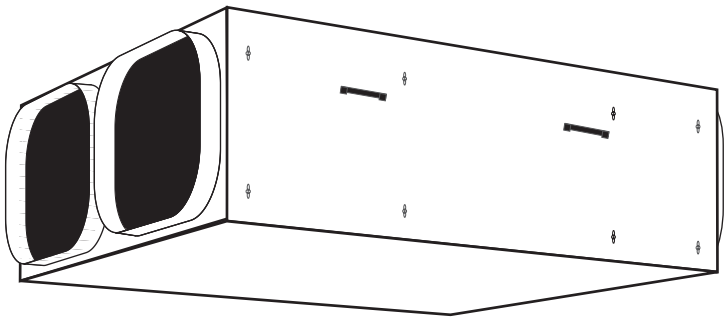
Save This Manual For Future Reference

Installation and Service Manual

Read ALL INSTRUCTIONS carefully.



DUST FREE®
AIR CLEANERS

Series 2500

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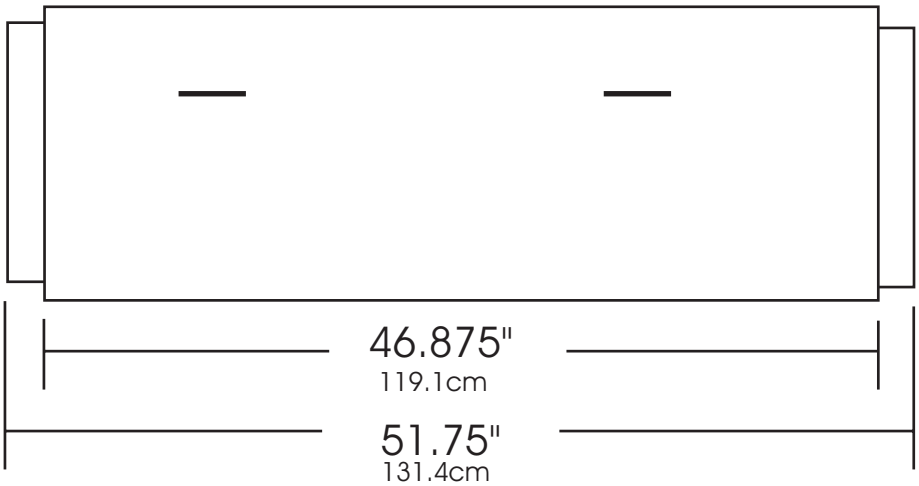
Part No. 775-0425-197 Rev. 2A

The Dust Free® Series 2500 unit is a fully self-contained air filtration unit designed to be installed above a drop ceiling for appearance and quiet operation. The Series 2500 unit reduces air contaminants by drawing them through five stages of filtration with an internal Electronic Odor Neutralizer (EON) to oxidize organic chemical pollutants. Air first enters the disposable pleated filter which removes coarse dust, lint, and fibers, while also prolonging the life of the main filter. Afterwards the air enters the V-bag filter capturing finer dust particles as small as 0.3 microns (1 micron = .0000393 of an inch). Then the air passes through the Electronic Odor Neutralizer achieving the oxidization process. When the air reaches the stage 4 optional absorbent filter airborne chemical gas contaminants are reduced (see chemical adsorbent applications). The final optional filter is usually an ultra high efficiency mini-pleat (95% DOP) or HEPA (99.97% DOP). When the air passes through this filter almost all remaining particles size 0.3 and larger are captured. The Series 2500 should have a seperate supply and return, which allows air pattern engineering. The modular design provides for multiple supply and returns for greater effectiveness.

Dust Free® Series 2500 Specifications

Materials:	18 gauge paint-grip finished steel
Dimensions:	51.75"L x 36.25"W x 16.25"H (131.4L x 92.1W x 41.3H cm)
Weight:	225lbs(102kg) installed
Motor:	Two(2) 1.5 HP, Permanently Lubricated
Blower:	Direct Drive, Two(2) reverse-inclined turbine fan blowers.
Power:	220v, 50/60 HZ, single phase, 4-wire direct connect, 30 Amp
Circuit:	30 amp circuit 13.8 FLA (Full Load Amps)
Controls:	Wall mount 2 position controller. Optional multi-unit controller(4 systems maximum), VOC automatic sensor control, low voltage EON operation light.
Air Volume:	2200 CFM (62.3 CMM), depending on filter configuration.



Preparation
The selection of system output and number of units is critical to the success or failure of an installation. Too little output or too few units may not achieve the desired reduction of contaminants. Use the following procedure to determine the size and number of air cleaning systems needed:

1. Determine room volume: length X width X height = volume (cu. ft)
2. Select air exchange rate based on environmental conditions:

Air Exchange Rate	**Environmental Condition**
15 min.	Dust and Allergy Control
10 min.	Light Tobacco Smoke and Odor Control
8 min.	Moderate Smoke and Chemical Control
6 min.	Heavy Smoke and Chemical Control

3. Determine air cleaner output required:

$$\frac{\text{Room Volume}}{\text{Air Exchange Rate}} = \text{CFM Required}$$

4. Match CFM required to CFM produced by the air cleaner, or divide CFM required by CFM a system produces. This will provide the number of systems required.

Remove ceiling panels in the area where the unit is to be hung. Locate suitable anchor points for hanging hardware, and determine if anything in the area will interfere with positioning the air cleaner. IMPORTANT - Room should be left at the side of the unit, approximately three feet, so service personnel can remove the side access panel and slide filters in and out of the unit.

Determine where the supply and return registers will be located and remove ceiling panels in those areas. Once panels are removed, determine if there is anything in the area to interfere with positioning of the grilles.

Check the routes that the system duct work will follow to determine if there are any obstructions.

Determine if electrical service is close to the air cleaner's planned location, or if additional wiring must be run.

Determine where the control switch is to be located and how the wiring will be routed.

ELECTRICAL

Route the metal flex conduit from the air cleaner to an appropriate junction box. (A box with disconnect is recommended.) Route supply wiring to the junction box. Connect wiring as follows:

SYSTEM	SUPPLY
Green (Ground)	Building Ground
Black	White 220V
Red	Black 220V
White	Green (Neutral)

The two blue 22ga wires (located inside electrical enclosure) should be routed to the indicator light. The wires should be connected to the terminals on the light leads.

The gray four-conductor cable should be routed to the motor speed control switch. Connection to the terminals on the back of the switch are as follows:

WIRE	TERMINAL ON SWITCH
Orange	B
Red	L
Black	H
Brown	C

Follow operation instructions to insure unit is operating properly. If the system operates properly, replace grid pieces, ceiling panels and insulation pieces. If the system does not operate properly, see section 5.0 on troubleshooting.

MOUNTING

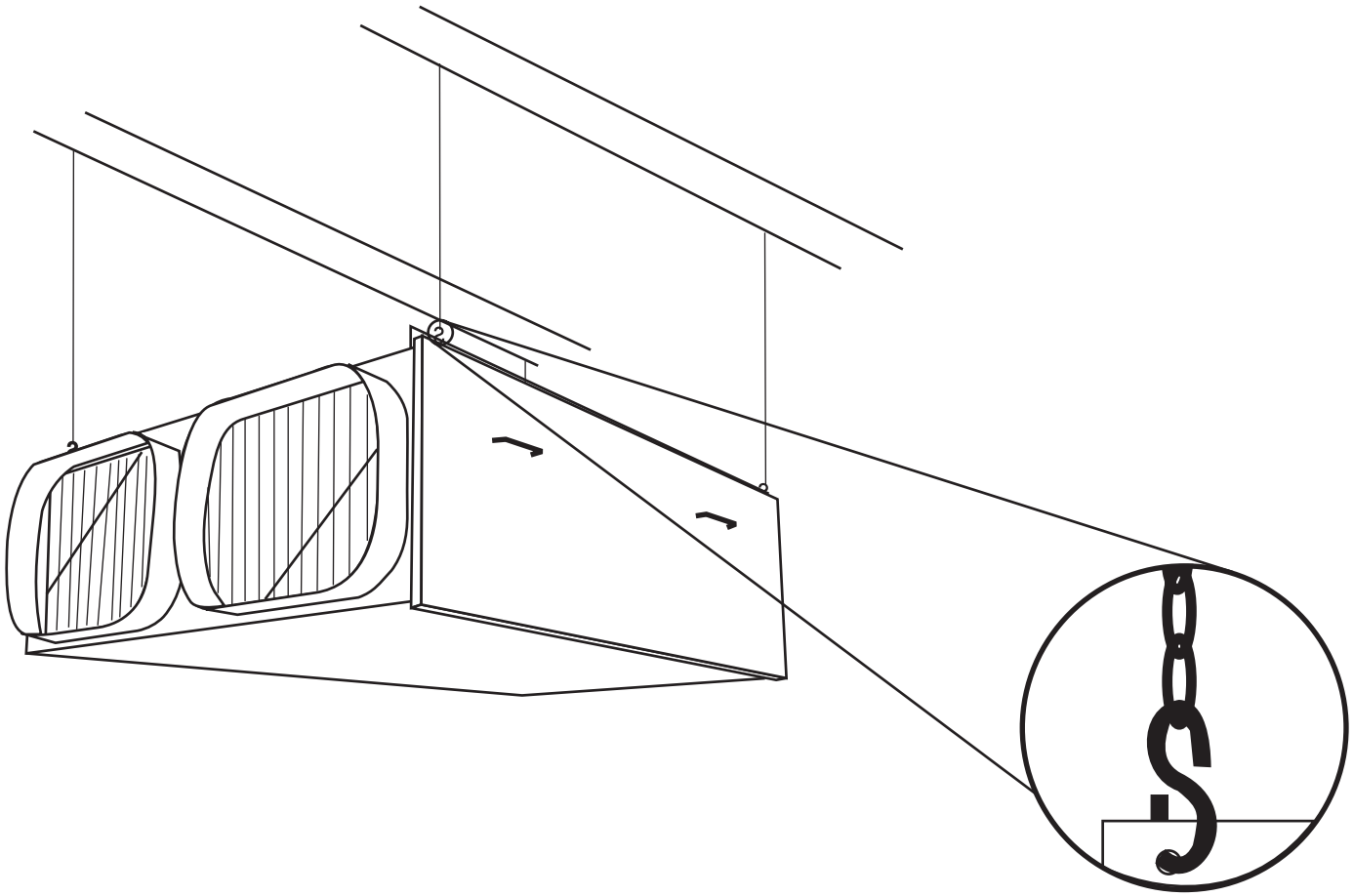
CHAIN APPLICATION

If the unit will be hung by chain: Attach chain securely to four anchor points. Hang S-Hooks or turnbuckles on lower links of chain and attach to hanger brackets (located on the top of unit). It will probably be necessary to remove some of the ceiling grid to get the unit up through the ceiling.

The unit will pass through the grid strips if it is set on its side or end, be careful not to bend flanges at intake and discharge openings. Hook chains in appropriate location on hanger brackets and level the unit as necessary.

Lay out duct from the unit to the locations of the supply and return grilles. Lay in the grilles. Attach ends of the duct to the unit and grilles.

Note: If the space above the T-Bar ceiling is not conditioned, use insulated duct, and the unit should be wrapped with insulation.



Proper location of the Series 2500 is essential in achieving the best performance. It is important to note that the unit must be hung horizontally. The air cleaner can be mounted below a ceiling and operated without ducts, however noise may be a problem. In most installations, the air cleaner will be mounted above a T-Bar ceiling with the intake and discharge ducted. Two oval collars at the intake end, and two at the discharge end are provided. With this arrangement, the system can be configured with two return and two supply ducts. 16-inch insulated flex duct is recommended. The duct can be attached to lay-in grilles or other suitable grilles or registers. Each duct may be run up to 20 feet from the unit. Duct runs should be located over the contamination source. The supplies should be located so that the filtered air can be used to push contaminated air back to the returns. (Directional supplies help control air flow pattern). Air flow patterns created by the air cleaner should move with, not against, HVAC system air flow in the room.

TRAPEZE APPLICATION

If the unit will be hung using all-thread and B-Line or Uni-Strut "trapezes": Make "trapezes" wide enough so that the unit side panel can be removed without interference. Since the side panel wraps around the bottom edge of the unit, spacer blocks must be added to the tops of the crossbars so that the side panel can be removed. Spacer blocks can be made of wood or pieces of B-Line or Uni-Strut. Attach top of all thread rods to anchor points, then secure cross bar assemblies with nuts and lock washers. It may be necessary to remove some of the ceiling grid to get the unit up through the ceiling. The unit will pass through the grid strips if it is set on its side or end, be careful not to bend flanges at intake and discharge openings.

Adjust B-Line crossbar height to level the unit as needed.

Lay out duct from the unit to the locations of the supply and return grilles. Lay in the grilles. Attach ends of the duct to the unit and grilles.

Note: If the space above the T-Bar ceiling is not conditioned, use insulated duct, and the unit should be wrapped with insulation.

Only trained and authorized personnel should work on electrical components. Opening the motor compartment or controller module will expose live components, possibly resulting in electric shock or death.

The particulate filter will become more restrictive as it gets dirty. It may be necessary to increase blower speed by adjusting the control knob to maintain desired air flow.

UNIT OPERATION
Install filters in the unit, as shown (see pg. 11), and replace the side cover. Be sure to latch all eight wing nuts.

The side panel operates the lock-out switch, when the panel is off, power is off. Set motor speed control to low, after the second motor has turned on, set the motor speed control to high. One motor, then the second, will begin to spin at high speed. Verify air flow at the supply grilles.

The particulate filter will become more restrictive as it gets dirty. It may be necessary to increase low blower speed by adjusting the control knob to high speed to maintain

FILTER SELECTION
The prefilter collects dust, lint, pollen, mold spores, animal dander and other large particulates (greater than 10 microns). It protects and prolongs the life of the main filter. The standard prefilter is a self-powered electrostatic panel filter. It is washable and reusable so it can be cleaned as often as needed to maintain air flow. This filter may not be suitable for airborne mists. The optional pleated prefilter has a slightly higher efficiency and lower resistance than the electrostatic. The pleated filter is disposable and should be used when washing a prefilter is not desired, or when more protection of the main filter is desired.

The main filter is a V-Bag type, made from a dense mineral fiber material. This filter is capable of effectively capturing particles as small as 0.3 micron. This includes cigarette smoke and other smokes, as well as very fine dusts and powders. The optional Chevron pleat filter offers higher efficiency (95% DOP) than the V-Bag at about the same cost and airflow resistance. Filter life may be slightly shorter.

The activated carbon adsorbent filter works with the electronic odor neutralizer (EON) to reduce odors and volatile organic compounds (V.O.C.'s). In the event the EON produces more ozone than is needed, the carbon will convert the ozone into oxygen. The air cleaner will not release unsafe levels of ozone.

The optional final filter is either an ultra high efficiency minipleat (95% DOP) or HEPA (99.97% DOP). This filter captures almost all particles, 0.3 micron and larger.

Failure to use clean filters in the unit can reduce air flow to the extent that the motor may overheat or malfunction.

The electrostatic prefilter can be washed and reused. It should be cleaned at least once per month, more often in areas having a high dust load.

CLEANING

1. Turn the air cleaner off, remove the side panel, and pull out the electrostatic filter.
2. If there is a buildup of lint on the face of the filter, remove as much as possible with a vacuum cleaner.
3. A mild cleaner such as ECS, Fantastic, or Ivory Liquid may be sprayed on the filter, remove as much as possible with a vacuum cleaner.
4. Lay the filter with the face down. A 1" to 2" object should be placed under one end of the frame to allow water to drain. Flush the detergent and dirt from the filter using a hose with a high pressure nozzle. Warm water can be used, as long as water temperature does not exceed 180°F.
5. Turn the filter over and repeat the procedure.
6. Shake excess water out of the filter and allow it to drip dry to the extent that it can be carried without dripping water.
7. Replace the filters and side panel. Turn the fan on. The air flow will dry the filter. Note: In a high dust load area the electrostatic filter should be dry before reinstalling.

MAIN FILTER

The V-Bag filter cannot be cleaned. When it becomes dirty, noted by darkness on the backside of the filter material, or restrictive to air flow, it should be replaced.

FILTER REPLACEMENT

1. Turn the air cleaner off, remove the side panel, pull out the V-Bag filter. Handle it carefully to minimize releasing dust into the air.
2. Clean the prefilter if needed.
3. Place the filter in a plastic bag, seal the top, and dispose of it properly.
4. When installing a new V-Bag filter. Make sure none of the filter material is caught under the metal frame.
5. Replace the filters in the air cleaner.
6. Replace the side panel and the eight wing nuts.

ADSORBENT FILTER

The adsorbent filter cannot be cleaned or reconditioned. Replace when the air coming out of the unit begins to have an odor.

FILTER REPLACEMENT

1. Turn the air cleaner off, remove the side panel.
2. Pull the adsorbent filter from the unit and place it in a plastic bag. Handle the filter carefully to minimize dust release. Dispose of the used filter properly.
3. Remove plastic wrap from new adsorbent filter and slide the filter into the air cleaner.
4. Replace the side panel and latch the quick release catches.

OPTIONAL 95% DOP OR HEPA FINAL FILTER

This filter cannot be cleaned or reconditioned. It must be replaced. Under normal conditions this filter should last at least one year. Replace the filter if there is significant reduction in air flow, or an odor has developed in the filter.

FILTER REPLACEMENT

1. Turn the air cleaner off, remove the side panel.
2. Pull the final filter from the unit and place it in a plastic bag. Handle the filter carefully to minimize dust release. Dispose of the used filter properly.
3. Slide the new filter into the air cleaner, observing the air flow direction arrow on the end of the filter.

Series 2500

Part No.	Description
975-0031-001	EON Module
275-0039-001	2" Pleated Pre-Filter
275-0038-002	95% V-Bag Filter
275-0041-001	95% DOP Mini-Pleat Filter
935-0127-006	Carbon Web Filter
935-0127-002	Heavy Duty Carbon Filter
935-0127-004	Zeolite Filter
935-0127-003	Potassium Permanganate Filter
XXXX	HEPA Filter
XXXX	Chevron Pleat Filter
XXXX	Electrostatic Pre-Filter

Series 2500 Filter Layout