Product Sampler:
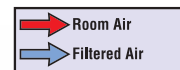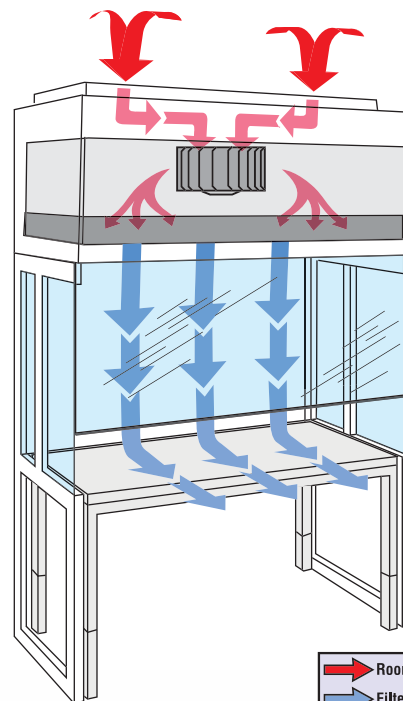# Hoods & Wet Stations

TERRA UNIVERSAL.COM
Critical Environment Solutions

Free-Standing
Vertical Laminar Flow Stations

- **Economical system provides a laminar flow of HEPA-filtered air to meet the most critical contamination requirements**

- **Incorporates industry-leading 48 dBA blowers for quiet, low-vibration operation**

- **All-stainless steel or powder-coated steel construction is cleanroom compatible and easy to clean**

- **Side panels and optional motorized front sliding shield effectively control the laminar air stream to achieve the air speed you require**

- **Fluorescent illuminators ensure easy viewing**

- **Backpressure gauge with audible alarm helps monitor filter performance**

- **Optional ionization equipment safely neutralizes static charges throughout the work area for effective ESD and particle control**

- **Accommodates standard Terra work benches in many materials, as well as standard Terra wet processing stations (see page 30)**

Terra Universal's Vertical Laminar Flow Station combines several of our most advanced products in a state-of-the-art work station that removes particulate air-borne contamination.

Room Air
Filtered Air

Digital Control Panel
• Filter/Fan Unit
• Light
• Backpressure alarm

Motorized Sliding Shield* extends 3"-25" below hood to restrict access to work area and improve system efficiency. Rated for millions of operations!

Fluorescent light standard; UV sterilization bulbs available

Side Panels ensure effective laminar flow

*Strip shield access curtain **

Modular Cleanroom Drawers*— select stainless steel or plastic

Work Surfaces* available in many sizes and materials.

Two-piece design isolates FFU vibration.

IonBar™— Safe static control! See page 12

*System option

91"
69"
32"
35"
B
A

Shown with optional sliding shield and drawer unit.

Ordering Information

Order the Vertical Laminar Flow Station, Filter/Fan Units (FFUs), and other optional accessories separately from the charts below. Selected accessories are installed in the corresponding Vertical Laminar Flow Station and shipped as a turnkey system, ready for operation.

Sliding Shield With Motorized Control

Automatically extends and retracts at the press of a button. Static-dissipative PVC eliminates static and particle attraction. Includes installation of clean-operating brushless motor and safety mechanism that stops shield in the event of power failure. Order shield separately.

| Filter/Fan Units (FFUs) 115VAC, 60Hz* See chart below for quantity required					
Nominal Dim.	Avg. Flow @ 90 FPM	HEPA FFU		HEPA FFU with Ionizing Bar**	
width x length		Cat. #	$/Each	Cat. #	$/Each
2' x 4'	650 CFM	6701-99A	765.00	6701-97	1,403.00
2' x 3'	480 CFM	6702-08A	765.00	6701-95	1,315.00
2' x 2'	360 CFM	6702-10A	765.00	6701-93	1,225.00

* ULPA versions also available. For 220VAC model, add "-220" to the part number.
** See page 12 for specifications.

Vertical Laminar Flow Station									Side Panel*		Sliding Shield	
Dimensions (inches)			No. of FFUs required (order above)	304 Stainless Steel (Order FFUs and Benches separately)			Powder Coated Steel (Order FFUs and Benches separately)		Static-Dissipative PVC		Static Dissipative PVC	
				120VAC, 50/60Hz	220VAC, 50Hz		120VAC, 50/60Hz	220VAC, 50Hz				
A	B	C x D		Cat. #	Cat. #	$/Each	Cat. #	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
52	49	48 x 30	(1) 2' x 4'	2001-30	2001-30-220	6,751.00	2001-80	2001-80-220	5,165.00	2004-03	140.00	9207-04	1,709.00
64	61	60 x 30	(1) 2' x 2' + (1) 2' x 3'	2001-31	2001-31-220	7,591.00	2001-81	2001-81-220	6,006.00	2004-03	140.00	9207-05	1,947.00
76	73	72 x 30	(2) 2' x 3'	2001-32	2001-32-220	7,952.00	2001-82	2001-82-220	6,366.00	2004-03	140.00	9207-06	2,186.00
100	97	96 x 30	(2) 2' x 4'	2001-33	2001-33-220	9,033.00	2001-83	2001-83-220	7,447.00	2004-03	140.00	9207-07	2,485.00

* Replaces standard plexiglass side panels (each station requires two). Static-Dissipative PVC is recommended on units equipped with optional dissipative sliding shield.

"L" Bracket
2 Pairs For Mounting Drawing Unit

C
D
H
Adjustable Height (H) 30" to 36"
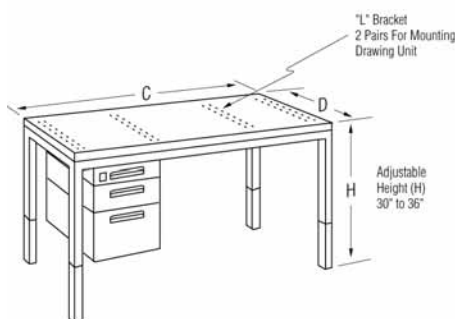
Cleanroom Drawers					
No. of Drawers	Min. Drawer Height	ABS Plastic (white)		304 Stainless Steel	
		Cat. #	$/Each	Cat. #	$/Each
1	3"	1740-23	144.00	—	—
1	6"	1740-02	152.00	1741-20	248.00
1	12"	1740-98	188.00	1741-21	352.00
2	3", 6"	1740-14	296.00	—	
2	6", 6"	1740-15	306.00	1741-22	496.00
2	6", 12"	1740-06	341.00	1741-23	604.00
3	3", 6", 12"	1740-07	461.00	—	—
3	6", 6", 6"	1740-09	458.00	1741-24	743.00
4	3", 3", 6", 6"	1740-08	594.00	—	—

| Corresponding Solid Top Work Benches†											Perforated-Top Work Benches†			
Dimensions (inches)			Nonconductive Steel Top		Conductive Top		304 Stainless Top		Polypropylene Top		304 Stainless Steel Top		304 Stainless Steel (Polypropylene Plenum)	
A	B	C x D	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
52	49	48 x 30	1722-00	552.00	1728-00	855.00	1521-45	960.00	1522-00	829.00	1522-56	1,223.00	1526-50	2,346.00
64	61	60 x 30	1724-00	608.00	1730-00	876.00	1751-00	1,037.00	1522-01	867.00	1522-57	1,317.00	1526-51	2,631.00
76	73	72 x 30	1726-00	617.00	1732-00	915.00	1752-00	1,088.00	1522-02	890.00	1522-58	1,507.00	1526-52	2,884.00
100	97	96 x 30	2402-00	737.00	2400-00	1,060.00	1753-00	1,168.00	1522-04	1,033.00	1522-60	1,807.00	1526-54	3,564.00

† Powder-coated adjustable-height frame; top of material indicated.

Horizontal Laminar Flow Station

- **The ideal processing environment for contamination-sensitive materials**
- **Dual multi-speed filter/blower modules direct a continuous wash of HEPA- or ULPA-filtered air forward across the work area**
- **Take-up ducts along front and side edges minimize turbulence and backwash in the work area**
- **Face velocity is adjustable from less than 90 FPM to higher than 130 FPM**
- **Built-in recessed illuminator provides diffused lighting without interfering with laminar flow**
- **Electropolishing available to remove embedded subsurface particles in stainless steel surfaces**
- **Fluorescent lighting standard, UV sterilization lamps available**

Model shown: No. 9620-44
For complete specifications: TerraUniversal.com

Contaminated Air
Filtered Air
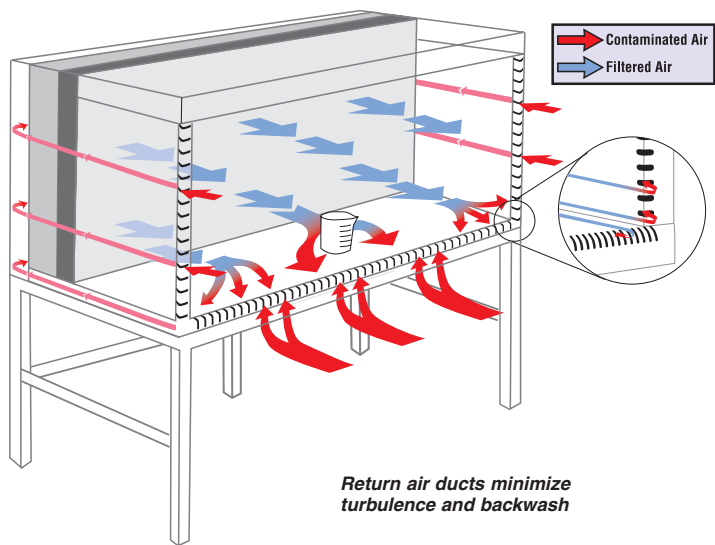
Return air ducts minimize turbulence and backwash

Terra's Horizontal Laminar Flow Station provides an economical work environment that exceeds the most stringent contamination requirements in the pharmaceuticals, biotech, electronics and semiconductor industries.

Powerful filter/blower modules provide a back-to-front laminar flow of filtered air across the work surface. The adjustable multi-speed, direct-drive blowers let you adjust air speed (90-130 feet per minute) to meet your requirements while providing low noise and vibration levels.

For enhanced air-stream control, this station also features return 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.

Petcocks	Cat. #	$/Each
Nitrogen/Clean Dry Air (CDA)	9620-07	89.00
Vacuum	9620-08	89.00
DI Water	9620-09	89.00

Horizontal Laminar Flow Station (order filters separately)								Filters		
Overall Dimensions* (W" x D" x H")	Work Area Dimensions* (W" x D" x H")	No. of FFUs required (order at right)	Horizontal Laminar Flow: Interior Material**					HEPA Filter/Fan Units***		
			304 Stainless Steel		Electropolished SS			Size (W x L)		
			Cat. #	$/Each	Cat. #	$/Each			Cat. #	$/Each
52 x 44 x 63	48 x 30 x 28	(1) 2' x 4'	9620-63	8,254.00	9620-66	10,148.00		2' x 4'	6701-99A	765.00
76 x 44 x 63	72 x 30 x 28	(2) 2' x 3'	9620-64	9,505.00	9620-67	11,458.00		2' x 3'	6702-08A	765.00
88 x 44 x 63	84 x 30 x 28	(1) 2' x 4' & (1) 2' x 3'	9620-65	10,332.00	9620-68	12,329.00				

Note: All models are 115VAC, 50/60Hz. For 220VAC, 50Hz, add "-220" to the part number.
  * All dimensions are nominal.
 ** Work top and side panels are of the material indicated. All exterior surfaces are powder-coated CR steel.
*** 99.99% efficient @ 0.3 micron particles. ULPA filters also available.

Ionizing Filter/Fan Units—

CleanBooth™
Laminar Flow Station

The Perfect Equipment Enclosure—
specify any coverage area!

Terra's Portable CleanBooth™ is ideal for kitting operations, assembly, or work with probe stations, screen printers and other free-standing or benchtop process equipment. The backbone of the system is one or more filter/fan units (FFUs), each with industry-leading low-noise impeller blowers. Flexible side curtains create a 3-sided enclosure, enhancing the laminar flow. See other options below.

Mobile Frame Support

Includes set of 4 casters, 2 with locking brakes. Order FFUs below.

Overall Dimensions (W x D, nominal)	No. of FFUs (order below)	Standard Height: 82"*	
		Cat. #	$/Each
49" x 25"	(1) 24" x 48"	**1870-01**	847.00
73" x 25"	(2) 24" x 36"	**1870-02**	1,045.00

*Filter face 70" above floor

Filter/Fan Units

Includes HEPA filter rated 99.99% efficient @ 0.3μm particles. ULPA filters and complete specifications available at TerraUniversal.com.

Nominal Dim. width x length	Power	Avg. Flow @ 90 FPM	HEPA FFU		HEPA FFU with Ionizing Bar	
			Cat. #	$/Each	Cat. #	$/Each
2' x 4'	110VAC	644 CFM	**6701-99A**	765.00	6701-97	1,403.00
2' x 4'	220VAC	644 CFM	**6701-99A-220**	765.00	6701-97-220	1,403.00
2' x 3'	110VAC	477 CFM	**6702-08A**	765.00	6701-95	1,315.00
2' x 3'	220VAC	477 CFM	**6702-08-220A**	765.00	6701-95-220	1,315.00

Softwall Panel Kits

40 mil curtains are 60" long. Each kit includes 2'-wide side panels and appropriate length to cover the rear of the station. Easy, no tool installation in GripTrak™ mounts installed along frame.

	Cleanroom Vinyl		Anti-Static Vinyl	
For CleanBooth	Cat. #	$/Each	Cat. #	$/Each
49" width	**1330-00A**	253.00	**1330-01A**	319.00
73" width	**1330-05A**	492.00	**1330-06A**	623.00

Fluorescent Light   115/277VAC, 50/60Hz

	Cat. #	$/Each
35.5" long (1)	**1870-10**	237.00
47" long (2)	**1870-11**	264.00

(1) – Two required for 73"-wide CleanBooth. Includes installation.
(2) – One required for 49"-wide CleanBooth. Includes installation.

No. 1870-02 with optional filter/fan unit, light, panel kit and table.

Ionizing FFU controls static and particles (see pg. 12)

No. 1870-01 with optional filter/fan unit and panel kit.

Narrow Profile
Vertical Flow Hood

- **Dual 2' x 4' HEPA Filter/Fan Units provide laminar flow of clean air to the work surface**

- **Powder-coated CR steel frame includes static-dissipative PVC side panels**

	Cat. #	$/Each
Hood Frame (98½"W x 28"D x 88"H)	1690-95	2,090.00
HEPA Filter/Fan Unit (requires two) Provides 650 CFM of HEPA-filtered air. Runs @ 50 dBA		
110VAC, 60Hz	6701-99A	765.00
220VAC, 50Hz	6701-99A-220	765.00
Static-Dissipative Rear Panel	7018-58	481.00
Cleanroom Work Station (96"W x 30"D)	2402-00	737.00
Narrow-Profile Wet Processing Station	7018-06	10,112.00

Call to discuss your application.

See full line of work benches www.terrauniversal.com.

Hood shown with Narrow-Profile Wet Processing Station (shown with optional teardrop light)

CleanCube™ Vertical Laminar Flow Hood

Radius corners wipe down clean!

Terra's CleanCube™ provides a vertical laminar flow of filtered air to provide a particle-free processing environment.

Its one-piece hood design eliminates cracks and crevasses where germs or particles can collect. The radius corners are easy to wipe down, and the absence of corner support members ensures a full view of work in progress. It also eliminates the cramped, claustrophobic feeling that operators experience when working with only partial visibility. Fan/Filter Unit (FFU) provides 310CFM average flow of HEPA-filtered air at 260 ft./minute.

See page 1 for information on cleanroom work benches.

Access shield tilts up to accommodate process equipment.

Ionizing Bar (see pg. 12)

CleanCube™ Vertical Laminar Flow Hood					Corresponding Filter/Fan Unit**		
Dimensions (in., Nominal)	Material				With HEPA Filter		
	Acrylic*		Polycarbonate		110VAC, 60Hz	220VAC, 50/60Hz	
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	Cat. #	$/Each
24W x 24D x 28H	2003-10A	1,562	2003-12A	2,824	6702-10A	6702-10A-220	765
36W x 24D x 28H	2003-11A	1,970	2003-13A	3,123	6702-08A	6702-08A-220	765

* Acrylic is damaged by alcohol and other cleaning agents.

** Visit www.TerraUniversal.com for full specifications

Class 100 Static Control #2802-62

Class 100 Static Control #2802-68

Class 100 Static Control #2802-73

Class 100 #2803-05

Class 100 #2802-94

A - E. Class 100 and Static Control
Clean vinyl meets Class 100 particle requirements. Static-Control chairs feature dissipative vinyl, conductive casters, and grounding chains.

Specifications		Class 100 Static Control						Class 100			
Height	Color	A		B		C		D		E	
		Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
Desk	Black	2802-61	432.00	2802-67	426.00	2802-73	455.00	2803-01	460.00	2802-93	429.00
	Blue	2802-62*	432.00	2802-68*	426.00	2802-74*	455.00	2803-02	460.00	2802-94	429.00
Bench	Black	2802-64	441.00	2802-70	428.00	2802-76	464.00	2803-05	459.00	2803-09	482.00
	Blue	2802-65*	441.00	2802-71*	428.00	2802-77*	464.00	2803-06	459.00	2803-10	482.00

* Quick ship models – usually ship within one week!

WhisperFlow™
Benchtop Hoods

This versatile laminar flow hood gives you a particle-free work environment on any available work surface.

It consists of two modules: a filter/fan unit (FFU), which houses a particle filter, and a hood. The 24" x 48" x 12.25" FFU houses a HEPA filter, rated 99.99% efficient with 0.3 micron particles. Its internal baffle system ensures uniform face velocity, and its 50 dBA noise rating is the best in the industry. Other sizes available at TerraUniversal.com

Benchtop Hoods		
Hood Material*	Cat. #	$/Each
Vertical Flow		
Acrylic**	1686-50A	2,727
Static Dissipative PVC	1686-51A	3,449
Nondissipative PVC	1686-52A	2,727
Polypropylene (Nondissipative PVC)	1686-53A	3,328
Stainless Steel (Dissipative PVC)	1686-54A	3,460
Horizontal Flow		
Acrylic**	1686-55A	2,727
Static Dissipative PVC	1686-56A	3,449
Nondissipative PVC	1686-57A	2,727
Polypropylene (Nondissipative PVC)	1686-58A	3,328
Stainless Steel (Dissipative PVC)	1686-59A	3,460

* *Unless indicated in parentheses, shield is made of the same material as the hood.*
** *Acrylic is damaged by alcohol and other cleaning agents.*

Filter/Fan Unit
Includes HEPA filter rated 99.99% efficient @ 0.3µm particles. Avg. flow @ 90 FPM: 650 CFM. Dimensions: 24" x 48" (nominal). For full specifications visit TerraUniversal.com.

	Cat. #	$/Each
110VAC, 60 Hz	6701-99A	765
220VAC, 50/60Hz	6701-99A-220	765

Vertical Configuration

Horizontal Configuration

AirGard™ Velocity Monitor
Please see information on page 8.

Class 1
#2805-06

Class 10 with
Microfiber
#2803-49

Class 10 with
Microfiber
#2803-57

Class 10 with
Breather Lung
#2803-22

Class 10
with Breather Lung
#2803-38

F · G · H · I · J

F - J. Class 10 and Cleaner!
Select from several base styles. Types J - L feature a microfiber fabric that allows chair to breathe through micropores. Types M and N feature a breather lung that contains contaminants.

Specifications		Class 1 Chair		Class 10 Microfiber				Class 10 Breather Lung			
Height	Color	**F**		**G. Standard Back**		**H. Ergo Back**		**I. Standard Vinyl**		**J. ESD Vinyl***	
		Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
Desk	Black	—	—	2803-49	470.00	2803-57	464.00	2803-17	418.00	2803-33	447.00
	Blue	—	—	2803-50	470.00	2803-58	464.00	2803-18	418.00	2803-34	447.00
Bench	Black	2805-05	655.00	2803-53	477.00	2803-73	537.00	2803-21	426.00	2803-37	454.00
	Blue	2805-06*	655.00	2803-54	477.00	2803-74	537.00	2803-22	426.00	2803-38	454.00

* This ESD model includes a grounding chain.

Benchtop Universal Hood

- **Completely modular design lets you configure an economical hood and filter/blower configuration to your specs!**

- **As a Mini-Laminar Flow Hood, it provides a continuous wash of HEPA- or ULPA-filtered particle-free air to the work surface**

- **As a Ductless Exhaust Fume Hood, it ventilates and purifies hazardous exhaust fumes for safe indoor release**

- **As an Exhaust Fume Hood, it draws fumes from the work area to your in-house exhaust system**

- **Select single or twin hoods (for one or two operators), in many materials to suit specific applications**

Terra's Universal Hood functions either as a particle-free mini-cleanroom work environment or an exhaust venting/purification station. Its practical, fully modular design allows you to construct an economical system that's just right for your requirements.

Ductless exhaust configuration, shown with polypropylene hood and filter/blower housings, optional AirGard® and stand.
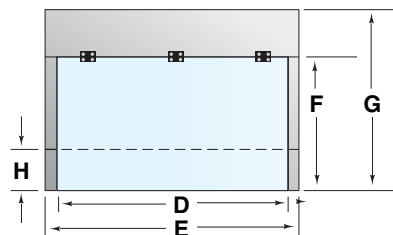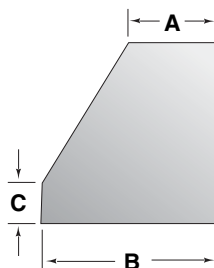
Includes air speed monitor

Vertical Laminar Flow Configuration, shown with AirGard™ and vibration-isolated stand

1. Select a Hood

Begin by selecting the hood size (large or small, available for single or twin stations); then choose the material that's right for your application. Each hood comes with a swing-up access shield of a compatible material, indicated on the ordering table.

Universal Hood Nominal Dimensions (in inches)

Type	A	B	C	D	E	F	G	H
Small Single	16	24	4	31	36	17	23	8
Large Single	19	28	8 1/2	39	45	21	27	8
Small Twin	16	24	4	64	72	17	23	8
Large Twin	19	28	8 1/2	83	90	21	27	8

Universal Hoods (includes access shield of materials indicated in parentheses)

Type (See Dimensions above)	Polypropylene (Nondissipative PVC shield) Cat. #	$/Each	Static Dissipative PVC (Dissipative PVC shield) ⊗ Cat. #	$/Each	Nondissipative PVC (Nondissipative PVC shield) Cat. #	$/Each	304 Stainless Steel (Dissipative PVC shield) ⊗ Cat. #	$/Each	Acrylic* (Acrylic shield) Cat. #	$/Each	Tempered Glass (Dissipative PVC shield) ⊗ Cat. #	$/Each
Small Single	7900-12A	1,283	2241-03A	1,630	7900-14A	1,162	2900-16A	1,668	1715-09A	695	2900-14A	1,329
Large Single	7900-13A	1,507	2241-04A	2,151	7900-15A	1,370	2900-17A	1,927	1715-10A	925	2900-15A	1,520
Small Twin	7900-06A	2,374	2242-00A	2,855	7900-08A	2,035	2900-06A	2,871	1715-06A	1,288	2900-12A	2,295
Large Twin	7900-07A	2,629	2242-01A	3,713	7900-09A	2,375	2900-07A	3,297	1715-08A	1,657	2900-13A	2,663

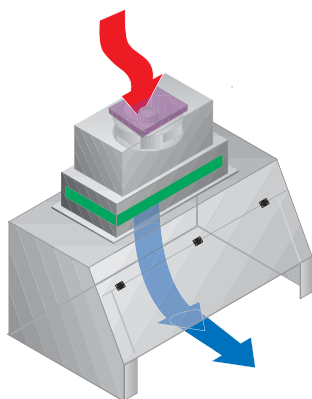** Acrylic is damaged by alcohol and other cleaning agents.*

Universal
Hood
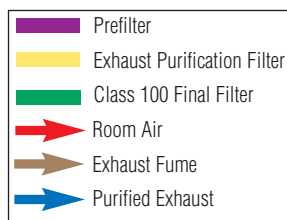
	Performance	Laminar Flow*		Exhaust Fume**	
	Hood Size	Flow	Velocity	Flow	Velocity
	Small Single	800 CFM	175 ft./min.	200 CFM	117 ft./min.
	Large Single	800 CFM	175 ft./min.	200 CFM	90 ft./min.
	Small Twin	1600 CFM	175 ft./min.	400 CFM	111 ft./min.
	Large Twin	1600 CFM	175 ft./min.	400 CFM	88 ft./min.

Legend:
- ▬ Prefilter
- ▬ Exhaust Purification Filter
- ▬ Class 100 Final Filter
- → Room Air
- → Exhaust Fume
- → Purified Exhaust

* Average values for operation with HEPA filter(s) No. 1681-02 (twin stations use two filter/blower modules) at "high" setting. Velocity reading taken at the filter face; speed adjustable down to 100 ft./min.

** Average values for operation with activated charcoal filter(s) No. 1716-00A (twin stations use two filter/blower modules). Exhaust systems operate at "high" setting only (no speed control). Velocity readings taken at hood inlet with shield down (8" gap).

2. Select a Filter/Blower Module

For high-velocity exhaust fume requirements, select Terra's Benchtop Ductless Exhaust Fume Hood on pg. 17

8"-diameter x 1" flange (standard)

Charcoal filter now with Particle Entrapment shield to contain dust

Includes 8" diameter x 1" flange. Flange adapter panels available —see Cat. # 105, page 401

Laminar Flow Station
This positive-pressure configuration allows filtration of particles to ensure a uniform, contamination-free flow of air to the work surface. It thus provides a mini-cleanroom environment for particle-sensitive operations in microelectronics, biotech, and many other industries. See performance chart above.
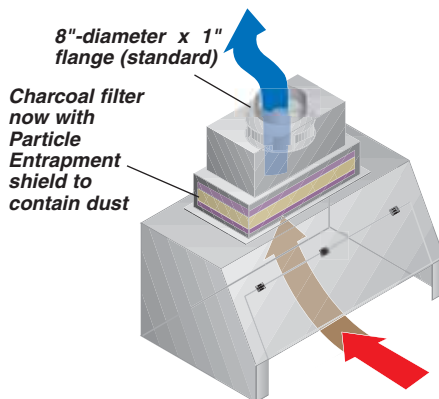
Ductless Exhaust Fume Hood
This negative-pressure system ventilates and purifies hazardous fumes generated under the hood, allowing safe indoor release of exhaust. It is ideal for such operations as soldering, screen printing, and chemical mixing. Its portability enables you to put a cover on operations that might otherwise create a toxic work environment! See performance chart above.
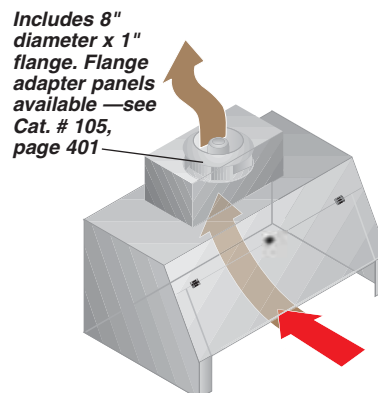
Portable Exhaust Fume Hood
This negative-pressure system is designed to ventilate fumes to your in-house exhaust system, usually by means of an exhaust duct.

Note: Twin stations require two blower modules.

Select **HEPA** or **ULPA Filter,** along with **Blower** and **Filter Housing** of desired material.

Select **Exhaust Purification Filter**, along with **Blower** and **Filter Housing** of desired material.

Select **Adapter Panel** for connection to in-house ventilation system.

Blower Module*		A. Laminar Flow		B. Ductless Exhaust Purifier				C. Exhaust Ventilation			
Blower Type** (@ 0" SP)	Power	Stainless Steel		Stainless Steel		Polypropylene		Stainless Steel		Polypropylene	
		Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
1200 CFM	115VAC/60Hz	1715-51	757	1715-53	601	1684-98	658	1715-55	601	1684-98	658
	230VAC/50Hz	1715-51-220	757	1715-53-220	601	1684-98-220	658	1715-55-220	601	1684-98-220	658
Filter Housing***		1715-52	312	1715-54	312	1687-10	347	—	—	—	—

* Dimensions: 22.75"W x 13.50"D x 7.25"H

** Actual performance depends on filter load.

*** Dimensions: 30" x 13.75"D x 7.75"H. Order filters separately (below).

3. Select the Filters
Note: Twin stations require two filter/blower modules and filters.

	Cat. #	$/Each
HEPA (High-Efficiency Particulate Air) Rated 99.99% efficient @ 0.3 micron particles.	1681-02	220.00
ULPA (Ultra-Low Penetration Air) Rated 99.999% efficient @ 0.12 micron particles.	1681-10	298.00
Replacement Pre/Post Filter For laminar flow applications only.	9202-50	31.00
Activated Charcoal Filter Removes most organic vapors. New bonded-charcoal design improves safety and performance.	1716-00A	312.00

For a cleaner, static-safe enclosure!

IonBar™ for Laminar Flow Enclosures
Enhances ESD and particle control by safely neutralizing static charges.

Bar length	Cat. #	$/Each
11" Long (2 emitters)	2005-05A	366.00
22" Long (4 emitters)	2005-06A	461.00
33" Long (6 emitters)	2005-16A	563.00
44" Long (8 emitters)	2005-07A	663.00

Universal Hood

4. Select a Stand

Both designs feature raised lips to hold the hood securely in place. All frames (whether isolated or not) are made of rigid square tubing with a white powder-coat finish, and include stainless steel scuff sleeves to prevent scuffing along the bottom leg support. The work surface stands 32" above the floor. Be sure to select the size (large or small, single or twin) to match your hood.

Vibration-isolated stand with free-standing hood frame isolates blower vibrations.

Non-isolated (one-piece) stand

Stands (Select the desired style)											
For Hood Type	Hood Frame (Powder-Coated) Steel		Work Surface								
			Nonconductive Laminate		Conductive Laminate		Polypropylene		304 Stainless Steel Solid		304 Stainless Steel Perforated
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
Two-Piece Vibration-Isolated Stands											
Small Single	1682-01	267.00	1682-02	376.00	1682-03	574.00	1715-17	666.00	1715-21	778.00	1715-25	1,031.00
Large Single	1715-02	281.00	1715-03	417.00	1715-07	606.00	1715-18	713.00	1715-22	792.00	1715-26	1,051.00
Small Twin	1715-11	355.00	1715-13	483.00	1715-15	671.00	1715-19	726.00	1715-23	870.00	1715-27	1,305.00
Large Twin	1715-12	495.00	1715-14	604.00	1715-16	798.00	1715-20	866.00	1715-24	1,031.00	1715-28	1,557.00
One-Piece Non-Isolated Stands											
Small Single	—		1682-16	503.00	1682-12	700.00	1715-29	792.00	1715-33	911.00	1715-37	1,175.00
Large Single	—		1682-17	543.00	1682-13	734.00	1715-30	838.00	1715-34	925.00	1715-38	1,181.00
Small Twin	—		1682-18	669.00	1682-14	860.00	1715-31	915.00	1715-35	936.00	1715-39	1,371.00
Large Twin	—		1682-19	793.00	1682-15	986.00	1715-32	1,056.00	1715-36	1,096.00	1715-40	1,755.00

5. Other Options

Ionizing Equipment

A self-balancing, no-maintenance power supply (included) emits a balanced stream of positive and negative ions to neutralize static charge imbalances that might exist under the hood. Includes installation on selected hood.

Width	Cat. #	$/Each
11" (2 emitters)	2005-35	595.00
22" (4 emitters)	2005-36	690.00
33" (6 emitters)	2005-38	791.00
44" (8 emitters)	2005-37	892.00

Flange Adapter Panels also available —see Cat. # 105, page 401

Lighting Fixture

Recommended for use with stainless steel and polypropylene hoods (which permit only partial visibility of the work area). Two fixtures are recommended for twin stations.

	Cat. #	$/Each
Vapor-Proof Light Fixture Only (installed)		
115VAC, 50/60Hz	2400-21	347.00
230VAC, 50Hz	2400-21-220	347.00
Fluorescent Tube	1682-26	14.00
Standard Fixture With Stainless Steel Reflector (installed)		
115VAC, 50/60Hz	1681-05	208.00
230VAC, 50Hz	1681-05-220	208.00

Power Strips

Provide 4 receptacles for 115VAC/60Hz equipment. Includes a master on/off switch and 15-Amp circuit breaker. Price includes installation at rear of work surface.

Cat. #	$/Each
1681-80	110.00

AirGard™ Air Velocity Monitor (installed)

Monitors air velocity (70 - 250 ft/sec; 0.35 - 1.25 m/sec) to ensure laminar flow or ventilation efficiency.

	Cat. #	$/Each
110VAC, 50/60Hz	6704-65	770.00
220VAC, 50Hz	6704-65-220	770.00

Mini-Environment Equipment Enclosure

- A particle-free, static-safe environment for microelectronic equipment, balances, scales and other sensitive equipment

- Interchangeable access ports let you configure the optimal enclosure for your application —
  - Solid Panels
  - Glove Ports
  - Iris Ports
  - Access Doors
  - Microscope Bellows
  - Custom Interface Modules

- Select application-compatible material: acrylic, polycarbonate, static-dissipative PVC (custom materials available)

- Optional HEPA filter/fan unit provides industry-leading quiet operation and low vibration

- Two-piece stand isolates work station from blower vibration

- Terra customizes to your requirements for special dimensions, cut-outs, low/high temperature and humidity control
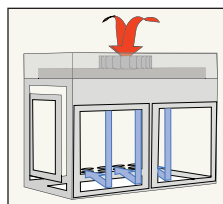
These Mini-Environment Equipment Enclosures provide a controlled environment for delicate process equipment. Each includes dual front doors for easy access. The bottomless design allows convenient placement over equipment; select the optional spill tray if a bottom is required. Standard size: 49"W x 25"D x 30.25"H (without filter/fan module). Door opening: 22.38"W x 22.25"H (for each door).

No. 2003-20 with optional filter module and side doors.

Shown with Iris Ports
Cat. # 1685-93, $421.00/Pair

Shown with Glove Ports
Cat. # 2003-37, $261.00/Each

→ Room Air
→ Filtered Air

Temperature-controlled models available in sizes up to 72"W—full specs at
TerraUniversal.com

Mini-Environment Enclosures			Corresponding Side Access Door*				
Material			**Right Side**		**Left Side**		
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	
Acrylic**	2003-20	2,307.00	2003-25	229.00	2003-30	229.00	
Static-Dissipative PVC	2003-21	2,992.00	2003-26	253.00	2003-31	253.00	
Polycarbonate	2003-22	3,064.00	2003-27	264.00	2003-32	264.00	

* Front access doors included (as in photos above). Side doors feature stainless steel frame and chrome-plated lift latch. Opening: 15"W x 21"H
** Acrylic is damaged by alcohol and other cleaning agents.

Microscope Bellows
Indicate desired location.

	Cat. #	$/Each
	1681-53	234.00

Vapor-Sealed Fluorescent Illuminator   2400-21   347.00
27"L x 5"W x 3"H; dissipative PVC housing. 120VAC, 60Hz. Other voltages and special lighting available, including germicidal UV.

Filter/Fan Units (120VAC, 50/60Hz)
Includes 99.99% efficient HEPA filter. Adds 13" to height. Exit slots provided for air release.

Cat. #	$/Each
6701-99A	765.00

Spill Tray
2"H tray safely contains chemical spills and is easy to clean.

	Cat. #	$/Each
Stainless steel	2003-35	469.00
Polypropylene	2003-36	469.00

Ionizing Bar
See page 12 for installation information

	Cat. #	$/Each
22"L (4 emitters)	2005-06A	461.00
44"L (8 emitters)	2005-07A	663.00

Work Surfaces
Vibration-isolated stands feature a two-piece design that separates the work surface from the Mini-environment support. Both one- and two-piece stands place the work surface 32" above the floor and feature recessed legs made of powder-coated steel.

Surface Material	2-Piece Isolated Stands				1-Piece Non-Isolated Stands	
	Hood Stand		Work Surface		Stand and Work Surface	
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
Clean Laminate	2003-40	283.00	2003-45	421.00	2003-50	547.00
Conductive Laminate	2003-40	283.00	2003-46	595.00	2003-51	547.00
Polypropylene	2003-40	283.00	2003-47	715.00	2003-52	840.00
Stainless Steel – Solid	2003-40	283.00	2003-48	774.00	2003-53	902.00
Stainless Steel – Perf.	2003-40	283.00	2003-49	1,014.00	2003-54	1,135.00

Two-piece stand isolates fan vibrations.

Purifier® Delta Series
Biological Safety Cabinets

- **Meets NSF designation for Class II, Type A2 Biological Safety Cabinets**
- **Offers the largest working area of any biological safety cabinet in its class**
- **Safety features include fully closing, counterbalanced tempered glass sash with audible/visual alarm indicator**

The Purifier® Delta Series Biological Safety Cabinets set the standard for safety, performance and ergonomics.

They meet or exceed all the standards set forth by the NSF International, including 99.99% efficient HEPA filters, nominal inflow of 105 fpm, and all positive-pressure ducts surrounded by negative pressure plenums. Their advanced airflow design, which includes aerodynamic Air-Wave™ Entry System and an air foil with strategically placed containment slots, ensure optimal operator protection and a 30% exhausted/70% recirculated air ratio called for by NSF standards.

Purifier™ Delta Series cabinets also include safety features you won't find elsewhere, including an exclusive sash pocket that protects the user from potential exposure to work area contaminants that may adhere to the sash interior. The sash also provides tactile feedback to the operator not to lift it beyond its 8" working height. Raising it beyond this point triggers an audible/visual alarm.

Purifier™ Delta Series Biological Safety Cabinet
Four-foot nominal width; sash opens to 8". Operates on 115VAC, 60Hz. For full specifications, and ordering information on 3' and 6'-wide models, as well as models with 10" sash openings, visit TerraUniversal.com.

	Cat. #	$/Each
	3645-34	7,527.00
With service fixture for air/water and UV light	**3645-30**	7,544.00
Adjustable Base Stand	**3645-27**	635.00

Heated Processing
Chamber

- **Ideal for work with biological samples, microelectronics-based surgical tools, medical implants, and other critical components requiring above-ambient calibration or testing**
- **Recirculation system ensures uniform heating up to 140°F**
- **Transparent polycarbonate front and sides allow full visibility**
- **Hinged access door with PVC parting curtain allows introduction of large materials when opened**

Custom configurations to your specifications!

Specifications

Dimensions:	19"W x 24"D x 15"H
Materials:	Polycarbonate (front and side of processing chamber); 304 stainless steel (blower/heater housing and diffusers)
Blower:	230 CFM motorized impeller

	Cat. #	$ Each
Heated Processing Chamber		
110VAC/60Hz	**1530-40A**	4,982.00
220VAC/50Hz	**1530-40A-220**	4,982.00

CE

Pass-Through Laminar Flow Cabinets

- **Maintains a Class 100 (ISO 5) environment for work with contamination-sensitive materials**

- **Airflow design maintains the 70% recirculation/30% exhaust ratio specified for Class II, Type A2 Biological Safety Cabinets**

- **Unique pass-through design features interlocked sashes that allow access from one side only**

- **Negative pressure in work area and all plenums protects operator and external environment against biohazards**

- **Includes PLC controls and fluorescent lighting (UV germicidal lights available)**

Terra's Pass-Through Laminar Flow Cabinet is designed to provide a clean, safe processing environment with dual-side access.

Its unique design features electronically activated opposing sashes that are interlocked to allow access from only one side at a time. Status lights indicate which side is locked out. Intake/recirculation vents located on the leading edge, below each sash, provide 100 feet/minute inflow past the operator into the hood with the sash raised 8", ensuring the necessary operator protection against fumes inside the work area.

Air exits the work area under negative pressure through the system plenum to the blower, where 70% is recirculated through the system HEPA filter (rated 99.99% efficient @ 0.3μm particles) and 30% is exhausted, also through a HEPA filter, into an 8" exhaust line. An exhaust thimble is installed in the exhaust duct, in accord with NSF requirements for Type A2 Biological Safety Cabinets.

The system's PLC panel controls operation of the system blower and fluorescent lights; UV germicidal lights are also available. A backpressure gauge monitors filter operation and indicates the need for filter replacement.

Electronic interlocks and status lights ensure access from one side only.

Dimensions: 60"W x 24"D (at work area) x 96"H. Includes two tempered glass sashes and two 110VAC duplex outlets. Operates on 110VAC.

	Cat. #	$/Each
Pass-Through Laminar Flow Cabinet	2148-20	19,500.00
Germicidal Light Package	2148-21	400.00

High-Capacity, HEPA-Filtered Air Handler

- **Provides a high-volume flow of HEPA-filtered air (3000 CFM average)**

- **Ideal for a wide range of critical environment applications —**
    - ✔ decontamination of surgical zones, even field surgical tents
    - ✔ emergency ventilation of contaminated facilities
    - ✔ creation of clean zones within an existing clean room

Terra's High-Capacity Air Handler provides up to 3200 CFM (3000 CFM average) of HEPA-filtered air. In a positive-pressure system, it provides particle-free air to a remote enclosure, creating a clean environment in nearly any space. Used as a ventilator, it removes sub-micron particles, including aerosols and most bacteria, from an exhaust flow to allow safe indoor release. Dimensions: 30"W x 48"D x 31"H (67" with built-in stand). Stainless steel housing with 16" dia. inlet/outlet flanges.

		Cat. #	$/Each
High-Capacity Air Handler	120VAC	6710-68	5,640.00
	208VAC	6710-68-208	5,640.00
HEPA Filter		2100-20	289.00

99.99% efficient @0.3μm particles

Suitable for indoor or outdoor use

Ionizing
Equipment

**IonGrid™
Ionizing FFU
Includes HEPA
Filter/Fan Unit**

D

B *Ionizing Module with Fans
Ideal for gloveboxes*

C

- **Provides a balanced stream of positive and negative ions to neutralize static charges and eliminate particle attraction**
- **Ideal for use with pharmaceutical powders, ESD-sensitive microelectronics, and other delicate materials**
- **Discharge time: 1000 to 100V in less than 5 seconds (mounted in laminar flow of 90fpm, measured 24" from ionizing bar)**
- **Low-voltage power supply is intrinsically safe, minimizes EMI/RFI**
- **Long-lasting titanium emitter points can be replaced in seconds**

A. IonBar™ for Benchtop Hoods
Select the bar that fits your hood width. Terra will install with the hood indicated to ensure effective ion distribution by the hood's laminar flow module. **Not shown**.

B. Ionizing Fan Module
Ideal for gloveboxes and other enclosure without laminar flow, this module incorporates fans into a clean stainless steel housing to ensure effective ion distribution. See ordering information below.

C. IonBar™ for OEM Applications
Includes ionizing bar only; order desired transformer separately. For effective operation, this bar must be mounted in a laminar airflow.

Note: Types A,B and D include transformer and installation in specified enclosure.

D. IonGrid™ Ionizing Filter/Fan Unit
Integrates IonBar™ into HEPA filter/fan unit for clean, static-safe operations. Ideal for Terra's Vertical and Horizontal Laminar Flow Stations (page 1 – 3), as well as module cleanrooms. Models below are 110VAC; for 220VAC operation, add –220 to part number. ULPA filter models also available.

Dim. (W x D)	Cat. #	$/Each
2' x 4'	6701-97	1,403.00
2' x 3'	6701-95	1,315.00
2' x 2'	6701-93	1,225.00

Ionizing Equipment (see separate chart above for "A")

Nominal Dimensions	A. IonBar for Benchtop Hoods*		B. Ionizing Fan Module*		C. IonBar™ for OEM applications**	
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
11" (2 emitters)	2005-35	595.00	2005-29	682.00	2005-05A	366.00
22" (4 emitters)	2005-36	690.00	2005-30	777.00	2005-06A	461.00
33" (6 emitters)	2005-38	791.00	2005-32	878.00	2005-16A	563.00
44" (8 emitters)	2005-37	892.00	2005-31	979.00	2005-07A	663.00

* For 220VAC models, add –220 to the part number.
** Requires transformer: #2005-09A ($34) for 110VAC; #2005-09A-220 ($45) for 220VAC
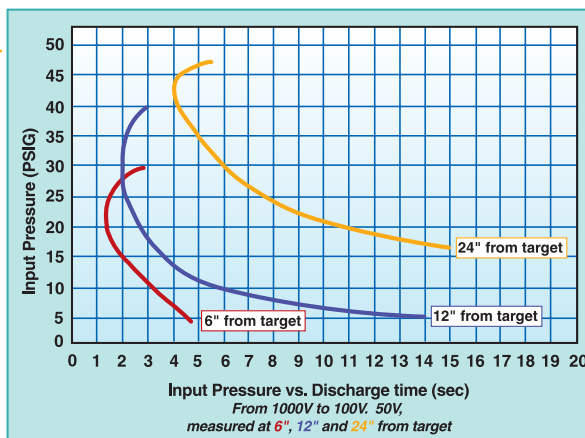
Ionizing
Blow-Off Gun

This gun emits a stream of ions to safely neutralize surfaces with pinpoint accuracy. It also helps remove surface contaminants by eliminating static attraction. Designed for use with either filtered air or nitrogen at 12-30 psi. 24VDC. Includes transformer and 0.4-micron capsule filter.

Cleanroom Ionizing Air Gun

	Cat. #	$/Each
120VAC, 50/60Hz	2005-55	689.00
220VAC, 50/60Hz	2005-55-220	689.00

Capsule Filters (Replacement)

	Cat. #	$/Each
0.04μm retention	2005-52	156.00
0.40μm retention	2005-53	107.00

Input Pressure vs. Discharge time (sec)
*From 1000V to 100V. 50V,
measured at 6", 12" and 24" from target*

(Graph: Input Pressure (PSIG) vs. time, with curves labeled "6" from target", "12" from target", "24" from target")
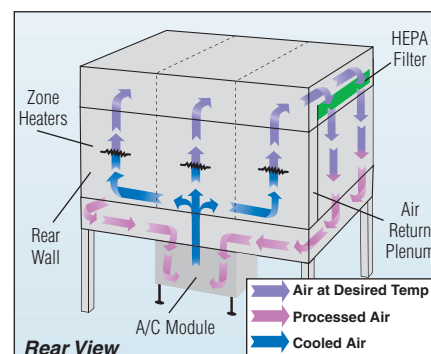
Temperature
Stability Chamber

- **Provides a particle-free, heated environment for biocompatibility testing, sensor calibration and other critical operations**

- **Segmented access shields afford easy access to large working area**

- **Maintains stable temperature (± 0.5°C between 18 - 25°C) even with access shield partly open**

This enclosure maintains extremely stable temperature conditions (21°C, ± 0.5°C) even when the external temperature fluctuates as much as ± 20°C and the access shield is partially open.

Its large working area (up to 120"W x 54"D x 36"H) is divided into 40"W zones, each with independent access shield and temperature controls. Air flows vertically through 99.99% efficient HEPA filters to provide a continuous wash of laminar-flow air that creates a cleaner-than-Class 100 work environment. Air passes through perforations in the work surface and passes through a 10,000 BTU air conditioning module and then through zone heaters that bring it up to a constant temperature before it circulates through HEPA filters and re-enters the work area.

The system disassembles for convenient shipping and installation in facilities with restricted access. Front access shield cut-outs can be specified for glove ports.

Rear View

Labels: Zone Heaters, Rear Wall, A/C Module, HEPA Filter, Air Return Plenum

Legend: Air at Desired Temp / Processed Air / Cooled Air

Overall Dimensions	Chamber Size (ID)	40"W Access Zones	Cat. #	$/Each
40"W x 64"D x 81"H	40"W x 54"D x 36"H	1	**1695-23**	8,500.00
80"W x 64"D x 81"H	80"W x 54"D x 36"H	2	**1695-24**	16,287.00
120"W x 64"D x 81"H	120"W x 54"D x 36"H	3	**1695-25**	23,360.00

* Order desired Fan/Filter Unit (HEPA or ULPA) separately - one 2' x 4' unit required per access panel.

Model shown:
No. 1695-25

Temperature Stability Chamber

Refrigerated Incubator

*See page 35 for other environmental chambers*

ECM™ Modular System:

Ductless Exhaust Purifiers

Negative-pressure systems ventilate and purify hazardous fumes generated under the hood, allowing safe indoor release of exhaust. They are ideal for such operations as soldering, screen printing and chemical mixing.

Select the hood material and filter(s) for your application below. They require a work surface that provides at least 44" of depth (for horizontal systems) or 30" (for vertical systems). All components are delivered as a complete turnkey system, ready for operation.

New bonded filters improve safety and performance
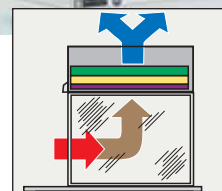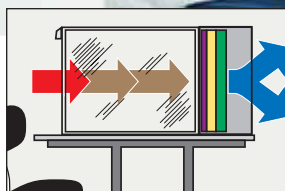
To Order —

1. The chart below indicates the **system widths** available for two, three or four filter packs. Each filter pack includes a primary filter (generally, an activated charcoal filter), and a final HEPA filter, if exhaust must meet critical cleanliness requirements.

2. Select the desired **blower/filter module**. Each polypropylene housing incorporates a 1200 CFM impeller blower for each filter pack, ensuring adequate exhaust flow (see performance graph on facing page).

3. Select the **hood material** for your application.

4. Order the correct number of **filters** for your hood size. The activated charcoal filter listed below is 98% effective at removing a wide range of organic fumes. Pre- and post-filters trap charcoal particles.

5. A **fluorescent light** is recommended for optimal visibility, especially with a polypropylene or stainless steel hood. **Ionizing equipment** is available to protect the work area against surface charges. The optional **AirGard® Air Velocity Monitor** ensures adequate airflow.

6. Select the appropriate **work surface.** Refer to page 4 for benches designed specifically for these systems.

Size	Blower/Filter Module**			Hoods (See facing page for full specifications)										
No. of Blowers*	115VAC 60Hz	230VAC 50Hz		Dissipative PVC		Nondissipative PVC		Acrylic***		Polypropylene		304 Stainless Steel	
	Cat. #	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
Horizontal Flow													
2 (28")	1650-30	1650-30-220	1,478	1682-60B	1,877	1682-83B	1,214	1682-86B	950	1682-89B	1,376	1682-92B	1,518
3 (42")	1650-31	1650-31-220	2,215	1682-61B	2,298	1682-84B	1,377	1682-87B	1,063	1682-90B	1,636	1682-93B	2,133
4 (56")	1650-32	1650-32-220	2,955	1682-62B	2,650	1682-85B	1,604	1682-88B	1,197	1682-91B	1,768	1682-94B	4,313
Vertical Flow													
2 (28")	1650-40	1650-40-220	1,478	1683-22B	1,504	1683-25B	1,075	1683-28B	833	1683-31B	1,218	1683-34B	1,422
3 (42")	1650-41	1650-41-220	2,215	1683-23B	1,799	1683-26B	1,139	1683-29B	909	1683-32B	1,361	1683-35B	1,618
4 (56")	1650-42	1650-42-220	2,955	1683-24B	2,130	1683-27B	1,350	1683-30B	989	1683-33B	1,474	1683-36B	1,753

* Indicates number of filters that are housed in the corresponding blower/filter module. Order HEPA or ULPA filters separately.
** Includes one 1200 CFM impeller blower for each filter pack. (rated at 0" static pressure; see performance data on facing page).
*** Acrylic is damaged by alcohol and other cleaning agents.

System Options	Lighting Fixture			AirGard™			Power Strip	
For Hood Size	110VAC, 60 Hz	220VAC 50/60 Hz		Air Velocity Monitor			Includes 4 outlets	
				110VAC	220VAC			
	Cat. #	Cat. #	$/Each	Cat. #	Cat. #	$/Each	Cat. #	$/Each
28"W (two filters)	1682-23	1682-23-220	227					
42"W (three filters)	1682-24	1682-24-220	246	6704-65	6704-65-220	770	1681-80	110
56"W (four filters)	1682-25	1682-25-220	429					

Filters:
Note: Two filters (a charcoal filter and HEPA/ULPA final filter) can be installed in each filter pack.

|	Cat. #	$/Each		Cat. #	$/Each
Purification Filter (Activated charcoal) Now includes particle entrapment layers to contain charcoal dust.	1716-00A	312	**HEPA** (High Efficiency Particulate Air) Rated 99.999% efficient @ 0.3µm particles	1681-02	220
			ULPA (Ultra Low Penetration Air) Rated 99.999% efficient @ 0.12µm particles	1681-10	298

ECM™ Modular System (continued from previous page)

Specifications

Blower: 1200 CFM (rated at 0" static pressure) 1675 RPM variable-speed impeller; 115VAC/ 60Hz; consumes 115W; 1.0 running amps (230VAC/50Hz models also available); housed in white polypropylene housing with plenum chamber to optimize uniform air flow. Note: 1200CFM blowers used in ductless exhaust applications do not include speed controls.

Exhaust Purification: Bonded charcoal filters eliminate voids and dead zones for improved safety and efficiency. Particle entrapment shield contains charcoal dust.

Dimensions: Hood: 28"/42"/56"W x 30"D x 29"H (excluding blower)

Blower: 13$\frac{1}{2}$"D x 32$\frac{1}{4}$"H x 28", 42", or Housing: 56"W
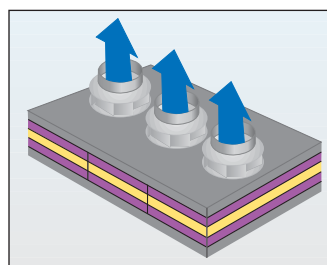
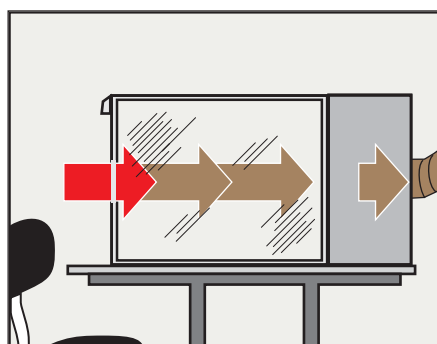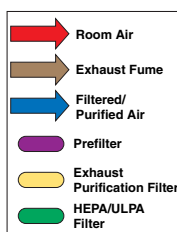*Air Velocity: 147 ft./min. at hood inlet, shield down (with charcoal filters only)*

Air Flow
As Shown:
600 CFM exhaust flow
(200 CFM per filter pack)

With HEPA final filters #1681-02:
525 CFM exhaust flow
(175 CFM per filter pack)

Test Configuration:
(3) 1200 CFM Impellers
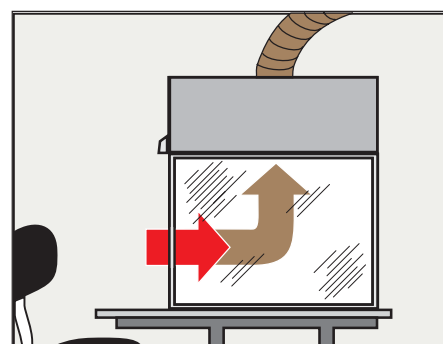(3) Charcoal Filters #1716-00A

ECM™ Modular System

Exhaust Fume Hoods

Draws exhaust fumes into an exhaust duct for delivery to an in-house filtration system. Each blower module includes multiple 1200-CFM impeller blowers to provide adequate ventilation. An 8"-diameter flange for each blower allows connection to exhaust conduit.

Prices and Specifications online!

→	Room Air
→	Exhaust Fume
→	Filtered/ Purified Air
→	Prefilter
→	Exhaust Purification Filter
→	HEPA/ULPA Filter

Horizontal Exhaust Fume Hood

Vertical Exhaust Fume Hood

Cleanroom Benches

For ECM™ Modular Hoods

- **Allow permanent installation of ECM™ Modular Hoods as complete turnkey systems**
- **Available in several materials and designs to meet a variety of cleanroom requirements**
- **Precise sizing eliminates exposed edges that collect particles**

These cleanroom benches are designed specifically for use with Terra's Environmental Control Modules (ECMs) listed on the following pages.

Designed to permit fixed (permanent) hood installation, they turn your ECM into a secure, turnkey system with minimal exposed edges that can collect particles. They are available in several materials to match a variety of requirements. Dissipative and nondissipative tables feature laminated surfaces sealed at the top and bottom to eliminate particle shedding. Laminate, polypropylene and stainless steel models include epoxy-finished steel frames with stainless steel scuff guards to prevent chipping of the bottom leg member.

Benches are sized to fit the ECM hood precisely; select the model that matches your system.

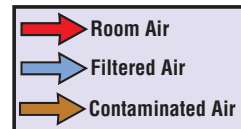| Benches									
For Hood Size (No. of Blowers)	**Nondissipative Laminate** Powder-Coat Base		**Dissipative Laminate** Powder-Coat Base		**Polypropylene** Powder-Coat Base		**304 Stainless Steel Top** Powder-Coat Base			
							Solid Top		Perforated Top	
	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
For Vertical Flow Applications (32"H x 33"D)										
28"W (2 modules)	1684-14	395.00	1684-17	659.00	1684-20	673.00	1684-23	823.00	1684-26	1,337.00
42"W (3 modules)	1684-15	431.00	1684-18	691.00	1684-21	710.00	1684-24	919.00	1684-27	1,648.00
56"W (4 modules)	1684-16	454.00	1684-19	718.00	1684-22	727.00	1684-25	939.00	1684-28	1,918.00
For Horizontal Flow Applications (32"H x 44"D)										
28"W (2 modules)	1684-35	417.00	1684-38	681.00	1684-41	749.00	1684-44	867.00	1684-47	1,378.00
42"W (3 modules)	1684-36	451.00	1684-39	715.00	1684-42	761.00	1684-45	931.00	1684-48	1,659.00
56"W (4 modules)	1684-37	486.00	1684-40	749.00	1684-43	773.00	1684-46	988.00	1684-49	1,964.00

Free-Standing
Exhaust Fume Hoods

- **Stainless Steel or Powder-Coated Steel Hood safely vents fumes away from the work surface**
- **Optional Exhaust Purification System (with explosion-proof ventilator) safely removes hazardous fumes for safe indoor release**
- **Transparent PVC side panels and sliding shield control negative pressure under the hood, reduce risk of fumes escaping**
- **Steel frame provides sturdy support, isolates hood from work surface**

This Exhaust Fume Hood is designed to afford you maximum economy and flexibility in designing the system that's right for your application.

The frame is fabricated from welded 1½" x 3" powder-coated or stainless steel to ensure sturdy support for the exhaust fume hood. The frame also isolates the hood (and any vibrations the hood causes) from the work surface. A 6" round discharge allows easy connection to your in-house exhaust system to provide the internal negative pressure necessary to safely remove fumes from the work surface.
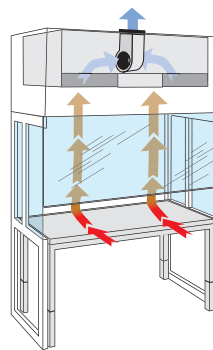
The front of the unit features an easy-glide sliding shield (also made of transparent PVC mounted in a powder-coated aluminum frame). The Ductless Exhaust Purification Hoods include an explosion-proof blower installed inside the hood and provisions for mounting purification filters and particle filters that safely remove a wide array of fumes to allow safe indoor release of exhaust.

Shown with optional Cleanroom Bench.
(See Catalog 105, page 415 for complete information).

→	**Room Air**
→	**Filtered Air**
→	**Contaminated Air**

Exhaust Purification Filter (for Ductless Exhaust Applications)

Removes a wide array of fumes for safe indoor exhaust release. Four are recommended for each hood (two stacks of two filters each). Bonded-charcoal design improves safety and performance, contains dust.

	Cat. #	$/Each
Purification Filter	**1716-00A**	**312.00**

HEPA Particle Filters
	1681-02	**220.00**

99.99% efficient @ 0.3µm-diameter particles. Select one for each stack of purification filters. Recommended for cleanroom applications.

Dust-Sealed Fluorescent Illuminator

26.25"L x 6.5"W x 5"H. Installed from to back across the hood (two recommended). Price includes installation.

	Cat. #	$/Each
	2400-07	**198.00**

Vapor-sealed and explosion-proof lighting available for use with explosive fumes.

Models below are 110VAC/60Hz. To specify 220VAC/50Hz, add "-220" to the affected part number.

Dimensions			Exhaust Fume Hoods*				Ductless Exhaust Purification Hoods**			
Overall Length A	Inside Length B	Optional Work Surface Order below	304 Stainless Steel		Powder-Coated CR Steel		304 Stainless Steel		Powder-Coated CR Steel	
			Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
52"	49"	48" x 30"	2400-03	6,091.00	2400-08	4,100.00	2400-12	8,402.00	2400-16	6,729.00
64"	61"	60" x 30"	2400-04	6,819.00	2400-09	4,573.00	2400-13	10,693.00	2400-17	7,159.00
76"	73"	72" x 30"	2400-05	7,613.00	2400-10	5,528.00	2400-14	11,305.00	2400-18	8,027.00
100"	97"	96" x 30"	2400-06	8,046.00	2400-11	6,123.00	2400-15	12,048.00	2400-19	8,448.00

* Supporting frame is made of powder-coated steel tubing; stainless steel frame is available on a custom basis.
** Order Purification Filters separately. These systems include a ¾ HP explosion-proof blower mounted for negative-pressure venting.

Dimensions			Corresponding Cleanroom Bench†							
Overall Length A	Inside Length B	Optional Work Surface W x D	With Non-Conductive Top		With Static-Dissipative Top		With Stainless Steel Top		With Polypropylene Top	
			Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
52"	49"	48" x 30"	1722-00	552.00	1728-00	855.00	1521-45	960.00	1522-00	829.00
64"	61"	60" x 30"	1724-00	608.00	1730-00	876.00	1751-00	1,037.00	1522-01	867.00
76"	73"	72" x 30"	1726-00	617.00	1732-00	915.00	1752-00	1,088.00	1522-02	890.00
100"	97"	96" x 30"	2402-00	737.00	2400-00	1,060.00	1753-00	1,168.00	1522-04	1,033.00

† Complete with top, adjustable legs, and right/left drawer mounting brackets. Height is adjustable (30" -36"). Drawer unit optional. (See Catalog 105, pg. 417.)

High-Clearance Chemical Fume Hood

This benchtop unit features over 28" of vertical clearance with the access shield open. The dual impeller blowers provide ample ventilation under filter load to maintain exhaust air speed ≥ 100 fpm for safe operation and worker protection. A polypropylene tray collects chemical spills, and quick-release clamps ensure easy access to activated charcoal and/or final HEPA filters. The sloped front access provides full view of and access to work in progress. Overall dimensions: 32.5"W x 25"D x 33.25"H (48"H with filter/blower module). Access shield clearance: 15.5" (closed); 28.25" (open).

Exhaust Flow: 400 CFM (with charcoal filter)
               350 CFM (charcoal and HEPA final filter)
Air Velocity: 118 ft./min. with shield down
               (operated with charcoal filter only)

| Hood Material*	Cat. #	$/Each
Acrylic***	2900-30	3,171.00
PVC	2900-31	3,232.00
Polypropylene (PVC shield)**	2900-32	3,424.00
Polycarbonate	2900-33	3,460.00

  * Includes filter/blower enclosure and spill
    tray made of white polypropylene. Order
    filter(s) separately.
 ** Includes Fluorescent Illuminator (110VAC).
    Add "-220" to the part number for 220VAC
*** Acrylic is damaged by alcohol and other
    cleaning agents.

	Cat. #	$/Each
Charcoal Purification Filter	1716-00A	312.00
HEPA Final Filter	1681-02	220.00

*Full specifications –
TerraUniversal.com*
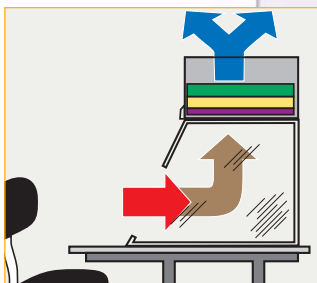
Ideal for distillation and other operations with large glassware or equipment.

High capacity blower maintains air speed >100 ft./min. with 15" of vertical working clearance!

High capacity blower maintains air speed 181 ft./min. with 8" of vertical working clearance!

Benchtop Ductless Exhaust Fume Hood

This high-capacity, turnkey fume hood features dual blowers to ensure a safe exhaust flow speed (181 ft./min.). Polypropylene construction resists chemical vapors, and an onboard air speed meter monitors operation. Includes a vapor-sealed fluorescent illuminator. Dimensions: 45"W x 28"D x 27"H. Other sizes and options available at **www.TerraUniversal.com**.
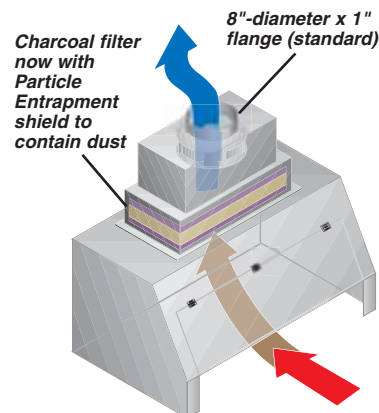
Cat. #	$/Each
2900-20	3,180.00

Air speed monitor ensures safe operation

Quick-release filter housing – replace filter from above or from inside enclosure!

Charcoal filter now with Particle Entrapment shield to contain dust

8"-diameter x 1" flange (standard)

Exhaust Fume Filtration Systems

A. Exhaust Fume Filter System

This versatile system removes smoke and fumes from soldering, epoxies, solvents or other sources. It is ideal for highly localized operations, for which an exhaust fume hood may be too constrictive or cumbersome. The easy-position swing arm lets you position the pick-up tool exactly where you need it yet won't interfere with soldering or other operations.

Select the desired filter module, exhaust arm, and corresponding bracket and pick-tools. The exhaust arm can be mounted to either a benchtop or wall. The larger, 3" arm requires an adapter for use with the 2" connecting hose.

Filter/Fan Modules

	Cat. #	$/Each
120VAC, 60Hz	9001-18A	914.00
220VAC, 50Hz	9001-18A-220	914.00

Module	2"-diameter		3"-diameter	
	Cat. #	$/Each	Cat. #	$/Each
Filter/Fan Flange	9001-19A	98.00	9001-40	150.00
Exhaust Arm	9001-00	248.00	9001-01	380.00
Exhaust Arm*	9001-02	325.00	—	
Table Mounting Bracket	9001-04	72.00	9001-34	92.00
Wall Mounting Bracket	9001-05	72.00	9001-35	92.00
Connection Hose, 2" diameter**				
8 feet	9001-06	65.00	—	
12 feet	—		9001-36	130.00
Adapter	9001-14	29.00		
(Connects 2" hose to 3" exhaust arm)				
Pick-Up Tools				
Slit Nozzle, 8"W*	9001-38	90.00	—	
Slit Nozzle, 8"W	9001-10	84.00	—	
Slit Nozzle, 10"W	—		9001-30	130.00
Slit Nozzle, 12"W	9001-11	94.00		
Slit Nozzle, 16"W	—		9001-31	163.00
Pipe Nozzle, 4"L	9001-12	30.00		
Pipe Nozzle, 4"W*	9001-39	31.00	—	
Pipe Nozzle, 5"L	—		9001-13	44.00
Acrylic Hood, 14"W	9001-15	133.00	9001-32	133.00
Funnel Nozzle, 8" Dia.	9001-16	89.00	9001-33	97.00
Funnel Nozzle, 8" Dia. with Halogen Light	9001-17	184.00	—	

*   **Anti-static models**
* *   **Hoses include one set of clamps. Select the adapter to use
      2"- diameter hose with 3"-diameter exhaust arm.**

B. Particle-Free Fume Extractor
Now with bonded-charcoal filter for enhanced performance

This high-capacity unit is perfect for exhaust fume removal throughout the cleanroom or lab.

The high static-pressure, brushless AC vacuum motor draws fumes through an activated charcoal purification filter to remove chemical vapors. The bonded-charcoal design of this filter ensures even air flow across the filter face and eliminates "dead"

A   *See Catalog 105, page 418.*

• *High-capacity unit ventilates large enclosures*

• *Cleanroom-compatible*

B

zones that can compromise filter performance. It also contains charcoal dust for cleaner performance.

Select ULPA final filter for particle-free cleanroom applications. The fume extractor includes a 3"-diameter flange for attachment of a self-locking 5'-long fume extractor arm with funnel nozzle (included). Housing is powder-coated steel.

Particle-Free Fume Extractor

Dimensions*	Flow (with filter)	Charcoal Weight (lbs.)	120VAC, 50/60Hz		220VAC, 50Hz		Charcoal Filter		ULPA Filter	
			Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
13.5" x 13.5" x 24.5"H	55 CFM	5.75	1715-60	2,283.00	1715-60-220	2,283.00	1701-90A	233.00	2100-29	114.00
14.5" x 29.25" x 24.5"H	55 CFM	11.5	1715-65	2,739.00	1715-65-220	2,739.00	1716-00A	312.00	1681-10	298.00
29" x 29.25" x 24.5"H**	110 CFM	23.0	1715-66	3,364.00	1715-65-220	3,364.00	1716-00A**	312.00	1681-10**	298.00

* *Including 3"-diameter casters, two with locking wheels.*   ** *Requires two filters*

DownDraft
Work Station

- **Enhances operator safety during soldering, chemical procesisng, adhesive coating and other operations involving noxious fumes**

- **Sub-surface blower/filter module draws fumes through peforated 304 stainless steel work platform**

- **Activated charcoal filter safely removes a wide range off organic fumes for safe indoor exhaust release**

A. DownDraft™ Work Station

This work station is ideal for soldering or chemical processing that requires the removal of potentially hazardous fumes. Its powerful 1200 CFM blower draws exhaust fumes downward, away from the operator, for safe removal and purification. The activated charcoal filter removes 98% of most organic chemical vapors, allowing safe release.

Benchtops, made of cleanroom-grade white laminate, raise the work surface 32" off the floor. Exhaust fumes enter the filter through three perforated stainless steel platforms positioned at the center of the work surface. Specify other desired platform sizes or locations.

Inlet Ports:	3 @ 4.5" x 13.5" each, 304 stainless steel (call for other sizes)
Exhaust Flew:	120 CFM
Exhaust Velocity:	315 ft./min. downdraft

Filters

	Cat. #	$/Each
Activated Charcoal	**1716-00A**	**312.00**
HEPA	**1681-02**	**220.00**

A
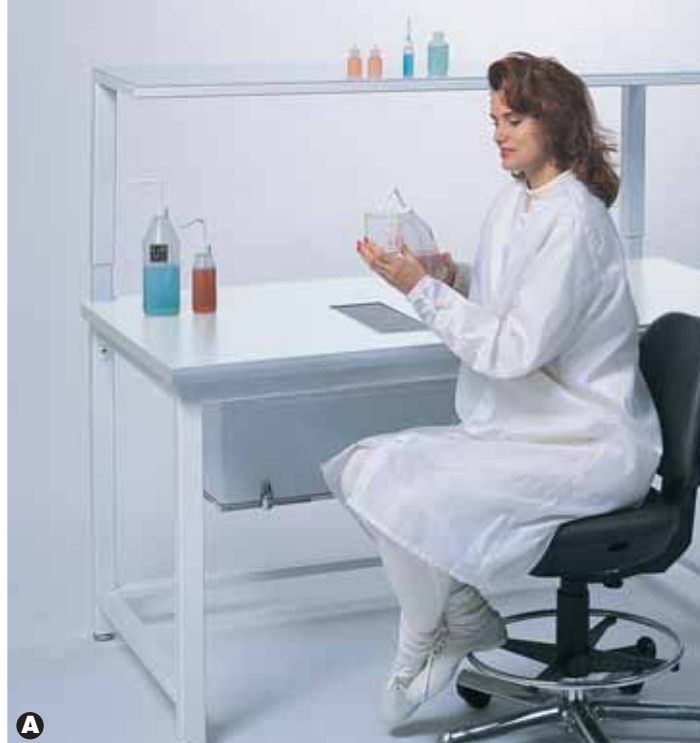
Exhaust Fume Filtration System			
Benchtop Dimensions (32"H, including leveling feet)	110VAC/60Hz Cat. #	220VAC/50Hz Cat. #	$/Each
48"W x 30"D	**1728-01**	**1728-01-220**	3,747.00
60"W x 30"D	**1728-02**	**1728-02-220**	4,137.00
72"W x 30"D	**1728-03**	**1728-03-220**	4,510.00
48"W x 34"D	**1728-06**	**1728-06-220**	3,765.00
60"W x 34"D	**1728-07**	**1728-07-220**	4,156.00
72"W x 34"D	**1728-08**	**1728-08-220**	4,529.00

Ductless
Work Station

- **Ideal for removing aerosols, soldering fumes, chemical vapors, and other hazards**

- **Activated charcoal filter is effective with a wide range of organic compounds**

- **Adjustable safety shield allows wide visibility and arm motion**

B. Ductless Work Station

This compact, portable exhaust purification system provides effective protection against fume exposure. It is easy to set up and relocate and allows unrestricted access to the work in progress.

A powerful but quiet variable-speed impeller blower draws fumes from the work area into an activated charcoal filter that effectively removes a wide range of organic fumes, allowing safe indoor exhaust release. An optional HEPA final filter captures fine particles for cleanroom use. Order desired shield and filter(s) separately. Exhaust flow velocity: 160 ft./min.

Ductless Work Station

	Cat. #	$/Each
115VAC, 60Hz	**9083-20**	**1,009.00**
230VAC, 50Hz	**9083-20-220**	**1,110.00**

Safety Shield

Static-Dissipative PVC	**9083-22**	**199.00**
Nondissipative PVC	**9083-23**	**99.00**

Carbon Filter	**1701-90**	**233.00**
HEPA Final Filter	**2100-30**	**106.00**

B

Lightweight, portable design — ideal for cramped benchtops!

Vacuum Chambers

A – D Full-Vacuum Chambers
See specifications/ordering chart below.

A. High-Capacity Chamber (see chart below)
Ideal for degassing large assemblies. Powder-coated steel chamber with 1"-thick aluminum door. Includes 1"-thick polycarbonate viewing window, piping, fittings and solenoid valve for convenient control (order pump and vacuum controller separately). 18"W x 48"L stainless steel shelf creates a convenient platform 4.5" above chamber floor.

	Cat. #	$/Each
Powder-Coated Steel Stand		
Raises chamber shelf to 34.6" above floor level	**3404-04**	**1,078.00**

B. 304 Stainless Steel Chamber (see chart below)
Double-wall construction; includes 8" x 8" tempered glass viewing window and dual metering valves and 0-30" vacuum gauge.

C. Aluminum Chamber (see chart below)
1"-thick walls; includes dual metering valves and 0-30" Hg vacuum gauge.

	Cat. #	$/Each
Powder-Coated Steel Stand		
Raises chamber 17"; includes casters.	**1590-61**	**541.00**

D. Full-View Acrylic Chamber (see chart below)
Made of 1/2"-thick acrylic. Designed for continuous pump operation with safety relief valve.

E – J Low-Vacuum Chambers
See specifications/ordering chart below.

Ideal for degassing and transporting small parts. Designed for continuous pump operation with safety relief valve (order below).

Low-Vacuum Chamber Accessories (see also facing page)

	Cat. #	$/Each
Metering Valves	**5235-09**	**70.00**

Two required for direct connection to pump, or one if connecting to Lo-Vac Controller (which includes vacuum bleed valve). See chart below.

	Cat. #	$/Each
Vacuum Gauge	**5235-10**	**46.00**

Required if selected pump does not include metering kit.

Safety Relief Valve
Required on all low-vacuum chambers to prevent damage.

	Cat. #	$/Each
For vacuum to 6" Hg	**5235-11**	**86.00**
For vacuum to 12" Hg	**5235-14**	**84.00**

Call for custom modifications

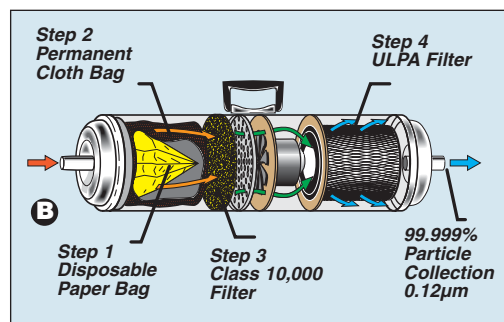Model shown: ref. 3404-05 modified for nitrogen backfill and thermocouple output.

Shown with optional stand, vacuum pump and controller (see next page)

	Type	Dimensions (W" x D" x H") Outside	Inside	Max. Vacuum	Cat. #	$/Each	Vacuum Controller (See facing page) Voltage	Cat. #	$/Each	Connection Kit (See facing page) Cat. #	$/Each
Full Vac.	A	49L x 30 dia.	48L x 26 dia.	29.9" Hg	3404-03	20,790.00					
	B	13 x 14 x 15	8 x 12 x 8	29.9" Hg	3404-00	2,423.00	120VAC, 60Hz	1681-75	2,012.00	5400-25*	1,382.00
	C	31.4 x 25.4 x 18.8	30.4 x 24.4 x 17.8	29.9" Hg	1590-60	8,289.00	220VAC, 50Hz	1681-76	2,017.00	5400-25*	1,382.00
	D	12"-dia. x 14.5	11"-dia. x 13.5	29.8" Hg	5235-08	1,704.00				5400-24*	1,382.00
Low Vac.	E	16 x 10 x 11.5	14.5 x 8.5 x 10	6" Hg	5235-00	1,503.00					
	F	12 x 12 x 6.5	10.5 x 10.5 x 5	6" Hg	5235-01	1,100.00					
	G	8 x 8 x 8.5	6.5 x 6.5 x 7	12" Hg	5235-02	946.00					
	H	12 x 12 x 9.5	10.5 x 10.5 x 8	6" Hg	5235-03	1,288.00					
	I	16 x 16 x 12.5	14.5 x 14.5 x 11	6" Hg	5235-04	1,558.00					
	J	25 x 10 x 11.5	11.4 x 8.5 x 10	6" Hg	5235-06	1,701.00					

Vacuum Chambers (see facing page for pumps)

Complete specs and ordering information –
TerraUniversal.com

* *Includes all connections, vacuum solenoid, turnkey installation and testing charges.*
For 220VAC, 50Hz models, add "-220" to the affected part number.

Sensitive Parts Cleaning

Three cleaners in one!
• Vacuum
• Clean air blower
• Clean air ventilator

Step 2
Permanent
Cloth Bag

Step 4
ULPA Filter

Step 1
Disposable
Paper Bag

Step 3
Class 10,000
Filter

99.999%
Particle
Collection
0.12μm

A-B. MicroVac™ Portable Cleanroom Vacuum

The MicroVac™ incorporates a four-stage filtering system to trap particles as small as 0.12 microns. Made of stainless steel, it includes a mini-tool kit for use in drawers, computer keyboards, and other hard-to-clean surfaces.

	Cat. #	$/Each
110VAC/60Hz	5100-00	955.00
220VAC/50Hz	5100-00-220	955.0

C. SNO GUN™ II High-Precision Cleaner

The safe, inexpensive, highly effective alternative to solvent or dry nitrogen cleaning of sensitive parts! Dry ice particles remove contaminants as small as 0.1 micron without disturbing delicate surface features. Specialized inert gas enclosure available to prevent moisture condensation.

	Cat. #	$/Each
SNO GUN™ II	4545-00A	2,173.00

D. SnowBox™ Cleaning Chamber

This glovebox maintains an extremely dry nitrogen environment to prevent moisture condensation when the cold liquid CO_2 SNO GUN™ II is used for sensitive parts cleaning (order SNO GUN™ II separately). Many Configurations available.

E. Plasma-Preen Cleaner/Etcher

The first commercial product in its price range that uses microwave energy (2.45 GHz) to clean organic and some inorganic contaminants from a wide range of components and materials, including semiconductors, ceramics and metals.

The microwave energy generates plasma (an electrically neutral, highly ionized gas) under adjustable power, which functions as a safe, effective cleaning medium. Microwave-generated plasma consumes very small quantities of reactants and produces no significant effluent. In addition, microwave generation allows you to control process temperatures between 25°C and 200°C. Low process temperatures enable you to clean a wider variety of sensitive components without worrying about heat damage.

Plasma Preen Cleaner (With Ion Trap)		110VAC/60Hz	
Reactor Type	Chamber Dimensions	Cat. #	$/Each
Water-Cooled*	8" x 6" x 2"	9505-03	6,804.00
	9" x 7" x 3"	9505-20	8,177.00
Barrel	4.1" dia. x 6"	9505-02	5,071.00

	Cat. #	$/Each
Plasma Preen Controller	9505-17	1,503.00

For vacuum and purge gas control.

Water Recirculating System

	Cat. #	$/Each
110VAC, 60Hz	9505-24	370.00
220VAC, 50Hz	9505-24-220	461.00

More Cleaning Equipment
Including ultrasonic systems — see page 36.

A

B

C

D

E

QUICK Ship

Reduced prices on all hand washers/dryers

F

G

Laboratory Accessories

A. Enclosed Safety Shower

Protect your personnel against hazardous chemical burns! This fully enclosed polypropylene booth features easy-parting PVC strip curtains and immediate-response handles that activate an overhead shower and eye washers. All hardware is cleanroom compatible and chemical resistant. The sloping bottom feeds into a 2¹/₂" drain line. Overall dimensions: 38"W x 41"D x 90"H.

Cat. #	$/Each
1530-50	**5,530.00**

B-D. Acid Transport Carts

Made of stress-relieved polypropylene. All three designs feature recessed receptacles that collect spills into an easy-empty containment reservoir. Acid-resistant neoprene swivel casters are included.

Type B   features 12 or 18 removable 7" x 7" inserts for one-gallon bottles.

Type C   is ideal for larger, heavy containers. Compartments: two @ 17" x 26.5" x 17" and two @ 17" x 36.5" x 14"

Type D   features 24 angled 7" x 7" slots for one-gallon bottles and one top compartment for gloves, safety glasses and other small items.

Polypropylene Acid Transport Carts			
Type (see photos)	**No. of Compnts.**	Cat. #	$/Each
B	12	**3401-00**	**1,965.00**
	18	**3401-01**	**2,395.00**
C	4	**3401-30**	**2,253.00**
D	25	**3401-31**	**2,845.00**

E. PureDry™ Cleanroom Hand/Glove Dryer

Provides warm, contamination-free air for drying hands and gloves. Sound dampered for quiet operation. ULPA filter captures microcontaminants.

	Cat. #	$/Each
120VAC/60Hz	**3333-33**	**1,802.00**
220VAC/50Hz	**3333-34**	**1,802.00**

F.   Washing/Drying Station

Includes an ULPA-filtered, heated overhead dryer and DI-water sink, both activated by an IR "photoeye" for clean, no-hands operation. Other sizes available.

	Cat. #	$/Each
One sink model	**9600-05**	**5,273.00**
Two sink model	**9600-06**	**10,439.00**

G. Chemical Safety Cabinet

This electropolished 304 stainless steel enclosure features adjustable perforated shelving to accommodate chemical containers of many sizes. Dual locking doors provide security, and heavy duty locking casters facilitate chemical transport throughout your facility. Complies with OSHA/NFPA fire safety regulations. Overall dimensions: 43"W x 18"D x 65"H.

Cat. #	$/Each
6012-70	**11,651.00**

Protects microscope samples!

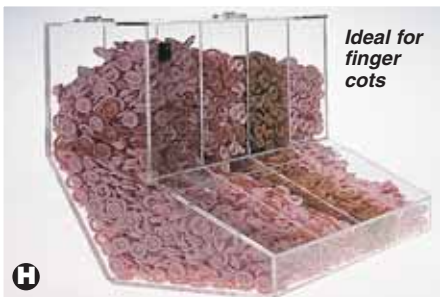Plastic models also available

Ideal for packed sterile gloves

For loose gloves, hairnets, shoe covers

Organizes small parts

Ideal for finger cots

Easy-access wiper dispensing

Garb and Parts Dispensers

Space-Saving Convenience!

These handy dispensers save space and organize gloves, safety glasses, wipers, hats, and other garb. They're perfect benchtop storage bins for small parts used in cleanroom processing. Select clear acrylic or static-dissipative PVC, which eliminates static charges and the particles they attract.

QUICK Ship

Item (see photos)		Dimensions W x D x H, in.	Acrylic* Cat. #	$/Each	Static-Dissipative PVC Cat. #	$/Each
A. SneezeGuard™		7.12 x 7.75	**1601-50**	12.00	**1601-51**	25.00
		11 x 11	**1600-25**	15.00	**1602-75**	28.00
B. SS Glove Dispenser (3 compartment)		34.5 x 7 x 24	**4951-30**	1,398.00	**Stainless Steel only**	
C. SS Glove Dispenser (4 compartment)		27 x 8 x 24	**4951-31**	1,398.00	**Stainless Steel only**	
D. SS Glove Dispenser (3 compartment)		24 x 8 x 24	**4951-32**	1,040.00	**Stainless Steel only**	
E. SS Glove Dispenser (4 compartment)		32 x 8 x 24	**4951-33**	1,685.00	**Stainless Steel only**	
F. Dispensing Bins		5 x 6.25 x 8.25	**4950-12**	123.00	**4950-13**	213.00
G. Apparel Dispenser		48.5 x 24.5 x 36	**4951-06**	3,147.00	**4951-07**	5,665.00
H. Multi-Chamber Dispenser		15.75 x 8 x 15	**4005-51**	312.00	**4005-50**	465.00
I. Wiper Dispenser (enclosed)		12 x 9 x 6	**4951-01**	80.00	**4951-02**	142.00
J. Wiper Dispenser (open top)		10.5 x 14.5 x 4	**4950-93**	57.00	**4950-94**	110.00
K. Safety Glasses Dispensers	Holds: 8	6.75 x 17	**4950-45**	232.00	**4950-46**	306.00
(all are 5.75"D)	12	9.75 x 17	**4951-15**	303.00	**4951-16**	397.00
	16	6.75 x 28.25	**4951-17**	418.00	**4951-18**	550.00
Other sizes available – call Terra!	16	13.13 x 17	**4951-19**	418.00	**4951-20**	550.00
	24	9.75 x 28.25	**4951-21**	543.00	**4951-22**	714.00
	24	19.5 x 17	**4951-23**	543.00	**4951-24**	714.00
	32	13.13 x 28.25	**4951-25**	751.00	**4951-26**	990.00
	48	19.5 x 28.25	**4951-27**	978.00	**4951-28**	1,284.00

* Acrylic is damaged by alcohol and other cleaning agents.

Modular
Cleanrooms

Visit TerraUniversal.com for

- Softwall models
- All-Steel BioSafe™ designs
- Powder containment rooms
- Configuration guidelines and interactive QuickQuote planner

Hardwall Designs

- Acrylic or static-dissipative rigid panels for full visibility
- Steel support frame spans up to 20 feet without internal pillars or external supports
- Mirror-finished exterior stainless steel trim
- A/C and humidity controls
- Available raised floors optimize laminar airflow

Whatever your application, Terra will deliver a pre-tested, turnkey system to your schedule.

Cleanroom Pass-Through Chambers

Standard Solutions to Unique Requirements!

Powder-coated chamber with high-velocity HEPA-filtered air shower. No. 6705-70

Acrylic Chamber (No. 1993-12)
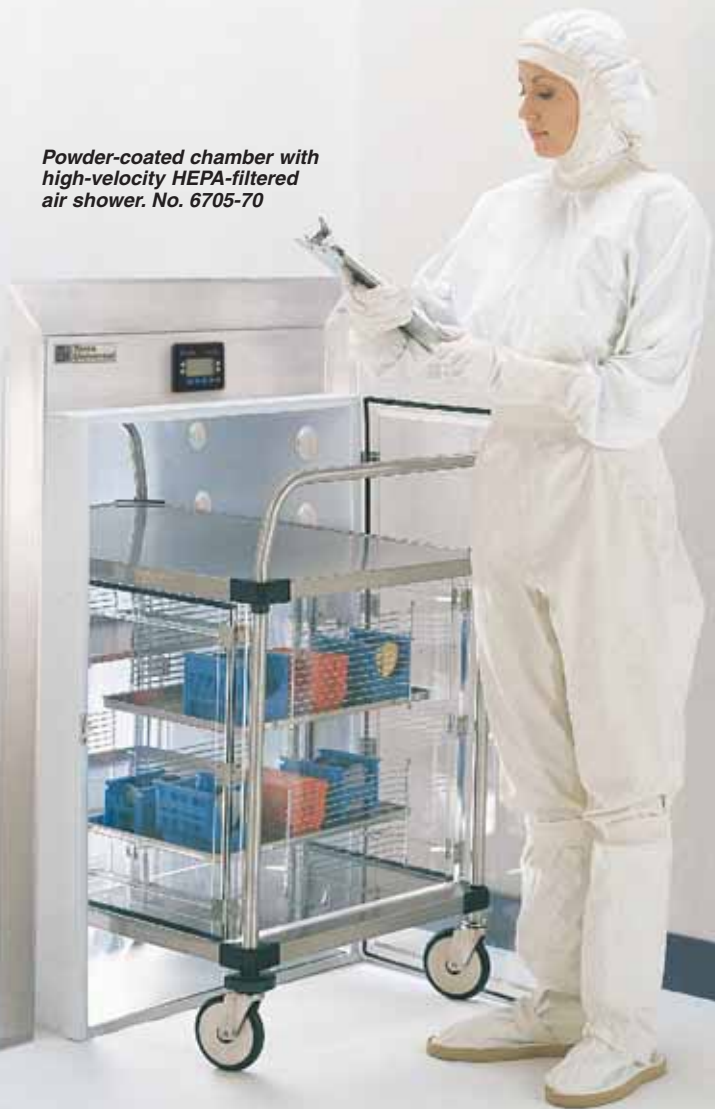
Six standard materials, dozens of sizes & configurations

CleanTop™ models minimize dust accumulation

Stainless Steel Chamber, No. 6705-26

Mechanical Interlocks

Stainless Steel Ventilation Chamber includes inlet HEPA filter and exhaust flange; Nos. 6705-23, 6705-24

Roll-Up Door
Pass-Through

No-Clearance Operation (No. 6705-12A)

In sizes up to 87"H (No. 6705-10A)

Cleanroom
Air Showers

Garments courtesy of W. L. Gore & Associates

84"H Stainless Steel Chamber, No. 6705-74

Fire-Rated Pass-Through, No. 6705-00

Slide-Up Door Pass-Through, No. 1993-18

Wet Processing and Cleaning

Compare Terra's Value and Versatility

Value Design and Engineering
Whichever stations you choose, you'll find flexible designs that let you specify the processing configuration for your application.

Complete Facility Integration
Terra's engineers and installation technicians work with yours to accommodate existing chemical delivery systems, fire suppression systems, exhaust disposal systems, and other facilities.

Fire Detection Systems
Specify the fire safety measures for your application. Terra offers multi-spectral equipment that detects varying degrees of fire danger.

Custom Work
Put Terra's comprehensive design and fabrication experience to work on your application!

Save Time! Terra's online *QuickQuote Planner* configures a system to your specifications: **www.TerraUniversal.com** Just click on **Wet Stations**

Wet Processing and Cleaning
Cabinets

Polypropylene stations are ideal for acids and caustic chemistries (shown with optional gooseneck faucets, spray guns, casters and duplex power outlets)

Fire-retardant polypropylene available!

- **Incorporates all processing components into one self-contained, easy-to-clean system**
- **Isolated control panel allows safe, convenient operation of baths, rinsers, and other process modules**
- **Select all-polypropylene or stainless steel shell**
- **Standard system includes sliding access shield and fluorescent illuminator**
- **Custom engineered to meet specific application requirements!**

These self-contained Wet Processing Cabinets provide the perfect turnkey solution for a wide range of cleaning and processing requirements.

The standard models listed below include a reinforced cabinet of the specified size and material, a sliding access shield, and a fluorescent illuminator. A control panel to the right of the process deck provides safe, convenient access to all system controls (order processing sinks and baths separately). Support posts with polypropylene leveling feet provide stable positioning. Select optional 4"-diameter retractable casters for more convenient mobility.

You Specify the Process Workflow—
Let Terra Take Care of the Rest!
Whatever your application, Terra engineers will work with yours to develop a deck configuration that's right for your process. One cabinet can house up to 14 separate processing baths, rinsers, and other process modules, which can be arranged in a single or double row. A raised lip surrounds the work area to prevent floor spills. A full-length plenum sink located under the work surface contains overflow for easy disposal, and an optional plenum flush quickly empties the plenum through a 2"-diameter drain valve.

Convenient front-panel valves control operation of nitrogen or auxiliary gas equipment, DI water, exhaust venting, and power. The control panel includes power on/off switch, a static pressure gauge (to monitor the exhaust flow), and a system fuse. A storage area below the deck holds collection tanks or reserve chemicals.

The optional Filter/Blower Module provides a vertical laminar flow of HEPA-filtered air for particle-sensitive applications. Exhaust fumes can be ducted through a 10"-diameter flange located on the top of the cabinet (see airflow illustration). Specify other desired flange diameter or location.

Visit TerraUniversal.com for pricing and specifications.

Nitrogen and DI Water Spray Guns

Gooseneck Faucets

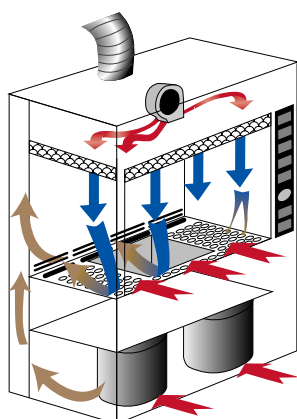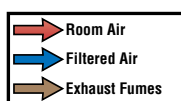
Aspirators

Glove Washers

→ Room Air
→ Filtered Air
→ Exhaust Fumes

Specifications

Construction: All stress-relieved white polypropylene (½" thick) or all 304 stainless steel. Standard plumbing is PVC (specify stainless steel or other desired material).

Exhaust: Ducted through a standard 10"-diameter flange positioned at the top rear of the cabinet (see airflow illustration). Specify other desired flange diameter or location.

Storage Cabinet: 70" or 92"W x 42"D x 12"H; dual sliding doors.

Drain: 2" NPT female, located at bottom of sub-deck plenum.

Power: 120VAC, 60Hz or 220VAC, 50Hz, depending on component selection. Power outlets available for process equipment.

Illuminator: Fluorescent, 100 foot candles. Does not disturb air.

Controls: Instrument panel provides power switch, power indicating light, light switch, static pressure exhaust meter, and power fuse.

Dimensions: 84" or 108"W x 43"D x 72"H (nominal)

Filter/Fan Unit: Optional FFU generates 650 CFM of air at filter pressure drop from 0.350" to 0.795" W.G. at 90 FPM. Noise factor: 50 dBA. Filter type: 99.99% efficient HEPA.

Stainless steel processing cabinets are recommended for solvents and flammable chemicals (shown with optional casters and spray gun)

Wet Processing Cabinets (standard height = 72")						Filter Blower Module			Plenum Flush		Ionizing Bar	
Overall Width	Work Area Dimensions	Polypropylene		304 Stainless Steel		*Includes 99.99% efficient HEPA filter			PVC with H$_2$O Nozzles & Valves		Refer to page 421 in Cat. 105	
						115VAC, 60Hz	230VAC, 50Hz					
		Cat. #	$/Each	Cat. #	$/Each	Cat. #	Cat. #	$/Each	Cat. #	$/Each	Cat. #	$/Each
84"	72"W x 24"D	7018-00	19,792	7018-01	31,227	7018-04	7018-04-220	3,027	7018-50	937	2005-37	892
108"	96"W x 24"D	7018-02	22,444	7018-03	34,011	7018-05	7018-05-220	3,315	7018-51	1,081		

Note: All models listed above include an adjustable PVC sliding sash (to restrict airflow to the work area), a static pressure exhaust meter (to monitor the pressure differential in the exhaust line), and a fluorescent illuminator. All electronic controls are located on a vertical panel to the right of the work area (left side mounting may be specified at no extra charge). PLC controllers are also available; call for quotation.

Processing & Cleaning Modular Stations

These modular, economical stations are configured to meet your processing requirements for bath layout, particle-free laminar flow, exhaust fume removal—even robotic transfer.

Like the models on the previous pages, these benches accommodate a complete line of baths, rinsers, cleaners, and other processing modules to suit your application. All polypropylene models are compatible with most acids and other process chemistries. Stainless steel models are suitable for solvent cleaning applications. Select among these standard configurations:

Versatile Configurations

Overhead control panel eliminates the need to reach over process tanks.

Containment hood collects and condenses vapors.

Adjustable baffles let you balance the bi-directional air flow at the work surface.

Process baths can be configured in a single or double row to accommodate workflow.

Optional Containment Hood — Isolated Controls

38"

58"

48", 60", 72" or 96"

36"

Standard Wet Bench
For use with Vertical Laminar Flow Hood

This economical design allows placement beneath a laminar flow hood. A 10"-diameter flange on the rear of the station connects to your in-house ventilation system. A 2.5" raised lip prevents floor spills, and perforations along the front lip safely drain spills into the full-length plenum sink. An optional plenum flush quickly empties the plenum through a drain valve.

Convenient front-panel valves control operation of nitrogen or auxiliary gas equipment, DI water, exhaust venting, and power. A storage area below the deck holds collection tanks or reserve chemicals.

Process bath controls are mounted at the rear of the station, immediately above air-flow control baffles.

12"

5"

38"

58"

48", 60", 72" or 96"

36"
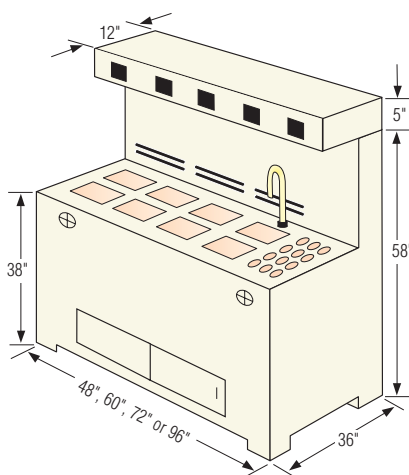
Standard Wet Bench
—with Overhead Control Case

As an alternative to a side control module, process bath controls are mounted inside an overhead control case. This configuration eliminates the need for operators to reach over baths in order to access controls. For additional safety, an optional vapor containment hood is installed over the work deck.

Isolated Controls

38"

58"

48", 60", 72" or 96"

36"
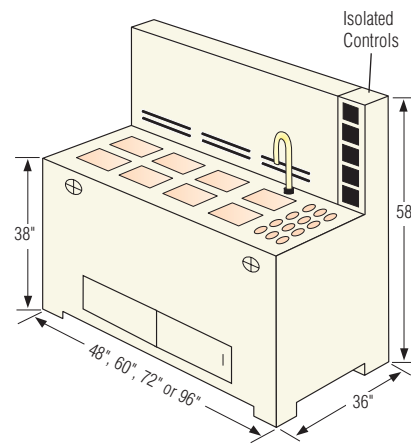
Standard Wet Bench
—with Side Control Module
For use with Vertical Laminar Flow Hood

In many applications, safety dictates that process bath controls be isolated from the process baths. A side control module allows operators convenient access to all system controls without the need to reach over potentially hazardous process chemicals. The housing includes all electronics, and allows convenient service access from the right side of the unit.

Customized *to Your Specifications!*

Because no two applications or facilities are identical, Terra will work with you to customize a solution to your processing needs.
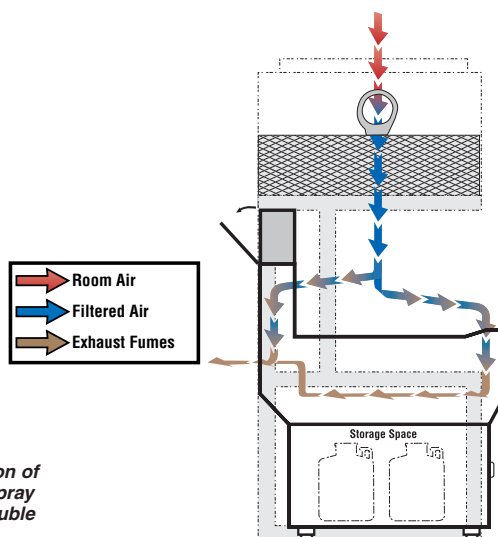
Optional Motorized Sliding Shield

Stainless Steel Solvent Cleaning Bench

Polypropylene Acid/Base Etching Bench

*Standard Wet Bench, shown with
Vertical Laminar Flow Hood and
optional faucet and spray guns.*

Room Air
Filtered Air
Exhaust Fumes

Storage Space

*When ordering, please specify desired location of
optional processing modules (tanks, sinks, spray
guns, etc.). Deeper decks are available for double
rows of process baths.*

Ordering Info

Prices below are for a base system (without faucets, spray guns, tanks, or other processing modules). Order wet processing modules from the pages that follow. When ordering each module, specify the desired panel locations on the work area.

"Installed Prices" include plumbing, electrical connections, and system testing. Additional charges may apply for special plumbing materials or for third-party lab certification; call Terra for a quotation.

Note: For Terra's standard terms and conditions, refer to Catalog 105, page 2.

Modular Wet Processing Station*					Vertical Laminar Flow Hood			Plenum Flush	
Overall Width	Work Area	Polypropylene		304 Stainless Steel		Order Filter/Fan Units separately (see page 2)		PVC with DI Water Nozzles	
(nominal)	(W" x D")	Cat. #	$/Each	Cat. #	$/Each	115 VAC Cat. #	230 VAC Cat. #	$/Each	Cat. #	$/Each
48"	36 x 23	2000-16	7,161.00	2001-04	16,535.00	2004-10	2004-10-220	6,631.00	2001-34	1,009.00
60"	48 x 23	2000-17	8,215.00	2001-05	18,885.00	2004-11	2004-11-220	7,471.00	2001-35	1,153.00
72"	60 x 23	2000-18	10,302.00	2001-06	21,148.00	2004-12	2004-12-220	7,832.00	2001-36	1,297.00
96"	84 x 23	2000-19	12,418.00	2001-07	24,805.00	2001-13	2004-13-220	8,913.00	2001-37	1,441.00

*   **All models on this chart are designed for rear panel mounting of controllers (as shown in photo above). Call for a quotation on models with head case panel mounts.**

**Overflow tanks** include a serrated weir that overflows liquid into a catch basin for recirculation into the main tank. A dump drain with pneumatic valve allows quick emptying into the plenum catch reservoir of the wet station. Models are available for standard wafer carrier sizes and include 1"-diameter tubing made of the specified material.

Overflow Rinsing Tanks* *Price includes installation*				
Capacity	**Polypropylene**		**PVDF**	
	Cat. #	$/Each	Cat. #	$/Each
Single Wafer 4"	7018-10	4,612.00	7018-16	5,045.00
Carrier 6"	7018-11	4,756.00	7018-17	5,478.00
8"	7018-12	6,054.00	7018-18	6,919.00
Double Wafer 4"	7018-13	4,756.00	7018-19	5,766.00
Carrier 6"	7018-14	5,333.00	7018-20	6,199.00
8"	7018-15	7,294.00	7018-21	8,533.00

* Includes overflow weir, catch basin, and ³⁄₄" drain with pneumatic valve (see illustration).

Overflow Drain

Dump Drain with Pneumatic Valve

DI Water Inlet
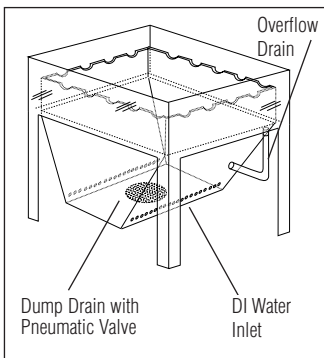
Optional Features:
- **Special-Diameter Drain Valves**
- **Overtank Spray Bars**
- **Nitrogen Bubblers**

Reservoirs—see TerraUniversal.com for pricing and specifications


Narrow-Profile Wet Processing Station—see pg. 3

Sinks are available in three standard sizes and include a gravity drain (specify desired size). These sinks can be modified to meet your requirements—call to discuss your application with a Terra process engineer.

Spray bars, nitrogen bubblers and custom drains are available. Call for a quotation!

PVDF Sink with Optional Gooseneck Faucets

Sinks (specify desired drain size)		
Polypropylene **Internal Dimensions**	Cat. #	$/Each
12" x 12" x 7¹⁄₂"D	7018-22	317.00
21" x 15³⁄₄" x 7¹⁄₂"D	7018-23	548.00
22" x 16" x 10¹⁄₂"D	7018-24	634.00
Stainless Steel* **Internal Dimensions**	Cat. #	$/Each
12" x 12" x 7¹⁄₂"D	7018-25	443.00
21" x 15³⁄₄" x 7¹⁄₂"D	7018-26	726.00
22" x 16" x 10¹⁄₂"D	7018-27	817.00

* Stainless Steel sinks feature rounded corners for easy installation. All prices include installation (plumbing of gravity drain is extra).
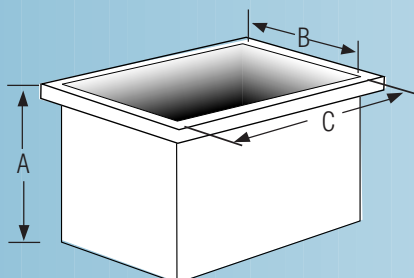
Ultrasonic tanks available! See Catalog 105, page 557.

Build Your Own Tank!

Simply fill in the requested information and contact a Terra sales representative for a detailed quotation.

1. Internal Tank Dimensions: A_____ B _____ C _____

2. Specify the desired material:
☐ PVDF ☐ Stainless Steel ☐ Polypropylene ☐ Other: _____

3. What is your process chemistry? _____

4. Other Features:
☐ Dump valve   ☐ Lid   ☐ PLC Control
☐ Fill sensor   ☐ Submergible Ultra-Sonic Transducer   ☐ Aspirator
☐ Overflow sensor   ☐ Condensing coil   ☐ Spray Bars
☐ Nitrogen bubbler   ☐ Submergible heater   ☐ Over Flow Catch Basin

Wet Processing & Cleaning System Options

Qa Series Quartz Constant Temperature Bath
Unsurpassed temperature uniformity in etching, stripping, and cleaning operations using H_2SO_4, HCl and other chemistries.

Ultra-pure quartz processing vessel is ideal for critical chemistries. Externally bonded, 5-sided circuit heating element provides efficient, even heating. Housing is polypropylene. Includes redundant safety features.

Nb Series Silicon Nitride Etch Bath
Engineered to provide unparalleled process control, safety, and consistency in Silicon Nitride etching.

Pure quartz vessel with PVDF refluxor to condense chemical vapors — ideal for chemical with high flash points or for high-temp operations. Maintains consistent chemistry temperature and acid/water ratio. 360° nitrogen-purged housing seal reduces acid penetration of heating element for extended service.
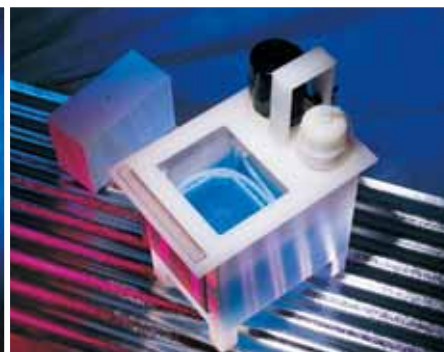
F Series Subambient Filtered Etch Bath
Ensures purity of NH_4, HF, BOE, CH_3, COOH, and HNO_3 positive resist developer.

Continuously filters process chemistry to increase purity and maximize yields. 360° serrated overflow weir enhances particulate removal. Pump/filter assembly is easily removed for quick filter changes. Available in natural polypropylene or PVDF.

A Series Constant Temperature Bath
Economical polypropylene etching with HF, KOH, BOE, CrO.

Provides precisely controlled low- or high-temperature processing when used with RCe recirculating module. Also functions as a stand-alone ambient temperature bath. Includes pneumatic drain, stirrer and safety cover.

RCe Series Temperature Controller
Heats and chills while preserving process purity. (Use A or F series baths above)

Includes low-watt density heater for a long, reliable life and improved MTBF. Operates on CFC-free HCFC-22 coolant.

DR Series Wafer Dump Rinser
The Right Way to Rinse: requires less DI water, and less DI water disposal.

Natural polypropylene rinse tank, tubing, nozzles and valves ensure wide chemical compatibility. Includes dual overhead spray manifolds with low misting nozzles and 360° serrated overflow weir for enhanced particulate removal.

Processing Modules (accommodate a single 6" wafer cassette)	Cat. #	$/Each	Corresponding Controls (x = Standard, o = Optional)	Heat	Cool	Liquid Level Sensor Alarm	Timer	Over/Under Temp Alarm	Pump/Filter Control	Recirculating Pump	Drain Valve Control	Spray Nozzle Control	DI H_2O Injection	Cat. #	$/Each
Qa Series	7018-28	7,742.00	C1115aLLS	x		x	x			o				7018-35	2,026.00
Nb Series	7018-30	14,837.00	C1815aLSS	x		x	x			o		x		7018-36	2,355.00
F Series*	7018-31	9,013.00	C21bLSS	o	o	x	x	x	x	o	x			7018-37	2,335.00
A Series*	7018-32	6,989.00	C21bLSS	o	o	x	x	x		o	x			7018-37	2,335.00
Dr Series	9502-00	5,991.00	C15sa			x	x				x	x		7018-38	1,174.00
Rce Series*	7018-34	12,456.00	C21bLSS	x	x	x	x	x		x				7018-37	2,335.00

Models below accommodate a single 6" wafer cassette. Call Terra for other sizes. (Prices include installation)

Options include pneumatic drain valve and magnetic stirrer; call Terra for details.
Power: 110VAC, 5 Amps—F, A, and RCe. 208VAC, 15 Amps—Qa, C, Nb, RCe (optional).
* Selection of RCe module required for heating/cooling of the A or F Series modules. Models listed are polypropylene; PVDF also available.

"Squaroid" Vacuum Ovens

These ovens provide a max. temperature of 220°C. Radiant warm-wall heating provides more even chamber temperature, and built-in high-limit thermostat guards against overheating. Models below feature LED temperature readouts and operate at 120VAC; 240VAC and dial thermometer models are also available, as well as high-temperature models.

Chamber Volume	With LED Readout Cat. #	$/Each
0.7 cu. ft.	**3700-80**	**2,560.00**
2.3 cu. ft.	**3700-82**	**4,412.00**

Hi-Temp "Squaroid" Oven

Includes hydraulic thermostat controls for heating up to 300°C. Radiant warm-wall heating provides uniform temperatures and eliminates the hazards of open-wire heaters. Externally isolated heaters maximize safety and chamber space. Top-mounted operation panel controls vacuum to nearly 30" Hg. Chamber interior is stainless steel. Models below are 120VAC; 240 VAC models also available.

Chamber Size	Cat. #	$/Each
1.1 cu. ft.	**3700-39**	**5,312.00**
1.7 cu. ft.	**3700-41**	**5,548.00**

Class 100 Cleanroom Oven

Four-segment programmable controller provides precise heating to 250°C. Models below include HEPA filters that make them compatible for use in Class 100 (ISO 5) cleanrooms (models also available without HEPA filters for less stringent requirements). Interior walls are stainless steel, with stainless steel bottom and sidewall plenums. Delrin hinge pivots eliminate metal-on-metal surfaces. Model below is 120VAC; 240 VAC models also available. Includes 2"-dia. exhaust vent, .125" NPT fitting for introducing inert gas or house air, and four adjustable stainless steel shelves. Chamber size: 2.8 cu. ft.

Cat. #	$/Each
3700-70	**8,358.00**

High-Capacity, HEPA-Filtered Cleanroom Oven

This oven provides a stable elevated temperature (60°C, ± 2°C) for a very large stainless steel chamber: 36"W x 36"D x 90"H (37.5 cu. ft.). Air or process gas is forced through dual HEPA filters located above the ceiling of the process chamber; continuous recirculation ensures temperature uniformity and a better-than Class 100 (ISO 5) process environment. Includes temperature uniformity certification based on 9-point temperature mapping. Overall dimensions: 43.5"W x 42"D x 107"H.

Cat. #	$/Each
2148-15	**25,600.00**

No. 3700-85 (14 cu. ft.)

Large-Capacity Forced-Air Ovens

PID temperature controls provide stable heating to 220°C, and a unique turbo blower system creates true one-pass circulation pattern for optimal uniformity and fast recovery time. Includes an electronic digital timer with large LED display and overtemperature protection and isolated heating elements. Chamber interior is stainless steel. Models below are 120VAC.

Chamber Size	Cat. #	$/Each
14.0 cu. ft.	**3700-85**	**4,130.00**
28.0 cu. ft.	**3700-86**	**5,517.00**

Tube Furnaces

Ideal for growing electronic crystals, doping silicon wafers and many other microelectronics applications. Features temperature range from 100°C to 1200°C. Two interchangeable vestibule ends (1" and 2" dia.) accommodate tubes up to 2" in diameter. Chamber operates remotely or in horizontal, angular or vertical positions. Models below are 120VAC; select manual or single setpoint control. Length: 12".

Control Type	Temp. Range	Cat. #	$/Each
Manual	370°C to 1100°C	**4000-69**	**1,599.00**
Single Setpoint	100°C to 1200°C	**4001-86**	**1,965.00**

No. 5757-02

Complete Specifications—
TerraUniversal.com

30 Cubic-Foot Capacity

	Cat. #	$/Each
Refrigerated Incubator	**5757-00**	**11,227.00**
Stability Chamber	**5757-02**	**14,000.00**

No. 5757-05

Environmental Chambers

These microprocessor-controlled chambers provide precise control over environmental conditions for repeatable results in material testing, component burn-in, shelf-life monitoring, and other critical studies. ***Refrigerated Incubators*** provide precise temperature control from 5°C to 60°C. ***Stability Chambers*** add a relative humidity system with solid-state humidity sensor and controller that allow humidification and dehumidification for operation from 20 to 98%RH. All incorporate environmentally friendly HFC refrigerant and CFC-free insulation. Light packages and chart recorders are optional. Models below are 115VAC; 230VAC also available

10 Cubic-Foot Capacity

Cat. #	$/Each
5757-03	**9,815.00**
5757-05	**13,160.00**

RH/Temperature Stability Chamber

This stainless steal cabinet is configured for storage of polycarbonate films used for high-precision screening of circuit boards. It maintains critical relative humidity and temperature levels to prevent dimensional aberrations that result from exposure to humidity and temperature fluctuations.

Air circulates horizontally across the shelves that hold the film. As air exits the storage area, it passes through an air conditioning/heating module that conditions it to within ± 2°F of the temperature set point. In addition, the continuously operating A/C module removes moisture to keep the %RH level within ± 3% of the set point. If humidity falls too low, an ultrasonic humidifier cycles on to add the proper amount of water vapor. If the temperature falls too low, the heater module cycles on. A water filtration system removes contaminants from the humidification feed water to eliminate the chance of mineral deposits or other vapor-borne contaminants.

As the process air exits the RH/temperature modules, an impeller blower draws it into an intake plenum area and forces it uniformly back through the storage area.

	Cat. #	$/Each
Stainless Steel with Amber acrylic door	**2148-10A**	**21,300.00**
All amber acrylic	**2148-11**	**17,500.00**

No. 5321-39

Large-Capacity Environmental Chambers

These chambers provide both above and below-ambient control of temperature (4°C to 70°C) and humidity (20 to 98%RH, on select models). All models below include a password-protected 21-step programmable controller and RS485 data output, high/low safety alarms, door open/power out alarm and a chart recorder. Stainless steel interior and epoxy-coated wire shelves are easy to clean.

	Temperature Only		Temperature & Humidity	
	Cat. #	$/Each	Cat. #	$/Each
24 cu. ft.	**5321-34**	**12,900.00**	**5321-38**	**15,900.00**
33 cu. ft.	**5321-35**	**13,900.00**	**5321-39**	**16,900.00**
52 cu. ft.	**5321-36**	**16,500.00**	**5321-40**	**19,500.00**
80 cu. ft.	**5321-37**	**19,500.00**	**5321-41**	**22,500.00**

No. 2148-10A

± 2°F/± 3% RH Stability

Top View

Benchtop Muffle Furnaces

These muffle furnaces offer a heating range from 100°C to 1200°C and two chamber sizes. A ceramic shelf (standard for 350 cu. in. chambers) effectively doubles the working area. Open-coil heating elements on both sides of the chamber and high thermal-efficient ceramic insulation provide temperature uniformity and heating efficiency. A built-in venting system removes contamination and moisture. Models below are 120VAC; 240 VAC models also available.

Control Type	Chamber Size	Cat. #	$/Each
Single Setpoint	120 cu. in.	**1800-52**	**2,372.00**
Single Setpoint	350 cu. in.	**4000-64**	**2,820.00**
Prog. 8 ramp/8 dwell	120 cu. in.	**1800-54**	**3,008.00**
Prog. 8 ramp/8 dwell	350 cu. in.	**4001-84**	**3,334.00**

Ultrasonic Cleaners

These Branson CSA-listed cleaners provide thorough, safe cleaning of small- and medium-sized parts. Models below feature heat controls with digital timer and degas function, which allows immediate use at maximum efficiency. All operate on 115VAC; 230VAC and other heating and timer configurations are also available.

Tank Capacity	Cat. #	$/Each
0.5 gallons	**2631-00**	**394.00**
0.75 gallons	**2617-00**	**519.00**
1.5 gallons	**2618-00**	**805.00**
2.5 gallons	**2619-00**	**1,029.00**
5.5 gallons	**2637-00**	**1,799.00**

B-300 Tabletop Ultrasonic Cleaner

Provides quick, consistent, high-quality cleaning over a wide range of applications. Includes a stainless steel cleaning tank with integral industrial-style ultrasonic transducer technology. The deep drawn tank has no corner welds or other dirt-catching surfaces, and includes a cover and perforated stainless steel parts basket. Tank dimensions: 11.8"L x 3.9"W x 2.9"D. Capacity: 0.5 gallons. UL and CSA listed; meets CE requirements.

	Cat. #	$/Each
110VAC	**2624-00**	**313.00**
220VAC	**2624-00-220**	**313.00**

IC Series Ultrasonic Cleaning System

This unit offers the full range of features to meet most precision cleaning requirements. Includes 3/16, 14-gauge, all stainless steel construction and 12 industrial 40 kHz transducers. Microprocessor controls allow precise process control. A digital temperature controller provides variable set points to 60°C; a digital timer sets cycles from 1-99 minutes. Includes a stainless steel parts basket and cover with handle.

Power	Cat. #	$/Each
230 VAC	**2637-11**	**4,365.00**
208 VAC	**2637-12**	**4,365.00**

200-gallon capacity!

51"

56.25"

61.5"

High-Capacity Ultrasonic Tank

This extra-large unit incorporates a 36"W x 36"D x 36"H processing vessel made of electropolished 316L stainless steel with coved corners (200 gallon capacity). It is designed for ultrasonic washing and DI water rinse. Each of three ultrasonic generator provides 1440 watts @ 40 KHz and includes 108 transducers. Includes an overflow cascade tank with external drain. Power: 108/220VAC, single-phase. Includes cover with gas shocks, low-liquid interlock, seismic hold-downs, and stainless steel wire mesh baskets. Overall dimensions (including PLC control unit): 61.5"W x 56.25"D x 51"H.

Cat. #	$/Each
3307-60	**37,400**

Hand-Held Counter This versatile device is available in two configurations. Both provide one-switch, quick-response operation.

Particle Counter

Provides continuous count for one minute.
Particle Size
> 0.5μm

	Cat. #	$/Each
	1506-97	**1,821.00**

> 0.3μm

	Cat. #	$/Each
	1506-98	**2,041.00**

Concentration Meter

Samples air every 6 seconds.

Particle Size Range	Cat. #	$/Each
> 0.5μm	**1506-95**	**1,821.00**
> 0.3μm	**1506-96**	**2,041.00**

Portable Airborne Particle Counters

Particle sensitivity down to 0.3 or 0.5 microns at 0.1 CFM flow rate. Select between two display modes: cumulative count (total particles) or differential count (particles in each size range). Includes printer. Other size ranges available; see TerraUniversal.com

Particle Size Range	Cat. #	$/Each
0.5, 5.0	**1506-43**	**4,082.00**
0.5, 0.7, 1.0, 5.0	**1507-11**	**4,411.00**
0.3, 0.5, 1.0, 5.0	**1507-17**	**4,742.00**
0.3, 0.5, 0.7, 1.0, 2.0, 5.0	**1507-19**	**4,960.00**

Handheld Laser Particle Counter

Rechargeable internal battery.

Particle Size Ranges	Cat. #	$/Each
0.5μm & 5μm & larger	**1506-02**	**2,753.00**
0.3μm & 0.5μm & larger	**1506-03**	**2,805.00**

Ceramic tops also available in 3 sizes

Cimarec® Digital Aluminum Hot Plates and Stirrers

Rugged aluminum surfaces provide uniform heat distribution and durability. Microprocessor-controlled feedback maintains consistent, repeatable temperature settings. The easy-to-read display indicates temperature settings, adjustable in increments of 5°C up to 300°C. StirTrac™ technology offers improved slow-speed stirring, consistent speed control, and stronger magnetic coupling. All models below are 120V with 7" x 7" tops; other models available, including ceramic tops in several sizes.

	Cat. #	$/Each
Hot Plate	**4100-03**	**243.00**
Stirring Hot Plate	**4100-04**	**398.00**

Super-Nuova® Digital Hot Plates and Stirrers

These premium aluminum-top hot plates provide precise digital control of top plate and solution temperatures in 1° increments. Four user-presets let you call up often-repeated procedures. A magnetic stir bar provides the vortex motion to evenly disperse chemical in solution and/or heat. All models below are 120V with 7" x 7" tops; 220V and ceramic top models also available in several sizes.

	Cat. #	$/Each
Hot Plate	**4100-01**	**678.00**
Stirring Hot Plate	**4100-02**	**787.00**

Explosion-Proof Hot Plate

This corrosion-resistant, easy-to-clean unit is specifically designed to ensure safe heating in potentially explosive situations! The cast-aluminum top plate provides effective heat transfer, and all controls are contained in an aluminum housing, protected from the explosive atmosphere. Heating surface: 6" x 6". Temperature range: to 220°C (428°F).

	Cat. #	$/Each
Hot Plate	**4000-92**	**735.00**

UV Sterlization/Filtration Cabinet

This polypropylene cabinet features a ceiling filter that removes submicron particles, including bacteria, aerosols and other biohazards. Perforated shelves optimize the vertical flow of clean air through the cabinet; air exits through exhaust slots on the amber acrylic doors. Each of four chambers features a 254nm UV fluorescent germicidal light with timer. 25.75"W x 13.5"D x 56"H (including filter/blower module). Other sizes and chamber configurations available.

	Cat. #	$/Each
Sterilization Cabinet	**6081-05**	**3,533.00**
HEPA Filter (99.99% efficient @ 0.3µm)	**2100-30**	**106.00**
ULPA Filter (99.999% efficient @ 0.12µm)	**2100-29**	**114.00**

Lab Refrigerator/Freezers

These units come in 2 configurations. A 14 cubic-ft. two-door refrigerator/freezer features hydraulic thermostatic control and separate "cold air flow" control for the freezer. It includes 2 adjustable shelves and automatic defrost. A 20 cubic-ft. upright freezer features 4 fixed wire shelves and 6 door shelves and comes with manual defrost. Temperature range: 0° to 10°C (refrigerator compartment); -20°C to 0°C (freezer compartment). Models below are 120VAC; 240VAC and explosion-proof models available.

	Cat. #	$/Each
Freezer	**1720-60**	**1,693.00**
Combination	**1720-49**	**1,570.00**

Undercounter Refrigerator/Freezers

These 5.6 cubic ft. undercounter units come in 3 configurations: refrigerators with 3 adjustable wire shelves, 3 door shelves and adjustable hydraulic thermostat control; freezers with 3 fixed shelves and hydraulic thermostat; and refrigerator/freezer combinations with 2 adjustable wire shelves, 3 door shelves, and adjustable thermostatic control. Models below are 120VAC; 240VAC and explosion-proof models available.

	Temp. Range	Cat. #	$/Each
Refrigerator	2° to 7°C	**1720-43**	**1,335.00**
Freezer	-26° to 6°C	**1720-54**	**1,335.00**
Combination	Both above	**1720-47**	**1,360.00**

Cleanroom Vacuum Cleaner
With ULPA Filtration
A four-stage filtration system, which includes a final ULPA filter, rated 99.999% efficient @ 0.12µm particles, and quiet operation (59dBA at 6.5 feet) make this vacuum ideal for cleanroom use. Includes filter set and tool kit with two 22" stainless steel tubes, 3" round brush, combination 12" floor nozzle, 6'6" conductive plastic hose, trolley, 30' power cord, conductive crevice nozzle and 5"utility nozzle.

	Cat. #	$/Each
120VAC	**1764-00**	**999.00**
220VAC	**1764-220**	**999.00**

Cleanroom Vacuum Cleaner
With Absolute HEPA Filtration
A final HEPA filter removes 99.999% of 0.3µm particles for cleanroom use. Its lightweight, compact design and quiet operation (65 dBA at 6.5 ft.) make it convenient to use. Includes filter set and tool kit with 6' hose complete with end fittings, combination floor tool with telescopic wand, combination brush/small upholstery nozzle, crevice tool, and pack of 10 paper dust bags.

	Cat. #	$/Each
120VAC	**1001-00**	**880.00**
220VAC	**1001-00-220**	**880.00**

Portable Cleanroom Vacuum Cleaner
With HEPA Filtration
A final HEPA filter removes 99.97% of 0.3µm particles for cleanroom use. Lightweight, impact-resistant polypropylene housing and quiet operation (65 dBA at 6.5 ft.) make it convenient to use. Includes filter set and tool kit with 6' hose, 2-piece wand, dual mode floor tool, crevice tool, and combination brush/small upholstery nozzle.

	Cat. #	$/Each
120VAC	**1001-30**	**480.00**

*3-in-1 MicroVac™ Cleaning System —
See page 21*

Berkshire® BOND Cleanroom Paper
Bound by synthetic latex for optimal smoothness and cleanliness, Berkshire® BOND minimizes particle contamination. It runs through any copier or printer, whether laser or impact. Its high tear resistance withstands long periods in use. All items below are 8.5" x 11" 28-lb. stock and are priced by case (= 10 packs of 250 sheets each). Other sizes and weights available.

Color	Cat. #	$/Case
White	**5604-02**	**151.00**
Pink	**5604-03**	**162.00**
Canary	**5604-04**	**162.00**
Blue	**5604-05**	**160.00**

BCR® Spiral Notebook
These notebooks feature BCR® BOND noncontaminating paper and durable polyethylene covers that resist solvents. Each notebook includes 100 printed pages, either college ruled or 1/4" grid and double-wrapped for cleanliness.

Size (in.)	Qty./Case	Cat. #	$/Case
5.5 x 8.5	20	**5604-16***	**149.00**
5.5 x 8.5	20	**5604-17****	**149.00**
8.5 x 11	10	**5604-18***	**87.00**
8.5 x 11	10	**5604-19****	**87.00**

* College rule, ** 1/4" grid

BCR® Cleanroom Masks
Protect the environment from human contaminants while optimizing wearer comfort. Their ultrasonically bonded 3-layer polypropylene construction provides superior strength and filtration efficiency. Width: 180 (standard), 210 (wide), 180 (fractured film for optimal particle retention). Case includes 12 packages of 50 masks each.

	Cat. #	$/Case
Standard (180mm)	**5603-89**	**318.00**
Wide (210mm)	**5604-47**	**216.00**
Fractured Film (180mm)	**5604-48**	**146.00**

Disposable
Cleanroom Garments

IsoClean® — Biologically and chemically inert Tyvek® ensures maximum particle containment, liquid shielding, and minimal shedding.

Pro/Clean® — features a microporous polyprylene film laminated to a polypropylene nonwoven substrate. Contains 100% of dry particulates down to 0.19μm while retaining breathability.

Bulk Packs: Packaged loose in indicated case quantity.

Clean Packs: Laundered in a Class 10 facility and individually wrapped.

Sterile Packs: Irradiated to remove organic contamination (available at TerraUniversal.com).

A. IsoClean® Cleanroom Frock

Tyvek® frock features a 5-snap front, tunnelized elastic wrist. Case of 30.

Processing	Size	IsoClean® Cat. #	$/Case	Pro/Clean®* Cat. #	$/Case
Bulk Pack	S	1850-61	182.00	1350-60	146.00
Bulk Pack	M	1850-62	182.00	1350-61	146.00
Bulk Pack	L	1850-63	182.00	1350-62	146.00
Bulk Pack	XL	1850-64	182.00	1350-63	146.00
Clean Pack	S	1850-65	259.00	1350-79	219.00
Clean Pack	M	1850-66	259.00	1350-80	219.00
Clean Pack	L	1850-67	259.00	1350-81	219.00
Clean Pack	XL	1850-68	259.00	1350-82	219.00

*Zipper closure also available at TerraUniversal.com

B. Cleanroom Coveralls

Features zip front, tunnelized elastic at wrist and ankles, and serged seams (bound seams available at TerraUniversal.com). Case of 25.

Processing	Size	IsoClean® Cat. #	$/Case	Pro/Clean®* Cat. #	$/Each
Bulk Pack	S	1850-02	172.00	1350-50	160.00
Bulk Pack	M	1850-03	172.00	1350-51	160.00
Bulk Pack	L	1850-04	172.00	1350-52	160.00
Bulk Pack	XL	1850-05	172.00	1350-53	160.00
Clean Pack	S	1850-07	257.00	1350-69	224.00
Clean Pack	M	1850-08	257.00	1350-70	224.00
Clean Pack	L	1850-09	257.00	1350-71	224.00
Clean Pack	XL	1850-10	257.00	1350-72	224.00

*Zipper closure also available at TerraUniversal.com

® Registered trademark of du Pont Corporation

C. IsoClean® Bouffant Hair Cover

White Tyvek® with serged seams. Case of 250 covers (one size fits all). Bulk packed in a cellulose container—not for sterile use.

Cat. #	$/Case
1860-71	164.00

D. Cleanrooom Shoe Covers

White Tyvek® covers are 5" high, with low top, PVC soles. Case of 100 pairs.

Size	Cat. #	$/Case
S	1860-66	147.00
M	1860-67	147.00
L	1860-68	147.00
XL	1860-69	147.00

E. Pro/Clean® Hoods

Case of 100.

	Full Face Cat. #	$/Each	Eyes Only Cat. #	$/Each
Bulk	1350-59	204.00	1350-58	195.00
Clean	1350-73	277.00	1350-74	265.00
Clean & Sterile	1350-87	321.00	1350-88	311.00

F. Pro/Clean® Boot Covers

Tunnel elastic at calf and ankle; PVC sole. Case of 50 pairs.

	Size	Cat. #	$/Each
Bulk	S	1350-54	144.00
Bulk	M	1350-55	144.00
Bulk	L	1350-56	144.00
Bulk	XL	1350-57	144.00
Clean	S	1350-75	200.00
Clean	M	1350-76	200.00
Clean	L	1350-77	200.00
Clean	XL	1350-78	200.00

Sticky Mats®

Sticky Mats®
Peel-off sheets eliminate the need for messy cleaning and make it easy to maintain a clean surface. Many other styles available.

Dimen.	Blue Medium Tack		Corresp. Frame	
W" x D"	Cat. #	$/Each	Cat. #	$/Each
18 x 36	**5601-16**	**65.00**	**5602-93**	**152.00**
18 x 45	**5601-17**	**74.00**	**5602-94**	**170.00**
24 x 36	**5601-18**	**86.00**	**5602-97**	**185.00**
26 x 45	**5601-19**	**107.00**	**5602-99**	**199.00**
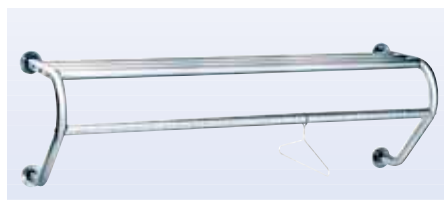
Wall-Mount and Free-Standing Garment Racks
Tubular 16-gauge, 304 stainless steel hanger rod features hanger locators scored at 2" increments for convenient hanger placement. The cylindrical surface wipes down easily without snagging wipers. Electropolished versions and other sizes available at TerraUniversal.com.

Wall-Mount	Cat. #	$/Each
4' wide	**5656-01**	**761.00**
5' wide	**5656-02**	**802.00**
6' wide	**5656-03**	**839.00**
Floor Mount		
4' wide	**5656-34**	**859.00**
5' wide	**5656-35**	**880.00**
6' wide	**5656-36**	**900.00**

Motorized Shoe Cleaner No. 1784-00 $2,184.00

Motorized Shoe Cleaner
Internal vacuum system removes contaminants on shoes. Five internal brushes clean deep into seams, welts.

	Cat. #	$/Each
110VAC, 50/60Hz	**1784-00**	**2,433.00**
220VAC, 50Hz	**1784-00-220**	**2,512.00**

Adjustable Computer Cart
Ideal for most laboratory applications, this unit features an adjustment range of 30" to 41" (measured from floor to keyboard tray), making it suitable for sitting or standing users. It includes a 25" keyboard tray with padded wrist rest and embossed mouse surfaces, a tilt-adjustable mounting plate for flat panel displays, and aluminum 25" base with casters. The powder-coat finish is durable and easy to clean.

	Cat. #	$/Each
	9600-76	**985.00**

CleanTech® Cleanroom Hand/Glove Washing System
This free-standing, microprocessor-controlled cleansing station performs wash cycles with reliable, repeatable results. It monitors cycle duration and amount of cleansing agent injected. A self-clean function eliminates bacteria colonization. A cycle counter verifies washing to help meet SSOP, HACCP and GMP programs. Model below uses tap water and operates on 110VAC; other configurations available.

	Cat. #	$/Each
	2121-02	**6,950.00**

Cleanroom Computer Cart
This easy-to-clean, all-electropolished 304 stainless steel cart features a retractable keyboard tray, CPU support stand and locking safety casters. Ideal for the cleanest locations!

	Cat. #	$/Each
Fixed Height	**9600-19**	**1,889.00**
56" floor to keyboard tray		
Adjustable Height	**9600-20**	**2,689.00**
Articulated arm moves flat panel screen and keyboard tray 56" - 68" floor to keyboard tray.		

All-Polypropylene Work Station

All-polypropylene construction resists chemical spills, making this bench safe for use with most acids. Reinforced design holds loads up to 200 lbs. Three sliding drawers hold handling tools, wipers and other small parts. 60"W x 30"D x 30"H (floor to top).

Cat. #	$/Each
7018-41	1,982.00

Polypropylene Casework

All-polypropylene construction makes these units ideal for general laboratory work, including operations with acids. Includes four sliding drawers; order sink and gooseneck separately. Dimensions: 60"W x 30"D x 30"H (floor to top).

	Cat. #	$/Each
Polypropylene Casework	2902-74	2,975.00
Polypropylene Sink (12" x 12" x 7.5")	7018-22	317.00
Gooseneck Faucet Assembly (installed)	9412-98	183.00

Stainless Steel Supplies Cabinets

Durable 304 stainless steel cabinets are easy to wipe down. Models below feature sliding doors; hinged doors also available. Select flat counter top or 4.5" backsplash.

W" x L" x H"	Cat. #	$/Each
30 x 48 x 34.5	5656-10A	1,880.00
30 x 60 x 34.5	5656-11A	2,029.00
30 x 72 x 34.5	5656-12A	2,179.00
30 x 48 x 34.5*	5656-13A	1,892.00
30 x 60 x 34.5*	5656-14A	2,047.00
30 x 72 x 34.5*	5656-15A	2,199.00

* These models include 4.5" backsplash

Ⓐ **Ⓑ** METRO

METRO

Mobile Work Centers

Corrosion-resistant polymer components and modular, portable designs create versatile units that are easy to move and reconfigure. Rigid aluminum and coated metal substructure adds strength and durability. Includes black resin epoxy top.

	Cat. #	$/Each
A. 43.4"L x 28.6"W x 81.9"H	1306-84	4,022.00
B. 63.2"L x 28.6"W x 81.9"H	1306-83	4,981.00

Biomedical Cart

Two swing-out side storage units increase the work surface by 135%. The overbridge shelf and utility pole provide additional utility space. A combination of 3", 6" and 9" drawers provide 36" total of internal height. Overall dimensions: 24.9"W x 34.2"W x 65"H.

Cat. #	$/Each
1306-86	2,725.00

Cleanroom Wipes — Complete line at TerraUniversal.com

Ideal for Class 10 Environments

SuperPolx® 1200 Cleanroom Wiper

This popular cleanroom wiper features non-run construction. Made of 100% knitted polyester, it is highly absorbent and offers extremely low particle generation, ion content and extractable residue. Each case includes 8 packages of 150 sheets each (9" x 9").

Cat. #	$/Case
5603-51	379.00

Polx® 1200 Cleanroom Wiper
Ideal for Class 100 Environments

This 100% double-knit polyester wiper offers extremely low levels of particle generation. It will not abrade or shed yet is soft for optics and other sensitive surfaces. Case includes 8 packages of 150 sheets each. Size: 9" x 9".

Cat. #	$/Case
5603-59	226.00

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