



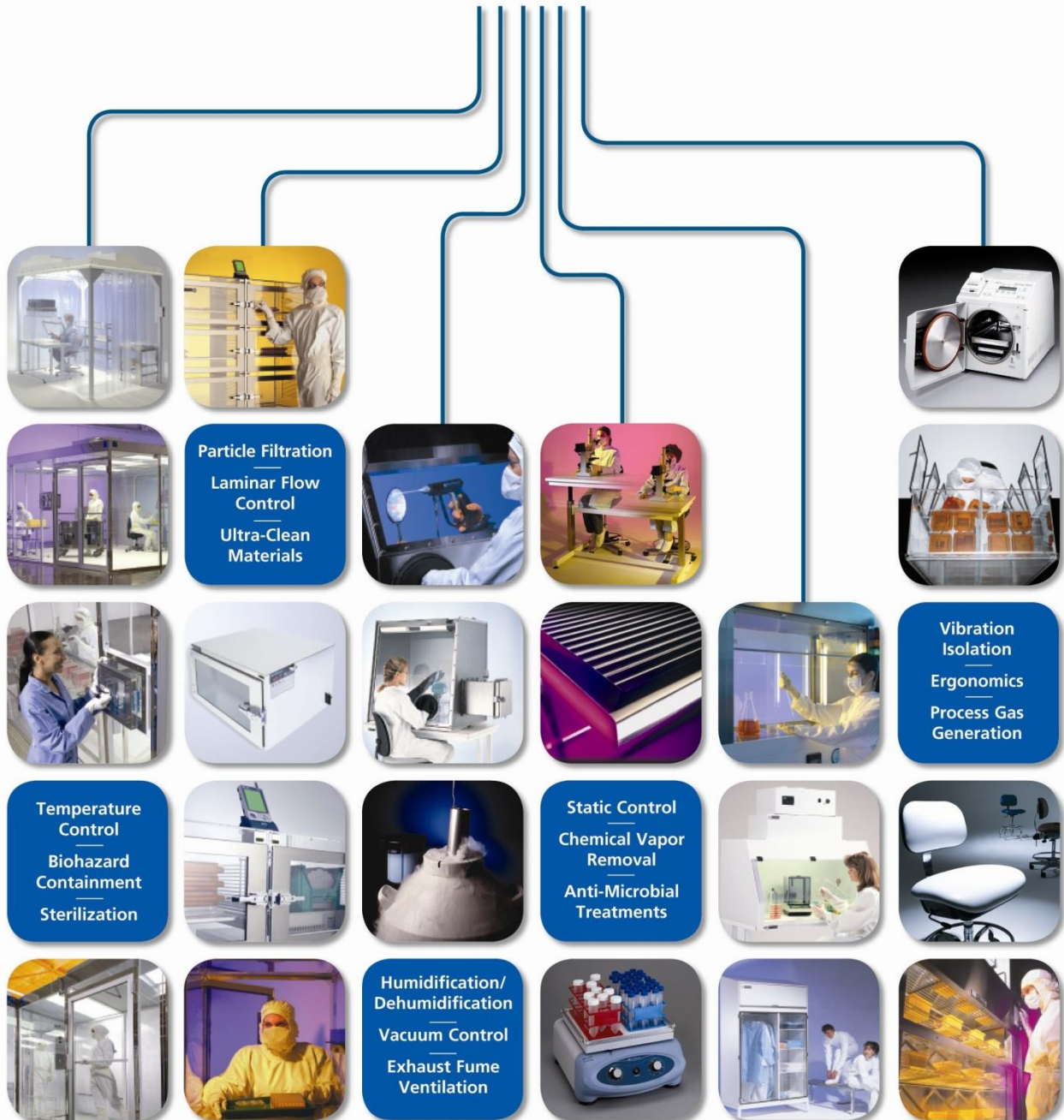
Smart WhisperFlow™

Document No. 1800-46

# Horizontal Laminar Flow Station

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Your Comprehensive  
 Equipment Source





Smart WhisperFlow™

# Horizontal Laminar Flow Station

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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 Universal Smart WhisperFlow™ Horizontal Laminar Flow Station.



## 2.0 Description

This system incorporates fan filter units (FFUs) with your choice of either a HEPA filter (rated 99.99% efficient at 0.3 micron particles) or ULPA filter (rated 99.999% efficient at 0.12 micron particles). The FFUs are located in the upper rear of the unit.

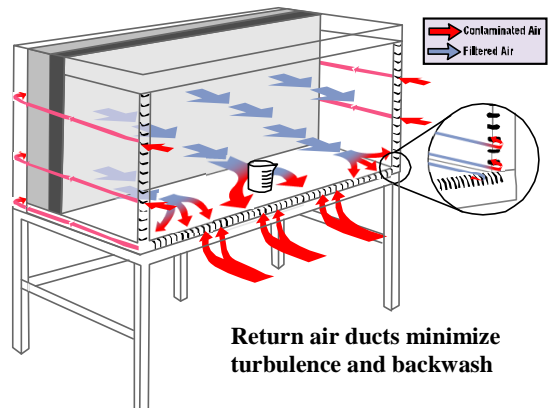
The HEPA filter removes 99.99% of all particles 0.3 microns and larger from a large-volume air stream. The vertical laminar flow of clean air to the work surface effectively blocks the inrush of contaminants. Each 2' x 4' fan filter unit provides an average of 644 CFM of filtered air @ 90 FPM (2' x 3' units deliver 477 CFM). For more stringent cleanliness requirements, ULPA-filtered units are available that remove particles down to 0.12 microns with 99.999% efficiency.

All interior surfaces, including the work surface and side panels, are typically stainless steel for easy cleaning and the exterior is chip-resistant powder-coated steel. Interior surfaces can also be specified as electropolished stainless steel or powder-coated stainless steel if desired.

The Horizontal Laminar Flow Station also includes a recessed fluorescent lighting assembly that provides shadow-free illumination of the entire work area without disturbing the air flow.

### Filter/Fan Unit Configuration

Station Width	FFUs Required
52"	One - 48" x 24"
64"	One - 24" x 24", one - 36" x 24"
76"	Two - 36" x 24"





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## Features:

### Automatic Filter Monitoring System

Horizontal Laminar Flow Stations incorporate an automatic filter monitoring system, a feature that eliminates the need for frequent, tedious inspection of the HEPA filter to determine operating efficiency. This system includes a differential pressure gauge that monitors the status of the filter to assist the user in determining when to replace the installed HEPA or ULPA filter.



This work station is designed for particle-sensitive applications and does not protect operators against hazardous fumes, vapors, or aerosols. See Terra's exhaust purification systems for operations involving hazardous fumes.

## 3.0 Installation

The Horizontal Laminar Flow Station ships fully assembled. However, it may ship in two parts due to custom measurements/features or by customer request.

If the unit requires assembly upon receipt, refer to the following 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" vertical clearance between assembly area and location of use

1. Uncrate the Horizontal Laminar Flow Station, checking for any visible damage incurred during shipment. If damage is found, immediately contact the freight company to file a claim.
2. Mount the frame on the provided maneuvering casters
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 (screws protruding out from the top of the frame).
4. Carefully lower the main housing onto the frame, confirming that all attachment points are properly aligned before joining the two parts.
5. Maneuver the assembly into its final operational locations, ensuring that it is on a flat and level surface. Make sure that the unit is installed within reach of an appropriate power outlet. Once situated in-place, remove the maneuvering casters and rest the frame on the ground.



NOTE

The maneuvering casters 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 in the unit and the unit is now ready for use.



NOTE

Once plugged in, the unit will automatically turn on. As the unit starts, the air filtration unit will begin to operate at peak capacity (factory default setting).



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## 4.0 Operation

The control panel, mounted above the work area, features a Minihelic® gauge, an FFU airspeed control dial, and a rocker switch for the light module. Rotate the airspeed control clockwise to turn the blowers on (continue clockwise rotation to reduce the blower speed). Pushing the upper portion of the light rocker switch yields HI level illumination and the lower portion yields LOW level illumination. Centering the switch turns the lights off.

Adjust the blower air speed for the operation you are performing. After this adjustment, note the reading of the Minihelic® gauge. As the filter collects particles and contaminants, this reading will increase, indicating the need for a filter change. HEPA filters should be changed when the Minihelic® gauge reads above 1" WC (see **Maintenance**).

For enhanced air-stream control, this station features return air ducts along the front and side edges of the work area. These ducts enhance system efficiency by reducing backwash, the most common source of turbulence in a laminar flow system.

## 5.0 Maintenance

Maintenance on the Horizontal Laminar Flow Station consists of changing the HEPA (or ULPA) filter and fluorescent bulbs when required and cleaning when necessary.

### Cleaning the Horizontal Laminar Flow Station

Cleaning of the unit may be done with a non-contaminating cloth dampened in lukewarm water. Use a mild detergent or disinfectant, if necessary.

### To change the fluorescent light bulbs:

1. Remove the plastic light diffusers from the bottom side of the lighting assembly by lifting them up and pulling them downward at an angle to clear the lighting assembly.
2. Remove and replace bulbs as necessary.

### To replace the HEPA (or ULPA) filter:

Remove the back panel:

1. Locate the eight caps on the upper back panel. These sealing caps cover the bolts that secure the panel.
2. Lightly knock the caps into the unit using a screwdriver and a small hammer.
3. Remove the eight bolts that secure the back panel using a 3/8" nutdriver or socket wrench.
4. Lift off the back panel.

Remove the FFU:

1. Loosen the knobs securing the four hinged metal clamps to the filter.
2. Pull back the four hinged metal clamps.
3. Remove the FFU.

Replace the Filter:

1. Place the FFU on a flat work surface and remove the 10 sheet metal screws that secure the filter.
2. Lift the FFU off of the old filter and align a new filter underneath it.
3. Secure the new filter using the same sheet metal screws.
4. Reinstall the FFU by reversing the steps for disassembly.



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## 6.0 Specifications

Hood Specifications	
<b>Construction</b>	Fabricated from welded 16-gauge C.R. steel; includes adjustable levelers
<b>Work Surface</b>	Stainless steel
<b>Finish</b>	Exterior surfaces feature a chip-resistant, white powder-coat finish
<b>Performance</b>	Meets or exceeds the requirements/specifications of the following industry standards: ISO Class 4 (Class "100" (M 3.5)) air per the latest I.E.S.T. 14664-1 (Airborne Particulate Cleanliness Classes)

Fan/Filter Unit Specifications	
<b>FFU Type</b>	<b>Product Manual</b>
Whisperflow™ Fan/Filter Unit (AC Motor)	<a href="#">WhisperFlow™ Fan/Filter Unit Manual: Doc. #1800-34</a>
Smart Whisperflow™ Fan/Filter Unit (EC Motor)	<a href="#">Smart Whisperflow™ Fan/Filter Units: Doc. #1788-14</a>



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## 6.0 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.

**All Claims:** Terra Universal expressly disclaims all other warranties, expressed or implied or implied by statute, including the warranties of merchantability or fitness for intended use. Terra Universal is not responsible for consequential or incidental damages arising out of the purchase or use of the products supplied by Terra Universal. Terra Universal is not liable for damage to facilities, other equipment, products, property or personnel of others, or of their agents, suppliers, or affiliated parties, which is caused or alleged to have been caused by products supplied by Terra Universal. In any event or series of events, Terra Universal's total liability for any and all damages whatsoever is limited to the lesser of the actual damages or the original invoice cost of the items alleged to have caused the damage. The customer's sole and exclusive remedy for any cause of action whatsoever is repair or replacement of the non-conforming products or refund of the actual purchase price, at the sole option of Terra Universal. All claims must be made in writing within 90 days of the date the product was shipped. Any claims not made within this time limit shall be deemed waived by the customer. Terra Universal is not responsible for any additional costs of repair caused by poor packaging or in-shipment damage during return.

**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!*