



RFWP_RFWPH Baghouse

Panelized

RFWP Models - 608, 825 and 905

RFWPH 570, 776 and 851

Installation, Operation and Maintenance Manual



RFWP



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

IMPORTANT NOTES

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

For additional copies of this manual, contact Donaldson Torit.



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

NOTICE

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

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1 Safety Communication



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

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

Electrical installation must be performed by a qualified electrician.

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

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

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

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

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

Combustible Dust Hazards

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

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

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

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

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

2 Product Description

The RF Baghouse is a continuous duty dust collector with filters designed to handle applications with heavy dust loads. Continuous-duty means the filters can be pulse cleaned on-line without interrupting airflow through the collector.

The cylindrical collector housing design features a sectional bolt together construction in standard sizes from 570 to 905 filters available in various media types.

The collector housing design can include an involute scroll inlet or an upper body high inlet.

The involute inlets are typically used for heavy non-abrasive dust loading applications. These inlet styles allow the majority of the incoming dust to cyclonically separate. The heavier dust separated in these inlets is directed downward into the hopper while the lighter dust is passed through air straightening veins to evenly distribute the air and entrained dusts over the filter bags for final separation.

The upper body high inlet is typically used on abrasive dust applications or on lower density dust type applications. This style of inlet is located in the filter housing section below the tubesheet, and directs the incoming dust particles downward around the filter bags and into the hopper. This flow path assists the cleaning system by supporting an airflow pattern that encourages the dislodged dust pulsed off the filter bags to move downward into the hopper. Baffles in the inlet keep dusts from directly impinging on the filter bodies.

RF Baghouses come standard with a walk-in clean-air plenum (CAP). Filters, pulse and drive components can be serviced on the clean air side of the collector within the walk-in plenum. Access to the Clean Air Plenum is provided by an optional ladder and platform system.

Intended Use

The RF Baghouse collector is ideal for applications in the woodworking, grain and mining industries where it effectively handles high-volume, high dust-load applications. Additional applications include cement, chemical and food processing applications.

The RF Baghouse is typically used in applications up to 141,000 cfm.

Sizes are available for lower airflow applications with any of the following conditions or requirements:

- Heavy dust load
- No compressed air available
- A round collector required for sanitary reasons
- High pressure or vacuum requirement
- A requirement for a single discharge hopper.

Operations involving higher temperatures, humidity, or air stream chemistry may require customized collector design options. Contact Donaldson Torit for design assistance.

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

Filters

The RF collector ships with filter bags and cages. The standard bag media is Dura-Life™ which provides long life and energy savings due to lower pressure drop. Other filter bag media options are available.

Involute Scroll Style Inlet

The inlet develops a cyclonic airflow causing heavier particulate to drop directly into the hopper. The air continues through an internal flow straightener, reduces turbulence and evenly distributes the dust-laden air within the collector cross-section and around the filter bags.

RF Cleaning System

The RF is a continuous duty dust collector, meaning the filters can be pulse cleaned on-line without interrupting airflow through the collector. A timer energizes the cleaning system to ensure the bag-style filters are cleaned at least once every four minutes.

Hopper Access Cover

The access cover, when removed, allows access to the interior of the hopper.

Clean Air Outlet

Clean air exits the collector through the clean air outlet located in the clean air plenum.

Hopper Outlet

The hopper outlet is a singular outlet at the bottom of the hopper where the separated dust exits the collector and is routed to be disposed of via bin, pneumatic conveyor, screw conveyor, or other means. A rotary airlock is typically used to isolate the dust collection system from the dust disposal system.

Collector Body

The combination of the Dirty and Clean Air plenums along with the hopper represents the total collector body.

Leg Pack

The leg structure supports the collector body at an elevation to accommodate various dust disposal devices and systems which can be configured to meet customer needs.

Clean Air Plenum (CAP)

Air passes through the filters and into the Clean Air Plenum (CAP) where it exits through the Clean Air Outlet.

Tubesheet

The tubesheet is the metal panel the filters are sealed against to separate the Dirty Air and Clean Air Plenums of the collector. Through holes are cut to mount filters.

Clean Air Plenum (CAP) Door

The Clean Air Plenum (CAP) door allows access into the Clean Air Plenum for service and inspection.

Dirty Air Plenum (DAP)

Dust laden process air enters the Dirty Air Plenum via the involute scroll inlet or upper body high inlet. As air enters it goes through a preseparation stage and then airflow straightening before it reaches the filters. This allows the majority of the dust to drop out into the hopper and the airflow to be evened out before reaching the filters.

Hopper

The hopper, located at the bottom of the collector body, is the discharge point for dust that has been preseparated and pulsed off of the filters.

Arm Drive

The arm drive consists of a gearbox, motor, tensioner, sprockets, and chain. This rotates the arm around the centerline of the collector to distribute the cleaning air.

Sweep Arm Assembly

The sweep arm assembly is a “Tee” or “L” shaped assembly with nozzles along the bottom to distribute the cleaning air into the filter bags. The arm assembly rotates around the centerline of the collector.

H Frame

The “H” or “X” shaped structure supports the RF cleaning system.

Options and Accessories

Cleaning Controls and Sensors

Magnehelic® Gauge

Simple mechanical gauges that measure differential pressure. May be passive mechanical versions or digital, may include electrical contacts and user adjustable setpoints.

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.

Hopper Discharge Accessories

Hopper Transition

The collector comes with a standard size hopper outlet. Donaldson offers optional hopper outlet transitions to match up with various dust disposal devices.

Live Bottom Hopper

Short section of screw conveyor with a round to rectangle transition that handles tough dusts that bridge easily.

Rotary Airlock (RAL)

Used to isolate the dust collection system pressure from atmosphere. Options include flexible wipers, NFPA rated valves, Pneumatic conveying ready valves, and high clearance valves for tough to handle dusts.

Screw Conveyor

Can be mounted directly to the hopper outlet with the addition of an RAL at the discharge. Useful for loading bulk containers while maintaining a shorter overall height.

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 Panels

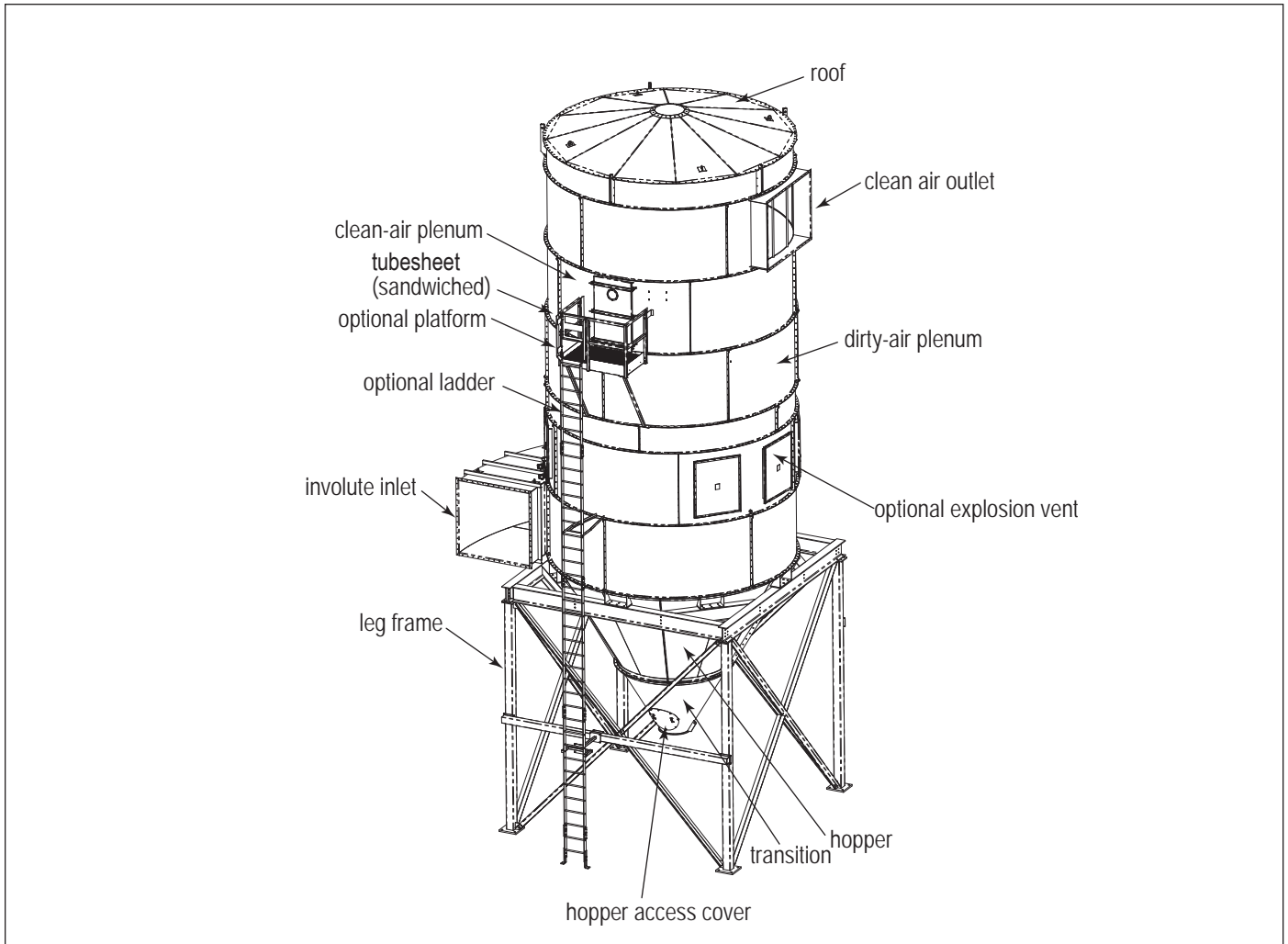
Collector may be equipped with optional explosion relief panels to support a process owners combustible dust mitigation strategy. Explosion vent sizing follows NFPA-68 formulas assuming outdoor location of collector with no duct or obstruction on the explosion vent panels. Contact Donaldson Torit for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

Sprinkler Coupling

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

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.



RFWP Involute Inlet Shown

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.

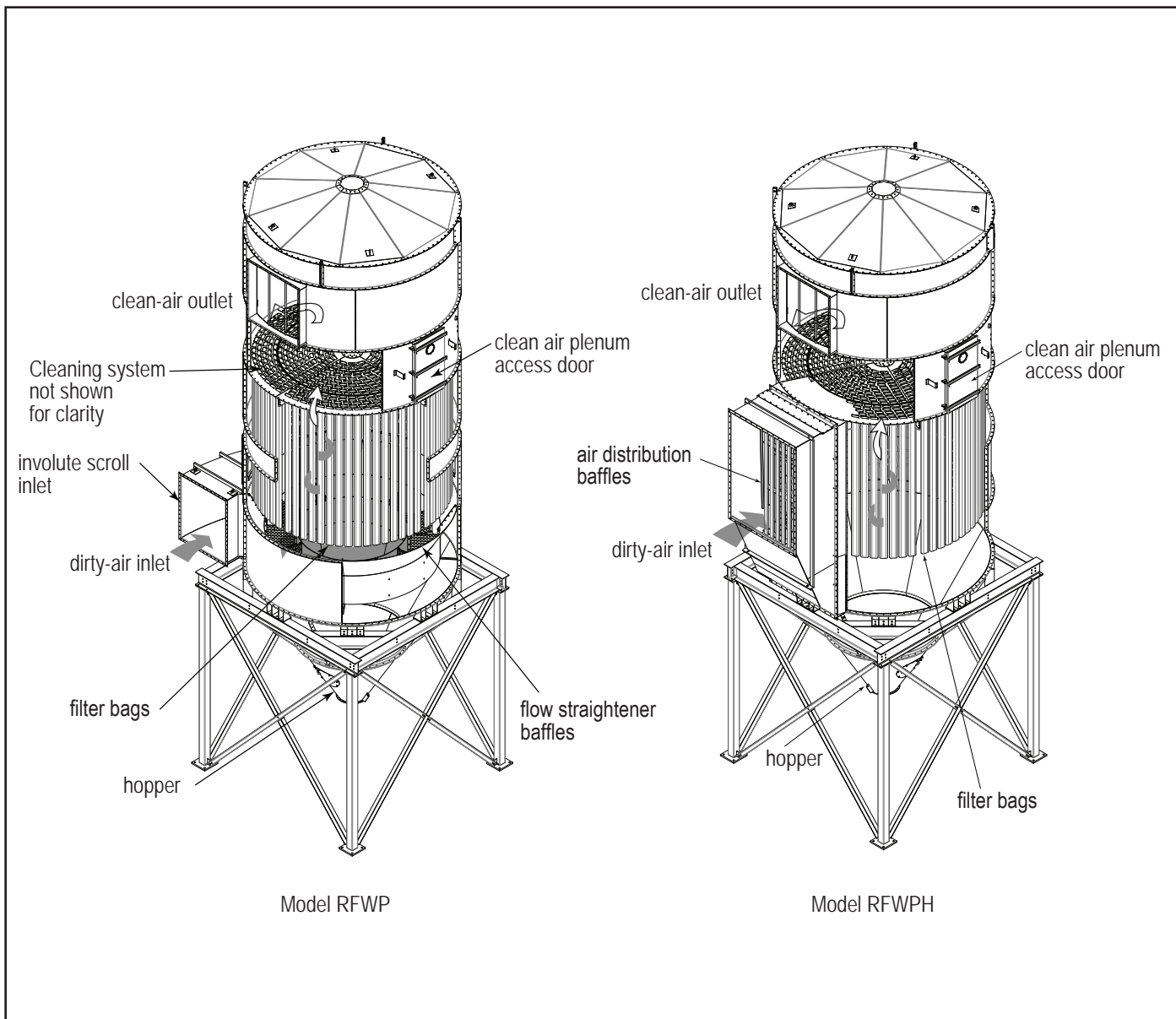
The RF Baghouse cleaning system consists of two opposing arms which rotate around the center of the collectors CAP. This system uses medium pressure air (7.5 PSI) generated by a PD pump typically located at ground level to charge a holding tank. The system has a 2 stage diaphragm valve set to provide the pulse air when a solenoid is activated.

Involute Inlet

During normal operation, dust-laden air enters the dirty-air inlet. The involute scroll-style inlet develops a cyclonic airflow causing heavier particulate to drop directly into the hopper. The air continues through an internal flow straightener that evenly distributes the dust-laden air within the collector cross-section and around the filters. After entering the collector the light dust collects on the outside surface of each filter forming a dust cake. Clean, filtered air passes through the filters to the clean-air plenum and discharges through the clean-air outlet.

High Inlet

During normal operation of an RF Baghouse with a high inlet, dust-laden air enters the dirty-air inlet. The high inlet section contains baffles that prevent the abrasion of filters by directing the incoming dust particles into a replaceable impaction zone then downward around the filters and into the hopper. This flow path reduces abrasion and assists the cleaning system by supporting an airflow pattern that encourages the dust dislodged when the filter is pulsed to move downward into the hopper. Baffles in the inlet keep dusts from directly abrading on the filter bodies.



Collector Operation

Typical Collector Operation Sequence



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

PD Blower Start-Up

1. Start the positive-displacement cleaning blower and check for proper blower rotation.
2. Turn power to timer and solenoid ON.
3. Check solenoid and diaphragm valve operation.
4. Adjust the timer to allow the cleaning system pressure to rise to 8-9 psig between pulses. Too short of an OFF time results in inadequate cleaning pressure; too long of an OFF time will result in the pressure relief valve discharging cleaning air.
5. Close the isolation petcock between the positive-displacement blower and the gauge.
6. Start the system as shown in Start-Up Sequence.
7. Adjust fan for proper airflow with the volume control damper, if equipped.
8. Measure initial pressure drop across the tubesheet and filter bags during normal process operation with dust actively generated. Pressure drop will gradually rise until an equilibrium pressure drop is achieved, generally 3 to 4 "wg for seasoned filters, although anything between 1 to 6 "wg is considered normal.

Start-Up/Shut-Down Sequence

The recommended sequences for motor start-up and shut-down are outlined below. These sequences assure minimal material build-up in the hopper of the collector.

NOTICE

Not following these sequences can adversely impact the life of the filters and may result in equipment damage.

Start-Up Sequence

1. Start waste dust systems.
 - a. Pneumatic conveyor or transfer blower, if equipped.
 - b. Rotary airlock and screw conveyor - start simultaneously.
2. Start pulse system
 - a. Manifold drive and pulse timer.
 - b. Positive-displacement pump.
3. Start main fan blower on the sweep arm H-frame assembly.

Shut-Down Sequence

1. Shut off main fan blower on the sweep arm H-frame assembly.

NOTICE

Slowly ramping down airflow will allow accumulated dust to drop into the hopper gradually while the collector continues cleaning. An abrupt reduction in airflow may result in one large release of dust from the filters which may plug the hopper discharge.

2. Positive-displacement cleaning blower.
3. Manifold drive and pulse timer.
4. Rotary airlock and screw conveyor - shut-down simultaneously.
5. Pneumatic conveyor or transfer blower, if equipped.

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 positive displacement pump OFF and bleed lines and tank before performing service or maintenance work.

Operational Checklist

1. Monitor the physical condition of the valve and auger 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 positive displacement pump components and replace filters as required to maintain blower pressure rating. Check rotation of cleaning arms.
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.
4. Monitor exhaust.
5. Monitor dust disposal.

Weekly

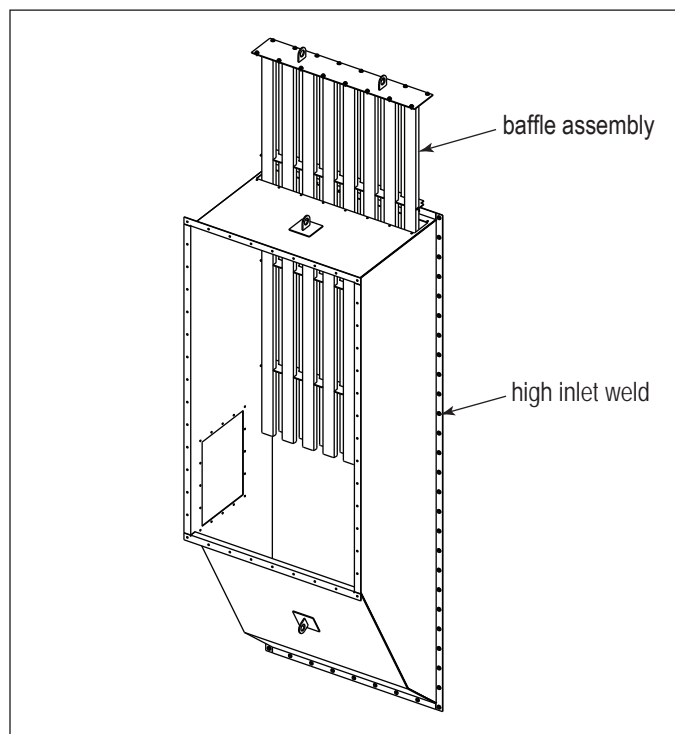
1. Check that pressure drop is within normal operational range (from 1 to 6 "wg).
2. Check for proper air pressure at reservoir (8 psi for 570-608 collectors and 9 psi for all larger collectors).
3. Check for proper lubricant level in positive-displacement blower.

Quarterly

1. Check condition of the clean-air plenum. If dust accumulation is present, check filter bags for wear, tears or loose seals. Replace as necessary.
2. On high inlet collectors, check the condition of the removable baffle weld assembly by removing the side access cover on the baffle housing. Replace significantly worn baffle assemblies to prevent damage to the filter tubes and housing section.
3. Check solenoid and diaphragm valve operation.
4. Check door seals and replace as necessary.
5. Check cleaning arm drive chain and positive-displacement blower belt tension.
6. Check positive-displacement blower and gear reducer oil levels. Add oil through breather mounting holes or other oil fill locations. Reference the blower owner's manual for proper lubricant.
 - 0°F-32°F - use ISO 68 lubricant
 - 32°F-90°F - use ISO 100 lubricant
 - 90°F-120°F - use ISO 150 lubricant
7. Inspect explosion vents, if applicable, for signs of wear or cracks.
8. Check the rotating arm manifold drive gear reducer oil level. Add oil through breather mounting holes or other oil fill locations. The gear reducer is filled with synthetic oil. See reducer manual for recommended lubrication type and quantity. When checking or replacing the oil, make sure to check both housings of the double reduction reducer. Each housing has its own vent, fill and drain plug.

Inlet Baffle Assembly Replacement

1. Shut down the system following the recommended Shut Down sequence found in this manual.
2. Wear appropriate protective clothing, safety glasses, dust masks, etc. to avoid contact with hazardous dust if applicable.
3. Following all installation and hoisting precautions found in this manual, remove the top cover perimeter bolts and use a crane to lift and remove the assembly.
4. Inspect the baffle housing for wear and repair or replace as required.
5. Clean the top of the housing and re-apply sealer to the perimeter opening as required.
6. Carefully hoist and install the new baffle assembly into the baffle housing. When the assembly is lowered into the housing, it will be guided into a vertical position by the side angle rails and lower bottom guides attached to the housing. The baffle spacer plate will be on or just above the two side support gussets when properly installed.
7. Tighten bolts, start system, and inspect for leaks.



Baffle Assembly Installation

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.

Do not operate with missing or damaged filters.

Felt Bag Filter and Cage with Boltsafe™ Hardware

1. Turn all power to collector and material handling system OFF.
2. Release compressed air in cleaning system.
3. Access clean air plenum through door.
4. Loosen bolts (2) from each filter cage flange.
5. Remove cage leaving the filter bag suspended in dirty air plenum.
6. Push the filter bag through the tubesheet into the dirty air plenum.
7. Repeat steps 4-6 for all filter bags and cages in the current row.

Note: The cleaning arm may need to be manually rotated to access some filter bags.

8. Remove dirty filter bags through hopper access opening and dispose of in accordance with local requirements for the materials being collected.
9. Slide the clean filter bag onto the filter cage until the top edge of the bag reaches the top flange of the filter cage.

Note: Place the bottom seam of the filter bag parallel to the long side of the oval.

10. From the clean air plenum, insert the filter bag and filter cage assembly through the tubesheet aligning the two bolts with the two threaded inserts factory installed in the tubesheet.
11. Secure with the provided Boltsafe bolts.

NOTICE

Hand start each bolt before tightening either bolt. Do not use a power or impact driver to tighten bolts. A speed wrench using a maximum of 20 ft/lb is recommended.

12. Proceed to the next row of filters and repeat for all remaining filters.
13. Replace the hopper access opening cover and close clean air plenum access door.
14. The collector can now be returned to service following typical start up procedures.

Pleated Bag Filter with Boltsafe™ Hardware

1. Turn all power to collector and material handling system OFF.
2. Release compressed air in cleaning system.
3. Access clean air plenum through door.
4. Loosen bolts (2) from each pleated bag filter.
5. Remove pleated filter bag and dispose of in accordance with local requirements for the materials being collected.
6. Repeat steps 4-5 for all pleated bag filters in the current row.

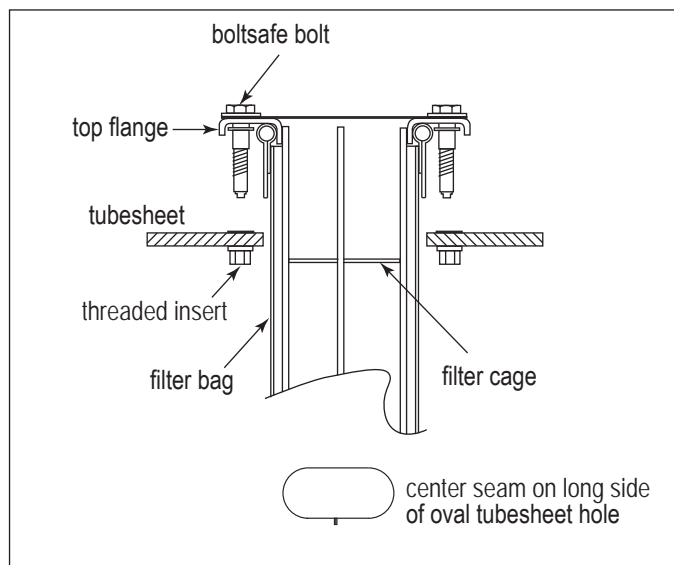
Note: The cleaning arm may need to be manually rotated to access some filter bags.

7. From the clean air plenum, insert the clean pleated bag assembly through the tubesheet aligning the two bolts with the threaded inserts in the tubesheet. It may be necessary to squeeze the pleated bag as it is inserted into the tubesheet.
8. Secure with the provided Boltsafe bolts.

NOTICE

Hand start each bolt before tightening either bolt. Do not use a power or impact driver to tighten bolts. A speed wrench using a maximum of 20 ft/lb is recommended.

9. Proceed to the next row of filters and repeat for all remaining filters.
10. Close the clean air plenum access door.
11. The collector can now be returned to service following typical start-up procedures,



Felt Bag and Cage and Pleated Bag with Boltsafe Hardware Filter Installation

Pleated Bag Filter with Snap-In Design

1. Turn all power to collector and material handling system OFF.
2. Release compressed air in cleaning system.
3. Access clean air plenum through door.
4. Grab snap band finger loop to remove the snap band and discard. The replacement bag filter comes with a new snap band.
5. Squeeze the flange of the molded top at the center of the straight-a-ways of the oval. While doing so, rock and lift to release the molded tops from the tubesheet.
6. Lift the pleated bag filter out of the tubesheet.
7. Remove pleated bag filter and dispose of in accordance with local requirements for the materials being collected.
8. Repeat steps 4-7 for all pleated bag filters in the current row.

Note: The cleaning arm may need to be manually rotated to access some filter bags.

9. Proceed to the next row of filters and repeat for all remaining filters.
10. Slowly lower the clean pleated bag filter through the tubesheet hole. Squeezing the bag filter to get the straps through the tubesheet may be required.



11. Gently push the flexible urethane top of the pleated bag filter on one side until it snaps into the tubesheet hold.



12. Push the opposite side of the top of the pleated bag filter until it is securely snapped into the tubesheet hole.

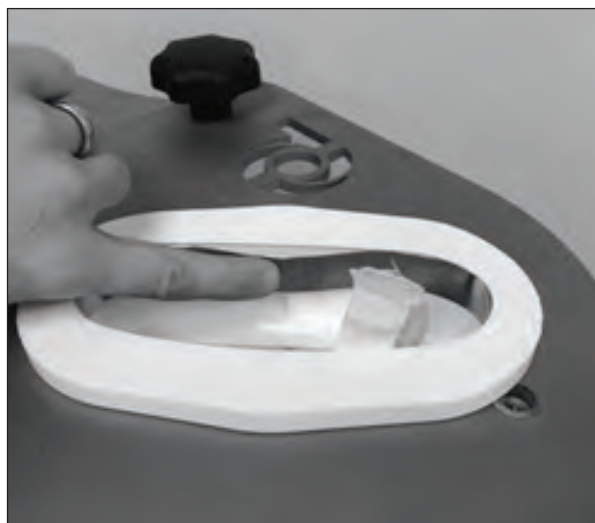


Note: A snapband retainer has been shipped for each filter. If you do not have these snapband retainers, call your Donaldson representative immediately so they can be sent to you for proper installation.

13. Pinch the snapband retainer in the center to form a figure "8".



14. Bend the loop slightly and place the retainer under the molded lip of the top flange of the filter. This shallow lip prevents upward movement of the snapband retainer after proper installation. With the snapband retainer held against one side of the filter top interior, slowly allow the retainer to expand into the recessed area between the lip rim and the four interior post stops.



15. The snapband retainer should fit snugly between the lip rim and the vertical post stops. Be sure the snapband retainer is level and not installed crooked. A correctly installed snapband retainer will help prevent any potential leakage at the tubesheet and keep the filter firmly in place.



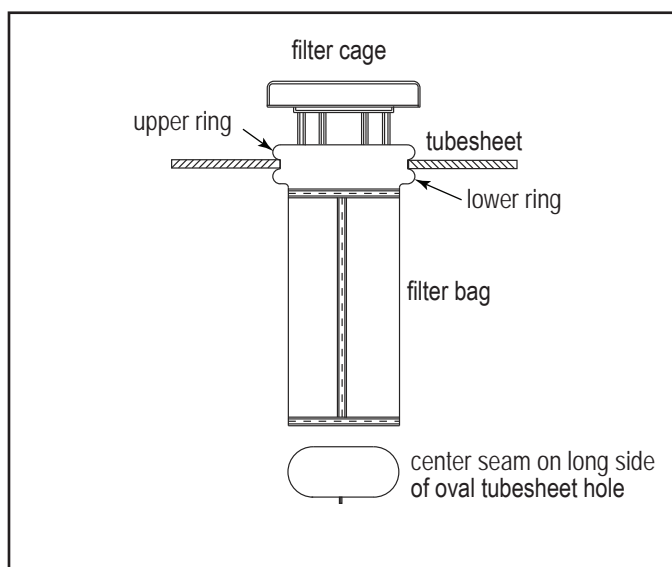
16. Proceed to the next row of filters and repeat for all remaining filters.
17. Close the clean air plenum access door.
18. The collector can now be returned to service following typical start up procedures.

Felt Snap-In Bag Filter

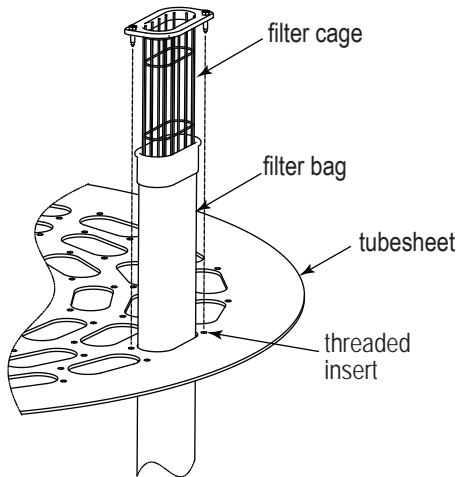
1. Turn all power to collector and material handling system OFF.
2. Release compressed air in cleaning system.
3. Access clean air plenum through door.
4. Remove bag filter cage leaving the bag filter hanging in dirty air plenum.
5. Push one side of snap band to deform and release from the tubesheet.
6. Push the bag filter down into the bottom of the dirty air plenum.
7. Repeat steps 4-6 for all bag filters in the current row.

Note: The cleaning arm may need to be manually rotated to access some filter bags.

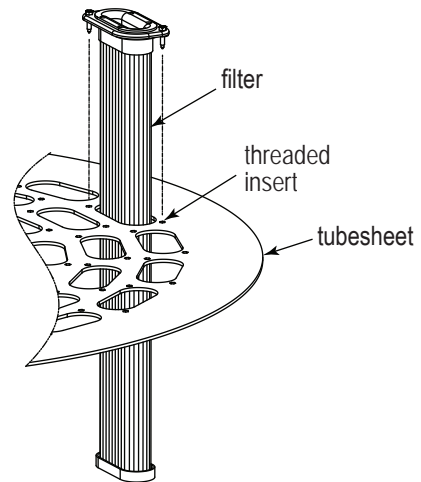
8. Proceed to the next row of filters and repeat for all remaining filters.
9. Remove dirty filter bags through hopper access opening and dispose of in accordance with local requirements for the materials being collected.
10. From the clean air plenum, carefully insert the snap-in filter bag aligning the seam with the long edge of the oval in the tubesheet.
11. Snap the filter bag in place with the tubesheet between the upper and lower rings of the filter bag collar.
12. Slide the filter cage into the filter bag and seat firmly.
13. Proceed to the next row of filters and repeat for all remaining filters.
14. Replace the hopper access opening cover and close the clean air plenum access door.
15. The collector can now be returned to service following typical start up procedures.



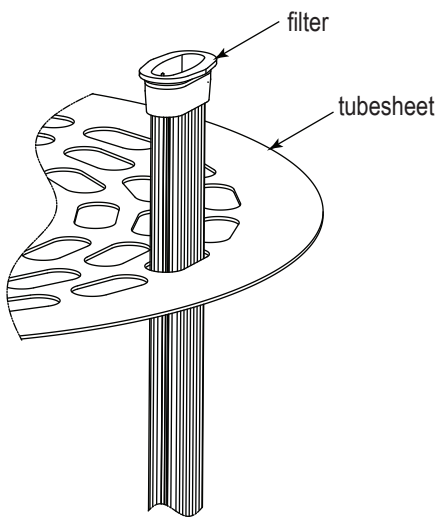
Felt Snap-In Bag Filter Installation



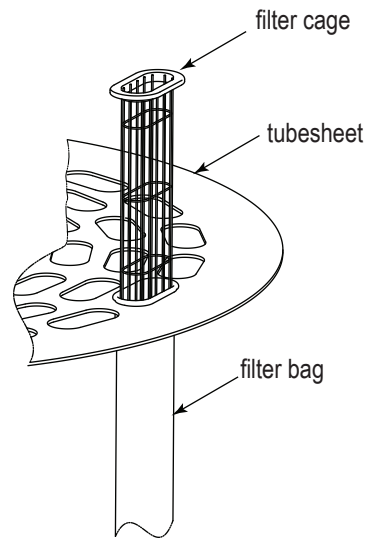
Felt Bag and Cage with Boltsafe Hardware



Pleated Bag with Boltsafe Hardware



Pleated Bag Snap-In



Felt Bag Snap-In

Filter Bag Installation

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.
	Access doors are open or not closed tight	Close and tighten access doors. See Filter Replacement.
	Hopper discharge open	Check that dust container is installed and properly sealed.
	Damper control not adjusted properly	Check airflow in duct. Adjust damper control until proper airflow is achieved and the blower motor's amp draw is within the manufacturer's rated amps.
	Electrical circuit overload	Check that the power supply circuit has sufficient power to run all equipment.
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.
	Access cover(s) loose	Tighten access doors securely. See Filter Installation.
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.
	Lack of compressed air	See the Specification Control Drawing shipped with the collector for compressed air supply requirements.
		Verify operation of PD pump.
	Pulse cleaning not energized	Use a voltmeter to check the solenoid on the diaphragm. Check for an orifice plug on the solenoid valve and remove if present.

Problem	Probable Cause	Remedy
Insufficient airflow continued	Dust storage area overfilled or plugged	Clean out dust storage area. See Dust Disposal.
	Pulse valve leaking air	Lock out all electrical power to the collector and bleed the compressed air supply. Check for debris, valve wear, or diaphragm failure by removing the diaphragm cover on the pulse valves. Check for solenoid leaks or damage. If pulse valves or solenoid valves are damaged, replace.
	Cleaning arm failure	Check for adequate clearance between nozzles and tubesheet for free rotation. Check drive chain for proper tension.
	PD pump filter	Check for dirty filter. Clean and oil per manufacturer recommendations if needed.
	Pressure relief valve	Check operation and verify that it is not discharging air during normal operation.
	Compressed air supply at reservoir	Check settings and verify tank pressure reaches 8PSI for 570-608 collectors and 9PSI for all larger collectors.
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 timer.
	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.
Cleaning light is ON, but cleaning system not functioning	Improper wiring	Check wiring between the timer board and between the timer board and solenoid valve coils.
	Defective solenoids	Check all solenoids 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 for the type of dust being handled and should ensure easy access for service and utility connections. Site selection must account for wind, seismic zone and other load conditions.

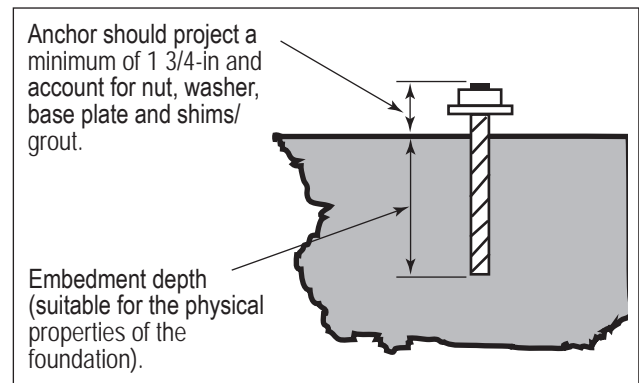
The equipment must be anchored once in final position. Anchors must comply with local code requirements. Anchors, foundation or support framing must be capable of supporting dead, live, wind, seismic, and other applicable loads. Consult a qualified engineer for final selection of foundation or support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

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

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

Provisional Anchor Bolt Recommendations

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



Typical Foundation Anchor

Delivery and Inspection

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

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

Unloading and Positioning



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

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

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

Lifting Information

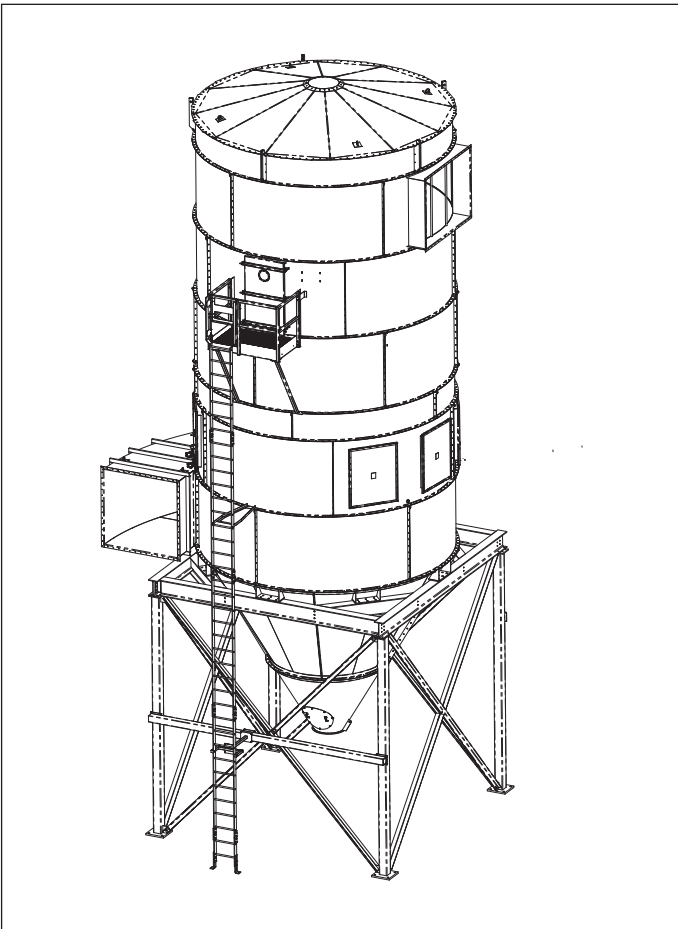


Failure to lift the equipment or sub-assemblies correctly can result in severe personal injury and/or property damage.

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.

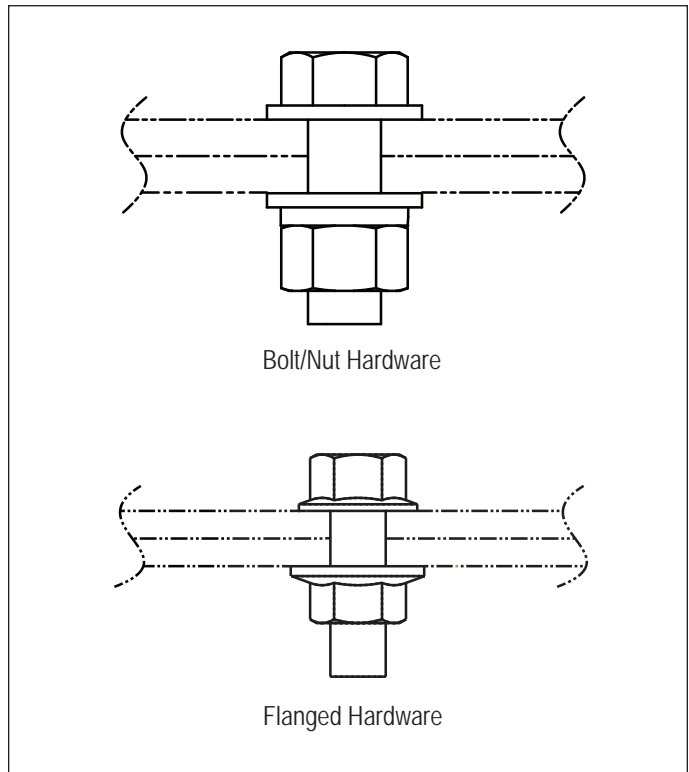
Typical Lifting Guidance



Model RFWP Shown

Hardware Size

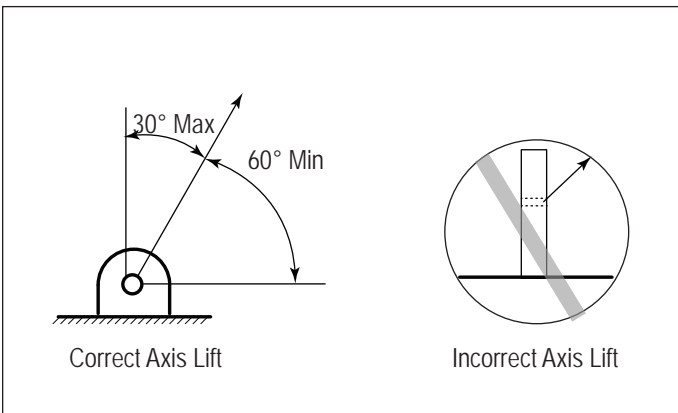
Size	Assembly	Type	Recommended Bolt Torque (ft/lbs)
3/8-in	Ladder	Bolt/Nut	25-30
	Platform	Bolt/Nut	
1/2-in	Hopper	Flanged	55-75
	Body(ies)	Flanged	
	Involute Inlet	Flanged	
	Roof	Flanged	
5/8-in	Tubesheet	Bolt/Nut	110-150
3/4-in	Leg Structure	Bolt/Nut	200-260



Bolt/Nut Hardware

Flanged Hardware

Hardware



Correct Axis Lift

Incorrect Axis Lift

Lifting

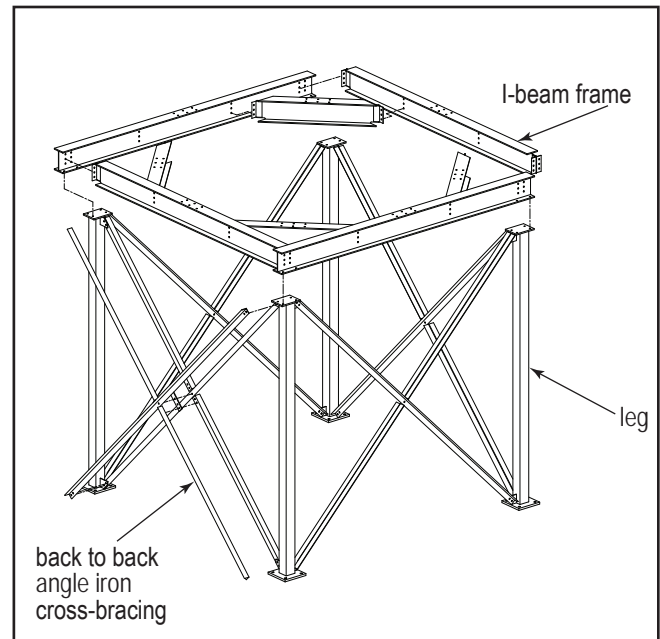
Leg Assembly

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

1. Prepare the foundation or support framing in the selected location. Locate and install anchors.
2. Set the legs onto the pre-poured foundation and bolt tight.
3. Install all cross-braces spanning the legs using the supplied hardware.
4. Keep bolts partially tightened until the I-beam perimeter frame can be set into place.
5. Lay out the I-beam frame at grade level and install hardware hand tight.
6. Lift the I-beam frame onto the leg structure, ensuring frame is level and plumb.
7. Tighten all hardware.

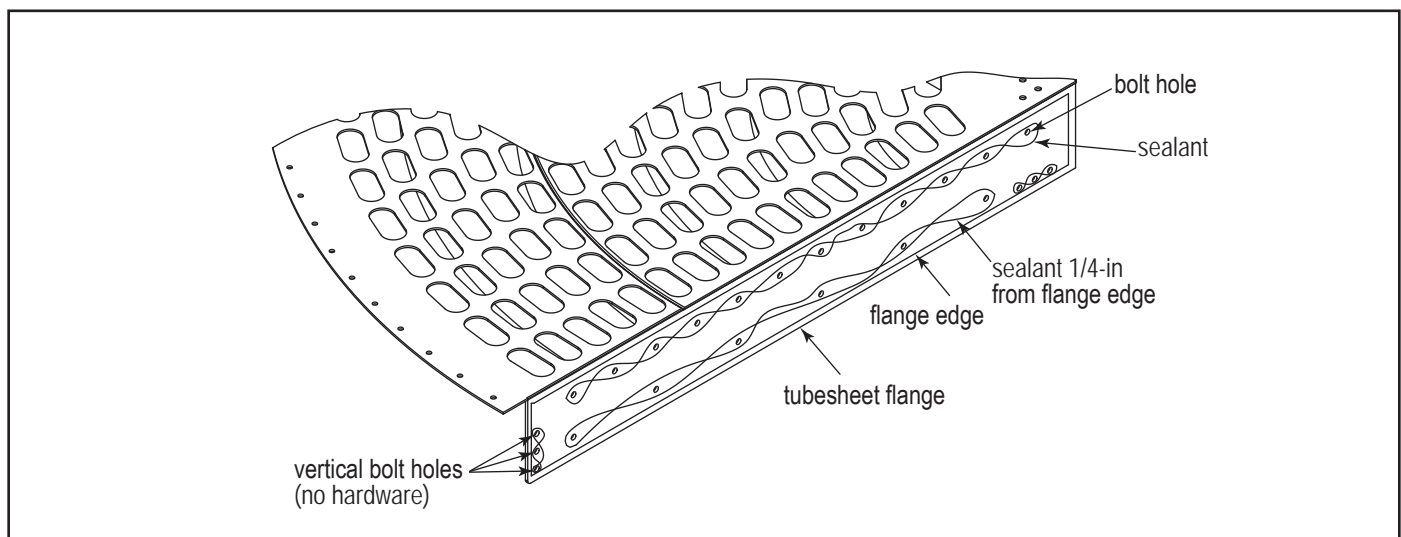


Tighten all hardware before removing crane to prevent personal injury and/or property damage.



Tubesheet Assembly

1. Lay out the panels of the tubesheet with flange-side up on a level area using stand-offs (customer supplied) to avoid ground contact and to keep the tubesheet surface free from blemishes.
2. Apply sealant to the connecting flanges of the tubesheet prior to aligning bolt holes. Apply sealant around the inside perimeter within 1/4-in of all flange edges and around all bolt holes as shown.
3. Bolt the connecting flanges together using the provided hardware. Keep the last three vertical bolt holes at the perimeter free of hardware as shown.



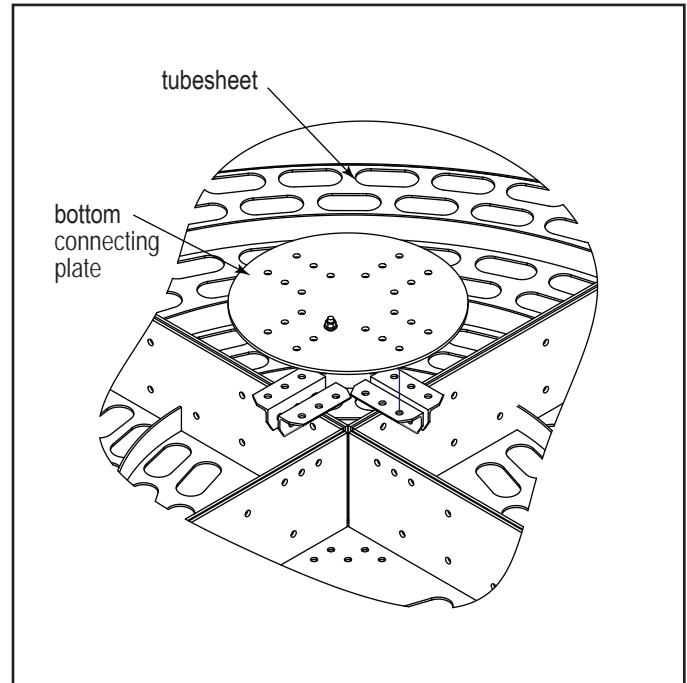
Tubesheet Assembly Flange - Sealant Application

4. Attach the circular bottom connecting plate to tie in all pieces of the tubesheet as shown. Use the supplied hardware for bolting through the multiple material thicknesses associated with the bottom connecting plate.
5. Turn the tubesheet over to the upright position. Use stand-offs (customer supplied) placed under the radial stiffeners to keep the tubesheet off of grade as shown. Make certain the tubesheet is level.

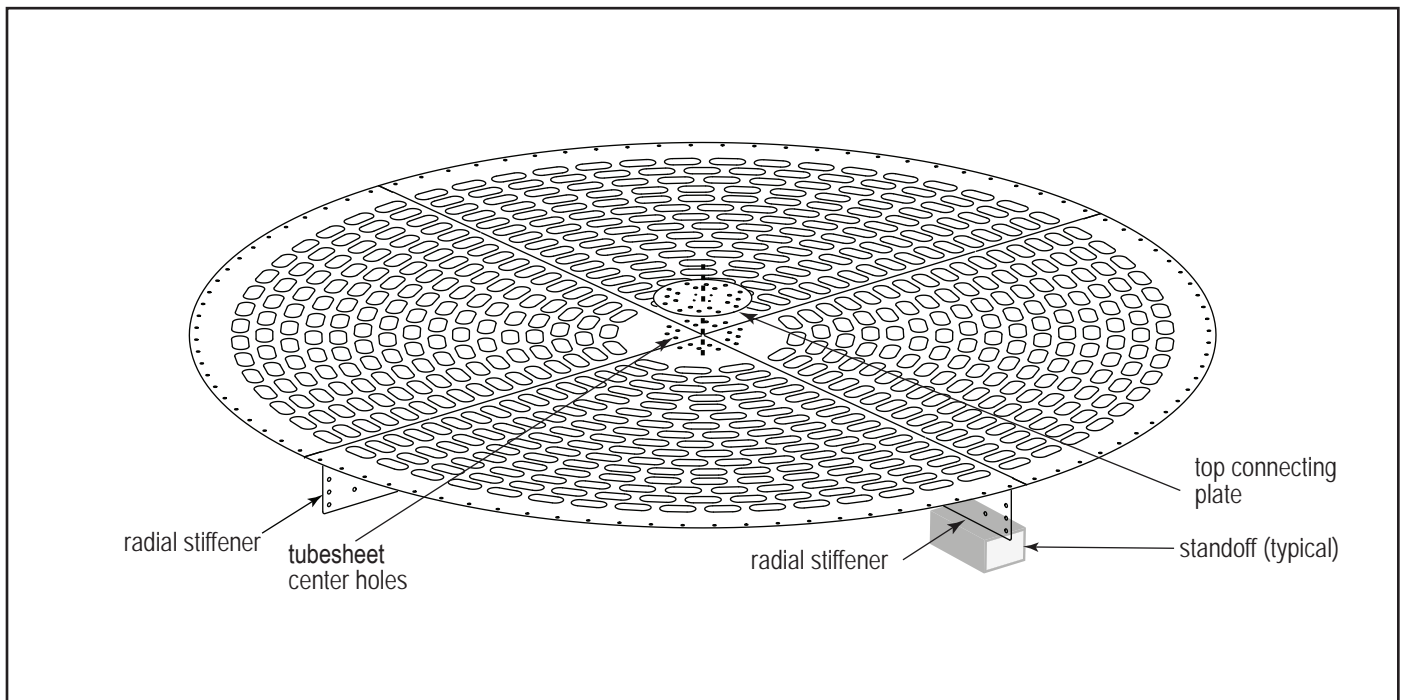


Use appropriate lifting equipment and procedures when turning the tubesheet assembly over to prevent severe personal injury and/or property damage.

6. On the top connecting plate, apply sealant to one side outside the bolt pattern, inside the bolt pattern and around each bolt hole.
7. Set the top connecting plate onto the tubesheet center and align the holes with the sealant against the tubesheet. Securely bolt plate and tubesheet together.



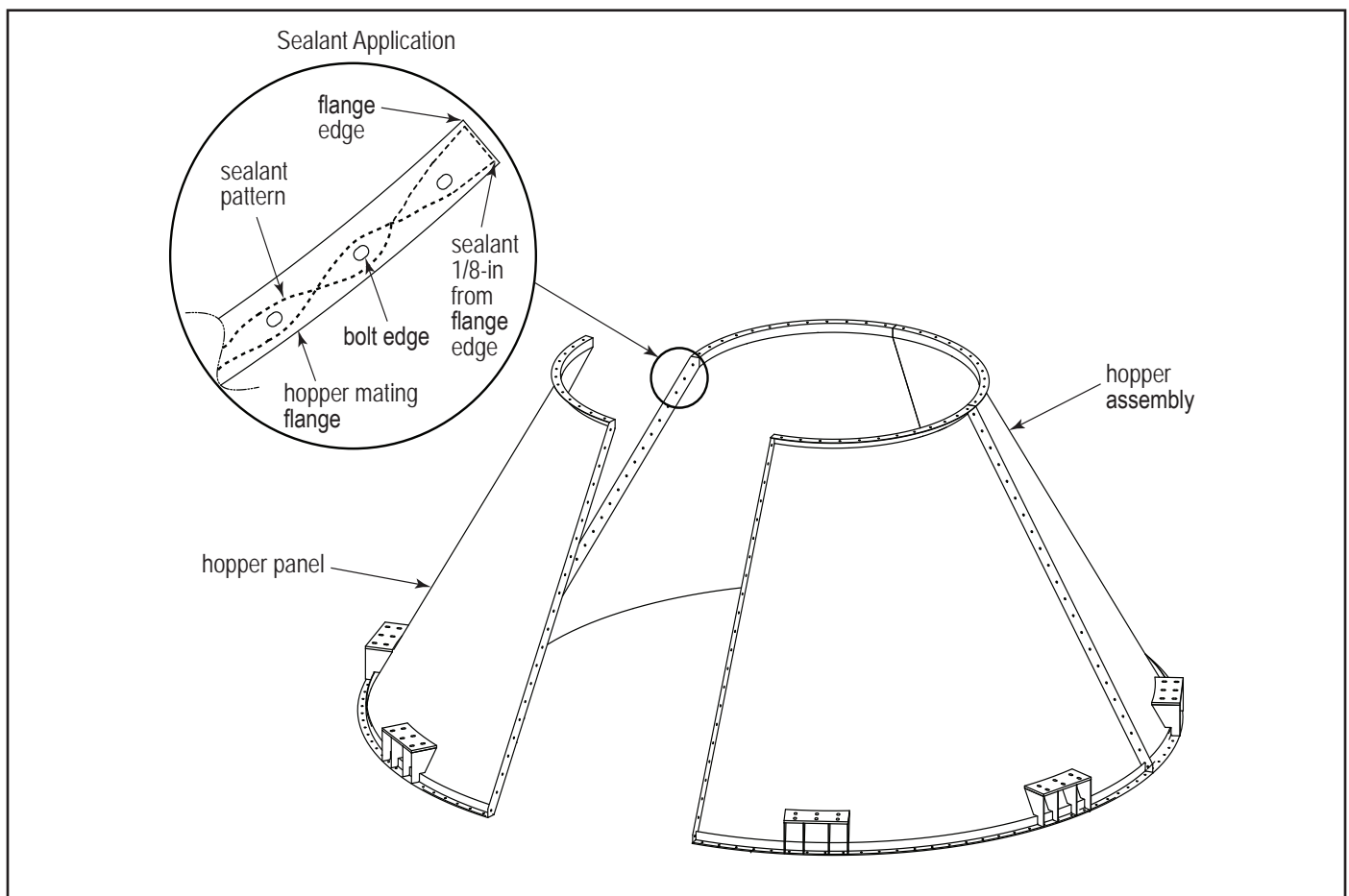
Tubesheet (Upside Down)
Bottom Connecting Plate



Tubesheet (Upright) Top Connecting Plate

Hopper and Transition Assembly

1. Mount the first hopper panel upside down on the tubesheet. In this step and subsequent steps, the tubesheet will be used as a template to ensure correct alignment when joining subassemblies together. Align the outer bolt pattern of the hopper panel with the corresponding pattern on the tubesheet. Do not apply sealant between the hopper panel and the tubesheet.
2. Temporary supports at the ends of each hopper panel may be required until the hopper ring is complete.
3. Before connecting the adjacent hopper panel, apply sealant to the mating flange within 1/8-in of both flange edges as shown.
4. Set the next panel and hand-tighten the hardware (connecting bolts should draw the adjoining flanges together but still allow for some slippage). Repeat steps until hopper assembly is complete.
5. After the hopper is assembled, apply sealant to the top of the upper flange as shown to prepare for the transition assembly to be set.
6. Lower the transition assembly onto the upper flange.
7. Align the hopper access door with a mating seam of the hopper assembly. This will force the transition flange's bolt pattern to straddle the centerline of the collector.



Hopper Assembly (Upside Down)

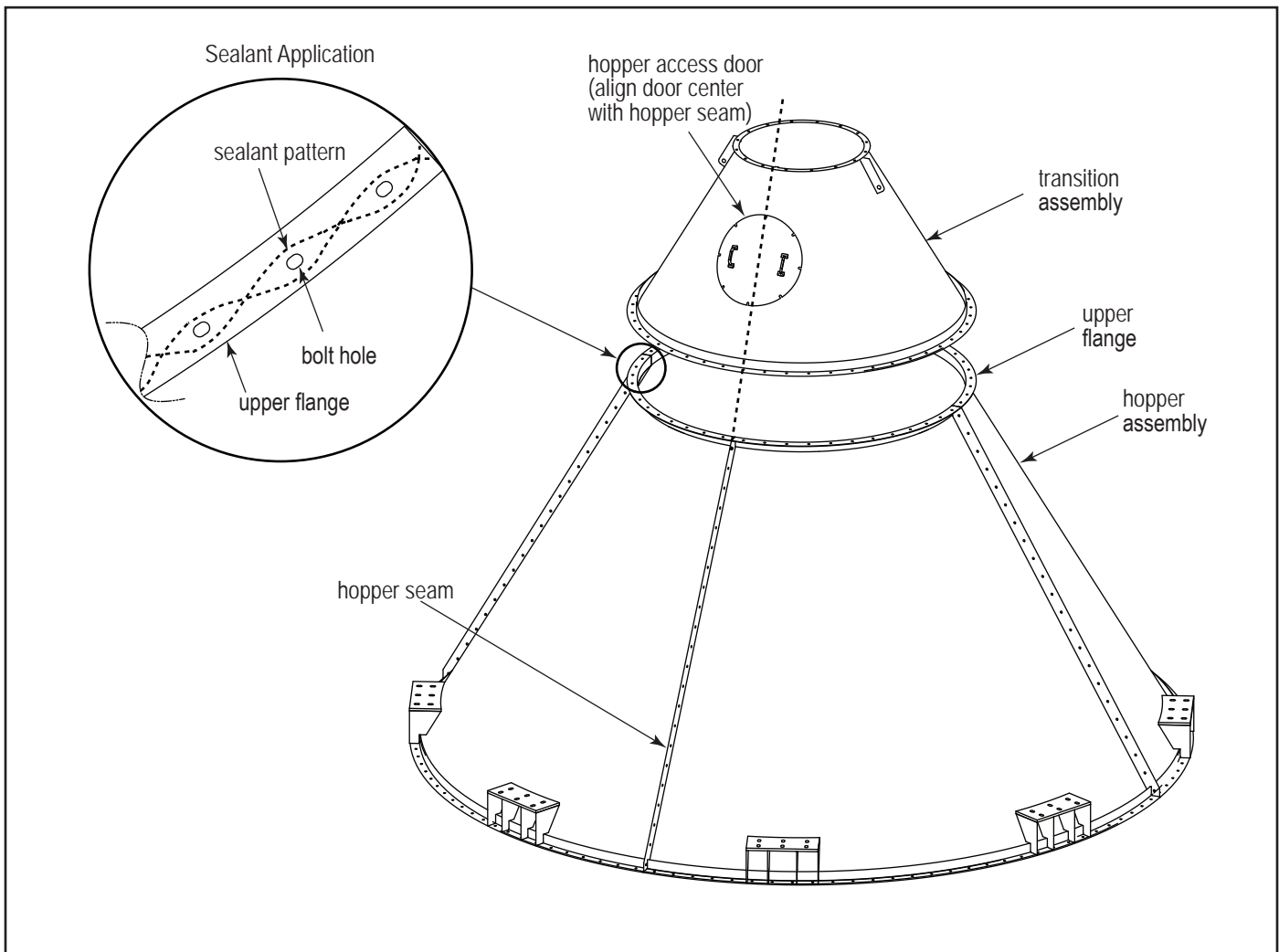
8. Insert all bolts connecting the transition assembly to the hopper assembly and tighten. Proceed by tightening all bolts of the hopper assembly.
9. After hopper assembly is completely bolted and tightened, undo any bolts connecting it to the tubesheet (if used).
10. Lift the hopper and rotate it to the upright position.



Use caution when lifting/rotating hopper. Keep tension on all straps/cables when lifting. Failure to comply may result in personal injury and/or property damage.

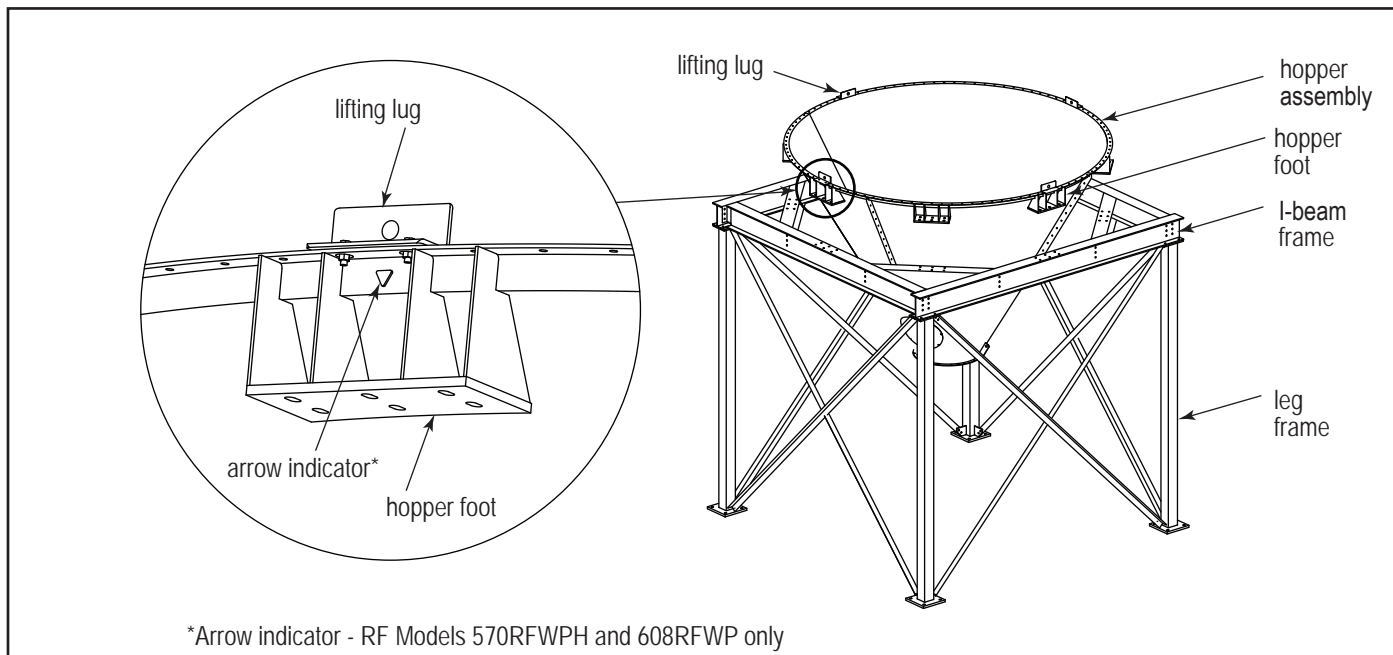
Water overflow drains are required if sprinkler/fire suppression system is installed.

11. Attach the four temporary lifting points with Grade 5 hardware at the marked locations (0, 90, 180 and 270) to the top of the hopper.



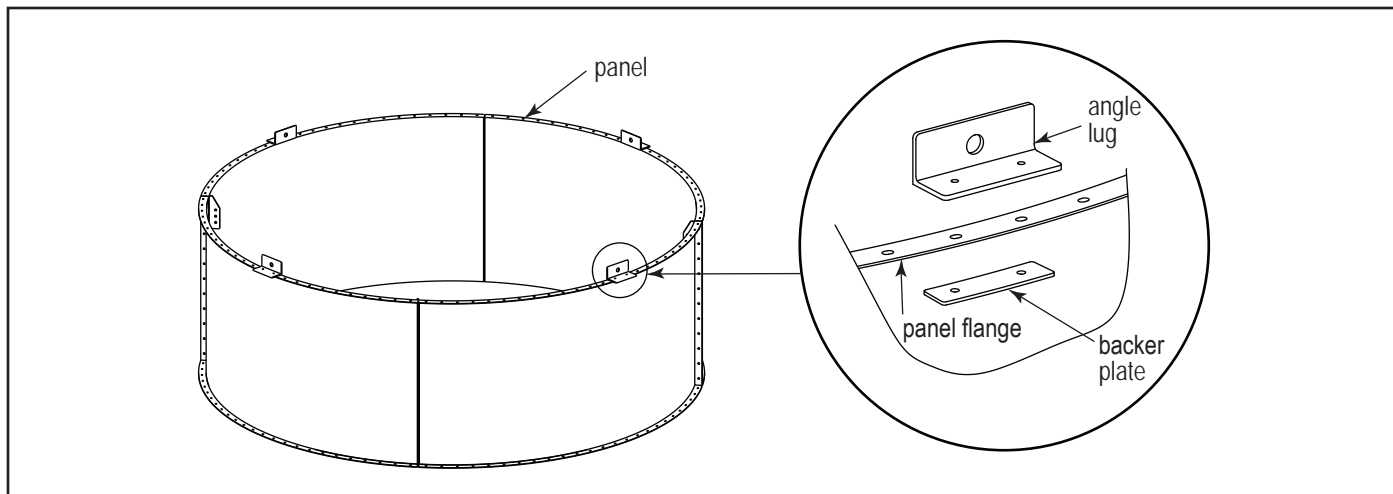
Transition Assembly (Upside Down)

12. On RF models 570RFPWH and 608RFPWH only, align the arrow indicators inside the hopper feet in the 0°, 90°, 180°, and 270° positions per the configuration drawing. See illustration below.
13. In this orientation, lower the hopper assembly into the leg frame. Fasten the hopper assembly securely to the I-beam frame with the provided 3/4-in hardware.
14. Remove and retain the four temporary lifting points and their mounting hardware for use on other sub-assemblies



Hopper to Leg Frame Installation

Note: Lifting points Bolt-On Usage - Use the provided bolt-on lifting points and grade 5 hardware when moving panels into position. Position the lugs such that excess swaying will be minimized. When lifting an assembly, use all four lugs with the backer plates attached. Never lift more than what is recommended in this manual.

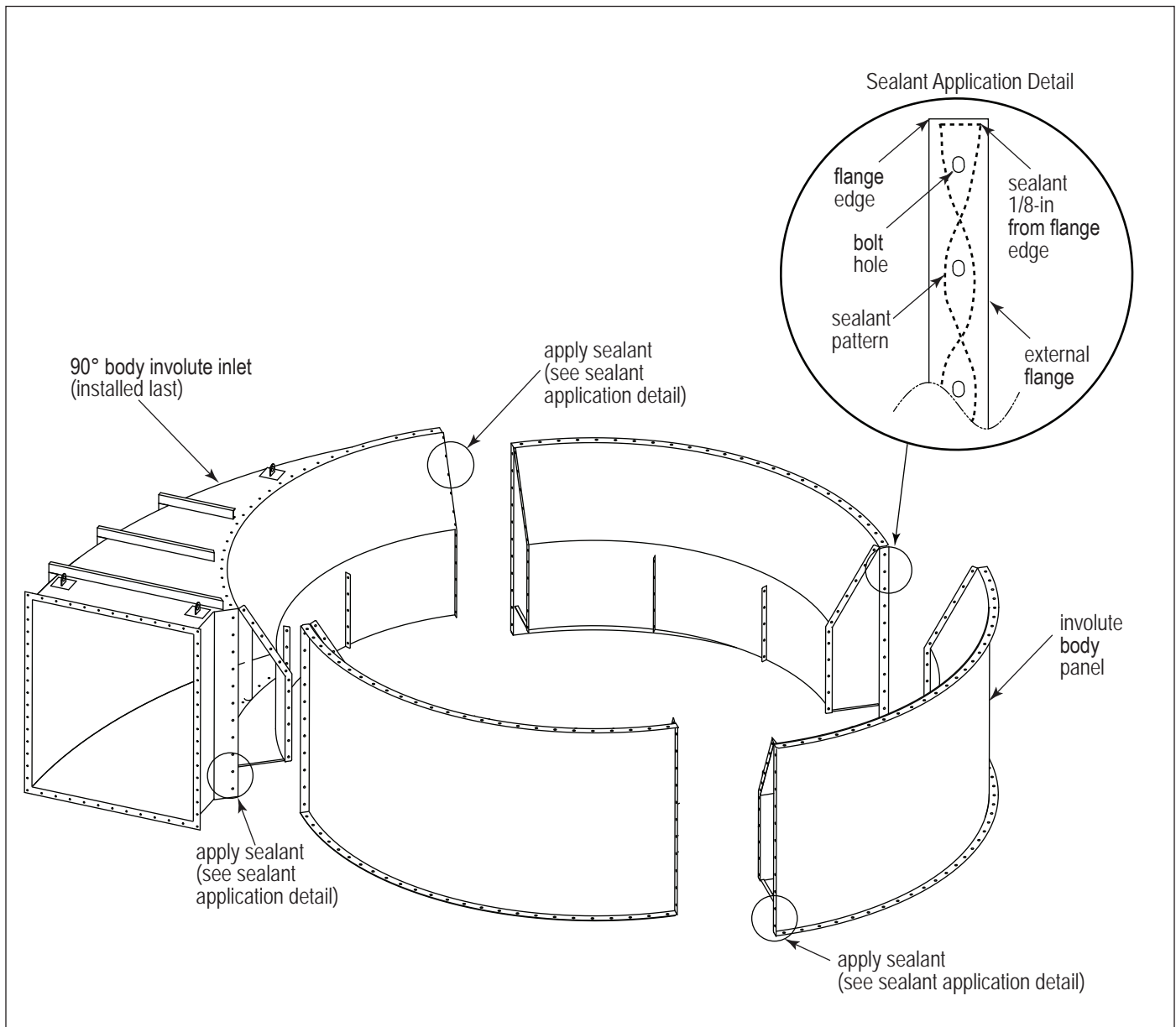


Bolt-On Lifting Points

Involute Inlet Assembly

1. Place the involute body panels on top of the tubesheet. The tubesheet is used to align the panels. Do NOT apply sealant between tubesheet and body panels. The 90° body involute inlet should be reserved and set into position last.

Prior to setting an adjacent panel, apply sealant to all external flanges within 1/8-in from flange edge as shown. Once the body panels are bolted and joined with the 1/2-in hardware, apply sealant to the 90° body involute inlet and set it into place.



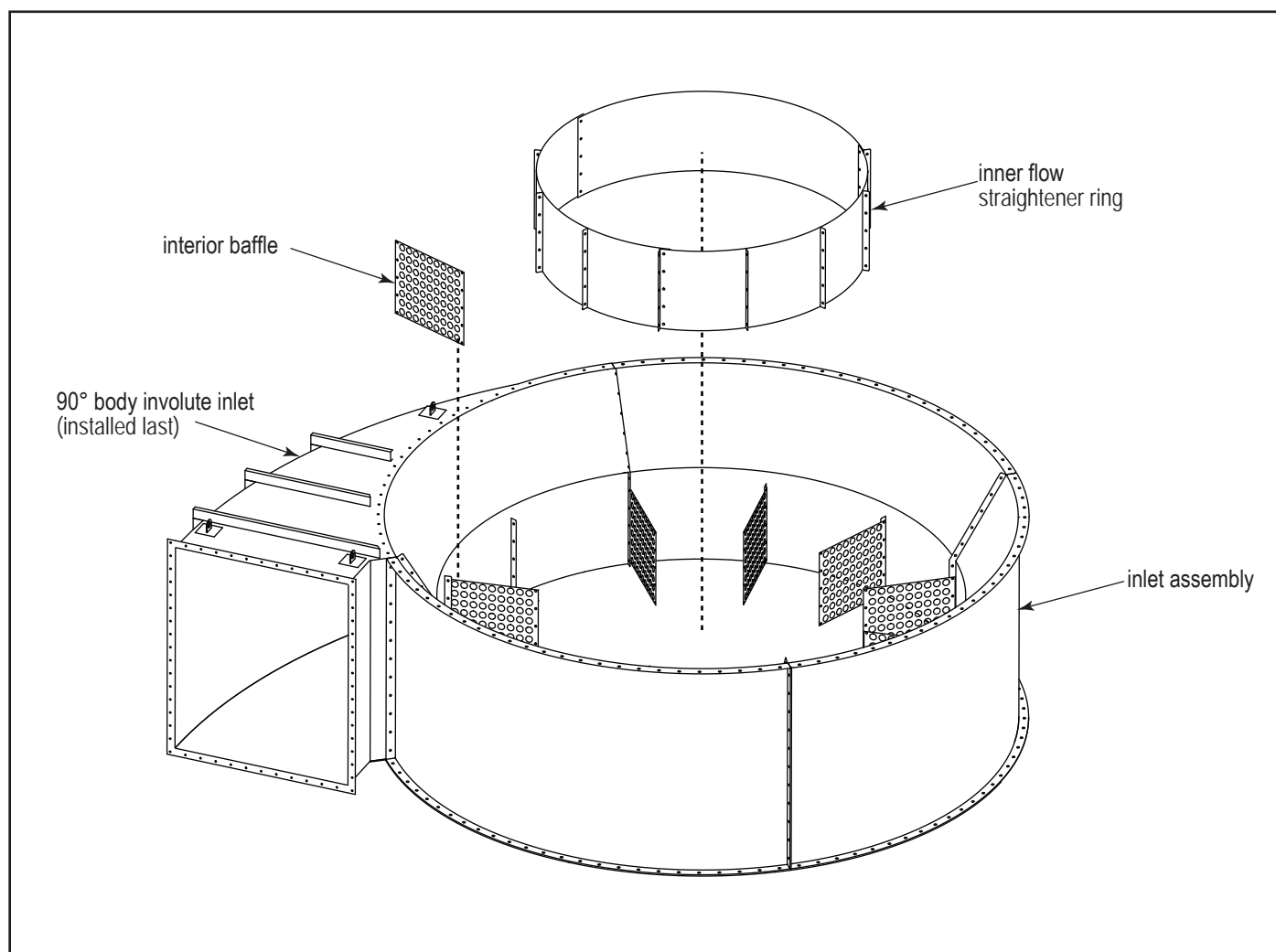
Involute Body Panel Inlet Assembly

2. After assembling the perimeter body panel assembly, install the interior baffles by bolting them to the inlet assembly.
3. Off to the side, assemble the inner flow straightener ring. The inner ring panels overlap each other to complete the ring. Orient all hardware bolting from the outside of the ring to the inside of the ring to eliminate any interference in the next step. Lift and lower the inner flow straightener ring into the center of the inlet as shown.

NOTICE

Improper installation of internal baffles and inner flow straightener ring will compromise structural integrity. Ensure proper installation of the internal baffles and inner flow straightener ring.

4. Rotate the inner flow straightener ring until all adjoining flanges make contact. Bolt together and tighten all bolts.



Inner Flow Straightener Ring Installation

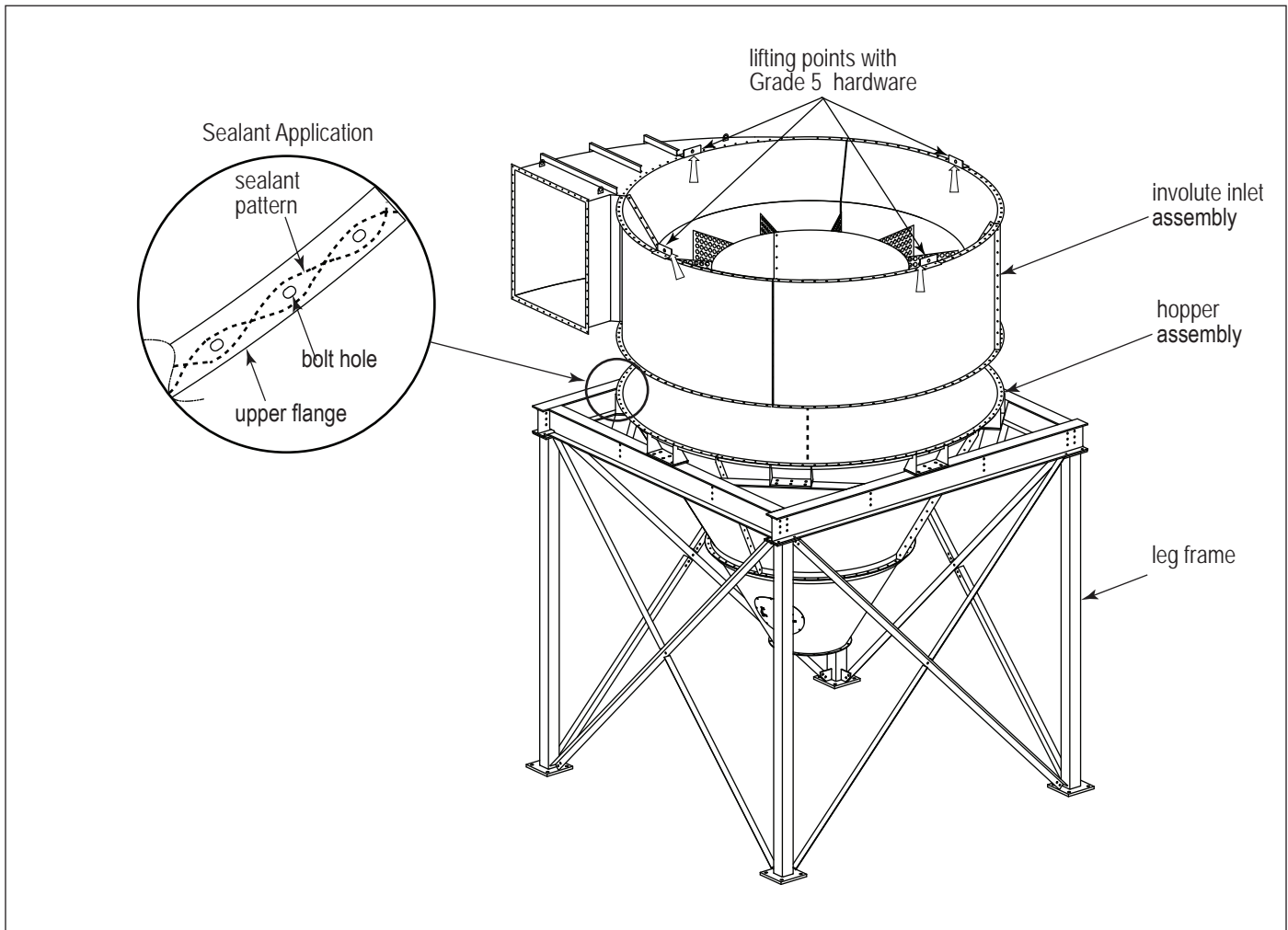
Note: Lifting points Bolt-On Usage - Use the provided bolt-on lifting points and grade 5 hardware when moving panels into position. Position the lugs such that excess swaying will be minimized. When lifting an assembly, use all four lugs with the backer plates attached. Never lift more than what is recommended in this manual.

5. Attach the four temporary lifting points with Grade 5 hardware at the marked locations (0, 90, 180 and 270) to the top of the hopper.
6. Apply sealant to the top of the hopper flange as shown. Properly attach and lift inlet assembly following lifting points bolt-on usage instructions previously shown. Lift inlet assembly into position while noting final desired orientation.



Lift the involute inlet assembly in a balanced fashion to eliminate any unnecessary swinging, tipping, or uneven lifting. Lifting with the (3) lifting lugs on the involute inlet will result in uneven lifting and cause damage to the inlet section.

7. Inspect the orientation of the inlet ensuring the inlet flange is parallel to the I-beam frame as shown.



Involute Inlet Assembly

Dirty Air Plenum Assembly for Involute Inlet

Note: For High Inlet Models, refer to Dirty Air Plenum with High Body Inlet Assembly.

1. Mount the first dirty air plenum body panel on the tubesheet. In this step and subsequent steps, the tubesheet will be used as a template to ensure correct alignment when joining subassemblies together. Align the outer bolt pattern of the dirty-air plenum body panel with the corresponding pattern on the tubesheet. Do not apply sealant between the dirty-air plenum body panel and the tubesheet.

Note: For collectors containing explosion vents, follow the panel arrangement as shown on the dirty air plenum 2SG Assembly Drawing shipped with the collector.



Prevent pinching by using drift pins or other appropriate guide tools when handling and installing one body panel to the next.

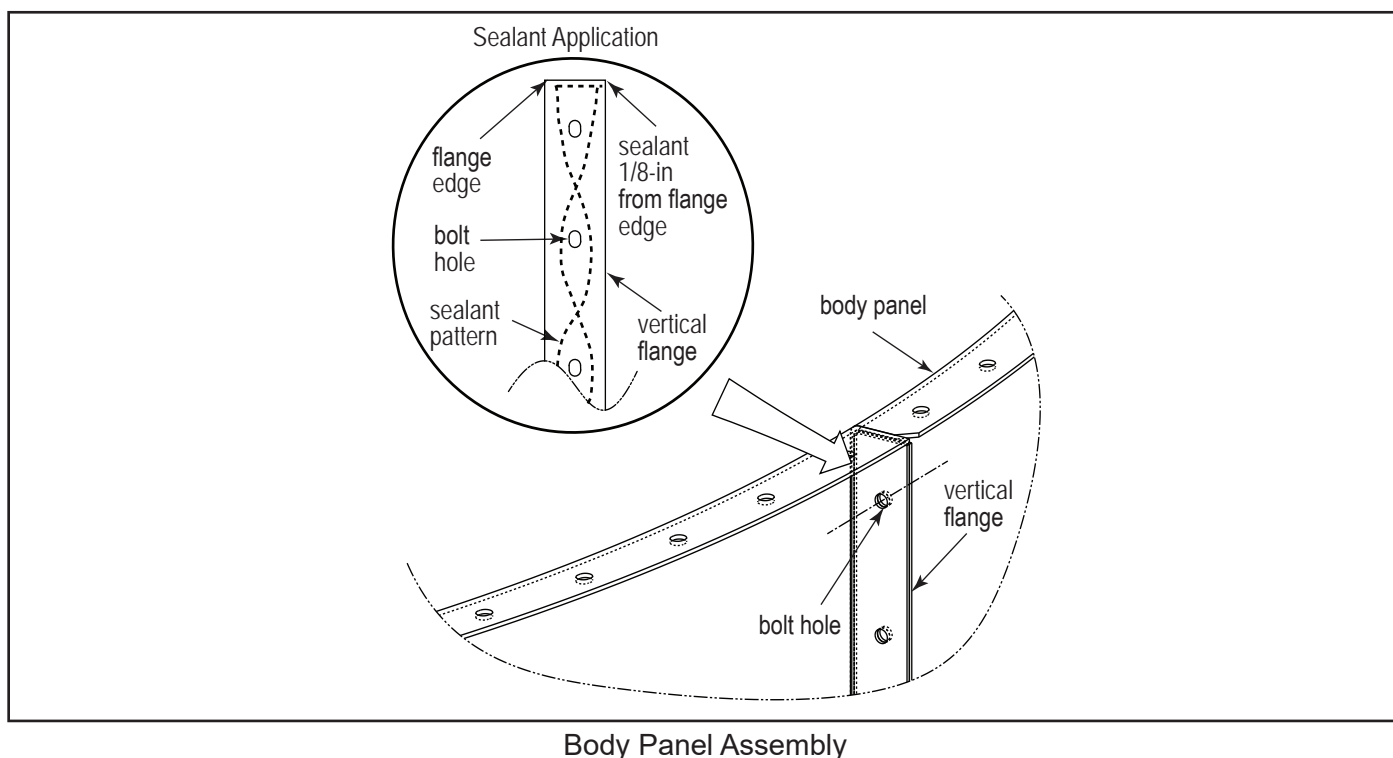
2. Once two or more panels are side by side, apply sealant to the vertical flange of the panel within 1/8-in of the vertical flange's top and bottom edge as shown and press up against the adjoining panel. Align the holes and insert the 1/2-in bolt hardware. Keep hardware hand-tightened.



Prevent pinching by using drift pins or other appropriate guide tools when handling and installing one body panel to the next.

3. Finish joining the body panels until a complete body panel ring is assembled.
4. Move the completed first body panel ring assembly (with hand-tightened hardware) off the tubesheet onto a level area using stand-offs (customer supplied) to avoid ground contact.

Note: Lifting points Bolt-On Usage - Use the provided bolt-on lifting points and grade 5 hardware when moving panels into position. Position the lugs such that excess swaying will be minimized. When lifting an assembly, use all four lugs with the backer plates attached. Never lift more than what is recommended in this manual.



5. Assemble the second ring on top of the tubesheet. Similar to the first ring, the tubesheet will serve as a template. For a 12-ft bag length collector, the next ring will be a 24-in tall ring. For a 10-ft bag length collector, the next ring will be a 66-in tall ring. Use the long locating bolts included with the lifting point kit to LOOSELY JOIN the panel rings. Install one bolt near the bottom of the vertical flange and one bolt near the top for each connection. Do not apply sealant between the vertical flanges at this point.

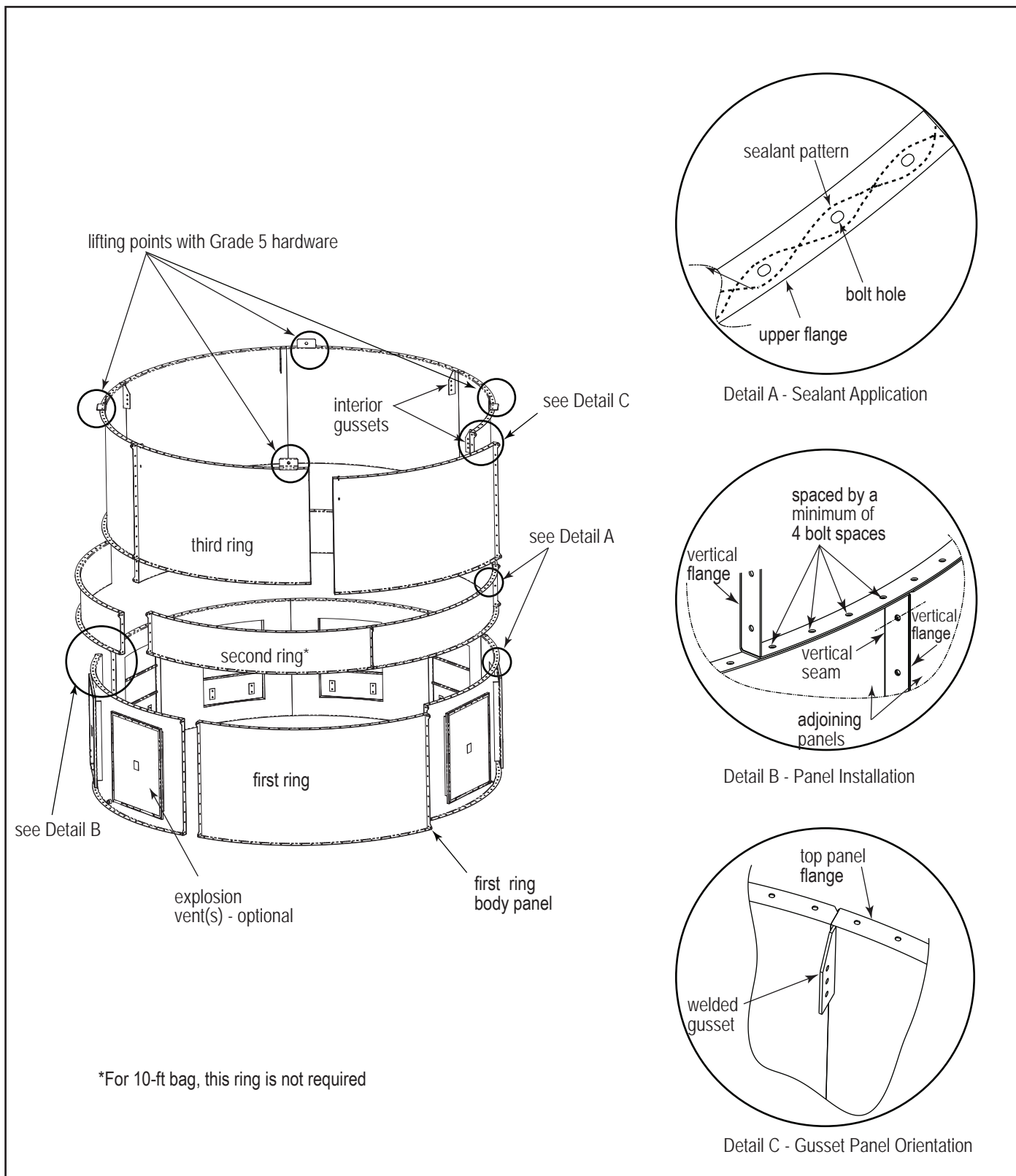
Note: The upper most ring of the dirty air assembly uses panels with gussets welded to them. Gussets must be oriented to the top of the ring. These will be used to secure the tubesheet in later steps. See Detail C.

6. Apply sealant to the top flange of the first body panel ring. See Detail A.
7. Properly attach the lifting points with the Grade 5 hardware to the second ring. Lift the second ring and set on top of the first ring.

Note: Lifting points Bolt-On Usage - use the provided bolt-on lifting points and grade 5 hardware when moving panels into position. Position the lugs such that excess swaying will be minimized. When lifting an assembly, use all four lugs with the backer plates attached. Never lift more than what is recommended in this manual.

Vertical seams on each section must be spaced apart by a minimum of 4 bolt spaces. See Detail B.

8. Align all bolt holes between the first and second rings as necessary. Before bringing together vertical flanges on adjacent panels, apply sealant following detail A. Once aligned, install the standard hardware, hand tighten and remove the long locating bolts.
9. For a 12-ft bag length collector, the third and final dirty air plenum ring will be 66-in tall. Assemble the ring following previous steps 5-8. See Dirty Air Plenum Assembly illustration.
10. Tighten all hardware per the hardware size table in the lifting section of this manual.
11. Set the completed dirty air plenum assembly off to the side. Use standoffs under the flanges to keep them off grade.

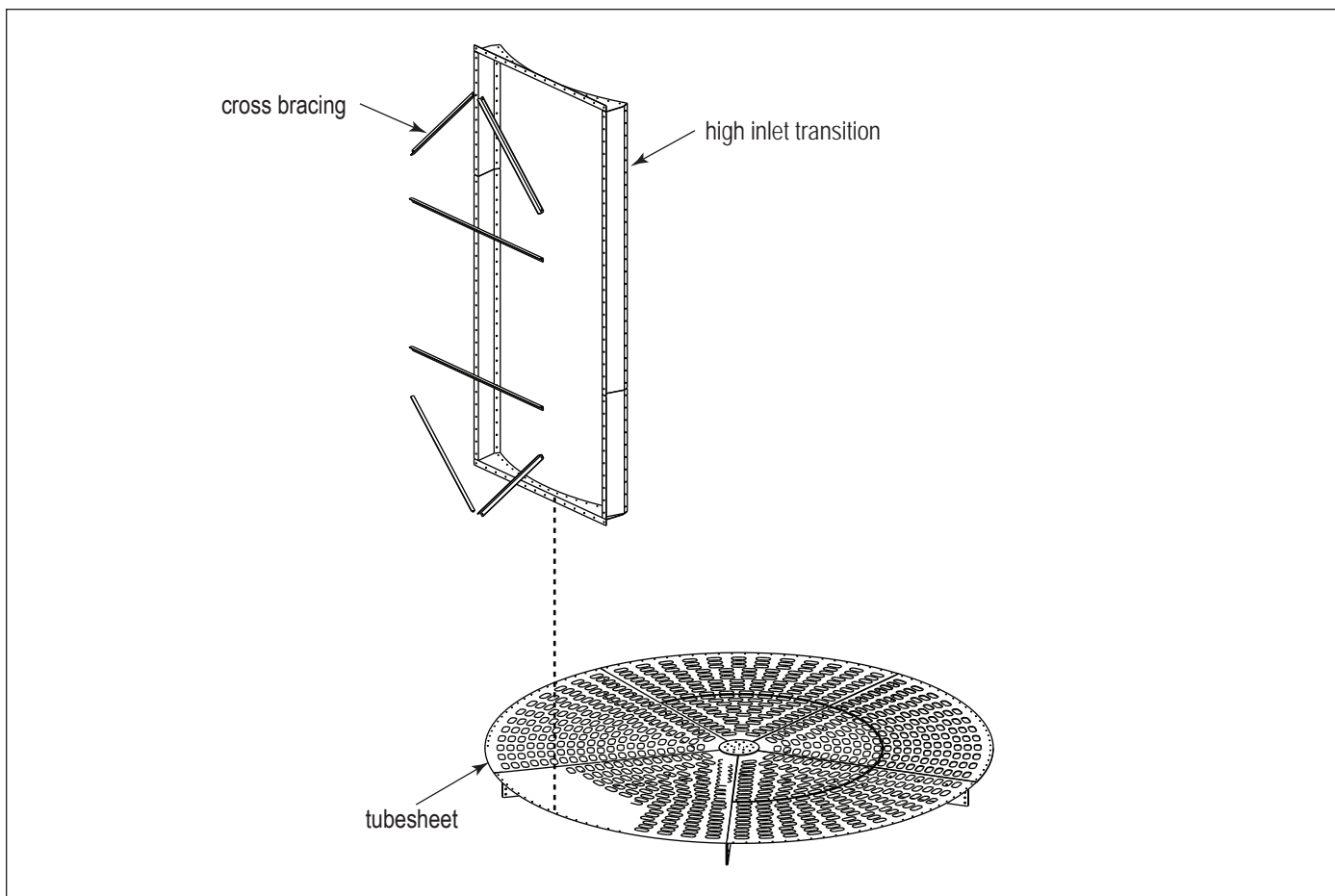


Dirty Air Plenum Assembly for Involute Inlet (12-ft Bag Shown)

Dirty Air Plenum with High Body Inlet Assembly

1. Locate the high inlet transition and attach the temporary cross bracing with the provided nuts and bolts.
2. Set the high inlet transition on the tubesheet (do not apply sealant to the tubesheet) so it lines up with the blank portion of the tubesheet that will not have bags installed. Use the tubesheet to help align the panels until all is assembled.

Note: Not applicable to involute inlet.

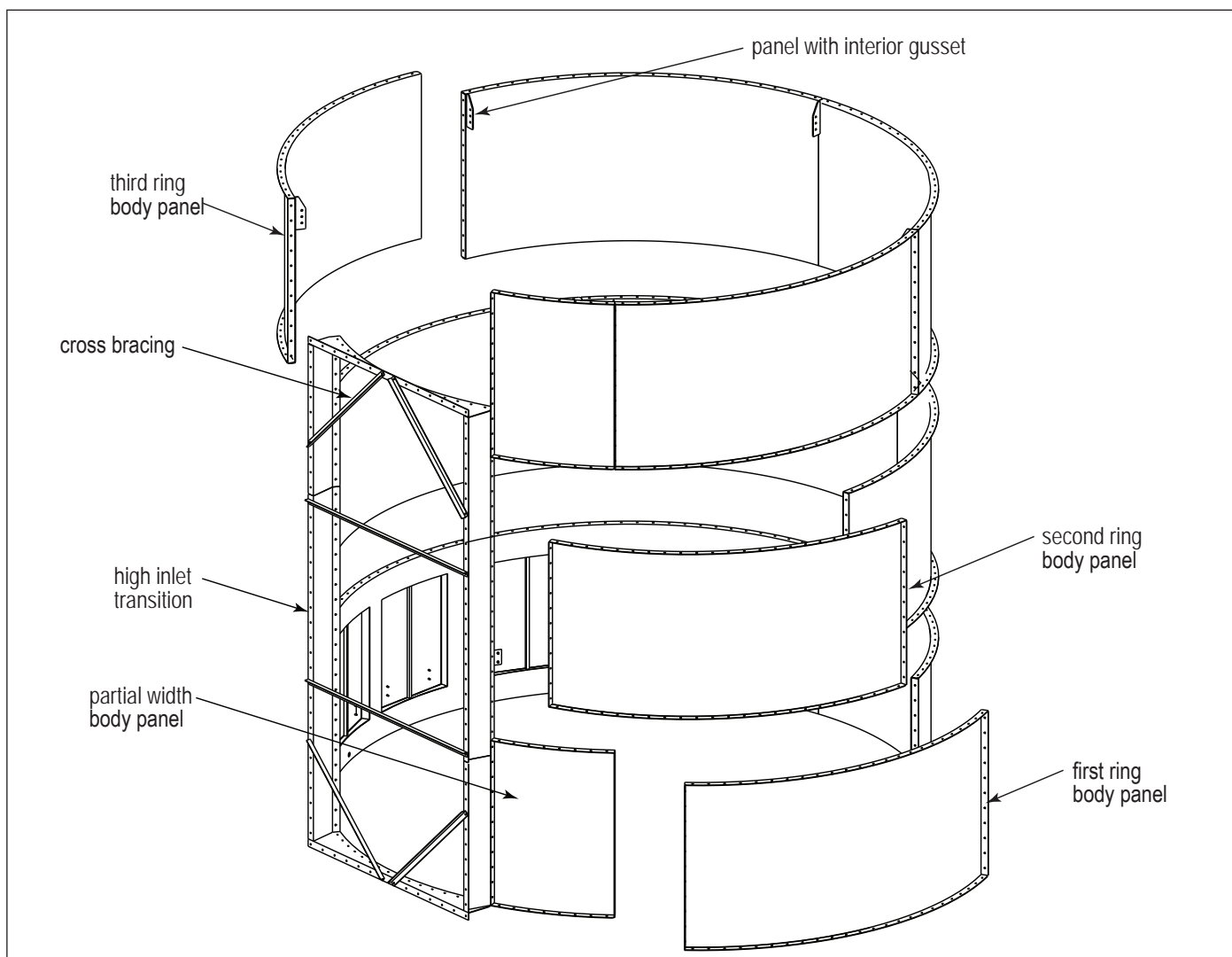


High Inlet Transition Installation

3. Locate the three 66-in tall partial width body panels. Do not use panels with interior gussets on the first or second ring. Panels with interior gussets are used for the top (third) ring.
4. Set the first 66-in partial width body panel onto the tubesheet (do not apply sealant to the tubesheet) to the right of the inlet transition.



Prevent pinching by using drift pins or other appropriate guide tools when handling and installing one body panel to the next.



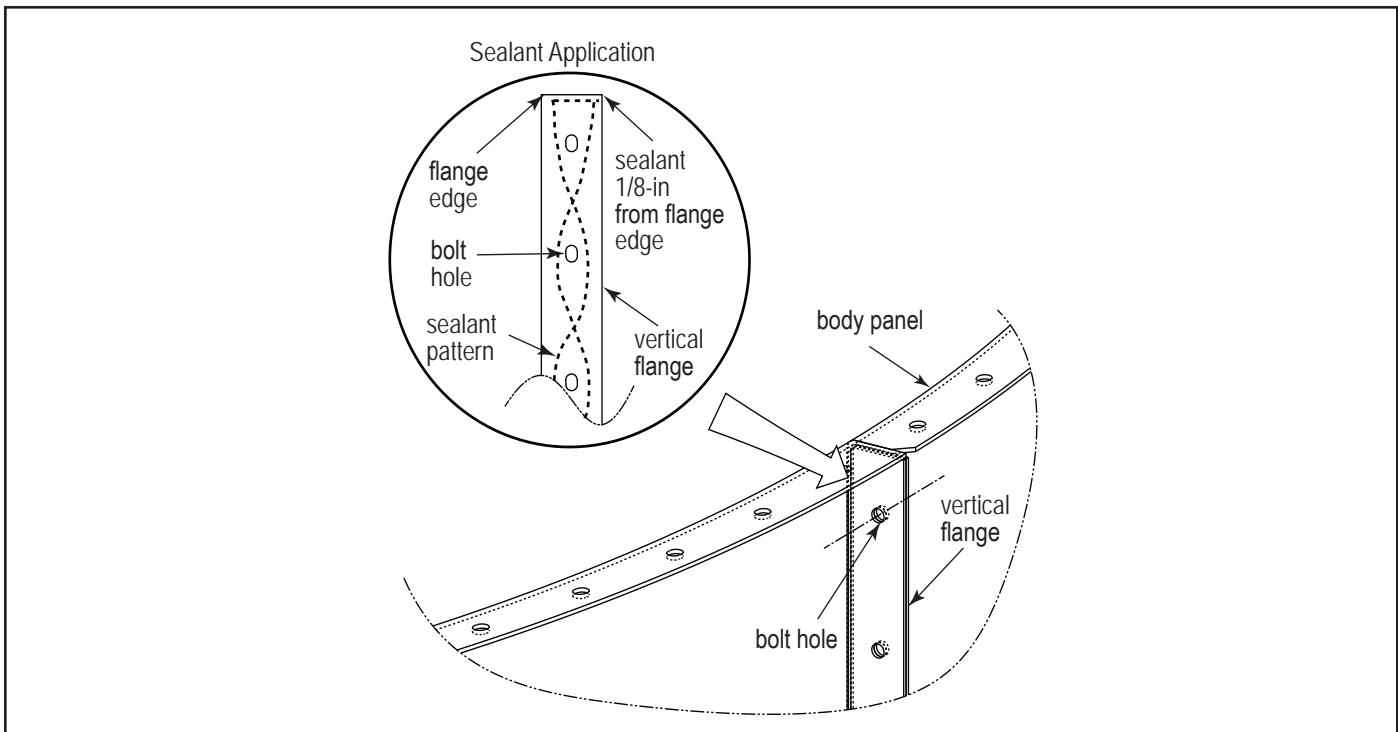
Dirty Air Plenum Assembly with High Inlet (776/851 Size shown)

5. For Non-Explosion Vented Dirty Air Plenum: Locate a standard 66-in tall panel and place it in the next, counter-clockwise position relative to the first partial width panel. Join panels following instructions below. Continue placing standard panels until the space for the high inlet is all that remains.

For Explosion Vented Dirty Air Plenum: For the 570RFWPH model, locate a standard 66-in tall panel and place it in the next, counter-clockwise position relative to the first partial panel. Join following instructions below. Continue by placing explosion vent panels until reaching the high inlet. Donaldson-supplied customer drawing takes precedence over these manual instructions.

For the 776RFWPH and 851RFWPH, the next (2) panels will be standard, non-explosion vent panels. The remaining (2) panels in that ring will have (3) explosion vents each. Donaldson-supplied customer drawing takes precedence over these manual instructions.

6. Once two or more panels are side by side, apply sealant to the vertical flange of the panel within 1/8-in of the vertical flange's top and bottom edge as shown and press it up against the adjoining panel. Align the holes and insert the supplied bolt hardware. Keep hardware hand-tightened.



Panel Installation

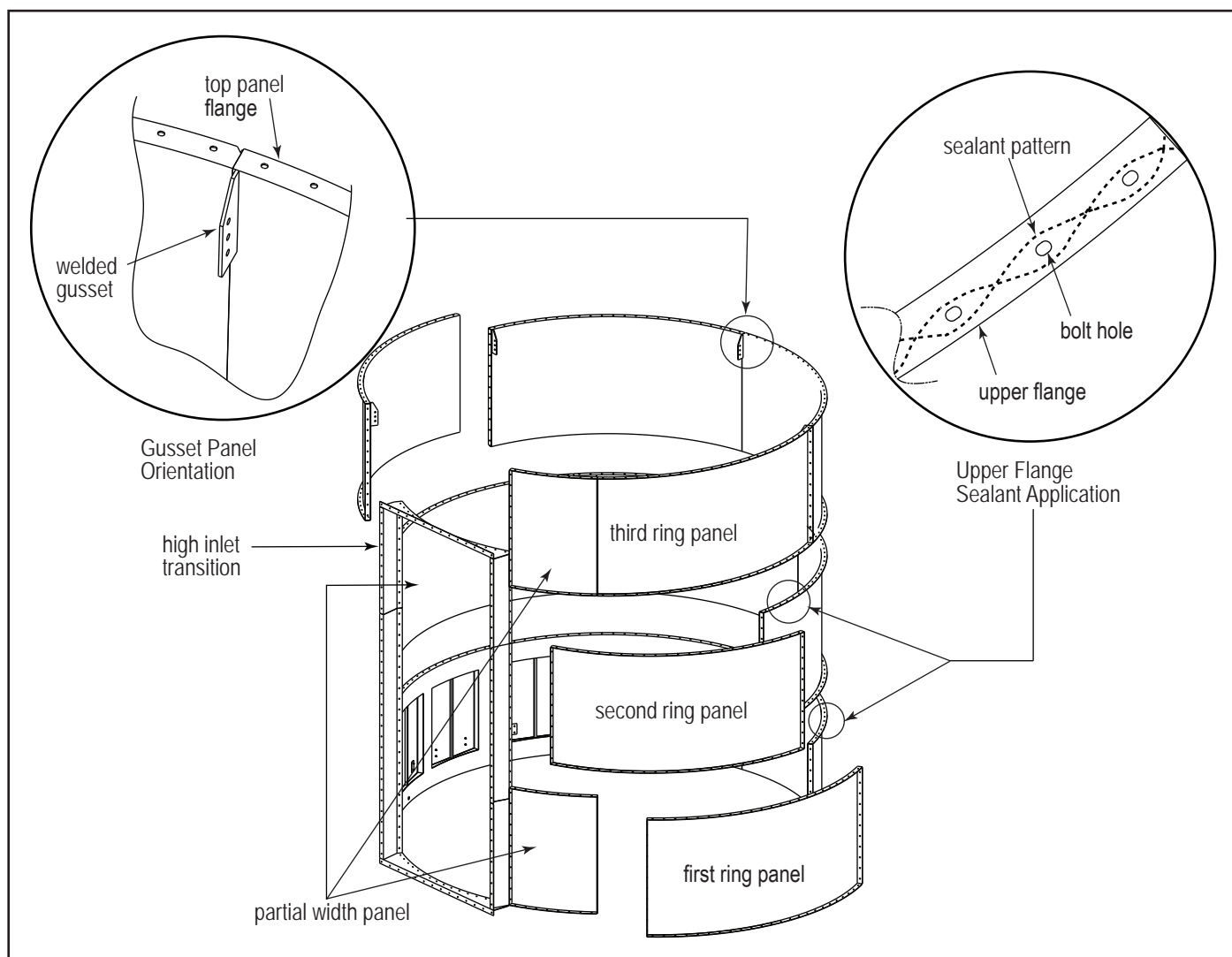
7. Upon completing the first ring of panels, apply sealant to the top of the first ring's flange.
8. Install a second ring of panels by placing a full sized 66-in tall panel on top of the partial/full panel seam by following step 6.
Note: The vertical seams between body panel assemblies must be spaced by a minimum of 4 bolt spaces. Insert hardware and hand tighten.
9. Continue setting panels around the circle counter-clockwise. Another partial width panel will complete this ring. Attach the panels as previously described.

Once the second ring is complete, apply sealant to the second ring's upper flange.

10. Assemble the third ring of panels starting with spanning the partial/full panel seam from the second ring (ensure two partial width panels do not stack on top of one another). Then attach the gusseted panels in a similar manner to the first ring. Install and hand-tighten hardware on the Dirty Air Plenum from top to bottom.

Note: The panels for this ring contain a welded gusset, which will be used to position and bolt the tubesheet into place at a later time.

11. Properly attach lifting lugs and lift dirty air plenum with the lifting lugs per note under step 7 in the Dirty Air Plenum Assembly for Involute Inlet section.
12. Set the dirty air plenum off to the side but within reach of the crane. Use standoffs (customer supplied) under the flanges to keep the plenum off of grade.
13. If applicable, install optional explosion vents by referring to the Donaldson-supplied drawing to finish explosion vent assembly and vent installation to the collector.



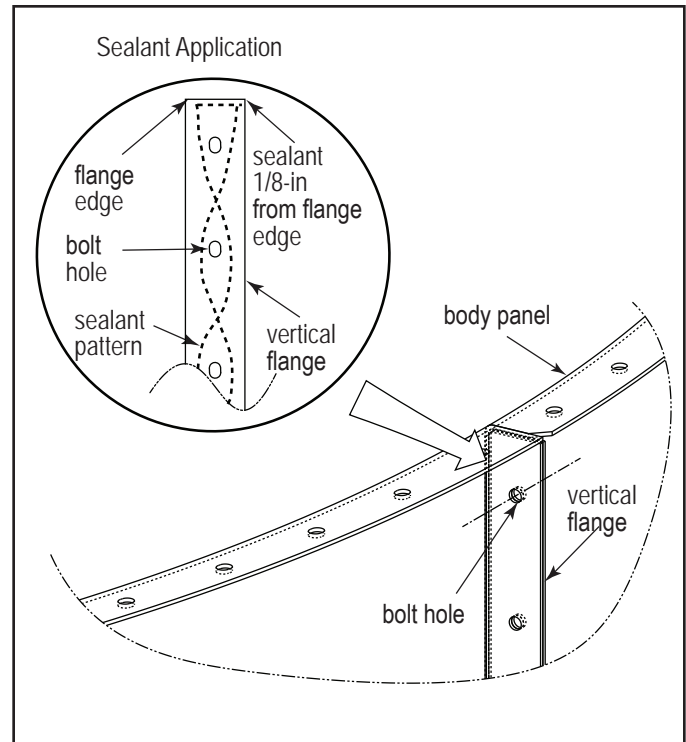
Dirty Air Plenum Assembly - Sealant Application

Clean Air Plenum Assembly

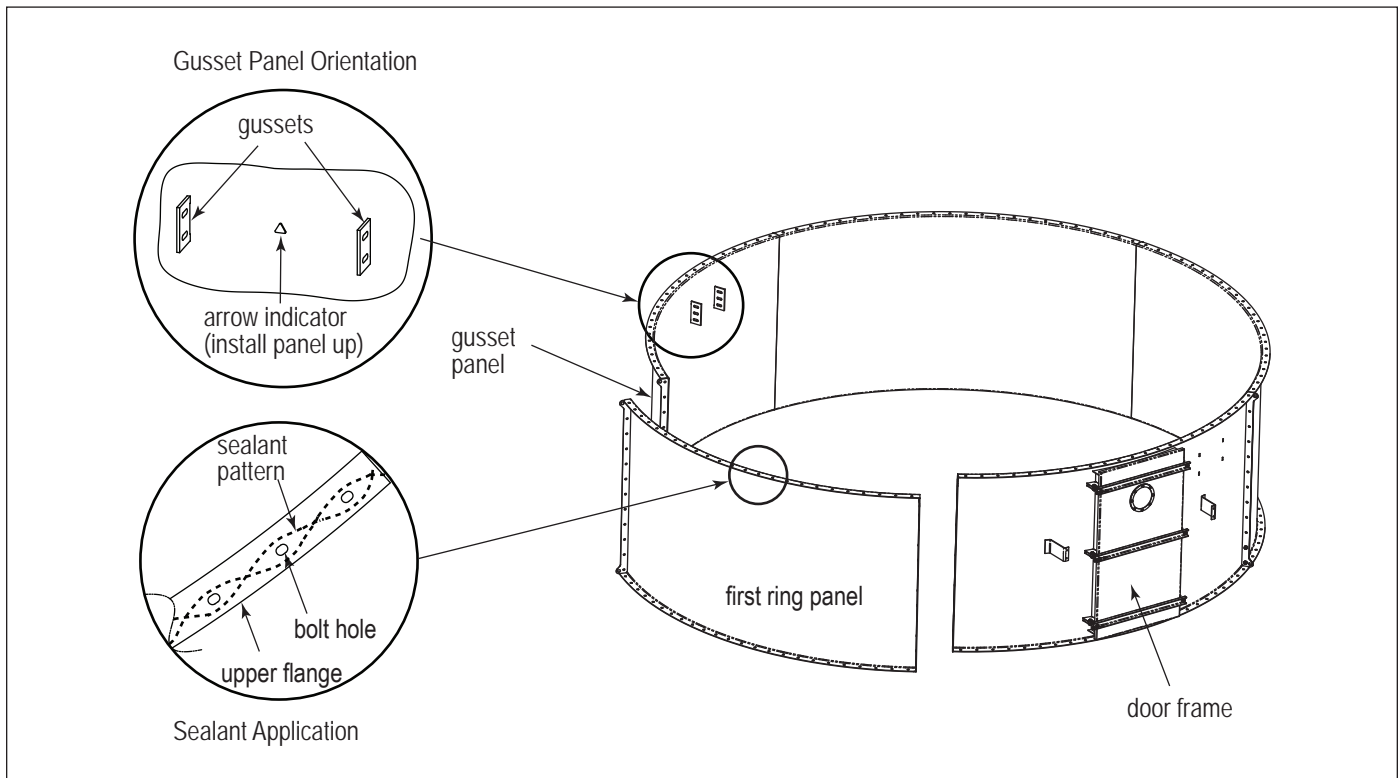
1. Set the 66-in tall clean air first ring body panels onto the tubesheet. The tubesheet will be used to align the panels. Do not apply sealant to the tubesheet.
2. Once two panels are side by side, apply sealant to the vertical flange of the panel within 1/8-in of the vertical flange's top and bottom edge as shown and press up against the adjoining panels. Align the holes and insert the 1/2-in bolt hardware. Keep hardware hand-tightened. The first ring of clean air plenum includes the door frame panel and the cleaning system's H-frame gusset panel.

Note: The panel containing the welded gussets must be opposite the door frame as shown. This will be used for the cleaning drive H-frame for later installation. There is an arrow indicator denoting which direction is up as shown.

3. After assembling first ring, apply sealant to the top flange of the first ring as shown.



Body Panel Installation



Clean Air Plenum First Ring Assembly

4. Prepare to assemble the second ring. The second ring includes a unique outlet panel as shown.

Note: The placement of the outlet is critical to ensure proper orientation. Consult the original order or Donaldson-supplied customer drawing to determine where to position the outlet. The arrow indicator on the outlet panel denotes which direction is up as shown.

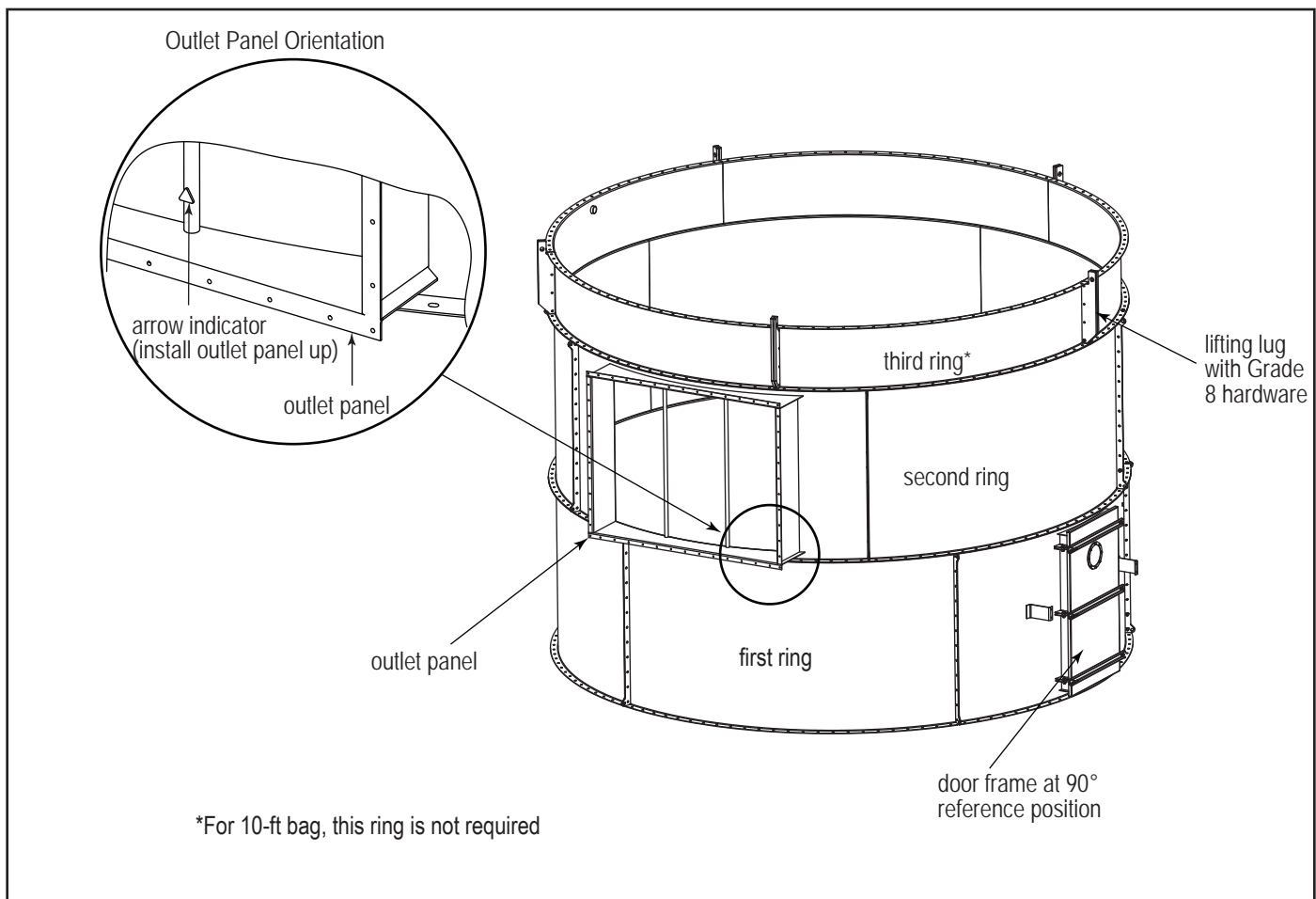


Lifting lugs installed to the Clean Air Plenum require Grade 8, 1/2-in diameter hardware supplied with collector. Using any other grade may result in lifting lug failure.

Note: The vertical seams between body panel assemblies must be spaced apart by a minimum of 4 bolt spaces. Insert hardware and hand-tighten.

5. Follow the same procedure as on the Dirty Air Plenum Assembly section for installing the remaining ring sections on the Clean Air Plenum.

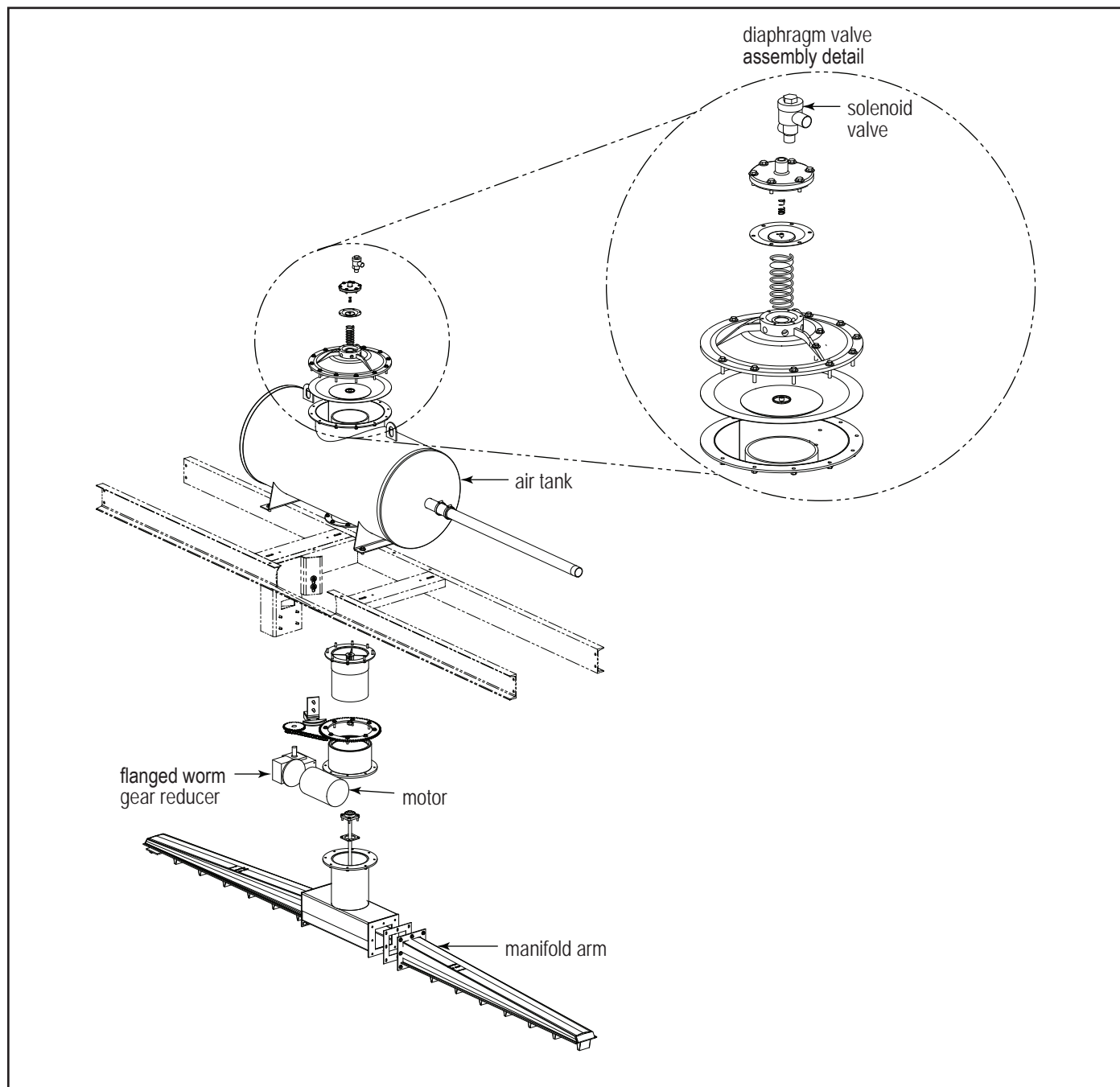
6. For a 12-ft bag length collector, the third and final clean air plenum ring will be 24-in tall. Assemble ring following the same procedure as previous rings. Attach the 4 hole 3/4-in lifting lugs on the outside of the collector using the grade 8, 1/2-in diameter hardware per drawing. The 4 hole lifting lugs will attach to the second ring for the 10-ft bag Clean Air Plenum.
7. Ensure all hardware is tightened per the specification given previously in this manual.
8. Set the clean air plenum off to the side but within reach of the crane. Use standoffs (customer supplied) under the flanges to keep them off of grade.



Clean Air Plenum (with 12-ft Bag Shown)

Cleaning System Operation

The RF cleaning system automatically cleans each bag at least once every four minutes. During the filter cleaning cycle, a solid-state timer is used to energize a solenoid valve and controls the open and close time of the diaphragm valve. An air reservoir stores the pressurized air. When the solenoid is activated, the diaphragm valve opens and a high volume of pressurized air is directed through the manifold arms and into the filter bags dislodging the dust cake. The dislodged dust cake then falls into the hopper where it is discharged into a drum or bin, rotary valve, screw conveyor, or pneumatic conveying system.



Cleaning Mechanism (RFWP Shown)

Cleaning Mechanism Installation

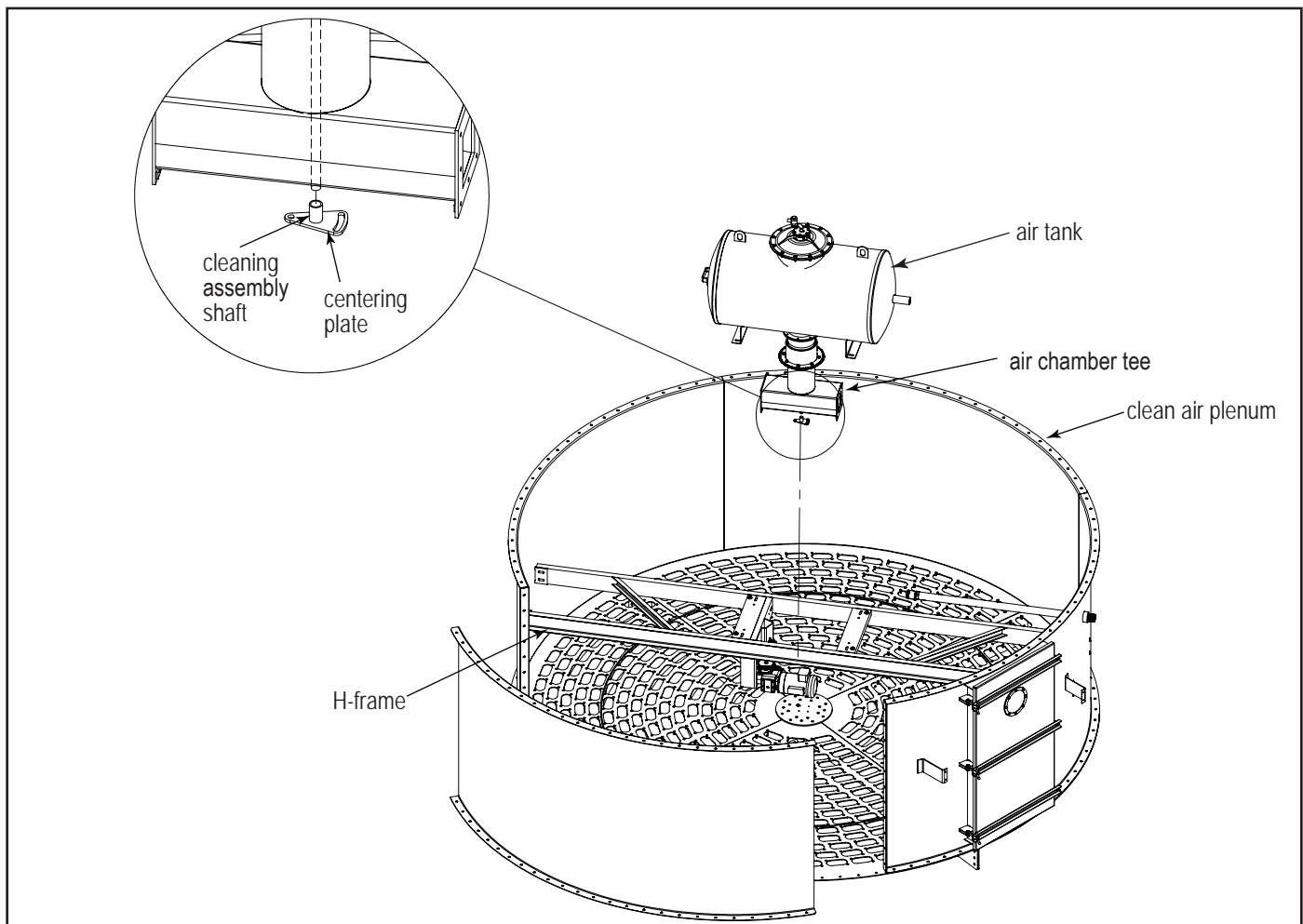
The H-frame for the cleaning system can now be installed into the Clean Air Plenum.

1. Lift the H-frame into position, ensuring it remains horizontal throughout the lifting and lowering process. Lower the H-frame into the Clean Air Plenum.



Prevent pinching by using drift pins or other appropriate guide tools when lowering the H-frame into position.

2. Bolt the H-frame into position using 1/2-in hardware, ensuring it is parallel relative to the Clean Air Plenum body flanges.
3. Apply sealant to the bottom bolt flange of the air tank.
4. Bolt the Air Chamber Tee to the Air Tank with 3/8-in hardware per the provided print.
5. Lower the Air Tank assembly into the clean air plenum and into the H-frame as shown.
 - a. Slide the centering plate onto the cleaning assembly shaft and temporarily secure it to the shaft with tape. Failure to do so will result in re-lifting the air tank at a later time.
 - b. Square the air tank assembly and connect the (4) 1/2-in corner bolts, which holds the air tank assembly to the H-frame. Leave connecting hardware hand-tightened at this time.



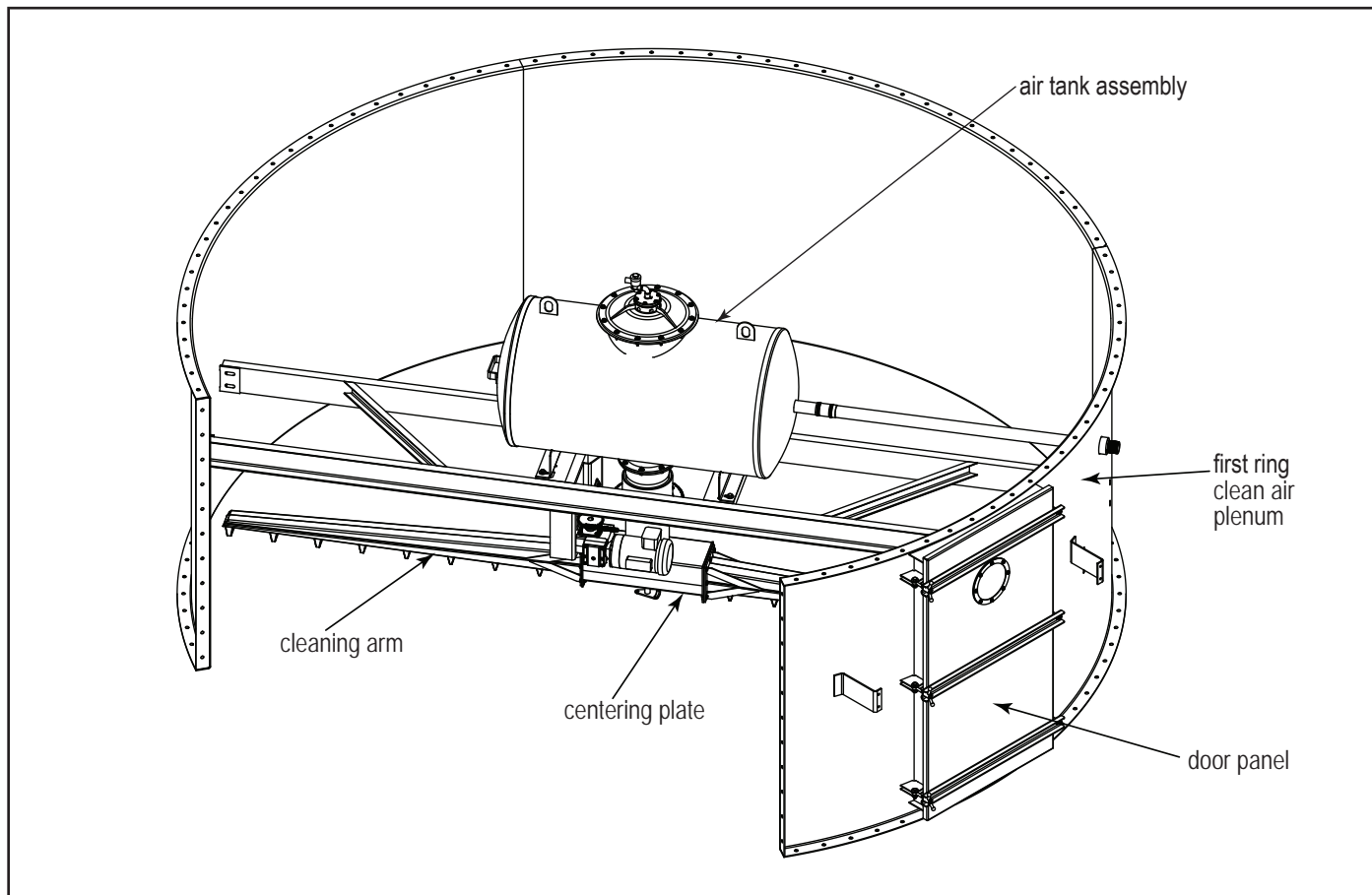
Cleaning Mechanism Installation

6. Install the cleaning arms to the Air Tank Assembly (reference the included Cleaning Assembly drawing AD3627301 or AD3627302 depending on size). The Centering Plate found at the bottom of the shaft of the rotating Air Chamber Weld will later be installed to the tubesheet (after collector installation).



Damage may occur to the rotating arms if interference is made while lifting or assembling body sections.

Prevent pinching by using drift pins or other appropriate guide tools when handling and installing the cleaning system components.



Cleaning Arm Installation

Collector Body Assembly for Higher Crane Capacity : Rated to Lift Combined Load of Dirty Air Plenum, Tubesheet, Clean Air Plenum, and Roof

Note: Ensure the crane capacity is rated for the combined load of the Dirty Air Plenum, Tubesheet, Clean Air Plenum, and Roof before following the below collector body assembly procedure. If a lower crane capacity is used, follow collector body assembly instructions.



Do not lift collector body assemblies from any flanges found on the inlet, outlet, or doorways.

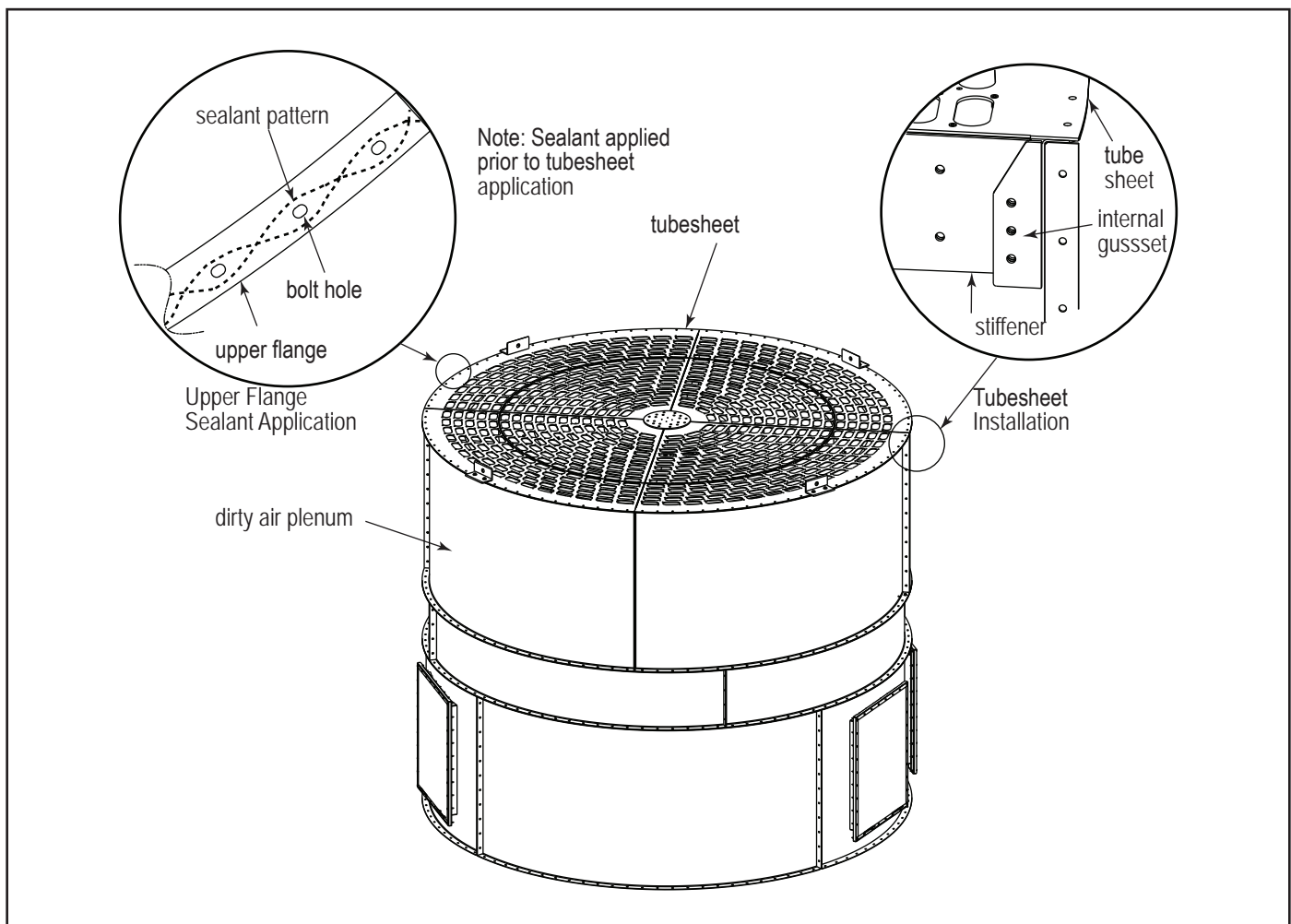
Use the provided bolt-on lifting lugs in the appropriate manner and do not lift more than the specified weight.

Only lift rings and sections when the load is balanced.

1. Apply sealant to the top flange of the dirty air plenum collector body assembly as shown.
2. Lift the tubesheet onto the dirty air plenum and slowly lower the tubesheet into position. Tubesheet stiffeners will be facing down.

Note: If installing a RF with high inlet, make sure blank area of tubesheet is aligned with the high inlet opening of the dirty air plenum.

3. While the tubesheet is still off the flange but the radial stiffeners are in the dirty air plenum body, rotate the tubesheet clockwise (from top) until the stiffeners make contact with the internal gussets of the dirty air plenum as shown.



Tubesheet Installation (Model RFWP shown)

- Lower the tubesheet into position. Insert only the 5/8-in hardware required to connect the tubesheet radial stiffeners to the internal gussets and tighten.

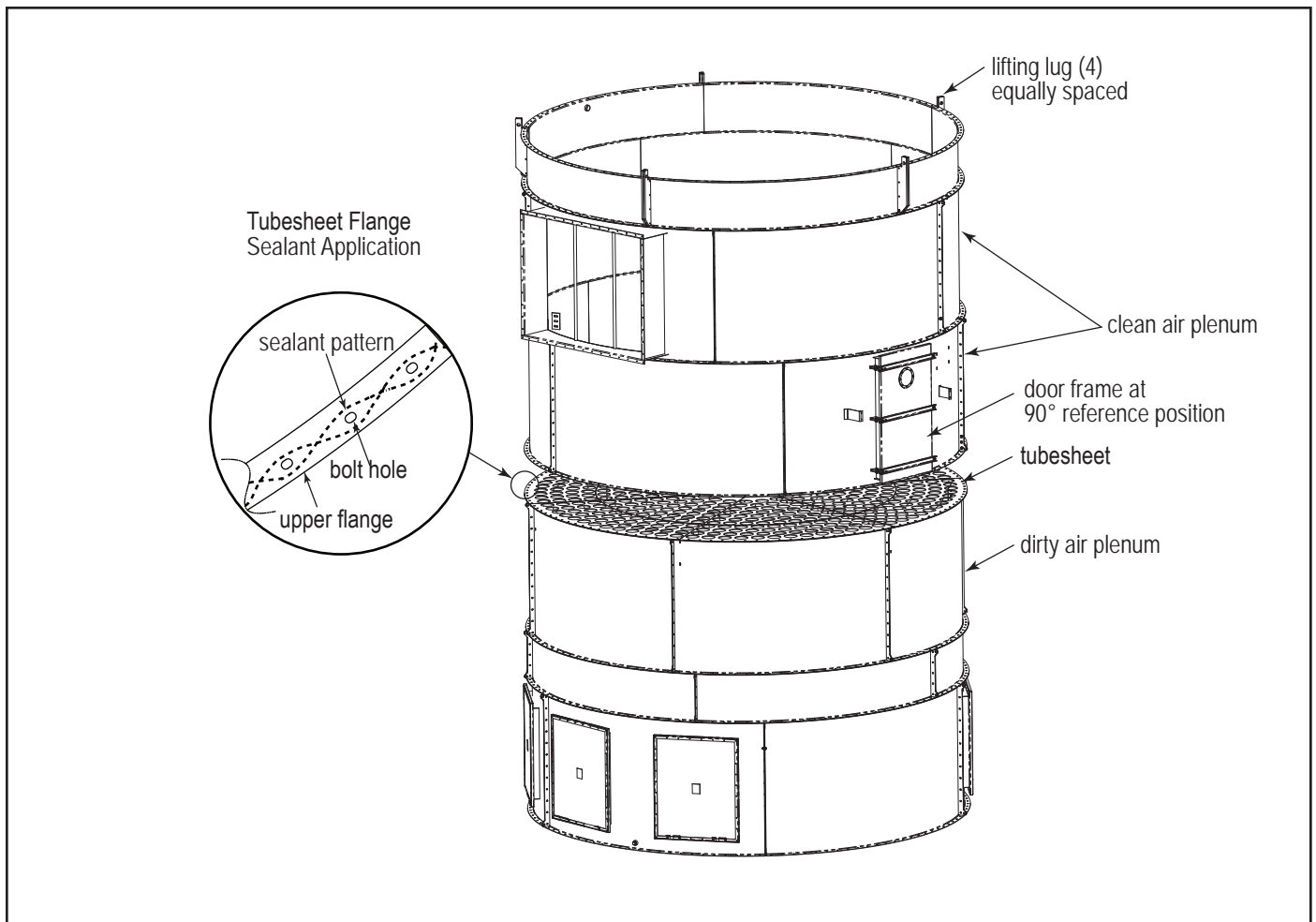


Prevent pinching by using drift pins or other appropriate guide tools when handling and installing the tubesheet into the Dirty Air Plenum.

- Apply sealant to the perimeter of the tubesheet as shown to prepare it for the clean air plenum installation.

Note: Ensure the crane capacity is rated for the combined load of the Dirty Air Plenum, Tubesheet, Clean Air Plenum, and Roof for the next steps. If desired, the major components can be lifted individually following the Collector Body Assembly instructions.

- Lift the clean air plenum with the existing attached lifting lugs onto the tubesheet ensuring that the doorway is in the 90° position per the specification drawing. Insert the 1/2-in hardware and then tighten the bolt perimeter.
- Apply sealant to the top of the involute inlet flange as shown. For a high body inlet, apply sealant directly to the top of the hopper flange.

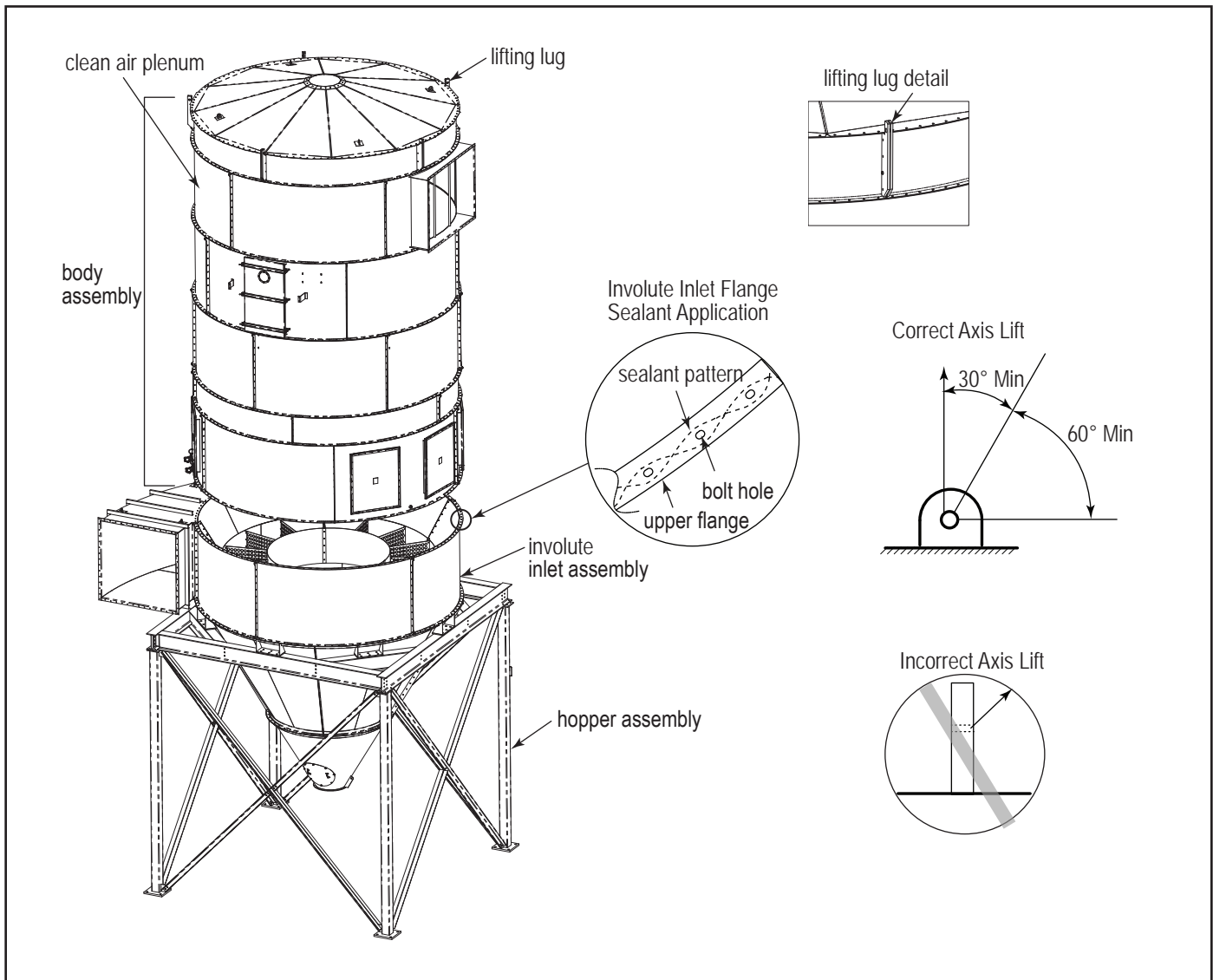


Clean Air Plenum to Dirty Air Plenum Assembly (Model RFWP Shown)

- Lift the body assembly with the main lifting lugs attached to the clean air plenum. Position the body over the involute inlet. For the high body inlet, this assembly lifts directly onto the hopper flange. Properly orient the body per the Donaldson-supplied customer drawing or specification drawing and lower into position.

Note: It is critical that the orientation matches the specification drawing to ensure there will be NO interference with ladder and platform locations or explosion vent locations.

- Insert all the 1/2-in hardware and tighten the entire connecting perimeter.



Collector Body Assembly

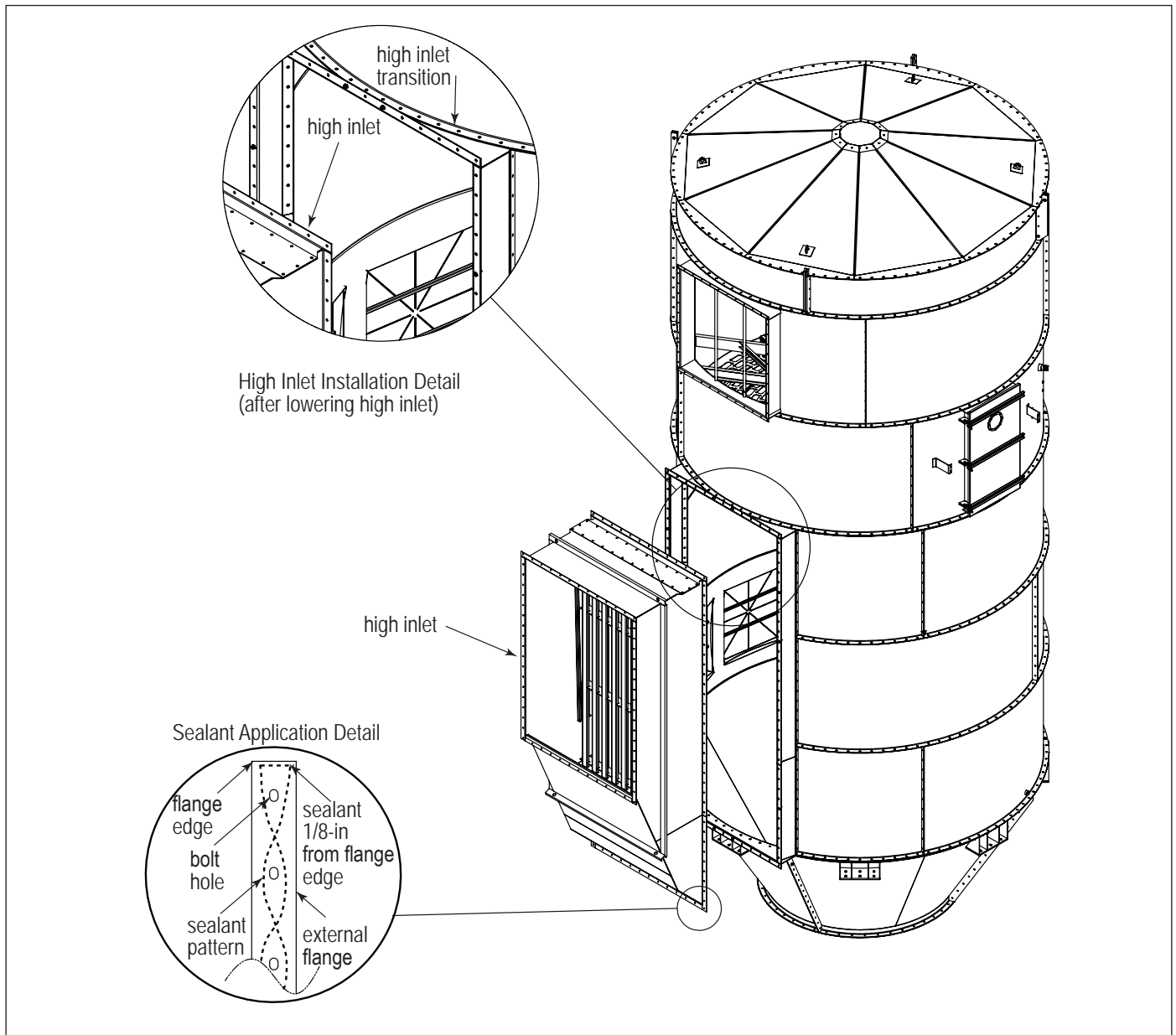
- To prepare for high inlet installation, apply sealant to both connecting flanges of the high inlet within 1/8-in from the flange edge as shown. High inlet will press up against the high inlet transition from the outside of the high inlet transition.

Note: Sealant application must be done before lowering into position.

- Lift the inlet assembly into the proper orientation and lower it into place as shown. Press the flanges up against the outside of the high inlet transition. Align the holes and then insert and tighten hardware.



Prevent pinching by using drift pins or other appropriate guide tools when lowering the High Inlet into the Dirty Air Plenum body.



High Inlet Installation (RFWPH)

Collector Body Assembly for Lower Crane Capacity

Note: Ensure the crane capacity is rated for the Dirty Air Plenum plus the Tubesheet load or the Clean Air Plenum plus Roof load (whichever is greater) before proceeding with the below collector body assembly procedure.



Do not lift collector body assemblies from any flanges found on the inlet, outlet, or doorways.

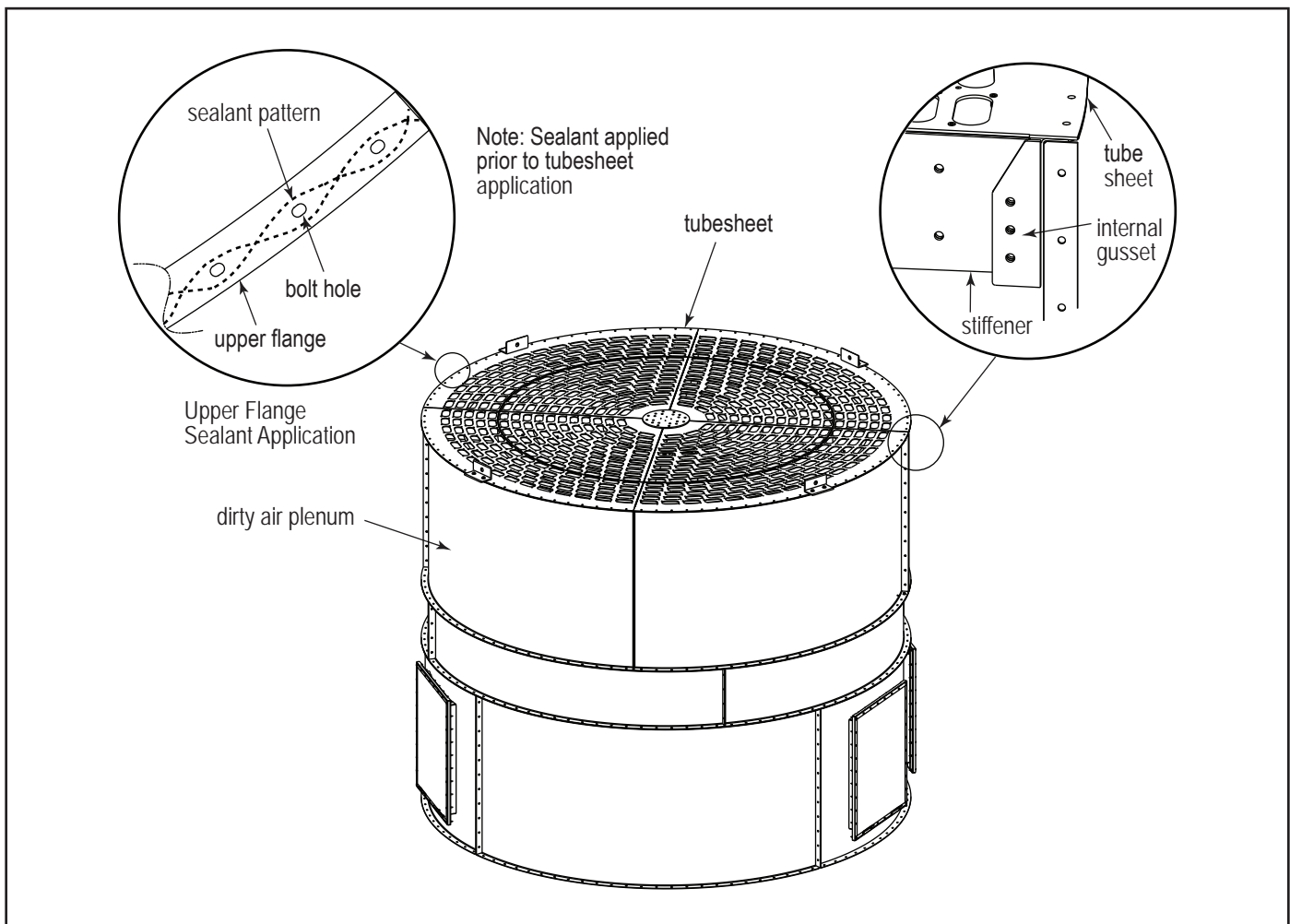
Use the provided bolt-on lifting lugs in the appropriate manner and do not lift more than the specified weight.

Only lift rings and sections when the load is balanced.

1. Apply sealant to the top flange of the dirty air plenum collector body assembly as shown.
2. Lift the tubesheet into the dirty air plenum and slowly lower the tubesheet into position. Tubesheet stiffeners will be facing down.

Note: If installing a RF with high inlet, make sure blank area of tubesheet is aligned with the high inlet opening of the dirty air plenum.

3. While the tubesheet is still off the flange but the radial stiffeners are in the dirty air plenum body, rotate the tubesheet clockwise (from top) until the stiffeners make contact with the internal gussets of the dirty air plenum as shown.



Tubesheet Installation (Model RFWP shown)

- Lower the tubesheet into position. Insert only the 5/8-in hardware required to connect the tubesheet radial stiffeners to the internal gussets and tighten.

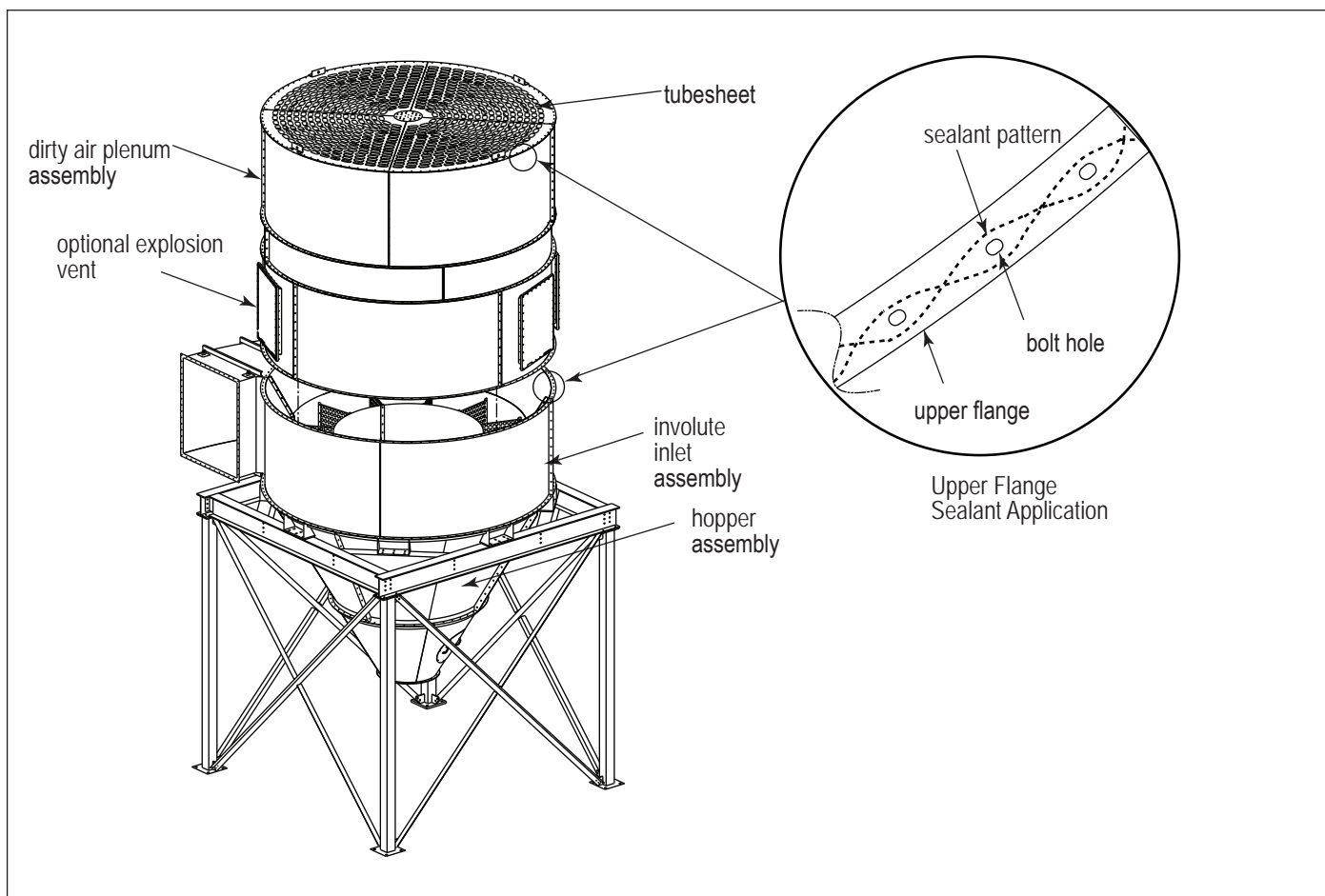


Prevent pinching by using drift pins or other appropriate guide tools when handling and installing the tubesheet into the Dirty Air Plenum.

- Apply sealant to the top of the involute inlet flange as shown. For a high body inlet, apply sealant directly to the top of the hopper flange.
- Properly attach and lift dirty air plenum assembly with the lifting lugs per note with Bolt-On Lifting Lugs illustration.
- Lift the dirty air plenum assembly with tubesheet onto the involute inlet assembly. For the high body inlet, this assembly lifts directly onto the hopper flange. Properly orient the dirty air plenum assembly to the hopper inlet assembly and lower into place.

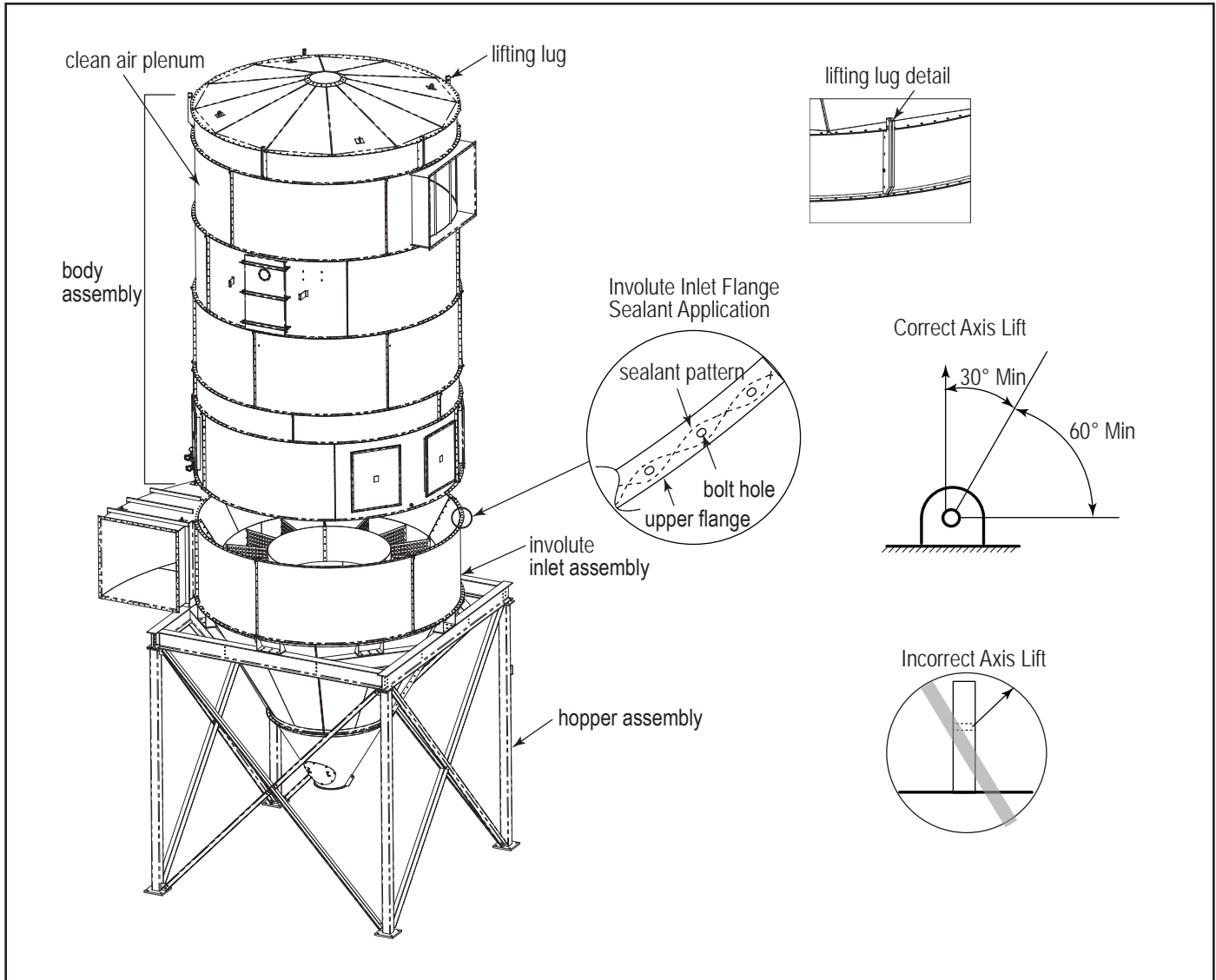
Note: It is critical that the orientation matches the specification drawing to ensure there will be NO interference with ladder and platform locations.

- Insert all hardware and then tighten the entire connecting perimeter.



Dirty Air Plenum to Involute Inlet Assembly (Model RFWP Shown)

9. Remove the angle iron lifting lugs.
10. Apply sealant to the perimeter of the tubesheet as shown to prepare it for the clean air plenum installation.
11. Lift the clean air plenum by the previously attached lifting lugs onto the tubesheet ensuring that the doorway is in the 90° position per the specification drawing. Insert all hardware and then tighten the bolt perimeter.



Collector Body Assembly (Model RFWP Shown)

Filter Installation



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.

Do not operate with missing or damaged filters.

Felt Bag Filter and Cage with Boltsafe™ Hardware

1. Turn all power to collector and material handling system OFF.
2. Access clean air plenum through hopper access door.
3. Loosen bolts (2) from each filter cage flange.
4. Slide the filter bag onto the filter cage until the top edge of the bag reaches the top flange of the filter cage.

Note: Place the bottom seam of the filter bag parallel to the long side of the oval.

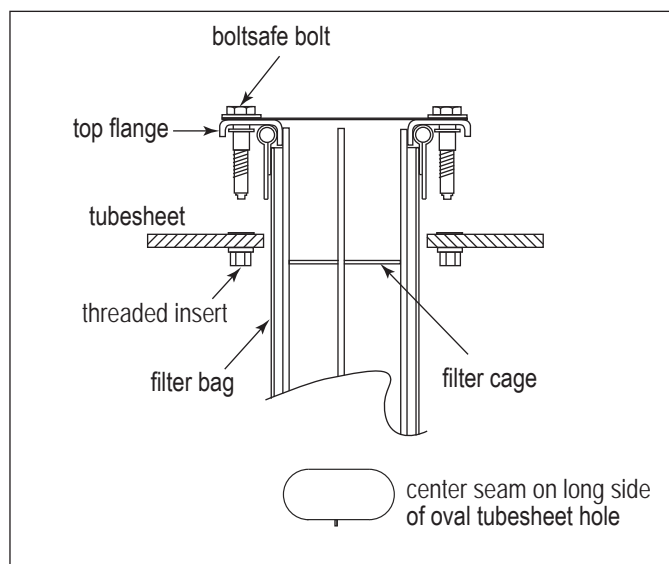
5. From the clean air plenum, insert the filter bag and filter cage assembly through the tubesheet aligning the two bolts with the two threaded inserts factory installed in the tubesheet.
6. Secure with the provided Boltsafe bolts.

NOTICE

Hand start each bolt before tightening either bolt. Do not use a power or impact driver to tighten bolts. A speed wrench using a maximum of 20 ft/lb is recommended.

7. Repeat steps 3-5 for all filter bags and cages in the current row.

Note: The cleaning arm may need to be manually rotated to access some filter bags.
8. Proceed to the next row of filters and repeat for all remaining filters.
9. Replace the clean air access door.
10. The collector is now ready to place in service following typical start-up procedures.



Felt Bag and Cage and Pleated Bag with Boltsafe Hardware Filter Installation

Pleated Bag Filter with Boltsafe™ Hardware

1. Turn all power to collector and material handling system OFF.
2. Access clean air plenum through door.
3. From the clean air plenum, insert the pleated bag assembly through the tubesheet aligning the two bolts with the threaded inserts in the tubesheet. It may be necessary to squeeze the pleated bag as it is inserted into the tubesheet.
4. Secure with the provided Boltsafe bolts.

NOTICE

Hand start each bolt before tightening either bolt. Do not use a power or impact driver to tighten bolts. A speed wrench using a maximum of 20 ft/lb is recommended.

5. Repeat steps 3-4 for all pleated bag filters in the current row.
Note: The cleaning arm may need to be manually rotated to access some filter bags.
6. Proceed to the next row of filters and repeat for all remaining filters.
7. Replace the clean air access door.
8. The collector is now ready to place in service following typical start-up procedure.

Pleated Bag Filter with Snap-In Design

1. Turn all power to collector and material handling system OFF.
2. Access clean air plenum through door.
3. Slowly lower the bag filter through the tubesheet hole. Squeezing the bag filter to get the straps through the tubesheet may be required.



4. Gently push the flexible urethane top of the bag filter on one side until it snaps into the tubesheet hold.



5. Push the opposite side of the top of the pleated bag filter until it is securely snapped into the tubesheet hole.



Note: A snapband retainer has been shipped for each filter. If you do not have these snapband retainers, call your Donaldson representative immediately so they can be sent to you for proper installation.

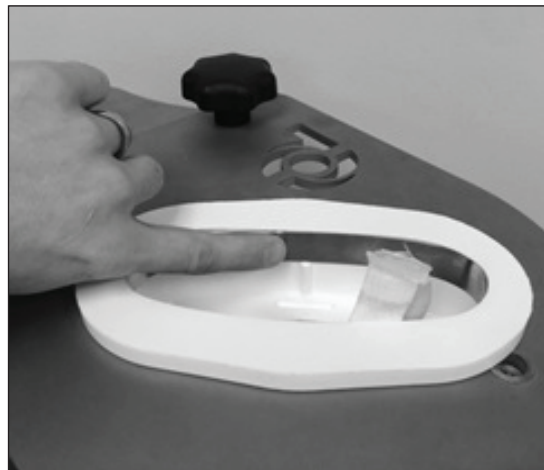
6. Pinch the snapband retainer in the center to form a figure "8".



7. Bend the loop slightly and place the retainer under the molded lip of the top flange of the filter. This shallow lip prevents upward movement of the snapband retainer after proper installation. With the snapband retainer held against one side of the filter top interior, slowly allow the retainer to expand into the recessed area between the lip rim and the four interior post stops.



8. The snapband retainer should fit snugly between the lip rim and the vertical post stops. Be sure the snapband retainer is level and not installed crooked. A correctly installed snapband retainer will help prevent any potential leakage at the tubesheet and keep the filter firmly in place.



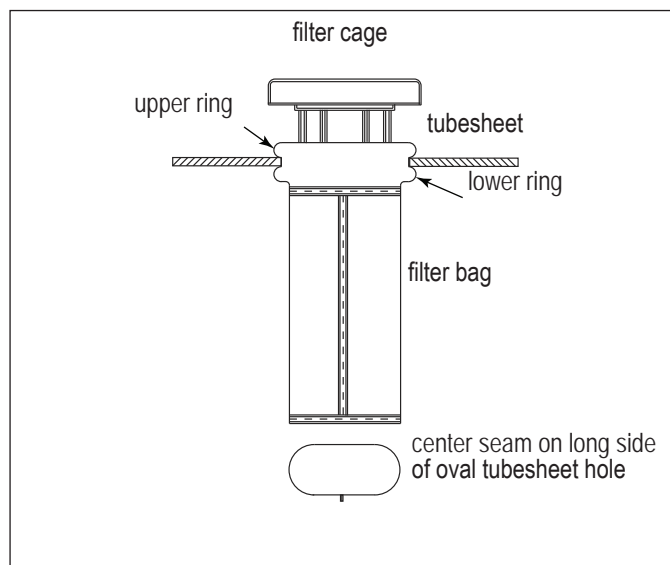
9. Repeat steps 3-8 for all pleated bag filters in the current row.
Note: The cleaning arm may need to be manually rotated to access some filter bags.
10. Proceed to the next row of filters and repeat for all remaining filters.
11. Replace the clean air access door.
12. The collector is now ready to place in service following typical start-up procedures.

Felt Snap-In Bag Filter

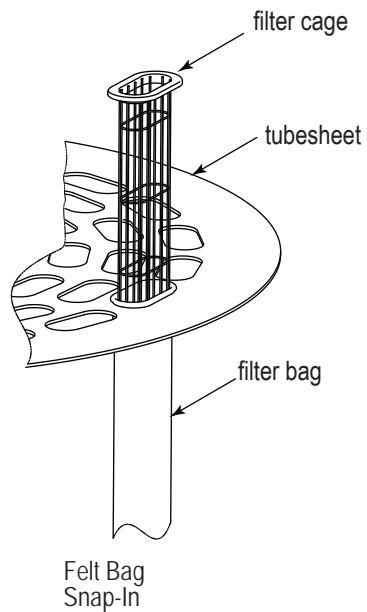
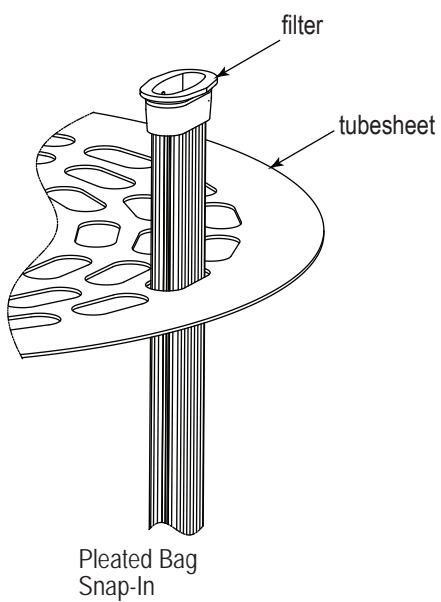
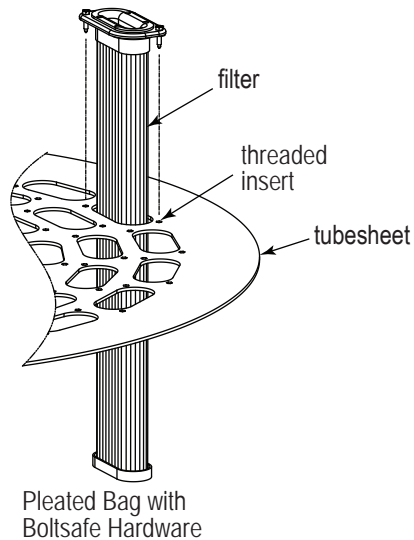
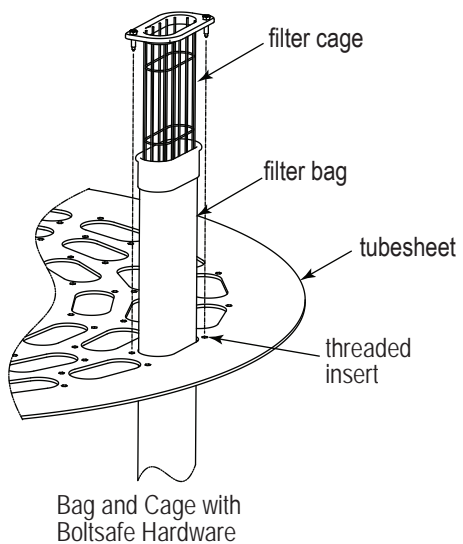
1. Turn all power to collector and material handling system OFF.
2. Access clean air plenum through door or hopper access door.
3. From the clean air plenum, carefully insert the snap-in filter bag aligning the seam with the long edge of the oval in the tubesheet.
4. Snap the filter bag in place with the tubesheet between the upper and lower rings of the filter bag collar.
5. Slide the filter cage into the filter bag and seat firmly.
6. Repeat steps 3-5 for all bag filters in the current row.

Note: The cleaning arm may need to be manually rotated to access some filter bags.

7. Proceed to the next row of filters and repeat for all remaining filters.
8. Replace the clean air access door.
9. The collector is now ready to place in service following typical start-up procedures.



Felt Snap-In Bag Filter Installation

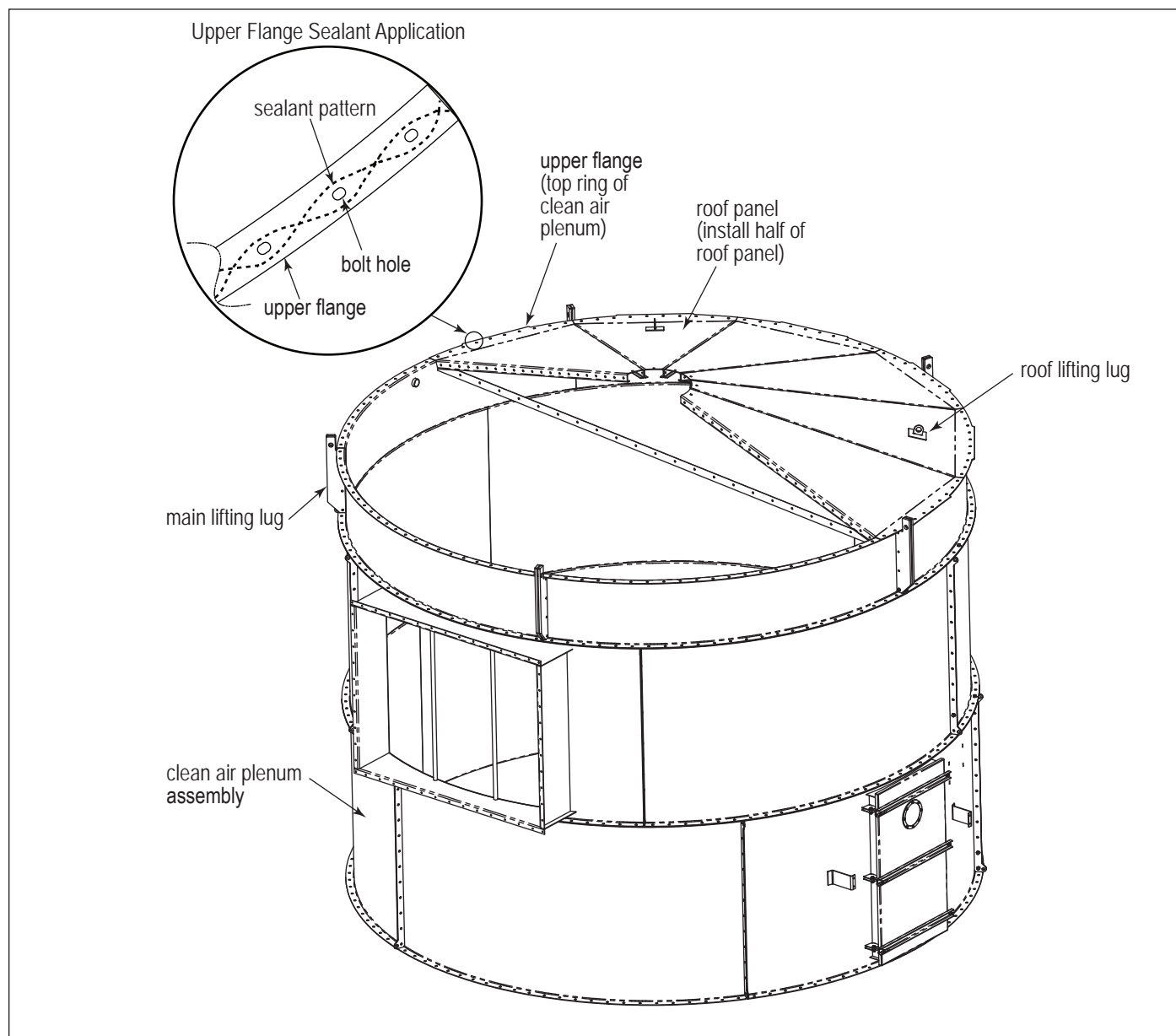


Filter Bag Installation

Roof Installation

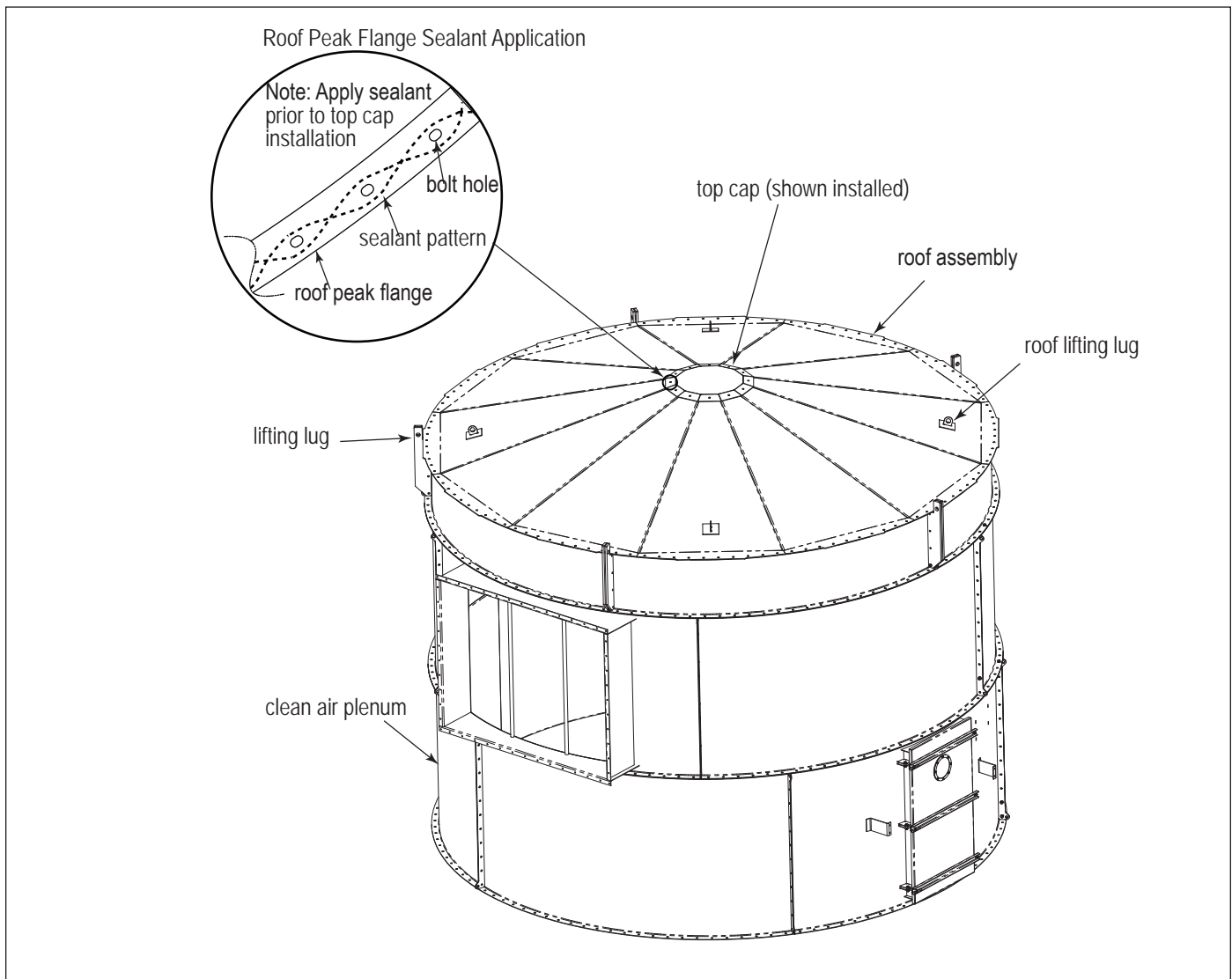
Note: The roof subassembly can be assembled prior to installing the roof on the collector.

1. Apply sealant to the top bolt flange of the clean air plenum assembly.
2. Lift the first half roof panel into position using the roof lift lugs and insert the 1/2-in hardware around the perimeter and hand-tighten it.



Roof Installation, 12-ft Bag Clean Air Plenum Shown

3. On the second half roof panel, apply sealant liberally to the adjoining roof panel flange prior to lifting.
4. Lift the second half roof panel into position using roof lifting lugs.
5. Insert hardware around the perimeter and hand-tighten.
6. Locate personnel to the inside and insert all hardware joining the two half roof panels.
7. Once all the hardware is hand-tightened, begin final tightening with the internal adjoining flanges between the two half roof panels. Then move to the outside and tighten the perimeter bolt hardware.
8. Prepare to set the top cap into the opening at the peak of the roof. Apply a liberal ring of sealant to the inside of the bolt hole pattern, and around each individual bolt hole. Set the top cap into place as shown and bolt tight.
9. Apply sealant to the top of the involute inlet flange as shown in Collector Body Assembly illustration.



Roof Top Cap Installation, 12-ft Bag Clean Air Plenum shown

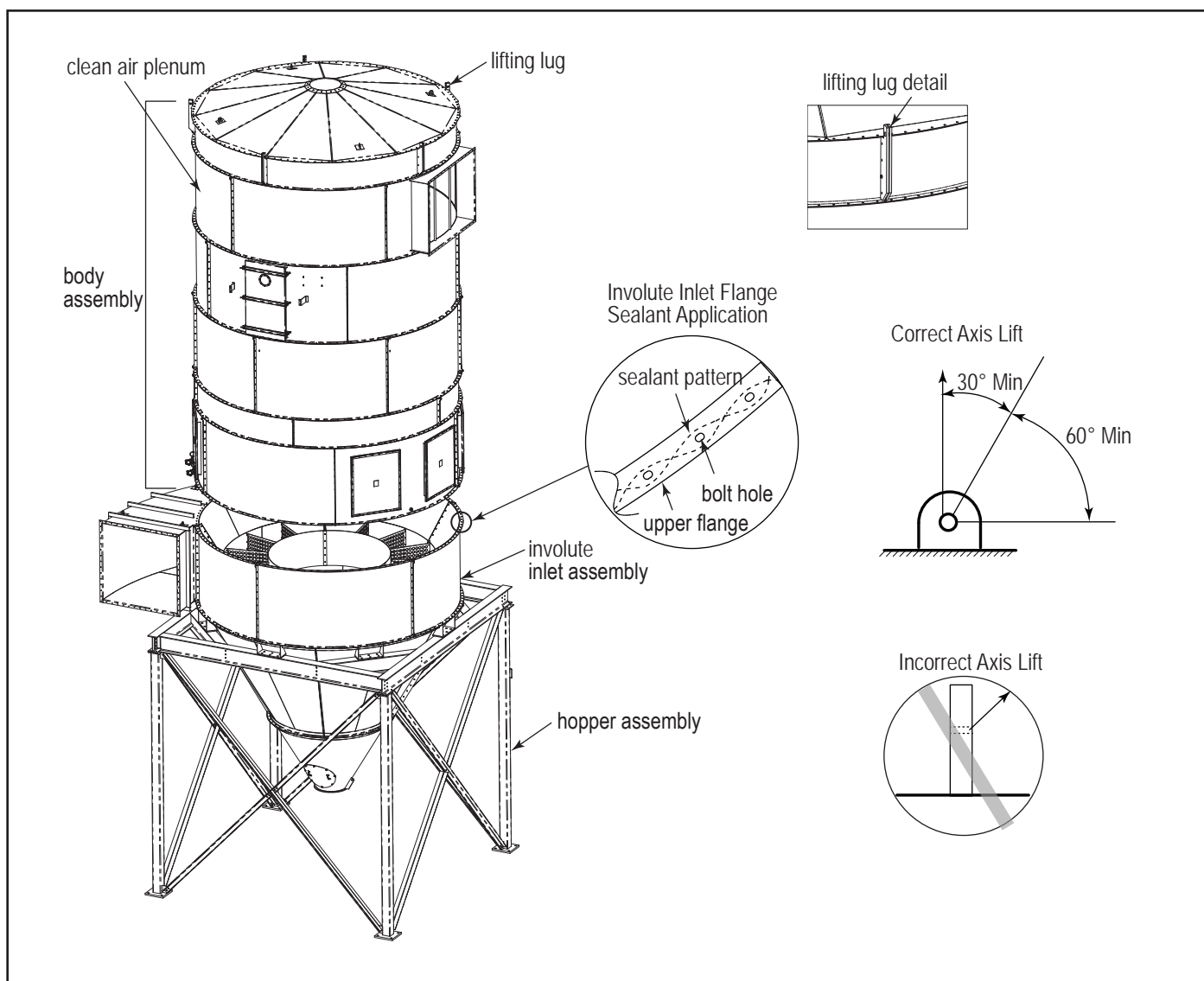
- Lift the body assembly with the lifting lugs attached to the clean air plenum as shown below. Position the body over the involute inlet. Properly orient the body per the Donaldson-supplied customer drawing or specification drawing and lower into position.



Do not lift assembly by roof lifting lugs or personal injury and/or property damage may ensue. Use provided Grade 8 hardware.

Note: It is critical that the orientation matches the specification drawing to ensure there will be NO interference with ladder and platform locations or explosion vent locations.

- Insert all the 1/2-in hardware and tighten the entire connecting perimeter.



Collector Body Assembly (12-ft Bag RFWP Shown)

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.

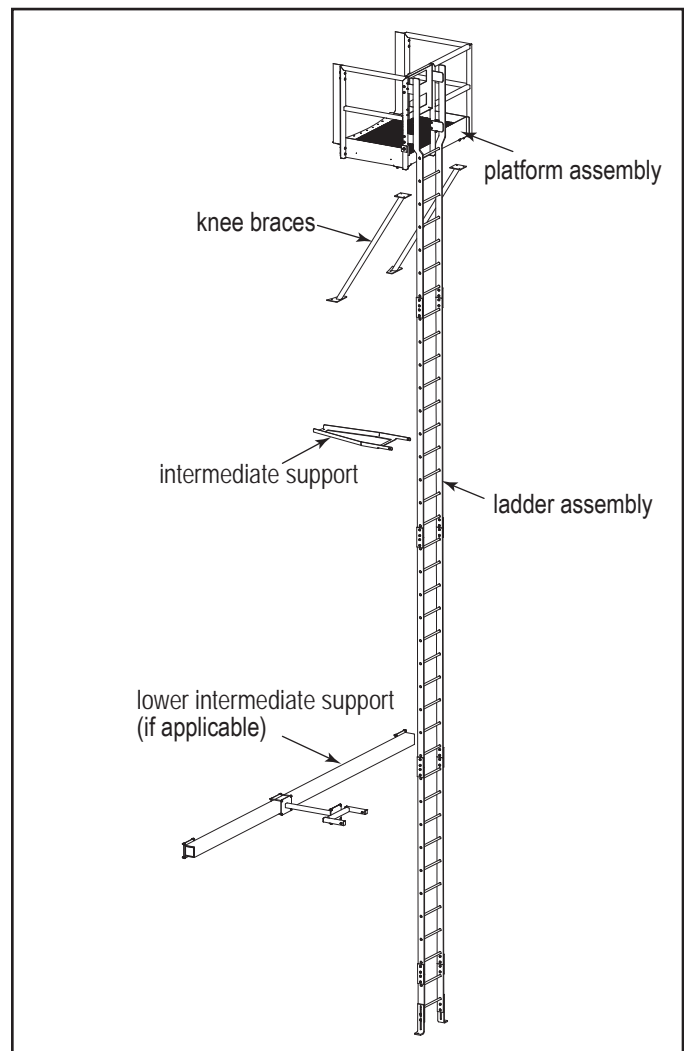
For a list and schematic of components, refer to the ladder and platform (if applicable) assembly drawings shipped with the collector.

Platform

1. Using a crane, lift the service platform into position at the clean-air plenum access door. Use drift pins to align 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.

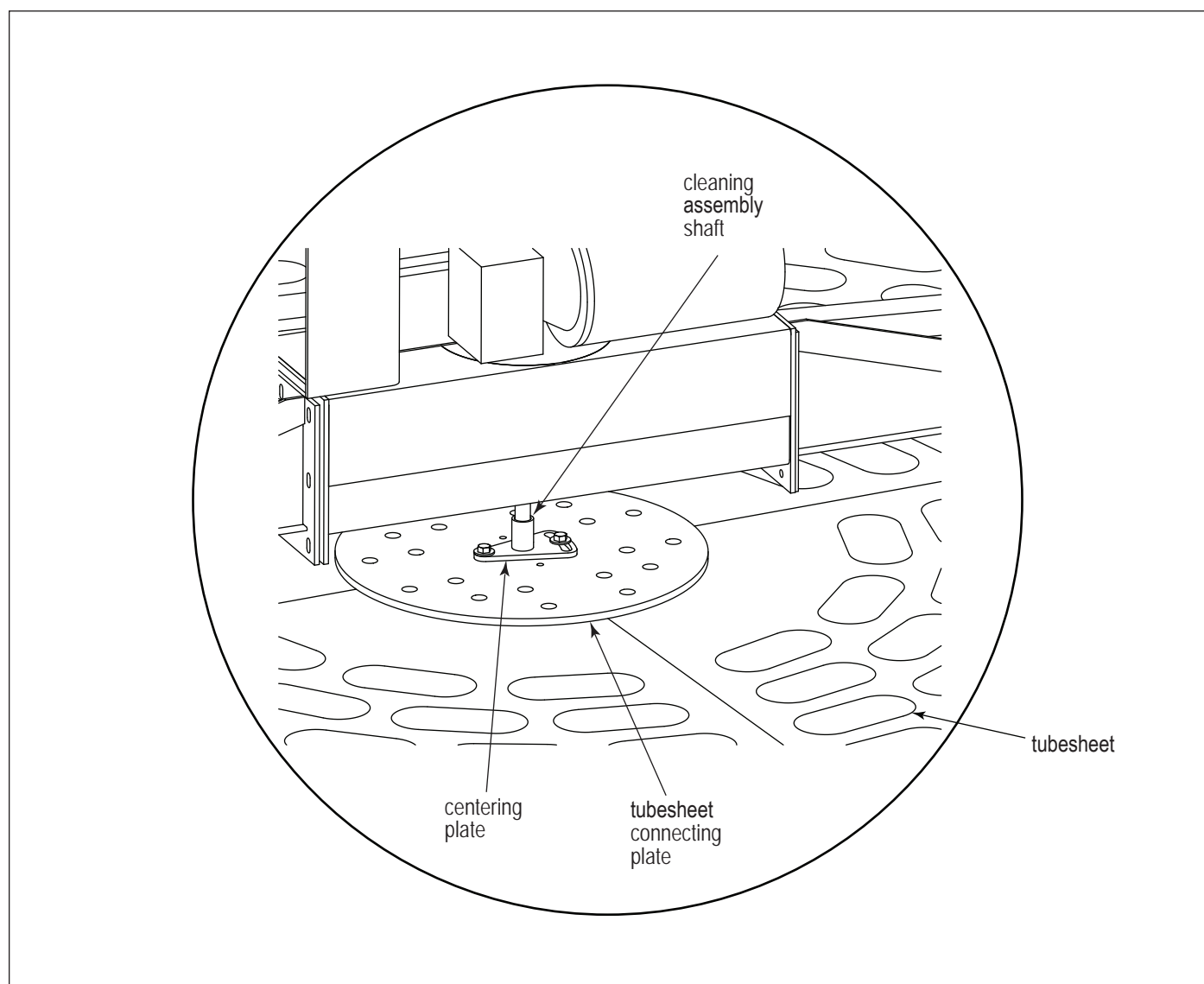


Platform Installation

Cleaning System Assembly and Adjustment

1. With the cleaning arms attached, check the cleaning arms for free rotation. If rotation is difficult, ensure that the H-frame is parallel to the tubesheet by measuring the distance from the H-frame to the tubesheet at all 4 corners - all 4 measurements should be the same. Adjust the H-frame by moving it in its mounts to the Clean Air Plenum body.
2. Ensure the air tank is parallel to the tubesheet. If necessary, use leveling screws in the threaded holes found on the underside of the H-frame to level the air tank.
3. Check alignment of the Centering Plate to the pre-drilled and tapped holes in the tubesheet plate. If the Centering Plate holes do not align with the tubesheet plate in any orientation, slide the air tank until it aligns. Check for free rotation of the cleaning arms and tighten the air tank to the H-frame.

Note: The Centering Plate allows for movement to help align the cleaning mechanism. It is able to bolt in any of four orientations allowing a wide range of movement.



Cleaning System Installation

4. Apply hardware adhesive to the 3/8-in hardware and tighten the Centering Plate to the tubesheet plate. If the Centering Plate will not align with a bolt location on the tubesheet plate, the assembly is out of alignment and needs to be fixed by repeating step 3. Check rotation of the arms and repeat this step if necessary.

Note: Repositioning of the air tank assembly may be required for this step to ensure the cleaning arms can rotate freely.

5. Install the gear reducer and sprocket along with the chain tensioner to the H-Frame (reference the included Cleaning Assembly drawing AD3627301 or AD3627302 depending on size).

Note: Drive sprocket, tensioner, and idler sprocket must lie in the same plane. Adjust driver sprocket and chain tensioner to achieve results.

6. Connect the chain from the drive sprocket to the rotating assembly using the master link.
7. Install motor to the gear reducer. Check that the motor shaft key is in place and enters the keyway in the gear drive correctly. Fasten the motor flange to the gear reducer housing using the four hex head cap screws supplied.
8. Ensure the gearbox has been prefilled with lubricant.
9. Remove the top pipe plug and install the breather.
10. Remove the plastic exhaust-port plug from the bottom of the solenoid valve.
11. Adjust the drive sprocket, tensioner sprocket and idler so they are in the same horizontal plane.
12. Wire the motor to a customer-supplied motor starter with overload and short circuit protection.

Electrical Wiring



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

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

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

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

Solid-State Timer Installation



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

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

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

The solid-state timer is used to control the filter cleaning system.

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.

NOTICE

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

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

Solenoid Connection

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

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 positive displacement blower 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 solenoid valve to provide the ON time cleaning pulse for the diaphragm valve and repeats this cycle until the system is shut down. The timer can also be wired for on demand cleaning with an external pressure switch. If this option is selected, the high and low limit pressure switch relays will be connected to the TB2 corresponding terminals. Otherwise, the common and high limit terminals on TB2 are jumpered to provide continuous operation.

Note: If the collector was supplied with an electrical control panel, the wiring diagram supplied with the control panel takes precedence over the general diagrams shown in this manual.

Input
102-132V/50-60Hz/1Ph

Output Solenoids
2-3A max per channel

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.

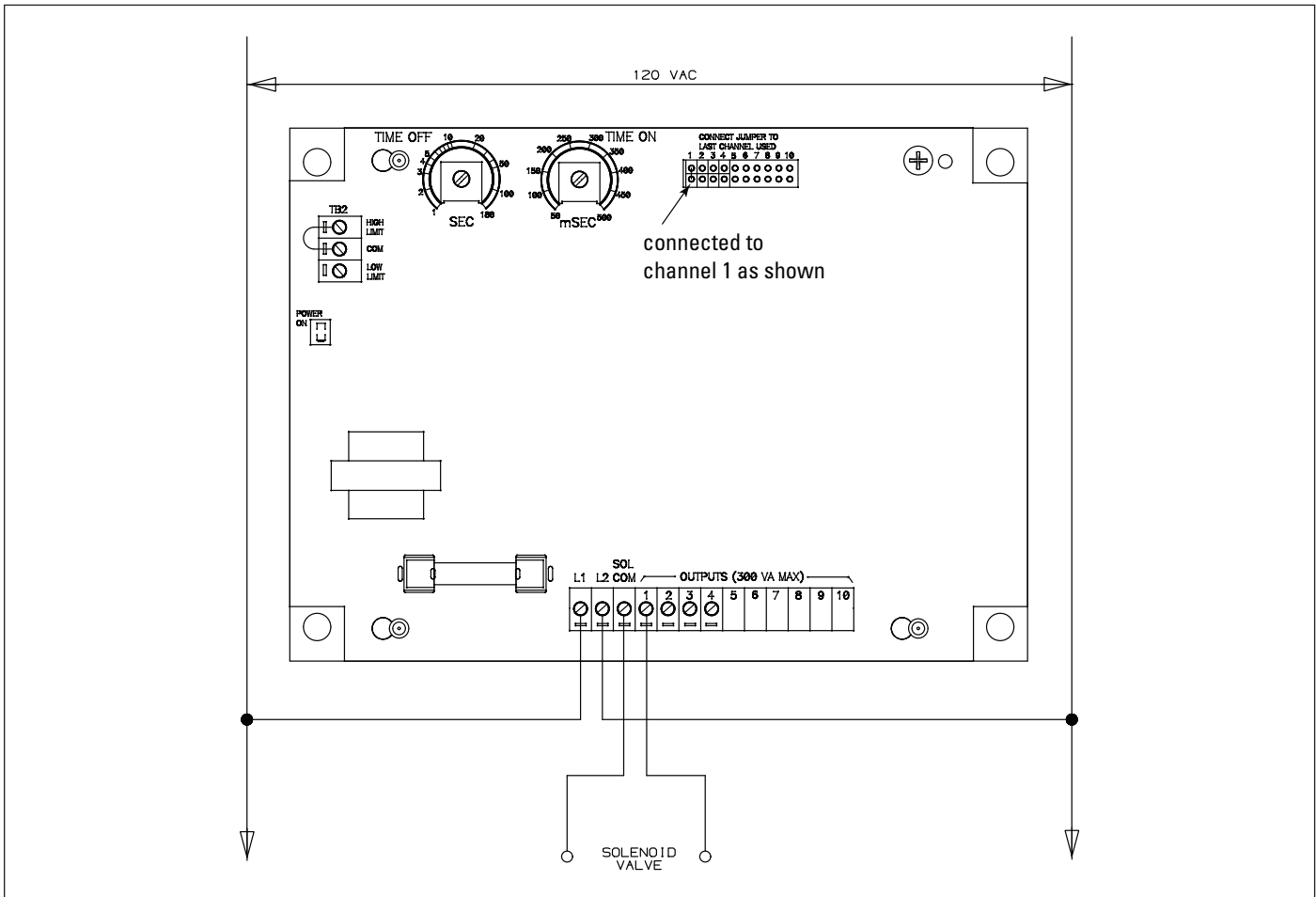
Pulse OFF Time
Factory set at 10-seconds, the OFF time must be field adjusted such that the pressure at the air reservoir peaks at 8-9 psig just before the next pulse. Make final adjustments by observing the LOAD ON light flashing on the timer.

NOTICE

Open the valve to the air reservoir gauge only when adjusting OFF time.

Operating Temperature Range
-20° F to 130° F

Solenoid Valves
120V/60 Hz intermittent duty @ 20.9 watts



Interlocking

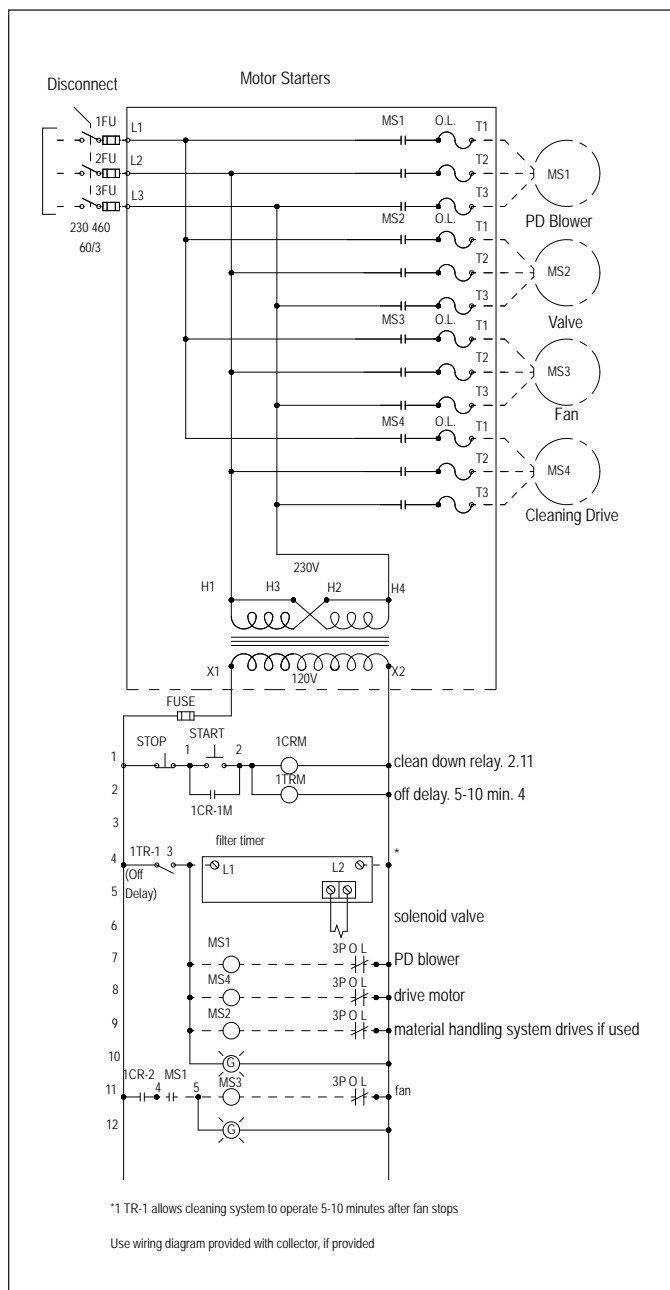
To ensure proper operation of the system the main blower should not start unless the cleaning mechanism, positive-displacement blower and dust removal system are all operating. It is recommended that an interlock device is installed between these motors. Failure of interlocked devices should generally not shut down the main blower, but should activate an alarm system, if available. Failure of either a rotary airlock or screw conveyor with separate drives should shut down all other drives and alarm the operator. This will avoid filling the collector with dust.

Time Delay, Start-Up

Starting motors at 3-second intervals is recommended to minimize inrush current and to allow interlocking.

Time Delay, Shut-Down

A sequenced shut down approach is recommended for optimal performance of the collector. After the main blower shuts down, the remaining components should continue to run for several minutes to empty the hopper and dust removal system of all dust that drops from the filter bags after the primary airflow stops.



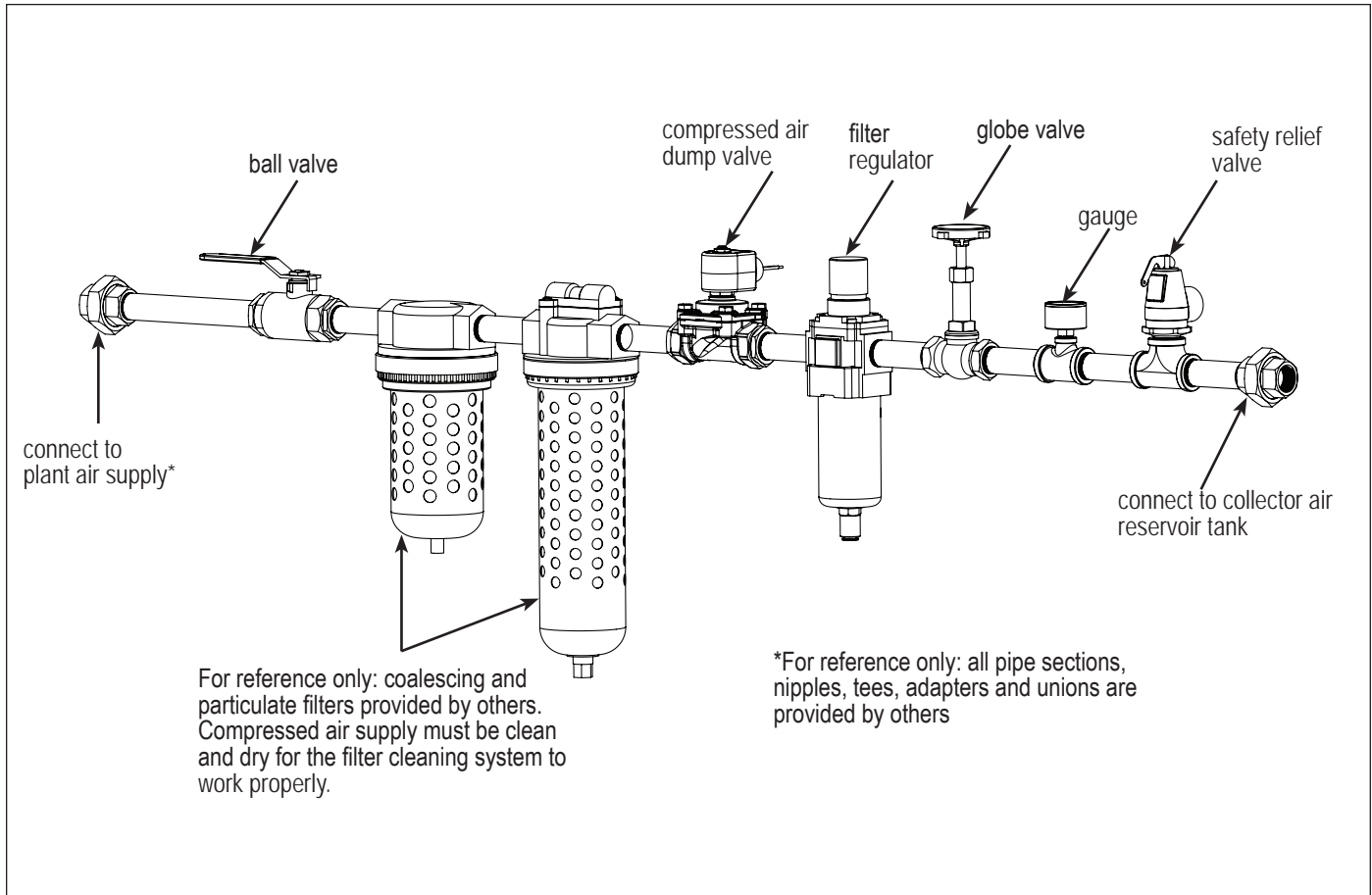
Collector Wiring

Options and Accessories

Plant Air Kit

In place of the positive displacement cleaning blower, plant air can be used for the filter cleaning system. The plant air must be clean, dry, and filtered to prevent any oil or water from entering the cleaning system. An optional plant air kit is available to control the flow and regulate the pressure of the customer's plant air. In addition, optional coalescing and particulate filters can be provided with this kit.

Reference the plant air manifold kit drawing shipped with the collector for installation instructions.



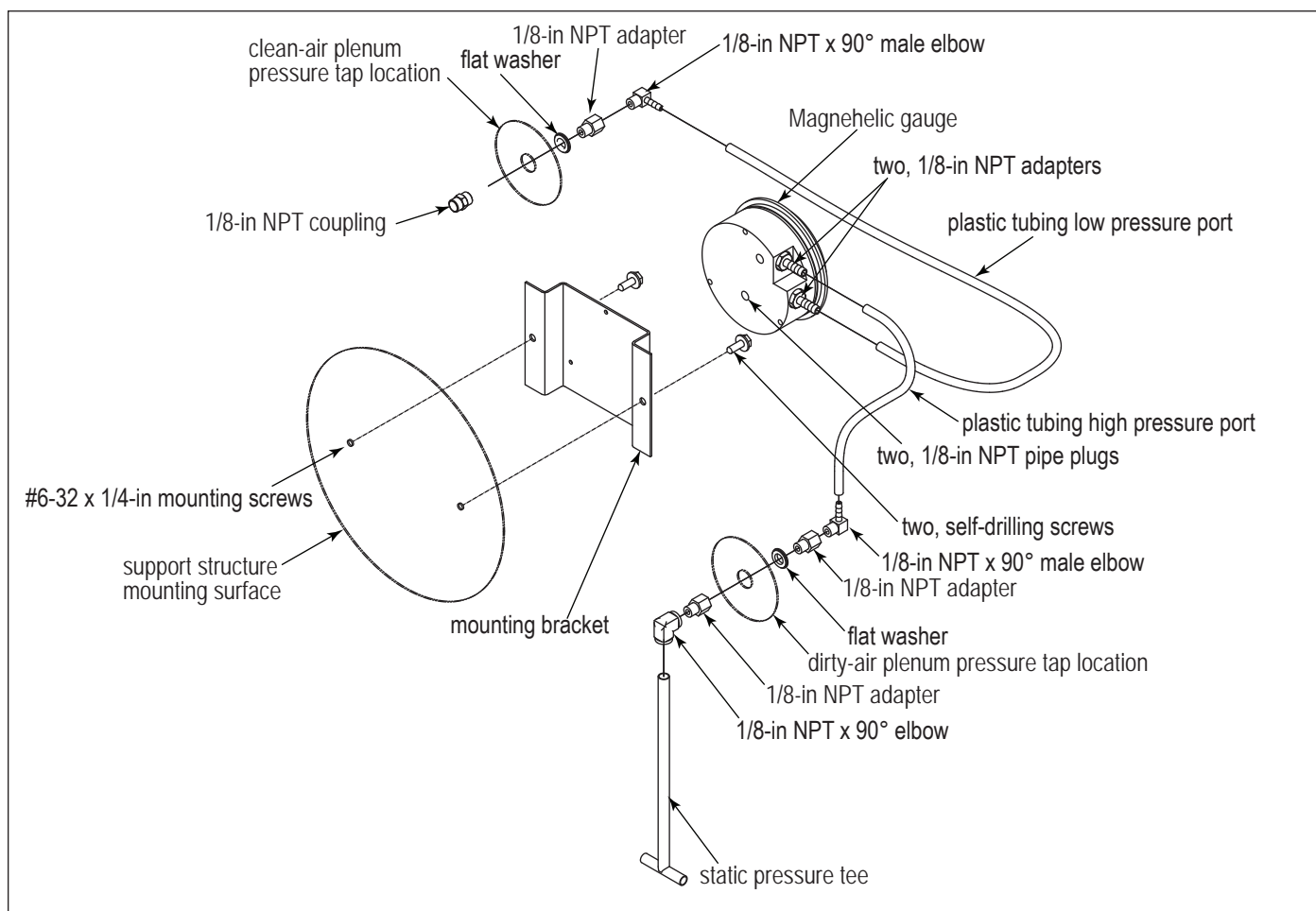
Optional Plant Air Kit

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 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.
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



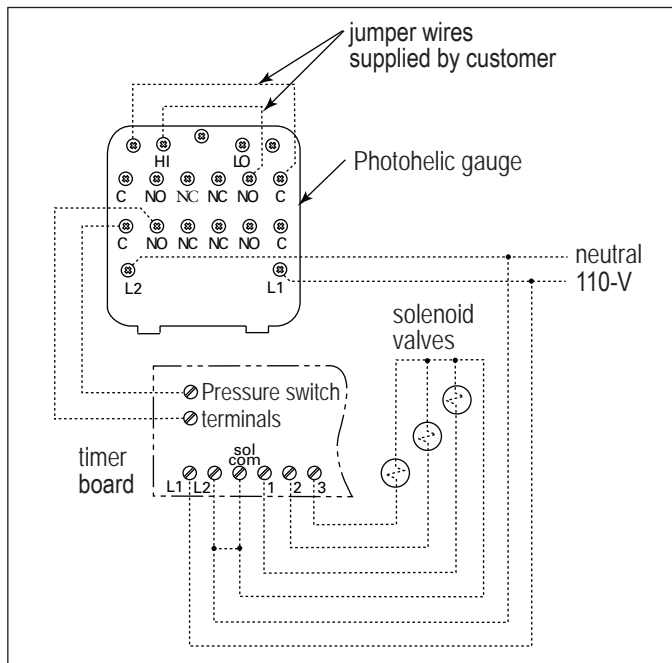
Electrical installation, service, or maintenance work must be performed by a qualified electrician and comply with all applicable national and local codes.

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

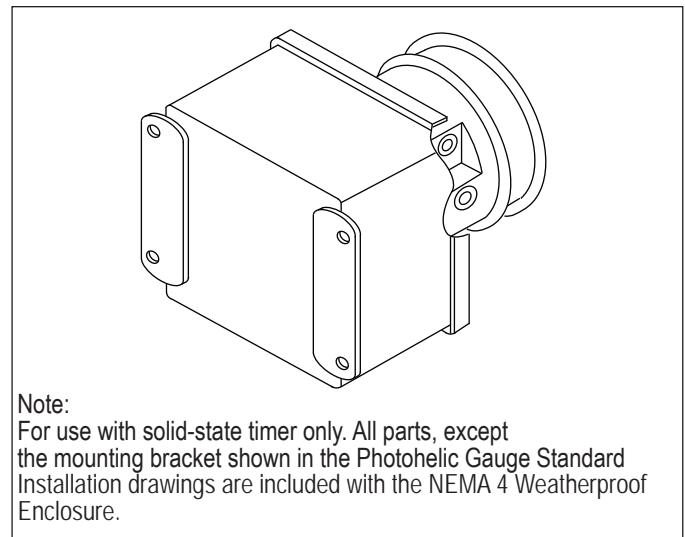
Do not install in classified hazardous atmospheres without an enclosure rated for the application.

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 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



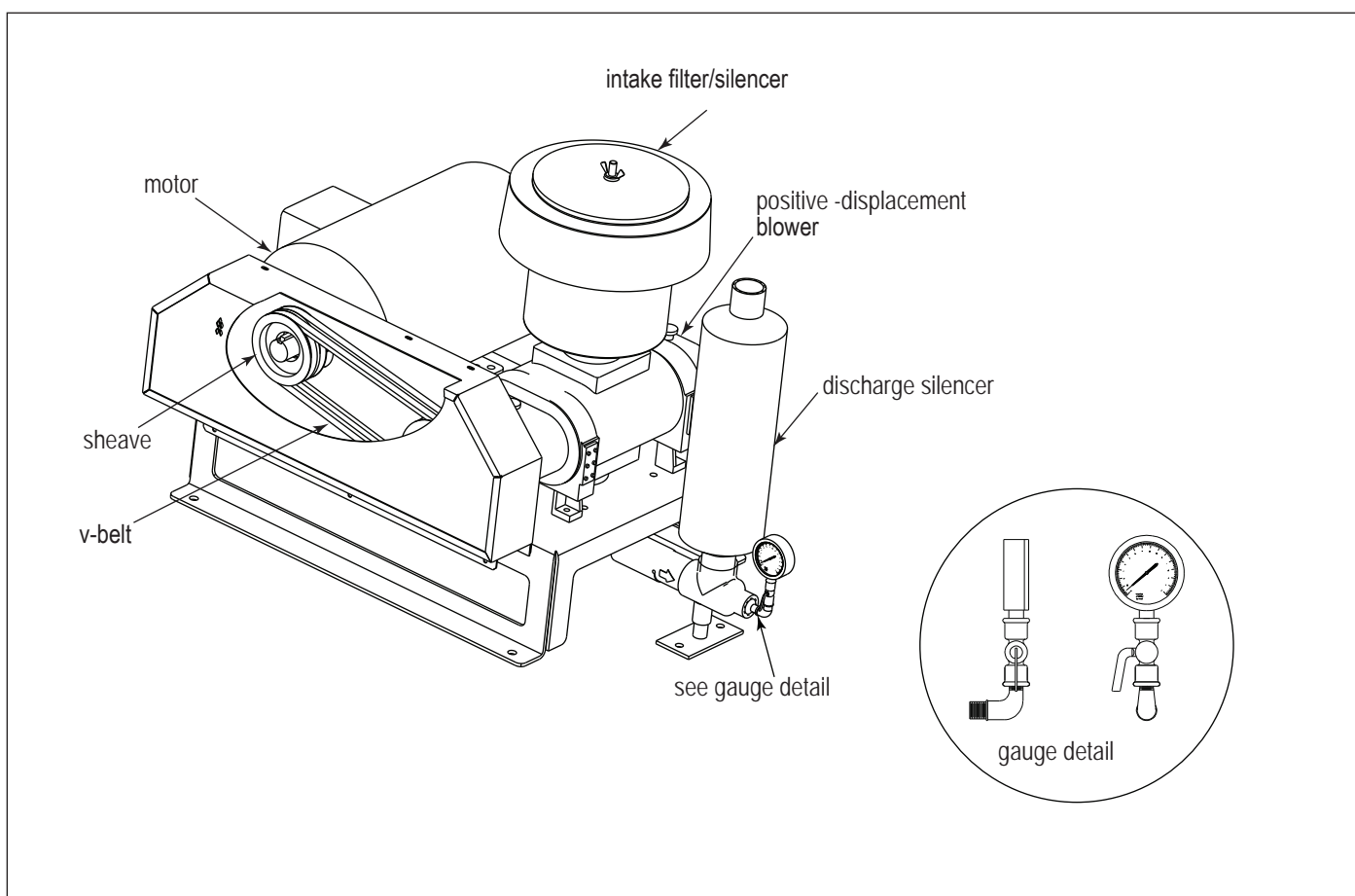
Note:
For use with solid-state timer only. All parts, except the mounting bracket shown in the Photohelic Gauge Standard Installation drawings are included with the NEMA 4 Weatherproof Enclosure.

Photohelic Gauge in Optional NEMA 4 Weatherproof Enclosure

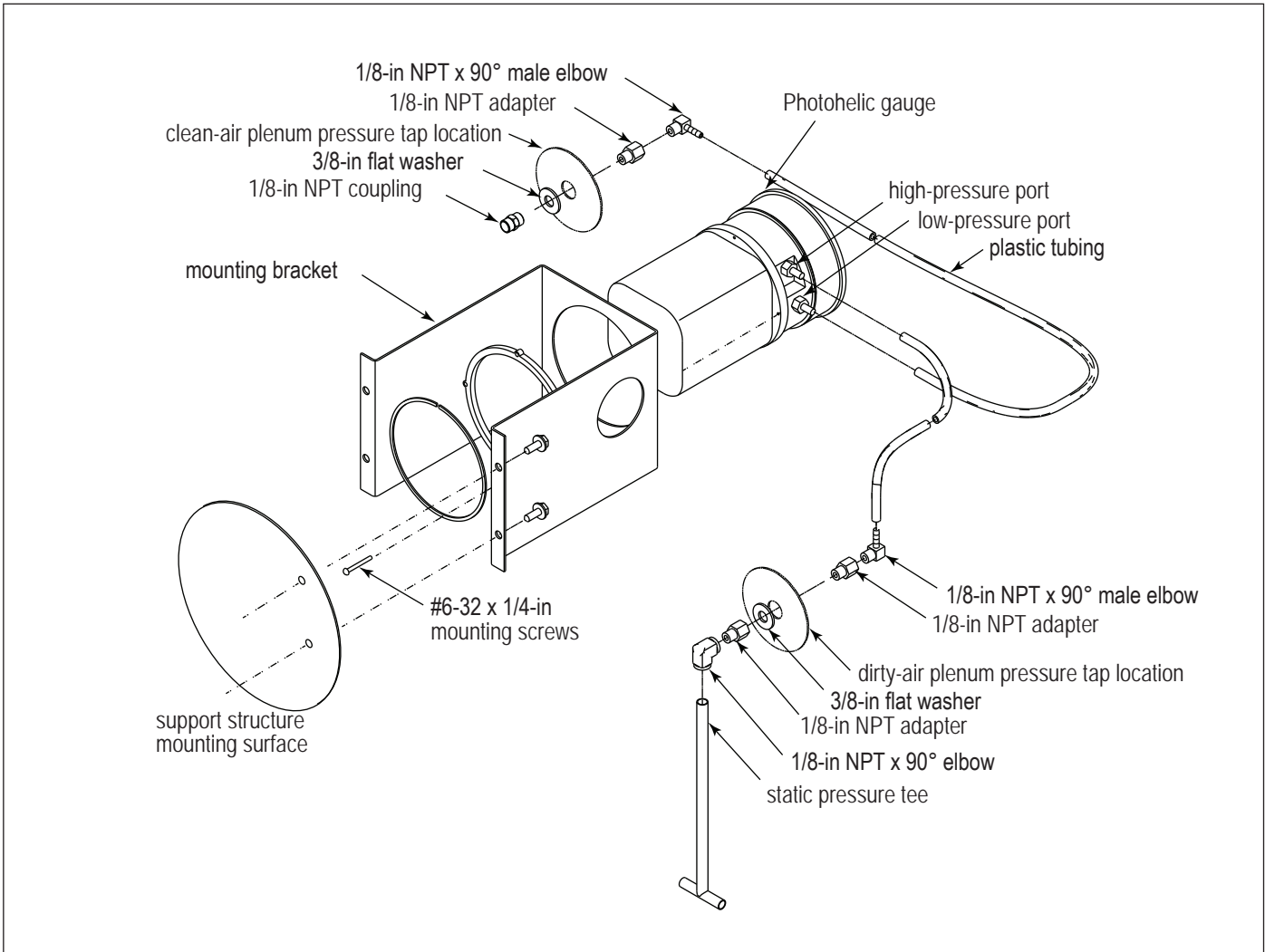
Air Supply

A positive-displacement (PD) blower provides the air used for filter cleaning and is sized for each model's cleaning air requirements. The PD blower should be installed on a level surface. Follow the installation instructions provided with the positive-displacement blower.

Air Supply Pipe Sizing	
Model	Pipe Diameter
570-905	2-in



Positive-Displacement Blower Assembly



Photohelic Gauge Installation

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.

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.

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.

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



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

4. Check that the hopper discharge gate is open and the storage container is properly sealed, if equipped
5. Check that fan exhaust damper is set to the fully-closed position.
6. Check and remove all loose items in or near the inlet and outlet of the collector.
7. Check that all remote controls and solenoid enclosures (if applicable) are properly wired and all service switches are in the OFF position.
8. Check that all optional accessories are installed properly and secured.
9. Turn power ON at source.
10. Turn fan motor ON.
11. Turn the cleaning air blower ON.
12. Adjust airflow with the exhaust damper.

NOTICE

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

13. Check arm rotation by observing from outside the collector with main fan and positive displacement pump locked out.
14. Turn powered hopper discharge material handling system components ON.

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 from the exterior of the collector.
5. Disconnect all ducts from the collector.
6. 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, tubesheet, H-frame and cleaning assembly may be removed in separate steps instead of as one unit.

7. Once all cross-bracing has been taken down, remove anchor bolts and lower leg pack columns.
8. Secure all collector components to a suitable transport carrier and transport to a disposal site suitable for the dust in the collector.

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

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

Donaldson Industrial Air Filtration Warranty

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

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

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

This Product is provided subject to and conditioned upon Donaldson's Terms of Sale ("Terms"), a current copy of which is located at termsofsale.donaldson.com. 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.



Donaldson Company, Inc.
Minneapolis, MN
donaldson.com • shop.donaldson.com

North America
Email: donaldsonorit@donaldson.com
Phone: (USA): +1-800-365-1331 • (MX): +1-800-343-3639

Australasia
Email: marketing.australia@donaldson.com
Phone: +61-2-4350-2000
Toll Free: (AU) +1800-345-837 • (NZ) +0800-743-387

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China
Email: info.cn@donaldson.com
Phone: +86-400-820-1038

Donaldson Europe B.V.B.A.
Email: IAF-europe@donaldson.com
Phone: +32-16-38-3811

India
Email: info.dfis@donaldson.com
Phone: +91-124-4807-400 • +1-800-103-5018

Japan
Email: jp-ndl.ifsweb@donaldson.com
Phone: +81-42-540-4112

Korea
Email: iaf-kr@donaldson.com
Phone: +82-2-517-3333

Latinoamerica
Email: IndustrialAir@donaldson.com
Phone: +52-449-300-2442

South Africa
Email: SAMarketing@donaldson.com
Phone: +27 11 997 6000

Southeast Asia
Email: IAF-SEA@donaldson.com
Phone: (65) 63117373