



PURCHASE SPECIFICATIONS : FOR NUAIRE LABGARD® ES ENERGY SAVER NU-545 BIOLOGICAL SAFETY CABINET

The intent herein is to provide a concise statement of requirements for a quality Class II Laminar Airflow Biological Safety Cabinet which may be used to augment your purchase request/order.

The LabGard® ES NU-545 meets the performance requirements of the NSF/ANSI 49. Your confidence is well placed in a Biological Safety Cabinet that meets these standards.

NuAire sales representatives will be pleased to explain the importance of the performance and control affected by each of the following requirements. The NuAire LABGARD® ES NU-545 meets all of the requirements in the following SPECIFICATION.

1. Dimensions Inches (mm)

| Overall Dimensions | NU-545-300 | NU-545-400 | NU-545-500 | NU-545-600 |
|--|-------------------|-------------------|-------------------|-------------------|
| Width (W) | 41 5/8 (1057) | 53 5/8 (1362) | 65 5/8 (1669) | 77 5/8 (1972) |
| Depth (D) (Armrest Removed) (Incl. Control Center) | 32 ¼ (819) | 32 ¼ (819) | 32 ¼ (819) | 32 ¼ (819) |
| Height (H) (Incl. Exhaust Grill) | 60 7/8 (1546) | 60 7/8 (1546) | 60 7/8 (1546) | 60 7/8 (1546) |
| Basestand, 30" Work Surface | 88 3/8 (2245) | 88 3/8 (2245) | 88 3/8 (2245) | 88 3/8 (2245) |
| Basestand, 36" Work Surface | 94 3/8 (2397) | 94 3/8 (2397) | 94 3/8 (2397) | 94 3/8 (2397) |
| Interior Dimensions | | | | |
| Width (W) | 34 3/8 (873) | 46 3/8 (1178) | 58 3/8 (1483) | 70 3/8 (1788) |
| Depth (D)+ | 26 (660) | 26 (660) | 26 (660) | 26 (660) |
| Height (H) | 28 1/2 (724) | 28 1/2 (724) | 28 1/2 (724) | 28 1/2 (724) |

+ Measured at 10 inch (254) window height.

2. Cabinet shall provide airflows & biological safety performance as specified.

- ** a. Cabinet shall provide biological containment protection for both operator and product proven by an actual test, (e.g. test conducted by NSF) and routinely validated by NuAire.
- * b. Cabinet shall be constructed from 16GA, Type 304 stainless steel forming a monolithic, sealed structure.
- c. Cabinet shall be easily fumigated employing an established procedure such as that recommended by NIH or NSF.
- d. Supply HEPA filter shall be of full cabinet work zone width and depth.
- * e. Supply HEPA filter shall be protected by a perforated metal diffuser covering the entire top of the work zone
- * f. Air Velocity from the supply filter shall average 55 to 65 FPM (.28 to .32 m/s) with no single point outside the 20% of average range measured in a horizontal plane defined by 4 inches (102mm) above the bottom edge of window.
- * g. Work access opening shall be 10 inches (254mm) or, optionally (8 inches (203) high. Average inflow velocity shall nominally be 105 LFPM (.53 m/s).

* Having all of these features is unique ONLY to NuAire cabinets.

** Listed to NSF/ANSI 49.

- 3.* The cabinet shall be ergonomically designed for maximum user comfort and adjustability.
 - Standard non-metallic armrest/airfoil incorporating large 2 inch (51mm) forearm support area
 - 1/2 inch (12mm) recessed front grill designed for armrest comfort while maintaining containment performance.
 - Maximum visibility into cabinet workzone shall be at least 23 ¾ inches (603mm) from front access airfoil to exterior light housing.
 - Cabinet shall have a centrally located instrument panel within the control center that is easily serviced with quick disconnects.
 - Cabinet shall have the capability of incorporating a user adjustable basestand or base storage cabinet as an option.
 - The cabinet shall have a smooth operating sliding window from full closure to full opening at 18 inches (457mm).
 - Cabinet shall have a large worktray (20 ¾ inch (527mm) depth) removable with coved corners for easy cleaning.
 - Cabinet shall have a 10 degree slope.
- 4.* The cabinet shall have all positive pressure plenums surrounded by a vacuum relative to the room (the LabGard® ES employs the HEPEX™ Zero Leak Airflow System).
5. Electrical power shall be supplied with a 12-foot (2.5m), 3-wire cord with molded plug. Electrical supply should be 115 VAC, 60 Hz (current rating varies per cabinet size. Reference Electrical Requirements Page 4) protected with thermal circuit breaker from distribution panel.
6. The cabinet shall use a DC ECM Motor with an optimally determined forward-curved fan for each model size/width to maximize both energy efficiency and filter loading capacity.
7. The cabinet shall have separate internal electrical circuits for blower, light and one for the duplex outlets. Each circuit shall be protected with a fuse located in the Control Center on the electronic module.
- 8.* The cabinet shall be listed by Underwriters Laboratories to meet the requirements of both the U.S. and Canada for electrical/mechanical integrity.
- 9.* Cabinet shall utilize a dual microprocessor control system that will perform the following functions:
 - Easy use interface via TouchLink color LCD.
 - Control blower DC ECM Motor via solid-state DC Motor Controller that provides compensation (constant volume control) for both filter loading and line voltage variances.
 - Intelliflow™ - Fast, accurate, reliable dual thermistor, airflow sensors powered by TSI to control and monitor cabinet airflows to setpoints.
 - Disable audible alarm switch with ring back function.
 - Display date/time.
 - Display blower and optional UV light run timers.
 - Control lights via solid state switch.
 - Control outlets via solid state switch.
 - Display complete calibration, option menu and diagnostic functions.
 - Alarm setpoints high/low for error conditions (downflow/inflow).
10. Cabinet shall contain a control system that provides the following optional functional features (included with cabinet and must be configured during certification):
 - Security password protection of cabinet use.
 - Night Care™ setback mode. Upon sliding window closure, the blower will continue to operate at a lower rate to save energy and maintain interior clean air conditions ready for use upon sliding window opening.
 - Auto run timer allows the cabinet to automatically turn on and off on a daily basis.
 - Timer/Interlock functions for light, outlet and ultraviolet light.
- 11.* Balancing of cabinet workzone downflow (recycling flow) to exhaust flow shall be accomplished with an internal exhaust flow damper, externally adjustable with screwdriver.

12. The cabinet shall be easily transportable through a standard 36 inch (914mm) wide door without disassembly.
13. Sound level shall be no more than 63 dbA measured 15 inches (381mm) above the work tray and 12 inches (305mm) in front of viewing window.
14. LED lighting shall be externally mounted and provide 90 (968) to 120 (1291) foot-candles (LUX) on work surface.
- 15.* Cabinet shall come standard with two GFI duplex outlets with drip proof covers on back wall; one gas valve/service coupling on right side wall and one service coupling on right side wall.
16. Cabinet shall be easily converted to a free-standing console model with the addition of the optional Base Support Stand.
- 17.* Cabinet work zone shall be all 16 GA. stainless steel.
- 18.* A 3/8 (10 mm) inch ball valve with welded fitting shall be provided in the drain trough beneath the work tray.
- 19.* Cabinet shall have a permanent positive pressure plenum with quick release supply filter removal.
- 20.* Motor/blower shall be positioned so as to create an even filter loading, thereby prolonging the life of the HEPA filters, automatically handling a 250% minimum increase in filter loading without reducing total air delivery by more than 10%.
- 21.* Cabinet shall be capable of front filter removal without disassembly of the control panel and sliding window tracks/hardware.
22. The following optional equipment shall be available to support installation and user requirements:
 - 8 inch (203mm) Access Opening @ 105 (.53 m/s) Inflow
 - Ultraviolet Light
 - Additional Service Valves for Gas, Air, Vacuum
 - Additional Duplex Outlet
 - IV Bar with 6 Stainless Steel Hooks
 - Exhaust Transitions - Canopy
 - Base Support Stand (available in standard working surface heights of 30 or 36 inches) (762 or 914mm) with or without Storage Shelves
 - Adjustable Control for Support Stand or Storage Cabinet
 - Sinks with Hot/Cold or DI Water Faucets
 - Storage Pull-Out Trays
 - Lay in Sorbent Exhaust Filter
 - Decorative Side Panels (hides plumbing fixture connections)
 - HEPA Filters 99.999% @ 0.3 Micron
 - Arm Rest (Stainless Steel)

*Having all of these features is unique ONLY to NuAire cabinets.

**LabGard® ES Energy Saver Class II
Laminar Flow Biological Safety Cabinet
Models NU-545-300, 400, 500, 600**

| Catalog Number | Catalog Number | | | |
|---|--|---|--|---|
| | NU-545-300 Nominal 3 foot (0.9m) | NU-545-400 Nominal 4 foot (1.2m) | NU-545-500 Nominal 5 foot (1.5m) | NU-545-600 Nominal 6 foot (1.8m) |
| Performance Specifications 1. Personal Protection 2. Product Protection | NSF/ANSI 49 | NSF/ANSI 49 | NSF/ANSI 49 | NSF/ANSI 49 |
| NSF / ANSI 49 | Class II, Type A2 | Class II, Type A2 | Class II, Type A2 | Class II, Type A2 |
| Style of Cabinet | Bench top/console w/base stand/storage cabinet | Bench top/console w/base stand/storage cabinet | Bench top/console w/base stand/storage cabinet | Bench top/console w/base stand/storage cabinet |
| Cabinet Construction | All welded stainless steel 16GA, Type 304 pressure tight design | All welded stainless steel 16GA, Type 304 pressure tight design | All welded stainless steel 16GA, Type 304 pressure tight design | All welded stainless steel 16GA, Type 304 pressure tight design |
| Diffuser for Air Supply (Metal) | Non-flammable | Non-flammable | Non-flammable | Non-flammable |
| HEPA Filter Seal Type: Supply Filter-99.995% Eff. on 0.3 microns Exhaust Filter-99.995% Eff. on 0.3 microns | HEPEX Seal Neoprene, Spring-loaded | HEPEX Seal Neoprene, Spring-loaded | HEPEX Seal Neoprene, Spring-loaded | HEPEX Seal Neoprene, Spring-loaded |
| Fumigation : NSF / ANSI 49 Procedures | Yes | Yes | Yes | Yes |
| Standard Services: Service Coupling (3/8 inch NPT) Gas Valve/Service Coupling (3/8inch NPT) Outlet | One, Right Sidewall One, Right Sidewall Two, Backwall | One, Right Sidewall One, Right Sidewall Two, Backwall | One, Right Sidewall One, Right Sidewall Two, Backwall | One, Right Sidewall One, Right Sidewall Two, Backwall |
| Optional Services: Gas Cocks 3/8" NPT Ultraviolet Light Standard/Cup Sinks | Up to 3 ea. Sidewall One, Backwall Left or Right Work Surface | Up to 3 ea. Sidewall One, Backwall Left or Right Work Surface | Up to 3 ea. Sidewall One, Backwall Left or Right Work Surface | Up to 3 ea. Sidewall One, Backwall Left or Right Work Surface |
| Cabinet Size Inches (mm): Height (Fully Assembled) Height (Minimum for Transport) Width Depth (with Control Center) And Armrest Removed | 60 7/8 (1546) 59 (1499) 41 5/8 (1057) 32 ¼ (819) | 60 7/8 (1546) 59 (1499) 53 5/8 (1362) 32 ¼ (819) | 60 7/8 (1546) 59 (1499) 65 5/8 (1669) 32 ¼ (819) | 60 7/8 (1546) 59 (1499) 77 5/8 (1972) 32 ¼ (819) |
| Work Access Opening Inches (mm): Standard Opening Height/Optional Standard Inflow Velocity | 10 (254) / 8 (203) 105 FPM (.53 m/s) | 10 (254) / 8 (203) 105 FPM (.53 m/s) | 10 (254) / 8 (203) 105 FPM (.53 m/s) | 10 (254) / 8 (203) 105 FPM (.53 m/s) |
| Work Zone Inches (mm): Height Width Depth measured at 10 inches (254mm) window height | 28 1/2 (724) 34 3/8 (873) 26 (660) | 28 1/2 (724) 46 3/8 (1178) 26 (660) | 28 1/2 (724) 46 3/8 (1178) 26 (660) | 28 1/2 (724) 70 3/8 (1788) 26 (660) |
| Viewing Window Inches (mm): Standard is safety plate sliding glass | Fully closed to 18 (457) open | Fully closed to 18 (457) open | Fully closed to 18 (457) open | Fully closed to 18 (457) open |
| Required Exhaust CFM/CMH Standard/Optional: Canopy Variable Flow Thimble (NU-911) Canopy Fixed Flow Thimble (NU-907) | 10 (254) / 8 (203) opening CFM (CMH) 276-501 (649-851) / 226-450 (383-765) 320 (544) / 269 (457) | 10(254) / 8(203) opening CFM (CMH) 363-588 (617-1000) / 295-520 (502-884) 426 (724) / 359 (610) | 10(254) / 8(203) opening CFM (CMH) 451-676 (766-1149) / 365-590 (621-1003) 531 (902) / 445 (756) | 10(254) / 8(203) opening CFM (CMH) 538-763 (915-1297) / 436-661 (741-1124) 634 (1077) / 532 (904) |
| Plant Duct Static Pressure Eng./Metric | 0.05-0.1"/1.27-2.54mm H2O | 0.05-0.1"/1.27-2.54mm H2O | 0.05-0.1"/1.27-2.54mm H2O | 0.05-0.1"/1.27-2.54mm H2O |
| Heat Rejected, BTU, Per Hour (non-vented) (vented) | 10 (254) / 8 (203) opening 903 / 826 120 | 10(254) / 8(203) opening 1140/1020 157 | 10(254) / 8(203) opening 1768/1611 198 | 10(254) / 8(203) opening 1884/1768 198 |
| Electrical: Volts, AC 60 Hz +Amps: Blower/Lights (10/8 openings) Amps: Duplex Rated Amps: 12 ft. Power Cord (one) | U.L./U.L.-C Listed 115 2.3 / 2.1 3 10 14 GA - 3 Wire, 15A | U.L./U.L.-C Listed 115 2.9/2.6 3 14 12 GA - 3 Wire, 20A | U.L./U.L.-C Listed 115 4.5/4.1 3 16 12 GA-3 Wire, 20A | U.L./U.L.-C Listed 115 4.8/4.5 3 16 12 GA-3 Wire, 20A |
| Crated Shipping Weight:**** Net Weight | 460 lbs. /209 kg. 410 lbs. /186 kg. | 530 lbs. /240 kg. 480 lbs. /218 kg. | 620 lbs. /281 kg. 570 lbs. /258 kg. | 690 lbs. /313 kg. 640 lbs. /290 kg. |

*15A Configuration does not include accessory outlet.

***Crated shipping weight does not include weight for accessories or options

+ Based on cabinet with new filters running at 115VAC.