

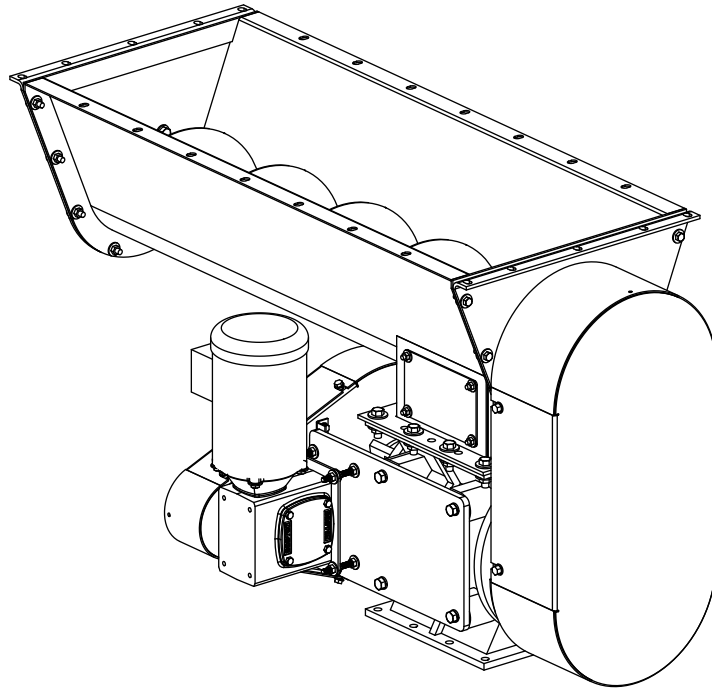


Live Bottom Hopper

AN, FT and Meyer (Standard and NFPA Rated)

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.



ROTATING EQUIPMENT COULD CAUSE SERIOUS INJURY

LOCK OUT power before servicing this equipment.

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

The hopper/auger inlet and the rotary valve outlet of the live bottom hopper should be attached to an enclosure or have a guard in place to prevent hands, feet, or loose clothing from entering the live bottom hopper.

Operate live bottom hopper only when all guards are correctly and securely in place.

It is not unusual for a live bottom hopper to be operated from a remote location, so a live bottom hopper may start unexpectedly. LOCK OUT power before servicing a live bottom hopper.

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

For optimum performance, use only Donaldson Torit replacement parts.

Contents

Description.....	1	Installation.....	4
AN Live Bottom Hopper.....	1	Reducer.....	4
FT Live Bottom Hopper	1	Electrical Connection	5
Meyer Live Bottom Hopper.....	1	Live Bottom Hopper Equipment Options	6
Purpose and Intended Use	1	Preliminary Start-Up Check	7
Operation.....	2	Maintenance Information.....	8
Inspection on Arrival.....	3	Operational Checklist	8
Installation Codes and Procedures	3	Drive Components and Lubrication, All Models.....	8
Rigging Instructions.....	3	Wiper Seal Replacement and Auger Maintenance	8
Hoisting Information	3	Service Notes.....	9
Electrical Wiring.....	4		



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 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

The Live Bottom Hopper (LBH) is used as an auger/airlock/feeder device on conveying systems and dust collection equipment. It allows continuous evacuation of particulate from a dust collector, while providing an effective seal.

The hopper contains a 9 inch diameter right hand auger designed to move accumulated dust to the end of the trough where the rotary airlock is located. Standard inlet and outlet sizes range from 10 to 12 inch square to square configurations.

Per NFPA 69-121.2.4.3.8, the NFPA rated Meyer Live Bottom Hopper must be coupled with an independent explosion detection device which will turn off the live bottom hopper in the event of an explosion. This device is not supplied with the NFPA rated Meyer Live Bottom Hopper.

AN Live Bottom Hopper

The AN airlock is a six blade valve with standard neoprene flexible tips designed for most nuisance dust discharge requirements. The double wiper action creates an effective seal and handles differential pressure up to 17" wg. Standard options, based on the type of dust removed, include flex tips of EPDM and polyurethane.

FT Live Bottom Hopper

The FT airlock is a six blade valve with standard urethane flexible tips designed for most nuisance dust discharge requirements. The double wiper action creates an effective seal and handles minimal differential pressures.

Meyer Live Bottom Hopper

The standard and NFPA Meyer airlock has a steel housing with a 6 or 8 vane mild steel beveled blade rotor which can handle differential pressures up to 22 psi.

Purpose and Intended Use



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

Do not misuse or modify.

The AN, FT and Meyer LBH are designed for use in wood and metal working, grain handling, and dry powder processing application. The AN and FT LBH are recommended for applications with differential pressures across the AN or FT valve up to 17"wg and the Meyer LBH is recommended for applications with differential pressures across the Meyer valve up to 22 psi.

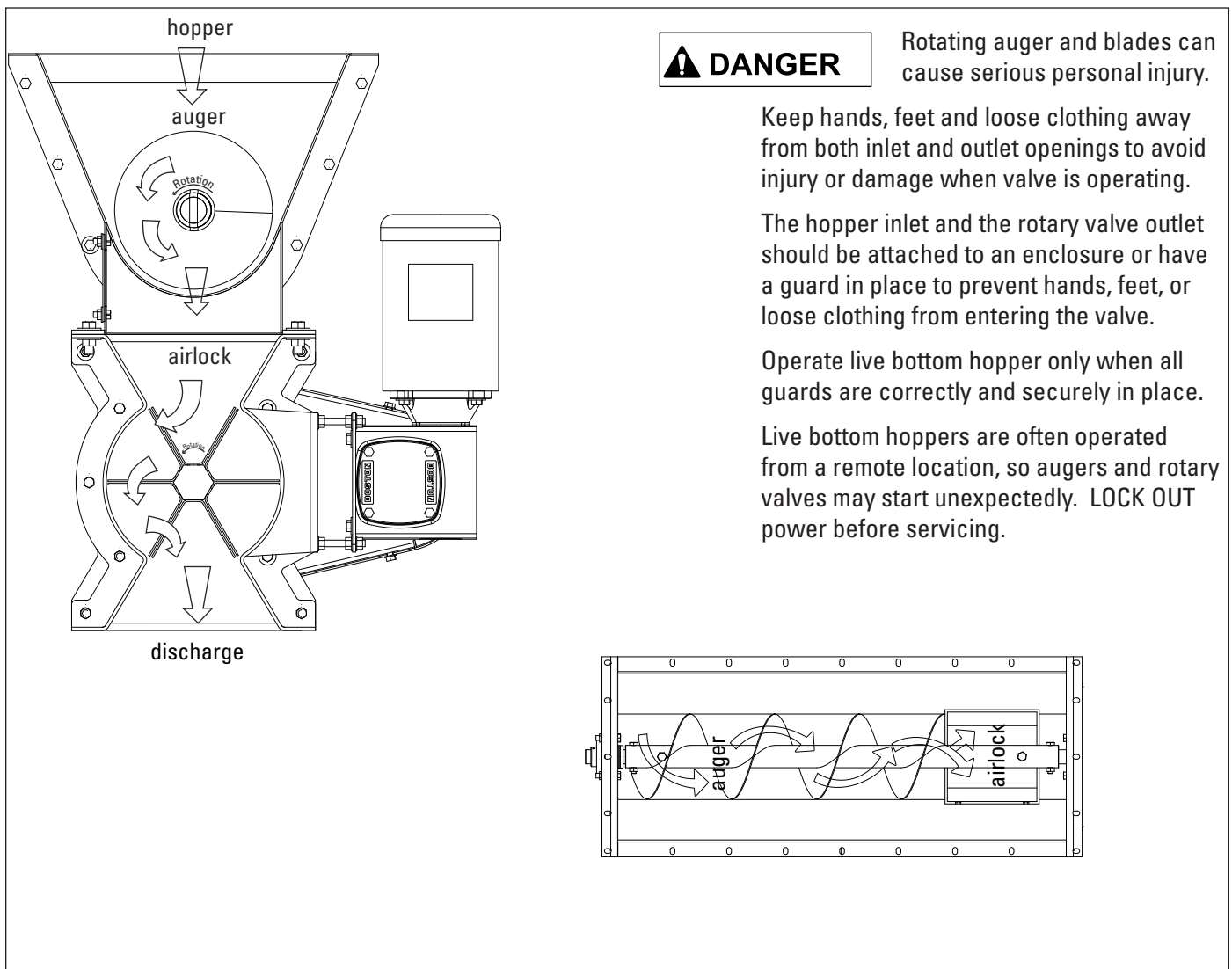
Operation

The Live Bottom Hopper is used as an auger/airlock/feeder device in dust control applications. When used as an airlock, an effective seal between the valve's inlet and outlet is maintained while allowing dust or material to pass through.

During normal operation, the FT and Meyer auger and valve rotor typically rotates at 15 to 30 rpm and the AN valve rotor rotates at 22 rpm. The auger conveys product

or dust through the trough to the rotating valve inlet and falls into each rotor pocket as it rotates. The material is discharged by gravity as each rotor pocket passes the outlet flange.

When used as a metering device, the valve allows a specific amount of material to pass per revolution, depending on the size and speed of the valve.



⚠ DANGER

Rotating auger and blades can cause serious personal injury.

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

The hopper inlet and the rotary valve outlet should be attached to an enclosure or have a guard in place to prevent hands, feet, or loose clothing from entering the valve.

Operate live bottom hopper only when all guards are correctly and securely in place.

Live bottom hoppers are often operated from a remote location, so augers and rotary valves may start unexpectedly. **LOCK OUT** power before servicing.

Live Bottom Hopper Operation

Inspection on Arrival

1. Inspect equipment and parts on 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 equipment and parts 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 parts from truck.
8. Check for hardware that may have loosened during shipping.
9. Use caution removing temporary covers

Installation Codes and Procedures

CAUTION

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 equipment 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 equipment installation.

NOTICE

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

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

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 live bottom hopper 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 live bottom hopper.

A crane or forklift is recommended for unloading, assembly, and installation of the live bottom hopper.

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

Use all lifting points provided.

Live bottom hoppers should be lifted by the base, mounting supports, or lifting points only. Never lift a live bottom hopper by the shaft, motor, motor bracket, or any live bottom hopper part not designed for lifting.

Use clevis connectors, not hooks, on lifting slings.

Check the Specification Control drawing for weight and dimensions of the hopper to ensure adequate lifting capacity.

Allow only qualified crane or forklift operators to lift the live bottom hopper.

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

Use drift pins to align holes in flanges during assembly.

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.

Installation

DANGER

Rotating auger and blades can cause serious personal injury.

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

The hopper inlet and the rotary valve outlet should be attached to an enclosure or have a guard in place to prevent hands, feet, or loose clothing from entering the valve.

Operate live bottom hopper only when all guards are correctly and securely in place.

Live bottom hoppers are often operated from a remote location, so augers and rotary valves may start unexpectedly. LOCK OUT power before servicing.

1. Remove the protective plastic wrap, hardboard inlet cover, and flange gaskets shipped inside the live bottom hopper.
2. Inspect the auger and valve pockets for foreign material.
3. Determine the proper position required for the live bottom hopper. Allow clearance for electrical connections and future maintenance.

NOTICE

Companion flanges must be true and square to live bottom hopper flanges and of sufficient size to support live bottom hopper weight. Otherwise additional support will be required.

4. Place 1/4-in diameter sealer on the live bottom hopper top flange.
5. Fasten the live bottom hopper trough to the dust collector's hopper flange using 3/8-16 bolts and washers. Tighten hardware alternately in steps. Avoid over tightening.
6. Install a discharge spout or guard to the rotary valve outlet flange using 3/8-16 bolts and washers. Tighten hardware alternately in steps. Avoid over tightening.

Reducer

NOTICE

Check reducer oil level before operating the valve.

1. Fill the reducer to the level indicated with oil of the proper viscosity. Refer to the reducer installation lubrication and operation instructions provided with the valve for oil viscosity and oil change recommendations. In the absence of this information, use Mobil® SHC 634 synthetic lubricant for operating ambient temperature range of -30° C to 125° F.
2. Check that vent caps, drain, and fill plugs are installed and secure.

CAUTION

Consult the petroleum supplier for lubricants that are acceptable to the Food and Drug Administration and other regulating agencies when installing in food and drug industries, including animal foods.

Mobil® is a registered trademark of ExxonMobil Corporation, or one of its subsidiaries.

Electrical Connection

⚠ DANGER

Rotating blades and augers can cause serious personal injury.

Live bottom hoppers are often operated from a remote location, so augers and rotary valves may start unexpectedly. LOCK OUT power before servicing.

- Turn the motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the live bottom hopper.

To reverse rotation, three-phase power supply:

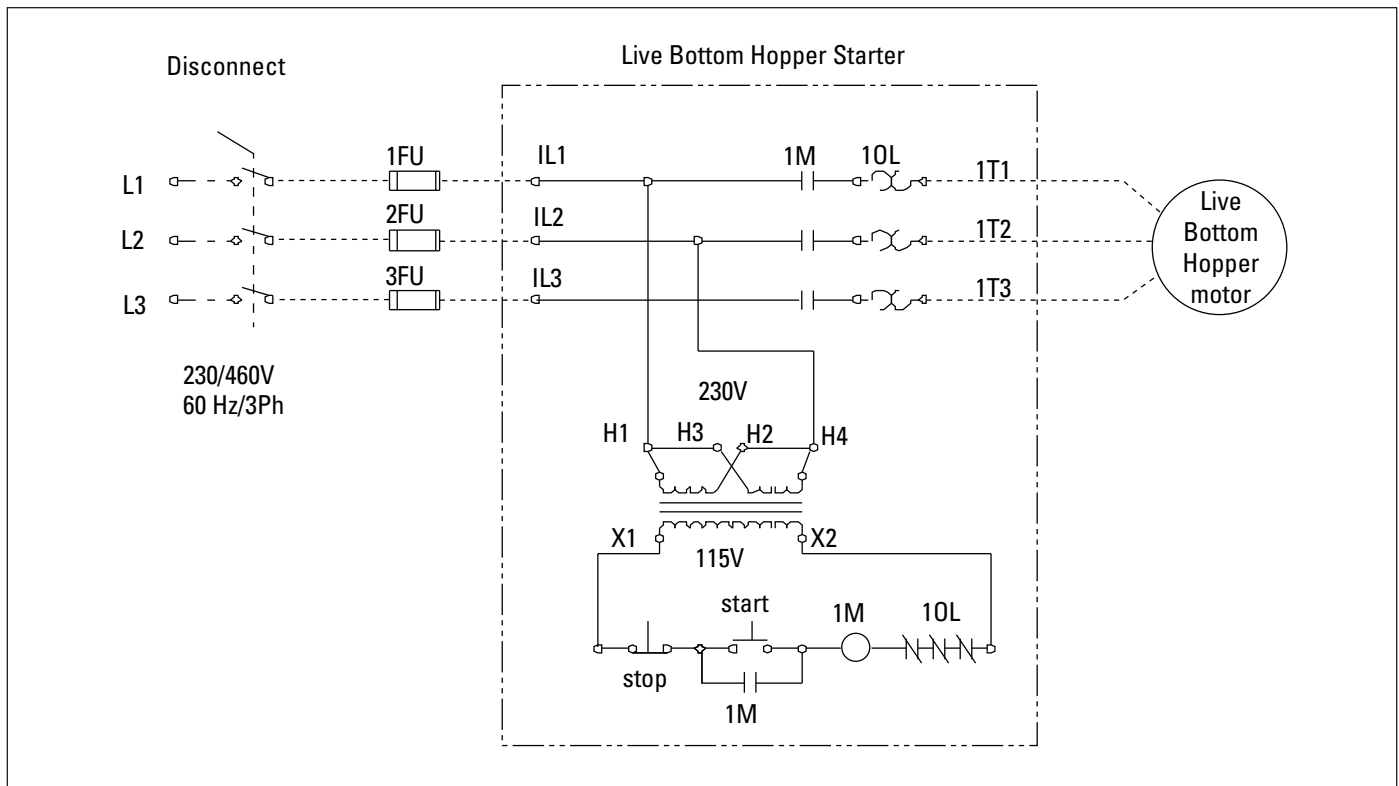
Turn electrical power OFF at source and switch any two leads on the output-side of the motor starter.

Standard motors are wired for 230/460-Volt, 3 phase, 60 Hz operation.

⚠ WARNING

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

- Install a customer-supplied motor starter with a low voltage control circuit for the motor.
- Using the wiring diagram supplied, wire the motor and motor starter. Use appropriate wire gauge for the rated amp load as specified by local codes.



Live Bottom Hopper Typical Wiring Diagram

Live Bottom Hopper Equipment Options

Hopper

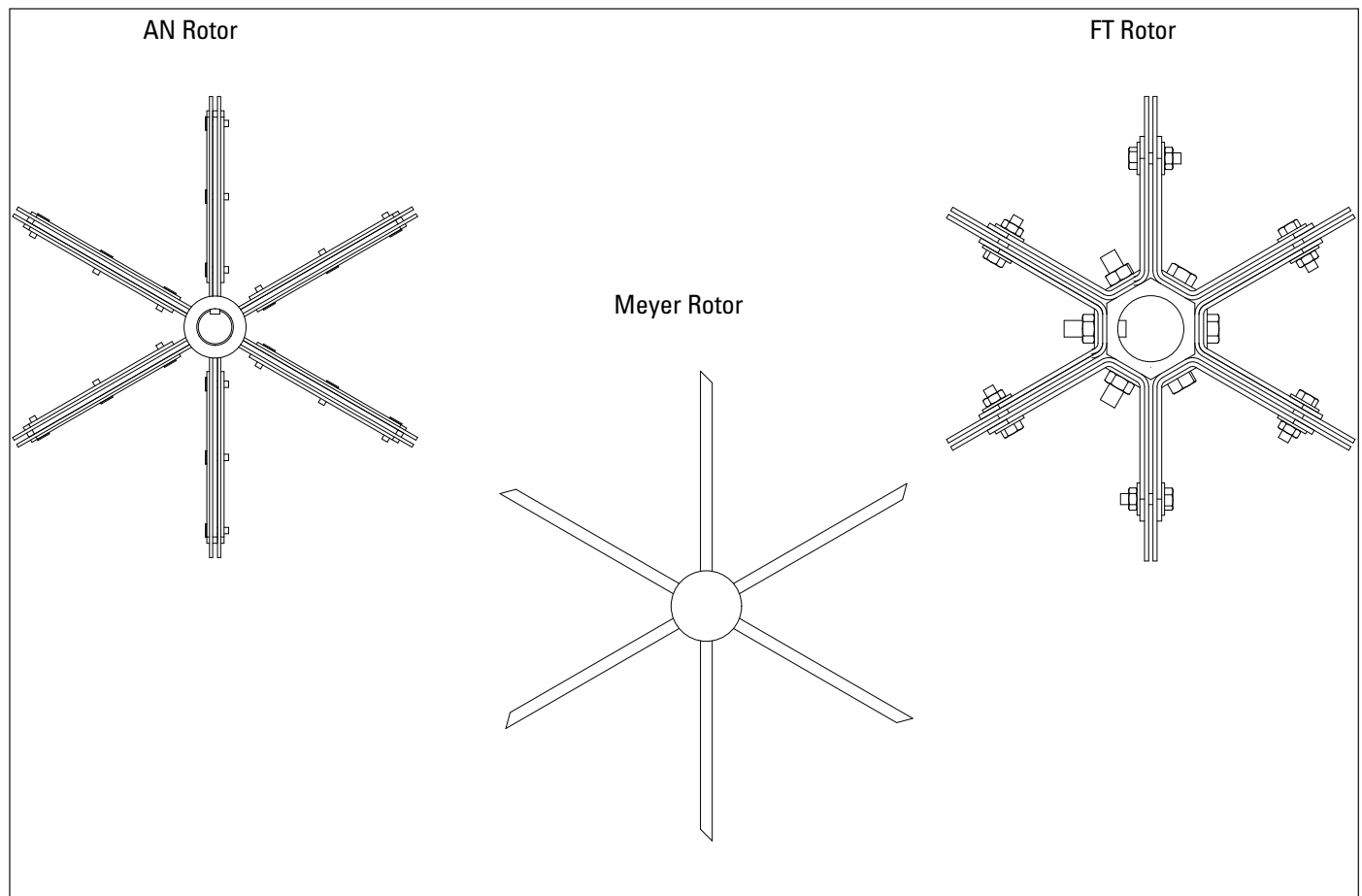
- 48 inch trough/auger
- 72 inch trough/auger

Valves

- 10 x 10
- 12 x 12

Rotor Blades

- AN - EPDM, polyurethane, white neoprene and black neoprene
- FT - 6 vane urethane flexible tips
- Meyer - 6 or 8 vane mild steel beveled blades



Live Bottom Hopper Equipment Options

Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

DANGER

Rotating blades and auger can cause serious personal injury.

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

WARNING

Operate live bottom hopper only when all guards are correctly and securely in place.

Live bottom hoppers are often operated from a remote location, so augers and rotary valves may start unexpectedly. LOCK OUT power before servicing.

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

Check that the valve and auger are clear and free of all debris before starting.

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

1. Check all electrical connections for tightness and contact.
2. Turn the live bottom hopper motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the valve endplate.

DANGER

Rotating blades and auger can cause serious injury.

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

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

WARNING

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

3. Check for and remove all loose items in or near the inlet and outlet of the unit.
 4. Check that all remote controls are wired into the control system, and all service switches are in the OFF position.
 5. Check that all optional accessories are installed properly and secured.
 6. Check the oil level in the reducer and that the vent plugs are in place and secure.
 7. Check that the drive guard is in place and secure.
 8. Turn power (service switch) ON at source.
 9. Check that live bottom hopper operation does not disrupt upstream or downstream equipment.
 10. Operate live bottom hopper for 10 to 15 minutes and inspect housing for hot spots or unusual noises.
 11. Turn upstream equipment ON to run product through the live bottom hopper. Continue to inspect housing for hot spots or noises.
- ### **NOTICE**
- If the live bottom hopper discharges into a conveying system, the conveying system should also be operating to prevent overfilling the conveying system.
12. Check motor amp draw to verify that live bottom hopper is not being overloaded.
 13. Check product flow-rate if live bottom hopper is used as a metering device.

Maintenance Information

Instruct all personnel on safe use and maintenance procedures.

DANGER

Rotating blades and auger can cause serious personal injury.

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

WARNING

Operate live bottom hopper only when all guards are correctly and securely in place.

Live bottom hoppers are often operated from a remote location, so augers and rotary valves may start unexpectedly. LOCK OUT power before servicing.

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

Check that the valve and auger are clear and free of all debris before starting.

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

Operational Checklist

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

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

2. 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 flow usually restores the filters to normal pressure drop.

4. Monitor exhaust.
5. Monitor dust disposal.

Drive Components and Lubrication, All Models

1. Periodically check drive components for proper operation. Follow the motor and reducer manufacturers' instructions for maintenance.
2. Check gear reducer oil level and replace at regular intervals.
3. Check the valve and auger drive chain for proper alignment and tension, and adjusted as needed.
4. Lubricate the valve and auger chains at least once a month and flanged bearings once every other month with a high grade, lithium-base grease for applications under 175° F. For higher temperature or corrosive vapor applications, consult your sales representative to obtain specific lubrication instructions.

Wiper Seal Replacement and Auger Maintenance

1. When practical, remove the live bottom hopper from the equipment and place on a workbench for disassembly.
2. Remove the live bottom hopper chain guards, chains, and sprockets.
3. Loosen setscrews and remove collars on flanged bearings.
4. Unscrew fasteners and remove valve and auger end plates opposite the drive ends.
5. Remove auger from trough and wipe clean with a dry clean towel.
6. Inspect auger and trough for damage and replace if needed.
7. Remove valve rotor assembly.
8. Unscrew fasteners and remove wiper backup plates from each rotor pocket.
9. Remove rotor wipers and shaft seals.
10. Install new wipers and shaft seals.
11. Reassemble live bottom hopper in reverse order and replace the sprockets, chains, and chain guards.

NOTICE

Check that the rotor assembly is centered in the valve housing.

12. Place new 1/4-in diameter sealer on the live bottom hopper top flange. Reinstall live bottom hopper to the equipment.

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

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.

© 2014 Donaldson Company, Inc.
Printed in USA

IOM AG8262501 (ENG), Revision 0
December 2014