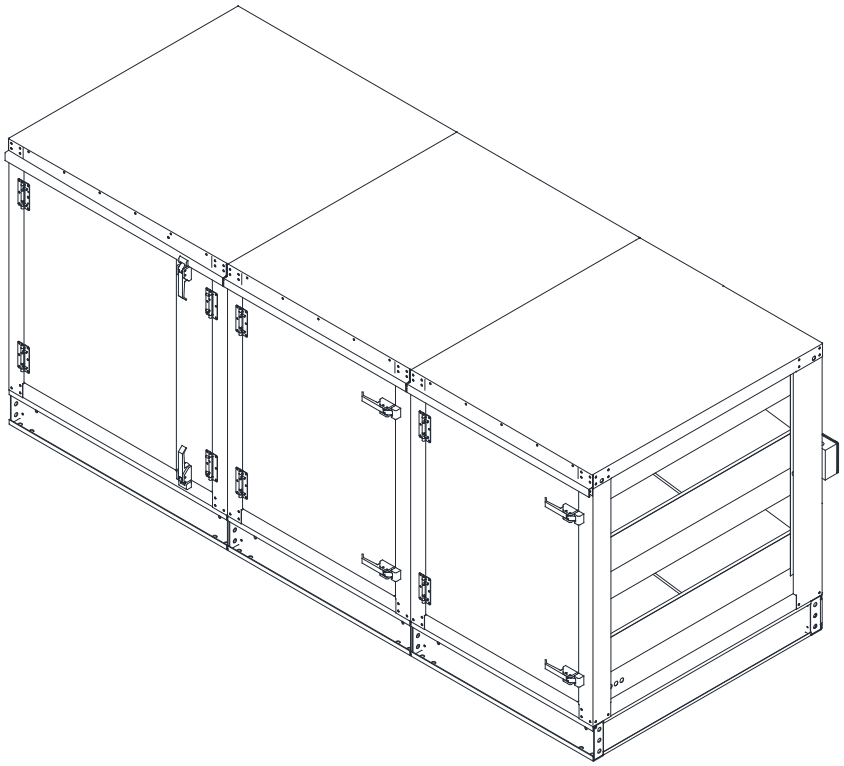
Pollution Control Unit

Installation, Operation, and Maintenance Manual



RECEIVING AND INSPECTION

Upon receiving unit, check for any interior and exterior damage, and if found, report it immediately to the carrier. Also check that all accessory items are accounted for and are damage free. Turn the blower wheel by hand to verify free rotation. Check the damper (if supplied) for free operation.

WARNING!!

Installation of this unit should only be performed by a qualified professional who has read and understands these instructions and is familiar with proper safety precautions. Improper installation poses serious risk of injury due to electric shock, contact with rotating equipment, and other potential hazards. Read this manual thoroughly before installing or servicing this equipment. ALWAYS disconnect power prior to working on unit.

Save these instructions: This document is the property of the owner of this equipment and is required for future maintenance. Leave this document with the owner when installation or service is complete.

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WARRANTY

This equipment is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 2-years from date of shipment. This warranty shall not apply if:

1. The equipment is not installed by a qualified installer per the MANUFACTURER'S installation instructions shipped with the product.
2. The equipment is not installed in accordance with Federal, State, and Local codes and regulations.
3. The equipment is misused, neglected, or not maintained per the MANUFACTURER'S maintenance instructions.
4. The equipment is not installed and operated within the limitations set forth in this manual.
5. The invoice is not paid within the terms of the sales agreement.

The MANUFACTURER shall not be liable for incidental and consequential losses and damages potentially attributable to malfunctioning equipment. Should any part of the equipment prove to be defective in material or workmanship within the 2-year warranty period, upon examination by the MANUFACTURER, such part will be repaired or replaced by MANUFACTURER at no charge. The BUYER shall pay all labor costs incurred in connection with such repair or replacement. Equipment shall not be returned without MANUFACTURER'S prior authorization, and all returned equipment shall be shipped by the BUYER, freight prepaid to a destination determined by the MANUFACTURER.

For questions about installation, warranty, or service, go to **support.captiveaire.com** or **"Technical Support Information" on page 32** for more information.

LISTINGS

This Pollution Control Unit (PCU) is ETL listed to UL-710, CAN/ULC-S646, CAN/ULC-S647 (National Fire Protection Association Standard “NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations”).

ETL/UL listed to UL-8782, and UL-1978/CAN/ULC-S662 (Bolted door design) when installed in accordance with these installation instructions.

The Electrostatic Precipitator (ESP) module is ETL listed to UL 867, ULC STD C22.2 No. 187; The Standard for Safety for Electrostatic Air Cleaners.

Approved for use in New York City per the Fire Department of New York Certificate of Approval #5753.

PCU configuration PF-HE-HEPA with optional odor control modules are approved to be used over commercial charbroiler/ commercial wood cook stove as per NYC DEP # CB2017-0004/CS2017-0001.

PCU configuration HE-ESP-ESP with optional odor control modules are approved to be used over commercial charbroiler/ commercial wood cook stove as per NYC DEP # CB2020-0001/CS2020-0001.

APPLICATION

The listed Pollution Control Unit is suitable for use in commercial cooking installations for the removal of smoke and grease laden vapors. This unit is built in accordance to NFPA 96.

Grease duct installations require provisions for cleaning the interior of the duct. NFPA 96 clean-out requirements are as follows:

1. A clean-out must be provided at each change of direction except where the entire length of duct can be inspected and cleaned from either the hood or the discharge end.
2. On horizontal duct runs, at least one (1) 20” diameter opening must be provided. Where the opening is smaller than 20” diameter, openings large enough to permit cleaning must be provided at intervals of no more than 12’.
3. Openings in the duct must be at the side or the top, whichever is more accessible. When the opening is on the side of the duct, the lower edge of the opening must be at least 1-1/2” above the bottom of the duct. For listed grease duct, this is accomplished by the use of the grease manifold tee and clean-out cap.
4. On vertical duct runs where personnel entry is possible, access must be from the top of the riser. Where entry is not possible, access must be provided at each floor.

NOTE: Access requirements are subject to change in accordance with local code. Local authorities should be consulted for exact requirements. Grease ducts may be connected only to hoods in a single fire zone on one floor. Do not connect grease ducts to any other part of the building ventilation or exhaust system.

A grease fire can burn at extremely high temperatures. This system should be dismantled and inspected after any exposure to a grease fire. Any section that is distorted or discolored should be replaced. All joints in the system should be examined. Because the sealant expands to assure a positive seal in the case of a fire, any sealant that has been exposed to high temperature must be replaced. This will ensure that the system maintains its integrity against fire conditions in the future. The manufacturer of this PCU cannot be responsible for grease duct systems that are not properly maintained or have been subjected to one or more grease fires. Warranty and listing are void in a fire situation without consulting factory.

Grease duct systems size and capacity information may be obtained from the “ASHRAE Handbook – Fundamentals” or from the “Air Pollution Engineering Manual” of the “US Environmental Protection Agency.” Refer to the grease duct systems catalog for descriptions and dimensional data of parts.

INSTALLATION

It is imperative that this unit is installed and operated with the designed airflow and electrical supply in accordance with this manual.

Mechanical

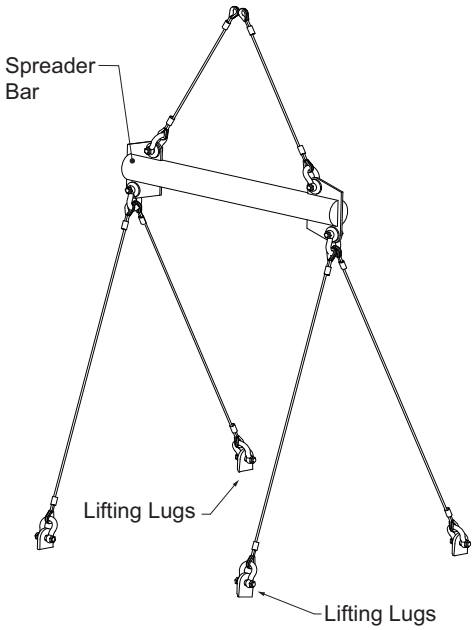
Site Preparation

1. Provide clearance around installation site to safely rig and lift equipment into its final position. Refer to **“Rigging” on page 7**. Supports must adequately support equipment. Refer to manufacturer’s estimated weights.
2. Locate the unit close to the space it will serve to reduce long, twisted duct runs.
3. Consider general service and installation space when locating unit.
4. Allow a minimum of 36 inches of clearance on the filter removal side of the unit to replace filters.
5. Support unit above ground or at roof level high enough to prevent precipitation from being drawn into unit.
6. The PCU is designed to operate in a negative pressure environment. Be sure to install the PCU between the exhaust fan and hoods. This will also keep the fan cleaner during operation.
7. The PCU drains must be connected to the building grease interceptor or an approved building drain. Black Iron, Stainless Steel, or Copper Pipe must be used for this connection. If PCU assembly has Multiple Modules, the drain line must be 2.5 inch NPT pipe minimum.
8. Determine if adequate room is available to install the PCU assembly and all ductwork with proper clearance to combustible material. **Clearance to combustible surfaces to this PCU unit is 18 inches**. It is important to check with the local authority having jurisdiction to determine that the installation method is satisfactory to meet their requirements prior to installation.
9. In the event of a fire system discharge or when a cleaning cycle occurs in the unit, the unit will be completely flooded with water. When the PCU is installed above or near a finished space, the installing contractor should protect the finished space, especially when sensitive equipment is below the unit.

Rigging

WARNING: Do not raise PCU by the doors, filter frames, or utility cabinet. Use all lifting lugs provided with a spreader bar (Figure 1) or sling under the unit.

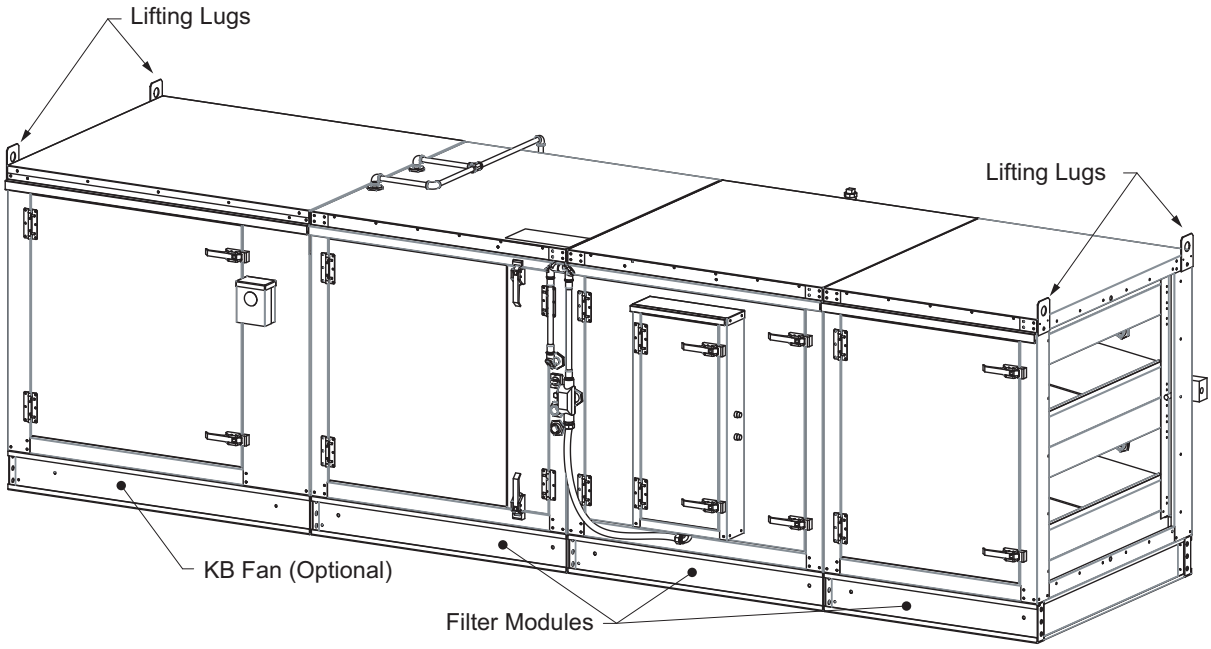
Figure 1 - Spreader Bar



PCUs ordered with or without a KB fan all come with quantity four [4] lifting lugs factory installed on the four [4] corners of the unit. **Figure 2** illustrates a PCU with a KB fan attached.

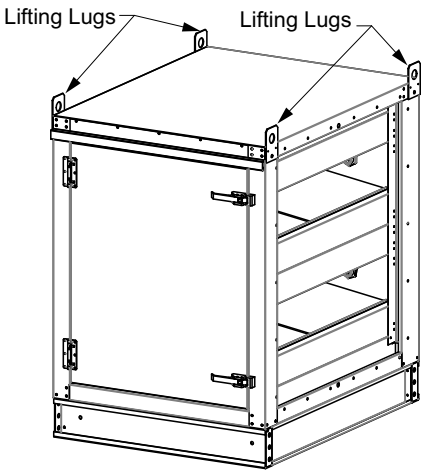
NOTE: Size KB-32 fans ship separate from the PCU. The KB-32 fan comes with quantity four [4] lifting lugs factory installed on the four [4] corners of the fan. The remaining PCU filter modules will be bolted together and have four [4] lifting lugs factory installed on the four [4] corners of the filter module assembly.

Figure 2 - PCU with KB Fan



PCUs ordered to be shipped as individual modules (**Figure 3**), each individual PCU filter module (and KB fan if present) will ship with quantity four [4] lifting lugs factory installed on the four [4] corners of each module. The only exception to this is if there is an ESP module present, all filter modules downstream of the ESP will be shipped bolted to the ESP.

Figure 3 - Ship Loose Module



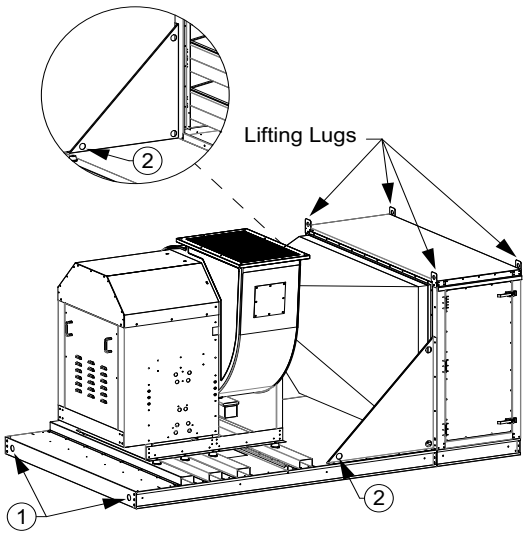
PCUs ordered with a USBI or SIF fan still include quantity four [4] lifting lugs factory installed on the four [4] corners of the PCU filter module assembly which must be used as the primary method of lifting the unit (**Figure 4**). Additional lifting points should be used in the below priority:

1. Lifting holes on the end of the fan sled.
2. Lifting holes on the fan sled's corner gussets.

USBI and SIF size 30 and 36 fans are shipped bolted only to the last filter module. The last filter module will contain quantity four [4] lifting lugs factory installed on the four [4] corners of the module. The remaining filter modules will be bolted together. This module assembly will also contain quantity four [4] lifting lugs factory installed on the four [4] corners.

EXCEPTION: If an ESP module is present, the ESP will be bolted to all modules downstream of the ESP (including all sizes of USBI/SIF fans). If the PCU was ordered to be shipped as individual modules, the USBI/SIF fan always gets bolted to the last filter module.

Figure 4 - PCU with USBI Fan



Joint Sealant

The joint sealant used to seal all joint assemblies is a 3M product. 3M Fire Barrier 2000 + Silicone Sealant is a ready-to-use, gun-grade, one-component silicone elastomer that cures upon exposure to atmospheric humidity to form a flexible seal. 3M Fire Barrier 2000 + Silicone Sealant, when installed properly, will control the spread of fire before, during and after exposure to open flames. It will stop the spread of noxious gas, smoke, water, and maintain the integrity of fire-rated assemblies and construction.

NO SEALANT SUBSTITUTES MAY BE USED.

Sealant Features

1. Superior adhesion.
2. Capable of withstanding 2000 °F + temperatures.
3. Class 25 sealant, per ASTM C920.
4. Re-enterable/repairable.
5. Provides up to 4-hours fire-rating.
6. Cures upon exposure to atmospheric humidity.
7. Working time 30 minutes.
8. Full cure time: 14 to 21 days.
9. Applied with a standard caulk gun.

Ductwork

The ductwork attached to this unit will significantly affect the airflow performance. Flexible ductwork and square elbows should not be used. **There must be at least 3 duct diameters of straight duct leading to the inlet and at the outlet of the Pollution Control Unit (PCU).** **Table 1** shows the recommended duct sizes for optimal performance. **The maximum velocity at the inlet of the PCU must be less than 1000 feet per minute for light duty applications and less than 800 feet per minute for heavy duty applications and solid fuel applications.**

Follow SMACNA guides and recommendations for the remaining duct run**.** Ensure duct connections are properly aligned and sealed. When the is used in commercial grease ductwork, the ductwork connections must be **FULLY WELDED** to the inlet and discharge of the PCU. Ductwork must be listed or installed in accordance with the IMC. When the PCU is installed in grease rated ductwork, the clearance to combustible surfaces to this unit is 18 inches.

Table 1 - Recommended Minimum Ductwork Sizes before Transitioning to PCU Inlet

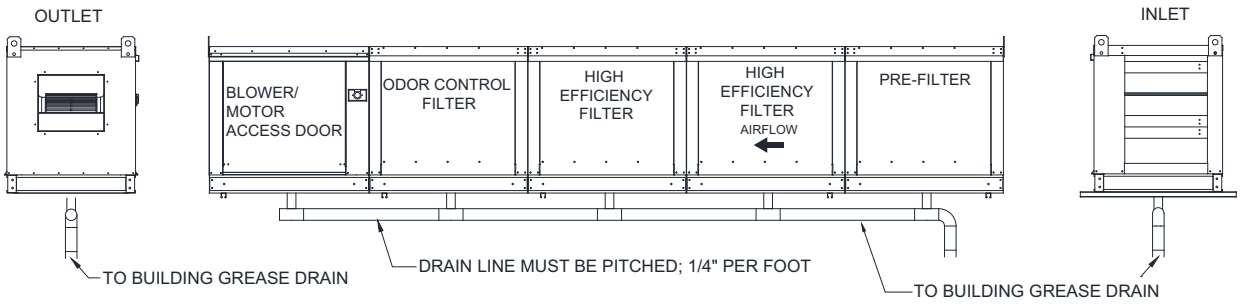
PCU Size	Minimum Ductwork Diameter
PCU-1	10”
PCU-2	15”
PCU-3	17”
PCU-4	19”
PCU-5	21”
PCU-6	25”
PCU-7	33”

Unit Drains

Each module of the Pollution Control Unit (PCU) contains a drain that **must be connected to an approved grease interceptor or to an approved drainage point**. The drain connections must be made with Black Iron, Copper, or Stainless Steel piping. This will allow the water collected in the unit, either from Self-Cleaning hood, ductwork cleaning, or from the Core Protection Fire System, to drain away from the unit. If installed outdoors, the drains must be piped so that water cannot buildup in the pipes and burst due to freezing. Refer to **Figure 5** for details.

- Grease drain must be pitched. Pitch per local code requirements.
- Grease drain line must be connected to the building grease interceptor or an approved drain.
- Grease drain must be at least 2.5” NPT Pipe.
- Grease drain must be made from black iron, copper, or stainless steel pipe.
- P-traps must be installed indoors to prevent drain line from freezing.

Figure 5 - Unit Drain Installation Details

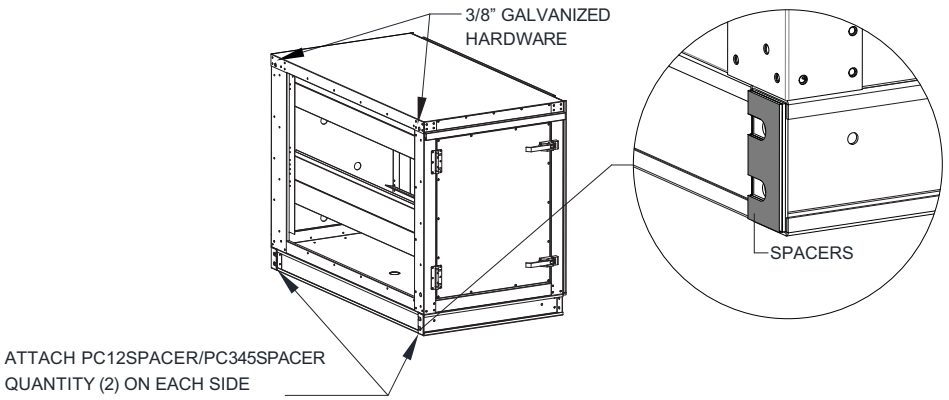


Installing Module in Field

Modules are bolted together with 3/8” galvanized hardware, refer to **Figure 6**. Hardware is shipped with module. Use anti-seize on bolts to prevent galling. Apply 3M 2000+ Silicone Sealant between modules before bolting them together, refer to **Figure 7**.

- Use provided 3/8” galvanized hardware when bolting the modules together.
- Install two spacers on each side, use PC12SPACER or PC345SPACER depending on module size. Check module door alignment. If module doors are not aligned, remove spacers as needed.

Figure 6 - Field Installation Details



Gasketing

There are two types of gasketing used in sealing the PCU, refer to **Table 2**. The orange gasket is used for weatherproofing the exterior seams between modules. It is rated at 450° F and has a PSA (Pressure Sensitive Adhesive) backing. The white gasket is a 1500° F degree gasket that is used to seal all internal joints in the PCU, including the doors, filter tracks, and inner perimeter between modules. The orange gasket is applied to the sides and the white gasket is applied at the top of the filter access area to prevent infiltration. There is a double layer of gaskets between modules, as shown in **Figure 7**.

Figure 7 - Module Gasketing

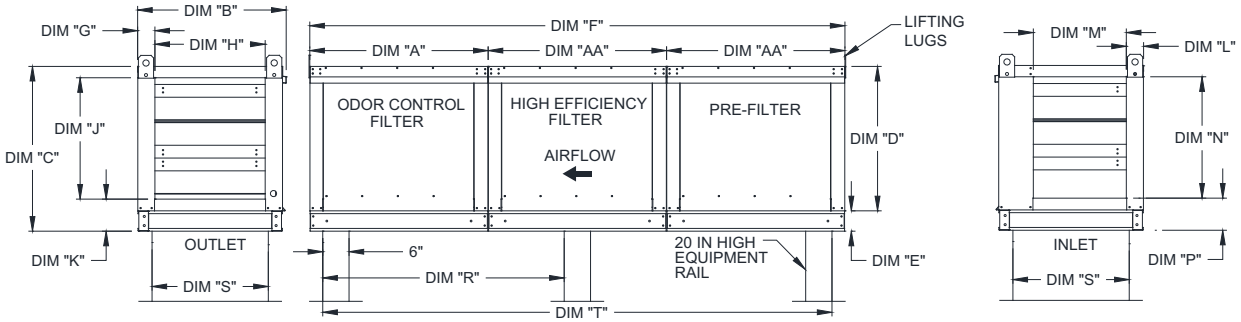
Table 2 - Gasket Type Chart

Gasket Type	Application	Size	Temp Rating	Part Number
High Temp Closed Cell (Orange)	Exterior Seam Between Modules	1/4” x 1”	450°F	R-10480-S-1/4"x 1"-15
High Temp Ceramic (White)	Internal Seams	1/4” x 1”	1500°F	397-91PSA

Equipment Rails

The unit should be installed on a curb and/or rail elevated not less than 14 inches above any roof surface. Secure PCU to rails through vertical portion of the PCU base assembly flange using 1/4”-14 x 1.5” long self-drilling screws with a minimum of 4 screws per rail. Shims may be required depending upon equipment rail installation and roofing material. When installed indoors, Unistrut channels may be used under the PCU for attachment to threaded rod from the roof structure above. Check all fasteners for tightness. **Figure 8** and **Figure 9** display different mechanical installation configurations.

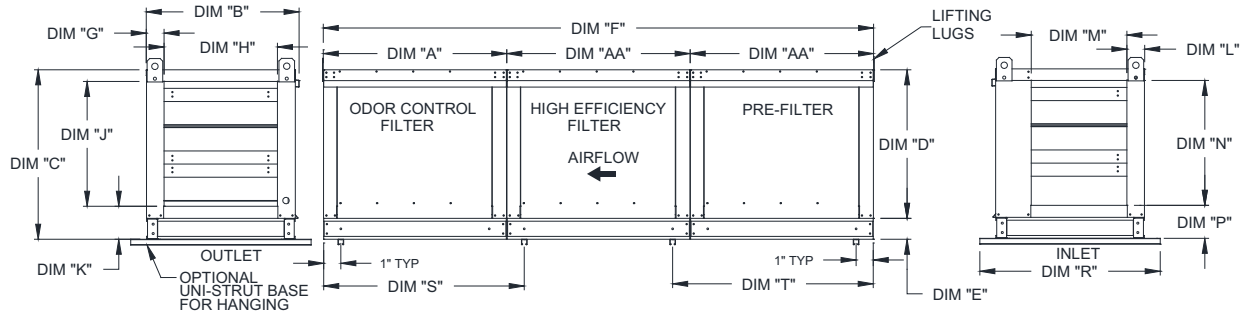
Figure 8 - Typical Roof Mount Installation



UNIT INFORMATION			UNIT DIMENSIONS							DISCHARGE OPENING				INTAKE OPENING				RAIL DIMENSIONS		
MODEL	**WEIGHT**	FILTER SIZE & QTY*	A	AA	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
SIZE 1	388 LBS	20"x25"x4" (3)	32-1/8	26-13/16	27-3/8	29-3/4	26	3-3/4	85-5/8	3-1/8	19-7/8	21-7/8	5-3/4	3-1/8	19-7/8	21-7/8	5-3/4	40-1/2	21	81-5/8
SIZE 2	614 LBS	20"x25"x4" (6)	32-1/8	26-13/16	51-5/8	36-3/4	33	3-3/4	85-5/8	5-1/8	42-1/8	28-7/8	5-3/4	5-1/8	42-1/8	28-7/8	5-3/4	40-1/2	45-1/4	81-5/8
SIZE 3	769 LBS	20"x25"x4" (8)	38-1/8	31-15/16	41-3/8	43-3/8	38-1/8	5-1/4	101-7/8	4-5/8	32-3/8	33-7/8	7-1/2	4-5/8	32-3/8	33-7/8	7-1/2	49-1/16	35	97-7/8
SIZE 4	1021 LBS	20"x25"x4" (10)	35-1/8	28-1/8	51-5/8	51-3/8	46-1/8	5-1/4	91-1/4	4-5/8	42-5/8	41-7/8	7-1/2	4-5/8	42-5/8	41-7/8	7-1/2	44-1/8	45-1/4	87-1/4
SIZE 5	1088 LBS	20"x25"x4" (12)	35-1/8	27-11/16	59-3/16	58-3/8	53-1/8	5-1/4	90-3/8	4-5/8	50-1/8	48-7/8	7-1/2	4-5/8	50-1/8	48-7/8	7-1/2	43-15/16	52-3/4	86-3/8
SIZE 6	1533 LBS	20"x25"x4" (18)	35-1/8	27-11/16	74-7/8	58-3/8	53-1/8	5-1/4	90-3/8	4-5/8	66-3/8	48-7/8	7-1/2	4-5/8	66-3/8	48-7/8	7-1/2	43-15/16	68	86-3/8

NOTE: For ESP and size 7 PCU, use the Auto Draw submittal for rail placement and dimensions.

Figure 9 - Typical Indoor (Inline) Installation



UNIT INFORMATION			UNIT DIMENSIONS							DISCHARGE OPENING				INTAKE OPENING				UNI-STRUT SUPPORT		
MODEL	WEIGHT	FILTER SIZE & QTY*	A	AA	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
SIZE 1	388 LBS	20"x25"x4" (3)	32-1/8	26-13/16	27-3/8	29-3/4	26	3-3/4	85-5/8	3-1/8	19-7/8	21-7/8	5-3/4	3-1/8	19-7/8	21-7/8	5-3/4	50	33-1/8	27-13/16
SIZE 2	614 LBS	20"x25"x4" (6)	32-1/8	26-13/16	51-5/8	36-3/4	33	3-3/4	85-5/8	5-1/8	42-1/8	28-7/8	5-3/4	5-1/8	42-1/8	28-7/8	5-3/4	78	33-1/8	27-13/16
SIZE 3	769 LBS	20"x25"x4" (8)	38-1/8	31-15/16	41-3/8	43-3/8	38-1/8	5-1/4	101-7/8	4-5/8	32-3/8	33-7/8	7-1/2	4-5/8	32-3/8	33-7/8	7-1/2	64	39-1/8	32-15/16
SIZE 4	1021 LBS	20"x25"x4" (10)	35-1/8	28-1/8	51-5/8	51-3/8	46-1/8	5-1/4	91-1/4	4-5/8	42-5/8	41-7/8	7-1/2	4-5/8	42-5/8	41-7/8	7-1/2	78	36-1/8	29-1/8
SIZE 5	1088 LBS	20"x25"x4" (12)	35-1/8	27-11/16	59-3/16	58-3/8	53-1/8	5-1/4	90-3/8	4-5/8	50-1/8	48-7/8	7-1/2	4-5/8	50-1/8	48-7/8	7-1/2	80	36-1/8	28-11/16
SIZE 6	1533 LBS	20"x25"x4" (18)	35-1/8	27-11/16	74-7/8	58-3/8	53-1/8	5-1/4	90-3/8	4-5/8	66-3/8	48-7/8	7-1/2	4-5/8	66-3/8	48-7/8	7-1/2	96	36-1/8	28-11/16

NOTE: For ESP and size 7 PCU, use the Auto Draw submittal for rail placement and dimensions.

Electrical

WARNING!
Disconnect power before installing or servicing unit. High voltage electrical input is needed for this equipment. A qualified electrician should perform this work.

Before connecting power to the control, read and understand the entire section of this document. As-built wiring diagrams are furnished with each unit by the factory and are attached to the control module's door or provided with paperwork packet.

Electrical wiring and connections must be made in accordance with local ordinances and the National Electric Code, ANSI/NFPA 70. Verify the voltage and phase of the power supply. Confirm the wire amperage capacity is in accordance with the unit nameplate. For additional safety information, refer to AMCA publication 410-96, *Recommended Safety Practices for Users and Installers of Industrial and Commercial Fans.*

1. **Always disconnect power before working on or near this equipment. Lock and tag the disconnect switch and/or breaker to prevent accidental power-up**.
2. An electrical drop containing the line voltage power wiring is shipped with every unit. The electrical drop should be brought through one of the conduit openings located in the base of the unit, run through the curb, and connected to a junction box inside the building. 120V AC should be wired from terminals H1, N1 in the Electrical Control Package.
3. A dedicated branch circuit should supply the motor circuit with short circuit protection according to the National Electric Code. This dedicated branch should run to the junction box. Every branch circuit should include a properly sized ground connection.
4. Verify that the power source is compatible with the requirements of your equipment. The nameplate identifies the **proper phase and voltage** of the equipment.
5. Before connecting the unit to the building's power source, verify that the power source wiring is de-energized. Refer to schematics.
6. Secure the power cable to prevent contact with sharp objects. Verify ground connection is secure.
7. Do not kink power cable and never allow the cable to encounter oil, grease, hot surfaces, or chemicals.
8. Before powering up the unit, make sure that the fan rotates freely. Make sure that the interior of the unit is free of loose debris or shipping materials.
9. Electrically Commutated Motors (ECMs) and Variable Frequency Drives (VFDs) should not be powered through a Ground Fault Circuit Interrupter (GFCI) breaker/outlet. Unnecessary and intermittent tripping may occur.
10. If any of the original wire supplied with the unit must be replaced, it must be replaced with type THHN wire or equivalent.

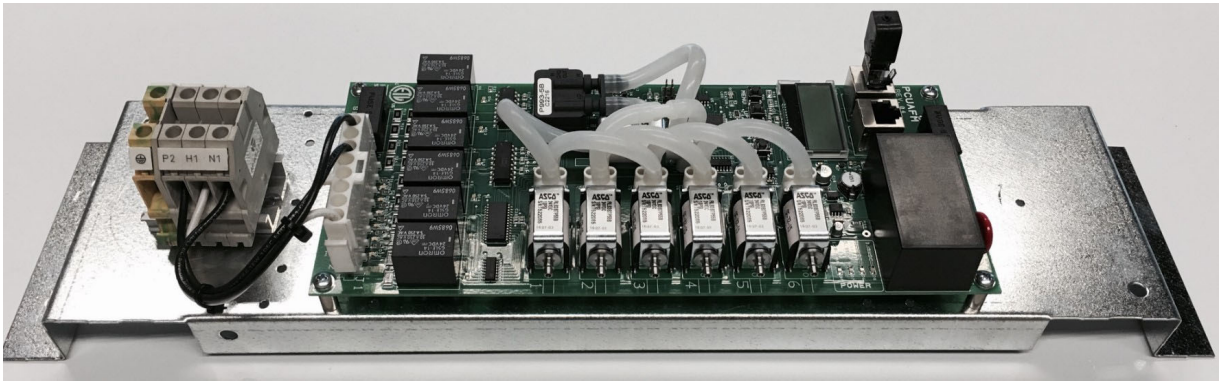
Table 3 - Copper Wire Ampacity

Wire Size AWG	Maximum Amps
14	15
12	20
10	30
8	50
6	65
4	85
3	100
2	115
1	130

Advanced Filter Monitoring Option

The PCU Advanced Filter Monitoring board (PCUAFM), **Figure 10**, utilizes proprietary algorithms to make determinations about filter loading percentages as well as fault conditions, such as missing filters and missing doors. These algorithms take into consideration known characteristics and interactions of many specific filter combinations, stored calibration values derived from measurements taken at the time of test and balance, and measurements of the dynamically changing current operating conditions such as demand ventilation. Personnel servicing the PCU have direct access to operating characteristics and fault conditions through the use of a LCD screen, which is conveniently located directly on the PCUAFM board. Accurate monitoring of PCU filter conditions not only ensures proper operation of the PCU, but can also reduce the operating cost of the PCU by reporting the condition of each individual filter module. This can eliminate the needless replacement of filters that have not yet reached the end of their useful life.

Figure 10 - Advance Filter Monitoring System



Features and Benefits:

- Monitors pressure drop across each filter module of the Pollution Control Unit (PCU).
- Detects Missing Filter and Missing Door condition.
- Detects Filter Clogged condition.

Several techniques are employed to ensure the validity of the pressure readings. Consequently disturbances caused by events such as fan starting and stopping, filter door removal and sudden changes in building or atmospheric pressure will cause a delay in updating the faults until the disturbances have subsided and enough fresh data has been gathered.

The filter monitoring system has 8 ports (**Table 4**) which are used based on the number of filter modules in the PCU assembly. The following chart shows the port connections used for different PCU configurations. PORT 7 is used only if the PCU assembly has a blower installed. The unused ports remain exposed to the space in the cabinet. Port 8 (Atmospheric Port) is used to measure ambient pressure, external to the PCU.

Table 4 - PCUFMM Port Connections

No. of PCU Filter Modules	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
1	Yes	Yes	No	No	No	No	Yes/No	Yes
2	Yes	Yes	Yes	No	No	No	Yes/No	Yes
3	Yes	Yes	Yes	Yes	No	No	Yes/No	Yes
4	Yes	Yes	Yes	Yes	Yes	No	Yes/No	Yes
5	Yes	Yes	Yes	Yes	Yes	Yes	Yes/No	Yes

PCU AFM LCD Menus

Following are the various menus that appear in sequential order during navigation through the LCD screen.

- **Pollution Control Unit** - This is the start-up screen when the unit is turned on.
- **Filter Status** - Displays percentage of filter clogging for up to 5 filter modules or “MISSING” if a module’s filters are missing. “CALIBRATION REQUIRED” will be displayed if the calibration sequence has not been completed upon PCU unit start up.
- **Pressures** - Displays pressure drop for up to 5 filter modules, the total pressure drop (TOT) across the PCU, PCU inlet static (IN) and discharge pressure (OUT).
- **Temperature** - Sensor on the circuit board displays relative temperature of the cabinet that houses the controls.
- **Faults** - “NO FAULTS” are displayed if the PCU is functioning as desired. Refer to **“PCUAFM Fault Chart” on page 26** for faults and descriptions.
- **Reset Faults** - Once a fault is activated and the necessary corrected action is taken this menu choice is selected to clear the fault.
- **Calibration** - **MUST** be performed after PCU unit start up or with any PCU or Hood Filter configuration change. Calibration is **ALWAYS** performed with clean PCU filters. A 4 digit PIN (1234) is entered using the board buttons. Once entered correctly, the new filter calibration sequence is started. “CALIBRATING” will be displayed until calibration is complete. A percentage complete will also be displayed. Fan speed must be maintained at 100% for the entire calibration time. If fluctuations are detected the calibration sequence will restart from zero percent.
- **Configuration** - The PCU is configured at the factory. The PCU has to be re-configured **ONLY** if filter types in any filter module are changed. To enter the configuration menu, use the board buttons to input the required 4 digit PIN (5678).

The following sub menus are available under the “CONFIGURATION” menu:

  - **CFG PCU Modules** - This sub menu steps through the process of configuration. Module count for the PCU assembly is entered followed by the filter type for each module.
  - **PCU Number** - The number for this PCU will be displayed in reverse video and is selected using the board buttons. This number allows for up to 8 PCUs to exist on one Modbus network.
  - **Inlet Pressure Variation** - Allows the user to adjust the variation in inlet pressure for faults to be detected by the PCU. The default parameter setting is 15%, i.e. if the pressure at the inlet of the PCU drops by more than 15% of the calibrated value due to changes in inlet conditions like Missing Hood Filters or Open Duct Access doors, all faults on the PCU except “MISSING DOOR” will be **IGNORED.**
  - **Calibration Values** - Allows the user to change stored calibration values. Upper and lower limits for filter module pressures are set at 5.000” and 0.000”. Upper and lower limits for inlet pressure are set at -0.001" to -5.000", and upper and lower limits for outlet pressures are set at 5.000” and -5.000”.
  - **Discharge Threshold** - Allows the user to change the discharge threshold to help detect MISSING DOOR fault. Default value is set at 0.100”.

The “Inlet Pressure Variation” percentage, “Edit Calibration” and “Discharge Threshold” setting can be changed anytime without the need to recalibrate the unit.

  - **ESP Min Inlet Pressure** - Allows the user to adjust minimum inlet pressure that the high voltage power supply will turn ON. Range is 25-80%. Default is set to 25%.
  - **ESP Max Inlet Pressure** - Allows the user to adjust maximum inlet pressure that the high voltage power supply will remain ON. Range is 100-150%. Default is set to 120%.
  - **ESP Delay After Wash** - This setting determines how long the high voltage power supply is OFF after a self-cleaning cycle has completed. This duration allows the unit to dry. Range is 90 – 240 minutes. Default is set to 120 minutes.

- **Information** - This menu displays filter type for up to 5 modules, software, revision, number of filter modules currently selected, calibration info for filter modules selected, inlet calibration value, discharge calibration value, inlet pressure variation setting and discharge threshold limit.

Electrostatic Precipitator (ESP) Module

WARNING!! ELECTRIC SHOCK RISK

Servicing this unit should be performed by qualified personnel only. To reduce risk of injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Wait at least 30-seconds after ESP is de-energized before accessing any high voltage components. This will allow for the cells to discharge.

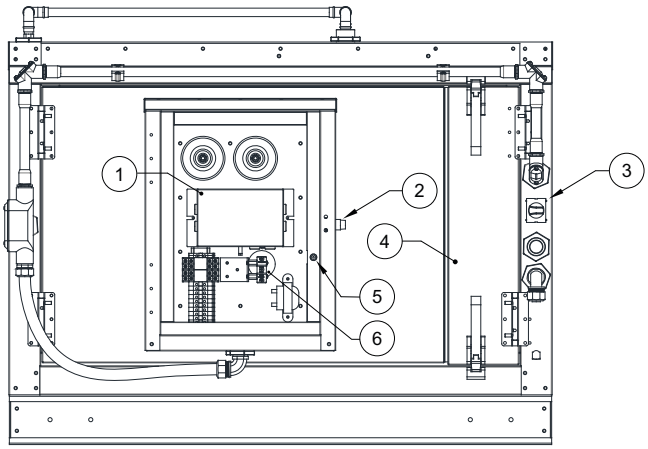
NOTE: The ESP module requires a Pollution Control Unit that contains an Advanced Filter Monitoring (AFM) board. The PCUAFM board powers the ESP cell(s) and provides the user with safety features. Verify that the system is wired per unit schematic located on module door.

The ESP is an optional electronic air cleaner filtration module. Airborne particles pass through a series of high voltage plates. These particles become ionized and are collected at the collection plates. Always verify the cells are installed correctly. Make sure the directional arrow is with the unit's airflow. The ionizer stage will always face the air inlet side of the unit. Refer to **Figure 12** for cell details.

Figure 11 - ESP Module Components

Refer to **Figure 11** for ESP component layouts.

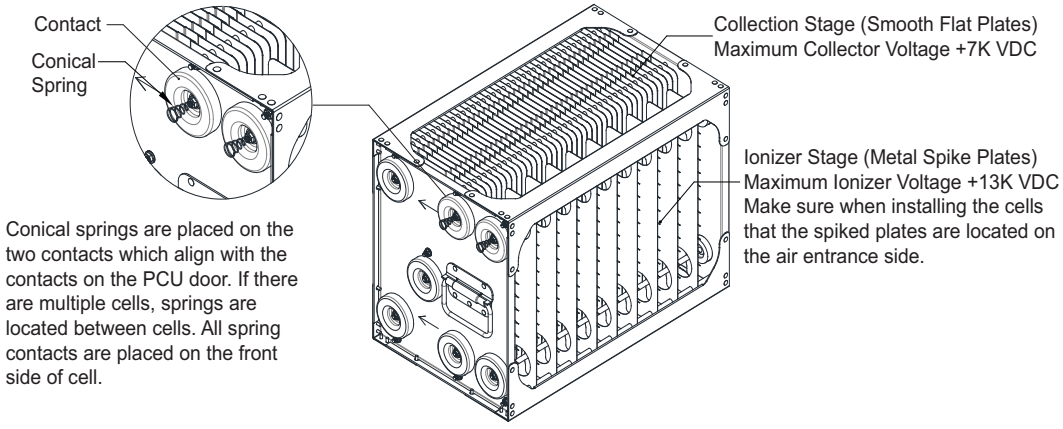
1. High Voltage Power Supply - 13K VDC maximum to the ionizer. 7K VDC maximum to the collector.
2. LED Light - LED light to indicate if high voltage power supply is ON.
3. Disconnect Switch
4. PCUAFM Control Cabinet
5. ESP Cabinet Door Switch (Door shown removed)
6. ESP Cell Switch - Monitors if the ESP cell is present or not.



The ESP module uses one power supply per row of ESP Cells. Size 1 and 2 units will use one power supply. Size 3 through size 6 units will use two power supplies. Size 7 units will use three power supplies. The high voltage power supply contains a potentiometer. The power supply uses high voltage wire leads rated to 20K VDC. A maximum of one [1] spark per minute is allowed. If excessive sparking occurs, refer to **"Troubleshooting" on page 24**.

The LED is operated by 24V AC. There is one light per power supply. When the light is ON (green), this indicates that the power supply is functioning properly (no short circuits and that the cells are energized).

Figure 12 - ESP Cell

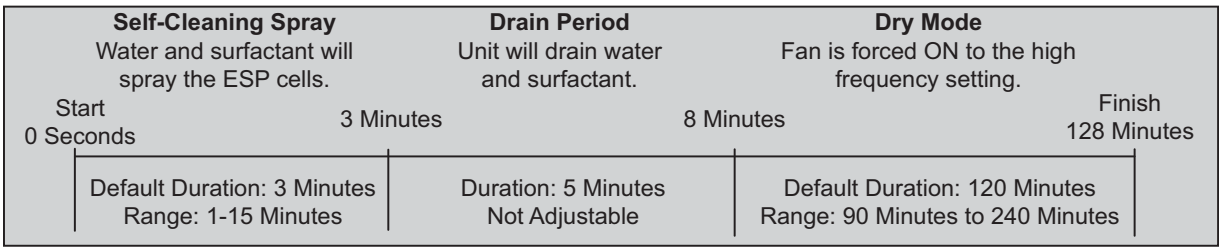


Self-Cleaning ESP

The ESP module is equipped with an internal self-cleaning system for cleaning the cell(s). There are two options to operate the self-cleaning system; with a Demand Control Ventilation (DCV) package or with a dedicated Self-Cleaning System (SCS) package. **Figure 13** is a default self-cleaning sequence operation.

The following faults are ignored during a self-cleaning cycle and when “ESP Delay After Wash” timer is active: Filter Missing, Filter Clogged, PCU Clogged, 24 Hour Clog, and 72 Hour Clog, and Filter Status “% Clogged” values are not calculated during this period.

Figure 13 - Self-Cleaning Sequence

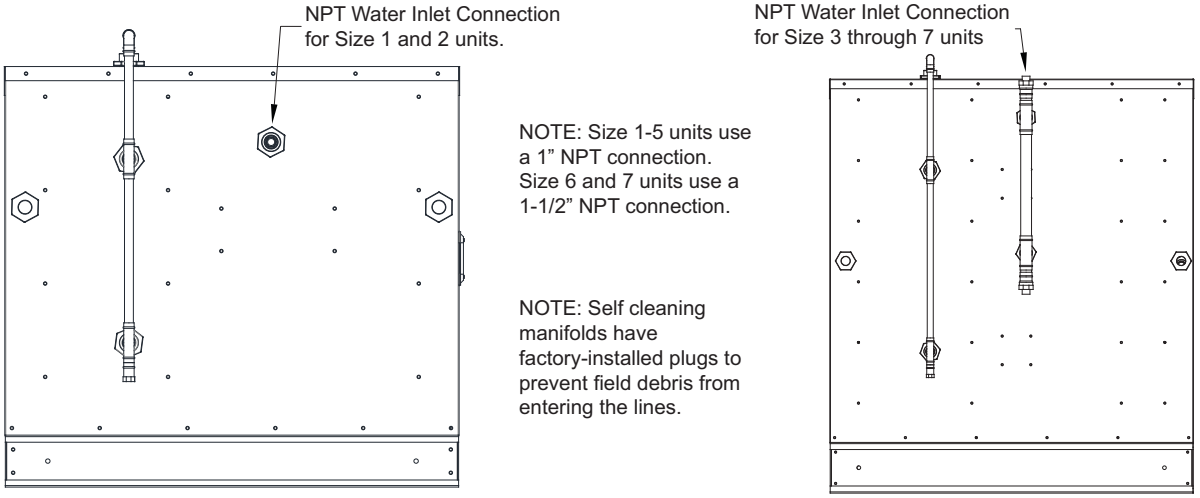


The “ESP Delay After Wash” is activated by a 120V AC signal. After the PCUAFM board stops receiving the 120V AC signal, the “ESP Delay After Wash” timer is activated (default is set to 120 minutes). During the self-cleaning cycle and when the “ESP Delay After Wash” timer is active, voltage to the high voltage power supply(s) will shut OFF. Cell(s) will resume normal function after the “ESP Delay After Wash” timer has expired. The PCUAFM screen and DCV/SCS HMI screen will display “ESP Dry Mode” when the “ESP Delay After Wash” timer is active. Following the self-cleaning cycle, “ESP Dry Mode” forces fans ON (high frequency for dynamic zone).

For third party fan control, a multifunction timer is provided and is factory set to 120 minutes. A dry contact, located in the PCUAFM control cabinet, is used to force the fans on (controlled 120V AC signal from PCUAFM to the timer).

The module has a NPT connection on the backside of the unit for self-cleaning refer to **Figure 14**. The maximum water operating pressure during self-cleaning is 100 PSI. The minimum water pressure during self-cleaning is 20 PSI. The water temperature range should be 140°F to 170°F.

Figure 14 - Water Inlet Connection



If the PCU is mounted outdoors, heat tape must be applied to all external piping for the ESP Self-Cleaning System (SCS). If a self-draining SCS package is used, heat tape is not necessary.

The ESP module contains a drain. If the drain should ever become clogged, the float switch will activate a fault. When a fault is active, power to the ESP power supply will be turned OFF. Refer to applicable manual for self-cleaning details.

The discharge coefficient, or “K Factor”, is used to calculate the actual GPM through the system when the incoming pressure is different than what is specified in **Table 5**. This K factor can be applied to the completed ESP self-cleaning assembly. The formula below will provide the Gallons per Minute discharge rate of the self-cleaning assembly. **Table 5**, **Table 6**, and **Table 7** are based on the self-cleaning ESP minimum operating pressure of 20 psi.

Total Flowrate = K Factor * Pressure$^{0.44}$

Table 5 - Self-Cleaning Water Consumption Based on PCU Size in GPM

PCU Size	# of ESP Modules	
	1 Module	2 Modules
PCU 1	2.3	4.6
PCU 2	5.3	10.6
PCU 3	7.6	15.2
PCU 4	10.6	21.3
PCU 5	10.6	21.3
PCU 6	16.7	33.4
PCU 7	25.1	50.1

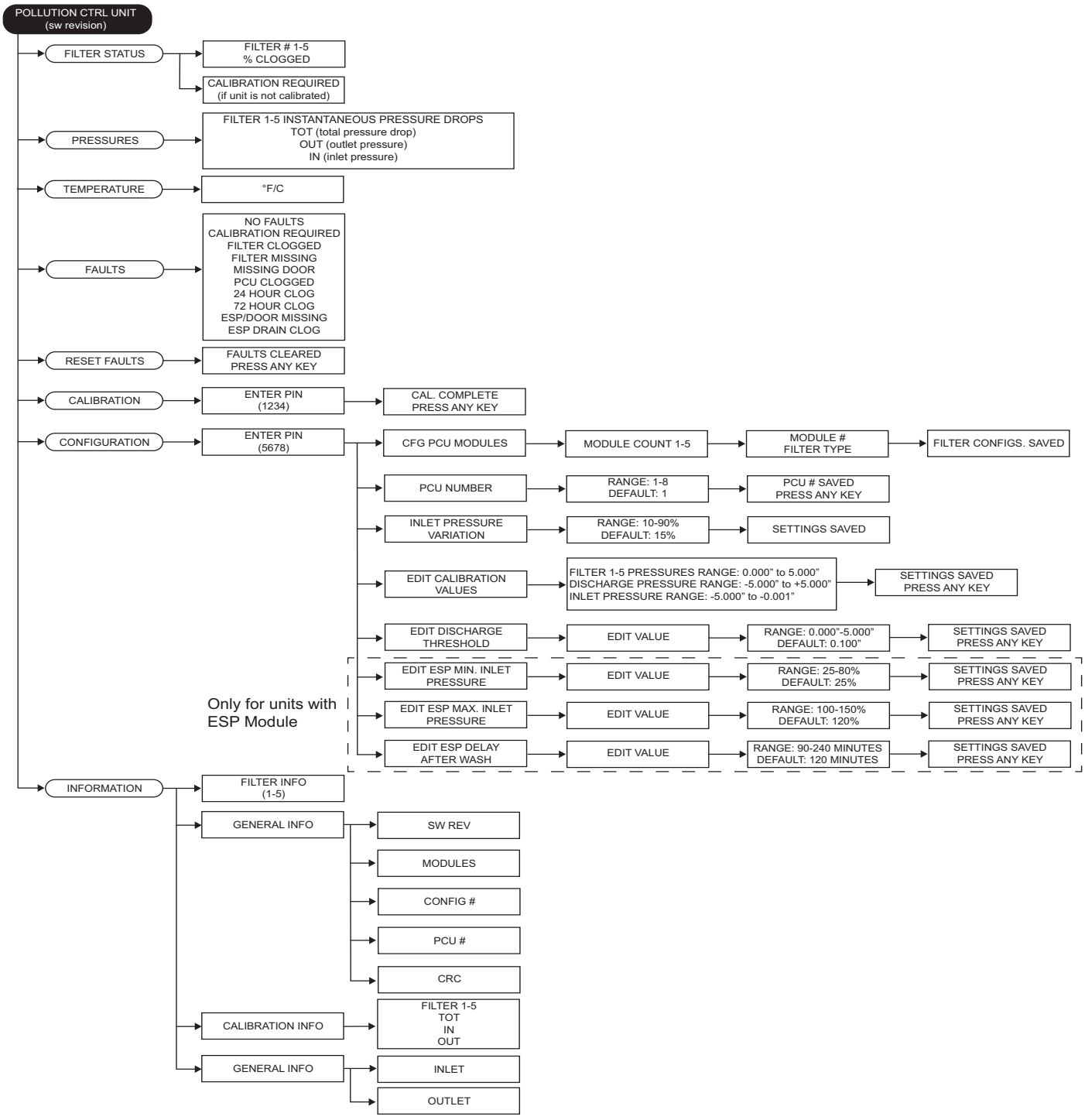
Table 6 - Self-Cleaning Discharge Coefficient (K-Factor)

PCU Size	# of ESP Modules	
	1 Module	2 Modules
PCU 1	0.6	1.2
PCU 2	1.4	2.8
PCU 3	2.0	4.1
PCU 4	2.8	5.7
PCU 5	2.8	5.7
PCU 6	4.5	8.9
PCU 7	6.7	13.4

Table 7 - Quantity of Self-Cleaning Nozzles Installed

PCU Size	# of ESP Modules	
	1 Module	2 Modules
PCU 1	3	6
PCU 2	7	14
PCU 3	10	20
PCU 4	14	28
PCU 5	14	28
PCU 6	22	44
PCU 7	33	66

LCD Menu Tree



PCU Fire System

Pollution Control Units require a fire system to be installed for Type 1 applications. Current International Mechanical Code (IMC) requires that the fire system be installed by the manufacturer (2018 IMC). CORE and EWC fire systems are available for the PCU. PCU fire systems use electric sensors set at 360°F to activate the fire system. Outdoor EWC Systems require a climate controlled utility cabinet to ensure that the fire system does not drop below 32°F and does not exceed 130°F. See below for more information about outdoor installations. It is highly recommended that the PCU fire system be interlocked to the corresponding hood fire system so that if the hood system activates, the PCU system activates. Reverse activation requirements are determined by local code or at the discretion of the Authority Having Jurisdiction, but are recommended for safety.

In the event that the fire system is accidentally activated, all disposable filters must be replaced and the pre-filter cleaned. The water or chemical agent used in the fire system can cause the filters to fail prematurely.

In the event that a fire occurs in the ductwork leading to the PCU or inside the PCU, the following must be completed.

- The unit must be cleaned of all fire suppression chemicals and grease.
- The filters must be replaced, this includes the pre-filter.
- If an ESP module is present, the ESP cells must be removed, and cleaned in warm soapy water. Wash cells until all chemical residue is removed. ESP pre and post filters must be replaced. When re-installing cell(s), make sure to install with the **airflow in the correct direction** as indicated on the cell.
- If any of the gasketing is damaged, replace the gasketing between modules and between the doors.
- If any of the components that make-up the Pollution Control Unit are damaged by fire, then that component must be replaced and inspected by factory trained service personnel.

Installation, commissioning, or resetting of the fire system must be done by a licensed fire system installer. Use the guidelines set forth by the appropriate fire system manual; PCU with CORE Fire Suppression System manual, Model TANK (Electric Wet Chemical) Extinguishing System, or other fire system manufacturer.

For electric wet chemical fire systems for PCU, external piping that connects the PCU fire system nozzles to the fire system tanks is factory-installed using Grade L 1/2” copper tubing and pro-press fittings. If a remote (wall mount) EWC fire system is utilized, distribution piping shall be Grade L 1/2” copper tubing and pro-press fittings or 3/8” NPT Schedule 40 black iron, chrome-plated, or stainless-steel pipe and fittings. If distribution piping is exposed to an outdoor environment it must be Grade L 1/2” copper tubing and pro-press fittings or 3/8” NPT Schedule 40 stainless-steel pipe and fittings.

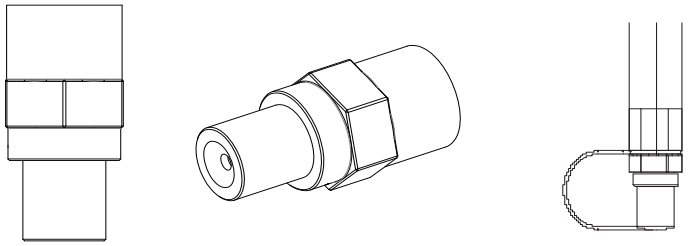
PCU Fire System Nozzles

The Overlapping Male Nozzle(s) (p/n OL-M) are used to protect the PCU.

The nozzles include a cap (p/n 3074-1-1).

Refer to **Figure 15**. The cap prevents contamination from entering the pipe network and is designed to pop-off upon system discharge, allowing the fire system to flow to the protected hazard area.

Figure 15 - Fire System Nozzle



Nozzle P/N: OL-M

Previously P/N: 3070-3/8HH-10-SS

Table 8 provides details on PCU size, modules, and nozzle quantity per unit. Pollution Control Units (PCU) covered by a TANK Fire System can utilize up to 12 nozzles per tank.

PCU Fire System type “CPFS” is covered by CORE.

PCU Fire System type “REFS” is covered by TANK.

Table 8 - PCU Fire System Chart

Unit Nozzle Count (OL-M)						Duct Nozzle Count (OL-M) Last Module Only
PCU Size	1 Module	2 Modules	3 Modules	4 Modules	5 Modules	
1	4	8	12	16	20	2
2	4	8	12	16	20	4
3	5	10	15	20	25	4
4	6	12	18	24	30	4
5	7	14	21	28	35	4
6	7	14	21	28	35	6
7	11	22	33	44	55	6

Example:

Model - PCU-PF-HE-ESP-OC-XXXX-5

Modules Fire System PCU Size

Number of Modules - 4
PCU Size - 5
Number of OL-M Unit Nozzles - 28
Number of OL-M Duct Nozzles - 4
Total Nozzles - 32

Climate Controlled Utility Cabinet

For outdoor installations, a climate controlled cabinet is available to house the fire system, refer to **Figure 16**. This box contains a heater, an exhaust fan, and thermostats to control the temperature inside the cabinet. The Utility Cabinet thermostats come preset to heat below 40°F and cool above 90°F. The climate controlled cabinet requires a dedicated 15 amp, 60 Hz, 115 volt, single phase electrical service. Refer to **Figure 17** for typical climate control utility cabinet schematic.

Figure 16 - Pollution Control Unit with Climate Controlled Utility Cabinet

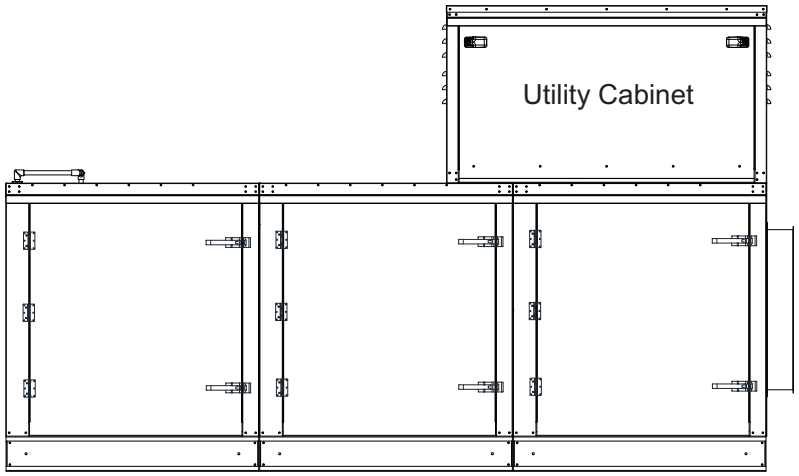
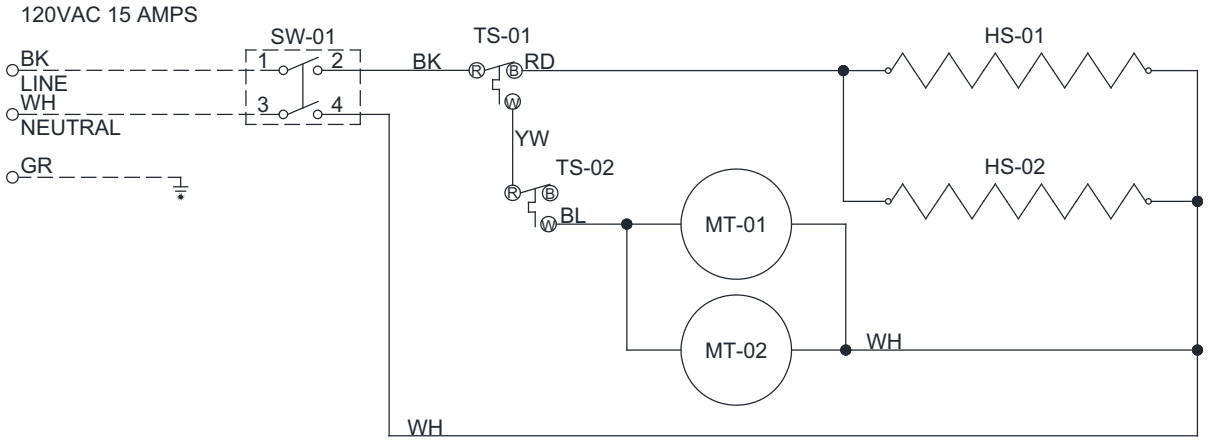


Figure 17 - Typical Wiring Schematic for Climate Controlled Utility Cabinet



Bolted Door Design

A bolted door design is an optional construction version of the PCU to meet UL1978 requirements. The PCU bolted door design contains the following parts:

- High Temperature (Orange) Gasket - Part number R-10480-S-1/4” x 1”-15
- 1/4”-20 Bolts - Part number 0122323.0800
- Cage Nuts - Part number 11626-03224

The high temperature (orange) gasket is applied on the door jambs, refer to **Figure 18**.

Prior to closing the door, make sure all cage nuts are installed. When the doors are closed, make sure the 1/4”-20 bolts are installed. Torque the bolts to **45 in-lbs**.

Figure 18 - Module Doors

Small Module

Last Module

OPERATION

Prior to starting up or operating the PCU, check all fasteners for tightness. In particular, check the module connection seal and the door seals. With power to the fan **OFF**, check the airflow direction of the filters as they must match the label on the filter.

Start-Up Procedure

Special Tools Required - 3M Fire Barrier 2000 + Silicone Sealant, Standard Hand Tools

1. Check all fasteners and connections for tightness.
2. Inspect the air-stream for obstructions. Install filters if missing.
3. Filters must be installed in the correct direction.
4. Verify drain connections.
5. When the fan is started up, observe the operation and check for any unusual noises.
6. Inspect the entering and leaving ductwork connections. Ensure there are no leaks or pinholes in grease duct. Grease rated duct should be continuously welded to the PCU.
7. If unit is installed on vibration isolators, ensure that the isolators are adjusted correctly leaving plenty of spring force on the unit to absorb vibration.

Troubleshooting

Table 9 and **Table 10** lists causes and corrective actions for possible problems with the Pollution Control Units (PCU), Electrostatic Precipitator (ESP), and the fan attached to the unit. Review these lists prior to consulting manufacturer.

Table 9 - PCU/Fan Troubleshooting Chart

Problem	Potential Cause	Corrective Action
Fan Motor Overload / Excessive Airflow	Filters not installed	Install all filters and unit doors.
	Fan speed is too high	Reduce fan RPM.
	Motor wired incorrectly	Check motor wiring to wiring diagram located on fan motor.
	Overload in starter set too low	Set overload to motor FLA value.
	Motor HP too low	Determine if HP is sufficient for job.
	Duct static pressure lower than design	Reduce fan RPM.
Insufficient Airflow	Fan rotating in the wrong direction	Be sure fan is rotating in the direction shown on rotation label.
	Poor outlet conditions	There should be a straight clear duct at the outlet.
	Duct static pressure higher than design	Improve ductwork to eliminate or reduce duct losses.
	Blower speed too low	Increase fan RPM. Do not overload motor.
	Dirty or clogged filters	Clean and/or replace.
	Belt slippage	Adjust belt tension.
Excessive Vibration and Noise	Misaligned pulleys	Align pulleys.
	Damaged or unbalanced wheel	Replace wheel.
	Fan is operating in the unstable region of the fan curve	Refer to performance curve for fan.
	Bearings need lubrication or replacement	Lubricate or replace.
	Fan speed is too high	Reduce fan RPM.
	Belts too loose, worn or oily	Inspect and replace if needed.
Check PCU filter light is ON	Air Pressure Switch Option	Clean and/ or replace filters.
	Dirty or clogged filters	
	Switch set incorrectly	Set switch to .15” w.c. above internal pressure of clean PCU.
	Internal static pressure is higher than estimated	Increase switch setting by .1” w.c.
	Advanced Filter Monitoring Option Fault shown on LCD screen	See **“PCUAFM Faults” on page 26.**
Check PCU light does NOT come on	Light is burned out	Check light with jumper wire, check related wiring, replace/ repair if needed.
	Switch is set incorrectly	Set switch to .15” w.c. above internal pressure of clean PCU.
	Internal static pressure is lower than estimated	Decrease switch setting by .1” w.c.
Fan and Cooking Equipment will not operate	PCU Missing Door	See **“PCUAFM Faults” on page 26.**
	PCU Missing Filters	
	PCU Filters Clogged for 72 hours	
Sounding of Audible Alarm	PCU filters clogged for 24 hours	Replace Clogged filters with clean filters of same type.
Smoke/Odor leaking from PCU	Exhaust fan installed before PCU	Move exhaust fan to discharge side of the PCU.

Table 10 - ESP Troubleshooting Chart

Problem	Potential Cause	Corrective Action
Voltage not supplied to cell(s)	Indicator light is OFF	Verify power to the ESP module.
		Verify cell(s) are installed properly.
		Verify cell(s) are not damaged or defective.
		Verify conical springs are installed on the front side of all cells. Check that the cell spring contacts align with the contacts on the PCU door.
	PCU is not calibrated	Calibrate the unit.
	Fire Scenario	If a fire is not present, check wiring.
	Self-cleaning cycle	You must wait until the self-cleaning cycle and delay (dry mode) are complete.
	Self-cleaning delay (dry mode)	
	ESP/Door Missing	Verify ESP door and ESP electrical door are closed.
		Check wiring and switches.
		Verify cell(s) are installed properly.
	ESP Drain Clogged	Check float switch and wiring for proper operation.
		Verify drain is not clogged.
	ESP Min./Max. Inlet Pressure	Verify instantaneous inlet pressure reading is between the minimum and maximum inlet pressure setting values.
Cell(s) are not cleaning properly	Clogged nozzle	Clean or replace nozzles.
	Insufficient water supply	Check supply water flow, and water temperature.
Cell(s) Sparking A maximum of one [1] spark per minute is allowed.	High voltage power supply out of adjustment	Adjust the potentiometer on the high voltage power supply.
		Ionizer voltage range must be 10K VDC to 13K VDC.
		Verify cell(s) are installed properly.
		Verify cell(s) are not damaged or defective.

PCUAFM Faults

NOTE: In order to prevent erroneous issuing of fault conditions, the monitoring system takes several minutes to issue a fault. Faults will not be detected if PCU is running outside normal hood operating conditions.

Table 11 lists causes and corrective actions for possible faults shown on the LCD screen with the PCU. Review this list prior to consulting manufacturer.

Table 11 - PCUAFM Fault Chart

Fault	Potential Cause	Corrective Action
Calibration Required	Unit not calibrated upon start up.	Calibrate the unit.
	Unit taking too long to calibrate.	Varying airflow at inlet of the unit. Check for blocked PORT 8 (Atmospheric port).
Filter Clogged	Filters in a module are clogged.	Replace filters in module showing “100% Clog” with clean filters of the same filter type.
	Access door in duct left open.	Close access door in duct.
Filter Missing (Fault ignored on ESP modules)	Filters in a module are missing.	Place filters back in the module that is missing filters. Check for missing filters in all other modules.
	Hood filters are clogged.	Clean filters in the hood.
	Blocked Inlet to the PCU.	Make sure there are no obstructions blocking air flow entering the PCU.
Missing Door (Fault not used on ESP or ESP-ESP only modules)	Missing Door in one of the modules.	Place door back on module that is missing the door.
ESP/Missing Door (PCU with ESP Module)	ESP electrical cabinet is open. ESP module door is open. ESP cell(s) are missing.	Verify doors are closed. Check door switch and wiring. Verify all ESP cell(s) are installed properly.
PCU Clogged	Pressure drop across entire PCU exceeds allowable limits.	Replace filters in module showing maximum percentage clog with clean filters of same type.
	Access door in duct left open.	Close access door in duct.
24 Hour Clog	Filters in a module are clogged for 24 hours.	Replace filters in module showing “100% Clog” with clean filters of the same filter type.
	Pressure drop across entire PCU exceeds allowable limits for 24 hours.	Replace filters in module showing maximum percentage clog with clean filters of same type.
	Access door in duct left open for 24 hours.	Close access door in duct
72 Hour Clog	Filters in a module are clogged for 72 hours.	Replace filters in module showing “100% Clog” with clean filters of the same filter type.
	Pressure drop across entire PCU exceeds allowable limits for 72 hours.	Replace filters in module showing maximum percentage clog with clean filters of same type.
	Access door in duct left open for 72 hours.	Close access door in duct.
ESP Drain Clog	ESP Module drain is clogged.	Clear clogged drain. Verify float switch is operating properly.

MAINTENANCE

To guarantee trouble free operation of this PCU, the manufacturer suggests following these guidelines. Most problems associated with PCU failures are directly related to poor service and maintenance such as not replacing or cleaning filters.

Please record any maintenance or service performed on this unit in the documentation section located at the end of this manual.

WARNING: DO NOT ATTEMPT MAINTENANCE ON THE PCU UNTIL THE ELECTRICAL SUPPLY HAS BEEN COMPLETELY DISCONNECTED FROM THE FAN.

General Maintenance

1. PCU doors and approaches to PCU should be kept clean and free from any obstruction.
2. Filters have an airflow direction associated with them. Pre-filters should be installed so drain holes are at the bottom edge of the filter. All other filters have an airflow direction sticker that must match the direction of airflow. Refer to **Figure 19** for filter installation, and see **page 28** for filter part numbers.
3. All fasteners should be checked for tightness each time maintenance checks are performed prior to restarting unit.
4. Ductwork and PCU should be cleaned according to code requirements.

Filter Information

Figure 19 shows a size 2 unit example. V-bank and number of filters will vary for other sizes.

Figure 19 - Filter Installation

NOTE: Filters installed with directional arrow stickers match the direction arrows on the PCU frame.

WARNING: Filter part numbers outlined in Table 12 through Table 16 are for use in the PCU. The use of any other filters will VOID the warranty, and affect unit performance.

Table 12 - ESP Cell and Pre/Post-Filter Details

PCU Size	ESP Cell Part # and Size	ESP Cell Quantity	Pre-Filter/Post-Filter		Pre-Filter Quantity	Post-Filter Quantity
			Mesh Part #	Size		
1	ESP14CELL (24” x 18” x 15”)	1	9153	16” x 25” x 2”	1	1
2	ESP2567CELL (24” x 21” x 15”)	2	9151	20” x 25” x 2”	2	2
3	ESP3CELL (19” x 14” x 15”)	4	9151	25” x 20” x 2”	2	2
4	ESP14CELL (24” x 18” x 15”)	4	9153	16” x 25” x 2”	4	4
5	ESP2567CELL (24” x 21” x 15”)	4	9151	20” x 25” x 2”	4	4
6	ESP2567CELL (24” x 21” x 15”)	6	9151	20” x 25” x 2”	6	6
7	ESP2567CELL (24” x 21” x 15”)	9	9151	20” x 25” x 2”	9	9

Table 13 - Standard Filter Part Numbers

PCU Module Size	20” x 25” x 4”	Captrate Solo Pre-Filter	High Efficiency (MERV 15)	Odor Control 100% Carbon
Size 1	3	CSF2025-NH	90802025	34-A0008192
Size 2	6	CSF2025-NH	90802025	34-A0008192
Size 3	8	CSF2520-NH	90802025	34-A0008192
Size 4	10	CSF2025-NH	90802025	34-A0008192
Size 5	12	CSF2025-NH	90802025	34-A0008192
Size 6	18	CSF2025-NH	90802025	34-A0008192
Size 7	30	CSF2025-NH	90802025	34-A0008192

Table 14 - Optional Pre-filter, High Efficiency, and HEPA Filter Part Numbers

PCU Module Size	20” x 25” x 4”	Grease Lock Combination Pre-Filter*	High Temperature High Efficiency Filter	Standard HEPA Filter
Size 1	3	GL2025/CSF	110-500-404	91802025
Size 2	6	GL2025/CSF	110-500-404	91802025
Size 3	8	GL2520/CSF	110-500-404	91802025
Size 4	10	GL2025/CSF	110-500-404	91802025
Size 5	12	GL2025/CSF	110-500-404	91802025
Size 6	18	GL2025/CSF	110-500-404	91802025
Size 7	30	GL2025/CSF	110-500-404	91802025

Table 15 - Grease Lock Filter Replacement

PCU Size	Part Number
1,2,3,4,5,6,7	GL2025

* Grease Lock Combination Pre-filter is a combination of Grease Lock Filter and Captrate Solo Filter

Table 16 - Optional Odor Control Media Part Numbers

PCU Module Size	20” x 25” x 4”	Carbon / Permanganate Blend	100% Permanganate	Caustic Impregnated	Carbon / Permanganate Blend Panel	100% Carbon Panel	100% Permanganate Panel	Caustic Impregnated Panel
Size 1	3	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 2	6	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 3	8	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 4	10	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 5	12	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 6	18	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096
Size 7	30	34-A0007766	34-A0015408	34-A0015405	34-A0017097	34-A0017095	34-A0017098	34-A0017096

2-Weeks After Startup

1. Inspect the unit and duct for grease or air leaks and repair leaks where required.
2. All fasteners and hardware should be checked for tightness each time maintenance checks are performed prior to restarting unit.
3. Monitor filter loading and determine the frequency that filters should be replaced. This will vary with the amount of contaminated effluent being filtered. Airflow will be affected (reduced) by filter loading. It is important that the pre-filter be cleaned on a regular basis and that the remaining filters be replaced when necessary to keep design airflow requirements.
4. Make necessary adjustments to air pressure switch to ensure proper function of indicator light.

Every Month

1. Inspect the unit and duct for grease or air leaks. Repair leaks where required.
2. Filters need to be checked monthly for loading. If required, the filters either need to be cleaned or replaced. Filter replacement may occur more often in severe conditions. Washable steel pre-filters can be cleaned in warm soapy water. When re-installing filters, be sure to install with the **airflow in the correct direction** as indicated on the filter or with drain holes on bottom edge of filter.

Every 3-Months

1. Inspect the entire unit and exhaust system. Inspect filters, clean or replace as required.
2. Record inspection and cleaning, keep a maintenance log with unit.
3. ESP cell(s) must be removed from the PCU every 3 months. Clean the cell(s) in warm soapy water. When re-installing cell(s), be sure to install with the **airflow in the correct direction** as indicated on the cell.

Yearly

1. Inspect all seals for wear and deterioration. Replace if necessary.
2. Inspect pre-filter for cleanliness. Replace if necessary.
3. Replace all secondary filtration and odor control media if necessary.
4. Inspect unit for leaks where ductwork is attached and in modules themselves. Repair where necessary.

Duct Cleaning

1. Place tarp under PCU to catch over-spray during cleaning.
2. Place tarp over blower insulation and motor to prevent damage during cleaning.
3. Remove all tarps from Unit after cleaning is completed.

Start-up and Maintenance Documentation

START-UP AND MEASUREMENTS SHOULD BE PERFORMED AFTER THE SYSTEM HAS BEEN AIR BALANCED (Warranty will be void without completion of this form)

Job Information

Job Number		Service Company	
Address		Address	
City		City	
State		State	
Zip		Zip	
Phone Number		Phone Number	
Fax Number		Fax Number	
Contact		Contact	
Purchase Date		Start-Up Date	

PCU Information

Reference the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Model Number	
Serial Number	
Pressure Switch Set Point	

Advanced Filter Pressure Monitoring Information

Filter Module	**Filter Type**	**Pressure**
1		
2		
3		
4		
5		

Software Rev. #	
Inlet Pressure	
Outlet Pressure	
Inlet Pressure Variation %	
Discharge Threshold	

CLEANING & MAINTENANCE RECORD

Date	Service Performed

Cleaning & Maintenance Record

Date	Service Performed

As a result of our dedication to constant improvements and quality, the MANUFACTURER reserves the right to update specifications without notice. Please refer to MANUFACTURER'S website for up to date documentation.

Technical Support Information

CASLink

Technical Support

Parts Store