



## IMPORTANT SAFETY INSTRUCTIONS READ AND SAVE THESE INSTRUCTIONS

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	 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.		

### 1.0 Introduction

This manual provides information on installing and operating Terra Universal's Room-Side Replaceable (RSR) Fan/Filter Unit. By studying this document carefully, you can be assured of a long, efficient service life from the unit.

The Fan/Filter unit provides a steady laminar flow stream of HEPA filtered air to the area below the mounted unit.

### 2.0 Operation

The unit consists of a ¼ HP, thermally protected, three speed capacitor-run motor driving a forward-curved centrifugal blower. Air is drawn into the unit through a pleated pre-filter and in turn to an insulated chamber where it is then directed to an exit HEPA filter with a built-in diffuser. The motor is controlled by a built-in three-position electrical switch. This switch can be set for high, medium and low flow rates.

### 3.0 Installation

The Fan/Filter unit is designed to fit on top of a Terra Laminar Flow Hood or standard clean room ceiling grid. It includes a threaded fixture at each corner to accommodate four eye-bolts (not provided) that can be used to assist in positioning the unit.



#### WARNING:

**To reduce the risk of fire, electric shock, or injury to persons, do not use this fan with any solid-state speed control device, and observe the following:**

- Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- 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.
- Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
- When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.

### 4.0 Start Up



**WARNING: Keep unit disconnected from power supply during inspection**

Prior to providing power to the unit, check that no damage has occurred during shipping. This can be accomplished via a visual check to make sure there are no visible dents or penetrations. If the unit is intact, remove the pre-filter and manually rotate the fan wheel to make sure it is not in contact with any stationary parts and that there are no visible loose screws or bolts obstructing the wheel's rotation. Once visual inspection is completed, connect the 4-pin power plug to the unit, set the speed switch to the desired position (units are shipped from the factory with the speed switch set to medium), and turn on the external power switch. With power applied, the fan will rotate, and filtered air will exit the HEPA filter.

### 5.0 Cleaning and Maintenance



#### WARNING:

**Disconnect from power supply before servicing unit. When servicing or replacing either filter, the new filter is to be installed in the same manner as the filter it replaces.**

The scheduled maintenance of the unit depends on the installed location and consists of cleaning or changing the pre-filter and the HEPA filter. It is recommended that the pre-filter be inspected and cleaned every three months or sooner depending on the cleanliness of the external environment. The HEPA filter cannot be cleaned and must be replaced when the laminar flow rate falls below 70 feet/min.



### 6.0 Specifications

Dimensions:	23.625" x 47.625" x 15"H
Housing:	White powder coated cold-rolled steel or 304 stainless steel
HEPA Filter:	99.99% efficient on removal of particles 0.3 microns and larger.
Pre-Filter:	20" x 20" x 1" - 30% efficient ASHRAE rated
Blower:	Forward-curved centrifugal type factory balanced. Entire motor/blower assembly is removable from top of housing for service.
Motor:	1/4 HP Direct drive, energy efficient. Permanent split capacitor type. Thermally protected with automatic overload reset.
Electrical:	Motor wiring will be run to a 3-speed motor switch (low-medium-high) and separate on/off switch. Motor nameplate FLA is 4.2.
Power Cord:	None supplied
Face Grille:	Perforated anodized aluminum or 304 stainless steel
Noise Level:	49 dBA (measured at 30" from filter face)
Weight:	71 lbs. (100 lbs. shipping weight)
Support:	Threaded screw receptacles provided for insertion of optional eyebolts
Power Options:	¼ HP motor with voltage of 120/1/60Hz, 220/1/60Hz or 240/1/50Hz

**Power Specifications:** for 2 ft. x 4 ft. HEPA, 120VAC (Model No. 6601-24H)

	High Speed	Medium Speed	Low Speed
Run Amps	4.3	3.5	3.3
Watts	512	416	393
Start Amps	9.1	6.3	4.9
<b>Air Speed (6" below filter face)</b>			
Flow (CFM)	808	717	654
Velocity (fpm)	115	102	93

## 7.0 Replacing the Filters

The RSR Fan/Filter Unit is designed so that the HEPA or ULPA filter can be replaced from inside the cleanroom without breaching the controlled environment. The filter assembly is detached from the fan module, which stays in place in the ceiling grid. Follow these instructions to replace the filter.

- A) First, you must remove the outer screen covering the filter that is held in place with friction catches (Photo 1). This screen protects the filter from damage and enhances airflow uniformity.



**Photo 1:** Friction catches hold the outer screen to the fan module housing.

- C) Gently let the used filter drop down, and set aside. The filter assembly is surrounded by a channel containing gel seal. Wipe any residual gel from the knife-edge of the fan module still in the ceiling to prepare for the replacement filter. Position your new filter carefully and push it into place; the knife-edge of the fan module should be centered in the channel (equal amounts of gel on both sides). Photo 4 shows the gel-filled channel of the RSR filter.



**Photo 4:** Gel-filled channel of RSR filter.

- D) Replace the face grille and rotate the metal tabs so that they cover the frame.
- E) To replace the pre-filter located at the top of the fan module, qualified personnel will need access to the ceiling grid. Slide the old filter out of the two tracks holding it in place on top of the FFU and then slide in the new pre-filter.



**Photo 2:** View of the filter with the outer screen removed.

- B) Next, release filter by rotating the metal tabs that hold the anodized aluminum face grille in place (see Photo 3).



**Photo 3:** Filter-face grille's metal tabs.



## 8.0 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. 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. 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, breakage of quartz baths after 60 days, 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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