



PURCHASE SPECIFICATIONS : FOR NUAIRE LABGARD ES ENERGY SAVER NU-427E (Series 60+) BIOLOGICAL SAFETY CABINET

The intent herein is to provide a concise statement of requirements for a quality Class II, Type B1 Laminar Airflow Biological Safety Cabinet which may be used to augment your purchase request/order.

The LABGARD ES NU-427E meets the performance requirements of the NSF/ANSI 49. Your confidence is well placed in a Biological Safety Cabinet that meets NSF Standard.

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-427 meets all of the requirements in the following SPECIFICATION.

1. Dimensions Inches (mm)

Overall Dimensions	NU-427-400E	NU-427-600E
Width (W)	53 5/8 (1362)	77 5/8 (1972)
Depth (D) (Incl. Control Center)	32 7/8 (835)	32 7/8 (835)
Height (H) (Incl. Exhaust Grill)	61(1549)	61(1549)
Basestand, 30" W.S.	89 1/2 (2273)	89 1/2 (2273)
Basestand, 36" W.S.	95 1/2 (2426)	95 1/2 (2426)
Interior Dimensions		
Width (W)	46 3/8 (1178)	70 3/8 (1788)
Depth (D)	23 1/2 (597)	23 1/2 (597)
Height (H)	25 1/2 (648)	25 1/2 (648)

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.
- b. Cabinet shall be 30% recirculation through HEPA filtered work zone and 70% exhaust through cabinet's internal exhaust HEPA filter and exhaust duct work to a remotely located roof exhaust blower.
- c.* Cabinet shall be constructed from 16GA, Type 304 stainless steel forming an all welded, monolithic, sealed structure.
- d. Cabinet shall be easily fumigated employing an established procedure such as that recommended by NIH or NSF.
- e. Supply HEPA filter shall be of full cabinet work zone width and depth; work zone below supply HEPA shall be of fixed cross-sectional area (sloping back wall or viewing window is unacceptable).
- f.* Supply HEPA filter shall be protected by a perforated metal diffuser covering the entire top of the work zone.
- g.* Air velocity from the supply filter shall average 65 to 75 FPM (.33 to .38 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.
- h.* Work access opening shall be 8 inches (203mm) high. Average inflow velocity shall nominally be 105 LFPM (.53 m/s).

- 3.* The cabinet shall be ergonomically designed for maximum user comfort and adjustability to meet the requirements of the American Disabilities Act (ADA.)
 - Standard non-metallic armrest/airfoil incorporating large 1-1/2 inch (38mm) forearm support area with 1/2 inch (12mm) recessed front grill designed for armrest comfort while maintaining containment performance.
 - Maximum visibility into cabinet workzone shall be at least 20-1/2 inches (521mm) 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 1 inches (25 mm) closed to full opening at 18-1/2 inches (470mm).
 - Cabinet shall have a large worktray (17.875 inch (454mm) depth) removable with coved corners for easy cleaning.
- 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 115VAC, 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 optimally determined forward-curved fan for each model size/width to maximize both energy efficiency and filter loading capacity.
7. The cabinet shall have three (115VAC) internal electrical circuits; one each for blower and lights and one for the duplex outlets (115VAC). 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 contain a control system which is a self-contained electronic module 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 automatic compensation (constant volume control) for both filter loading and line voltage variances.
 - Intelliflow™ - Fast, accurate, reliable dual thermistor, airflow sensors and digital differential velocity pressure flow grid powered by TSI to control and monitor cabinet airflows to setpoints.
 - Control lights via solid state switch.
 - Control outlets via solid state switch.
 - Display date/time w/battery backup.
 - Display blower and optional UV light run timers.
 - Display alarm setpoints high/low for error conditions (downflow / inflow).
 - Display complete calibration, option menu and diagnostic functions.
- 10.* The cabinet shall contain an exhaust interlock system that prevents operation of the internal supply blower unless the exhaust flow is sufficient to provide the correct air barrier inflow velocity at start up.
11. Cabinet shall contain a control system that provides the following optional functional features (included with cabinet, but must be configured during certification):
 - Security password protection of cabinet use.
 - Night setback mode. Used to reduce exhaust volume during non-use times. Allows Building Automation System (BAS) contact closure input for cabinet indication of night setback mode.
 - Auto run timer allows the cabinet to automatically turn on and off on a daily basis.
 - Timer/Interlock functions for fluorescent light, outlet and ultraviolet light.

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. Fluorescent lighting shall be externally mounted and provide 90 to 120 foot-candles (968 to 1291 LUX) on work surface. The ballast is to be electronic containing thermal protection with automatic reset.
- 15.* Cabinet shall come standard with one duplex outlet with drip proof covers on left front faring.
~~Two~~ One gas valve / one service coupling on right side wall.
16. Cabinet exhaust duct connection shall be 12 inch (305mm) diameter.
17. Cabinet shall be easily converted to a free-standing console model with the addition of the optional base support stand.
- 18.* Cabinet work zone shall be all 16 GA. stainless steel and reinforced with stainless steel U channels to minimize vibration.
19. A 3/8 inch (10mm) ball valve shall be provided in the drain trough beneath the work tray.
- 20.* Motor/blower shall be positioned so as to create an even filter loading, thereby prolonging the life of the supply HEPA filter, and shall deliver over 250% of the initial HEPA filter static pressure with no more than a 10% decrease of CFM.
- 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:
 - Bag In/Bag Out of Exhaust HEPA Filter with Single Point External Filter Release
 - Ultraviolet Light
 - Additional Service Valves for Gas, Air, Vacuum
 - Remote Service Valves
 - Additional Duplex Outlet
 - Ground Fault Interrupter for Electrical System
 - IV Bar with 6 Stainless Steel Hooks
 - Gas Tight Butterfly Valves (Manual or Automatic)
 - 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
 - Hinged Viewing Window
 - Microscope Viewing Window
 - Sink with Hot/Cold or DI Water Faucets
 - Storage Pull-Out Trays
 - Sorbent Exhaust Filter Module
 - Decorative Side Panels (hides plumbing fixture connections)
 - Prefilter for Supply Air
 - Metal Framed HEPA Filters
 - HEPA Filters 99.999% @ 0.3 Micron
 - Arm Rest (Stainless Steel)
 - Elbow Rests

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

**Labgard ES Energy Saver Class II, Type B1
Laminar Flow Biological Safety Cabinet
Models NU-427-400/600**

Catalog Number	Catalog Number	
	NU-427-400 Nominal 4 foot (1.2m)	NU-427-600 Nominal 6 foot (1.8m)
Performance Specifications 1. Personal Protection 2. Product Protection	NSF/ANSI 49	NSF/ANSI 49
NSF Std. No. 49 Class	Class II, Type B1	Class II, Type B1
Style of 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
Diffuser for Air Supply (Metal)	Non-Flammable	Non-Flammable
HEPA Filter Seal Type: Supply Filter-99.99% Eff. on 0.3 Microns Exhaust Filter-99.99% Eff. on 0.3 Microns	HEPEX Seal Neoprene, Spring loaded	HEPEX Seal Neoprene, Spring loaded
Fumigation per NIH/NSF Procedure	Yes	Yes
Standard Services: Service Coupling (3/8 inch NPT) Gas Valve/Service Coupling (3/8inch NPT) Duplex Outlet	One One, Right Sidewall One, Left Front Faring	One One, Right Sidewall One, Left Front Faring
Optional Services: Gas Cocks 3/8" NPT Remote Controlled Valves** Ultraviolet Light Standard/Cup Sinks	Up to 3 ea. Sidewall Up to 3 ea. Sidewall One, Backwall Left or Right Work Surface	Up to 3 ea. Sidewall 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)	61 (1549) 61 (1549) 53 5/8 (1362) 32 7/8 (835)	61 (1549) 61 (1549) 77 5/8 (1972) 32 7/8 (835)
Work Access Opening Inches (mm): Standard Opening Height Standard Inflow Velocity	8 (203) 105 FPM (.53 m/s)	8 (203) 105 FPM (.53 m/s)
Work Zone Inches (mm): Height Width Depth	25 1/2 (648) 46 3/8 (1178) 23 1/2 (597)	25 1/2 (648) 70 3/8 (1788) 23 1/2 (597)
Viewing Window Inches (mm): Standard is Tempered Sliding Glass Hinged Tempered Glass (optional)	1.0" (25mm) Closed 18 1/2 (470) Open 8 (203) Access Opening	1.0" (25mm) Closed 18 1/2 (470) Open 8 (203) Access Opening
Certification Exhaust Value CFM/CMH Concurrent Balance Value CFM/CMH +	270/460 282/479	410/697 474/805
Plant Duct Static Pressure Eng/Metric	0.7" w.g./18mm w.g.	0.9" w.g./23mm w.g.
Heat Rejected, BTU, Per Hour	543	774
Electrical: 115V/(230V) Volts, AC (Hz) ++Amps: Blower/Lights Amps: Duplex Amps: Total 12 ft. Power Cord (one)	U.L./U.L.-C (115V) 115, 60 2.6 3 10 14 GA - 3 Wire, 15A	U.L./U.L.-C (115V) 115, 60 4.5 3 12 14 GA-3 Wire, 15A
Crated Shipping Weight: Net Weight	600 lbs. / 272 kg. 550 lbs. / 249 kg.	790 lbs. / 358 kg. 740 lbs. / 336 kg.

**Remote controlled valve handles project through front faring. Decorative side panels are available to cover plumbing.
+Concurrent Balance Value shall be used for design and balance exhaust/supply HVAC requirements.
++Based on cabinet with new filters running at 115VAC.