

< Custom Equipment > Humidity Thermal Shock Chamber

Nowadays, vehicles use more and more integrated electronics and the upgrade and improvement of the multifunctional control features of microcomputers plays a great role in these.

Electronic control units (ECUs), need to be reliable as it enables the control processes, providing better fuel efficiency and a safe and comfortable ride.

As defaults in vehicles operation are mostly due to migration, ESPEC has developed the Humidity Thermal Shock Chamber to test their reliability and check this phenomenon. After the stress undergone by the specimen during thermal testing, a dew condensation test can now be performed.

Thanks to its ability to reproduce dew condensation in a stable manner, this equipment ensures an effective reliability test for vehicle electronics.



Features

● New concept: Hybrid-type test equipment

The upper chamber of the Thermal Shock Chamber (TSA) has been modified into a Temperature & humidity zone, where humidity can be controlled, allowing dew condensation cycling tests. With this new feature, it is possible to start a dew condensation cycle test right after the completion of thermal cycle test, which is not possible with conventional Thermal Shock chambers.

● Conventional thermal cycle testing also available

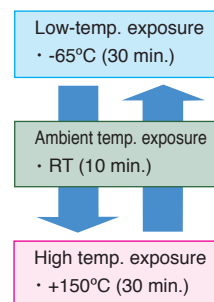
Simply operate a switch to selecting either thermal cycle or dew condensation cycle testing.

● Features similar to a simple humidity cycle chamber

- Excellent dew condensation.
- Prevention of water droplets falling from the ceiling by the control of the temperature on test area walls surface.
- Control of the dew condensation time and distribution by air circulation control device.

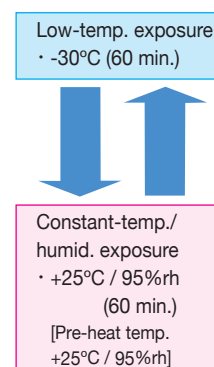
Test example and temperature recovery performance

Thermal cycle test



Test conditions	Ambient temp.	+23°C
	Cooling-water temp.	+25°C
	Power	Standard voltage
	Sensor position	Upstream of specimen
Performance	Specimen	Plastic molded ICs, 10kg
	High temp. recovery	Ambient temp. to +150°C Within 16 min.
	Low temp. recovery	Ambient temp. to -65°C Within 16 min.

Dew condensation cycle test

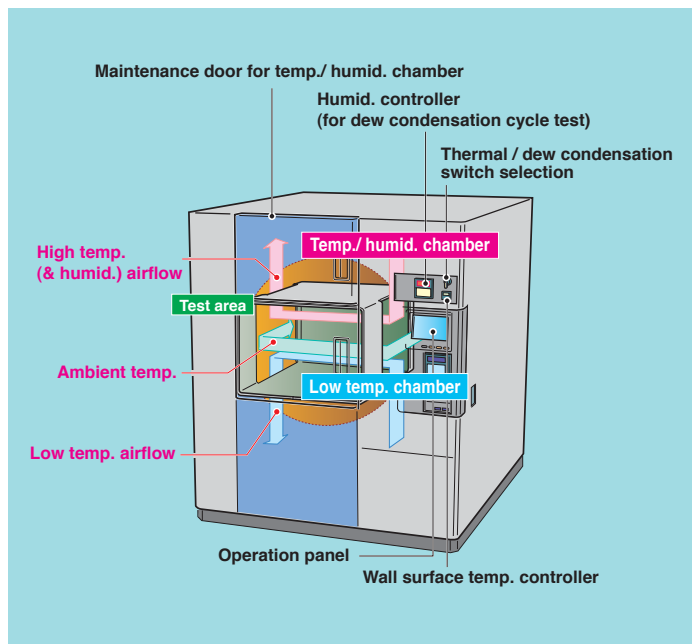


Test conditions	Ambient temp.	+23°C
	Cooling-water temp.	+25°C
	Power	Standard voltage
	Sensor position	Upstream of specimen
Performance	Specimen	No specimen
	High temp. recovery	-30 to +25°C Within 5 min.
	Low temp. recovery	+25°C / 95%rh to -30°C Within 5 min.

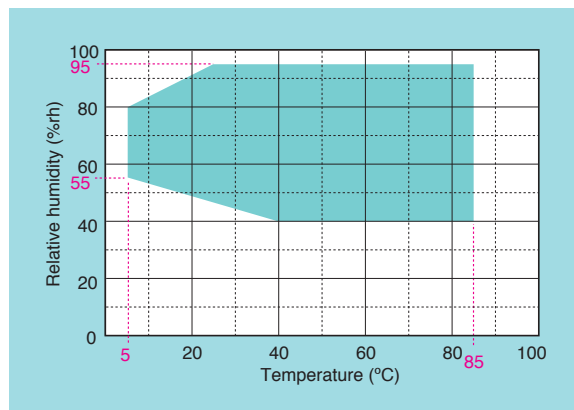
Please note that defrosting cycle is required once every 12 cycles (depending on surrounding conditions) to prevent frost.

*Performance for temperature only.

Configuration



Temperature and humidity control range



Applications

DUT	ECU (powertrain, body, driving safety use...)
Intended use	Migration test
Main market	Car body makers, automotive parts makers
Process	Development, Evaluation

Specifications

Model		TSA-201D-W	
Power supply		Please ask us for power supply in your area	
System		2-zone or 3-zone system by means of damper switching	
Performance	Test area	High temp. exposure temp. (& humid.) range	1) Thermal cycle test +70 to +150°C 2) Dew cycle test -10 to +100°C / 40 to 95%rh (refer to diagram for control range)
		Low temp. exposure temp. range	-70 to +10°C
		Temp. & humid. fluctuation	±1 deg. / ±5 %rh
	Temp./humid. chamber	Pre-heat upper limit	+150°C
		Humid. range	40 to 95%rh (during dew condensation cycle test)
		Temp. heat up time	-10 to 100°C within 30 min.
	Low temp. chamber	Temp. pull down time	+20 to -10°C within 60 min.
		Temp. range	-70 to +10°C
		Pre-cool lower limit	-75°C
		Temp. heat up time	-75 to 10°C within 30 min.
Temp. pull down time		Ambient temp. to -75°C within 60 min.	
Withstand load		50 kg (equally distributed load)	
Specimen basket withstand load		17 kg (equally distributed load)	
Inside dimensions mm		W650 × H460 × D670	
Outside dimensions mm		W1670 × H1900 × D1870 (excluding protrusions)	
Weight kg		1550	

Please ask us for any details on price, specifications and options.

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