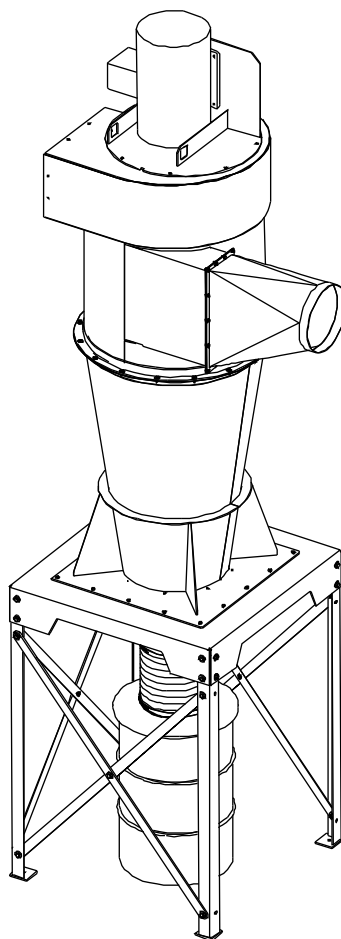


## Cyclone

12, 16, 20, 24, 30, 36, and 44

### Installation and Operation Manual

Installation, Operation, and Service Information



This manual is property of the owner. Leave with the unit when set-up and start-up are complete. Donaldson Company reserves the right to change design and specifications without prior notice.

Illustrations are for reference only as actual product may vary.



**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**

 **WARNING**

Process owners/operators have important responsibilities relating to combustible hazards. Process owners/operators must determine whether their process creates combustible dust, fume, or mist. If combustible dust, fume, or mist is generated, process owners/operators should at a minimum:

- Comply with all applicable codes and standards. Among other considerations, current NFPA standards require owners/operators whose processes involve potentially combustible materials to have a current Hazard Analysis, which can serve as the foundation for their process hazard mitigation strategies.
- Prevent all ignition sources from entering any dust collection equipment.
- Design, select, and implement fire and explosion mitigation, suppression, and isolation strategies that are appropriate for the risks associated with their application.
- Develop and implement maintenance work practices to maintain a safe operating environment, ensuring that combustible dust, fume, or mist does not accumulate within the plant.

Donaldson recommends process owners/operators consult with experts to insure each of these responsibilities are met.

As a manufacturer and supplier of Industrial Filtration Products, Donaldson can assist process owners/operators in the selection of filtration technologies. However, process owners/operators retain all responsibility for the suitability of fire and explosion hazard mitigation, suppression, and isolation strategies. Donaldson assumes no responsibility or liability for the suitability of any fire and/or explosion mitigation strategy, or any items incorporated into a collector as part of an owner/operators hazard mitigation strategy.

Improper operation of a dust control system may contribute to conditions in the work area or facility that could result in severe personal injury and product or property damage. Check that all collection equipment is properly selected and sized for the intended use.

**DO NOT** operate this equipment until you have read and understand the instruction warnings in the Installation and Operations Manual. For a replacement manual, contact Donaldson Torit.

This manual contains specific precautionary statements relative to worker safety. Read thoroughly and comply as directed. Discuss the use and application of this equipment with a Donaldson Torit representative. Instruct all personnel on safe use and maintenance procedures.

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**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



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

**NOTICE**

**NOTICE** is used to address practices not related to personal injury that may result in damage to equipment.

## Data Sheet

Model Number _____	Serial Number _____
Ship Date _____	Installation Date _____
Customer Name _____	
Address _____	
Filter Type _____	
Accessories _____	
Other _____	

## Description

Cyclone dust collectors are mechanical separators that use the principles of centrifugal force to remove particulate from the airstream.

The Cyclone provides high-efficiency separation due to its high inlet velocities. Long tapered cones and an inner helix minimize inlet-zone turbulence common in some similarly designed equipment. For added efficiency, an optional filter bag assembly is available and installed in a plenum on the discharge side of the fan. Standard options include cabinets with pullout drawers, hoppers, or a 55-gallon drum dust containment system.

## Purpose and Intended Use



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

Do not misuse or modify.

Most commonly used in applications generating high dust loads, such as woodworking and machining, where coarse or large dust particles are produced. Product recovery of fine dust such as powdered paint is also a common application.

The Cyclone can be used alone or with filter bags, depending on whether the discharge air is exhausted to the atmosphere or returned to the plant. Used as a pre-cleaner, the Cyclone can reduce the load to the inlet of a cartridge or bag collector.



Combustible materials such as buffing lint, paper, wood, metal dusts, weld fume, or flammable coolants or solvents represent potential fire and/or explosion hazards. Use special care when selecting, installing, and operating all dust, fume, or mist collection equipment when such combustible materials may be present in order to protect workers and property from serious injury or damage due to a fire and/or explosion.

Consult and comply with all National and Local Codes related to fire and/or explosion properties of combustible materials when determining the location and operation of all dust, fume, or mist collection equipment.

Standard Donaldson Torit equipment is not equipped with fire extinguishing or explosion protection systems.

## Rating and Specification Information

Specifications	Model						
	12	16	20	24	30	36*	44*
Supply Voltage	208/230/460-Volt, 60 Hz, 3 Phase						
Horsepower, blower motor	3/4	2	3 5	7 1/2	10 15	20 25 30	40 50
Dust Holding Capacity, cu ft							
Dust Drawer	4.8	4.8	8.5	8.5	16.5	--	--
Hopper	12.0	12.0	19.5**	37.5**	37.5**	54**	103
Air Inlet, inches diameter	4	6	8	10	12	14	18
Air Outlet, inches diameter	6	8	10	12	14	16	20
Optional Afterfilter							
No. of Bags	1	1	4	4	8	12	24
Afterfilter area, cu ft	15	25	70	100	200	300	600
Shipping Weight, lbs							
Dust Drawer	265	340	635	750	1210	--	--
Hopper	350	410	740	850	1486	2165	3165

\*Belt-driven blower motor

\*\*Hopper capacity up to 103 cu ft available

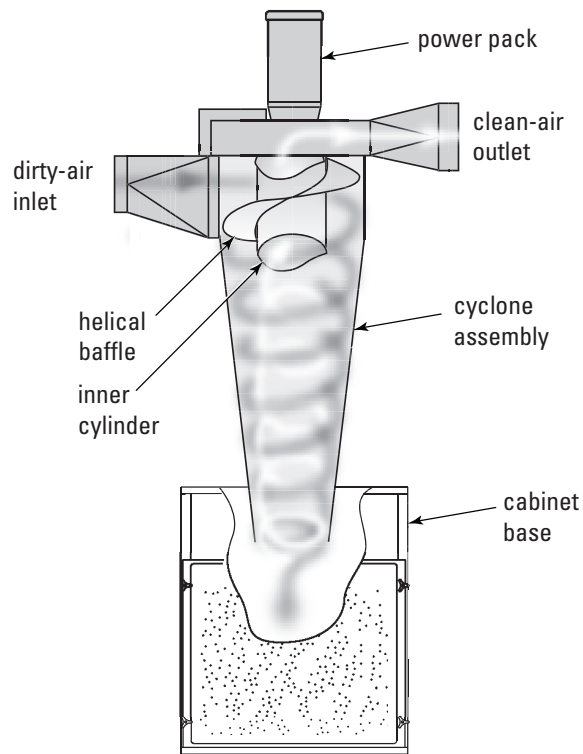
Collectors are rated for the following loads as calculated per relevant sections of the IBC 2012 code\*:

Basic Wind Speed & Exposure .....90 mph, Exposure C  
 Seismic Spectral Acceleration,  $S_s$  ..... 1.5 g  
 Seismic Spectral Acceleration,  $S_1$  ..... 0.6 g  
 Installed Collector Base Elevation .....Grade  
 Risk Category ..... II  
 Housing rating, inches water gauge ..... +/-20  
 Control power .....120-Volt 50/60 Hz

\*If collector was supplied with a Record Drawing, the specifications on the drawing will supersede the standard specifications above.

## Operation

Air is drawn into the collector through the dirty-air inlet and diverted by a helical baffle. This baffle causes the airstream to spin downward. Centrifugal force moves the heavier dust particles to the sidewalls and carries the heavy dust to the base of the collector. Clean air (and lighter dust particles) are directed up through the inner cylinder and discharge through the clean-air outlet. The standard Cyclone design generates clockwise air movement only.



Collector Operation

## Inspection on Arrival

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

## Installation Codes and Procedures



Codes may regulate recirculating filtered air in your facility.

Consult with the appropriate authorities having jurisdiction to ensure compliance with all national and local codes regarding recirculating filtered air.

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

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

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

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

### **NOTICE**

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

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

## Installation



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

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

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

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



Site selection must account for wind, seismic zone, and other

load conditions when selecting the location for collectors.

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

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

Consult a qualified engineer for final selection of anchorage.

## Foundations or Support Framing

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

Foundation and support framing must be capable of supporting dead, live, wind, seismic and other applicable loads. Consult a qualified engineer for final selection of foundation or support framing.

## Collector Location

### **WARNING**

Donaldson Torit equipment is not designed to support site installed ducts, interconnecting piping, or electrical services. All ducts, piping, or electrical services must be adequately supported to prevent severe personal injury and/or property damage.

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

### **CAUTION**

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

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

## Site Selection

This collector can be located on a foundation or structural framing.

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

## Rigging Instructions

### Suggested Tools & Equipment

Clevis Pins and Clamps	Lifting Slings
Crane or Forklift	Pipe Sealant
Drift Pins	Pipe Wrenches
Drill and Drill Bits	Screwdrivers
End Wrenches	Socket Wrenches
Adjustable Wrench	Spreader Bars
Torque Wrench (inch/lbs, 9/16-in Socket)	

## Hoisting Information

### **WARNING**

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

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

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

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

Use all lifting points provided.

Use clevis connectors, not hooks, on lifting slings.

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

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

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

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

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

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



## Standard Equipment

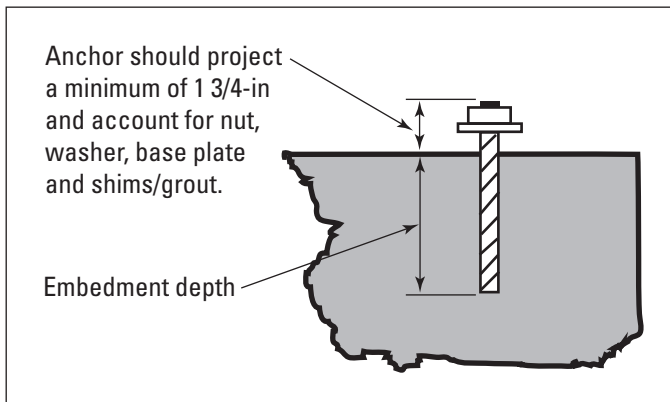
Standard equipment consists of a cone assembly, an inlet pack, and a 55-gallon drum base assembly except for the size 44 which comes standard with a 103 ft<sup>3</sup> hopper base. All models come with top cover or optional top mounted power pack.

## Field Assembly

Models 12 and 16 normally ship fully assembled less support. Models 20, 24 and 30 normally ship in three sections: motor, blower housing and cone, and a base section. Models 36 and 44 typically ship with the power package assembled to the upper cylinder assembly and the cone and base separate.

## Provisional Anchor Bolt Recommendations

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



Typical Foundation Anchor

## Electrical Wiring



### WARNING

Electrical installation, service, or maintenance work must

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

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

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

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

Check local ordinances for additional requirements that apply.

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

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

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

## Base and Leg Assembly (Sizes 12-30 & 36 with 55-gallon drum base)

1. Position and assemble base, legs, and cross braces as shown in the provided assembly drawing. If collector was supplied with a Record Drawing, specifications on the drawings will supersede the drawings shown below.
2. Use drift pins to align the holes in the base with the holes in the legs. Attach each leg with bolts shown on assembly drawing. Do not tighten hardware.
3. Use drift pins to align the holes in the legs with the holes in the cross braces. Fasten using bolts shown on assembly drawing. Do not tighten hardware.
4. Recheck the position of legs and cross bracing.
5. Using a crane, lift the assembled base and legs onto the anchor bolts. Fasten each leg pad to the anchor

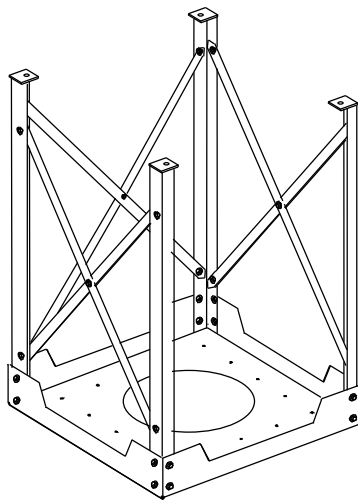
bolts using flat washers, lock washers, and hex nuts provided by others. Do not tighten hardware at this time.

**Note:** If epoxy or expansion type anchors are used, the anchor bolts can be installed after the support leg assembly is set in place. On some collectors the support assembly may have to be temporarily moved if there is insufficient drill clearance to install the anchors.

6. Level base. Use steel shims under leg pads if necessary. Tighten all hardware on legs, cross braces, and foundation anchors.

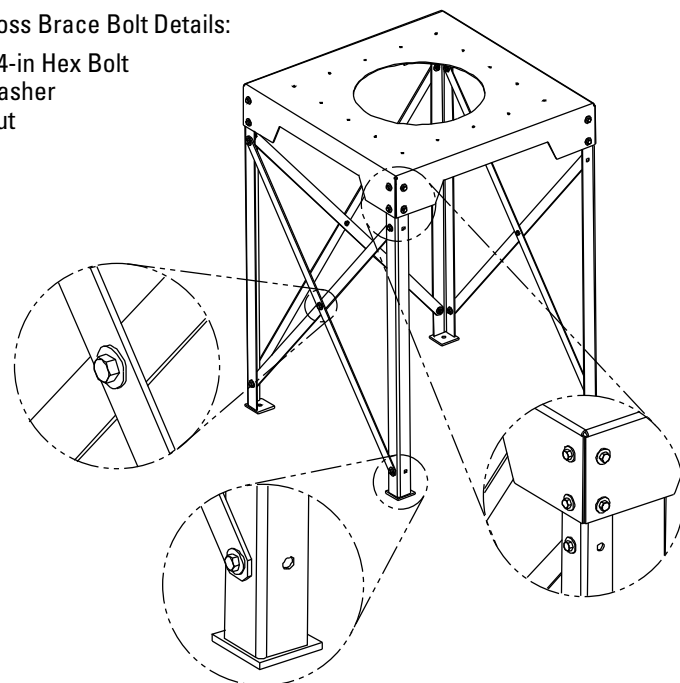
### **NOTICE**

Tighten all leg and cross brace hardware before removing crane.



#### All Leg and Cross Brace Bolt Details:

- 1/2-13 x 1 1/4-in Hex Bolt
- 1/2-in flat washer
- 1/2-in hex nut



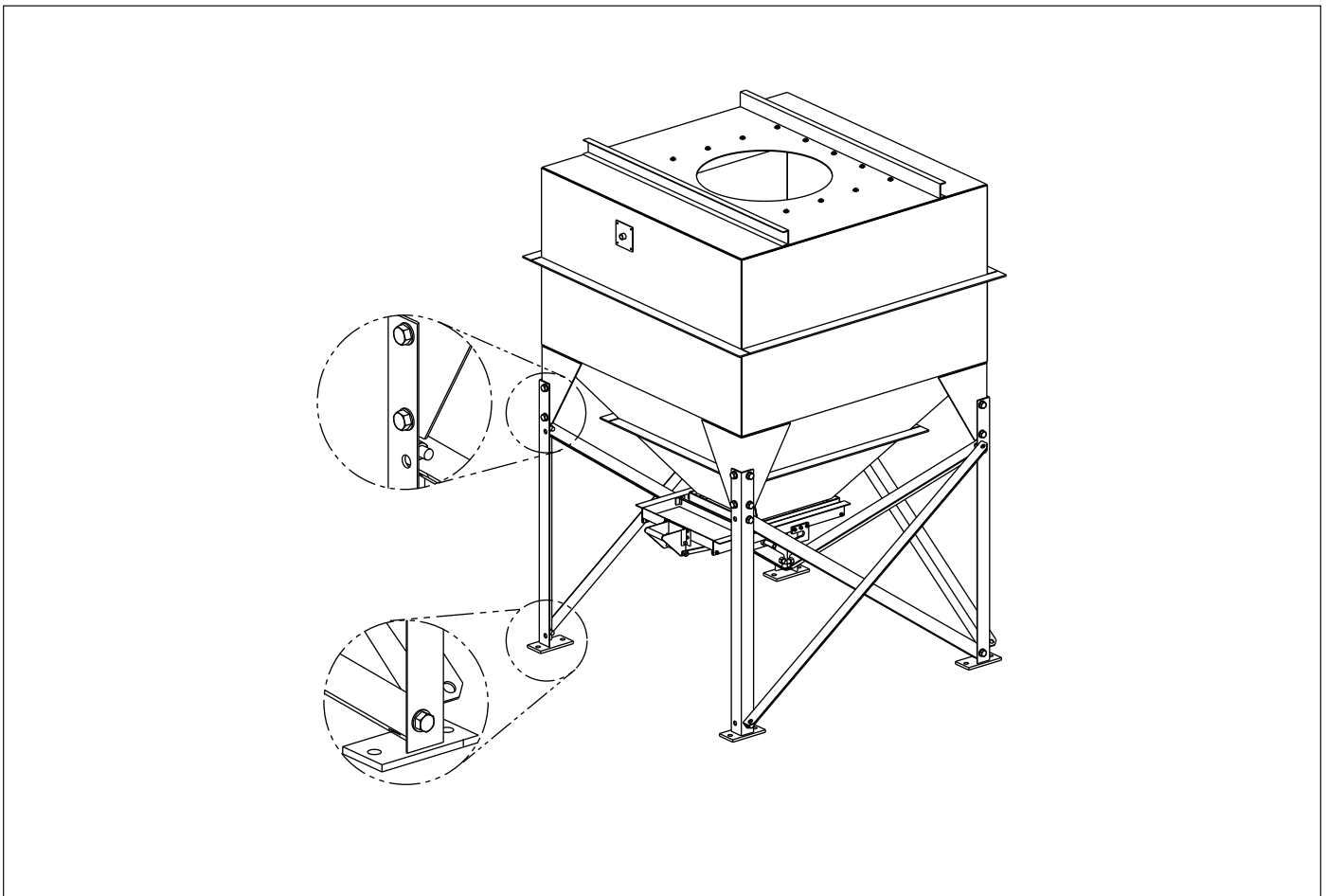
1. Attach legs to base.
2. Attach cross bracing.
3. Turn leg and cross brace assembly upright.
4. Position on anchor bolts.
5. Level base and tighten all hardware securely.

Base and Leg Assembly (Sizes 12-30 & 36 with 55-Gallon Drum Base)

## Base and Leg Assembly (Sizes 36 with bin base and size 44)

1. Raise hopper base with crane or fork lift truck so legs can be loosely bolted to corner support gussets.
2. Set leg base plates over anchor bolts (if pre-installed).
3. Install bracing per sketch or job specific assembly drawing. Use drift pins as required for alignment of parts.
4. Tighten all bolts including anchor bolts.

Note: If epoxy or expansion type anchors are used, the anchor bolts can be installed after the support leg assembly is set in place. On some collectors the support assembly may have to be temporarily moved if there is insufficient drill clearance to install the anchors.



Base and Leg Assembly (Sizes 36 with Bin Base and Size 44)

### Cyclone Installation (for sizes 12-30)

1. Use a crane or forklift with appropriate chains and shackles to attach to the cyclone lift lugs.
2. After taking up the slack on the chains, unbolt the cyclone from the crate and slowly position it over the support base.
3. Use drift pins to align the holes in the cyclone bottom plate and support base as required.
4. Fasten securely using fasteners provided. Refer to final assembly drawings if provided.

### Cyclone Installation (for sizes 36 with bin and 44)

1. Using a crane, lift the Cyclone hopper (cone) and position over base and lower slowly.
2. Use drift pins to align the holes in the Cyclone's support plate and the base.
3. Fasten securely using 3/8-16 bolts, washers and hex nuts.
4. Apply sealant to the top of the hopper flange.
5. Attach crane or hoist straps to all the eye bolts or lift lugs on the upper Cyclone assembly and slowly lift the assembly over the Cyclone hopper and lower into position paying attention to properly align the inlet of the Cyclone per the job drawing.

#### **NOTICE**

To ensure vertical stability, secure chains to upper cone using adjustable straps.

6. Use drift pins to align the holes in the Cyclone's bottom plate and the base.
7. Fasten securely using 3/8-16 bolts, washers and hex nuts.

### Fan Blower

#### **WARNING**

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

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

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

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

#### **CAUTION**

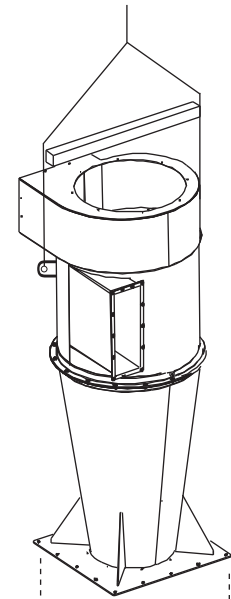
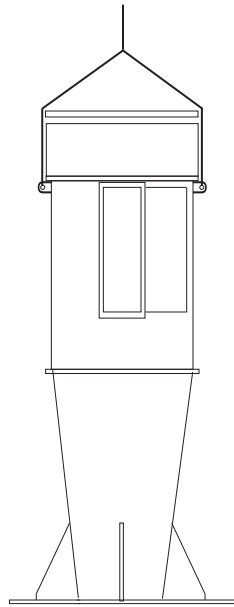
To avoid personal injury and/or damage to equipment, ensure fan blowers are properly attached to equipment.

The fan is designed to fit on the top of the fan blower housing on all collectors. On some collectors the motor is unassembled for shipping purposes.

Check that the inlet and discharge are facing the desired directions. Both may be positioned in 45° increments. To rotate the blower housing, remove either the thread-cutting screws or the 1/4-20 x 3/4-in bolts, turn the housing to the desired position and re-secure. Drilling is required for increments other than 45°.

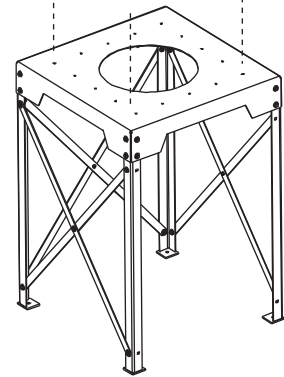
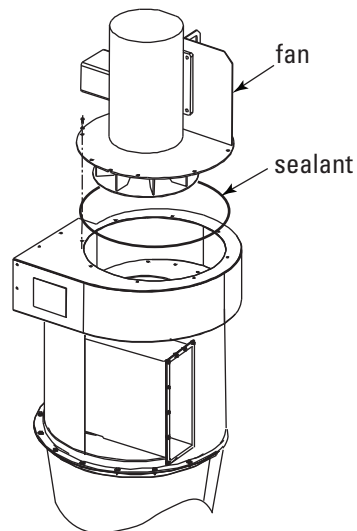
#### **NOTICE**

If the collector has a belt-driven blower, do not attempt to make pulley changes. Each pulley is sized for proper operation prior to shipment. No changes should be made unless specifically directed by Donaldson Torit. Individual manuals are furnished with each belt-driven collector.



### Fan Installation

1. Apply sealant to the inside edge of the bolt pattern on the top of the fan blower housing.
2. Using a crane, lift the fan blower into position over the fan blower housing and lower slowly.
3. Secure fan to fan blower housing using the thread-cutting screws provided.



### Cyclone Installation

**WARNING**

Electrical service or maintenance work must be performed by

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

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

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

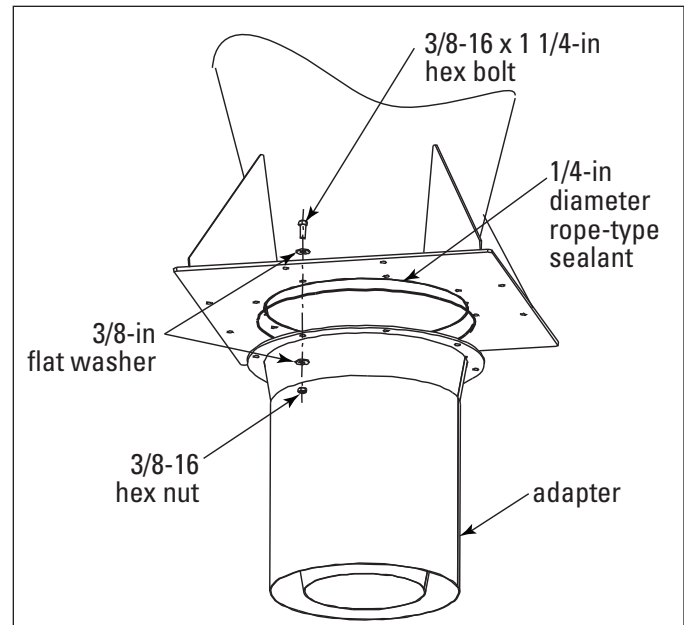
1. Wire the motor to the power supply following the instructions located on the motor.
2. Visually check the rotation of the blower wheel against the rotation arrow decal on the blower housing. The inspection cover is located near the discharge flange on the housing side. On belt-driven collectors, inspection covers are on top of the housing.
3. If the motor has been connected backwards, a much smaller than normal airflow will be generated into the duct and through the collector. Visually check blower rotation.

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

To reverse rotation, three-phase power supply: Turn electrical power OFF at source and switch any two leads on the output-side of the blower-motor starter.

### Adapter Collar Installation

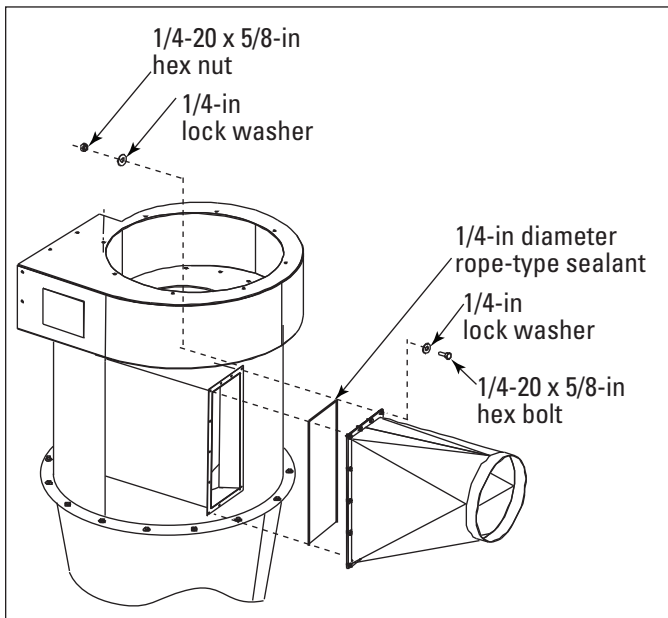
1. Apply 1/4-in diameter rope-type sealant toward the inside edge of the adapter's bolt pattern.
2. Fasten adapter to cone using 3/8-16 x 1 1/4-in bolts, washers, and hex nuts. Tighten all fasteners securely.



Adapter Collar Installation

## Inlet Transition Assembly

1. Apply 1/4-in rope-type sealant to the Cyclone's inlet mounting collar.
2. Align holes in the inlet collar with holes in the transition collar and secure using 1/4-20 x 5/8-in bolts, lock washers, and hex nuts.



Inlet Transition Assembly

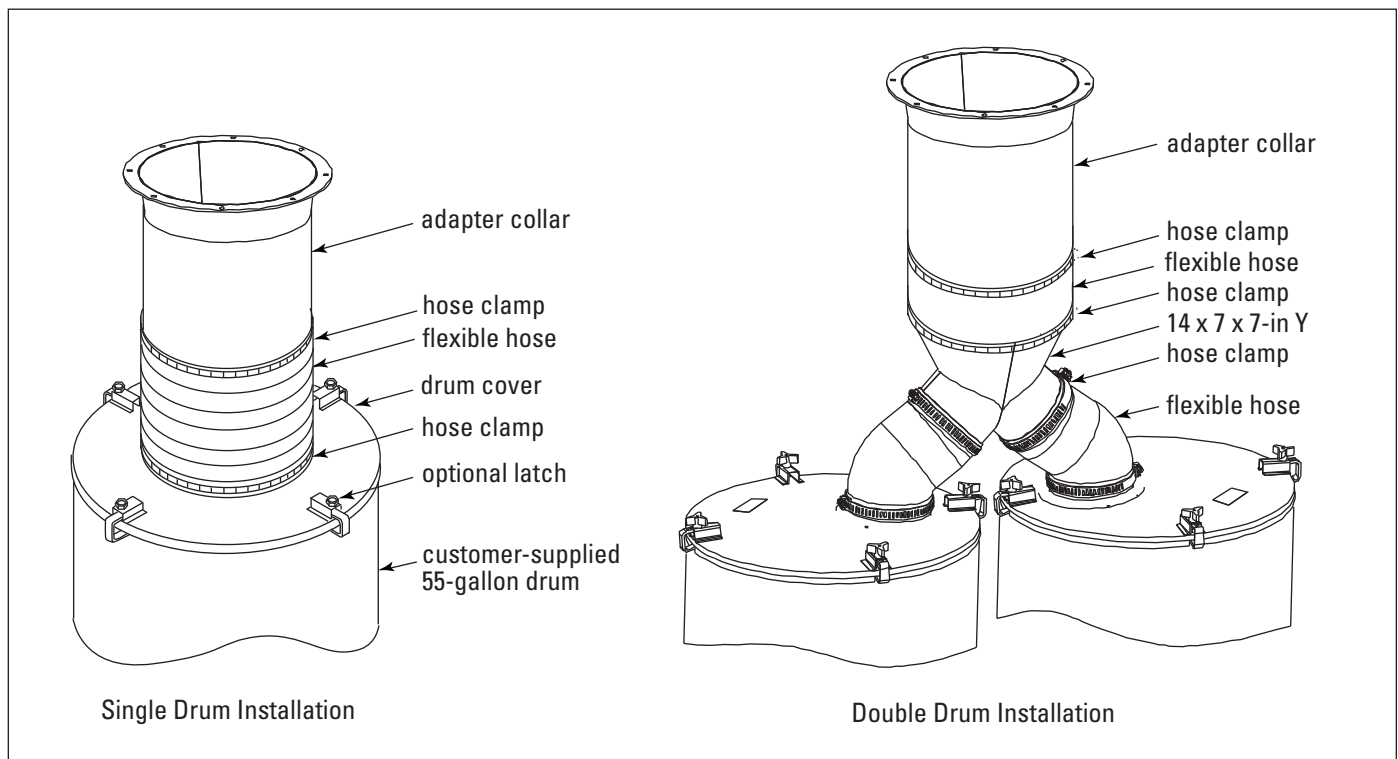
## Drum Pack Installation

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

1. Place drum cover on drum and secure with latches, if equipped.
2. Connect one end of the flexible hose to the adapter collar and the other end to the drum cover. Secure with hose clamps.

## Double Drum Pack

1. Attach Y-branch to adapter collar and secure with hose clamp.
2. Connect one end of 7-in diameter flexible duct to one Y-branch outlet and the other end to the drum cover. Secure with hose clamps.
3. Repeat Step 2 for the second Y-branch outlet and drum.



55-Gallon Drum Pack

## Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

### **WARNING**

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

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

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

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

Optional fans over 600 lbs must be independently supported.

1. Check all electrical connections for tightness and contact.
2. Check for proper rotation as noted on the fan and/or hopper discharge device housing.

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.

### **WARNING**

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

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

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.

### **WARNING**

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

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

Stand clear of exhaust to avoid personal injury.

12. Adjust airflow with the exhaust damper.

### **NOTICE**

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



## Maintenance Information

Instruct all personnel on safe use and maintenance procedures.

### **WARNING**

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

Use appropriate access equipment. The standard collector is not equipped with access platforms unless noted on specification drawings.

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

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

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

## 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. On collectors with afterfilters, check the filter bags on a regular basis for leakage, porosity and overfilling. The dust will collect on the inside of the filter bags and they must be emptied and cleaned or replaced on a periodic basis.

**Note:** Only the dust drawer filter enclosure allows the dust to pass through the filters to the dust drawers below. Poor suction is usually an indication that the filters must be emptied and cleaned or replaced or the dust drawers emptied on dust drawer collectors.

3. Check that the hopper discharge gates are open and that the doors, drum covers, and gaskets are firmly in place.

4. Monitor dust disposal. Empty dust drawers or drums when 2/3 full. Keep collected material a minimum of 10-inches from the end of the cone on hopper models. See Specification Control Drawing for specific model information.
5. Turn fan OFF and manually shake filter bags at the end of each shift. If adequate air volume cannot be restored by shaking, please contact your Donaldson Aftermarket Sales Representative to order replacement bags.
6. Under normal operating conditions, replace filter bags every two years. Include the collector's model and serial number when ordering replacement bags.
7. Follow the motor manufacturer's maintenance instructions. Contact the motor manufacturer for warranty and service information.

### **NOTICE**

Do not run the motor for extended time periods unless all ducts are in place.

Do not run the collector with the dust container doors open, or with the 55-gallon drum covers off. Motor overload can occur.

## Filter Installation (for optional afterfilters)

### **WARNING**

Personal injury and/or property damage can result from possible combustion of dusts in the filter bag assembly or Cyclone collector. Application of a filter bag assembly and Cyclone collector must be reviewed for any risks associated with combustible dusts which may accumulate in the filter bag assembly. The risk of injury or damage can be minimized or avoided by locating the filter bag assembly and Cyclone collector outside buildings and away from normally occupied areas.

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 electrical power sources before performing service or maintenance work.

### **CAUTION**

Use care with any power assisted tools to avoid personal injury and/or property damage from rotating parts.

Do not operate with missing or damaged filters.

### **NOTICE**

The standard filter bag assembly is intended for indoor installations only. Locating the filter bag assembly outdoors may require special attention to protect the filter bag assembly from direct exposure to weather.

The filter bag assembly ships in several containers. Models 12FB and 16FB contain an elbow, flange assembly, and a bag. Larger model filter assemblies have a manifold assembly, transition, end-plate assembly, bags, and clamps.

1. Apply 1/4-in diameter rope-type sealant between the housing discharge flange and the transition flange. Secure using 1/4-20 x 3/4-in bolts, washers, and nuts supplied.
2. Install ceiling supports to all top holes for the manifold section.
3. Position the filter bags on the collar with the clamps and bags past the bead on the collar.

### **NOTICE**

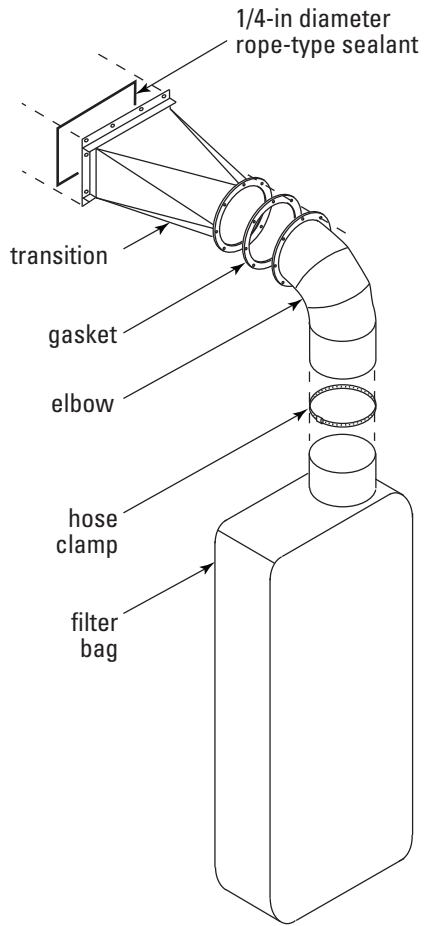
On collectors with filter bag enclosures, secure the bags at the top and bottom using the appropriate clamps, making sure the bags and clamps are past the bead on the collar.

4. On collectors with filter enclosures, remove the side panels to install the filter bags.
5. On collectors without filter enclosures, connect ducts from the collector's exhaust outlet through the roof or nearest exterior wall. Use sealant between the housing flange and the transition or collar flange furnished.

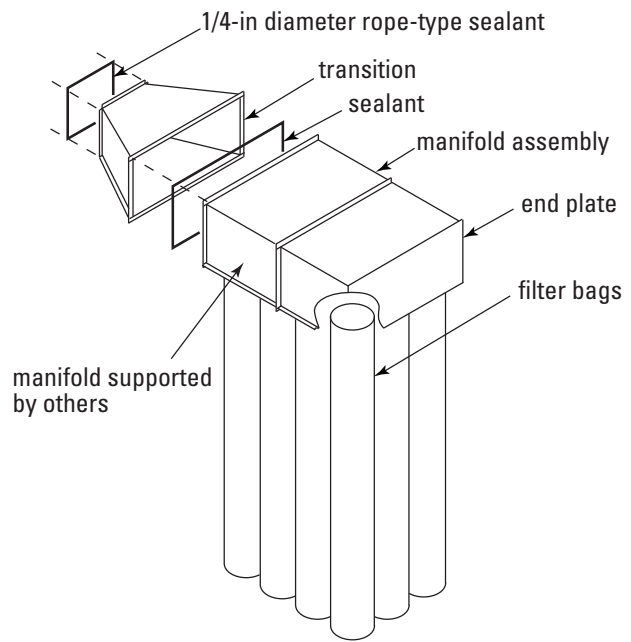
### **WARNING**

The filter bag assembly must have adequate support. Failure to provide adequate support may result in personal injury or property damage.

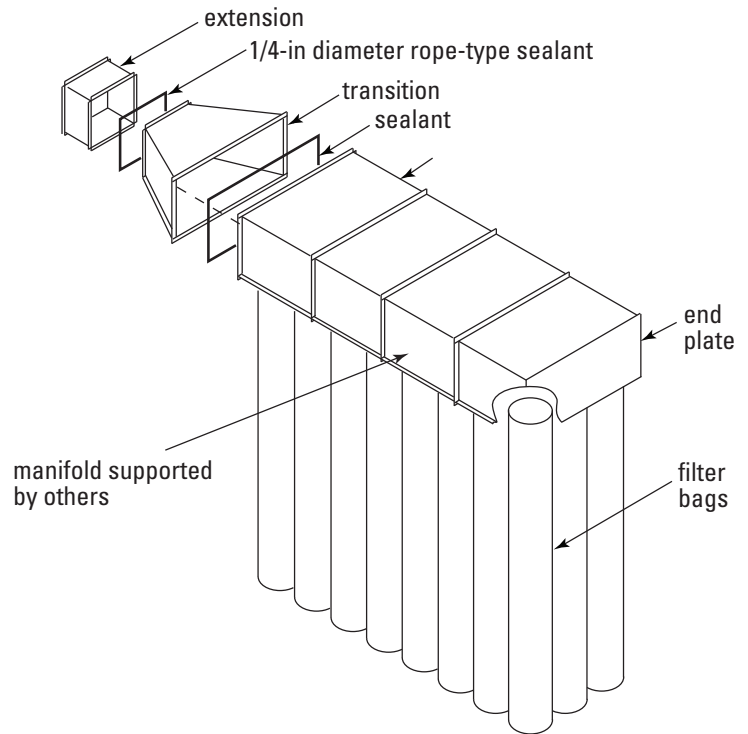
Contact Donaldson Torit for assistance.



Models 12 and 16



Models 20, 24, and 30



Models 36 and 44

Filter Bag Installation

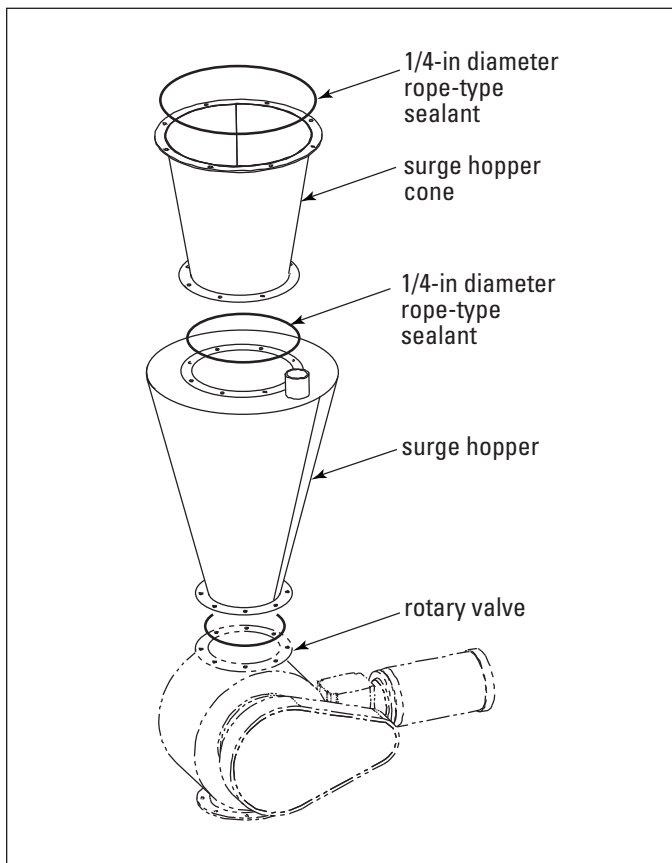
## Optional Equipment

### Surge Hopper Installation

1. Install cyclone assembly as described in Cyclone Installation.
2. Apply 1/4-in diameter rope-type sealant toward the inside edge of the surge hopper cone's top flange.
3. Using 3/8-16 x 1-1/4-in bolts, washers, and hex nuts, secure the surge hopper cone to the cyclone assembly.

#### **NOTICE**

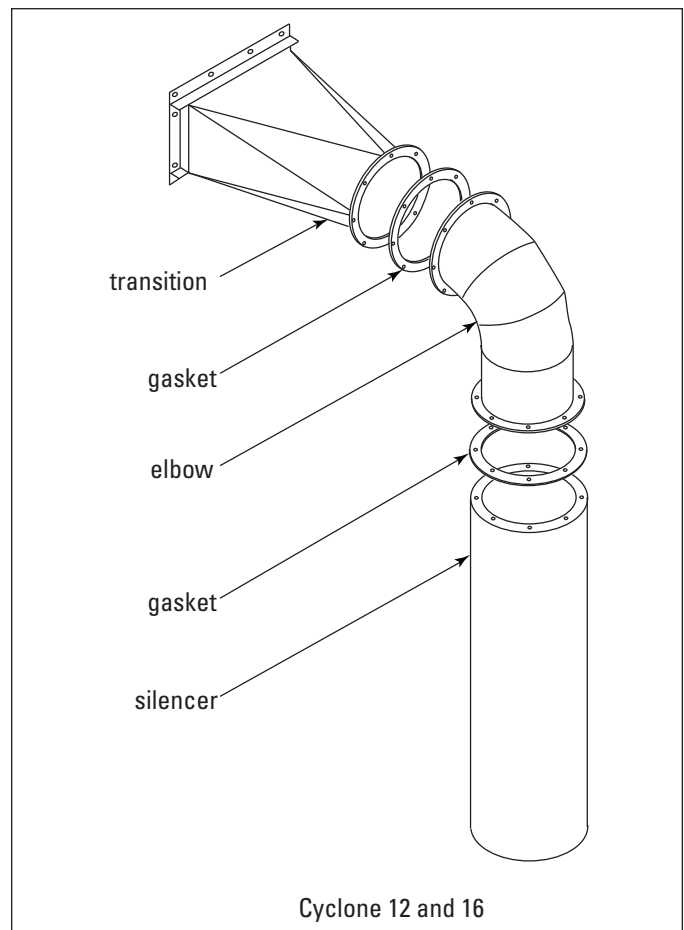
If installing a heavy duty rotary valve, such as a cast machined version in place of a fabricated steel one, extra support may be required.



Surge Hopper Installation

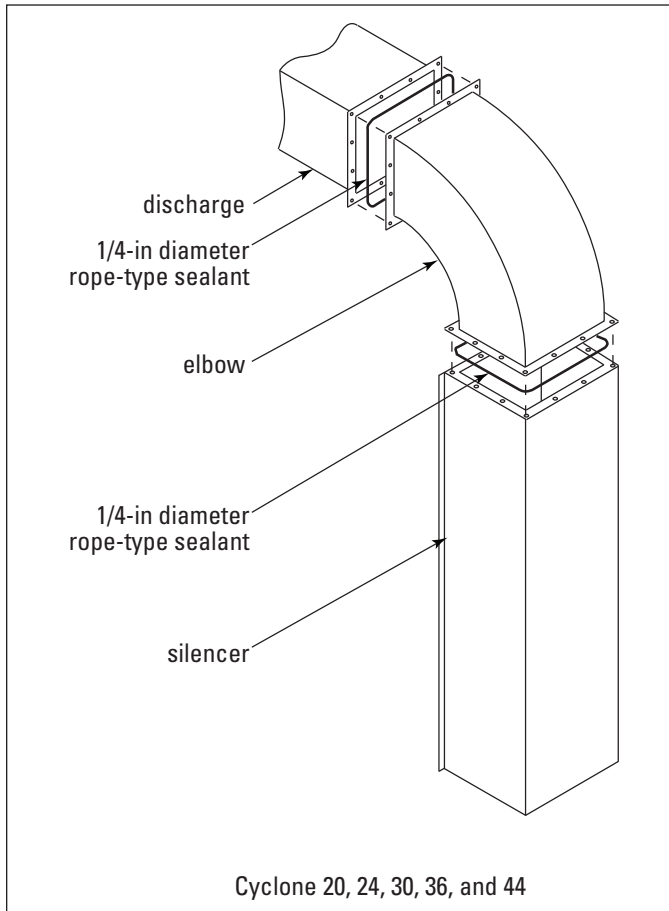
### Silencer Assembly

1. For models 12 and 16, install the supplied gasket between the housing flange and the elbow's flange. On larger collectors, apply 1/4-in diameter rope-type sealant between the housing discharge flange and the elbow's connecting flange.
2. Align bolt hole patterns and fasten elbow to housing using 1/4-20 x 3/4-in bolts, washers, and hex nuts supplied.
3. Repeat Steps 1 and 2 to attach silencer to elbow.
4. Tighten all fasteners securely.

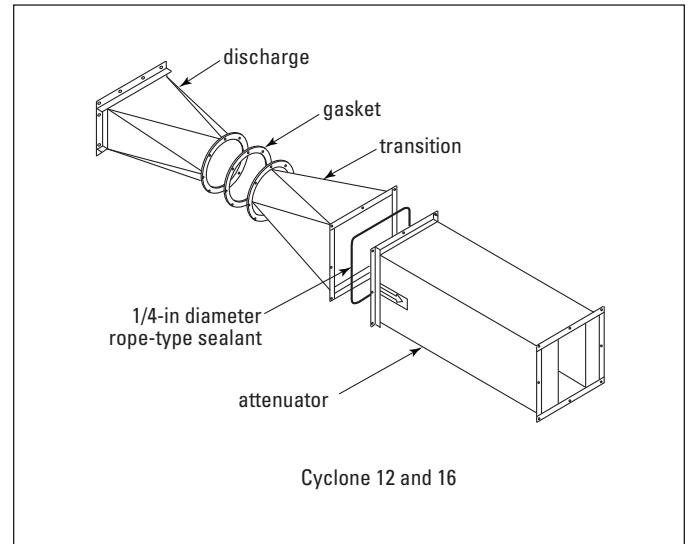


Cyclone 12 and 16

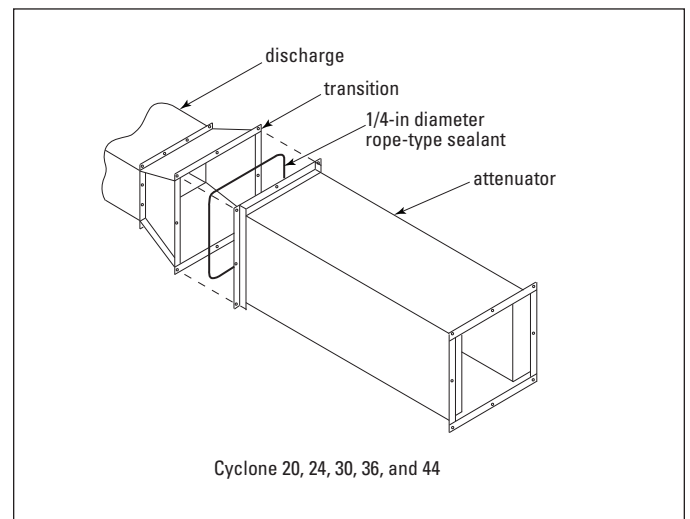
Silencer Assembly, Cyclone 12 and 16



Cyclone 20, 24, 30, 36, and 44  
Silencer Assembly, Cyclone 20 through 44



Cyclone 12 and 16  
Attenuator Installation, Cyclone 12 and 16



Cyclone 20, 24, 30, 36, and 44  
Attenuator Installation, Cyclone 20 through 44

## Attenuator Installation



The Attenuator assembly must have adequate support. Failure to provide adequate support may result in personal injury or property damage.

Contact Donaldson Torit for assistance.

1. For models 12 and 16, install the supplied gasket between the transition and the attenuator flange. On larger collectors, apply 1/4-in diameter rope-type sealant between the housing discharge flange the elbow's connecting flange.
2. Align bolt hole patterns and fasten securely using 1/4-20 x 3/4-in bolts, washers, and hex nuts supplied.

## Explosion Vent

### **WARNING**

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

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

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

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

Standard explosion vents are intended for outdoor installations only.

### **NOTICE**

Remove all shipping materials, including covers, from the explosion relief vents prior to installation. Failure to remove shipping covers will seriously compromise explosion vent operation.

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.

## 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>Bypassing excessive amounts of dust</b>	Dust container is full	Empty the dust container. Monitor dust level of dust container on a regular basis.
	Lack of adequate seal on base of Cyclone	Replace or repair all hoses and/or gaskets to improve seal.
<b>Motor runs hot, starter kicks out</b>	Fan rotation backwards	Proper fan rotation is clockwise from the top of the collector. The fan rotation can be viewed through the back of the motor. See Preliminary Start-Up Check.
	Incorrect motor starter installed	Check for proper motor starter and replace if necessary.
	Incorrect motor heater coil installed	Check and replace as necessary.
	Starter or supply voltage connections loose	Check all wiring connections for tightness. Loose connections can cause single phasing on three-phase circuits and heater coil damage. Motor hum or growling is an indication of this condition.
	Ducts open or major leakage in duct system	Check all ducts and confirm they are properly connected and sealed tight. Operating the collector with insufficient dust static load can overload the fan motor.
	Dust storage container leaking or 55-gallon drum cover is loose	Check for large leaks in the storage chamber. Check the 55-gallon drum cover gasket and make sure that the drum cover is fastened securely.
	Electrical circuit overload	Check that the power supply circuit has sufficient power to run all equipment.
	<b>Insufficient airflow</b>	Collector not wired for available voltage
Fan rotation backwards		Proper fan rotation is clockwise from the top of the collector. The fan rotation can be viewed through the back of the motor. See Preliminary Start-Up Check.

## Troubleshooting

Problem	Probable Cause	Remedy
<b>Insufficient airflow</b>	Dust storage container leaking or 55-gallon drum cover is loose	Check for large leaks in the storage chamber. Check the 55-gallon drum cover gasket and make sure that the drum cover is fastened securely.
	Large diameter branch in extended length duct system	Install a blast gate.
	Improper duct or hood size	Check and replace if necessary.
	Fan exhaust area restricted	Check fan exhaust area for obstructions. Remove material or debris. Adjust damper flow control.
	Obstruction in duct	Check and remove obstruction.
	Filters plugged	Check and clean or replace as necessary.
	Grinding or polishing equipment in use	Increase airflow to compensate for equipment that creates its own air circulation.









## The Donaldson Torit Warranty

Donaldson warrants to the original purchaser that the major structural components of the goods will be free from defects in materials and workmanship for ten (10) years from the date of shipment, if properly installed, maintained and operated under normal conditions. Donaldson warrants all other Donaldson built components and accessories including Donaldson Airlocks, TBI Fans, TRB Fans, Fume Collector products and Donaldson built Afterfilters for twelve (12) months from date of shipment. Donaldson warrants Donaldson built filter elements to be free from defects in materials and workmanship for eighteen (18) months from date of shipment. Donaldson does not warrant against damages due to corrosion, abrasion, normal wear and tear, product modification, or product misapplication. Donaldson also makes no warranty whatsoever as to any goods manufactured or supplied by others including electric motors, fans and control components. After Donaldson has been given adequate opportunity to remedy any defects in material or workmanship, Donaldson retains the sole option to accept return of the goods, with freight paid by the purchaser, and to refund the purchase price for the goods after confirming the goods are returned undamaged and in usable condition. Such a refund will be in the full extent of Donaldson's liability. Donaldson shall not be liable for any other costs, expenses or damages whether direct, indirect, special, incidental, consequential or otherwise. The terms of this warranty may be modified only by a special warranty document signed by a Director, General Manager or Vice President of Donaldson. To ensure proper operational performance of the equipment, use only genuine Donaldson replacement parts. THERE EXIST NO OTHER REPRESENTATIONS, WARRANTIES OR GUARANTEES EXCEPT AS STATED IN THIS PARAGRAPH AND ALL OTHER WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED ARE HEREBY EXPRESSLY EXCLUDED AND DISCLAIMED.



**Donaldson**  
FILTRATION SOLUTIONS

### Parts and Service

For genuine Donaldson replacement filters and parts, call the Parts Express Line. For faster service, have unit's model and serial number, quantity, part number, and description available.

**Donaldson Company, Inc.**  
**Torit**  
**PO Box 1299**  
**Minneapolis, MN 55440-1299**  
**U.S.A.**

**800-365-1331 USA**  
**800-343-3639 within Mexico**  
**+52 (449) 300 24 42 Latin America**

**donaldsontorit@donaldson.com**  
**donaldsontorit.com**

Donaldson Company, Inc. is the leading designer and manufacturer of dust, mist, and fume collection equipment used to control industrial-air pollutants. Our equipment is designed to help reduce occupational hazards, lengthen machine life, reduce in-plant maintenance requirements, and improve product quality.