

Mix Manifold Kits

310797H

EN

For mixing 2 component reactive materials. For professional use only.

Part No. 248874, Series A

Mix Manifold

Part No. 248923, Series A (shown)

Remote Mix Manifold Kit, with protective guard and two restrictors

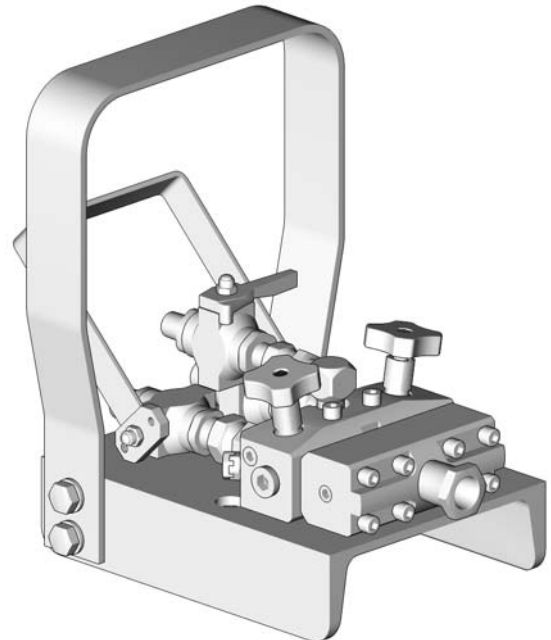
7400 psi (51.0 MPa, 510 bar) Maximum Working Pressure

200°F (93°C) Maximum Fluid Temperature



Important Safety Instructions

Read all warnings and instructions in this manual and proportioner manual. Save these instructions.






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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.

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Never spray or flush solvent at high pressure. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>SKIN INJECTION HAZARD</p> <p>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.</p> <ul style="list-style-type: none"> • Do not spray without tip guard and trigger guard installed. • Engage trigger lock when not spraying. • Do not point gun at anyone or at any part of the body. • Do not put your hand over the spray tip • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately.



WARNING



TOXIC FLUID OR FUMES HAZARD

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

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



PERSONAL PROTECTIVE EQUIPMENT

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

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



BURN HAZARD

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

- Do not touch hot fluid or equipment.

Important Isocyanate (ISO) Information

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

Isocyanate Conditions



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

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 (resin and hardener) wetted parts.
- Keep parts separate when cleaning the manifold. The manifold is shipped with the resin (high volume) side on the left and the hardener (low volume) side on the right.
- Never use solvent on one side if it has been contaminated from the other side.
- Never leave hardener (isocyanate) wetted parts exposed to moisture in the air.

Changing Materials

NOTICE

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

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

Installation

For assistance in setting up a plural component system, contact your Graco distributor, to ensure that you select the proper type and size equipment for your system.

Letters and numbers in parentheses refer to callouts in FIG. 1.

Fluid Inlets

Install fluid temperature sensor (C) between heated hoses (A, B) and mix manifold; feed 18 in. (457 mm) heat sensor (V) back into high volume side of heated hose. See FIG. 1.

NOTE: An optional 1/4 npt(m) ball valve inlet stud (38) is supplied for the hardener (low volume) side. See page 21. Using different size inlet fittings can help prevent cross contamination. Part No. 248923 Mix Manifold is supplied with this stud already installed

248926 “Quick-Set” Style FTS

Part No. 248926 FTS is supplied with swivel adapters (D), 3/8 npsm(f) on the resin side and 1/4 npsm(f) on the hardener side, for connection to Part No. 248923 Mix Manifold.

246079 “Reactor” Style FTS

If using Part No. 246079 FTS, remove JIC fittings from FTS (C), and replace with swivel fittings (D, see following table).

Mix Manifold	Resin Side	Hardener Side
248874	157705, 3/8 npsm(f)	157705, 3/8 npsm(f)
248923	157705, 3/8 npsm(f)	156823, 1/4 npsm(f)

Solvent Inlet

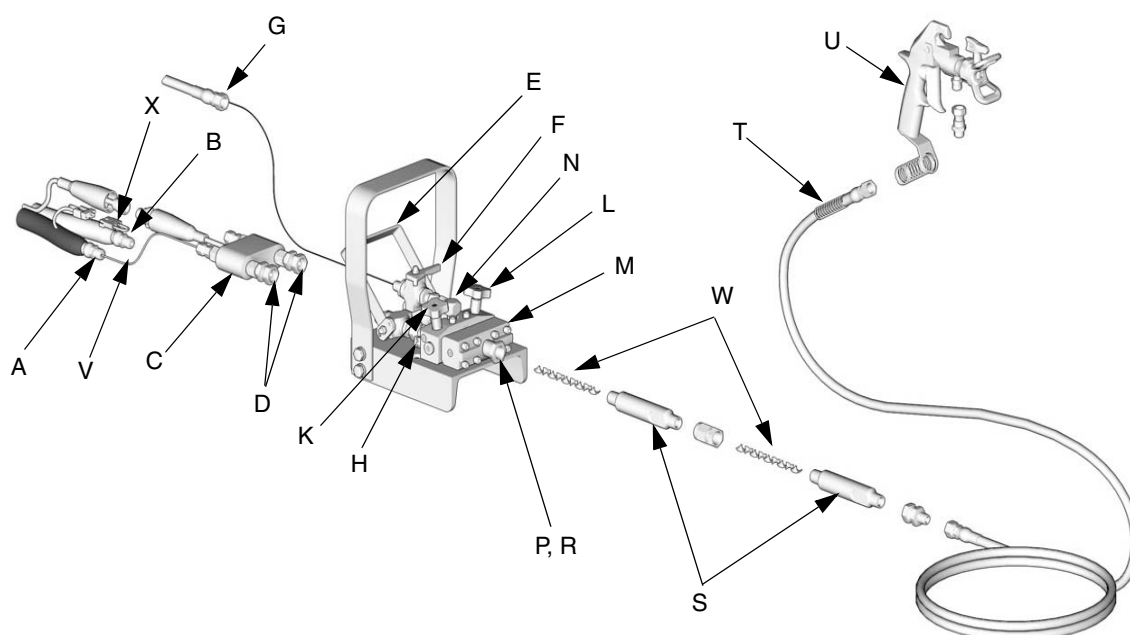
Connect solvent supply line (G) from solvent pump to 1/4 npt(m) solvent inlet valve (F), using Graco approved grounded hose rated to withstand maximum fluid working pressure of solvent pump. Hose core must be chemically compatible with solvent (such as nylon or PTFE).

Fluid Outlet

Connect static mixers (S) and whip hose (T) to 3/8 npt(f) fluid outlet (R). Two static mixers are often used, in series.

Mounting

To mount the bare manifold, drill two 0.27 in. diameter holes in the mounting surface, 1.1 in. (28 mm) apart on center. Secure with two 1/4-20 x 2 in. (6 mm x 50 mm) socket-hd capscrews.



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FIG. 1: Typical Installation

Key:

- | | | | |
|---|--|---|---|
| A | Resin (High Volume) Supply Hose | L | Hardener Flush Valve |
| B | Hardener (Low Volume) Supply Hose | M | Resin and Hardener Check Valve Manifold |
| C | Fluid Temperature Sensor (FTS) Module | N | Solvent Check Valve |
| D | FTS Swivel Adapters (supplied with 248926 FTS) | P | Hardener Injector (out of view inside outlet R) |
| E | Resin/Hardener Shutoff Handle, 3/8 npt(m) inlets
(optional 1/4 npt hardener inlet fitting supplied) | R | Mix Manifold Outlet, 3/8 npt(f) |
| F | Solvent Inlet Valve, 1/4 npt(m) | S | Static Mixer Housing |
| G | Grounded Solvent Hose | T | Fluid Whip Hose |
| H | Resin Restrictor Port (plugged) | U | Airless Spray Gun |
| J | Hardener Restrictor Port (plugged; out of view) | V | Heat Sensor |
| K | Resin Flush Valve | W | Static Mixing Element |
| | | X | Heated Hose Jumper, Part No. 15C517 |

Grounding



- **Pump:** use a ground wire and clamp as instructed in your proportioner operation manual.
- **Air and fluid hoses:** use only electrically conductive hoses. with a maximum of 500 ft (150 m) combined hose length to ensure grounding continuity. Check electrical resistance of hoses. If total resistance to ground exceeds 29 megohms, replace hose immediately.
- **Mix manifold and solvent flush system:** use only a Graco approved grounded solvent hose. Not all heated hoses are grounded, and the mix manifold primary ground is through the solvent hose. Ensure that the solvent pump is properly grounded, as instructed in your solvent pump manual. Ensure electrical continuity from the spray tip to the grounded solvent hose.

- **Air compressor:** follow manufacturer's recommendations.
- **Spray gun/dispense valve:** ground through connection to a properly grounded fluid hose and pump.
- **Fluid supply container:** follow local code.
- **Object being sprayed:** follow local code.
- **Solvent pails used when flushing:** follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts grounding continuity.
- **To maintain grounding continuity when flushing or relieving pressure:** hold metal part of the spray gun/dispense valve firmly to the side of a grounded metal pail, then trigger the gun/valve.

Flush Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. See **Flushing**, page 12.

Notes

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Operation

Pressure Relief Procedure



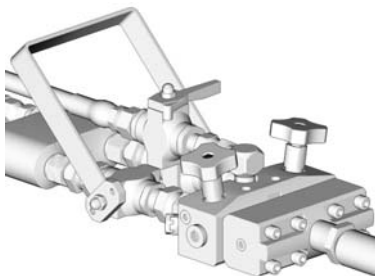
Follow the Pressure Relief Procedure whenever you see this symbol.



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.

Read warnings in your proportioner manual.

1. Close the mix manifold handle (BACK).



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2. Engage spray gun trigger lock.

NOTE: Trigger lock may vary, depending on applicator.



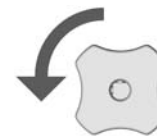
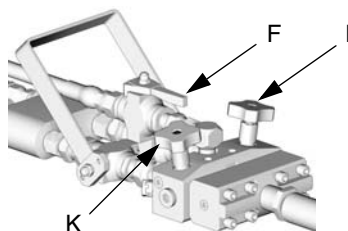
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3. Shut off the proportioner, feed, and solvent pumps.



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4. Open solvent inlet valve (F) and both flush valves (K, L).



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5. Disengage spray gun trigger lock.



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6. Hold a metal part of the spray gun firmly to a grounded metal pail, and trigger the gun to relieve pressure.



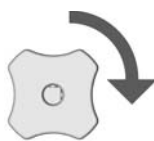
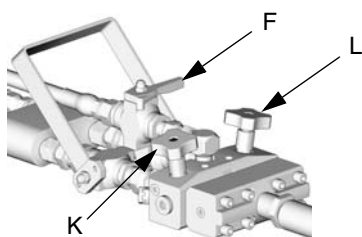
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7. Engage spray gun trigger lock.



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8. Close solvent inlet valve (F) and both flush valves (K, L).

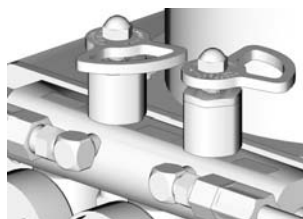


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9. Turn both fluid manifold SPRAY/PRESSURE RELIEF valves (required in your system) to PRESSURE RELIEF, having a container ready to catch the drainage.

NOTE: Hydra-Cat Model Shown.



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10. If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, **very slowly** loosen tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.
11. If the static mixer, whip hose, and gun cannot be flushed because of mixed and cured material, **very slowly** loosen the static mixer tube at the mix manifold outlet to relieve pressure gradually, then loosen completely. Replace or clean the clogged components.

Flushing



To avoid fire and explosion, always ground equipment and waste container. To avoid static sparking and injury from splashing, always flush at the lowest possible pressure.

Hot solvent may ignite. To avoid fire and explosion:

- Flush equipment only in a well-ventilated area
- Ensure main power is off and heater is cool before flushing
- Do not turn on heater until fluid lines are clear of solvent

NOTE: Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts.

NOTE: Solvent may channel through viscous fluids and leave a coating of mixed fluid on the inner tube of your hose. Be sure all fluid is thoroughly flushed from the hose after each use. Volume cleans better than pressure.

NOTE: Remove spray tip for more thorough cleaning of the whip hose and static mixers.

NOTE: Use a solvent that cuts the material you are mixing.

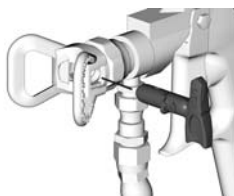
NOTICE

Always leave equipment filled with fluid to avoid drying and scaling.

1. Relieve pressure, page 10. Remove spray tip and soak in solvent.

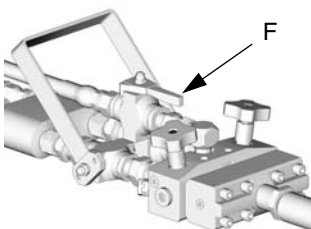


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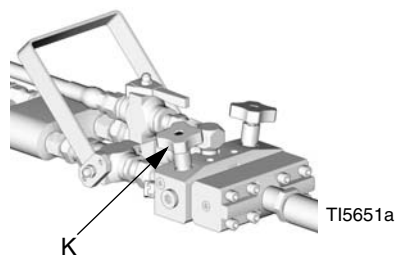
2. Open solvent inlet valve (F).



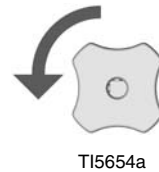
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3. Turn on solvent flush pump.

4. Open resin side flush valve (K).



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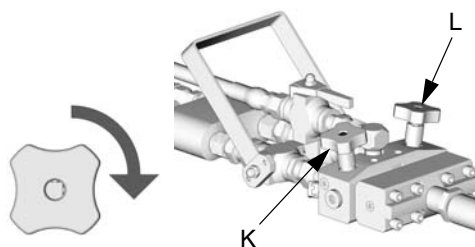
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5. Disengage spray gun trigger lock. Hold the gun firmly to the side of a grounded metal pail, shielded from splashing. Trigger the gun and flush for 5-10 seconds.

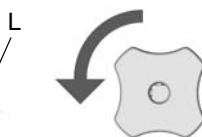


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6. Close resin side flush valve (K). Open hardener flush valve (L). Continue flushing until solvent is clear.



K



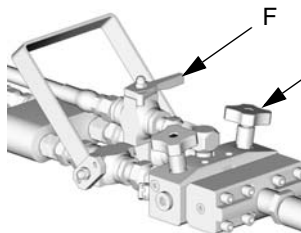
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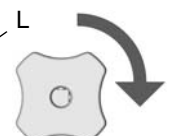
7. Release the trigger, engage spray gun trigger lock, close the hardener flush valve (L) and close solvent inlet valve (F).



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8. Flush any accessory ratio check valves on the manifold (see **Ratio Check**, page 16).
9. Relieve pressure, page 10. Disassemble all other dispensing equipment, as necessary, and clean thoroughly.

NOTICE

To prevent fluid from setting up in the dispensing equipment, flush the system frequently. Be sure there is adequate solvent in the solvent supply before starting to spray.

Cleaning Static Mixers

See FIG. 1, page 7. Typically, two static mixer housings (S, Part No. 15E592) are connected to the mix manifold outlet (R). These housings use plastic mix elements, available in a package of 25 (W, Part No. 248927).

To clean the housing and replace the mix element:

1. Relieve pressure, page 10. Remove mixer housings from mix manifold and from whip hose.
2. Place flats of mixer housing in a grounded vise.
3. Using a 1/2 in. drill bit, drill out old material and the mix element from the inlet end, down to the internal shoulder at the outlet end.
4. Run a brush through the housing to clean any debris.
5. Insert new mix element, broad shouldered end first.

Dispensing

To dispense the resin and hardener, turn on the proportioning pump and open the mix manifold handle (FORWARD). To stop the flow, close the handle (BACK).

NOTICE

Always fully open or fully close the valve handle. Spraying with the handle partially open will damage the valve balls and seats.

Volume Balancing the Mix Manifold

When mix manifold is remote mounted, ratio errors can occur between the proportioner and the mix manifold, even if the proportioner output ratio is very accurate.

Restrictors are available to correct imbalances at the mix manifold. See FIG. 2 for available sizes.

NOTE: 248923 Remote Mix Manifold Kit includes two restrictors: 0.024 size (107) and 0.032 size (108).

To install restrictors:

1. Relieve pressure, page 10.
2. Remove plug (3) from beveled edge on desired side of mix manifold.
3. Ensure o-ring (110) and filter screen (109) are in place. Install restrictor (107 or 108) in port.

Lead/Lag Imbalance

When resin and hardener volume requirements (ratio) and/or viscosities are different, an imbalance can occur each time the gun is triggered because the fluids rush out of the manifold in a 1:1 ratio before the proportioner starts up.

Install a restrictor on the hardener (low volume) side to balance the flow at the mix manifold, maintain accurate ratio of accumulated fluid in the hoses, ensure smooth check valve operation, and dampen pressure spikes by using the hose as a surge suppressor.

NOTE: When ratio control is critical and added resin (high volume) pressure drop can be tolerated, install restrictors on both sides to use the hoses as a surge suppressor and meter a smooth flow to the mix manifold.

Check Valve Imbalance

If resin and hardener are at or near 1:1 ratio, when one check valve opens the resulting surge closes the other. This check valve oscillation causes ratio imbalance.

Install restrictors on both sides, to meter a smooth flow to the mix manifold.

NOTICE

Restrictors and plugs can be damaged if they are overtightened. Torque to 40-50 in-lb (4.5-5.6 N•m).

Sizing Restrictors

1:1 Mix Ratio

If resin and hardener are at or near 1:1 ratio and viscosities are similar, add a few hundred psi pressure drop to each side, to prevent check valve oscillation. Use the chart in FIG. 2, or use a restrictor on both sides, about twice the size of your spray tip.

Ratios Other Than 1:1

1. Size hose diameters and lengths to correspond with flow and pressure of each fluid.
2. Setup system for spraying with desired tip size (flow), pressure, and temperature. Note readings on pressure gauges when spraying.
3. Size restrictor to cause a slight rise in hardener pressure when spraying (up to 10% above resin pressure). See FIG. 2.
4. Use FIG. 2 to size the restrictor if you know hardener viscosity at hose temperature, and hardener flow rate.

Hardener flow rate = Total flow rate/(mix ratio + 1)

EXAMPLE: Urethane Coating

Mix Ratio by Volume: 3:1

Spray Flow Rate: 1 gpm

3 parts resin = 0.75 gpm

1 part resin = 0.25 gpm

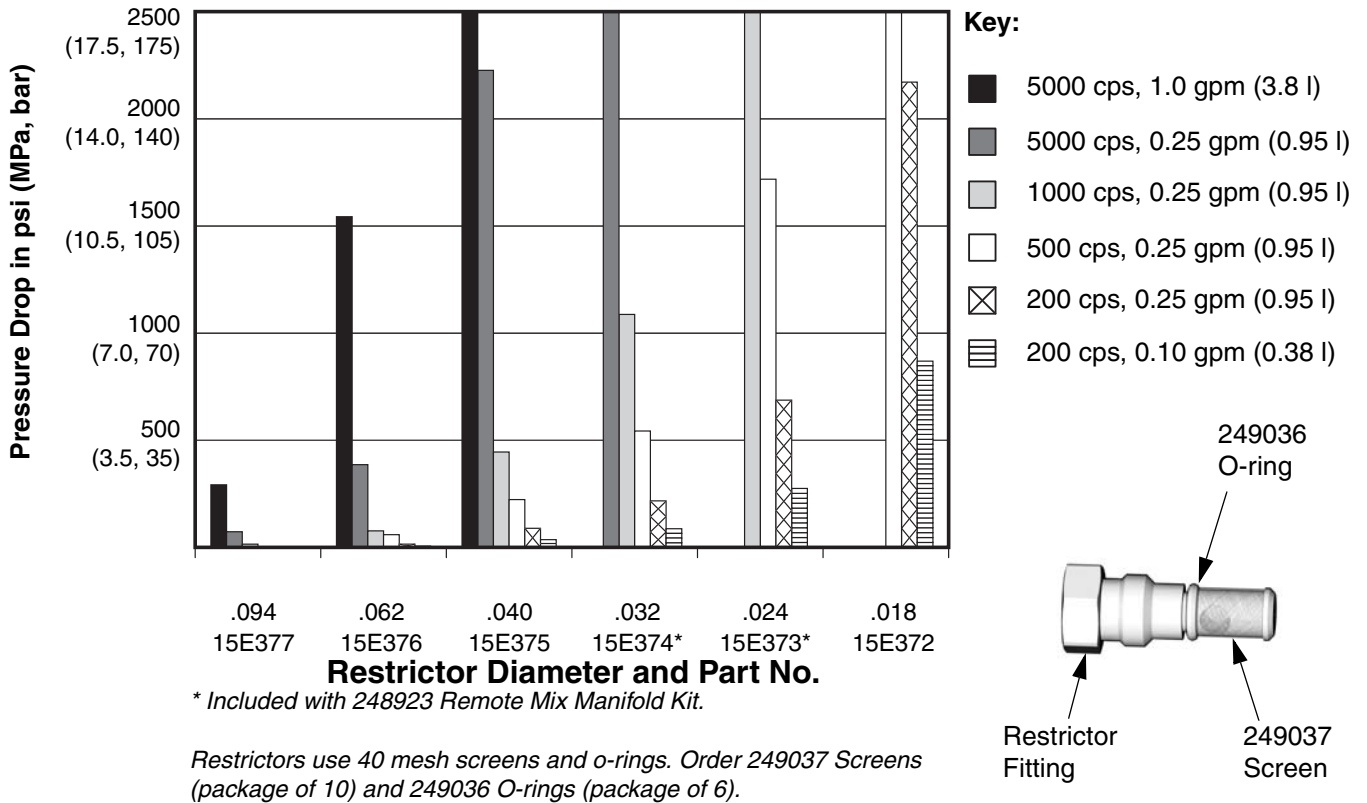
Viscosities

Material	At Ambient 75°F (24°C)	At Spray Temp 100°F (38°C)
Resin	3000 cps	800 cps
Hardener	500 cps	200 cps

FIG. 2 shows that with 200 cps at 0.25 gpm (0.95 l), hardener pressure drop is 700 psi (4.9 MPa, 49 bar). The .024 restrictor will work well. If hardener pressure rises more than 10% over the resin, use the next size .032 restrictor.

Sizing Restrictors on Xtreme Mix Proportioners

The above method of sizing restrictors applies. However, you can check if the system is balanced by watching the outlet metering valves. The valves should be open (up) most of the time when the gun is triggered. If a valve is only giving short "on" shots, use a smaller restrictor on that side. Fluid should flow most of the time, only making short "off" corrections.



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FIG. 2. Typical Restrictor Pressure Drops

Ratio Check

Ratio check valves are available as an accessory. Order the following parts.

Ref.	Part	Description	Qty.
301	150287	ADAPTER; 1/4 npt(m) x 3/8 npt(f)	2
302	245143	VALVE, ratio check	2
303	116746	FITTING, barbed; 1/8 npt(m) x 1/4 in. (6 mm) ID hose	2

Installation

1. Remove plugs (7) from both sides of manifold.
2. Install adapters (301), valves (302), and barbed fittings (303) as shown in FIG. 3.

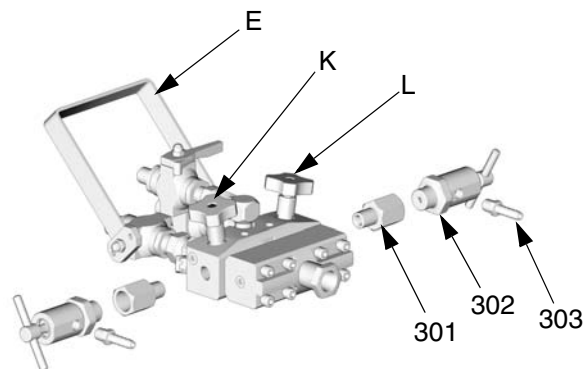
Procedure

1. Fill mix manifold, static mixer, whip hose, and gun with solvent. Close mix manifold, solvent valves, and gun.
2. Place waste containers under barbed fittings (303).
3. Set proportioner to 50% of spray pressure.
4. Open hardener ratio check valve (302).
5. Open shutoff handle (E). Hardener will begin to flow, and hardener pressure will drop.

6. Slowly open resin ratio check valve until hardener pressure comes into balance with resin pressure. Close shutoff handle (E).
7. Remove waste containers and place graduated containers under barbed fittings (303). Open shutoff handle (E) and take ratio sample. Compare amounts in each graduated container; amounts should correspond to desired ratio.

NOTE: If you know the mix ratio is by weight, weigh the containers for a more accurate measure.

8. After ratio check is completed, flush ratio check valves using flush valves (K, L).



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FIG. 3. Ratio Check Valves (accessory)

Troubleshooting

1. Relieve the pressure before you check or service any system equipment.
2. Check all possible causes and solutions in the Troubleshooting Chart before disassembling the manifold.

Problem	Cause	Solution
Little or no resin output.	Fluid inlet is plugged.	Clean inlet; remove obstruction.
	Fluid container is empty.	Refill.
Little or no hardener output.	Fluid inlet is plugged.	Clean inlet; remove obstruction.
	Fluid container is empty.	Refill.
Mixed fluid will not flush out.	Fluid is hardened in static mixers or whip hose.	Clean with compatible solvent. Replace as necessary.
	Solvent supply container is empty.	Refill.
	Solvent is not compatible with fluid.	Change to compatible solvent.
Hardener pressure higher than normal.	Hardener is cold.	Correct heat problem.
	Restrictor or screen plugging up.	Clean restrictor and screen.
Hardener pressure lower than normal.	Resin is cold. Flow rate is low.	Correct heat problem.
	Worn hardener restrictor.	Replace restrictor.
Spray pattern developing tails.	Static mixer and/or whip hose plugging up.	Replace restrictor. Clean static mixer. Clean spray gun and tip.
	Low pressure from proportioner.	Check air supply pressure. Check outlet gauges.
	Cold material.	Increase heat.
Solvent flush does not shut off with control knob.	Gasket (14) or seat (15) not centered, or damaged.	Check and/or replace.
	Cartridge valve (16) not holding down seat (15).	Open control knob (18) slightly. Tighten valve (16). Close knob (18).
Resin or hardener does not shut off.	Damaged ball or seat in valve (24).	Replace or rebuild valve.
	Lever (25) not seated on square part of valve stem.	Remove nut. Position lever fully on stem. Retighten nut.

Repair



NOTICE

Be sure to label all fluid paths “resin” or “hardener” when disassembling them. Doing so prevents interchanging resin and hardener parts during reassembly, which will contaminate the materials and the fluid path through the equipment.

Color-coded chemically resistant tape may be used to label the parts. Use blue for resin and red for hardener.

1. Relieve the pressure, page 10.
2. Remove screws (5) to separate housings (1, 2). Remove all parts from the housings. See the **Parts** drawing, page 20.
3. Clean all parts thoroughly in a compatible solvent. Use a soft bristle brush to clean the manifold passageways. Keep resin and hardener parts separate.
4. Coat the two check valve assemblies (8) with Part No. 118665 Grease, then insert in the upper housing (2), ball end first.
5. Install the flush control valves (16-19).
 - a. Drop small green gasket (14) into housing (2), centering it in small groove.
 - b. Drop hardened seat (15) into housing (2), centering it in its groove.
 - c. Use valve needle to center seat and gasket, then back out. Use blue thread lock compound on valve threads and torque to 180-210 in-lb (20-24 N•m).
6. Laser-marked side of lower housing (1) must face up (side port on resin side is lower). Install screws (5) through lower housing and into upper housing (2). Tighten screws evenly, in stages, to 65 in-lb (7.2 N•m).
7. Replace all plugs and fittings.

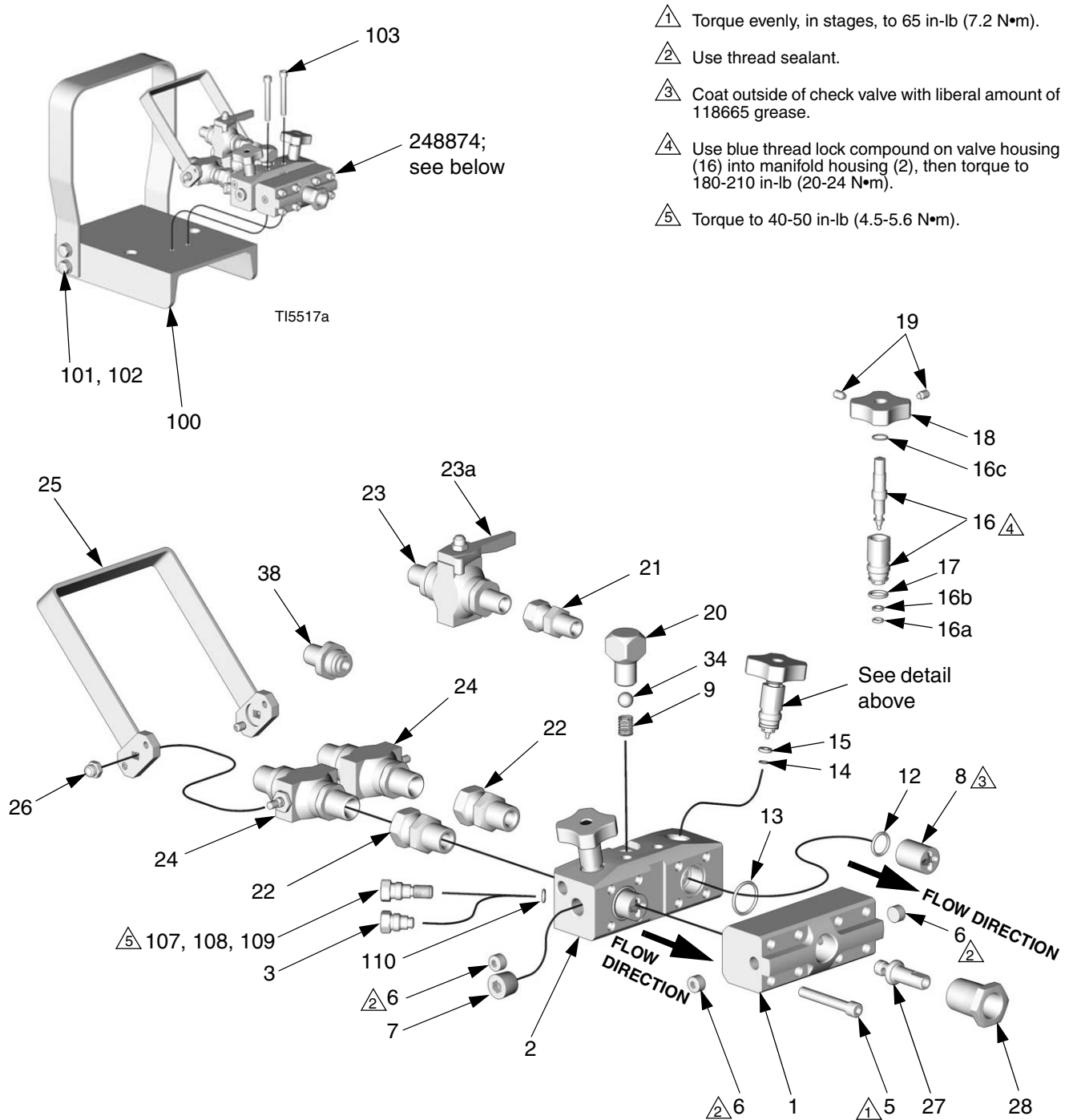
Notes

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Parts

248874 Mix Manifold, includes items 1-38, 110

248923 Remote Mix Manifold Kit, includes items 1-110



- ① Torque evenly, in stages, to 65 in-lb (7.2 N•m).
- ② Use thread sealant.
- ③ Coat outside of check valve with liberal amount of 118665 grease.
- ④ Use blue thread lock compound on valve housing (16) into manifold housing (2), then torque to 180-210 in-lb (20-24 N•m).
- ⑤ Torque to 40-50 in-lb (4.5-5.6 N•m).

248874 Mix Manifold, includes items 1-38**248923 Remote Mix Manifold Kit, includes items 1-109**

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	15E364	HOUSING, lower; sst	1	24†	237304	VALVE, ball; 3/8 npt (mbe); see 306861; discard supplied lever and replace with item 25	2
2	15E365	HOUSING, upper; sst	1				
3	15E370	PLUG, restrictor; sst	2	25	217562	HANDLE, shutoff, resin/hardener	1
5	596936	SCREW, cap, socket-hd; 1/4-20 x 1-1/2 in. (38 mm)	8	26	102310	NUT, hex, with nylon cap; 10-32	2
6	110208	PLUG, pipe; 1/8 npt; sst	4	27	15E368	TUBE, inner; sst	1
7	101970	PLUG, pipe; 1/4 npt; sst	2	28	15E369	BUSHING, pipe; 1/2 npt(m) x 3/8 npt(f); sst	1
8	249035	CHECK VALVE	2	34	101947	BEARING, ball; 3/8 in. (10 mm) diameter; sst	1
9*	117558	SPRING	3	38	165274	STUD, optional inlet; 1/4 npt x 11/16-27 uns-2a (standard on Part No. 248923)	1
12*	104319	O-RING; TFE	2	100	248778	GUARD, manifold; includes items 101-102	1
13*	110135	O-RING; TFE	2	101	100575	. SCREW, cap, hex hd; 3/8-16 x 5/8 in. (16 mm)	4
14	113618	GASKET; nylon	2	102	100133	. WASHER, lock; 3/8	4
15	15E137	SEAT; sst	2	103	100642	SCREW, cap, socket-hd; 1/4-20 x 2 in. (51 mm)	2
16	248641	RETAINER, with needle, solvent purge; includes items 16a-16c	2	107	15E373	RESTRICTOR; .024; sst	1
16a	246354	. O-RING; chemically resistant fluoroelastomer; package of 6	1	108	15E374	RESTRICTOR; .032; sst	1
16b	118466	. RING, backup; TFE	1	109	249037	SCREEN, filter; 40 mesh; package of 10	1
16c	119372	. RING, retaining	1	110	249036	O-RING; chemically resistant fluoroelastomer; package of 6	1
17	248648	O-RING; chemically resistant fluoroelastomer; package of 6	1				
18	15E114	KNOB, valve, solvent purge	2				
19	101366	SETSCREW; socket-hd; half dog point; 10-24 x 0.312 in. (8 mm)	4				
20	15E367	ELBOW, street; 1/4 npt (m x f); lapped	1				
21	156823	UNION, swivel; 1/4 npt (m x f)	1				
22	155665	UNION, adapter, swivel; 3/8 npt(m) x 3/8 npsm(f)	2				
23†	237303	VALVE, ball, solvent; 1/4 npt (mbe); see 306861; also order item 23a	1				
23a	178747	LEVER, solvent valve; replaces standard lever on item 23	1				

* Parts included in Check Valve Kit 249035.

NOTE: The Check Valve Kit 249035 contains one check valve. To repair both check valves in the manifold, order two of these kits.

† Order Repair Kit 237917 for ball valves (23, 24).

Technical Data

Maximum working pressure	7400 psi (51.0 MPa, 510 bar)
Maximum fluid temperature	200° F (93° C)
Fluid inlet valves	3/8 npt(m); with optional 1/4 npt(m) inlet stud
Fluid outlet size	3/8 npt(f)
Solvent inlet valve	1/4 npt(m)
Wetted parts	<i>Manifold block and internal parts:</i> 302 and 303 stainless steel, hardened stainless steel, chemically resistant fluoroelastomer, nylon, PTFE, tungsten carbide <i>Inlet valves and fittings:</i> 440 stainless steel, plated carbon steel, hardened alloy steel, acetal, PTFE

All other brand names or marks are used for identification purposes and are trademarks of their respective owners.

Notes

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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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.

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