

Cleaning Nozzles



WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

Introduction

This instruction sheet provides Nordson Corporation's recommended procedure for cleaning nozzles, including, but not limited to, Controlled Fiberization (CF), meltblown, Summit, and SureWrap nozzles. Nozzles should be cleaned weekly or as needed to prevent clogging.

Items Needed

- Appropriate tools, including a torque wrench
- Nozzle cleaning kits (refer to *Parts*)
- Cleaning supplies (refer to Table 1)
- Drain pans and disposable rags
- O-ring lubricant (for lubricating nozzle O-rings)

Nozzle Cleaning

Nozzle cleaning involves removing the nozzles, cleaning them using one of several Nordson-recommended nozzle-cleaning methods, and then reinstalling the nozzles.

Remove the Nozzles

1. To ease nozzle removal, ensure that the adhesive in the system is heated at least to the softening point.
2. Stop the melter and applicator pumps.
3. Shut off the module-actuating air.
4. Decrease the pattern air pressure. Leave just enough air pressure to prevent adhesive from entering the pattern air inlet on the module.
5. Relieve system pressure. Refer to the melter manual as needed.
6. Remove the nozzles. Refer to the nozzle removal procedure in the applicator manual as needed.

Clean the Nozzles

1. Clean the nozzles using one of the Nordson-recommended methods shown in Table 1. Use only cleaning agents recommended by the adhesive supplier.



WARNING: Risk of explosion or fire. Follow the safety guidance and heating recommendations on the Material Safety Data Sheets (MSDSs) for your adhesives and nozzle-cleaning solutions.



WARNING: Risk of explosion or fire. Use a controlled heating device, such as a thermostatically controlled hot plate, to heat cleaning fluid, including Nordson Type-R fluid.






CAUTION: Risk of equipment damage. Do not use a wire brush (or a brush with bristles harder than the nozzle) to clean nozzles.

Table 1 Nozzle Cleaning Methods

Cleaning Method	Procedure
Citrus-based solution and ultrasonic tank NOTE: This is the most thorough method.	<ol style="list-style-type: none"> Place the nozzles in citrus-based solvent/degreasing solution and soak them overnight or for approximately 4 hours. This dissolves and loosens the adhesive and char buildup. Remove the nozzles from the citrus-based solvent/degreasing solution and place them in an alkaline solution heated to the appropriate temperature (refer to the MSDS) in an ultrasonic tank. Soak the nozzles for approximately 10 minutes. This will remove adhesive and char from the orifices. Scrub the nozzles with a soft, non-metallic brush to remove debris. Gently blow air through the nozzle orifices from the mounting side of the nozzle.
Nordson Type-R fluid	<ol style="list-style-type: none"> Place the nozzles in a controlled heating device containing Nordson Type-R fluid and heat it above the melting point of the adhesive (refer to the MSDS). Scrub the nozzles with a soft, non-metallic brush to remove debris.
Electric heat gun	<ol style="list-style-type: none"> Heat the nozzles with a flameless electric heat gun. Scrub the nozzles with a soft, non-metallic brush to remove debris.
Ultrasonic tank	<ol style="list-style-type: none"> Place the nozzles in an alkaline solution heated to the appropriate temperature (refer to the MSDS) in an ultrasonic tank. Soak the nozzles for approximately 10 minutes. Scrub the nozzles with a soft, non-metallic brush to remove debris. Gently blow air through the nozzle orifices from the mounting side of the nozzle.

Continued...

Table 1 Nozzle Cleaning Methods (contd)

Cleaning Method	Procedure
<p>Oven</p> <p>NOTE: This method will cause discoloration of unplated brass nozzles. This discoloration is cosmetic only and will not adversely affect nozzle performance.</p> <p>NOTE: This method is not recommended for color-coded nozzles (such as Saturn and CF steel unibody nozzles) because it will remove the color from the nozzles.</p>	<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;">  </div> <div> <p>WARNING: Risk of explosion, fire, or toxic vapor release. Depending on the type of adhesive and/or organic solvent used with the nozzles, heating them in an oven can cause a hazardous event. Before using an oven to clean nozzles, consult with the oven manufacturer about the viability of this method and the safety risks. Follow the manufacturer's recommendations.</p> </div> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;">  </div> <div> <p>WARNING: Use the oven heating controls to keep the oven at the desired temperature. Do not use an oven that does not have heating controls.</p> </div> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;">  </div> <div> <p>WARNING: The heating temperature and time may need to be adjusted based on the oven type, the adhesive type, and the amount of char buildup on the nozzles. Nordson Corporation recommends testing this procedure on discarded nozzles prior to using it on good nozzles.</p> <p>CAUTION: Risk of equipment damage. Remove O-rings before cleaning nozzles in an oven. Failure to do so can cause a chemical reaction that will permanently damage the nozzles.</p> </div> </div> <ol style="list-style-type: none"> a. Ensuring that O-rings have been removed from the nozzles, place them in an electric oven heated to approximately 385 °C (725 °F). Allow the nozzles to bake for approximately 3–4 hours. b. Turn off the oven and allow the nozzles to cool; then remove the nozzles. <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;">  </div> <div> <p>WARNING: Risk of fire. Use a heat-proof cloth to clean nozzles. Even cotton can burn in high-temperature conditions.</p> </div> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;">  </div> <div> <p>WARNING: Risk of equipment damage. Handle nozzles carefully to avoid denting the orifices, which can degrade the adhesive pattern.</p> </div> </div> <ol style="list-style-type: none"> c. Wipe the nozzles with a soft cloth and then gently blow air through the nozzle orifices from the mounting side of the nozzle.

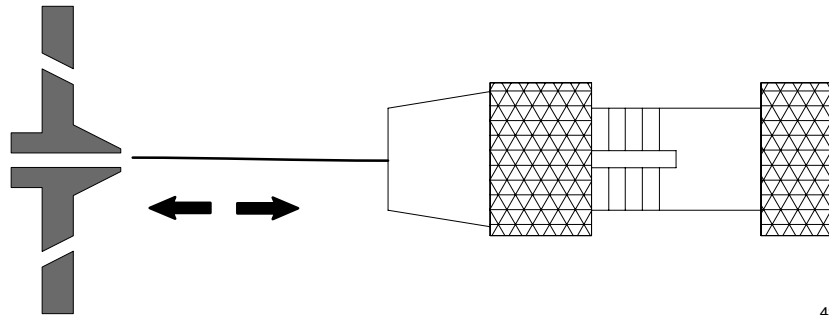
Clean the Nozzles *(contd)*

2. If there is any remaining char buildup on the nozzles, gently scrape the char from the nozzles.

CAUTION: Risk of equipment damage. Use of an open torch, drill, or broach can damage a nozzle. Use only a pin-type probe to clean nozzle orifices and do not twist the probe inside the nozzle.

3. If cleaning of the nozzle orifices is necessary, use a pin-type probe that is one size smaller than the orifice size: insert the probe in the direction opposite the adhesive flow and then remove the probe without twisting it, as shown in Figure 1.

NOTE: For available nozzle cleaning kits, which contain a holder and several probe sizes, refer to *Parts*.



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Figure 1 Correct direction to insert a pin-type probe into a nozzle (CF nozzle disk shown)

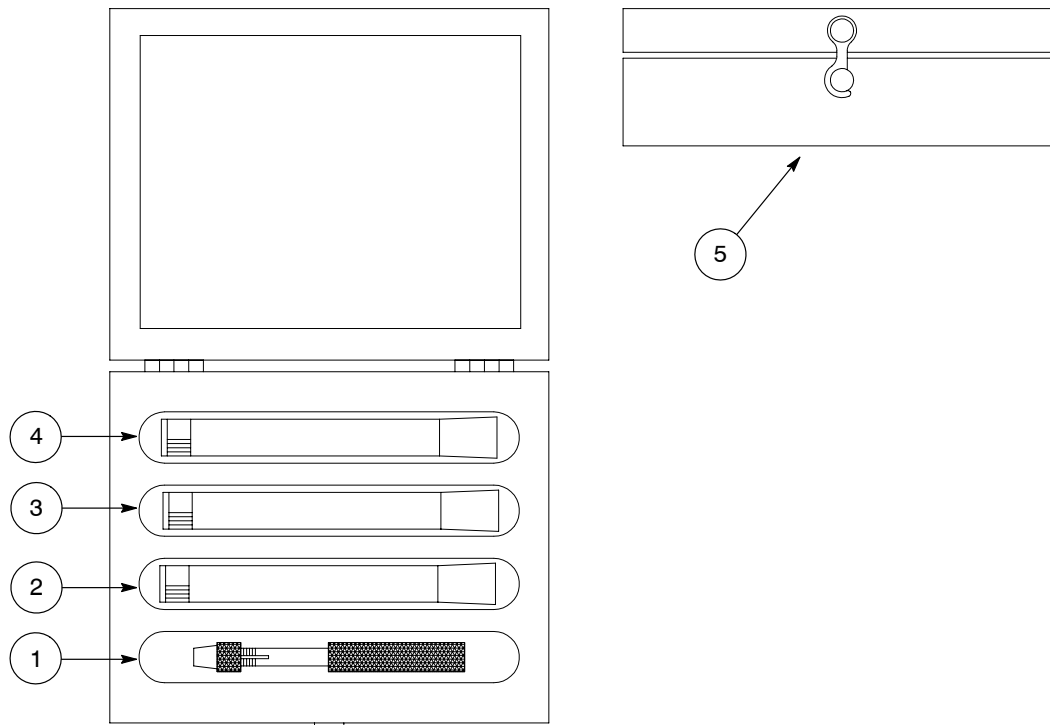
Reinstall the Nozzles

1. Reinstall the nozzles. Refer to the nozzle installation procedure in the applicator manual as needed.
2. Restore the system to normal operation.

Parts

See Figure 2.

Item	Part	Description	Quantity	Note
—	901915	Kit, nozzle cleaning, small orifice	—	
1	901916	• Vise, pin	1	
2	901922	• Vial, probes, 0.007 in. (includes 25 probes)	1	
3	901923	• Vial, probes, 0.011 in. (includes 25 probes)	1	
4	901924	• Vial, probes, 0.014 in. (includes 25 probes)	1	
5	901925	• Box, tool (wooden)	1	
—	231100	Kit, nozzle cleaning, large orifice	—	
1	901916	• Vise, pin	1	
2	231101	• Vial, probes, 0.018 in. (includes 16 probes)	1	
3	231102	• Vial, probes, 0.026 in. (includes 12 probes)	1	
4	231103	• Vial, probes, 0.038 in. (includes 8 probes)	1	
5	901925	• Box, tool (wooden)	1	



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Figure 2 Nozzle cleaning kit parts

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