KEYSTONE
Clean Air Solutions

Aspire

Laminar Flow Diffuser with HEPA Filter

CATALOG

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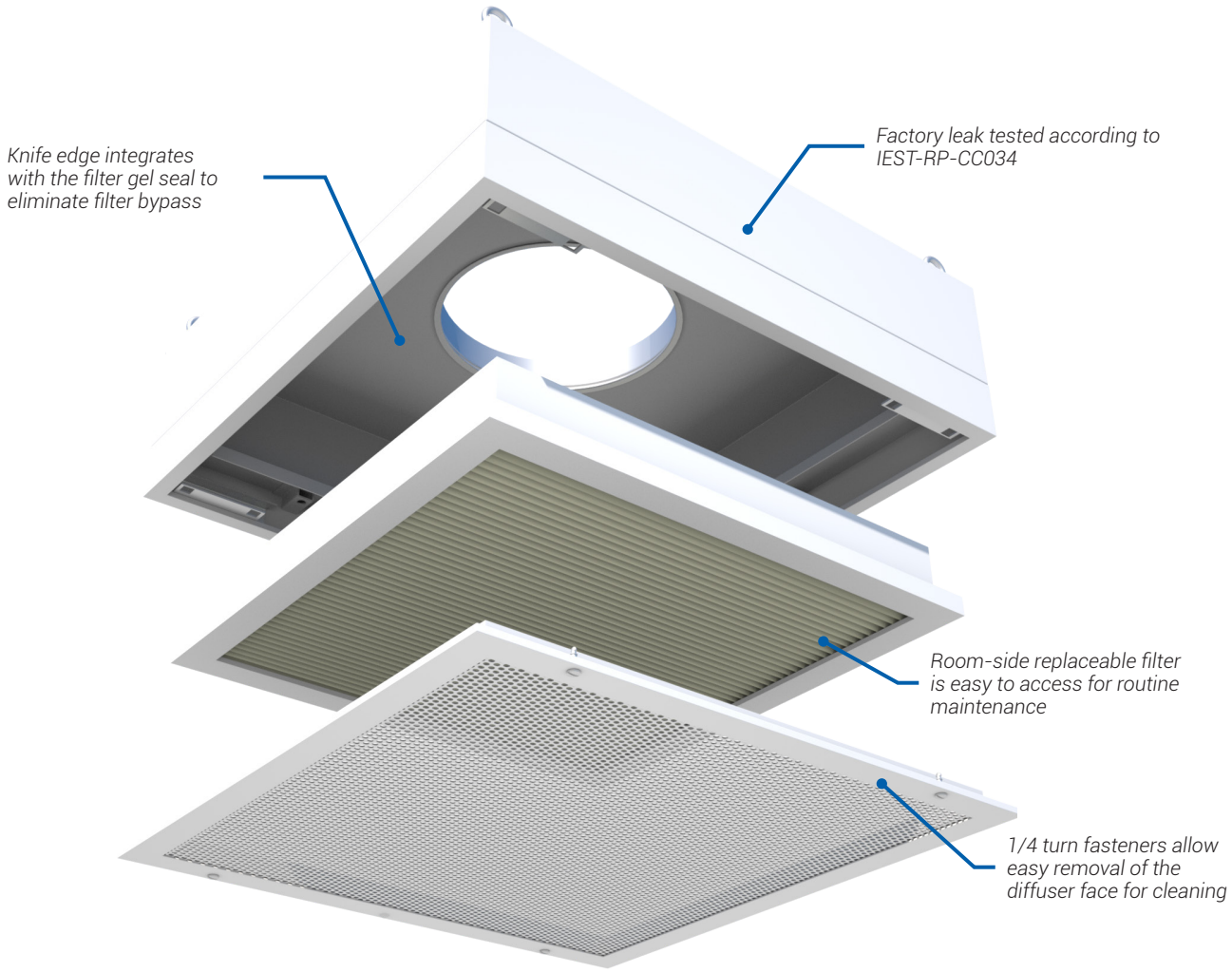
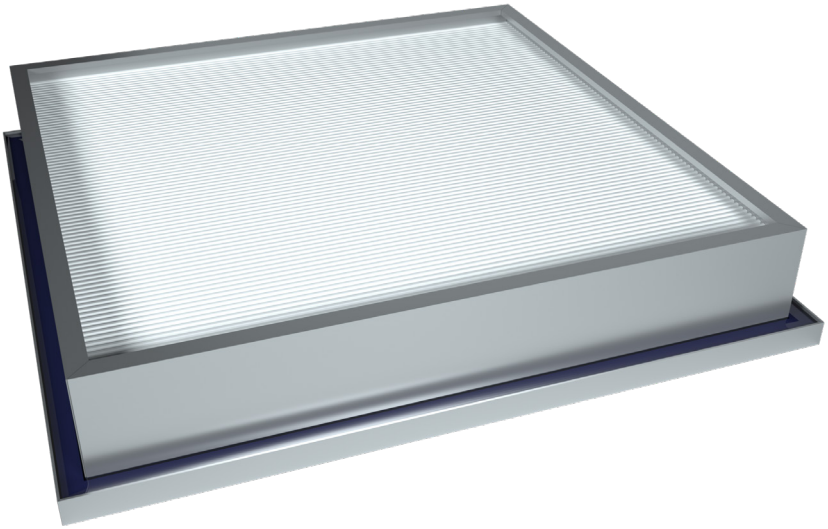
The Aspire laminar flow diffuser with HEPA filter has been designed to suit the stringent requirements of modern cleanrooms. The Aspire provides a means of controlling particle concentration within a room by providing uni-directional laminar airflow with low initial face velocity, supplying clean air to the space without entrainment of contaminated air from the occupied space.



Room-Side Replaceable Filter

- Convenient access from the room-side for periodic filter replacement.
- Gel seal filter frame and diffuser “knife edge” flange create a reliable seal to prevent filter bypass.
- Optional factory supplied HEPA filter removes 99.99% of contaminants.



Cleaning & Maintenance

- Aspire Laminar Flow Diffuser units satisfy all ASHRAE 170 requirements for diffuser cleaning and maintenance.
- Powder coat paint finish is formulated for routine exposure to hospital grade cleaning solutions and disinfectants.
- 1/4 turn fasteners and retainer cables provide straightforward and convenient access to the filter and knife-edge frame.

TYPICAL APPLICATIONS

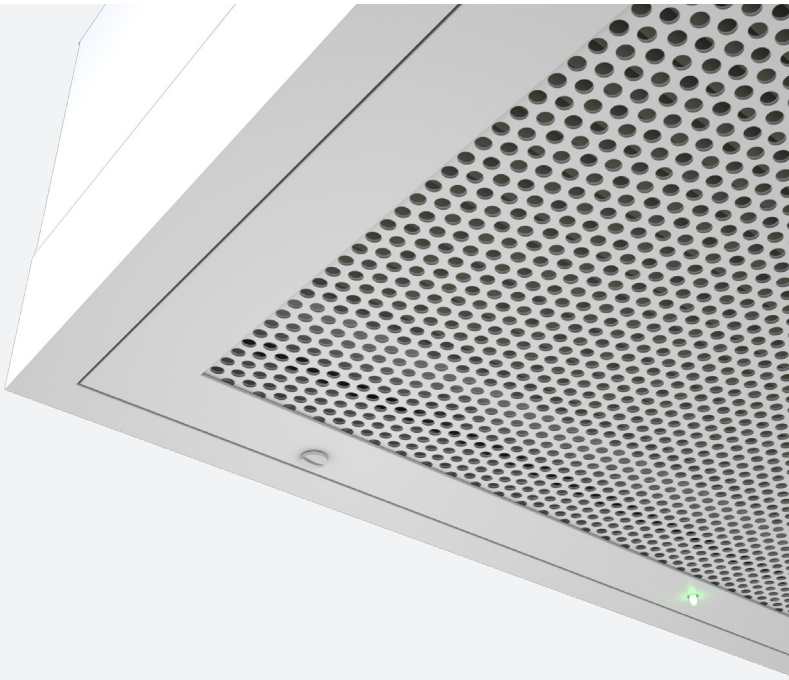
The Aspire Laminar Flow Diffuser is classified as an ASHRAE group E non-aspirating diffuser and meets all ASHRAE 170 performance and construction requirements. Filtered laminar flow diffusers are required by code or commonly used in operating rooms, laboratories, pharmacies, pharmaceutical manufacturing facilities, and other clean spaces.

CONSTRUCTION

- Material
  - Aluminum
  - Stainless steel
- Options
  - LED filter status indicator
  - Room-side adjustable damper
  - Aerosol test system
  - Equalization basket
  - Casing Insulation

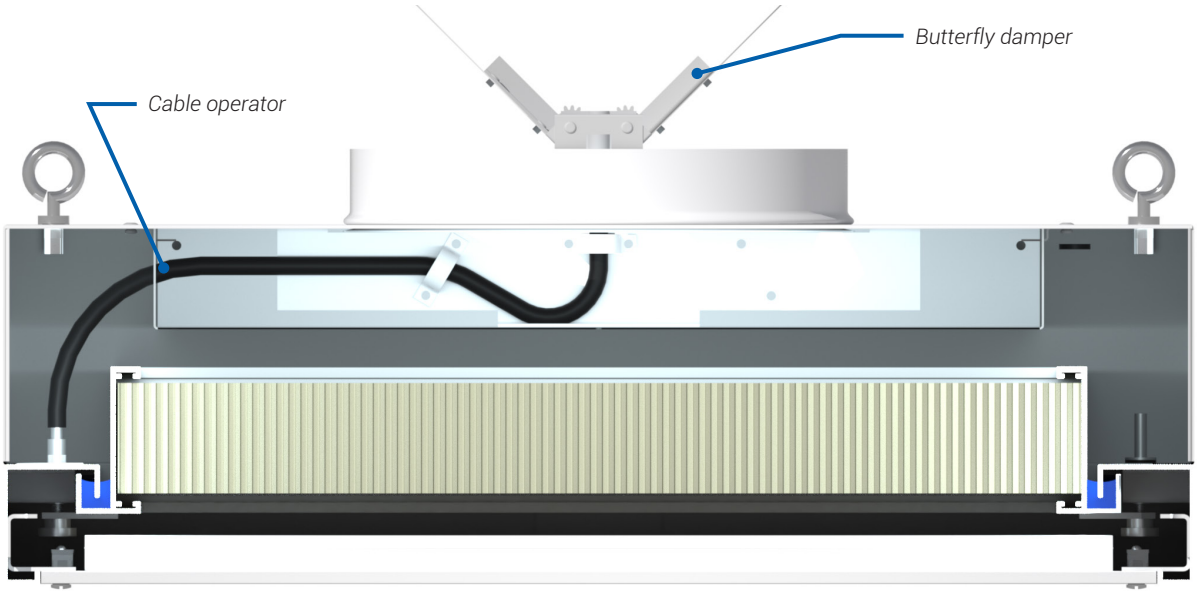
LED Filter Status Indicator

- An optional LED filter status light, visible from the room-side, changes from green to yellow when the filter is loaded and due for replacement.
- The LED light is factory calibrated to trigger once the filter pressure drop has increased by 50% above that of an unloaded filter and can be adjusted in the field to suit facility preferences.



Room-Side Adjustable Damper

- An optional remote cable operator allows adjustment of the damper with the filter in place using a standard screwdriver.
- Locating the damper operator outside of the filter maximizes filter area, leading to a larger airflow capacity and less pressure drop.



Room-side adjustable damper cross sectional view

Equalization Basket

- The optional equalization basket, located beneath the inlet, equalizes airflow and ensures even loading across the filter.

Factory Leak Testing & Certification

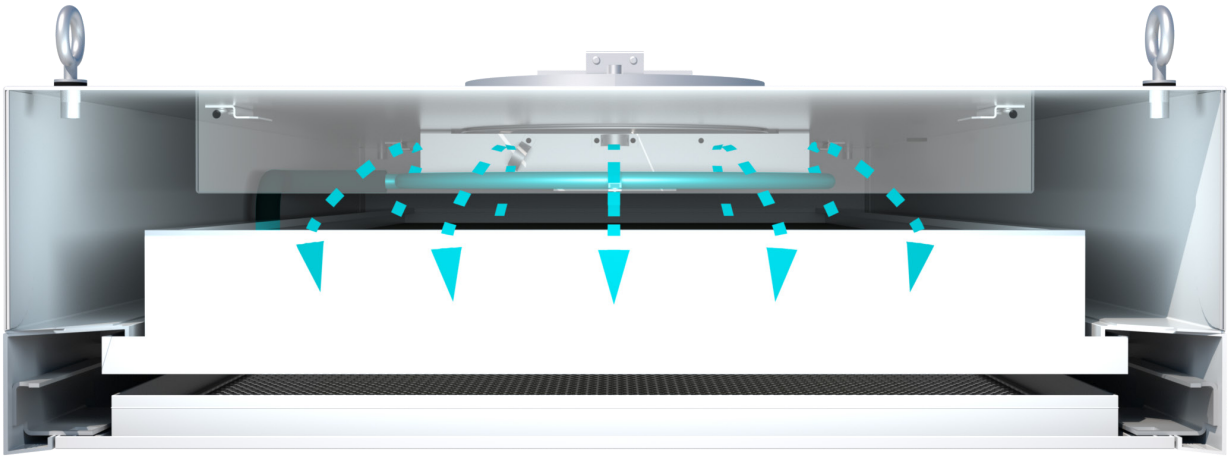
- Every LFDC is factory tested and certified leak-free in accordance with IEST-RP-CC034.

Aerosol Sample & Static Pressure Port

- Used for room-side field measurement of static pressure and challenge aerosol concentrations upstream of the filter during the commissioning process.

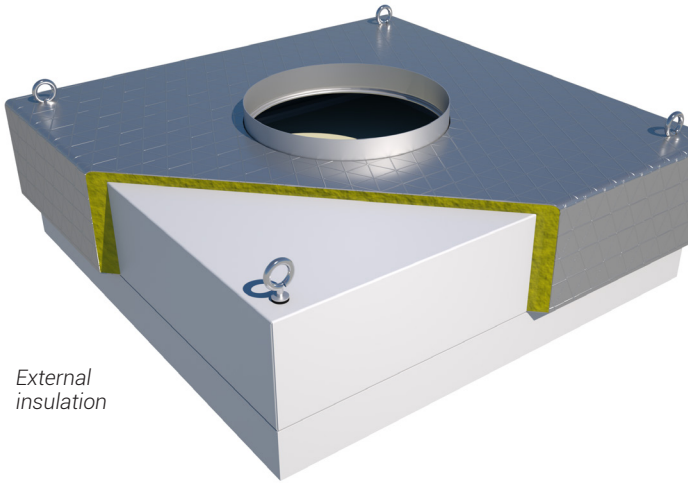
Aerosol Test System

- Unique and convenient option when upstream aerosol injection during field commissioning is impractical.
- The barbed aerosol injection port for 1/2 in. ID tubing and aerosol sample and static pressure port facilitate the complete room-side aerosol challenge of the diffuser.
- Stainless steel aerosol dispersion ring for equalized aerosol challenge across the entire active filter area.



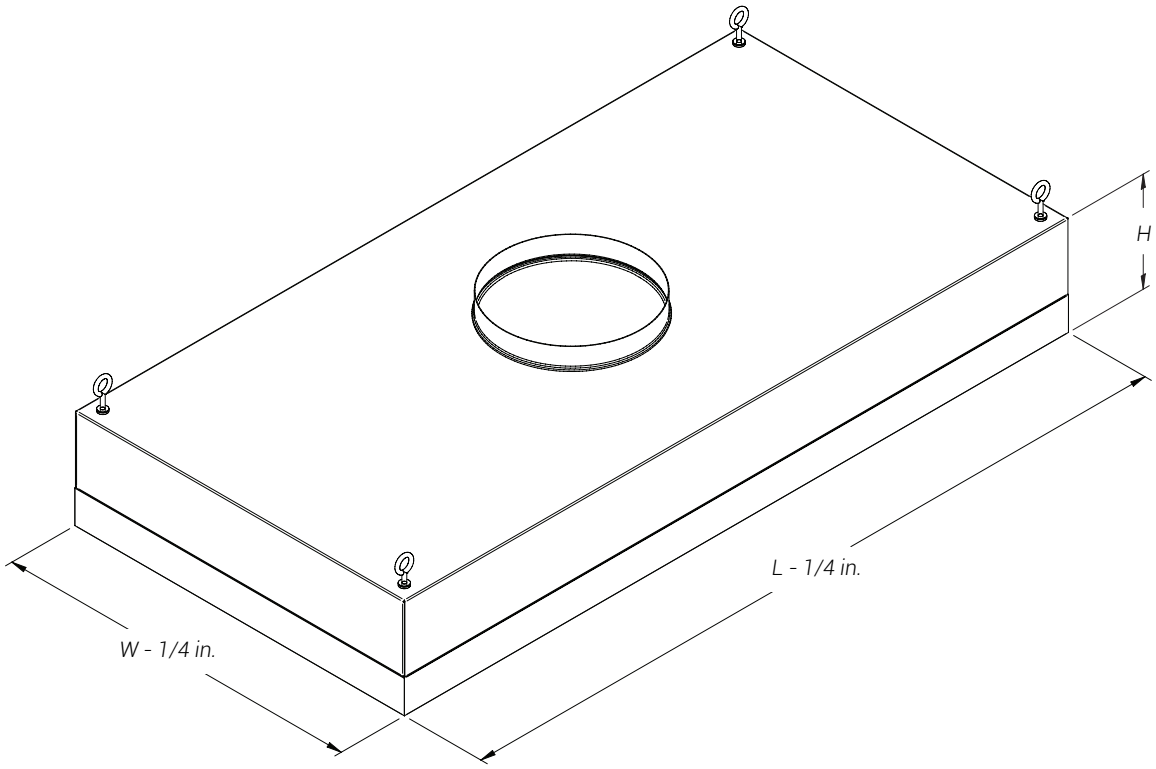
Factory Installed Insulation

- Ensures quality application and minimizes field labor with factory installed insulation
- Minimizes condensation risk associated with unconditioned plenum air exposure to cold diffuser surfaces
- Reduces thermal gain for improved energy savings
- Meets ASTM E84 and UL723 requirements



External insulation

Dimensional Data



Nominal Sizes

W x L	Inlet Sizes	H	
		Standard	Integrated LED Lighting
12 in. x 48 in.*	6,8	7 1/8 in.	13 in.
24 in. x 24 in.	6,8,10,12	7 1/8 in.	13 in.
24 in. x 36 in.	6, 8,10,12	7 1/8 in.	13 in.
24 in. x 48 in.	8,10,12	7 1/8 in.	13 in.

*ATS not available

Note: Please refer to the submittal for dimensions of the Aspire Laminar Flow Diffuser with optional face-mounted LED indicator

Performance Data

Unit Size (in.)	Inlet Size (in.)	Air Flow (cfm)	Filter	Static Pressure (in. w.g.)	Sound (NC)
24 x 24	10	100	HEPA	0.22	-
		150		0.31	-
		200		0.41	-
		250		0.50	-
		100	ULPA	0.30	-
		150		0.45	-
		200		0.61	-
		250		0.76	-
24 x 36	10	150	HEPA	0.19	-
		200		0.24	15
		250		0.30	19
		300		0.36	23
		350		0.42	27
		400		0.48	30
		150	ULPA	0.30	-
		200		0.38	15
		250		0.45	19
		300		0.56	23
		350		0.67	27
		400		0.75	30
24 x 48	12	200	HEPA	0.16	-
		300		0.25	-
		400		0.33	-
		500		0.41	17
		600		0.50	23
		200	ULPA	0.27	-
		300		0.39	-
		400		0.50	-
		500		0.63	17
		600		0.74	23

Performance Notes:

1. sp = Static Pressure, in. w.g.
2. cfm = Air flow in cubic feet per minute, cfm.
3. NC = Noise Criteria. NC values are based on room absorption of 10dB re 10-12 watts.
4. Blanks "-" indicate an NC level below 15.
5. sp and NC at full open damper position.
6. Tested in accordance with ASHRAE Standard 70-2006.

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