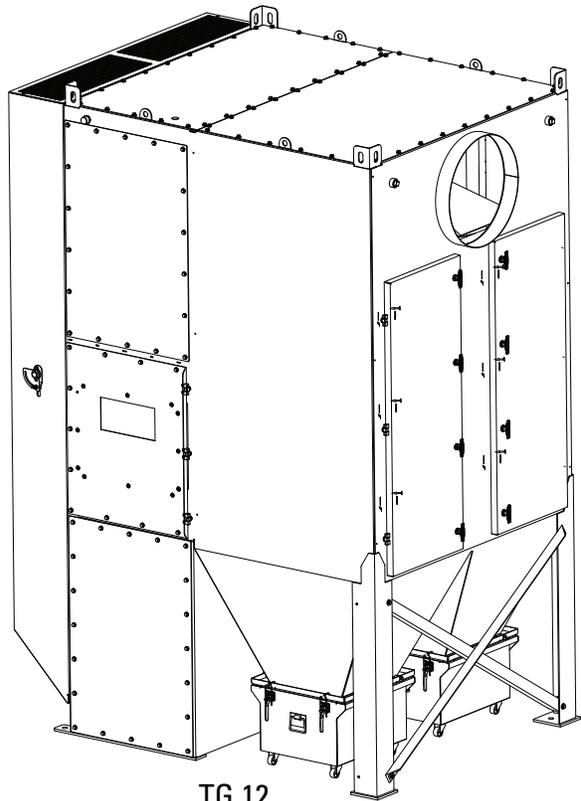


TG 4



TG 12



This manual contains specific precautions related to worker safety. The hazard alert image denotes safety related instructions and warnings in this manual. DO NOT install, operate, or perform maintenance on this collector until you have read and understood the instructions, precautions and warnings contained within this manual.

## IMPORTANT NOTES

This manual has been supplied to assist with the installation, operation and maintenance for the collector purchased. Please read the manual before installing, operating, or performing maintenance on the collector as it contains specific precautions for worker safety. It is the owner's responsibility to ensure that this manual is available for use by installers, operators and maintenance personnel that will be working with this collector. This manual is the property of the owner and should be left with the collector when installation has been completed. **DO NOT** operate this collector until you have read and understood the instructions and warnings located in this manual.

For additional copies of this manual, contact Donaldson Torit.



The Safety Alert Symbol indicates a hazardous situation which, if not avoided could result in death or serious injury. Obey all safety messages following this symbol to avoid possible injury or death. The possible hazards are explained in the associated text messages.

### **NOTICE**

**NOTICE** indicates a potential situation or practice which is not expected to result in personal injury, but which if not avoided, may result in damage to equipment.

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## 1 Safety Communication



Improper operation of dust collectors and/or dust control systems may contribute to conditions in a work area or facility which could result in severe personal injury, and product or property damage. All dust collection equipment should be used only for its intended purpose and should be properly selected and sized for its intended use.

Process owners have important responsibilities relating to identifying and addressing potential hazards in their processes. When the potential for handling combustible dust exists within a process the process owner should include combustion hazards in their risk management activities and should comply with applicable codes and standards related to combustible dust.

Electrical installation must be performed by a qualified electrician.

This equipment is not designed to support site ducts, piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent injury and/or property damage.

Site selection must account for wind, seismic zone, and other load conditions.

Equipment may reach peak sound pressure levels above 80 dB (A). Noise levels should be considered when selecting collector location.

Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust.

Some components may be heavier than they appear. Use appropriate lifting methods to avoid personal injury and/or property damage.

## Combustible Dust Hazards

Among other considerations, the current NFPA standards require owners whose processes involve potentially combustible materials to have a current Dust Hazard Analysis, which can serve as the foundation for their process hazard mitigation strategy. Mitigation may include but is not limited to:

- Prevention of all ignition sources from entering any dust collection equipment.
- Selection and implementation of fire and explosion mitigation, suppression, and isolation strategies appropriate for the risks in their process.
- Development and use of work practices to maintain safe operating conditions, and to ensure combustible dust does not accumulate within their plant or process equipment.

Donaldson designs, manufactures, and sells industrial air filtration products for a wide variety of applications. Some applications may include processes or materials with inherent fire and explosion hazards. Donaldson is neither an expert nor a certified consultant in fire, spark, or explosion detection, suppression, or control. Donaldson does not provide engineering consulting services related to process or dust hazard analyses, or code and standard compliance. Complying with applicable codes and standards and managing the risks associated with the process or materials remains the responsibility of the process owner/operator. Donaldson may provide referrals to consultants, suppliers of equipment or services related to the detection and/or mitigation of sparks, fires and/or explosions, but Donaldson does not assume responsibility for any such referrals, nor does Donaldson assume any liability for the fitness of a mitigation strategy or product for a particular installation or application. The process owner's final selection of dust collectors and risk mitigation strategies should be based on the outcome of a Dust Hazard / Process Hazard Analysis performed by the process owner. Although early engagement of a dust collector supplier provides helpful insights on the availability and features of various products, process owners should consult with a combustible dust expert and/or a process safety expert before making actual product and mitigation strategy selections.

Donaldson recommends that all industrial air filtration system designs be reviewed and approved by an expert consultant who is responsible for the integrity of the system design and compliance with applicable codes and standards. It is the process owner's responsibility to understand the risks in their process and mitigate those risks in accordance with all applicable laws, regulations and standards, including those published by the NFPA. Donaldson also recommends that proper maintenance and housekeeping procedures and work practices be evaluated, developed, and followed to maintain any industrial air filtration products in safe operating condition.

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the Donaldson products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, and data (airflow, capacity, dimensions, or availability) are subject to change without notice, and may vary by region or country.

## 2 Product Description

The standard continuous-duty TG Series, Models TG2, 4, 6, 8, and 12, are a family of completely packaged, fully assembled, and pre-wired dust collectors on a remarkable small footprint. All-welded and designed with clean lines, the compact models integrate effortlessly with operational equipment. The TG Series collectors use rectangular filter packs with proprietary PowerCore filter media. Filter packs can be pulse-cleaned on- or off-line. The downward airflow design through the collector housing delivers high filtration efficiency while using less energy.

Included in the packaged design is a high-performance fan mounted in a separate compartment at the base of the collector for maximum noise control; integrated electrical controls with motor starter in an easy to reach location, installed energy-efficient Torit PowerCore Filter Packs with flame-retardant Ultra-Web® media, a state-of-the-art ZERO-TURN Power Pulse cleaning system, integrated solenoid pilot valves, built-in exhaust silencer; built-in airflow damper; and dust discharge container. The filter housing offers completely tool-less serviceability.

Options include anti-static Ultra-Web media, various cleaning controls including low-voltage feedback relay, airflow controller and particulate sensor, high static and premium efficiency motors, HEPA afterfilters, several dust container options, explosion protection devices and spark management options.

### Intended Use

The TG Series collectors are equipped with a group of features tailored to the metal working industry. Typical point-of-use applications include laser cutting, plasma cutting, welding and some thermal spray applications.

Torit PowerCore TG Series dust collectors can be integrated with process equipment such as laser tables, plasma tables, welding, and spray booth equipment. Discuss the use, application, and integration of this equipment with a Donaldson Torit representative.

Collector configuration may not support the addition of explosion protection systems commonly used when filtering combustible dusts. Before using any filtration equipment you must understand the nature of your dust and any fire or explosion protection strategies you may intend to incorporate into your filtration equipment.

### Rating and Specification Information

General rating and specification information can be found in the product literature provided with the collector and is available on the Donaldson website. For specific load values for a collector, see the Specification Control Drawing shipped with the collector.

### Standard Equipment

Standard collectors include a fan, motor, control panel, 17-gallon dust container, and an exhaust silencer and damper. The collector is fully assembled and ready to connect to electrical supply, compressed air, and ductwork.

### Filters

The TG collector ships with rectangular filter packs using proprietary PowerCore filter media. Other filter pack media options are available.

### Solenoid Enclosure

The collector is equipped with electric solenoid valves (typically 120V) that control the pulse-cleaning valves, which in turn release compressed air from the manifold to clean the filters. Solenoid enclosures are mounted near or on the collector's compressed-air manifold.

### Dust Bin

A 17-gallon dust bin is standard with all models. Four rigid clamps secure the bin to the hopper flange.

### Exhaust Damper

An exhaust damper can be adjusted to regulate or limit airflow when collector is in operation.

## Options and Accessories

### Fan Controls

High-performance integrated fans are mounted at the base of the TG collector for maximum noise control.

### Low Inlet Box

The Low-Inlet Box employs a dust removal concept that utilizes the velocity and physical properties inherent in the dust to effectively remove particulate from the system flow at a negligible pressure loss to the system. The dust drops out and collects into a dust drawer located at the bottom of the chamber. Quick-release latches allow fast removal of the dust drawer for clean up.

## Cleaning Controls and Sensors

### Delta P Control

The Delta P Controller monitors the differential pressure between the clean-air and dirty-air plenums, providing a visual display of the filter condition. When combined with a pulse timer, it manages the pressure drop by turning the cleaning mechanism On and Off at the chosen limits. There are three (3) set points: High Pressure On, Low Pressure Off, and Alarm. The first two, High Pressure On and Low Pressure Off, control the filter cleaning system. The third, Alarm, provides a relay output to activate an external alarm supplied by others.

### Delta P Plus Control

The Delta P Plus Controller monitors the differential pressure between the clean-air and dirty-air plenums, providing a visual display of the filter condition. When combined with a pulse timer, it manages the pressure drop by turning the cleaning mechanism On and Off at the chosen limits. There are three (3) set points: High Pressure On, Low Pressure Off, and Alarm. The first two, High Pressure On and Low Pressure Off, control the filter cleaning system. The third, Alarm, provides a relay output to activate an external alarm supplied by others.

The user can program the Delta P Plus Controller to pulse while the collector is running, to maintain a relatively constant pressure drop across the filters, pulse only after the collector is shut down (after-shift cleaning), or a combination of both, cleaning while running as well as end of the shift.

### 24VDC Motor Start with Feedback Relay

The 24VDC start relay allows a customer supplied piece of equipment to start the dust collector. This is accomplished by the customer's equipment sending a 24VDC signal to the collector controller which then activates the fan and pulsing systems. The low voltage feedback relay allows the dust collector controller to interlock with other customer supplied equipment by relaying the low voltage signal back to the sending equipment. The feedback occurs when the collector is running.

### External Remote-Mounted Controls

Remote mounted controls are required when the collector is reinforced, the collector is being installed outdoors, or if particulate sensing or airflow control is required. Similar to the integrated controllers, the Torit Delta P and Delta P Plus are the options for pulse control. Locate the control panel as close to the collector as possible to minimize the length of tubesheet differential pressure tubing.

### Airflow Controller

The Airflow Controller is designed to maintain a constant airflow in a dust collection system by adjusting the speed of the system airflow fan using a Variable Frequency Drive (VFD) in response to changes in system static pressure. The Airflow Controller offers two user set points (Low and High) and displays the current system static pressure at the static pressure sampling point. Typical system results of the Airflow Controller operation are more consistent dust collection airflow, reduced fan energy consumption, and longer dust collector filter life.

### Particulate Sensor

The particulate sensor constantly samples the clean air exhaust air stream when the TG collector is on. In instances where a filter leak is detected, the controller will stop the fan and pulsing and turn on a visual warning beacon.

### **HEPA Afterfilter**

The optional HEPA afterfilter is designed to capture small particulate and is attached to the collectors clean-air outlet.

### **Explosion Relief Panels**

Collector may be equipped with optional explosion relief panels to support a process owners combustible dust mitigation strategy. Explosion vent sizing follows NFPA-68 formulas assuming outdoor location of collector with no duct or obstruction on the explosion vent panels. Contact Donaldson Torit for explosion venting requirements for other conditions.

### **Sprinkler Coupling**

Sprinkler couplings are provided for the convenience of fire control system installers. The fire control system installer shall make their own decisions on the appropriate location of fire control system components.

## 3

**Operation**

Electrical work during installation, service or maintenance must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn all power off and lock out all power before performing service or maintenance work.

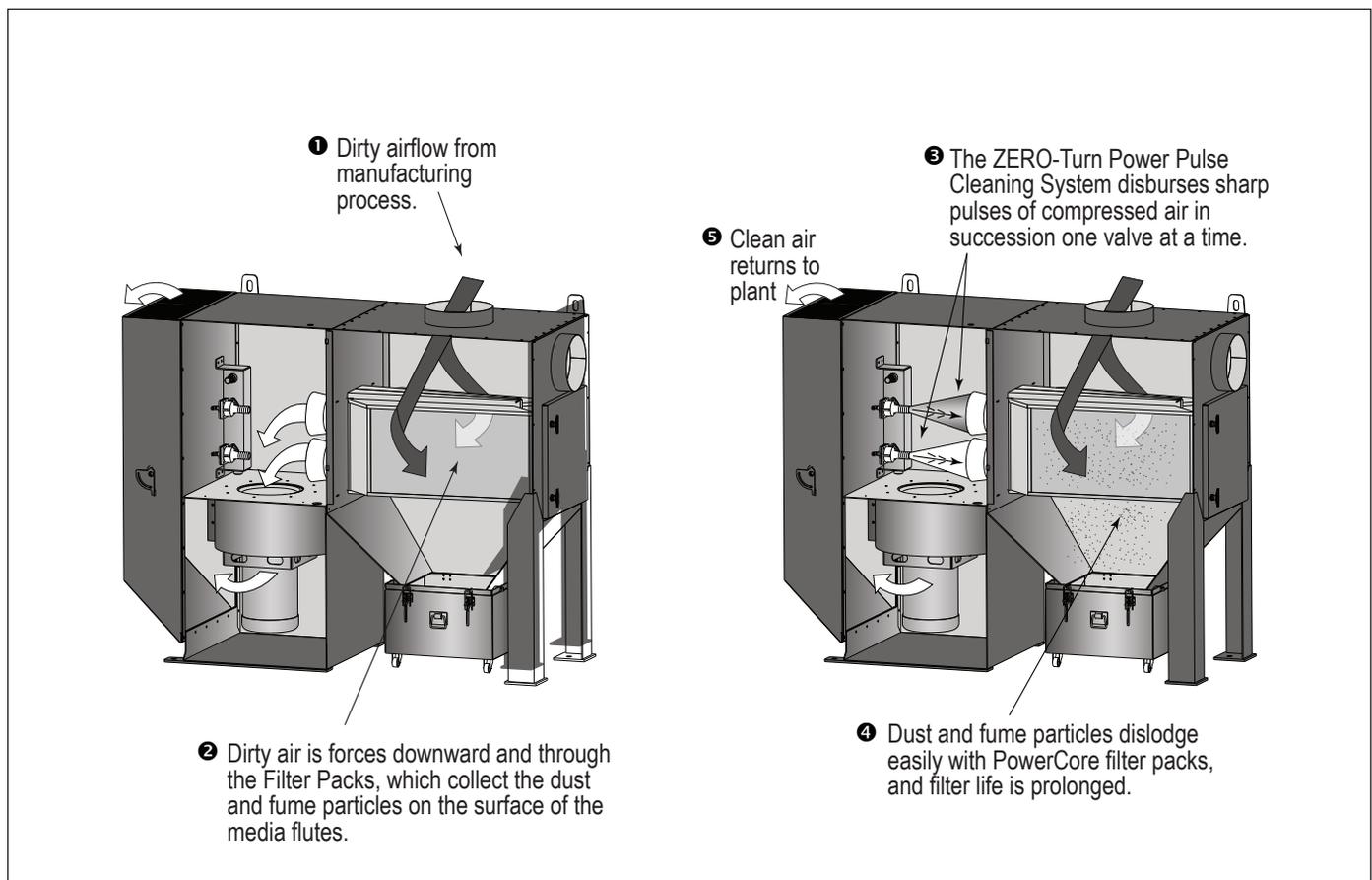
Turn compressed air supply off, bleed and lock out lines before performing service or maintenance work.

Check that the collector is clear and free of all debris before starting.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

During normal operation, dust-laden air enters the collector through the top, front, or low drop-box inlet. Airflow is then directed downward through the collector and heavier particulate falls directly into the hopper. The filter packs remove fine particulate and clean, filtered air passes through the packs to the clean-air plenum and discharges through the clean-air outlet.

Cleaning is achieved with the Zero-Turn Power Pulse Cleaning System by reverse pulsing filter packs with controlled bursts of compressed air. Cleaning control is determined by pressure drop across the filter packs ("Delta P") or by manually initiating the controls to pulse continuously (when the collector is running). The cleaning sequence starts at the top filter packs and continues down through each filter pack set. Removal, inspection, and change-out of the filter packs is done from outside the collector by opening the filter pack access door, unclamping the right and left filter banks, and sliding the individual filter packs out.



Typical Collector Operation

## 4 Product Service



During service activities there is some potential for exposure to the dust in the collector. Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust when performing any service activities.

Use appropriate access equipment and procedures. Note the standard collector is not equipped with access platforms unless noted on the specification drawings.

LOCK-OUT all energy sources prior to performing any service or maintenance on the equipment.

Electrical service or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

### **NOTICE**

Do not set compressed-air pressure above 100-psig as component damage can occur.

All compressed air components must be sized to meet the system requirements of supply pressure.

The compressed-air supply must be oil and moisture free. Contamination in the compressed air used to clean filters will result in poor cleaning, cleaning valve failure, or poor collector performance.

Purge compressed air lines to remove debris before connecting to the collector's compressed air manifold.

## Operational Checklist

1. Monitor the physical condition of the collector and repair or replace any damaged components.

Routine inspections will minimize downtime and maintain optimum system performance. This is particularly important on continuous-duty applications.

2. Check tightness of all setscrews in fan wheel. Use torque wrench and tighten to a torque of 84-lb ft.
3. Periodically check the compressed air components and replace compressed air filters.

Drain moisture following the manufacturer's instructions. With the compressed air supply ON, check the cleaning valves, solenoid valves, and tubing for leaks. Replace as necessary.

4. Monitor pressure drop across filters.

Abnormal changes in pressure drop may indicate a change in operating conditions and possibly a fault to be corrected. For example, prolonged lack of compressed air will cause an excess build-up of dust on the filters resulting in increased pressure drop. Cleaning off-line with no airflow usually restores the filters to normal pressure drop.

5. Monitor exhaust.
6. Monitor dust disposal.

## Dust Disposal

1. Shut the collector OFF prior to emptying the dust container (bin or drum).
2. Unlatch the four clamps to lower the dust bin.
3. Roll dust bin out from the collector.
4. Transfer dust from the dust bin to a suitable disposal site and dispose of dust in accordance with local requirements for the materials being collected.
5. If the optional 55-gallon drum attachment is used, empty when dust drum is 2/3 full. Check integrity of gasket under drum cover. Replace gasket if worn or damaged.
6. If optional slide gate is used with a 55-gallon drum, close gate before servicing the drum.



Sharp edge of slide gate may result in personal injury while closing the slide gate. Keep hands clear when operating the slide gate.

7. Replace or reinstall dust container (bin or drum), reclamp to the collector and open slide gate (if applicable).

**NOTICE**

To avoid possible damage to the fan motor, maintain a seal below the collector if servicing the dust storage device while the fan is running.

8. The collector can now be returned to service.

## Filter Replacement



Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head and other protection equipment suitable for the type of dust.

Use proper safety and protective equipment when removing contaminants and filters.

Dirty filters may be heavier than they appear. Use appropriate lifting methods to avoid personal injury and/ or property damage.

Turn all power OFF and lock out all power before performing service or maintenance work.

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

Do not operate with missing or damaged filters.

Do not use the door, door frame, retention parts or filter components as climbing equipment.

1. Turn all power to the collector OFF and bleed manifold pressure to 0-psig.
2. Open access door by turning handles counterclockwise and swinging door fully open.
3. Remove each locking pin.
4. Rotate each filter retention mechanism counterclockwise to decompress filters.
5. Detach right side arms and rotate them up. Reinstall locking pins to hold arms in place.
6. Detach left side arms and let them rotate down and out of the way.
7. Open cradles fully to access filters.
8. Holding filter handle, push filter back towards the tubesheet and slide the filter towards the center to clear filter cradle. Remove dirty filter and dispose of in accordance with local requirements for the materials being collected.
9. Install new filter by angling the back of the filter toward the outside of the collector and push filter towards the outside against cradle surface. Slide filter along the back wall of the cradle until the filter is fully inserted. Avoid sliding gasket along any surfaces during installation. Repeat for all remaining filters.
10. After all new filters are installed, close filter cradles by returning the filter retention mechanism to the closed position. To close, position the left side arm onto the left cradle pin. Remove locking pin from right side arm and position onto the right side cradle. Rotate filter retention mechanism clockwise to seal filters and reinstall locking pins.

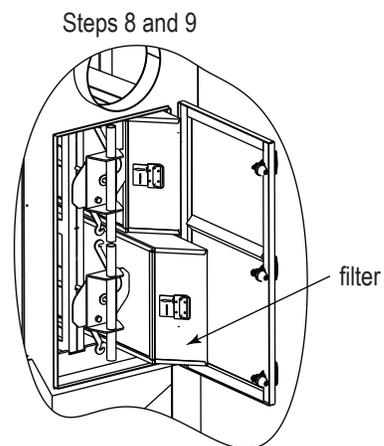
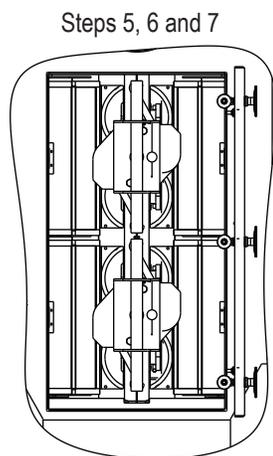
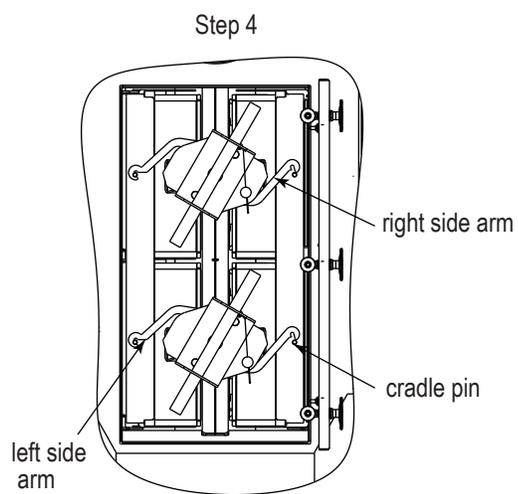
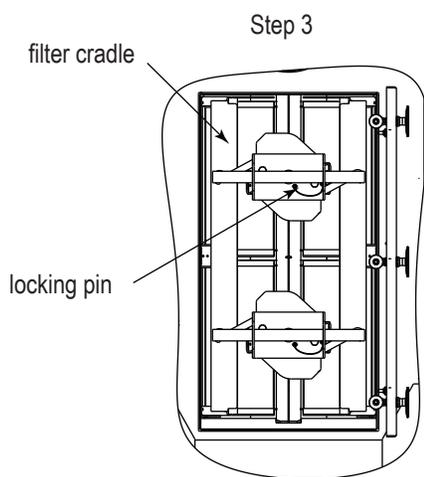
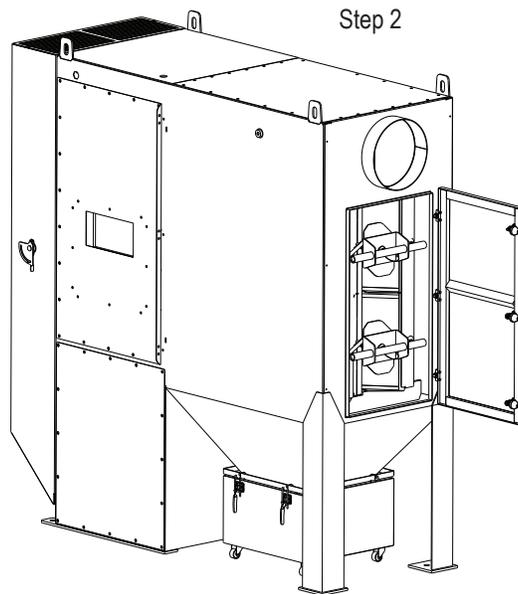
### **NOTICE**

If filter retention mechanism is difficult to close, check that filter is seated properly in filter cradle (see Step 9).

11. Close door and secure handles.
12. The collector can now be returned to service.

## Compressed Air Components

1. Periodically check the compressed air components and replace damaged or worn components as necessary.
2. Drain moisture following the manufacturer's instructions.
3. With the compressed-air supply ON, check the cleaning valves, solenoid valves, and tubing for leaks. Repair or replace as necessary.



### Filter Replacement

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Fan blower and motor do not start</b>	Improper motor wire size	Rewire using the correct wire gauge as specified by national and local codes.
	Not wired correctly	Check and correct motor wiring for supply voltage. See motor manufacturer's wiring diagram. Follow wiring diagram and the National Electric Code.
	Collector not wired for available voltage	Correct wiring for proper supply voltage.
	Input circuit down	Check power supply to motor circuit on all leads.
	Electrical supply circuit down	Check power supply circuit for proper voltage. Check for fuse or circuit breaker fault. Replace as necessary.
	Damaged motor	Replace damaged motor.
<b>Fan blower and motor start, but do not stay running</b>	Incorrect motor starter installed	Check for proper motor starter and replace if necessary.
	Access doors are open or not closed tight	Close and tighten access doors. See Filter Replacement.
	Hopper discharge open	Check that dust container is installed and properly sealed.
	Damper control not adjusted properly	Check airflow in duct. Adjust damper control until proper airflow is achieved and the blower motor's amp draw is within the manufacturer's rated amps.
	Electrical circuit overload	Check that the power supply circuit has sufficient power to run all equipment.
<b>Clean-air outlet discharging dust</b>	Filters not installed correctly	See Filter Installation.
	Filter(s) damaged or worn	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Replacement.
	Access cover(s) loose	Tighten access doors securely. See Filter Installation.
<b>Insufficient airflow</b>	Fan rotation backwards	Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone. See Start-Up/Commissioning.
	Access doors open or not closed tight	Check that all access doors are in place and secured. Check that the hopper discharge opening is sealed and that dust container is installed correctly.
	Fan exhaust area restricted	Check fan exhaust area for obstructions. Remove material or debris. Adjust damper flow control.
	Filters need replacement	Remove and replace using genuine Donaldson replacement filters. See Filter Replacement.

Problem	Probable Cause	Remedy
<b>Insufficient airflow continued</b>	Lack of compressed air	See Rating and Specification Information for compressed air supply requirements.
	Pulse cleaning not energized	Use a voltmeter to check the solenoid valves in the control panel. Check pneumatic lines for kinks or obstructions.
	Dust storage area overfilled or plugged	Clean out dust storage area. See Dust Disposal.
	Pulse valves leaking compressed air	Lock out all electrical power to the collector and bleed the compressed air supply. Check for debris, valve wear, pneumatic tubing fault, or diaphragm failure by removing the diaphragm cover on the pulse valves. Check for solenoid leaks or damage. If pulse valves or solenoid valves and tubing are damaged, replace.
<b>No display on the Delta P Controller</b>	No power to the controller	Use a voltmeter to check for supply voltage.
	Fuse blown	Check the fuse in the control panel. See wiring diagram inside the control panel. Replace if necessary.
<b>Display on Delta P Controller does not read zero when at rest</b>	Out of calibration	Recalibrate as described in Delta P Maintenance Manual.
<b>Delta P Controller ON, but cleaning system does not start</b>	Pressure tubing disconnected, ruptured, or plugged	Check tubing for kinks, breaks, contamination, or loose connections.
	High Pressure On or Low Pressure Off setpoint not adjusted for system conditions	Adjust setpoints to current conditions.
<b>Delta P Controller arrow keys do not work</b>	Improper operation	Press and hold one of the three setpoint keys to use arrow keys.
<b>Pulse cleaning never stops</b>	Pressure switch not operating correctly	Check pressure switch inside the control panel.
	High Pressure On or Low Pressure Off setpoint not adjusted for system conditions	Adjust setpoints to current conditions.
	Pressure tubing disconnected, ruptured, plugged, or kinked	Check tubing for kinks, breaks, contamination, or loose connections.
<b>Alarm light is ON</b>	Alarm setpoint too low	Adjust to a higher value.
	Excess pressure drop	Check cleaning system and compressed air supply. Replace filter packs if filter packs do not clean down.
	Pressure tubing disconnected, ruptured, plugged, or kinked	Check tubing for kinks, breaks, contamination, or loose connections.

# **Appendix A - Installation**

## Installation



Electrical Installation (including bonding and grounding of the collector) must be performed by a qualified electrician.

This equipment is not designed to support site ducts, piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent injury and/or property damage.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

Service must be performed by trained and qualified maintenance personnel.

Turn all power off and lock out all power before performing service or maintenance work. It is not unusual for the equipment to be operated from a remote location, so equipment may start or stop unexpectedly.

Equipment may reach peak sound pressure levels above 80 dB (A). Noise levels should be considered when selecting equipment location.

## Location and Site Selection



Codes may regulate recirculating filtered air in your facility. Consult with the appropriate authorities having jurisdiction to ensure compliance with all national and local codes regarding recirculating filtered air.

Equipment location must conform to all codes and standards, should be suitable for the type of dust being handled and should ensure easy access for service and utility connections. Site selection must account for wind, seismic zone and other load conditions.

The equipment must be anchored once in final position. Anchors must comply with local code requirements. Anchors, foundation or support framing must be capable of supporting dead, live, wind, seismic, and other applicable loads. Consult a qualified engineer for final selection of foundation or support framing.

Note: Ensure the inlet has at least five diameters of straight duct prior to the collector inlet including a transition to the full inlet dimensions. Inlet transition should have a taper with a maximum of a 90-degree included angle.

Follow industry practice relative to clean air velocity into a fan.

## Provisional Anchor Bolt Recommendations

The quantity of anchor bolts should match the number of holes provided in the base plates of the collector. Anchor diameter is typically 1/8-inch less than the baseplate hole diameter. Anchors should project a minimum of 1 3/4 -inch and account for nut, washer, baseplate, and shims/grout.

## Delivery and Inspection

Upon arrival inspect equipment and report any damage to delivery carrier. File any damage claims with the delivery carrier. Request a written inspection report from the Claims Inspector to substantiate all damage claims.

Compare the equipment received with the description of product ordered. Report any incomplete shipments to the delivery carrier and your Donaldson Torit representative.

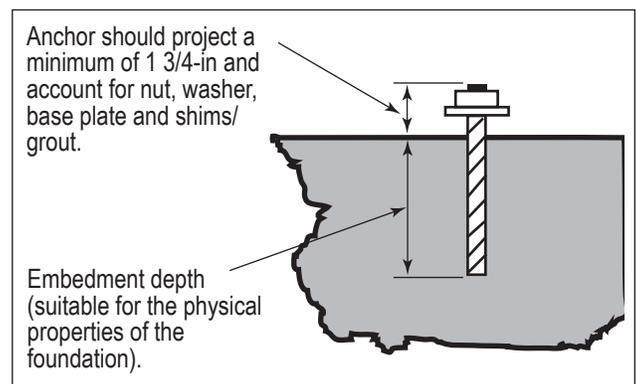
## Unloading and Positioning



Equipment should be lifted only by qualified crane or fork truck operators.

Failure to lift the equipment correctly can result in severe personal injury and/or property damage.

1. Remove any crates or shipping straps.
2. Lift the packaged collector from transport container.
3. Inspect for any damage and/or missing parts and report to freight carrier.
4. Check for any hardware which may have become loose during shipment and tighten as necessary.



Typical Foundation Anchor

## Lifting Information



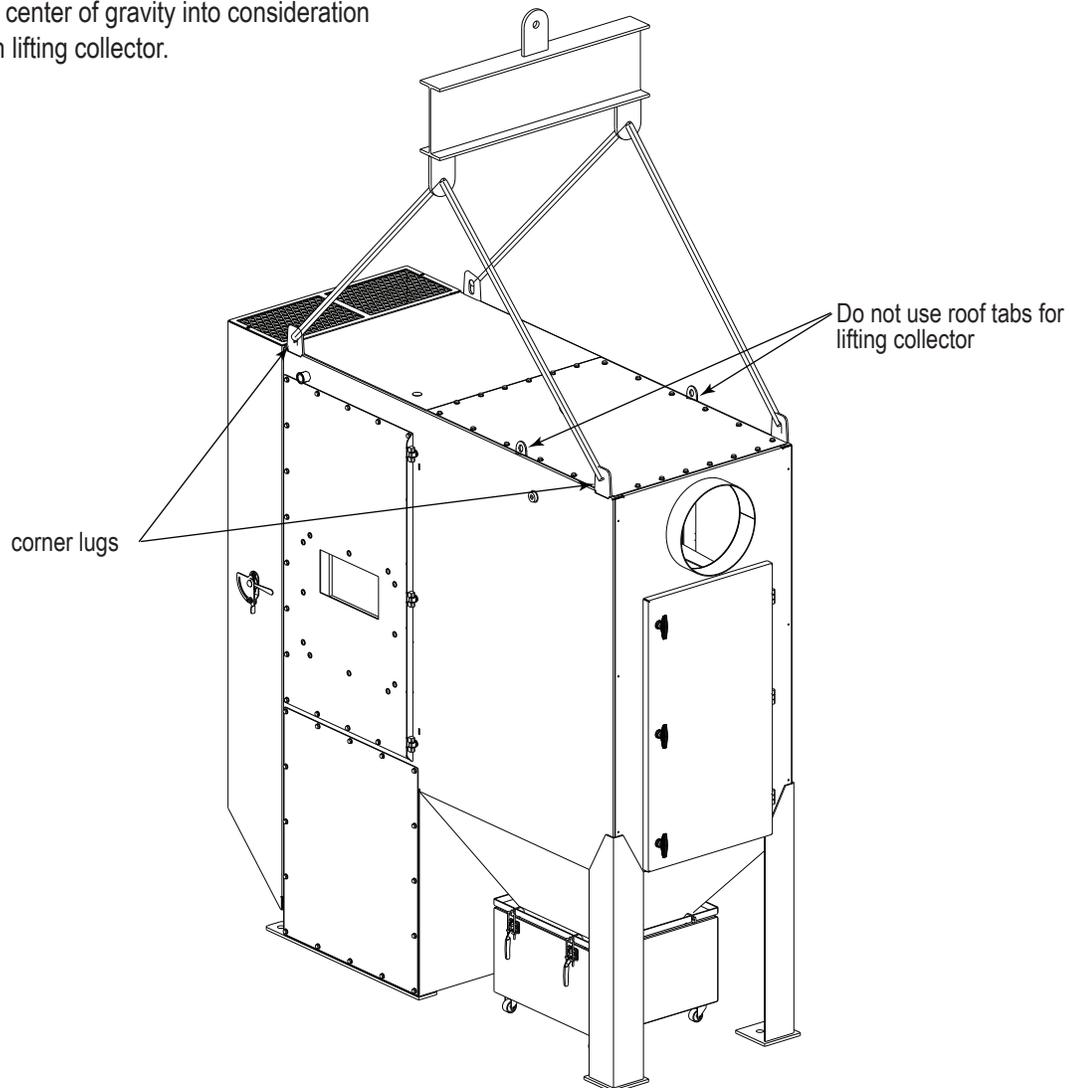
Failure to lift the equipment or sub-assemblies correctly can result in severe personal injury and/or property damage. Only qualified crane or forklift operators should be allowed to lift equipment.

1. Use all lifting points provided.
2. Use clevis connectors, not hooks, on lifting slings.
3. Use spreader bars to prevent damage to equipment.
4. Check the Specification Control drawing for weight and dimensions of the collector and components to ensure adequate crane capacity.
5. Lift collector and accessories separately and assemble after collector is in place.
6. Use drift pins to align holes in section flanges during assembly.

## Typical Lifting Guidance



Take center of gravity into consideration when lifting collector.



## Compressed Air Installation



Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

A safety exhaust valve should be used to isolate the compressed air supply. The safety exhaust valve should completely exhaust pressure in the collector manifolds when closed, should be capable of being interlocked with fire or explosion mitigation equipment and should include provisions to allow closed-position locking.

### NOTICE

Do not set compressed-air pressure above 100-psig as component damage can occur.

All compressed air components must be sized to meet the system requirements of supply pressure.

The compressed-air supply must be oil and moisture free. Contamination in the compressed air used to clean filters will result in poor cleaning, cleaning valve failure, or poor collector performance.

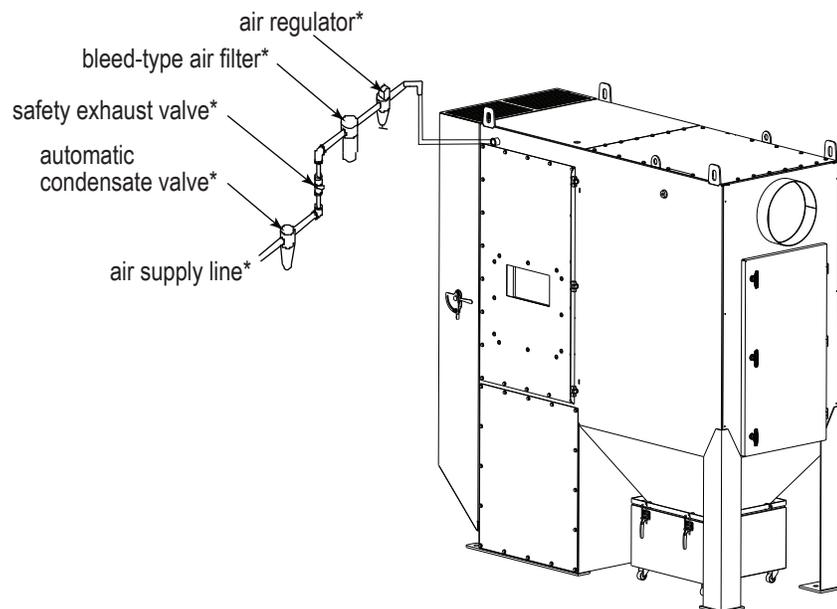
Purge compressed-air lines to remove debris before connecting to the collector's compressed-air manifold.

1. Remove the pipe plug from the collector's air manifold and connect the compressed-air supply lines. Use thread-sealing tape or pipe sealant on all compressed-air connections.
2. Install a shut-off valve, bleed-type regulator with gauge, filter, and automatic condensate valve in the compressed-air supply line.
3. Set compressed-air supply pressure to a level suitable for the filters (90-psig).
4. The pulse-cleaning controls are factory set to clean one filter pack every 10-seconds during each cleaning cycle on models TG2-TG8 and two filter packs every 10-seconds on model TG12.



Turn all power off and lock out all electrical power sources.

Turn compressed-air supply OFF and bleed lines before performing service or maintenance work.



\*customer supplied

Typical Component Installation

## Electrical Wiring



Electrical installation, service, or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

Turn all power off and lock out all power before performing service or maintenance work. It is not unusual for the equipment to be operated from a remote location so equipment may start or stop unexpectedly.

The appropriate wiring schematic and electrical rating must be used. See collector's rating plate for required voltage.

Do not install in classified hazardous atmospheres without an enclosure rated for the application.

## Solenoid Connection (for external mounted controls only)

The collector is equipped with electric solenoid valves (typically 120V) that controls the pulse-cleaning valves, which in turn release compressed air from the manifold to clean the filters.

Weatherproof NEMA 4 enclosures with 3D2 solenoids or explosion proof NEMA 9 enclosures with 5D2 solenoids are mounted near the collector's compressed-air manifold.

If external remote-mounted controls were selected, connect solenoids to the solid-state timer following the wiring diagram supplied with the collector. Wire the solenoids so that pulsing occurs in a top to bottom fashion. Filter life and cleaning operation will be affected if not wired correctly.

## Timer and Solenoid Specifications

Input  
105-135V/50-60Hz/1Ph

Pulse ON Time  
Factory set at 100-milliseconds, or 1/10-second.

### **NOTICE**

Do not adjust pulse ON time unless the proper test equipment is available. Too much or too little ON time can cause shortened filter life.

Pulse OFF Time  
Factory set at 10-seconds.  
Operating Temperature Range  
-20° F to 130° F

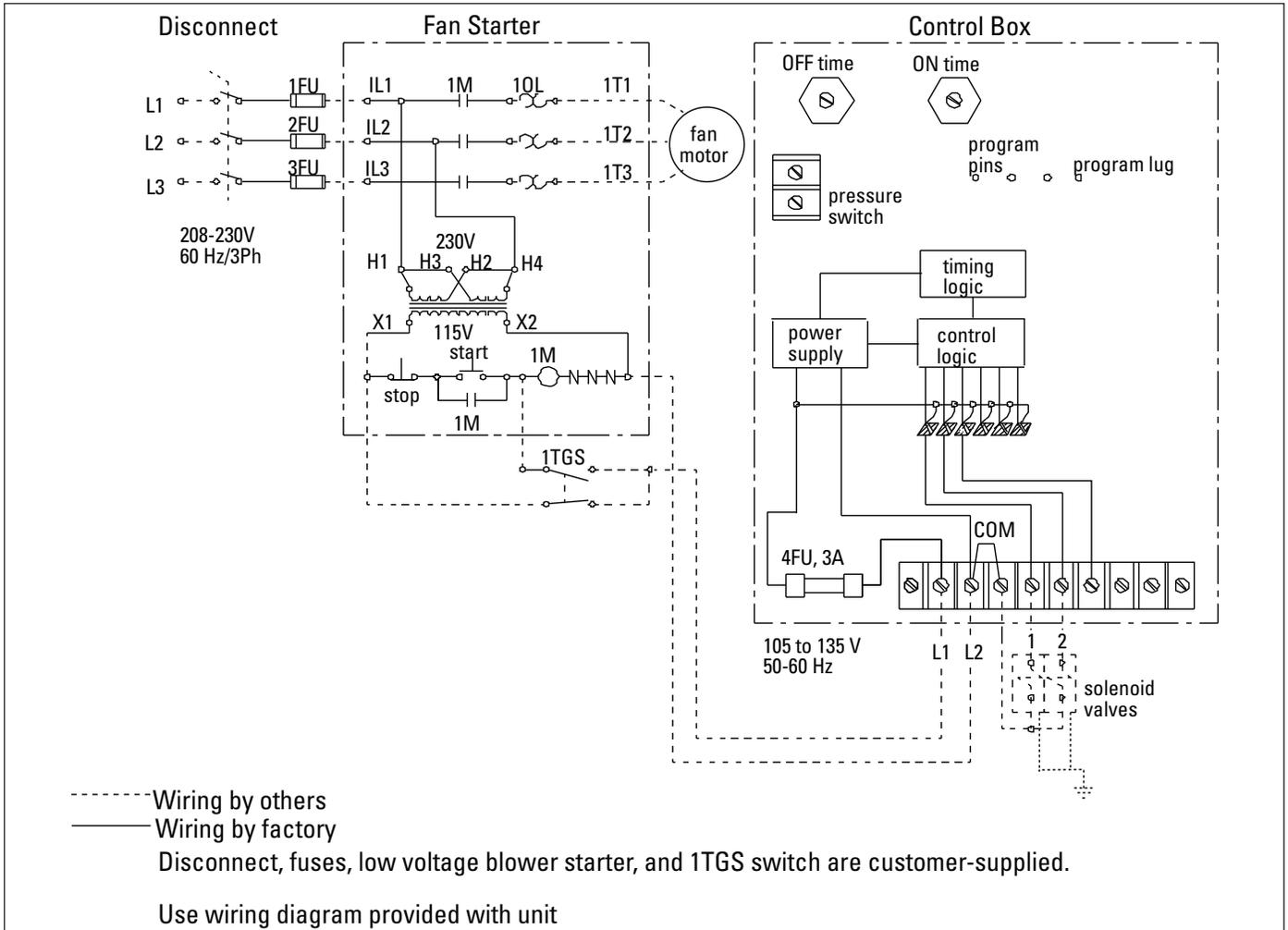
Transient Voltage Protection  
50 kW transient volts for 20-millisecond duration once every 20 seconds, 1% duty cycle.

Solenoid Valves  
115-Volt at 19.7 watts each

Compressed-Air  
Set compressed-air supply to a level suitable for the filters (90-psig). The pulse-cleaning controls are factory set to clean one valve every 10-seconds when pulsing is activated on models TG2-TG8 and two valves on model TG12.

### **NOTICE**

Do not increase supply pressure above 100-psig as component damage can occur.



Typical Wiring Diagram

## Options and Accessories



Failure to lift the fan correctly can result in severe personal injury and/or property damage.

Use appropriate lifting equipment and adopt all safety precautions needed for moving and handling the fan.

Only qualified crane or forklift operators should be allowed to lift equipment.

To avoid personal injury and/or damage to equipment, ensure fan blowers are properly attached to equipment.

### **NOTICE**

The use of a damper or variable frequency drive (VFD) is required to control airflow through the collector. Lack of a control damper or VFD will shorten filter life.

## Integral Housed Fans

1. The fan blower assembly housing is integral to the collector. The wheel and motor are installed to the housing using 8 bolts.
2. To access fan wheel, remove motor, remove 8 bolts and lift out motor/wheel assembly.
3. To reinstall motor/wheel assembly, apply sealant to the outside edge of the bolt pattern on the fan blower assembly housing. Reinstall the motor/wheel assembly using hardware from Step 1.

Note: Wheel assembly should extend  $1/8 +0.0$  to  $-1/16$  past the top of the inlet ring when properly installed.

Torque set screw to 10-11 Ft Lb, not to exceed 13-Ft Lb for aluminum hubs (typical).

For steel hubs, set torque to 11-13 Ft Lb, not to exceed 14-Ft Lb

4. Rotate fan wheel after installation to ensure proper rotation.

## HEPA Afterfilter Installation

1. Turn supply power OFF.
2. Remove the bolts from the top back roof panel.
3. Position the HEPA mounting frame on top of the clean-air outlet aligning existing hole pattern.
4. Mark and match-drill the front flange holes in the roof panel using a 0.266-in diameter drill bit.
5. Apply 1/4-in diameter rope-type sealant toward the inside of bolt pattern.
6. Position the HEPA mounting frame on the top panel aligning the bolt patterns.
7. Bolt in place using the hardware supplied and the hardware removed in Step 2.
8. Position HEPA filter on mounting frame and secure with latches.
9. Reset exhaust damper to fully closed position.
10. Turn collector ON.
11. Adjust airflow using the airflow control damper.

## Cleaning Controls and Sensors

### Delta P Control

For complete information, see the most current version of the Delta P Installation, Operation, and Maintenance manual.



Delta P Control Display

### Delta P Plus Control

For complete information, see the most current version of the Delta P Installation, Operation, and Maintenance manual.



Delta P Plus Control Display

## Explosion Relief Panel



Personal injury, death, and/or property damage can result from material discharge during venting.

The material discharged during the venting of an explosion must be safely directed outdoors away from areas occupied by personnel to reduce risk of personal injury and/or property damage.

The risk of personal injury and/or property damage can be minimized or avoided by locating vented equipment outside buildings and away from normally occupied areas.

Explosion relief panels should be inspected regularly to confirm physical and operational condition. Replace any damaged parts immediately.

Standard explosion relief panels are intended for outdoor installations only.

Unless otherwise noted, the explosion venting calculations are based on formulas from NFPA-68 for outdoor applications only, with no duct or obstructions on the explosion vent panel.

Contact Donaldson Torit for assistance in calculating specific venting requirements for equipment.

NFPA 68 can provide guidance on both the frequency of and appropriate details for inspections.

## Sprinkler Coupling



Sprinklers can place a large quantity of water in the dust collector when activated. Provide adequate drainage to remove water. Excess water weight can cause the leg structure to collapse.

Consult with local authorities when installing fire control systems on dust collection equipment.

### **NOTICE**

Sprinkler couplings are provided for the convenience of fire control system installers. The fire control system installer shall make their own decisions on the appropriate location of fire control system components.

## Start-up / Commissioning

Instruct all personnel on safe use and maintenance procedures.



Electrical installation, service, or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes. This equipment may start or stop unexpectedly from a remote location.

Turn all power off and lock out all power before performing service or maintenance work.

Turn compressed air supply OFF, bleed and lock out lines before performing service or maintenance work.

Check that the collector is clear and free of all debris before starting.

Do not operate in classified hazardous atmospheres without an enclosure rated for the application.

Optional fans over 600 lbs must be independently supported.

1. Check all electrical connections for tightness and contact.
2. Tighten all setscrews in fan wheel. Use torque wrench and tighten to a torque of 84-lb ft. Repeat after 8 hours of operation and again after two weeks of operation.
3. Check for proper rotation on all motors as described below.



Do not look into fan outlet to determine rotation. View the fan rotation through the back of the motor.

Check that the exhaust plenum is free of tools or debris before checking fan rotation.

Stand clear of exhaust to avoid personal injury.

Do not interchange a power lead with the ground wire. Severe personal injury and/or property damage may result.

- d. "Bump" the fan to initiate rotation.
- e. As the fan is winding down (unpowered) compare fan rotation to the rotation label (located on fan housing) direction.
3. If the fan rotation is reversed, correct the rotation.

To reverse rotation, single-phase power supply: Follow manufacturer's instructions on the motor's nameplate.

To reverse rotation, three-phase power supply: Switch any two leads on the motor junction box.

- a. Turn power to the collector OFF and Lock-Out all energy sources.
- b. Within the junction box, swap the connection location of two power leads on the terminal block, making certain not to swap a power lead and the ground wire.



Do not interchange a power lead with a ground wire or severe personal injury and/or property damage may result.

4. Ensure all equipment access panels are sealed and secure.
5. Check that the dust container is properly sealed and clamped.
6. Check that fan exhaust damper is set to the fully-closed position.
7. Check and remove all loose items in or near the inlet and outlet of the collector.
8. Check that all remote controls and solenoid enclosures (if applicable) are properly wired and all service switches are in the OFF position.
9. Check that all optional accessories are installed properly and secured.
10. Turn power ON at source.
11. Turn the compressed-air supply ON. Set compressed-air supply pressure to a level suitable for the filters (90-psig).
12. Turn fan motor ON.
13. Adjust airflow with the exhaust damper.

### **NOTICE**

Excess airflow can shorten filter life, cause electrical system failure and fan motor failure.

14. Turn ON remaining optional accessories.
15. Ensure fire mitigation system water is installed and functioning correctly, if present.

## Decommissioning

Once the collector has reached the end of operational life it will need to be decommissioned.



During decommissioning, there is potential for exposure to the dust in the collector. Most dusts present safety and health hazards that require precautions. Wear eye, respiratory, head, and other protection equipment suitable for the type of dust when performing any decommissioning activities.

LOCK-OUT all energy sources prior to performing any decommissioning activities on the equipment.

Electrical service must be performed by a qualified electrician.

Disconnection of ducts must be performed by a qualified contractor.

1. Lock-Out all energy sources to the collector, material handling system and other associated equipment.
2. Remove all filters from the collector and dispose of in a suitable fashion for the dust in the collector. (See Filter Replacement for removal instructions).
3. Disconnect electrical power from the collector and material handling system components and remove any associated conduit or hardware from the exterior of the collector.
4. Clear residual dust accumulations from surfaces inside the collector and associated components in a fashion suitable for the dust, prior to further disassembly.
5. Remove and dispose of all material handling components from the collector hopper discharge.
6. Disconnect all ducts from the collector.
7. Proceed to disassemble collector by removing sub-assemblies in the reverse order of the steps given in Appendix A.
8. Secure all collector components to a suitable transport carrier and transport to a disposal site suitable for the dust in the collector.

**Product Information** (Process Owner to complete and retain for your records)

Model Number _____	Serial Number _____
Ship Date _____	Installation Date _____
Filter Type _____	
Collected Dust _____	
Dust Properties: Kst _____	Pmax _____ MIE _____ MEC _____
Accessories _____	
Other _____	
_____	







## Donaldson Industrial Air Filtration Warranty

Donaldson warrants to the original purchaser only that the Goods will be free from defects in material and manufacture for the applicable time periods stated below: (1) Major structural components for a period of ten (10) years from the date of shipment; (2) Non-Structural, Donaldson-built components and accessories including Donaldson Airlocks, TBI Fans, TRB Fans, Fume Collector products, Donaldson built electrical control components, and Donaldson-built Afterfilter housings for a period of twelve (12) months from date of shipment; and (3) Donaldson-built filter elements for a period of eighteen (18) months from date of shipment.

Buyer is solely responsible for determining if goods fit Buyer's particular purpose and are suitable for Buyer's process and application. Seller's statements, engineering and technical information, and recommendations are provided for the Buyer's convenience and the accuracy or completeness thereof is not warranted. If, after Seller receives written notice, within the warranty period, that any goods allegedly do not meet Seller's warranty, and Seller, in its sole discretion, determines that such claim is valid, Seller's sole obligation and Buyer's exclusive remedy for breach of the foregoing warranty or any Seller published warranty, will be, at Seller's option, either: (i) repair or replacement of such goods or (ii) credit or refund to Buyer for the purchase price from Seller. In the case of repair or replacement, Seller will be responsible for the cost of shipping the parts but not for labor to remove, repair, replace or reinstall the allegedly defective goods. Refurbished goods may be used to repair or replace the goods and the warranty on such repaired or replaced goods shall be the balance of the warranty remaining on the goods which were repaired or replaced. Any repair or rework made by anyone other than Seller is not permitted without prior written authorization by Seller, and voids the warranty set forth herein. Seller warrants to Buyer that it will perform services in accordance with the Sales Documents using personnel of required skill, experience and qualifications and in a professional and workmanlike manner in accordance with generally recognized industry standards for similar services. With respect to any services subject to a claim under the warranty set forth above, Seller shall, in its sole discretion, (i) repair or re-perform the applicable services or (ii) credit or refund the price of such services at the pro rata contract rate and such shall be Seller's sole obligation and the exclusive remedy for breach of the foregoing warranty on services. Products manufactured by a third party ("Third Party Product") may constitute, contain, be contained in, incorporated into, attached to or packaged together with, the goods. Buyer agrees that: (a) Third Party Products are excluded from Seller's warranty in this Section 7 and carry only the warranty extended by the original manufacturer, and (b) Seller's liability in all cases is limited to goods of Seller's design and manufacture only. EXCEPT FOR SELLER'S WARRANTY OF TITLE TO THE GOODS, SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES WHATSOEVER, WHETHER, EXPRESSED OR IMPLIED, ORAL, STATUTORY, OR OTHERWISE, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY AND ANY WARRANTIES ARISING FROM TECHNICAL ADVICE OR RECOMMENDATIONS, COURSE OF DEALING OR OF PERFORMANCE, CUSTOM OR USAGE OF TRADE. Seller's obligations do not cover normal wear and tear or deterioration, defects in or damage to any goods resulting from improper installation, accident or any utilization, maintenance, repair or modification of the goods, or any use that is inconsistent with Seller's instructions as to the storage, installation, commissioning or use of the goods or the designed capabilities of the goods or that, in its sole judgment, the performance or reliability thereof is adversely affected thereby, or which is subjected to abuse, mishandling, misuse or neglect or any damage caused by connections, interfacing or use in unforeseen or unintended environments or any other cause not the sole fault of Seller, and shall be at Buyer's expense. Seller's warranty is contingent upon the accuracy of all information provided by Buyer. Any changes to or inaccuracies in any information or data provided by Buyer voids this warranty. Seller does not warrant that the operation of the goods will be uninterrupted or error-free, that the functions of the goods will meet Buyer's or its customer's requirements unless specifically agreed to, or that the goods will operate in combination with other products selected by Buyer or Buyer's customer for its use.

The terms of this warranty may only be modified by a special warranty document signed by a Director, General Manager or Vice President of Donaldson. To ensure proper operational performance of your equipment, use only genuine Donaldson replacement parts.

**This Product is provided subject to and conditioned upon Donaldson's Terms of Sale ("Terms"), a current copy of which is located at [termsofsale.donaldson.com](http://termsofsale.donaldson.com). These Terms are incorporated herein by reference. By purchasing or using this Product, the user accepts these Terms. The Terms are available on our website or by calling our customer service line at 1-800-365-1331.**

Significantly improve the performance of your collector with genuine Donaldson Torit replacement filters and parts. **Call Donaldson Torit at 800-365-1331.**

**Important Notice:** Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, availability and data are subject to change without notice, and may vary by region or country.



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