

Quality is more than a word

ESPEC

Temperature Cycling Chambers

Global-N Series



ESPEC NORTH AMERICA, INC.

Faster test chambers ...

The Global-N series chambers from ESPEC provide the temperature cycling and humidity performance you need to validate quality and reliability for increasingly sophisticated electronics and other products.



The 800-liter (28 cu. ft.) model fits in a space 1.3m by 2.2m (51 by 85 inches), except -15CW models.



The 380-liter (12 cu. ft.) model's width is just 0.9 meters (35 inches), fitting thru a standard doorway.

Global Features

World-standard performance and features on a minimal footprint

The Global-N chambers have temperature change rates from 5 to 20°C per minute. In addition, controlled humidity from 10 to 95% is an available feature. There are two sizes, with interior volumes of 380 and 800 liters (12 and 28 cubic feet). They are compact, requiring the least amount of floor space for this level of performance.

These chambers feature the classic ESPEC look of stainless steel, with a new, modern style. The control console is now on the door, making the footprint of the unit even more compact. A simple, but secure, door latch is easier than ever to use.

International applications

Global-N chambers meet Mil-Std, JEDEC, IEC, and other international test performance standards. The units can be installed around the world for consistent testing at different facilities, supported by your local ESPEC service group.

Designed for serviceability and safety

For safety and compliance, Global-N series are UL 508A certified or CE-marked.

Refrigeration service panels are hinged for fast access. Analog refrigeration gauges help you monitor system performance and pinpoint service needs.

All models feature three levels of overheat protection, plus two levels of overcool protection. The system controller provides alarm messages with specific troubleshooting help to quickly resume testing.

Standard features:

- Stainless steel exterior and interior
- Foam-insulated door for rigidity and long life
- High performance refrigeration utilizing reliable Scroll compressors (except -15CW models)
- Hinged service panels for easy access
- Unique non-metallic thermal breaks around the door-frame and cable ports
- Specimen power relay for interlocking test samples or external devices to chamber power for safety
- One 100mm (4") cable port, one shelf & casters included



Innovative high-speed airflow suited for fast temperature cycling applications.



Advanced refrigeration design is especially compact for high performance test chambers.

Performance

Temperature cycling up to 20 degrees per minute

Global-N's twenty different models allows you to choose the size and performance best suited for your test applications. Temperature cycling rates from 5 to 20°C/min. are possible. Two different ultimate low temperatures are available: -40°C or -70°C.

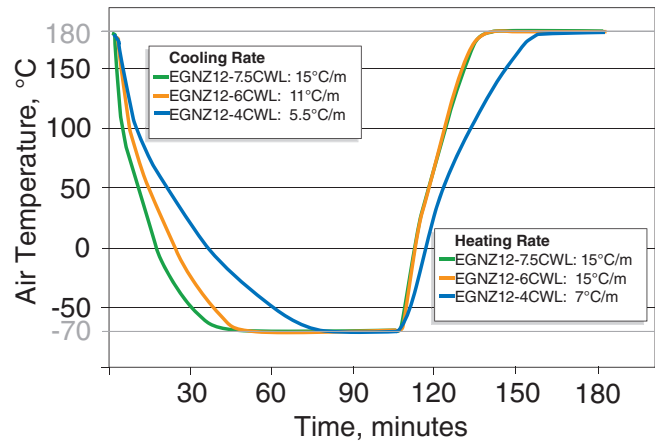
Models EGNL & EGNX also control humidity, for expanded testing options beyond temperature cycling.

Global-N chambers are capable of meeting the performance requirements of JEDEC, IEC, Mil-Std, and other international environmental test performance standards.

Get a performance evaluation to help select your model

For better assurance of performance for your temperature cycling application, ESPEC can provide a guaranteed performance calculation based on your submitted requirements.

Please use these questions (at right) as a guide to define your test plan. You can then give this information to your local sales representative, or submit at www.espec.com, for review by an ESPEC engineer. A quote and a recommended model with appropriate refrigeration size will be returned.



Different Global-N models can heat and cool at different rates. Shown above are change rates for EGNZ12 models, following IEC 60068 3-5 standard, with the sensor in the supply air.

Questions for performance evaluation request:

1. Chamber type
Desired size: 12 or 28 cu. ft.?
Local power: 50Hz or 60Hz?
Humidity control: Yes or No?
2. Your Sample
Sample description and type of material(s)
Total mass per test, including any racks or cabling
Heat output of samples, in watts, if powered during test
3. Your Test Plan
Test method, if a published standard (e.g. JEDEC JESD22-A104C)
Start temperature for cycling
End temperature for cycling
Ramp rate or time allowed between start and end temperatures

SYSTEM & PERFORMANCE OPTIONS

- Low and Ultra-low Humidity - Extends the humidity control range for EGNL & EGNX models.
- Attached Air-cooled Condenser - For applications where water-cooling isn't practical. The condenser is on top of the chamber, adding 350mm (14 inches). Suitable for installation in sites that are not air conditioned.
- Product Temperature Control - See next page for details.
- Datalogging Choices - Via traditional chart recorders, paperless recorders, Ethernet, or computer interface.
- ECA Modification - Allows conditioning of remotely-located equipment that cannot be placed inside the chamber.
- Dry Air Purge - Keeps moisture in the chamber extremely low by purging with -40° dewpoint air. Compressed air supply required.
- Liquid Nitrogen Injection - Boosts cooling rate.
- Other options:
 - Viewing window with LED lighting (maximum 150°C operation)
 - Inner glass door with operation ports
 - Additional shelves, 45 kg (100 lb.) loading
 - Cable ports with flexible silicone plug, 50, 100, or 150mm diameters
 - Humidity water filter
 - Emergency stop button

Advanced Control



Access to the SCP-220 programmer is on the new console mounted on the left side of the door.

Touch-screen controller enhances performance

Imagine walking up to your test chamber and immediately being able to get your test running. The exclusive SCP-220 programmer makes it a breeze to set up, run, and monitor your chamber, even for the infrequent user.

For temperature cycling, the controller allows you to select step-ramping for the fastest possible transition, or controlled-ramping to achieve a desired ramp rate. Guaranteed soak settings allow you to control when timed soak periods begin.

Remote operation via Ethernet

ESPEC offers the Web Controller, an embedded server/software solution that allows monitoring and programming your chamber via any PC on your network.

No local software to install, just a web browser and access to the LAN is required. Because there are only seven screens, all operational functions are easy to find and use. See our separate brochure or web-site for more detail.

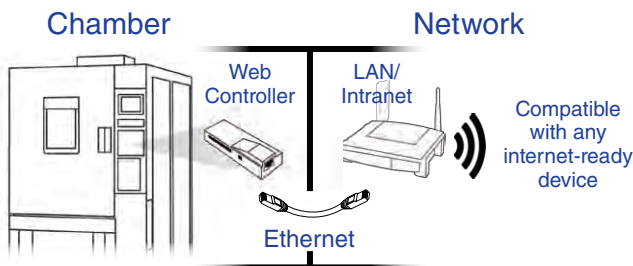
Remote control and datalogging is also possible via RS-232 or IEEE-488 options.

Optional product temperature control

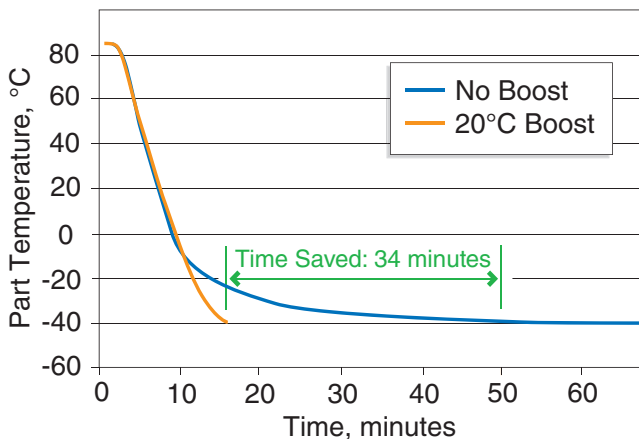
- Monitors product temperature
- Enables faster product change rates
- Shortens testing time

During cycling tests, product temperature can lag behind air temperatures by 20 degrees or more. Our optional product temperature control feature lets you drive faster change rates by directly monitoring product temperature and overshooting normal air-temperature setpoints until the product approaches the desired temperature. By achieving product temperature faster, soak periods can begin earlier, saving significant time.

As shown in the example at left, setting the chamber for a 20°C air temperature boost (air at -60°C) achieved the -40°C product temperature in just 16 minutes, compared for nearly 50 minutes with the chamber air set at -40°C.



The Web Controller is compatible with all USA-built ESPEC models with touch-screen programmer/controllers, except thermal shock.



Product temperature control generates faster ramp-rates for test samples, as well as significant time savings for soak periods.

SPECIFICATION - 380 L / 12 CU. FT. MODELS (380-415V)

RANGE -70 TO 180°C

Temp/Humidity	EGNX12-4CWL EGNX12-4CAL	EGNX12-6CWL EGNX12-6CAL	EGNX12-7.5CWL
Temp Only	EGNZ12-4CWL EGNZ12-4CAL	EGNZ12-6CWL EGNZ12-6CAL	EGNZ12-7.5CWL
Temperature Range	-70 to 180°C (-94 to 354°F)		
Cooling Capacity	2 kW at -50°C	3 kW at -50°C	3.3 kW at -50°C
Refrigeration System	Cascade 4 hp Scroll	Cascade 6 hp Scroll	Cascade 7.5 hp Scroll
Heating System	5 kW	8 kW	8 kW
Humidity Range	10 to 95% RH per chart (EGNX models only)		
Measured Airflow	850 cubic meters per hour (500 CFM)		
Performance Example (-70°C to 180°C, per IEC 60068 3-5, at supply air)			
Heating Rate	7°C/m average	15°C/m average	15°C/m average
Cooling Rate	6°C/m average	11°C/m average	15°C/m average
Dimensions			
Workspace Volume	380 L (12 cu. ft.)		
Workspace (WxDxH)	600 x 743 x 850 mm (23.6" x 29.25" x 33.4")		
Exterior (WxDxH)	889 x 2103 x 1768 mm (35" x 83" x 70") (*CAL' suffix models are 36 cm (14") taller)		
Site Requirements			
Power Supply	380-415V 3Ø 50Hz (460V 3Ø 60Hz also available)		
Humidity Water	De-ionized water, 0.2 to 10 µS/cm resistivity (EGNX models only)		
Cooling Water Maximum with 30°C Inlet	34 LPM (9 GPM) (CWL suffix models)	53 LPM (14 GPM) (CWL suffix models)	72 LPM (19 GPM)
Heat to Room	40,000 BTU/hr (CAL suffix models)	60,000 BTU/hr (CAL suffix models)	—



EGNX12-4CWL (this page)

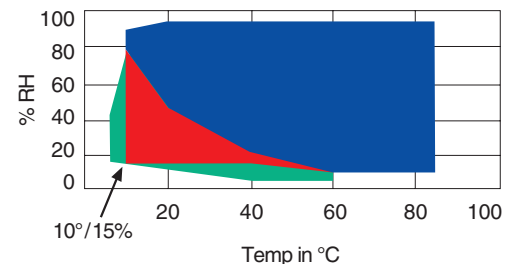


EGNX28-6CWL (next page)

RANGE -40 TO 180°C

Temp/Humidity	EGNL12-4CWL EGNL12-4CAL	EGNL12-6CWL EGNL12-6CAL
Temperature Range	-40 to 180°C (-40 to 354°F)	
Cooling Capacity	3.3 kW at -20°C	4.3 kW at -20°C
Refrigeration System	Single-stage 4 hp Scroll	Single-stage 6 hp Scroll
Heating System	8 kW	8 kW
Humidity Range	10 to 95% RH per chart	
Measured Airflow	850 cubic meters per hour (500 CFM)	
Performance Example (-40°C to 180°C, per IEC 60068 3-5, at supply air)		
Heating Rate	8°C/m average	15°C/m average
Cooling Rate	8°C/m average	12°C/m average
Dimensions		
Workspace Volume	380 L (12 cu. ft.)	
Workspace (WxDxH)	600 x 743 x 850 mm (23.6" x 29.25" x 33.4")	
Exterior (WxDxH)	889 x 2103 x 1768 mm (35" x 83" x 70") (*CAL' suffix models are 36 cm (14") taller)	
Site Requirements		
Power Supply	380-415V 3Ø 50Hz (460V 3Ø 60Hz also available)	
Humidity Water	De-ionized water, 0.2 to 10 µS/cm resistivity	
Cooling Water Maximum with 30°C Inlet	35 LPM (9 GPM) (CWL suffix models)	55 LPM (14 GPM) (CWL suffix models)
Heat to Room	52,000 BTU/hr (CAL suffix models)	75,000 BTU/hr (CAL suffix models)

Humidity Range (EGNX, EGNL)



Blue = standard humidity range
 Red = optional low-humidity range
 Green = optional ultra-low humidity range

NOTE:

Please submit a performance evaluation request (see page 4) to ensure selection of the correct model for your test requirement.

Site requirements also include a drain for condensate water from the chamber, and ample spacing for service and proper air cooling.

These specifications are for reference only. Detailed and current specifications can be obtained from your sales representative or at espec.com.

SPECIFICATION - 800 L / 28 CU. FT. MODELS (380-415V)

RANGE -70 TO 180°C

Temp/Humidity	EGNX28-4CWL EGNX28-4CAL	EGNX28-6CWL EGNX28-6CAL	EGNX28-12CWL	EGNX28-15CW
Temp Only	EGNZ28-4CWL EGNZ28-4CAL	EGNZ28-6CWL EGNZ28-6CAL	EGNZ28-12CWL	EGNZ28-15CW
Temperature Range	-70 to 180°C (-94 to 354°F)			
Cooling Capacity	2 kW at -50°C	3 kW at -50°C	4.2 kW at -50°C	7.8 kW at -50°C
Refrigeration System	Cascade 4 hp Scroll	Cascade 6 hp Scroll	Cascade 12 hp Scroll	Cascade 15 hp Discus
Heating System	10 kW	10 kW	15 kW	20 kW
Humidity Range	10 to 95% RH per chart (EGNX models only)			
Measured Airflow	1,350 cubic meters per hour (800 CFM)			
Performance Example (-70°C to 180°C, per IEC 60068 3-5, at supply air)				
Heating Rate	10°C/m average	10°C/m average	15°C/m average	20°C/m average
Cooling Rate	2.75°C/m average	5.5°C/m average	12.5°C/m average	20°C/m average
Dimensions				
Workspace Volume	800 L (28 cu. ft.)			
Workspace (WxDxH)	1000 x 800 x 1000 mm (39.4" x 31.5" x 39.4")			
Exterior (WxDxH)	1290 x 2159 x 1920 mm (51" x 85" x 76") (CAL suffix models are 36 cm (14") taller)			1290 x 3074 x 2014 mm (51" x 121" x 79.5")
Site Requirements				
Power Supply	380-415V 3Ø 50Hz (460V 3Ø 60Hz also available)			
Humidity Water	De-ionized water, 0.2 to 10 µS/cm resistivity (EGNX models only)			
Cooling Water Maximum with 30°C Inlet	34 LPM (9 GPM) (CWL suffix models)	53 LPM (14 GPM) (CWL suffix models)	102 LPM (27 GPM)	121 LPM (32 GPM)
Heat to Room	40,000 BTU/hr (CAL suffix models)	60,000 BTU/hr (CAL suffix models)	—	—

RANGE -40 TO 180°C

Temp/Humidity	EGNL28-4CWL EGNL28-4CAL	EGNL28-6CWL EGNL28-6CAL	EGNL28-7.5CWL	EGNL28-12CWL
Temperature Range	-40 to 180°C (-40 to 354°F)			
Cooling Capacity	3.3 kW at -20°C	4.3 kW at -20°C	5.2 kW at -20°C	10.5 kW at -20°C
Refrigeration System	Single-stage 4 hp Scroll	Single-stage 6 hp Scroll	Single-stage 7.5 hp Scroll	Single-stage 12 hp Scroll
Heating System	10 kW	10 kW	15 kW	15 kW
Humidity Range	10 to 95% RH per chart			
Measured Airflow	1,350 cubic meters per hour (800 CFM)			
Performance Example (-40°C to 180°C, per IEC 60068 3-5, at supply air)				
Heating Rate	10°C/m average	10°C/m average	20°C/m average	20°C/m average
Cooling Rate	4°C/m average	8°C/m average	12°C/m average	15°C/m average
Dimensions				
Workspace Volume	800 L (28 cu. ft.)			
Workspace (WxDxH)	1000 x 800 x 1000 mm (39.4" x 31.5" x 39.4")			
Exterior (WxDxH)	1290 x 2159 x 1920 mm (51" x 85" x 76") (CAL suffix models are 36 cm (14") taller)			
Site Requirements				
Power Supply	380-415V 3Ø 50Hz (460V 3Ø 60Hz also available)			
Humidity Water	De-ionized water, 0.2 to 10 µS/cm resistivity			
Cooling Water Maximum with 30°C Inlet	35 LPM (9 GPM) (CWL suffix models)	55 LPM (14 GPM) (CWL suffix models)	79 LPM (19 GPM)	106 LPM (27 GPM)
Heat to Room	52,000 BTU/hr (CAL suffix models)	75,000 BTU/hr (CAL suffix models)	—	—

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