OPERATION MANUAL

MANUAL NUMBER X067508 | REVISION A | ENGLISH (US)

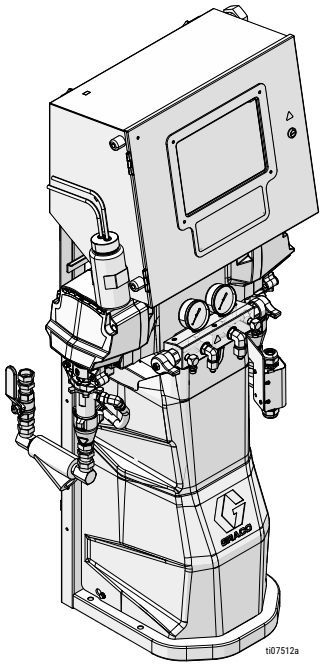
# Reactor® 1 Proportioning Systems

Electric, heated, plural component proportioner for spraying polyurethane foam and polyurea coatings.

For indoor use only. For professional use only. Not approved for use in explosive atmospheres or hazardous (classified) locations.

**Important Safety Instructions**

Read all warnings and instructions in this manual and in related manuals before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.




graco.com/contact

MOVING MATERIALS THAT MATTER

# CONTENTS


Related Manuals 3
Supplied Manuals 3
Translated Manuals 3
Models 4
Safety Symbols 8
Warnings 9
Important Isocyanate (ISO) Information 13
Moisture Sensitivity of Isocyanates: Reactor® 1 Procedures 15
Technical Specifications 16
Component Identification 24
Typical Installation 33
Installation 39
Grounding 39
Assemble the Proportioner 40
Mount the System 41
Setup 42
General Equipment Guidelines 42
Connect Power 43
Supply Wet-Cups with Throat Seal Liquid (TSL™) 44
Connect Heated Hose to Proportioner 45
Startup 46
Operation 50
Pressure Relief Procedure 50
Jog Mode 51
Purge Air Procedure 51
Flush the Equipment 52
Fluid Circulation 53
Calibration 56
Spray 57
Shutdown 59
Display Module 61
Settings 61
Additional Functions 63
Maintenance 65
Flush Inlet Strainer Screen 66
Change ISO Pump Throat Seal Lubricant (TSL) Fluid 67
Recycling and Disposal 68
End of Product Life 68
Troubleshooting 69
Accessories 70
Performance Charts 71
California Proposition 65 74

## RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the Reactor® 1 Proportioning Systems. Find English manuals and any available translations at www.graco.com.

| ENGLISH MANUAL | DESCRIPTION |
|---|---|
| **Feed System Manuals** | |
| 309852 | Circulation and Return Tube Kit, Instructions-Parts |
| 3A8502 | T4 3:1 Pneumatic Transfer Pump, Operation and Parts |
| 3A5180 | T3 3:1 Ratio Transfer Pump, Instructions |
| **Displacement Pump Manual** | |
| 309577 | Displacement Pump, Instructions |
| **Spray Gun Manuals** | |
| X007702EN | Fusion® AP Spray Gun, Instructions |
| X008239EN | Fusion PC Spray Gun, Instructions |
| X047418 | Fusion FX Spray Gun, Instructions |
| 312666 | Fusion CS Spray Gun, Instructions |
| 309856 | Fusion MP Spray Gun, Instructions-Parts |
| X003671 | Probler® P2 Gun, Instructions |
| **Heated Hose Manual** | |
| 309572 | Power-Lock™ Heated Hose, Instructions |
| X034050 | Internally Heated Hose, Instructions |

### SUPPLIED MANUALS

The following manuals and quick guides are shipped with the Reactor® 1 Proportioning Systems. Refer to these manuals and quick guides for detailed equipment information.

Manuals are also available at www.graco.com.

| ENGLISH MANUAL NUMBER | DESCRIPTION |
|---|---|
| X071088 | Reactor 1 Proportioning Systems Repair-Parts |
| 3B0661 | Reactor 1 Startup Quick Guide |
| 3B0662 | Reactor 1 Shutdown Quick Guide |

### TRANSLATED MANUALS

Translations for Reactor® 1 are available at www.graco.com by searching for manual number X067508.

The following translations are available: Chinese, Dutch, English, French, German, Italian, Japanese, Korean, Polish, Portuguese, Spanish, Swedish, and Turkish.

## MODELS

The part numbers reflect the distinct features and characteristics of the Reactor® 1 Proportioning Systems.

### REACTOR E-20

| | MODEL | | E-20<br>7 KW (28R110) | E-20<br>10 KW (28R111) |
|---|---|---|---|---|
| Technical Information | Maximum Working Pressure | | 2000 psi (138 bar, 13.8 MPa) | 2000 psi (138 bar, 13.8 MPa) |
| | Approximate Output / Cycle A + B | | 0.0104 gal. (0.0395 l) | 0.0104 gal. (0.0395 l) |
| | Maximum Flow | | 20 lb/min (9.1 kg/min) | 20 lb/min (9.1 kg/min) |
| | Maximum Heated Hose Length Supported | | 220 ft (67 m) | 220 ft (67 m) |
| | Total System Load | | 12.9 kW | 15 kW |
| | Primary Heater Load | | 7.6 kW | 9.6 kW |
| | Full Load Peak Current | 200–240 VAC 1Ø | 56 A | 65 A |
| | | 200–240 VAC 3Ø △ | 36 A | 39 A |
| | | 350–415 VAC 3Ø Y | 24 A | 24 A |
| Reactor 1 Packages | Externally Heated Hose Package, 1 x 50 ft (15.24 m) | | ESR110★ | ESR111★ |
| | Externally Heated Hose Package, 4 x 50 ft (15.24 m) | | EHR110★ | EHR111★ |
| | Internally Heated Hose Package, 1 x 50 ft (15.24 m) | | ISR110• | ISR111• |
| | Internally Heated Hose Package, 2 x 100 ft (30.48 m) | | IHR110• | IHR111• |

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

**REACTOR E-30**

| | MODEL | | E-30<br>10 KW (28R130) | E-30<br>15 KW (28R131) |
|---|---|---|---|---|
| Technical Information | Maximum Working Pressure | | 2000 psi (138 bar, 13.8 MPa) | 2000 psi (138 bar, 13.8 MPa) |
| | Approximate Output / Cycle A + B | | 0.0273 gal. (0.103 l) | 0.0273 gal. (0.103 l) |
| | Maximum Flow | | 30 lb/min (13.5 kg/min) | 30 lb/min (13.5 kg/min) |
| | Maximum Heated Hose Length Supported | | 320 ft (97.5 m) | 320 ft (97.5 m) |
| | Total System Load | | 17.5 kW | 22.3 kW |
| | Primary Heater Load | | 9.6 kW | 14.4 kW |
| | Full Load Peak Current | 200–240 VAC 1Ø | 76 A | 97 A |
| | | 200–240 VAC 3Ø △ | 49 A | 59 A |
| | | 350–415 VAC 3Ø Y | 35 A | 35 A |
| Reactor 1 Packages | Externally Heated Hose Package, 1 x 50 ft (15.24 m) | | ESR130★ | ESR131★ |
| | Externally Heated Hose Package, 4 x 50 ft (15.24 m) | | EHR130★ | EHR131★ |
| | Internally Heated Hose Package, 1 x 50 ft (15.24 m) | | ISR130• | ISR131• |
| | Internally Heated Hose Package, 2 x 100 ft (30.48 m) | | IHR130• | IHR131• |

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

**REACTOR E-XP1**

| | MODEL | | E-XP1<br>10 KW (28R120) |
|---|---|---|---|
| Technical Information | Maximum Working Pressure | | 3000 psi (207 bar, 20.7 MPa) |
| | Approximate Output / Cycle A + B | | 0.0104 gal. (0.0395 l) |
| | Maximum Flow | | 2 gpm (7.6 lpm) |
| | Maximum Heated Hose Length Supported | | 220 ft (67 m) |
| | Total System Load | | 15 kW |
| | Primary Heater Load | | 9.6 kW |
| | Full Load Peak Current | 200–240 VAC 1Ø | 65 A |
| | | 200–240 VAC 3Ø △ | 39 A |
| | | 350–415 VAC 3Ø Y | 24 A |
| Reactor 1 Packages | Externally Heated Hose Package, 1 x 50 ft (15.24 m) | | ESR120★ |
| | Externally Heated Hose Package, 4 x 50 ft (15.24 m) | | EHR120★ |

★ Includes 10 ft (3.05 m) whip hose.

**REACTOR E-XP2**

| | MODEL | | E-XP2<br>15 KW (28R140) |
|---|---|---|---|
| Technical Information | Maximum Working Pressure | | 3500 psi ( 241 bar, 24.1 MPa) |
| | Approximate Output / Cycle A + B | | 0.0204 gal. (0.0771 l) |
| | Maximum Flow | | 2.1 gpm (7.9 lpm) |
| | Maximum Heated Hose Length Supported | | 320 ft (97.5 m) |
| | Total System Load | | 22.3 kW |
| | Primary Heater Load | | 14.4 kW |
| | Full Load Peak Current | 200–240 VAC 1Ø | 97 A |
| | | 200–240 VAC 3Ø △ | 59 A |
| | | 350–415 VAC 3Ø Y | 35 A |
| Reactor 1 Packages | Externally Heated Hose Package, 1 x 50 ft (15.24 m) | | ESR140★ |
| | Externally Heated Hose Package, 4 x 50 ft (15.24 m) | | EHR140★ |

★ Includes 10 ft (3.05 m) whip hose.

**APPROVALS**

Intertek approvals apply to proportioners without hoses.

| PROPORTIONER APPROVALS: |
| --- |
| **5024314**<br>Conforms to ANS/UL Std. 499<br>Certified to CAN/CSA Std. C22.2 No. 88 |

## SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

| SYMBOL | MEANING |
|---|---|
|  | Burn Hazard |
|  | Crush Hazard |
|  | Electric Shock Hazard |
|  | Equipment Misuse Hazard |
|  | Fire and Explosion Hazard |
|  | Moving Parts Hazard |
|  | Skin Injection Hazard |
|  | Skin Injection Hazard |
|  | Splash Hazard |
|  | Toxic Fluid or Fumes Hazard |

| SYMBOL | MEANING |
|---|---|
|  | Eliminate Ignition Sources |
|  | Do Not Stop Leaks with Hand, Body, Glove or Rag |
|  | Do Not Place Hands or Other Body Parts Near Fluid Outlet |
|  | Ground Equipment |
|  | Read Manual |
|  | Follow Pressure Relief Procedure |
|  | Ventilate Work Area |
|  | Wear Personal Protective Equipment |



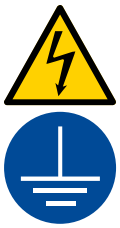
**Safety Alert Symbol**

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

## WARNINGS

**The following warnings apply throughout this manual.** Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

### ⚠ DANGER



**SEVERE ELECTRIC SHOCK HAZARD**

This equipment is powered by more than 240 V. Contact with this voltage will cause death or serious injury.

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

### ⚠ WARNING



**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 Safety Data Sheets (SDSs) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment. See **Personal Protective Equipment** warnings in this manual.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



**PERSONAL PROTECTIVE EQUIPMENT**

Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury; and hearing loss. This protective equipment includes but is not limited to:

- A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing, and foot coverings as recommended by the fluid manufacturer and local regulatory authority.
- Protective eyewear and hearing protection.

# ⚠ WARNING



**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 spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.



- 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 the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.




- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.



**FIRE AND EXPLOSION HAZARD**

Flammable fumes, such as solvent and paint fumes, **in work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. 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 sparking).



- Ground all equipment in the work area. See **Grounding** instructions.
- Never spray or flush solvent at high pressure.



- 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.
- Use only conductive and grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

# ⚠ WARNING




**THERMAL EXPANSION HAZARD**

Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.

- Open a valve to relieve the fluid expansion during heating.
- Replace hoses proactively at regular intervals based on your operating conditions.



**PRESSURIZED ALUMINUM PARTS HAZARD**

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.
- Do not use chlorine bleach.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

# ⚠ WARNING




**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 Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses, fluid lines, cords, and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or overbend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.




**MOVING PARTS HAZARD**

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

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.



**BURN HAZARD**

Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

# IMPORTANT ISOCYANATE (ISO) INFORMATION

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

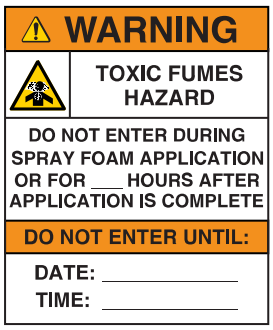
## ISOCYANATE CONDITIONS

**⚠ WARNING**



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

- Read and understand the fluid manufacturer's warnings and Safety Data Sheets (SDSs) 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 SDSs.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material, which could cause off gassing and offensive odors. 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 SDSs.
- 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.
- Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours.
- Warn others who may enter work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority. Posting a placard such as the following outside the work area is recommended:



## KEEP COMPONENTS A AND B SEPARATE

**⚠ WARNING**



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 used on the other side.

## MOISTURE SENSITIVITY OF ISOCYANATES

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

***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.

**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 B (resin) side.

## FOAM RESINS WITH 245 FA BLOWING AGENTS

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

## MATERIAL SELF-IGNITION

**⚠ WARNING**



Some materials may become self-igniting if applied too thick. Read material manufacturer's warnings and Safety Data Sheets (SDSs).

## MOISTURE SENSITIVITY OF ISOCYANATES: REACTOR® 1 PROCEDURES

For Reactor 1 Proportioning Systems, performing the correct procedures before storage can prevent ISO from partially curing in the equipment.

***NOTICE***

- To prevent damage, cycle material through the Reactor at least once per week when wetted and sitting idle. Use the A-side transfer pump to flush material through the A-side outlet manifold recirculation fitting. See **Flush the Equipment**.
- The Reactor should not be stored after ingesting air or running out of material. Prior to storage, follow the Purge Air procedure in your operation manual.

# TECHNICAL SPECIFICATIONS

The table provides important information related to the Reactor® 1 Proportioning Systems, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 7-1: Technical Specifications for Reactor 1 Proportioning Systems, E-20

| E-20 | US | METRIC |
|---|---|---|
| Maximum Fluid Working Pressure | 2000 psi | 13.8 MPa, 138 bar |
| Maximum Fluid Temperature | 160°F | 71.1°C |
| Maximum Flow Rate | 20 lb/min | 9.07 kg/min |
| Maximum Heated Hose Length | 220 ft | 67 m |
| Approximate Output per cycle (A + B) | 0.0104 gal. | 39.4 cc |
| Operating Ambient Temperature Range | 20°F to 120°F | -7°C to 49°C |
| Fluid Inlets | 3/4 npt(f) | |
| Fluid Outlet - A | #8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter | |
| Fluid Outlet - B | #10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter | |
| Fluid Circulation Port Size | 1/4 nps(m) | |
| Fluid Circulation Port Maximum Pressure | 250 psi | 1.7 MPa, 17 bar |
| Maximum Fluid Inlet Pressure | 400 psi | 2.76 MPa, 27.6 bar |
| **Line Voltage Requirement** | | |
| 200–240 VAC, 1-ph, 50/60 Hz | | |
| 200–240 VAC, 3-ph DELTA, 50/60 Hz | | |
| 350–415 VAC, 3-ph WYE, 50/60 Hz | | |
| **Sound Pressure** (Measured per ISO 9614-2) | | |
| Measured from 3.1 ft (1 m) @ 1000 psi (7 MPa, 70 bar), 2 gpm (7.6 lpm) | 90.1 dBA | |
| **Sound Power** | | |
| Measured from 3.1 ft (1 m) @ 1000 psi (7 MPa, 70 bar), 2 gpm (7.6 lpm) | 97.15 dBA | |
| **Dimensions** | | |
| Width | 24.9 in. | 63 cm |
| Depth | 15 in. | 38 cm |
| Height | 56.5 in. | 144 cm |
| **Weight** | | |
| 10 kW | 270 lb | 122.5 kg |

| E-20 | US | METRIC |
|---|---|---|
| **Wetted Parts** | | |
| Material | Aluminum, stainless steel, zinc-plated carbon steel, nickel-plated carbon steel, brass, tungsten carbide, chrome, chemically resistant o-rings, PTFE, acetal, UHMWP | |
| **Notes** | | |
| All trademarks or registered trademarks are the property of their respective owners. | | |

Table 7-2: Technical Specifications for Reactor 1 Proportioning Systems, E-30

| E-30 | US | METRIC |
|---|---|---|
| Maximum Fluid Working Pressure | 2000 psi | 13.8 MPa, 138 bar |
| Maximum Fluid Temperature | 160°F | 71.1°C |
| Maximum Flow Rate | 30 lb/min | 13.5 kg/min |
| Maximum Heated Hose Length | 320 ft | 97.5 m |
| Approximate Output per cycle (A + B) | 0.0273 gal. | 103.4 cc |
| Operating Ambient Temperature Range | 20°F to 120°F | -7°C to 49°C |
| Fluid Inlets | 3/4 npt(f) | |
| Fluid Outlet - A | #8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter | |
| Fluid Outlet - B | #10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter | |
| Fluid Circulation Port Size | 1/4 nps(m) | |
| Fluid Circulation Port Maximum Pressure | 250 psi | 1.7 MPa, 17 bar |
| Maximum Fluid Inlet Pressure | 400 psi | 2.76 MPa, 27.6 bar |
| **Line Voltage Requirement** | | |
| 200–240 VAC, 1-ph, 50/60 Hz | | |
| 200–240 VAC, 3-ph DELTA, 50/60 Hz | | |
| 350–415 VAC, 3-ph WYE, 50/60 Hz | | |
| **Sound Pressure** (Measured per ISO 9614-2) | | |
| Measured from 3.1 ft (1 m) @ 1000 psi (7 MPa, 70 bar), 2 gpm (7.6 lpm) | 87.3 dBA | |
| **Sound Power** | | |
| Measured from 3.1 ft (1 m) @ 1000 psi (7 MPa, 70 bar), 2 gpm (7.6 lpm) | 93.7 dBA | |
| **Dimensions** | | |
| Width | 26.8 in. | 68 cm |
| Depth | 15 in. | 38 cm |
| Height | 56.5 in. | 144 cm |
| **Weight** | | |
| 15 kW | 335 lb | 151.9 kg |
| **Wetted Parts** | | |

| E-30 | US | METRIC |
|---|---|---|
| Material | Aluminum, stainless steel, zinc-plated carbon steel, nickel-plated carbon steel, brass, tungsten carbide, chrome, chemically resistant o-rings, PTFE, acetal, UHMWP | |
| **Notes** | | |
| All trademarks or registered trademarks are the property of their respective owners. | | |

Table 7-3: Technical Specifications for Reactor 1 Proportioning Systems, E-XP1

| E-XP1 | US | METRIC |
|---|---|---|
| Maximum Fluid Working Pressure | 3000 psi | 20.7 MPa, 207 bar |
| Maximum Fluid Temperature | 180°F | 82.2°C |
| Maximum Flow Rate | 2 gpm | 7.6 lpm |
| Maximum Heated Hose Length | 220 ft | 67 m |
| Approximate Output per cycle (A + B) | 0.0104 gal. | 39.4 cc |
| Operating Ambient Temperature Range | 20°F to 120°F | -7°C to 49°C |
| Fluid Inlets | 3/4 npt(f) | |
| Fluid Outlet - A | #8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter | |
| Fluid Outlet - B | #10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter | |
| Fluid Circulation Port Size | 1/4 nps(m) | |
| Fluid Circulation Port Maximum Pressure | 250 psi | 1.7 MPa, 17 bar |
| Maximum Fluid Inlet Pressure | 400 psi | 2.76 MPa, 27.6 bar |
| **Line Voltage Requirement** | | |
| 200–240 VAC, 1-ph, 50/60 Hz | | |
| 200–240 VAC, 3-ph DELTA, 50/60 Hz | | |
| 350–415 VAC, 3-ph WYE, 50/60 Hz | | |
| **Sound Pressure** (Measured per ISO 9614-2) | | |
| Measured from 3.1 ft (1 m) @ 3000 psi (20.7 MPa, 207 bar), 1 gpm (3.8lpm) | 85.1 dBA | |
| **Sound Power** | | |
| Measured from 3.1 ft (1 m) @ 3000 psi (20.7 MPa, 207 bar), 1 gpm (3.8 lpm) | 92.15 dBA | |
| **Dimensions** | | |
| Width | 24.9 in. | 63 cm |
| Depth | 15 in. | 38 cm |
| Height | 56.5 in. | 144 cm |
| **Weight** | | |
| 10 kW | 270 lb | 122.5 kg |
| **Wetted Parts** | | |

| E-XP1 | US | METRIC |
|---|---|---|
| Material | Aluminum, stainless steel, zinc-plated carbon steel, nickel-plated carbon steel, brass, tungsten carbide, chrome, chemically resistant o-rings, PTFE, acetal, UHMWP | |
| **Notes** | | |
| All trademarks or registered trademarks are the property of their respective owners. | | |

Table 7-4: Technical Specifications for Reactor 1 Proportioning Systems, E-XP2

| E-XP2 | US | METRIC |
|---|---|---|
| Maximum Fluid Working Pressure | 3500 psi | 24.1 MPa, 241 bar |
| Maximum Fluid Temperature | 180°F | 82.2°C |
| Maximum Flow Rate | 2.1 gpm | 7.94 lpm |
| Maximum Heated Hose Length | 320 ft | 97.5 m |
| Approximate Output per cycle (A + B) | 0.0203 gal. | 77.1 cc |
| Operating Ambient Temperature Range | 20°F to 120°F | -7°C to 49°C |
| Fluid Inlets | 3/4 npt(f) | |
| Fluid Outlet - A | #8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter | |
| Fluid Outlet - B | #10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter | |
| Fluid Circulation Port Size | 1/4 nps(m) | |
| Fluid Circulation Port Maximum Pressure | 250 psi | 1.7 MPa, 17 bar |
| Maximum Fluid Inlet Pressure | 400 psi | 2.76 MPa, 27.6 bar |
| **Line Voltage Requirement** | | |
| 200–240 VAC, 1-ph, 50/60 Hz | | |
| 200–240 VAC, 3-ph DELTA, 50/60 Hz | | |
| 350–415 VAC, 3-ph WYE, 50/60 Hz | | |
| **Sound Pressure** (Measured per ISO 9614-2) | | |
| Measured from 3.1 ft (1 m) @ 3000 psi (20.7 MPa, 207 bar), 1 gpm (3.8 lpm) | 79.6 dBA | |
| **Sound Power** | | |
| Measured from 3.1 ft (1 m) @ 3000 psi (20.7 MPa, 207 bar), 1 gpm (3.8 lpm) | 86.6 dBA | |
| **Dimensions** | | |
| Width | 26.8 in. | 68 cm |
| Depth | 15 in. | 38 cm |
| Height | 56.5 in. | 144 cm |
| **Weight** | | |
| 15 kW | 330 lb | 149.7 kg |
| **Wetted Parts** | | |

| E-XP2 | US | METRIC |
|---|---|---|
| Material | Aluminum, stainless steel, zinc-plated carbon steel, nickel-plated carbon steel, brass, tungsten carbide, chrome, chemically resistant o-rings, PTFE, acetal, UHMWP | |
| **Notes** | | |
| All trademarks or registered trademarks are the property of their respective owners. | | |

## COMPONENT IDENTIFICATION

The diagrams highlight the controls and features on the Reactor® 1 Proportioning Systems.

### PROPORTIONER

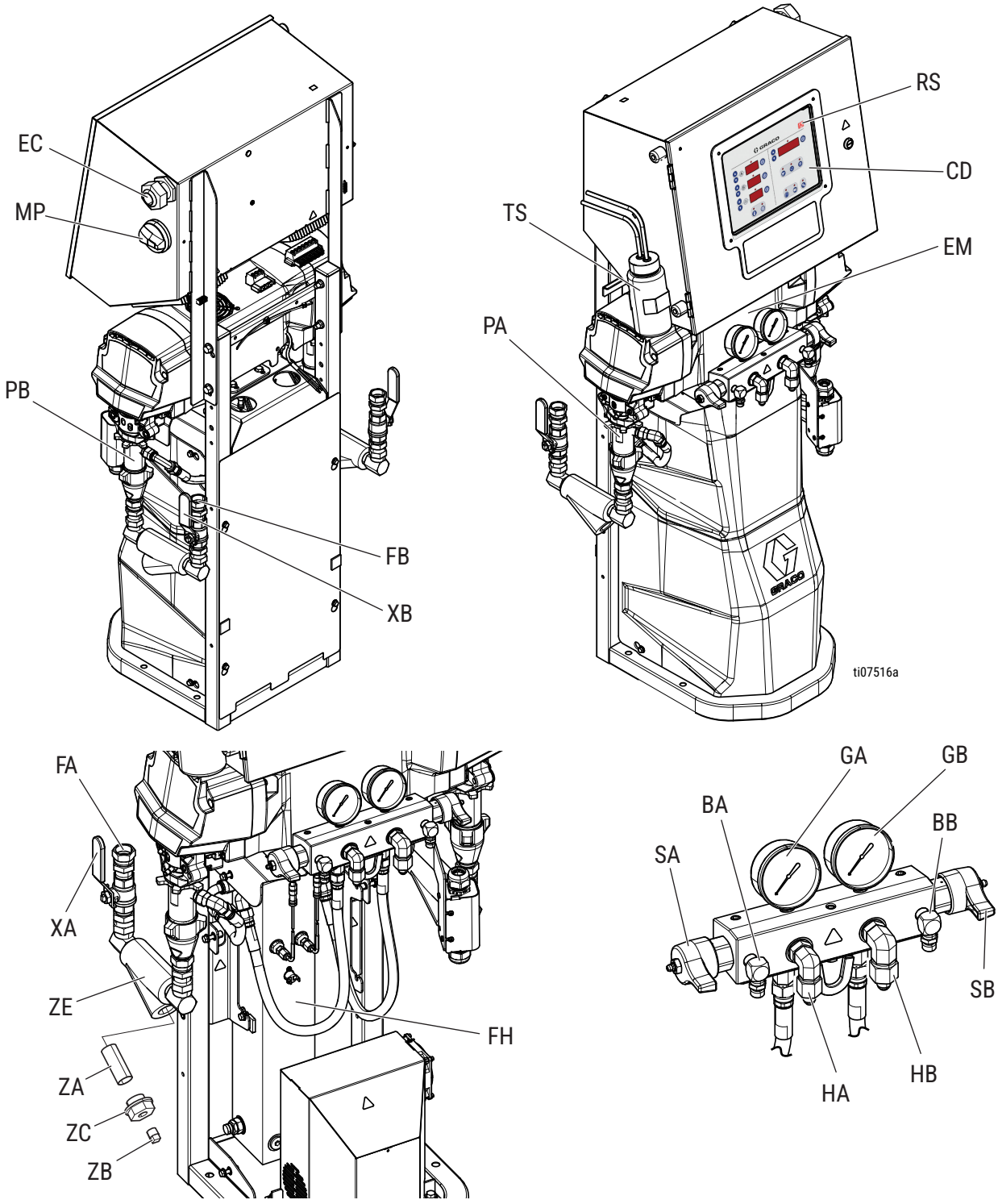



Figure 8-1: Reactor® 1 Proportioner Components

| | |
|---|---|
| BA | ISO Side Pressure Relief Outlet |
| BB | RES Side Pressure Relief Outlet |
| CD | Membrane Display Module (MDM) |
| EC | Electrical Cord Strain Relief |
| EM | Electric Motor |
| FA | ISO Side Inlet Fitting |
| FB | RES Side Inlet Fitting |
| FH | Fluid Heaters |
| GA | ISO Side Pressure Gauge |
| GB | RES Side Pressure Gauge |
| HA | ISO Side Hose Connection |
| HB | RES Side Hose Connection |
| MP | Main Power Switch |
| PA | ISO Side Pump |
| PB | RES Side Pump |
| RS | Red Stop Button |
| SA | ISO Side Pressure Relief/Spray Valve |
| SB | RES Side Pressure Relief/Spray Valve |
| TS | ISO Lubrication Reservoir |
| XA | ISO Side Fluid Inlet Valve |
| XB | RES Side Fluid Inlet Valve |
| ZA | Inlet Strainer Screen |
| ZB | Inlet Strainer Drain Plug |
| ZC | Inlet Strainer Cap |
| ZE | Inlet Strainer |

## DISPLAY

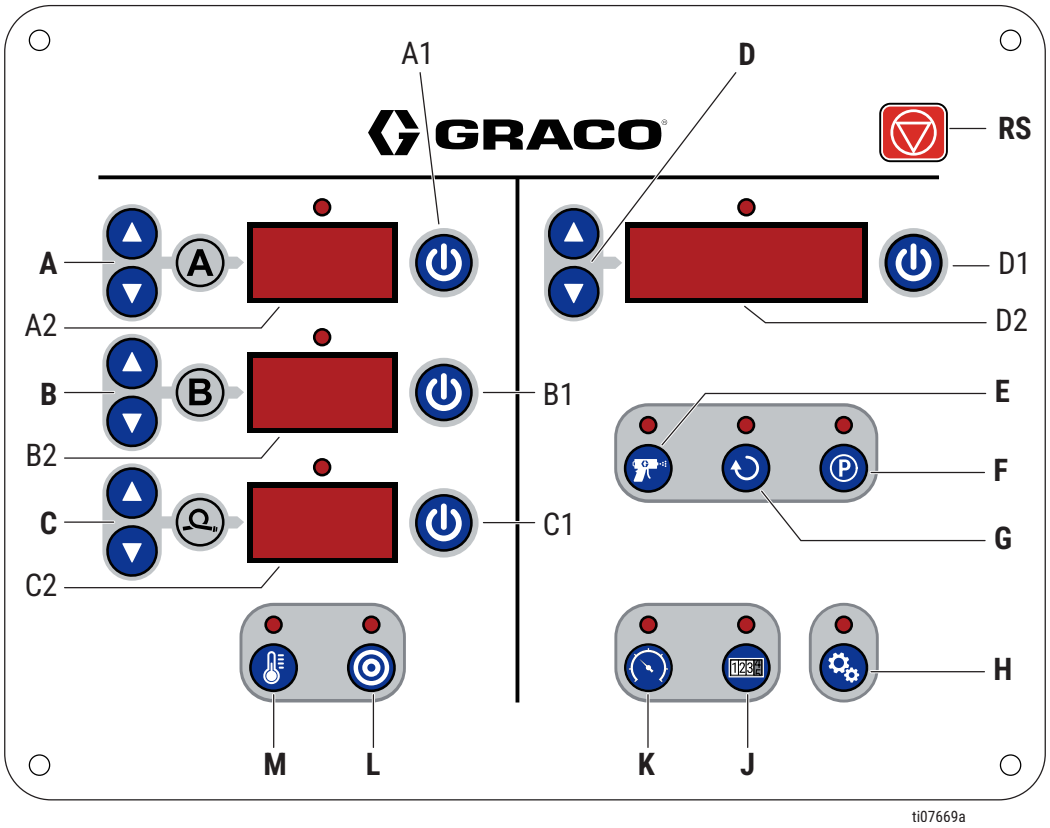



Figure 8-2: Display Buttons

| | |
|---|---|
| RS | Red Stop Button |
| A | Zone A Arrow Keys |
| A1 | Heater A Power Button |
| A2 | Heater A Display |
| B | Zone B Arrow Keys |
| B1 | Heater B Power Button |
| B2 | Heater B Display |
| C | Hose Zone Arrow Keys |
| C1 | Hose Heater Power Button |
| C2 | Hose Heater Display |
| D | Motor/Pressure Arrow Keys |
| D1 | Pump Motor Power Button |
| D2 | Pressure/Cycle Display |
| E | Spray Mode Key |
| F | Park Key |
| G | Jog Mode Key |
| H | Settings Key |
| J | Cycle Count Key |
| K | Pressure Key |
| L | Target Temperature Key |
| M | Actual Temperature Key |

**ELECTRICAL ENCLOSURE**

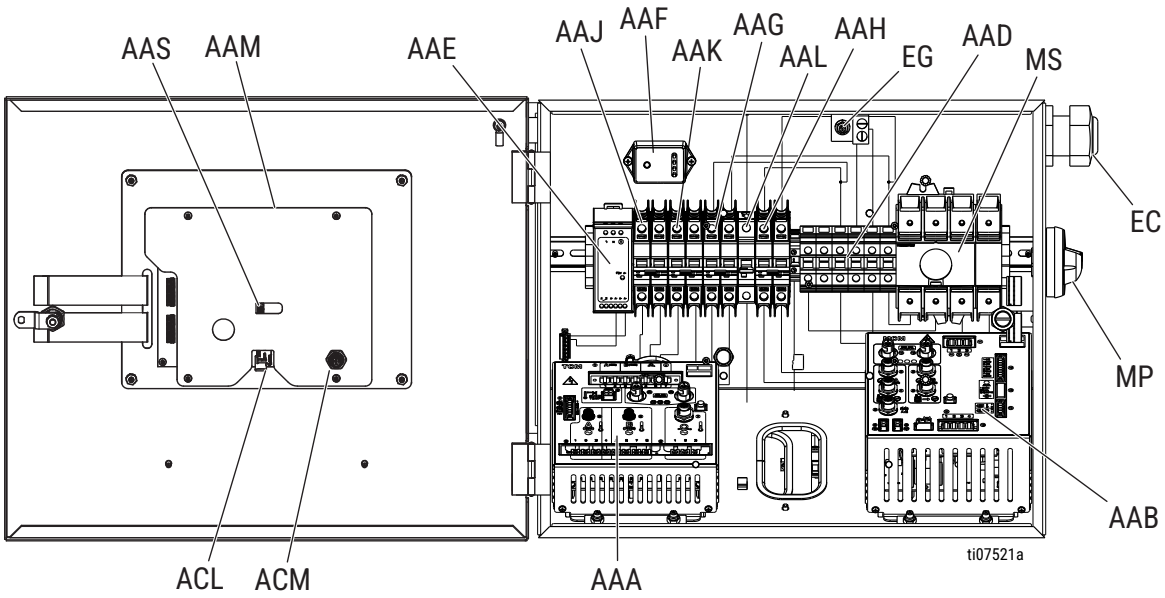



Figure 8-3: Reactor® 1 Enclosure Components

| | |
|---|---|
| AAA | Temperature Control Module (TCM) |
| AAB | Motor Control Module (MCM) |
| AAD | Wiring Terminal Blocks |
| AAE | 24 V Power Supply |
| AAF | Surge Protector |
| AAG | Transformer Breaker |
| AAH | Motor Breaker |
| AAJ | A-Side Heat Breaker |
| AAK | B-Side Heat Breaker |
| AAL | Hose Breaker |
| AAM | Membrane Display Module (MDM) |
| AAS | MDM LED Status Lights |
| ACL | MDM SD Card Slot |
| ACM | MDM CAN Cable Connection |
| EC | Incoming Power Cord Strain Relief |
| EG | Incoming Power Ground Terminal |
| MP | Main Power Disconnect Knob |
| MS | Main Power Disconnect Switch |

## TEMPERATURE CONTROL MODULE (TCM)

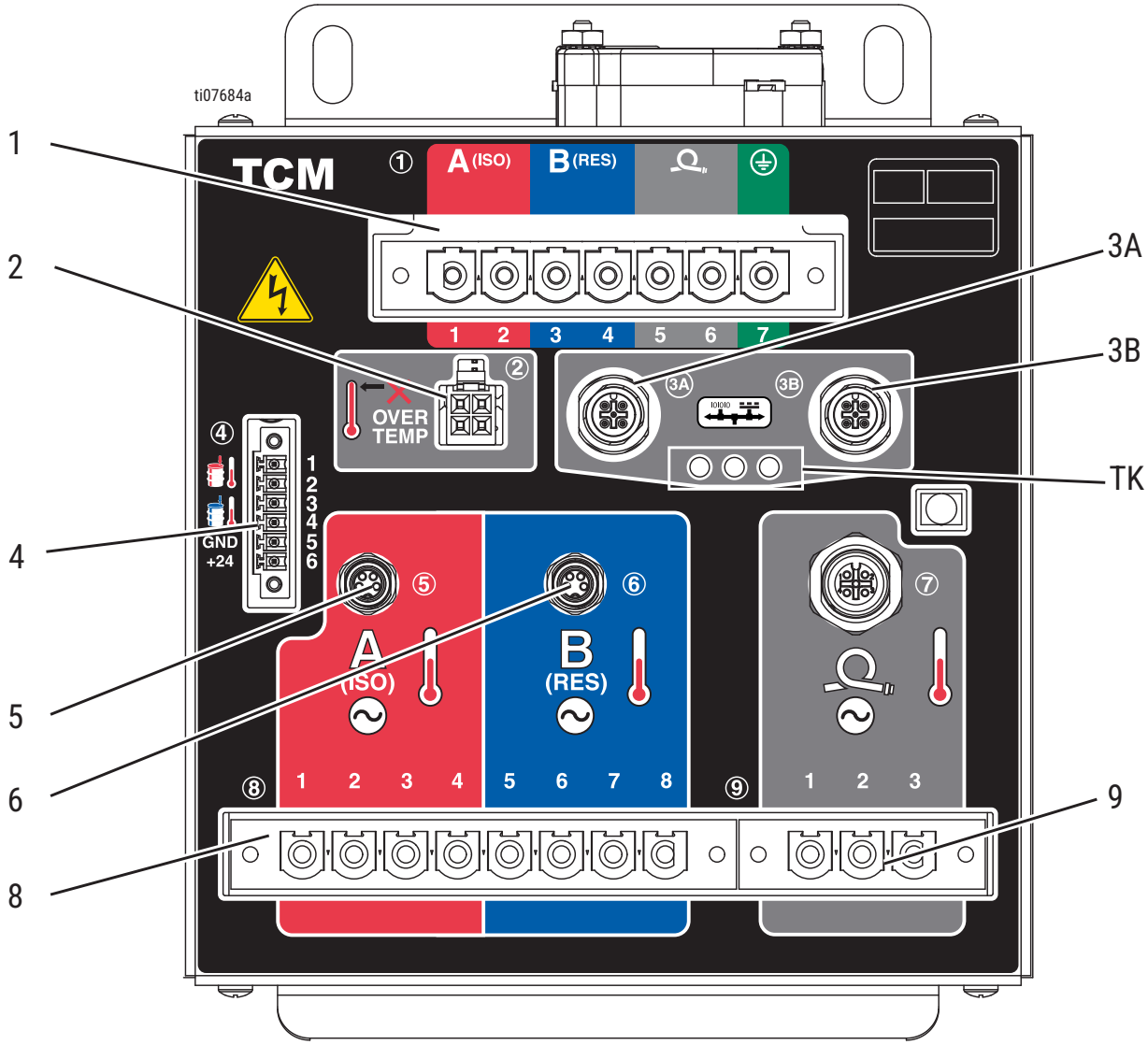



Figure 8-4: Temperature Control Module (TCM) Components

| | |
|---|---|
| 1 | Main Power Input |
| 2 | Heater Over-Temperature Inputs |
| 3A<br>3B | CAN Communications Connections |
| 4 | 24 VDC Power Supply Input |
| 5 | A Heater Temperature Input |
| 6 | B Heater Temperature Input |
| 8 | A/B Heater Power Outputs |
| 9 | A/B Hose Power Outputs |
| TK | TCM LED Status Lights |

## MOTOR CONTROL MODULE (MCM)

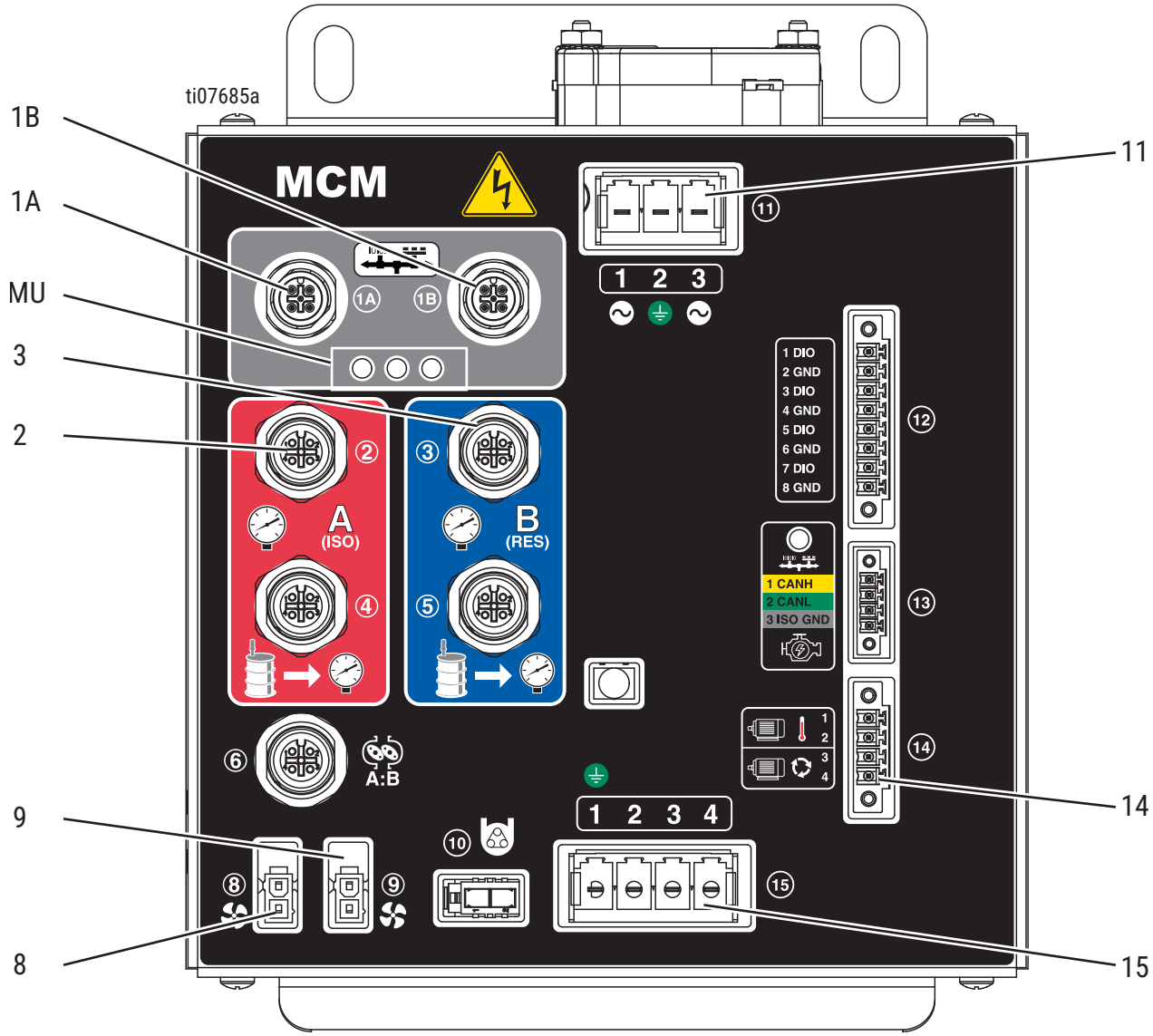


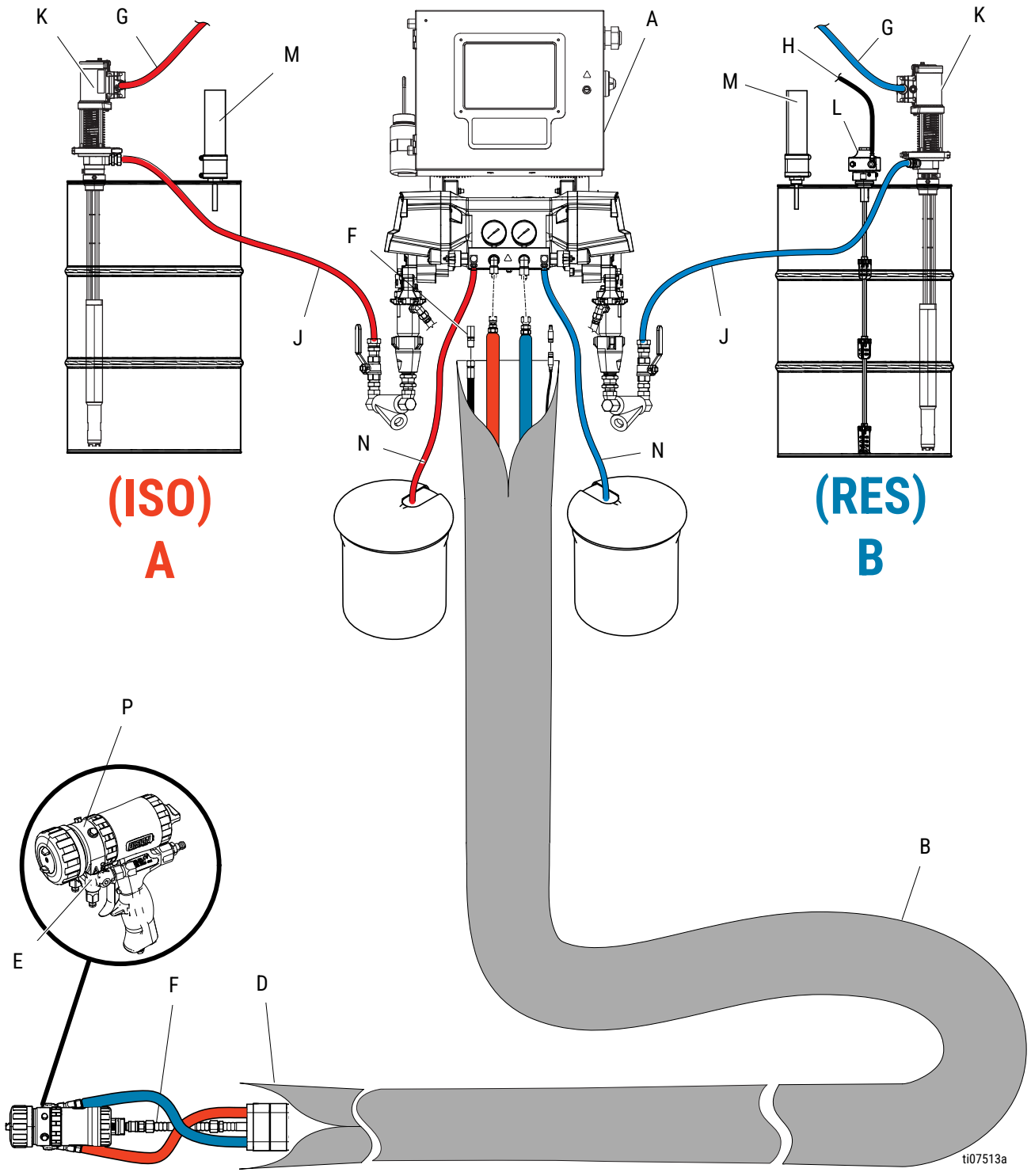

Figure 8-5: Motor Control Module (MCM) Components

| | |
|---|---|
| 1A<br>1B | CAN Communication Connections |
| 2 | A-Side Pump Outlet Pressure |
| 3 | B-Side Pump Outlet Pressure |
| 8 | Transformer Fan |
| 9 | Motor Fan |
| 11 | Main Power Input |
| 14 | Motor Temperature and Cycle Switch |
| 15 | Motor Output |
| MU | MCM LED Status Lights |

# TYPICAL INSTALLATION

The diagram can be used as a guide for selecting and installing system components and accessories on the Reactor® 1 Proportioning Systems.

## TYPICAL INSTALLATION WITHOUT CIRCULATION



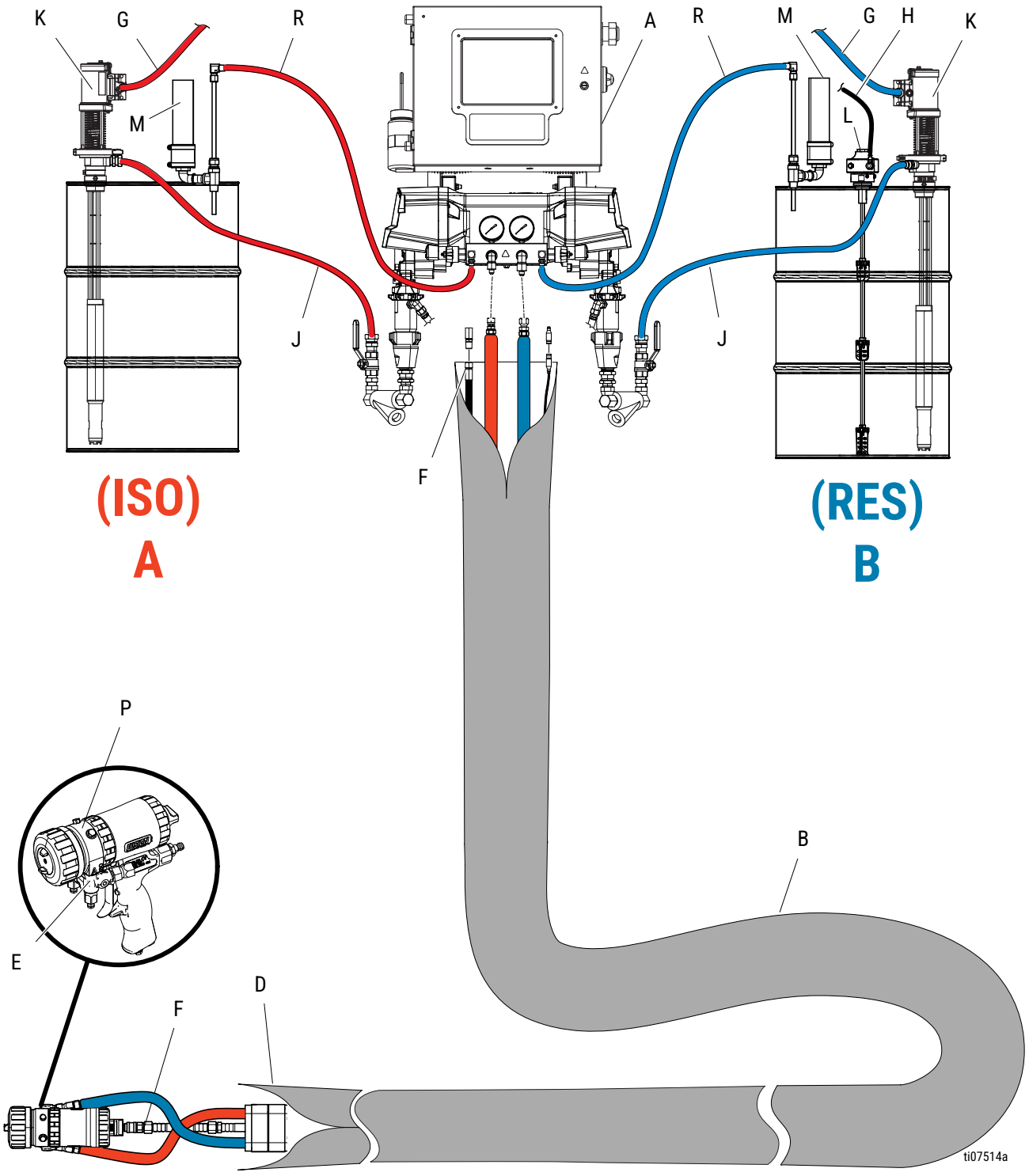

**† Fusion PC gun shown.**

| | |
|---|---|
| A | Reactor® Proportioner |
| B* | Heated Hose Bundle |
| D | Heated Whip Hose |
| E❖ | Gun Manifold |
| F❖ | Gun Air Supply Hose |
| G❖ | Transfer Pump Air Supply Line |
| H❖ | Agitator Air Supply Line |
| J❖ | Fluid Supply Lines |
| K❖ | Transfer Pumps |
| L❖ | Agitator |
| M❖ | Desiccant Dryers |
| N❖ | Bleed Lines |
| P❖ | Gun |

** Shown exposed for clarity. Wrap with tape during operation.*

*❖ Not included.*

## TYPICAL INSTALLATION WITH SYSTEM FLUID MANIFOLD TO DRUM CIRCULATION

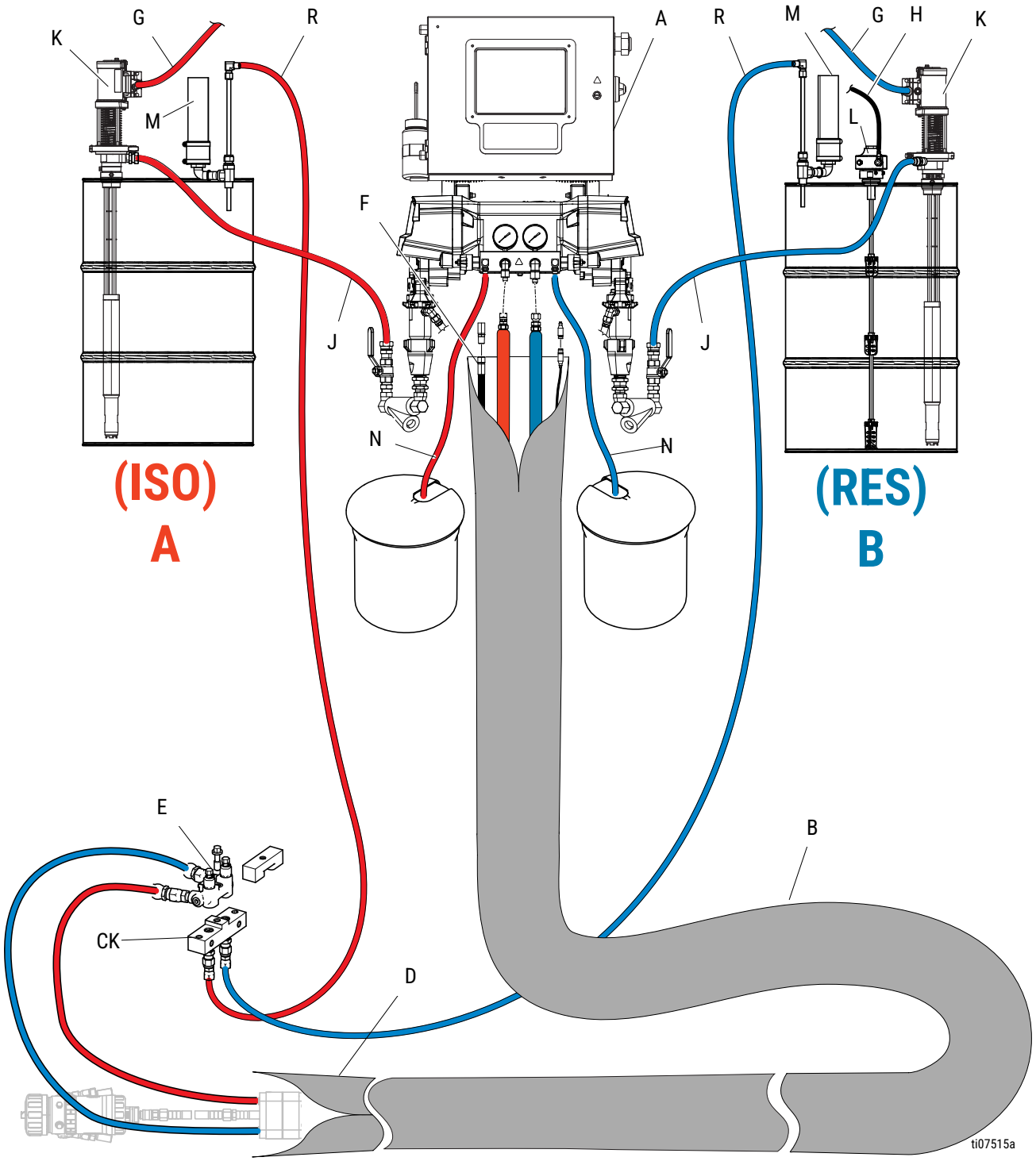


| | |
|---|---|
| A | Reactor® Proportioner |
| B*❖ | Heated Hose Bundle |
| D❖ | Heated Whip Hose |
| E❖ | Gun Manifold |
| F❖ | Gun Air Supply Hose |
| G❖ | Transfer Pump Air Supply Line |
| H❖ | Agitator Air Supply Line |
| J❖ | Fluid Supply Lines |
| K❖ | Transfer Pumps |
| L❖ | Agitator |
| M❖ | Desiccant Dryers |
| P❖ | Gun |
| R❖ | Recirculation Lines |

** Shown exposed for clarity. Wrap with tape during operation.*

❖ *Not included.*

## TYPICAL INSTALLATION WITH GUN FLUID MANIFOLD TO DRUM CIRCULATION



| | |
|---|---|
| A | Reactor® Proportioner |
| B* | Heated Hose Bundle |
| D | Heated Whip Hose |
| E❖ | Gun Manifold |
| F❖ | Gun Air Supply Hose |
| G❖ | Transfer Pump Air Supply Line |
| H❖ | Agitator Air Supply Line |
| J❖ | Fluid Supply Lines |
| K❖ | Transfer Pumps |
| L❖ | Agitator |
| M❖ | Desiccant Dryers |
| N❖ | Bleed Lines |
| R❖ | Recirculation Lines |
| CK❖ | Circulation Block (accessory) |

** Shown exposed for clarity. Wrap with tape during operation.*

❖ *Not included.*

Properly install the Reactor® 1 equipment to ensure optimal performance during use.

### LOCATION

For ease of operation and maintenance, ensure there is adequate lighting in the area the Reactor is installed for visibility and safety.

For ease of operation and maintenance, ensure there is adequate space to the front and sides of the Reactor to access valves or use wrenches and tools.

### TOOLS REQUIRED FOR INSTALLATION

9/16 in. socket or wrench

### GROUNDING

Properly ground the Reactor® 1 Proportioning Systems to help ensure correct operation.

**⚠ WARNING**



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

**Reactor:** System is grounded through the power cord.

**Hose:** Use only the Reactor 1 or 2 heated hoses to ensure static ground continuity. Check electrical resistance of hoses from the gun to the Reactor system ground. If total resistance exceeds 29 megaohm, replace the hose(s) immediately.

**Spray gun:** Spray gun is grounded through Reactor 1 or 2 hoses. Use only Reactor 1 or 2 heated hoses.

**Fluid supply containers:** Follow your local code.

**Object being sprayed:** Follow your local codes and regulations.

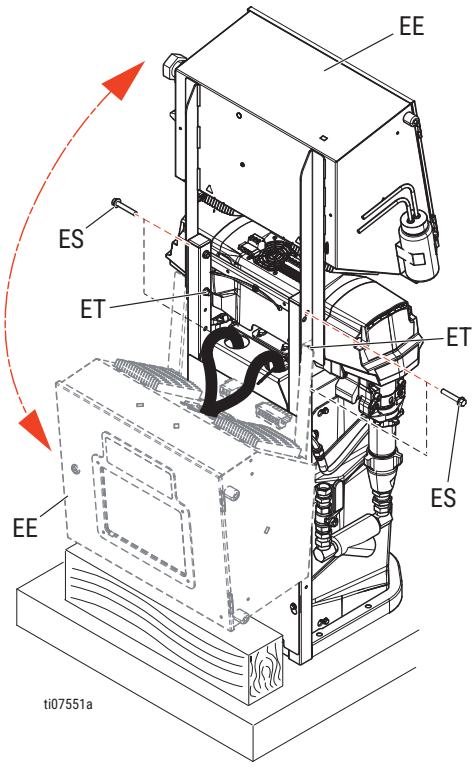
**Solvent pails used when flushing:** Follow your local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.

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

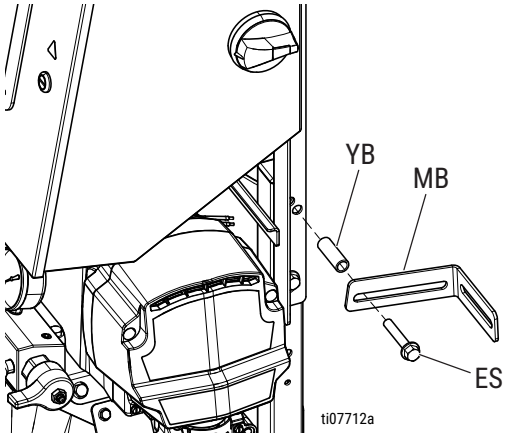
## ASSEMBLE THE PROPORTIONER

Reactor proportioners arrive in a shipping configuration. Before mounting the system, assemble the proportioner in the upright position.

1. Remove the enclosure pivot arm screws (ES).
2. Loosen screws (ET). Lift the electrical enclosure (EE).




3. Place the left and right wall mounting brackets (MB) as shown. Insert the enclosure pivot arm screws (ES) through the brackets (MB) and spacer (YB). Tighten (ES & ET) to secure the enclosure.




**NOTE:**

Mounting brackets, spacers, and bolts are included in box of loose parts shipped with the system.

## MOUNT THE SYSTEM

**⚠ WARNING**



To prevent serious injury due to the system tipping over, ensure the Reactor is properly secured to the wall.

**NOTE:**

Mounting brackets and bolts are included in the box of loose parts shipped with the system.

1. Secure the left and right wall mounting brackets (MB) to the wall. If the brackets do not line up with the wall stud spacing, bolt a piece of wood to the studs then secure the brackets to the wood.
2. Use the four holes in the base of the system frame (BH) to secure the base to the floor. The bolts are not supplied.

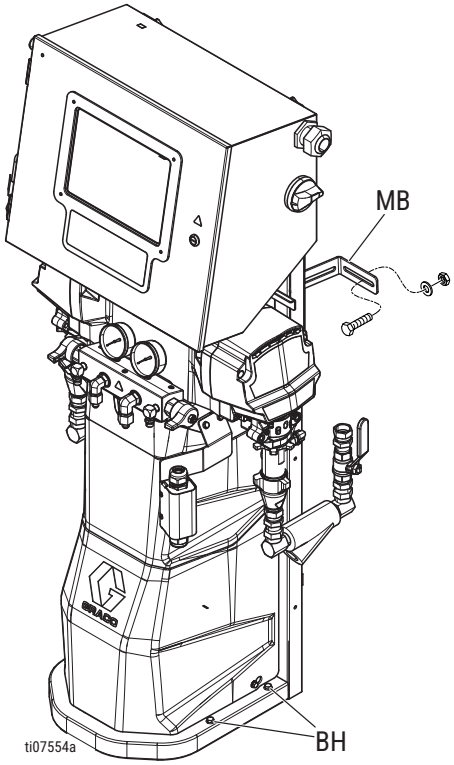



Figure 10-1: Mounting Brackets and System Frame Diagram

When using the equipment for the first time or after long term storage, follow the steps to prepare the Reactor® 1 Proportioning Systems for operation.

### TOOLS REQUIRED FOR SETUP

- 1-1/4 in. wrench
- 1-1/16 in. wrench
- 7/8 in. wrench
- 5/8 in. wrench
- 1 in. wrench
- 11/16 in. wrench
- 3/4 in. wrench
- 3/8 in. socket
- Flathead screwdriver
- 18 in. adjustable wrench

### GENERAL EQUIPMENT GUIDELINES

**NOTICE**

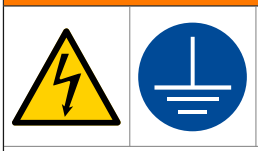
Failure to properly size the generator may result in damage. To avoid damage to the equipment, follow the guidelines.

- Determine the correct size generator. Using the correct size generator and proper air compressor will enable the proportioner to run at a nearly constant RPM. Failure to do so will cause voltage fluctuations that can damage electrical equipment. To determine the correct size generator:

1. List peak wattage requirements of all system components.
2. Add the wattage required by the system components.
3. Perform the following equation: Total watts x 1.25 = kVA (kilovolt-amperes).
4. Select a generator size that is equal to or greater than the determined kVA. Voltage fluctuations can damage electrical equipment. To avoid voltage fluctuations:
   - Size the proportioner power cord using the electrical ratings in **Models**.
   - Use an air compressor with continuous run head unloading devices. Avoid direct online air compressors that start and stop during a job.
   - Maintain and check the generator, air compressor, and other equipment per the manufacturer's recommendations to avoid unexpected shutdown.
   - Use a wall power supply with enough current to meet system requirements.

## CONNECT POWER

**⚠ WARNING**



All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

1. Turn the Main Power Switch (MP) **OFF**.
2. Open the Electrical Enclosure Door.

   **NOTE:**

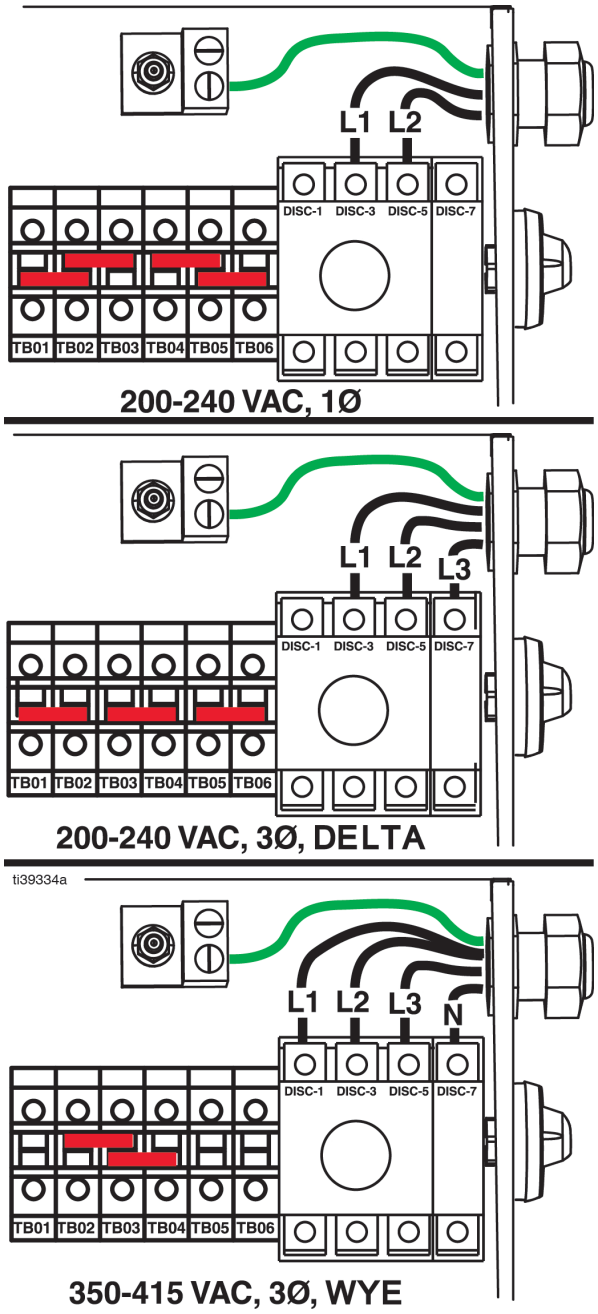
   The terminal jumpers are located inside the Electrical Enclosure Door.

3. Install the supplied terminal jumpers in the positions shown for the power source used.

   **NOTE:**

   Ensure the terminal jumpers are fully inserted and lie flush.

4. Route the power cable through the Electrical Cord Strain Relief (EC) in the electrical enclosure.
5. Connect the incoming power wires and ground wires as shown. Gently pull on all connections to verify they are properly secured.
6. Verify all items are connected properly as shown, then close the Electrical Enclosure Door.



## SUPPLY WET-CUPS WITH THROAT SEAL LIQUID (TSL™)

**⚠ WARNING**



The pump rod and connecting rod move during operation. Moving parts can cause serious injury such as pinching or amputation. Keep hands and fingers away from the wet-cup during operation.

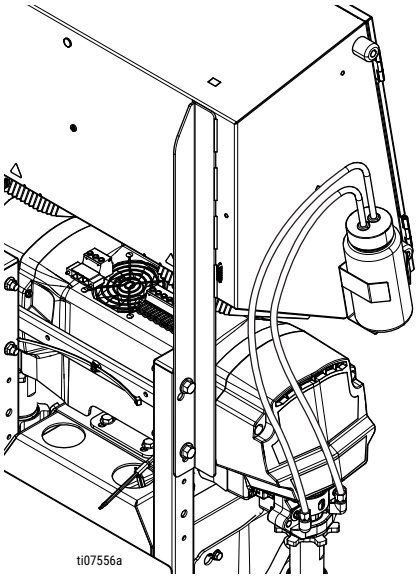
To prevent the pump from moving, turn the main power switch **OFF**.

**NOTE:**

Replacement TSL bottles can be ordered as follows:

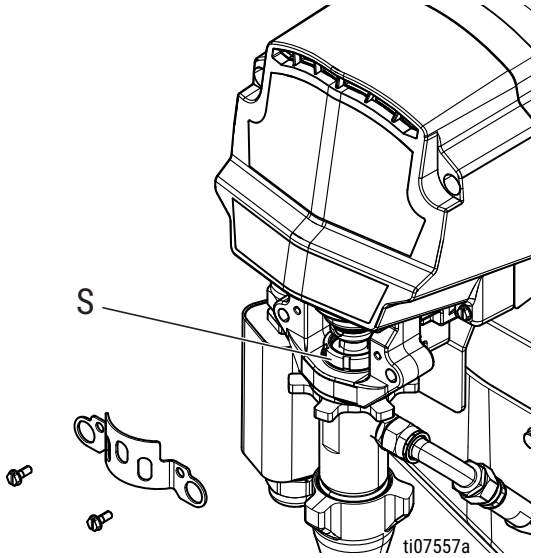
| REPLACEMENT PART | DESCRIPTION |
|---|---|
| 206995 | Replacement bottles of TSL (must be ordered in quantities of six) |

- **Component A (ISO) Pump:** Keep reservoir (TS) filled with Graco Throat Seal Liquid (TSL), part 206995. Wet-cup piston circulates TSL through the wet-cup to carry away isocyanate film on displacement rod.




- **Component B (Resin) Pump:** Check felt washers in packing nut/wet-cup (S) daily. Keep saturated with Graco TSL to prevent material from hardening on displacement rod.

  Replace felt washers when worn or contaminated with hardened material. See your displacement pump manual for further instructions. See **Related Manuals**.

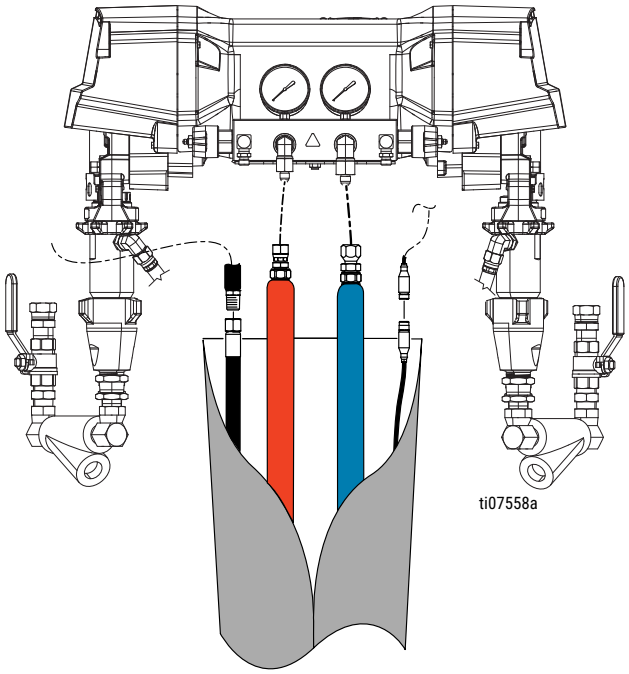


## CONNECT HEATED HOSE TO PROPORTIONER

**NOTICE**

To avoid damage to the hose, only connect Reactor® 1 or 2 heated hoses to your Reactor proportioner.

Connect the heated hose components to the mating component on the proportioner. Refer to your heated hose manual for detailed instructions. See **Related Manuals**.



Follow the steps to power on the equipment to prepare the Reactor® 1 Proportioning Systems for operation.

**⚠ WARNING**

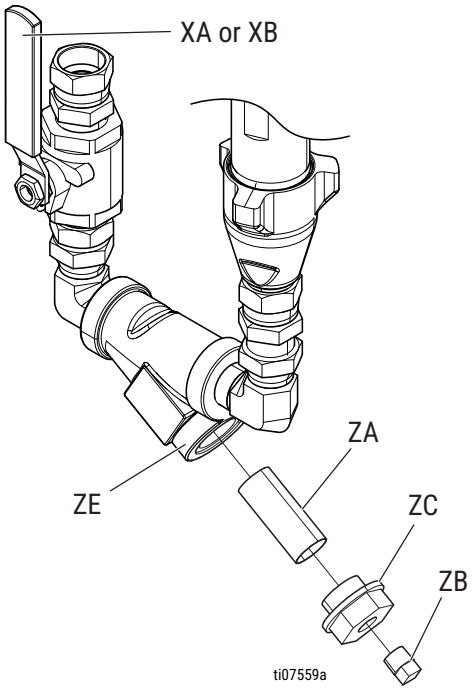


To prevent serious injury, only operate the Reactor with all covers and shrouds in place.

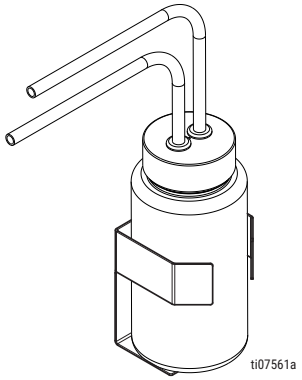
***NOTICE***

Proper system setup, startup, and shutdown procedures are critical to electrical equipment reliability. The following procedures ensure steady voltage. Failure to follow these procedures will cause voltage fluctuations that can damage electrical equipment.

1. Follow the **Pressure Relief Procedure**.
2. Check the Inlet Strainer Screens (ZA). Before daily startup, ensure the Inlet Strainer Screens (ZA) are clean. See **Flush Inlet Strainer Screen**.




3. Check the ISO Lubrication Reservoir (TS). Check level and condition of ISO lube daily.

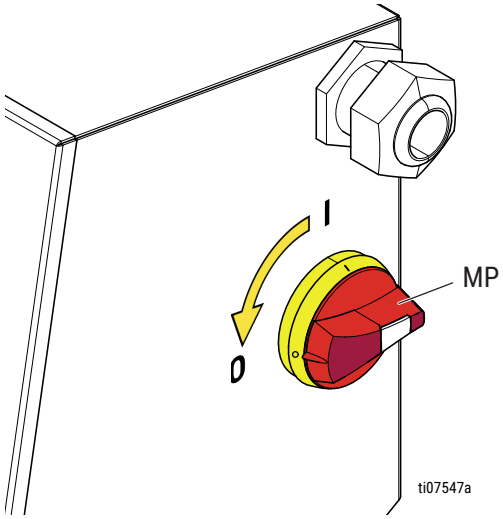



4. Use A and B Drum Level Sticks (24M174) to measure the material level in each drum.
5. Check the generator fuel level.

***NOTICE***

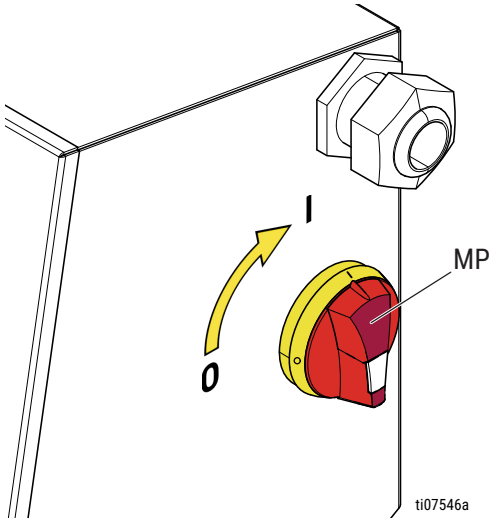
Running out of fuel will cause voltage fluctuations that can damage electrical equipment. Do not run out of fuel.

6. Confirm the system Main Power Switch (MP) is **OFF** before starting generator.

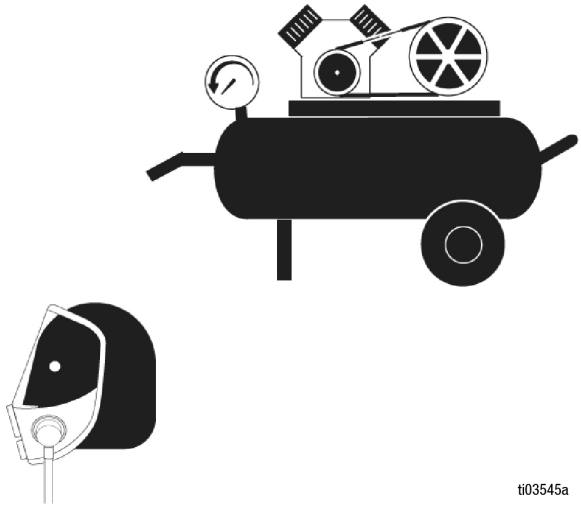



7. Ensure the generator main breaker is in the **OFF** position.
8. Start the generator. Allow the generator to reach full operating temperature.
9. Turn the generator main breaker to the **ON** position.

10. Turn the system Main Power Switch (MP) **ON**.




11. Turn **ON** the air compressor, air dryer, and breathing air (if applicable).




**⚠ WARNING**



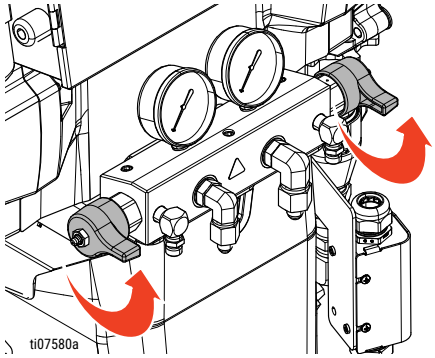
Cross-contamination can result in cured material in fluid lines that could cause serious injury or damage the equipment. To avoid cross-contamination:

- Never interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.
- Always provide two grounded waste containers to keep component A and component B fluids separate.

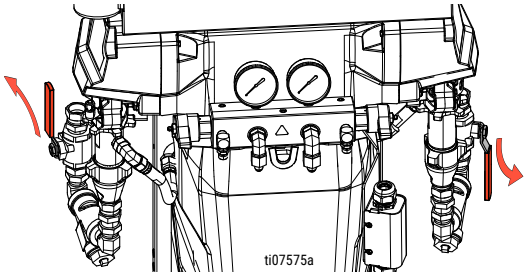
12. For the first startup of a new system, use the transfer pumps to supply fluid to the system.
    a. Check that all setup steps are complete. See **Setup**.
    b. **If an agitator is used**, turn the agitator **ON**. See your agitator manual. See **Related Manuals**.
    c. If you need to circulate material through the system to preheat the drum supply, see **Circulation Through Reactor**.

       If you need to circulate material through the heated hose to the gun manifolds, see **Circulation Through Gun Manifold**.

d. Turn both Pressure Relief/Spray Valves (SA, SB) to spray .

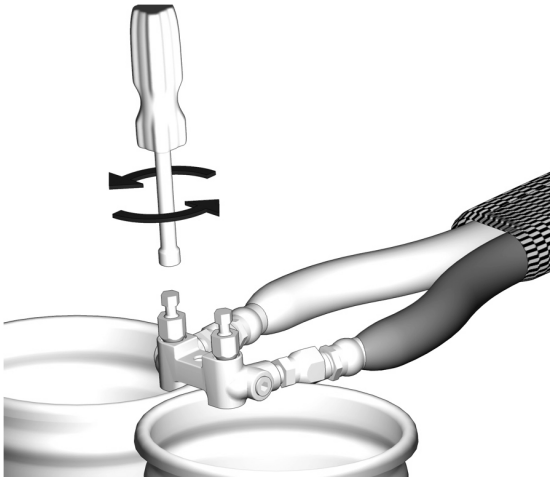



e. Open both Fluid Inlet Valves (XA, XB). Check for leaks.




f. Turn the transfer pumps **ON**. See your pump manual. See **Related Manuals**.

g. Hold the gun fluid manifold over two grounded waste containers. Open fluid valves A and B until clean, air-free fluid comes from valves. Close valves.



The Fusion AP gun manifold is shown.

h. Turn the transfer pumps **OFF**. **If you are using a pneumatic transfer pump**, see your pump manual. See **Related Manuals**.

13. Preheat the system.

**NOTE:**

The hose calibration must be completed before turning on the hose heat for the first time. See **Calibrate the Heated Hose**.

**⚠ WARNING**




The equipment is used with heated fluid which can cause equipment surfaces to become very hot. To avoid severe burns:

- Do not touch hot fluid or equipment.
- Do not turn on hose heat without fluid in hoses.
- Allow equipment to cool completely before touching it.
- Wear gloves if fluid temperature exceeds 110°F (43°C).

**⚠ WARNING**




Thermal expansion can cause overpressurization, resulting in equipment rupture and serious injury, including fluid injection. Do not pressurize system when preheating hose.

a. Turn on  by pressing .

b. If you need to circulate fluid through the system to preheat the drum supply, see **Circulation Through Reactor**. If you need to circulate material through the heated hose to the gun manifold, see **Circulation Through Gun Manifold**.

c. Wait for the hose to reach set point temperature.

**NOTE:**

Hose heat-up time may increase at voltages less than 230 VAC when maximum hose length is used.

d. Turn on  ISO heat zone and  RES heat zone by pressing  for each zone.

The instructions provide guidance on how to use the Reactor® 1 Proportioning Systems.

## PRESSURE RELIEF PROCEDURE

Relieve pressure on the Reactor® 1 Proportioning System when operation is stopped, and before cleaning, checking, or servicing the equipment.




Follow the Pressure Relief Procedure whenever you see this symbol.

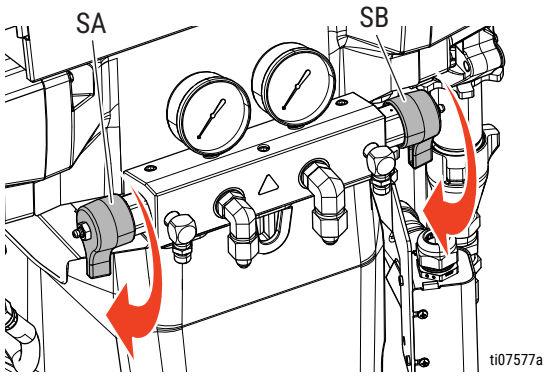
**⚠ WARNING**




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

1. Relieve pressure in the gun and perform the gun shutdown procedure. See your gun manual. See **Related Manuals**.
2. Tap Pump Motor Power Button (D1) to turn motor OFF.
3. Tap Heater A (A1), Heater B (B1) and Hose Heater (C1) Power buttons to turn OFF each heat zone.
4. Shut off the transfer pumps and the agitator, if used.

   Refer to your component manuals. See **Related Manuals**.
5. Make sure the bleed or circulation lines are connected and routed to waste containers or supply tanks. Turn the Pressure Relief/Spray Valve (SA, SB) to pressure relief/circulation . Make sure the gauges drop to 0.



## JOG MODE

Jog Mode has two purposes:

- To speed fluid heating during circulation.
- To ease system flushing and priming.

### JOG LEVEL

The Jog Level determines how quickly the system will pass chemicals through the system. The jog levels are between J1 and J20. Lower jog levels will move fluid at lower speeds and pressures. Higher jog levels move fluid at higher speeds and pressures. Actual speed and pressure are variable based on the chemicals used.

### JOG THE SYSTEM

**NOTE:**

Manually turn on air supply to the pumps. See your pump manual. See **Related Manuals**.

**NOTE:**

While in jog mode the hose target heat setting can be set up to 180°F (82°C) for the E-XP1/E-XP2 (and 160°F (71°C) for the E-20/E-30) regardless of the ISO and RES targets. When you leave Jog Mode, the hose target is lowered to 10°F (5.6°C) above the higher of the ISO and RES targets.

1. Turn the main power ON.
2. Ensure the motor is OFF (LED is OFF, display may show dashes or pressure).
3. Select **Jog Mode** from the menu .
4. Press to start motor.
5. Press or to change jog speed (J1 to J20).
6. Press Power Button to stop motor.

## PURGE AIR PROCEDURE

**⚠ WARNING**




**NOTE:**

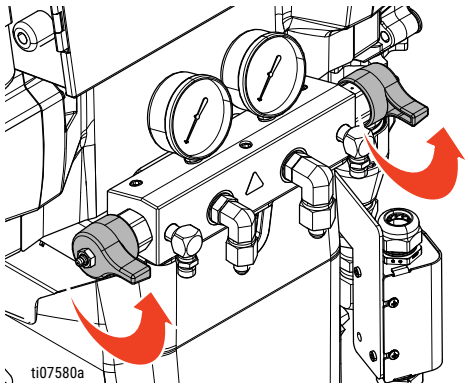
Perform this procedure any time air is introduced into the system.

1. Follow the **Pressure Relief Procedure**.
2. Install a recirculation kit or install bleed lines between the outlet manifold recirculation fitting and a waste container.

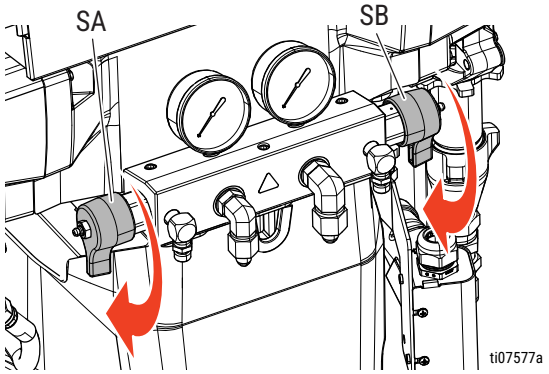
***NOTICE***

To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

3. Turn air **ON** to the transfer pump. See your pump manual. See **Related Manuals**.
4. Select **Jog Mode** from the menu.
5. Tap or to set the Jog Level to desired setting. See **Jog Mode**.
6. Tap to turn the motor **ON**.
7. Use Jog Mode to pump one gallon (3.8 l) of material through the system. See **Jog Mode**.
8. Set the Pressure Relief/Spray Valve (SA, SB) to spray .



9. Turn **OFF** air to the transfer pumps. See your pump manual. See **Related Manuals**.
10. Tap  to turn the motor **OFF**.
11. Set the Pressure Relief/Spray Valves (SA, SB) to relieve pressure/circulation .




12. Listen for a spitting sound from the Bleed Lines (N) or Recirculation Lines (R). See **Typical Installation**. This sound indicates the Reactor system still contains unwanted air. If the system still contains air, repeat the **Purge Air Procedure**.

## FLUSH THE EQUIPMENT

**⚠ WARNING**

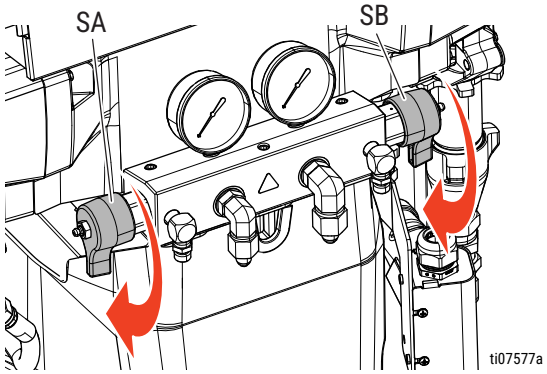


To help prevent fire and explosion:

- Flush equipment only in a well-ventilated area.
- Do not spray flammable fluids.
- Do not turn on heaters while flushing with flammable solvents.
- Always ground equipment and waste containers.
- Flush out old fluid with new fluid, or flush out old fluid with a compatible solvent before introducing new fluid.
- Use the lowest possible pressure when flushing.
- All wetted parts are compatible with common solvents. Use only moisture-free solvents.

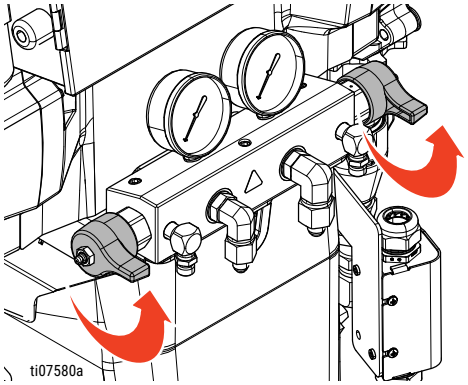
**To flush feed hoses, pumps, heaters, hose, and the gun manifold:**

1. Install Bleed Lines between the outlet manifold recirculation fitting and a grounded metal waste container.
2. Route the Recirculation Lines back to respective A or B supply, or grounded metal waste containers.
3. Set the Pressure Relief/Spray Valves (SA, SB) to relieve pressure/circulation .




4. Use Jog Mode to circulate fluid. See **Jog Mode**. Circulate fluid until only solvent comes from the Bleed Lines. The Reactor feed hoses, pumps, and heaters are now flushed.

5. Set the Pressure Relief/Spray Valves (SA, SB) to spray .




6. Hold the Gun Manifold over two grounded waste containers. Open Fluid Inlet Valves (XA and XB) until only solvent comes from the valves. Close the Fluid Inlet Valves. The Reactor hose and gun manifold are now flushed.
7. **Optional:** Use accessory circulation kit to circulate fluid through the Gun Manifold.

| CIRCULATION KIT | GUN | MANUAL IN ENGLISH |
|---|---|---|
| 246362 | Fusion AP, PC, MP | 309818 |
| 256566 | Fusion CS | 313058 |

**NOTICE**

To prevent moisture from reacting with isocyanate, always leave the system filled with a moisture-free plasticizer or oil. Do not use water. Never leave the system dry. See **Important Isocyanate Information**.

## FLUID CIRCULATION

### CIRCULATION THROUGH REACTOR

**NOTICE**

To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

**NOTE:**

Optimum heat transfer is achieved at lower fluid flow rates with temperature set points at desired drum temperature. To circulate through gun manifold and preheat hose, see **Circulation Through Gun Manifold**.

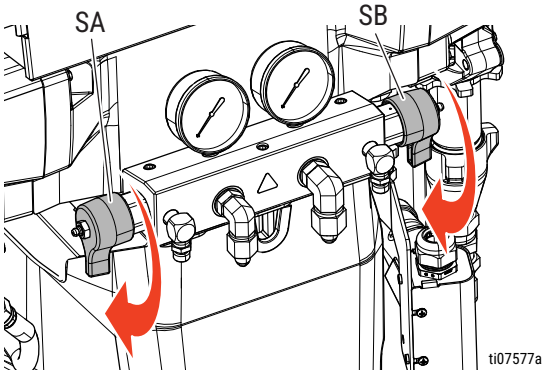
1. Route the circulation lines back to the respective component A or B supply drum. See **Typical Installation with System Fluid Manifold to Drum Circulation**. Use hoses rated at the maximum working pressure of this equipment. See **Technical Specifications**.
2. Follow **Startup**.

**⚠ WARNING**



To avoid injection injury and splashing, do not install shutoffs downstream of the Pressure Relief/Spray Valves (SA, SB). The valves function as overpressure relief valves when set to SPRAY. Lines must be open so valves can automatically relieve the pressure when the machine is operating.

3. Set the Pressure Relief/Spray Valves (SA, SB) to pressure relief/recirculation .



4. Press the Target Button to set the temperature targets for ISO (A) and RES (B). Press the ▲ and ▼ to adjust the set point.

   **NOTE:**

   The arrow buttons can be pressed while in actual temperature mode and the display will automatically switch to target temp mode for 5 seconds.

5. Use Jog Mode for circulation fluid until the desired drum temperature for ISO and RES temperatures reach their respective targets. See **Jog Mode**.

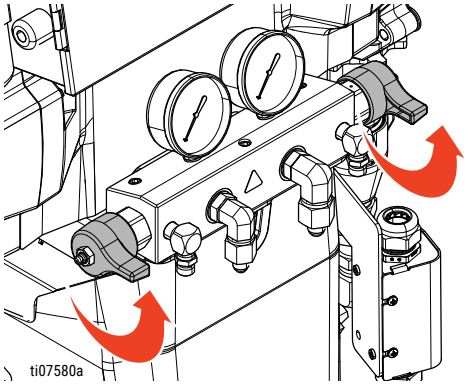
6. Tap to turn **ON** the ISO heat zone, and tap to turn **ON** the RES heat zone.

7. Tap to turn **ON** the hose heat.

8. Set the temperature targets for the desired spray temperature of ISO and RES. Wait until the fluid temperature readings reach their set temperature targets.

9. Select **Spray Mode** from the menu.

10. Set the Pressure Relief/Spray Valves (SA, SB) to spray .




## CIRCULATION THROUGH GUN MANIFOLD

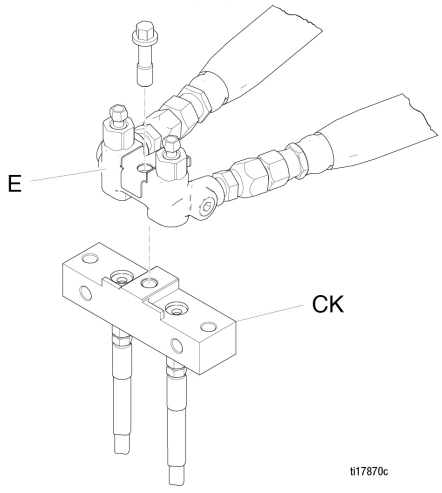
***NOTICE***

To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

**NOTE:**

Optimum heat transfer is achieved at lower fluid flow rates with temperature set points at desired drum temperature. Circulating fluid through the gun manifold allows rapid preheating of the hose.

1. Install the Gun Manifold (E) on an accessory Circulation Block (CK).

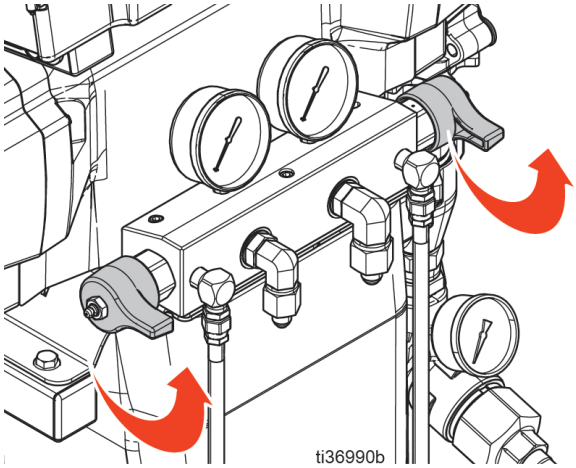



The Fusion AP gun manifold is shown.

**Optional:** Use accessory circulation kit to circulate fluid through the Gun Manifold.

| CIRCULATION | GUN | MANUAL IN ENGLISH |
|---|---|---|
| 246362 | Fusion AP, PC, MP | 309818 |
| 256566 | Fusion CS | 313058 |

2. Route the Recirculation Lines back to their respective component A or B supply drums. See **Typical Installation with Gun Fluid Manifold to Drum Circulation**. Use hoses rated at the maximum working pressure of this equipment. See **Technical Specifications**.
3. Follow **Startup**.
4. Set temperature targets for ISO (A) and RES (B) on the MDM screen.
5. Tap ⏻ to turn on the ISO primary heat zone and ⏻ to turn on the RES primary heat zone.
6. Use Jog Mode to circulate fluid until ISO and RES temperatures reach their respective targets. See **Jog Mode**.
7. Tap ⏻ to turn **ON** the hose heat.
8. Select **Spray Mode** from the menu.
9. Set the Pressure Relief/Spray Valves (SA, SB) to spray .



## CALIBRATION

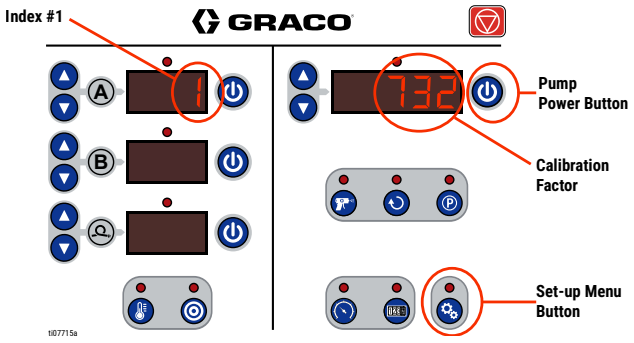
### CALIBRATE THE HEATED HOSE

To begin calibration of the heated hose:

1. Enter the setup menu by pressing the Setup Menu Button on the lower right side of the display screen.
2. Be sure Index 1 is visible in the A Heater LED. If necessary, use the up/down arrows in A Heater LED to navigate to Index 1.
3. To calibrate (or recalibrate), press and hold the Pump Power Button for 2 seconds. The pump LED screen will display the hose calibration factor once calibration is complete.

**NOTE:**

Hose calibration should always be done before turning on the hose heat or primary heaters. The complete system should be at room temperature.




**NOTICE**

To prevent damage to the heated hose, hose calibration is required if any of the following conditions are true:

- The hose has never been calibrated before.
- A section of hose has been replaced.
- A section of hose has been added.
- A section of hose has been removed.

**NOTE:**

The Reactor and heated hose must be at the same ambient temperature to get the most accurate calibration.

**NOTE:**

A minimum of 50 ft (15.2 m) hose is required for proper operation while in Resistance Control Mode.

**NOTE:**

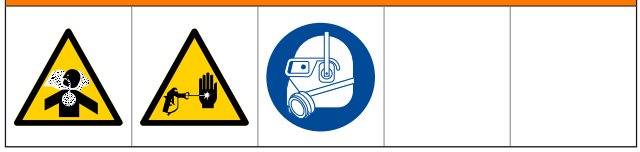
The hose calibration factor will be displayed whenever calibration is not actively ongoing. A factor 0 means that the hose is not calibrated.

**NOTE:**

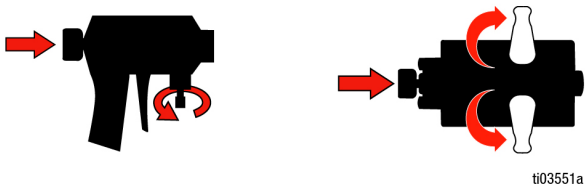
If the hose needs to cool down, a countdown will display. Click the power button again or exit the settings to cancel the calibration. The counter will continue in the background. Once the countdown finishes, "CAL" will be displayed as the resistance is measured, then the new calibration factor will be displayed.

## S P R A Y

**⚠ WARNING**

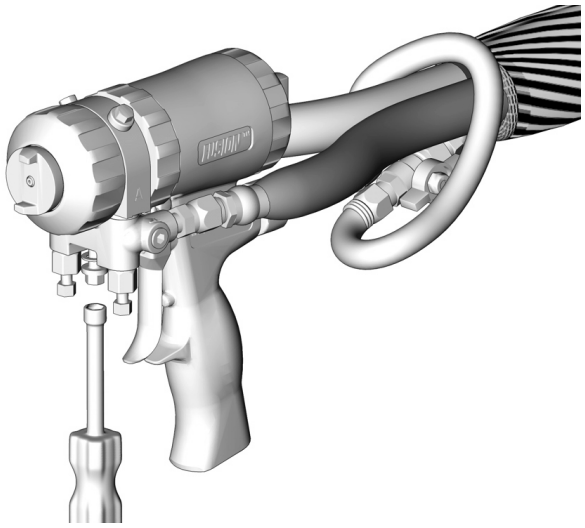


1. Engage the gun piston safety lock and close the A-side and B-side gun fluid manifold valves.



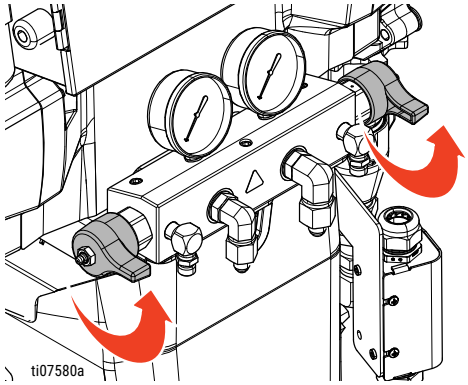

**Fusion** **Probler**

2. Attach the Gun Manifold. Connect the gun air line. Open the air line valve.



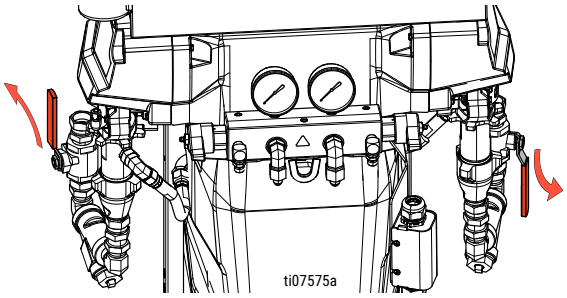
3. Adjust the gun air regulator to desired gun air pressure. Do not exceed the maximum rated air pressure. See your gun manual. See **Related Manuals**.

4. Set the Pressure Relief/Spray Valves (SA, SB) to spray .




5. Verify the heat zones are on and the temperatures are on target.

6. Open the Fluid Inlet Valves (XA, XB) located at each pump inlet.

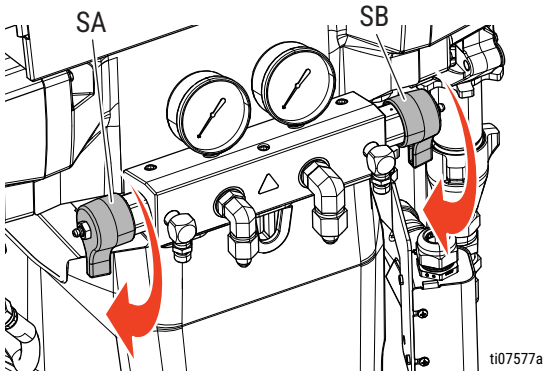



7. Select **Spray Mode** from the menu. .

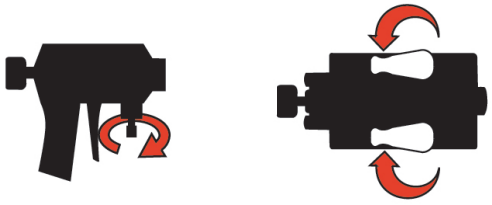
8. Turn air to the transfer pumps **ON**. See your pump manual. See **Related Manuals**.

9. Tap  to turn the motor **ON**.

10. Check the Pressure Gauges (GA, GB) to ensure proper pressure balance. If imbalanced, reduce pressure of higher component by slightly turning the Pressure Relief/Spray Valve (SA, SB) for that component toward pressure relief/circulation until the gauges show balanced pressures.




11. Open the A-side and B-side gun fluid manifold valves.

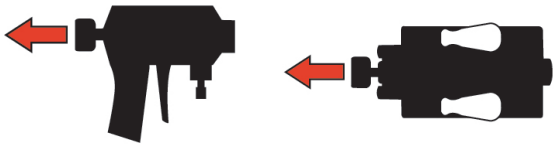


**Fusion** **Probler**

**NOTICE**

To prevent material crossover on impingement guns, never open gun fluid manifold valves or trigger gun if pressures are imbalanced.

12. Disengage the gun piston safety lock.



**Fusion** **Probler**

## SPRAY ADJUSTMENTS

Flow rate, atomization, and overspray are affected by four variables:

- **Fluid pressure setting.** Too little pressure results in an uneven pattern, coarse droplet size, low flow, and poor mixing. Too much pressure results in excessive overspray, high flow rates, difficult control, and excessive wear.
- **Fluid temperature.** Similar effects to fluid pressure setting. The A and B temperatures can be offset to help balance the fluid pressure.
- **Mix chamber size.** Choice of mix chamber is based on desired flow rate and fluid viscosity.
- **Clean-off air adjustment.** Too little clean-off air results in droplets building up on the front of the nozzle, and no pattern containment to control overspray. Too much clean-off air results in air-assisted atomization and excessive overspray.

## SHUTDOWN

**NOTICE**

Proper system **Setup**, **Startup**, and **Shutdown** procedures are critical to electrical equipment reliability. The following procedures ensure steady voltage. Failure to follow these procedures will cause voltage fluctuations that can damage electrical equipment and void the warranty.

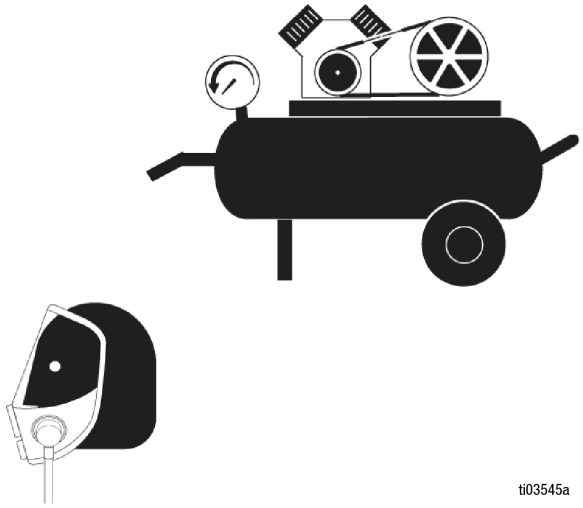
1. Turn **OFF** air pressure to the transfer pumps. See your pump manual. See **Related Manuals**.
2. Tap ⏻ to turn the motor **OFF**.
3. Tap ⏻ to turn **OFF** all heat zones.
4. Follow the **Pressure Relief Procedure**.
5. Select **Park Mode** Ⓟ from the menu.

   The LED above the park button will flash red while the park operation is in progress. The park operation is complete when the motor and transfer pumps are off, and the LED above the park button is solid red **Park Mode** icon Ⓟ. Verify the Park operation is complete before moving to the next step.

   **NOTE:**

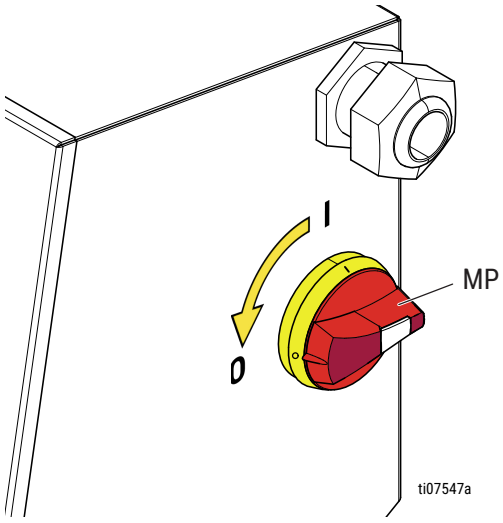
   Pressure Relief Valves must be set to pressure relief/circulation to complete park operation.

6. Turn **OFF** the air compressor, air dryer, and breathing air.



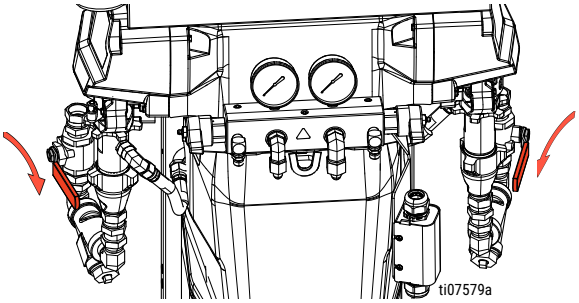
ti03545a

7. Turn the Main Power Switch (MP) **OFF**.



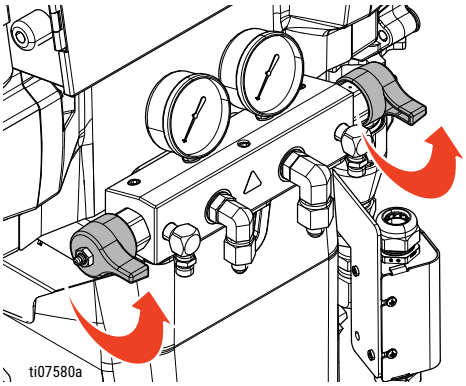

ti07547a

8. Close all Fluid Inlet Valves (XA, XB).



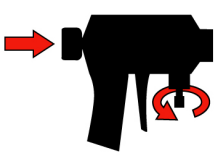
ti07579a

9. Set the Pressure Relief/Spray Valves (SA, SB) to spray  to seal moisture from the drain line.

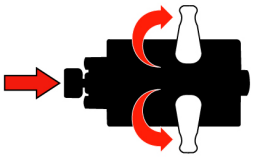


ti07580a

10. Engage the gun piston safety lock and close the A-side and B-side gun fluid manifold valves.



**Fusion**




**Probler**

## DISPLAY MODULE

Follow the instructions for using the MDM to set the system controls for the Reactor® 1 Proportioning Systems.

### SETTINGS

To access the menu/settings control follow these steps:

1. Press the settings button . This will turn off the pump, heaters, and hose.
2. Use A arrow buttons (A) to cycle through the various display options.
3. Use the arrow buttons (D) to change the setting of the selectable options.
4. Press the settings button to exit the menu.

Table 14-1: Writable Settings

| DISPLAY INDEX | DISPLAY NAME | SELECTABLE OPTIONS |
|---|---|---|
| 1 | Hose calibration factor/calibration | The hose calibration factor will be displayed whenever calibration is not actively ongoing. To start calibration, press and hold the power button for 2 seconds. If the hose needs to cool down, a countdown will display. Click the power button again or exit settings to cancel the calibration (the counter will continue in the background). Once the countdown finishes, CAL will be displayed as the resistance is measured, and then the new calibration factor will be displayed. |
| 2 | Hose mode | 1 = Resistance Mode, 2 = Manual Mode<br>**NOTE:**<br>Hose control mode reverts to 1 = Resistance Mode on every power up. If left in manual mode, the current set point reset to the minimum value. |
| 3 | Pressure imbalance alarm ON/OFF | 0 = Off, 1 = On |
| 4 | Pressure imbalance deviation threshold | Sets the pressure threshold to trigger imbalance alarm in currently selected pressure units. |
| 5 | Pressure imbalance alarm ON/OFF | 0 = Off, 1 = On |
| 6 | Pressure imbalance deviation threshold | Sets the pressure threshold to trigger imbalance deviation in currently selected pressure units. |
| 7 | Units temperature | °F, °C |
| 8 | Units pressure | 0 = PSI, 1 = Bar, 2 = MPa |
| 9 | Proportioner type | E-20, E-XP1, E-30, E-XP2 |
| 10 | Demo mode | 0 = off, 1 = on<br>When on, the pump display will say DEMO periodically. |

Table 14-2: Read Only Settings

| DISPLAY INDEX | DISPLAY NAME |
|---|---|
| 21 | Lifetime spray pump cycles (in thousands) |
| 22 | Lifetime power on (in hours) |
| 23 | TCM board temperature |
| 24 | System software version A.BB.CC |
| 25 | MDM software version A.BB.CC |
| 26 | TCM software version A.BB.CC |
| 27 | MCM2 software version A.BB.CC |

## ADDITIONAL FUNCTIONS

| ICON | ACTION | RESULT |
|---|---|---|
| Actual Temp Key (M) | Press and hold for 1 second | Will display the heater (A, B) and hose (C) current (amp) values. Releasing button will return to temperature display. |
| Cycle Count (J) | Press and hold for 2 seconds | Resets the cycle counter that is displayed. |
| Up and Down Arrow Keys and Power Button | Error acknowledge | If a display is showing an error code the first press of any of these keys acknowledges the error which clears the display. |
| Stop Button (RS) | Press | Turns off the motor, heaters, and hose. |

Follow the recommended maintenance steps to keep the Reactor® 1 Proportioning Systems in good condition for optimal use.

**⚠ WARNING**




Prior to performing any maintenance procedures, follow the **Pressure Relief Procedure**.

## PREVENTIVE MAINTENANCE SCHEDULE

The operating conditions of your particular system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

## TOOLS REQUIRED FOR MAINTENANCE

- 9/16 in. wrench
- 1-1/8 in. wrench or pipe wrench
- Fusion grease gun

## PROPORTIONER MAINTENANCE

### Wet-Cup

Check the wet-cup daily. Keep it three-fourths full with Graco Throat Seal Liquid (TSL™) or compatible solvent. Do not over-tighten packing nut/wet-cup.

### Packing Nuts

Do not over-tighten the packing nut/wet-cup. Throat u-cup is not adjustable.

### Fluid Inlet Strainer Screens

Inspect fluid inlet strainer screens daily. See **Flush Inlet Strainer Screen**.

### ISO Lubricant Level

Inspect ISO lubricant level and condition daily. Refill or replace as needed.

### Moisture

To prevent crystallization, do not expose component A to moisture in air.

### Gun Mix Chamber Ports

Clean the gun mix chamber ports regularly. See your gun manual. See **Related Manuals**.

### Gun Check Valve Screens

Clean the gun check valve screens regularly. See your gun manual. See **Related Manuals**.

### Dust Protection

Use clean, dry, oil-free compressed air to prevent dust buildup on control modules, fans, and motor (under shield).

### Vent Holes

Keep the vent holes on the back of the electrical cabinet open.

### Grease Circulation Valves

Clean the grease circulation valves weekly.

### Desiccant Dryer

The desiccant dryer cartridge has an indicator window. Check this window daily to ensure that the dryer cartridge is still in working condition.

When the window appears blue, the dryer cartridge is still in working condition. If the window appears pink, moisture has entered the dryer cartridge and the dryer should be replaced.

## FLUSH INLET STRAINER SCREEN

**⚠ WARNING**

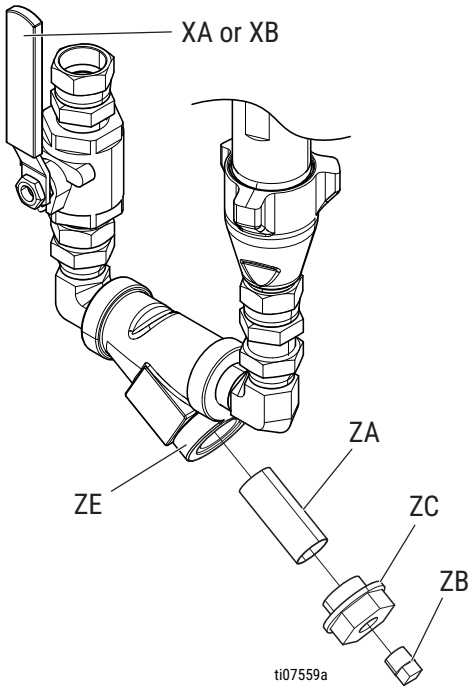



The inlet strainers filter out particles that can plug the pump inlet check valves. Inspect the A and B-side screens daily as part of the startup routine and clean as required.

Isocyanate can crystallize from moisture contamination or from freezing. If the chemicals used are clean, and proper storage, transfer, and operating procedures are followed, there should be minimal contamination of the A-side screen.

To minimize moisture contamination, clean the A-side screen daily during startup by immediately flushing out any isocyanate residue at the start of dispensing operations.

1. Follow the **Pressure Relief Procedure**.
2. Close the Fluid Inlet Valve (XA) at the pump inlet. This prevents material from being pumped while cleaning the screen.
3. Place a container under the strainer base to catch fluid when removing the Strainer Inlet Drain Plug (ZB).
4. After the fluid has drained, remove Inlet Strainer Cap (ZC) and Inlet Strainer Screen (ZA) from the strainer manifold. Thoroughly flush the screen with compatible solvent and shake it dry. Inspect the screen. No more than 25 percent of the mesh should be restricted. If more than 25 percent of the mesh is blocked, replace the screen. Inspect the gasket and replace as required.
5. Install the Strainer Inlet Drain Plug (ZB) with the Inlet Strainer Screen (ZA).
6. Open the Fluid Inlet Valve (XA), ensure there are no leaks, then wipe the equipment clean. Proceed with operation.



## CHANGE ISO PUMP THROAT SEAL LUBRICANT (TSL) FLUID

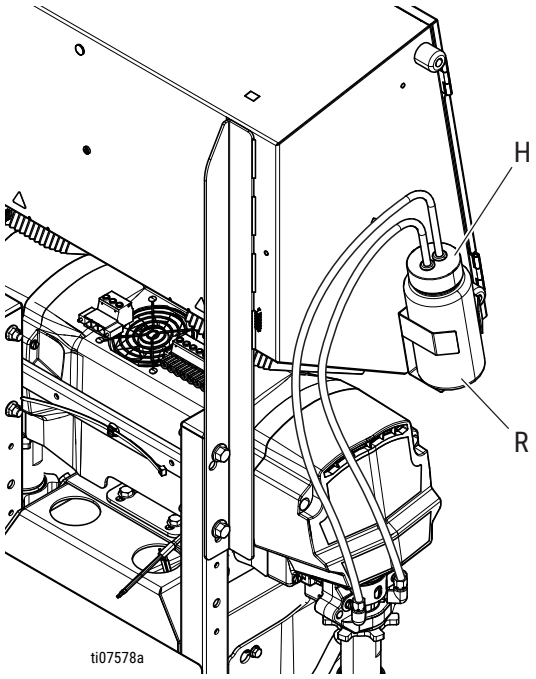
Check the condition of the TSL fluid daily. Change the TSL fluid if it becomes a gel, its color darkens, or it becomes diluted with isocyanate.

Gel formation is due to moisture absorption by the TSL fluid. The interval between changes depends on the environment in which the equipment is operating. The TSL fluid system minimizes exposure to moisture, but some contamination is still possible.

TSL fluid discoloration is due to continual seepage of small amounts of isocyanate past the pump packings during operation. If the packings are operating properly, TSL fluid replacement due to discoloration should not be necessary more often than every 3 or 4 weeks.

**To change TSL Fluid:**

1. Follow the **Pressure Relief Procedure**.
2. Lift the TSL Fluid Reservoir (R) out of the bracket and remove the container from the cap. Holding the cap over a suitable container, remove the check valve and allow the lubricant to drain. Reattach the check valve to the inlet hose.
3. Drain the TSL fluid reservoir (R) and flush it with clean TSL fluid or replace it with a new reservoir.
4. When the TSL fluid system is flushed clean, fill it with fresh TSL fluid.
5. Thread the TSL fluid reservoir (R) onto the cap (H) assembly and place it in the bracket.




6. Verify the TSL fluid pump is operating correctly by feeling the pulsation in the return hose during normal proportioner pump operation.
7. Push the larger diameter supply tube (ST) approximately one-third of the way into the reservoir.
8. Push the smaller diameter return tube (RT) into the reservoir until it reaches the bottom.

**NOTE:**

The return tube must reach the bottom of the reservoir to ensure the isocyanate crystals will settle to the bottom and not be siphoned into the supply tube and returned to the pump.

9. The lubrication system is ready for operation. No priming is required.

# RECYCLING AND DISPOSAL

Properly recycle and dispose of the Reactor® 1 Proportioning Systems at the end of its useful life.

## END OF PRODUCT LIFE

At the end of a product's useful life, recycle the equipment in a responsible manner.

# TROUBLESHOOTING

When problems occur, follow the recommended troubleshooting steps to repair the Reactor®1 Proportioning Systems.

### TROUBLESHOOTING ERRORS

For troubleshooting help refer to https://help.graco.com or scan the QR code on the side of the electrical enclosure.

**NOTE:**

Any triggered code will show in the LED display of the impacted area.

### LED STATUS DESCRIPTIONS

The following tables describe the meaning of LED statuses for the TCM, MCM, and MDM.

See **Temperature Control Module (TCM)**.

Table 17-1: TCM Module LED Status Descriptions

| LED | CONDITIONS | DESCRIPTION |
|---|---|---|
| TCM Status (TK) | Green Solid | Power applied to module |
| | Yellow Flashing | Active communication |
| | Red Steady Flashing | Software update in progress |
| | Red Random Flashing or Solid | Module error exists |

See **Motor Control Module (MCM)**.

Table 17-2: MCM Module LED Status Descriptions

| LED | CONDITIONS | DESCRIPTION |
|---|---|---|
| MCM Status (MU) | Green Solid | Power applied to module |
| | Yellow Flashing | Active communication |
| | Red Steady Flashing | Software update in progress |
| | Red Random Flashing or Solid | Module error exists |

See **Electrical Enclosure** and **Proportioner**.

Table 17-3: MDM LED Status Descriptions

| LED | CONDITIONS | DESCRIPTION |
|---|---|---|
| MDM Status (AAS) | Green Solid | Power applied to module |
| | Yellow Flashing | Active communication |
| | Red Steady Flashing | Software update in progress |
| | Red Random Flashing or Solid | Module error exists |

# ACCESSORIES

Kits and accessories are available to purchase separately.
Use the part numbers in the list to order the correct items.

| SET NUMBER | DESCRIPTION |
|---|---|
| 24M174 | Drum Level Sticks |
| 18A154 | Air Manifold Kit |

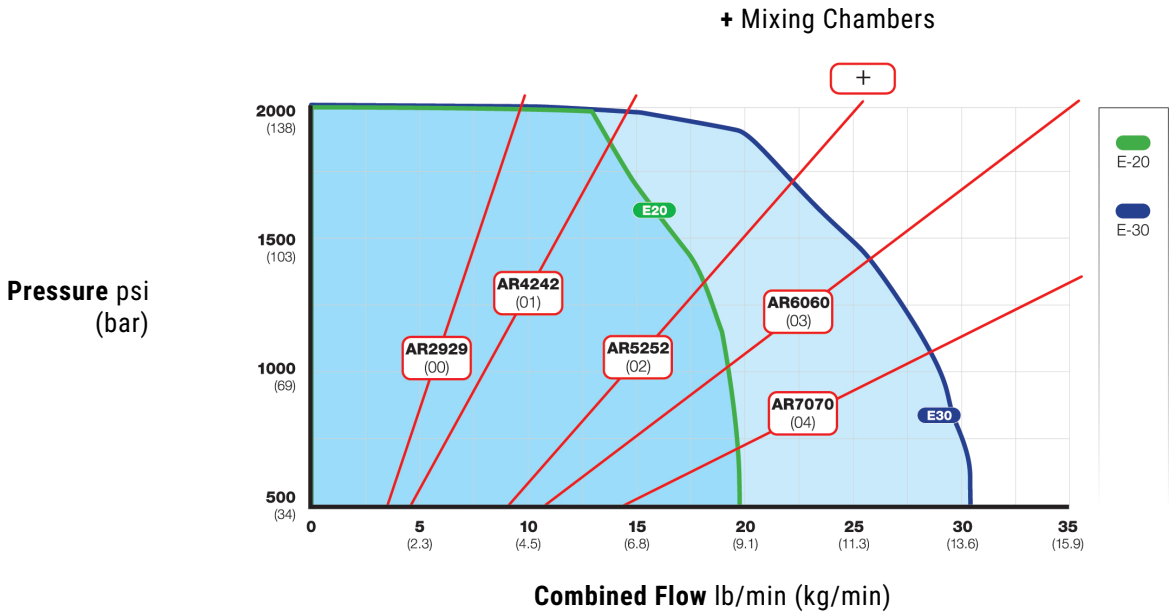
# PERFORMANCE CHARTS

Use these charts to help identify the proportioner that will work most efficiently with each mix chamber. Flow rates are based on a material viscosity of 60 cps.

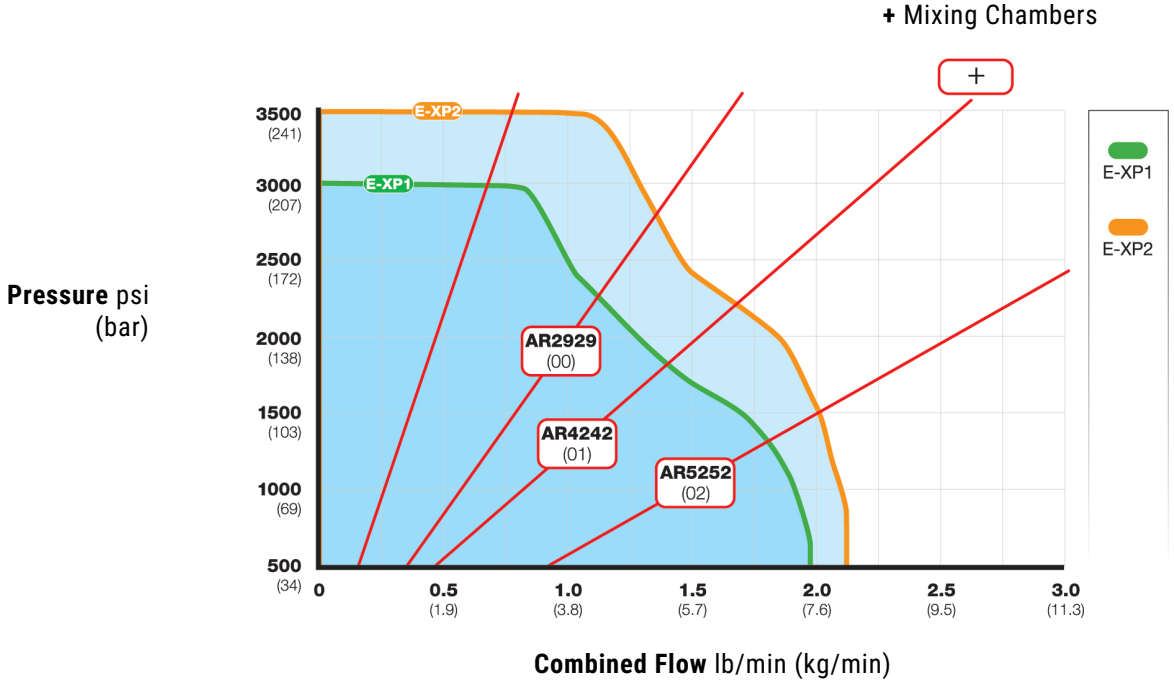
| NOTICE |
| --- |
| To prevent system damage, do not pressurize the system above the line for the gun tip size being used. |

## PRESSURE/FLOW CHARTS

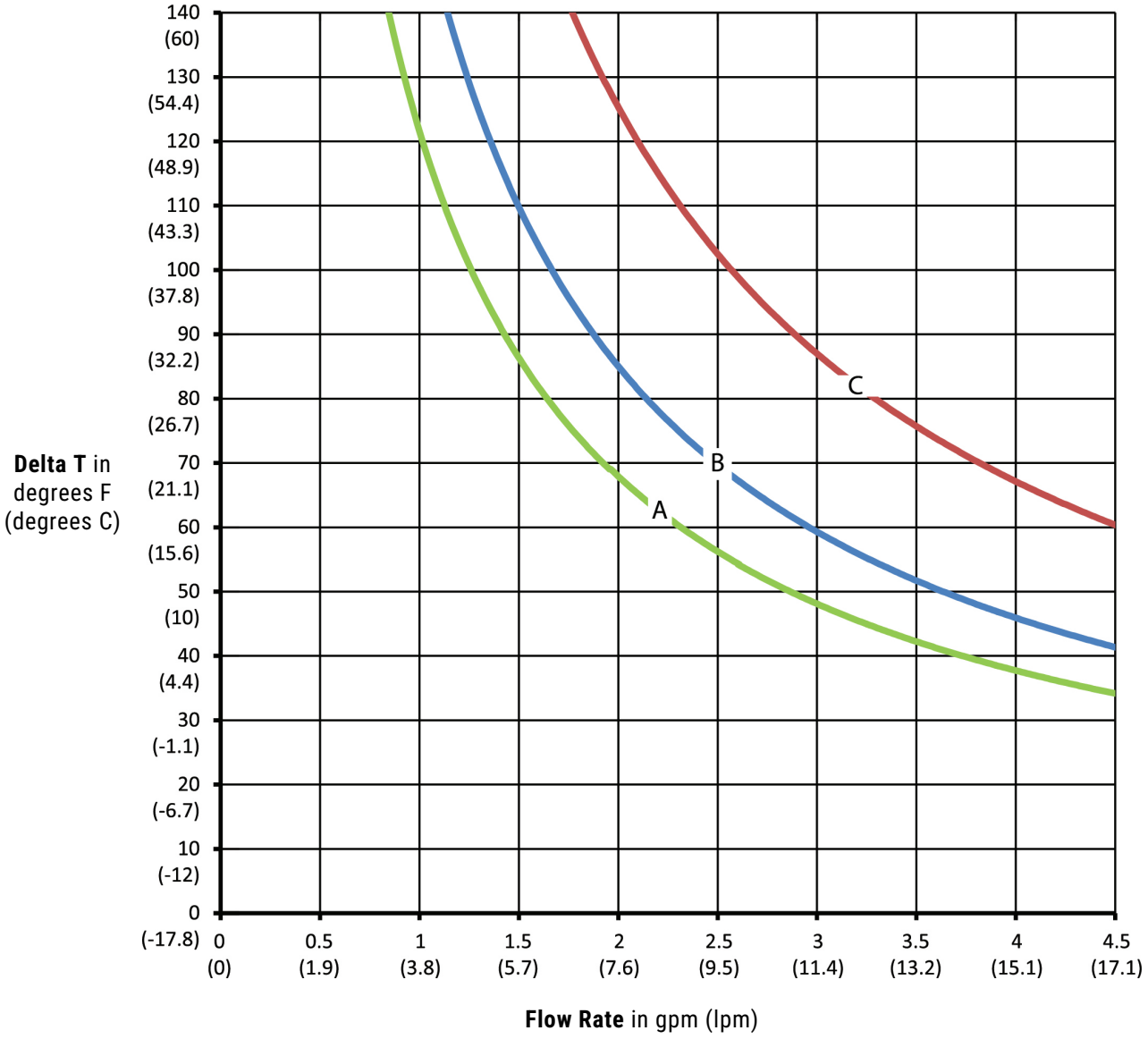
### E-20 and E-30




### E-XP1 and E-XP2



## HEATER PERFORMANCE CHART




**A** Power (7 kW)

**B** Power (10 kW)

**C** Power (15 kW)

**NOTE:**

Heater performance data is based on testing with 20 wt. hydraulic oil and 240V across heater power wires.

### INTERNALLY HEATED HOSE PRESSURE SETPOINT ADJUSTMENT

Internally heated hoses experience additional pressure drop when compared to externally heated hoses of the same inner diameter. The system pressure setpoint may need to be increased to offset the additional pressure drop and achieve desired pressure and pattern at the gun. Pressure drop may vary based on pressure setpoint, temperature setpoints, chemical viscosities, and hose configuration (length and number of fittings). See the table for a starting point for offsetting the additional pressure drop.

| HOSE LENGTH | PRESSURE SETPOINT ADJUSTMENT |
|---|---|
| < 100 ft (30 m) | Increase 50–150 psi (3.4–10.3 bar) |
| 100–200 ft (30–61 m) | Increase 100–250 psi (6.9–17.2 bar) |
| > 200 ft (61 m) | Increase 150–350 psi (10.3–24.1 bar) |

### INTERNALLY HEATED HOSE TEMPERATURE SETPOINT ADJUSTMENT

Temperature setpoints may need to be adjusted on internally heated hoses to address additional pressure imbalance caused by additional pressure drop. In order to balance pressures, increase the temperature of the higher pressure material and decrease the temperature of the lower pressure material. Once the imbalance is resolved, adjust the temperature setpoints up or down together to achieve the desired results.

## CALIFORNIA PROPOSITION 65

### CALIFORNIA RESIDENTS

⚠**WARNING** Cancer and reproductive harm — www.P65warnings.ca.gov.

## NOTES

# GRACO EXTENDED WARRANTY FOR REACTOR® COMPONENTS

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.

| Graco Part Number | Description | Warranty Period |
|---|---|---|
| 25R357 | Electric Motor, 1.75 HP | 36 Months |
| 25R359 | Electric Motor, 2.5 HP | 36 Months |
| 18B011 | Motor Control Module | 36 Months |
| 25P036 | Temperature Control Module | 36 Months |
| 2018140 | Membrane Display Module | 36 Months |
| All other Reactor 1 parts | | 12 Months |

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.

**GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO.** These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

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.

**FOR GRACO CANADA CUSTOMERS**

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présente document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

**GRACO INC. AND SUBSIDIARIES I P.O. BOX 1441 I MINNEAPOLIS MN 55440-1441 I USA**

Graco Headquarters: Minneapolis, MN USA | International Offices: Australia, Belgium, China, Japan, Korea | Toll Free Phone Number: 1-800-690-2894 (Contractor Division) and 1-800-328-0211 (Industrial Division) | For patent information, see graco.com/patents

©2026 Graco Inc. All written and visual data in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice. All Graco manufacturing locations maintain ISO 9001:2015 certifications, each certified by accredited certification bodies. Revision A.