

Heated High-Pressure Hose System

3A0476C
ENG

- For monitoring and controlling fluid temperature -
- For use with architectural paints and coatings with a minimum flash point of 45° C -
- Not for use in explosive atmospheres -
- For professional use only -

Model 24E656 C°-Max 1513

Maximum Working Fluid Pressure 3300 psi (227 Bar, 22.7 MPa)

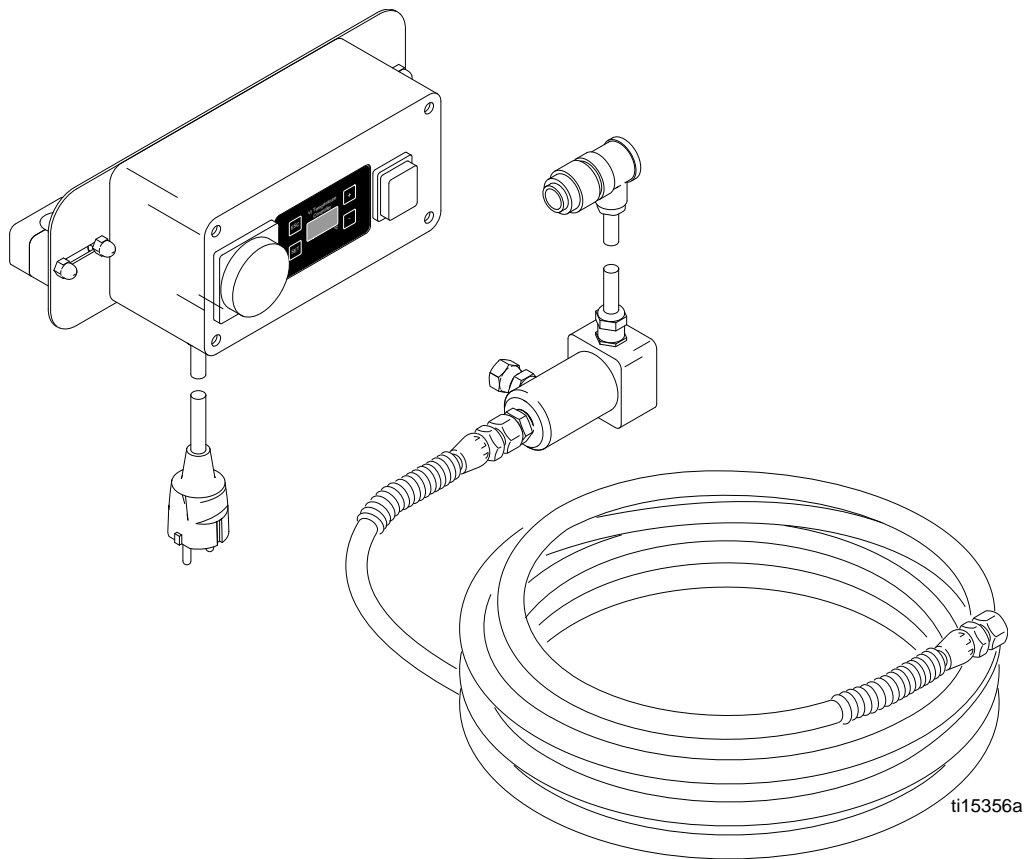
Model 24E657 C°-Max 3023

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IMPORTANT SAFETY INSTRUCTIONS

Read all warnings and instructions in this manual. Save these instructions.



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 symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

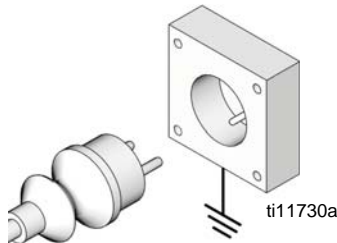
WARNING



GROUNDING

This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with a cord having a grounding wire with an appropriate grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- Improper installation of the grounding plug is able to result in a risk of electric shock.
- When repair or replacement of the cord or plug is required, do not connect the grounding wire to either flat blade terminal.
- The wire with insulation having an outer surface that is green with or without yellow stripes is the grounding wire.
- Check with a qualified electrician or serviceman when the grounding instructions are not completely understood, or when in doubt as to whether the product is properly grounded.
- Do not modify the plug provided; if it does not fit the outlet, have the proper outlet installed by a qualified electrician.
- This product is for use on a nominal 220V circuit and has a grounding plug similar to the plug illustrated in the figure below.







- Only connect the product to an outlet having the same configuration as the plug.
- Do not use an adapter with this product.




Extension Cords:

- Use only a 3-wire extension cord that has a 3-blade grounding plug and a 3-slot receptacle that accepts the plug on the product.
- Make sure your extension cord is not damaged. If an extension cord is necessary, use 12 AWG (2.5 mm²) minimum to carry the current that the product draws.
- An undersized cord results in a drop in line voltage and loss of power and overheating.


WARNING

	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. 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 arc). • 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. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. • If there is static sparking or you feel a shock, stop operation immediately. 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 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"> • Inspect hose before each use for cuts, bulges, kinks or any other damage. • Replace hoses proactively at regular intervals based on your operating conditions. • Replace damaged hose immediately. • Tighten all fluid connections before operating the equipment. • Keep clear of leaks. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Never exceed hose Maximum Pressure or Temperature ratings. • Only use chemicals that are compatible with wetted parts. See Technical Data in this manual. Read MSDSs and fluid and solvent manufacturer's recommendations. • Follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing equipment.
	<p>BURN HAZARD</p> <p>This equipment is used with heated fluid, which can cause equipment surfaces to become very hot. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment. • Allow equipment to cool completely before touching it. • Wear heat protective gloves and take special care if fluid temperature exceeds 110° F (43° C).
	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • Turn off and disconnect power cord before servicing equipment. • Use only grounded electrical outlets. • Use only 3-wire extension cords. • Ensure ground prongs are intact on power and extension cords. • Do not expose to rain. Store indoors.


WARNING

	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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 Data in all equipment manuals. • 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. • 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. • 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.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read MSDSs 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.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Safety Information

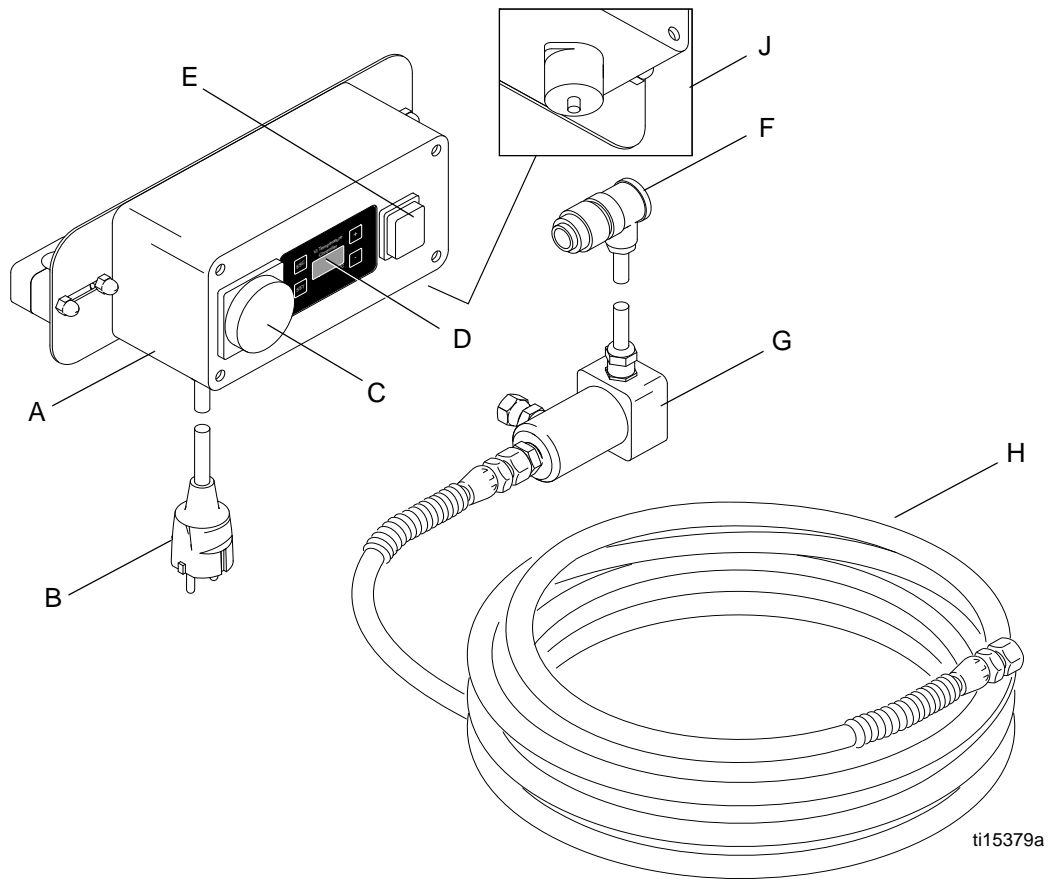
For safe use and handling of airless high-pressure spray equipment, observe the safety instructions provided by the manufacturer of your airless equipment.

Product Overview

An electrical heating conductor is located on the inside of the hose, directly in the paint stream. This component is used to heat the contents of the hose.





The heating power of the hose is limited by its design and construction, and it may be insufficient in some situations such as with excessively large nozzles or low initial media temperatures. The ambient temperature can also affect the exit temperature of the fluid.

Component Identification



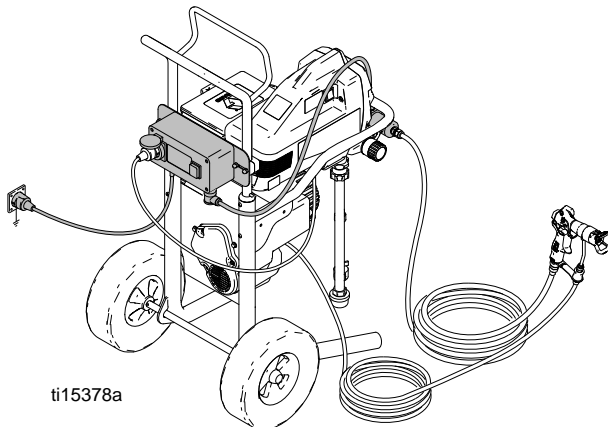
	Component
A	Temperature Controller
B	Power Cord
C	Receptacle
D	Thermostat
E	ON/OFF Switch
F	Temperature Controller Cord
G	Heated Hose/Manifold
H	Hose
J	Temperature Controller Cord Receptacle

Installation

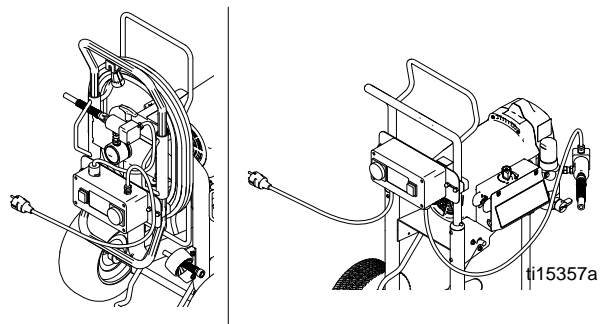
						
<p>Ensure that electrical equipment and systems are switched off before performing any installation or connection work. Risk of fatal injury due to electric shock exists if work is being done when still switched on.</p>						

Connect the heated-hose system to the airless painting equipment as follows:

1. Perform **Pressure Relief Procedure** as indicated in the sprayer manual.
2. Use the clamps and hardware provided to attach the Temperature Control (A) to the spray pump frame and tighten screws.
3. **Non-hose reel units:** Connect the female swivel coupling on the Heated Hose/Manifold (G) to the male threads on the filter enclosure on the pump. Tighten fitting.



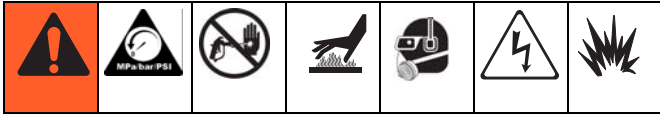
Hose reel units: Connect the female swivel coupling on the heated hose/manifold to the male threads on the hose reel swivel located on the hose reel. Position the manifold as shown below:



4. Connect Temperature Control Cord (F) into Temperature Controller Receptacle (J).
5. Attach spray gun to end of the heated hose. See Technical Data for tip support ratings.
6. Plug sprayer power cord into Receptacle (C) on the Temperature Controller (A).

NOTE: This will need to be disconnected from the Temperature Controller on the hose reel unit when hose reel is in use.

Start Up



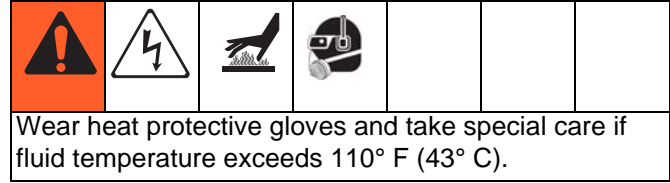
Before Starting

NOTICE

Always completely unroll and bleed the air from the hose before each use (very important). If the air is not bled from the hose, heat transfer from the heating conductor will not be uniform, and in the worst case the conductor can be damaged. The warranty is void in such cases.

- The heated hose should be cleaned before initial use. To do this, remove tip and tip guard from gun and flush water through hose at low pressure for one minute.
- Only use coating materials with a flash point 5° C higher than the selected heating temperature.
- Use the heated hose with the corresponding temperature controller. The temperature setting refers to the temperature of the heating conductor not the actual temperature of the fluid exiting the heated hose.
- The receptacle (C) can be used as a receptacle for the pump unit when an alternate power supply is not available.

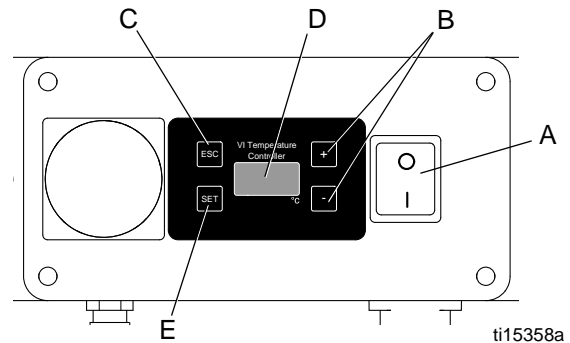
Temperature Adjustment



To Adjust Temperature

The temperature range on the controller is variable and can be set to a maximum 60° C.

1. Turn on the control unit by turning the power switch (A) to ON. The display (D) will read "----". The next display is the actual temperature of the heating wire (for example "45° C" if temperature of the heating wire is 45° C).



2. To set desired temperature, toggle the +/- buttons (B) in 1° C increments until the desired temperature is displayed. Press the set button (E) to lock in this temperature.
3. Once you press the set button for desired temperature, the display will dynamically show the temperature rise or fall from the current temp to desired temp. **NOTE:** Temperature rise is typically faster than temperature fall.

The heating wire takes only a few seconds to warm up. The material in the hose usually takes around two to four minutes to warm up. Make sure material in hose has reached its application temperature before you start using the system.

NOTICE

Avoid setting the temperature too high to avoid overheating and damaging the material.

Troubleshooting

If the hose does not heat up or other problems occur, contact your Graco representative.

Error Codes

Error Code	Definition	Explanation
SL	Synchronization Lost	If there is an indifferent value on the power supply of the controller board or there is no tension on L and N.
SC	Short Circuit	If there is an undesired conductive contact either on the heating wire, the cable between the manifold and the controller, or inside of the manifold.
OC	Open Circuit	If there is a break on the wire, on the cable between the manifold and the controller, or inside the manifold.
HI	High Temperature	1513 control box is being used with the 3023 hose. Connect 1513 hose to 1513 control box to proceed.
LO	Low Temperature	3023 control box is being used with the 1513 hose. Connect 3023 hose to 3023 control box to proceed.

Clean Up

						
Maintenance and repair work must always be performed with power switched off.						

1. Turn power OFF to hose system.
2. Let the equipment completely cool before working on it.
3. Perform **Pressure Relief Procedure** from sprayer manual.

Cleaning the Heating System

Deposits of dried residual material will negatively affect the performance of the heated hose system. To ensure trouble-free operation for the next job, clean the hose thoroughly by rinsing it with a suitable solvent (water in case of water-based coating materials).

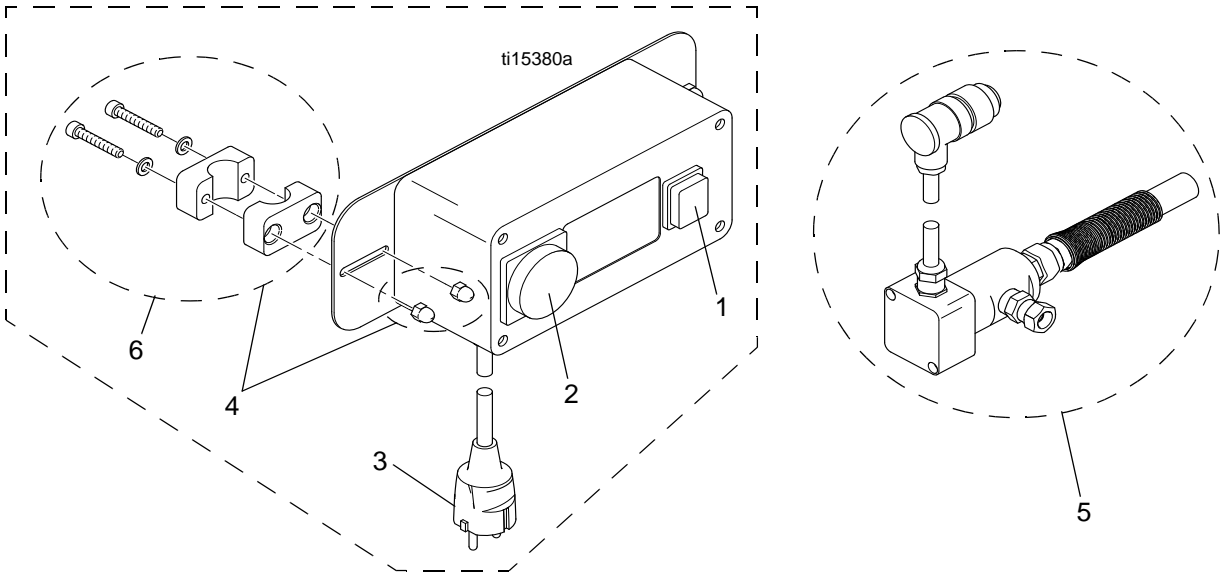
Technical Data

24E656 Heated Hose:	
Supply voltage	230 V AC
Power	1500 W
Supply circuit protection	16 A
Preset temperature	0-60 °C
Length	15 m
Maximum material pressure	3300 psi (227 bar, 22.7 MPa)
Tip Support	0.013
24E657 Heated Hose:	
Supply voltage	230 V AC
Power	2100 W
Supply circuit protection	16 A
Preset temperature	0-60 °C
Length	30 m
Maximum material pressure	3300 psi (227 bar, 22.7 MPa)
Tip Support	0.023

Allowable storage and transport temperature range: -20 °C to +50 °C.

Allowable relative humidity: 90% max, non condensing.

Parts



Ref.	Part	Description	Qty
1	24E692	KIT, repair, switch	1
2	24E693	KIT, repair, receptacle	1
3	24E694	KIT, repair, power cord	1
4	24E695	KIT, repair, mounting clamp	1
5	24E697	KIT, repair, C°-Max hose (15 m)	1
	24E698	KIT, repair, C°-Max hose (30 m)	1
6	24E699	KIT, repair, C°-Max control box (15 m)	1
	24F014	KIT, repair, C°-Max control box (30 m)	1

Accessory Kits:

Part	Description
24E696	KIT, accessory, 50 ft air hose

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.

FOR GRACO CANADA CUSTOMERS

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Graco Information

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

TO PLACE AN ORDER, contact your Graco distributor or call 1-800-690-2894 to identify the nearest distributor.

*All written and visual data contained in this document reflects the latest product information available at the time of publication.
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Original instructions. *This manual contains English. MM 3A0476*

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