

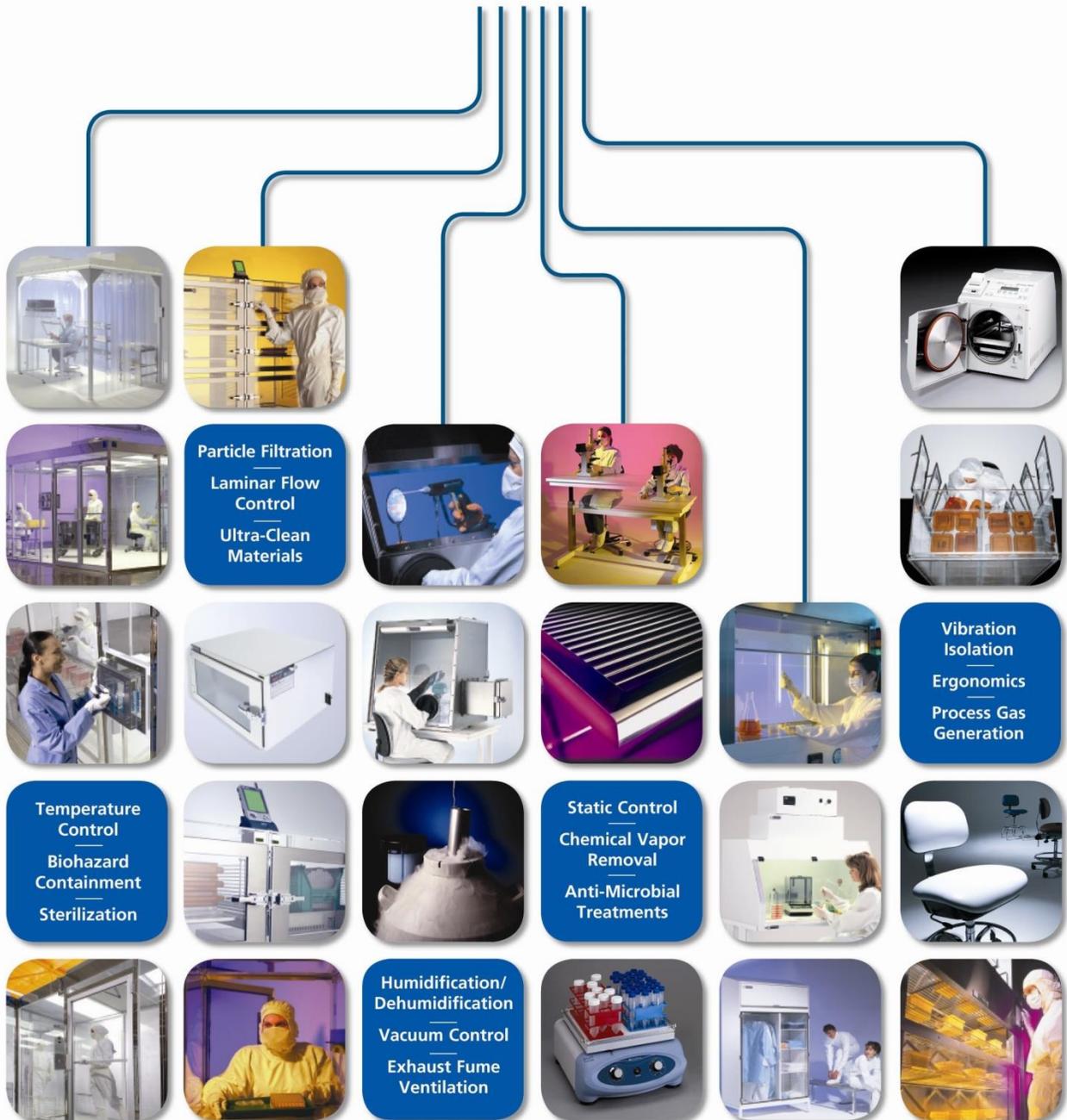
WhisperFlow™

Document No. 1800-71

Benchtop Laminar Flow Hood

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Your Comprehensive
 Equipment Source





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Benchtop Laminar Flow Hood

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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 WhisperFlow™ Benchtop Laminar Flow Hood.

Be sure to also read the manuals for any additional equipment you have incorporated into your system, such as Terra's ionizing equipment.

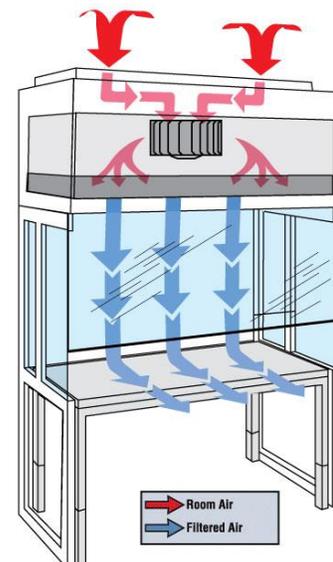


2.0 Description

Terra Universal's WhisperFlow™ Benchtop Laminar Flow Hood removes particulate airborne contamination to ensure a clean work surface.

The backbone of the system is a fan/filter unit that forces air through a HEPA filter. In conjunction with the system's pre-filters, the HEPA filter removes 99.99% of all particles 0.3 microns and larger from a large volume air stream, and the vertical laminar flow of air to the work surface effectively blocks the inrush of contaminants. Each 2' x 4' fan filter unit provides 650 CFM of filtered air @ 90 FPM. For more stringent requirements, ULPA-filtered units are available that remove all particles down to 0.12 microns with 99.999% efficiency.

The system also features LED lighting that is completely non-contaminating and imposes no clearance requirements.





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3.0 Installation

All of Terra's Benchtop Laminar Flow Hoods are shipped fully assembled.

1. Uncrate the Benchtop Laminar Flow Hood, checking for any visible damage incurred during shipment. If damage is found, immediately contact the freight company to file a claim.
2. Place the hood on a sturdy benchtop capable of supporting the combined weight of the hood and FFU(s) (refer to the original order for product specifications or contact a Terra representative).
3. Inspect the included power strip (sits on top of the FFU) to make sure that all cables are still firmly connected.
4. Connect the power strip to a grounded 115VAC/60Hz or 230VAC/50Hz receptacle
5. Turn on the switch on the power strip to begin operating the hood.

4.0 Maintenance

Cleaning the Laminar Flow Hood:

The surfaces of the WhisperFlow™ Benchtop Laminar Flow Hood should be periodically cleaned to ensure that sensitive materials are not exposed to contaminants that may accumulate over time. Use only lukewarm water, a mild detergent, and a clean, non-contaminating cloth. Allow surfaces to dry adequately before using them.

Special Care of Static-Dissipative Plating:

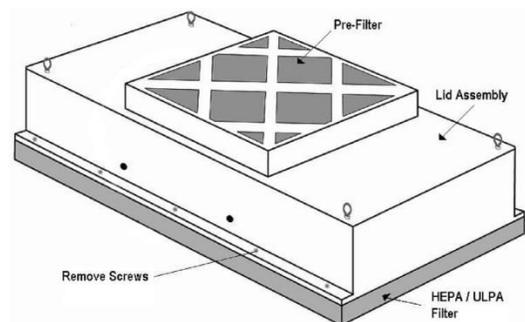
If your work station includes static-dissipative side panels, you should take extra care when cleaning them to avoid damaging their static-dissipative properties:

1. Do not use alcohol or other strong cleaning agents on acrylic materials.
2. Do not expose static-dissipative materials to extreme heat or direct sunlight.
3. Avoid scratching this material.

Replacing the HEPA (or ULPA) 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 air velocity falls below 70 feet/min.

Changing the HEPA filter requires removal of the unit from the hood. Place the unit on a flat work surface and remove the 10 sheet metal screws that hold the HEPA filter to the case. Replace the filter with a new one and secure it to the case with the same screws before placing it back onto the ceiling grid.





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5.0 Specifications

Benchtop Laminar Flow Hood Specifications	
Construction:	304 stainless steel frame
Hood Panels	Polycarbonate, Static-Dissipative PVC or Stainless steel
Lighting	LED lighting; does not disturb the air flow
Performance	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) I.E.S.T. Recommended Practices (Laminar Flow Clean Air Devices)
Fan/Filter Unit Specifications	
Airflow Velocity	90 (±10) FPM (.45 m/s), when measured using a Velgrid (eight readings) 6 in. (152mm) below the filter face
Sound Level	Approximately 50 dBA on low speed measure at 30 in. from the filter face, with the fan delivering an average air flow velocity of 90 FPM (.45 m/s) Ambient sound level less than 35 dBA
Vibration Level	Will not exceed .09 MILS RMS
Housing	Both the fan plenum and filter housing have a mill finish (powder coat paint or stainless steel exterior optional), and sealed airtight
Prefilter	Furnished with a 19.5 in. x 19.5 in. x 0.875 in. polyurethane foam prefilter
HEPA Filter	Factory tested and rated 99.99% efficient in removal of particles 0.3 micron and larger; leak free in accordance with the latest I.E.S.T. Recommended Practices
Filter Media	Microglass fiber with hot melt separators, sealed to the aluminum housing
Filter Face Guard	Epoxy powder coated expanded steel
Fan/Motor	Depends on the type of FFU; refer to the appropriate FFU operating manual
Power Requirements	Depends on the type of FFU; refer to the appropriate FFU operating manual

Static-Dissipative PVC Side Panels and Front Shield

Static-dissipative PVC features resistance between 106 and 108 ohms/square—much less than that of other treated plastics. Tests show that when 10KV is applied to the surface, electrostatic potential remains less than 15V, and static decay time is less than 1 second. And because this plating offers such effective static dissipation, it will not attract dust or other contaminating particles that could damage sensitive microelectronic components.

HEPA Filters

The filtration medium consists of highly efficient microfiberglass paper folded over corrugated separators of aluminum which prevent the media from nesting. This design channels air flow with optimal efficiency to reduce resistance.

All filters are tested for air flow resistance and DOP (dioctylphthalate) smoke penetration (with a mean particle diameter of 0.3 microns) by measuring upstream and downstream smoke concentrations with a photometer.



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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.

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!*