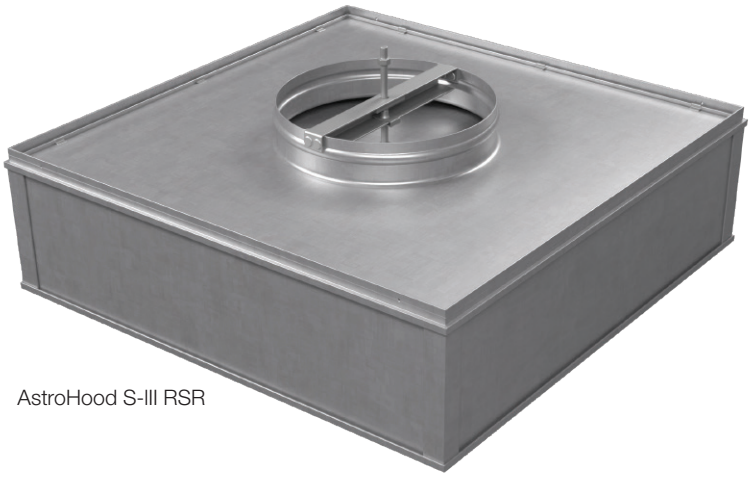
AstroHood™ S-III RSR

Ducted HEPA Terminal Hoods

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL



AstroHood S-III RSR

TABLE OF CONTENTS:

Introduction and Precautions 02

Equipment Overview 03

- Unpacking 03
- Installation 03

Ducted Terminal Hood Installation 03

- Mounting Options 04
- Flange for Grid/T-Bar Ceiling 04
- PermaFrame for Hard/Gypsum Ceilings 05
- Grille Installation and Removal 07

Filter Unpacking, Installation, Storage, and Operation 07-08

- Unpacking 07
- Installation 07
- Storage 07
- Operating Conditions 07
- Static Pressure/Upstream Aerosol Ports 07
- Damper Options and Operation 08

Insulation Options 08

Appendix A – Warranty Information 09

Appendix B – Manual Revision History 10

Contacting AAF ..... Back Cover

INTRODUCTION AND PRECAUTIONS

Intended Use

AAF AstroHood™ S-III RSR Ducted HEPA Terminal Hood ensure the delivery of cleanroom quality air to critical process applications such as Pharmaceutical Manufacturing, Life Sciences, Biosafety, Healthcare, and all other applications where clean supply air is a requirement.

User Responsibility

This document contains the information necessary to properly receive, assemble, install, operate, and maintain the AAF AstroHood S-III RSR Ducted HEPA Terminal Hood equipment. The purchaser, installer, and operator of the filter system MUST read and comply with this document in its entirety. Failure to comply with the requirements of this manual may result in serious injury and void the product warranty.

These instructions are specific to the AAF AstoHood S-III RSR unit and incorporated filters. All ancillary tasks including, but not limited to, electrical and mechanical work, equipment handling, and safety procedures must be performed in accordance with industry-accepted practice and all relevant local, state, and federal government codes, laws, and policies.

Before proceeding with installation, operation or maintenance, review this Installation, Operation, and Maintenance Manual in its entirety and all safety procedures with your company's safety personnel.

Precautions

- Units must be properly transported and handled, since improper transport and/or handling can result in damage, blemishes, or other imperfections.
- Deliveries are to be immediately inspected in the presence of the freight carrier to ensure equipment is delivered in full and free from damage.
- The installation site must be suitable for unit installation.
- The supporting construction must be level, and the structure must have sufficient load strength to support all equipment supplied.
- Mounting must be carried out by qualified and trained personnel in accordance with all local, state, and national codes and regulations.

EQUIPMENT OVERVIEW

The AstroHood™ S-III RSR Ducted HEPA Terminal Hood is a low-profile and lightweight, ducted room-side replaceable HEPA/ULPA filter terminal module of anodized aluminum construction using a gel seal minipleat or separator-less style filter pack. The Astrohood S-III RSR unit is designed to provide unidirectional airflow when installed in drywall or T-bar ceilings. AstroHood S-III RSR modules are available in three nominal sizes: 24”x24”, 24”x36”, and 24”x48”, for either 1-1/2” or 2” T-bar, and with 8”, 10”, 12”, or 14” diameter inlet collars.

The filter pack is sealed in an anodized extruded aluminum frame with integral gel seal channel to ensure an air-tight seal. The filter’s extruded aluminum center divider is furnished with a port for in-room baffle plate adjustment, and for measuring of an upstream challenge aerosol and static pressure. AAF does not recommend using the aerosol port as a means of aerosol injection.

The one-piece hood/inlet collar is made of spun aluminum, and the inlet collar is ribbed to secure the flex duct retaining strap. A 22-gauge, 40% open area removable perforated grille protects the media pack. Hanging holes (1/8" in diameter) are drilled on the module’s top four corners to secure seismic restraint wires or to hang the unit.

Unpacking

- Carefully remove the unit from the shipping carton and inspect for any damage that may have occurred during transportation. Two workers minimum are required to lift the unit from the container.
- Remove housing from shipping carton and inspect for concealed damage and any hardware that may have become loose in transit.
- Remove the Grille and Field Installed Trim, if supplied, and set aside. It is good practice to label or mark the grille and trim components to match with the respective unit to ensure good fitment.

Installation

Install and support housing as instructed on the following pages. Flexible duct connections should be made using stainless steel, worm-gear type draw bands for maximum reliability. Housing installation must be accomplished in a professional manner with flanges or trim properly sealed to prevent contaminant infiltration from the interstitial space.

Mounting Options

Unit can be suspended by wire via four (4) 1/8" holes, one (1) located in each corner.

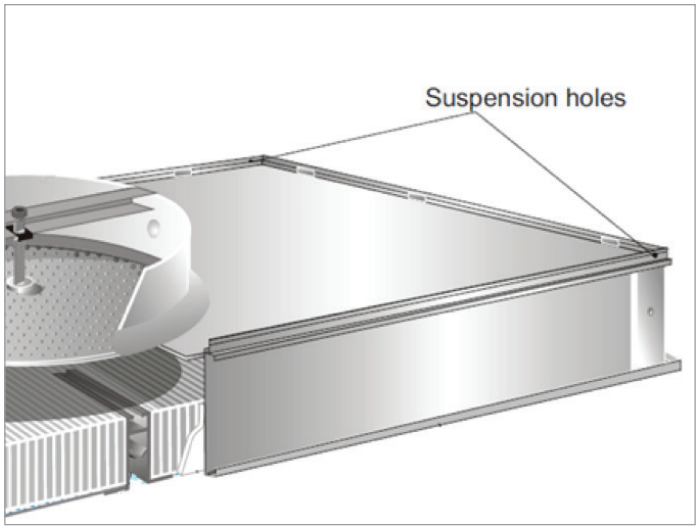


Fig 01: Wire – Suspension Holes

Flange (Permanent Trim) for Grid / T-Bar Ceiling

The AstroHood™ S-III RSR unit is installed from the top side of the suspended ceiling grid/T-bar with the integral flange resting on the grid/T-bar. If no gasket is present in the ceiling grid, the AstroHood unit should be sealed to the grid using RTV (Dow Corning 732 or GE 102 is recommended).

1. Thoroughly clean the mating surfaces of the unit flange and ceiling grid to remove any debris or residue that may inhibit an adequate seal.
2. Apply a continuous, small bead (~ ¼" diameter) of RTV to the mating surface of the grid/T-bar.
3. Center and lower the AstroHood unit into the opening and seat the unit onto the grid/T-bar. Apply uniform pressure to ensure the flange is bonded to the grid/T-bar (see Fig. 02).
4. Remove excess RTV.

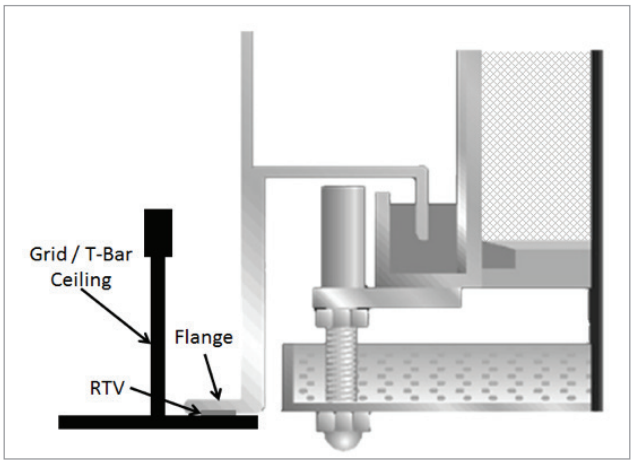


Fig 02: Flange Mount for Grid / T-Bar Ceiling

PermaFrame for Hard/Gypsum Ceilings

The PermaFrame provides a support structure and room-side finish trim in one piece. It is supplied with predrilled mounting holes located on the vertical flanges that are used to easily level and anchor the frame to customer-supplied studs above the ceiling structure. Manufactured of 18-gauge cold-rolled steel or stainless steel, the welding on all exposed corners guarantees a smooth, cleanable surface. White powder coat paint is supplied as standard finish. The PermaFrame is ordered separately from the AstroHood™ unit.

Dimensional Data - Standard Size AstroHood (1½" T-Bar)

AstroHood	Model Number	Actual Dimensions (inches)				Weight (lbs)
		L	W	IL	IW	
2 x 2	HCFA 2424	26	26	24	24	4
2 x 4	HCFA 2448	50	26	48	24	5

Drawing Notes:

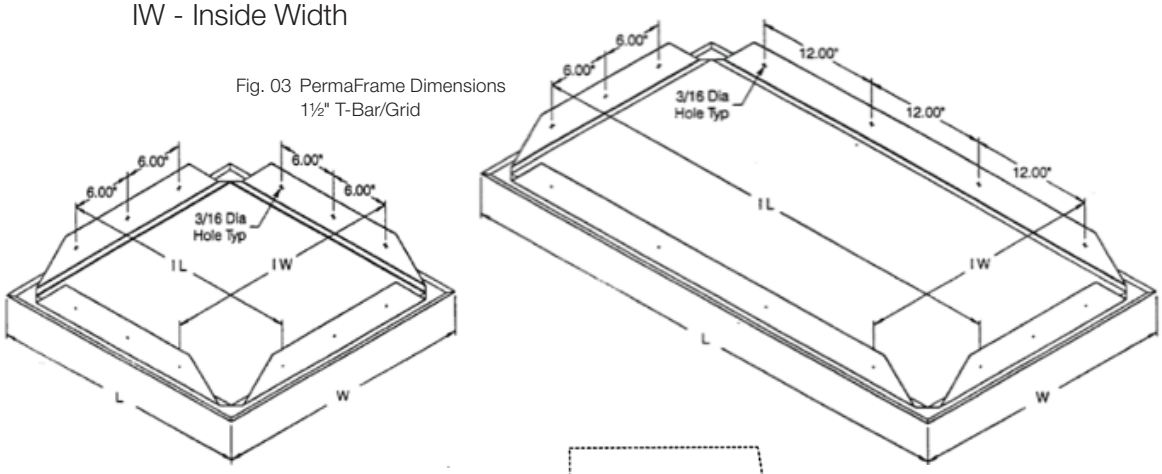
Construction - 18–ga. cold rolled steel or 304 stainless steel.

For SS finish use - SS suffix, unit supplied painted white standard

IL - Inside Length

IW - Inside Width

Fig. 03 PermaFrame Dimensions
1½" T-Bar/Grid



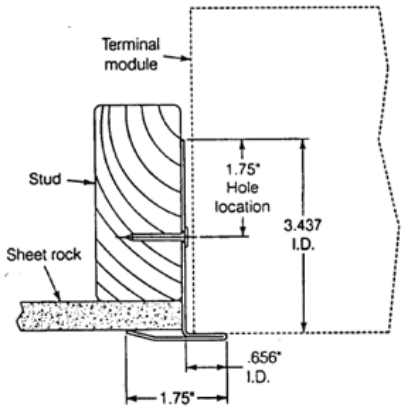


Fig. 04 PermaFrame Mounting

Grille Installation and Removal

The standard grille is removable and made of 40% open area 316L Stainless Steel, but painted cold-rolled steel is available. Grille mounting can be supplied as standard four (4) corner acorn nut design.

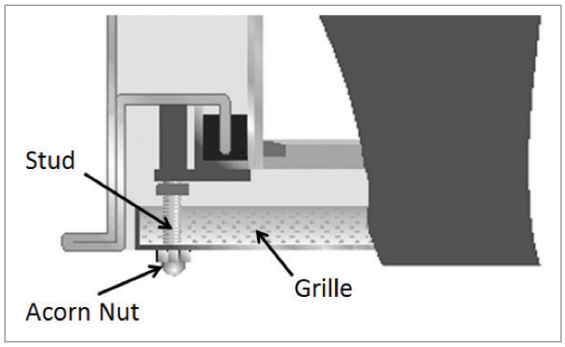


Fig. 05 Grille Mounting

Filter Unpacking, Installation, Storage, and Operation

Unpacking

- Before removing the filter module from the carton carefully read the removal and handling instructions printed on the outside of the carton.
- AAF cleanroom filters may come packaged in suitcase-style cardboard sleeves. If so, simply reach into the box and grab the pre-punched handles within the insert.
- If the filter is in a cardboard liner, the filter must be oriented so that the open ends of the liner are facing outward (i.e., to your left and right rather than upward). Carefully cut the packing tape that holds the filter in the liner. Always check for torn or deflected liner edges. If any are found, straighten or flatten such edges prior to liner removal to prevent media damage.
- One person should carefully hold the plastic bag(s) while the other person carefully pulls the liner, sliding it away from the filter.
- Panel filters will be single- or double-bagged (depending on customer requirements) with snug-fitting cardboard liners. Ducted filters will be single- or double-bagged and packed in reinforced cartons.
- The filter should be handled with extreme care to avoid contact with the media and/or face screen.
- While the bag is still present, carry the filter by grabbing the bag. Be careful to keep the filter away from your body and any objects in your path.
  - If the bag is not present, always handle filter by the frame, avoiding contact with the media and/or face screen.
- Remove the bag carefully. Avoid bringing hands and fingers into contact with the filter media.
- Additional precautions for gel seal filters:
  - Care is taken at the factory to prevent the bag from contacting the gel. Be very careful when unpacking gel seal filters by removing the bag slowly and carefully.
  - If the bag comes in contact with the gel, pull the bag off the gel slowly. Quick removal of the bag may cause damage to the gel and possible separation of gel from the gel channel.

Filter Unpacking, Installation, Storage, and Operation (cont'd)

Installation

- Carefully lift the filter into place, inserting it into the housing and taking care to make certain the knife edge is properly seated into the fluid gel seal. NOTE: Setting filters properly requires two (2) people.
- Rotate each of the four (4) filter retainers, one (1) in each corner, into place and hand-tighten the hex nuts.
- Install the grille using the four (4) acorn nuts or ¼-turn fasteners [haven't mentioned this ¼-turn fasteners option previously] with the hinged grille option.

Storage

- Location: Storage should be indoors, (under roof and enclosed) and absolutely protected from moisture.
- It is strongly recommended that the storage space be climate-controlled.
  - Temperature Limits: Maximum temperatures of 250°F (121°C) intermittent, and 100°F (38°C) steady state. Minimum temperature is 32°F (0°C).

Operating Conditions

- Temperature: The maximum operating temperature is determined by the filter configuration.
  - Consult the filter submittal drawing for the specific maximum operating temperature.
- Humidity: 100% relative humidity is acceptable. However, condensation must be avoided to prevent degradation of performance and potential filter failure.
- Filters should not be operated in caustic or acidic environments.
- Filters should not be operated in excess of twice the rated performance for flow rate or pressure drop.

Static Pressure/Upstream Aerosol Ports

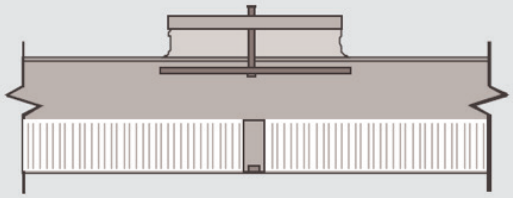
Filter must be supplied with centerboard and port to sample upstream aerosol and to measure upstream static pressure. A filter with centerboard and port is also necessary to access damper adjustment (filters ordered separately).

Dampers and Damper Operation

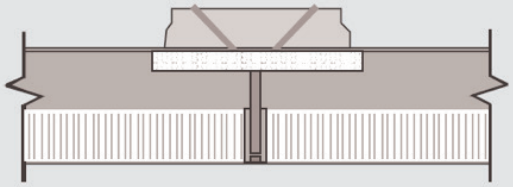
The AstroHood S-III RSR Ducted HEPA Terminal Hood is supplied with Split Butterfly, Telescoping Disc, or no damper (i.e., fixed distribution disc).

The Split Butterfly and Telescoping disc dampers are adjustable from the room side via Phillips head screwdriver. Please note that a filter with centerboard and access port must be supplied to access the damper adjustment.

Adjustable Distribution Plate for fine tuning the airflow from roomside. Dampers in the HVAC system are recommended.



Butterfly Damper for wider adjustment of airflow from roomside. This option includes a fixed distribution plate and swagged inlet. Dampers in the HVAC system are recommended.



Fixed Distribution Plate for applications where no adjustment of the airflow is required from the roomside and all are in the HVAC system.

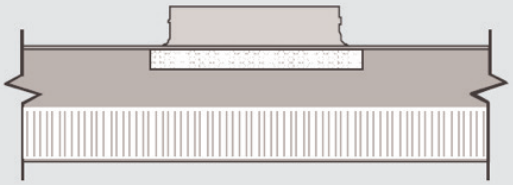


Fig: 06 Dampers and Operation

Insulation Options

Insulation options are available to prevent heat loss, mitigate potential condensation, and/or provide sound attenuation. Determining the use of these options is the responsibility of the design engineer.

The 2" foil-backed option is an aluminum foil-backed fiberglass (installed 6.0 R-value) attached to the housing using adhesive-mounted insulation anchors and caps.

APPENDIX A – WARRANTY

AAF INTERNATIONAL
LIMITED WARRANTY

The Seller warrants that it will provide free replacement parts in the event any product manufactured by the Seller proves defective in material or workmanship for a period of twelve (12) months from initial startup or eighteen (18) months from date of shipment, whichever expires sooner. Product(s) not manufactured by the Seller but also sold under this agreement are warranted only to the extent that the manufacturer warranted them to the Seller or directly to Buyer.

The Seller's liability to Buyer shall not exceed the lesser of the cost of correcting defects in the product(s) sold or the original purchase price of the product(s) and the Seller shall in no event be liable to Buyer or third parties for any delays. The Seller's warranty does not apply to any product(s) or goods which: (1) have been opened, dissembled, repaired, or altered by anyone other than the Seller or its authorized service representative; or, (2) which have been subjected to misuse, misapplication, negligence, accidents, damage, abuse, improper storage, or abnormal use or service; or, (3) have been operated or installed in a manner contrary to Seller's printed instructions; or, (4), have been installed in an incorrect or improper application; or, (5) have become corroded or subjected to abrasion. The Seller is not obligated to pay any costs or expenses in connection with the removal and re-installation of such product(s) or goods, including but not limited to labor, service costs, and shipping charges. The same obligations and conditions shall extend to replacement parts furnished by the Seller hereunder. This parts warranty and any optional extended warranties are granted only to the original user. Seller's duty to perform under this or any warranty may be delayed, at Seller's sole option, until Seller has been paid in full for all products or goods purchased by Buyer. No such delay shall extend the warranty period.

To obtain assistance under this limited warranty please contact the selling agency. To obtain information or to gain factory assistance, contact AAF International Warranty Claims Department, 9920 Corporate Campus Drive, Suite 2200, P.O. Box 35690, Louisville, Kentucky 40223-5000; Telephone (502) 637-0011, FAX (888) 223-6500.

THIS WARRANTY CONSTITUTES BUYER'S SOLE REMEDY. IT IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NOTWITHSTANDING ANY OTHER TERMS OF ANY AGREEMENT BETWEEN THE SELLER AND BUYER, IN NO EVENT AND UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER THE THEORY BE BREACH OF THIS OR ANY OTHER WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, OR STRICT LIABILITY.

No person (including any agent, salesman, dealer or distributor) has the authority to expand the Seller's obligation beyond the terms of this express warranty, or to state that the performance of the product(s) is other than published by the Seller.

APPENDIX B – MANUAL REVISION HISTORY

Revision Version	Revision Date	Description of Change	Approval

For Technical or Application Questions:

Phone: 1 (888) 223-2003

Email: productsupport@aafintl.com

AAF International Plant Locations

AAF, the world's largest manufacturer of air filtration solutions, operates production, warehousing and distribution facilities in 22 countries across four continents. With its global headquarters in Louisville, Kentucky, AAF is committed to protecting people, processes and systems through the development and manufacturing of the highest quality air filters, filtration equipment, and associated housing and hardware available today.

Contact your local AAF representative for a compete list of AAF Air Filtration Product Solutiobns.

Americas

Louisville, KY
Atlanta, GA
Ardmore, OK
Bartow, FL
Columbia, MO
Fayetteville, AR
Hudson, NY
Momence, IL
Ontario, CA
Smithfield, NC
Tijuana, Mexico
Votorantim, Brazil
Washington, NC

Europe

Cramlington, UK
Gasny, France
Vitoria, Spain
Ecoparc, France
Trencin, Slovakia
Vadstena, Sweden
Vantas, Finland

Asia & Middle East

Riyadh, Saudi Arabia
Shah Alam, Malaysia
Suzhou, China
Shenzhen, China
Miaoli, Taiwan
Bangalore, India
Noida, India
Yuki, Japan (Nippon Muki)

AAF INTERNATIONAL
a member of DAIKIN group

9920 Corporate Campus Drive, Suite 2200, Louisville, KY 40223-5690
888.223.2003 Fax 888.223.6500 I aafintl.com

AAF has a policy of continuous product research and improvement. We reserve the right to change design and specifications without notice.

ISO Certified Firm

AFP-3-104 12/23