

**PURCHASE SPECIFICATIONS FOR NUAIRE
LABGARD ES ENERGY SAVER
NU-430 (Series 60) BIOLOGICAL SAFETY CABINET**

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

The LABGARD ES NU-430 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-430 meets all of the requirements in the following SPECIFICATION.

1. Dimensions Inches (mm)

Overall Dimensions	NU-430-300	NU-430-400	NU-430-600
Width (W)	37 5/8 (956)	53 5/8 (1362)	77 5/8 (1972)
Depth (D) (Incl. Control Center)	32 7/8 (835)	32 7/8 (835)	32 7/8 (835)
Height (H) (Incl. Exh Filter Fastener)	61 (1549)	61 (1549)	61 (1549)
Basestand, 30" W.S.	89 1/2 (2273)	89 1/2 (2273)	89 1/2 (2273)
Basestand, 36" W.S.	95 1/2 (2426)	95 1/2 (2426)	95 1/2 (2426)
 Interior Dimensions			
Width (W)	30 3/8 (772)	46 3/8 (1178)	70 3/8 (1788)
Depth (D)	23 1/2 (597)	23 1/2 (597)	23 1/2 (597)
Height (H)	25 1/2 (648)	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 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 16GA, 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; 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 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).

- *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 1-1/2 inch (38mm) 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 1.125 inches (29mm) closed to full opening at 18-1/2 inches (470mm).
 - Cabinet shall have a large worktray (17.250 inch (438mm) depth) (17.375 inch (441mm) depth, NU-430-300) 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. Electrical supply should be 115 VAC, 60 Hz (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 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 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.
 - 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 80 to 150 foot-candles (860 to 1600 LUX) on work surface. The ballast 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 gas valve/service couplings on right side wall.
16. Both supply and exhaust cabinet duct connections shall be 12 inches (305mm) (10 inches (254mm) NU-430-300) 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 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 - (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.

** NU-430-300 Containment test performed by NuAire, Inc.

**Labgard ES Energy Saver Class II, Type B2
Laminar Flow Biological Safety Cabinet
NU-430-300/400/600**

Catalog Number	Catalog Number		
	NU-430-300 Nominal 3 foot (0.9m)	NU-430-400 Nominal 4 foot (1.2m)	NU-430-600 Nominal 6 foot (1.8m)
Performance Specifications 1. Personal Protection 2. Product Protection	NSF/ANSI 49	NSF/ANSI 49	NSF/ANSI 49
NSF Std. No. 49 Class	Class 11, Type B2	Class 11, Type B2	Class 11, Type B2
Style of Cabinet	Bench Top/Console w/Basestand/ Storage Cabinet	Bench Top/Console w/Basestand/ Storage Cabinet	Bench Top/Console w/Basestand/ 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
Diffuser for Air Supply (Metal)	Non-Flammable	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	HEPEX Seal Neoprene, Spring loaded
Fumigation per NIH/NSF Procedure	Yes	Yes	Yes
Standard Services: Service Coupling (3/8 inch NPT) Gas Valve/Service Coupling (3/8inch NPT) Duplex Outlet	None Two, Right Sidewall One, Left Front Faring	None Two, Right Sidewall One, Left Front Faring	None Two, 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	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) 37 5/8 (956) 32 7/8 (835)	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)	8 (203) 105 FPM (.53 m/s)
Work Zone Inches (mm): Height Width Depth	25 1/2 (648) 30 3/8 (772) 23 1/2 (597)	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	1.0" (25mm) Closed 18 1/2 (470) Open 8 (203) Access Opening
Certification Exhaust Value CFM/CMH Concurrent Balance Value CFM/CMH+	496 (843) 546 (928)	754 (1281) 785 (1334)	1100 (1867) 1250 (2124)
Exhaust Duct Collar Dia. Inches (mm):	8 (203)	12 (305)	12 (305)
Plant Duct Static Pressure Eng/Metric	1.5" w.g. / 38mm w.g.	1.7" w.g. / 43mm w.g.	1.8" w.g. / 46mm w.g.
Heat Rejected,BTU,Per Hour	364	474	584
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 1.8 3 8 14 GA - 3 Wire, 15A	U.L./U.L.-C (115V) 115, 60 2.1 3 8 14 GA - 3 Wire, 15A	U.L./U.L.-C (115V) 115, 60 2.6 3 10 14 GA-3 Wire, 15A Std.
Crated Shipping Weight: Net Weight	510 lbs. / 209 kg. 460 lbs. / 231 kg.	570 lbs. / 259 kg. 520 lbs. / 236 kg.	760 lbs. / 345 kg. 710 lbs. / 322 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 115 VAC.