

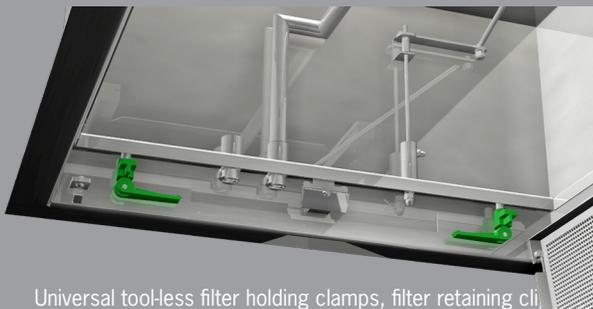


# Pharmaseal® Ducted Ceiling Module

All-Welded, Pressure Tested, Roomside HEPA Module



Unique components allow quick access and fast filter change and certification using one service person



Universal tool-less filter holding clamps, filter retaining clips and quick disconnects along with a hinged grille facilitate easy one person unit service.

The Camfil Pharmaseal ceiling module provides cleanroom level air filtration for pharmaceutical or biotechnology facilities as well as any other facility where clean space is a manufacturing or health-related requirement. Its unique roomside replaceable filter design minimizes downtime and ensures repeatable room air cleanliness following filter service. The Camfil Pharmaseal:

- Is constructed of 0.063" aluminum with welded seams on the roomside to eliminate leak paths and ensure structural rigidity. It is also available constructed of fully-welded 16-gauge stainless steel. Each unit is pressure tested to 3.00" w.g.
- Is designed to be installed into a T-bar or plaster ceiling. A flush mounted model is available for installation into a solid ceiling.
- May be ordered with a guillotine, radial bow tie, or 100% shut-off isolation damper for decontamination applications.
- Includes an all metal air aerosol distribution system with a quick disconnect roomside port for uniform dispersion across the entire face of the filter.
- Includes a raised-rib inlet collar for easy connection to a flexible HVAC air duct supply. It includes a 12" round inlet for connection to air supply on full size modules and a 10" round inlet connection on half size modules. The Pharmaseal may be selected with top inlet or side inlet.
- Hood height may be 9", 12-1/4" or 18" based upon selected hood construction materials of 0.063" aluminum, 16-gauge or 304 stainless steel.
- Includes a hinged, flush-mounted face grille with quick release 1/4-turn fasteners for unit service. The grille is concealed and optimized to promote uniform airflow.
- Includes a quick disconnect static pressure port for evaluating filter pressure drop or sampling of the upstream aerosol concentration during filter scan testing. This allows fast easy service from the roomside for filter change, airflow adjustment and filter scan testing.
- Accepts Camfil Megalam gel seal filters in depths of 53 mm, 70 mm or 100 mm that may be selected for optimum airflow and/or energy savings. A gasket seal filter may be applied as an option. Filters, ordered separately, may be selected from Camfil Pharma Megalam Panel Product Sheet.
- Filters are available in efficiencies from 95% at 0.3 micron (H13) to 99.9995% (U15) at most penetrating particle size.

Camfil's flexible fabrication capabilities can supply the Pharmaseal with virtually any option to address any cleanroom requirement.

## Camfil Pharmaseal HEPA Ducted Ceiling Module

The Pharmaseal is a fully customizable module that can include significant features specific to your application. To customize your Pharmaseal please seek the assistance of your Camfil representative. Common options include specialized dampers, face grille or trim variations, alternate materials of construction, air inlet location (top or side), housing support methods and seismic secure components.

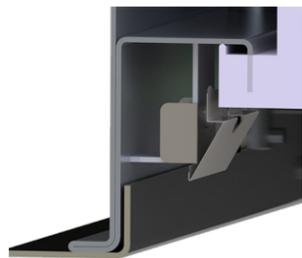
See Pharma Megalam Panels product sheet for multiple filter selections for efficiency and multiple filter depth selection for energy savings.

### Permanent Trim

Designed for application in to a T-bar ceiling, the Pharmaseal may be also be ordered with removable trim. For negative pressure rooms, please contact factory.

### Gel-Penetrating Knife-Edge

The Pharmaseal includes a gel-penetrating knife-edge that affects a positive seal between the housing and the filter. The corner joints of knife-edge junctures are continuously welded to eliminate leak paths. The controlled depth knife-edge design ensures that filter will not bottom out in the track eliminating metal to metal contact and the most common location for potential bypass.

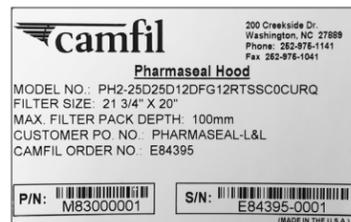


### Spring Loaded Filter Guide and Filter Retainer Clip

An auto-centering, spring loaded filter guide ensures that the HEPA filter fits properly to the gel-sealing knife-edge of the housing. The filter snaps securely into place creating a uniform gel penetration and leak free filter perimeter seal.

### Quick Grille Fasteners

Quick access grille fasteners require no tools to access the Pharmaseal for servicing. Maintenance can be performed by a single serviceperson.



### Full Product Detail on Unit Labels

Serial numbers are assigned to each hood after leak testing. This allows testing traceability.



A Cleanseal access card is provided on orders of 50 units or more.

### Secure Connection to HVAC System

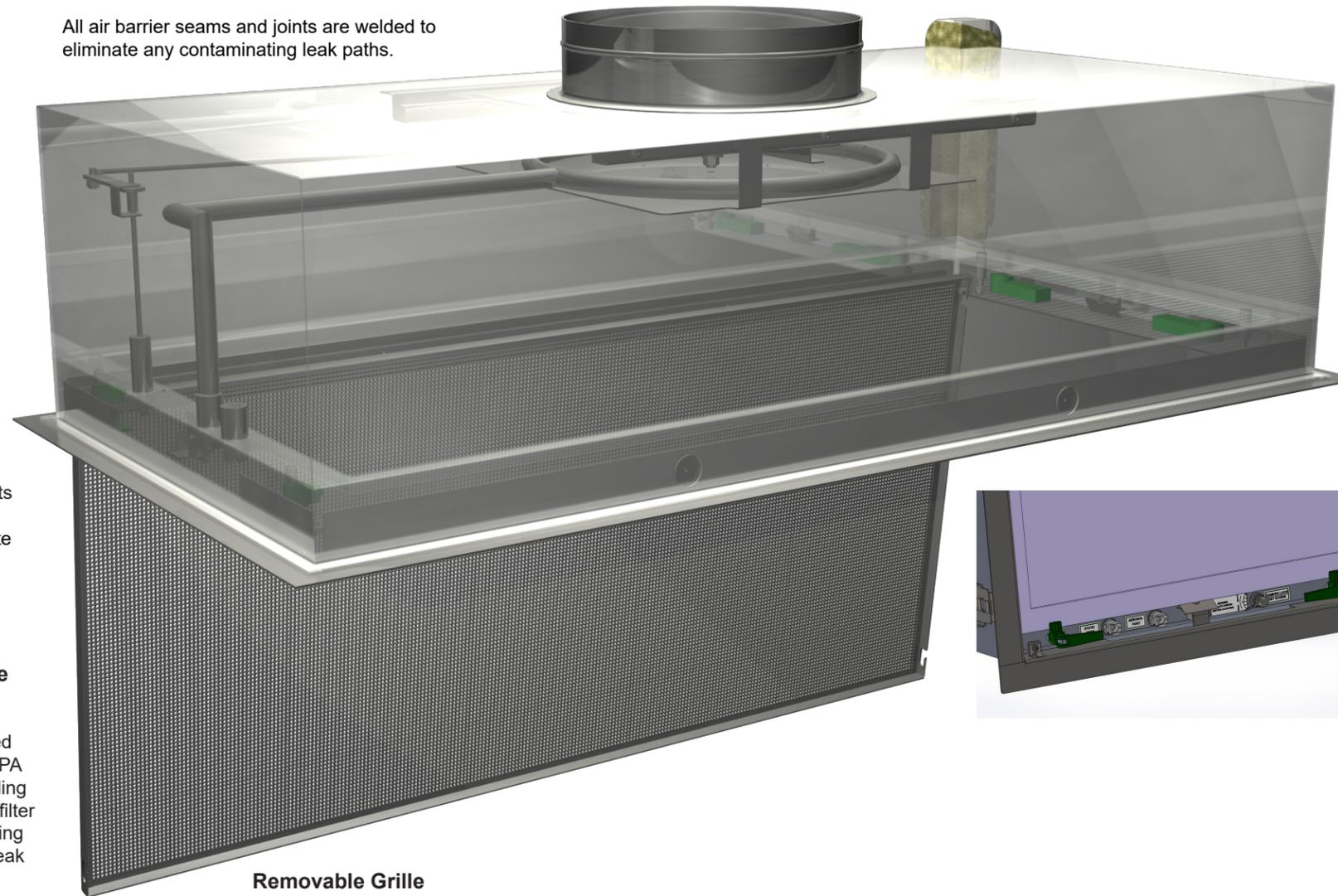
Duct connection collar is ribbed to ensure a secure flexible duct connection. It is also available with duct grips to prevent flexible duct blowoff.

### Completely Weld Sealed to Prevent Leaks

All air barrier seams and joints are welded to eliminate any contaminating leak paths.

### Universal Support Brackets

The Pharmaseal comes standard with universal support brackets that allow accurate filter leveling and securely support the module during operation. The hood may be suspended with wires, rods, or you can compress or clamp the hood to ceiling substrate.



### Removable Grille

The Pharmaseal comes with a hinged removable grille constructed of stainless steel. The grille ensures protection of the filter and internal housing components and has a 40% open area face screen with a 2B finish. The grille has solid border with no sharp edges.

### Lifetime Warranty

The Pharmaseal carries a lifetime warranty to the original purchaser against leaks or manufacturers defects.

## Camfil Pharmaseal HEPA Ducted Ceiling Module

### Uniform Aerosol Injection Ring and Dispersion Plate

An Integrated aerosol injection ring distributes testing aerosol throughout the housing.

A distribution plate below the injection ring, ensures uniform dispersion across the entire filter area to allow for accurate filter scan testing.



### Continuous Hinge

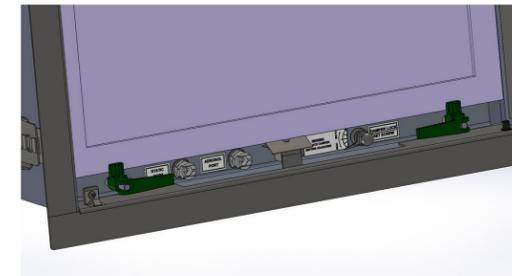
A continuous grille hinge ensure permanent frame alignment and even distribution of grille weight along the entire length of the housing.



### Tool-Less Filter Clamps

No tools are needed to remove the filter from the module. Four tool-less clamps securely hold the filter in place and easily release for filter service.

### Damper Adjustment & Service Ports



A labeled damper mechanism is mechanically fastened to the hood, allowing adjustment of air across the filter from 0 to 100% depending on damper type selection. The damper has a position indicators to assist with room rebalancing. Percentage of isolation damper open position is shown on an easy to read gauge from the roomside.

A labeled quick disconnect aerosol injection port is standard for uniform aerosol distribution throughout the housing and convenient, expedient unit testing.

A labeled quick disconnect static pressure port for measuring the pressure drop across the installed filter is standard.

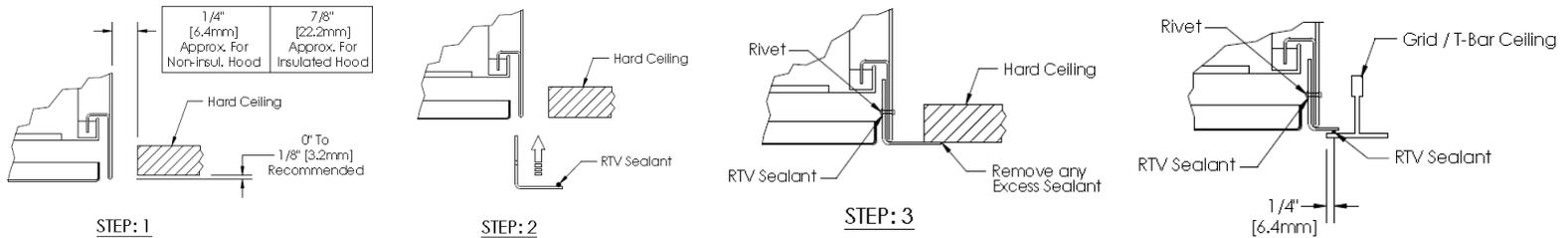
Each of the above housing penetrations are sealed to prevent leaks to the filter gel seal assembly.

***This combination of features allows filter service, filter certification and system analysis from the roomside by one person.***

### Optional External Insulation

Pharmaseal modules are available with either external foil-back insulation or closed-cell elastomer insulation. Unit may be insulated on the top, sides, or both.

Multiple roomside trim options are available, such as negative pressure room applications. For further information please contact factory for assistance. Drawings are not to scale.



Standard Pharmaseals include a guillotine damper where airflow can be regulated between 10% and 98%. A radial blade bow tie damper or a 100% shut-off isolation damper are also available.



**Guillotine Damper** - This damper facilitates room balancing and airflow control. It is easily adjusted using the 1/4-turn rotary mechanism attached to a robust mechanical linkage and heavy-duty blades. The damper assembly is welded to the hood body to increase rigidity and eliminates "binding" of damper blades common in pop-riveted units.



**Radial Bow tie Damper** - Facilitates accurate airflow modulation and control using a linkage that is tight and vibration free. It has low torque operation through the entire range of adjustment. This damper is riveted to the Pharmaseal housing.



**Isolation Damper** - This damper facilitates complete isolation of housing allowing for change out of filters without risk of contamination to the cleanroom. It is designed to reduce production downtime during filter change and room decontamination. The damper is adjustable from fully open to fully closed in 15 revolutions (approximate). It can eliminate the need for full room decontamination during filter replacement depending on the application. The damper has a fluid seal channel that mates with a knife edge in the hood. Positive stops on the damper adjustment mechanism eliminate twisting of the stainless steel flexible cable, providing high-cycle life. Cable failure is greatly reduced. The damper includes a fully-welded inlet collar.