Nordson Corporation
OPERATOR’S CARD
P/N 1063323A04
Universal Applicators (UM22/UM25)

Safety

**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.

**WARNING:** Risk of equipment damage, personal injury, or death. Failure to disconnect and lock out electrical power before performing maintenance or repairs can cause electrical shock or inadvertent triggering of the applicator. Disconnect and lock out electrical power as instructed in this and all other related documentation.

**WARNING:** Risk of burns. Failure to relieve system pressure before performing maintenance or repairs can cause hot adhesive to spray from a connecting point. Relieve system pressure as instructed in this and all other related documentation.

**WARNING:** Always wear heat-protective clothing, safety goggles (ANSI Z87.1-1989 or equivalent), and safety gloves when working with hot melt equipment.

**WARNING:** Obtain and read the Material Safety Data Sheets for all materials used.

Figure 1 Typical Universal applicator (single-module applicator with a standard UM25 module shown)
Introduction

Universal applicators apply hot melt adhesive to a product. Adhesive enters the inlet port of the applicator and is directed through the heated adhesive manifold into one or more UM22/UM25 modules. When the modules are triggered open (via solenoid valves), the adhesive exits the modules through the adhesive passages in the nozzles installed on the UM22/UM25 modules. Simultaneously, pattern air flows through the heated air manifold into the air passages of the nozzles, causing the adhesive to form the desired pattern. UM22/UM25 modules can produce a variety of patterns, including Controlled Fiberization (CF), Summit, SureWrap, Control Coat, and Signature patterns. Figure 2 identifies the key parts of a typical applicator.

Key Parts

Figure 2  Key parts of a Universal applicator (multi-module applicator with UM25 modules shown)

1. Mounting rod  5. Hose connector  8. Solenoid valve
4. Heater (adhesive manifold)
Installation

Complete these tasks to install the applicator. For detailed procedures and installation guidelines, refer to the applicator manual.

1. If applicable, install solenoid valve(s) on the applicator. Position the valves as close to the applicator as possible.
2. Mount the applicator on the parent machine. Ensure that there will be enough clearance to service the applicator.
3. Connect the hose(s) to the applicator.
4. Connect a regulated module-actuating air supply to the solenoid valve(s). Use only clean, dry, unlubricated air.
5. Connect a regulated pattern air supply to the pattern air inlet port. Use only clean, dry, unlubricated air.
6. Connect the solenoid valves to a triggering device, such as a timer or pattern controller.
7. Connect the applicator cordsets to a power source (such as the hose or the melter). Use splitter and/or extension cables as needed.
8. Flush the applicator (with nozzles removed) to remove any factory-testing residue.
9. Install the nozzles.
10. Test the applicator operation until the desired performance is achieved.

Operation

Starting the Applicator

Starting the applicator involves starting the melter and enabling the air supplies. Refer to the melter manual as needed to operate the melter.

1. Start the melter and heat the system to application temperature.
2. Turn on the pattern air.
3. Turn on the module-actuating air.
4. Start the melter pump(s).
5. Start the production line.

Shutting Down the Applicator

1. Stop the production line.
2. Stop the melter pumps.
3. Shut off the module-actuating air.
4. Shut off the pattern air.
5. Relieve system pressure. Refer to Relieving System Pressure.
6. Shut down the melter.

Relieving System Pressure

1. Stop the melter pump(s). Refer to the melter manual as needed.
2. Shut off the module-actuating air.
3. Place drains pans under all melter and applicator drain valves.
4. See Figure 3. Open the melter and applicator drain valves by turning the drain valve screws counterclockwise. Some adhesive will drain from the valves.
5. Manually trigger all modules at the solenoid valves.
6. Close the applicator and melter drain valves.

Figure 3 Opening an applicator drain valve
Recommended Maintenance Activities and Schedule

Table 1 provides a recommended maintenance schedule. Base how often you perform these maintenance activities on your operating environment.

Table 1 Recommended Maintenance Schedule

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>Clean all exterior applicator surfaces.</td>
</tr>
<tr>
<td></td>
<td>Check hose connections for leaks.</td>
</tr>
<tr>
<td>Weekly</td>
<td>Clean nozzles. Refer to Cleaning Nozzles.</td>
</tr>
<tr>
<td>As needed</td>
<td>Replace the filter screen. Refer to Replacing the Filter Screen.</td>
</tr>
<tr>
<td></td>
<td>Check all electrical connections.</td>
</tr>
<tr>
<td></td>
<td>Clean air pressure regulator filter elements.</td>
</tr>
</tbody>
</table>

Cleaning Nozzles

Several types of nozzle may be installed on the UM22/UM25 module. In some cases, the nozzle is installed on an adapter.

Preparation for Nozzle Cleaning

1. Heat the system to a temperature that is slightly higher than the application temperature.
2. Relieve system pressure. Refer to Relieving System Pressure under Operation.
3. Trigger the applicator solenoid valves to relieve any remaining pressure.
4. Shut off the module-actuating air.
5. Decrease the pattern air pressure. Leave just enough pressure to prevent adhesive from entering the pattern air inlet.

CF Nozzle Removal

1. See Figure 4. Remove the nozzles using whichever of the following procedures is appropriate:

<table>
<thead>
<tr>
<th>Nozzle Type</th>
<th>Removal Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk nozzle</td>
<td>Use a wrench to loosen the nozzle retaining nut and then remove the nozzle pieces by hand.</td>
</tr>
<tr>
<td>Unibody nozzle</td>
<td>Use a wrench to loosen the nozzle and then remove the nozzle by hand.</td>
</tr>
</tbody>
</table>

2. If needed, remove the CF adapter as follows:
   a. See Figure 5. Loosen the clamp screw that secures the adapter.
   b. Push the clamp toward the module to eject the adapter.
Universal Applicator Nozzle Removal

1. See Figure 6. Loosen the clamp screw that secures the nozzle.

2. Push the clamp toward the module to eject the nozzle.

3. If you are cleaning Control Coat or Signature nozzles, disassemble the nozzles prior to cleaning. Refer to the nozzle illustration in the applicator manual.

Nozzle Cleaning

1. Clean the nozzles using one of methods shown in Table 2. Use only cleaning agents recommended by the adhesive supplier.

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 adhesive nozzle orifices is necessary (and applicable), 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.

   **NOTE:** Nordson offers two nozzle cleaning kits that contain a holder and several probe sizes. Refer to *Recommended Spare Parts and Supplies*.

   **NOTE:** Do not use a pin-type probe to clean a loose Control Coat or Signature nozzle. Use this method only if the nozzle is still attached to the module seat assembly.

<table>
<thead>
<tr>
<th>Cleaning Method</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrus-based solution and ultrasonic tank</td>
<td>a. 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.</td>
</tr>
<tr>
<td></td>
<td>b. 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.</td>
</tr>
<tr>
<td></td>
<td>c. Scrub the nozzles with a soft, non-metallic brush to remove debris.</td>
</tr>
<tr>
<td></td>
<td>d. Gently blow air through the nozzle orifices from the mounting side of the nozzle.</td>
</tr>
</tbody>
</table>

*Continued...*
## Maintenance (contd)

### Table 2 Nozzle Cleaning Methods (contd)

<table>
<thead>
<tr>
<th>Cleaning Method</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| Nordson Type-R fluid| a. 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).  
b. Scrub the nozzles with a soft, non-metallic brush to remove debris. |
| Electric heat gun   | a. Heat the nozzles with a flameless electric heat gun.  
b. Scrub the nozzles with a soft, non-metallic brush to remove debris. |
| Ultrasonic tank     | a. 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.  
b. Scrub the nozzles with a soft, non-metallic brush to remove debris.  
c. Gently blow air through the nozzle orifices from the mounting side of the nozzle. |
| Oven                | **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.  
**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.  
**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.  
**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.  
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.  
**WARNING:** Risk of fire. Use a heat-proof cloth to clean nozzles. Even cotton can burn in high-temperature conditions.  
**WARNING:** Risk of equipment damage. Handle nozzles carefully to avoid denting the orifices, which can degrade the adhesive pattern.  
c. Wipe the nozzles with a soft cloth and then gently blow air through the nozzle orifices from the mounting side of the nozzle. |
**Maintenance (contd)**

### CF Nozzle Installation

Install CF nozzles using whichever of the following procedures is appropriate:

<table>
<thead>
<tr>
<th>Nozzle Type</th>
<th>Installation Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk nozzle</td>
<td>Orient the nozzle disk as shown in Figure 7 and place the disk inside the nozzle-retaining nut; then thread the nut onto the module. Use a wrench to tighten the nut to no more than 3.4 N·m (30 in.-lb).</td>
</tr>
<tr>
<td>Unibody nozzle</td>
<td>Thread the nozzle onto the module. Use a wrench to tighten the nozzle to 0.6 N·m (5 in.-lb).</td>
</tr>
</tbody>
</table>

**NOTE:** Nordson offers a torque wrench for each type of CF nozzle. Refer to *Recommended Spare Parts and Supplies*.

### Universal Nozzle Installation

1. Clean the mating surfaces inside the module seat where the nozzle will be installed.
2. Check the nozzle O-rings for damage and replace if necessary.

**CAUTION:** Overtightening the clamp screw can damage the module.

3. See Figure 8. Carefully insert the nozzle in the module seat and tighten the clamp screw to 2.8 N·m (25 in.-lb).

![Figure 8 Removing/installing a nozzle](image)

- 1. Clamp screw
- 2. Clamp
- 3. Nozzle (generic nozzle shape shown)

*Figure 7 Correct assembly of a CF disk nozzle*


*Note:* The conical nozzle tip must point away from the module threads.
Replacing the Filter Screen
Replace the filter screen when the adhesive flow diminishes or when pressure builds up in the system. For most applications, the filter screen should be replaced monthly.

Filter Removal
1. Heat the system to application temperature.
2. Relieve system pressure. Refer to Relieving System Pressure under Operation.
3. Trigger the applicator solenoid valves to relieve any remaining pressure.
4. Shut off the module-actuating air.
5. Decrease the pattern air pressure. Leave just enough pressure to prevent adhesive from entering the pattern air inlet.
6. See Figure 9. Using your hand or an appropriate tool, simultaneously press the filter in and turn it counterclockwise; then remove the filter.

   NOTE: A special tool is available to facilitate filter removal. Refer to Recommended Spare Parts and Supplies.

   NOTE: If the filter is stuck, grasp it with a pair of pliers to remove it.

Filter Screen Replacement
1. See Figure 10. Disassemble the filter and discard the screen.
2. Inspect the O-ring for cuts, hardening, or other damage and replace as necessary.
3. Apply O-ring lubricant to the O-ring and assemble the filter with a new screen.

   Figure 10 Filter components
   1. Bung
   2. O-ring
   3. Screen

Filter Installation
1. Ensure that the system is at application temperature.
2. Insert the filter in the adhesive manifold and turn it clockwise by hand until it seats.
3. Remove the nozzles from the applicator and pump adhesive through applicator. This removes any loose char remaining in the applicator or modules.
4. Reinstall the nozzles and resume normal operation.

Figure 9 Using the filter removal tool to remove a filter
Recommended Spare Parts and Supplies

Applicator Spare Parts

See Figure 11. For complete parts lists, refer to the applicator manual.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>Solenoid valve</td>
<td>AR</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>1049206</td>
<td>Filter, Universal in-out, 0.006 in. mesh screen</td>
<td>AR</td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td>1049208</td>
<td>• Screen, 0.006 in. mesh</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td>940223</td>
<td>• O-ring, Viton, 0.989 ID x 0.070 W in.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3–4</td>
<td>-</td>
<td>Cordsets (adhesive and air)</td>
<td>AR</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>Module, UM22/UM25</td>
<td>AR</td>
<td>A</td>
</tr>
<tr>
<td>6</td>
<td>1048244</td>
<td>• Screw, module-mounting, 10-32</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>940111</td>
<td>• O-ring, Viton, 0.301 ID x 0.070 W in.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NS</td>
<td>-</td>
<td>Assembly, clamp, nozzle-retaining</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>NS</td>
<td>-</td>
<td>Nozzle</td>
<td>AR</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>• O-ring, nozzle or nozzle adapter</td>
<td>AR</td>
<td>A</td>
</tr>
</tbody>
</table>

NOTE A: Refer to the applicator manual for part numbers.
AR: As Required
NS: Not Shown

Figure 11  Applicator spare parts (standard fixed UM22 module shown)
Recommended Spare Parts and Supplies (contd)

**Service Kits and Supplies**

For complete parts lists, refer to the applicator manual.

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1049909</td>
<td>Kit, rebuild, minor, UM22/25 (includes cartridge assembly and module O-rings)</td>
<td></td>
</tr>
<tr>
<td>1049908</td>
<td>Kit, rebuild, major, UM22/25 (includes cartridge assembly, module O-rings, needle-and-piston assembly, and compression spring)</td>
<td></td>
</tr>
<tr>
<td>1050081</td>
<td>Kit, tool, rebuild, UM22/25 (includes tools needed to facilitate module rebuilding)</td>
<td></td>
</tr>
<tr>
<td>1058544</td>
<td>Tool, Universal, filter removal</td>
<td></td>
</tr>
<tr>
<td>1059671</td>
<td>Kit, multi-tool, cap/nozzle/filter (for adjusting a module)</td>
<td></td>
</tr>
<tr>
<td>901915</td>
<td>Kit, nozzle cleaning, small orifice</td>
<td></td>
</tr>
<tr>
<td>231100</td>
<td>Kit, nozzle cleaning, large orifice</td>
<td></td>
</tr>
<tr>
<td>754766</td>
<td>Wrench, torque, CF disk nozzles</td>
<td></td>
</tr>
<tr>
<td>754767</td>
<td>Wrench, torque, CF unibody nozzles</td>
<td></td>
</tr>
<tr>
<td>900493</td>
<td>Lubricant, Parker, high-temperature (for O-rings)</td>
<td></td>
</tr>
<tr>
<td>900344</td>
<td>Lubricant, Never-Seez, 8 oz can (for screw threads)</td>
<td></td>
</tr>
<tr>
<td>900236</td>
<td>Sealant, paste, PTFE (for the cartridge assembly threads)</td>
<td></td>
</tr>
</tbody>
</table>
Your notes