

## Section 9

# Module

**NOTE:** This section applies to applicators with UM50 modules.

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**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 section provides troubleshooting, repair, parts, and specification information for applicators with UM50 Universal modules. The UM50 module, either directly or through the use of an adapter, can dispense adhesive in a variety of spray applications, including Controlled Fiberization (CF), Summit, SureWrap, and Signature applications. Table 9-1 shows the available UM50 modules. Figure 9-1 shows the key components of the UM50 module parts family.

Table 9-1 UM50 Module

Part Number	Orientation	Construction	Actuation Type	Air Cap Type
1059601	Standard	Aluminum	AOSC	Fixed

**NOTE:** AOSC stands for air-open, spring-close.

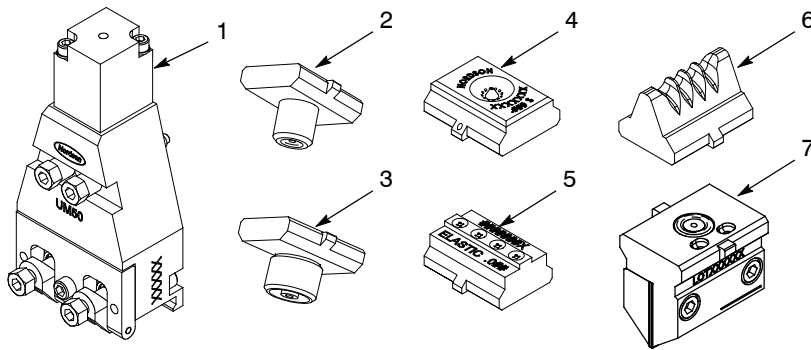


Figure 9-1 UM50 module and associated adapters and nozzles

- 1. UM50 module
- 2. Bead adapter (for bead nozzles)
- 3. CF adapter (for CF disk and unibody nozzles)
- 4. Universal CF nozzle
- 5. Summit nozzle
- 6. SureWrap nozzle
- 7. Signature nozzle, continuous

*Note:* The bead adapter is used in non-spray applications, which are not covered by this manual. For more information on the use of this adapter, contact your Nordson representative.

*Note:* No adapter is required for Universal CF, Summit, SureWrap, or Signature nozzles.

*Note:* Two nozzles are required for each UM50 module. Nozzle types cannot be mixed.

*Note:* For nozzle-related troubleshooting, service, and parts information, refer to the nozzle-specific manuals available at [emanuals.nordson.com](http://emanuals.nordson.com).

## Module Overview

Dispensing modules apply adhesive to a product. All modules are air-actuated (or air-open), meaning that an air supply controlled by a solenoid valve is required to open the module. Modules are then spring-closed. In air-open, spring-close (AOSC) modules, the actuating air lifts a needle-and-piston assembly inside the module, thus opening the module and allowing adhesive to flow through the nozzle onto the product. When the actuating air shuts off, a spring returns the needle-and-piston assembly to the closed position, closing the module.

A separate air supply is used to supply pattern air to the module; this air enters the pattern air inlet and is directed onto the adhesive exiting the nozzle, creating the desired spray pattern.

Figure 9-2 shows the flow of adhesive and air through a UM50 module. Figure 9-3 shows the key parts of a module.

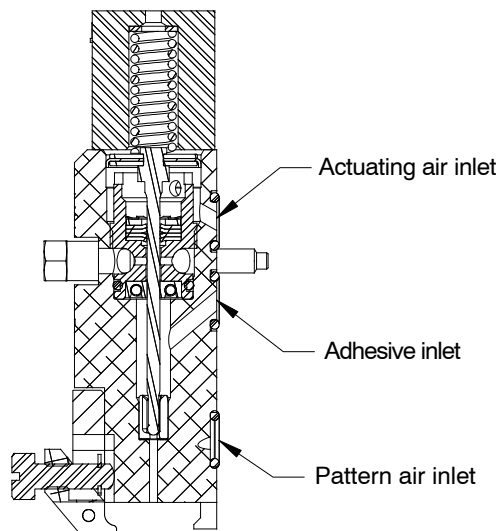


Figure 9-2 Flow of adhesive and air through a UM50 module

## Module Overview *(contd)*

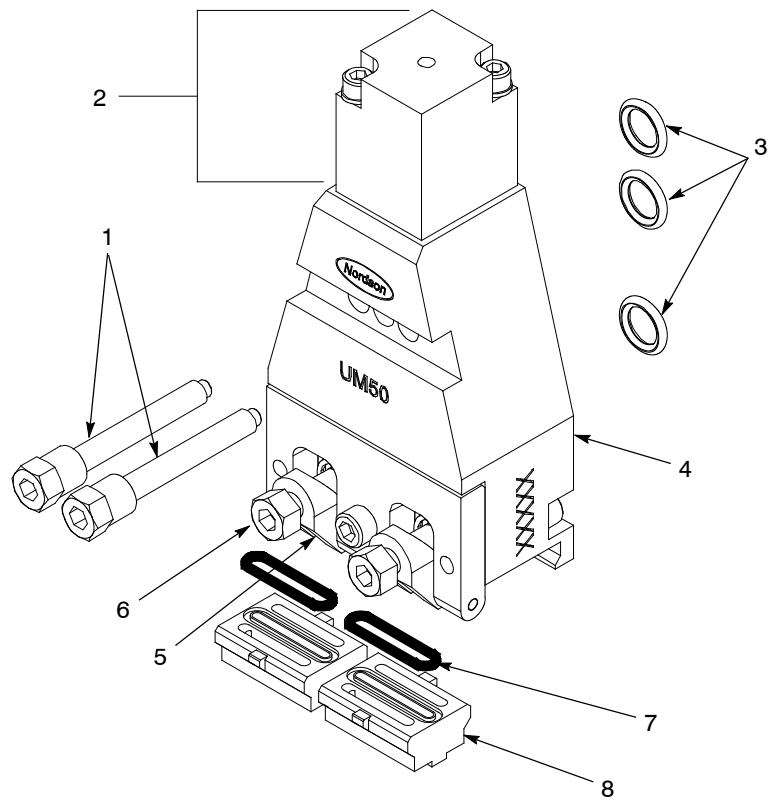


Figure 9-3 Key parts of a UM50 module

- |                           |                                  |
|---------------------------|----------------------------------|
| 1. Module mounting screws | 5. Nozzle-retaining clamp        |
| 2. Air cap assembly       | 6. Nozzle-retaining clamp screw  |
| 3. Module O-rings         | 7. Nozzle O-ring                 |
| 4. Module body            | 8. Nozzle (Summit nozzles shown) |

## Pattern Control Troubleshooting

To troubleshoot pattern control problems, refer to the nozzle-specific manuals available at [emanuals.nordson.com](http://emanuals.nordson.com), or contact your Nordson representative for assistance.

## Module Service

This part of Section 9 provides module-related service procedures.

### Replacing a Module

You will need the following items:

- appropriate tools, including a torque wrench
- drain pans and disposable rags
- replacement module
- replacement O-rings (if needed)
- O-ring lubricant (if needed)
- anti-seize lubricant

**NOTE:** Refer to *Parts* for the part numbers of parts, tools, and supplies.

#### **Remove the Module**

1. Heat the system to application temperature.
2. Relieve system pressure. Refer to *Relieving System Pressure* in Section 10, *Filter*.
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 air pressure to prevent adhesive from entering the pattern air outlet.
6. See Figure 9-4. Remove the module mounting screws and then remove the module. Discard the module O-rings.

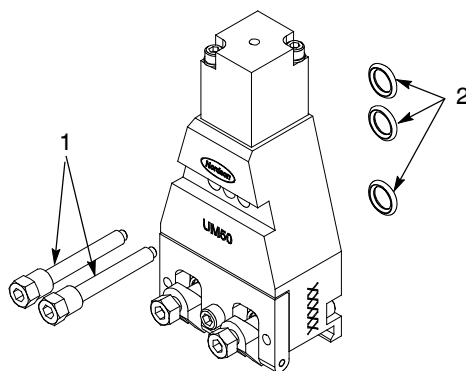


Figure 9-4 Replacing a modul

1. Module mounting screws

2. Module O-rings

### ***Install the Module***

1. Wipe off any adhesive on the applicator, especially around the air passages.
2. Ensure that the module O-rings are lubricated and properly inserted in the O-ring bores on the back of the replacement module.
3. Coat the module mounting screws with anti-seize lubricant and use them to secure the replacement module to the applicator. Tighten the screws to 3.4 N•m (30 in.-lb).
4. Restore the system to normal operation. For best results, tighten the module mounting screws again after the applicator reaches application temperature.

### **Rebuilding a Module**

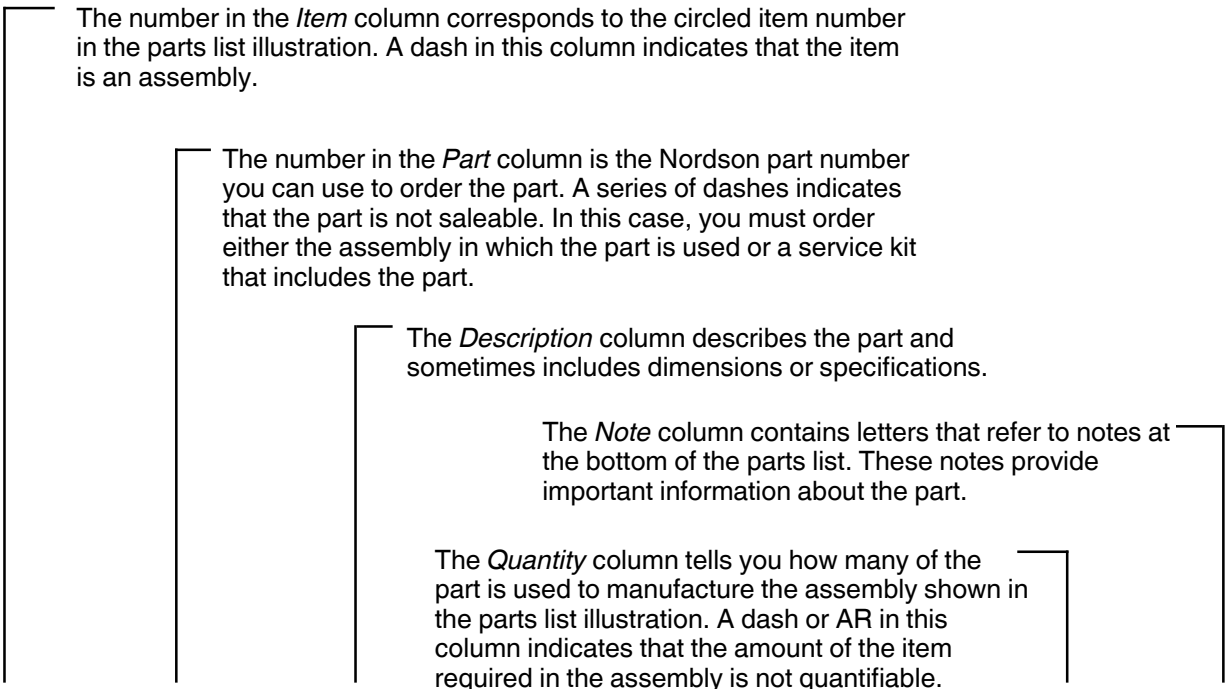
To rebuild a module, order a module rebuild kit and follow the instructions provided in the kit. Refer to *Module Service Kits*. The UM22/UM25/UM50 module rebuild instruction sheet is P/N 1050983. This instruction sheet is also available at <http://emanuals.nordson.com/>.

### ***Nozzle Service***

For nozzle installation/removal and service procedures, refer to the nozzle-specific manuals available at [emanuals.nordson.com](http://emanuals.nordson.com), or contact your Nordson representative for assistance.

# Parts

This part of Section 9 provides detailed parts lists for the module and nozzles. For other applicator parts, including a reference drawing and bill of materials specific to your applicator, refer to Section 8, *Parts*. The following chart provides guidance for reading the parts lists.



Item	Part	Description	Quantity	Note
—	0000000	Assembly A	—	
1	000000	• Part of assembly A	2	A
2	-----	• • Part of item 1	1	
3	0000000	• • • Part of item 2	AR	
NS	000000	• • • • Part of item 3	2	
NOTE A: Important information about item 1				
AR: As Required				
NS: Not Shown				

# UM50 Module Parts

See Figure 9-5.

Item	Part	Description	Quantity	Note
—	1059601	Module, UM50, fixed, standard	—	
1	-----	• Body, standard	1	
2	-----	• Washer, seat, peek	1	
3	-----	• Seat, carbide	1	
4	1048284	• Assembly, cartridge, insert, seal	1	
5	150170	• Needle with piston	1	
6	—	• Item no. not used	—	
7	1048704	• Assembly, air cap, fixed	1	A
8	-----	• Assembly, clamp, nozzle-retaining, UM50, standard	1	B
9	1048244	• Screw, module mounting, 10-32, special	2	
10	—	• Item no. not used	—	
11	940111	• O-ring, Viton, 0.301 ID x 0.070 W in.	3	

NOTE A: Refer to *Fixed Air Cap*.

B: Refer to *Nozzle-Retaining Clamp (Standard)* or *Nozzle-Retaining Clamp (Right-Angle)*.

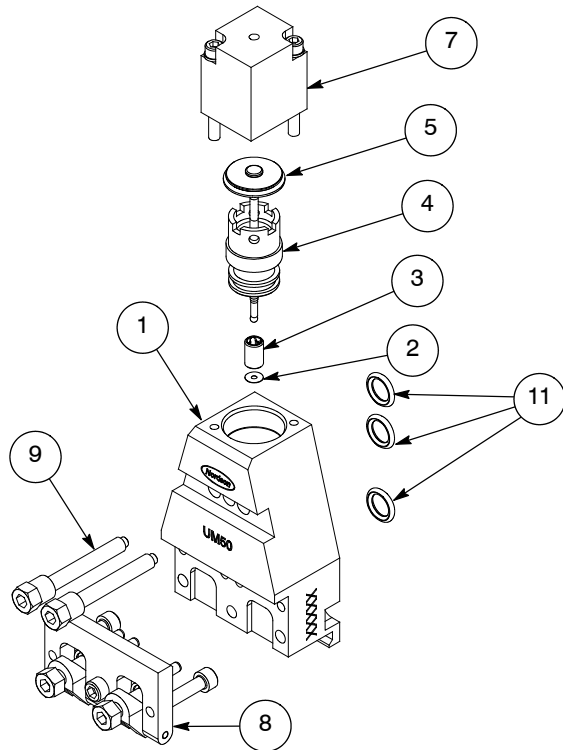


Figure 9-5 UM50 fixed module parts

## Blank Module

See Figure 9-6.

Item	Part	Description	Quantity	Note
—	1026885	Module, UM25, blank	—	
1	-----	• Body, standard	1	
2	940111	• O-ring, Viton, 0.301 ID x 0.070 W in.	3	
3	1048244	• Screw, module mounting, 10-32, special	2	

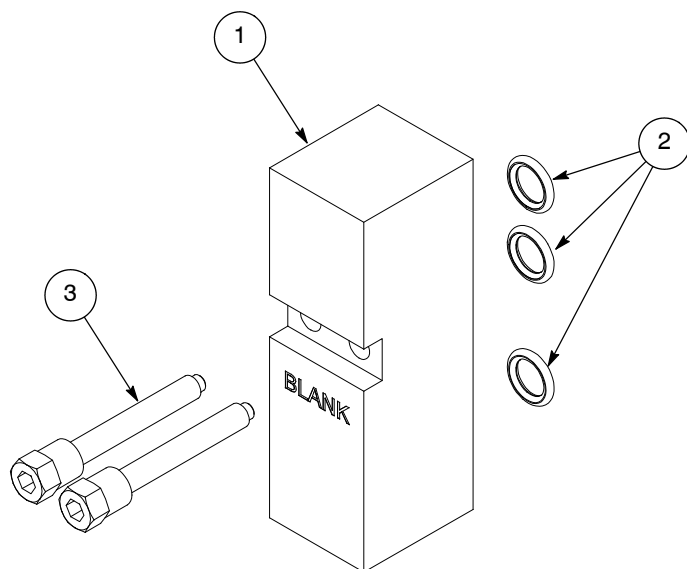


Figure 9-6 UM25 blank module parts

### Fixed Air Cap

See Figure 9-7.

Item	Part	Description	Quantity	Note
—	1048704	Air cap, fixed	—	
1	-----	• Cap, air, non-adjustable	1	
2	-----	• Washer, flat, 0.188 x 0.375 x 0.040 in.	1	
3	-----	• Spring, compression, 1.146 x 0.360 OD x 0.065 in.	1	
4	-----	• Washer, lock, split, #6	2	
5	-----	• Screw, socket, 6-32 x 1.25 in.	2	

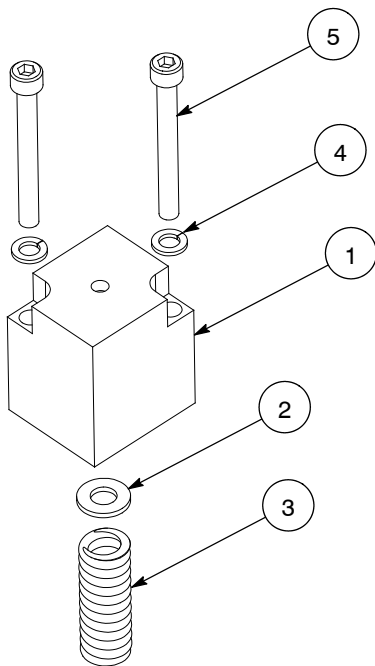


Figure 9-7 Fixed air cap parts

### Nozzle-Retaining Clamp (Standard)

See Figure 9-8.

Item	Part	Description	Quantity	Note
—	1060222	Nozzle-retaining clamp assembly, UM50, standard	—	
1	-----	• Plate, clamp	1	
2	-----	• Clamp, nozzle-retaining	1	
3	-----	• Screw, clamp, hex, M5	1	
4	-----	• Retaining ring, external, 18, E-ring	1	
5	-----	• Pin, dowel, 0.0941 x 0.975 in. long	1	
6	-----	• Pin, dowel, 0.125 x 0.375 in.	2	
7	-----	• Screw, socket, 8-32 x 0.875 in.	2	
8	-----	• Screw, socket, 8-32 x 0.625 in.	1	

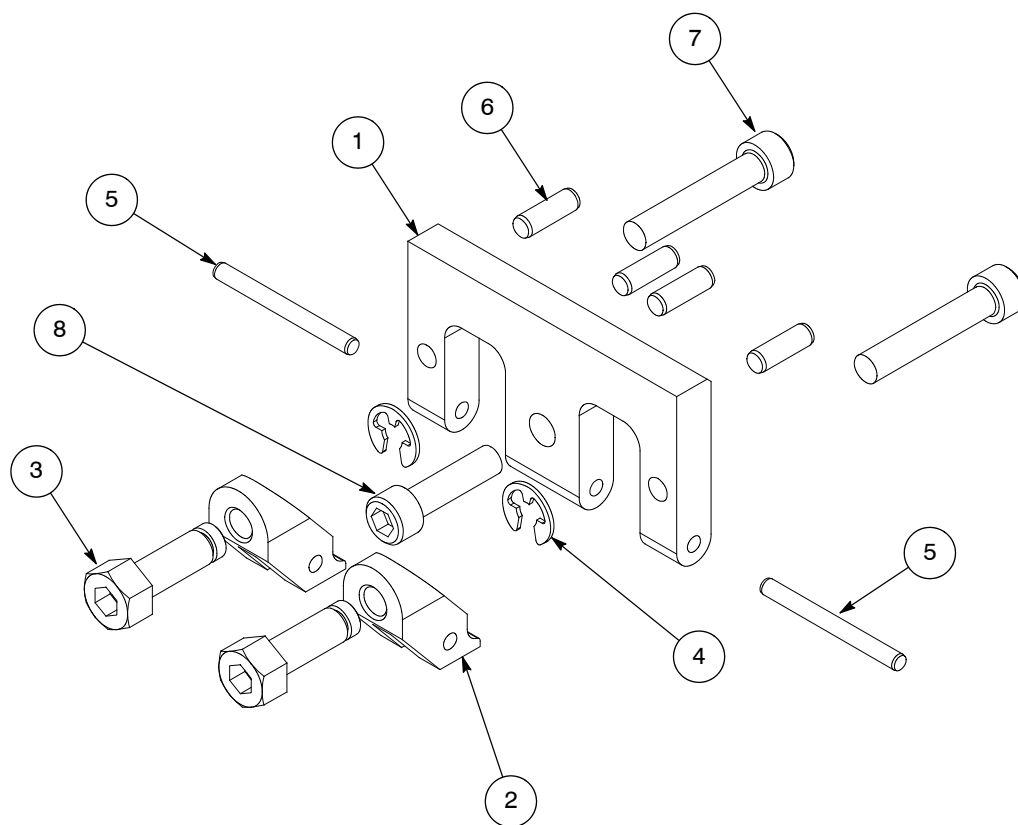


Figure 9-8 Nozzle-retaining clamp parts

## Module Service Kits

See Figure 9-9.

Item	Part	Description	Quantity	Note
—	1049909	Kit, rebuild, minor, UM22/UM25/UM50 module	—	
1	-----	• Assembly, cartridge, insert, seal	1	
2	-----	• O-ring, Viton, 0.301 ID x 0.070 W in.	3	
—	1049908	Kit, rebuild, major, UM22/UM25/UM50 module	—	
1	-----	• Assembly, cartridge, insert, seal	1	
2	-----	• O-ring, Viton, 0.301 ID x 0.070 W in.	3	
3	-----	• Needle with piston	1	
4	-----	• Spring, compression, 1.146 x 0.360 OD x 0.065 in.	1	
—	1050081	Kit, tool, rebuild, UM22/UM25/UM50 module	—	
5	-----	• Tool, piston insertion	1	
6	-----	• Tool, cartridge	1	
7	-----	• Tool, base	1	
8	900236	Sealant, paste, Teflon	AR	
9	900223	Lubricant, O-ring, Parker, 4 oz	AR	

AR: As Required

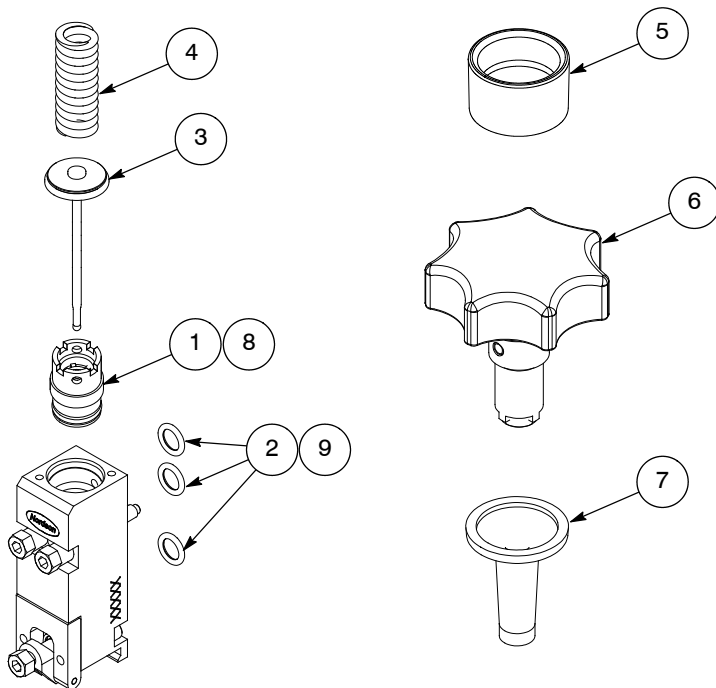


Figure 9-9 Module service kit parts

## Nozzle Part Numbers

For nozzle part numbers, refer to the nozzle-specific manuals available at [emanuals.nordson.com](http://emanuals.nordson.com), or contact your Nordson representative for assistance.

## Recommended Spare Parts and Supplies

For a general spare parts and supplies list, refer to *Recommended Spare Parts and Supplies* in Section 8, *Parts*.

Part	Description	Note
1059601	Module, UM50, fixed, standard	
1071782	Module, cutaway, UM50	A
1048244	• Screw, module mounting, 10-32 (2 required to secure the module to the applicator)	
940111	• O-ring, Viton, 0.301 ID x 0.070 W in. (3 required for the back of the module)	
1049909	Kit, rebuild, minor, UM22/25/UM50 (includes cartridge assembly and module O-rings)	
1049908	Kit, rebuild, major, UM22/25/UM50 (includes cartridge assembly, module O-rings, needle-and-piston assembly, and compression spring)	
1050081	Kit, tool, rebuild, UM22/25/UM50 (includes tools needed to facilitate module rebuilding)	
1059671	Kit, multi-tool, cap/nozzle/filter	
1048704	Air cap assembly, fixed	
1060222	Nozzle-retaining clamp assembly, UM50, standard	
900223	Lubricant, O-ring, Parker, 4 oz (for O-rings)	
900344	Lubricant, Never-Seez, 8 oz can (for screw threads)	
900236	Sealant, paste, Teflon (for the cartridge assembly threads)	
NOTE A: This cutaway module is nonfunctional and is intended for training purposes.		
B: Refer to <i>Nozzle Part Numbers</i> .		

## Technical Data

### Applicator Specifications

Table 9-2 provides specifications for an applicator with UM50 modules. Refer to *Applicator-Specific Reference Drawings* in Section 8, *Parts*, for the following information about your applicator:

- applicator dimensions
- cordset style
- number and orientation of filters
- number of modules
- type and number of solenoid valves

Table 9-2 UM50 Applicator Specifications

Item	Specification
Operating temperature	70-205 °C (160-400 °F)
Working hydraulic pressure	13.8-55.2 bar (200-800 psi)
Maximum hydraulic pressure	89.6 bar (1300 psi)
Maximum hydraulic flow (per module)	110 g/min at 10,000 cps, 14 g/m <sup>2</sup> at 300 m/min
Module-actuating air pressure	4.1 bar (60 psi) recommended
Maximum pattern air flow (per 25-mm pattern)	1.0 scfm at 191 °C (375 °F); 1.5 scfm at 177 °C (350 °F)
Adhesive pattern capability	Continuous or low-speed/noncritical intermittent
<b>NOTE:</b> For additional information on the capabilities of Universal modules and nozzles, contact your Nordson representative to obtain the following product literature: <i>Product Comparison: Universal Modules</i> and <i>Product Comparison: Universal Spray Nozzles</i> .	

### Torque Specifications

These torque specifications are also stated within the appropriate procedures.

Item	Torque Specification
Air cap screws	1.7 N•m (15 in.-lb)
Module mounting screws	3.4 N•m (30 in.-lb)
Nozzle-retaining clamp screw	2.8 N•m (25 in.-lb)