PURCHASE SPECIFICATIONS : FOR NUAIRE LABGARD® ES ENERGY SAVER NU-560E (Series 1) BIOSAFETY CABINET

The intent herein is to provide a concise statement of requirements for a quality Class II, Type B2 Laminar Airflow Biosafety Cabinet which may be used to augment your purchase request/order.

The LABGARD® ES NU-560E meets the performance requirements of the NSF/ANSI 49. Your confidence is well placed in a Biosafety 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-560E meets all of the requirements in the following SPECIFICATION.

1. Dimensions Inches (mm)

Overall Dimensions	**NU-560-400E**	**NU-560-600E**
Width (W)	53 5/8 (1362)	77 5/8 (1972)
Depth (D) Armrest removed (Incl. Control Center)	32 3/8 (823)	32 3/8 (823)
Height (H) (Incl. Exh Filter Fastener)	62 (1575)	62 (1575)
Basestand, 30" W.S. (Incl. Exh Filter Fastener)	88 1/2 (2248)	88 1/2 (2248)
Basestand, 36" W.S. (Incl. Exh Filter Fastener)	94 1/2 (2400)	94 1/2 (2400)
Interior Dimensions		
Width (W)	46 3/8 (1178)	70 3/8 (1788)
Depth (D)+	26 (660)	26 (660)
Height (H)	25 3/16 (640)	25 3/16 (640)
+Measured at 8 inch (102mm) 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 single pass flow through design in which all HEPA filtered work zone and work access inflow air, is drawn through the cabinet's internal exhaust HEPA filter and exhaust duct work to a remotely located roof exhaust blower.

*c. Cabinet shall be constructed from 16/18GA, Type 304 stainless steel forming an all welded, monolith, 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.

*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 55 to 65 FPM (.28 to .33 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).

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*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 a large 2 inch (51mm) forearm support area with 1/2 inch (12mm) recessed front grill, designed for arm rest 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 .375 inches (10mm) closed to full opening at 18-1/2 inches (470mm).
- Cabinet shall have a large worktray (20 3/4 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. Electrical supply should be 230 VAC, 50/60Hz (current rating varies per cabinet size, reference Electrical Requirements Page 5) 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 four internal electrical circuits; one each for blower and lights and one for each single outlet. Each circuit shall be protected with a fuse located in the control center on the electronic module.

8. The cabinet shall be CE compliant to meet the requirements 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 thermister, 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.
- Security password protection.
- 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):

- 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.

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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 80 to 150 foot-candles (860 to 1600 LUX) on work surface.

*15. Cabinet shall come standard with one duplex outlet with drip proof covers on left front faring. One gas valve / one service coupling on right side wall.

16. Exhaust cabinet duct connections shall be 12 inches (305mm) in 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 16/18 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. Cabinet shall have a permanent positive pressure plenum with quick release supply filter removal.

*21. Motor/blower shall be positioned so as to create an even filter loading, thereby prolonging the life of the supply HEPA filter, automatically handling a 250% minimum increase in filter loading without reducing total air delivery by more than 10%.

*22. Cabinet shall be capable of front filter removal without disassembly of the control panel and sliding window tracks/hardware.

23. 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 Telescoping - (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
Sink with Hot/Cold or DI Water Faucets
Storage Pull-Out Trays
Decorative Side Panels (hides plumbing fixture connections)
Prefilter for Supply Air

HEPA Filters 99.999% @ 0.3 Micron
Arm Rest (Stainless Steel)
Elbow Rests

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

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LabGard® ES Energy Saver Class II, Type B2 Laminar Flow Biosafety Cabinet
Models NU-560-400E/600E

Catalog Number	Catalog Number	
	NU-560-400E **Nominal 4 foot (1.2m)**	**NU-560-600E** **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 B2	Class II, Type B2
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 16/18GA, Type 304 pressure tight design	All welded stainless steel 16/18GA, 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 (3/8 inch NPT) Outlet	 Three: Left middle, Left bottom, Right middle Sidewalls One, Right bottom Sidewall One, Left Front Faring	 Three: Left middle, Left bottom, Right middle Sidewalls One, Right bottom Sidewall One, Left Front Faring
Optional Services: Gas Cocks 3/8" NPT **Remote Controlled Valves Ultraviolet Light	Up to 3 ea. Sidewall Up to 3 ea. Sidewall One, Backwall	Up to 3 ea. Sidewall Up to 3 ea. Sidewall One, Backwall
Cabinet Size Inches (mm): Height (Fully Assembled) (Incl. Exh Filter Fastener) Height (Minimum for Transport) Width Depth (with Armrest & Faring w/outlet removed)	 62 (1575) 62 (1575) 53 5/8 (1362) 32 3/8 (823)	 62 (1575) 62 (1575) 77 5/8 (1972) 32 3/8 (823)
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 measured at 8 inches (203mm)	25 3/16 (640) 46 3/8 (1178) 26 (660)	25 3/16 (640) 70 3/8 (1788) 26 (660)
Viewing Window Inches (mm): Standard is Tempered Sliding Glass Hinged Tempered Glass (optional)	0.375 (10 mm) Closed 18 1/2 (470) Open 8 (203) Access Opening	0.375 (10 mm) Closed 18 1/2 (470) Open 8 (203) Access Opening
Certification Exhaust Value CFM/CMH Concurrent Balance Value CFM/CMH +	740/1257 815/1385	1122/1906 1275/2166
Plant Duct Static Pressure Eng./Metric	1.7 w.g./43mm w.g.	1.8 w.g./46mm w.g.
Heat Rejected, BTU, Per Hour	824	1020
Electrical: 115V Volts, AC (Hz) ++Amps: Blower/Lights Amps: Outlet Rated Amps: 12 ft. Power Cord (one)	CE 230, 50/60 1.0 3 7 14 GA - 3 Wire, 16A	CE 230, 50/60 1.3 3 7 14 GA - 3 Wire, 16A
Crated Shipping Weight: Net Weight	540 lbs. /245 kg. 490 lbs. /222 kg.	730 lbs. /331 kg. 680 lbs. /308 kg.

**Remote controlled valve handles project through front fairing. Decorative side panels are available to cover plumbing.
+Concurrent Balance Value shall be used for design and balance exhaust/supply HVAC requirements. Values provided are nominal. Design tolerances should be added for measurement and system differences.
++ Based on cabinet with new filters running at 230 VAC.

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