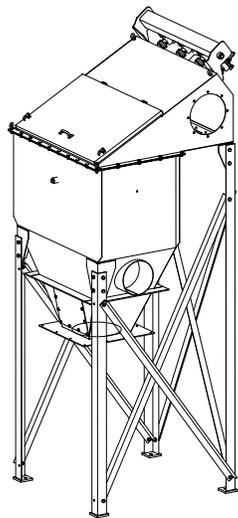


**Torit® PowerCore®**

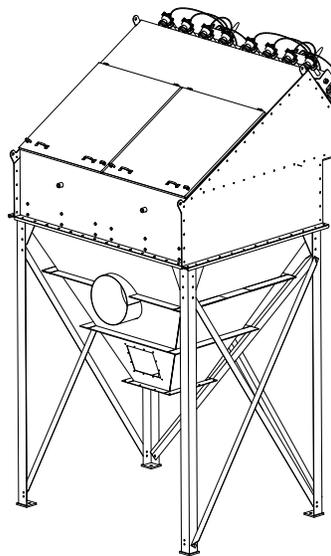
CPC-3, -4, -6, -8, -12, -16, -24, -32, -40 and -48  
Hopper Inlet After November 2008

**Installation and Operation Manual**

Installation, Operation, and Service Information



CPC-4



CPC-16



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



**CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

***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.**

## Contents

IMPORTANT NOTES .....	2	Maintenance Information.....	15
Safety Communication .....	1	Operational Checklist .....	15
Description.....	2	Filter Removal and Installation.....	15
Purpose and Intended Use.....	2	Filter Removal .....	16
Rating and Specification Information.....	2	Compressed Air Components.....	16
Operation .....	3	Optional Equipment.....	17
Inspection on Arrival .....	4	Hopper Access .....	18
Installation Codes and Procedures .....	4	55-Gallon Drum Pack .....	19
Installation.....	4	Rotary Valve and Transition.....	21
Foundations or Support Framing .....	5	Magnehelic® Gauge .....	21
Collector Location .....	5	Photohelic® Gauge .....	23
Hoisting Information .....	5	Delta P Control.....	25
Standard Equipment .....	6	Delta P Plus Control .....	26
Provisional Anchor Bolt Recommendations.....	6	Platforms and Ladders (CPC-16 Only).....	27
Hopper and Leg Installation .....	7	Dumpster Pack .....	28
Compressed Air Installation .....	9	Cold Climate Kit.....	29
Electrical Wiring .....	11	Explosion Vent .....	30
Conductive Grounding Installation.....	11	Sprinkler.....	30
Solid-State Timer Installation.....	12	Troubleshooting.....	31
Solenoid Connection.....	12	Product Information.....	34
Timer and Solenoid Specifications.....	12	Service Notes .....	34
Preliminary Start-Up Check .....	14	Donaldson Industrial Air Filtration Warranty .....	36

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## 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.

## 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.

## Description

The Torit PowerCore CPC collector is a continuous duty dust collector that uses obround style filter packs with the proprietary axial flow PowerCore filter media. The system is designed to provide optimum performance for high efficiency, low operating pressure drop (energy usage) within a small size collector. The filters can be pulse-cleaned on- or off-line. Standard sizes range from 3 to 48 obround filter packs.

## Purpose and Intended Use



Misuse or modification may result in severe personal injury and/or property damage.

Do not misuse or modify.

Discuss the use and application of this equipment with a Donaldson Torit representative.

In pneumatic conveying systems, Torit PowerCore CP collector can be ducted to the top of silos or storage vessels to separate the product conveying from displaced air to prevent product loss and nuisance dust. In mechanical conveying systems, the dust generated by product loading, transfer, and discharge can be controlled using Torit PowerCore CP collector.

Torit PowerCore CPC collectors can also serve process machinery requiring dust control such as fluid bed reactors, mixers, blenders, mills, and crushers. They can also be used in bulk materials handling applications and for bin venting. The CPC model is commonly used in the grain, chemical, mineral, plastic, wood, composites, paper, packaging, and textile industries.

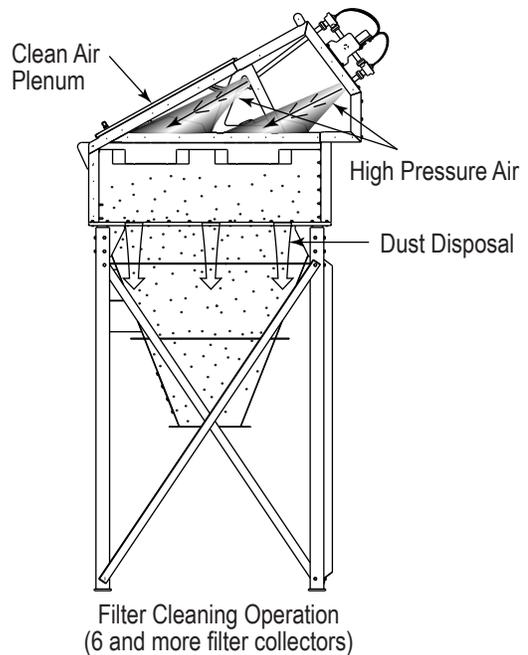
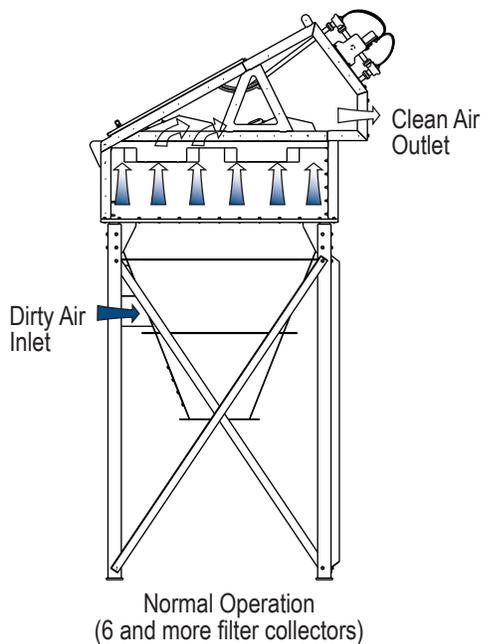
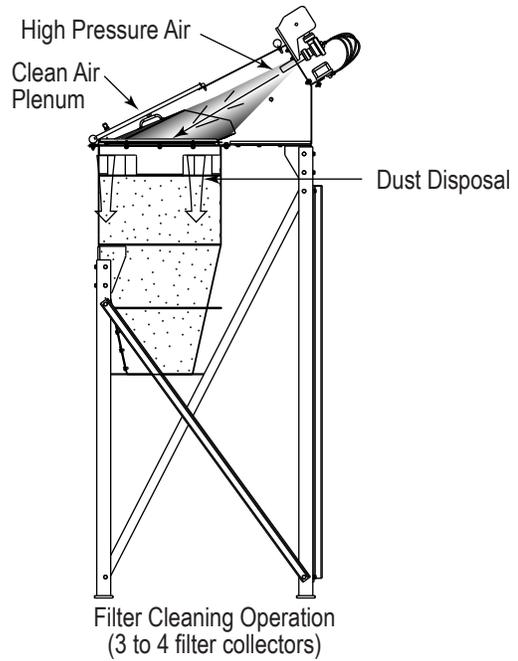
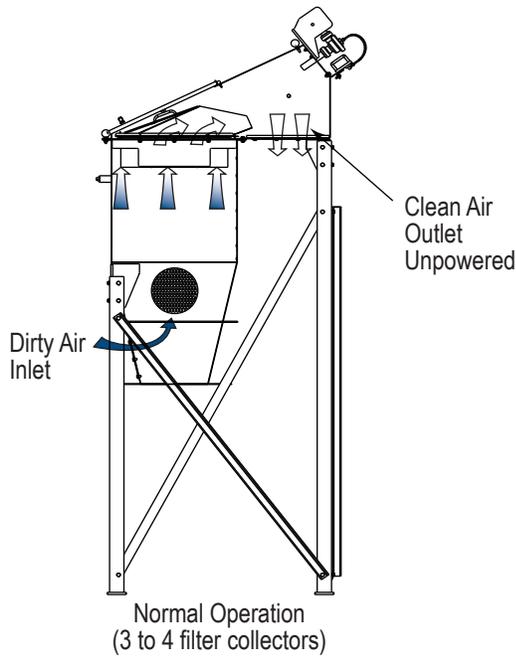
## Rating and Specification Information

Complete rating and specification information can be found in the product literature provided with the collector or available on the Donaldson website. For specific calculations for the collector size, see the Specification Control Drawing shipped with the collector.

## Operation

During normal operation, dust-laden air enters the collector through the hopper inlet. Airflow is directed upwards through the collector and heavier particulate falls directly into the storage bin. The CPC filter packs remove fine particulate and clean, filtered air passes through the CPC filter packs to the clean-air plenum and discharges through the clean-air outlet.

Filter cleaning is completed using pulse-jet technology. Air diaphragm valves provide the pulse cleaning. An electronic solenoid valve actuates the pulse cleaning. Filters are easily removed without tools when they need to be changed.



Collector Operation

## Inspection on Arrival

1. Inspect collector upon delivery.
2. Report any damage to the delivery carrier.
3. Request a written inspection report from the Claims Inspector to substantiate any damage claim.
4. File claims with the delivery carrier.
5. Compare collector received with description of product ordered.
6. Report incomplete shipments to the delivery carrier and your Donaldson Torit representative.
7. Remove crates and shipping straps. Remove loose components and accessory packages before lifting collector from truck.
8. Check for hardware that may have loosened during shipping.
9. Use caution removing temporary covers.

## Installation Codes and Procedures



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.

Safe and efficient operation of the collector depends on proper installation.

Authorities with jurisdiction should be consulted before installing to verify local codes and installation procedures. In the absence of such codes, install collector according to the National Electric Code, NFPA No. 70-latest edition and NFPA 91 (NFPA 654 if combustible dust is present).

A qualified installation and service agent must complete installation and service of this equipment.

All shipping materials, including shipping covers, must be removed from the collector prior to or during collector installation.

### NOTICE

Failure to remove shipping materials from the collector will compromise collector performance.

Inspect collector to ensure all hardware is properly installed and tight prior to operating collector.

## Installation



Use proper equipment and adopt all safety precautions needed for servicing equipment.

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

Turn 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.

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

Site selection must account for wind, seismic zone, and other load conditions when selecting the location for collectors.

Codes may regulate acceptable locations for installing dust collectors. Consult with the appropriate authorities having jurisdiction to ensure compliance with all national and local codes regarding dust collector installation.

Collectors must be anchored in a manner consistent with local code requirements. Anchors must be sufficient to support dead, live, seismic, and other anticipated loads.

Consult a qualified engineer for final selection of anchorage.

### 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 90-100-psig 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.

The collector is suitable for either indoor or outdoor installations. Reference the Rating and Specification Information.

### Foundations or Support Framing

Prepare the foundation or support framing in the selected location. Foundation or support framing must comply with local code requirements and may require engineering.

Foundation and 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.

### Collector Location



Donaldson Torit equipment is not designed to support site installed

ducts, interconnecting piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent severe personal injury and/or property damage.

When hazardous conditions or materials are present, consult with local authorities for the proper location of the collector.

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

Locate the collector to ensure easy access to electrical and compressed air connections, to simplify solids collection container handling and routine maintenance, and to ensure the straightest inlet and outlet ducts.

Provide clearance from heat sources and avoid any interference with utilities when selecting the location.

Portable collectors may require special installation accommodations.

**Note:** Collectors with explosion vents are not available in portable configurations.

### Hoisting Information



Failure to lift the collector correctly can result in severe personal injury or property damage.

Do not lift collector by the door handle or air manifold.

Do not lift assembled collectors. Follow IOM guidelines and illustrations.

Refer to spec control and assembly drawings for weights and orientations provided with collector.

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

A crane or forklift is recommended for unloading, assembly, and installation of the collector.

Location must be clear of all obstructions, such as utility lines or roof overhang.

Use all lifting points provided.

Use clevis connectors, not hooks, on lifting slings.

Use spreader bars to prevent damage to collector's casing.

Check the Specification Control drawing for weight and dimensions of the collector and components to ensure adequate crane capacity.

Allow only qualified crane or forklift operators to lift the equipment.

Refer to applicable OSHA regulations and local codes when using cranes, forklifts, and other lifting equipment.

Lift collector and accessories separately and assemble after collector is in place.

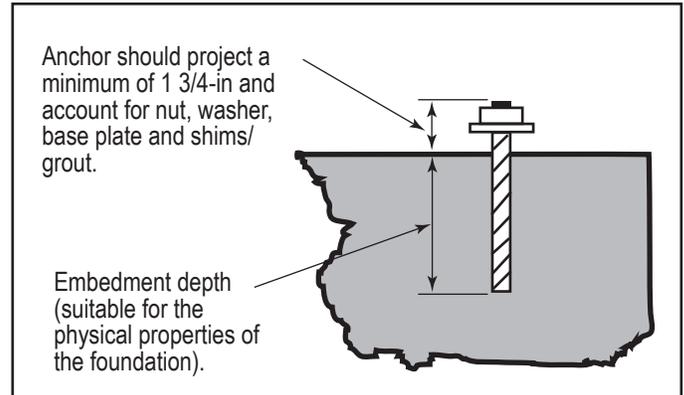
Use drift pins to align holes in section flanges during assembly.

## Standard Equipment

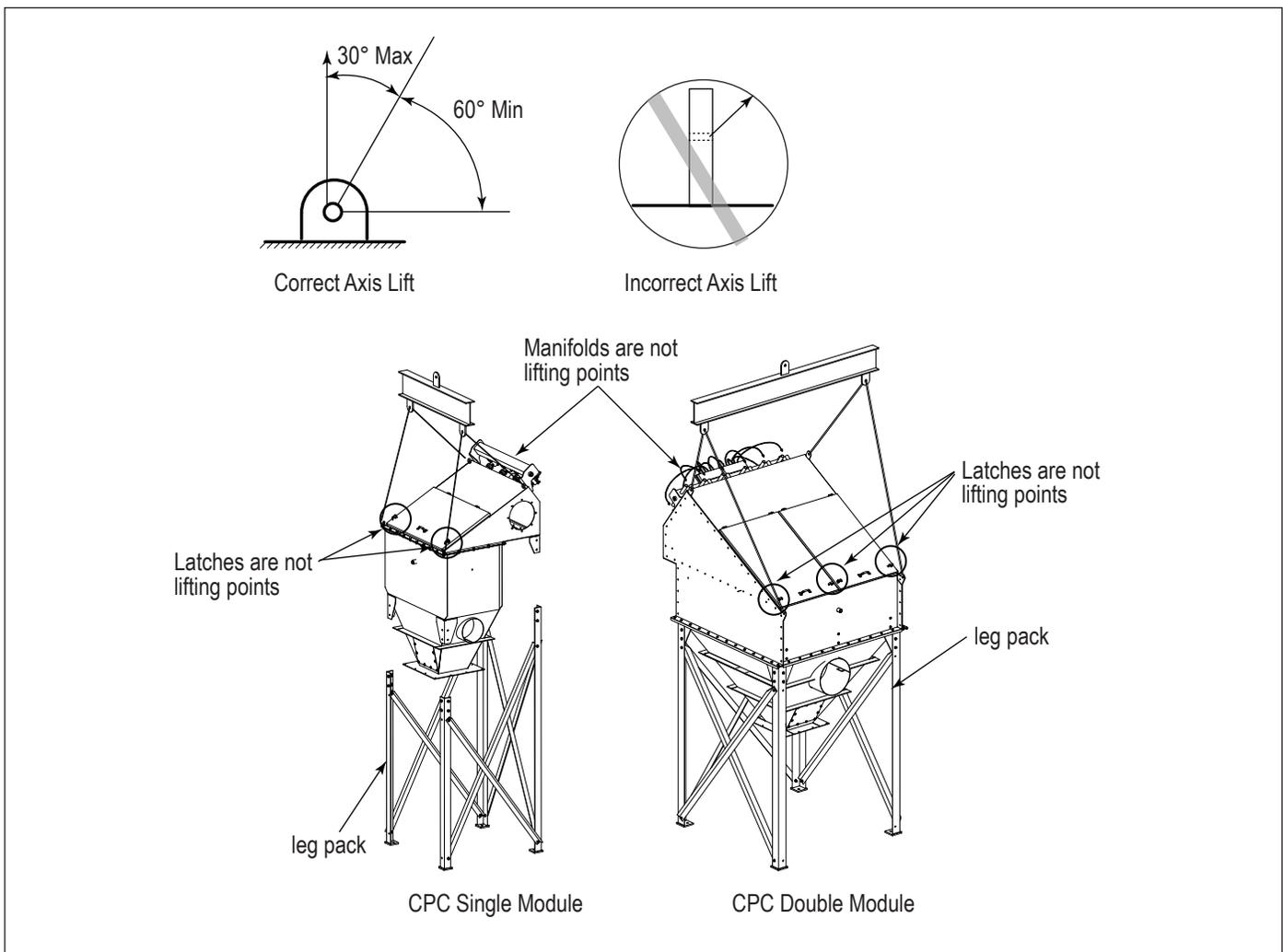
Standard installation consists of base collector, legs, hopper, electrical and compressed air connections.

### Provisional Anchor Bolt Recommendations

1. Consider Hilti HIT-HY 200 Anchor System or equivalent. Quantity of anchor bolts should match the number of holes provided in the base plates.
2. Anchor diameter is typically 1/8-in less than baseplate hole diameter.
3. Corrosive environment or outdoor installation may require stainless steel anchors.



Typical Foundation Anchor



Typical Installation

## Hopper and Leg Installation

### **CAUTION**

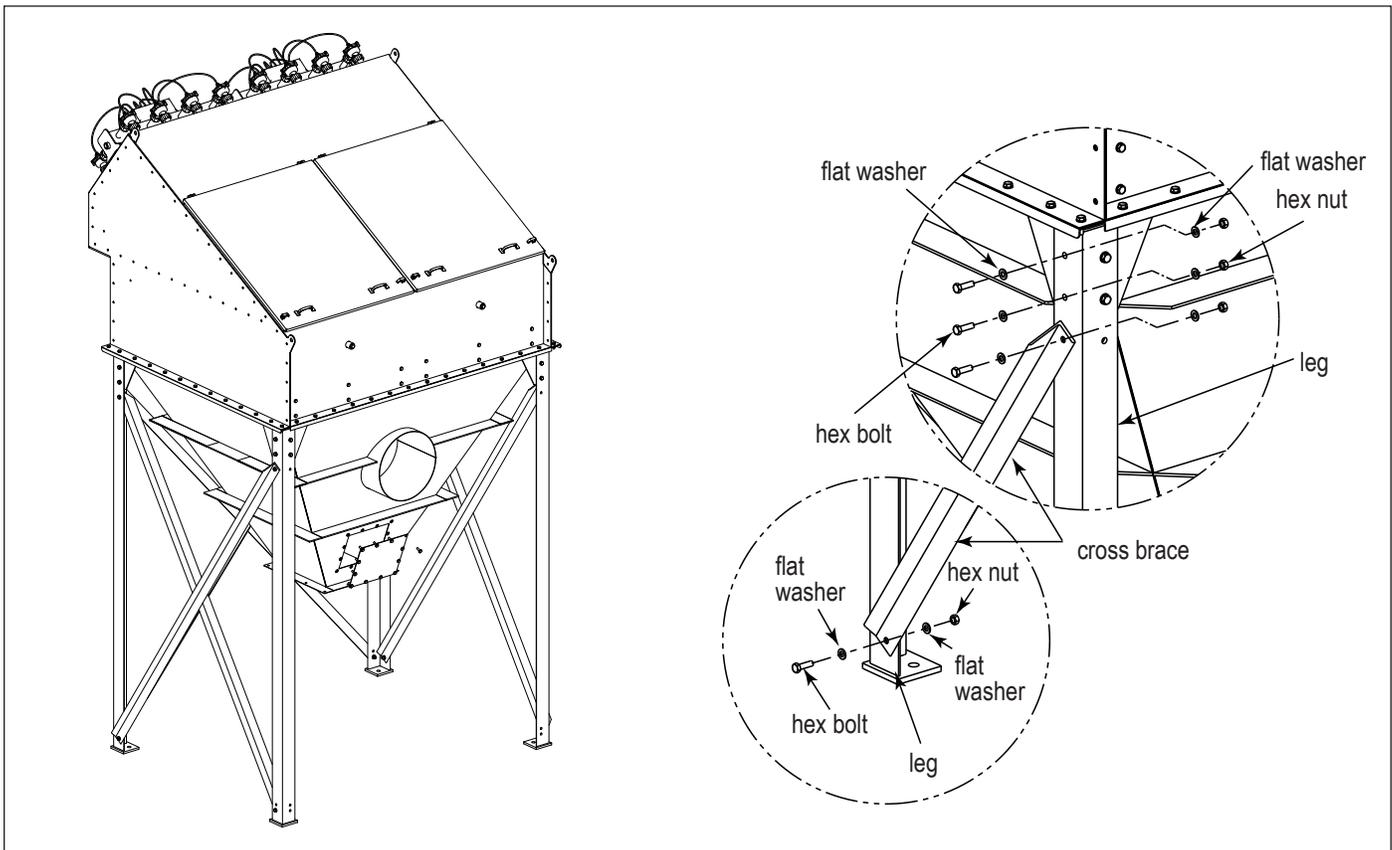
Anchors must comply with local code requirements and must be capable of supporting dead, live, wind, seismic, and other applicable loads.

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

Consult a qualified engineer for final selection of anchors.

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

Note: For collectors with integrated hoppers, remove shipping legs and install leg pack as outlined in this section.



Leg and Cross Brace Assembly

1. Prepare the foundation or support framing in the selected location. Locate and install anchors.
2. Stand the hopper on the body to hopper flange with the discharge end up.
3. Use drift pins to align holes.
4. Reference the Leg and Cross Brace Assembly drawings. Attach the legs to the hopper gusset using the hardware supplied.
5. Turn leg and hopper assembly over and position over anchor bolts. Secure each leg pad to the foundation anchor bolts with customer-supplied flat washers, lock washers, and nuts. Do not tighten hardware at this time.
6. Level hopper.
7. Tighten all hardware securing legs, cross braces, hopper gussets, and foundation anchor bolts.

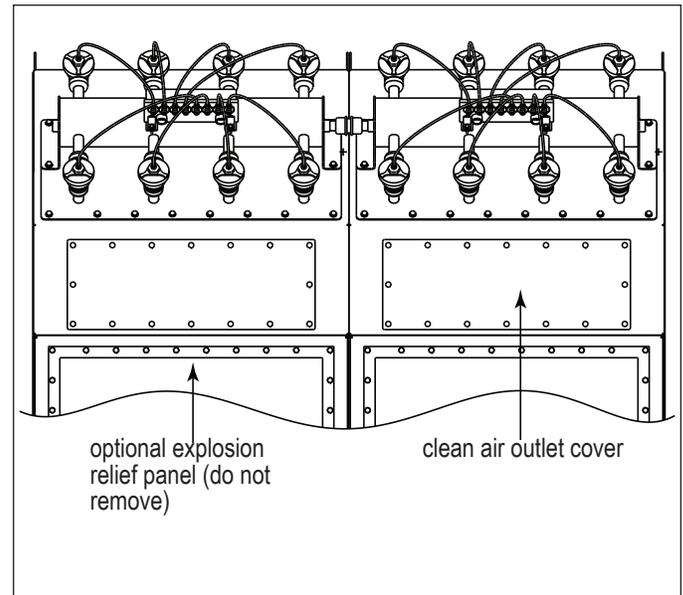
**NOTICE**

Tighten all hardware before removing crane.

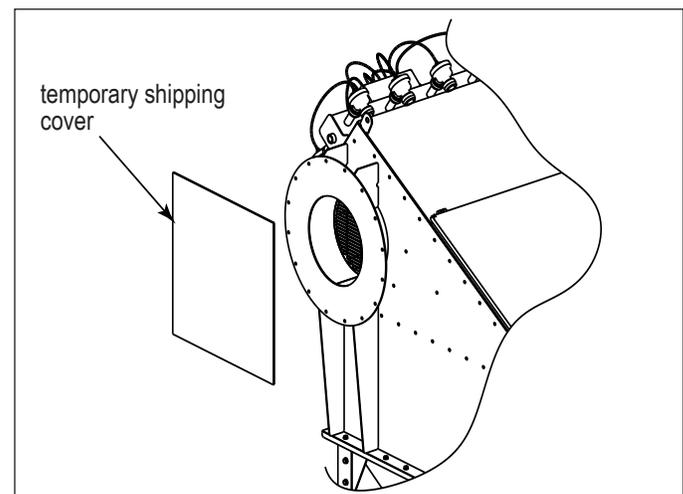
8. For collectors with separate hoppers, apply sealant/gasket per instructions.
9. For collectors with separate hoppers, lift collector per rigging instructions and place on hopper. Align with drift pins. Attach base collector to hopper with supplied hardware. Tighten after all hardware is in place.

**Clean Air Outlet**

Remove clean air plenum outlet cover or temporary shipping cover.



Clean Air Outlet Cover



Power Hole Cover

## Compressed Air Installation

### CAUTION

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 90-100-psig 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.

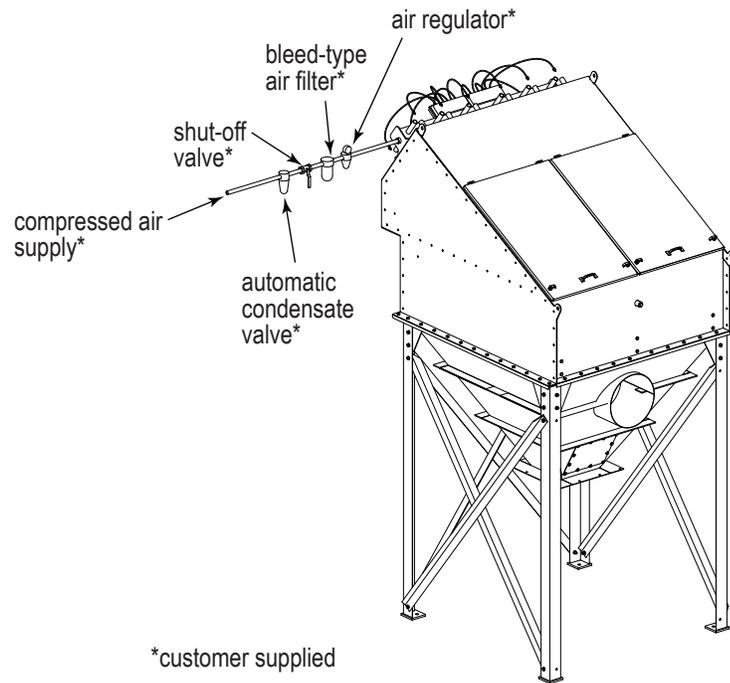
Purge compressed-air lines to remove debris before connecting to the collector's compressed-air manifold.

1. Remove the plastic 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 customer-supplied 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). The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.

**CAUTION**

Turn 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.



Compressed Air Installation

## Electrical Wiring

### CAUTION

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

This collector may start or stop unexpectedly from a remote location.

Turn 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.

All electrical wiring and connections, including electrical grounding, should be made in accordance with the National Electric Code (NFPA No. 70-latest edition).

Check local ordinances for additional requirements that apply.

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

An electric disconnect switch having adequate amp capacity shall be installed in accordance with Part IX, Article 430 of the National Electrical Code (NFPA No. 70-latest edition). Check collector's rating plate for voltage and amperage ratings.

Refer to the wiring diagram for the number of wires required for main power wiring and remote wiring.

## Conductive Grounding Installation

If the collector is equipped with conductive filters and bonded construction, the collector will need to be grounded.

1. Follow the instructions provided by the grounding drawing provided.
2. Ground the collector using the grounding lug at the rear of the collector.
3. Take resistance readings from the filter media to ground to ensure conductivity. Record results as indicated on the drawing.

## Solid-State Timer Installation

### **CAUTION**

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 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.

The solid-state timer is used to control the filter cleaning system. Available options include 3, 6, 10, 20, or 32-pin solenoid valve controls.

1. Using the wiring diagram supplied, 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 3-10 PIN. 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 120 VAC, 240 VAC also available).

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

## Solenoid Connection

The collector is equipped with electric solenoid valves (typically 120V) that controls the pulse-cleaning valves, which in turn 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 valves' 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 to 180-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.

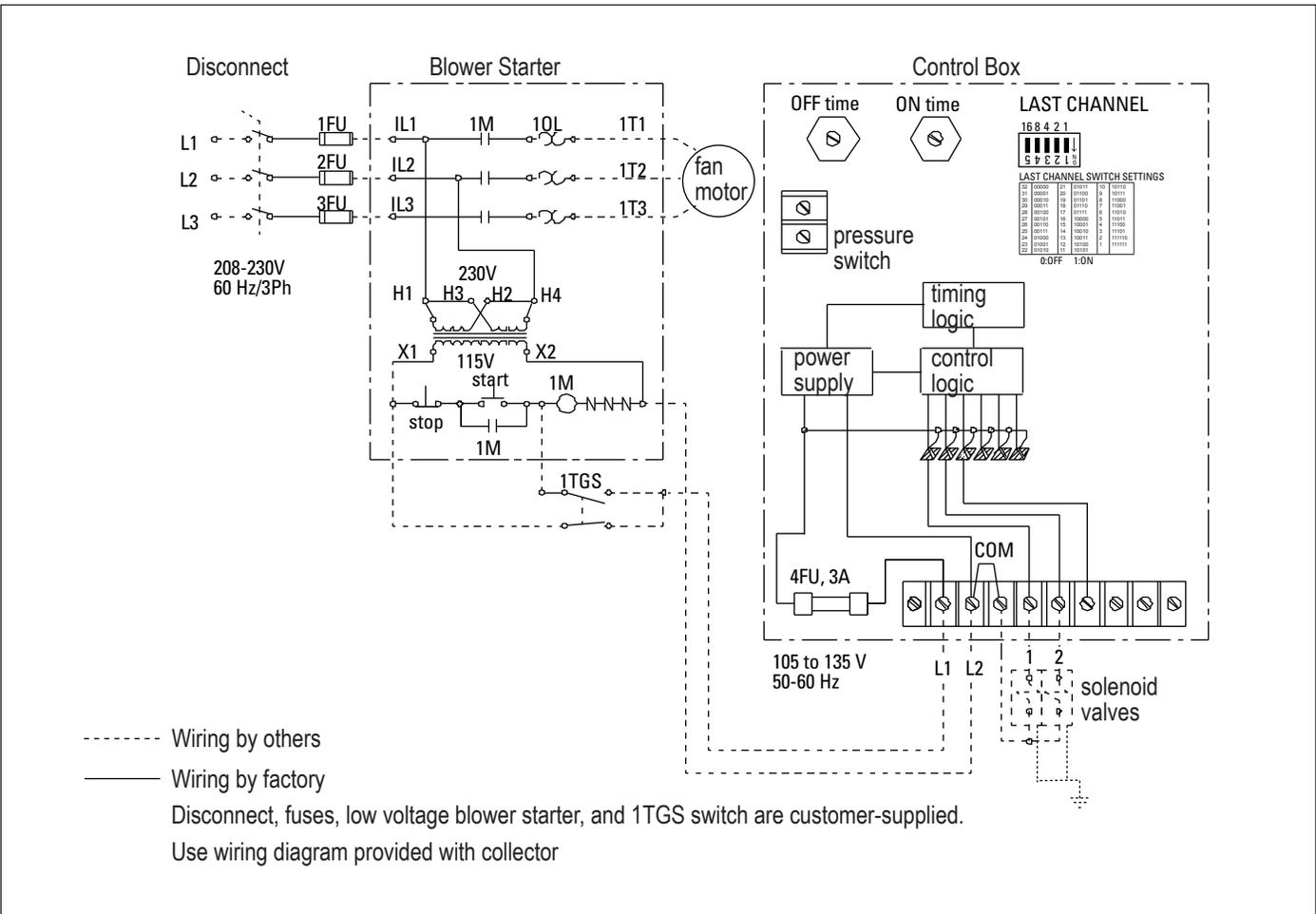
**Solenoid Valves**

115-V 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 100-psig as component damage can occur.



Solid-State Timer Typical Wiring Diagram

## Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

### CAUTION

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

Turn 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.

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.

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.

### CAUTION

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 blower/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.

3. All access panels should be sealed and secure.
4. Check that the dust container is properly sealed and clamped.

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

### **NOTICE**

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

12. Turn powered hopper discharge devices ON.

## Maintenance Information

Instruct all personnel on safe use and maintenance procedures.

### CAUTION

Use proper equipment and adopt all safety precautions needed for servicing equipment.

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

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

Turn 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.

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 90-100 psig 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.

## Filter Removal and Installation

### CAUTION

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

Dirty filters may be heavier than they appear.

Use care when removing filters to avoid personal injury and/or property damage.

Turn 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 Removal

1. Turn power to collector OFF.
2. Open access door by releasing locking mechanism. Swing door fully open. Prevent door from closing unexpectedly by engaging door locking mechanism.
3. Turn filter retention wing nuts counterclockwise and remove filter retainer. Removal of back row of filter packs first is recommended.
4. Remove filter by lifting straight up.
5. Repeat steps 1-4 to remove remaining filter packs.
4. Turn filter retention wing nuts clockwise until filter gasket is finally seated.
5. Repeat steps 2 through 4 for remaining filter packs.
6. Disengage door locking mechanism. Use caution when closing door to avoid personal injury.
7. Turn access door latch to lock.
8. Reset exhaust damper to required setting if so equipped.
9. Turn electrical power and compressed air supply ON before starting collector.

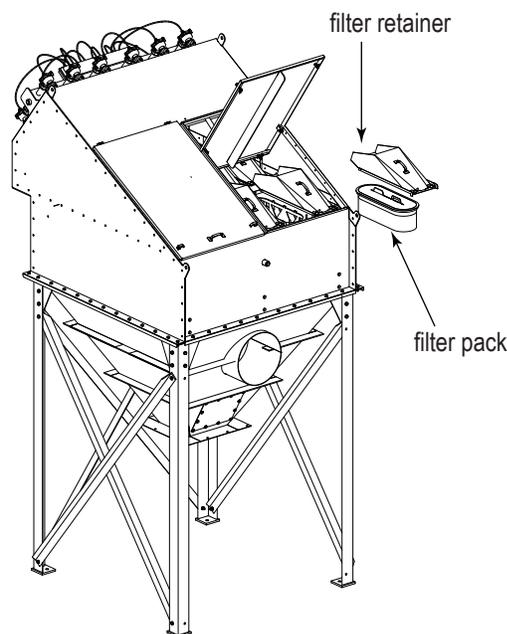
## Filter Installation

Insert first filter pack into the tubesheet. Installing front row of filter packs first is recommended. Install filter by placing front leading edge of filter into the opening first.

3. Insert filter pack retainer by engaging both rear tabs of the retainer into the slots located just behind the filter pack opening or on opposite side of the threaded stud. Align the filter pack retention wing nuts over the posts.

## 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 Removal and Installation

## Optional Equipment

### Fan Blower

**CAUTION**

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.

A crane or forklift and qualified operator are recommended for unloading, assembly, and installation of the fan.

Location must be clear of all obstructions, such as utility lines or roof overhang.

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

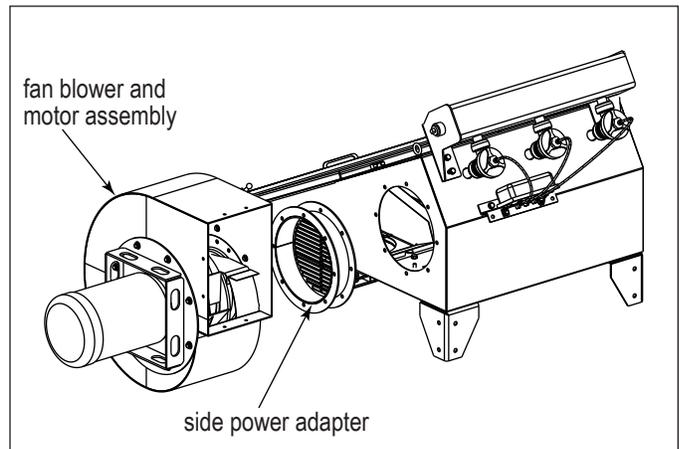
The collector can accept direct mounted fan blowers, Torit Backward Inclined (TBI) or Torit Radial Blade (TRB), to the top or side of the collector.

Fans are dynamically balanced and tested at operating speeds to check for conformance to vibration limits. All fans must be adequately supported for smooth operation.

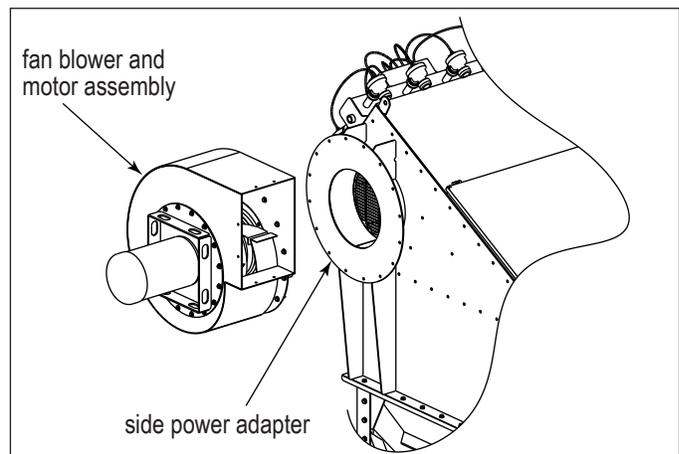
For complete information, see the most current version of the TBI or TRB Fan Installation, Operation and Maintenance manual.

### Side Mount TBI or TRB Fan Blower

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



CPC-3 or -4 Side Mount Power Pack



CPC-6, -8 or -12 Side Mount Power Pack

## Hopper Access

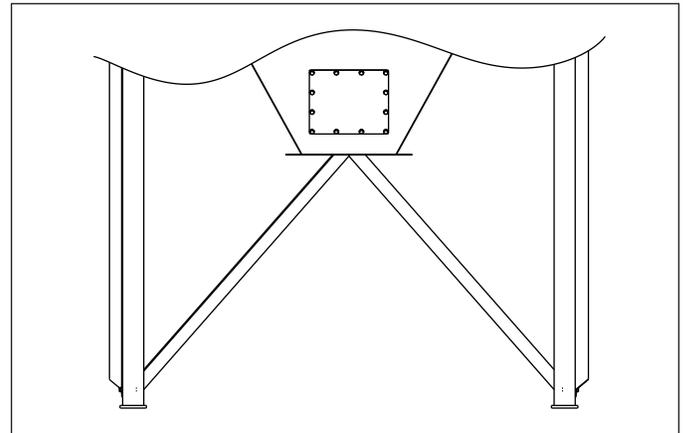
### CAUTION

Completely turn off and lock out all dust collector and ancillary equipment before accessing the inside of the hopper.

Dust may build up behind hatch and fall out when opened. Position yourself so dust will not hit you.

Most dusts present safety and health hazards that require precautions.

Wear eye, respiratory, head and other protective equipment suitable for the type of dust.



Hopper Access

## 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.



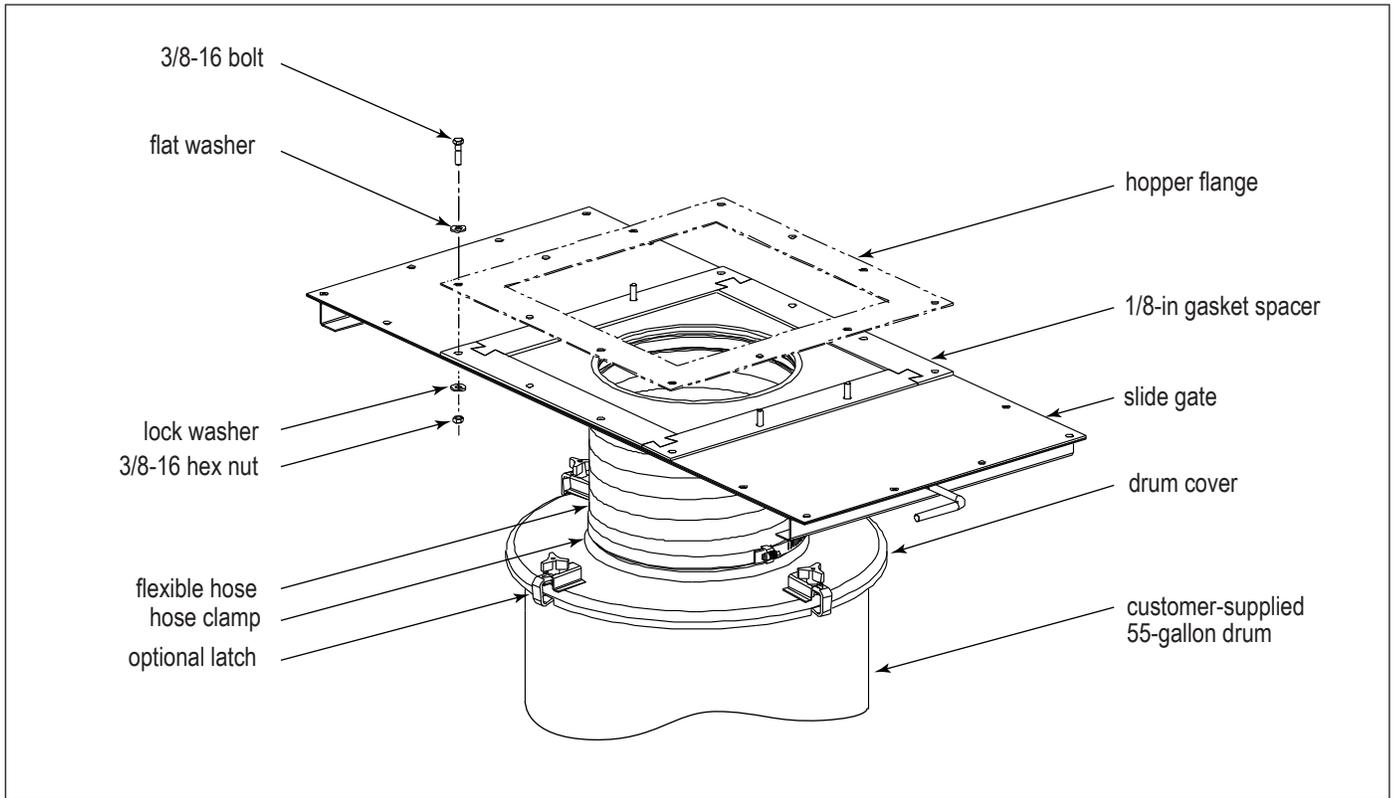
**CAUTION** Sharp edge of slide gate may result in personal injury while closing the slide gate. Keep hands clear when operating the slide gate.

### With Slide Gate

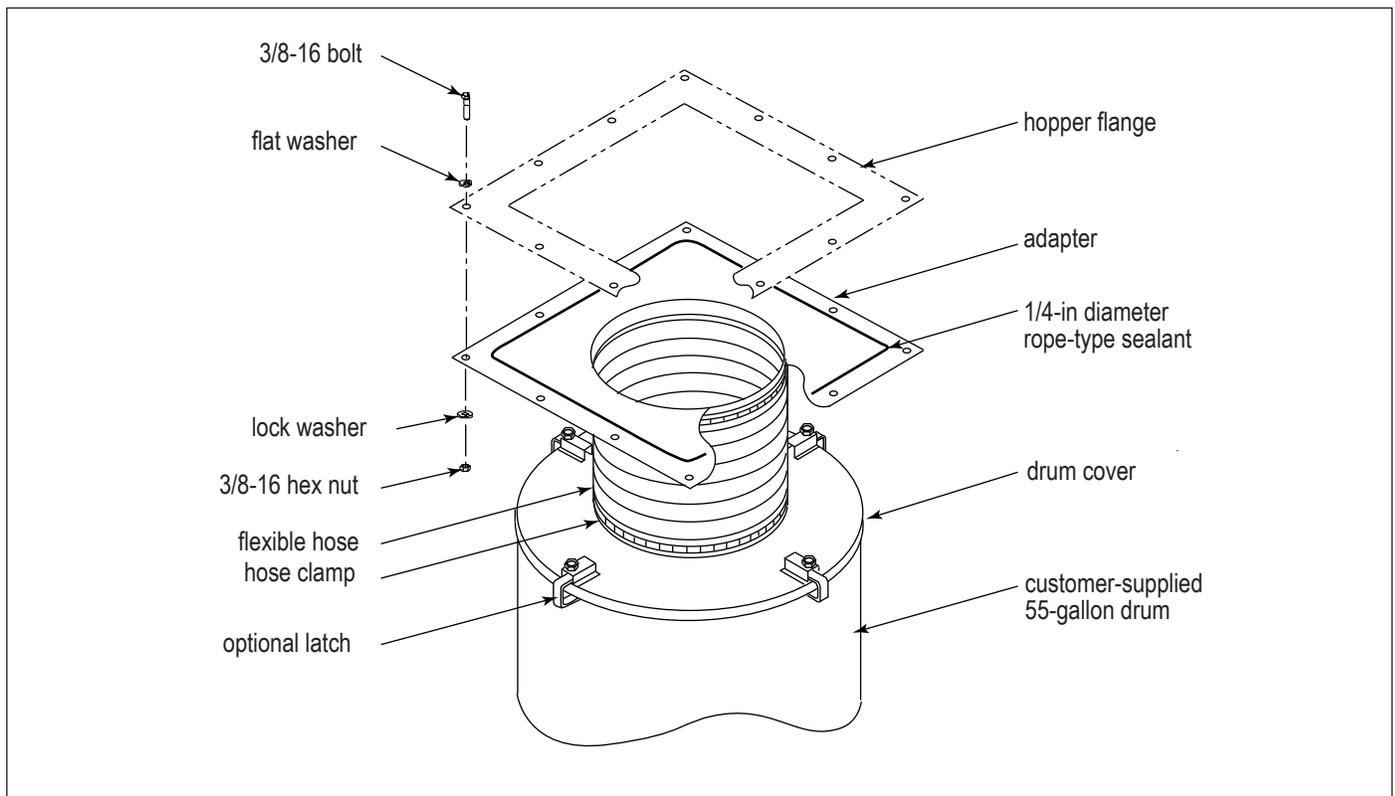
1. Place the 1/8-in gasket spacer between the hopper flange and slide gate as shown.
2. Attach the drum pack and slide gate to the hopper flange using 3/8-16 bolts, washers, and hex nuts.
3. Attach the drum cover to the 55-gallon drum.
4. Use latches to secure the cover to the drum, if equipped.
5. Connect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

## Rotary Valve and Transition



Rotating blades can cause serious injury.

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

Keep hands, feet and loose clothing away from both inlet and outlet openings to avoid injury or damage when valve is operating.

### NOTICE

Optional discharge devices may require independent support.

Discharge devices over 800 lbs. must be independently supported.

Rotary Valves are used to maintain a seal on the hopper outlet while material is discharged from the hopper. A transition allows a valve to be connected to the hopper discharge when there is a size difference between the hopper and the valve.

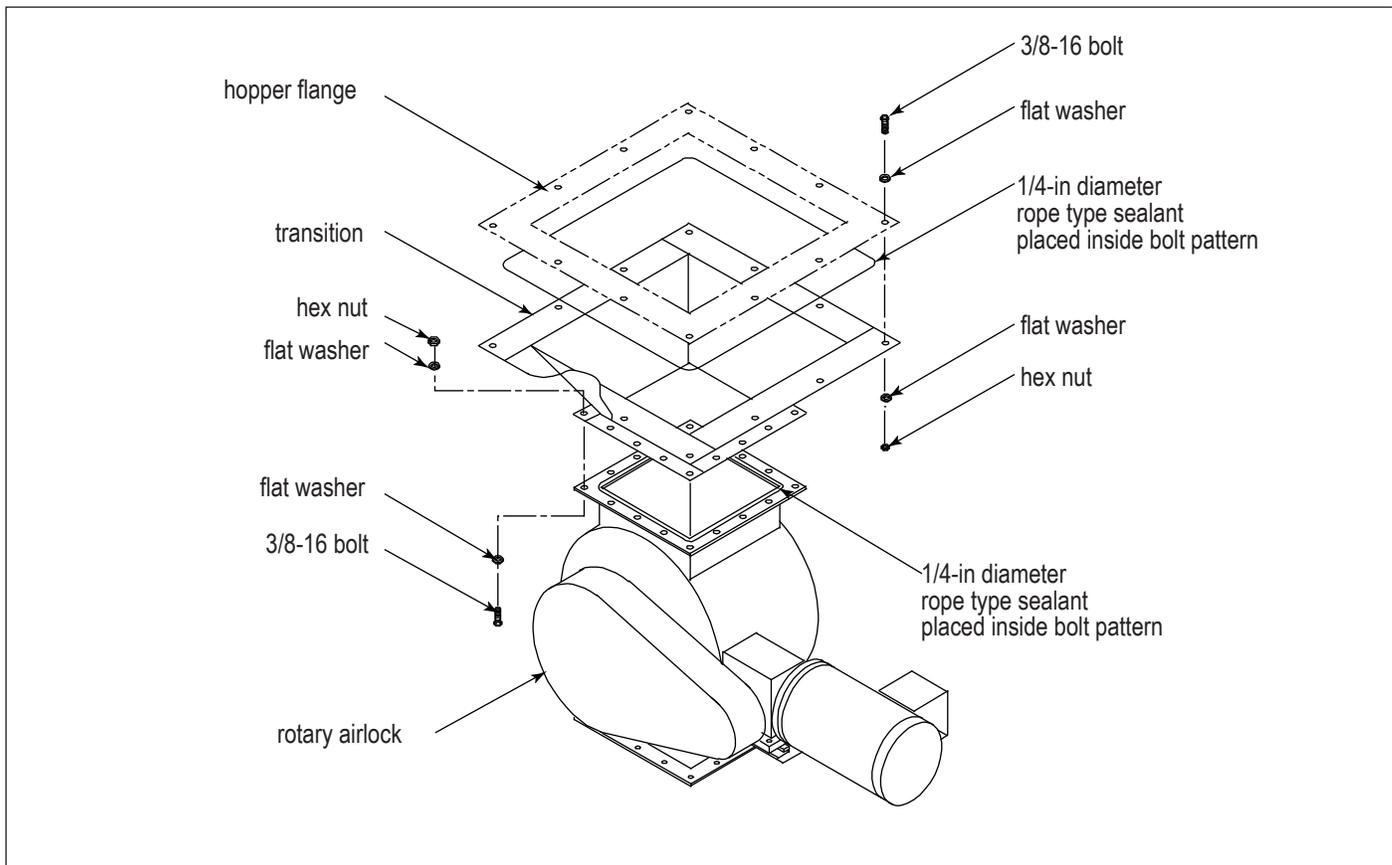
## Magnehelic® Gauge

The Magnehelic is a differential pressure gauge used to measure the pressure difference between the clean- and dirty-air plenums and provides a visual display of filter change requirements. The high-pressure tap is located in the dirty-air plenum and the low-pressure tap is located in the clean-air plenum.

1. Choose a convenient, accessible location on or near the collector for mounting that provides the best visual advantage.

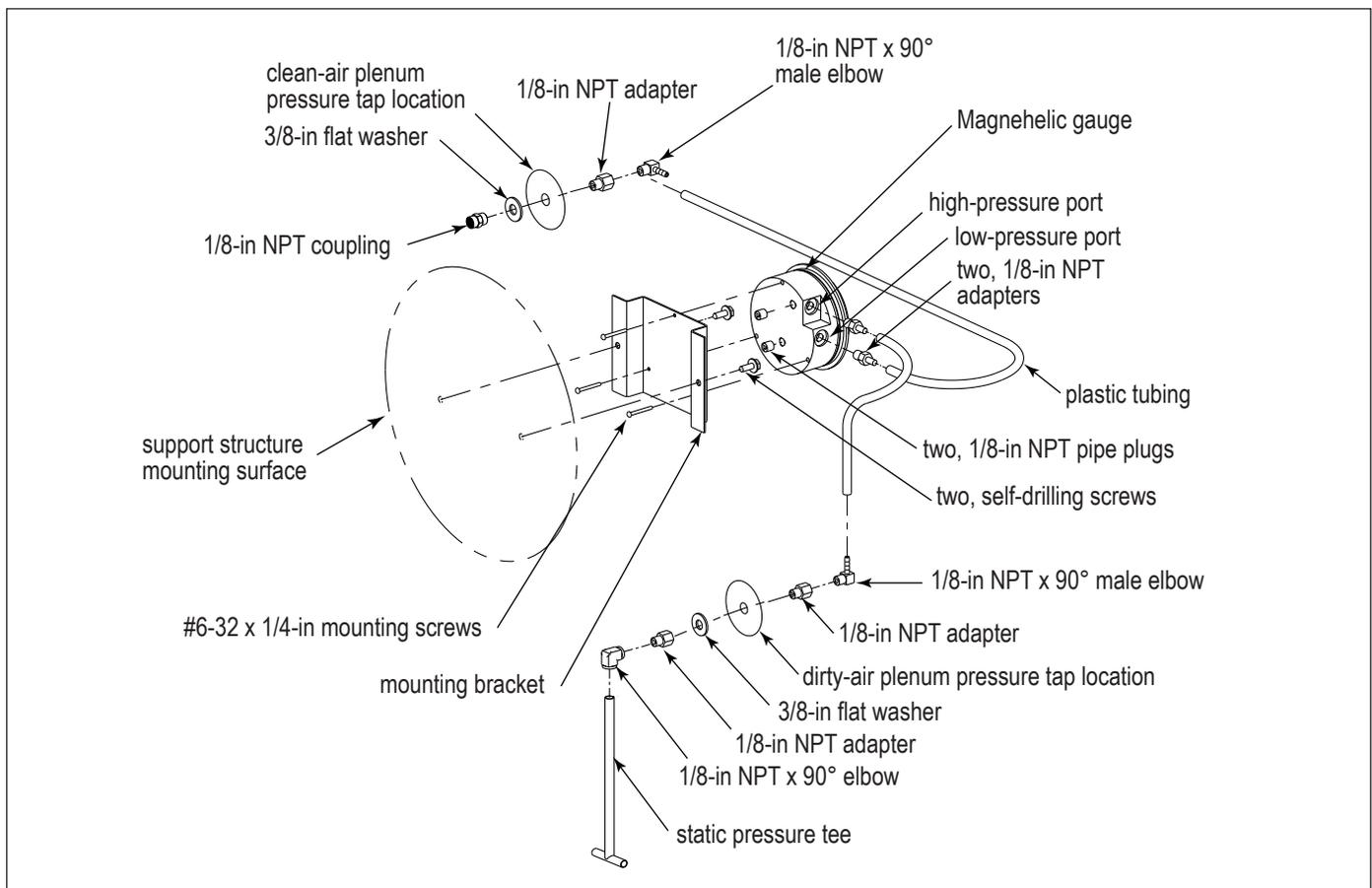
If collector is equipped with factory-installed pressure taps, skip to Step 5.

2. Before drilling, place a piece of non-combustible cloth over the filter opening in the clean-air plenum to protect them from drilling chips.
3. Place a piece of wood behind the drill location in the dirty-air plenum to protect the filters from damage by the drill bit.



Rotary Valve and Transition

4. Mount the pressure tap hardware on the clean-air plenum panel and the dirty-air plenum.
5. 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 gauge.
6. Attach the mounting bracket using three, #6-32 x 1/4-in screws supplied.
7. Mount the gauge and bracket assembly to the supporting structure using two, self-drilling screws.
8. Thirty-five feet of plastic tubing is supplied and must be cut in two sections for vacuum pressure systems. 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.
9. Carefully remove the cloth protecting the filters. Close access doors and tighten securely by hand.
10. Zero and maintain the gauge as directed in the manufacturer's Operating and Maintenance Instructions provided.



Magnehelic Gauge Installation

## Photohelic® Gauge

### CAUTION

Electrical installation, service, or maintenance work must

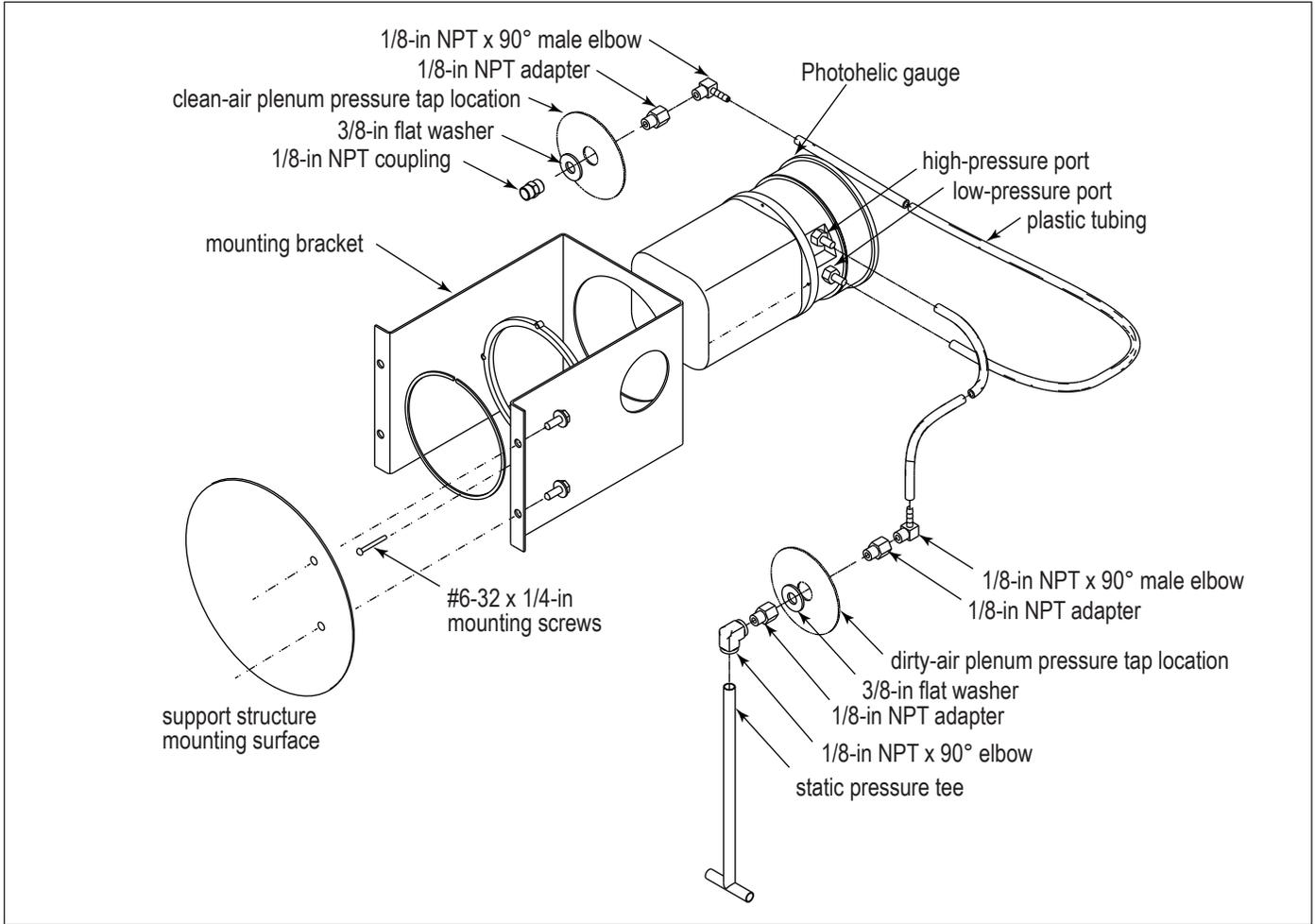
be performed by a qualified electrician and comply with all applicable national and local codes.

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

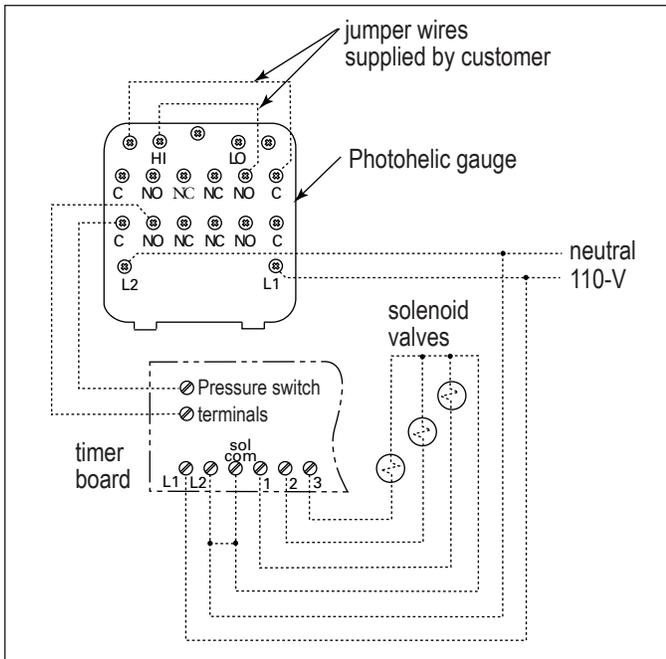
Do not install in classified hazardous atmospheres without an enclosure rated for the application.

The Photohelic combines the functions of a differential pressure gauge and a pressure-based switch. The gauge function measures 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 a low-pressure tap is located in the clean-air plenum. The pressure-based switch function provides high-pressure ON and low-pressure OFF control of the filter cleaning system.

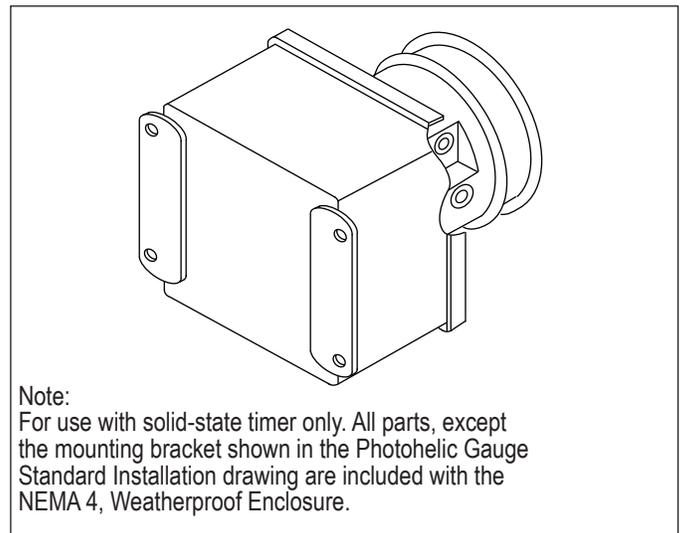
1. Choose a convenient, accessible location near the collector that provides the best visual advantage.  
If collector is equipped with factory-installed pressure taps, skip to Step 5.
2. Before drilling, place a piece of non-combustible cloth over the filter opening in the clean-air plenum to protect the filters from drilling chips.
3. Place a piece of wood behind the drill location in the dirty-air plenum to protect the filters from damage by the drill bit.
4. Mount the pressure tap hardware on the clean-air plenum panel. Mount the pressure tap with the tee inside the dirty-air plenum.
5. 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. Align the adapters to the 2.375-in hole in the right-hand side of the mounting bracket. Tighten screws.
6. 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 the enclosure securely.
7. Thirty-five feet of plastic tubing is supplied and must be cut in two sections for vacuum pressure systems. 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.
8. Zero and maintain the gauge as directed in the manufacturer's Operating and Maintenance Instructions provided.
9. To install the Photohelic Gauge mounted in a NEMA 4, Weatherproof Enclosure, follow Steps 4 and 5.



Photohelic Gauge Installation



Photohelic Gauge Wiring Diagram



Photohelic Gauge in Optional NEMA 4 Weatherproof Enclosure

## Delta P Control

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

### Description

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.

### Operation

#### Normal

The Delta P Controller monitors the pressure in the clean-air and dirty-air air plenums while the collector is running. The blower draws air through the filters, creating a pressure drop. The Delta P Controller measures the pressure drop and provides a visual display in inches water gauge or metric (SI) units of daPa.

#### Filter Cleaning

When the pressure drop across the filters exceeds the High Setpoint, the controller closes an output relay allowing a timer to trigger the cleaning valves sequentially. When the controller senses that the pressure drop is below Low Setpoint, the relay opens and the cleaning cycle stops. This sequence continues as long as the collector is in use, maintaining the pressure drop within a narrow range.

#### Alarm

The Alarm setpoint is set to a higher setting than the High Pressure On setpoint used to start the filter cleaning cycle. It indicates situations when the cleaning system cannot reduce the pressure drop due to cleaning system failure, lack of compressed air, or the end of the filter's useful life. There is a time delay prior to setting the Alarm to prevent nuisance trips. The Delta P Controller also provides an input connection for a remote alarm reset.



Delta P Control Display

## Delta P Plus Control

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

### Description

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.

### Operation

#### Normal

The Delta P Plus Controller monitors the pressure on both sides of the tubesheet while the collector is running. As air flows through the filters, the resistance of the media and collected dust creates a pressure difference or "drop" between the dirty and clean air plenums. The Delta P Plus Controller measures the pressure drop and provides a visual display in inches water gauge or metric (SI) units of daPa.

#### Filter Cleaning

The Delta P Plus Controller offers three filter cleaning options.

1. **Differential Pressure Cleaning (DFF)** - When the pressure drop across the filters exceeds the High Setpoint, the Controller closes an output relay allowing a sequential timer to trigger the cleaning valves. When the Controller senses that the pressure drop is below the Low Setpoint, the relay opens and the cleaning cycle stops. This sequence continues as long as the collector is in use, maintaining the pressure drop within a narrow range.

2. **Downtime Cleaning (DTC)** - The Delta P Plus Controller monitors the collection system. When the pressure drop exceeds the Low Pressure Off set point and then approaches zero again, the Delta P Plus Controller runs a delay timer to allow the blower to come to a stop and then engages the cleaning mechanism for a preselected time.
3. **Combined Differential and Downtime Cleaning (ALL)** - The Delta P Plus Controller combines the two functions described above; maintaining the pressure drop in a narrow band and downtime cleaning the filters when the collector is shut down. The downtime cleaning function can be toggled On or Off from the keyboard.

#### Alarm

The Alarm setpoint is set to a higher setting than the High Pressure On used to start the filter cleaning cycle. It indicates situations when the cleaning system cannot reduce the pressure drop due to cleaning system failure, lack of compressed air, or the end of the filter's useful life. There is a time delay prior to setting the Alarm to prevent nuisance trips. The Delta P Plus Controller also provides an input connection for a remote Alarm reset.



Delta P Plus Control Display

## Platforms and Ladders (CPC-16 Only)

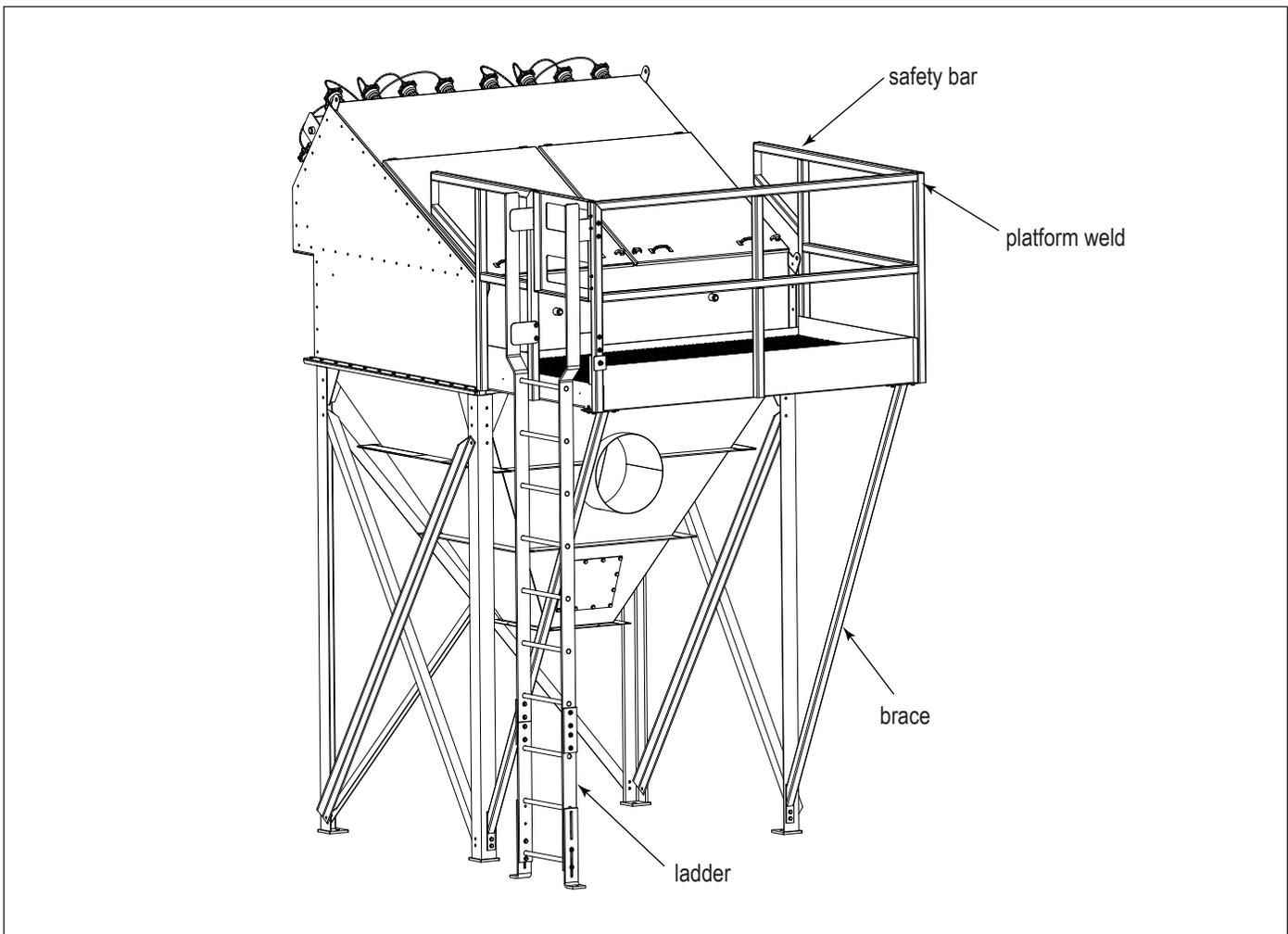
Complete installation and assembly instructions are shipped with the platform.

### CAUTION

Dropping the platform can result in personal injury and/or property damage. Secure the platform assembly to the crane or forklift with straps or clamps.

## Stationary Platform (CPC-16 Only)

1. Pre-assemble the platform according to the instructions shipped with the platform. The hardware and placement is called out on the assembly drawing.
2. Lift the assembled platform into position and secure following the assembly drawing instructions.
3. Tighten all hardware before removing crane or forklift.
4. Check platform hardware each time the platform is used.



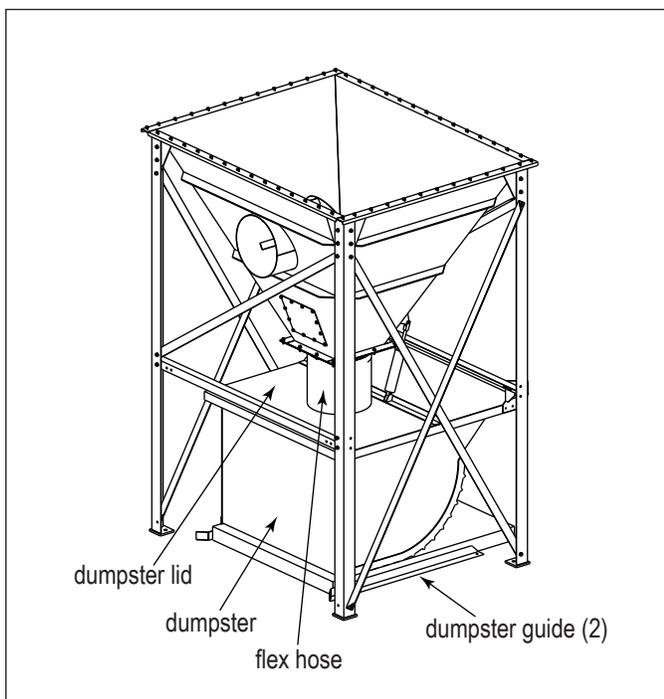
Stationary Platform (CPC-16 Only)

## Dumpster Pack

The dumpster, cover and all associated hardware are provided as a complete pack. This includes a flex hose to connect dumpster lid to hopper and guides to locate dumpster in correct position under the hopper.

### Installation

1. Fully install dust collector as outlined in the IOM and installation drawings.
2. Install dumpster guides as illustrated in the dump hopper and leg pack drawing and arrangement drawings shipped with the Dumpster Pack.
3. Place lid on dumpster then place dumpster under hopper. Install flex hose to hopper bottom.
4. Place pivot rod through lid and leg pivot point. Be sure to place shaft collars as illustrated.
5. Mount pneumatic cylinders. Run tubing to control valve after installing control valve in convenient location.
6. Connect a compressed air source to the pneumatic control valve.
7. Connect flex hose from the hopper to the dumpster lid and tighten using hose clamp.



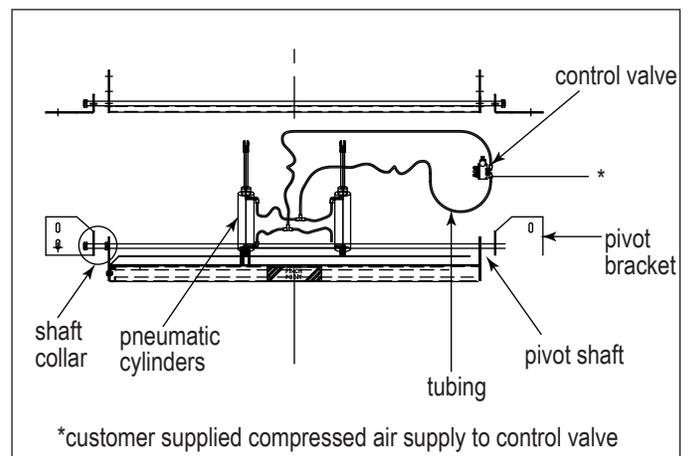
Dumpster Pack

### Operation

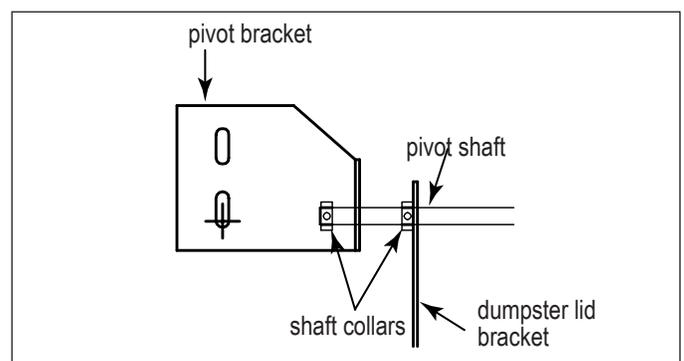


Improper operation or installation of dumpster pack can lead to injury.

1. Lift lid by moving valve lever until lid is totally separated from dumpster.
2. Lift dumpster with fork lift. Use caution when clearing lid.
3. Empty dumpster.
4. Return dumpster and position correctly.
5. Use caution closing lid. Watch for pinch points.
6. Secure lid with locked clamps (if equipped).



Dumpster Mechanism



Pivot Bracket

## Cold Climate Kit



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

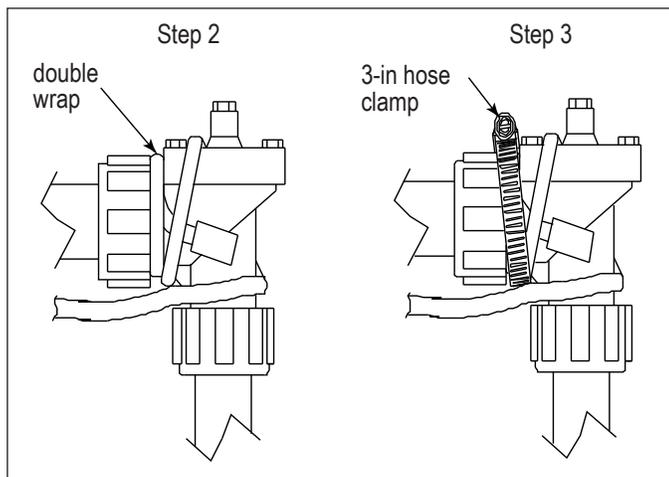
Turn power off and lock out all power before performing service or maintenance work.

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

A cold climate kit provides heat to the pulse valves to prevent cold weather freeze up. The basic kit, for use in applications that have a moderate amount of moisture in the compressed-air supply, consists of a small heating element and thermostat installed in the solenoid enclosure. The basic kit is factory-installed and supplied with the appropriate solenoid wiring instructions.

A heavy-duty kit is available for applications that have moderate-to-high amounts of moisture in the compressed-air supply and consists of the basic kit plus a heat cable to deliver heat to the large pulse valves. This kit is customer-installed and detailed installation instructions are provided.

1. Install the power connection kit on the heat cable following the manufacturer's instructions.
2. Start with the upper right-hand valve, wrap heat cable around the valve as shown in Detail A. Pull heat cable tight.

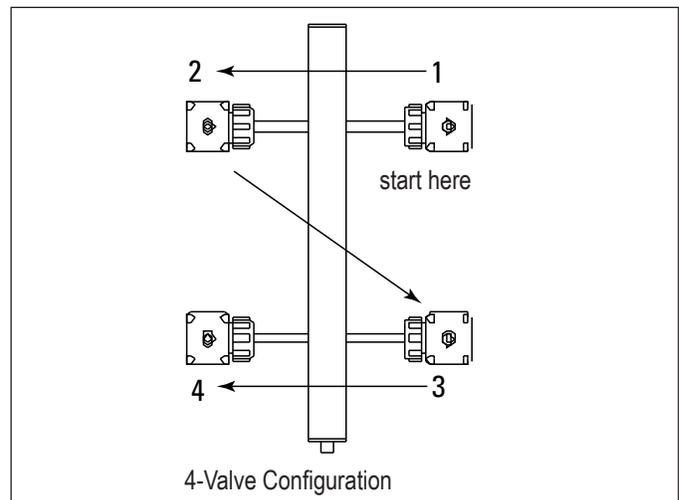


Cold Climate Kit, Detail A

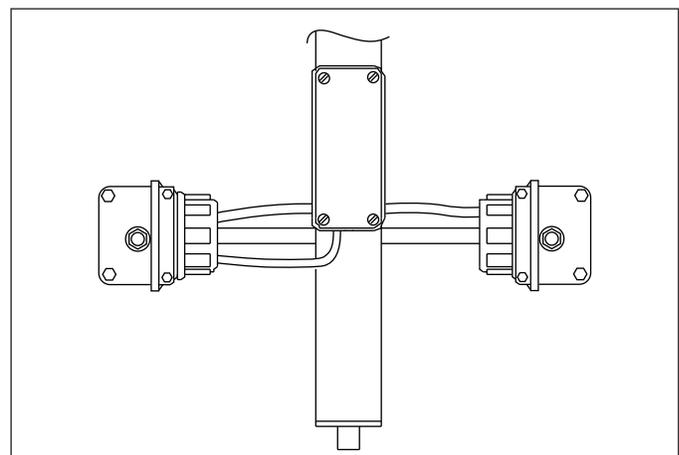
## NOTICE

Double wrap between round coupling and square valve cover.

3. Position a 3-in hose clamp around the double wrapped heat cable and tighten securely.
4. Wrap remaining valves using the same technique in the order shown in Detail B.
5. Drill a 1-in diameter hole in the back of the junction box. See Detail C. Assemble the power connection kit following the manufacturer's instructions.
6. Secure junction box to manifold using two, 8-in hose clamps wrapped around the standoff.
7. Wrap 6-ft of pipe insulation tape around each heat-cable wrapped valve. Wrap the entire valve, double wrapping the hose-clamped heat cable. Secure with cable ties.



Cold Climate Kit, Detail B



Cold Climate Kit, Detail C

## Explosion Vent

### CAUTION

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

Standard explosion vents 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

### CAUTION

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.

### NOTICE

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

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.

## 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 Installation.
	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 damage, dents in the end caps, gasket damage, or holes in media	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Installation.
	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 Preliminary Start-Up Check.
	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 Removal and Installation.

Problem	Probable Cause	Remedy
<b>Insufficient airflow continued</b>	Lack of compressed air	See the Specification Control Drawing shipped with the collector 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.
	Solid-State timer failure	Using a voltmeter, check supply voltage to the timer board. Check and replace the fuse on the timer board if necessary. If the fuse is good and input power is present but output voltage to the solenoid is not, replace the timer board. See Solid-State Timer Installation.
	Solid-State timer out of adjustment	See Solid-State Timer and Solid-State Timer Wiring Diagram.
<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.
	With collector discharging outside, differential pressure is present from indoor to outdoor	Recalibrate with the pressure tubing attached as described in the 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.
	Not wired to the timing board correctly	Connect the pressure switch on the timer board to Terminals 7 and 8 on TB3.
	Faulty relay	Using a multimeter, test relay for proper closure. Replace if necessary.

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Pulse cleaning never stops</b>	Pressure switch not wired to the timer board correctly	Connect the pressure switch on the timer board to Terminals 7 and 8 on TB3.
	Pressure switch terminals on the timer board jumpered	Remove jumper wire on Solid-State Timer board before wiring to the Delta P Control.
	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 filters if filters do not clean down.
	Pressure tubing disconnected, ruptured, plugged, or kinked	Check tubing for kinks, breaks, contamination, or loose connections.
<b>Delta P arrow keys do not work</b>	Improper operation	Press and hold one of the three setpoint keys to use arrow keys.
	Programming keys disabled	Remove the Program Disable jumper from Terminals 3 and 4 on TB2.
<b>Cleaning light is ON, but cleaning system not functioning</b>	Improper wiring	Check wiring between the Delta P Control and the timer board, and between the timer board and solenoid valve coils.
	Defective solenoids	Check all solenoid coils for proper operation.
	Timer board not powered	Check power ON light on timer board's LED display. If not illuminated, check the supply voltage to the timer board. Check the fuse on the timer board. Replace if necessary.
	Timer board defective	If LED is illuminated, observe the output display. Install a temporary jumper across the pressure switch terminals. Output levels should flash in sequence. Check output using a multimeter set to 150-Volt AC range. Measure from SOL COM to a solenoid output. The needle will deflect when LED flashes for that output if voltage is present. If LED's do not flash, or if no voltage is present at output terminals during flash, replace the board.





## 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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