P&G MANUFACTURING INC.

HEPA SIDE ACCESS OPERATION MANUAL

MANUFACTURER'S MESSAGE

The P&G HEPA Side Access (HSA) filter housings are designed to offer a cost effective means of HEPA filtration in a simple robust design. This manual is intended to address specific operation points for the HSA however you should follow these instructions as amended by your chief safety officer.

We realize that a single manual cannot address all types of housing designs and configurations, so we are offering the concepts of installing a new filter(s) into a new system and replacing dirty filters in systems that are already in operation. Once the concept is understood maintenance personnel should adapt the most suitable method to use considering the housing, location, type of filter, and any other items that can affect safety.

Carefully study this manual and the safety officer's amendments so that you have the entire procedure in mind before attempting filter change out. Be sure to have all tools and equipment on hand prior to actually beginning work.

The important thing to remember is to use this manual, your safety officer's instructions, and your own reasoning ability to prevent yourself and the immediate environment from being contaminated with the material that is captured on the dirty filter.

INTRODUCTION

Depending upon the user's requirements, the housing may have an assortment of filter arrangements, including prefilters, HEPA filters and other type filter media. No matter what types of filters are contained within the housing, the filter change-out procedure is the same.

FLUID SEAL DESIGN CONCEPT (FH Series Housings)

The filter to housing gel seal is effected by means of a continuous knife-edge on the interior of the housing, which mates into the gel filled perimeter channel on the face of the filter. To effect the seal, the locking mechanism forces the filter against the knife-edge. The knife-edge penetrates the gel and a uniform seal is produced on the filter face.

DESCRIPTION OF FLUID SEAL FILTER LOCKING SYSTEM (FH Series Housings)

The fluid seal HSA housing has a filter-locking arm in each tier to operate the replaceable filter locking mechanism. By operating the internal filter-locking arm the filter is engaged on, or disengaged from, the housing knife-edge (internal sealing frame). The filter-locking arm and the access door interface in such a manner that minimizes the possibility of the door being closed until the filters are correctly sealed in the housing and sealed to the mounting frame.

GASKET SEAL DESIGN CONCEPT (GH Series Housings)

The filter to housing gasket seal is effected by means of a continuous flat mounting surface on the interior of the housing, which mates to a perimeter gasket on the filter. To affect the seal, the locking mechanism forces the filter against the mounting surface.

OPENING AND CLOSING GASKET SEAL LOCKING MECHANISM

By turning the drive bolt(s) clockwise located at the front interior of the housing, independent pressure bars with preloaded springs, located in the filter locking mechanism, force the filter against the interior-mounting frame (there are two drive bolts per filter). Preloaded springs on each pressure bar, for each filter element, apply consistent pressure to maintain filter seal. This force should be applied as an even, uniform load along the top and bottom of each filter frame. The gasket shall be compressed to and not exceed 1/8." ***Caution**- over compression of the gasket can lead to leaks.

HANDLING AND STORAGE OF FILTER ELEMENTS

Particulate filters include a wide range of filter types, sizes and performance capabilities. These filters are designed to remove airborne particulates from an air stream. Filters can consist of 30% efficient by ASHRAE prefilters and up to 99.97% efficient HEPA (high efficiency particulate air) filters. In general, all particulate air filters are fragile and should be handled with care. The following precautions should be observed upon storing filters:

- Keep in a clean low humidity air controlled environment.
- Filter should remain in its original shipping. Container with correct orientation until put in use.
- Temperature in storage area shall not be less than 0° Fahrenheit or more than 100° Fahrenheit.
- Stacking of filters is prohibited.
- Moving of filters should be restricted- lest the media become damaged.
- Shelf life is no more than three years for both gasket and gel seal filters. (see manufacturer's instructions)
- All filter manufacture's instructions and warnings shall be followed as well.

INSTALLATION OF NEW HOUSINGS

1. Position the housing adjacent to the ductwork. Housing should be welded, bolted or gasketed permanently to the ductwork.

2. Housing should be securely mounted to either a base or other permanent edifice.

3. Unit should be orientated as so the access door(s) can be easily removed and replaced.

4. Following installation, ductwork and housing should be cleaned to eliminate any and all contaminants as well as any other items, which may have been stored in the unit during shipping.

5. Install filter(s).

6. Perform designated leak test/DOP test (designated by either the chief safety officer or engineer) to insure that the unit is working properly and is not leaking.

START UP PROCEDURES

System must be shutdown prior to any filter installation or removal. Airflow should be stopped or a bypass of the air system must be made.

1. Remove Housing door and open locking mechanism- This can be accomplished by removing the four wing nuts or star knobs (3/8-16 threads) located on the access door, set fasteners and door aside for future use.
   A. Fluid Seal Systems: Actuate handle (located inside housing) by swinging it out of housing. (You will see the pressure bar assembly move away from the seal edge.)
   B. Gasket Seal Systems: Turn drive bolt (located inside housing) counterclockwise until locking tray is fully retracted (you will see the pressure bar move away from the seal face)

2. Install a new HEPA filter(s) and or prefilter for each tier. The locking mechanism should be in the open position. Regardless of seal type the filter should freely slide into the housing. If filter will not slide in ensure that locking mechanisms are in an open position.
   A. Fluid seal filter alignment and installation:
   Fluid seal filters should have extractor clips, when loading the filters ensure that the locking tray pressure bar is in direct contact with the filter and that the extractor clips are not being compressed by the pressure bar. **If the locking tray pressure bar compresses the extractor clips this will result in damage to the locking mechanism. Extractor clips should <u>overhang</u> the pressure bar.**
3. With all filters installed tighten/close locking mechanism
   A. Fluid seal systems: Actuate handle by swinging handle into the housing
   B. Gasket seal systems: Turn drive bolt (located inside housing) clockwise
4. Replace door and secure using provided fasteners

REMOVAL PROCEDURES

5. Filter removal is opposite of startup procedures.

APPENDIX A

It is recommended that the buyer supply complete information about the operating conditions of the ventilation system prior to installation of any air filtration system. Location specific conditions may prevent the system from operating satisfactorily for certain applications. Any non-factory alterations to the product may result in a compromised installation. Please contact manufacturer for any questions not addressed in this manual.

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APPENDIX B

LOCKING TRAY CHANGE OUT

Change out is a simple task. The same concept applies to locking mechanisms as that to filters. (refer back to start up procedures).

First, remove all filters from the contamination unit following the **Start Up Procedures** aforementioned.

Required Tools:
Ratchet
½" socket
3/8" socket for Gel seal units

FLUID SEAL METHOD

1. Using the ratchet with the ½" socket remove the two hex nuts and washers for both the top and bottom locking trays.

2. Then switch to the 3/8" socket and remove the hex nut and washers from the linkage to the door swing arm.

GASKET SEAL METHOD

1. Using the ratchet with the ½” socket remove the two hex nuts and washers for both the top and bottom locking trays.

(downstream view of locking tray mechanism)
Figure 1-21

2. Lift the top half of each locking tray off of the studs.

3. Remove the pipe bearings from the locking mechanism and back off the drive bolts to release the bottom locking trays.

4. Remove the bottom-locking tray.