

High Pressure

Elite Fluid Pressure Regulators

3B0400A

EN

For use in air-assisted spray systems to ensure accurate, positive control of fluid pressure to a spray gun, dispensing valve, or atomizing head. For professional use only.

Not approved for use in European explosive atmosphere locations.

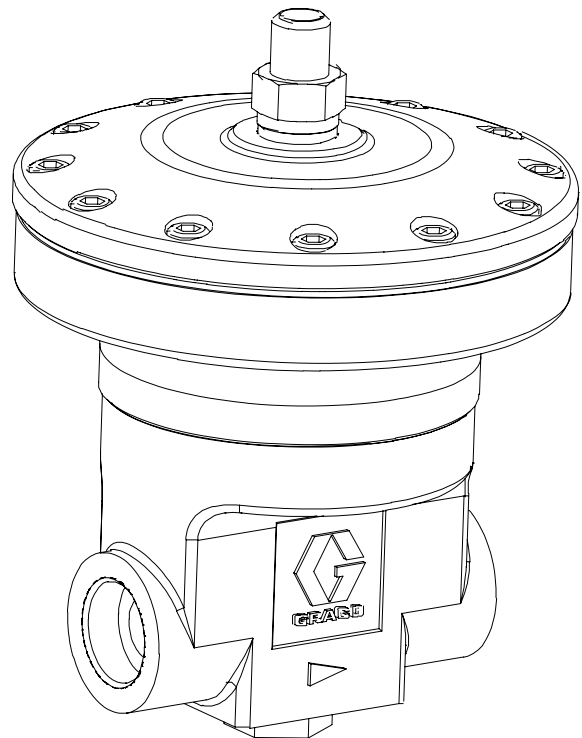
2008938

4000 psi (28 MPa, 280 bar) Maximum Working Pressure



Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



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Related manuals

Manual	Description
3A5364	Progressive Cavity Pump Repair-Parts Manual
3B0393	Progressive Cavity Pump System Instruction Manual
3B0431	DM-22 1 Gallon Supply System Instruction Manual

Safety Symbols

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

Symbol	Meaning
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splatter Hazard
	Toxic Fluid or Fumes Hazard
	Do Not Place Hands or Other Body Parts Near Fluid Outlet

Symbol	Meaning
	Do Not Stop Leaks with Hand, Body, Glove or Rag
	Eliminate Ignition Sources
	Follow Pressure Relief Procedure
	Ground Equipment
	Read Manual
	Ventilate Work Area
	Wear Personal Protective Equipment










Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

General Warnings

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

 <h2>WARNING</h2>	
   	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well-ventilated area. • Eliminate all ignition sources, such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Never spray or flush solvent at high pressure. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
    	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not spray without tip guard and trigger guard installed. • Engage trigger lock when not spraying. • Do not point gun at anyone or at any part of the body. • Do not put your hand over the spray tip. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately.



WARNING



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

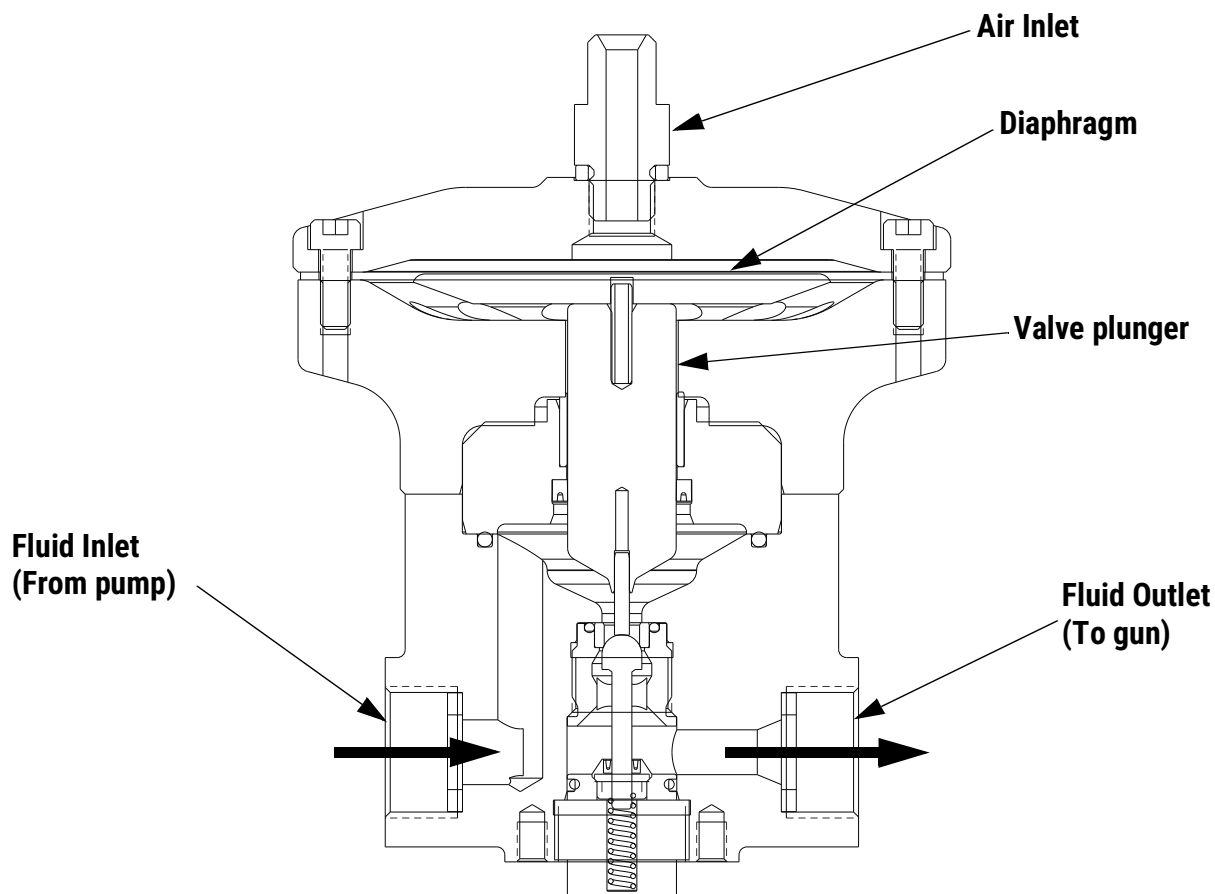
- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Component Identification

A fluid pressure regulator is used in air-assisted spray systems to ensure accurate, positive control of fluid pressure to a spray gun, dispensing valve, or atomizing head.

Model 2008938 is a pneumatically operated fluid pressure regulator designed primarily for use with highly viscous coatings.

A regulator installed at a circulating line take-off or pump reduces main line pressure to maintain the desired fluid pressure to the spray gun, dispensing valve, or atomizing head.



Installation

1. Install one regulator for each spray or dispensing gun.
2. Apply thread sealant to connections as necessary.
3. Make sure that the direction of fluid flow agrees with the flow direction markings on the regulator body.
 - a. Install a fluid pressure regulator upstream of the gun: Connect the fluid line from the pump to the inlet of the fluid regulator. Connect the fluid line to the gun to the regulator's outlet.
 - b. Install a back pressure regulator downstream of the gun. Connect the fluid return line from the gun to the inlet of the back pressure regulator. Connect the fluid return line to the pump to the regulator's outlet.
4. Flush and test the entire system.

Operation

Flush Before First Use

Your fluid pressure regulator has been tested in the factory with an anti-corrosion liquid. Before using the regulator, thoroughly flush the system with a solvent to remove residue of this liquid as well as any contaminants that have been introduced during assembly of the system.

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.

1. Lock the gun trigger safety.
2. Close the bleed-type master air valve (required in your system).
3. Unlock the gun trigger safety.
4. Hold a metal part of the gun firmly to the side of a grounded metal pail and trigger the gun to relieve pressure.
5. Lock the gun trigger safety.
6. Open the drain valve (required on your system), with a container ready to catch the drainage.
7. Leave the drain valve open until you are ready to spray again.

8. If you suspect the Spray Tip or hose is clogged or that pressure has not been fully relieved:
 - a. Using a wrench, VERY SLOWLY loosen the tip guard retaining nut or the hose end coupling to relieve pressure gradually.
 - b. Using a wrench, loosen the nut or coupling completely.
 - c. Clear hose or tip obstruction.

Adjust the Regulator

The fluid pressure regulator controls pressure downstream from its outlet. The inlet fluid pressure should always be higher than the outlet fluid pressure.

If you are using an accessory fluid pressure gauge, trigger the spray gun to relieve pressure in the line when reducing the pressure, to ensure a correct gauge reading.

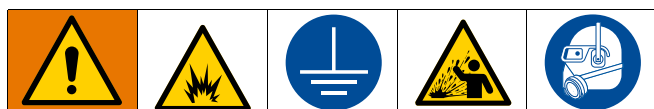
Adjust the pump air pressure and the fluid pressure regulator for the best spraying combination.

In a circulating system, the back pressure valve controls the fluid pressure upstream of its inlet in the same way.

1. With the fluid supply shut off, turn on the air pressure to the regulator.
2. Turn on the fluid supply, to admit fluid to the regulator.
3. Increase the fluid inlet pressure. When the fluid outlet pressure is at the desired level, shut off the air to the fluid regulator.

Maintenance

Flushing



To avoid fire and explosion, always ground equipment and waste container. To avoid static sparking and injury from splashing, always flush at the lowest possible pressure.

1. Follow the **Pressure Relief Procedure**, page 8.
2. Remove the spray tip. Clean the tip and set it aside.
3. Supply solvent to the pump. Start the pump. Use the lowest possible fluid pressure when flushing.
4. Flush the gun, spraying into a grounded metal container until clean solvent comes from the gun.
5. Reinstall the spray tip.

NOTE: Do not allow paint or solvent to sit in the system for extended periods. Fluid could dry on the plunger and cause leakage at the plunger packings. If leakage occurs, disassemble and clean the regulator.

Cleaning and Repair



When changing fluids or colors, the regulator should be disassembled and cleaned. Regular cleaning and inspection of the internal parts is necessary to keep the fluid regulator working properly.

1. Follow the **Pressure Relief Procedure**, page 8.
2. Remove the regulator from the system.
3. Disassemble the regulator. See **Parts**, page 12 for more information.
4. Clean and inspect all parts.

NOTICE


Be very careful when handling the carbide balls and seats. Damage will cause poor operation and leakage.

5. Inspect the diaphragm, packings, o-rings, and seals for wear. Check the ball and seat for nicks, wear, or other damage.
6. Lubricate packings, o-rings and seals when reassembling the regulator.
7. Torque as specified on the parts. See **Parts**, page 12 for more information.

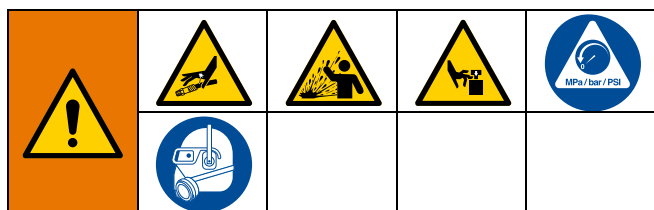
Recycling and Disposal

End of Product Life

At the end of the product's useful life, dismantle and recycle it in a responsible manner.

- Perform the **Pressure Relief Procedure**, page 8.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.
- Remove motors, batteries, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of batteries or electronic components with household or commercial waste. .
- Deliver remaining product to a recycling facility.

Troubleshooting



Follow the **Pressure Relief Procedure**, page 8, before checking or repairing the equipment.

To repair the regulator, see **Maintenance**, page 9 for more information.

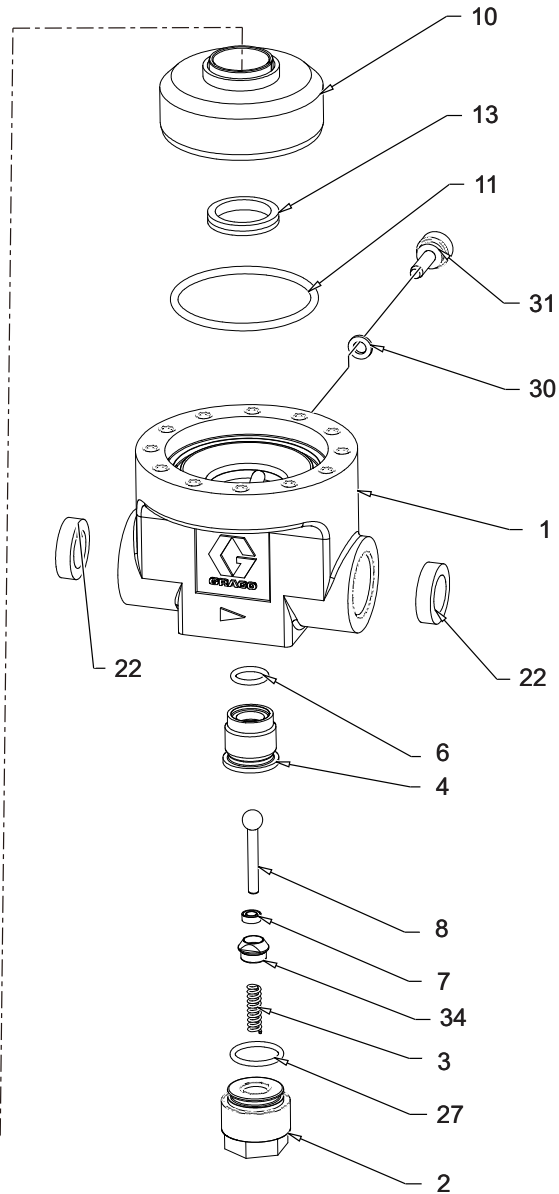
Problem	Cause	Solution
Drop in fluid outlet pressure.	Ruptured diaphragm (17).	Replace diaphragm.
	Air escaping.	Check air hose and connections. Replace packings (13).
	Worn packings.	Replace packings (13).
Fluid outlet pressure increases to level of fluid inlet pressure.	Valve ball (8) and seat (4) are worn or stuck open.	Clean ball and seat. Replace worn or damaged parts.
Fluid leaking from upper housing.	Ruptured diaphragm (17).	Replace diaphragm.
	Worn packings.	Replace packings (13).

This exploded view diagram illustrates the assembly of a mechanical component, likely a pump or valve. The components are numbered as follows:

- 1**: A small pin or screw, indicated by a triangle symbol.
- 9**: A vertical cylindrical component with a central shaft and a small hole on its side.
- 16**: A thin, circular disc or gasket.
- 17**: A larger circular flange or plate with multiple small holes around its perimeter.
- 18**: The main body or housing of the assembly, featuring a central opening and a flange with mounting holes.
- 20**: A circular flange or plate, similar to 17, positioned above the main body.
- 26**: A small pin or screw, indicated by a triangle symbol.
- 28**: A small circular gasket or seal.
- 29**: A long pin or screw, indicated by a triangle symbol.
- 32**: A vertical cylindrical component with a hexagonal section in the middle.
- 33**: A small circular gasket or seal.

The diagram shows the relative positions and assembly sequence of these parts, with dashed lines indicating the path of assembly.

2 Torque to 12 N·m (8.8 ft-lb).



Part No. 2008938 Parts List

Ref.	Part	Description	Qty
1	----	HOUSING, regulator base	1
2	---- ✓	PLUG, screw	1
3	117091 ✓	SPRING, compression	1
4	245370	SEAT, valve	1
6	15Y031	O-RING	1
7	2007344 ✓	SEAL, V-cup	1
8	---- ✓	ROD, ball valve	1
9	245377	PLUNGER, valve	1
10	245364	HOUSING, plunger	1
11	15Y034	O-RING	1
13	117111	SEAL, rod	1
16	15A213	PLATE, diaphragm	1
17	15A181	DIAPHRAGM	1
18	15A209	HOUSING, diaphragm	1
20	15A146	COVER, diaphragm	1
22	2010090	RING, seal	2
26	117028	SCREW, shcs; M6 x 16	12
27	15Y032 ✓	O-RING	1
28	2007432	WASHER	12
29	2010089	SCREW, shcs; M6 x 40	12
30	117086	WASHER	1
31	117100	PLUG, threaded	1
32	15C332	FITTING	1
33	15C333	WASHER	1
34	2007343 ✓	GUIDE, bearing	1

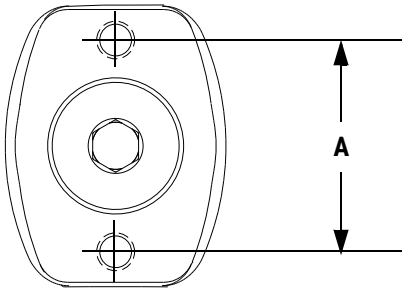
✓ *Parts included in Kit 2008936.*

Kits and Accessories

Accessory Gauges

Model	Gauge
2008938	118340

Dimensions



Part No.	Thread	Dimension A
2008938	M6	36 mm (1.42 in.)

Technical Specifications

Equipment Name		
	US	Metric
Maximum Fluid Inlet Pressure	4000 psi	28 MPa, 280 bar
Pressure Range	70–900 psi	0.5–6 MPa, 5–60 bar
Maximum Operating Air Pressure	85 psi	0.6 MPa, 6 bar
Maximum Flow Rate	11.3 gpm	42.9 lpm
Temperature Range	50-176°F	10-80°C
Fluid inlet and outlet	3/4 G(F)	
Air inlet	1/4 npt(M)	
*Gauge port	1/4 BSPP(F)	
Wetted Parts	UHMWPE, Stainless steel, acetal, tungsten carbide, PTFE, chemically resistant fluoroelastomer	
Notes		
* Accessory Gauges Available		

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

Sealant and Adhesive Dispensing Equipment

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor, go to www.graco.com, or call to identify the nearest distributor.

If calling from the USA: 1-800-746-1334

If calling from Asia Pacific: 00-86-512-6260-5711 or 00-86-21-2310-6198

If calling from Europe: 00-32-89-770-862

*All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.*

Original instructions. This manual contains English. MM 3B0400

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Revision A, June 2025