the PROBLEM
Interstitial pathways, turbulence, aspiration, entrainment, and filter bypass all play important roles in critical environment diffuser performance. Guiding bodies offer direction, calling for ASHRAE Group E, non-aspirating, unidirectional diffusers in operating rooms and other critical areas. Sadly, not all such diffusers perform as guiding bodies intend. Paying little attention to diffuser design, construction, and performance characteristics can bring about significant consequences.

focusing on PATIENT OUTCOMES
Precision Air Products, founded in 1974, engineered diffusers from day one with a drive for quality construction and optimal performance to meet demanding critical environment applications. Our diffusers quickly earned “best-in-class” standing, unsurpassed even today.

precision RESULTS
For critical applications, our diffusers perform as intended, minimizing the risk of contamination where it matters most.

Contact Precision Air Products for professional design support
With all the other things to worry about when considering ways of reducing surgical site infections, delivering clean and ultraclean air shouldn’t be one of them. Before designing your next OR ventilation system, contact Precision Air Products for professional design support.
dual-chamber Lami-Vent™ MEANS PERFORMANCE

The Lami-Vent™ has been the diffuser of choice in critical environments since 1974. With a focus on delivering the best laminar air flow in the market, the Lami-Vent™ is unmatched when it comes to construction, performance, and compliance. Laminar airflow doesn’t happen by accident. Our dual-chamber design is built with an inverted cone-shaped valve, slotted center plate, and perforated diffusion basket. These components work together to condition supply air for uniform distribution through the diffuser faceplate: providing unidirectional airflow at constant velocity with minimal turbulence and NO aspiration.

robust CONSTRUCTION

An effective diffuser not only delivers exceptional laminar performance, it prevents pathways to interstitial space. Interstitial pathways mean trouble, creating conduits that allow contaminants to infiltrate sterile space. Unlike split-plenum designs built with unsealed pathways that encircle the entire diffuser, the Lami-Vent™ is built with a 0.063” fully extruded plenum side-wall. The result? A sturdy, impenetrable diffuser that delivers clean air EXACTLY where intended.

room-side ACCESS

ASHRAE Standard 170 requires room-side access to allow internal cleaning of diffusers. Access is important because blood splatter or other contaminants that reach the face of an operating room diffuser can only be cleaned by wiping the front and back of the diffuser faceplate. Some diffuser designs assemble multi-layered perforated panels to a face frame, requiring disassembly for back-side cleaning (Figure 3). In contrast, our diffusers have a single perforated panel attached to the face frame allowing front and back access.
**designed with FLEXIBILITY**

Lami-Vent™ and HEPA-Vent DS diffusers were designed to let you match the right diffuser to your application:

- Custom sizes **without** the price penalty
- Flow ranges -
  - Lami-Vent™: 20-215 CFM/ft²
  - HEPA-Vent DS: 20-100 CFM/ft²
- Options when interstitial space gets tight
- Finishes that meet your needs -
  - White baked enamel
  - Clear anodized aluminum
  - #4 polished stainless steel
  - Material / finish combinations
- Non-ferrous options

**convert to HEPA LATER**

Unsure whether to use point-of-delivery HEPA filters now or later? The HEPA-Vent DS can be supplied with a center-plate, diffusion basket assembly. Replace the assembly later with a point-of-delivery HEPA filter without replacing the diffuser.

**dual KNIFE-EDGE**

The diffuser knife-edge is critical to achieving a perfect seal with the filter gel. Some HEPA units use a single knife-edge which creates a potential for filter bypass due to the way they attach and seal the knife-edge extrusion to their plenum box. The HEPA-Vent DS design creates two knife-edges, each penetrating 0.297” into the filter’s gel media to prevent bypass (Figure 4).

The innovative design of the HEPA-Vent DS eliminates potential for filter bypass.

**dual-seal HEPA-Vent DS MEANS CONFIDENCE**

The HEPA-Vent has been a workhorse in critical environments for more than 19 years. It just got better!

The HEPA-Vent DS advances the art with a unique dual knife-edge that eliminates filter bypass. It goes one step further by reducing critical seam length by more than 80% on competitive 2’ x 4’ diffusers, vastly reducing the likelihood of joint seal leakage. Further, other than the collar, there are no penetrations in the diffuser, eliminating potential leak points.

Our HEPA ceiling diffusers feature Camfil Farr Megalam® gel-seal HEPA filters rated with a minimum 99.99% efficiency on 0.3 µm particle size. These filters are known for outstanding quality, performance, “hot melt” pleat separation technology for even airflow, and a gel seal for a leak-free filter seal. The urethane gel used by Camfil Farr is specially formulated to offer superior cured strength and physical characteristics depending on specific industry requirements. Camfil Farr tests and certifies each filter to perform as specified.

HEPA-Vent DS with Camfil Farr Megalam® gel-seal HEPA filter combine the best in construction, performance, and reliability.

![HEPA-Vent DS Dual Knife-Edge HEPA Diffuser](image_url)

**“There’s no cutting corners in surgical environments. The cost of a single Surgical Site Infection can far exceed the investment in proper diffusers and filters.”**

- Director, Infection Control (Texas)

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an INTEGRATED SYSTEM

In addition to other critical environment applications, our diffusers are ideally suited for operating rooms, especially when part of our family of ceiling ventilation systems:

- The Lami-Air™ System organizes operating room ceilings, providing laminar flow diffusers and fill-in panels in a single-assembly framing matrix laid out around lights, booms, med-gas columns, and other obstructions.
- The Lami-Air™ EQ System sets the bar for ventilation in surgical spaces with ceiling mounted imaging equipment. This self-leveling system includes color matched ceiling-level Unistrut®, end caps, and closure strips.
- The Lami-Air™ IP System is perfect when tight interstitial space excludes top, side, or end diffuser inlets.
- For high risk procedures, the Ortho-Island® System provides ultraclean air through a combination of higher air changes per hour and point-of-delivery HEPA filtration, helping to minimize air handler size and operating expense. The Cardio-Island® System adds rapid heating and cooling capabilities for surgeries requiring advanced temperature controls.

Our systems are custom designed around the unique constraints of each space. They look as good in person as they do on the paper—like they were meant to be there.