Trilogy® LP Quick Change Automatic Spray Guns

Customer Product Manual

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Issued 1/22

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

This document is subject to change without notice.
Check http://emanuals.nordson.com for the latest version.

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Nordson

NORDSON CORPORATION • AMHERST, OHIO • USA

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Contact Us
Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address:
http://www.nordson.com.
Address all correspondence to:
Nordson Corporation
Attn: Customer Service
555 Jackson Street
Amherst, OH 44001

1601059-03

Change Record

Revision	Date	Change
01	6/12	Initial Release.
02	4/18	Updated parts lists.
03	1/22	Updated parts lists.

Safety

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.

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 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.
- While operating manual spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- Obtain and read 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.
- Make sure the spray area is adequately ventilated.
- 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.

High-Pressure Fluids

High-pressure fluids, unless they are safely contained, are extremely hazardous. Always relieve 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.

If you suffer a fluid injection injury, seek medical care immediately. If possible, provide a copy of the SDS for the injected fluid to the health care provider.

The National Spray Equipment Manufacturers Association has created a wallet card that you should carry when you are operating high-pressure spray equipment. These cards are supplied with your equipment. The following is the text of this card:

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 them this card
- Tell them what kind of material you were spraying

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.

Consultation with a plastic surgeon or a reconstructive hand surgeon may be advisable.

The seriousness of the wound depends on where the injury is on the body, whether the substance hit something on its way in and deflected causing more damage, and many other variables including skin microflora residing in the paint or gun which are blasted into the wound. If the injected paint contains acrylic latex and titanium dioxide that damage the tissue's resistance to infection, bacterial growth will flourish. The treatment that doctors recommend for an injection injury to the hand includes immediate decompression of the closed vascular compartments of the hand to release the underlying tissue distended by the injected paint, judicious wound debridement, and immediate antibiotic treatment.

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.

Fire Safety (contd)

- 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.

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 your material SDS or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your Nordson representative for information about compatible Nordson components.

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.

Description

The Trilogy Low Pressure Quick Change Automatic Spray Guns are compressed-air operated low-pressure spray guns for the application of sprayable fluids. The guns include a vertically swiveling mounting block and input manifold so that the entire gun can quickly be exchanged for a new one without having to disconnect fluid or air lines. All wetted parts are stainless steel. The gun is designed for use in circulating andnon-circulating systems.

Specifications

NOTE: Use an air filter/separator to condition your air supply. Clean, dry air enhances spray quality and extends the lives of the spray guns.

Item	Specification
Fittings	Fluid: 3/8 in. (US), 8 mm (EU) Atomizing Air: 3/8 in. (US), 8 mm (EU) tube Fan Pattern Air: 3/8 in. (US), 8 mm (EU) tube Trigger Air: 1/4 in. (US), 8 mm (EU) tube
Maximum Fluid Pressure	6.0 bar (85 psi)
Maximum Fluid Temperature	50 °C (122 °F)
Maximum Air Pressure	6.0 bar (85 psi)
Recommended Atomizing Air Pressure	2.5 bar (36 psi)
Recommended Trigger Air Pressure	3.5−6.0 bar (50−85 psi)

CE	**DECLARATION OF CONFORMITY** **according to the EC Guidelines for Machines**

Nordson Corporation,
Westlake, Ohio, USA,
declares under our sole responsibility that the product: **Trilogy Automatic Spray Guns**
Models: **AAA, AS, LP, LP QC**

- Conforms with the relevant regulations of the EC machine guidelines (2006/42/EC), including their changes at this time period.
- Conforms with further relevant regulations of the EC machine guidelines including their changes at this time period.
  - Directive 94/9/EC – Equipment in explosion endangered environments. Use in zone 1; equipment of category 2
- The following harmonized standards (or parts from this) were used:
  - DIN EN ISO 12100, 2011: Safety of machines
  - EN 349 Minimum distances to avoid stem presses
  - DIN EN ISO 3741 Noise formation
  - ISO 7731 Noise protection regulations
  - DIN EN 1953, 1998-12 Spraying apparatus for coating materials – Safety requirements
  - DIN EN 13463-1 Non electric devices for using in explosion endangered areas
- The following national technical standards and specifications were used:
  - EN 614 Ergonomic formation basic principles

Justin Hall
Engineering Manager,
Industrial Coating Systems

1 May 2012

Nordson Authorized Representative in the EU
Contact:O perations Manager
Industrial Coating Systems
Nordson Deutschland GmbH
Heinrich-Hertz-StraBe 42-44
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Installation

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

1. See Figure 1. Use the mounting hole to mount the spray gun as desired.
2. Connect 1/4 in. (US) or 8 mm (EU) trigger air tubing to the **red** fitting.

   NOTE: Trigger air should be delivered by a 2-position 3-port solenoid valve with quick exhaust.
3. Connect a 3/8 in. (US) or 8 mm (EU) atomizing air tubing to the **blue** fitting.
4. Connect a 3/8 in. (US) or 8 mm (EU) fan pattern air tubing to the **green** fitting.
5. Connect the fluid supply to the 3/8 (US) or 8 mm tube fitting (EU).

   NOTE: Before using your spray gun for production, flush the spray gun with solvent or a waterborne cleaning solution to remove any oil and contaminants left over from the manufacturing process.

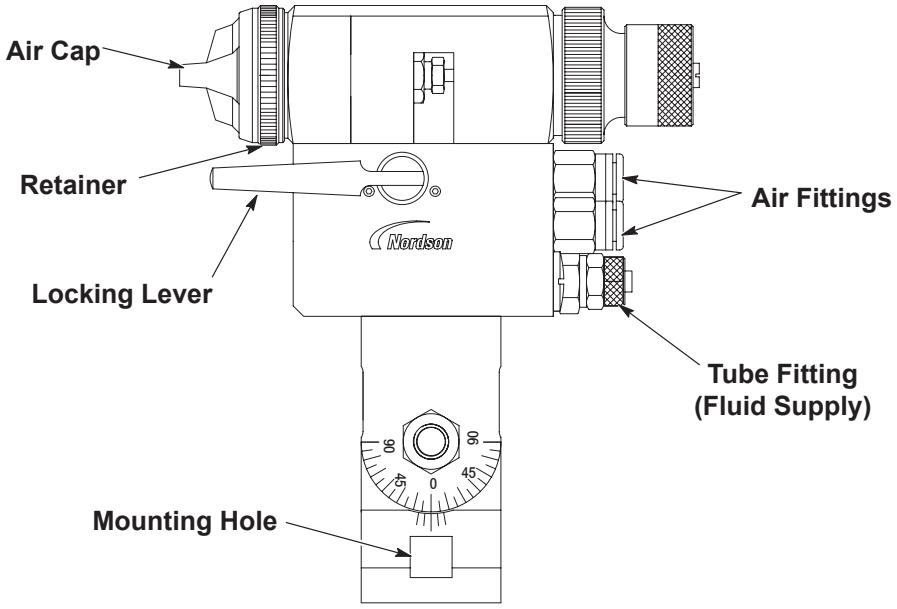

Figure 1 Trilogy LP QC Spray Gun

Operation

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

Triggering of the spray gun is controlled by an external device.

General Operation

1. Turn on atomizing air and fan pattern air.
2. Turn on trigger air.
3. Adjust the atomizing air and fan pattern air pressures to obtain the desired fan pattern and coating.
4. To change out the spray gun, shut off and relieve fluid and air pressure, then rotate the manifold lever back and lift the gun off the manifold. If doing this as part of regulator maintenance, flush the spray gun first.

Fan Pattern Orientation

1. Shut off and relieve fluid and air pressure to the gun.
2. Loosen the air cap retainer.
3. Rotate the air cap to the desired position, then tighten the air cap retainer.

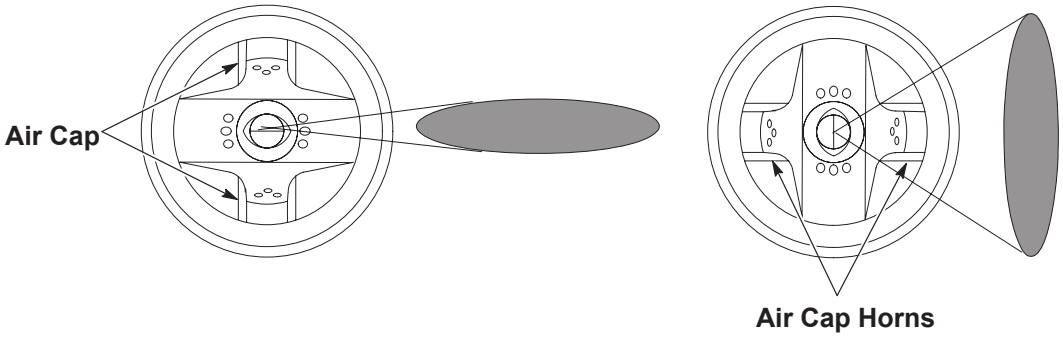

Figure 2 Fan Pattern Orientation

Maintenance

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

Cleaning

1. Flush the gun with solvent or waterborne cleaning solution at the end of each shift or at the beginning of long breaks in production. **Do not immerse the gun in solvent or cleaning solution.**
2. Relieve the fluid pressure and actuation air pressure and lock out the gun controls. Clean the air cap and nozzle with a soft bristle brush and solvent or waterborne cleaning solution. Clean the gun body as necessary.

   NOTE: Use only tools designed for nozzle cleaning to clean the nozzle orifice. Contact your Nordson representative for nozzle cleaning kits.

Lubrication

Lubricate the piston guide and piston collar daily with silicone-free oil or thin grease. Lubricate needle as needed.

Troubleshooting

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

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact your local Nordson representative for help. See Figure 3 for parts information.

Problem	Possible Cause	Corrective Action
1. Paint flow decreases when spraying	Fluid filter clogged	Clean the filter.
	Viscosity too high	Lower the material viscosity.
	Nozzle too big or worn out	Replace the nozzle.
	Fluid pressure too low	Increase fluid pressure.
2. Irregular fan pattern	Nozzle orifice clogged	Clean or replace nozzle.
	Fluid filter clogged	Clean the filter.
	Nozzle too big or worn out	Replace the nozzle.
	Viscosity too high	Lower the material viscosity.
	Either not enough or no atomizing air	Adjust atomizing air flow with regulator R.
	Air cap orifices clogged	Use a soft bristle brush and solvent or waterborne cleaning solution to clean the air cap.
3. Nozzle clogs	Material pigment too coarse for nozzle size	Use a larger nozzle.
	Fluid filter mesh too big	Use a smaller filter mesh.
4. Spraying continues when gun is triggered off	Nozzle or needle worn out	Replace the nozzle or needle.
	Needle packing gland too tight; needle cannot move	Loosen the needle packing gland or replace the seals.
	Piston springs worn out	Replace springs. Make sure piston moves smoothly in cylinder.
	Solenoid valve actuating gun is malfunctioning	Check solenoid valve operation.
5. Spray gun leaking fluid from packing gland	Packing gland too loose	Tighten packing gland.
	Needle seals worn.	Replace seals.
6. Air leaking from air cap when gun not spraying	Piston seals worn	Replace piston.
7. Spray gun leaks air at spring cap	Piston seals worn	Replace piston.
8. When actuated, atomizing air does not start flowing before fluid	Pre-air stop needs to be adjusted	Refer to piston replacement procedure for proper adjustment.
9. Gun does not spray properly: not enough atomizing air and fluid	Piston not opening properly	Remove piston, clean piston cylinder, replace piston if worn or damaged.

Repair

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

Nozzle and Air Cap Replacement

1. See Figure 3. Unscrew the air cap retainer (1) and remove the air cap (2), seal (3), and the nozzle (4) from the gun.
2. Inspect the seal (3) and replace it if damaged.
3. Install a new nozzle in the gun.
4. Install the seal on the nozzle.
5. Install the air cap in the retainer and install them on the gun. Orient the air cap as desired, then tighten the retainer securely.

Needle Replacement

1. See Figure 3. The spring cap (12) is under spring pressure. Carefully unscrew the spring retainer nut and remove the spring cap.
2. Remove the large and small springs (13, 14). Pull the needle assembly (5, 16, 15) out of the gun.
3. Remove the jamb nut (15) and piston nut (16) from the old needle and install them on the new needle.
4. Install the needle assembly through the piston and into the gun.
5. Adjust the position of the piston nut so that there is a 2 mm (.08 in.) gap between it and the face of the piston.
6. Tighten the jamb nut down on the piston nut. Recheck the gap and adjust if necessary.
7. Install the springs into the spring cap, then install the spring cap on the gun and secure it with the spring retainer nut. Tighten the nut securely.

Needle Seal Replacement

1. See Figure 3. Remove the needle as described in *Needle Replacement*.
2. See Figure 3. Remove the air cap and nozzle as described in *Nozzle and Air Cap Replacement*.
3. Unscrew the chamber nut (12) and slide it off the packing gland (11).
4. Remove the atomizing chamber from the front of the gun. Note the two seals (20) between the gun body and chamber. Do not lose these seals. Replace them if damaged.
5. Unscrew the packing gland (11) and remove the spring (10), disc (9), two O-rings (7), and two seals (8).
6. Install new O-rings and seals as shown. Install the disc and spring.
7. Thread the packing gland into the chamber, then install the chamber into the gun after first making sure the two O-rings in the face of the gun body are installed correctly.
8. Install the chamber nut over the packing gland and tighten it securely.
9. Install the needle as described in *Needle Replacement*.

Piston Replacement

1. See Figure 3. Remove the needle as described in *Needle Replacement*.
2. Use a low pressure air gun to blow air into the trigger air port and push the piston out of the cylinder.
3. Install a new piston all the way into the cylinder.
4. Install the needle as described in *Needle Replacement*.

Parts

To order parts, call the Nordson Finishing Customer Support Center at (800) 433-9319 or contact your local Nordson representative. For customers outside the USA, refer to the list of Nordson Global Locations at www.nordson.com. Refer to the parts illustrations and lists on the following pages for gun parts and options.

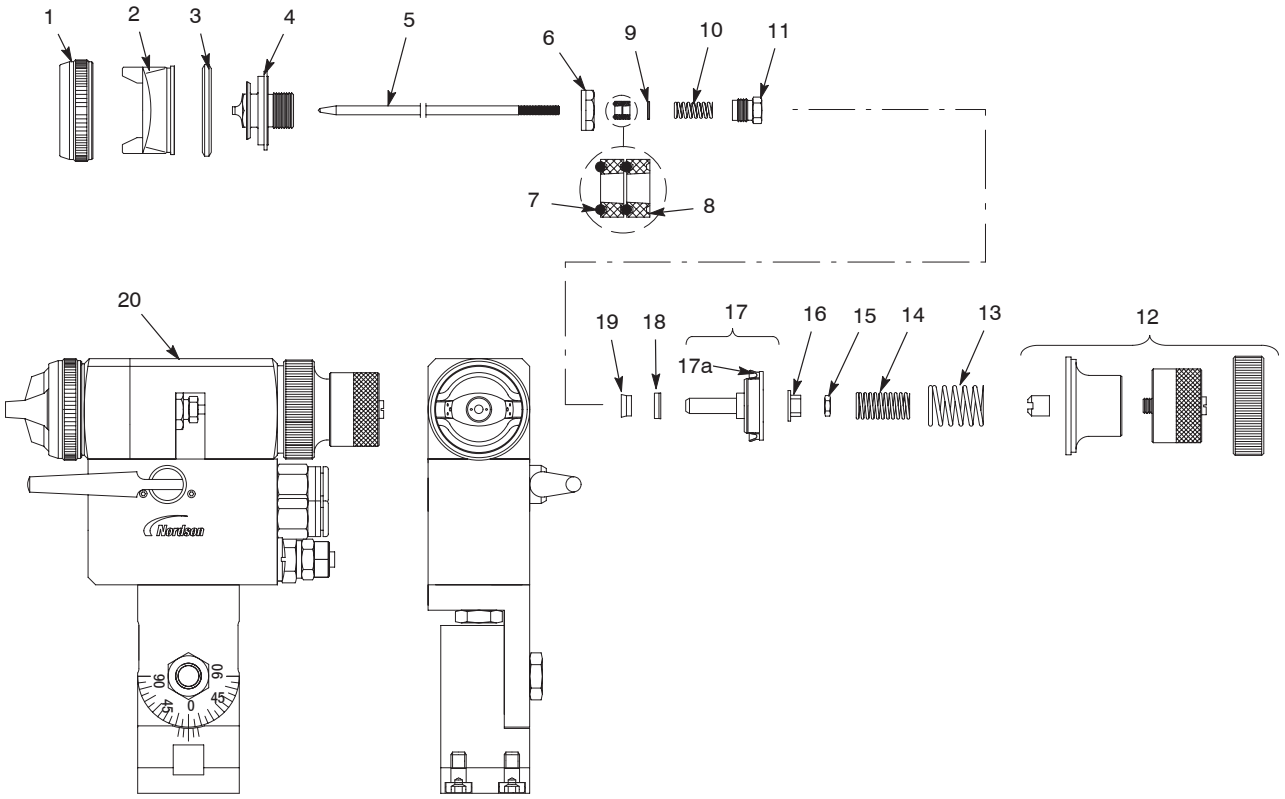

Figure 3 Trilogy LP Automatic Spray Gun Parts

Item	Part	Description	Quantity	Note
1	1601045	Gun, auto, NES, Trilogy LP	1	
2	1600935	• Retainer, air cap, LP, Trilogy NES	1	
3	1601114	• Air cap, 0.5−1.2 mm, LP QC, Trilogy NES	1	
4	1600905	• Seal, air cap, Trilogy NES	1	
5	1600954	• Nozzle, 1.0 mm, LP, Trilogy NES	1	
6	1601040	• Needle, 1.0 mm, LP QC, Trilogy NES	1	
7	1600847	• Nut, chamber, auto, Trilogy NES	2	
8	1600877	• O-ring, 4.0 x 1.2, Viton, Trilogy NES	2	
9	1600910	• Seal, packing gland, Trilogy NES	1	
10	1600911	• Disc, gland LP QC, Trilogy NES	1	
11	1600909	• Spring, LP QC, Trilogy NES	1	

Continued...

Item	Part	Description	Quantity	Note
12	1601121	• Assembly, cap, LP QC, Trilogy NES	1	
13	1601123	• Spring, outer, LP QC, Trilogy NES	2	B, C
14	1601122	• Spring, inner, LP QC, Trilogy NES	2	B, C
15	1601117	• Nut, jamb, piston, Trilogy NES	1	C
16	1601116	• Nut, piston, Trilogy NES	1	
17	1600912	• Assembly, piston, LP QC, Trilogy NES	2	B, C
17a	1601118	• • Collar, piston, LP QC, Trilogy NES	1	
18	1601119	• Seal, piston, LP QC, Trilogy NES	1	
19	1601120	• Ring, seal, LP QC, Trilogy NES	2	D
20	1601115	• Seal, chamber, Trilogy NES	2	D

Options

Part	Description	Note
Nozzles		
1600905	Nozzle, 1.0 mm, LP, Trilogy NES	
1600906	Nozzle, 1.5 mm, LP, Trilogy NES	
1600907	Nozzle, 1.8 mm, LP, Trilogy NES	
1600908	Nozzle, 2.0 mm, LP, Trilogy NES	
Air Caps		
1600935	Air cap, 0.5−1.2 mm, LP QC, Trilogy NES	
1600936	Air cap, 1.3−1.6 mm, LP QC, Trilogy NES	
1600937	Air cap, 1.8−2.5 mm, LP QC, Trilogy NES	
Needles		
1600979	Kit, nozzle, 2.0 mm, LP, Trilogy NES	
1601861	Kit, nozzle, 2.5 mm, LP, Trilogy NES	
1601862	Kit, nozzle, 3.0 mm, LP, Trilogy NES	
Nozzle Kits (includes retaining nut (1) air cap (2), nozzle (4), needle (24) and all required seals)		
1601863	Kit, nozzle, 0.5 mm, LP QC, Trilogy NES	
1601864	Kit, nozzle, 0.8 mm, LP QC, Trilogy NES	
1600980	Kit, nozzle, 1.0 mm, LP QC, Trilogy NES	
1601865	Kit, nozzle, 1.2 mm, LP QC, Trilogy NES	
1601866	Kit, nozzle, 1.3 mm, LP QC, Trilogy NES	
1601867	Kit, nozzle, 1.4 mm, LP QC, Trilogy NES	
1600981	Kit, nozzle, 1.5 mm, LP QC, Trilogy NES	
1601868	Kit, nozzle, 1.6 mm, LP QC, Trilogy NES	
1600982	Kit, nozzle, 1.8 mm, LP QC, Trilogy NES	
1600983	Kit, nozzle, 2.0 mm, LP QC, Trilogy NES	
1601869	Kit, nozzle, 2.5 mm, LP QC, Trilogy NES	
1601870	Kit, nozzle, 3.0 mm, LP QC, Trilogy NES	