PatternJet Adhesive Dispensing Gun

Customer Product Manual
Part 1063110A
Issued 3/06

NORDSON CORPORATION • DULUTH, GEORGIA • USA
www.nordson.com

For CE Declaration, refer to melter manual.

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.

Address all correspondence to:

Nordson Corporation
Attn: Customer Service
11475 Lakefield Drive
Duluth, GA 30097

Notice

Trademarks

Table of Contents

PatternJet Adhesive Dispensing Gun

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 and that the processing characteristics of the material will not create a hazardous environment. Refer to the Material Safety Data Sheet (MSDS) 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.

Installation Practices (contd)

- 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 MSDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- 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 factory-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the MSDS supplied with equipment cleaning compounds.

  NOTE: MSDSs 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 MSDS 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, guns, 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 Guns

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

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

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, guns, etc.)

PC = Process control

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

Table 1 General Safety Warnings and Cautions

Equipment Type	Warnings and Cautions
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 MSDS. 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 MSDS 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 guns 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.
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 guns. Before working on or near an operating gun, disable the gun's triggering device and remove the air supply to the gun's solenoid valve(s). Failure to disable the gun's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.

Continued...

General Safety Warnings and Cautions (contd)

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

Equipment Type	Warnings and Cautions
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 should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the MSDS 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.

Continued...

Equipment Type	Warnings and Cautions
HM	 **CAUTION:** Hot surfaces! Avoid contact with the hot metal surfaces of guns, 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 MSDS 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 handgun at yourself or others.
- Suspend dispensing handguns 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 MSDS 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.

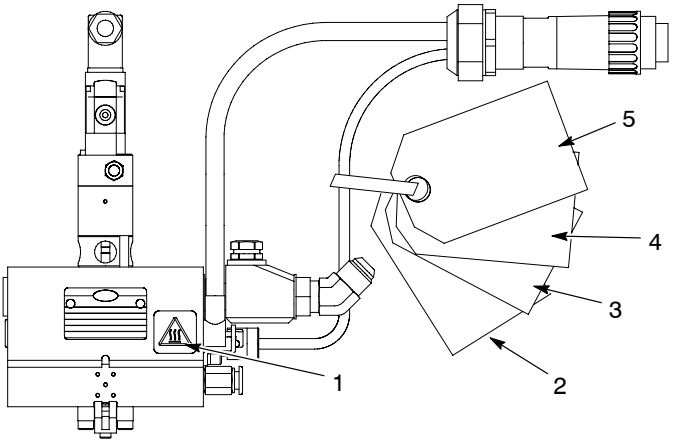


Figure 1: Safety labels and tags

Table 2 Safety Labels and Tags

Item	Part	Description	
1.	N/A		**WARNING**: Hot Surface! Before touching the gun body, allow the gun to cool, or wear heat−protective gloves. Failure to allow the gun body to cool or to wear heat−protective gloves may cause personal injury.
2.	600137		**WARNING**: Disconnect power and remove system pressure before disassembly or maintenance. Failure to follow these instructions may result in serious personal injury.
3.	243352		**WARNING:** Fire, injury, or equipment damage can result if cleanout materials do not meet the following requirements: a. Minimum flashpoint to be 550°F (288°C). b. Liquid and vapor to be non-toxic at use temperature in equipment. c. Chemical reactions with adhesive and equipment materials must not be violently heat producing. d. Cleanout material must not corrode or otherwise weaken equipment materials.
4.	600103		**CAUTION:** This gun is RTD (resistance temperature detector) controlled. Prior to operation and before changing adhesive, consult instruction manual for changing operating temperature. Failure to follow instructions may result in personal injury or property damage.
5.	243352		**CAUTION:** This equipment is factory tested with Nordson type R fluid containing Polyester Adipate plasticizer. Certain adhesives may react with the type R fluid residue to form solid gum, which can be difficult to remove.To avoid equipment damage, check with adhesive supplier regarding compatibility and cleanout procedure before putting adhesive into the system.

Description

The PatternJet gun accurately applies adhesives on high-speed labeling applications. Available nozzles include Universal Controlled Fiberization (CF), Universal Summit, MiniBead and slot. Figure 2 shows the key components of the PatternJet module parts family.

Theory of Operation

Adhesive is heated to application temperature, which is typically about 177 °C (350 °F), in a melter. The melter pumps the adhesive through a heated hose to the gun. The gun then dispenses the adhesive through dispensing modules onto a product. The type of nozzle used on the modules determines the type of adhesive pattern produced.

The gun requires two air supplies: one to actuate the modules (module-actuating air) and one to supply the air that shapes or fiberizes the adhesive exiting the modules (pattern air). The module-actuating air is controlled through solenoid valves that are installed on the gun and connected to a module-actuating air supply line with an air pressure regulator. The pattern air is usually controlled through an air pressure regulator installed in a pattern air supply line.

The adhesive manifold and heated air manifold are heated by cartridge-type heaters. Power is supplied to the heaters through a cordset, which is connected electrically to the hose or to some combination of splitter and extension cables. Resistance temperature detectors (RTDs) sense the temperature of the adhesive or air in the manifolds and relay the temperature through the cordsets and hoses to a melter control system or to a standalone temperature controller.

The pattern in which adhesive is dispensed onto the product is determined by:

- the number and spacing of the modules
- the choice of nozzle
- the distance at which the nozzle is placed above the product
- the production line speed
- the adhesive add-on weight (melter pump speed and pressure)
- the pattern air pressure
- the pattern air temperature
- the adhesive application temperature
- the type of adhesive used
- the viscosity of the adhesive used

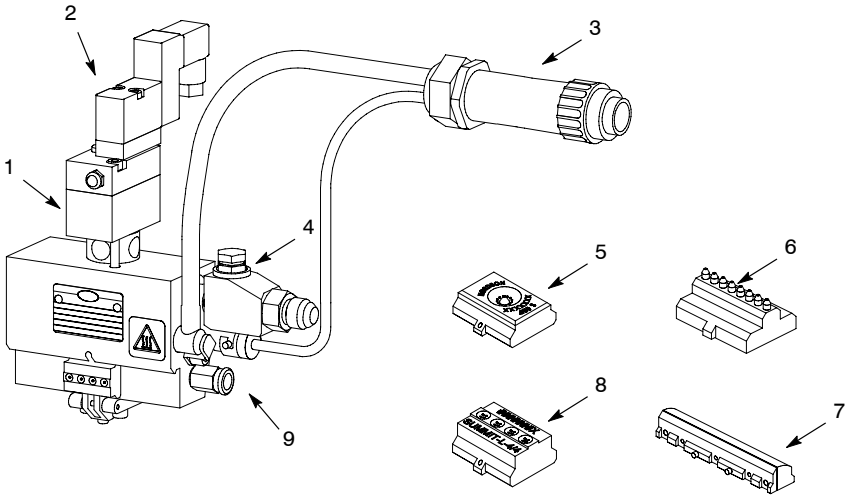


Figure 2: PatternJet (single module shown) and associated nozzles (sold separately)

1. PatternJet control module
2. Solenoid valve
3. Cordset
4. Saturn filter
5. Universal CF nozzle
6. MiniBead nozzle
7. Slot nozzle
8. Summit nozzle
9. Pattern air inlet adapter

Module Overview

The PatternJet gun is air-actuated (or air-open), meaning that an air supply controlled by a solenoid valve is required to open the module. The actuating air lifts the needle-and-piston assembly inside the module, thus opening the module and allowing adhesive to flow through the nozzle onto the product. Modules are also air-closed. In air-open, air-close (AOAC) modules, the actuating air (rather than a spring) returns the needle-and-piston assembly to the closed position.

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 3 shows the flow of adhesive and air through a PatternJet module.

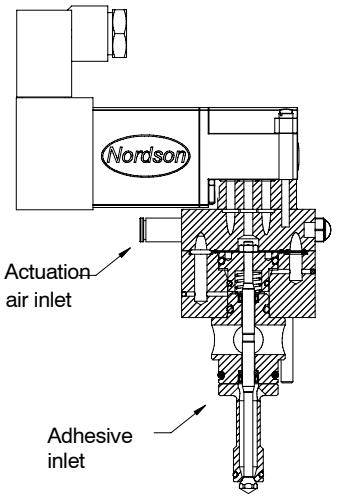


Figure 3: Flow of adhesive and air through a PatternJet module

Installation

Mount the Gun

Mounting the gun includes selecting an appropriate mounting location and installing any necessary mounting hardware on the production line.

1. Select a mounting location. Use the following guidelines:

- Make sure there will be enough clearance to
  - service the Saturn filter
  - drain adhesive
  - replace heaters, sensors, or thermostats
  - replace a solenoid valve, module, or nozzle
  - route and replace air tubing and hoses

  NOTE: Refer to the gun reference drawing in *Parts* for the gun dimensions.
- Choose a location that will not subject the gun to extreme temperature variations or equipment vibration. The ambient temperature should be 0–49 °C (32–120 °F).
- Choose a location that will allow you to properly route the hoses from the gun to the melter.
- Choose a location close to a supply of dry, regulated, unlubricated air.

2. Secure the gun at the mounting location. Adjust the gun height and angle as appropriate.

   NOTE: The gun should be parallel to the surface onto which the adhesive is to be applied.

Connect the Hose

Do not connect the hose cordsets at this time.

1. Observe the guidelines in Figure 5.

See Figure 4.

2. Connect the hose to the Saturn filter adhesive supply port on the gun.

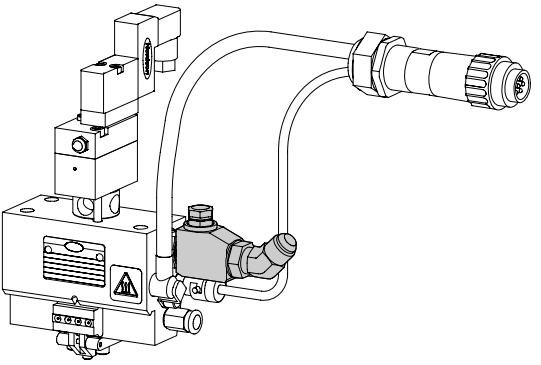


Figure 4: Saturn filter

CAUTION: Risk of equipment damage. Do not use nonconductive pipe compound or tape on hose fittings.

CAUTION: Improper routing and venting of hoses could result in overheating, damage, and poor adhesive flow. To ensure proper operation, do not bundle or tie-wrap hoses, do not bend hoses at sharp angles, and do not allow hoses to lay on concrete floors or other cool surfaces that could conduct heat away from the hoses.

3. Route the hose to the melter and connect it to the melter hydraulically and electrically as directed in the melter manual.

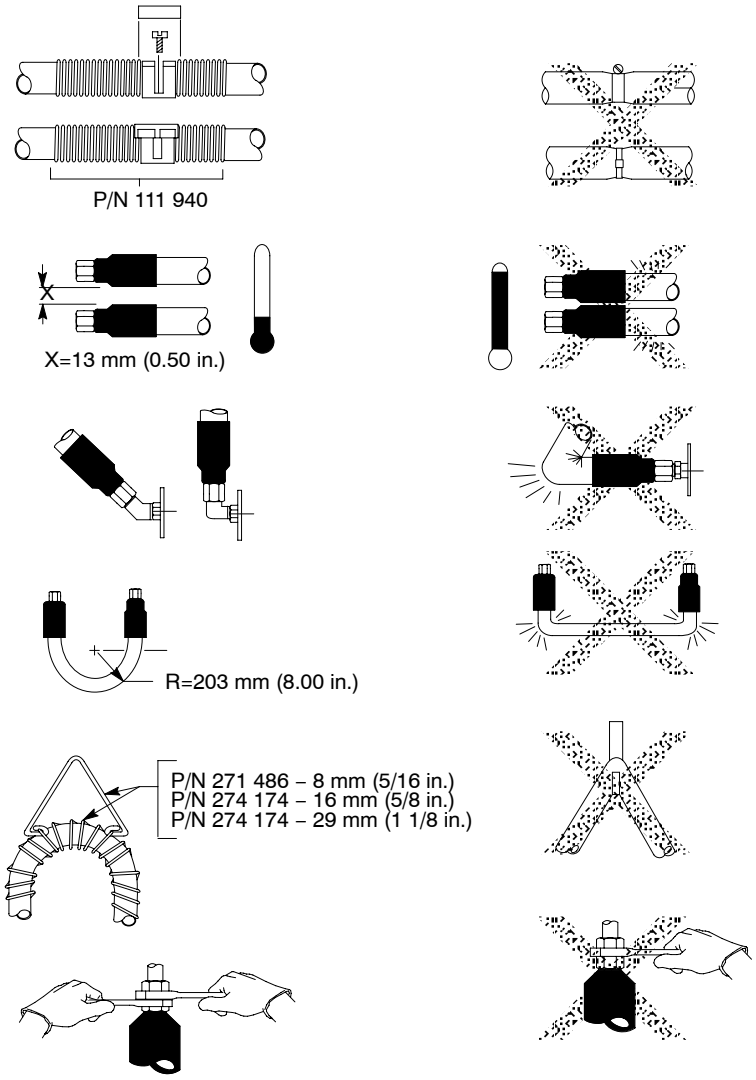


Figure 5: Hose installation guidelines

Air Supply Installation

Follow these procedures to connect air supplies to the gun.

Connect the Module-Actuating Air and Pattern Air

See Figure 6.

1. Connect a supply of dry, regulated, unlubricated air to the solenoid valve(s) on the gun. Nordson Corporation recommends installing an air pressure regulator and filter in the module-actuating air supply line that is capable of regulating the air pressure up to 6.2 bar (90 psi). For the module-actuating air pressure range, refer to *Specifications*.
2. Nordson Corporation recommends installing a separate air pressure regulator and filter in the pattern air supply line that is capable of regulating the pattern air pressure up to 28.3 nlm (1 scfm) flow rate per nozzle.

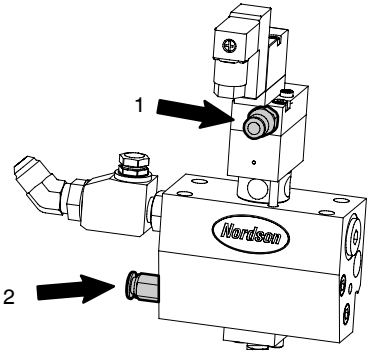


Figure 6: Location of the module-actuating air inlet and the pattern air inlet

1. 6 mm air supply tubing for module actuation
2. 6 mm air supply tubing for pattern air

Connect the Solenoid Valves

Electrically connect the solenoid valve to a triggering device so that the modules will open and close at the appropriate times.

1. The power requirement for the solenoid valve is as follows:
   - Boosted valves – 24 VDC – 1 amp/solenoid spiked
   - Non-boosted valves – 24 VDC – $^1/_4$ amp/solenoid

See Figure 7.

2. Loosen the connector screw (1), and then disconnect the quick-disconnect connector(s) (2) from the solenoid valve coil(s) (4).
3. Loosen the connector strain relief nut (2).

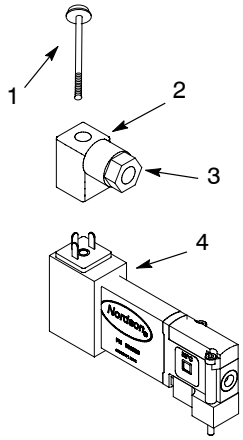


Figure 7: Remove the quick-disconnect connector from a solenoid valve

CAUTION: Solenoid valves must be rated for the output voltage of the triggering device. Make sure the ratings match.

See Figure 8.

4. Thread a customer-supplied 0.75–0.34 mm^2 (18–22 AWG) three-conductor cable through the strain relief, and then connect
   - the positive and negative leads to terminals 1 and 2 [normal polarity, 1 = (+) and 2 = (–)]
   - the ground wire to the ground terminal.

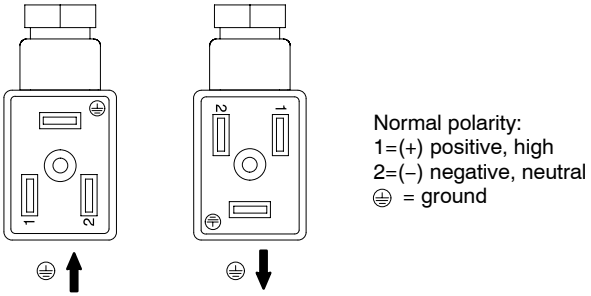


Figure 8: Solenoid valve terminal block configurations

See Figure 7.

5. Snap the quick-disconnect connector (2) onto the solenoid, and then tighten the strain relief nut (3).
6. Plug the connector into the solenoid valve, securing it with the screw (1) removed earlier.
7. Connect the three-conductor cable to the triggering device. Refer to the instructions that came with the triggering device.

Connect the Cordsets

Refer to the melter manual for instructions regarding proper cordset connection to the melter.

Flush the Gun

Flushing the gun removes cleaning solution, adhesive, and other contaminants from the equipment. The gun should be flushed before initial use and anytime you change the adhesive in the hot melt system. This helps prevent clogging of the filter or nozzles and makes the gun work more efficiently.

Prepare for Gun Flushing

1. Determine whether you need to flush the gun with adhesive or with cleaning fluid and then with adhesive. Refer to Table 3.

Table 3 Gun Flushing Situations

Situation	Flushing Materials to Use
Initial startup	Adhesive only
Changing adhesive in the system	a. Cleaning solution compatible with both the old and new adhesive b. New adhesive (to remove the cleaning solution)

2. Heat the system to application temperature. Refer to the melter manual as needed.
3. Stop the melter pump(s).
4. Place drain pans under the gun, the hose connections, and the modules.

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

5. Relieve system pressure. Refer to *Safety*.
6. Flush the gun by performing the following procedures with each flushing material to be used.

Flush the Hose

Follow this procedure to flush the hose. Refer to the melter manual as needed for instructions on starting and stopping the melter pump(s).

a. Disconnect the hose from the gun and direct the end of the hose into a waste container.

b. Start the melter pump(s).

c. When the adhesive flowing from the hose is free of any solvent or contaminants, stop the melter pump(s).

d. Wipe any adhesive from the hose connector.

e. Reconnect the hose to the gun.

Flush the Gun

Follow this procedure to flush the gun. Refer to the melter manuals as needed for instructions on starting and stopping the melter pump(s).

a. Set the pattern air pressure to 0.1–0.3 bar (2–5 psi).

b. Remove the nozzles from the manifold. Refer to the nozzle removal procedure as needed.

c. Place a drain pan under the manifold.

d. Turn on the module-actuating air.

e. Start the melter pump(s).

f. Allow some adhesive to drain from the manifold. When the adhesive flowing from the manifold is free of any contaminants, stop the melter pump(s).

g. Wipe any adhesive from the manifold.

h. Reinstall the nozzles onto the manifold.

Test the Gun

Perform tests as needed to ensure that the gun output meets the requirements of your application. When testing, proceed systematically by changing only one production variable (such as the system pressure) at a time. If changing the variable does not produce the desired result, return it to its original state and try changing a different variable. Proceed in this manner until the desired gun performance is achieved. Contact your Nordson representative for assistance as needed.

Operation

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.

This section provides procedures for operating the gun. Before you operate the gun for the first time, make sure you have

- completed the installation procedures in *Installation*
- flushed the gun
- optimized the gun output for your application as described in *Gun Testing* in *Installation.*

Before you perform any operating procedures, review the *Safety* section of this manual.

Starting and Shutting Down the Gun

Because the melter supplies the adhesive and the electrical power to the gun, the procedures for starting and stopping the gun vary depending on the type of melter you are using. Refer to the melter manual for complete startup and shutdown procedures.

Start the Gun

Starting the gun involves starting the melter and enabling the module-actuating and pattern 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.

NOTE: Pneumatic and hydraulic pressure ranges are provided in *Specifications*.

Shut Down the Gun

1. Stop the production line.
2. Stop the melter pump(s).
3. Relieve system pressure. Refer to *Safety.*
4. Shut off the pattern air.
5. Shut off the module-actuating air.
6. Shut down the melter.

Adjust the Adhesive Pattern

Use the following techniques to modify the adhesive pattern:

- adjust the adhesive add-on weight (melter pump speed and pressure)
- adjust the electronic control device (timer or pattern controller)
- adjust the pattern air pressure
- adjust the pattern air temperature
- adjust the adhesive application temperature
- change the type of adhesive used
- \change the nozzle type or size
- adjust the gun height

If you experience problems obtaining the desired adhesive pattern, refer to the pattern control trouble shooting table in *Troubleshooting*.

Maintenance

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.

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

Before you perform any maintenance procedures, review the *Safety* section.

Required Tools and Supplies

To perform maintenance or repairs, you will need:

- a set of metric Allen (hex) wrenches
- a set of metric T-handle hex keys
- a set of metric open-ended wrenches
- drain pans and large waste containers
- other tools and supplies as noted

Recommended Maintenance Schedule

Table 4 provides a list of recommended maintenance activities. Base how often you perform these activities on your specific operating needs. The frequency shown is for reference only.

Table 4 Recommended Maintenance Schedule

Frequency	Maintenance Activity
Daily	• Keep the supply of adhesive clean and free of contaminants. Foreign particles in the adhesive can clog the filter or nozzles. • Clean all exterior gun surfaces. Accumulated adhesive can char and cause erratic operation. • Check the hose connections for leaks. If a leak is found, replace the hose fitting and/or O-ring as appropriate.
Weekly	• Clean nozzles. Refer to the nozzle cleaning procedure in Section 9, *Module*.
As needed	• Service the Saturn filter. • Verify that all electrical connections are secure. Vibration and heating or cooling cycles can loosen wire connections. • Clean the air pressure regulator filter elements. Refer to the air pressure regulator documentation. • Clean the system. Refer to the system cleaning procedure in the melter manual.

Troubleshooting

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.

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your Nordson representative for assistance.

Troubleshooting begins when the flow of adhesive from the gun stops or diminishes unexpectedly or when a control system alerts you of a problem through an alarm or visual display.

Troubleshooting Tables

The troubleshooting tables in this section describe the kinds of problems you may encounter and provide corrective actions for those problems. When necessary, the tables refer to more detailed troubleshooting procedures located in either the *Troubleshooting Procedures* part of this section.

Refer to the appropriate troubleshooting table for the type of problem you are experiencing:

- *Gun Heating Problems*
- *Adhesive Output Problems*
- *Adhesive Leakage Problems*
- *Air Supply Problems*
- *Pattern Control Problems*

To troubleshoot melter or hose problems, refer to the melter manual.

NOTE: Some of the problems listed in this troubleshooting table may not apply to the adhesive application you are troubleshooting. Contact your Nordson representative as needed for troubleshooting assistance.

Gun Heating Problems

Refer to this troubleshooting table if the gun does not heat, underheats, or overheats.

NOTE: Each heated component in a hot melt system (typically the grid, the reservoir, each hose, and each gun) is referred to as a heated zone. The gun heated zones are the gun adhesive manifold and the heated air manifold.

WARNING: Risk of personal injury or death. Allow only qualified personnel to perform electrical installation, troubleshooting, or repair procedures. Before performing any electrical procedure, review *Safety*, and disconnect and lock out electrical power to the system.

Problem	Possible Cause	Corrective Action
1. Gun 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 melter and the gun ends of the hoses) are secure.
	Broken or missing electrical pins	Check for broken or missing pins at all electrical connections. Repair or replace damaged components.
	Adhesive or heated air manifold temperature setpoints too low	Adjust the temperature setpoints as necessary. Refer to the melter or temperature controller manual.
2. Gun underheats or overheats	System in standby or setback mode	Take the system out of standby or setback mode.
	Adhesive manifold, heated air manifold, or hose temperature setpoints too low or too high	Adjust the temperature setpoints as necessary. Refer to the melter or temperature controller manual.
	Failed heater, RTD, or cable	Check the heaters, sensors and cables for the problem zones.

Adhesive Output Problems

Refer to this troubleshooting table if the adhesive output is too low or too high or if there is no adhesive output.

NOTE: Each heated component in a hot melt system (typically the grid, the reservoir, each hose, and each gun) is referred to as a heated zone. The heated zones are the gun adhesive manifold and the heated air manifold.

Problem	Possible Cause	Corrective Action
1. Adhesive output too low or too high	Heated zone temperature setpoints too low or too high	Adjust the temperature setpoints as necessary. Refer to the melter or temperature controller manual.
	Melter pump not supplying correct amount of adhesive	Troubleshoot and correct the adhesive supply problem from the melter. Refer to the melter manual.
	Blockage in hose-to-gun or hose-to-melter connection	Check for blockages in the connections. Check also for a cold connection. Install insulation around any cold connections. If the adhesive output does not improve, install a heated inline filter at the connection.
	Clogged filter	Replace the Saturn filter screen.
	Blockage in module or nozzle	Check for blockage in the module or nozzle. Refer to *Check for Blockages* in the *Troubleshooting Procedures* part of this section.

Continued...

Problem	Possible Cause	Corrective Action
2. No adhesive output	Adhesive not at application temperature	Wait for the system to reach application temperature.
	Heated zone temperature setpoints too low or too high	Adjust the temperature setpoints as necessary. Refer to the melter or temperature controller manual.
	Adhesive level in melter low	Add adhesive to the melter. Refer to the melter manual.
	Blockage in hose-to-gun or hose-to-melter connection	Check for blockages in the connections. Check also for a cold connection. Install insulation around any cold connections. If the adhesive output does not improve, install a heated inline filter at the connection.
	Clogged filter	Replace the Saturn filter screen.
	Blockage in module or nozzle	Check for blockage in the module or nozzle. Refer to *Check for Blockages* in the *Troubleshooting Procedures* part of this section.
	Failed module or module loading screw not properly adjusted on adjustable modules	Check or replace the module. Refer to *Replace a Module* in the *Troubleshooting Procedures* part of this section.
	Failed solenoid valve	Check the solenoid valve. Refer to *Check Solenoid Valve Mechanical Operation* and *Check Solenoid Valve Electrical Operation* in the *Troubleshooting Procedures* part of this section.
	Failed or faulty solenoid valve triggering device	Troubleshoot the triggering device. Refer to the manufacturer's documentation.

Adhesive Leakage Problems

Refer to this troubleshooting table if you find adhesive leaks.

Problem	Possible Cause	Corrective Action
1. Leaks between the adhesive manifold and the module	Insufficient torque on module socket-head screws	Tighten the module screws to 3–4 N•m (25–32 in.-lb).
	Damaged or worn O-rings	Replace.
2. Leaks at bleed hole on module (see Figure 9)	Adhesive seal failure	Replace the module. Refer to *Replace a Module* in the *Troubleshooting Procedures* part of this section. For kit part numbers, refer to *Parts*.
3. Leaks at nozzle	System pressure too high	Decrease system pressure. refer to the melter manual.
	Damaged or worn O-ring in module seat	Replace.
4. Leaks at hose connection	Loose hose connection	Tighten.
	Failed hose fitting O-ring	Replace. Refer to the the melter or hose manual.

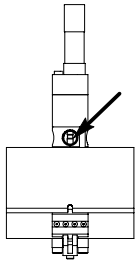


Figure 9: Location of the module bleed hole

Air Supply Problems

Refer to this troubleshooting table if you experience problems related to the air supply.

Problem	Possible Cause	Corrective Action
1. Air leaks from the top of a module	Air seal failure	Replace the module. Refer to the module replacement procedure in *Module Service*. For kit part numbers, refer to *Parts*.
2. No module actuating air	Failed solenoid valve	Check the solenoid valve and replace if necessary. Refer to *Check Solenoid Valve Mechanical Operation* and *Check Solenoid Valve Electrical Operation* in the *Troubleshooting Procedures* part of this section.
	Failed air pressure regulator or insufficient air supply to the regulator	Check the regulator and the air supply to the regulator. Refer to *Check an Air Pressure Regulator* in the *Troubleshooting Procedures* part of this section.
3. No pattern air	Failed air pressure regulator or insufficient air supply to the regulator	Check the regulator and the air supply to the regulator. Refer to *Check an Air Pressure Regulator* in the *Troubleshooting Procedures* part of this section.
	Clogged air passage in nozzle	Clean or replace the nozzle. Refer the nozzle cleaning procedure.

Pattern Control Problems

NOTE: To aid in detecting pattern control problems, direct a strobe light on the adhesive as it flows onto the product.

Problem	Possible Cause	Corrective Action
1. Pattern off-center (skewed) or gaps in pattern	Blocked adhesive or air passages in nozzle	Clean or replace the nozzle. Refer to *Nozzle Service.* If cleaning or replacing the nozzle does not improve the pattern, check for blockages in the module, gun, or hose. Refer to *Check for Blockages* in *Troubleshooting Procedures* part of this section.
2. End pattern oriented toward center of gun	Air currents in area near module	Eliminate the air current or add a blank module that provides only pattern air next to the end module.
3. Adhesive droplets thrown from adhesive stream, pattern break up (overspray)	Adhesive and/or pattern air temperature too hot	Adjust the temperature settings. Refer to *Gun Specifications* for temperature recommendations.
	Pattern pressure too high	Decrease.
	Adhesive output rate too low	Increase system pressure or troubleshoot the output rate problem at the melter. Check for blockages in the nozzle, gun, filter or hose. Refer to *Check for Blockages* later in this section.
	Damaged nozzle (adhesive leaking into air passages and being blown into the pattern)	Replace. Refer to *Nozzle Service.*
	Gun too far from product	Adjust gun position.
	Adhesive patterns overlapping and interfering with one another	Replace the nozzles on the modules that are producing adhesive streams that interfere with the other module adhesive streams.

Continued...

Pattern Control Problems *(contd)*

Problem	Possible Cause	Corrective Action
4. All patterns too narrow	Adhesive and/or pattern air temperature too cool	Adjust. Refer to *Specifications* for temperature recommendations.
	Pattern air pressure too low	Increase.
	Gun too close to product	Adjust.
	Adhesive flow rate too high	Decrease the system pressure or troubleshoot the output rate problem at the melter.
5. One pattern too narrow	System pressure too high	Reduce system pressure or clean the nozzles. Refer to *Cleaning Nozzles.*
	Incorrect or damaged nozzle	Verify that the nozzle part number is correct. Replace damaged nozzles.
	Blocked air passage in nozzle	Clean or replace nozzle. Refer to *Nozzle Service.*
	Blocked air passage in module or heated air manifold	Check for blockage in the pattern air path.
6. All patterns too wide	Adhesive and/or pattern air temperature too hot	Adjust the temperature settings. Refer to *Gun Specifications* for temperature recommendations.
	Pattern air pressure too high	Decrease pattern air pressure.
	Gun too far from product	Adjust.
	Adhesive flow rate too low	Increase the system pressure or troubleshoot the output rate problem at the melter.
	Nozzle adhesive opening too large	Change to a nozzle with a smaller adhesive opening. Refer to *Nozzle Part Numbers*.
7. One pattern too wide	Incorrect or damaged nozzle	Verify that the nozzle part number is correct. Replace damaged nozzles. Refer to *Nozzle Part Numbers* or *Nozzle Service*.
	Blocked adhesive or air passages in nozzle	Clean or replace the nozzle. Refer to *Nozzle Service*.

Continued...

Problem	Possible Cause	Corrective Action
8. Irregular pattern or adhesive leakage on one module	Nozzle O-ring missing or nozzle too loose (under-tightened)	Install a new nozzle O-ring, replace the nozzle, or tighten the nozzle-retaining clamp screw. Refer to *Nozzle Service*.
9. Adhesive flow not cutting off properly, causing a poor adhesive pattern	Worn or charred module ball and/or seat	Replace the module. Refer to *Replace a Module*.

Troubleshooting Procedures

Use these troubleshooting procedures as directed in the *Troubleshooting Tables* part of this section.

Check for Blockages

1. Relieve system pressure. Refer to *Safety.*
2. Place a drain pan under the gun.
3. Decrease the pattern air pressure. Leave just enough air pressure to prevent adhesive from entering the pattern air outlet.
4. Remove a module from the adhesive manifold.
5. Observe the adhesive opening (the lower opening) on the adhesive manifold:
   - If there is no adhesive flow from the adhesive opening, there may be blockage in the adhesive manifold. Clean the system or replace the gun. Refer to the system cleaning procedure in the melter manual.
   - If adhesive is flowing from the adhesive opening, there is no blockage in the adhesive package.

Check Solenoid Valve Mechanical Operation

Solenoid valves are used to control the module-actuating air. Follow this procedure to check the mechanical operation of a solenoid valve. To check the electrical operation of a solenoid valve, refer to the next procedure, *Check Solenoid Valve Electrical Operation.*

1. Turn on the air supply to the solenoid valve.
2. Trigger the gun at the solenoid valve and check for adhesive flow:
   - If adhesive flows from the module, the solenoid valve is operating normally. Return to the appropriate troubleshooting table.
   - If no adhesive flows from the module, continue to the next step.
3. Manually trigger the solenoid valve and listen to its response:
   - If you hear a clicking noise, the valve is operating normally. Return to the appropriate troubleshooting table.
   - If you do not hear a clicking noise, the solenoid valve is not engaging. This could be caused by an electrical problem or by low air pressure to the solenoid valve. To check the solenoid valve electrically, go to the next procedure, *Check Solenoid Valve Electrical Operation*. To check the air pressure regulator, go to *Check an Air Pressure Regulator* later in this section.

Check Solenoid Valve Electrical Operation

Solenoid valves are used to control the module-actuating air. Follow this procedure to check the electrical operation of a solenoid valve. To check the mechanical operation of a solenoid valve, refer to the previous procedure, *Check Solenoid Valve Mechanical Operation*.

1. Disconnect and lock out electrical power to the solenoid valve.
2. Disconnect the solenoid wires.
3. Connect a standard ohmmeter across the solenoid valve wires to check the solenoid valve coil for electrical continuity:
   - if the resistance is excessively high, there is no continuity. Replace the solenoid valve.
   - If the resistance is normal, return to the appropriate troubleshooting table.

Check an Air Pressure Regulator

An air pressure regulator is used to control the air pressure to the solenoid valves for the module-actuating air and to control the pattern air. Follow this procedure to check a regulator.

1. Relieve system pressure. Refer to *Safety.*
2. Reduce the air pressure to 0 psi at the regulator.
3. Disconnect the regulator air line that is connected to the solenoid valve or to the pattern air.
4. Slowly increase the regulator air pressure:
   - If no air flows from the regulator, it is faulty. Replace the regulator.
   - If air flows, the air pressure may be low. Continue to the next step.
5. Determine the pressure of the air being supplied to the regulator:
   - If the air pressure is below 2.0 bar (30 psi), there is an input air pressure problem. Troubleshoot and correct the air pressure problem.
   - If the air pressure is 2.1 bar (30 psi) or greater, the input air pressure is okay. Return to the appropriate troubleshooting table.

Module Service

This section provides module-related service procedures.

Replace 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 *Safety.*
3. Trigger the gun solenoid valves to relieve any remaining pressure.
4. Shut off the module-actuating air and disconnect the module-actuating air supply from the module to be removed.
5. Decrease the pattern air pressure. Leave just enough air pressure (2–5 psi) to prevent adhesive from entering the pattern air outlet.
6. Disconnect the solenoid valve electrical connections from the module to be removed.

See Figure 10.

7. Remove the control module mounting screws (1) and then remove the module (2) from the adhesive manifold.

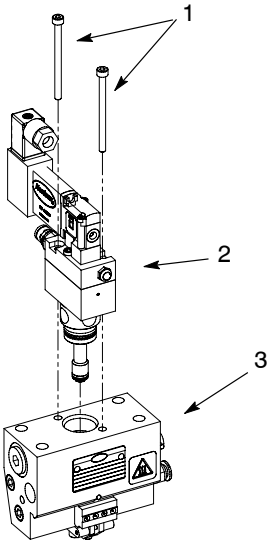


Figure 10: Remove a PatternJet module

1. Module mounting screws
2. Module (with solenoid valve)
3. Adhesive manifold

Install a Module

1. Wipe off any adhesive on the adhesive manifold.
2. Secure the module to the adhesive manifold using the screws removed previously.
3. Reconnect the module-actuating air supply and solenoid valve electrical connections.
4. Restore the system to normal operation. Tighten the mounting screws again after the gun reaches application temperature.

Remove a Nozzle

Several types of nozzle may be installed on a PatternJet module. Follow this procedure to remove or install nozzles as needed. You will need the following items:

- appropriate tools, including a torque wrench
- drain pans and disposable rags
- replacement nozzle

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

1. Heat the system to application temperature.
2. Relieve system pressure. Refer to *Safety*.
3. Trigger the gun 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 on the module.

See Figure 11.

6. Back the nozzle-retaining clamp screw (1) to loosen the clamp.
7. Push the nozzle retaining clamp (2) toward the module to eject the nozzle.

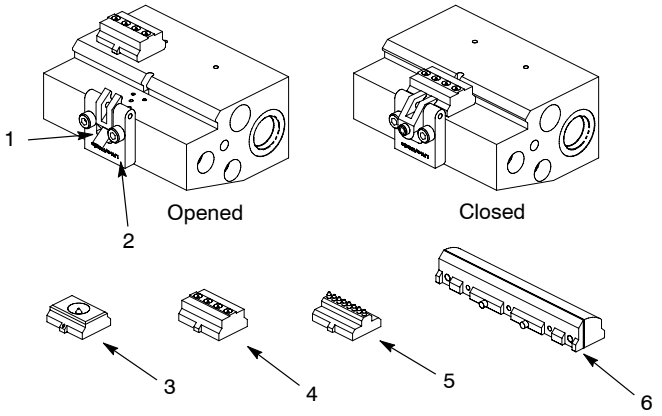


Figure 11: Nozzle clamp screw and retaining clamp

1. Nozzle-retaining clamp screw
2. Nozzle-retaining clamp
3. Universal CF module
4. Summit nozzle
5. MiniBead nozzle
6. Slot nozzle

Install a Nozzle

1. Clean the mating surface where the nozzle will be seated.
2. See Figure 11. Inspect the nozzle O-ring, replace if necessary, and ensure that the O-ring is lubricated and properly positioned in the O-ring bore.
3. Carefully insert the nozzle onto the seat.

CAUTION: Overtightening a nozzle-retaining clamp screw can damage the module.

4. Tighten the nozzle-retaining clamp screw to 1.7 N•m (15 in.-lb).

Clean Nozzles

Nozzles should be cleaned weekly or as needed to prevent clogging. You will need the following items:

- appropriate tools, including a torque wrench
- drain pans and disposable rags
- cleaning supplies (refer to Table 5)
- nozzle cleaning kits
- O-ring lubricant

1. Remove the nozzles. Refer to *Remove a Nozzle* earlier in this section.
2. Clean the nozzles using one of the Nordson-recommended methods shown in Table 5. Use only cleaning agents recommended by the adhesive supplier.

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

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

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

Clean Nozzles (contd)

Table 5 Nozzle Cleaning Methods

Cleaning Method	Procedure
Citrus-based solution and ultrasonic tank **NOTE:** This is the most thorough method	a. Place the nozzles in citrus-based solvent/degreasing solution and soak them overnight or for approximately 4 hours. This dissolves and loosens the adhesive and char buildup. b. Remove the nozzles from the citrus-based solvent/degreasing solution and place them in an alkaline solution heated to the appropriate temperature (refer to the MSDS) in an ultrasonic tank. Soak the nozzles for approximately 10 minutes. This will remove adhesive and char from the orifices. c. Scrub the nozzles with a soft, non-metallic brush to remove debris. d. Gently blow air through the nozzle orifices from the mounting side of the nozzle.
Nordson Type-R fluid	a. Place the nozzles in a controlled heating device containing Nordson Type-R fluid and heat it above the melting point of the adhesive (refer to the MSDS). b. Scrub the nozzles with a soft, non-metallic brush to remove debris.
Electric heat gun	a. Heat the nozzles with a flameless electric heat gun. b. Scrub the nozzles with a soft, non-metallic brush to remove debris.
Ultrasonic tank	a. Place the nozzles in an alkaline solution heated to the appropriate temperature (refer to the MSDS) in an ultrasonic tank. Soak the nozzles for approximately 10 minutes. b. Scrub the nozzles with a soft, non-metallic brush to remove debris. c. Gently blow air through the nozzle orifices from the mounting side of the nozzle.

Continued...

Table 5 Nozzle Cleaning Methods *(contd)*

Cleaning Method	Procedure
Oven **NOTE:** This method will cause discoloration of unplated brass nozzles. This discoloration is cosmetic only and will not adversely affect nozzle performance.	**WARNING**: Risk of explosion, fire or toxic vapor release. Depending on the type of adhesive and/or organic solvent used with the nozzles, heating them in an oven can cause a hazardous event. Before using an oven to clean nozzles, consult with the oven manufacturer about the viability of this method and the safety risks. Follow the manufacturer's recommendations. **WARNING**: Use the oven heating controls to keep the oven at the desired temperature. Do not use an oven that does not have heating controls. **WARNING**: The heating temperature and time may need to be adjusted based on the oven type, the adhesive type, and the amount of char buildup on the nozzles. Nordson Corporation recommends testing this procedure on discarded nozzles prior to using it on good nozzles. **WARNING**: Risk of equipment damage. Remove O-rings before cleaning nozzles in an oven. Failure to do so can cause a chemical reaction that will permanently damage the nozzles. a. Ensuring that O-rings have been removed from the nozzles, place them in an electric oven heated to approximately 385 °C (725 °F). Allow the nozzles to bake for approximately 3–4 hours. b. Turn off the oven and allow the nozzles to cool; then remove the nozzles. **WARNING**: Risk of fire. Use a heat-proof cloth to clean nozzles. Even cotton can burn in high-temperature conditions. **WARNING**: Text goes here ...Risk of equipment damage. Handle nozzles carefully to avoid denting the orifices, which can degrade the adhesive pattern. c. Wipe the nozzles with a soft cloth and then gently blow air through the nozzle orifices from the mounting side of the nozzle.

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

Clean Nozzles (contd)

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.

4. if cleaning of the nozzle orifices is necessary, use a pin-type probe that is one size smaller than the orifice size: insert the probe in the direction opposite the adhesive flow and then remove the probe without twisting it, as shown in Figure 12.

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

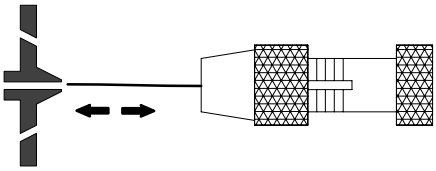


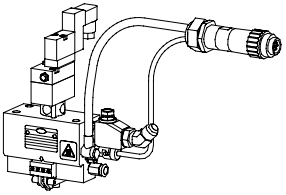
Figure 12: Correct motion of a pin-type probe for cleaning a nozzle (CF nozzle shown)

5. Reinstall the nozzles. Refer to *Install a Nozzle* earlier in this section.
6. Restore the system to normal operation.

Parts

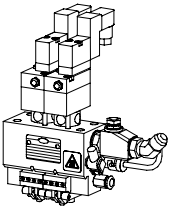
To order parts, call the Nordson Customer Service Center at (888) NORDSON, or your local Nordson representative.

PatternJet Guns



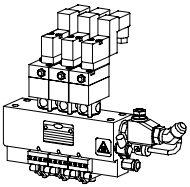
SINGLE MODULE GUN

P/N 1065924 – 1 IN.
P/N 1065932 – 1 IN. W/ BOOST
P/N 1065938 – 2 IN.
P/N 1065941 – 2 IN. W/ BOOST



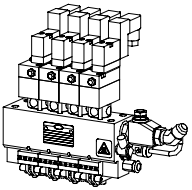
TWO MODULE GUN

P/N 1065926 – 2 IN.
P/N 1065933 – 2 IN. W/ BOOST
P/N 1065939 – 4 IN.
P/N 1065942 – 4 IN. W/ BOOST



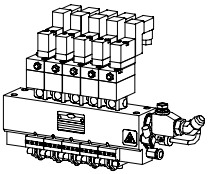
THREE MODULE GUN

P/N 1065927 – 3 IN.
P/N 1065934 – 3 IN. W/ BOOST
P/N 1065940 – 6 IN.
P/N 1065943 – 6 IN. W/ BOOST



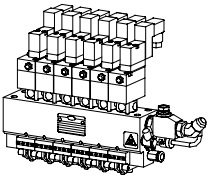
FOUR MODULE GUN

P/N 1065929 – 4 IN.
P/N 1065935 – 4 IN. W/ BOOST



FIVE MODULE GUN

P/N 1065930 – 5 IN.
P/N 1065936 – 5 IN. W/ BOOST



SIX MODULE GUN

P/N 1065931 – 6 IN.
P/N 1065937 – 6 IN W/ BOOST

Note: All guns include cordsets. Nozzles must be purchased separately.

PatternJet Gun Parts

See Figure 13.

Item	Part	Description	Qty	Note
—	—	Gun, assembly, PatternJet	—	
1	—	Scr, skthd, M4 x 55	2	
2	—	Valve, solenoid	1	A
3	713660	Control module assy, SC, 24/48V, boosted	1	
3	713670	Control module assy, SC, 24/48V, non-boosted	1	
4	1056031	Filter, Saturn, in-line, 100 mesh, 45 degree	1	
5	—	Cordset	1	B
6	1065962	Conn, male, 6 mm x $^1/_8$ bspt, h.t.	1	
7	—	Nozzle	1	C
8	1068811	Clamp assy, nozzle, PatternJet	1	
9	—	Adhesive Manifold	1	
10	1065961	Conn, male, 6 mm tube x M5		

NOTE A: Refer to the appropriate module assembly exploded view for solenoid valve part numbers
B: Refer to Cordset Part Number table for ordering information
C: Order separately. Refer to the appropriate nozzle section for ordering information

Service Kits

Item	Description	Note
1065916	Service Kit, PatternJet, boosted	A
1065950	Service Kit, PatternJet, non-boosted	A
1065917	Module Blank service kit	

NOTE A: Includes replacement module with solenoid and two 100 mesh Saturn in-line replacement filter screens.

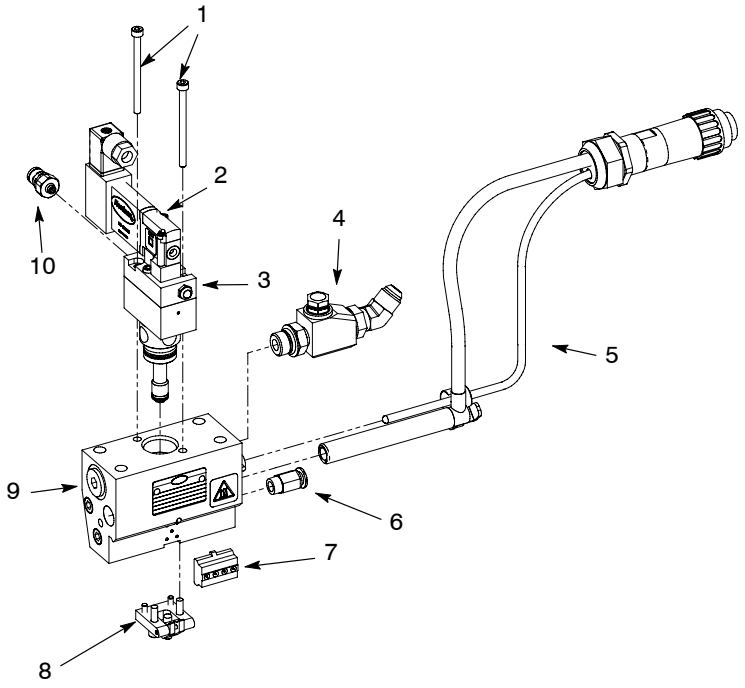


Figure 13: PatternJet gun assembly (single module shown)

Cordsets

Item	Description	Note
1065910	Cordset, 83.8 mm (3.3 in.), PatternJet	A
1065912	Cordset, 134.6 mm (5.3 in.), PatternJet	B
1065913	Cordset, 185.4 mm (7.3 in.), PatternJet	C

NOTE A: Order for guns with one or two nozzles
B: Order for guns with three or four nozzles
C: Order for guns with five or six nozzles

Boosted PatternJet Module

See Figure 14.

Item	Part	Description	Qty
—	7103660	PatternJet module	—
1	401899	• Valve socket	1
2	396250	• Solenoid valve	1
3	396252	• Isolation plate	1
4	253890	• O-ring, 3 x 1	3
5	—	• Cylinder cover	1
6	204211	• Silencer, M5 x 3.6	1
7	—	• Control module, basic assembly	1
8	—	• Plug, sensor, D6, L16, with O-ring	1

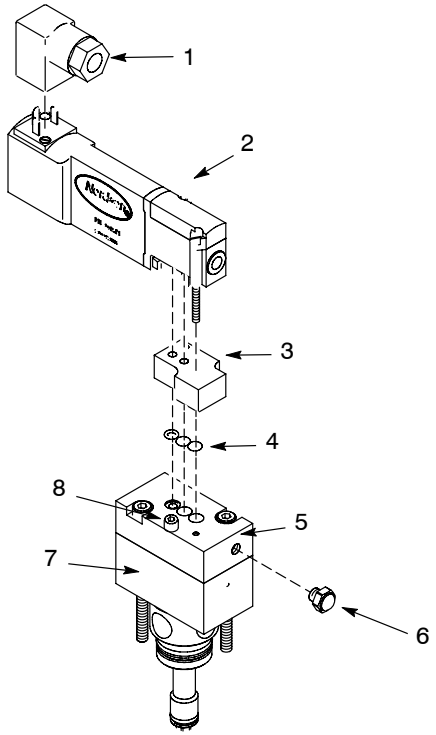


Figure 14: Boosted PatternJet module

Non-Boosted PatternJet Module

See Figure 15.

Item	Part	Description	Qty
—	7103670	PatternJet module, nonboosted	—
1	401899	• Valve socket	1
2	460246	• Solenoid valve	1
3	—	• Isolation plate	1
4	—	• Seal, solenoid valve	1
5	—	• Cylinder cover	1
6	204211	• Silencer, M5 x 3.6	1
7	—	• Control module, basic assembly	1
8	—	• Plug, sensor, D6, L16, with O-ring	1

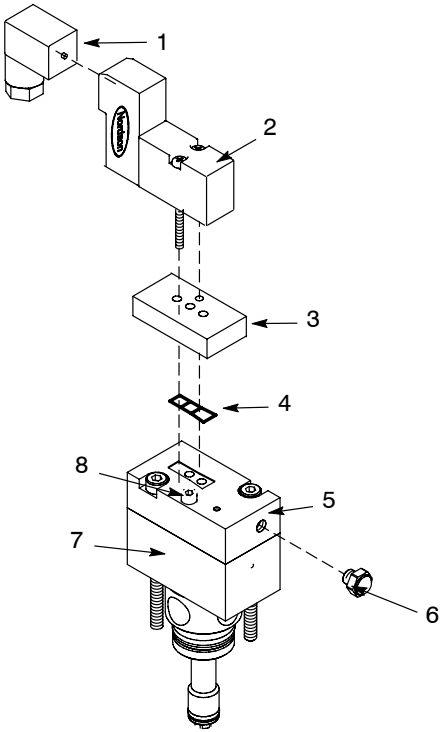


Figure 15: Non-boosted PatternJet module

Nozzle Part Numbers

Normally, the choice of nozzle for your gun will have already been made by you and your Nordson representative. Refer to your sales order to determine what nozzle choices were made. The part numbers for the most commonly used nozzles are provided here.

Universal CF Nozzles

Universal CF nozzles are one-piece, high-frequency CF nozzles with 12 air openings.

Orifice Diameter	Pattern Width	Nozzle Part Number
0.012 in.	Standard	1053960
0.012 in.	Wide	1053964
0.016 in.	Standard	1053961
0.016 in.	Wide	1053966
0.018 in.	Standard	1054730
0.018 in.	Wide	1054731
0.020 in.	Standard	1049565
0.020 in.	Wide	1052500
0.020 in.	14 mm	1053969
0.025 in.	Standard	1053962
0.025 in.	Wide	1053967
0.030 in.	Standard	1053963
0.030 in.	Wide	1053968
0.030 in.	18 mm	1053970
NOTE: All nozzles include O-ring part 1019706.		

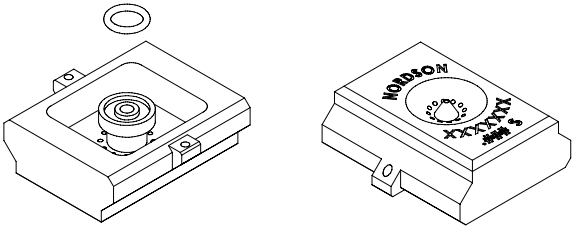


Figure 16: Universal CF nozzle

Summit Nozzles

A Summit laminating nozzle has one to four adhesive openings that are oriented to apply adhesive starting at the left, right, or center of the nozzle. The adhesive coating width ranges from 6–25 mm (0.25–1.00 in.), depending on the number of openings.

Number of Openings	Coating Width	Distance Between Openings	Orientation of Openings	Brass Nozzle Part Number	Stainless-Steel Nozzle Part Number
1	~6 mm (1/4 in.)	not applicable	Left or right	1035875	1035877
		not applicable	Center	1035876	1035878
2	~12–13 mm (1/2 in.)	6.25 mm	Left or right	1035879	1035881
			Center	1035880	1035882
3	~19 mm (3/4 in.)	6.25 mm	Left or right	1035629	1035884
		6.25 mm	Center	1035883	1035885
4	~25 mm (1 in.)	6.25 mm	Full	1035886	1035887

NOTE A: The Universal Summit nozzle is symmetrical. Nozzles may be positioned for right- or left-side coverage.

B: Summit nozzles use O-ring part 1022028.

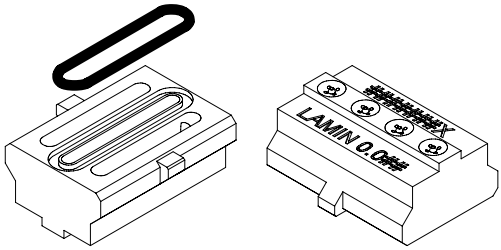


Figure 17: Summit laminating nozzle

Technical Data

Gun Specifications

Table 6 provides specifications for a PatternJet gun.

Table 6 PatternJet Gun Specifications

Parameter	Specification
Operating hydraulic temperature	93–191 °C (200–375 °F)
Maximum closing pressure without compressed air	15 bar (218 psi)
Maximum closing pressure with compressed air	60 bar (870 psi)
Maximum air temperature	191 °C (375 °F)
System hydraulic pressure	89.6 bar (1,300 psi) maximum
Module-actuating air pressure	4 bar (58 psi) minimum 6 bar (87 psi) recommended
Air consumption (per nozzle)	~28.8 nlm (~1.0 scfm)
Adhesive viscosity	500–15,000 cps
Adhesive applications supported	PatternJet (slot), CF, MiniBead, Summit
Adhesive pattern capability	Continuous or intermittent

Dimensions

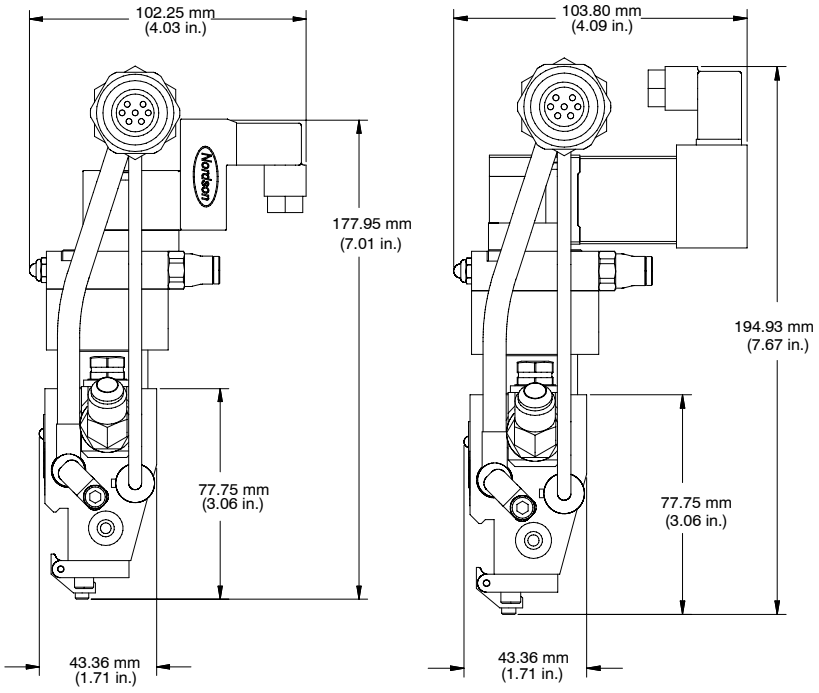


Figure 18: Dimensions for boosted and non-boosted guns

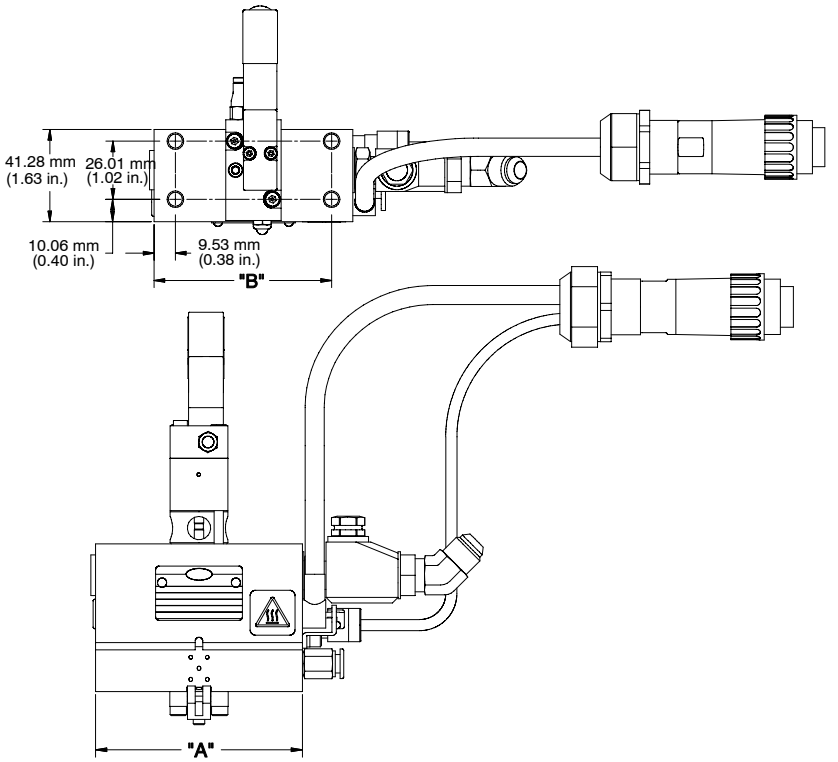


Figure 19: Dimensions common to boosted and non-boosted guns

Dimensions		
Part Number	**“A” (inches)**	**“B” (inches**
1065924	3.50	3.13
1065926	3.50	3.13
1065927	5.50	5.13
1065929	5.50	5.13
1065930	7.50	7.13
1065931	7.50	7.13
1065938	3.50	3.13
1065939	5.50	5.13
1065940	7.50	7.13