

P&G RTM Terminal Filter Module Module Installation Guide

IAS Bulletin #443

The standard P&G Replaceable Terminal Module (RTM) housing is manufactured from 0.063” thick aluminum with welded seams and equipped with either of the following:

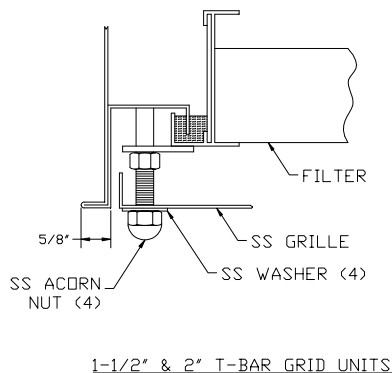
5/8” integral turned-out flanges for compatibility with either 1½” tee bar grids or gypsum/plastered ceilings, or Optional 1-1/2” permanent or removable flanges manufactured of type 304 stainless steel. The 1-1/2” L-trim is suitable for installation in gypsum/plastered ceilings.

This module is an excellent choice where Class 1 or better HEPA filtered air supplies are required. Housing and filters are shipped in separate cartons to ensure the HEPA filters are not installed until site conditions are inspected and approved.

INSTALLATION OF HOUSING (MODULE):

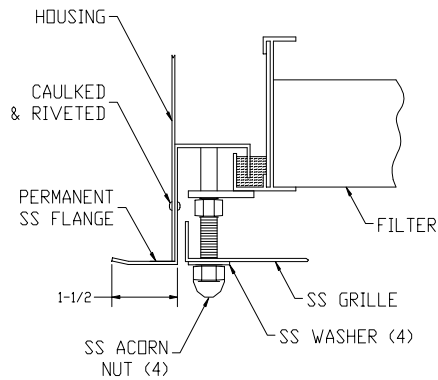
- Remove housing from shipping carton and inspect for any damage.
- When site conditions are not clean or filter installation will be delayed for more than two weeks, remove faceguards and store in a secure and clean area.
- Install and support housing as instructed in A, B or C below. Flexible duct connections should be made using stainless steel, worm-gear type drawbands for maximum reliability. Housing installation must be accomplished in a professional manner with flanges sealed to prevent dust infiltration from the interstitial space.

A) Installation in 1-1/2” Ceiling Grid (*see left*)



Standard housing – Suspend housing independently with optional hanging tabs and/or grid hangers to support module.

Seal housing flanges airtight against T-bar with gasket or caulk.



HARD CEILING UNITS
(PERMANENT 1-1/2" SS FLANGE)

B) Installation in plaster or gypsum ceilings. (see diagram at left)

Standard housing or optional module with stainless steel perimeter trim – Suspend housing from four corners via seismic tabs and level to align top flat of flange with finish ceiling elevation.

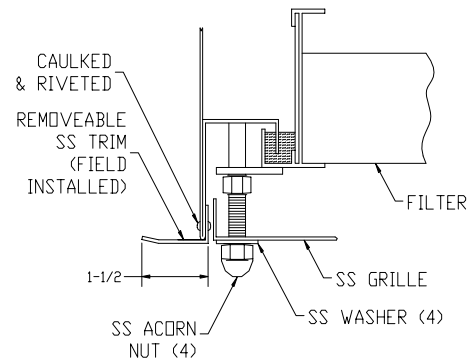
NOTE: Flange is not designed to support ceiling. Grout flange flush with ceiling.

C) Optional Module with 1-1/2" removable stainless-steel angle trim frame (see right)

Remove angle trim assembly and suspend module from four corners via seismic tabs. Level housing and align lip of housing with finish ceiling and grout module in place.

Insert angle trim assembly and rivet to housing. Caulk head of rivets or any other module penetration. Caulk where trim meets drywall.

Note: Optional 2" wide trim with radial-cut corners is recommended for imperfect ceilings.



HARD CEILING UNITS - AL & SS HOUSING
(REMOVEABLE SS TRIM FRAME)

WARNING – When performing the following procedures, do not open the damper beyond 2½ turns of the damper adjustment screw. Exceeding 2½ turns can result in damage to the unit. Dampers are shipped in a fully closed position. **DO NOT OPEN WITH THE SUPPLY AIR ON.**



FILTER INSTALLATION:

Before installing HEPA filter cartridges, the system must be balanced, cleaned, blown down, and operational with pre-filters in place. This will minimize the amount of particulate swept into the filter pack at startup.

1. Remove face guard from module, check damper operation and leave damper open.
 - **OPERATING THE DAMPER**
 - Turn supply air off
 - Open damper completely, 2 ½ turns maximum
 - Turn supply air on
 - Adjust damper as required
2. Inspect the knife-edge filter seal inside housing for damage
3. Wipe housing and components clean using a lint-free cloth and solvent, such as diluted isopropyl alcohol.
4. Rotate the four retaining latches parallel to housing wall to allow filter insertion
5. Just before installation carefully remove the filter from shipping carton and bag.
6. Inspect the filter unit for shipping damage before inserting. Inspect both the media pack and extruded frame for visible damage. Do **NOT** install a filter that has visible damage, however slight the damage might appear.
7. **DO NOT** install filters with supply air on; ensure all air handling equipment is OFF when installing the filter.
8. Do **NOT** contact the fragile filter paper; handle the filter by the frame only. Position the filter with fluid-filled pocket turned upward.

NOTE: Setting filters requires a minimum of two people; never attempt to install any size filter unless there are *at least two personnel* assisting.
9. Align and insert the cartridge upward into the module. The housing's knife-edge should penetrate the gel pocket around the lower outside edge of the filter. When installing the filter, the knife-edge should penetrate the gel track in or near the center of the track on all four sides. Failure to center the filter in the hood could result in leakage caused by the knife-edge (module) sliding down the edge of the gel track (filter) creating a leak path.
10. While holding the filter in position, rotate the four latches 90° (perpendicular) to the housing edges to support the filter cartridge. Secure latch nuts finger-tight only; do **NOT** over tighten.
11. Upon completion of test and balance work, the perforated faceguard may be installed using four acorn nuts. Be sure the face-guard is clean and dust free before installing.



RTM Installation Guide

HVAC Filtration Systems - IAS Bulletin #443 Page 4 of 4

OPERATION:

- Once in position the P-RTM may be balanced and tested.

1. Adjust the main air supply and duct branches to meet overall design airflow before attempting to balance any of the filter modules. The butterfly damper in the housing should be open. Follow the steps in FILTER INSTALLATION for Step 1.

NOTE: The damper is a trim device and not intended to induce a large pressure drop.

2. To determine output of the module, measure the total air volume in CFM using a soft-balancing hood equipped with a velometer. Reading and averaging numerous points at the filter face is not recommended.
3. Adjust the module damper or system branch duct damper as required to provide the desired air volume.
4. Replace the well-nut plug in the damper adjustment port.
5. Reinstall faceguard onto module.

DOP/PAO TESTING:

The module may be leak tested in place. An optional aerosol injection device is accessible from the room side to individually test each unit. Aerosol is introduced above the filter by removing the ½” square head plug from the room side and connecting the aerosol generator to this port. An additional aerosol sample port is used to validate the upstream challenge concentration.

An alternative method for aerosol injection is to introduce the challenge in the upstream ductwork at least ten duct diameters away or preferably into the fan intake. The sample port may be used to check the contamination (aerosol challenge) level of the supply air from the room side at any time.

MAINTENANCE:

An annual check of airflow is recommended. When the filter throughput eventually declines to an unacceptable level due to particulate accumulation, the filter cartridge should be replaced.