Quality is more than a word

ESPEC

PRODUCT DIGEST

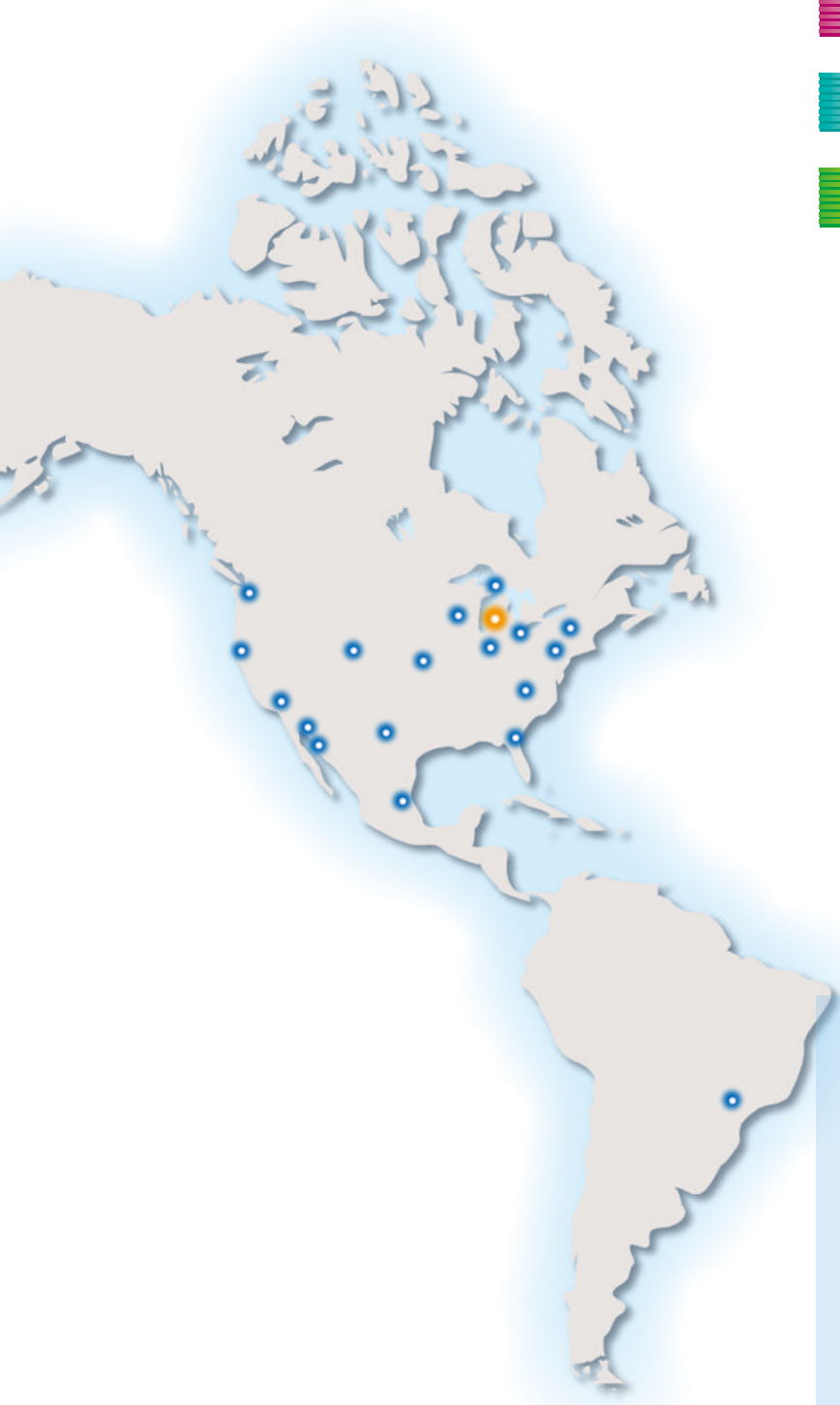
The ESPEC Network to Provide Customers with High-quality Products Throughout the World

Global Network

ESPEC provides world-class quality and reliability.
We are developing our international business activities in a wide range of areas, including joint business, technology transfers, and personnel exchanges.
ESPEC's worldwide network comprises overseas production plants, sales and service operations, and international sales agents. This network ensures that ESPEC provides worldwide products and after-sales service of the highest quality.

GROUP COMPANY
50 locations 45 companies

ESPEC GLOBAL SITE
https://www.espec-global.com



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Environmentally-friendly products

ESPEC has started a [ESPEC Environmental Label] system since 2009, aiming for an active disclosure of the environmental information regarding the products and the promotion of the development of environmentally-friendly products.

LOW GWP REFRIGERANT Low GWP refrigerant

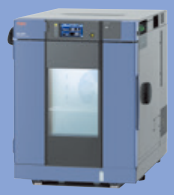
To contribute to the reduction of greenhouse gas emissions, and regarding the refrigerants used in the products

Environmental Test Chambers

Product line-up with low GWP refrigerant R-449A

TEMPERATURE (& HUMIDITY) CHAMBER
PLATINOUS J SERIES
PL/PU/PSL/PG/PR/PCR

ENVIRONMENTAL STRESS CHAMBER
AR SERIES



BENCH-TOP TYPE
TEMPERATURE (& HUMIDITY) CHAMBER
SH/SU-222, 262, 642, 662, 242-5

CONSTANT CLIMATE CABINET
LHU-124/LU-124

COMPACT ULTRA LOW
TEMPERATURE CHAMBER
MC-712-R, 812-R

WALK-IN TEMPERATURE (& HUMIDITY) CHAMBER
E SERIES/HIGH-POWER SERIES

AIR TO AIR
THERMAL SHOCK CHAMBER
TSA SERIES
TSA-□□3

AIR TO AIR
THERMAL SHOCK CHAMBER
TSD-101-W
TSD-301-W

AIR TO AIR
THERMAL SHOCK CHAMBER
TSE-12-A

TEMPERATURE (& HUMIDITY) CHAMBER PLATINOUS J SERIES

The Platinous J Series delivers the best of both low-energy operation and high performance.

- Smart Refrigerator & Dehumidifier System makes it possible to use test conditions to switch the refrigeration circuit between the main and the sub circuit for optimum operation. Due to this new circuit design, the chamber's power consumption is reduced dramatically. (PL-3J: Up to 70% reduction when running at 85°C/85%rh)
- The Platinous J Series is equipped with new N-instrumentation, which consists of a communication function for remote monitoring and operation across a network, and a function for controlling data transfers using USB memory. Test program creation, test data management, and other operations can be performed where required. Should a problem occur, specified individuals can be alerted by e-mail.
- A wide selection of options, including Wide-view door, allows quick and simple customization.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
PR-1J	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz* 380V AC 3φ 50Hz* 400V AC 3φ 50Hz*	−20℃ to +100℃ / 20%rh to 98%rh	500×600×400
PR-2J			500×750×600
PR-3J			600×850×800
PR-4J			1000×1000×800
PL-1J		−40℃ to +100℃ / 20%rh to 98%rh	500×600×400
PL-2J			500×750×600
PL-3J			600×850×800
PL-4J			1000×1000×800
PSL-2J		−70℃ to +100℃ / 20%rh to 98%rh	600×850×600
PSL-4J			1000×1000×800
PU-1J		−40℃ to +100℃	500×600×400
PU-2J			500×750×600
PU-3J			600×850×800
PU-4J			1000×1000×800
PG-2J		−70℃ to +100℃	600×850×600
PG-4J			1000×1000×800

* Compliance with CE Marking.
● +150℃ specification, +180℃ specification are also available.

HIGH TEMPERATURE & HUMIDITY CHAMBER

A new cooling heat pipe system has been adopted, which makes environments with high temperatures (such as +95°C) and high humidities (such as 95% rh) possible.
Since the chamber is not equipped with a conventional refrigeration system, the chamber's power consumption is reduced significantly.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
PHP-2J	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz* 380V AC 3φ 50Hz* 400V AC 3φ 50Hz*	(Ambient temp.+10)℃ to +100℃ / 40%rh to 98%rh	500×700×600
PHP-3J			600×830×800
PHP-4J			1000×980×800

* Compliance with CE Marking.

CLEAN TEMPERATURE & HUMIDITY CHAMBER

A built-in moistureproof HEPA filter maintains a clean and contamination-free atmosphere at Class 5. Creates an environment free from dew condensation.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
PCR-3J	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz* 380V AC 3φ 50Hz* 400V AC 3φ 50Hz*	−20℃ to +100℃ 30%rh to 90%rh	600×650×800

* Compliance with CE Marking.

LOW HUMIDITY TYPE TEMPERATURE & HUMIDITY CHAMBER

A rotary regenerating (adsorption) dehumidification system ensures accurate low humidity tests at low temperatures from +10℃ / 15%rh to +20℃ / 10%rh, suitable for electrostatic reliability tests. Continuous long operation of 500 hours is possible throughout the entire range of low humidity.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
PDR-3J	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz* 380V AC 3φ 50Hz* 400V AC 3φ 50Hz*	−20℃ to +100℃ 5%rh to 98%rh	600×850×800
PDR-4J			1000×1000×800
PDL-3J		−40℃ to +100℃ 5%rh to 98%rh	600×850×800
PDL-4J			1000×1000×800

* Compliance with CE Marking.

ENVIRONMENTAL STRESS CHAMBER AR SERIES

GOOD DESIGN

3 YEAR WARRANTY

LOW GWP REFRIGERANT

AR series support heat load from specimens, and provide superior levels of temperature change performance and wide temperature & humidity control range.
The lineup consists of 32 models that can be selected in accordance with temperature & humidity range, inside capacity and temperature change rate.
The temperature change rate change rate is between 4K/minute and 18K/minute, which conforms to IEC standards and test standards for automotive parts.
The processing speed of the new instrumentation has been greatly improved, and connecting the chambers to an Ethernet enables the operation status to be monitored and managed remotely from your desk.

	Model	Temperature & humidity range	Temp. rate of change	Interior dimensions W×H×Dmm
Rapid-rate temperature cycle type	ARSF-0250-15	−70℃ to +180℃／10%rh to 98%rh (+10℃ to +95℃)	18K/min	600×830×500
	ARSF-0400-15		15K/min	600×830×800
	ARS-0680-15			850×1000×800
	ARSF-0800-15			1000×980×800
	ARGF-0250-15	−70℃ to +180℃	18K/min	600×830×500
	ARGF-0400-15		15K/min	600×830×800
	ARG-0680-15			850×1000×800
	ARGF-0800-15			1000×980×800
	ARSF-0250-10	−70℃ to +180℃／10%rh to 98%rh (+10℃ to +95℃)	10K/min	600×830×500
	ARSF-0400-10			600×830×800
	ARSF-0800-10			1000×980×800
	ARS-1100-10			1100×1000×1000
	ARGF-0250-10	−70℃ to +180℃	10K/min	600×830×500
	ARGF-0400-10			600×830×800
	ARGF-0800-10			1000×980×800
	ARG-1100-10			1100×1000×1000
	ARS-0680-5	−70℃ to +180℃／10%rh to 98%rh (+10℃ to +95℃)	6K/min	850×1000×800
	ARS-1100-5			1100×1000×1000
	ARG-0680-5	−70℃ to +180℃		850×1000×800
	ARG-1100-5			1100×1000×1000
Standard type	ARS-0220	−75℃ to +180℃／10%rh to 98%rh (+10℃ to +95℃)	4K to 6K/min	700×800×400
	ARS-0390			700×800×700
	ARS-0680			850×1000×800
	ARS-1100			1100×1000×1000
	ARL-0680	−45℃ to +180℃／10%rh to 98%rh (+10℃ to +95℃)		850×1000×800
	ARL-1100			1100×1000×1000
	ARG-0220	−75℃ to +180℃		700×800×400
	ARG-0390			700×800×700
	ARG-0680			850×1000×800
	ARG-1100			1100×1000×1000
	ARU-0680	−45℃ to +180℃		850×1000×800
	ARU-1100			1100×1000×1000

* Compliance with CE Marking.
● +200℃ specification is also available.

RAPID-RATE THERMAL CYCLE CHAMBER

The HRS and HRG models are the ideal temperature and humidity chambers for environmental testing of automotive parts for which test demands are becoming stricter.
Size customize are possible to suit various specimen sizes and testing conditions. We are also able to provide proposals to ensure testing safety.

Model	Temperature & humidity range	Temp. rate of change	Interior dimensions W×H×Dmm
HRS-357HS-20	−70℃ to +180℃／ 20%rh to 98%rh	20°C/min	700×850×600
HRS-600HS-20			1000×1000×600
HRS-800HS-20			1000×1000×800
HRS-1800HS-20			1500×1200×1000
HRS-357HS-25		25°C/min	700×850×600
HRS-600HS-25			1000×1000×600
HRS-800HS-25			1000×1000×800
HRS-1800HS-25			1500×1200×1000

● Temperature models (HRG) are also available.

RAPID-RATE THERMAL CYCLE CHAMBER

This chamber enables rapid specimen temperature changes, covering a wide range of applications from JEDEC and IEC tests standard to screening. The chamber applies uniform temperature stress to specimens with excellent temperature distribution performance. Two control modes offered: Temperature Ramp Control mode that enables ramp control at a specimen temperature change rate of 15℃/min, and Air Temperature Non-ramp Control mode that enables temperature cycle testing and thermal shock testing.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
TCC-151W	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz 380V AC 3φ 50Hz 400V AC 3φ 50Hz	−70℃ to +180℃	800×500×400

HIGHLY ACCELERATED STRESS TEST SYSTEM (HAST CHAMBER)

HAST system offers highly precise moisture absorption conditions and short test hours, attracting attention as a method of evaluating and analyzing moisture resistance. Two control functions: the M type with wet and dry bulb temperature control, unsaturated control, and wet saturated control, and the Standard type with unsaturated control and wet saturated control. The M type conforms to IEC60068-2-66. For the 2-stage type, test condition for each unit can be set and operated individually.

Model	Power supply	Temperature / humidity / pressure range	Interior dimensions
EHS-212(M)	200V AC 1φ 50/60Hz 220V AC 1φ 50/60Hz 230V AC 1φ 50Hz*	+105.0℃ to +142.9℃ 75%rh to 100%rh 0.02MPa to 0.196MPa (Gauge)	φ294×L318mm
EHS-212MD			φ294×L318mm ×2stage
EHS-222(M)			φ394×L426mm
EHS-222MD			φ394×L426mm ×2stage
EHS-412(M)		+105.0℃ to +162.2℃ 75%rh to 100%rh 0.02MPa to 0.392MPa (Gauge)	φ294×L318mm
EHS-412MD			φ294×L318mm ×2stage

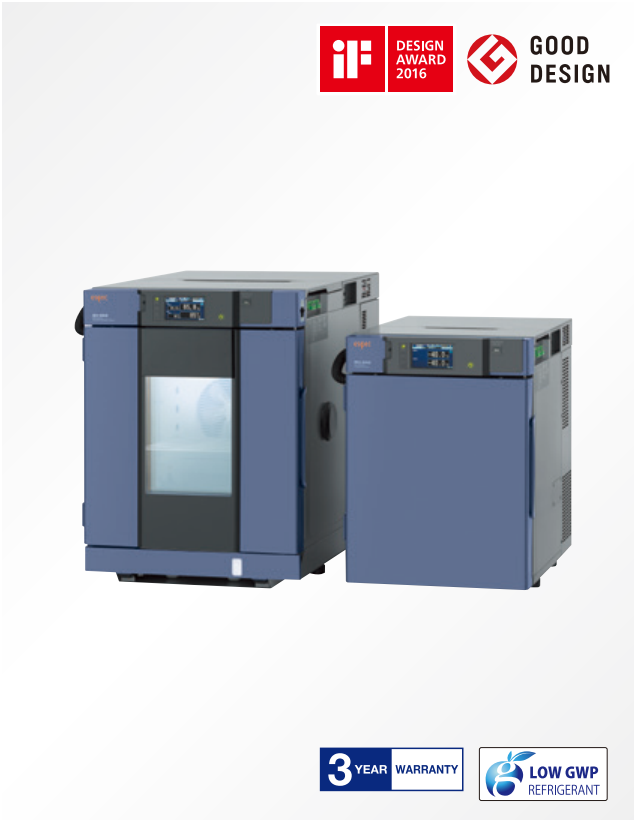
* Compliance with CE Marking.

LARGE HIGHLY ACCELERATED STRESS TEST SYSTEM

We offer larger sizes than the standard type.
The chamber features a standard mechanical door lock mechanism and door lock safety mechanism.
Conforms to various testing standards for semiconductors
IEC 60068-2-66
Compact electrical and electronic components (mainly non-hermetically sealed components) Unsaturated
IEC 60749-4
Semiconductor devices Unsaturated
EIAJ ED-4701
Semiconductor devices Unsaturated
JESD22-A110E
Non-hermetically sealed (not hollow) device Unsaturated
JESD22-A102E
Non-hermetically sealed IC discrete device Saturated

Model	Temperature / humidity / pressure range	Interior dimensions W×H×Dmm
EHS-432(M)	+105.0°C to +162.2°C／75%rh to 100%rh／0.0196MPa to 0.392MPa (Gauge)	φ548×L 560mm (130L)
EHS-432(M)-L		φ560×L 760mm (180L)

BENCH-TOP TYPE TEMPERATURE (& HUMIDITY) CHAMBER



These compact and high-performance temperature & humidity chambers are ideal for personal use at research and development scenes, for electronic components testing or small amount testing.
The touch panel display of the controller allows smooth operation. Constant mode (3 profiles to register) and program mode (8 patterns of 99 steps) can be selected.
Small footprint, stand variations, and easy peripherals installation are some of the numerous advantages of this model. The faster temperature change rate exceeding 5℃/min model is available. (SH/SU-242-5)

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
SH-222	100V AC 1φ 50/60Hz 115V AC 1φ 60Hz NEC 220V AC 1φ 50/60Hz* 230V AC 1φ 50Hz*	−20℃ to +150℃ 30%rh to 95%rh	300×300×250
SH-242		−40℃ to +150℃ 30%rh to 95%rh	
SH-262	100/200V AC 1φ 50/60Hz 220V AC 1φ 50/60Hz* 230V AC 1φ 50Hz* 200V AC 1φ 50/60Hz NEC	−60℃ to +150℃ 30%rh to 95%rh	400×400×400
SH-642		−40℃ to +150℃ 30%rh to 95%rh	
SH-662		−60℃ to +150℃ 30%rh to 95%rh	
SH-242-5	100/200V AC 1φ 50/60Hz 220V AC 1φ 50/60Hz* 230V AC 1φ 50Hz*	−40℃ to +150℃ 30%rh to 95%rh	300×300×250
Temperature rate of change: 5℃/min			

- +180℃ specification is also available.
- Temperature models (SU) are also available.

* Compliance with CE Marking.

CONSTANT CLIMATE CABINET

Continuing improvement in the design of constant-temperature (and humidity) cabinets now add ethernet connection, which allows you to control and monitor the cabinet remotely, from a PC via a web browser.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
LH-114	100V AC 1φ 50/60Hz 115V AC 1φ 60Hz* 220V AC 1φ 50/60Hz* 230V AC 1φ 50/60Hz*	Ambient temp. +10℃ to +85℃ / 45%rh to 95%rh	500×600×390
LHL-114		+5℃ to +85℃ / 40%rh to 95%rh	
LHU-114		−20℃ to +85℃ / 40%rh to 95%rh	
LHU-124			500×750×590
LU-114		−20℃ to +85℃	500×600×390
LU-124			500×750×590

* Compliance with CE Marking.

COMPACT ULTRA LOW TEMPERATURE CHAMBER

Thanks to N-Instrumentation, now it's available Ethernet connection, which allows you to control and monitor the chamber remotely, from a PC via web browser.
The new designed 36 percent larger square shape frost free window, made from multi layer glass with heater gives you superior visibility.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
MC-712R	200V AC 3φ50/60Hz 220V AC 3φ60Hz	−75℃ to +100℃	400×400×400
MC-812R	380V AC 3φ50Hz	−85℃ to +180℃	

TEMPERATURE (& HUMIDITY) CHAMBER FD SERIES

FDS-02400 (2.4m³)

The temperature (& humidity) chamber is suitable for evaluating large assemblies and completed products such as secondary battery packs for electric and hybrid vehicles, on-board modules, solar panels, and aircraft parts.
We can flexibly meet your needs for test area capacity, allowable heat load, and temperature change rate.

Model	Temperature & humidity range	Capacity
FDS	−70°C to +180°C／20%rh to 95%rh	1.2m³ to 11.4m³
FDL	−40°C to +180°C／20%rh to 95%rh	
FDG	−70°C to +180°C	
FDU	−40°C to +180°C	

FDU-01200 (1.2m³)

WALK-IN TEMPERATURE (& HUMIDITY) CHAMBER
E SERIES/HIGH-POWER SERIES

This temperature (& humidity) chamber has a long track record in a variety of fields and applications.
The High-Power Series, which meets strict reliability test requirements including those for on-board module applications, is the new addition to the lineup. Choose from the wide variations of test space and air conditioning unit to find the best solution to match your requirement.

- High-precision cooling system that induce energy-saving (Japanese patent No. 5427211)
- Cross-output control reduces the maximum operating current value and power capacity requirements. (Up to 60% energy savings)
- Support of remote monitoring, and data transfer management by USB memory, E-mail alerts.

〈High-Power Series〉
- Conforms to global automobile test standards
- Control temperature and humidity in a large 170 m^3 space.
- Temperature rate of chnge 3℃/min

Model		Power supply	Temperature & humidity range
High-power series	EBE	200V AC 3 ϕ 50/60Hz 220V AC 3 ϕ 50Hz 380V AC 3 ϕ 50/60Hz 400V AC 3 ϕ 50/60Hz	−70℃ to +150℃ / 20%rh to 95%rh
E series	EBE		−40℃ to +80℃ / 10%rh to 95%rh
	EBL		−30℃ to +80℃ / 10%rh to 95%rh
	EBR		−10℃ to +80℃ / 20%rh to 95%rh
High-power series	EBF		−70℃ to +150℃
	EBF		−40℃ to +80℃
E series	EBU		−30℃ to +80℃
	EBUU		−10℃ to +80℃

* Compliance with CE Marking.

■TEST CHAMBER MODULE

Size	Interior dimensions
1	W1020×H2100×D1970 mm
2	W1970×H2100×D1970 mm
3	W3020×H2100×D1970 mm
4	W4070×H2100×D1970 mm
6	W3020×H2100×D4070 mm
8	W4070×H2100×D4070 mm
10	W5120×H2100×D4070 mm
12	W6170×H2100×D4070 mm

WALK-IN TEMPERATURE (& HUMIDITY) CHAMBER CASE STUDY

WEATHER SIMULATION CHAMBER

Walk-in type temperature and humidity chamber with insolation device for full-scale vehicle testing.
When a black panel is set in the section of the vehicle for temperature control, the reading of the temperature sensor attached to the black panel is fed back into the device to control the infrared lamps, enabling the intended temperature to be set in the vehicle's location (black panel)

Temp. range	: −40°C to +80°C
Humid. range	: 30%rh to 80%rh
Inside dimensions	: W5×H3×D8 m

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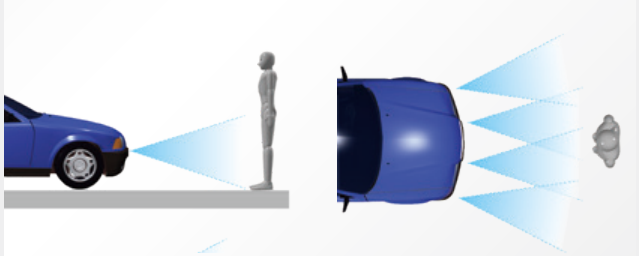
DRIVE-IN CHAMBER



Sensor image

Testing actual car in the simulated environment controlling temperature and humidity.
The inspection machine automatically moves around the car to inspect the detection range of sensors that varies depending on temperature and humidity.
By programming conditions of temperature and humidity, sensor location, and detecting method, continuous unattended operation is realized.

Temp. range	: −40°C to +80°C
Humid. range	: 30%rh to 95%rh (at+20°C to 60°C)
Inside dimensions	: W7×H3×D14 m

* Full-ceiling air duct-Better temp. distribution.
* Operates in conjunction with the inspection machine

https://www.espec.co.jp/english/inquiry/movie/custom/e_c04.html

TEMPERATURE (& HUMIDITY) CHAMBER

As electronic devices become more diverse and smaller, demand for test and evaluation under complex environment has increased.
Combined pressure, temperature, and humidity environments can be reproduced to perform usage environment evaluation and storage evaluation at high altitude for electronic and electrical devices.
With ESPEC's testing chamber, you can set the pressure up to an altitude of 45,000 meters, so you can evaluate operation in highlands of low pressure and temperature, air transport, and so on.

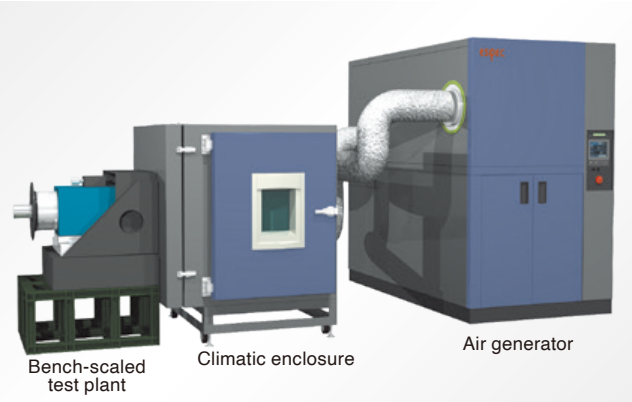
Model	Temperature range	Pressure /temperature / humidity range	Interior dimensions W×H×Dmm
MZH-05H-L	−70℃ to +180℃	93.3kPa to 70.9kPa／+20°C to +60°C／20%rh to 80%rh	800×800×700
MZH-11H-L			1000×1000×1000
MZH-21H-L			1500×1000×1000
MZH-32H-L			1500×1000×1000

TEMPERATURE (HUMIDITY) & VIBRATION COMBINED ENVIRONMENTAL TEST CHAMBER

Simulates combinations of physical (mechanical) stress such as vibration, shock and acceleration in addition to environmental stress such as temperature and humidity.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
PVL-3KP	200V AC 3φ 50/60Hz	−40℃ to +100℃ / 20%rh to 98%rh	600×850×600
PVL-5KP			1000×1000×1000
PVS-3KP	220V AC 3φ 60Hz	−70℃ to +100℃ / 20%rh to 98%rh	600×850×600
PVS-5KP	380V AC 3φ 50Hz		1000×1000×1000

CLIMATIC ENCLOSURE FOR DYNAMOMETERS



The electric vehicle parts market, such as motor generators, inverters, and batteries, is expected to grow significantly. Dyno tests are superior to actual vehicle tests in terms of cost, the severity of test conditions, its repeatability, and in the means of shortening the test period.
We design individual climatic enclosure that is detachable from dynamometer and accommodate peripherals.

AIR TO AIR
THERMAL SHOCK CHAMBER TSA SERIES

The TSA series provides power savings, performance, and reliability through features such as an eco operation function, parallel refrigerator control, defrost-free function, and now with network connectivity.

- The amount of heat required for pre-cooling and pre-heating is constantly measured and a new algorithm automatically calculates minimum pre-cooling and pre-heating times, while fully ensuring sufficient temperature recovery time. It achieves further reduction in power consumption along with improved reproducibility and reliability.
- A parallel refrigerator control system (Japanese patent 5487167) allows switching between simultaneous operation of two refrigerators or operation of a single refrigerator in accordance with the controlled temperature, for operation at the optimum refrigerating capacity. Power consumption is further reduced at stable low-temperature by limiting refrigeration capacity with an electronic expansion valve.
- A defrost-free feature (optional) enables 500 hours of continuous operation without the need to suspend a test for defrosting. 1,000 cycles of continuous testing can be performed without interruption if test conditions are set for 15-minute exposure.

Model	Power supply	Temperature exposure range	Test area dimensions W×H×Dmm
TSA-43EL	200V AC 3φ 50/60Hz 220V AC* 3φ 60Hz 380V AC 3φ 50Hz 400/415V AC* 3φ 50Hz	High temp.: Ambient +50℃ to +200℃ Low temp.: −65℃ to 0℃	240×460×370
TSA-73EL			410×460×370
TSA-103EL			650×460×370
TSA-203EL			650×460×670
TSA-303EL			970×460×670
TSA-603EL		High temp.: +60℃ to +150℃ Low temp.: −50℃ to 0℃	1200×670×750
TSA-73ES		High temp.: +60℃ to +200℃ Low temp.: −70℃ to 0℃	410×460×370
TSA-73EH			410×460×370
TSA-103ES			650×460×370
TSA-203ES			650×460×670

*Compliance with CE Marking.
●+300℃ specification is also available.

LARGE CAPACITY THERMAL SHOCK CHAMBER

TSA-1650H-W (1650L)

These chambers can be used to test large products such as large parts used in automobiles, large flat panel displays that are getting bigger and bigger, and solar cell modules.
These chambers can also test a large amount of specimens at once in such fields as quality inspections in manufacturing processes.

Model	Temperature	Test area dimensions W×H×D mm
TSA-1100H-W	High-temp. exposure: +60°C to +180°C Low-temp. exposure: −60°C to −10°C	1000×1100×1000
TSA-1650H-W		1500×1100×1000
TSA-2310H-W		2100×1100×1000

Size variations

TSA-1100H-W (1100L)

TSA-3300H-W (3300L)

TSA-12000H-W (12000L)

AIR TO AIR
THERMAL SHOCK CHAMBER TSD

TSD-101-W is a thermal shock chamber with two zones that conform to test standards such as MIL-STD-883. With the excellent temperature distribution performance, this chamber applies uniform temperature stress to specimens. Furthermore, by monitoring specimen temperature with the STT, this chamber starts counting exposure time and switches to the next step immediately after the specimen temperature reaches a preset value, thus enabling highly accurate tests. In the temperature range between −65℃ and +150℃, this chamber has a short product recovery time of within 15 minutes with IC 10kg, resulting in reduction of total test time. The TSD-101 can be used for various applications, from research and development to inspection and production.

Model	Power supply	Temperature range	Test area dimensions W×H×Dmm
TSD-101-W	200V AC 3φ 50/60Hz 208V AC 3φ 60Hz *1 220V AC 3φ 60Hz 380V AC 3φ 50Hz 400/415V AC 3φ 50Hz *2	High temp. chamber: +60℃ to +205℃ Low temp. cahamber: −77℃ to 0℃	710×345×410

*1 Compliance with NEC.
*2 Compliance with CE Marking.
● +300℃ specification is also available.

Model	Temperature range	Test area dimensions W×H×Dmm
TSD-301-W	High temp. chamber: +65℃ to +200℃ Low temp. cahamber: −65℃ to 0℃	650×650×650

AIR TO AIR
THERMAL SHOCK CHAMBER TSE

A temperature recovery time of less than 5 minutes is achieved in 2 zones (+150℃ and −65℃) without auxiliary cooling.Complies with MIL-STD-883 and other test standards.

Model	Power supply	Temperature range	Test area dimensions W×H×D mm
TSE-12-A	200V AC 3 ϕ 50/60Hz 220V AC 3 ϕ 60Hz 380V AC 3 ϕ 50Hz 400/415V AC 3 ϕ 50Hz*	High temp. chamber: +60℃ to +200℃ Low temp. chamber: −65℃ to 0℃	320×148×230

* Compliance with CE Marking.
● +300℃ specification is also available.

AIR TO AIR
THERMAL SHOCK CHAMBER WITH HUMIDITY

The hot chamber at the top of the thermal shock chamber (TSA) has been changed to a high temperature and humidity chamber that can control humidity, thereby enabling dew cycle tests. The ability to perform two tests in one unit not only lowers costs and space requirements, but it also saves on the labor required to insert and remove specimens, thereby reducing testing workforce.

Model	Temperature / Humidity exposure	Test area dimensions W×H×D mm
TSA-103D-W	Dew cycle test High temp. chamber: −10°C to +100°C/40%rh to 95%rh Low temp. chamber: −40°C to +10°C	650×460×370
TSA-203D-W	Thermal cycle test High temp. chamber: +70°C to +150°C Low temp. chamber: −70°C to +10°C	650×460×670

LIQUID TO LIQUID
THERMAL SHOCK CHAMBER

Liquid-to-liquid thermal shock chamber capable of imposing higher stress on the samples. Of a small required footprint, the high degree of airtightness in the test area and the numerous mechanisms developed allow reducing brine consumption and therefore, running costs.

Model	Power supply	Temperature range	Specimen basket dimensions W×H×Dmm
TSB-22	220V AC 3 ϕ 60Hz*	High temp. bath: +70℃ to +200℃	120×150×120
TSB-52	380V/400V AC 3 ϕ 50Hz*	Low temp. bath: −65℃ to 0℃	150×150×200

* Compliance with CE Marking.

Size variations

TSB-10 (10L)

TSB-15 (15L)

TSB-30 (30L)

TEMPERATURE CHAMBER (Industrial Ovens)

ESPEC's Temperature Chambers have found applications worldwide from high-temperature testing to heat treatment and drying in production lines. A large instrumentation display offers easier operation and visibility. The ovens come in variations in sizes with two orientations, vertical (PV(H) model) and horizontal (PH(H) model), in two temperature ranges. Select from the standard instrumentation with two-step programming, or the M-instrumentation allowing programmed operation in up to 20 steps.
Four optional functions, wind velocity controller, automatic damper, integrating hour meter, and calender timer can be set from the controller.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
PV-212	200V AC/220 V AC 1 φ 50/60Hz	+20℃ above room temp. to +200℃	600×600×600
PV-222	230V AC/240 V AC 1 φ 50/60Hz		600×900×600
PV-232	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz		600×1200×600
PV-332	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz 380V AC 3 φ 50Hz		800×1200×800
PH-102	200V AC/220 V AC 1 φ 50/60Hz		450×450×450
PH-202	230V AC/240 V AC 1 φ 50/60Hz		600×600×600
PH-302	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz		800×800×800
PH-402	380V AC 3 φ 50Hz		1000×1000×1000

* PVH·PHH model with +300℃ specifications are also available.
* Compliance with CE Marking for some models. Ask us for details.

ULTRA-HIGH TEMPERATURE CHAMBER

It is designed for performing high-temperature life tests and heat resistance tests. Based on the PH model, it incorporates a microcomputer for easy operation. A full array of safety mechanisms include a single-action lever to firmly lock the door, and overheat protection measures.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
STPH-102	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz 380V AC 3 φ 50Hz	+20℃ above room temp. to +500℃	450×450×450
STPH-202			600×600×600
SSPH-102	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz 380V AC 3 φ 50Hz	+100℃ to +700℃	450×450×450
SSPH-202			600×600×600

TEMPERATURE CHAMBER WITH EXPLOSION VENT

Suitable for drying, heat treatment, and temperature characteristic testing of flammable synthetic resins or volatile solvents.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
SPH-102	200V AC/220V AC 1 φ 50/60Hz	+20℃ above room temp. to +200℃	450×450×450
SPH-202	230V AC/240V AC 1 φ 50/60Hz		600×600×600
SPH-302	200V AC 3 φ 50/60Hz 220V AC 3 φ 50/60Hz		800×800×800
SPH-402	380V AC 3 φ 50Hz		1000×1000×1000

* SPHH model with +300℃ specifications are also available.

ANAEROBIC TEMPERATURE CHAMBER

The built-in inert-gas sealing system allows the chamber to be filled with an inert gas such as CO_2 or N_2 for anaerobic heat treatment or temperature characteristics testing.An optional O_2 concentration indicator controller equipped with an oxygen sensor is available (for N_2 gas only)

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
IPH-202	200V AC 220V AC 230V AC 240V AC 1φ 50/60Hz	+20℃ above room temp. to +200℃	600×600×600
IPHH-202		+20℃ above room temp. to +300℃	

TEMPERATURE CHAMBER WITH ROTATING SPECIMEN RACK

Designed to perform accelerated heat deterioration tests on polymers like rubber, plastics, polyethylene, and vinyl. The rotation specimen rack can be removed to be used as an ordinary temperature chamber.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
GPH-102	200V AC 220V AC 230V AC 240V AC 1φ 50/60Hz	+20℃ above room temp. to+200℃	450×450×450
GPH-202			600×600×600
GPHH-102		+20℃ above room temp. to +300℃	450×450×450
GPHH-202			600×600×600

LARGE VOLUME TEMPERATURE CHAMBER

Applied for drying, baking and anneal treatment at production lines. The oven comes with a manually adjustable damper mechanism which controls the flow of fresh air into the chamber.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
LKS-3C	200V AC 3φ 50/60Hz	+40 above room temp. to +200℃	1500×1500×1000
LKS-4C			1800×1500×1500
HLKS-3C		+60 above room temp. to +300℃	1500×1500×1000
HLKS-4C			1800×1500×1500

CLEAN OVEN

Class 5 cleanliness is achieved by employing a HEPA filter and a back-to-front laminar circulation system. A space-saving upright design, display for improved visibility, and safety measures are some of the user-friendly features.
Used extensively for the heat treatment of specimens and drying components in stringent clean air requirements.
The high-performance model (PVHC model) provides stable performance even during heat-up or cooling at high temperatures of 150℃ or more.

Model	Power supply	Temperature range	Interior dimensions W×H×Dmm
PVC-212	200V AC /220V AC 3φ 50/60Hz	+60℃ above room temp. to +200℃	580×530×580
PVC-232			580×1130×580
PVC-332			800×1130×750
PVHC-212		+60℃ above room temp. to +350℃	580×530×580
PVHC-232			580×1130×580
PVHC-332			800×1130×750
PVHC-232MS		+60℃ above room temp. to +300℃	580×1130×530
PVHC-332MS			800×1130×700

* Compliance with CE Marking. Ask us for details.

DESK-TOP TYPE HIGH-TEMP CHAMBER

High-performance temperature uniformity of 1.5℃(at 200℃) is guaranteed, despite its small size. Equipped with a wired remote control to allow easy operation and monitoring, even when the chamber is placed beside a desk.
The air circulator device is effective for drying or heat-treatment processes.

Model	Power supply	Temperature range	Interior dimensions excluding protrusions W×H×D mm
ST-110	100V AC 1φ 50/60Hz	+20℃ above room temp. to +200℃	220×280×250
ST-120			400×280×350
STH-120		+20℃ above room temp. to +300℃	360×240×330

CONVECTION OVEN

The chamber employs a sirocco fan for even circulation of hot air. It features the PID temperature indicator controller and automatic overheat prevention circuit.

Model	Power supply	Temperature range	Interior dimensions W×H×D mm
LC-114	100V AC 1φ 50/60Hz	+20 above room temp. to +250℃	450×450×450
LC-124		+20 above room temp. to +200℃	450×820×450
LC-224	200V AC 1φ 50/60Hz	+20 above room temp. to +250℃	
LC-234			600×1000×600

VACUUM OVEN LCV

Photograph is oven with vacuum pump.

Employs a direct heating system to ensure quick vacuum drying. Equipped with a gas-purge system, thus ensuring anaerobic tests by using nitrogen gas. Suitable for vacuum heat treatment including baking, defoaming, deaeration, and hardening.

Model	Power supply	Temperature & pressure range	Interior dimensions W×H×Dmm
LCV-234P	200V AC 3φ 50/60Hz	(Ambient +20)℃ to +200℃ 0 to −101kPa (Gauge)	450×450×450
LCV-244P			550×550×550

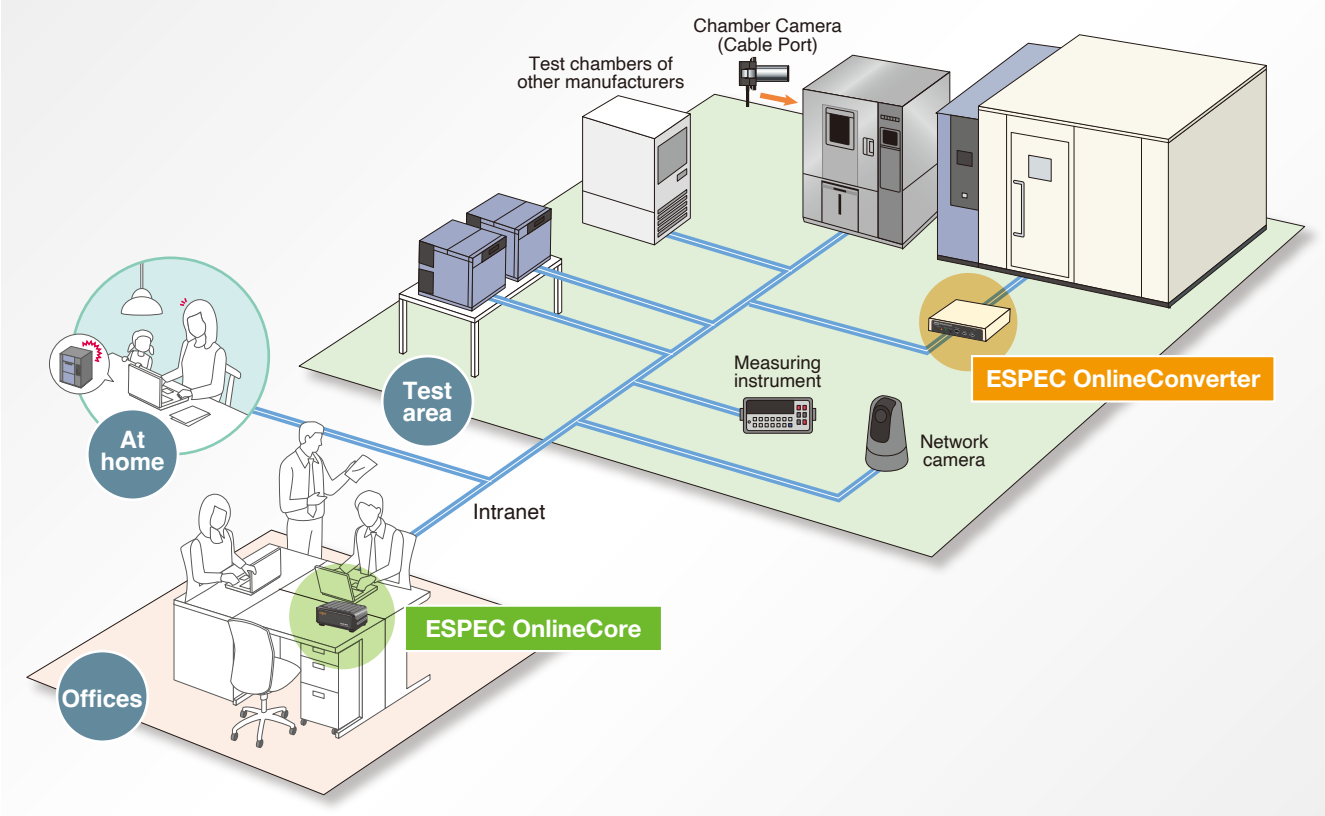
VACUUM OVEN VAC

The vacuum oven is ideal on electronics production lines for everything from debubbling, deaeration, and hardening, to post-wash drying and any other vacuum heat treatment processes. Five pressure operation modes in combination with temperature can be used to create programmed operations which allow the ovens to be used in R&D and other applications. A proprietary inner covering/inner shell structure boasts outstanding temperature distribution characteristics, enabling uniform heat treatment and eliminating thermal loss for a higher operation ratio. Increased chamber air-tightness and thermal insulation achieve power savings of 20 to 40% (compared to the previous models).

Model	Power supply	Temperature & pressure range	Interior dimensions W×H×Dmm
VAC-101P	200V AC 1φ 50/60Hz 200V AC 3φ 50/60Hz	+40℃ to +200℃ 933Pa×10²Pa to 1Pa×10²Pa	450×450×450
VAC-201P	220V AC 1φ 50/60Hz 230V AC 1φ 50/60Hz		600×600×600
VAC-301P	200V AC 3φ 50/60Hz 220V AC 3φ 60Hz 380V AC 3φ 50Hz* 400V AC 3φ 50Hz*		800×800×800

* Compliance with CE Marking.

NETWORK PRODUCTS



The centralized control system
ESPEC ONLINECORE

You can easily observe the operation status of environment test chambers by connecting to an intranet.

- Centralized control monitor
- Schedule management
- Remote control
- Alarm notification mail
- Large test data strage (option)
- One click test report (option)
- Chamber utilization checking (option)
- Central management of repair history (option)

Centralized monitor

RS-485 LAN converter
ESPEC ONLINECONVERTER

An adopter for test chambers which do not support Ethernet connection.
* Limited to chambers with RS-485 ports.

HD CHAMBER CAMERA

Especially useful for monitoring samples those that may physically change while Under test.
HD Chamber Camera can record and capture images of the entire sample in the chamber. Suitable for monitoring overall changes.

Model	: SUC-0030-HD
Available chamber ※	: Platinous J Series, Bench-Top Series, etc.
Allowable range of use	: Temperature: −40°C to +150°C Humidity: 0 to 98%rh
Resolution	: HD (1280×720)
Interface	: USB 2.0 ※Cable connection (USB Type A)
Camera weight	: Approx.700g
Dimensions (mm)	: W124×H98×D156.5

※ CE standard, RoHS standard

VOC EMISSION TEST CHAMBER

Volatile organic compounds (VOC) is known to cause sick building syndrome or SBS. ESPEC has developed a VOC chamber that can be used to capture VOC given off by construction materials such as plywood, wallpapers, and curtains, automotive components, PCs and other heat-generating equipment common to the household.
The 1m^3 chamber conforms to the small chamber standard JIS A 1901.

Model	Temperature range	Interior capacity	Interior dimensions W×H×Dmm
VOC-010	+20℃ to +100℃ (at test operation)	Approx 1m^3	1000×1100×810
VOC-020	+80℃ to +250℃ (at heat treatment operation)	Approx 2m^3	2000×1100×810

Model	Outside dimensions
VOC-010	W2250×H1950×D1520 mm
VOC-020	W3250×H1950×D1520 mm

ULTIMATE THERMAL CYCLE CHAMBER

The chamber allows a thermal cycle between the temperature range of −180℃ to +170℃. Adopting a conventional and LN_2 hybrid cooling system realizes low running cost while achieving high-precision control throughout the range.

Model	Temp. range	Temp. changing rate	Interior dimensions W×H×Dmm
RSC-16	−180℃ to +170℃	2.0℃/min	3550×1900×2400
RSC-23			3550×1900×3500
RSC-32			3550×1900×4700

Energy Device-related Equipments

Secondary Battery

ADVANCED BATTERY TESTER

All-in-one systems combine the functions required for charge/discharge evaluations of secondary batteries in a single package.
We will propose the optimal single system that combines various types of charge/discharge power supplies, temperature chambers, battery installation jigs (battery holders), safety functions, and measurement functions selected according to the testing purpose.

Model	: ADBT-5-1	ADBT-5-10	ADBT-5-50
Temp. range	: −40℃ to +100℃		
Output voltage setting range	: 0 to 5000mV		
Output current setting range	: 0 to 1mA 1mA to 10mA 10mA to 100mA 100mA to 1000mA	0 to 100mA 0 to 1A 0 to 10A	0 to 500mA 0 to 5A 0 to 50A
Output power setting range	: 0 to 5W	0 to 50W	0 to 250W
Parallel (2/4) function	: —	16A/32A	80A/160A

Secondary Battery

TEMPERATURE CHAMBER FOR CHARGE-DISCHARGE TESTING

As batteries become increasingly high capacity for the full-scale use of EVs, further safety is required in preparation for emergency events during charge/discharge tests. This temperature chamber is specially designed for rechargeable battery charging and discharging applications and can be tested safely and reliably.

Model	Temperature range	Interior dimensions W×H×D mm
BTC-560	−40℃ to +100℃	800×1000×700
BTC-1120		1600×1000×700

Solar battery

PV THERMAL-BIAS COMBO TEST SYSTEM

The PV Module Thermal Cycling (TC) Test System combines a large capacity temperature and humidity chamber, which is equipped with a jig to securely hold multiple PV modules, and with safety of operators in mind, and a current load measurement system, which applies a current, that is equivalent to STC peak output current, controls the entire system, thereby enabling easy thermal cycling (TC) testing.

Application current range	: Current range 0 to 10 A Voltage range 0 to 100 V
Current output precision	: ±12mA
Monitor value	: Voltage, output current, surface temperature
Number of channels	: 10 channels (power supply specifications per 10 units)

Solar battery

PHOTOVOLTAIC MODULE EVALUATION SYSTEM

Potential Induced Degradation (PID) is an undesirable property of crystalline PV modules. It can occur when the voltage potential of the module and the leakage current drive ion mobility within the module between the semiconductor material and other elements of the module (e.g. glass, mount and frame) causes the power output capacity of the module to degrade.
ESPEC's PID Evaluation System is to measure the leak current by applying high-voltage current to the sample placed in high temperature and humidity environment, with high accuracy and excellent reproducibility so as to accurately evaluate the PID phenomenon. This system is essential in evaluating PV module degradation.

Application voltage range	: ±10V to ±1500V (Polarity can be changed using the relay box part)
Leak current measurement range	: ±0.1pA to ±1mA (The display is the absolute value display of the positive polarity)
High-speed leak detection function	: Range ±4μA to 100μA Detection speed Approx. 20 msec
Number of channels	: 20ch

Power device

HIGH TEMPERATURE REVERSE BIAS TEST SYSTEM

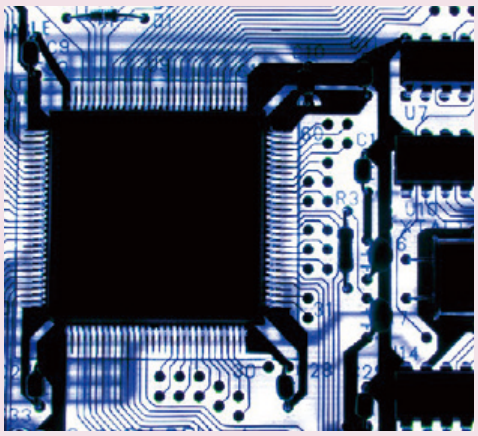
The High-Temperature Reverse Bias Test System measures and evaluates leakage current behavior under high-temperature, high-voltage stress conditions as a time-lapse breakdown test of power semiconductor insulation films. With a gate-off voltage applied to the gate terminals of power semiconductors such as IGBTs and power MOSFETs, a reverse bias of several hundreds to 3 kV is applied as a stress voltage across D-S, and Ice / Ids leakage current is measured and logged periodically.
High Temperature Gate Bias (HTGB) and High Temperature High Humidity Reverse Bias systems also available.

Stress voltage (DC)	: 100V to 3000V, 0V (HTGB)
Gate voltage (DC)	: −30V to +30V (option: −45V to +45V)
Number of channels	: Max. 48ch
Temperature range	: Max. 200℃ (option: Max. 250℃)

Power device

POWER CYCLE TEST SYSTEM

Power Cycle Test System is designed to evaluate bodings inside the DUT, which is an important role in improving the reliability of power semiconductors (IGBT / MOSFET). The system allows the core (or Tj) instead of the DUT itself to go through the thermal cycles, by applying high current for heating and using chilled water or air for cooling. The thermal stress will be applied to interconnect inside the device such as wire bonding and chip mount, which may result in a fracture or crack caused by the stress.



ELECTRO-CHEMICAL MIGRATION EVALUATION SYSTEM

Photograph shows an example of system configuration.

Due to the miniaturization and higher density of electronic components in the electronics industry in recent years, the need for electrochemical migration and insulation evaluations are rising.
The Electrochemical Migration Evaluation System automatically detects a decrease in leak current and insulation resistance associated with electrochemical migration while exposing the sample to a high-temperature and high-humidity environment.

- High-accuracy measurement using the unique continuous scanner relay method and measuring instruments compatible with international standards.
- Stress voltage (stress voltage, measurement voltage) is available in: 100V, 300V (option), 500V (option), 1000V (option), and 2500V (option).
- Real-time data editing and browsing with dedicated software are possible.
- Capacitor insulation degradation characteristics can be automatically evaluated. Please contact us.

■AMI-U ＜100V spec＞

Number of channels	: 25ch to 300ch per rack	
Channel control	: 5ch	25ch
Stress voltage	: 0V, 1.0V to 100V DC	
Resistance measurement range	: $2\times10^{5}\Omega$ to $1\times10^{13}\Omega$ (In 100V stressing) $2\times10^{3}\Omega$ to $1\times10^{11}\Omega$ (In 1V stressing)	

* Compliance with CE Marking.

CONDUCTOR RESISTANCE EVALUATION SYSTEM

Photograph shows an example of system configuration.

Cracks in PCB through holes and solder joints may cause disconnection or poor contact, greatly affecting the reliability of electronic equipment.
In addition to internal factors such as the connection method, solder material, type of flux and cleaning method, external factors such as temperature and humidity also affect the cause of cracks.
By using the Conductor Resistance Evaluation System along with thermal shock or climatic chamber, it detects the occurrence of cracks from changes in conductor resistance due to cracks. It can also be used for testing contact parts such as connectors, switches, and relays.

- Comes with a unique multi-scan method and measuring instruments that comply with international standards.
- Judge failures by absolute value or change rate.
- Control via PC allows you real-time measurement and simultaneous data editing and viewing.

■AMR-U

Measurement current	: DC specification	AC specification
Channel configuration	: 40ch to 280ch per rack	
Resistance measurement range	: $1\times10^{-3}\Omega$ to $1\times10^{8}\Omega$ ($1m\Omega$ to $100M\Omega$)	$1\times10^{-3}\Omega$ to $1\times10^{3}\Omega$ ($1m\Omega$ to $3k\Omega$)

* Compliance with CE Marking.

CAPACITOR EVALUATION SYSTEM

Photograph shows an example of system configuration.

The Capacitor Evaluation System is designed to measure capacitors' capacitance, tanδ, impedance temperature (humidity) characteristics, frequency characteristics, and its changes over time, but it can also be used for various electronic materials such as printed circuit boards and insulating materials as well.

- Diverse real-time graphing functions make it possible to use the recorded data to confirm various electrical characteristics and deterioration rates with respect to temperature, frequency and time.
- Up to two environmental testing apparatus can be connected to the system, a different testing mode can be selected for each apparatus, and tests can be run simultaneously.

■AMQ

Measurement method	: AC 4 terminal measurement (measurement cable end)	
Measurement intervals	: 1min.～1500min. (variable in 1min. steps)	
Measurement ranges	: Frequency	20Hz～1MHz
	: Dielectric loss angle	0.0001tanδ～10.0000tanδ
	: Capacitance	Depends on impedance measurement range
	: Impedance	10mΩ～100MΩ
Measurement settings	: Select from AUTO, 10Ω, 100Ω, 300Ω, 1kΩ, 3kΩ, 10kΩ, 30kΩ, 100kΩ	

SEMICONDUCTOR PARAMETRIC TEST SYSTEM

Photograph shows an example of system configuration.

The trend in semiconductor wafers toward larger diameters, finer detail, and greater density dictates the reliability of the individual transistors. The characteristics of individual transistors are tested by measuring continual changes in I-V characteristics, HCI, NBTI, and so forth. This system uses a new method to simultaneously test multiple devices at once. Two systems are available for testing, at the wafer level and the package level.

■AMM

Voltage / current application range	: ±50V / ±100mA
Resolution	: 1mV step / 1pA step
Voltage/ current measurement range	: ±50V / ±100mA
Number of DUT	: Max. 54 DUT (package level) Max. 162 DUT (wafer level)

ELECTROMIGRATION EVALUATION SYSTEM

Increasing use is being made of microfabrication and new materials in order to increase the levels of performance and integration achieved with semiconductor devices. And as the operating life of devices depends on microfabrication and such new materials, it has become increasingly important to evaluate electromigration under high-precision life-acceleration conditions.
This system evaluates the resistance and leak current caused by electromigration.
DUT boards can be removed individually. Up to 3 ovens can be mounted in each cabinet, allowing testing each oven.

■AEM

Stress-current	: Output range 0.1mA to 200mA DC
Oven temperature range	: +65℃ to +350℃

TEMPERATURE HUMIDITY BIAS EVALUATION SYSTEM

The THB Evaluation System conducts a reliability test for LSI such as automotive semiconductors which require higher reliability under rigorous conditions than consumer semiconductors.
This system supports various types of devices by allowing up to 500 W heat load under high temperature and humidity environment.

Temperature/humidity range	: 50℃ to 95℃ / 70%rh to 95%rh (50℃ to 85℃)
Temperature and humidity distribution performance	: ±2℃ / ±5%rh (no specimen)

MONITORED BURN-IN SYSTEM

This is a highly scalable burn-in system that reduces test costs by sharing the test content with ATE optimally. The user interface inherited from past experience makes it easy to create basic test patterns for various types of memory and logic, providing high productivity. The pattern generator, driver, and chamber are modularized to support a wide range of optimal test environments from reliability testing to screening.

Model	Application device	Main specification
MBI	Memory, MPU, System LSI	No. of channels 48ch.
		VIH +1.0V to +15.0V
		PS 1 +1.0V to +10.0V / 16A

STATIC BURN-IN SYSTEM

Temperature and various electrical stresses are applied to semiconductor devices and assembled electronics, which is valid for screening semiconductor devices with surface contamination and input circuit deterioration. With our original air conditioning system, it can match the heat dissipation and maintain the temperature conditions during the process. It comes in two types: A1 exclusively for static burn-in; and B1 which can be modified to a clock burn-in system.

Model	Application device	Temp. range
RBS-A1 RBS-B1	ICs, discreet, semiconductor device, electronic components, electronic units and wiring boards	H type : +70℃ to +150℃ M type : +20℃ to +150℃ L type : −30℃ to +150℃ U type : −55℃ to +150℃

Products for pharma, cosmetics and food

STABILITY TEST CHAMBER CSH

Preservation conditions for stability tests on pharmaceuticals, chemicals, and cosmetics are stipulated in the ICH Stability Test Guidelines, and test equipment must be capable of 12 months of continuous long-term operation. By equipping the test chamber with a capacitive type humidity sensor, it is free from wick replacement and other maintenance procedures.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
CSH-112/CSH-112HG	100V AC 1φ 50/60Hz	+20℃ to +75℃ 50%rh to 90%rh	600×700×560
CSH-122/CSH-122HG	220V AC 1φ 50/60Hz		750×950×660
CSH-132/CSH-132HG	230V AC 1φ 50Hz		1100×950×760

REDUCED PRESSURE LOW-TEMPERATURE COOKER VidePro

Innovative cooking system by scientific approach. 3 cooking modes (impregnation, program or manual cooking) will expand your creativity in cooking. By dropping the pressure down to −90kPA(G), you can boil water at a lower temperature of +60 or +70℃ for speedy and effective cooking so that it makes meat and fish juicy, tender and full of flavor.

Power supply	: AC100V 50/60Hz
Temperature setting range	: 0 to +100°C
Max. vacuum	: −90kPa(G)
Pot volume	: 5 Liters (Max. cooking volume)
Weight	: 22 kg (without pot and lid)
Exterior size	: W400×H547×D522mm

Contact: ESPEC KURIYA LAB CORP. (foodbusiness@espec.co.jp)

STABILITY TEST CHAMBER CWH

Suitable for long storage in medical, cosmetic, and food industries. It adopts "area temperature & humidity control," which is to control test area's environment by detecting difference between setting and measured values. Thanks to it, high-precision temperature and humidity distribution is realized; ±1 ℃ ±5%rh as maximum gap in test area is guaranteed.

Model	Power supply	Temperature & humidity range	Interior dimensions W×H×Dmm
CWH-20A	200V AC 3φ 50/60Hz	+25℃ to +40℃ 60%rh to 75%rh	1850×2100×2080
CWH-30A			2750×2100×2080
CWH-40A			2750×2100×3000

AGING CABINET

ESPEC exclusive control system ensures the accurate temperature and humidity, which can provide perfect uniformity entire inside of cabinet. Our aging cabinet is dedicated for the complete management of the aging process (fermenting, drying, seasoning, salting, smoking and flavouring). The entire system works to produce the ideal climate continuously, which saves total aging time with easy operation. A large glass window is suitable for monitoring aging process.

Power supply	: AC200V 1φ 20A
Temperature & humidity range	: +10°C to +30°C/60% rh to 95% rh Dry aging (option): Temperature and humidity range expanded to 0 to +3°C/70%rh to 90%rh
Sterilization operation	: +85℃
Interior size	: W1100×H950×D760mm

Contact: ESPEC KURIYA LAB CORP. (foodbusiness@espec.co.jp)

Plant Factory Business

ESPEC MIC., part of the ESPEC Group, dedicates a great part of its research to develop sustainable and safe equipment for vegetable growth under controlled environment, using hydroponic systems.

PLANT TEST AND RESEARCH SYSTEM

Phytotron for Biohazard Countermeasure
(Kyushu University Biotron application center)

Growth chamber (Tottori University)

Plant Test and Research System is the equipment and systems that support plant research, development, and production. It reproduces the ground environment (light, temperature, humidity, carbon dioxide, wind, etc.) and the underground environment (water temperature, water quality, soil, etc.) essential for plant growth.
Growth chamber, with high-intensity artificial light, and Phytotron, with natural light and to be installed outside, are also available. We also manufacture closed-type models that support gene modification experiments.

PLANT FACTORY

This plant factory can produce vegetable year-round by using artificial light source such as LEDs, and it can be also customized to each productions scale according to your requirement.

Container type plant factory

Inside (Strawberry)

THERMO RECORDER

RT15

RS15

A data logger that quickly measures and records familiar environments.
In addition to temperature and humidity, measurements such as illuminance, UV, carbon dioxide, current, and pulse are possible. The lineup includes a type that collects measurement data via Bluetooth or USB and a model that can collect data, monitor current values, and send alarm mail via the Internet or LAN.

Model	Measurement channels	Measurement range	Data uptake
RT-14N	Temperature 2ch	−40°C to +110°C	Wired LAN communication
RS-14N	Temperature 1ch Humidity 1ch	0 to +55°C 10%rh to 95%rh	
RT-15	Temperature 2ch	−40°C to +110°C	· Wireless LAN communication · Bluetooth
RS-15	Temperature 1ch Humidity 1ch	0 to +55°C 10%rh to 95%rh	
RS-13L	Temperature 1ch Humidity 1ch Illuminance 1ch UV Intensity 1ch	0 to +55°C 10%rh to 95%rh 0 to 130,000lx 0 to 30mW/cm^2	· Infrared communivation · USB connection
THC02	Temperature 1ch Humidity 1ch CO_2 concentration 1ch	0 to +55°C 10%rh to 95%rh 0 to 9,999ppm	

ESPEC Business Profile

As the world's leading manufacturer of environmental test chambers, which are essential to the development of advanced technology

The quality policy of the ESPEC group is to “safely, comfortably, and surely fulfill the mission as well as to provide more reliable products and services.” We strive to provide the products that make all of our customers satisfied and think, “It was a good decision to buy/use ESPEC’s product.
As evident by our newest facilities, QMC (Quality Management Circle) activities, 3S (Seiri; organized, Seiton; neat, Seiketsu; clean) activities, and other endeavors, ESPEC spares no effort in improving its production facilities to create goods of the utmost quality.

Putting the ESPEC ideal into products

ESPEC produces more than 1,000 standard devices. We also provide many custom-made devices to meet the special needs of our customers. The Fukuchiyama Plant houses a production line with the capability to output a wide variety of small orders as it efficiently creates the necessary link between orders received and production.

Laboratory Testing Services

ESPEC provides comprehensive solutions for environmental testing. Using our wealth of knowledge developed via environmental testing and unrivaled performance, we are able to provide a comprehensive service that includes everything from the design/implementation of reliability testing to evaluation/ analysis and improvement proposals.
ESPEC has established four laboratories throughout Japan with the latest environmental test equipment and analytical instruments to conduct reliability testing and temperature and relative humidity calibration services.

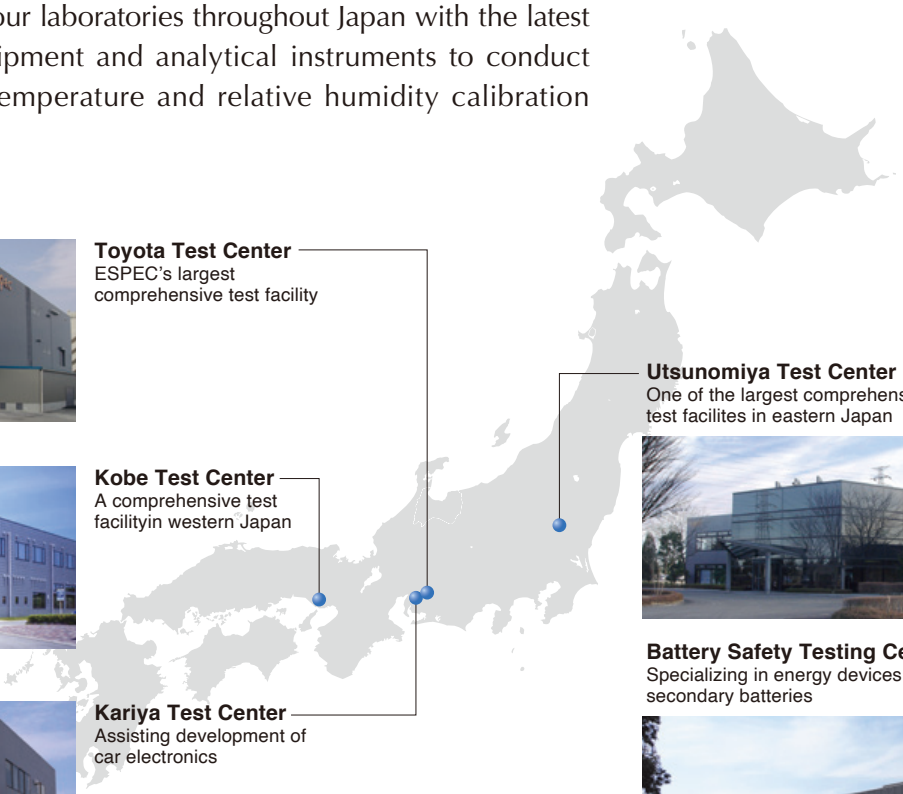
GREEN POWER

Laboratory Testing Services with 100% green power

Toyota Test Center
ESPEC's largest comprehensive test facility

Kobe Test Center
A comprehensive test facilityin western Japan

Kariya Test Center
Assisting development of car electronics



Utsunomiya Test Center
One of the largest comprehensive test facilites in eastern Japan

Battery Safety Testing Center
Specializing in energy devices such as secondary batteries

Battery Safety Testing Center

This is the world's first test center corresponding to UN/ECE-R100, Series 2, Part II (UN standard) on the safety of secondary batteries used in eco-friendly vehicles. Our partnership with TÜV SÜD Japan Ltd.[*3] enables us to offer services from the implementaiton of various safety tesitng to applicaitons for certificaiton in one locaiton.

Officially recognized reliability and impartiality

The centers have been certified as being in compliance with "ISO/IEC17025," an international standard regarding test center capacity. They are also ILAC[*1] MRA[*2] compliant, which allows for high quality testing/calibrations.

ilac-MRA

JAB
Testing LAB
RTL04160

[*1] **ILAC** (International Laboratory Accreditation Conference)
[*2] **MRA** (mutual recognition arrangement)

[*3] **TÜV SÜD Japan Ltd.**
Japanese subsidiary of TÜV SÜD Group, a third-party certification organization headquartered in Germany

We have opened test centers in Shanghai, Suzhou, and Chonburi Province (Thailand) and provide commissioned testing.

ESPEC TEST TECHNOLOGY (SHANGHAI) CO., LTD.

Boasting the latest in environmental testing equipment, ESPEC TEST TECHNOLOGY conducts a wide range of commissioned testing. As a private third-party testing facility, it provides highly reliable testing results. With the establishment of its center in Suzhou, it steadily meets the demands of its customers in the ever-growing Chinese market.

ESPEC ENGINEERING (THAILAND) CO., LTD.

ESPEC ENGINEERING (THAILAND) was established within the Amata Nakorn Industrial Estate, where many Japanese companies are located. It is working hard to improve its services, such as technical support and commissioned testing for Japanese companies that have expanded their businesses to ASEAN countries. In addition, it established a subsidiary, ESPEC ENGINEERING VIETNAM CO., LTD. in Hanoi, Vietnam to improve technical support for customers.

The ESPEC Group (International)

■ AMERICA

ESPEC NORTH AMERICA, INC.

Headquarters

Sales Service Manufacturing

4141 Central Parkway Hudsonville, MI 49426, U.S.A.
Tel : 1-616-896-6100 Fax : 1-616-896-6150

Colorado/Qualmark office

Manufacturing

12600 E Smith Road, Aurora, CO 80011, U.S.A.
Tel : 1-303-254-8800 Fax : 1-303-254-8343

■ CHINA

ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO., LTD.

Sales Service

Head Office

Unit A, 5F, Building B, No.207, Songhong Road,
Changning District, Shanghai, 200335, P.R. China
Tel : 86-21–51036677 Fax : 86-21–63372237

BEIJING Branch

Room 2409, E2, Yuanchenxin Building, No.12 Yumin Road,
Chaoyang District Beijing, 100029, P.R. China
Tel : 86-10-64627025 Fax : 86-10-64627036

GUANGZHOU Branch

Room No.601, Yi An Plaza, No.33 Jian She Liu Ma Road,
YueXiu District, Guangzhou, 510060, P.R. China
Tel : 86-20-83317826 Fax : 86-20-83317825

SHENZHEN Branch

Room 1709, HuaRong Building, No.178 MinTian Road,
FuTian District, ShenZhen, 518048 P.R. China
Tel : 86-755-83674422 Fax : 86-755-83694228

SUZHOU Branch

Room 1601, Honghai Building, Xingdu Street No.72,
Industrial Park, Suzhou, 215021, P.R.China
Tel : 86-512-68028890 Fax : 86-512-68028860

TIANJIN Branch

Room 2003, Building 1 No. 40 HuaChang Road,
Ocean International center, Hedong District,
TianJin 300011, P.R.China
Tel : 86-22-26210366 Fax : 86-22-26282186

XI'AN Branch

D-1104, Van Metroplis, No.35 Tangyan Road,
Xi'an, 710065, P.R. China
Tel : 86-29-88312908 Fax : 86-29-88455957

CHENGDU Branch

Room 2608, No.66 Green Dragon Street,
Longquanyi District, Chengdu, 610041, P.R. China
Tel : 86-28-88457756 Fax : 86-28-88457756

WUXI Branch

Room 5618, WUXI IFS, No.99 Zhongshu Road,
Liangxi District, 214023, Jiangsu, P.R China
Tel : 86-0510-82735036 Fax : 86-0510-82735039

ESPEC TEST TECHNOLOGY (SHANGHAI) CO., Ltd.

Test

Room 101, Building 2, No.1295, ChuanQiao Road,
PuDong New Area, Shanghai, China 201206
Tel : 86-21-68798008 Fax : 86-21-68798088

SUZHOU Branch

1/F, Building 7, No.32, DongFu Road, Industrial Park,
Suzhou, 215123, P.R. China
Tel : 86-512-68368025 Fax : 86-512-67888377

SHANGHAI ESPEC ENVIRONMENTAL EQUIPMENT CORP.

Manufacturing

1518 Hao, Hua xin Zhen Hua zhi Road,Qing pu Qu,
Shanghai, 201708, P.R. China
Tel : 86-21-69791178 Fax : 86-21-69791213

ESPEC TEST EQUIPMENT (GUANGDONG) CO., LTD.

Manufacturing

101, 16Hao Meide 2 road, Zhujiang gongye yuan,
Zhujiangjie, Nan sha Qu, Guangzhou City,
Guangdong, China
Tel : 86-20-84528103 Fax : 86-20-84528107

■ EAST ASIA

ESPEC KOREA CORP.

Manufacturing

(Hyeongok Industrial Park) 67, Hyeongoksandan-ro,
93beon-gil, Chongbuk-Eup, Pyeongtaek-City,
Gyeonggi-do, 17812, Korea
Tel : 82-31-686-8523 Fax : 82-31-686-8526

■ ASIA PACIFIC

ESPEC ENGINEERING (THAILAND) CO., LTD.

Sales Service Test

700/860, Amatacity Chonburi Industrial Estate (Phase 8),
Moo5, Tambol Nongkakha, Amphur Panthong,
Chonburi 20160, Thailand
Tel : 66-3-810-9353 Fax : 66-3-810-9356

ESPEC ENGINEERING VIETNAM CO., LTD.

Service Test

Floor 18, 789 Office Building, 147 Hoang Quoc Viet Street,
Nghia Do Ward, Cau Giay District, Hanoi City, Vietnam
Mail : EEV_support@espec-vn.com

■ EUROPE

ESPEC EUROPE GmbH

Sales Service

Wahlerstrasse 18, 40472 Düsseldorf, Germany
Tel : 49-211-3618500

ESPEC environmental chambers sales and engineering Ltd. Sti.

Sales Service

Oruçreis Mah. Tekstilkent Ticaret Merkezi A 11
Blok no. 31 Esenler / 34235 Istanbul, Turkey
Tel : 90-212-438-1841

Corporate Profile

ESPEC CORP.

Date Founded:	July 25, 1947
Date Incorporated:	January 13, 1954
Paid-up Capital:	6,895 million yen (As of March, 2023)
Stock Listings:	Prime Market of the Tokyo Stock Exchange
Number of Employees:	1,691 (consolidated)

Main offices in Japan

Head Office:
3-5-6, Tenjinbashi, Kita-ku, Osaka 530-8550, Japan
Tel : 81-6-6358-4741
Fax : 81-6-6358-5500

Metropolitan Area Sales Office:
Shinbashi Square Bldg. 6F 5-14-10 Shinbashi, Minato-ku, Tokyo 105-0004, Japan
Tel : 81-3-6402-3591
Fax : 81-3-6402-3594

Osaka Sales Office:
15-8 Taimahigashi-machi, Neyagawa 572-0072, Japan
Tel : 81-72-834-1191
Fax : 81-72-834-7755

Kanagawa Sales Office:
1-29-12 Shimokodanaka, Nakahara-ku, Kawasaki 211-0041, Japan
Tel : 81-44-740-8450
Fax : 81-44-797-0073

Battery Safety Testing Center / Utsunomiya Technocomplex (UTC):
23-1 Kiyohara Kogyo-danchi, Utsunomiya 321-3231, Japan
Tel : 81-28-667-8730
Fax : 81-28-667-8733

Kobe R&D Center:
5-2-5, Kanokodaiminamimachi, Kita-ku, Kobe, Hyogo, 651-1514, Japan
Tel : 81-78-951-0960
Fax : 81-78-951-0967

Fukuchiyama Plant (Kyoto):
1-7 Osadano-cho, Fukuchiyama, Kyoto 620-0853, Japan
Tel : 81-773-27-3131
Fax : 81-773-27-1132

Sales & Service Offices:
Sendai, Utsunomiya, Tsukuba, Takasaki, Tokyo, Nishitokyo, Kanagawa, Atsugi, Shizuoka, Nagoya, Kanazawa, Shiga, Osaka, Hyogo, Hiroshima, Fukuoka

Test Center:
Utsunomiya, Toyota, Kariya, Kobe

The ESPEC Group:
(JAPAN)
ESPEC TEST SYSTEM CORP.
ESPEC ASSIST CORP.
ESPEC MIC CORP.
ESPEC KURIYA LAB CORP.
ESPEC THERMAL TECH SYSTEM CORP.

ESPEC CORP. https://www.espec.co.jp/english

Head Office
3-5-6, Tenjinbashi, Kita-ku, Osaka 530-8550, Japan
Tel : 81-6-6358-4741 Fax : 81-6-6358-5500

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