Flexseam Dispensing System

Customer Product Manual
Part 1127900_01
Issued 05/19

This document contains important safety information. Be sure to read and follow all safety information in this document and any other related documentation.

NORDSON CORPORATION • DULUTH, GEORGIA • USA
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Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

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Notice

Trademarks

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Flexseam Dispensing System

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as “use”) of the product described in this document (hereafter referred to as “equipment”). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.

WARNING! Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.

WARNING! Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.

CAUTION! Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION! (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

User Qualifications

Equipment owners are responsible for ensuring that users:

- receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- are familiar with the equipment owner's safety and accident prevention policies and procedures
- receive equipment and task-specific training from another qualified individual

  NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information

- possess industry- and trade-specific skills and a level of experience appropriate to their job function
- are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used. This equipment has not been certified for compliance with the ATEX directive nor as nonincendive and should not be installed in potentially explosive environments.
- Ensure that the processing characteristics of the material will not create a hazardous environment. Refer to the Safety Data Sheet (SDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.
- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and SDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Allow only personnel with appropriate training and experience to operate or service the equipment.
- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new Nordson-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the SDS supplied with equipment cleaning compounds.

  NOTE: SDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.

- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable SDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment:

- hot melt and cold adhesive application equipment and all related accessories
- pattern controllers, timers, detection and verification systems, and all other optional process control devices

Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed.
If required, shut down instructions are specified at the start of the procedure.
The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

De-energizing the System

Isolate the system (melter, hoses, applicators, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

   NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

Disabling the Applicators

NOTE: Adhesive dispensing applicators are referred to as “guns” in some previous publications.

All electrical or mechanical devices that provide an activation signal to the applicators, applicator solenoid valve(s), or the melter pump must be disabled before work can be performed on or around an applicator that is connected to a pressurized system.

1. Turn off or disconnect the applicator triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the applicator solenoid valve(s).
3. Reduce the air pressure to the applicator solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the applicator.

General Safety Warnings and Cautions

Table 1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1 as follows:

HM = Hot melt (melters, hoses, applicators, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and applicators)

Table 1 General Safety Warnings and Cautions

Equipment Type	Warning or Caution
HM	**WARNING!** Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's SDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with SDS requirements can cause personal injury, including death.
HM	**WARNING!** Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and applicators contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA	**WARNING!** System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.

Continued...

General Safety Warnings and Cautions (contd)

Table 1 General Safety Warnings and Cautions *(contd)*

Equipment Type	Warning or Caution
HM	**WARNING!** Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.
HM, PC	**WARNING!** Equipment starts automatically! Remote triggering devices are used to control automatic hot melt applicators. Before working on or near an operating applicator, disable the applicator's triggering device and remove the air supply to the applicator's solenoid valve(s). Failure to disable the applicator's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.
HM, CA, PC	**WARNING!** Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.
HM, CA, PC	**WARNING!** Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and has not been certified for the ATEX directive or as nonincendive. In addition, this equipment should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the SDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.
HM, CA, PC	**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 can damage to the equipment.

Equipment Type	Warning or Caution
HM	 **CAUTION!** Hot surfaces! Avoid contact with the hot metal surfaces of applicators, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	**CAUTION!** Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	**CAUTION!** Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the SDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	**CAUTION!** Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing hand-held applicator at yourself or others.
- Suspend dispensing hand-held applicators by their proper suspension point.

First Aid

If molten hot melt comes in contact with your skin:

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the SDS for the hot melt to the medical personnel providing treatment.

Safety Labels and Tags

Figure 1 illustrates the location of the product safety labels and tags affixed to the equipment. Table 2 provides an illustration of the hazard identification symbols that appear on each safety label and tag, the meaning of the symbol, or the exact wording of any safety message.

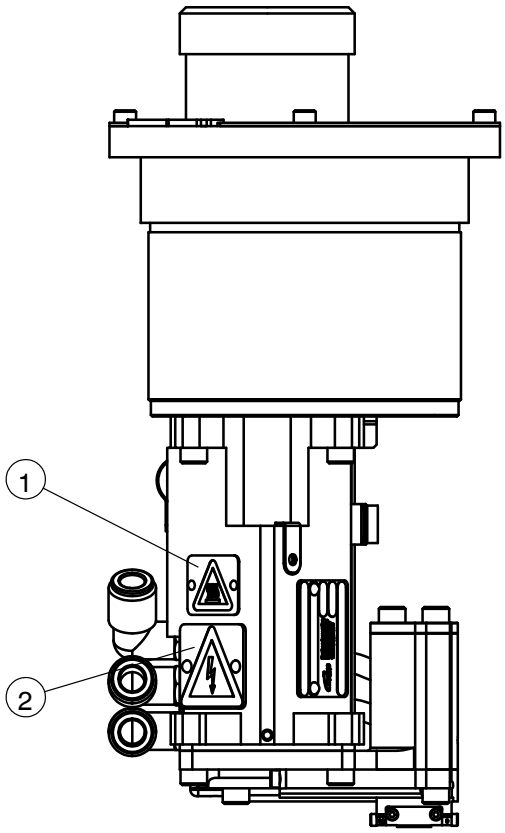
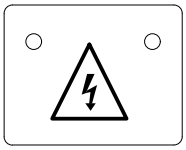


Figure 1 Safety labels and tags

Table 2 Safety Labels and Tags

Item	Part	Description
1.	- - - - - -	 **WARNING:** Hot Surface! Do not touch.
2.	- - - - - -	 **WARNING!** Risk of electrical shock. Failure to observe may result in personal injury, death, or equipment damage.

Description

This manual describes the installation and use of the Flexseam dispensing system. When necessary, the reader is referred to the documentation supplied with other Nordson products or products supplied by third parties.

The Flexseam dispensing system liquifies solid-form polyurethane reactive (PUR) hot melt adhesive contained in 300-cc cartridges and maintains the adhesive at the desired temperature. When the system is activated, it uses compressed air to dispense a row of adhesive beads onto the surface (usually fabric) of a product.

See Figure 2. The system includes:

- The Flexseam controller
- The Flexseam applicator
- The four-axis robot with vision detection (camera) and feedback system
  (if applicable—other robots are available)

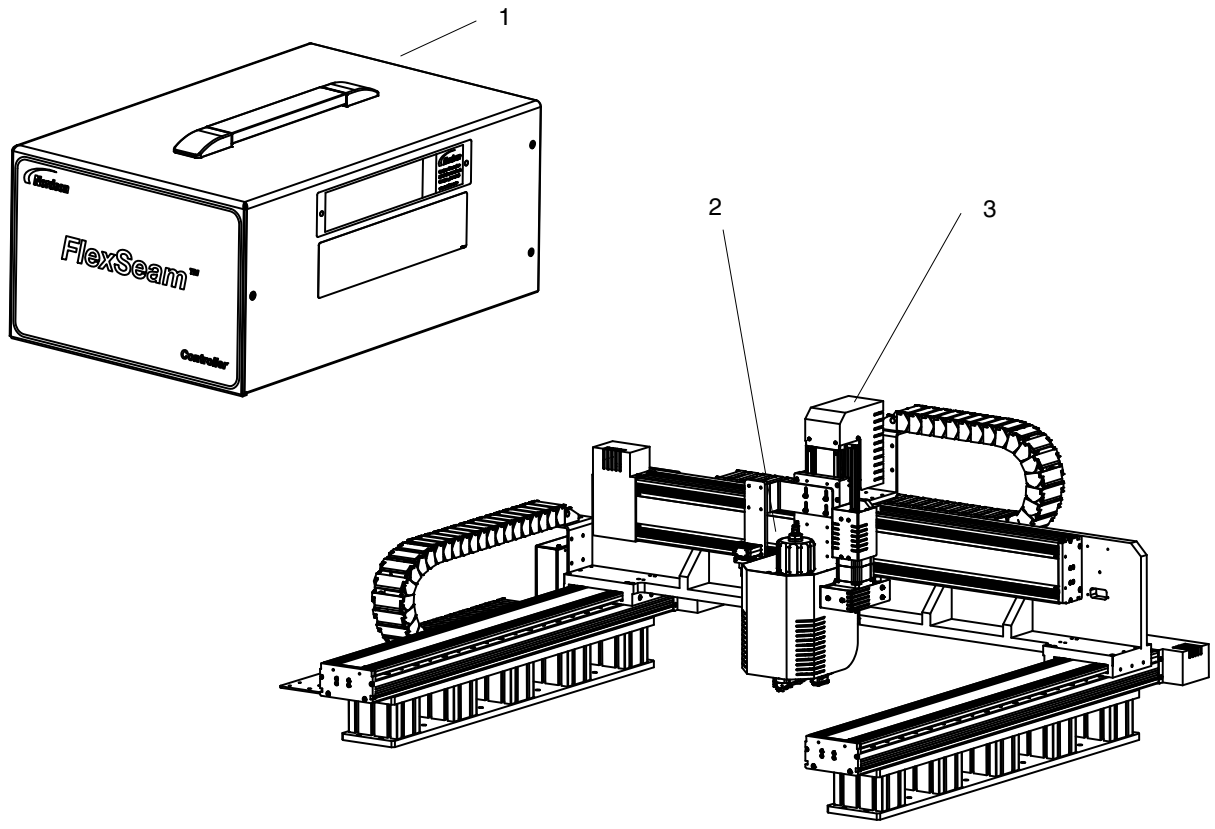


Figure 2 Flexseam dispensing system components

1. Flexseam controller
2. Flexseam applicator
3. Robot

Intended Use

Flexseam Series dispensing systems are specifically designed to:

- Melt and pump solid-form PUR hot melt adhesives contained in cartridges that are engineered to be liquified and extruded at temperatures below 160 ºC(320 ºF), and the nozzle temperature is below 200 ºC (392ºF).

  NOTE: This temperature setting is lower than the cartridge melt and nozzle temperature limit.

- Be used with compatible equipment manufactured by Nordson Corporation
- Be used in non-explosive environments

The Flexseam dispensing system is virtually complete, but is intended to be incorporated into machinery or assemblies by an integrator. The equipment must not be placed into use in a member state of the European Union until the parent machinery or assemblies have been declared by the integrator to be in conformity with the applicable directives of the European Commission.

Limitations of Use

Use Flexseam Series dispensing systems only for the purpose for which they are designed. Flexseam dispensing systems should not be used:

- To melt or pump any material that creates a health or safety hazard when heated
- In environments that will require the system to be cleaned using a water wash or spray

Additional Limitations of Using PUR Adhesives

When the maximum level of harmful substance concentration is exceeded, use a gas mask and air purifying equipment.

Unit Identification

See Figure 3. You will need the model and part number of the applicator when requesting service or ordering spare parts and optional equipment. The applicator model and part number are indicated on the equipment identification plate.

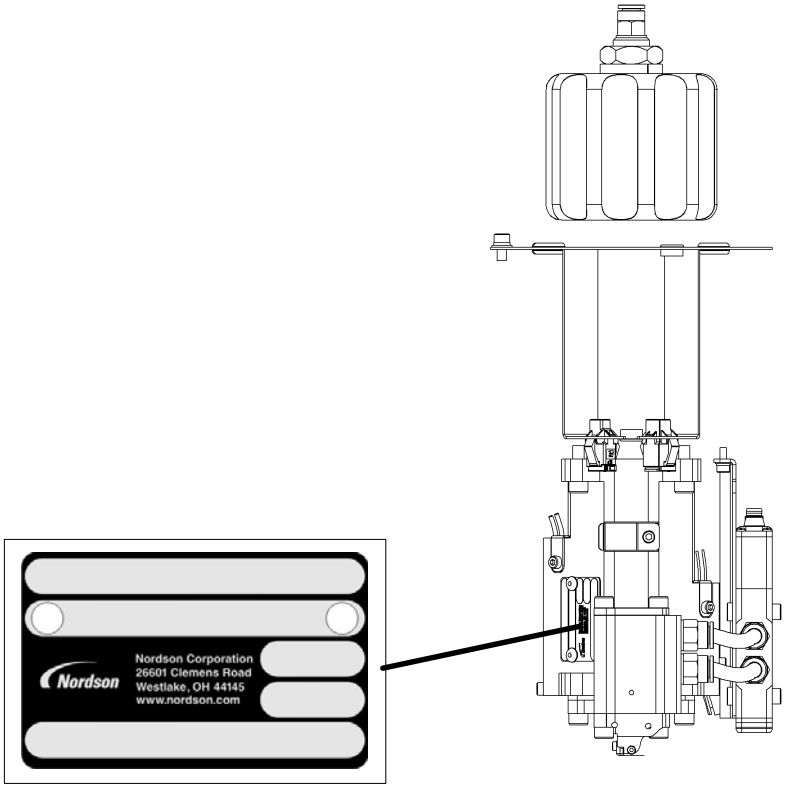


Figure 3 Applicator equipment identification plate

Key Components

Figures 4 provides the name and location of key system components.

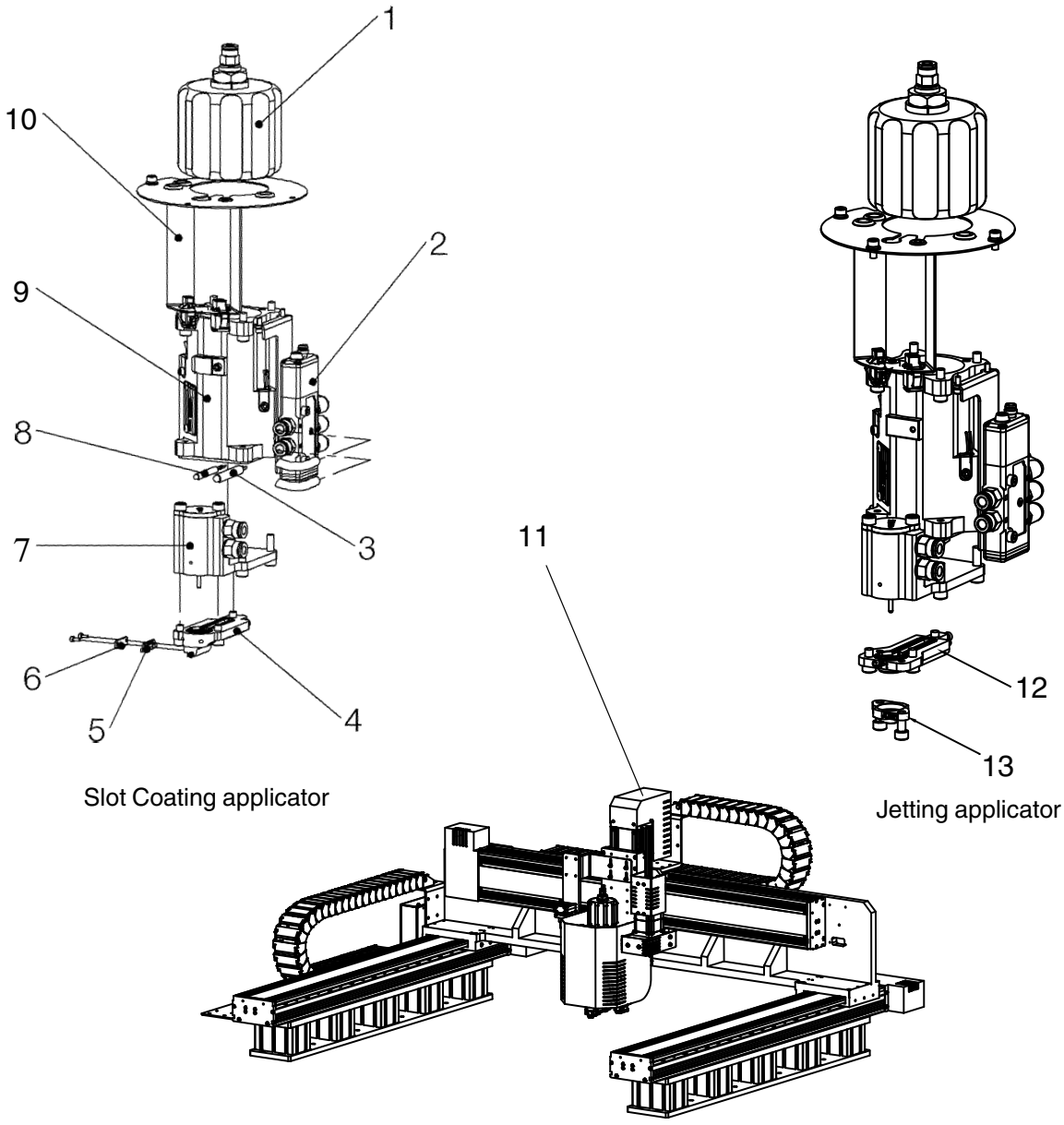


Figure 4 Flexseam applicator key components

1. Air cap
2. Solenoid valve
3. Heater
4. Nozzle plate (slot coating)
5. Shave lip
6. Nozzle lip
7. Module
8. RTD
9. Cartridge body
10. Cover and bracket
11. Robot
12. Nozzle plate (jetting)
13. Nozzle (jetting)

Installation

Installation involves placing the system in the desired location and making the electrical and hydraulic connections.

Electro-Magnetic Compliance Information

This system is classified as Class A, Group 2 under the European standard for limits and methods of measurement, EN 55011.

Experience of Installation Personnel

The instructions provided in this section are intended to be used by personnel who have experience in the following subjects:

- Hot melt application processes
- Industrial power and control wiring
- Industrial mechanical installation practices
- Basic process control and instrumentation

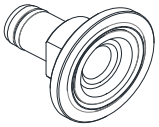
Customer-Supplied Installation Components

In addition to the components provided by Nordson Corporation, installation of the Flexseam dispensing system requires the following customer-supplied components:

- Air pressure regulator and filter
- Appropriate guarding and signage as required to prevent personal injury during operation and service activities

Ship-With Kit Contents

1

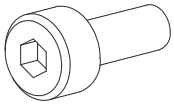


P/N 7407652

2

P/N 7402541

3



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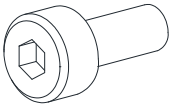

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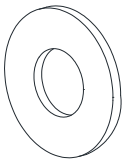

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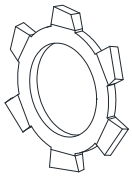

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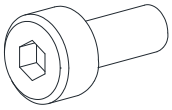

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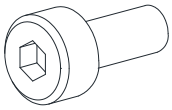

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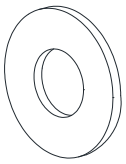

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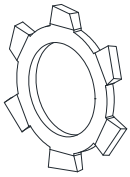
10



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11

P/N 1005078

Figure 5 Contents of the ship-with kit

1. 7407652 CHECK VALVE, SYRINGE, ASSY, PJ300
2. 7402541 CORDSET, SOL, PJ, UNITY TOUCH
3. 7402601 SCR SKT M2X5, ZN
4. 1003505 SCR, SKT, M4X8, SST
5. 983402 WASHER, FLT, M, NARROW, M4, STL, ZN
6. 983403 WASHER, LK, M, SPT, M4, STL, ZN
7. 982166 SCR, SKT, M5X16, BL
8. 982023 SCR, SKT, M3X8, BL
9. 983067 WASHER, FLT, M, REG, M3, ZINC PLATE
10. 983400 WASHER, LK, M, SPT, M3, STL, ZN
11. 1005078 TUBING, PTFE 6 MM OD X 1MM WALL (0.26FT)

Install the Applicator on the Robot

See Figure 6 for the Flexseam applicators. Use the mounting block and screws supplied with the applicator to install the applicator on the robot.

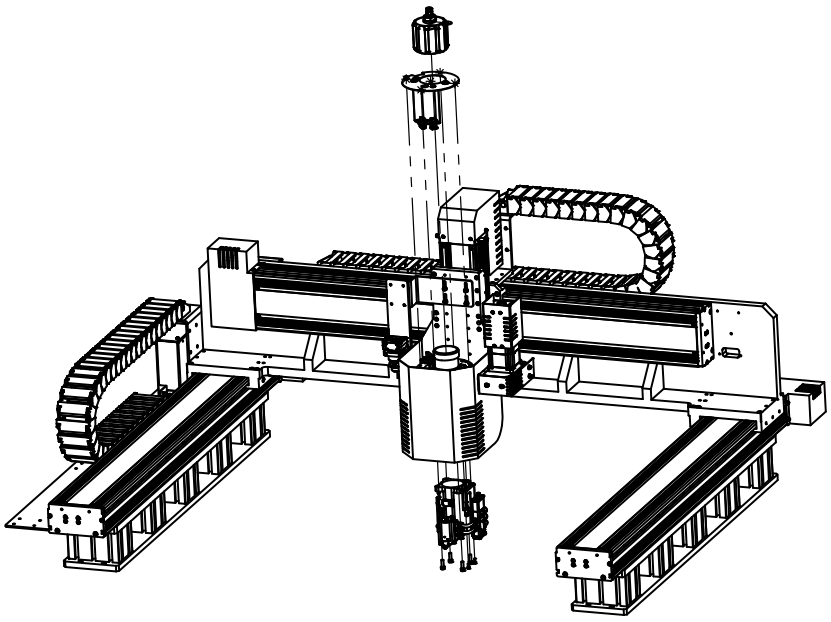


Figure 6 Installing a Flexseam applicator on a robot

Make the Air Supply Connections

Using items from the ship-with kit as needed, make the air supply connections shown in Table 3 and Figure 7. The air supply must be clean, dry, regulated, un-lubricated compressed air. Set the operating air pressure to max 8 bar (116 psi).

Table 3 Air Supply Connections

Item No. in Fig. 7	Pneumatic Connection	Connect to...	Then connect to...
1	Main air supply input	Main air supply	Air regulator input port
2	Air supply to applicator solenoid valve	Air pressure regulator output (Y-fitting)	Air input port on applicator solenoid valve
3	Air supply to controller through air dryer	Air pressure regulator output (Y-fitting)	Air dryer input/output ports and controller air input port
4	Air supply to applicator adhesive syringe or end cap	Air output port on top of controller	Air fitting on top of applicator adhesive syringe or end cap

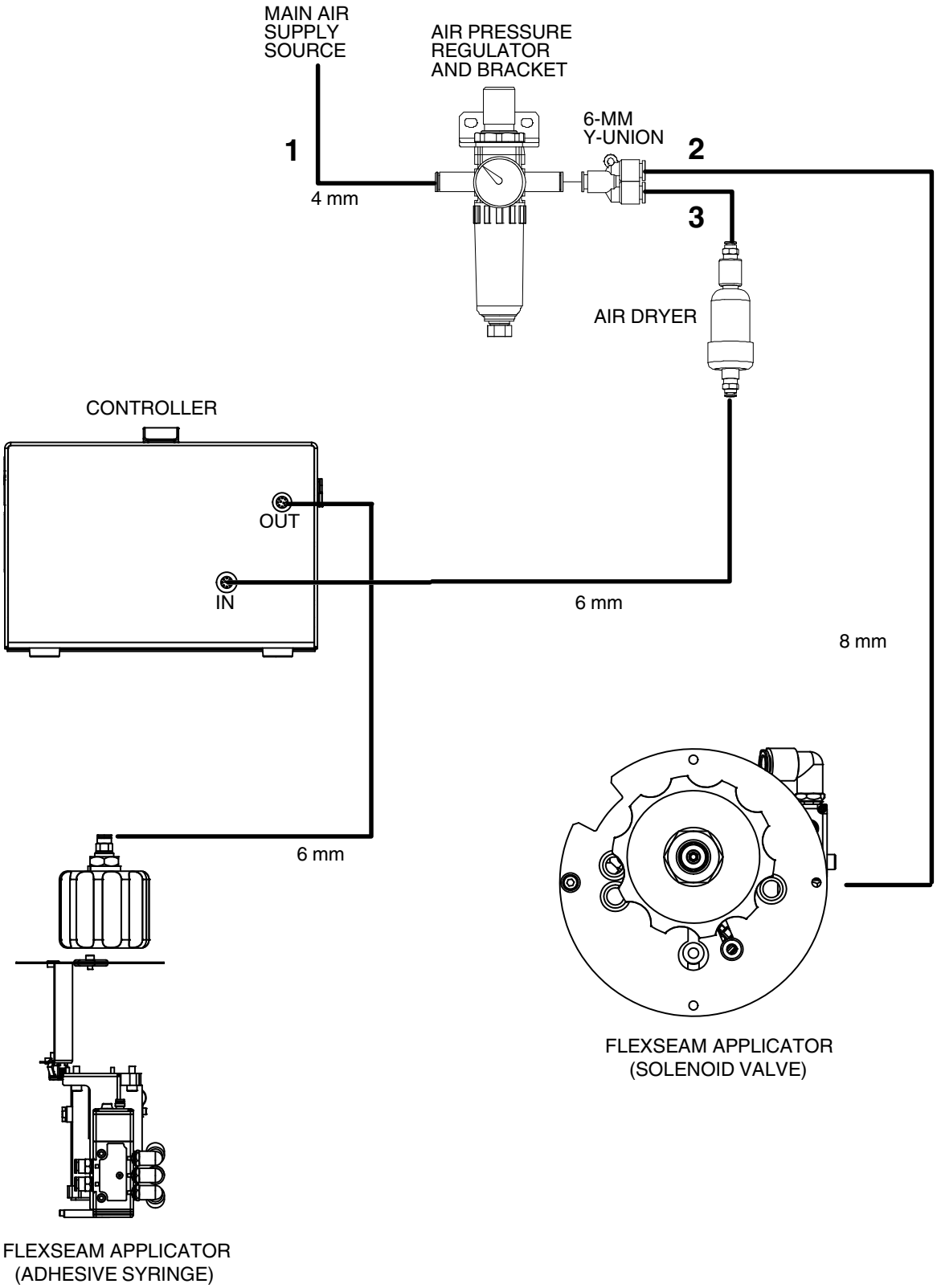


Figure 7 Air supply connections (refer to Table 3)

Connect Cables

Refer to the Unity Controller manuals for more information.

Perform Initial System Power On

1. Turn on the robot.
2. Turn on the controller. The controller display will go through the start-up screens.
3. Turn on the air supply.
4. **Flexseam applicator only**

   Load a flush syringe in the applicator as follows:

   a. Open the air cap.

   b. Remove the factory installed adhesive syringe.

   c. Insert the new syringe into the applicator.

   d. Reinstall the air cap.

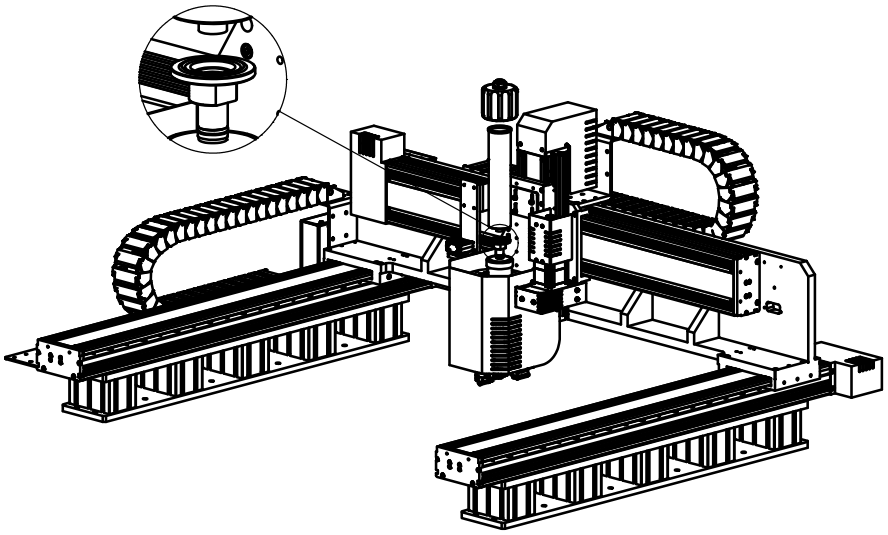


Figure 8 Powering on a Flexseam applicator

Operation

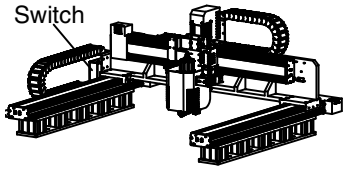
Before operating the system for the first time, ensure that you have completed the procedures in the Installation *s*ection.

Special Operating Considerations for PUR Adhesive

The viscosity of PUR adhesive increases significantly when the system is at operating temperature, therefore the applicator should be heated only for operation or cleaning. If the applicator is held at operating temperature longer than the life of the PUR adhesive, then the risk of cured material inside the applicator increases.

However, even in the best operating scenario it is still likely that over time the PUR will occlude the inner adhesive passages, requiring the applicator to be cleaned. When the applicator is cleaned, is it critical to remove cured PUR adhesive from all adhesive passages, not just the adhesive passages inside the module.

Daily Start-up and Operation



Robot power switch

1. Turn on the robot.
2. Turn on the controller. The controller display will go through the start-up screens.

   NOTE: The controller always powers on in the user mode.
3. Turn on the air supply.
4. Allow the system to reach application temperature.
5. If a cured adhesive warning exists at start-up, reset the Elapsed Time parameter to 0.
6. Verify that the temperature settings are at the desired value.

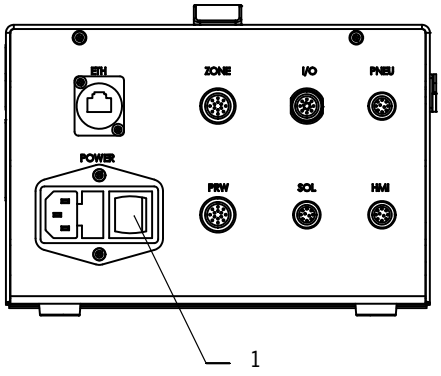


Figure 9 Location of controller power and purge switches

1. Controller power switch

Daily Start-up and Operation *(contd)*

NOTE: On the Flexseam controller, you can find the purge button on the touch screen.

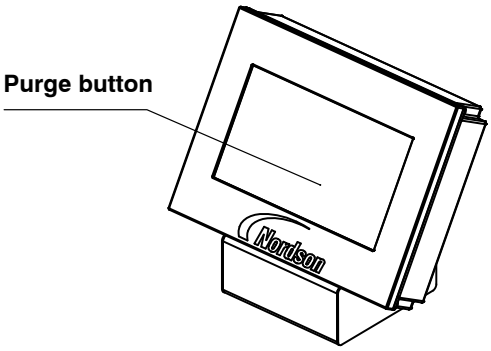


Figure 10 Location of Purge button

7. **Flexseam applicator only**

   When the READY light turns on, place the controller purge switch in the on position until the remaining material in the flush syringe (used during shut down) is dispensed.

8. **Flexseam applicator only**

   Load an adhesive syringe in the applicator as follows:

   a. Open the air cap.

   b. Insert the adhesive syringe into the applicator.

   c. Close the air cap.

9. Place the product on the moving plate and press the START button on the robot handle to run products.

Respond to Alarms

Refer to *Troubleshooting* for a list of alarms and recommended corrective actions.

Place the System in Setback

Refer to the Flexseam controller manuals for more information.

Monitor the System

Refer to the Flexseam controller manuals for more information.

Shutdown

PUR adhesive reacts with moisture in the air therefore exposure of the PUR adhesive in the system to air must be minimized. The procedures below represent the best practices for overnight or long-term (longer than overnight) shutdown.

Overnight Shutdown

1. Shut down the system and allow the applicator to cool, leaving the current syringe/cartridge in the applicator. This will retain the seal and minimize the exposure to air.
2. The next morning, follow the *Daily Start-up and Operation* procedure earlier in this section to install a new syringe/cartridge.

Long-Term Shutdown

1. Place a large collection pan under the applicator.

WARNING! Risk of burns. When the last drops of adhesive are being purged, the pressurized air will cause some adhesive spray. Ensure that the collection pan is large enough to shield the operator from the spray.

2. Place the controller purge switch in the on position until all adhesive is dispensed from the syringe/cartridge, then place the switch in the off position.

3. **Flexseam applicator only**
   a. Open the applicator cap, and without putting pressure on the syringe remove the air cap.
   b. Use a pick to remove any hardened adhesive from the syringe.
   c. Install the air cap and close the latch.
4. Remove the applicator nozzle and purge again to ensure that all adhesive is dispensed.

CAUTION! Ensure that the flushing material is compatible with the PUR adhesive being used. Refer to the SDS for both the adhesive and the flushing material.

5. Load a flush syringe/cartridge into the applicator.
6. Purge again until a clean flow of flush material is achieved. Leave some flush material in the syringe/cartridge.
7. Reinstall the nozzle and purge the system again to flush all PUR adhesive out of the nozzle. Leave some flush material in the syringe/cartridge.
8. Turn off the air supply.
9. Turn off the controller.
10. Turn off the robot.

Maintenance

This section contains a recommended maintenance schedule and procedures. Attempting any other maintenance procedures can result in equipment damage, improper system operation, or personal injury.

Recommended Maintenance Schedule

Table 4 provides recommended maintenance activities and a schedule for performing those activities. Base how often you perform maintenance on your operating conditions.

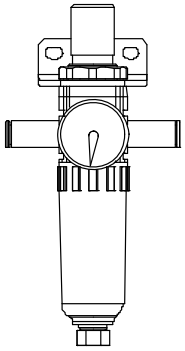
Table 4 Recommended Maintenance

Component	Activity	Interval	Procedure
Robot and applicator	Inspect for external damage	Daily	When damaged parts pose a risk to the operational safety of the unit and/or safety of personnel, switch off the system and have the damaged parts replaced by qualified personnel. Use only original Nordson spare parts.
	Clean the exterior	Daily	Remove adhesive residue only with a cleaning agent recommended by the adhesive supplier. Heat with an air heater if necessary. Remove dust, flakes, etc. with a vacuum cleaner or a soft cloth. Do not damage or remove warning labels. Replace any damaged or removed warning labels.
	Replace the air supply desiccant tube	When all material inside the tube has turned pink	Relieve system pressure (refer to *System Pressure Relief* in this section) and replace the used desiccant tube, ensuring that all fittings are secure. Refer to *Parts* for the replacement desiccant tube part number.

System Pressure Relief

System pressure must be relieved before you can safely proceed with many troubleshooting and service-related activities. Follow this procedure whenever you need to relieve system pressure.

WARNING! Risk of burns. Failure to relieve system pressure can cause hot material to spray from a connecting point. Relieve system pressure before loosening or removing a hose, module, or any other part of a hot melt system. Wear heat-protective clothing, safety goggles (ANSI Z87.1 or equivalent), and safety gloves.



Air pressure regulator

1. Shut off the main air supply or set the air pressure regulator to zero (0).
2. Momentarily activate the purge switch on the controller.
3. When the service activity is completed, restore the system to normal operation.

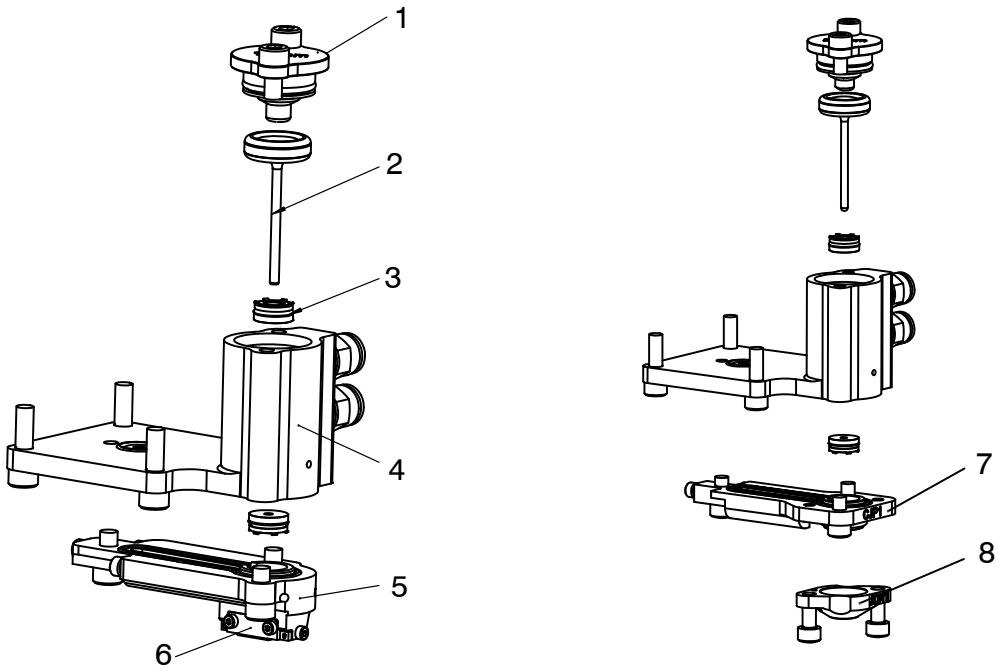
Clean the Flexseam Module

WARNING! Risk of Burns! Do not remove the module when the system is pressurized. Removing the module when the system is pressurized will cause hot melt to free-flow from the applicator. Relieve system pressure before removing the module. Failure to relieve system pressure can result in personal injury.

Disassemble and Clean the Module

See Figure 11.

1. Turn the melter off. Disconnect and lock out power to the melter.
2. Unfasten the three screws that connect the nozzle and module, and remove.
3. Unfasten the four screws that connect the module and cartridge, and remove.
4. Unfasten the two screws that connect the strike cap.
5. Remove the needle.
6. Clear the module and nozzle carefully.



Slot coating Flexseam module

Jetting Flexseam module

Figure 11 Disassembling the Flexseam module

1. Air cap
2. Needle
3. Seal spring
4. Module body
5. Nozzle place (slot coating)
6. Nozzle lip
7. Nozzle plate (jetting)
8. Nozzle (jetting)

Assemble the Module

CAUTION! Do not apply excessive force to seals during installation. Doing so can damage the seals.

1. Insert the two seals with the integrated O-ring side facing inside the seat. Press down to secure the seals.
2. Insert the current needle into the module straight within the seals.
3. Assemble the nozzle onto the module body with three screws.
4. Install the current air cap with two screws.
5. Install the current seal lip and shave lip with two screws.

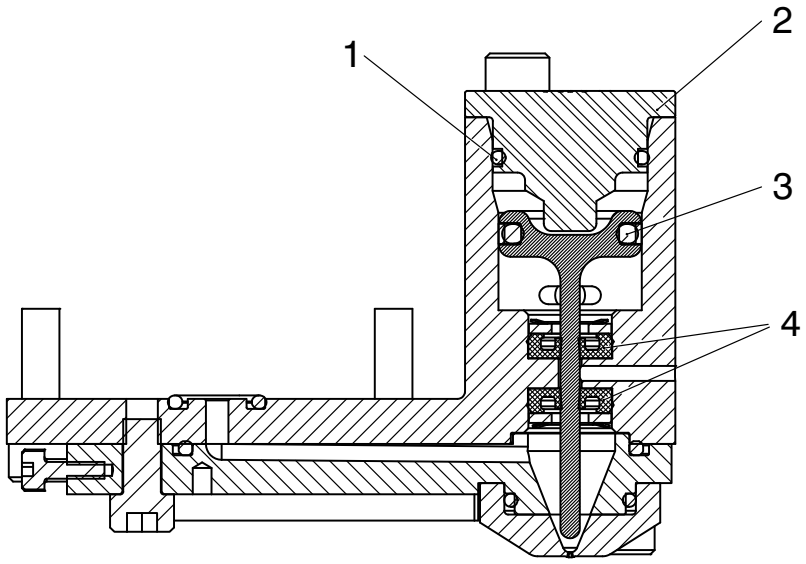


Figure 12 Assembling the module

1. O-ring side of seal facing the inside of the air cap
2. Air cap
3. O-ring side of seal facing the inside of the needle
4. O-ring side of seal facing the inside of the module plate

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Troubleshooting

Troubleshooting begins when the flow of adhesive from the applicator stops or diminishes unexpectedly or when a control system alerts you of a problem through an alarm or visual display. This section covers only the most common problems you may encounter. If you cannot solve a problem with the information given here, contact your local Nordson representative for help.

For additional troubleshooting information, refer to the manuals provided with the other equipment used in the hot melt system.

General Troubleshooting

Refer to this table for general system troubleshooting.

Problem	Possible Cause	Corrective Action
1. Applicator does not heat	System power not on	Verify that the system power is turned on.
	Loose electrical connection	Verify that all electrical connections (cordsets and cables) at the controller and the applicator are secure.
	Broken or missing electrical pins	Check for broken or missing pins at all electrical connections. Repair or replace damaged components.
	Applicator temperature setpoint too low	Adjust the temperature setpoint as necessary.
2. Applicator underheats or overheats	System in setback (standby) mode	Take the system out of the setback mode.
	Applicator temperature setpoints too low or too high	Adjust the temperature setpoints as necessary.
	Failed heater or RTD	Check the applicator heater or RTD. Refer to *Checking the Applicator Heater* or *Checking the Applicator RTD* later in this section.
3. Erratic bead width (from part to part)	Lip size incorrect	Change the lip size to the appropriate diameter for the bead width.
	Applicator too cold	Adjust the temperature setpoint as necessary.
	Old PUR adhesive in system	Clean or replace the lip, clean the adhesive path, and/or replace the module.
	Adhesive leaking under the syringe flange	Check the syringe seal and clean the interface as needed.
	Top of adhesive syringe/cartridge plugged	Remove the cured layer of adhesive from the top of the adhesive syringe/cartridge.

Problem	Possible Cause	Corrective Action
4. Bead not obvious	Low input air supply	Ensure that the input air pressure is greater than 5 bar (72.5 psi).
	Old PUR adhesive in system	Clean or replace the nozzle, clean the adhesive path, and/or replace the module.
	Applicator too cold	Adjust the temperature setpoint as necessary.
		Change the lip to a larger size.
5. Bead width changes on the part	Robot speed inconsistent	Check the program speed settings.
	Applicator position too high/low	Check the program height settings and/or check the height of the product.
6. No adhesive output	Low or no input air supply	Ensure that the input air pressure is greater than 5 bar (72.5 psi).
	No signal from robot	Test the signal using the robot purge switch. If the applicator purges, the problem is in the robot. Refer to the robot product manual to troubleshoot the robot. If the applicator does not purge, check the setup.
	Solenoid connection lost	Check the red light on the solenoid valve. If the red light is not illuminated, replace the solenoid.
	Old PUR adhesive in system	Clean or replace the lip, clean the adhesive path, and/or replace the nozzle.
7. Leaks at bleed hole on module	Adhesive seal failure	Replace the module.

Check the Applicator Heater

NOTE: Cordsets for applicators with a platinum sensor are customer-supplied. Refer to other documentation as needed.

1. Disconnect and lock out electrical power to the system.
2. Disconnect the applicator cordset.
3. See Figure 13. Use an ohm meter to check the heater resistance and continuity at the heater pins on the cordset:
   - If you measure low resistance, the heaters are operating normally. Return to the procedure that referenced this check.
   - If you measure high resistance or if an open circuit is indicated, there may be a broken wire, a loose connection, or a defective heater. Continue to the next step.

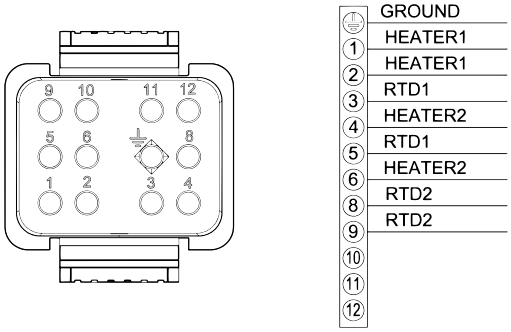

Figure 13 Pin positions on the applicator cordset

4. Remove the appropriate cordset connector hood and inspect the heater wiring. Make sure there are no broken wires or loose connections and that the heaters are wired correctly.
   - If any wiring problems are found, correct the problems and restore the system to normal operation.
   - If no wiring problems are found, the heater is probably defective. Replace the heater.

Check the Applicator RTD

NOTE: Cordsets for applicators with a platinum sensor are customer-supplied. Refer to other documentation as needed.

NOTE: You will need to know the temperature of the RTD to properly perform this check.

1. Disconnect and lock out electrical power to the system.
2. Disconnect the applicator cordset.
3. See Figure 13. With the RTD at a known temperature, use an ohmmeter to measure the RTD resistance at the RTD pins on the cordset.
4. See Figure 14 for nickel sensors or Figure 15 for platinum sensors, to determine the correct resistance of the RTD based on its temperature:
   - If the measured resistance is correct, the RTD is operating properly. Return to the procedure that referenced this check.
   - If the measured resistance indicates an open circuit, continue to the next step.
5. Remove the appropriate cordset connector hood and check for loose RTD wires or wire connections. Tighten any loose connections.
6. Check the RTD resistance again. If the resistance is normal, the RTD is now operating properly. If it is not, continue to the next step.
7. Disconnect the RTD wires, measure the resistance across them, and compare the results to Figure 14:
   - If the measured resistance is within the appropriate range, reconnect the RTD wires, reinstall the cordset connector hood, and return to the procedure that referenced this check.
   - If the measured resistance is not within the appropriate range, replace the RTD.

Check the Applicator RTD *(contd)*

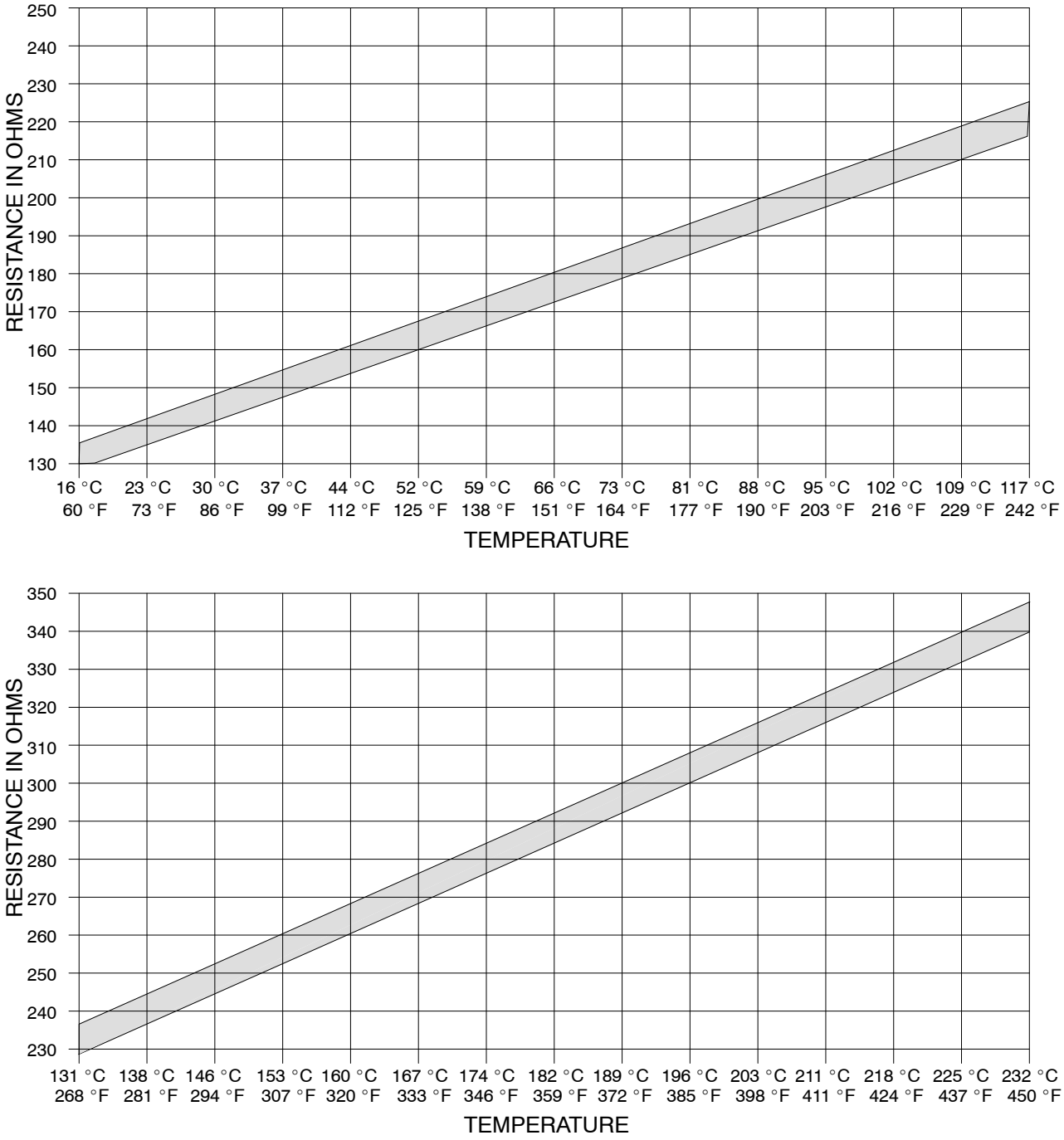

Figure 14 RTD resistance vs. RTD temperature

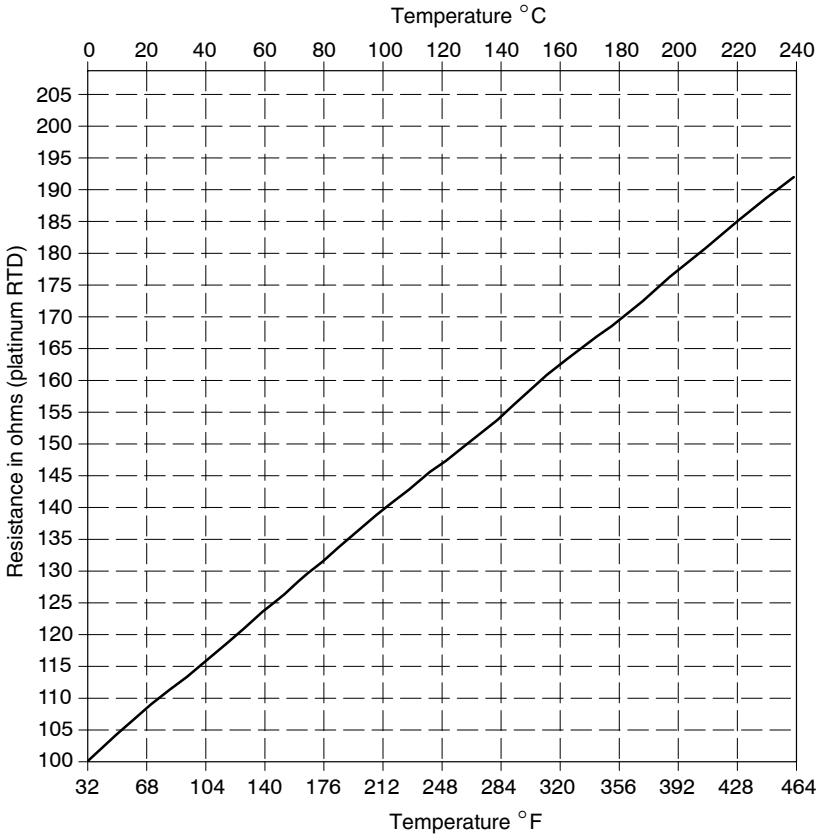

Figure 15 Platinum sensor resistance vs. sensor temperature

Note: Cordsets for applicators with a platinum sensor are customer supplied. Refer to other equipment documentation as needed.

Parts

Using the Illustrated Parts Lists

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use these five-column parts lists, and the accompanying illustrations, to describe and locate parts correctly. The following chart provides guidance for reading the parts lists.

The number in the *Item* column corresponds to the circled item number in the parts list illustration. A dash in this column indicates that the item is an assembly.

The number in the *Part* column is the Nordson part number you can use to order the part. A series of dashes indicates that the part is not saleable. In this case, you must order either the assembly in which the part is used or a service kit that includes the part.

The *Description* column describes the part and sometimes includes dimensions or specifications.

The *Note* column contains letters that refer to notes at the bottom of the parts list. These notes provide important information about the part.

The *Quantity* column tells you how many of the part is used to manufacture the assembly shown in the parts list illustration. A dash or AR in this column indicates that the amount of the item required in the assembly is not quantifiable.

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

Flexseam Dispensing System Assemblies

See Figure 16. Refer to *Cable Part Numbers* for a list of cables that may be used with a Flexseam system.

Item	Part	Description	Quantity	Note
1	7403289	FLEXSEAM CONTROLLER	1	A
NS	7402620	UNITY,TOUCH,DISPLAY,S,DESKTOP	—	A
2	7404039	APPLICATOR,SLOT,8MM/4/0.3X0.6/D,4AX	1	B
	7404525	APPLICATOR,SLOT,10MM/5/0.3X0.6/D,4AX	1	C
	7404495	APPLICATOR,SLOT,7MM/4/0.3X0.3/L,4AX	1	D
	7404526	APPLICATOR,SLOT,9MM/5/0.3X0.3/L,4AX	1	E
	7404527	APPLICATOR,JETTING,SEPA,0.17,4AX	1	F
NS	------	KIT,SHIP WITH FS	—	G
3	------	4 AIX ROBOT	—	

NOTE A: Refer to Controller S manual.

B: Apply to 8mm dispensed adhesive width for the chemical fabric.

C: Apply to 10mm dispensed adhesive width for the chemical fabric. Refer to Flexseam applicator parts.

D: Apply to 7mm dispensed adhesive width for the cotton fabric. Refer to Flexseam applicator parts.

E: Apply to 9mm dispensed adhesive width for the cotton fabric. Refer to Flexseam applicator parts.

F: Refer to Flexseam applicator parts.

G: Refer to Contents of the Ship-With Kit in the *Installation* and *Flexseam Ship-with Kit* sections.

NS: Not Shown

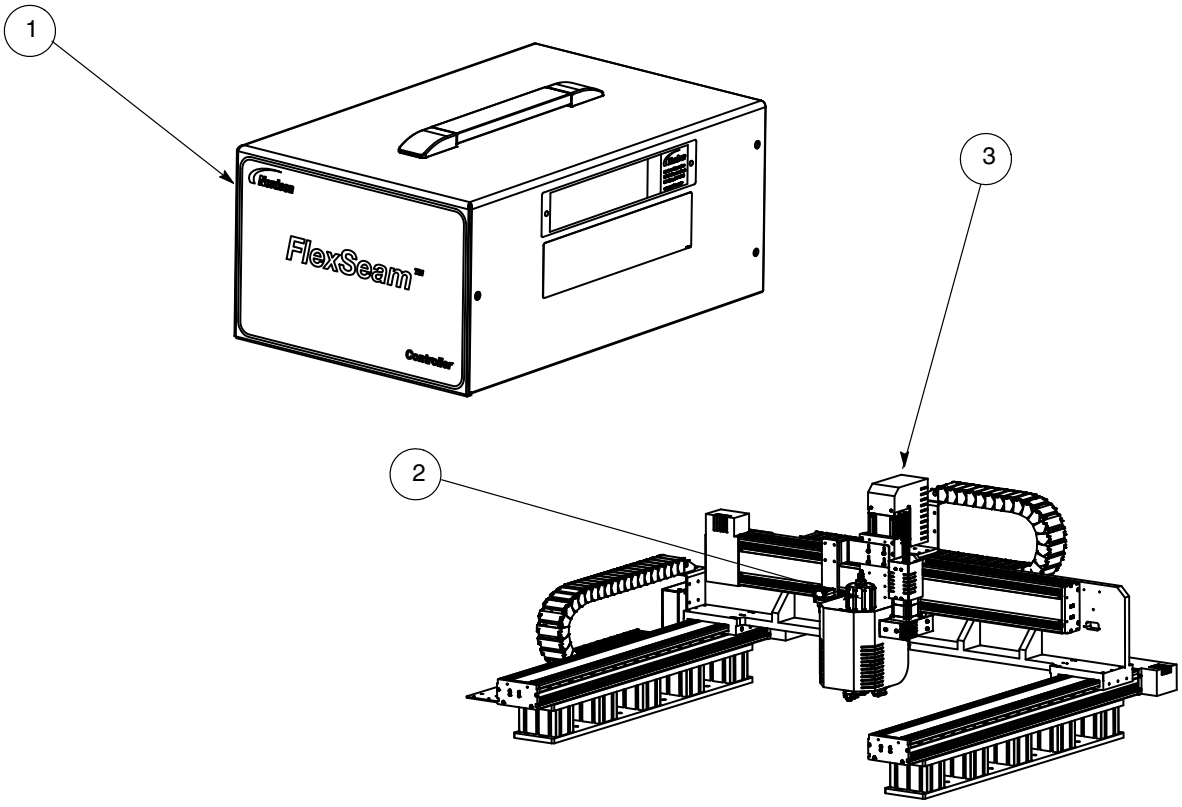

Figure 16 Flexseam controller and applicator

Flexseam Slot Dispenser Applicator Parts

See Figure 17.

Item	Part	Description	Quantity	Note
	7404039	APPLICATOR,SLOT,8MM/4/0.3X0.6/D,4AX		
1	------	MODULE BODY,FS	1	
2	------	MODULE,PUMP,300CC	1	
3	------	MODULE,NOZZLE PLATE,FS300	1	
4	------	SCR SKT M2x5,ZN	4	
5	------	L LIP COVER,7-10MM,FS	1	
6	------	LIP,SLOT,ROBOT,0.3X0.6MM,8MM,4DOTS	1	
7	------	TUBING,PFA,6MM ODX 1 MM WALL	1	
8	------	MODULE,PACKAGE,FS	1	
NS	------	KIT,SHIP WITH FS	1	
NS: Not Shown				

Item	Part	Description	Quantity	Note
	7404525	APPLICATOR,SLOT,10MM/5/0.3X0.6/D,4AX		
1	------	MODULE BODY,FS	1	
2	------	MODULE,PUMP,300CC	1	
3	------	MODULE,NOZZLE PLATE,FS300	1	
4	------	SCR SKT M2x5,ZN	4	
5	------	L LIP COVER,7-10MM,FS	1	
6	------	LIP,SLOT,ROBOT,0.3X0.6MM,10MM,5DOTS	1	
7	------	TUBING,PFA,6MM ODX 1 MM WALL	1	
8	------	MODULE,PACKAGE,FS	1	
NS	------	KIT,SHIP WITH FS	1	
NS: Not Shown				

Item	Part	Description	Quantity	Note
	7404495	APPLICATOR,SLOT,7MM/4/0.3X0.3/L,4AX		
1	------	MODULE BODY,FS	1	
2	------	MODULE,PUMP,300CC	1	
3	------	MODULE,NOZZLE PLATE,FS300	1	
4	------	SCR SKT M2x5,ZN	4	
5	------	L LIP COVER,7-10MM,FS	1	
6	------	LIP,SLOT,ROBOT,0.3X0.3MM,7MM,4DOTS	1	
7	------	TUBING,PFA,6MM ODX 1 MM WALL	1	
8	------	MODULE,PACKAGE,FS	1	
NS	------	KIT,SHIP WITH FS	1	
NS: Not Shown				

Item	Part	Description	Quantity	Note
	7404526	APPLICATOR,SLOT,9MM/5/0.3X0.3/L,4AX		
1	------	MODULE BODY,FS	1	
2	------	MODULE,PUMP,300CC	1	
3	------	MODULE,NOZZLE PLATE,FS300	1	
4	------	SCR SKT M2x5,ZN	4	
5	------	L LIP COVER,7-10MM,FS	1	
6	------	LIP,SLOT,ROBOT,0.3X0.3MM,9MM,5DOTS	1	
7	------	TUBING,PFA,6MM ODX 1 MM WALL	1	
8	------	MODULE,PACKAGE,FS	1	
NS	------	KIT,SHIP WITH FS	1	
NS: Not Shown				

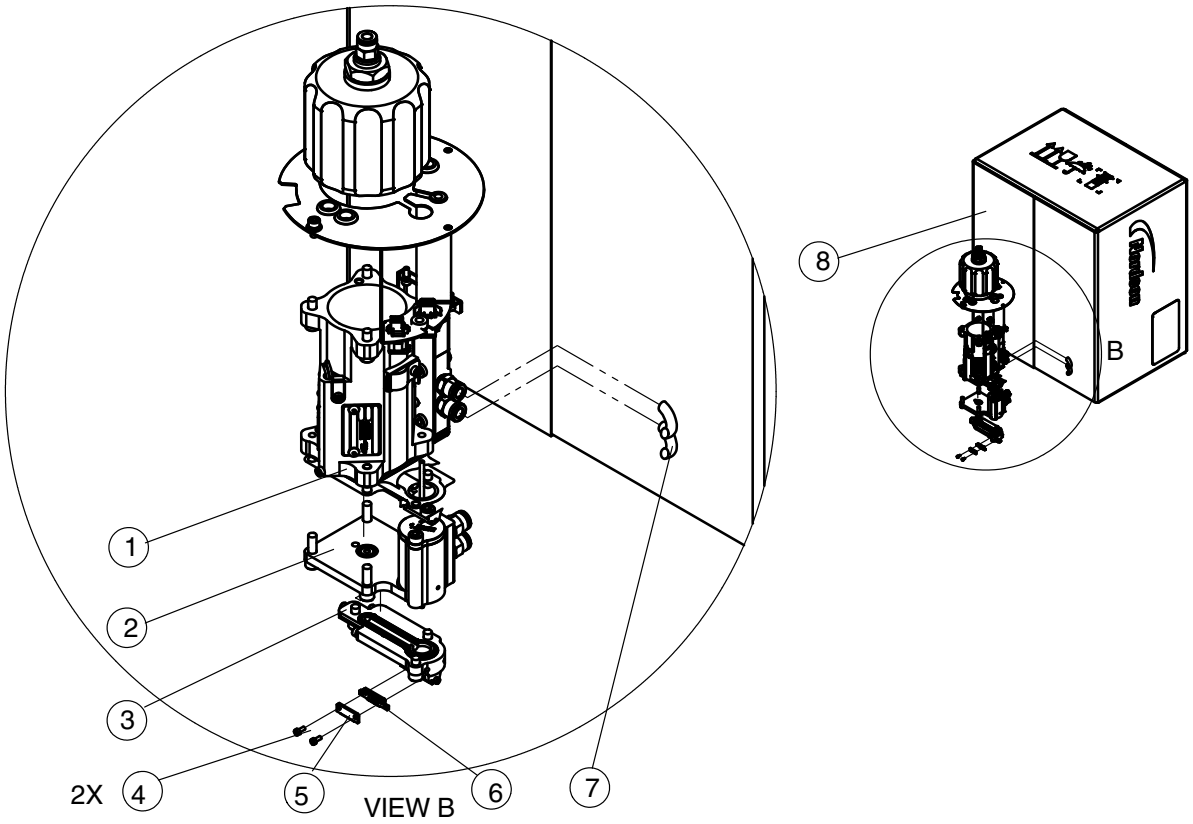

Figure 17 Flexseam slot dispenser applicator parts

Flexseam Jetting Applicator

See Figure 18.

Item	Part	Description	Quantity	Note
	7404527	APPLICATOR,JETTING,SEPA,0.17,4AX		
1	------	MODULE BODY,FS	1	
2	------	MODULE,PUMP,300CC,FLEXSEAM,JETTING	1	
3	------	MODULE,PLATE,SEPA,JETTING,FS300	1	
4	7404247	KIT-SVC,NOZZLE,SEPA,DUAL,JDN1	1	
5	------	SCR,SKT,M5X8,BL	2	
6	------	MODULE,PACKAGE,300CC	1	
7	------	BOOKLET,WARNING AND CAUTION TAG	1	
NS	------	KIT, SHIP WITH FS	1	
NS: Not Shown				

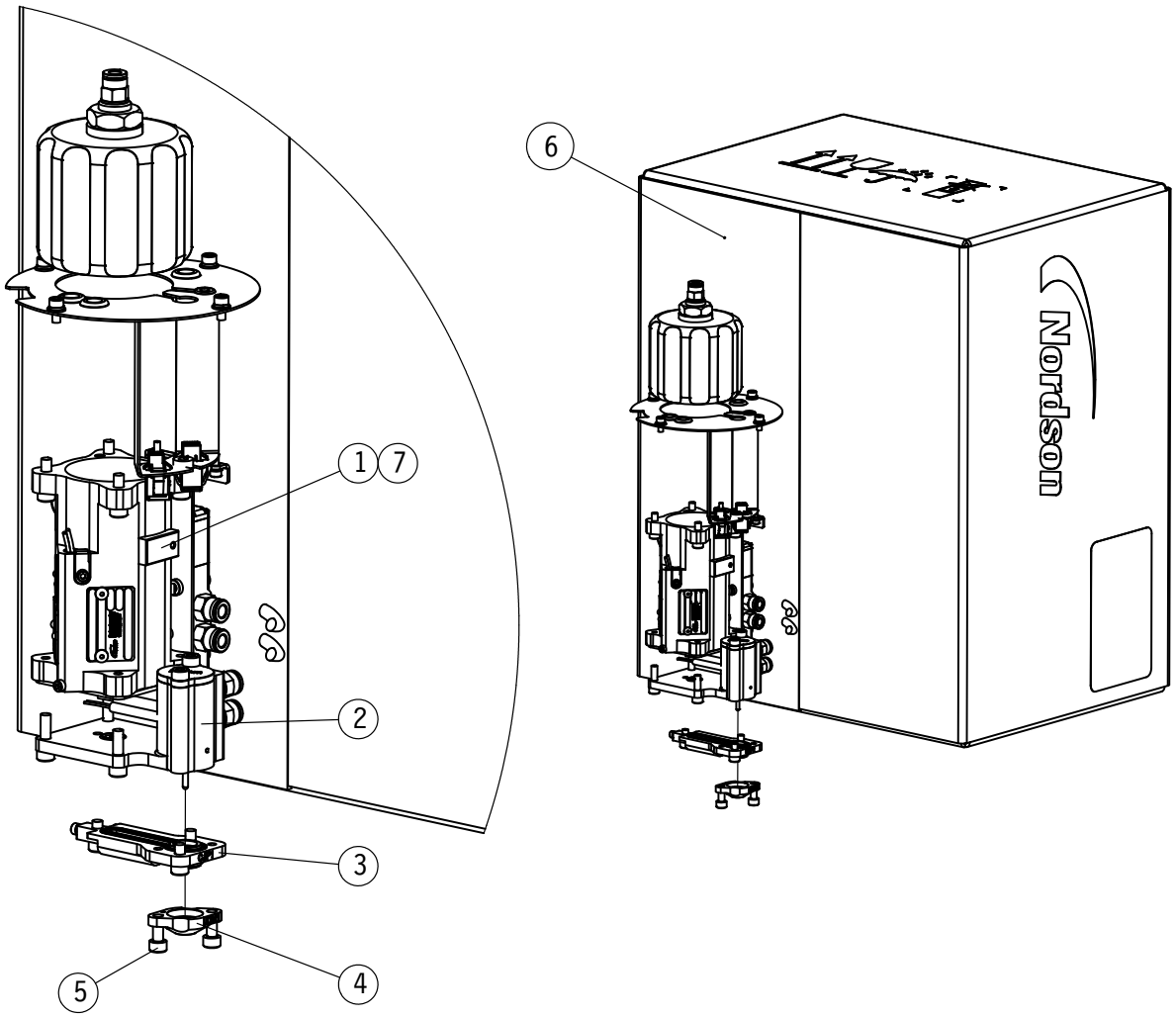

Figure 18 Flexseam slot dispenser applicator parts

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Flexseam Module Body Parts

See Figure 19.

Item	Part	Description	Quantity	Note
	------	MODULE BODY,FS		
1	------	COPPER FITTING,G1/8-Φ6	1	
2	7407706	KIT-SVC,CAP,300CC	1	
3	------	SCR,SKT,M4X8,SST	4	
4	------	WASHER,FLT,M,NARROW,M4,STL,ZN	4	
5	------	WASHER,LK,M,SPT,M4,STL,ZN	4	
6	------	Φ8-1.0mm,PROTECTIVE RING	3	
7	------	Φ4.8-1mm,OPEN BUSHES	2	
8	------	COVER AND BRACKET, FS	1	
9	------	CORDSET,IC30 2HC,9 WIRE,1.5M	1	
10	7407698	KIT-SVC,HARNESS,CARTRIDGE HEATER&RTD	1	
11	------	WIRE CLIP, 8-M3	2	
12	------	SCR,SKT,M3X0.5X6,ZN	5	
13	------	BRACKET FOR SOLENOID VALVE	1	
14	------	CONN,MALE,ELBOW,8MM T X 1/8UNI	3	
15	7407694	KIT-SVC,SOLENOID,VALVE,HIGH FREQUENCY,FS	1	
16	------	SCR,SKT,M3X8,BL	10	
17	------	WASHER,FLT,M,REG,M3,ZINC PLATE	2	
18	------	WASHER,LK,M,SPT,M3,STL,ZN	2	
19	------	SCR,SKT,M4 X 20,ZN	2	
20	------	CONN,MALE,6MM T X 1/8 UNI	2	
21	------	BLOCK SHEET,IC30 2HC	2	
22	7404199	KIT-SVC,INSULATION, CARTRIDGE	1	
23	7404200	KIT-SVC,O-RING, MODULE PLATE	1	
24	7407699	KIT-SVC,HARNESS,NOZZLE HEATER&RTD	1	
25	------	PISTION INSERT,SEAL,FS300	1	
26	------	CATRIDGE BODY,FS300,4AXIS	1	
27	------	SCR,SKT,M5X16,BL	4	
28	------	TAG,STAMPING,W/ADDRESS INFO	1	
29	------	RIVET,BLIND,3/32X.125,BLK,ALUM	2	
30	------	SIGN,DANGEROUS VOLTAGE	1	
31	------	SCR,DRIVE,RD,2X .187,ZN	2	
32	------	NOTCHED TAPER PIN 1,7x4 DIN1476	2	
33	------	TAG,HOT SURFACE,GENERAL 24x19	1	
NS	------	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1	
NS	------	LUBRICANT,NEVER-SEEZ,NSF-H1,FOOD GRADE	1	
36	7403228	CABLE,M8 MALE 0,FEMALE 90	1	

NS: Not Shown

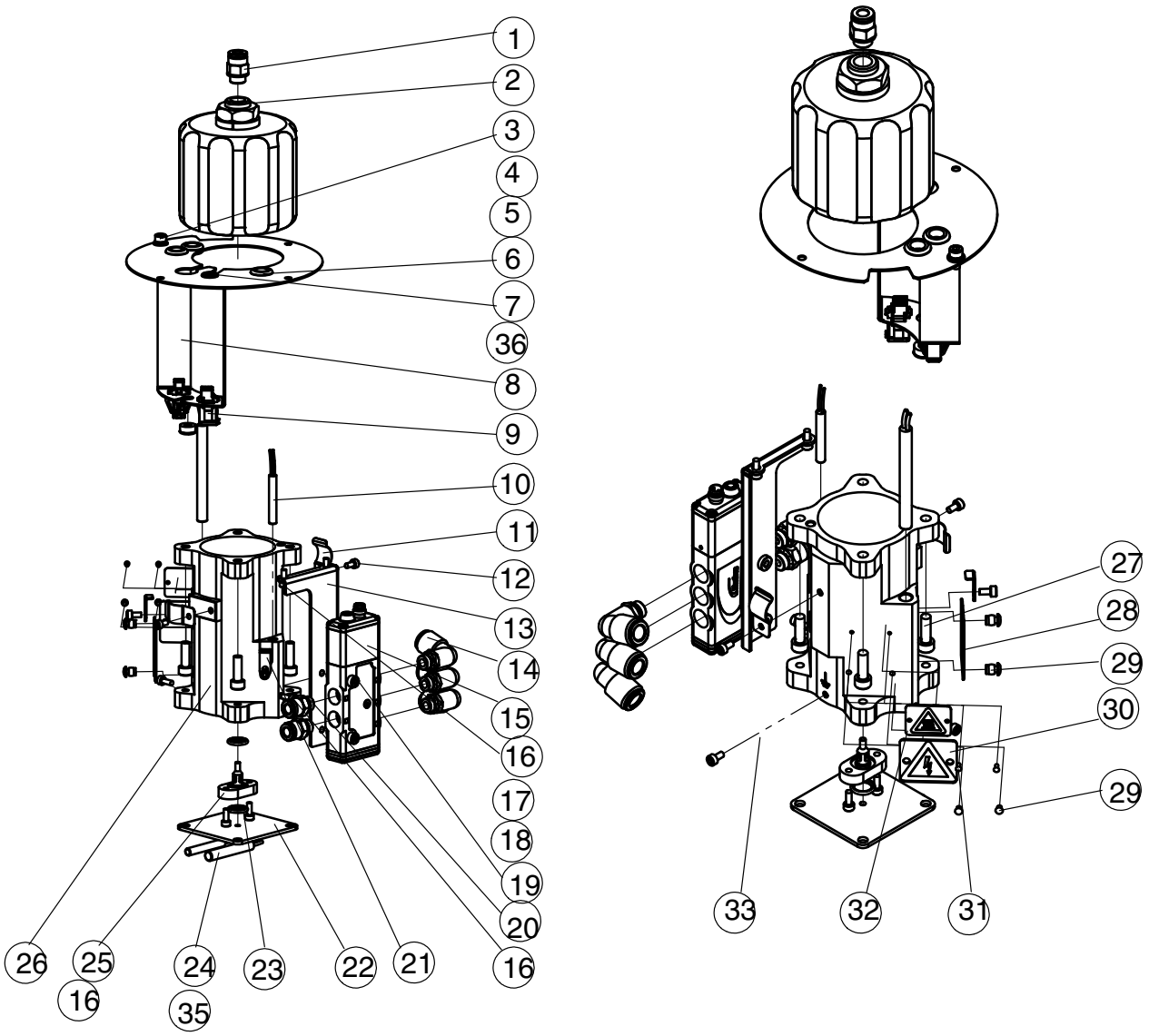

Figure 19 Flexseam module body parts

Flexseam Pump Module 300CC Parts

See Figure 20.

Item	Part	Description	Quantity	Note
	------	MODULE,PUMP,300CC		
1	------	COPPER FITTING,G1/8-Φ6	2	
2	------	MODULE,BODY,FS	1	
3	7404200	KIT-SVC,O-RING, MODULE PLATE	1	
4	7407700	KIT-SVC,NEEDLE,FLAT,FS	1	SLOT COATING
	7404249	KIT-SVC,NEEDLE,RN1,FS	1	JETTING
5	------	O RING,VITON, .500X .688X.094	1	
6	7407702	KIT-SVC,O-RING,NEEDLE,10/PACK,FS	1	
7	7407704	KIT-SVC,O-RING,AIR CAP,10/PACK	1	
8	7407703	KIT-SVC,AIR CAP,1.5MM	1	SLOT COATING
	7404244	KIT-SVC,AIR CAP,2.0MM	1	JETTING
9	------	SCR,SKT,M5X10,ZN	2	
10	------	RETAINING RING,INT, 43,PUSHON	2	
11	------	DISC,SEAL SUPPORT	2	
12	7407701	KIT-SVC,O-RING,MODULE PUMP,FS	1	
13	------	SCR,SKT,M5X18,ZN	4	
14	------	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L1	1	

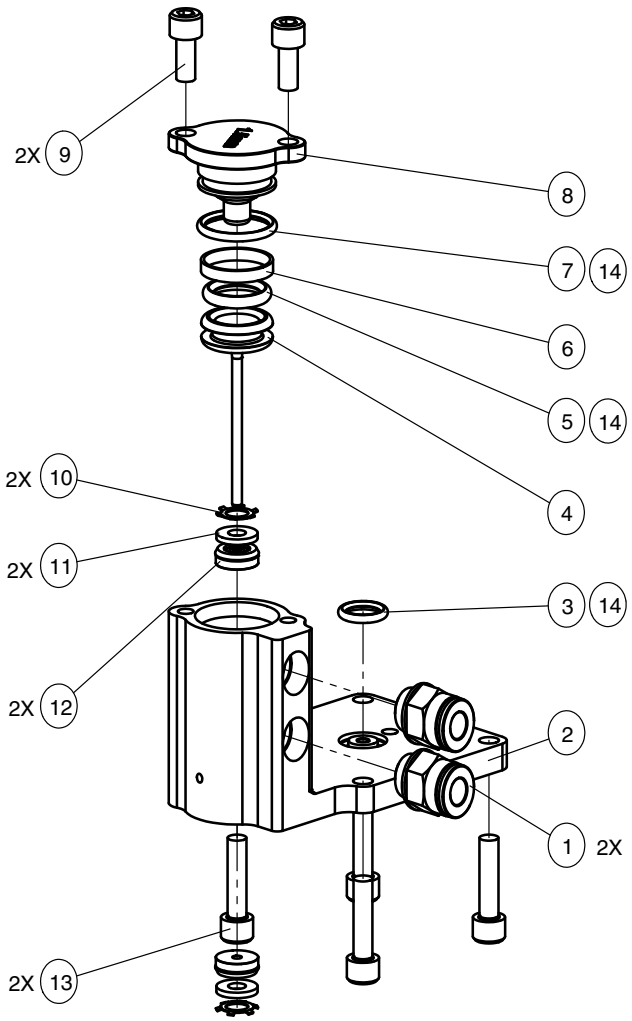

Figure 20 Flexseam Pump Module 300CC parts

Nozzle Plate Module FS300 Parts

See Figure 21.

Item	Part	Description	Quantity	Note
	------	MODULE,NOZZLE PLATE,FS300		
1	7407697	KIT-SVC,NOZZLE PLATE 7-10MM,FS	1	A
	7404539	KIT-SVC,NOZZLE PLATE 7-10MM,C,FS	1	B
2	------	SCR,SKT,M3X8,BL	3	
3	7407705	KIT-SVC,O-RING,NOZZLE PLATE	1	
4	------	CAPSCRM,SOCKETHEAD,M2x0.4	2	
5	------	SCR,SKT,M5X10,ZN	3	
6	------	LUBRICANT,O-RING,NSF-H1,FOOD GRADE,4L	1	

NOTE A: Apply to 7-10mm dispensed adhesive width for the chemical fabric.
B: Apply to 7-10mm dispensed adhesive width for the cotton fabric.

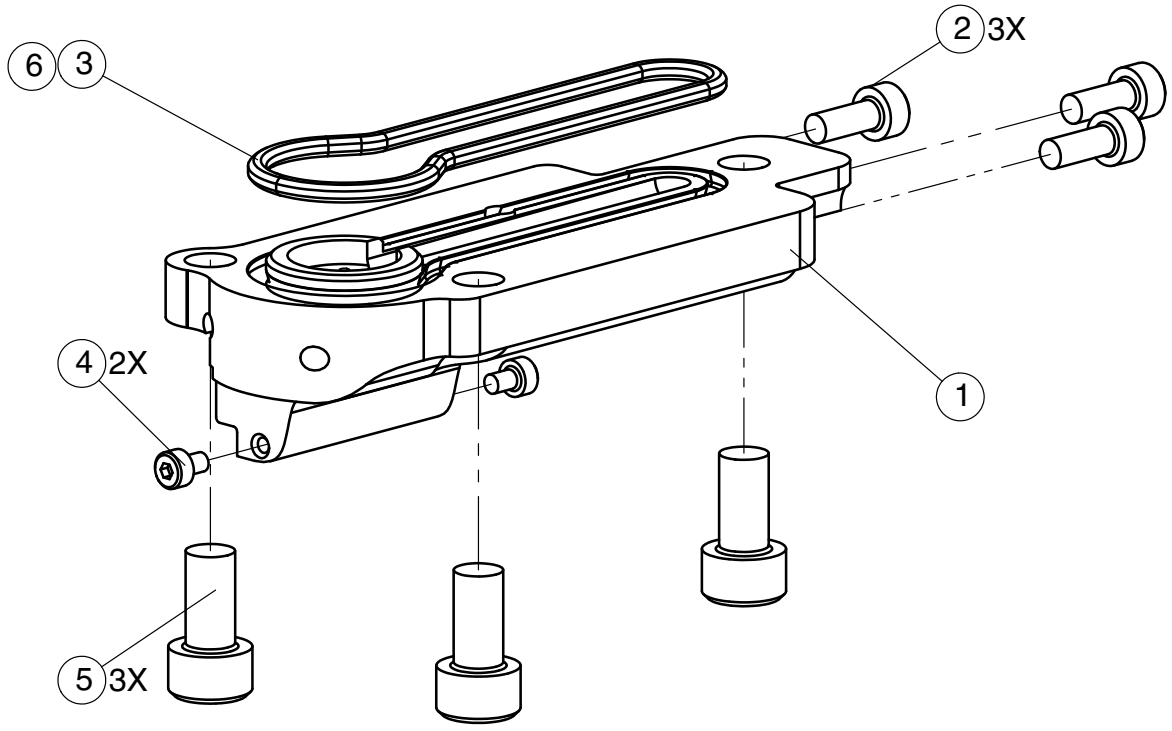

Figure 22 Nozzle plate module FS300 parts

Nozzle Plate SEPA Jettiing FS300 Parts

See Figure 23.

Item	Part	Description	Quantity	Note
1	7404246	KIT-SVC,PLATE,SEPA,JP!,DUAL DOTS	1	
2	------	SCR,SKT,M3X8,BL	1	
3	------	SCR,SKT,M2X5,ZN	2	
4	7407705	KIT-SVC,O-RING,NOZZLE PLATE	1	
5	7404248	KIT-SVC,O-RING,NOZZLE,JP!,FS	1	
6	------	SCR,SKT,M5X10,ZN	3	

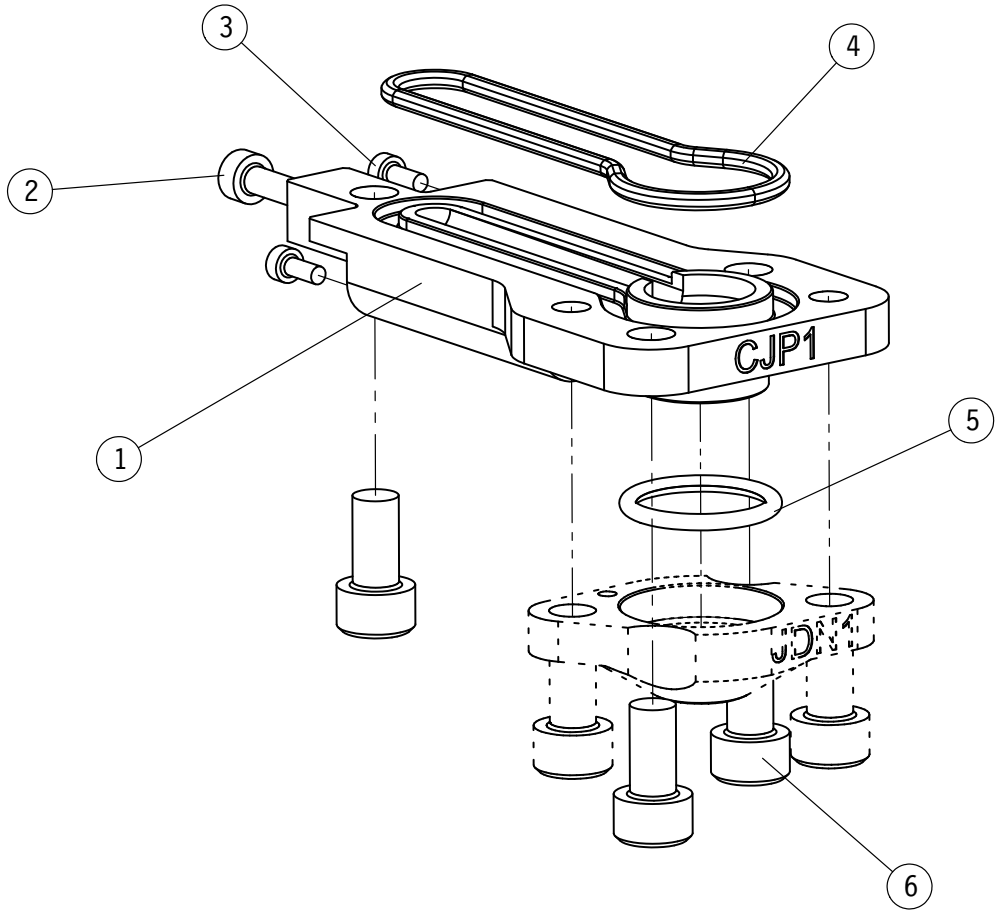

Figure 24 Nozzle plate SEPA Jetting FS300 parts

Flexseam Module Package Parts

See Figure 25.

Item	Part	Description	Quantity	Note
	------	MODULE,PACKAGE,FS		
1	------	INSERT,TOP,PACKAGE,FS	1	
2	------	INSERT,BOTTOM,PACKAGE,FS	1	
3	------	BOX,CARDBOARD,425L X 350W X 245D	1	
4	------	LABEL,BLANK,3.00X5.00	1	

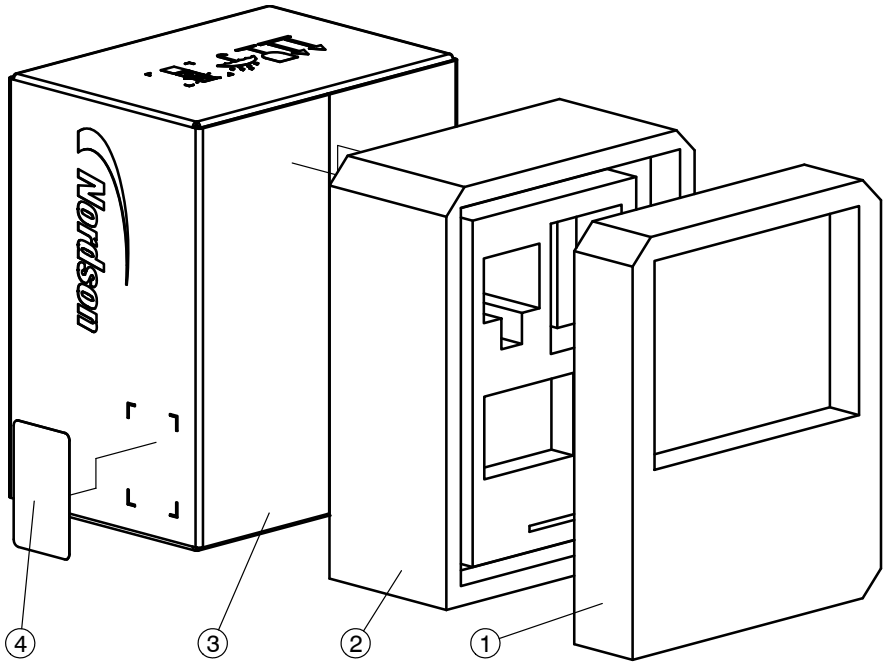

Figure 25 Flexseam module package parts

Flexseam Ship-with Kit

Item	Part	Description	Quantity	Note
	------	KIT,SHIP WITH FS		
1	------	CHECK VALVE,SYRINGE, ASSY,PJ300	1	
2	7402541	CORDSET,SOL,PJ,UNITY TOUCH	1	
3	------	MAN,FLEXSEAM SLOT DISPENSER	1	
4	------	BAG,POLY,KITS,ROLLS,5X7	3	
5	------	BAG,POLY,KITS,ROLLS,3 1/2X5 1/2	4	
6	------	SCR SKT M2x5,ZN	4	
7	------	SCR,SKT,M4X8,SST	4	
8	------	WASHER,FLT,M,NARROW,M4,STL,ZN	4	
9	------	WASHER,LK,M,SPT,M4,STL,ZN	4	
10	------	SCR,SKT,M5X16,BL	2	
11	------	SCR,SKT,M3X8,BL	2	
12	------	WASHER,FLT,M,REG,M3,ZINC PLATE	2	
13	------	WASHER,LK,M,SPT,M3,STL,ZN	2	

Lip Part Numbers

See Figure 26.

Part	Description
7402556	L LIP COVER,7-10MM,FS
7403295	LIP,SLOT,ROBOT,0.3X0.6MM,8MM,4DOTS
7403299	LIP,SLOT,ROBOT,0.3X0.6MM,10MM,5DOTS
7404508	LIP,SLOT,ROBOT,0.2X0.35MM,7MM,4DOTS
7404509	LIP,SLOT,ROBOT,0.3X0.3MM,9MM,5DOTS
7404622	L LIP COVER,7-10MM,I,FS

Figure 26 Lip parts

1. Nozzle lip
2. Shave lip (with mark)

Recommended Spare Parts and Supplies

Equipment	Part	Item	Note
System	1094186	DRYER,AIR,DESICCANT,INLINE,1/4NPT	
Flexseam Applicator	7407694	KIT-SVC,SOLENOID VALVE,HIGH FREQUENCY,FS	
	7407697	KIT-SVC,NOZZLE PLATE 7-10MM,FS	A
	7407698	KIT-SVC,HARNESS,NOZZLE HEATER&RTD	
	7407699	KIT-SVC,HARNESS,CARTRIDGE HEATER&RTD	
	7407700	KIT-SVC,NEEDLE,FLAT,FS	
	7407701	KIT-SVC,O-RING,MODULE PUMP,FS	
	7407702	KIT-SVC,O-RING,NEEDLE,10/PACK,FS	
	7407703	KIT-SVC,AIR CAP,1.5MM	
	7407704	KIT-SVC,O-RING,AIR CAP,10/PACK	
	7407705	KIT-SVC,O-RING,NOZZLE PLATE	
	7407706	KIT-SVC,CAP,300CC	
	7404199	KIT-SVC,INSULATION, CARTRIDGE	
	7404200	KIT-SVC,O-RING, MODULE PLATE	
	7402541	CORDSET,SOL,PJ,UNITY TOUCH	
	7403228	CABLE,M8 MALE 0,FEMALE 90	
	7404246	KIT-SVC,PLATE,SEPA,JP1,DUAL DOTS	
	7404247	KIT-SVC,NOZZLE,SEPA,DUAL,JDN1	
	7404248	KIT-SVC,O-RING,NOZZLE,JP1,FS	
	7404244	KIT-SVC,AIR CAP,2.0MM	
	7404249	KIT-SVC,NEEDLE,RN1,FS	

NOTE A: Apply to 7-10mm dispensed adhesive width for smooth fabric.

Technical Data

Flexseam Dispensing System Specifications

Component	Item	Specification
System	Transport temperature	-45-75 °C (-49-167 °F)
	Storage temperature	-45-75 °C (-49-167 °F)
	Ambient temperature	0-40 °C (32-104 °F)
	Humidity	10-95% non-condensing
Flexseam applicators	Weight	Flexseam applicator: 7kg (15.4 lb)
	Material compatibility	Rated for use with all commercially available pressure sensitive and EVA hot melt adhesives and polyurethane reactive (PUR) adhesives, excluding any compound that contains polyamides
	Adhesive viscosity	Varies depending on nozzle size and flow rate
	Operating temperature	40° to 160/230° C (104° to 320/446° F)(160° C/320° F only for Zone1)
	Working hydraulic pressure	2 to 6 bar (29 to 87psi)
	Maximum hydraulic pressure	6 bar (87 psi)
	Maximum applicator running speed	200 mm/s
	Actuation air pressure	5 bar (72.5 psi) recommended
	Temperature control stability	±1°C (2°F)
	Temperature control sensor	Ni120
	Electrical service	230 VAC 1 phase 50/60 Hz
	Installation dimensions	(W x H x D) 1420 x 632 x 1791 mm (55.9 x 24.9 x 70.5 in.)