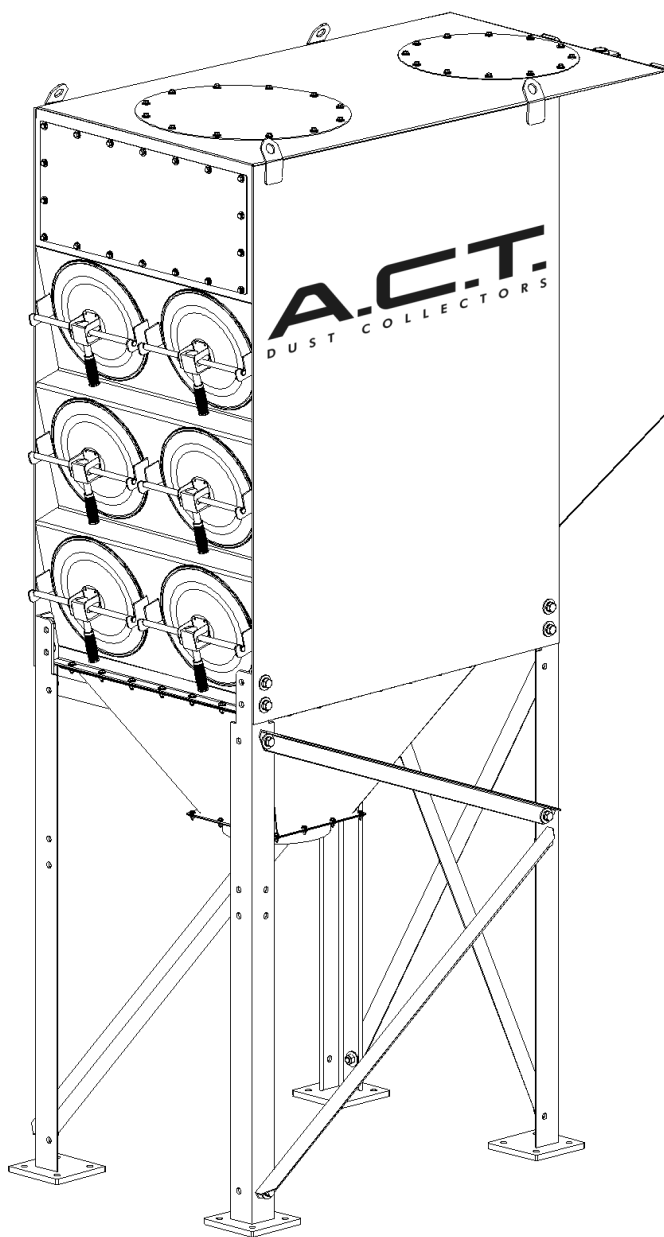




# ACT Cartridge Dust Collector

## *Installation and Operation Manual*



# CAUTION!

## **Accidents happen, be careful and always follow all local and federal regulations!**

Fires and explosions do occur in dust collectors. Many items in a dust form can become very flammable and/or explosive. It is very important that when installing a dust collector to check with and abide by all local and federal regulations. Precautions such as spark traps, detectors, and extinguishers are always recommended when sparks or explosive danger is present. Never throw any burning objects into the duct work or dust collector. There is no way to guarantee 100% prevention of fires. However, the methods mentioned above will greatly reduce your risk. ACT Dust Collectors will not be responsible in any way for any loss or damage associated with fires or explosions in your dust collector.

If your dust collector came with explosion vents or if explosive dusts are present, it is the owner's/operator's responsibility for full compliance with all authorities having jurisdiction. It is recommended that the NFPA codes be studied and applied, including, but not limited to 68, 69 and 654. Included in the NFPA standards is the issue of isolating your dust collector. Please contact us or an expert in the area regarding isolation of your dust collector in the event of an explosion. Unless a Kst test was performed, and we were provided with the results, the size of the explosion vents may be inaccurate and you may not be in compliance. It is the owner/operators responsibility to verify the Kst and Pmax values. We recommend that your process be evaluated regularly to make sure that you remain in compliance and the vent area is sufficient. ACT Dust Collectors will not be responsible for ANY loss whatsoever resulting from an explosion associated with an ACT dust collector.

Dust collectors are tall and top heavy. Always be careful when handling them. Make sure your equipment is capable of making the lifts and moves you are trying to make. Be sure the foundation for the dust collector is proper and secure.

All plumbing and electrical should be performed by a certified professionals and meet all codes and regulations.

Never open any doors or access panels while the machine is in operation.

Always shut down the unit prior to service and lock out all disconnects.

Always wear proper safety equipment when working on or around your dust collector and follow all local and federal codes.

## Product Datasheet

### **Dust Collector**

Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_

Filters: \_\_\_\_\_ Ship Date: \_\_\_\_\_

Option/Accessories: \_\_\_\_\_

### **Fan Blower**

Manufacturer/Model: \_\_\_\_\_ Serial Number \_\_\_\_\_

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# Introduction

Thank you for your purchase of an ACT dust collector. Our goal is to provide you with a product of best quality, service, and pricing in the industry.

This manual is to provide general instructions in assisting you with your installation, operation, and maintenance of your equipment. It is the user's responsibility to ensure that the equipment is correctly installed and operated. It is also the user's responsibility to ensure and provide qualified personnel for the installation, operation, and maintenance of the equipment and to adhere to all applicable federal and local building and safety codes and regulations.

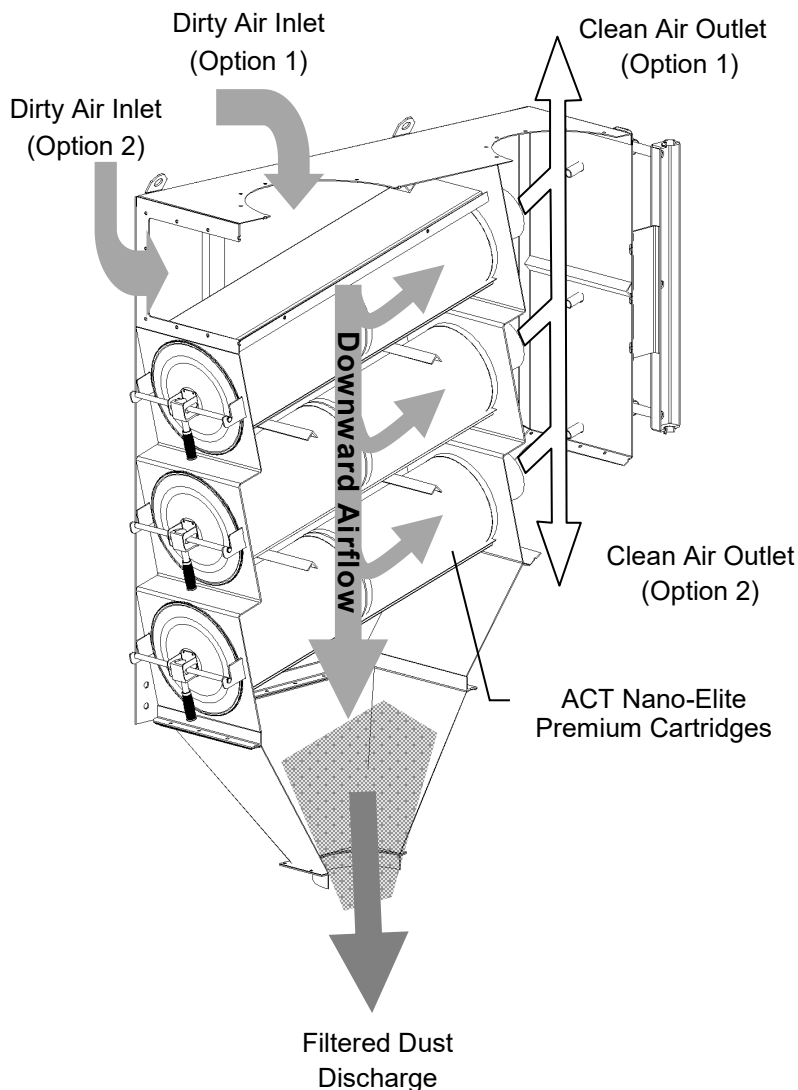
Any special instructions and certified drawings accompanying this equipment shall supersede this manual.

Keep this manual along with any special instructions and drawings necessary for assembly, operation, and maintenance with the equipment.

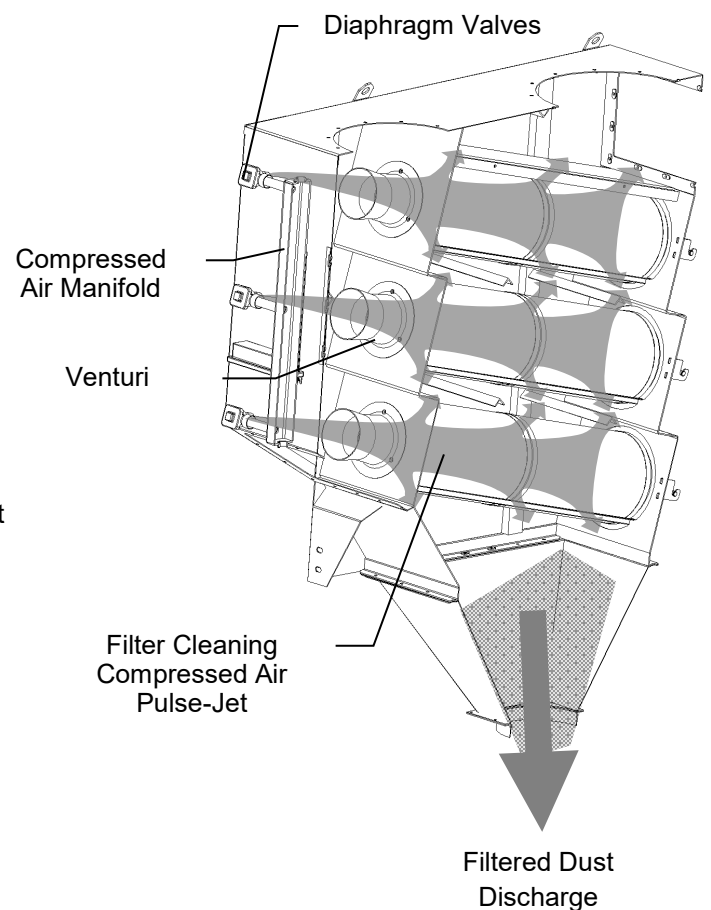
# Operation Principle

The ACT cartridge dust collector is a pulse-jet air cleaning device that removes the particulates from dust-laden air and allows clean air to be exhausted. As dust enters through the dirty air inlet, the heavier particulates fall down into the hopper while the remaining fine dust is collected on the cartridge filters, allowing clean air to be passed through the filters and then exhausted.

To remove excess dust buildup on the filters, a timer board is used to sequentially open the diaphragm valves and release a pulse of compressed air. This venturi-assisted pressure pulse releases the accumulated dusts on the filters, allowing the particulate to drop down into the hopper.



**Dust Filtration Process**



**Pulse-Jet Cleaning Process**

## Shipping and Receiving

All products from ACT Dust Collectors are carefully inspected for quality and order completion prior to shipment.

Prior to unloading, inspect all components for any shipping damage and missing parts. Report and file a claim immediately with the carrier for any damage or missing items. Once filed, contact your ACT Dust Collectors representative to notify them of your issue(s).

Any repairs to components with minor damage from transit must be approved in writing by the manufacturer.

## Handling

Handling should be performed by trained, able, and qualified personnel and be consistent with safe handling practices outlined by OSHA and local codes.

Review this manual and any additionally supplied certified drawing(s) to familiarize yourself with the lift points of each of the components.

Verify the integrity and lift capacity of all handling equipment/components.

When handling the housing, it is recommended to utilize spreader bars to prevent any deformation during lifting.

All lifting points are to be used.

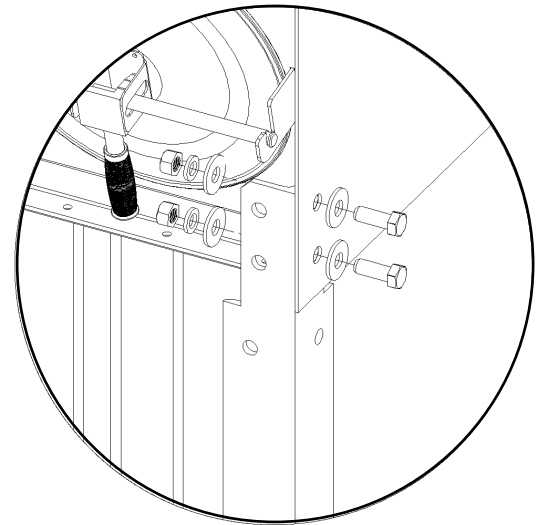
**Table 1 - Recommended SAE Torque Table**

<b>Bolt Size</b>	<b>SAE Grade 5 Torque (ft-lb), dry</b>
1/4-20	8.4
5/16-18	17.4
3/8-16	31
7/16-14	49
1/2-13	75
5/8-11	150
3/4-10	267

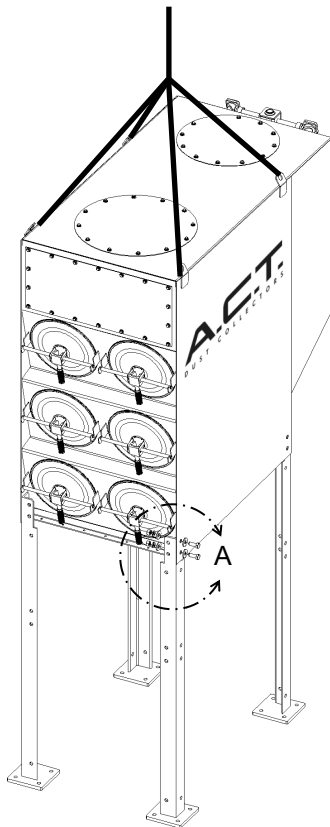
# Assembly

## Dust Collector Housing and Legs

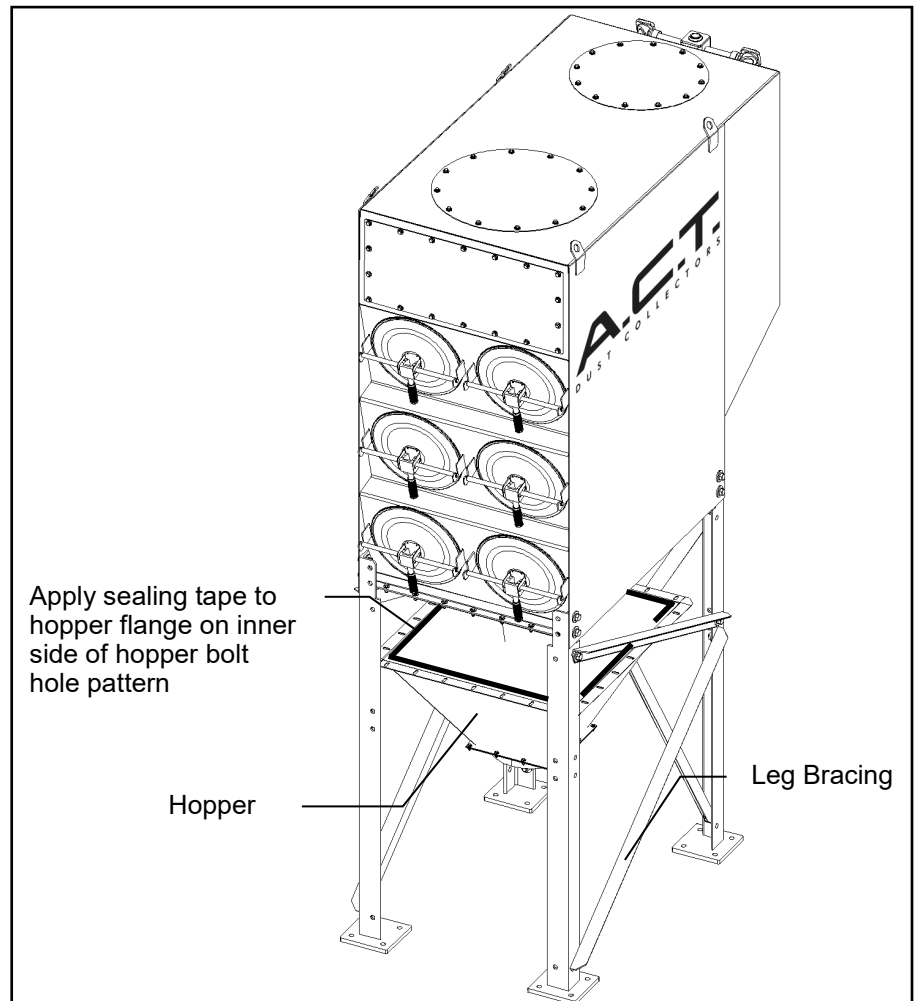
1. Using all lifting lugs, raise the dust collector housing with a crane to allow enough clearance to fasten the legs. (Do Not lift using the compressed air manifold).
3. Fasten the legs with the supplied hardware. Hand tighten the hardware and keep the collector supported with the crane.
4. Install the hopper. Apply sealing tape to the hopper flange on the inner side of the hopper bolt pattern.
5. Locate and fasten the leg bracings to the legs. Hand tighten the hardware.
5. If applicable, fasten the middle of the leg bracings that cross one another.
6. Install 3/4 inch diameter anchor bolts with a minimum 1 3/4 inch extension above the foundation.
7. Once the legs have been assembled and anchored, tighten all of the fasteners to the recommended SAE torque per Table 1.



Legs Installation - Detail A



Legs Installation



Leg Bracing and Hopper Installation

## Flex Hose and Drum Lid

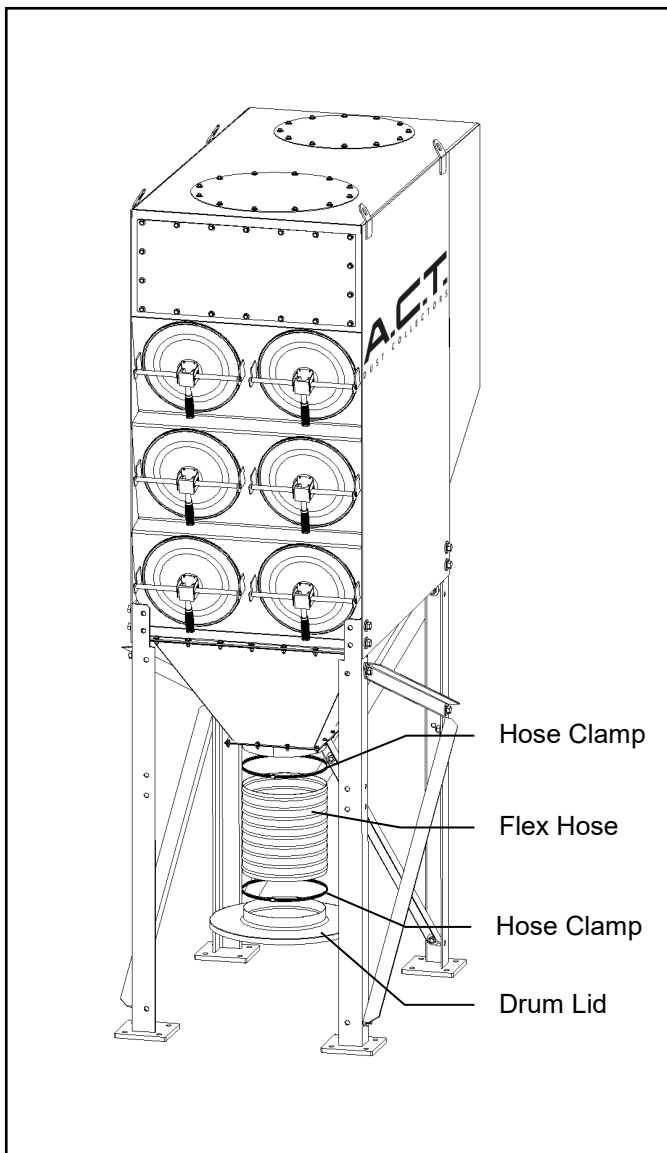
*The hopper outlet must be sealed in order for the collector to function properly by preventing air from being pulled through from the hopper outlet.*

1. Secure the drum lid to the hopper outlet collar using the supplied flex hose and hose clamps.
2. Place drum lid on top of the drum barrel.

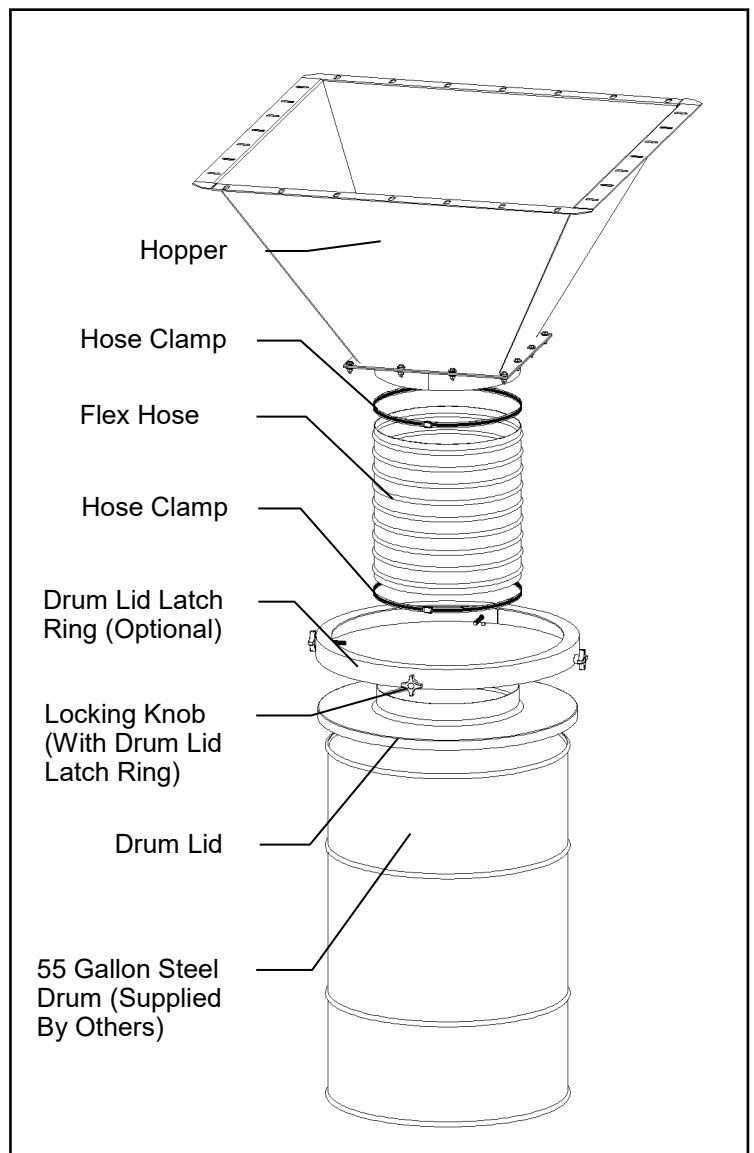
## Flex Hose, Drum Lid, and with Optional Drum Lid Latch Ring Kit

*An optional drum lid latch ring is available to help secure the drum lid on to the drum barrel.*

1. Place the drum lid on top of the 55 gallon drum.
2. Place the drum lid latch ring over the drum lid and secure the lid by adjusting the four knobs.
3. Attach the flex hose to the drum lid and hopper collar using the hose clamps.



Flex Hose and Drum Lid Installation



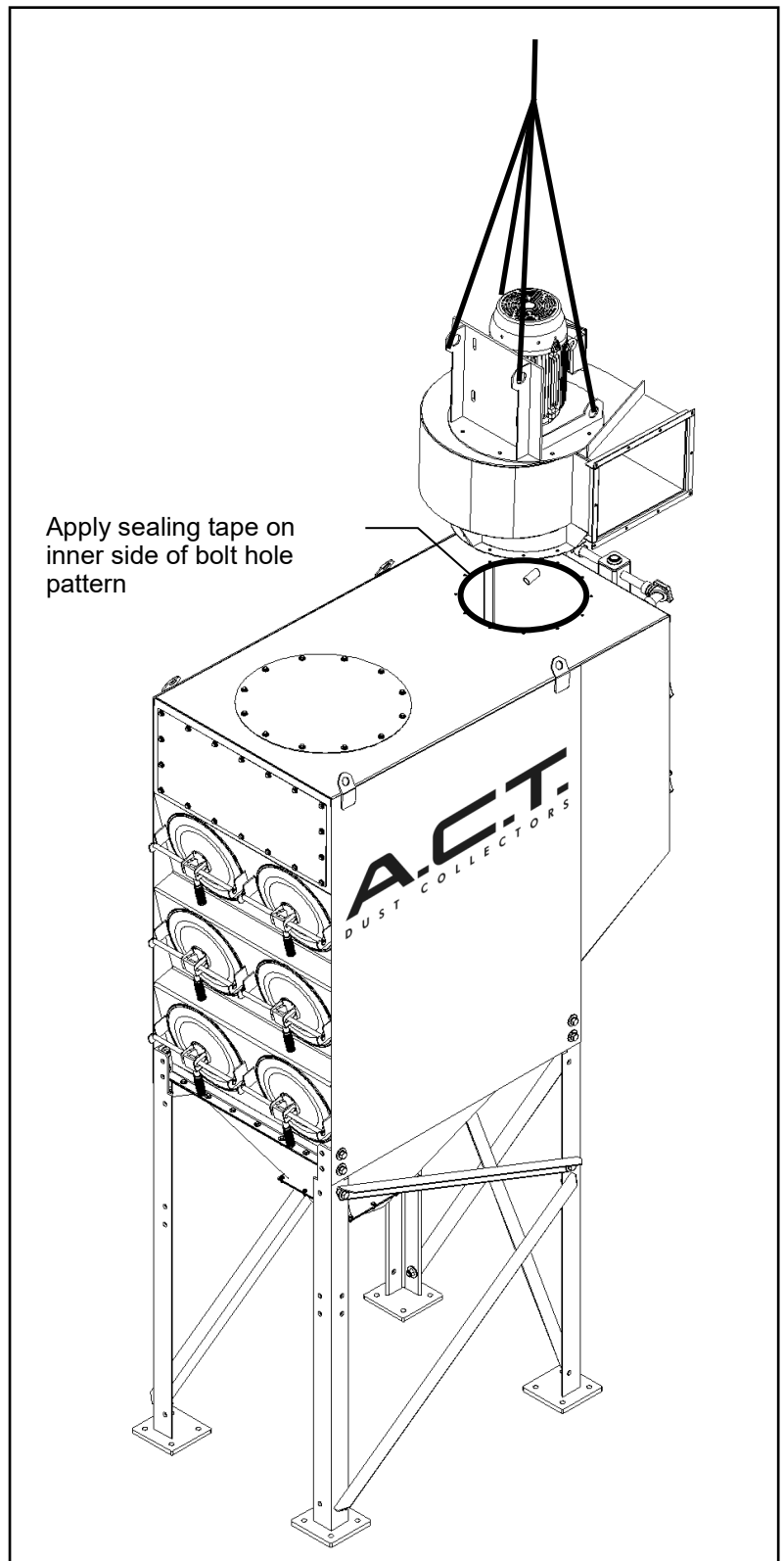
Flex Hose, Drum Lid, and with Optional Drum Lid Latch Ring Installation



## Top Mounted Fan Installation

*Standard fan model is shown below. Refer to the fan manual for other fan models.*

1. The dust collector must be securely anchored prior to installing a top mount fan.
2. Remove the top outlet cover.
3. Apply sealing tape (or a bead of sealant) on to the inside of the bolt hole pattern.
4. With a crane (or proper lifting device), raise the fan blower using all designated lift points.
5. Place the fan blower onto the top of the dust collector, exhausting in desired direction, and secure with the supplied hardware.
6. All fan outlet silencers require additional support in the field (by others).



Top Mount Fan Installation

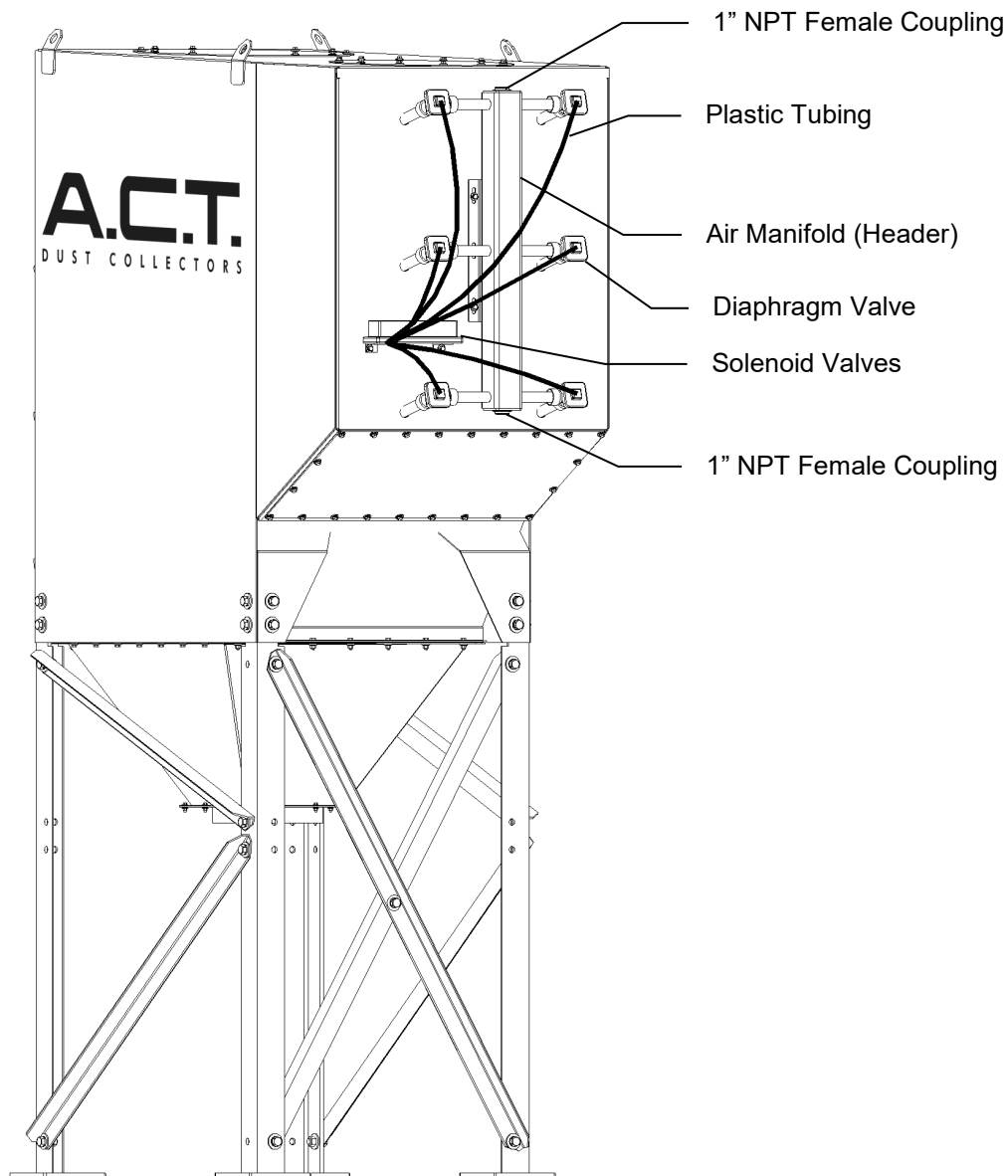
## Compressed Air

The supplied compressed air must be clean, dry, and oil-free. Set the compressed air pressure levels to 90-100 psi. Do NOT exceed 100 psi as damage may occur to the components.

Prior to installation, purge the compressed air lines of any dirt or buildup.

1. Install the compressed air pipe line to the air manifold to either the top or bottom 1" NPT coupling. Use thread sealant tape or compound on all connections.

2. A drip tee or ball valve installed on the bottom of the manifold is recommended to allow for the draining of any water buildup.
3. It is also recommended to install a shut-off valve, pressure regulator, safety exhaust valve, and filter close to the collector.



## Electrical

*All wiring should be done by a certified electrician and in accordance with all local and federal codes.*

*Refer to the job specific electrical drawing(s) located in the panel and manual binder for detailed instructions.*

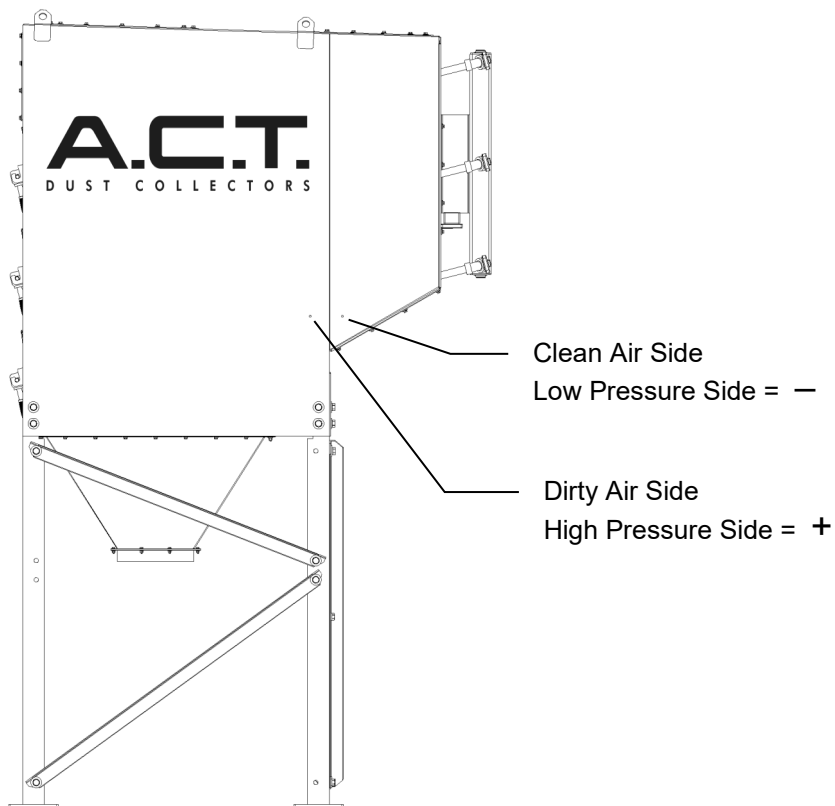
*Fan and timing board/solenoid wiring are to be in separate conduits.*

### 1. Fan

- Verify fan rotation by observing from the motor end. Another indication is poor fan performance or a lack of air movement.

### 2. Timer Board

- Locate the timer board as close to the dust collector as possible.
- To wire the timer board, please refer to the wiring diagram located inside the timer board enclosure.
- Once the timer board has been installed, the pressure gauge must be connected to the dust collector using customer supplied ¼" tubing (see figure below for low and high pressure ports). If the dust collector is installed outside, the tubing should UV resistant.
- **IMPORTANT:** Prior to operating the dust collector or adjusting the settings, ensure that the down time clean feature has been properly wired. This feature will allow the dust collector to clean itself during shut down, which will aid in prolonging the life of the filters.



## Timer Board Programming

Familiarize yourself with the timer board manual before programming the timer board.

The table below summarizes the recommended settings. Consult with ACT Dust Collectors for specific applications.

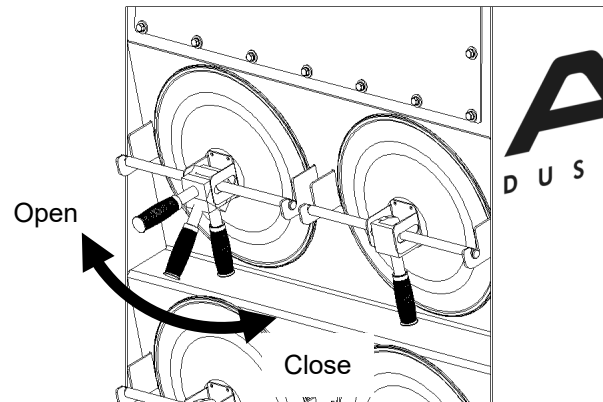
**Table – Recommended Timer Board Settings**

Feature	Settings
Process	Current pressure drop
Last Output	The highest output terminal value that has a wire installed in it. Terminal outputs have a range from 1-22 and are found near the bottom of the timer board.
Time Off	10
Time On	100
High Limit	Starting value of 1. Adjust to 1" higher than initial pressure drop with clean filters. (Contact Manufacturer for Questions)
Low Limit	Starting value of 1" below high limit value
High Alarm	10
Low Alarm	0
Cycle Delay	0
Down Time Cycles	10
Auto Alarm Reset	Unless notified, leave at factory setting of 5.

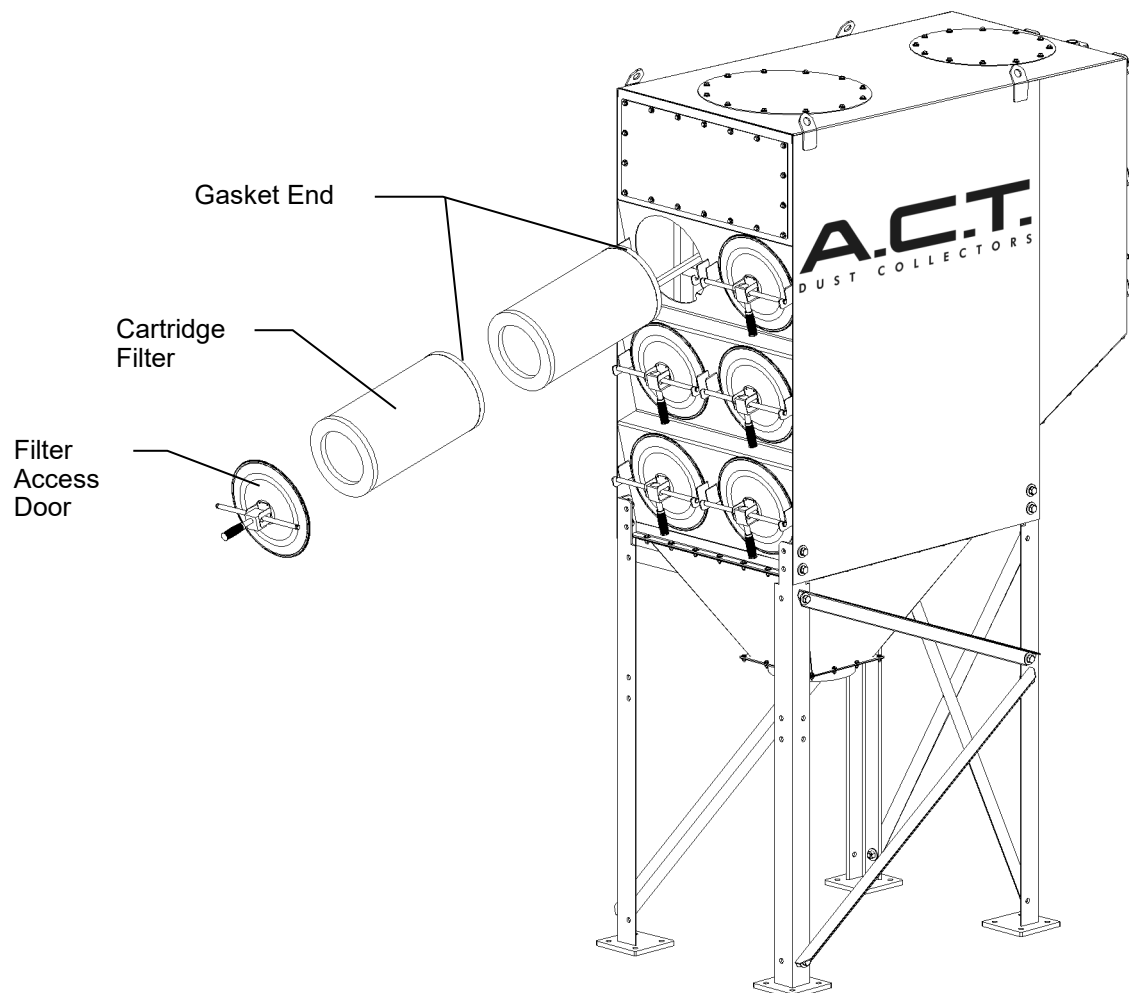
## Maintenance

### Cartridge Filter Replacement

1. Turn off the fan and wait until the down time cleaning cycle is completed.
2. Lock out/ tag out power to the collector and fan.
3. Open the filter access door by pulling and lifting the cam handle.
4. Once door is loose, lift it off the securing hooks and set it down.
5. Reach into the collector and pull out all of the filters. (Or work your way top down to avoid dust from the upper filters falling down on to the new filters).
6. Once filters are removed, install new filters. Make sure that the gasket end goes into the collector first.
7. Reinstall the filter access door.



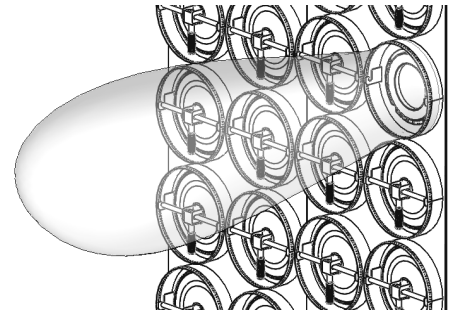
Filter Access Door  
(Opening and Closing)



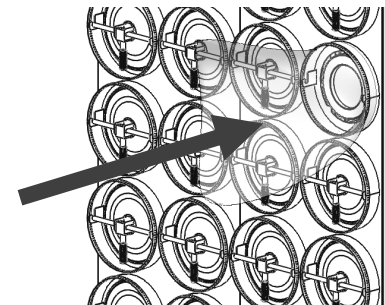
## Bag-In Bag-Out Collars

Bag-in/bag-out collars are used when harmful dusts are present or simply to minimize exposure to any dust. They minimize the amount of dust the operator comes in contact with by allowing the operator to replace the filters by using a bag strapped onto the collar. Although this procedure does greatly reduce exposure to the dusts, it is hard to completely avoid any exposure. It is strongly recommended that the operator still use proper protective clothing, including respirators.

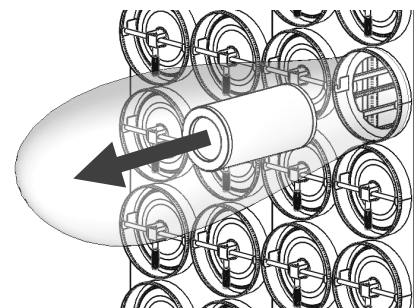
1. Remove the filter access cover and set it aside. If you would like, you can use a bag for this process to further minimize exposure. Starting at the top row of the dust collector will prevent dusts from falling on to new filters already installed in the rows below.
2. Take a new bag and place it over the outside of the bag collar. Secure the bag around the collar with the provided strap. Securely tighten the strap.
3. Grab the bottom of the bag, reach in and twist the filter to drop off any dust that may be in the pleats of the filter, and then pull the filter out into the bag.
4. Before removing the bag from the collar, it is recommended that you twist the bag to prevent the dust from escaping and use a tie to seal off the bag.
5. Remove the bag from the collar.
6. If there are two filters in your filter access hole, repeat this process for the next filter.
7. Place the new filter into the filter access hole. To further minimize exposure to dusts, this can be done by first loading the new filter into a bag.
8. Replace the filter access door and continue this process until all filters have been replaced.



Secure bag on to the collar



Reach in and grab the filter with the bag



Remove the filter while still inside of the bag



## Troubleshooting

Problem	Probable Cause	Solution
Poor performance - not enough suction or air movement	Fan rotation in wrong direction	Rewire three phase wires to change fan rotation
	Closed damper or obstruction in airstream	Slowly open damper or remove obstruction
	VFD	Verify settings and operating speed
	System design	Verify fan performance to fan curve with airflow, static pressure, and amperage readings
		Re-evaluate system design to verify that the fan is properly sized for the application or nothing has changed since product selection (i.e. added a new weld station)
	System effects	Check along the duct system to ensure that there is no abrupt changes in airflow (i.e. inlet box with no turning vanes, mitered elbow with no vanes, etc.)
	Filters at end of life	Replace filters
High differential pressure	Not enough compressed air	Verify that the pressure is high enough for effective cleaning (set to 90-100 psi)
	Dirty filters	Activate cleaning by reducing the "high limit" or manually pulse by following the instructions in timer board manual
		Replace filters near end of life
	Not enough compressed air	Verify that the pressure is high enough for effective cleaning (set to 90-100 psi)
	Defective cleaning system	Verify solenoids, diaphragm valves, and timer board are functioning and properly wired
Motor over-amping	Fan design	Overloading radial-bladed fans may require a damper to reduce the horsepower requirements
	Electrical	Verify correct motor supply voltage
	Fan/motor sized incorrectly	Confirm system requirements with airflow measurements
		Replace fan with larger unit



## Troubleshooting Continued

Problem	Cause	Solution
Zero differential pressure reading	Wrong pressure high/low pressure tubing connection	Swap the connections of the pressure reading plastic tubing on the side of the collector
	Pressure reading tubing kink or leakage	Inspect tubing for kinks or leakage
	Filters/Bypass	Verify filters are installed and that there is no bypass of dust
	Defective timer board	Replace board. (1-800-422-1316)
Cleaning system not pulsing	Solenoid	Listen for clicking noise to verify solenoids are opening/closing. Replace if defective.
		If located in frigid outdoors temperatures, a solenoid heater may be required
	Diaphragm Valve	Replace worn diaphragms. (1-800-422-1316)
	Timer board	Manually pulse by following instructions in timer board manual. Verify it is correctly installed.
		Defective. Replace board. (1-800-422-1316)
No down-time cleaning	Timer board	Verify settings on timer board
	Electrical	Call A.C.T. to verify electrical drawings and specifications. (1-800-422-1316)
Dust discharging from outlet	Filter damage	Inspect filters for tears along filter media and gaskets.
	Filters installed incorrectly	Verify that the filters are installed correctly with gasket end towards the collector.
	Pulse pressure set too high	Decrease compressed air pressure.

## Warranty

Air Cleaning Technology, Inc. warrants the equipment to be free from defects in materials and workmanship for a period of 5 years from the date of purchase. This warranty does not cover any damage due to normal wear and tear including, but not limited to, corrosion, abrasion, elements, and modifications. This warranty covers parts only. This warranty covers only the parts manufactured exclusively for Air Cleaning Technology, Inc. All other parts will be covered by individual manufacturer's warranty.

**For Questions and Replacement Parts  
Call Toll-Free 800-422-1316**



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[www.actdustcollectors.com](http://www.actdustcollectors.com)