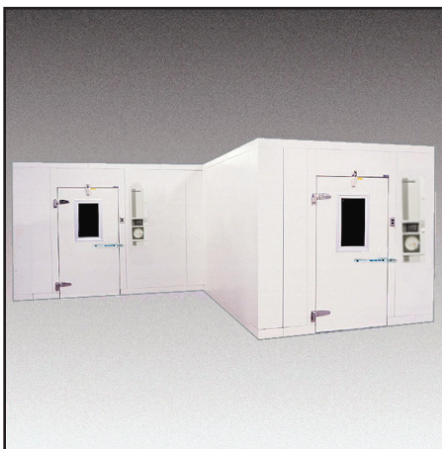




# *Enviro-Line* by NORLAKE SCIENTIFIC®

## *Environmental Rooms and Stability Chambers*

**A wide selection of temperature and humidity controls  
custom designed to meet your needs.**



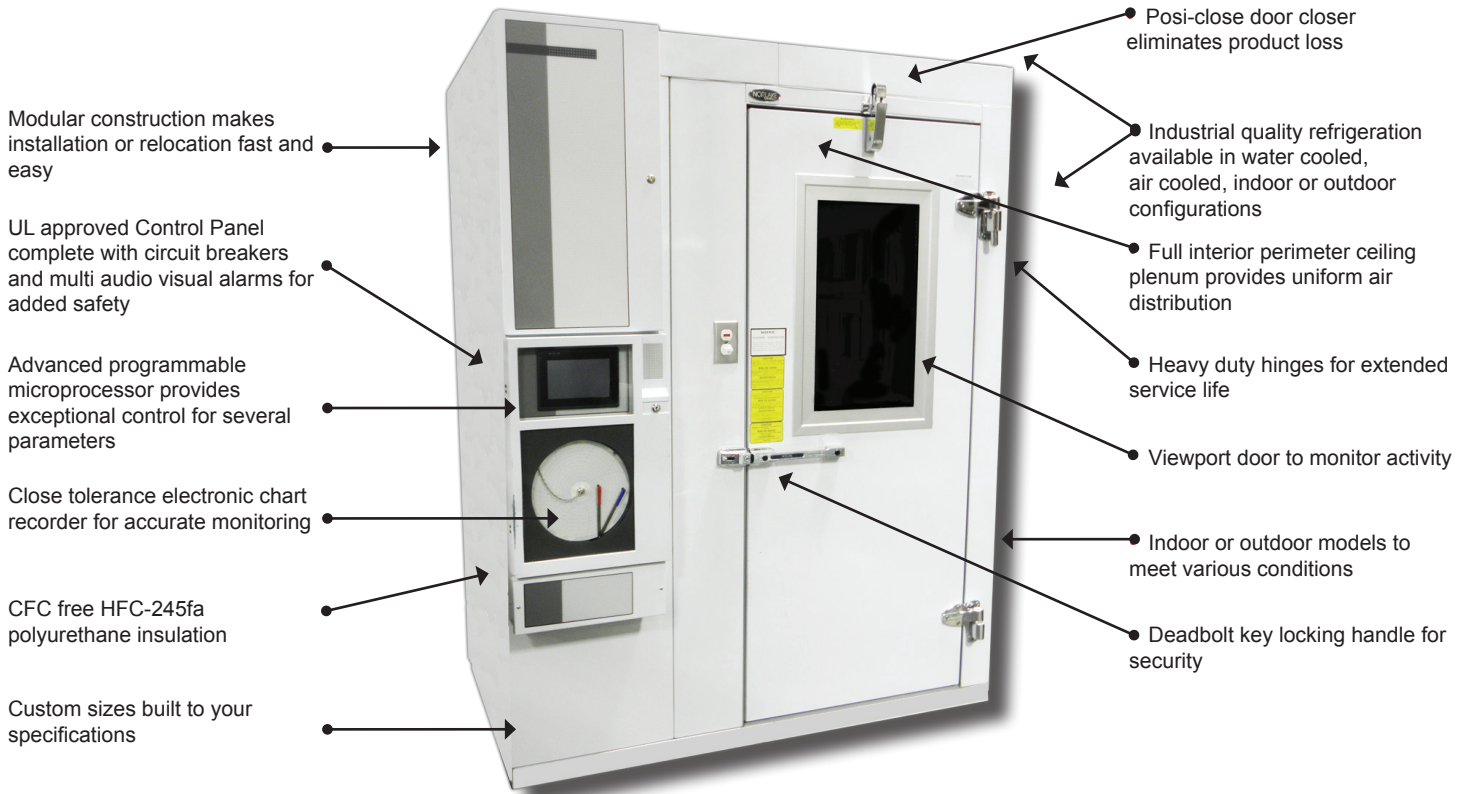
NORLAKE SCIENTIFIC®



Committed to our environment

# ENVIRONMENTAL ROOMS / STABILITY CHAMBERS

## SPECIFICATIONS



## Controlled Temperature Chambers - Stability Rooms

Environmental Rooms/Stability Chambers from Nor-Lake Scientific reproduce and closely monitor any environment with a precise combination of humidity, temperature and light. Choose a multi-temperature or constant temperature room. Environmental rooms are customized to meet your testing and storage needs.

### Options

- Microprocessor based controls with accuracies to  $\pm 0.15^{\circ}\text{C}$
- Optional Humidification/ Dehumidification/Lighting
- Modular construction for ease of installation and relocation
- Alarms, monitors, temperature recorders and other performance options
- LED lighting

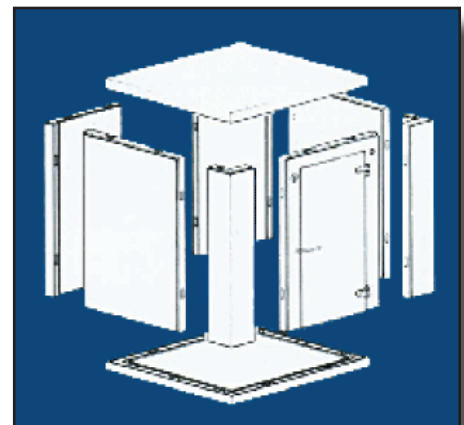
### Multiple Applications

- Pharmaceutical Research and Development
- Drug Stability and Shelf Life Testing
- Plasma and Blood Storage
- Clinical Research
- Environment Simulation Testing
- Working Laboratories
- Biological Research
- Electronic Stress Testing

### Modular Construction

Nor-Lake Scientific rooms are constructed using 100% foamed-in-place polyurethane insulation expanded with HFC-245fa which is CFC and HCFC free. The foam is bonded by an adhesive to the interior and the exterior metal pan skins and heat cured for life long stability. The "R" value of the panels shall be a minimum of 25 for coolers and 32 for freezers.

The panel joints are precisely formed using male and female tongue and groove with complete perimeter gasketing and cam action fasteners to provide a tight seal. The construction meets the UL flame spread rating and NSF sanitation approvals. The rooms can be provided in a variety of metal types and finishes. Nor-Lake Scientific will construct a room of any size to meet your needs.



## SPECIFICATIONS

### Controls

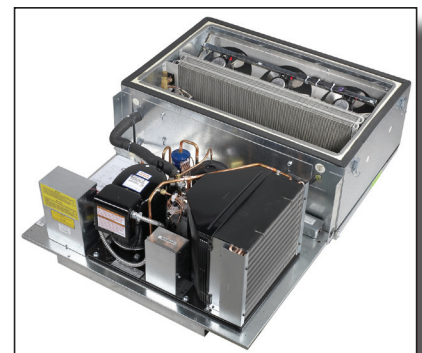
A fully programmable microprocessor with a liquid crystal alphanumeric display provides a variety of data including temperature, humidity and alarms. This advanced control provides a  $\pm 0.15^{\circ}\text{C}$  and  $\pm 1.0\%$  accuracy. All set points are adjustable by the multi-function interface key pad. There are no dials, switches or multiple controls to manipulate. For safety purposes, the controller has a user password entry system with high/low audible and visual alarms for temperature, humidity, power failure, sensor failure and other alarms tailored to meet your needs.

Service prompts indicate service times and maintenance information. Our programmable features allow you to control temperature, humidity and lights based on real time. The system includes expansion slots for communication interface to operate or monitor the entire system via a host computer. The control is mounted behind a key locked door with a molded acrylic cover protecting the controls from damage. All high voltage components are factory wired and are located in a NEMA 1/UL approved line voltage enclosure for added safety. An optional 10" circular chart recorder can be added to record seven days of temperature and humidity history. Optional Touch Screen HMI (Human Machine Interface) Programmable Control with graphical display and charting features.

### Refrigeration

Nor-Lake Scientific refrigeration systems are designed for optimal temperature uniformity and minimal energy use. Continuous operation by use of hot gas by-pass provides close control of room temperature and greater efficiency. For maximum uniformity, an optional electronic proportional valve receives input from the programmable microprocessor control to vary capacity based on changes in load conditions. These factory assembled refrigeration systems include high/low pressure controls, receiver, sight glass, liquid line dryer, suction accumulator, vibration eliminators, expansion valves and other equipment required to achieve tight temperature tolerances. Outdoor units are complete with all weather hoods and winterized controls.

- Wall or ceiling mounted systems
- Indoor or outdoor models
- Temperatures:  $+4^{\circ}\text{C}$ ,  $-20^{\circ}\text{C}$ ,  $-30^{\circ}\text{C}$ ,  $-40^{\circ}\text{C}$ ,  $+2^{\circ}\text{C}$  to  $+93.3^{\circ}\text{C}$
- Optional Remote Capsule Pak™ Systems
- UL and CSA listed



### Heating

Chrome steel sheath heaters with large finned area provide faster heat transfer and longer element life. All heating circuits have two safety shutdowns for maximum safety.

### Dehumidification

A rotary bed dehumidifier using absorbent desiccant in conjunction with the application of heat reduces the grain moisture of the air. Portions of the walk-in are ducted to the dehumidifier for moisture reduction. This air is then returned to the chamber after being conditioned by the refrigeration system.



### Humidification

Nor-Lake Scientific offers three types of humidification methods, selecting the most efficient and economical method to meet your specifications.

1. **Steam Generator:** With a stainless steel vaporizing chamber with welded seams, incoloy alloy sheathed resistance heaters and use a dripless stainless steel dispersion tube containing calibrated orifices to provide uniform humidity distribution.
2. **Spray System:** Relative humidity is induced by a highly efficient atomizing spray system with a stainless steel self cleaning nozzle.
3. **Centrifugal Atomizer:** This system incorporates a sealed motor and copper reservoir distributing humidification through centrifugal force.
4. **Ultrasonic Atomizer:** Highly efficient with no added heat, Completely welded stainless steel atomizer tank, Instant on/off for tight humidity control, Mountable interior or exterior

## SPECIFICATIONS

### Conditioning Systems

**Ceiling Plenum:** Consists of a diffusion grating made of high grade injection molded acrylic with multiple open cells installed below the ceiling panels provides a positive pressure air plenum extending across the entire room ceiling. All the lighting and air handling equipment consisting of evaporator coils, heater and drain pans are above this positive pressure plenum to allow light and conditioned air to be diffused uniformly into the room.

**Wall and Ceiling Plenum:** Consists of the ceiling plenum described above with an added vertical wall plenum. This provides air return through the floor of the chamber and into the conditioning system, assuring no stratification of air at the floor level.

Both plenums improve the temperature uniformity within the room. The ceiling plenum is the most commonly used method providing maximum storage space.

### Lighting

Nor-Lake Scientific rooms utilize high output cool white fluorescent lamps or optional LEDs to provide consistent, uniform lighting. The lamps are provided with low temperature ballasts and are mounted in vapor proof gasketed UL fixtures, made of cast aluminum with Lexan globes. Typical lighting provides a light intensity of 70 foot candles when measured 40 inches above the floor at the specified operating temperature. Special lighting is available with a variety of programmable features.

### Shelving

Both Free-Standing and Cantilevered Shelving is available. Cantilevered Shelving is completely adjustable, wall mounted and available in 16 gauge galvanized steel, .064 smooth aluminum or 16 gauge stainless steel. The shelves can be specified in 3, 4, 5 or 6 tiers and are completely sanitary having no folds, hems or crevices. Shelf widths are available in 10 inches, 20 inches, 22 inches and 24 inches.

Free-Standing Adjustable Wire Shelving is made of high quality wire and steel. Provided in Electro-Zinc plate, electrostatically applied epoxy and type 302 stainless steel. Available in 12 inches, 18 inches and 24 inches with 3, 4, 5 or 6 tiers.



### Warranty

Warranty assures the product is free from defects in material or workmanship under normal use and service. The coverage includes a 15 year insulated panel warranty, five year compressor warranty and 18 months parts and labor warranty.

**For Environmental Rooms built to your specifications,  
contact Nor-Lake Scientific at 800-477-5253.**

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Nor-Lake, Inc.  
Registered to ISO 9001:2008  
File No. 10001816



Revision Date: 05/14  
©2014 Nor-Lake, Inc  
Printed in the U.S.A.  
Part Number: 077438