

Twin Cyclone Booth

Manual P/N 768 336 B
– English –

Keep for Future Reference



NORDSON (UK) LTD. • STOCKPORT



Order number

P/N = Order number for Nordson products

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Declaration of Conformity

98/37/EC

73/23/EEC

We,

Nordson (U.K.) Limited

of

**Ashurst Drive, Cheadle Heath, Stockport, Cheshire, SK3 0RY,
United Kingdom**

declare that under our sole responsibility for supply/manufacture of the product(s)

Product Name Twin Cyclone Booth

Model Number(s) All

Product Options All

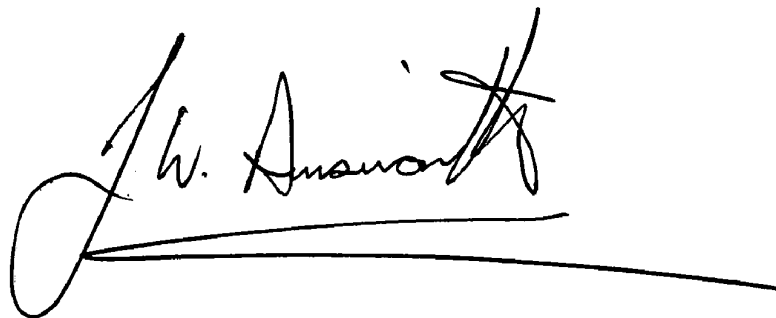
to which this declaration relates, is in conformity with the following standards and other normative documents

Safety BS EN 60204-1:1993
"Safety of Machinery – Electrical equipment of machines"

EN 60335:Part 1:1988
"Safety of household and similar electrical appliances"

BS EN 292:1991
"Safety of machinery – Basic concepts, general principles for design"

following the provisions of 98/37/EC and 73/23/EEC Directives

A handwritten signature in black ink, appearing to read 'J. Ainsworth', with a long horizontal line extending from the end of the signature.

Jim Ainsworth
General Manager

Nordson (U.K.) Ltd., 7th February 2001

NB ref EN45014 (BS7514)

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Congratulations on the Purchase of Your Nordson Product

Nordson equipment is engineered and manufactured in accordance with strict specifications, using high quality components and state-of-the-art technologies that assure reliable, long-term performance. Your product was thoroughly tested for proper operation prior to shipment.

Before unpacking and installing your new equipment, please read this manual. It is your guide to safe installation, productive operation and effective maintenance. We recommend that you keep the manual available for future reference.

Your Safety is Important to Nordson

Carefully read the *Safety* section. Your product is designed for safe operation when used according to the published instructions. Potential hazards exist when operating instructions are not followed.

Manufacturer of Equipment

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For a list of local Nordson organisations, see *Nordson International*.

Nordson International

Europe

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Austria		43-1-707 5521	43-1-707 5517
Belgium		31-13-511 8700	31-13-511 3995
Czech Republic		4205-4159 2411	4205-4124 4971
Denmark	<i>Hot Melt</i>	45-43-66 0123	45-43-64 1101
	<i>Finishing</i>	45-43-66 1133	45-43-66 1123
Finland		358-9-530 8080	358-9-530 80850
France		33-1-6412 1400	33-1-6412 1401
Germany	<i>Erkrath</i>	49-211-92050	49-211-254 658
	<i>Lüneburg</i>	49-4131-8940	49-4131-894 149
	<i>Düsseldorf - Nordson UV</i>	49-211-3613 169	49-211-3613 527
Italy		39-02-904 691	39-02-9078 2485
Netherlands		31-13-511 8700	31-13-511 3995
Norway	<i>Hot Melt</i>	47-23 03 6160	47-22 68 3636
	<i>Finishing</i>	47-22-65 6100	47-22-65 8858
Poland		48-22-836 4495	48-22-836 7042
Portugal		351-22-961 9400	351-22-961 9409
Russia		7-812-11 86 263	7-812-11 86 263
Slovak Republic		4205-4159 2411	4205-4124 4971
Spain		34-96-313 2090	34-96-313 2244
Sweden	<i>Hot Melt</i>	46-40-680 1700	46-40-932 882
	<i>Finishing</i>	46 (0) 303 66950	46 (0) 303 66959
Switzerland		41-61-411 3838	41-61-411 3818
United Kingdom	<i>Hot Melt</i>	44-1844-26 4500	44-1844-21 5358
	<i>Finishing</i>	44-161-495 4200	44-161-428 6716
	<i>Nordson UV</i>	44-1753-558 000	44-1753-558 100

Distributors in Eastern & Southern Europe

DED, Germany	49-211-92050	49-211-254 658
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**Outside Europe /
Hors d'Europe /
Fuera de Europa**

- For your nearest Nordson office outside Europe, contact the Nordson offices below for detailed information.
- Pour toutes informations sur représentations de Nordson dans votre pays, veuillez contacter l'un de bureaux ci-dessous.
- Para obtener la dirección de la oficina correspondiente, por favor diríjase a unas de las oficinas principales que siguen abajo.

Contact Nordson	Phone	Fax
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Africa / Middle East

DED, Germany	49-211-92050	49-211-254 658
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Asia / Australia / Latin America

Pacific South Division, USA	1-440-988-9411	1-440-985-3710
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Japan

Japan	81-3-5762 2700	81-3-5762 2701
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North America

Canada		1-905-475 6730	1-905-475 8821
USA	Hot Melt	1-770-497 3400	1-770-497 3500
	Finishing	1-440-988 9411	1-440-985 1417
	Nordson UV	1-440-985 4592	1-440-985 4593

Section 1

Safety

Section 1

Safety

1. Introduction

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.

2. 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.

3. 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

4. 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.

5. 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.

6. 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 mega-ohm.
- 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.

**7. *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.

8. *Disposal*

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

Section 2

Description

Section 2 Description

1. *Intended Use*

The Nordson Twin Cyclone Booth is designed to contain and recover powder used in finishing applications.

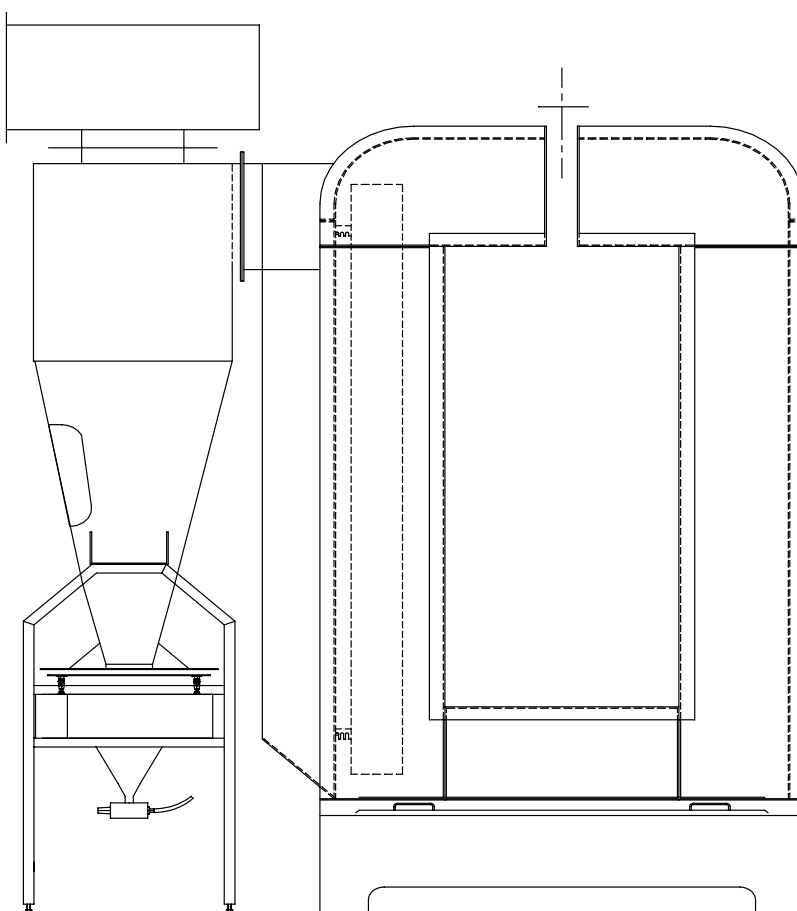


Fig. 2-1 End Elevation of Twin Cyclone Booth

2. Features

- The Nordson Twin Cyclone Booth forms part of a family of powder booths based on proven Nordson Booth technology. The booth system offers an economical easy clean alternative to other systems due to it's method of construction.
- The cyclones are connected directly to the side of the booth thus eliminating excess ducting and simplifying the cleaning operation.
- The booth structure is made up of Stainless Steel flooring and Stainless Steel or powder coated walls.

Section 3

Installation

Section 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.

1. Transport

Transport the unit so as to avoid damage. Do not throw the unit. Use suitable packaging materials and sturdy cartons.

Protect the unit from exposure to humidity, dust and vibrations.

2. Unpacking

Carefully unpack the unit to avoid damaging it. Check for damage caused during transport.

Save packing materials for possible later use. Otherwise recycle or dispose of properly according to local regulations.

3. Removing

Switch off the mains supply, then disconnect all electrical connections from the unit.

4. Storage

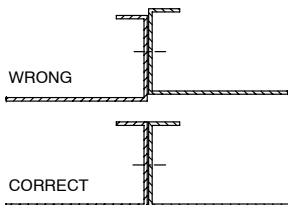
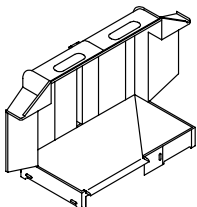
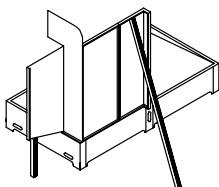
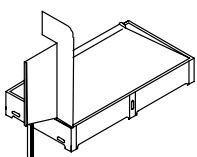
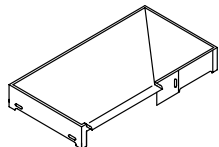
Pack the unit in suitable packing materials and sturdy cartons. Protect from humidity, dust and large temperature fluctuations (condensation).

5. Disposal

Dispose of properly according to local regulations.

6. Setting Up the Unit

Site Preparation



WARNING: Allow only qualified personnel to perform the installation. Observe safety instructions.

NOTE: Booths are generally delivered pre-assembled, where this is not practical due to shipping requirements or at the customers request that booth be supplied "flat pack" for on-site assembly.

NOTE: Installation of the booth should not be undertaken without the presence of a Nordson representative or a suitably qualified person.

1. Choose a level site on which to install the Twin Cyclone booth.
2. Seal concrete floors with a suitable material to avoid dust. Other floor surfaces should be of a type that is easy to keep clean.

NOTE: Bolts should only be finger tight until assembly is complete.

3. Position base frame and level using jacking bolts supplied.
4. Commence assembly with a corner panel.
5. Continue by adding other panels, support as necessary.
6. Fit the roof panel. If roof panels are in more than one piece, pre-assemble first.
7. Ensure all panels are correctly aligned and then tighten nuts and bolts.
8. Finally, seal all internal joints using acrylic sealant (NOT SILICONE). Clean excess sealant to leave a smooth joint.

7. Electrical



WARNING: Allow only qualified personnel to perform electrical connections.

A single supply cable is required to the control panel(s). The supply should be fed from a suitable disconnect device. Introduce the cable into the panel using an IP6X cable gland. Ensure that all the electrical wires are suitably sized for the fan motor loading and adequate fuse/circuit protection is provided at the source of supply.

8. Pneumatic

Before operating the spray booth, ensure that the air supply has reached a suitable quality and that air has been drawn off the system through the drain leg. This will ensure that any materials left in the line during installation do not enter the spray booth.

Section 4

Operation

Section 4 Operation



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

1. *Daily Operation*

Please consult Twin Cyclone and Afterfilter manuals for more details.

Start Up Procedure

- Start booth.
- Start the Gun Movers (where applicable).
- Turn on the recycle.
- Start spraying powder and run production.

In order to successfully Colour change the Booth and Application system follow the clean down procedure outlined below.

Clean Down Procedure

- Turn the guns off.
- Clean hoses and guns. (refer to application manuals)
- Enter the booth to clean and remove the sweeper (where applicable)
- Clean the booth base using a squeegee followed by a damp cloth.
- Remove the powder from the walls and roof manually with a squeegee and a damp cloth.
- Then clean the booth base again.

Clean Down Procedure *(contd.)*

- Remove the duct cover and clean inside the duct and the mouth of the cyclone.
- When most of the powder has been blown clean, wipe the inside of the booth with a DAMP cloth, ensure the cloth is not wet.
- Empty or change powder feed hopper.
- Vacuum sieve clean (where applicable).
- Clean hopper, sieve and pumps into booth extract trying not to dirty booth again.
- Clean booth again if needed.
- Empty remaining powder in surge hopper/waste bucket and clean via blow gun and damp cloth.

Section 5

Maintenance

Section 5 Maintenance



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: Breathing in certain airborne dusts (including finishing powders) may be hazardous to health. Ask the powder manufacturer for a Material Safety Data Sheet (MSDS) for information. Use appropriate respiratory protection.

1. Daily Maintenance

- Once per eight-hour shift, disassemble the cyclone assembly, clean each item removing any excess powder, wipe with a lint free cloth and then reassemble as detailed in the *operation* section.
- Inspect all seals for damage and replace as necessary.
- Check vent hoses for blockages, clean and refit.
- Check all external cables and hoses for damage, replace or repair as necessary.
- Visually check the complete system for leaks, rectify.
- Check the operations of any powder transfer systems.
- Every four– (4) hours, with the fan operational, clean the booth interior with a rubber squeegee, or other non-sparking cleaning device, pulling the powder into the recovery section of the booth.
- Every four– (4) hours check the collector bin levels – if the bin is above half full, empty it.
- Every four– (4) hours or less check the feeder hopper for powder level.
- Every four– (4) hours check the powder pump and gun, clean according to the product manual.
- Every four– (4) hours operate UV detector cleaning sequencer for at least ten (10) minutes, longer if necessary, to maintain air flow. (where applicable)

2. Routine Maintenance

Motors

- Changes in vibration and noise levels are easily identified as an indication to possible problems.
- Current readings taken at regular intervals over the equipment lifetime forms a reliable indicator and record of its condition and performance.
- A fan has inherent vibration; the wiring of ALL connections must be checked for integrity and tightness once a year.

Seals

- Any sign of leakage of powder around a seal means either the seal is not sound or the covers are not properly fastened. Check weekly and any time traces of powder are noticed.

Cyclones

- Check the seals regularly on the cyclone doors and surge hopper, air leaks will adversely effect efficiency.
- Check for impact fusion and mechanically or chemically remove because again efficiency will be affected.

Explosion Relief

- Reliefs should be checked daily, make sure that they open freely and that all obstructions are removed.

Cartridges

- Record the airflow at regular intervals; thus charted, any degradation of system performance due to cartridge blocking will become immediately apparent.
- Signs of powder leakage may be due to the cartridge seal leaking. Tighten up the crank after ensuring seal integrity.
- Cartridges and final filters cannot be manually cleaned but must be replaced.
- On units with final filters, powder leakage may not be noticed, but if adequate records have been kept, the faults will be apparent.

Fluid Beds

- These will be damaged if they are stood on or allowed to become damp. They must be replaced; SMOOTH SIDE UP.

Transfer Pumps

- Within the pump is a venturi, which by the very nature of powder will wear. The diminishing efficiency will be noticed by the loss in returned powder. Remove pumps from the collectors. Remove the discharge hose and blow through with a safety compressed air gun. Disassemble the pump and clean all parts with an air gun and a soft clean cloth. Replace worn or damaged parts.
- For further information on servicing transfer pumps refer to the product manual.

Final Filters

- This is an added feature to protect against powder escaping to the immediate area in case of a cartridge leak.

Compressed Air

- Open the drop leg. Using a clean white cloth check for water, oil or other contaminants. Correct as necessary.

NOTE: The air drier, if fitted, should remain on at all times to prevent moisture from accumulating in the system components.

Grounding

- Continually check for grounding of parts to hangers. Clean/strip hangers regularly.

Electrical Safety

- The unit should be tested for electrical safety, at intervals of not more than 12 months, according to the Electricity at Work regulations 1989 (as revised) or similar for non-UK installations.

