Encore® Select HD Robot Gun

Customer Product Manual

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Issued 11/24

For parts and technical support, call the Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

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Table of Contents

Change Record

Revision	Date	Change
01	11/20	Initial Release
02	02/21	Updated spray gun markings and safety information.
03	01/22	Updated approvals information, corrected reference text, and updated power supply test image.

Section 1
Safety

Introduction

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson 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.

Intended Use

Use of Nordson 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

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all federal, state, and local codes.

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, or 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 any 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.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Material Safety Data Sheets (SDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, 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.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- 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 your material 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. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

Grounding inside and around the booth openings must comply with NFPA requirements for Class II, Division 1 or 2 Hazardous Locations. Refer to NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

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:

- Disconnect and lock out system electrical power. Close hydraulic and pneumatic shutoff valves and relieve pressures.
- 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.

Section 2
Overview

Introduction

See Figure 2-1. This manual details the Encore® Select HD Robot Spray Gun.

The Encore Select HD Robot Spray Gun should be used with the Encore HD manual controller or Encore Enhance Controller, which provides electrostatic voltage control, electrode air-wash air, and powder pump air.

Flat spray nozzles with 3-mm slots are shipped with the HD Select spray gun. A conical nozzle kit that contains a conical nozzle, a 26-mm deflector and a conical electrode holder is available as an option. Use the conical nozzle kit to convert from flat spray to conical spray applications.

See *Spray Gun Options* in the *Parts* section for information on additional options.

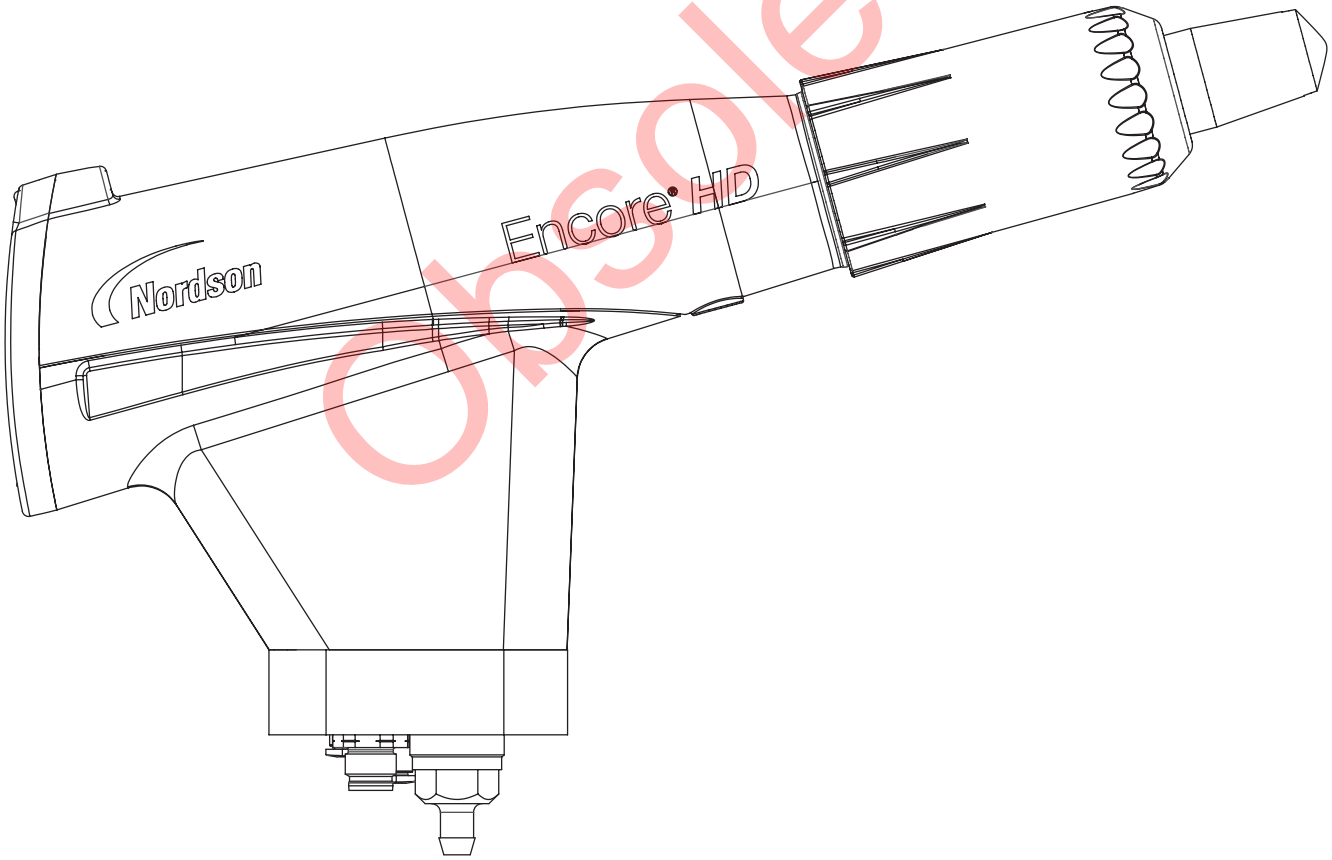


Figure 2-1 Encore Select Robot Spray Gun

Specifications

Model: Encore Applicator	
Input Rating:	+/- 19 VAC, 1 A
Output Rating:	100 KV, 100 µA
Input Air:	6.0-7.6 bar (87-110 psi), <5µ particulates, dew point <10 °C (50 °F)
Max Relative Humidity:	95% non-Condensing
Ambient Temperature Rating:	+15 to +40 °C (59-104 °F)
Hazardous Location Rating for Applicator:	Zone 21 or Class II, Division 1
Dust Ingress Protection:	IP6X

Dimensions and Weights

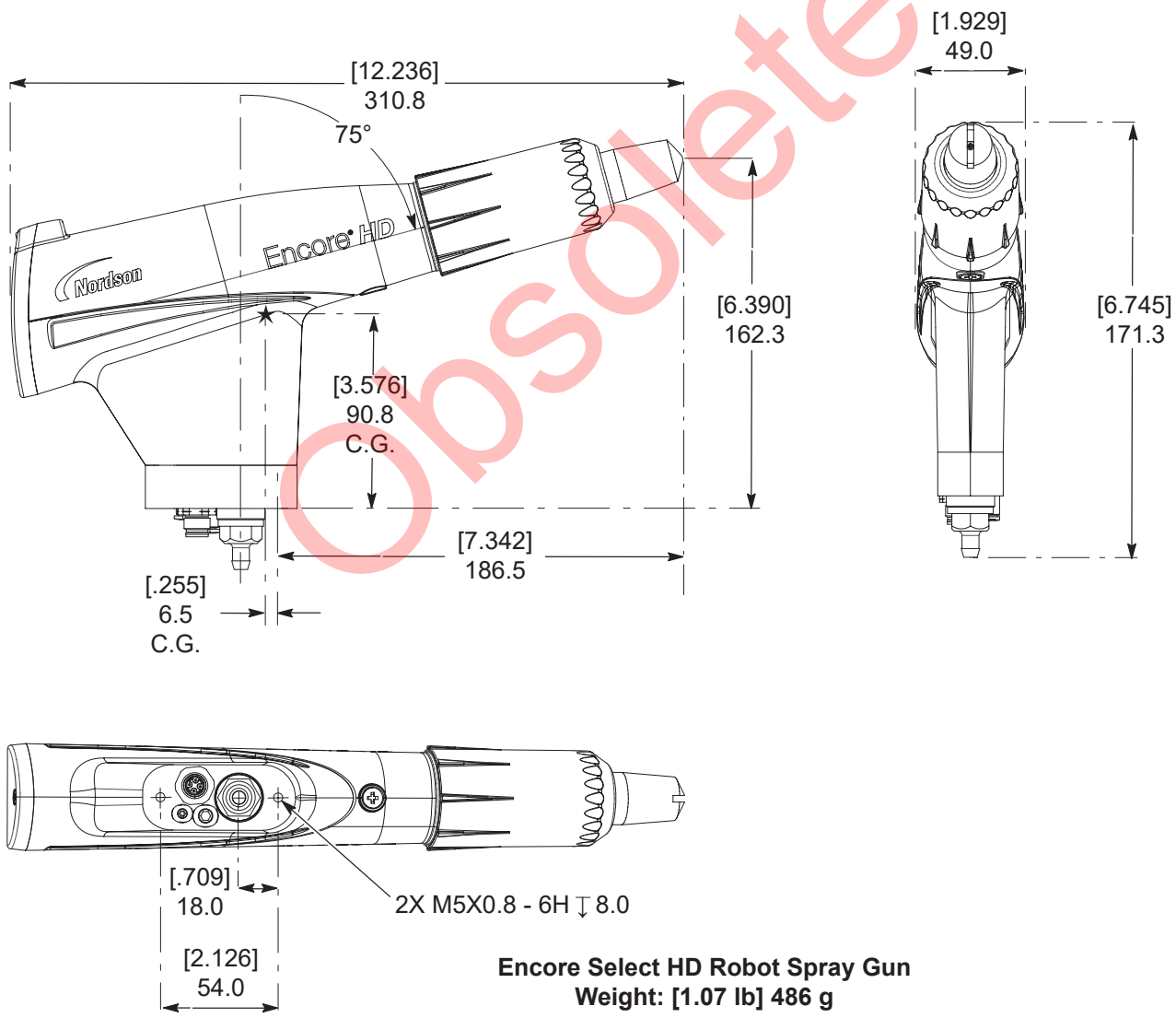


Figure 2-2 Encore Select HD Robot Spray Gun Dimensions and Weights

Equipment Markings

Applicator Certification Marking

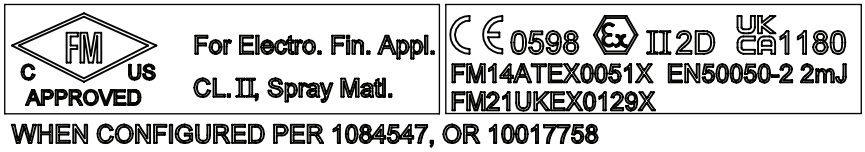


Figure 2-3 Applicator Certification Marking

Serial Number Marking

The spray gun serial number contains the location, year, and month it was manufactured. The serial number starts with “AA20A”. The “AA” signifies that the product was built in Amherst, Ohio, the “20” representing the year of manufacture, 2020. The “A” means the month of January, “B” would mean February, and so on through “L”, or December.

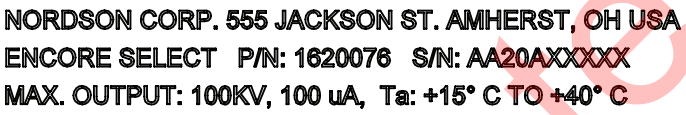


Figure 2-4 Encore Select HD Serial Number

European Union, EX, Special Conditions for Safe Use

1. The Encore Select HD Robot Spray Gun shall only be used with the associated Encore XT/HD interface control unit and Encore HD controller power unit, or the Encore Enhance controls, over the ambient temperature range of +15 °C to +40 °C.
2. Caution should be taken when cleaning external painted and non-metallic surfaces of the controller, interface, applicator, and all accessories. There is a potential for static electricity build up on these components. Follow the manufacturer’s instructions to avoid possible electrostatic charging hazards. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in PD CLC/TR 60079-32-1 and IEC TS 60079-32-1.

Section 3

Setup

System Connections

WARNING: This diagram does not show system grounds. All conductive equipment in the spray area must be connected to a true earth ground.

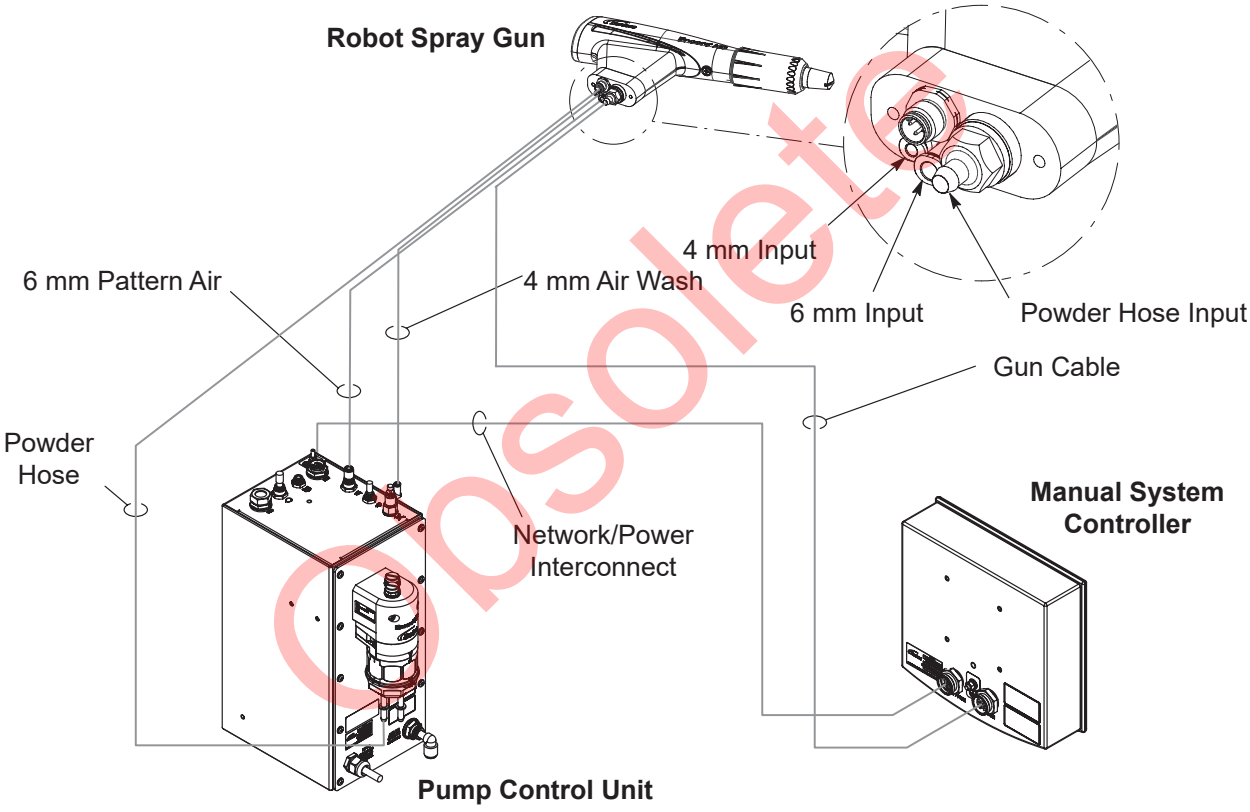


Figure 3-1 System Diagram (Common System Equipment Shown)

Spray Gun Installation

See Figure 3-2 and Figure 3-3 for spray gun connection illustrations.

1. Connect the 6-mm pattern air tubing to the quick-disconnect fitting (1) in the gun base. Connect the other end to the pattern air tubing on the fitting located on the pump control unit.
2. Connect the 4-mm clear electrode air wash tubing to the quick-disconnect fitting (4) in the bottom of the gun base. Connect the other end to the electrode air wash tubing on the 90° flow control fitting on top of the pump control unit.
3. Connect the powder hose over the barbed end of the hose connector (2).
4. Connect the gun cable to the gun cable receptacle (3).
5. Route the powder hose, gun cable, and air tubing to the system controller. Take care to not kink, bind, or deform the powder tubing.

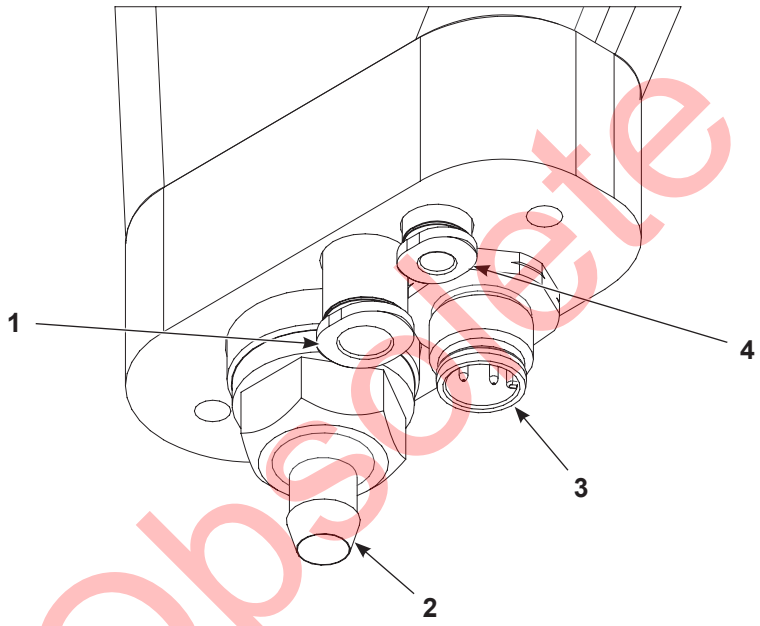


Figure 3-2 Spray Gun Connections

Dual Spray Gun System Connections

WARNING: This diagram does not show system grounds. All conductive equipment in the spray area must be connected to a true earth ground.

NOTE: Refer to manual 1604870, *Encore HD and XT Manual Powder Spray System Controller* for more information about the controller.

Figure 3-3 shows a typical dual robot spray gun system and the connections required for CAN communication between the Encore Controller Interface and the customer PLC.

Configuration of the Encore Controller Interface and the iFlow® module PCA inside the Encore HD pump control unit must be completed during system installation.

See table on page 7-10 for system component part numbers.

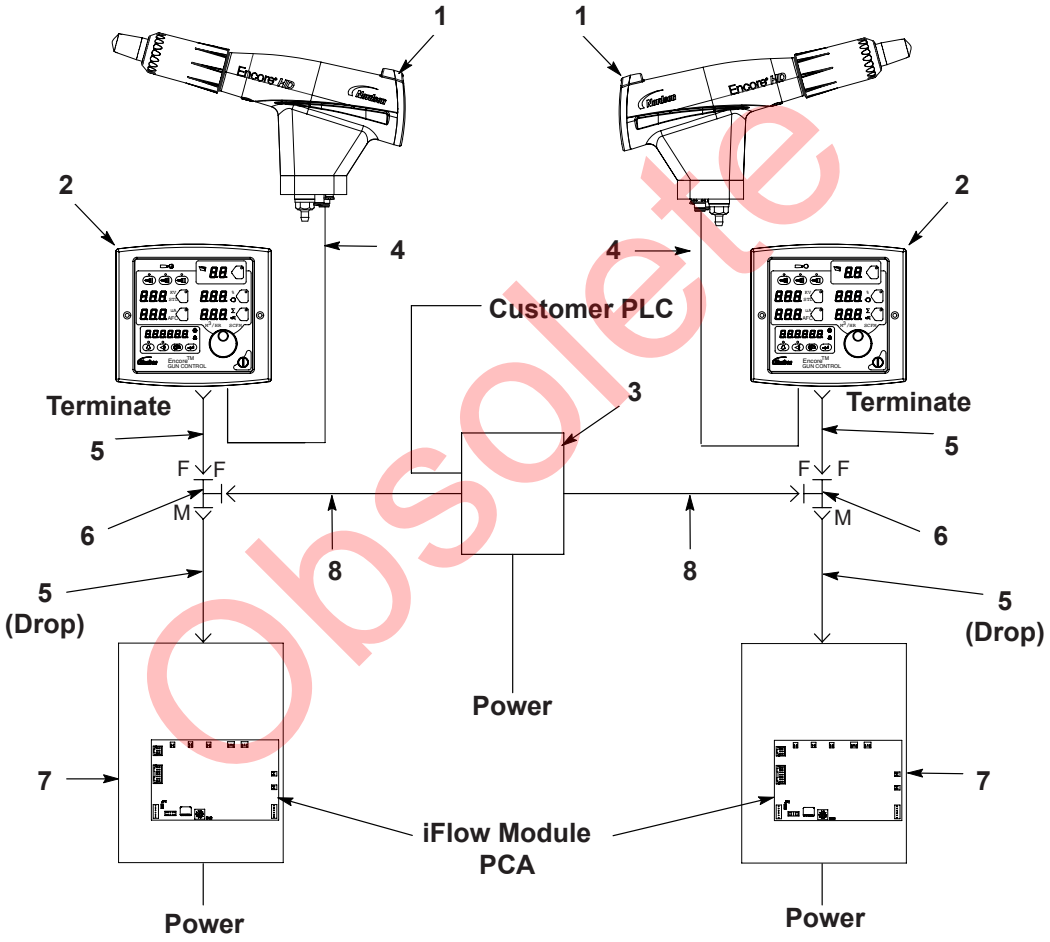


Figure 3-3 Connections for 2 Spray Gun Robot Systems

1. Encore Select HD Robot spray gun
2. Encore controller interface
3. Control unit, PLC gateway
4. Encore robot cable
5. Controller interface cable
6. DeviceNet 5-pin cable Tee
7. Encore HD pump control unit
8. Network cable

Encore Controller Interface Configuration Settings

NOTE: Refer to manual 1604870, *Encore HD and XT Manual Powder Spray System Controller*, for more information about the controller.

See Figure 3-3. Each Encore controller interface (2) must be configured with the function codes set to the values listed in Table 3-1 for each spray gun in a dual robot spray gun system.

Table 3-1 Encore Controller Function Code Values

Function Code	Spray Gun 1	Spray Gun 2
F00	02 (Robot)	02 (Robot)
F17	10 (Presets)	10 (Presets)
F18	01 (HDLV)	01 (HDLV)
F19	01 (EXT)	01 (EXT)
F20	01 (GUN)	02 (GUN)

iFlow® PCA Configuration Settings

The following switch settings and CAN network jumper settings must be set to the values listed in Table 3-2 for each of the spray guns in a dual robot spray gun system.

Table 3-2 Encore Controller Function Code Values

Robot Spray Gun	Address Switch Value
Spray Gun 1	SW2=1
Spray Gun 2	SW2=2

1. See Figure 3-3. Access the iFlow PCA inside the Encore HD pump control unit (7).
2. See Figure 3-4. The address switch SW2 must be set to the spray gun number that it is supplying.
3. If the Encore HD pump control unit (7) is connected to the Nordson CAN network on the drop, then the network terminator on JP1 must be removed on each of the pump control units.

NOTE: Each drop on the CAN network is limited to 6 m (20 ft) maximum.

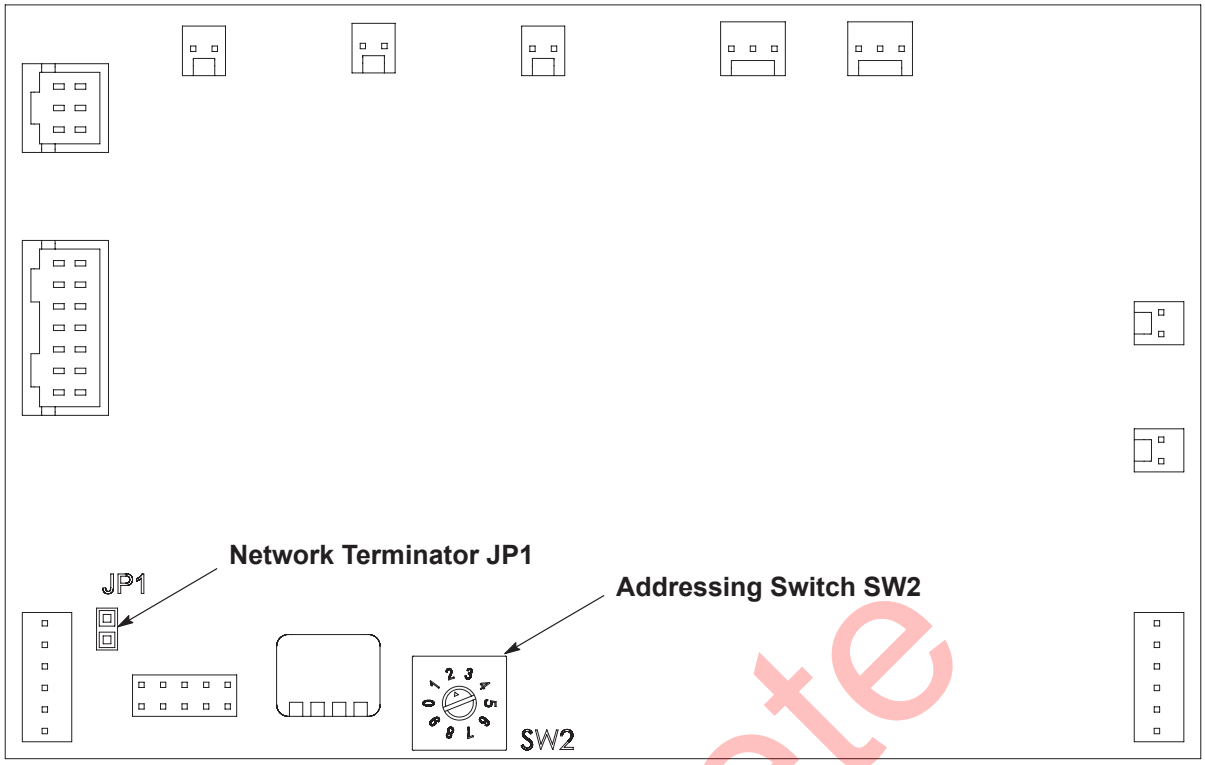


Figure 3-4 iFlow Module PCA

Section 4

Operation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: This electrostatic spraying equipment could present hazards if it is not operated according to the information given in the instruction manual.

WARNING: All electrically conductive equipment in the spray area must be grounded. Ungrounded or poorly grounded equipment can store an electrostatic charge which can give personnel a severe shock or arc and cause a fire or explosion.

This manual includes information on the Encore Select HD Robot Powder Spray Gun. Refer to appropriate system, controller, and control panel manuals for information on system components.

Automatic and manual control of electrostatic output, air wash air flow, and pump powder flow, are provided by the spray gun controller. Spray gun triggering and positioning are provided by the Robot controller, or a PLC supplied by either Nordson or the customer.

Refer to the appropriate system, controller, and control panel manuals for information and instructions regarding system components.

Refer to the pump control unit manual for instructions on adjusting electrode air wash flow.

Daily Operation

WARNING: All conductive equipment in the spray area must be connected to a true earth ground. Failure to observe this warning may result in a severe shock.

Initial Startup

With the fluidizing and powder flow set to zero, and no parts in front of the spray gun, trigger the spray gun and record the µA output. Monitor the µA output daily, under the same conditions. A significant increase in µA output indicates a probable short in the gun resistor. A significant decrease indicates a resistor or voltage multiplier requiring service.

Startup

1. Turn on the spray booth exhaust fan.
2. Turn on the system air supply.
3. Make sure the spray gun is not triggered, then turn on controller power. The displays and icons on the controller interface and gun interface should light.

Standby Button

Use the **Standby** button on the Encore HD controller to shut off the interface and disable the spray gun during breaks in production. When the controller interface is off the spray gun cannot be triggered, and the spray gun interface is disabled.

To turn off controller power, shut system power off at power unit or control panel.

Electrode Air Wash Operation

Electrode air wash air continually washes the spray gun electrode to prevent powder from collecting on it. Electrode air wash air turns on and off automatically when the spray gun is triggered on and off.

Changing Flat Spray Nozzles

WARNING: Turn off the spray gun and ground the electrode to prevent powder from collecting on it. Electrode air wash air turns on and off automatically when the spray gun is triggered on and off.

NOTE: The tapered electrode holder (1A) of the electrode assembly has been designed for optimized cleaning during color changes on systems using flat spray nozzles. This tapered electrode holder will not accept conical deflectors.

1. Purge the spray gun and turn off the interface in order to prevent accidentally triggering the spray gun on.
2. See Figure 4-1. Unscrew the nozzle nut (3) counterclockwise.
3. Pull the flat spray nozzle (2) off the electrode assembly (1).

NOTE: Re-install the electrode assembly if it comes out of the powder outlet tube.

4. Install a new nozzle (2) on the electrode assembly (1). The nozzle is keyed to the electrode assembly. Do not bend the electrode wire.
5. Screw the nozzle nut (3) onto the spray gun body clockwise until finger-tight.

NOTE: To clean nozzles, use the *Recommended Cleaning Procedure for Powder Contact Parts* on page 4-7.

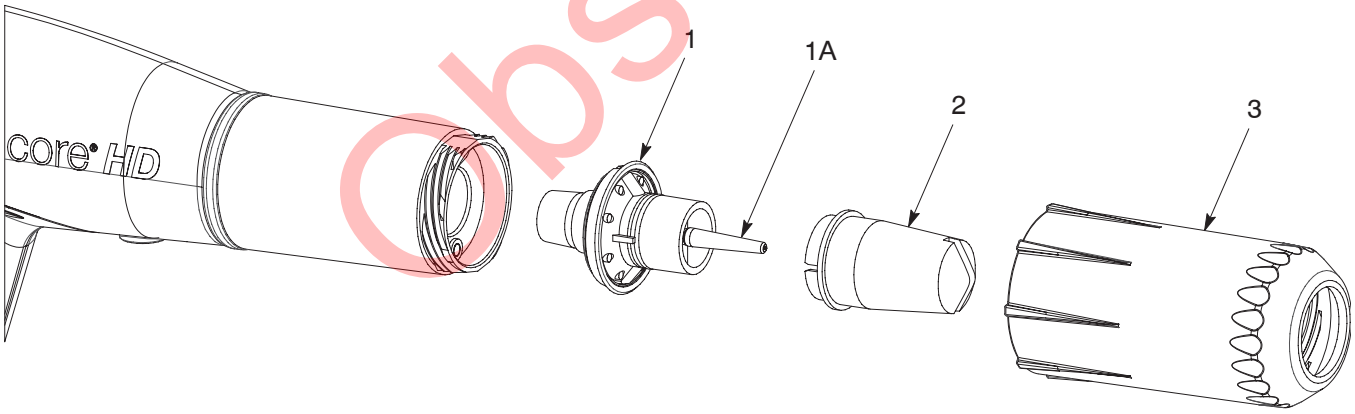


Figure 4-1 Changing a Flat Spray Nozzle

Converting from Flat Spray Nozzles to Optional Conical Nozzles

WARNING: Turn off the interface, and ground the electrode before performing this procedure. Failure to observe this warning could result in a severe electrical shock.

NOTE: To clean nozzles, use the *Recommended Cleaning Procedure for Powder Contact Parts* on page 4-7.

NOTE: The tapered flat spray electrode holder shipped with the spray gun will need to be changed in order to accept the conical nozzles and deflectors. The optional conical nozzle kit is required for this conversion.

1. Purge the spray gun and turn off the interface in order to prevent accidentally triggering the spray gun on.
2. Convert the electrode holder and the nozzle. See Figure 4-2.
   a. Unscrew the nozzle nut counterclockwise and remove it. Pull the flat spray nozzle off the electrode assembly.
   b. Remove the tapered flat spray electrode holder. Do not bend the electrode wire.
   c. Install the non-tapered conical spray electrode holder over the electrode.
   d. Install the conical spray nozzle on the electrode assembly. The nozzle is keyed to the electrode assembly. Screw the nozzle nut onto the spray gun body clockwise until finger-tight. Install a deflector on the electrode assembly. Do not bend the electrode wire.

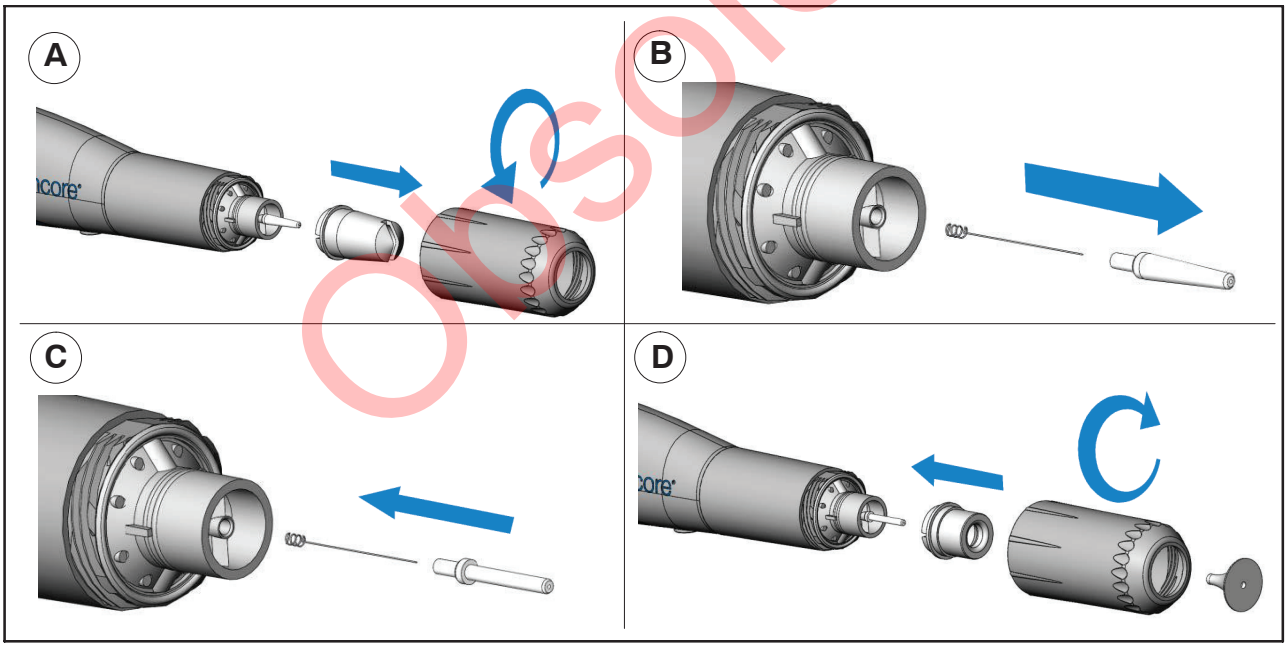


Figure 4-2 Converting from a Flat Spray Nozzle to a Conical Spray Nozzle

Changing Optional Deflectors or Conical Nozzles

WARNING: Release the spray gun trigger, turn off the interface, and ground the electrode before performing this procedure. Failure to observe this warning could result in a severe electrical shock.

NOTE: The tapered flat spray electrode holder shipped with the spray gun will need to be changed in order to accept the conical nozzles and deflectors. The conical nozzle kit shipped with the spray gun is required for this conversion. See page 4-4 for conversion instructions.

1. Purge the spray gun and turn off the interface to prevent accidentally triggering the spray gun on.
2. Gently pull the deflector (4) off the electrode holder (1A). If only changing the deflector, install the new one on the electrode holder, being careful not to bend the electrode wire.
3. To change the entire nozzle, unscrew the nozzle nut (3) counterclockwise.
4. Pull the conical nozzle (2) off the electrode assembly (1).

NOTE: If the electrode assembly comes out of the powder outlet tube, re-install it.

5. Install a new conical nozzle (2) on the electrode assembly. The nozzle is keyed to the electrode assembly (1).
6. Screw the nozzle nut (3) onto the spray gun body clockwise until finger-tight.
7. Install a new deflector (4) on the electrode assembly. Do not bend the electrode wire.

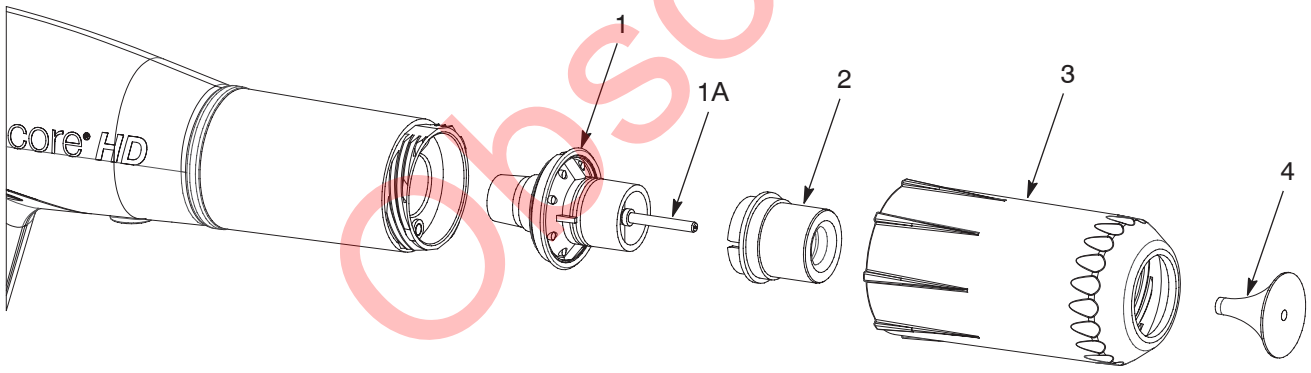


Figure 4-3 Changing a Conical Nozzle

Installing the Optional Pattern Adjuster Kit

An optional pattern adjuster kit with integral conical nozzle can be installed to shape the powder spray from the deflector.

NOTE: Deflectors are not included with the pattern adjuster kit; they must be ordered separately. The 38-mm deflector cannot be used with the kit.

1. Remove the deflector, nozzle nut, and conical nozzle, or the nozzle nut and flat spray nozzle.
2. Blow off the electrode assembly.
3. Install the integral conical nozzle (1) onto the electrode assembly and screw the nozzle nut clockwise until finger-tight.
4. Install a 16, 19, or 26-mm deflector (2) onto the electrode holder.

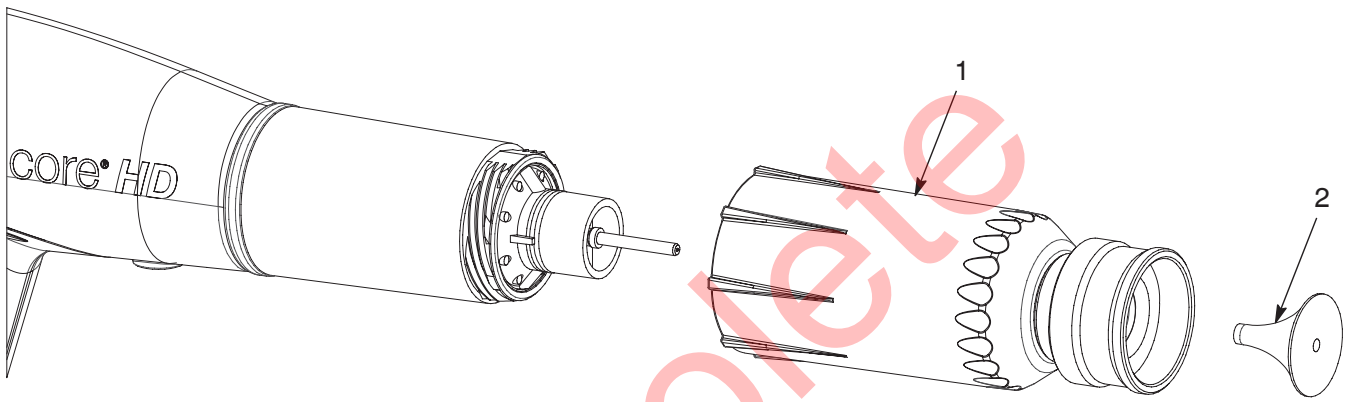


Figure 4-4 Pattern Adjuster Kit Installation

Shutdown

1. Press the Standby button to turn off the spray gun and interface.
2. Turn off the system air supply and relieve the system air pressure.
3. If shutting down for the night or a longer period of time, shut off the system power.

Maintenance

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: Before performing the following tasks, turn off the controller and disconnect system power. Relieve system air pressure and disconnect the system from its input air supply. Failure to observe this warning may result in personal injury.

Recommended Cleaning Procedure for Powder Contact Parts

Nordson Corporation recommends using an ultrasonic cleaning machine and Oakite® BetaSolv emulsion cleaner to clean spray gun nozzles and powder path parts.

NOTE: Do not immerse the electrode assembly in solvent. It cannot be disassembled; cleaning solution and rinse water will remain inside the assembly.

1. Fill an ultrasonic cleaner with BetaSolv or an equivalent emulsion cleaning solution at room temperature. Do not heat the cleaning solution.
2. Remove the parts to be cleaned from the spray gun. Remove the O-rings. Blow off the parts with low-pressure compressed air.

NOTE: Do not allow the O-rings to come in contact with the cleaning solution.

3. Place the parts in the ultrasonic cleaner and run the cleaner until all parts are clean and free of impact fusion.
4. Rinse all parts in clean water and dry before re-assembling the spray gun. Inspect the O-rings and replace any that are damaged.

NOTE: Do not use sharp or hard tools that will scratch or gouge the smooth surfaces of powder contact parts. Scratches will cause impact fusion.

Maintenance Procedures

Component	Procedure
Spray Gun (Daily)	1. Point the spray gun into the booth. Remove the suction line from the hopper or box feeder and point them in the booth, as well. Push the Color Change button on the system controller and purge the powder delivery system. 2. Remove the nozzle and electrode assembly and clean them with low pressure compressed air and clean cloths. Check them for wear, and replace them if necessary. 3. Clean the spray gun face surface (where the electrode assembly attaches) with low pressure compressed air and a clean cloth. 4. Blow off the spray gun and wipe it down with a clean cloth.
System Grounds	Daily: Make sure the system is securely connected to a true earth ground before spraying powder. Weekly: All grounds should be inspected weekly at minumum.

Section 5

Repair

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Spray Gun Repair

Item numbers in this section match the item numbers in the parts lists.

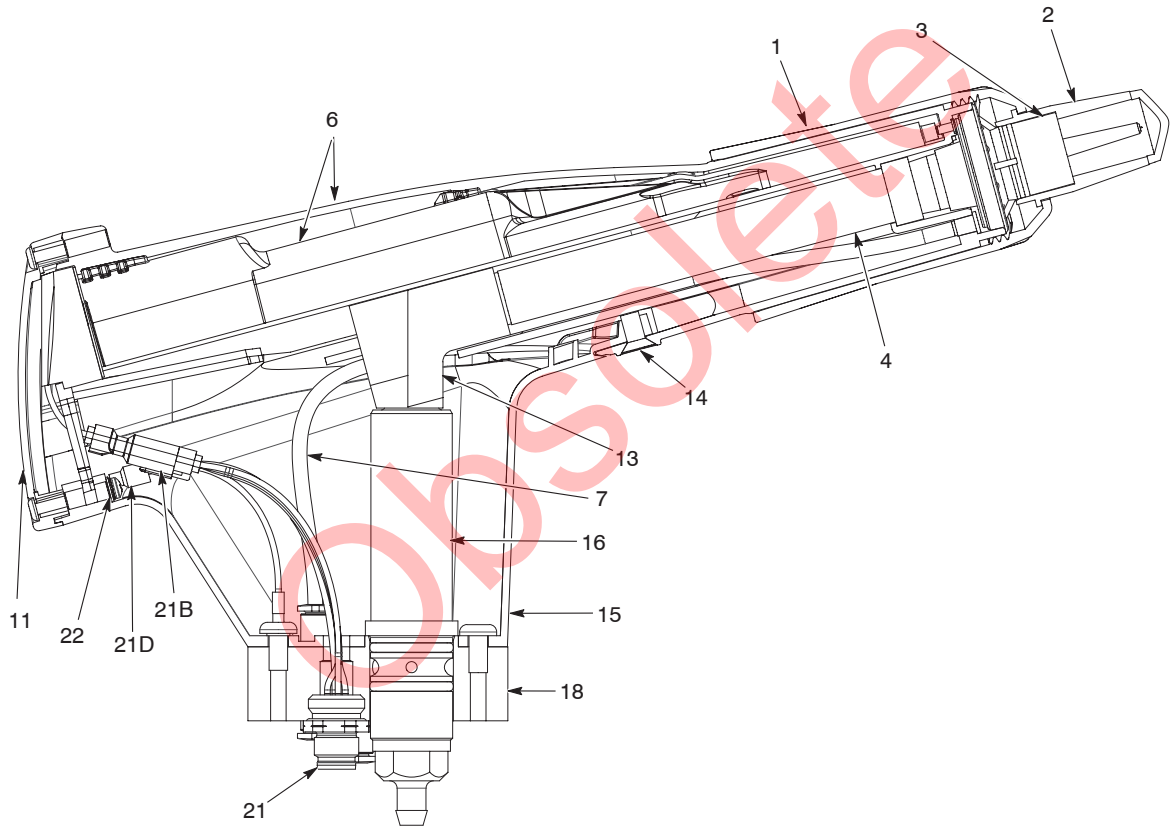


Figure 5-1 Section View of Spray Gun (item numbers in this section match item numbers in parts list)

1. Nozzle nut
2. Nozzle, flat spray
3. Electrode assembly, flat spray
4. Outlet tube assembly
6. Power supply/body kit
7. Filter assembly
11. End cap
13. Elbow
14. Screw (handle to spray gun body)
15. Lower body
16. Inlet tube/hose adapter kit
18. Gun base
21. Gun cable receptacle
21B. Power supply connector (J2)
21D. Ground terminal (J1)
22. Ground screw/lock washer

Power Supply and Powder Path Replacement

Spray Gun Disassembly

1. See Figure 5-1. Unscrew the nozzle nut (1) and remove the nozzle (2) and electrode assembly (3) from the spray gun.
2. Remove the end cap (11) by removing the two M3 screws.
3. Insert a small screwdriver into the recess in the J2 gun harness/power supply connectors to release the catch and disconnect them.
4. See Figure 5-2. Remove the black nylon screw (14) from the gun body.
5. Grasp the lower body (15) in one hand and the gun body (6) in the other. Press the thumbs of each hand together while pulling carefully in opposite directions to separate the gun body from the lower body. The air wash tubing from the filter assembly (7) will prevent a complete separation; leave it connected unless it must be replaced.

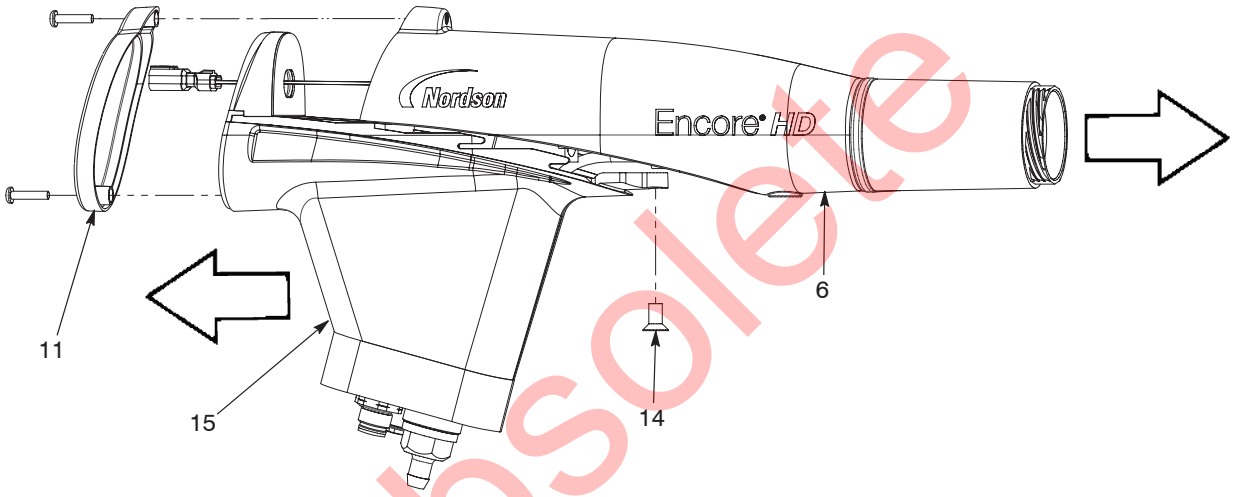


Figure 5-2 Spray Gun Body Disassembly

Power Supply Replacement

NOTE: If replacing powder path, skip this procedure.

1. See Figure 5-3. Slide the power supply (6A) out of the gun body (6B).
2. Check the gasket (8) on the back of the bulkhead (9). Replace it if it is damaged. The gasket is attached to the bulkhead with pressure-sensitive adhesive.

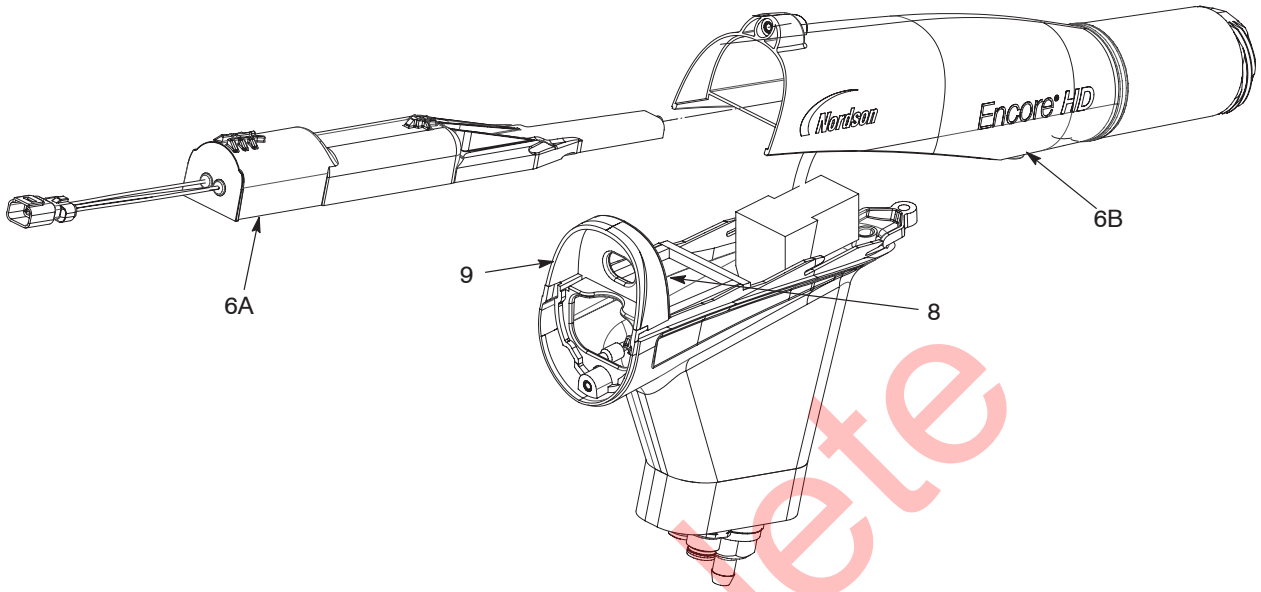


Figure 5-3 Power Supply Replacement

3. Slide the new power supply into the upper cavity of the gun body, guiding the gun body ribs between the raised grooves on the top of the power supply.
4. Press on the end of the power supply to ensure that the power supply contact tip is firmly seated against the spring contact inside the gun body.
5. Route the power supply harness connector through the top hole in the bulkhead.

Powder Path Removal

NOTE: Skip these steps if not replacing the powder path. Go to page 5-5 to reassemble the spray gun.

1. Perform the *Spray Gun Disassembly* procedure on page 5-2.
2. See Figure 5-4. Remove the elbow (13) from the inlet tube assembly (4).
3. Push the inlet tube assembly (16) up and out of the gun base (18).
4. Push the outlet tube assembly (4) out of the front of the gun body (6B).
5. Blow off the inlet tube, outlet tube, and elbow, and replace them if the interiors are worn or coated with impact-fused powder. If re-using the tubes, make sure the O-rings are undamaged.

Powder Path Installation

1. See Figure 5-4. Install the outlet tube assembly (4) into the gun body (6B), with the end of the tube flush with the end of the gun body.
2. Install the inlet tube assembly (16) into the lower body (15), then install the end of the tube into the gun base (18).
3. Install the elbow (13) onto the inlet tube assembly, with the end oriented toward the front of the spray gun as shown.

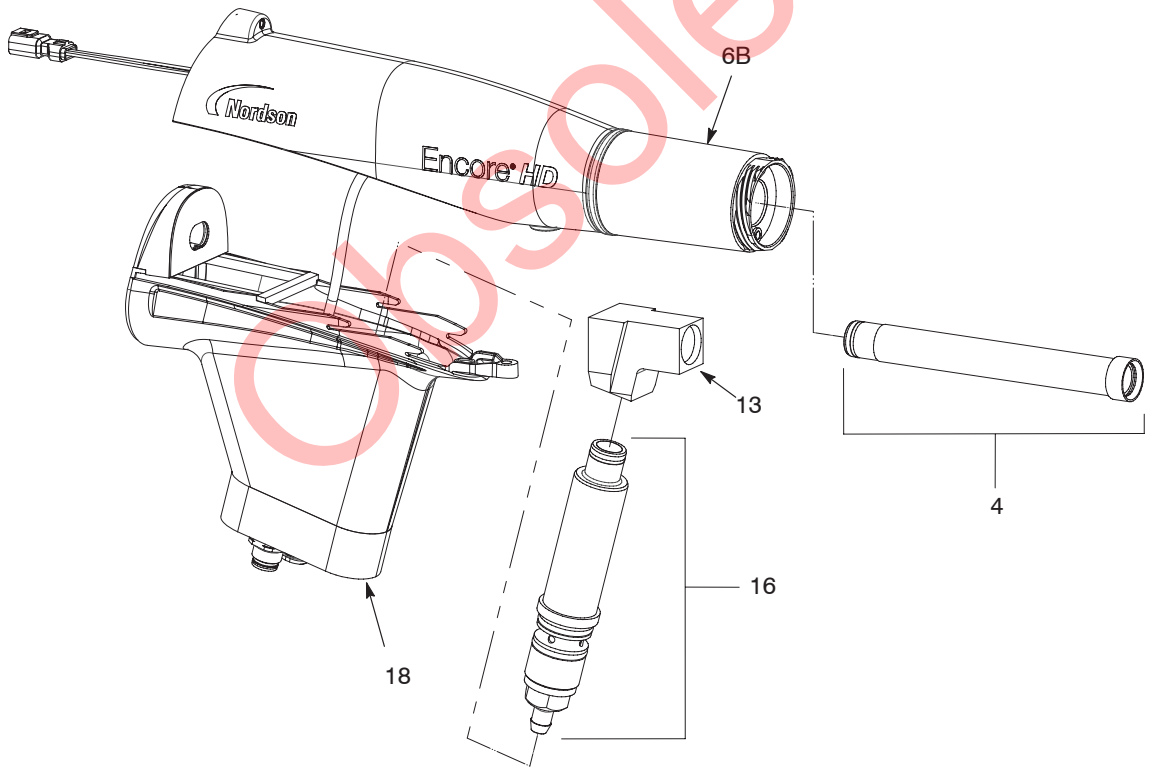


Figure 5-4 Powder Path Replacement

Spray Gun Re-Assembly

1. See Figure 5-5. Align the gun body with the lower body and slide them together, engaging the internal ribs of the gun body with the lower body tabs.
2. Install the black nylon screw to secure the lower body to the gun body.

NOTE: Make sure that the power supply harness is not pinched between the bulkhead and the power supply.

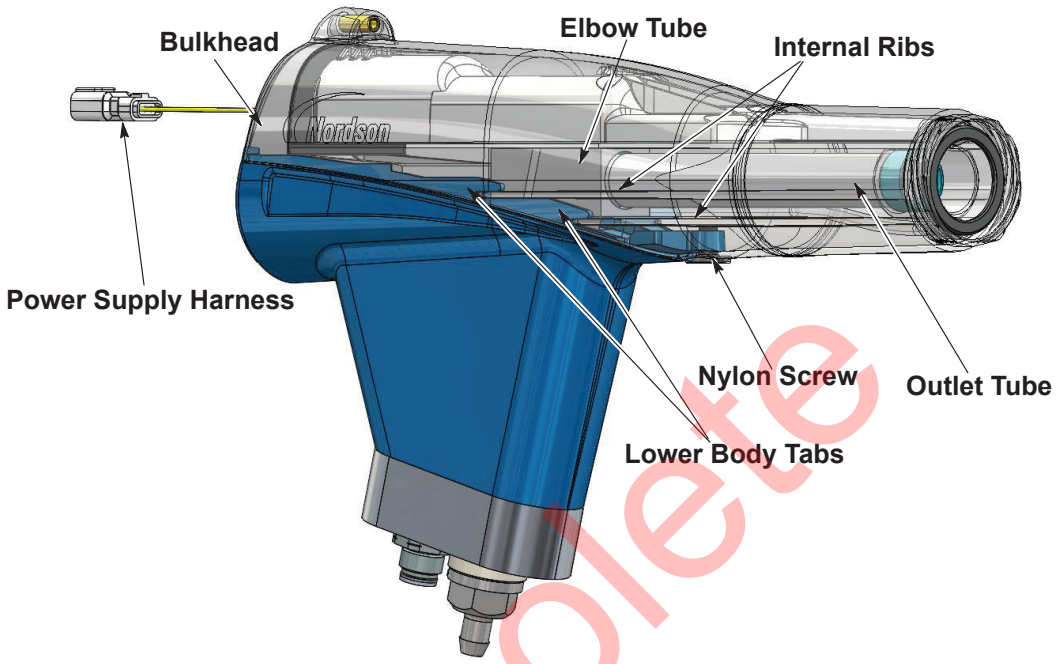


Figure 5-5 Spray Gun Re-assembly

3. Insert your finger into the outlet tube at the front of the spray gun and align the inside end of the tube with the elbow, then push on the tube to seat it in the elbow.

NOTE: To verify proper installation, place a flashlight inside the bottom of the inlet adapter and verify the internal connections by looking through the outlet tube from the front of the powder spray gun.

4. Connect the power supply harness to the gun cable, then tuck both through the bottom hole in the bulkhead, into the gun body.
5. See Figure 5-1. Install the end cap (11), securing it to both the lower body and gun body with the M3 screws.
6. Install the electrode assembly (3) into the the end of the outlet tube at the front of the gun body. Make sure the electrode wire is not bent or broken.

NOTE: The flat spray and conical nozzles each have their own respective electrode holders.

7. Install the nozzle (2) on the electrode assembly, making sure the keys in the electrode assembly slide into the slots on the nozzle.
8. Install the nozzle nut (1) over the nozzle and rotate clockwise to secure.

Section 6

Troubleshooting

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

WARNING: Before making repairs to the controller or spray gun, shut off system power and disconnect the power cord. Shut off the compressed air supply to the system and relieve the system pressure. Failure to observe this warning could result in personal injury.

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact Nordson technical support at (800) 433-9319 or your local Nordson representative for help.

General Troubleshooting Chart

Problem	Possible Cause	Corrective Action
1. Uneven pattern, unsteady or inadequate powder flow	Blockage in spray gun, powder feed hose, or pump	1. Purge the spray gun. Remove the nozzle and electrode assembly and clean them. 2. Disconnect the powder feed hose from the spray gun and blow out the powder tube with an air gun. 3. Disconnect the feed hose from the pump and spray gun and blow out the feed hose. Replace the feed hose if it is clogged with powder. 4. Disassemble and clean the pump.
	Nozzle, deflector, or electrode assembly worn, affecting pattern	Remove, clean, and inspect the nozzle, deflector, and electrode assembly. Replace worn parts as necessary. If excessive wear or impact fusion is a problem, reduce the flow rate and atomizing air flow.

Continued...

Problem	Possible Cause	Corrective Action
1. Uneven pattern, unsteady or inadequate powder flow (cont...)	Damp powder	Check the powder supply, air filters, and dryer. Replace the powder supply if contaminated.
	Low pump air flow/pressure	Adjust pump air flow/pressure.
	Improper fluidization of powder in feed hopper	Increase the fluidizing air pressure. If the problem persists, remove the powder from the hopper. Clean or replace the fluidizing plate if contaminated.
	iFlow module out of calibration	Perform the re-zero procedure described in the Encore HD/XT system controller manual.
2. Voids in powder pattern	Worn nozzle or deflector	Remove and inspect the nozzle or deflector. Replace worn parts.
	Plugged electrode assembly or powder path	Remove the electrode assembly and clean. Remove powder path if necessary and clean.
	Electrode air-wash flow too high	Air-wash flow is controlled by a fixed orifice. Refer to the controller manual for more troubleshooting information.
3. Loss of wrap, poor transfer efficiency	Low electrostatic voltage	Increase the electrostatic voltage.
	Poor electrode connection	Remove the nozzle and electrode assembly. Clean the electrode and check for carbon tracking or damage. Check the electrode resistance as shown on page 6-5. If the electrode assembly is good, remove the spray gun power supply and check its resistance as shown on page 6-4.
	Poorly grounded parts	Check the conveyor chain, rollers, and part hangers for powder buildup. The resistance between the parts and ground must be 1 megohm or less. For best results, 500 ohms or less is recommended.
4. No kV output from the spray gun (display shows 0 kV when spray gun triggered), but powder is spraying	Damaged spray gun cable	Perform the *Spray Gun Cable Continuity Checks* on page 6-5. If an open or shorted connection is found, replace the cable.
	If an open or shorted connection is found, replace the cable.	Perform the *Power Supply Resistance Test* on page 6-4.
5. No kV output from the spray gun (interface shows kV output), but powder is spraying	Spray gun power supply open	Perform the *Power Supply Resistance Test* on page 6-4.

Continued...

Problem	Possible Cause	Corrective Action
6. No kV output from the spray gun (interface shows kV output), but powder is spraying	Damaged spray gun cable	Perform the *Spray Gun Cable Continuity Test* on page 6-5.
7. Insufficient electrode air-wash flow	Powder buildup on the electrode tip	Air-wash flow is controlled by a fixed orifice. Check the air-wash tubing, and check for flow at the output fitting when the spray gun is triggered on. Refer to your controller manual for more troubleshooting information.
8. Low powder flow or powder flow surging	Low supply air pressure	Controller air supply pressure must be greater than 5.86 bar (85 psi).
	Supply air filter plugged or filter bowl full - water contamination of flow controller	Remove bowl and drain water/dirt. Replace filter element if necessary. Clean system, replace components if necessary.
	Air tubing kinked or plugged	Check flow and atomizing air tubing for kinks.
	Pump not assembled correctly	Refer to Encore HD pump manual.
	Pick-up tube blocked	Check for debris or bag (VBF units) blocking pick-up tube.
	Fluidizing air too low	If fluidizing air is set too low, the pump will not operate at peak efficiency.
	Powder hose plugged	Blow out powder hose with compressed air.
	Powder hose kinked	Checked for a kinked powder hose.
	Spray gun powder path plugged	Check hose connector, powder tube, and electrode support for impact fusion or debris. Clean as necessary with compressed air.
9. No KV when spray gun is triggered ON, powder flow OK	KV set to zero	Change KV to a positive value.
	Check the alarm screen for messages.	Refer to your controller manual for troubleshooting procedures.
10. No powder flow when spray gun is triggered ON, kV OK	Input air turned OFF	Check the controller console air supply.

Spray Gun Power Supply Resistance Test

Use a megohm meter to check the resistance of the power supply, from the J2-3 feedback terminal at the connector to the contact pin inside the front end. The resistance should be between 225-335 megohms. If the reading is infinite, switch the meter probes. If the resistance falls outside this range, replace the power supply.

NOTE: There are multiple variables that can affect the Meg-Ohm readings of your meter (temperature and measurement voltage). If the Meg-Ohm meter output voltage differs from the 500 Vdc setting, it will have a direct impact on the measurement accuracy. Measurements should also be taken at room temperature 22 °C or 72 °F. Allow time for the multiplier to cool to room temperature for repeatable results.

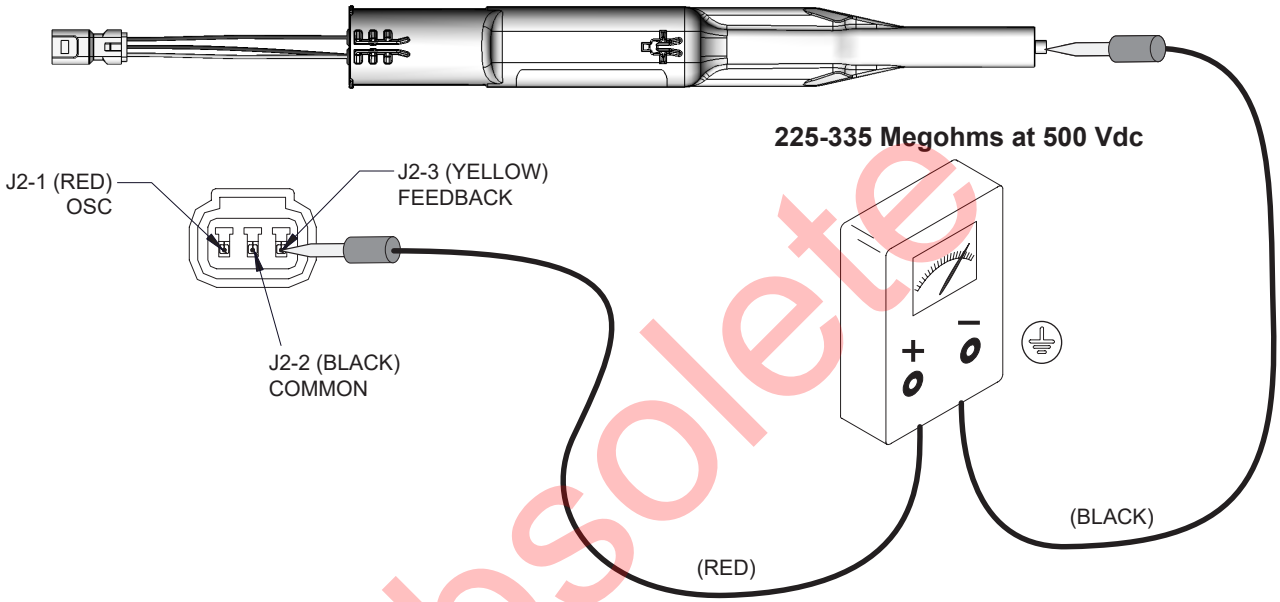


Figure 6-1 Power Supply Resistance Test

Electrode Assembly Resistance Test

Use a megohm meter to measure the resistance of the electrode assembly from the contact ring on the back to the antenna wire in the front. The resistance should be 19-21 megohms. If the resistance is out of this range replace the electrode assembly.

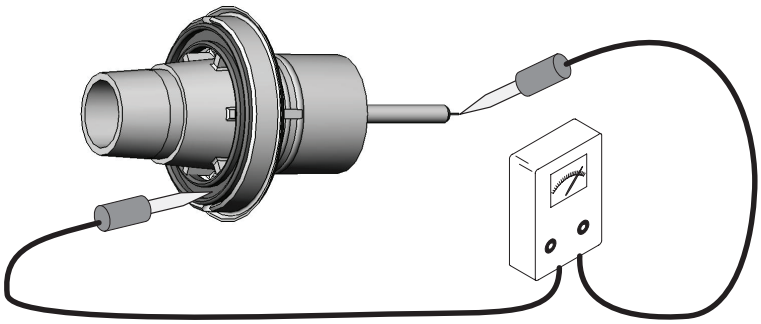


Figure 6-2 Electrode Assembly Resistance Test

Cable Continuity Test

Use a standard ohmmeter to check the gun cables and harness for continuity.

Gun Cable Receptacle Harness

This harness is used on both the bar-mount and tube-mount spray guns to connect the power supply (voltage multiplier) to the extension cable (tube-mount spray gun) or gun cable.

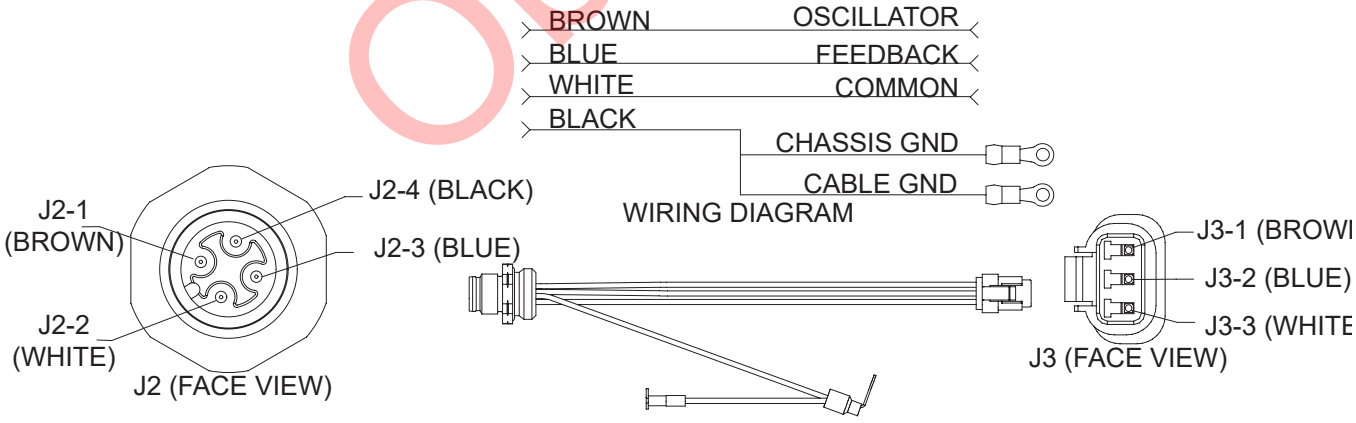


Figure 6-3 Gun Receptacle Harness

Gun Extension Cable

This cable an application specific option installed between the robot spray gun and the robot gun cable.

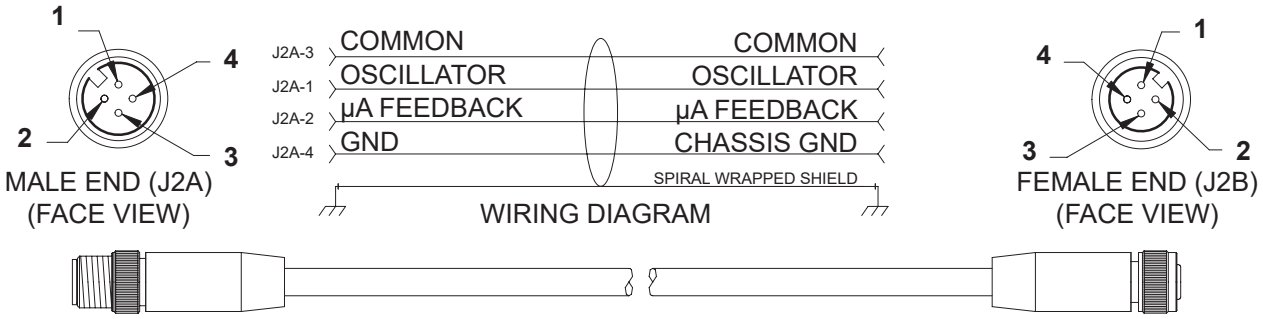


Figure 6-4 Gun Extension Cable

Robot Gun Cable

This cable is available in 8, and 20-meter (26, 66 ft) lengths.

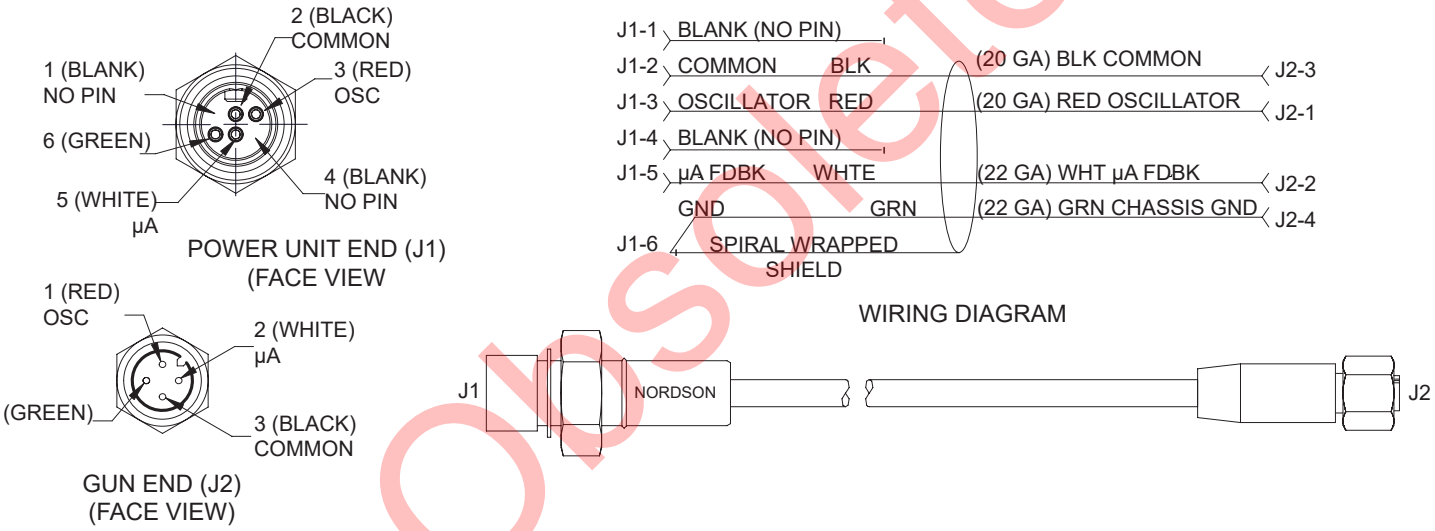


Figure 6-5 Gun Cable

Section 7
Parts

Introduction

To order parts, call the Nordson Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

This section covers parts and options for the Encore Select HD Robot powder spray gun.

Reference Documentation

For additional information related to other components in the system, reference the following documentation:

Document Title	Document Part Number
Encore HD/XT System Controller Manual	1604870
Encore Enhance System Controller Manual	1614575

Spray Gun Parts

See Figure 7-1 and the parts list on the following pages.

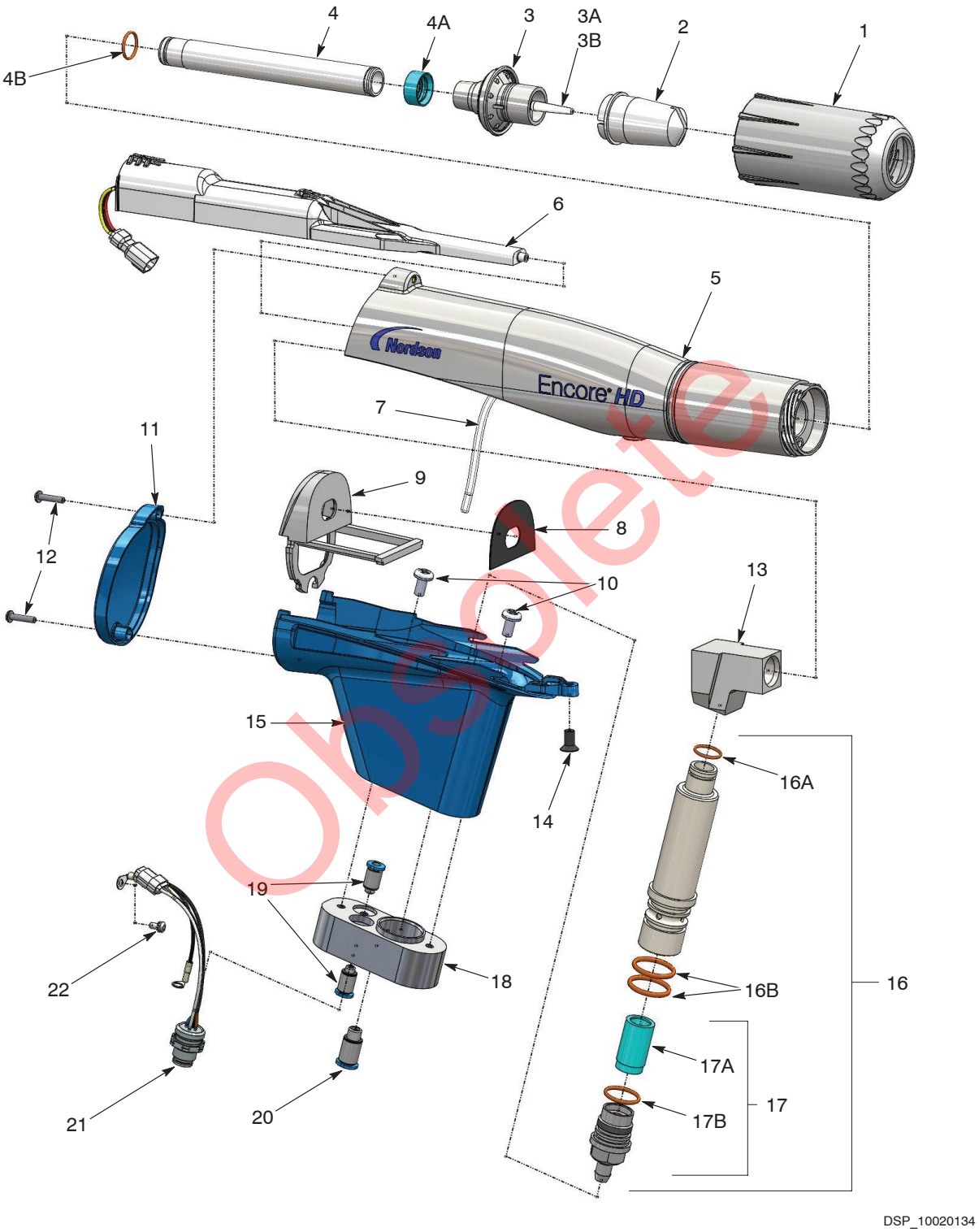


Figure 7-1 Encore HD Select Robot Spray Gun and Accessories Parts

Spray Gun Parts List

See Figure 7-1.

Item	Part	Description	Quantity	Note
—	1620076	GUN, robot, auto HD, Encore Select	—	
1	1081638	• NUT, nozzle, spray gun, Encore	1	
2	1081657	• NOZZLE, flat spray, 3 mm, Encore	1	A
3	1604824	• ELECTRODE ASSEMBLY, Encore, flat spray	1	B
3A	1106078	• • ELECTRODE, spring contact	1	
3B	1605863	• • HOLDER, electrode, M3, flat spray, Encore	1	B
4	1619898	• KIT, outlet assembly, powder, robot, Encore VT/HD	1	
4A	1097527	• • SEAL, tube, powder	1	
4B	1081785	• • O-RING, silicone, 0.468 x 0.568 x 0.05 in.	1	
5	1608280	• KIT, manual body/neg powder supply, Encore HD	1	C
6	1084821	• • POWER SUPPLY, 100KV, negative, Encore	1	C
7	1088558	• • FILTER ASSEMBLY	1	
8	1088502	• GASKET, multiplier cover	1	
9	1106872	• BULKHEAD, multiplier, Encore LT/XT	1	
10	- - - - -	• SCREW, pan head, recessed, M5 x 10, zinc	2	
11	1619432	• COVER, end, robot gun, Encore Select	1	
12	- - - - -	• SCREW, pan head, recessed, M3 x 14, zinc	2	
13	1096695	• ELBOW, powder tube, Encore, wear resist	1	
14	1088601	• SCREW, flat head, recessed, M5 x 10, nylon	1	
15	1619431	• BODY, lower, robot, Encore Select	1	
16	1619895	• KIT, inlet assembly, powder, robot, Encore HD	1	
16A	1081785	• • O-RING, silicone, 0.468 x 0.568 x 0.05 in.	1	
16B	1084773	• • O-RING, silicone, 18 mm ID, 2 mm w, 70 duro	2	
17	1620550	• • KIT, hose adapter-filter, robot, HD, Encore	1	
17A	1619802	• • • FILTER, powder tube, robot, HD, Encore Select	1	
17B	1619810	• • • O-RING, silicone, 16mm ID, 1.5 mm w, 70A duro	1	
18	- - - - -	• BASE, robot gun, Encore Select	1	
19	1619686	• FITTING, push-in, 4 mm T, M5	2	
20	1619688	• FITTING, push-in, 6 mm T, M7	1	
21	1619652	• RECEPTACLE, gun harness, Encore robot	1	
22	- - - - -	• SCREW, Philips head, M3 x 6, lock washer, zinc	1	

NOTE: A. Refer to Spray Gun Options for additional nozzles.

B. For flat spray nozzle use only. See Spray Gun Options for kits to convert for conical nozzle and deflector use.

C. Application specific: Order part number 1609053 if a positive powder supply is needed. The positive power supply is sold separately from the gun body.

Powder Hose and Air Tubing

Powder hose and air tubing must be ordered in increments of one foot.

Part	Description	Note
1081783	Powder hose, 6 mm ID x 8 mm OD, polyolefin (by 100 ft)	B, D
1080388	Powder hose, 6 mm ID x 8 mm OD, polyolefin (by 500 ft)	C, D
1606690	Clear powder hose, 6 mm ID x 8 mm OD, polyurethane (by 100 ft)	A, E
1606695	Clear powder hose, 6 mm ID x 8 mm OD, polyurethane (by 500 ft)	C, E
900617	Air tubing, polyurethane, 4 mm, clear, electrode air wash	A
900742	Air tubing, polyurethane, 6 mm, blue, pattern air	A
900741	Air tubing, polyurethane, 6 mm, black	
900618	Air tubing, polyurethane, 8 mm, blue	A
900619	Air tubing, polyurethane, 8 mm, black	A
900740	Air tubing, polyurethane, 10 mm, blue, main air IN	A
900517	Tubing, poly, spiral cut, 0.62 in. ID, dress out	
301841	Strap, Velcro, w/buckle, 25 x 3 cm, dress out	

NOTE: A. Minimum order quantity is 50 ft.

B. Minimum order quantity is 100 ft.

C. Minimum order quantity is 500 ft.

D. Standard powder hose delivered with system.

E. Optional powder hose to use in place of the standard polyolefin.

Spray Gun Options

Cables

These cables connect the spray gun to the spray gun controller.

Part	Description
1605436	CABLE, robot, auto, Encore, 8 m
1620523	CABLE, robot, auto, Encore, 20 m
1601344	CABLE, extension, Encore, 4 m
1620466	CABLE, extension Encore, 10 m

Spray Gun Options (contd)

Optional Nozzles

Optional SD nozzles are rated for standard duty, while optional XD nozzles are rated for extended duty use.

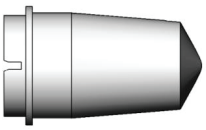
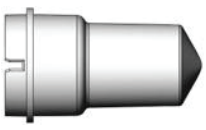
			
Nozzle Type	**XD Part**	**SD Part**	**Nozzle**
2.5 mm Flat Spray	**1081656**	**1620197**	
3 mm Flat Spray	**1081657**	**1620198**	
4 mm Flat Spray	**1081658**	**1620199**	
6 mm Flat Spray	**1081659**	**1620200**	
60-Degree Cross-Cut	**1082184**	**1620201**	
90-Degree Cross-Cut	**1082185**	**1620202**	
2.5 mm Castle	**1082186**	**1620203**	

Figure 7-2 Optional Nozzles

45-Degree Corner-Spray Nozzle

See Figure 7-3.

Spray Pattern	Wide fan pattern perpendicular to the spray gun axis
Slot Type	Angled, cross slot
Application	Flanges and recesses

Part	Description	Note
1102872	NOZZLE, corner spray, Encore	

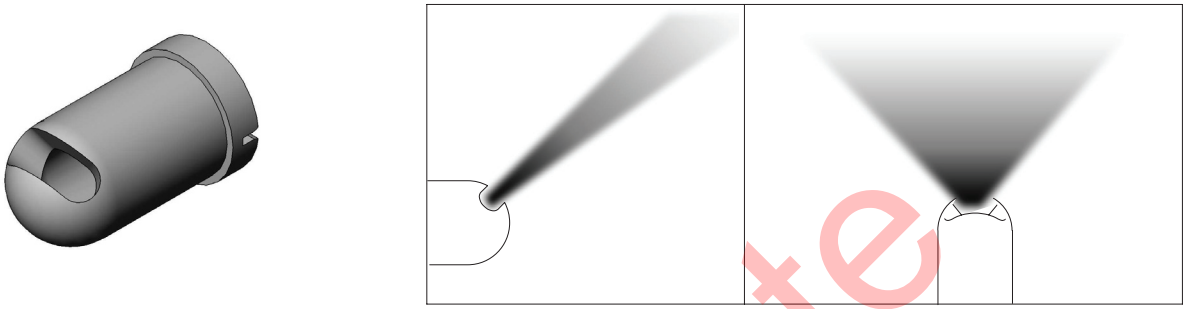


Figure 7-3 45-Degree Corner Spray Nozzle

45-Degree Flat-Spray Nozzle

See Figure 7-4.

Spray Pattern	Narrow fan pattern in-line with spray gun axis
Slot Type	Three angled slots in-line with spray gun axis
Application	Top and bottom coating; typically no in/out part positioning

Part	Description	Note
1102871	NOZZLE, 45 degree, corner spray, Encore	

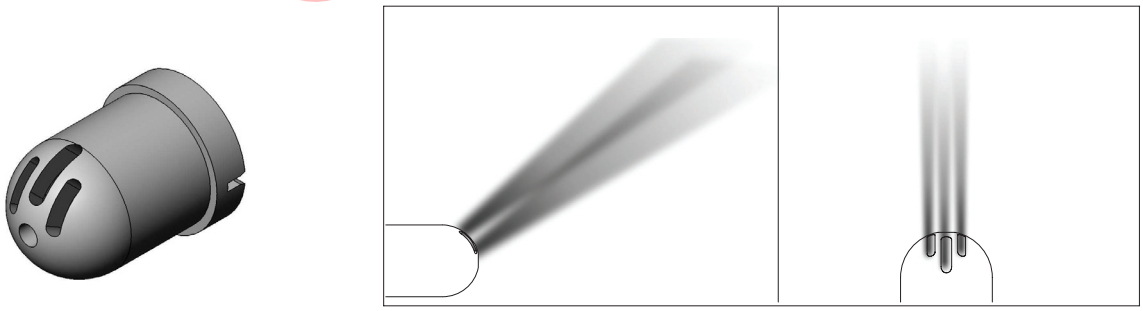


Figure 7-4 45-Degree Flat Spray Nozzle

Conical Nozzle, Deflectors, and Electrode Assembly Parts

See Figure 7-5 thru Figure 7-7. The conical nozzle and deflectors must be used with the conical electrode holder. The parts shown here are optional and must be ordered separately.

Conical Nozzle and Deflectors

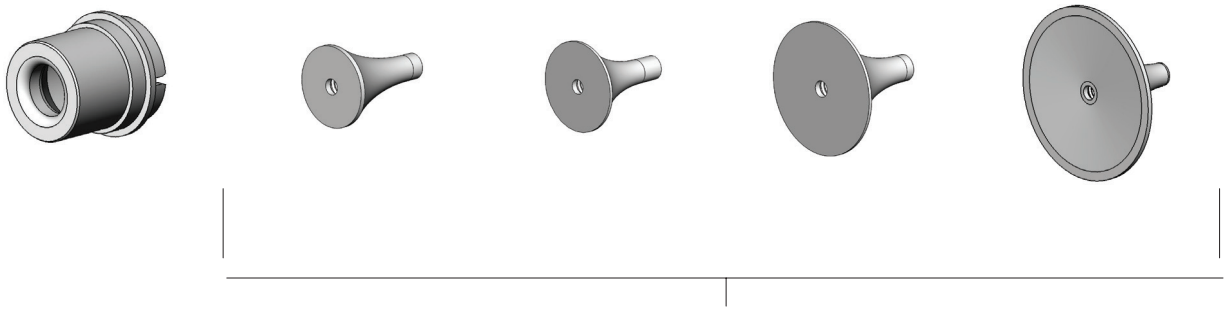


Figure 7-5 Conical Nozzle and Deflectors

Conical Nozzle Kit

Figure 7-6 Conical Nozzle Conversion Kit

Part	Description	Quantity	Note
1604828	KIT, conical nozzle, Encore	1	
1083206	• DEFLECTOR, 26 mm	1	
1082060	• NOZZLE, conical	1	
1605861	• ELECTRODE HOLDER, conical	1	A
NOTE: A. The conical nozzle requires a different style electrode holder than what is used in the flat spray nozzle electrode assembly.			

Conical Nozzle, Deflectors and Electrode Assembly Parts (contd)

Conical Electrode Assembly

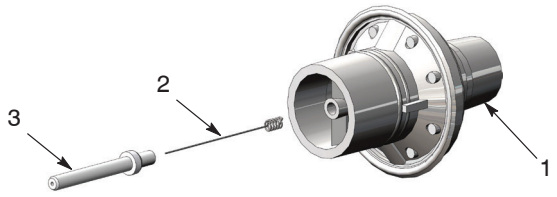


Figure 7-7 Conical Electrode Assembly

Item	Part	Description	Quantity	Note
—	1106076	ELECTRODE ASSEMBLY, conical, Encore	1	
1	------	• ELECTRODE SUPPORT	1	
2	1106078	• ELECTRODE	1	
3	1605861	• ELECTRODE HOLDER, Conical	1	A
NOTE: A. The conical nozzle requires a different style electrode holder than what is used in the flat spray nozzle electrode assembly.				

XD Electrode Support

The XD (extended duty) Electrode Support provides 2 to 3 times longer wear life than that of the standard duty electrode support.

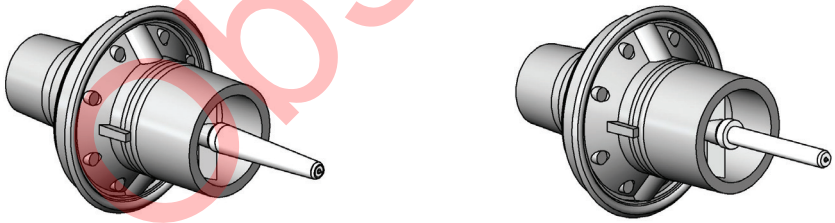


Figure 7-8 Conical Spray and Flat Spray Electrode Supports

Pattern Adjuster Kit

The pattern adjuster kit includes an integral conical nozzle. 16, 19, and 26-mm deflectors can be used with the kit. The deflectors are not included with the kit and must be ordered separately.

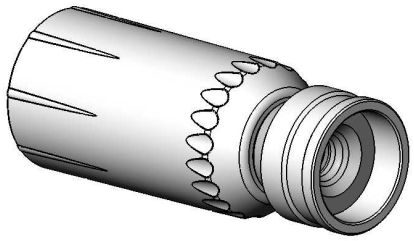


Figure 7-9 Pattern Adjuster Kit

Ion Collector Kit

This kit installs on the standard length spray gun. Refer to the instruction sheet shipped with the spray gun for installation instructions and repair parts.

Part	Description	Note
1603854	KIT, ion collector assembly, manual, Encore (std length spray gun)	

Dual Spray Gun System Components

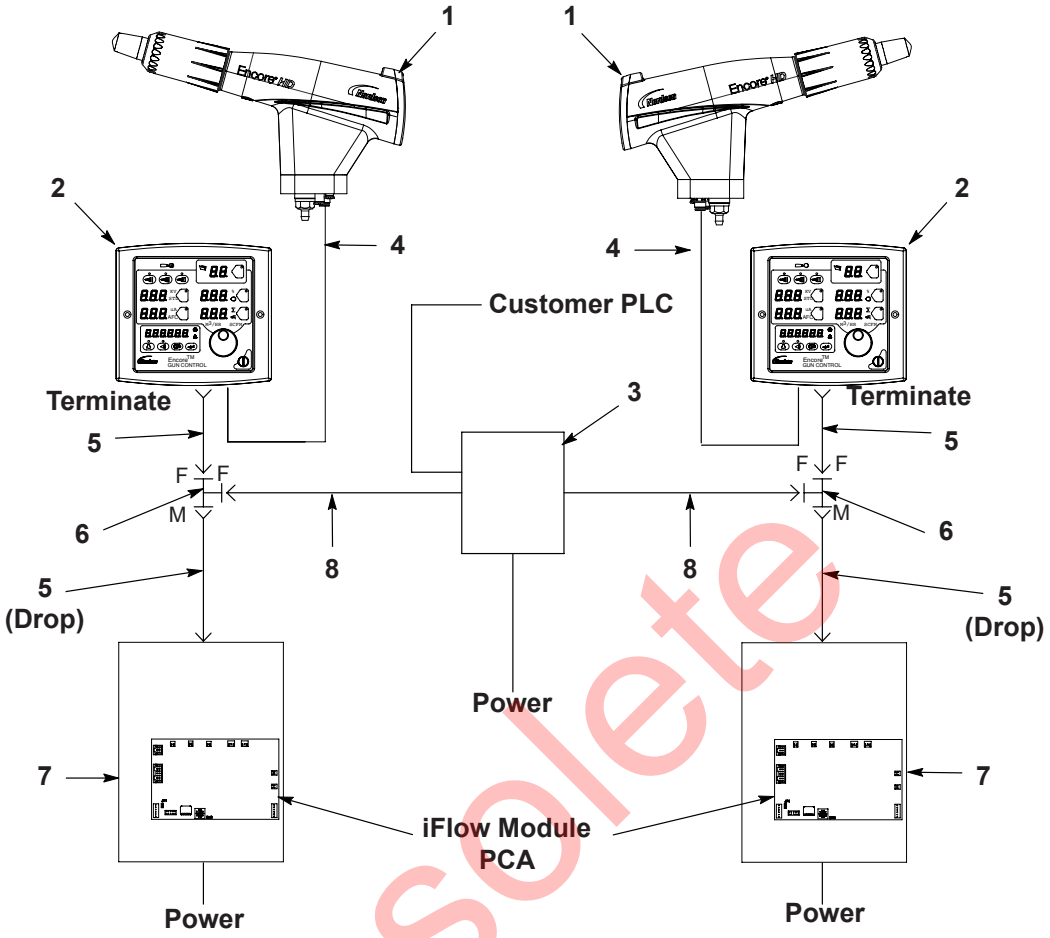


Figure 7-10 Connections for 2 Spray Gun Robot Systems

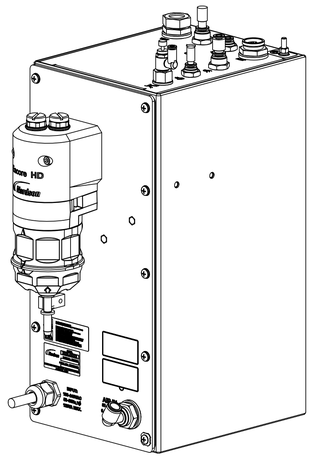
Item	Part	Description	Note
1	1620076	Encore Select HD Robot spray gun	
2	1604125	• Encore XT/HD controller interface	
2	1614566	• Encore Enhance controller interface	
3	1101422	• Control unit, ProdigyR Gen III, PLC gateway	
4	1605436	• Encore robot cable, 8 m	B
5	1080718	• Controller interface cable, 10 ft	A
6	1046746	• DeviceNet 5-pin cable Tee	
7	1605584	• Encore HD pump control unit, 115 V	
7	1605586	• Encore HD pump control unit, 230 V	
8	1062373	• Prodigy network cable, 50 ft	

NOTE: A. In some applications, this part is substituted for:
1080719: Controller interface cable, 30 in
1609709: Controller interface cable, 50 ft

B. See page 7-4 for additional spray gun cable options.

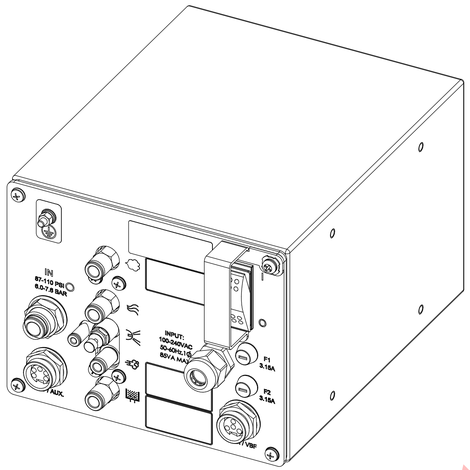
MATERIAL NO. 1084547 REVISION 24

REVISIONS						
ZONE	REV.	DESCRIPTION	BY	CHK	ECO NO.	DATE
	A00	00) PRELIMINARY.	DRJ			11JAN08
	A01	01) RELEASED FOR PRODUCTION.	DRJ	RJF	PE600468	14JAN08
	A02	02) ADDED ZONES 21 & 22, & MOBILE SYSTEM SPECS.	DRJ	RJF	PE600575	01FEB08
	A03	03) ADDED 6M CABLE EXTENSION (SHEET 1); ADDED	DC	DY	PE600552	21FEB08
		MOBILE SYSTEM WITH 25-LB. HOPPER (SHEET 2).				
	A04	04) REDRAWN IN CURRENT FORMAT; ADDED ATEX-	DC	RJF	PE600806	30MAY08
		APPROVED VERSIONS OF INTERFACE CONTROL UNIT,				
		HANDGUN, 115V & 220V VBF SYSTEMS, AND 50- AND				
		25-LB HOPPER SYSTEMS; REDESIGNED APPROVED				
		EQUIPMENT SPECIFICATIONS TABLES (SHEETS 1 & 2);				
		REMOVED MOTORS FROM SPECIFICATION TABLES &				
		ADDED MFR'S CERTIFICATION NO.				
	A05	05) REMOVED FM-APPROVED HANDGUN ASSY 1083120	DC	RJF	PE601120	30JUL08
		FROM APPROVED EQUIPMENT LISTING (SHEETS 1 & 2).				
	A06	06) PART NUMBER ERROR CORRECTION (SHEET 2).	DC	RJF	PE601509	12MAR09
	A07	07) REMOVED 1082819, 1082843, 1082844, 1084512,	DRJ	RJF	PE601681	04AUG09
		1084514, 1084517, 1087272, 1087273, 1087274, &				
		1087275; ADDED 1097072, 1097073, 1097074, & 1097075;				
		UPDATED MPS PICTORIALS.				
	A08	08) UPDATED ENCORE HANDGUN PICTORIALLY. NEW	BB	BDM	PE602105	24JUN10
		ENCORE HANDGUN PART NUMBERS UPDATED IN				
		APPROVED EQUIPMENT TABLES.				
	10	09) UPDATE PG.1 & 2 FOR NEW 230V P/N				
		10) UPDATE VIBRATORY MOTOR VIEW, PG.2	DM	DU	PE602591	05AUG11
	11	1600745 WAS 1102625	DM	BP	PE602297	28NOV11
	12	12) RESV'D DESCRPTN, TABLES AND ASSEMBLIES TO	MHH	BDM	PE602609	07FEB12
		REFLECT 'XT' VERSION (SHEETS 1 & 2)				
	13	13) REMOVED ENCORE XT CONROLLER 1087276 &	DC	RJF	PE603075	22OCT13
		ADDED 1604125; UPDATED MOBILE SYSTEM VIEWS.				
	14	14)ADDED "HD" PRODUCTS & "XT" DESIGNATIONS,UPDATE TABLES, MOTOR CERT # WAS TUV05ATEX27681X(PG.2)	MB	RJF	PE603483	05MAR15
	15	15) ADDED ITEM 1609709, CHANGED PART# 1606272 TO 1606978 AND PART#1606271 TO 1606977	NHY	TF	PE604849	24MAY16
	16	16) ADDED POS KV MULTIPLIER (1609048)	RF	RJF	PE605057	01NOV16
	17	SHT 1, CORRECTED TABLE ENTRIES FOR 1606978 AND 1606977; BOTH SHEETS; ADDED TABLE ROWS FOR HD+ PUMP. ADDED NOTES FOR HD+ OPTION;	EW	BF	PE605057	21NOV17
	19	ADDED; 18) OPTIONAL LED LIGHT; 19) BOM P/NS W/ LED	TAL	BDM	PE-100225	22MAY18
	20	20) UPDATES FOR NLIGHTEN ATEX CERTIFICATION	BDM	BDM	PE-100765	22AUG18
	21	SHT 1 - REMOVED VIEWS OF GUNS, CABLES AND OPTIONS, MOVED INFO TO TABLE. ADDED ENCORE HD ROBOT GUN AND CABLES. ADDED 60 AND 45 DEGREE EXTENSIONS.	BDM	RF	PE-103650	16OCT20
	22	SHT 1 - 1611977 WAS CFMUS; SHT 1 & 2 - REVISED TABLE HEADINGS FOR PROPER ATEX RATING TEXT.	BDM	RF	PE-103868	05FEB21
	23	REMOVED ENCORE HD HYBRID & OBS PARTS	DG	FM	PE-104601	13OCT21
	24	UPDATED HOPPER VERSION MOBILE SYSTEM VIEW	CG	RM	PE-105860	21MAR23



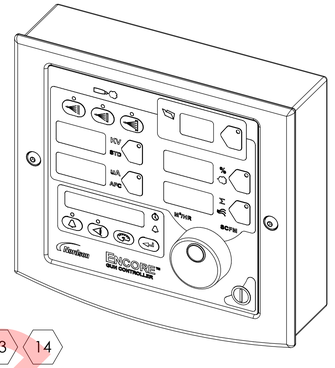
ENCORE HD CONTROLLER
POWER UNIT W/HD OR HD+ PUMP
WITH HD PUMP
1605586 FOR 230V VBF
1605584 FOR 115V VBF
WITH HD+ PUMP
1611089 FOR 230 VBF
1611086 FOR 115 VBF

14 15 23 17



ENCORE XT CONTROLLER POWER UNIT
1082815 FOR 230V VBF
1600468 FOR 115V VBF

13 10



ENCORE XT/HD INTERFACE CONTROL UNIT
1604125

13 14

A 05 A 08
22 21 14 13

THE FOLLOWING APPLICATORS AND CABLES ARE SUITABLE FOR CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS, OR <Ex> II 2 D EXPLOSIVE ATMOSPHERES:

PART NUMBER	DESCRIPTION	cFMus	cFMus / ATEX	NOTE
GUNS				
1600818	ENCORE XT HANDGUN		X	XT
1603160	ENCORE HD HANDGUN		X	HD
1097489	ENCORE AUTOMATIC GUN BAR MOUNT (CAN BE USED IN ROBOT APPLICATIONS)		X	WITH XT CONTROLS
1620076	ENCORE SELECT HD ROBOT GUN		X	WITH HD CONTROLS
CABLES				
1600745	ENCORE XT/HD 6 METER HANDGUN CABLE		X	XT & HD
1085168	6 METER HANDGUN CABLE EXTENSION		X	XT & HD
1605436	CABLE,SPRAY GUN,ROBOT,AUTO,ENCORE,8M		X	WITH XT & HD CONTROLLS
1620523	CABLE,SPRAY GUN,ROBOT,AUTO,ENCORE,20M		X	WITH XT & HD CONTROLLS
1601344	CABLE,EXTENSION,ENCORE,AUTO AND ROBOT,4M		X	WITH XT & HD CONTROLLS
1620466	CABLE,EXTENSION,ROBOT,ENCORE,10M		X	WITH XT & HD CONTROLLS
OPTIONS				
1604084	EXTENSION,SPRAY,90 DEGREE,ENCORE		X	AUTO GUNS
1605614	EXTENSION,SPRAY,60 DEGREE,ENCORE		X	AUTO GUNS
1605703	EXTENSION,SPRAY,45 DEGREE,ENCORE		X	AUTO GUNS
1609048	POSITIVE MULTIPLIER		X	
1611977	NLIGHTEN LED LIGHT KIT		X	XT & HD

21 21 17 21 22 18

22 15 12 A 07 09

THE FOLLOWING EQUIPMENT AND ASSOCIATED CABLES ARE FOR USE IN CLASS II, DIV 2 HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II (2)3D EXPLOSIVE ATMOSPHERES:

PART NUMBER	DESCRIPTION	cFMus	cFMus / ATEX	NOTE
1604125	ENCORE XT/HD INTERFACE CONTROL UNIT		X	XT & HD
1082815	ENCORE XT CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 230V, 50HZ, VBF OPTION		X	XT
1600468	ENCORE XT CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 115V, 60HZ, VBF OPTION	X		XT
1605586	ENCORE HD CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 230V, 50HZ, VBF OPTION		X	HD WITH HD PUMP
1605584	ENCORE HD CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 115V, 60HZ, VBF OPTION	X		HD WITH HD PUMP
1611086	ENCORE HD CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 115V, 60HZ VBF OPTION	X		HD WITH HD+ PUMP
1611089	ENCORE HD CONTROLLER POWER UNIT, RELAY BOARD SET UP FOR 230V, 50HZ OPTION		X	HD WITH HD+ PUMP
1609709	CONTROLLER INTERFACE CABLE 50 FT		X	XT & HD
1080718	CONTROLLER INTERFACE CABLE 10 FT		X	XT & HD
1080719	CONTROLLER INTERFACE CABLE 30 INCH		X	XT & HD

23 17

CRITICAL
No revisions permitted without approval of the proper agency.

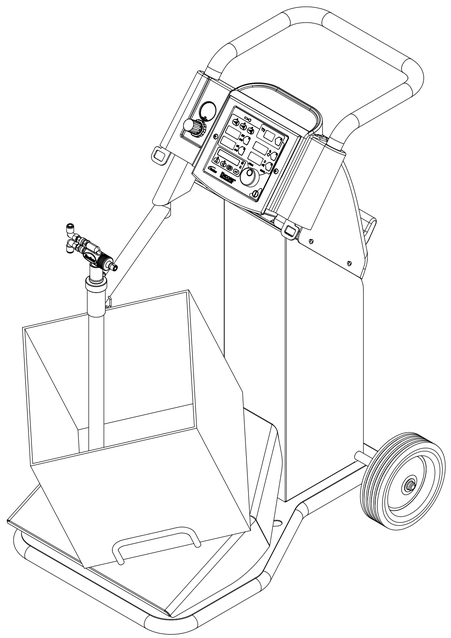
ALL DIMENSIONS IN MM EXCEPT AS NOTED
X±0.8 | X.X±0.25 | X.XX±0.13
MACHINED SURFACES 16
BREAK INSIDE/OUTSIDE CORNERS 0.1/0.8
THREAD LENGTH DIMENSIONS ARE FULL THREAD
INTERPRET DRAWINGS PER ASME Y14.5-1994
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

NORDSON CORPORATION
WESTLAKE, OH, U.S.A. 44145

DESCRIPTION: REF DWG,APVD EQUIP,MANUAL ENCORE XT HD 12 14
DRAWN BY: DRJ | DATE: 11JAN08 | RELEASE NO.: PE600468
CHECKED BY: RJF | APPROVED BY: RJF
SIZE: D | FILE NAME: 1084547 | MATERIAL NO.: 1084547 | REVISION: 24
SCALE: NOT TO SCALE | SOLIDWORKS GENERATED DWG. | SHEET 1 OF 2

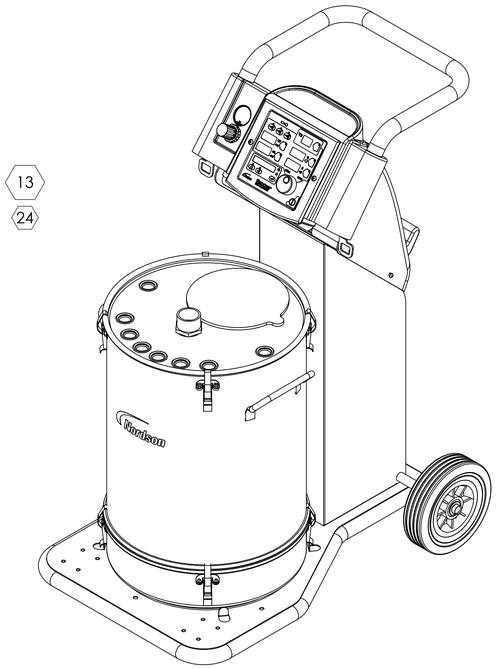
MATERIAL NO. 1084547 REVISION 24

ZONE	REV	DESCRIPTION	BY	CHK	RELEASE NO.	DATE
		(SEE SHEET 1 FOR REVISION HISTORY.)				



ENCORE 115V 60Hz & 230V 50Hz VBF MOBILE POWDER SYSTEMS 1613882 OR 1613884 (W/nLIGHTEN)

HEIGHT: 1078 [42.5]
WEIGHT: 50.8kg [112lbs]
wheel base: 620 [24.4] L X 511.5 [20.1] W



ENCORE XT 50LB HOPPER MOBILE POWDER SYSTEM 1613885 (W/nLIGHTEN)

HEIGHT: 1078 [42.5]
WEIGHT: 54.4kg [120lbs]
wheel base: 620 [24.4] L X 511.5 [20.1] W

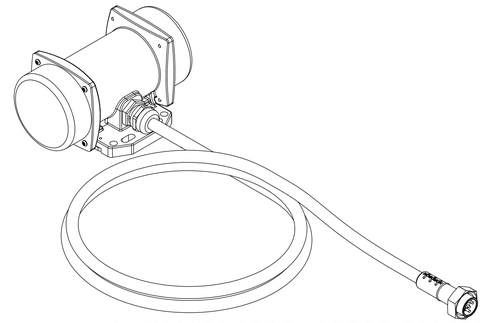
ENCORE HD 115V & 230V VBF MOBILE POWDER SYSTEMS 1613900 OR 1613901 FOR HD PUMP (W/nLIGHTEN)

HEIGHT: 1078 [42.5]
WEIGHT: 50.8kg [112lbs]
wheel base: 620 [24.4] L X 511.5 [20.1] W

ENCORE HD 50LB HOPPER MOBILE POWDER SYSTEMS 1613899 FOR HD PUMP (W/nLIGHTEN) 1613910 FOR HD+ PUMP (W/nLIGHTEN)

HEIGHT: 1078 [42.5]
WEIGHT: 54.4kg [120lbs]
wheel base: 620 [24.4] L X 511.5 [20.1] W

CONTROLLER INTERFACE CABLE 1080718-10 FT. 1609709-50FT. 1080719-30 IN.



115V VIBRATOR MOTOR 1604511 230V VIBRATOR MOTOR 1080950

WITH EXTRA-HARD USAGE ELECTRICAL CORD
UL/CSA APPROVED 18 AWG 90°C

MANUFACTURER'S CERT. #: TUV12ATEX094817
ALSO: ETL CERTIFIED FOR U.S & CANADA

	PART NUMBER	DESCRIPTION	cFMus	ATEX	cFMus / ATEX
THE FOLLOWING MOBILE SYSTEMS ARE SUITABLE FOR CLASS II, DIV 2 HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II (2)3D EXPLOSIVE ATMOSPHERES. THE MANUAL GUNS AND GUN CABLES ATTACHED TO THE MOBILE SYSTEM, ARE SUITABLE FOR USE IN A CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II 2 D EXPLOSIVE ATMOSPHERES.	1613882	SYS,MOBILE POWDER,115V VBF,ENCORE XT,LED	X		
	1613884	SYS,MOBILE POWDER,230V VBF,ENCORE XT,LED		X	
	1613900	SYS,MOBILE POWDER,115V VBF,ENCORE HD,LED	X		
	1613901	SYS,MOBILE POWDER,230V VBF,ENCORE HD,LED		X	
	1613885	SYS,MOBILE PWDR,50-LB HOP,ENCORE XT,LED			X
	1613899	SYS,MOBILE PWDR,50 LB HOPR,ENCORE HD,LED			X
	1613910	SYS,MBL PWDR,50 LB HOP,ENCORE HDXD,LED			X

CRITICAL
No revisions permitted without approval of the proper agency.

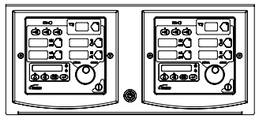
ALL DIMENSIONS IN	MM
EXCEPT AS NOTED	
X±0.8 / X.X±0.25 / X.XX±0.13	
MACHINED SURFACES	1.6
BREAK INSIDE/OUTSIDE CORNERS O.1/0.8	
THREAD LENGTH DIMENSIONS ARE FULL THREAD	
INTERPRET DRAWINGS PER ASME Y14.5-1994	
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	
THIRD ANGLE PROJECTION	

NORDSON CORPORATION
WESTLAKE, OH, U.S.A. 44145

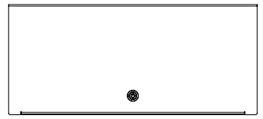
DESCRIPTION	REF DWG,APVD EQUIP,MANUAL ENCORE XT HD		
DRAWN BY	DRJ	DATE 11JAN08	RELEASE NO. PE600468
CHECKED BY	RJF	APPROVED BY RJF	
SIZE D	FILE NAME 1084547	MATERIAL NO. 1084547	REVISION 24
SCALE NOT TO SCALE	SOLIDWORKS GENERATED DWG.	SHEET 2 OF 2	

MATERIAL NO. 10017758 REVISION 03

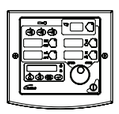
REVISIONS						
ZONE	REV.	DESCRIPTION	BY	CHK	ECO NO.	DATE
	00	ISSUED	JG			17APR18
	01	RELEASED TO PRODUCTION	BDM	RF	PE-100886	09OCT18
	02	ADDED ENCORE HD PUMP MODULES	TAL		PE-102543	23JUL20
	03	ADDED ENCORE ROBOT GUN AND CABLES	BDM	RF	PE-103650	16OCT20



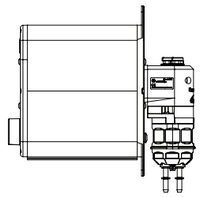
ENCORE ENHANCE
2-GUN AUTO
CONTROLLER ASSY
(1613446)



ENCORE ENHANCE
2-GUN MANUAL
CONTROLLER ASSY
(1613451)



ENCORE ENHANCE
INTERFACE
CONTROLLER UNIT
(1614566)

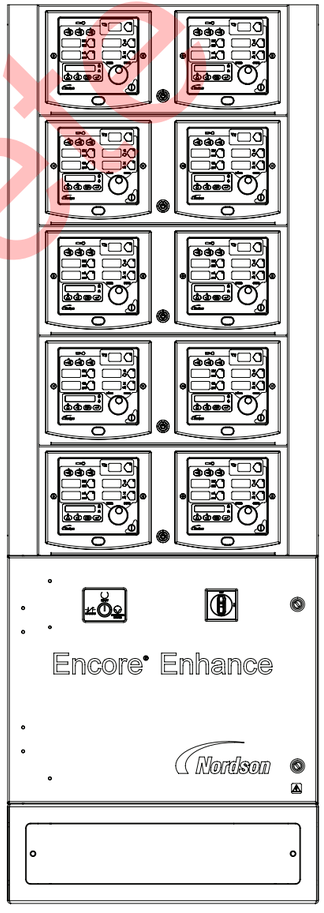


ENCORE ENHANCE HD
PUMP MODULE
(1613916)
(1613943)
(1613944)
(1615910)
02

THE FOLLOWING EQUIPMENT IS FOR USE IN CLASS II, DIV 2 HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II (2)3D EXPLOSIVE ATMOSPHERES:	
1614566	CONTR UNIT,INTERFACE,ENCORE ENHANCE
02 1613916	ENCORE HD PUMP MODULE WITH HD PUMP
02 1613943	ENCORE HD PUMP MODULE WITH HD+ PUMP
02 1613944	ENCORE HD PUMP MODULE WITH XD PUMP
02 1615910	ENCORE HD PUMP MODULE WITH NO PUMP (SERVICE)

THE FOLLOWING CONTROLLERS ARE FOR USE IN UNCLASSIFIED LOCATIONS AND NON-EXPLOSIVE ATMOSPHERES:	
1613446	CONTR ASSY,2 GUN AUTO,ENCORE ENHANCE
1613451	CONTR ASSY,2 GUN MANUAL,ENCORE ENHANCE
1613993	CONTR,TALL,4 AUTO,0 MANL,ENCORE ENHANCE
1613994	CONTR,TALL,6 AUTO,0 MANL,ENCORE ENHANCE
1613995	CONTR,TALL,8 AUTO,0 MANL,ENCORE ENHANCE
1613996	CONTR,TALL,10 AUTO,0 MANL,ENCORE ENHANCE
1614000	CONTR,TALL,4 AUTO,2 MANL,ENCORE ENHANCE
1614002	CONTR,TALL,6 AUTO,2 MANL,ENCORE ENHANCE
1614004	CONTR,TALL,8 AUTO,2 MANL,ENCORE ENHANCE

THE APPLICATORS AND CABLES ARE SUITABLE FOR CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS, OR <Ex> II 2 D EXPLOSIVE ATMOSPHERES:	
GUNS:	
1097489	APPLICATOR,BAR MT,AUTO,ENCORE
1099824	APPLICATOR,TUBE MT,AUTO,ENCORE,5FT
1097500	APPLICATOR,TUBE MT,AUTO,ENCORE,6FT
1606986	APPLICATOR,TUBE MT,AUTO,ENCORE,5FT PVC
1606969	APPLICATOR,BAR MT,ENCORE HD AUTO
1606970	APPLICATOR,TUBE MT,AUTO,5FT ENCORE HD
1606985	APPLICATOR,TUBE MT,AUTO,5FT PVC ENCORE HD
1606971	APPLICATOR,TUBE MT,AUTO,6FT ENCORE HD
1600818	APPLICATOR ASSY,MANUAL,ENCORE XT
1603160	APPLICATOR ASSY,MANUAL,ENCORE HD
03 1620076	APPLICATOR ASSY,AUTO,ROBOT,ENCORE SELECT HD
OPTIONS:	
1604084	EXTENSION,SPRAY,90 DEGREE,ENCORE
1605614	EXTENSION,SPRAY,60 DEGREE,ENCORE
1605703	EXTENSION,SPRAY,45 DEGREE,ENCORE
1609048	POS MULTIPLIER
CABLES:	
1097537	CABLE,AUTO,ENCORE,8M
1097539	CABLE,AUTO,ENCORE,12M
1097540	CABLE,AUTO,ENCORE,16M
1601344	CABLE,EXTENSION,ENCORE AUTO,4M
1600745	CABLE ASSY,ENCORE XT/HD,6M
1085168	CABLE EXTENSION,6-CONDUCTOR,SHIELDED,6M
03 1605436	CABLE,SPRAY GUN,ROBOT,AUTO,ENCORE,8M
03 1620523	CABLE,SPRAY GUN,ROBOT,AUTO,ENCORE,20M
03 1620466	CABLE EXTENSION,ROBOT,SHIELDED,4-PIN,M12,10M



ENCORE ENHANCE
4, 6, 8 OR 10-GUN
CONTROLLER
(10 AUTO, 0 MANUAL SHOWN)

CRITICAL
No revisions permitted without approval of the proper agency.

ALL DIMENSIONS IN MM EXCEPT AS NOTED X±0.8 X.X±0.25 X.XX±0.13 MACHINED SURFACES 1.6 BREAK INSIDE/OUTSIDE CORNERS 0.1/0.8 THREAD LENGTH DIMENSIONS ARE FULL THREAD INTERPRET DRAWINGS PER ASME Y14.5-2009 PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES THIRD ANGLE PROJECTION	NORDSON CORPORATION WESTLAKE, OH, U.S.A. 44145	
	DESCRIPTION: REF DWG,APPROVED EQUIPMENT,ENHANCE	
	DRAWN BY: JG	DATE: 07JUN18
	CHECKED BY: RF	APPROVED BY: RF
	RELEASE NO.: PE-100886	
	SIZE: D	FILE NAME: 10017758
	MATERIAL NO.: 10017758	REVISION: 03
	SCALE: 1:6	CADD GENERATED DWG.
	SHEET 1 OF 1	

EU DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore XT / HD Manual Powder Spray Systems

Models: Encore XT Manual, Fixed Mount or Mobile Dolly unit.
Encore Auto Applicator with Encore XT controls for a single gun, automatic systems.
Encore HD Manual, Fixed Mount or Mobile Dolly unit.
Encore Select HD Robot Applicator with Encore HD controls for robot systems.

Description: These are electrostatic, powder spray systems, including applicator, control cables and associated controllers. The Encore XT Manual system uses venturi style pump technology for supplying powder to the spray gun. While the Encore HD Manual system uses high density pump technology for supplying powder to the spray gun.

Applicable Directives:
2006/42/EC - Machinery Directive 2014/30/EU - EMC Directive 2014/34/EU - ATEX Directive

Standards Used for Compliance:

EN/ISO12100 (2010)	ISEN60079-0 (2014)	EN61000-6-3 (2007)	FM 7260 (2018)	EN50050-2 (2013)
EN1953 (2013)	EN60079-31 (2014)	EN61000-6-2 (2005)	EN55011 (2016)	EN60204-1 (2018)

Principles:
This product has been designed & manuf. according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex tb IIIB T60ºC / Ex II 2 D / 2mJ = (Encore XT and HD Applicators)
- Ex tc IIIB T60ºC / EX II (2) 3 D = (Controllers)
- Ex II 2 D / 2mJ = (Encore Auto Applicator and Encore Select HD Robot Applicator)

Certificates:
- FM14ATEX0051X = Encore XT/HD Manual Appl. And Encore Select HD Robot Appl. (Dublin, Ireland)
- FM14ATEX0052X = Controls (Dublin, Ireland)
- FM11ATEX0056X = Encore Automatic Applicator (Dublin, Ireland)

ATEX Surveillance
- 0598 SGS Fimko Oy (Helsinki, Finland)

Date: 20NOV20

_____

Jeremy Krone
Supervisor Product Development Engineering
Industrial Coating Systems
Amherst, Ohio, USA

Nordson Authorized Representative in the EU
Contact: Operations Manager
Industrial Coating Systems
Nordson Deutschland GmbH
Heinrich-Hertz-Straβe 42-44
D-40699 Erkrath

UK DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore XT / HD Manual Powder Spray Systems

Models: Encore XT Manual, Fixed Mount or Mobile Dolly unit.
Encore Auto Applicator with Encore XT controls for a single gun, automatic systems.
Encore HD Manual, Fixed Mount or Mobile Dolly unit.
Encore Select HD Robot Applicator with Encore HD controls for robot systems.

Description: These are electrostatic, powder spray systems, including applicator, control cables and associated controllers. The Encore XT Manual system uses venturi style pump technology for supplying powder to the spray gun. While the Encore HD Manual system uses high density pump technology for supplying powder to the spray gun.

Applicable UK Regulations:
Supply Machinery Safety 2008
Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Regulation 2016
Electromagnetic Compatibility Regulation 2016

Standards Used for Compliance:

EN/ISO12100 (2010)	ISEN60079-0 (2014)	EN61000-6-3 (2007)	FM 7260 (2018)	EN50050-2 (2013)
EN1953 (2013)	EN60079-31 (2014)	EN61000-6-2 (2005)	EN55011 (2009)	EN60204-1 (2018)

Principles:
This product has been designed & manuf. according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex tb IIIB T60ºC / Ex II 2 D / 2mJ = (Encore XT and HD Applicators)
- Ex tc IIIB T60ºC / EX II (2) 3 D = (Controllers)
- Ex II 2 D / 2mJ = (Encore Select HD Robot Applicator)

Certificates:
- FM21UKEX0129X = Encore XT/HD Manual App & Select HD Robot Appl. (Maidenhead, Berkshire, UK)
- FM21UKEX0130X = Controls (Maidenhead, Berkshire, UK)
- FM22UKEX0006X = Encore Automatic Applicator (Maidenhead, Berkshire, UK)

EX Quality System Certificate
- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)

Date: 22Sept21

_____

Jeremy Krone
Supervisor Product Development Engineering
Industrial Coating Systems
Amherst, Ohio, USA

Nordson Authorized Representative in the UK
Contact: Technical Support Engineer
Nordson UK Ltd.; Unit 10 Longstone Road
Heald Green; Manchester, M22 5LB.
England

EU DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore Enhance Powder Spray Systems

Models: Encore Enhance Dual Manual Unit, Encore Enhance Dual Auto Unit, Encore Enhance Manual Interface, Encore Enhance Stack.

Description: This is an electrostatic, powder spray system, including Manual and Auto applicators, control cables and associated controllers. The Manual & Automatic Controllers are available in different configurations mounted on a power distribution enclosure.

Applicable Directives:
2006/42/EC - Machinery Directive 2014/30/EU - EMC Directive 2014/34/EU - ATEX Directive

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60079-0 (2014)	EN61000-6-3 (2007)	FM 7260 (2018)	EN50050-2 (2013)
	EN60079-31 (2014)	EN61000-6-2 (2005)	EN55011 (2016)	

Principles:
This product has been designed & manufactured according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex tb IIIB T60ºC / Ex II 2 D / 2mJ = (Encore XT and HD Manual Applicators)
- Ex tc IIIB T60ºC Dc / Ex II (2) 3 D = (Enhance Manual Interface Controller)
- Ex II (2) D = (Enhance Stack Controller) – Located in Unclassified Location (Zone)
- Ex II 2 D / 2mJ = (Encore Auto Applicator)

Certificates:
- FM14ATEX0051X = Encore XT and HD Manual Applicators (Dublin, Ireland)
- FM18ATEX0058X = Controls (Dublin, Ireland)
- FM11ATEX0056X = Encore Automatic Applicator (Dublin, Ireland)

ATEX Surveillance
- 0598 SGS Fimko Oy (Helsinki, Finland)

Date: **06Jan22**

Jeremy Krone
Engineering Manager
Industrial Coating Systems
Amherst, Ohio, USA

Nordson Authorized Representative in the EU
Contact: Operations Manager
Industrial Coating Systems
Nordson Deutschland GmbH
Heinrich-Hertz-Straße 42-44
D-40699 Erkrath

UK DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore Enhance Powder Spray Systems

Models: Encore Enhance Dual Manual Unit, Encore Enhance Dual Auto Unit, Encore Enhance Manual Interface, Encore Enhance Stack. Applicators for use with these controls are Encore Auto, Encore HD Auto, Encore Select HD Auto Robot and Encore XT/HD Manual.

Description: This is an electrostatic, powder spray system, including Manual and Auto applicators, control cables and associated controllers. The Manual & Automatic Controllers are available in different configurations mounted on a power distribution enclosure.

Applicable UK Regulations:
Supply Machinery Safety 2008
Electromagnetic Compatibility Regulation 2016
Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Reg 2016

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60079-0 (2014)	EN61000-6-3 (2007)	FM 7260 (2018)	EN50050-2 (2013)
	EN60079-31 (2014)	EN61000-6-2 (2005)	EN55011 (2016)	

Principles:
This product has been designed & manufactured according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex tb IIIB T60ºC / Ex II 2 D / 2mJ = (Encore XT and HD Manual Applicators)
- Ex tc IIIB T60ºC Dc / Ex II (2) 3 D = (Enhance Manual Interface Controller)
- Ex II (2) D = (Enhance Stack Controller) – Located in Unclassified Location (Zone)
- Ex II 2 D / 2mJ = (Encore Auto Applicator, Encore HD Auto Applicator and Encore Select HD Robot Appl)

Certificates:
- FM21UKEX0129X = Encore XT and HD Manual Applicators (Maidenhead, Berkshire, UK)
- FM21UKEX0241X = Controls (Maidenhead, Berkshire, UK)
- FM22UKEX0006X = Encore Automatic Applicator (Maidenhead, Berkshire, UK)
- FM21UKEX0223X = Encore HD Automatic Applicator (Maidenhead, Berkshire, UK)

EX Quality System Certificate
- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)

Date: **06Jan22**

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