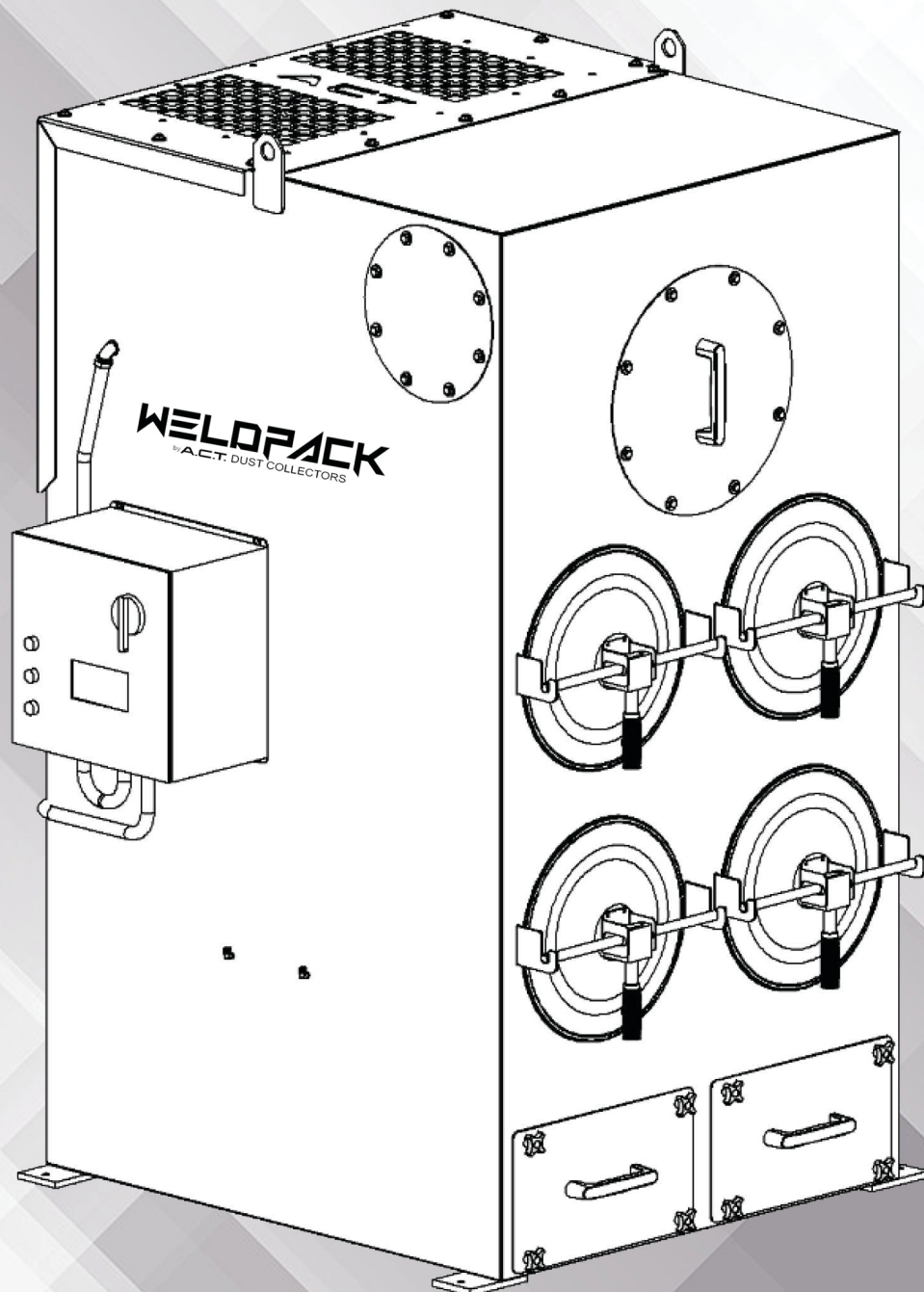




Installation and Operation Manual



763-557-7162

info@actdustcollectors.com

820 North Front Street, New Ulm, MN 56073



Product Data Sheet

Purchaser: _____

Order date: _____

A.C.T. Dust Collector Model: _____

Serial Number: _____

Filters: _____

Option/Accessories: _____

Fan/Blower

Manufacturer/Model: _____

Serial Number: _____

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. A.C.T. 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. A.C.T. 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 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.

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Introduction

Thank you for your purchase of an A.C.T. Dust Collectors unit. 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 the 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.

Recommended Tools for Install

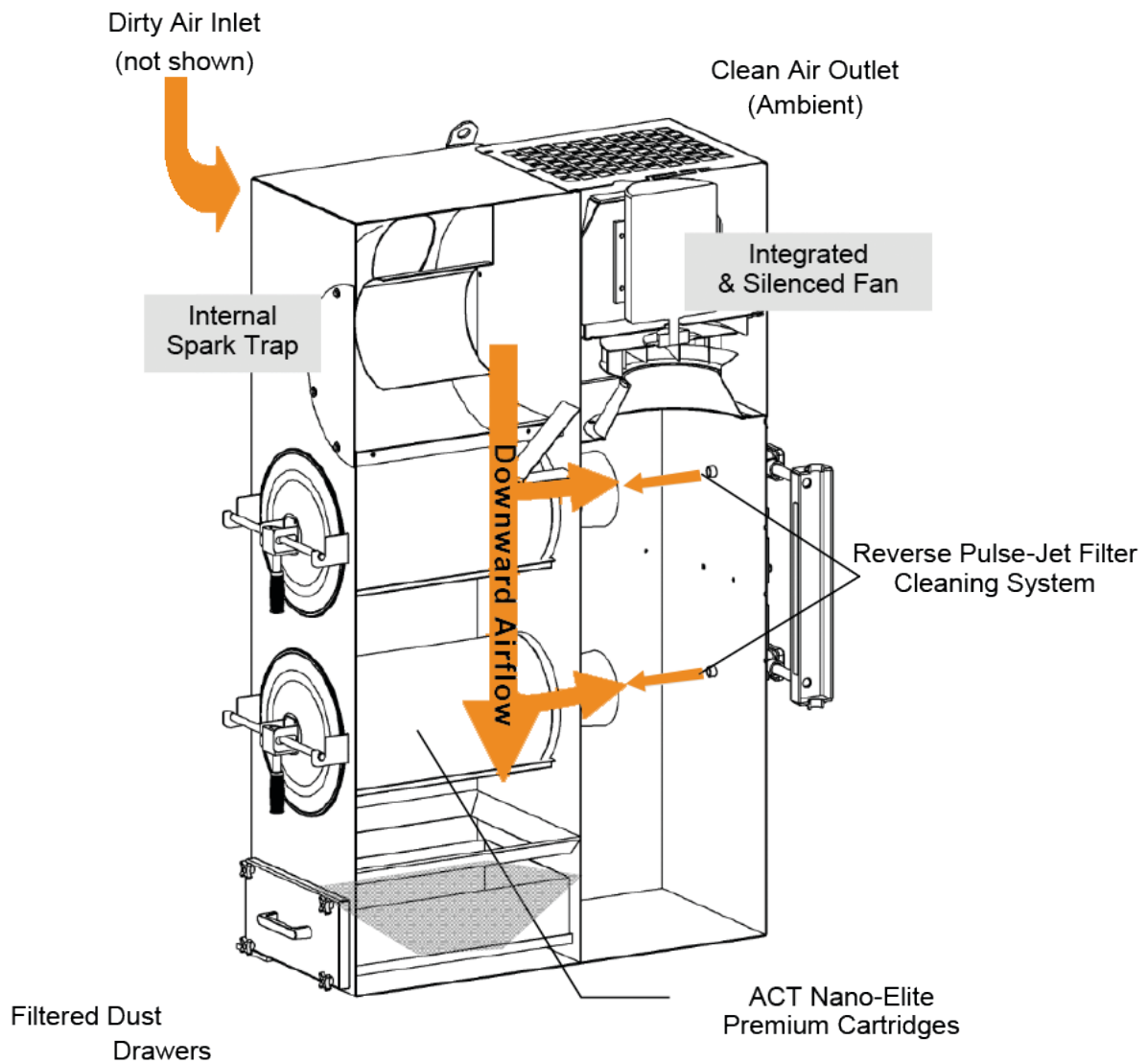


- Drill
- Impact
- 9/16" Socket
- 9/16" Wrench
- Anchoring Kit
- Ladder
- Lifting Chains/Straps

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 it passes through the cyclonic spark trap, the heavy particulate is then directed towards the drawers while the remaining fine dust is collected on the cartridge filter surface, allowing clean air to be exhausted back into the atmosphere.

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 from the filters, allowing the particulate to drop down into the drawers.



Dust Filtration Process & Pulse-Jet Cleaning Process

Shipping and Receiving

All products from A.C.T. 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 A.C.T. Dust Collectors representative to notify them of the issue(s).

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

WeldPack units are shipped bolted to wooden blocks, we recommend prior to installation that the blocks are removed from the mounting feet.

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.

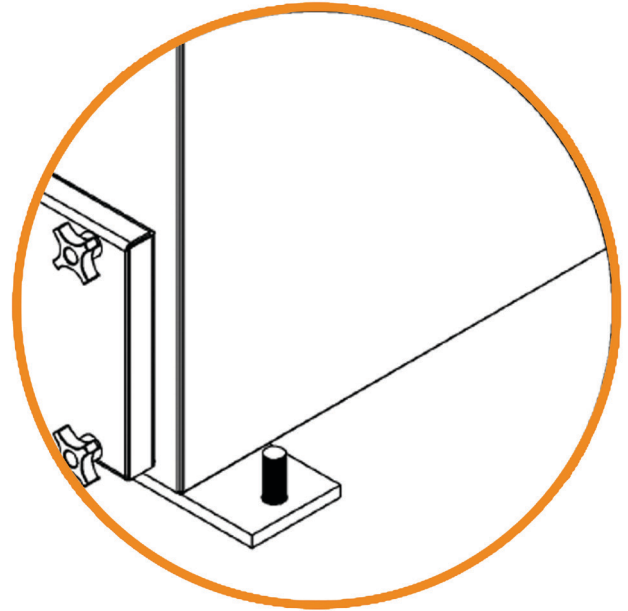
Bolt Size	SAE Grade 5 Torque (ft-lb), dry
1/4-20	8.4
5/16-18	17.4
3/8-16	31
7/16-14	49
1/2-13	75
5/8-11	150
3/4-10	267

Assembly

Dust Collector Anchoring

1. Install 3/8 inch diameter anchor bolts with a minimum of 3 inches into the foundation. Ensure foundation complies with all local regulations and codes.
2. Use recommended SAE torque table for the anchor bolts.

LaserPack units are shipped bolted to wooden blocks, we recommend prior to installation that the blocks are removed from the mounting feet.

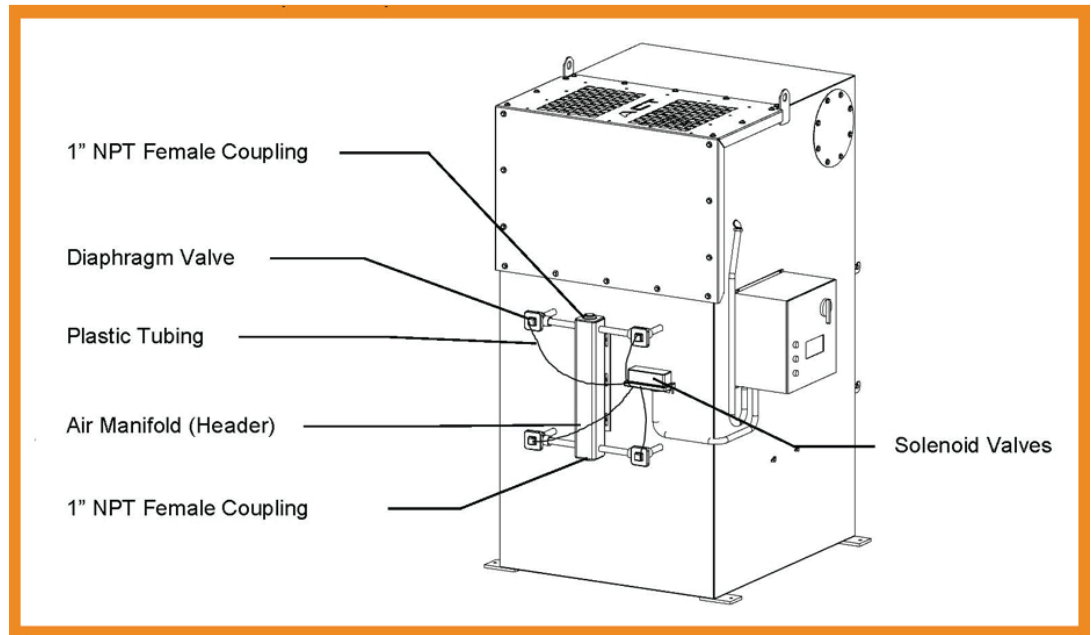


Compressed Air

The supplied compressed air must be clean, dry, and oil-free. Set the compressed air pressure levels to 80-90 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 but main power lines will be assembled by A.C.T. Dust Collectors. In the case of maintenance or repair, refer to below instructions.

Refer to nameplate in control panel for proper supply voltage.

Refer to page 10 for recommended timer board settings.

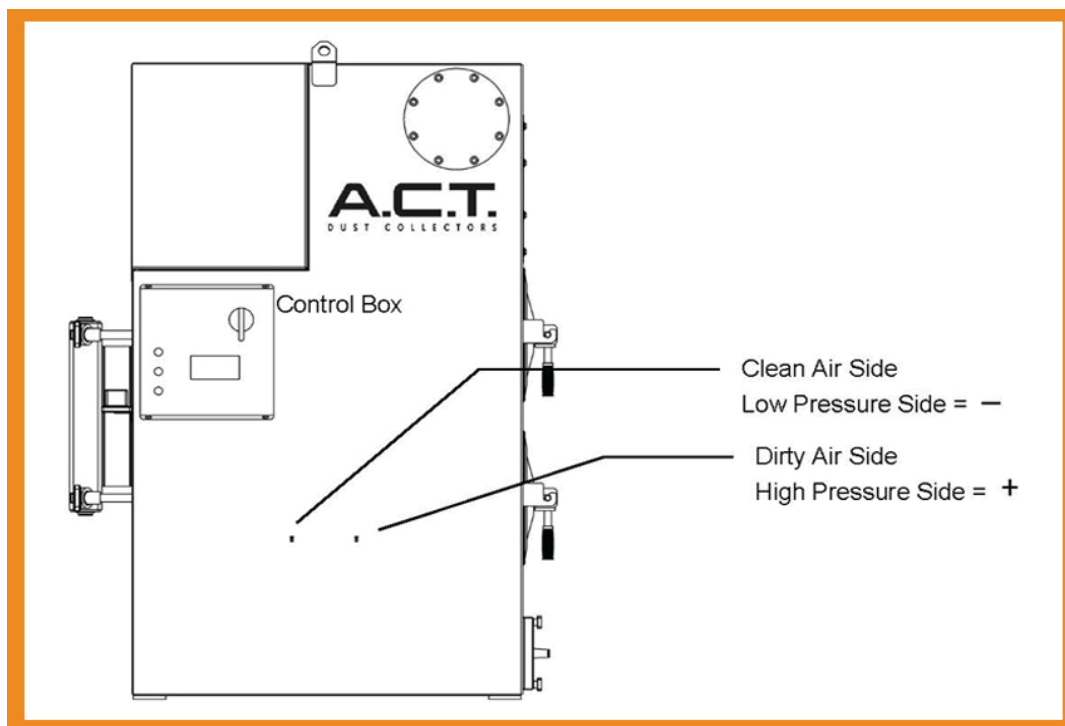
All wiring should be done by a certified electrician and in accordance with all local and federal codes.

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. See diagram on page 10 for 5 HP fan wiring

See diagram on page 11 for 10 HP fan wiring

1. Fan
 - Verify fan rotation by observing from the motor end. Another indication is poor fan performance or a lack of air movement.
2. Control Panel
 - The timer board is located inside the control box, mounted on the dust collector.
 - Once the timer board has been installed, the pressure gauge must be connected to the dust collector using customer supplied $\frac{1}{4}$ " 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.

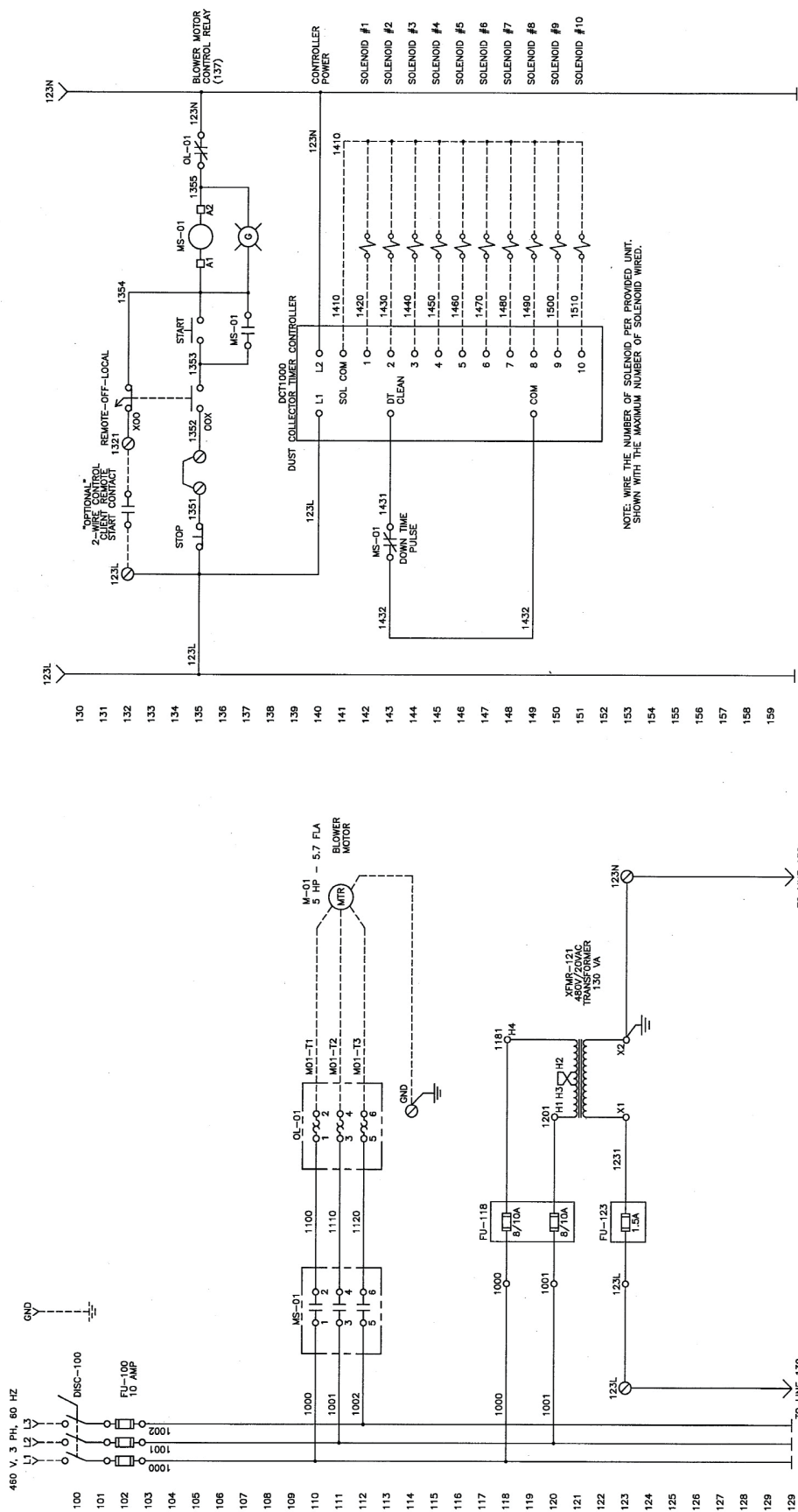
The table below summarizes the recommended settings. Consult with A.C.T. Dust Collectors for specific applications.

Table 2 – 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	1.00" above initial pressure drop (Contact Manufacturer for Questions)
Low Limit	Starting value of 1" below high limit value
High Alarm	10 (Unless alarm is installed - Consult Manufacturing)
Low Alarm	0 (Unless alarm is installed - Consult Manufacturing)
Cycle Delay	0
Down Time Cycles	10
Auto Alarm Reset	Unless notified, leave at factory setting of 5.

Check all connections for loose wires, If loose wires are present it can lead to over amperage and cause fuses to blow.

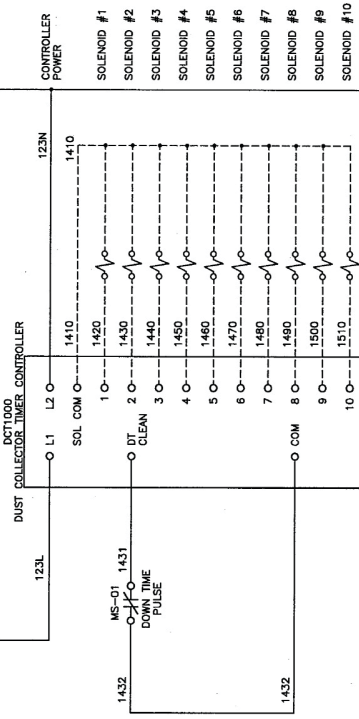
WIRING DIAGRAM—5 HP



**DUST COLLECTOR
BLOWER PHASE 5 HP
480VAC/3PH 5 WIRE
REM - SAFE**

DATE	7/29/08	BY	MS
DESIGNER		DATE	7/29/08
CREATED		ISSUED BY	MS
		ISSUED DATE	7/29/08
		REVISION	1
		REVISION DATE	7/29/08
		REVISION BY	MS
		REVISION DESCRIPTION	5 WIRE
		REVISION NUMBER	480-R-S.

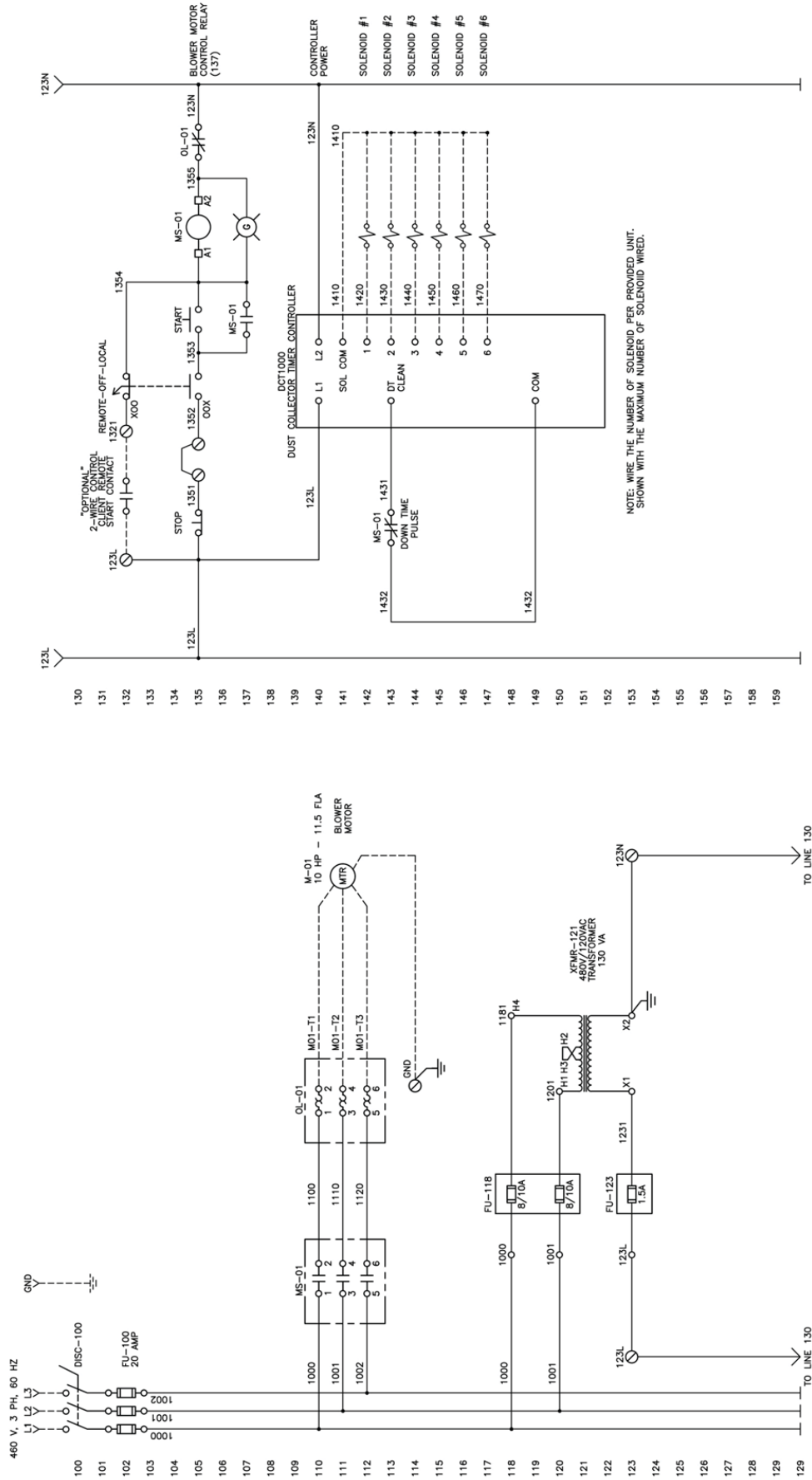
NOTE: WIRE THE NUMBER OF SOLENOID PER PROVIDED UNIT.
SHOWN WITH THE MAXIMUM NUMBER OF SOLENOID WIRED.



DUST COLLECTOR
BLOWER PHASE 5 HP
480VAC/3PH 5 WIRE
REM - SAFE

DATE	7/29/08	BY	MS
DESIGNER		DATE	7/29/08
CREATED		ISSUED BY	MS
		ISSUED DATE	7/29/08
		REVISION	1
		REVISION DATE	7/29/08
		REVISION BY	MS
		REVISION DESCRIPTION	5 WIRE
		REVISION NUMBER	480-R-S.

WIRING DIAGRAM—10 HP



Start-Up Checklist

- Dust collector completely assembled
- Bolts tightened per specifications on page 6 of this manual
- Fan mounted to the collector after the collector is anchored properly
- Confirm the fan direction matches the rotation arrow on the fan.
- Wiring run to the fan motor from the starter
- Power run to the solenoid enclosure for each solenoid from the timer board outputs
- All wires secured tightly in their terminals per the diagram at the back of this manual
- Compressed air connected to the air manifold
- Compressed air regulator installed and set for 90-95 PSI
- ¼" air tubing connected from the timer board/control panel to the two fittings on the side of the unit
- Timer board programmed per the recommended settings on page 9

Once that is confirmed it is important to check any other accessories that may have been purchased with the unit that require wiring, this includes:

- Remote Start
- Fire Suppression

Before turning the collector on make sure:

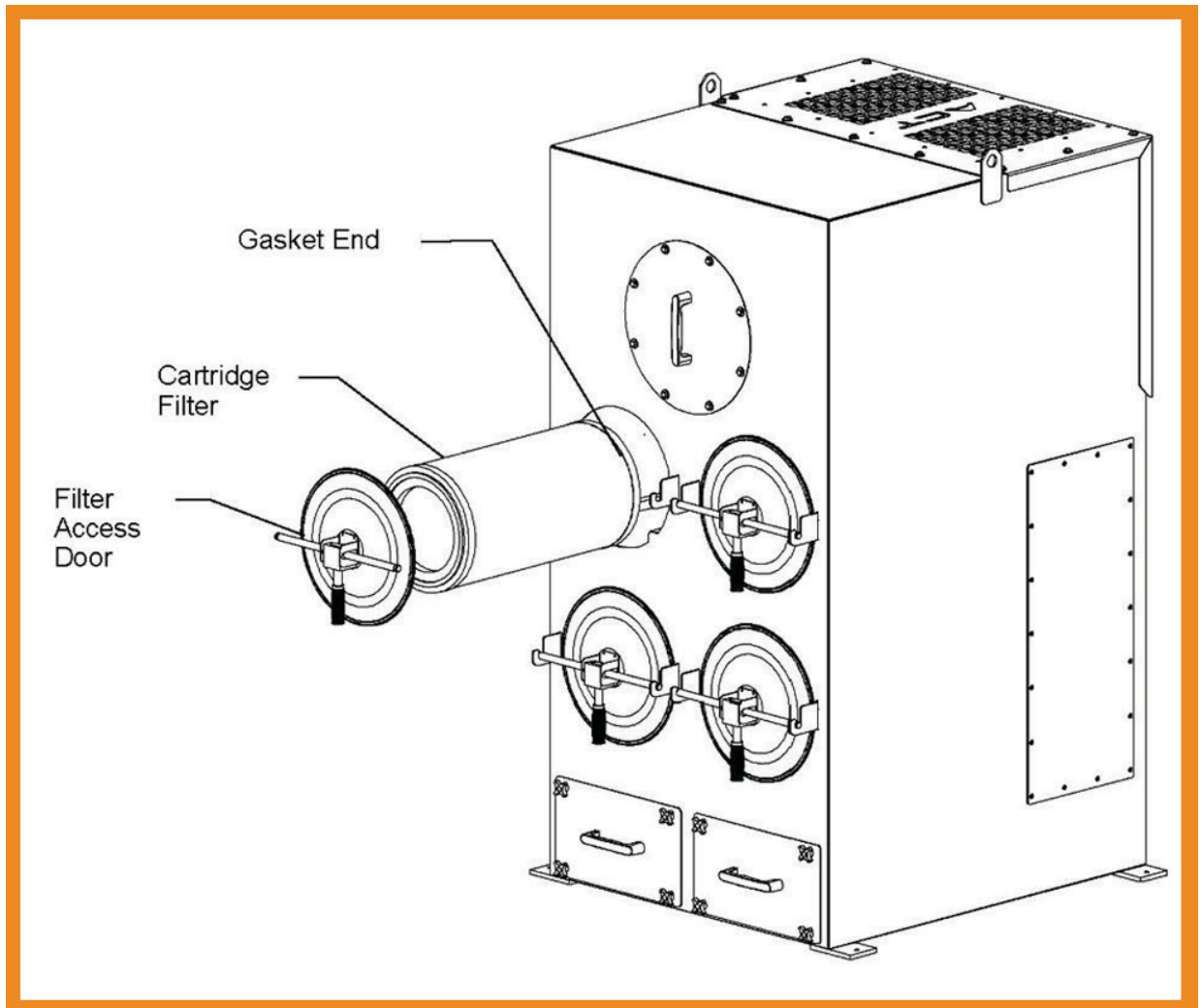
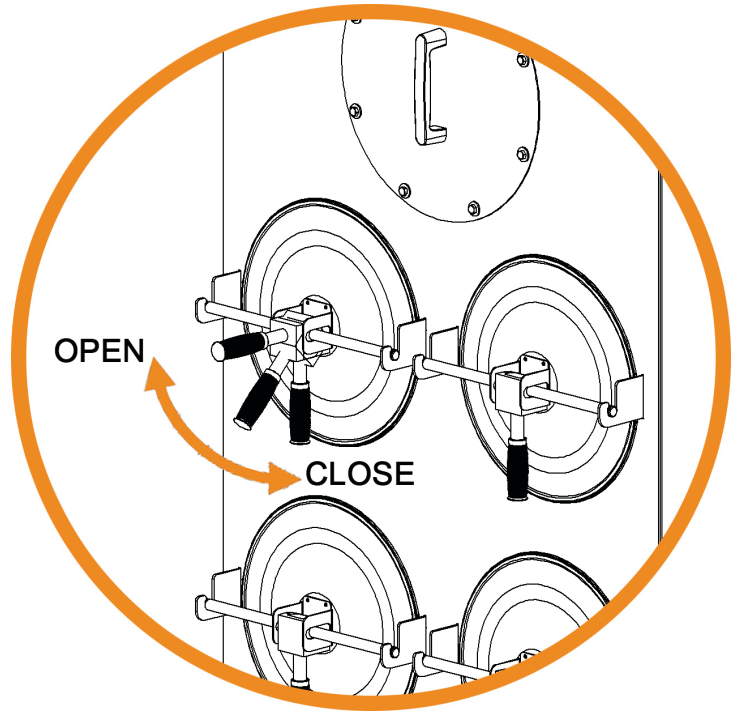
- Secure the dust drawers by tightening the provided knobs
- Dampers are open on your duct work
- Compressed air is turned on to the unit and confirm there are no air leaks
- All filters are in place and filter doors closed
- Make sure all terminal wiring is secure and tight

When using the Remote start feature make sure the control is switched to Remote instead of Local

Maintenance

Cartridge Filter Replacement

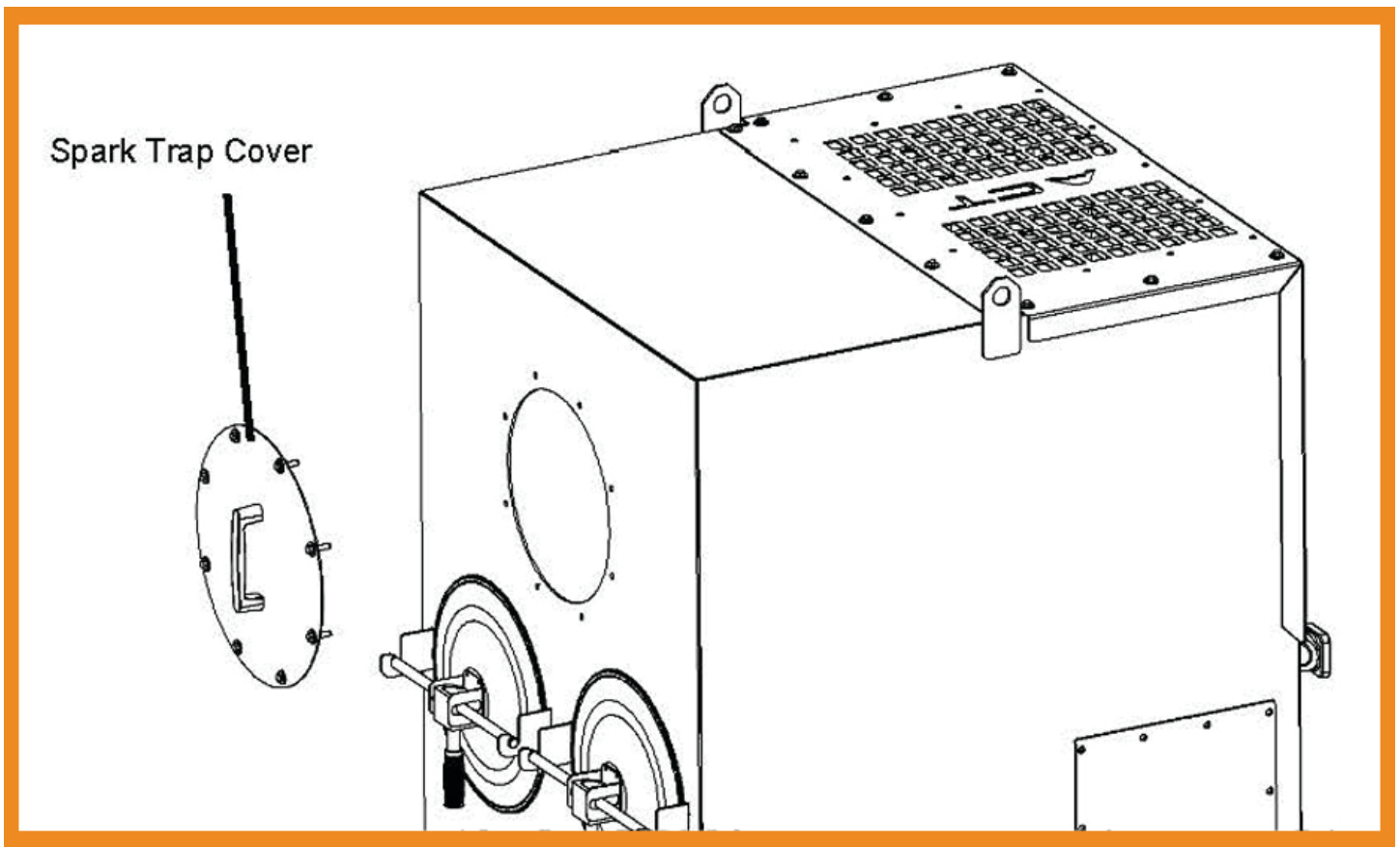
1. Turn off the fan and wait until the down time cleaning cycle is completed.
2. Lock out/ tag out power to the collector and fan.
3. Open the filter access door by pulling and lifting the cam handle.
4. Once door is loose, lift it off the securing hooks and set it down.
5. Reach into the collector and 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.



Maintenance

Spark Trap Cleaning

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. Access the spark trap by unbolting the spark trap cover
4. Remove any debris or buildup inside of the spark trap.
5. Reinstall the spark trap cover.

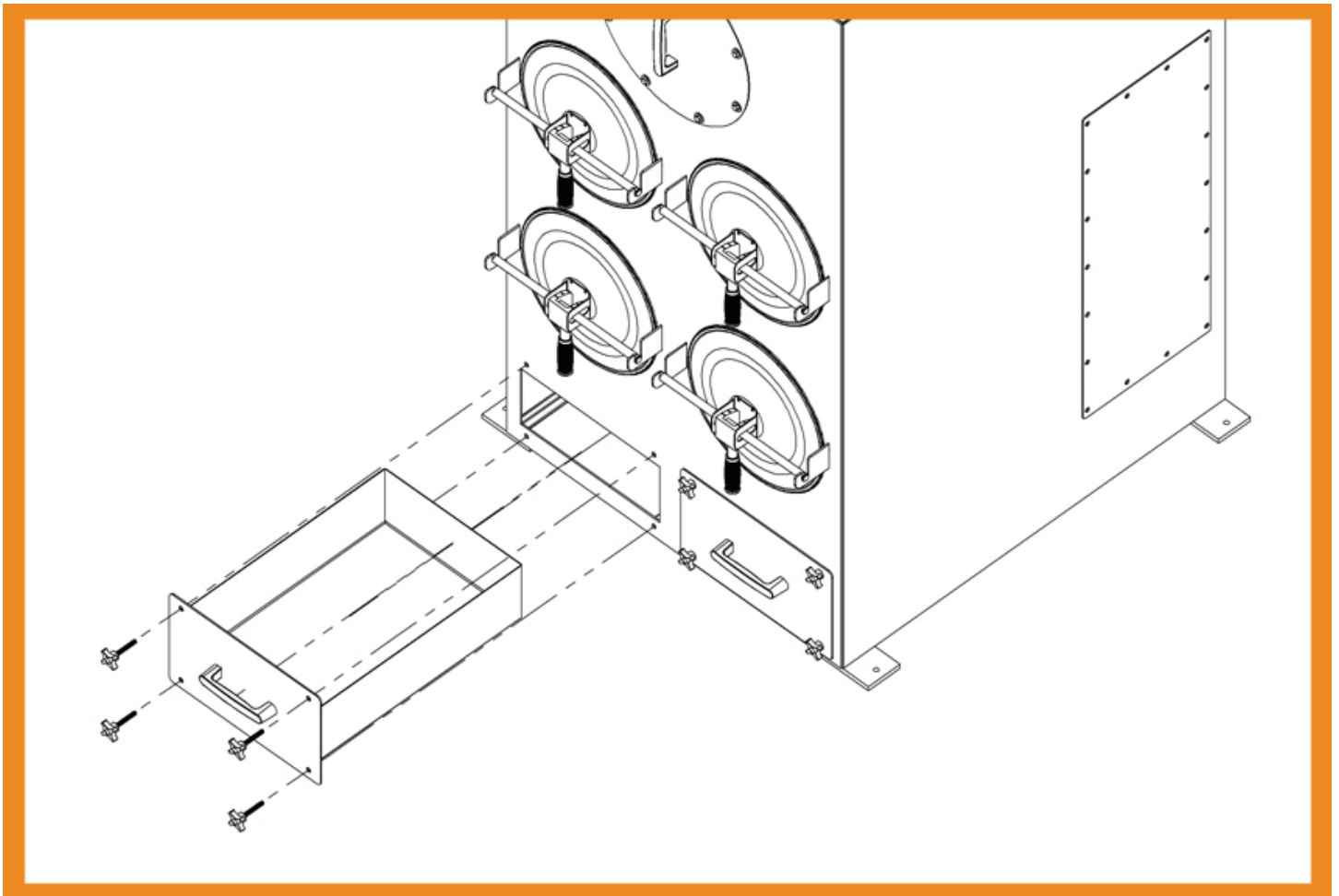


***Amount of dust collected will vary across applications. Initially check spark trap once a week and adjust as needed.**

Dust Drawers

Dust Drawers are used as an alternative to hopper and barrel collection methods. Dust is directed into the drawers by baffles inside the collector. It is recommended to check drawers at 1 week intervals initially to determine your dust loading, and adjust from there.

1. Remove bolts or knobs holding drawers in place.
2. Pull out drawer and dispose of contents, making sure to follow any local regulations for material waste.
3. Replace drawers and replace bolts or knobs.



Monitor the differential pressure to gauge the filter life so you know when to empty your dust drawers and replace the filters

Additional Options (Sold Separately):

These are optional items that can be purchased with an A.C.T. Dust Collector, depending on the dust collector purchased, size and shape may vary slightly.

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.

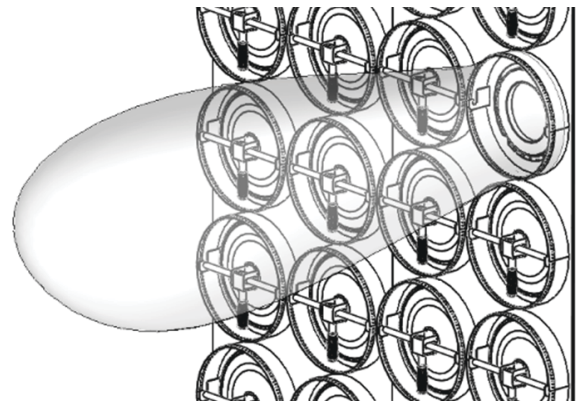
4. Before removing the bag from the collar, it is recommended that you twist the bag to prevent the dust from escaping and use a tie to seal off the bag.

5. Remove the bag from the collar.

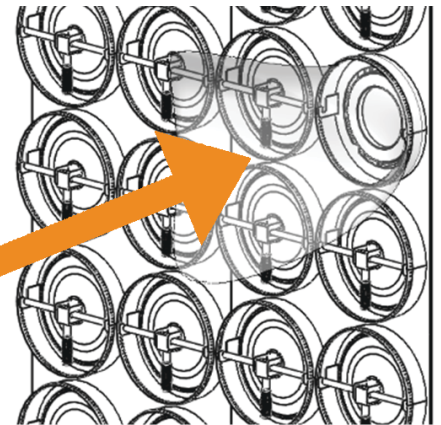
6. If there are two filters in your filter access hole, repeat this process for the next filter.

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.

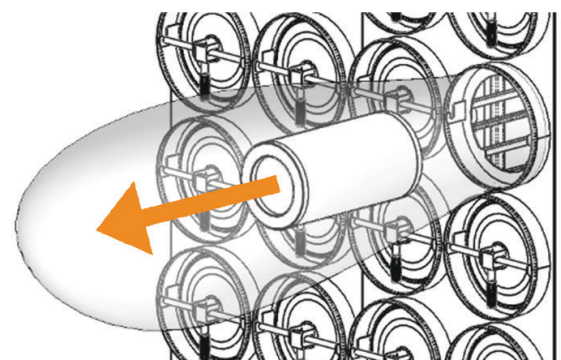
8. Replace the filter access door and continue this process until all filters have been replaced.



Secure bag on to the collar



Reach in and grab the filter with the bag



Remove the filter while still inside of the bag

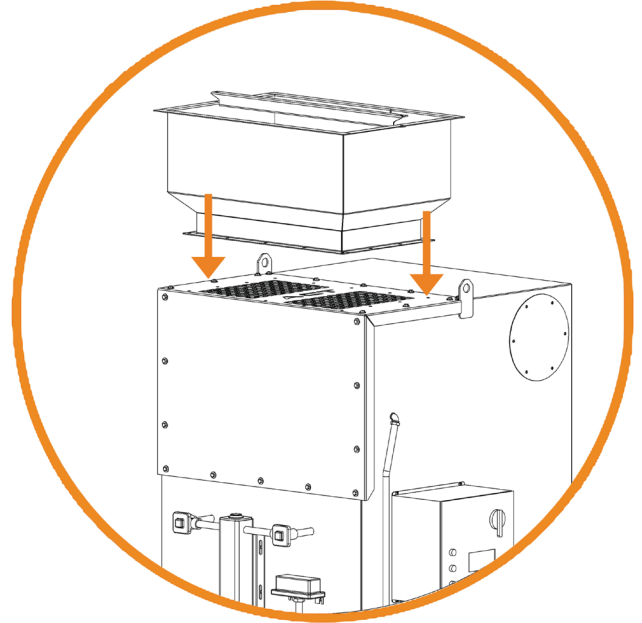
Additional Options (Sold Separately):

These are optional items that can be purchased with an A.C.T. Dust Collector, depending on the dust collector purchased, size and shape may vary slightly.

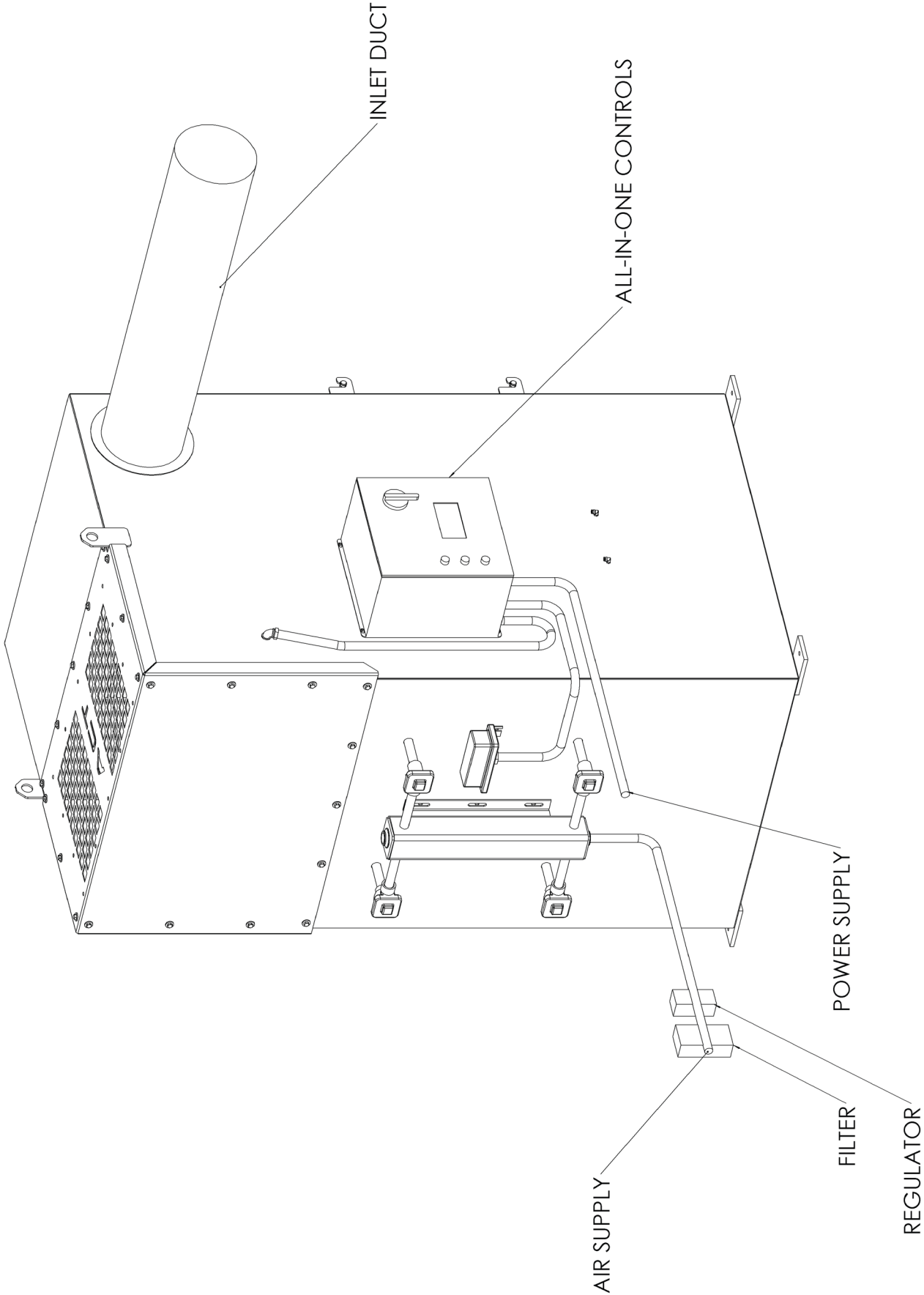
HEPA Adder

If you purchased the optional HEPA housing for the laser pack the kit will include, the HEPA filter housing, the filters, hardware to install the housing, and a magnehelic gauge with air tubing.

1. First you need to lift the housing into place using the appropriate lifting mechanism.
2. Once it is in place align the bolt holes and use the hardware supplied to secure it to the top of the dust collector, Reference the diagram below.
3. Once that is secure connect in the air tubing to the HEPA housing and run the air hose down to the magnehelic gauge
4. The gauge needs to be installed in a convenient easy to access location so it can be monitored as needed.

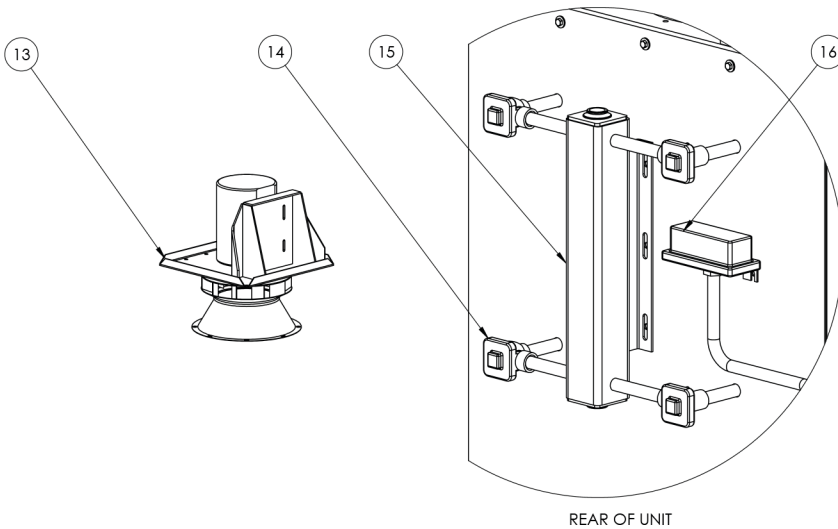
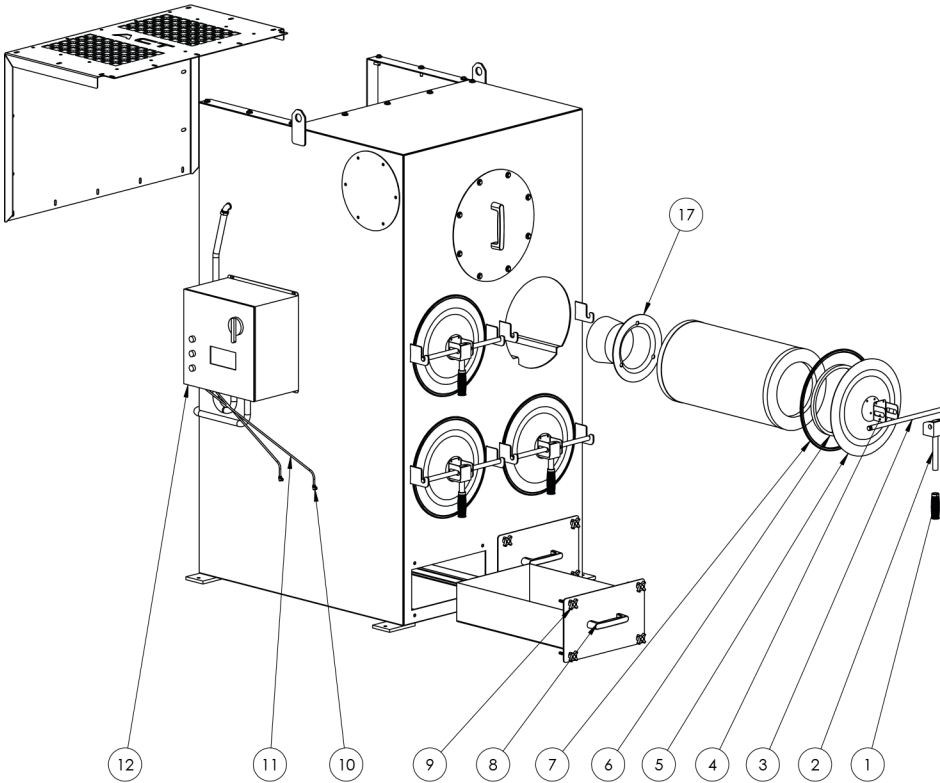


Full Unit Diagram



Critical Parts List

Critical Spare parts are always in stock.



ITEM	PART NUMBER	DESCRIPTION
1	DC76001	Door Handle Rubber Grip
2	DC71500	Cam Bracket
3	DC13002	Door Rod
4	DC79500	Door Handle
5	DC13001	Filter Access Door
6	DC45003	Gasket Inner Door
7	DC79750	Outer Door Gasket
8	DC76510	Pull Handle
9	DC76550	Star Knob
10	DC40003	90 Degree Air Fitting
11	DC40001	Polyethylene Tube 1/4"
12	Varies	Varies
13	Varies	Varies
14	DC20002	Diaphragm Valve 3/4"
15	Varies	Varies
16	Varies	Varies
17	DC71000	Venturi

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
Not enough compressed air	Verify that the pressure is high enough for effective cleaning (set to 90-100 psi)	
High differential pressure	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

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. (A.C.T. Dust Collectors) warrants the equipment to be free from defects in materials and workmanship for a period of 10 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.

ATTENTION DISCLAIMER

For stainless steel dust collector installation, there is a possibility of thread galling on the supplied fasteners. To avoid this occurrence as best as possible, please follow the steps outlined below.

1. Slowing down the installation RPM speed will frequently reduce, or sometimes solve completely, the problem. As the installation RPM increases, the heat generated during tightening increases. As the heat increases, so does the tendency for the occurrence of thread galling.
2. Lubricating the internal and/or external threads frequently eliminates thread galling. The suggested lubricants should contain substantial amounts of molybdenum disulfide (moly), graphite, mica, or talc. Some proprietary, extreme pressure waxes may also be effective. You must be aware of the end use of the fasteners before settling on a lubricant. Stainless steel is frequently used in food related applications, which may make some lubricants unacceptable. Lubricants can be applied at the point of assembly or pre-applied as a batch process similar to plating. Several chemical companies offer anti-galling lubricants. One such source, EM Corporation, suggests their Permaslik[®] RAC product for use at the point of assembly. They suggest Everlube[®] 620C for batch, pre-applying to stainless steel fasteners.



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New Ulm, MN 56073
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