



Nordson Corporation

OPERATOR'S CARD

P/N 1072063A

HMS Applicators (UM50)

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.

Introduction

HMS 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 UM50 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 UM50 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. UM50 modules can produce a variety of patterns, including Controlled Fiberization (CF), meltblown, Summit, SureWrap, and Control Coat patterns. Figure 1 shows a typical applicator. Figure 2 identifies the key parts of the applicator.

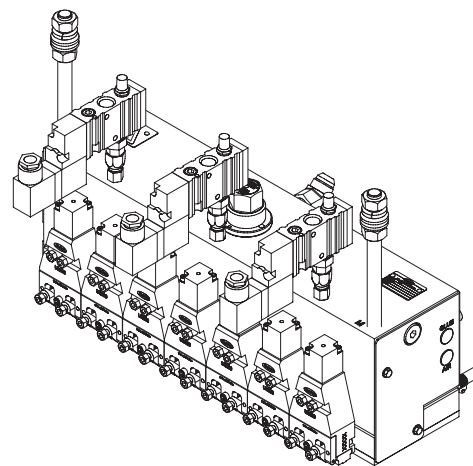


Figure 1 Typical HMS applicator (multi-module applicator with standard adjustable UM50 modules shown)

Key Parts

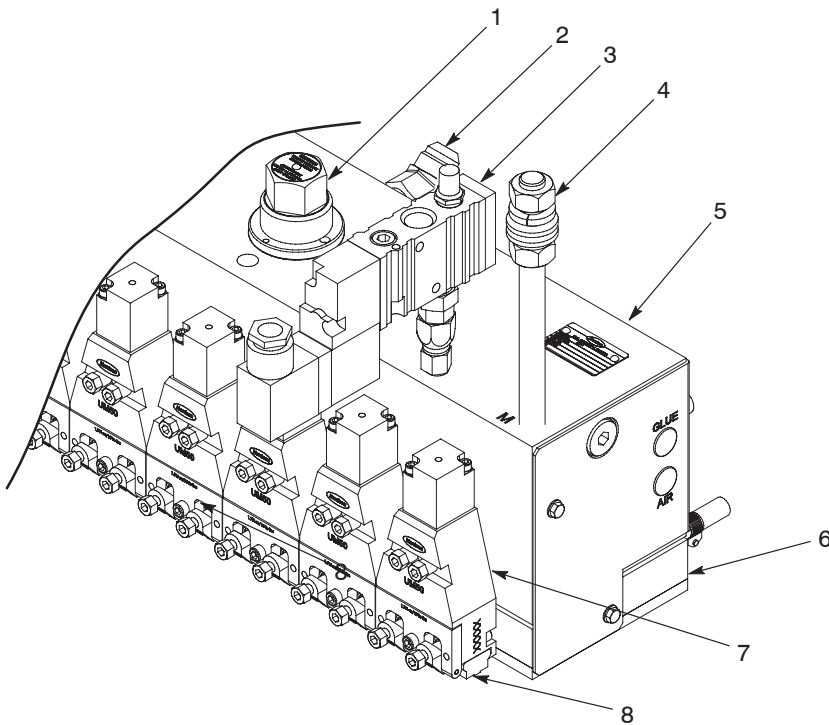


Figure 2 Key parts of a typical HMS applicator (multi-module applicator with standard adjustable UM50 modules shown)

- | | | |
|-------------------|------------------------|----------------|
| 1. Filter | 4. Mounting rod | 7. UM50 module |
| 2. Hose connector | 5. Adhesive manifold | 8. Nozzle |
| 3. Solenoid valve | 6. Heated air manifold | |

Note: The adhesive and heated air manifold cordsets are not visible in this illustration. The cordsets extend from the back of the applicator.

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.

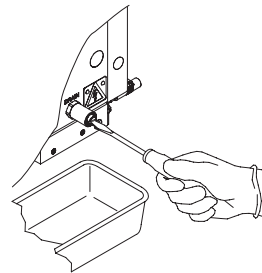


Figure 3 Opening an applicator drain valve

Maintenance

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

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

Cleaning Nozzles

Several types of nozzle may be installed on the UM50 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.

Maintenance *(contd)*

CF Nozzle Removal

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

Nozzle Type	Removal Procedure
Disk nozzle	Use a wrench to loosen the nozzle retaining nut and then remove the nozzle pieces by hand.
Unibody nozzle	Use a wrench to loosen the nozzle and then remove the nozzle by hand.

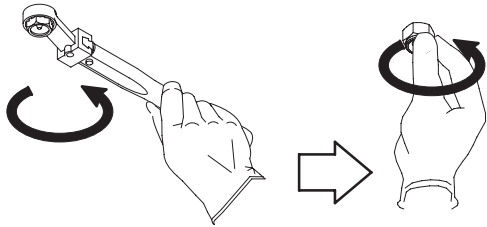


Figure 4 Removing a CF nozzle

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 to the module to eject the adapter.

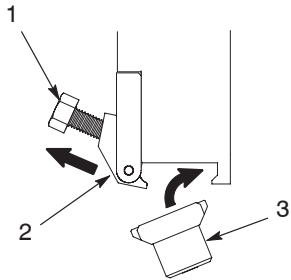


Figure 5 Removing/installing a CF adapter

1. Clamp screw
2. Clamp
3. CF adapter

Meltblown, Summit, SureWrap, or Control Coat 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.

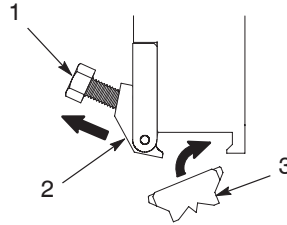


Figure 6 Removing/installing a nozzle (meltblown nozzle shown)

1. Clamp screw
 2. Clamp
 3. CF adapter
3. If you are cleaning Control Coat nozzles, disassemble the nozzles prior to cleaning. Refer to the Control Coat nozzle illustration in the applicator manual.

Nozzle Cleaning

1. Clean the nozzles using one of methods shown in Table 2 (next page). 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 nozzle. Use this method only if the nozzle is still attached to the module seat assembly.

Maintenance (contd)

Table 2 Nozzle Cleaning Methods

Cleaning Method	Procedure
<p>Citrus-based solution and ultrasonic tank</p> <p>NOTE: This is the most thorough method.</p>	<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.
<p>Nordson Type-R fluid</p>	<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.
<p>Electric heat gun</p>	<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.
<p>Ultrasonic tank</p>	<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.
<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> </div> </div> <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> <ol style="list-style-type: none"> 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. 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"> Wipe the nozzles with a soft cloth and then gently blow air through the nozzle orifices from the mounting side of the nozzle.

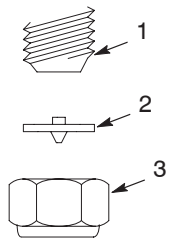
Maintenance *(contd)*

CF Nozzle Installation

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

Nozzle Type	Installation Procedure
Disk nozzle	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).
Unibody nozzle	Thread the nozzle onto the module. Use a wrench to tighten the nozzle to 0.6 N•m (5 in.-lb).

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



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Figure 7 Correct assembly of a CF disk nozzle

- 1. Module threads
- 2. Nozzle disk
- 3. Nozzle-retaining nut

Note: The conical nozzle tip must point away from the module threads.

Meltblown, Summit, SureWrap, or Control Coat 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 1.7 N•m (15 in.-lb).

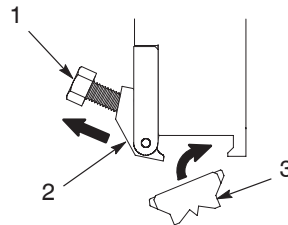


Figure 8 Removing/installing a nozzle (meltblown nozzle shown)

- 1. Clamp screw
- 2. Clamp
- 3. CF adapter

Maintenance (contd)

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.

NOTE: If your applicator has a non-standard filter, refer to the filter screen replacement procedure in the applicator manual.

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. Use a socket wrench to loosen the filter assembly and then remove the assembly by hand over a drain pan.

NOTE: The filter may be installed in the right side, left side, or top of the applicator.

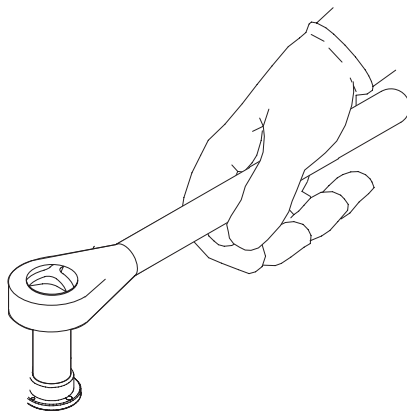
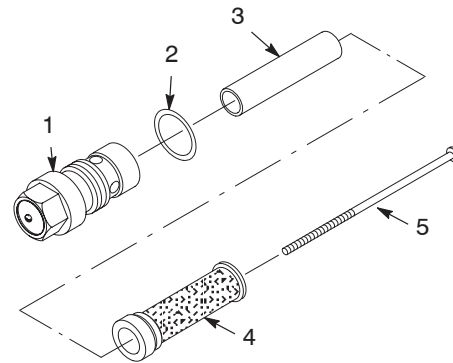


Figure 9 Removing a filter (vertical filter shown)

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.



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Figure 10 Filter components

- | | |
|-----------|-----------|
| 1. Bung | 4. Screen |
| 2. O-ring | 5. Screw |
| 3. Tube | |

Filter Installation

1. Ensure that the system is at application temperature.
2. Apply anti-seize lubricant to the filter screw threads, insert the filter in the 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.

Recommended Spare Parts and Supplies

Applicator Spare Parts

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

Item	Part	Description	Quantity	Note
1	-----	Solenoid valve	AR	A
2	-----	Filter, in-out	AR	A
NS	-----	• Screen, filter, 0.006 in. mesh	1	A
NS	-----	• O-ring, Viton, 1.000 x 1.188 x 0.094 in.	1	A
3-4	-----	Cordsets (adhesive and air)	AR	A
5	1059601	Module, UM50	AR	A
6	940111	• O-ring, Viton, 0.301 ID x 0.070 W in.	3	
7	1048244	• Screw, module-mounting, 10-32	2	
8	-----	• Assembly, clamp, nozzle-retaining	1	A
NS	-----	Nozzle	AR	A
NS	-----	• O-ring, nozzle or nozzle adapter	AR	A

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

Recommended Spare Parts and Supplies *(contd)*

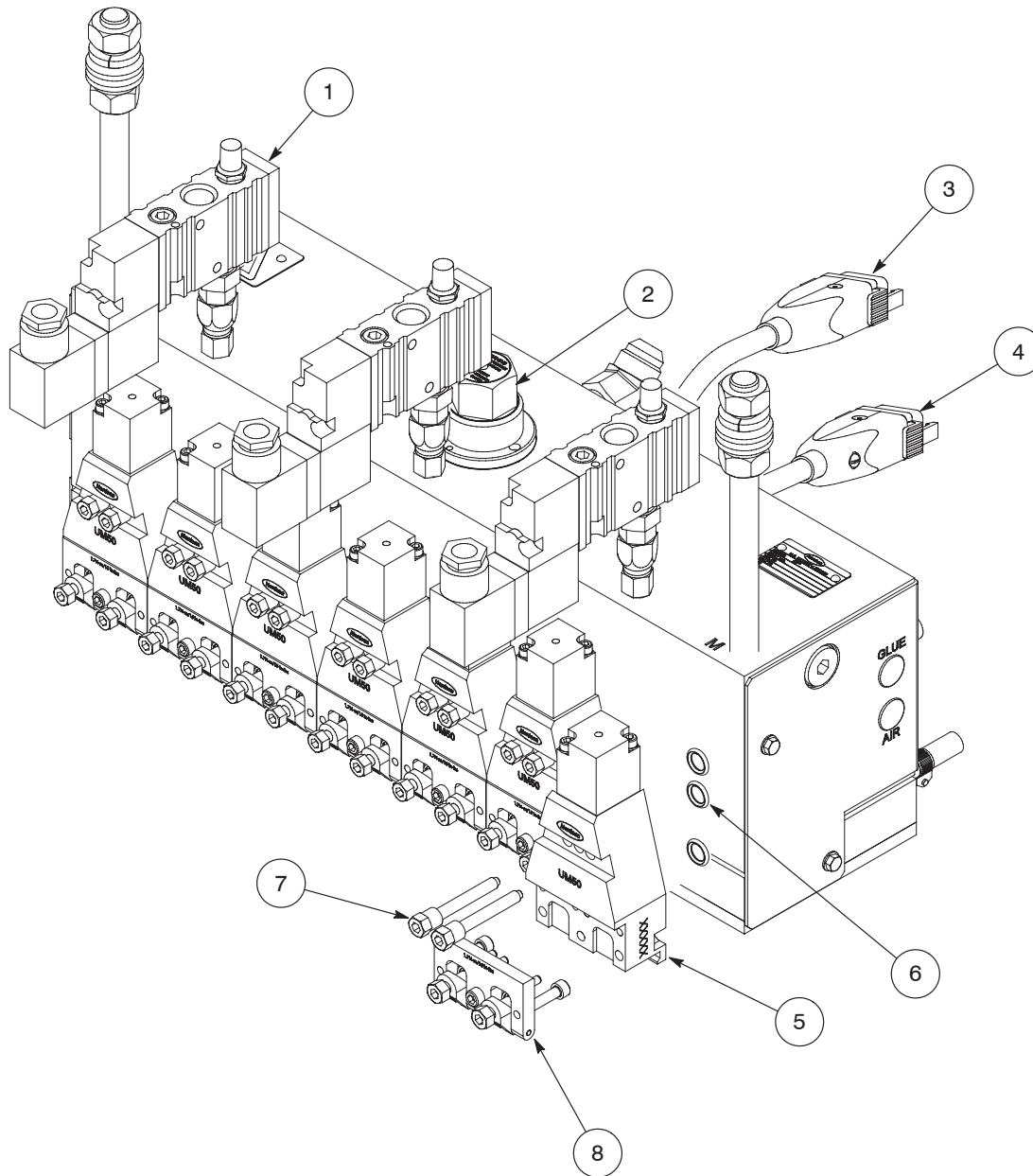


Figure 11 Applicator spare parts (standard adjustable UM50 modules shown)

Recommended Spare Parts and Supplies *(contd)*

Service Kits and Supplies

For complete parts lists, refer to the applicator manual.

Part	Description	Note
1049909	Kit, rebuild, minor, UM22/25/50 (includes cartridge assembly and module O-rings)	
1049908	Kit, rebuild, major, UM22/25/50 (includes cartridge assembly, module O-rings, needle-and-piston assembly, and compression spring)	
1050081	Kit, tool, rebuild, UM22/25/50 (includes tools needed to facilitate module rebuilding)	
1059671	Kit, multi-tool, cap/nozzle/filter (for adjusting a module)	
901915	Kit, nozzle cleaning, small orifice	
231100	Kit, nozzle cleaning, large orifice	
754766	Wrench, torque, CF disk nozzles	
754767	Wrench, torque, CF unibody nozzles	
900493	Lubricant, Parker, high-temperature (for O-rings)	
900344	Lubricant, Never-Seez, 8 oz can (for screw threads)	
900290	Oil, neat's foot (for the needle-and-piston assembly)	
900236	Sealant, paste, Teflon (for the cartridge assembly threads)	

Your notes

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