profit Margin (%)	1,961 5.1%	834 3.0%	1,066 7.6%	1,900 4.5%	-3.1%

Segment Financial Forecasts

(Millions of yen)

		FY 2020	FY 2021			
		Full year Results	3Q Results	Forecast (Revised on February 10)		
				4Q	Full year	Year on Year
Equipment Business	Orders Received	30,755	33,007	10,443	43,450	41.3%
	Net Sales	30,669	23,237	11,763	35,000	14.1%
	Operating Profit	2,062	951	969	1,920	-6.9%
Service Business	Orders Received	6,153	4,993	1,457	6,450	4.8%
	Net Sales	6,063	4,472	1,928	6,400	5.6%
	Operating Profit	446	311	239	550	23.3%
Other Business	Orders Received	976	956	244	1,200	23.0%
	Net Sales	2,241	612	488	1,100	-50.9%
	Operating Profit	60	-89	19	-70	-
Elimination	Orders Received	-304	-205	-95	-300	-
	Net Sales	-305	-190	-110	-300	-
	Operating Profit	3	-0	0	0	-
Total	Orders Received	37,580	38,752	12,048	50,800	35.2%
	Net Sales	38,668	28,131	14,069	42,200	9.1%
	Operating Profit	2,572	1,172	1,228	2,400	-6.7%

FY 2021 Dividend Forecast

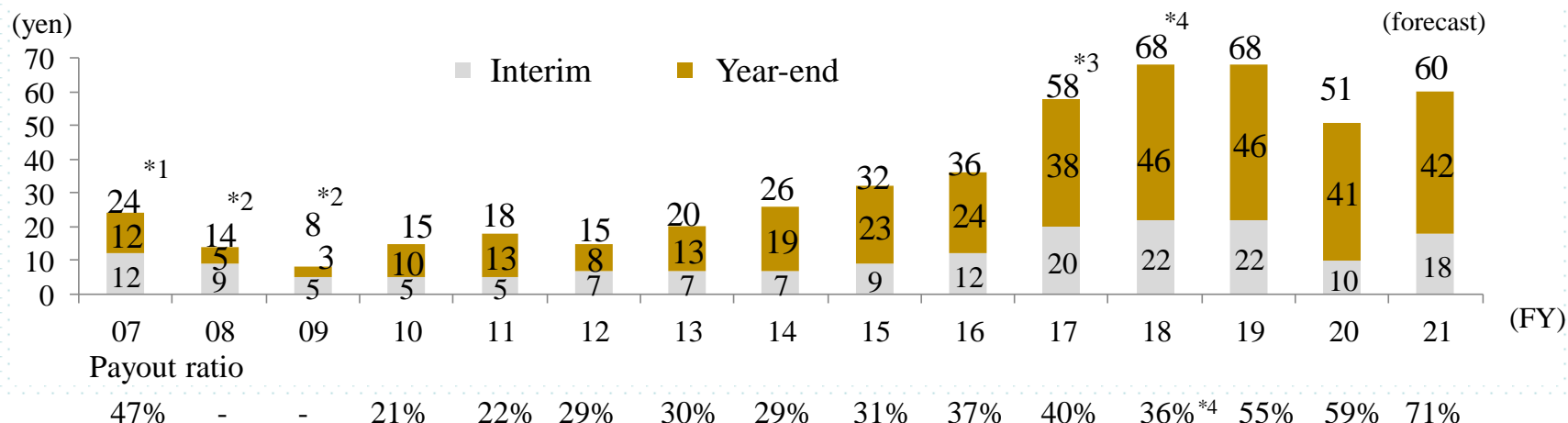
No revision made to dividend forecast, despite revisions to the full-year forecast on February 10th. In FY2021, ¥18 interim dividend, ¥42 year-end dividend, and ¥60 annual dividend are planned.

Basic policy on profit distribution

We recognize that passing on profits to our shareholders is a key priority and that raising corporate value on a lasting basis is fundamental to raising shareholder value.

Dividends are decided taking into account sustainability and the dividend payout ratio.

Dividend per share and dividend payout ratio



*1. The dividend per share for FY2007 included a commemorative dividend of ¥2 per share to mark the Company's 60th founding anniversary. (an interim dividend of ¥1 per share and a year-end dividend of ¥1 per share).

*2. Dividends were implemented in FY2008 and FY2009, despite posting a loss attributable to owners of parent.

*3. The dividend per share for FY2017 includes a commemorative dividend of ¥2 per share to mark the Company's 70th founding anniversary (an interim dividend of ¥1 per share and a year-end dividend of ¥1 per share).

*4. FY2018 was an irregular 15-month fiscal period for overseas consolidated subsidiaries. The dividend payout ratio for a 12-month period is 39% (reference)

Main Initiatives for ESG

■ E (Environment)

- Replaced approximately 70% of all electric power consumed by the ESPEC Group with renewable energy
Replaced 100% of electric power used in the laboratory testing services with renewable energy
(January, 2020–April, 2021)
- Certified with a score of B for the second consecutive year in the CDP Climate Change 2021 Questionnaire
- Agreed with the proposals of the Task Force on Climate-related Financial Disclosures (TCFD) and participated in the TCFD Consortium
- Currently formulating the 8th environmental medium-term management plan

■ S (Society)

- Resumed free rental of freezers for vaccine storage in anticipation of third round of vaccinations
(from December, 2021)
- Established employee participation-type donation program ESPEC Smile Club (December, 2020)
- Opened ESPEC Smile Farm, a plantation staffed by workers with disabilities (November, 2021)

■ G (Governance)

- Decided on the transition to a Company with Audit & Supervisory Committee in December 2021
(scheduled for June 2022)

(June, 2021)

Support the early commercialization of next-generation batteries through the SoftBank Next-generation Battery Lab.

- In June 2021, the Battery Lab opened in the ESPEC Battery Safety Testing Center in Utsunomiya City.
- ESPEC's constant-temperature chambers for charging and discharging rechargeable batteries is installed here
- As part of laboratory testing services, ESPEC will provide support in areas such as test planning, equipment inspection and management and response measures when malfunctions occur.



SoftBank Next-generation Battery Lab.
Inside the ESPEC Battery Safety Testing Center



Tour of the ESPEC Battery Safety Testing Center
A site tour of the SoftBank Next-generation Battery Lab.
organized by SoftBank (November 2021)

External Recognition

December, 2021

- A score of B for the second consecutive year in the CDP Climate Change 2021 Questionnaire
- Selected as a "GRADE AAA" company website (overall ranking) in the All Japanese Listed Companies' Website Ranking 2021 by Nikko Investor Relations Co., Ltd.
- Awarded a Bronze Prize in the Gomez IR Website Ranking 2021 by BroadBand Security, Inc. (ranked 27th according to industry)



November, 2021

- Rated 3 stars in Nikkei's 5th Smart Work Management Survey
- Rated 3.5 stars in the Nikkei's 3rd SDGs Management Survey



October, 2021

- Ranked 169th in the Nikkan Kogyo Shimbun's Corporate Power Ranking (sponsored by the Ministry of Economy, Trade and Industry)

March-June, 2021

- Ranked 429th in Toyo Keizai Inc.'s 2021 SDGs Corporate Ranking
- Ranked 357th in Toyo Keizai Inc.'s 2021 CSR Corporate Ranking



February, 2021

- Our Sustainability Report received the Excellence Award in the Environmental Communication Awards (Organized by the Ministry of the Environment and the general incorporated foundation Global Environment Forum)

June, 2020

- Consecutively selected Ministry of Economy, Trade and Industry (METI) Global Niche Top Companies Selection 100.

These materials contain forward-looking statements, including the Company's present plans and forecasts of performance, that reflect the Company's plans and forecasts based on the information presently available. These forward-looking statements are not guarantees of future performance, and plans, forecasts, and performance are subject to change depending on future conditions and various other factors.

INQUIRIES:

ESPEC CORP.

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E-mail: ir-div@espec.jp

Junko Nishitani (General Manager),

Yasutoshi Nakagawa and Natsuko Okawa

Corporate Communication Department

Quality is more than a word

ESPEC

- Company Presentation and Business Overview
- Sustainability Initiatives

February 18, 2022

Company Profile

Industry-leading manufacturer of environmental test chambers

Name	ESPEC CORP.
Head Office	3-5-6, Tenjinbashi, Kita-ku, Osaka
Representative	Masaaki Ishida
Established	July 25, 1947
Incorporated	January 13, 1954
Paid-up Capital	¥6,895 Million
Issued shares	23,781,394 Shares
Employees	1,526 (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

(As of March 31, 2021)

Global Network

Consolidated Subsidiaries

13 companies

(Global 9 companies,
Domestic 4 companies)

Global Network

50 locations

45 companies

Business Facilities in Japan: 25
Domestic Agencies in Japan: 46

EUROPE

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

JAPAN

- ESPEC CORP.
- ESPEC TEST SYSTEM CORP.
- ESPEC ASSIST CORP.
- ESPEC MIC CORP.
- ESPEC THERMAL TECH
SYSTEM CORP.
- MIC FARM OHGUCHI CORP.

ASIA

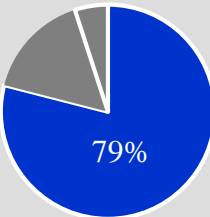
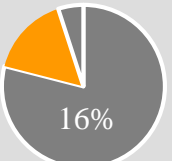
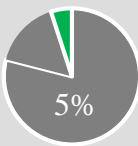
- SHANGHAI ESPEC ENVIRONMENTAL
EQUIPMENT CORP.
- ESPEC ENVIRONMENTAL EQUIPMENT
(SHANGHAI) CO., LTD.
- ESPEC TEST EQUIPMENT (GUANGDONG) CO., LTD.
- ESPEC TEST TECHNOLOGY (SHANGHAI) CO., LTD.
- ESPEC (CHINA) LIMITED
- ESPEC KOREA CORP.
- ESPEC ENGINEERING (THAILAND) CO., LTD
- ESPEC ENGINEERING VIETNAM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

U.S.A.

- ESPEC NORTH AMERICA, INC

● : Consolidated Subsidiaries
- : Non-consolidated Subsidiaries

Summary of ESPEC Business (Per Market / Use)

		Main Products	Market	Use	Sales Composition (FY2020)
Equipment Business	Environmental Test Chambers	<ul style="list-style-type: none">•Temperature & humidity chamber•Thermal shock chamber•Bench-top type temperature & humidity chamber•HAST chamber•Walk-in type temperature & humidity chamber•Combined temperature & humidity chamber•HALT & HASS test chamber•FPD equipment	<ul style="list-style-type: none">•Electronic component and equipment market•Automobile market•Semiconductor market•Pharmaceuticals, Cosmetics, Foods market•LCD and Organic Electro-Luminescence market	<ul style="list-style-type: none">•For R & D•For credibility and evaluation•For production and inspection	
	Energy Device Equipment	<ul style="list-style-type: none">•LIB charge-discharge cycle evaluation equipment•LIB safety evaluation system•Fuel cells evaluation system	<ul style="list-style-type: none">•Next generation automobile market•Secondary batteries market•Fuel cells market	<ul style="list-style-type: none">•For R & D•For credibility and evaluation•For safety evaluation•For production	
	Semiconductor Equipment	<ul style="list-style-type: none">•Burn-in system•Semiconductor evaluation system•Measurement system	<ul style="list-style-type: none">•Semiconductor market•Automobile market	<ul style="list-style-type: none">•For production and inspection•For development and evaluation	
Service Business	After-sales Service and Engineering	<ul style="list-style-type: none">•After-sales service•Construction around equipment	<ul style="list-style-type: none">•Electronic component and equipment market•Automobile market•Semiconductor market	—	
	Laboratory Testing Services and Facility Rentals	<ul style="list-style-type: none">•Laboratory testing services•Equipment rental <ul style="list-style-type: none">•Resale•Calibration		<ul style="list-style-type: none">•For R & D•For credibility and evaluation	
Other Business	Environmental Preservation	Reforestation (Tree planting), Waterfront biotope restoration, Urban greening			
	Plant Production Systems	Plant factory, Equipment for growing plants			

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 5G and IoT field, also the development field of automobiles' electrification and automated driving functions.



1961 Japan's First Environmental Test Chamber



Low Temperature & Humidity Chamber
"Lucifer"

Worldwide Market Share No.1

Over 60%
domestic

Over 30%
worldwide

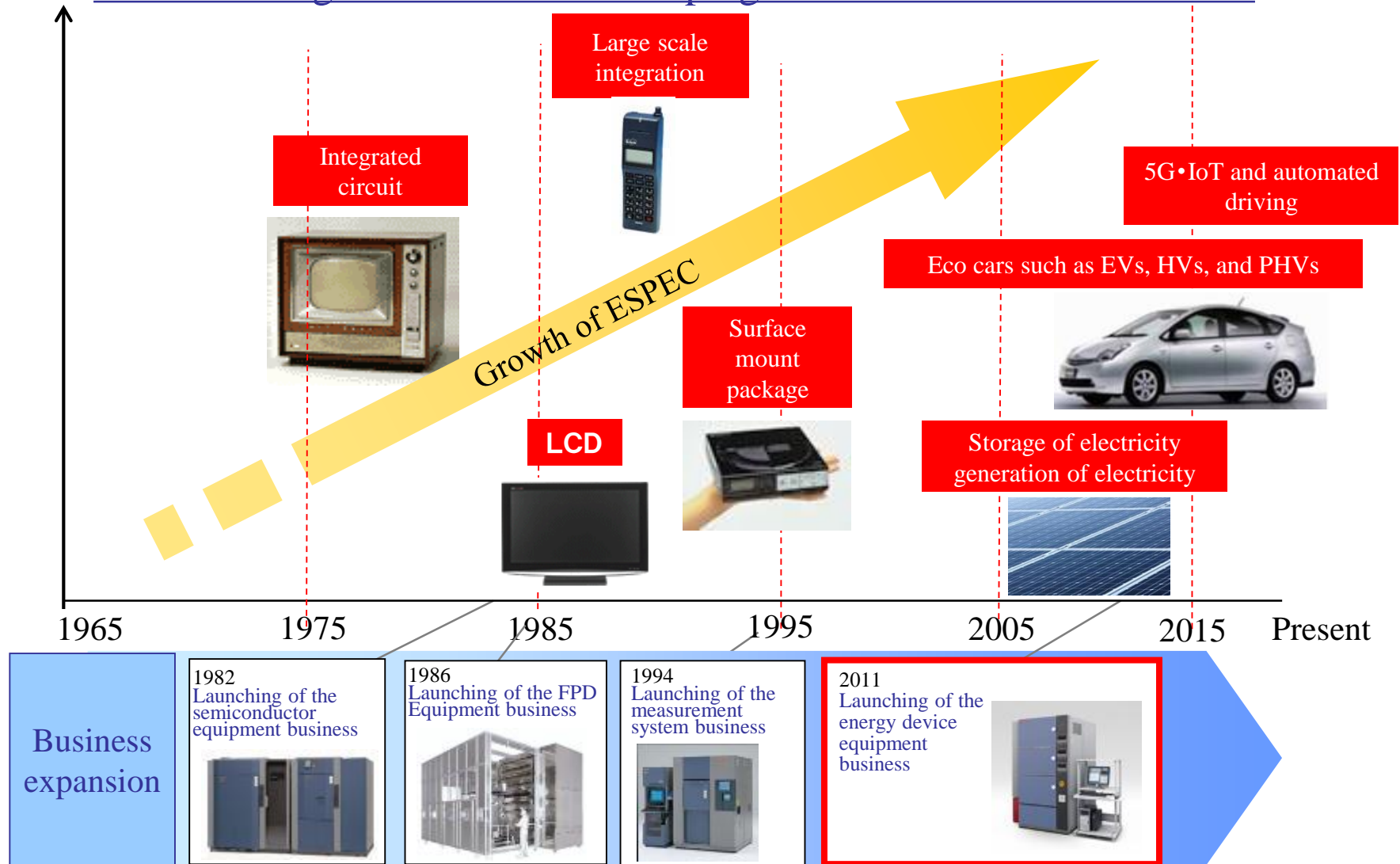


Temperature & Humidity Chamber
"Platinous J series"

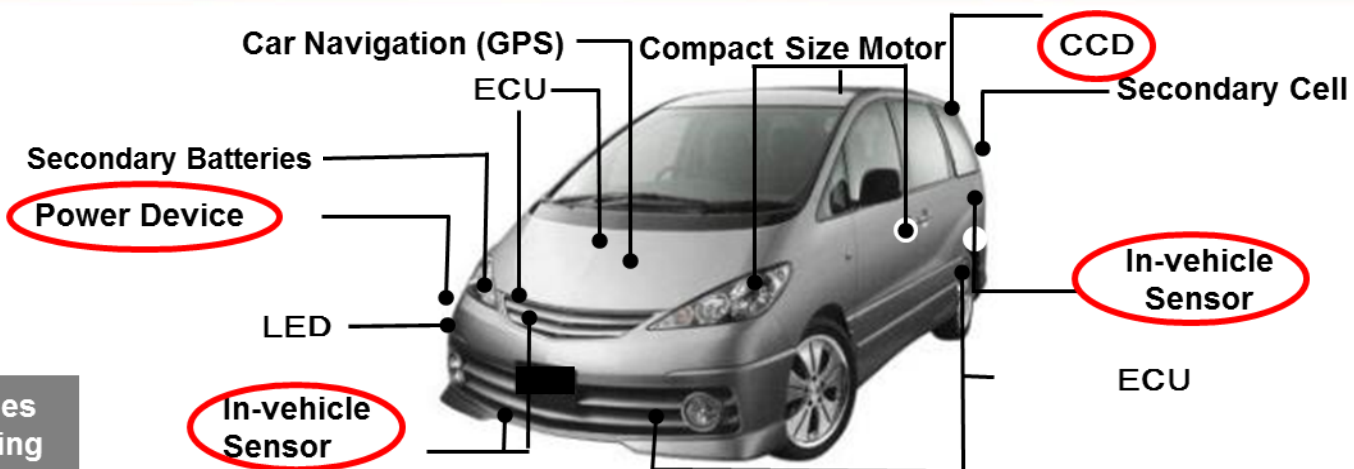
Consecutively selected as a winner of
Ministry of Economy, Trade and Industry (METI)
“Global Niche Top Companies Selection 100”

Transition in Business




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



Equipment Business Usage Case with Environmental Test Chambers



Representative Examples for Environmental Testing

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

Equipment Business Main New Products

Release Date	Name of product	Features
Jun. 2021	Ultra-Low-Temperature Freezers	<ul style="list-style-type: none"> •Used for small lot storage to -75°C for items such as COVID-19 vaccines
Apr. 2021	Freezer for Temperature Controlled Transport	<ul style="list-style-type: none"> •Optimal for small-lot transport and storage of items such as COVID-19 vaccines •Vibration resistant, energy efficient and portable
Feb. 2021	Vacuum Low-Temperature Heating Cooker – Model Change	<ul style="list-style-type: none"> •Enables precise control of not only temperature but also the degree of vacuum
Aug. 2020	Expanded Environmental Stress Chamber AR Series Lineup	<ul style="list-style-type: none"> •Expanded the series with launch of four new models as rapid-rate temperature cycle type products, bringing the total lineup to 32 models across the series
Mar. 2020	Transportation Evaluation System	<ul style="list-style-type: none"> •Recreates transport environments for pharmaceuticals and medical devices •Applications in biopharmaceutical R&D and medical equipment quality control
Feb. 2020	Walk-In Type Temperature (& Humidity) Chamber for Drive-In Series	<ul style="list-style-type: none"> •Recreates various weather environments in a large space accommodating two vehicles
Feb. 2020	Walk-In Type Temperature (& Humidity) Chamber for High-Power Series	<ul style="list-style-type: none"> •Compatible with international IEC standards and LV124 German Automotive Manufacturer Testing Standards
Dec. 2019	Thermal Air Test System	<ul style="list-style-type: none"> •Materials testing is possible under actual use conditions such as in vehicles through combinations of various types of material testing equipment
Dec. 2018	Aging Cabinet	<ul style="list-style-type: none"> •Makes possible the no temperature rise due to defrosting, and long-term continuous operation of high humidity environment is possible while maintaining below 5°C

Equipment Business New Product Introduction (1)

(Released in Feb. 2020)

■ Walk-In Type Temperature (& Humidity) Chamber for High-Power Series

Feature:

- Compliant with IEC International Standards and German Automotive industry standard LV124
(Can perform rapid temperature change testing at 3K/minute with the specimens inside.)
- Low GWP coolant (R-449A) as standard equipment



Walk-In Type Temperature (& Humidity) Chamber
for High-Power Series

■ Walk-In Type Temperature (& Humidity) Chamber for Drive-In Series

Features:

- Closely recreates various weather environments in a large space of approximately 500 m³ accommodating two vehicles to perform actual vehicle testing
- Multiple environmental factors can be recreated simultaneously, including temperature and humidity, sunlight, rain, snow, fog, and wind

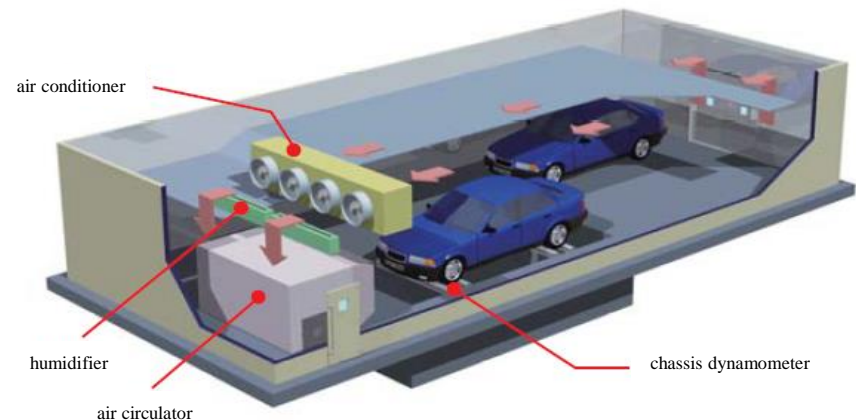


Image of vehicle test

Walk-In Type Temperature (& Humidity) Chamber
for Drive-In Series

Equipment Business New Product Introduction (2)

For the medical field

(Released in Apr./Jun. 2021)

■ Freezer for Temperature Controlled Transport Ultra-Low-Temperature Freezer

Features:

- Freezer for Temperature Controlled Transport:
Supports small-lot transport and storage of items such as vaccines; vibration resistant, energy efficient and portable.
- Ultra-Low-Temperature Freezer:
Capable of small-lot storage to -75°C ; Two types of freezers, floor and table.



Freezer for Temperature Controlled Transport



Ultra-Low-Temperature Freezer

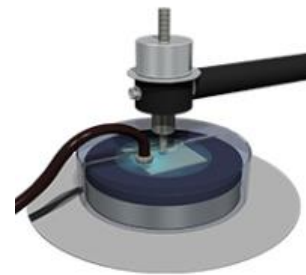
For material field

(Released in Dec. 2019)

■ Thermal Air Test System

Features:

- Can be combined with various materials testing instruments to perform materials testing in actual usage environment with given temperature
- Uses ESPEC's proprietary new method for cooling and heating test pieces efficiently



Example of set up with friction and wear testing machines and hardness meter (Left)
Thermal Air Test System (Right)

Equipment Business Examples of Products Delivered (1)

(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 Examples of Products Delivered (2)

(Delivered in Mar. 2016)

■ Smart System Research Facility, Fukushima Renewable Energy Institute, AIST (Koriyama city, Fukushima)

Product delivered:

Large Walk-in Type Temperature & Humidity Chamber

Uses:

Performance and safety evaluation for large power conditioners for solar power generation
Supports heat generation loads of 100 kw and large weights (21 tons)



Large Walk-in Type Temperature & Humidity Chamber

■ National Laboratory for advanced energy storage technologies (NLAB), National Institute of Technology and Evaluation (Nanko, Osaka City)

Product delivered:

1. Walk-in Type Temperature & Humidity Chamber for charge-discharge testing
2. External short-circuit testing equipment (energy devices equipment)

Uses:

1. Evaluate the performance of storage batteries by repeatedly charging and discharging them
2. Evaluate safety by confirming that storage batteries will not catch fire or rupture if they short circuit



Walk-in Type Temperature & Humidity Chamber for charge-discharge testing

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)

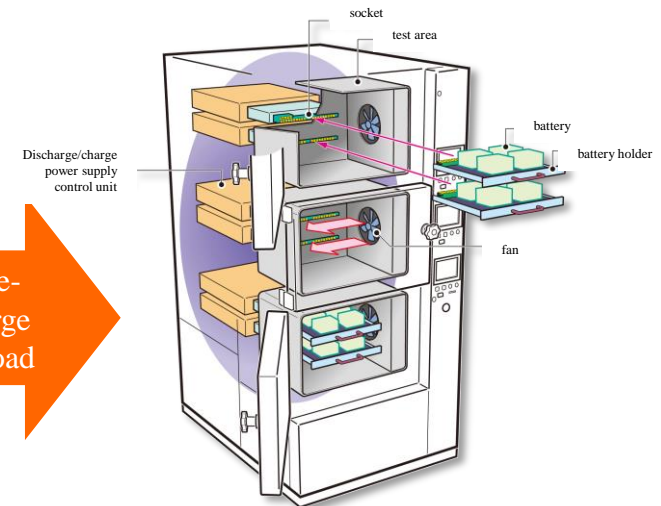


Charge-discharge Cycle
Evaluation Equipment

Secondary
Batteries



Charge-
discharge
cycle load



Checking the charge-discharge
characteristics of secondary batteries

Evaluating the performance and life of secondary batteries

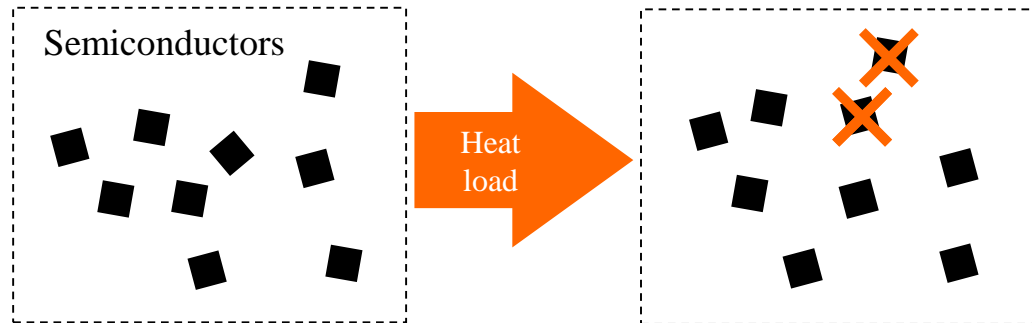
Equipment Business Usage Case with Semiconductor Equipment

Screening

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



Burn-In Chamber



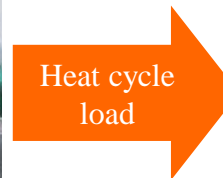
Elimination of latent early failures

Reliability Evaluation

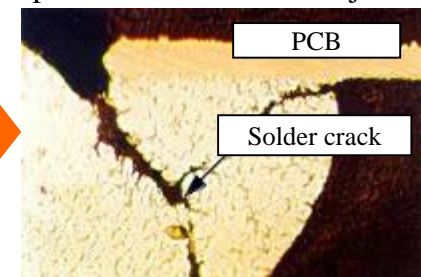
Used to evaluate basic failure patterns to ensure reliability in the development of new technologies



Conductor Resistance Evaluation System



Example of defect in soldered joint



Electrical evaluation of reliability of joints in electronic parts

Service Business

After-Sales Service and Engineering

Preventive maintenance of products, maintenance service, and the upgrading/improvement and installation/relocation of products

- Speedy response via one of the most extensive networks in Japan
- Launching new services by utilizing the network function mounted in the equipment

Laboratory Testing Services and Facility Rentals

Laboratory testing, analysis, and evaluation; consulting; equipment rental; sales of used products; calibration of test equipment, etc.

- The company has four laboratory testing centers in Japan, one in Thailand, two in China.

(Japan: Utsunomiya, Toyota, Kariya and Kobe, Thailand, China: Shanghai, Suzhou)

- The centers are also recognized as official calibration facilities under the Japan Calibration Service System (JCSS).

- **First in world** Opened Battery Safety Testing Center.(in Sep. 2015)

- Providing a one-stop service for testing and certification application services compliant with United Nations regulations on the safety of automotive secondary batteries.
- Entered into business alliance with TÜV SÜD Japan Ltd., a third-party certification agency (in Oct. 2014).

- **First in Japan** Acquire ISO/IEC 17025* test facility certification simultaneously in the three fields of automobiles, trains and airplanes.

- **First in Japan** The Toyota Test Center addressing all test items set forth by the LV124 German Automotive Manufacturer Testing Standards.



Battery Safety Testing Center

* ISO/IEC 17025: An international standard in which an authoritative third-party organization certifies whether a test facility or calibration organization is capable of producing accurate measurements or calibration results.

Service Business After-Sales Service

“Home-based online service”
to support continuity of customers’ development operations

When using ESPEC products

Operate equipment and monitor samples from home

- Centralized management
(monitoring and data analysis)
- Receive operating status by email
- Monitor samples using in-chamber monitoring camera (launched in March 2020)

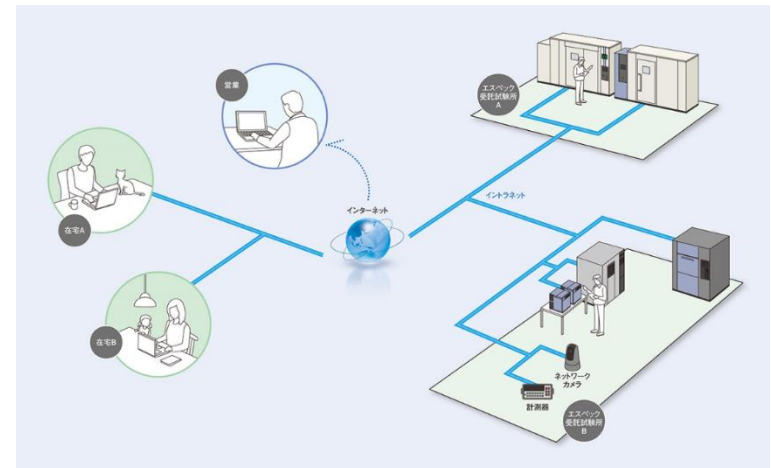


Image of in-chamber monitoring camera

When using laboratory testing center

All testing operations performed on behalf of customer, from start to finish, including transportation

- Remote consultation
- No need to attend in person
- Remote instruction



Service Business Laboratory Testing Services

First in Japan to realize 100% green electricity for laboratory testing services
Contributing to the reduction of CO₂ emissions in customers' supply chains

We introduced renewable energy and became first in Japan to realize 100% green electricity for laboratory testing services in April 2021. We expect to reduce annual CO₂ emissions by approximately 4,187 t.

Laboratory testing centers in Japan:



Kobe Test Center



Toyota Test Center



Kariya Test Center



Utsunomiya Test Center



Battery Safety Testing Center



Service Business Laboratory Testing Services

World's first
Battery Safety Testing Center compliant
with United Nations regulations

Providing a one-stop service to support the implementation of 9 safety tests and applications for certification by certification agencies, as stipulated by UN ECE R100-2. Part II, a United Nations regulation.
(The facility was opened within the Utsunomiya Technocomplex in September 2015.)



Crush Testing Equipment
(No. 1 Safety Test Room)



No. 2 Safety
Test Room

First testing facility in Japan to address
German Automotive Manufacturer Testing
Standards
Renovated the Toyota Test Center

Supporting Japanese automotive equipment manufacturers seeking to develop global operations by addressing all test items set forth by the LV124 German Automotive Manufacturer Testing Standards
(Renovated the Toyota Test Center in September 2019)



Toyota Test Center

Other Business

Environmental Preservation

■ Reforestation (Tree planting)

Recovery of local forest by selecting species and planting out seedlings using potential natural vegetation data.

■ Waterfront biotope restoration

Reconstruction of natural environment, development of vegetative revetments, and water quality improvement using aquatic plants.

■ Urban greening

Provision of roof and wall greening systems that use moss to effectively alleviate heat island effect.



Plant Production Systems

Provision of various cultivation environments employing advanced environmental control technologies to control light, temperature, humidity, carbon dioxide, etc.



Plant factory



Phyto-toron

Produced a high value-added vegetables using deep sea water

Production and sales of vegetables high in minerals with the use of deep sea water at a plant factory near Haneda Airport.



Interior of the plant factory and factory-produced vegetables “mineraleaf”

Other Business Examples of Products Delivered

■ Arid Land Research Center, Tottori University

(Delivered in Mar. 2016)

Products delivered:

Experimental System for Analyzing Responses of Dryland plants to Climate Changes (2 units)
(Simulates the climates of arid lands, including high temperature, low humidity, strong sunlight, and high winds)

Uses:

Plant cultivation experiments and experiments to develop efficient water-usage technologies in arid lands, research to solve issues facing arid lands



Experimental System for Analyzing Responses of
Dryland plants to Climate Changes



Experiment in progress

Strengthen Technology Development Capability

(Introduction to technology development building)

Objective: Strengthen technology development capabilities
by encouraging open innovation and promote
preservation of biodiversity

Concepts : “Open innovation,”

“Open communication,”

“Coexistence with the natural environment”

Location: Kanokodai, Kita-ku, Kobe, Hyogo (in Kobe R&D Center)

Start of operation: May 2020

(Construction started in June 2019)

Building area: 1,580m²

Gross floor area: 4,557m² (Three story building)



Rooftop green space using only native species



Technology development building

Introduction to ESPEC's All Weather Simulation Chamber (in the Kobe R&D Center)

(Mar. 2021)

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

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



■ 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.



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.



(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.

■ About ESPEC's Sustainability

Guided by our corporate philosophy,
“THE ESPEC MIND,” ESPEC will help to solve social and
environmental issues through businesses centered on
environmental creation technology, with the aim of achieving
sustainable growth.

Corporate Philosophy

Our important values that have been passed on since our inception
“THE ESPEC MIND” (Excerpt)

The Origin

To engage in a higher level of value exchange as a public institution

Mission

Provide more certain Seikankyo (living environment) via environmental creation technology

Style

Progressive, Reliable, Open, Fair

Declaration

What ESPEC promises society

“compliance,” “culture,” “human rights,” “the environment,”
“education/enlightenment.”

ESPEC's Contribution to the SDGs

ESPEC will contribute to the realization of a sustainable society by supplying products and services centered on environmental creation technology in a wide range of fields, including advanced technologies.

ESPEC

The Value ESPEC Provides

- Supply products and services centered on environmental creation technology
- Provide environmental preservation services
- Provide plant factories to address global warming and extreme weather

Strengths

- Business domains essential to the development of society
- Global leading brand and high-quality products and services based on a unique technologies
- Global production and sales networks

Customer products and technologies



- Automobiles (EVs and automated driving)
- Electronic components (semiconductors)
- IoT
- AI
- Batteries
- Pharmaceuticals
- Food
- Materials
- Environmental preservation
- Agriculture etc.

Society

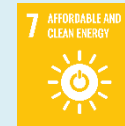
Realize a sustainable society



- Realize a safe and secure society through the development of automated driving and preventive safety technologies for automobiles
- Contribute to the solution of environmental and energy problems through the development of energy-saving technologies and EV technologies
- Alleviate personnel shortages and improve productivity through the development of IoT-related technologies
- Preserve biodiversity through the environmental preservation business, including reforestation (tree planting) and waterfront biotope restoration
- Support research on the creation of new plant species to cope with extreme weather and provide a stable supply of food through plant factories. etc.

ESPEC's Businesses and the SDGs

Equipment Business



Contribute to the development of advanced technologies
through the supply of products and services leveraging environmental creation technology

- Supply products and services that contribute to the development of advanced technologies to solve social and environmental issues

● Environmental Test Chamber

Supply environmental test chambers that artificially replicate environmental factors such as temperature and humidity, thereby ensuring the reliability of products

● Energy Device Equipment

Supply evaluation systems for secondary batteries and fuel cells installed in eco cars

● Semiconductor Equipment

Supply products such as burn-in chambers and systems for semiconductor inspection and measurement and evaluation systems

● Pharmaceutical Equipment

Supply products such as freezers for COVID-19 vaccines and stability test chambers used for quality control of items such as pharmaceuticals and food



Temperature & Humidity Chamber
"Platinous J series"



Drive-In Chamber for Vehicle Testing



Burn-In chamber
for semiconductor inspection



Advanced Battery Tester
for secondary batteries

ESPEC's Business and the SDGs

Service Business



Contribute to the development of advanced technologies through the supply of products and services leveraging environmental creation technology

- Supply products and services that contribute to the development of advanced technologies to solve social and environmental issues

● After-sales Service and Engineering

Conduct product maintenance and preventive maintenance so that customers can use systems with peace of mind.

● Laboratory Testing Services

Provide laboratory testing services based on technologies and testing expertise developed through environmental tests.



Technical support using IT



Capable of performing various safety tests for secondary batteries compliant with United Nations regulations and other standards
Battery Safety Testing Center

ESPEC's Business and the SDGs

Environmental Preservation Business



Contribute to biodiversity preservation

A business to restore natural environments through projects such as reforestation (tree planting) with local native plant species and waterfront biotope restoration to rehabilitate natural river ecosystems. Contribute to the prevention of global warming and biodiversity preservation.



A forest restored along the approach to Rinno-ji Temple in Sendai



Waterfront biotope restoration on the Sumida River Terrace in Tokyo

Plant Production Systems Business



Contribute to a stable food supply to address global warming and extreme weather

Supply plant factories that artificially replicate plant growing environments and enable vegetables to be grown systematically even under extreme weather conditions.

Contribute to a stable food supply by supplying systems that can be used in research into drought-tolerant plants.



Plant factory using deep sea water
Produce and sell vegetables high in minerals



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

Contribute to SDGs in the Supply Chain

Procurement

- Conduct supplier evaluations, including factors such as the environment and compliance
- Address unforeseen conditions through business continuity management
- Curtail increases in effluents at the time of procurement



Development and design

- Develop and design environmentally friendly products with features such as energy efficiency, low GWP, reduced emissions of chemical substances, and reduced environmental impact during disposal



Production and logistics

- Reduction of CO₂ emissions
- Appropriate management of chemical substances and emissions mitigation
- Reduction of water intake amount and appropriate management of wastewater
- Effluent reduction and recycling
- Environmentally friendly logistics



Sale of products and services

- Supply products and services that contribute to the development of advanced technologies to solve social and environmental issues
- Supply environmentally friendly products and services
- Promote the environmental preservation business such as reforestation (tree planting) and waterfront biotope restoration
- Promote the plant production systems business



Disposal

- Product collection
- Chlorofluorocarbon gas collection
- Recycling and resale



Foundation supporting the supply chain

- Improve customer satisfaction and ensure product quality and safety
- Respect for human rights • Promote the success of diverse human resources
- Provide appropriate information disclosure and communication
- Fair management with transparency



Initiatives for Environment

■ Promote environmental management

Currently, we are implementing the 7th Mid-Term Plan on the Environment (planned implementation period: FY2018-FY2021).

(1) Measures to address climate change

The Mid-Term Plan on the Environment was revised in FY2021, and the target for reducing CO₂ emissions was raised further.

FY2021 target: CO₂ emissions at domestic business sites (Scope 1+2) reduced by 80% (versus FY2018).

- Assess and evaluate greenhouse gas (GHG) emissions from Company business activities (Scope 1+2) and indirect emissions from business activities (Scope 3).
- May 2020: In response to the Science Based Targets (SBT) initiative, an international organization, we committed to setting science based greenhouse gas emissions targets within the next 2 years, in order to contain global warming to 2°C or less.
- Voluntarily responded to CDP Climate Change Questionnaire for the first time in 2020, and received a “B” score for the second year in a row.
- Promote the conversion to electricity derived from renewable energy
January 2020: Kariya Test Center; January 2021: five Kansai business sites (Head Office, Fukuchiyama Plant, Kobe R&D Center and other sites); April 2021: Utsunomiya Technocomplex, Toyota Test Center
The ESPEC Group’s renewable energy usage rate is 70%.
We expect to reduce annual CO₂ emissions by 48% on a consolidated basis and by 75% in Japan (versus FY2019).

Initiatives for Environment

(2) Supply products and services that contribute to a sustainable society

Develop and supply environmentally friendly products

(such as energy efficient products and low GWP products)

(3) Resource circulation

Implement measures such as reducing effluents

(4) Chemical substance management

Curtail emissions of hazardous substances, address RoHS regulations

(5) Preserve biodiversity and develop environmental human resources

- Preserve biodiversity through the environmental preservation business

- Model forest (Kewara Forest Creation Program) activities

March 2018: Designated as an affiliated business of the Japan Committee
for United Nations Decade on Biodiversity

- Raising environmental awareness through activities such as ESPEC Midori-no-gakko schools
(ESPEC Green School) and encouraging people to take the eco test

- ESPEC Foundation for Earth Environment Research and Technologies

Biodiversity Preservation Initiatives

Kobe R&D Center, a hub for biodiversity preservation activities
Developed rooftop green space using only plant species native to the
northern Rokko region

The site has a forest of approximately 30,000 trees comprising native plant species, planted and grown by employees; rooftop green space using plant species native to the northern Rokko region on the roof of the technology development building; and a biotope made up of two ponds and a stream.
ESPEC MIC CORP., which manages the environmental preservation business, conducted the tree planting and construction.



Kobe R&D Center received the FY2021
Chairperson's Award of the Japan Greenery
Research and Development Center under the
National Award for Factory Greening.

Contributing to COVID-19 Vaccination

Contributing to the cold chain of COVID-19 vaccines

Free lending of freezers for transport and storage/Enhance products and services

- Free lending to local governments and others of 40 devices such as Freezers improving on existing devices for vaccine storage, and Freezers for Temperature Controlled Transport optimal for the small-lot transport and storage of vaccines.
In December, resumed free rental of freezers for vaccine storage in anticipation of third round of vaccinations.
- In June, launched Ultra-Low-Temperature Freezers capable of small-lot storage at -75°C
Expanded services such as equipment rentals and temperature logger calibration



Freezer for Temperature Controlled Transport

Supports transport and storage of temperature range from 2°C to 8°C and -20°C
Vibration resistant, energy efficient and portable



Ultra-Low-Temperature Freezers

Two types of freezers, floor and table, and capable of storage to -75°C

Promotion of Diversity

Initiatives to promote women's success



From the Ministry of Health, Labor and Welfare:
The Company received the "Kurumin" certification, which is granted to companies that support child-rearing. And the highest ranking of the certification mark "Eruboshi" based on the Act on Promotion of Women's Participation and Advancement in the Workplace.



The female leadership development program

Opened ESPEC Smile Farm, a plantation staffed by workers with disabilities

- In November 2021, ESPEC, as part of efforts to promote diversity, opened a plantation staffed by workers with disabilities by utilizing S-Pool Plus, Inc.'s employment support business for people with disabilities.
- 4 individuals were hired to work at ESPEC Smile Farm, specifically 3 staff members with disabilities and 1 farm foreman.



An entrance ceremony was held at ESPEC Smile Farm.

Employee Education/Donation System

Employee Education System Enhancement

- Implement training sessions to share the corporate philosophy
- Implement a Global Trainee Program aimed at developing human resources who are capable of working in international settings
- Enhance the education program to support management executive education and self-development



On-site training in the Global Trainee Program (U.S.)

ESPEC Smile Club: a donation system featuring employee participation

- Established a matching gift system in which the company matches donations made by employees as part of activities to promote SDGs (Jan. 2021)
- Donated to an organization that conducts CSR activities related to children and medical care



Logo

Contributions to Society

ESPEC Foundation for Earth Environment Research and Technologies

- Provides funding support every year for research, technology development on global environmental conservation
- Grants totaling ¥138.4 million have been provided to a total of 273 groups over the past 25 years since the Foundation was established.



Award Ceremony

Tree Planting Ceremony at “Millenium Hope Hills” in Iwanuma, Miyagi Prefecture

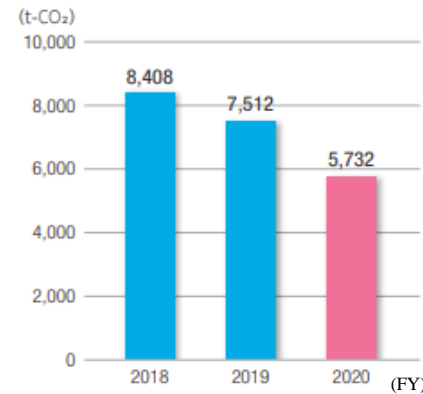
- A disaster recovery project started in 2013
- The project has cumulatively planted about 350,000 trees that will form a forested coastal tide embankment across a roughly 10km stretch of coastline in the city of Iwanuma.
- Group company ESPEC MIC CORP. supported the project.
- The final tree planting ceremony (first part) was held in June 2021.



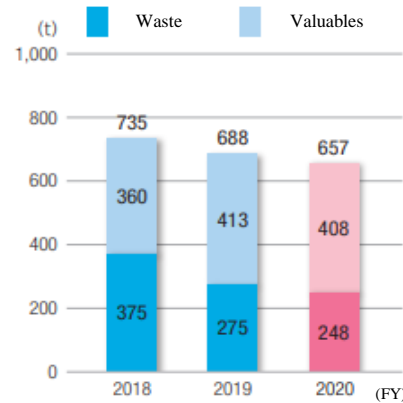
Tree Planting Ceremony

Non-Financial Data (Environmental Aspects)

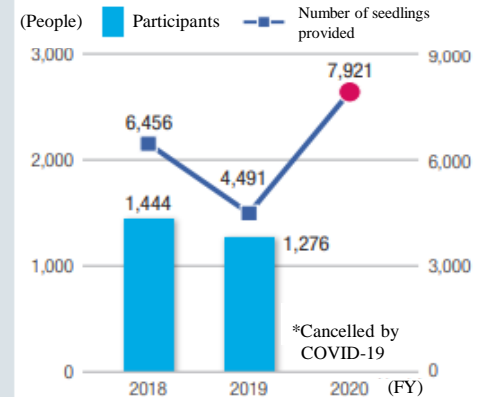
Contribution to CO₂ emissions mitigation through the sale of energy efficient products



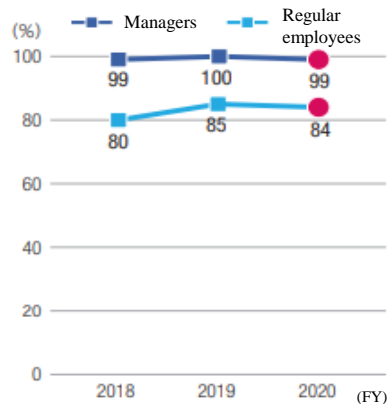
Total amount of effluents



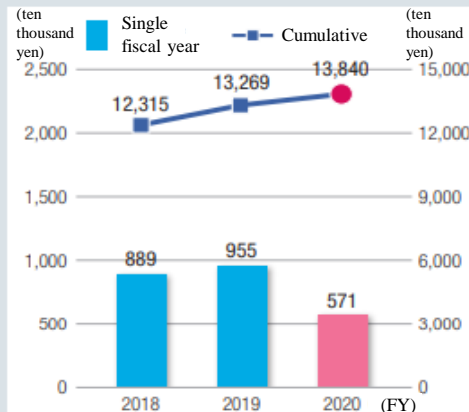
Number of participants in ESPEC Midori-no-gakko schools (ESPEC Green School)
Number of seedlings provided for green curtains



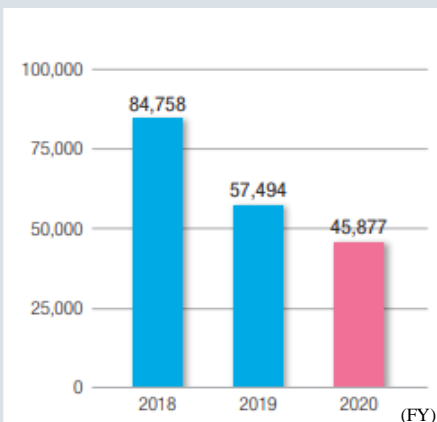
Certification acquisition rate for the Certification Test for Environmental Specialists (Eco Test)



Grants from the ESPEC Foundation for Earth Environment Research and Technologies



Number of trees planted through environmental preservation business



* Actual results for ESPEC MIC CORP.

Non-Financial Data (Social Aspects)

FY 2020 Results

Number of registered
members of the Test Navi
information website for
engineers

20,931

* As of March 31, 2021

Number of employees
(consolidated)

1,526

Number of employees at
overseas consolidated
subsidiaries

676

* As of March 31, 2021

Number of female
officers (including
executive officers)

2 ^{*1}

Ratio of female managers

4.7% ^{*2}

^{*1} As of June 23, 2021

^{*2} As of April 1, 2021

Share of periodic recruitment

Women 25.0%

Non-Japanese 12.5%

* For employees who joined the Company on April 1, 2021

Ratio of employees taking
childcare leave

Women 100%

Men 12.5%

Occupational injuries
(excluding minor injuries
without lost workdays)

0

Rate of health check
examination

100%

External Recognition

December, 2021

- A score of B for the second consecutive year in the CDP Climate Change 2021 Questionnaire
- Selected as a "GRADE AAA" company website (overall ranking) in the All Japanese Listed Companies' Website Ranking 2021 by Nikko Investor Relations Co., Ltd.
- Awarded a Bronze Prize in the Gomez IR Website Ranking 2021 by BroadBand Security, Inc. (ranked 27th according to industry)



November, 2021

- Rated 3 stars in Nikkei's 5th Smart Work Management Survey
- Rated 3.5 stars in the Nikkei's 3rd SDGs Management Survey



October, 2021

- Ranked 169th in the Nikkan Kogyo Shimbun's Corporate Power Ranking (sponsored by the Ministry of Economy, Trade and Industry)

March-June, 2021

- Ranked 429th in Toyo Keizai Inc.'s 2021 SDGs Corporate Ranking
- Ranked 357th in Toyo Keizai Inc.'s 2021 CSR Corporate Ranking



February, 2021

- Our Sustainability Report received the Excellence Award in the Environmental Communication Awards (Organized by the Ministry of the Environment and the general incorporated foundation Global Environment Forum)

June, 2020

- Consecutively selected Ministry of Economy, Trade and Industry (METI) Global Niche Top Companies Selection 100.

Quality is more than a word

ESPEC