

# ValuLine Vertical Laminar Flow Station



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## Your Comprehensive Equipment Source





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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.



CAUTION

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

The following symbols are intended to call your attention to two levels of hazard involved in operation:



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 your Terra ValuLine Vertical Laminar Flow Station (VLF).

By studying this document carefully, you can be assured of a long, efficient service life from your system.

### Related Manuals – Available for download from [www.TerraUniversal.com](http://www.TerraUniversal.com):

- Horizontal Laminar Flow Station (Doc. No. 1800-46)

## 2.0 Description

Terra Universal's ValuLine Vertical Laminar Flow Station provides a workspace enclosure that delivers a uniform wash of HEPA-filtered air for contamination-sensitive work. Side panels made of static-dissipative PVC also ensure an effective laminar flow, while the tilt-up dissipative PVC sash lets the operator adjust the access area. Terra's ValuLine VLF systems are built to last with their powder-coated or stainless steel frames and stainless steel work surfaces.

The backbone of Terra's ValuLine VLF system is a fan filter unit that incorporates a 3-speed, direct-drive electric motor that forces air through a HEPA filter (See fan filter specifications below).

In conjunction with the system's prefilters, the HEPA filter removes 99.99% of all particles 0.3 microns and larger from the air stream. Each 2' x 4' fan filter unit provides 650 CFM of filtered air @ 90 FPM, with tests showing that this air exceeds Federal Standard 209E for a Class 100 environment.

For more stringent requirements, ULPA-filtered units are available that remove all particles over 0.12 microns in size with 99.999% efficiency.





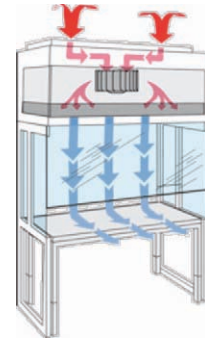
## Features:

### Static Dissipative PVC Tilt-Up Sash

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Terra's Static-Dissipative PVC Tilt-Up Sash provides its operator with an adjustable access area. Friction hinges attached to the panels ensure a durable seal and minimal effort needed for panel adjustments. This feature allows you to control the force of the laminar flow to accommodate your application: stronger flows ensure optimal cleanliness; and weaker flows reduce turbulence that might disturb small parts.

Made of clear static-dissipative PVC, the Tilt-Up Sash features a surface resistance value of about  $10^7$  ohms/square. This characteristic helps eliminate not only static charges that can damage sensitive components, but also the particles that static charges attract. As a result, users will find that the sliding shield remains clean – inside and out.



### IonBar™ (Optional)

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An optional component for Terra's ValuLine Vertical Laminar Flow Stations, Terra's IonBar™ ionizes air molecules in the air output for enhanced static/particle control. Installed on the underside of the air filters, The IonBar™ sports a teardrop design to minimize disturbance of the laminar flow.

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## 3.0 Installation

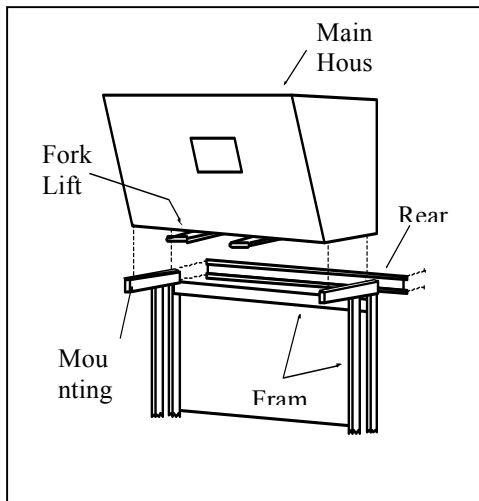
The ValuLine Vertical Laminar Flow Station ships fully assembled, standard. However, it may ship in two parts at the customer's request or due to a custom order.

If the unit requires assembly upon receipt, or if you must disassemble and re-assemble it to accommodate doorway clearances, use this procedure:

### Items you will need:

- Forklift or other heavy-lift device (recommended).
- 110 VAC, 60 Hz or 220VAC 50/60Hz grounded power receptacle, as ordered.
- 100" of vertical clearance between assembly area and location of use.

1. Uncrate your Vertical Laminar Flow Station, checking to make sure that it has no visible damage incurred during shipment. If damage is found, contact the freight company to file a damage claim immediately.



Remove rear panel to create space to insert forklift forks.

2. Remove the rear panel for easier mounting of the main housing and positioning of forklift forks.
3. Using a forklift or other heavy-lifting device, lift the housing assembly above the frame. Adjust the frame so that it lines up with the main housing's attachment points (studs that are sticking out on top of the frame).
4. Carefully lower the main housing onto the frame, ensuring that all attachment points are properly aligned before joining the two parts.
5. Maneuver the assembly into its final operational location, ensuring that it is on a flat and level surface. Once situated in-place, rest the frame upon the ground. Make sure that the unit is installed within reach of an appropriate power outlet. Reattach the rear panel.



NOTE

The maneuvering casters, if included with your system, are to be used for **INSTALLATION ONLY**. Please remove the casters from the unit once you have moved it into its final position. Retain the casters for any future relocation needs.

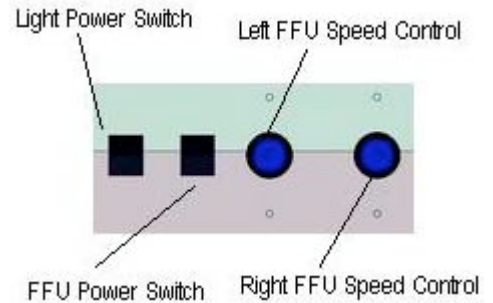
6. Plug the unit in. The unit is now ready for use.



## 4.0 Operation

To operate the system,

1. Plug in the power cord to a grounded 115VAC/60Hz or 230VAC/50Hz receptacle.
2. Press the FFU Power Switch to turn on both FFUs. Use the left and right FFU speed controls to adjust the speed of each FFU.
3. Press the Light Power Switch to activate the hood's light.



A. When the unit is running, the Magnehelic gauge indicates back pressure across the filters. The Operation Status Indicator (OSI) (blue TUI logo) glows continuously to indicate FFU operation. When FFUs are off, the OSI flashes.

**Note:** The Fan speed is adjustable. Initially, when the fan speed is set to 50% the fan(s) will operate at 100 FPM. As backpressure builds and the filter begins to clog there will be an increase in the water pressure as well as an increase in the percentile needed to maintain airflow of 100FPM. This is an indicator that it may be time to replace the filter.

## 5.0 Maintenance

Terra Universal's ValuLine Vertical Laminar Flow Station is designed for low-maintenance. With one set of user-serviceable parts, the Terra WorkStation only requires periodic cleaning to preserve its like-new condition.

Cleaning Instructions	
<b>DO</b>	<ul style="list-style-type: none"> <li>- Use water, ordinary soap and/or mild liquid detergent.</li> <li>- Rinse the surfaces of your VLF with a cloth dampened with clean water if a cleaning agent is employed.</li> <li>- Use a cloth to apply any cleaning solutions. If a stubborn stain presents itself, a soft-bristled brush may be used with extreme care.</li> </ul>
<b>DO NOT</b>	<ul style="list-style-type: none"> <li>- Use liquids containing abrasives to clean the surfaces of the VLF.</li> <li>- Use wax or other coatings on Electro-Static Dissipative work surfaces, as they may modify the dissipative properties of the laminate.</li> <li>- Use hard brushes or intense scrubbing actions to clean the workstation surface.</li> <li>- Apply liquid directly to the surface of the blower hood. Instead, apply cleaning agent to a cloth before using.</li> </ul>

### Filter Replacement

#### When to Replace

Terra's HEPA filters will continue to provide adequate throughput while operating with 0.0-1.0 inches WC of differential pressure, as displayed on the unit's Magnehelic backpressure gauge. Once this pressure reaches 1.5 (inches WC), the air blowers will begin to deliver less-than-optimal airflow into the unit, resulting in loss of laminar flow and increasing the risk of contamination. The presence of a high differential pressure can also increase the rate of wear to the blower's motors, leading to failure of the unit. To keep your unit operating at its peak efficiency, replace the air filters whenever the differential pressure reaches 1.5 inches WC.



## Maintenance (cont'd)

### How to Replace

The HEPA/ULPA filters on the VLF Stations are attached to the blower units. To replace the filters, the blower units must be removed from the VLF Station.



Unplug the unit prior to conducting any maintenance service to it.

CAUTION

#### Items you will need:

- Forklift (recommended)
- Phillips Screwdriver.
- Work table/bench.



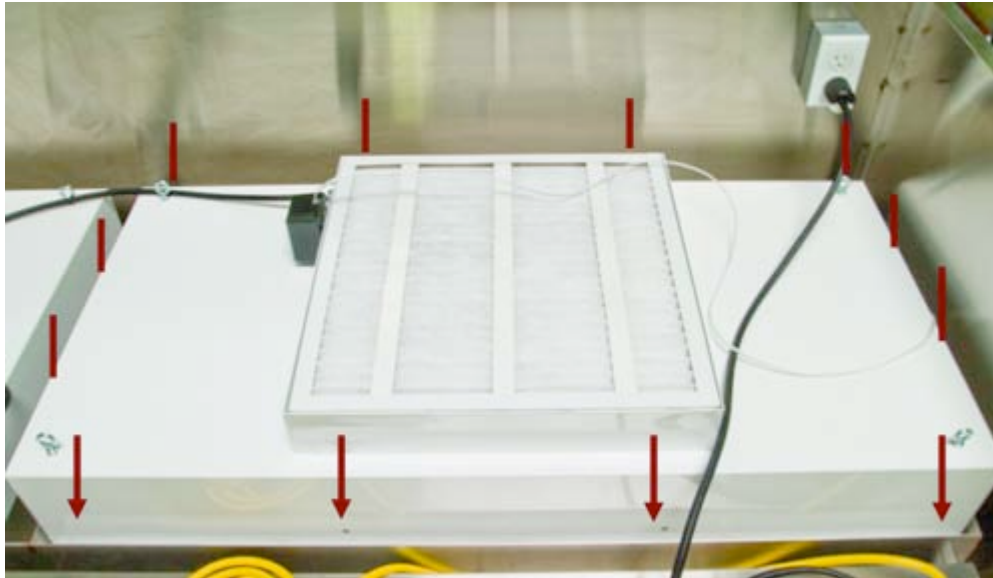
WARNING

- Exercise caution when removing VLF blower units.
- The use of multiple people to perform this task is advised.
- Unplug the VLF Station from its power receptacle before performing any service.
- Do not perform any maintenance service to the unit if its maneuvering casters are attached.

- 2.1 Position the sash or motorized shield in the fully open position to maximize access to filters from inside the work area.
- 2.2 Turn OFF system power and disconnect all cables leading into the blower housing.
- 2.3 Remove the top cover from the blower housing by removing the screws that hold it in place.
- 2.4 Unplug the black power cord that provides power to each of the Fan Filter Units (FFUs) inside the blower housing. Roll up each cord and place it close to the FFU being serviced. The FFU(s) can now be removed from inside the work area.
- 2.5 WITH EXTREME CARE, lower each FFU through the opening inside the work area. While removing the FFU, use a support panel (such as a sheet of rigid plastic) to avoid putting pressure directly on the filter face. Do NOT use the expanded metal face screen to support or handle the FFU. You will need to gently push the FFU up and rotate it slightly to be able to fit it through the opening in the housing and lower it onto a stable surface for further work.
- 2.6 Unscrew the top of the FFU housing from the filter housing beneath it by means of the screws surrounding the unit's perimeter (see arrows in Illustration below)
- 2.7 Remove the top of the FFU housing from the filter, setting it aside.
- 2.8 Replace the used filter with the new filter.
- 2.9 Reassemble/reinstall the blower housing, working in the reverse order listed above.
- 2.10 Replace the pre-filter located on the top of the blower housing with a similarly capable air pre-filter (see Appendix for ordering information).



## Filter Replacement (cont'd)



## Replacement Parts

Type	Filter Size	Catalog #
HEPA	2' x 2'	6601-27
	2' x 3'	6601-26
	2' x 4'	6601-25
ULPA	2' x 2'	6601-30
	2' x 3'	6601-29
	2' x 4'	6601-28



## 7.0 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.

**Products Manufactured by Others:** Terra Universal, Inc., warrants that, to the best of its ability, Terra's representations of products that are manufactured by others reflect the manufacturer's representations, subject to change without notice. Sole warranty for these products is the original manufacturer's warranty that is passed forward to the purchaser and constitutes the customer's sole remedy for these products. Detailed warranties for distributed products are available through Terra sales representatives.

**Freight Shortage or Damage:** Upon receipt of any equipment from Terra Universal, Inc., customer shall immediately unpack and inspect for damage or shortage. The customer shall not accept a damaged package or a short shipment until the carrier makes a "damage or shortage" notation on both the carrier's and customer's copy of the freight bill or delivery receipt. Service title passes when the shipment is loaded, so customer is responsible for filing and collecting a freight claim. Any replacement products must be ordered and paid for separately. For Terra's "Policy and Procedures for Returning Goods," see Terra's Internet site: [www.TerraUniversal.com](http://www.TerraUniversal.com).

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."

*Thank you for ordering from  
Terra Universal!!*