

ProcessMate 100 Vacuum Pick-Up System

Operating Manual



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www.nordsonefd.com

Nordson
EFD

You have selected a reliable, high quality ProcessMate™ 100 vacuum pick-up system from Nordson EFD, the world leader in fluid dispensing. The ProcessMate 100 vacuum pick-up system was designed specifically for industrial dispensing, and will provide you with years of trouble-free, productive service.

This manual will help you maximize the usefulness of your ProcessMate 100 vacuum pickup system.

Please spend a few minutes to become familiar with the controls and features. Follow our recommended testing procedures. Review the helpful information we have included, which is based on more than 50 years of industrial dispensing experience.

Most questions you will have are answered in this manual. However, if you need assistance, please do not hesitate to contact EFD or your authorized EFD distributor. Detailed contact information is provided on the last page of this document.

The Nordson EFD Pledge

Thank You!

You have just purchased the world's finest precision dispensing equipment.

I want you to know that all of us at Nordson EFD value your business and will do everything in our power to make you a satisfied customer.

If at any time you are not fully satisfied with our equipment or the support provided by your Nordson EFD Product Application Specialist, please contact me personally at 800.556.3484 (US), 401.431.7000 (outside US), or Jamie.Clark@nordsonfd.com.

I guarantee that we will resolve any problems to your satisfaction.

Thanks again for choosing Nordson EFD.



Jamie
Jamie Clark, Vice President

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Introduction

This manual provides safety, installation, operation, service, and parts information for the ProcessMate 100 vacuum pickup system.

The ProcessMate 100 Vacuum Pickup System provides a simple, efficient way to lift and position small or delicate components in benchtop assembly processes.

To lift the component, the operator simply places the pickup pen on the component and presses an electric foot pedal to apply vacuum. When the component has been positioned, releasing the foot pedal stops the vacuum and releases the component.



Nordson EFD Product Safety Statement

WARNING

The safety message that follows has a WARNING level hazard.
Failure to comply could result in death or serious injury.

ELECTRIC SHOCK



Risk of electric shock. Disconnect power before removing covers and / or disconnect, lock out, and tag switches before servicing electrical equipment. If you receive even a slight electrical shock, shut down all equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

CAUTION

The safety messages that follow have a CAUTION level hazard.
Failure to comply may result in minor or moderate injury.

READ MANUAL



Read manual for proper use of this equipment. Follow all safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate. Make sure these instructions and all other equipment documents are accessible to persons operating or servicing equipment.

MAXIMUM AIR PRESSURE



Unless otherwise noted in the product manual, the maximum air input pressure is 7.0 bar (100 psi). Excessive air input pressure may damage the equipment. Air input pressure is intended to be applied through an external air pressure regulator rated for 0 to 7.0 bar (0 to 100 psi).

RELEASE PRESSURE



Release hydraulic and pneumatic pressure before opening, adjusting, or servicing pressurized systems or components.

BURNS



Hot surfaces! Avoid contact with the hot metal surfaces of heated components. 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.

Nordson EFD Product Safety Statement (continued)

Halogenated Hydrocarbon Solvent Hazards

Do not use halogenated hydrocarbon solvents in a pressurized system that contains aluminum components. Under pressure, these solvents can react with aluminum and explode, causing injury, death, or property damage. Halogenated hydrocarbon solvents contain one or more of the following elements.

Element	Symbol	Prefix
Fluorine	F	"Fluoro-"
Chlorine	Cl	"Chloro-"
Bromine	Br	"Bromo-"
Iodine	I	"Iodo-"

Check the Safety Data Sheet (SDS) or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your EFD representative for compatible EFD components.

High Pressure Fluids

High pressure fluids, unless they are safely contained, are extremely hazardous. Always release fluid pressure before adjusting or servicing high pressure equipment. A jet of high pressure fluid can cut like a knife and cause serious bodily injury, amputation, or death. Fluids penetrating the skin can also cause toxic poisoning.

WARNING

Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor that you suspect an injection injury.
- Show the doctor the following note.
- Tell the doctor what kind of material you were dispensing.

Medical Alert — Airless Spray Wounds: Note to Physician

Injection in the skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream.

Qualified Personnel

Equipment owners are responsible for making sure that EFD equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Nordson EFD Product Safety Statement (continued)

Intended Use

Use of EFD equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property. Some examples of unintended use of equipment include:

- Using incompatible materials.
- Making unauthorized modifications.
- Removing or bypassing safety guards or interlocks.
- Using incompatible or damaged parts.
- Using unapproved auxiliary equipment.
- Operating equipment in excess of maximum ratings.
- Operating equipment in an explosive atmosphere.

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson EFD equipment will be voided if instructions for installation, operation, and service are not followed. If the equipment is used in a manner not specified by Nordson EFD, the protection provided by the equipment may be impaired.

Personal Safety

To prevent injury, follow these instructions:

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, and covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Make sure spray areas and other work areas are adequately ventilated.
- When using a syringe barrel, always keep the dispensing end of the tip pointing towards the work and away from the body or face. Store syringe barrels with the tip pointing down when they are not in use.
- Obtain and read the Safety Data Sheet (SDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials and use recommended personal protection devices.
- Be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located.
- Wear hearing protection to protect against hearing loss that can be caused by exposure to vacuum exhaust port noise over long periods of time.

Nordson EFD Product Safety Statement (continued)

Fire Safety

To prevent a fire or explosion, follow these instructions:

- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.
- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or the SDS for guidance.
- Do not disconnect live electrical circuits when working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located.

Preventive Maintenance

As part of maintaining continuous trouble-free use of this product, Nordson EFD recommends the following simple preventive maintenance checks:

- Periodically inspect tube-to-fitting connections for proper fit. Secure as necessary.
- Check tubing for cracks and contamination. Replace tubing as necessary.
- Check all wiring connections for looseness. Tighten as necessary.
- Clean: If a front panel requires cleaning, use a clean, soft, damp rag with a mild detergent cleaner. DO NOT USE strong solvents (MEK, acetone, THF, etc.) as they will damage the front panel material.
- Maintain: Use only a clean, dry air supply to the unit. The equipment does not require any other regular maintenance.
- Test: Verify the operation of features and the performance of equipment using the appropriate sections of this manual. Return faulty or defective units to Nordson EFD for replacement.
- Use only replacement parts that are designed for use with the original equipment. Contact your Nordson EFD representative for information and advice.

Nordson EFD Product Safety Statement (continued)

Important Disposable Component Safety Information

All Nordson EFD disposable components, including syringe barrels, cartridges, pistons, tip caps, end caps, and dispense tips, are precision engineered for one-time use. Attempting to clean and re-use components will compromise dispensing accuracy and may increase the risk of personal injury.

Always wear appropriate protective equipment and clothing suitable for your dispensing application and adhere to the following guidelines:

- Do not heat syringe barrels or cartridges to a temperature greater than 38° C (100° F).
- Dispose of components according to local regulations after one-time use.
- Do not clean components with strong solvents (MEK, acetone, THF, etc.).
- Clean cartridge retainer systems and barrel loaders with mild detergents only.
- To prevent fluid waste, use Nordson EFD SmoothFlow™ pistons.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

1. Disconnect and lock out system electrical power. If using hydraulic and pneumatic shutoff valves, close and relieve pressure.
2. For Nordson EFD air-powered dispensers, remove the syringe barrel from the adapter assembly. For Nordson EFD electro-mechanical dispensers, slowly unscrew the barrel retainer and remove the barrel from the actuator.
3. Identify the reason for the malfunction and correct it before restarting the system.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Specifications

NOTE: Specifications and technical details are subject to change without prior notification.

Item	Specification
Cabinet size	18.3w x 5.1H x 8.6D cm (7.22w x 2.00H x 3.38D")
Weight	1.0 kg (2.2 lb)
Cycle rate	Up to 600 cycles per minute
Input AC (to power supply)	Universal Multi Voltage, 100/240 VAC, 50/60 Hz
Output DC (from power supply)	24 VDC, 1.04 Amp maximum
Power requirements	24 VDC, 0.83 Amp maximum
Internal voltage	24 VDC
Foot pedal	Voltage: 24 VDC Current: 20 mA
Cycle initiate	Foot pedal, finger switch
Input air pressure	7.0 bar (100 psi) maximum
Air output	0–110 inH ₂ O dependent on user setting
Vacuum output	0–110 inH ₂ O dependent on user setting
Ambient operating conditions	Temperature: 5–45° C (41–113° F) Humidity: 85% RH at 30° C non-condensing Height above sea level: 2,000 m maximum (6,562 ft)
Product classification	Installation category II Pollution degree 2
Approvals	CE, UKCA, TÜV, RoHS, WEEE, China RoHS

RoHS标准相关声明 (China RoHS Hazardous Material Declaration)

产品名称 Part Name	有害物质及元素 Toxic or Hazardous Substances and Elements					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr6)	多溴联苯 Polybrominated Biphenyls (PBB)	多溴联苯醚 Polybrominated Diphenyl Ethers (PBDE)
外部接口 External Electrical Connectors	X	0	0	0	0	0
0: 表示该产品所含有的危险成分或有害物质含量依照EIP-A, EIP-B, EIP-C 的标准低于SJ/T11363-2006 限定要求。 Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is below the limit requirement in SJ/T11363-2006.						
X: 表示该产品所含有的危险成分或有害物质含量依照EIP-A, EIP-B, EIP-C 的标准高于SJ/T11363-2006 限定要求。 Indicates that this toxic or hazardous substance contained in all the homogeneous materials for this part, according to EIP-A, EIP-B, EIP-C is above the limit requirement in SJ/T11363-2006.						

WEEE Directive

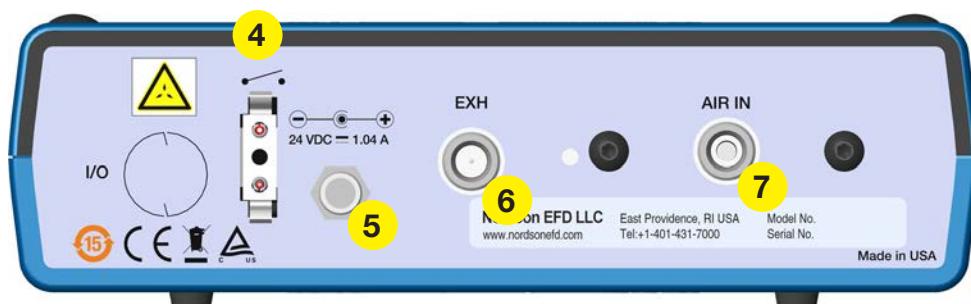


This equipment is regulated by the European Union under WEEE Directive (2012/19/EU). Refer to www.nordsonfd.com/WEEE for information about how to properly dispose of this equipment.

Operating Features



1. Vacuum air regulator adjustment knob — Controls vacuum level
2. Output quick connector — Vacuum pickup pen / wand connection
3. Power switch — Main DC power control switch



4. Foot pedal / finger switch connector — Connection for actuating device
5. Power input jack — DC power input
6. Vacuum exhaust port — vacuum air exit
7. Air input push-in fitting — Main filtered air supply input

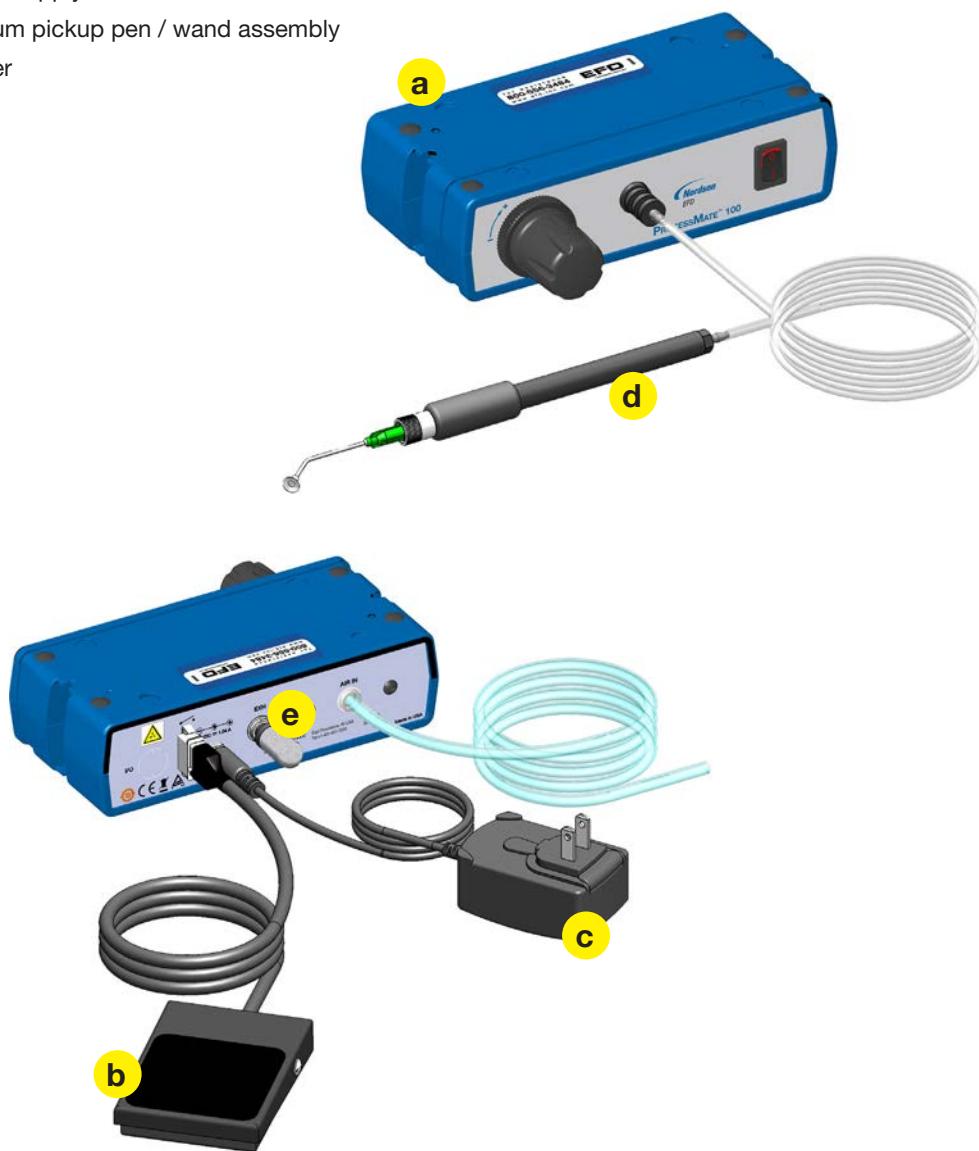
Installation

1

Unpack the Unit

Unpack the contents of the package and lay them out on a clean workbench. The following items should be included with your ProcessMate 100 vacuum pickup system:

- a. Vacuum unit
- b. Foot pedal assembly
- c. Power supply
- d. Vacuum pickup pen / wand assembly
- e. Muffler



Installation (continued)

2

Connect Air Supply

NOTE: Clean, dry filtered factory air is required to meet warranty. If your air supply is not filtered, order the EFD 5-micron filter / regulator (#7002002).

- Turn the air regulator adjustment knob to zero before connecting the main air input to the ProcessMate 100.
- Push one end of the 6 mm air input hose into the AIR IN input fitting on the back of the ProcessMate 100.
- Connect the other end of the hose to your plant air supply.
- Set the plant air supply from 5.5–6.9 bar (80–100 psi).

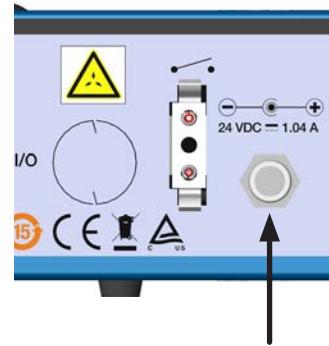


3

Connect Power

- Locate the DC input connection on the back of your ProcessMate 100 vacuum pickup system.
- Insert the DC Plug securely into the input connection.
- Select the proper adapter from the power supply plug kit and then connect the power supply to a grounded power source.

NOTE: The power supply is multi-voltage, therefore no external adjustments are required.



4

Connect Foot Pedal

The ProcessMate 100 comes equipped with a foot pedal cycle actuation device.

- Connect the foot pedal to the back of the ProcessMate 100.

NOTE: If you prefer, you can also operate the ProcessMate 100 with an optional finger switch (#7016718).

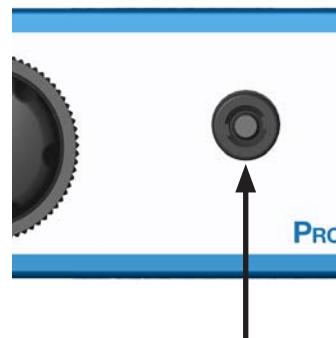


Installation (continued)

5

Attach Vacuum Pickup Pen / Wand Assembly

- a. Locate the air output quick connector located on the front face of the ProcessMate 100.
- b. Attach the male quick connector on the vacuum pickup pen / wand assembly to the output quick connector by pushing and twisting.



6

Attach Tip & Suitable Vacuum Cup

- Twist on the appropriate pickup tip and select a cup to fit the application need.

NOTE: A selection of pickup tips and cups was included in the system package for your convenience. Please contact an EFD Application Specialist should you need assistance in selecting a special tip / cup to suit your application needs.

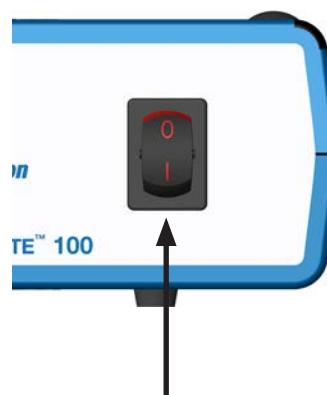


7

Turn On Power to Unit

- a. Locate the power switch on the front display panel of the ProcessMate 100.
- b. To power the unit, simply switch the rocker switch to the "red" position.

Your ProcessMate 100 is now powered and ready to be activated.



Operation

The ProcessMate 100 vacuum pickup system was designed for applications requiring the picking up and placing of small, intricate items. The vacuum effect for each application is strictly dependent on the combination of all the following items:

- Regulator pressure, vacuum pressure
- Dispensing tip size
- Pickup cup size

1. Make sure the power is on and the air supply to the unit is turned on.
2. Place the vacuum pickup cup over the item to be picked up.
3. Turn the regulator counterclockwise until it stops.
4. Depress the foot pedal and gradually and slowly increase the vacuum by turning the air regulator clockwise while trying to pick up the item.

NOTE: The foot pedal must be depressed during the entire duration of pickup and place.

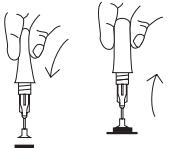
5. Upon successful pickup, place the item at the intended location and release the foot pedal. The vacuum will stop immediately and the item will be released from the vacuum cup.

CAUTION

Excessive vacuum settings can damage delicate components. Always use the minimum required vacuum and verify that components are not damaged by the pickup and place procedure.

6. Repeat this procedure a few times to verify sufficient vacuum setting for the application.

Part Numbers

Item	Part #	Description
	7012329	ProcessMate 100 Vacuum Pickup System Includes assorted anti-static tips and vacuum cups.
	7024803	VacTweezer™ Pickup Tool This kit includes the same assortment of silicone rubber vacuum cups and tips, along with a small squeeze bulb with a luer fitting that attaches to the tips to generate vacuum.

Accessories

Item	Part #	Description
	7002002	5-micron filter regulator Required for production areas where clean, dry filtered factory air is not available, or to stabilize the plant air supply for more consistent deposits.
	7016718	Finger switch Replaces the foot pedal in applications where operators prefer to initiate the vacuum cycle by hand.

Accessories (continued)

Vacuum Pickup Pen

Part #	Description
7016107	Vacuum pickup pen (complete)



Vacuum Straight Tips (does not include vacuum cups)

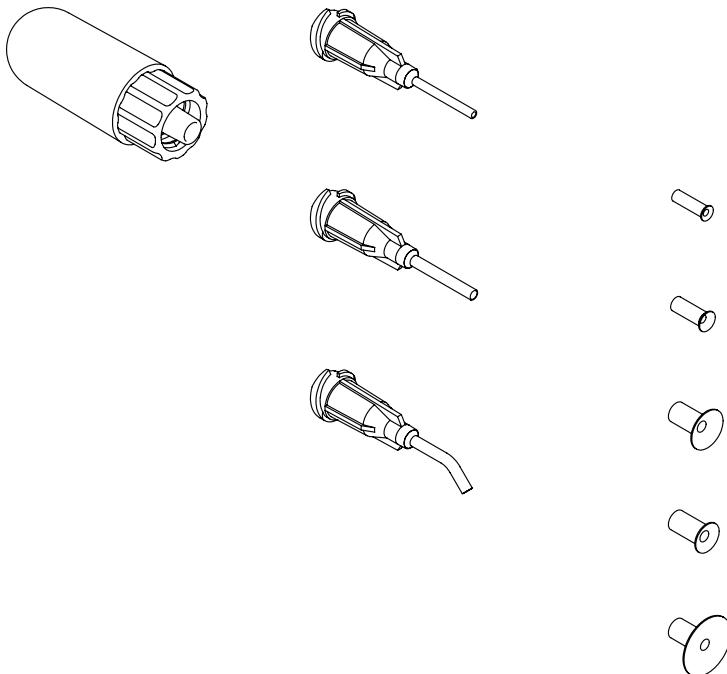
Part #	Size	Description	Quantity
7018043	14 gauge	Tips (olive)	50/box
7018233	21 gauge	Tips (purple)	50/box

Vacuum Pickup Tips, 45° Angled (does not include vacuum cups)

Part #	Size	Description	Quantity
7016906	14 gauge	Tips (olive)	50/box
7016908	18 gauge	Tips (green)	50/box
7016910	21 gauge	Tips (purple)	50/box

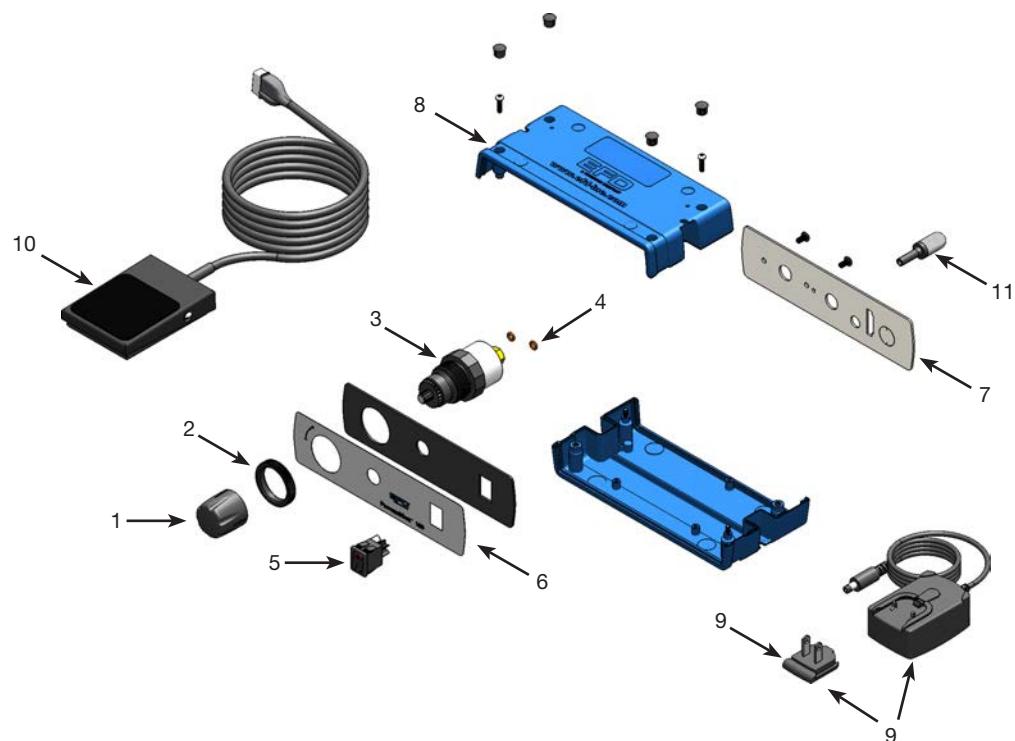
Vacuum Cups

Part #	Size	Description	Quantity
7016889	0.0938" diameter	Vacuum cups	10/box
7016883	0.1250" diameter	Vacuum cups	10/box
7016887	0.1875" diameter	Vacuum cups	10/box
7016881	0.2500" diameter	Vacuum cups	10/box
7016891	0.3750" diameter	Vacuum cups	10/box



Replacement Parts

Item	Part #	Description
1	7012274	Regulator knob, black
2	—	Regulator bezel
3	7012277	Regulator assembly, 0-100 psi
4	7014752	Regulator replacement O-rings
5	—	On / off rocker switch assembly
6	—	Overlay, front, PM100
7	—	Panel, rear, PM100
8	7022009	Case, pack of 2 (top / bottom)
9	7015199	Universal power supply, power supply plug kit
10	7014865	Foot pedal assembly
11	—	Muffler, 6 mm push-in



Troubleshooting

Problem	Solution
No power	Check the power supply connection and DC power supply to the unit.
No vacuum	Check the main air supply and primary regulator.
	Check to make sure that the main air supply is connected to the back of the unit and has not come loose.
	Check to make sure that the regulator is not turned off (fully counterclockwise).
	Check the vacuum pickup pen wand assembly for possible contamination or clogs.
	Check that the vacuum exhaust is not blocked or covered.
	For heavier and larger items, use larger tips and cups and increase vacuum.

NORDSON EFD ONE YEAR LIMITED WARRANTY

This Nordson EFD product is warranted for one year from the date of purchase to be free from defects in material and workmanship (but not against damage caused by misuse, abrasion, corrosion, negligence, accident, faulty installation, or by dispensing material incompatible with equipment) when the equipment is installed and operated in accordance with factory recommendations and instructions.

Nordson EFD will repair or replace free of charge any defective part upon authorized return of the part prepaid to our factory during the warranty period. The only exceptions are those parts which normally wear and must be replaced routinely, such as, but not limited to, valve diaphragms, seals, valve heads, needles, and nozzles.

In no event shall any liability or obligation of Nordson EFD arising from this warranty exceed the purchase price of the equipment.

Before operation, the user shall determine the suitability of this product for its intended use, and the user assumes all risk and liability whatsoever in connection therewith. Nordson EFD makes no warranty of merchantability or fitness for a particular purpose. In no event shall Nordson EFD be liable for incidental or consequential damages.

This warranty is valid only when oil-free, clean, dry, filtered air is used, where applicable.



For Nordson EFD sales and service in over 40 countries, contact Nordson EFD or go to www.nordsonefd.com.

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