CLASS II, TYPE A2 BIOLOGICAL SAFETY CABINETS
Class II, Type A2 Biological Safety Cabinets

The CellGard Class II Biological Safety Cabinet can be either exhausted back into the room or connected to a facility HVAC system. The cabinet’s airflow is 30% exhausted / 70% recirculated to minimize cross-contamination of low to moderate risk biologials in the absence of volatile toxic chemicals.

Features To Increase Your Productivity

**HEPEX™**
- Zero Leak Airflow System
- Unidirectional Airflow
- Large HEPA Filters
- Paper-Catch Screen
- Shell / Gaskets Under Negative Pressure
- Front Filter Removal
- Metal Diffuser Over Supply Filter
- Energy Saver DC ECM Motor Technology
- DECON Sealable Window
- Hinged Wing Window
- Framless Sliding Tempered Glass View Screen

**EXPERIENCE ERGONOMICS™**
- Features for worker comfort and safety
  - External Fluorescent Lighting
  - 8” or 10” Access Opening at Inflow Velocity of 100 fpm
  - Armrest
  - Two Outlets (Back Wall)
  - Two Service Valves (Right Sidewall)
  - Drain Valve
- **ATTENUMOUNT™**
  - Vibration and Sound Control System

**TOUCHLINK™** (NU-480)
- Electronic Control System

**FLOWGARD™** (NU-477)
- Easy Clean Touch Pad Control System

**ESSENTIALS** (NU-475)
- Easy to Use Toggle Switch Controls

Design Features To Fit Your Individual Applications

**DECON 101 System**
- Natural Gas Service Valve - Interlocked with Blower
- IV Bar with 6 Stainless Steel Hooks
- ULPA Filters
- Storage Pull-Out Trays
- Heated Work Surface
- Exhaust Transitions

**Base Support Stands**
- Sinks with Hot and Cold or DI Water Faucets
- Decorative Side Panels
- Glass Side Walls
- Fume Absorption Carbon Exhaust Filters
- Custom Configurations
Improved Principles of Biological Safety Cabinet Design

**[A] True Laminar Airflow**
Unidirectional airflow moving along parallel flow lines at a constant velocity minimizes air turbulence within the work zone.

**[B] HEPEX™ Zero Leak Airflow System**
The HEPEX™ Zero Leak Airflow System eliminates the possibility of cabinet and gasket leaks.

**[C] Greater Volume of Air Creates a Stronger Air Barrier**
Air exchanges within the Class II Biological Safety Cabinet occur 25 times per minute.

**[D] Larger, Long Lasting HEPA Filters**
NuAire’s metal framed HEPA filters are 25% larger than those in competitive products.

**[E] Electronically Commutated Motor (ECM)**
DC ECM (Electronically Commutated Motor) technology uses electronic controls with brushless DC motors which are inherently more efficient than the currently used permanent-split-capacitor (PSC) motor.

HEPEX™ Zero-Leak Airflow System

NuAire’s HEPEX™ Zero Leak Airflow System provides quiet, uniform velocities through the entire sterile work zone. NuAire’s system surrounds all positive pressure flow chambers and ducts with vacuum (or negative) air pressure relative to the room. This feature eliminates the possibility of cabinet and gasket leaks. Uneven particulate loading is prevented by maintaining high-static pressure over the entire filter surface.

For more information contact NuAire, Inc. at 1.800.328.3352 or www.nuaire.com
Features

- Blower Motor Controlled Via Solid State DC Motor Controller
- Monitor, Display and Control Downflow Via Digital Dual Thermistor Airflow Sensor
- Alarm Setpoints, High/Low for Error Conditions (Downflow and Exhaust Flow)
- Remote Alarm Contacts
- Date/Clock Display, and Timer Function
- Control Lights Via Solid State Switch
- Control Outlets Via Solid State Switch
- Perform Complete Diagnostic Functions
- Password Protection

**nitecare™** - A unique system initiated by the window closure, will reduce motor/blower operational airflow to conserve energy while maintaining work zone sterility. (Configurable)

**intelliflow™** - Fast, Accurate, Reliable, Dual Thermistor Airflow Sensors powered by TSI. The sensor technology used in certification instruments to assure BSC optimal performance.

**Features**

- Blower Motor Controlled Via Solid State DC Motor Controller
- Easy to Clean Touch Pad
- On/Off Functions For:
  - Fluorescent Lighting
  - Ultraviolet Germicidal Light
  - Blower/Motor
  - Duplex Outlets
- Monitors Window Position
- Password Protection
- Audible and Visual Alarms
- Remote Alarm Contacts
- **FLOWGARD™** Monitor - Digital Pressure Transducer
  - Green LED: Normal Operation
  - Yellow LED: Caution
  - Red LED: High Alarm Status (HEPA Filter Loading)
  - Low Alarm Status (Low Airflow)

**nitecare™** (Configurable)

**Features**

- Minihelic Pressure Gauge
- DC Motor Controller
- Motor Voltage Regulator
- Audible Window Alarm
- Main & Outlet Power Circuit Breakers
- Power Switch Controls For:
  - Exterior Mounted Fluorescent Lights and/or Ultraviolet Lights
  - Interior Outlets
  - Blower Motor
CellGard Class II Biological Safety Cabinet

- Front HEPA Filter Removal and Maintenance
- Exhaust HEPA Filter
- TOUCHLINK System
- Sliding Tempered Safety Glass Window (Closes Completely)
- Frameless Polished Edge Window
- Ergonomic Armrest
- Base Support Stand
- Outlet
- External Fluorescent Lighting
- 10-Degree Sloped Window
- Glass Side Walls (Optional)
- Service Valves for Gas, Air, Vac
- 8” or 10” Access Opening
- Removable Solid SST Work Tray
- Drain Valve

Base Stand Options

- Motorized Adjustable Base Stand
- Base Stand with Storage Cabinet

For more information contact NuAire, Inc. at 1.800.328.3352 or www.nuaire.com
Critical Cleaning Components™

Critical Cleaning Components™ means the combination of high-quality equipment, proper procedures, and appropriate cleaning aids which combine to help ensure a laboratory environment free from contamination.

Cleaning Aids

Cleaning aids such as the Mini AlphaMop™ Isolator Cleaning Tool, 12” x 12” SterileWipe® and 9” x 9” AlphaWipe® Sterile, Low-Particulate wipes help personnel clean effectively.

Equipment Design Features

- Hinged Wing Window Design
- 100% Stainless Steel Interior
- 90% Stainless Steel Overall Construction
- Stainless Steel Grills and Paper Catch
- Removable Stainless Steel Work Tray
- Easy-to-Clean Interior Corners
- Clean Lines- Smooth Surfaces for Effective Cleaning
- Stainless Steel Area Below Work Tray Holds 2 L of Liquid
- Stainless Steel Drain Valve
- Full Metal HEPA Diffuser Protects Filter
- Removable Armrest
- Baked Powder-Coat Polyurethane Paint Finish on Front Panel and Control Center

Cleaning and Disinfecting Process

- Cleaning and disinfecting at the beginning of each shift
- Cleaning and sanitizing the interior between procedures
- Cleaning, rinsing, disinfecting, rinsing, sterilizing after each use
The best fit for your lab • Experience Ergonomics

1 Ability to Sit or Stand at a Range of Heights

The cabinet design maximizes knee/thigh clearance to improve posture and the adjustable base stand allows optimization for leg and forearm support.

2 Expanded Vision Zone Reduces Awkward Postures and Proper Lighting Reduces Glare

Cabinets incorporate cool white lighting and frameless polished edge windows to allow for greater visibility and better sight lines.

3 Forearm Support for Comfort and Safety

• Improves forearm support, keeps arms off front air grill
• Closed cell foam, easy to clean

Elbow Rest

• Closed cell non-absorbing foam
• Disposable, easy application and removal (10 pads / package)

Foam Armrest Pad

4 Larger Effective Work Zone Area

NuAire’s cabinets provide the largest effective work zone which helps reduce arm/neck/shoulder strain. Extend reach up to 12” with 100% stainless steel turntable (ball bearing construction, easy to clean and can be autoclaved).

5 Ergonomically Designed Laboratory Chair and Footrest

NuAire’s BioFit® chair has a star-based platform with adjustable height, back and lumbar support. The non-skid adjustable footrest provides optimal foot/leg support.

BioFit® Chair / Adjustable Footrest

6 Class II Type A2 Cabinet with an Air-Break Canopy Transition*

Class II Type A2 Cabinets with an adjustable base can be canopy connected with the use of Flex Duct and an Air-Break Transition. *Flex Duct necessary if used with adjustable base stand.

Air-Break Canopy Transition

Accessories

Stainless Steel Turn Table
Remote Controlled Service Valves
Adjustable Footrest
BioFit® Ergonomic Adjustable Chair

For more information contact NuAire, Inc. at 1.800.328.3352 or www.nuaire.com
**Experience energy savings with DC ECM Technology**

NuAire incorporates our existing technology and new DC ECM technology to give you the best VALUE – lower energy costs, longer filter life, and reduced noise and vibration.

**Benefits of NuAire cabinets**
- Largest HEPA filters with the most pleats per square inch
- Your choice of (3) three different types of control systems
- Internal exhaust damper
- Optimally determined fan for each model size/width

**Added benefits from DC ECM technology**
- Less energy to operate
- Greater horsepower and lower potential RPM
- Integrated digital control system
- Longer filter life
- Lowest possible noise and vibration
- Ability to upgrade classic AC PSC motor technology in existing cabinets to realize future energy savings

---

### Energy Saver Technology

**Fan Motor Efficiency**

<table>
<thead>
<tr>
<th>RPM</th>
<th>DC Motor</th>
<th>DC ECM Motor</th>
<th>AC 3-Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>.80</td>
<td>.70</td>
<td>.60</td>
</tr>
<tr>
<td>800</td>
<td>.70</td>
<td>.60</td>
<td>.50</td>
</tr>
<tr>
<td>1000</td>
<td>.60</td>
<td>.50</td>
<td>.40</td>
</tr>
<tr>
<td>1200</td>
<td>.50</td>
<td>.40</td>
<td>.30</td>
</tr>
<tr>
<td>1400</td>
<td>.40</td>
<td>.30</td>
<td>.20</td>
</tr>
<tr>
<td>1600</td>
<td>.30</td>
<td>.20</td>
<td>.10</td>
</tr>
</tbody>
</table>

Higher RPMs represent filter loading from particulates in the laboratory.

**Filter Loading Capacity**

DC ECM technology increases filter life from the NSF minimum requirement of 50% or an approximate 3 year equivalent life to 10 years or more.

Percent increase in total load capacity*:
- 85% – DC (4 Years)
- 180% – AC PSC (7 Years)
- 250% – DC ECM (10 Years)
- 250% – AC 3-Phase (10 Years)

*Percent increase testing based on NSF/ANSI 49, ANNEX A.12 motor/blower performance test methods.

### Energy Costs

<table>
<thead>
<tr>
<th></th>
<th>AC PSC</th>
<th>DC ECM</th>
<th>DC</th>
<th>AC 3-Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilowatts</td>
<td>.564</td>
<td>.299</td>
<td>1.63</td>
<td>.414</td>
</tr>
<tr>
<td>KWH</td>
<td>492</td>
<td>2612</td>
<td>1424</td>
<td>3617</td>
</tr>
<tr>
<td>Annual Cost ($0.09/kwh)</td>
<td>$443.43</td>
<td>$235.09</td>
<td>$128.16</td>
<td>$325.53</td>
</tr>
</tbody>
</table>

4 Foot Type A2 BSC that runs 24/7 (8736 hours per year) plus the energy required to control the laboratory ventilation by adding the rejected heat.

* U.S. DOE Average Cost

### Noise

<table>
<thead>
<tr>
<th></th>
<th>AC PSC</th>
<th>DC ECM</th>
<th>DC</th>
<th>AC 3-Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airflow (Design)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fan (RPM)</td>
<td>1100-1700</td>
<td>800-1400</td>
<td>1400-2200</td>
<td>800-1400</td>
</tr>
<tr>
<td>Motor (Harmonics)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Vibration

<table>
<thead>
<tr>
<th></th>
<th>AC PSC</th>
<th>DC ECM</th>
<th>DC</th>
<th>AC 3-Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airflow (Design)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fan (RPM)</td>
<td>Higher</td>
<td>Lower</td>
<td>Higher</td>
<td>Lower</td>
</tr>
</tbody>
</table>

---

**Comparison**

<table>
<thead>
<tr>
<th></th>
<th>NuAire DC ECM</th>
<th>NuAire AC PSC</th>
<th>BSC A AC 3-Phase</th>
<th>BSC B DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 hrs per day / 5 days per week = 2,000 hrs per year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KWH per year</td>
<td>598</td>
<td>1128</td>
<td>828</td>
<td>326</td>
</tr>
<tr>
<td>$0.09/kwh</td>
<td>$54</td>
<td>$102</td>
<td>$75</td>
<td>$29</td>
</tr>
<tr>
<td>24 hrs per day / 7 days per week = 8,736 hrs per year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KWH per year</td>
<td>2612</td>
<td>4927</td>
<td>3617</td>
<td>1424</td>
</tr>
<tr>
<td>$0.09/kwh</td>
<td>$235</td>
<td>$443</td>
<td>$326</td>
<td>$128</td>
</tr>
</tbody>
</table>

**15 Year Life Cycle Costs**

<table>
<thead>
<tr>
<th></th>
<th>1 Set</th>
<th>2 Sets</th>
<th>1 Set</th>
<th>3 Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Filter Changes*</td>
<td>1 Motor</td>
<td>1 Motor</td>
<td>1 Motor</td>
<td>2 Motors</td>
</tr>
<tr>
<td>Estimated Cost of HEPA Filters</td>
<td>$715</td>
<td>$1,430</td>
<td>$715</td>
<td>$2,145</td>
</tr>
<tr>
<td>Total Cost of Decon/Certification</td>
<td>$450</td>
<td>$900</td>
<td>$450</td>
<td>$1,350</td>
</tr>
<tr>
<td>Motors to Replace**</td>
<td>$650</td>
<td>$420</td>
<td>$725</td>
<td>$2,544</td>
</tr>
<tr>
<td>Cost of Motors/Power Supplies/Fan Control</td>
<td>$810</td>
<td>$1,530</td>
<td>$1,125</td>
<td>$435</td>
</tr>
<tr>
<td>Utility Costs (2,000 kwh yr over 15 years)</td>
<td>$2,625</td>
<td>$4,280</td>
<td>$3,015</td>
<td>$6,474</td>
</tr>
</tbody>
</table>

* See Filter Load Capacity
** Est. based on historical information.

**Disclaimer:** This example is for illustrative purposes only and should not be deemed a representation of future performance or a guarantee of any kind. Information is based on internal performance data obtained through NuAire testing and information provided by motor, blower, HEPA filter manufacturers, and independent service technicians.
CellGard ES offers an exclusive system to aid in current decontamination techniques such as Formaldehyde, H2O2, or CD systems. The window sash closes completely with the simple removal of the armrest allowing the window to rest on a gasket installed on the inside of the window frame. Window clamps fit securely on the outside of the window to provide the necessary pressure against the gasket for a tight seal. A supply inlet port is provided on top of the cabinet near the blower for the decontaminant introduction. An exhaust seal plate installs over the exhaust filter housing and is locked in place with the use of fasteners. The exhaust seal plate features an exhaust connection port for collection of the decontaminant. Once the decontaminant system has been mounted, the TOUCHLINK™ Electronic Control System (NU-480 only) features a Decontamination program on screen that aids in the process of decontamination by taking control of blower run times that coincide with the particular decontamination process. The DECON 101 System helps streamline the decontamination process providing the service technician with a safe and easy method to protect your laboratory from harmful gases.

Please note all CellGard models may be sealed using window clamps and gas tight plate.

For more information contact NuAire, Inc. at 1.800.328.3352 or www.nuaire.com
<table>
<thead>
<tr>
<th>Specifications</th>
<th>NU-4XX-300 Nominal 3 ft. [0.9 m]</th>
<th>NU-4XX-400 Nominal 4 ft. [1.2 m]</th>
<th>NU-4XX-500 Nominal 5 ft. [1.5 m]</th>
<th>NU-4XX-600 Nominal 6 ft. [1.8 m]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Style of Cabinet</strong> (All Sizes)</td>
<td>All Models: Bench Top / Console with Base Stand / Storage Cabinet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cabinet Construction</strong> (All Sizes)</td>
<td>All Models: All Welded 16 GA. Type 304 Stainless Steel, Pressure Tight Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diffuser for Air Supply</strong> (All Sizes)</td>
<td>All Models: Non-Flammable (Metal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HEPA Filter Seal Type</strong></td>
<td>All Models: HEPEX® Seal</td>
<td>Neoprene, Springloaded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Filter 99.995% Eff. on .03 microns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Filter 99.995% Eff. on .03 microns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Decontamination/Fumigation</strong> manual or automated per NSF/ANSI 49 or EN12469</td>
<td>All Models: Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Performance Specifications</strong></td>
<td>All Models: NSF/ANSI 49 and EN12469</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard Services</strong></td>
<td>All Models:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Coupling (3/8 inch NPT)</td>
<td>Two, Right Sidewall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlet</td>
<td>Two, Backwall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optional Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas Cocks (3/8 inch NPT)</td>
<td>Up to 3 ea. Sidewall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Controlled Valves**</td>
<td>One, Backwall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultraviolet Light</td>
<td>Left or Right Work Surface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard / Cup Sinks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cabinet Size</strong> inches [mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>41(\frac{5}{8}) [1057]</td>
<td>53(\frac{5}{8}) [1362]</td>
<td>65(\frac{5}{8}) [1669]</td>
<td>77(\frac{5}{8}) [1972]</td>
</tr>
<tr>
<td>Height</td>
<td>61(\frac{1}{8}) [1572]</td>
<td>61(\frac{1}{8}) [1572]</td>
<td>61(\frac{1}{8}) [1572]</td>
<td>61(\frac{1}{8}) [1572]</td>
</tr>
<tr>
<td>Depth</td>
<td>33 [664]</td>
<td>33 [664]</td>
<td>33 [664]</td>
<td>33 [664]</td>
</tr>
<tr>
<td>(With Control Center and Armrest Removed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Work Access Opening</strong> inches [mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Opening Height</td>
<td>8 [196]</td>
<td>8 [196] or 10 [254]</td>
<td>8 [196] or 10 [254]</td>
<td>8 [196] or 10 [254]</td>
</tr>
<tr>
<td>Standard Inflow Velocity</td>
<td>105 fpm (0.53 m/s)</td>
<td>105 fpm (0.53 m/s)</td>
<td>105 fpm (0.53 m/s)</td>
<td>105 fpm (0.53 m/s)</td>
</tr>
<tr>
<td><strong>Work Zone</strong> inches [mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>34(\frac{7}{8}) [873]</td>
<td>46(\frac{3}{8}) [1178]</td>
<td>58(\frac{3}{8}) [1483]</td>
<td>70(\frac{3}{8}) [1788]</td>
</tr>
<tr>
<td>Height</td>
<td>28(\frac{1}{2}) [724]</td>
<td>28(\frac{1}{2}) [724]</td>
<td>28(\frac{1}{2}) [724]</td>
<td>28(\frac{1}{2}) [724]</td>
</tr>
<tr>
<td>Depth</td>
<td>26 (\frac{1}{8}) [664]</td>
<td>26 (\frac{1}{8}) [664]</td>
<td>26 (\frac{1}{8}) [664]</td>
<td>26 (\frac{1}{8}) [664]</td>
</tr>
<tr>
<td>(Measured at 8 inch Window Height)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Viewing Window</strong> inches [mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work access opening</td>
<td>work access opening</td>
<td>work access opening</td>
<td>work access opening</td>
<td>work access opening</td>
</tr>
<tr>
<td><strong>Plant Duct Static Pressure</strong></td>
<td>All Models: .05” - 0.1” [1.27 - 2.54 mm]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrical</strong> (All Sizes)</td>
<td>All Models: 115 VAC / 60 Hz, E: 230 VAC / 50-60 Hz, D: 100 VAC / 50-60 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heat Rejected BTU, Per Hour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>826</td>
<td>1140 / 1020</td>
<td>1768 / 1611</td>
<td>1884 / 1768</td>
<td>1884 / 1768</td>
</tr>
<tr>
<td>Vented</td>
<td>120</td>
<td>157</td>
<td>198</td>
<td>198</td>
</tr>
</tbody>
</table>

* Specify model with appropriate letter suffix for electrical specifications. “NU-475-300E” for 203 VAC / 50 Hz
** Remote controlled valve handles project through faring. Decorative side panels are available to cover plumbing. *** Crated shipping weight does not include weight for accessories or options.
Please note that performance specifications and listings vary for models and types. Please consult NuAire for exact performance specifications and listings. Not all certifications apply to all products.

![NuAire Logo]  

To Locate a NuAire Sales Team Member

Please visit NuAire's Web site at: www.nuaire.com and select the ‘Sales Team’ menu item. Information can be found there for both United States and international distributors.

www.nuaire.com

Other NuAire Products

For more information contact NuAire, Inc. at 1.800.328.3352 or www.nuaire.com
For more information please visit www.nuaire.com or call 1.800.328.3352