

M680 Pump

332650A

EN

Designed for spraying high viscosity materials, such as mortars, mastics, and epoxies.

For professional use only.

Model 262921

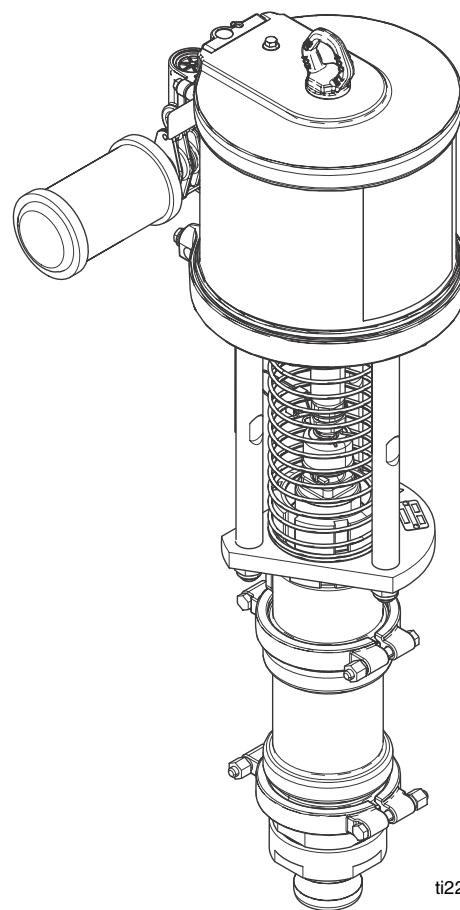
1000 psi (7 MPa, 70 bar) Maximum Working Pressure

100 psi (0.7 MPa, 7 bar) Maximum Air Inlet Pressure



Important Safety Instructions

Read all warnings and instructions in this manual and all supplied manuals. Save all instructions.



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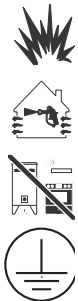

Related Manuals

Component manuals in English. Manuals are available at www.graco.com.








Manual	Description
332649	680cc Pump Lower
312796	NXT Air Motor

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.




 <h2 style="margin: 0;">WARNING</h2>	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc). • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Ground all equipment in the work area. See Grounding instructions. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are antistatic or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not point dispensing device at anyone or at any part of the body. • Do not put your hand over the fluid outlet. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately.

WARNING

 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer’s warnings. For complete information about your material, request MSDS from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer’s replacement parts only. • Do not alter or modify equipment. 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.
 	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
 	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read MSDSs to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
	<p>SUCTION HAZARD</p> <p>Powerful suction could cause serious injury.</p> <ul style="list-style-type: none"> • Never place hands near the pump fluid inlet when pump is operating or pressurized.

Installation

Grounding

						
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The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Improper grounding can cause electric shock. Grounding provides an escape wire for the electric current.

Pump: Use the ground screw (X) and lockwasher on the motor to attach ground wire 262908 (Y). Tighten the screw securely. Connect the other end of the ground wire to a true earth ground.

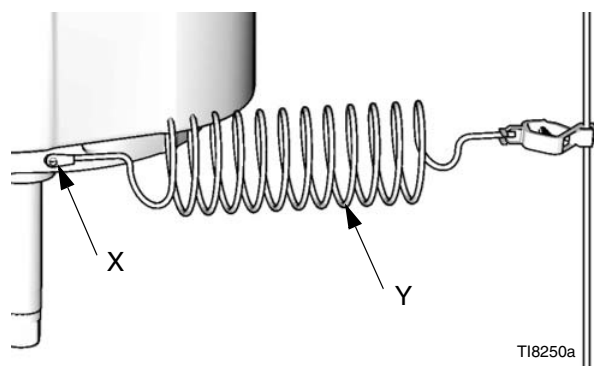


FIG. 1

Air and fluid hoses: use only electrically conductive hoses. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace hose immediately.

Air compressor: follow manufacturer's recommendations.

Applicator: ground through connection to a properly grounded fluid hose and pump.

Fluid supply container: follow local code.

Object being sprayed: follow local code.

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





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

Accessories

NOTE: Accessory Air Control Kits are available for the NXT Air Motor. The kits include a master air valve, air regulator, and filter. Order the kit separately. See manual 312796 for more information.

Air Line

- **Bleed-type master air valve:** required in your system to relieve air trapped between it and the air motor when the valve is closed.

						
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Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts.

Be sure the valve is easily accessible from the pump and located downstream from the air regulator.

- **Pump air regulator:** to control pump speed and outlet pressure. Locate it close to the pump.
- **Air Motor Pilot Valve (Optional):** to control air flow to the air motor pilot valve to turn air motor on and off.
- **Air line filter:** removes harmful dirt and moisture from compressed air supply.
- **Second bleed-type air valve:** isolates air line accessories for servicing. Locate upstream from all other air line accessories.
- **Applicator air regulator:** controls air pressure to the applicator.

Fluid Line

- **Fluid drain valve:** required in your system, to relieve fluid pressure in the hose and applicator.

NOTICE

To prevent material hardening in the fluid drain valve, flush the fluid drain valve after every time it is used. See **Flushing** on page 8.

- **Fluid shutoff valve:** shuts off fluid flow.
- **Fluid pressure regulator:** for more precise adjustment of the fluid pressure.
- **Applicator or valve:** to dispense fluid.
- **Fluid line swivel:** for easier applicator movement.
- **Suction kit:** enables the pump to draw fluid from a container.

Flush Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. See **Flushing**, page 8.

Operation

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



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

1. *If you are pumping fluid which dries, hardens, or sets up*, flush the system. See **Flushing**.
2. Engage applicator trigger lock, if equipped.
3. Close the bleed-type master air valve.
4. Disengage applicator trigger lock, if equipped.
5. Hold a metal part of the applicator firmly to a grounded metal pail. Trigger the applicator to relieve pressure.
6. Engage applicator trigger lock, if equipped.
7. Open all fluid drain valves in the system, having a waste container ready to catch drainage. Leave drain valve(s) open until you are ready to spray again.
8. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, **VERY SLOWLY** loosen threaded fitting to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.
9. Flush the fluid drain valve if it was used.

NOTICE

To prevent material hardening in the fluid drain valve, flush the fluid drain valve after every time it is used. See **Flushing** on page 8.

Shutdown



NOTICE

Never leave water or water-based fluid in pump overnight. If you are pumping water-based fluid, flush with water first, then with a rust inhibitor, such as mineral spirits solvent (also called white spirit). Relieve pressure, but leave rust inhibitor in pump to protect parts from corrosion.

1. Stop the pump at the bottom of its stroke.

NOTE: This prevents fluid from drying on the rod and damaging the throat packings.

2. *If pumping fluid which dries, hardens, or sets up*, flush the system. See **Flushing**.
3. Perform **Pressure Relief Procedure**, page 7.
4. *If pumping mortar or similar materials:*
 - a. **Disconnect the Lower**, page 10.
 - b. Disassemble and clean lower with a brush and solvent. See lower manual 332649.
 - c. Assemble lower.
 - d. **Reconnect the Lower**, page 10.

Flushing



If you are pumping fluid which dries, hardens, or sets up, flush the system with a compatible solvent as often as necessary to prevent build up of dried fluid in the pump or hoses.

1. Perform **Pressure Relief Procedure**, page 7.
2. Remove the spray tip.
3. Hold a metal part of the applicator firmly to the side of a grounded metal pail.
4. Start the pump.
5. *If pumping mortar or similar materials:*
 - a. Circulate flushing fluid at 60-90 cycles per minute for 3-5 minutes.
 - b. Perform **Pressure Relief Procedure**, page 7.
 - c. Drain flushing fluid then refill with clean flushing fluid.
 - d. Circulate flushing fluid at 60-90 cycles per minute for a 3-5 minutes.
 - e. Perform **Pressure Relief Procedure**, page 7.
 - f. Drain flushing fluid.
6. *If not pumping mortar:*
 - a. Use the lowest possible fluid pressure during flushing.
 - b. *When flushing is complete*, perform **Pressure Relief Procedure**, page 7.

Maintenance

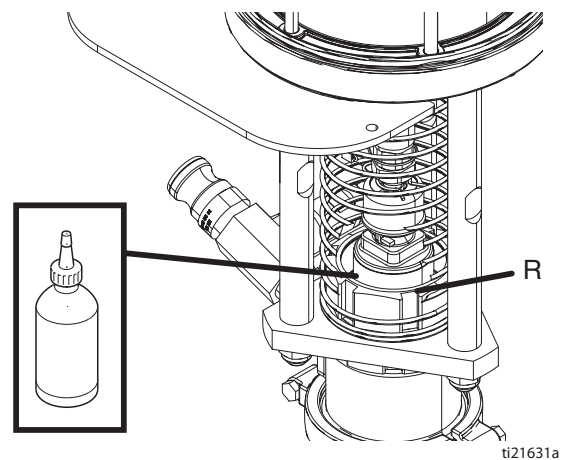
Lubrication



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






The accessory air line lubricator provides automatic air motor lubrication. For daily, manual lubrication, relieve the pressure, disconnect the regulator, place about 15 drops of light machine oil in the pump air inlet, reconnect the regulator, and turn on the air supply to blow oil into the motor.

Verify pump lower packing nut is 1/2 full with Throat Seal Liquid (TSL).





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Troubleshooting

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

1. Relieve the pressure.
2. Check all possible problems and solutions before disassembling pump.

						
<p>Never operate the pump with the air motor spring guard removed. Moving parts can pinch or amputate your fingers or other body parts.</p>						

PROBLEM	CAUSE	SOLUTION
Pump does not operate, or no fluid flow.	Restricted line or inadequate air supply.	Clear, increase.
	Exhausted fluid supply.	Refill and prime.
	Clogged fluid hoses.	Clean, or replace.
	Damaged air motor.	Repair.
	Loose or broken pump parts.	Disassemble, check, repair.
Pump operates, but output is low.	Insufficient air supply.	Increase. See M680 Pump Performance Chart on page 15 for required air pressure and flow for desired pump output.
	Exhausted fluid supply.	Refill and prime.
	Obstructed applicator or dispensing valve.	Clear.
	Packing retainer needs adjustment.	Loosen or tighten screws as necessary.
	Damaged fluid pump packings.	Replace.
	Held open or worn piston intake valve.	Repair.
Erratic or accelerated operation.	Exhausted fluid supply.	Refill and prime.
	Fluid intake or piston valve worn.	Repair.

Repair

NOTICE

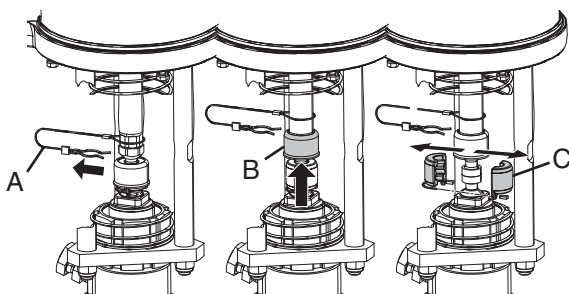
To prevent dropping the system and damaging it, use at least two people when lifting, moving, or disconnecting the pump. If disconnecting the lower, be sure to securely brace the pump, or have two people hold it while another disconnects it.

Disconnect the Lower



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

1. Flush the pump. Perform **Flushing**, page 8.
2. Perform **Pressure Relief Procedure**, page 7.
3. With fluid pressure relieved, remove fluid inlet and outlet connections from pump lower.
4. Disconnect pump rod (see FIG. 2):
 - a. Push piston rod protective spring up and away from coupling assembly.
 - b. Remove clip (A), and slide coupling cover (B) up to remove coupling (C).



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FIG. 2

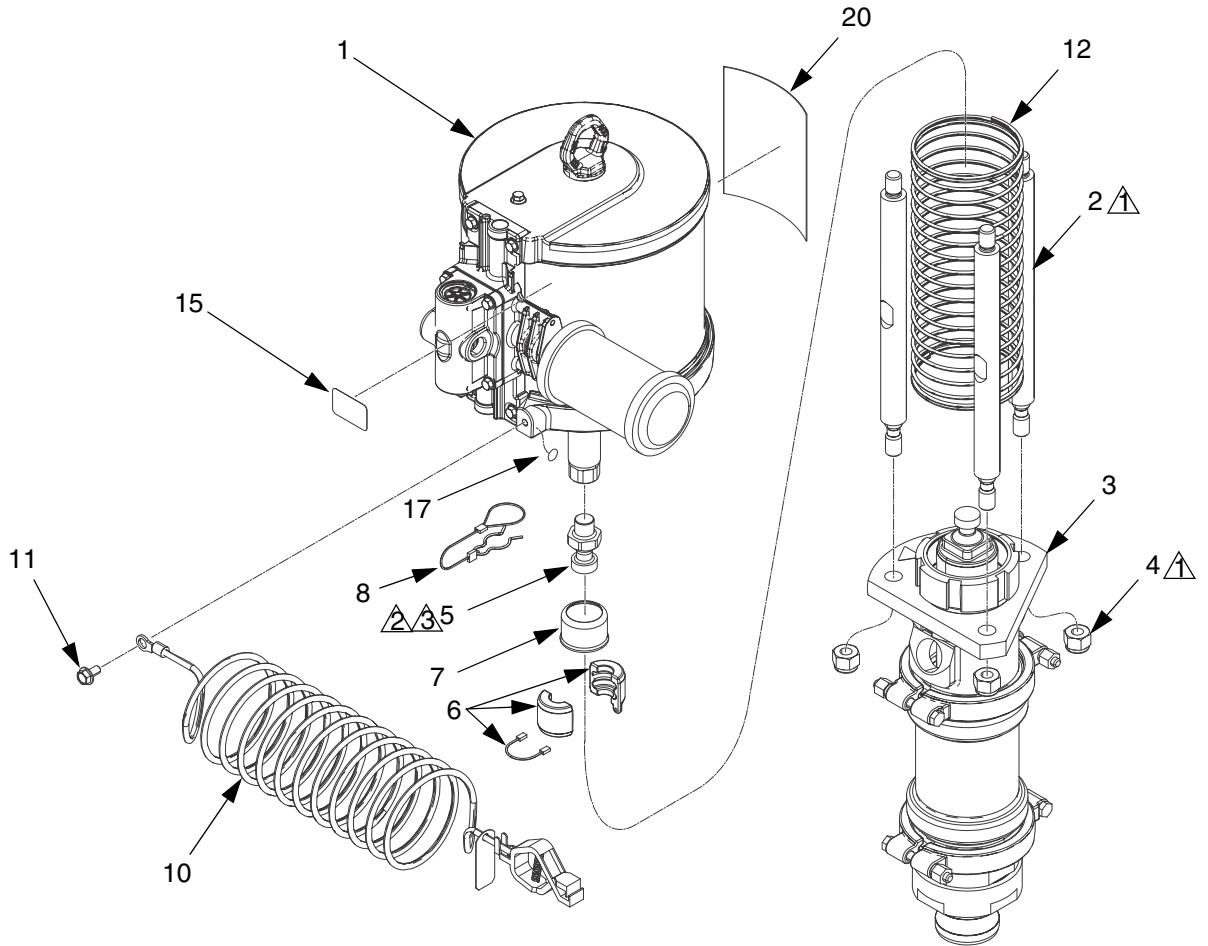
5. Hold the tie rod flats with a wrench to keep the rods (2) from turning. Unscrew the nuts (4). Remove the lower (3). See **Parts** on page 11.

6. To service the lower, refer to lower manual 332649, supplied. To service the air motor, refer to air motor manual 312796, supplied.

Reconnect the Lower

1. Make sure the spring guard is in place over the air motor shaft.
2. Use at least two people to hold the lower while another reconnects it to the motor. Place the lower (2) on the tie rods (6) then screw the nuts (4) onto the tie rods (2). Torque to 50-60 ft-lb.
3. Install coupling (C), slide coupling cover (B) over coupling, then install clip (A) to secure pump rod to air motor rod.
4. Reconnect all hoses.
5. Reconnect the ground wire if it was disconnected.
6. Fill the wet-cup 1/2 full of Graco Throat Seal Liquid (TSL).
7. Turn on the air power supply. Run the pump slowly to ensure that it operates properly.

Parts



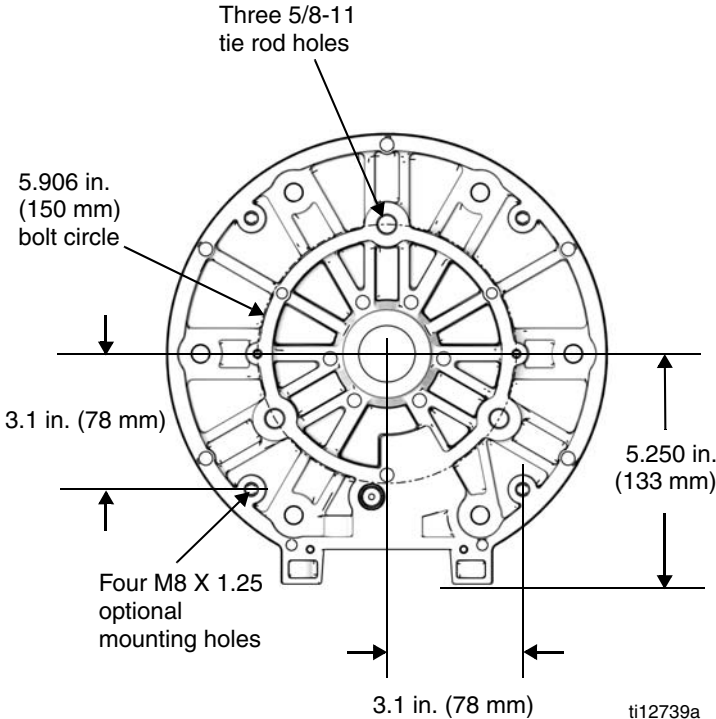
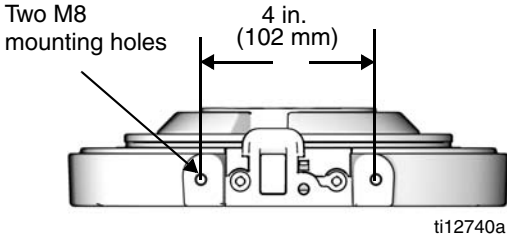
- Torque together to 50-60 ft-lb.
- Torque together to 145-155 ft-lb.
- Apply medium strength thread locker.

Ref	Part	Description	Qty
1	M34LN0	MOTOR, air	1
2	16U817	ROD, tie	3
3	24R253	LOWER, pump	1
4	101712	NUT, lock	3
5	15H392	ROD, adapter	1
6	244819	COUPLING ASSEMBLY	1
7	197340	COVER, coupler	1
8	244820	CLIP, hairpin (with lanyard)	1
10	262908	WIRE, ground, with clamp	1
11	111799	SCREW, cap, hex head	1
12	16V671	GUARD, spring	1
15	---	LABEL, identification	1
17▲	186620	LABEL, symbol, ground	1
20	---	LABEL, branding	1

--- Not for sale.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

Pump Mounting Hole Diagram



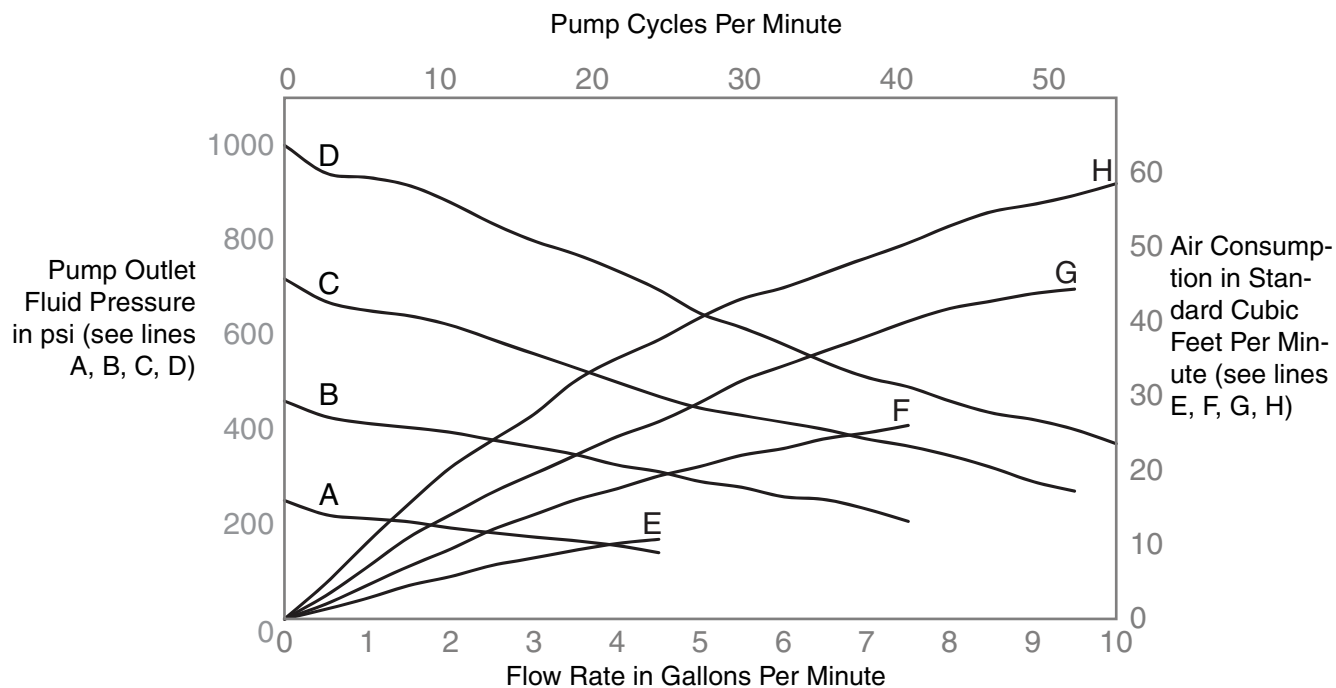
Technical Data

M680 Pump		
	US	Metric
Maximum fluid working pressure	1000 psi	7 MPa, 70 bar
Maximum Air Inlet Pressure	100 psi	0.7 MPa, 7 bar
Pressure Ratio (Fluid to Air)	10:1	
Air Motor Piston Diameter	7.5 in.	191 mm
Stroke Length	4.75 in.	120 mm
Flow Rate at 30 cycles per minute	5.44 gpm	20.6 lpm
Flow Rate at 60 cycles per minute	10.88 gpm	41.2 lpm
Fluid Inlet Size	1 in. Male Cam Groove	
Fluid Outlet Size	1 npt(f) with a 1 in. Cam and Groove Fitting	
Wetted Parts	Stainless steel, chrome-plated stainless steel, hardened stainless steel balls, carbide ball seats, UHMWPE, PTFE o-rings, solvent-resistant elastomer o-rings	
Maximum Pump Speed (Do not exceed maximum recommended pump speed of fluid pump to prevent premature pump wear)		
Spraying	40 cycles per minute (typically less than 10 cycles per minute)	
Flushing	60-90 cycles per minute (only when pumping flushing fluid)	
Weight		
All models	23 lb.	10 kg

See air motor manual 311238 for sound pressure levels.

M680 Pump Performance Chart

NOTE: Tested using 30-weight oil.



Key:

- A Fluid Pressure at 20 psi Air (at given flow rate/pump cycle rate)
- B Fluid Pressure at 40 psi Air
- C Fluid Pressure at 70 psi Air
- D Fluid Pressure at 100 psi Air
- E Air Consumption at 20 psi Air (at given flow rate/pump cycle rate)
- F Air Consumption at 40 psi Air
- G Air Consumption at 70 psi Air
- H Air Consumption at 100 psi Air

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.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

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

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

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

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Graco reserves the right to make changes at any time without notice.*

For patent information, see www.graco.com/patents.

Original instructions. This manual contains English. MM 332650

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