

Dispensit[®] 1053-10C Hot Melt

3A3108F
EN

*Patented meter and dispense system for precise one-component micro-dispensing.
For professional use only. Not for use in explosive atmospheres.*

2000 psi (14 MPa, 138 bar) Maximum Outlet Fluid Working Pressure

1200 psi (8 MPa, 38 bar) Maximum Material Inlet Pressure

100 psi (0.7 MPa, 7 bar) Maximum Air Working Pressure

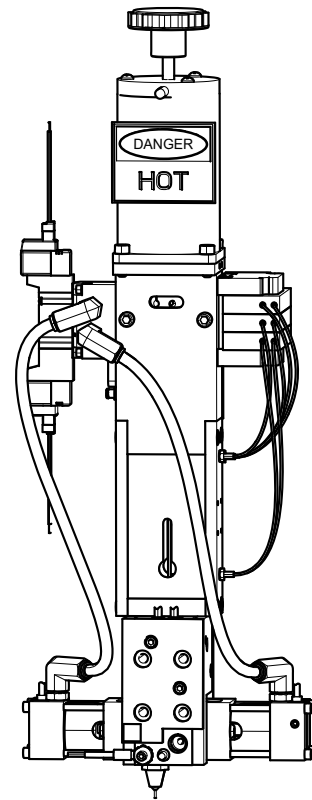
110°F (43°C) Maximum Ambient Temperature

300°F (149°C) Maximum Operating Temperature)



Important Safety Instructions

Read all warnings and instructions in this manual and all related manuals. Save all instructions.



Therm-O-Flow Valve shown is with controls/motor and solenoid harness integrated

Contents

- Contents** 2
- Related Manuals** 2
- Warnings** 3
- Grounding** 6
- Overview** 6
- Cycle Detection Spool Sensors** 6
- Component Identification** 7
 - Typical System Configuration 7
 - Typical Feed System Components 8
 - Metering Valve 9
 - Micro (Hot) Melt Feed System 10
- Setup** 11
 - Air and Fluid Schematic 11
 - Mounting the Therm-O-Flow Metering Valve .. 12
 - Mounting the Motor 13
 - Motor Specifications 13
 - Mounting the Micro (Hot) Melt Metering Valve . 14
- Startup** 15
- Operation** 16
 - Sequence of Operation 16
- Pressure Relief Procedure** 17
- Shutdown** 17
- Maintenance** 17
- Troubleshooting** 18
- Schematics** 18
- Rebuild** 19
 - Disassembly 19
 - Model 1053-10C Parts 20
 - Assembly 21
- Motor and Motor Coupling Assembly** 23
 - Motor and Motor Coupling Parts 24
- Electrical Requirements** 25
 - Therm-O-Flow Metering Valve 26
 - Micro (Hot) Melt Metering Valve 27
- Dimensions** 28
 - Therm-O-Flow Metering Valve 28
 - Micro (Hot) Melt Metering Valve 29
- Needle Options** 30
- Technical Specifications** 31
 - California Proposition 65 31
- Graco Standard Warranty** 32
- Graco Information** 32






Related Manuals







Component manuals in U.S. English.

Part	Description
3A0261	1053/1093 Control Box, Instructions - Setup - Operation
302913	Therm-O-Flow® Accessory Heat Zone Controls, Instructions - Parts List
309100	Temperature Controller, Instructions
334129	Therm-O-Flow 20, Instructions - Parts
334130	Therm-O-Flow 200, Instructions - Parts

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>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, 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"> • Engage trigger lock when not dispensing. • Do not point dispensing device at anyone or at any part of the body. • Do not put your hand over the fluid outlet. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop dispensing 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.
	<p>TOXIC FLUID OR FUMES HAZARD</p> <p>Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.</p> <ul style="list-style-type: none"> • Read Safety Data Sheet (SDS) 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.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> • Protective eyewear, and hearing protection. • Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.
	<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.

 WARNING	
	<p>ELECTRIC SHOCK HAZARD</p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> • 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 power and extension cords. • Do not expose to rain. Store indoors.
	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • 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 Safety Data Sheet (SDS) from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards. • Make sure all equipment is rated and approved for the environment in which you are using it. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses 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.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • 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 and disconnect all power sources.
	<p>PLASTIC PARTS CLEANING SOLVENT HAZARD</p> <p>Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage.</p> <ul style="list-style-type: none"> • Use only compatible water-based solvents to clean plastic structural or pressure-containing parts. • See Technical Data in this and all other equipment instruction manuals. Read fluid and solvent manufacturer's Safety Data Sheet (SDS) and recommendations.
	<p>BURN HAZARD</p> <p>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.

Isocyanate Conditions



Spraying or dispensing 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.

Material Self-ignition



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

Keep Components A and B Separate



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

- **Never** interchange component A and component B wetted parts.
- Never use solvent on one side if it has been contaminated from the other side.

Moisture Sensitivity of Isocyanates

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.

NOTE: 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 (if installed) filled with Graco Throat Seal Liquid (TSL™), Part 206995. The lubricant creates a barrier between the ISO and the atmosphere.
- Use only moisture-proof hoses compatible with ISO.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Always lubricate threaded parts with ISO pump oil or grease when reassembling.

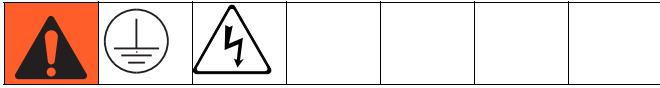
Changing Materials

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.

Grounding



This product must be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current.

Metering valve: attach ground wire from grounding lug to true earth ground. See Figure 16 on page 26 and Figure 17 on page 27.

Fluid hoses: use only electrically conductive hoses.

Feed system components: attach ground wire from grounding lug to true earth ground. See feed system manual for grounding points.

Fluid supply container: 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 nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

Overview

This single-component meter and dispense device accurately meters liquid and semi-paste materials.

The machine is designed for applications that require very small and precisely dispensed beads and/or dots of material at a wide range of material inlet pressures.

The ratio of the flow rate/stroke length to pump shaft area provides the adjustable pressure intensification needed to move the separate liquids through the needle with a flow rate suitable for production requirements.

This manual focus on using the Dispensit with two feed systems: Therm-O-Flow and Micro (Hot) Melt. Information about the complete systems is included. See **Sequence of Operation** on page 16.

Cycle Detection Spool Sensors

The spool sensors are magnetic reed switches and must be connected to an electrical control. An LED on the switch illuminates to indicate the shifting of the spool.

Component Identification

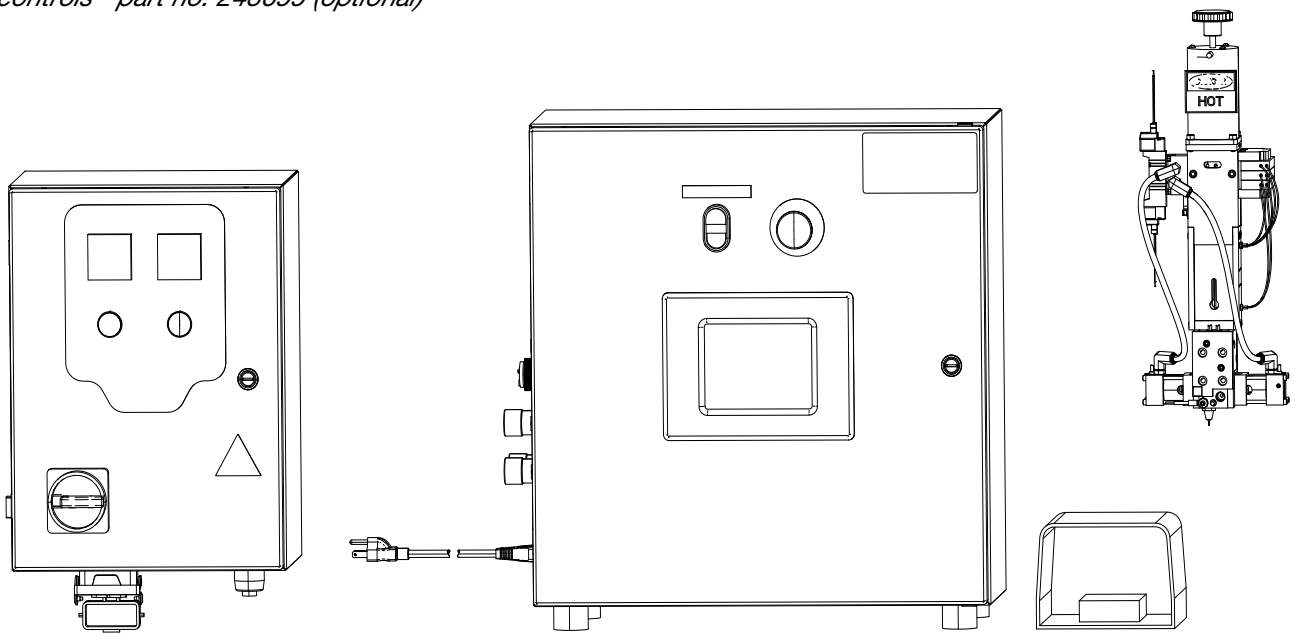
Typical System Configuration

Two-zone accessory heat controls - part no. 243698 (optional) shown

*Four-zone accessory heat controls - part no. 243699 (optional)**

Valve controls with foot switch and plug (optional)

Therm-O-Flow Metering Valve (shown with optional motor)



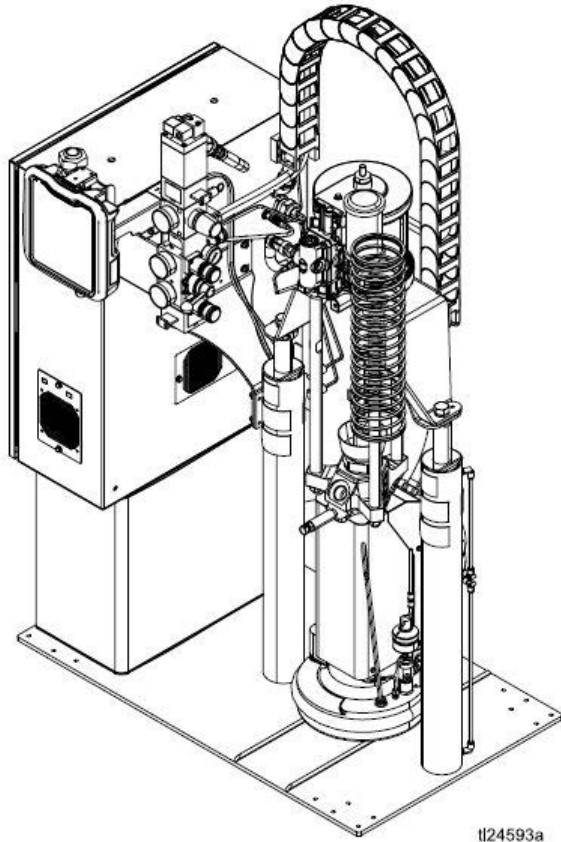
System shown with optional valve and heat controls

FIG. 1: System Configuration

* The Micro (Hot) Melt metering valve can only be used with four-zone heat controls.

Typical Feed System Components

*Therm-O-Flow 20, Hot
Melt Pail Unloader*



*Therm-O-Flow 200, Hot
Melt Drum Unloader*

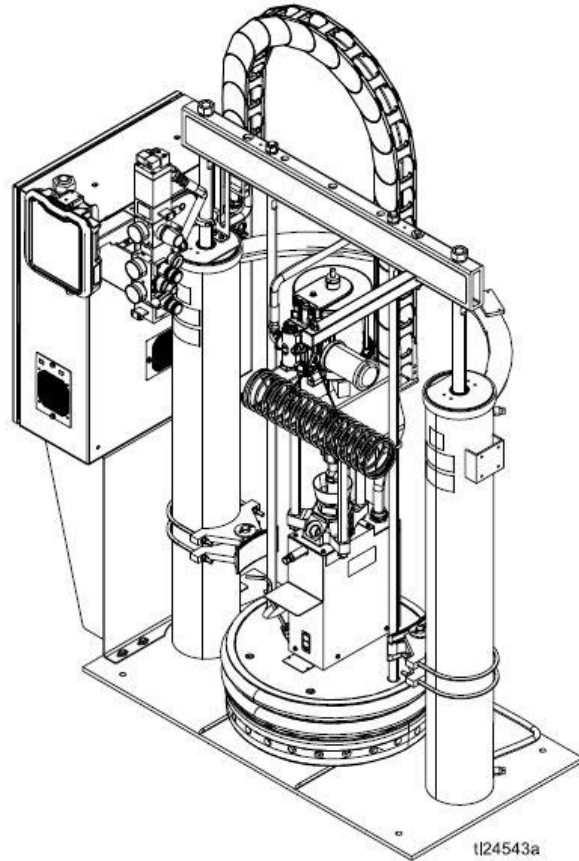
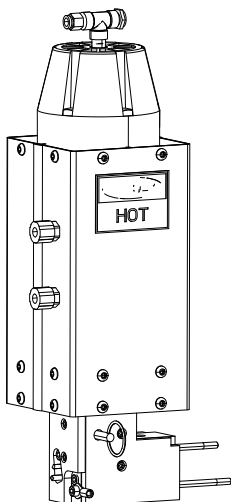


FIG. 2: Therm-O-Flow Feed System Component

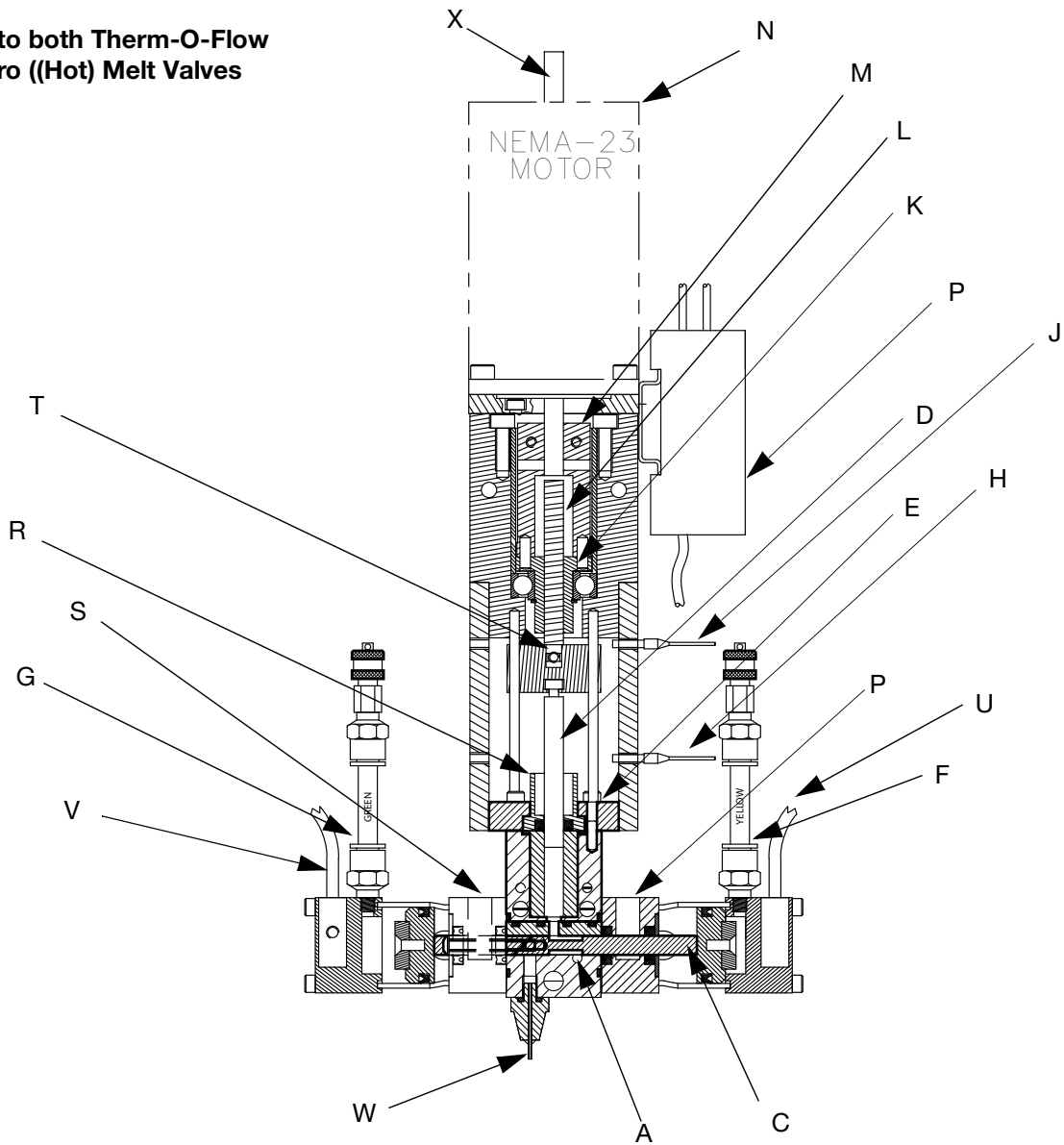


0.3 kg (300 ml) Heated
Cartridge Pressure Feed

FIG. 3: Micro (Hot) Melt Feed System Component

Metering Valve

Applies to both Therm-O-Flow
and Micro ((Hot) Melt Valves



Key:

- | | | | | | | | |
|---|---------------------------|---|--------------------|---|---------------------|---|------------------------|
| A | Material Inlet | F | Dispense Air Inlet | N | Motor | W | Needle Assembly |
| B | Grounding Lug (not shown) | G | Reload Air Inlet | P | Sensor Amplifiers | X | Manual Adjustment Knob |
| C | Spool | H | Lower Sensor | R | Oil Cup | | |
| D | Metering Rod | J | Upper Sensor | S | Wet Cups | | |
| E | Oil Cup Retaining Block | K | Drive Nut | T | Drive Locking Screw | | |
| | | L | Drive Screw | U | Spool Sensor Close | | |
| | | M | Drive Coupling | V | Spool Sensor Open | | |

FIG. 4: Metering Valve Parts

Micro (Hot) Melt Feed System

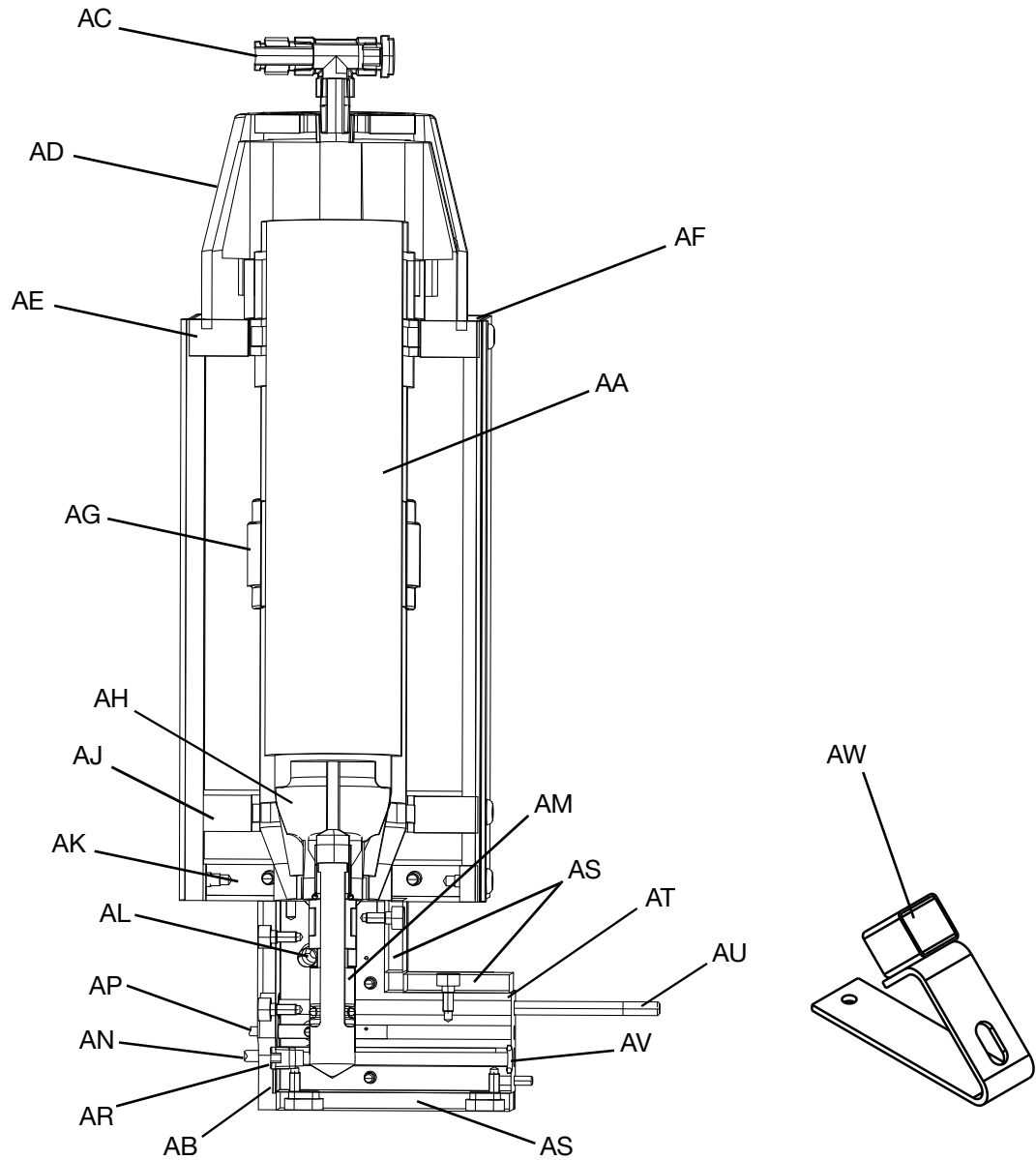


FIG. 5: Heated Cartridge Pressure Feed

Key:

- AA 0.3 kg (300 ml) Heat Tube*
- AB Ground Lug
- AC Pressure Air Inlet
- AD Hand Tightened End Cap
- AE Top Insulation
- AF Front and Back Cover
- AG Heat Band and RTD Sensor
- AH Nozzle
- AJ Middle Insulation
- AK Bottom Insulation
- AL Quick Release Pin

- AM Quick Release Body
- AN Heat Rod
- AP RTD Sensor
- AR Pipe Plug
- AS Insulation
- AT Housing
- AU Fasteners
- AV O-ring
- AW Bench Tool

* Material cartridge supplied by others.

Setup



NOTE: See Figure 6, Air and Fluid Schematic.

1. For the Therm-O-Flow feed system, perform the setup procedure for the Therm-O-Flow system components. See **Related Manuals** on page 2.

For the Micro (Hot) Melt feed system, refer to Figure 5 and install the 0.3 kg (300 ml) material cartridge as follows:

- a. Remove the quick release pin (AL), then pull the feed system out of the housing.
- b. Place the divorced feed system into the supplied bench tool (AW).
- c. Remove the end cap (AD).
- d. Remove the protective seal from the outlet end of the material cartridge.
- e. Install the material cartridge into the heat tube (AA), piercing the outlet end.

- f. Install the end cap, piercing the inlet end.
- g. Install the feed system back into the housing.
- h. Install the quick release pin (AL) back into the housing.

Add heat to the Micro (Hot) Melt feed system. See **Related Manuals** on page 2.

2. Place an in-line air pressure regulator, air-water separator filter, and shut-off/bleed valve between the air supply and the control solenoids.
3. Connect each 1/4 in. outside diameter supplied air line to the corresponding control solenoid. See **Component Identification** starting on page 7.
4. Connect fluid lines from the feed system to the metering valve material inlets. See **Component Identification** starting on page 7.

Air and Fluid Schematic

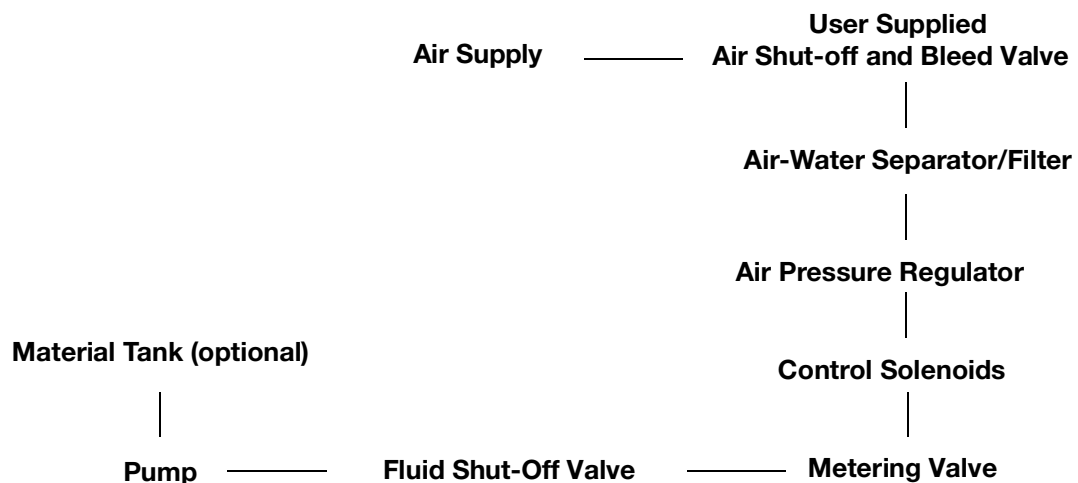


FIG. 6: Air and Fluid Schematic

Mounting the Therm-O-Flow Metering Valve

Refer to Figures 7 and 8 to mount the Therm-O-Flow metering valve.

NOTE: The valve shown is for controls/motor integrated with the needle assembly P6545-12H (19 GA).

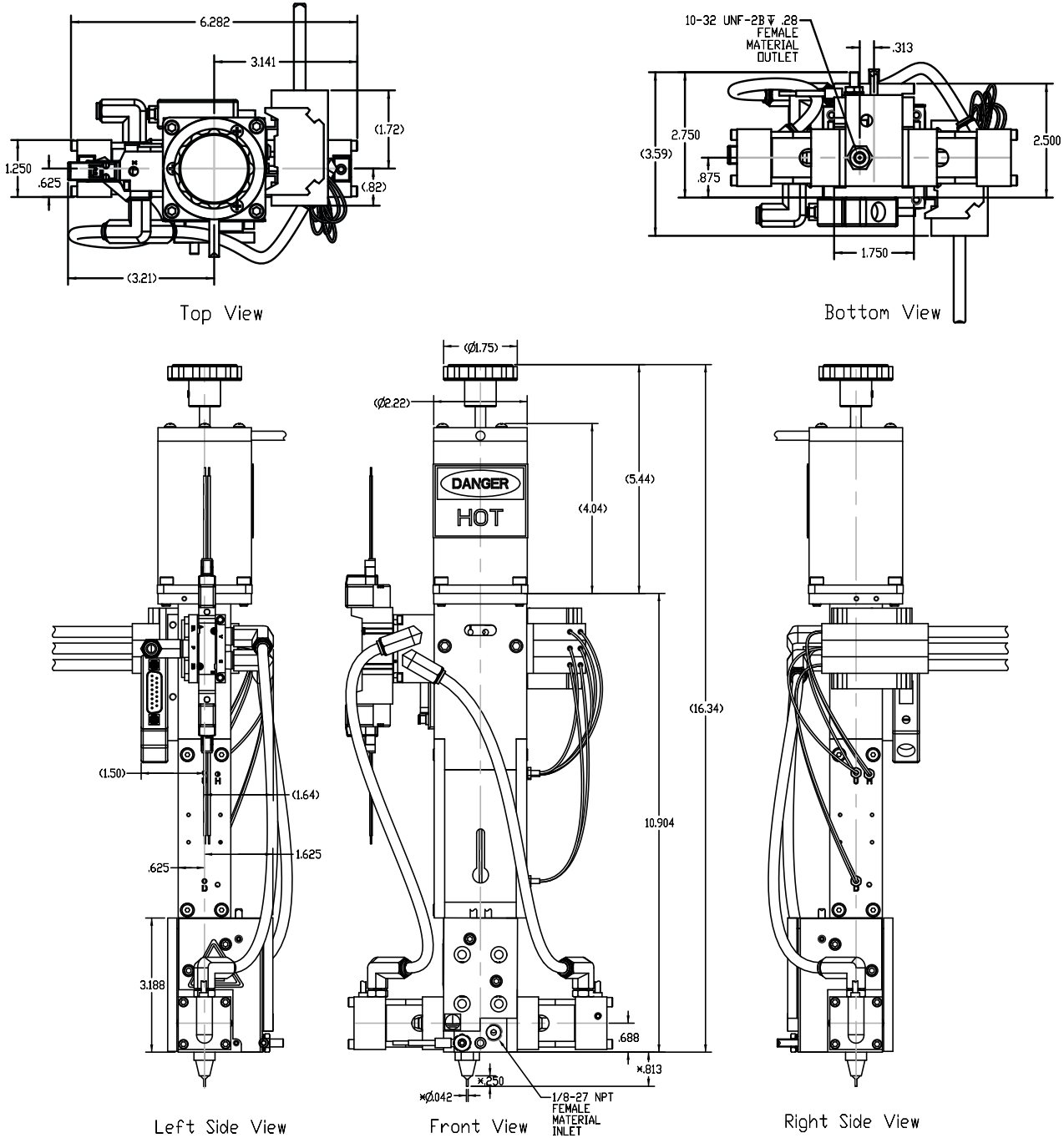


FIG. 7: Therm-O-Flow Valve Mounting Diagram 1

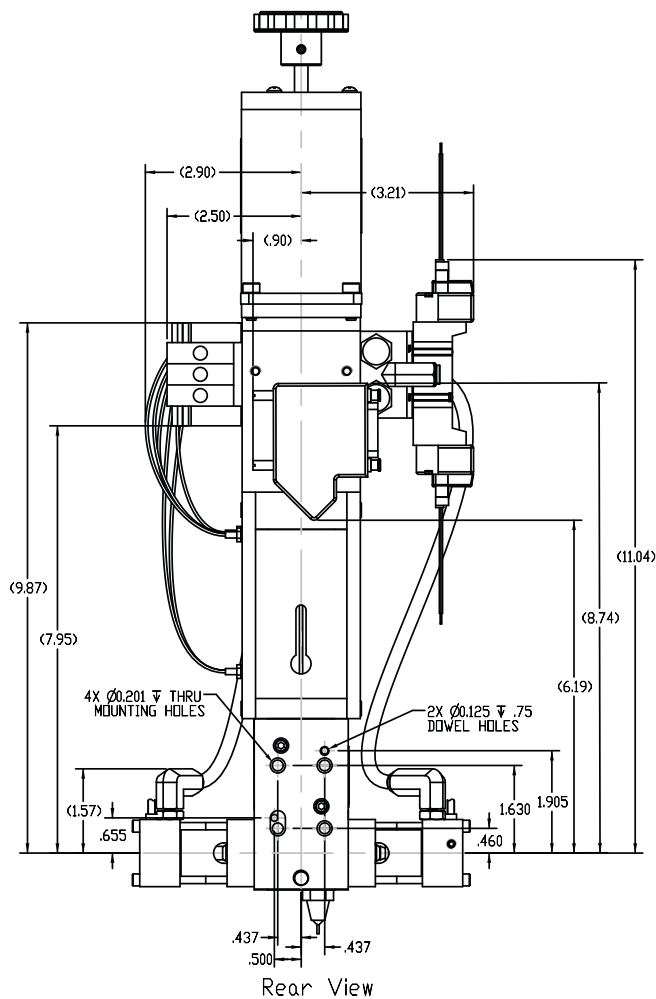


FIG. 8: Therm-O-Flow Valve Mounting Diagram 2

Mounting the Motor

If using a non-Graco motor with the dispense valve, use the following diagram to install the non-Graco motor onto the valve.

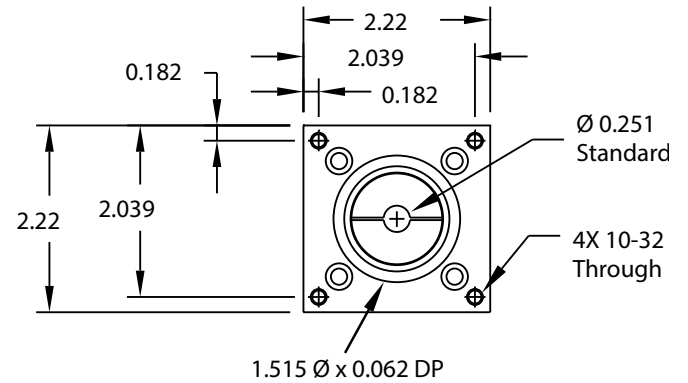


FIG. 9: Motor Mounting Diagram

Motor Specifications

Frame: NEMA 23

Torque at Typical Dispense Speed: 180 oz-in. (11.25 in-lb) at 10 revolutions per second (1/2 in. rod travel per second) or less. Above 10 revolutions per second, the power declines.

Torque at Maximum Speed: 117 oz-in (7.3 in-lb) at 20 revolutions per second (1 in. of rod travel per second).

Motor Face Pilot Boss: 1.5 in. diameter by 0.0625 in. projection from motor face flange.

Shaft Size: 0.25 diameter by 0.75 in. projection from motor face pilot boss to end of shaft.

Mounting the Micro (Hot) Melt Metering Valve

Refer to Figures 10 and 11 to mount the Micro (Hot) Melt metering valve.

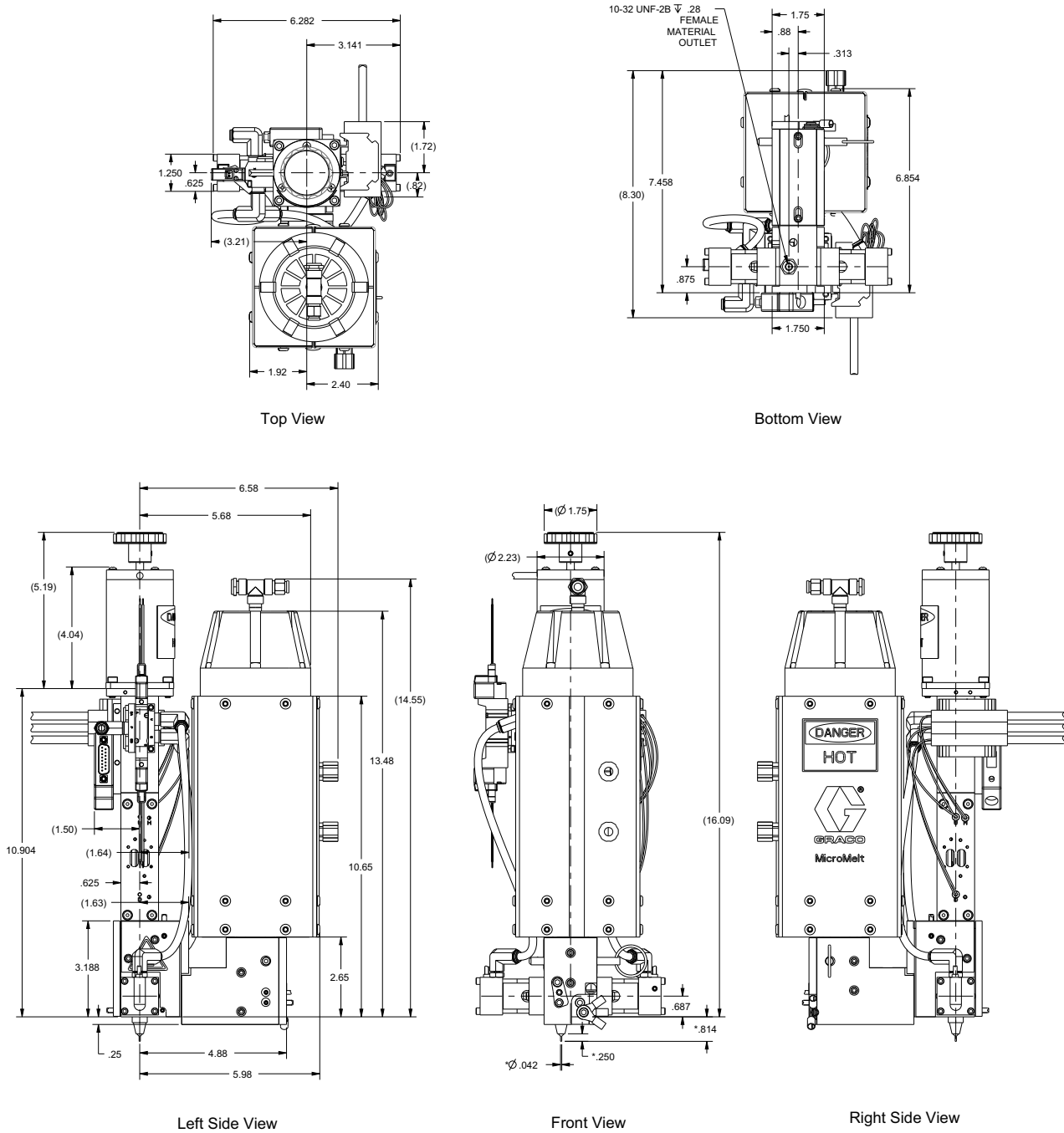


FIG. 10: Micro (Hot) Melt Valve Mounting Diagram 1

Startup

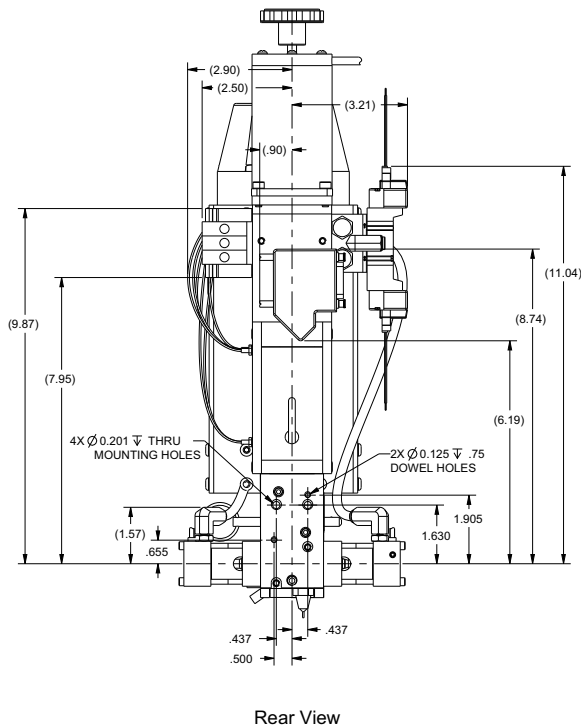


FIG. 11: Micro (Hot) Melt Valve Mounting Diagram 2

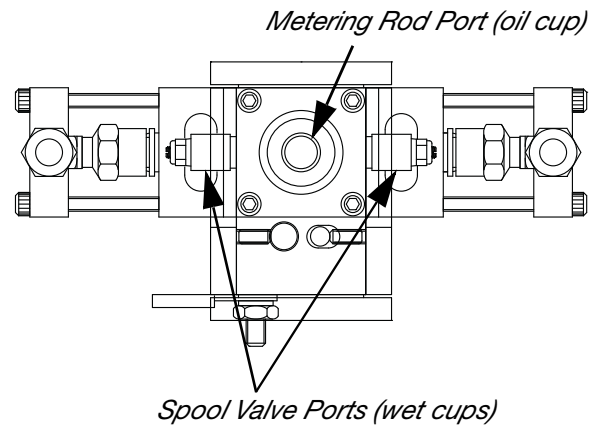


FIG. 12: Top View with Top Section Removed

1. Lubricate the metering rod port in the oil cup retaining block and fill the spool valve ports with compatible lubricant such as mesamoll or silicone oil.

2. For the Therm-O-Flow feed system, pressurize the feed systems connected to the metering valve to prime the system.

For the Micro (Hot) Melt Feed System, adjust the material air pressure regulator to the desired working pressure.

See **Technical Specifications** on page 31 for maximum material inlet pressure.

3. Dispense several full stroke shots until material is air-free and has good shut-off at the nose.

NOTE: Very viscous, compressible materials may continue to leak or drip after the system is primed. Reduce flow rate as required to produce air-free dispense.

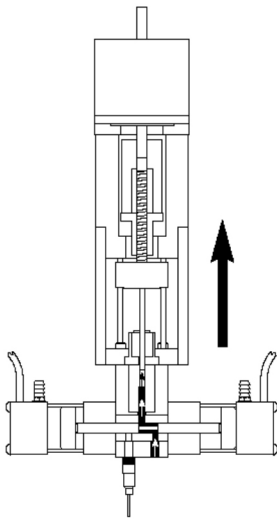
NOTE: Very thin materials may require tilting the valve greater than 45 degrees and dispensing shots until material is air-free. Remove oil from the cups before proceeding.

Operation

The operation of the 1053-10C metering valve is controlled by an external source. If a control box was purchased, refer to the 1053/1093 Control Box Setup - Operation Instructions. See **Related Manuals** on page 2.

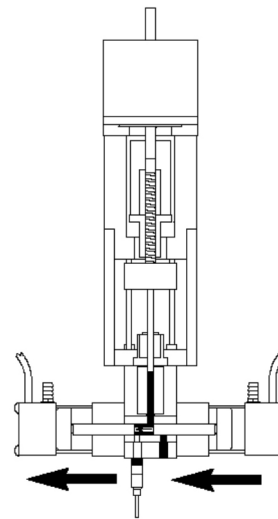
Sequence of Operation

Step 1: Reload



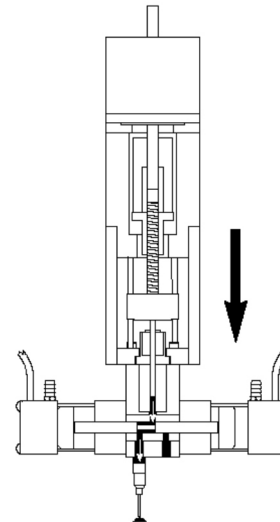
- Spool shifts to the right
- Material feed inlet is opened
- Material is transferred into the metering chambers by a pressurized feed system
- Outlet port is blocked
- Metering rod is retracted to a precise position determining the volume of each material

Step 2: Shift



- Balanced spool shifts to the dispense position
- Material path to the needle is opened
- Material feed inlet port is blocked
- Metering rod remains in the retracted position

Step 3: Dispense



- Metering rod extends
- Material is dispensed from the metering chamber into the needle

Upon completion of the dispense stroke, the metering rod and the spool shift back to the reload position.

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol

1. Retract the metering rod. Refer to the 1053/1093 Control Box Setup - Operation Instructions. See **Related Manuals** on page 2.
 2. Close the fluid shut-off valve.
 3. Remove the needle.
- NOTE:** If material is moisture sensitive and the needle will be exposed for extended periods of time, completely submerge the removed needle into a compatible cleaning chemical.
4. Dispense 5 shots. The shots should be at least 75% of the full stroke.
 5. Extend the metering rod into the tubes. If Graco controls are provided with the system, refer to the 1053/1093 Control Box Setup - Operation Instructions. See **Related Manuals** on page 2.
 6. Close the incoming air shut-off/bleed valve that supplies air to the metering valve.
 7. For the Therm-O-Flow feed system, close the incoming air shut-off/bleed valve that supplies the Therm-O-Flow system. Follow the Therm-O-Flow pressure relief procedure. See **Related Manuals** on page 2.

For the Micro (Hot) Melt feed system, adjust the material air pressure regulator to zero psi.

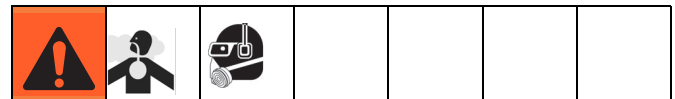
Shutdown



1. Perform the **Pressure Relief Procedure**.
2. Inspect the metering rod for material buildup. Clean as necessary.
3. Lubricate the metering rod with compatible lubricant such as mesamoll or silicone oil.
4. Remove the needle and replace it with the 10-32 set screw.

NOTE: If material is moisture sensitive and the needle will be exposed for extended periods of time, completely submerge the removed needle into a compatible cleaning chemical.

Maintenance



Perform the following procedures once a shift.

NOTE: If material is leaking, see **Troubleshooting** on page 18.

Material Reservoirs

Check material levels and refill as necessary. Ensure that the material reservoirs are properly vented.

Air-Water Separator Filter

Check the condition of the desiccant filter. Replace as necessary.





Metering Rod Port (oil cup)

Lubricate with compatible lubricant such as mesamoll or silicone oil. See Figure 12 on page 15.

Spool Valve Port (wet cups)

Fill with compatible lubricant such as mesamoll or silicone oil. See Figure 12 on page 15.

Troubleshooting

						
Perform the Pressure Relief Procedure before performing any troubleshooting procedures.						





Problem	Cause	Solution
Metering valve stalling and no material being dispensed despite adequate input pressure	Blocked needle	Check needle for cured material; replace as required.
Metering valve not discharging normal or full volume	Low material level in reservoirs	Fill material reservoirs and prime the machine.
	Air in material tank	Fill reservoir and prime machine.
Material leaks past spool valve	Spool valve worn or damaged	Replace the spool valve.
The 1053 valve will not cycle	Cycle detection sensors not working	Check connections or replace as needed.
The 1053 valve cycles slowly	Oil cup/wet cups are not supplied with lubrication	Add lubrication. Note: Lubrication must be compatible with all seals.
The 1053 valve drools or leaks	Air is trapped in the valve	Prime the valve until air/free material is visible.
	Seals are worn	Replace the seals.
Spool will not actuate	Low air pressure	Increase air pressure to approximately 20-30 psi.
	Cured material on spool	Check spool for cured material, replace as required.
	Seals are worn	Replace the seals.

Schematics

The schematics are included in the 1053/1093 Control Box Setup - Operation Instructions. See **Related Manuals** on page 2.

For custom machines, the schematics will be included in the assembly drawings manual.

Rebuild

						
Perform the Pressure Relief Procedure before performing any of the procedures in this section.						

Before proceeding:

1. Remove the material feed line and the pump material out of the valve.
2. Shut power off from the control panel and disconnect the main power.
3. Disconnect the motor wire harness from the system.
4. Loosen the home and spool sensor set screws.
5. Note the position of the sensors and slide them out of the valve.
6. Disconnect the air lines.

Disassembly

Refer to Figure 13 on page 20 for the following description.

Disassembly of the 1053 Valve Section

1. Remove the motor from the mounting plate (21).
2. Remove the mounting screws to remove the valve from its support.
3. On the right side of the valve, remove the valve end cap (23). The valve piston (22) is inside the end cap.

NOTE: If necessary, remove the valve piston from the valve end cap by applying low air pressure through the valve to push out the valve piston.

4. Remove the seal plate (12).
5. Repeat steps 3 and 4 for the left side of the valve.
6. Push out the spool rod (7) with a finger. If it does not slide out, tap it gently using a wood or plastic dowel.

NOTE: A worn spool and sleeve assembly must be replaced with a new (matched) assembly. If you are rebuilding multiple valves, be sure to keep the spools and sleeves matched.

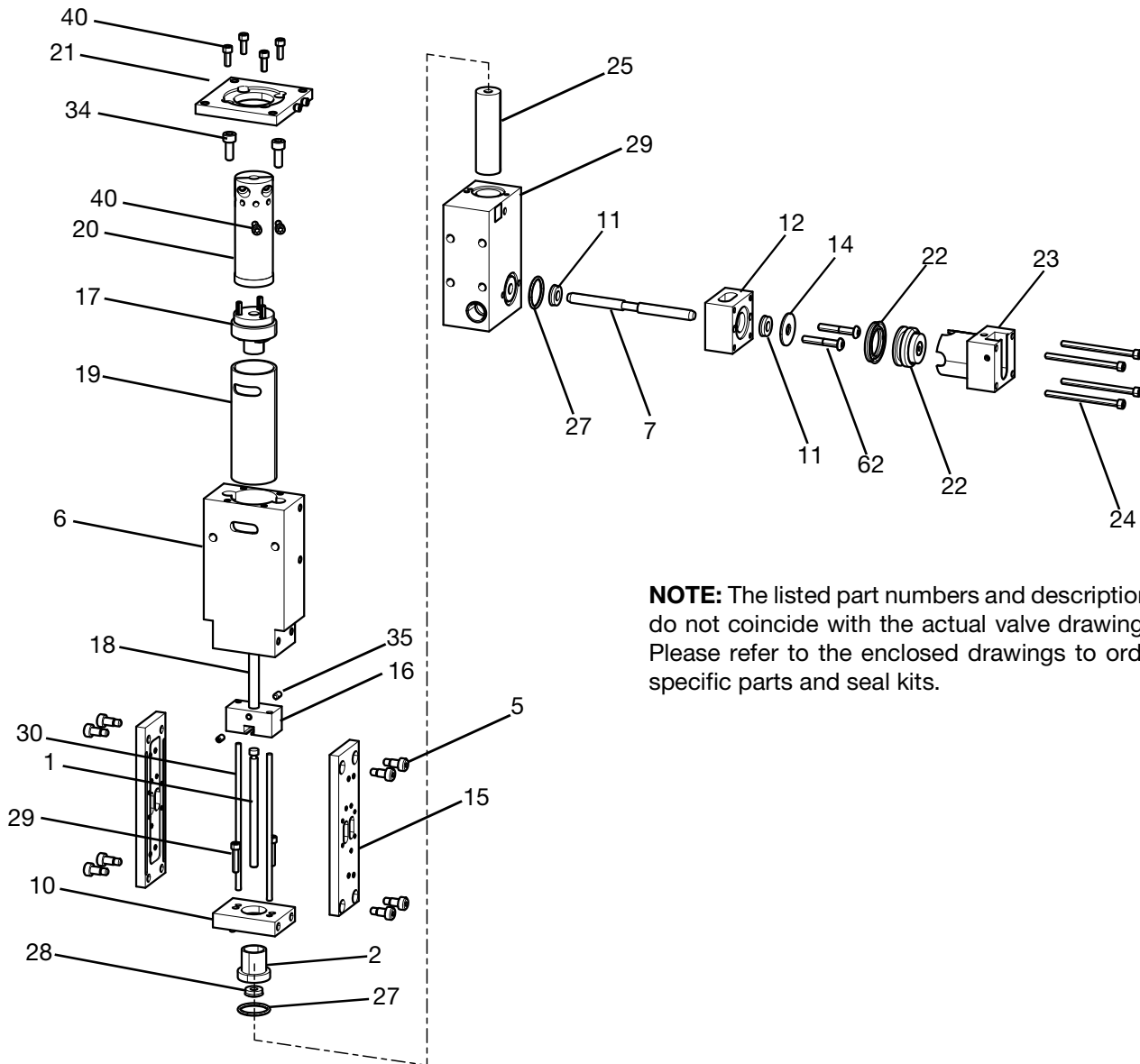
7. Remove the side blocks (15) from the bottom block (10) and the top block (6).
8. Remove the valve body (9) from the bottom block by removing the socket head screws (29).
9. Remove the dispense sleeve (25) from the valve body.
10. Slide the bottom block away from the metering rod (1) and the guide rods (30).
11. Remove the seal cup (2) from the bottom block.
12. Remove the Posipak seal (28) from the seal cup (2).
13. Slide the guide rods out of the connection block (16).
14. Remove the metering rod from the connection block.

NOTE: Only perform the steps below if the motor coupling section needs to be rebuilt.

Disassembly of the Motor Coupling Section

15. Loosen the screws (35) to disconnect the connection block (16) from the lead screw (18).
16. Remove the mounting plate (21) from the top block (6).
17. Remove the socket head screws (34) from the top block.
18. Remove the retaining sleeve (19) from the top block.
19. Remove the lead screw (18) and the lead screw nut (17) from the top block.

Model 1053-10C Parts



NOTE: The listed part numbers and descriptions do not coincide with the actual valve drawings. Please refer to the enclosed drawings to order specific parts and seal kits.

FIG. 13: Model 1053-10C Hot Melt

1 Metering Rod	15 Side Block (2)	25 Dispense Sleeve
2 Seal Cup	16 Connection Block	27 O-Ring
5 Screw (8)	17 Lead Screw Nut	28 Posipak Seal
6 Top Block	18 Lead Screw	29 Screw (2)
7 Spool Rod	19 Retaining Sleeve	30 Guide Rod (2)
9 Valve Body	20 Motor Coupling	34 Screw (2)
10 Bottom Block	21 Mounting Plate	35 Screw (2)
11 Posipak Seal (4)	22 Valve Piston (2)	40 Screw (6)
12 Seal Plate (2)	23 Valve End Cap (2)	62 Screw (6)
14 Seal Retainer (2)	24 Screw (8)	

Assembly

Before proceeding, remove any old o-rings or seals from the valve and discard, clean the valve parts with an appropriate solvent and replace o-rings and seals with new parts from the seal kit. Use Krytox 203GPL (part number 84/0200-K3/11) for lubricating valve parts, including seals and o-rings.

Refer to Figure 13 on page **20** for this description.

Assembly Of 1053-10C Valve Section

NOTE: Check the metering rod (1), Dispense Sleeve (25), and Spool Rod (7) for wear. If they are worn, secure replacements before proceeding.

NOTE: Use caution as you install the new U-cup and Posipak seals so that they are not pinched or torn. Do this by making sure they are lubricated, and by tucking the lips of the seal inward before uniformly pushing them into position.

1. Lubricate the spool outer diameter.
2. Insert the Spool Rod (7) carefully into the Valve Body (9), rocking it to ease it into place.

Install the Seal Plates on the Main Body

3. Install a lubricated O-ring (27) on the left side of the valve body next to the sleeve part of the spool.
4. Install two lubricated Posipak Seals (11) in the left Seal Plate (12) so that the O-ring side of both Posipaks are facing the Valve Body (9). Be sure to tuck the lip of the Posipak seal into its cavity to avoid tearing it.
5. Position the left Seal Plate (12) with the oil cup upwards and slide it over the spool part of the spool rod with the counter bore for the Seal Retainer (14) facing out. Slide the seal retainer over the spool and install two socket head screws (62) using purple thread locker. Torque fasteners to 9-11 in-lbs 1.0-1.2 N*m)..
6. Repeat steps 3 through 5 for the right side seal plates.

Install the Dispense Sleeve and Connect the Motor & Motor Coupling Assembly

7. Lubricate the dispense sleeve bore in the Valve Body (9). Insert the Dispense Sleeve (25) into the valve body. Check for threads that may be in the inside of the sleeve due to tapping during removal and make sure these are at the top.
 8. Place lubricated O-ring (27) over the dispense sleeve and against the valve body.
 9. Insert the Seal Cup (2) into the Bottom Block (10).
 10. Slide a lubricated Posipak Seal (30) into the seal cup with the O-ring side facing down.
 11. Lubricate the Metering Rod (1) and slide it carefully through the Posipak Seal (28), seal cup and bottom block so that it projects about 1/2 in. through this assembly.
 12. Using the projecting Metering Rod to guide the assembly into the Dispense Sleeve, slide the Bottom Block down against the Valve Body and secure it with the Socket Head Screws (29).
 13. Pull the Metering Rod away from the Valve Body so that the end of it is only slightly in the Dispense Sleeve.
 14. Slide the key slot in the Connection Block (16) over the end of the Metering Rod.
 15. Insert the Guide Rods (30) through the Connection Block and into the Bottom Block.
- NOTE:** If the motor and motor coupling assembly have been disassembled, refer to **Motor and Motor Coupling Assembly** on page **23** and reassemble them before proceeding with these next steps.
16. Position the motor and motor coupling assembly above the valve body assembly and bring them together so that the Guide Rods (30) enter their holes in the Top Block (6) and the end of the lead Screw (18) seats in the connection block.
 17. Install the Socket Head Screws (35) into the connection block against the groove in the lead screw.

18. Install the left side block (15) with the screws (5).
Insert the clear plastic guards (not shown) into the slots in the left side block so that the access hole in the guard is toward the top of the valve. Install the right side block so that the guards seat in the slots and secure with the screws.

Mount the Valve End Caps to the Seal Plate Cups

19. Install a lubricated U-cup seal into the groove of the left Valve Piston (22). The piston is thicker on one side of the groove. The lip of the seal must be facing the thicker section.
20. Lubricate the bore in the left Valve End Cap (23). Slide the spool shift piston into the left end cap tucking the lip of the U-cup seal into the end cap carefully.
21. Install the piston/end cap onto the left Seal Plate (12) using four Socket Head Screws (24). Torque fasteners to 7-9 in-lbs (0.8-1.0 N*m). Tighten the screws in a cross pattern gradually to prevent binding due to misalignment (like you would tighten lug nuts on a car tire).
22. Push the Spool Rod (7) into the left side until it contacts the piston.
23. Repeat steps 19 through 22 for the right side.
24. Install any removable needles that were previously removed.
25. If your valve has cycle detection, slide the cycle detection sensors into the slots on the end caps and secure with the set screws. Do not over-tighten the set screws as the sensors may be damaged.
26. Connect the air lines.
27. Perform the **Setup** procedure (see page **11**) and then the **Startup** procedure (see page **15**), if required.

Motor and Motor Coupling Assembly

Disconnect electrical power before servicing the motor and motor coupling assembly. Refer to Figure 14 on page **24** for this description.

1. Assemble the Motor Coupler (20) by inserting the Roll Pins (33) and the Socket Head Screws (40).

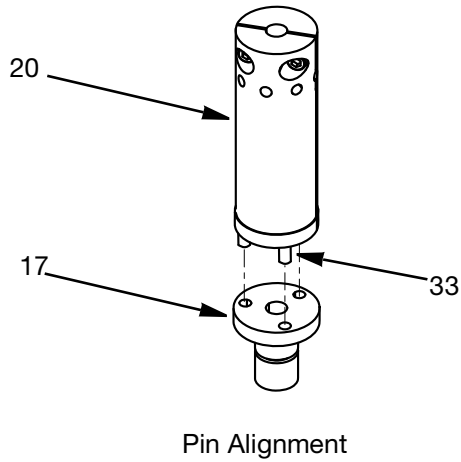
NOTE: This step is only required if the motor coupler has been disassembled for service or removed from the motor.

2. Assemble the Lead Screw Nut (17) with the Bearing (32) and e-ring (31).
3. Thread the Lead Screw (18) into the Lead Screw Nut assembly until the lead screw is flush with the top of the nut.
4. Slide the lead screw and the nut assembly into the Divorced Section (6).
5. Slide the Bearing Retaining Sleeve (19) into the divorced section, taking care to line up the slots in the two pieces. Secure it in place with Socket Head Cap Screws (34).
6. Secure the Motor Mounting Plate (21) to the Divorced Section (6) using Socket Head Cap Screws (40).
7. Place the motor coupler on the motor shaft and torque the screws to 9-11 in-lbs (1.0-1.2 N*m) leaving about 1/2 in. of motor shaft visible between the motor coupler and the motor.
8. Insert the motor coupler through the motor mounting plate, align the three roll pins and insert them into the lead screw nut, and gently seat the motor.

NOTE: This step is only required if the motor coupler has been disassembled for service or removed from the motor.

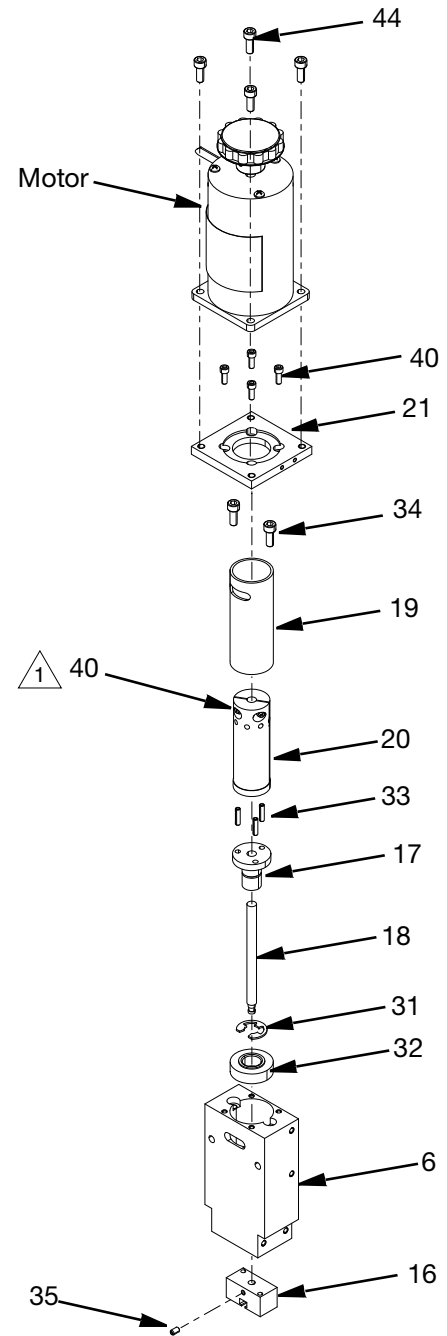
9. Remove the motor and the motor coupler, tighten the screws, and reassemble the securing motor to the motor mounting plate using Socket Head Cap Screws (44).

Motor and Motor Coupling Parts



Motor and Motor Coupling Parts

Ref	DESCRIPTION
6	Top Block
16	Connection Block
17	Lead Screw Nut
18	Lead Screw
19	Retaining Sleeve
20	Motor Coupling
21	Mounting Plate
31	Retaining Ring
32	Bearing
33	Roll Pin
34	Screw
40	Screw
44	Screw



△ 1 Torque to 9-11 in-lbs (1.0-1.2 N*m).

Motor and Motor Coupling Installation.
Location of the Motor shaft in the Motor Coupling is important for proper electrical control of the dispense valve.

FIG. 14: Motor and Motor Coupling

Electrical Requirements

See **Related Manuals** on page 2 for valve with controls/motor integrated.

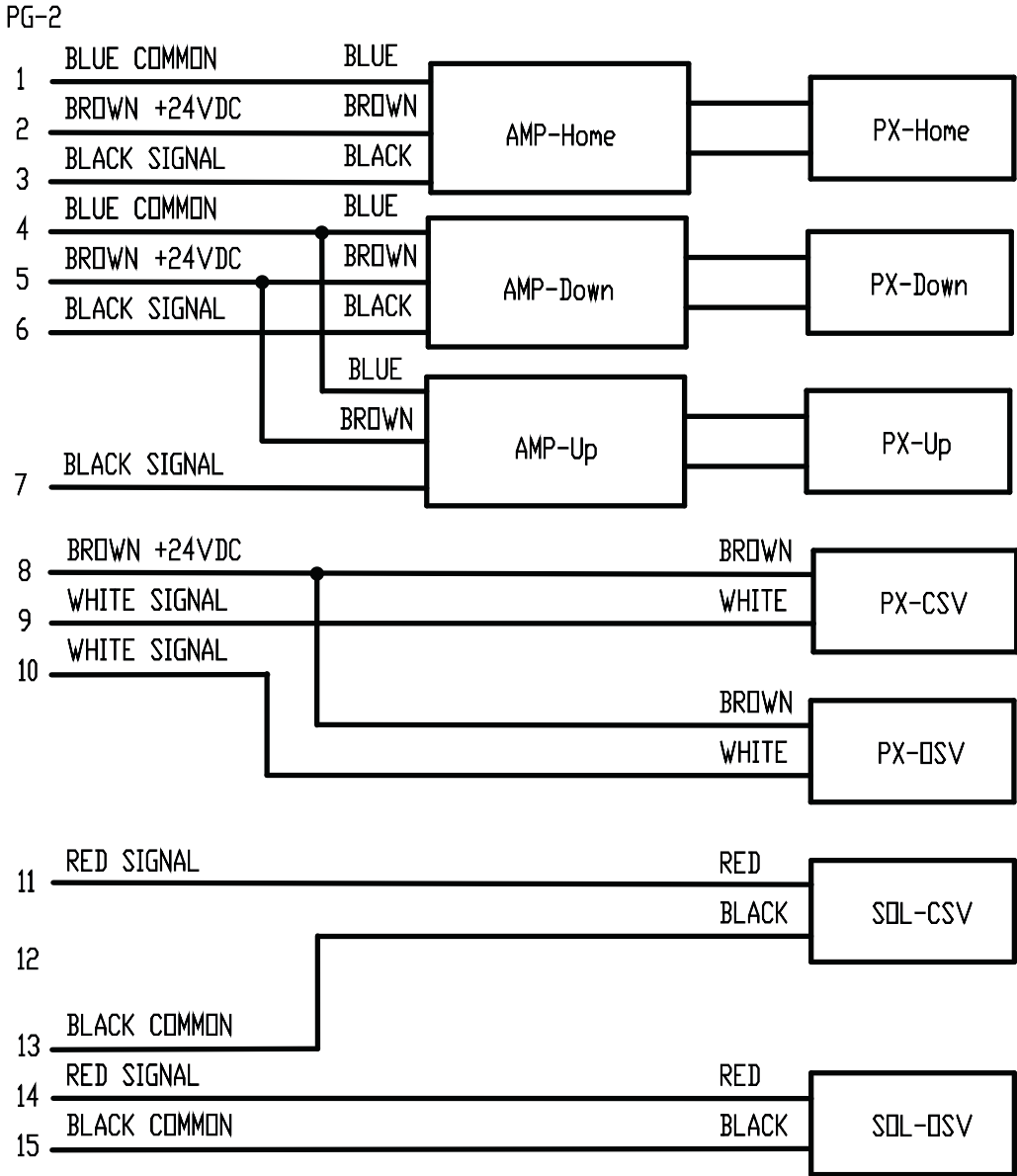


Fig. 15: Inputs and Outputs

Therm-O-Flow Metering Valve

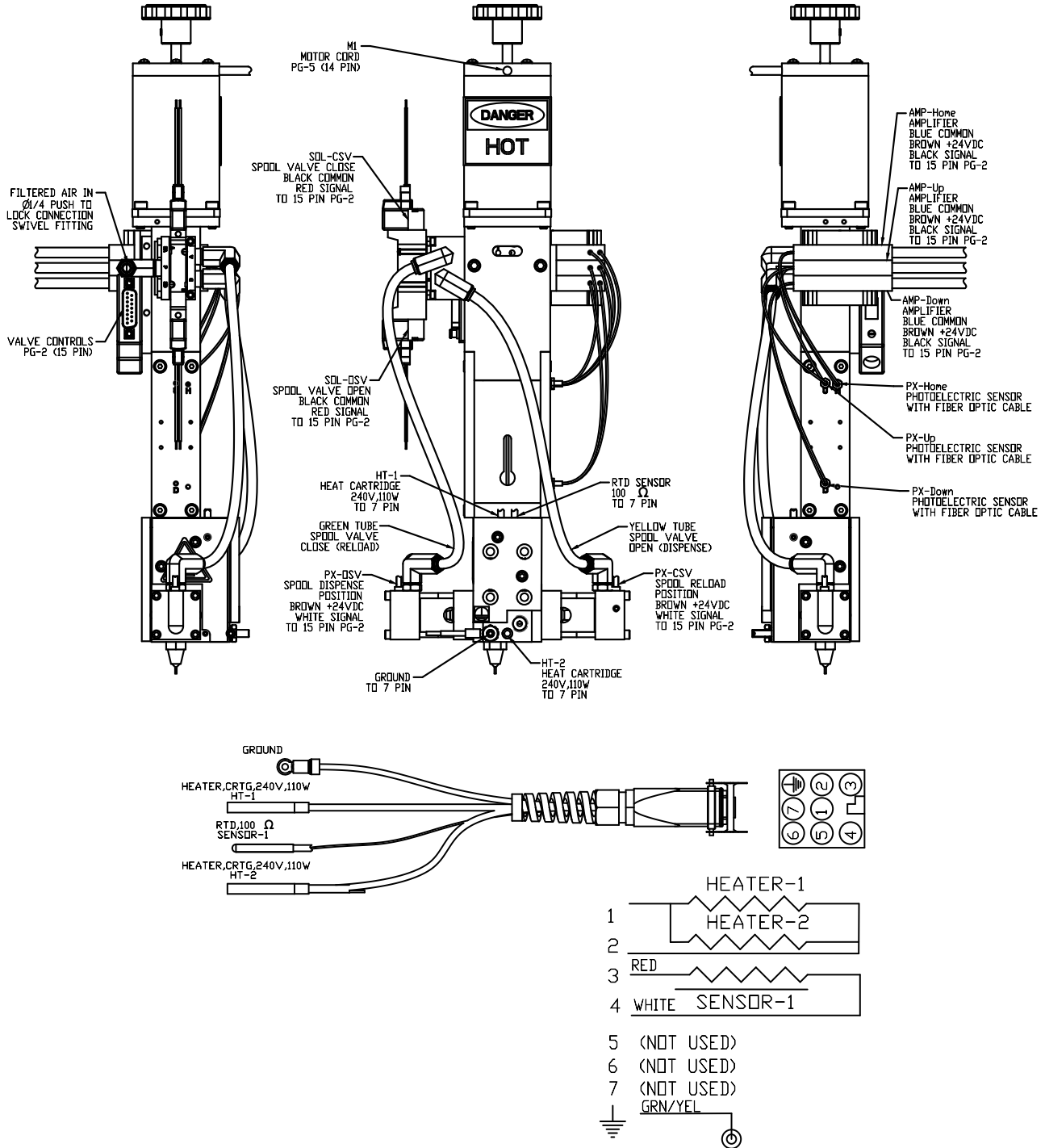
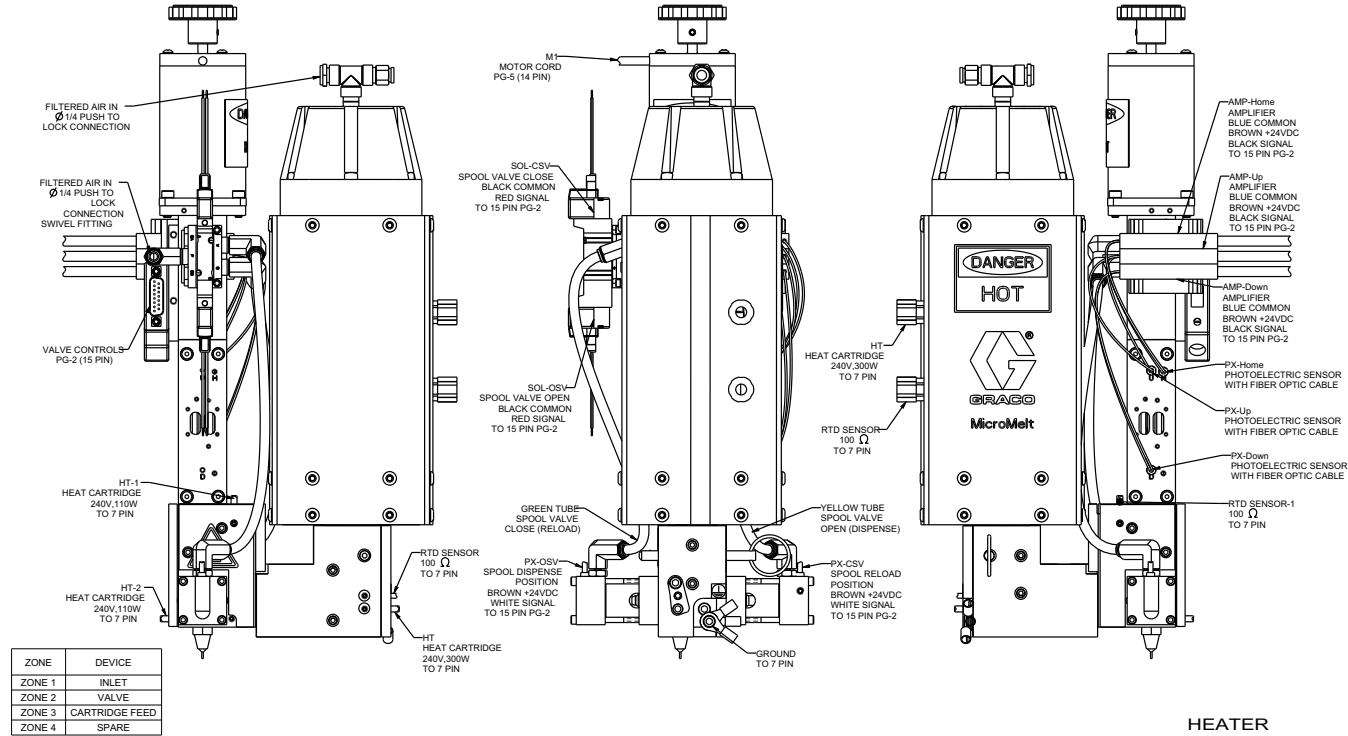


FIG. 16: Electrical Requirements - Therm-O-Flow

Micro (Hot) Melt Metering Valve



ZONE	DEVICE
ZONE 1	INLET
ZONE 2	VALVE
ZONE 3	CARTRIDGE FEED
ZONE 4	SPARE

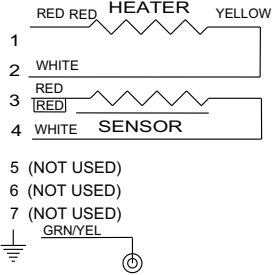
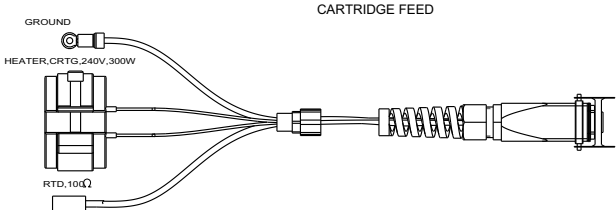
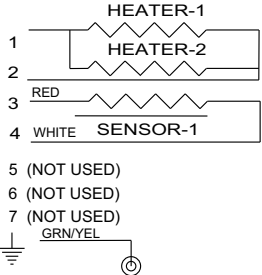
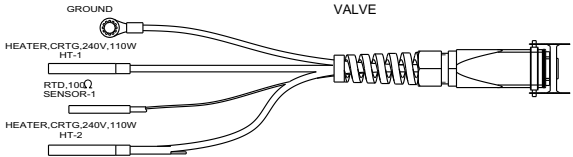
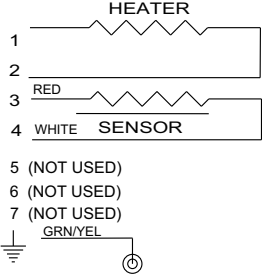
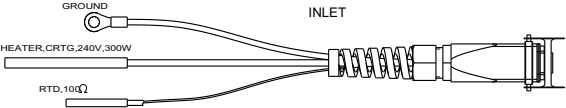


FIG. 17: Electrical Requirements - Micro (Hot) Melt Feed System

Dimensions

NOTE: The assembly dimensions are listed with the standard Graco motor.

NOTE: The needle is dependent on the application.

Therm-O-Flow Metering Valve

Dimensions are in inches (mm)

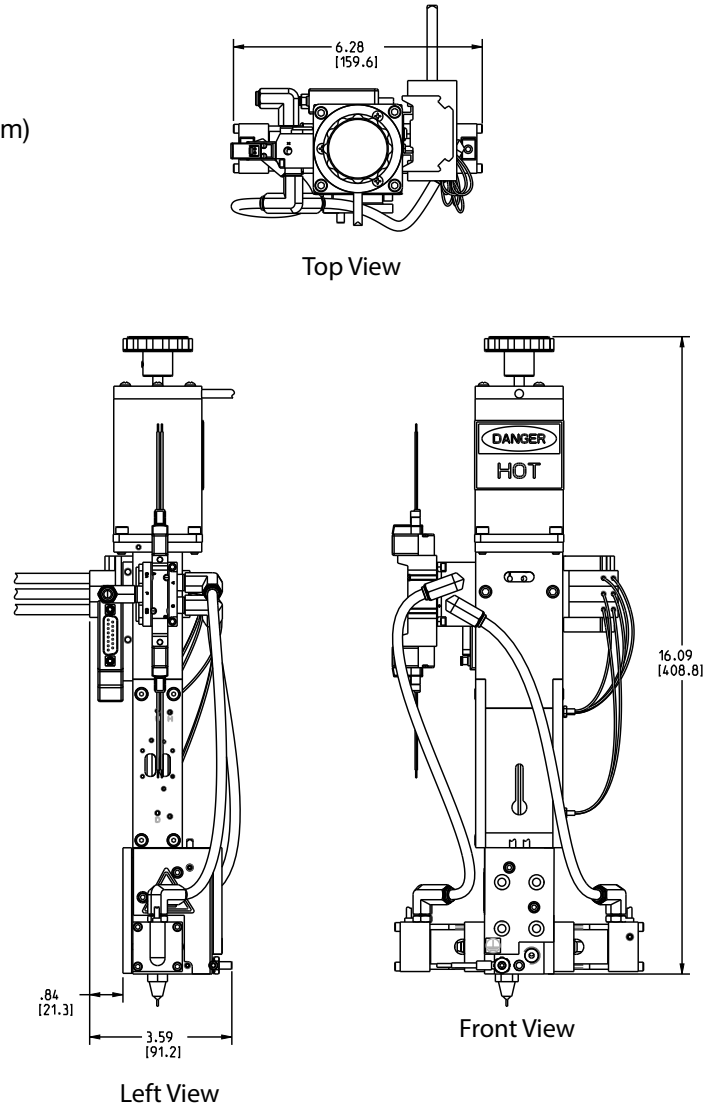


FIG. 18: Therm-O-Flow Metering Valve Dimensions

Micro (Hot) Melt Metering Valve

Dimensions are in inches (mm)

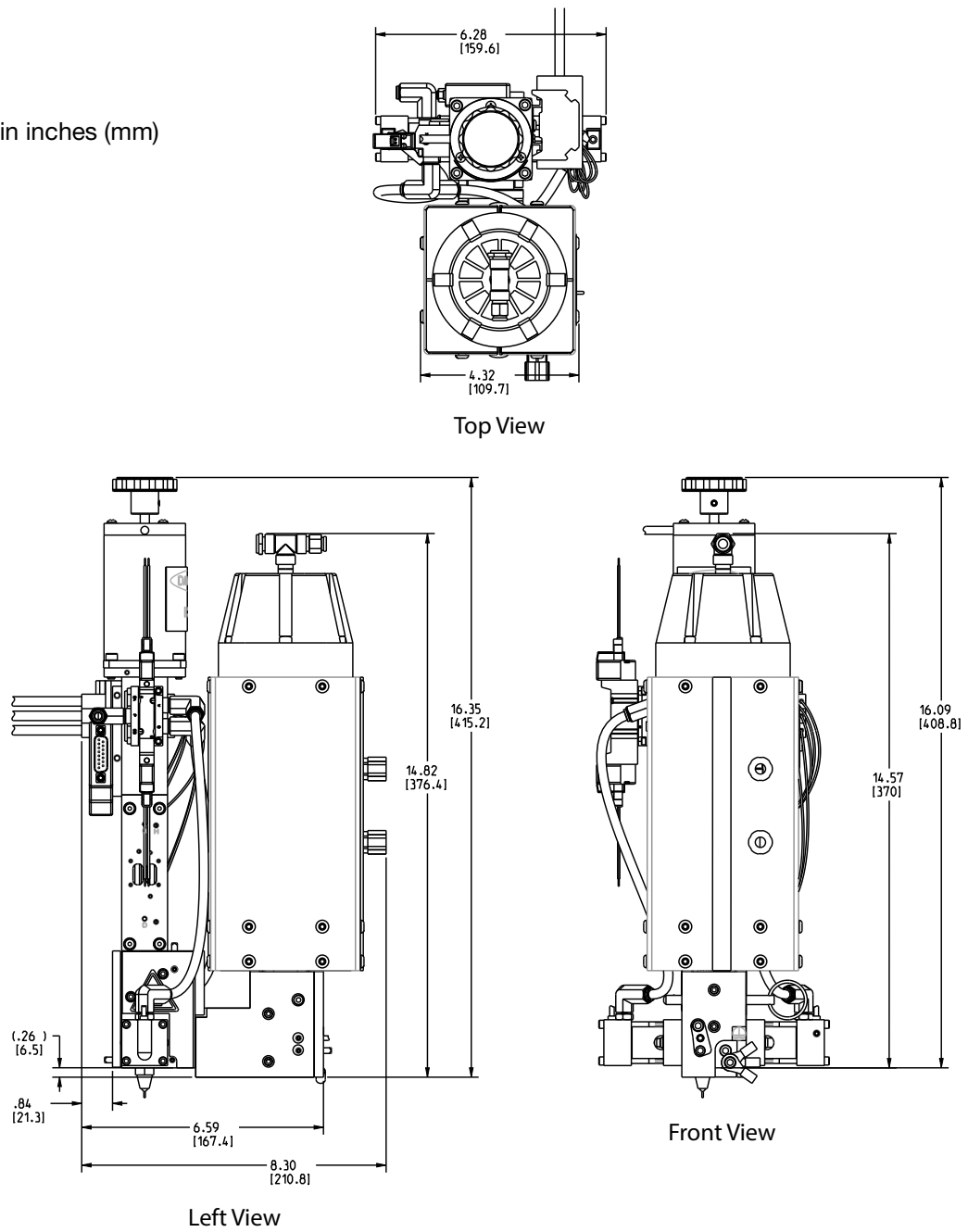


FIG. 19: Micro (Hot) Melt Metering Valve Dimensions

Needle Options

Part No.	Description	Inner Diameter
*P6545-12E	NEEDLE, 1050, ASSY,BRS, 16GA, RW, VIT	0.047 in. (1.19 mm)
P6545-12F	NEEDLE, 1050, ASSY,BRS, 18GA, RW, VIT	0.033 in. (0.84 mm)
**P6545-12H	NEEDLE, 1050, ASSY,BRS, 19GA, RW, VIT	0.027 in. (0.69 mm)

- Needle hub material is brass - to prevent heat dissipation.
- Needle length is 0.250 +/- 0.003. Other lengths subject to custom design.
- Each needle contains one sealing flouroelastomer O-Ring. Part No. - 24X834.
- * 16 gauge needle is the largest option with the 10-32 UNF - 2B thread in the main body.
- ** 19 gauge needle is the option supplied without previously specified requirements.
- Other gauge sizes subject to custom design.

Technical Specifications

NOTE: See the feed system manuals for dimensions, weights, and wetted parts lists for those components. Dimensions, weights, and wetted parts for components not covered in the component feed system manuals and for combined assemblies are listed below.

Maximum Ambient Temperature	110°F (43°C)
Maximum Operating Temp	300°F (149°C)
Maximum Outlet Fluid Working Pressure	2000 psi (14 MPa, 138 bar)
Maximum Air Working Pressure	100 psi (0.7 MPa, 7 bar)
Minimum Air Working Pressure	70 psi (480 kPa, 4.8 bar)
Maximum Material Inlet Pressure	Metal Sleeves: 1200 psi (8 MPa, 83 bar)
Supplied Air Requirements	1 to 3 cfm at 80 psi to 100 psi
Shot Size Range (depending on metering rods selected)	0.002 cc to 3.150 cc
Maximum Cycle Rate (application dependent, heat required)	Up to 15 cycles per minute (with standard Graco motor)
Material Inlet Port (Therm-O-Flow only)	1/8-27 NPT Female
Material Outlet Port	10-32 UNF-2B Female x .028 inch deep.
Weight	<i>Therm-O-Flow Metering Valve:</i> 12-14 lb (5.44 - 6.35 kg) <i>with standard Graco motor:</i> 16-18 lb (7.26 - 8.16 kg) <i>Micro (Hot) Melt Metering Valve:</i> 24-27 lb (10.89-12.25 kg) <i>with standard Graco motor:</i> 28-30 lb (12.70-13.61 kg)
Wetted Parts	<i>Metering Valve:</i> hardened steel, 303/304, 404, UHMWPE, Tungsten, carbide, fluoroelastomer, EPDM, PTFE

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

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

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

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

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

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

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

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

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

Graco Information

Sealant and Adhesive Dispensing Equipment

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor, go to www.graco.com, or call to identify the nearest distributor.

If calling from the USA: 1-800-746-1334

If calling from outside the USA: 0-1-330-966-3000

All written and visual data contained in this document reflects the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 3A3108

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

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

Copyright 2015, Graco Inc. All Graco manufacturing locations are registered to ISO 9001.

www.graco.com

Revision F, December 2021