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Installation & Service Manual for PFC Custom

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PFC Custom

Disclaimer

Although instructions and recommendations are included for installation of your PFC Custom, the manufacturer does not assume responsibility for the installation of this equipment nor shall he be held liable for direct or consequential dam-ages resulting from improper installation, application, maintenance or use.

The immense variety of contaminants make it impossible to list all of the potential hazards that may be encountered with air pollution control systems. It is therefore important that the application of the equipment be discussed with a CAD representative or application engineer prior to use. Additionally, users should consult and comply with all National and Local Fire, Electrical and /or other appropriate codes when determining the application, location and operation of any air pollution control equipment.

Collection of combustible or explosive materials and collection on flame or spark-generating operations may require specific system configurations (contact Controlled Air Design Applications Engineering Department for questions and/or design assistance). The combined collection of combustible or explosive materials and contaminants from spark or flame generating operations, with a common collector or duct system, is not recommended, unless special design provisions have been made to the system (sparks or flames resulting from such operations may ignite the combustible or explosive material). Under no circumstances should anyone be allowed to discard a lighted cigarette, other burning materials, or refuse into an inlet hood or the duct of the collection system. It is the responsibility of the end user to comply with all applicable national, state, and local fire and safety codes.

This manual should be read completely before attempting Operation or Maintenance of this equipment. All work should be performed by qualified personnel according to local requirements.

WARNING

Failure to comply fully with the following instructions and local code requirements may increase your risk of physical injury due to fire, explosion or electrical shock.

All data and dimensions in this manual have been thoroughly checked however, we cannot assume responsibility for possible errors or omissions. We reserve the right to change designs and/or specifications without notice.

SECTION 1

Uncrating

1. Remove banding and cardboard shipping carton and packing.

2. Extraction Arm is typically labeled and packed with the unit to be installed, Mount ing hardware is included for mounting the arm. Be sure to check all boxes for any miscellaneous parts or hardware items before discarding.

3. Inspect the exterior of the unit and accessories for shipping damage or shortages that may not have been noticed or recorded when the shipment was initially received; you have 30 days to notify CAD of any discrepancies. Contact the shipping company if any damage or shortages have occurred.

Description & Operation

The Portable Fume Collector consists of a vertically mounted filter cabinet which houses a metal mesh spark filter and a cartridge filter. The cartridge has a filter media pack of 2 inch pleated media and is formed in the shape of a hollow cylinder. The interior of the cartridge cylinder is open to the dirty contaminant fume. Cleaning of the cartridge filter is accomplished by removing the filter and either dump the fume into a disposal container or vacuum out the inside of the filter via an industrial shop vacuum. The motor/blower cabinet is located on the clean air side of the filter which is on the bottom of the unit and provides airflow for the collection system.

Optional Equipment

Special Filters	Motor Starters	Mechanical Arm sizes

SECTION 2

Applications - General

1. Dust & Fume - The **Portable Fume Collector,** PFC Custom is designed for the capture and removal of **DRY** dust and/or fumes generated from sanding, grinding, welding and other industrial processes. The unit can be equipped with a variety of pre-filters, metal mesh spark filter is standard and specialized filters for application specific filtration requirements. Optional add-on filters are available including HEPA and Activated Carbon for odors.

2. Size - It is important that the proper size unit has been selected for the application. Too little airflow will not draw the contaminant into the filter and the unit will not be completely effective. Too much airflow may result in loss of efficiency or the unit will pick up large or heavy solid particles increasing the frequency of maintenance or filter replacement. Questions regarding proper unit sizing should be directed to your local CAD representative or the main office at (919) 607-6765,

3. Models - Model codes are utilized to identify the various unit configurations available. The model PFC Custom uses a direct drive blower (sometimes called a plug fan) along with the number 800. The 800 unit has a 1.0 HP direct drive motor and has one cartridge filter.

4. Portable - PFC Custom has four 3” total lock casters for portability and an on/off switch and power cord.

SECTION 3

Installation

Assembly & Installation PFC Custom

Standard Collectors are pre-assembled for the PFC Custom with the exception to the extraction arm. The assembly of the extraction arm consists of removing all the parts from the box.

1. Bend the arm out until the angle between the arms is 45 degrees.
2. Mount the swivel base to the surface you are bolting by using six M6 metric bolts, washers.
3. Adjust the tension of the arm per enclosed instructions.

The collector will be pre-wired to an ON/OFF switch and power cord for 115 volts 1 phase (unless otherwise specified on the purchase order). Suitable overload protection is required to protect the motor, a correctly sized circuit breaker is fine. Refer to the electrical section. (Manual and Combination motor starters with fusible disconnect packages are available through Controlled Air Design.

SECTION 3

Installation continued

Electrical

The standard collector is wired for 115 volt, single phase with a switch and cord. Three-phase units are wired for the input voltage specified on the purchase order. Unless specified otherwise, standard units are wired for 460 volt, 3 phase, 60 Hz operation.

Motors used on the PFC Custom collectors are UL recognized and internal wiring is UL rated at 600-volts. Input power line protection is required for the motor and electrical components. Line load and current requirements are identified on the motor nameplate. Unless ordered with the machine, the power switch for operating the machine, any fusible disconnect, motor starter or controller are to be provided by the customer/user and located externally to the machine.
After electrical hook up it is important to verify that the fan rotation is correct. Incorrect rotation results in much lower airflow and increased noise. For standard three phase installations, changing connections of any two of the three input power lines will usually reverse fan rotation. Rotation direction can be found on the side and/or back of the motor.

If it becomes necessary to change the input voltage, the wiring diagram on the motor and transformer nameplates show the appropriate wire connections - these diagrams are also shown below:

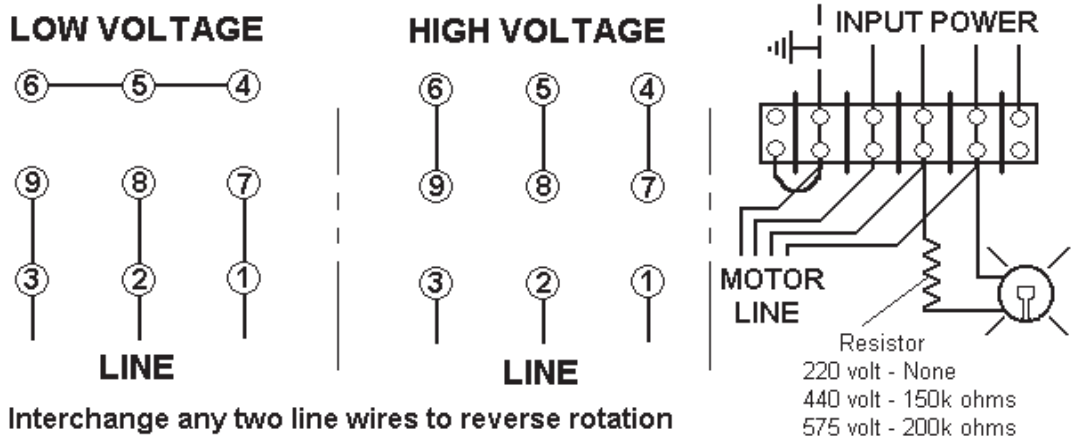

Figure 1 - Motor & Transformer Connection Diagram

NOTE

A motor starter with overload protection must be provided by the User. Thermal overload heaters are installed in the external motor starter. Consult the starter manufacturer for recommended heater size for the installed motor.

SECTION 5

Maintenance

Operation & Maintenance

Lubrication or other routine periodic preventative maintenance is not required. All that is needed is an occasional check of fasteners, hoses and clamps and an overall visual check of the unit . Periodic replacement of the cartridges is required when necessary. Always empty the dust drawer before it fills completely. Do NOT allow the dust to collect to the point where it begins to touch the bottom of the cartridge filter, since this would result in the dust being re-entered into the air stream, re-depositing on the cartridge and shortening their life.

Cartridge Replacement PFC Custom

The pressure drop across the cartridge will eventually reach a point at which the airflow and suction are too low. At this time, the cartridge should be replaced as follows:

1. Shut off electrical power to the blower by unplugging the electrical cord.
2. Open the cartridge access door on the front of the filter cartridge module using the four quarter turn latches.
3. The cartridge mount plate is attached via 1/4”-20 hardware, a 7/16” socket wrench is required to remove the four bolts on the underside of the cartridge mount plate.
4. Slide the cartridge and mount plate out on the rail by grabbing the cartidge and pulling it toward you. Remove the cartridge by un-screwing knob under the filter, the cartridge filter is held in place via a threaded rod. Clean, inspect or replace.
5. Reinstall cartridge by repeating the above steps in reverse order and slide the cartridge into the cabinet on the rail and bolt the mount plate back in place.
6. Install the cartridge access door using the four quarter turn latches.

Troubleshooting

Problem	Cause	Solution
Motor Fails to Start	No Power To Unit (indicator light is not lit.)	Check overload heaters in starter and fuses, replace or reset if necessary. Check for proper wire connections to and from the starter and collector.
	Power to unit (indicator light is lit.)	Check wires from input electrical box on the collector to the motor. Check motor wiring. Check to see if motor is faulty.
Low airflow and/or suction	Blower is running backwards	Check rotation of blower. If running backwards, interchange 2 of the 3 input power leads (3 phase motors only).
	Cartridge needs to be cleaned	Remove filter and dispose of fume or dust inside of the filter.
	Obstruction in arm or damper is closed	Check arm for blockage. Check arm damper
Contaminant blowing out of the collector exhaust	Hole in the cartridge	Replace cartridge.
	Cartridge not properly installed	Check for correct cartridge orientation. Check cartridge gasket, gasket must seal around hole in tube sheet of cartridge cabinet.

Specifications

Nominal Airflow-CFM	800
Available External Pressure - In. H20	2
Filters - Quantity	1
Total Filter Area - Sq. Ft	164
Motor - HP	1.0
Motor Temp. Max - C	40
Blower/Motor Type	Plug Fan
Inlet	1 Std.
Wheel Diameter	10 inches
Speed	3450 RPM
Drive	Direct
HP	1.0
Voltage	115/230
Frequency HZ	50/60
Phase	1
Frame - NEMA	56C
Power Factor	82
Efficiency	68
Start Current Amps (60 Hz)	76/38
Full Load Amps (60 Hz)	11.8/5.9
Insulation Class - Min.	B
Enclosure	TEFC
Service Factor	1.25
Duty Cycle	Cont.
Bearing Grease	Exxon POLYEX EM
Specification	UL & CSA Approved