n-Laf

Biosafety cabinets, Isolators
and **Laminar Air Flow Solutions**
engineered by **experience**

n-Laf customized LAF solutions

nordic labtech

Special is our standard.

n-Laf

Table of contents

n-Laf

Engineered by experience

Nordic Labtech's Engineering Team has decades of experience when it comes to bespoke LAF-solutions.

We can custom manufacture clean air solutions completely according to our customers' needs and wishes. It can be about protecting only the product in a packing process with clean air, or protecting the operator and surroundings from potent substances, or both product and operator protection. We will find a suitable solution no matter what the requirements are.

Each project is unique and therefore we always begin with an accurate analysis of the needs and requirements. When that is made, we present a concept drawing of the equipment as a foundation for the Design Qualification which is carried out together with the customer. When the design is agreed upon, the next step is to make the final engineering and to produce the unit. The next step is Factory Acceptance Test to finally secure that the result is according to the requirements. After that the product can be shipped to the customer to be assembled and finally tested and qualified on site during IQ/OQ.

For our pharma customers we often deliver this kind of clean air solutions completely made in stainless steel.

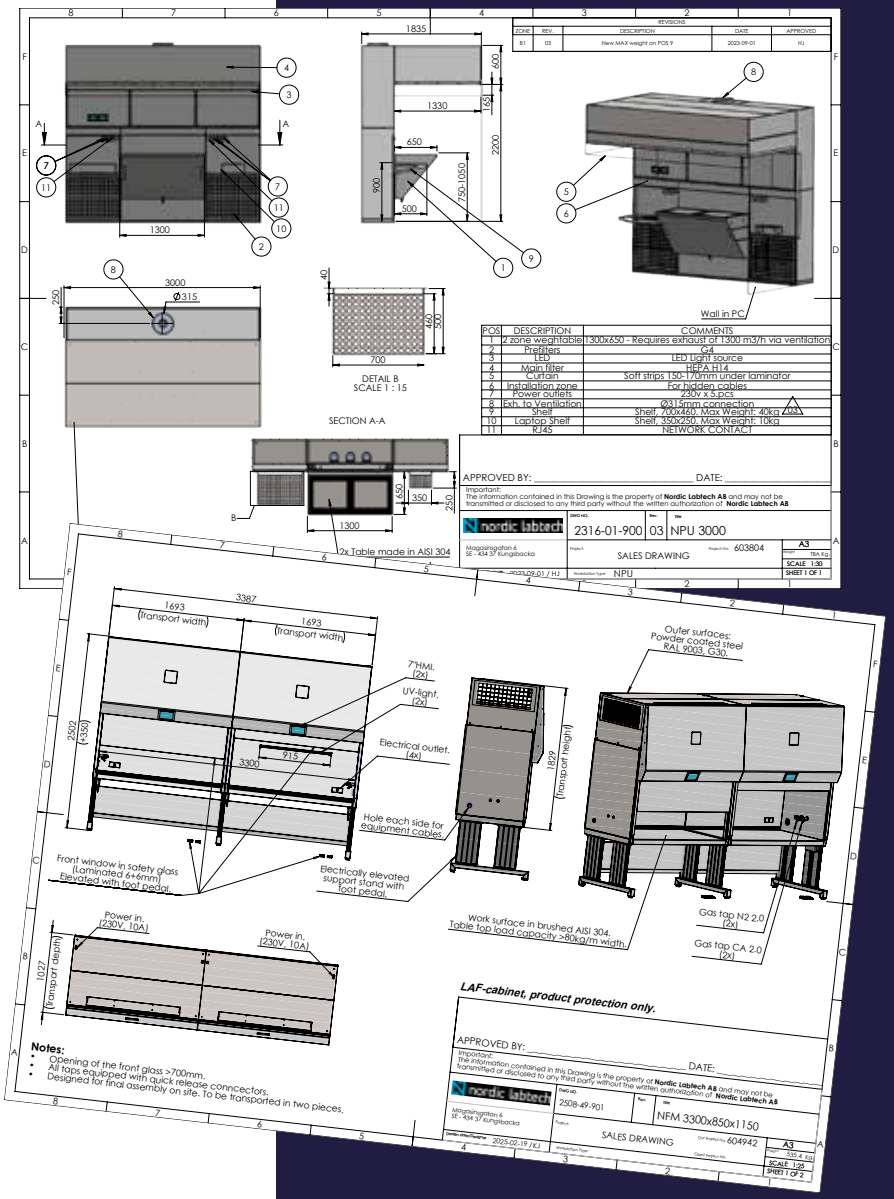
Customized Solutions

Our process for Custom and Bespoke Products

For all our projects involving custom or bespoke products, we follow a structured process that begins with a quotation based on the customer's requirements specification. Along with the quotation, we provide a draft drawing to clearly illustrate our proposed solution. Once we receive the purchase order, we initiate the design and engineering phase. Partway through the process, we conduct a Design Qualification, DQ, together with the customer, which includes a drawing for formal approval.

As soon as the DQ and the drawing are approved, we finalize the design and begin production of the specified product.

When the unit is completed, a Factory Acceptance Test is performed together with the customer. After that, the unit can be delivered for installation and final testing on-site, including Site Acceptance Test and IQ/OQ as applicable.



n-Laf NPU

n-Laf NPU for powder handling and sampling

The n-Laf NPU is a laminar airflow ceiling with internal recirculation of the air through the back wall. The air is pushed in a laminar airflow through HEPA H14-filters from the top of the unit and will then be sucked into the back wall to being re-circulated over the H14 filters again. A minor part of the air is exhausted to the room or to the HVAC-system of the facility – the same amount of air is taken in along the floor to secure the protection of the surroundings. The principle is like a BSC Class II, only in a larger scale. Provides protection both for the poduct and for the operator and the environment.

Can be made in any size.

The NPU can be equipped with a working table, fixed or electrically elevated for optimum ergonomics. The working table can also be ventilated for exceptional safety.

Latest fan and filter technology ensures lowest possible energy consumption. Bespoke induction barrier available as optional extra. Can be made as a soft curtain, whole or strips, or hard polycarbonate sheets with or without rails to be able to slide them to the side.

n-Laf NPU containment booth

- Product protection
- Operator protection
- Environmental protection

Technical specifications

Model		NPU 2000x1400	NPU 4100x2900	NPU 3400x3000
Worktable		With or without, fixed height or electrically elevated, optionally ventilated with process air		
External dimensions excl support, WxDxH	mm	2000x1900x2700	4100x3800x5000	3400x3700x3650
External dimensions incl support, table top at 800 mm, WxDxH	mm	1303x1176x2380	1603x1176x2380	1907x1176x2380
Ventilation				
Air flow speed down flow	**m/s**	Optimum performance at 0,30 (Variable from 0,1-0,6 m/s)		
Air flow, average downflow	m/s	0,1-0,6 ± 10 %		
Down flow volume typically	m3/h	**3000**	**13000**	**11000**
Exhaust air total typically	m3/h	500	1600	1400
Electrical data				
Voltage/current input	V/A	230 VAC +N+PF protected with 10A or 16A		
Energy consumption with clean filters	kW	0,4	1,6	1,4
Lights		**Very low energy consumption LED, min 800 Lux or more if required**		
Noise				
Noise level	dB(A)	**<56 at 0,30 m/s (Reduced speed < 50)**		
Fans		EBM or corresponding		
Filter Technology				
Mainfilters	type	**HEPA H-14, EN 1882**		
Laminator		PETP, pressure drop max. 40 Pa at 0.5 m/s		
Pre-filters		**G3 or G4**		

The NPU can be equipped with a working table, fixed or electrically elevated for optimum ergonomics. The working table can also be ventilated for exceptional safety. Tabletop can be made from stainless steel or other materials according to any specific need.

Media such as electrical oulets and gasses can be supplied to fulfill any requirement

n-Laf NFM - Laminar Air Flow ceiling

- Product protection

n-Laf NFM

n-Laf NFM Laminar Flow Ceiling

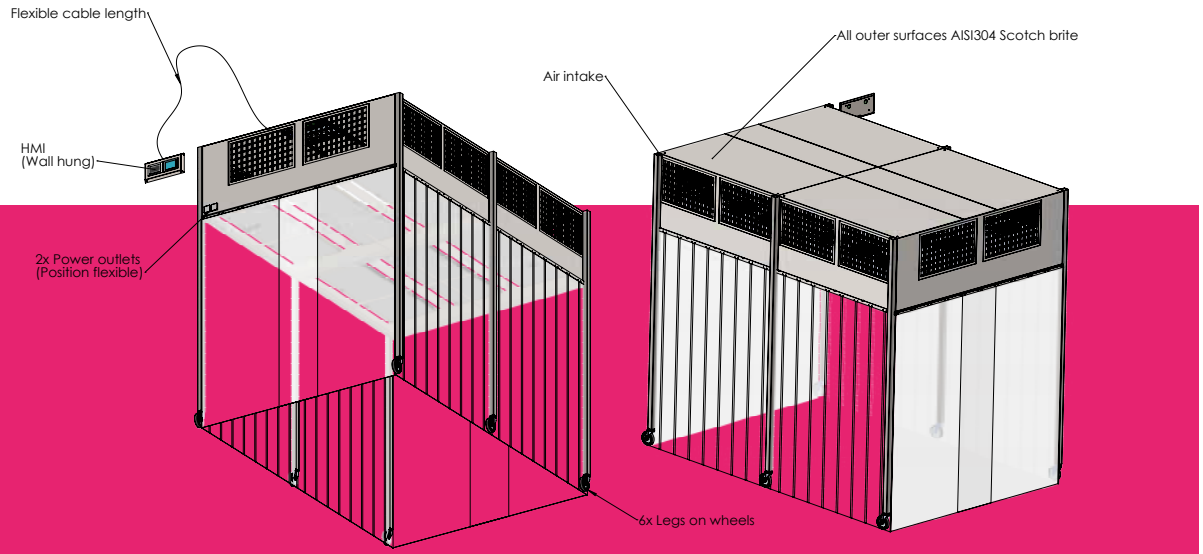
The n-Laf NFM is a laminar airflow ceiling providing clean air above e.g. a filling line or mixing station, or any other application where a clean environment needs to be provided. Better than ISO 5 is maintained below a n-Laf NFM.

Can be supplied in any size and with legs or to be suspended in the ceiling of the room.

The NFMs are equipped with efficient prefilters for extended lifetime of the main filters.

Latest fan and filter technology ensures lowest possible energy consumption.

Comes in powder coated steel but can optionally be supplied in stainless steel AISI 304 or AISI 316 when required



Technical specifications

Model		NFM 3000x2000	NFM 1500x1000	NFM 2600x800
Material		White powder coated steel or optionally stainless steel AISI 304 or AISI 316		
Exterior dimension, approximately W×D×H	mm	3000x2000x600	1500x1000x600	2600x800x600
Interior dimensions, approximately W×D	mm	3000x2000	1500x1000	2600x800
Ventilation				
Air flow speed down flow	**m/s**	Optimum performance at 0,30 (Variable from 0,1-0,6 m/s)		
Air flow, average downflow	m/s	0,1-0,6 ± 10 %		
Down flow volume typically	m3/h	**6500**	**1600**	**2300**
Electrical data				
Voltage/current input	V/A	230 VAC +N+PF protected with 10A or 16A		
Energy consumption with clean filters	**kW**	1,6	0,2	0,3
Lights		**Very low energy consumption LED, min 800 Lux or more if required**		
Noise				
Noise level	dB(A)	**<54 at 0,30 m/s (Reduced speed < 46)**		
Fans		EBM or corresponding		
Filter Technology				
Mainfilters	type	**HEPA H-14, EN 1882**		
Laminator		PETP, pressure drop max. 40 Pa at 0.5 m/s		
Pre-filters		**G3 or G4**		

Available in standard sizes but can be supplied in any required size.

n-Laf Air Shower

n-Laf Air Shower

Prevents contamination when entering a clean area or exit a contaminated area without changing clothes. The air shower is a unit for showering in HEPA-filtered air. It is a free-standing unit made for recirculation of HEPA filtered air. 100% of the air is recirculated through pre filters as well as H14 main filters. Prefilters can be EU4 or H14 depending on each need and application. The unit will therefore not influence the ventilation of the room. The unit is designed to be built into a wall and work like an air lock for the personnel.

The air shower is equipped with an adjustable built in fan in the top of the unit. The fan pushes the air through the main HEPA-filter and down between the double side walls at both sides of the unit. The air proceeds with very high velocity through the nozzles and will then be sucked, via the prefilters, back to the fan again. The lowest row of nozzles is positioned only 250 mm from the floor. The doors are electrically interlocked. N-Laf Air Shower is prepared for VHP connections decontamination with H2O2/VHP. Nozzles: totally 24 pcs – 12 pcs in each side. The lowest row positioned only 250 mm from the floor ensures high performance of the air shower, also in the lower part.

Comes in different versions – normal two doors version or with three doors to serve two different dressing rooms or two different laboratories.

The control unit is placed beside the doors and can be accessed from the clean side. Fan, filter, light fixtures, and control panel can be accessed from the inside of the unit. Signal lights are placed on both sides indicating when the other door is locked/open. On the inside control panel, a lamp indicates when the process is ready. Emergency switches, which open all doors immediately when activated, are placed on both sides as well as inside the unit.

The doors have gaskets in the sides and top and a tightening threshold lowering when doors are locked. They are surrounded with negative pressure eliminating leakage. Furthermore, the doors are equipped with windows.

Technical specifications

Model		n-Laf Airshower Compact	n-Laf Airshower HEPA prefilter	n-Laf Airshower 3-doors
Main filters	**type**		**HEPA H-14, EN 1882**	
Prefilters	type	G4	HEPA H-13, EN 1882	G4
Nozzles	**amount**		**12 in each side, totally 24**	
Air speed	m/s		>30 m/s	
Air changes			**1800 per hour**	
Interior dimensions (WxDxH), mm	mm	900 x 1200 x 2090	800 x 1300 x 2090	800 x 1300 x 2090
Exterior dimensions (WxDxH), mm	mm	**1300 x 1300 x 2800**	**1490 x 1380 x 2800**	**1490 x 2310 x 2800**
Noise level	dB(A)		<55 dB(A) outside and <83 dB(A) inside the unit	
Power consumption	**kW**		**4,5 kW in operation**	
Power supply	A/V		3x16A/400V	
Material			**Powder coated steel or optionally stainless steel. Parts in contact with the floor in stainless steel**	

n-Laf Cage Changing Station provides:

- Animal protection
- Operator protection
- Environmental protection

n-Laf NPU Cage Changing Station

Cage Changing Station

To make cage changing efficient, the n-Laf NPU Cage Changing Station is the optimum tool. With laminar air flow from H14 filters it provides a clean environment to protect the rodents and with the ventilated worktable it also provides protection for the operator. The worktable is electrically elevated for optimum ergonomics. On each side of the table automatic cage dispensers are situated – one for the stack of clean cages and another for the stack of dirty cages.

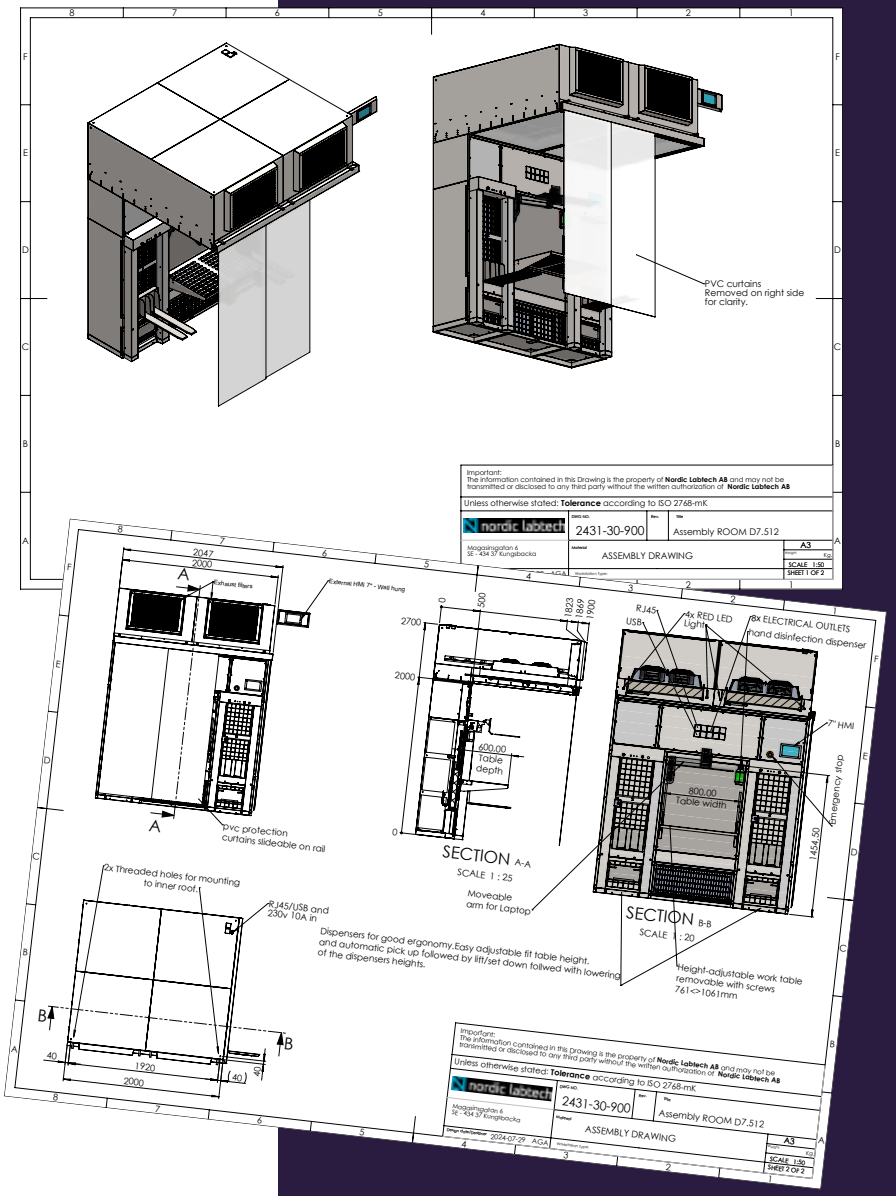
Behind the dispensers the back wall is ventilated to ensure the protection of the operator from dust from the cages.

Latest fan and filter technology ensures lowest possible noise level and energy consumption.

Can also be adapted for the placement of an emptying station in the LAF-zone to protect the operator and environment from dust when emptying old bedding from cages.

Technical specifications

Model		NPU Cage Changing Station 2000x1400
Material		**white powder coated steel or optionally stainless steel AISI 304 or AISI 316**
Worktable		With or without, fixed height or electrically elevated, optionally ventilated with process air
Cage dispensers		**Optional**
Dimensions		
Exterior dimension, W×D×H	**mm**	**2000x1900x2700**
Interior dimensions, W×D×H	mm	2000x1400x2000
Cage dispensers, W×D×H	**mm**	**Optional**
Ventilation		
Air flow speed down flow	**m/s**	Optimum performance at 0,30 (Variable from 0,1-0,6 m/s)
Air flow, average downflow	m/s	0,1-0,6 ± 10 %
Down flow volume typically	**m³/h**	**3000**
Exhaust air total typically	m³/h	500
Electrical data		
Voltage/current input	**V/A**	230 VAC +N+PF protected with 10A or 16A
Energy consumption with clean filters	kW:	0,4
Light:		**Very low energy consumption LED, min 800 Lux or more if required**
Noise		
Noise level	**dB(A)**	**<56 at 0,30 m/s (Reduced speed < 50)**
Fans		EBM or corresponding
Filter Technology		
Mainfilters	type	**HEPA H-14, EN 1882**
Laminator		PETP, pressure drop max. 40 Pa at 0.5 m/s
Pre-filters		**G3 or G4**



n-Safe receiving station provides:

- Animal protection
- Operator protection
- Environmental protection

n-Safe receiving station

Receiving station for the reception of rodents to animal facilities. Designed to be built into a wall. Laminar airflow inside the unit allows the animals to be unpacked and transferred to cages under safe conditions before bringing them into the facility. The principle is BSC Class II which provides protection for animals as well as operator and environment. Both downflow and exhaust are provided with H14-filters. 100% exhaust means no internal circulating air in the cabinet. The glass doors on both sides are interlocked and can only be opened one side at a time. The external window can be controlled from the non-clean side. Both windows can be controlled by the control panel on the clean side.

Technical specifications

Model		n-Safe receiving station 1200	n-Safe receiving station 1500	n-Safe receiving station 1800
External dimensions, WxDxH	mm	1303 x 930 x 2680	1608 x 930 x 2680	1913 x 930 x 2680
Internal dimensions, WxDxH	mm	1200 x 812 x 700	1505 x 812 x 700	1810 x 812 x 700
Front window opening, both sides	mm		200 (adjustable160-300)	
Work height	mm		900	
Weight				
Equipment	kg	420	455	495
Air velocity				
Vertical flow	m/s		0,28 (adjustable 0,25-0,50)	
Inflow	m/s		0,45 (adjustable 0,45-0,50)	
Deviation	±%		<8	
Noise				
Noise level, measured according to EN12469 measured under optimal conditions and settings	dB(A)	53	54	55
Ventilation				
Down flow rate	m3/h	680		
Exhaust flow rate	m3/h	780		
Filter Technology				
Main/exhaust	type		HEPA H14 EN1822, 99,999% at 0,3 µm particle size	
Light				
LED	Lux		0-2000, dimmable	
Electrical data				
Voltage frequency	V/Hz		220-240/50-60 or 110-120/50-60	
Power consumption, from	W	130	140	150

n-Laf surgery table for rodents

n-Safe surgery table is made from acid proof stainless steel AISI316. It has a heated perforated downdraft working area, which gives optimal safety against allergens and anesthesia gases for the operator. The heated perforated worktop is made from Corean.

The stainless-steel worktop can be manufactured in sizes up to 3600x800 mm. The ventilated work area as well as the induction box are integr ated into the stainless-steel tabletop. Also sink can be integrated into the tabletop. Designed with smooth surfaces for easy cleaning.

The recess under the perforated work area has a drain connection and can easily be cleaned with an optional shower handle.

Electrically elevated support stand for working height 700-1000 mm with control panel placed in the front of the table.

The bench's height is slim to achieve the best ergonomic conditions, and the lower part has a tapered shape forward to optimize seat space while sitting

The bench's height is slim to achieve the best ergonomic conditions and the lower part has a tapered shape forward to optimize seat space while sitting. Available space for legs at work height 900 mm is approximately 780 mm at knees position.

n-Safe Mobile Cage Changing Unit

n-Safe MCCu is a mobile cage changing station for safe work with the best possible ergonomics

- ninoSAFE MCCU is a completely new developed unit – True Innovation!
- It contains the latest technology in filters and fans as well as controller
- Compact design
- High quality silent wheels, one pair lockable
- Super silent operation with noise level <52 dB(A)!
- Full operator protection – fully EN12469 compliant with >0,42 m/s inflow with both sides open!
- Double ventilated tabletops prevent any cross contamination between right and left side
- Several table tops options in different material to choose from
- Low weight <200 kg makes it easy to move
- High light intensity – dimmable 0-1500 Lux
- Electrically elevated support, programmable for different users
- Worldwide remote support for fast and easy service
- Easy-to-change prefilter cassettes
- H14 filters for supply and exhaust air
- Optional activated carbon filter for exhaust air – reducing e.g. carcinogenic gasses as well as odours
- Optional autoclavable stainless steel food doser
- Optional battery backup for running the unit w/o electrical connection
- Silent operation <52 dB(A).

- Superior operator and animal protection

Technical specifications

Model		n-Safe MCCU 1300	n-Safe MCCU 1600
External dimensions, approximately W×D×H	mm	1295 x 795 x 1935-2285	1595 x 795 x 1935-2285
Internal dimensions, approximately W×D	mm	1045 x 677	1345 x 677
Front window opening	mm	350 / 700 (open)	350 / 700 (open)
Work height, standard support stand	mm	854-1204	854-1204
Minimum door way	mm	800	
Weight			
Equipment	kg	195	220
Air velocity			
Vertical flow	m/s	0.28 (adjustable 0.25 -0,38)	
Inflow	m/s	0,42	
Deviation	±%	<8	<8
Noise			
Noise level ISO3744	dB(A)	52	54
Ventilation			
Down flow rate	m3/h	710	920
Exhaust flow rate	m3/h	2060	2350
Filter Technology			
Main/Exhaust	type	HEPA H14 EN1822, 99,999% at 0,3 µm particle size Optional exhaust activated carbon	
Light			
LED	Lux	0-1500, dimmable	
Electrical data			
Voltage/current input	V/Hz	220-240/50-60 or 110-120/50-60	
Power consumption, from	W	100	130

- Operator protection
- Environmental protection

n-Safe Duo

Double sided Biosafety cabinet Class II allowing two operators to work opposite one another at the same time. Like an ordinary BSC Class II-cabinet it provides product-, operator- and environment protection.

It comes with a 7” intuitive touch screen control panel on each side of the cabinet, alarms for downflow and inflow as well as incorrect position of the front windows.

Can be delivered ether with fixed support stand or electrically elevated support stand. UV-light is available as optional extra.

Technical specifications

Model		NFM 3000x2000	NFM 1500x1000	NFM 2600x800
Material		White powder coated steel or optionally stainless steel AISI 304 or AISI 316		
Exterior dimension, approximately W×D×H	mm	3000x2000x600	1500x1000x600	2600x800x600
Interior dimensions, approximately W×D	mm	3000x2000	1500x1000	2600x800
Ventilation				
Air flow speed down flow	**m/s**	Optimum performance at 0,30 (Variable from 0,1-0,6 m/s)		
Air flow, average downflow	m/s	0,1-0,6 ± 10 %		
Down flow volume typically	m3/h	**6500**	**1600**	**2300**
Electrical data				
Voltage/current input	V/A	230 VAC +N+PF protected with 10A or 16A		
Energy consumption with clean filters	**kW**	1,6	0,2	0,3
Lights		**Very low energy consumption LED, min 800 Lux or more if required**		
Noise				
Noise level	dB(A)	**<54 at 0,30 m/s (Reduced speed < 46)**		
Fans		EBM or corresponding		
Filter Technology				
Mainfilters	type	**HEPA H-14, EN 1882**		
Laminator		PETP, pressure drop max. 40 Pa at 0.5 m/s		
Pre-filters		**G3 or G4**		

n-Safe Pharma

n-Safe Pharma

The entire n-Safe range of cabinets is now available in Pharma-grade design. Tailored to your exact needs, we offer top-tier customizations, ensuring your specifications are met with precision. From design to materials and rigorous testing, our products adhere to the highest industry standards, guaranteeing unmatched quality and reliability. Elevate your workspace with confidence, knowing that every aspect of our n-Safe lineup is engineered to exceed expectations. Experience peace of mind with our commitment to excellence, delivering solutions that prioritize safety, efficiency, and performance.

Total Quality

Compliant with key elements of GMP Annex 1, our n-Safe Pharma adheres to stringent quality standards. We prioritize meeting cGMP requirements, ensuring your facility operates at the highest level of regulatory compliance. Trust in our commitment to delivering products that exceed industry standards, safeguarding your operations and enhancing overall quality assurance.

Stainless Steel

The n-Safe Pharma series is available in AISI304 or AISI316, ensuring superior cleanability and tailored cleanroom designs. Surface quality is customizable, typically ≤ 0.5 µm, with full traceability through material certificates and surface finish test reports provided for individual each product.

Validation
Elevate your laboratory standards with our comprehensive IQ and OQ validation services for microbiological safety cabinets. Ensure regulatory compliance and optimize performance. Contact us today to secure your processes and achieve superior results.

- Product protection
- Operator protection
- Environmental protection

n-Lock Air Locks & Decon Hatches

Superior Contamination Control

Ensure maximum protection and contamination control with n-Lock Air Locks & Decon Hatches – the ultimate solution for biolabs, cleanrooms, and high-security environments.

Advanced Technology – Choose from passive, active, or models with built-in decontamination spray systems, heated or cooled.

Smart Control – Intuitive microprocessor-based interface for seamless operation, or cost effective interlock, depending on requirement

Uncompromised Safety – Tight doors with gasket and compressing handle and optional bioseal provides a secure barrier.

Hygienic & Durable – Stainless steel, AISI 304 or optionally AISI 316, interior ensures longevity and easy maintenance.

Passive and active models – Active models come equipped with built-in HEPA filter cartridges for optimal air purification.

Flexible Installation – Can be placed side by side for an efficient layout.

Clear Visibility – Large see-through doors for easy monitoring and safe handling.

Whether you operate in **biotechnology, pharmaceuticals, or high-security facilities, n-Lock Air Locks & Decon Hatches** deliver **unmatched reliability and protection** for contamination control.

n-Safe Isotope

Biosafety Class II cabinets for nuclear medicine handling

n-Safe Isotope cabinets are available with a lead shielding of 1-50 mm Pb, depending on the customer's requirements. The bottom, sides and rear wall of the cabinet can be covered with 1-50 mm lead plates, which are mantled in stainless steel. n-Safe Isotope cabinets also feature a slidable front on ball bearings made of 1-50 mm Pb-equivalent lead glass.

For more than 30 mm Pb-equivalent the front can be split in two for best possible ergonomics. As optional extras we offer integrated single or double waste chambers and dose calibrators, which can be integrated in the tabletop – both options are 1-50 mm Pb lead shielded and the dose calibrators can be combined with a computer monitor in the rear wall. Furthermore we offer generator storage with 50 mm Pb all around, for two Technetium-99m generators with an integrated elevator, which can be fitted at the left or right side of the tabletop and which can be used for the most common generators in the market.

n-Safe Isotope cabinets are available in 1200, 1500 and 1800 sizes and are configurated according to each customer's specific needs.

nordic labtech

About Nordic Labtech.

Our business concept is to offer high-tech products and solutions within advanced protective ventilation, LAF equipment and incubators, heating and climate cabinets to customers in research, hospitals and pharmaceutical as well as other industries.

We provide technical and financial added value, that helps our customers to optimize processes and applications. Our products are sold by distributors in most European countries and the rest of the world.

Our History

2013
Nino Labinterior (NLI) is founded.

2014
Developed and launched customized laminar airflow solutions for pharmaceutical and animal research facilities.

2015
Developed and launched n-Safe Isotope for nuclear medicine applications.

2016
Developed and launched n-Safe biological safety cabinets on the Scandinavian market Public Health, UK certifies n-Safe Class II safety cabinet.

2017
Developed together with Karolinska Institute and launched n-Safe mobile cage changing units on the Scandinavian market ISO9001 and ISO14001 certified.

2018
NLI introduces the widest range of safety cabinets on the European Market, Achema Frankfurt. This year NLI is also appointed the largest project for safety cabinets in Scandinavia, Veterinary Institute in Oslo being the largest University building in Norway.

2019
NLI acquires Termaks A/S, a leading manufacturer of ovens and incubators in Scandinavia, by asset acquisition
TUV Nord certified manufacturer of biological safety cabinets.

2020
NLI market leader in Scandinavia for standard safety cabinets, customized laminar airflow solutions and controlled environment, ovens and incubators Partners in Europe (Germany, Benelux, Switzerland among others) establishes a strong position for NLI products on the European market.

2021
NLI is appointed the largest project for safety cabinets in Europe by MEET/RIVM in Utrecht, Netherlands. New long term majority owner Screen Capital, committed to invest for our future expansion.

2022
NLI is appointed several large contracts/projects in Norway making us the absolute market leader also in Norway.
The company is rebranded from Nino Labinterior to Nordic Labtech (NLT).

2023
NLT take our new production facility in use – the largest and most modern facility in Europe, for manufacturing of BSC/LAFs and incubators.

2024
NLT is appointed the contract of all BSCs and Laminar Flow cabinets, in total 180 cabinets, to Statsbygg's Livsvitenskapsbygget in Oslo Norway.

Special is our standard.

n-Laf

Contacts.

www.nordiclabtech.com

info@nordiclabtech.com

+46 (0) 300 358 50

Äskatorpsvägen 4,
SE-439 74 Fjärås, Sweden

nordic labtech