



## DFPRE™ Dust Collector

Series DFPRE 2 and DFPRE 3

## Installation and Operation Manual

Installation, Operation, and Service Information



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

English  
Master Language

IOM AG8820901 (ENG)  
Revision 1

## 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 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 Downflo Evolution Pre-Assembled (DFPRE) is a dust collector with triangular, cartridge-style filters. The downward airflow design delivers high filtration efficiency while using less energy. All models are one-filter deep collectors; model DFPRE 2 is a two filter high collector, and model DFPRE 3 is a three filter high collector. The filters for DFPRE 2 and DFPRE 3 can be pulse-cleaned on line, depending on the type of cleaning control options selected. Options include various cleaning controls with HEPA afterfilter packs, bag-out and various dust container options.

### Intended Use

The Downflo Evolution Pre-Assembled is intended for filtration of nuisance dust or fume where the load to the collector is less than two grains per cubic foot. Typical applications include dry machining, abrasive blasting, welding or other metal fabrication processes. Each application is different and selecting the correct filter for the application and type of dust collected is important. Contact Donaldson Torit for selection 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, refer to drawings shipped with the collector.

### Standard Equipment

Standard collectors include an integrated fan, preinstalled filters, motor, Delta P control panel, 8-in inlet for the DFPRE 2 and a 10-in inlet for the DFPRE 3, 10-gallon dust container and exhaust damper. Depending on the type of control selected, the motor may or may not be pre-wired. Otherwise, the collector is fully assembled and ready to connect to electrical supply, compressed air, and ductwork. A detailed drawing, shipped with each collector, provides weight, specifications, and collector dimensions including anchor bolt locations for the collector's base plate.

### Compressed Air

The DFPRE requires an external source of compressed air to supply the manifold and pulse system. Air is stored in the manifold and released when the system cleans through the blow pipes and into the filters.

### 10-Gallon Pail Pack

A 10-gallon pail pack is standard with all models. A sturdy band clamp secures the cover to the 10-gallon pail.

### Cleaning Controls and Sensors

#### Delta P Control

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

## Options and Accessories

### Hopper Discharge Accessories

#### 25-Gallon Dust Container

A 25-gallon dust container is optional with all models. A sturdy band clamp secures the cover and dust bin to the collector hopper flange.

#### Sealed Drum Kit (SDK)

When applied in conjunction with effective dust collector explosion protection strategies, including explosion venting or suppression, the sealed drum kit (SDK) may be an option for the user's combustible dust mitigation strategy. Reference the SDK installation and operation manual for additional information.

#### Exhaust Damper

An exhaust damper control regulates or limits airflow when the DFPRE is in operation.

#### HEPA Afterfilter

The optional HEPA afterfilter is designed to capture small particulate and is attached to the DFPRE collector clean-air outlet and may be preinstalled on the collector.

#### Extraction Arm Mounting Adapter

Extraction Arms (Ex-Arms) are designed to carry dust, fume, and mist away from the worker's breathing zone. The operator positions the hood 8 to 12-inches above the work area. Contaminated air is drawn into the hood, through the Ex-Arm and into the dirty-air plenum of the collector where it is filtered and exhausted.

### Spark Reducing Inlet

The Spark Reducing Inlet is recommended for applications where sparks are commonly present, such as laser cutting or welding processes. When used as part of an overall fire mitigation strategy, the Spark Reducing Inlet reduces the risk of a spark entering the dust collector by directing the airstream through a series of panels, creating a tortuous path to help extinguish the sparks. The Spark Reducing Inlet is fully pre-assembled for Model DFPRE 2, but assembly is required for Model DFPRE 3. Reference Appendix A for assembly instructions for DFPRE 3.

### Product Disclaimer



The Spark Reducing Inlet is intended for use in applications that have an increased fire risk and can be used as part of an overall fire mitigation strategy. No single spark mitigation device, including the Spark Reducing Inlet, can guarantee the elimination of all sparks and ignition sources from entering the dust collector. Please contact your Donaldson sales representative to discuss additional fire mitigation strategies as necessary.

### 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.

### Flameless Venting Device

A flameless venting device may be placed on top of the vent panel to extinguish explosion flames but allow pressure to pass through. Flameless vent sizing follows NFPA-68 formulas. Contact Donaldson Torit for explosion venting requirements.

### Sprinkler Coupling

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

### 3 Operation



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

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

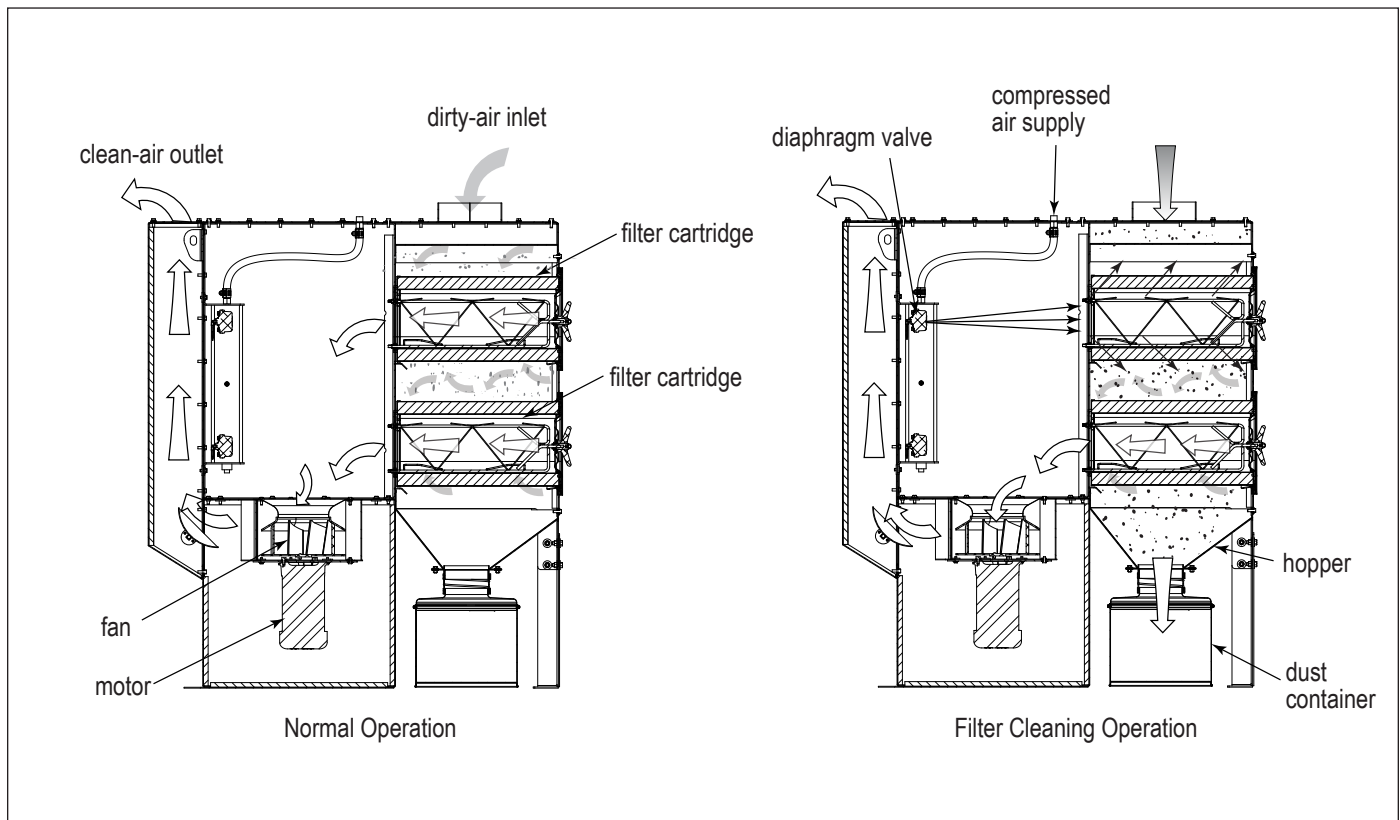
Turn compressed air supply off, bleed and lock out lines before performing service or maintenance work.

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

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

During normal operation, dust-laden air enters the collector through the top dirty-air inlet. Airflow is directed downward through the collector and heavier particulate falls directly into the hopper. The cartridges remove fine particulate and clean, filtered air passes through the cartridge to the clean-air plenum and discharges through the clean-air outlet.

Filter cleaning is completed using pulse-jet technology. An air diaphragm valve aligned to each filter provides the pulse cleaning. Either a manual push-button valve or electronic solenoid valve actuates the pulse cleaning. The cleaning sequence starts at the top filter and continues down through each filter. Remove, inspect, or change the filter cartridges from outside the collector by removing the filter access cover and sliding the filter out.



Collector Operation



## 4

**Product Service**

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

Use appropriate access equipment and procedures.

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

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

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

**NOTICE**

Do not set compressed-air pressure above 70-psig as component damage can occur.

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

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

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

**Operational Checklist**

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

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

2. Periodically check the compressed air components and replace compressed air filters.

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

3. Monitor pressure drop across filters.

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

4. Monitor exhaust.
5. Monitor dust disposal.

## Dust Disposal

1. Shut the collector OFF prior to emptying the dust container (bin, drawer, pail, or drum)
2. Loosen and remove collar clamp.
3. Remove dust container. For a 10-gallon pail, proceed to Step 5.
4. *For 25-gallon dust container only:* remove cover by releasing the latch clamp. Proceed to Step 5.
5. Transfer dust from the dust container to a suitable disposal site and dispose of dust in accordance with local requirements for the materials being collected.
6. Empty when dust container is 2/3 full. Check integrity of gasket under container cover. Replace gasket if worn or damaged.
7. Replace or reinstall dust container, cover and reclamp to the collector.

### NOTICE

The collector should not be operated without the dust container in place and should not be serviced while collector is running. Do not service the dust container without turning the collector OFF.

8. Remove spark reducing inlet access cover and clean out any accumulation of dust and dispose of in accordance with local requirements for the materials being collected.
9. Replace the spark reducing inlet cover.
10. The collector can now be returned to service.

## Filter Replacement



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

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

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

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

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

Do not operate with missing or damaged filters.

1. Turn all power to the collector OFF.
2. Begin filter replacement with the top row of filters. Select a filter access port and remove access cover by turning knob counterclockwise.
3. Break the seal between the filter cartridge and the sealing surface.
4. Slide each filter out the access port along the suspension yoke and dispose of in accordance with local requirements for the materials being collected.
5. Proceed to the next row of filters and repeat for all remaining filters.
6. Inspect and clean the sealing surface if necessary.

### NOTICE

Clean dust from gasket sealing area to ensure a positive filter gasket seal.

7. Clean any dust from the yoke threads that may have accumulated during the filter removal.
8. Check for any accumulation of dust in the storage area and remove as necessary.
9. Slide the gasket end of each new filter onto the end of the suspension yoke.

### NOTICE

The filter shape and yoke work together to ensure proper filter alignment during filter installation. To assist with alignment, an alignment mark ( $\triangle$ ) at the top of the filter endcap (non-gasketed end) must match with the alignment mark ( $\nabla$ ) at the top of the filter access opening.

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

11. Inspect cover gaskets. Clean and/or replace as necessary.
12. After new filters have been installed, place the access cover on the yoke and hold it in position while tightening the knob securely by hand (3 turns) before using tool assist option.

**NOTICE**

The access cover must be properly aligned to ensure a dust tight seal to the housing.

Do not exceed 150 in-lbs (12.5 ft-lbs) torque when securing the access cover as over tightening may cause damage to the filter and/or equipment.

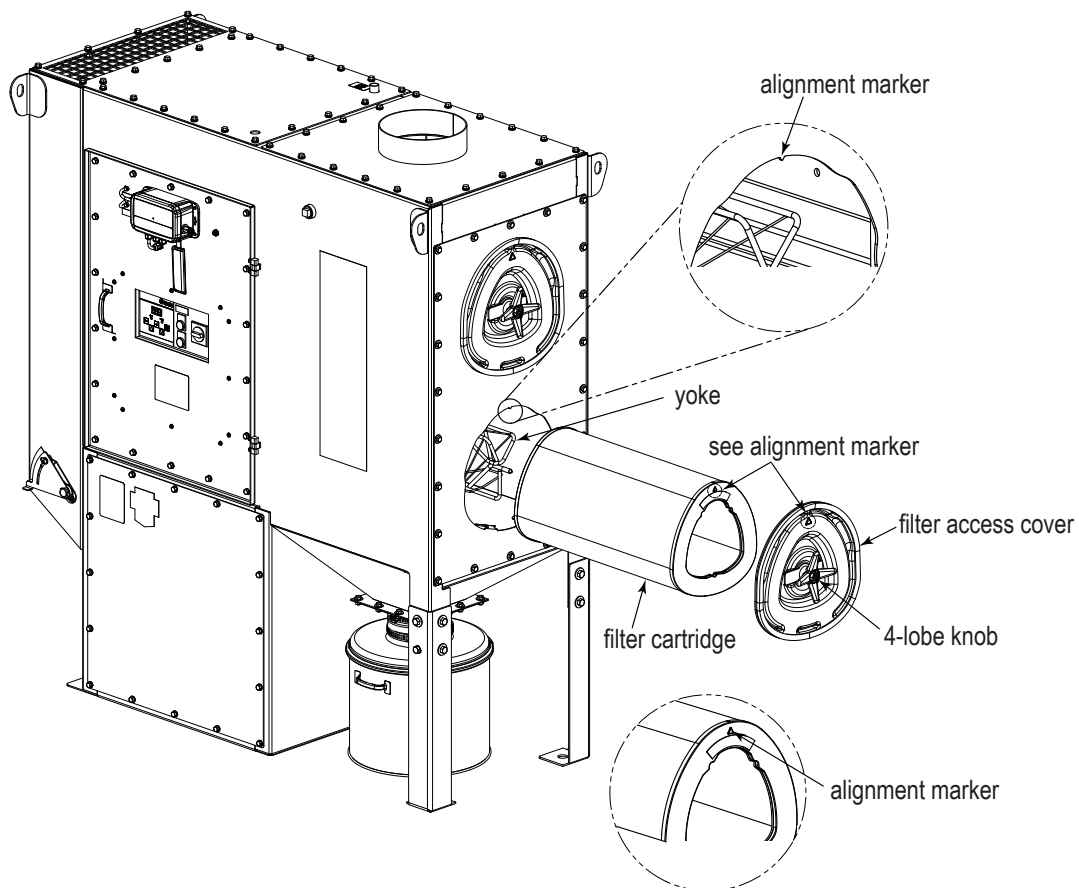
When filter installation is complete, check to ensure that each access cover is seated and sealed against the filter housing to ensure a dust tight housing seal.

13. Set the exhaust damper valve at 35°.
14. Once the Delta P controller reads 2.0 the filter is sufficiently primed and the damper valve can be moved into the fully open position.
15. Turn the collector ON and measure airflow. Adjust the exhaust damper valve (higher for less airflow, lower for more airflow) until the designed airflow is reached.
16. The collector can now be returned to service.

**Damper Flow Rates**

Deg	DFPRE 2 CFM*
25	1955
30	1635
35	1315
40	995
Closed	675

\*CFM values are approximate as actual values will vary based on application and configuration.



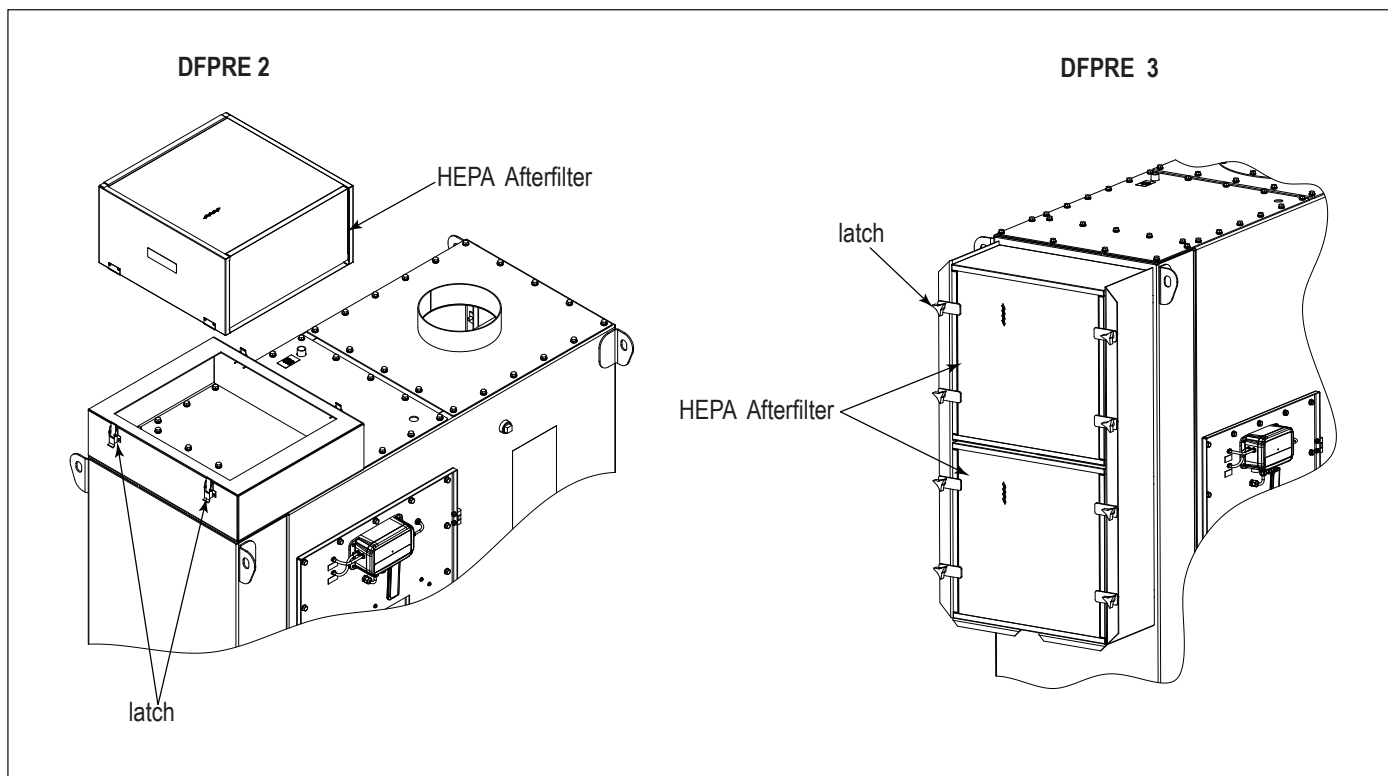
Filter Removal and Installation

## Compressed Air Components

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

## HEPA Afterfilter Replacement

1. Turn supply power OFF.
2. Undo latches.
3. For each afterfilter, loosen the black three lobe knobs so that the hold down tab can be rotated out of contact with the afterfilter frame.
4. Remove the HEPA Afterfilter(s).
5. Install the new HEPA afterfilter with the gasket side towards the collector making contact with the metal frame.
6. Rotate the hold down tabs so they make contact with the afterfilter metal frame and hand tighten the black three lobe knobs. Position the HEPA Afterfilter on mounting frame on top of the clean-air outlet and align with the latches.
7. Repeat steps 3-6 for each remaining afterfilter.
8. Reset exhaust damper to fully closed position.
9. Turn collector ON.
10. Adjust airflow using the airflow control damper.



HEPA Afterfilter Replacement

## Troubleshooting

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

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Insufficient airflow continued</b>	Lack of compressed air	See the Specification Control Drawing shipped with the collector for compressed air supply requirements.
	Pulse cleaning not energized	Use a voltmeter to check the solenoid valves in the control panel. Check pneumatic lines for kinks or obstructions.
	Dust storage area overfilled or plugged	Clean out dust storage area. See Dust Disposal.
	Pulse valves leaking compressed air	Lock out all electrical power to the collector and bleed the compressed air supply. Check for debris, valve wear, pneumatic tubing fault, or diaphragm failure by removing the diaphragm cover on the pulse valves. Check for solenoid leaks or damage. If pulse valves or solenoid valves and tubing are damaged, replace.
<b>No display on the Delta P Controller</b>	No power to the controller	Use a voltmeter to check for supply voltage.
	Fuse blown	Check the fuse in the control panel. See wiring diagram inside the control panel. Replace if necessary.
<b>Display on Delta P Controller does not read zero when at rest</b>	Out of calibration	Recalibrate as described in Delta P Maintenance Manual.
	With collector discharging outside, differential pressure is present from indoor to outdoor	Recalibrate with the pressure tubing attached as described in the Delta P Maintenance Manual.
<b>Delta P Controller ON, but cleaning system does not start</b>	Pressure tubing disconnected, ruptured, or plugged	Check tubing for kinks, breaks, contamination, or loose connections.
	Not wired to the timing board correctly	Connect the pressure switch on the timer board to Terminals 7 and 8 on TB3.
	Faulty relay	Using a multimeter, test relay for proper closure. Replace if necessary.

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

## **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 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. Use industrial duct design best practices for optimal dust collector performance.

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

## Provisional Anchor Bolt Recommendations

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

## Delivery and Inspection

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

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

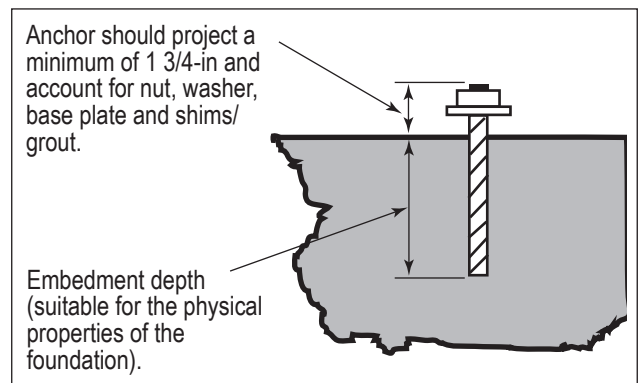
## Unloading and Positioning



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

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

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



Typical Foundation Anchor

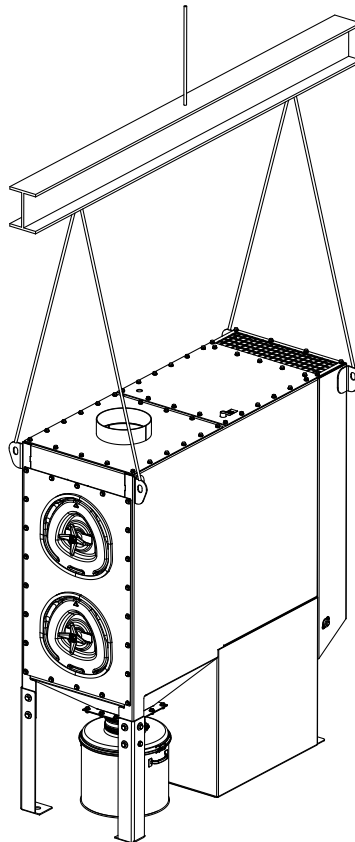
## Lifting Information



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

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

## Typical Lifting Guidance



Typical Lifting Guidance

## Compressed Air Installation



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

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

### NOTICE

Do not set compressed-air pressure above 60-psig as component damage can occur.

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

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

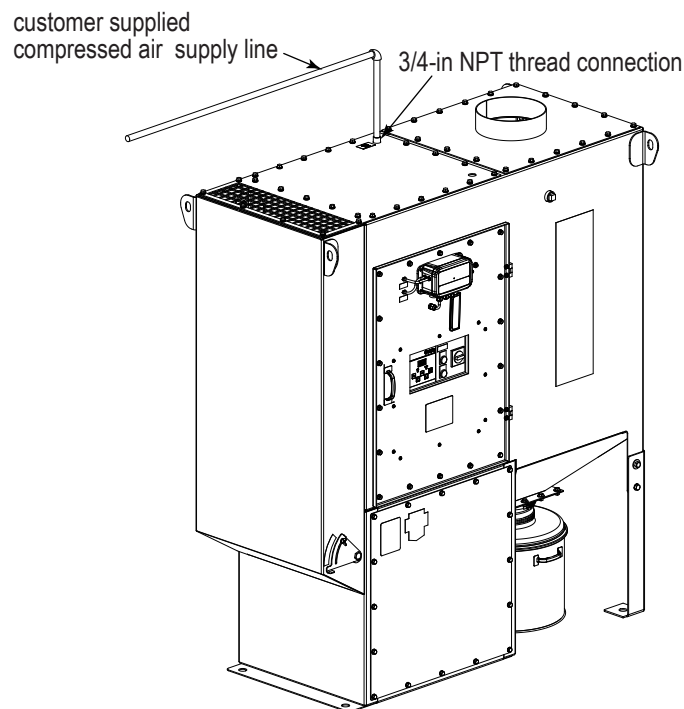
Purge compressed-air lines to remove debris before connecting to the collector's compressed-air manifold.

1. Remove the pipe plug from the collector's air manifold and connect the compressed-air supply lines. Use thread-sealing tape or pipe sealant on all compressed-air connections.
2. Install a shut-off valve, bleed-type regulator with gauge, filter, and automatic condensate valve in the compressed-air supply line.
3. Set compressed-air supply pressure to a level suitable for the filters (60-psig).
4. The pulse-cleaning controls are factory set to clean one or more filters every 10-seconds during a cleaning cycle.



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

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



Typical Component Installation

## Electrical Wiring



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

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

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

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

## Cleaning Controls and Sensors

### Delta P Control

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

All collectors include standard cleaning controls that are manually- or timer-controlled depending on the model and options selected. Models DFPRE 2 and DFPRE 3 standard controls include Delta P cleaning with motor starter and remote-mount Delta P with motor starter and remote-mount Delta P cleaning without motor starter. All control panels, except remote-mount, are located inside the collector.

### Delta P Cleaning Option

Primarily used for continuous duty or heavy dust-load applications, the Delta P provides automatic, on-line filter cleaning. The high- and low-pressure setpoints initiate the pulse cleaning cycle. The pulse-cleaning cycle begins when the filter pressure reaches the high-pressure setpoint. The valves continue to pulse every 10 seconds until the low-pressure setpoint is reached.

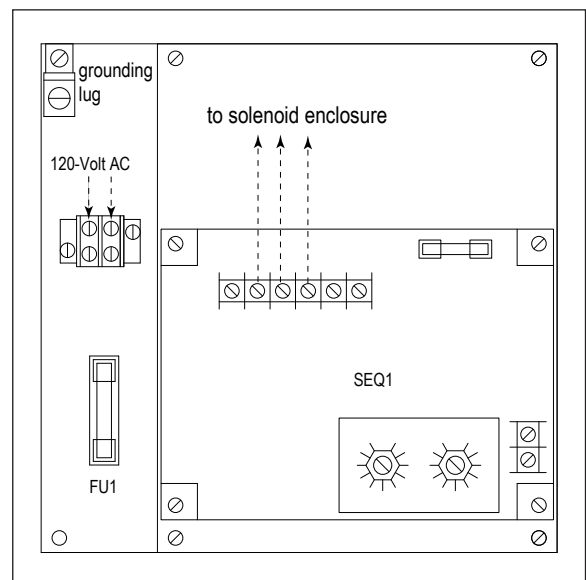
### Remote-Mount Cleaning Option

Primarily used in applications that require the cleaning controls to be located away from a hazardous environment, remote-mount controls are available with Delta P cleaning remote Delta P is available for DFPRE 2. This option is specified at the time of order and the collector is equipped with a 115-Volt AC NEMA 12 solenoid valve enclosure. Explosion-protected collectors include a NEMA 9 dust explosion-proof solenoid enclosure. Contact Donaldson for information about a NEMA 7 gas explosion-proof solenoid enclosure.

Motor starters for remote-mount cleaning options are customer-supplied.



Delta P Control Display



Remote-Mount Delta P Cleaning Controls

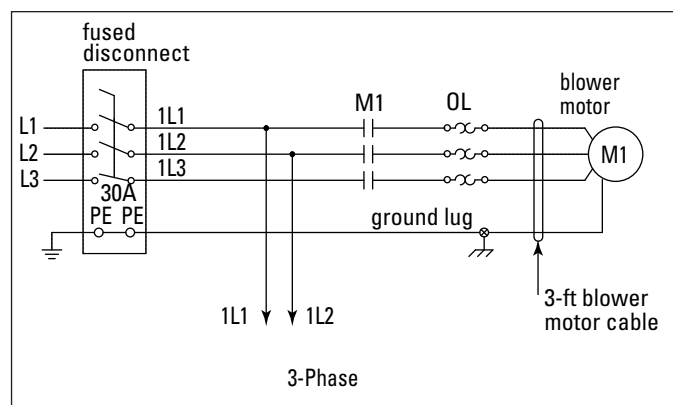
## Delta P Cleaning with Motor Starter

The Delta P control panel with motor starter requires three-phase power with the requirements as listed on the motor's nameplate and is wired directly to the terminals on the motor disconnect switch located inside the control panel. See wiring diagram inside control panel.

## Motor Wiring Instructions

For Customer-Supplied Motor Starters

1. Power is always routed through one or both of the top electrical openings and through an internal bulkhead knockout provided on the blower motor plate inside the collector.
2. Remove electrical-access panels and set aside.
3. Using the wiring diagram on the motor, wire directly to motor. Do not wire through the control panel. Use appropriate wire gauge for rated amp load as specified by local codes.
4. With power supply ON, check the operation of the motor and fan rotation. Proper fan rotation is clockwise when viewed from the motor side or counterclockwise when viewed through the inlet cone.



Delta P Cleaning with Motor Starter

## Control Panels and Solenoid Specifications

Control Panel Input

Without Motor Starter: 105-135 Volts AC/50-60Hz/1 Phase

With Motor Starter: See motor voltage/50-60 Hz/3 Phase

Pulse ON Time

Factory set at 200-milliseconds.

Pulse OFF Time

Factory set at 10-seconds. The pulse OFF time can only be adjusted by modifying the parameters contained in the microprocessor software. Contact your representative for assistance.

Pulse Cleaning Cycle

Delta P Cleaning

Until low-pressure setpoint is reached.

Solenoid Valves

115-Volt AC at 19.7 watts each

Operating Temperature Range

Ambient 0° to 105° F

## iCue Gateway Installation



The iCue Gateway should not be used to detect, monitor, warn, or alert personnel to hazards, potential safety issues, or combustion risks. Users should not rely on readings from the product to provide emergency or hazard prevention or for emergency response activities and decisions. Users remain solely responsible for maintaining a safe work environment. All dust collection equipment and accessories should be operated and maintained in accordance with the manufacturer's instructions.

Smart collectors are designed with connectivity in mind through the iCue platform. The platform utilizes an iCue Gateway that captures data from sensors and transmits it wirelessly via a cellular connection to the web-based Donaldson iCue application. This platform operates independently of the dust collector control system.

The iCue Gateway utilizes internal sensors for sensing filter differential pressure, airflow data and compressed air pressure of the cleaning manifold. The gateway also has inputs for Donaldson approved optional sensors. The platform utilizes a cellular connection to transmit sensor data to the Donaldson iCue application. The cellular data plan and preinstalled SIM card are provided by Donaldson. The SIM card will only work with Donaldson's service and should not be removed.

For additional installation information on the iCue Gateway operation or instruction on connecting additional sensors, refer to the installation and operation manual for the iCue Gateway.

## Options and Accessories

### Hopper Discharge Accessories



Turn all power off and lock out all power to the collector and ancillary equipment before accessing the inside of the hopper and before performing service or maintenance work.

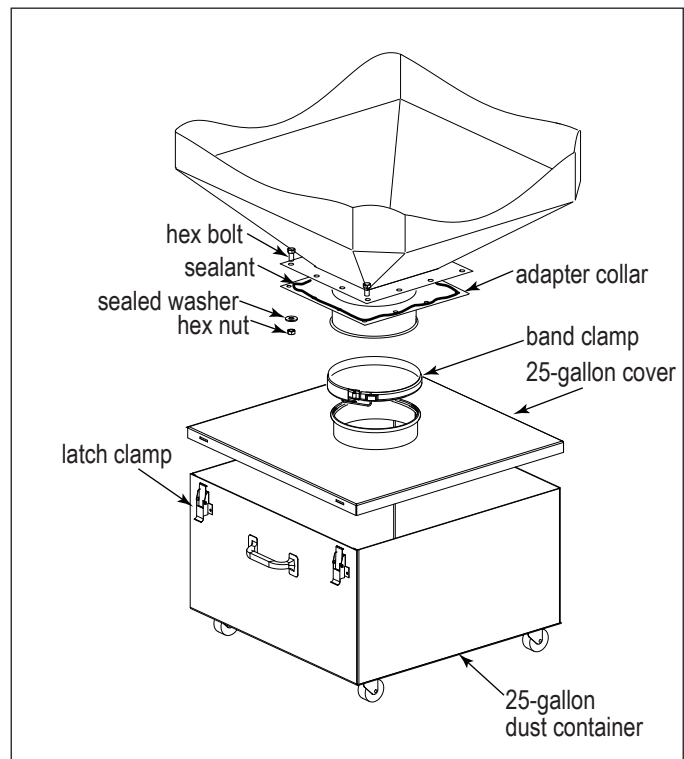
Most dusts present safety and health hazards that require precautions.

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

### 25-Gallon Dust Container with Casters (Optional)

The 25-gallon dust container is secured to the adapter collar with a band clamp similar to the standard 10-gallon dust container.

1. Apply sealant to the adapter collar mounting flange toward the inside edge of the bolt pattern.
2. Attach adapter collar to the hopper flange using the bolts, washers, and hex nuts supplied.
3. Place cover on container and secure latches.
4. Position container under hopper outlet.
5. Secure the adapter collar and the container cover the wide band clamp.

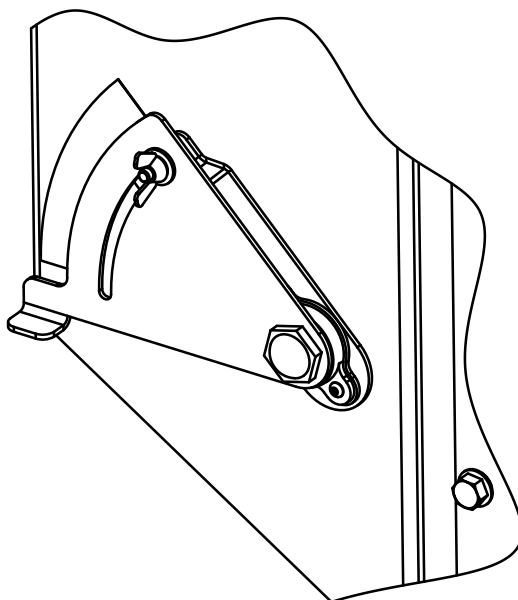


25-Gallon Dust Container

## Exhaust Damper

1. When starting DFPRE collector, set the exhaust damper valve at 35° deg.
2. Turn the collector on and measure airflow.
3. Adjust the exhaust damper valve (higher for less flow, lower for more flow) until the designed airflow is reached. Lock the damper in place.
4. Once the Delta P controller reads 2.0, the filter is sufficiently primed and the damper valve can be moved into the fully open position.

Damper Flow Rates	
Deg	DFPRE 2 CFM*
25	1955
30	1635
35	1315
40	995
Closed	675
*CFM values are approximate as actual values will vary based on application and configuration.	



Exhaust Damper Adjustment

## Bag-Out

Bag out collars are available for capturing nuisance, non-hazardous dust that may fall from dirty filters during the filter change.

Note: This is not for contamination prevention or full containment purposes and is not a substitute for BIBO. Contact Donaldson Torit for selection assistance.

1. Turn all power to the collector OFF.
2. Begin filter replacement at one of the top filter access ports. Continue by replacing the remaining filters in the top row. Proceed to replace the filters in the next row. Replacing the filters row by row starting at the top will help limit dusting during replacement.
3. Remove access cover by turning knob counterclockwise.



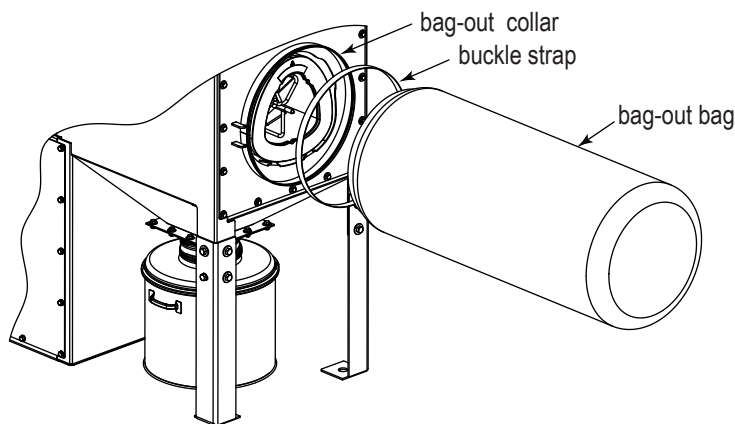
Do not use the access cover features as climbing equipment.

4. Break the seal between the filter cartridge and the sealing surface.
5. Place the bag out bag around collar surrounding port hole. Starting from the bottom of the collar, roll the bag opening over the edge of the collar. With both hands, move around the collar until the bag is in position all the way around the collar. Secure bag on collar with buckle strap.
6. Using the bag as a glove, pull the filter into the bag.
7. Remove the buckle strap securing the bag. Place it aside for use on the next bag. Support filter and bag when removing to prevent dust spilling. Properly dispose of bag with the filter inside of it.
8. Repeat steps 5-7 for all remaining filters on suspension yoke.
9. Inspect and clean the sealing surface if necessary.

### NOTICE

Clean dust from gasket dealing area to ensure a positive filter gasket seal.

10. Clean any dust from the yoke threads that may have accumulated during the filter removal.
11. Check for an accumulation of dust in the storage area and empty as necessary.
12. Follow filter installation instructions found in the Filter Replacement section of this manual.

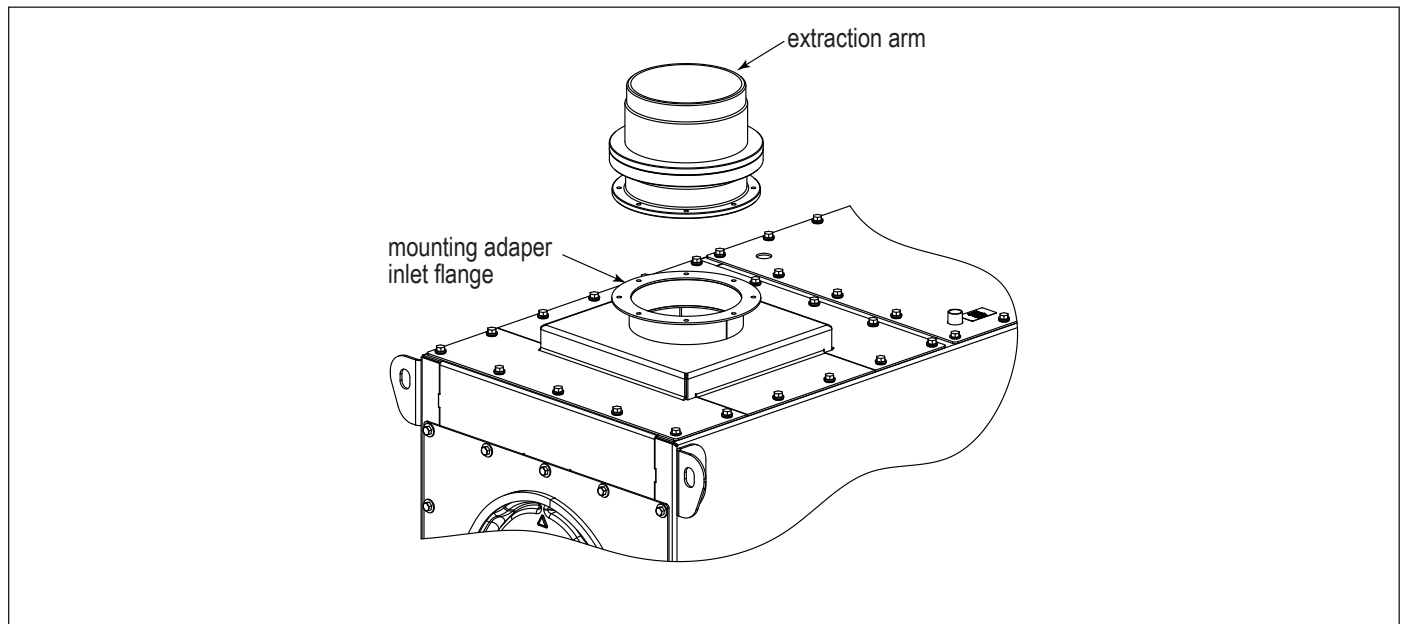


Bag-Out



## Mounting Adapter and Extraction Arm Installation

1. Remove the roof panel.
2. Place 1/4-in diameter, rope-type sealant on the roof panel toward the inside of the bolt pattern.
3. Place mounting adapter on the roof panel and align bolt patterns.
4. Remove the filter-access cover and filters to access the inside of the collector when attaching the mounting adapter.
5. Secure mounting adapter to roof panel.
6. Tighten all hardware securely.
7. Replace filter and filter access cover.
8. Lift the Ex-Arm into position over the mounting adapter inlet flange.
9. Align bolt patterns and secure with hardware provided. Reference the Extraction Arm Installation and Operation Manual for additional instructions.



Mounting Adapter and Extraction Arm Installation

## Spark Reducing Inlet



Do not use spark reducing inlet with explosion relief devices. Contact your Donaldson sales representative to discuss additional mitigation strategies as necessary.

### Assembly Instructions - DFPRE 3 Only

1. At site installation, remove shipping cover and save fasteners. Remove any residual sealer and clean mating surface.
2. Apply the supplied tube sealant in a figure 8 pattern around the bolt holes in the cabinet dirty air plenum top flanges and spark reducing inlet top flanges.
3. Lift the spark reducing inlet extended dirty air plenum (EDAP) about 1-in above the cabinet flanges and align the flange bolt holes with the cabinet top flange bolt holes.
4. Lower the EDAP into place on the cabinet flanges with the EDAP bolt holes aligned to the cabinet flange bolt holes.
5. Bolt the EDAP into place with the supplied fasteners.

### Preventative Maintenance Recommendations

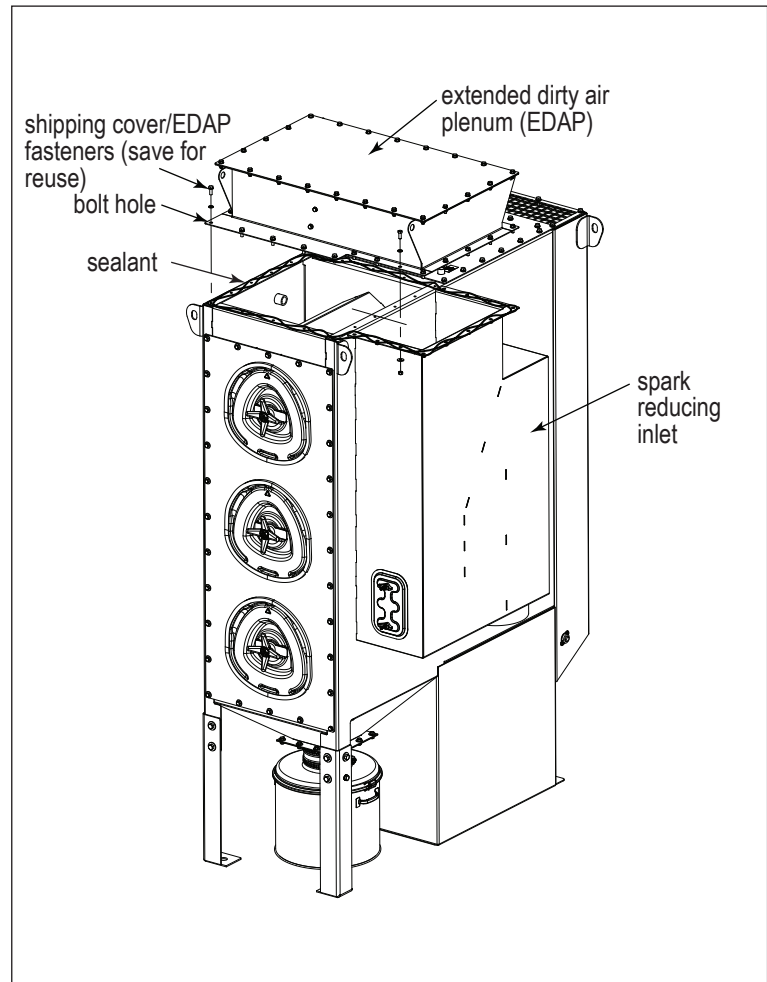
Inspect the spark reducing inlet at a minimum of every two weeks.

1. Turn all power to the collector OFF.
2. Remove the inlet access cover by turning the wing nuts counter clockwise. Do not fully remove the wing nuts.
3. Slide the inlet access cover to the bottom right corner of the opening and orientate diagonally to remove.
4. Clean out any accumulation of material buildup from inside the spark reducing inlet.
5. Inspect and clean the sealing surface if necessary.

#### **NOTICE**

Clean dust from gasket sealing area to ensure an effective gasket seal.

6. Reinstall the inlet access cover and tighten wing nuts to secure.
7. Turn the collector ON.
8. The collector can now be returned to service.



## Explosion Relief Panel



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

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

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

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

Standard explosion relief panels are intended for outdoor installations only.

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

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

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

## Flameless Explosion Relief Device

A flameless venting device may be placed on top of the vent panel to extinguish explosion flames but allow pressure to pass through.



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.

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

Unless otherwise noted, the explosion venting calculations are based on formulas from NFPA-68.

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

Refer to vendor supplied installation manual for additional information.

## Sprinkler Coupling



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

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

### NOTICE

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

## Start-up / Commissioning

Instruct all personnel on safe use and maintenance procedures.



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

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

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

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

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

1. Check all electrical connections for tightness and contact.
2. Check for proper rotation on all motors as described below.



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

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

Stand clear of exhaust to avoid personal injury.

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

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

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

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

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



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

4. Ensure all equipment access panels are sealed and secure.
5. Check that the dust container or dust discharge device is properly attached to the collector (if supplied).
6. Check that fan exhaust damper is set to the fully-closed position (if supplied).
7. Check and remove all loose items in or near the inlet and outlet of the collector.
8. Check that all remote controls and solenoid enclosures (if applicable) are properly wired and all service switches are in the OFF position.
9. Check that all optional accessories are installed properly and secured.
10. Turn power ON at source.

11. Turn the compressed-air supply ON. Set compressed-air supply pressure to a level suitable for the filters (60-psig).

12. Turn fan motor ON.

13. Adjust airflow with the exhaust damper.

### **NOTICE**

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

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

## Decommissioning

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



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

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

Electrical service must be performed by a qualified electrician.

Disconnection of ducts must be performed by a qualified contractor.

1. Lock-out all energy sources to the collector, material handling system and other associated equipment.
2. Remove all filters from the collector and dispose of in a suitable fashion for the dust in the collector. (See Filter Replacement for removal instructions).
3. Disconnect electrical power from the collector and material handling system components and remove any associated conduit or hardware from the exterior of the collector.
4. Clear residual dust accumulations from surfaces inside the collector and associated components in a fashion suitable for the dust, prior to further disassembly.
5. Remove and dispose of all material handling components from the collector hopper discharge.
6. Disconnect all ducts from the collector.
7. 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 _____	
_____	

## Service Notes

[illegible]

## Donaldson Industrial Air Filtration Warranty

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

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

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

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



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