Company profile





Introduction

>Cutting edge technology for Environmental test chambers

- □ ETSP Co., Ltd. designs, manufactures and exporting to world wide a full range of environmental test chambers for product test and evaluation in semiconductor, automobile, electronics, chemicals, plastics
- ☐ To satisfy customer testing requirements, we are providing high quality, innovative, cost-effective products and services.

Company history

- 2018 Developed semiconductor test handler
- 2014 Awarded "Promising export company of Korea"
- 2013 Exported chambers to India, Singapore, Malaysia
- 2013 Awarded "small and medium enterprise quality".
- 2013 Supplied chambers to LG Innotek, Visteon, TUV etc
- 2012 Developed HAST chamber, CCT chamber etc
- (2012) ISO9001,ISO14001, OHSA18001 Certification
- 2011 Exported chambers to Thailand, Brazil, Mexico, Russia
- 2011 Supplied chambers to Samsung Electronics, 3M, Dupont, Volkswagen etc
- (2010) CE certification (Temperature & humidity chamber, Altitude chamber, Salt spray test chamber etc)
- 2009 Established ETSP Co., Ltd.

































































Hindustan Aeronautics Limited

























6

























































8







Global sales and service network

Exporting worldwide



>Industrial oven ETSP- TO series

ETSP-TO series are industrial batch process ovens for product evaluation and testing in semiconductors, electronics, plastics, chemicals, pharmaceutical areas for curing, drying, sterilizing, aging, heat treating and other production applications.

Solved temperature variations, unbalanced air distribution inside the oven.

Technical Features

- Temperature range: RT ~ 350 °C (changeable according to user's demand)
- \blacksquare Temperature stability: Less than \pm 0.5 \degree
- \blacksquare Temperature uniformity: Less than $\pm 3.0~\degree$ at 350 \degree
- ✓ Heat up rate: More than 6 °C/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP- TO series

EXPLOSION PROOF TYPE DRYING OVEN ETSP- EXTO series

ETSP-TO series are explosion proof type heating and drying ovens for flammable material such as volatile solvents, ethylene in manufacturing and laboratories.

Adopted all parts as explosion proof type including heaters, motors, electrical control console, 3 color tower light, switches, sensors, connecting cables......

Technical Features

- ▼ Temperature range: RT ~ 150 °C
- \blacksquare Temperature accuracy: Less than \pm 0.5 $^{\circ}$.
- Temperature stability: 3 ℃/min
- (Microprocessor controller including self-diagnostics warning message function)



ETSP-EXTO series

> Forced Convection oven ETSP- FCO series

ETSP-FCO series are economic type nonprogrammable industrial batch process ovens for product evaluation and testing in semiconductors, electronics, plastics, chemicals, pharmaceutical areas for curing, drying, sterilizing, aging, heat treating and other production applications.

Technical Features

- ✓ Temperature range: RT ~ 250 °C
- Temperature stability: Less than ± 0.5 °C
- ✓ Heat up rate: RT to 230 °C within 60minutes
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-FCO series

≻Conveyor ovens ETSP-ITO series

Conveyorized oven for aging, curing, preheating, water dryoff, paint drying, plastic curing, epoxy curing etc.....
Mechanically convected, vertical down airflow or horizontal
side-to-side airflow provides uniform heat distribution
throughout the work chamber and increase drying
efficiencies. The heating elements and circulation
fans/blowers are located in a plenum in the top of the oven.



Technical Features

- Temperature range: RT ~ -260°C (changeable according to user's demand).
- Custom conveyor systems including flat wire, mesh belts, monorails, powered rollers, indexing drives, walking beam, powered chain, non metalic belts and more
- HEPA filtered option for clean process application
- Fresh air intake and exhaust outlets are provided for enhanced circulation and temperature uniformity.

ETSP-ITO series

▶Inert Atmosphere oven ETSP-TI series

ETSP-TI series are designed for protect parts from oxidation using any non-flammable gas such as Nitrogen, Argon or Carbon Dioxide.

Solved temperature variations, unbalanced air distribution inside the oven.

Technical Features

- ✓ Purge inert flow rate : 20 ~ 200 SCFH,
- Maintain inner flow rates: 10 ~ 100 SCFH
- Temperature range: RT ~ 350 ℃ (changeable according to user's demand)
- ightharpoonup Temperature stability: Less than \pm 0.5 $^{\circ}$ C
- Temperature uniformity: Less than \pm 0.85% of the set point
- Heat up rate: More than 6℃/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-TI series

➤ Semiconductor Monitoring Burn-in Test Chamber ETSP-BTC series

ETSP-BTC series are Semiconductor Monitoring Burn-In test chambers to stress semiconductor packaged devices to ensure optimum performance as well as to weed out defective semiconductor packaged devices which can cause reliability problems in the end product.

Technical Features

- ✓ Temperature range: 40 ~ 150 °C
- \blacksquare Temperature stability: Less than \pm 0.5 $^{\circ}$ C
- ▼ Temperature uniformity: Less than ±1.5 °C
- ✓ Heat up rate: RT to 125 °C less than 50 minutes
- Pull down rate: 125°C to RT less than 50 minutes
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-BTC series

>Temperature testing chambers ETSP- LTO series

ETSP-LTO series are temperature testing chambers for durability or operating status of parts and products in extreme conditions. (LN2 cooling is option)
Solved noise, temperature variations, unbalanced air distribution inside the chamber.

Technical Features

- Temperature range: -70 ~ +180 ℃ (changeable according to user's demand)
- \blacksquare Temperature stability: Less than \pm 0.5 $^{\circ}$ C
- \blacksquare Temperature uniformity: Less than $\pm 1.5~\degree$
- ✓ Heating rate: 1~10 ℃/min
- ✓ Pull down rate: 1~5 °C/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-LTO series

> Environmental Stress Screening chambers

(Fast rate chambers, Thermal cycling test chambers) ETSP- ESS series

ETSP-ESS series are to conduct an Environmental Stress Screening test (Thermal cycling test) that is a process to precipitate process related defects from latent to patent for detection by a products verification test also to determine the limits of environmental stimulation which the product can endure before its performance is permanently degraded. Solved noise, temperature variations, unbalanced air distribution inside the chamber.

Technical Features

- Temperature range: -70 ~ +150 ℃ (changeable according to user's demand)
- ightharpoonup Temperature stability: Less than \pm 0.5 $^{\circ}$
- \blacksquare Temperature uniformity: Less than $\pm 1.5 \, ^{\circ}$ C
- ✓ Heating rate: 5~15 °C/min
- ✓ Pull down rate: 5~15 °C/min
- Input power requirements: 3Ph with N,E $380V \pm 10\%$, 50Hz/60Hz



ETSP- ESS series

>Temperature and humidity chamber ETSP- TH series

ETSP-TH series are climatic (temperature and humidity control) version chamber for durability or operating status of parts and products in extreme conditions.

Solved noise, bad humidity control and condensation, slow temperature/humidity variations, unbalanced air distribution inside chamber.



ETSP- TH series (standard type)

Technical Features

- Temperature range: -70 ~ +180 ℃ (changeable according to user's demand)
- \blacksquare Temperature stability: Less than \pm 0.5 $^{\circ}$ C
- ▼ Temperature uniformity: Less than ±1.5 °C
- Humidity range: 20% ~ 95% RH (5% ~ 98%RH is option)
- \blacksquare Humidity stability: Less than \pm 1.5%RH
- Humidity uniformity: Less than \pm 3.0%RH
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP- TH series (slim type)

> Altitude chambers ETSP- TV and THV series

For performing altitude and climatic (temperature and humidity) testing in one combined test chamber.

More than one condition can be created simultaneously to satisfy many types of test requirements.

- Altitude temperature chambers
- -- Altitude temperature and humidity chambers

Technical Features

- Temperature range: -70 ~ +180 ℃ (changeable according to user's demand)
- \blacksquare Temperature stability: Less than \pm 0.5 $^{\circ}$ C
- ▼ Temperature uniformity: Less than ±1.5 °C
- Humidity range: 20% ~ 95% RH (5% ~ 98%RH is option)
- Max. final vacuum: 1mbar
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-THV series

▶ Panelized Walk in Temperature ETSP- WT series

ETSP-WT series are wide range of walk in temperature chamber for testing large size components and products.

Low noise, fast temperature variations, with balanced air distribution inside chamber.

Technical Features

- Temperature range: -30 ~ +70 °C
- ▼ Temperature stability: Less than ± 0.5 °C
- ▼ Temperature uniformity: Less than ±2 ℃
- ✓ Heat up rate: 0.5 ~3 °C/min
- Cool down rate: 0.5~3 ℃/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph



ETSP-WT series

➤ Solid construction Walk in temperature and humidity chamber ETSP- WTH series

ETSP-WTH series are wide range of walk in temperature and humidity chambers for testing large size components and products.

Low noise, better humidity control and no condensation, fast temperature/humidity variations, with balanced air distribution inside chamber.

Technical Features

- Temperature range: -65 ~ +180 ℃ (changeable according to user's demand)
- Temperature stability: Less than ± 0.5 °C
- Temperature uniformity: Less than ±2 ℃
- Humidity range: 20% ~ 95% RH (5% ~ 98%RH is option)
- Mumidity accuracy: Less than \pm 2%RH
- Heat up/cool down rate: 0.5~5 ℃/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph



ETSP-WTH series

➤ Complex IR chamber ETSP- WTHIR series

The purpose of the Complex IR chamber is for testing and simulation of hot, cold and humidity environment inclusive of the sun radiation to determine product quality. The chamber shall be able to conduct and fulfill the temperature, humidity temperature and humidity, and also solar radiation conditioning and testing.

Technical Features

- Temperature range: -60 °C ~ 150 °C
- \sim Temperature stability: Less than \pm 0.2 $^{\circ}$ C
- \blacksquare Temperature uniformity: Less than \pm 2.0 \degree
- ✓ Heat-up rate: 0.5~5 °C/min
- Cool own rate: 0.5~5 ℃/min
- Humidity range: 20 ~ 98%RH
- Humidity uniformity: Less than ± 3 %RH



ETSP-WTHIR series

>UV exposure chamber ETSP- UV series

Provide UV(Ultra violet) light or full spectrum sunlight exposure for accelerated life testing of photovoltaic (PV) modules and for UV pre-conditioning required by IEC 61215 and 61646 for PV module testing. ETSP-UV series is to determine the accelerated effect of sunlight exposure. Both UVA315~385nm & UVB 280~315nm bulbs are utilized for all accelerated weathering test methods that will show how a material will react to long term sunlight exposure.



ETSP-UV series

Technical Features

- ✓ UV Temperature range:35 ~ 100 $^{\circ}$ C(without radiation) -20 ~ 100 $^{\circ}$ C(with radiation)
- High precision UV radiometer and radiation integrator
- Microprocessor controller including self-diagnostics, warning message function

▶ Basket moving type Thermal shock chamber ETSP- TS series

ETSP-TS series (basket moving type) are designed for thermal shock test of components or equipment, submitting them to rapid temperature changes.

Therefore they are suitable for quality control laboratories or in production plants for screening of components or equipments.

ETSP-TS series allows users to carry out a wide range of tests necessary to determine thermal characteristics. It is possible to offer standard or customer-designed models.

Technical Features

- Temperature range: Cold zone -70 ~ -10 °C, Hot zone Ambient~+200 °C (changeable according to user's demand)
- Temperature stability: Less than ± 0.5 °C
- \blacksquare Temperature uniformity: Less than $\pm 1.5 \, ^{\circ}$
- Temperature recovery time: within 5~15 ℃/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph



ETSP-TS series

➤ Damper type 3 zone Thermal shock chamber ETSP- TSD series

ETSP-TSD series are damper type 3 zone thermal shock test chambers, designed for thermal shock test of components or equipment, submitting them to rapid temperature changes.

Therefore they are suitable for quality control laboratories or in production plants for screening of components or equipments.

ETSP-TSD series allows users to carry out a wide range of tests necessary to determine thermal characteristics. It is possible to offer standard or customer-designed models.

Technical Features

- Temperature range: Cold zone -70 ~ -10 ℃, Hot zone Ambient~+200 ℃ (changeable according to user's demand)
- Temperature stability: Less than ± 0.5 °C
- ▼ Temperature uniformity: Less than ±1.5 °C
- Temperature recovery time: within 5~15 ℃/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph



ETSP-TSD series

>PV module testing Walk in temperature & Humidity chamber ETSP- PWTH series

ETSP-PWTH series are climatic version PV module testing walk in walk in temperature and humidity chambers, provide multiple capabilities create repeatable environmental conditions for durability or operating status of products in extreme conditions.



Technical Features

ETSP- PWTH series

- Temperature range: -70 ~ +150 °C (changeable according to user's demand)
- ▼ Temperature stability: Less than ± 0.5 °C
- ▼ Temperature uniformity: Less than ±2 °C
- Humidity range: 20% ~ 95% RH (5% ~ 98%RH is option)
- Humidity accuracy: Less than ± 2%RH
- ✓ Heat up/cool down rate: 1~5 °C/min
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph

>Complex vibration temperature and humidity chambers ETSP-VTH series

ETSP-VTH series are temperature and humidity test chambers in combination with vibration.

Enable to simulate dynamic process as well as optimum integration of various vibration systems.

Technical Features

▼ Temperature range: -70 °C ~ 150 °C

 \blacksquare Temperature stability: Less than \pm 0.2 $^{\circ}$

 \sim Temperature uniformity: Less than \pm 2.0 $^{\circ}$ C

✓ Heat-up rate: More than 1~5 °C/min

Cool own rate: More than 1~5 ℃/min

Humidity range: 20 ~ 98%RH

ightharpoonup Humidity uniformity: Less than \pm 3 %RH



ETSP-VTH series

≻ Vacuum dry oven ETSP- VD series

ETSP-VD series are designed for removing water from the surface or interior of certain products or substrates or removal of moisture from water-based coatings and adhesives. ETSP-VD series are designed and built to your specific requirements for part size, production rate and thermal characteristics.

Technical Features



ETSP- VD series

- Temperature range: Ambient +5 ℃~+250 ℃ (changeable according to user's demand)
- \blacksquare Temperature uniformity: Less than $\pm 2.0 \, ^{\circ}$ C at 100 $^{\circ}$ C
- ✓ Heat up time to 100 °C : Less than 85 minutes
- Max. final vacuum: 1x10⁻²mbar (0.01mbar)
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph

≻Salt spray Tester ETSP- SS series

ets eries are simulates the effects on your product from salt and sea mist. Tests are designed to evaluate corrosion properties and resistance to corrosion of your product. complying with the requirements of relevant national and international standards such as DIN, ISO, ASTM,DEF, MIL-STD, etc.

Technical Features

- Temperature range: RT ~ 35 °C
- Temperature stability: Less than ± 0.5 °C
- Temperature uniformity: Less than ±1.5 ℃
- Salty mist sediment: 1~ 2ml/80cm2⋅h
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 1Ph/3Ph



ETSP-SS series

≻Cyclic Corrosion Testing chamber ETSP- CCT series

Cyclic Corrosion testing chambers ETSP-CCT series provide possible laboratory simulation of natural corrosion, it is possible to cycle through all of the most significant corrosion environments. Even the most complex test cycles can easily be programmed with the touch screen LCD controller.

Technical Features

- Temperature range: -30 ~ 80 °C (changeable according to user's demand)
- Humidity range: 20 ~ 98%RH
- ▼ Temperature accuracy: Less than ± 0.3 °C
- Humidity accuracy: Less than ± 2%RH
- Salty mist sediment: 1~ 2ml/80cm2·h
- Input power requirements: 230V \pm 10%, 380V \pm 10%, 50Hz/60Hz, 3Ph



ETSP- CCT series

>PCT (Pressure Cooker test) ETSP- PCT series

ETSP-PCT series are A Pressure Cooker Test (PCT) tests also called an Autoclave Test or Pressure Pot Test (PPOT). To assess the ability of a product to withstand severe temperature and humidity conditions. It is used primarily to accelerate corrosion in the metal parts of the product, including the metallization areas on the surface of the die. It also subjects the samples to the high vapor pressure generated inside the autoclave chamber.

Technical Features

- ▼ Temperature range: 105 ~ 145 °C
- ▼ Temperature stability: Less than ± 0.5 °C
- Heat-up rate: RT to 140 ℃ within 120 minute
- Humidity range: 100% RH
- ✓ Pressure range: 0.2~2.0kg/cm³G



ETSP-PCT series

>HAST (Highly Accelerated Stress Testing) chamber ETSP- HAST series

ETSP-HAST series are "Highly Accelerated Temperature/Humidity Stress Test". It was developed as a shorter alternative to Temperature Humidity Bias (THB) testing.

If THB testing takes 1000 hours to complete, HAST results are available within 96~ 100 hours.

HAST accelerates corrosion, particularly that of the die metal lines and thin film resistors. HAST requires preconditioning and is conducted with electrical bias at 130 °C and 85%RH for 96~100 hours.

Technical Features

▼ Temperature range: 105 ~ 145 °C

▼ Temperature stability: Less than ± 0.5 °C

Heat-up rate: RT to 140 ℃ within 120 minute

Humidity range: 65%RH ~ 100% RH

Humidity stability: ± 0.1%

✓ Pressure range: 0.2~2.0kg/cm³G



ETSP- HAST series

>Steam aging chamber ETSP- STH series

Steam aging chamber is designed for artificial aging of all electronic components and circuit boards. This includes high density discrete components, relays, transistors, capacitors, SMT, and axial components. Artificial steam aging of components must occur over a very narrow temperature range, typically at 93 C +/- 5 degrees. ETSP-STH series are the only systems currently on the market that meet this precise control requirement. This thermal accuracy makes ETSP-STH series ideal for component manufacturers and military, commercial, and industrial end users.

Technical Features

- Temperature range: RT ~ 99 ℃
- ightharpoonup Temperature stability: Less than \pm 0.5 $^{\circ}$



ETSP-STH series

> Dust chambers ETSP- DC series

ETSP-DC series are designed to test a component's resistance to a dust-filled environment as defined in Dust test specifications such as SAE J-575, IEC 60068-2-68, DIN/VDE 0470 parts 1 (EN 60529) The product is placed on the specimen rack and dust is agitated through the chamber by injecting compressed air into each of the dust through. The dust then settles, covering the product under test.

Technical Features

- Flow and pressure control
- Timers for setting test periods and agitation of test
- Stainless steel interior
- Room lamp



ETSP-DC series

> Rain test chambers ETSP- RT series

ETSP-SEF series are designed for simulating actual and accelerated rain conditions as per various international test specification and standard of IEC, JIS, SAE, IS etc....

Technical Features

- Water pressure regulators, gauges and flow meters
- Water recirculation allows re-use of the treated rain water
- Rotating table to rotates the sample for full exposure to spray



ETSP-RT series

>Semiconductor test chambers ETSP- STH series

ETSP-STH series are designed to test device and IC module(Memory package) by connecting automatically with external test equipment.

Technical Features

- Temperature range: --55 ~ 125°C
- Higher utilization rate by reducing temperature stabilization time.
- Accurate temperature test possible through temperature control accuracy of ±1'C
- High performance and productivity



ETSP-STH series