Dura-Screen™ 600 Vibratory Sieve

Customer Product Manual
Part 1030101A
Issued 2/04

For parts and technical support, call the Finishing Customer Support Center at (800) 433-9319.

This document is available on the Internet at http://emanuals.nordson.com/finishing

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NORDSON CORPORATION • AMHERST, OHIO • USA

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Contact Us

Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

Address all correspondence to:

Nordson Corporation
Attn: Customer Service
555 Jackson Street
Amherst, OH 44001

Dura-Screen 600 Vibratory Sieve

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.

All phases of equipment installation must comply with all federal, state, and local codes.

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.
- 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.

- 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.
- 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.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All work conducted inside the spray booth or within 1 m (3 ft) of booth openings is considered within a Class 2, Division 1 or 2 Hazardous location and must comply with NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

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.

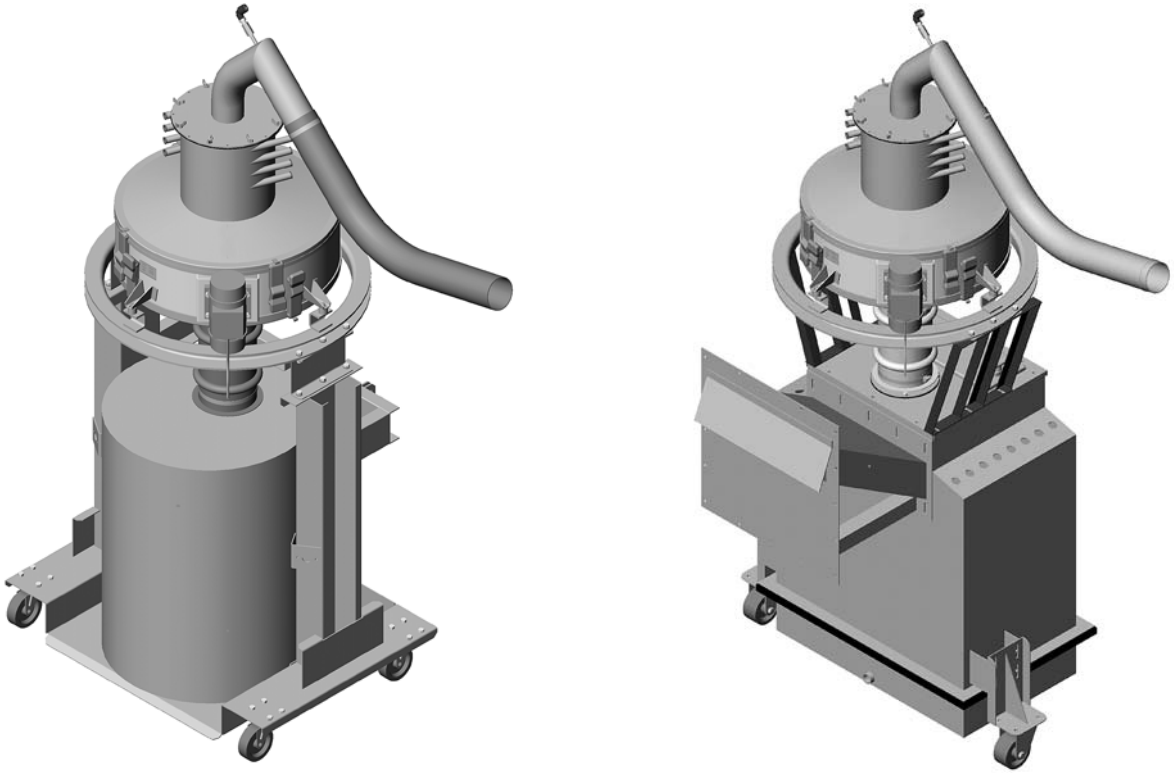
Description

The Nordson Dura-Screen 600 Vibratory Sieve is designed to sieve organic powder coatings. It is designed to be used with the following Nordson feed hoppers:

- HR-16-150 round hopper (150 lb, 16 pumps)
- HTM 16 rectangular hopper (250 lb, 16 pumps)

When used with the HR-150 round hopper, the sieve is mounted on a cart, with the feed hopper positioned on the cart directly below the sieve.

When used with the HTM-16 hopper, the sieve is mounted on the hopper lid.



Dura-Screen Sieve with Cart and HR-150 Hopper

Dura-Screen Sieve Mounted on HTM-16 Hopper

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Figure 1 Dura-Screen 600-mm Sieve Versions

The sieve is used as part of a powder recycling system and accepts both virgin and reclaimed powder. The sieve uses a vibrating screen to separate powder particles by size and prevent contamination of the powder supply. The particles passing through the screen are deposited into the feed hopper, fluidized, and pumped to the spray guns.

The sieve features:

- compatibility with all types of applications and recovery systems
- simple and rugged design
- smooth powder-coated interior to minimize maintenance and cleaning
- electric vibrator for reduced power consumption and noise
- 245-micron (60-mesh) stainless steel screen, 600-mm diameter

NOTE: An optional 360 micron (40-mesh) screen is available for retrofit.

The accumulator on top of the sieve has eight inlets. Both virgin and reclaimed powder are fed to the sieve through the inlets. The sieve screens and blends the virgin powder with reclaimed powder. Transfer air and fine dust is vented into the powder booth recovery system. Low-pressure compressed air is used to assist venting.

Vibrators are available with the following voltage ratings:

- 200/400 v, 50 Hz, 3 phase
- 200/400 v, 60 Hz, 3 phase
- 230/460 v, 60 Hz, 3 phase
- 380 v, 50 Hz, 3 phase
- 380 v, 60 Hz, 3 phase
- 575 v, 60 Hz, 3 phase

The vibrator's eccentric weights are adjustable so that the vibration force can be increased or decreased. The vibrators are set to 50% of maximum force before shipping.

Installation

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

Unpacking

All Nordson equipment is inspected, and packaged prior to shipment. Upon receipt, examine the packaging for external damage. Open the packaging and inspect the contents. Any damage should be documented with photographs and reported to the carrier immediately.

Carefully unpack the sieve to avoid damaging the components. Recycle or dispose of packing materials according to local regulations.

Assembly

See Figure 2.

New sieves can be shipped with a feed hopper or without one, for use with an existing feed hopper. Typically, sieves sold with a powder coating system include feed hoppers. The sieves can be shipped fully assembled or partially assembled.

If your sieve requires assembly or you are mounting the sieve on an existing hopper, follow these instructions.

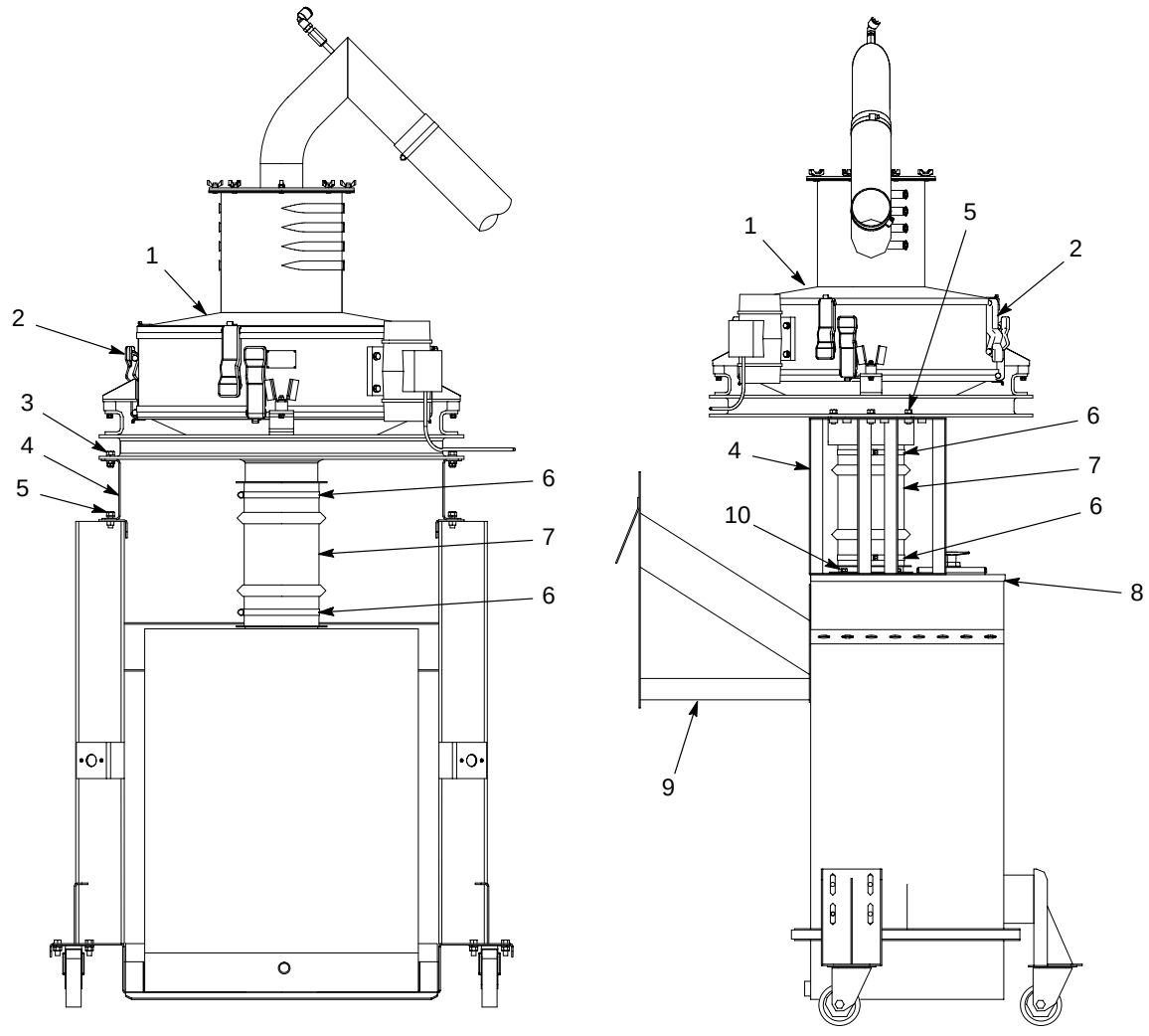
Sieve with Cart and HR-16-150 Hopper

Typically, the only assembly required is either clamping the vent tube/accumulator cover on the sieve, or installing the sieve on the cart with the fasteners shown and connecting the sieve outlet to the feed hopper inlet with the connector (rubber boot) and worm clamps. The worm clamp and connector size depends on the hopper used.

Sieve with HTM-16 Hopper

Typically, the only assembly required is either clamping the vent tube/accumulator cover on the sieve, or installing the sieve on the hopper with the fasteners and spacers shown and connecting the sieve outlet to the feed hopper inlet with the connector (rubber boot) and worm clamps.

If you are mounting the sieve on an existing HTM-16 hopper, you will need to install a new lid and transition duct on the hopper, using the existing gaskets and fasteners, and then install the spacers on the lid.



Sieve with Cart and HR-16-150 Hopper (Front View)

Sieve with HTM-16 Hopper (Side View)

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Figure 2 Assembly

1. Vent tube/accumulator cover
2. Draw latches
3. Screws, lock washers, and nuts
4. Spacers
5. Screws and lock washers
6. Worm clamps
7. Connector (rubber boot)
8. Dura-Screen lid (HTM only)
9. Transition duct (HTM only)
10. Existing fasteners

Connections

See Figure 3.

1. Move the cart or HTM hopper into position next to the powder booth.
2. Connect the vent hose (1) to the vent tube and a vent stub on the recovery system. Use worm clamps (2) to secure the hose.

NOTE: Keep the vent hose length as short as possible, and make sure the hose does not sag to prevent powder from collecting in the hose. The vent hose should be connected to the recovery system at a point where the pressure in the system is negative, not exceeding 0.5 kPa (2 in. w.g.).

3. Connect 10-mm vent-assist air tubing from a system air regulator to the vent-assist air fitting (3) on the vent tube.
4. Connect 10- or 12-mm fluidizing air tubing from a system regulator to the hopper fluidizing air fitting (7) on the side of the feed hopper plenum.
5. Connect $^3/_4$-in. transfer hoses from the recovery system and the virgin powder supply (if used) to the accumulator inlets (4). Secure the hoses to the inlets with clamps. Plug any unused inlets.
6. Connect the feed hopper ground cable (6) to a true earth ground. The sieve and cart are grounded through the vibrator power cable.
7. Connect powder feed tubing and air tubing to the pumps on the feed hopper.

WARNING: Shut off and lock out power before connecting the vibrator electrical cable to the power supply. Failure to shut off power may result in serious personnel injury or death.

8. Connect the vibrator power cable to the power supply. Refer to the vibrator identification plate for the voltage rating and the vibrator manual for more information. Cable wires are coded as follows:

Wire Color	Connection
Black	L1
White	L2
Red	L3
Green	Ground

Follow these guidelines:

- The vibrator power supply must be interlocked with the recovery system so that the sieve can operate only when the recovery system is operating.
- Terminate the cable with a suitable plug, or connect the cable to terminal blocks in the system electrical panel or in a junction box (contact your Nordson representative for more information).
- Provide slack in the cable to prevent stress on wire connections.

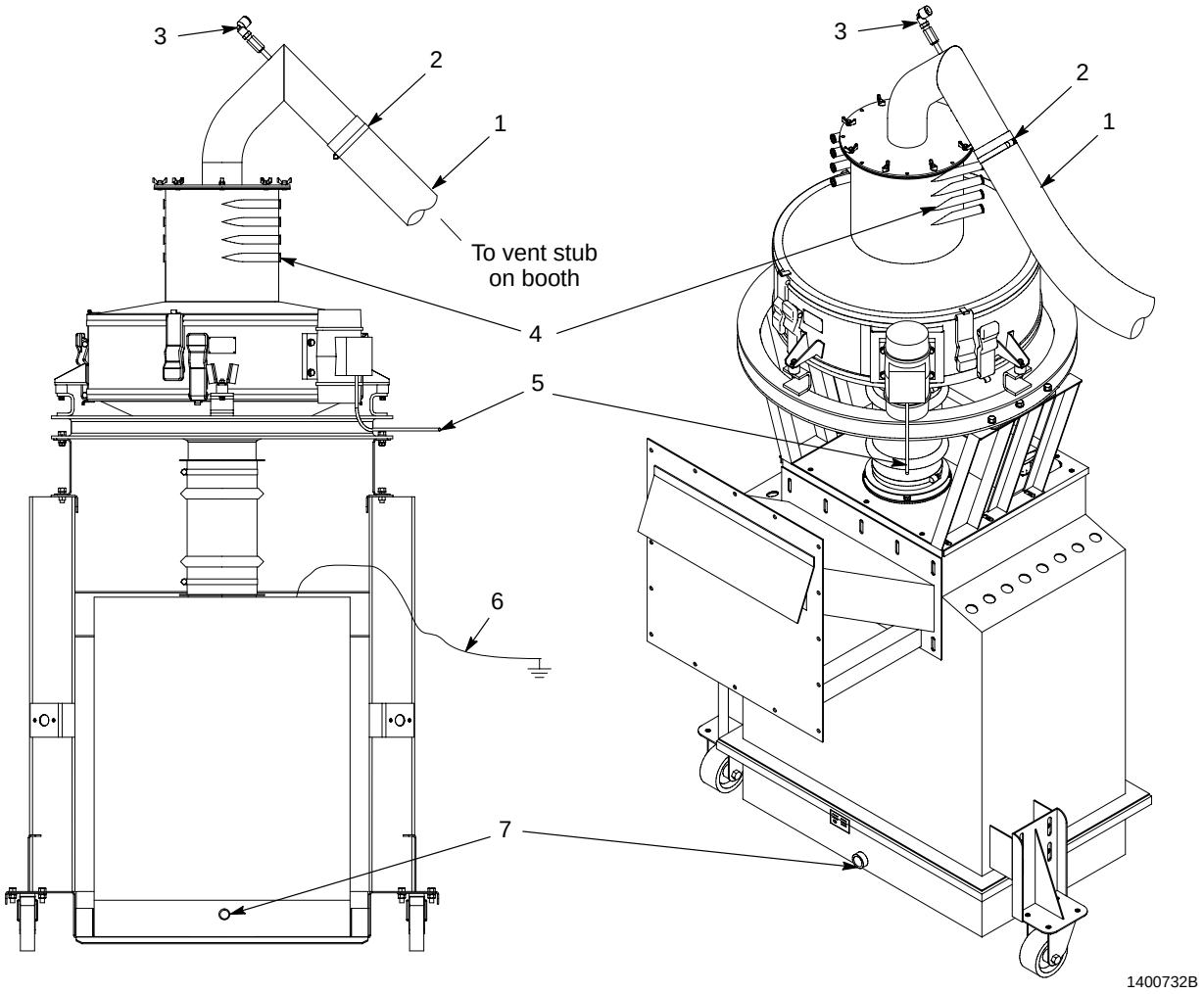

Figure 3 Connections

1. Vent hose
2. Worm clamps
3. Vent-assist air fitting
4. Accumulator inlets
5. Vibrator power cable
6. Hopper ground cable
7. Hopper fluidizing air fitting

Operation

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

To operate the sieve:

1. Turn on power to the vibrator.
2. Start vent-assist and feed hopper fluidizing air:
   - Set the vent-assist air pressure to 0.34-0.68 bar (5-10 psi). Do not exceed 10 psi, or powder will be drawn out of the accumulator into the recovery system.
   - Set the feed hopper fluidizing air so that the powder in the feed hopper gently boils. Typical air pressure is 0.68-1.0 bar (10-15 psi). Refer to your hopper manual or Nordson representative for more information.
3. Supply powder to the sieve from the recovery system or virgin powder supply. The ratio of reclaim to virgin powder can be controlled by adjusting the transfer rates.

To shut off the sieve, turn off the powder transfer systems first, then turn off the vibrator power and the vent-assist and feed hopper fluidizing air.

Adjusting Vibration Speed

WARNING: Shut off and lock out power to vibrator before adjusting vibrator weights. Failure to observe this warning may result in severe personal injury.

The vibrator is shipped set to 50% of maximum force. To adjust the vibrator force, shut off and lock out power and remove the end covers. Move the weights to increase or decrease the speed. Refer to the vibrator manual for detailed instructions on weight adjustment.

Daily Maintenance

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

WARNING: Breathing airborne dusts, including powder coatings, may be hazardous to your health. Obtain and read the Material Safety Data Sheets for the powder coatings you are using. Use the recommended respiratory protection.

CAUTION: When cleaning the sieve make sure you do not damage the screen. If the screen is damaged, replace it.

Sieve Cleaning

Depending on the volume of powder sieved, but not less than once per eight-hour shift:

1. See Figure 4. Unclamp the cover (1) and lift it off the sieve body.
2. Vacuum out accumulated material on top of the screen (2).
3. Inspect the screen and gasket (3) and replace either if damaged. See Figure 5 for screen replacement.

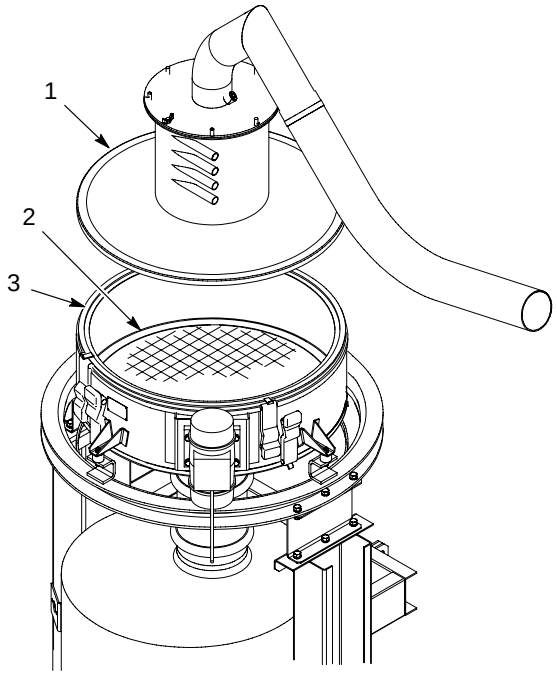

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Figure 4 Screen Cleaning (Sieve with Cart and HR-16-150 Hopper Shown)

1. Cover
2. Screen
3. Gasket

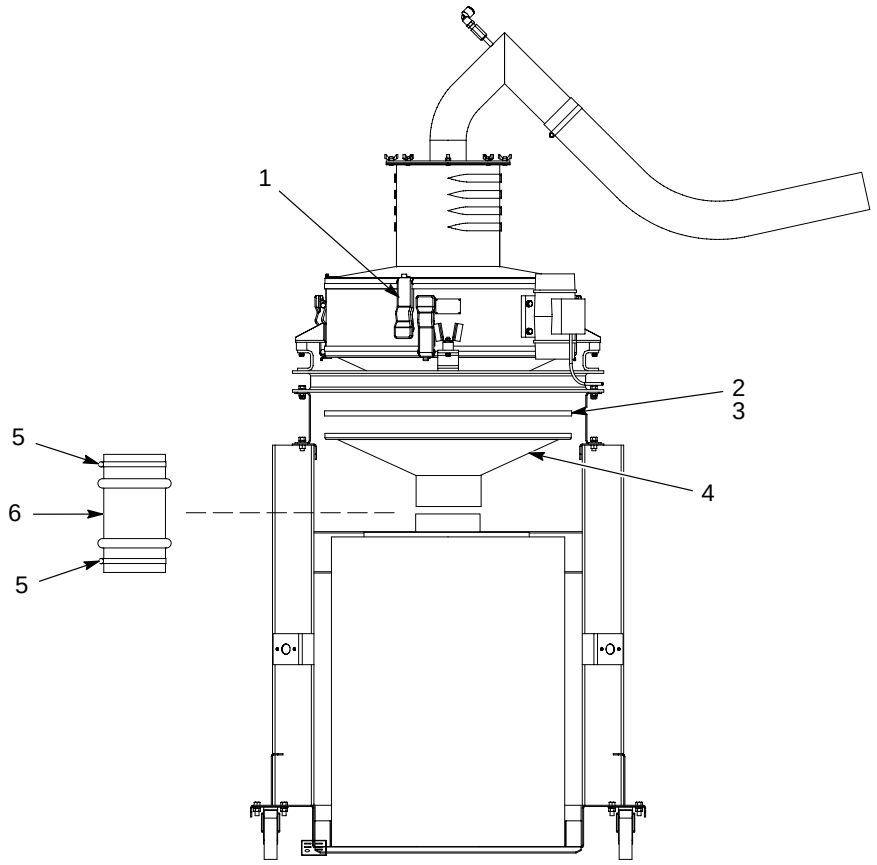

Figure 5 Screen Replacement (Sieve with Cart and HR-16-150 Hopper Shown)

1. Draw latches
2. Screen
3. Gaskets
4. Base
5. Worm clamps
6. Spout connector (rubber boot)

Note: Applies to both versions of sieve.

General Maintenance

Once per eight-hour shift:

1. Unclamp and remove the sieve cover and base. Clean the accumulator and the sieve cover, base, and body. Use clean, lint-free cloths to wipe off powder.
2. Clean the screen with low-pressure compressed air. Replace the screen if it is damaged.
3. Inspect the cover and screen gaskets and replace them if damaged.
4. Disconnect the vent hose from the vent tube and check for blockage or powder settling. Blow out the hose into the recovery system and reconnect it.
5. Make sure the air tubing, hoses, electrical wiring, and feed hopper ground cable are securely connected. Check for damage and repair or replace components as necessary.
6. Tighten the screws securing the vibrator to the sieve if they are loose.

Troubleshooting

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

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Vibrator fails to run	No power	Check the power supply and power cable connections.
	Recovery system not operating	Turn on the recovery system. Vibrator power is interlocked with the recovery system.
	Vibrator failed	Replace the vibrator.
2. Powder builds up on screen	Screen not being cleaned as frequently as needed	Clean the screen more often.
	Too much powder being fed to sieve	Reduce the transfer rate.
	Damp powder being fed to sieve	Check the compressed air supply for moisture. Check the air dryers.
3. Powder in hopper contaminated	Screen damaged	Replace the screen.
	Screen not thoroughly cleaned	Make sure the screen is cleaned thoroughly and installed correctly.
4. Excessive noise during operation	Cover or base draw latches loose	Make sure the cover and base are clamped tightly to the sieve body.
	Fasteners holding sieve adapter to cart, or vibrator to sieve, are loose	Tighten the fasteners.
	Anti-vibration mounts are loose, worn, or damaged	Tighten or replace the anti-vibration mounts.
5. Powder leaks from cover or base	Gaskets damaged	Replace the gaskets
	Draw latches loose or damaged	Check the draw latches. Replace any that are damaged.

Parts

To order parts, call the Nordson Finishing Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

Use the illustrations and parts lists to locate and describe 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 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.

- 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.

Item	Part	Description	Quantity	Note
—	0000000	Assembly	1	
1	000000	• Subassembly	2	A
2	000000	• • Part	1	

Sieve Versions

Versions are differentiated by vibrator voltage ratings.

NOTE: The sieve part numbers listed in the following two lists are for Nordson use only. Customers should order new sieves by the desired voltage of the vibrator motor and the hopper capacity through their local Nordson customer service representative.

Sieve and Cart for HR-16-150 Feed Hoppers

Feed hoppers are not included. Order hopper separately.

Part	Description	Note
1029229	DURA-SCREEN/CART, 150 lb, 200/400 volts, 50 Hz	
1029260	DURA-SCREEN/CART, 150 lb, 200/400 volts, 60 Hz	
1029075	DURA-SCREEN/CART, 150 lb, 230/460 volts, 60 Hz	
1029368	DURA-SCREEN/CART, 150 lb, 380 volts, 50 Hz	
1029369	DURA-SCREEN/CART, 150 lb, 380 volts, 60 Hz	
1028481	DURA-SCREEN/CART, 150 lb, 575 volts, 60 Hz	

Sieve and HTM-16 Hopper Assembly

Feed hoppers are included.

Part	Description	Note
1029984	DURA-SCREEN, HTM-16, 200/400 volts, 50 Hz	
1029986	DURA-SCREEN, HTM-16, 200/400 volts, 60 Hz	
1029925	DURA-SCREEN, HTM-16, 230/460 volts, 60 Hz	
1029926	DURA-SCREEN, HTM-16, 380 volts, 50 Hz	
1029927	DURA-SCREEN, HTM-16, 380 volts, 60 Hz	
1029928	DURA-SCREEN, HTM-16, 575 volts, 60 Hz	

Sieve and Cart Assembly Parts

See Figure 6. Use this parts list for sieve and cart assemblies used with HR-16-150 round hoppers. Refer to *Sieve Parts* for sieve replacement parts.

Item	Part	Description	Quantity	Note
1	983530	WASHER, lock, 0.375 in., split	12	
2	981710	SCREW, hex, 0.375-16 x 0.75 in., zinc	12	
3	984262	NUT, hex, lock, 0.375-16, steel, zinc	6	
4	243052	HOSE, 3.5 in. vent	1	
5	970970	CLAMP, 3.36 in. worm	2	
6	124718	CONNECTOR, spout	1	
8	970968	CLAMP, 6 in. worm	2	

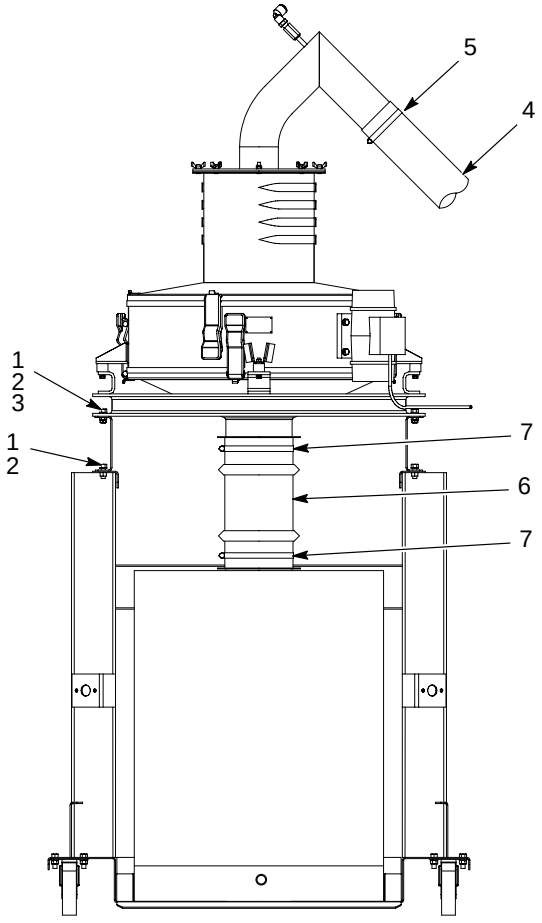

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Figure 6 Sieve and Cart Assembly Parts

Sieve and HTM-16 Hopper Assembly Parts

See Figure 7. Refer to *Sieve Parts* for sieve replacement parts.

Item	Part	Description	Quantity	Note
1	983530	WASHER, lock, 0.375 in., split	6	
2	981710	SCREW, hex, 0.375-16 x 0.75 in., zinc	6	
3	1029868	SPACER, Dura-Screen HTM-16	2	
4	1029864	LID, Dura-Screen HTM-16	1	
5	1029929	DUCT, transition, HTM-16 Dura-Screen	1	
6	970968	CLAMP, 6 in. worm	2	
7	245718	CONNECTOR, spout	1	
8	243052	HOSE, 3.5 in. vent	1	
9	970970	CLAMP, 3.36 in. worm	2	

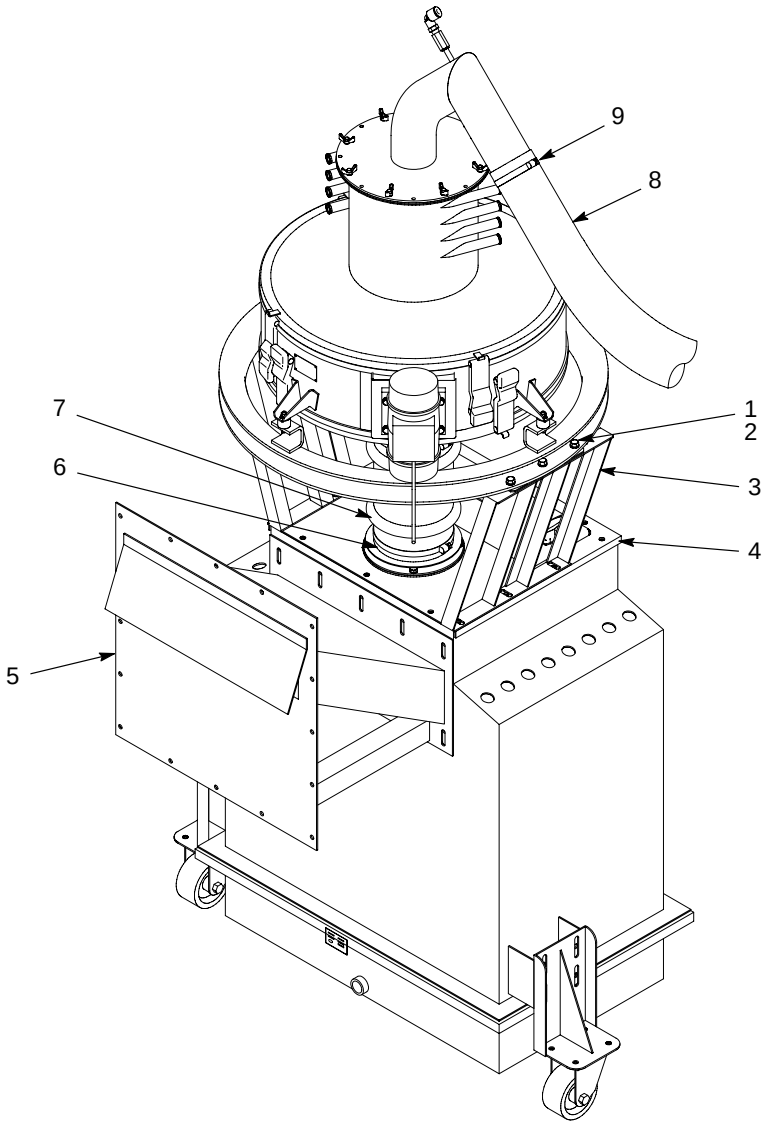

Figure 7 Sieve and HTM-16 Hopper Assembly Parts

Sieve Assemblies and Parts

Refer to Figure 8. Order sieve assemblies or vibrators by voltage/frequency rating. All parts except the vibrator are common to all versions.

Item	Part	Description	Quantity	Note
—	1029364	SIEVE, vibratory, 600 Dura-Screen, 200/400, 50 Hz	1	
—	1029363	SIEVE, vibratory, 600 Dura-Screen, 200/400, 60 Hz	1	
—	1029038	SIEVE, vibratory, 600 Dura-Screen, 230/460, 60 Hz	1	
—	1029366	SIEVE, vibratory, 600 Dura-Screen, 380, 50 Hz	1	
—	1029365	SIEVE, vibratory, 600 Dura-Screen, 380, 60 Hz	1	
—	1029367	SIEVE, vibratory, 600 Dura-Screen, 575, 60 Hz	1	
1	971125	• CONNECTOR, male elbow, 10 MT x 0.25 UNI	1	
2	129326	• CONNECTOR, female, $^3/_8$ in. tube x $^1/_4$ in. NPT	1	
3	- - - - - -	• TUBE, vent, Dura-Screen	1	
4	1028894	• NUT, wing, M8 x 1.25, steel, zinc, Nylok	8	
5	983409	• WASHER, lock, split, M6, steel, zinc	12	
6	1028602	• GASKET, Dura-Screen vent	1	
7	- - - - - -	• COVER, 600 mm sieve	1	
8	1028489	• GASKET, strip, 0.5 x 0.25 in. PSA	13 ft	
9	1028607	• LATCH, draw, elastomer	8	A
10	- - - - - -	• BODY, 600 mm sieve	1	
11	1028596	• MOUNT, anti-vibration	4	
12	984703	• NUT, hex, M6 x 1.0	8	
13	- - - - - -	• ADAPTER, 600 mm sieve	1	
14	765875	• SCREEN, 600 mm, 60 mesh (245 micron) stainless steel	1	C
15	1028294	• GASKET, 0.14 x 0.5 in., conductive PSA	6.5 ft	
16	- - - - - -	• BASE, 600 mm sieve	1	
17	- - - - - -	• VIBRATOR, electric	1	B
18	983404	• WASHER, lock, split, M8, steel, zinc	4	
19	982212	• SCREW, hex, M8 x 30, zinc	4	

NOTE A: Includes latch base and keeper. Discard unneeded parts. If welding new base or keeper to sieve, remove vibrator first to avoid damaging circuits.

B: Refer to *Vibrators* list for part numbers. Order correct vibrator for your system.

C: For optional 40-mesh (360 micron) screen, order part number 765767.

Vibrators

Before ordering a replacement vibrator, check the identification plate on the failed vibrator for the voltage/frequency rating. Order a replacement with an identical rating. Vibrators include a 15 ft power cable.

Part	Description	Note
1029461	VIBRATOR, electric, 200/400 volts, 50 Hz	
1029460	VIBRATOR, electric, 200/400 volts, 60 Hz	
1028608	VIBRATOR, electric, 230/460 volts, 60 Hz	
1029463	VIBRATOR, electric, 380 volts, 50 Hz	
1029462	VIBRATOR, electric, 380 volts, 60 Hz	
1029464	VIBRATOR, electric, 575 volts, 60 Hz	

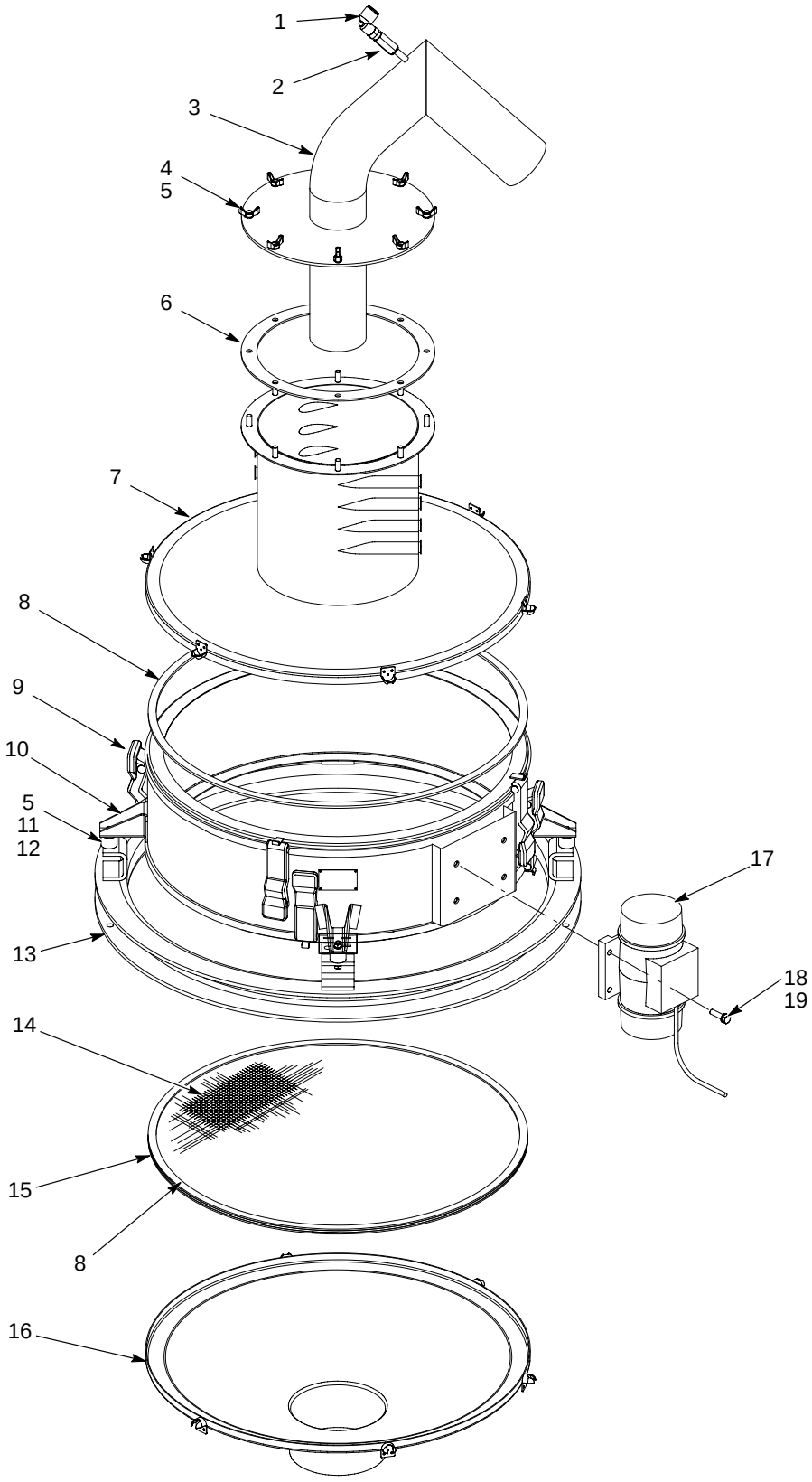

Figure 8 Sieve Parts