

# Dispensit<sup>®</sup> 702-20

332093B

EN

*Depending on valve configuration, this valve can be used to dispense the following: wide range of water-thin to medium viscosity material.*

## Dispense Valve

100psi (0.69 MPa, 6.9 bar) Maximum Air Valve Working Pressure

60psi (0.41 MPa, 4.1 bar) Maximum Material Syringe Feed Pressure



### Important Safety Instructions

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



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## 702-20 Valve Models

702-20 Valves		
Part No.	Configuration	Description
A1A01005	VALVE, 702-20, REMOTE, NO SOL	Pinch tube valve with remote feed
A1A01003	VALVE, 702-20, W/10CC SYR, NO SOL	Pinch tube valve with 10CC syringe feed
A1A01004	VALVE, 702-20, W/30CC SYR, NO SOL	Pinch tube valve with 30CC syringe feed
A1A01002	VALVE, 702-20, W/6CC SYR, NO SOL	Pinch tube valve with 6CC syringe feed
A1A01001	VALVE, 702-20, W/3CC SYR, NO SOL	Pinch tube valve with 3CC syringe feed

# 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.

 <h1 style="margin: 0;">WARNING</h1>	
  	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></p> <p>Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <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>
	<p><b>TOXIC FLUID OR FUMES HAZARD</b></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"> <li>• Read Safety Data Sheet (SDS) to know the specific hazards of the fluids you are using.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>
	<p><b>BURN HAZARD</b></p> <p>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> <li>• Do not touch hot fluid or equipment.</li> </ul>
 	<p><b>PLASTIC PARTS CLEANING SOLVENT HAZARD</b></p> <p>Many cleaning solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage.</p> <ul style="list-style-type: none"> <li>• Use only compatible solvents to clean plastic structural or pressure-containing parts.</li> <li>• See <b>Technical Specifications</b> in all equipment manuals for materials of construction. Consult the solvent manufacturer for information and recommendations about compatibility.</li> </ul>

# **WARNING**



## **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.



## **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 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 Safety Data Sheet (SDS) 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.



## Changing Materials

### **NOTICE**

Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

## General Information

The Model 702-20 Dispense Valve is designed for applications that require ON/OFF dispensing of beads and/or dots. It has dispensing capability for material viscosities ranging from water-type material to high viscosity epoxies and metal filled pastes. This valve also has a fail-safe design to prevent material dumping in case of a power failure. All wetted parts are disposable for easy maintenance and cleaning. The 702-20 ships complete with the following:

- Model 702-20 Dispense Valve
- One 3 foot (.9 m) section of pneumatic air line
- One package of replacement dispense tubes (type as ordered)
- Seal Kit
- Operating and Maintenance Manual
- Syringe (comes with syringe option)
- Optional syringe clamp (comes with syringe option)
- Receiver Cap with air lines (comes with syringe option)

## Safety Information

This product should be used only by employees who have been given appropriate training and safety warnings as set forth in this manual. Read completely before operating.



Do not exceed 6.9 bar (100 psi) pressure on the operating system or 4.1 bar (60 psi) pressure on the syringe reservoir. Higher pressures are not required and may cause a serious injury or equipment damage.

## Illustration References

Throughout this manual you will find references by illustration item number to the illustrations in the manual. The references are indicated by parentheses around a number such as: (7). Illustrations represent typical valve configurations. The drawings for your exact model are inserted at the back of the manual and include the part numbers for ordering replacement parts.

## General Accessories

Graco Inc. offers a full line of standard and custom accessories for your dispensing needs including:

- Valve Controllers
- Syringe Feed Systems
- Cartridge Retainers and Pressure Reservoirs
- Transfer Pump Feed Systems for 1, 5 and 55 gallon containers
- Mounting Bases and Brackets

Consult your Dispensit dealer or the factory for details.

# Setup



**NOTE:** See **Typical Installation** diagram.

1. Perform Setup procedure for feed system components. See feed system manual(s).
2. Place an in-line air pressure regulator, air-water separator/filter, and shut-off/bleed valve between the air supply and the control solenoids.
3. Connect each 1/4 in. outside diameter supplied air line to the corresponding control solenoid. See **Typical Feed System Components** starting on page 7.
4. Connect chemical lines from feed system to metering valve material inlets. See **Typical Feed System Components** starting on page 7.

## Typical Installation

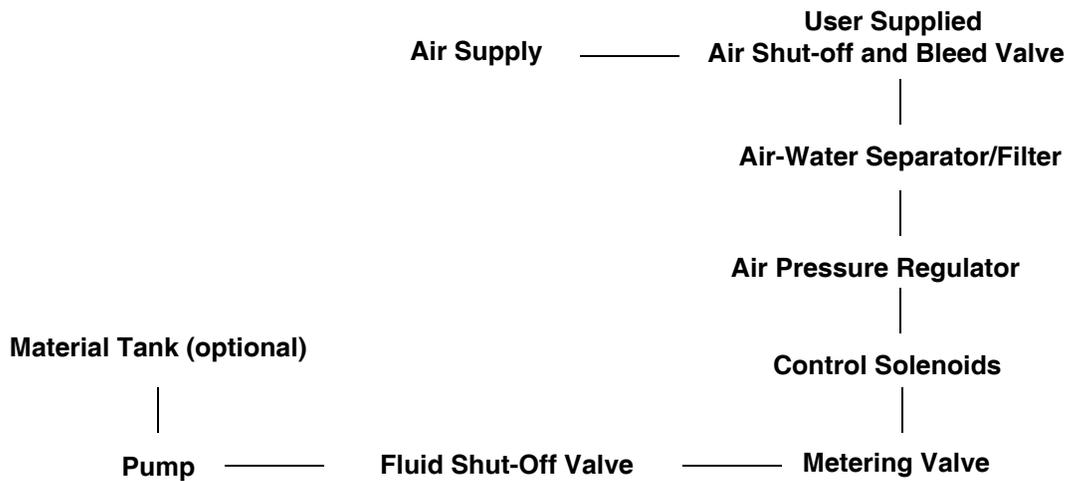
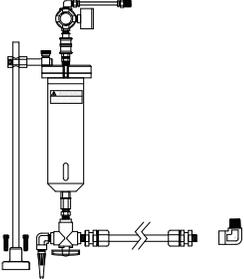


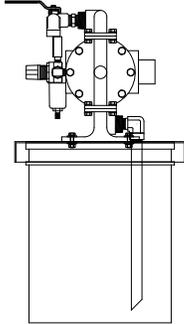
FIG. 1

# Typical Feed System Components

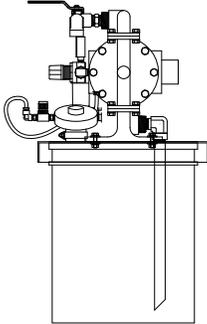
20 oz Cartridge Feed with Mounting Post



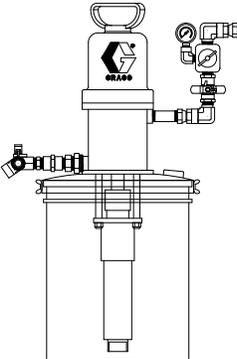
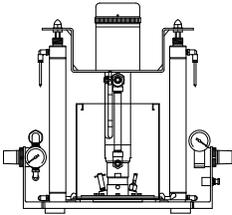
5 Gallon Pail Cover with Diaphragm Pump



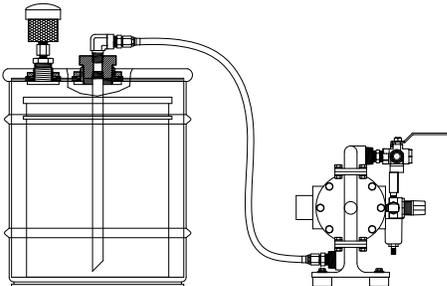
5 Gallon Pail Cover with Diaphragm Pump and Agitator



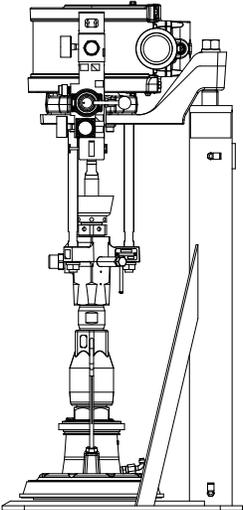
1 Gallon Ram and Pump



5 Gallon Pail Cover with 5:1 Transfer Pump



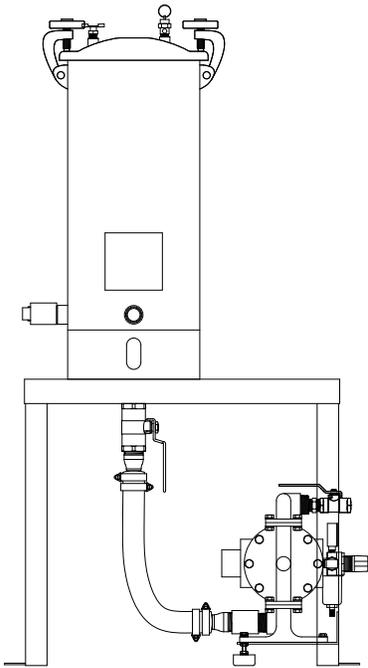
5 Gallon Pail Cover with Diaphragm Pump



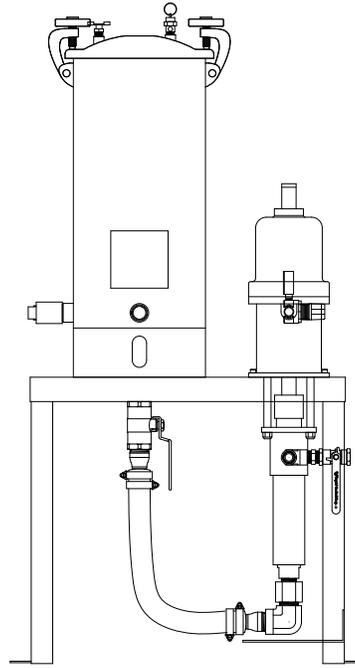
5 Gallon Ram and 11:1 Transfer Pump

FIG. 2

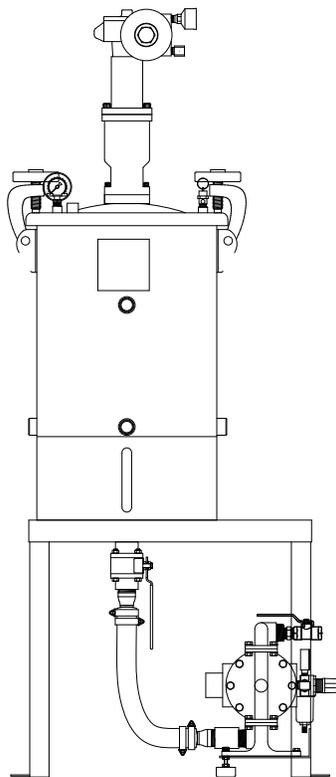
## Typical Feed System Components (continued)



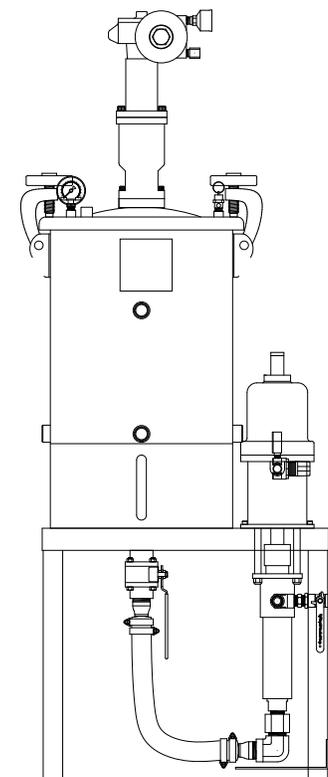
*5 Gallon Tank with Diaphragm Pump and Stand*



*5 Gallon Tank with 5:1 Pump and Stand*



*10 Gallon Tank with Diaphragm Pump, Agitator, Vacuum, and Stand*

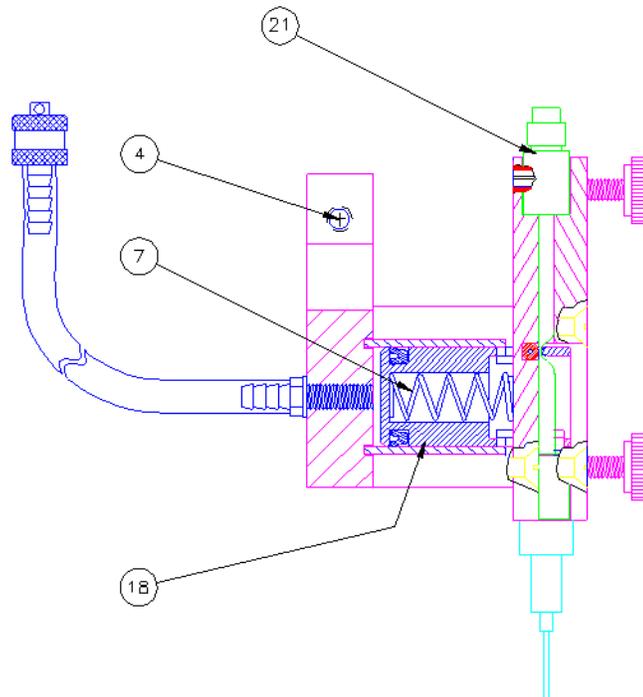


*10 Gallon Tank with 5:1 Pump, Agitator, Vacuum, and Stand*

**FIG. 3**

# Description of Operation

1. The normal ready state of the system is as follows:
  - The syringe or remote reservoir contains the dispensable material.
  - The system has been purged, filling the dispense tube and needle with material.
  - The Pinch-off Piston (18) is not pressurized, but is held back by the Spring (7) closing the Dispense Tube (21) and holding back the dispensable material.
2. The dispense cycle begins when the controller is activated.
3. The Pinch-off Piston (18) moves forward to release the dispense tube allowing material to flow.
4. To complete the dispense cycle, the Pinch-off Piston (18) is pushed back by the Spring (7), sealing the dispense tube to prevent material drip. The system is again in the normal ready state.



# Setup Procedure

## Mounting Dispense Valve

For optimum operation, the Model 702-20 Dispense Valve must be mounted on a 1/2 inch (12.7 mm) support rod post or frame. When mounting, affix the valve firmly in place by tightening the socket head cap screw (4) with a 5/32 inch Allen wrench. Depending on the application, the valve may be tilted to a maximum of 60° from the vertical.

## Air Controller

Operation of the Model 702-20 Dispense Valve requires a controller that can provide the following:

- A minimum of 0.5 SCFM (2.3 cm<sup>3</sup>) of dry, unlubricated air at a minimum pressure of 4.8 bar (70 psi) and a maximum of 6.9 bar (100 psi).
- Time delay capability to allow the valve to cycle.
- Independent air pressure regulators for material reservoir and valve operation.
- “Purge capability” which is the ability for the operator to pass or not pass air to the pinch-off piston (18) on the dispense valve.
- For semiautomatic or automatic applications, a foot switch or other control to cycle the valve.
- Connection for .16” ID x .25” OD(6.35mm) pressure tubing for use between the dispense valve and controller.
- Connection for .16” ID x .25” OD(6.35mm) pressure tubing for use between the controller and syringe.

**NOTE:** The syringe air supply must be regulated to a maximum of 4.1bar (60 psi).

# Operating Procedures

## Dry System Checkout

This is an initial checkout to determine if the setup has been properly completed. Conduct the dry system checkout without any material in the system.

1. Attach the color-coded pneumatic pressure line from the fitting (6) to the color-coded cycle air outlet on the air supply controller.
2. Turn on the electric and air supply.
3. Set the air pressure to 4.8 bar (70 psi) on the system pressure gauge.
4. In the normal rest position the pinch-off piston (18) is held back by the spring (7), sealing the dispense tube(21).
5. Momentarily press the dispense valve cycling control switch. The pinch-off piston (18) is pressurized to release the dispense tube. The controller dispense valve air solenoid valve should cycle and cause a slight fluctuation in the system pressure gauge. When this happens, the system is correctly installed.

## Material Loading

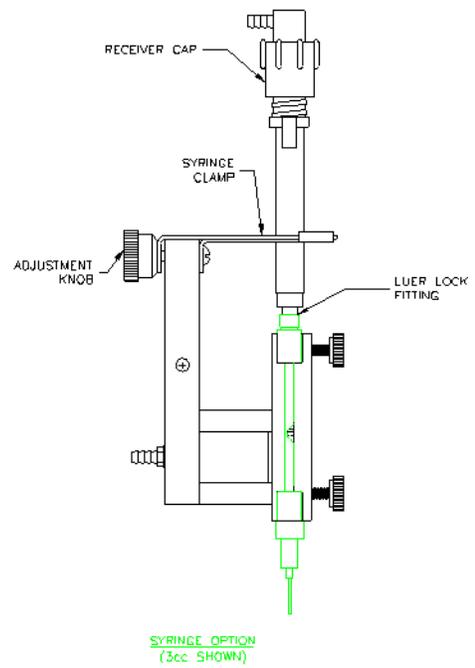
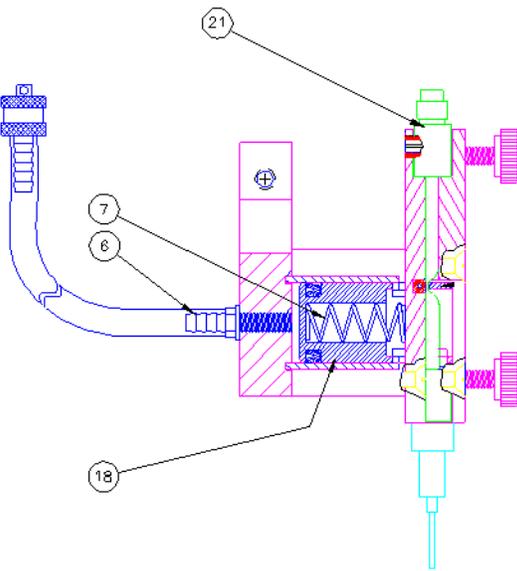
				
<ul style="list-style-type: none"> <li>• Do not exceed 6.9 bar (100 psi) pressure on the operating system or 4.1 bar (60 psi) pressure on the syringe reservoir. Higher pressures are not required and may cause a serious injury.</li> <li>• Do not apply either operating or reservoir air pressure to the product unless all screws are in place and properly tightened, and the receiver cap and/or reservoir lid is properly in place and tightened. All air connections should be fastened securely.</li> </ul>				

## Remote Mounted Material Supply

If the material supply is remote mounted then connect material supply tubing to the Dispense Valve material inlet luer lock fitting. When using a remote reservoir, the material supply tubing and fittings must be compatible with the material being dispensed and be capable of withstanding the dispensing pressure.

## Valve Mounted Syringe Material Supply

1. Place the filled syringe of material through the syringe clamp, mating the syringe to the male luer lock fitting on the dispense tube, turning until snug (do not over tighten).
2. Hand tighten the syringe clamp using the adjustment knob until snug.
3. Install the receiver cap assembly to the top of the syringe.
4. Attach the air line to the regulator and set the air pressure control to 1.0 bar (15 psi) or to the setting required for the application.



## Wet System Checkout

Using the purge cycle on the air supply controller, run the material through the dispense line until a smooth material flow is observed through the dispensing needle.

After the purge cycle has been completed, set the air supply controller to the manual cycle mode and cycle the Dispense Valve several times.

# Periodic Maintenance

The Model 702-20 Dispense Valve has been engineered for easy cleanup with a disposable dispense tube and luer lock needle.

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

				
<p>This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as splashing fluid, relieve pressure when you stop dispensing and before cleaning, checking or servicing the equipment.</p>				

### Remote Feed:

1. Shut off material flow to the valve.
2. Cycle the valve three times to ensure all pressurized material has been removed from the system.
3. Turn off the air pressure to the valve and disconnect all of the lines.
4. The valve is now depressurized and safe to perform maintenance on.

### Syringe Feed:

1. Shut off air pressure to the syringe.
2. Cycle the valve three times to ensure all pressurized material has been removed from the system.
3. Turn off the air pressure to the valve and disconnect all of the air lines.
4. The valve is now depressurized and safe to perform maintenance on.

## Dispense Needle Replacement

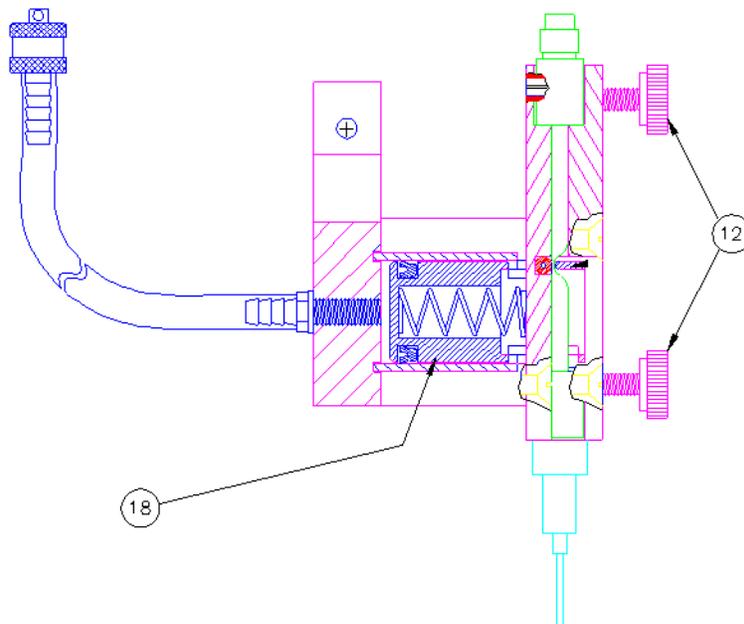
Remove the luer lock dispensing needle by grasping at the base and twisting one-quarter turn counter clockwise. Clean with water or solvent depending on the material dispensed. A fine wire, used cautiously, will help open clogged needles. Replace if damaged or severely clogged. Replacement needles can be ordered for the Model 702-20 Dispense Valve by specifying the proper part number.

## Dispense Tube Replacement

Dispense tube life is difficult to predict due to its dependence on the cycles, speed, downtime and material dispensed. A common sign of a worn dispense tube is a reduction in shot volume. Inspect the dispense tube periodically and replace if necessary.

**To change the dispense tube, DO NOT disassemble the valve.**

1. Depressurize the syringe or reservoir, and remove/disconnect it.
2. Pressurize the pinch-off piston (18)\*. This is the purge mode. The dispense tube will now be completely free of compression.
3. Loosen the upper and Knobs (12)\* enough to allow the dispense tube to pass out the side of the valve.
4. Install a new dispense tube hub by sliding through the side of the valve. Gently tighten the upper and lower screw knobs.
5. Return air control to normal operating mode.
6. Reinstall the syringe or reservoir and purge the valve.



**NOTE:** One package of replacement dispense tubes is supplied with the unit. Additional tubes can be ordered for the Model 702-20 Dispense Valve by specifying the proper part number as shown in the Recommended Spare Parts section of this manual.

## Disassembly



Make sure you have your safety glasses on and that the valve is pointed away from you and others. The high compression spring can become a flying object if it escapes your control.

**NOTE:** In addition to the items in the seal kit, the parts most likely to require replacement are the dispense tube and an dispensing needle.

1. Turn off the material inlet pressure to the valve.
2. Turn off the air intake pressure to the valve.
3. Remove the air pressure line and its end fitting from the valve. Do not remove the mating fitting that is screwed into the valve.
4. Remove the material inlet line if the material supply is remote or remove the syringe if present.
5. Remove the dispense valve from its mounting.

6. Disconnect the needle, needle block and dispense tube fittings.
7. Remove the Faceplate (14) by loosening and removing two Screws (15) holding it in place.

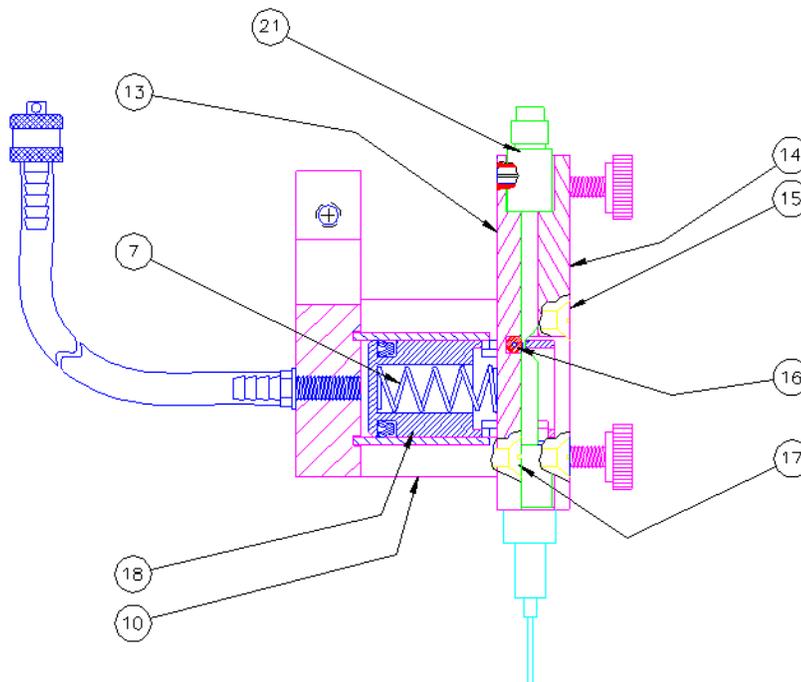
**NOTE:** There is a Spring (7) behind the Backplate (13). In the next step hold the Backplate (13) with your thumb over the Pinch-off Piston (18) while removing the screws.

8. Loosen and remove two Screws (17) holding the Backplate (13) in place. The Backplate (13), the Pinch-off Piston (18), and the Spring (7) will come loose from the rest of the valve.
9. At this time all four Spacers (10) will be free and may be set aside.

10. Disassemble Backplate (13) from pinch-off piston assembly.

**NOTE:** Be careful, spring is in a compressed position.

11. Remove the Spring (7) from the Pinch-off Piston (18).
12. Remove the Bumper (16) from the Backplate (13).



13. Remove the U-cup Seals. Note the direction the old seals face as you remove them since the new seals must face the same direction when you install them.



## Assembly

				
<p>Make sure you have your safety glasses on and that the valve is pointed away from you and others. The spring can become a flying object if it escapes your control.</p>				

**NOTE:** Clean all valve parts with an appropriate solvent prior to reassembly. Always install new, lubricated o-rings and seals when assembling the valve. Use Krytox 203GPL (part number 84/0200-K3/11) for lubricating valve parts including seals and o-rings. Lightly lubricate the inside bore of the Cylinder Base Assembly (5) and the outside of the Pinch-off Piston (18). Check the Pinch-off Piston (18) and Faceplate (14) for wear at the tube contact area and if worn or distorted secure replacements before proceeding.

**NOTE:** Use caution as you install new U-cup seals so that they are not pinched or torn. Do this by making sure they are lubricated, and by tucking the lips of the seal inward before uniformly pushing them into position.

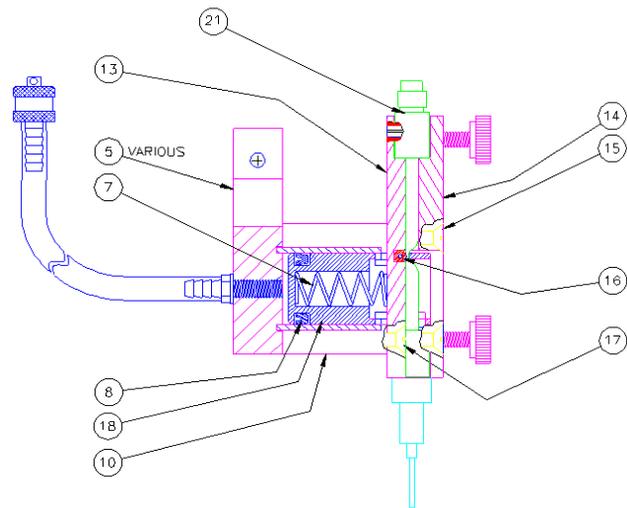
Note what direction the old seals face as you remove them. Make sure the new seals face in the proper direction when you install them. Consult the drawings for orientation to be sure.

1. Install the lubricated U-cup Seal (8) on the Pinch-off Piston (18).
2. Insert the Bumper (16) into the Backplate (13).
3. Insert the Spring (7) into the Pinch-off Piston (18).
4. Set the pinch-off piston assembly on top of the Cylinder Base Assembly (5). Use a blunt tool to carefully tuck the U-cup Seal (8) in while easing the piston into the Cylinder Base Assembly (5). *See drawings for piston orientation.*
5. Compress the Spring (7) with a small screwdriver or other tool to assist in placing the Backplate (13) in position. Be sure the Spring (7) is centered under the Backplate (13).
6. Insert the two Spacers (10) and install two flat head Screws (17) and tighten them to tie the Backplate (13) down.
7. Place the Faceplate (14) onto the Backplate (13). *See drawing for orientation.* Slide the two remaining Spacers (10) into position and install the two

remaining flat head Screws (15) through the faceplate and spacers and tighten them.

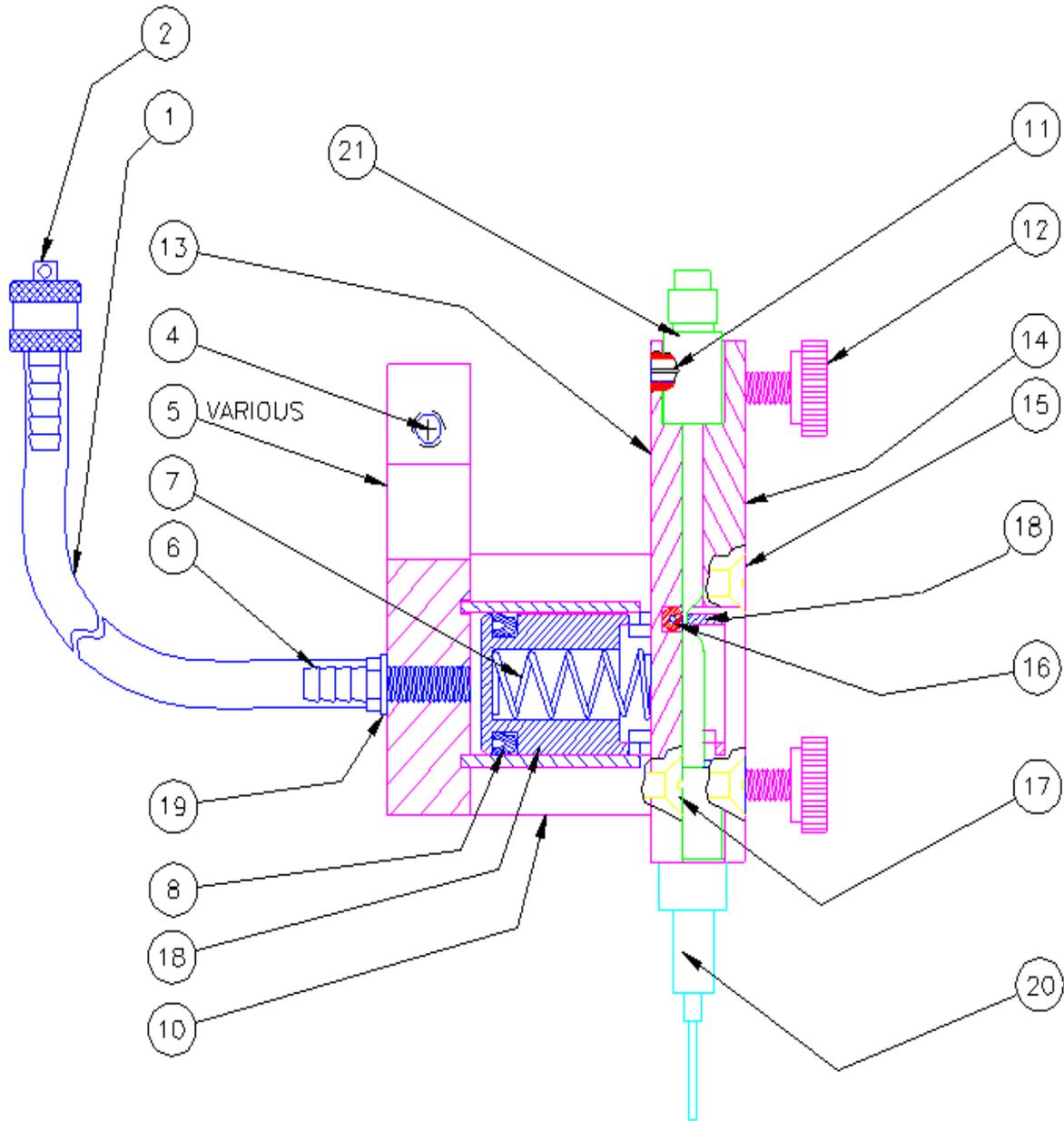
8. Complete the assembly by remounting the valve and installing its dispense tube and needle.
9. Attach the material inlet line to the remote material supply or remount the syringe if so equipped.
10. Attach the air inlet line.

**Perform the Dry System Checkout, Material Loading and Wet System Checkout. The valve is ready to be put back in service.**



# Parts

## 702-20 Valve



## 702-20 Valve Shared Components

Ref	Part	Description	Qty
1	61/2904-YL/11	TUBE	3
2	94/0170/99	FITTING, CONN, QC	1
4	122747	SCREW	1
6	94/0740-B/99	CONNECTOR	2
7	A1000584	SPRING	1
8	95/0605/01	SEAL, U-CUP	1
10	A1000015	SPACER	4
9	A1010020	KNOB, BLK, PLASTIC	2
13	A1000052	PLATE, 702-20, BACKPLATE	1
14	A1010051A	PLATE, 702-20, BACKPLATEASSY	1
15	B3000002	SCREW, FHM	2
16	A1000006	BUMPER	1
17	B3000001	SCREW, FHM	2
18	A1000003	PISTON	1
19	J6100011	GASKET, NYLON	1
-	D5000040	KIT, SEAL, 702-20	1
21	A1020220-10	TUBE, DISPENSE	1

## 702-20 Valve Variable Components

Ref. No.	Description						Qty
		A1A01005	A1A01003	A1A01004	A1A01002	A1A01001	
5	CYLINDER, 702-20, BASE ASSY	A1010035A	A1010034	A1010034	A1010034	A1010034	1
21	SYRINGE/&RECVR PARTS	NA	10CC-SYRINGE	30CC-SYRINGE	6CC-SYRINGE	3CC-SYRINGE	1

# Troubleshooting

If operating difficulties are encountered, review the symptoms below. With each problem there are one or more possible causes that should be investigated to resolve the situation.

## Nothing Happens

If absolutely nothing happens when trying to cycle the Dispense Valve, check the pneumatic power. Check all control connections for proper installation.

## Valve Cycles, Nothing Dispensed

First, try to purge the unit; this should fix most situations. If nothing is dispensed, check to see that there is enough pressure to the reservoir. Perhaps the reservoir/tube/needle path is clogged; examine and clear or replace as necessary. Consider whether the material could have “set up” in the system.

## Irregular Volume Dispensed

Irregular dispensing can usually be attributed to faulty material. The material must be a smooth (homogeneous) mixture, without any air trapped in it. A second cause could possibly be that the material is not filling the dispense tube fully and in time. Check the reservoir pressure -- it may be too low for the type of material being dispensed and/or the cycle time may be set too fast. Cycle time is a function of the air supply controller. To adjust, follow the directions found in the controller operating manual.

## Reduced Volumes Dispensed

Check to see if dispense tube requires replacement or whether needle is partially clogged.

## Tubing Life Very Short

Incorrect dispense tube (tube wall thickness too large).

## Valve Drips

Dispense tube needs replacing; wrong dispense tube used (wall thickness too small).

## Slow or Sluggish Cycle Time

This may be due to inadequate lubrication of the piston walls. Remove the pinch-off piston. Apply a very thin film of Krytox lubricant (part number 84/0200-K3/11) to the outside diameter surfaces of the pistons and the U-cup seal and reassemble. This will restore smooth and consistent operation.

# Model 702-20 Recommended Spare Parts

**NOTE:** These parts are routine supply items or wear parts not covered by warranty for normal wear.

Quantity	Description	Part Number
1	SEAL KIT, 702-20	<i>see assembly drawing for part number</i>
**	KRYTOX 203GPL ASSEMBLY LUBRICANT	84/0200-K3/11
<b>Dispense Tubes</b>		
<b>Custom Dispense Tubes Available - Consult Factory</b>		
Quantity	Description	Nozzle Part Number
	Dispense Tube Sampler Package, 2 each of Dispense tubes marked *	A1020220-10
**	Dispense Tube,5542-HU.037, Pack of 10*	A1020157-10
**	Dispense Tube,5542-HU.043, Pack of 10	A1020211-10
**	Dispense Tube,5542-HU.050, Pack of 10*	A1020212-10
**	Dispense Tube,5542-HU.060, Pack of 10	A1020087-10
**	Dispense Tube,5542-HU.066, Pack of 10 *	A1020152-10
**	Dispense Tube,5542-HU.080, Pack of 10 *	A1020213-10
**	Dispense Tube,5542-HU.100, Pack of 10*	A1020090-10
**	Dispense Tube,5542-PP.068, Pack of 10	A1020153-10
**	Dispense Tube,5542-P.100, Pack of 10	A1020088-10
**	Dispense Tube,5542-GP.100, Pack of 10	A1020221-10
<p><b>Note:</b> Last 3 digits of description indicate tube inside diameter in .001" increments.  <b>Note:</b> Tube material is coded in description as HU = TPE Urethane, P=Natural Polyethylene, PP = Pink Polyethylene, GP = Green Polyethylene</p>		
<b>Luer Lock Hub Replacement Needles</b>		
<b>Needle length shown is length projecting from LL hub. Other lengths available.</b>		
Quantity	Description	Needle Part Number
**	Needle Sampler Package, 10 each of 14, 16, 18, 20 and 22 gauge ½" long needles	E4000025-50
**	Needle,LL,14 ga.x ½", Dark Green, Pack of 50 *	E4000001-50
**	Needle,LL,14 ga.x 1", Dark Green, Pack of 50	E4000014-50
**	Needle,LL,15 ga.x ½", Orange, Pack of 50	E4000004-50
**	Needle,LL,16 ga.x ½", Purple, Pack of 50 *	E4000088-50
**	Needle,LL,16 ga.x 1", Purple, Pack of 50 *	E4000005-50
**	Needle,LL,18 ga.x ½", Pin, Pack of 50 *	E4000006-50
**	Needle,LL,19 ga.x ½", Brown, Pack of 50	E4000008-50
**	Needle,LL,20 ga.x ½", Yellow, Pack of 50 *	E4000009-50
**	Needle,LL,22 ga.x ½", Black, Pack of 50 *	E4000011-50
**	Needle,LL,23 ga.x ½", Light Blue, Pack of 50	E4000024-50

\* Needles are included in Needle Sampler Package.

\*\* The quantity may vary for your application.

# General Guidelines for O-Rings and U-Cup Seals

Sizes and materials of construction for O-rings and U-cup seals are selected by Graco Inc. based on compatibility with the chemicals to which they will be exposed. Solvents that may remove residual chemicals often have negative effects on the mechanical properties of O-rings and seals.

## O-Ring Guidelines

- Always replace an O-ring with the identical one in size, durometer hardness, type and material of construction. Always be alert to the location and size of each O-ring as many look alike and be careful not to mix them. Often similar sizes may be used in various locations on the equipment and if replaced incorrectly, the equipment may not function properly. Refer to the Machine Operation and Service Manual for the correct part number of all O-rings used throughout the equipment and replace them with factory approved parts only.
- Re-use of O-rings is not recommended. Only re-use O-rings as a last resort. If you must re-use them, be sure that they are clean, have no cuts or flat spots and contain NO foreign material. Also, be sure not to soak them in solvent for extended periods as this can cause deterioration of the O-ring. Always replace O-rings that are cut, nicked, or distorted in shape or cross-section.
- Always apply a very thin film of Krytox 203GPL lubricant, item 84/0200-K3/11, to the entire surface of the o-ring before installation. Avoid excessive lubrication. If installing O-rings over threads on a shaft or across sharp edges, roll or push the O-ring carefully into place being careful to avoid cutting or nicking it.
- Avoid stretching the O-ring too much as it may not return to the proper size.
- Do not use any sharp tools or objects to install O-rings

## U-Cup Seal Guidelines

- Always replace a U-cup seal with the identical one in size, durometer hardness, type and material of construction. Always be alert to the location and size of each U-cup seal as many look alike and be careful not to mix them. Often similar sizes may be used in various locations on the equipment and if replaced incorrectly, the equipment may not function properly. Refer to **Parts** on page 18 for the correct part number of all U-cups used throughout the equipment and replace them with factory approved parts only.
- Always apply a very thin film of Krytox 203GPL lubricant, item 84/0200-K3/11, to the inner and outer lips of the seal before installation.
- Re-use of U-cup seals is not recommended. Only re-use U-cups as a last resort. If you must re-use them, be sure that they are clean, have no cuts or flat spots and contain NO foreign material. Also, be sure not to soak them in solvent for extended periods as this can cause deterioration of the seal. Always replace U-cups that are cut, have flat spots, are distorted in shape or are damaged in any manner.
- Always be alert to the proper orientation of the sealing lips and re-install them in the same direction as shown on the specific equipment assembly drawing. The U-cup seals are intended to seal in only one direction and if installed incorrectly, chemical leakage through the U-cup can occur.
- Whenever possible, push the back side of the seal over the shaft to protect the inner and outer lips. If this is not possible, carefully tuck the lip in to avoid rolling it back or cutting it.
- If installing over sharp edges, slide the seal carefully into place to avoid cutting it.
- Do not use any sharp tools or objects to install U-cups.

# Technical Data

**NOTE:** See feed system manuals for dimensions, weights, and wetted parts lists for those components. Dimensions, weights, and wetted parts for components not covered in component feed system manuals and for combined assemblies are listed below.

Maximum Ambient Temperature . . . . .	110°F (43°C)
Maximum Operating Temp. . . . .	150°F (65°C)
Maximum Outlet Fluid Working Pressure . . . . .	60 psi (0.41 MPa, 4.1 bar)
Maximum Air Working Pressure . . . . .	100 psi (0.7 MPa, 7 bar)
Minimum Air Working Pressure . . . . .	70 psi (480 kPa, 4.8 bar)
Maximum Material Inlet Pressure . . . . .	<i>Syringe Feed:</i> 60 psi (0.41 MPa, 4.1 bar)
Supplied Air Requirements . . . . .	1 to 3 cfm at 80 psi to 100 psi
Shot Size Range . . . . .	0.002 cc to 200 cc
Maximum Cycle Rate (application dependent) . . . . .	Up to 60 cycles per minute
Dimensions (H x L x W), height to end of material inlet block . . . . .	3.38 x 4.63 x 1.00 in. (86 x 118 x 25 mm) <i>Graco-supplied Feed System Assemblies</i> <i>(depends on selected options):</i> <i>Smallest:</i> 22.5 x 10 x 4 in. (572 x 254 x 102 mm) <i>Largest:</i> 60 x 28 x 19 in. (1524 x 711 x 483 mm)
Weight . . . . .	<i>Metering Valve:</i> 1 - 3 lb (0.45 - 1.36 kg)
Wetted Parts . . . . .	<i>Metering Valve:</i> Hardened steel, 303/304, 404, UHM-WPE, Tungsten, carbide, fluoroelastomer, EPDM, PTFE, Acetal <i>Graco-supplied Feed System Hoses and Fittings:</i> Mild steel, 303/304, PTFE, buna, polyethylene, polypropylene <i>Graco-supplied Tanks:</i> Polyethylene, 303/304, mild steel

# 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

## Sealant and Adhesive Dispensing Equipment

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).

**TO PLACE AN ORDER**, contact your Graco distributor, go to [www.graco.com](http://www.graco.com) and select "Where to Buy" in the top blue bar, or call to find the nearest distributor.

***If calling from the US: 800-746-1334***

***If calling from outside the US: 0-1-330-966-3000***

*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 332093

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