Twin Cyclone

Customer Product Manual
Part 768641-08
Issued 12/19

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 DEUTSCHLAND GMBH

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.

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Notice

Trademarks

Change Record

Revision	Date	Change
08	10/07/2019	Part number corrections - 7035260 is 7035242 - 7035259 is 7035241

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Twin Cyclone

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

CAUTION: 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
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

WARNING: 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 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.
- Relieve (bleed off) pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Safety Data Sheets (SDS) 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 and moving parts that cannot be enclosed or otherwise guarded for practical reasons.
- By opening or closing inspection doors, including the surge hopper, there is a risk of squeezing or trapping.
- Do not use the air blow gun to clean your body. Compressed air can pierce the skin and if directed towards the face it could cause a severe eye injury.

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 SDS for guidance.
- 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.

Grounding inside and around the booth openings must comply with EN16985, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 ohm as measured with an appropriate instrument.
- Equipment to be grounded includes, but is not limited to, the floor of the operator working area 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.
- Operators must maintain skin-to-handle contact between their hand and the air blow gun handle to prevent shocks. If gloves must be worn, cut away the palm or fingers or wear electrically conductive gloves.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Action in the Event of a Malfunction

Due to the intention of the product, there is no malfunction possible.

Disposal

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

Description

Figure 1 **Twin Cyclone**

The air is drawn through the cyclones by the fan situated in a Nordson after filter. The air and powder from the spray booth is drawn directly from the side or base of the booth canopy or through interconnecting ductwork, whereupon the powder-laden air is accelerated and directed towards the outer case of the cyclone walls.

Centrifugal force separates the powder from the air stream, the powder drops down the walls to the collection hopper (surge hopper) below for transportation to disposal or reclaim.

The construction is robust and constructed in mild steel painted, capable of withstanding considerable internal forces in the event of an ignition within the structure.

Access for inspecting and cleaning is through the inspection doors located on the cone. The door is flush internally so as not to create a pocket in which powder would collect. The cyclone is welded to a high standard for ease of cleaning on colour change.

Installation

Setting up the unit

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

- Remove packaging materials
- Assemble the legs/frame, ready to mount the cyclone
- Lift the cyclone using certified slings and overhead hoist or similar
- Using the overhead hoist, position the cyclone assembly in the correct location. Align with the booth and ductwork.
- Seal connection flanges using a non-silicone sealant, prior to bolting together
- Erect ductwork according to the drawings provided seal flanges with the same non-silicone sealant
- Run the system, check for airleaks at flanges and rectify if necessary, adjust clamps if required

CAUTION: Before adding powder for the first time, clean the inside of the cyclone using cleaning pellets - Part Number **771500**. See the Cleaning Process section, starting from Step 2. Include Step 1 for all other cleaning occasions after this initial start up.

Figure 2 **Cleaning Pellets - P/No. 771500**

Maintenance

Cleaning Process

NOTE: This process is particularly for thoroughly cleaning the internal walls of the cyclone and remove impacted powder, it is not required every colour change. The system can not be used for production during the cleaning process.

Step 1

Clean down the complete booth system and empty the cyclone surge hopper.

Figure 3 **Surge Hopper**

Step 2

Remove the powder transfer hose (1) from the outlet of the surge hopper and block using a plug or simply a piece of tied tubing (2).

Figure 4 **Surge Hopper - *blanking the outlet***

Step 3

With Afterfilter running, open cyclone duct inspection door

CAUTION: High velocity air passing through the duct will cause a strong vacuum here

Figure 5 **Cyclone Duct Inspection Door - *closed & open***

Step 4

Using your hand or a scoop, throw 1-2 kg of pellets upwards into the extract duct

CAUTION: Do not allow the plastic bag to go into the extract duct

Figure 6 **Applying cleaning pellets into extract duct**

Step 5

Close the extract duct inspection door and run the afterfilter for 1 hour

Figure 7 **Extract duct door closed - *ready to start cleaning***

Step 6

After the cleaning cycle is completed, turn off the Afterfilter and wait for a few minutes for the exhaust fan to completely stop. Open the outlet at the bottom of the surge hopper to allow pellets to empty into a waste or bag. Dispose of the used pellets according to local regulations.

Figure 8 **Draining used pellets from surge hopper**

NOTE: Do not reuse the pellets as during the cleaning process their edges ware and the pellets lose their effectiveness

Step 7

You may find the bottom 150mm of the cyclone needs cleaning with solvent as the velocity of pellets in this area is low.

Figure 9 **Bottom of cyclone - *inspect and clean***

Step 8

Once the surge hopper has completely emptied all cleaning pellets, clean the internal area of the surge hopper using solvent.

Figure 10 **Surge Hopper internal**

Step 9

Reconnect the powder transfer hose to the surge hopper connector, ready for production.

Figure 11 **Surge Hopper -** ***reconnect powder transfer hose***

NOTE: Regular cleaning of the cyclone and surge hopper in this way will maintain maximum efficiency of the system and help avoid any possibility of contamination

Cyclone Door Gasket Replacement

CAUTION: Prior to using the solvent or adhesive, read the Safety Data Sheet for information about precautionary measures and safety recommendations.

Materials Required

- TERASON 2444 adhesive or equivalent
- TERASON VR20 solvent or equivalent
- Nordson Gasket Set (see parts list)

Tools Required

- Scraper (for removing old gasket)
- Wrench - 8 mm & 10 mm
- Utility knife (for cutting gasket)
- Wire brush (to clean and prepare surface)
- Brush (to apply the adhesive)

Step 1

Remove the old gasket from the door using the scraper

Step 2

Using the wire brush, clean any remaining gasket/adhesive from the surface. Then clean the surface using solvent and cleaning cloth. Surfaces must be clean, dry and free from all traces of grease, oil and dust.

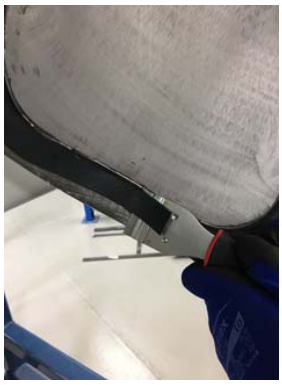

Figure 12 **Removing old seal and preparing the surface**

Step 3

Prepare the new seals and verify that the new seals fit flush on the inside of the doors.
If necessary, cut a small section from the new seals diagonally, using the utility knife, then rejoin accordingly to ensure there are no gaps anywhere in the seal. See below.

Examples of how to cut for resizing if required

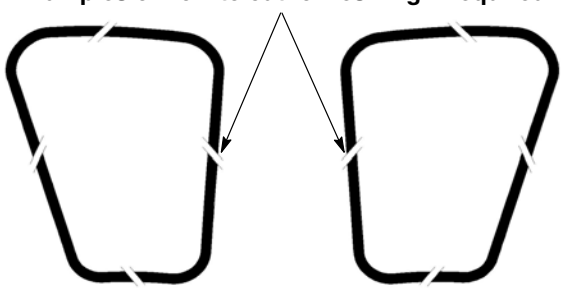

Figure 13 **Verify fit of seals**

Step 4

Loosen the nuts of the clamp indicated below, to reduce pressure between the door and cyclone.

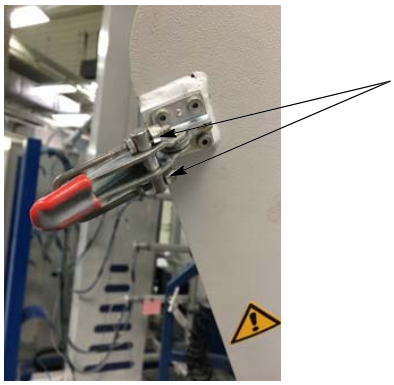

Figure 14 **Clamp adjustment**

Step 5

Apply adhesive from the tube, onto the cyclone door, within the area where the gasket is to be placed. Use the brush to evenly spread the adhesive as shown below. The width of the adhesive should be a minimum of 20 mm to ensure the complete width of the gasket makes contact with it.

Figure 15 **Applying adhesive**

NOTE: The adhesive is workable for up to 15 minutes before it sets. Ensure the gaskets are fully in place before reaching the 15 minutes.

Step 6

When applying the new gasket, start on a corner and press onto the adhesive.

Follow the contour of the door, gently pressing the gasket onto the adhesive, until a complete loop around the face of the door is achieved.

Ensure the face of the gasket that is adhering to the surface of the door, is completely in contact with the adhesive.

Close the door of the cyclone to press the new gasket softly onto the surface.

Figure 16 **New gasket fitted**

Inspection can be made after a minimum of 60 minutes. Inspect to ensure the entire gasket is adhered to the surface. If necessary, apply the same adhesive to any areas that are not adhered sufficiently.

Step 7

With the door open, adjust the nuts of the clamp indicated below, to increase pressure between the door and cyclone. Beware not to over-tighten, the clamp should close just by hand and not excessive force.

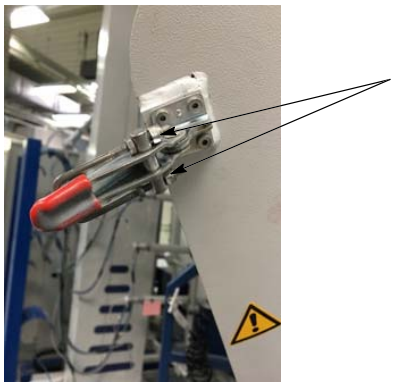

Figure 17 **Clamp adjustment**

Troubleshooting

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

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Low or no powder recovery	Low air velocity	Check for duct blockages or filter performance
	Cyclone seals leaking	Repair/replace seals
	High percentage of fine powder particles	Add fresh powder to the system. Contact your powder supplier if problem persists
2. Impact fusion	Reactive powders	Discuss with powder supplier
		Mechanically or chemically remove regularly
3. Surge hopper not emptying	Pump supply pressure too low	Reset at correct pressures according to pump manual
	Blocked pump or powder hose	Clear with compressed air or disassemble pump to clean

Parts

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

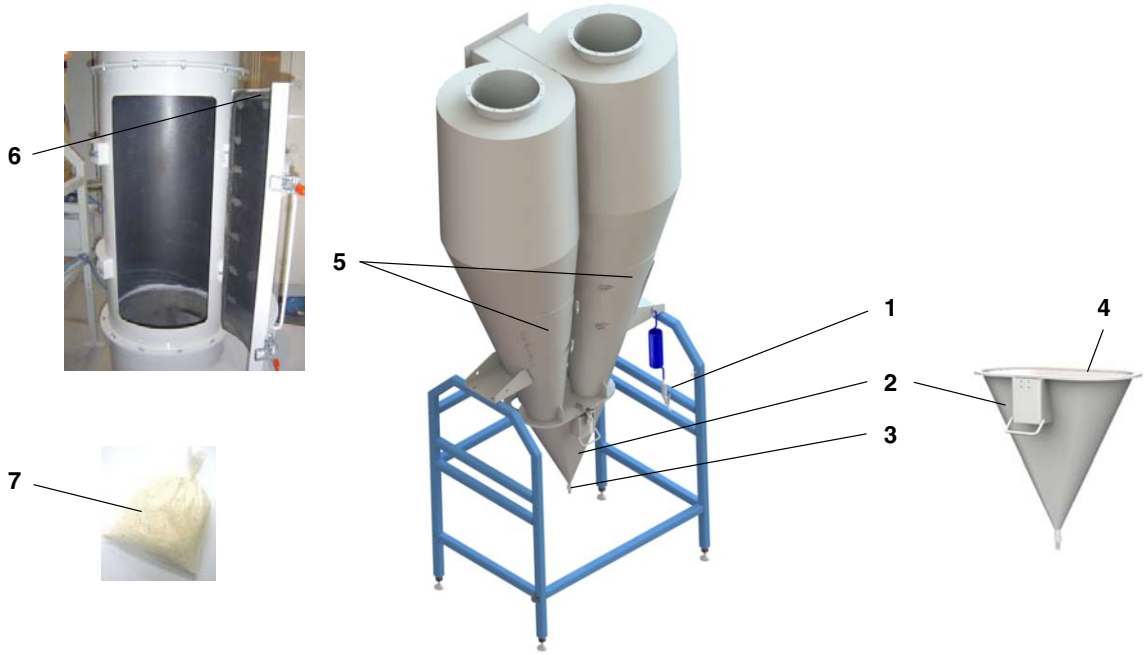

Figure 18 **Twin Cyclone assembly**

Item	Part	Description	Quantity	Note
1	7032368	HAND BLOW GUN, W/SPIRAL TUBE & FITTING	1	-
2	7033073	SURGE HOPPER,W/HINGE & FITTING,W/O LATCH	1	-
3	-	HOSETAIL CONNECTOR, G1/2, FOR 13MM ID HOSE	1	-
4	7035261	SEAL, SURGE HOPPER	1	-
5	7035245	SEAL,DOOR,CYCLONE, PAIR - 7650 M3/HR	1	A, B
5	7035247	SEAL,DOOR,CYCLONE, PAIR - 10000 M3/HR	1	A, B
5	7035249	SEAL,DOOR,CYCLONE, PAIR - 12000 M3/HR	1	A, B
5	7035255	SEAL,DOOR,CYCLONE, PAIR - 16000 M3/HR	1	A, B
5	7035242	SEAL,DOOR,CYCLONE, PAIR - 20000 & 24000 M3/HR	1	A, B
5	7035251	SEAL,DOOR,CYCLONE, PAIR - 28000 M3/HR	1	A, B
5	7035253	SEAL,DOOR,CYCLONE, PAIR - 32000 M3/HR	1	A, B
6	7035246	SEAL,DOOR,INLET DUCT,7650 M3/HR	1	A, B
6	7035248	SEAL,DOOR,INLET DUCT,10000 M3/HR	1	A, B
6	7035250	SEAL,DOOR,INLET DUCT,12000 M3/HR	1	A, B
6	7035257	SEAL,DOOR,INLET DUCT,16000 M3/HR	1	A, B
6	7035241	SEAL,DOOR,INLET DUCT,20000 M3/HR	1	A, B
6	7035258	SEAL,DOOR,INLET DUCT,24000 M3/HR	1	A, B
6	7035252	SEAL,DOOR,INLET DUCT,28000 M3/HR	1	A, B
6	7035254	SEAL,DOOR,INLET DUCT,32000 M3/HR	1	A, B
7	771500	PELLETS,CLEANING,CYCLONE, 4 KG	1	-

NOTE A: Check what size of twin cyclone and inlet duct you have before ordering. See next page for dimensions.
B: This seal fits on the inside face of the door
AR: As Required

Specifications

Cyclone Door Seals - in mm		Inlet Duct Door Seals - in mm	
7650 m^3/hour	422 * 335 * 3	7650 m^3/hour	930 * 292 * 3
10000 m^3/hour	449 * 382 * 3	10000 m^3/hour	930 * 329 * 3
12000 m^3/hour	451 * 393 * 3	12000 m^3/hour	930 * 366 * 3
16000 m^3/hour	507 * 428 * 3	16000 m^3/hour	930 * 403 * 3
20000 m^3/hour	503 * 423 * 3	20000 m^3/hour	930 * 440 * 3
24000 m^3/hour	503 * 423 * 3	24000 m^3/hour	930 * 477 * 3
28000 m^3/hour	503 * 421 * 3	28000 m^3/hour	930 * 514 * 3
32000 m^3/hour	506 * 420 * 3	32000 m^3/hour	930 * 559 * 3

See Figure 18

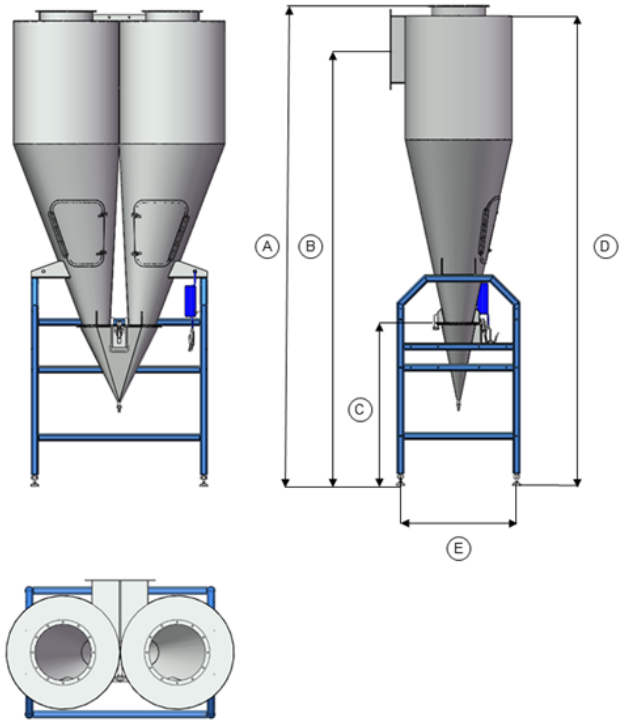

Figure 19 **Twin Cyclone dimensions**

Description	A	B	C	D	E
Twin cyclone 4500 cfm / 7650m^3/hr	2881	2632	1185	2809	900
Twin cyclone 6000 cfm / 10000m^3/hr	3118	2843	1185	3046	900
Twin cyclone 7500 cfm / 12750m^3/hr	3343	3041	1185	3268	900
Twin cyclone 9000 cfm / 16000m^3/hr	3504	3184	1185	3430	900
Twin cyclone 11250 cfm / 20000m^3/hr	3777	3425	1185	3702	900
Twin cyclone 13500 cfm / 24000m^3/hr	4017	3637	1185	3940	900
Twin cyclone 16500 cfm/28000m^3/hr	4149	3749	1185	4075	900
Twin cyclone 19000 cfm/32000m^3/hr	4436	3749	1185	4075	900

NOTE: All dimensions are in millimetres (mm)