Operation

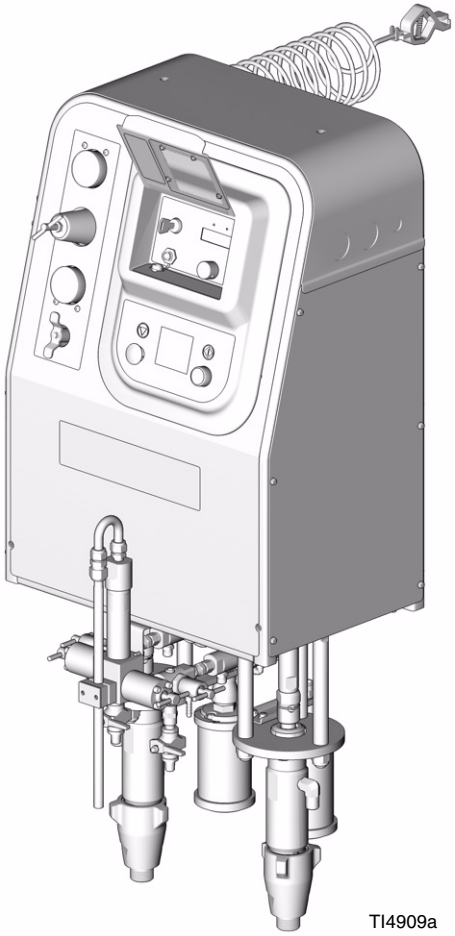
ProMix™ Easy

309908 rev.D

Plural Component Proportioner

Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

See page 3 for model information, including maximum working pressure and approvals.



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PROVEN QUALITY. LEADING TECHNOLOGY.

Graco Inc. P.O. Box 1441 Minneapolis, MN 55440-1441

Contents

Manual Conventions

WARNING

WARNING: a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION
CAUTION: a potentially hazardous situation which, if not avoided, may result in property damage or destruction of equipment.

Note:

Additional helpful information.

Warnings in the instruction sections (such as “Installation”) generally include a symbol indicating the hazard. Follow the instructions and read the hazard section on the general warning pages 5-6 for additional information.

Example:

WARNING

Your system must be grounded. Read warnings, page 5 and follow instructions below.

ProMix Easy Models

WARNING


Do not install equipment approved only for non-hazardous location in a hazardous area. Substitution of components may impair intrinsic safety and cause personal injury. Read page 5.

Approved for Hazardous Location Class I, Div 1, Group D (North America); Class I, Zones 1 and 2 (Europe)				
ProMix Easy Part No.	**Series**	**Description**	**Maximum Working Pressure psi (MPa, bar)**	**Approvals**
234596	A	Cart mount, UltraMix™ cst* Pumps, hose and gun	250 (1.7, 17)	FM APPROVED Conforms to FM std 3600 & 3610 for use in Class I Div 1 Group D T3 Hazardous Locations Ex II 2 G ISSeP 04 ATEX 020X EEx ia p IIA T3 CE CSA CAN/CSA 22.2 No. 157-92 & No. 1010.1-92
234597	A	Wall mount, UltraMix cst* Pump/G3000 Meter	250 (1.7, 17)	
234598	A	Wall mount, UltraMix sst** Pump/G3000 Meter	250 (1.7, 17)	
234599	A	Wall mount, UltraMix cst* Pumps	250 (1.7, 17)	
234601	A	Wall mount, UltraMix sst** Pumps	250 (1.7, 17)	
234602	A	Wall mount, HydraMix™ 500 cst* Pump/G3000 Meter	2400 (16, 166)	
234603	A	Wall mount, HydraMix 500 sst** Pump/G3000 Meter	2400 (16, 166)	
234604	A	Wall mount, HydraMix 600 cst* Pump/G3000 Meter	3400 (23, 234)	
234605	A	Wall mount, HydraMix 600 sst** Pump/G3000 Meter	3400 (23, 234)	
234606	A	Wall mount, HydraMix 500 cst* Pumps	2400 (16, 166)	
234608	A	Wall mount, HydraMix 500 sst** Pumps	2400 (16, 166)	
234609	A	Wall mount, HydraMix 600 cst* Pumps	3400 (23, 234)	
234611	A	Wall mount, HydraMix 600 sst** Pumps	3400 (23, 234)	
234612	A	Wall mount, HydraMix 700 cst* Pumps	4700 (32, 324)	
234613	A	Wall mount, HydraMix 700 sst** Pumps	4700 (32, 324)	
234618	A	Wall mount, G3000 Meter, cst* mix manifold	4000 (28, 280)	
234619	A	Wall mount, G3000 Meter, sst** mix manifold	4000 (28, 280)	
Approved for Non-hazardous Location				
234600	A	Wall mount, UltraMix cst* Pumps	250 (1.7, 17)	US ETL C Conforms to UL std 61010A-1 CSA std C22.2 No. 1010.1-92 CE
234825	A	Wall mount, UltraMix sst** Pumps	250 (1.7, 17)	
234607	A	Wall mount, HydraMix 500 cst* Pumps	2400 (16, 166)	
234826	A	Wall mount, HydraMix 500 sst** Pumps	2400 (16, 166)	
234610	A	Wall mount, HydraMix 600 cst* Pumps	3400 (23, 234)	
234827	A	Wall mount, HydraMix 600 sst** Pumps	3400 (23, 234)	

* cst=carbon steel.

** sst=stainless steel.

Related Manuals

Component Manuals in English

Manual	Description
309908	ProMix Easy Operation
309909	ProMix Easy Repair-Parts
310654	Fluid Mix Manifold
310655	Dispense Valve
310662	UltraMix and HydraMix Displacement Pumps
310671	UltraMix Pumps
310672	HydraMix Pumps
310673	Circulation Kits
310674	Stand and Caster Kits
310675	AC Power Supply
310676	Remote Manifold Kit
310677	Heater Installation Kit
310678	TSL Pump Kits
310700	Gun Air Regulator Kits
309192	ISO Supply Kit
309623	Data Download Kits
308778	G3000 Flowmeter
308034	Turbine Alternator Repair Kit

This manual available in the following languages:

Manual	Language
309908	English
310679	French
310681	Spanish
310683	German
310685	Italian
310687	Chinese
310689	Japanese
310768	Dutch
310770	Finnish
310772	Swedish

Warnings

The following general warnings are related to the safe setup, use grounding, maintenance, and repair of this equipment. Additional more specific warnings may be found throughout the text of this manual where applicable.

⚠ Warning

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. To help prevent fire and explosion:

- 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 lights on or off when flammable fumes are present.
- Ground equipment and conductive objects in work area. See **Setup** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a fire extinguisher in the work area.

INJECTION HAZARD

High-pressure fluid from gun, 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.**

- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers and other body parts.

- 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** in this manual. Disconnect power or air supply.

⚠ Warning

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- 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.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not alter or modify equipment.
- For professional use only.
- Use equipment only for its intended purpose. Call your Graco distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or overbend hoses or use hoses to pull equipment.
- Comply with all applicable safety regulations.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDS's 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.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

Overview

Usage

The ProMix Easy can mix most two-component paints. It is not for use with “quick-setting” paints (those with a pot life of less than 5 minutes) without modification. Contact your distributor for information.

The ProMix Easy is operated with the User Interface, Air Controls and Fluid Controls, described below and on page 10. Refer to FIG. 1 and FIG. 3.

User Interface

The User Interface has 6 main interfaces.

1. **Function Knob** to select desired function:

Icon	Function
	Spray: proportion and spray material.
A	*Run A:* operate A independent of B (priming, flushing) for 12 cycles (500 cc with meter).
B	*Run B:* operate B independent of A (priming, flushing) for 12 cycles (500 cc with meter).
	Batch Dispense: dispense proportioned amounts of A and B (1 pint/500 cc).
	Pump Test: dispense predetermined amount of A and B to verify pump operation.
	Recirculation: circulate fluid A and/or B up to the mix manifold.
	Pot Life Timer: display potlife time left.
P	Pressure Relief/Park: allows pressure relief and runs pumps to the bottom of stroke. See page 14.

- System totalizers count in Spray and Batch Dispense functions only.
- A and B Indicators (LT) show which dispense valve(s) is open.

2. **Start button**  to initiate functions.

3. **Stop button**  to terminate functions.

4. **Key switch** to change ratio, pot life time, pot life volume, or calibration data.

5. **Display** (five digits) to view:
   - Software revision level at startup
   - Ratio
   - Pot life time and reset volume
   - Alarm codes
   - Sensor calibration factor.

6. **Data port** allows for connection to a PC serial port to download volume totalizer, operation, ratio setting, and error alarm data.

WARNING

To avoid impairing intrinsic safety and reduce the risk of fire and explosion, the PC must be in a non-hazardous location and a safety barrier must be installed between the PC and ProMix Easy unit. See ProMix Easy data download kit manual 309623.

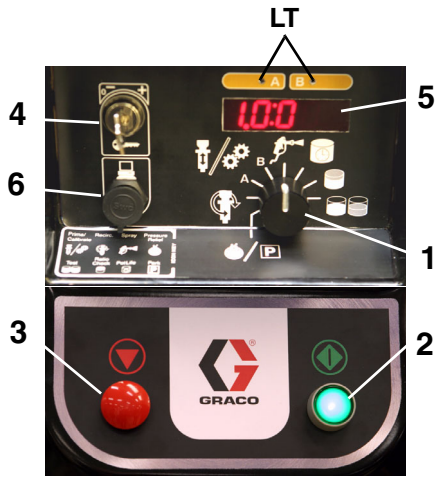


FIG. 1. User Interface

You must recalibrate the circuit board whenever the main circuit board, software, or sensor is replaced, or when Alarm 8 occurs. See **Recalibrate Pump-based System**, page 29.

Installation

The Typical Installation shown in FIG. 3 is not an actual system design. Contact your Graco distributor for assistance in designing your system. Be sure all accessories are adequately sized and pressure-rated to meet system requirements.

Reference numbers and letters in the text refer to numbers and letters in the figures.

Icons in the text refer to icons on the User Interface.

When the unit is first started up or has been shutdown for longer than 2 months, you must turn it on for 8 hours to recharge battery. Reset the date and time with the Setup program, which is available with the data download kit.

The unit should be run continuously for 8 hours or more at least once per month to maintain proper charge. If the battery is not recharged on a regular schedule, the date information may be reset. If the date is reset the date information will be incorrect in the data log.

Mounting

The ProMix Easy may be stand-mounted, cart-mounted, or wall mounted. Stand and Caster Kits are available to convert a wall-mount unit. Contact your Graco distributor.

1. Ensure that the wall and mounting hardware are strong enough to support the weight of the equipment, fluid, hoses, and stress caused during operation.
2. Using the equipment as a template, mark the mounting holes on the wall at a convenient height for the operator and so equipment is easily accessible for maintenance. Ensure that the equipment is level. See **Wall Mounting Diagram**, page 39.
3. Drill mounting holes in the wall. Install anchors as needed.
4. Bolt equipment securely to the wall.

Power Connection (non-IS units only)

ProMix Easy non-IS units operate with 93-250 Vac, 50/60 Hz input power, with a maximum 1.2 amp current draw. The power supply circuit must be protected with a 15 amp maximum circuit breaker. A switch or circuit breaker must be must be installed close to the ProMix Easy, within reach of the operator. The switch or circuit breaker must be marked as the disconnecting device for the ProMix Easy.

Non-intrinsically safe units must be hardwired or supplied with a power cord (not included). Power cord must be compatible to your local power configuration. Wire gauge size must be 14 AWG. Connect the power cord wires (L1, L2, GND) to the terminal block (Y) in the pneumatic control box, see FIG. 2.

WARNING

Installing this equipment requires access to parts which may cause electric shock or other serious injury if work is not performed properly. Have a qualified electrician connect power and ground to main power switch terminals. Read warnings, page 5. Be sure your installation complies with all National, State, and Local safety and fire codes.

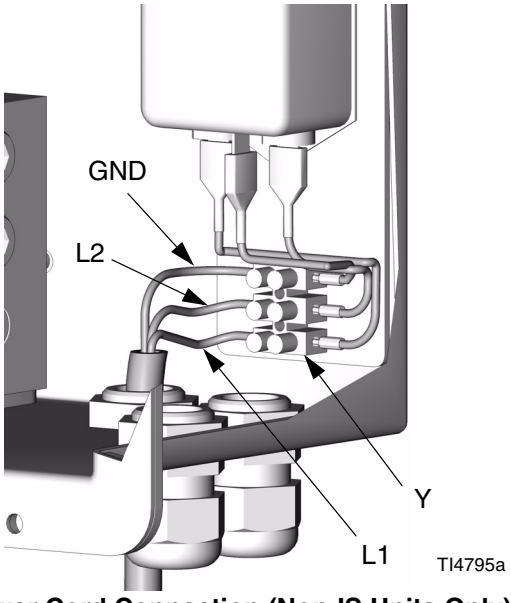


FIG. 2. Power Cord Connection (Non-IS Units Only)

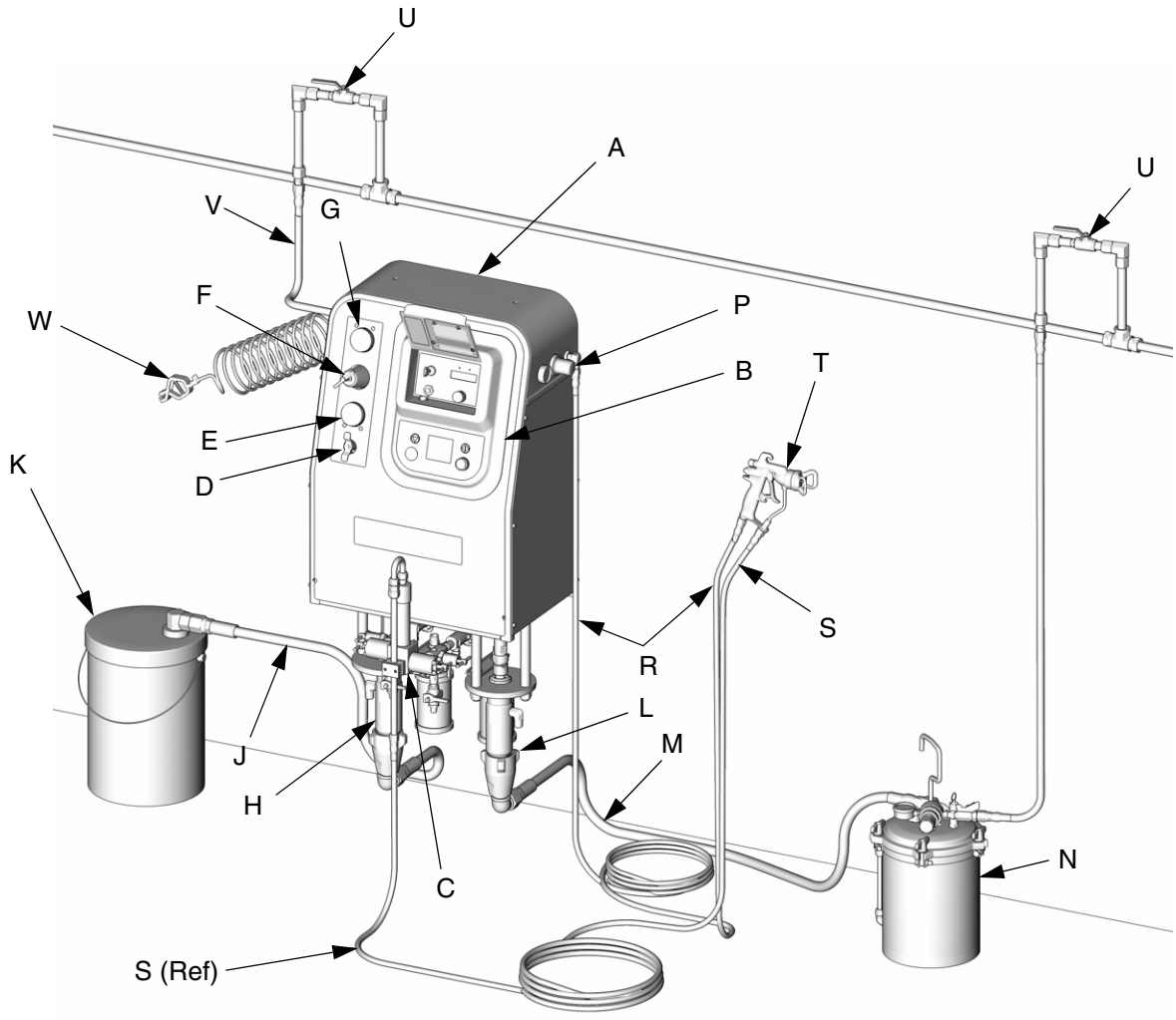


FIG. 3. Typical Installation (Wall Mount, Air-Assisted Unit Shown)

Key for FIG. 3

A ProMix Easy Plural Component Proportioner
B User Interface (see page 7)
C Mix Manifold
D Bleed-Type Main Air Shutoff Valve
E Air Supply Pressure Gauge
F Pump Air Regulator (pump-based units only)
G Pump Air Pressure Gauge (pump-based units only)
H Component A Pump
J Component A Fluid Supply Line
K Component A Fluid Supply (5 gal. pail shown)
L Component B Pump
M Component B Fluid Supply Line
N Component B Fluid Supply (pressure pot shown)
P Gun Air Pressure Regulator (accessory)
R Gun Air Supply Line
S Gun Fluid Supply Line
T Air-Assisted Spray Gun
U Air Line Shutoff Valve
V Proportioner Air Supply LIne
W Ground Wire

Air Controls

See FIG. 3.

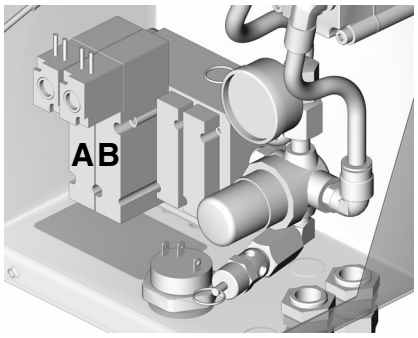
- **Bleed-type main air shutoff valve (D),** to shutoff all air to ProMix Easy (including controller power).
- **Supply air pressure gauge (E),** to monitor air pressure to ProMix Easy.

A minimum air pressure supply of 70 psi (483 kPa, 4.8 bar) must be maintained for the ProMix Easy to operate properly.

- **Pump air pressure regulator (F) with gauge (G),** to adjust and monitor pump air pressure (not present on meter-based systems).
- **Gun air regulator (P) and gauge,** available separately to adjust and monitor gun air pressure.

Solenoid Module

There are two solenoids inside the pneumatic control box, one to actuate dispense valve A, one to actuate dispense valve B.



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Fluid Controls

The ProMix Easy mix manifold includes the following fluid controls. See manual 310654 for complete information about the mix manifold. See FIG. 6.

- **Dispense valves (F^A, F^B)** dispense component A and component B. Solenoids A and B turn the dispense valves ON and OFF.
- **Shutoff valves (G^A, G^B)** shutoff fluid A or B from entering the fluid manifold.
- **Sampling valves (H^A, H^B),** to batch dispense or test pumps/meters.
- **Solvent purge valves (J^A, J^B)** allow solvent to enter the fluid manifold.

Component A Dispense

Solenoid A opens dispense valve A. The correct dose of component A flows into the integrator (Z). Solenoid A closes dispense valve A. See FIG. 4.

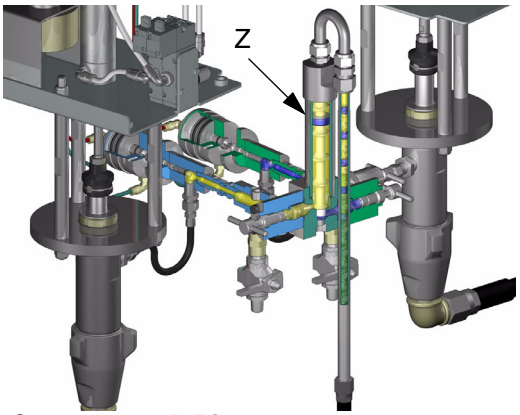


FIG. 4. Component A Dispense

Component B Dispense

Solenoid B opens dispense valve B. The correct dose of component B flows into the integrator (Z) and is aligned proportionately with component A. Solenoid B closes dispense valve B. The components are pre-mixed in the integrator, then uniformly blended in the static mixer tube (ST). See FIG. 5.

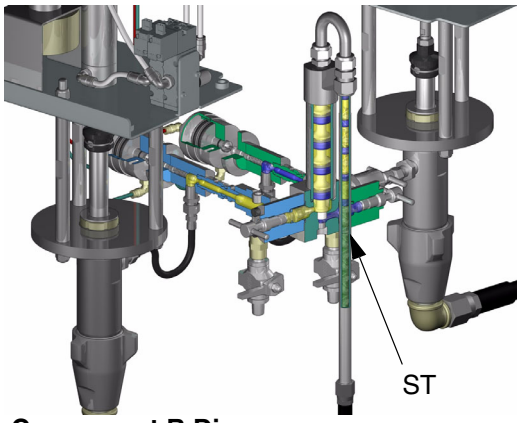


FIG. 5. Component B Dispense

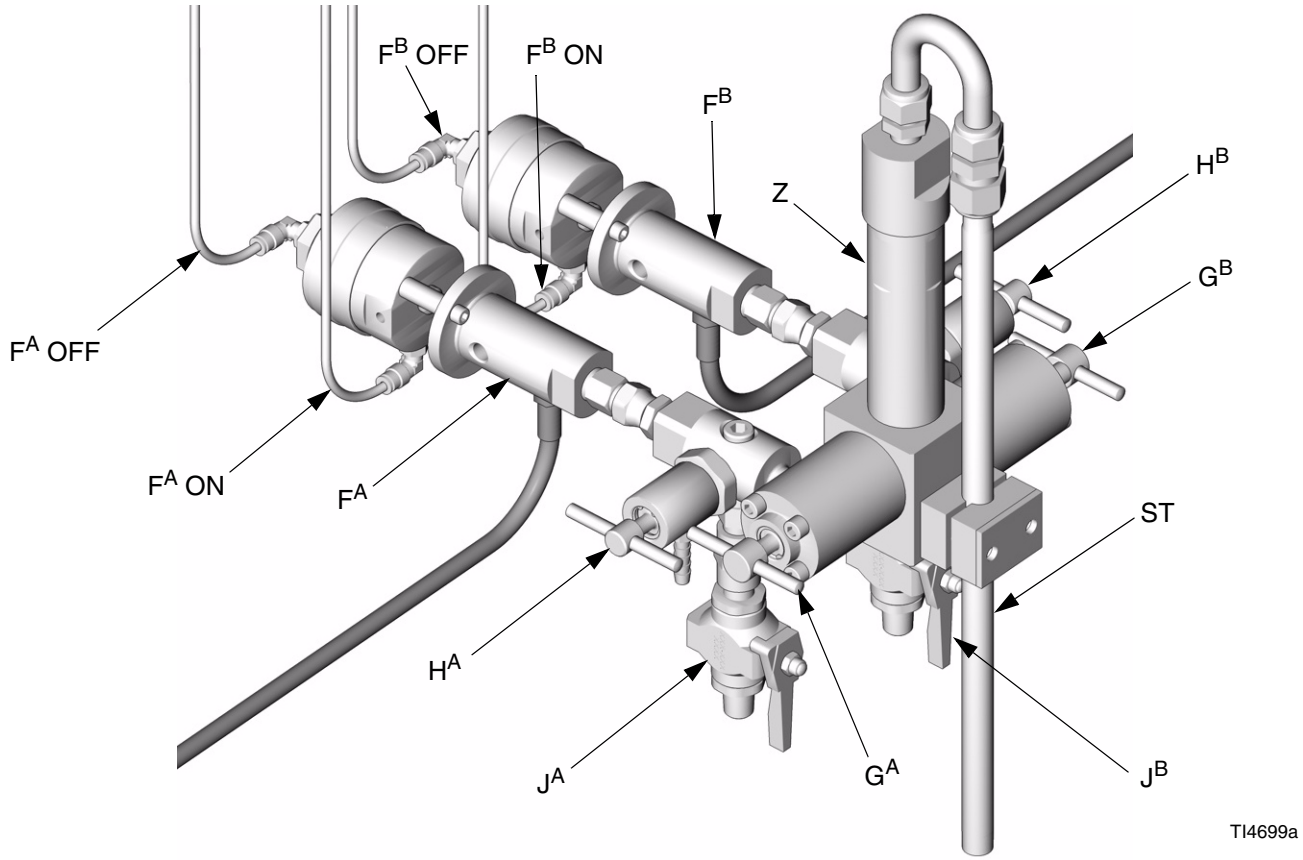


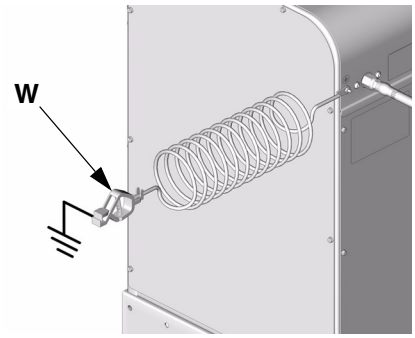
FIG. 6. Fluid Mix Manifold

Setup

WARNING

Do not install equipment approved only for non-hazardous location in a hazardous area. Substitution of components may impair intrinsic safety and cause personal injury. Read warnings, page 5. Ground equipment as instructed below.

1. Connect ProMix Easy ground wire (W) to a true earth ground.



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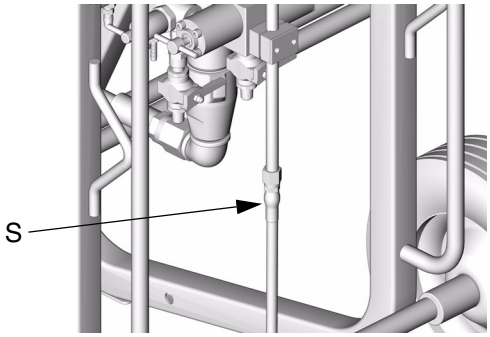
Non-intrinsically safe units must be hardwired or supplied with a power cord (not included). See page 8.

2. Connect the fluid hose (S) to the fluid manifold outlet. Do not install gun spray tip yet.



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3. Tighten all fittings on unit.

4. *Pump-based models only:* Fill pumps A and B packing nuts with throat seal liquid (TSL).

5. Connect air supply line (V) to air inlet.

Air supply requirement: 110 psi (0.8 MPa, 8 bar) maximum, 70 psi (483 kPa, 4.8 bar) minimum.

Flow volume required: 20 scfm minimum; 125 scfm maximum.

6. *Pump-based models only:* Set air regulator to 0.

7. Open main air shutoff valve. When starting up, display will show “88888”, then software revision, then current ratio (if set to or).

8. Setup ratio.

a. Turn function knob to .

b. Current ratio displays.

c. To change ratio, turn key to + or – until desired ratio is displayed, then turn key back to neutral.

9. Flush and prime system. See pages 16 and 20. Run **Pump Test**, page 22 to check ratio accuracy.

Pressure Relief Procedure

WARNING

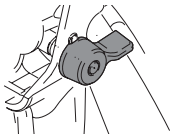
Relieve pressure from fluid manifold to gun whenever you stop spraying and before servicing gun or removing spray tip.

In addition, relieve pressure from pump to fluid manifold at end of day and before cleaning, checking, or servicing pump, manifold, or fluid line accessories or transporting equipment.

Read warnings, page 5.

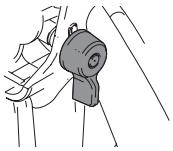
Fluid Manifold to Gun

1. Engage trigger lock.

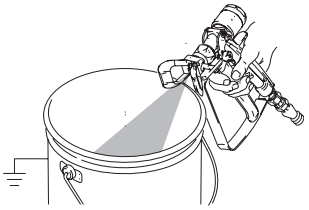


2. Press  .

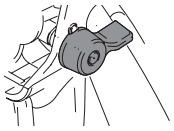
3. Disengage trigger lock.



4. Hold a metal part of the gun firmly to a grounded metal pail. Trigger gun to relieve pressure.

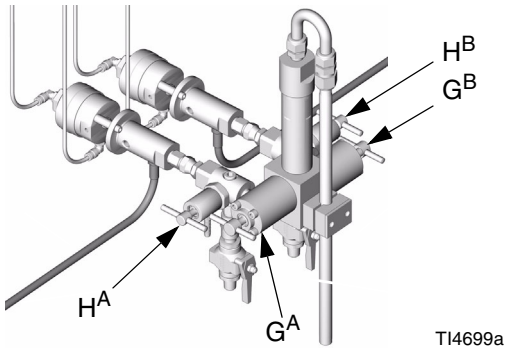


5. Engage trigger lock.



Pump to Fluid Manifold

1. Close shutoff valves G^A and G^B.
2. Place waste container under sampling valves H^A and H^B.

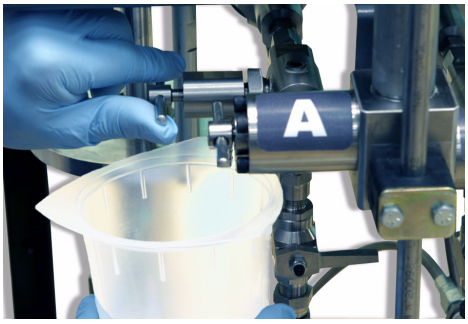


3. Turn function knob to pressure relief/park  .

4. Press  . Indicator A comes on, and Pump A pressurizes.

5. Open sampling valve A slowly to bleed off pressure. Indicator A will stay on for 5 sec after Pump A reaches Park position, then go off.

Pump air supply pressure must be sufficient to cause pumps to stroke to bottom-most position when function knob to is set to pressure relief/park  .



6. Indicator B comes on and Pump B pressurizes.
7. Open sampling valve B slowly to bleed off pressure. Indicator B will stay on for 5 sec after Pump B reaches Park position, then go off.

If both pumps are not parked after 1 min, Alarm 26 will sound.

8. Close sampling valves A and B before restarting system.

Flushing

There are times when you only want to flush the fluid manifold, such as:
- breaks in spraying
- overnight shutdown
- end of potlife

In this manual, that procedure is referred to as **Fluid Manifold Flushing**. You can flush the fluid manifold by connecting a solvent pump to the fluid manifold.

Other times, you need to flush the entire system:
- first time material is loaded into equipment*
- color change
- servicing
- shutting down equipment for more than 3-1/2 hours (depends on material)
- putting equipment into storage

* Some **Full System Flushing** steps are not necessary for initial flushing, as no material has been loaded into the system yet.

To flush the entire system, you first follow the **Fluid Manifold Flushing** procedure, at right, then the **Full System Flushing** procedure, page 18.

WARNING

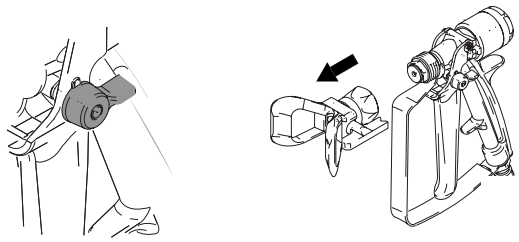
Read warnings, page 5.

- Use the lowest possible pressure when flushing to avoid splashing.
- Before color change or shutdown for storage, flush at a higher flow rate and for a longer time.
- A circulation setting is available. Consult your distributor. Refer to page 27.

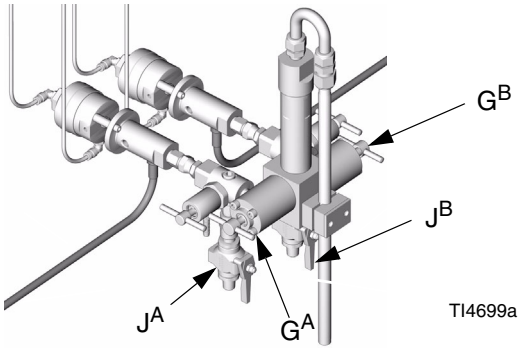
Fluid Manifold Flushing

Using Solvent Pump

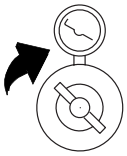
1. Follow **Pressure Relief Procedure**, page 14. Engage trigger lock. Remove spray tip.



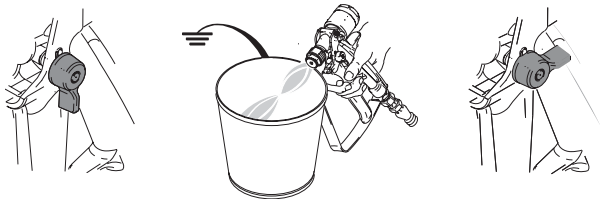
2. Ensure that shutoff valves G^A and G^B are open. Connect solvent pump line to solvent purge valve J^A and J^B. Turn on solvent pump and open solvent purge valve J^A.



3. Adjust solvent pump regulator to desired pressure; use lowest pressure possible.

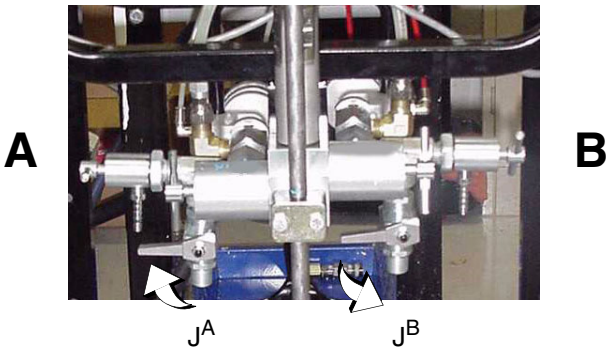


4. Disengage trigger lock and trigger gun into a grounded pail. Flush out about 1 pint (500 cc) of mixed material. Engage trigger lock.

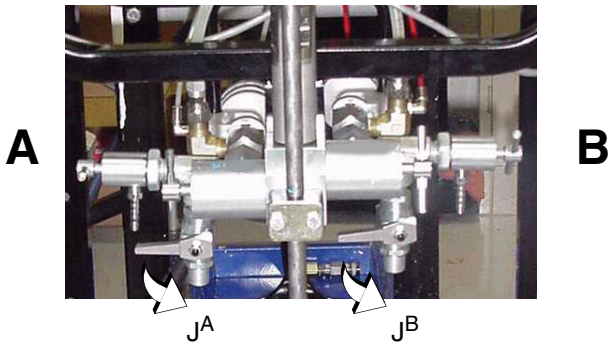


5. Close solvent purge valve J^A.

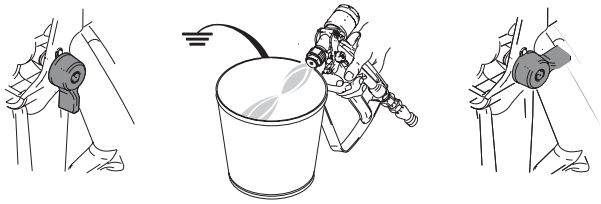
6. Open solvent purge valve J^B. Flush out about 1 pint (500 cc) of mixed material. Engage trigger lock.



7. Re-open solvent purge valve J^A.



8. Disengage trigger lock, and flush through gun until clean solvent flows. Engage trigger lock.

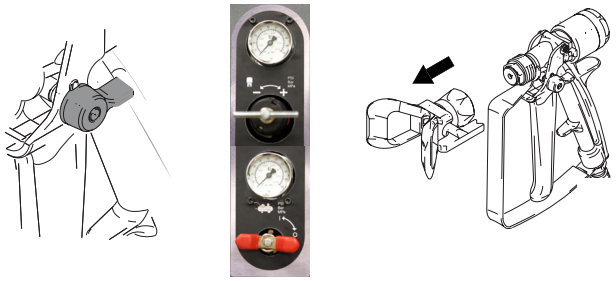


9. Close solvent purge valves J^A and J^B.

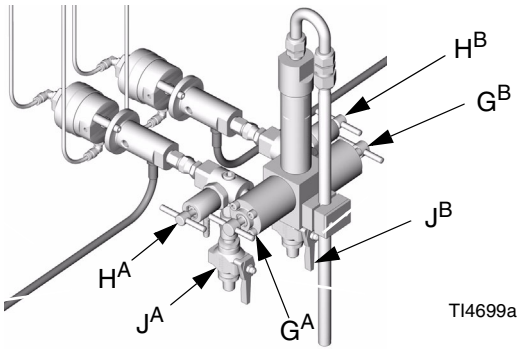
10. Trigger gun to relieve solvent pressure. Engage trigger lock.

Full System Flushing

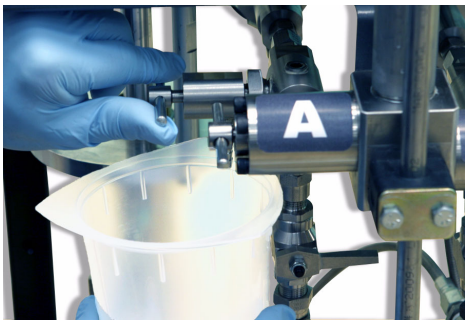
1. Follow **Pressure Relief Procedure**, page 14. Engage trigger lock. Set air regulator to 0, and close main air shutoff valve. Remove spray tip and soak in solvent.



2. Replace component A and B supply with solvent.
3. Set air regulator to 50 psi (345 kPa, 3.4 bar).
4. Turn function knob to A  . Press  .
5. Ensure shutoff valve G^A is open. Open sampling valve H^A slowly. Pump A will run for 12 cycles, then stop. Restart as needed. When clean solvent flows from sampling valve H^A, close valve.



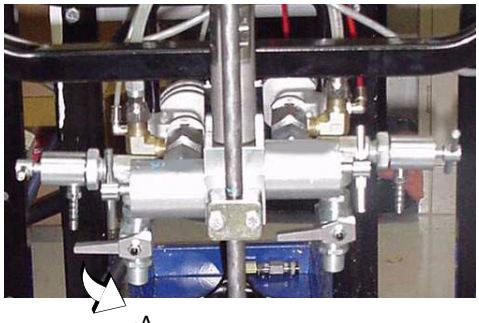
H^A



6. Trigger gun into grounded pail. Dispense about 1 pint (500 cc) of material, then press  .

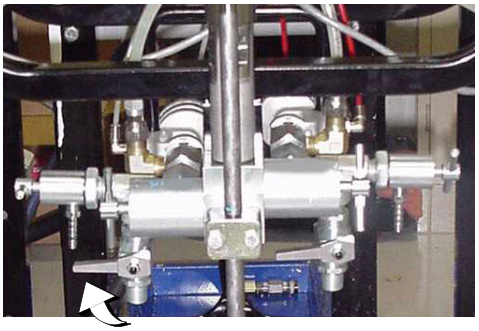
If the pump does not start when you trigger the gun, increase the air pressure by 10 psi (69 kPa, 0.7 bar) increments; to avoid splashing, do not exceed 70 psi (483 kPa, 4.8 bar). If the pump still does not start, the solvent may have caused your packings to swell and it is recommended you use Tuff Stack™ Packing Kit.

7. Open solvent purge valve J^A. Turn on solvent pump.

A  B

J^A

8. Trigger gun into a grounded pail. Dispense about 1 quart (1000 cc) of material.
9. Close solvent purge valve J^A.

A  B

J^A

10. Turn function knob to B  . Press  .

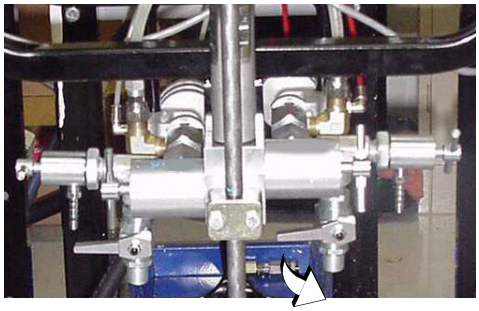
11. Ensure shutoff valve G^B is open. Open sampling valve H^B slowly. Pump B will run for 12 cycles, then stop. Restart as needed. When clean solvent flows from sampling valve H^B, close valve.

H^B

12. Trigger gun into grounded pail. Dispense about 1 pint (500 cc) of material, then press  .

If the pump does not start when you trigger the gun, increase the air pressure by 10 psi (69 kPa, 0.7 bar) increments; to avoid splashing, do not exceed 70 psi (483 kPa, 4.8 bar). If the pump still does not start, the solvent may have caused your packings to swell and it is recommended you use Tuff Stack™ Packing Kit.

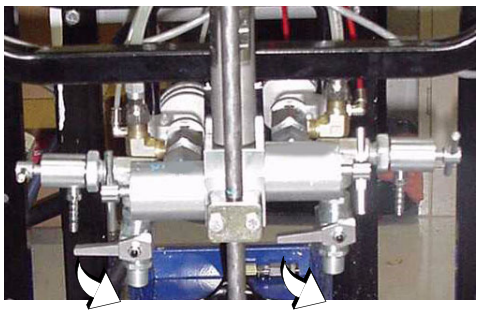
13. Open solvent purge valve J^B. Turn on solvent pump.

A  B

J^B

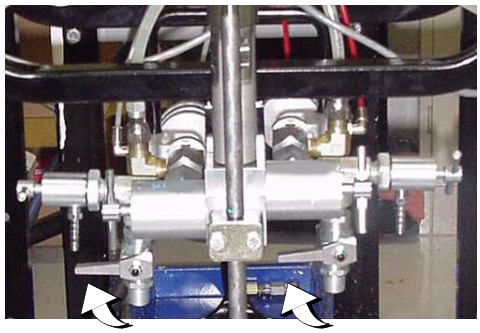
14. Trigger gun into a grounded pail. Dispense about 1 quart (1000 cc) of material.

15. Open solvent purge valve J^A. Trigger gun into grounded pail and flush until clean solvent flows from gun.

A  B

J^A J^B

16. Close solvent purge valves J^A and J^B.

A  B

J^A J^B

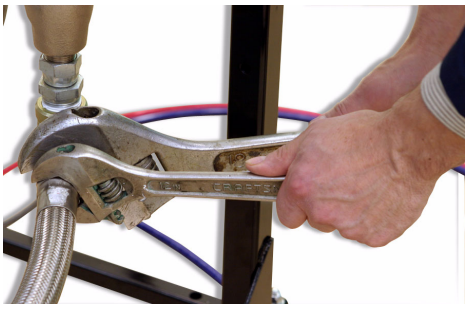
17. Follow **Pressure Relief Procedure**, page 14, and remove gun from hose. See gun manual to further clean gun.

Some materials require additional cleaning. You may need to circulate solvent through the system.

Priming

Do not install the gun spray tip yet. Use the lowest possible pressure while priming, to avoid splashing.

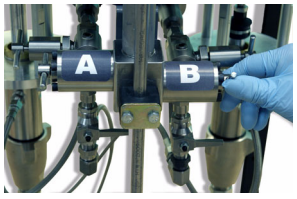
1. Connect A and B fluid supply hoses to A and B pumps/meters.



2. *Pump-based models only:* Set air regulator to 0.

3. Close fluid shutoff valves G^A and G^B.

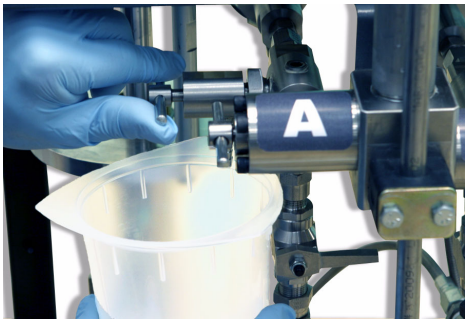
G^A



G^B

4. Place a container under each sampling valve. Open sampling valve H^A slowly.

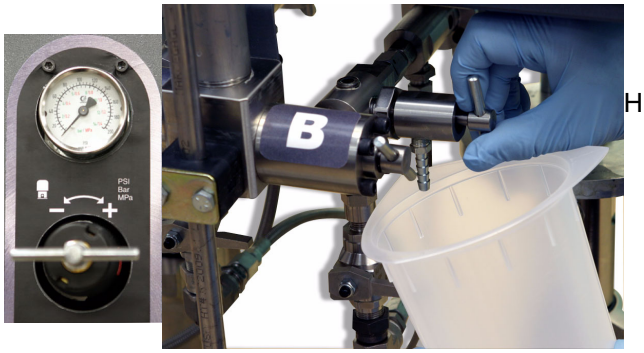
H^A



5. Turn function knob to A  . Press  . *On pump-based models only,* turn up air regulator slowly until pump A starts.

When run independently (set to A or B), the pump runs for 12 cycles, then stops. Press  and  as needed to prime. Monitor containers to avoid overflowing.

6. When side A is primed, set air regulator to 0. Press  . Close sampling valve H^A. Open sampling valve H^B slowly.



H^B

7. Turn function knob to B  . Press  . Turn up air regulator slowly until pump B starts.

8. When side B is primed, press  . Close sampling valve H^B.

9. Flush sampling valves H^A and H^B with solvent. Open solvent purge valves J^A and J^B. Turn on solvent pump. Open sampling valve H^A until clean solvent flows from valve. Close valve H^A and open valve H^B until clean solvent flows from valve. Close valve H^B.

Pump Test

Follow this procedure the first time system is operated (after flushing and priming) and whenever you need to check whether pumps are on ratio.

The following table shows the volume dispensed during the pump test, based on pump ratio. Dispense into a container with adequate graduations.

Pump/Meter	Volume Dispensed	
	Pump at 5 cycles	Meter
UltraMix	270 cc	---
HydraMix	460 cc	---
Meters	---	500 cc
UltraMix with meter	270 cc	243 cc*
HydraMix with meter	460 cc	408 cc*

* *Meter dispense volume may vary based on pump calibration. Specific meter volume for your machine will be displayed after meter dispense. Volume in beaker should match display.*

For accurate ratios, pump lowers must be same size on both sides.

1. Turn function knob to . Set air regulator to 0. Open main air shutoff valve. Adjust air pressure to 50 psi (0.35 MPa, 3.5 bar).

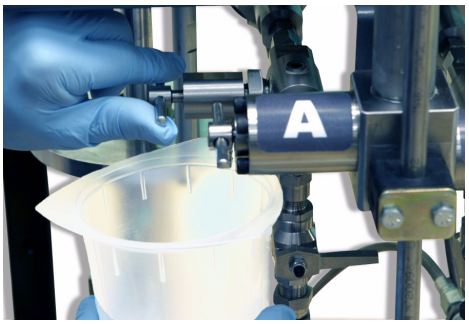
2. Dispense fluid A:

a. Close fluid shutoff valves (G^A and G^B) and sampling valves (H^A and H^B).

b. Place a clean 1 quart (1000 cc) container under sampling valve H^A.

c. Press . Indicator A comes on.

d. Slowly open and adjust sampling valve H^A to achieve desired flow. The pump stops automatically after 5 cycles. During the last cycle the pump will stop once on the upstroke and once on the downstroke to perform a pump stall test. Indicator A turns off, indicator B comes on.



3. Close sampling valve H^A.

4. Dispense fluid B as follows:

a. Place a clean 1 quart (1000 cc) container under sampling valve H^B.

b. Slowly open and adjust sampling valve H^B to achieve desired flow. The pump stops automatically after 5 cycles. Indicator B turns off.

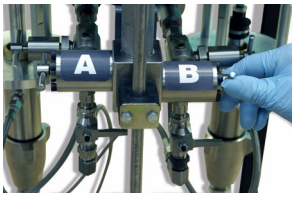
5. Close sampling valve H^B.

6. Compare fluid amounts in the containers; they should be about equal. Repeat test if fluids are not equal. If problem persists, see Troubleshooting in ProMix Easy Repair Manual.

If pump fails any of pump stall tests, alarm will display (see alarms 15-20, page 33).

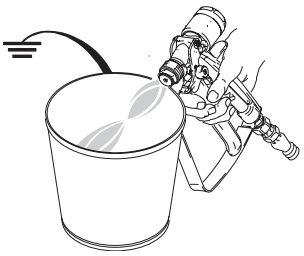
Spraying

1. Close sampling valves H^A and H^B. Open shutoff valves G^A and G^B.



2. Turn function knob to  . Press  .

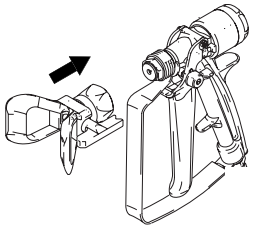
3. Trigger gun into a pail and slowly increase air regulator pressure until pump is running and consistently mixed material is dispensed.



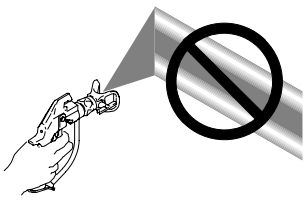
4. Engage trigger lock. Press  .

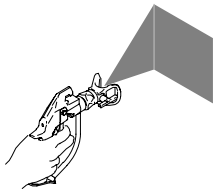
5. Follow **Pressure Relief Procedure**, page 14.

6. Engage trigger lock. Install tip on gun.



7. Adjust air regulator to the necessary spraying pressure. Press  to proportion and spray.





8. Follow **Fluid Manifold Flushing**, page 16, or **Shutdown**, page 28, when you are done spraying or before potlife expires.

Mixed material potlife or working time decreases with increased temperature.

Batch Dispense or Ratio Check

Batch dispense is always 1 pint (500 cc) of total volume, regardless of ratio setting.

Follow this procedure to dispense a batch (into one container) or verify a ratio setting (use separate container for fluid A and B). Dispense into a container with graduations no greater that 5% of each component.

1. Turn function knob to . Set air regulator to 0. Open main air shutoff valve. Adjust air pressure to 50 psi (0.35 MPa, 3.5 bar).

2. Dispense fluid A:

a. Close fluid shutoff valves G^A and G^B, and sampling valves H^A and H^B.

b. Place a clean 1 quart (1000 cc) container under sampling valve H^A.

c. Press . Indicator A comes on.

d. Slowly open and adjust sampling valve H^A to achieve desired flow. The pump stops automatically when dispense is complete. Indicator A turns off, indicator B comes on.

3. Close sampling valve H^A.

4. Dispense fluid B:

a. *Batch dispense:* move the 1 quart (1000 cc) container under sampling valve H^B.

Ratio check: place clean 1 quart (1000 cc) container under sampling valve H^B.

On higher ratio settings, use a smaller container for more accurate readings.

b. Slowly open and adjust sampling valve H^B to achieve desired flow. The pump stops automatically when dispense is complete. Indicator B turns off.

5. *Batch dispense:* stir material until mixed.

Ratio check: compare A and B fluid dispense.

6. To resume **Spraying**, see page 24.

Pot Life Timer

To Display Pot Life Time Left (in minutes)

Turn the function knob to .

How Pot Life Timer Works

Pot life timer starts to countdown at the start of Spray mode. Once the pot life timer is active, it will continue to time down, regardless of which mode the system is in.

When the timer reaches zero, the system closes all dispense valves and a pot life (code 21) alarm occurs (audible alarm sounds). Refer to page 32.

To Change Pot Life Time

Hold down . Turn the key to increase/decrease pot life time (minutes).

Recommend setting pot life time to 1/2 of material pot life.

Approximate Pot Life Volume

Use the following information to determine approximate pot life volume (PLV) in cc:

Hose ID (inches)	Volume* (cc/foot)
3/16	5.43
1/4	9.648
3/8	21.71

Integrator manifold and mixer volume = 75 cc
Spray Gun Volume = 20 cc

(Hose Volume* x Feet of Hose) + 75 + 20 = PLV

Pot Life Reset Volume

The timer resets when the total spray volume exceeds the pot life reset volume.

To change reset value, hold down . Turn the key to increase/decrease pot life reset volume (cc).

When an Alarm Occurs

Press to clear alarm, then flush system (page 16), or press and spray until fresh material is loaded into system.

Recirculation Setting

Fluid can be circulated up to the mix manifold with the addition of Graco's Circulation Kit. Consult your distributor.

During recirculation only the pump runs; A and B dispense valves do not operate. Material pumped in recirculation mode is not counted by the totalizer.

To set the ProMix Easy to circulate:

1. Decrease the pump air pressure supply to the minimum required to maintain the desired circulation volume.
2. Turn function knob to  .

3. Press  .

To terminate circulation, press  .

To begin circulating again, press  .

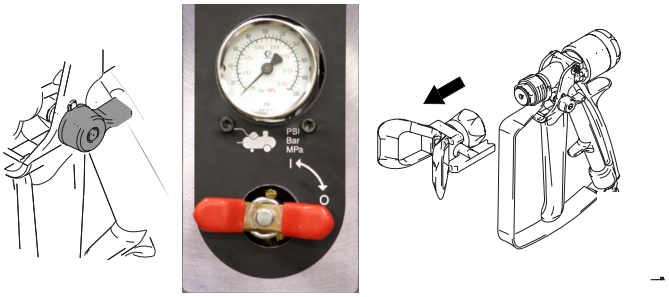
To begin spraying, turn function knob to  , reset system to desired ratio, and adjust pump to spray pressure.

CAUTION
Be sure recirculation valve does not leak material back to fluid supply while spraying.

Shutdown

Follow this procedure before prolonged shutdown or servicing equipment.

1. Follow **Pressure Relief Procedure**, page 14. Engage trigger lock, set air regulator to 0, and close main air shutoff valve. Remove spray tip.



2. Follow **Flushing**, page 16.
3. Follow **Pressure Relief Procedure**, pages 14 and 15. Engage trigger lock.
4. *Before prolonged shutdown:* cap fluid outlets to keep solvent in the lines. Fill pump A and B packing nuts and dispense valve A and B wet cups with throat seal liquid (TSL).

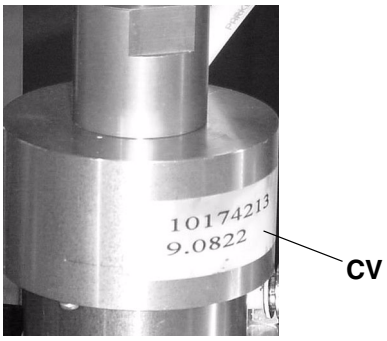
Recalibrate Pump-based System

Follow steps 1-9 whenever the main circuit board, software, or sensor is replaced, or when Alarm 8 occurs (refer to page 32). If sensor only needs recalibration, follow steps 7-9.

If data download is used, set date and time after calibrating, using ProMix Easy software.

Set Pump Calibration Value

1. Note calibration value (CV) on pump sensor.



2. Open main air valve to start unit. Allow time for system to boot up and display ratio setting.

3. Turn function knob to A or B .

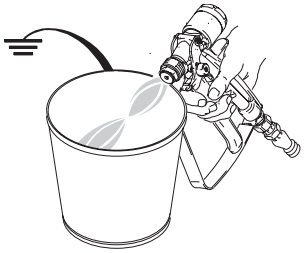
4. Hold down (continue to hold until calibration value is set in step 6). After 5 seconds, the default calibration value (between 85000 - 95000) displays.

5. Turn key to change default to calibration value noted in step 1 (left to decrease, right to increase).

6. Release after entering calibration value.

Calibrate Pump Sensor

7. Trigger gun into a pail or open sampling valve H^A or H^B.



8. Hold down (continue to hold until told to release). The current calibration value displays.

9. Press . Release first, then release . The pump will cycle to the board end of sensor first, then to the opposite end, and stop.

Recalibrate Meter-based System

Follow steps 1-7 whenever the main circuit board, software, or meter is replaced, or when Alarm 8 occurs (refer to page 32). To set meter k-factor, see page 31.

If data download is used, set date and time after calibrating, using ProMix Easy software.

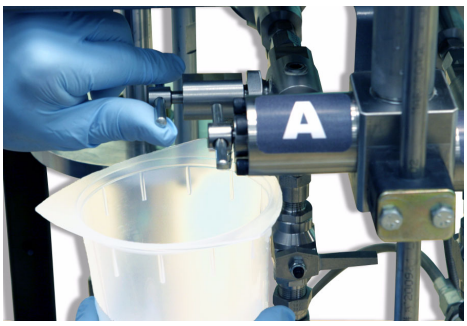
Calibrate Meter

1. Open main air valve to start unit. Allow time for system to boot up and display ratio setting.

2. Turn function knob to .

3. Press .

4. Place a clean 1 quart (1000 cc) container under sampling valve H^A. Open sampling valve H^A. 500 cc will dispense, then meter will stop. Close sampling valve H^A.



5. Place a clean 1 quart (1000 cc) container under sampling valve H^B. Open sampling valve H^B. 500 cc will dispense, then meter will stop. Close sampling valve H^B.

6. After component B completes dispensing, component A dispensed volume will display. Compare displayed volume with actual volume in container A.

   a. For no change, press , then release.

   b. To change display, press and hold . Turn key to change display to match actual volume (left to decrease, right to increase). Release .

NOTE: If the main control board is replaced on units that use a flow meter, the flow meter calibration data must be set using a PC and a Data Download Kit (Graco P/N 248403 for hazardous locations or graco P/N 248404 for non-hazardous locations).

7. Component B dispensed volume will display. Compare displayed volume with actual volume in container B.

a. For no change, press  , then release.

b. To change display, press and hold  . Turn key to change display to match actual volume (left to decrease, right to increase). Release  .

Ratio tolerance default value for meter-based systems is 5%. To change to a customized value, use accessory Data Download Kit 248403 (IS) or 248404 (Non-IS) and follow instructions in manual 309623.

Set Meter K-factor

See manual 308778 for meter k-factor values.

1. Open main air valve to start unit. Allow time for system to boot up and display ratio setting.

2. Turn function knob to A  or B  .

3. Hold down  (continue to hold until k-factor is set in step 5). After 5 seconds, the default k-factor displays.

4. Turn key to change k-factor (left to decrease, right to increase).

5. Release  to set k-factor.

Alarms

- An alarm condition will shutdown equipment.
- See ProMix Easy Repair manual for trouble-shooting and repair.

* Indicates error where audible alarm sounds once briefly.

** Indicates error where audible alarm sound pulses.

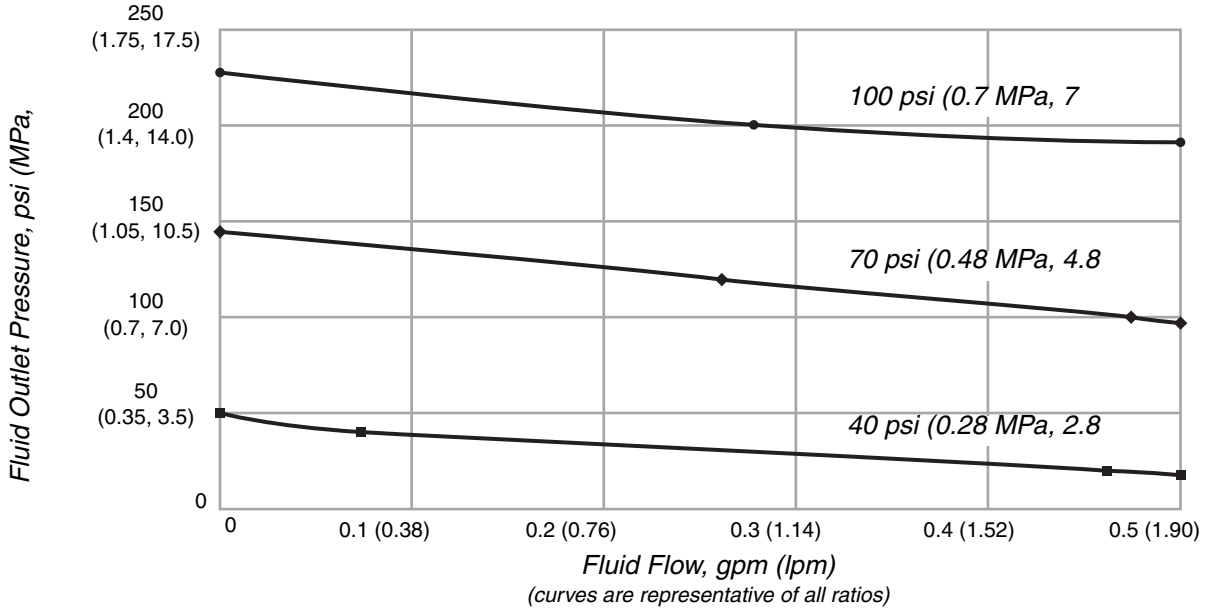
Code	Alarm	Active	Problem	Cause
	Startup Errors			
01	Sensor Error A*	Always	No signal from pump A sensor	Loose cable, failed sensor or cable, failed magnet assembly
02	Sensor Error B*	Always	No signal from pump B sensor	Loose cable, failed sensor or cable, failed magnet assembly
03	Communication Error*	Always	Loss of communication between main and display boards	Loose cable, failed board
	Operating Errors			
04	not used			
05	not used			
06	Pump Error A**	Spray Test Batch	Pump does not stall after top change over	Intake valve leak
07	Pump Error B**		Pump cavitating excessively	Air in lines caused by loose fitting or use of agitator Empty fluid supply
08	Sensor Code Error	Always	Sensor values reverted to default	Sensor value data corrupt; board needs replacement and /or recalibration
09	Metering Error A**	Spray	A dose too great	Dispense valve A leak Empty B fluid supply Clogged flow meter
10	Metering Error B**	Spray	B dose too great	Dispense valve B leak Empty A fluid supply Clogged flow meter
11	Sensor Reading Low A*	Spray Test Batch	Pump stroke travels beyond sensor range at top change over	Sensor or bracket loose Sensor magnet dirty
12	Sensor Reading Low B*			
13	Sensor Reading High A*	Spray Test Batch	Pump stroke travels beyond sensor range at bottom change over	Sensor or bracket loose Sensor magnet dirty
14	Sensor Reading High B*			
21	Pot Life Error	Spray first, then Always	Pot life timer timed out	Not enough material sprayed after last reset

Code	Alarm	Active	Problem	Cause
	Operating Errors (continued)			
22	High Ratio (units with meter[s] only)	Spray	Mix ratio higher than Target + Tolerance	Flow rate too high Slow actuation of dispense valve A or B Clogged flow meter
23	Low Ratio (units with meter[s] only)	Spray	Mix ratio lower than Target - Tolerance	
24	Dose Timeout A (units with meter[s] only)	Spray	Air flow switch indicates more than 40 sec of air flow without dose completing	Air flow switch stuck open. Atomizing air leak downstream of air flow switch. Clogged flow meter. Gun triggered without fluid (dusting parts)
25	Dose Timeout B (units with meter[s] only)			
26	Park Timeout (pump-based units only)	Park	Pumps not at bottom of stroke	Sampling valves closed, or gun not triggered.
	Testing Error			
15	Piston packing/ball A*	Test	Pump does not completely stall in up stroke	Piston packing or ball check failure
16	Piston packing/ball B*			
17	Inlet Ball A*	Test	Pump does not completely stall in downstroke	Intake valve ball check failure
18	Inlet Ball B*			
19	Dispense Valve A*	Test	Pump does not completely stall in both up and down strokes	Throat packing or dispense valve failure
20	Dispense Valve B*			
27	Pump Calibration Timeout A	Run A	Pump doesn't run through calibration.	Sampling valves closed.
28	Pump Calibration Timeout B	Run B		

Performance Charts

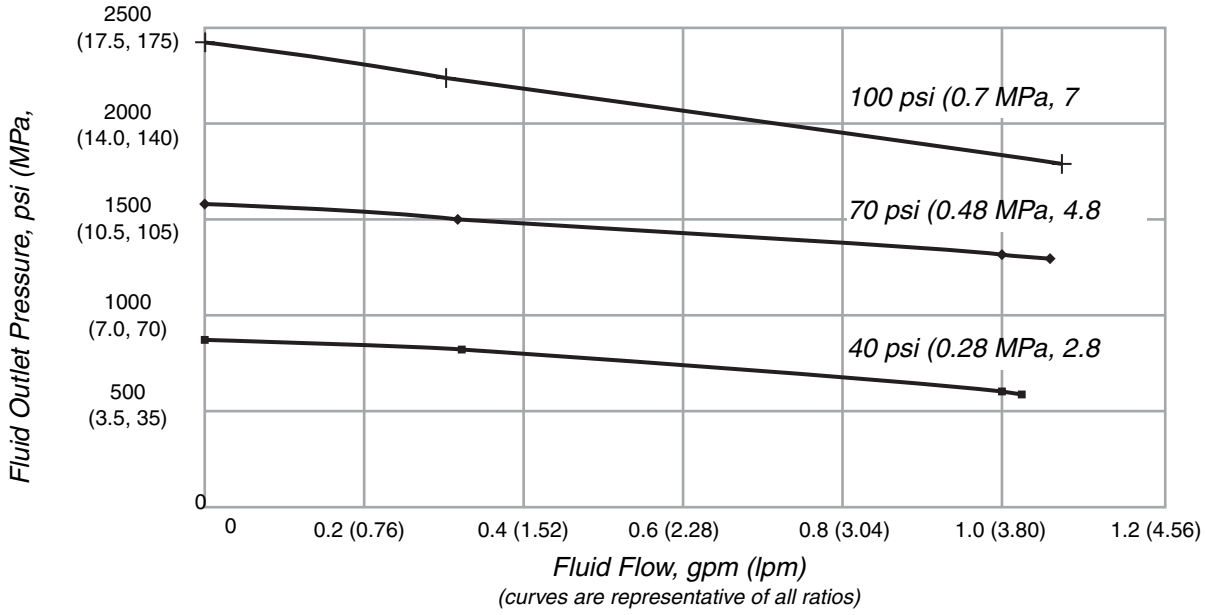
2.5:1 Ratio UltraMix Pump

Tested with 10W oil



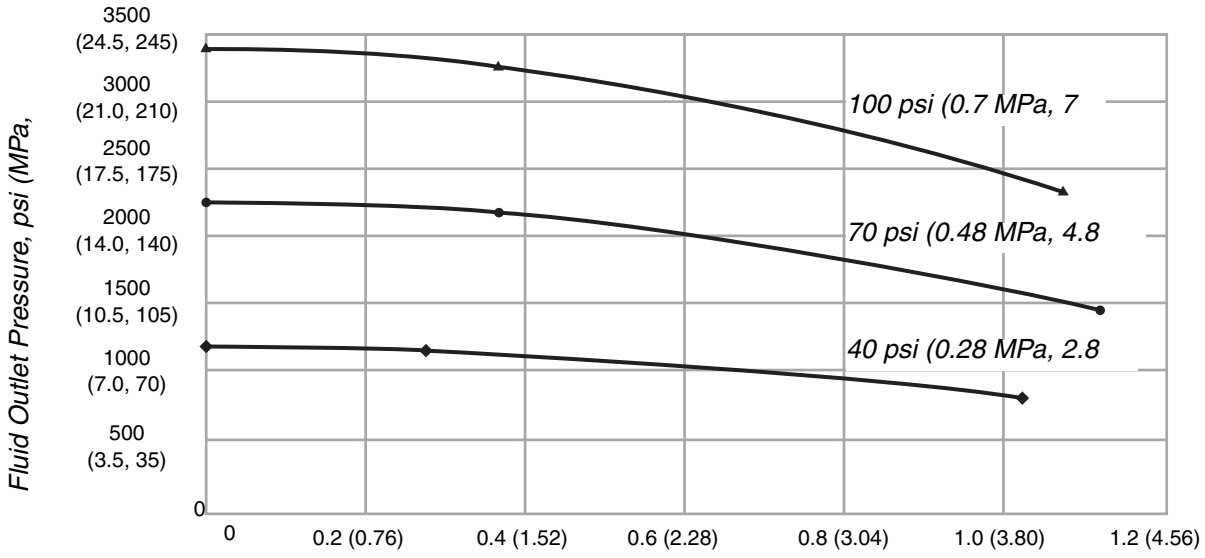
24:1 Ratio HydraMix Pump

Tested with 10W oil



34:1 Ratio HydraMix Pump

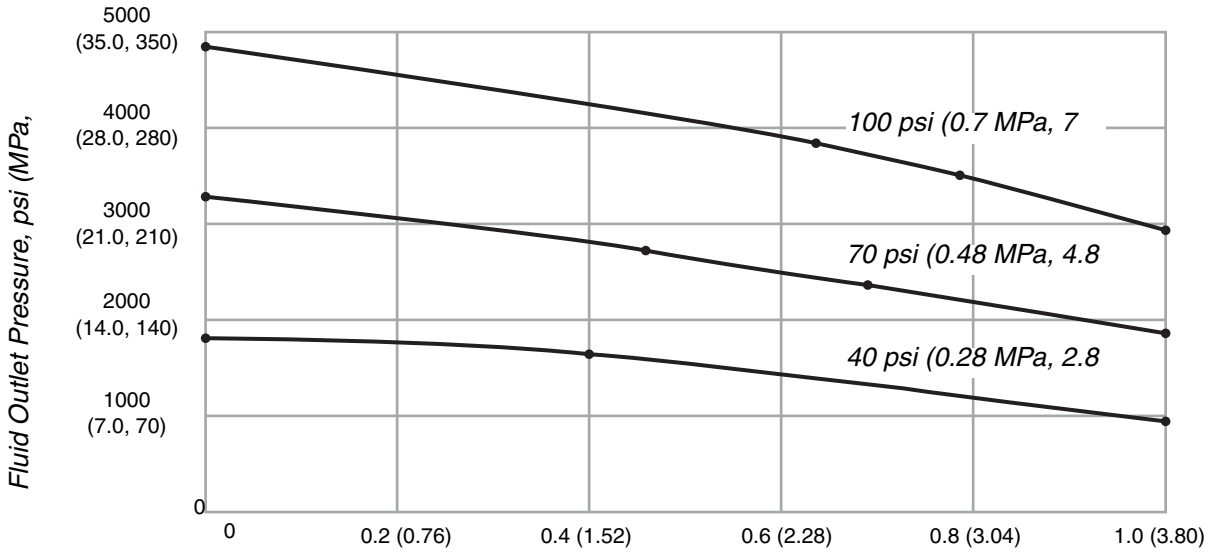
Tested with 10W oil



(curves are representative of all ratios)

47:1 Ratio HydraMix Pump

Tested with 10W oil



(curves are representative of all ratios)

Technical Data

Mix ratio range	0.1:1-10:1 (in 0.1 increments), pump-based systems 0.1:1-30:1 (in 0.1 increments), meter-based systems
Ratio tolerance range	up to +/- 1%
Flow rates	
Minimum	0.02 qt/min (0.02 lpm)*, pump-based systems 0.1 qt/min (0.1 lpm)*, meter-based systems
Maximum	1 gpm (3.8 lpm)
Pump size	
UltraMix	54 cc/cycle
HydraMix	92 cc/cycle
Pump cycle length (one cycle = one upstroke and one downstroke)	
UltraMix	6 in. (152 mm)/cycle
HydraMix	7.6 in. (193 mm)/cycle
Fluid viscosity range	50-20,000 cps (heavier viscosities can be mixed with use of optional heaters, heated hoses, and hardware)
Fluid filtration	60 mesh (238 micron) standard
Maximum fluid working pressure	
2.5:1 UltraMix	250 psi (1.7 MPa, 17 bar)
24:1 HydraMix	2400 psi (16 MPa, 166 bar)
34:1 HydraMix	3400 psi (23 MPa, 234 bar)
47:1 HydraMix	4700 psi (32 MPa, 324 bar)
Meter-based systems	4000 psi (28 MPa, 280 bar)
Air supply pressure range	60-110 psi (420-800 kPa, 4.2-8 bar)
Maximum air consumption at 100 psi (0.7 MPa, 7 bar)	
2.5:1 UltraMix	10.8 scfm at 1 gpm (0.30 m^3/min at 3.8 lpm)
24:1 HydraMix	40.5 scfm at 1 gpm (1.13 m^3/min at 3.8 lpm)
34:1 HydraMix	54.7 scfm at 1 gpm (1.53 m^3/min at 3.8 lpm)
47:1 HydraMix	63.0 scfm at 1 gpm (1.76 m^3/min at 3.8 lpm)
Ambient temperature range	
Operating	32-104° F (0-40° C)
Storage	30-160° F (–1-71° C)

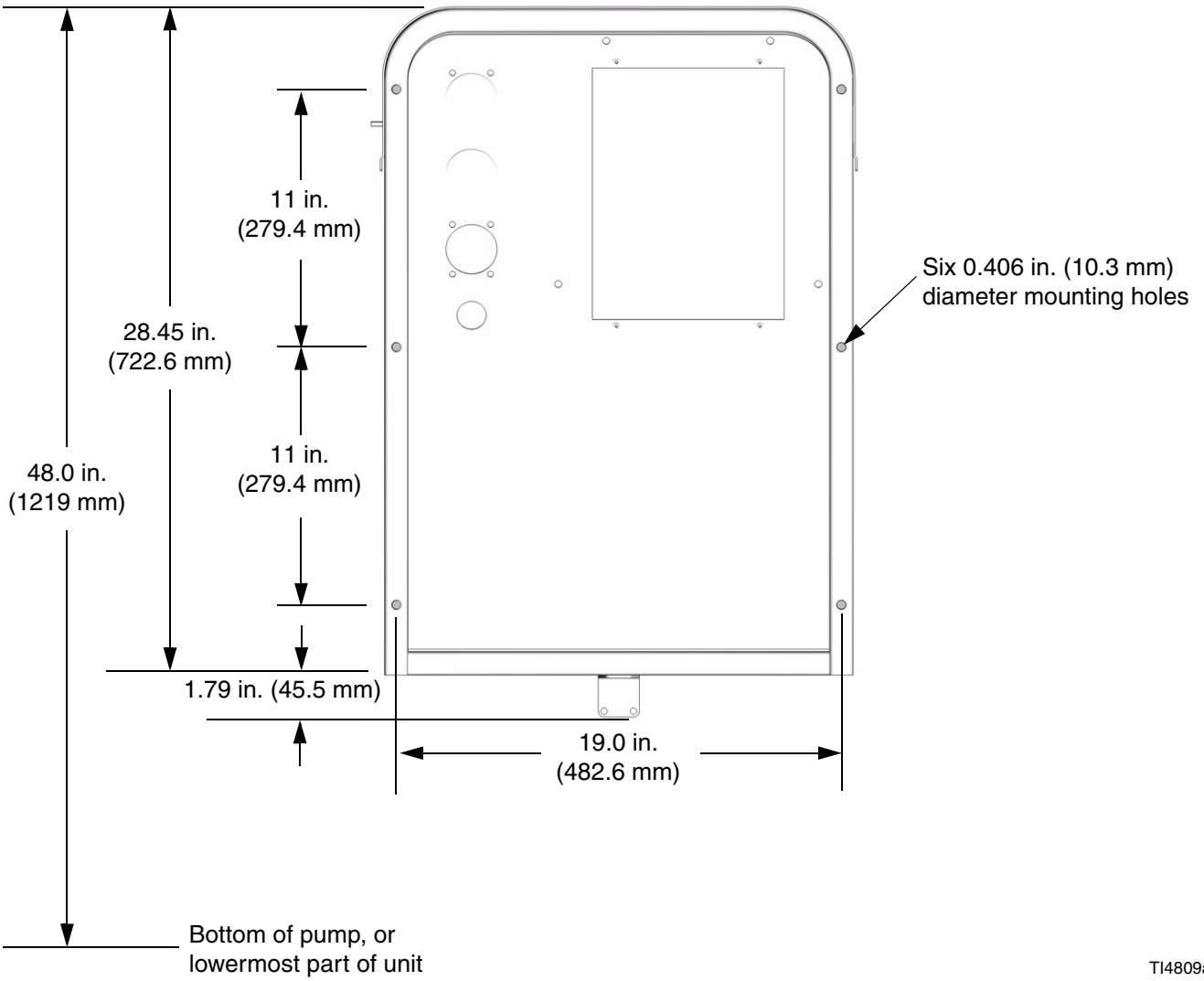
* *Minimum flow rate is dependent on the material being sprayed and mixing capability. Test your material for specific flow rate.*

External Power Supply Requirements	93-250 Vac, 50/60 Hz, 1.2 amps maximum draw 15 amp maximum circuit breaker required 14 AWG power supply wire gauge
Environmental Conditions Rating	Indoor/outdoor Altitude up to 4000 meters Maximum relative humidity to 99% up to 40° C Pollution degree (1) Installation category (2)
Sound pressure	98 dBA at 100 psi (0.7 MPa, 7 bar)
Wetted parts	
Pumps	See 310662
Dispense Valves	See 310655
Mix Manifold	See 310654
Meters	See 308778
PC Communications	RS-232

Dimensions

Cart model (width x height x depth)	31 x 56 x 29 in. (787 x 1422 x 737 mm)
Air inlet size	1/2 npt(f)
Fluid inlet size	UltraMix units: 3/4 npt(m) HydraMix units: 1 in. npsm(m)
Fluid outlet size (integrator tube)	1/4 npt(m)
Weight	UltraMix cart unit: 210 lb (95 kg) UltraMix wall unit: 150 lb (68 kg) HydraMix cart unit: 240 lb (108 kg) HydraMix wall unit: 180 lb (81 kg)

Wall Mounting Diagram



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

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Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441
www.graco.com
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