

***IN-VITROCELL*^{ES}**

CO₂ INCUBATORS

The Safer Choice for Your Laboratory



NuAire, Inc. | 2100 Fernbrook Lane | Plymouth, MN 55447 | U.S.A. | nuaire.com



An accessory port is standard on all models providing power to accessories such as bottle rollers and flask shakers.



The inner glass door features a cam action door handle to create a tight seal against the gasket eliminating potential leaks saving gas and lowering operating costs.



The gasket flange on the inner door faces towards the laboratory environment keeping unwanted growth isolated from the growth chamber. The gasket may be removed and autoclaved separately if so desired.

CO₂ Incubators

About NuAire. For more than 45 years, NuAire has been committed to bringing you the highest-quality, most dependable laboratory products on the market. We are universally recognized as one of the world's leading providers of reliable equipment for the most demanding environments, including Biological Safety Cabinets, CO₂ Incubators, Laminar Air Flow workstations, Ultra Low Temperature Freezers, Centrifuges, Animal Transfer Stations, Pharmacy Compounding Isolators, Polypropylene Fume Hoods, Polypropylene Casework, and a variety of complementary products and systems. You can depend on our products to feature brilliant but practical design, and we pay keen attention to every step of the production process, from fabrication to assembly to thorough testing. As a NuAire customer, you can also rely on us for outstanding value and dependable service - the cornerstones of our reputation as the leading provider of laboratory products internationally.

In-VitroCell ES (Energy Saver) CO₂ Incubators are designed to provide a reliable controlled in-vitro environment for optimum tissue cell culture growth as well as the storage and preservation of gametes and animal tissue cell cultures intended for research at or near body temperature. In-VitroCell CO₂ Incubators provides accurate and precise control of humidity, temperature, CO₂, and sterility.



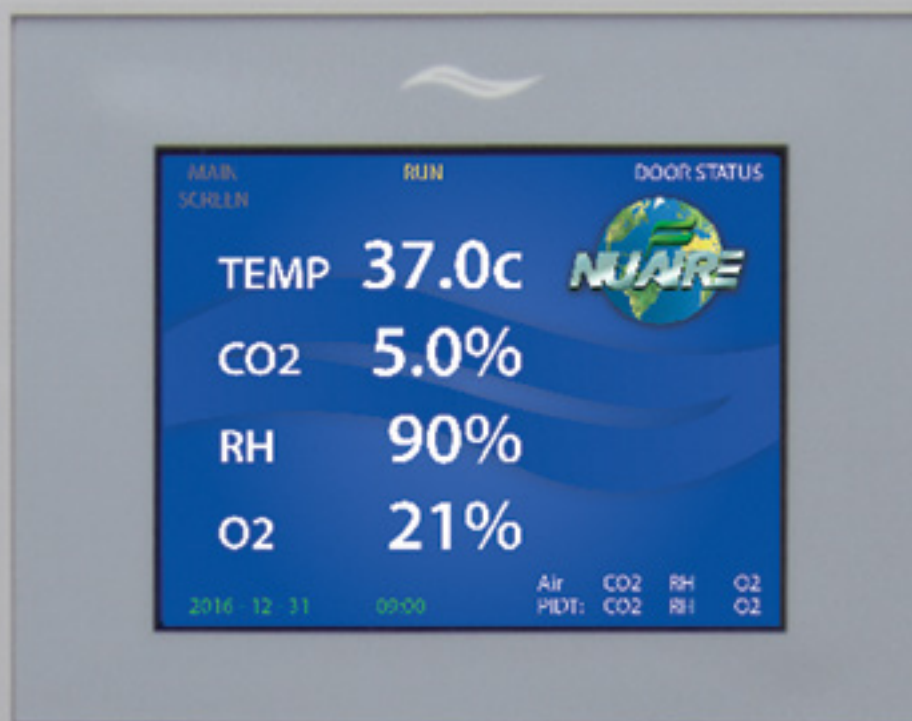
NU-5700
Direct Heat CO₂ Incubator
5.65 Ft³ (160 Liter)



NU-5800
Direct Heat CO₂ Incubator
7 ft³ (200 Liter)



NU-8600
Water Jacketed CO₂ Incubator
5.65 Ft³ (160 Liter)



NuTouch Electronic Control System

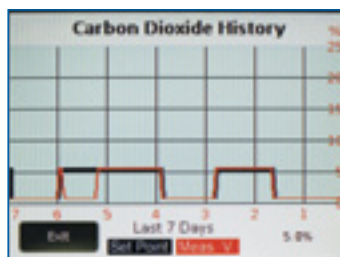


The NuTouch Electronic Control System (ECS) is a color 127 x 178 mm (5 x 7-inch) touchscreen designed for high user adoption. Designed after smart-phone technology, NuTouch creates a unique product experience providing an easy method to control, monitor, and notify. Help screens offer a step-by-step guide to assist in procedures such as running a sterilization cycle. User activated help pop-up descriptions are available if an item or icon is unclear. For example, pressing the text "CO₂" on the main screen provides the description "This control setting specifies the measured current value of Carbon Dioxide (CO₂) inside the Incubator Chamber."

Feature Highlights:

- Available in English, Spanish, German & French
- Customizable service reminders
- Alarm notifications
- Visual history performance
- On-screen help
- Password protection
- USB Port - Easily download historical data and update software
- Power Recovery Mode - Assists with the dissipation of condensation in the event of a power outage
- Temperature Recovery Mode - Activated in the event of continuous chamber temperature loss, increased power is routed to heaters until chamber temperature returns to normal

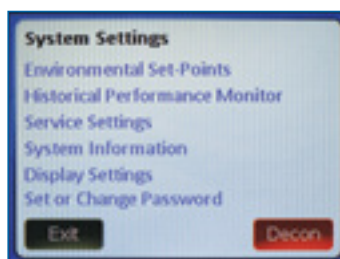
Sample NuTouch Control Screens:



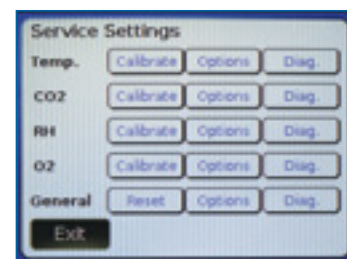
CO₂ History provides a 7-day report of CO₂ performance as it relates to system set point.



Temperature History provides a 7-day report of temperature performance as it relates to system set point.



System Settings menu allows access to CO₂ incubator information such as performance, service, system information, and more.



Service Settings allows service personnel to calibrate system parameters and diagnose service difficulties.



▲ Rounded interior corners in the growth chamber promote more thorough cleaning by eliminating tight crevasses found in 90-degree corners.

Contamination-Free Design

Construction

The growth chamber is constructed of 16 gauge, type 304L polished stainless steel using a crevice-free design. The growth chamber walls are completely smooth with rounded corners which allow more complete contact between the chamber surface and cleaning solutions than a typical 90-degree corner. Shelving, supports and guide rails are easily removable and can be autoclaved or left in the chamber during a sterilization cycle.



Dual Sterilization Cycles

In-VitroCell Direct Heat CO₂ Incubators offer a 145°C high-temperature dry cycle, and a 95°C high-temperature humidified cycle to eradicate potential contamination left over in the chamber from user interaction. Each cycle can be run as an overnight procedure as part of a regular cleaning plan, perfect when switching cell lines. The NuTouch ECS provides step by step directions how to initiate the sterilization process. Interior components such as shelving can remain in the chamber during the sterilization process.

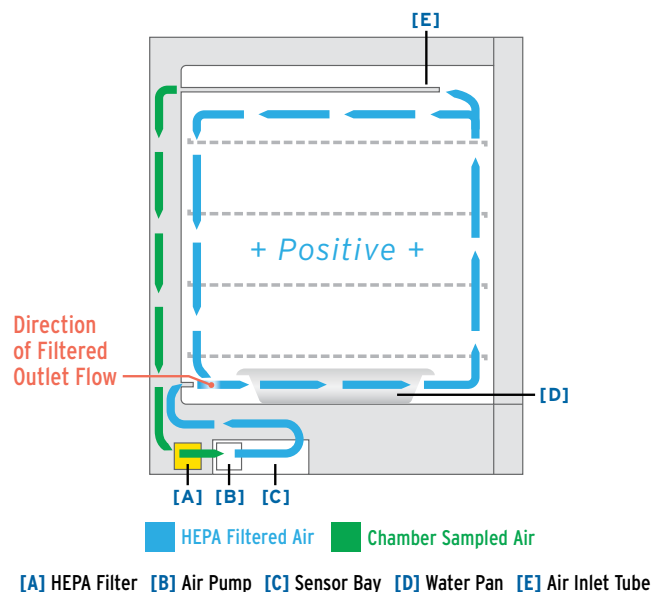
Featured on Sterilization Cycle models only.



Closed Loop HEPA Filtration

Keep Contamination Out

In-VitroCell CO₂ incubators are designed with characteristics similar to an ISO Class 5 Clean Room. The growth chamber maintains a slightly positive pressure relative to the surrounding lab, preventing entry of contaminants. Recirculated chamber air and supply gas pass through 99.99% HEPA filters, and the air change rate is once every 20 to 30 minutes to minimize cell desiccation. A sensor bay continually samples the chamber environment and makes adjustments when needed.



Airflow pattern within the incubator, and sensor bay continuously sampling the growth environment. ►

The Closed Loop HEPA filtration system includes filters outside the growth chamber, convenient to service or replace, with minimal change to the growth environment. ▼



Copper Surfaces



Reduce the risk of contamination with the option of a growth chamber fabricated from copper

Copper Option

Add copper surfaces to the incubator growth chamber and shelving to reduce bacteria and minimize potential incubator contamination.*

**Copper surfaces only available on NU-5700 & NU-5800 direct heat models.*



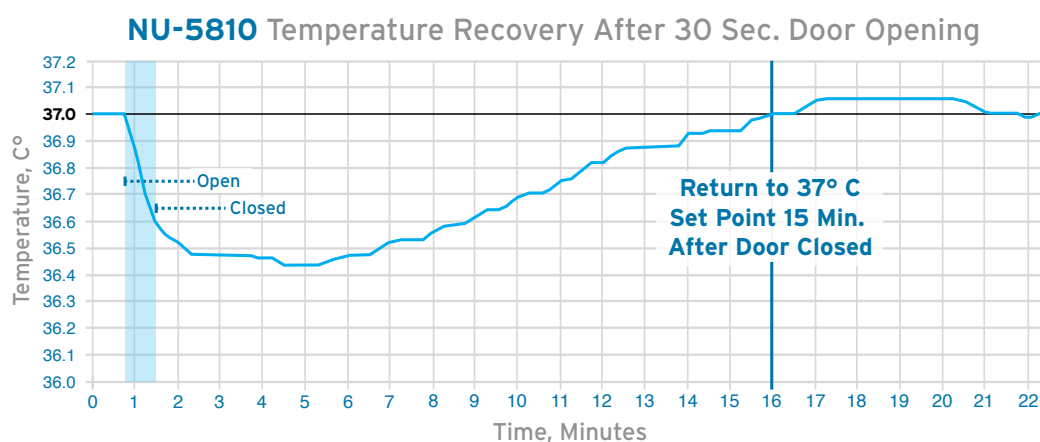
Shelves and water pans fabricated from copper are available as options.

Temperature Uniformity and Recovery

Because your samples matter, In-VitroCell CO₂ Incubators from NuAire offer the fastest recovery times in the industry.

Temperature Uniformity and Recovery

The Direct heating elements or the water jacket are wrapped in R5 insulation which surrounds the growth chamber. Dual temperature sensor probes relay information back to the NuTouch Electronic Control System and make adjustments as needed.



SET POINT
**0.12 °C
 PER MINUTE
 (Average)**
 TEMPERATURE

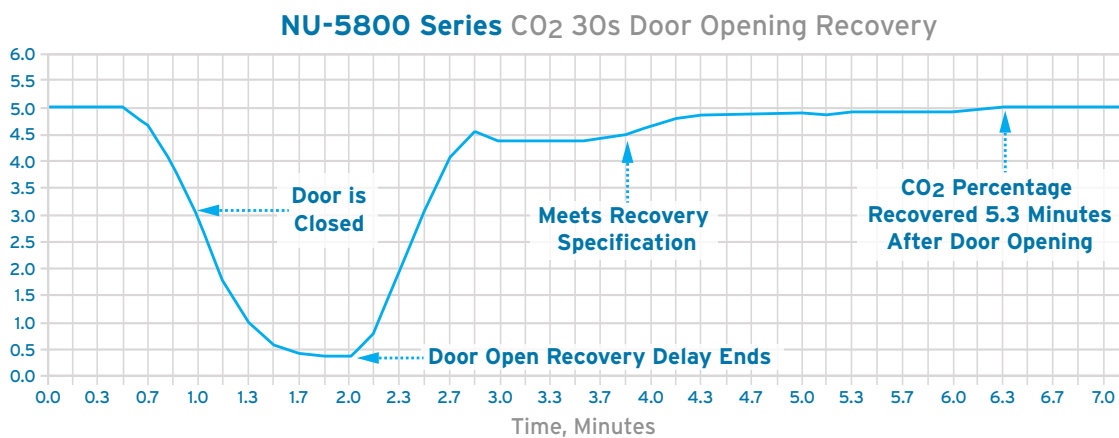
Temp. Chamber Temperature Uniformity (Direct Heat): $\pm 0.3^{\circ}\text{C}$ @ 37°C Temperature Accuracy: $\pm 0.1\%$ Temperature Recovery: $0.12^{\circ}\text{C}/\text{Min. Ave.}$

Chamber Temperature Uniformity (Water Jacketed): $\pm 0.2^{\circ}\text{C}$ @ 37°C Temperature Accuracy: $\pm 0.1\%$ Temperature Recovery: $0.12^{\circ}\text{C}/\text{Min. Ave.}$

CO₂ Sensitivity and Accuracy

Sensitivity and Accuracy of Gas Control

A microprocessor-based, non-dispersive, single source dual wave infrared (IR) sensor controls CO₂ levels within the chamber. The wavelengths used are absorbed by only CO₂ making the measurement insensitive to other components such as water vapor. Advanced design provides a very stable output minimizing drift and requiring less frequent calibration.



SET POINT
UP TO
5%
+0.2% / -0.5%
IN 5 MINUTES
(Average)
CO₂

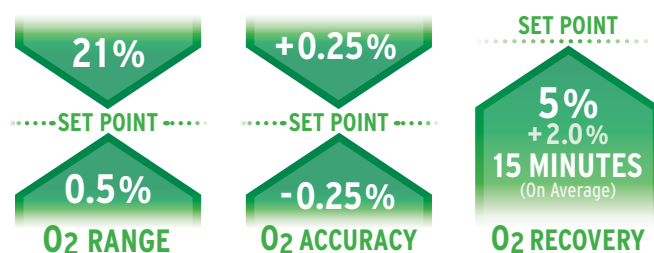
CO₂ Range: 0.1 to 20% Accuracy: $\pm 0.1\%$ Recovery: Up to 5% -0.50% / +0.20% in 5 Minutes Average

O₂ and Relative Humidity Control

Oxygen Control - Hypoxic Studies

For more sensitive cells lines prone to stress and DNA damage, CO₂ Incubator models featuring Oxygen control utilize an O₂ sensor to monitor oxygen in the growth chamber. Nitrogen (N₂) gas is injected to suppress oxygen to set point. An extensive O₂ range applies to various research applications including the brain, eyes, liver, heart, kidneys, and more.

Featured on O₂ Control models only.

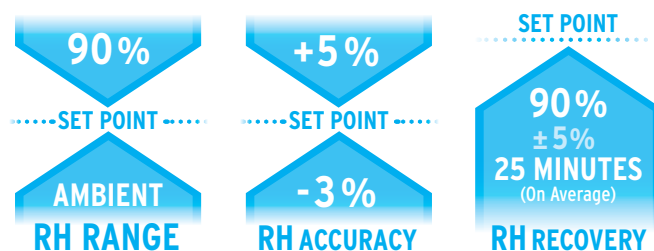


O₂ Range: 0.5 to 21% Accuracy: ± 0.25% Recovery: 5% ± 2.0% within 15 Minutes

Humidity Control

Relative humidity levels up to 90% are achieved in the growth chamber through the use of a 3-liter reservoir external to the chamber. The chamber air is routed through the water vapor saturated the air in an evaporate box to add humidity when the RH sensor indicates more humidity is needed to meet set point.

Featured on RH models only.



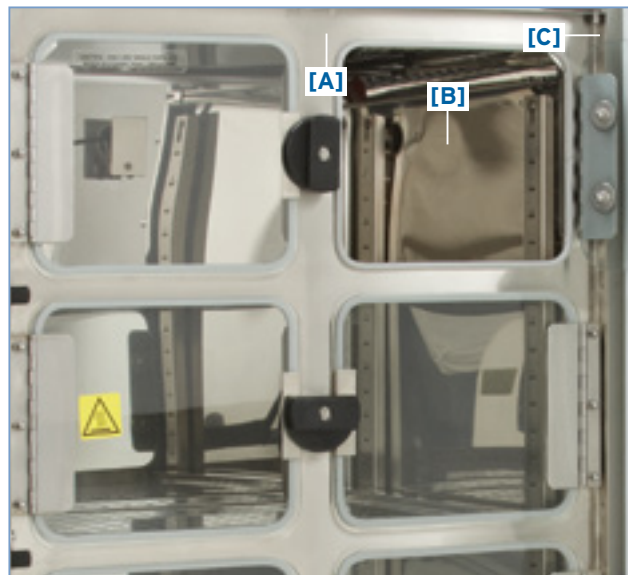
RH Range: Ambient to 90% Accuracy: +5% / -3% Recovery: 5% within 25 Minutes

Selection Guide



Model	Chamber Volume	Temperature Control	CO ₂ Sensor	Sterilization Cycles	RH (Humidity) Control	O ₂ Control
NU-5700	5.65 ft ³ (160 L)	Direct Heat	Dual Wave IR	—	Water Pan, Convection	—
NU-5710	5.65 ft ³ (160 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Water Pan, Convection	—
NU-5720	5.65 ft ³ (160 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Reservoir, Sensor Controlled	—
NU-5731	5.65 ft ³ (160 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Water Pan, Convection	Sensor (0.5 - 21%)
NU-5741	5.65 ft ³ (160 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Reservoir, Sensor Controlled	Sensor (0.5 - 21%)
NU-5800	7.06 ft ³ (200 L)	Direct Heat	Dual Wave IR	—	Water Pan, Convection	—
NU-5810	7.06 ft ³ (200 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Water Pan, Convection	—
NU-5820	7.06 ft ³ (200 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Reservoir, Sensor Controlled	—
NU-5831	7.06 ft ³ (200 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Water Pan, Convection	Sensor (0.5 - 21%)
NU-5841	7.06 ft ³ (200 L)	Direct Heat	Dual Wave IR	145°C Dry / 95°C Humidified	Reservoir, Sensor Controlled	Sensor (0.5 - 21%)
NU-8600	5.65 ft ³ (160 L)	Water Jacket	Dual Wave IR	—	Water Pan, Convection	—
NU-8631	5.65 ft ³ (160 L)	Water Jacket	Dual Wave IR	—	Water Pan, Convection	Sensor (0.5 - 21%)

Incubator Options



Gas Tight Sectioned Inner Doors

Sectioned inner doors allow access to separate area of the growth chamber. A latch centered between each set of doors allows access to either with a turn of 90 degrees. [A] Each door is sealed with a gasket [B], and secured with a stainless steel hinge [C]. This option improves recovery times by limiting thermal loss and the amount of chamber atmosphere escaping when the main door is opened.



Brackets. Safely stack In-VitroCell Direct Heat and Water Jacketed CO₂ Incubators.



Left Hinge Door Swing

Model	Inner Door Sections
NU-58XX	6 Sections
NU-57XX NU-86XX	4 Sections



Stainless Steel Shelves



Copper Shelves



Copper Water Pan



Automatic Tank Switch

Single Stage CO₂ RegulatorTwo Stage CO₂ RegulatorTwo Stage N₂ Regulator

Tubing Kit

Platform with Castors /
Leg LevelersMoisture Proof Duplex Outlet
can be used inside the growth
chamber to power equipment
such as a shaker or roller.CO₂ Analyzer Fyrite Kit (Dry)
- or -
O₂ Analyzer Fyrite Kit
(Dry) 0-20%

Surge Suppressor

Direct Heat model NU-5700



Model NU-5700 shown featuring add on accessory Platform with Castors / Leg Levelers

Model	Chamber Volume	Electrical Configuration	Exterior Dimensions (W x D x H)	Chamber Dimensions (W x D x H)	Net Weight
NU-57XX	5.65 ft ³ (160 L)	115V, 50/60Hz E: 230V, 50/60Hz	25 1/2 x 27 1/2 x 36 1/8 in (648 x 699 x 894 mm)	20 1/4 x 20 1/2 x 24 in (514 x 525 x 610 mm)	220 lbs. (100 kg.)

* Specify models with appropriate letter suffix for electrical specifications. "NU-5700E" for 230 VAC 50/60 Hz

Size: 18" x 18 3/4" (457 x 476 mm) **Supplied:** 4 Shelves **Max. Capacity:** 16 Shelves **Max. Weight Capacity:** 25 lbs. (9 kg) per Shelf / 125 lbs. (23 kg) per Incubator

Standard Features

NuTouch Electronic Control System
100% Stainless Steel Coved Interior Chamber
Dual Temperature Sensor Probes
Infrared (IR) CO₂ Sensor
Dual Sterilization Cycles (NU-5710, 5720, 5731, 5741)
Humidity Control System (NU-5720, 5741)
O₂ Control System (NU-5731, 5741)
Four (4) Stainless Steel Shelves
Eight (8) Stainless Steel Shelf Guides
Four (4) Wall Brackets
Right Hinged Door Swing
Remote Alarm Output Contacts
4 to 20 mA Analog Output
RS-485 Communication
USB Port
CO₂ Sample Port
Adjustable Leg Levelers
Access Port and Plug with Breather Holes
One (1) Water Pan
One (1) Electrical Cord

Optional Features

Copper Surface (Interior Chamber)
Copper Surface (Shelving and Guide Brackets)
Automatic CO₂ Tank Switch (External)
Left Hinged Door Swing
Sectioned Inner Door (4 Sections)
Additional Stainless Steel Shelves with Guide Brackets
CO₂ Analyzer Fyrite Kit (Dry) 0-20%
Replacement Fluid for CO₂ Analyzer
Surge Protector
CO₂ Regulator (2 Stage)
N₂ Regulator (2 Stage)
Platform with Castors

Electrical Requirements

Startup Power: 475 watts
Running Power: 250 watts
Decon Cycle: 750 watts
Heat Rejected: 14 BTU / min.

Utility Connections

Gas Connections: 0.25 in. (6.3 mm) Tubing Connections
Gas Input Pressure: 20 PSIG (1.4 BAR) Input Pressures Maximum. Two-Stage Gas Regulators Required.

Temperature Control System

Temperature Sensor Type: Precision Integrated Circuit
Default Set Point: 37°C
Chamber Temperature Range: 5°C to 55°C (5°C Above Ambient to 30°C Max. Ambient)
Chamber Temperature Uniformity: ± 0.3°C @ 37°C
Temperature Accuracy: ± 0.1°C
Temperature Recovery: 0.12°C/Minute Average
Temperature Display Resolution: 0.1°C
Minimum Qualifications for Sterilization: 145 DEG Cycle 135°C @ 2 hr
95 DEG Cycle 85°C @ 9 hr

Door and Perimeter:

Proportional base duty cycle based on Temperature set point and -20 to +20% manually adjustable to adapt to ambient conditions.

CO₂ Control Systems

CO₂ Sensor Type: Infrared Single Source Dual Wave Length
CO₂ Control Logic: Fixed Algorithm / Manual Environmental Adaptable.
Default Set Point: 5%
CO₂ Range: 0.1 to 20%. (0.0 Set Point Idles System)
CO₂ Accuracy: ± 0.1%
CO₂ Recovery: Up to 5% -0.50% / +0.20% in 5 Minutes Average.
CO₂ Display Resolution: 0.1%

RH (NU-5720 / 5741)

Default Set-Point: 90%
RH Range: Ambient to 90%
RH Accuracy: +5% / -3%
RH Recovery: 90% + 5% 25 min.
Water Tank Capacity: 3 Liters

O₂ (NU-5731 / 5741)

Zirconia Ceramic Sensor
Default Set-Point: 21%
O₂ Range: 0.5 to 21%
O₂ Accuracy: ± 0.25%
O₂ Recovery: 5% ± 2% / 15 min.



Direct Heat model NU-5800



Model NU-5800 shown featuring add on accessory Platform with Castors / Leg Levelers

Model	Chamber Volume	Electrical Configuration	Exterior Dimensions (W x D x H)	Chamber Dimensions (W x D x H)	Net Weight
NU-58xx	7.06 ft ³ (200 L)	115V, 50/60Hz E: 230V, 50/60Hz	26 3/4 x 27 x 39 1/2 in (680 x 691 x 1008 mm)	21 1/4 x 20 x 28.5 in (540 x 510 x 724 mm)	235 lbs. (106 kg.)

* Specify models with appropriate letter suffix for electrical specifications. "NU-5700E" for 230 VAC 50/60 Hz

Size: 19 3/4" x 18 3/4" (502 x 476 mm) **Supplied:** 4 Shelves **Max. Capacity:** 20 Shelves **Max. Weight Capacity:** 25 lbs. (9 kg) per Shelf / 125 lbs (23 kg) per Incubator

Standard Features

NuTouch Electronic Control System
100% Stainless Steel Coved Interior Chamber
Dual Temperature Sensor Probes
Infrared (IR) CO₂ Sensor
Dual Sterilization Cycles (NU-5810, 5820, 5831, 5841)
Humidity Control System (NU-5820, 5841)
O₂ Control System (NU-5831, 5841)
Four (4) Stainless Steel Shelves
Eight (8) Stainless Steel Shelf Guides
Four (4) Wall Brackets
Right Hinged Door Swing
Remote Alarm Output Contacts
4 to 20 mA Analog Output
RS-485 Communication
USB Port
CO₂ Sample Port
Adjustable Leg Levelers
Access Port and Plug with Breather Holes
One (1) Water Pan
One (1) Electrical Cord

Optional Features

Copper Surface (Interior Chamber)
Copper Surface (Shelving and Guide Brackets)
Automatic CO₂ Tank Switch (External)
Left Hinged Door Swing
Sectioned Inner Door (6 Sections)
Additional Stainless Steel Shelves with Guide Brackets
CO₂ Analyzer Fyrite Kit (Dry) 0-20%
Replacement Fluid for CO₂ Analyzer
Surge Protector
CO₂ Regulator (2 Stage)
N₂ Regulator (2 Stage)
Platform with Castors

Electrical Requirements

Startup Power: 625 watts
Running Power: 250 watts
Decon Cycle: 995 watts
Heat Rejected: 14 BTU / min.

Utility Connections

Gas Connections: 0.25 in. (6.3 mm) Tubing Connections
Gas Input Pressure: 20 PSIG (1.4 BAR) Input Pressures Maximum. Two-Stage Gas Regulators Required.

Temperature Control System

Temperature Sensor Type: Precision Integrated Circuit
Default Set Point: 37°C
Chamber Temperature Range: 5°C to 55°C (5°C Above Ambient to 30°C Max. Ambient)
Chamber Temperature Uniformity: ± 0.3°C @ 37°C
Temperature Accuracy: ± 0.1°C
Temperature Recovery: 0.12°C/Minute Average
Temperature Display Resolution: 0.1°C

Minimum Qualifications for Sterilization:

145 DEG Cycle 135°C @ 2 hr
95 DEG Cycle 85°C @ 9 hr

Door and Perimeter:

Proportional base duty cycle based on Temperature set point and -20 to +20% manually adjustable to adapt to ambient conditions.

CO₂ Control Systems

CO₂ Sensor Type: Infrared Single Source Dual Wave Length
CO₂ Control Logic: Fixed Algorithm / Manual Environmental Adaptable.
Default Set Point: 5%
CO₂ Range: 0.1 to 20%. (0.0 Set Point Idles System)
CO₂ Accuracy: ± 0.1%
CO₂ Recovery: Up to 5% -0.50% / +0.20% in 5 Minutes Average.
CO₂ Display Resolution: 0.1%

RH (NU-5820 / 5841)

Default Set-Point: 90%
RH Range: Ambient to 90%
RH Accuracy: +5% / -3%
RH Recovery: 90% + 5% 25 min.
Water Tank Capacity: 3 Liters

O₂ (NU-5831 / 5841)

Zirconia Ceramic Sensor
Default Set-Point: 21%
O₂ Range: 0.5 to 21%
O₂ Accuracy: ± 0.25%
O₂ Recovery: 5% ± 2% / 15 min.



Water Jacket model NU-8600



Model NU-8600 shown featuring add on accessory Platform with Castors / Leg Levelers

Model	Chamber Volume	Electrical Configuration	Exterior Dimensions (W x D x H)	Chamber Dimensions (W x D x H)	Net Weight (with water and shelving)
NU-86XX	5.65 ft ³ (160 L)	115V, 50/60Hz E: 230V, 50/60Hz	25 5/8 x 27 x 37 3/4 in (650 x 685 x 958 mm)	20 3/8 x 20 5/8 x 24 in (518 x 524 x 611 mm)	403 lbs. (183 kg.)

* Specify models with appropriate letter suffix for electrical specifications. "NU-5700E" for 230 VAC 50/60 Hz

Size: 18" x 18 3/4" (457 x 476 mm) **Supplied:** 4 Shelves **Max. Capacity:** 16 Shelves **Max. Weight Capacity:** 25 lbs. (11.3 kg) per Shelf / 125 lbs. (56.7 kg) per Incubator

Standard Features

- NU-Touch Electronic Control System
- 100% Stainless Steel Coved Interior Chamber
- Dual Temperature Sensor Probes
- Infrared (IR) CO₂ Sensor
- O₂ Control System (NU-8631)
- Four (4) Stainless Steel Shelves
- Eight (8) Stainless Steel Shelf Guides
- Four (4) Wall Brackets
- Right Hinged Door Swing
- Remote Alarm Output Contacts
- 4 to 20 mA Analog Output
- RS-485 Communication
- USB Port
- CO₂ Sample Port
- Adjustable Leg Levelers
- Access Port and Plug with Breather Holes
- One (1) Water Pan
- One (1) Electrical Cord

Optional Features

- Automatic CO₂ Tank Switch (External)
- Left Hinged Door Swing
- Sectioned Inner Door (4 Sections)
- Additional Stainless Steel Shelves with Guide Brackets
- CO₂ Analyzer Fyrite Kit (Dry) 0-20%
- Replacement Fluid for CO₂ Analyzer
- Surge Protector
- CO₂ Regulator (2 Stage)
- N₂ Regulator (2 Stage)s
- Platform with Castors

Electrical Requirements

Startup Power: 475 watts
Running Power: 250 watts
Heat Rejected: 14 BTU / min.

Utility Connections

Gas Connections: 0.25 in. (6.3 mm) Tubing Connections
Gas Input Pressure: 20 PSIG (1.4 BAR) Input Pressures Maximum. Two-Stage Gas Regulators Required.

Temperature Control System

Temperature Sensor Type:
Precision Integrated Circuit
Default Set Point: 37°C
Chamber Temperature Range:
5°C to 55°C (5°C Above Ambient to 30°C Max. Ambient)
Chamber Temperature Uniformity: ± 0.2°C @ 37°C
Temperature Accuracy: ± 0.1°C
Temperature Recovery:
0.12°C/Minute Average
Temperature Display Resolution:
0.1°C
Door and Perimeter:
Proportional base duty cycle based on Temperature set point and -20 to +20% manually adjustable to adapt to ambient conditions.

CO₂ Control Systems

CO₂ Sensor Type:
Infrared Single Source
Dual Wave Length
CO₂ Control Logic:
Fixed Algorithm / Manual
Environmental Adaptable.
Default Set Point: 5%
CO₂ Range: 0.1 to 20%.
(0.0 Set Point Idles System)
CO₂ Accuracy: ± 0.1%
CO₂ Recovery: Up to 5%
-0.50% / +0.20% in
5 Minutes Average.
CO₂ Display Resolution: 0.1%

O₂ (NU-8631)

Zirconia Ceramic Sensor
Default Set-Point: 21%
O₂ Range: 0.5 to 21%
O₂ Accuracy: ± 0.25%
O₂ Recovery: 5% ± 2% / 15 min.



Complete Your Laboratory

NuAire offers a variety of Laboratory Equipment to meet the needs of the research, vivarium, pharmacy, or environmental laboratory and more. Join the NuAire family and complete your laboratory with complementary NuAire Quality products.



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BLIZZARD
Ultralow Freezers



AIREGARD^{ES}
Laminar Airflow Workstations



PHARMAGARD^{ES}
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