

# Stainless Steel 3:1 Pump

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*For use in vapor abrasive blast equipment. Use only with water, or water with additives to inhibit corrosion or mold. For professional use only.*



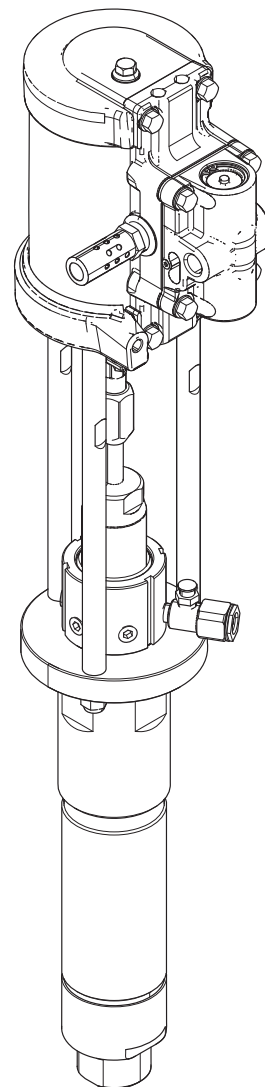
## Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Save these instructions.

## Model 24V672, 25A531, 17M893

300 psi (2.06 MPa, 20.6 bar) Maximum Fluid Working Pressure

100 psi (0.68 MPa, 6.8 bar) Maximum Air Working Pressure



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## Related Manuals

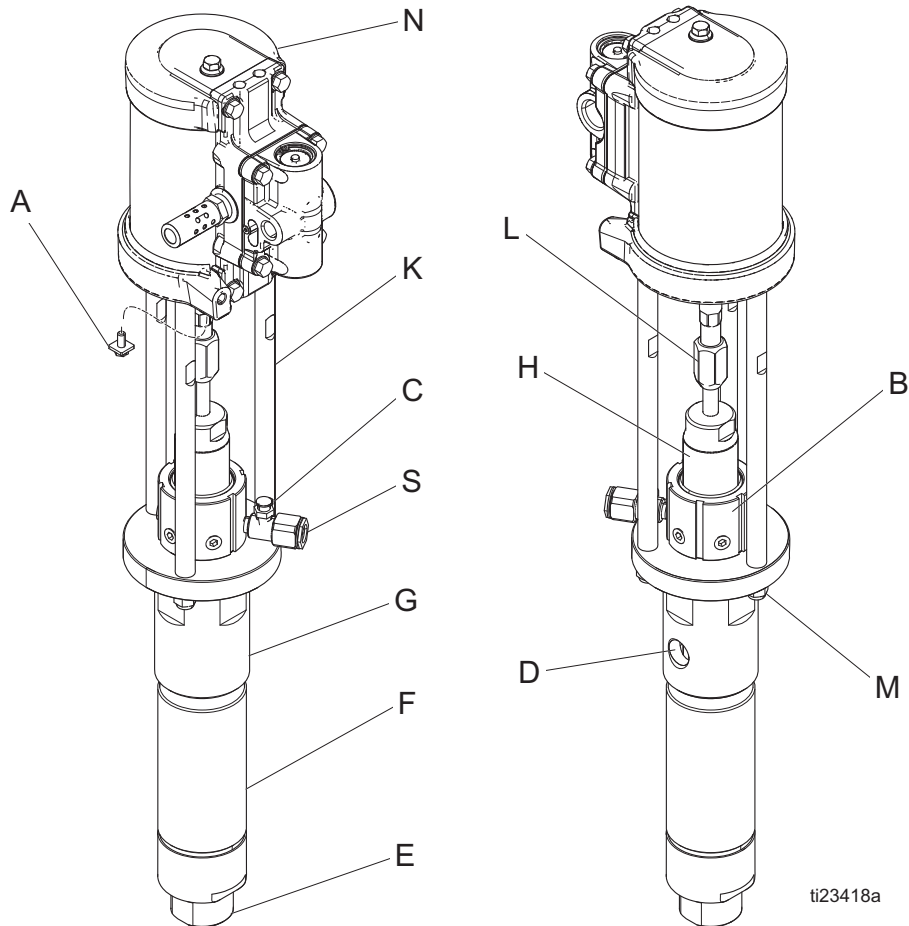
Manual in English	Description
334142	EcoQuip EQ100S Operation and Maintenance Manual - Vapor Abrasive Blast Equipment
334143	EcoQuip EQ300S-EQ600S Operation and Maintenance Manual - Vapor Abrasive Blast Equipment
334666	EcoQuip EQ200T-EQ400T Operation and Maintenance Manual - Vapor Abrasive Blast Equipment
334667	EcoQuip EQ300C-EQ600C Operation and Maintenance Manual - Vapor Abrasive Blast Equipment
3A3489	EcoQuip 2 Operation and Maintenance Manual - Vapor Abrasive Blast Equipment
3A4167	Geo Blaster Operation and Parts Manual - Vapor Abrasive Blast Equipment
3A6845	Stainless Steel Pump Lower Manual
312796	NXT Air Motor Manual

# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 <b>WARNING</b>	
 	<b>EQUIPMENT MISUSE HAZARD</b> Misuse can cause death or serious injury. <ul style="list-style-type: none"> <li>Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Specifications</b> in all equipment manuals.</li> <li>Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.</li> <li>Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>Use equipment only for its intended purpose. Call your distributor for information.</li> <li>Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>Keep children and animals away from work area.</li> <li>Comply with all applicable safety regulations.</li> </ul>
 	<b>PRESSURIZED EQUIPMENT HAZARD</b> Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury. <ul style="list-style-type: none"> <li>Follow the <b>Pressure Relief Procedure</b> when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.</li> <li>Tighten all fluid connections before operating the equipment.</li> <li>Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
 	<b>MOVING PARTS HAZARD</b> Moving parts can pinch, cut or amputate fingers and other body parts. <ul style="list-style-type: none"> <li>Keep clear of moving parts.</li> <li>Do not operate equipment with protective guards or covers removed.</li> <li>Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> and disconnect all power sources.</li> </ul>
	<b>PERSONAL PROTECTIVE EQUIPMENT</b> 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. This protective equipment includes but is not limited to: <ul style="list-style-type: none"> <li>Protective eyewear, and hearing protection.</li> <li>Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>

# Component Identification



**FIG. 1. Component Identification**

**Key:**

- A Ground Screw
- B Enclosed Wet Cup
- C Wet Cup Fill Port
- D Fluid Outlet
- E Fluid Inlet
- F Lower Cylinder
- G Outlet Housing

**Key:**

- H Displacement Rod
- K Tie Rod
- L Coupling Nut
- M Tie Rod Nut
- N Air Motor
- S Sight Glass

## General Information

This pump is designed for water use only.

This pump is intended to be mounted using a bracket to the frame of the system, which must be connected to earth ground.

**NOTE:** Reference numbers and letters in parentheses in the text refer to the call-outs in the figures and the parts drawing.

**NOTE:** Always use Genuine Graco Parts and Accessories, available from your Graco distributor. Accessories must be adequately sized and pressure-rated for your system.

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



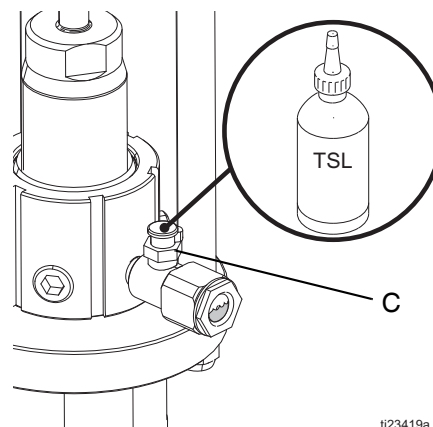
This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as splashing fluid and moving parts, follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing the equipment.

Always de-pressurize the system prior to any repair, following the instructions listed in the appropriate system manual.

## Wet Cup



Before starting, fill wet cup fill port (C) 1/2 full with Graco Throat Seal Liquid (TSL) or compatible solvent. See FIG. 2.



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FIG. 2. Fill Wet Cup

## Maintenance

### Preventive Maintenance Schedule

The operating conditions of your particular system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

### Tighten Threaded Connections

Before each use, check all hoses for wear or damage. Replace as necessary. Check that all threaded connections are tight and leak-free.

### Wet Cup Maintenance

Fill the Wet Cup half full with Graco TSL. Maintain level daily.

# Troubleshooting



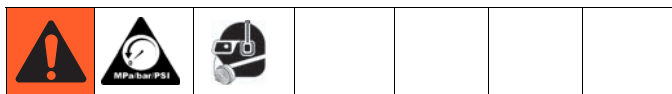
**NOTE:** Perform **Pressure Relief Procedure**, page 5, before checking or servicing the equipment.

**NOTE:** Check all possible problems and causes before disassembling the pump.

## Pump

Problem	Cause	Solution
Pump output is low on both strokes.	Air supply lines are restricted.	Clear any obstructions from the air lines. Make sure all shutoff valves are open. Increase the pressure, but do not exceed the maximum working pressure.
	Fluid supply is empty.	Refill and reprime the pump.
	Fluid outlet line or valves are clogged.	Clear the fluid outlet line and valves, etc.
	Throat packings are worn.	Replace the throat packings.
	Air pressure is insufficient; or the air valves are closed or clogged.	Open and clean the air valves.
	Enclosed wet cup is too loose.	Tighten the enclosed wet cup.
Pump output is low on only one stroke.	Piston packings are worn.	Replace the piston packings.
No output.	Ball check valves are improperly installed.	Check and repair the ball check valves.
Pump operates erratically.	Fluid supply is empty.	Refill and reprime the pump.
	Ball check valves are held open or worn.	Check and repair the ball check valves.
	Piston packings are worn.	Replace the piston packings.
Pump will not operate.	Air supply lines are restricted.	Clear any obstructions from the air lines. Make sure all shutoff valves are open. Increase the pressure, but do not exceed the maximum working pressure.
	Fluid supply is empty.	Refill and reprime the pump.
	Fluid outlet line or valves are clogged.	Clear the fluid outlet line and valves, etc.
	Air pressure is insufficient; or the air valves are closed or clogged.	Open and clean the air valves.
	Air motor is damaged.	See your NXT Air Motor Manual.
	Dried fluid seizure of the displacement rod.	See your Stainless Steel Pump Lower manual. Clean the displacement rod. Check or replace the throat packings. Always stop the pump at the bottom of the stroke and keep the wet cup filled with TSL.

# Pump Repair



## General Information

- Reference numbers and letters in parentheses in the text refer to the call-outs in the **Component Identification**, page 4, and the **Parts** section, page 9.
- Always use Genuine Graco Parts and Accessories, available from your Graco distributor. Accessories must be adequately sized and pressure rated for your system.

## Disconnect the Displacement Pump

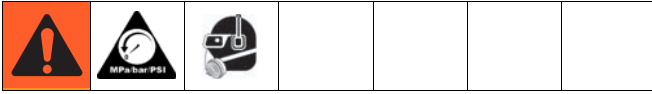
- Perform the **Pressure Relief Procedure**, page 5.
- Disconnect the air and fluid hoses. Remove the pump from its mounting.
- See FIG. 4, page 9. Unscrew the tie rod nuts (4) from the tie rods (3). Unscrew coupler and remove coupler collars. Carefully pull the displacement pump (2) off of the air motor.
- Note the relative position of the pump fluid outlet (D) to the air motor air inlet. See FIG. 1, page 4.
- Refer to your pump lower manual for service information.

## Reconnect the Displacement Pump

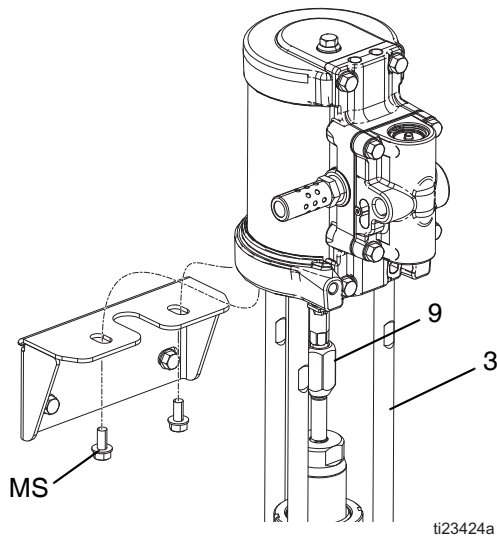
- Orient the pump fluid outlet (D) to the air motor air inlet (214) as explained in step 4 in **Disconnect the Displacement Pump**.
- See FIG. 4, page 9. Position the displacement pump (2) on the tie rods (3).
- Screw the tie rod nuts (4) onto the tie rods (3) loosely.
- Install coupler nut and collars onto displacement rod. Hold the flats of the air motor position rod with a wrench. Use another wrench to tighten the coupling nut (9).
- See FIG. 1, page 4. Apply thread sealant to the pump fluid outlet (D) and the threads of the fluid hose. Mount the pump and reconnect all hoses. Reconnect the ground wire if it was disconnected during repair. Torque the enclosed wet cup (B) to 60 ft-lb (81 N•m). Fill the wet cup fill port (C) with Graco TSL.
- Tighten the tie rod nuts (4) evenly, and torque to 15-20 ft-lb (20-27 N•m).
- Start the pump and run it at approximately 40 psi (2.8 bar) air pressure, to check that it is operating properly.
- Check for fluid leakage at the enclosed wet cup (B). Perform **Pressure Relief Procedure**, page 5.

# Air Motor Repair

## Disconnect the Air Motor



1. Perform the **Pressure Relief Procedure**, page 5.
2. Disconnect the air and fluid hoses.
3. See FIG. 3. Use a socket to remove the top two mounting screws (MS).



**FIG. 3: Disconnect Air Motor**

4. Lift up on the air motor to remove it. The tie rods (3) and the lower will remain attached.
5. Hold the flats of the air motor piston rod with a wrench. Use another wrench to loosen the coupling nut (9).
6. Use a socket to remove the tie rod nuts (4). See FIG. 4, page 9.
7. Use a wrench on the flats of the tie rods (3) to remove them from the bottom cover of the air motor.
8. Refer to your NXT air motor manual for service and troubleshooting information.

## Reconnect the Air Motor

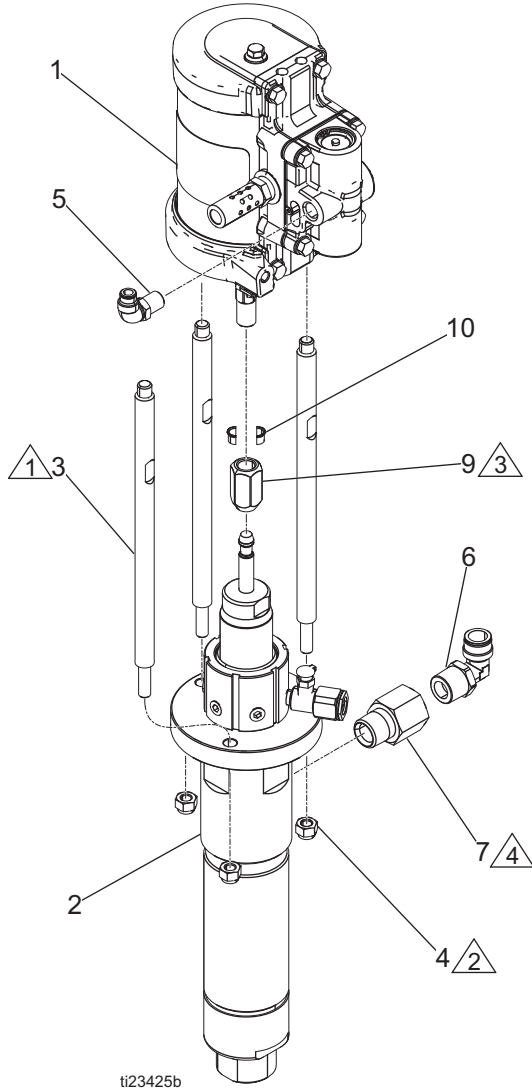
1. Screw the tie rods (3) into the bottom cover of the air motor. Torque to 5-10 ft-lb (7-13.5 N•m).
2. Slide the pump onto the tie rods (3).
3. Attach the tie rod nuts (4) and torque to 15-20 ft-lb (20-27 N•m).
4. Hold the flats of the air motor piston rod with a wrench. Use another wrench to tighten the coupling nut (9).
5. Tighten the mounting screws.
6. Connect the air and fluid hoses.



# Parts

## Pump

**Models 24V672, 25A531, 17M893**



Ref.	Part	Description	Qty.
1	M02LN0	MOTOR, air, 2.5 in.	1
2	24V671	LOWER, displacement, sst	1
3	17B185	ROD, tie (Pack of 3)	1
4	104541	NUT, lock	3
5	121022	FITTING, elbow, male, 1/4npt (model 24Y672 and 25A531 only)	1
6	127846	FITTING, elbow, male, 1/4npt (model 24V672 only)	1
	EQ1798	FITTING, PTC, male, 1/4npt (model 25A531 only)	1
7	114499	FITTING, adapter, male, 1/4npt	1
9	15M758	NUT, coupler, lower	1
10	184132	COLLAR, coupling	2

Torque to 5-10 ft-lb (7-13.5 N•m)

Torque to 15-20 ft-lb (20-27 N•m)

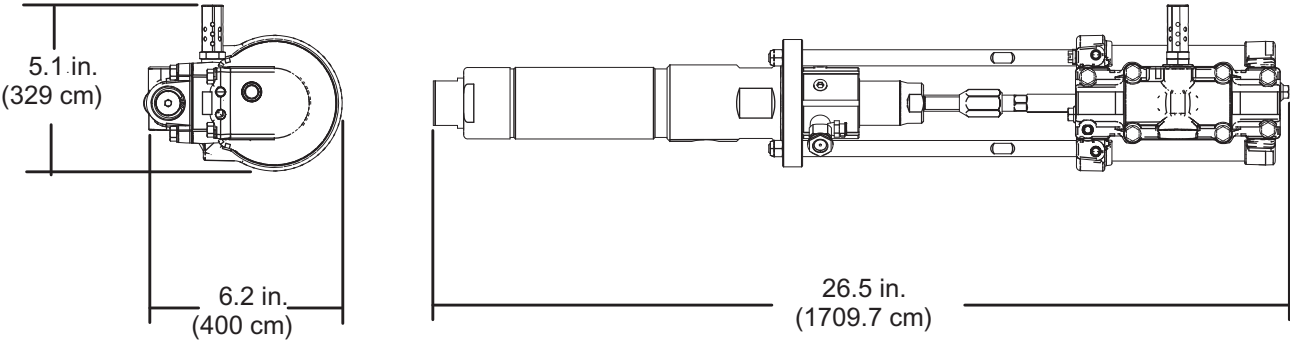
Torque to 23-26 ft-lb (31-35 N•m)

Torque to 35-40 ft-lb (47-54 N•m)

**FIG. 4: Pump Parts**

# Dimensions

## Pump



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# Technical Specifications

Stainless Steel 3:1 Pump		
	US	Metric
Maximum fluid working pressure	300 psi	2.06 MPa, 20.6 bar
Maximum compressed air inlet pressure	100 psi	0.68 MPa, 6.89 bar
Minimum compressed air inlet pressure	15 psi	.0103 MPa, 1.03 bar
Maximum compressed air temperature	150° F	65° C
Maximum ambient air temperature	120° F	49° C
Maximum fluid temperature	120° F	49° C
Lower Size	120 cc	
Wetted parts	Stainless steel, carbide, UHMWPE, Nitrile, Neoprene, Polyurethane, PTFE	
Air Motor		
Stroke length	2.5 in.	63.5 mm
Air inlet size	1/4 in.	
Maximum motor speed*	60 cycles per minute	
Noise (dBa)		
Maximum sound pressure	70 psi (0.48 MPa, 4.8 bar), 20 cpm	
Maximum sound pressure	72.9 dBa	
Sound pressure measured 3.28 feet (1 meter) from equipment.		
Sound power measured per ISO-9614-2.		
Notes		
* To prevent premature pump wear, do not exceed the maximum recommended speed of the fluid pump.		
All trademarks or registered trademarks are the property of their respective owners.		

# 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

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

For patent information, see [www.graco.com/patents](http://www.graco.com/patents).

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