Note
This manual applies to the entire series.

Order number
P/N = Order number for Nordson products

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Separate document

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Section

Safety
Section
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 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.
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.
ECC 300 T/S Cable Coater

Safety

WARNING: Observe and follow all safety instructions, the general safety instructions included as a separate document, as well as the specific safety instructions in all other related documentation.

Description

1. Intended Use

Cable coaters in the series ECC 300 - hereafter also referred to as system - may be used only to coat cables or other substrates with talcum (T) or other nonflammable super absorbent powder (S). Mica can also be applied with version T in special cases.

Any other use is considered to be unintended. Nordson will not be liable for personal injury or property damage resulting from unintended use.

Intended use includes the observance of Nordson safety regulations. Nordson recommends obtaining detailed information on the materials to be used.

Area of Use (EMC)

In regard to electromagnetic compatibility, there are no limitations on the use of the system.

Unintended Use - Examples -

The system may not be used under the following conditions:

- In defective condition
- To apply unsuitable materials, particularly stearates
- When the electrical cabinet is open
- When the chamber is open
- In an atmosphere in which the maximum ppm concentration permitted is exceeded
- In a potentially explosive atmosphere
- When the values stated under Specifications are not complied with
2. Residual Risks

In the design of the unit, all precautions were taken to protect personnel from potential danger. But some residual risks cannot be avoided. Personnel should be aware of the following:

- Emission of material particles into the atmosphere when filling the hopper, disconnecting pneumatic lines and material hoses and opening the chamber to apply powder
- Inhalation of potentially hazardous material particles.


- This manual applies to the entire series.
- This manual is valid only in conjunction with all other parts of the system documentation.

4. Series Overview

The various systems in the series ECC 300 basically differ from one another in the model of the chamber, the application heads and the control units used.

Type Designation

ECC 300 T / S

S = Super absorbent powder
T = Talcum
Series 300
Electrostatic Cable Coater
System Components

Fig. 1 Principle drawing

1 Indicator light
2 Control units
3 Rack for control units
4 Door to powder hopper
5 Connection piece for second powder pump
6 Venturi pump for feeding powder
7 Base unit coater
8 Powder recovery hose
9 Chamber
10 Rubber lid for chamber inlet/outlet
11 Inside: Versa-Spray application head
12 Control lead for high voltage Versa-Spray
13 Diffuser air line
14 TRIBOMATIC application head
15 Powder hose
16 Powder hoses (charged material)
5. Functioning

The system functions on the principle of electrostatic charging of powdery materials. The charged powder particles seek the closest and best ground - the substrate itself. Cable is usually coated.

**Versa-Spray - Talcum**

The talcum powder is conveyed out of the hopper with a powder pump working on the Venturi principle. The pump has two compressed air connections, **Flow Rate Air** and **Atomizing Air**. The flow rate air pressure influences the amount of powder suctioned out of - or conveyed from - the hopper. The powder/air mixture generated by the atomizing air is conveyed to the application head and then charged by a high voltage electrode. The charged powder particles, supported by the current of the powder/air mixture, seek the grounded substrate and stick to it.

**NOTE:** The pump's compressed air hose for atomizing air is connected to the connection panel outlet labeled **DIFFUSER** (Refer to Fig. 5).

In order to make the powder in the hopper capable of being conveyed, it is fluidized. The fluidized air is introduced from underneath, penetrating a plate that is air permeable but not solid permeable.

Mica can be used instead of talcum for special applications.

---

**Fig. 2**

- Free ions
- Charged particles

Diagram showing:
- High voltage control unit
- Electrode
- Powder feed hose
- Fluidizing air
- Flow rate air
- Atomizing air
- Exhaust air
- Powder/air mixture
- Air glow pattern
- Electric field lines
- Spray gun
- Cable (substrate)
The powder (Super Absorbent Powder) is conveyed out of the hopper with a powder pump working on the Verturi principle. The pump has a compressed air connection for *Flow Rate Air*. The flow rate air pressure influences the amount of powder suctioned out of - or conveyed from - the hopper. The diffuser air and the powder come together at the inlet of the TRIBOMATIC application head. The powder particles are charged by friction with the coiled hose. The charged powder particles, supported by the current of the powder/air mixture, seek the grounded substrate and stick to it.

In order to make the powder in the hopper capable of being conveyed, it is fluidized. The fluidized air is introduced from underneath, penetrating a plate that is air permeable but not solid permeable.
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. Assembly

Carefully unpack cable coater and components. Keep packaging material to reuse it, or dispose of properly according to local regulations. If possible, do not assemble unit at final location of installation; connection to ground will be necessary later.

1. Remove transport protection (if present).

2. Place base unit of coater on the pedestal (Refer to 11, 15, Fig. 15).

3. Attach rack for control units to the base unit.

4. Attach powder pump to the connection piece (1) on the front of the unit and level sensor to the connection piece (2) on the back of the unit.
1. **Assembly (contd.)**

5. Attach chamber to the brackets.

6. Mount powder recovery hose (3) between chamber and connection piece of the base unit.

7. Connect compressed air hoses.

**NOTE:** Every compressed air and powder hose is labeled with the corresponding connection.

**NOTE:** The outlet **DIFFUSER** is connected to the TRIBOMATIC application head inlet (Refer to Fig. 3). When Versa-Spray application heads are used, the outlet **DIFFUSER** is used as atomizing air for connection to the powder pump (Refer to Fig. 2).

8. Electrically connect level sensor (**LEVEL PROBE**).

---

9. For Versa-Spray systems: Electrically connect Versa-Spray application head (**GUN CONNECTOR 1/2**)

10. For TRIBOMATIC systems: In addition to the pneumatic connection, connect **GUN GROUND 1/2**.

**NOTE:** The ground wire in the power cable is usually not sufficient for good grounding. The system should be independently connected to the best ground connection. To do this, connect **GROUND** on the connection panel (Fig. 5) to the terminal screw on the base unit casing (4, Fig. 4). From there, connect a line with a large cross-section to a good source of ground, e.g. a water pipe.

11. Connect indicator light to **ALARM**.

12. Connect the filter fan located in the base unit to **FAN**.
2. Setting up

The coater can be integrated into the production line only in the intended position.

Set up only in an environment that corresponds to the stated Degree of Protection (Refer to section Specifications). Do not set up in a potentially explosive atmosphere!

Ensure that there is enough space to fill powder (1) and for installation (2) and maintenance work.

---

Fig. 6 Free space
**Laying Cable**

**WARNING:** In the working area around the unit, lay cables such that they do not pose a risk of stumbling and such that they can not be damaged. Do not pinch cable, and regularly check for damage. Replace damaged cable immediately!

**Line Voltage**

**WARNING:** Operate only with the line voltage shown on the ID plate.

**NOTE:** Permitted deviation from nominal voltage is ± 10%.

**NOTE:** The power cable cross-section must comply with the power consumption. Refer to Specifications.

**Electrical Connections**

**WARNING:** Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.

1. Connect cable coater to the factory's power supply with the power cable (*MAIN VOLTAGE*, Fig. 5).
2. Connect ground.

**NOTE:** The ground wire in the power cable is usually not sufficient for good grounding. The system should be independently connected to the best ground connection. To do this, connect *GROUND* on the connection panel (Fig. 5) to the terminal screw on the base unit casing (4, Fig. 4). From there, connect a line with a large cross-section to a good source of ground, e.g. a water pipe.

3. If there is a vibrator device from an external powder supply unit, connect it to *VIBRATOR*.

4. Connect *INTERLOCK*. *INTERLOCK* is a potential-free connection that is used for coupling the system function with Start/Stop of the cable production line, for a PLC link or for an external control unit.
For applying both types of powder, dry, non-lubricated and clean compressed air is imperative. The compressed air supply must be such that it can be dependably regulated in a range up to 700 kPA.

Nordson recommends using the air dryer P/N 634 807.

1. Attach the air dryer to the intended position on the back of the coater.
2. Connect air dryer and AIR SUPPLY (Fig. 5) to one another.
3. Connect compressed air supply to air dryer.

Before the system can be started up, the chamber (9, Fig. 1) must be prepared as follows:

1. Set the height of the chamber such that the cable to be coated runs through the center of the chamber.
2. If necessary, run the cable over supporting rolls before it enters the chamber and after it exits the chamber to keep it from sagging.
3. Punch or cut holes in the rubber lid for chamber inlet and outlet (Refer to 10, Fig. 1).

**NOTE:** The diameter of the hole should be approximately twice the diameter of the cable.

4. Fasten rubber lid to chamber inlet and outlet.
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. Versa-Spray Control Units

Detailed descriptions of positions 2 and 10 can be found in separate manuals in the system documentation.

Fig. 7

1. Master control unit, refer to Fig. 8 for details
2. Versa application head control unit
3. Pressure controller powder output quantity
4. Pressure controller atomizing air
5. ON/OFF switch
6. Status LED's
7. Charge display
8. Mode switch for charge display in μA or %kV
9. Potentiometer / operating mode switch
10. FC control unit
11. Pressure controller for refilling
12. ON/OFF switch
13. Pressure controller for air blast cleaning of filter
14. RESET powder level alarm
15. Optional unit for powder feed control via ACTUAL charge values, refer to Fig. 9
16. Control unit for 2nd application head
17. Pressure controller powder recovery
18. Pressure controller fluidization
Master Control Unit

Fig. 8

1 Main switch for system
2 System OFF
3 Only fluidization ON
4 System ON
5 LED fluidization active
6 LED operating voltage ON
7 Key switch for Interlock bridging
8 Interlock active
9 Not assigned
10 LED alarm, depending on assignment, e.g. too little charge, level too low

PFC Control Unit (Option)

The PFC control unit serves to make visible the amount of powder fed to the application head by displaying the charge values.

1 ON/OFF switch;
   Blinks slowly: OFF
   Blinks quickly: Standby
   Lit: Operation

2 Charge display application head 1

3 Charge display application head 2

4 Adjustment of charge alarm level with buttons + and -

5 GAIN SELECT, amplification factor for charge potential of different types of powder
With TRIBOMATIC cable coaters for application of SAP, the rack for the control unit is equipped with a master control unit and an FC control (Flexible Control) unit as shown in Fig. 7, Pos. 10 and Fig. 8, in addition to the actual TRIBOMATIC control unit(s).

**2. TRIBOMATIC Control Unit**

![TRIBOMATIC Control Unit Diagram]

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**Fig. 10**

1. Pressure controller powder output quantity
2. Here: 2nd of two identical control units
3. ON/OFF switch
4. Status-LED’s
5. Charge display in µA
6. Mode switch charge warning level charge ACTUAL value
7. Potentiometer for setting level value
8. Pressure controller for DIFFUSER AIR
3. **Operation**

Do not switch on the cable coater immediately. Particularly the compressed air supply must remain off.

**Filling Powder**

**WARNING:** When the hopper is filled and the chamber is opened for powder application, material particles are emitted. Keep emission to a minimum by handling bulk carefully. Wear respiratory protection.

1. Open door to powder hopper (4, Fig. 1).
2. Carefully open powder bulk.
3. Carefully pour approximately half (12.5 kg) of the standard powder bulk (25 kg) into the hopper of the system.

**NOTE:** The powder level in the hopper must be significantly below the recovery connection piece (Refer to Fig. 15).
4. Firmly close door.
5. Store opened powder bulk in a dry place.

**Adding Powder During Operation**

When refilling powder during operation, observe the following points:
- Switch off only powder recovery (17, Fig. 7)
- Allow fluidization to continue
- Do not exceed maximum powder level.

**Basic Settings**

**NOTE:** When setting air pressures, the principle “working from the bottom up” should be followed. If, for example, the manometer shows 5 bar but only 3.5 bar is to be set, a value significantly below 3.5 should be used as the starting point (e.g. 1 bar). Then the pressure can be increased slowly from this low value up to the desired value of 3.5 bar.

<table>
<thead>
<tr>
<th>Function</th>
<th>Maximum value</th>
<th>Minimum value</th>
<th>Recommended value</th>
<th>Refer to</th>
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<tr>
<td>Compressed air supply / operating air pressure</td>
<td>700 kPa/7.0 bar</td>
<td>500 kPa/5.0 bar</td>
<td>600 kPa/6.0 bar</td>
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<td>50 kPa/0.5 bar</td>
<td>100 kPa/1.0 bar</td>
<td>18, Fig. 7</td>
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<td>150 kPa/1.5 bar</td>
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<td>17, Fig. 7</td>
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<td>40 kPa/0.4 bar</td>
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<td>3, Fig. 7 and 1, Fig. 10</td>
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<td>4, Fig. 7 and 8, Fig. 10</td>
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<td>350 kPa/3.5 bar</td>
<td>350 kPa/3.5 bar</td>
<td>350 kPa/3.5 bar</td>
<td>11, Fig. 7</td>
</tr>
<tr>
<td>Air blast cleaning of filters</td>
<td>300 kPa/3.0 bar</td>
<td>250 kPa/2.5 bar</td>
<td>250 kPa/2.5 bar</td>
<td>13, Fig. 7</td>
</tr>
<tr>
<td>PFC control unit</td>
<td>-</td>
<td>-</td>
<td>Alarm level 20%, charge displays approx. 50%</td>
<td>Fig. 9</td>
</tr>
</tbody>
</table>
**Startup**

**NOTE:** Good electrostatic powder coating can occur only when - in addition to independent, correct grounding of the system - the substrate to be coated is effectively grounded.

1. Effectively ground the end of the cable at the unwinder.

2. Ensure that the ON/OFF switches for the Versa-Spray or TRIBOMATIC application heads (5, Fig. 7 and 3, Fig. 10) are still set to OFF.

3. Start compressed air supply.

4. Set operating air pressure to approx. 600 kPa, 6 bar.

5. Set main switch for system (1, Fig. 8) to ON.

6. Set ON/OFF switch for FC control unit (12, Fig. 7) and - when present - for PFC control unit (1, Fig. 9) to ON.

7. Set air pressure values as recommended.

8. Allow the powder supply to fluidize for several minutes during startup.

9. Start production line.

10. Switch ON Versa-Spray or TRIBOMATIC application heads (5, Fig. 7 and 3, Fig. 10).

11. When using Versa-Spray application heads, initiate production with maximum charging voltage.

**NOTE:** When using Versa-Spray application heads, refer to *Nozzle Setting*.

12. Visually check the quality of the powder coating during production. If necessary, adjust pressure to optimize quality. Use the *Settings Record* for this purpose.
**Optimizing Coating - Guidelines**

There are no set rules for optimizing coating quality. Production parameters such as line speed (retention time of a section of cable in the chamber), material properties of cable surface and powder, ambient conditions, quality of grounding, etc. can vary significantly from customer to customer. But the following guidelines can generally be applied:

- Set the lowest possible powder output quantity, without impairing charge level, to avoid overspray
- Set highest charge voltage possible
- When using an optional PFC control unit: Select amplification factor such that the charge level shows approx. 50%. Set alarm level to approx. 20%
- When a charge alarm occurs, check coating quality. If coating is insufficient and increasing the powder output quantity does not cause improvement, the powder pump as well as the Venturi inside pipe, the powder hoses and the application head nozzles must be thoroughly cleaned
- Set atomizing diffuser air as low as possible without impairing the powder/air mixture
- Ensure that air blast cleaning of the filter cartridges is functioning regularly (6 x /min)
- Keep air current speed in the chamber as low as possible.

**NOTE:** When optimizing the coating quality, only one setting should be changed at a time - e.g. powder output quantity - leaving the others unchanged. This way changes in results can be better interpreted. The *Settings Record* can be used for this purpose.

**NOTE:** In order to be able to reproduce at any time the optimal settings determined for production, the *Settings Record* should be used.
**Nozzle Setting**

![Diagram showing nozzle settings for different cable sizes](ECSY685M120A0399)

**Fig. 11**

1. Versa-Spray nozzle, 2.5 mm slot, P/N 174 223
2. Versa-Spray nozzle, 2.5 mm slot, P/N 174 223; alternative: 4 mm slot, P/N 174 227
3. Versa-Spray nozzle, 2.5 mm slot, P/N 174 223
## Settings Record

Make sufficient copies before filling out or use a pencil.

### Production:

<table>
<thead>
<tr>
<th>Cable type</th>
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<tr>
<td>Cable Ø</td>
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### Machine

<table>
<thead>
<tr>
<th>Function</th>
<th>Recommended basic setting</th>
<th>Test/production set 1</th>
<th>Test/production set 2</th>
<th>Test/production set 3</th>
<th>Test/production set 4</th>
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<tr>
<td>Line speed</td>
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<td>Powder type</td>
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<td>Application head type</td>
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### Notes:

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P/N 412818A

ECC 300 T/S

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**Switching Off for Short Period of Time**

- Turn main switch on master control unit (1, Fig. 8) to the vertical position, *Only fluidization ON*. Check powder level.

**Daily Switch ON**

1. Check powder level; refill if necessary.

2. Check that air dryer functions correctly.

3. Inspect all compressed air and powder hoses as well as electrical connections. Tighten loose connections and replace damaged parts.

4. Proceed as described under *Startup*.

**Daily Switch OFF**

1. Switch OFF all application heads.

2. Turn main switch on master control unit (1, Fig. 8) to the vertical position, *Only fluidization ON*, allowing the system to self-clean for 10 - 20 minutes.

3. Turn main switch on master control unit (1, Fig. 8) to the left position, *System OFF*.

**Switching Off in an Emergency**

- **WARNING:** When any type of emergency occurs, immediately switch off the system.

1. Stop cable production line.

2. Turn main switch on master control unit (1, Fig. 8) to the left position, *System OFF*.

3. After standstill and before switching the system back on, have the fault remedied by qualified personnel.
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:** Before doing any maintenance work, switch the system off completely (Refer to Operation, Daily Switch OFF) and secure such that it can not be unintentionally switched on.

Maintenance of the cable coating system is usually limited to cleaning. It is important that cleaning is thorough, because system functioning and coating quality are very much dependent on the cleanliness of all parts that come into contact with powder and compressed air.

The following points should always be observed when conducting maintenance tasks:

- If possible, clean all detachable components such as application heads, powder hoses, pumps and filters in a separate, closed room equipped with an exhaust system.
- When using compressed air to clean, ensure that the air is dry, clean and non-lubricated. Whenever cleaning with compressed air is the prescribed method, also use a vacuum cleaner or exhaust system.
- Never use sharp objects to scrape off powder deposits. Scratches on the surface can cause powder to collect, resulting in blockage.
- The stated maintenance intervals are only general values based on experience. Depending on production conditions - particularly with multiple shifts - other maintenance intervals may prove necessary.
- When cleaning application heads with compressed air, ensure that the application heads are securely grounded. Otherwise blowing compressed air could lead to charging and uncontrolled discharging, causing sparks. The resistance to ground may not exceed 1 MΩ (one megaohm).
- **BLOWING OUT** of unit parts and the complete coater must be conducted longer and possibly even more often than the stated interval.

**WARNING:** When only compressed air can be used for cleaning, extreme caution is imperative. Never direct air guns at yourself or others; compressed air can cause serious injury. When injuries occur or are suspected, immediately consult the first aid office!
## 2. Regular Maintenance

<table>
<thead>
<tr>
<th>System part</th>
<th>Activity</th>
<th>Interval</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter</td>
<td>Remove filter cartridge from the system, knock on the floor several times, blow out with compressed air and vacuum</td>
<td>At least monthly; depending on type of powder and operating time, possibly every two weeks</td>
<td>Fig. 12; in separate room with exhaust system if possible</td>
</tr>
<tr>
<td>End filter</td>
<td>Remove filter, knock out firmly, blow out with compressed air and vacuum</td>
<td>At least monthly; depending on type of powder and operating time, possibly every two weeks</td>
<td>Pos. 8, Fig. 14; in separate room with exhaust system if possible</td>
</tr>
<tr>
<td>Chamber</td>
<td>Vacuum, blow out with compressed air if necessary</td>
<td>Weekly</td>
<td>Pos. 9, Fig. 1</td>
</tr>
<tr>
<td>HOPPER</td>
<td>Vacuum, blow out with compressed air if necessary</td>
<td>Weekly</td>
<td>Fig. 12</td>
</tr>
<tr>
<td>Powder pump</td>
<td>Remove and blow out with compressed air, check Venturi throat for eccentric wear, replace if necessary</td>
<td>Weekly</td>
<td>Fig. 13; in separate room with exhaust system if possible</td>
</tr>
<tr>
<td>Powder hoses</td>
<td>Remove and blow out with compressed air</td>
<td>Weekly</td>
<td>Pos. 8, 15, 16, Fig. 1; in separate room with exhaust system if possible</td>
</tr>
<tr>
<td>Recovery device</td>
<td>Blow out with compressed air and vacuum</td>
<td>Weekly</td>
<td>Pos. 6, Fig. 14</td>
</tr>
<tr>
<td>Application heads</td>
<td>Detach and blow out with compressed air. WARNING: Ground first! Versa-Spray heads: Check nozzle/antenna for wear</td>
<td>Weekly</td>
<td>Refer to separate manuals for Versa-Spray or TRIBOMATIC application heads; in separate room with exhaust system if possible</td>
</tr>
<tr>
<td>Complete coater, external</td>
<td>Wipe with soft cloth, visually inspect for damage</td>
<td>Daily</td>
<td>-</td>
</tr>
</tbody>
</table>

**WARNING:** Emission of material particles into the atmosphere. Keep emissions to a minimum during all maintenance tasks and wear suitable respiratory protection. Ensure effective vacuuming of suspended powder particles.

**WARNING:** When damaged parts endanger the operating safety and/or the safety of personnel, switch off the system and have the damaged parts replaced by qualified personnel. Use only original Nordson spare parts.
Access to Filters

Fig. 12

Powder Pumps

Fig. 13

Check Venturi throat for eccentric wear
### 3. Maintenance Record

Make sufficient copies before filling out or use a pencil.

<table>
<thead>
<tr>
<th>System part</th>
<th>Date/name</th>
<th>Date/name</th>
<th>Datum/name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End filter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chamber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder hoses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery device</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application heads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete coater</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting

NOTE: When the system is used as intended, problems do not usually occur. Experience has shown that malfunctions are causes by either failure clean or by foreign objects that accidentally land in the hopper when filling with powder.

1. General Checking

Before other troubleshooting, check the following:

- Are the pneumatic and electrical operating values set correctly (Refer to Basic Settings, p. 14)?
- Are all pneumatic connections and powder hoses intact?
- Do all electrical plug connections have correct contact?
- Have any fuses blown?

2. Troubleshooting Table

For TRIBOMATIC and Versa-Spray:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder comes out unevenly</td>
<td>Powder level in hopper too low</td>
<td>Fill powder</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Powder is clogged in the Venturi pipe of the plug</td>
<td>Clean powder pump</td>
<td>Maintenance</td>
</tr>
<tr>
<td></td>
<td>The conical powder inlet of the Venturi pipe is (eccentrically) worn</td>
<td>Replace Venturi pipe</td>
<td>Maintenance, Spare Parts p. 30</td>
</tr>
<tr>
<td>Powder is not fluidized in the hopper</td>
<td>Compressed air is damp</td>
<td>Empty condensation bowl of air conditioning unit; check that air conditioning unit is functioning correctly, if necessary</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Compressed air atomized with oil?</td>
<td>Ensure that only non-lubricated air is used</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Compressed air for fluidization connected?</td>
<td>Ensure that the air hose(s) is/are connected correctly to the back of the unit</td>
<td>Installation, Fig. 5</td>
</tr>
<tr>
<td></td>
<td>Air pressure for fluidization too low</td>
<td>Increase air pressure</td>
<td>Basic Settings p. 14</td>
</tr>
<tr>
<td>Powder comes out irregularly or not at all</td>
<td>Nozzles clogged</td>
<td>Clean nozzles</td>
<td>Maintenance</td>
</tr>
</tbody>
</table>
### Only for TRIBOMATIC:

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different amounts of powder come out of the spray nozzles</td>
<td>Individual charge tubes or nozzles clogged?</td>
<td>Clean charge tubes / nozzles</td>
<td>Maintenance</td>
</tr>
<tr>
<td>No powder comes out of the spray nozzles</td>
<td>Blockage at Venturi pump, diffuser or in charge tubes due to damp compressed air or air atomized with oil</td>
<td>Check air conditioning unit, drain condensate, ensure that only clean, dry and non-lubricated compressed air is used</td>
<td>Maintenance</td>
</tr>
<tr>
<td>No charge, or charge value too low (microampère display)</td>
<td>Insufficient ground?</td>
<td>Check plug connections for good contact, especially ground</td>
<td>Installation, Electrical Connections, Fig. 5</td>
</tr>
<tr>
<td></td>
<td>Is the processed powder suitable for Tribomatic use (electrostatic charging capacity)</td>
<td>Consult manufacturer (or material safety data sheet)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microampère display defective</td>
<td>Consult Nordson</td>
<td></td>
</tr>
</tbody>
</table>
Specifications

NOTE: For additional specifications of the configured control units and application heads, refer to separate manuals.

Voltage Supply

240 V\textsubscript{AC}, 50/60 Hz, 1 phase with neutral conductor, max. voltage tolerance $\pm$ 10%

Power Consumption

Approx. 400 Watt

Current Consumption / Fuse Protection

<table>
<thead>
<tr>
<th>Unit</th>
<th>1.5 A</th>
<th>5 A fast</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECC system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Versa Control</td>
<td>0.5 A</td>
<td>/1 A, 0.5 A fast</td>
</tr>
<tr>
<td>Tribomatic II Control</td>
<td>0.1 A</td>
<td>/0.2 A slow</td>
</tr>
<tr>
<td>Master Control</td>
<td>0.3 A</td>
<td>/0.5 A ultra fast</td>
</tr>
<tr>
<td>Fan</td>
<td>0.2 A</td>
<td>/via Master Control</td>
</tr>
<tr>
<td>Powder Flow Control</td>
<td>0.45 A</td>
<td>/3 A fast</td>
</tr>
<tr>
<td>Flow Control</td>
<td>0.1 A</td>
<td>/0.2 A slow</td>
</tr>
</tbody>
</table>

Material Processing Capacity per Application Head

<table>
<thead>
<tr>
<th>Application</th>
<th>Talcum:</th>
<th>SAP:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40 - 300 g/min</td>
<td>40 - 100 g/min</td>
</tr>
</tbody>
</table>

Degree of Protection (EN 60529)

<table>
<thead>
<tr>
<th>Unit</th>
<th>IP 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control unit</td>
<td></td>
</tr>
<tr>
<td>Powder system</td>
<td>IP 65</td>
</tr>
</tbody>
</table>

Noise Emission

< 72 dB (A)

System Weight

170 kg

Control Unit Weight

40 kg

Max. Operating Air Pressure

700 kPa (7 bar, 102 psi)

Min. Operating Air Pressure

500 kPa (5 bar, 73 psi)

Max. Compressed Air Consumption

36 m\textsuperscript{3} /h at 700 kPa, 600 l/min

Permissible Ambient Temperature Range

0 °C to 40 °C (32 °F to 104 °F) [system function], may be restricted by type of powder
Dimensions

All dimensions in mm.

* Height with fully equipped control unit rack

Fig. 14
Spare Parts

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>634 707</td>
<td>19” rack for control units, empty</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>634 760</td>
<td>Master control unit</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>173 091</td>
<td>Versa-Spray control unit, with talcum version</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>631 100</td>
<td>TRIBOMATIC control unit, with SAP version</td>
<td>A</td>
</tr>
<tr>
<td>4</td>
<td>634 900</td>
<td>FC control unit</td>
<td>A</td>
</tr>
</tbody>
</table>

Fig. 15
<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>635 675</td>
<td>PFC control unit</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>634 732</td>
<td>Fan</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>634 840</td>
<td>Cover for end filter</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>634 753</td>
<td>End filter</td>
<td></td>
</tr>
<tr>
<td>9 a</td>
<td>630 645</td>
<td>Solenoid valve for filter</td>
<td></td>
</tr>
<tr>
<td>9 b</td>
<td>634 731</td>
<td>Timer for air blast cleaning of filter</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>634 750</td>
<td>Filter cartridge (also under no. 992 641-8)</td>
<td></td>
</tr>
<tr>
<td>10 a</td>
<td>767 010</td>
<td>Seal for filter cartridge screw</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>634 703</td>
<td>Base unit coater</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>634 755</td>
<td>Complete level measuring device</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>634 759</td>
<td>Level sensor</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>634 622</td>
<td>Fluidization plate</td>
<td></td>
</tr>
<tr>
<td>15 a</td>
<td>634 789</td>
<td>Standard pedestal</td>
<td></td>
</tr>
<tr>
<td>15 b</td>
<td>634 809</td>
<td>Special pedestal</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>634 813</td>
<td>Guide roll, 100 mm</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>634 814</td>
<td>Fixed roll, 100 mm</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>634 841</td>
<td>Top cover</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>634 842</td>
<td>Door seal</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>634 739</td>
<td>Powder recovery hose</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>634 793</td>
<td>Chamber, length 250 mm, 1 spray application head</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 781</td>
<td>Chamber, length 300 mm, 1 spray application head</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 796</td>
<td>Chamber, length 500 mm, 1 spray application head</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 797</td>
<td>Chamber, length 500 mm, 2 spray application heads</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 798</td>
<td>Chamber, length 500 mm, 8 inlets for SAP</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 799</td>
<td>Chamber, length 500 mm, combination talcum-SAP</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>631 260</td>
<td>Bracket for chamber, Versa-Spray application head</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 782</td>
<td>Spacer for chamber, Versa-Spray application head</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 735</td>
<td>Rubber lid for chamber</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>634 740</td>
<td>Suction pump for powder recovery</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>165 637</td>
<td>Powder pump, Low-Flow for talcum</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>114 219</td>
<td>Venturi pipe, Low-Flow</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>634 884</td>
<td>Powder pump for SAP</td>
<td>A, NS</td>
</tr>
</tbody>
</table>

**NOTE A:**
NS: Not Shown

Continued on next page
<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>630 484</td>
<td>Venturi pipe, steel, for SAP</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>630 487</td>
<td>Powder hose, PU 10 mm</td>
<td>NS</td>
</tr>
<tr>
<td>-</td>
<td>173 155</td>
<td>Versa-Spray application head</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>174 223</td>
<td>Versa-Spray nozzle, 2.5 mm nozzle slot</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>174 227</td>
<td>Versa-Spray nozzle, 4 mm nozzle slot</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>228 687</td>
<td>Versa-Spray application head, ceramic, MICA</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>248 282</td>
<td>Flat nozzle, ceramic</td>
<td>A, NS</td>
</tr>
<tr>
<td>-</td>
<td>142 108</td>
<td>Cable for Versa-Spray application head, 8 m</td>
<td>A, NS</td>
</tr>
</tbody>
</table>

**NOTE A:**
NS: Not Shown

---

**Accessory:**

**Air Dryer**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>634 807</td>
<td>Air dryer</td>
<td>NS</td>
</tr>
</tbody>
</table>
**Option:**

**Automatic Refiller**

![Diagram](ECSY682L090A0399)

*Fig. 16*

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>634 788</td>
<td>Complete refiller</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>630 599</td>
<td>Air hose</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>244 721</td>
<td>Feed pump</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4 -</td>
<td>T-piece</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>630 036</td>
<td>Pressure reducer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>630 528</td>
<td>Nozzle valve</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>900 651</td>
<td>Powder hose</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>638 661</td>
<td>Connection piece for powder hose</td>
<td>alternative</td>
</tr>
<tr>
<td>7</td>
<td>634 815</td>
<td>Hopper PC 80</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>635 017</td>
<td>Adapter for feed pump</td>
<td></td>
</tr>
</tbody>
</table>
Notes