

OPERATION & MAINTENANCE INSTRUCTIONS FOR

Series **303**

Horizontal Laminar Flow Clean Bench



Clean bench with isolation table

Series 303 Horizontal Laminar Flow Clean Bench

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The Series 303 is a general-purpose horizontal flow clean bench ideally suited to many types of mechanical or processing work. It is designed to provide an ISO Class 5 (Class 100) or ISO Class 4 (Class 10) clean air environment suitable for laboratory work, testing, manufacturing, inspection and/or pharmaceutical operations.

The unit is furnished with an open front area, so it can be placed behind a piece of equipment or used with a stand-alone table. The stand-alone isolation table is ideal in applications where vibration isolation is required. Such applications are microscope viewing, critical measuring, or other vibration sensitive work.

The clean HEPA-filtered air flows outward from the cabinet. This horizontal laminar flow air washes out particulates and prevents contamination from entering the clean work zone. The cabinet features "clean edge" construction that puts the hood in shear with the media edge of the HEPA filter. This reduces turbulence along the sides of the hood and improves the laminar flow and prevents contamination infiltration around the perimeter of the hood.

Features

- ❖ FLEX DUCT provides a factory sealed clean laminar airflow system with simple front HEPA filter removal
- ❖ HEPA filter 99.99% efficient
- ❖ Duplex outlet for auxiliary equipment
- ❖ Motor speed variable with solid state controller
- ❖ Protective grill for absolute filter
- ❖ Fiberglass prefilter easily removable
- ❖ "Clean edge" air-shear of the absolute filter
- ❖ Superior quality, excellent appearance, and ruggedness have been achieved through the use of new wrap-around structural design
- ❖ Vinclad steel or painted structural materials offer the ultimate in appearance and a surface resistant to abuse
- ❖ Shipped fully assembled ready for operation, certified to meet or exceed ISO Class 5 of ISO Standard 14644-1 (Class 100 conditions of Federal Standard 209E)
- ❖ Selected sizes and options UL listed



For more information or to download or fax this product from the web, simply go to:

www.cleanairproducts.com/303

Series 303 Horizontal Laminar Flow Clean Bench

Overview

The Series 303 clean bench cabinet has all-metal construction with a Vinclad exterior.

The unit has a hood but no table top. This allows a free-standing table or piece of equipment to be placed in front of the unit.

Two white fluorescent lamps, with energy efficient ballast, are provided to illuminate the 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.

Standard floor to table top height measured to the underside of the hood is 30 inches. The length and height will depend on the process it is used for. Standard widths are 2-1/2 inches over nominal 3, 4, 5, 6, 8 foot increments and the interior depth (interior table or working space) of 21-1/2 inches. The overall cabinet width, depth and height will depend on the size of unit chosen.

Cabinet

Heavy gauge white Vinclad steel exterior finish. The vinyl is 8 to 10 mils in thickness and is laminated to provide an attractive appearance and toughness. It is superior to paint and plastic laminate over board material. 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 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 303 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.

Prefilters

The 1.0 inch fiberglass prefilter is removable from the front lower cabinet and is accessible behind the hinged prefilter grill.

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 20x25x1 and 20x20x1 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.

FLEX DUCT

The FLEX DUCT filter system provides a negative pressure area between the interior cabinet and the HEPA filter/FLEX DUCT assembly. The FLEX DUCT connects to the blower and is permanently sealed onto the HEPA filter. The negative pressure area prevents gasket leaks by keeping the gasket seal under a negative pressure,

collecting any contaminated air and recirculating it through the HEPA filter.

Airflow

Factory set at 90 FPM; maintained by adjusting blower speed as filter pressure increases with use.

Light Level

An optional fluorescent fixture can be supplied to provide approximately 80 foot-candles at the table top level.

Sound Level

The cabinets are 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 unit 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 foot flex power cord. The motor speed is variable with Solid State controller. 15 amp duplex outlet installed in right front of base for auxiliary equipment. 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.

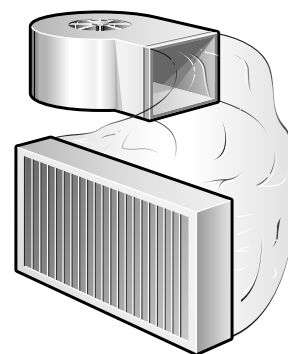
Options

- Removable perforated HEPA filter protective grill
- Safety glass hood
- Extended hood (no built-in table)
- Ultraviolet germicidal lamps
- 36 inch table top height (underside of hood)
- Electrical duplex outlet (additional)
- Casters

- “Minihelic” 0 to 2 inch differential pressure gauge. (HEPA)
 - Stand alone table, Series 61 - Formica or stainless steel
 - Gas cock
 - Bar and hooks for bottle hanging
 - Yellow fluorescent lamps
 - Photoresist yellow lamp sleeves
 - Ion bars and power supply
 - Painted cabinet — color code, manufacturer and chip required
 - Removable side polycarbonate panel — ___RH ___LH
 - Rolled front edge on table top
 - Casters with locking brake
 - Fluorescent light
 - All Stainless steel construction
 - ULPA filter 99.999% on 0.12 micron particles
- Units can be coupled together to form a continuous work area
 - Special designs upon request
- Meets requirements of the NEC electrical codes.
- Shipped fully assembled ready for operation and certified to meet or exceed ISO Class 5 of ISO Standard 14644-1 (Class 100 conditions of Federal Standard 209E).
- Operations manual and test reports provided with unit at shipment.

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.

**Blower, Motor, Electrical, and Filter Sizes**

Fluorescent								
303-24	Blower	Motor	Lamp	Electrical*		HEPA Filters**		Prefilters
324	(1) DD-10-4	1/3HP PSC	(2)	120V/60HZ	9.7 amp*	(1)	24x36x3**	(1) 20x20
424	(1) DD-10-6	1/3HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	24x48x3**	(1) 20x25
524	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(2)	24x30x3**	(2) 20x20
624	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	24x72x3**	(2) 20x25
824	(2) DD-10-6	1/3HP PSC	(4)	120V/60HZ	19.2 amp*	(2)	23-5/8x47-5/8x3**	(3) 20x25
303-30								
330	(1) DD-10-6	1/3HP PSC	(2)	120V/60HZ	9.7 amp*	(1)	30x36x3**	(1) 20x20
430	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	30x48x3**	(1) 20x25
530	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	30x60x3**	(2) 20x20
630	(1) DD-10-8	3/4HP PSC	(2)	120V/60HZ	14.7 amp*	(1)	30x72x3**	(2) 20x25
830	(2) DD-10-8	1/2HP PSC	(4)	120V/60HZ	19.95 amp*	(2)	30x48x3**	(3) 20x25
303-36								
336	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	36x36x3**	(1) 20x20
436	(1) DD-10-8	1/2HP PSC	(2)	120V/60HZ	12.5 amp*	(1)	36x48x3**	(1) 20x25
536	(1) DD-10-8	3/4HP PSC	(2)	120V/60HZ	19.8 amp*	(1)	36x60x3**	(2) 20x20
636	(2) DD-10-8	1/2HP PSC	(2)	120V/60HZ	19.8 amp*	(2)	36x36x3**	(2) 20x25
836	(2) DD-10-8	1/2HP PSC	(4)	120V/60HZ	19.95 amp*	(2)	36x48x3**	(3) 20x25
303-48								
448	(1) DD-10-8	3/4HP PSC	(2)	120V/60HZ	14.3 amp*	(1)	47-1/4x47-5/8x3**	(1) 20x25
548	(2) DD-10-8	1/2HP PSC	(2)	120V/60HZ	19.8 amp*	(2)	48x30x3**	(2) 20x20
648	(2) DD-10-8	1/2HP PSC	(2)	120V/60HZ	19.8 amp*	(2)	48x36x3**	(2) 20x25
848	(2) DD-10-8	3/4HP PSC	(4)	120V/60HZ	19.95 amp*	(2)	47-1/4x47-5/8x3**	(3) 20x25

*Includes 3 Amp receptacle.

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

Series 303 Horizontal Laminar Flow Clean Bench

Dimensions

The acrylic hood is 30 inches deep with an aluminum extrusion on the bottom edge. The unit is designed to have an optional table set slightly below but not touching the underside of the bottom extrusion.

The underside of the extrusion is at 30.0 inches from the floor $\pm .25$ or ± 3 inches with leg levelers.

Overall Width of Cabinet: Dimension "A"

- ___ 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"

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

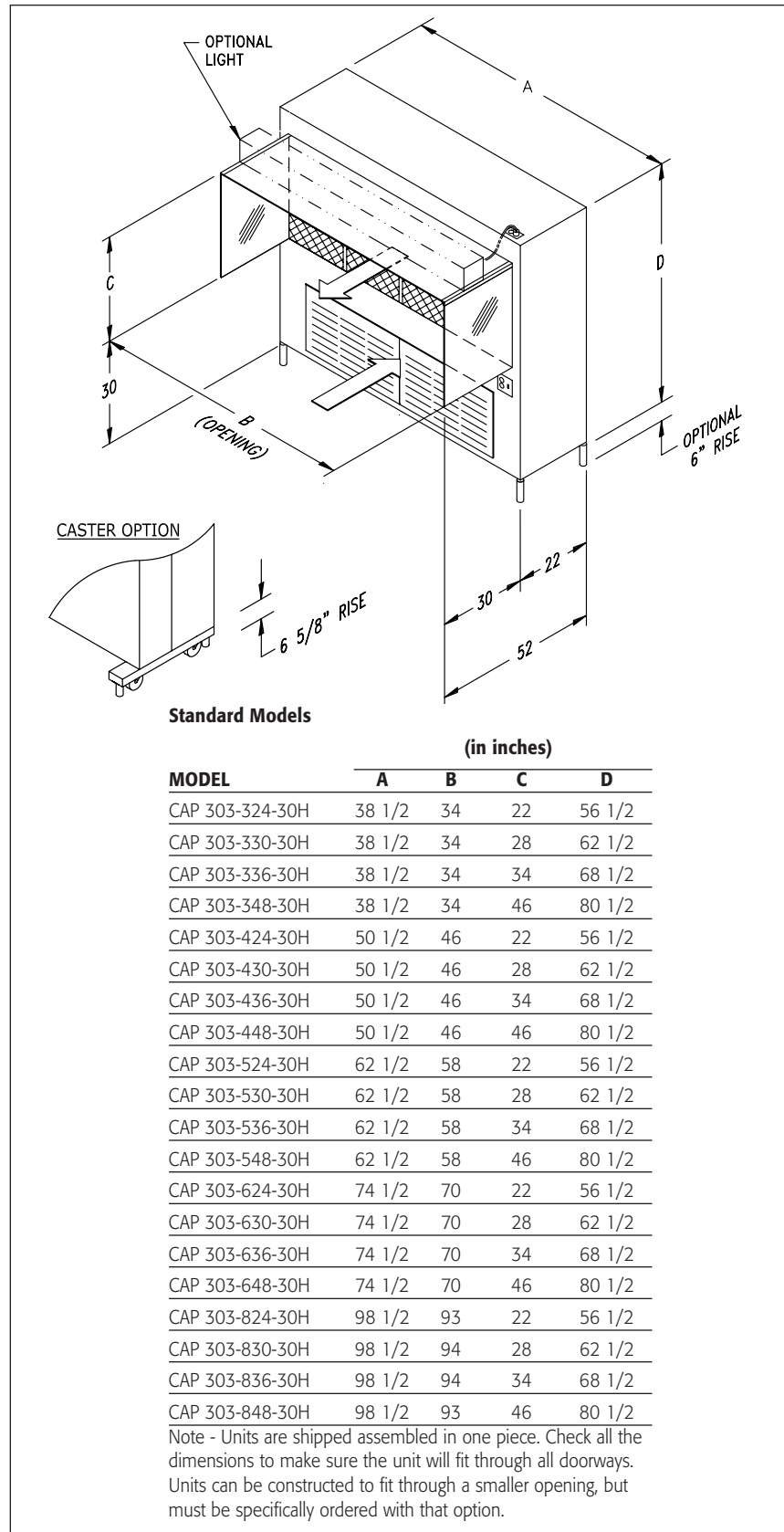
Work Area Height: Dimension "C"

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

Overall Height of Cabinet: Dimension "D"

(Add 6.0 inches for 36-inch high table top option.)

- ___ 58.0 in. (24 Series)
- ___ 64.0 in. (30 Series)
- ___ 70.0 in. (36 Series)
- ___ 82.0 in. (48 Series)



Estimated Weight**303*24**

324 = 370 lb.
424 = 400 lb.
524 = 450 lb.
624 = 500 lb.
824 = 680 lb.

303*30

330 = 400 lb.
430 = 450 lb.
530 = 500 lb.
630 = 550 lb.
830 = 770 lb.

303*36

336 = 450 lb.
436 = 500 lb.
536 = 550 lb.
636 = 600 lb.
836 = 800 lb.

303*48

448 = 570 lb.
548 = 650 lb.
648 = 750 lb.
848 = 900 lb.

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

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

Guarantee

A written 1 year Warranty is furnished
with each cabinet.

Series 303 Horizontal Laminar Flow Clean Bench

Technical Data**General Description****Cabinet**

Heavy gauge white Vinclad steel exterior finish. The vinyl is 8 to 10 mils in thickness and is laminated to provide an attractive appearance and toughness. It is superior to paint and plastic laminate over board material. 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 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 contaminants from entering work area as commonly seen in positive pressured filter systems.

The HEPA final filter is 99.99% effective on particles 0.3 micron and larger. PSL 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.

Prefilter

The prefilter is a 5/8 inch thick white polyester roll media. It is supported on the front and rear by a polystyrene egg crate grill.

Electrical

120V, single-phase, 3-wire electrical system with 8 foot 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. 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.

Air Flow

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

Sound Level

Less than 65dba with air ambient of 55dba. (70dba — units with twin blowers.)

Series
303



For more information or to download or fax this product from the web, simply go to:

www.cleanairproducts.com/303

Electrical, Filter and Blower Sizes

Fluorescent						
303-*T24	Blower	Motor	Lamp	Electrical		HEPA Filters
324	(1) DD-10-4	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1) 24x36x3
424	(1) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1) 24x48x3
524	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2) 24x60x3
624	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2) 24x72x3
824	(2) DD-10-6	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 24x48x3
303-*T30						
330	(1) DD-10-6	1/3HP PSC	(2)	120V/10/60HZ	7.9 amp	(1) 30x36x3
430	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1) 30x48x3
530	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(2) 30x60x3
630	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(2) 30x72x3
830	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 30x48x3
303-*T36						
336	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1) 36x36x3
436	(1) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	9.4 amp	(1) 36x48x3
536	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(1) 36x60x3
636	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 36x36x3
836	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 36x48x3
303-*T48						
448	(1) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	12.4 amp	(1) 48x48x3
548	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 48x30x3
648	(2) DD-10-8	1/2HP PSC	(2)	120V/10/60HZ	17.4 amp	(2) 48x36x3
848	(2) DD-10-8	3/4HP PSC	(2)	120V/10/60HZ	23.4 amp	(2) 48x48x3

Dimensions

The acrylic hood is 30 inches deep with an aluminum extrusion on the bottom edge. The unit is designed to have an optional table set slightly below but not touching the underside of the bottom extrusion.

The underside of the extrusion is at 30.0 inches from the floor ± 0.5 inches with leg levelers.

Overall Width of Cabinet: Dimension "A"

- ___ 3 foot = 38-1/2 in.
- ___ 4 foot = 50-1/2 in.
- ___ 5 foot = 62-1/2 in.
- ___ 6 foot = 64-1/2 in.
- ___ 8 foot = 98-1/2 in.

Overall Depth of Cabinet (front to back): 34 in. (with 30 in. hood depth)**Work Area Width: Dimension "B"**

- ___ 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"

(Add 6.0 inches for 36-inch high table top option.)

- ___ 58.0 in. (24 Series)
- ___ 64.0 in. (30 Series)
- ___ 70.0 in. (36 Series)
- ___ 82.0 in. (48 Series)

Series 303 Horizontal Laminar Flow Clean Bench

Technical Data continued

Optional Accessories

- ___ Table Series 61, Formica, conductive or stainless
- ___ "Minihelic" 0 to 2 inch differential pressure gauge. (HEPA)
- ___ Gas cock
- ___ Electrical duplex outlet (additional)
- ___ Bar and hooks for bottle hanging
- ___ Gold fluorescent lamps
- ___ Photoresist gold lamp sleeves
- ___ Ultraviolet germicidal lamps
- ___ Safety glass hood
- ___ 36 inch table top height
- ___ Anti-static grid and power supply
- ___ Painted cabinet — color code, manufacturer and chip required
- ___ Extended hood depth
- ___ Removable side acrylic panel
 - ___RH ___LH

- ___ Rolled front edge on table top
- ___ Casters with locking brake
- ___ Metal plenum vs. standard Flex Duct
- ___ Fluorescent light
- 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.

Estimated Weight**303*24**

324 = 370 lb.
 424 = 400 lb.
 524 = 450 lb.
 624 = 500 lb.
 824 = 680 lb.

303*30

330 = 400 lb.
 430 = 450 lb.
 530 = 500 lb.
 630 = 550 lb.
 830 = 770 lb.

303*36

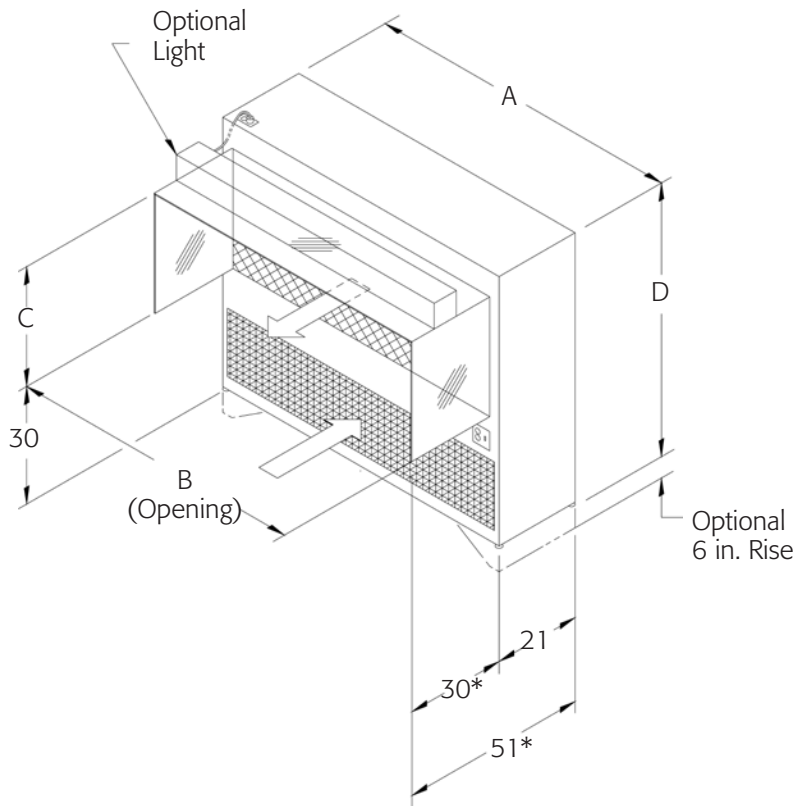
336 = 450 lb.
 436 = 500 lb.
 536 = 550 lb.
 636 = 600 lb.
 836 = 800 lb.

303*48

448 = 570 lb.
 548 = 650 lb.
 648 = 750 lb.
 848 = 900 lb.

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

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



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) Refer to the **Unpacking** Illustration Set (page 10) for instructions on how to unpack your CAP303 filter cabinet.
- 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. If cabinet is to be located in a corner of a room – complete step 4 before moving cabinet to final position.
- 4) Refer to the **Hood Assembly** Illustration Set (pages 15-19) for instructions on how to install the hood on your CAP303 filter cabinet.
- 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!

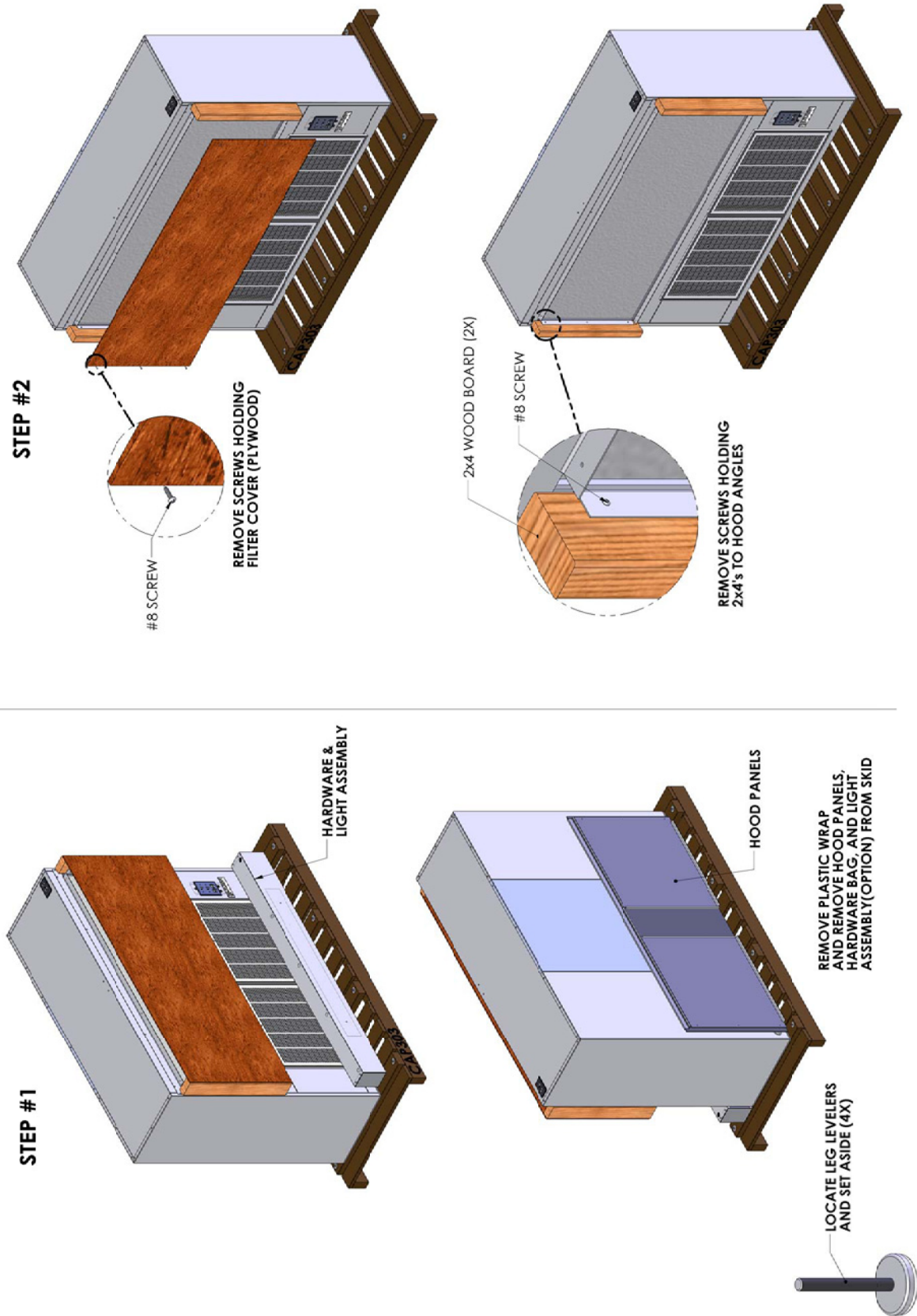
Please observe the following information related to the product:

- 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 CAP303.
- 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.

UNPACK AND INSTALL LEG LEVELERS



Clean Air Products' Series 303 – Unpacking

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. PSL 0.3 micron particle size is introduced into the air, and the air flow is scanned with a light scattering photometer for leaks. 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 $\pm 10\%$, 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 air velocity (usually 90 ± 20 FPM).

Series 303 Horizontal Laminar Flow Clean Bench

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

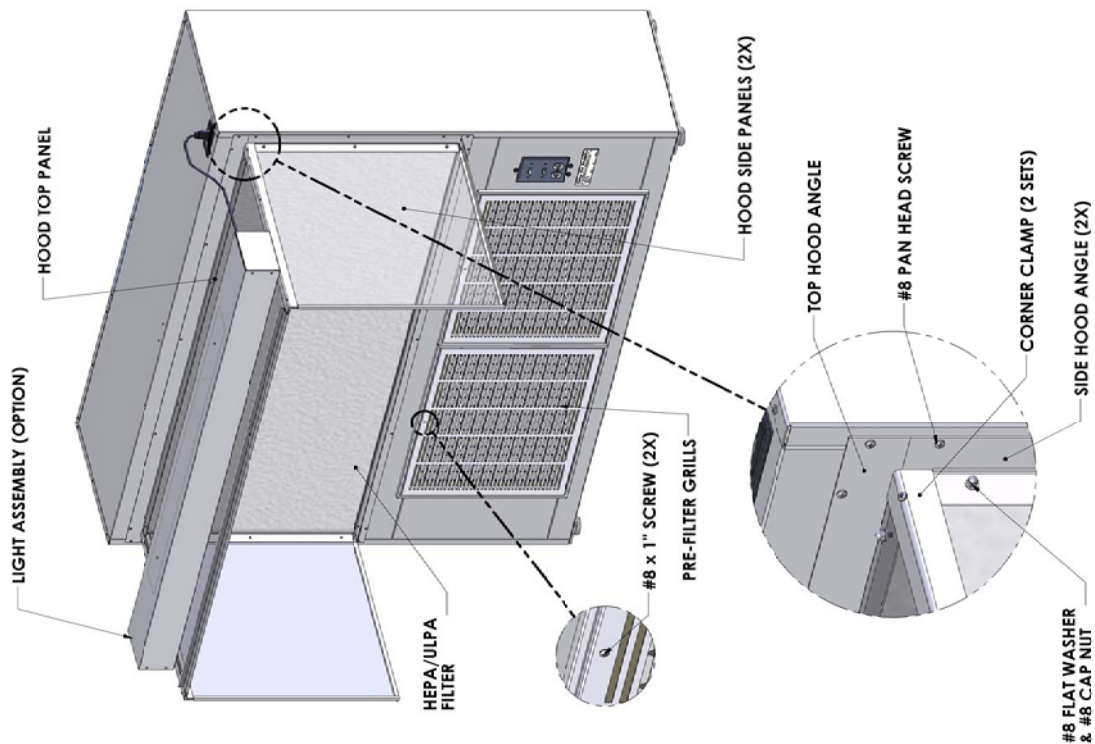
Fluorescent Lamp Replacement: (Please refer to drawing on your model.)

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.

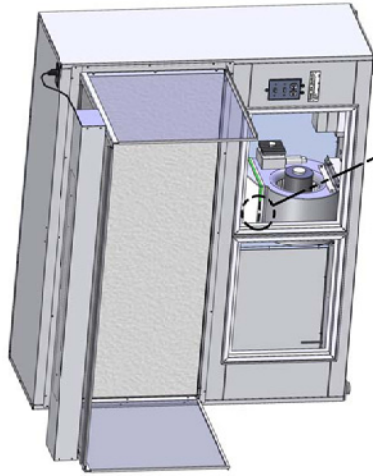
HEPA Filter Replacement: (Please refer to exploded parts drawing on your model.)

Refer to the **HEPA/ULPA Filter Replacement** Illustration Set (page 14) for instructions on how to replace the HEPA/ULPA filter in your CAP303 filter cabinet. Replacement filters from Clean Air Products can be ordered 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.

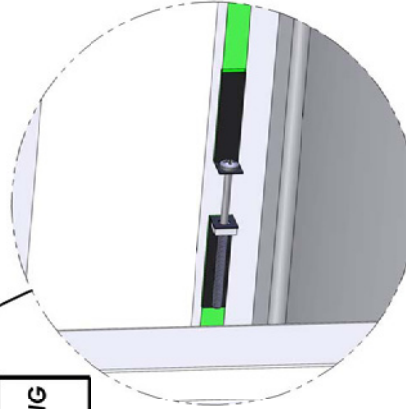
CAP303-HEPA/ULPA FILTER REPLACEMENT



STEP #1 - REMOVE PRE-FILTERS AND REMOVE STRAP



NOTE: ALWAYS DISCONNECT POWER BEFORE CHANGING HEPA/ULPA FILTER

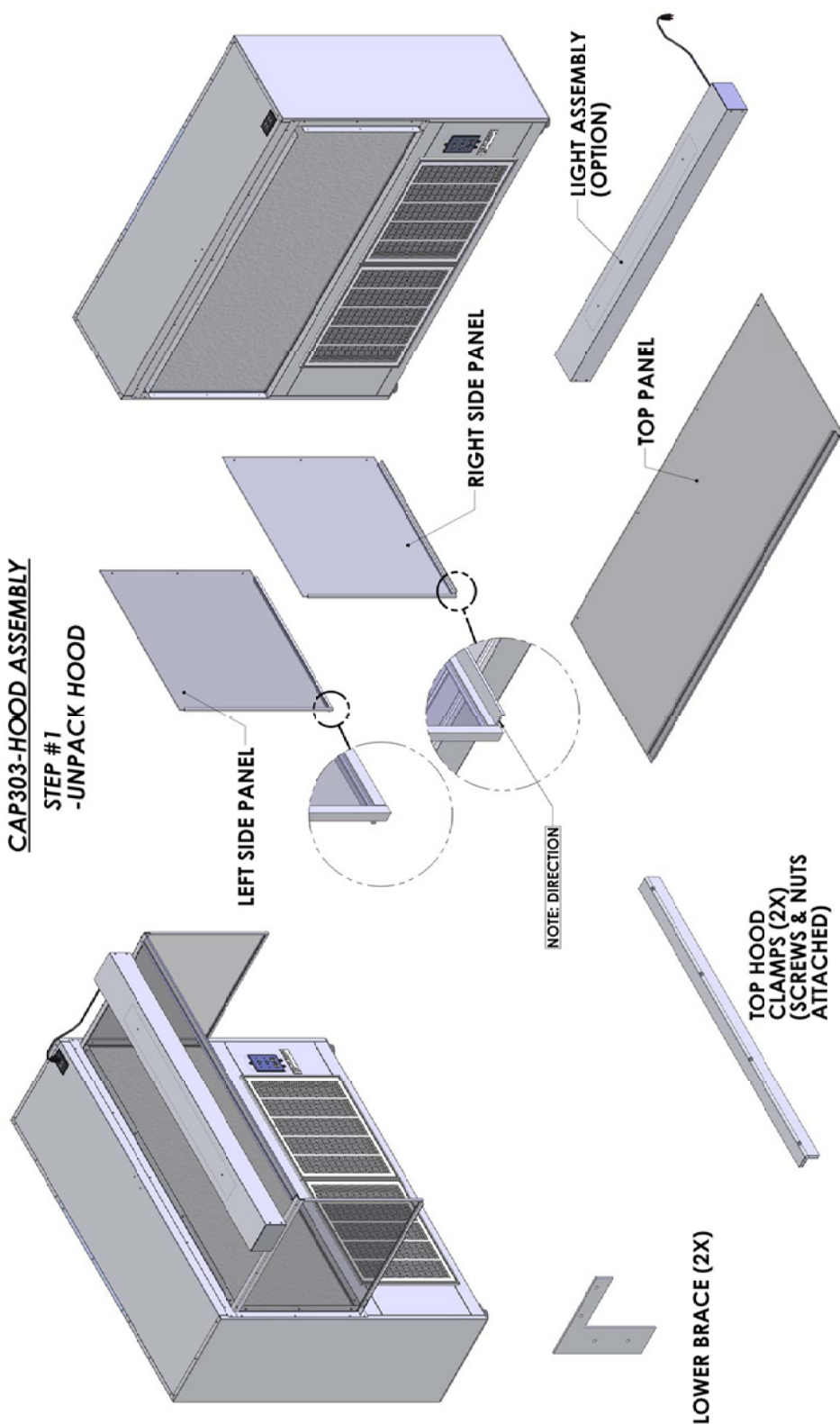


1. ON FRONT OF UNIT REMOVE #8 x 1" SCREWS FROM PREFILTER GRILLS.
2. REMOVE GRILLS AND PREFILTERS (SMALL UNITS HAVE 1).
3. LOCATE STRAP ON TOP OF BLOWERS (MAY BE 1 OR 2).
4. LOOSEN ABOUT AN INCH AND SLIDE DOWN.
5. REMOVE FILTER BAG FROM BLOWER.
6. REMOVE LIGHT ASSEMBLY (UNPLUG AND SET ASIDE).

Clean Air Products' Series 303 HEPA/ULPA Filter Replacement

CAP303-HOOD ASSEMBLY

STEP #1
-UNPACK HOOD

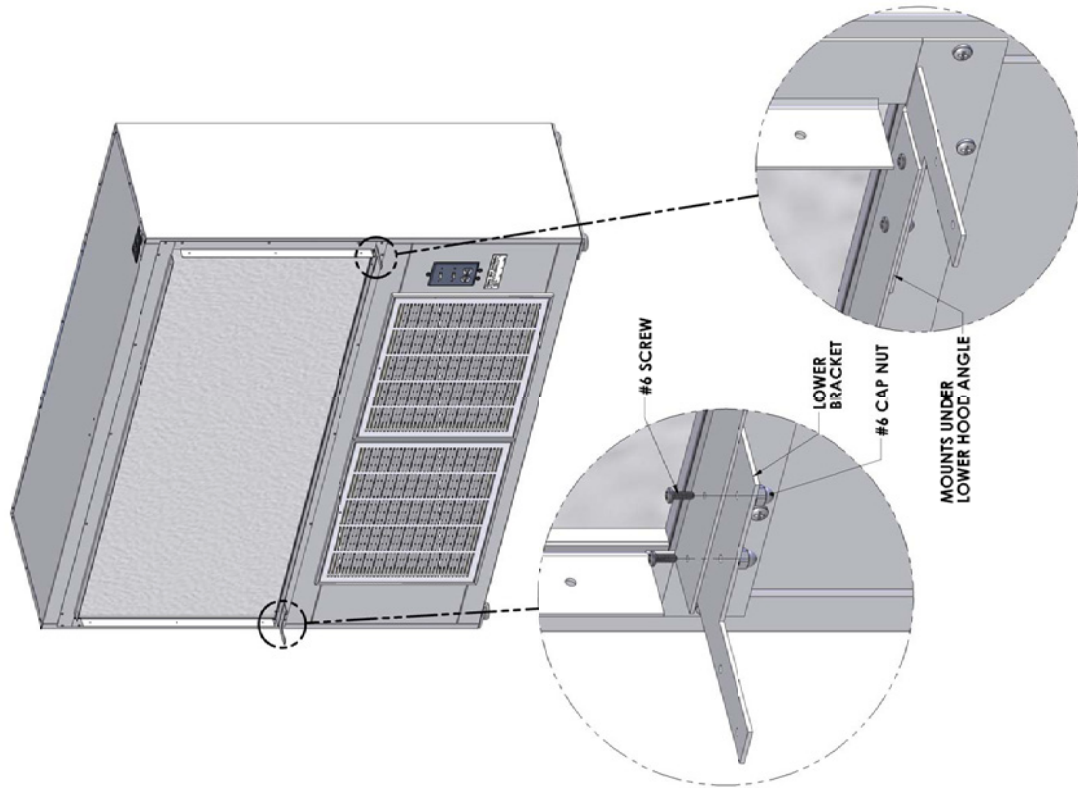


*** QUANTITY VARIES WITH SIZE**

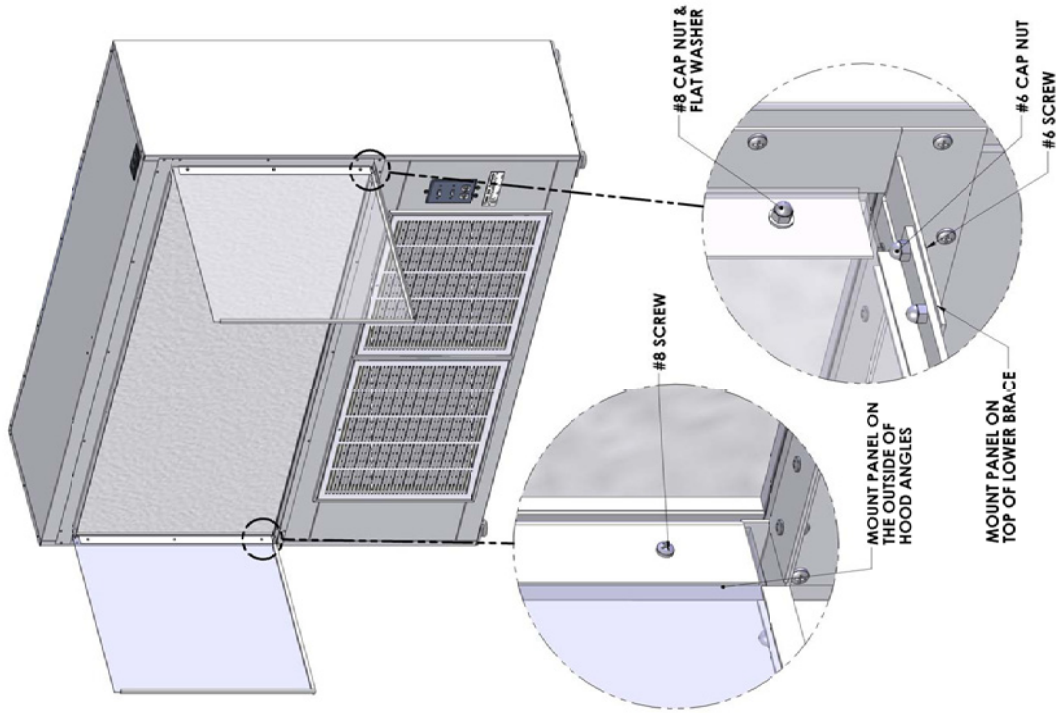
	#6 CAP NUT (8X)
	#6 x 3/8" SCREW (8X)
	FLAT (10X*) WASHER
	#8 x 1/2" SCREW (10X*)
	#8 CAP NUT (10X*)

Clean Air Products' Series 303 Assembly

STEP #2- INSTALL LOWER BRACKETS

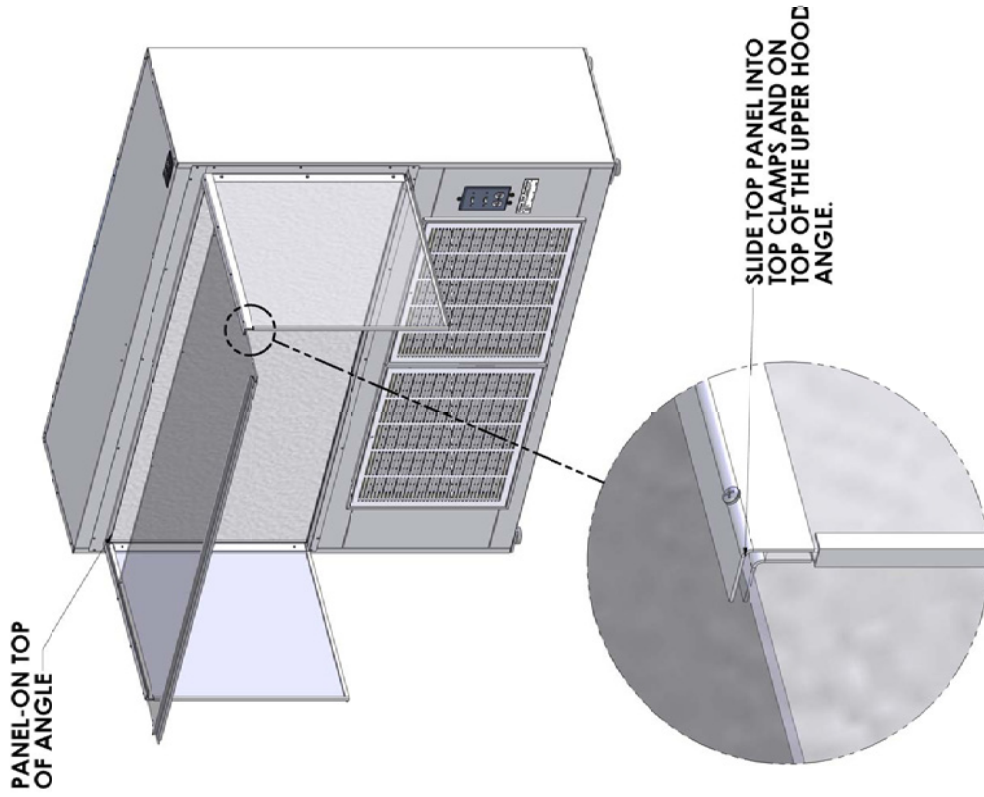


STEP #3- INSTALL SIDE PANELS

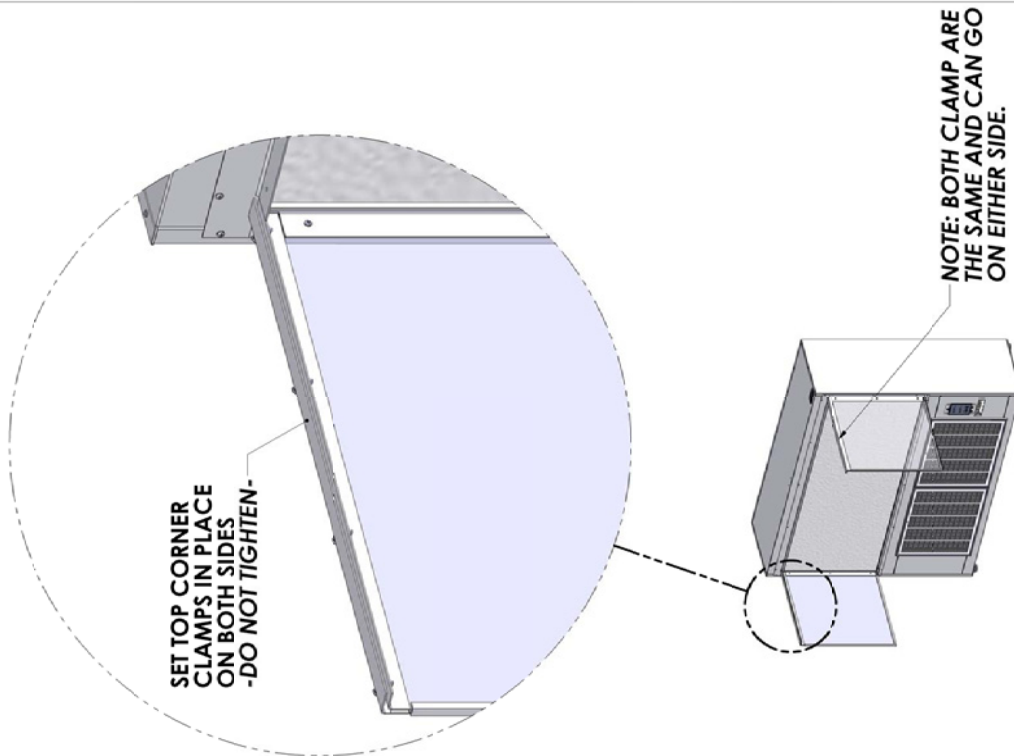


Series 303 Horizontal Laminar Flow Clean Bench

STEP #5 - SLIDE TOP PANEL IN PLACE

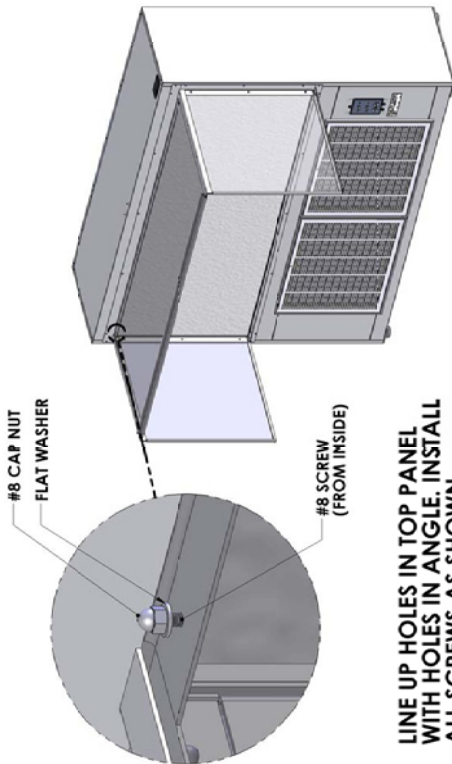


STEP #4 - TOP CORNER CLAMPS



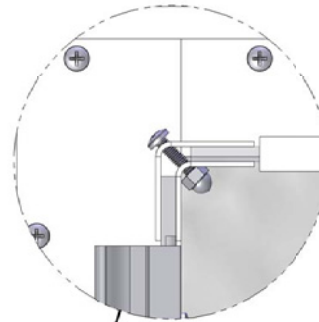
Clean Air Products' Series 303 Assembly

STEP #6- BOLT IN TOP PANEL

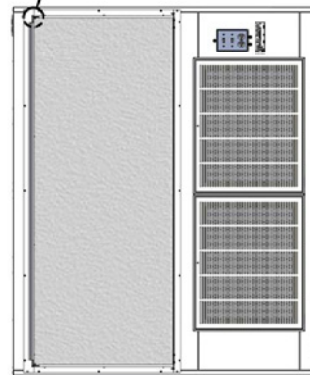


LINE UP HOLES IN TOP PANEL WITH HOLES IN ANGLE. INSTALL ALL SCREWS AS SHOWN.

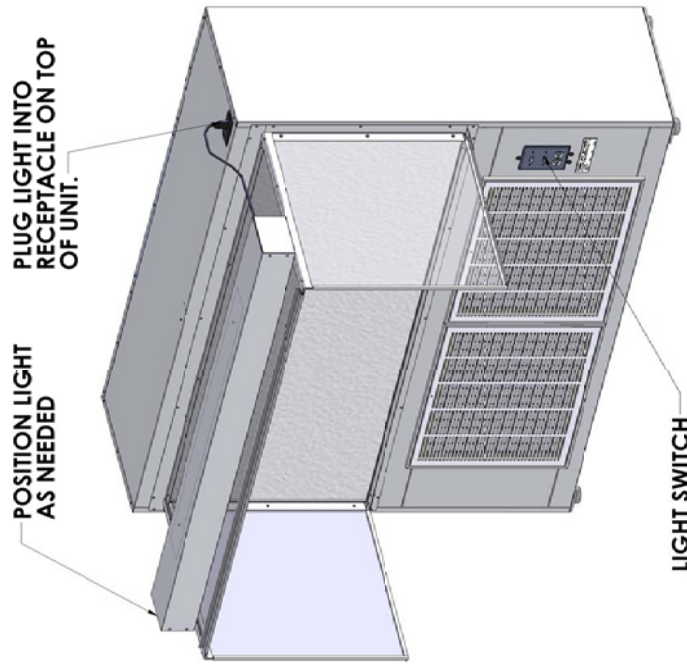
IF UNIT HAS A PERFORATED FILTER SCREEN, DO NOT BOLT DOWN THE TOP PANEL - SEE PAGE 20



SQUARE UP THE SIDES WITH THE TOP, ONE SIDE AT A TIME AND TIGHTEN CORNER CLAMPS

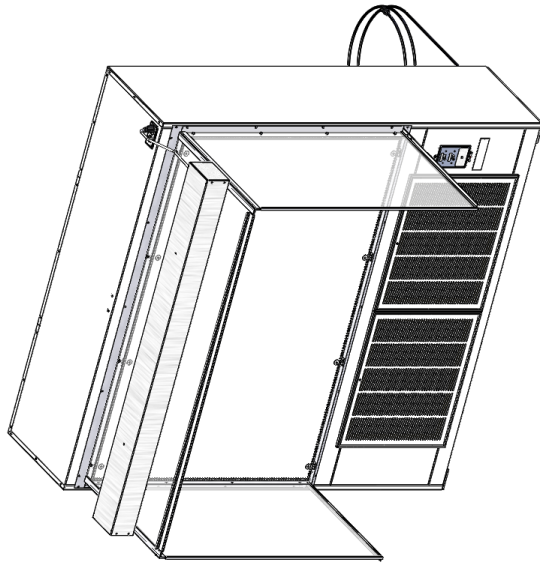


STEP #7- INSTALL LIGHT (OPTION)



Clean Air Products' Series 303 Assembly

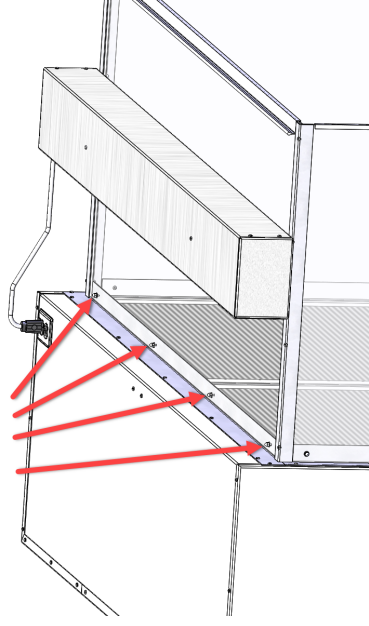
Filter Grille Option



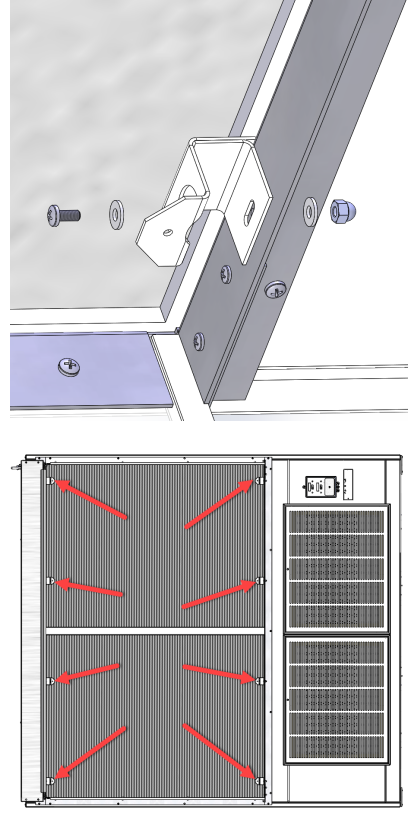
1. With the hood installed, use the provided #8 hardware to mount the filter grille brackets to the upper and lower hood angles. The grille brackets have slots so that they may be adjusted accordingly. If the top panel is already bolted down (as in manual step #6), the screws used to bolt it down will need to be removed as they will be used to attach the grille brackets.

2. With two people, install the filter grille (with the horizontal slots of the grille on top and the vertical slots on the bottom) by inserting the grille at an angle so that the lower part goes in first, then push in the top. Once the grille is adjusted appropriately, use the provided painted screws and washers to secure the grille in place.

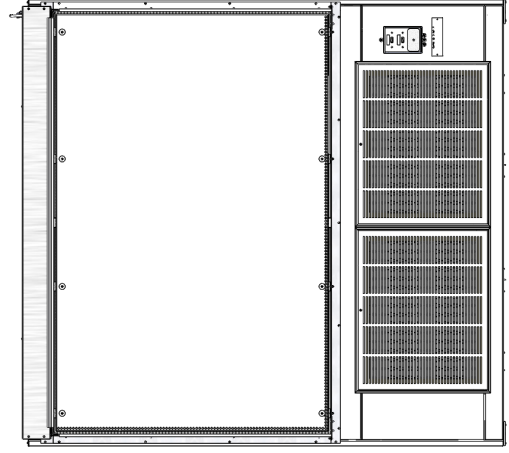
REMOVE



Step 1:



Step 2:



Clean Air Products' Series 303 Assembly

CLEAN BENCHES

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.

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