Modular Baghouse Top Access

36, 54, 81, 108, 162, 243, and 324MBT

Installation, Operation and Maintenance Manual

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

IMPORTANT NOTES

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

For additional copies of this manual, contact Donaldson Torit.

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

NOTICE

The Notice symbol 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

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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 Modular Baghouse, Model MBT, is a continuous-duty, modular collector with bag-style filters. Used to collect airborne dust and particulate, the simple, reliable design efficiently handles low- and high-volume dust. Continuous-duty means the filters are pulse-cleaned in sequence, one set at a time without turning the collector off. Standard MBT sizes range from 36 to 324 filter bags, 5, 6, 8 or 10 feet in length. Collectors feature quick-disconnect blowpipes and round snap-in bags or pleated bags.

Model MBT allows walk-on, top-access filter bag removal. Hopper inlets are standard. All models allow filter bag service from the clean-air side of the collector.

Intended Use

The Modular Baghouse is widely used in material conveying, weigh stations, mixing tanks, bin vents, material grinding, and packaging operations. The MB is most commonly used in the chemical, foundry, mineral, food, wood, agriculture, industrial, and pharmaceutical industries and with custom modifications, it is suitable for high-temperature applications.

Rating and Specification Information

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

Standard Equipment

Standard equipment consists of clean air plenum and dirty air plenum, compressed air manifold, pulse valves, solenoid valves with enclosure, control box with timer, Magnehelic™ gauge, snap-in filter bags and cages or pleated bags, hopper and leg structure, hand railing and kick plates.

Filters

Filter bags are shipped loose and are installed by the customer. Reference the Filter Installation found in the Appendix section for instructions.

Hopper

The Modular Baghouse hopper is an all welded steel hopper with an integral inlet connection for the dirty air duct.

Inlet Deflector

The Modular Baghouse has a hopper inlet deflector designed to break up the air jet exiting the inlet duct, allowing heavier particles to drop out into the 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.

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.

Options and Accessories

Fan Controls

The collector can accept direct mounted fan blowers, Torit Backward Inclined (TBI) or Torit Radial Blade (TRB), to the side of the collector. A side mount adapter allows a TBI fan blower to be mounted directly to the Modular Baghouse outlet on the rear of the collector housing for the 36, 54, 81, 108 and 162 MBT collectors. Field assembly of the adapter is required. This allows the adapter to be assembled to the location of the customer's choosing.

Cleaning Controls and Sensors

Magnehelic® Gauge

The Magnehelic is a differential pressure gauge 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.

Photohelic® Gauge

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.

Delta P Control

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

Delta P Plus Control

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

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

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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.

Rotary Airlock Valves

Rotary airlock valve are used to maintain a seal on the hopper outlet while material is discharged. Options include NFPA rated, pneumatic conveying compatible and high clearance flexible tip style valves.

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.

Articulated Filter Cage

Optional Articulated cages are available for Models 35MBT5, 6, 8 and 54MBT6, 8, and 10.

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).

Trough Hopper

Some MB models have a trough hopper option which allows the use of a screw conveyor to continuously remove dust from the hopper. Trough hoppers also have optional stub legs for use on mezzanines and with customer provided structures where full hopper clearance is not required.

Platform and Ladder

Collector may be equipped with a ladder and platform system for gaining access to the clean air plenum for filter bag changeout. For all ladders over 24-ft OSHA requires a ladder safety system or personal fall arrest system. As a convenience, Donaldson offers ladder safety systems as an option.

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.

Water Overflow Valve

An optional means to allow water evacuation. Some method of water evacuation must be provided if a water based extinguishing system is installed on the collector.

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, for a collector with hopper inlet(s), dust-laden air enters the collector through the hopper inlet located under the filter bags. Airflow follows a 90° path upward to the dirty-air plenum. The energy loss from the 90° turn and reduced velocity in the hopper causes heavier particulate to fall directly into the hopper. An inlet baffle helps to more evenly distribute the dust-laden air around the filter bags. Dust collects on the outside of each filter bag forming a dust-cake that increases filtering efficiency. Clean, filtered air passes through the filter bag to the clean-air plenum and discharges through the clean-air outlet.

The filter bags are pulse-cleaned automatically and sequentially. A timer energizes a solenoid valve causing the corresponding diaphragm valve to send a pulse of compressed air into the blowpipe. The high-pressure compressed air is forced through the center of the filter bags causing the collected dust to fall into the hopper where it is discharged into drums, a screw conveyor, or rotary valves.
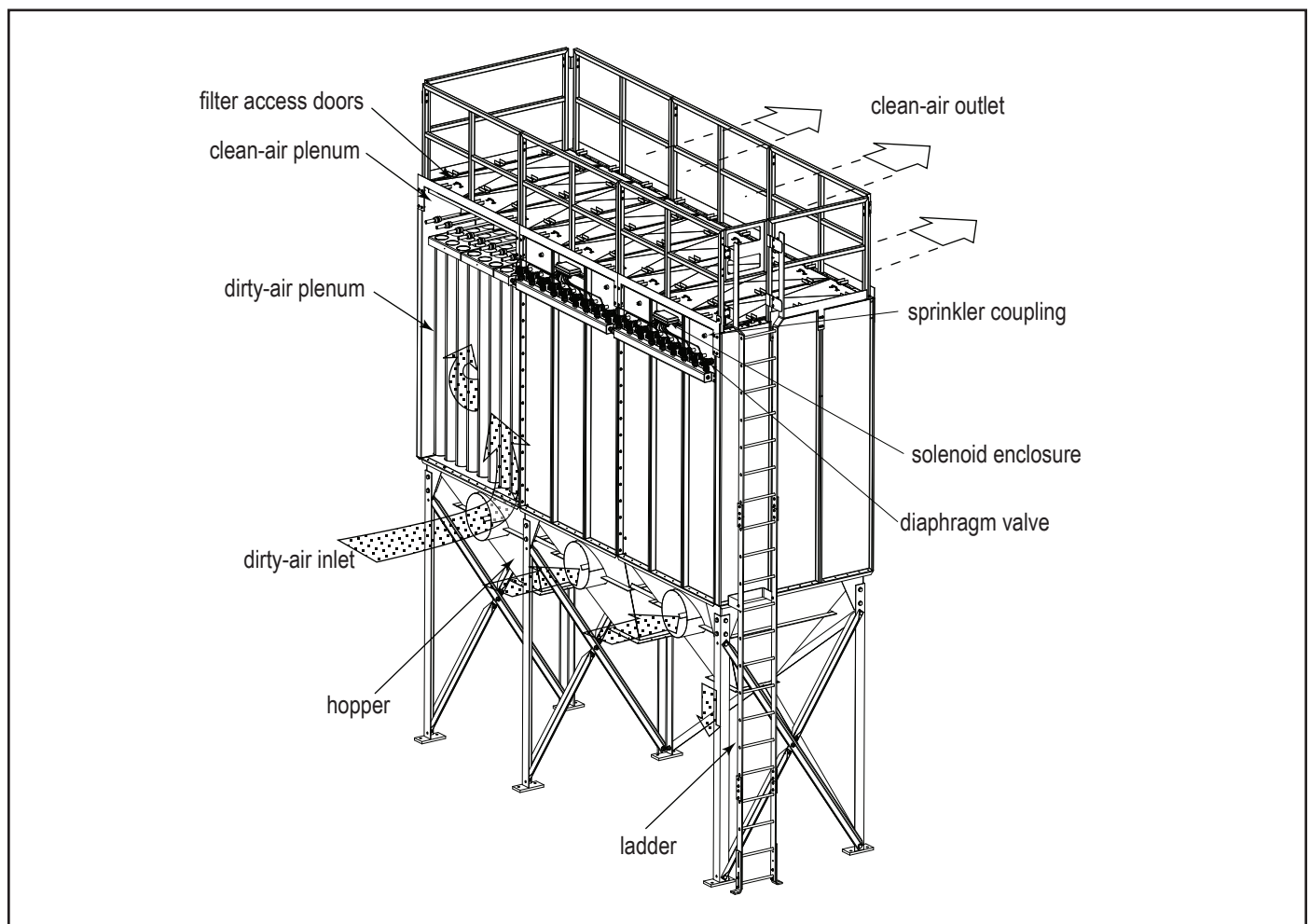
Collector Operation

4   Product Service

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

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

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

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

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

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

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

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

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

Operational Checkist

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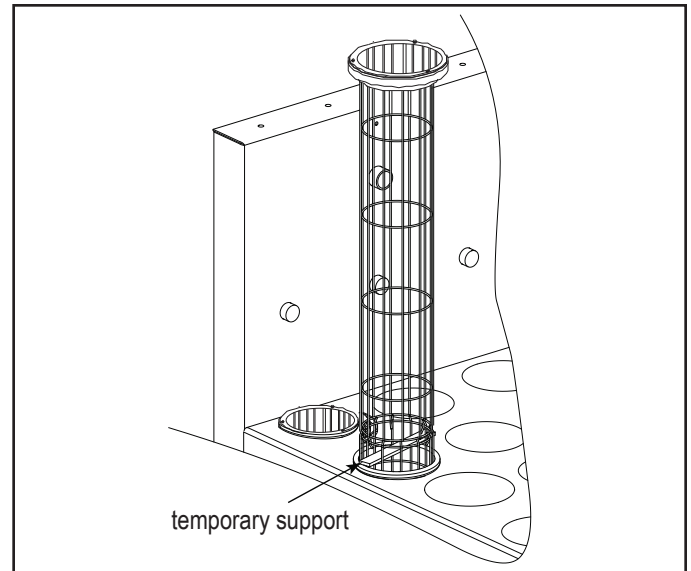
Turn all power OFF and lock out all power before performing service or maintenance work.

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

Do not operate with missing or damaged filters.

Felt Snap-In Bag Filter

1. Turn power to the collector OFF.

2. Remove the filter access doors into the clean air side of the collector to allow access to the blowpipes and filters.

3. Locate the coupling on the blowpipe and pipe stub and loosen both sides of the compression coupling.

4. Slide the coupling over the pipe stub until it contacts the cabinet wall. This should position the coupling fully on the pipe stub.

5. Remove the blowpipes from the mounting bracket and set them aside.

6. Lift the filter support cage up from inside the filter bag, leaving the filter bag collar engaged with the tubesheet. Optional articulated cages are available for Models 36MBT5, 6, 8 and 54MBT6, 8, and 10. If articulated cages are used, lift the filter support cage upward until the joint in the articulated cage is exposed above the cuff of the filter bag. Place a temporary support through the cage below the joint and separate the top half of the cage from the bottom half of the cage. Now remove the lower portion of the support cage from the filter bag.

temporary support

Articulated Cage Replacement

7. With the cage removed, grasp the filter bag collar firmly on the seamed side and pull it toward the center of the opening, away from the tubesheet edge to disengage the groove from the tubesheet.

8. Push the 'released' filter bag downward through the tubesheet into the hopper of the collector. Option is to remove bag filter up and out, as was done to remove the cage.

9. Remove dirty filter bags from the hopper and dispose of in accordance with local requirements for the materials being collected. Option is to remove bag filter up and out, as was done to remove the cage.

10. Clean the tubesheet plate and clean air plenum (CAP) to remove all residual dust.

11. Inspect the tubesheet holes for build up or corrosion and use a wire brush to remove buildup of any material that may interfere with the filter seal.

12. Inspect each new filter for damage from shipping, storage, or handling.

13. Slip the end of a clean filter bag into the tubesheet opening.

14. Fold the filter bag collar snap-band in towards the center of the bag collar.

15. Align the groove in bag collar snap-band with edge of the tubesheet opening.

16. Release the bag collar snap-band, guiding it along the edge of the tubesheet opening.

17. Press on the bag collar snap-band and ensure it 'snaps' into final position centered on the edge of the tubesheet opening.

18. Insert the filter support cage fully into the bag. If optional articulated cages are used, insert the lower half of the cage until the ring adjacent to the top ring of the bottom half of the cage is just above the tubesheet opening and insert a temporary support through the cage just below the top ring. Place the top half of the cage on top of the bottom half of the cage and exert force to 'snap' the two halves of the cage together. Remove the temporary support and lower the assembled cage into the filter bag

19. Snap the filter cage fully down into the bag making certain the groove in the filter bag collar remains centered on the tubesheet and the bag is fully "expanded" to engage the tubesheet.

⚠️ Failure to properly engage the filter bag collar with the tubesheet may result in mechanical dust leakage past the filter bag seal.

20. Repeat steps 6-19 for all filter bags and cages in the current row.

21. Reinstall blowpipes.

22. Insert the flat end of the blowpipe into the mounting bracket on the opposite side of the collector from the pipe stub, with the blowpipe holes oriented downward and the closed end tab of the blowpipe fully engaged in the mounting rail.

    IMPORTANT: Position the blowpipe so the closed end tab fully engages in the mounting bracket rail even if this leaves a small gap between the pipe stub and the open end of the blowpipe.

23. Center the open end of the blowpipe on the corresponding pipe stub.

24. Slide the coupling onto the blowpipe so it is centered on both the blowpipe and the pipe stub and tighten both ends of the coupling.

25. Ensure both ends of the coupling are tight so the blowpipe will not move during operation.

26. Proceed to the next row of filters and repeat for all remaining filters.

27. Replace the filter access door.
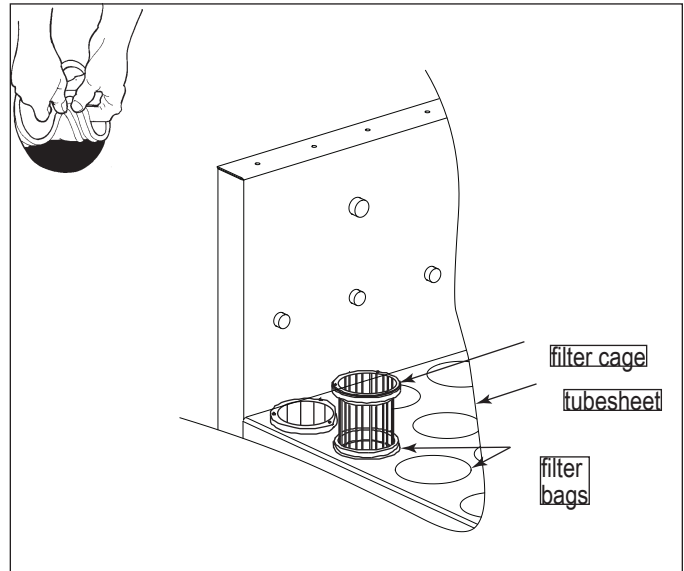
Felt Snap-In Bag Filter Installation
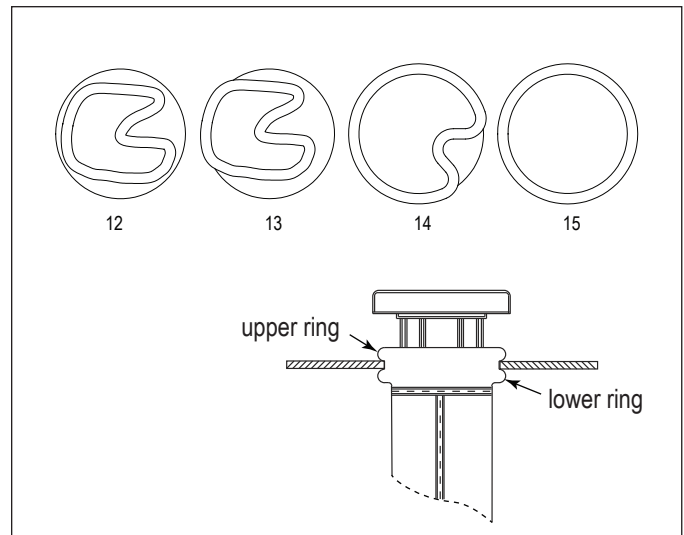
Pleated Bag Filter

1. Turn power to collector OFF.

2. Remove the filter access doors located on top of the collector to remove blowpipes.

3. Locate the coupling on the blowpipe and pipe stub and loosen both sides of the compression coupling.

4. Slide the coupling over the pipe stub until it contacts the cabinet wall. This should position the coupling fully on the pipe stub.

5. Remove the blowpipes from the mounting bracket and set them aside.

6. Place filter removal tool into the top of the pleated bag and rock it side to side. This will loosen the pleated bag from the tubesheet. Lift to remove pleated bag from the tubesheet.

> **NOTICE**   In the case of filters with ePTFE membrane, care should be taken to stack or store the filters in such a manner to prevent or minimize damaging the fragile ePTFE membrane. The iSeal gasket will help protect the pleat tips during installation, but cardboard or other smooth material should cover potential scrape hazards such as door frames and handrails.
>
> In the case of conductive media/filter designs utilizing the iSeal electrically conductive gasket, ensure that the inside diameter of the tubesheet hole is not coated or painted, as this is the area where electrical grounding will occur.
>
> If the filter has a stainless steel ground wire, please see additional instruction sheet shipped with filter for proper attachment of the grounding wire.

7. Clean the tubesheet plate and clean air plenum (CAP) to remove all residual dust.

8. Inspect the tubesheet holes for build up or corrosion and use a wire brush to remove buildup of any material that may interfere with the filter seal.

9. Inspect each new filter for damage from shipping, storage, or handling.

10. Place the gasket in the tubesheet hole with beveled bottom lip facing downward (the outer top flange with printing should be facing upward) and press the gasket gently into the tubesheet hole by hand. The gasket will self-center and seat. A properly installed gasket will have no deformations around the ID of the gasket and the top flange will be flush against the top of the tubesheet.
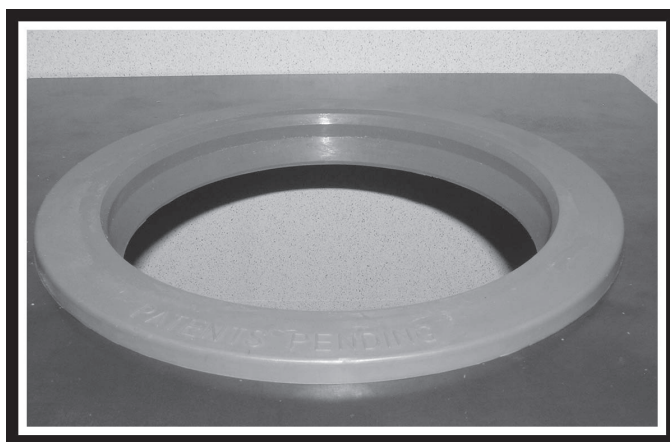
Step 10

11. Place the bottom puck of the filter inside the gasket and press the filter down through the inside diameter of the gasket.
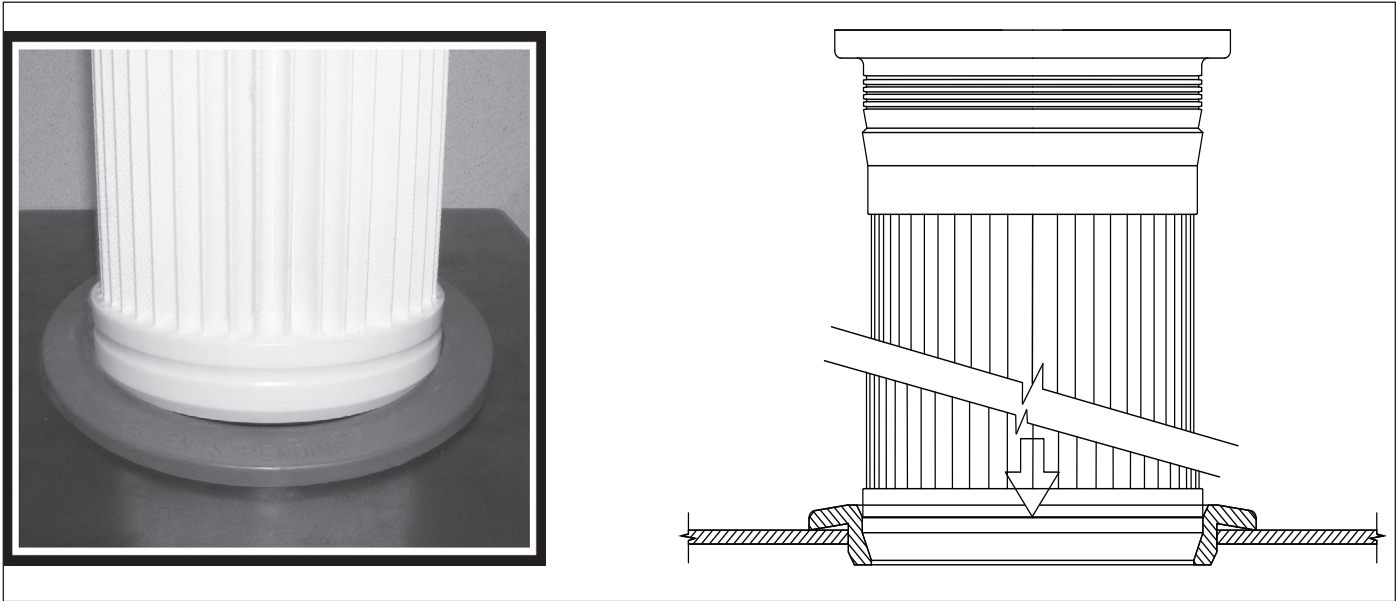
Step 11

12. Once the filter is lowered all the way into the gasket, the final sealing of the filter into the gasket will require slow, firm pressure to seat the stepped top down into the gasket and kick out the bottom flange to engage the seal. Stepping on the filter top is acceptable as long as steady, even pressure is applied.
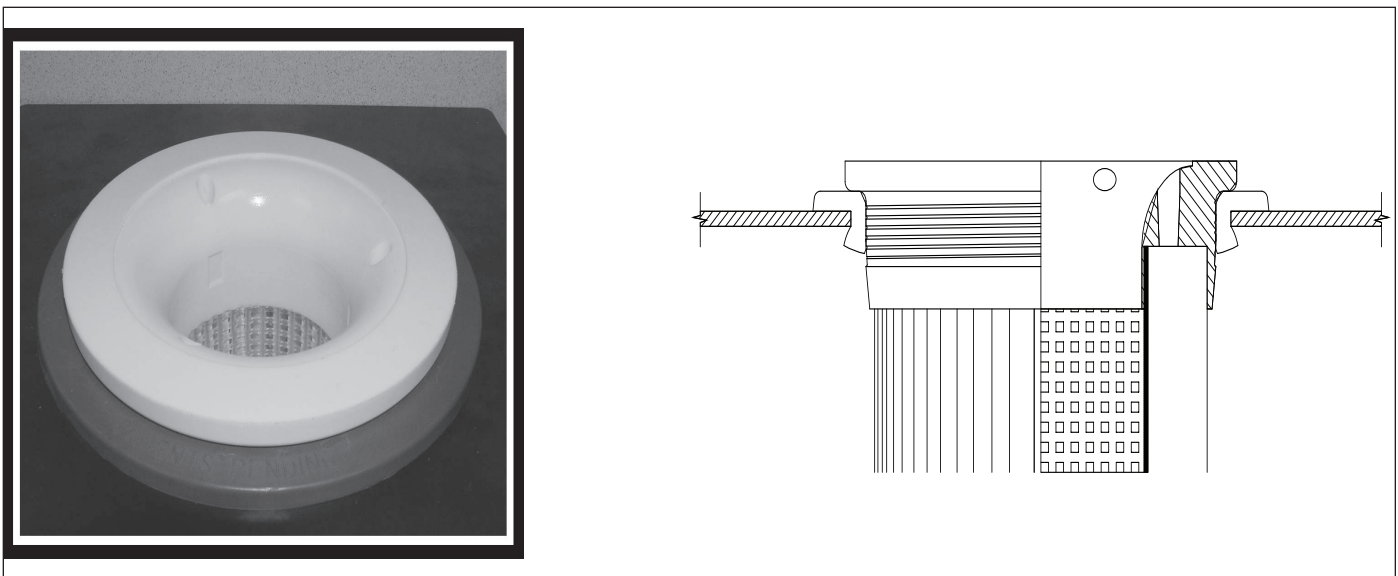
Step 12

13. Reinstall blowpipes.

14. Insert the flat end of the blowpipe into the mounting bracket on the opposite side of the collector from the pipe stub with the blowpipe holes oriented downward and the closed end tab of the blowpipe fully engaged in the mounting rail.

    IMPORTANT: Position the blowpipe so the closed end tab fully engages in the mounting bracket rail even if this leaves a small gap between the pipe stub and the open end of the blowpipe.

15. Center the open end of the blowpipe on the corresponding pipe stub.

16. Slide the coupling onto the blowpipe so it is centered on both the blowpipe and the pipe stub and tighten both ends of the coupling.

17. Ensure both ends of the coupling are tight so the blowpipe will not move during operation.

18. Proceed to the next row of filters and repeat for all remaining filters.

19. Replace the filter access door.

Dust Disposal

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.

1. Empty dust container(s) (drum or bin) as necessary to minimize dust in the hopper.

2. If the optional 55-gallon drum attachment is used, empty when dust container is 2/3 full.

3. If optional slide gate is used, close gate before servicing dust container.

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

4. Check integrity of gasket under drum cover.

5. Replace or reinstall dust container and open gate (if applicable).

Compressed Air Components

1. Periodically check the compressed air components (diaphragm valves, solenoid valves and tubing) and replace damaged or worn components as necessary.

2. Drain moisture from the compressed air filter at the collector following the manufacturer's instructions.

3. With the compressed-air supply ON, check the compressed air component functions by listening for proper actuation of each valve. You should note a crisp pulse sound for each diaphragm valve.

4. Note that all valves are activated in sequence as noted in the wiring diagram accompanying the collector.

5. Repair or replace components which do not function properly.

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.
Fan blower and motor start, but do not stay running	Incorrect motor starter installed	Check for proper motor starter and replace if necessary.
	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.
Clean-air outlet discharging dust	Filters not installed correctly	See Filter Installation.
	Filter(s) damaged or worn	Replace filters as necessary. Use only genuine Donaldson replacement parts. See Filter Replacement.
Insufficient airflow	Fan rotation backwards	Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone. See Start-Up/Commissioning.
	Access doors open or not closed tight	Check that all access doors are in place and secured. Check that the hopper discharge opening is sealed and that dust container is installed correctly.
	Fan exhaust area restricted	Check fan exhaust area for obstructions. Remove material or debris. Adjust damper flow control.
	Filters need replacement	Remove and replace using genuine Donaldson replacement filters. See Filter Replacement.
	Hopper discharge open	Check that dust container is installed and properly sealed.

Problem	Probable Cause	Remedy
Insufficient airflow continued	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.
	Blowpipes have come loose	Fully secure each end of every blowpipe, one with coupling to pipe stub and the other into the mounting bracket.
	Blowpipes installed upside down	Remove blowpipes and reinstall correctly with blowpipe holes pointing down toward the tubesheet.
	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 Typical Wiring Diagram.
No display on the Delta P Controller	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.
Display on Delta P Controller does not read zero when at rest	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.
Delta P Controller ON, but cleaning system does not start	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
Pulse cleaning never stops	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.
Alarm light is ON	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.
Delta P arrow keys do not work	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.
Cleaning light is ON, but cleaning system not functioning	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.

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 fot 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 condidtions.

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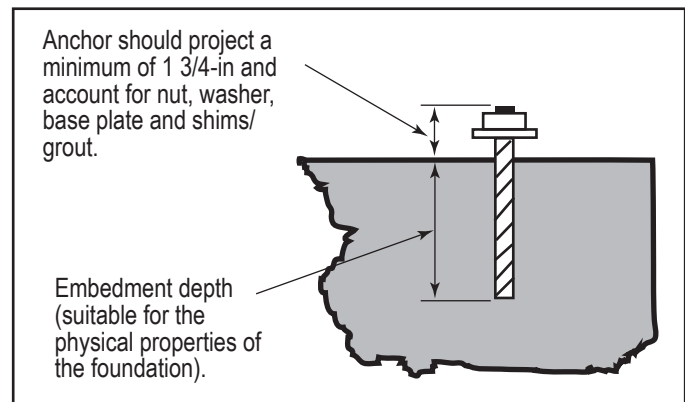
Follow industry practice relative to clean air velocity into a fan.

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 ¾ -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.

Anchor should project a minimum of 1 3/4-in and account for nut, washer, base plate and shims/grout.

Embedment depth (suitable for the physical properties of the foundation).

Typical Foundation Anchor

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.
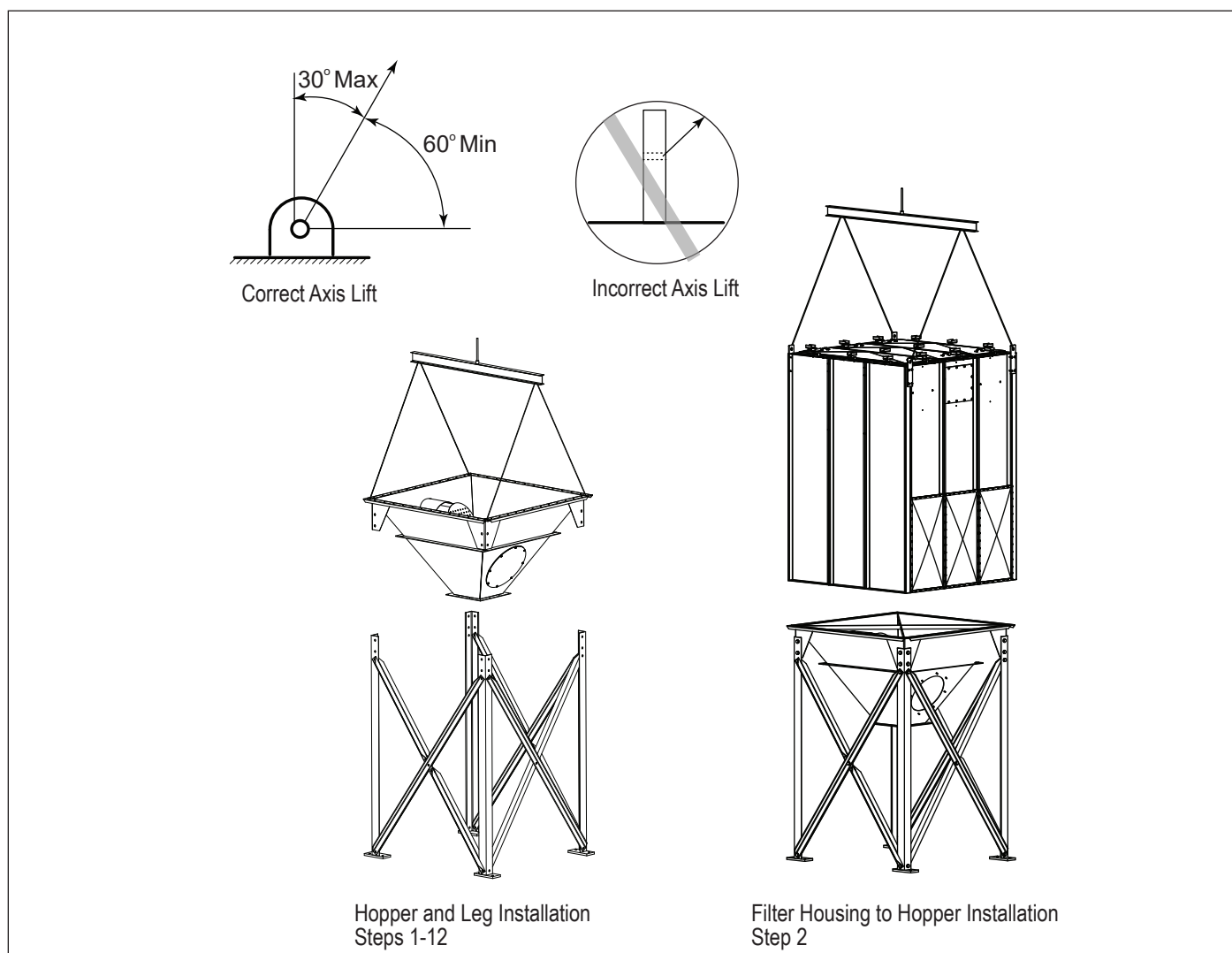
Lifting Information

⚠️ 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

30° Max
60° Min

Correct Axis Lift

Incorrect Axis Lift

Hopper and Leg Installation
Steps 1-12

Filter Housing to Hopper Installation
Step 2

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.

Reference typical 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. Lift the hopper using a crane.

3. Stand each leg on its pad in position under hopper.

4. Use drift pins to align holes in the hopper gusset with holes in the legs.

5. Secure legs to hopper using bolts, washers, and nuts provided. Do not fully tighten hardware at this time. Do not remove crane.

6. Position and bolt the inside angles of the cross bracing in place using the hardware provided. Do not fully tighten hardware at this time. Do not remove crane.

7. Position and bolt the outside angles of the cross bracing in place using the hardware provided. Do not fully tighten hardware at this time. Do not remove crane.

8. Bolt inside and outside cross braces together where they form an X. Do not fully tighten hardware at this time. Do not remove crane.

9. Repeat steps 6-8 for all bracing locations. Do not fully tighten hardware at this time. Do not remove crane.

10. Lift the hopper and leg assembly and lower slowly over and onto the anchor bolts.

11. Level the hopper at the top flange. Secure leg pads to anchor bolts with the appropriate customer-supplied washers and nuts.

12. Fully tighten all hardware on the gussets, cross braces, and anchor bolts. Recheck level and adjust as necessary.

⚠️ Tighten all hardware before removing crane to prevent personal injury and/or property damage.

13. Remove crane.

Trough Hopper with Stub Legs

Using a crane, lift hopper and position over the mounting structure. Align holes in stub legs with holes in the mounting structure and fasten securely.

Filter Housing to Hopper Installation

1. Apply 1/4-in diameter rope-type sealant toward the inside edge of the bolt pattern on the hopper's top flange.

2. Using a crane, lift the filter housing section and lower slowly. Use drift pins to align the filter housing flange holes with the hopper flange holes. Do not disturb the sealant.

3. Secure flanges using the hardware provided.

4. Remove crane.

5. Inspect all seals in clean air plenum.
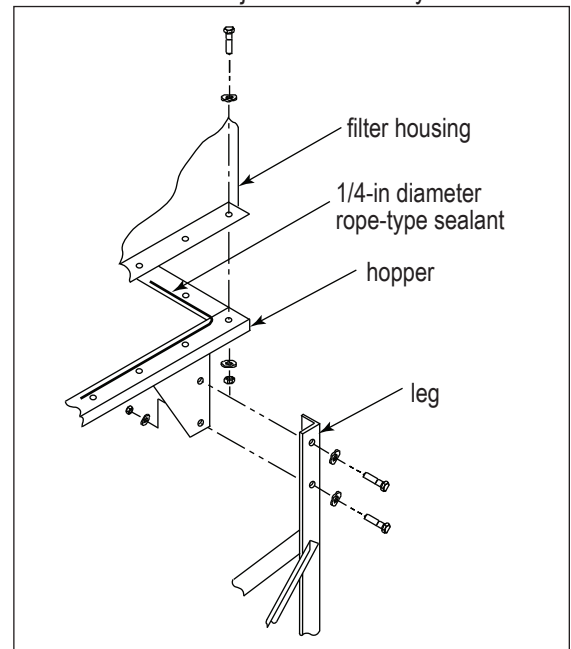
Filter Housing to Hopper Installation

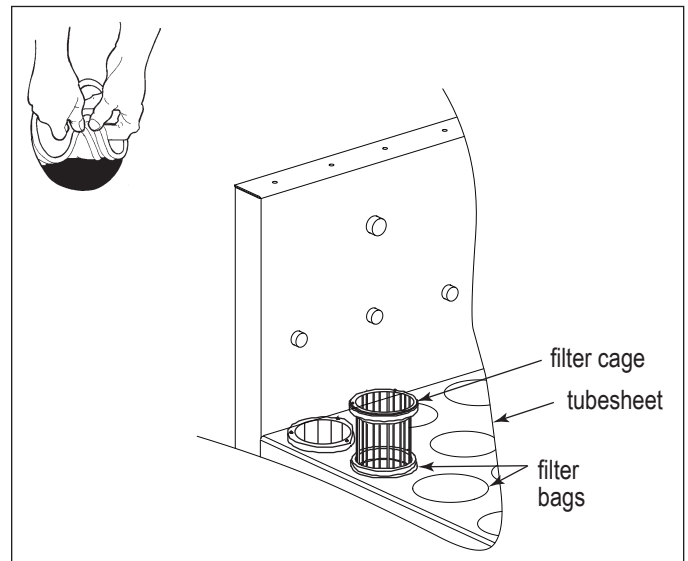# Filter Installation

Felt Snap-In Bag

1. Remove the filter access doors into the clean air side of the collector to allow access to install the filters and blowpipes.

2. Slip the end of a clean filter bag into the tubesheet opening.

3. Fold the filter bag collar snap-band in towards the center of the bag collar.

4. Align the groove in bag collar snap-band with edge of the tubesheet opening.

5. Release the bag collar snap-band, guiding it along the edge of the tubesheet opening.

6. Press on the bag collar snap-band and ensure it 'snaps' into final position centered on the edge of the tubesheet opening.

7. Insert the filter support cage fully into the bag. If optional articulated cages are used, insert the lower half of the cage until the ring adjacent to the top ring of the bottom half of the cage is just above the tubesheet opening and insert a temporary support through the cage just below the top ring. Place the top half of the cage on top of the bottom half of the cage and exert force to 'snap' the two halves of the cage together. Remove the temporary support and lower the assembled cage into the filter bag

8. Snap the filter cage fully down into the bag making certain the groove in the filter bag collar remains centered on the tubesheet and the bag is fully "expanded" to engage the tubesheet.

> ⚠ Failure to properly engage the filter bag collar with the tubesheet may result in mechanical dust leakage past the filter bag seal.

9. Repeat steps 2-8 for all filter bags and cages in the current row.

10. Install blowpipes. See Blowpipe Installation.

11. Replace the filter access door.

Felt Snap-In Bag Filter Installation

Pleated Bag

NOTICE	In the case of filters with ePTFE membrane, care should be taken to stack or store the filters in such a manner to prevent or minimize damaging the fragile ePTFE membrane. The iSeal gasket will help protect the pleat tips during installation, but cardboard or other smooth material should cover potential scrape hazards such as door frames and handrails.

In the case of conductive media/filter designs utilizing the iSeal electrically conductive gasket, ensure that the inside diameter of the tubesheet hole is not coated or painted, as this is the area where electrical grounding will occur.

If the filter has a stainless steel ground wire, please see additional instruction sheet shipped with filter for proper attachment of the grounding wire.

1. Remove the filter access doors located on top of the collector to remove blowpipes which have been temporarily installed for shipping. Retain removed parts to be reinstalled after filters have been installed.

2. Loosen both coupling compression caps on the blowpipes.

3. Slide the coupling connecting the blowpipes to the cabinet down the pulse pipe and away from the pipe stub on cabinet.

4. Remove the blowpipes from the mounting bracket.

5. Inspect each filter for damage from shipping, storage, or handling.

6. Place the gasket in the tubesheet hole with beveled bottom lip facing downward (the outer top flange with printing should be facing upward) and press the gasket gently into the tubesheet hole by hand. The gasket will self-center and seat. A properly installed gasket will have no deformations around the ID of the gasket and the top flange will be flush against the top of the tubesheet.
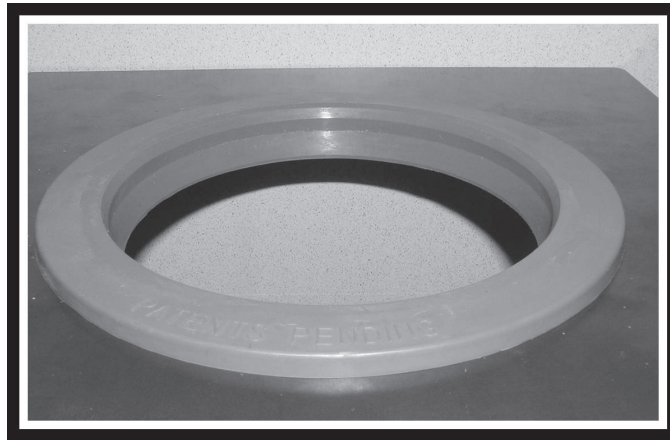

Step 6

7. Place the bottom puck of the filter element inside the gasket and press the filter down through the inside diameter of the gasket.
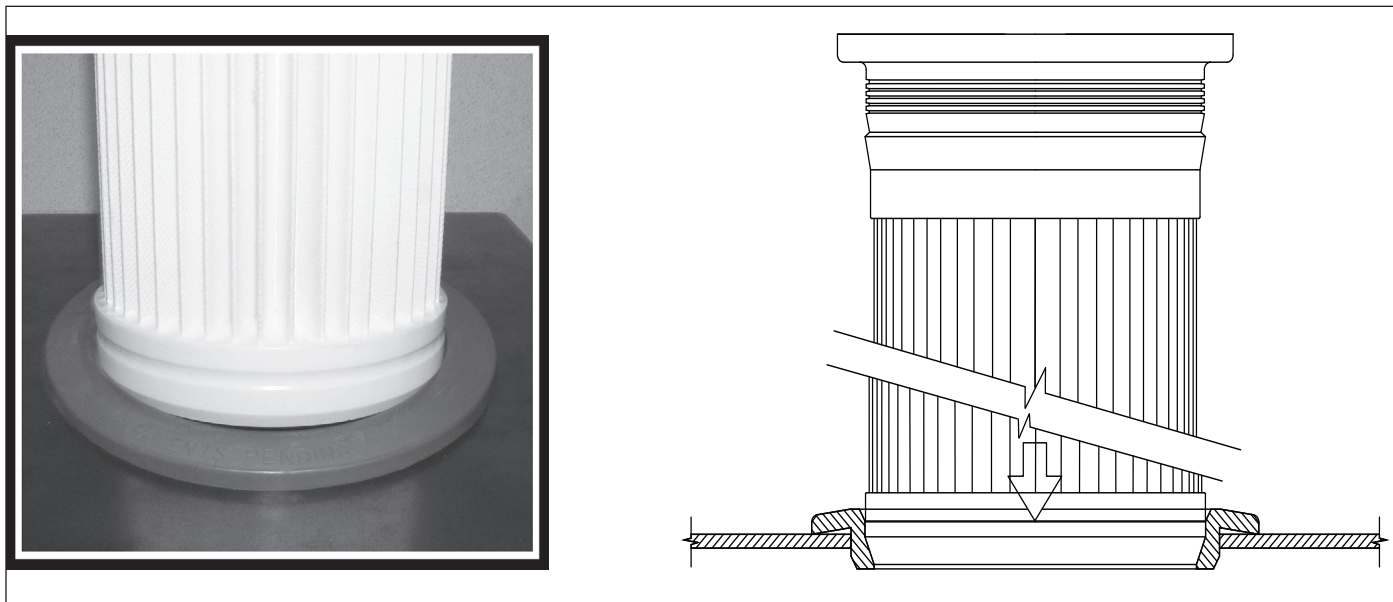
Step 7

8. Once the filter is lowered all the way into the gasket, the final sealing of the filter into the gasket will require slow, firm pressure to seat the stepped top down into the gasket and kick out the bottom flange to engage the seal. Stepping on the filter top is acceptable as long as steady, even pressure is applied.
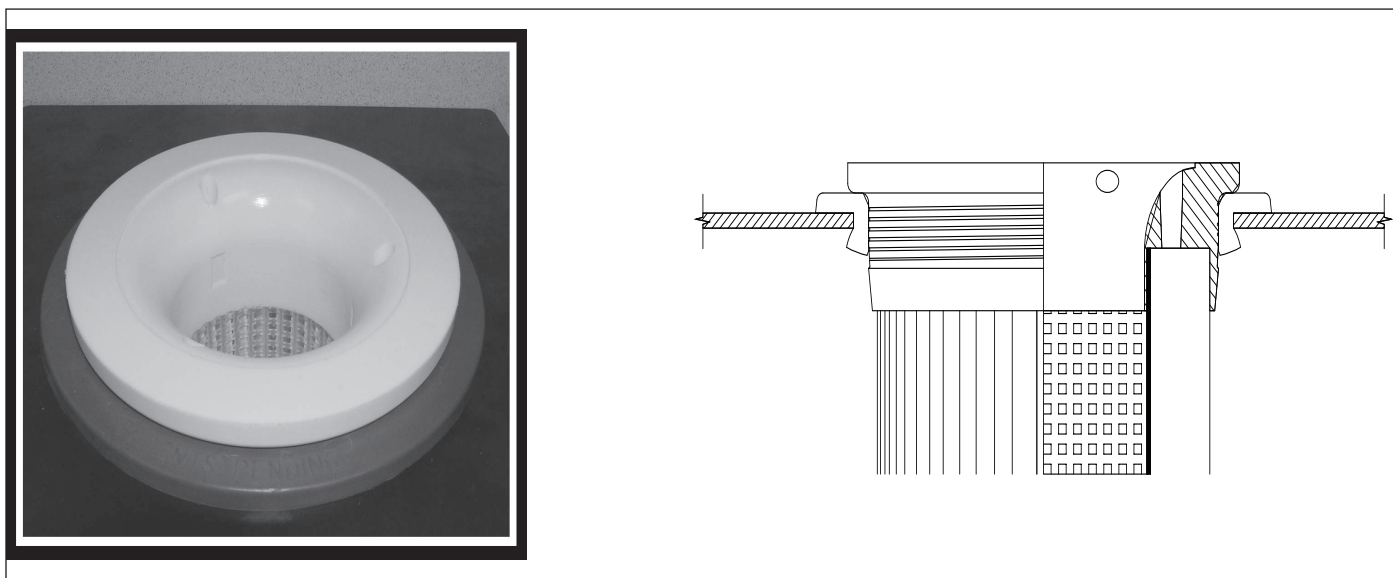

Step 8

9. Install blowpipes. See Blowpipe Installation.

10. Replace the filter access door.
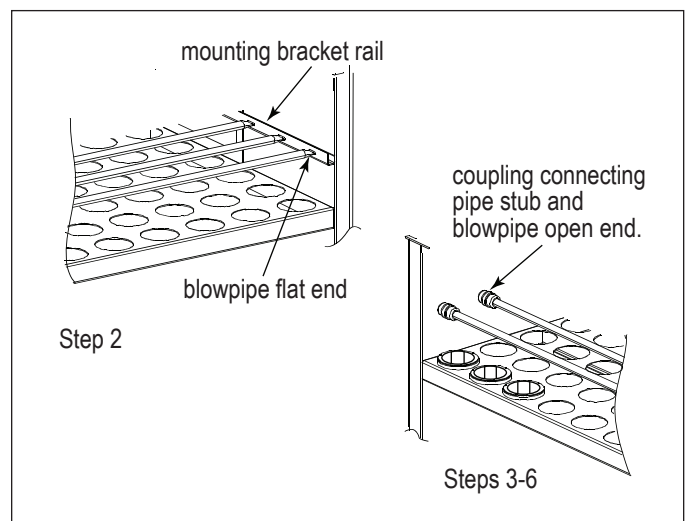
Blowpipe Installation

1. Slide the coupling over the pipe stub until it contacts the cabinet wall. This should position the coupling fully on the pipe stub.

2. Insert the flat end of the blowpipe into the mounting bracket on the opposite side of the collector from the pipe stub with the blowpipe holes oriented downward and the closed end tab of the blowpipe fully engaged in the mounting rail.

   IMPORTANT: Position the blowpipe so the closed end tab fully engages in the mounting bracket rail even if this leaves a small gap between the pipe stub and the open end of the blowpipe.

3. Center the open end of the blowpipe on the corresponding pipe stub.

4. Slide the coupling onto the blowpipe so it is centered on both the blowpipe and the pipe stub and tighten both ends of the coupling.

5. Ensure both ends of the coupling are tight so the blowpipe will not move during operation.

6. Proceed to the next row of filters and repeat for all remaining filters.

7. Replace the filter access door.
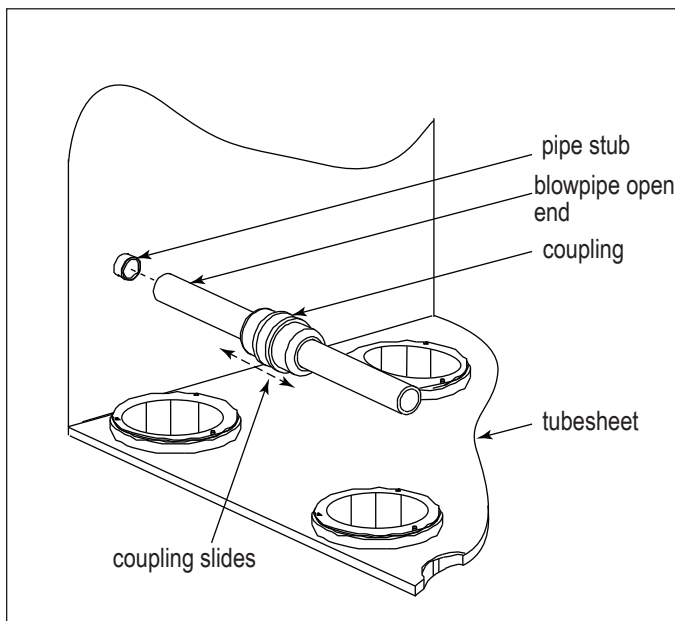
Blowpipe Installation

Blowpipe Installation Details

Platform and Ladder Installation

⚠️ To avoid possible severe injury or equipment damage do NOT use hand rails or ladders as a lifting point.

Locate platforms and ladders to minimize risk of injury from site specific hazards including explosion relief panels.

NOTICE Install the platform and ladder only after the filter housing and hopper assemblies are securely fastened to avoid damaging the platform or ladder.

For a list and schematic of components, refer to the ladder and platform (if applicable) assembly drawings shipped with the collector.

Platform

1. Using a crane, lift the service platform into position at the clean-air plenum access door. Use drift pins to algin the holes in the platform with the mounting flange holes.

2. Fasten platform securely using the hardware provided. Do not remove crane.

3. Align and secure the two knee braces from the platform to the collector housing using all hardware supplied. Tighten all hardware securely.

4. Continue assembling the ladder components paying close attention to the assembly drawings.

5. Make sure that all platform and ladder support brackets are installed and the bottom of the ladder is secured to the foundation with the appropriate brackets and anchors.

Ladder

1. Assemble the ladder on the ground following the assembly drawing provided with the ladder. Tighten all hardware securely.

2. Attach the crane's lifting slings to the top four ladder rungs.

3. Lift the assembled ladder into position, align holes and secure ladder to the platform using the hardware provided.

4. Position lateral ladder support bracket(s) following the assembly drawing provided with the ladder.

5. Secure bottom of ladder to the ground using anchor bolts.

6. Tighten all hardware.

7. Remove crane.

8. Ladder safety system/personal fall arrest system to be provided by process owner or by others where required.
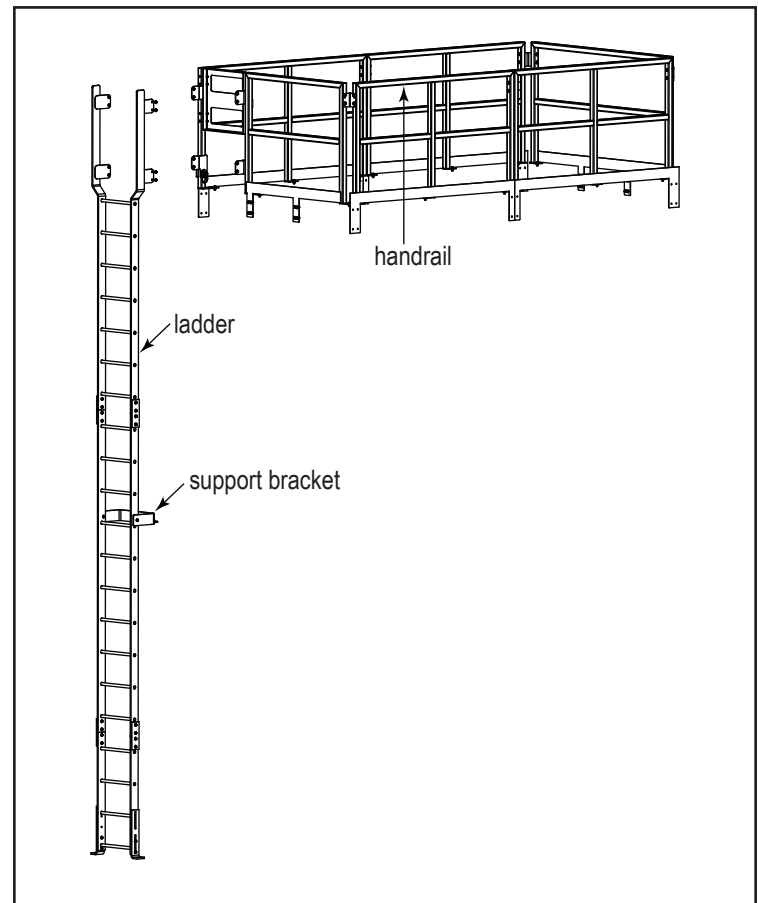
Ladder Installation

Compressed Air Installation

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

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

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

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

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

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

1. Remove the pipe plug from the collector's air manifold and connect the compressed-air supply lines. Use thread-sealing tape or pipe sealant on all compressed-air connections.

2. Install a shut-off valve, bleed-type regulator with gauge, filter, and automatic condensate valve in the compressed-air supply line.

3. Set compressed-air supply pressure to a level suitable for the filters. In order to avoid filter damage the compressed air pressure level should not exceed 60-70 psig for pleated bags or 90-100 psig for felt bags.

4. The pulse-cleaning controls are factory set to clean one row of filters every 10-seconds during a cleaning cycle.

Electrical Wiring

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

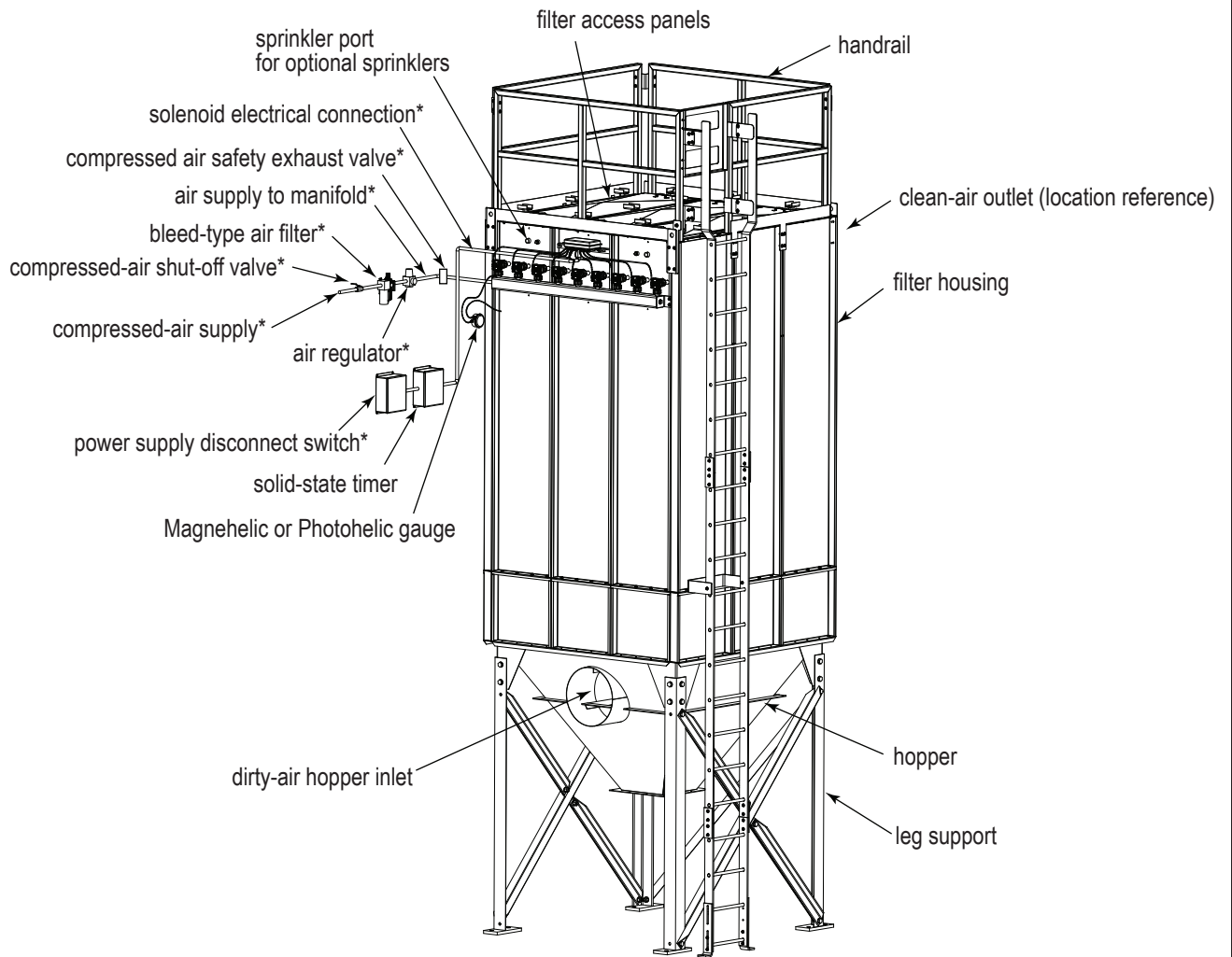Turn all power off and lock out all power before performing service or maintenance work. It is not unusual for the equipment to be operated from a remote location so equipment may start or stop unexpectedly.

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.

Turn all power off and lockout electrical power sources.

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

sprinkler port
for optional sprinklers

filter access panels

handrail

solenoid electrical connection*

compressed air safety exhaust valve*

air supply to manifold*

bleed-type air filter*

compressed-air shut-off valve*

compressed-air supply*

air regulator*

power supply disconnect switch*

solid-state timer

Magnehelic or Photohelic gauge

clean-air outlet (location reference)

filter housing

dirty-air hopper inlet

hopper

leg support

*customer supplied

Typical Component Installation

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 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 120VAC).
	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 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.
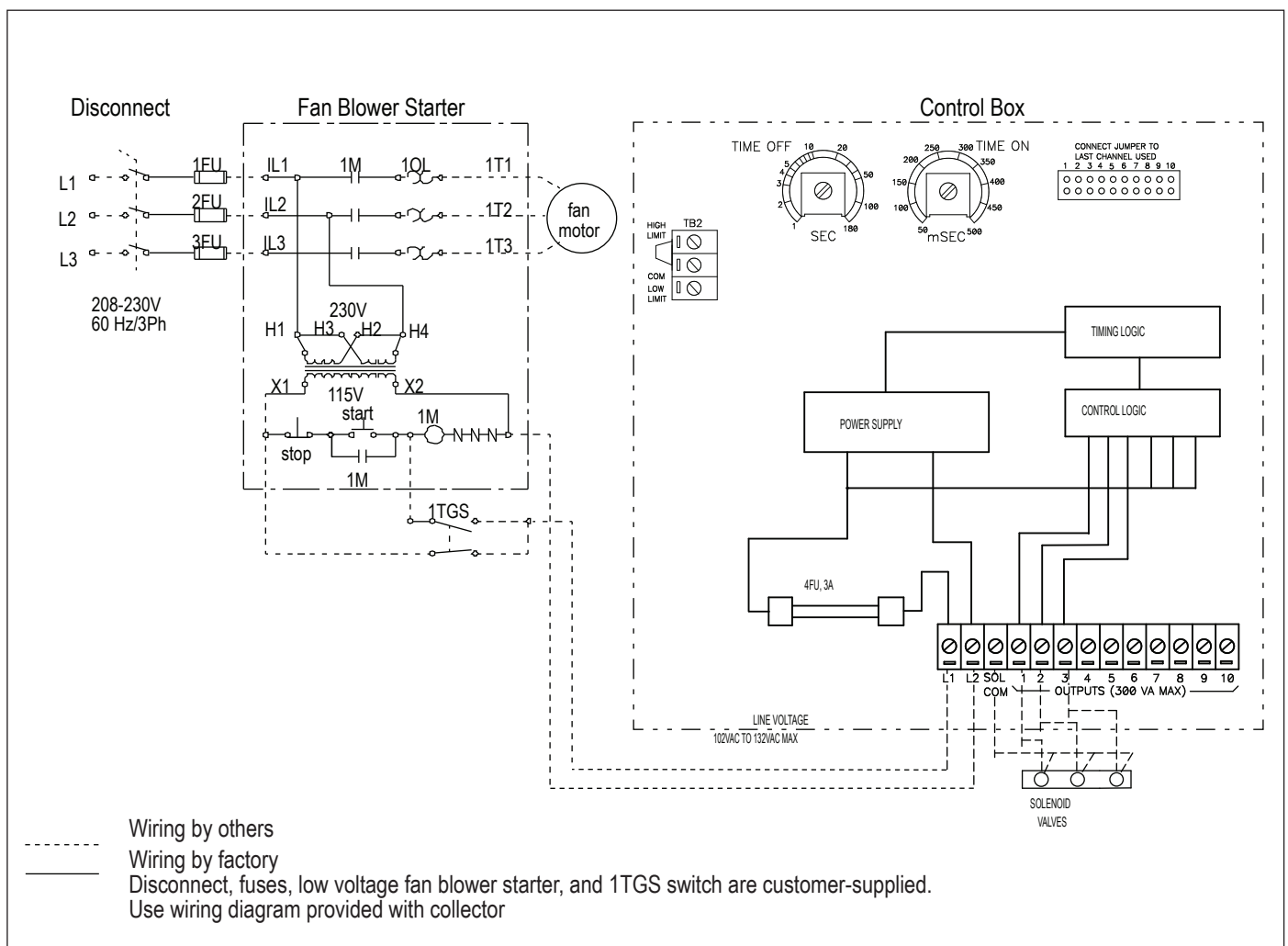
Solenoid Valves
115-Volt at 19.7 watts each

Compressed-Air
Set compressed-air supply pressure to a level suitable for the filters (60-70 psig for pleated bags or 90-100 psig for felt bags). 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.

Disconnect

L1 1FU IL1 1M 1OL 1T1
L2 2FU IL2 1T2 fan motor
L3 3FU IL3 1T3

208-230V
60 Hz/3Ph

Fan Blower Starter

230V
H1 H3 H2 H4
X1 115V X2
start 1M
stop 1M
1TGS

Control Box

TIME OFF TIME ON
CONNECT JUMPER TO LAST CHANNEL USED
1 2 3 4 5 6 7 8 9 10

HIGH LIMIT TB2
COM LOW LIMIT

SEC mSEC

TIMING LOGIC

POWER SUPPLY CONTROL LOGIC

4FU, 3A

L1 L2 SOL COM 1 2 3 4 5 6 7 8 9 10
OUTPUTS (300 VA MAX)

LINE VOLTAGE
102VAC TO 132VAC MAX

SOLENOID VALVES

- - - - - - Wiring by others
————— Wiring by factory
Disconnect, fuses, low voltage fan blower starter, and 1TGS switch are customer-supplied.
Use wiring diagram provided with collector

Solid-State Timer Typical Wiring Diagram

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 direct mounted fan blowers, 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.
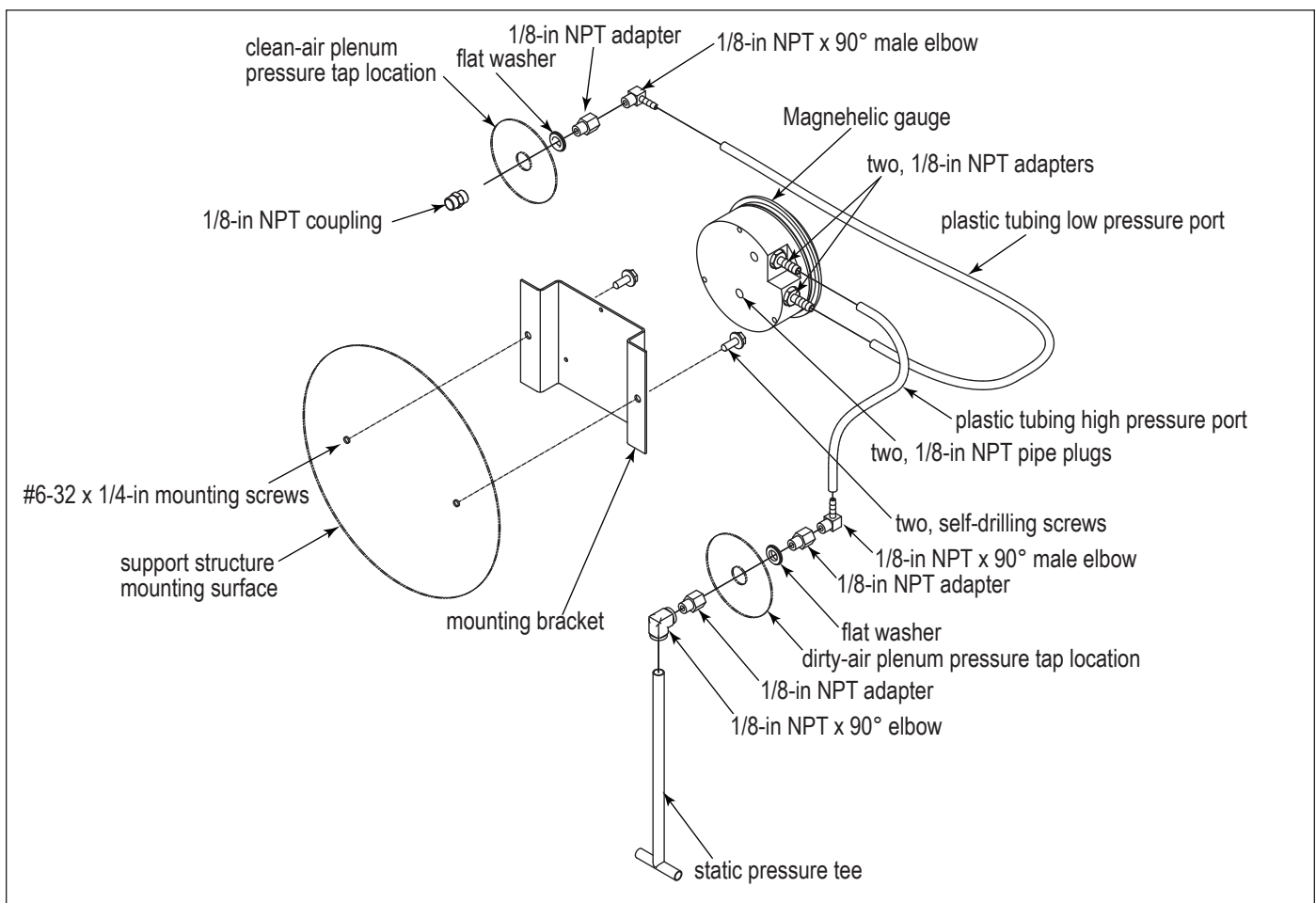
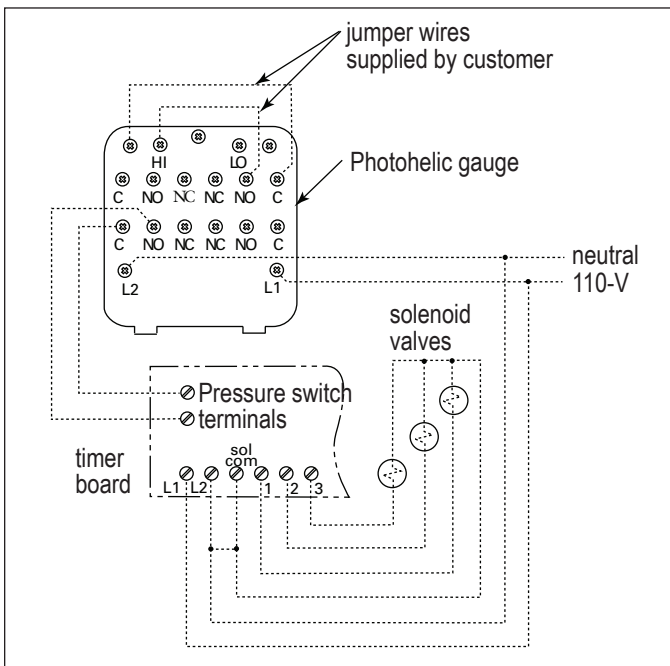Magnehelic Gauge Installation

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.
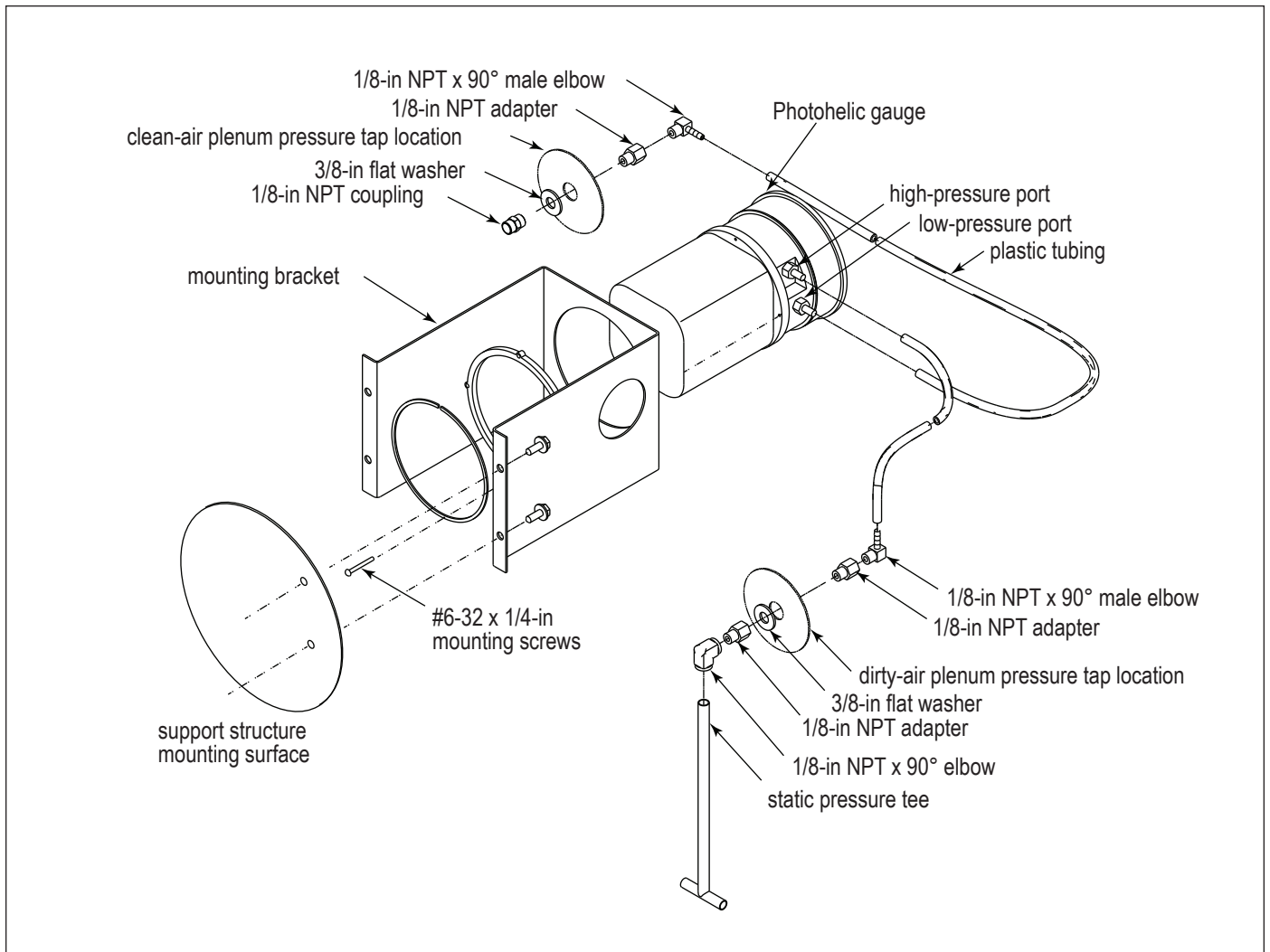

Photohelic Gauge Wiring Diagram
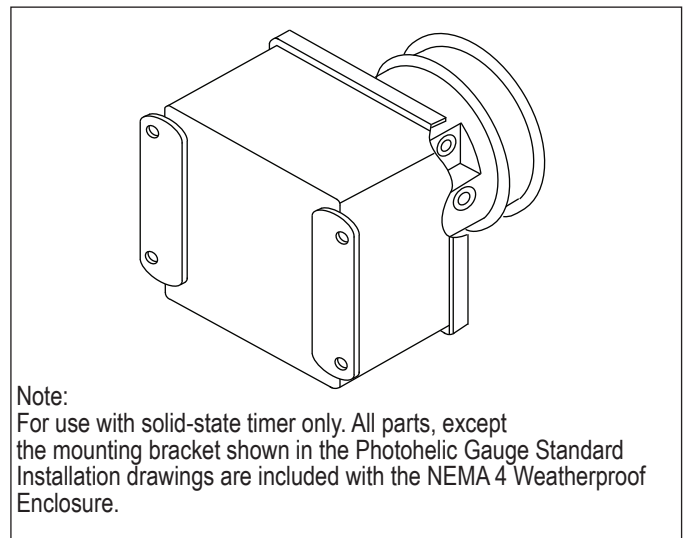
Note:
For use with solid-state timer only. All parts, except the mounting bracket shown in the Photohelic Gauge Standard Installation drawings are included with the NEMA 4 Weatherproof Enclosure.

Photohelic Gauge in Optional NEMA 4 Weatherproof Enclosure

1/8-in NPT x 90° male elbow
1/8-in NPT adapter

Photohelic gauge

clean-air plenum pressure tap location

3/8-in flat washer
1/8-in NPT coupling

high-pressure port
low-pressure port
plastic tubing

mounting bracket

#6-32 x 1/4-in
mounting screws

support structure
mounting surface

1/8-in NPT x 90° male elbow
1/8-in NPT adapter

dirty-air plenum pressure tap location
3/8-in flat washer
1/8-in NPT adapter

1/8-in NPT x 90° elbow
static pressure tee

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

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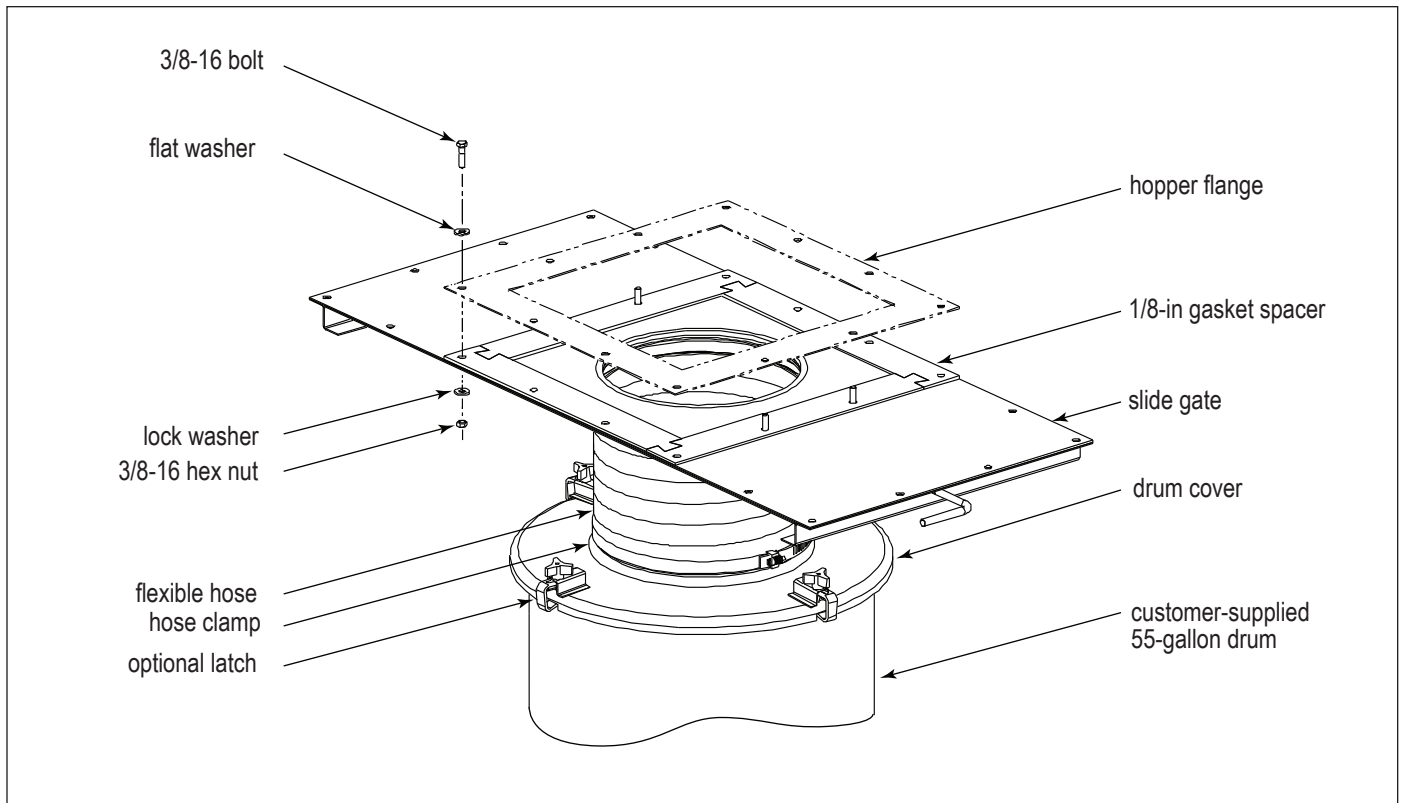
Hopper Discharge Accessories

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.
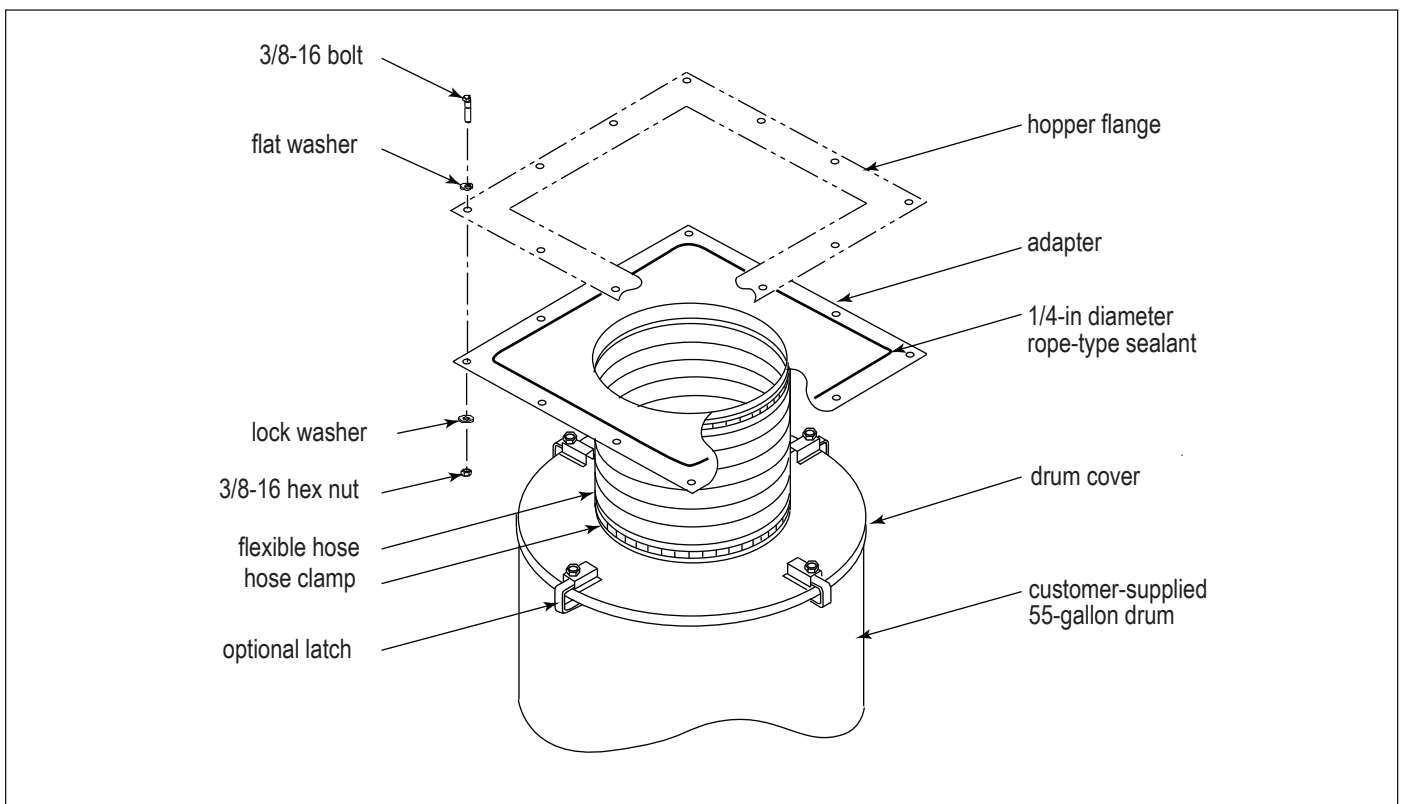
With Slide Gate

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.

3/8-16 bolt

flat washer

hopper flange

1/8-in gasket spacer

slide gate

lock washer
3/8-16 hex nut

drum cover

flexible hose
hose clamp

optional latch

customer-supplied
55-gallon drum

55-Gallon Drum Pack with Slide Gate

3/8-16 bolt

flat washer

hopper flange

adapter

1/4-in diameter
rope-type sealant

lock washer

3/8-16 hex nut

drum cover

flexible hose
hose clamp

customer-supplied
55-gallon drum

optional latch

55-Gallon Drum Pack without Slide Gate

Dumpster Pack

1. Install dumpster guides as illustrated in the dump hopper and leg pack drawing and arrangement drawings shipped with the Dumpster Pack.

2. Place lid on dumpster.

3. Place dumpster under hopper. Install flex hose to hopper bottom.

4. Place pivot rod through lid and leg pivot point. 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. Dumpster lifting mechanism requires compressed air (90 PSI Max).

7. Connect flex hose from the hopper to the dumpster lid and tighten using hose clamp.

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).

tubing

connector

breather
vent (2)

compressed
air inlet port*

control
valve

Detail A

tubing

See Detail A

dumpster lid

pneumatic
cylinders

pivot bracket

flex hose

dumpster

dumpster lid bracket

pivot shaft

dumpster stop

dumpster guide (2)

shaft
collar

*customer supplied compressed
air supply to control valve
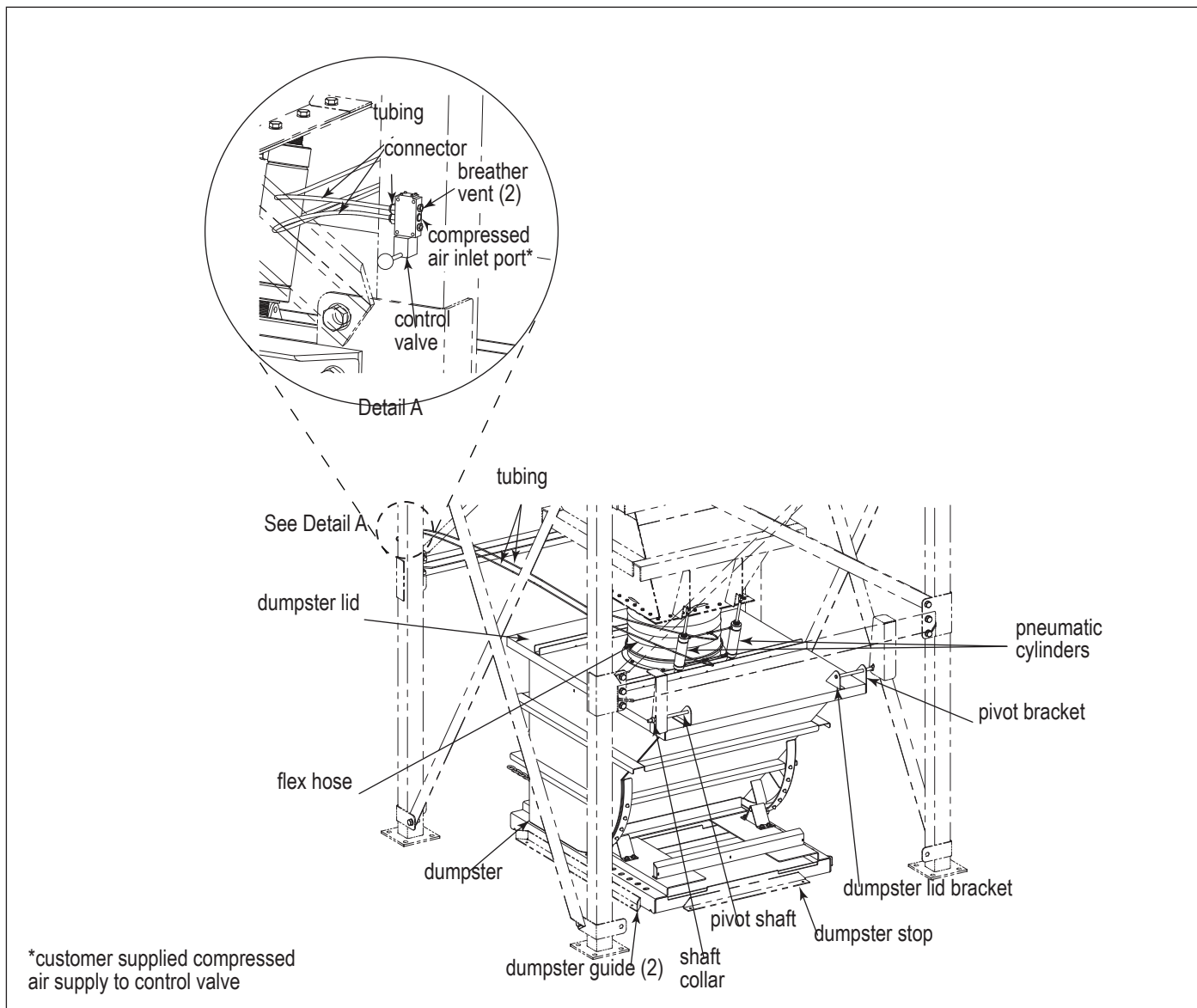
Dumpster Pack

Explosion Relief Panels

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

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

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

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

Standard explosion relief panels are intended for outdoor installations only.

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

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

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

Sprinkler Coupling

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

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

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

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.
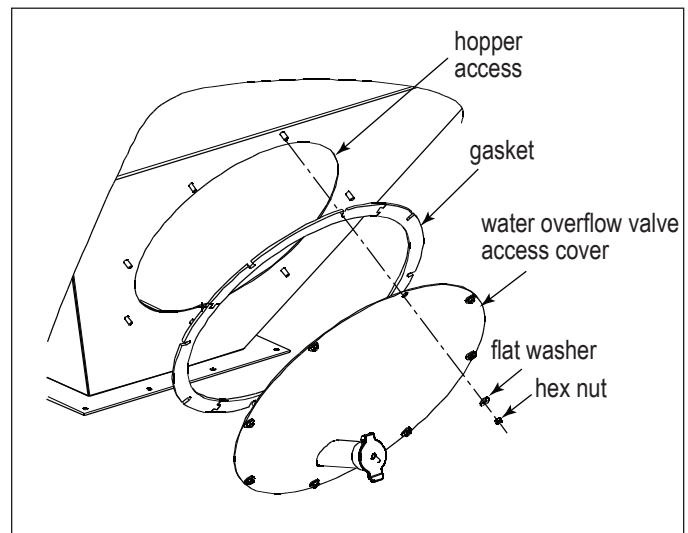
Water Overflow Valve

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 all 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 tot 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 (60-70 psig for pleated bags or 90-100 psig for felt bags).
12. Turn fan motor ON.
13. Adjust airflow with the exhaust damper.

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

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

Decommissioning

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

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

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

Electrical service must be performed by a qualified electrician.

Disconnection of ducts must be performed by a qualified contractor.

1. Follow the typical shut-down sequence steps located in the operation section to remove as much contaminant from collector as possible.

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. Proceed to disassemble collector by removing sub-assemblies in the reverse order of the steps given in Appendix A.

   Note: The clean air plenum, dirty air plenum, tube sheet and cleaning assembly may be removed in separate steps instead of as one unit.

9. Once all cross bracing has been taken down, remove anchor bolts and lower leg pack columns.

10. Secure all collector components to a suitable transport carrier and transport to a disposal site suitable for the dust in the collector.

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

Model Number _____ Serial Number _____

Ship Date _____ Installation Date _____

Filter Type_____

Collected Dust _____

Dust Properties: Kst _____Pmax_____ MIE _____MEC _____

Accessories _____

Other _____

_____

Service Notes

Date	Service Performed	Notes

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.**