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Critical Environment Solutions

Quick-Start Guide *Document No. 1788-51*

Garment Cabinets with HEPA Filter

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Garment Cabinets with HEPA Filter

1. Safety

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Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death. The following symbols are intended to call your attention to two levels of hazard involved in operation.

CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.

WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

The information presented here is subject to change without notice.

2. General Information

Terra's free standing Garment Cabinets are designed to provide a clean storage space within a cleanroom environment. A fan/filter unit will be included and installed on top of the cabinet for continuous vertical laminar flow of HEPA-filtered air over sensitive parts or materials. The powder-coated steel construction and static-dissipative PVC windows are non-shedding and chemical-resistant, ensuring a particle-free, easy-to-clean environment.

A HEPA (high efficiency particulate air) filter installed inside the housing is rated 99.97% efficient at 0.3um particles. The filtration medium consists of micro porous polyurethane mini pleats held in place by strong, rigid plastic separators that keep the medium from nesting. This design channels airflow with optimal efficiency to reduce resistance. The filter is sealed within an aluminum frame with a fire-retardant, non-outgassing adhesive. The fan/filter unit includes a 10' power cable for connection to a 120V (or 220V, if specified) power source. As the HEPA filter becomes saturated, the speed can be increased to the High setting to achieve the necessary 90 FPM for ISO 5 classification.

Figure 2: Garment Cabinet with Fan Filter Unit

3. Components and Controls

3.1 Garment Cabinet (Equipped with Fan/Filter Unit)

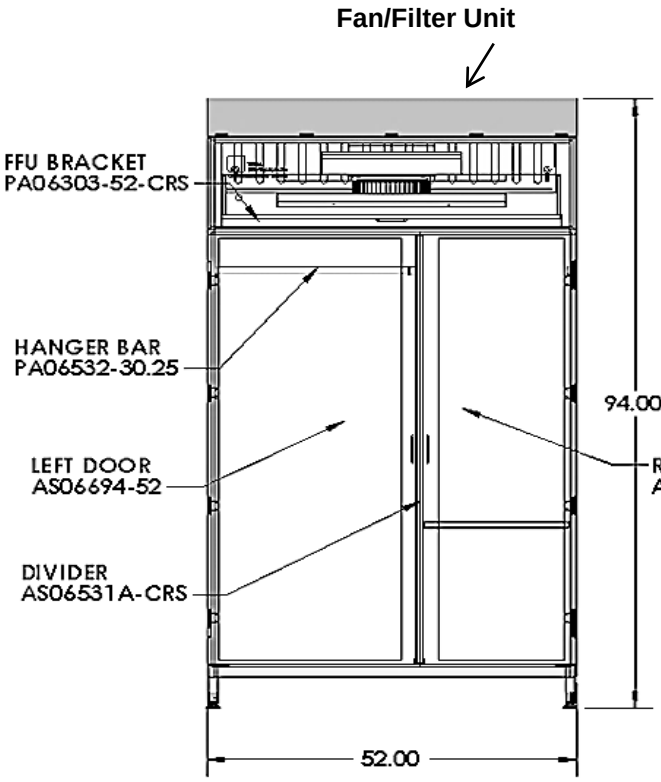


Figure 2. *Front View*

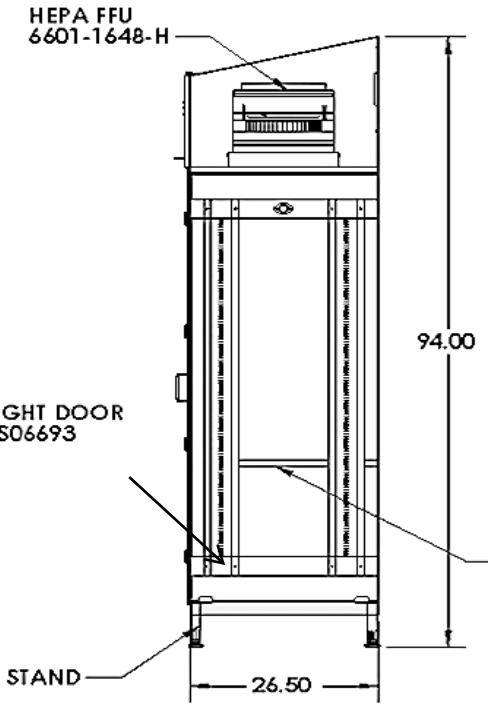


Figure 3. *Side View*

NOTE

The cabinet doors include gaskets that form a seal when the doors are closed. When the fan/filter unit operates at higher speeds, pressure may build within the cabinet and airflow may leak past this gasket. This is normal and will not affect the performance of the cabinet.

4. Installation

4.1 Unpacking

The Garment Cabinet and fan/filter unit are shipped as a single unit. Uncrate all components and remove all packaging materials, checking to make sure that there is no visible damage incurred during shipment. If damage is found, contact the freight company to file a damage claim immediately.

When inspecting the unit, verify the following:
1. There are no visible gaps between the fan/filter unit and the opening in the top of the cabinet
2. Open each cabinet door and ensure that the self-closing hinge brings the door back to the closed position
3. Check that the cabinet is positioned correctly on its stand

If the unit will be used within a cleanroom, prepare the cabinet for transfer into the cleanroom according to your facility's protocols, cleaning both the interior and exterior of the cabinet prior to entry. See **Section 6.1 Cleaning** for general guidelines.

4.2 Setup

CAUTION

When selecting the installation location, ensure that there is at least 13" of open space above the fan/filter unit to ensure adequate air supply.

1. (Optional) Unlock the brakes on the casters.
2. Maneuver the cabinet into position, taking care not to pinch the power cable or obstruct the pre-filter on top of the fan/filter unit.
3. Clean the interior of the unit (see Page 7).
4. Set the FFU speed switch to Medium.
5. Connect the power cable to the 120V electrical source (or 220V, where applicable).
6. Verify that the fan/filter unit is operating and that the air speed exceeds roughly 90 feet per minute.
7. Allow the fan/filter unit to operate with cabinet doors closed for at least 10 minutes before using the cabinet.
8. Operation status indicate glows to show when the unit is in operation.

Securing the Cabinet

WARNING

Cabinets taller than 30"H must be secured against a wall to prevent tipping.

Contact your local professional contractor for assistance anchoring the cabinet (hardware not included). Or consult your facility's safety codes to determine the best anchoring method for your particular location and installation.

Additional Set-up if fan filter unit is not already assembled to power distribution module

1. Remove bolts located on the left and right hand side of the lid that prevent the door from fully opening.
2. Insert mounting bracket and fasten crown screws into the cabinet (Figure 4).
3. Insert fan filter onto upper compartment towards the back of the cabinet.
4. Insert Power Distribution Module on top of the fan filter unit on either the left or right side.
5. Connect black power cord from the cabinet to the back of the power distribution module (Figure 5).
6. Connect the yellow cable from the fan filter unit to the back of the power distribution module (Figure 5).
7. Reassemble the lid once fan filter unit and power distribution module are in place.

Figure 4: Mounting bracket attached to upper housing of garment cabinet

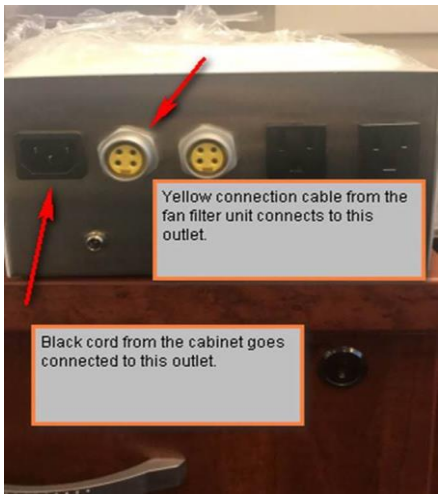


Figure 5: Backside view of power distribution module

4.3 Testing and Validation

After completing the **Section 3.2 Initial Setup**, validation may be performed by a third-party testing service for HEPA filter integrity (leak-testing), Air Changes per Hour and particle counter measurements to verify ISO 5 particle levels. Third-party testing should take place within the intended cleanroom or another controlled environment to ensure an accurate evaluation of its performance.

5. Operation

After completing **Section 4.2 Setup** and **Section 4.3 Testing and Validation** (if applicable), the unit will continuously operate and maintain an ISO 5 storage environment.

Users should keep the following guidelines in mind when using the cabinet:

- Be sure not to obstruct the supply-side of the fan/filter unit or the exhaust vents on the cabinet doors.
- Coil or otherwise secure the power cable to avoid tripping or accidentally tugging the cable from the outlet.
- Keep cabinet doors closed unless transferring contents, after which the doors should be closed promptly.
- Do not overload any individual shelf so as to block more than 50% of the perforations.

CAUTION

Always check to make sure the system is disconnected from the wall outlet before moving the cabinet.

6. Maintenance

6.1 Cleaning

CAUTION

Always check chemical compatibility before cleaning plastic surfaces. Although powder-coated steel and static-dissipative PVC withstand exposure to a wide range of common cleaning agents, repeated exposure to strong chemicals can cause damage.

Powder-coated steel and static-dissipative PVC are chemical-resistant and compatible with most mild, non-abrasive cleaning agents with the exception of strong acids, strong bases and strong oxidizers. For heavy-duty cleaning agents or decontamination protocols, check chemical compatibility with the door gasket and other materials before use. Stainless steel and other metal components may be cleaned with isopropyl alcohol.

Use a clean, non-shedding cloth (polyester wipers are recommended) and wipe surfaces in slow, unidirectional motions, folding the soiled surface of the cloth portion to trap contaminant's after each pass. Avoid circular motions when cleaning. Use only light pressure when cleaning. If the outside surface is exceptionally dirty or gritty, lightly swab the surface with a saturated cloth and allow the surfactants to drain away. Avoid rubbing dirt or grit into the surface. Turn the cloth often and replace with a clean cloth frequently. Dry the surface by blotting gently with a clean, dry cloth.

6.2 Filter Replacement

CAUTION

When handling the FFU and HEPA filter, only handle the HEPA filter by the edges. Pressing on the face of the HEPA filter may cause irreversible damage to the filter, leading to particle leaks.

The pre-filter on top of the cabinet should be replaced periodically depending on the environment and materials that the pre-filter is exposed to during daily operations.

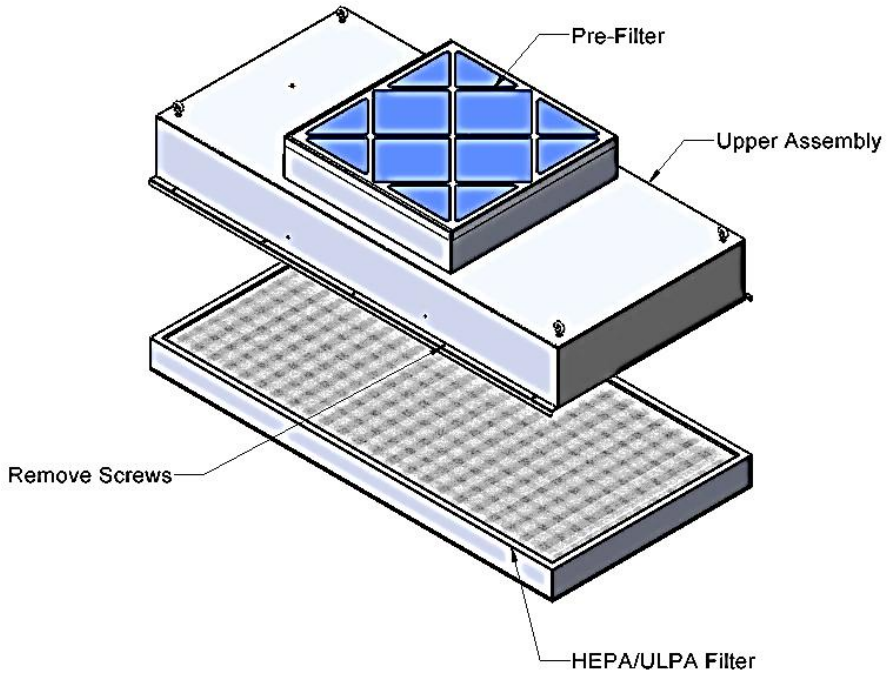
Replacement Pre-filter: #PA06388

The HEPA filter installed inside the FFU cannot be cleaned and will typically last for years depending on the particle levels in the surrounding environment. When the unit is used in an ISO-classified environment, the HEPA filter will often perform sufficiently for a much longer period of time.

However, if air speed is significantly reduced or the HEPA filter fails to pass certification by an independent certifier, the HEPA filter may need to be replaced. Be sure to verify the proper operation of all other components in the system before attempting to replace the HEPA filter.

Replacement HEPA Filter: #6601-40

1. Disconnect the FFU power cable from the power source.
2. Remove the 10 sheet metal screws that hold the HEPA filter to the case.
3. Lift the upper FFU assembly out of the FFU housing and remove the lower filter assembly.
4. Replace the lower filter assembly, only handling the filter by the aluminum edges.
5. Reassemble the FFU housing by reversing the steps for disassembly.



7. Specifications

Garment Cabinet (with stand)	
Dimensions	52”W x 29”D x 94”H
Construction/Materials	Powder-coated Steel, white Static-Dissipative PVC (doors) Stainless steel vertical supports

Fan/Filter Unit (AC Motor)	
Dimensions	42”W x 16”D x 13”H
Power Requirements	120V, 4.3A, 516W, 60Hz, 1Ph
Filter	HEPA, 99.97% efficient for particles 3 microns or greater
Sound Level	Approx. 49 dBA
Weight	Approx. 34 lbs.

8. Warranty

Products Manufactured by Terra: Terra Universal, Inc., warrants products that it manufactures to be free from defects for a period of 12 months for parts and 90 days for labor, commencing from the date of shipment. This limited warranty covers parts and labor, but not transportation and insurance charges. Terra's sole responsibility is to repair or replace, at its option, any part of the product that proves defective or malfunctioning during this time limit. In some cases, components incorporated in Terra Universal products are covered by additional warranties from component manufacturers; obtain specific information from Terra sales representatives. Repairs may be completed by 3rd party service agents approved by Terra Universal. Terra Universal reserves the rights to limit this warranty based on a service agent's travel, working hours, the site's entry restrictions and unobstructed access to serviceable components of the product. This warranty is void if the equipment is abused or modified by the customer, is operated outside Terra's operating instructions or specifications, or is used in any application other than that for which it is specified. This warranty does not include routine maintenance or service procedures, shipping damage, nor damage from misuse, intentional or unintentional abuse, neglect, natural disasters, or acts of God.

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Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

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Warranty Returns: All warranty returns must be authorized in advance by Terra Universal and approved under an RMA. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Terra Universal, freight prepaid at customer's expense. See Terra's "Policy and Procedure for Returned Goods."

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