



This manual contains **IMPORTANT WARNINGS AND INSTRUCTIONS**  
READ AND RETAIN FOR REFERENCE

This manual contains changes not included throughout the contents. Please see the second page of this book (page 1A) for a description of the revisions and additions.

**CARBON STEEL, PTFE PACKED**

# Displacement Pumps

## STANDARD MODELS

### 215930, Series E

0.884 in.<sup>2</sup> (570 mm<sup>2</sup>) Effective Piston Area  
2000 psi (140 bar) **MAXIMUM WORKING PRESSURE**

## SEVERE-DUTY MODELS

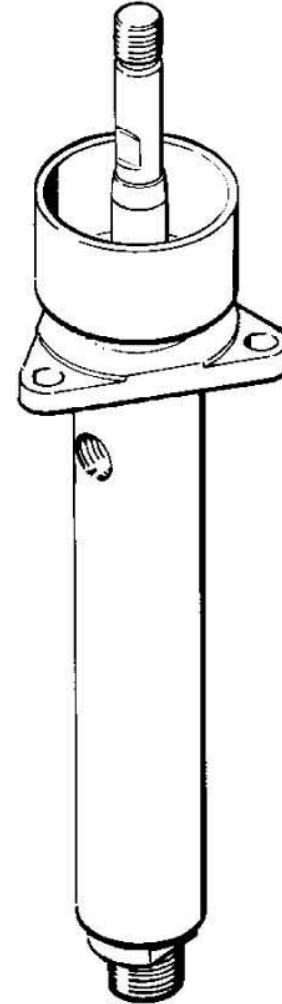
These pumps have an abrasion and corrosion resistant displacement rod and sleeve. Refer to **WETTED PARTS** information on page 11.

### 221074, Series A

0.470 in.<sup>2</sup> (303.2 mm<sup>2</sup>) Effective Piston Area  
3000 psi (210 bar) **MAXIMUM WORKING PRESSURE**

### 221026, Series A

0.278 in.<sup>2</sup> (179.4 mm<sup>2</sup>) Effective Piston Area  
3000 psi (210 bar) **MAXIMUM WORKING PRESSURE**



Model 221074 Shown

## TABLE OF CONTENTS

Safety Warnings .....	2
Service .....	
Model 221026 .....	4
Model 215930 .....	6
Model 221074 .....	8
Parts Drawings and Lists .....	
Model 221026 .....	5
Model 215930 .....	7
Model 221074 .....	9
Dimensions .....	10
Technical Data .....	11
Wetted Parts .....	11
Graco Warranty .....	Back Cover
Toll-Free Graco Phone Numbers .....	Back Cover

## WARNING

**Plural Components Chemical Hazard**  
Graco Inc. does not manufacture or supply any of the reactive chemical components that may be used in this equipment and is not responsible for their effects. Because of the vast number of chemicals that could be used and their varying chemical reactions, before using this equipment, the buyer and the user should determine all facts relating to the components used, including any of the potential hazards involved. Particular inquiry and investigation should be made into potential dangers relating to toxic fumes, fires, explosions, reaction times, and exposure of human beings to the individual components or their resultant mixtures. Graco assumes no responsibility for loss, damage, expense or claims for bodily injury or property damage, direct or consequential, arising from the use of such chemical components.

# Instruction Manual – Parts List Changes

*This page contains a summary of changes or additions that do not appear in the contents of the manual.*

Models 221-074 and 221-026 are obsoleted per ECO V0411.

On Model 215-930, Part No. 167-669 Sleeve (Ref. No. 4) is replaced by Part No. 178-896 Sleeve, per ECO V1616. Part No. 167-670 Displacement Rod (Ref. No. 17) is replaced by Part No. 178-895 Displacement Rod, per ECO V1618.

Model 918-417 Series A Pump is added to the manual per ECOs V6073 and Z001124. Model 918-417 contains the same parts as Model 215-930, including the changes above, with the following exceptions:

Ref. No. 6, Part No. 167-665 V-Packing: Change quantity to 10.

Ref. No. 10 is Part No. 167-667 Male Gland, quantity 2.

Ref. No. 11 is Part No. 167-664 Female Gland, quantity 2.

Ref. No. 13 is Part No. 617-582 Intake Housing, quantity 1.

Ref. No. 21 is Part No. 183-021 Ball Guide, quantity 1.

Ref. No. 22 is not used in Model 918-417.

In the Dimension Chart on page 10, enter the following values for Model 918-417:

Column A: 13.12 (333.2)  
Column B: 10.29 (261.4)  
Column C: None  
Column D: 1/2 (f)  
Column E: 5/8-11(m)  
Column F: 0.406 (10.34)

In the Technical Data Chart on page 11, Model 918-417 has the same values as Model 215-930, except the Maximum Working Pressure is 3000 psi (210 bar). This working pressure should also be noted on the front cover and under the heading System Pressure in the Warnings section on page 2.



# SAFETY WARNINGS

**HIGH PRESSURE SPRAY CAN CAUSE SERIOUS INJURY. FOR PROFESSIONAL USE ONLY.**  
**OBSERVE ALL WARNINGS.** Read and understand all instruction manuals before operating equipment.

## SKIN INJECTION HAZARD

### General Safety

This equipment may be used in a system which generates very high fluid pressure. Spray from the gun/valve, leaks or ruptured components can inject fluid through your skin and into your body and cause extremely serious bodily injury, including the need for amputation. **Get immediate surgical treatment.** Also, fluid injected or splashed into the eyes or on the skin can cause serious damage.

NEVER point the spray gun/dispense valve at anyone or at any part of the body. NEVER put hand or fingers over the spray tip.

ALWAYS have the tip guard in place on the spray gun when spraying.

ALWAYS follow the **Pressure Relief Procedure**, at right, before cleaning or removing the spray tip or servicing any system equipment.

NEVER try to stop or deflect leaks with your hand or body.

Be sure equipment safety devices are operating properly before each use.

### Medical Alert—Airless Spray Wounds

If any fluid appears to penetrate your skin, get **EMERGENCY MEDICAL CARE AT ONCE. DO NOT TREAT AS A SIMPLE CUT.** Tell the doctor exactly what fluid was injected.

**Note to Physician:** *Injection in the skin is a traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the blood stream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable.*

### Spray Tip and Nozzle Safety

Use extreme caution when cleaning or changing spray tips or nozzles. If the spray tip/nozzle clogs while spraying, engage the gun/valve safety latch immediately. ALWAYS follow the **Pressure Relief Procedure** and then remove the spray tip/nozzle to clean it.

NEVER wipe off build-up around the spray tip/nozzle until pressure is fully relieved and the gun/dispense valve safety latch is engaged.

### Spray Gun and Dispensing Valve Safety Devices

Be sure all gun/valve safety devices are operating properly before each use. Do not remove or modify any part of the gun/valve; this can cause a malfunction and result in serious bodily injury.

### Tip Guard (spray guns only)

ALWAYS have the tip guard in place on the gun while spraying. The tip guard alerts you to the fluid injection hazard and helps reduce, **but does not prevent**, the risk of accidentally placing your fingers or any part of your body close to the spray tip.

### Safety Latch (if applicable)

Whenever you stop spraying, even for a moment, always set the gun safety latch in the closed or “safe” position, making the gun inoperative. Failure to set the safety latch can result in accidental triggering of the gun.

### Diffuser (if applicable)

The gun diffuser breaks up spray and reduces the risk of fluid injection when the tip is not installed. Check diffuser operation regularly. Follow the **Pressure Relief Procedure**, below, then remove the spray tip. Aim the gun into a metal pail, holding the gun firmly to the pail. Using the lowest possible pressure, trigger the gun. If the fluid emitted *is not* diffused into an irregular stream, replace the diffuser immediately.

### Trigger Guard (if applicable)

Always have the trigger guard in place on the gun when spraying to reduce the risk of accidentally triggering the gun if it is dropped or bumped.

## Pressure Relief Procedure

To reduce the risk of serious bodily injury, including fluid injection, splashing fluid or solvent in the eyes or on the skin, or injury from moving parts or electric shock, always follow this procedure whenever you shut off the pump, when checking or servicing any part of the spray/dispense system, when installing, cleaning or changing spray tips or nozzles, and whenever you stop spraying/dispensing.

1. Engage the gun/dispensing valve safety latch.
2. Shut off the power to the pump .
3. Disengage the gun/dispensing valve safety latch. Hold a metal part of the gun/dispensing valve firmly to the side of a grounded metal pail, and trigger to relieve pressure.
4. Engage the gun/dispensing valve safety latch.
5. Open the pump drain valve, (required in your system) having a container ready to catch the drainage. Leave the valve open until you are ready to spray/dispense again.

*If you suspect that the spray tip/nozzle or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, VERY SLOWLY loosen the tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Now clear the tip or hose.*

## System Pressure

Displacement pump Models 221–026 and 221–074 have a **3000 psi (210 bar) MAXIMUM WORKING PRESSURE.** Displacement pump Model 215–930 has a **2000 psi (140 bar) MAXIMUM WORKING PRESSURE.** NEVER exceed the stated maximum working pressure of the pump or of the lowest rated component in your system.

Be sure that any components or accessories added to the system are rated to withstand this pressure.

## Fluid Compatibility

BE SURE that all fluids and solvents used are chemically compatible with the wetted parts shown in the **TECHNICAL DATA** section on page 11. Always read the fluid and solvent manufacturer’s literature before using them in your system.

## EQUIPMENT MISUSE HAZARD

### General Safety

Any misuse of the spray equipment or accessories, such as overpressurizing, modifying parts, using incompatible chemicals and fluids, or using worn or damaged parts, can cause them to rupture and result in fluid injection or other serious bodily injury, including splashing in the eyes or on the skin, fire, explosion or property damage.

NEVER alter or modify any part of this equipment; doing so could cause it to malfunction.

CHECK all spray equipment regularly and repair or replace worn or damaged parts immediately.

ALWAYS read and follow the fluid and solvent manufacturer’s recommendations regarding the use of protective eyewear, clothing and equipment, including respirators.

## HOSE SAFETY

High pressure fluid in the hoses can be very dangerous. If the hose develops a leak, split or rupture due to any kind of wear, damage or misuse, the high pressure spray emitted from it can cause a fluid injection injury or other serious bodily injury or property damage.

**ALL FLUID HOSES MUST HAVE SPRING GUARDS ON BOTH ENDS!** The spring guards help protect the hose from kinks or bends at or close to the coupling which can result in hose rupture.

**TIGHTEN** all fluid connections securely before each use. High pressure fluid can dislodge a loose coupling or allow high pressure spray to be emitted from the coupling.

**NEVER** use a damaged hose. Before each use, check the entire hose for cuts, leaks, abrasion, bulging cover, or damage or movement of the hose couplings. If any of these conditions exist, replace the hose immediately. **DO NOT** try to recouple high pressure hose or mend it with tape or any other device. A repaired hose cannot contain the high pressure fluid.

## FIRE OR EXPLOSION HAZARD

Static electricity is created by the flow of fluid through the pump and hose. If every part of the spray/dispensing equipment is not properly grounded, sparking may occur, and the system may become hazardous. Sparking may also occur when plugging in or unplugging a power supply cord or using a gasoline engine. Sparks can ignite fumes from solvents and the fluid being sprayed, dust particles and other flammable substances, whether you are spraying/dispensing indoors or outdoors, and can cause a fire or explosion and serious bodily injury and property damage.

If you experience any static sparking or even a slight shock while using this equipment, **STOP SPRAYING/DISPENSING IMMEDIATELY.** Check the entire system for proper grounding. Do not use the system again until the problem has been identified and corrected.

### Grounding

To reduce the risk of static sparking, ground the pump and all other spray equipment used or located in the spray/dispensing area. **CHECK** your local electrical code for detailed grounding instructions for your area and type of equipment. **BE SURE** to ground all of this equipment:

## MOVING PARTS HAZARD

In a pneumatic system, the piston in the air motor, located behind the air motor plates or shield, moves when air is supplied to the motor. Moving parts in the motor or any other part of the system can pinch or amputate your fingers or other body parts. Therefore, **NEVER** operate the pump with the air motor plates removed. **KEEP CLEAR** of moving parts when starting or operating the pump. Follow the **Pressure Relief Procedure** on page 2 before checking or servicing any part of the system, to prevent it from starting accidentally.

**HANDLE AND ROUTE HOSES CAREFULLY.** Do not pull on hoses to move equipment. Do not use fluids or solvents which are not compatible with the inner tube and cover of the hose. **DO NOT** expose Graco hose to temperatures above 180°F (82°C) or below -40°F (-40°C).

### Hose Grounding Continuity

Proper hose grounding continuity is essential to maintaining a grounded spray/dispense system. Check the electrical resistance of your air and fluid hoses at least once a week. If your hose does not have a tag on it which specifies the maximum electrical resistance, contact the hose supplier or manufacturer for the maximum resistance limits. Use a resistance meter in the appropriate range for your hose to check the resistance. If the resistance exceeds the recommended limits, replace it immediately. An ungrounded or poorly grounded hose can make your system hazardous. Also read **FIRE OR EXPLOSION HAZARD.**

1. *Pump:* connect a ground wire and clamp to a true earth ground as instructed in your separate pump manual.
2. *Air & Fluid hoses:* use only grounded hoses. See **Hose Grounding Continuity.**
3. *Spray gun or dispensing valve:* obtain grounding through connection to a properly grounded fluid hose and pump.
4. *Object being sprayed:* according to local code.
5. *Fluid supply container:* according to local code.
6. *All solvent pails used when flushing,* according to local code. Use only metal pails, which are conductive. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.
7. *To maintain grounding continuity when flushing or relieving pressure,* always hold a metal part of the gun firmly to the side of a grounded metal pail, then trigger the gun/dispensing valve.

### Flushing Safety

To reduce the risk of fluid injection injury, static sparking, or splashing follow the **Pressure Relief Procedure** on page 2, and remove the spray tip (spray guns only) before flushing. Hold a metal part of the gun firmly to the side of a grounded metal pail and use the lowest possible fluid pressure during flushing.

## IMPORTANT

United States Government safety standards have been adopted under the Occupational Safety and Health Act. These standards – particularly the General Standards, Part 1910, and the Construction Standards, Part 1926 – should be consulted.

## Service for 221026, Series A Displacement Pump

### WARNING

To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, ALWAYS follow the **Pressure Relief Procedure** on page 2 before checking or repairing any part of the pump or system.

### NOTES:

1. Repair Kit 218701 is available. Use all the new parts in the kit for the best results. Kit parts are indicated by a reference number followed by an asterisk, for example, (1\*).
2. Always replace the glands when replacing the packings, whether or not you use a repair kit. Install the packings one at a time to be sure they "nest" properly.
3. Clean parts with a compatible solvent. Inspect for wear or damage and replace parts as needed.

### Disassembling Pump

Unscrew intake valve housing (21) from pump housing (22). Remove pin (13), ball (2), ball guide (18), retainer (15) and o-ring (14). See Fig 1. If seat in valve housing (21) is chipped or worn, replace housing.

Loosen throat packing nut (20), push displacement rod (17) down, grasp piston (19), and pull piston and displacement rod out through bottom of pump housing.

Scoring or irregular surfaces on the displacement rod (17) or polished inner wall of the sleeve (16) cause premature packing wear and leaking. Check these parts by rubbing a finger on the surface and by holding the parts up to the light at a slight angle. If the sleeve cannot be removed easily to replace it, contact Graco Technical Assistance (see back page). When replacing the sleeve, be sure to replace the gasket (7).

Screw piston (19) out of displacement rod (17). Remove ball (1), glands (9 & 10), packings (11), shims (23) and packing retainer (8). Screw throat packing nut (20) out of pump housing (22). Remove packings (12), glands (4 & 5) and backup washer (6).

### Assembling Pump

Lubricate packings, displacement rod and inside of sleeve (16) before assembling. Install backup washer (6), male gland (5\*), four v-packings (12\*) *with the lips facing down*, and female gland (4\*) in throat of pump housing (22). See Fig 1. Install packing nut (20) loosely.

Install female gland (10\*), three v-packings (11\*) *with the lips facing up*, male gland (9\*) and shims (23\*) on piston (19). See Fig 1. Use as many shims as necessary to obtain a height of 0.562–0.582 in. (14.3–14.8 mm), or until the shims are flush with shoulder on piston (19). Install packing retainer (8).

Place ball (1\*) on piston (19). Apply liquid thread sealant to threads of piston (19) and screw piston into displacement rod (17). Torque to 35–40 ft-lb (47–54 N.m). Install

displacement rod (17) up through bottom of pump housing (22).

Place ball (2\*) in intake valve housing (21) and install ball guide (18), o-ring (14), retainer (15) and pin (13) in housing. Lubricate threads of valve housing (21) and screw valve housing into pump housing (22). Torque to 75–100 ft-lb (101–136 N.m). Tighten throat packing nut (20) just enough to stop leakage—no tighter.

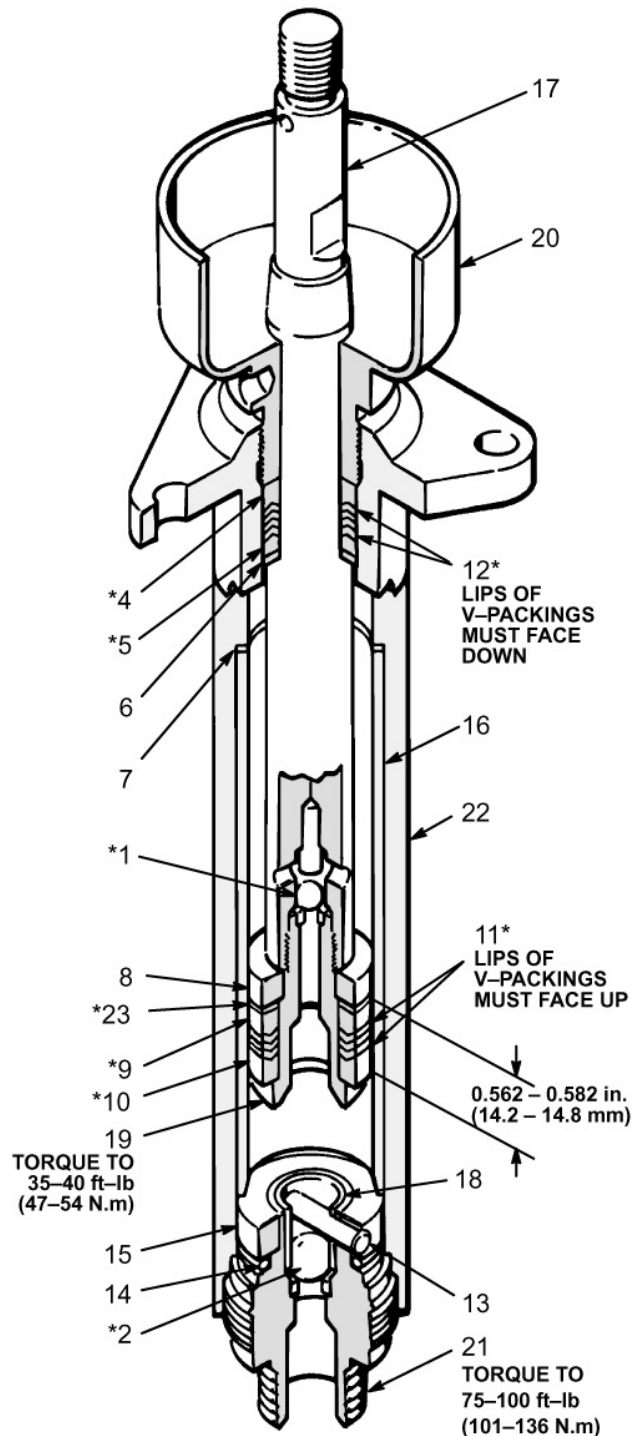
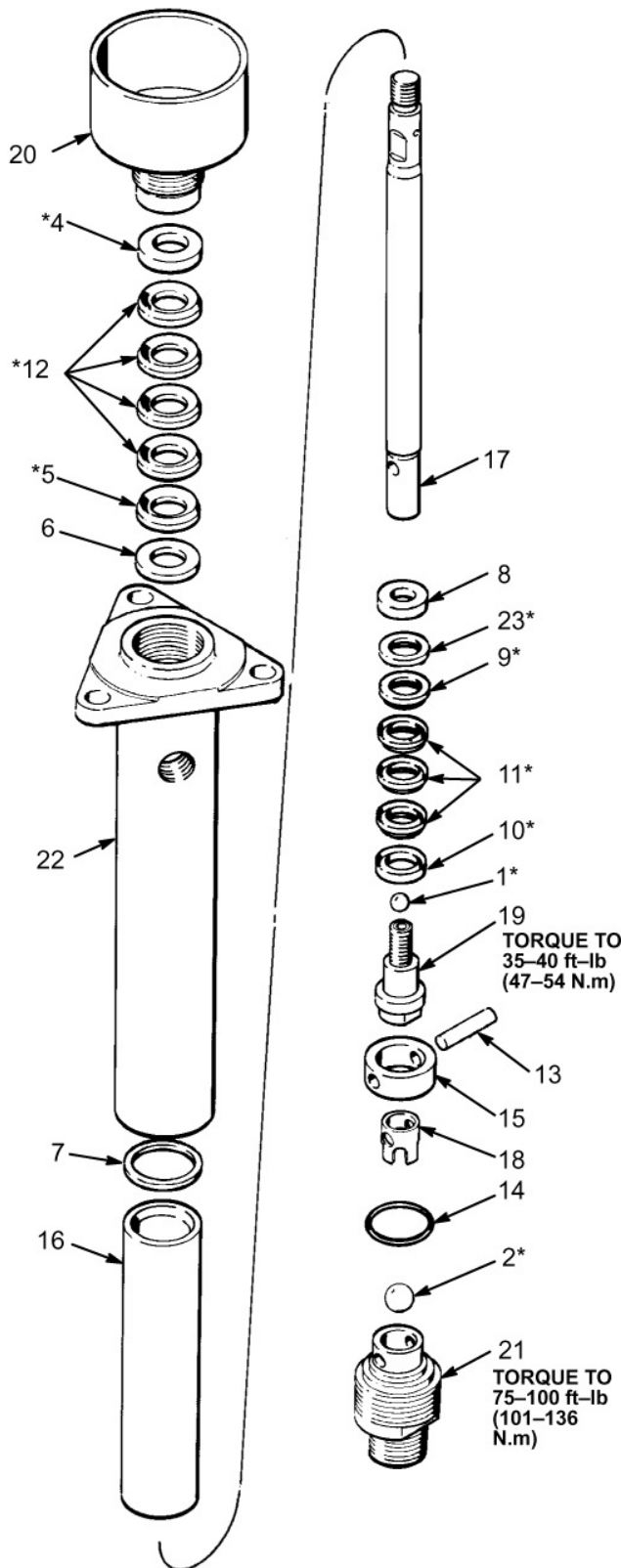


Fig 1

# PARTS DRAWING

# PARTS LIST

## Model 221026, Series A



## Model 221026, Series A

REF NO.	PART NO.	DESCRIPTION	QTY
1	100065*	BALL; 5/16" (8 mm) dia.	1
2	100084*	BALL, steel; 1/2" (13 mm) dia.	1
4	179983*	GLAND, female	1
5	179984*	GLAND, male	1
6	164399	WASHER, backup	1
7	164480**	GASKET, flat; PTFE	1
8	164713	RETAINER, packing	1
9	179987*	GLAND, male	1
10	179988*	GLAND, female	1
11	164912*	V-PACKING; PTFE	3
12	164913*	V-PACKING; PTFE	4
13	165049	PIN, ball stop	1
14	165052**	SEAL, o-ring; PTFE	1
15	165967	RETAINER, o-ring	1
16	178898	SLEEVE, cylinder	1
17	223603	ROD, displacement	1
18	170257	GUIDE, ball	1
19	205538**	PISTON	1
20	206269	PACKING NUT	1
21	206399	HOUSING, intake valve	1
22	207420	HOUSING, pump	1
23	180746*	SHIM	5
24	172479	TAG, warning (not shown)	1

\*Supplied in Repair Kit 218701

\*\*Recommended "tool box" spare parts. Keep on hand to reduce down time.

**Repair Kit 218701** For Displacement Pump 221026  
Must be ordered separately.

Consists of:

Ref No.	Qty.
1	1
2	1
4	1
5	1
9	1
10	1
11	3
12	4
23	5

## HOW TO ORDER PARTS

- To be sure you receive the correct replacement parts, kit or accessories, always give all the information requested in the chart below.
- Check the parts list to identify the correct part number; **do not use the ref. no. when ordering.**
- Order all parts from your nearest Graco distributor.

6 digit PART NUMBER	QTY	PART DESCRIPTION

## Service for 215930, Series E Displacement Pump

### WARNING

To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, ALWAYS follow the **Pressure Relief Procedure** on page 2 before checking or repairing any part of the pump or system.

### NOTES:

1. Repair Kit 218559 is available. Use all the new parts in the kit for the best results. Kit parts are indicated by a reference number followed by an asterisk, for example, (1\*).
2. Always replace the glands when replacing the packings, whether or not you use a repair kit. Install the packings one at a time to be sure they "nest" properly.
3. Clean parts with a compatible solvent. Inspect for wear or damage and replace parts as needed.

### Disassembling Pump

Unscrew intake valve housing (13) from pump housing (15). Remove pin (7), ball (2), retainer (9) and o-ring (8). See Fig 2. If seat in valve housing (13) is chipped or worn, replace housing.

Loosen throat packing nut (16), push displacement rod (17) down, grasp piston (14), and pull piston and displacement rod out through bottom of pump housing.

Scoring or irregular surfaces on the displacement rod (17) or polished inner wall of the sleeve (4) cause premature packing wear and leaking. Check these parts by rubbing a finger on the surface and by holding the parts up to the light at a slight angle. If the sleeve cannot be removed easily to replace it, contact Graco Technical Assistance (see back page). When replacing the sleeve, be sure to replace the gasket (3\*).

Screw piston (14) out of displacement rod (17). Remove ball (1), glands (10 & 11), packings (6), shims (22), and packing retainer (5).

Screw throat packing nut (16) out of pump housing (15). Remove packings (6) and glands (10 & 11).

### Assembling Pump

Lubricate packings, displacement rod (17) and inside of sleeve (4) before assembling.

Install male gland (10\*), five v-packings (6\*) *with the lips facing down*, and female gland (11\*) in throat of pump housing (15). See Fig 2. Install packing nut (16) loosely.

Install the ball guide (21) and ball stop pin (18) into the displacement rod if they were removed. Secure the stop pin with two cotter pins (19).

Install up to six shims (22\*) on the piston, to attain a packing stack height of 0.668–0.683 in. (17.0–17.3 mm). Install the female gland (11\*), four v-packings (6\*) *with the lips facing up*, male gland (10\*) and packing retainer (5) on the piston (14). Verify that the packing stack height is correct. See Fig 2.

Place ball (1\*) on piston (14). Apply liquid thread sealant to threads of piston (14) and screw piston into displacement rod (17). Torque to 35–40 ft-lb (47–54 N.m).

Install displacement rod (17) and piston (14) up through bottom of pump housing (15).

Place ball (2\*) in intake housing (13) and install o-ring (8), retainer (9) and pin (7) in housing. Lubricate threads of valve housing (13) and screw valve housing into pump housing (15). Tighten throat packing nut (16) just enough to stop leakage—no tighter.

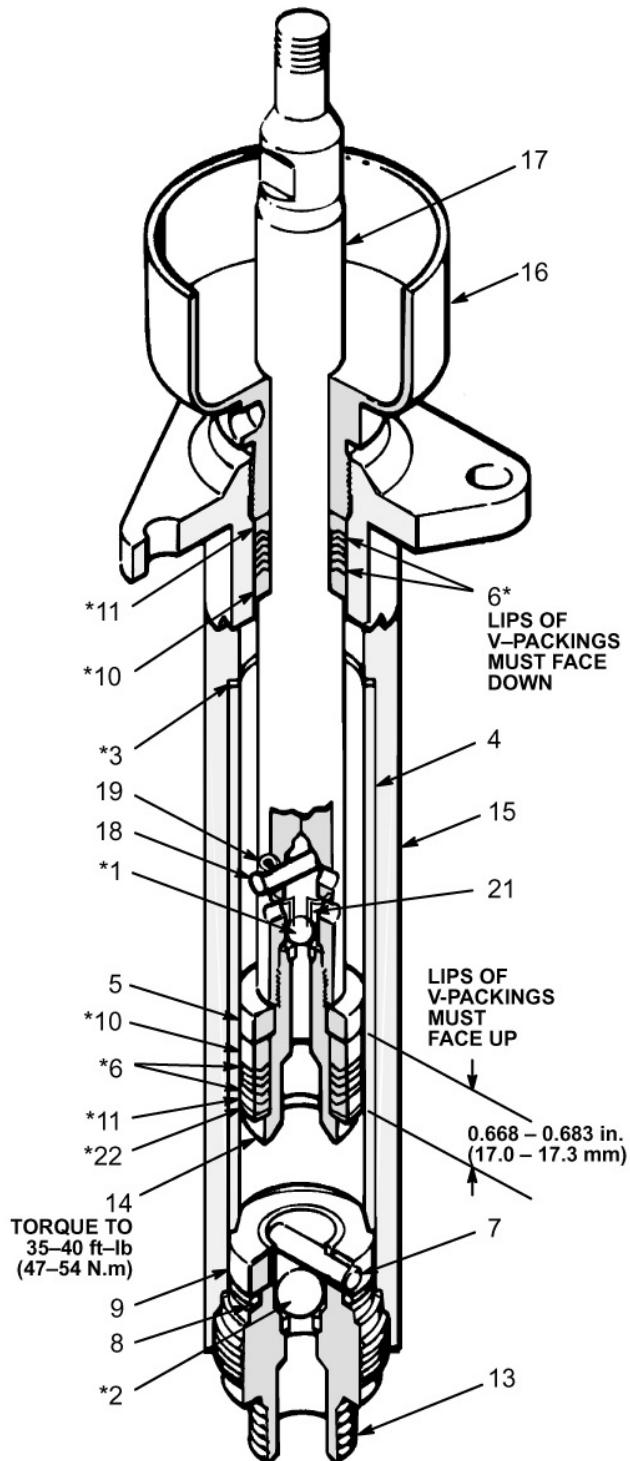


Fig 2

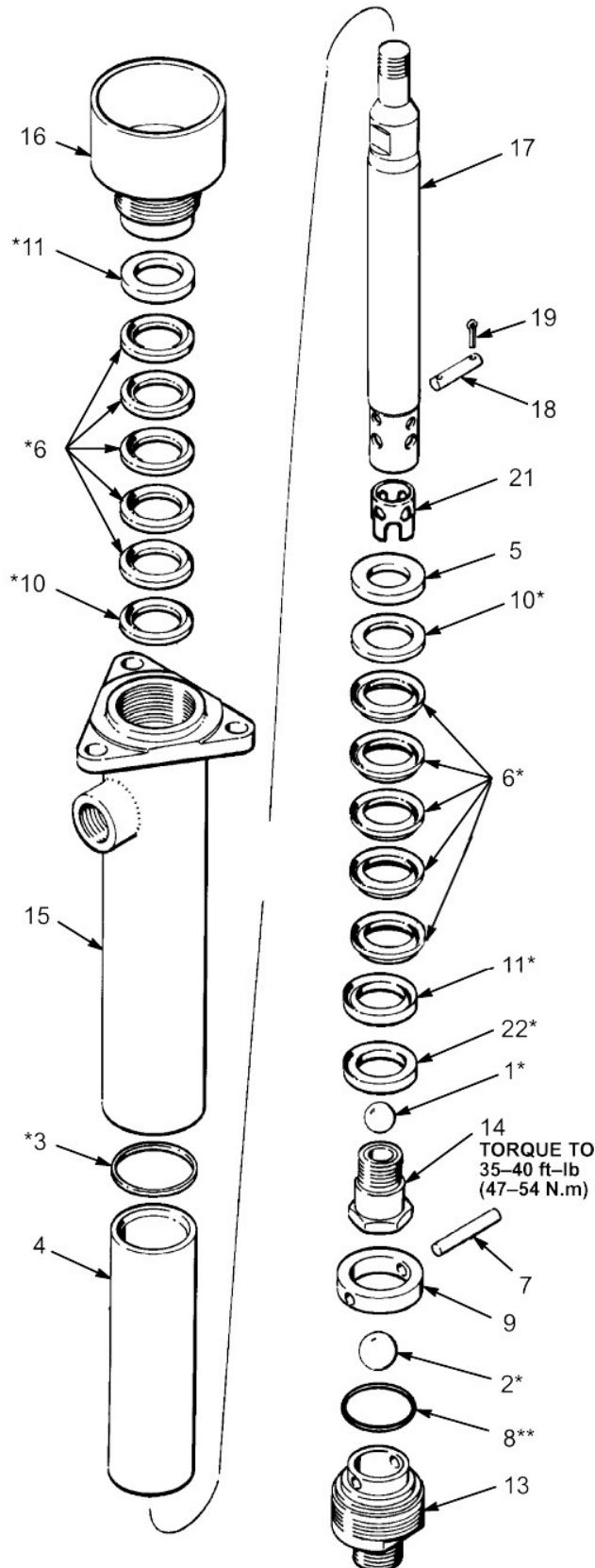


# PARTS DRAWING

# PARTS LIST

## Model 215930 Series E

## Model 215930 Series E



REF NO.	PART NO.	DESCRIPTION	QTY
1	101822*	BALL; sst; 5/8" (16 mm) dia	1
2	101859*	BALL; sst; 3/4" (19 mm) dia	1
3	167668**	GASKET; PTFE	1
4	167669	SLEEVE, cylinder	1
5	167672	RETAINER	1
6	167665*	V-PACKING; PTFE	10
7	167662	PIN, straight	1
8	165053**	O-RING; PTFE	1
9	167663	RETAINER	1
10	183644*	GLAND, male	2
11	183645*	GLAND, female	2
13	207357	HOUSING, intake	1
14	207356	PISTON	1
15	207354	HOUSING, pump	1
16	207355	NUT, packing	1
17	167670	ROD, displacement	1
18	167671	PIN, straight	1
19	100063	PIN, cotter	2
20	172479	TAG, warning (not shown)	1
21	183022	GUIDE, ball	1
22	187831*	SHIM	0-3

\*Supplied in Repair Kit 218559.

\*\*Recommended "tool box" spare parts. Keep on hand to reduce down time.

**Repair Kit 218559** For Displacement Pump 215930  
Must be ordered separately.

Consists of:

Ref No.	Qty.
1	1
2	1
3	1
6	10
10	2
11	2
22	3

## HOW TO ORDER PARTS

- To be sure you receive the correct replacement parts, kit or accessories, always give all the information requested in the chart below.
- Check the parts list to identify the correct part number; **do not use the ref. no. when ordering.**
- Order all parts from your nearest Graco distributor.

6 digit PART NUMBER	QTY	PART DESCRIPTION

## Service for 221074, Series A Displacement Pump

### WARNING

To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, ALWAYS follow the **Pressure Relief Procedure** on page 2 before checking or repairing any part of the pump or system.

### NOTE:

1. Repair Kit 207850 is available. Use all the new parts in the kit for the best results. Kit parts are indicated by a reference number followed by an asterisk, for example, (1\*).
2. Always replace the glands when replacing the packings, whether or not you use a repair kit. Install the packings one at a time to be sure they "nest" properly.
3. Clean parts with a compatible solvent. Inspect for wear or damage and replace parts as needed.

### Disassembling Pump

Unscrew intake valve housing (13) from pump housing (15). Remove pin (7), ball (2), ball guide (12), retainer (9) and o-ring (8). See Fig 3. If seat in valve housing (13) is chipped or worn, replace housing.

Loosen throat packing nut (16), push displacement rod (17) down, grasp piston (14), and pull piston and displacement rod out through bottom of pump housing.

Scoring or irregular surfaces on the displacement rod (17) or polished inner wall of the sleeve (4) cause premature packing wear and leaking. Check these parts by rubbing a finger on the surface and by holding the parts up to the light at a slight angle. If the sleeve cannot be removed easily to replace it, contact Graco Technical Assistance (see back page). When replacing the sleeve, be sure to replace the gasket (3\*).

Screw piston (14) out of displacement rod (17). Remove ball (1), glands (10 & 11), packings (6), shims (18) and packing retainer (5).

Screw throat packing nut (16) out of pump housing (15). Remove packings (6) and glands (10 & 11).

### Assembling Pump

Lubricate packings, displacement rod and inside of sleeve (4) before assembling.

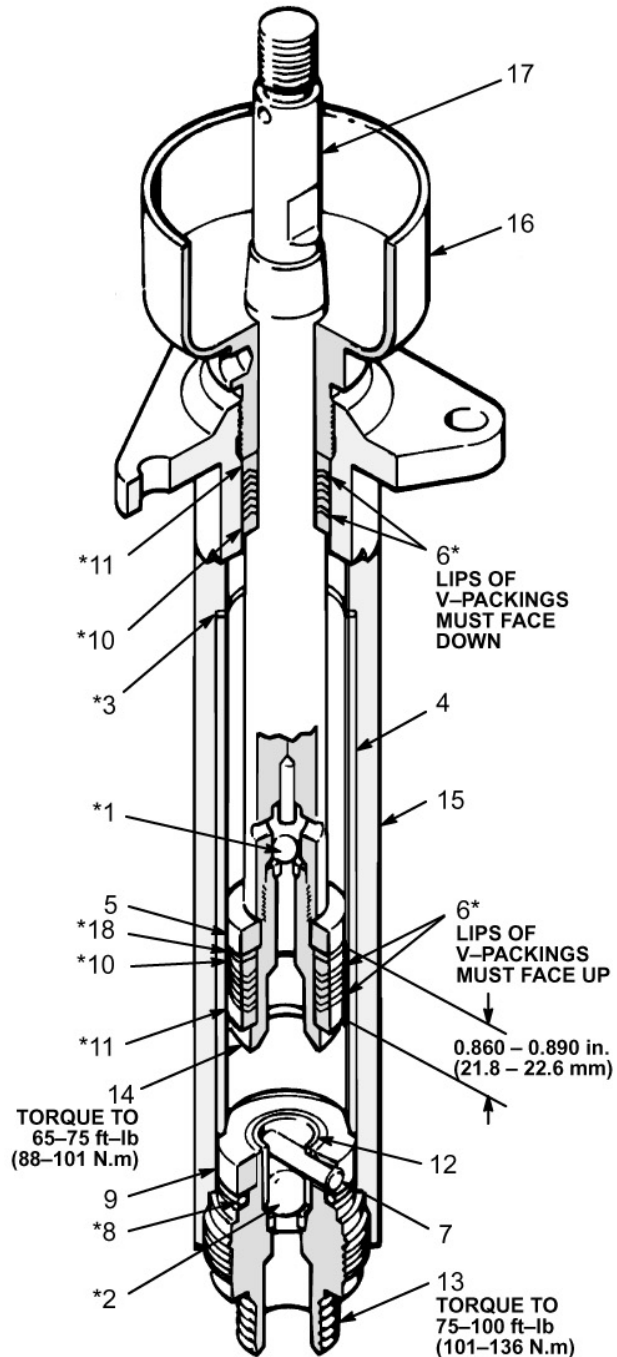
Install male gland (10\*), six v-packings (6\*) *with the lips facing down*, and female gland (11\*) in throat of pump housing (15). See Fig 3. Install packing nut (16) loosely.

Install female gland (11\*), five v-packings (6\*) *with the lips facing up*, male gland (10\*) and shims (18\*) on piston (14). See Fig 3. Use as many shims as necessary to obtain a height of 0.860–0.890 in. (21.8–22.6 mm), or until shims are flush with shoulder on piston (14). Install packing retainer (5).

Place ball (1\*) on piston (14). Apply liquid thread sealant to threads of piston (14) and screw piston into displacement rod (17). Torque to 65–75 ft-lb (88–101 N.m).

Install displacement rod (17) and piston (14) up through bottom of pump housing (15).

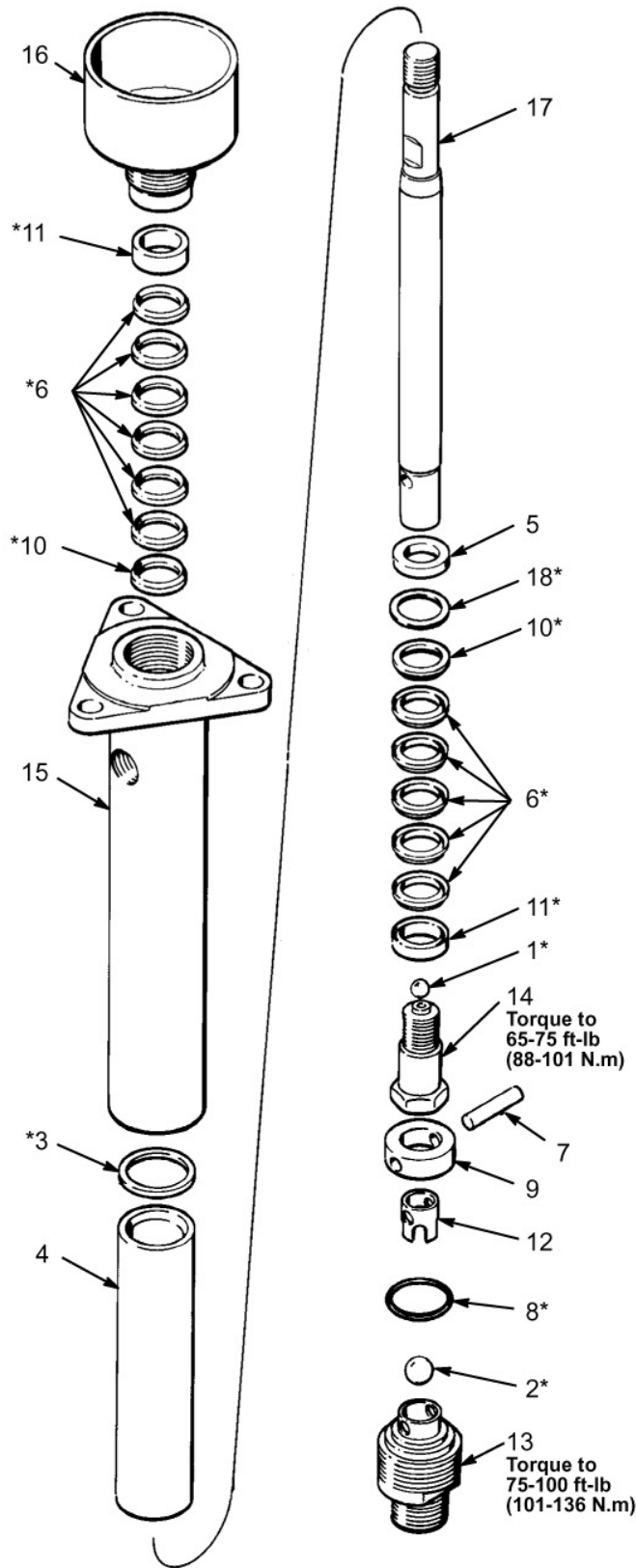
Place ball (2\*) in intake housing (13) and install ball guide (12), o-ring (8\*), retainer (9), and pin (7) in housing. Lubricate threads of valve housing (13) and screw valve housing into pump housing (15). Torque to 75–100 ft-lb (101–136 N.m). Tighten throat packing nut (16) just enough to stop leakage—no tighter.



**Fig 3**

## PARTS DRAWING

### Model 221074, Series A



## PARTS LIST

### Model 221074, Series A

REF NO.	PART NO.	DESCRIPTION	QTY
1	101823*	BALL; sst; 5/16" (8 mm) dia	1
2	101874*	BALL, sst; 1/2 in. (13 mm) dia.	1
3	164480*	GASKET, flat; PTFE	1
4	178902	SLEEVE, housing	1
5	164484**	RETAINER, packing	1
6	164862*	V-PACKING; PTFE	11
7	165049	PIN, ball stop	1
8	165052*	SEAL, o-ring; PTFE	1
9	165279	RETAINER, o-ring	1
10	165894*	GLAND, male	2
11	165895*	GLAND, female	2
12	170257	GUIDE, ball	1
13	205981	HOUSING, intake	1
14	206345**	SEAT, piston	1
15	207011	HOUSING, outlet	1
16	207731	NUT, packing; w/wet cup	1
17	223589	ROD, displacement	1
18	106093*	SHIM	8
19	172479	TAG, warning (not shown)	1

\*Supplied in Repair Kit 207850.

\*\*Recommended "tool box" spare parts. Keep on hand to reduce down time.

**Repair Kit 207850** For Displacement Pump 221074  
Must be ordered separately.

Consists of:

Ref No.	Qty.
1	1
2	1
3	1
6	11
8	1
10	2
11	2
18	8

## HOW TO ORDER PARTS

- To be sure you receive the correct replacement parts, kit or accessories, always give all the information requested in the chart below.
- Check the parts list to identify the correct part number; **do not use the ref. no. when ordering.**
- Order all parts from your nearest Graco distributor.

6 digit PART NUMBER	QTY	PART DESCRIPTION

## DIMENSIONAL DRAWING

Displ. Pump No.	A Length* in. (mm)	B Length* in. (mm)	C Inlet NPT	D Outlet NPT	E Rod Thd UNC	F Hole Dia.** in. (mm)
221026	13.12 (333.2)	10.69 (271.5)	3/4 (m)	3/8 (f)	1/2-13(m)	0.406 (10.34)
215930	13.62 (345.9)	10.69 (271.5)	3/4 (m)	1/2 (f)	5/8-11(m)	0.406 (10.34)
221074	13.94 (354.1)	10.69 (271.5)	3/4 (m)	3/8 (f)	5/8-11(m)	0.406 (10.34)

\*With connecting rod at bottom of stroke

\*\*Three holes on a 3.5 in. (88.9 mm) bolt circle.

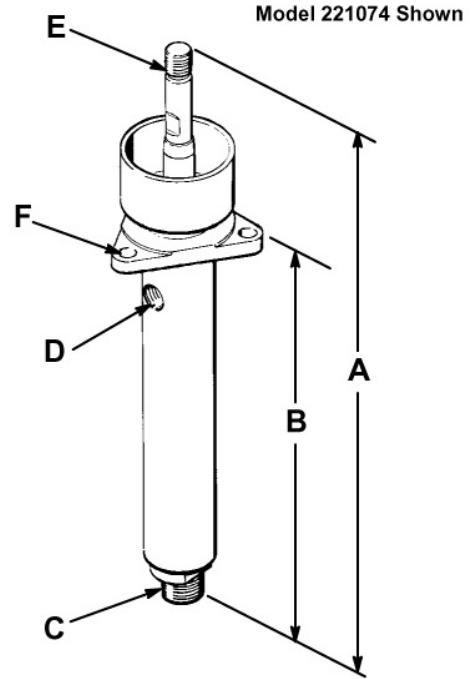
## SERVICE INFORMATION

Listed below by the assembly changed are Added and Deleted parts.

Assembly Changed	Status	Ref No.	Part No.	Name
Model	Deleted (1*)	6	167-665	V-Packing
215930, to Series E	Added (3**)	22	187-831	Shim

\* Four v-packings are now used on the piston. The number of v-packings used in the pump throat remains at five.

\*\* Use 0-6 shims, as required, to attain a piston packing stack height of 0.668-0.683 in. (17.0-17.3 mm). See page 6.



**TECHNICAL DATA**

Displ pump Number	Cyl. ID Area In. <sup>2</sup> (mm <sup>2</sup> )	Disp Rod OD Area In. <sup>2</sup> (mm <sup>2</sup> )	% of Diff.	Effective Area In. <sup>2</sup> (mm <sup>2</sup> )	Max. Stroke In. (mm)
221026*	0.557 (359.37)	0.276 (178.1)	-1.6	0.278 (179.936)	4.0 (101.6)
215930**	1.767 (1140.07)	0.887 (565.8)	0.70	0.884 (570.35)	4.25 (108)
221074*	0.940 (606.49)	0.473 (305.18)	1.2	0.470 (303.24)	4.25 (108)

\*3000 psi (210 bar) Maximum Working Pressure

\*\*2000 psi (140 bar) Maximum Working Pressure

**WETTED PARTS****Models 221026 & 221074**

Chrome over Stainless Steel, Tungsten Carbide,  
Zinc-Plated Steel

**Model 215930**

Nitralloy Steel, Stainless Steel, Tungsten Carbide,  
Zinc-Plated Steel

## THE GRACO WARRANTY AND DISCLAIMERS

### WARRANTY

Graco warrants all equipment manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. As purchaser's sole remedy for breach of this warranty, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment proven 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, 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 with Graco equipment of 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 claim. 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.

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## IMPORTANT PHONE NUMBERS

**TO PLACE AN ORDER**, contact your Graco distributor,  
or call to identify the distributor closest to you:

Phone: 612-623-6921 or Toll Free: 1-800-328-0211, Fax: 612-378-3505

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