Operation

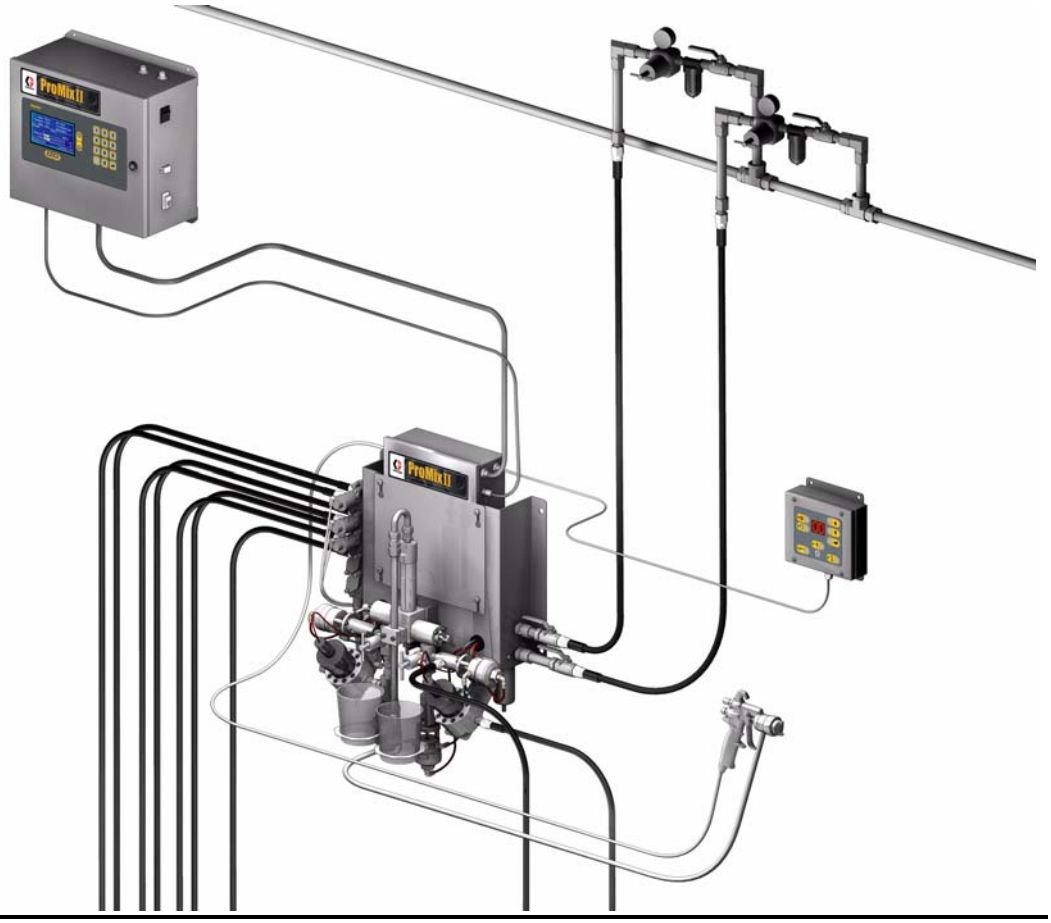
ProMix™ II

310633C

For proportional mixing of plural component coatings

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.



HO03

PROVEN QUALITY. LEADING TECHNOLOGY.

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Manual Conventions

⚠ WARNING

Hazard Symbol

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

Warnings in the instructions usually include a symbol indicating the hazard. Read the general **Warnings** section for additional safety information.

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

Note

Additional helpful information.

ProMix™ II Models

⚠ WARNING

Do not install equipment approved only for a non-hazardous location in a hazardous area. Substitution of components may impair intrinsic safety. See page 6.

⚠ WARNING

Changing the fluid manifold configuration may change its pressure rating. Do not exceed the pressure rating of the lowest rated component. See page 6.

PM	Enter Model number here							
ProMix™ II Unit	**A Meter**		**B Meter**		**Color Change**		**Gun Flush Box**	
PM	**0**	None	**0**	None	**0**	None, Single Color	**0**	No
	1	G3000	**1**	G3000	**1**	2 Color, Low Pressure	**1**	Yes
	2	G3000HR	**2**	G3000HR	**2**	4 Color, Low Pressure		
	3	Coriolis	**3**	Coriolis	**3**	6 Color, Low Pressure		
					4	2 Color, High Pressure		
					5	4 Color, High Pressure		
					6	6 Color, High Pressure		

Hazardous Location Approval

Only models with a G3000 (1) or G3000HR (2) for both A and B meters are approved for installation in a Hazardous Location - Class I, Div I, Group D, T3.

FM C US APPROVED
Conforms to FM std 3600 & 3610
for use in Class I Div 1 Group D T3
Hazardous locations
CAN/CSA 22.2 No. 157 & 1010.1-92

Ex
EEx ib IIA T3
ISSeP 04 ATEX 008
SYST

CE

Non-hazardous Location Approval

CE

FM C US APPROVED
CAN/CSA
22.2 No. 1010.1

Maximum Working Pressure

Maximum working pressure rating is dependent on the A and B meter and color change option selected. The pressure rating is based on the rating of the lowest rated fluid manifold component. Refer to the component pressure ratings below. *Example:* Model PM1140 has a maximum working pressure of 3000 psi (21 MPa, 207 bar).

Check the ID plate on your EasyKey™ Display or fluid panel for its maximum working pressure. See FIG. 6, page 15.

ProMix™ II Fluid Manifold Components Maximum Working Pressure

Color Change Option 1, 2, or 3. . . . . 300 psi (2.1 MPa, 21 bar)
Color Change Option 4, 5, or 6. . . . . 3000 psi (21 MPa, 207 bar)
Coriolis A and B Meters Option 3 . . . . . 2300 psi (16 MPa, 159 bar)
No Meters or G3000 or G3000HR A and B Meters Option 0, 1, or 2 . . . . . 4000 psi (28 MPa, 276 bar)

Flow Meter Fluid Flow Rate Range

G3000 Meter. . . . . 75-3000 cc/min. (0.02-0.79 gal./min.)
G3000HR Meter . . . . . 38-1500 cc/min. (0.01-0.40 gal./min.)
Coriolis Meter . . . . . 20-3800 cc/min. (0.005-1.00 gal./min.)

Related Manuals

Component Manuals in English

Manual	Description
310633	ProMix™ II Operation
310653	ProMix™ II Service - Parts
310654	Fluid Mix Manifold
310655	Dispense Valve
308778	G3000, G3000HR Flow Meter
310696	Coriolis Flow Meter
310656	Color Change Kit
307731	Color Change Valve Assembly, Low Pressure
307941	Color Change Valve, Low Pressure
308291	Color Change Valve Assembly, High Pressure
308977	Color Change Valve, High Pressure
310695	Gun Flush Box
308818	Printer
310669	ProMix™ II Data Download Kit
310745	Gun Air Shutoff Kit

This manual available in following languages:

Manual	Language	Manual	Language
310633	English	310636	German
310634	French	310637	Chinese
310635	Spanish	310638	Japanese
310670	Italian		

Warnings

The following warnings include general safety information for this equipment. More specific warnings are included in the text 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 **Grounding** 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.

INTRINSIC SAFETY

Only models with a G3000 (1) or G3000HR (2) for both A and B meters are approved for installation in a Hazardous Location - Class I, Div I, Group D, T3. To help prevent fire and explosion:

- Do not install equipment approved only for non-hazardous location in a hazardous area. See the ID label for the intrinsic safety rating for your model.
- Do not substitute system components as this may impair intrinsic safety.

ELECTRIC SHOCK HAZARD

Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

SKIN 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.

⚠ 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 use hoses to pull equipment.
- Comply with all applicable safety regulations.

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.

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 Graco ProMix™ II is an electronic two-component paint proportioner. It can blend most two-component solvent and waterborne epoxy, polyurethane, and acid-catalyzed paints. It is not for use with “quick-setting” paints (those with a potlife of less than 15 minutes).

- Can proportion at ratios from 0.1:1–30:1 in 0.1 increments.
- Has user selectable ratio assurance and can maintain up to +/-1% accuracy, depending on materials and operating conditions.
- Models are available to operate air spray, air-assisted, or airless systems with a capacity of up to 3800 cc/min.
- Color change options are available for low pressure (300 psi [2.1 MPa, 21 bar]) air spray and high pressure (3000 psi [21 MPa, 207 bar]) systems with 2, 4, or 6 color change valves.
- Gun Flush Box option is also available.

Component Identification and Definition

See FIG. 1 for the ProMix™ II system components.

Component	Description
EasyKey™ Display	Used to set up, display, operate, and monitor the ProMix™ II system. The EasyKey™ Display accepts 85-250 VAC, 50/60 Hz line power and converts that power to acceptable low voltage and optical signals used by other system components.
Smart Fluid Panel	Includes air control solenoids, pressure and flow switches, fluid flow meters, and the fluid manifold assembly to control and monitor fluid dispensing.
Fluid Manifold	Fluid component assembly mounted on the Smart Fluid Panel. It includes: • **Pneumatically Operated Dispense Valves** for component A and B • **Purge Valves** for solvent and air purge • **Sampling Valves** for calibrating the flow meters • **Shutoff Valves** for component A and B to close their fluid passages to the mix manifold • **Mix Manifold**, which includes the fluid integrator and static mixer. ➜ **Fluid Integrator** is the chamber where component A and B align at the selected ratio and begin to mix. ➜ **Static Mixer** has 24 elements to uniformly blend the materials downstream of the fluid integrator.
Color Change Valves	An optional component of the Fluid Manifold assembly. It is available as a color change valve stack for either low or high pressure with 2, 4, or 6 color change valves. Each stack includes one additional valve for solvent to clean the fluid line between color changes.

Component	Description
Flow Meters	Three optional flow meters are available from Graco: • **G3000** is a general purpose gear meter typically used in flow ranges of 75-3000 cc/min. (0.02–0.79 gal/min.), pressures up to 4000 psi (28 MPa, 276 bar), and viscosities of 20–3000 centipoise. The K-factor is approximately 0.119 cc/pulse. • **G3000HR** is a high resolution version of the G3000 meter. It is typically used in flow ranges of 38–1500 cc/min. (0.01–0.4 gal/min.), pressures up to 4000 psi (28 MPa, 276 bar), and viscosities of 20–3000 centipoise. The K-factor is approximately 0.061 cc/pulse. • **Coriolis** is a specialty meter capable of a wide range of flow rates and viscosities.
Dual Fiber Optic Cable	Used to communicate between the EasyKey™ Display and Smart Fluid Panel.
Fluid Panel Power Supply Cable	Used to provide power to the Smart Fluid Panel.
Operator Station	Used by the operator for daily painting functions including: choosing color, initiating report printing, reading/clearing alarms, and placing the system in Standby, Mix, or Purge mode. It is typically mounted inside the booth or near the painter.
Gun Flush Box (not shown)	Used to automatically flush manual guns into an enclosed waste container. By flushing with the exact amount of solvent required to clean your system within an enclosure, the gun flush box reduces the amount of solvent used, VOCs (volatile organic compounds) emissions, and operator exposure to hazardous chemicals.

See **Operator Controls**, page 26, for detailed information on the EasyKey™ Display and Operator Station.

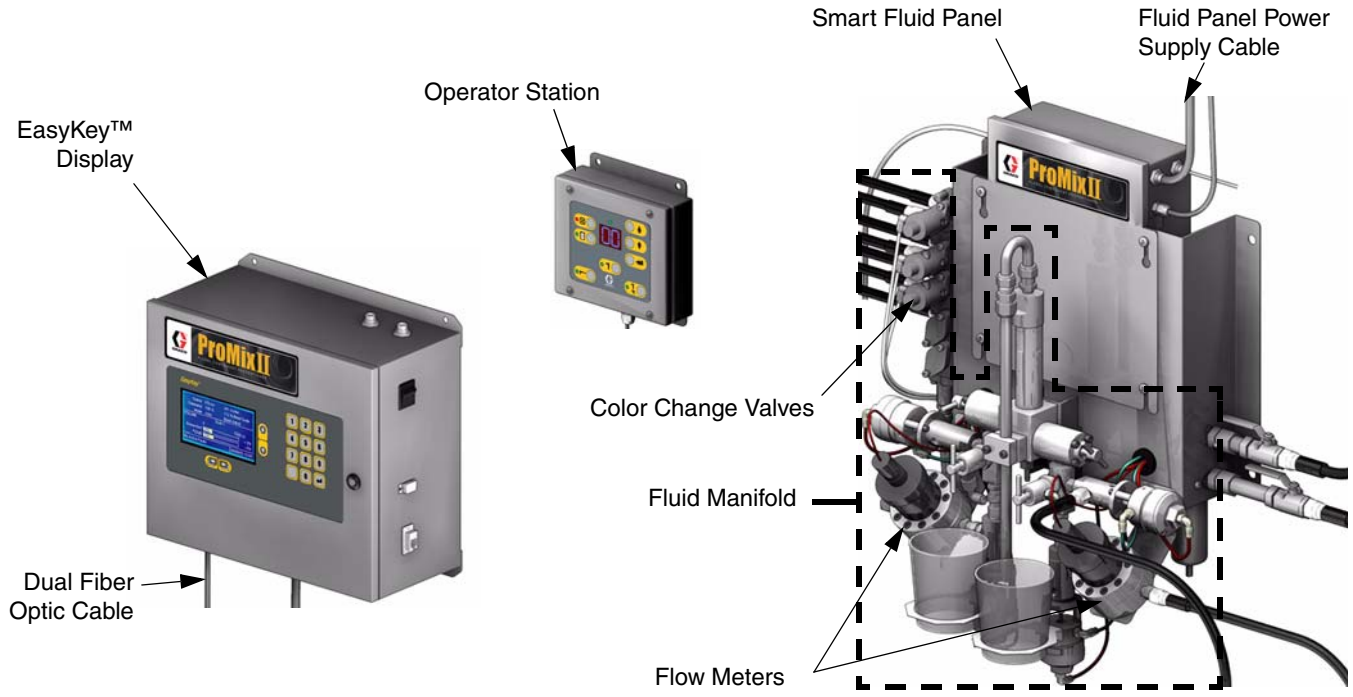
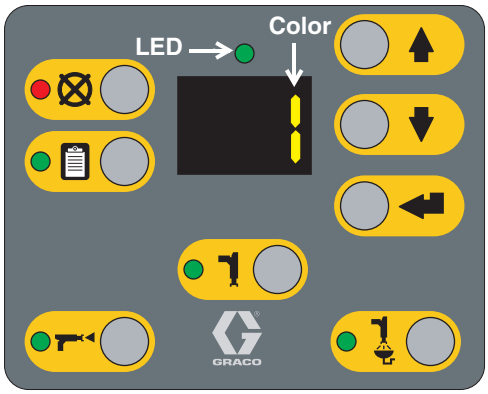


FIG. 1

ProMix™ II General Operating Cycle

Refer to FIG. 2

1. The spray gun operator enters and loads the desired color. The color change LED blinks while color is loading, then turns solid when complete.



Operator Station Screen

2. The operator presses the Mix key to begin operation.
3. The controller sends signals to activate the solenoid valves. The solenoid valves activate Dispense Valves A and B. Fluid flow begins when the gun is triggered.
4. Components A and B are introduced into the integrator chamber (K) one at a time, through separate fluid lines, check valves, and flow meters.
   - **a.** Dispense Valve A opens, and fluid flows into the integrator chamber.
   - **b.** Flow Meter A (C) monitors the fluid volume dispensed and sends electrical pulses to the controller. The controller monitors these pulses and signals.
   - **c.** When the target volume dispenses, Dispense Valve A closes.

The dispense volume of component A and B is based on the mix ratio and dose size set by the user and calculated by the controller.

   - **d.** Dispense Valve B opens, and fluid flows into the integrator chamber (K) and is aligned proportionately with component A.
   - **e.** Flow Meter B (G) monitors the fluid volume dispensed and sends electrical pulses to the controller.
   - **f.** When the target volume is dispensed, Dispense Valve B closes.
5. The components are pre-mixed in the integrator (K), then uniformly blended in the static mixer tube L).

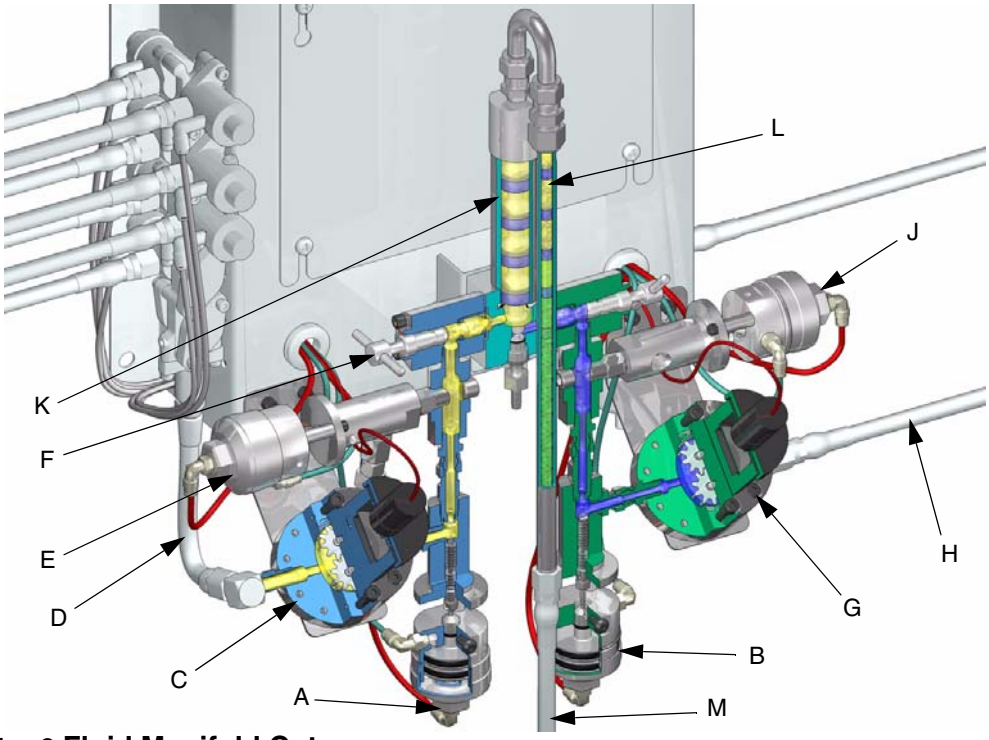
An optional fluid pressure regulator can be installed to control output from the static mixer tube to the spray gun.

6. Components A and B are alternately fed into the integrator (K) as long as the gun is triggered.
7. If the gun is not triggered for two minutes, the system switches to Idle mode, which closes off the mix manifold dispense valves.
8. When the gun is triggered again, the ProMix™ II continues the process where it left off.

Operation can be stopped at any time by pressing the Standby key or shutting off the main power switch.

Adaptive Overrun Correction

The actual volume of fluid dispensed each cycle can vary slightly from the calculated target. However, the controller monitors this variance and makes adjustments to keep the ratio of component B to A within a user specified tolerance.



Key:
A Dispense Valve A
B Dispense Valve B
C Flow Meter A
D Component A Supply Line
E Air Purge Valve
F Shutoff Valve A
G Flow Meter B
H Component B Supply Line
J Solvent Purge Valve
K Integrator
L Static Mixer
M Fluid Supply to Gun

FIG. 2 Fluid Manifold Cutaway

Air Flow Switch Function

Air or Air-assisted Airless Guns

The air flow switch detects air flow to the gun and signals the ProMix™ II controller when the gun is being triggered. The switch functions with the flow meters to ensure that the system components are functioning correctly.

For example, if a flow meter fails or clogs, pure resin or catalyst could spray indefinitely if the ProMix™ II does not detect the condition and intervene, which is why the air flow switch is so important.

If the ProMix™ II controller detects through the air flow switch signal that the gun is triggered, yet there is no fluid flow through the meter, a Dose Time Alarm (page 54) occurs after 40 seconds and the system shuts down.

Operating Without Air Flow Switch

It is possible to operate the ProMix™ II without the air flow switch, such as when a switch fails or when using an airless gun.

If a switch fails, replace it as soon as possible.

Airless Gun

If using an airless gun or operating without the air flow switch (not recommended), the dose time alarm will not function. Instead, two minutes after a meter fails, the system generates an Idle Time Warning and the dispense valves turn off. What this means is:

- It is possible to spray pure resin or catalyst for up to 2 minutes before the system shuts down.
- Since the Idle Time Warning can occur during normal operation, you may not immediately realize that a meter failed and may continue painting.

Idle Time Warning

This warning occurs if the ProMix™ II is set to Mix , and 2 minutes have elapsed since the system received a flow meter pulse.

In applications using the air flow switch, triggering the gun clears the warning and the operator can start spraying again.

Without the air flow switch, triggering the gun does not clear the alarm. To start spraying again, you must press Mix , then trigger the gun.

Installation

- Reference numbers and letters in parentheses in the text refer to numbers and letters in the illustrations.
- Icons in the text refer to icons on the equipment or keypad.
- FIG. 4 and FIG. 5, page 14, show typical installations. Contact your Graco distributor for actual system designs.
- Be sure all accessories are adequately sized and pressure-rated to meet system requirements.
- For maintenance and safety, you must have a shutoff valve between each fluid supply line and the ProMix™ II system.
- A 100 mesh minimum fluid filter must be installed on component A and B fluid supply lines.
- See page 16 for dimensions.
- To protect the Operator Station and EasyKey™ Display screens from paints and solvents, clear-plastic protective shields are available in packs of 10. See the ProMix™ II Service and Parts manual to order. Clean the screens with a dry cloth if necessary.

Typical Installation

Key - FIG. 3

A Color Change Valve Lines (Component A)
B Component B Line
C EasyKey™ Display
D Display
E Keypad
F Main Air Line
G Air Regulator
H Air Shutoff Valve
J Operator Station
K Operator Station Cable
L Power Cable
M Fiber Optic Cable
N Smart Fluid Panel
P Spray Gun
Q Gun Air Line
R Gun Fluid Line
S Solvent Line
T Fluid Shutoff Valve

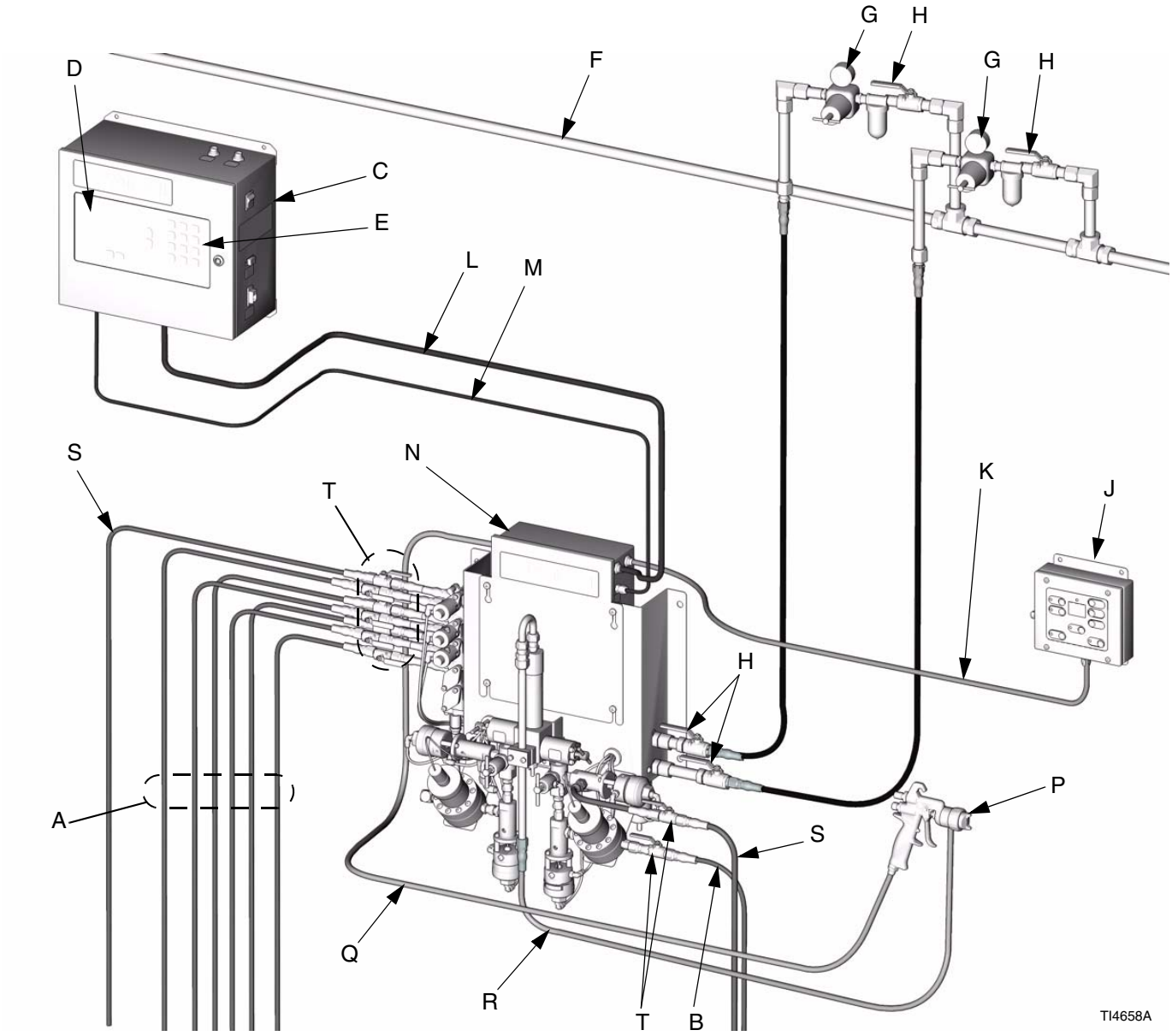


FIG. 3

Installation Requirements

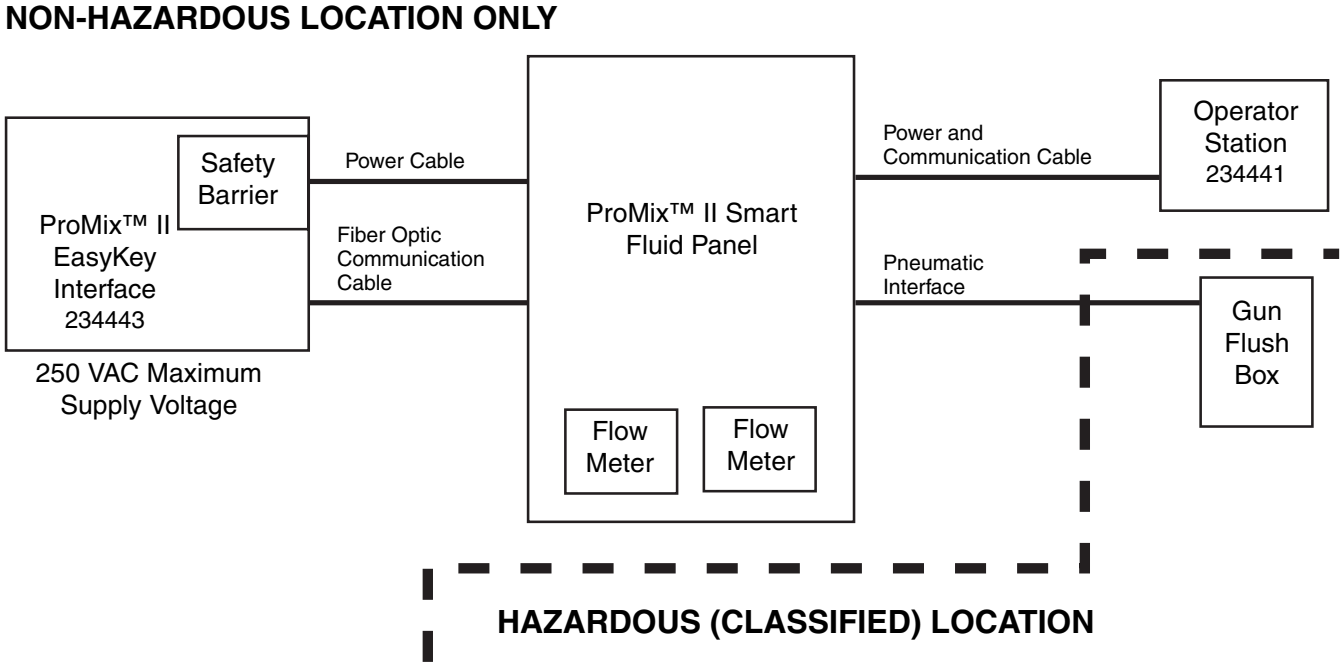
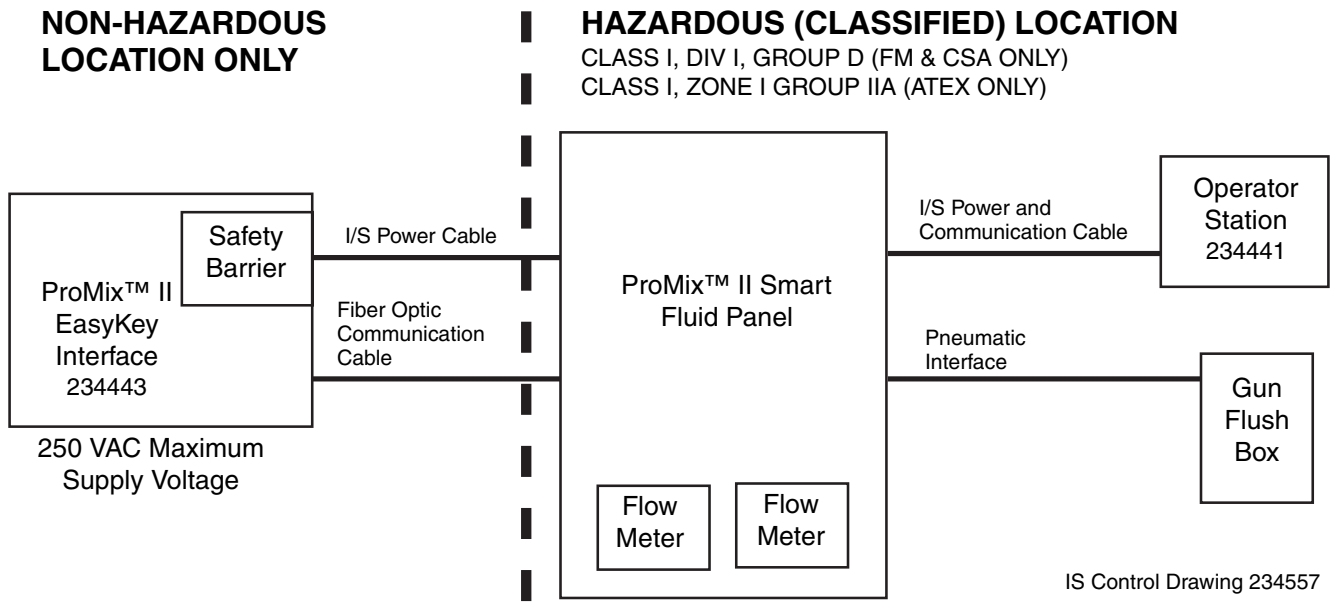


FIG. 4: Non-intrinsically Safe Installation



1. Nonintrinsically safe terminals (power rail) must not be connected to any device which uses or generates more than 250 VRMS or DC unless it has been determined that the voltage has been adequately isolated.
2. The installation must meet the requirements of the National Electric Code, Canadian Electrical Code Part I, NFPA 70, Article 504 Resp., Article 505 and ANSI/ISA 12.06.01.
3. Multiple earthing of components is allowed only if high integrity equipotential system is realized between the points of bonding
4. Do not operate system with safety barrier cover removed.

⚠ WARNING: Substitution of components may impair intrinsic safety. For installation, maintenance or operation instructions, read instruction manuals.
ADVERTISSEMENT: La substitution de composants peut compromettre la securite intrinseque.

FIG. 5 Intrinsically Safe Installation

Location Requirements

WARNING

Do not install equipment approved only for non-hazardous location in a hazardous area. See the identification (ID) label (FIG. 6) on the EasyKey™ Display for the intrinsic safety rating for your model. Refer to **ProMix™ II Models**, page 3. Read warnings, page 6.

- Refer to FIG. 4 or FIG. 5, page 14, for non-hazardous or hazardous location equipment requirements.
- Mount EasyKey™ Display and Smart Fluid Panel within 50 ft. (15.2 m) of each other.

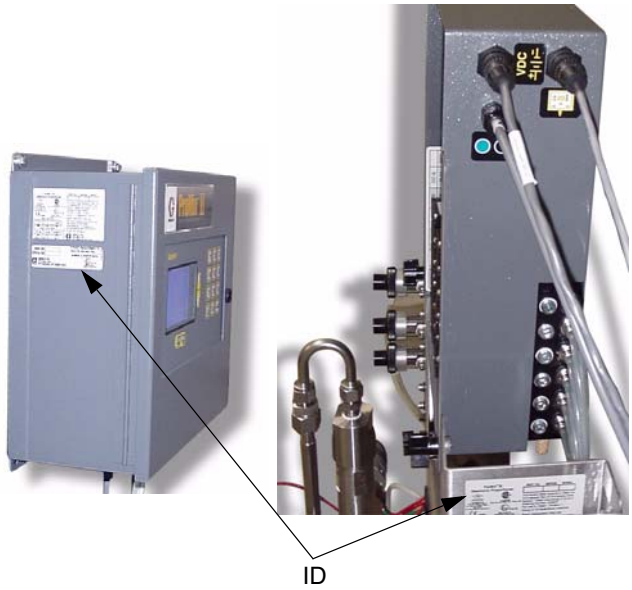


FIG. 6: EasyKey™ Display and Smart Fluid Panel

EasyKey™ Display: Install in the non-hazardous area at a convenient location for the operator to view and operate.

Smart Fluid Panel: Install according to requirements for : Non-intrinsically Safe Installation (FIG. 4) or Intrinsically Safe Installation (FIG. 5) and at a convenient location to connect to paint and solvent supplies.

For an Intrinsically Safe Installation, the Smart Fluid Panel may be located inside or outside the hazardous location. Install according to appropriate electrical codes.

IMPORTANT: Do not substitute or modify system components as this may impair intrinsic safety.

Operator Station: Install according to requirements for : Non-intrinsically Safe Installation (FIG. 4) or Intrinsically Safe Installation (FIG. 5) and at a convenient location for the operator to use.

Gun Flush Box: Install in the spray booth as far away as possible from the application point to avoid getting over-spray on it.

Flow Meters: If you have Coriolis Flow Meters, refer to the Coriolis manual for installation instructions. The correct orientation of the flow meter is critical to its operation.

Fluid Supply

ProMix™ II models are available to operate air spray, air-assisted, or airless systems with a capacity of up to 3800 cc/min.

- Fluid supply pressure tanks, feed pumps, or circulating systems can be used.
- Materials can be transferred from their original containers or from a central paint recirculating line.

The fluid supply must be free of pressure spikes, which are commonly caused by pump stroke changeover. If necessary, install pressure regulators or a surge tank on the ProMix™ II fluid inlets to reduce pulsation.

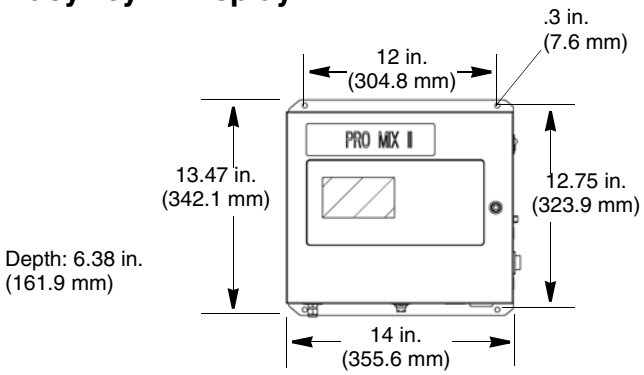
Contact your Graco distributor for additional information.

Mounting

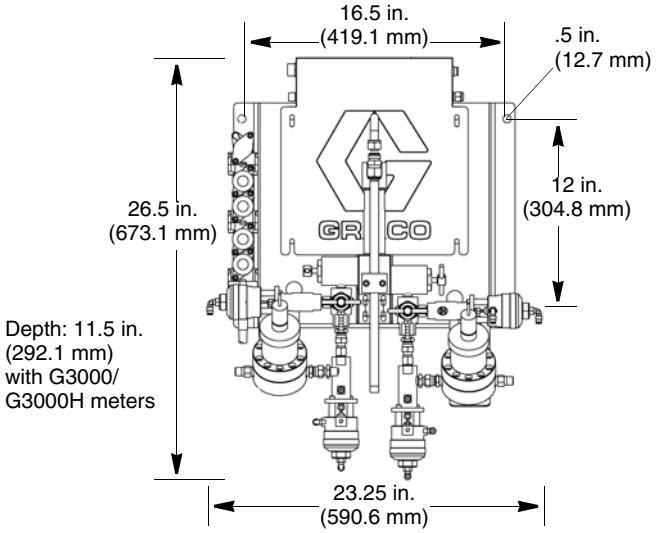
1. Follow **Location Requirements**, page 15.
2. Ensure that the wall and mounting hardware are strong enough to support the weight of the equipment (see **Technical Data**, page 56), fluid, hoses, and stress caused during operation.
3. Using the equipment as a template, mark the mounting holes on the wall at a convenient height for the operator and so equipment is easily accessible for maintenance. FIG. 7.
4. Drill mounting holes in the wall. Install anchors as needed.
5. Bolt equipment securely.

Dimensions

EasyKey™ Display



Smart Fluid Panel



Operator Station

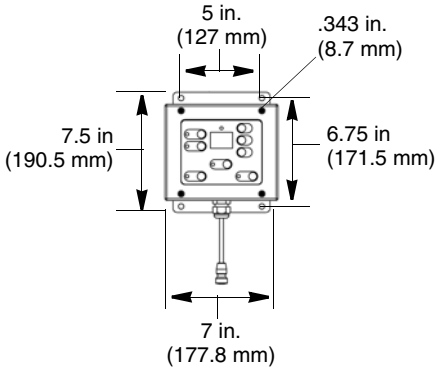


FIG. 7

Air Supply Connections

Required

- **Compressed air supply pressure:** 75-100 psi (517-700 kPa, 5.2-7 bar).
- **Air hoses:** use grounded hoses that are correctly sized for your system.

WARNING


Trapped air can cause a pump or dispense valve to cycle unexpectedly, which could result in serious injury from splashing or moving parts. Use bleed-type shut-off valves.

- **Air regulator and bleed-type shutoff valve:** include in each air line to fluid supply equipment. Install an additional shutoff valve upstream of all air line accessories to isolate them for servicing.

Recommended

- **Air line filter:** 10 micron or better air filter to filter oil and water out of the air supply and help avoid paint contamination and clogged solenoids.

Connect Air Supply Lines

1. Tighten all ProMix™ II system air and fluid line connections as they may have loosened during shipment.
2. Install a bleed-type shutoff valve (L) into the air filter inlet on the Smart Fluid Panel. FIG. 8.

Use separate air supply lines for the following two connections (X and L) to avoid contaminating the purge air line (X) with fluid if the air purge valve and a check valve failed.

3. Connect a clean air supply line to the shutoff valve (L). This air line supplies air to operate the gun, solenoids, and dispense valves.

See **Technical Data**, page 56, for additional air supply/consumption information.

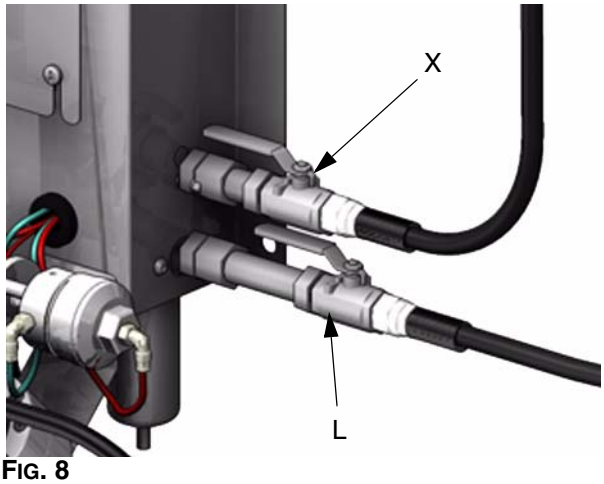


FIG. 8

4. Install a bleed-type shutoff valve (X) into the air purge valve inlet on the Smart Fluid Panel. FIG. 8.
5. Connect an air supply line to the shutoff valve (X) to supply air for the solvent and air purge sequence. Use a clean, dry air supply (install filters/dryers as needed),

CAUTION

The ProMix™ II potlife timer will not function properly when used with multiple guns operating simultaneously. To avoid having mixed material set in the equipment, carefully monitor potlife by some other means.

6. For air spray, HVLP, and air-assist airless gun applications:

- **Systems without a Gun Flush Box,** connect the gun air supply line between the Smart Fluid Panel gun air outlet (N - FIG. 9) and the spray gun air inlet (AA - FIG. 10).
- **Systems with a Gun Flush Box,** connect the gun air supply line between the Smart Fluid Panel gun air outlet (N - FIG. 9) and the atomizing air safety shutoff valve. See Gun Flush Box Manual 310695.

Install a bleed-type air shutoff valve (Z) in the gun air supply line or at the gun air inlet (AA). FIG. 10, FIG. 11.

WARNING

If using a Graco electrostatic PRO™ Gun, a shutoff valve must be installed in the gun air line. Contact your Graco distributor for information on air shutoff valves for electrostatic applications.

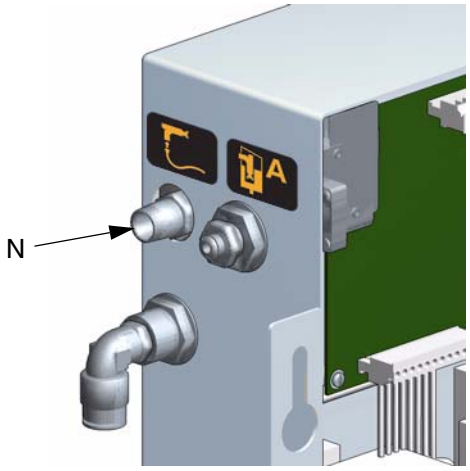


FIG. 9

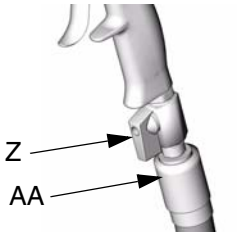


FIG. 10

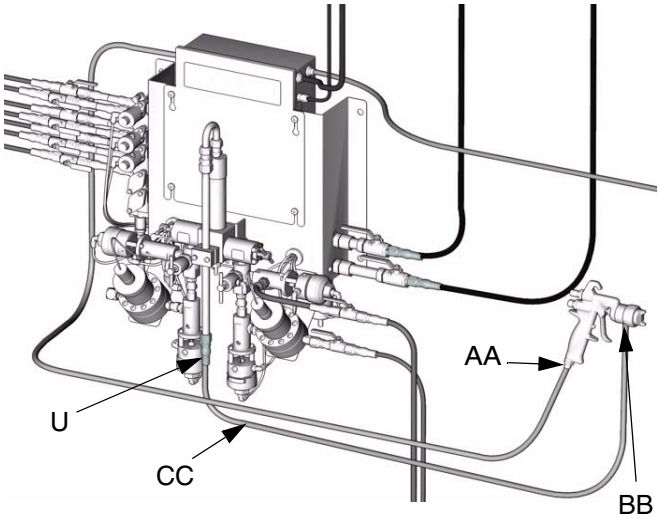


FIG. 11

Fluid Supply Connections

⚠ WARNING

Do not exceed the pressure rating of the lowest rated component. Refer to the product ID Label. Read **Pro-Mix™ II Models** information, page 3.

⚠ WARNING


To reduce the risk of injury, including fluid injection, you must install a shutoff valve (T) between each fluid supply line and the fluid manifold assembly. FIG. 12. Use the valves to shut off fluid during maintenance and service.

1. Connect the solvent supply lines.
   - **a.** Connect the solvent supply line (P) to the 1/4 npt(f) solvent purge valve inlet. FIG. 12.
   - **b.** **Multiple color system:** also connect a solvent supply line to the color change valve (Q), marked **"CC SOLVENT"**. FIG. 13.
2. Connect the component A supply line(s).
   - ➜ **Single color system:** connect component supply line to the component A flow meter inlet (R). FIG. 13.
   - ➜ **Multiple color system:** connect component A supply lines to the color change valve stack (S) inlets. FIG. 13. The color number is marked on the valve air supply line.

Paint Recirculating System

The color change valves have two fluid ports for each individual valve. If you are recirculating paint:

1. Remove the color change valve stack from the fluid panel and mount it separately.
2. Plumb the valves in one port and out the other.

Another option is to use a tee fitting to recirculate.

CAUTION
Verify that all unused fluid ports on the color change valve stack are plugged before operation. An open port will leak fluid.

3. Connect the component B line to the component B flow meter inlet (DD). FIG. 12.

The component A and B fluid meter inlets (R, DD) have fluid check valves to prevent backflow from fluid supply pressure fluctuations. Backflow can cause ratio inaccuracies.

4. Connect the gun fluid supply line (CC) between the fluid manifold static mixer (U) outlet and the gun fluid inlet (BB). FIG. 11.

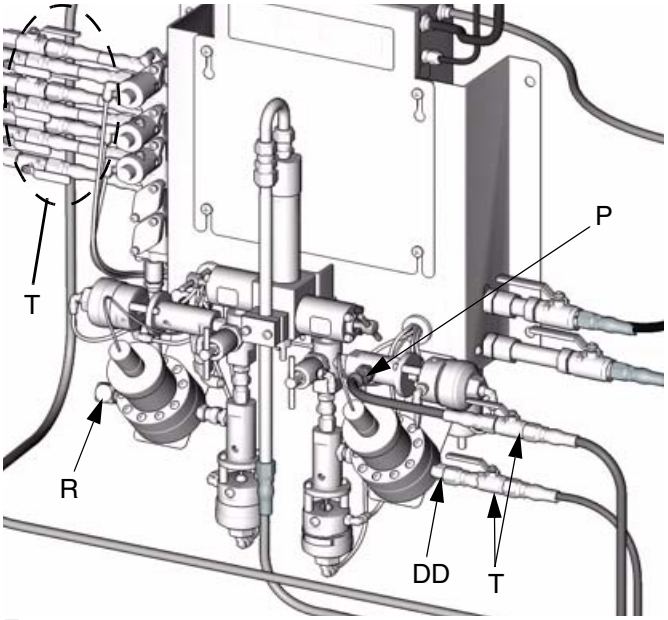


FIG. 12

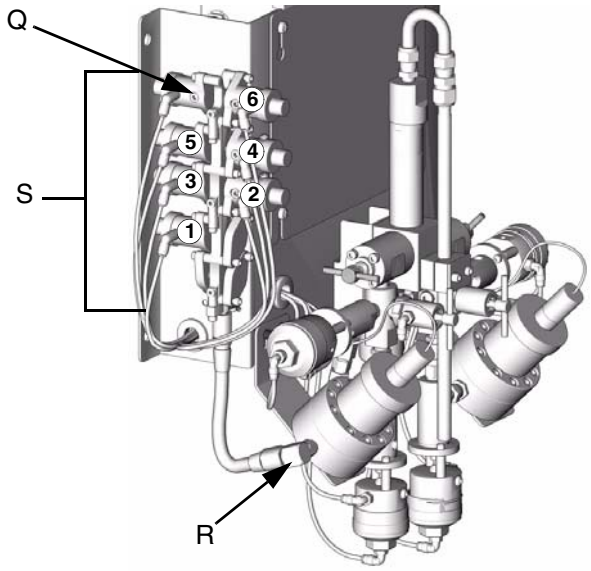


FIG. 13

Cable Connections

- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
- Enclose all cables routed in the spray booth and high traffic areas in conduit to prevent damage from paint, solvent, and traffic.
- All options ordered on the ProMix™ II system are electrically tested at the factory.

Power Requirements

The ProMix™ II operates with 85-250 VAC, 50/60 Hz input power, with a maximum of 2 amp current draw. The power supply circuit must be protected with a 15 amp maximum circuit breaker.

Not included with system:

- Power supply cord compatible to your local power configuration. Wire gauge size must be 8-14 AWG.
- Bulkhead strain relief sized for 22.4 mm (0.88 in.) hole that will hold the power supply cord in the EasyKey™ Display port (V). FIG. 14.

1. Provide power to the EasyKey™ Display. Use conduit to protect wiring.
2. Install the strain relief and power cord or conduit bulkhead through the EasyKey™ Display port (V). FIG. 14.

FIG. 14

3. See FIG. 21 for the L1, L2, and ground wiring connections inside the EasyKey™ Display.
4. Ground the Display to a true earth ground. See **Grounding,** page **23**.

Connect EasyKey™ Display to Smart Fluid Panel

There are two 50 ft.(15.2 m) cables to route between the EasyKey™ Display and Smart Fluid Panel: the Fluid Panel Power Cable (A) and the Fiber Optic Cable (C).

1. Connect the appropriate Fluid Panel Power Cable (A) end to the EasyKey™ Display connector VDC. FIG. 14.
2. Connect the other cable end to the Smart Fluid Panel connector VDC (B). FIG. 15.
3. The Fiber Optic Cable (C) is shipped from the factory attached to the EasyKey™ Display connector . FIG. 14.

If you need to detach the Fiber Optic Cable (C) from the EasyKey Display, note how the cable is routed inside the enclosure. Ensure that the door can swing open and close without catching or pulling wires.

4. Route the opposite Fiber Optic Cable end through the Smart Fluid Panel strain relief connector (D). FIG. 15. Do not route the cable with tight bends or kinks.

The fiber optic cable has a minimum bend radius of 1.6 in. (40 mm).

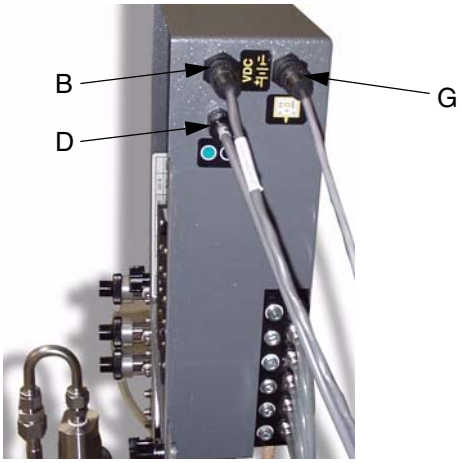


FIG. 15

5. Connect the blue and black cable connectors (E) to the matching connectors on the electrical circuit board. FIG. 16. Insert the cable connectors until they bottom out (approximately ¼" [6 mm]), then tighten the threaded connector.

CAUTION
Do not over-tighten or cause excessive stress on the circuit board connector.

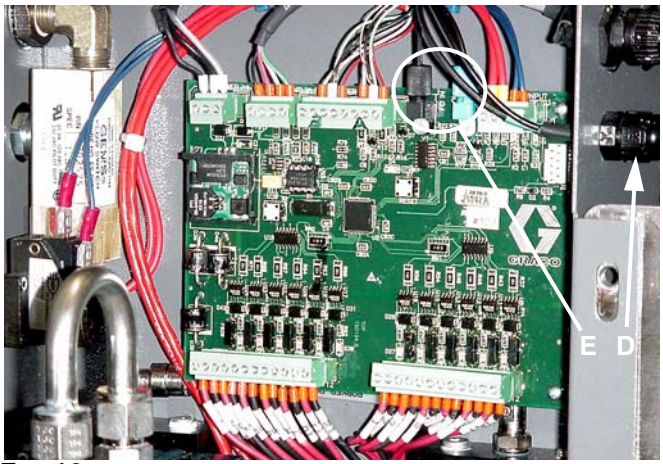


FIG. 16

6. Tighten the strain relief connector (D). FIG. 16.

Connect Operator Station to Smart Fluid Panel

The Operator Station cable (F) is factory wired into the Operator Station. FIG. 17. Do not disconnect the cable except to replace it. Route the 50 ft. (15.2 m) cable to the Smart Fluid Panel and connect it to the Operator Station connector (G). FIG. 15.

FIG. 17

Gun Flush Box

Refer to the Gun Flush Box manual for installation and connection instructions.

Printer

If using a printer, plug the printer cable into the EasyKey™ Display connector (H).

FIG. 18

Adding Flow Meters

If using flow meters other than those supplied with the system:

- You must provide a separate power source to the flow meter (unless it is a Graco G3000, G3000HR, or Graco HG6000 helical meter).
- Route the signal cables through the Smart Fluid Panel holes (J - FIG. 19) and into the enclosure through the strain reliefs (GG - FIG. 20). Leave enough slack in the cable so the enclosure (K) can be raised for service.
- See FIG. 20 for electrical connections.

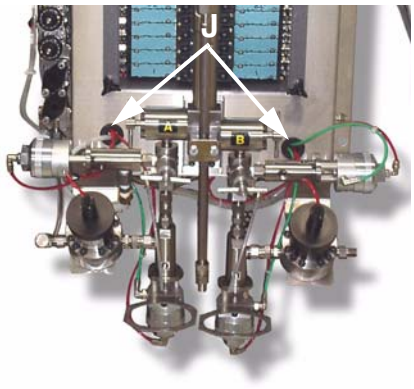


FIG. 19

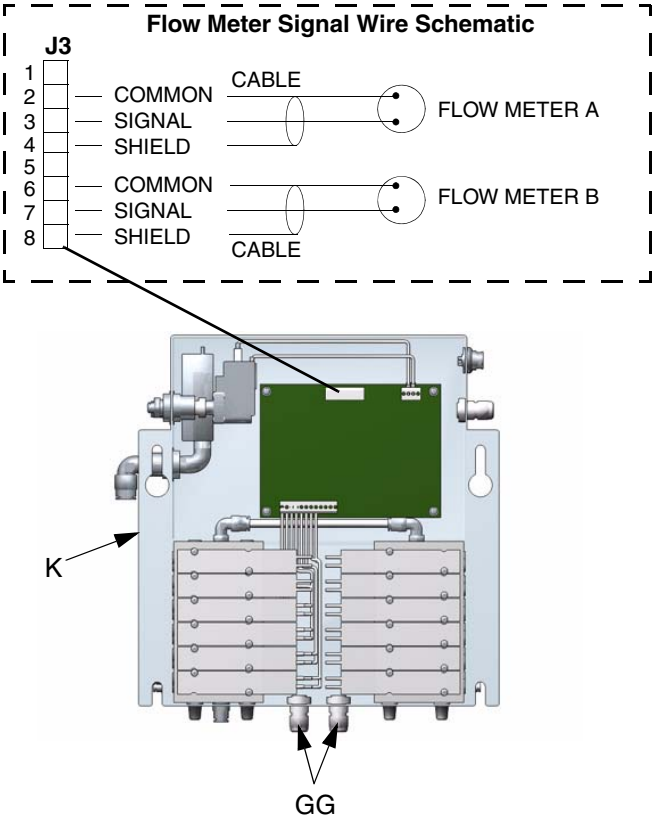


FIG. 20

Grounding

WARNING

Your system must be grounded. Read warnings, page 6.

For Intrinsic Safety:

Ground wires for the EasyKey™ Display, Smart Fluid Panel, Operator Station, and Gun Flush Box must all be connected to the same true earth ground. See FIG. 26, page 25.

Different ground points may cause current to flow through component cables, causing incorrect signals.

Ground the ProMix™ II system as instructed here and in the individual component manuals. A ground wire and clamp, part no. 222011, is available from Graco.

EasyKey™ Display

For Intrinsic Safety

Remove knock-out (FF) from bottom of EasyKey™ Display enclosure. FIG. 21. Install a bulkhead strain relief. Connect a ground wire to the ground block terminal (W). FIG. 22. Route the wire through the strain relief and connect it to a true earth ground.

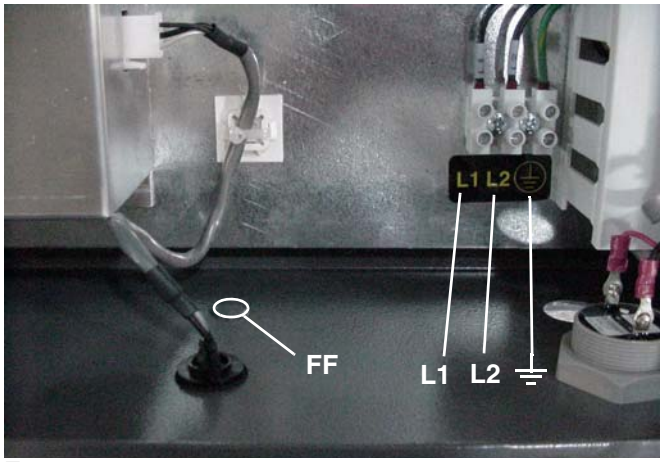


FIG. 21

FIG. 22

Smart Fluid Panel

Connect a ground wire from the Smart Fluid Panel ground lug (EE) to a true earth ground. FIG. 23.

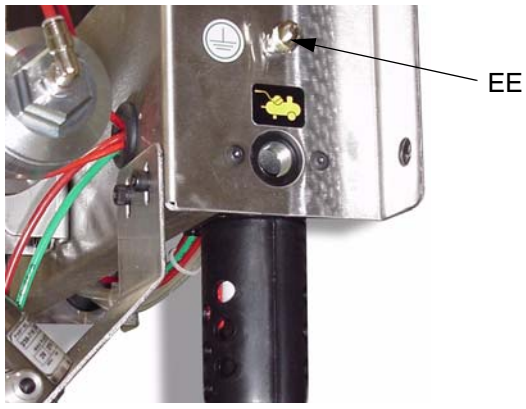


FIG. 23

Operator Station

Connect a ground wire from the Operator Station ground lug (Y) to a true earth ground. FIG. 24.

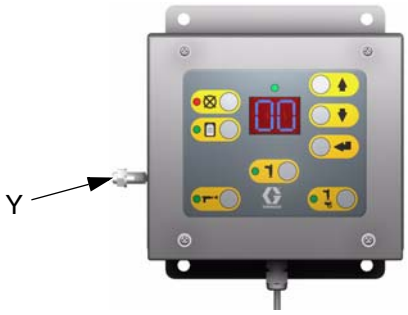


FIG. 24

Gun Flush Box

Connect a ground wire from the Gun Flush Box ground lug (BB) to a true earth ground. FIG. 25.

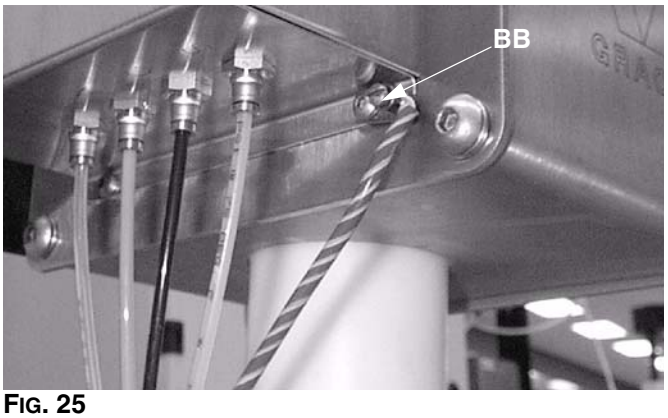


FIG. 25

Flow Meters

Connect the meter cables as instructed on page 22. Failure to properly connect the shield may cause incorrect signals.

Feed Pumps or Pressure Pots

Connect a ground wire and clamp from a true earth ground to the pumps or pots. See pump or pressure pot manual.

Air and Fluid Hoses:

Use grounded hoses only.

Spray Gun

Follow the grounding instructions in your gun manual.

Fluid Supply Container

Follow local code.

Object Being Sprayed

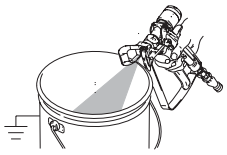
Follow local code.

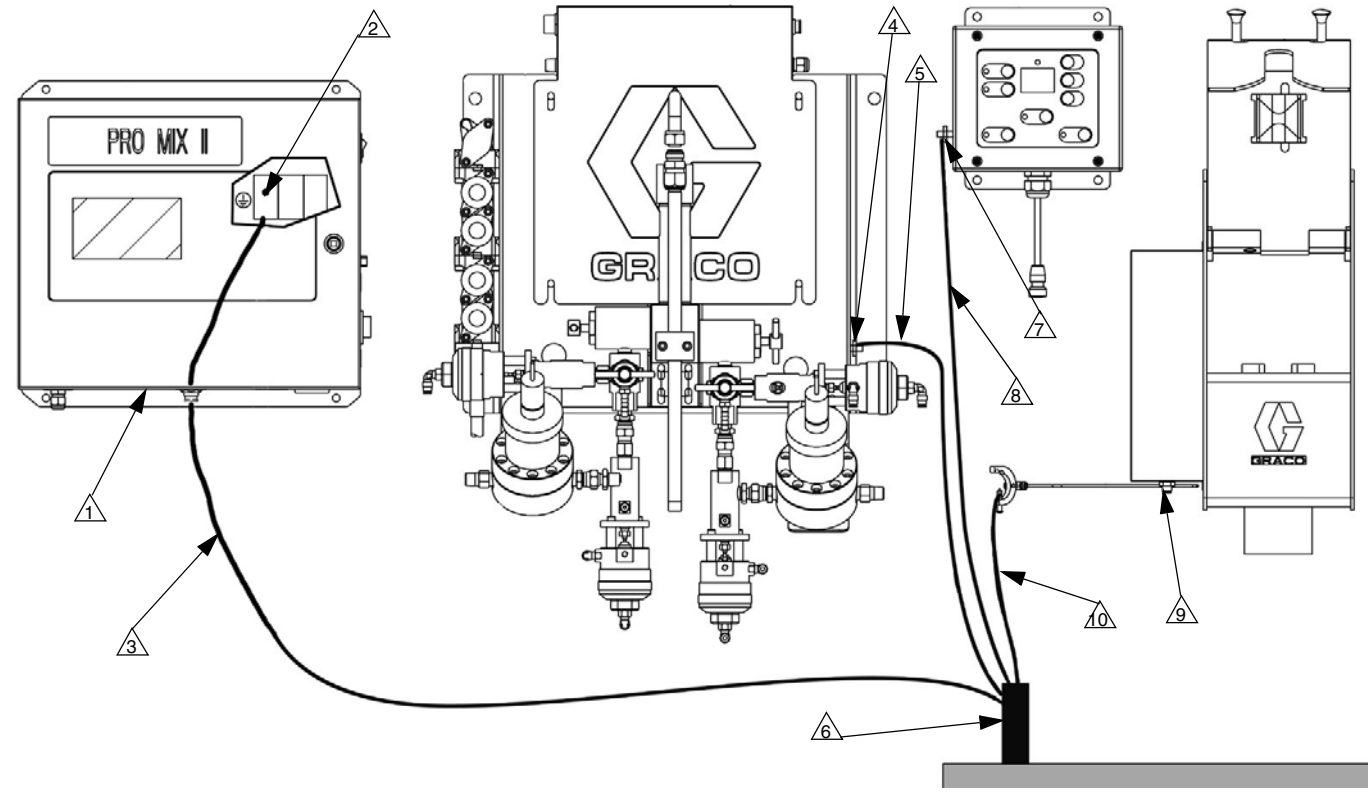
All Solvent Pails Used When Purging

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 the grounding continuity.

Maintain Grounding Continuity When Purging or Relieving Pressure

Hold a metal part of the gun firmly to a grounded metal pail while purging or relieving pressure. **Whenever you see the picture at right, remember to follow these instructions**.





Key:

Ground wires for the EasyKey™ Display, Smart Fluid Panel, Operator Station, and Gun Flush Box must all be connected to the same true earth ground. See FIG. 26, page 25. △6

△1 EasyKey™ Display

△2 EasyKey™ Display ground terminal

△3 Display Enclosure ground wire

△4 Fluid Panel ground wire connection point

△5 Fluid Panel ground wire

△6 True Earth Ground - check your local code for requirements

△7 Operator Station ground wire connection point

△8 Operator Station ground wire

△9 Gun Flush Box ground wire connection point

△10 Gun Flush Box ground wire

FIG. 26: Grounding

Check Resistance

⚠ WARNING

To ensure proper grounding, resistance between Pro-Mix™ II components and true earth ground **must** be less than 1 ohm. Read warnings, page 6.

Have a qualified electrician check resistance between each ProMix™ II component and true earth ground. If resistance is greater than 1 ohm, a different ground site may be required. Do not operate the system until the problem is corrected.

Operator Controls

Two devices provide operator interface; they are the *Operator Station* and the *Keypad* on the EasyKey™ Display.

Operator Station

Used by the operator for daily painting functions including: choosing color, initiating report printing, reading/clearing alarms, and placing the system in Standby, Mix, or Purge mode. It is typically mounted inside the booth or near the painter. The Operator Station consists of an LED display, LED mode indicator, and input keys. FIG. 27.

Operation Modes

 **Mix**

System mixes and dispenses material.

 **Purge**

Purges the system, using air and solvent.

 **Standby**

Stops the system.

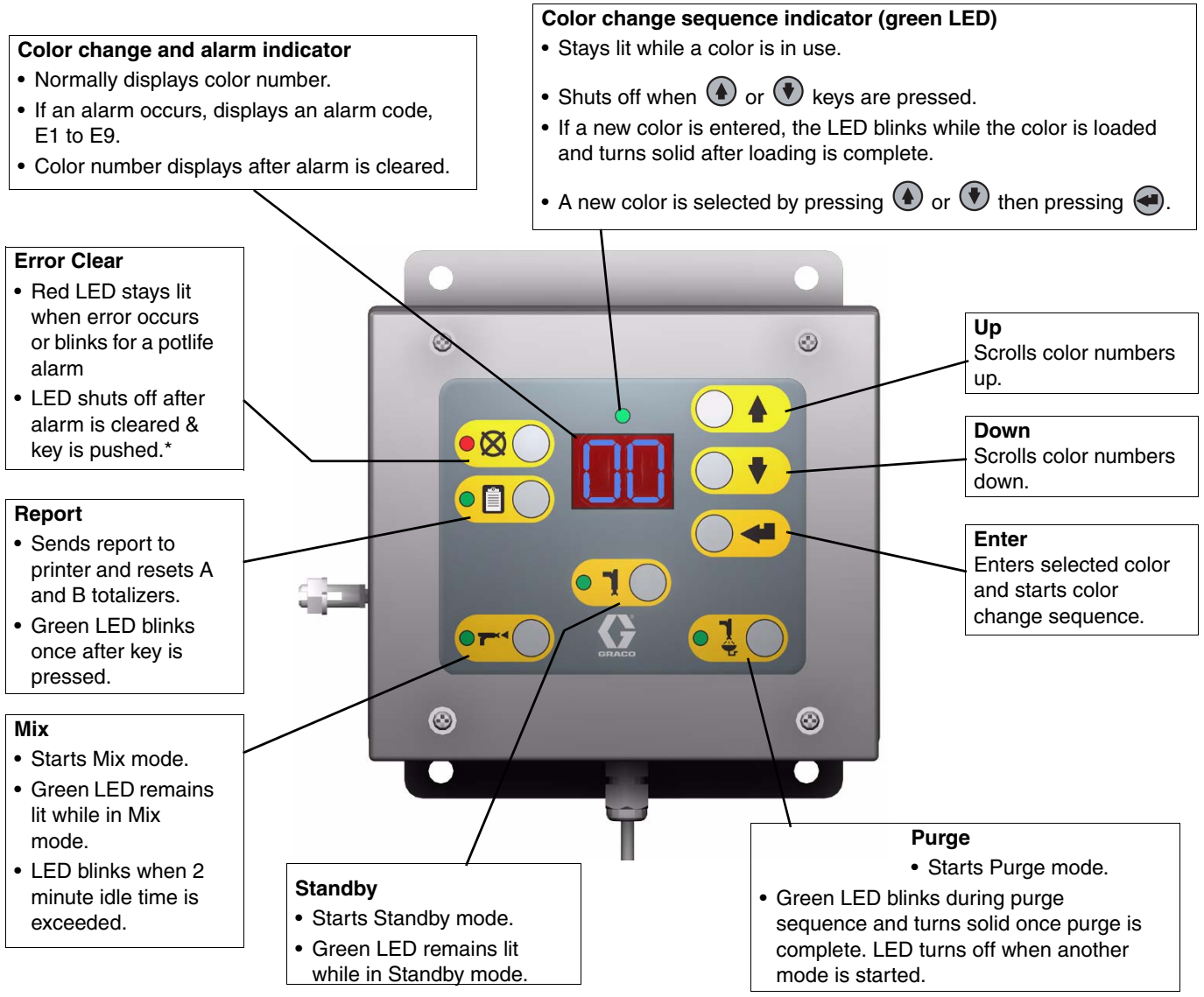


FIG. 27

* If a potlife alarm (code E3) occurs, you must purge the system with solvent or spray new mixed material before the alarm can be fully cleared.

- For additional information about alarms, see **Alarm Troubleshooting**, page 51.
- The number of colors available when scrolling with the ▲ or ▼ keys is determined during software setup. See page 32.
- Color 0 can be selected to purge the system (as an alternative to Purge key) on multiple color units. Refer to page 32.

EasyKey™ Display

FIG. 28

AC Power Switch

Turns system AC power on or off.

Keypad

Used to input numerical data, enter setup screens, scroll through screens, and select setup values. See page 31 for additional keypad/screen navigation information.

Backlit LCD Display

Shows graphical and text information related to setup and spray operations. There is a screen saver option available in the Advanced Setup Screen 3. Pressing any key brings the display out of screen saver mode.

Audible Alarm

Provided to alert the user when an alarm condition occurs. It will sound intermittently for a Potlife Exceeded alarm and continuously for all other errors. The alarm is cleared by pressing the Operator Station Error Clear ⊗ key.

Printer Port

The serial printer port (RS-232) is used with optional Printer Kit 234670, which enables you to print individual job tickets after each dispense transaction is complete. See page 43. Refer to printer manual 308818 for additional information.

Graco PC Cable Port

The Graco PC Cable Port is for use with the ProMix™ II Data Download Kit 234668, which enables you to communicate with the ProMix™ II from a PC to:

- ➜ Upgrade software
- ➜ View software version
- ➜ Download
  - job and alarm logs
  - material usage report
  - setup values (can also upload)
- ➜ Clear job, alarm, and material usage reports
- ➜ Upload a custom language to view on screen
- ➜ Restore factory defaults
- ➜ Restore setup password

See Data Download manual 310669 or ProMix™ II Service manual 310653 for more information.

Ethernet Connection

You can access data from the ProMix™ II on an office or industrial network or through the internet with the proper network configuration. You will need an external module, commonly called an Ethernet to Serial Converter, that converts serial data (RS-232) to ethernet.

Converters are available from electronics suppliers such as B&B Electronics and Omega.

Some converters are powered by 24 VDC power and are DIN rail mounted. Do not power any external device using the ProMix™ II power supply; an external power supply must be used.

! **IMPORTANT:** Once modifications are made to the ProMix™ II electronics, the electrical approvals may no longer apply. Contact your Graco distributor for details

Wire the serial to ethernet converter on the EasyKey™ control board as follows.

Connection	Function
J6-1	RS-232 Transmit
J6-2	RS-232 Receive
J6-3	RS-232 Ground

Run Mode

Power Up Screens

When the EasyKey™ power switch is turned on, the Graco logo and current software revision displays.

Run Screen

This screen displays the operating status of the system and is the default screen after powering up.

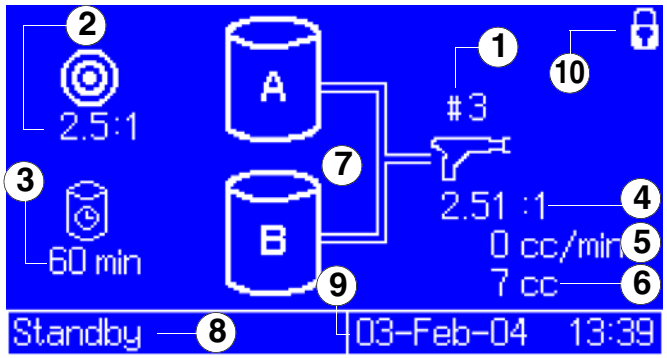


FIG. 29: Run Screen

Key

① **Active Color:** color selected at Operator Station.

② **Target Ratio:** for the selected color. The ratio can be from 0.0:1–30.0:1.

③ **Potlife Timer:** shows remaining potlife time in minutes.

④ **Actual Ratio:** in hundredths.

⑤ **Current Flow Rate:** in cc/min.

⑥ **Total Job Volume:** in cc or oz. Total Job Volume (A + B) is reset to zero each time the Report key is pressed on the Operator Station, or after a color change or purge.

⑦ **Animation:** When there is flow, the gun appears to spray, and the component A or B hose light up, showing which component dispense valve is open.

⑧ **Status Bar:** shows current alarm or operation mode (Mix, Standby, Purge, or Color change to #).

⑨ **Current Date and Time**

⑩ **Security Level:** a padlock appears on the screen if a password is required to enter Setup mode. If the password was set to “0”, no padlock appears and setup can be entered without a password.

The only key that functions with the Run Screen is the Setup key (used to enter Setup mode).

Setup Mode

Entering Setup

Press the Setup key to enter or exit Setup.

Password Screen

If a password was activated, you must enter the password before entering Setup mode. Refer to **Advanced Screen 3**, page 37. Entering the wrong password returns you to the Run Screen.

If you forget the password, you can reset the password (to 0), using the ProMix™ II Data Download Kit 234668

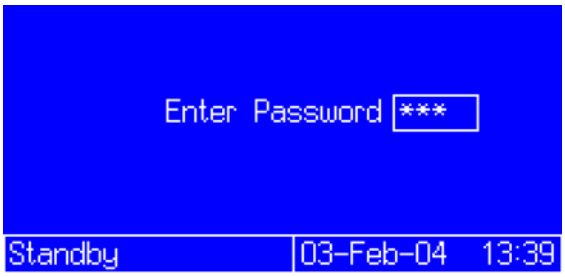


FIG. 30: Setup Mode - Password Screen

If a password is activated, “Setup Locked” displays momentarily after exiting Setup mode and returning to the Run Screen.

FIG. 31

Setup Screen Menu

The Setup Screen Menu appears at the bottom of all Setup screens, with the current screen highlighted. FIG. 32.

Advanced setup has 3 screens. All other setup selections have only 1 screen.

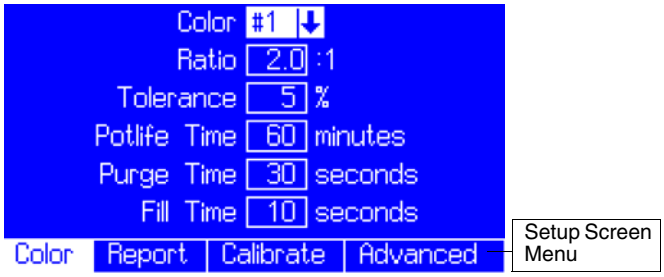


FIG. 32: Setup Mode - Color Setup Screen

Key Commands

In addition to the numbered keys on the EasyKey™ keypad, which are used to enter values in setup, there are the following keys to navigate within a screen and between screens, and to save entered values.

Key	Function
	Setup: press to enter or exit Setup mode.
	Enter: if cursor is in drop-down list box, press Enter key to view drop-down list. See FIG. 33. Press Enter to save a value either keyed in from the numerical keypad or selected from a drop-down list.
	Up Arrow: move to previous field or drop-down list item.
	Down Arrow: move to next field, or drop-down list item.
	Left Arrow: move to previous screen.
	Right Arrow: move to next screen.

Color Screen

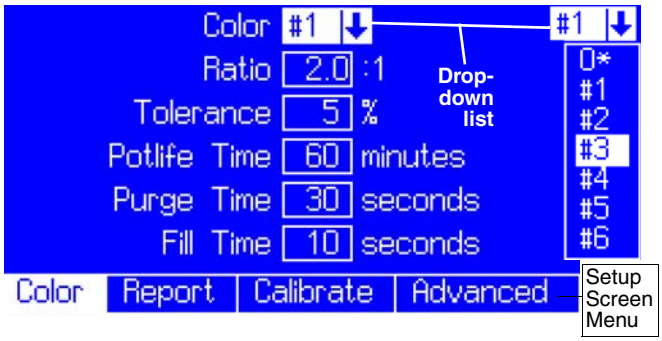


FIG. 33: Setup Mode - Color Setup Screen

Use the Color screen to enter information about each of the colors available on the system. The Color screen is also used to setup system purge time, using Color 0 (page 32).

Color

Select the number for the color you want to setup or edit.

- Only the number of colors selected in Advanced Screen 2 (page 36) are shown on the Color drop-down list.
- Selecting a different color in the Setup mode does not affect the color currently selected on the Operator Station.

Colors 1-6 Setup

There are five values to set. Use information from the material data sheet or from your material supplier.

Ratio

Set the volumetric ratio of component A to B from 0.0:1 to 30:1, in increments of 0.1.

0.0:1 is a special setting, indicating only component A is dispensed, for use with 1 component materials.

Tolerance

Set the ratio tolerance of the color from 1–99% in increments of 1%. To minimize nuisance alarms, select the largest tolerance value that meets the paint manufacturer's recommendations and your production requirements.

Potlife Time

Set the potlife time from 1–999 minutes in increments of 1 minute. Select a time that is within your material's sprayable potlife time so if the potlife is exceeded and an alarm occurs, you have sufficient time to spray or purge the mix material from the system.

CAUTION
The ProMix™ II potlife timer will not function properly when used with multiple guns operating simultaneously. To avoid having mixed material set in the equipment, carefully monitor potlife by some other means.

Purge Time

This setting is used during Purge mode and color change. It can be set from 0–999 seconds in increments of 1 second. See **ProMix™ II Purge Sequence** and **ProMix™ II Color Change Sequence**, page 33.

Fill Time

This setting is used during color change to set the amount of time the system spends loading the new color. It can be set from 0–999 seconds in increments of 1 second. Set Fill Time for at least 5 seconds longer than the time it takes to see a new color at the gun. See **ProMix™ II Color Change Sequence**, page 33.

Color 0 Setup

Color 0 is used in multiple color systems to purge out material lines without loading a new color. It is typically selected at the end of a shift to prevent hardening of catalyzed material.

When you select 0 from the setup Color list, the Color 0 Setup screen appears. Set purge time from 0–999 seconds in increments of 1 second.

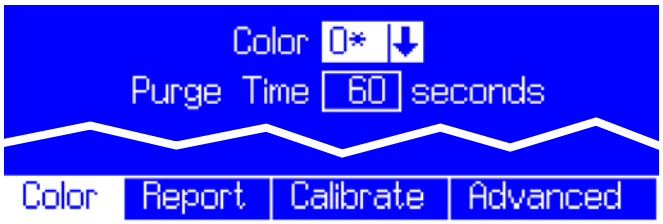
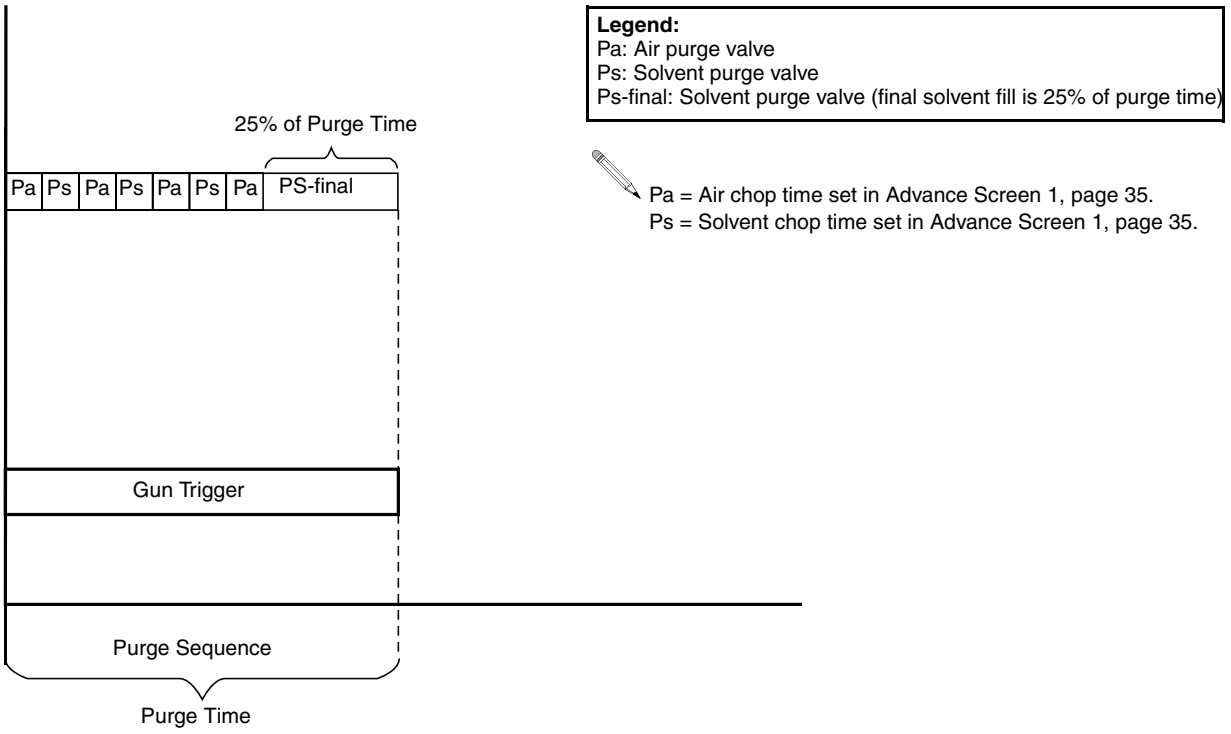


FIG. 34: Setup Mode - Color 0 Setup Screen

ProMix™ II Purge Sequence



ProMix™ II Color Change Sequence

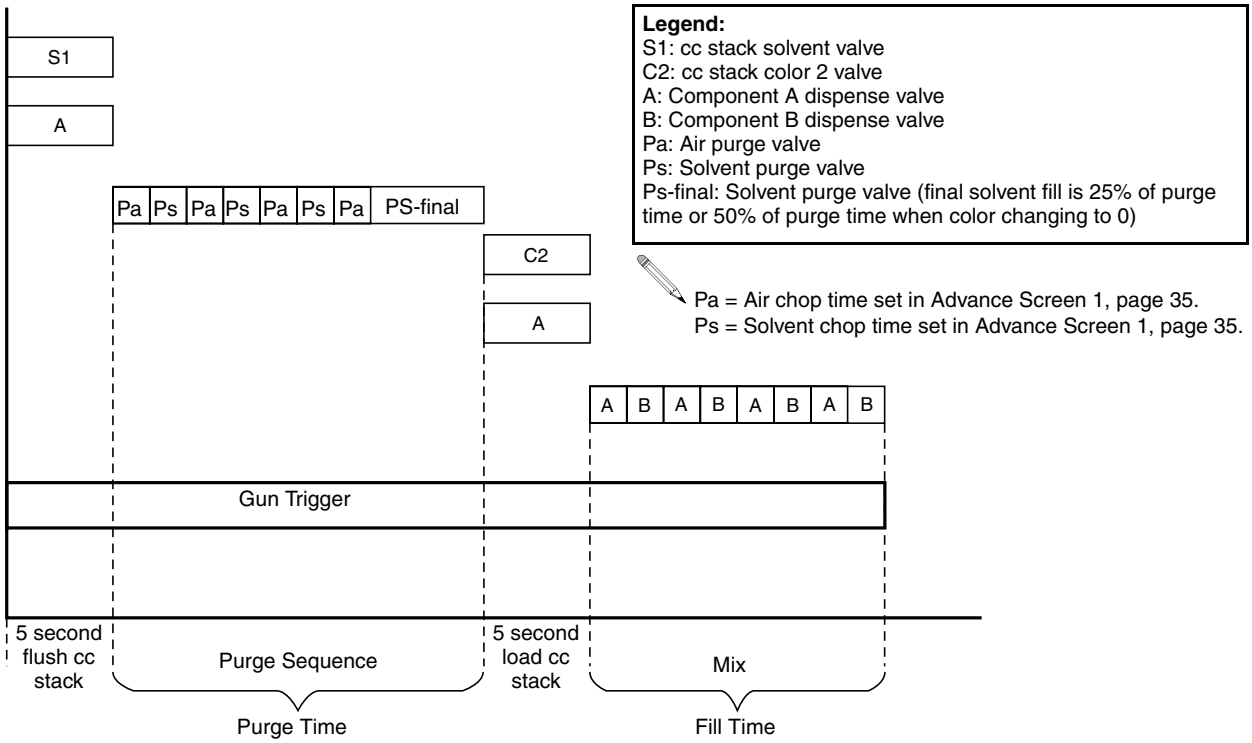


FIG. 35

Report Screen

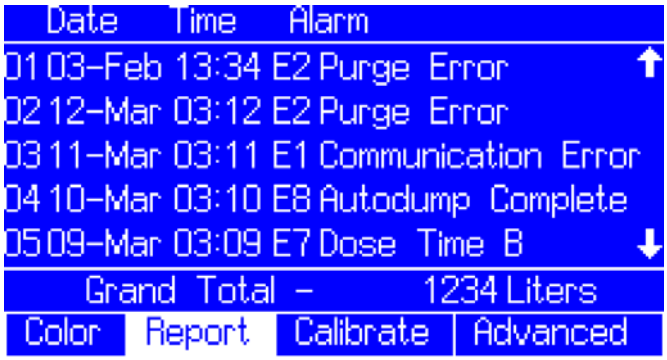


FIG. 36: Setup Mode - Report Screen

The Report Screen shows the most recent 10 alarms, with the date and time. Use the ▲ or ▼ keys to see all the alarms. The grand total of components A and B is displayed in liters or gallons, based on the units set in Advanced Screen 1. Grand total cannot be reset.

There are no selectable settings on the Report Screen.

The optional ProMix™ II Data Download Kit 234668 enables you to download and view the most recent 100 alarms or events.

Calibrate Screen

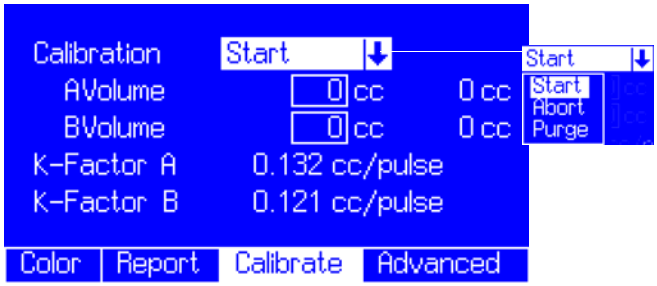


FIG. 37: Setup Mode - Calibrate Screen

Use this screen to calibrate a meter.

- **Start -** start calibration
- **Abort -** stop calibration
- **Purge -** purge sampling valves after calibration

See **Meter Calibration**, page 49, for when and how to calibrate meter.

Advanced Screens

Advanced setup has 3 screens. The screen number appears on the right side of the screen. FIG. 38.

Press key to show drop-down lists and to enter your selection.

Advanced Screen 1

FIG. 38: Setup Mode - Advanced Screen 1

Language

Defines the language of the screen text. Select English (default), French, German Spanish, Japanese (Kanji), and Chinese (simplified).

Custom screen languages can be loaded, using the ProMix™ II Data Download Kit 234668.

Usage Report

Options are to take No Action or:

- **Print -** sends Material Usage Report to printer. (Totals are not cleared.) Printout is in cc or oz, depending on Display Units setting. ProMix™ II must be in Standby mode.
- **Clear -** Resets all color totals to zero.

Example: Material Usage Report

Material Usage
Start Time: 09-Dec-2003 12:24:08
End Time: 09-Dec-2003 12:26:19

Color	A (cc)	B (cc)
1	51	17
2	0	0
3	100	25
4	20	10
5	0	0
6	0	0

Display Units

Select cc/Liter (default) or oz/Gallon. Effects units used for Run screen job totalizers, Report screen grand total volume, and the potlife volume set on Advanced Screen 2. All other volumetric values remain as cc, cc/min., and cc/pulse.

Dose Size

A *dose* is the volume of fluid that flows through the system in one complete cycle of dispense valves A and B. The optimal dose size depends on the mix ratio, flow rate, and ratio tolerance of the fluid you are using.

In general, mix quality is better with smaller dose sizes. However, due to the uncertainty of the valve timing, smaller dose sizes can generate more off-ratio conditions, especially at high flow rates. Repeated trial and adjustment may be necessary to find the optimal dose size and ratio tolerance.

Select from these 3 settings:

- **25 cc -** (default) works well for most applications. It is small enough for good integration, while still avoiding nuisance alarms.
- **50 cc -** is best used when an application has high fluctuations in mix ratio, such as when using a high flow rate (> 2000 cc/min.) or flow meters with lower resolution (K-factor > 0.2 cc/pulse).
- **Automatic -** is a setting that eliminates the need to repeatedly adjust the dose size and tolerance. Each time the Mix key is pressed, the ProMix™ II chooses between 15 cc, 25 cc, or 50 cc dose sizes, based on how well the ratio was maintained during the last application of the color selected. This is especially beneficial when using a very low flow rate (< 100 cc/min.).

Air Chop

Defines time (in seconds) that air is dosed during air-solvent chop, which is used during the purge and color change sequences. Set from 0-999 seconds. Default is 1 second.

Solvent Chop

Defines time (in seconds) that solvent is dosed during the air-solvent chop. Set from 0-999 seconds. Default is 2 seconds. See **ProMix™ II Purge Sequence** and **ProMix™ II Color Change Sequence**, page 33.

Advanced Screen 2

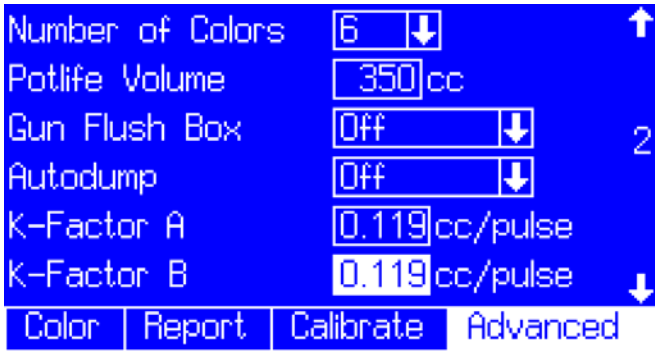


FIG. 39: Setup Mode - Advanced Screen 2

Number of Colors

Defines the number of colors available for component A and determines the number of colors available on Color Setup screen and choice of colors on Operator Station. Select 1, 2, 3, 4, 5, or 6.

If you have a one color ProMix™ II system, you can only select “1” for number of colors. To add color change you must purchase a Graco ProMix™ II Color Change Kit. See ProMix™ II Service manual 310653.

Potlife Volume

Set to the total volume of mixed fluid in the system. This includes the mix manifold, integrator, static mixer, fluid hose, and applicator. The ProMix™ II controller uses this volume and the Potlife Time to determine if the mixed material has been in the system longer than the potlife time.

The potlife volume is set in either ounces or cc based on units selected in Advanced Screen 1. Set from 0-999 cc or 0-33 ounces. If you change the units, this value updates to the new units. Default is 350 cc (12 oz.).

The volume of the ProMix™ II mix manifold, integrator, and static mixer is 100 cc. To determine the volume of your fluid hose to the gun, use the following information.

Hose Volume

English Units

Hose volume = 154.4 x $(ID)^2$ (in.) x Length (ft.)

Metric Units

Hose volume = 0.785 x $(ID)^2$ (mm) x Length (m)

Potlife Volume

Potlife volume = 100 cc + Hose Volume

Example:

If you are using a 25 ft., 1/4 in. ID fluid hose:

Hose volume = 154.4 x $(0.25 \text{ in.})^2$ x 25 ft. = 241 cc

Potlife volume = 100 cc + 241 cc = 341 cc

Potlife Volume (cc) Tables

Table 1: English Measures

Hose ID (in.)	Hose Length (ft.)				
	25	**36**	**50**	**75**	**100**
3/16	236	295	371	507	643
1/4	341	447	582	824	1065
5/16	477	643	854	1231	1608
3/8	643	882	1186	1728	2271

Table 2: Metric Measures

Hose ID (mm)	Hose Length (m)				
	10	**15**	**20**	**25**	**30**
4	226	288	351	414	477
6	383	524	665	806	948
8	602	854	1104	1356	1607
10	885	1278	1670	2062	2455

Gun Flush Box

Select Off (default) or On, depending on whether you have a gun flush box.

Autodump

Select Off (default) or On. You can only use Autodump if you have a gun flush box. If On, ProMix™ II will automatically purge the mixed material 2 minutes after potlife time has expired, and the gun is in the gun flush box. This prevents mixed material from setting up in the material lines.

K-Factor A and K-Factor B

Defines the K-factors in cc/pulse for the two flow meters. Enter a value from 0.001-0.999. Default is 0.119. Refer to your flow meter manual for the recommended K-factor. Calibrate meters to verify meter operation.

The maximum meter pulse frequency input to the ProMix™ II is 425 Hz (pulse/second). Use a flow meter with a K-factor that does not exceed 425 Hz output while operating at your maximum flow rate

For a given maximum flow rate in cc/min., the smallest allowable K-factor in cc/pulse is:

$$\text{Minimum K-factor} = \frac{\text{Maximum Flow Rate (cc/min.)}}{25{,}500}$$

Advanced Screen 3

FIG. 40: Setup Mode - Advanced Screen 3

Month

Enter current month.

Day

Enter current day.

Year

Enter current year (four digits).

Time

Enter current time in hours (24 hour clock) and minutes. Seconds are not adjustable.

Password

Is only used to enter Setup mode. The default is 0, which means no password is required to enter setup. Enter a number from 1–9999 if a password is desired.

Screen Saver Time

Defines the number of minutes a screen can be inactive before the screen saver turns on (screen dims). Press any key to restore the screen. A setting of 0 (default) turns the screen saver off. Time can be set from 1-99 minutes.

Operation

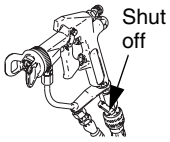
Pressure Relief Procedure

WARNING

Follow **Pressure Relief Procedure** when you stop spraying, before changing spray tips, and before cleaning, checking, or servicing equipment. Read warnings, page 6.

1. Engage the trigger lock. 

2. Press Standby key on Operator Station.

3. Shut off air at the spray gun. 

WARNING

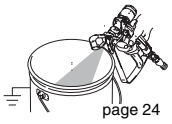
If using an electrostatic gun, shut off electrostatics before flushing.

4. Relieve fluid and air pressure at component A and B and solvent feed pumps or pressure pots as instructed in their separate manuals. Close all fluid supply shutoff valves.

5. Press Mix on Operator Station.

6. Disengage trigger lock. 

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



8. Engage trigger lock. 

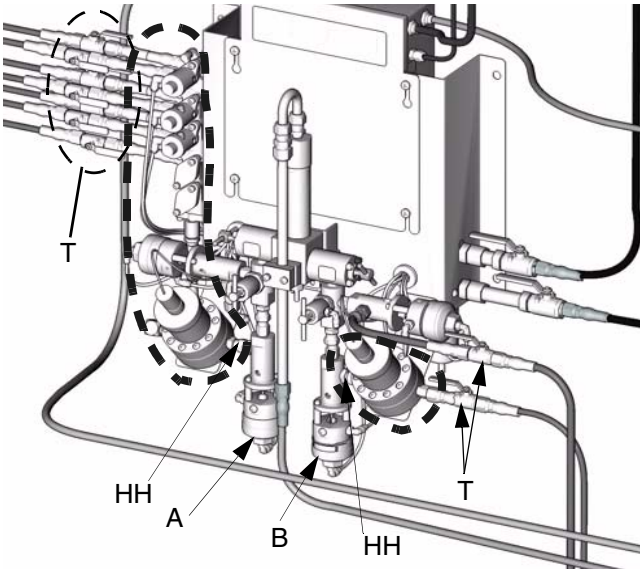
9. Press Standby on Operator Station.

10. *If you suspect that the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above,* very slowly loosen tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.

WARNING

Pressure upstream of component A and B dispense valves (A, B) may not be fully relieved.

11. *Before servicing or disconnecting flow meters, color change valves, or other components between the fluid supply shut off valves (T) and dispense valves A and B,* very slowly loosen meter swivel fitting (HH) to relieve pressure gradually.



Trigger Lock

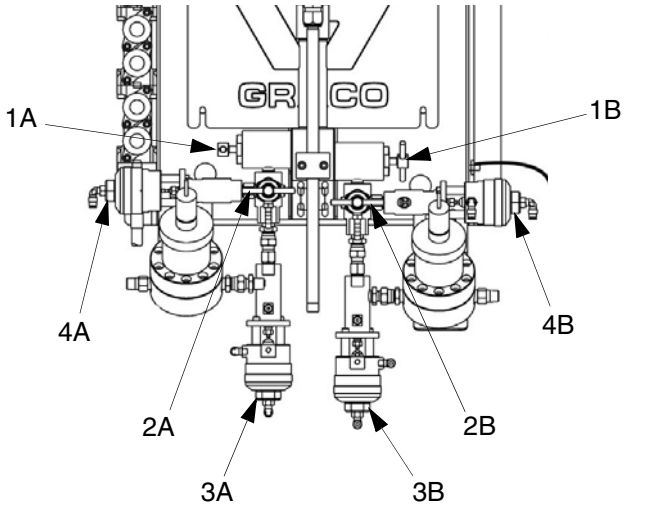
Always engage the trigger lock when you stop spraying to prevent the gun from being triggered accidentally. Read warnings, page 6.

Trigger locks can vary. Follow instructions in your gun manual.

Start Up

1. Go through **Checklist**,

✓	Checklist
	System grounded Verify all grounding connections were made. See **Grounding**, page 23.
	All connections tight and correct Verify all electrical, fluid, air, and system connections are tight and installed according to **Installation** instructions, page 12.
	Fluid supply containers filled Check component A and B and solvent supply containers.
	Mix manifold valves set Check that mix manifold valves are set correctly. Start with the settings recommended in **Mix Manifold Valve Settings**, below, then adjust as needed.
	Packing nuts on dispense and purge valves correctly torqued Use a 3/8” or 10 mm wrench to torque the dispense and purge valves packing nuts (D) to 25 in-lbs (2.8 N•m). FIG. 41. Repeat this torque weekly to extend valve life and avoid leakage.
	Fluid supply valves open and pressure set Component A and B fluid supply pressures should be equal unless one component is more viscous and requires a higher pressure setting.
	Solenoid pressure set 75-100 psi inlet air supply (0.5-0.7 MPa, 5.2-7 bar)



Mix Manifold Valves

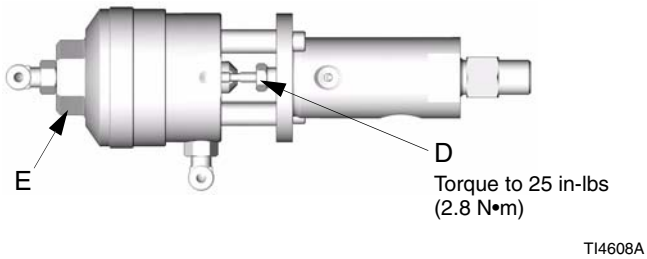


FIG. 41

Mix Manifold Valve Settings

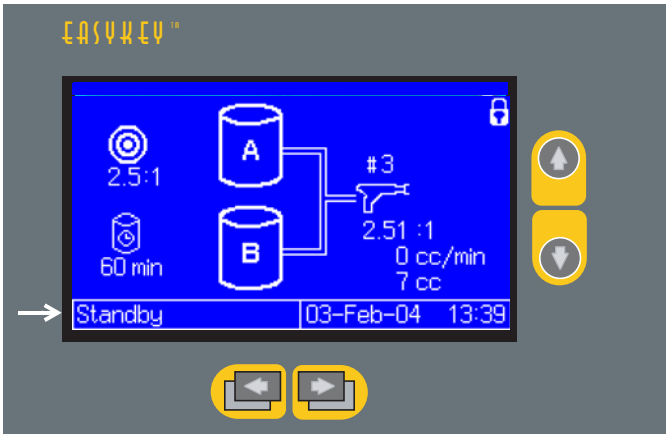
To open dispense or purge valves, turn their hex nut (E) *counterclockwise*. To close, turn *clockwise.* FIG. 41.

Valve	Hex Nut (E) Setting	Function
Dispense (3A, 3B)	1 turn out from fully closed	Limits maximum fluid flow rate into integrator and minimizes valve response time.
Purge (4A, 4B)		
Fluid Shutoff (1A, 1B)	Fully open during Run/Mix operation	Closes component A and B ports to integrator during ratio check or meter calibration. Open ports during Run/Mix operation.
Sampling (2A, 2B)	Fully closed during Run/Mix operation	Opens valves to dispense component A and B while calibrating meters. Do not open sampling valves unless fluid shutoff valves are closed.

2. Turn the EasyKey™ Display AC Power Switch on (I = on, 0 = off).

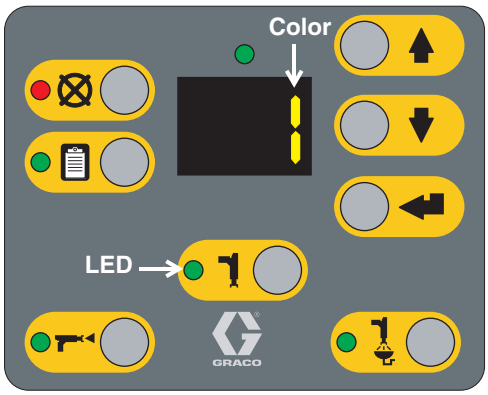
➜ Graco logo and software revisions display, followed by Run screen.

➜ In bottom left corner, the system status displays, which can be Standby, Mix, Purge, or an alarm notification.



Run Screen

➜ Verify that the Operator Station is working. The active color number and Standby LED should be lit.



Operator Station Screen

3. If this is the first time starting up the system, purge it as instructed in **Purging Fluid Supply System**, page 46. The equipment was tested with lightweight oil, which should be flushed out to avoid contaminating your material.

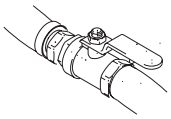
4. Setup your system as instructed in **Key Commands**, page 31.

5. Make sure that the Operator Station is in Standby mode.

6. Adjust component A and B fluid supplies as needed for your application. Use lowest pressure possible.

7. Do not exceed the maximum rated working pressure shown on the system ID panel (refer to page 3) or the lowest rated component in the system.

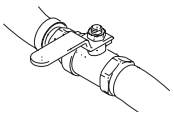
8. Open the fluid supply valves to the system.



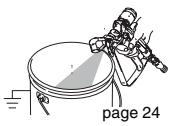
9. Adjust the air pressure to the Pro-Mix™ II system. Most applications require about 80 psi (552 kPa, 5.5 bar) air pressure to operate properly. Do not use less than 75 psi (517 kPa, 5.2 bar).

10. Purge air from the fluid lines.

a. Shut off air to the gun by closing the air regulator or shutoff valve for the gun atomizing air.



b. Trigger the gun into a grounded metal pail.



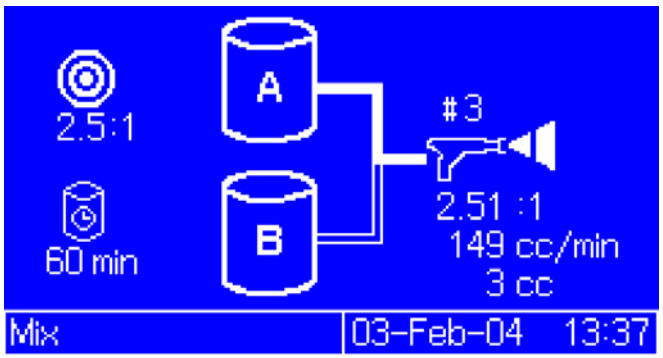
c. Press Mix on Operator Station.

d. If the flow meters over-run because of air in the system, an alarm will occur and operation stops. Press key to clear alarm.

e. Press Mix.

11. Adjust the flow rate.

The fluid flow rate shown on the EasyKey™ Run screen is for either component A or B, depending on which dispense valve is open. The fluid supply lines on the screen highlight to show which dispense valve is open.



Component A Dispensing

Watch the fluid flow rate displayed on the Run screen while the gun is fully open. Verify that the flow rate of components A and B are within 10% of each other.

If the fluid output is too low: increase air pressure to component A and B fluid supplies or increase the regulated fluid pressure.

If the fluid output is too high: reduce the air pressure, close the fluid manifold dispense valves further, or adjust the fluid pressure regulator.

Pressure adjustments of each component will vary with fluid viscosity. Start with the same fluid pressure for component A and B, then adjust as needed.

CAUTION
Do not use the first 4-5 oz. (120-150 cc) of material as it may not be thoroughly mixed due to alarms while priming the system.

12. Turn on atomizing air to the gun. Check the spray pattern as instructed in your spray gun manual.

CAUTION
Do not allow the fluid supply tank to run empty. It is possible for airflow in the supply line to turn gear meters in the same manner as fluid. This can lead to the proportioning of fluid and air that meets the ratio and tolerance settings of the machine. This can further result in spraying uncatalyzed material.

Color Change

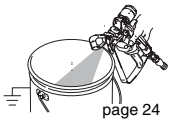
Integrated Color Change - for multiple color systems

1. Shut off air to the gun.

WARNING

If using an electrostatic gun, shut off the electrostatics before placing the gun in the gun flush box.

2. Place the gun in the gun flush box if used, and close the door.
3. The system can remain in Mix mode or switched to Standby at the Operator Station.
4. Use the scroll keys, or , to select the new color. Press Enter to begin the color change sequence (see page 33).
5. If a gun flush box is not used, trigger the gun into a grounded metal pail until the color change sequence is complete.



6. When the color change indicator light stops flashing on the Operator Station, the color change sequence is complete.

The color change timer does not start until the gun is triggered and fluid flow is detected. If no flow is detected within 2 minutes, the color change operation aborts. The Operator Station switches to Standby mode at the previous color.

7. When you are ready to spray, remove the gun from the gun flush box if used, and close its door.

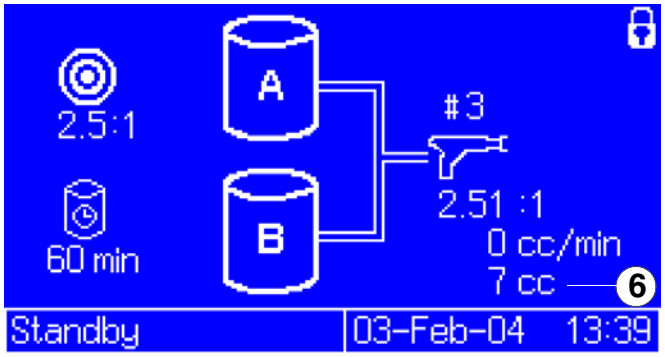
The gun flush box door must be closed for the atomizing air valve to open.

8. Press Mix to start spraying.

Color Change - for single color systems

1. Follow procedure for **Purging Fluid Supply System**, page 46.
2. Load the new color as instructed in **Start Up**, page 39.
3. Press Mix to start spraying.

Printing Job Log



If a printer is connected to the EasyKey™ Display, you can press the Report key to generate a Job Log report. The EasyKey™ Display resets the Total Job Volume (6) and sends the report to the printer.

Job Log Report Example

Job:	1
Color:	3
Start Time:	03-Feb-2004 12:07:48
End Time:	03-Feb-2004 13:38:04
Target Ratio:	2.5:1
Ave Ratio:	2.51: 1
Volume A	282 cc
Volume B	112 cc
Alarm:	NO ALARMS

- To print a Material Usage Report, see page 35.
- The Job Log and other reports can be viewed or printed using the Graco Data Download Kit 234668.

Shutdown

1. To stop production at any time, press Standby on the Operator Station.
2.

WARNING


If using an electrostatic gun with a gun flush box, shut off the electrostatics before placing the gun in the box.

3. If you have a gun flush box, place the gun inside the box when the gun is not in use.
4. ***If your shutdown time WILL exceed the potlife,*** follow the procedure **Purging Mixed Material**, page 44.

   If your shutdown time WILL NOT exceed the potlife, you do not need to purge the system, but you must relieve system pressure.

WARNING

Follow **Pressure Relief Procedure** on page 38 when you stop spraying, before changing spray tips, and before cleaning, checking, or servicing equipment. Read warnings, page 6.

Purging

WARNING

Read warnings, page 6. Follow **Grounding** instructions, page 23.

WARNING

To avoid splashing fluid in the eyes, wear eye protection.

There are 4 purging procedures in this manual:

- Purging Mixed Material (below)
- Using Color 0 (page 45)
- Purging Fluid Supply System (page 46)
- Purging Sampling Valves and Tubes (page 48)

Use the criteria listed in each procedure to determine which procedure to use.

Purging Mixed Material

There are times when you only want to purge the fluid manifold, such as:

- end of potlife
- breaks in spraying that exceed the potlife
- overnight shutdown
- before servicing the fluid manifold assembly, hose or gun.

Solvent purges the component B (catalyst, right) side of the mix manifold and the inner tube of the integrator. Air purges the component A (resin, left) side and the outer tube of the integrator.

1. Press Standby on the Operator Station.
2.

WARNING

Follow **Pressure Relief Procedure**, page 38. Engage trigger lock. If you are using a high pressure gun, remove spray tip and clean tip separately.

3.

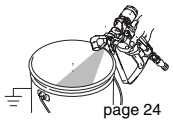
WARNING

If using an electrostatic gun with a gun flush box, shut off the electrostatics before placing the gun in the box.

4. Set the solvent supply pressure regulator at a pressure high enough to thoroughly purge the system in a reasonable amount of time but low enough to avoid splashing or an injection injury. Generally, a setting of 100 psi (0.7 MPa, 7 bar) is sufficient.
5. If using a gun flush box, place the gun into the box.

   Press Purge key on the Operator Station. The purge sequence automatically starts.

   If the gun flush box is not used, trigger the gun into a grounded metal pail until the purge sequence is complete.



   When done purging, the Operator Station automatically switches to Standby mode.
6. If the system is not completely clean, repeat step 5.

If necessary, adjust purge sequence so only one cycle is required.

7.

WARNING

Follow **Pressure Relief Procedure**, page 38. Engage trigger lock.

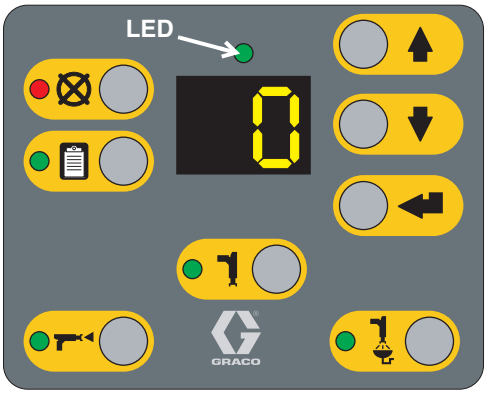
8. If spray tip was removed, re-install it.
9. Adjust the solvent supply regulator back to its normal operating pressure.

Using Color 0

Color 0 is typically used:

- in multiple color systems to purge out material lines without loading a new color
- at the end of a shift to prevent hardening of catalyzed material.

To setup Color 0, see page 32.



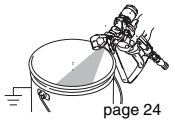
Operator Station Screen

1. Press Standby on the Operator Station.
2.

WARNING


If using an electrostatic gun with a gun flush box, shut off the electrostatics before placing the gun in the box.

3. If using a gun flush box, place the gun into the box.
4. Select Color 0 and press Enter.
5. If a gun flush box is not used, trigger the gun into a grounded metal pail until the purge sequence is complete.



6. The color change LED blinks while Color 0 runs and turns solid after purge sequence is complete.

   If the system is not completely clean, you can repeat Color 0 by pressing.

Purging Fluid Supply System

Follow this procedure before:

- the first time material is loaded into equipment*
- servicing
- shutting down equipment for an extended period of time
- putting equipment into storage

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

1. Press Standby on the Operator Station.

2.

WARNING

Follow **Pressure Relief Procedure**, page 38. Engage trigger lock. If you are using a high pressure gun, remove spray tip and clean separately.

3.

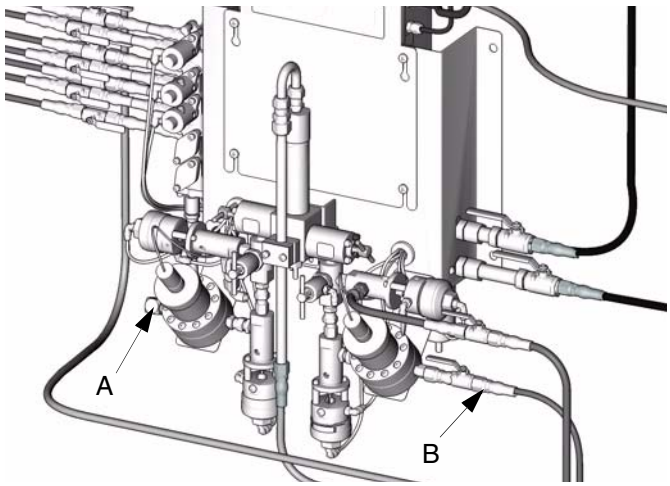
WARNING

If using an electrostatic gun with a gun flush box, shut off the electrostatics before placing the gun in the box.

4. Attach solvent supply lines.

➜ **Single color systems:** disconnect the component A and B fluid supplies at the flow meter inlet, and connect regulated solvent supply lines.

➜ **Multiple color systems,** disconnect only the component B fluid supply at the flow meter inlet and connect a regulated solvent supply line.

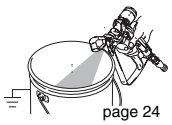


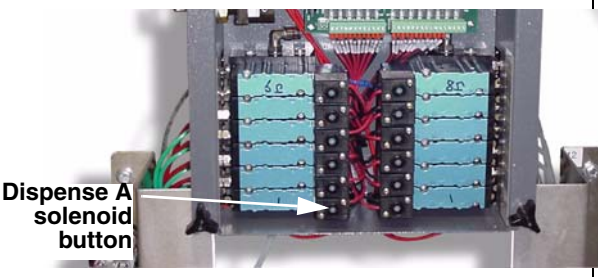
5. Adjust the solvent fluid supply pressure. Use the lowest possible pressure to avoid splashing.

6. Remove the Smart Fluid Panel cover to access the solenoid valves.

7. Purge component A side.

➜ **Single color systems**: press the manual override button on the Dispense A solenoid valve and trigger the gun into a grounded metal pail.

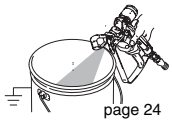


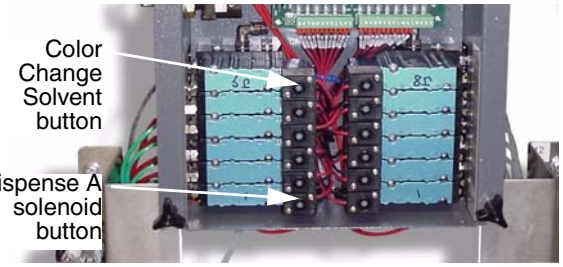


➜ **Multiple color systems:** choose one of two methods below.

Method 1

Have someone press the manual override buttons for both the Dispense A and Color Change Solvent solenoid valves while you trigger the gun into a grounded metal pail until clean solvent flows from the gun.





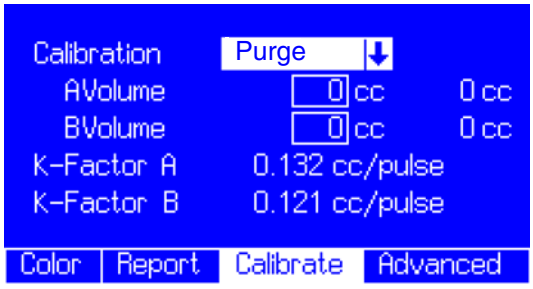
Method 2

Close B side fluid shutoff valve.

On the EasyKey™ Display, press Setup key to access setup screens.

Press key to select the Calibrate screen.

Press key and select Purge from the drop-down list. Press .



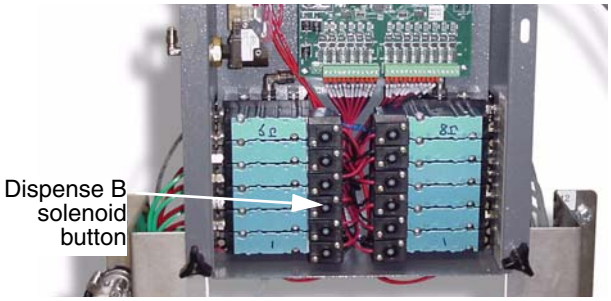
Trigger the gun into a grounded metal pail.

The solvent valve(s) close automatically after 2 minutes or when Abort is selected on the screen.

Open B side fluid shutoff valve.

Select Abort on Calibration screen to avoid accidentally restarting purge sequence.

8. Purge component B side.
Press the manual override button on the Dispense B solenoid valve and trigger the gun into a grounded metal pail until clean solvent flows from the gun.



9. Repeat steps 7 and 8 to thoroughly clean the fluid integrator.
10. Re-install the Smart Fluid Panel cover.
11. Shut off the solvent fluid supply.
12. Follow **Pressure Relief Procedure**, page 38.
13. Disconnect the solvent supply lines and reconnect the component A and B fluid supplies.
14. See page 39 for **Start Up** procedure.

Purging Sampling Valves and Tubes

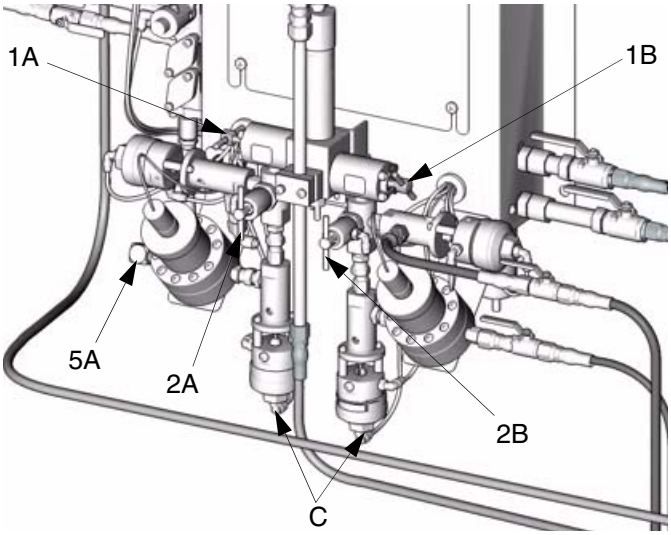
Follow this procedure after meter calibration.

1. Press Standby on the Operator Station.
2.

WARNING

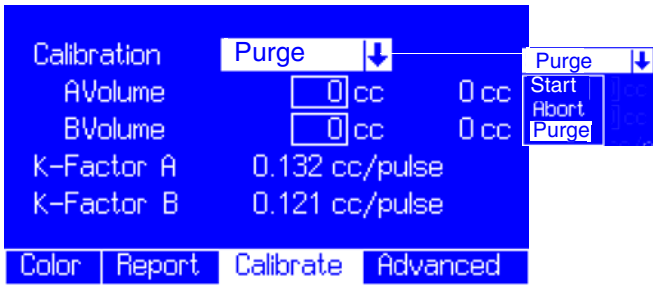
Follow **Pressure Relief Procedure**, page 38.

3. Close both fluid shutoff valves (1A, 1B) and sampling valves (2A, 2B).



4. Route the sampling tubes into a grounded waste container.
5. **On a single color system,** attach a solvent supply line to Flow Meter A inlet (5A).
6. On the EasyKey™ Display, press Setup key to access setup screens.
7. Press key to select the Calibrate screen. Press key and select Purge from the drop-down list. Press .

   Dispense A, solvent purge valve (B side), and color change solvent valves (if used) will open.



8. To avoid splashing, slowly open the sampling valves (2A, 2B) and dispense solvent until the valves and tubes are clean.

   The solvent valve(s) close automatically after 2 minutes or when Abort is selected on the screen.

9. Close sampling valves.

   Select Abort on Calibration screen to avoid accidentally restarting purge sequence.

10. Fully open both fluid shutoff valves (1A, 1B).
11. Follow **Pressure Relief Procedure**, page 38.
12. **On a single color system,** reconnect component A fluid supply line to flow meter A.

Meter Calibration

⚠ WARNING

To avoid splashing fluid in the eyes, wear eye protection.

CAUTION

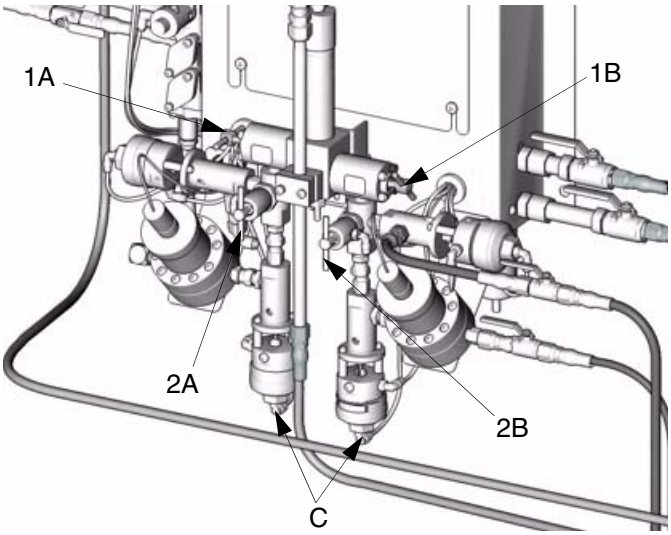
The fluid shutoff valves and ratio check valves are retained by mechanical stops that prevent accidental removal of the valve stem while the manifold is pressurized. If you cannot turn the valve stems manually, relieve the system pressure, then disassemble and clean the valve to remove the resistance.

Calibrate the meter:

- The first time the system is operated.
- Whenever new materials are used in the system, especially if the materials have viscosities that differ significantly.
- At least once per month as part of regular maintenance.
- Whenever a flow meter is serviced or replaced.

- K-Factors on the Calibrate Screen are updated automatically after the calibration procedure is completed.
- K-Factor values on the screen are viewable only. If needed, you can manually edit the K-Factors in Advanced Screen 2 (see page 37).
- All values on this screen are in cc, independent of the units set in Advanced Screen 1.

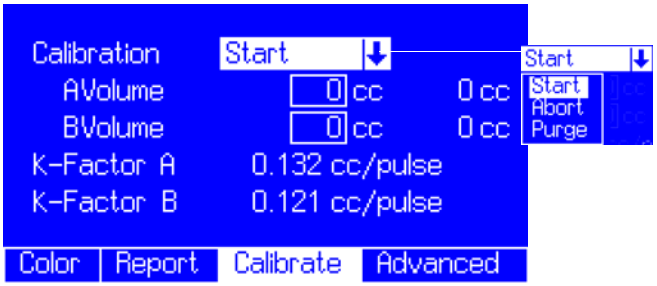
1. Press Standby on the Operator Station.
2. Shut off all spray or dispense devices connected to the ProMix™ II.
3. Close both fluid shutoff valves (1A, 1B) and sampling valves (2A, 2B).



4. Place the beakers (minimum size - 250 cc) in holders (C). Put the sampling tubes into the beakers.

If tubes need replacing, use 5/32 in. or 4 mm OD tubing.

5. On the EasyKey™ Display, press Setup key to access setup screens.
6. Press key to select the Calibrate screen. Press key and select Start from the drop-down list. Press to activate Dispense Valves A and B.



7. One at a time, dispense component A and B into separate beakers.

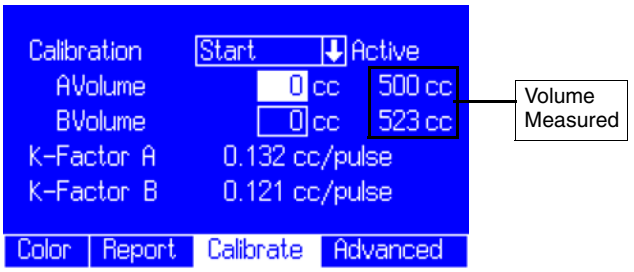
a. To avoid splashing, slowly open sampling valves (2A, 2B).

b. For more accurate calibration, adjust the valve to dispense at a flow rate similar to your production spray flow rate.

c. Dispense a minimum of 250 cc of each component; make sure enough material is dispensed to accurately read the volume with your beaker. The A and B volumes do not have to be equal or at any particular ratio.

d. Close each sampling valve tightly.

8. The volume that the ProMix™ II measured displays on the EasyKey™ Display.



9. Compare the amounts on the EasyKey™ Display to the amount in the beakers.

For maximum accuracy, use a gravimetric (mass) method to determine the actual volumes dispensed.

10. If the screen and actual volumes are different, enter the actual dispensed volume in cc for A and B Volume fields, and press ⏎.

If the values were substantially different, repeat the calibration process.

If the screen and actual volumes are the same or if for any reason you want to cancel the calibration procedure, scroll to Abort on the Calibration drop-down list and press ⏎.

11. After the volumes for A and B are entered, the controller calculates the new flow meter K-Factor and shows them on the Calibration screen.

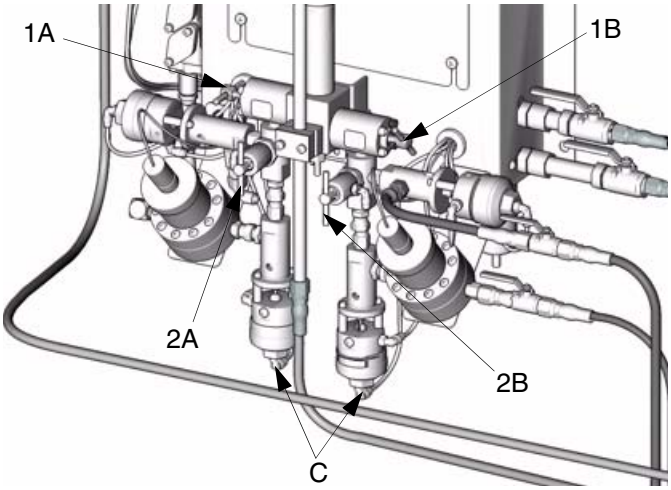
K-Factor values on the screen are viewable only. If needed, you can manually edit the K-Factors in Advanced Screen 2 (see page 37).

12. Always purge sampling valves after calibrating meters. Use one of the following methods.

- Follow the **Purging Sampling Valves and Tubes** procedure, page 48.
- Place the sampling valve fluid tubes into a compatible cleaning fluid (TSL or solvent) or cap them.

If fluid hardens in sampling tubes, replace them with 5/32 in. or 4 mm OD tubing.

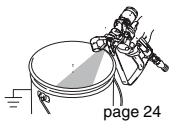
13. Make sure both sampling valves (2A, 2B) are closed and both fluid shutoff valves (1A, 1B) are fully open.



14. Before you begin production, clear the system of solvent and prime it with material.

a. Select Mix on the Operator Station.

b. Trigger the gun into a grounded metal pail until mixed material flows from the gun nozzle.



c. To begin operation, see **Start Up**, page 39.

Alarm Troubleshooting

WARNING

Follow **Pressure Relief Procedure**, page 38, when you stop spraying, before changing spray tips, and before cleaning, checking, or servicing equipment. Read warnings, page 6.

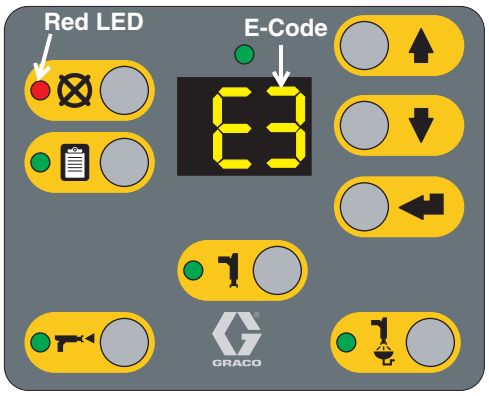
CAUTION

Do not use the fluid in the line that was dispensed off ratio as it may not cure properly.

ProMix™ II Alarms

The ProMix™ II alarms alert you of a problem and help prevent off-ratio spraying. If an alarm occurs, operation stops and the following occurs:

- A red LED illuminates steadily or flashes on the Operator Station.
- Operator Station displays an alarm E-Code (E1-E9).
- Alarm sounds.
- Status bar on the EasyKey™ Display shows the E-Code with a description.



Operator Station

Alarms E-Codes

Description	E-Code
Communication Error	E1
Purge Error	E2
Potlife Exceeded Alarm	E3
Ratio Alarm	E4
Overdose Alarm	E5
Dose Time A Alarm	E6
Dose Time B Alarm	E7
Autodump Complete Alarm	E8
EasyKey in Setup Mode	E9

To Clear Alarm and Restart

When an alarm occurs be sure to determine the E-Code before clearing it. If you forget which E-Code occurred, you can use the EasyKey™ Report screen (page 34) to view the last 10 alarms, with date and time stamps.

Except for Potlife Exceeded (E3) Alarm and Purge Error (E2) Alarm, page 52, all alarms can be cleared by pressing the Error Clear ⊗ key on the Operator Station.

Communication Error Alarm (E1)

Cause	Solution
• The communication signal between the EasyKey™ Display, Smart Fluid Panel, or Operator Station was interrupted.	• Verify that all cables are correctly connected. See **Cable Connections**, page 20.
• The fiber optic cable is cut or bent.	• Verify cables have not been cut or bent at a radius smaller than 1.6 in. (40 mm).
• Dirty fiber optic cable ends	• Disconnect fiber optic cable ends and clean with a lint-free cloth.
• A communication cable or connector failed.	• Replace cable.

Purge Error (E2) Alarm

Cause	Solution
• ProMix™ II detects atomizing air flow to the gun during Purge or Color Change sequence.	• Verify that the gun air is shut off and atomizing air safety valve is connected and functioning.
• *In systems with a gun flush box,* operator selects to Purge or Color Change when the gun is not in the gun flush box. *In systems set up for Autodump (page 36),* Autodump is initiated when gun is not in the gun flush box.	• Verify that the gun is in the gun flush box and the door is fully closed. For additional Gun Flush Box information, see manual 310695. **CAUTION** The material may have cured in the system. Always place the gun in the gun flush box when the gun is not in use.

To abort a Color Change or Purge:

Press Standby [1], then Error Clear ⊗ keys to clear alarm.

Potlife Exceeded (E3) Alarm

CAUTION
The ProMix™ II potlife timer will not function when the ProMix™ II is used with multiple guns. To avoid having mixed material set in the equipment, carefully monitor the potlife by some other means.

Potlife Timer Function

The potlife timer, thus the alarm, becomes inactive after the system has been purged. The ProMix™ II needs a dose of component B (or a complete cycle) to restart the potlife timer. Once restarted, the potlife time resets whenever the potlife volume (see page 36) has moved through the system.

Cause	Solution
The time the mixed material has been in the lines has exceeded the potlife time (see **Potlife Time**, page 32).	Press the Error Clear ⊗ key to stop the audible alarm. You must then purge the system of mixed material before the E3 code clears. Purge the system with solvent or new mix material. • **Solvent -** Press the Purge key on the Operator Station. The system purges until the preset purge time is complete. Refer to **Purging Mixed Material**, page 44. • **New Mix Material -** Press the Mix key and purge the old material with new material.

Ratio Alarm (E4)

Cause	Solution
Comparison of component A and B volume dispensed in the previous cycle does not meet set tolerances. See **Tolerance**, page 32. This can be caused by:	
• If the alarm occurs during start up, after purging, the flow rate was probably too high.	• Restrict gun needle travel to slow down the initial fluid delivery rate until fluid hoses are loaded with material.
• If the alarm occurred after you were spraying for some time, the pressures from the fluid supplies could be unbalanced.	• *A*djust component A and B fluid supply regulator pressures until they are about equal. *If the pressures are already about equal,* verify that component A and B dispense valves are operating properly.
• Slow actuation of the component A or B valves. This can be caused by:	Manually operate the Dispense A and B solenoid valves as instructed in ProMix™ II Service manual 310653 to check operation.
➜ Air pressure to the valve actuators is too low.	➜ Increase air pressure.
➜ Something is restricting the solenoid or tubing and interrupting valve actuation air.	➜ There may be dirt or moisture in the air supply. Filter appropriately.
➜ Packings on the mix manifold dispense valves are too tight.	➜ Packing torque should be 25 in-lbs (2.8 N•m). See page 39.
➜ A dispense valve is turned in too far.	➜ Refer to **Start Up Checklist**, page 39, for proper adjustment. *Tip:* Put a piece of tape on the knobs after they are properly set to discourage anyone from changing settings.
➜ Fluid pressure is high and air pressure is low.	➜ Adjust air and fluid pressure.

Overdose (E5) Alarm

Cause	Solution
ProMix™ II detected that the sum of A and B doses was too large for the integrator (greater than 65 cc). This can be caused by:	
• Valve(s) packings or needle/seat are leaking.	• Torque packings to 25 in-lbs (2.8 N•m) [see page 39], or service the valve [see Dispense Valve manual 310655]
• Sampling valve is leaking.	• Tighten or replace valve.
• Flow meter fluctuations caused by pressure pulsations.	• Check for pressure pulsations: a. Close all the manifold valves. b. Turn on the circulating pumps and all the booth equipment (such as fans and conveyors). c. Check if the ProMix™ II is reading any fluid flow. d. If the ProMix™ II shows there is fluid flow and there are no leaks from the gun or any other packings or fittings, the flow meters are probably being affected by pressure pulsations. e. Close the fluid shutoff valve between the fluid supply system and the flow meter. The flow indication should stop. f. If necessary, install pressure regulators or a surge tank on the fluid inlets to the ProMix™ II to reduce the fluid supply pressure. Contact your Graco distributor for information.
• Slow actuation of component A or B valves.	• See **Ratio Alarm (E4)**, page 53, third cause.
• Running a high mix ratio and a high flow rate.	• It may be necessary to restrict the flow rate through the component B dispense valve by adjusting its hex nut (E). FIG. 41, page 39.

Dose Time A (E6) or B (E7) Alarm

Cause	Solution
If the air flow switch is on, but there is no fluid flow through the meter for the component being dispensed for 40 seconds, a dose time alarm occurs and the dispense valves turn off. This can be caused by:	See **Air Flow Switch Function**, page 11, for additional information.
• System being in Mix mode and gun is only partially triggered, allowing air, but no fluid, to pass through the gun.	• Do not partially trigger gun.
• Fluid flow rate is too low.	• Increase flow rate
• Flow meter or cable failed or flow meter clogged.	• Follow **Meter Calibration** procedure, page 49. If there is a meter or cable failure, you will see a large difference between the amount of fluid dispensed and the flow meter volume displayed by the EasyKey™ Display.

Autodump Complete Alarm (E8)	
Cause	**Solution**
Occurs after an autodump sequence completes to signal the operator that mixed material was purged and solvent is in the lines. Refer to page 36.	Press Error Clear ⊗ key to clear alarm.
EasyKey in Setup Mode (E9)	
Cause	**Solution**
Mix mode was selected at Operator Station while the EasyKey™ was in Setup mode.	Completed all setup changes before entering Mix mode.

ProMix™ II Warnings

The following conditions are considered system Warnings. They do not stop operation or sound an alarm. They are saved in the date/time stamped log, which can be viewed on a PC, using the Data Download Kit 234668.

Idle Time Warning	
The Operator Station Mix LED flashes to indicate an Idle Time Warning and the dispense valves turn off.	
Cause	**Solution**
• ProMix™ II is set to Mix, and 2 minutes have elapsed since the system received a flow meter pulse. For additional information, see **Air Flow Switch Function**, page 11.	• *In applications using the air flow switch,* trigger the gun to clear the warning and start spraying again. If the alarm does not clear, the air flow switch has failed and should be replaced. *Without the air flow switch,* triggering the gun does not clear the alarm. To start spraying again, press Mix, then trigger the gun.
• *If the gun is dispensing when the alarm occurs,* the air flow switch and a flow meter have failed. If spraying airless or air is supplied to gun by other means than the ProMix™ II unit and the alarm occurs, the flow meter has failed.	• Follow **Meter Calibration** procedure, page 49. If there is a meter or cable failure, you will see a large difference between the amount of fluid dispensed and the flow meter volume displayed by the EasyKey™ Display.
Setup Change Warning	
Anytime system parameters are changed in Setup on the EasyKey™ Display, this warning is logged.	
Power On Warning	
Every time the system is powered up the date/time stamp is logged.	
Defaults Loaded Warning	
If you load all of the default factory settings, using the Data Download Kit 234668, the process is date/time stamp logged.	

Technical Data

Maximum fluid working pressure	see page 3
Maximum working air pressure	100 psi (0.7 MPa, 7 bar)
Air supply	75–100 psi (0.5–0.7 MPa, 5.2–7 bar)
Air filtration	10 micron (minimum) filtration required
Mixing ratio range	0.1:1–30:1*
On-ratio accuracy	up to ± 1%, user selectable
Fluids handled	one or two component: • solvent and waterborne paints • polyurethanes • epoxies • acid catalyzed varnishes • moisture sensitive isocyanates
Viscosity range of fluid	20–5000 cps*
Fluid filtration	100 mesh minimum
Fluid flow rate range*	
G3000 Meter	75–3000 cc/min. (0.02–0.79 gal./min.)
G3000HR Meter	38–1500 cc/min. (0.01–0.40 gal./min.)
Coriolis Meter	20–3800 cc/min. (0.005–1.00 gal./min.)
External Power Supply Requirements	85–250 Vac, 50/60 Hz, 2 amps maximum draw 15 amp maximum circuit breaker required 8 to 14 AWG power supply wire gauge
Operating temperature range	41–122° F (5–50° C)
Environmental Conditions Rating	indoor use, pollution degree (2), installation category II
Noise Level	
Sound pressure level	below 70 dBA
Sound power level	below 85 dBA
Wetted parts	303, 304 SST, 17–4 SST, Tungsten carbide (with nickel binder), perfluoroelastomer; PTFE; CV75

* Dependent on programmed K-factor and application. The ProMix™ II maximum allowable flow meter pulse frequency is 425 Hz (pulses/sec.). For more detailed information on viscosities, flow rates, or mixing ratios, consult your Graco distributor.

Weight

Base System Total (no meters color change valves or gun flush box)	66.6 lbs (30.2 kg)
EasyKey™ Display	22.2 lbs (10.1 kg)
Smart Fluid Panel (no meters)	41.3 lbs (18.7 kg)
Operator Station	3.3 lbs (1.5 kg)
Optional Components	
G3000/G3000HR Flow Meter	6 lbs. (2.7 kg) each
Coriolis Flow Meter	33 lbs. (15 kg) each
Low Pressure Color Change Stack (6 color)	3.0 lbs (1.4 kg)
High Pressure Color Change Stack (6 color)	11.0 lbs (5.0 kg)
Gun Flush Box	22 lbs. (9.6 kg)

See individual component manuals for additional technical data.

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

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