

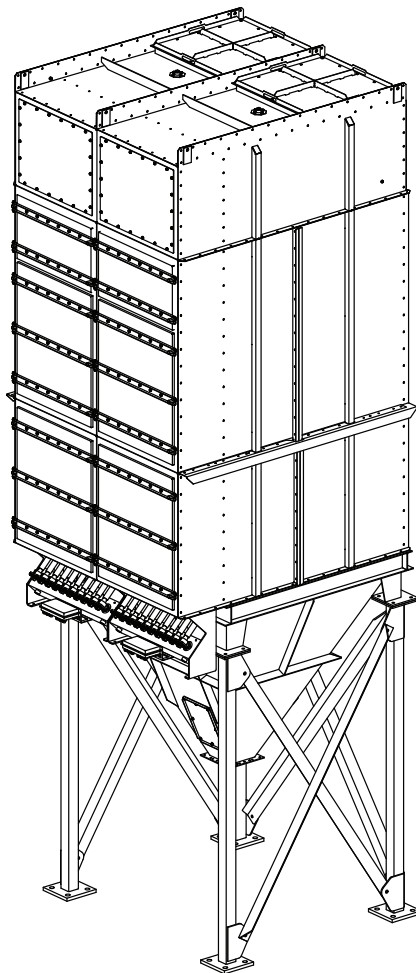


Dalamatic® Cased

DLMC 1/2/15, 1/3/15, 1/4/15, 1/5/15, 1/7/15, 2/2/15, 2/3/15, 2/4/15, 2/5/15, 2/6/15, 2/8/15, 3/3/15, 3/5/15, 3/6/15, 3/7/15, 3/8/15, 4/5/15 and 4/8/15 - Collectors Built After July 2006

Installation and Operation Manual

Installation, Operation, and Service Information



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.

English
Master Language

IOM AD3626001 (ENG)
Revision 5

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 Dalamatic Cased, Model DLMC, dust collectors are continuous-duty collectors with bag-style filters designed to handle product recovery applications and operations generating nuisance dust. The DLMC provides continuous filtration and high collection efficiency while maintaining a relatively constant system resistance. Standard sizes range from 323 to 5164 sq ft (30 to 480 sq meters) of filter area. A solid-state timer provides the interface for filter cleaning control.

Options include a pyramid hopper for use with a 55-gallon drum or rotary airlock, a trough hopper for use with a screw conveyor, or hoppers for use with bin-style, dust disposal pails.

Intended Use

The DLMC separates solid particulate from an airstream as part of a manufacturing process.

Although primarily designed for negative pressure systems, the DLMC can be used under positive pressure. Contact Donaldson Torit for information on positive pressure systems.

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

Dalamatic Cased dust collectors are delivered partially assembled in sections compatible with truck capacity and load restrictions. All models require field assembly of the leg, hopper, filter section, compressed air manifold and other system components including ducts, hopper discharge devices and fans.

Typical systems include one of several hopper arrangements designed for compatibility with various solids-handling containers. A typical DLMC also has a steel structure to support the collector.

Filters

The collector is shipped with factory installed filters.

Hopper

The Dalamatic Cased hopper is an all welded steel hopper.

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.

Options and Accessories

Fan Controls

The collector can accept a direct mounted fan Torit Backward Inclined (TBI) to the top of the collector.

Cleaning Controls and Sensors

Differential Pressure Gauge

A Magnehelic®, Photohelic®, or equivalent differential pressure gauge is used to measure the pressure difference between the clean-air and dirty-air plenums and provides a visual display of filter condition. The high-pressure tap is located in the dirty-air plenum and the low-pressure tap is located in the clean-air plenum.

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 (On), LOW (Off) and ALARM. The first two, HIGH (On) and LOW (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 (On), LOW (Off) and ALARM. The first two, HIGH (On) and LOW (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.

Hopper Discharge Accessories

55-Gallon Drum Pack

The drum pack is designed to fit a customer-supplied, standard 55-gallon drum and provides easy access for dust removal and disposal. A flexible hose connects the drum cover to the hopper. Placing a pallet under the drum allows heavier materials to be moved quickly using a forklift or pallet jack. If a pallet is used, the length of flexible hose may need to be shortened.

Hopper Access Cover with Water Overflow Valve

One way flow valve (check valve) installed in an optional hopper access cover for each hopper to provide water drainage (i.e. collectors with sprinkler systems).

Explosion Relief Panel

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.

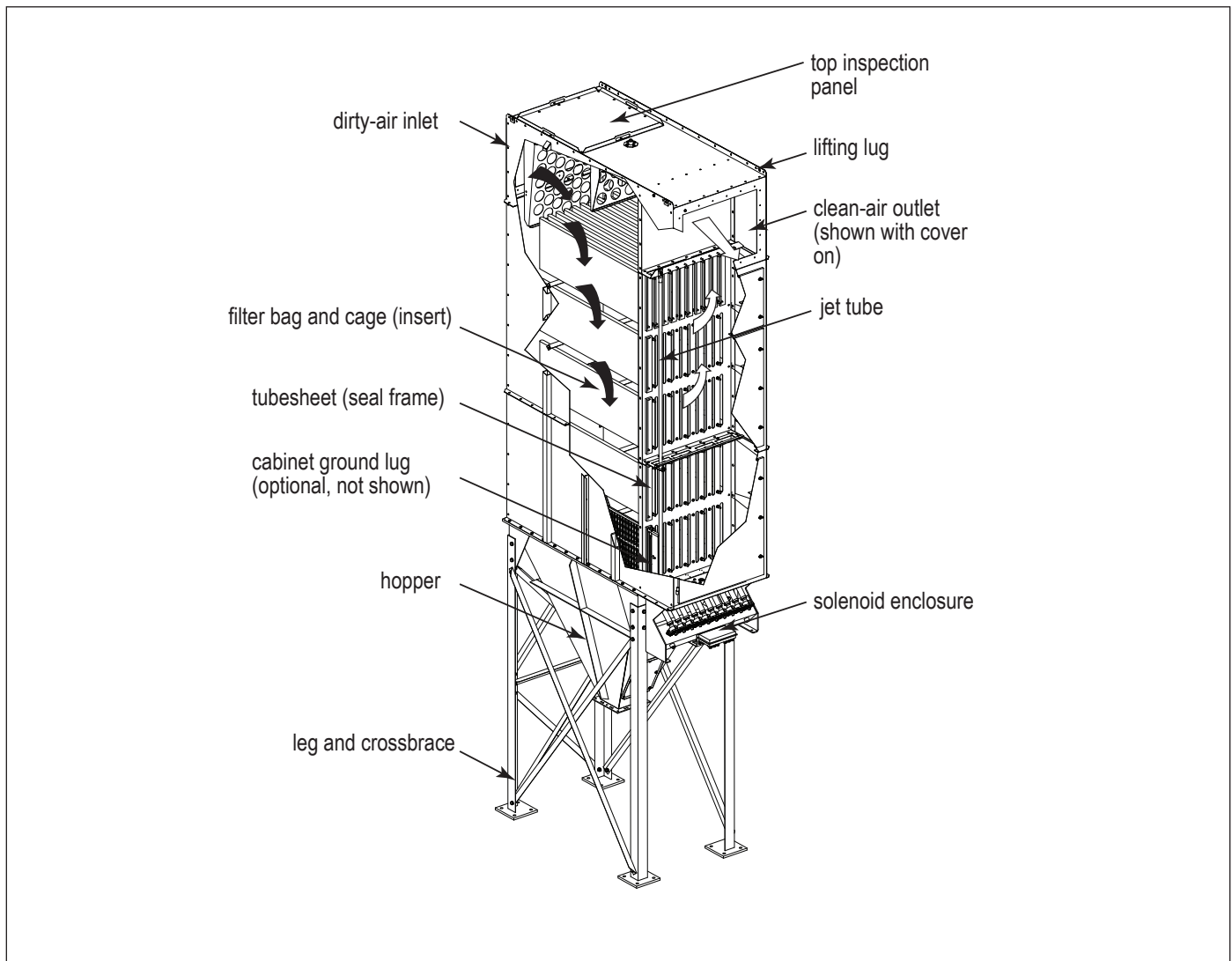
Turn all power off and lock out all power before performing service or maintenance work.

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.

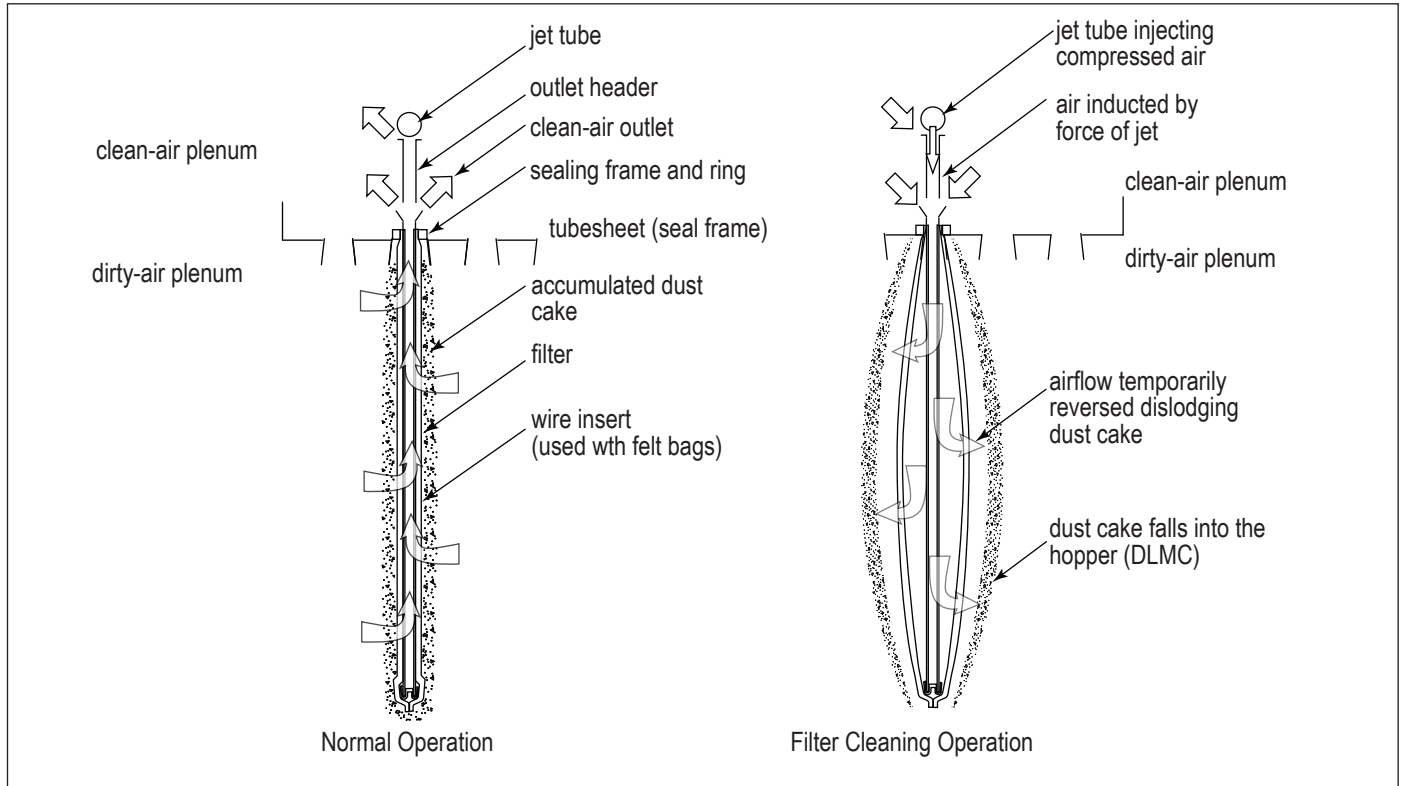
During normal operation, dust-laden air is drawn through the dirty air inlet. Dust will hit the baffle causing the dust particle velocities to be reduced. From there, natural pre-separation, caused by the effects of gravity, takes place with larger particulate falling directly to hoppers and fine particles collecting on the outside surface of the filters. Clean, filtered air passes to the center of the filters and discharges through the clean-air outlet.



Typical Installation

(Collector shown with rear inlet and front outlet. Other options include side inlets and outlets and a top outlet to be used with a mounted TBI fan.)

Filter cleaning is completed using pulse-jet technology. A jet tube positioned over each filter distributes a pulse of compressed air through the filter. As the compressed air enters the filter, airflow is temporarily reversed dislodging the dust cake formed on the outside of the filter. The dust cake falls into the hopper and exits through the hopper outlet.



Typical Collector Operation Sequence

Start-Up



Verify the process system is ready for operation and all alarm conditions are cleared prior to starting the collector.

1. Turn powered discharge components, such as screw conveyor or rotary airlock, ON.
2. Turn the equipment being served ON.
3. Turn main blower ON, if equipped.
4. Turn Solid-State Timer and compressed-air supply ON.

Shut-Down

To clear residual deposits from the filter bags, filter body, and after the dust producing equipment being served has been turned off:

1. After allowing sufficient time to clear suspended dust from the ducts, turn main blower OFF leaving compressed-air supply ON to allow off-line filter cleaning.

Note: Contact your Donaldson representative for shutdown instructions for explosion vented collectors.

2. Wait 10 to 15 minutes and turn Solid-State Timer and compressor OFF.
3. Turn rotary valves, screw conveyors, or other discharge devices OFF after the dust dislodged by the the cleaning in step 2 is removed from the hopper.

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. 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.

3. 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.

4. Monitor exhaust.
5. Monitor dust disposal.

Dust Disposal

1. Shut the collector OFF prior to emptying the dust container (bin, pail, or drum).
2. Transfer dust from the dust container to a suitable disposal site and dispose of dust in accordance with local requirements for the materials being collected.
3. Empty when dust container is 2/3 full. Check integrity of gasket under container cover. Replace gasket if worn or damaged.
4. If optional slide gate is used, close gate before servicing the container.



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

5. Replace or reinstall dust container, 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.

6. 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.

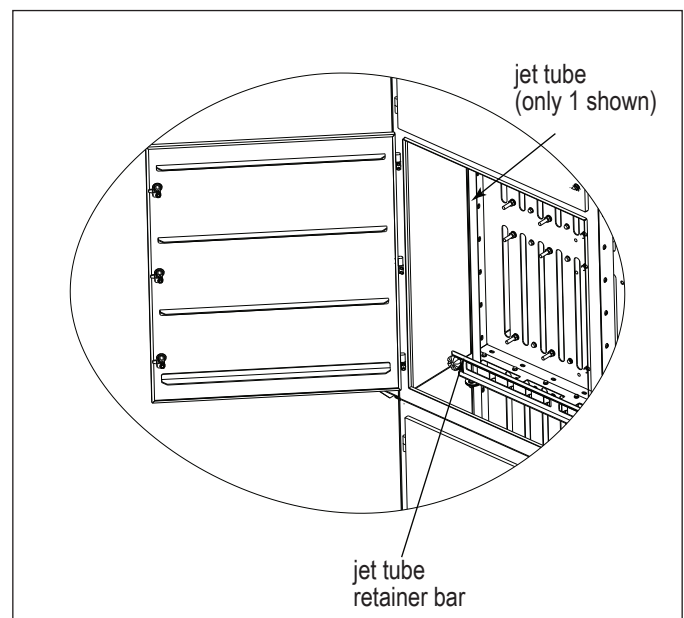
Turn all power OFF and lock out all power before performing service or maintenance work.

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

Do not operate with missing or damaged filters.

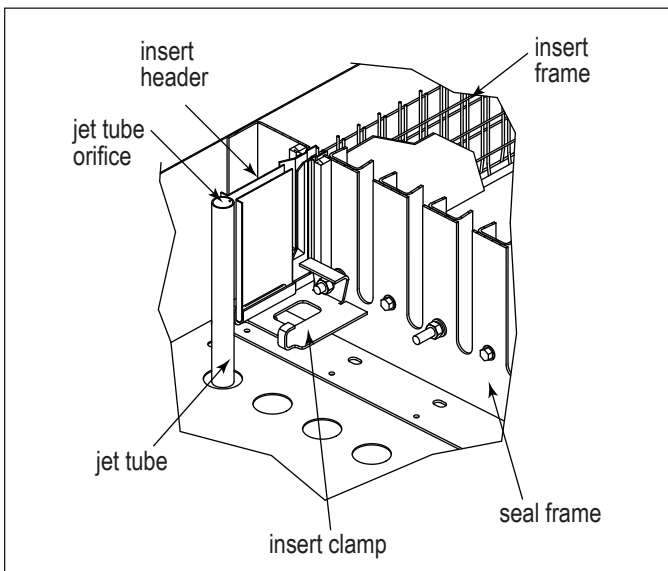
Filter Bag

1. Activate the pulse cleaning for 10 to 15 minutes to remove excess dust from the filter bags.
2. Turn power to the collector OFF.
3. Turn compressed air supply OFF.
4. Open filter access doors and remove jet tube retainer on models equipped with retainer bar (4 tier and higher).
5. Remove the hex nuts and washers securing the tops of the jet tubes to the seal frame retainer bolts.

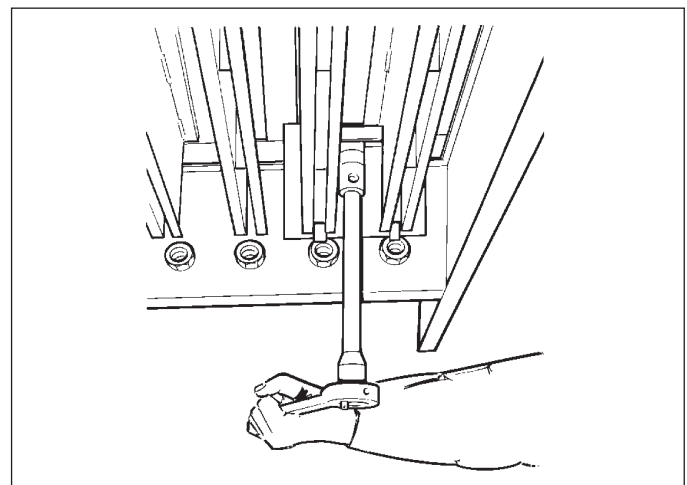


Jet Tube Retainer

6. Tilt the first jet tube back to clear the seal frame retainer bolt at the top and lift the jet tube off the pulse pipe collar at the bottom.
7. Remove jet tube from collector and set aside.
8. Repeat steps 6-7 until all jet tubes are removed.
9. Cover the pulse pipe collars in the bottom panel of the Clean Air Plenum (the openings to the diaphragm valves).
10. Remove the hex nuts securing the first wire cage support frame (insert) retainer clamps using a deep well socket and extension.
11. Remove both insert clamps and withdraw the two wire cage support frames (inserts).
12. Remove dirty filter bag and dispose of in accordance with local requirements for the materials being collected.
13. Inspect cage for excess corrosion, broken mesh, or other damage and replace as necessary.
14. Slide new filter bag over the wire support frame shown in Filter Bag Assembly. Slide bag carefully until top of bag is tight against the support frame flange.

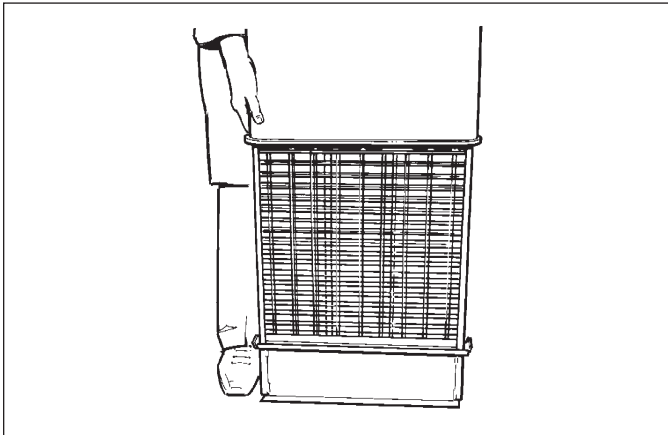


Filter Bag Detail
(adjacent filter removed for clarity)

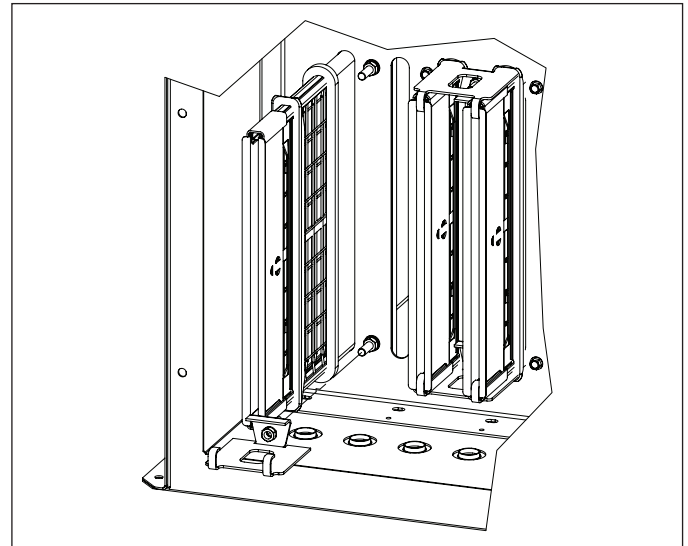


Insert Clamp Installation

15. Starting at one side of the collector, place a filter bag assembly in a seal frame slot as shown in Filter Bag Installation. Hold wire cage support frame (insert) up in the slot to prevent bag from dragging.
16. Repeat steps 14-15 with the second wire cage (insert) and install a second filter bag assembly in the tubesheet opening directly adjacent to the first filter bag assembly.



Filter Bag Assembly



Filter Bag Installation

17. Replace both of the insert clamps. Install and tighten the hex nuts to secure the insert clamps and the two wire cages (inserts). Position insert clamps and tighten using a deep well socket and extension. Do not overtighten. Maximum recommended torque is 20 ft/lb. See Insert Clamp Installation.

NOTICE

Tighten bottom insert clamp first.

18. Repeat steps 14-17 to install all remaining bag pairs.
19. Uncover the pulse pipe collars (the openings to the diaphragm valves) in the bottom of the Clean Air Plenum for installation of jet tubes.

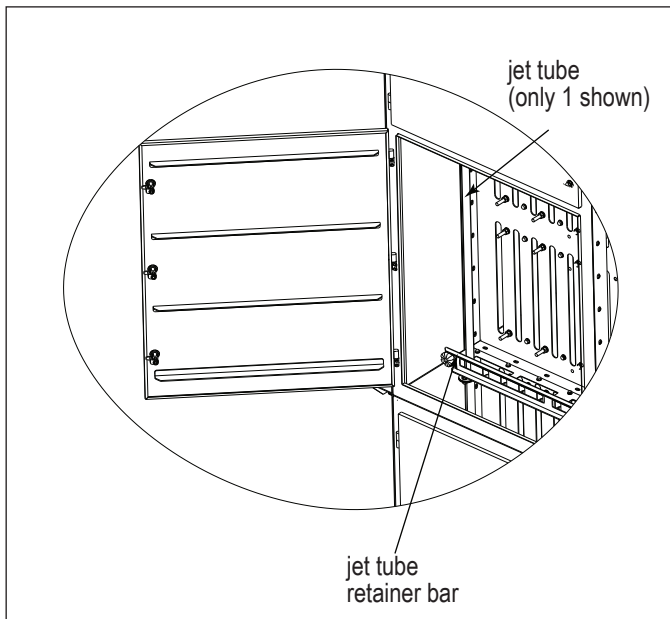
NOTICE

Check and clear any plugged orifices in the jet tubes prior to placing them back in the collector.

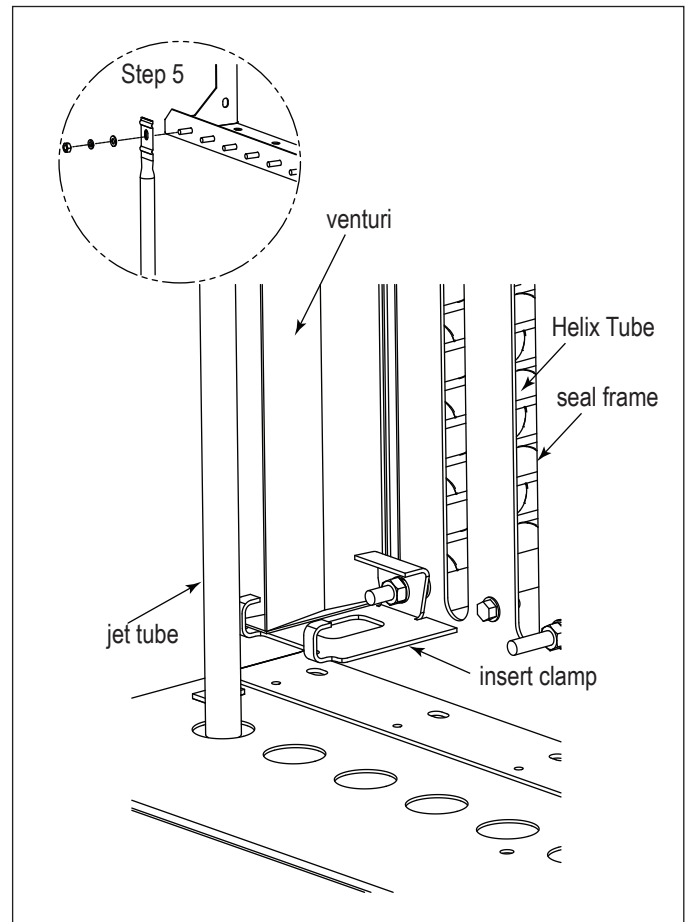
20. To reinstall the first jet tube, begin by orienting the jet tube so that the orifices are directed toward the filter bag assembly with the open end down. Failure to correctly orient the orifices will prevent the jet tube pulse flow from cleaning the bags.
21. Install jet tubes with the open end over its pulse pipe collar locator and tilt the jet tube back and then forward over the top seal frame retainer bolt. Press the jet tube firmly into the pulse pipe collar. Confirm the jet tube orifices are directed toward the filter bag assembly.
22. Install hex nuts and washers to the retainer bolts at the top of the jet tubes.
23. Repeat steps 20-22 until all jet tubes are installed.
24. Install jet tube retainer bars on models equipped with a retainer bar (4 tiers tall or taller).
25. Close filter access doors.
26. The collector can now be returned to service.

Helix Tube Filter

1. Activate the pulse cleaning for 10-15 minutes to remove excess dust from the helix tube filters.
2. Turn power to the collector OFF.
3. Turn compressed air supply OFF.
4. Open filter access door and remove jet tube retainer on models equipped with retainer bar (4 tier and higher).
5. Remove the hex nuts and washers securing the tops of the jet tubes to the seal frame retainer bolts
6. Tilt the first jet tube back to clear the seal frame retainer bolt at the top and lift the jet tube off the pulse pipe collar at the bottom.
7. Remove jet tube from collector and set aside.
8. Repeat steps 6-7 until all jet tubes are removed.
9. Cover the pulse pipe collars in the bottom panel of the Clean Air Plenum (the openings to the diaphragm valves) to prevent foreign object entry.
10. Remove the hex nuts securing both of the insert clamps using a deep well socket and extension.
11. Remove both insert clamps and set aside.
12. Remove venturis and set aside.
13. Remove dirty helix tube filters and dispose of in accordance with local requirements for the materials being collected.



Jet Tube Retainer



Helix Tube Filter Detail
(adjacent filter removed for clarity)

14. Starting on one side of the collector, place a new helix tube filter in a seal frame slot as shown in Helix Tube Filter Installation.

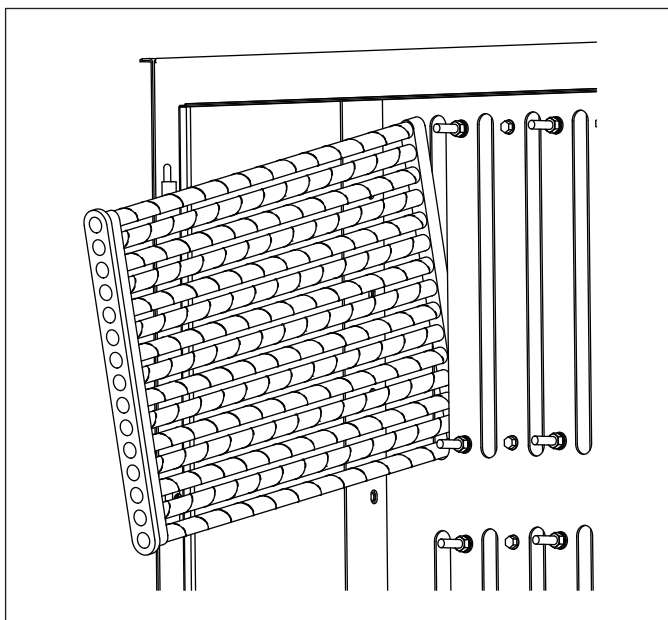
NOTICE

Be careful to not scrape the filters when slipping them through the seal frame.

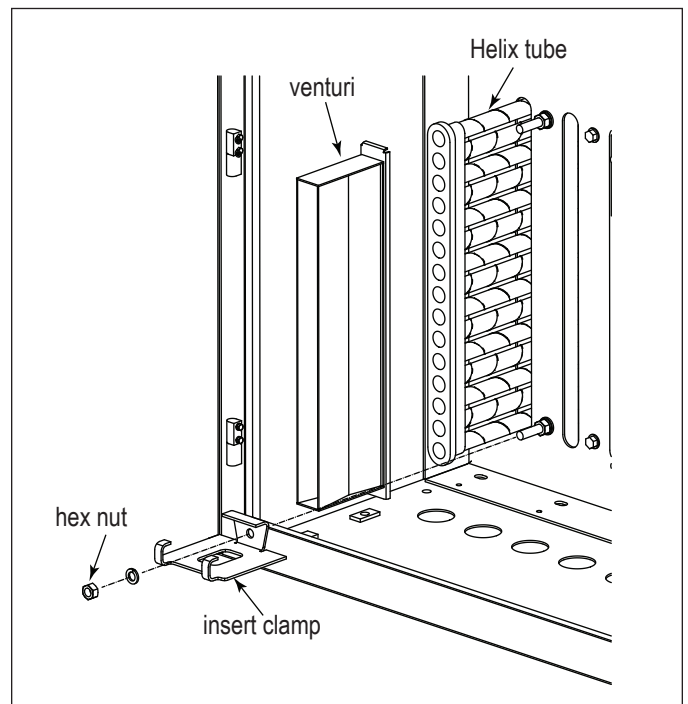
15. Install a second helix tube filter in the tubesheet opening directly adjacent to the prior helix tube filter.
16. Install a venturi over the first two adjacent helix tube filters. Place an insert clamp over each end of the venturis. Install a nut on each insert clamp and tighten using a deep well socket and extension. See Insert Clamp Installation. Do not overtighten. Maximum recommended torque is 20 ft/lb.

Note: Tighten bottom insert clamp first.

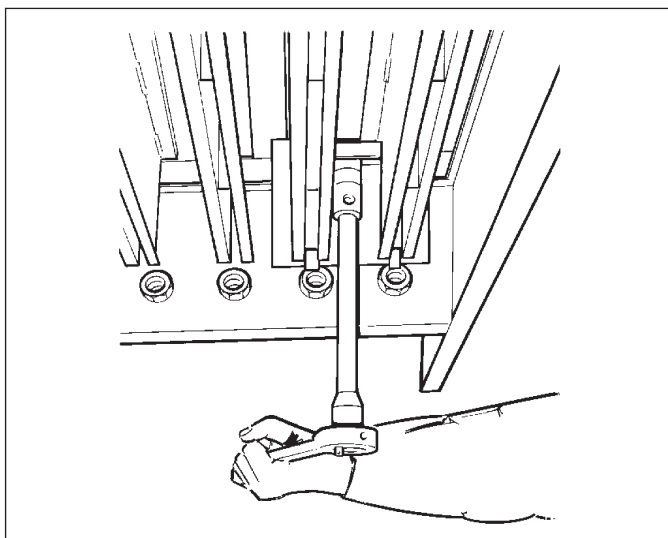
17. Repeat steps 14-16 to install all helix tubes and insert clamps.



Helix Tube Filter Installation



Venturi Installation
(adjacent filter removed for clarity)



Insert Clamp Installation

18. Uncover the pulse pipe collars (the openings to the diaphragm valves) in the bottom of the Clean Air Plenum for installation of jet tubes.

NOTICE

Check and clear any plugged orifices in the jet tubes prior to placing them back in the collector.

19. To reinstall the first jet tube, begin by orienting the jet tube so that the orifices are directed toward the helix tube filter with the open end down. Failure to correctly orient the orifices will prevent the jet tube pulse flow from cleaning the bags.
20. Install jet tubes with the open end over its pulse pipe collar locator and tilt the jet tube back and then forward over the top seal frame retainer bolt. Press the jet tube firmly into the pulse pipe collar. Confirm the jet tube orifices are directed toward the helix tube filter.
21. Install hex nuts and washers to the retainer bolts at the top of the jet tubes.
22. Repeat steps 19-21 until all jet tubes are installed.
23. Install jet tube retainer bars on models equipped with a retainer bar (4 tiers tall or taller).
24. Close filter access doors.
25. The collector can now be returned to service

Troubleshooting

Problem	Probable Cause	Remedy
Fan blower and motor do not start	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.
Partial loss of suction	Compressed air system	Check compressor for operation. Check interlocks, motor, power supply, and drive belts.
	Incorrect manifold pressure	Check pulse pressure at manifold. See Compressed Air Requirements table.
	Excess moisture in the compressed air supply	Check that the compressed air supply is oil and moisture free.
	No pulse to diaphragm valves	Check the solenoid and diaphragm valves by feeling the rubber hose for pulse. Feel the vent opening on the solenoid valve for pulse. If all valves are affected, check that the LED on the controller is ON. If not illuminated, check power supply and printed circuit board fuse. If isolated solenoid or diaphragm valve is affected, repair or replace as necessary.
	Filters plugged	Check that the dust removal container is not full and that the equipment served is operating. Turn fan OFF and allow the controller to perform several complete cleaning cycles. Replace damaged or torn filters.
	Blower belt slipping	Adjust or replace the drive belts.
	Motor speed low	Check all supply voltage, phase, and motor connections.
	Fan rotation backward	Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone. See Start-Up/Commissioning.
Total loss of suction	Blower motor stopped	Check motor started overloads, fuses and interlocks. Check motor connections and windings.
	Filters plugged	Check that the dust removal container is not full and that the equipment served is operating. Turn fan OFF and allow the controller to perform several complete cleaning cycles. Remove each filter bag, vacuum outside surfaces, and reinstall. Replace damaged or torn filters.
	Obstructed ductwork	Check and remove obstructions.
Clean-air outlet discharging dust	Filters not installed correctly	See Filter Replacement.
	Filter(s) damaged or worn	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Replacement.

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.

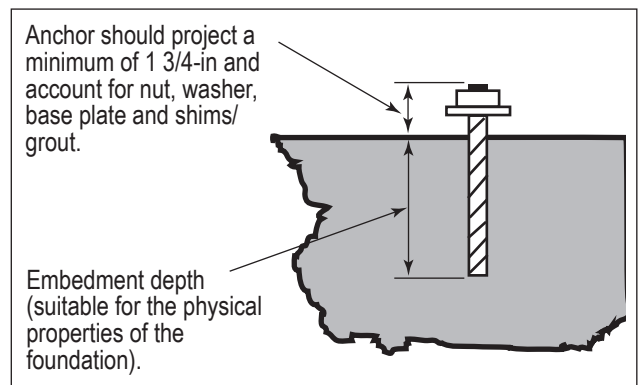
Unloading and Positioning



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

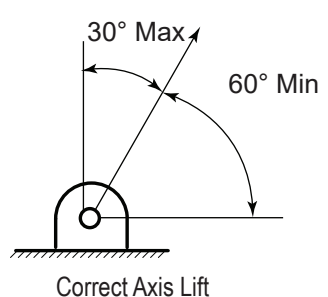
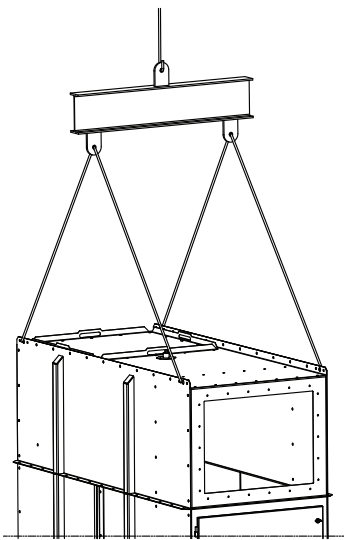
Lifting Information



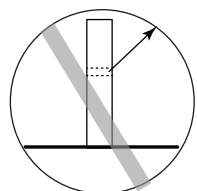
Failure to lift the equipment or sub-assemblies correctly can result in severe personal injury and/or property damage. Only qualified crane or forklift operators should be allowed to lift equipment.

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



Correct Axis Lift



Incorrect Axis Lift



Do not lift collector by the door handles.

The lifting lugs provided have been designed to support the individual sections of the collector as shipped to the site. Do not use the lifting lugs to lift the entire weight of the collector. Carefully follow the assembly sequence to avoid exceeding the load capacity of the lifting lugs.

Hopper and Leg Installation



Anchors must comply with local code requirements and be capable of supporting dead, live, wind, seismic and other applicable loads.

Anchor sizes shown are provisional, as final anchor sizing will depend on jobsite load conditions, equipment location, foundation/framing design variables and local codes.

Consult a qualified engineer for final selection of suitable anchors.

Temporary support is required until all legs and cross-bracing are in place.

Reference Typical Foundation Anchor and leg assembly drawing shipped with the collector prior to starting assembly.

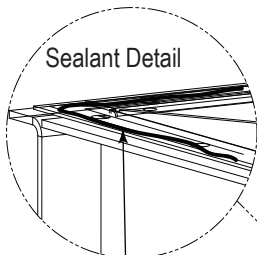
1. Prepare the foundation or support framing in the selected location. Locate and install anchors.
2. Carefully follow the caulking and sealing recommendations during the assembly process.
3. Assemble the legs and cross bracing.
4. Level all horizontal and vertical members. Use shims under legs if necessary.
5. Lift hopper into position over the leg structure and lower slowly.
6. Use drift pins to align holes.
7. Secure joints with bolts, washers, and hex nuts supplied.
8. Tighten all hardware on legs and cross braces before removing crane.
9. Apply sealant to the hopper flange. See Sealant Detail.
10. Lift the filter section into position over the hopper and lower slowly.
11. Use drift pins to align holes. Install bolts loosely until all bolts are in place. If the collector has vertical site joints, apply sealant as shown before bolting together.
12. Install the bolts at the clean-air plenum base to hopper flange first.
13. Access the tubesheet (seal plate) joining bolts through the front access doors. Take special care with sealant at the tubesheet joint between the clean- and dirty-air plenums. Tighten bolts to distribute sealant.
14. Secure all bolts, washers, and hex nuts. Tighten uniformly to form an airtight seal.
15. Install upper filter sections and bolt on external flange stiffeners the same way if shipped separately.
16. Models with horizontal site joints have lifting lugs that must be removed before installing the upper filter sections.

NOTICE

Ducts must be independently supported.

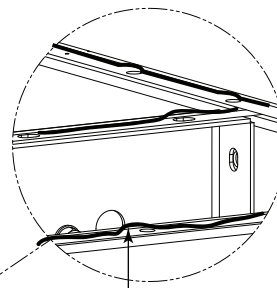
top inspection panel removed
Note: the opening is only for the
inspection panel and should not be
used as an inlet

bolt-on external
flange stiffener
remove and discard
after section is installed
(2 pieces)

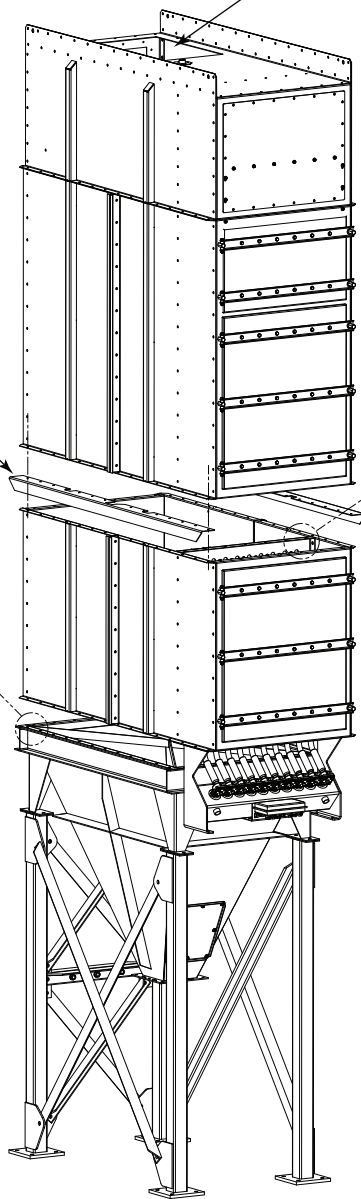


Apply generously to
prevent leakage

Sealant Detail



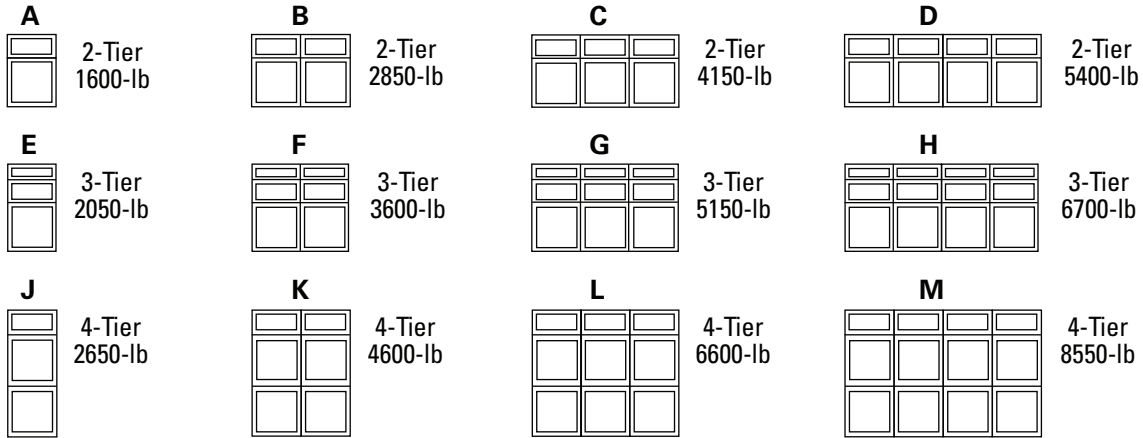
3/16-in diameter continuous
bead of sealant. Apply to each
side of the bolt pattern



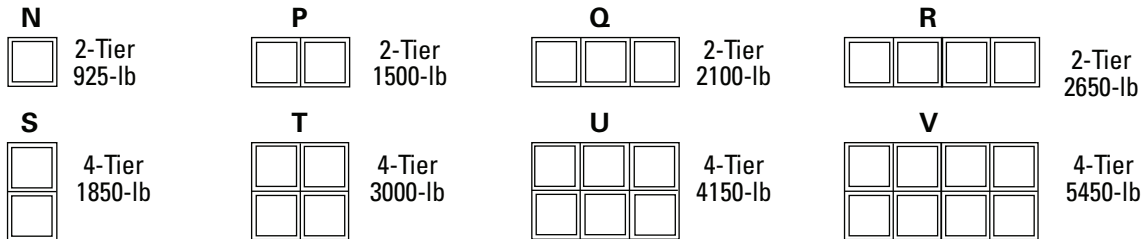
Sealant Detail

Shipping Information

Upper Section



Lower Section, tarp required with open top



All weights are approximate
 Front view is shown

Banks	2-Tier	3-Tier	4-Tier	5-Tier	6-Tier	7-Tier	8-Tier
1	(1) A	(1) E	(1) J	(1) E, (1) N	(1) A, (1) S	(1) E, (1) S	(1) J, (1) S
2	(1) B	(1) F	(1) K	(1) F, (1) P	(1) B, (1) T	(1) F, (1) T	(1) K, (1) T
3	(1) C	(1) G	(1) L	(1) G, (1) Q	(1) C, (1) U	(1) G, (1) U	(1) L, (1) U
4	(1) D	(1) H	(1) M	(1) H, (1) R	(1) D, (1) V	(1) H, (1) V	(1) M, (1) V
5	(1) B, (1) C	(1) F, (1) G	(1) K, (1) L	(1) F, (1) P, (1) G, (1) Q	(1) B, (1) T, (1) C, (1) U	(1) F, (1) T, (1) G, (1) U	(1) K, (1) T, (1) L, (1) U
6	(2) C	(2) G	(2) L	(2) G, (2) Q	(2) C, (2) U	(2) G, (2) U	(2) L, (2) U
7	(1) C, (1) D	(1) G, (1) H	(1) L, (1) M	(1) G, (1) Q, (1) H, (1) R	(1) C, (1) U, (1) D, (1) V	(1) G, (1) U, (1) H, (1) V	(1) L, (1) U, (1) M, (1) V
8	(2) D	(2) H	(2) M	(2) H, (2) R	(2) D, (2) V	(2) H, (2) V	(2) M, (2) V
9	(3) C	(3) G	(3) L	(3) G, (3) Q	(3) C, (3) U	(3) G, (3) U	(3) L, (3) U
10	(2) B, (2) C	(2) F, (2) G	(2) K, (2) L	(2) F, (2) P, (2) G, (2) Q	(2) B, (2) T, (2) C, (2) U	(2) F, (2) T, (2) G, (2) U	(2) K, (2) T, (2) L, (2) U

Example:

Model DLM 6/4/15 = 6 banks wide x 4-tiers high

- Find the number of banks in the first column and follow the row to the 4-Tier column.
- This collectors ships with two upper sections (L).
- Hopper and legs ship separate.

	Pyramid Hopper and Legs	Single Outlet Pyramid Hopper and Legs	Trough Hopper and Legs	Manifold** Assembly
1-Bank	1250-lb*	NA	NA	2/5-Tier
2-Bank	1650-lb*	1400-lb*	1300-lb*	200-lb/Bank
3-Bank	2050-lb*	1850-lb*	1600-lb*	6/8-Tier
4-Bank	2800-lb*	NA	1850-lb*	225-lb/Bank

*Add 150-lb for 72-in legs

**Includes electrical, valves, tubing, and manifold

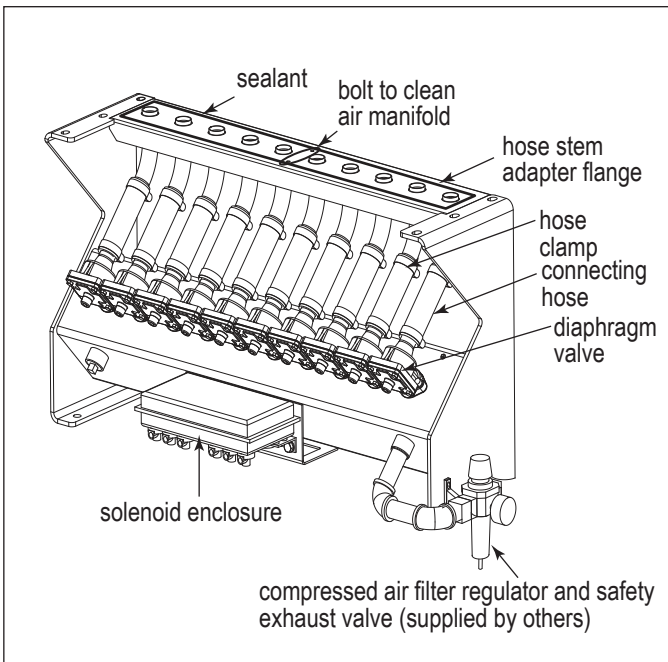
Manifold Installation

1. Apply a suitable sealant, based on temperature and application, to the hose stem adapter flange and completely circle flange shown in manifold illustration.
2. Lift the assembly up to fit against the bottom of the clean-air plenum and bolt into position.

NOTICE

For ease of installation, mount manifold assembly to a pallet and lift into place.

3. Remove plastic plug. If necessary, install steel plug from the opposite tap to the plug.
4. Carefully tighten the jet tubes.
5. Remove all plastic plugs.
6. Bolt center of manifold assembly (two bolts) to the collector clean air manifold.



Manifold Installation

Compressed Air Requirements

2 Tier Collectors	55-psig
3 Tier Collectors	65-psig
4-8 Tier Collectors	90-100 psig

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.

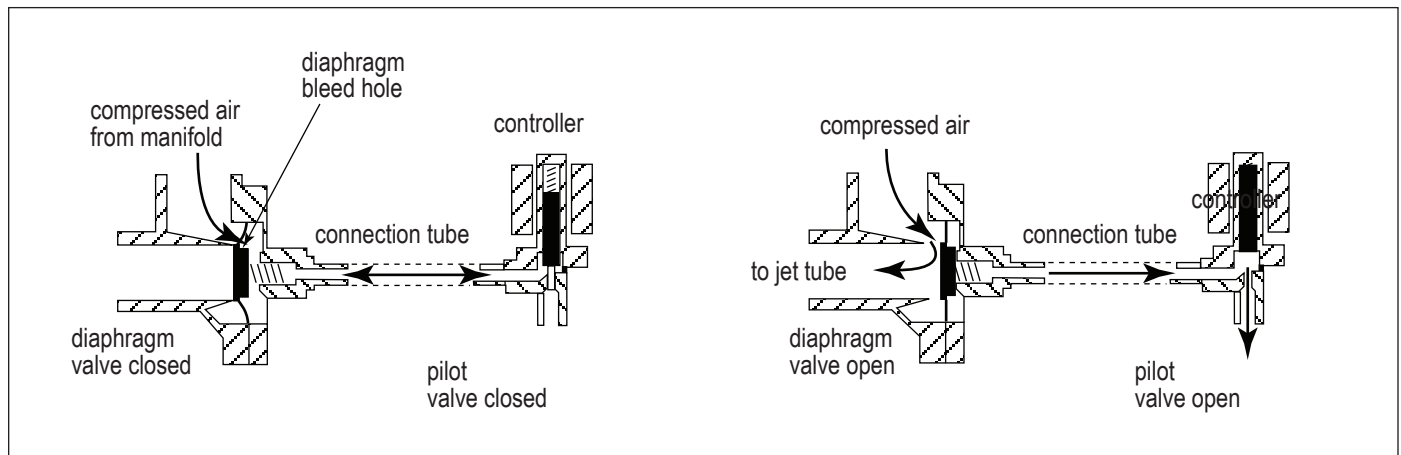
All compressed air components must be sized to meet the system requirements of supply pressure.

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.

Compressed air pressure must be set to the pressure listed in the Compressed Air Requirements table to ensure proper operation.

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 shown in the compressed air requirements table.
4. The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.



Compressed Air Pulse Cleaning Control System

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.

Solid-State Timer Installation



Electrical installation, service or maintenance work during installation 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 installation, service, or maintenance work.

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

1. Using the wiring diagram supplied with the timer assembly, wire the fan motor, fan-motor starter, solid-state timer, and solenoid valves. Use appropriate wire gauge for rated amp load as specified by local codes.
2. Plug the program lug into the pin that corresponds with the number of solenoid valves controlled. For 20 and 32 PIN solenoid controls, set the switch positions on the DIP switch labeled LAST CHANNEL to the corresponding number of pulse valves using the chart printed on the timer board.
3. With power supply ON, check the operation of the timer and valves. The valves should open and close sequentially at factory set 10-second intervals.
4. If a gauge or similar device is used to control the solid-state timer, the jumper on the pressure switch portion of the timer should be removed. The solenoid valves pulse only when the differential pressure reaches the high-pressure setpoint. The valves will continue to pulse until the low-pressure setpoint is reached.

NOTICE

The solid-state timer voltage must match the voltage of the rating of the timer provided (typically 120VAC).

Do not mount the solid-state timer directly to the collector or the positive displacement blower as mechanical vibration can damage the timer.

Solenoid Connection

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.

Wire the solenoids to the solid-state timer following the wiring diagram supplied with the collector. Filter life and cleaning operation will be affected if not wired correctly.

Timer and Solenoid Specifications

Power to the solid-state timer is supplied to Terminals L1 and L2, which are intended to operate in parallel with the fan starter's low-voltage coil. On fan start-up, power is supplied to the timer and the preset OFF time is initiated. At the end of the OFF time, the timer energizes the corresponding solenoid valve to provide the ON time cleaning pulse for one diaphragm valve and then steps to the next until all filters have been cleaned.

To pulse when the fan is OFF, install a toggle switch as shown on the Solid-State Timer Wiring Diagram. When the toggle switch is ON, the timer receives power and energizes the solenoid valve pulse-cleaning operation even though the fan is turned OFF.

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

Output Solenoids
The load is carried and turned ON and OFF by the 200 watt maximum-load-per-output solid-state switch.

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, adjustable from 1.5-second minimum to maximum 30-seconds.

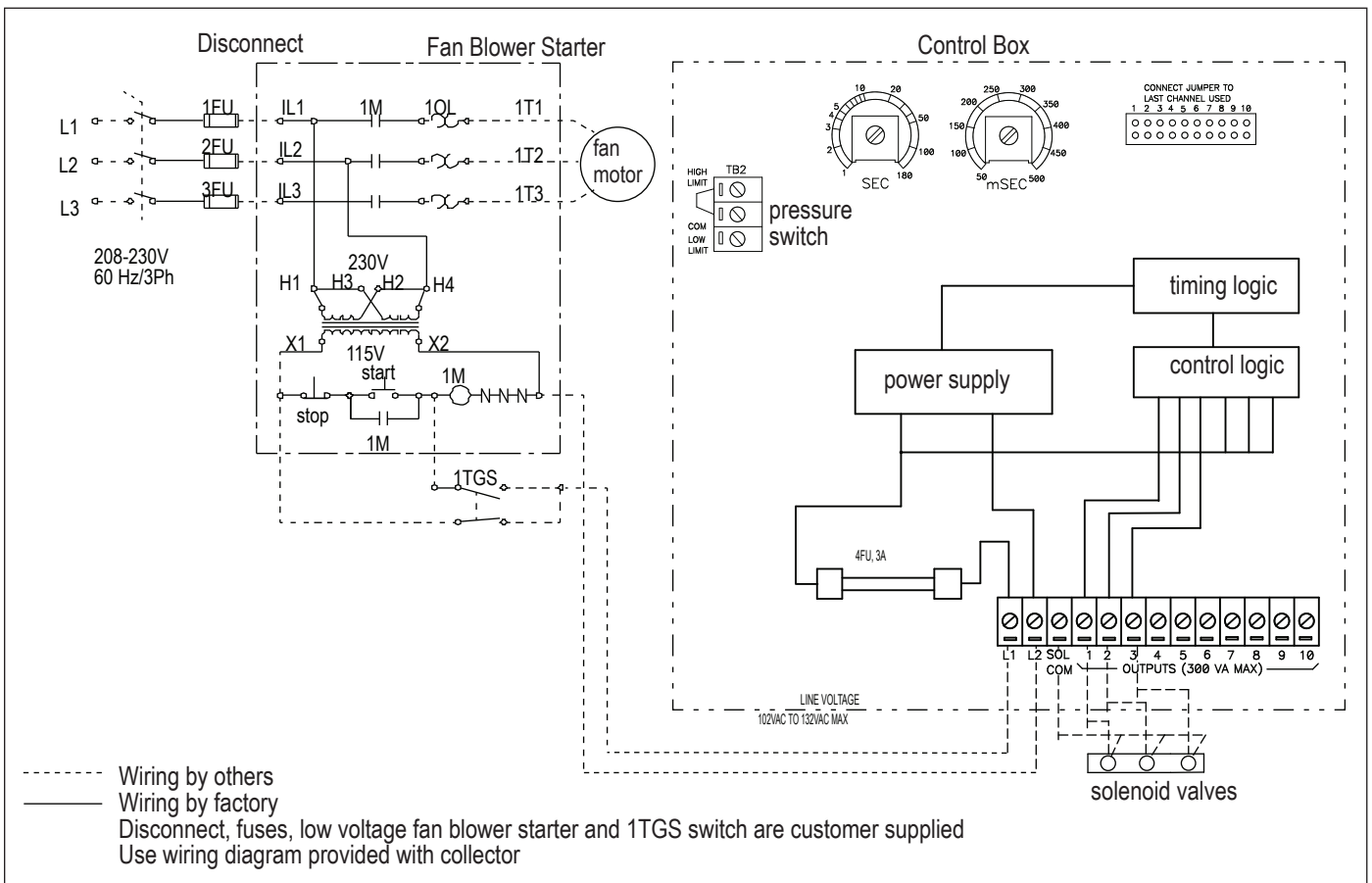
Operating Temperature Range
-20° F to 130° F

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 pressure to a level suitable for the filters (90-psig). The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.

NOTICE Do not increase supply pressure above 90-psig as component damage can occur.



Typical Wiring Diagram

Bonding and Grounding Options

Collectors using antistatic filters must be properly bonded and grounded.

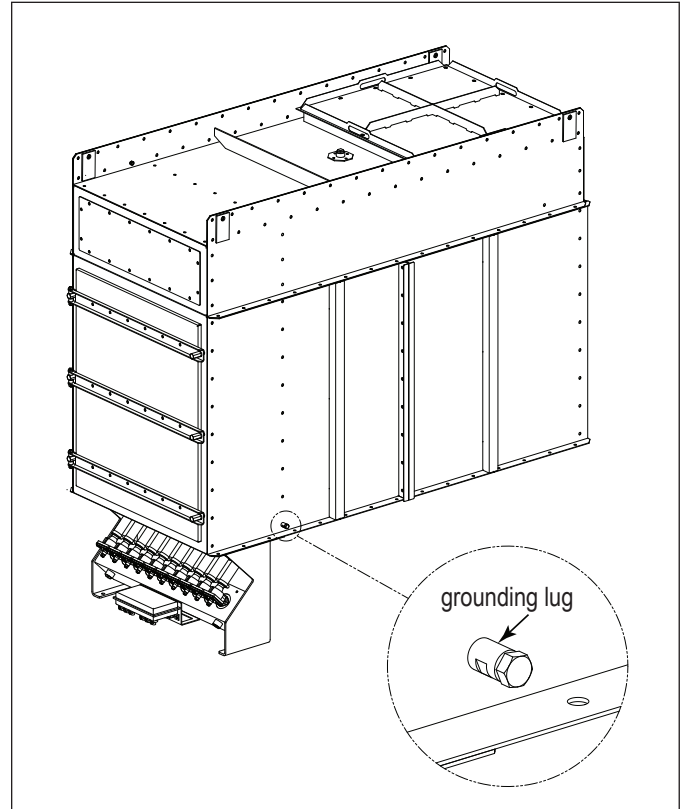
1. If the collector is ordered with antistatic filter bags, the grounding lug and internal components are factory installed.
2. Connect a suitable grounded wire to the grounding lug located on the side of the collector housing.

Interlocks and Alarms

All ancillary equipment should be interlocked to ensure correct starting and stopping sequence. See the Typical Start-Up and Typical Shut-Down procedures. Discharge equipment such as rotary airlocks or screw conveyors should be separately controlled, but interlocked with the Solid-State Timer and blower motor to prevent complete collector failure. For example, if the motor of a screw conveyor that is not interlocked stops, the filter housing will gradually fill with dust until completely choked. Compressor failure could also cause similar blockage.

NOTICE

If interlocking electrical components and possible flow interruption is not an option, installing an alarm system can help prevent sudden system failure. Use zero speed switches on rotating devices such as rotary airlocks and screw conveyors, high pressure drop alarms, low compressed-air pressure switches, or level alarms in hoppers. These devices, linked to an audible and visual alarm, provide early warning of system failure.



Bonding and Grounding Connection

Options and Accessories

Fan Controls



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.

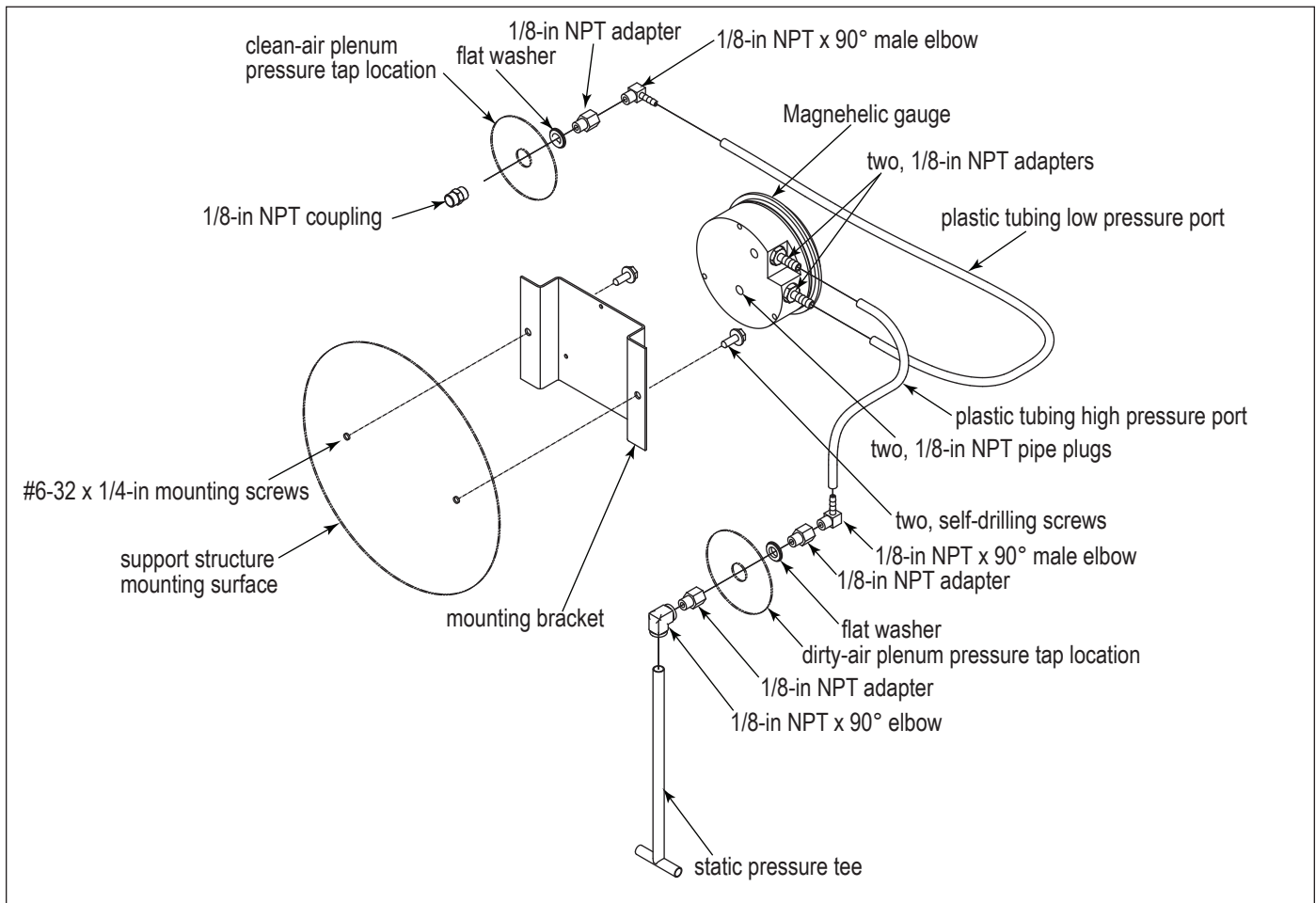
The collector can accept a direct mounted fan, Torit Backward Inclined (TBI) or Torit Radial Blade (TRB), to the top or side of the collector.

For complete information, see the most current version of the TBI or TRB Fan Installation, Operation and Maintenance manual.

Cleaning Controls and Sensors

Magnehelic® Gauge

1. Choose a convenient, accessible location on or near the collector for mounting that provides the best visual advantage.
2. Plug the pressure ports on the back of the gauge using two, 1/8-in NPT pipe plugs supplied. Install two, 1/8-in NPT male adapters supplied with the gauge into the high- and low-pressure ports on the side of the gauges.
3. Attach the mounting bracket using three, #6-32 x 1/4-in screws supplied.
4. Mount the gauge and bracket assembly to the supporting structure using two, self-drilling screws.
5. Thirty-five feet of plastic tubing is supplied and must be cut in two sections. Connect one section of tubing from the gauge's high-pressure port to the pressure fitting located in the dirty-air plenum. Connect remaining tubing from the gauge's low-pressure port to the fitting in the clean-air plenum. Additional tubing can be ordered from your representative.
6. Zero and maintain the gauge as directed in the manufacturer's Operating and Maintenance Instructions provided.



Magnehelic Gauge Installation

Photohelic® Gauge

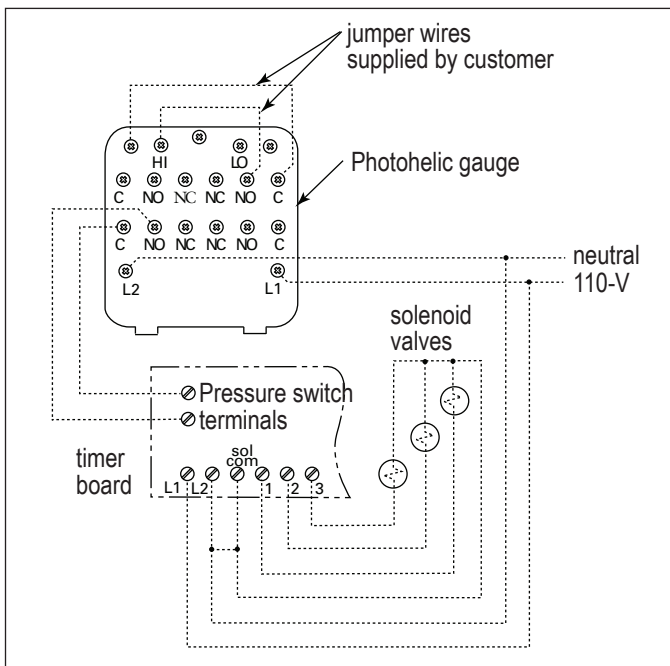


Electrical installation, service, or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

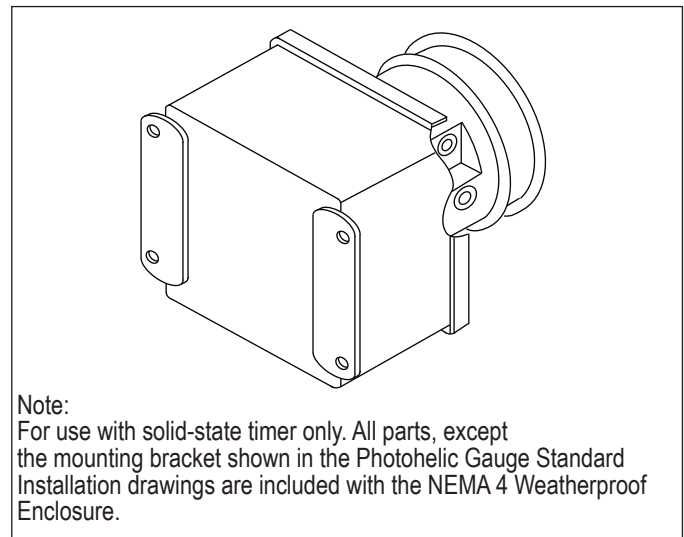
Turn all power off and lock out all power before performing service or maintenance work.

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

1. Choose a convenient, accessible location on or near the collector for mounting that provides the best visual advantage.
2. Mount the gauge to the remote panel or door using the mounting ring, retaining ring, and four #6-32 x 1 1/4-in screws. Do not tighten screws. Connect two, 1/8-in NPT x 1/4-in OD male adapters to the gauge's high- and low-pressure ports. Tighten screws.
3. On the back of the gauge, remove four #6-32 x 5/16-in screws and plastic enclosure. Set aside. Add two jumper wires supplied by customer. Remove the jumper from the pressure switch located on the timer board, if equipped. Using the 3/4-in conduit opening, wire the gauge as shown. Reassemble and fasten enclosure securely.
4. Thirty-five feet of plastic tubing is supplied and must be cut in two sections. Connect one section of tubing from the gauge's high-pressure port to the pressure fitting located in the dirty-air plenum. Connect remaining tubing from the gauge's low-pressure port to the fitting in the clean-air plenum. Additional tubing can be ordered from your representative.
5. Zero and maintain the gauge as directed in the manufacturer's Operating and Maintenance Instructions provided.
6. To install the Photohelic Gauge mounted in a NEMA 4, Weatherproof Enclosure, follow Steps 4 and 5.

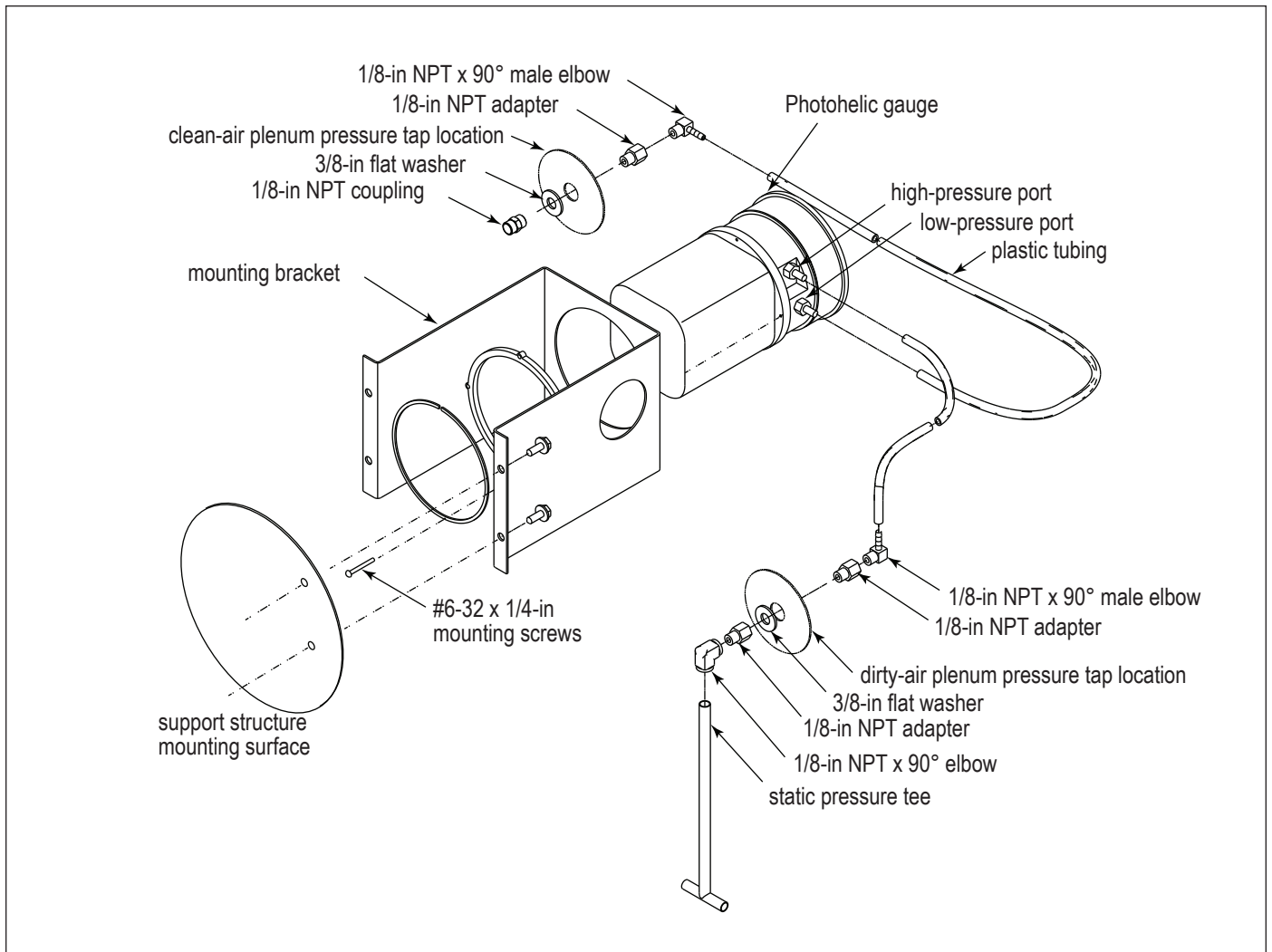


Photohelic Gauge Wiring Diagram



Note:
For use with solid-state timer only. All parts, except the mounting bracket shown in the Photohelic Gauge Standard Installation drawings are included with the NEMA 4 Weatherproof Enclosure.

Photohelic Gauge in Optional NEMA 4 Weatherproof Enclosure



Photohelic Gauge Installation

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

Hopper Discharge Accessories

55-Gallon Drum Pack



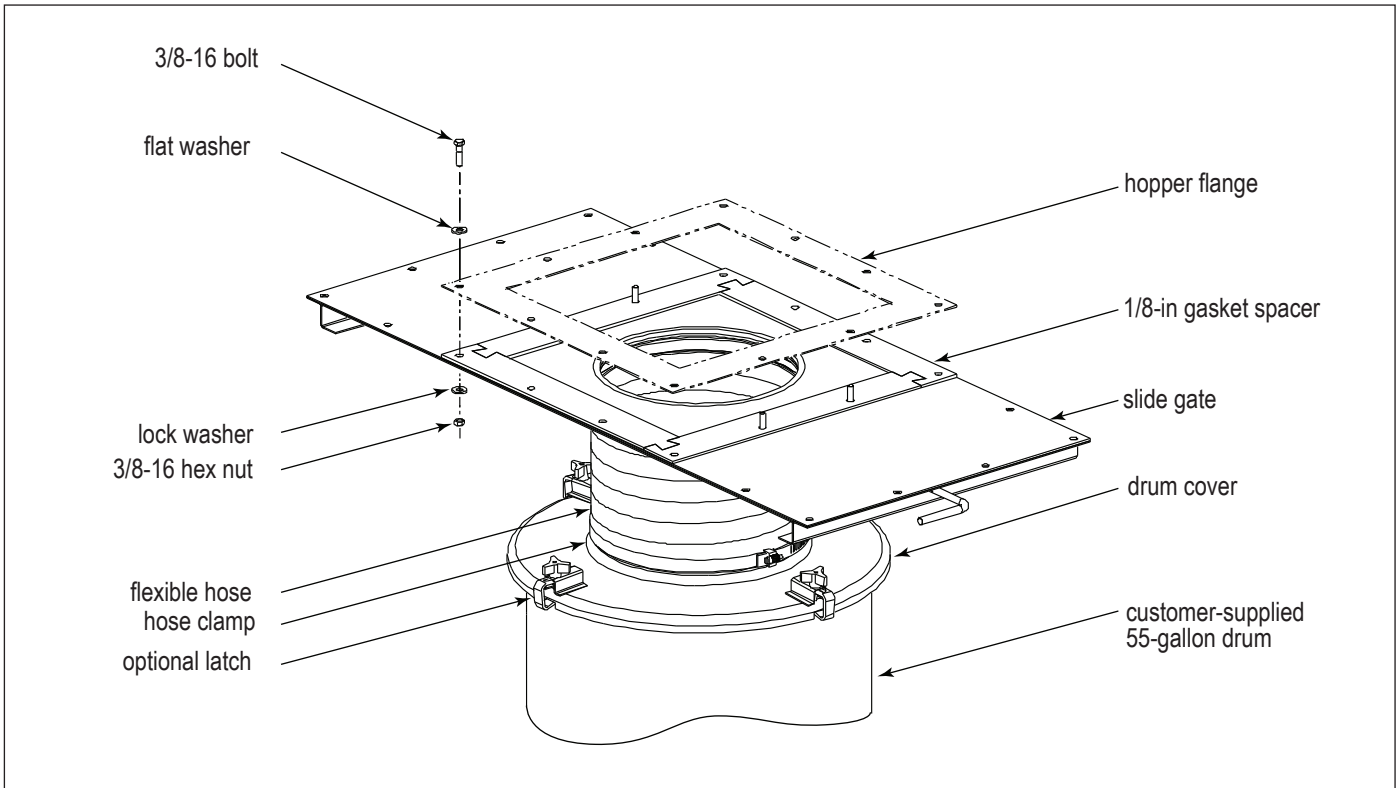
Sharp edge of slide gate may result in personal injury while closing the slide gate. Keep hands clear when operating the slide gate.

With Slide Gate

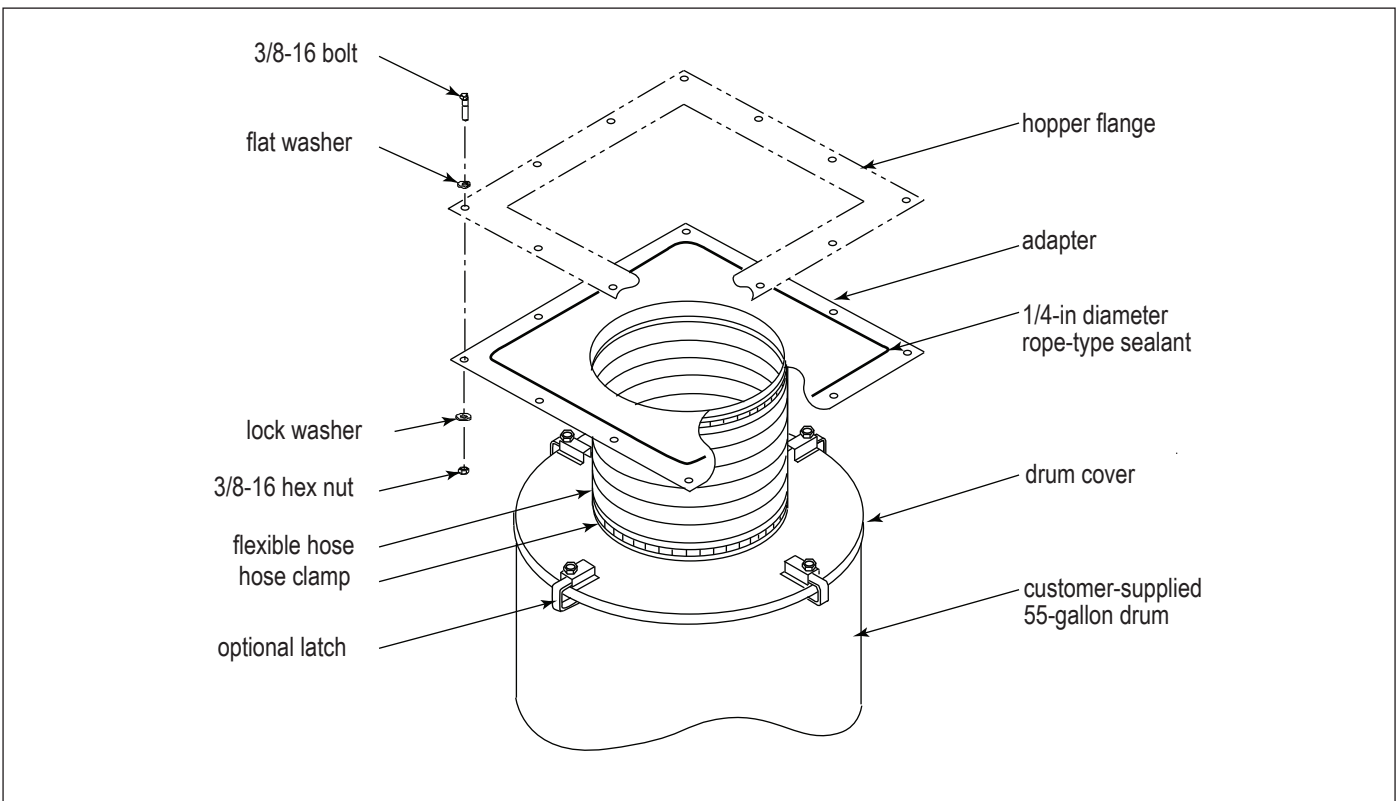
1. Place the 1/8-in gasket spacer between the hopper flange and slide gate as shown.
2. Attach the drum pack and slide gate to the hopper flange using 3/8-16 bolts, washers and hex nuts.
3. Attach the drum cover to the 55-gallon drum.
4. Use latches to secure the cover to the drum, if equipped.
5. Connect the flexible hose between the drum cover and slide gate. Secure with hose clamps.

Without Slide Gate

1. Place 1/4-in diameter rope-type sealant between the hopper flange and the drum cover mounting flange toward the inside edge of the bolt pattern.
2. Fasten using the bolts, washers, and nuts supplied.
3. Attach the drum cover to the 55-gallon drum.
4. Use latches to secure the cover to the drum, if equipped.
5. Connect the flexible hose between the drum cover and the adapter. Secure with hose clamps.



55-Gallon Drum Pack with Slide Gate



55-Gallon Drum Pack without Slide Gate

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 all additional fire control system components.

Water Overflow Valve

1. Remove the hopper access cover and set aside.
2. Align holes in water overflow valve access cover with holes in hopper. Secure using the flat washers and hex nuts removed in Step 1.
3. Tighten all hardware securely.

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. 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.

- a. "Bump" the fan to initiate rotation.
 - b. 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. Using the damper (or a variable speed drive controller), adjust the air volume to the collector to the design air volume.

NOTICE

Excessive airflow can shorten filter life and damage fans.

14. Turn powered hopper discharge material handling system components ON.
15. Turn ON remaining optional accessories.
16. Ensure any and all fire and explosion mitigation systems are engaged and armed.

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. To remove dust accumulations from the filters, execute a full pulse cleaning cycle and purge discharged dust from the hopper prior to shutting down the collector.
2. Lock-Out all energy sources to the collector, material handling system and other associated equipment.
3. 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).
4. Disconnect electrical power from the collector and material handling system components and remove any associated conduit or hardware from the exterior of the collector.
5. Clear residual dust accumulations from surfaces inside the collector and associated components in a fashion suitable for the dust, prior to further disassembly.
6. Remove and dispose of all material handling components from the collector hopper discharge.
7. Disconnect all ducts from the collector.
8. Once all cross bracing has been taken down, remove anchor bolts and lower leg pack columns.
9. Secure all collector components to a suitable transport carrier and transport to a disposal site suitable for the dust in the collector.

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. 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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