

Nordson® 230 Vac Rotary Sieve

Customer Product Manual
Part 107 950C

**For parts and technical support, call the Industrial Coating
Systems Customer Support Center at (800) 433-9319 or
contact your local Nordson representative.**

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Nordson 230 Vac Rotary Sieve

1. Safety

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- While operating manual electrostatic spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment in the spray area. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

***Action in the Event of a
Malfunction***

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

2. Description

See Figure 1. The Nordson Rotary Sieve is a high volume powder sieve capable of handling 1200 pounds per hour of a typical epoxy powder when equipped with the standard 60 mesh screen. This is sufficient capacity for up to 24 Nordson powder spray guns.

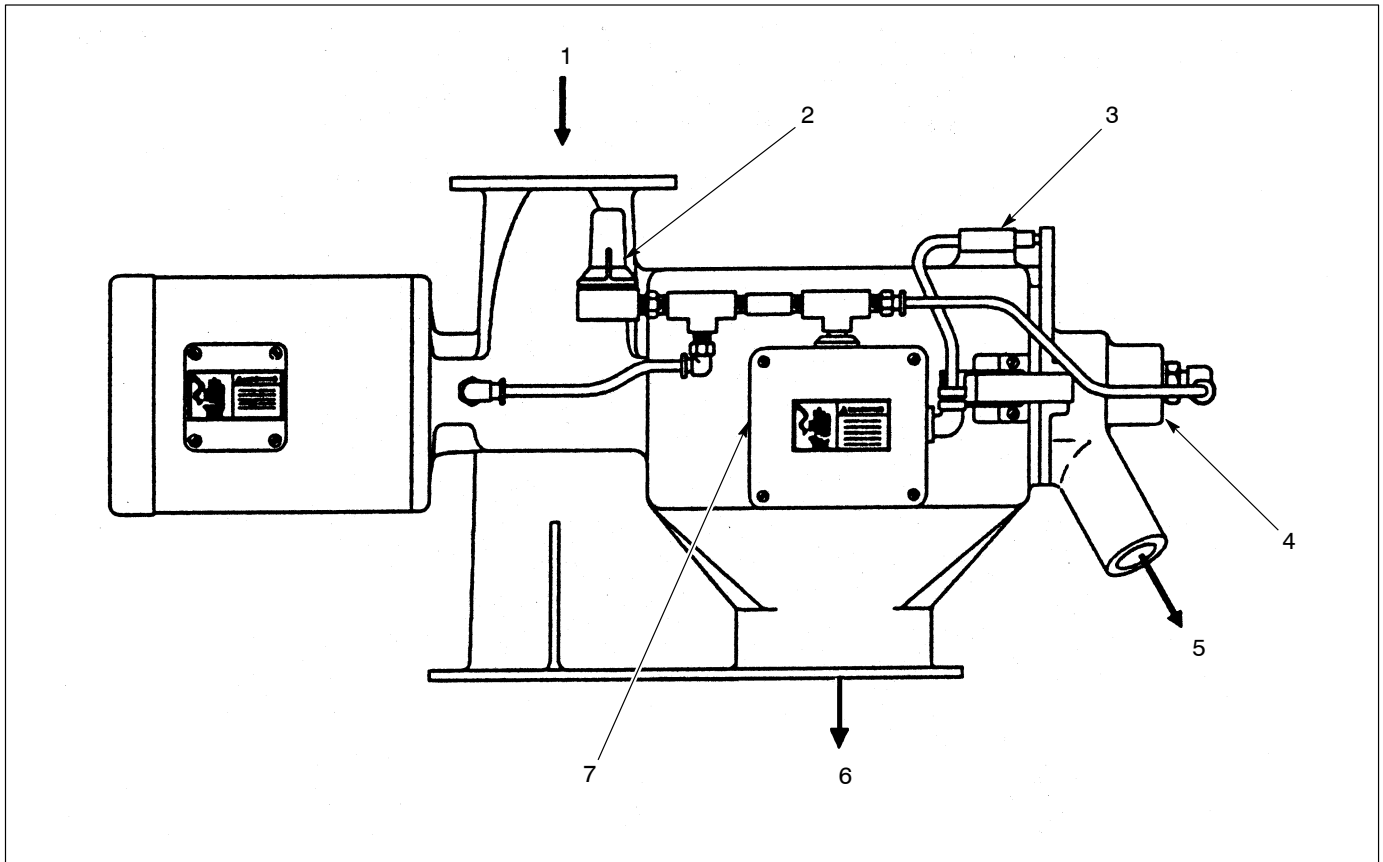


Fig. 1 Rotary Sieve

- | | | |
|-------------------------------------|-----------------|--|
| 1. Powder from cyclone | 4. End cap | 6. Screened powder to hopper |
| 2. Air regulator | 5. Waste outlet | 7. Electrical enclosure with pressure switch for air interlock |
| 3. Limit switch (end cap interlock) | | |

The sieve is powered by a one-quarter horsepower, 1725 rpm, three phase electric motor. The motor bearings and impeller end bearing are protected from powder contamination by a constant flow of air at 0.7 kg/cm² (10 psi), delivered by a preset miniature air regulator. The air supply to the bearings is interlocked with the motor electrical supply to prevent damage to the bearings.

2. Description *(contd.)*

An easily removable end cap (4) allows access for cleaning or repair, and houses the impeller end bearing and seal. An electrical limit switch (3), mounted on the sieve housing, prevents operation unless the end cap is in place on the housing. Cast into the end cap is a waste outlet (5).

See Figure 2. The impeller (2) is coated to prevent impact fusion. The cylindrical screens (3) are nylon mesh and secured to each end of the screen support (4) by stainless steel clamps.

The standard screen is 60 mesh. Optional screens are available in 40, 80 and 100 mesh. Using a mesh finer than 60 results in a lower sieve capacity while a coarser mesh increases capacity.

NOTE: Do not use a screen finer than 100 mesh.

The sieve is designed to be mounted on the top of a powder hopper. Gaskets (1 and 13) are furnished for mounting the sieve to the hopper, and for mounting a cyclone on the intake. The entire sieve assembly, including motor, weighs 25 kg (55 lbs).

The powder enters the sieve through the inlet at the top of the sieve. The screw portion of the impeller (2) forces the powder into the housing (10), where the impeller blades throw the powder against the screen. Air currents set up by the blades help in the screening process. The screened powder (11) falls out the bottom of the sieve through a 127 mm (5 in.) diameter hole and into the hopper. Powder particles too large to pass through the screen travel through the center to the waste outlet (9) in the end cap.

An optional five gallon waste bucket, cover with gasket, clamp, and hose are available and their use is recommended. Fluidization air from the hopper, along with air from the transfer pumps, creates a slight positive pressure inside the sieve housing. Without a sealed waste bucket, this pressure could force powder, which would normally pass through the screen, out the waste outlet.

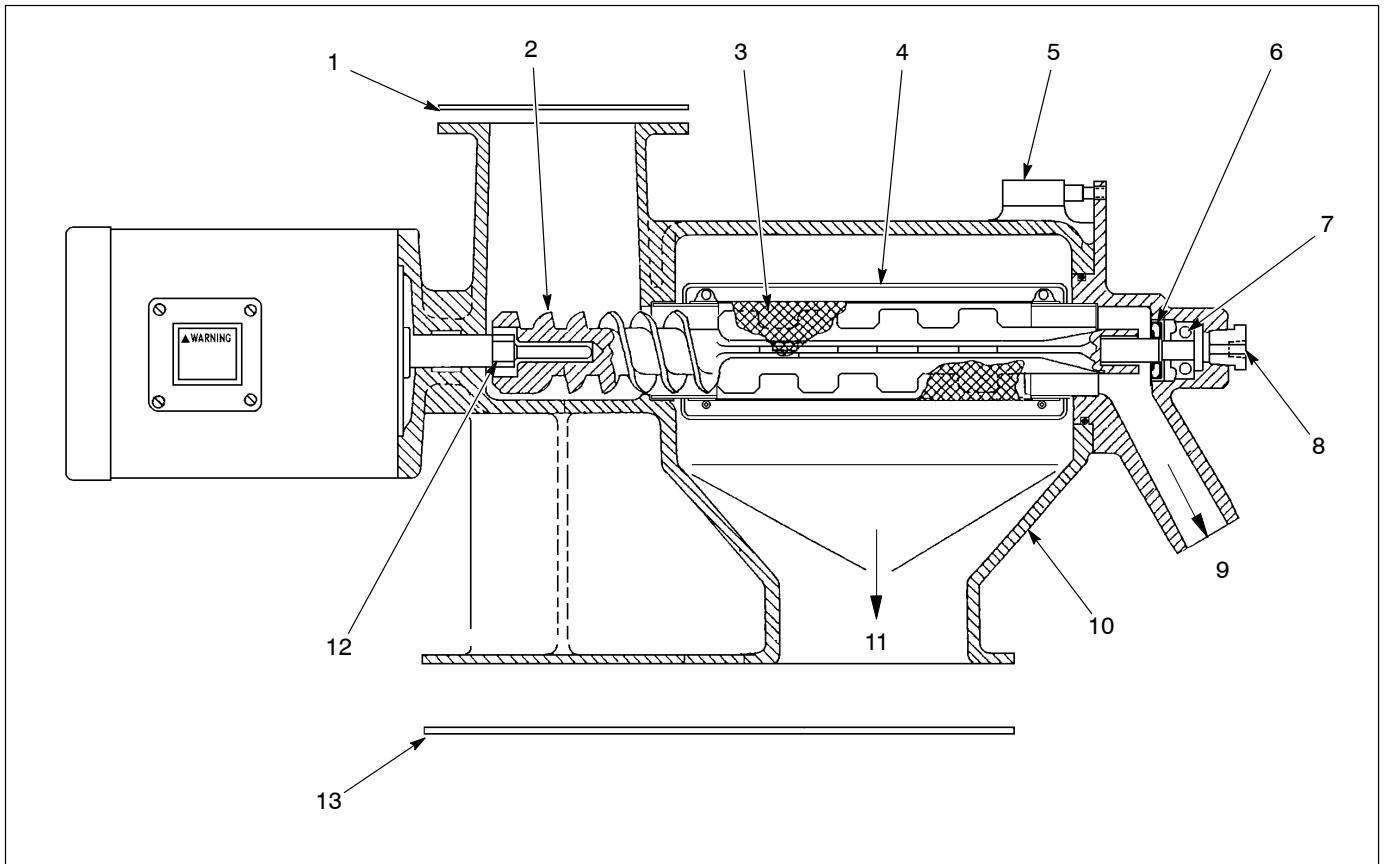


Fig. 2 Rotary Sieve Cutaway View

- 1. Cyclone gasket
- 2. Impeller
- 3. Screen
- 4. Screen support
- 5. Limit switch

- 6. Seal
- 7. Bearing
- 8. Air in
- 9. Waste outlet

- 10. Housing
- 11. Screened powder
- 12. Motor drive lug
- 13. Sieve gasket

3. Installation



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

Perform installation as follows:

Mounting

NOTE: Steps 1 and 2 are for hoppers with no provision for mounting a sieve. Nordson hoppers are available with weld nuts and knockouts in the cover. If your Nordson hopper cover does not have these, a new cover can be ordered.

1. Place the sieve on the hopper cover and determine the optimum mounting location. Trace around the sieve housing to mark the approximate location. Use the dimensions given in Figure 3 to lay out the exact locations for the eight bolt holes and hopper inlet hole.

NOTE: The sieve housing or the sieve gasket can be used as a template although there is more chance of error.

2. Drill four 0.38-in. bolt holes, four 0.44-in. bolt holes, and cut a 5-in. (127-mm) diameter hole in the hopper cover as shown in Figure 3.
3. Place the large oval gasket on the cover and align the bolt holes. Place the sieve on top of the gasket and align.
4. Secure the sieve to the hopper cover with $\frac{3}{8}$ -in. and $\frac{1}{4}$ -in. bolts and lockwashers. Use lockwashers and nuts if the hopper cover is not equipped with weld nuts.
5. Install the cyclone on the sieve intake using the round gasket furnished with the sieve. Secure the cyclone to the sieve with $\frac{3}{8}$ -in. bolts, lockwashers, and nuts. An optional vent assist is available, consisting of a duct adapter, threaded nipple and air nozzle. It is designed to be installed in the cyclone vent line.

NOTE: The interior of the sieve is positively pressurized. An airtight waste bucket and hose are recommended to prevent excess waste.

6. Install the waste hose onto the waste outlet and secure with a $2\frac{1}{2}$ -in. hose clamp.
7. Place the cover on the waste bucket and secure in place with a lever-locking clamp.
8. Install the hose on the cover inlet tube and secure in place with a $2\frac{1}{2}$ -in. hose clamp.

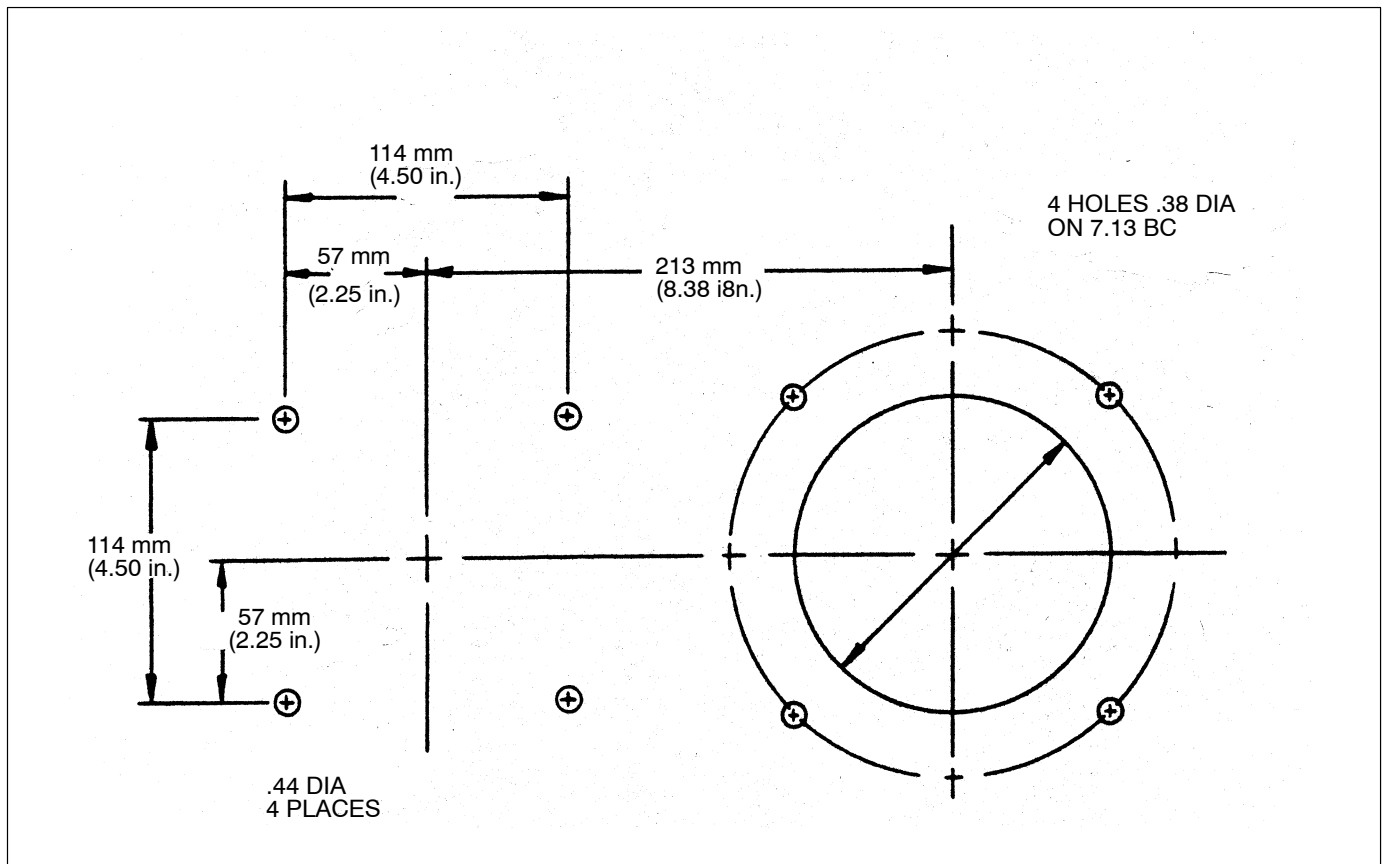


Fig. 3 Rotary Sieve Mounting Hole Pattern

Pneumatic

The air regulator supplied with the sieve is factory-set to deliver 0.7 bar (10 psi) to the motor and impeller end bearings. This setting should not be changed. The air regulator should be supplied with clean, dry compressed air (minimum 3.5 bar (50 psi), maximum 8.5 bar (120 psi)).

The inlet port to the air regulator is $\frac{1}{4}$ NPT. Install a suitable fitting in the inlet port and connect a supply air line.

Electrical



WARNING: Installation must be performed by a qualified electrician and must conform to all federal, state, and local codes.

Electrical requirements are 230/260 Vac, 3 phase @ 60 Hz.

Interlocks

The sieve is equipped with two interlocks that consist of the end cap limit switch and the air pressure switch. These switches are wired in series. At the system electrical enclosure, connections must be made to prevent the motor starting unless the sieve interlock switches are closed.

The sieve should also be wired into the system so that sieve operation is not permitted unless the booth exhaust fans are on. Figure 4 shows a typical control circuit.

NOTE: The motor must be wired so that the direction of rotation is counterclockwise as viewed from the motor end.

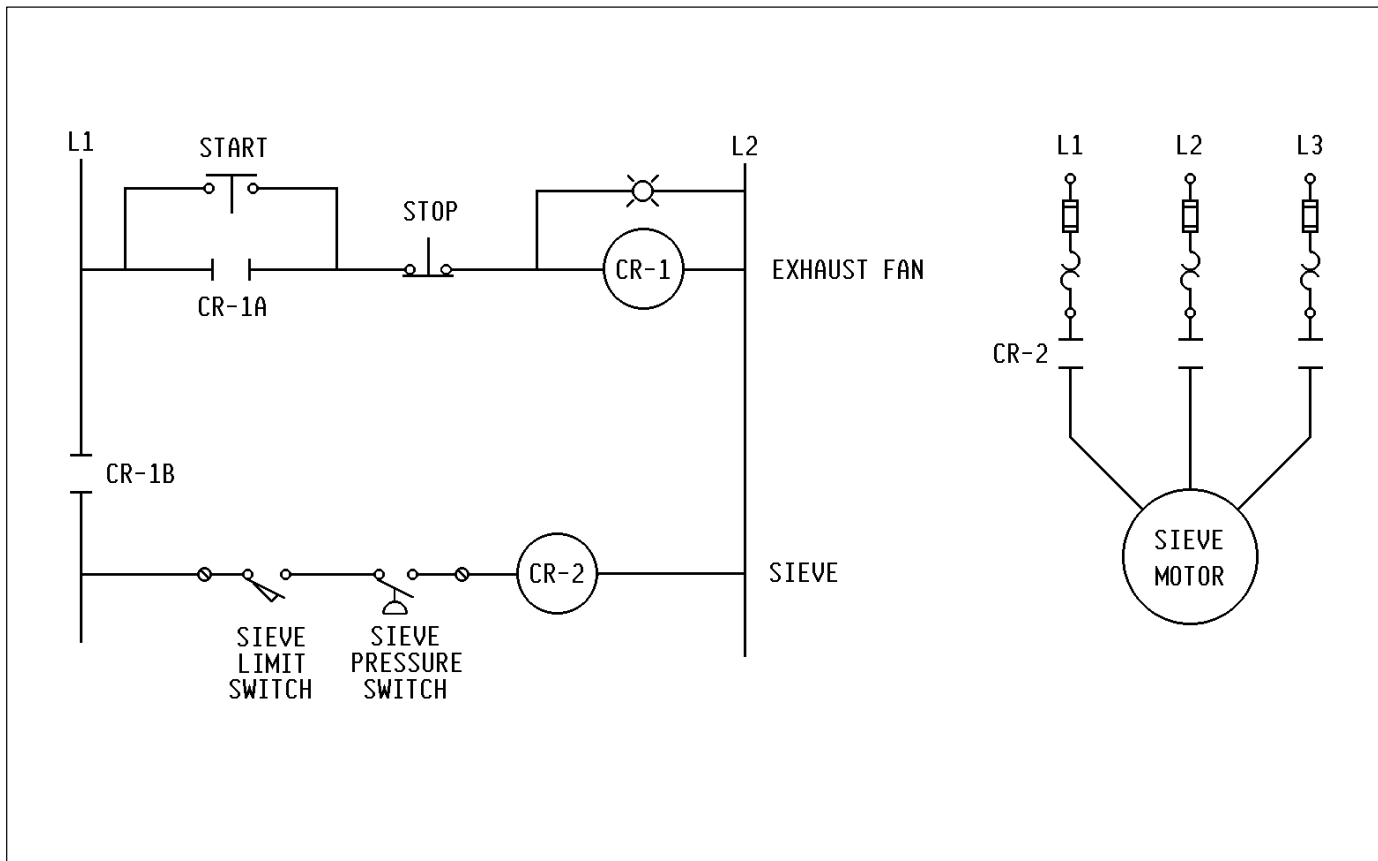


Fig. 4 Typical Control Circuit with Interlocks

4. Maintenance



WARNING: Make sure the power to the sieve is disconnected before performing any of the following procedures. Lock out and tag the master disconnect. Failure to follow these instructions could result in personal injury or property damage.

Perform cleaning as follows:

1. The screen support, screen, and impeller should be removed and cleaned once per shift.

NOTE: Low pressure compressed air may be used to clean loose powder off removed parts. Place the parts inside the booth and keep the exhaust fans on when cleaning.



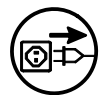
CAUTION: Do not use metal or sharp pointed objects to clean the impeller as the PTFE coating will be damaged, which could lead to a build up of impact-fused powder in that area. Use plastic or wooden tools such as a tongue depressor or popsicle stick.

2. Examine the screen for tears or damage and replace if necessary.
3. Blow out any loose powder out of the drive end of the recess on the impeller shaft.
4. Clean out any powder packed into the hole and hex recess on the impeller shaft.
5. Clean the interior of the sieve housing.

5. Troubleshooting



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



WARNING: Make sure power to the sieve is disconnected before performing any of the following procedures. Lock out and tag the master disconnect. Failure to follow these instructions could result in personal injury or property damage.

Electrical

If the sieve fails to start, check all system electrical connections, including the interlock switches. See Figure 5 for electrical connections inside the sieve electrical enclosure.

To check the pressure switch, make sure compressed air is present at the switch. Using a multimeter, check the continuity across the switch contacts inside the sieve interlock electrical enclosure. The switch should be closed.

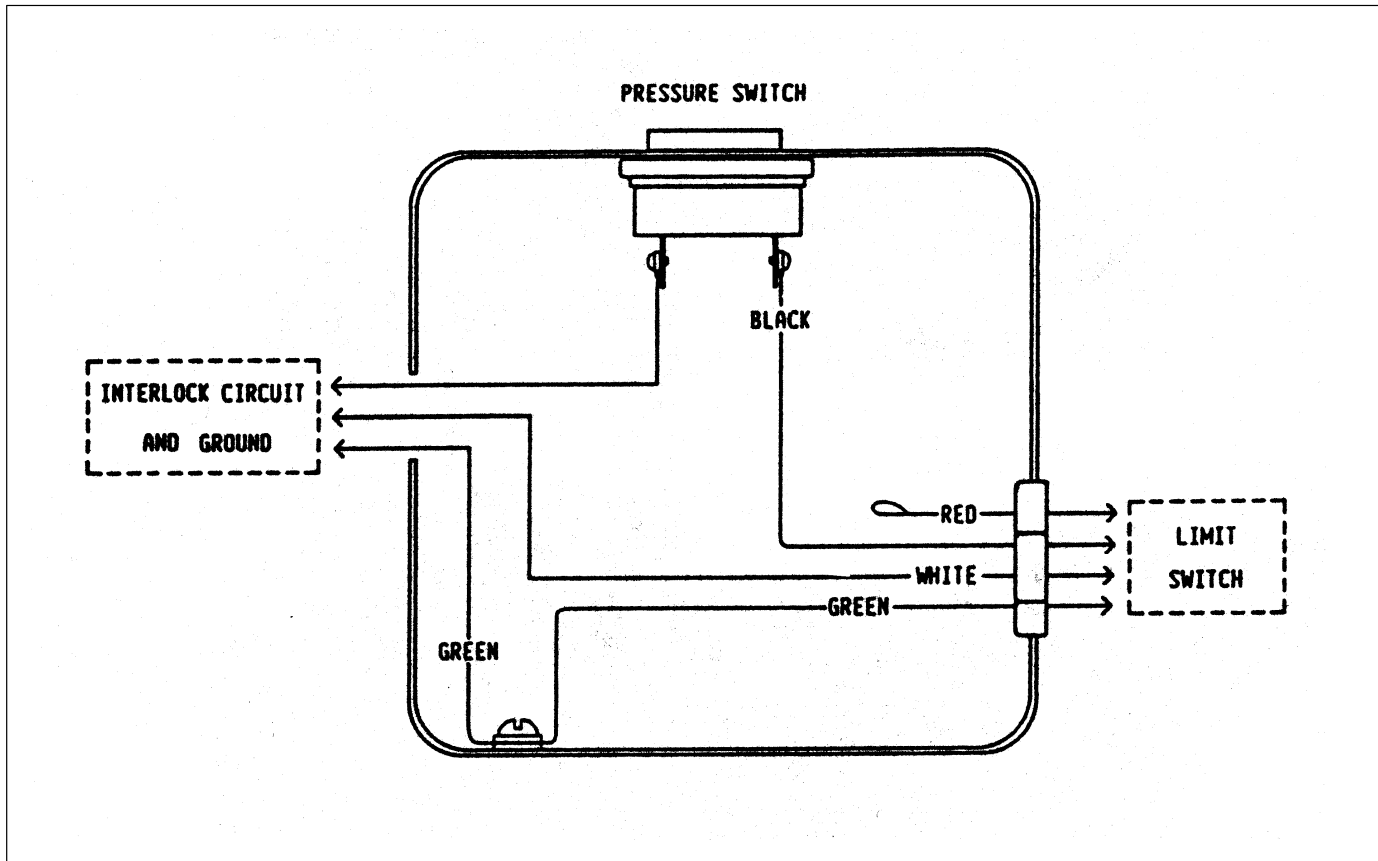


Fig. 5 Sieve Interlock Electrical Enclosure

To check the end cap limit switch, make sure the end cap is in place and that the switch shaft is depressed far enough to close the internal contacts. Check for continuity across the white and black wires inside the sieve interlock electrical enclosure. Make sure that the set screw threaded into the top ear of the end cap is adjusted so that the switch contacts are closed when the end cap is installed on the housing.

Screen Tearing

Check to ensure that the screen is correctly installed on the screen support and that the clamps secure the screen to the support properly.

6. Repair

Perform the following sections for repair.

End Cap Bearing and Seal Assembly Replacement



WARNING: Make sure that power to the sieve is disconnected before performing any of the following procedures. Lock out and tag the master disconnect. Failure to follow these instructions could result in personal injury or property damage.

1. To remove the end cap, release the two tension clamps and disconnect the air line feeding the impeller end bearing. Twist the end cap slightly while pulling away from the housing. Remove the impeller, screen support, and screen.
2. Check the screen and impeller for damage and replace if necessary.
3. Check the end cap O-ring and replace if necessary.
4. Check for powder contamination inside the impeller end bearing. If the bearing and seal assemblies need to be replaced, the entire end cap, with seal and bearing installed, can be replaced as an assembly or the end cap can be rebuilt by performing the following procedures:
 - a. Remove the bushing and elbow from the end cap. Place the end cap end up on an arbor press and carefully press out the bearing and seal assemblies.

NOTE: Replace the bearing and seal assemblies with Nordson parts only. The seal uses a material which is compatible with most powders. Other materials could react with the powders and deteriorate quickly, causing premature failure of the bearing.

- b. Carefully press a new bearing into the sieve housing (oriented as shown in Figure 6).
- c. See Figure 6. Fold the seal lip away from the shield (5) and remove the spring from the seal, if present. Press the new seal assembly (3) into the end cap. The side of the seal with the lip (6) that folds away from the shield is the side that faces away from the bearing (2).

NOTE: Make sure that the seal assembly is oriented properly. The shield must face away from bearing when installed. Improper orientation causes the seal to fail and the bearings to be contaminated with powder.

End Cap Bearing and Seal Assembly Replacement (contd.)

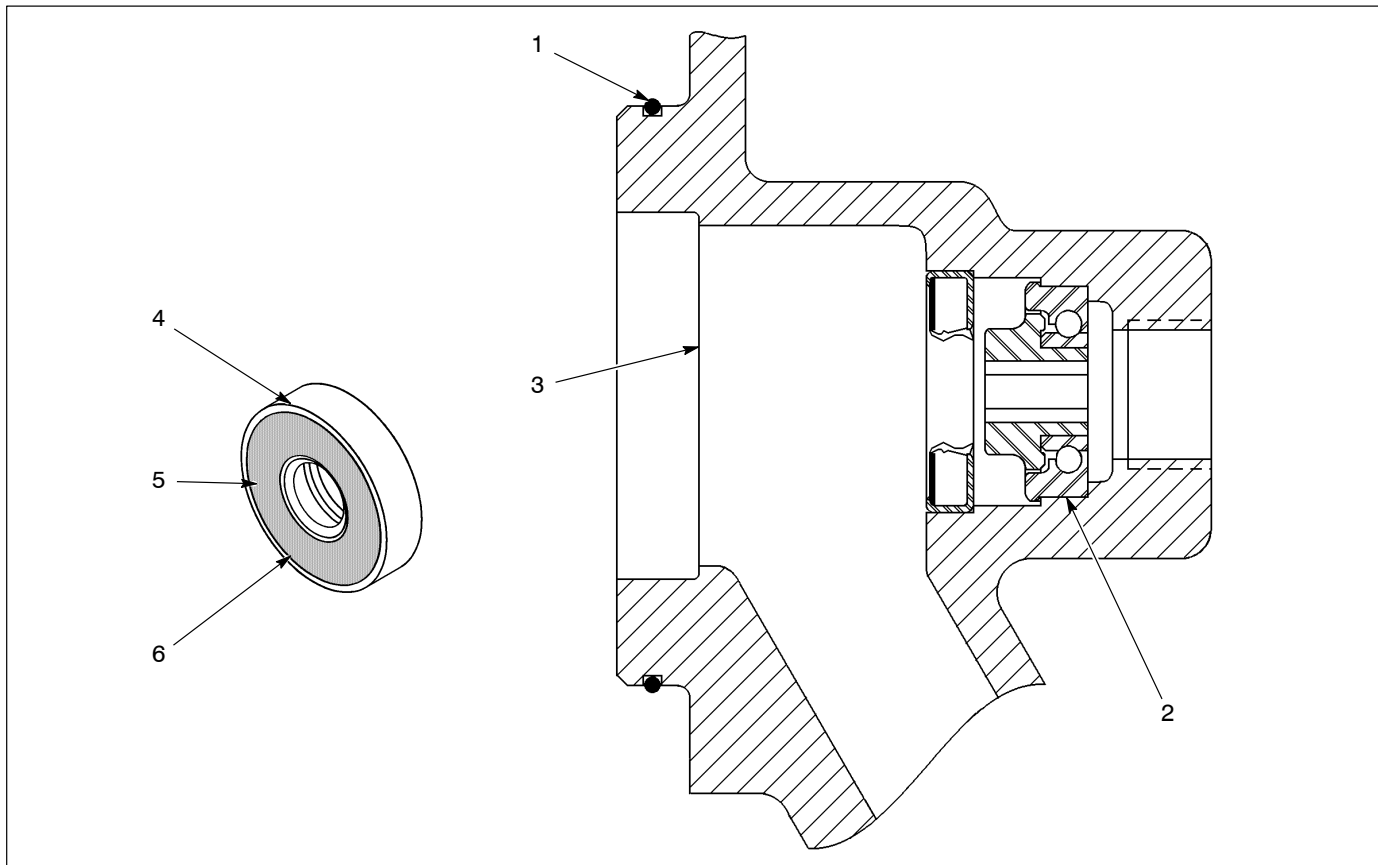


Fig. 6 End Cap Cutaway View

- | | | |
|------------|---------------------------------|-----------|
| 1. O-ring | 3. Seal assembly | 5. Shield |
| 2. Bearing | 4. Rolled edge of metal housing | 6. Lip |

Motor Replacement

Replace the motor as follows:

1. Disconnect power to the sieve at a breaker or master disconnect ahead of the sieve. Remove the motor junction box cover and disconnect the electrical leads and flexible conduit.
2. Remove the four bolts and lockwashers that secure the motor to the sieve housing and remove the motor.
3. Install new motor on the housing using bolts and lockwashers. Remove the cover from the junction box. Connect the motor leads to the power supply wiring and secure the flexible conduit to the junction box. Re-install the junction box cover.

7. Parts

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use this five-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Using the Illustrated Parts List

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The six-digit number in the Part column is the Nordson Corporation part number. A series of dashes in this column (- - - - -) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Item	Part	Description	Quantity	Note
—	000 000	Assembly	1	A
1	000 000	• Subassembly	2	
2	000 000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

Rotary Sieve

See Figure 7.

Item	Part	Description	Quantity	Note
—	249 450	Sieve, rotary	1	
1	970 966	• Clamp, hose, 2.5 in.	2	
2	249 452	• Screen, 60 mesh	1	A, B
3	249 458	• Support, screen	1	
4	147 876	• • Service kit, oil seal	1	B
5	249 465	• • Bearing	1	B
6	942 410	• • O-ring, silicone, 3.875 x 4.00 x 0.125 in.	1	B
7	-----	• • Cap, end	1	
8	981 736	• Screw, set, with Nylok, 1/4-20 x 0.375	1	
9	971 506	• Elbow, male, 3/8 tube x 1/4 NPT	1	
10	900 511	• Tubing, 0.375 x 0.062	2	
11	249 457	• Impeller, insert and shaft	AR	
12	104 165	• Latch, tension	1	
13	249 462	• Switch, limit	1	
14	111 687	• Gasket, rotary sieve, inlet	1	
15	249 460	• Motor, drive, lug	1	
16	249 467	• Regulator, in-line air	1	
17	973 037	• Nipple, hex, 1/4 x 1/4 x 1.45, stainless steel	1	
18	973 260	• Tee, pipe, hyd, 1/4, stainless steel	2	
19	973 036	• Nipple, brass, sched 40, 1/4, 3	1	
20	971 258	• Connector, male, 3/8 tube x 1/4 NPT, brass	2	
21	939 512	• Switch, pressure, normal open, 2	1	
22	111 686	• Gasket, rotary sieve, base	1	
NS	249 468	• Cap, end (assembly), sieve	1	B

NOTE A: Standard screen shipped with sieve. Optional screens available in 40, 80, and 100 mesh.

B: Recommended spare part. Refer to *Spare Parts*.

AR: As Required

NS: Not Shown

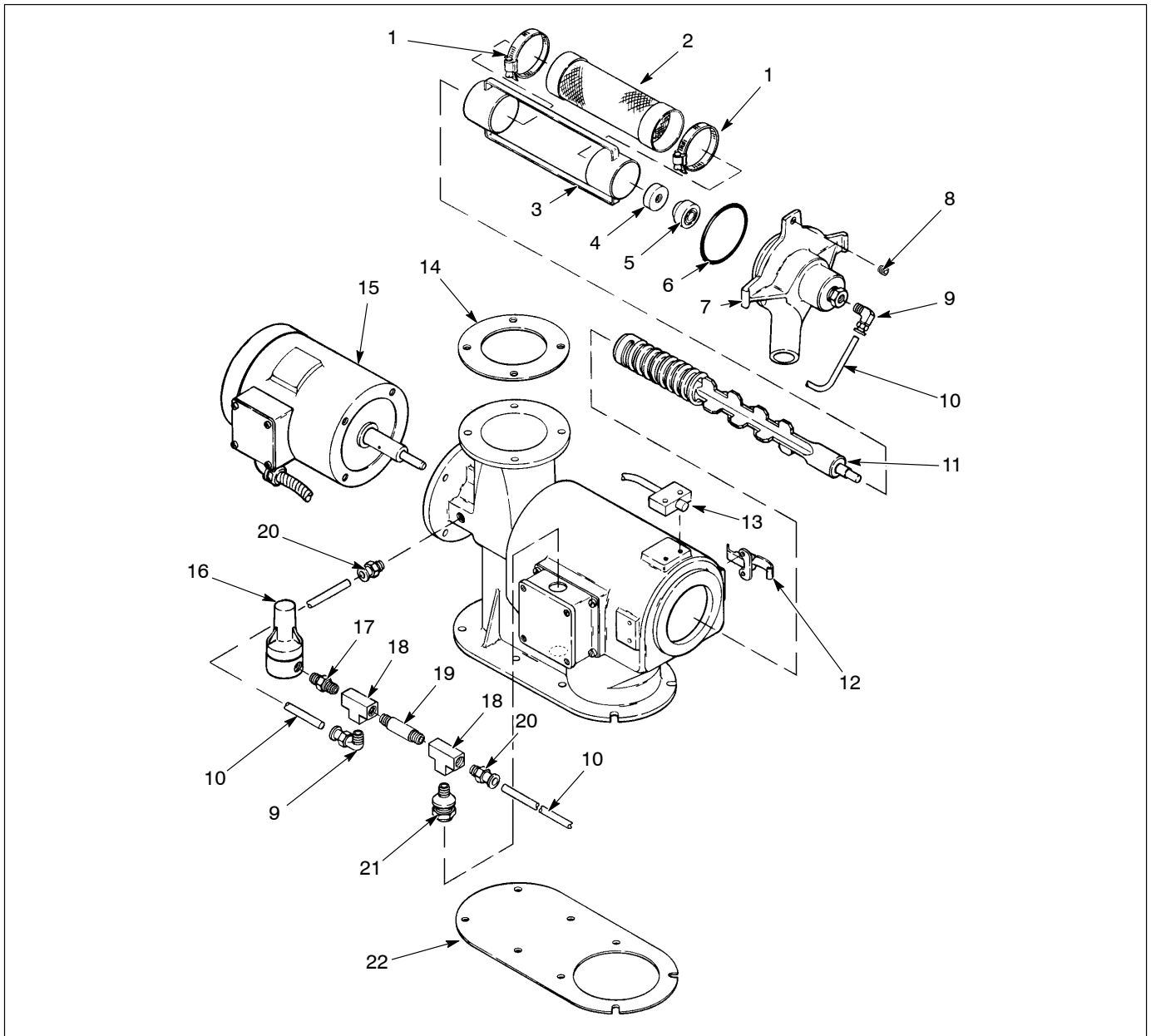


Fig. 7 Rotary Sieve Exploded View

Options

This chart lists the options.

Item	Part	Description	Quantity	Note
NS	249 451	Screen, 40 mesh	1	
NS	249 453	Screen, 80 mesh	1	
NS	249 454	Screen, 100 mesh	1	
NS	242 402	Hose, flexible, 10 feet	AR	
NS	246 569	Adapter, duct	1	
NS	144 837	Bucket, scrap, sieve, 5 gal	1	
NS	174 806	Tube, vent, 3.5 inch, with assist	1	A, B
NS	174 800	Flange, vent, 3.5 inch	1	A, C
NS	243 052	Hose, flexible	AR	A
NS	970 967	Clamp, hose	2	A
NS	237 615	Cyclone, 10 port accumulator	1	
NOTE A: For retrofitting older-style Nordson rotary sieve systems; higher performance design. B: Was PM10533. C: Was PM10534. AR: As Required NS: Not Shown				

Spare Parts

This chart lists the recommended spare parts.

Item	Part	Description	Quantity	Note
NS	-----	Screens	AR	A
NS	249 468	Cap, end (assembly) sieve	1	B
NS	147 876	Service kit, oil seal	2	B
NS	249 465	Bearing	2	B
NS	942 410	O-ring, silicone, 3.875 x 4.00 x 0.125 in.	2	B
NOTE A: Order according to your application. B: End cap assembly includes the seal and bearing. If necessary to replace the bearing and seal, change the end cap and rebuild off-line with the spare bearing and seal. This will reduce downtime. AR: As Required NS: Not Shown				

8. Specifications

The following are the specifications:

Sieve

Height:	406 mm (16 in.)
Length:	965 mm (38 in.)
Width:	330 mm (13 in.)
Weight with motor:	25 kg (55 lbs)
Capacity:	544 kg/hr (1200 lbs/hr)

Air Requirements

The regular air input requirements are:

Minimum:	3.5 bar (50 psi)
Maximum:	8.4 bar (120 psi)
Regulator output:	0.7 bar (10 psi)

Motor

The motor is 230/460 Vac @ 60 Hz, 3 phase, and 1725 rpm.

