Operation

REACTOR™

312407C

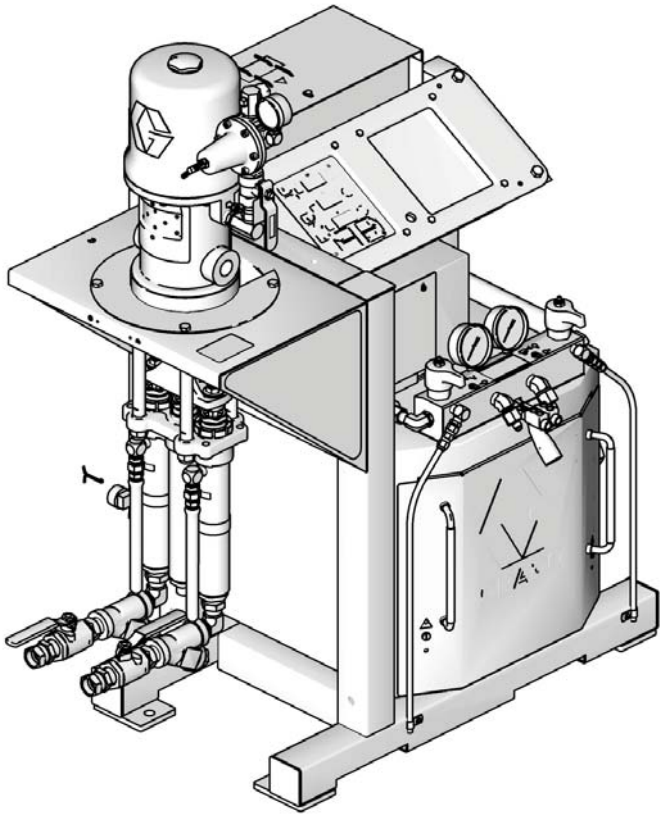
ENG

Air Powered, Heated, Plural Component Proportioner

For spraying polyurethane foam and polyurea coatings.
Not for use in explosive atmospheres.

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

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



Model 259060 Shown

TI11252a

Russian Patent No. 2359181
Taiwan Patent No. 1 303996
Australian Patent No. 2003291660
Other patents pending.

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PROVEN QUALITY. LEADING TECHNOLOGY.

Contents

Models

Air Powered Reactors

A-XP Series

All A-XP2 models are CE compliant.

Part, Series	Model	Voltage (phase)	Full Load Peak Amps	System Watts	Heater Watts (no hose)	Pressure Ratio	Flow gpm (lpm) at 78 cpm	Output per Cycle (A+B) gal. (liter)	Maximum Fluid Working Pressure psi (MPa, bar)
259060, A	A-XP2	230V (1)	62	14,540	10,200	25:1	1.5 (5.7)	0.0193 (0.73)	3000 (20.7, 207)
259061, A	A-XP2	230V (3)	40	14,540	10,200	25:1	1.5 (5.7)	0.0193 (0.73)	3000 (20.7, 207)
259062, A	A-XP2	400V (3)	22	14,540	10,200	25:1	1.5 (5.7)	0.0193 (0.73)	3000 (20.7, 207)

Heat Packages (do not include proportioner)

HT Series

Part, Series	Model	Voltage (phase)	Full Load Peak Amps	System Watts	Heater Watts (no hose)	Maximum Fluid Working Pressures psi (MPa, bar)
259070, C	HT-6.0	230V (1)	44	10,340	6,000	3500 (24.1, 241)
259071, C	HT-6.0	230V (3)	27	10,340	6,000	3500 (24.1, 241)
259072, C	HT-6.0	400V (3)	18	10,340	6,000	3500 (24.1, 241)
259073, C	HT-10.2	230V (1)	62	14,540	10,200	3500 (24.1, 241)
259074, C	HT-10.2	230V (3)	40	14,540	10,200	3500 (24.1, 241)
259075, C	HT-10.2	400V (3)	22	14,540	10,200	3500 (24.1, 241)
259076, C	HT-15.3	230V (1)	84	19,640	15,300	3500 (24.1, 241)
259077, C	HT-15.3	230V (3)	57	19,640	15,300	3500 (24.1, 241)
259078, C	HT-15.3	400V (3)	33	19,640	15,300	3500 (24.1, 241)

Supplied Manuals

The following manuals are shipped with the Reactor™ Proportioner. Refer to these manuals for detailed equipment information.

Order Part 15M334 for a compact disk of Reactor manuals translated in several languages

Manuals are also available at www.graco.com.

Reactor Air Powered Proportioner	
Part	**Description**
312408	Reactor Air Powered Proportioner, Repair-Parts Manual (English)
Reactor Electrical Diagrams	
Part	**Description**
312409	Reactor Air Powered Proportioner, Electrical Diagrams (English)
Proportioning Pump	
Part	**Description**
308224	President® Pump (A-XP2), Repair-Parts Manual (English)
Motor	
Part	**Description**
306982	President® Air Motor (A-XP2), Repair-Parts Manual (English)
Displacement Pump	
Part	**Description**
307430	Displacement Pumps (A-XP2), Repair-Parts Manual (English)
Air Regulators	
Part	**Description**
308168	Instruction-Parts Manual (English)

Related Manuals

The following manuals are for accessories used with the Reactor™.

Order Part 15M334 for a compact disk of Reactor manuals translated in several languages. Order Part 15B381 for a compact disk of Fusion manuals translated in several languages.

Feed Pump Kits	
Part	**Description**
309815	Instruction-Parts Manual (English)
Air Supply Kit	
Part	**Description**
309827	Instruction-Parts Manual (English) for Feed Pump Air Supply Kit
Circulation and Return Tube Kits	
Part	**Description**
309852	Instruction-Parts Manual (English)
Heated Hose	
Part	**Description**
309572	Instruction-Parts Manual (English)
Fusion Air Purge Spray Gun	
Part	**Description**
309550	Instruction-Parts Manual (English)
Fusion Mechanical Purge Spray Gun	
Part	**Description**
309856	Instruction-Parts Manual (English)
Circulation Kit	
Part	**Description**
309818	Instruction-Parts Manual (English)
Data Reporting Kit	
Part	**Description**
309814	Instruction-Parts Manual (English)

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 symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING

ELECTRIC SHOCK HAZARD

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

- Turn off and disconnect power cord before servicing equipment.
- Use only grounded electrical outlets.
- Use only 3-wire extension cords.
- Ensure ground prongs are intact on sprayer and extension cords.
- Do not expose to rain. Store indoors.

TOXIC FLUID OR FUMES HAZARD

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

- Read MSDS's to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Always wear impervious gloves when spraying or cleaning equipment.

PERSONAL PROTECTIVE EQUIPMENT

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

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

SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

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

⚠ WARNING

FIRE AND EXPLOSION HAZARD

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

- Use and clean equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground equipment, personnel, object being sprayed, and conductive objects in work area. See **Grounding** instructions.
- Use only Graco grounded hoses.
- Check gun resistance daily.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Do not flush with gun electrostatics on. Do not turn on electrostatics until all solvent is removed from system.
- Keep a working fire extinguisher in the work area.

PRESSURIZED ALUMINUM PARTS HAZARD

Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents in pressurized aluminum equipment. Such use can cause serious chemical reaction and equipment rupture, and result in death, serious injury, and property damage.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

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

MOVING PARTS HAZARD

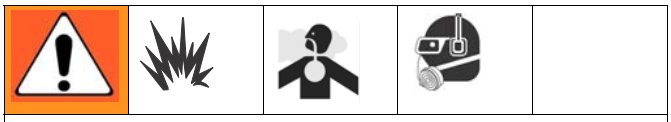
Moving parts can pinch or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power or air supply.

BURN HAZARD

Equipment surfaces and fluid that's heated can become very hot during operation. To avoid severe burns, do not touch hot fluid or equipment. Wait until equipment/fluid has cooled completely.

Isocyanate Hazard



Spraying materials containing isocyanates creates potentially harmful mists, vapors, and atomized particulates.

Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to isocyanates.

Prevent inhalation of isocyanate mists, vapors, and atomized particulates by providing sufficient ventilation in work area. If sufficient ventilation is not available, a supplied-air respirator is required for everyone in the work area.

To prevent contact with isocyanates, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons, and goggles, is also required for everyone in the work area.

Material Self-ignition

Some materials may become self-igniting if applied too thickly. Read material manufacturer's warnings and material MSDS.

Moisture Sensitivity of Isocyanates

Isocyanates (ISO) are catalysts used in two component foam and polyurea coatings. ISO will react with moisture (such as humidity) to form small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity. If used, this partially cured ISO will reduce performance and the life of all wetted parts.

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

To prevent exposing ISO to moisture:

- 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 lube pump reservoir filled with Graco Throat Seal Liquid (TSL), Part 206995. The lubricant creates a barrier between the ISO and the atmosphere.
- Use moisture-proof hoses specifically designed for ISO, such as those supplied with your system.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Never use solvent on one side if it has been contaminated from the other side.
- Always park pumps when you shutdown, see page 25.
- Always lubricate threaded parts with Part 217374 ISO pump oil or grease when reassembling.

Keep Components A and B Separate

CAUTION
To prevent cross-contamination of the equipment's wetted parts, **never** interchange component A (isocyanate) and component B (resin) parts.

Foam Resins with 245 fa Blowing Agents

New 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.

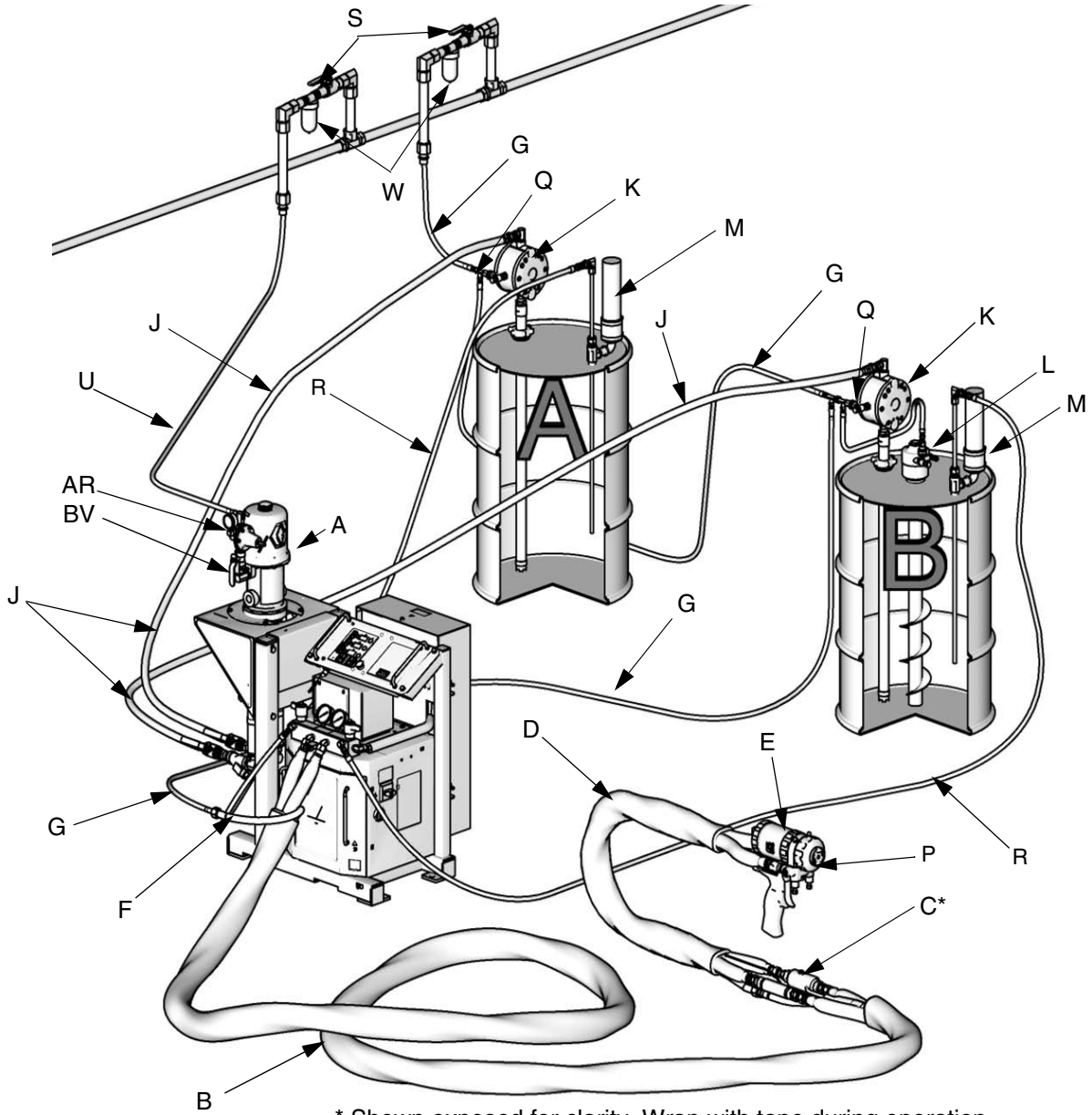
Changing Materials

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing, see page 31.
- Check with your material manufacturer for chemical compatibility.
- Most materials use ISO on the A side, but some use ISO on the B side.
- Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

Typical Installation, with circulation

Key for FIG. 1

A Air Powered Reactor
B Heated Hose (see page 32)
C Fluid Temperature Sensor (FTS)
D Heated Whip Hose (see page 32)
E Fusion Spray Gun (see page 32)
F Gun Air Supply Hose
G Feed Pump Air Supply Lines (part of Air Supply Kit, page 32)
J Fluid Supply Lines
K Feed Pumps (see page 32)
L Agitator
M Desiccant Dryer (part of Return Tube Kit, page 32)
P Gun Fluid Manifold (part of Fusion gun)
Q Air Quick-Disconnect (part of Circulation Kit, page 32)
R Air Purge Lines (part of Circulation Kit, page 32)
S Air Line Shutoff Valve
U Proportioner Air Supply Line
W Air Filter/Separator
AR Air Regulator (part of Reactor, page 11)
BV Bleed-Type Master Air Valve (part of Reactor, page 11)



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

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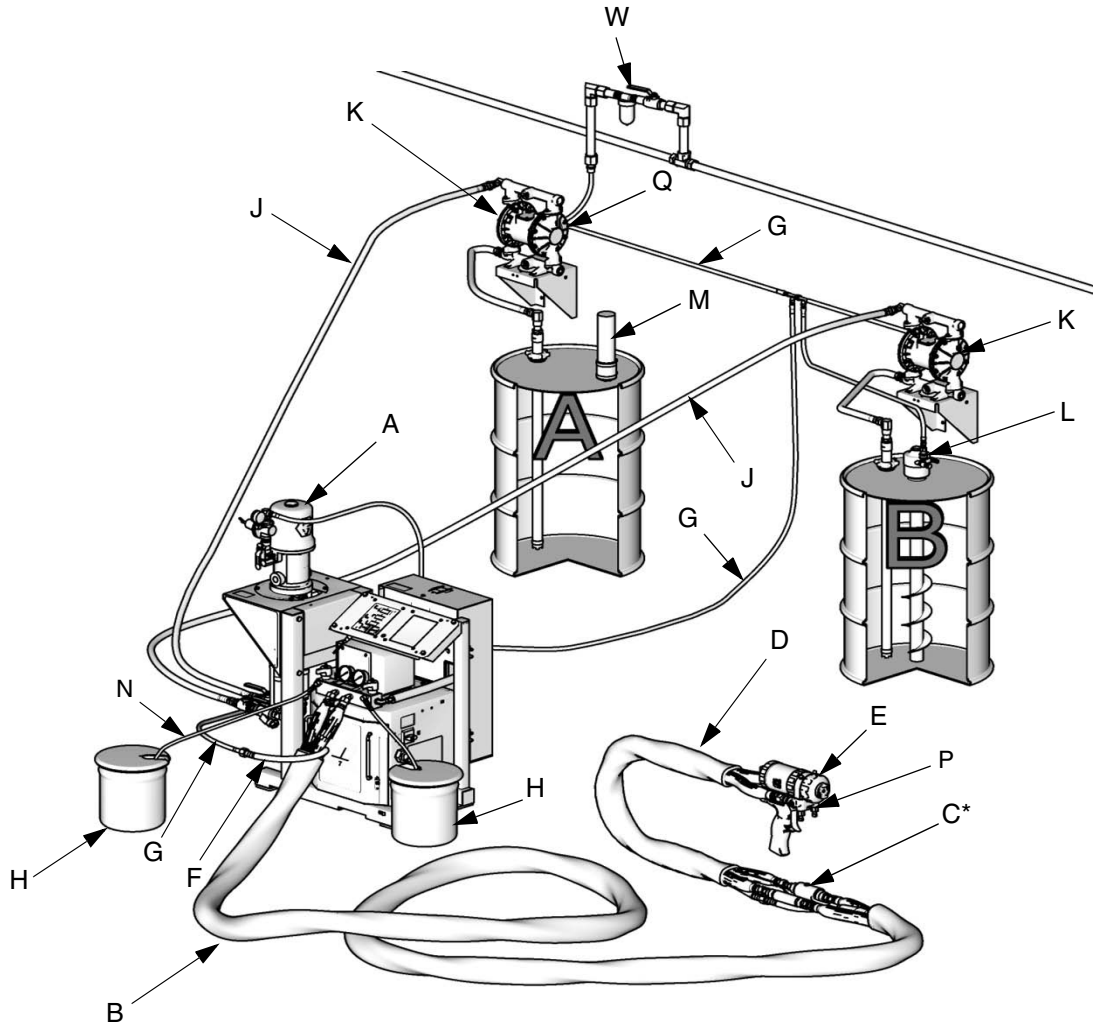
FIG. 1: Typical Installation, with circulation (259060)

Typical Installation, without circulation

Key for FIG. 2

A Reactor Proportioner
B Heated Hose (see page 32)
C Fluid Temperature Sensor (FTS)
D Heated Whip Hose (see page 32)
E Fusion Spray Gun (see page 32)
F Gun Air Supply Hose
G Feed Pump Air Supply Lines (part of Air Supply Kit, page 32)
H Waste Containers
J Fluid Supply Lines
K Feed Pumps (see page 32)
L Agitator
M Desiccant Dryer (part of Return Tube Kit, page 32)
N Bleed Lines
P Gun Fluid Manifold (part of Fusion gun)
Q Air Quick-Disconnect (part of Circulation Kit, page 32)
W Air Filter/Separator



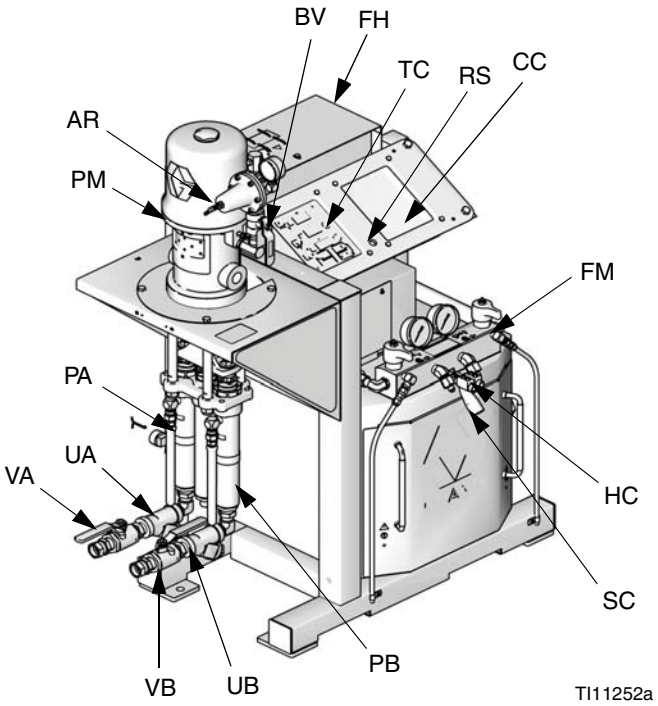
* Shown exposed for clarity. Wrap with tape during operation.

FIG. 2: Typical Installation, without circulation (259060)

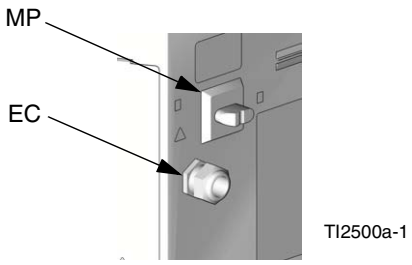
Component Identification

Key for FIG. 3

AR Air Regulator
BA Component A Pressure Relief Outlet
BB Component B Pressure Relief Outlet
BV Bleed-Type Master Air Valve
CC Cycle Counter
EC Electrical Cord Strain Relief
FA Component A Fluid Manifold Inlet (behind manifold block)
FB Component B Fluid Manifold Inlet
FH Fluid Heaters (behind shroud)
FM Reactor Fluid Manifold
GA Component A Pressure Gauge
GB Component B Pressure Gauge
HA Component A Hose Connection
HB Component B Hose Connection
HC Heated Hose Electrical Connector
MP Main Power Switch
PA Component A Pump
PB Component B Pump
PM Pump Motor
RS Red Heat Stop Button
SA Component A PRESSURE RELIEF/SPRAY Valve
SB Component B PRESSURE RELIEF/SPRAY Valve
SC Fluid Temperature Sensor Cable
TC Temperature Control Display
UA Component A Fluid Inlet Strainer
UB Component B Fluid Inlet Strainer
VA Component A Fluid Inlet Valve
VB Component B Fluid Inlet Valve



Detail of Main Power Switch (right side of unit)



Detail of Reactor Fluid Manifold

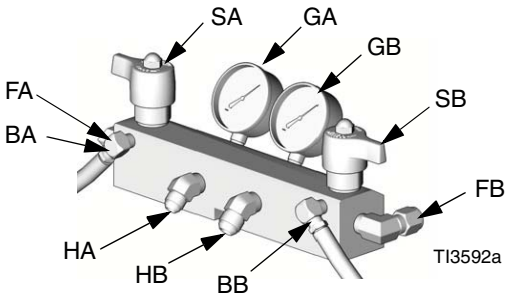


FIG. 3: Component Identification

Controls and Indicators

CAUTION
To prevent damage to the softkey buttons, do not press the buttons with sharp objects such as pens, plastic cards, or fingernails.

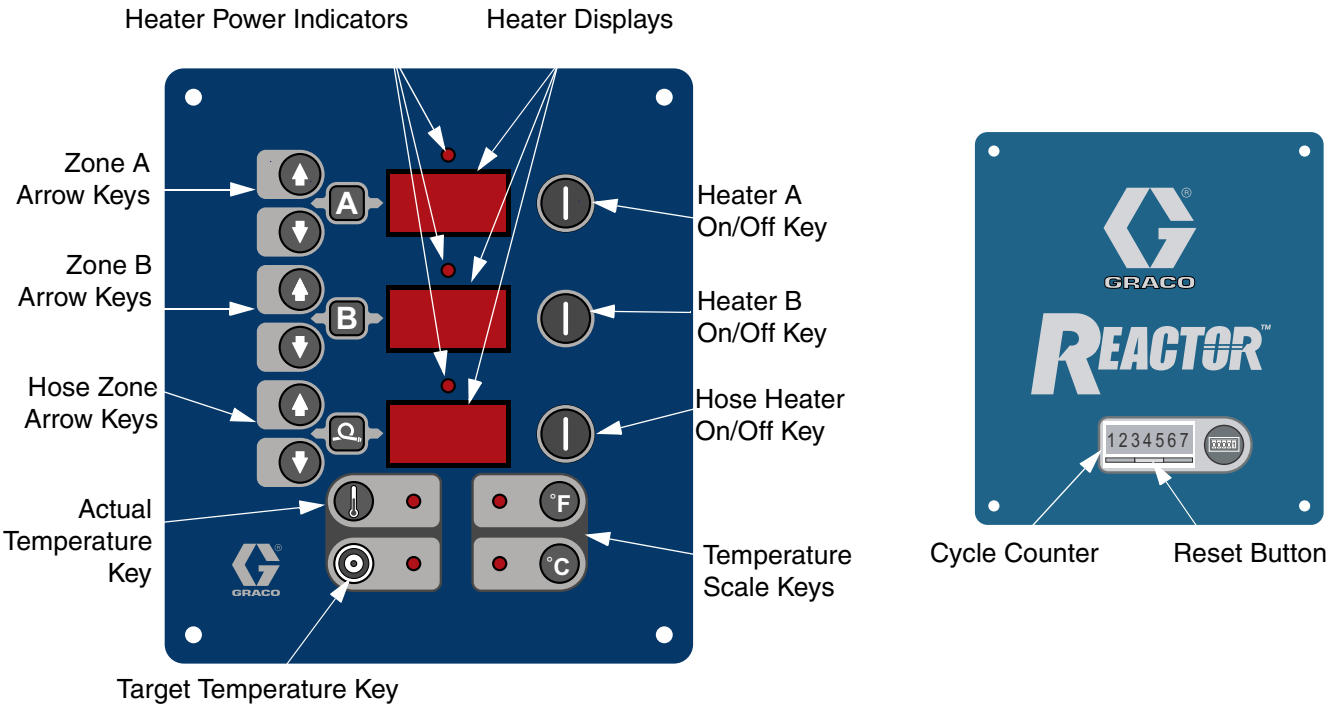
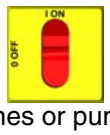
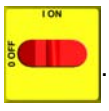


FIG. 4. Temperature Controls and Indicators

Main Power Switch

Located on right side of unit, page 11. Turns Reactor power ON  and OFF  . Does not turn heater zones or pumps on.

Red Stop Button

Located between temperature control panel and motor control panel, page 11. Press  to shut off motor and heater zones only. Use main power switch to shut off all power to unit.

Actual Temperature Key/LED

Press  to display actual temperature.

Press and hold  to display electrical current.

Target Temperature Key/LED

Press to display target temperature.

Press and hold to display heater control circuit board temperature.

Temperature Scale Keys/LEDs

Press °F or °C to change temperature scale.

Heater Zone On/Off Keys/LEDs

Press to turn heater zones on and off. Also clears heater zone diagnostic codes, see page 29.

LEDs flash when heater zones are on. The duration of each flash shows the extent that the heater is turned on.

Temperature Arrow Keys

Press , then press or to adjust temperature settings in 1 degree increments.

Temperature Displays

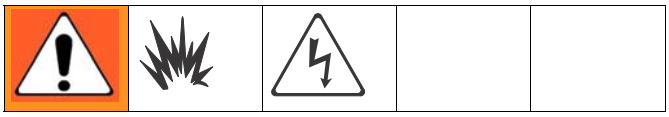
Show actual temperature or target temperature of heater zones, depending on selected mode. Defaults to actual at startup. Range is 32-190°F (0-88°C) for A and B, 32-180°F (0-82°C) for hose.

Cycle Counter

Displays cycle count.

To clear counter, press reset button.

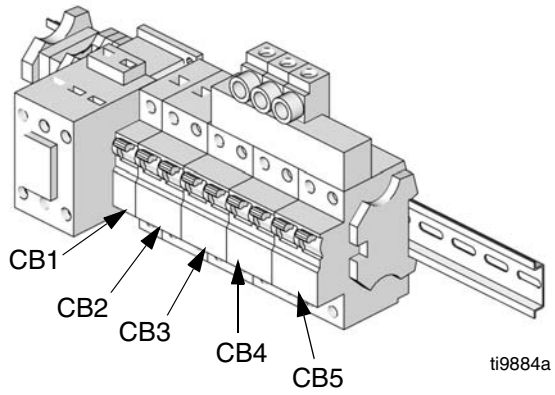
Circuit Breakers



Located inside Reactor cabinet.

Ref.	Size	Component
CB1	50 A	Hose/Transformer Secondary
CB2	40 A	Transformer Primary
CB3	25 or 40 A*	Heater A
CB4	25 or 40 A*	Heater B
CB5	20 A	Motor/Pumps

* Depending on model.



For wiring and cabling, see repair manual 312408.

Setup

1. Locate Reactor

CAUTION
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.

a. Locate Reactor on a level surface. See **Dimensions**, page 33, for clearance and mounting hole dimensions.

b. Do not expose Reactor to rain.

c. To mount on a truck bed or trailer, bolt feet directly to truck or trailer bed. See page 33.

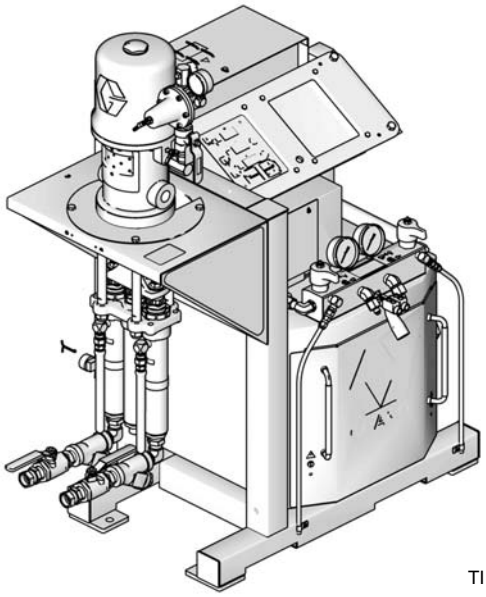


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FIG. 5

2. General Equipment 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. Ensure the generator matches the voltage and phase of the proportioner.

  Use the following procedure to determine the correct size generator.

  a. List system components that use peak load requirements in watts.

  b. Add the wattage required by the system components.

  c. Perform the following equation:
  Total watts x 1.25 = kVA (kilovolt-amperes)

  d. Select a generator size that is equal to or greater than the determined kVA.

- Use proportioner power cords that meet or exceed the requirements listed in Table 2. Failure to do so will cause voltage fluctuations that can damage electrical equipment.

- Use an air compressor with constant speed head unloading devices. Direct online air compressors that start and stop during a job will cause voltage fluctuations that can damage electrical equipment.

- Maintain and inspect the generator, air compressor, and other equipment per the manufacturer recommendations to avoid an unexpected shutdown. Unexpected equipment shutdown will cause voltage fluctuations that can damage electrical equipment.

- Use a wall power supply with enough current to meet system requirements. Failure to do so will cause voltage fluctuations that can damage electrical equipment.

3. Electrical requirements

See TABLE 1.

Installing this equipment requires access to parts which may cause electric shock or other serious injury if work is not performed properly. Have a qualified electrician connect power and ground to main power switch terminals, see page 15. Be sure your installation complies with all National, State and Local safety and fire codes.

Table 1: Electrical Requirements (kW/Full Load Amps)

Part	Model	Voltage (phase)	Full Load Peak Amps*	System Watts**
A-XP SERIES				
259060	A-XP2	230V (1)	62	14,540
259061	A-XP2	230V (3)	40	14,540
259062	A-XP2	400V (3)	22	14,540
HT SERIES (Heat Package Only)				
259070	HT-6.0	230V (1)	44	10,340
259071	HT-6.0	230V (3)	27	10,340
259072	HT-6.0	400V (3)	18	10,340
259073	HT-10.2	230V (1)	62	14,540
259074	HT-10.2	230V (3)	40	14,540
259075	HT-10.2	400V (3)	22	14,540
259076	HT-15.3	230V (1)	84	19,640
259077	HT-15.3	230V (3)	57	19,640
259078	HT-15.3	400V (3)	33	19,640

* Full load amps with all devices operating at maximum capabilities. Fuse requirements at various flow rates and mix chamber sizes may be less.

** Total system watts for all units, using 310 ft (94.6 m) hose.

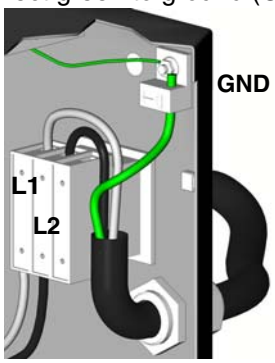
4. Connect electrical cord

Power cord is not supplied. See Table 2. Use 5/32 or 4 mm hex allen wrench to make connections.

Table 2: Power Cord Requirements

Part	Model	Cord Specification AWG (mm^2)
259060	A-XP2	6 (13.3), 2 wire + ground
259061	A-XP2	8 (8.4), 3 wire + ground
259062	A-XP2	10 (5.3), 4 wire + ground
259070	HT-6.0	8 (8.4), 2 wire + ground
259071	HT-6.0	10 (5.3), 3 wire + ground
259072	HT-6.0	12 (3.3), 4 wire + ground
259073	HT-10.2	6 (13.3), 2 wire + ground
259074	HT-10.2	8 (8.4), 3 wire + ground
259075	HT-10.2	10 (5.3), 4 wire + ground
259076	HT-15.3	4 (21.2), 2 wire + ground
259077	HT-15.3	6 (13.3), 3 wire + ground
259078	HT-15.3	8 (8.4), 4 wire + ground

a. **230V, 1 phase:** Connect power leads to L1 and L2. Connect green to ground (GND).



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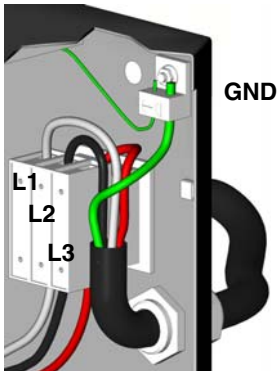
b. **230V, 3 phase:** Connect power leads to L1, L2, and L3. Connect green to ground (GND).



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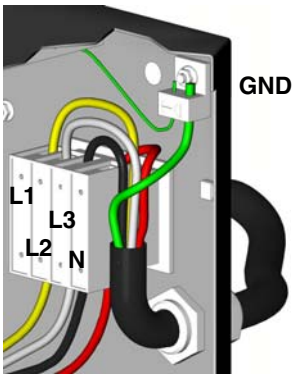
c. **400V, 3 phase:** Connect power leads to L1, L2, and L3. Connect neutral to N. Connect green to ground (GND).



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Some 3-phase models utilize a 3-phase motor. The motor must rotate counterclockwise when viewed from shaft end. To reverse rotation, disconnect power and reverse power leads L1 and L2.

5. Connect power source to motor

See FIG. 1. Connect air supply line (U) to air regulator kit inlet. See **Technical Data** on page 34 for inlet sizes, recommended hose sizes, and air consumption requirements.

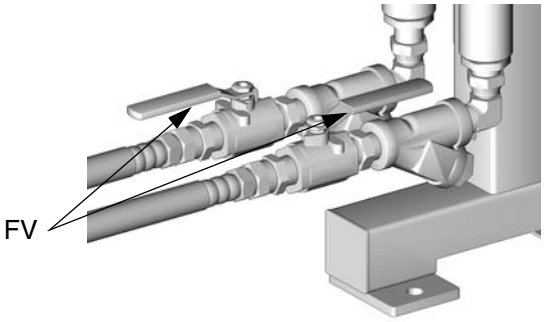
6. Connect feed pumps

a. Install feed pumps (K) in component A and B supply drums. See FIG. 1 and FIG. 2, pages 9 and 10.

b. Seal component A drum and use desiccant dryer (M) in vent.

c. Install agitator (L) in component B drum, if necessary.

d. Ensure A and B inlet valves (FV) are closed.



ti3590a

Supply hoses from feed pumps should be 3/4 in. (19 mm) ID.

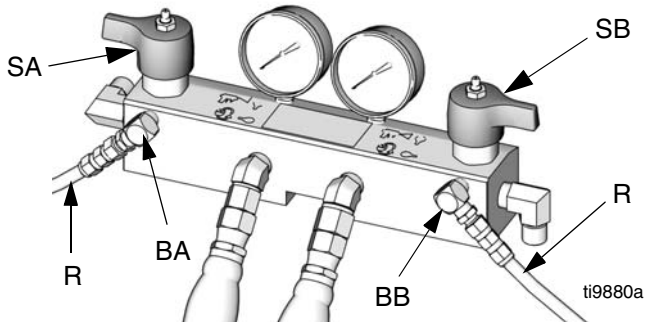
Model HT heat packages only: connect proportioner hoses to npt(f) connections on heater inlet blocks.

7. Connect pressure relief lines

Do not install shutoffs downstream of the PRESSURE RELIEF/SPRAY valve outlets (BA, BB). The valves function as overpressure relief valves when set to SPRAY . Lines must be open so valves can automatically relieve pressure when machine is operating.

If circulating fluid back to the supply drums, use high pressure hose rated to withstand the maximum working pressure of this equipment.

a. Recommended: Connect high pressure hose (R) to relief fittings (BA, BB) of both PRESSURE RELIEF/SPRAY valves, Route hose back to component A and B drums. See FIG. 1, page 9.



b. **Alternately:** Secure supplied bleed tubes (N) in grounded, sealed waste containers (H). See FIG. 2, page 10.

8. Install Fluid Temperature Sensor (FTS)

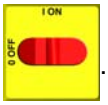
The Fluid Temperature Sensor (FTS) is supplied. Install FTS between main hose and whip hose. See Heated Hose manual 309572 for instructions.

9. Connect heated hose

See Heated Hose manual 309572 for detailed instructions on connecting heated hoses.

CAUTION

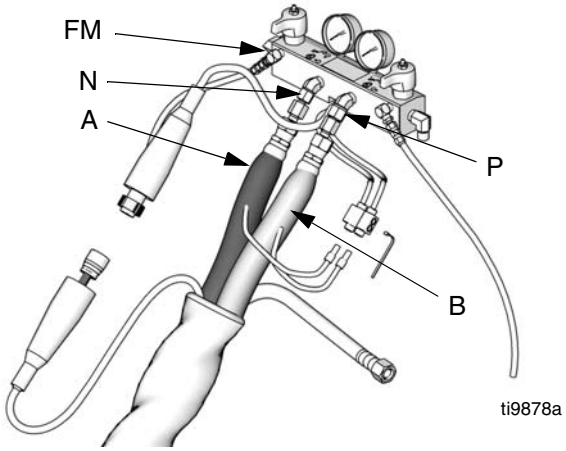
The fluid temperature sensor (C) and whip hose (D) must be used with heated hose, see page 17. Hose length, including whip hose, must be 60 ft (18.3 m) minimum.

a. Turn main power OFF 

.

b. Assemble heated hose sections, FTS, and whip hose.

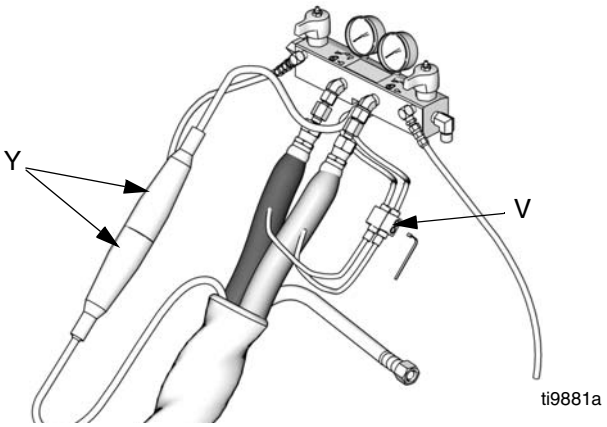
c. Connect A and B hoses to A and B outlets on Reactor fluid manifold (FM). Hoses are color coded: red for component A (ISO), blue for component B (RES). Fittings are sized to prevent connection errors.



ti9878a

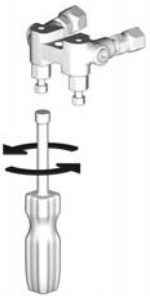
Manifold hose adapters (N, P) allow use of 1/4 in. and 3/8 in. ID fluid hoses. To use 1/2 in. (13 mm) ID fluid hoses, remove adapters from fluid manifold and install as needed to connect whip hose.

d. Connect cables (Y). Connect electrical connectors (V). Be sure cables have slack when hose bends. Wrap cable and electrical connections with electrical tape.



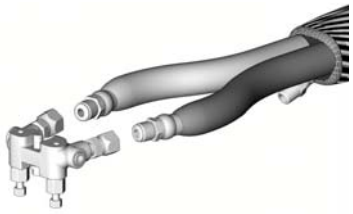
ti9881a

10. Close gun fluid manifold valves A and B


ti2411a

11. Connect whip hose to gun fluid manifold

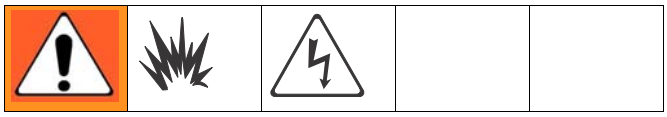
Do not connect manifold to gun.


ti2417a

12. Pressure check hose

See hose manual. Pressure check for leaks. If no leaks, wrap hose and electrical connections to protect from damage.

13. Ground system



a. *Reactor:* is grounded through power cord. See page 15.

b. *Spray gun:* connect whip hose ground wire to FTS, page 17. Do not disconnect wire or spray without whip hose.

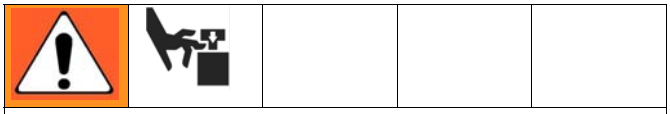
c. *Fluid supply containers:* follow your local code.

d. *Object being sprayed:* follow your local code.

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

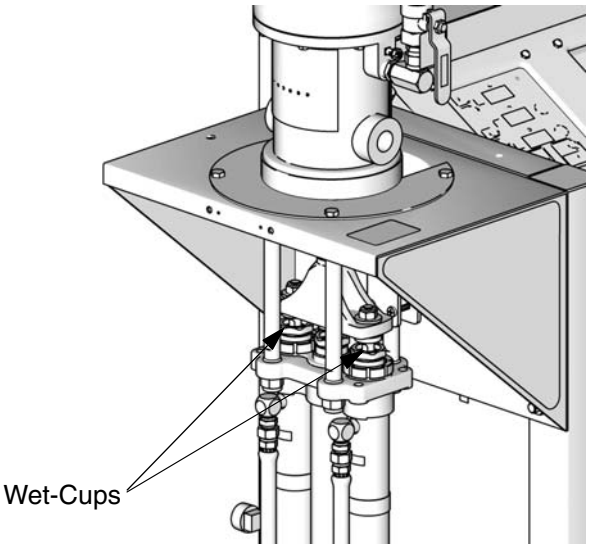
f. *To maintain grounding continuity when flushing or relieving pressure,* hold a metal part of spray gun firmly to the side of a grounded *metal* pail, then trigger gun.

14. Fill wet-cups



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 wet-cups during operation. Shut off pumps before filling wet-cups.

Check pump wet-cups daily. Keep filled with Graco ISO pump oil (217374) to keep air or moisture from reacting with fluids.



TI11254a

Startup

CAUTION
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 flucuations that can damage electrical equipment and void the warranty.

Do not operate Reactor without all covers and shrouds in place.

1. **Check Generator fuel level.**
   Running out of fuel will cause voltage fluctuations that can damage electrical equipment.
2. **Ensure the main breaker on the generator is in the off position.**
3. **Start the generator. Allow it to reach full operating temperature.**
4. **Close the bleed valve on the air compressor.**
5. **Switch on the air compressor starter and air dryer, if included.**
6. **Turn on power to the Reactor.**
7. **Load fluid with feed pumps**

The Reactor is tested with oil at the factory. Flush out the oil with a compatible solvent before spraying. See page 31.

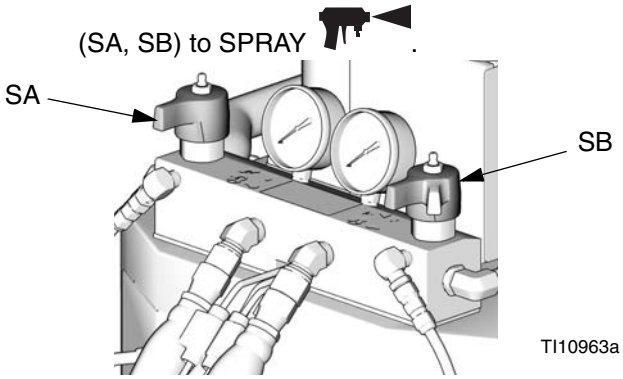
a. Check that all **Setup** steps are complete.

b. Check that inlet screens are clean before daily startup.

c. Check level and condition of ISO lube daily.

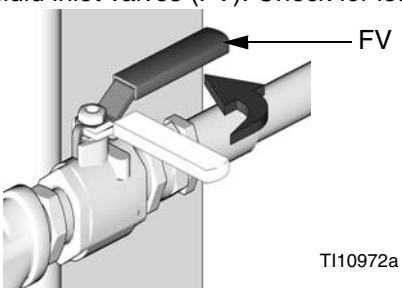
d. Turn on component B agitator, if used.

e. Turn both PRESSURE RELIEF/SPRAY valves (SA, SB) to SPRAY .



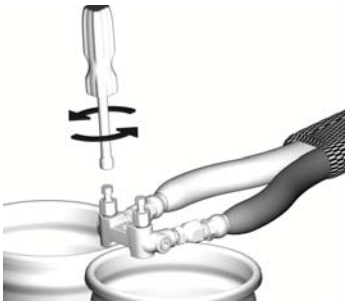
f. Start feed pumps.

g. Open fluid inlet valves (FV). Check for leaks.

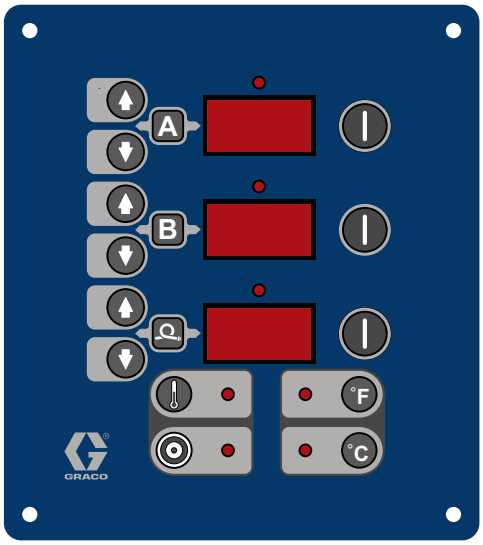


Do not mix components A and B during startup. Always provide two grounded waste containers to keep component A and component B fluids separate.

h. Use feed pumps to load system. Hold gun fluid manifold over two grounded waste containers. Open fluid valves A and B until clean, air-free fluid comes from valves. Close valves.



8. Set temperatures



Controls and Indicators, see page 12

This 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.
- Allow equipment to cool completely before touching it.
- Wear gloves if fluid temperature exceeds 110°F (43°C).

a. Turn main power ON 

.

b. Press °F or °C to change temperature scale.

c. Press ◎ .

d. To set A heat zone target temperature, press ▲ or ▼ until display shows desired temperature. Repeat for B and zones.

For zone only, if FTS is disconnected at startup, display will show hose current (0A). See step j, page 22.

e. Press 🌡 to display actual temperatures.

Do not turn on hose heat without fluid in hoses.

f. Turn on heat zone by pressing ⏻ . Preheat hose (15-60 min). Indicator will flash very slowly when fluid reaches target temperature. Display shows actual fluid temperature in hose near FTS.

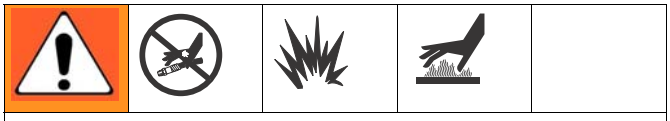
Thermal expansion can cause overpressurization, resulting in equipment rupture and serious injury, including fluid injection. Do not pressurize system when preheating hose.

g. Turn on A and B heat zones by pressing ⏻ for each zone.

h. Hold 🌡 to view electrical currents for each zone.

i. Hold  to view heater control circuit board temperature.

j. **Manual current control mode only:**



When in manual current control mode, monitor hose temperature with thermometer. Install per instructions below. Thermometer reading must not exceed 160°F (71°C). Never leave machine unattended when in manual current control mode.

If FTS is disconnected or display shows diagnostic code E04, turn main power switch OFF  then ON  to clear diagnostic code and enter manual current control mode.

 display will show current to hose. Current is not limited by target temperature.

To prevent overheating, install hose thermometer close to gun end, within operator view. Insert thermometer through foam cover of A component hose so stem is next to inner tube. Thermometer reading will be about 20°F less than actual fluid temperature.

If thermometer reading exceeds 160°F (71°C), reduce current with  key.

9. Check Cycle Count

a. To display cycle count, press  .

To clear counter, press  and hold for 3 seconds.

Spraying

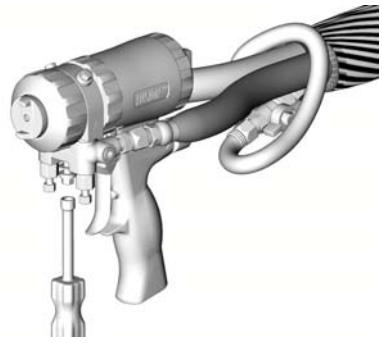
1. Engage gun piston safety lock.

ti2409a

2. Close gun fluid manifold valves A and B.

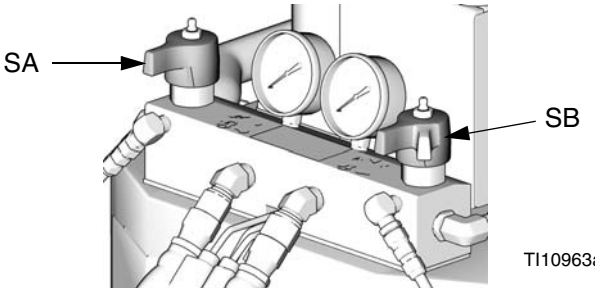
ti2728a

3. Attach gun fluid manifold. Connect gun air line. Open air line valve.



ti2543a

4. Set PRESSURE RELIEF/SPRAY valves (SA, SB) to SPRAY  .

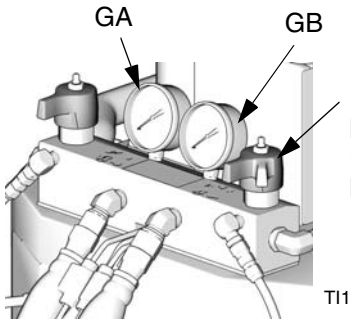


TI10963a

5. Check that heat zones are on and temperatures are on target, page 21.
6. Start pumps.
7. Check fluid pressure display and adjust as necessary, page 23.

8. Check fluid pressure gauges (GA, GB) to ensure proper pressure balance. If imbalanced, reduce pressure of higher component by **slightly** turning PRESSURE RELIEF/SPRAY valve for that component toward PRESSURE RELIEF/CIRCULATION

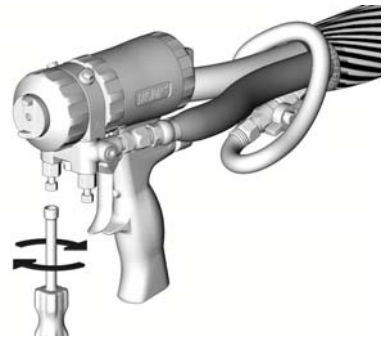
   , until gauges show balanced pressures.



In this example, B side pressure is higher, so use the B side valve to balance pressures.

TI10963a

9. Open gun fluid manifold valves A and B.



ti2414a

On impingement guns, **never** open fluid manifold valves or trigger gun if pressures are imbalanced.

10. Disengage gun piston safety lock.

ti2410a

11. Test spray onto cardboard. Adjust pressure and temperature to get desired results.

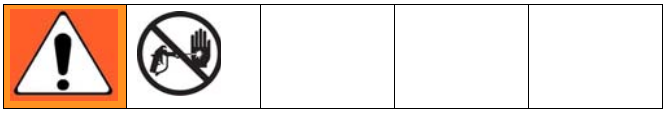
12. Equipment is ready to spray.

Shutdown

1. Shut off A , B , and heat zones.
2. Park pumps.
   a. Press .
   b. Trigger gun until pump A stops in the retracted position and the pressure of both pumps bleeds down.
3. Turn main power OFF 

.
4. Relieve pressure, page 26.

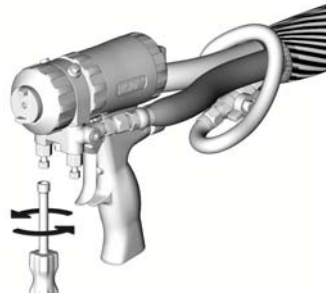
Pressure Relief Procedure



1. Relieve pressure in gun and perform gun shutdown procedure. See gun manual.
2. Engage gun piston safety lock.

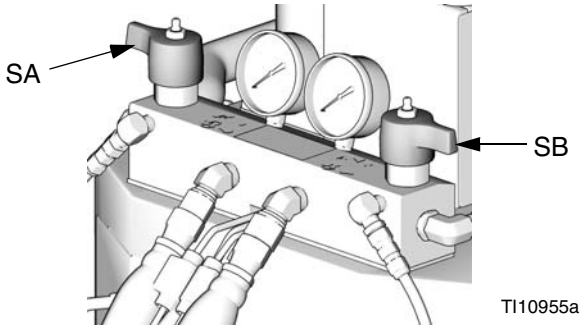
ti2409a

3. Close gun fluid manifold valves A and B.



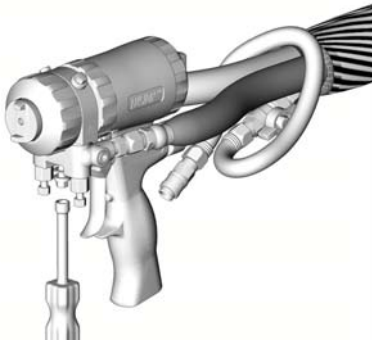
ti2421a

4. Shut off feed pumps and agitator, if used.
5. Turn PRESSURE RELIEF/SPRAY valves (SA, SB) to PRESSURE RELIEF/CIRCULATION  . Route fluid to waste containers or supply tanks. Ensure gauges drop to 0.



TI10955a

6. Disconnect gun air line and remove gun fluid manifold.



ti2554a

Pump throat seals work best under pressure. Close fluid inlet valves when unit is depressurized to prevent drum head pressure from leaking past pump rod seals.

Fluid Circulation

Circulation Through Reactor

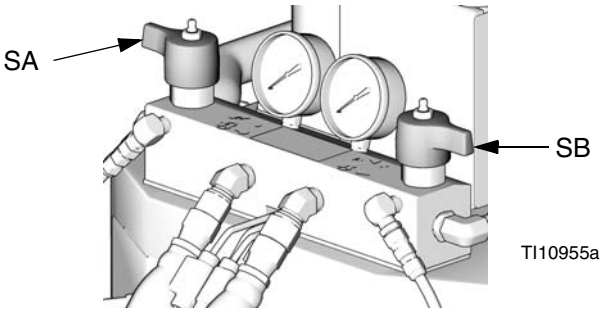
Do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

To circulate through gun manifold and preheat hose, see page 28.

1. **Check Generator fuel level. Running out of fuel will cause voltage fluctuations that can damage electrical equipment.**, page 20.

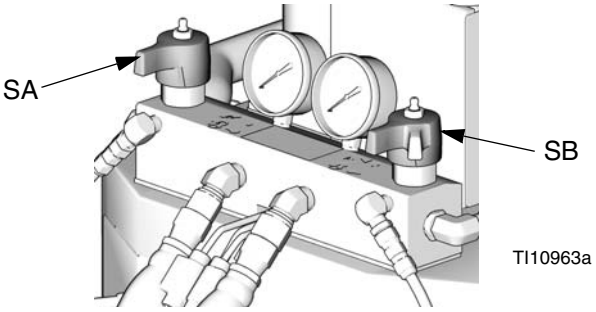
Do not install shutoffs downstream of the PRESSURE RELIEF/SPRAY valve outlets (BA, BB). The valves function as overpressure relief valves when set to SPRAY. Lines must be open so valves can automatically relieve pressure when machine is operating.

2. See **Typical Installation, with circulation**, page 9. Route circulation lines back to respective component A or B supply drum. Use hoses rated at the maximum working pressure of this equipment. See **Technical Data**, page 34.
3. Set PRESSURE RELIEF/SPRAY valves (SA, SB) to PRESSURE RELIEF/CIRCULATION.



4. Turn main power ON.
5. Set temperature targets, see page 21. Turn on A and B heat zones by pressing.

   Do not turn on heat zone unless hoses are already loaded with fluid.
6. Press to display actual temperatures.
7. Circulate fluid in jog mode until A and B temperatures reach targets.
8. Turn on heat zone by pressing.
9.
10. Set PRESSURE RELIEF/SPRAY valves (SA, SB) to SPRAY.

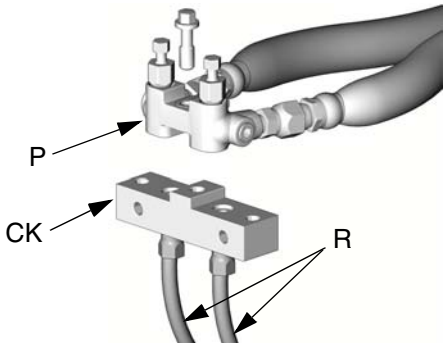


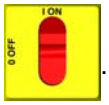
Circulation Through Gun Manifold

Do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

Circulating fluid through the gun manifold allows rapid preheating of hose.

1. Install gun fluid manifold (P) on Part 246362 accessory circulation kit (CK). Connect high pressure circulation lines (R) to circulation manifold.



2. Route circulation lines back to respective component A or B supply drum. Use hoses rated at the maximum working pressure of this equipment. See **Typical Installation, without circulation**, page 10.
3. Follow **Check Generator fuel level. Running out of fuel will cause voltage fluctuations that can damage electrical equipment.**, page 20.
4. Turn main power ON 

.
5. Set temperature targets, see page 21. Turn on A , B , and heat zones by pressing I .
6. Press to display actual temperatures.
7. Circulate fluid at lowest possible pressure until temperatures reach target.

Diagnostic Codes

Temperature Control Diagnostic Codes

Temperature control diagnostic codes appear on temperature display.

These alarms turn off heat. E99 clears automatically when communication is regained. Codes E03 through E06 can be cleared by pressing  . For other codes, turn main power OFF  then ON  to clear.

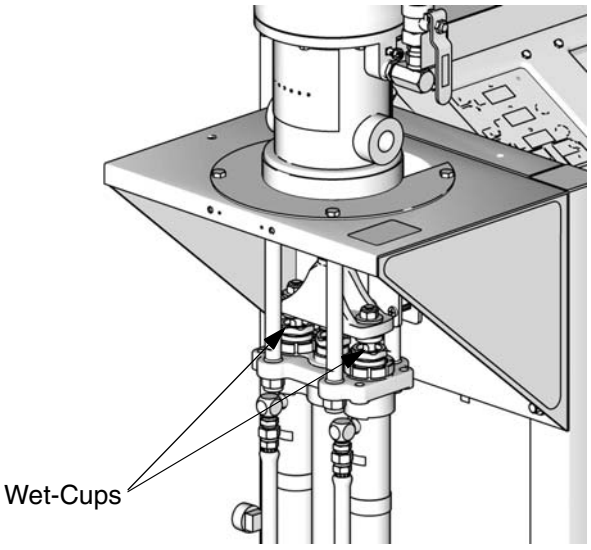
See repair manual for corrective action.

Code	Code Name	Alarm Zone
01	High fluid temperature	Individual
02	High current	Individual
03	No current	Individual
04	FTS not connected	Individual
05	Board overtemperature	Individual
06	Loss of zone communication	Individual
30	Momentary loss of communication	All
99	Loss of display communication	All

For hose zone only, if FTS is disconnected at startup, display will show hose current 0A.

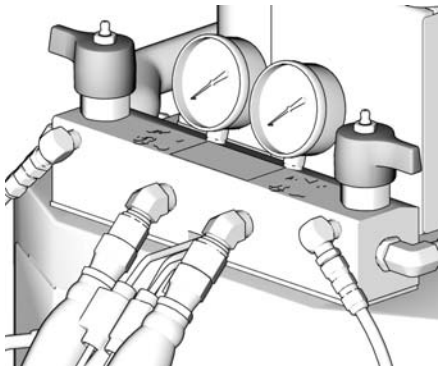
Maintenance

- Check pump wet-cups daily, page 19. Keep filled with Graco ISO pump oil (217374), to keep air or moisture from reacting with fluids. If oil on rods appears milky from crystallization, wipe rods clean and refill wet-cups with fresh ISO pump oil.



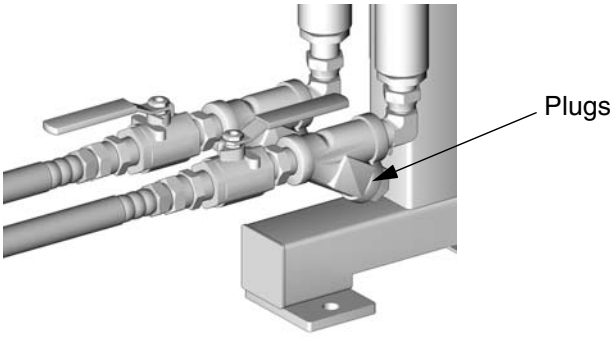
TI11254a

- Grease circulation valves weekly with Fusion grease (117773).



TI10955a

- Keep component A from exposure to moisture in atmosphere, to prevent crystallization.
- Remove plugs and clean fluid inlet screens as needed.



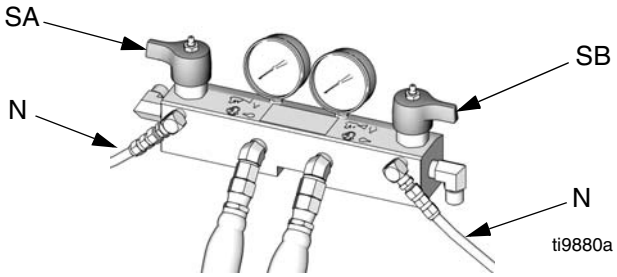
TI3590b

- Clean gun mix chamber ports regularly. See gun manual.
- Clean gun check valve screens regularly. See gun manual.
- Use compressed air to prevent dust buildup on control boards, fan, and motor (under shield).
- Keep vent holes on bottom of cabinet open.

Flushing

Flush equipment only in a well-ventilated area. Do not spray flammable fluids. Do not turn on heaters while flushing with flammable solvents.

- 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 fluid components are compatible with common solvents. Use only moisture-free solvents.
- To flush feed hoses, pumps, and heaters separately from heated hoses, set PRESSURE RELIEF/SPRAY valves (SA, SB) to PRESSURE RELIEF/CIRCULATION. Flush through bleed lines (N).



- To flush entire system, circulate through gun fluid manifold (with manifold removed from gun).
- To prevent moisture from reacting with isocyanate, always leave the system dry or filled with a moisture-free plasticizer or oil. Do not use water. See page 7.

Accessories

Feed Pump Kits

Pumps, hoses, and mounting hardware to supply fluids to Reactor. Includes 246483 Air Supply Kit. See 309815.

246483 Air Supply Kit

Hoses and fittings to supply air to feed pumps, agitator, and gun air hose. Included in feed pump kits. See 309827.

246978 Circulation Kit

Return hoses and fittings to make circulation system. Includes two 246477 Return Tube Kits. See 309852.

246477 Return Tube Kit

Desiccant dryer, return tube, and fittings for one drum. Two included in 246978 Circulation Kit. See 309852.

Heated Hoses

50 ft (15.2 m) and 25 ft (7.6 m) lengths, 1/4 in. (6 mm), 3/8 in. (10 mm), or 1/2 in. (13 mm) diameter, 2000 psi (14 MPa, 140 bar) or 3500 psi (24 MPa, 241 bar). See 309572.

Heated Whip Hoses

10 ft (3 m) whip hose, 1/4 in. (6 mm) or 3/8 in. (10 mm) diameter, 2000 psi (14 MPa, 140 bar) or 3500 psi (24 MPa, 241 bar). See 309572.

Fusion Spray Gun

Air purge gun, available in round or flat pattern. See 309550.

Mechanical purge gun, available in round or flat pattern. See 309856.

246086 Data Reporting Kit

Records actual temperature, temperature setpoint, actual pressure, cycles, and diagnostic code data from Reactor. Downloads data to PC with Microsoft® Windows 98 or later. See 309814.

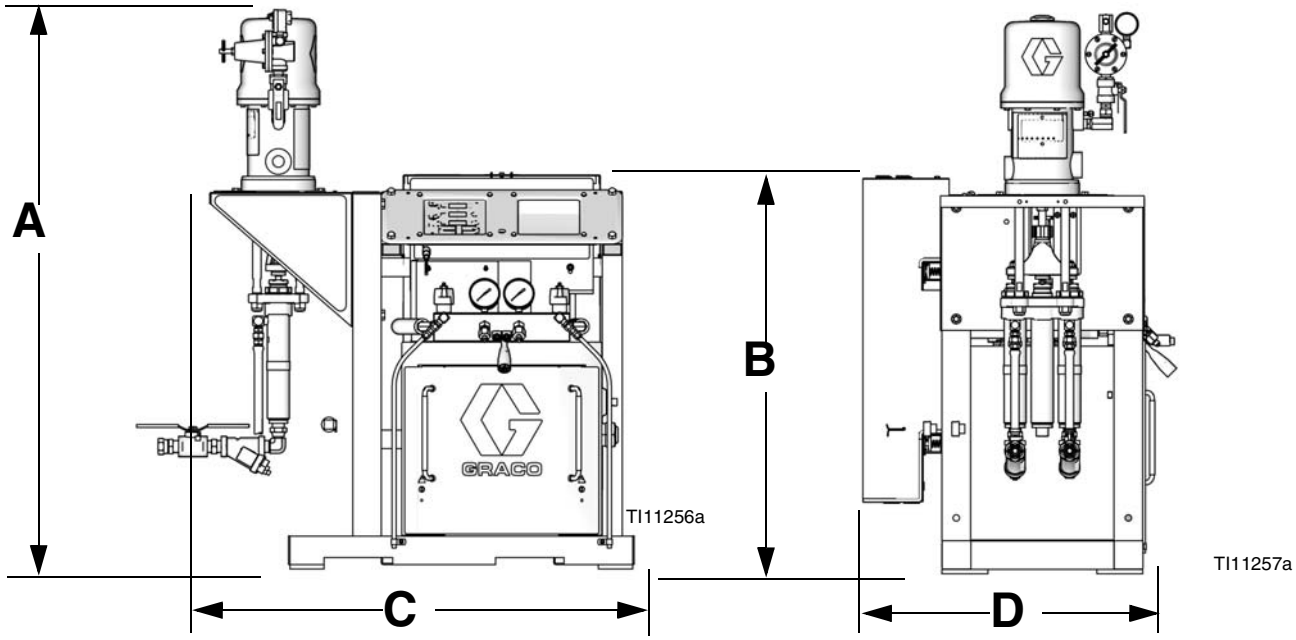
Dimensions

Dimension	Model	in. (mm)
A	A-XP2	49 (1245)
B	All	35 (889)
C	All	36.5 (927)
D	All	25 (635)
E	All	27 (686)

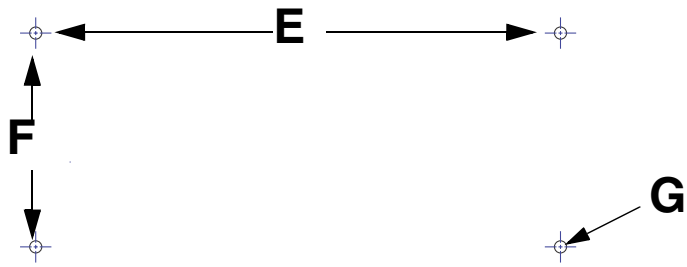
Dimension	Model	in. (mm)
F	All	11 (279)
G (hole diameter)	All	0.625 (16)
Weight	A-XP2	400 lb (180 kg)
	HT Series	333 lb (150 kg)

Front View

Side View



Mounting Hole Dimensions



Technical Data

Category	Data
Maximum Fluid Working Pressure	Model A-XP2: 3000 psi (20.7 MPa, 207 bar)
Maximum Input Pressure to Motor	Model A-XP2: 120 psi (0.82 MPa, 8.2 bar) air
Pressure Ratio Fluid:Air	Model A-XP2: 25:1
Air Inlet	Model A-XP2: 1/2 npsm(f)
Recommended Air Supply Hose Size	Model A-XP2: 1/2 in. (13 mm) ID minimum
Air Consumption	Model A-XP2: 40 scfm at 120 psi (0.82 MPa, 8.2 bar), 1.0 gpm (3.8 lpm)
Recommended Hydraulic Hose Size	Supply Hose: 3/4 in. (19 mm) ID minimum Return Hose: 1 in. (25 mm) ID minimum
Fluid Inlets	Model A-XP2: 3/4 npt(f) Model HT heat packages: 3/8 npt(f) on heater inlet blocks
Fluid Outlets	Component A (ISO): #8 JIC, with #5 JIC adapter Component B (RES): #10 JIC, with #6 JIC adapter
Fluid Circulation Ports	1/4 npsm(m), with plastic tubing, 250 psi (1.75 MPa, 17.5 bar) maximum
Maximum Fluid Temperature	190°F (88°C)
Maximum Output (10 weight oil at ambient temperature)	Model A-XP2: 1.5 gpm (5.7 liter/min) at 78 cycles/min
Output per Cycle (A and B)	Model A-XP2: 0.0193 gal. (.073 liter)
Line Voltage Requirement	230V 1 phase and 230V 3 phase units: 195-264 Vac, 50/60 Hz 380V 3 phase units: 338-457 Vac, 50/60 Hz
Amperage Requirement	See page 3.
Heater Power (A and B heaters, no hose)	Model HT-6.0: 6000 Watts Model A-XP2 and HT-10.2: 10200 Watts Model HT-15.3: 15300 Watts
Sound Power, per ISO 9614-2	Model A-XP2: 94.7 dB(A) at 2000 psi (14 MPa, 140 bar), 0.5 gpm (1.9 lpm), 15 cpm
Sound Pressure, 1 m from equipment	Model A-XP2: 81 dB(A) at 2000 psi (14 MPa, 140 bar), 0.5 gpm (1.9 lpm), 15 cpm
Weight	Model A-XP2: 400 lb (180 kg) Models HT-6.0, HT-10.2, and HT-15.3: 333 lb (150 kg)
Wetted Parts	Aluminum, stainless steel, zinc-plated carbon steel, brass, carbide, chrome, chemically resistant o-rings, PTFE, ultra-high molecular weight polyethylene

All other brand names or marks are used for identification purposes and are trademarks 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.

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

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Original instructions. This manual contains English. MM 312407

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

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

www.graco.com
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