



Sales  
Support  
Service

Reliability. Engineered.  
(971) 244-8200 [help@r-source.com](mailto:help@r-source.com)

Quality is more than a word



# Environmental Chambers

## For Solar Panel Testing



ESPEC NORTH AMERICA, INC.

# Solar Features

## Specialized Chambers for Solar Panel Tests

ESPEC offers a wide variety of test chambers that allow you to test per the IEC and UL requirements. ESPEC can work with you to decide which equipment has the needed size and features to suit your application. Factors such as desired throughput, testing methodology, floor-space, and budget will affect the final selection.

Our chambers can be used for the following test methods:

- 10.11 Thermal Cycle Test  
Requires temperature cycling between 85°C and -40°C, 50 or 200 times.
- 10.12 Humidity Freeze Test  
Cycling between hot/humid 85°C/85%RH and subfreezing -40°C ten times, with extended soaks at 85/85.
- 10.13 Damp Heat Test  
A long term, 1,000 hour, test at 85°C/85%.

## Selecting a Chamber

Because the change rates in the specifications are flexible, you have a choice of selecting a slower system to save cost and utilities, or a faster system to shorten testing time.

In order for ESPEC to select the proper heating/cooling sub-systems, we will need to know:

- Chamber interior space required
- Total mass of modules and supporting racks to be tested
- Desired heat & cooling rates (Otherwise ESPEC will quote systems to meet both minimum or maximum rates allowed by IEC.)

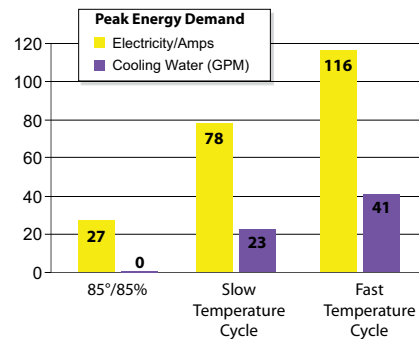
## Lengthy IEC and UL Tests

All three of the IEC 61215 & 61646 environmental tests ESPEC chambers are used for can be done in the same test chamber. It may be better, however, to consider multiple chambers to save time and electricity due to the lengths of the tests:

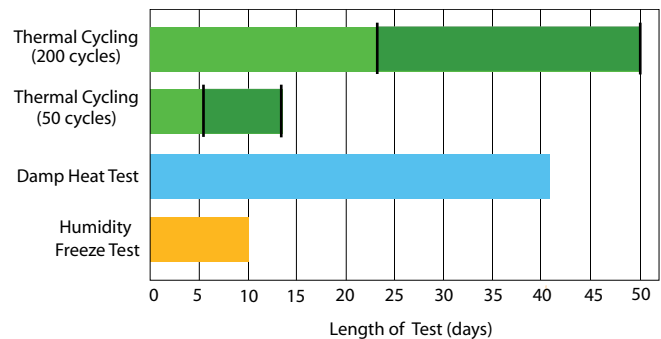
- The temperature cycling test may last up to seven weeks.
- The damp heat test is six weeks long.
- The damp heat test requires only minimal refrigeration, reducing capital and energy costs if a dedicated model is selected for this test.



Solid walk-in chambers like this one are commonly selected for full-size solar panel testing.



Chamber utility requirements can vary depending on the tests and desired performance. This chart shows different solid walk-in chamber peak demand.



The IEC and UL tests can take a significant amount of time to complete. Purchase of multiple chambers may be beneficial to save time.



**For an in-depth look** into the IEC and UL test methods, and how to select the right chamber, please refer to the **ESPEC Solar Application Guide**.

Download it **FREE** at [www.espec.com/pv](http://www.espec.com/pv)

# Selecting a Chamber

## Small



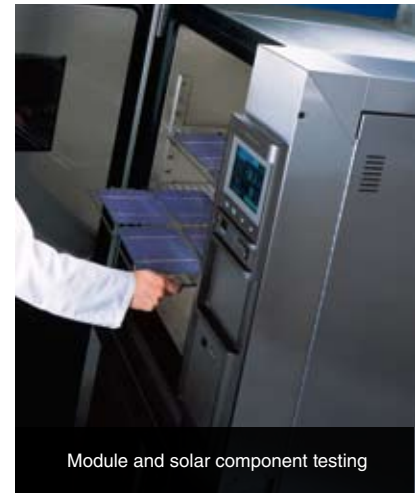
Interior Heights:  
29.5", 33.5", 39.4"  
(750, 850, 1000 mm)

Models:  
Twelve



Interior Heights:  
33.5", 39.4"  
(850, 1000 mm)

Models:  
Thirty Two



Module and solar component testing

### Platinous and Global-N

Your first choice for a smaller general-purpose test chamber for PV testing is ESPEC's Platinous line. For testing many panels at one time, or for faster temperature cycling, the Global-N has additional heating and cooling capabilities. All units are fully programmable with ESPEC's touch-screen programmer.

## Medium



Interior Heights:  
46", 53"  
(1170, 1346 mm)

Models:  
Twenty Two



Interior Dimensions:  
48" x 48" x 84"  
(1219 x 1219 x 2134 mm)

Models:  
Six



Full panel and large component testing

### Platinum

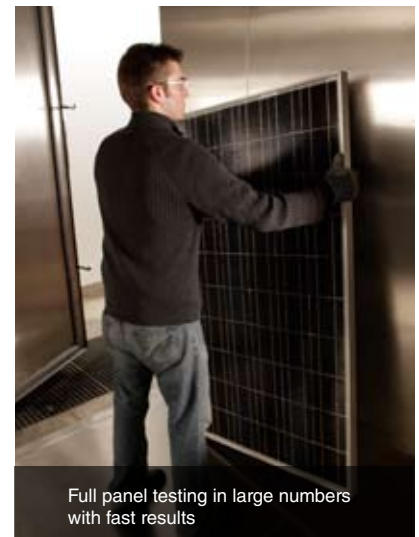
The larger Platinum chambers provide greater performance capabilities, while incorporating the features of our Platinous and Global-N lines. The refrigeration systems on most of these models utilize modern, high performance scroll compressors that allow a small footprint. Two sizes with taller interiors for 48" and 60" PV modules.

## Walk-In



Interior Heights:  
94" or custom sizes  
(2380 mm)

Models:  
Four sizes (standard)



Full panel testing in large numbers with fast results

### Solid Walk-In

ESPEC's solid construction walk-ins are desirable for testing large loads of PV modules or panels at 85°C/85% as well as humidity-freeze and temperature cycling tests. Hermetically welded seams and stainless-steel interior ensure integrity under extreme conditions required by IEC. Refrigeration systems are sized to meet your desired change rate and expected test-lot size.

## ESPEC NORTH AMERICA, INC.

<http://www.espec.com/>

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

## ESPEC EUROPE GmbH

Dachauer Strasse 11, D-80335, Munchen, Germany  
Tel :49-89-1893-9630 Fax :49-89-1893-96379

## ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO.,LTD.

F5,ShenHua Financial Building,NO 1 NingBo Road,  
Huangpu District Shanghai,200002,P.R.China  
Tel :86-21-51036677 Fax :86-21-63372237

## ESPEC (MALAYSIA) SDN. BHD.

No.10-1, Jalan Dagang SB 4/2, Taman Sungai Besi Indah  
Off Jalan Sungai Besi, 43300 Seri Kembangan  
Selangor Darul Ehsan Malaysia  
Tel :60-3-8945-1377 Fax :60-3-8945-1287

---

## ESPEC CORP.

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



**DANGER**

Not for use with specimens which are explosive or flammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or an explosion.

