Instructions - Parts

Mix Manifold Kits

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.
Save these instructions.
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 the 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.

Keep Resin and Hardener Separate

To prevent cross-contamination of the wetted parts, do not interchange resin and hardener 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 leave hardener (isocyanate) wetted parts exposed to moisture in the air.

NOTICE
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 the figures and parts drawing.

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.

An optional 1/4 npt(m) ball valve inlet stud (38) is supplied for the hardener (low volume) side. See page 17. 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).

<table>
<thead>
<tr>
<th>Mix Manifold</th>
<th>Resin Side</th>
<th>Hardener Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>248874</td>
<td>157705, 3/8 npsm(f)</td>
<td>157705, 3/8 npsm(f)</td>
</tr>
<tr>
<td>248923</td>
<td>157705, 3/8 npsm(f)</td>
<td>156823, 1/4 npsm(f)</td>
</tr>
</tbody>
</table>

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.
**Fig. 1: Typical Installation**

**Key:**

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

**WARNING**

Your system must be grounded. Read warnings in your proportioner manual. Check your local electrical code.

- **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 8.

**WARNING**

Your system must be grounded. Read warnings in your proportioner manual. Check your local electrical code.
Operation

Pressure Relief Procedure

1. Close the mix manifold handle (BACK).

2. Engage spray gun trigger lock.

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

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

5. Disengage spray gun trigger lock.

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

continued on page 7.
7. Engage spray gun trigger lock.

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

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

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

**WARNING**

Read warnings and **Grounding** instructions in your proportioner manual. If your system uses heaters, shut off the main power to the heaters and heated hose control before flushing.

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

- 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.

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

- Use a solvent that cuts the material you are mixing.

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


2. Open solvent inlet valve (F).

3. Turn on solvent flush pump.

4. Open resin side flush valve (K).

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.

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

**continued on page 9.**
7. Release the trigger, engage spray gun trigger lock, close the hardener flush valve (L) and close solvent inlet valve (F).

8. Flush any accessory ratio check valves on the manifold (see Ratio Check, page 12).

9. Relieve pressure, page 6. 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.

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**Cleaning Static Mixers**

See Fig. 1, page 4. 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 6. 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 (Foward). To stop the flow, close the handle (Back).

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.

- 248923 Remote Mix Manifold Kit includes two restrictors: .024 size (107) and .032 size (108).

To install restrictors:

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.

- 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.

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.

\[
\text{Hardener flow rate} = \frac{\text{Total flow rate}}{\text{mix ratio} + 1}
\]

continued on page 11.
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

<table>
<thead>
<tr>
<th>Material</th>
<th>At Ambient 75°F (24°C)</th>
<th>At Spray Temp 100°F (38°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resin</td>
<td>3000 cps</td>
<td>800 cps</td>
</tr>
<tr>
<td>Hardener</td>
<td>500 cps</td>
<td>200 cps</td>
</tr>
</tbody>
</table>

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.

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

Key:
- 5000 cps, 1.0 gpm (3.8 l)
- 5000 cps, 0.25 gpm (0.95 l)
- 1000 cps, 0.25 gpm (0.95 l)
- 500 cps, 0.25 gpm (0.95 l)
- 200 cps, 0.25 gpm (0.95 l)
- 200 cps, 0.10 gpm (0.38 l)

Restrictors use 40 mesh screens and o-rings. Order 249037 Screens (package of 10) and 249036 O-rings (package of 6).

FIG. 2. Typical Restrictor Pressure Drops
**Operation**

**Ratio Check**

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

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>150287</td>
<td>ADAPTER; 1/4 npt(m) x 3/8 npt(f)</td>
<td>2</td>
</tr>
<tr>
<td>302</td>
<td>245143</td>
<td>VALVE, ratio check</td>
<td>2</td>
</tr>
<tr>
<td>303</td>
<td>116746</td>
<td>FITTING, barbed; 1/8 npt(m) x 1/4 in. (6 mm) ID hose</td>
<td>2</td>
</tr>
</tbody>
</table>

**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 shut-off handle (E) and take ratio sample. Compare amounts in each graduated container; amounts should correspond to desired ratio.

   - 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).
**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.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little or no resin output.</td>
<td>Fluid inlet is plugged.</td>
<td>Clean inlet; remove obstruction.</td>
</tr>
<tr>
<td></td>
<td>Fluid container is empty.</td>
<td>Refill.</td>
</tr>
<tr>
<td>Little or no hardener output.</td>
<td>Fluid inlet is plugged.</td>
<td>Clean inlet; remove obstruction.</td>
</tr>
<tr>
<td></td>
<td>Fluid container is empty.</td>
<td>Refill.</td>
</tr>
<tr>
<td>Mixed fluid will not flush out.</td>
<td>Fluid is hardened in static mixers or whip hose.</td>
<td>Clean with compatible solvent.</td>
</tr>
<tr>
<td></td>
<td>Solvent supply container is empty.</td>
<td>Refill.</td>
</tr>
<tr>
<td></td>
<td>Solvent is not compatible with fluid.</td>
<td>Change to compatible solvent.</td>
</tr>
<tr>
<td>Hardener pressure higher than normal.</td>
<td>Hardener is cold.</td>
<td>Correct heat problem.</td>
</tr>
<tr>
<td></td>
<td>Restrictor or screen plugging up.</td>
<td>Clean restrictor and screen.</td>
</tr>
<tr>
<td>Hardener pressure lower than normal.</td>
<td>Resin is cold. Flow rate is low.</td>
<td>Correct heat problem.</td>
</tr>
<tr>
<td></td>
<td>Worn hardener restrictor.</td>
<td>Replace restrictor.</td>
</tr>
<tr>
<td>Spray pattern developing tails.</td>
<td>Static mixer and/or whip hose plugging up.</td>
<td>Replace restrictor. Clean static mixer.</td>
</tr>
<tr>
<td></td>
<td>Low pressure from proportioner.</td>
<td>Clean spray gun and tip.</td>
</tr>
<tr>
<td></td>
<td>Cold material.</td>
<td>Increase heat.</td>
</tr>
<tr>
<td>Solvent flush does not shut off with control knob.</td>
<td>Gasket (14) or seat (15) not centered, or damaged.</td>
<td>Check and/or replace.</td>
</tr>
<tr>
<td></td>
<td>Cartridge valve (16) not holding down seat (15).</td>
<td>Open control knob (18) slightly. Tighten valve (16). Close knob (18).</td>
</tr>
<tr>
<td>Resin or hardener does not shut off.</td>
<td>Damaged ball or seat in valve (24).</td>
<td>Replace or rebuild valve.</td>
</tr>
</tbody>
</table>
1. Relieve the pressure, page 6.

2. Remove screws (5) to separate housings (1, 2). Remove all parts from the housings. See the Parts drawing, page 16.

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.

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**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.

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**WARNING**

Follow Pressure Relief Procedure when you stop spraying and before cleaning, checking, servicing, or transporting equipment. Read warnings in your proportioner manual.
Parts

248874 Mix Manifold, includes items 1-38, 110

248923 Remote Mix Manifold Kit, includes items 1-110

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

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

* Parts included in Check Valve Kit 249035.
† Order Repair Kit 237917 for ball valves (23, 24).
## Technical Data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum working pressure</td>
<td>7400 psi (51.0 MPa, 510 bar)</td>
</tr>
<tr>
<td>Maximum fluid temperature</td>
<td>200° F (93° C)</td>
</tr>
<tr>
<td>Fluid inlet valves</td>
<td>3/8 npt(m); with optional 1/4 npt(m) inlet stud</td>
</tr>
<tr>
<td>Fluid outlet size</td>
<td>3/8 npt(f)</td>
</tr>
<tr>
<td>Solvent inlet valve</td>
<td>1/4 npt(m)</td>
</tr>
</tbody>
</table>
| Wetted parts                         | *Manifold block and internal parts:* 302 and 303 stainless steel, hardened stainless steel, chemically resistant fluoroelastomer, nylon, PTFE, tungsten carbide  
*Inlet valves and fittings:* 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.
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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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For patent information, see www.graco.com/patents.

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