# LFDC

## LAMINAR FLOW DIFFUSER WITH HEPA FILTER

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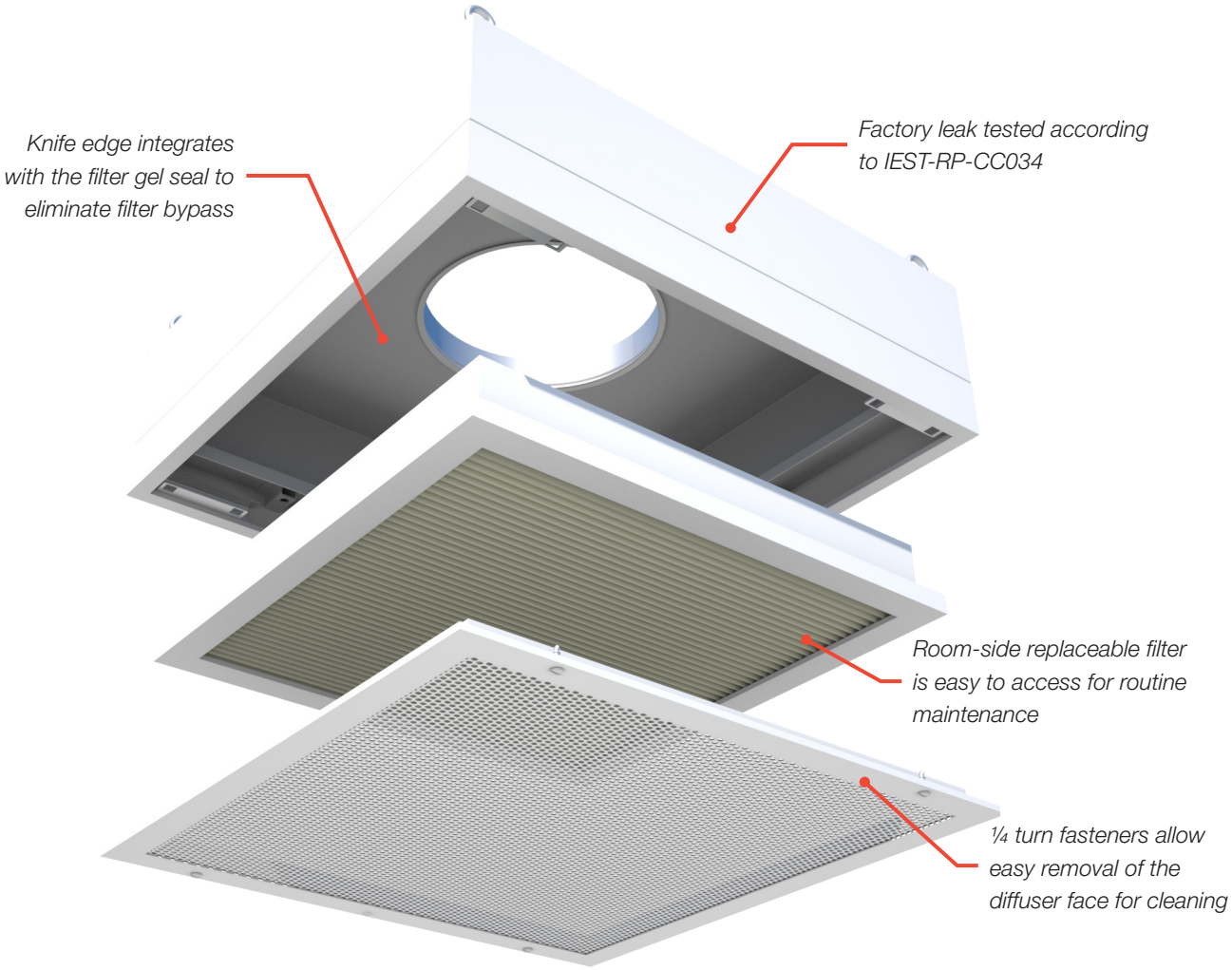
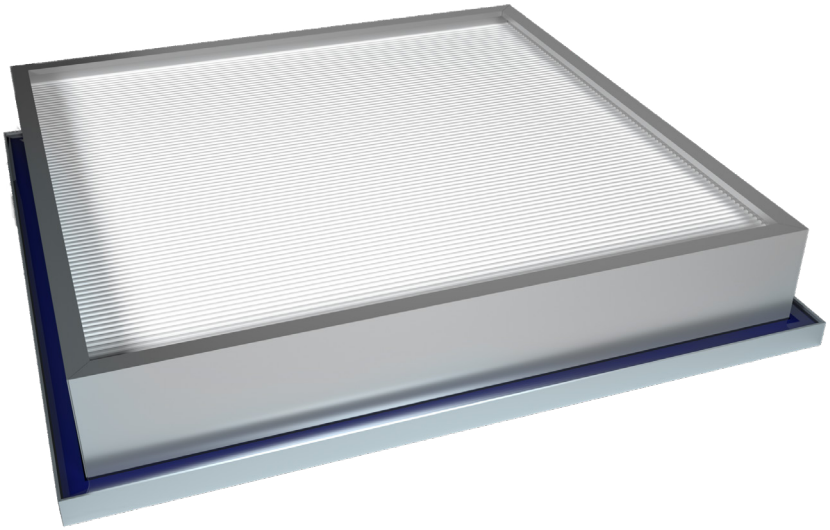
# LFDC
## Laminar Flow Diffuser with HEPA Filter

The Laminar Flow Diffuser with HEPA Filter has been designed to suit the stringent requirements of modern operating rooms and other clean spaces. The LFDC provides a means of controlling particle concentration within a room by providing unidirectional 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.
+ Factory supplied HEPA filter removes 99.995% of particulate.



## FACTORY LEAK TESTING AND CERTIFICATION

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

## CLEANING & MAINTENANCE

+ LFDC 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.
+ ¼ turn fasteners and retainer cables provide straightforward and convenient access to the filter and knife-edge frame.

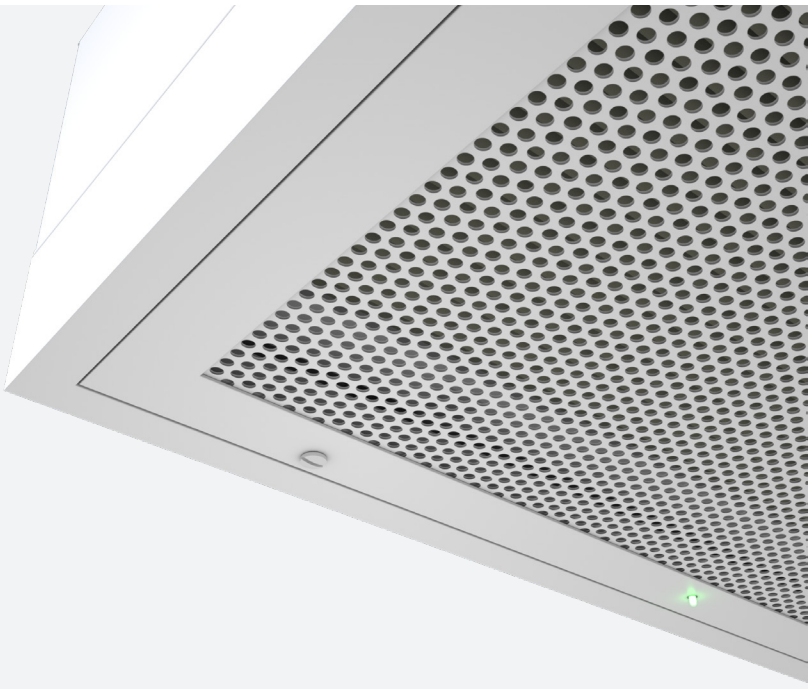
## TYPICAL APPLICATIONS

The LFDC is classified as an ASHRAE group E non-aspirating diffuser and meets all ASHRAE 170 performance and construction requirements. LFDC diffusers are required by code or commonly used in Operating Rooms, Laboratories, Pharmacies, Pharmaceutical Manufacturing facilities, Cleanrooms and other critical spaces.

### CONSTRUCTION

+ Material
  - Aluminium
  - Stainless steel
+ Standard
  - Aerosol test system
  - Equalisation basket
+ Optional
  - LED filter status indicator
  - Room-side adjustable damper
  - Casing insulation

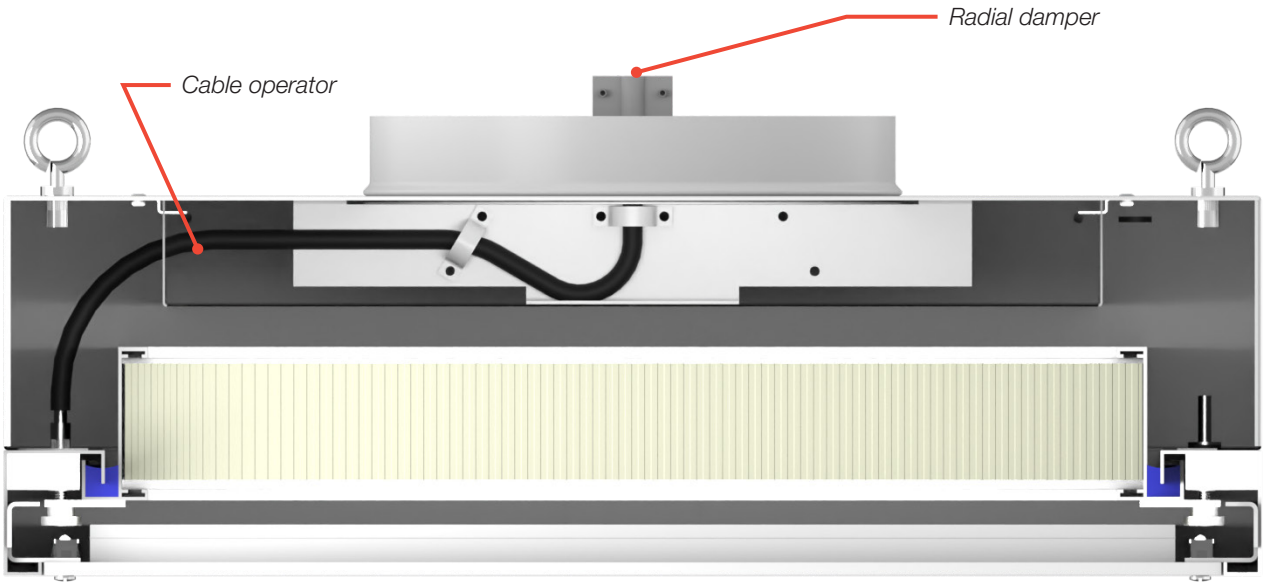
# LED FILTER STATUS INDICATOR



+ 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.
+ Locating the damper operator outside of the filter maximises filter area, leading to a larger airflow capacity and less pressure drop.




*Room-side adjustable damper cross sectional view*

# EQUALISATION BASKET

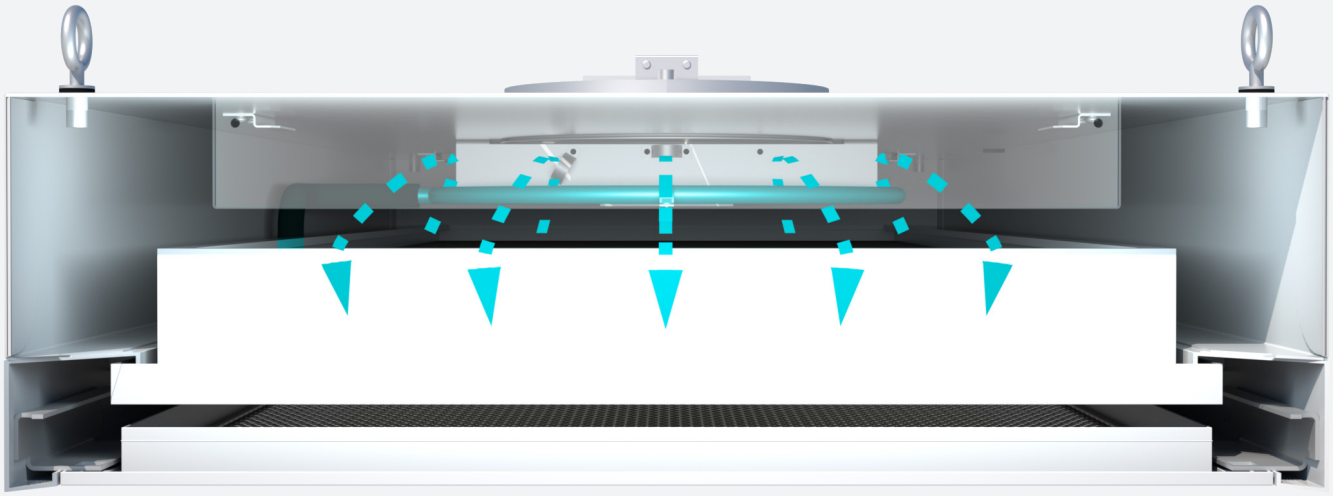
+ The equalisation basket, located beneath the inlet, equalises airflow and ensures even loading across the filter.

# 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.

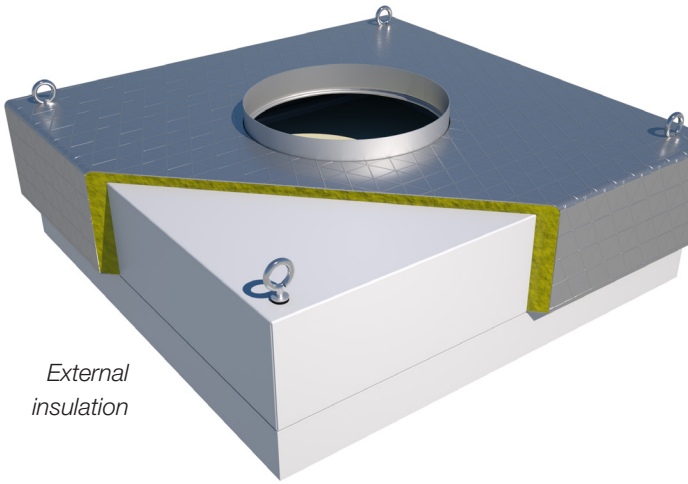
# AEROSOL TEST SYSTEM

+ 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 equalised aerosol challenge across the entire active filter area.



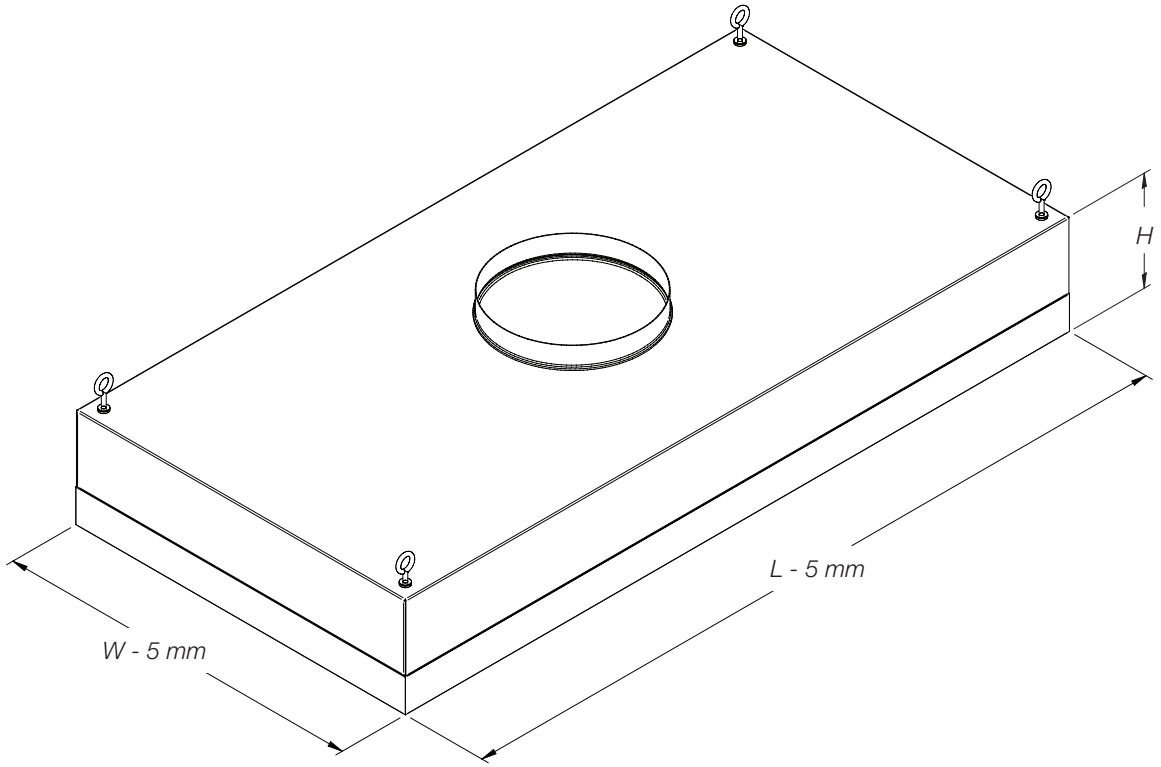
# FACTORY INSTALLED INSULATION

+ Ensures quality application and minimises field labour with factory installed insulation
+ Minimises condensation risk associated with unconditioned plenum air exposure to cold diffuser surfaces
+ Reduces thermal gain for improved energy savings



*External insulation*

# DIMENSIONAL DATA




| Nominal Unit Size ( W x L ) | Actual Width | Actual Length | Inlet Sizes | Height |
|---|---|---|---|---|
| 600mm x 600mm | 595mm | 595mm | (145, 195, 245, 295) mm | 175mm |
| 690mm x 690mm | 685mm | 685mm | (145, 195, 245, 295) mm | 189mm |
| 600mm x 900mm | 595mm | 895mm | (145, 195, 245, 295) mm | 175mm |
| 690mm x 995mm | 685mm | 990mm | (145, 195, 245, 295) mm | 189mm |
| 600mm x 1200mm | 595mm | 1195mm | (195, 245, 295) mm | 175mm |
| 690mm x 1300mm | 685mm | 1295mm | (195, 245, 295) mm | 189mm |

# PERFORMANCE DATA

## Metric

| Unit Size (mm) | HEPA Filter Size (mm) | Air Flow (L/s) | Filter | Static Pressure (Pa) | Sound (NC) |
|---|---|---|---|---|---|
| **600 x 600** | 520x520x65 | 47 | HEPA 99.995% 0.3µm | 46 | - |
| | | 71 | | 96 | - |
| | | 94 | | 120 | - |
| | | 118 | | 158 | - |
| | | 47 | ULPA 99.9995% 0.12µm | 81 | - |
| | | 71 | | 126 | - |
| | | 94 | | 169 | - |
| | | 118 | | 214 | - |
| **685 x 685** | 610x610x80 | 47 | HEPA 99.995% 0.3µm | 41 | - |
| | | 71 | | 61 | - |
| | | 94 | | 80 | - |
| | | 118 | | 100 | - |
| | | 167 | | 140 | - |
| **600 x 900** | 520x820x65 | 71 | HEPA 99.995% 0.3µm | 40 | - |
| | | 94 | | 63 | 15 |
| | | 118 | | 86 | 19 |
| | | 142 | | 109 | 23 |
| | | 165 | | 132 | 27 |
| | | 189 | | 154 | 30 |
| | | 71 | ULPA 99.9995% 0.12µm | 80 | - |
| | | 94 | | 99 | 15 |
| | | 118 | | 127 | 19 |
| | | 142 | | 154 | 23 |
| | | 165 | | 180 | 27 |
| | | 189 | | 207 | 30 |
| **685 x 990** | 610x915x80 | 94 | HEPA 99.995% 0.3µm | 54 | - |
| | | 118 | | 67 | - |
| | | 142 | | 80 | 18 |
| | | 165 | | 93 | 21 |
| | | 189 | | 106 | 24 |
| | | 250 | | 140 | 30 |
| **600 x 1200** | 520x1120x65 | 94 | HEPA 99.995% 0.3µm | 37 | - |
| | | 142 | | 70 | - |
| | | 189 | | 103 | - |
| | | 236 | | 135 | 17 |
| | | 283 | | 168 | 23 |
| | | 94 | ULPA 99.9995% 0.12µm | 71 | - |
| | | 142 | | 110 | - |
| | | 189 | | 148 | - |
| | | 236 | | 185 | 17 |
| | | 283 | | 223 | 23 |
| **685 x 1295** | 610x1220x80 | 142 | HEPA 99.995% 0.3µm | 61 | - |
| | | 189 | | 80 | - |
| | | 236 | | 100 | - |
| | | 283 | | 119 | 15 |
| | | 333 | | 140 | 20 |

**Performance Notes:**

1. SP = Static Pressure in Pascals, Pa.
2. L/s = Air flow in Liters per second, L/s.
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. Pressure drop: ± 15%.
7. NC values listed here are based on the equivalent imperial size.

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