Clean AIR
PRODUCTS

SOLUTIONS BUILT TO YOUR SPECIFICATIONS

OPERATION & MAINTENANCE INSTRUCTIONS FOR

Series 201

Horizontal Laminar Flow Clean Bench

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Clean AIR PRODUCTS

Shown with optional leg stand and ionization bars

Series 201

Horizontal Laminar Flow Table Top Clean Bench

The Series 201 cabinets offer new accomplishments in the use of modern technologies in materials, manufacturing processes, and design.

Vinclad steel or painted structural materials offer the ultimate in appearance and in resisting abuse. They are highly resistant to abrasion, corrosion, stains, and chemicals as well as scratches and scuffs.

Of high quality and excellent in appearance, the cabinets have a ruggedness achieved through the use of a new wrap-around structural design. Close attention has been made to details.

The cabinet volume has been designed to offer the least envelope for each work area, thus minimizing weight and space.

Easy, quick maintenance is accomplished through the use of a removable grill with front filter removal.

The cabinet configuration has been designed for "clean" edge air-shear of the absolute filter, thus assuring clean laminar airflow through the work area by eliminating turbulence and back currents.

Features

- 99.99% efficient removal of all particulate contaminates 0.3 micron and larger; factory tested
- Meets or exceeds Class 100 conditions of Federal Standard 209E
- Flex duct provides a factory-sealed clean laminar airflow system with simple front removal
- Standard shell is white vinyl-covered steel; optional painted steel or stainless steel
- Polycarbonate hood over work area
- Protective grill for the absolute filter
- White fluorescent lighting
- Separate motor and light switch
- Meets or exceeds NEC electrical codes
- Selected sizes and options UL listed
- Fiberglass prefilter easily removable from the top
- Motor speed infinitely variable with solid state controller

For more information or to download or fax this product from the web, simply go to:
www.cleanairproducts.com/201

Additional Features

- Instrument control panel provides:
  - Cabinet on-off switch
  - Light switch
  - Electrical duplex outlet
- Durable Formica work surface
- Motor/blower is dynamically balanced direct drive unit mounted in-scroll in a resilient cradle

Cabinet

Standard shell is white vinyl-covered steel; optional painted steel or stainless steel is available. The vinyl is 8 to 10 mils in thickness. It is resistant to abrasion, corrosion, stains, and attacks by chemicals. Vinclad will not support combustion; it is resistant to scratch or scuff, will not chip, craze or crack. Vinclad is peel proof and has moderate acoustical control.

The table work surface is fabricated of white plastic laminate over particleboard. Providing a durable, cleanable and attractive surface.

Two white fluorescent lamps, with energy efficient ballast, are provided to illuminate work area. An on/off switch is provided for lamp control.

The work area hood assembly is fabricated of clear polycarbonate. The hood provides a controlled work area and assists in directional air flow.

Filter

The final filter is 99.99% effective on 0.3 micron and larger particles. Standard final filters have an aluminum anodized frame, painted white metal faceguard and mini pleated filter media construction. Filters are removable through the table top enclosure area. Optional ULPA filters, 99.999% on .12 micron are available.

Negative Pressure Plenum for Final Filters: HEPA or ULPA

The Series 201 laminar flow bench utilizes the HEPA FLEX duct system to provide air flow from the blower to the HEPA filter. This ducting system in conjunction with the cabinet blower provides a negative pressure area on the cabinet interior. The negative pressure serves as a safety seal that prevents gasket leaks which can occur in positive pressured filter systems.

HEPA/ULPA Filter Replacement

The HEPA or ULPA filter is serviced from the front of the unit.

Prefilters

The 1.0 inch fiberglass prefilter is removable from the top. The cabinet has a large prefilter area to keep the filtering efficiency high and to minimize the pressure drop across the prefilters. The prefilters are shipped in place. The cabinets have a commonly available 16x25x1 and 16x20x1 disposable prefilter style depending on its size. These prefilters are interchangeable in size with prefilters of higher efficiency. The higher efficiency prefilters can be ordered with the unit or upgraded with the first prefilter change.

Airflow

Factory set at 90 FPM; maintained by adjusting blower speed as filter increases over period of use.

Light Level

Fluorescent bulbs provide a minimum of 100 foot-candles on the table top.

Sound Level

This laminar flow bench is designed for quiet operation. The typical sound level is approximately 65dbA. Larger size units and those with multiple blowers may have a slightly higher sound level. The sound levels are measured with ambient of 55dbA. The sound level of your particular laminar flow bench may vary depending on the size of the unit surrounding room size and acoustics.

Electrical

Meets or exceeds requirements of the NEC electrical codes. 120V, single phase, 3-wire electrical system with 8 ft. flex power cord. (Up to 20 amps) Motor is permanently lubricated with thermal protection.

15 amp motor speed infinitely variable with Solid State controller. 15 amp duplex outlet installed in left front of top for auxiliary equipment. Outlet is fused from main cabinet circuit breaker.

Independent motor and light on/off switches.

Direct drive motor and dynamically balanced blower assembly is isolated from cabinet by rubber mounts and by the FLEX DUCT connection.

Selected sizes and options UL listed.

Options

- Stainless steel table top
- Removable grill in front of HEPA filter
- Safety glass hood
- Extended table top/hood
- Ultraviolet germicidal lamps
- Electrical duplex outlet (additional)
- "Minihelic" 0 to 2 inch differential pressure gauge (HEPA)
- Basic cabinet (Model CAP201) easily converts Series 201 to a floor console
- 4-leg support stand
- Gas cock
- Bar and hooks for bottle hanging
- Gold fluorescent lamps
- Photoresist gold lamp sleeves
- Conductive Formica top
- CAP201 Console Base 30 inches high or 36 inches high
- Ionization bars and power supply
- Painted cabinet – color code, manufacturer and chip required

- Series 201 models to be grouped to form continuous work area
- Special motors available

Meets requirements of the NEC electrical codes.

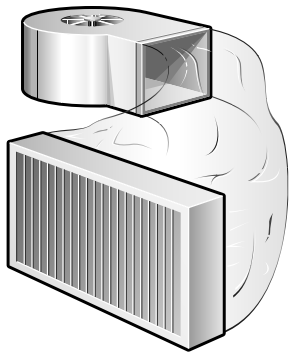
Shipped fully assembled ready for operation and certified to meet or exceed Class 100 conditions of Federal Standard 209E.

Operations manual and test reports provided with unit at shipment.

Selected sizes and options UL listed.

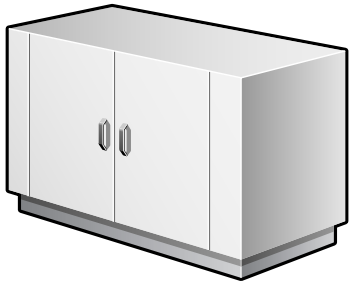
FLEX DUCT

The FLEX DUCT filter system provides a negative pressure area between the cabinet and the duct that gathers any contaminated air and recirculates it through the HEPA filter.



Console Base Conversion

A model CAP201 is available to match each Series 201 table. Easily attached, the base is rugged and places the work surface 36 inches above the floor. Leg risers adjust 1/2 inch for leveling. One storage shelf is standard.



Blower, Motor, Electrical, and Filter Sizes

201-*T24	Blower	Motor	Fluorescent Lamp	Electrical*	HEPA Filters**	Prefilters
224	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ 9.7 amp*	(1) 24X24X3**	(1) 16x20
324	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ 9.7 amp*	(1) 24x36x3**	(1) 16x25
424	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ 9.7 amp*	(1) 24x48x3**	(2) 16x20
524	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 12.5 amp*	(2) 24x60x3**	(2) 16x20
624	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ 12.5 amp*	(1) 24x72x3**	(2) 16x25
824	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ 19.95 amp*	(2) 24x48x3**	(3) 16x25
201-*T30						
230	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ 9.7 amp*	(1) 24x30x3**	(1) 16x20
330	(1) DD-10-6	1/3HP PSC	(2)	120V/10/60HZ 9.7 amp*	(1) 30x48x3**	(1) 16x20
430	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ 12.5 amp*	(1) 30x48x3**	(1) 16x20
530	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 12.5 amp*	(1) 30x60x3**	(2) 16x20
630	(2) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ 14.7 amp*	(1) 30x72x3**	(2) 16x25
830	(2) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ 19.95 amp*	(2) 30x48x3**	(3) 16x25
201-*T36						
336	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 12.5 amp*	(1) 36x36x3**	(1) 16x20
436	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 14.3 amp*	(1) 36x48x3**	(1) 16x25
536	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ 14.7 amp*	(1) 36x60x3**	(2) 16x20
636	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 19.8 amp*	(2) 36x36x3**	(2) 16x25
836	(2) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ 19.95 amp*	(2) 36x48x3**	(3) 16x25
201-*T48						
448	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ 14.3 amp*	(1) 48x48x3**	(1) 16x25
548	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 19.8 amp*	(1) 48x60x3**	(2) 16x20
648	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ 19.8 amp*	(2) 48x36x3**	(2) 16x25
848	(2) DD-10-6	3/4HP PSC	(2)	120V/10/60HZ 19.95 amp*	(2) 48x48x3**	(3) 16x25

*Includes 4 Amp receptacle.

**3 in. dimension can vary depending on filter type used.

Series 201 Horizontal Laminar Flow Clean Bench

Dimensions

White Formica cover over particle board table top: 21-1/2 in. deep.

Overall Depth of Cabinet: (front to back): 34 in.

Table top can be made deeper, increasing overall depth. Units deeper than 34 in. may not fit through 3 ft. door.

Overall Width of Cabinet: Dimension "A"

___ 2 foot = 26-1/2 in.
___ 3 foot = 38-1/2 in.
___ 4 foot = 50-1/2 in.
___ 5 foot = 62-1/2 in.
___ 6 foot = 74-1/2 in.
___ 8 foot = 98-1/2 in.

Work Area Width: Dimension "B"

___ 2 foot = 22 in.
___ 3 foot = 34 in.
___ 4 foot = 46 in.
___ 5 foot = 58 in.
___ 6 foot = 70 in.
___ 8 foot = 94 in.

Work Area Height: Dimension "C"

___ 22 in. (24 Series)
___ 28 in. (30 Series)
___ 34 in. (36 Series)
___ 46 in. (48 Series)

Overall Height of Cabinet: Dimension "D"

201*24

224 = 39-1/2 in.
324 = 39-1/2 in.
424 = 40-1/2 in.
524 = 40-1/2 in.
624 = 43.0 in.
824 = 41-1/2 in.

201*30

230 = 45-1/2 in.
330 = 45-1/2 in.
430 = 46-1/2 in.
530 = 46-1/2 in.
630 = 48-1/2 in.
830 = 48-1/2 in.

201*36

336 = 52-1/2 in.
436 = 56-1/2 in.
536 = 56-1/2 in.
636 = 57-1/2 in.
836 = 57-1/2 in.

201*48

448 = 68-1/2 in.
548 = 68-1/2 in.
648 = 68-1/2 in.
848 = 68-1/2 in.

Estimated Weight

201*24

324 = 270 lb.
424 = 300 lb.
524 = 350 lb.
624 = 400 lb.
824 = 580 lb.

201*30

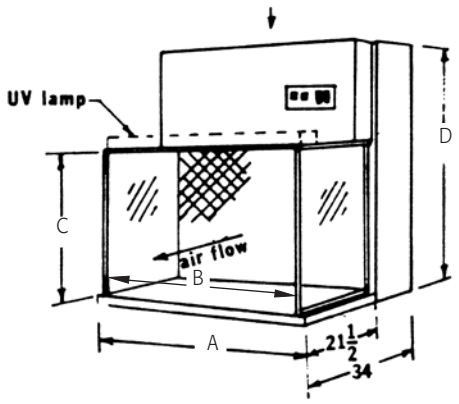
330 = 300 lb.
430 = 350 lb.
530 = 400 lb.
630 = 450 lb.
830 = 670 lb.

201*36

336 = 350 lb.
436 = 400 lb.
536 = 450 lb.
636 = 500 lb.
836 = 750 lb.

201*48

448 = 470 lb.
548 = 550 lb.
648 = 650 lb.
848 = 800 lb.



Standard Models

MODEL	A	B	C	D
CAP 201-224*	26 1/2	22	22	39 1/2
CAP 201-230*	26 1/2	22	28	45 1/2
CAP 201-324*	38 1/2	34	22	39 1/2
CAP 201-330*	38 1/2	34	28	45 1/2
CAP 201-336*	38 1/2	34	34	52 1/2
CAP 201-424*	50 1/2	46	22	40 1/2
CAP 201-430*	50 1/2	46	28	46 1/2
CAP 201-436*	50 1/2	46	34	56 1/2
CAP 201-448*	50 1/2	46	46	68 1/2
CAP 201-524*	62 1/2	58	22	40 1/2
CAP 201-530*	62 1/2	58	28	46 1/2
CAP 201-536*	62 1/2	58	34	56 1/2
CAP 201-548*	62 1/2	58	46	68 1/2
CAP 201-624*	74 1/2	70	22	43
CAP 201-630*	74 1/2	70	28	48 1/2
CAP 201-636*	74 1/2	70	34	57 1/2
CAP 201-648*	74 1/2	70	46	68 1/2
CAP 201-824*	98 1/2	94	22	41 1/2
CAP 201-830*	98 1/2	94	28	48 1/2
CAP 201-836*	98 1/2	94	34	57 1/2
CAP 201-848*	98 1/2	94	46	68 1/2

* Filter size – width in feet, height in inches

Standard units shipped F.O.B. factory padded van.

Equipment specification, dimension and upgrades are subject to change without notice.

Guarantee

A written 1 year Warranty is furnished with each cabinet.

Specifications subject to change. Please contact factory for details.

General Description

Cabinet

Standard shell is white vinyl-covered steel; optional painted steel or stainless steel is available. The vinyl is 8 to 10 mils in thickness. It is resistant to abrasion, corrosion, stains, and attacks by chemicals. Vinclad will not support combustion; it is resistant to scratch or scuff, will not chip, craze or crack. Vinclad is peel proof and has moderate acoustical control.

The table work surface is fabricated of white plastic laminate over particleboard. Providing a durable, cleanable and attractive surface.

Two white fluorescent lamps, with energy efficient ballast, are provided to illuminate work area. An on/off switch is provided for lamp control.

The work area hood assembly is fabricated of clear acrylic. The hood provides a controlled work area and assists in directional air flow.

Filters

Final

A negative pressure Flex Duct filter system prevents contaminates from entering work area as commonly seen in positive pressure filter systems.

The HEPA final filter is 99.99% effective on particles 0.3 micron and larger. D.O.P. Smoke tested and leak probed. Standard final filters have fire retardant frames and aluminum separators.

The final filter is protected by a flattened expanded aluminum grill.

Electrical

120V, single phase, 3-wire electrical system with 8 ft. flex power cord. (Up to 20 amps)

15 amp motor speed infinitely variable with Solid State controller.

15 amp duplex outlet installed in right front of base for auxiliary equipment. Outlet is fused from main cabinet circuit breaker.

Independent motor and light on/off switches.

Direct drive motor and dynamically balanced blower assembly is isolated from cabinet by rubber mounts and by the Flex Duct connection.

Airflow

Factory set at 90 FPM: maintained by adjusting blower speed as filter pressure increases over period of use.

Sound Level

Less than 60dbA with air ambient of 55dbA. (75dbA — units with twin blowers.)

Series
201

Shown with leg stand and ionization bars

For more information or to download or fax this product from the web, simply go to:
www.cleanairproducts.com/201

Series 201 Horizontal Laminar Flow Clean Bench

Technical Data continued

Electrical, Filter and Blower Sizes

201-*T24	Blower	Motor	Fluorescent Lamp	Electrical		HEPA Filters		Prefilters	
224	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1)	24X24X6	(1)	16x20
324	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1)	24x36x6	(1)	16x25
424	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1)	24x48x6	(2)	16x20
524	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2)	24x30x6	(2)	16x20
624	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(2)	24x36x6	(2)	16x25
824	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2)	24x48x6	(3)	16x25
201-*T30									
230	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1)	24x30x6	(1)	16x20
330	(1) DD-10-6	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1)	30x48x6	(1)	16x20
430	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1)	30x30x6	(1)	16x20
530	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2)	30x30x6	(2)	16x20
630	(2) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(2)	30x36x6	(2)	16x25
830	(2) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2)	30x48x6	(3)	16x25
201-*T36									
336	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1)	30x36x6	(1)	16x20
436	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2)	24x36x6	(1)	16x25
536	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(2)	36x30x6	(2)	16x20
636	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2)	36x36x6	(2)	16x25
836	(2) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(4)	36x24x6	(3)	16x25
201-*T48									
448	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(2)	48x24x6	(1)	16x25
548	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2)	48x30x6	(2)	16x20
648	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(4)	24x36x6	(2)	16x25
848	(2) DD-10-6	3/4HP PSC	(2)	120V/10/60HZ	23.4 amp	(4)	48x24x6	(3)	16x25

Dimensions

White "Formica" cover over particle board table top: 21-1/2 in. deep.

Overall Width of Cabinet: Dimension "A"

___ 2 foot = 26-1/2 in.
___ 3 foot = 38-1/2 in.
___ 4 foot = 50-1/2 in.
___ 5 foot = 62-1/2 in.
___ 6 foot = 74-1/2 in.
___ 8 foot = 98-1/2 in.

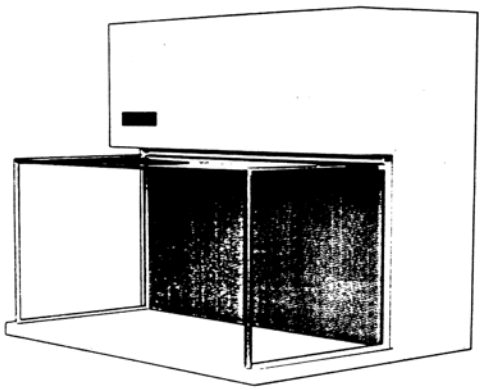
Overall Depth of Cabinet (front to back): 34 in.

Work Area Width: Dimension "B"

___ 2 foot = 22 in.
___ 3 foot = 34 in.
___ 4 foot = 46 in.
___ 5 foot = 58 in.
___ 6 foot = 70 in.
___ 8 foot = 94 in.

Work Area Height: Dimension "C"

___ 22 in. (24 Series)
___ 28 in. (30 Series)
___ 34 in. (36 Series)
___ 46 in. (48 Series)



Overall Height of Cabinet: Dimension "D"

201*24
224 = 39-1/2 in.
324 = 39-1/2 in.
424 = 40-1/2 in.
524 = 40-1/2 in.
624 = 43.0 in.
824 = 41-1/2 in.

201*30
230 = 45-1/2 in.
330 = 45-1/2 in.
430 = 46-1/2 in.
530 = 46-1/2 in.
630 = 48-1/2 in.
830 = 48-1/2 in.

201*36
336 = 52-1/2 in.
436 = 56-1/2 in.
536 = 56-1/2 in.
636 = 57-1/2 in.
836 = 57-1/2 in.

201*48
448 = 68-1/2 in.
548 = 68-1/2 in.
648 = 68-1/2 in.
848 = 68-1/2 in.

Optional Accessories

___ "Minihelic" 0 to 2 inch differential pressure gauge. (HEPA)
___ Stainless steel table top
___ Table top support legs
___ Gas cock
___ Electrical duplex outlet (additional)
___ Bar and hooks for bottle hanging
___ Gold fluorescent lamps
___ Photoresist gold lamp sleeves
___ Ultraviolet germicidal lamps
___ Conductive Formica top
___ CAP201 Console Base 30 inches high or 36 inches high
___ Anti-static grid and power supply
___ Painted cabinet – color code, manufacturer and chip required

Meets requirements of the NEC electrical codes.

Shipped fully assembled ready for operation and certified to meet or exceed Class 100 conditions of Federal Standard 209D.

Operations manual and test reports provided with unit at shipment.

Estimated Weight

201*24
324 = 270 lb.
424 = 300 lb.
524 = 350 lb.
624 = 400 lb.
824 = 580 lb.

201*30
330 = 300 lb.
430 = 350 lb.
530 = 400 lb.
630 = 450 lb.
830 = 670 lb.

201*36
336 = 350 lb.
436 = 400 lb.
536 = 450 lb.
636 = 500 lb.
836 = 750 lb.

201*48
448 = 470 lb.
548 = 550 lb.
648 = 650 lb.
848 = 800 lb.

Standard units shipped F.O.B. factory padded van.

Equipment specification, dimension and upgrades are subject to change without notice.

Specifications subject to change. Please contact factory for details.

Set-Up & Operation

Your new cabinet is designed to be put into operation with a minimum of labor and time.

CAUTION - Do not push or pull on clear plastic hood

1) Move the cabinet into the general area where it is to be used with the shipping skid in place. This will keep damage caused by moving to a minimum. Do not push or pull on the cabinet's clear plastic hood.
2) Remove the shipping skid by removing the bolts that attach it to the bottom of the cabinet. Screw in the leveling glides until about 1/8 inch of the threads show.
3) Slide the cabinet into the place where it is to be used. Level the cabinet by adjusting the leveling glides. Exact leveling is not required for hood operation.
4) Remove wrapping from bench front if hood shipped knock down. Reattach the hood to the bench. Note that right and left side acrylic panels are not the same. Be sure which is right and left. See exploded parts drawing.
5) The cabinet should be located away from areas where drafts might occur, such as doorways, heat ducts or aisles where people walk rapidly. The drafts can disturb the air flow from the cabinet and blow contaminants into the hood.
6) Plug the power cord into an electric outlet of 120 volt AC 20 amp rating or of adequate power to operate the cabinet and all auxiliary equipment. The cabinet interior wiring is protected by circuit breakers.
7) Remove any remaining wrapping and clean the cabinet. The cabinet interior, except the HEPA filter, may be cleaned with an alcohol solution. Caution should be used not to get the solution on the HEPA filters. Never touch or clean the filter face. The filter may become damaged. Frequent repeated use of alcohol on the clear plastic hood, over a long period, will cause the plastic to discolor to a cloudy condition. Use soft materials to clean the clear plastic. A hard abrasive material will scratch the plastic. Frequent cleaning of the plastic interior will not be necessary if the cabinet runs continuously. The vinyl material may be cleaned with mild household detergent. Stainless may be cleaned with detergents or alcohol. Abrasive materials will scratch the surface of the stainless.
8) Turn the motor switch on and let the unit run for approximately 2 hours the first time to purge the HEPA filter of possible foreign materials. Inspect the unit to make sure it is functioning correctly.
9) The unit is now ready for use.

NOTE: When the unit is first turned on, it may release a scent from the new HEPA filter. The scent will diminish as the unit runs.

Indoor Use

Altitude up to 2000 m or above 2000 m if specified by the manufacturer (see Clause D.9 for further information).

Temperature 0 to 40°C.

Maximum relative humidity 80 percent for temperatures up to 31°C decreasing linearly to 50 percent relative humidity at 40°C.

Mains supply voltage fluctuations not to exceed ±10 percent of the nominal voltage.

Other supply voltage fluctuations as stated by the manufacturer.

Transient overvoltages according to Installation Categories (Overvoltage Categories) I, II and III (see Annex J). For mains supply the minimum and normal category is II.

Pollution Degree 1 or 2.

Read and Save these Instructions!

Please observe the following information related to the product:

1) Read this guide before installing and/or operating the unit.
2) Keep this guide to make references to the safety and operating instructions in the future.
3) Observe warnings associated with handling, installing, using, and maintaining the CAP201.
4) Follow all instructions for set-up, operation, and use.
5) Operate ONLY from the type of power source indicated. If you are unsure of the type of power available to you, contact your dealer or power company.
6) This unit may be equipped with a polarized alternating current (AC) plug with one blade wider than the other. This plug will only fit into the power outlet in one way for safety reasons. If the plug does not fit, call an electrician to replace the outlet. DO NOT REMOVE THE ROUND GROUNDING TERMINAL. THIS UNIT MUST BE GROUNDED FOR SAFETY REASONS AND FOR PROPER OPERATION.
7) Do not place power cords (optional) where they will have things placed on or against them, be walked upon, or be pinched, especially near the outlet, the plug, or where the power cord exits the unit.
8) Overloading outlets and/or extension cords can result in fire and/or electrical shock.
9) ONLY use parts supplied or authorized by the manufacturer. Substitutions may result in fire, electrical shock, or other safety hazards.

Safety Warnings

1) NEVER expose the assembly to moisture or rain.
2) If the unit gets wet, disconnect the power at the source and have an authorized service inspection before using it again.
3) Do not pull on the optional power cord to unplug the unit, and never handle the cord with wet hands.
4) Do not clean the unit with flammable chemicals.
5) Do not expose to explosive or hazardous vapors or materials.
6) Make sure the unit is well supported to prevent falling.
7) Do not block airflow to the unit.
8) Disconnect the power before servicing.
9) Do not operate below 0 degrees Fahrenheit or above 110 degrees Fahrenheit.
10) This unit is designed to operate in a non-hazardous (non-explosive) environment with non-condensing air.
11) NEVER put objects into the blower.
12) Do not operate without metal blower guard.
13) Review application with your safety commissioner for proper use.

Daily Operation

The factory recommends that the unit be run continuously. The normal HEPA filter life is a number of years when the hood runs continuously, and it will assure a clean work area.

1) When the cabinet runs continuously, it is ready to use at all times. The work surface will require cleaning which will depend upon its use. The clear plastic hood will only require occasional cleaning on the inside with alcohol. The hood outside is to be cleaned with a plastic cleaner and soft material. Alcohol will make the clear plastic turn a milky color over a long period of time. Use sparingly, and only when needed.

2) The Formica table top may be cleaned with strong household cleaners. Stainless may be cleaned with detergents or alcohol. Abrasive materials will scratch the surface. The vinyl material on the hood may be cleaned with mild household cleaners. Chlorinated or strong cleaners will turn the vinyl yellow. The top of the clear plastic hood may easily be cleaned by removing the front shield panel.

3) When the cabinet is shut off for a short period of time and is turned on, the hood interior is to be wiped clean. The hood should run for 5 to 10 minutes before use when off for intervals of 1 or 2 days.

4) When the cabinet is to be off for 3 to 4 days or more, a plastic drape should be attached to the front of the hood as tightly as possible to prevent dust from entering the hood and getting into the HEPA filter. When the cabinet has not been used for 2 weeks or more, the filter should be purged 1 to 2 hours.

5) A short interval should be allowed each time an object is set into the hood to allow loose material to be washed off the object.

6) Avoid fanning papers, books, arms, coats and fast walking in front of the hood. Air currents will enter the hood and contaminate the interior. Many organizations have a 6-inch line marked on the table top. All work is performed behind this line to minimize contamination due to drafts.

7) The lights may be on or off when the blower is running. The lights have no affect on horizontal flow cabinets.

8) Spills should be cleaned up immediately. Sponge the liquid near the HEPA filter first to keep the liquid away from the filter. Should liquid splash onto the HEPA filter, DO NOT attempt to wipe the filter. Wiping the filter will cause filter leaks. The liquid will dry, discolor and plug a small area of the filter in front. The filter is nearly 4 inches deep, and a small plugged area will have little or no affect on the air flow.

9) Do not use the hood for storage of large objects. Large objects will disrupt the smooth laminar air flow, causing turbulent air flow behind them and contaminated room air may be drawn into the hood. Objects should not be placed between the HEPA filter and any point where the clean environment must be maintained. A good practice is to place materials on platforms to allow air movement under, as well as around, the object. All work should be performed with the operator's hands downstream of the critical process points.

Maintenance

1) After 30 days, inspect the unit to make sure it is functioning correctly.

2) Prefilters extend the life of the HEPA/ULPA filter. Field upgrading the prefilters to a pleated style will extend the life of the final filter. This can be done at the first prefilter change.

3) Inspect power cord.

4) Inspect the general function of unit.

5) Look at the motor/blower and check for dust build-up. Check for excessive vibration. Unplug unit and wipe down interior blower compartment if required.

6) Inspect the cabinet shell to see that everything is in good working order.

7) Listen and feel cabinet. Note any changes in sound or vibration. This could be indication of a problem.

Shipments

Clean Air Products takes every reasonable precaution to ensure that your laminar air flow cabinet arrives without damage. However, damage can occur in any shipment, and it is important that you note visible damage immediately with a notation on the consignee's copy of the freight bill. Terms are F.O.B. factory, unless otherwise stated. Your inspection of either visible or concealed damage is the basis of filing your claim (which you must do at once) against carrier. An inspection then must be made to verify the claim against the carrier.

Performance Specifications

All equipment is thoroughly inspected at the Clean Air Products' factory at the time of shipment. Quality control is maintained by constant surveillance over the product, beginning at receipt of purchased material and concluding with a final inspection which certifies performance to Class 100 conditions of Federal Standard 209E, as well as to the unique requirements of each project. In all instances where product quality cannot easily be assessed on the end item, the product is inspected during subassembly fabrication. All electrical components are UL approved; all mechanical components are fabricated or purchased and inspected to performance requirements before assembly into the final product.

All Clean Air products have been certified to meet or better the following specifications:

HEPA Filter System

The HEPA Filter System consists of two basic members: the absolute HEPA filter and a flexible duct to form a modular component. All HEPA filters purchased by Clean Air Products have been PSL tested for leakage for 99.99% removal of all particulate contaminants greater than 0.3 micron. The CAP FLEX Filter is proof-tested for leaks in the installation to ensure the continued integrity of the HEPA and of the assembly. All laminar flow equipment must meet or exceed Class 100 Federal Spec 209E.

Prefilter

The Prefilter is made of 1-inch thick disposable, non-woven framed fiberglass media, a nominal efficiency of 40% by NBS Test Method using atmospheric dust.

Air System

The blower has been adjusted at the factory to provide 90 FPM across the face of the filter. The motor/blower are dynamically balanced, direct drive centric unit with the motor mounted in-scroll in a resilient cradle. The motor is a permanent split capacitor type with automatic-reset-thermal overload; it is lubricated for life. The standard motor operates at 120 volt ±10%, single phase, 60 Hz power. Motor speed is controlled by a Solid State TRIAC speed control mounted on the blower and available either through the prefilter grill or on the front panel, recessed to prevent tampering. The motor/blower has been chosen to provide a flow of a minimum of 90 FPM (to meet Federal Standard 209E) and sized to provide 1.2 inches of water pressure drop over the HEPA filter at 90 FPM.

For best utilization of the workstation, the air velocity should be checked once every 6 months and speed control adjustment made, if necessary, to retain the desired are velocity (usually 90 ± 20 FPM).

Lighting

The intensity of the lighting is a minimum of 80-foot candles at the work surface level on standard equipment. The lights are single or double pin, rapid start, T-12, white lamps, unless stated otherwise. They operate within the workstation or cabinet on 120 volt, single phase, 60 Hz power. The cabinet light switch will turn on the lights for bench operation. Cabinets with ultraviolet lights are wired UV light or white light on. Both may not be on at the same time.

Sound Level

The sound level is less than 65 dBa against an ambient of 55 dBa. Efficient air diffusion and the use of acoustical blankets provide for quiet operation.

Vibration

The vibration level will be less than 100 micro-inches on the work surface. A special vibration control system provides extraordinary attenuation of blower induced vibration and sound.

Operation Guidelines

Operate the laminar flow workstation continuously. The unit will then remain in its initially clean condition. If, for any reason, the unit is turned off, the interior should be cleaned. Turn the unit on and permit it to operate for 5 to 10 minutes before resuming operation.

Allow only essential items in the workstation. Objects should not be placed between the HEPA filter and any point where the clean environment must be maintained.

Particular care must be exercised in placing equipment within the workspace. Where possible, equipment should be placed on platforms to allow air movement under, as well as around the object.

All work should be performed with the operator's hands downstream of the critical process points.

Movement in the workstation should be kept to a minimum.

Maintenance Procedures

Fluorescent Lamp Replacement: (Please refer to drawing on your model.)

In horizontal air flow units, simply remove the front cover above the plexiglass work area enclosure; the lamps are directly exposed for replacement. On most Series 200 and 300 models, two knurled nuts on the top of the cabinet are removed and the front cover slides forward.

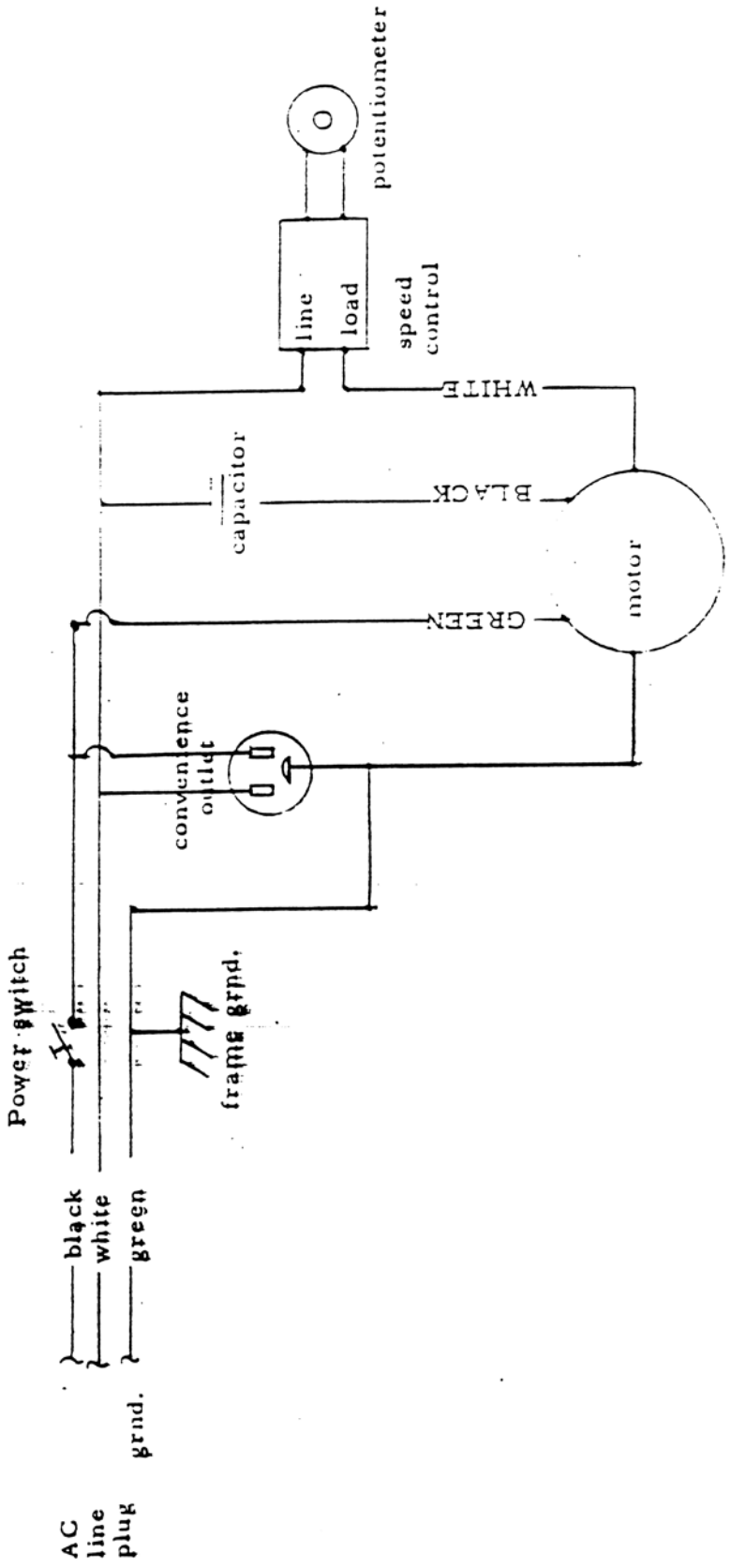
HEPA Flex Replacement: (Please refer to exploded parts drawing on your model.)

To replace the HEPA filter, remove the clear plastic hood from the cabinet by removing the screws that hold it to the table top and cabinet shell. Lift the hood from the cabinet and set to one side. Remove the strap that attaches the plastic duct to the blower and free the duct from the blower (tape may be used to hold the duct). Remove the narrow panel at the top of the HEPA filter. On each side of the filter is a filter support; remove the screws from the support and tip the filter forward. When the filter is face down on the table top, lift the filter from the cabinet. The Flex Duct and filter supports may be attached to a new filter. Replacement filters from Clean Air Products come with a new Flex Duct and supports, ready for installation. All filters from Clean Air Products are leak checked for 99.99% with 0.3 micron PSL. The reverse procedure is followed to reassemble the filter into the cabinet.

Replacement Parts for the Series 201

The following table corresponds with the Exploded Parts Assembly drawing. Order parts by stating the Unit Serial Number, Model Number, and Item Number.

Item No.	Quantity	Description
1	1	Table Top
2	1	Cabinet Bottom
3	1	Cabinet Left Side
4	1	Cabinet Right Side
5	2	Prefilter Frame, Front and Rear
6	2	Prefilter Frame, Sides
7	1	Front Panel
8	2	Front Panel, Screw
9	1	Blower Channel Mounting
10	2	Blower Mounting Bracket, Front
11	2	Blower Mounting Bracket, Rear
12	4	Rubber Mounting
13	5	Spacer
14	1	Blower Assembly
15	1	Motor
16	1	Electric Box
17	1	Electric Box Cover
18	1	Speed Control Assembly
19	1	Capacitor
20	1	Control Knob
21	1	Electrical Box
22	1	Electric Box Cover & Instrument Panel
23	1	Service Gage HEPA (red ball)
24	1	Service Gage Prefilter (white ball)
25	1	Clamp
26	1	Tube – Blower
27	1	Tube – Prefilter
28	1	Tube – Short
29	1	Hood Assembly
30	1	Switch
31	1	Cord Assembly
32	1	Filter Assembly HEPA
33	2	Frame – Filter Side
34	1	Filter Support Angle
35	2	Plastic Insert
36	1	Guard Screen
37	1	Motor Frame Assembly
38	2	Filter Bottom Angle
39	1	Duct Strap Assembly
40	2	Prefilter
41	1	Hat Section – Filter Support
42	2	Plastic Insert



Electrical Schematic for Clean Air Products' Series 201 Horizontal Flow Clean Bench

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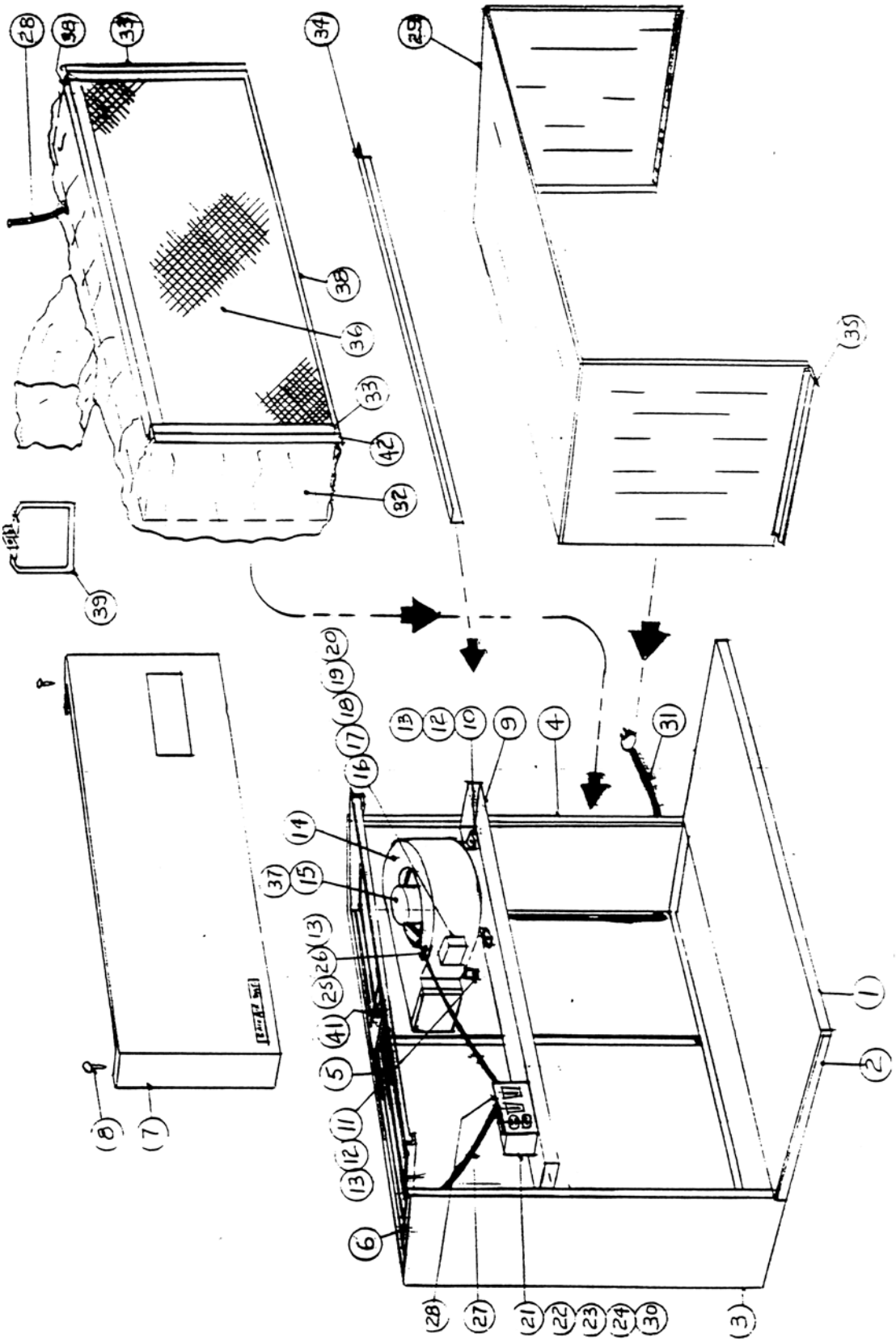

Exploded Parts Assembly for Clean Air Products' 201 Series Horizontal Laminar Flow Clean Bench

Warranty for Cleanroom & Equipment

Clean Air Products Corporation warrants that it will repair FOB its factory or furnish without charge FOB its factory a similar part to replace any material in its equipment within one year after the date of sale if proved to the satisfaction of the company to have been defective at the time it was sold provided that all parts claimed defective shall be returned, properly identified to the company at its factory, freight charges prepaid. Factory installed equipment of accessories is warranted only to the extent guaranteed by the original equipment manufacturer, and this warranty shall not apply to any portion of the equipment modified by the user. Claims under this warranty should be directed to Clean Air Products, 8605 Wyoming Avenue North, Brooklyn Park, MN 55445, setting forth in detail the nature of the defect, the date of the initial installation, and the serial number and model number of the equipment.

HEPA filters are warranted to have their given efficiency at the time of shipping.

Parts shipped to replace warranty items shall be invoiced out with 60 day terms. Credit shall be issued when defective parts are returned to Clean Air Products' factory. (Contaminated materials shall be credited after receipt of proper disposal is sent to Clean Air Products.)

When special shipping containers are used to ship out new product, defective parts are to be returned in the same container. This shall be so stated on the Bill of Lading sent with the replacement parts.

Contaminated Parts and Equipment

Clean Air Products must be notified if defective parts, or other materials supplied to the purchaser are contaminated with hazardous chemicals or carcinogenic materials that are considered hazardous or carcinogenic by the EPA or other regulatory agencies. These parts are not to be shipped back to Clean Air Products' factory. The purchaser shall be responsible for proper disposal and all costs associated with the disposal and/or storage of the defective contaminated equipment. Prior to their disposal, Clean Air Products may require inspection of said defective materials.

The user and purchaser shall each be responsible and be back charged for cleanup and disposal of all contaminated materials shipped back to Clean Air Products' factory.

Specifications subject to change. Please contact factory for details.

Clean AIR PRODUCTS

tel: 763.425.9122 800.423.9728
www.cleanairproducts.com

Cleanroom Solutions Made Easy!

Laminar Flow Clean Benches

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Fume Hoods

Modular Cleanrooms – Vertical Flow SOFTWALL

We Build Hassle-Free

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Stainless Steel Tables

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Pass Thru Air Locks

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