

# Ratio Monitor Kit

3A6738B

For Reactor 2™ Electric and Hydraulic Proportioning Systems

EN

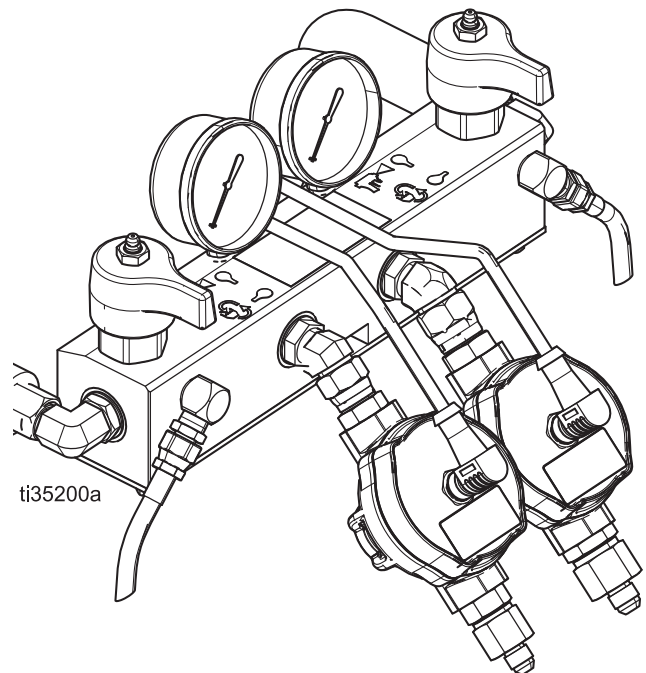
***A plural-component ratio reporting accessory for spraying polyurethane foam and polyurea coatings. For use with Reactor 2 Electric and Hydraulic proportioners only. For professional use only.***

See page 3 for model information.



## Important Safety Instructions

Read all warnings and instructions in this manual and in your Reactor 2 manual before using the equipment. Save all instructions.



# Contents

|   |           |
|---|-----------|
| <b>Models</b> .....                                 | <b>3</b>  |
| <b>Related Manuals</b> .....                        | <b>3</b>  |
| <b>Warnings</b> .....                               | <b>4</b>  |
| <b>Important Isocyanate (ISO) Information</b> ..... | <b>6</b>  |
| Isocyanate Conditions .....                         | 6         |
| Material Self-Ignition .....                        | 7         |
| Keep Components A and B Separate .....              | 7         |
| Moisture Sensitivity of Isocyanates .....           | 7         |
| Foam Resins with 245 fa Blowing Agents .....        | 7         |
| Changing Materials .....                            | 7         |
| <b>Typical Installation</b> .....                   | <b>8</b>  |
| Reactor 2 Hydraulic .....                           | 8         |
| Reactor 2 Electric .....                            | 9         |
| <b>Installation</b> .....                           | <b>10</b> |
| Grounding .....                                     | 10        |
| Install Reactor 2 E-XP2 Pump Inlet Spring ....      | 10        |
| Replace Y-Strainers and Fluid Inlet Sensors ...     | 10        |
| Install Flow Meters .....                           | 13        |
| Install Communication Cables .....                  | 14        |
| Update ADM Software .....                           | 16        |
| Set Up Flow Meter .....                             | 17        |
| <b>Operation</b> .....                              | <b>18</b> |
| Pressure Relief Procedure .....                     | 18        |
| Ratio Monitor Screen .....                          | 19        |

|   |           |
|---|-----------|
| <b>Parts</b> .....  | <b>20</b> |
| Ratio Monitor for Reactor 2 H-XP2, H-XP3<br>(25P385) .....                      | 20        |
| Ratio Monitor for Reactor 2 E-XP2: Series D or later<br>(25P385) .....          | 20        |
| Ratio Monitor for Reactor 2 Hydraulic H30, H40,<br>H50 (25N786) .....           | 20        |
| Ratio Monitor for Reactor 2 Electric E30: Series D or<br>Later (25N786) .....   | 20        |
| Ratio Monitor for Reactor 2 Hydraulic H30, H40,<br>H50 Elite (25N748) .....     | 22        |
| Ratio Monitor for Reactor 2 Hydraulic HXP2, HXP3<br>Elite (25P383) .....        | 22        |
| Ratio Monitor for Reactor 2 Electric E30: Series A,<br>B, and C (25N749) .....  | 24        |
| Ratio Monitor for Reactor 2 Electric EXP2: Series A,<br>B, and C (25P384) ..... | 24        |
| Ratio Monitor for Reactor 2 Electric Elite E30<br>(25N913) .....                | 26        |
| Ratio Monitor for Reactor 2 Electric Elite EXP2<br>(25P386) .....               | 26        |
| <b>Technical Specifications</b> .....   | <b>27</b> |
| <b>Graco Standard Warranty</b> .....  | <b>28</b> |

# Models

**NOTE:** Flow meters are rated to the maximum system working pressure, 2000 psi (14 MPa, 138 bar). Inlet sensors and y-strainers are rated to the maximum fluid inlet pressure, 300 psi (2.1 MPa, 21 bar).









| Kit    | Proportioning System                       | Pressure | Included in Kit |                          |                               |                      |                     |
|--------|--|----------|-----------------|--------------------------|-------------------------------|----------------------|---------------------|
|        |  |          | Flow Meters     | Inlet Sensors and Cables | Y-Strainers and Inlet Sensors | Motor Control Module | Inlet Sensor Cables |
| 25N786 | Reactor 2 H-30, H-40, H-50                 |          | ✓               | ✓                        |                               |                      |                     |
| 25N748 | Reactor 2 H-30, H-40, H-50 Elite           |          | ✓               |                          |                               |                      |                     |
| 25N786 | Reactor 2 E-30 (series D or later)         |          | ✓               | ✓                        |                               |                      |                     |
| 25N749 | Reactor 2 E-30 (series A, B, or C)         |          | ✓               |                          | ✓                             | ✓                    | ✓                   |
| 25N913 | Reactor 2 E-30 Elite (series A, B, or C)   |          | ✓               |                          | ✓                             |                      |                     |
| 25P385 | Reactor 2 H-XP2, H-XP3                     |          | ✓               | ✓                        |                               |                      |                     |
| 25P383 | Reactor 2 H-XP2, H-XP3 Elite               |          | ✓               |                          |                               |                      |                     |
| 25P385 | Reactor 2 H-XP2, H-XP3 (series D or later) |          | ✓               | ✓                        |                               |                      |                     |
| 25P384 | Reactor 2 EXP2 (series A, B, or C)         |          | ✓               |                          | ✓                             | ✓                    | ✓                   |
| 25P386 | Reactor 2 EXP2 Elite (series A, B, or C)   |          | ✓               |                          | ✓                             |                      |                     |







## Related Manuals

| Manual in English | Description                                  |
|-------------------|--|
| 334945            | Reactor 2 Hydraulic Proportioner (Operation) |
| 334946            | Reactor 2 Hydraulic Proportioner (Repair)    |
| 333023            | Reactor 2 Electric Proportioner (Operation)  |
| 333024            | Reactor 2 Electric Proportioner (Repair)     |
| 3A3009            | Fluid Inlet Sensor Kit (Instructions)        |
| 309577            | Displacement Pump                            |

# Warnings

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





|  <b>WARNING</b>  |  |
|---|--|
|    | <b>TOXIC FLUID OR FUMES HAZARD</b><br>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed. <ul style="list-style-type: none"> <li>• 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.</li> <li>• When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment. See <b>Personal Protective Equipment</b> warnings in this manual.</li> <li>• Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.</li> </ul>   |
|   | <b>PERSONAL PROTECTIVE EQUIPMENT</b><br>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: <ul style="list-style-type: none"> <li>• 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.</li> <li>• Protective eyewear and hearing protection.</li> </ul>  |
| <br><br><br><br> | <b>SKIN INJECTION HAZARD</b><br>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. <b>Get immediate surgical treatment.</b> <ul style="list-style-type: none"> <li>• Do not spray without tip guard and trigger guard installed.</li> <li>• Engage trigger lock when not spraying.</li> <li>• Do not point gun at anyone or at any part of the body.</li> <li>• Do not put your hand over the spray tip.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> when you stop spraying and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses and couplings daily. Replace worn or damaged parts immediately.</li> </ul> |

|  <b>WARNING</b>   |   |
|--|---|
|      | <b>ELECTRIC SHOCK HAZARD</b><br>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock. <ul style="list-style-type: none"> <li>• Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.</li> <li>• Connect only to grounded power source.</li> <li>• All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.</li> </ul>   |
|   | <b>PRESSURIZED ALUMINUM PARTS HAZARD</b><br>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. <ul style="list-style-type: none"> <li>• Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents.</li> <li>• Do not use chlorine bleach.</li> <li>• Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.</li> </ul>  |
|   | <b>EQUIPMENT MISUSE HAZARD</b><br>Misuse can cause death or serious injury. <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Parts</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Parts</b> 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.</li> <li>• Do not leave the work area while equipment is energized or under pressure.</li> <li>• Turn off all equipment and follow the <b>Pressure Relief Procedure</b> when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.</li> <li>• Make sure all equipment is rated and approved for the environment in which you are using it.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul> |

# Important Isocyanate (ISO) Information


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


## Isocyanate Conditions

|   |   |   |   |  |  |  |  |  |  |
|---|---|---|---|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|--|--|--|--|--|--|


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:

 **WARNING**




|   |                               |
|---|-------------------------------|
|                            | <b>TOXIC FUMES<br/>HAZARD</b> |
| <b>DO NOT ENTER DURING<br/>SPRAY FOAM APPLICATION<br/>OR FOR ____ HOURS AFTER<br/>APPLICATION IS COMPLETE</b> |                               |
| <b>DO NOT ENTER UNTIL:</b>  |                               |
| <b>DATE:</b> _____<br><b>TIME:</b> _____  |                               |

## Material Self-Ignition

|   |  |  |  |  |
|---|--|--|--|--|
|  |  |  |  |  |
|---|--|--|--|--|

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

## 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 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  |
|---|
| <p>Partially cured ISO will reduce performance and the life of all wetted parts.</p> <ul style="list-style-type: none"> <li>• Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. <b>Never</b> store ISO in an open container.</li> <li>• 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.</li> <li>• Use only moisture-proof hoses compatible with ISO.</li> <li>• Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.</li> <li>• Always lubricate threaded parts with an appropriate lubricant when reassembling.</li> </ul> |

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

## Foam Resins with 245 fa Blowing Agents

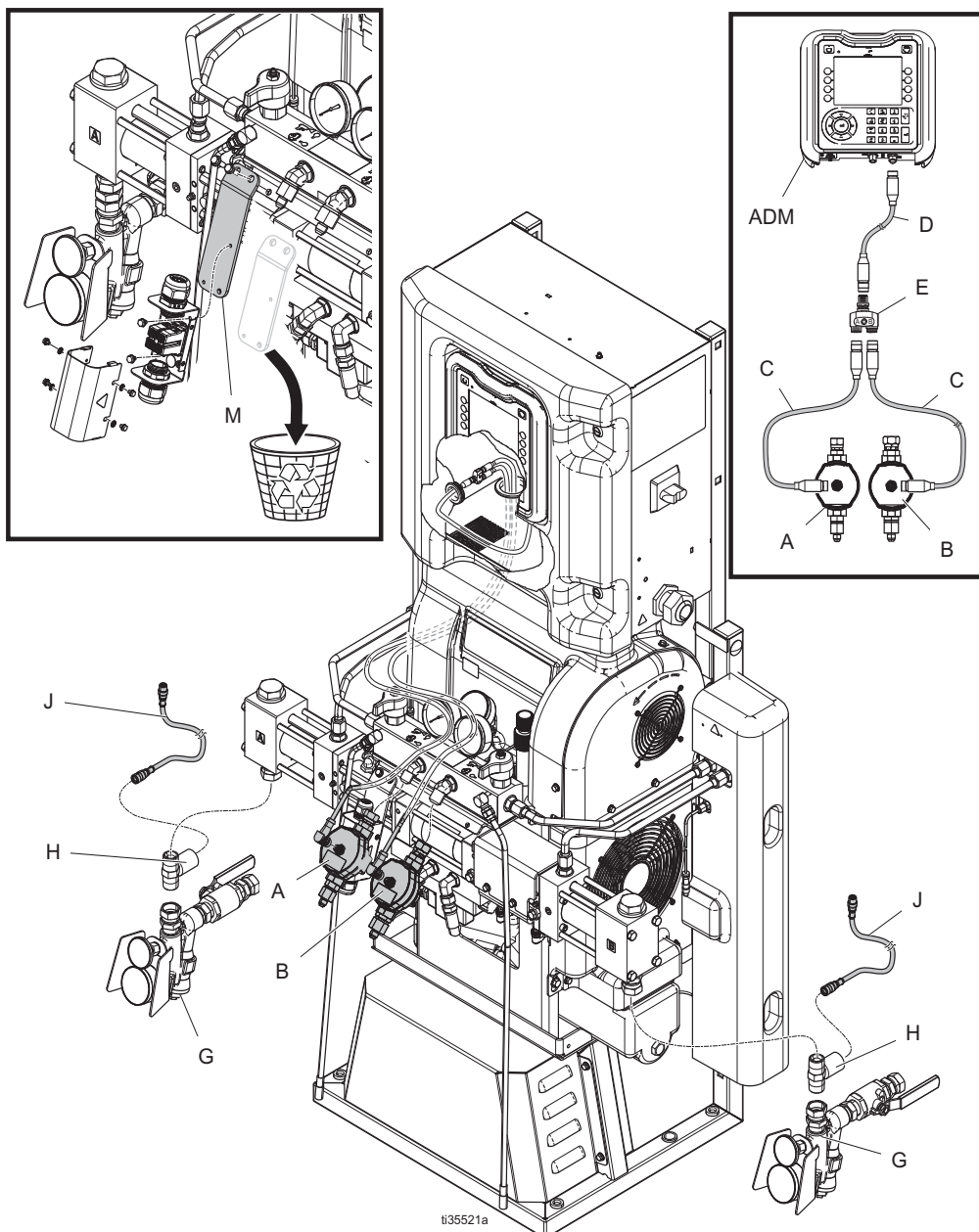
Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

## Changing Materials

| NOTICE   |
|--|
| <p>Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.</p> <ul style="list-style-type: none"> <li>• When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.</li> <li>• Always clean the fluid inlet strainers after flushing.</li> <li>• Check with your material manufacturer for chemical compatibility.</li> <li>• 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.</li> </ul> |

# Typical Installation

## Reactor 2 Hydraulic



**FIG. 1: Installing the Ratio Monitor on the Reactor 2 Hydraulic**

### Ref. Description

|   |                                  |
|---|----------------------------------|
| A | Flow Meter (A-side, ISO)         |
| B | Flow Meter (B-side, RES)         |
| C | Flow Meter Cable (2 m)           |
| D | Splitter Connector Cable (0.3 m) |
| E | Splitter Connector               |
| G | Y-Strainer                       |

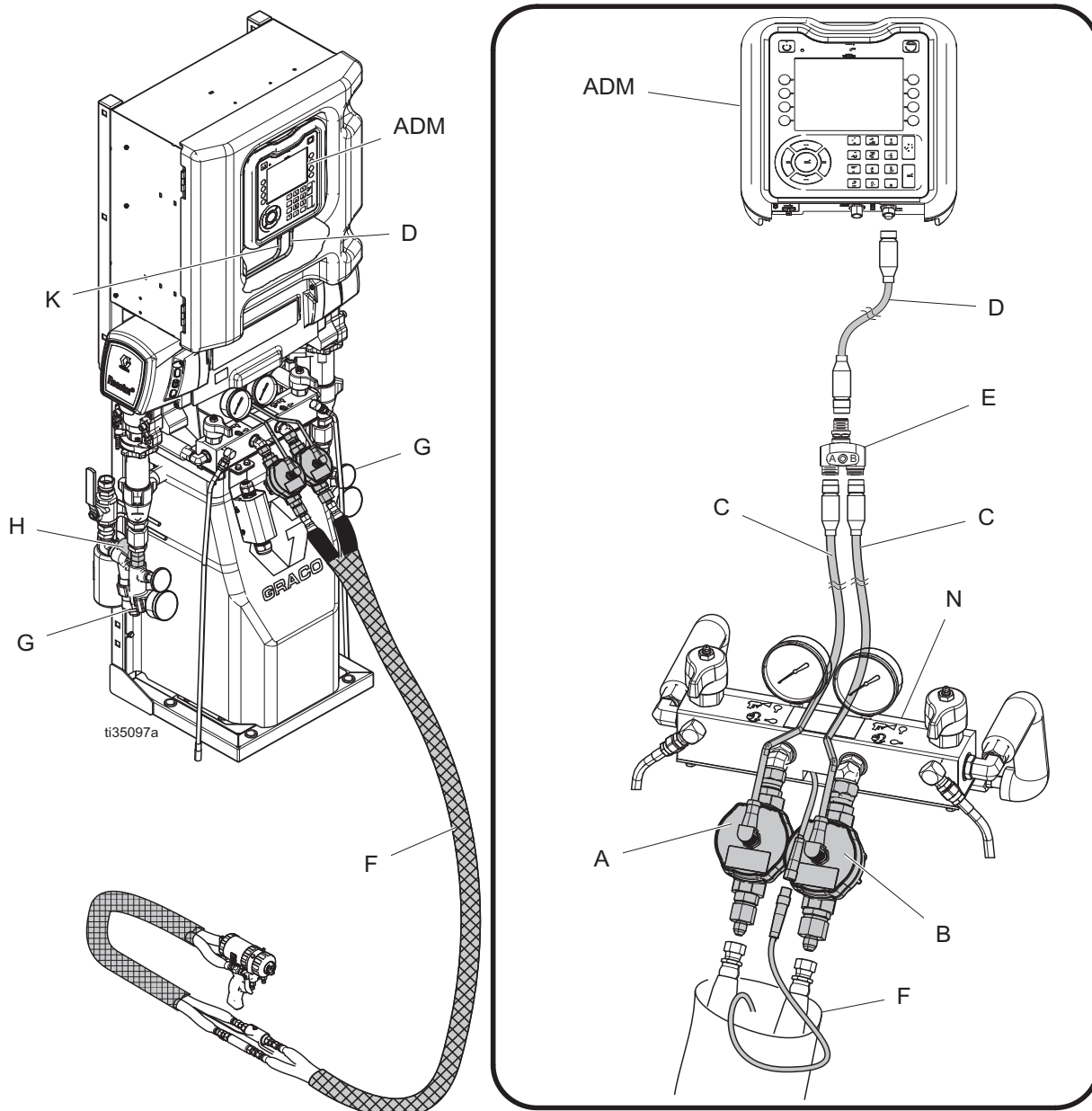
### Ref. Description

|      |                         |
|------|-------------------------|
| H    | Inlet Sensor            |
| J    | Inlet Sensor Cable      |
| M    | Hose Connector Bracket  |
| ADM* | Advanced Display Module |

\* Included with the Reactor 2 proportioning system.



## Reactor 2 Electric



**FIG. 2: Installing the Ratio Monitor on the Reactor 2 Electric**

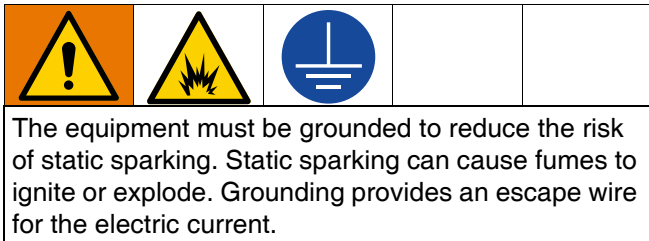
| Ref. | Description                      |
|------|----------------------------------|
| A    | Flow Meter (A-side, ISO)         |
| B    | Flow Meter (B-side, RES)         |
| C    | Flow Meter Cable (2 m)           |
| D    | Splitter Connector Cable (0.3 m) |
| E    | Splitter Connector               |
| F*   | Heated Hose                      |
| G    | Y-Strainer                       |

| Ref. | Description             |
|------|-------------------------|
| H    | Inlet Sensor            |
| K*   | ADM CAN Cable           |
| N*   | Fluid Manifold          |
| ADM* | Advanced Display Module |

\* Included with the Reactor 2 proportioning system.

# Installation

## Grounding

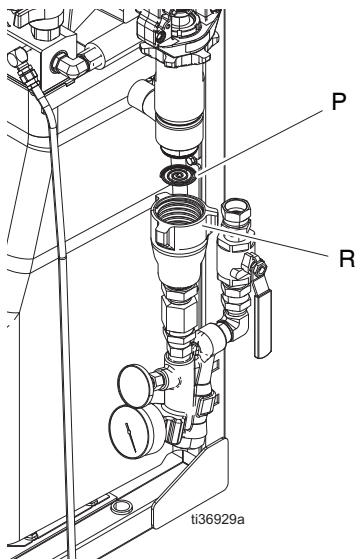


**Flow meters:** grounded through the Reactor proportioning system.

## Install Reactor 2 E-XP2 Pump Inlet Spring

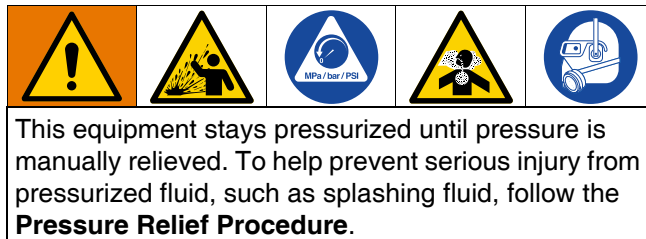
**NOTE:** A spring is required in the pump inlet of Reactor 2 E-XP2 models.

1. Perform the **Pressure Relief Procedure**, page 18.
2. Remove the pump inlet housing (R) from the pump. Retain the inlet seat, ball, and ball cage in the pump inlet housing.



3. Install the inlet spring (P) with the pin facing the inlet housing.
4. Reassemble the inlet housing (R) onto the pump.

## Replace Y-Strainers and Fluid Inlet Sensors



### NOTICE

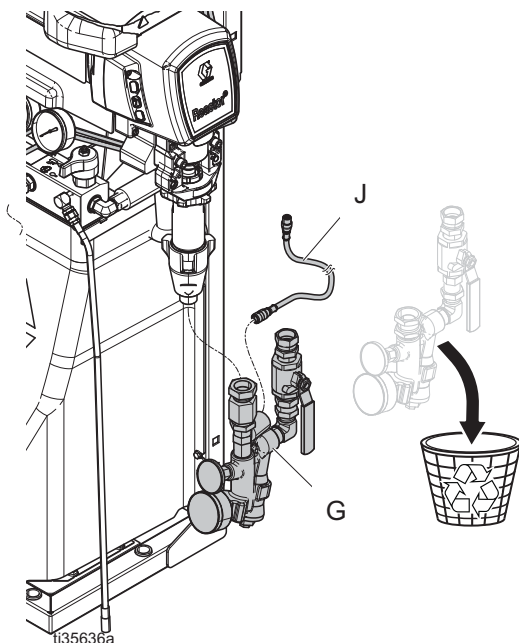
The ratio monitor kit requires inlet sensors installed between the y-strainer outlet and the Reactor 2 proportioner pump inlet. Incorrect installation of the inlet sensors will decrease the accuracy of the ratio monitor.

**NOTE:** While the flow meter accessory is enabled, the inlet sensors and outlet sensor alarms cannot be disabled. See **Set Up Flow Meter**, page 17.

**NOTE:** Reactor 2 Hydraulic Elite proportioners do not need the y-strainers or inlet sensors replaced.

### Reactor 2 E-30 and E-XP2 Y-Strainers

1. Perform the **Pressure Relief Procedure**, page 18.
2. Remove the existing y-strainers. Discard the y-strainers.
3. Install the provided y-strainers (G).

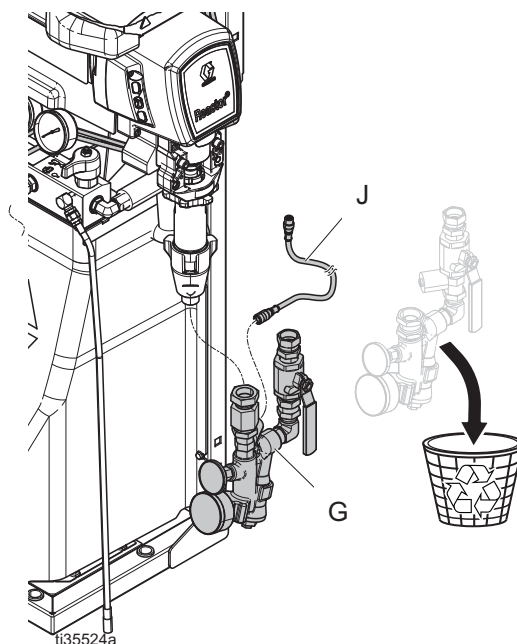


**FIG. 3: Install Y-Strainers on Reactor 2 E-30**

4. Replace the motor control module. Refer to your Reactor 2 repair manual for instructions. See **Related Manuals**, page 3.
5. Install the inlet sensor cables (J). Refer to your Reactor 2 repair manual for instructions.
6. Discard the hose connector bracket provided with the ratio monitor kit.

### Reactor 2 E-30 and E-XP2 Elite Y-Strainers

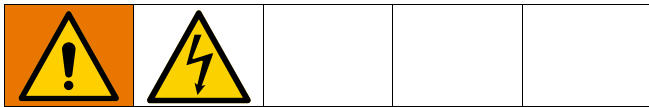
1. Perform the **Pressure Relief Procedure**, page 18.
2. Disconnect the inlet sensor cables (J).
3. Remove the existing y-strainers. Discard the y-strainers.



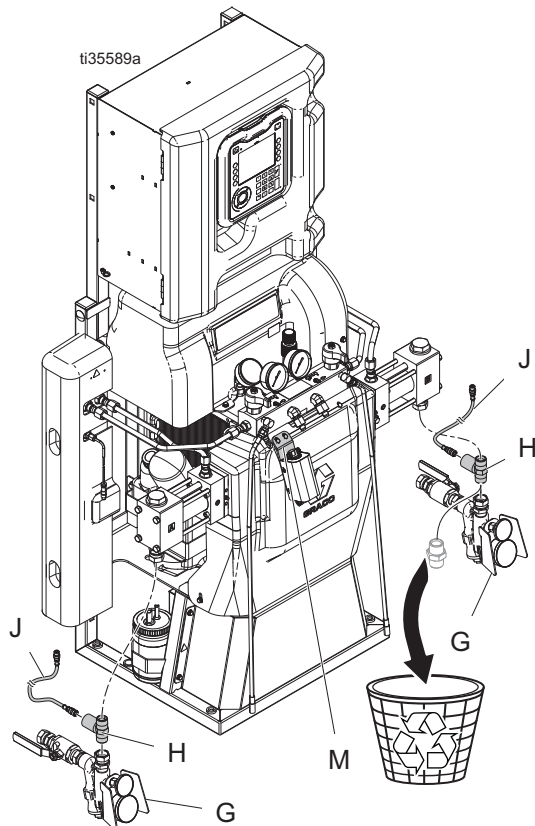
**FIG. 4: Install Y-Strainers on Reactor 2 E-30 Elite**

4. Install the provided y-strainers (G).
5. Connect the inlet sensor cables (J) to the installed y-strainers (G).
6. Discard the hose connector bracket provided with the ratio monitor kit.

## Reactor 2 H-XP, H-XP2, H-XP3, H-30, H-40, and H-50 Fluid Inlet Sensors

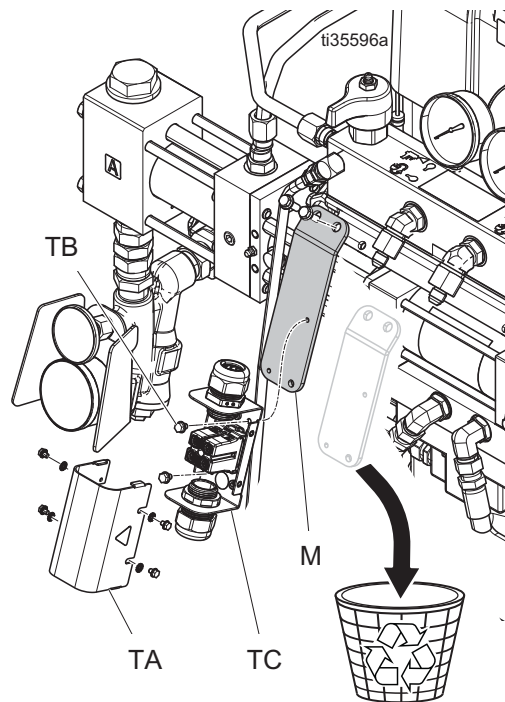


1. Perform the **Pressure Relief Procedure**, page 18.
2. Disconnect incoming power at the source.
3. Disconnect the existing y-strainers (G).
4. Remove the existing nipple fitting between the y-strainers (G) and the pump. Discard the nipple fitting.
5. Install inlet sensors (H) and inlet sensor cables (J) included in the fluid inlet sensor kit. Refer to the fluid inlet sensor kit manual for instructions. See **Related Manuals**, page 3.



**FIG. 5: Install Inlet Sensors on Reactor 2 Hydraulic**

6. Connect the existing y-strainers to the fluid inlet sensor (H) fittings.
7. Remove the hose terminal cover (TA).
8. Remove the hose terminal screws (TB) to disconnect the hose terminal block (TC) from the hose connector bracket.
9. Remove the existing hose connector bracket. Discard the bracket.



**FIG. 6: Replace Hose Connector Bracket**

10. Install the provided hose connector bracket (M) onto the proportioner frame.

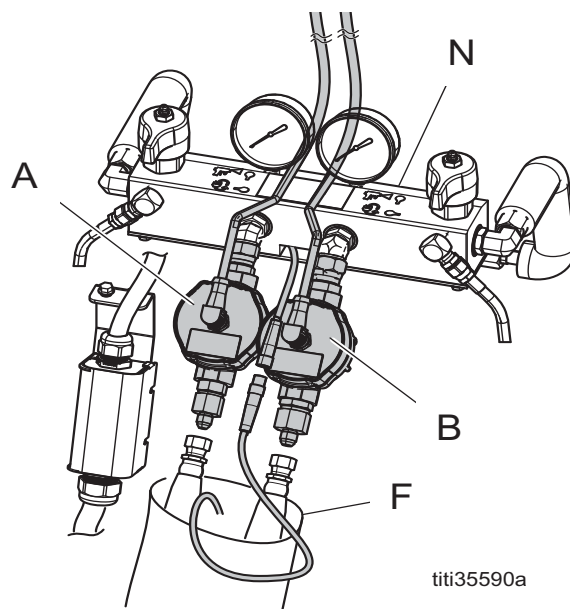
**NOTE:** The provided hose connector bracket is included in the ratio monitor kit.

11. Install the hose terminal block (TC) onto the new hose connector bracket (M) using the hose terminal screws (TB).
12. Install the hose terminal cover (TA).

## Install Flow Meters



1. Perform the **Pressure Relief Procedure**, page 18.
2. Disconnect the heated hose (F) from the fluid manifold (N).
3. Install the flow meters (A, B) to the fluid manifold (N). See FIG. 7.
4. Connect the heated hose (F) to the flow meters (A, B).



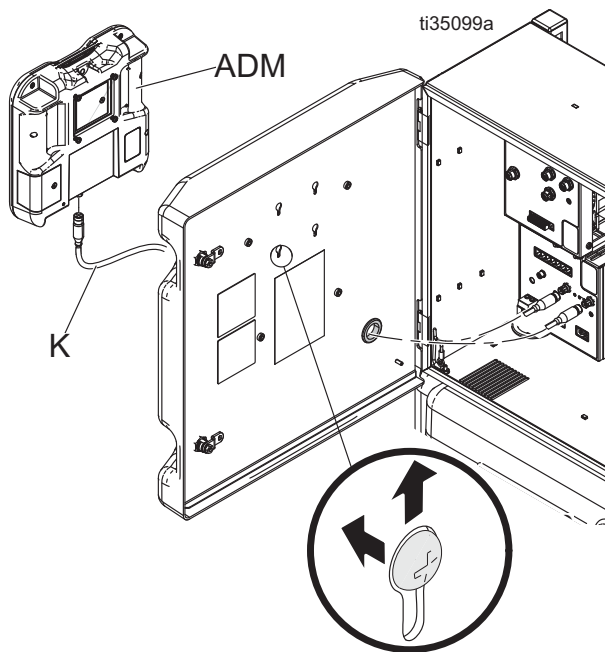
**FIG. 7: Install Flow Meters**

## Install Communication Cables



### Remove the ADM

1. Shut down the system. Refer to your Reactor 2 operation manual for shutdown instructions.
2. Disconnect incoming power at the source.
3. Open the top and bottom door latches to the electrical cabinet.
4. Open the electrical cabinet.
5. Loosen the four ADM mounting screws in the inside of the cabinet door.
6. Lift up the ADM and pull it away from the Reactor to unseat the mounting screws. For easy reassembly, leave the loosened screws attached to the ADM.

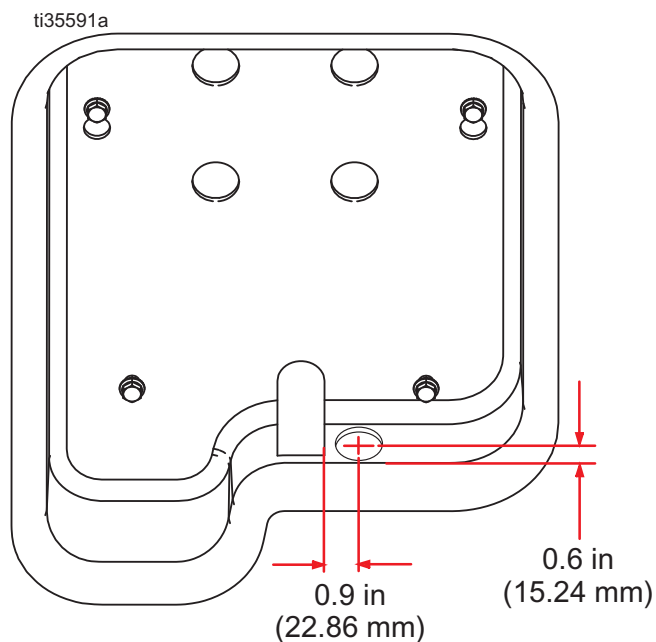
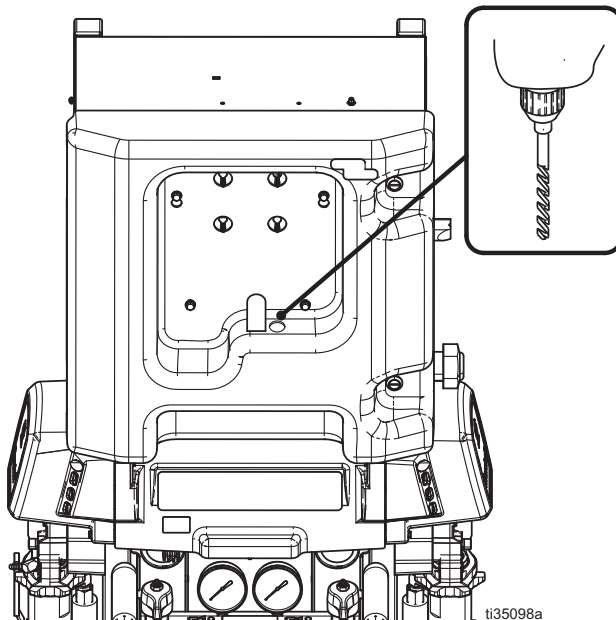


**FIG. 8: ADM and Electrical Cabinet**

7. Disconnect the ADM CAN cable (K) from the ADM.

### Drill Hole for Flow Monitor Cable

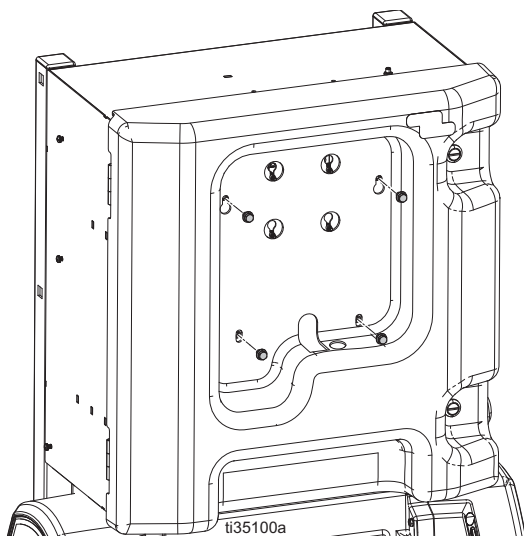
At the location shown in FIG. 9, drill a 1 in. diameter hole into the shroud. The splitter connector cable (D) will pass through the hole.



**FIG. 9: Drill a Hole**

## Install Ratio Monitor Cable

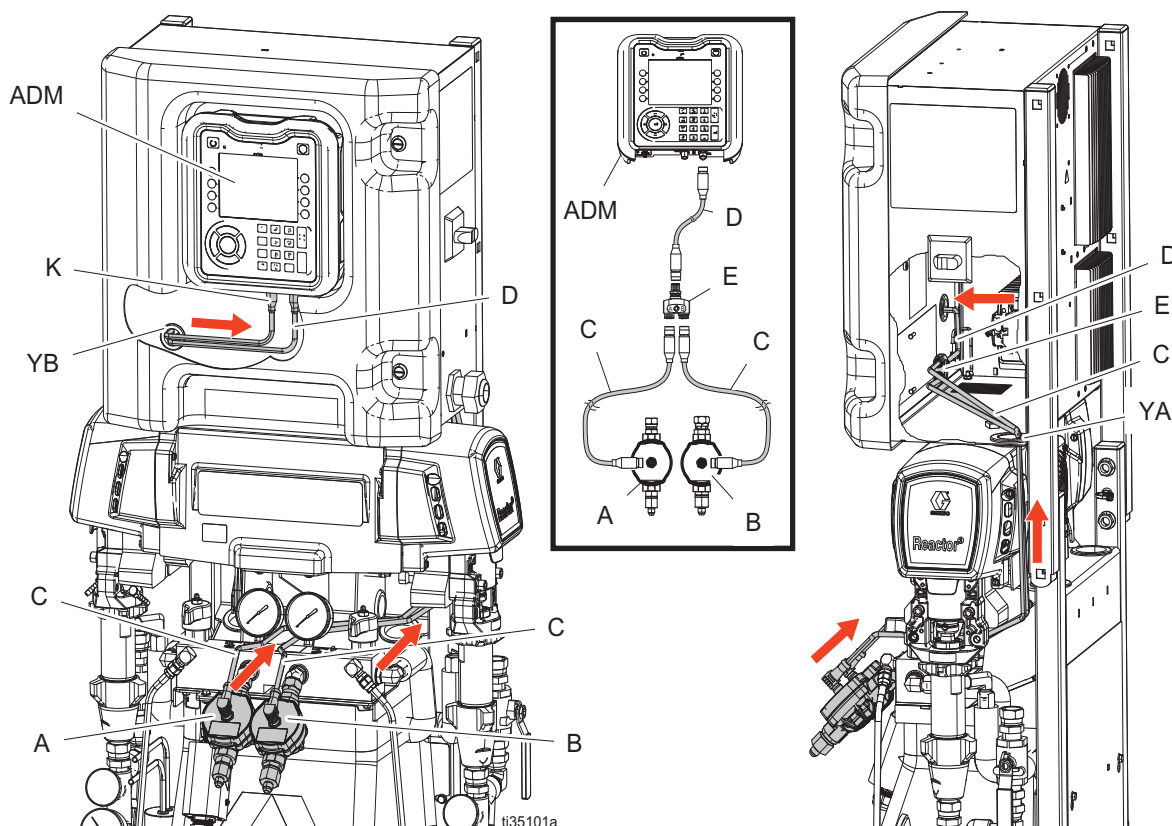
1. Remove the four bolts attaching the Reactor 2 shroud to the electrical cabinet door.



### FIG. 10: Remove the Shroud Bolts

2. Inside the electrical cabinet, route the elbow connector-end of the two flow meter cables (C) through the grommet (YA) in the base of the electrical cabinet. See FIG. 11.

3. Route the flow meter cables (C) behind and beneath the motor to reach the flow meters (A, B). Connect one cable to each flow meter. See FIG. 11.
4. Inside the electrical cabinet, connect the loose end of the A-side (ISO) flow meter cable (C) to the splitter connector (E) port labeled "A".
5. Connect the loose end of the B-side (RES) flow meter cable (C) to the splitter connector (E) port labeled "B".
6. Connect the splitter connector cable (D) to the splitter connector (E).
7. Route the splitter connector cable (D) through the grommet (YB) in the electrical cabinet door and the hole drilled in the Reactor 2 shroud.
8. Connect the splitter connector cable (D) to the ADM.
9. Reinstall the four bolts that attach the Reactor 2 shroud to the electrical cabinet door.
10. Reconnect the ADM CAN cable (K) to the ADM.
11. Remount the ADM. Fully tighten the four mounting screws.



### FIG. 11: Install the Cables



# Update ADM Software



1. Shut down system. See your Reactor operation manual for shutdown instructions.
2. Open the top and bottom door latches to the electrical cabinet.
3. Open the electrical cabinet. Using a Phillips screwdriver, loosen the four ADM mounting screws in the inside of the cabinet door.
4. Lift up the ADM and pull it away from the Reactor to unseat the mounting screws. For easy reassembly, leave the loosened screws attached to the ADM.
5. Remove the token access panel on the back of the ADM.
6. Insert and press the software upgrade token firmly into the slot.

**NOTE:** There is no preferred orientation of the token.

7. Turn on the system power.

**NOTICE**

A status is shown while software is updating to indicate progress. To prevent corrupting the software load, do not remove the token until the status screen disappears.

**NOTE:** When the ADM display turns on, you may see the following screens:


|   |  |
|---|--|
| <b>First:</b><br><i>Software is checking which modules will take the available updates.</i>                   |  |
| <b>Second:</b><br><i>Status of the update with approximate time until completion.</i>                         |  |
| <b>Third:</b><br><i>Updates are complete. Icon indicates update success/failure. See the following table.</i> |  |

| Icon | Description  |
|------|--|
|      | Update successful.   |
|      | Update unsuccessful.   |
|      | Update complete, no changes necessary.   |
|      | Modules were updated or didn't require an update; however, one or more modules need to be updated manually with a token. |

8. Remove the software update token.
9. Replace the token access panel.
10. Remount the ADM using the four ADM mounting screws. Tighten the screws fully.
11. Close and lock and the cabinet door with the door latches.
12. Press to continue to the operation screen.



## Set Up Flow Meter

1. On the Reactor ADM, press  to enter the setup mode
2. Edit the System 1 screen.

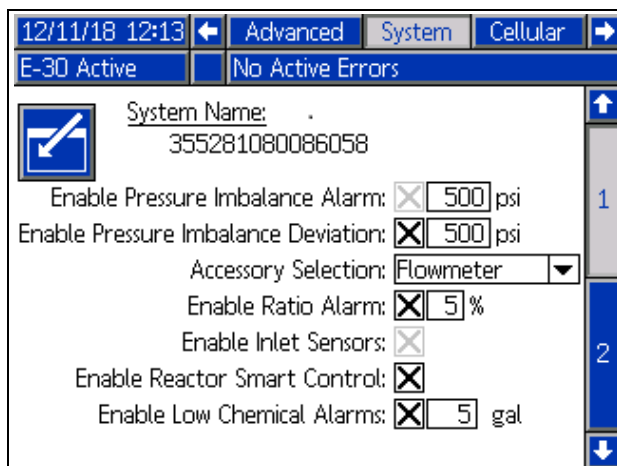


FIG. 12: System 1 Screen

3. Select Flowmeter in the Accessory Selection drop-down menu.
4. Scroll to the System 2 screen. Enter the A-side and B-side k-factors.

**NOTE:** The k-factors are printed on the flow meter serial labels. See FIG. 14.

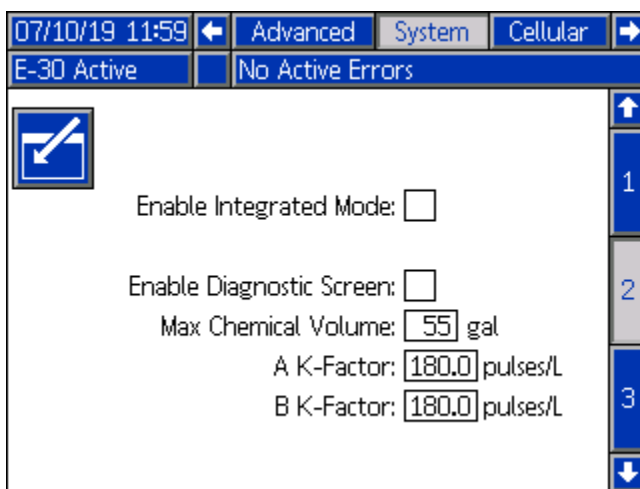


FIG. 13: System 2 Screen

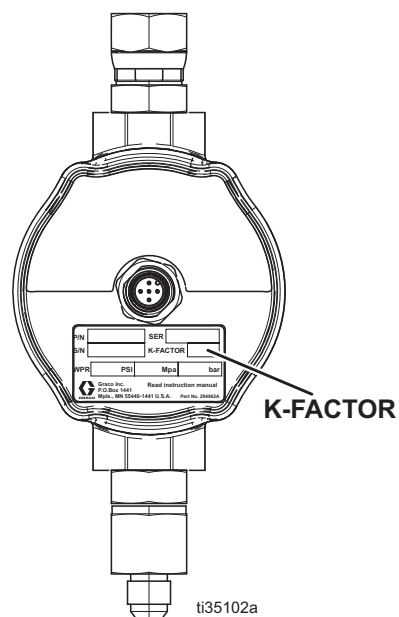







FIG. 14: K-Factor on Flow Meter

# Operation

## Pressure Relief Procedure

 Follow the Pressure Relief Procedure whenever you see this symbol.

|   |   |   |   |   |
|---|---|---|---|---|
|  |  |  |  |  |
|  |   |   |   |   |

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

Refer to the **Pressure Relief Procedure** in your Reactor 2 proportioner manual.

## Ratio Monitor Screen

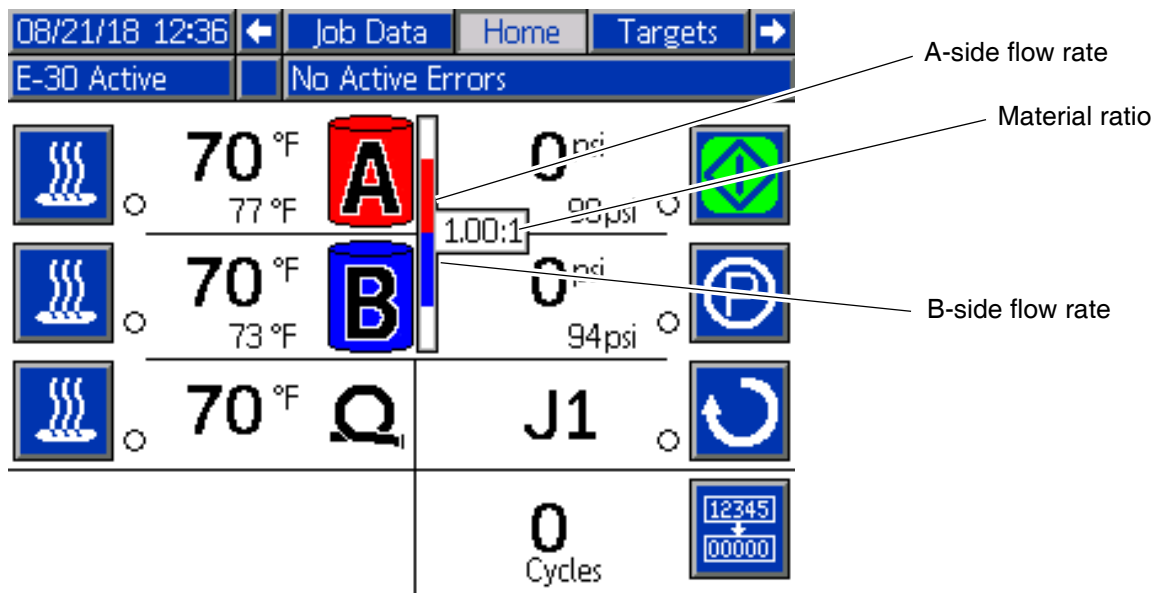
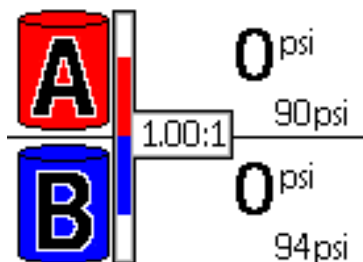


FIG. 15: ADM Home Screen with Ratio Monitor

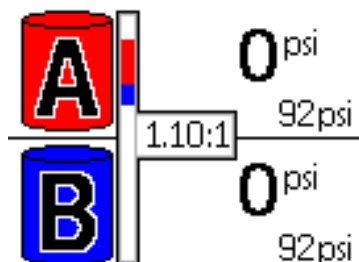
**NOTE:** To view the material ratio on the Home screen, the flow meter accessory must be selected on System Screen 1. See **Set Up Flow Meter**, page 17.

- The red bar represents the A-side flow rate.
- The blue bar represents the B-side flow rate.
- The ratio displays the actual material ratio between the A-side and B-side materials.
- The position of the red and blue bars indicates the ratio of the A-side and B-side materials.

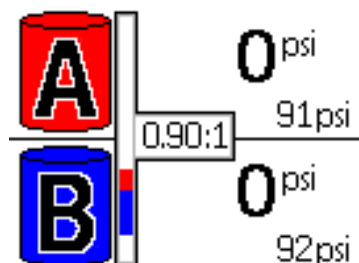
When the proportioner is pumping an equal amount of A-side and B-side material, the bars are centered in the indicator bar.



When the proportioner is pumping more A-side material, the bars will move towards the A-side of the indicator bar.



When the proportioner is pumping more B-side material, the bars will move towards the B-side of the indicator bar.



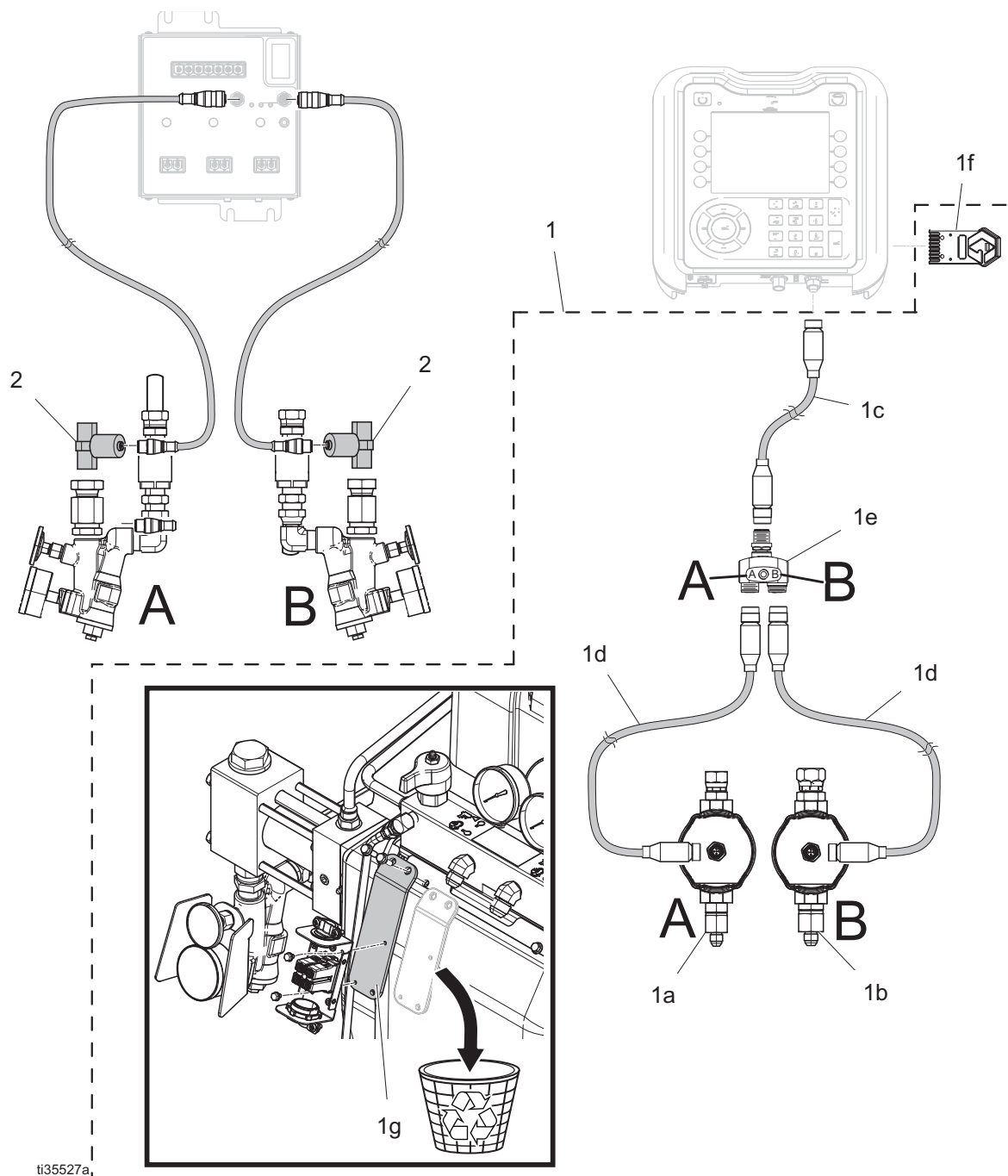
## Parts

**Ratio Monitor for Reactor 2 H-XP2, H-XP3 (25P385)**

**Ratio Monitor for Reactor 2 E-XP2: Series D or later (25P385)**

**Ratio Monitor for Reactor 2 Hydraulic H30, H40, H50 (25N786)**

**Ratio Monitor for Reactor 2 Electric E30: Series D or Later (25N786)**



**FIG. 16**

| Ref. Part | Description                                      | Qty. | Ref. Part   | Description                     | Qty. |
|-----------|--|------|---|---------------------------------|------|
| 1         | 25N748 KIT, ratio monitor, retrofit              | 1    | 1e  | 25E540 CONNECTOR, splitter      | 1    |
| ‡         | 25P383 KIT, ratio monitor                        | 1    | 1f  | 17E206 TOKEN, GCA, Reactor 2    | 1    |
| 1a†       | ----- METER, flow, ISO                           | 1    | 1g  | 17D892 BRACKET, connector, hose | 1    |
| 1b†       | ----- METER, flow, RES                           | 1    | 2   | 17F837 KIT, inlet sensor        | 1    |
| 1c        | 17R703 CABLE, GCA, M12-5P, male to female, 0.3 m | 1    | † Part included in kit 25N930 (E30, H30, H40, H50). |                                 |      |
| 1d        | 17Y983 CABLE, GCA, M12-5P, male to female, 2.0 m | 2    | ‡ Part included in kit 25P388 (HXP2, HXP3).         |                                 |      |

Ratio Monitor for Reactor 2 Hydraulic H30, H40, H50 Elite (25N748)  
Ratio Monitor for Reactor 2 Hydraulic HXP2, HXP3 Elite (25P383)

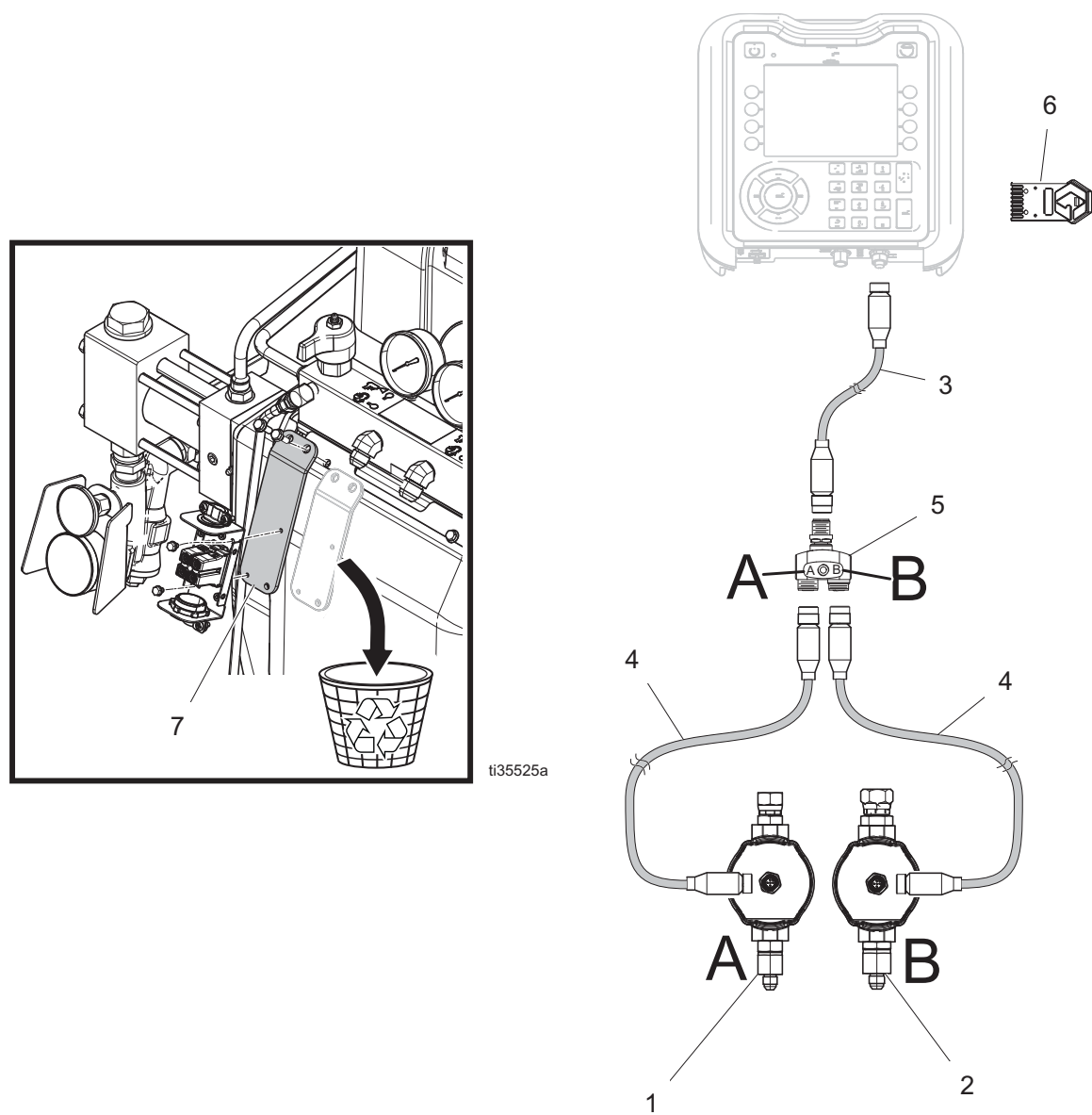


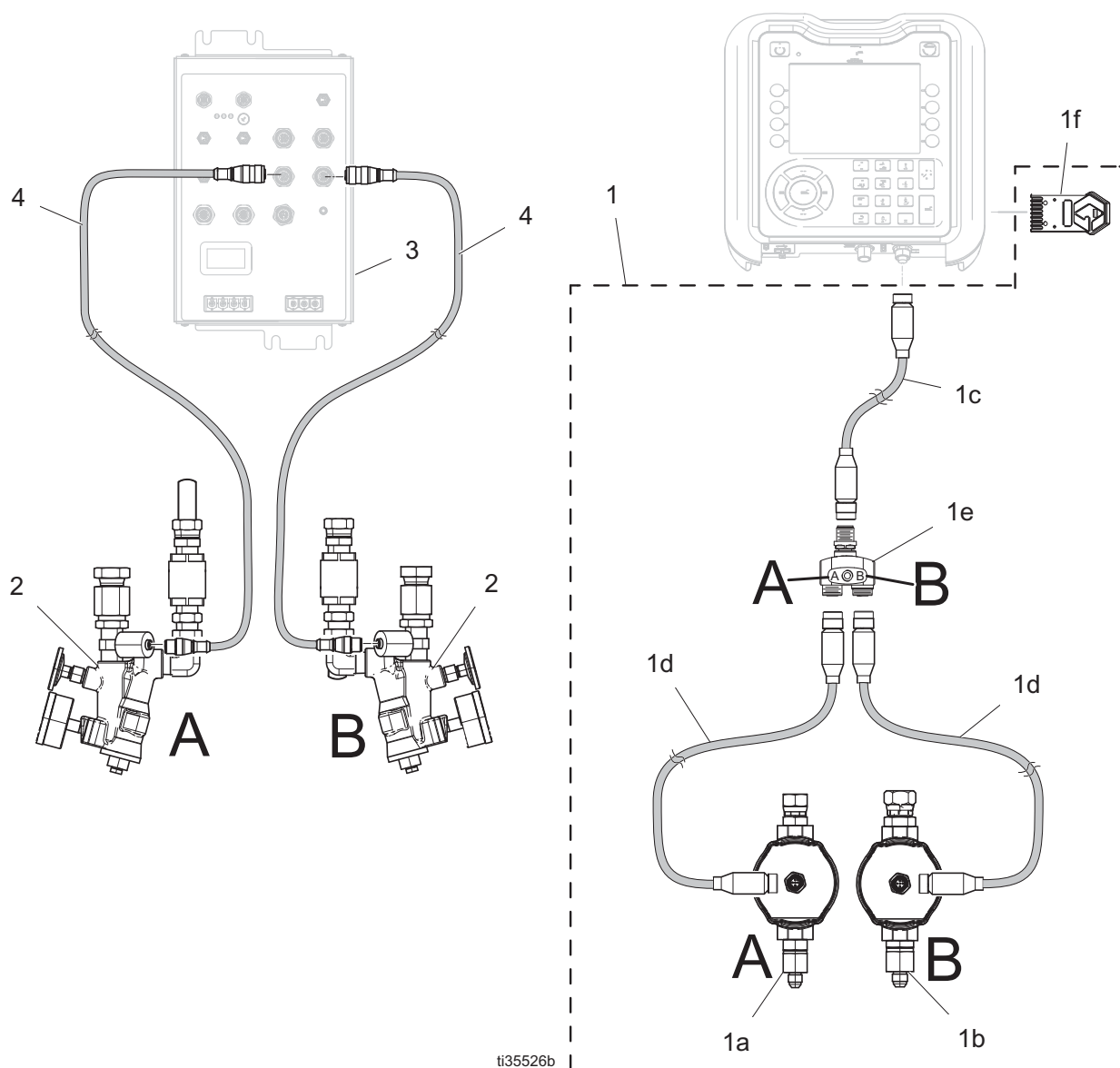
FIG. 17

| Ref. | Part   | Description                               | Qty. | Ref.   | Part   | Description              | Qty. |
|------|--------|---|------|--|--------|--------------------------|------|
| 1†   | -----  | METER, flow, ISO                          | 1    | 6  | 17E206 | TOKEN, GCA, Reactor 2    | 1    |
| 2†   | -----  | METER, flow, RES                          | 1    | 7  | 17D892 | BRACKET, connector, hose | 1    |
| 3    | 17R703 | CABLE, GCA, M12-5P, male to female, 0.3 m | 1    | † Part included in kit 25N930 (H30, H40, H50).   |        |                          |      |
| 4    | 17Y983 | CABLE, GCA, M12-5P, male to female, 2.0 m | 2    | ‡ Part included in kit 25P388 (HXP2, HXP3).  |        |                          |      |
| 5    | 25E540 | CONNECTOR, splitter                       | 1    | <b>NOTE:</b> Compatible inlet sensors are provided with Reactor 2 Hydraulic Elite units. |        |                          |      |

[illegible]

# **Ratio Monitor for Reactor 2 Electric E30: Series A, B, and C (25N749)**

# **Ratio Monitor for Reactor 2 Electric EXP2: Series A, B, and C (25P384)**





| Ref. | Part   | Description                                  | Qty. | Ref.  | Part   | Description                              | Qty. |
|------|--------|--|------|---|--------|--|------|
| 1†   | 25N748 | KIT, ratio monitor, retrofit                 | 1    | 2   | 25N920 | Y-STRAINER, pair, Reactor 2              | 1    |
| ‡    | 25P383 | KIT, ratio monitor                           | 1    | 3   | 24U832 | MODULE, GCA, MCM2200, no<br>fluid sensor | 1    |
| 1a†  | -----  | METER, flow, ISO                             | 1    | 4   | 16W130 | CABLE, M12 5P, female to male,<br>2.0 m  | 2    |
| 1b†  | -----  | METER, flow, RES                             | 1    | 5   | 125871 | TIE, cable, 7.50 in. (not shown)         | 7    |
| 1c   | 17R703 | CABLE, GCA, M12-5P, male to<br>female, 0.3 m | 1    | <i>* Part is not used with Reactor 2 Electric systems.</i><br>† Part included in kit 25N930 (E30).<br>‡ Part included in kit 25P388 (EXP2). |        |  |      |
| 1d   | 17Y983 | CABLE, GCA, M12-5P, male to<br>female, 2.0 m | 2    |   |        |  |      |
| 1e   | 25E540 | CONNECTOR, splitter                          | 1    |   |        |  |      |
| 1f   | 17E206 | TOKEN, GCA, Reactor 2                        | 1    |   |        |  |      |
| 1g*  | 17D892 | BRACKET, connector, hose (not<br>shown)      | 1    |   |        |  |      |

Ratio Monitor for Reactor 2 Electric Elite E30 (25N913)

Ratio Monitor for Reactor 2 Electric Elite EXP2 (25P386)

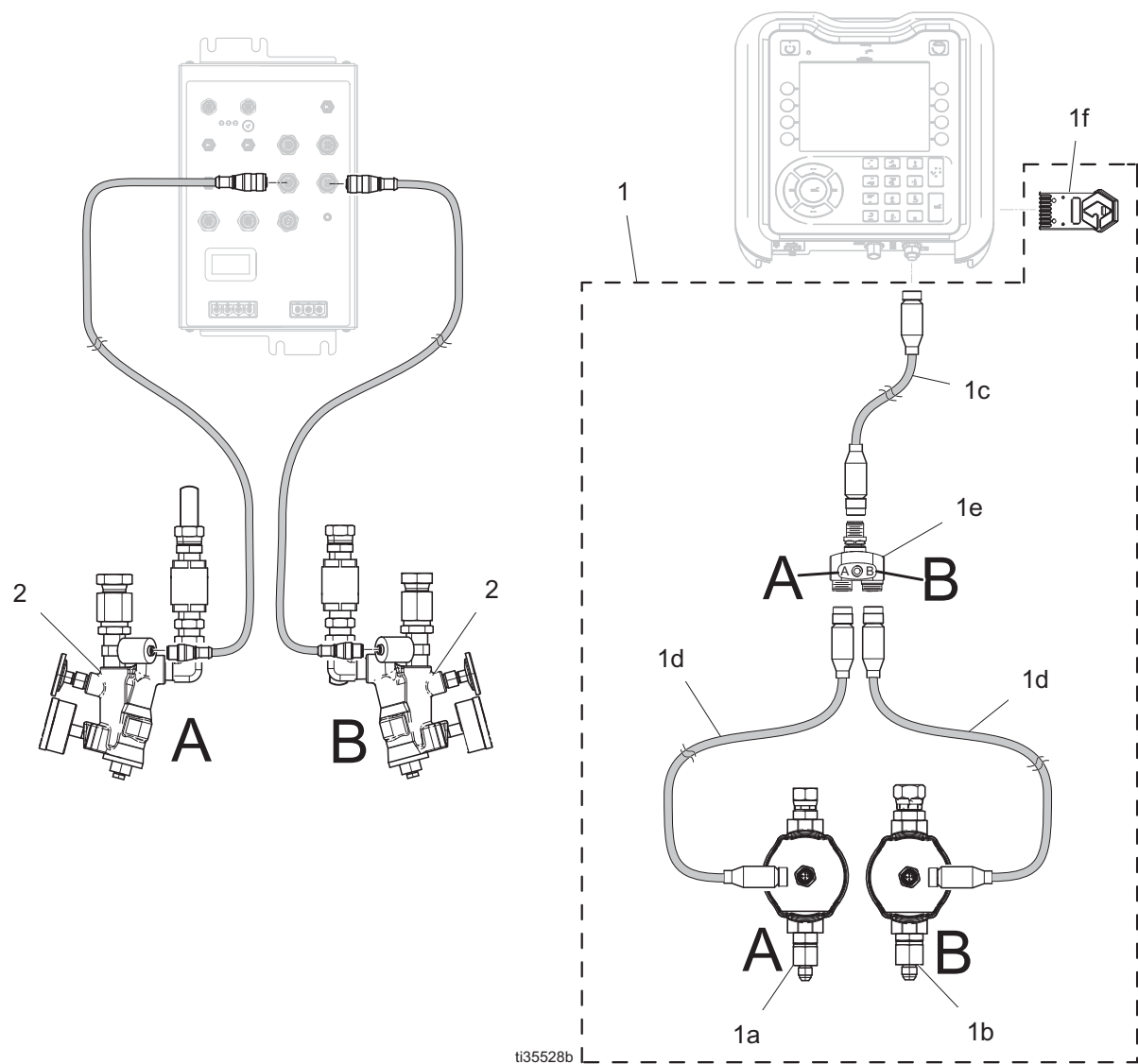


FIG. 19

| Ref. | Part   | Description                               | Qty. | Ref. | Part  | Description                          | Qty. |
|------|--------|---|------|------|---|--------------------------------------|------|
| 1    | 25N748 | KIT, ratio monitor, retrofit              | 1    | 1g*  | 17D892  | BRACKET, connector, hose (not shown) | 1    |
| 1a†  | -----  | METER, flow, ISO                          | 1    | 2    | 25N920  | Y-STRAINER, pair, Reactor 2 Elite    | 1    |
| 1b†  | -----  | METER, flow, RES                          | 1    | *    | Part is not used with Reactor 2 Electric Elite systems. |                                      |      |
| 1c   | 17R703 | CABLE, GCA, M12-5P, male to female, 0.3 m | 1    | †    | Part included in kit 25N930 (E30).                      |                                      |      |
| 1d   | 17Y983 | CABLE, GCA, M12-5P, male to female, 2.0 m | 2    | ‡    | Part included in kit 25P388 (EXP2).                     |                                      |      |
| 1e   | 25E540 | CONNECTOR, splitter                       | 1    |      |   |                                      |      |
| 1f   | 17E206 | TOKEN, GCA, Reactor 2                     | 1    |      |   |                                      |      |

# Technical Specifications

| Ratio Monitor   |   |                   |
|---|---|-------------------|
|   | US  | Metric            |
| Maximum flow rate (ISO and RES), under normal operating conditions                  | 5.0 gpm   | 18.9 lpm          |
| Minimum flow rate (ISO and RES), under normal operating conditions                  | 0.25 gpm  | 0.95 lpm          |
| Maximum fluid inlet pressure  | 300 psi   | 2.1 MPa, 21 bar   |
| Maximum Operating Pressure  |   |                   |
| E30, H30, H40, H50  | 2000 psi  | 13.8 MPa, 138 bar |
| EXP2, HXP2, HXP3  | 3500 psi  | 24.1 MPa, 241 bar |
| Temperature   |   |                   |
| Operating temperature range   | -22°F to 180°F  | -30°C to 82°C     |
| Storage temperature range   | -40°F to 185°F  | -40°C to 85°C     |
| Ratio Monitor Accuracy  |   |                   |
| Accuracy  | +/- 2%  |                   |
| Inlet Sizes   |   |                   |
| Metered Dispense Valve (ISO)  | JIC-05 (female)   |                   |
| Metered Dispense Valve (RES)  | JIC-06 (female)   |                   |
| Outlet Sizes  |   |                   |
| Metered Dispense Valve (ISO)  | JIC-05 (male)   |                   |
| Metered Dispense Valve (RES)  | JIC-06 (male)   |                   |
| Materials of Construction   |   |                   |
| Wetted materials  | Aluminum, stainless steel, carbon steel, acetal, chemically-resistant o-rings, Geolast™ |                   |
| Weight  |   |                   |
| All models  | 3 lb  | 1.36 kg           |
| Minimum Viscosity   | 15 cp   |                   |
| Notes   |   |                   |
| All trademarks or registered trademarks are the property of their respective owners |   |                   |

# Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

**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 présent 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 Information

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

For patent information, see [www.graco.com/patents](http://www.graco.com/patents).

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

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

*All written and visual data contained in this document reflects the latest product information available at the time of publication.*

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

Original instructions. This manual contains English. MM 3A6738

**Graco Headquarters:** Minneapolis

**International Offices:** Belgium, China, Japan, Korea

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

**Copyright 2018, Graco Inc. All Graco manufacturing locations are registered to ISO 9001.**

[www.graco.com](http://www.graco.com)

Revision B, August 2019

## APPLICATION FAST SET

483 Avenue Lazare Ponticelli

77220 Gretz-Armainvilliers

Tel : 01 64 16 41 63 - Fax : 01 64 16 48 67

[contact@afs-bicomposant.fr](mailto:contact@afs-bicomposant.fr)

[www.afs-bicomposant.fr](http://www.afs-bicomposant.fr)