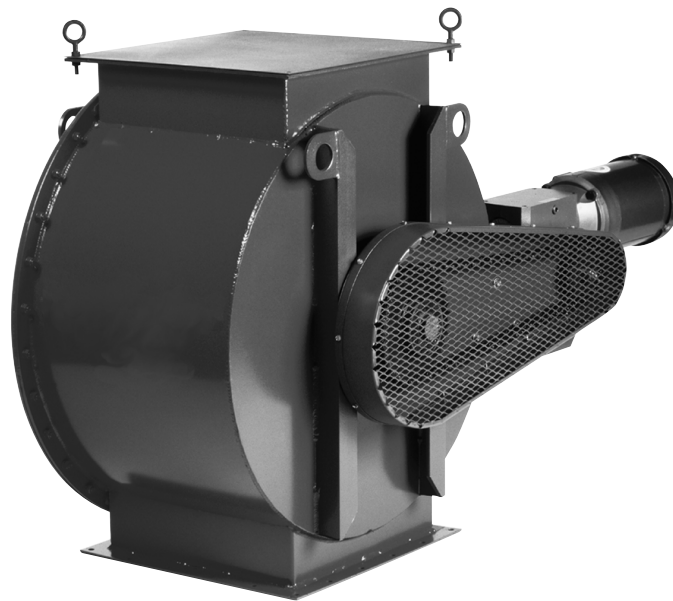




AN Rotary Valve

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.

⚠ DANGER

ROTATING BLADES 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 valve is operating.

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

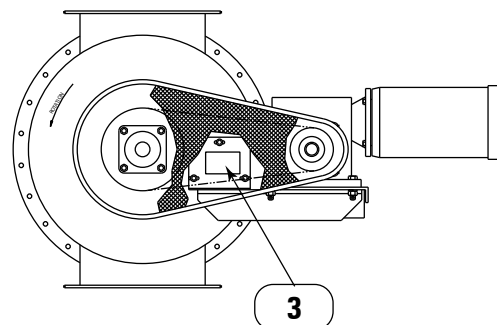
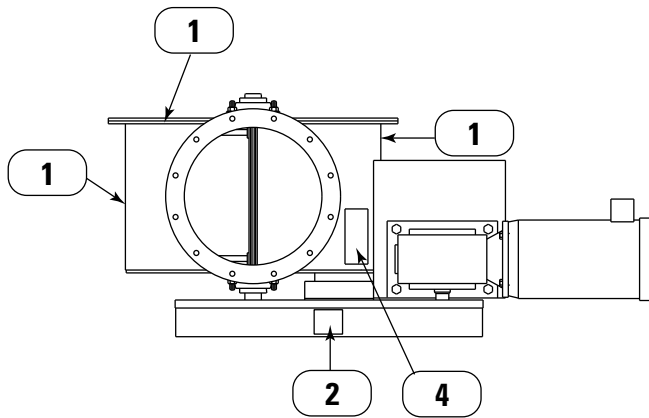
Operate rotary valve only when all guards are correctly and securely in place.

It is not unusual for rotary valves to be operated from a remote location, so rotary valves may start unexpectedly. LOCK OUT power before servicing any rotary valves.

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.

Graphic Location and Graphic Previews



1

⚠ DANGER

Keep hands away from any moving parts.

Turn power off and LOCK OUT electrical services before removing any guards to perform maintenance work.

Disconnect drive before performing any airlock maintenance.

NEVER place hands in airlock.

2

⚠ DANGER

Keep hands away from any moving parts.

Turn power off and LOCK OUT electrical services before removing any guards to perform maintenance work.

Disconnect drive before performing any airlock maintenance.

3

⚠ DANGER

If you can read this sign, a guard has been removed. DO NOT operate with guard removed.

4

<p>⚠ WARNING</p> <p>Failure to follow instructions may result in severe personal injury, death, and/or product or property damage.</p> <p>DO NOT operate this equipment until you have read and understand the instructions and warnings in the Installation and Operation Manual.</p> <p>For a replacement manual, contact Donaldson Company, Inc. (800) 365-1331.</p> <p>Use equipment for its originally intended use ONLY.</p> <p>DO NOT modify equipment.</p> <p>DO NOT remove or deface this label.</p> <p>Replace label if damaged. For a new label, contact Donaldson Company, Inc. (800) 365-1331.</p>	<p>⚠ PRECAUTION</p> <p>El no seguir estas instrucciones puede causarle algún daño y hasta la muerte o bien dañar el producto o bienes de su propiedad.</p> <p>NO opere este equipo hasta que haya leído y comprendido las instrucciones y advertencias del manual de instalación y operación.</p> <p>Para obtener un manual de partes de repuesto por favor contacte a Donaldson Company, Inc. (800) 365-1331.</p> <p>El equipo debe ser utilizado para lo que fue diseñado únicamente.</p> <p>NO modifique el equipo.</p> <p>NO remueva o quite esta etiqueta.</p> <p>Reemplazar en caso de daño. Para conseguir una nueva etiqueta contacte a Donaldson Company, Inc. (800) 365-1331.</p>
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DANGER

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



WARNING

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



CAUTION

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

AN Rotary Valves are used as airlocks or feeders on conveying systems and dust collection equipment. AN rotary airlocks allow continuous evacuation of particulate from a dust collector, while providing an effective seal.

The AN is a six-blade valve with standard neoprene flexible tips designed for most nuisance dust discharge requirements. Standard inlet and outlet sizes range from 6 to 30-inches in round-to-round or square-to-square configurations. 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. Extended clearnace wipers are available for Models AN8 through 16.

Purpose and Intended Use



Misuse or modification of this equipment may result in personal

injury.

Do not misuse or modify.

Rotary valves are used as airlocks or feeders on conveying systems and dust collection equipment.

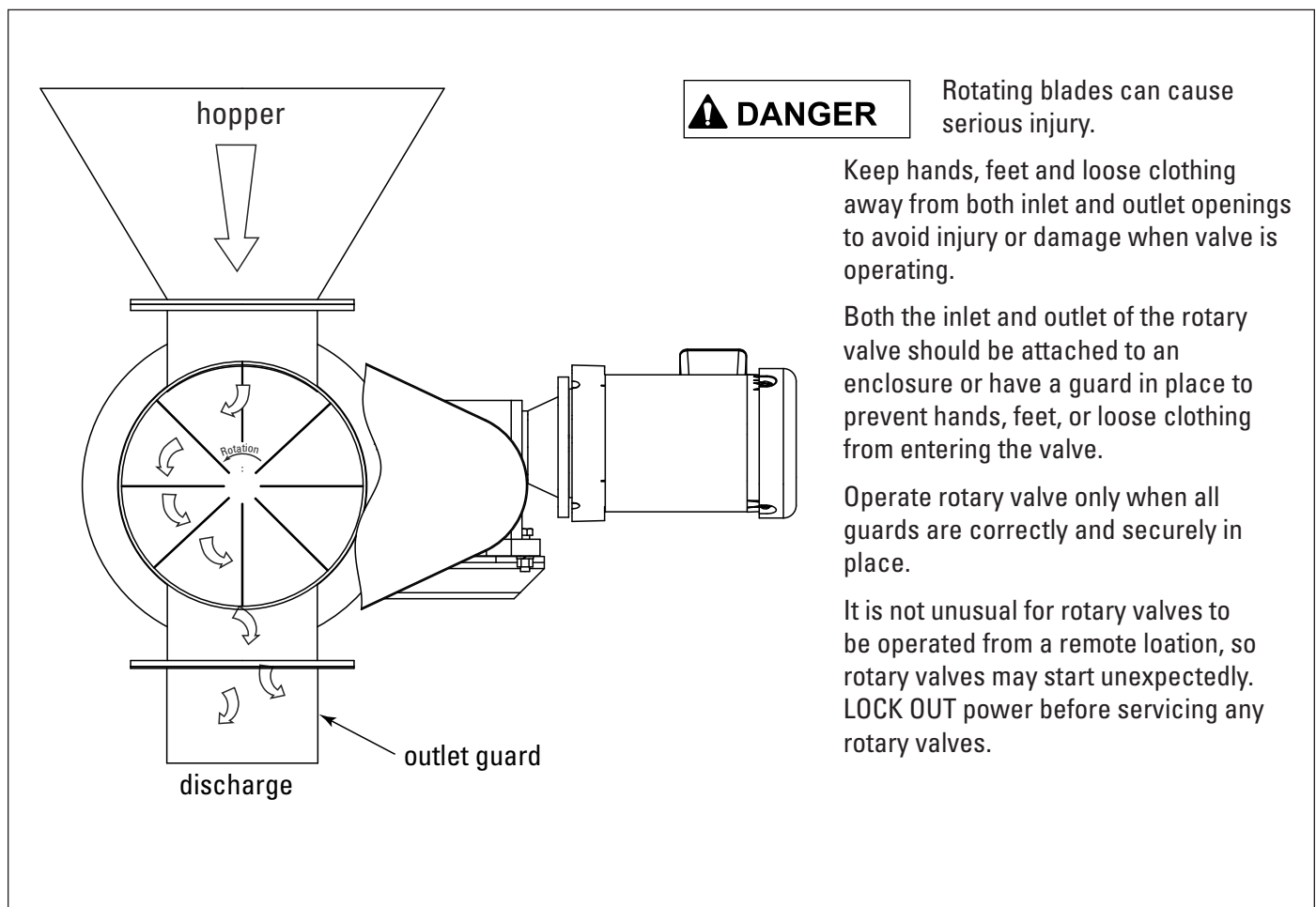
The AN is designed for use in wood and metal working, grain handling, and dry powder processing application. Model AN is recommended for low air pressure applications up to 17 "wg.

Operation

Rotary valves are used as an airlock and a metering 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. Comparatively, the airlock works along the same line as a revolving door on a building—an effective seal is maintained while people are allowed to pass through.

During normal operation, the valve rotor rotates inside the housing at 22-rpm. Product or dust enters the inlet flange 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.



Rotary Valve Operation

Inspection on Arrival

1. Inspect unit on delivery.
2. Report any damage to the delivery carrier.
3. Request a written inspection report from the Claims Inspector to substantiate claim.
4. File claims with the delivery carrier.
5. Compare unit received with description of product ordered.
6. Report incomplete shipments to the delivery carrier and your Donaldson representative.
7. Remove crates and shipping straps. Remove loose components and accessory packages before lifting unit from truck.

Installation Codes and Procedures

Safe and efficient operation of the unit 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 unit 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 unit prior to, or during unit installation.

NOTICE

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

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

Hoisting Information

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
Large Crescent Wrench	



WARNING

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

Do not lift unit by the door handle.

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.

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

Allow only qualified crane operators to lift the equipment.

Refer to applicable OSHA regulations and local codes when using cranes, forklifts, and other lifting equipment. Lift unit and accessories separately, and assemble after unit is in place.

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

Electrical Wiring

WARNING

Electrical installation 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 unit's rating plate for required voltage.

If the unit is not furnished with a factory-mounted disconnect, 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 unit'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 blades can cause serious injury.

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

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

Use a soft probe, NOT your hand, to rotate the valve rotor when inspecting the pockets and wipers of the rotor.

1. Remove the protective plastic wrap, hardboard inlet cover, and flange gaskets shipped inside the valve.
2. Inspect the valve pockets for foreign material and check that the wipers are securely fastened to the rotor backup plates.
3. Determine the proper position required for the rotary airlock. Allow clearance for electrical connections and future maintenance.

NOTICE

Companion flanges must be true and square to rotary valve flanges and of sufficient size to support valve weight. Otherwise additional valve support will be required.

4. Place the sponge-rubber flange gasket on the airlock's top flange.
5. Fasten the rotary valve to the dust collector's hopper flange using 3/8-16 bolts and washers. Tighten hardware alternately in steps. Avoid over tightening.
6. Install the discharge 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 can cause serious injury.

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

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

1. Install a customer-supplied motor starter with a low voltage control circuit for the valve motor.
2. Using the wiring diagram supplied, wire the valve motor and motor starter. Use appropriate wire gauge for the rated amp load as specified by local codes.
3. Turn the valve motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the valve.

WARNING

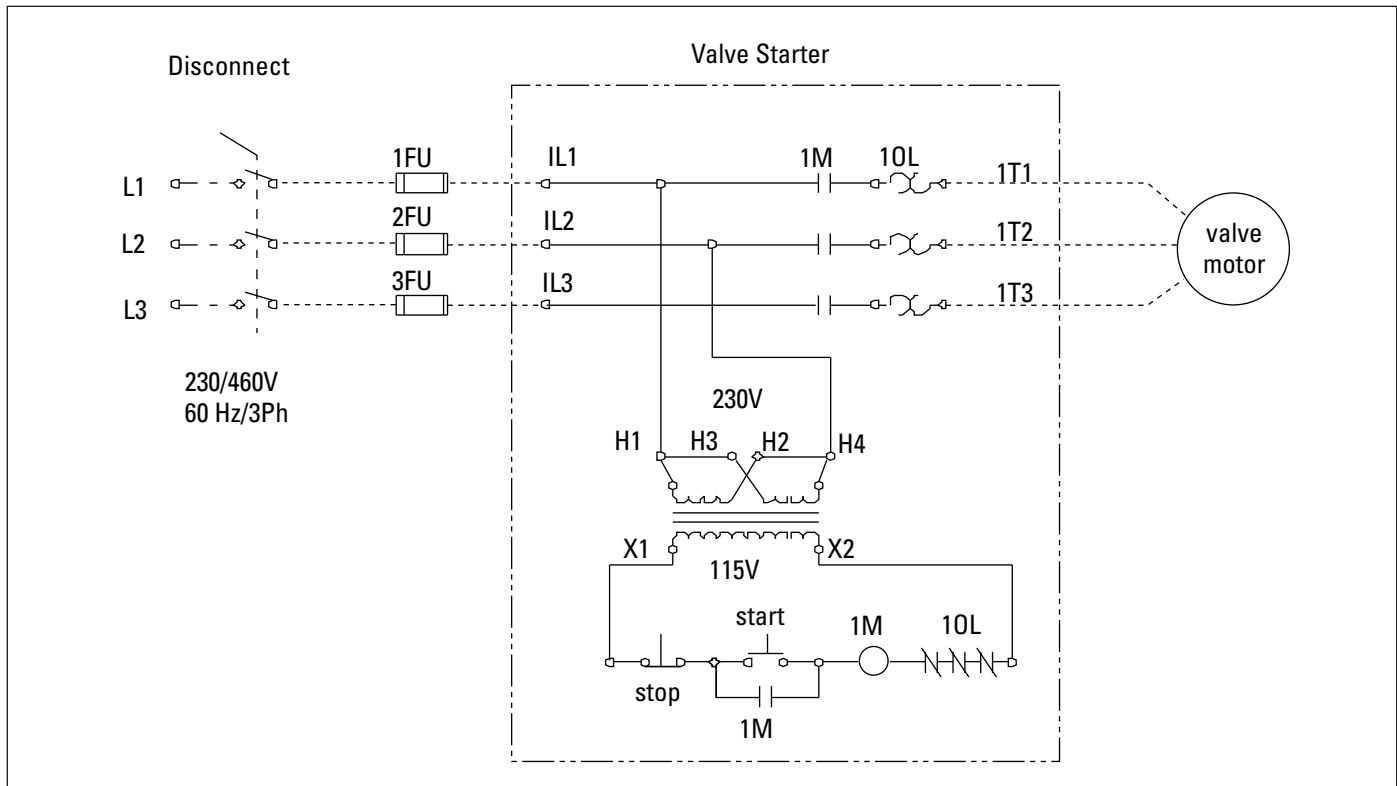
Do not look into fan outlet to determine rotation. Material may unexpectedly be discharged from the valve. View the valve rotation through the back of the motor or from the front of the drive guard..

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.

WARNING

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



AN Rotary Valve Wiring Diagram

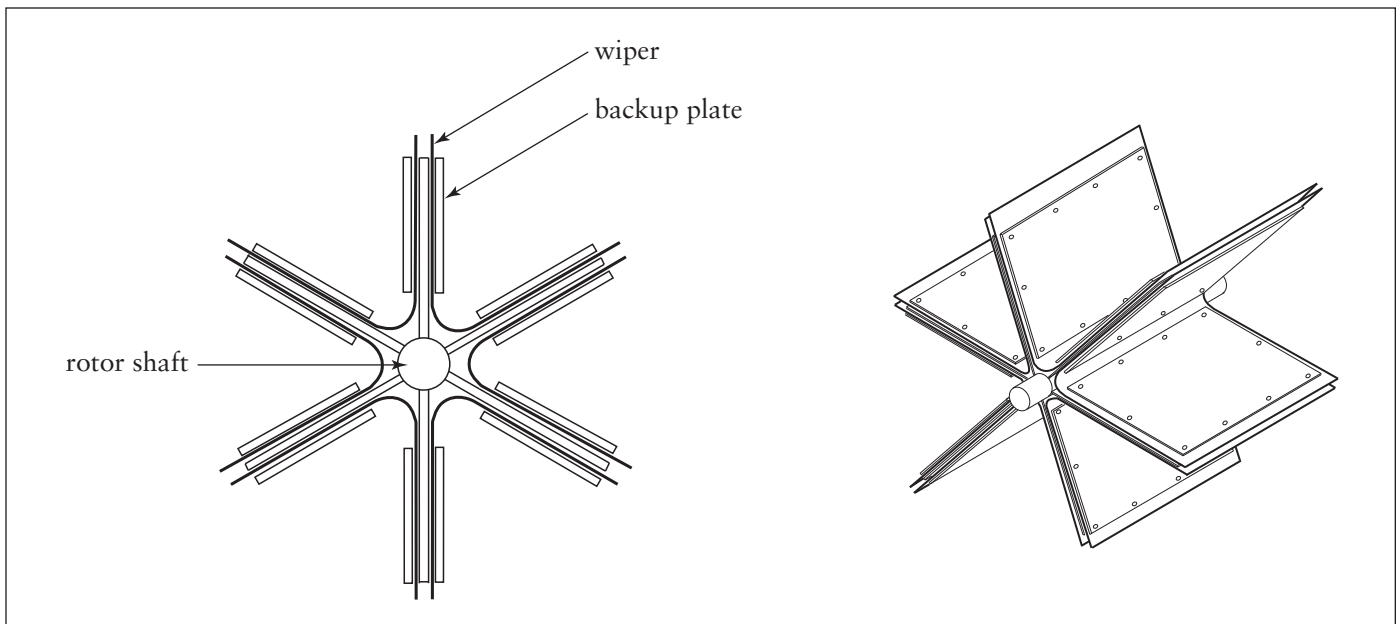
Optional Equipment

Wipers

- EPDM, polyurethane, white neoprene, silicone & BUNA-N wipers.
- Extended clearance wipers for AN8 through AN16.

Drives

- Motor and chain-driven gear reducer with speed range of 16 to 22 rpm.
- TEFC and explosion proof motors available.



AN Flex Tip Rotor

Preliminary Start-Up Check

Instruct all personnel on safe use and maintenance procedures.

DANGER

Rotating blades can cause serious injury.

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

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

WARNING

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

Check that the valve is 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. Check for and remove all loose items in or near the inlet and outlet of the unit.
3. Check that all remote controls are wired into the control system, and all service switches are in the OFF position.
4. 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.
6. Check that the drive guard is in place and secure.
7. Turn power (service switch) ON at source.

8. Turn the rotary valve motor ON then OFF to check for proper rotation by referencing the rotation arrow located on the valve endplate.

DANGER

Rotating blades 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.

WARNING

Do not look into fan outlet to determine rotation. Material may unexpectedly be discharged from the valve. View the valve rotation through the back of the motor or from the front of the drive guard.

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

WARNING

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

9. Check that valve operation does not disrupt upstream or downstream equipment.
10. Operate valve for 10 to 15 minutes and inspect housing for hot spots or unusual noises.
11. Turn upstream equipment ON to run product through the valve. Continue to inspect housing for hot spots or noises.

NOTICE

If the valve 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 valve is not being overloaded.
13. Check product flow-rate if valve is used as a metering device.

Maintenance Information

Instruct all personnel on safe use and maintenance procedures.

DANGER

Rotating blades 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.

WARNING

Electrical installation 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 valve 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 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.

3. Monitor exhaust.
4. Monitor dust disposal.

Troubleshooting

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 drive chain for proper alignment and tension, and adjusted as needed.
4. Lubricate the chain 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 and Seal Replacement

1. When practical, remove the valve from the equipment and place on a workbench for disassembly.
2. Remove the chain guard, chain, and valve sprocket.
3. Loosen setscrews and remove collars on flanged bearings.
4. Unscrew fasteners and remove end plate opposite the drive end.
5. Remove valve rotor assembly.
6. Unscrew fasteners and remove wiper backup plates from each rotor pocket.
7. Remove wipers and shaft seals.
8. Install new wipers and shaft seals.
9. Reassemble valve in reverse order and replace the valve sprocket, chain, and chain guard.

NOTICE

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

10. Reinstall rotary valve 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, Donaldson built electrical control components and Donaldson built Afterfilter housings 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. Failure to use genuine Donaldson replacement parts may void this warranty. 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.

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Industrial Air Filtration
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Minneapolis, MN 55440-1299
U.S.A.

800-365-1331 USA
800-343-3639 within Mexico

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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.

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