



PURCHASE SPECIFICATIONS : FOR NUAIRE LABGARD® HD ES ENERGY SAVER NU-581E BIOSAFETY CABINET

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

The LABGARD® HD ES NU-581E meets the performance requirements of the EN 12469, DIN 12980 and NSF/ANSI 49. Your confidence is well placed in a Biosafety 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® HD ES NU-581E meets all of the requirements in the following SPECIFICATION.

1. Dimensions Inches (mm)

Overall Dimensions	NU-581-400E	NU-581-500E	NU-581-600E
Width (W)	54 7/8 (1394)	66 7/8 (1699)	78 7/8 (2003)
Depth (D) (Armrest Removed) (Incl. Control Center)	33 (838)	33 (838)	33 (838)
Height (H) (Incl. Exhaust Grill) w/Basestand, 30" W.S.	86 7/8 (2207)	86 7/8 (2207)	86 7/8 (2207)
w/Basestand, 36" W.S.	92 7/8 (2359)	92 7/8 (2359)	92 7/8 (2359)
Interior Dimensions			
Width (W)	46 3/8 (1178)	58 3/8 (1483)	70 3/8 (1788)
Depth (D)+	26 1/8 (664)	26 1/8 (664)	26 1/8 (664)
Height (H)	28 1/2 (724)	28 1/2 (724)	28 1/2 (724)

+ Measured at 8 inch (203) window height.

2. Cabinet shall provide airflows & Biosafety 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 TUV NORD 400E and 600E only) and routinely validated by NuAire.
- * b. Cabinet shall be constructed from 16 GA, Type 304 stainless steel forming a monolithic, sealed structure.
- c. Cabinet shall be easily fumigated employing an established procedure such as that recommended by EN 12469, Annex J in conjunction with cabinet automated process.
- d. Supply HEPA filter 99.995% efficient at MPPS shall be of full cabinet work zone width and depth and be protected by a perforated metal diffuser covering the entire top of the work zone.
- * e. Exhaust HEPA filter shall be 99.995% efficient at MPPS.
- * f. Wedge HEPA Prefilters shall be 99.995% efficient at MPPS.
- * g. 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.
- h. Work access opening shall be 8 inches (203 mm) high.
Average Inflow velocity shall nominally be 105 LFPM (.53m/s).

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

- 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 23-11/16 inches (601mm) 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 an adjustable height leg assembly, manual standard or automated 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 (20-7/8 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® HD 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 230 VAC, 50/60 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, fluorescent light, each outlet, accessory connection and optional UV light. 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 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.
 - Clock display (24 hours) and timer function.
 - Control lights via solid state switch.
 - Control outlets via solid state switch.
 - Security password protection.
 - Display blower and optional UV light run time.
 - Display alarm setpoints high/low for error conditions (downflow/inflow).
 - Complete diagnostic functions.
10. Cabinet shall contain a control system that provides the following optional functional features (included with cabinet, must be configured during certification).
 - Night Care™ setback mode. Upon sliding window closure, 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 fluorescent 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.
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 60 dbA measured 19-11/16 inches (.5mm) in front center of the cabinet and 59 inches (1.5mm) above the floor
14. LED lighting shall be externally mounted and provide 90 (968) to 120 (1291) foot-candles (LUX) on work surface. The ballast is to be electronic containing thermal protection with automatic reset.
- 15.* Cabinet shall come standard with two 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. Two service couplings on left side wall.
- 16.* Cabinet work zone shall be all 16 GA. stainless steel and reinforced with stainless steel U channels to minimize vibration.
- 17.* A 3/8 (10 mm) inch security ball valve or stainless steel plug with welded fitting shall be provided in the drain trough beneath the work tray.
- 18.* Cabinet shall have a permanent positive pressure plenum with quick release supply filter removal.
- 19.* Motor/blower shall be positioned so as to create an even filter loading, thereby prolonging the life of the HEPA filters, automatically handling a 150% minimum increase in filter loading without reducing total air delivery by more than 10%.
- 20.* Cabinet shall be capable of front filter removal without disassembly of the control panel and sliding window tracks/hardware.
21. The following optional equipment shall be available to support installation and user requirements:
 - Auto Sliding Window
 - Ultraviolet Light
 - Additional Service Valves for Air, Vacuum or other gases
 - Natural gas service valve interlocked w/blower
 - Additional Outlet
 - IV Bar with 6 Stainless Steel Hooks
 - Exhaust Transitions - Canopy
 - Automated Adjustable Control for Leg Assembly Height
 - Arm Rest (Stainless Steel)

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LABGARD® HD ES Energy Saver Class II
Laminar Flow Biosafety Cabinet
 Models NU-581-400E/500E/600E

Catalog Number	Catalog Number		
	NU-581-400E Nominal 4 foot (1.2m)	NU-581-500E Nominal 5 foot (1.5m)	NU-581-600E Nominal 6 foot (1.8m)
Performance Specifications 1. Personal Protection 2. Product Protection	NSF/ANSI 49 EN 12469 DIN 12980	NSF/ANSI 49 EN 12469 DIN 12980	NSF/ANSI 49 EN 12469 DIN 12980
EN 12469 Class	Class II	Class II	Class II
DIN 12980 Type	Type H	Type H	Type H
Style of Cabinet	Console	Console	Console
Cabinet Construction Pressure Tight Design	All welded stainless steel 16GA, Type 304 14 GA HRS Base	All welded stainless steel 16GA, Type 304 14 GA HRS Base	All welded stainless steel 16GA, Type 304 14 GA HRS Base
Diffuser for Air Supply (Metal)	Non-flammable	Non-flammable	Non-flammable
HEPA Filter Seal Type: Supply Filter-99.995% Eff. on MPPS Exhaust Filter-99.995% Eff. on MPPS Wedge Prefilter-99.995% Eff. on MPPS	HEPEX Seal Neoprene Neoprene	HEPEX Seal Neoprene Neoprene	HEPEX Seal Neoprene Neoprene
Fumigation : Automated per EN 12469, Annex J Procedure	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
Optional Services: Gas Cocks 3/8" NPT Ultraviolet Light	Up to 3 ea. Sidewall One, Backwall	Up to 3 ea. Sidewall One, Backwall	Up to 3 ea. Sidewall One, Backwall
Cabinet Size Inches (mm): Height (Fully Assembled) Min / Max Height (Minimum for Transport) Width Depth (with Control Center) And Armrest Removed	86 7/8 (2207) /92 7/8 (2359) 79 3/8 (2016) 54 7/8 (1394) 33 (838)	86 7/8 (2207) /92 7/8 (2359) 79 3/8 (2016) 66 7/8 (1699) 33 (838)	86 7/8 (2207) /92 7/8 (2359) 79 3/8 (2016) 78 7/8 (2003) 33 (838)
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 measured at 8 inches (102mm) window height	28 1/2 (724) 46 3/8 (1178) 26 1/8 (664)	28 1/2 (724) 58 3/8 (1483) 26 1/8 (664)	28 1/2 (724) 70 3/8 (1788) 26 1/8 (664)
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
Required Exhaust Canopy Variable Range (NU-911) Canopy Fixed Range (NU-916)	CFM (CMH) 295-520 (502-884) 434 (737)	CFM (CMH) 365-590 (621-1003) 544 (924)	CFM (CMH) 436-661 (741-1124) 649 (1103)
Plant Duct Static Pressure Eng./Metric	0.05-0.1"/1.27-2.54mm H ₂ O	0.05-0.1"/1.27-2.54mm H ₂ O	0.05-0.1"/1.27-2.54mm H ₂ O
Heat Rejected, BTU, Per Hour (non-vented) (vented)	2669 157	2983 198	3140 198
Electrical: (CE marked): Volts, AC 50/60 Hz +Amps: Blower/Lights Amps: Each Outlet Amps: Total 12 ft. Power Cord (one)	230 3.4 3 10 14 GA - 3 Wire, 15A	230 3.8 3 11 14 GA-3 Wire, 15 A	230 4.0 3 11 14 GA-3 Wire, 15 A
Crated Shipping Weight:**** Net Weight	750 lbs. /340 kg. 700 lbs. /318 kg.	840 lbs. /381 kg. 790 lbs. /358 kg.	930 lbs. /422 kg. 880 lbs. /399 kg.
Sound Pressure Level per ISO 4871 ***	Not to exceed 58 dbA ■	Not to exceed 59 dbA ■	Not to exceed 60 dbA ■

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

+ Based on cabinet with new filters running at 230VAC.

*** Uncertainty is K = 2 dbA, measurement performed per ISO 11201 in normal running mode.

■ Reference the customer test report for procedure and results.