Manual system for proportional mixing of plural component coatings. For professional use only.

For use in explosive atmospheres (except the EasyKey).

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

See page 4 for model information, including maximum working pressure. Equipment approval labels are on page 3. Some components shown are not included with all systems.
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Related Manuals

Component Manuals in English

<table>
<thead>
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<th>Description</th>
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<tbody>
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<td>ProMix 2KS Manual System Operation</td>
</tr>
<tr>
<td>312777</td>
<td>ProMix 2KS Manual System Repair-Parts</td>
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<td>312784</td>
<td>Gun Flush Box Kits</td>
</tr>
<tr>
<td>310745</td>
<td>Gun Air Shutoff Kit</td>
</tr>
<tr>
<td>312786</td>
<td>Dump Valve and Third Purge Valve Kits</td>
</tr>
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<td>312785</td>
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</tr>
<tr>
<td>308778</td>
<td>G3000/G3000HR Flow Meter</td>
</tr>
<tr>
<td>313599</td>
<td>Coriolis Flow Meter</td>
</tr>
<tr>
<td>313290</td>
<td>Floor Stand Kit</td>
</tr>
<tr>
<td>313542</td>
<td>Beacon Kit</td>
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<tr>
<td>313386</td>
<td>Basic Web Interface/Advanced Web Interface</td>
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<tr>
<td>406799</td>
<td>15V256 Automatic System Upgrade Kit</td>
</tr>
<tr>
<td>406800</td>
<td>15V825 Discrete I/O Board Kit</td>
</tr>
</tbody>
</table>

Equipment Approvals

Equipment approvals appear on the following labels which are attached to the Fluid Station and EasyKey™. See Fig. 1 on page 5 for label locations.

EasyKey and Fluid Station Label

ATEX Certificate is listed here

Fluid Station Label

ATEX Certificate is listed here

EasyKey Label

ATEX Certificate is listed here
# System Configuration and Part Numbers

## Configurator Key

The configured part number for your equipment is printed on the equipment identification labels. See Fig. 1 for location of the identification labels. The part number includes one digit from each of the following six categories, depending on the configuration of your system.

<table>
<thead>
<tr>
<th>Manual System</th>
<th>Control and Display</th>
<th>A and B Meter</th>
<th>Color Valves</th>
<th>Catalyst Valves</th>
<th>Applicator Handling</th>
</tr>
</thead>
</table>
| M             | D = EasyKey with LCD Display | 0 = No Meters  
1 = G3000 (A and B)  
2 = G3000HR (A and B)  
3 = 1/8 in. Coriolis (A) and G3000 (B)  
4 = G3000 (A) and 1/8 in. Coriolis (B)  
5 = 1/8 in. Coriolis (A) and G3000HR (B)  
6 = G3000HR (A) and 1/8 in. Coriolis (B)  
7 = 1/8 in. Coriolis (A and B) | 0 = No Valves (single color)  
1 = Two Valves (low pressure)  
2 = Four Valves (low pressure)  
3 = Seven Valves (low pressure)  
4 = Twelve Valves (low pressure)  
5 = Two Valves (high pressure)  
6 = Four Valves (high pressure) | 0 = No Valves (single catalyst)  
1 = Two Valves (low pressure)  
2 = Four Valves (low pressure)  
3 = Two Valves (high pressure) | 1 = One Air Flow Switch Kit  
2 = Two Air Flow Switch Kits  
3 = One Gun Flush Box Kit  
4 = Two Gun Flush Box Kits |

| M (acid models) | D = EasyKey with LCD Display | 8 = G3000 (A) and G3000A (B) | 0 = No Valves (no color; need to order acid kit 26A096-26A100; see page 6) | 0 = No Valves (single catalyst) | 1 = One Air Flow Switch Kit  
2 = Two Air Flow Switch Kits  
3 = One Gun Flush Box Kit  
4 = Two Gun Flush Box Kits |
Hazardous Location Approval

Models using a G3000, G3000HR, G3000A, or intrinsically safe Coriolis meter for both A and B meters are approved for installation in a Hazardous Location - Class I, Div I, Group D, T3 or Zone I Group IIA T3.

Maximum Working Pressure

Maximum working pressure rating is dependent on the fluid component options selected. The pressure rating is based on the rating of the lowest rated fluid component. Refer to the component pressure ratings below. Example: Model MD2531 has a maximum working pressure of 3000 psi (21 MPa, 210 bar).

Check the identification label on the EasyKey or fluid station for the system maximum working pressure. See Fig. 1.

ProMix Fluid Components Maximum Working Pressure

| Base System (no meters [option 0], no color/catalyst change [option 0]) | 4000 psi (27.58 MPa, 275.8 bar) |
| Meter Option 1 and 2 (G3000 or G3000HR) | 4000 psi (27.58 MPa, 275.8 bar) |
| Meter Option 3, 4, 5, 6, and 7 (one or two Coriolis Meters) | 2300 psi (15.86 MPa, 158.6 bar) |
| Meter Option 8 (G3000 and G3000A) | 4000 psi (27.58 MPa, 275.8 bar) |
| Color Change Option 1, 2, 3 and 4 and Catalyst Change Option 1 and 2 (low pressure valves) | 300 psi (2.07 MPa, 20.6 bar) |
| Color Change Option 5 and 6 and Catalyst Change Option 3 (high pressure valves) | 3000 psi (21 MPa, 210 bar) |

Flow Meter Fluid Flow Rate Range

| G3000 and G3000A | 75-3800 cc/min. (0.02-1.0 gal./min.) |
| G3000HR | 38-1900 cc/min. (0.01-0.50 gal./min.) |
| Coriolis Meter | 20-3800 cc/min. (0.005-1.00 gal./min.) |
| S3000 Solvent Meter (accessory) | 38-1900 cc/min. (0.01-0.50 gal./min.) |
Standard Features

<table>
<thead>
<tr>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>EasyKey with LCD</td>
</tr>
<tr>
<td>Fiber Optic and Power Cables, 50 ft (15.25 m)</td>
</tr>
<tr>
<td>Wall Mount Fluid Station, 50 cc Integrator and Static Mixer</td>
</tr>
<tr>
<td>B Side Dump Valve, if multiple catalyst valves</td>
</tr>
<tr>
<td>Booth Control</td>
</tr>
<tr>
<td>Basic Web Interface</td>
</tr>
</tbody>
</table>

Accessories

2KS Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gun Flush Box Gun Insert Selection</td>
</tr>
<tr>
<td>15V354 Third Purge Valve Kit</td>
</tr>
<tr>
<td>15V536 Solvent Flow Switch Kit</td>
</tr>
<tr>
<td>15V213 Power Cable, 100 ft (30.5 m)</td>
</tr>
<tr>
<td>15G710 Fiber Optic Cable, 100 ft (30.5 m)</td>
</tr>
<tr>
<td>15U955 Injection Kit for Dynamic Dosing</td>
</tr>
<tr>
<td>15V034 10 cc Integrator Kit</td>
</tr>
<tr>
<td>15V033 25 cc Integrator Kit</td>
</tr>
<tr>
<td>15V021 50 cc Integrator Kit</td>
</tr>
<tr>
<td>24B618 100 cc Integrator Kit</td>
</tr>
<tr>
<td>15W034 Strobe Light Alarm Indicator Kit</td>
</tr>
<tr>
<td>15V337 Advanced Web Interface</td>
</tr>
<tr>
<td>15V256 Automatic Mode Upgrade Kit</td>
</tr>
<tr>
<td>16D329 S3000 Solvent Flow Meter Kit</td>
</tr>
<tr>
<td>15V825 Discrete I/O Integration Board Kit</td>
</tr>
</tbody>
</table>

2KS Acid Compatible Accessories

Intended for use with acid catalyst materials.

<table>
<thead>
<tr>
<th>Accessory</th>
</tr>
</thead>
<tbody>
<tr>
<td>26A096 No Color/1 Catalyst Change Kit</td>
</tr>
<tr>
<td>26A097 2 Color/1 Catalyst Change Kit</td>
</tr>
<tr>
<td>26A098 4 Color/1 Catalyst Change Kit</td>
</tr>
<tr>
<td>26A099 7 Color/1 Catalyst Change Kit</td>
</tr>
<tr>
<td>26A100 12 Color/1 Catalyst Change Kit</td>
</tr>
</tbody>
</table>

NOTE: This is not a complete list of available accessories and kits. Refer to the Graco website for more information about accessories available for use with this product.
## Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

### FIRE AND EXPLOSION HAZARD

**WARNING**

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

### ELECTRIC SHOCK HAZARD

This equipment must be grounded. 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.

### INTRINSIC SAFETY

Intrinsically safe equipment that is installed improperly or connected to non-intrinsically safe equipment will create a hazardous condition and can cause fire, explosion, or electric shock. Follow local regulations and the following safety requirements.

- Only models with a G3000, G250, G3000HR, G250HR, G3000A, or intrinsically safe Coriolis meter are approved for installation in a Hazardous Location - Class I, Div I, Group D, T3 or Zone I Group IIA T3.
- Do not install equipment approved only for a non-hazardous location in a hazardous area. See the ID label for the intrinsic safety rating of your model.
- Do not substitute or modify system components as this may impair intrinsic safety.
### Warnings

#### 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.**

- Tighten all fluid connections before operating the equipment.
- 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.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

#### EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer’s warnings. For complete information about your material, request MSDS forms from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer’s replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

#### 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.
- Always wear chemically impermeable gloves when spraying or cleaning equipment.

#### 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
Important Two-Component Material Information

Isocyanates (ISO) are catalysts used in two component materials.

Isocyanate Conditions

Spraying or dispensing materials that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.

- Read and understand the fluid manufacturer’s warnings and Safety Data Sheet (SDS) to know specific hazards and precautions related to isocyanates.
- Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer’s application instructions and SDS.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material. Equipment must be carefully maintained and adjusted according to instructions in the manual.
- To prevent inhalation of isocyanate mists, vapors, and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer’s SDS.
- Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.

Material Self-ignition

Some materials may become self-igniting if applied too thick. Read material manufacturer’s warnings and Safety Data Sheet (SDS).

Keep Components A and B Separate

Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:

- Never interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.
Moisture Sensitivity of Isocyanates

Exposure to moisture (such as humidity) will cause ISO to partially cure; forming small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTE: The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

Changing Materials

NOTICE

Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the A (resin) side.

NOTICE

Partially cured ISO will reduce performance and the life of all wetted parts.

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. Never store ISO in an open container.
- Keep the ISO pump wet cup or reservoir (if installed) filled with appropriate lubricant. The lubricant creates a barrier between the ISO and the atmosphere.
- Use only moisture-proof hoses compatible with ISO.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Always lubricate threaded parts with an appropriate lubricant when reassembling.
Important Acid Catalyst Information

The 2KS Plural Component Proportioner is designed for acid catalysts ("acid") currently used in two-component, wood-finishing materials. Current acids in use (with pH levels as low as 1) are more corrosive than earlier acids. More corrosion-resistant wetted materials of construction are required, and must be used without substitution, to withstand the increased corrosive properties of these acids.

Acid Catalyst Conditions

Acid is flammable, and spraying or dispensing acid creates potentially harmful mists, vapors, and atomized particulates. To help prevent fire and explosion and serious injury:

- Read and understand the fluid manufacturer's warnings and Safety Data Sheet (SDS) to know specific hazards and precautions related to the acid.
- Use only genuine, manufacturer’s recommended acid-compatible parts in the catalyst system (hoses, fittings, etc). A reaction may occur between any substituted parts and the acid.
- To prevent inhalation of acid mists, vapors, and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the acid manufacturer’s SDS.
- Avoid all skin contact with acid. Everyone in the work area must wear chemically impermeable gloves, protective clothing, foot coverings, aprons, and face shields as recommended by the acid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. Wash hands and face before eating or drinking.
- Regularly inspect equipment for potential leaks and remove spills promptly and completely to avoid direct contact or inhalation of the acid and its vapors.
- Keep acid away from heat, sparks, and open flames. Do not smoke in the work area. Eliminate all ignition sources.
- Store acid in the original container in a cool, dry, and well-ventilated area away from direct sunlight and away from other chemicals in accordance with acid manufacturer’s recommendations. To avoid corrosion of containers, do not store acid in substitute containers. Reseal the original container to prevent vapors from contaminating the storage space and surrounding facility.

Moisture Sensitivity of Acid Catalysts

Acid catalysts can be sensitive to atmospheric moisture and other contaminants. It is recommended the catalyst pump and valve seal areas exposed to atmosphere are flooded with ISO oil, TSL, or other compatible material to prevent acid build-up and premature seal damage and failure.

NOTICE

Acid build-up will damage the valve seals and reduce the performance and life of the catalyst pump. To prevent exposing acid to moisture:

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. Never store acids in an open container.
- Keep the catalyst pump and the valve seals filled with the appropriate lubricant. The lubricant creates a barrier between the acid and the atmosphere.
- Use only moisture-proof hoses compatible with acids.
- Always lubricate threaded parts with an appropriate lubricant when reassembling.
Component Identification and Definition

* See the ProMix 2KS Repair-Parts manual for optional cable lengths.

Table 1: Component Descriptions

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EasyKey (EK)</td>
<td>Used to set up, display, operate, and monitor the system. The EasyKey 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.</td>
</tr>
<tr>
<td>Booth Control (BC)</td>
<td>Used by the operator for daily painting functions including: choosing recipes, initiating job complete, reading/clearing alarms, and placing the system in Standby, Mix, or Purge mode. It is typically mounted inside the booth or near the painter.</td>
</tr>
<tr>
<td>Fluid Station (ST)</td>
<td>Includes air control solenoids, flow switches, and mountings for the fluid flow meters and the fluid manifold assembly. Its control board manages all proportioning functions.</td>
</tr>
</tbody>
</table>
## Component Identification and Definition

### Fluid Manifold (FM)
- **Pneumatically Operated Dose Valves** for component A and B
- **Purge Valves** for solvent and air purge
- **Sampling Valves** for calibrating the flow meters and performing ratio checks
- **Shutoff Valves** for component A and B to close their fluid passages to the mix manifold, to allow for accurate calibration and ratio checks
- **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.

### Flow Meters (MA, MB, MS)

#### G3000
- General purpose gear meter typically used in flow ranges of 75-3800 cc/min. (0.02–1.0 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.

#### G3000A
- Gear meter for use with acid catalyst fluids. Typically used in flow ranges of 75-3800 cc/min. (0.02–1.0 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
- High resolution version of the G3000 meter. Typically used in flow ranges of 38–1900 cc/min. (0.01–0.5 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.

#### S3000
- Gear meter used for solvents in flow ranges of 38-1900 cc/min. (0.01–0.50 gal/min.), pressures up to 3000 psi (21 MPa, 210 bar), and viscosities of 20–50 centipoise. The K-factor is approximately 0.021 cc/pulse. Required to use the Solvent Push feature.

#### Coriolis
- Specialty meter capable of a wide range of flow rates and viscosities. Available with 1/8 in. or 3/8 in. diameter fluid passages. For detailed information on the Coriolis meter, see manual 313599. The K-factor is user-settable; at lower flow rates use a lower K-factor.
  - 1/8 in. fluid passages: set K-factor to .020 or .061.
  - 3/8 in. fluid passages: set K-factor to .061 or .0119.

### Color Change Valves (ACV) and Color Change Module (CCM)

An optional component. Available as a color change valve stack for either low or high pressure with up to 30 color change valves. Each stack includes one additional valve for solvent to clean the fluid line between color changes.

### Catalyst Change Valves (BCV)

An optional component. Available as a catalyst change valve stack for either low or high pressure with up to 4 catalyst change valves. Each stack includes one additional valve for solvent to clean the fluid line between catalyst changes.

A different catalyst change valve is used on acid catalyst systems.

### Dual Fiber Optic Cable (FO)

Used to communicate between the EasyKey and Wall Mount Fluid Station.

### Fluid Station Power Supply Cable (PS)

Used to provide power to the Wall Mount Fluid Station.

### Applicator Handling: use Air Flow Switch (AFS) or Gun Flush Box (GFB)

**Air Flow Switch**: The air flow switch detects air flow to the gun and signals the ProMix controller when the gun is being triggered. The switch functions with the flow meters to ensure that the system components are functioning correctly. See the system operation manual for further information.

**Gun Flush Box**: The gun flush box kit provides an automated flushing system for manual spray guns, and includes an air flow switch.

### Table 1: Component Descriptions

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid Manifold (FM)</td>
<td>Component Description:</td>
</tr>
<tr>
<td>Flow Meters (MA, MB, MS)</td>
<td>The following optional flow meters are available from Graco:</td>
</tr>
<tr>
<td>Color Change Valves (ACV) and Color Change Module (CCM)</td>
<td>An optional component. It is available as a color change valve stack for either low or high pressure with up to 30 color change valves. Each stack includes one additional valve for solvent to clean the fluid line between color changes.</td>
</tr>
<tr>
<td>Catalyst Change Valves (BCV)</td>
<td>An optional component. It is available as a catalyst change valve stack for either low or high pressure with up to 4 catalyst change valves. Each stack includes one additional valve for solvent to clean the fluid line between catalyst changes.</td>
</tr>
<tr>
<td>Dual Fiber Optic Cable (FO)</td>
<td>Used to communicate between the EasyKey and Wall Mount Fluid Station.</td>
</tr>
<tr>
<td>Fluid Station Power Supply Cable (PS)</td>
<td>Used to provide power to the Wall Mount Fluid Station.</td>
</tr>
<tr>
<td>Applicator Handling: use Air Flow Switch (AFS) or Gun Flush Box (GFB)</td>
<td>Air Flow Switch: The air flow switch detects air flow to the gun and signals the ProMix controller when the gun is being triggered. The switch functions with the flow meters to ensure that the system components are functioning correctly. See the system operation manual for further information.</td>
</tr>
<tr>
<td>Gun Flush Box: The gun flush box kit provides an automated flushing system for manual spray guns, and includes an air flow switch.</td>
<td></td>
</tr>
</tbody>
</table>
Location

Location Requirements

Do not substitute or modify system components as this may impair intrinsic safety. For installation, maintenance or operation instructions, read instruction manuals. Do not install equipment approved only for non-hazardous location in a hazardous area. See the identification label (Fig. 1) on the EasyKey or fluid station for the intrinsic safety rating for your model.

- Mount EasyKey and Fluid Station within 50 ft (15.2 m) of each other, using 15U533 cable.

NOTE: An optional 15V213 100 ft (30.5 m) cable is also available.

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

- **Fluid Station:** Install according to requirements for Intrinsically Safe Installation (Fig. 3) and at a convenient location to connect to paint and solvent supplies.

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

- **Booth Control:** Install in the hazardous area at a convenient location for the operator to view and operate. Mount using the wall bracket (see page 35).

Intrinsically Safe Installation Requirements

See Fig. 3 on page 15.

1. The non-intrinsically 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.

5. For ATEX, install per EN 60079-14 and applicable local and national codes.

6. For power connection to Coriolis: Install Coriolis flow meters as explosion proof (USA, Canada)/flame-proof Ex d (ATEX) per the manufacturer’s installation instructions and applicable codes.

7. For signal to 2KS: Terminals 24 and 25 of optional Endress+Hauser Coriolis flow meters installed using intrinsically safe wiring methods.

8. For ATEX installations, interconnecting cabling specified is Type A cable in accordance with EN 60079-14.

Optional Cables

Optional CAN cables and fiber optic cables are available from Graco. See the ProMix 2KS Repair-Parts manual for available part numbers and lengths.
NOTE: See Intrinsically Safe Installation Requirements on page 14.

WARNING: Substitution of components may impair intrinsic safety. For installation, maintenance or operation instructions, see instruction manual.

ADVERTISSEMENT: La substitution de composants peut compromettre la securite intrinseque.

Coriolis Meter Options, DMT 00 ATEX E 074 X (No exceptions):

<table>
<thead>
<tr>
<th>Size</th>
<th>Graco P/N</th>
<th>Endress+Hauser P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8&quot;</td>
<td>16M510*</td>
<td>8CN04-84S89AABA9AC</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>16M519*</td>
<td>8CN06-84S89AABA9AC</td>
</tr>
</tbody>
</table>

* For P/N 15T633 order Coriolis Meter Kit 15V806.
For P/N 15T634 order Coriolis Meter Kit 258151.
For P/N 16M510 order Coriolis Meter Kit 24M260.
For P/N 16M519 order Coriolis Meter Kit 24M261.

FM08ATEX0074
SYSTEM ASSEMBLY CERTIFICATE

NON-HAZARDOUS LOCATION ONLY

HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIV I, GROUP D, T3 (US AND CANADA)
CLASS I, ZONE I GROUP IIA T3 (ATEX ONLY)
TAUB = -20°C TO 50°C

NOTE: See Intrinsically Safe Installation Requirements on page 14.

WARNING: Substitution of components may impair intrinsic safety. For installation, maintenance or operation instructions, see instruction manual.

ADVERTISSEMENT: La substitution de composants peut compromettre la securite intrinseque.

Coriolis Meter Options, DMT 00 ATEX E 074 X (No exceptions):

<table>
<thead>
<tr>
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<td>1/8&quot;</td>
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* For P/N 15T633 order Coriolis Meter Kit 15V806.
For P/N 15T634 order Coriolis Meter Kit 258151.
For P/N 16M510 order Coriolis Meter Kit 24M260.
For P/N 16M519 order Coriolis Meter Kit 24M261.

Fig. 3. Intrinsically Safe Installation
General Information

- Reference numbers and letters in parentheses in the text refer to numbers and letters in the illustrations.

- Fig. 2, page 12, shows the basic components of a manual system. Contact your Graco distributor for actual system designs.

- Be sure all accessories are adequately sized and pressure-rated to meet system requirements.

- There must be a shutoff valve between each fluid supply line and the ProMix system.

- A 100 mesh minimum fluid filter must be installed on component A and B fluid supply lines.

- To protect the EasyKey screens from paints and solvents, clear-plastic protective shields are available in packs of 10 (Part No. 197902). Clean the screens with a dry cloth if necessary.

Wall Mounting

1. See Dimensions and Mounting Hole Layouts, page 34.

2. Ensure that the wall and mounting hardware are strong enough to support the weight of the equipment, 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.

4. Drill mounting holes in the wall. Install anchors as needed.

5. Bolt equipment securely.

Air Supply

Requirements

- **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.

  - 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 shutoff 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.

- **Air line filter:** a 10 micron or better air filter is recommended to filter oil and water out of the air supply and help avoid paint contamination and clogged solenoids. See Fig. 2.
Air Connections

See the System Pneumatic Schematic on page 31.

1. Tighten all ProMix system air and fluid line connections as they may have loosened during shipment.

2. Install a bleed-type air shutoff valve into the control air filter inlet on Wall Mount Fluid Station. Fig. 4.

3. Connect a clean, dry, main air supply line to the bleed-type air shutoff valve at the main air inlet. This air line supplies air to operate the gun, solenoids, and dispense valves.

   **NOTE:** See Technical Data on page 43 for additional air supply/consumption information.

4. Install a bleed-type shutoff valve into the air purge valve line.

5. See Fig. 5. Install the supplied elbow (E), check valve (CV), and tube fitting (F) at the inlet of the air purge valve (APV). Use the 25 ft (7.6 m), 1/4 in. (6 mm) OD purge air tubing (AT, supplied) to connect a clean, dry air supply to the fitting (F) at the air purge valve inlet. Install filters/dryers as needed.

   **NOTICE** Use a separate purge air supply line for the air purge valve (APV). Do not connect the air purge valve to the unit’s main air supply or to the air manifold (AM, Fig. 4), to avoid contaminating the solenoids, air logic lines, or unit’s main air supply with fluid if the air purge valve (APV) and check valve (CV) fail.

   Do not shorten the 25 ft (7.6 m), 1/4 in. (6 mm) OD purge air tubing (AT). Check daily for any visible solvent accumulation. Notify your supervisor if solvent is present.

   **NOTICE**

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

**Fig. 4. Wall Mount Air Supply Inlet**

**Fig. 5. Purge Air Supply Tube and Check Valve**

**NOTICE**

The ProMix 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.
Fluid Supply

Requirements

- Do not exceed the pressure rating of the lowest rated component. See the identification label (Fig. 1 on page 5).

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

ProMix models are available to operate air spray or air-assisted 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.
- For an airless system, the user must supply a gun trigger signal to the ProMix 2KS.
- See manual 313599 for Coriolis meter installation and operation instructions.
- If you are using dynamic dosing, see Fluid Connections at right and also see Setup the Fluid Manifold for Dynamic Dosing on page 20.

NOTE: 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 fluid inlets to reduce pulsation. Contact your Graco distributor for additional information.

Fluid Connections

1. Connect the solvent supply lines.
   a. Connect the solvent supply line to the 1/4 npt(f) solvent purge valve inlet. See Fig. 6.
   b. Multiple color system: also connect a solvent supply line to the color change stack (Q), top valve 4 or 5. See Fig. 7.

   NOTE: Solvent supplied by a single source can cause cross contamination and damage to the system. Install check valves or use separated solvent sources.

2. Connect the component A supply line(s).
   - Single color system: connect component supply line to the component A flow meter inlet.
   - Multiple color system: connect component A supply lines to the color change valve stack (S) inlets. See Fig. 7. The color number is marked on the valve air supply line.

   NOTE: Paint Recirculating System Only
   - The color change valves have two fluid ports for each individual valve. If you are recirculating paint, plumb the valves in one port and out the other.
   - Another option is to use a tee fitting to recirculate.

   NOTE: 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.

   NOTE: The component A and B fluid meter inlets have fluid check valves to prevent backflow from fluid supply pressure fluctuations. Backflow can cause ratio inaccuracies.

4. Connect the gun fluid supply line between the fluid manifold static mixer outlet and the gun fluid inlet.
Key:
MA Component A Meter
DVA Component A Dose Valve
RVA Component A Sampling Valve
SVA Component A Shutoff Valve
MB Component B Meter
DVB Component B Dose Valve
RVB Component B Sampling Valve
MS Solvent Meter (accessory)
SPV Solvent Purge Valve
APV Air Purge Valve
SM Static Mixer
FI Fluid Integrator
AT Air Purge Valve Air Supply Tube

Fig. 6. Wall Mount Fluid Station, Sequential Dosing

Fig. 7. Color Change Valves Air and Fluid Connections
Setup the Fluid Manifold for Dynamic Dosing

If you will be operating using dynamic dosing, the fluid manifold must be setup properly for your application. Order the 15U955 Injection Kit (accessory).

1. Remove the screws (A) and static mixer bracket assembly (B). See Fig. 8.
2. Loosen the static mixer nut (N1). Remove and retain the static mixer (SM).
3. Loosen the u-tube nuts (N2 and N3). Discard the u-tube (C) and the static mixer fitting (D).
4. Remove and retain the 1/4 npt(m) fitting (F). Remove the integrator (G) and discard.
5. See Fig. 9. Remove the remaining parts from the restrictor housing (H). Retain the plug (J) and base (K). Discard all the used o-rings.
6. Rotate the restrictor housing (H) 180° so the setscrew (S) is at top left, as shown in Fig. 9. Remove and retain the two setscrews (S). Discard the o-rings (L3). The position of these screws will be reversed when reassembled.
7. Install one larger o-ring (L1*) in the housing (H). Screw the injection cap (M*) into the housing.
8. Determine the desired flow range for your application. Select the appropriate size restrictor for your selected flow and ratio, using the Dynamic Dosing Restrictor Selection Graphs on pages 36-41 as a guide. Install the restrictor (R*) in the base (K).
9. Assemble the smaller manifold o-ring (L2*), restrictor (R*) and base (K), one larger o-ring (L1*), and plug (J) as shown.

* These parts are included in the 15U955 Injection Kit.
10. Install the two setscrews and o-rings (L3*). Install the long setscrew (S) at the front of the housing, for ease of access.

11. Screw the static mixer (SM) into the injection cap (M*). Install the retained fitting (F) on the static mixer tube and secure with the nut (N1).

12. Follow instructions under **Fluid Connections** on page 18.

**NOTE:** Use a minimum 20 ft (6.1 m) x 1/4 in. (6 mm) ID gun fluid supply hose when using dynamic dosing. If the material is harder to integrate, use a longer hose.

13. Tune the fluid pressure and flow as explained in the ProMix 2KS Operation Manual.

**NOTE:** When using dynamic dosing it is very important to maintain a constant, well-regulated fluid supply. To obtain proper pressure control and minimize pump pulsation, install a fluid regulator on the A and B supply lines upstream of the meters. In systems with color change, install the regulator downstream of the color/catalyst valve stack.

**Fig. 10. Wall Mount Fluid Station, Dynamic Dosing**

**Key:**
- MA Component A Meter
- DVA Component A Dose Valve
- RVA Component A Sampling Valve
- SVA Component A Shutoff Valve
- MB Component B Meter
- DVB Component B Dose Valve
- RVB Component B Sampling Valve
- SVB Component B Shutoff Valve
- MS Solvent Meter (accessory)
- SPV Solvent Purge Valve
- APV Air Purge Valve
- SM Static Mixer
Solvent Meter Accessory

The ProMix 2KS Solvent Push feature requires installation of the accessory solvent meter (MS). Order Graco Part No. 280555 S3000 Solvent Meter Kit. See manual 308778.

**NOTE:** You must assemble the meter sensor to the meter body before connecting the cable to the sensor for the meter to function properly.

1. See Fig. 11. Install the solvent meter (MS) on the side of the fluid station, using the bracket and hardware provided with the meter. Connect the solvent meter cable (SMC) to Pins 1, 2, and 3 of J12 on the fluid panel control board. See the **System Electrical Schematic** on page 33. Connect the cable ground wire to the fluid station ground terminal.

2. Connect a solvent supply line (SS) from the outlet of the solvent meter (MS) to the inlet of the solvent purge valve (SPV).

**NOTE:** If you are using a 3rd purge valve instead of the solvent purge valve to run the Solvent Push feature, connect the solvent supply line from the solvent meter to the inlet of the 3rd purge valve.

3. Connect the main solvent supply to the inlet of the solvent meter (MS).

---

**Key:**

MS Solvent Meter (accessory)
SPV Solvent Purge Valve
SMC Solvent Meter Cable
SS Solvent Supply Line

---

**Fig. 11. Solvent Meter**
Electrical

Requirements

NOTE: All options ordered on the ProMix system are electrically tested at the factory.

The ProMix 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.
- The input power access port is 22.4 mm (0.88 in.) diameter. It accepts a bulkhead strain relief fitting or conduit. See Fig. 13.

All electrical wiring must be completed 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.

Connect Main Power

1. Provide power to the EasyKey. Install a bulkhead strain relief or conduit bulkhead through the EasyKey port. See Fig. 13.

2. See Fig. 12 and the System Electrical Schematic on page 32 for the L1, N, and ground wiring connections inside the EasyKey.

3. Ground the EasyKey to a true earth ground. See Grounding, page 29.

FIG. 12. Main Power Connection

FIG. 13. EasyKey Connections and AC Power Switch
**Connect EasyKey to Fluid Station Control**

There are two 50 ft (15.2 m) cables to route between the EasyKey and Fluid Station Control: the Fluid Station Power Cable and the Fiber Optic Cable.

1. Connect the appropriate Fluid Station Power Cable end to the EasyKey connector. See FIG. 13.

2. Connect the other cable end to the Fluid Station Control connector (J10). See FIG. 15.

3. The Fiber Optic Cable is shipped from the factory attached to the Fluid Station connector. See FIG. 13.

**NOTE:** If you need to detach the Fiber Optic Cable from the Fluid Station, note how the cable is routed inside the enclosure. Never cut the fiber optic cable. Cutting can damage the cable and will defeat the color-coded cable connections.

4. Route the opposite Fiber Optic Cable end through the Fluid Station strain relief connector. Do not route the cable with tight bends or kinks.

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

5. Route the fiber optic cable end through the square adhesive backed tie holder. Connect the blue and black cable connectors to the matching connectors on the EasyKey circuit board. See FIG. 14. Insert the cable connectors until they bottom out (approximately ¼ in. [6 mm]), then tighten the threaded connector.

---

**Notice**

To avoid cracking the circuit board, do not over-tighten or cause excessive stress on the circuit board connector.

6. Tighten the strain relief connector.

---

**Connect Booth Control to Fluid Station Control**

Connect the cable from the Booth Control to the Fluid Station connector (J7). See FIG. 15.
Fluid Station Control Board Switch Settings

On the 2KS fluid station control board, set switch S1 to ON (down) or OFF (up), as shown in Fig. 15.

Set switch S1 to ON (down) if system has Booth Control OR Color Change, or neither.

Set switch S1 to OFF (up) if system has Booth Control AND Color Change.

Fig. 15. Fluid Station Board Connections
Connect Color Change Module

To install the color change module(s), see manual 312787.

Connect a 5-pin electrical cable from the labeled connection port (J11) on the fluid station control board to the color change board. See Fig. 16.

If you are using two color change modules to add colors, connect a 5-pin electrical cable from the first color change board to the second color change board.

Set switches S3-S6 on the color change board(s) as shown in Table 2 and Fig. 16, depending on the number of color change boards and color change modules being used in your system.

For wiring between the color change board and the solenoids, see the color change module electrical schematic, Fig. 17.

<table>
<thead>
<tr>
<th>Table 2: Color Change Board Switch Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Color Change Boards</td>
</tr>
<tr>
<td>Color Change Board 1</td>
</tr>
<tr>
<td>Terminatio n Resistor</td>
</tr>
<tr>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
</tr>
</tbody>
</table>

One Color Change Board

| ON | ON | ON | ON | 4 catalyst valves, 12 color valves |
| ON | ON | ON | OFF | 4 catalyst valves, 0 color valves |
| ON | ON | OFF | ON | 0 catalyst valves, 12 color valves |
Fig. 16. Color Change Board Switches S3-S6
FIG. 17. Color Change Module Electrical Schematic
Grounding

Your system must be grounded. Read Warnings, page 7. For intrinsic safety, ground wires for the EasyKey, Fluid Station, Booth Control, and Gun Flush Box must all be connected to the same true earth ground. See Fig. 18, page 30.

Ground the ProMix system as instructed here and in the individual component manuals. A ground wire and clamp, part no. 223547, is available from Graco.

**NOTE:** Different ground points (unequal potential) may cause current to flow through component cables, causing incorrect signals.

**EasyKey**

Connect a ground wire from the EasyKey ground screw to a true earth ground. Fig. 18.

**Booth Control**

The Booth Control is grounded through the power cable connection to the fluid station. Fig. 18.

**Gun Flush Box**

Connect a ground wire from the Gun Flush Box ground lug to a true earth ground. Fig. 18.

**Wall Mount Fluid Station**

Connect a ground wire from the Wall Mount Fluid Station ground screw to a true earth ground. Fig. 18.

**Color Change Module**

Connect a ground wire from the Color Change Module ground screw to a true earth ground. A ground wire and clamp, part no. 223547, is available from Graco. Fig. 18.

**Flow Meters**

Connect the meter cables as shown in the System Electrical Schematic Hazardous Area on page 33. 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/containers placed on a grounded surface. Do not place the pail/container on a nonconductive surface, such as paper or cardboard, which interrupts the grounding continuity.

**Check Resistance**

To ensure proper grounding, resistance between ProMix components and true earth ground must be less than 1 ohm. Read Warnings, page 7.

Have a qualified electrician check resistance between each ProMix 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.
**Fig. 18: Grounding**

**Key:**
- EasyKey ground screw
- EasyKey ground wire
- Fluid Station ground screw
- Fluid Station ground wire
- True Earth Ground - check your local code for requirements
- Gun Flush Box ground wire connection point
- Gun Flush Box ground wire
- Power Cable, Booth Control/Fluid Station
- Color Control Module ground screw
- Color Control Module ground wire (Part No. 223547).
System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 2KS system. Some components shown are not included with all systems.
System Electrical Schematic

NOTE: The electrical schematic illustrates all possible wiring expansions in a ProMix 2KS system. Some components shown are not included with all systems.

Hazardous Area
Dimensions and Mounting Hole Layouts

Wall Mount Fluid Station

NOTE: Height is shown from top of panel to fluid shutoff valves, and does not include the effect of variable fluid integrator heights. Width of panel does not include optional color/catalyst valve stacks.

<table>
<thead>
<tr>
<th>Module</th>
<th>A Overall Width in. (mm)</th>
<th>Overall Depth in. (mm)</th>
<th>B Overall Height in. (mm)</th>
<th>Mounting Dimensions, Width (C) x Height (D) in. (mm)</th>
<th>E Mounting Hole Size in. (mm)</th>
<th>Weight lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EasyKey</td>
<td>14.0 (355.6)</td>
<td>6.6 (167.6)</td>
<td>13.5 (342.9)</td>
<td>12.0 x 12.75 (304.8 x 323.9)</td>
<td>0.3 (7.6)</td>
<td>22.2 (10.1)</td>
</tr>
<tr>
<td>Booth Control</td>
<td>7.2 (182.9)</td>
<td>3.0 (76.2)</td>
<td>6.0 (152.4)</td>
<td>none; see mounting bracket below</td>
<td>none</td>
<td>2 (0.91)</td>
</tr>
<tr>
<td>Booth Control Mounting Bracket</td>
<td>3.75 (95.3)</td>
<td>2.0 (50.8)</td>
<td>6.0 (152.4)</td>
<td>2.5 x 3.0 (63.5 x 76.2)</td>
<td>0.281 (7.14)</td>
<td>2 (0.91)</td>
</tr>
<tr>
<td>Wall Panel</td>
<td>17.5 (444.5)</td>
<td>11.0 (279.4)</td>
<td>27.0 (685.8)</td>
<td>16.5 x 16.25 (419.1 x 412.8)</td>
<td>0.5 (12.7)</td>
<td>50 (22.7)</td>
</tr>
<tr>
<td>Gun Flush Box</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color Change Control Module</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See Gun Flush Box manual 312784.

See Color Change Module manual 312787.
Dynamic Dosing Restrictor Selection Graphs

Use the graphs on pages 37-41 as a guide to determine the correct restrictor size for your desired flow and material viscosity. Table 3 lists the available restrictor sizes.

Example:

**Application:** air spray system with a 5:1 mix ratio

**Fluid Supply:** 1:1 pumps at 100 psi (7 bar, 0.7 MPa)

**Flow Rate:** 300 cc/min at the gun

**Select the Restrictor Size:** choose either the .040 or .070 orifice, to ensure that the pressure differential is not more than 10-20 psi (0.7-1.4 bar, .07-0.14 MPa), provided the fluid viscosities are similar to those tested.

- If the viscosity of component B is lower than the viscosity of the chart used for selection you may need to use a smaller restrictor or decrease the pressure differential.

- If the viscosity of component B is higher than the viscosity of the chart used for selection you may need to use a larger restrictor or increase the pressure differential.

- In systems using an air-assisted gun, if the fluid pressure of component A is higher than the component A pressure from the charts you may need to use a larger restrictor or increase the pressure differential.

<table>
<thead>
<tr>
<th>Size Code</th>
<th>Orifice Size</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2*</td>
<td>.020</td>
<td>15U936</td>
</tr>
<tr>
<td>3*</td>
<td>.030</td>
<td>15U937</td>
</tr>
<tr>
<td>4*</td>
<td>.040</td>
<td>15U938</td>
</tr>
<tr>
<td>5√</td>
<td>.050</td>
<td>15U939</td>
</tr>
<tr>
<td>6√</td>
<td>.060</td>
<td>15U940</td>
</tr>
<tr>
<td>7*</td>
<td>.070</td>
<td>15U941</td>
</tr>
<tr>
<td>8√</td>
<td>.080</td>
<td>16D554</td>
</tr>
</tbody>
</table>

* These restrictors are included in Injection Kit 15U955.

✓ These restrictors are optional sizes, not included in the Injection Kit.
Fig. 19. Dynamic Dosing Performance (1:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)
FIG. 20. Dynamic Dosing Performance (5:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)

---

**Dynamic Dosing Restrictor Selection Graphs**

**FIG. 20. Dynamic Dosing Performance (5:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)**

Differential Pressure between A and B (psi, bar, MPa)

- 1400 (97, 9.7)
- 1200 (83, 8.3)
- 1000 (69, 6.9)
- 800 (55, 5.5)
- 600 (41, 4.1)
- 400 (28, 2.8)
- 200 (14, 1.4)
- 0 (0, 0)

Flow Rate (cc/min)

- 0
- 500
- 1000
- 1500
- 2000
- 2500
- 3000
- 3500
- 4000

See Detail View Below

**Detail View**

Differential Pressure between A and B (psi, bar, MPa)

- 400 (28, 2.8)
- 300 (21, 2.1)
- 200 (14, 1.4)
- 100 (7, 0.7)
- 50 (3.4, 0.34)
- 0 (0, 0)

Flow Rate (cc/min)

- 0
- 500
- 1000

---

**FIG. 20. Dynamic Dosing Performance (5:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)**
**Fig. 21. Dynamic Dosing Performance (10:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)**

**Key**
- --- #2 Restrictor
- - - - #3 Restrictor
- - - - #4 Restrictor
- - - - #7 Restrictor

**Detail View**

**See Detail View Below**
**Fig. 22. Dynamic Dosing Performance (20:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)**
FIG. 23. Dynamic Dosing Performance (30:1 Ratio, 90 centipoise fluid, 100 psi A side pressure)
Technical Data

Maximum fluid working pressure ....................... Base system: 4000 psi (28 MPa, 280 bar)
Low pressure color change: 300 psi (2.1 MPa, 21 bar)
High pressure color change: 3000 psi (21 MPa, 210 bar)
Coriolis meter: 2300 psi (16.1 MPa, 161 bar)

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 filter inlet size .................................. 3/8 npt(f)
Air filtration for air logic and purge air (Graco-supplied) ........ 5 micron (minimum) filtration required; clean and dry air
Air filtration for atomizing air (user-supplied) ........... 30 micron (minimum) filtration required; clean and dry air
Mixing ratio range .................................... 0.1:1 - 50:1*
On-ratio accuracy .................................... up to ± 1%, user selectable
Fluids handled ........................................
• solvent and waterborne paints
• polyurethanes
• epoxies
• acid catalyzed varnishes
• moisture sensitive isocyanates

Viscosity range of fluid ............................... 20-5000 cps*
Fluid filtration (user-supplied) ......................... 100 mesh minimum
Fluid flow rate range*
G3000, G250, G3000A Meter .......................... 75 - 3800 cc/min. (0.02-1.00 gal./min.)
G3000HR, G250HR Meter ............................ 38 - 1900 cc/min. (0.01-0.50 gal./min.)
Coriolis Meter ........................................... 20 - 3800 cc/min. (0.005-1.00 gal./min.)
S3000 Solvent Meter (accessory) ....................... 38 - 1900 cc/min. (0.01-0.50 gal./min.)
Fluid inlet sizes
Flow Meter .............................................. 1/4 npt(f)
Dose Valve/Color Valve Adapters ....................... 1/4 npt(f)
Fluid outlet size (static mixer) ......................... 1/4 npt(f)

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, Tungsten carbide (with nickel binder),
perfluoroelastomer; PTFE

Wetted materials on acid models
(MD8001 - MD8004) .................................... perfluoroelastomer; PTFE

* Dependent on programmed K-factor and application. The 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.

See individual component manuals for additional technical data.
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