

High Purity Filtration Solutions

AstroClean LAF **Laminar air flow ceiling filtration system**



AstroClean LAF

LAMINAR AIR FLOW CEILING FILTRATION SYSTEM

Product description

In terms of air purity, operating theaters are probably the most demanding environments in a hospital. In order to protect patients from the risk of infection from contaminated air during a surgical procedure, the permanent removal of airborne particles using suitable filtration solutions is essential.

Based on many years of experience in the healthcare sector, as well as experience from countless projects for companies operating cleanrooms, AAF knows the requirements for ultra-clean environments and the special challenges in operating theaters with regard to airflow, required filtration efficiency and possible causes of contamination.

Our laminar air flow unit AstroClean LAF was developed for new installations or for retrofitting of existing operating

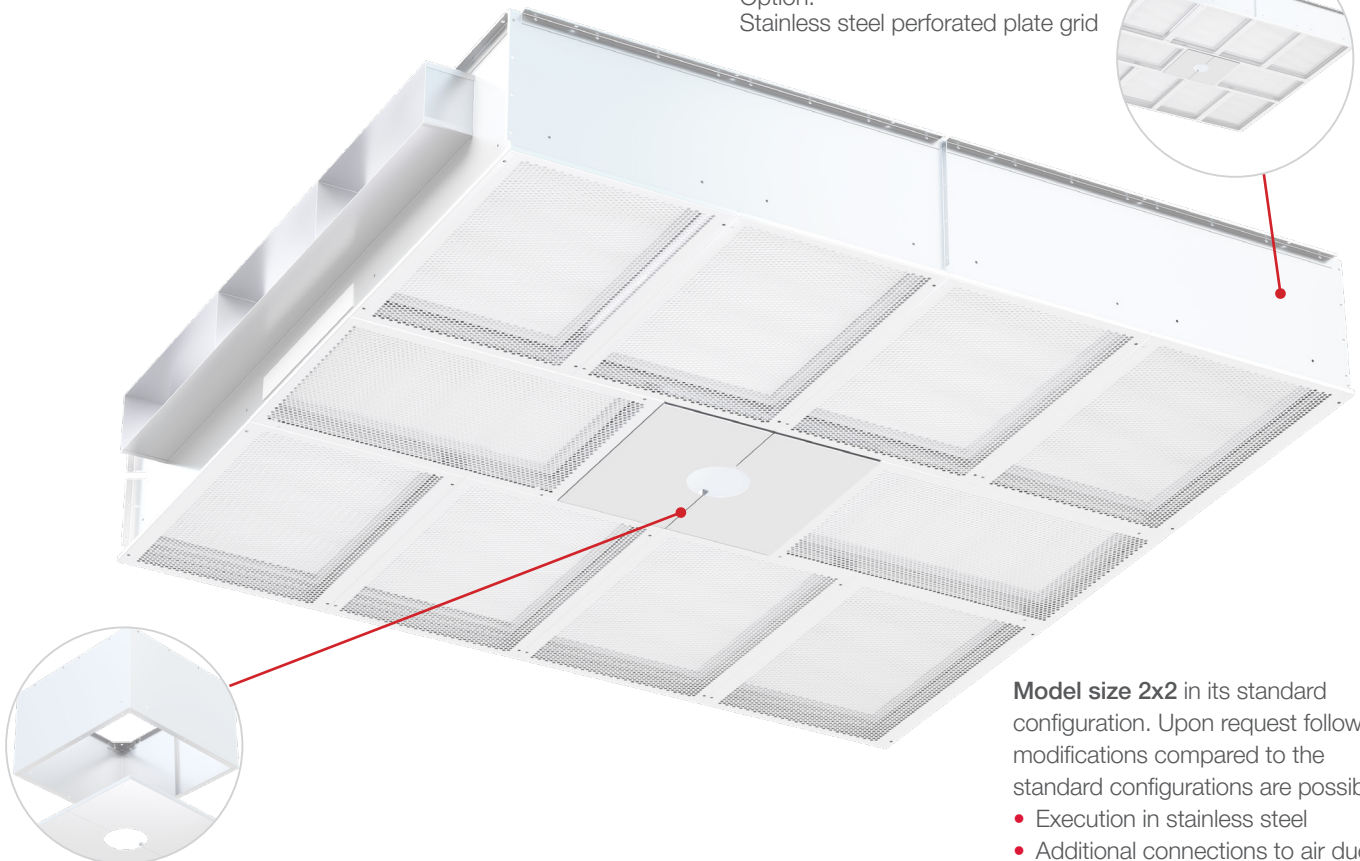
theatres. The housing construction includes a plenum equipped with absolute filters with either H14 or U15 filtration efficiency. The plenum serves as pressure chamber upstream of the terminal absolute filters and includes a sealed central box for the installation of scalytic lights.

AstroClean LAF is a reliable and easy-to-install ceiling filter housing that includes a very simple and reliable filter locking system and a flow diffusion grid which generates an unidirectional airflow across the entire surface of the housing. Specially designed for operating theatres AstroClean LAF meets the requirements of the NFS 90-351 standard.

Finishing and filter protection

Standard:
Perforated sheet metal grille RAL 9010

Option:
Stainless steel perforated plate grid



Passage of the operating arm
Central through sealing plug
with sealing gasket

Model size 2x2 in its standard configuration. Upon request following modifications compared to the standard configurations are possible:

- Execution in stainless steel
- Additional connections to air ducts
- Flange on connection
- Reduced housing height
- Special diameter for scalytic lamp

Standard configurations

Housing material and construction	<ul style="list-style-type: none"> • RAL 9010 painted steel sheet • 25 mm flange in the lower part for installation of the false ceiling • Angular steel equipped with fixing holes (Ø 10 mm every 50 cm) in the upper part for fixing to the slab
Duct connection	Side air intake through a rigid spigot (height 200 mm - depth 150 mm)
Filter support frame configuration	<ul style="list-style-type: none"> • RAL 9010 painted steel sheet • Self-supporting frame in the lower part where the filters are placed • Contact interface perfectly sealed, with no chance of leakage • Assembly of frame/frame and frame/plenum at the factory • Depending on housing dimension 4 or 6 stainless steel fasteners for the filters • 4 inserts used to fix grids or covers
Filter recommendation	Housing fitted with AstroCel II H14/U15 or as an alternative MEGAcel II H14 filters
Surgical lamp connection	<ul style="list-style-type: none"> • RAL 9010 painted steel sheet • Airproof part in the frame center • Pressure socket with plastic tube that allows the integrity test or the measurement of the filter obstruction from the room • Easy access to the scialytic light housing via 2 airproof removable plates
Outlet flow diffuser	Included. 40% perforated plate painted in RAL 9010
Pressure plug	Included. Pressure plug (Ø 7 mm) on the surgical light

Features and Benefits

- Designed for the use in operating theaters
- As a standard available in RAL 9010 painted steel
- Leak free construction
- Eight standard dimensions with a standard height of 450mm
- Design for airflows ranging from 2.350 up to 12.400 m³/h
- As a standard designed to include a surgical lamp
- Also available without surgical lamp socket
- High efficiency HEPA 14 or ULPA 15 filter efficiency
- Fulfills NFS 90-351 standard

Available as an option



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Standard dimensions

Size	Overall dimensions (mm)	Spigot dimensions (mm)	Scialtyc diameter (mm)	Max. Scialtyc diameter possible (mm)	Nr. of housing parts	Number of filters per size (mm)	Total weight with filters and grids (kg)
2 x 1,5	2060 x 1330 x 450	1000 x 200 x 150	190	490	1	(2x) 1220*610 + (2x) 305*610	"missing"
2,5 x 1,5	2730x1330x450	1000x200x150	190	490	1	(3x) 1220*610 + (2x) 610*305	202
2 x 2	2060x2000x450	1550x200x150	190	560	2	(4x) 915*610 + (2x) 610*610	202
2,5 x 2	2610x2060x450	1550x200x150	190	560	2	(4x) 1220*610 + (2x) 915*610	245
3 x 2	2975x2060x450	1800x200x150	190	620	2	(7x) 915*610 + (1x) 1220*610	264
2,5 x 2,5	2730x2670x450	2100x200x150	190	620	2	(10x) 915*610	330
3 x 2,5	3280x2730x450	2350x200x150	190	620	4	(8x) 1220*610 + (2x) 915*610	390
3,5 x 3	3400x3280x450	2950x200x150	190	620	4	(12x) 1220*610	455
4 x 3	4070x3280x450	3580x200x150	190	620	4	(14x) 1220*610 + (2x) 610*305	534

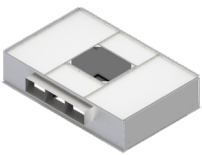
Filter ceiling selection according to NFS 90-35¹

Size	Airflow as a function of speed (m ³ /h)		
	0,25 m/s	0,30 m/s	0,35 m/s
2 x 1,5	1,640	1,970	2,300
2,5 x 1,5	2,350	2,840	3,280
2 x 2	2,660	3,190	3,725
2,5 x 2	3,700	4,390	5,140
3 x 2	4,200	5,335	5,852
2,5 x 2,5	5,000	6,000	7,000
3 x 2,5	6,350	7,600	8,860
3,5 x 3	8,000	9,640	11,270
4 x 3	9,700	11,625	13,560

Available sizes in their associated housing parts

The filter ceilings, depending on the size, can be produced in several parts (2, 3 and also 4 in the standard versions) to facilitate handling on construction site and more easy transport to operating rooms. All parts are factory tested for correct matching before shipping.

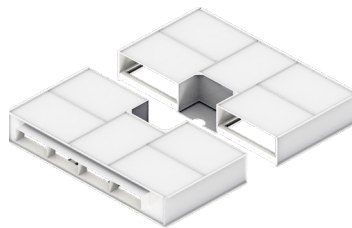
2 x 1,5



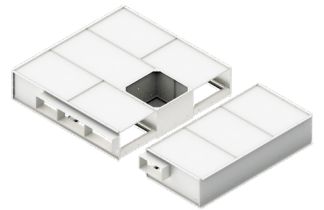
2,5 x 1,5



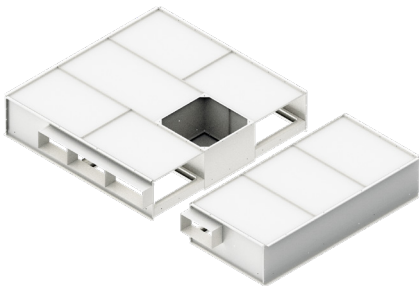
2 x 2



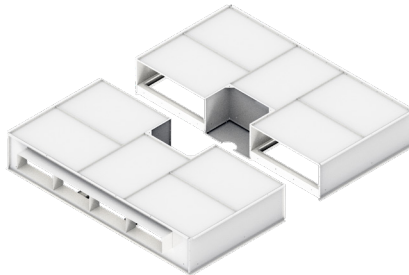
2,5 x 2



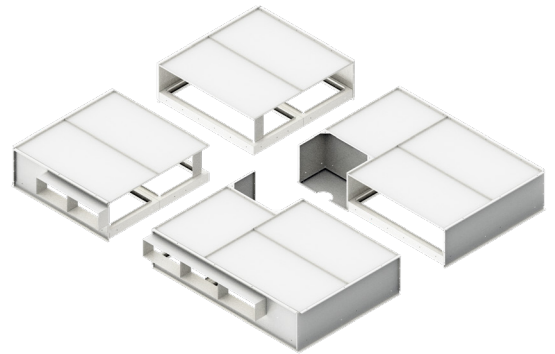
3 x 2



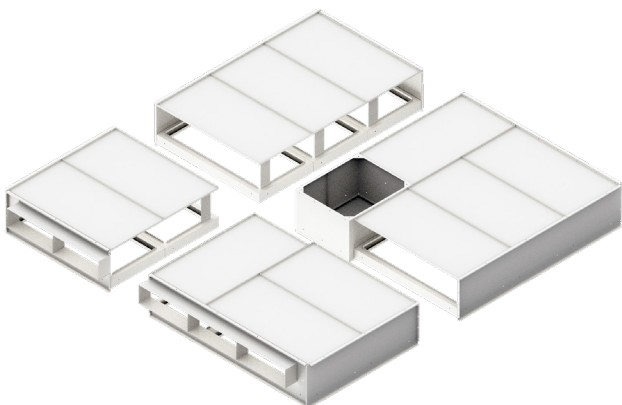
2,5 x 2,5



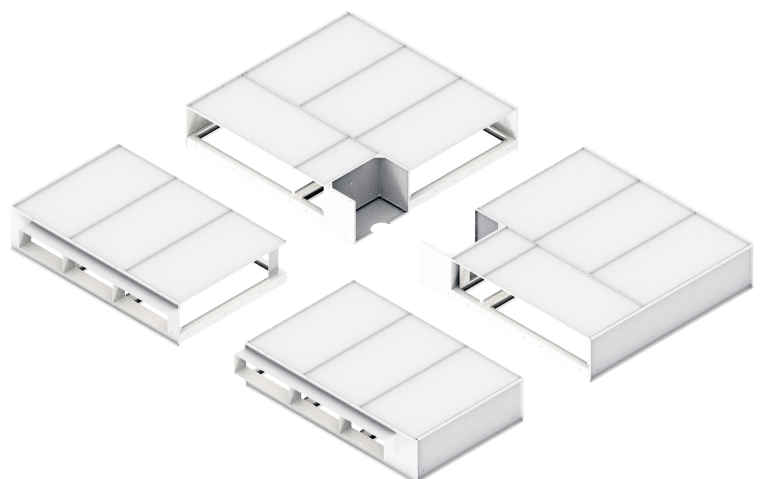
3 x 2,5



3,5 x 3



4 x 3



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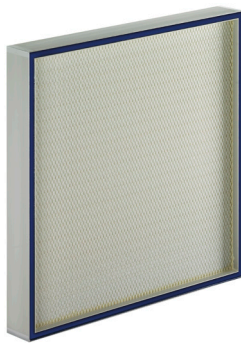
LAMINAR AIR FLOW CEILING FILTRATION SYSTEM

Filter recommendation

The AstroClean LAF is equipped with an AstroCel II HEPA filter in Class H14 as a standard. All filters are factory scanned to the European Standard EN1822 to ensure leak free operation.

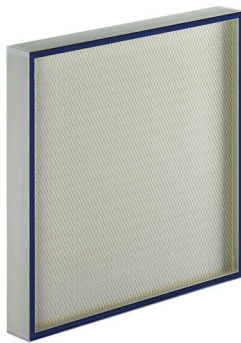
- Additionally, the AstroClean LAF is suitable for our high performing, energy efficient, MEGAcel II filters with maximum filter strength, superior resistance against disinfectants and lowest pressure drop.

AstroCel II



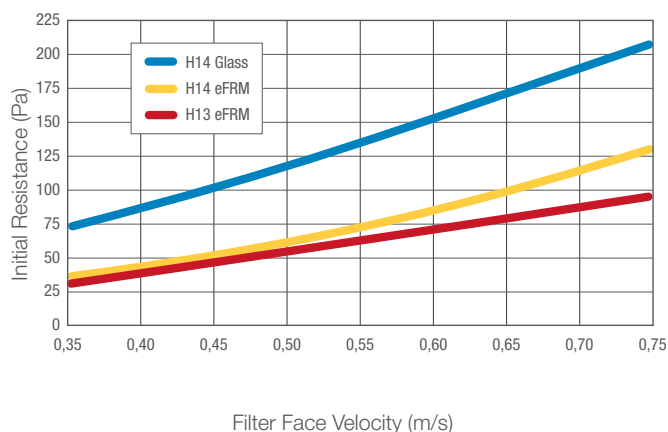
- Available with H14 and U15 efficiency according to EN1822
- Utilizes high performance microglass media to provide high efficiency particulate removal
- Optimally spaced mini-pleat media pack further minimizes pressure drop in this cleanroom panel configuration
- Compatible with Discrete Particle Counter (DPC) and photometric test methods
- Filter depth 69, 93 and 117 mm

MEGAcel II



- Available in H14 efficiency according to EN1822
- Dual-layer eFRM media combines ultra-high efficiency and particulate loading with low pressure drop
- High tensile strength and chemically inert
- eFRM reduces risk of media damage and degradation
- No outgassing
- Compatible with Discrete Particle Counter (DPC) and photometric test methods, including high concentration oil-based aerosol testing
- Filter depth 69 mm

MEGAcel II + AstroCel II Initial Resistance vs. Filter Face Velocity



	Filter Face Velocity (m/s)				
	0.35	0.45	0.55	0.65	0.75
H13 eFRM	28	43	60	77	94
H14 eFRM	35	51	71	97	130
H14 Glass	73	100	135	160	200

Note: Values based on measurements, not published target or maximum values; actual results may vary slightly.

Services

FOR HEALTHCARE FACILITIES

Based on our years of experience in equipping high-purity areas with the right air filtration solutions, we know that system integrity is the key criterion for keeping sensitive environments permanently free of harmful contaminants. In addition to selecting the appropriate equipment, it is essential to install it properly and to maintain it professionally throughout its operation. Therefore, services around the installation and during operation are an essential part of system integrity.

Our services for the healthcare sector:

- Plant design consulting with special focus on system integrity, filtration and energy efficiency
- Development of a customized solution if necessary
- Installation of components such as housings, filters, ceiling elements
- Measurement and setup of all air and filtration relevant parameters such as air flow, speed, pressure drop, temperature, hygrometry, air change rates, air distribution
- Clean room classification according to ISO14644
- Microbial monitoring
- Aerial decontamination
- Particle counting
- Housing, plenum and grid inspection including cleaning
- Filter replacement
- Integrity/leak testing (Emery or DEHS test aerosol)
- Recovery testing
- Qualification control and documentation according to applicable standards

Together with our partner network of proven specialists, we can provide these services for cleanrooms and healthcare facilities on site. Our network of in-house technicians as well as close cooperation with selected local service partners guarantees short response times and close cooperation with our customers from the planning phase, through installation and validation, to routine maintenance.



Please note: The full catalogue of services is not available in all countries.

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