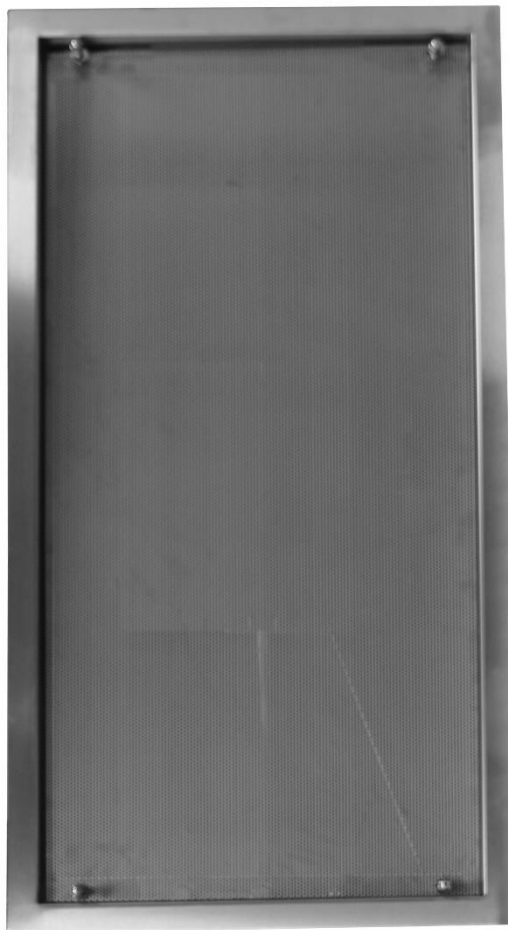




Installation, Operation and Maintenance Manual

Pharmaslim Ducted Ceiling Module





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Usage

The Camfil Pharmaslim ceiling module provides clean room level air filtration for pharmaceutical or biotechnology facilities as well as other facilities where clean space is a manufacturing or health-related requirement.

Safety Instructions

All safety and health protection decrees must be abided. Prior to installation, operation or maintenance, review this manual and all safety procedures with your company's safety personnel. Incorporate your safety personnel's amendments so that you have safety and the entire process in mind before beginning.

Caution: Never drill or grind through, weld to, or otherwise penetrate the interior or exterior of the filtration system.

Recommended Placement

The recommended placement of this system is in a T-bar grid or hard/plaster ceiling where clean space is a requirement.

Do not place sheet metal screws through the side of the hood to secure to the ceiling structure or framework.

Drilling holes or placing screws in the hood can create a leak path through the pressure boundary of the hood.

Reference factory approved methods in this manual for suspending the hood from structural members located above the ceiling.

Technical Data

Available in two sizes: 2x2 and 2x4.

2x2 Pharmaslim accepts: Camfil Megalam® 21-3/4"x20" by 53mm deep filters.

2x4 Pharmaslim accepts: Camfil Megalam® 21-3/4"x44" by 53mm deep filters.

Reference data sheet or submittal drawings for more information.

Warranty

The Pharmaslim warranty is one year to the original purchaser against leaks or manufacturers defects.

Unpacking Instructions

Remove the Pharmaslim hood from the packaging. Check the system for visible damages and locate the shipped loose components. If there is visible damage, inform your supervisor.

Exercise caution when removing Camfil filters from their packaging. Firmly grasp the filter frame using care to never touch the filter media or gel. If the bag sticks to the gel, gently pull the bag away very slowly. For more information, reference the Filter Unpacking Instructions located in each filter carton. Report any visible damage to your supervisor.

Filter Disposal

There are no general rules for recycling of used filters. Different rules exist on the local level in all countries. Contact your Safety Officer for the filter disposal policy in your company's safety manual. Otherwise, contact the recycling company in your district for disposal requirements.

Table of Contents

General Hood Installation Notes and Hood Mounting	3
Hood Installation for Trim (Two Options) SRT for Hard Ceilings and PT for Grid Ceilings	4-5
Grille Installation and Removal	5
Filter Installation and Removal	6
Static/Aerosol Injection Ports, Ductwork, and Damper Control	7

General Hood Installation Notes

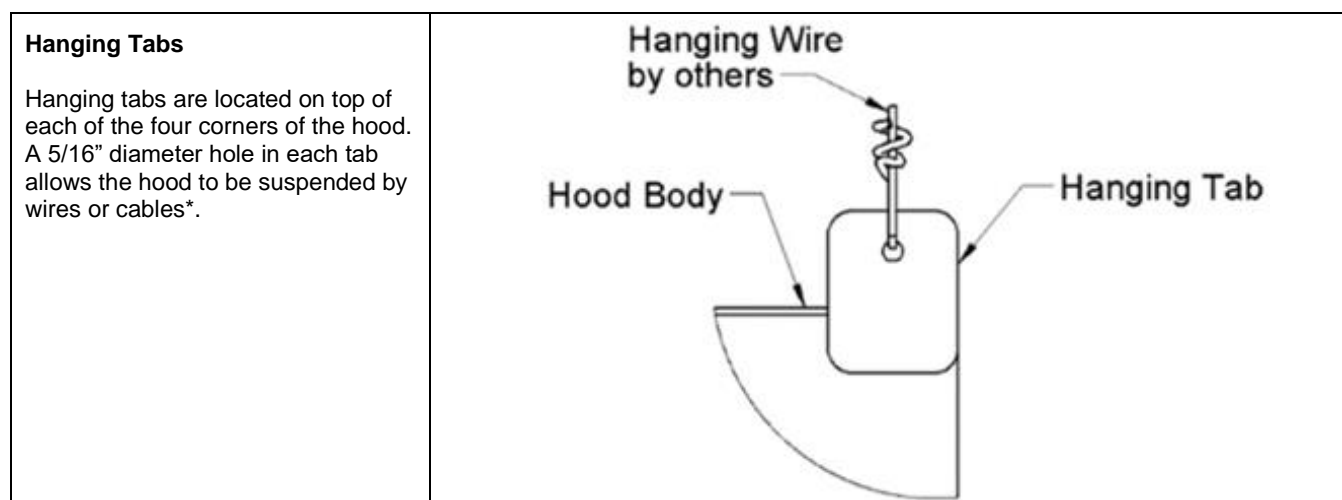
All Pharmaslim hoods come with 5/8" PT (permanent trim) formed in body for T-Bar ceiling. The Pharmaslim body as a standard is SRT ready meaning it is ready to receive 1-1/2" stainless removable trim. The (SRT) stainless removable trim is optional. Additional options include insulation on the top and sides only. Please determine which options your hoods have and follow the instructions for those options.

Remove grille only when necessary. The grille acts as a stabilizer during shipping, handling, and installation. Uneven spacing between trim and grille may indicate the hood is out of square. An out of square hood could prevent the filter from properly fitting, which can cause leakage. If out of square, the hood can be realigned by removing the grille and applying a slight pressure across the corners of the hood using a bar clamp.

***Suspension cable, rod, and hardware for hanging the hoods is supplied by others.**

Mounting

As an added safety precaution, the Pharmaslim hoods are supplied with hanging tabs so that wires or cables may be attached to another supporting structure. This is sometimes necessary to meet regulatory requirements regarding seismic restraint.



Hood Installation for Trim (Two Options)

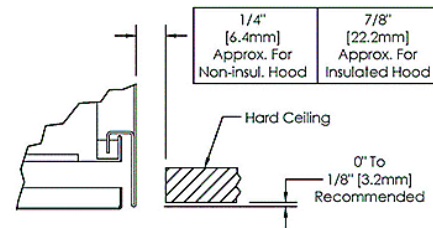
Pharmaslim hoods are generally installed in two types of ceilings: T-bar grid or hard/plaster. Grids are typically manufactured from aluminum or painted steel, suspended from structural members and arranged in a grid pattern to provide uniformly spaced holes into which ceiling panels, light fixtures, filtration equipment, etc. may be installed. Hard ceilings typically consist of structural members such as metal studs covered with drywall, plaster, or prefabricated honeycomb panels with aluminum or stainless-steel skins.

Stainless Removable Trim "SRT" for Hard Ceilings

The Pharmaslim hood can be supplied with Stainless Removable Trim (SRT) which is not attached until the hood is installed in the ceiling. The hood may be installed from either the room side or above the ceiling. Once installed, the perimeter trim is secured and sealed to the ceiling providing a flush finish.

Prior to installing, clean the SRT and surface of the ceiling to remove any residue that would keep the RTV from bonding. Suspend the hood using the appropriate hanging support option (page 4). Adjust the height of the hood until flush with the ceiling (STEP:1).

Remove the grille and insert the stainless trim to the proper position. **Caution:** On 2'x2' hoods, it is possible to install the trim incorrectly. Reference image below.

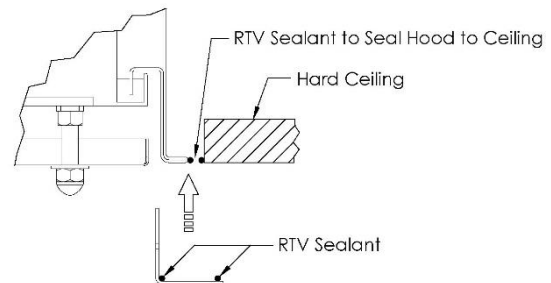


STEP: 1

With trim in the correct orientation and position, drill a #30 hole (1/8" diameter) through the hood body using the predrilled holes in trim as a template. The holes should line up with the worm holes.

IMPORTANT: Remove the trim and apply a 1/4" diameter bead of RTV on the surface of trim that is against the hood as well as the ceiling (STEP:2) Dow Corning RTV 732 is recommended. Remove excess with a clean rag.

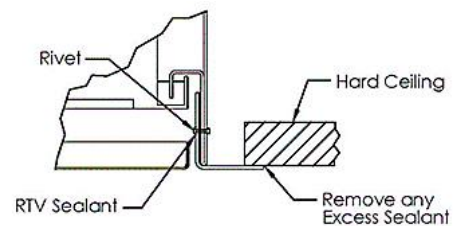
IMPORTANT: DO NOT DRILL holes other than where worm holes (hood body) and predrilled holes (perimeter trim).



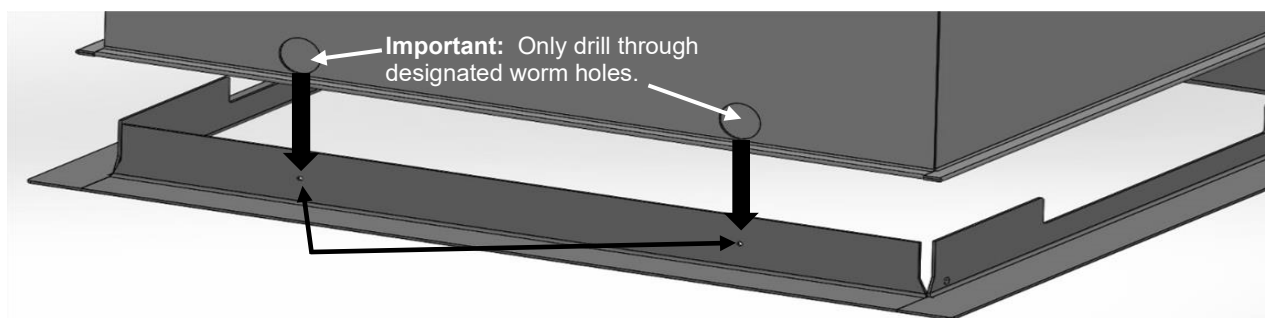
STEP: 2

Reinsert the trim lining up the rivet holes. Use closed-end pop rivets to attach the trim to the hood (STEP: 3).

Caution: Use closed-end pop rivets or blind pop rivets to attach the trim. If not, contaminated air can pass the shaft of the rivet and negatively affect the cleanroom.



STEP: 3



Permanent Trim "PT" for Grid Ceilings

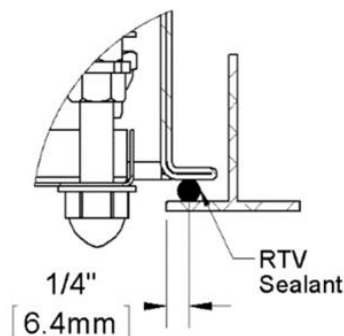
Hoods with PT trim typically install from the top side of the grid, with the permanent trim resting on the grid supporting the hood without the use of hanging tabs or pads. The interface between the trim and the grid should be sealed with RTV (Dow Corning 732 is recommended). As a safety precaution, these hoods may be supplied with hanging tabs so that wires or cables may be attached to another supporting structure to meet regulatory seismic restraint requirements.

Prior to installing, clean the trim on the hood and the surface of the grid to remove any residue that would keep the RTV from bonding. Apply a 1/4" diameter bead of RTV to the grid.

Remove the grille from the hood and install the hood into the opening and center in the opening.

Seat the hood by pushing down with enough pressure to ensure that permanent trim is bonded to the grid.

Smooth out any sealant that pushes out around the perimeter of the hood and remove with a clean rag.



Grille Installation and Removal

Flush Unhinged Grille with Acorn Nuts

In this configuration, four threaded studs protrude from the hood and through the grille. Acorn nuts installed on each stud secure the grille in place.



Grille secured with acorn nuts.



To remove the grille, loosen and remove the acorn nuts and flat washer. Store grille in a safe place.



To replace the grille, align the holes in the grille with the four studs.







Hold the grille in place and reinstall the flat washers and acorn nuts. Hand-tighten the acorn nuts. A wrench could damage the studs.

Filter Installation and Removal

Caution: With an assistant, always handle filters with extreme care as the filter media is easily damaged. It is important to grasp the filter by the frame only. If the bag sticks to the gel in the gel channel, pull the bag away slowly. Doing so quickly could damage the gel. **Never touch the filter media or gel with hands or foreign object.**

1. Remove the grille.
2. Locate the Mechanical Filter Retainers

Mechanical Filter Retainers			
			
With an assistant, locate the four retaining tabs that hold the filter in the hood. Do not touch the gel or filter media.	Loosen the hex nuts by turning counterclockwise with a nut driver or 9/16 wrench. Caution: One technician should always support the filter (by the frame only) while rotating the tabs.	Rotate the tabs 90 degrees until they are parallel to the filter frame. Caution: After the tabs are rotated, the filter may fall from the hood.	To remove the filter, see filter guide options below. When the filter is in place, reverse this process to engage the retaining tabs.

3. Locate the Fixed Filter Guides

Note: If removing an old filter, clean any residual gel from the knife edge track using a mild surfactant. Firmly grasp the new filter by the frame without touching the media or gel. Orient the filter with the gel track up.

Fixed Filter Guide

To keep the filter from falling, always hold the filter by the frame only. The fixed guide ensures the filter is properly aligned. Firmly hold the filter frame to engage the knife edge of the hood from the gel around the perimeter of the filter.

To remove a filter, pull the filter from the knife edge.



4. Replace the grille.

Static Pressure/Aerosol* Injection Ports

Static Pressure/Aerosol Injection Ports with Nylon Plug

Static pressure or Aerosol ports feature a 3/8" plug to seal the port when not in use. To access the port, remove the plug using a 11/16" socket. It is recommended that a 6" or longer extension be used when removing the plug to minimize potential filter damage that may occur from accidentally touching the media.

Before replacing the plug, wrap several layers of Teflon tape around the threads to ensure a proper seal when the plug is installed.



*Recommended aerosol injection rate is 15-20 micrograms per liter.

Ductwork, Dampers and Damper Operation

Pharmaslim hoods are equipped with bowtie (radial blade) damper style and are shipped in the fully closed position. Hoods with isolation dampers ship with the dampers fully open to avoid damaging the seal.

After mounting and securing the hood in the ceiling or grid, connect ductwork to the inlet collar. Bowtie dampers have formed ribs around the inlet collar. Slide flexible ductwork onto the inlet collar and the ribs. Secure the duct with a band below the ribs.

The damper control is located on the end of the hood, under the grille. Remove the grille to adjust the damper.

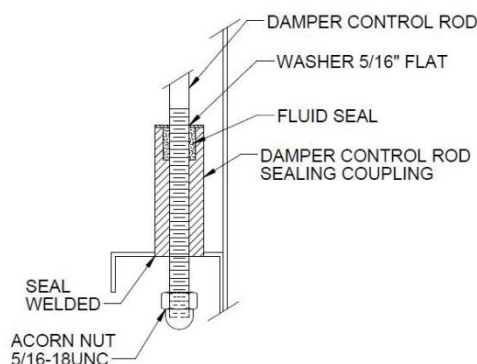
Bowtie Damper Controls

Bowtie Damper Control

Prior to operating the damper, loosen the set screw (if applicable) in the locking collar using a 1/8" hex key. With a 9/16" nut driver or socket, adjust the damper position by rotating the damper adjustment nut.

The damper operates from fully open to fully closed position with approximately 1/4-turn or 90-degree rotation.

Caution: Never adjust the damper while set screw is in the locked position. This will damage the damper control rod. Over-tightening the set screw will damage the damper control rod and set screw threads.





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