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Installation, Operation, Maintenance Manual CCS Engineered Enclosure



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Project Information

Filtered Weigh Room

6' x 6' x 8'h (structure only) Modular room is mobile and filters air both in and out.

Room is constructed and equipped with:

- Modular wall panel construction. Panels are 2" thick with rigid foam core and faced on both sides with chemical resistant, non-porous, easily cleaned composite resin surface skin panels
- Structural framework is of anodized aluminum extrusions.
- Front to have a clear vinyl strip curtain for entry .
- A window of clear acrylic would be located on each side.
- A fan-powered HEPA filter is located in the ceiling providing a minimum of class 100,000 into the room. The filter is 2'x 4' and 99.99% eff. A speed control is mounted on the filter module for balancing.
- A fan powered HEPA filter is also mounted on the rear wall (at floor level) that exhausts air out of the room back to the surrounding area. The filter is 2'x 4' and 99.99% eff. and a speed control is provided for balancing.
- (2) Shatterproof fluorescent light fixtures are ceiling mounted.
- Electrical, switches, and minihelic gage are provided.
- Room shall position on a welded steel lower frame with leveling casters. This allows the room to be lowered to set on the floor and raised for moving.
- An electrical plug strip is provided on rear and side walls inside. 115v 15 amp

Notes:

Installation, Operating & Maintenance Instructions

HEMCO Filtered Weigh Room

Introduction

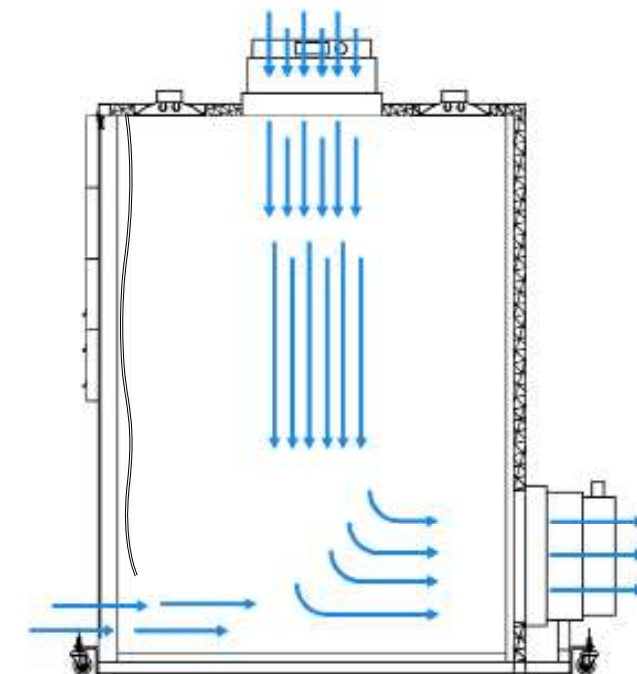
The HEMCO Filtered Weigh Room provides a safe controlled environment by means of controlled airflow utilizing high velocity air to capture airborne dust particles. Operations such as grinding, dispensing, weighing, or mixing can produce toxic airborne particulates that could be harmful to the operator or outside surroundings. With HEMCO's unique HEPA-IN/HEPA-OUT design, the product is protected from outside contamination, and is contained in the enclosure.

Basic Principles

- Clean (HEPA Filtered) air is supplied from ceiling of the room.
- Down flow of supplied air forces airborne particulates toward the floor.
- Contaminated air is pulled to a lower level exhaust plenum located at the rear of the filtered weigh room.
- The contaminated air is filtered (HEPA) to remove filter particulates and is exhausted.

Airflow

- Filtered weigh room provides unidirectional airflow that draws particulates away from the operator.
- Any potential airborne particulates that are generated during handling can be suppressed by the downward flow of air and is captured by the higher exhaust velocity local to the lower exhaust plenum.
- To prevent contaminated air from leaving the open front of the room, an additional 10% of exhausted is pulled through the lower plenum.
- The return air velocity should be 10% greater than the supply, resulting in a negative airflow.
- If particulates are escaping, increase exhaust flow and check current HEPA filter capacity.



AIRFLOW SCHEMATIC

Installation, Operating & Maintenance Instructions

Mechanical Installation of Units in 2" T-Grid Systems:

Install 2" T-Grid system in accordance with site plan and manufacturers instructions. Install seal gaskets ('If provided) in pre-designated locations. Carefully place SAM Fan Filter Unit into the grid opening taking care to observe the precautions not to damage the filter media while handling the units.

Electrical Installation:

Refer to wiring schematics at the back pages of these instructions. Provision of electrical branch circuit supply to the appropriate location within close proximity to the SAM Fan Filter Units is the responsibility of the customer's electrical installer. If local or national electrical codes or the customer's installation specifications require the provision of metal conduit directly to the unit it is recommended that a listed flexible metal conduit be provided.

SAM Fan Filter Units may be supplied with optional flexible power cord with grounded plug, optional 2"x 4" or 4"x 4" Metallic wiring box with cover, with or without an on-off switch mounted in the wiring box or optionally within the prefilter frame housing. When an on-off switch is provided, field connections are to be made directly to the open supply terminals of the switch. When an on-off switch is not provided, field connections are to be made to the non-connected pigtail leads within the metallic wiring box or pre-filter frame.

CAUTION: When making field wiring connections within the Pre-Filter Frame, make sure that all field installed wiring is routed away from moving motor and fan parts and is secured in place to prevent inadvertent damage to wires.

Start-up Check List-Before Applying Power:

Check the voltage on the Manufacturer's Name Plate and verify that the power supplied to the unit is the same as that listed on the Name Plate. Remove the prefilter and determine if the fan is free to rotate and misaligned during shipment or installation. Check nuts, bolts, screws and electrical connections for tightness.

CAUTION: If the unit is provided with a square perforated metal barrier over the opening to the prefilter frame, it must be re-installed prior to application of power and start-up of the Fan Filter Units. Apply power and check that the wheel is rotating in the correct direction. Looking through the prefilter frame the fan must be rotating in a clockwise direction.

OPERATING INSTRUCTIONS

Principle of Operation:

SAM Fan Filter Units are self-contained, low profile, electric powered, motor-fan driven HEPA or ULPA Filter, air filtering appliances. The units are heavy-duty units suitable for many industrial/commercial applications where clean air is needed. This is accomplished by maintaining a flow of filtered air to remove airborne particles within an enclosed room or chamber. Where manufacturing and assembly processes require Federal Standard 209 or ISO Classification clean rooms, multiple SAM Fan Filter units can provide a sufficient number of filtered air changes to maintain a positive pressure of clean air within the controlled environment. Because of the unique variety of sizes and options offered, SAM units can be incorporated into many different areas such as Softwall Cleanrooms, new Hardwall Cleanroom designs, and facility upgrades over conveyors or free standing machinery. They may also be incorporated into custom workbench constructions providing concentrated filtered air to meet critical clean air process requirements.

Method of Operation:

Unfiltered air is drawn into the air inlet at the top of the unit through an optional 20 x 20 Pre-Filter. This air is pulled through the motor/blower assembly into a baffled and insulated air plenum designed to evenly distribute air over and through the entire receiving surface of the HEPA Filter. Thus, SAM Fan Filter Units Efficiently and quietly deliver the desired volume of cleaned air to the controlled environment. The volume of air delivered can be adjusted by means of a factory installed variable motor speed controller mounted within the unit

Installation, Operating & Maintenance Instructions

MAINTENANCE INSTRUCTIONS

WARNING-TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

1. Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel. Or

2. For units optionally provided with a flexible cord arid plug. unplug unit and tie cord out of reach of receptacle. It is the intention of HEMCO Corporation to deliver a safe and reliable product that will give years of trouble-free service. To ensure optimum and safe performance and maximum product life it is imperative that a preventative maintenance program to established and adhered to and that all service is performed by a qualified technician. Replacement parts and components should be ordered through your local Clean Rooms International, Inc. representative or distributor to insure that parts are compatible and perform as originally designed.

PREVENTIVE MAINTENANCE

A program of preventive maintenance will greatly increase fan and motor life. Inspect pre-fitter, fan wheel, motor, and HEPA or ULPA filter after the first three (3) months of operation. Based on the findings, schedule periodic inspections and maintenance for:

4. Changing prefilters.

5. Cleaning fan wheel is required to insure smooth quiet operation. Periodic cleaning of all fan equipment is strongly recommended because dirt accumulation on the impeller can cause vibration which greatly increases stress and load on motor bearings.

6. Changing the HEPA or ULPA filter.

WHEN TO CHANGE A HEPA OR ULPA FILTER

Static pressure can be measured with a Magnehelic gage or manometer. It is time to change the HEPA or ULPA filter when the pressure drop across the filter reaches two (2) times the, original resistance.

HOW TO CHANGE THE HEPA OR ULPA

FILTER CAUTION: Do not touch the surface of the HEPA or ULPA filter while installing or removing the filter.

A. All units with HEPA or ULPA filler not replaceable from room side.

1. Remove SAM Unit from ceiling.
2. Remove twelve Tek screws located on plenum flange.
3. Clean plenum flange surface.
4. Set plenum on top of replacement filter.

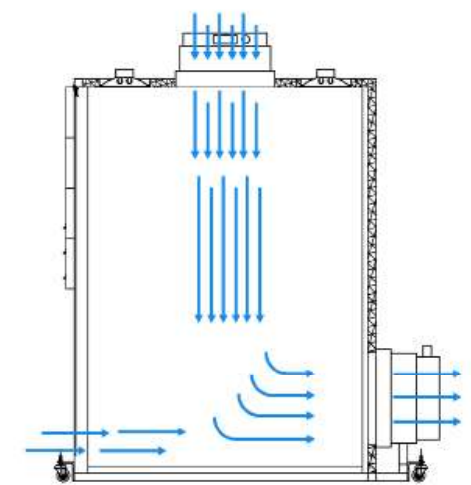
NOTE: Gasketed surface of filter should mate with plenum. CAUTION: Do not touch either side of the filter during installation.

5. With plenum centered over filter, install all screws.

B. CRF Series with HEPA or ULPA Filter Replaceable from Room side.

1. Removal of unit from ceiling grid is not required.
2. Remove (2) Phillips screws (E) from the grille frame and lower grille to vertical position.
3. Remove (4) filter clips (B) from frame and pull down on the HEPA or ULPA filler to break the seal, then lower the filter straight down through the light housing.
4. Replace with new HEPA or ULPA filter and repeat each of the above steps in reverse order.

CAUTION: Do not touch either Side of the filter during installation.



AIRFLOW SCHEMATIC