

# **EcoLiner Compound Gun**

Customer Product Manual  
Part 1069243A

Issued 3/06

**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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## 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>.

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# EcoLiner Compound Gun

## 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.

## Personal Safety *(contd)*

- Obtain and read Material Safety Data Sheets (MSDS) 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 MSDS 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 him this card
- Tell him 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.

- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material MSDS 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:

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

Check your material MSDS 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

See Figure 1. The EcoLiner Compound Gun applies precise amounts of gasket compound to can ends.

The gun features short air passages and an air open/air close solenoid valve for fast piston response. An adjustment screw at the top of the gun allows you to precisely adjust the quantity of compound dispensed.

The gun comes with one of four nozzle sizes available. Refer to the *Parts* section for gun and nozzle part numbers.



Figure 1 EcoLiner Compound Gun

## Installation



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

### Mounting

Mount the gun to a secure mounting plate using suitable M5 screws.

**NOTE:** Tighten the mounting screws securely. Vibrations from the gun's frequent on and off cycles may loosen the mounting screws if they are not tightened securely.

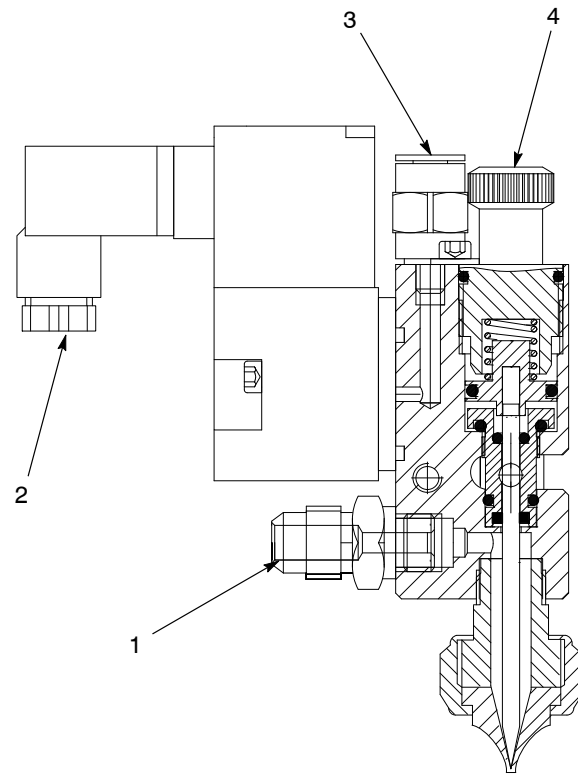


Figure 2 Connections and Adjustments

- |                            |                      |
|----------------------------|----------------------|
| 1. Compound material inlet | 3. Control air inlet |
| 2. Electrical connection   | 4. Needle adjuster   |

### Connections

See Table 1 and Figure 2.

Table 1 Connections

Item	Connection	Specifications
1	Compound Material	Connect the material hose to the $\frac{1}{2}$ -20 UNF inlet fitting.
2	Electrical	<p>Connect wiring from a 24 Vdc, 6 W power supply/timer to the solenoid plug.</p> <p><b>NOTE:</b> The solenoid plug is secured to the solenoid with a screw.</p>
3	Control Air	<p>Connect 6-mm OD air tubing from a clean, dry 4–6 bar (57–87 psi) air source.</p> <p><b>NOTE:</b> Do not use lubricated air. We recommend using the air filter system listed in the <i>Options</i> list on page 10.</p>

## Operation



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

### Initial Startup

1. Turn on the gun control air supply.
2. Start the pump and set the output pressure no higher than 35 bar (500 psi).
3. Place a waste container under the nozzle.
4. Trigger the gun until compound material flows smoothly from the gun. Turn the gun off when no air bubbles are present.
5. Set a test substrate under the gun to test the size of the compound bead. Adjust the material flow until you achieve the desired bead.

### Material Flow Adjustment

Material flow is determined by material supply pressure and the gun needle stroke.

You must experiment with the material supply pressure and needle adjustment screw to achieve the desired results.



**CAUTION:** Do not exceed 35 bar (500 psi). Damage to the gun may result if you use a higher pump pressure.

Increase or decrease the material supply pressure to make broad adjustments in material flow.

Use the needle adjuster (see Figure 2, (4)) to make fine adjustments in material flow. Tighten the adjuster locking screw when the adjustment is complete.

- To increase flow, turn the adjuster counterclockwise.
- To decrease flow, turn the adjuster clockwise.

### Daily Startup

1. Check the compound material supply. Add compound material as necessary.
2. Start up the pump and set the pump pressure to the setting determined during the *Material Flow Adjustment* procedure.
3. The gun will trigger on and off based on how you configured your triggering system.

### Shutdown

1. Shut down the triggering system.
2. Shut down the pump. Refer to your pump manual for instructions.
3. If the gun will be idle for a long period of time, put a small amount of petroleum jelly over the nozzle orifice.

## Daily Maintenance

- Flush the gun with a compound-compatible detergent.



**CAUTION:** Do not use sharp or metal tools to clean the gun.

- Clean the nozzle using a soft brush and compound-compatible detergent.
- Drain and clean the air filter.

## Troubleshooting



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

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

Problem	Possible Cause	Corrective Action
<b>1. Gun will not turn on</b>	No control air pressure  No power to solenoid  Nozzle clogged	Check the air supply to the gun solenoid.  Check the solenoid plug. If the plug's LED is not on, check the power supply and wiring.  Clean the nozzle tip using a soft brush and compound-compatible detergent. If the nozzle is still clogged, remove it and clean the inside of the nozzle.
<b>2. Compound material leaks from nozzle</b>	Material supply pressure too high  Dried material inside the nozzle	Decrease the compound material supply pressure.  Remove the nozzle and clean the nozzle and needle using a soft brush and compound-compatible detergent.
<b>3. Compound material leaks from gun body</b>	Internal seals bad	Replace the seals. Order the appropriate seal kit for your application.

## Repair



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

See Figure 3. Item numbers are also used in the parts list.

### Preparation

1. Shut down the pump and relieve material pressure.
2. Shut off and relieve pressure to the control air supply.
3. Turn off and lock out power to the triggering system.
4. Disconnect the lines from the air (8) and material (13) fittings.

5. Loosen the screw in the solenoid plug (11, then pull the plug off the solenoid valve (10).
6. Remove the gun from its mounting bracket and take it to a clean work surface.

**NOTE:** If compound material has solidified in the gun, remove the solenoid and soak the gun in warm water for two days. Change the water occasionally to keep it warm.

7. Remove these items from the gun:
  - solenoid (10)
  - manifold (9)
  - nozzle nut (23)
  - nozzle (22)
  - nozzle adapter (21)
8. Flush the gun with warm water to remove residual compound material.



## Disassembly

1. Remove the needle adjuster locking screw (6) and washer (2) from the body (19).
2. Unscrew the needle adjuster (1) and pull it out of the body.
3. Remove the spring (3) and piston (5) from the body.



**CAUTION:** Use a properly sized screwdriver to remove the seal adapter.

4. Unscrew the seal adapter (14) and pull it out of the body.

**NOTE:** Be careful not to lose or break the plastic cover (20).

5. Remove all seals and check all parts for damage or wear.

## Assembly

1. Install the seals on the needle adjuster (1), piston (5), and seal adapter (14). Lubricate all seals with petroleum jelly.

**NOTE:** The seal adapter has two internal O-rings and two external O-rings.

2. Carefully install the seal adapter and plastic cover (20) into the body. Tighten the seal adapter securely.
3. Inject petroleum jelly into the body and seal adapter.
4. Carefully slide the piston into the body and seal adapter until it bottoms out.
5. Install the spring (3) onto the piston.
6. Screw the needle adjuster into the body.
7. Loosely install the needle adjuster locking screw (6) and washer (7) into the body.
8. Screw the nozzle adapter (21) into the body. Tighten the nozzle adapter securely.
9. Place the nozzle (22) into the nozzle nut (23), then screw the nozzle nut onto the nozzle adapter. Tighten the nozzle nut securely.
10. Install the solenoid valve (10) and manifold (9) using the two screws (12).
11. Return the gun to its mounting bracket and connect the material, electrical, and air lines. Refer to *Installation* on page 4 for more information.
12. Perform the *Initial Startup* and *Material Flow Adjustment* procedures before starting production.

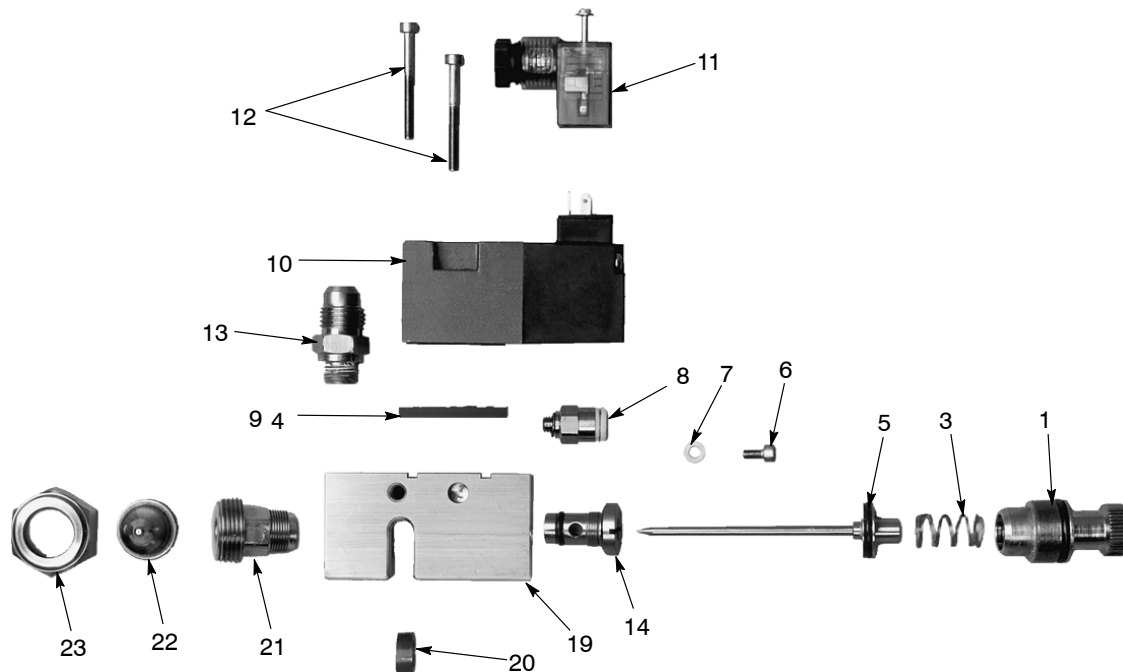


Figure 3 Gun Repair

## Parts

To order parts, call the Nordson Industrial Coating Systems 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](http://www.nordson.com). Refer to the parts illustration and lists on the following pages.

### Gun Assemblies

Part	Description
1069288	GUN, EcoLiner, 0.6 mm (0.024 in.)
1069289	GUN, EcoLiner, 0.7 mm (0.028 in.)
1069290	GUN, EcoLiner, 0.8 mm (0.031 in.)
1069291	GUN, EcoLiner, 1.0 mm (0.039 in.)

### Gun Parts

See Figure 4.

Item	Part	Description	Quantity	Note
—	-----	GUN, EcoLiner, assembly	1	
1	372579	• ADJUSTER, needle stroke	1	
2	311495	• O-RING, Viton B	1	A
3	313829	• SPRING, compression	1	
4	313742	• O-RING	1	A, B
5	-----	• NEEDLE, assembly, EcoLiner	1	B
6	311024	• SCREW, M3 x 6	1	
7	313597	• WASHER, M3	1	
8	313920	• CONNECTOR, straight, 6-mm tube	1	
9	373029	• MANIFOLD	1	
10	771307	• SOLENOID, 24 Vdc, 6 W	1	
11	370300	• CONNECTOR, solenoid	1	
12	371951	• SCREW, allenhead	2	
13	372570	• HOSE NIPPLE, 1/8 BSP x 1/2-20 UNF, stainless steel	1	
14	313720	• SEAL ADAPTER	1	C
15	311478	• O-RING, 2.90 mm x 1.78 mm	1	A, C
16	313934	• O-RING, 8.5 x 2 mm, Viton B	1	A, C
17	311483	• O-RING	1	A, C
18	313721	• QUAD RING	1	B, C
19	-----	• BODY, gun	1	
20	313787	• COVER, plastic protection	1	
21	-----	• ADAPTER, nozzle, EcoLiner	1	
22	-----	• NOZZLE, EcoLiner	1	B
23	-----	• NUT, nozzle, EcoLiner	1	

NOTE A: These parts are included in the seal kit, part 1069277.

B: These parts are included in the nozzle and needle kits listed on page 10.

C: These parts are included in the seal adapter kit listed on page 10.

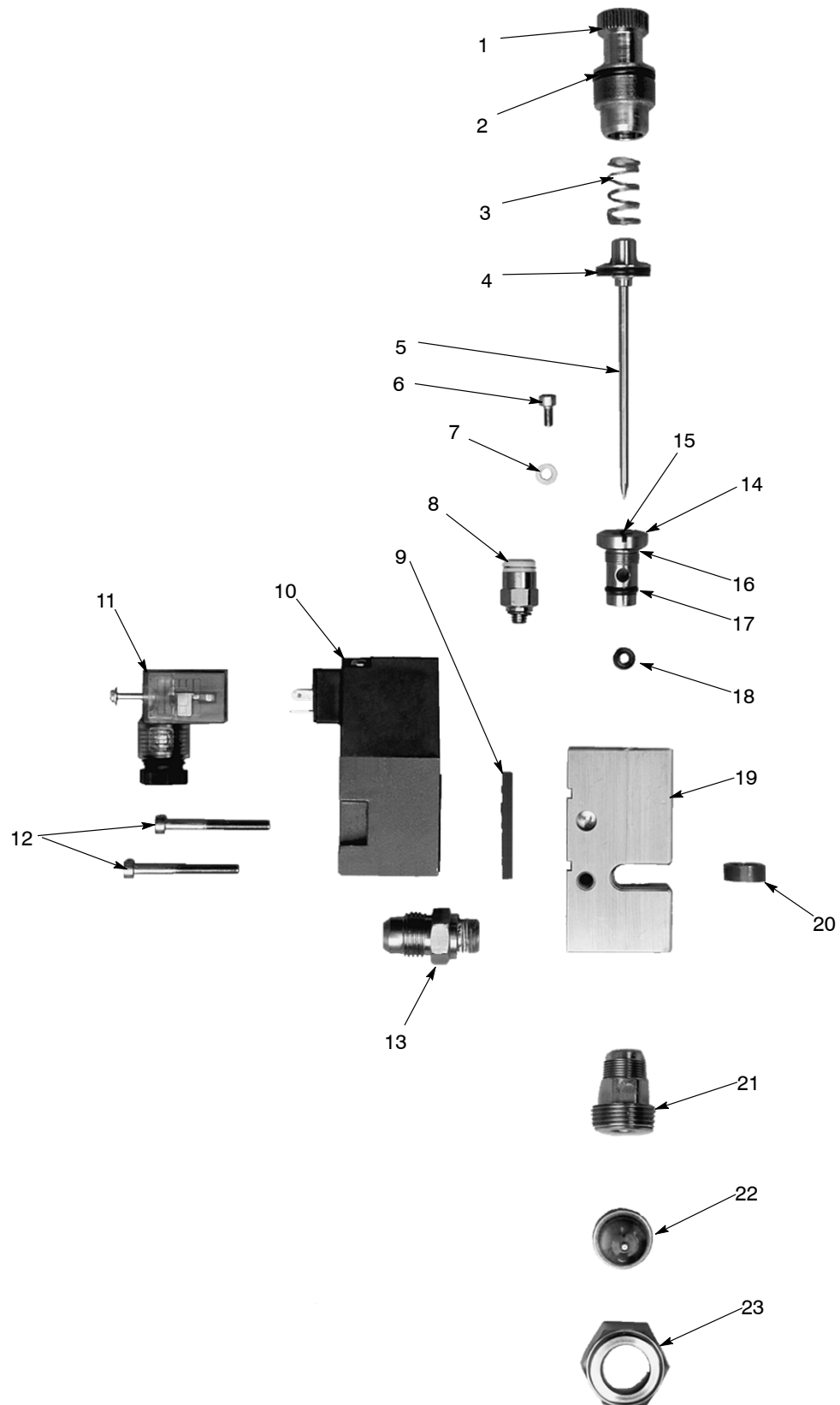


Figure 4 Gun Parts

## Service Kits

### Nozzle and Needle Kits

See Figure 4. All nozzle and needle kits contain the nozzle (22), needle (5), O-ring (4), and quad ring (18). The nozzle, needle, and quad ring are a matched set. If you replace one, you must replace all three.

Part	Description
1069281	KIT, nozzle/needle, 0.6 mm (0.024 in.)
1069283	KIT, nozzle/needle, 0.7 mm (0.028 in.)
1069284	KIT, nozzle/needle, 0.8 mm (0.031 in.)
1069285	KIT, nozzle/needle, 1.0 mm (0.039 in.)

### Soft Goods Kit

See Figure 4.

Item	Part	Description	Quantity	Note
—	1069277	KIT, seal	1	
2	311495	• O-RING, Viton, B	1	
4	313742	• O-RING	1	
15	311478	• O-RING, 2.90 x 1.78 mm	1	
16	313934	• O-RING, 8.5 x 2 mm, Viton, B	1	
17	311483	• O-RING	1	
NS: Not Shown				

### Seal Adapter Kit

See Figure 4.

Item	Part	Description	Quantity	Note
—	370468	KIT, seals and adapter	1	
14	313720	• SEAL ADAPTER	1	
15	311478	• O-RING, 2.90 x 1.78 mm	1	
16	313934	• O-RING, 8.5 x 2 mm, Viton, B	1	
17	311483	• O-RING	1	
18	313721	• QUAD RING	1	
NS: Not Shown				

## Options

Part	Description	Note
112187	SYSTEM, filter/regulator/coalescing	

## Specifications

Operating Air Pressure	4–6 bar (57–87 psi)
Maximum Material Pressure	35 bar (500 psi)
Solenoid Control Voltage	24 Vdc, 6 W
Air Fitting Size	6 mm
Material Inlet Fitting Size	1/2-20 UNF
Maximum Cycle Rate	800 cycles per minute
Minimum On Time	5 msec
Minimum Off Time	8.5 msec
Weight	418.3 g (0.9 lb)
Mounting Hole Size	M5
Dimensions	See Figure 5.
Noise Level	72 dB

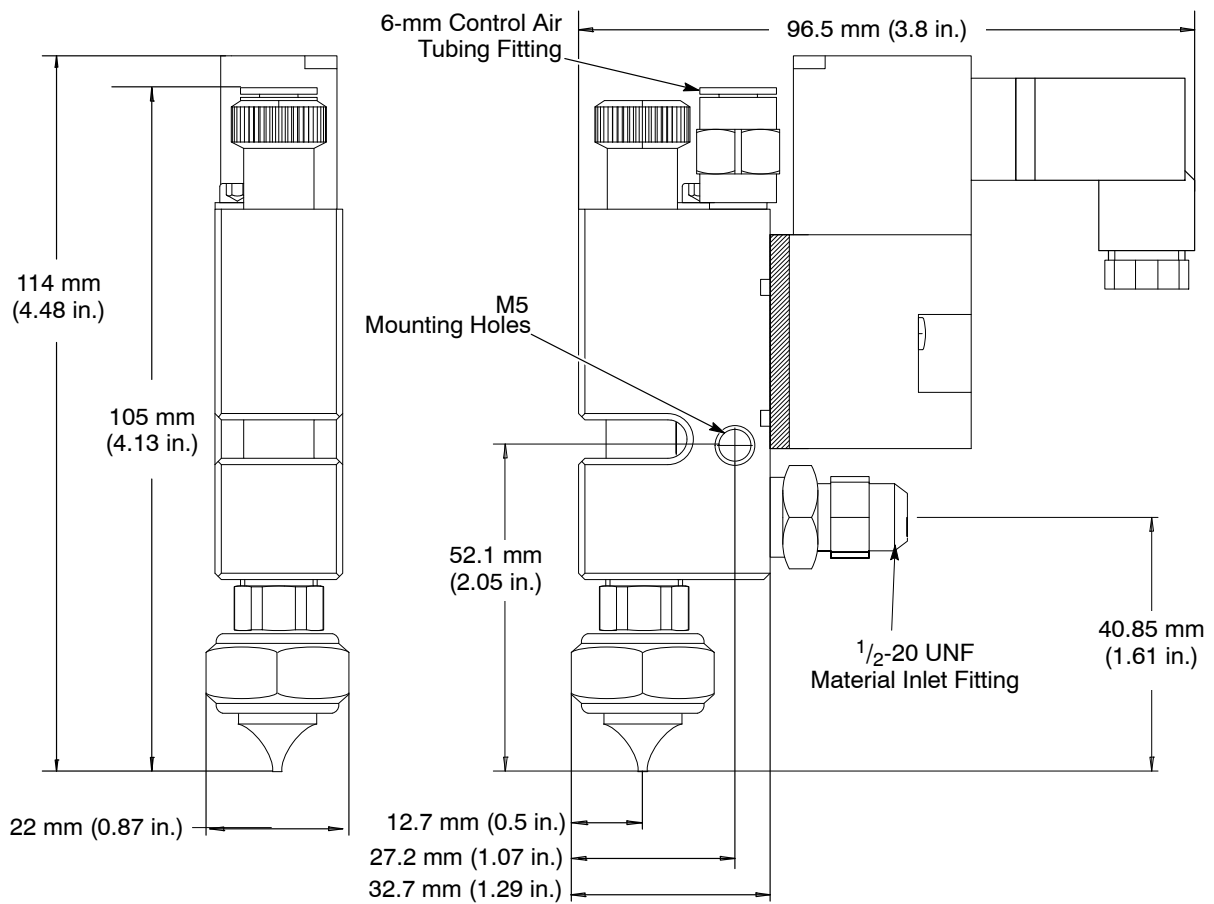


Figure 5 Dimensions



# DECLARATION of CONFORMITY

**PRODUCT:**

EcoLiner Compound Applicator for use in the container industry

**APPLICABLE DIRECTIVES:**

98/37/EEC (Machinery)

2006/95/EC (Low Voltage Directive)

**STANDARDS USED TO VERIFY COMPLIANCE:**

IEC60417

EN12100

EN60204

EN1953

**PRINCIPLES:**

This product has been manufactured according to good engineering practice.

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The product specified conforms to the directive and standards described above.

**CERTIFICATES:**

DNV ISO9001:2000



Joseph Schroeder  
Engineering Manager,  
Finishing Product Development

Date: 18 October, 2007

