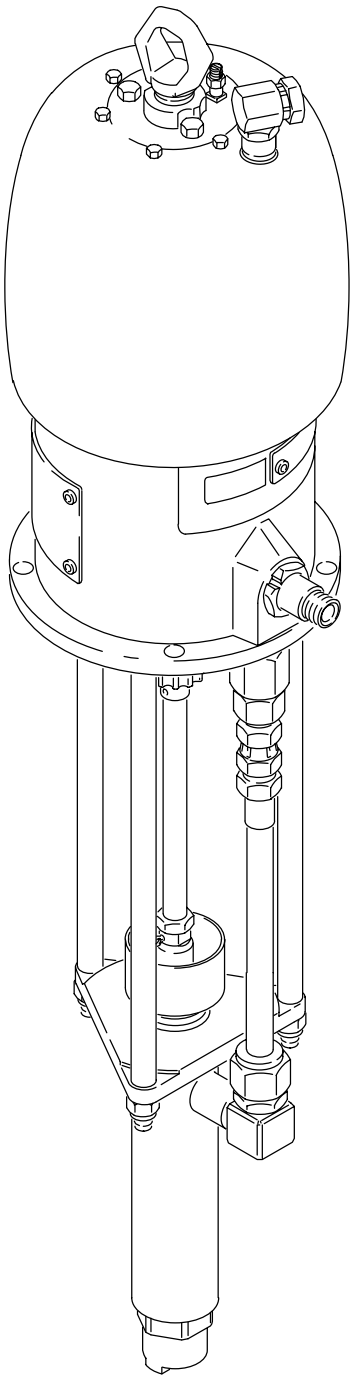
Instructions – Parts List

Parts

30:1 RATIO BULLDOG, 55 GALLON (200 LITER) DRUM SIZE

Hydra–Mastic Pump

307276 Rev.J



3000 psi (210 bar) maximum fluid working pressure
100 psi (7 bar) maximum air input pressure

Model 221064, series B
With standard air motor and Severe–Duty* displacement pump

Model 221067, series B
With quiet air motor and Severe–Duty* displacement pump

*Severe–Duty displacement pumps have an abrasion and corrosion–resistant displacement rod and sleeve.
Refer to the Technical Data manual 307862.

Table of Contents

Read warnings and instructions.

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440–1441

PROVEN QUALITY. LEADING TECHNOLOGY.

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ WARNING

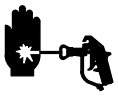
INSTRUCTIONS

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure stated on the equipment or in the **Technical Data** for your equipment. Do not exceed the maximum working pressure of the lowest rated component in your system.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Do not use hoses to pull equipment.
- Route hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below –40°F (–40°C).
- Wear hearing protection when operating this equipment.
- Do not lift pressurized equipment.
- Do not lift the equipment by the air motor lift ring if the total weight of the equipment exceeds 550 lb (250 kg).
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

⚠ WARNING



INJECTION HAZARD

Spray from the gun, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate medical attention.**
- Do not point the gun at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. Refer to the gun manual.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop spraying.
- Follow the **Pressure Relief Procedure** on page 8 whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; and install or clean the spray tip.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.
- Use only Graco approved hoses. Do not remove any spring guard that is used to help protect the hose from rupture caused by kinks or bends near the couplings.

MOVING PARTS HAZARD

Moving parts, such as the pump rod, follower plate and ram assembly, can pinch or amputate your fingers.

- Keep clear of all moving parts when starting or operating the pump.
- Keep your hands away from the follower plate and the lip of the drum while the ram is operating.
- Keep your hands away from the ram frame while the ram is operating.
- Before servicing the equipment, follow the **Pressure Relief Procedure** on page 8 to prevent the equipment from starting unexpectedly.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Improper grounding, poor ventilation, open flames or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.

- Ground the equipment and the container where the material is deposited. Refer to **Grounding** on page 7.
- If there is any static sparking or you feel an electric shock while using this equipment, **stop the pumps immediately.** Do not use the equipment until you identify and correct the problem.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvents or the fluid being sprayed.
- Keep the spray area free of debris, including solvent, rags, and gasoline.
- Electrically disconnect all equipment in the spray area.
- Extinguish all open flames or pilot lights in the spray area.
- Do not smoke in the spray area.
- Do not turn on or off any light switch in the spray area while operating or if fumes are present.
- Do not operate a gasoline engine in the spray area.

TOXIC FLUID HAZARD

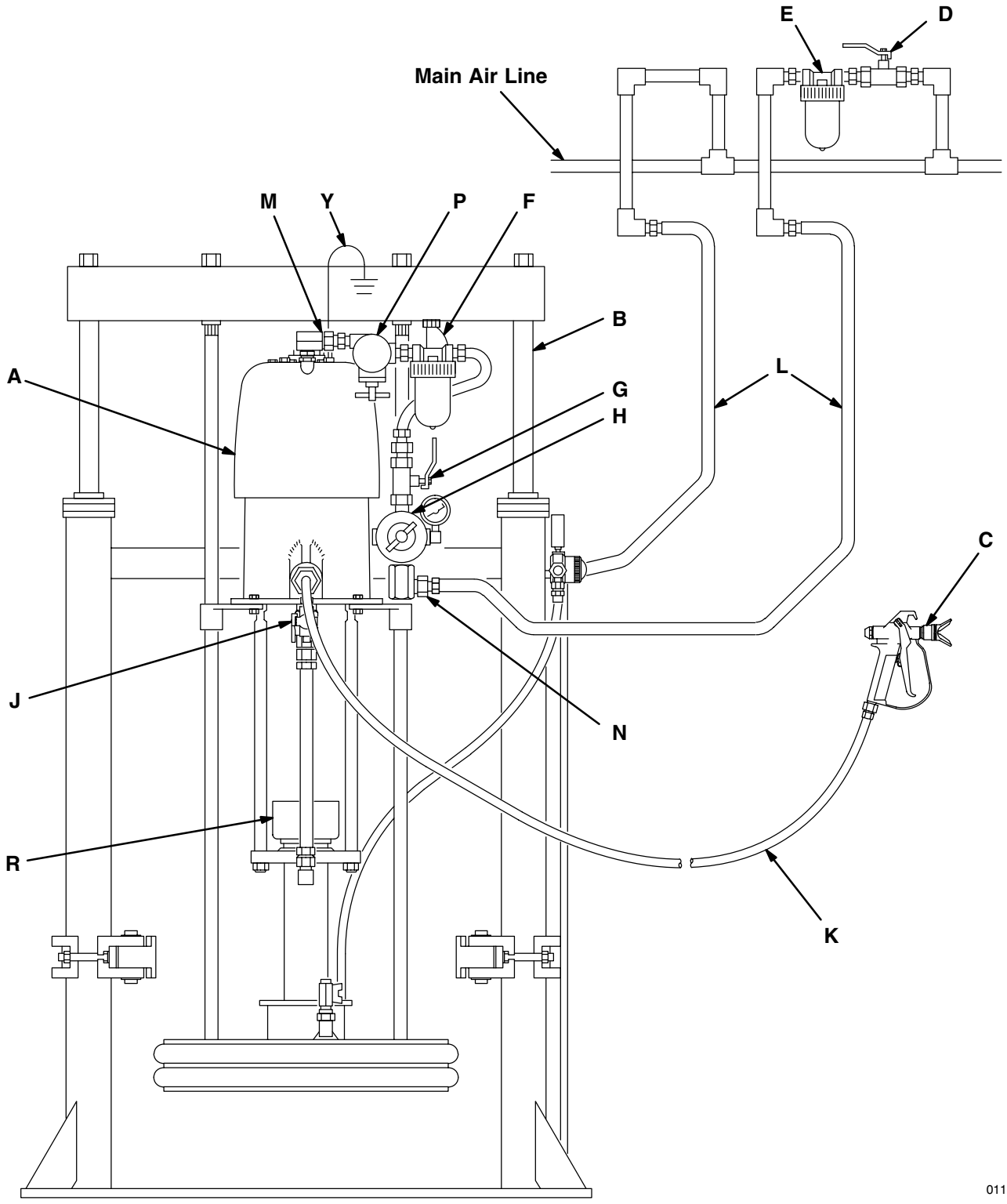
Hazardous fluid or toxic fumes can cause serious injury or death if splashed in the eyes or on the skin, inhaled, or swallowed.

- Know the specific hazards of the fluid you are using.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Always wear protective eyewear, gloves, clothing and respirator as recommended by the fluid and solvent manufacturer.

Setup

KEY

A	Pump
B	55 Gallon Ram
C	Airless Mastic Spray Gun or Dispensing Valve
D	Bleed–Type Master Air Valve (for accessories)
E	Air Line Filter
F	Air Line Lubricator
G	Bleed–Type Master Air Valve (required, for pump)
H	Pump Air Regulator
J	Fluid Drain Valve (required)
K	Grounded Fluid Supply Hose
L	Grounded Air Supply Hose
M	Pump Air Inlet
N	Air Manifold
P	Pump Runaway Valve
R	Packing Nut/Wet–Cup
Y	Ground Wire (required)



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Setup

NOTE: Reference numbers and letters in parentheses in the text refer to the callouts in the figures and the parts drawing.

See page14 for accessories available from Graco. If you supply your own accessories, be sure they are adequately sized and pressure–rated to meet the system's requirements.

The setup shown on page 4 is only a guide for selecting and installing system components and accessories. Contact your Graco representative for assistance in designing a system to suit your particular needs.

System Components

Refer to the setup illustration on page 4.

⚠ WARNING

Two accessories are required in your system: a bleed-type master air valve (G) and a fluid drain valve (J). These accessories help reduce the risk of serious injury including injection, splashing in the eyes, and injury from moving parts if you are adjusting or repairing the pump.

The bleed-type master air valve relieves air trapped between this valve and the pump after the air regulator is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.

The fluid drain valve assists in relieving fluid pressure in the displacement pump, hose, and gun. Triggering the gun to relieve pressure may not be sufficient.

Air and Fluid Hoses

Be sure all air hoses (L) and fluid hoses (K) are properly sized and pressure–rated for your system. Use only grounded hoses. Fluid hoses must have spring guards on both ends.

Mounting Accessories

Mount the pump (A) to suit the type of installation planned. The setup on page 4 illustrates the pump mounted on a 55 gallon ram. If you are mounting the pump on a ram, refer to the separate manual supplied with the ram for installation and operation instructions. For custom–designed mountings, the pump dimensions and mounting hole layout are shown on page 15.

Air Line Accessories

Install the following components in the order shown in the Setup illustration using adapters as necessary:

- **A pump runaway valve (P**) senses when the pump is running too fast and automatically shuts off the air to the motor. A pump which runs too fast can be seriously damaged. Install closest to the pump air inlet.
- **An air line lubricator (F)** provides automatic air motor lubrication.
- **A bleed–type master air valve (G)** is required in your system to relieve air trapped between it and the air motor when the valve is closed (see the **WARNING** at left). Be sure the bleed valve is easily accessible from the pump, and is located **downstream** from the air regulator.
- **An air regulator (H)** controls pump speed and outlet pressure by adjusting the air pressure to the pump. Locate the regulator close to the pump, but **upstream** from the bleed–type master air valve.
- **An air manifold (N)** has a swivel air inlet. It mounts to a wall bracket or cart, and provides ports for connecting lines to air–powered accessories.
- **An air line filter (E)** removes harmful dirt and moisture from the compressed air supply.
- **A second bleed–type air valve (D)** isolates the air line accessories for servicing. Locate upstream from all other air line accessories.

NOTE: Items G, H, and N are included in the Air Regulation Kit described in the Accessories section.

Fluid Line Accessories

Install the following accessories in the positions shown in the Setup illustration, using adapters as necessary:

- **A fluid drain valve (J),** which is required in your system to relieve fluid pressure in the hose and gun (see the **WARNING** at left).
- **A gun or valve (C)** dispenses the fluid. The gun shown in the Setup is an airless spray gun for mastics.

Setup

Grounding

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Before operating the circulation package, ground the system as explained below. Also read the section **FIRE AND EXPLOSION HAZARD** on page 4.

1. *Pump:* use the ground wire and clamp (A, supplied). See Fig. 1. Loosen the grounding lug locknut (W) and washer (X). Insert one end of the ground wire (A) into the slot in lug (Z) and tighten the locknut securely. Connect the ground clamp to a true earth ground.

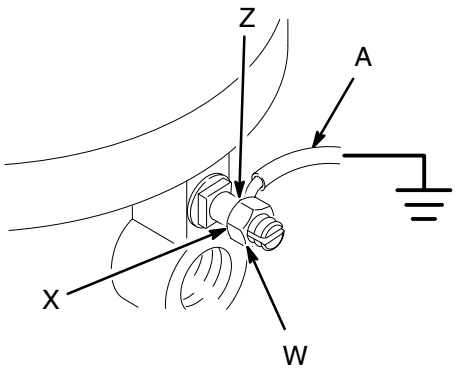


Fig. 1

2. *Air and fluid hoses:* use only electrically conductive hoses.

3. *Air compressor:* follow manufacturer's recommendations.

4. *Spray gun/dispensing valve:* ground through connection to a properly grounded fluid hose and pump.

5. *Fluid supply container:* follow your local code.

6. *Object being sprayed:* follow your local code.

7. *Solvent pails used when flushing:* follow your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.

8. *To maintain grounding continuity when flushing or relieving pressure*, hold a metal part of the spray gun firmly to the side of a grounded *metal* pail, then trigger the gun.

Operation

Pressure Relief Procedure

⚠ WARNING

INJECTION HAZARD
To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or moving parts, always follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- shut off the pump,
- stop spraying,
- check or service any of the system equipment,
- or install or clean the spray tip/nozzle.

1. Lock the gun trigger safety.
2. Shut off the air supply to the pump.
3. Close the bleed–type master air valve (required in your system).
4. Unlock the gun trigger safety.
5. Hold a metal part of the gun firmly to the side of a grounded metal pail, and trigger the gun to relieve pressure.
6. Lock the gun trigger safety.
7. Open the drain valves (required in your system), having a container ready to catch the drainage.
8. Leave the drain valves open until you are ready to 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 hose end coupling and relieve pressure gradually, then loosen completely. Now clear the tip/nozzle or hose.

Flushing the Pump Before Using

The pump is tested with lightweight oil, which is left in to protect the pump parts. If the fluid you are using may be contaminated by the oil, flush it out with a compatible solvent before using the pump.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Before flushing, read the section **FIRE, EXPLOSION, AND ELECTRIC SHOCK HAZARD** on page 4. Be sure the entire system and flushing pails are properly grounded. Refer to **Grounding** on page page 7.

⚠ WARNING

MOVING PARTS HAZARD
Moving parts can pinch or amputate your fingers or other body parts. When air is supplied to the motor, the air motor piston (located behind the air motor shield) moves. Therefore, NEVER operate the pump with the air motor shield removed.

Packing nut/Wet–cup

Fill the packing nut/wet–cup (R) 1/2 full with Graco Throat Seal Liquid (TSL) or compatible solvent. Adjust the packing nut weekly so it is just snug; do not overtighten. Follow the **Pressure Relief Procedure** on page 8 above before adjusting the packing nut.

⚠ WARNING

COMPONENT RUPTURE HAZARD
To reduce the risk of overpressurizing your system, which could cause component rupture and serious injury, *never exceed the specified maximum air input pressure to the pump* (see **Technical Data** on page 16).

Starting and Adjusting the Pump

Refer to **Setup** on page 5.

Be sure the air regulator (H) is closed. Then open the pump's bleed–type master air valve (G). Hold a metal part of the spray gun/dispensing valve (C) firmly to the side of a grounded metal pail and hold the trigger open. Now slowly open the air regulator until the pump starts.

Cycle the pump slowly until all the air is pushed out and the pump and hoses are fully primed. Release the spray gun/dispensing valve trigger and engage the safety latch. The pump should stall against pressure when the trigger is released.

Operation

With the pump and lines primed, and with adequate air pressure and volume supplied, the pump will start and stop as the gun/valve is opened and closed. In a circulating system, the pump will speed up or slow down on demand, until the air supply is shut off.

Use the air regulator to control the pump speed and the fluid pressure. Always use the lowest air pressure necessary to get the desired results. Higher pressures cause premature tip/nozzle and pump wear.

Shutdown and Care of the Pump

⚠ CAUTION

Do not allow the pump to run dry. It will quickly accelerate to a high speed, causing damage. If your pump is running too fast, stop it immediately and check the fluid supply. If the container is empty and air has been pumped into the lines, refill the container and prime the pump and the lines, or flush and leave it filled with a compatible solvent. Eliminate all air from the fluid system.

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8.

A pump runaway valve (P), which shuts off the air supply to the pump if the pump accelerates beyond the pre–set speed, is available. See **Setup** on page 5 and **Accessories** on page 14.

For overnight shutdown, follow the **Pressure Relief Procedure** on page 8. Stop the pump at the bottom of the stroke to prevent fluid from drying on the exposed displacement rod and damaging the throat packings.

Flushing the Pump After Using

Always flush the pump before the fluid dries on the displacement rod. Never leave water or water–based fluid in the pump overnight. First, flush with water or a compatible solvent, then with mineral spirits. **Relieve the pressure**, but leave the mineral spirits in the pump to protect the parts from corrosion.

Troubleshooting

⚠ WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 8.

Before servicing this equipment always make sure to **Relieve the pressure**.

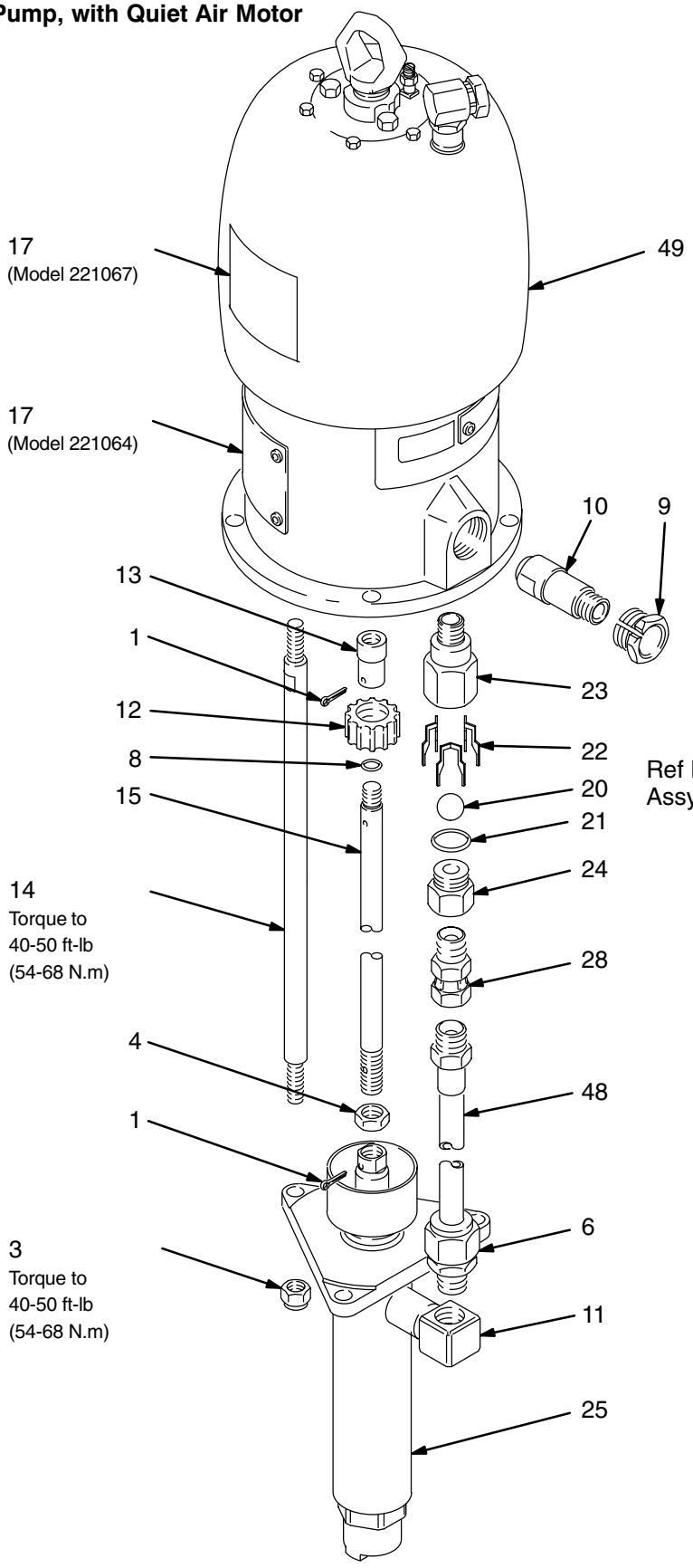
NOTE: Check all possible problems and solutions before disassembling.

Problem	Cause	Solution
Pump fails to operate	Restricted line or inadequate air supply; closed or clogged valves	Clear; increase air supply. See Technical Data on back cover.
	Insufficient air pressure; closed or clogged air valves, etc.	Open, clear.
	Obstructed fluid hose or gun/valve; fluid hose ID is too small	Open, clear*; use hose with larger ID.
	Fluid dried on displacement rod	Clean; always stop pump at bottom of stroke; keep wet–cup 1/2 filled with compatible solvent. Refer to 307862.
	Dirty, worn, or damaged motor parts	Clean or repair; see separate motor manual.
	Air motor icing	Check air line moisture content; should have 40°F (4.5°C) dew point.
Pump operates, but output low on both strokes	Restricted line or inadequate air supply; closed or clogged valves	Clear; increase air supply. See Technical Data on back cover.
	Insufficient air pressure; closed or clogged air valves, etc.	Open, clear.
	Obstructed fluid hose or gun/valve; fluid hose ID is too small	Open, clear*; use hose with larger ID.
	Air leaking into supply drum	Check inductor or ram plate seal.
	Worn packings in displacement pump	Replace packings. Refer to 307862.
	Air motor icing	Check air line moisture content; should have 40°F (4.5°C) dew point.
Pump operates, but output low on down stroke	Held open or worn intake valve	Clear valve; service. Refer to 307862.
	Air motor icing	Check air line moisture content; should have 40°F (4.5°C) dew point.
Pump operates, but output low on up stroke	Held open or worn fluid piston valve or packings	Clear valve; replace packings. Refer to 307862.
	Air motor icing	Check air line moisture content; should have 40°F (4.5°C) dew point.
Erratic or accelerated pump speed	Exhausted fluid supply	Refill and prime.
	Held open or worn intake valve	Clear valve; service. Refer to 307862.
	Held open or worn fluid piston valve or packings	Clear valve; replace packings. Refer to 307862.
	Air motor icing	Check air line moisture content; should have 40°F (4.5°C) dew point.

* To determine if the fluid hose or gun/valve is obstructed, follow the **Pressure Relief Procedure** on page 8. Disconnect the fluid hose and place a container at the pump fluid outlet to catch any fluid. Turn on the air supply just enough to start the pump. If the pump starts when the air supply is turned on, the obstruction is in the fluid hose or gun/valve.

Parts

Model 221064, Series B
30:1 Ratio Bulldog Pump, with Standard Air Motor
Includes items 1–49
Model 221067, Series B
30:1 Ratio Bulldog Pump, with Quiet Air Motor
Includes items 1–49



Ref No. 19 Check Valve Assy (Includes Items 20-24).

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Parts

Model 221064, Series B
30:1 Ratio Bulldog Pump, with Standard Air Motor
Includes items 1–49

Model 221067, Series B
30:1 Ratio Bulldog Pump, with Quiet Air Motor
Includes items 1–49

Ref. No.	Part No.	Description	Qty.
1	100103*	PIN, cotter; 0.12” (3.2 mm) dia.; 1.5” (38 mm) long	2
3	101712	NUT, lock, with nylon insert; 5/8–11	3
4	101936	NUT, hex jam; 3/4–10	1
5	102176	WRENCH, spanner (not shown)	1
6	102484	CONNECTOR, male; 3/4 npt(m)	1
8	158674*	O–RING; nitrile rubber	1
9	166153	NUT, collet	1
10	176393	ELBOW, street, reducing; 3/4 npt(m) x 3/4 npt(f)	1
11	166590	ELBOW, street; 3/4 npt (m x f)	1
12	168210	NUT, shouldered	1
13	168211	NUT, connecting rod	1
14	168798	ROD, tie	3
15	169413	ROD, connecting	1
17	172447	LABEL, warning *(Model 221064)*	1
	176529	LABEL, warning *(Model 221067)*	1
19	235132	CHECK VALVE ASSEMBLY Includes items 20–24	1
20	101190*	. BALL; steel; 1” (25.4 mm) dia.	1
21	111691*	. O–RING; Viton®	1
22	181492	. GUIDE, ball	3
23	187861	. HOUSING, valve	1
24	235133	. SEAT, valve	1
25	217530	DISPLACEMENT PUMP *See manual 307862 for parts*	1
28	157785	ADAPTER, swivel; 3/4 npt(m) x 3/4 npsm(f)	1
48	235135	TUBE, supply	1
49	208356	AIR MOTOR, Bulldog, standard *For Model 221064 only* *See manual 307049 for parts*	1
	215255	AIR MOTOR, Bulldog, quiet *For Model 221067 only* *See manual 307304 for parts*	1

307 numbers in descriptions refer to separate instruction manuals.

* *Recommended “tool box” spare parts. Keep on hand to reduce down time.*

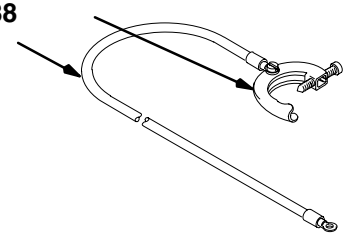
Notes

Accessories

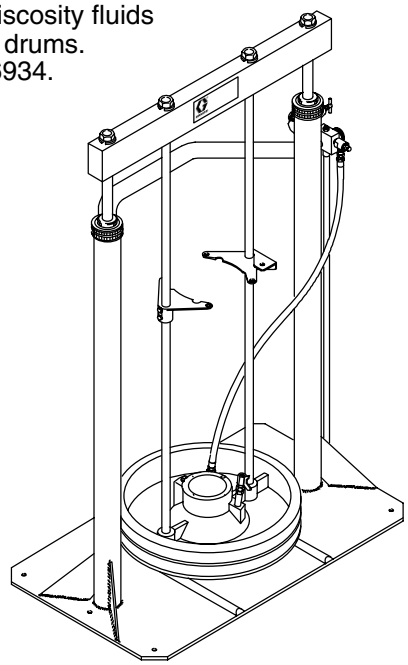
Use Only Genuine Graco Parts and Accessories

Must be purchased separately.

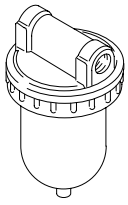
Grounding Clamp 103538
Ground Wire 208950
25 ft (7.6 m) long,
12 gauge (1.5 mm²)



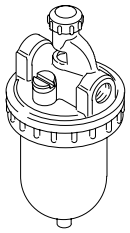
55 Gallon Ram 207279
For extruding high viscosity fluids from open 55 gallon drums. Refer to manual 306934.



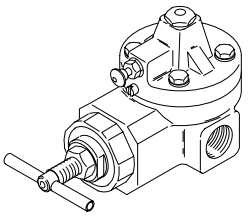
Air Line Filter 106150
250 psi (17.5 bar) Maximum Working Pressure
Filters harmful dirt and moisture from the compressed air supply. 3/4 npt(f) inlet and outlet.



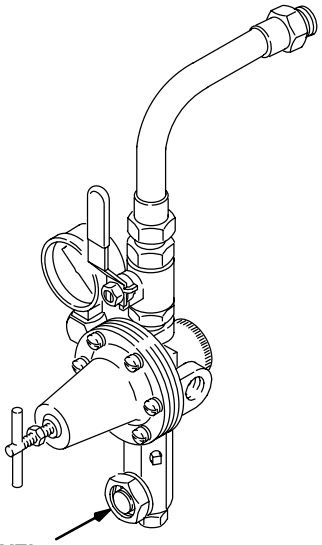
Air Line Lubricator 214849
250 psi (17.5 bar) Maximum Working Pressure
Provides automatic lubrication for the air motor.
16 oz. (0.48 liter) bowl capacity. 3/4 npt(f) inlet and outlet.



Pump Runaway Valve 215362
180 psi (12 bar) Maximum Working Pressure
Shuts off air supply to the pump if the pump accelerates beyond the pre–adjusted setting due to an empty supply container, interrupted fluid supply to the pump, or excessive cavitation. 3/4 npt(f) inlet and outlet. See instruction manual 307328.



Air Pressure Regulator Kit 205712
300 psi (21 bar) Maximum Working Pressure
0–125 psi (0–9 bar) Regulated Pressure Range
Includes air regulator, bleed–type master air valve, hose and swivel inlet. See instruction manual 306972.



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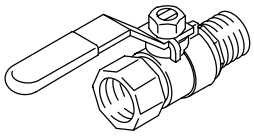
Grounded 3/4 in. (19 mm) Buna–n Air Hose
175 psi (12 bar) Maximum Working Pressure

Part No.	ID	Length	Thd. Size
208610	3/4” (19 mm)	6 ft (1.8 m)	3/4 npt(m)
205548	3/4” (19 mm)	15 ft (4.5 m)	3/4 npt(m)
208611	3/4” (19 mm)	25 ft (7.6 m)	3/4 npt(m)

Accessories

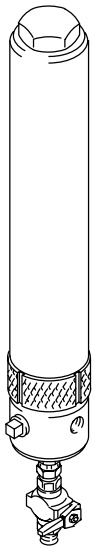
Use Only Genuine Graco Parts and Accessories

Bleed–Type Master Air Valve 107141
300 psi (21 bar) Maximum Working Pressure
Relieves air trapped in the air line between the pump air inlet and this valve when closed. 3/4 npt(m) inlet x 3/4 npt(f) outlet.



Must be purchased separately.

Surge Tank 214623
5000 psi (350 bar) Maximum Working Pressure
Dampens fluid surges to the gun.
3/4 npt(f) inlet, 3/8 npt(f) and 1/2 npt(f) outlets.
Requires mounting hardware (see below).
Refer to instruction manual 307296.



Mounting Hardware For Surge Tank
(Order separately.)

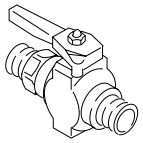
Part No.	Description	Qty
100015	NUT, hex; 1/4”	1
100016	LOCKWASHER; 1/4”	1
100902	SCREW, mach., pnh; 1/4”	1
155665	SWIVEL; 3/8 npt(m) x 3/8 npsm(f)	1
175012	NIPPLE; 3/4 npt(mbe)	1
206326	CLAMP, surge tank	1

Conversion Kit 217472
Converts the intake (foot) valve of Series A, B and C Displacement Pump 206773 to Series D style foot valve. Includes:

Part No.	Description	Qty
164891	O–RING; Teflon®	1
172399	PIN	1
176532	GUIDE	1
178756	WASHER	1
214471	FOOT VALVE	1

Fluid Drain Valve
5000 psi (350 bar) Maximum Working Pressure
Open to relieve fluid pressure in hose and gun/valve.
See instruction manual 306861.

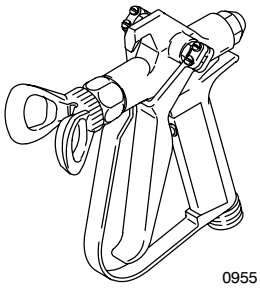
210657 1/4 npt (mbe)
210658 3/8 npt (mbe)
210659 1/4 npt x 3/8 npt (mbe)



Mastic Spray Gun
3000 psi (210 bar) Maximum Working Pressure
Model 206718 Gun with diffuser
Model 207300 Gun without diffuser

See instruction manual 306863.

* Spray tip not included. Order desired size separately.



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Grounded Neoprene Fluid Hose
5000 psi (350 bar) Maximum Working Pressure

Part No.	ID	Length	Thd. Size
215241	3/4” (19 mm)	6 ft (1.8 m)	3/4 npt(mbe)
215238	3/4” (19 mm)	10 ft (3.1 m)	3/4 npt(mbe)
215239	3/4” (19 mm)	15 ft (4.6 m)	3/4 npt(mbe)
215240	3/4” (19 mm)	25 ft (7.6 m)	3/4 npt(mbe)

Graco Throat Seal Liquid
Non–evaporating liquid for wet cup
206995 1 quart (0.95 liter)
206996 1 gallon (3.8 liter)

Replacement O–ring 111379
For use with Connector 102484. Viton®.

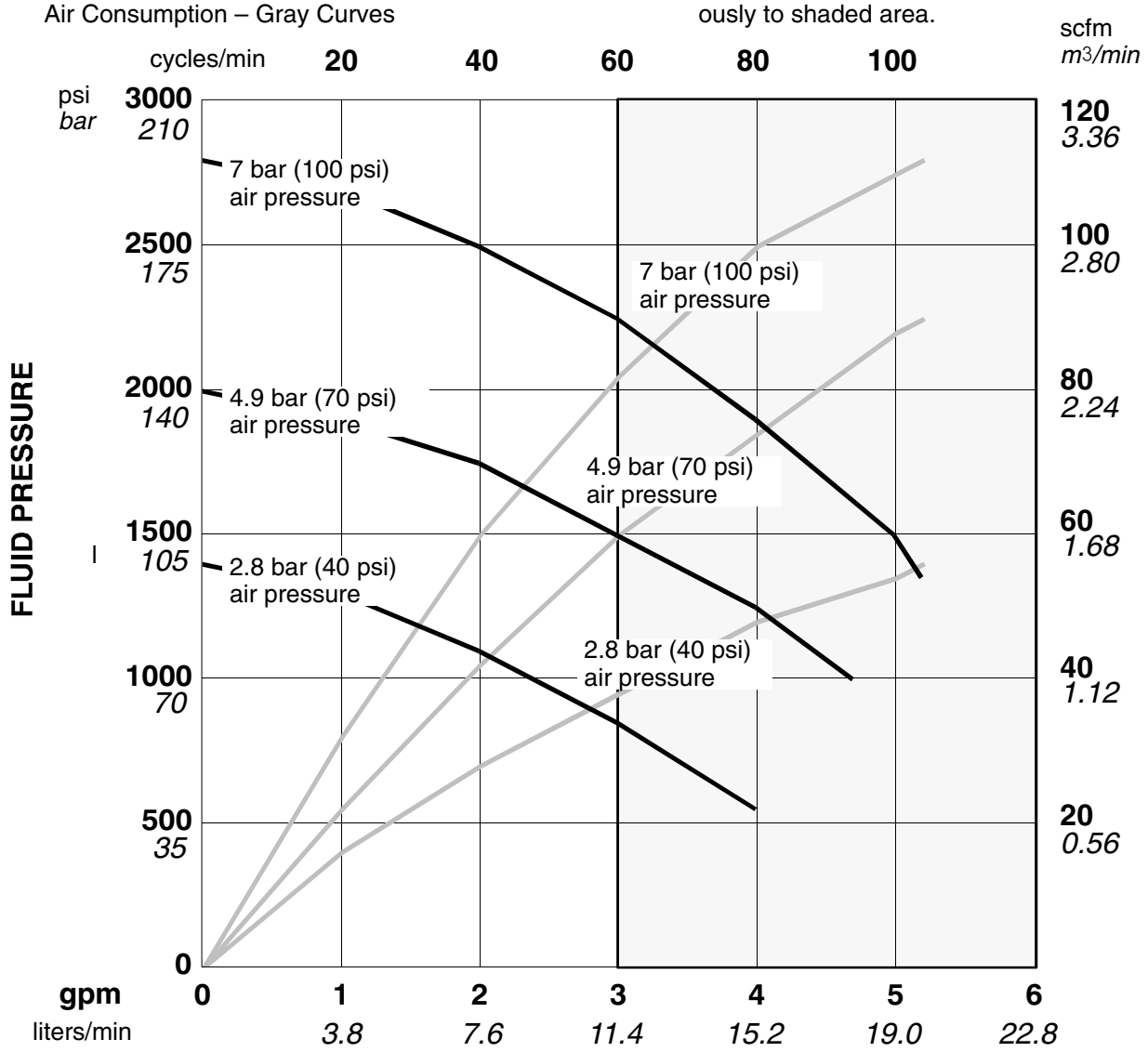
Technical Data

Maximum fluid working pressure	3000 psi (210 bar)
Maximum air input pressure	100 psi (7 bar)
Pump cycles per gallon (3.8 liters)	20
Maximum recommended pump speed	60 cycles per min; 3 gpm (11.4 liters/min)
Recommended pump speed for optimum life	20 cycles per min; 1 gpm (3.8 liters/min)
Air inlet	3/4 npt(f)
Fluid inlet	1–1/2" npt(f)
Fluid outlet	3/4 npt(m)
Weight	approx. 121 lb (54.7 kg)
Wetted parts	See displacement pump manual 307862

Teflon® and Viton® are registered trademarks of the Du Pont Company.

KEY: Fluid Outlet Pressure – Black Curves
Air Consumption – Gray Curves

NOTE: Pumps may be operated continuously to shaded area.



FLUID FLOW (TEST FLUID: NO. 10 WEIGHT OIL)

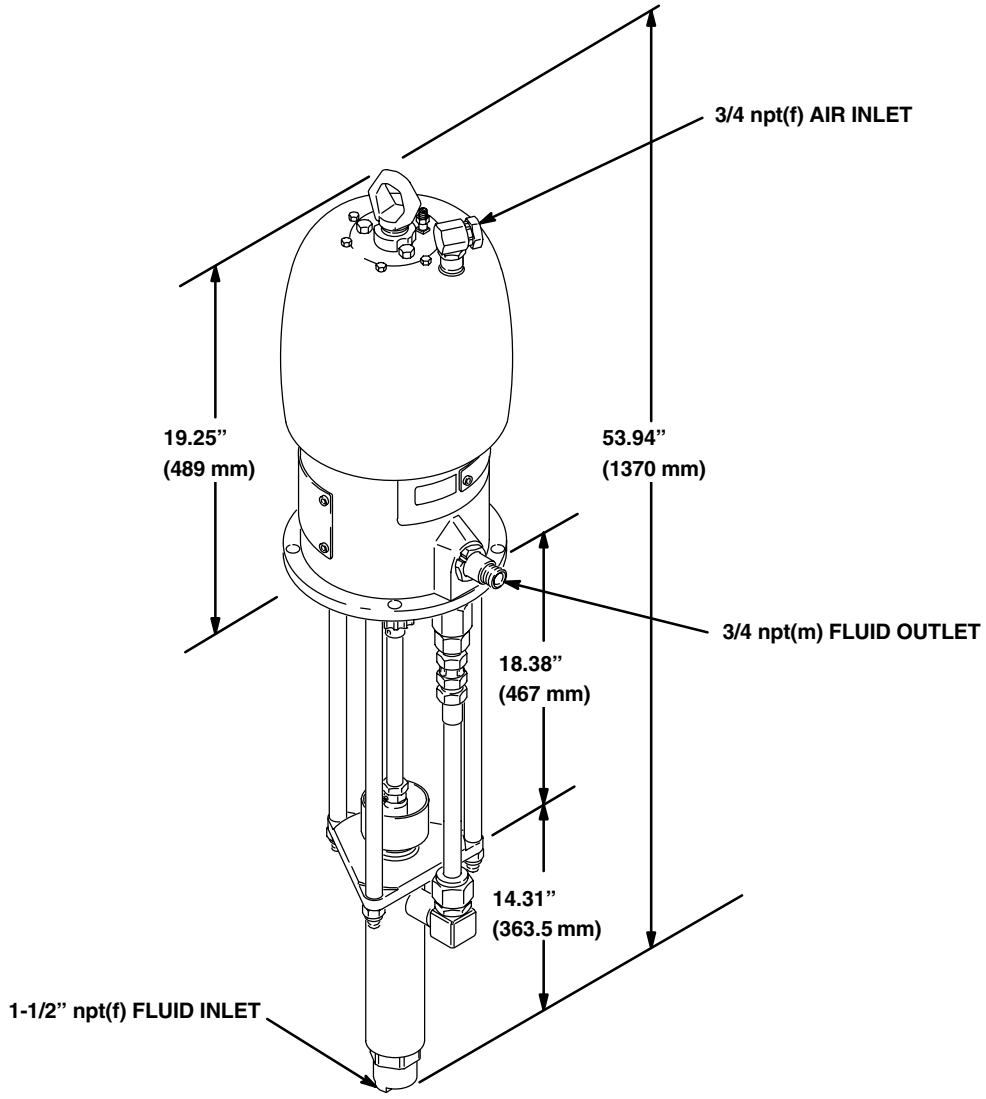
To find Fluid Outlet Pressure (bar/psi) at a specific fluid flow (lpm/gpm) and operating air pressure (bar/psi):

1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve (black). Follow left to scale to read fluid outlet pressure.

To find Pump Air Consumption (m^3/min or scfm) at a specific fluid flow (lpm/gpm) and air pressure (bar/psi):

1. Locate desired flow along bottom of chart.
2. Read vertical line up to intersection with selected air consumption curve (gray). Follow right to scale to read air consumption.

Dimensions



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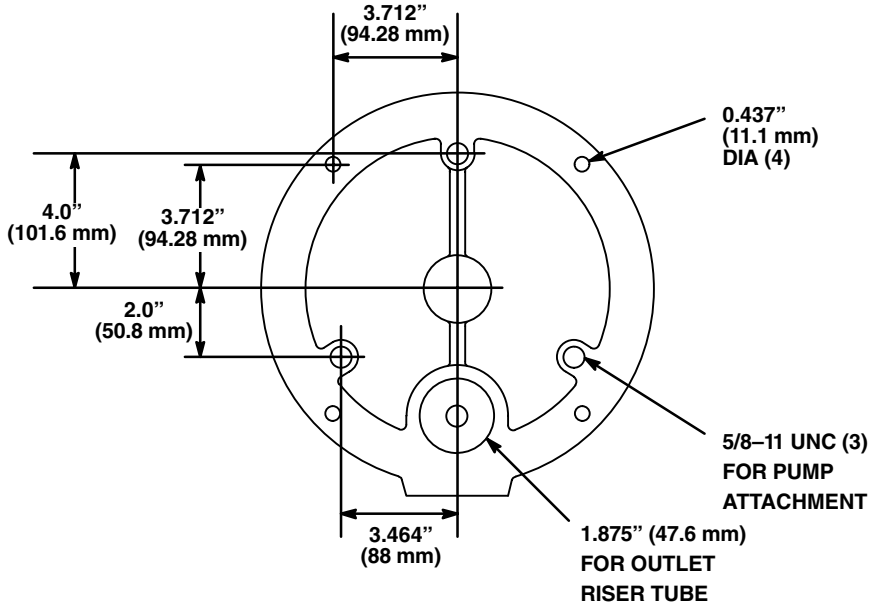

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Graco Standard Warranty

Graco warrants all equipment manufactured by Graco 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. 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.

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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.

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor, or call this number to identify the distributor closest to you:
1–800–367–4023 Toll Free
612–623–6921
612–378–3505 Fax

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