

Dispensit 1053-10B

313812H
EN

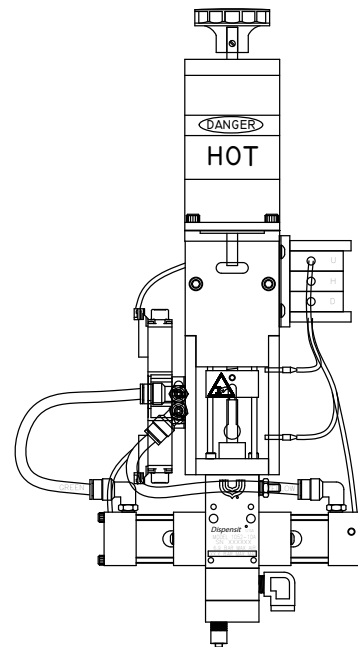
Patented meter and dispense system for precise one-component micro-dispensing.

2000 psi (14 MPa, 138 bar) Maximum Outlet Fluid Working Pressure
Metal Sleeves: 1200 psi (8 MPa, 83 bar) Maximum Material Inlet Pressure
Plastic Sleeves: 400 psi (2.8 MPa, 28 bar) Maximum Material Inlet Pressure
100 psi (0.7 MPa, 7 bar) Maximum Air Working Pressure
110°F (43°C) Maximum Ambient Temperature
150°F (65°C) Maximum Operating Temperature



Important Safety Instructions

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



Valve shown is with controls/motor integrated

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Related Manuals

Component manuals in U.S. English.





Part	Description
3A0261	1053/1093 Control Box






1053 Valve Models

1053-10B Valves		
Part No.	Configuration	Description
A2A10019	1053-10B-2RS1-062-V-NEMA23 1 INCH	1 inch stroke, .062 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10015	1053-10B-2RS1-125-V-NEMA23 1 INCH	1 inch stroke, .125 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10007	1053-10B-2RS1-188-V-NEMA23 1 INCH	1 inch stroke, .188 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10008	1053-10B-2RS1-250-V-NEMA23 1 INCH	1 inch stroke, .250 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10009	1053-10B-2RS1-375-V-NEMA23 1 INCH	1 inch stroke, .375 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10200	1053-10B-2TT1-062-V-NEMA23 1 INCH	1 inch stroke, .062 diameter rod, stainless steel wetted components, NEMA 23 motor ready
A2A10016	1053-10B-2TT1-125-V-NEMA23 1 INCH	1 inch stroke, .125 diameter rod, stainless steel wetted components, NEMA 23 motor ready
A2A10010	1053-10B-2TT1-188-V-NEMA23 1 INCH	1 inch stroke, .188 diameter rod, stainless steel wetted components, NEMA 23 motor ready
A2A10011	1053-10B-2TT1-250-V-NEMA23 1 INCH	1 inch stroke, .250 diameter rod, stainless steel wetted components, NEMA 23 motor ready
A2A10012	1053-10B-2TT1-375-V-NEMA23 1 INCH	1 inch stroke, .375 diameter rod, stainless steel wetted components, NEMA 23 motor ready
A2A10032	1053-10B-2CC1-250-V-NEMA23 1 INCH	1 inch stroke, .250 diameter rod, Tungsten carbide wetted components, NEMA 23 motor ready
A2A10018	1053-10B-4RS1-375-V-NEMA23 2 INCH	2 inch stroke, .375 diameter rod, nitrided tool steel wetted components, NEMA 23 motor ready
A2A10020	1053-10B-4TT1-375-V-NEMA23 2 INCH	2 inch stroke, .375 diameter rod, stainless steel wetted components, NEMA 23 motor ready

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"> • 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 Sheets (SDSs) 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.
	<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>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:</p> <ul style="list-style-type: none"> • 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.

 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>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 Specifications in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer. • 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>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.

Important Isocyanate (ISO) Information



Isocyanate Conditions

							
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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.

Material Self-ignition

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

Keep Components A and B Separate

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

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

Moisture Sensitivity of Isocyanates

Exposure to moisture (such as humidity) will cause ISO to partially cure, forming small, hard, abrasive crystal that become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTICE							
Partially cured ISO will reduce performance and the life of all wetted parts.							
<ul style="list-style-type: none"> • 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 pump wet cup or reservoir (if installed) filled with appropriate lubricant. 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 an appropriate lubricant when reassembling. 							

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

Foam Resins with 245 fa Blowing Agents

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

Changing Materials

NOTICE

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



The equipment must be grounded to reduce the risk of static sparking. Static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.

Metering valve: attach ground wire from grounding lug to true earth ground. See **Component Identification** starting on page 9.

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 application 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.

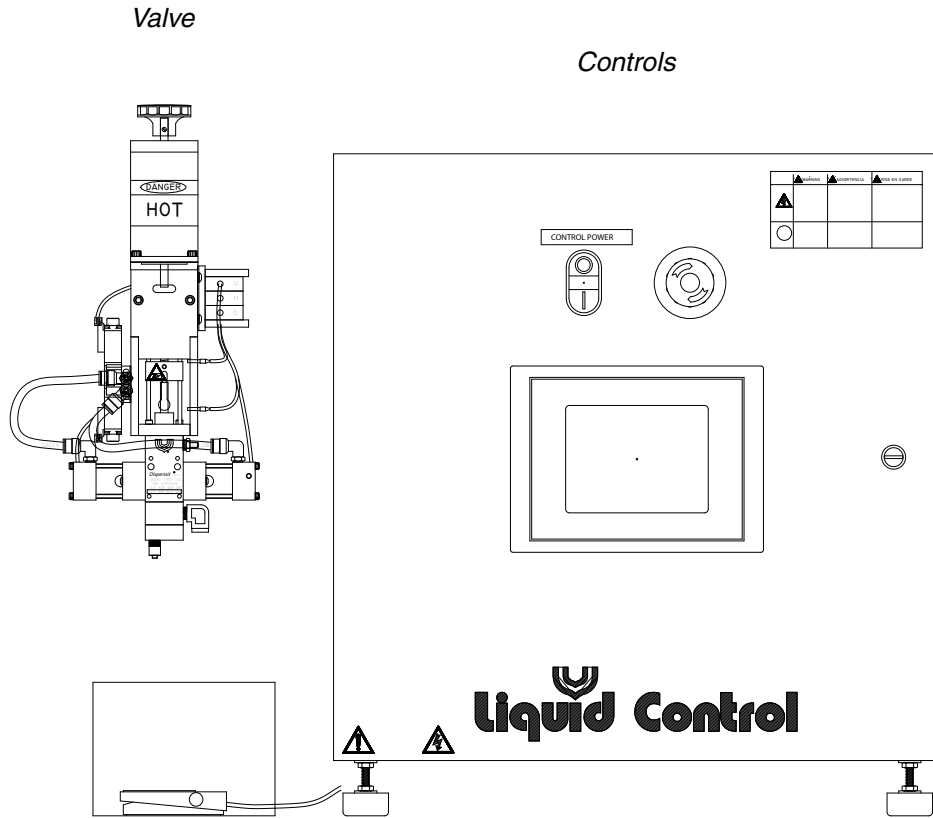
The complete system is enclosed. See **Sequence of Operation** on page 17.

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 Configurations

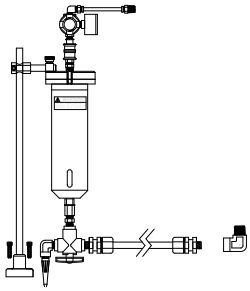


System shown with optional controls

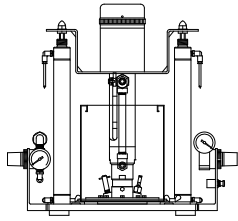
FIG. 1

Typical Feed System Components

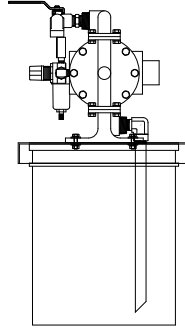
20 oz Cartridge Feed with Mounting Post



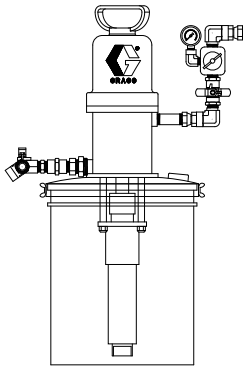
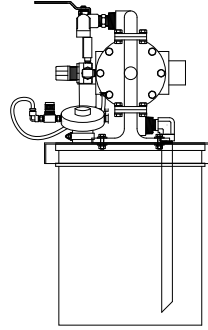
1 Gallon Ram and Pump



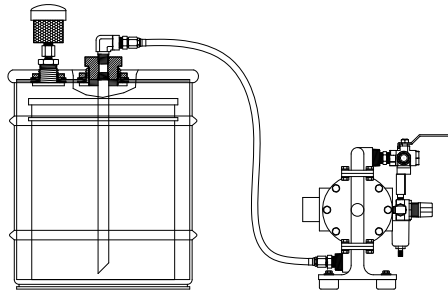
5 Gallon Pail Cover with Diaphragm Pump



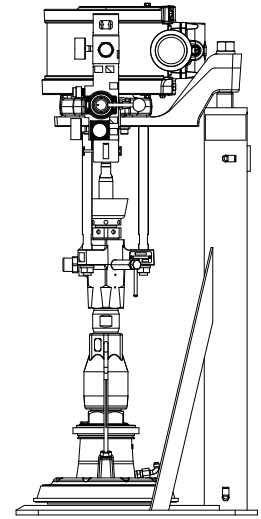
5 Gallon Pail Cover with Diaphragm Pump and Agitator



5 Gallon Pail Cover with 5:1 Transfer Pump



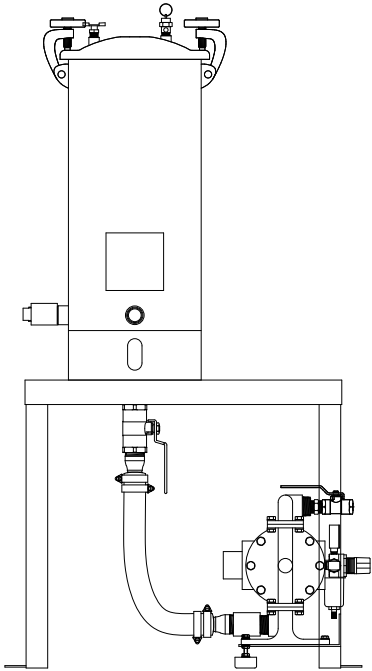
5 Gallon Pail Cover with Diaphragm Pump



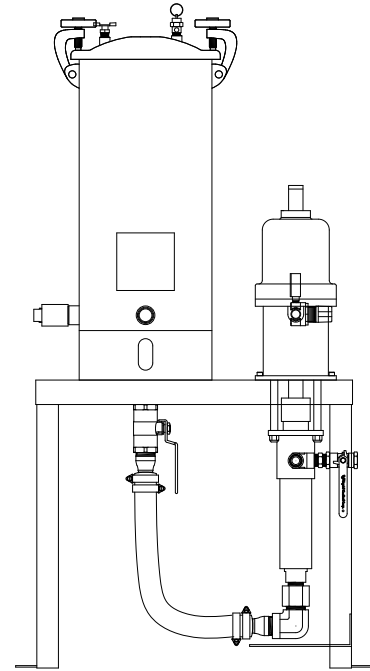
5 Gallon Ram and 11:1 Transfer Pump

FIG. 2

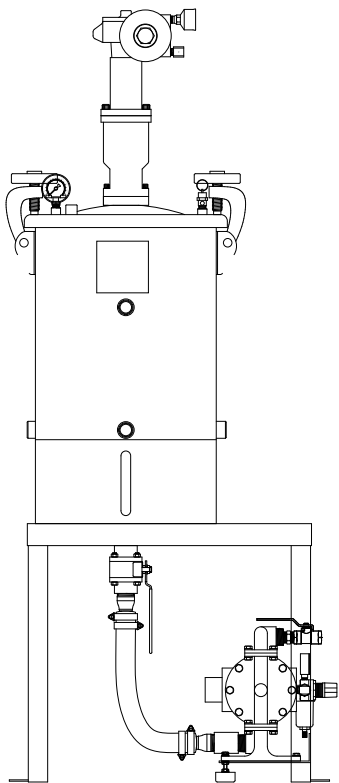
Typical Feed System Components (continued)



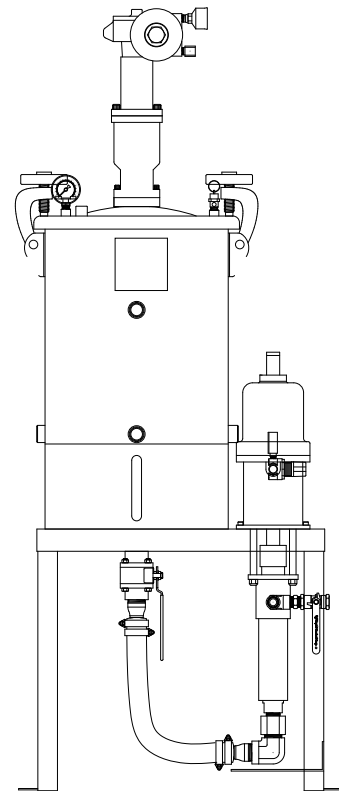
5 Gallon Tank with Diaphragm Pump and Stand



5 Gallon Tank with 5:1 Pump and Stand



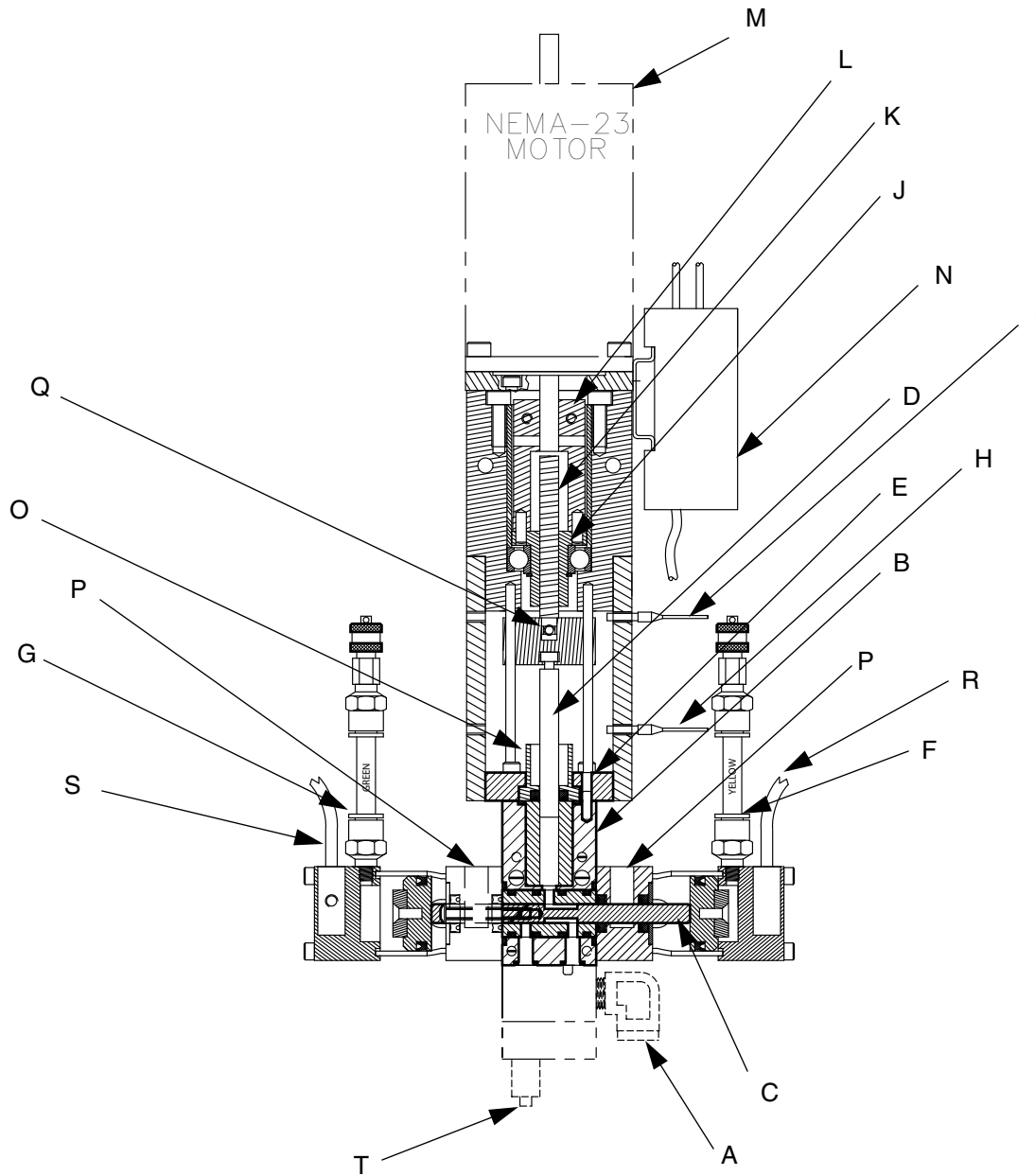
10 Gallon Tank with Diaphragm Pump, Agitator, Vacuum, and Stand



10 Gallon Tank with 5:1 Pump, Agitator, Vacuum, and Stand

FIG. 3

Metering Valve

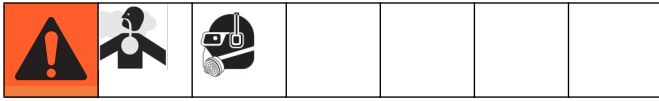


Key:

- | | | | | | | | |
|---|-------------------------|---|--------------------|---|--------------------|---|---------------------|
| A | Material Inlet | F | Dispense Air Inlet | L | Drive Coupling | R | Spool Sensor Close |
| B | Grounding Lug | G | Reload Air Inlet | M | Motor | S | Spool Sensor Open |
| C | Spool | H | Lower Sensor | N | Sensor Amplifiers | T | Needle with Adapter |
| D | Metering Rod | I | Upper Sensor | O | Oil Cup | | |
| E | Oil Cup Retaining Block | J | Drive Nut | P | Wet Cups | | |
| | | K | Drive Screw | Q | Dive Locking Screw | | |

FIG. 4

Setup



NOTE: See **Typical Installation** diagram.

1. Perform Setup procedure for feed system components. See feed system manual(s).
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 9.
4. Connect chemical lines from feed system to metering valve material inlets. See **Component Identification** starting on page 9.

Typical Installation

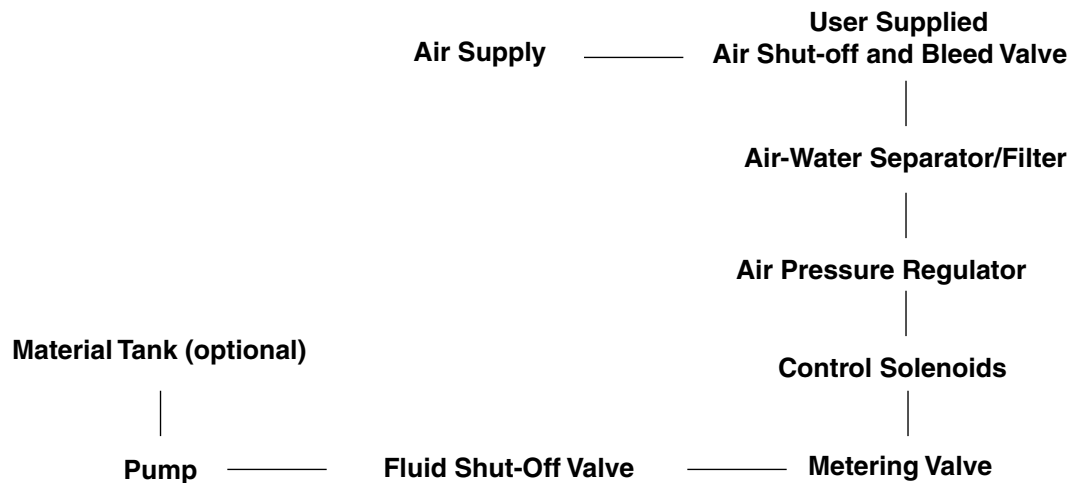


FIG. 5

Valve Mounting Diagram

As desired, use the following diagram to mount the metering valve.

NOTE: Valve shown is for controls/motor integrated. For valve without controls/motor integrated, mounting pattern is the same just less LS-Home, solenoid open/close and all the wires terminated at a plug.

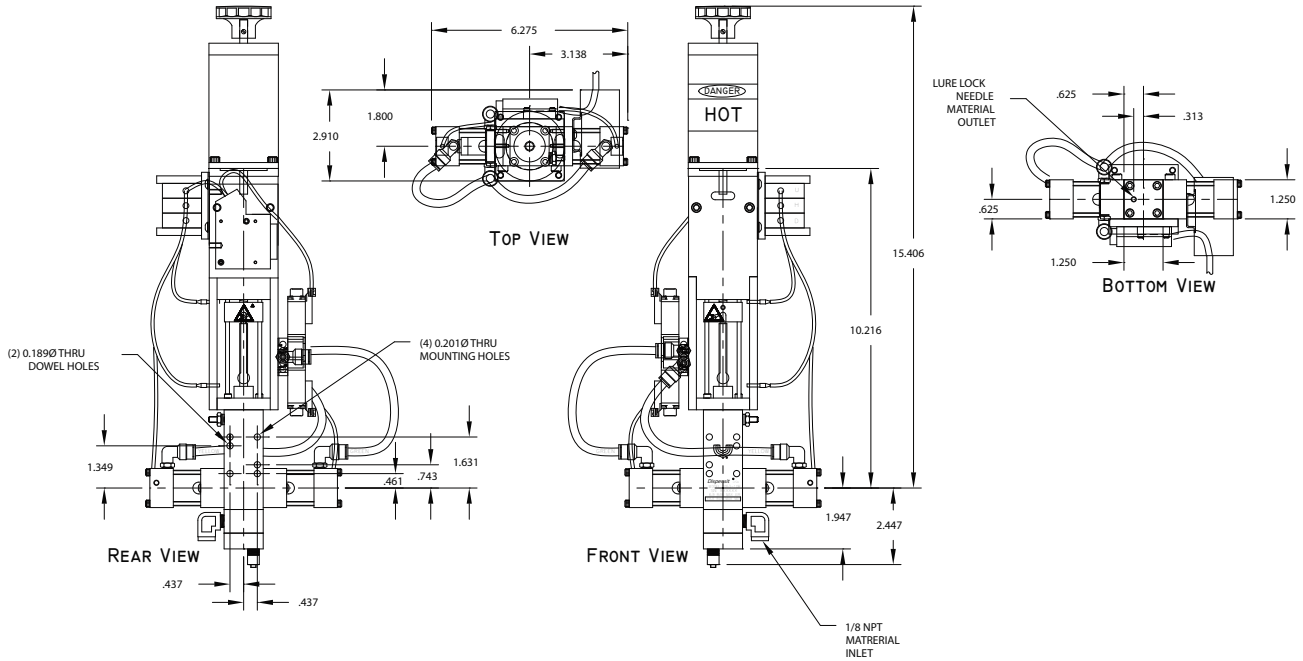


FIG. 6: 2 in. Stroke Models

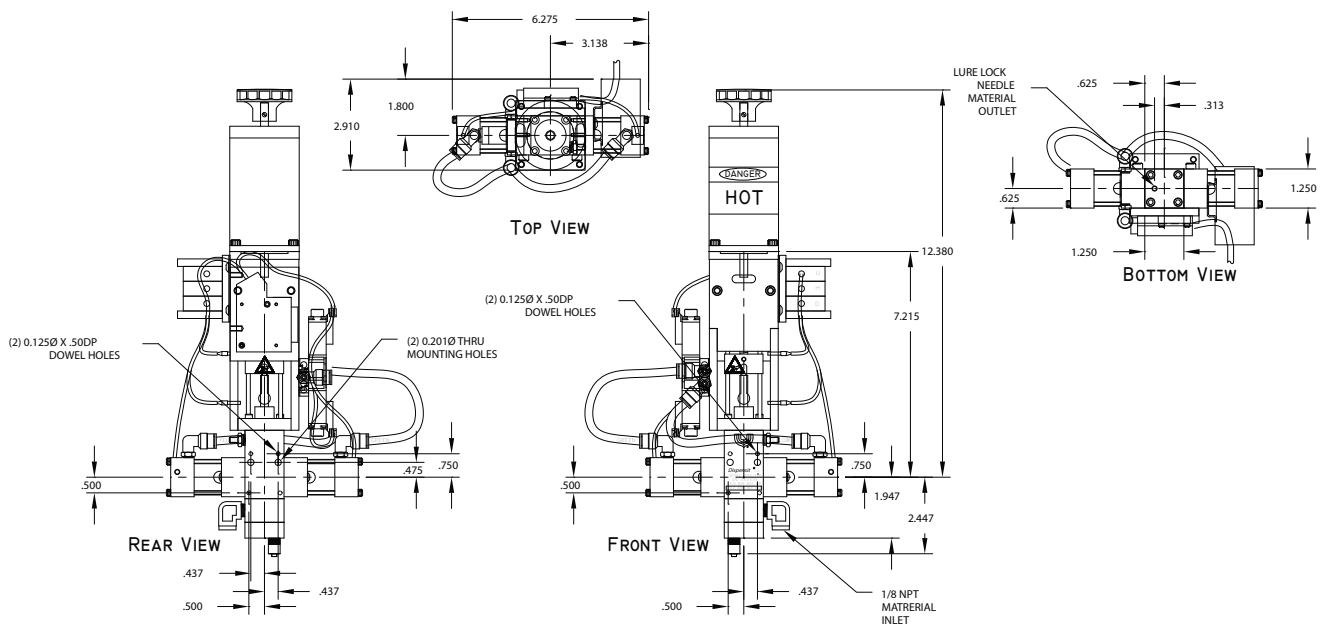
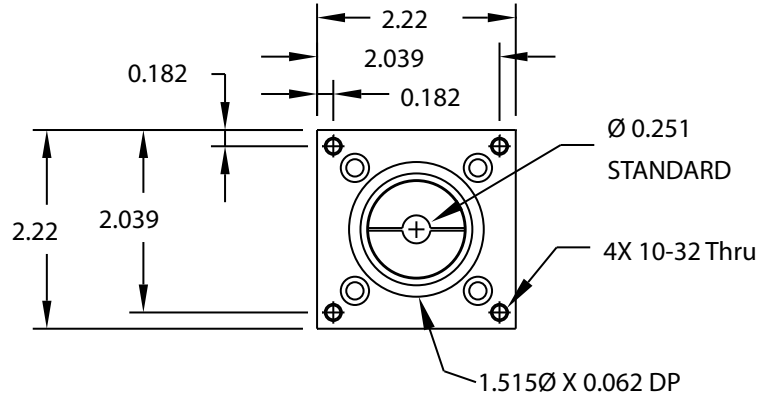


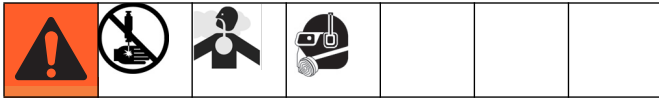
FIG. 7: 1 in. Stroke Models

Motor Mounting Diagram

If using a non-Graco motor with the dispense valve, use the following diagram to install the non-Graco motor onto the valve. See **Motor Specifications** on page 34.



Startup



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.

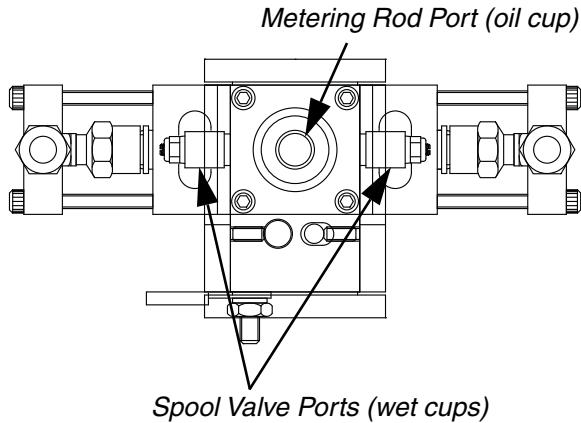


FIG. 8: Top View of Metering Valve with Top Section Removed

2. Pressurize the feed systems connected to the metering valve to prime the system. See **Technical Data** on page 34 for maximum inlet feed 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 droll after system is primed. Reduce flow rate as required to produce air-free dispense.

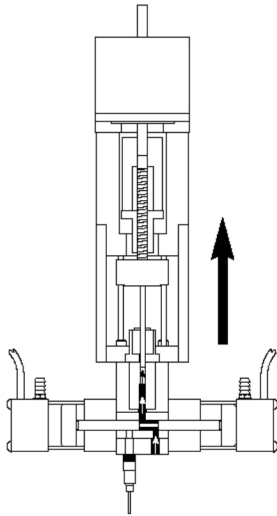
NOTE: Very thin materials may require tilting the valve greater than 45 degrees and dispensing shots until material is air-free. Remove oil from cups before proceeding.

Operation

The operation of the 1053 metering valve is controlled by an external source. If a Control Box was purchased, see the Control Box manual for operation instructions. See **Related Manuals** on page 3.

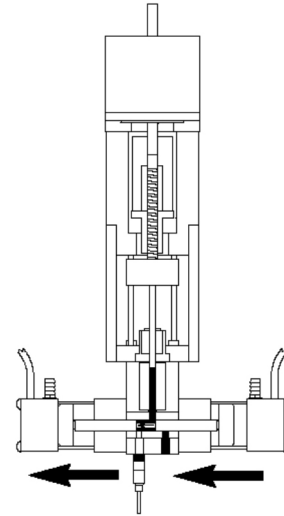
Sequence of Operation

Step 1: Reload



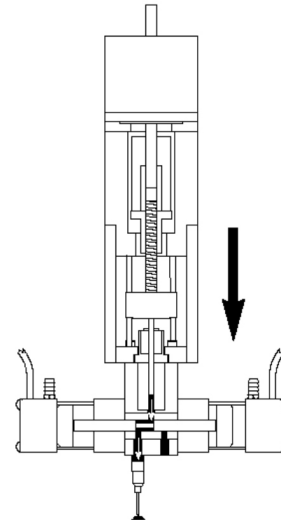
- Spool shifts to the right
- Material feed inlet is opened
- Material is transferred into the metering chambers by a pressurized feed system
- Outlet port is blocked
- Metering rod is retracted to a precise position determining the volume of each material

Step 2: Shift



- The 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 spool shifts back to the reload position.

Pressure Relief Procedure



1. Retract the metering rods. See the Control Box manual. See **Related Manuals** on page 3.
2. Close the fluid shut-off valve.
3. Remove needle.
4. Dispense 5 shots. 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, see the Controls manual. See **Related Manuals** on page 3.
6. Close the incoming air shut-off/bleed valve that supplies air to the metering valve.
7. Close the incoming air shut-off/bleed valve that supplies the feed system. Refer to feed system manual for pressure relief procedure.

Shutdown



1. Perform **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 needle adapter and replace with 5/16-28 set screw.

Maintenance



Perform the following procedures once a shift.

NOTE: If material is leaking, see **Troubleshooting** on page 19.

Material Reservoirs

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

Air Dryer

Check the condition of the desiccant air dryer. Replace as necessary.




Metering Rod Port (oil cup)

Lubricate with compatible lubricant such as mesamoll or silicone oil. See FIG. 8 on page 16.

Spool Valve Port (wet cups)

Fill with compatible lubricant such as mesamoll or silicone oil. See FIG. 8 on page 16.

Troubleshooting

						
Perform Pressure Relief Procedure before performing any troubleshooting procedure.						

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 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 seals

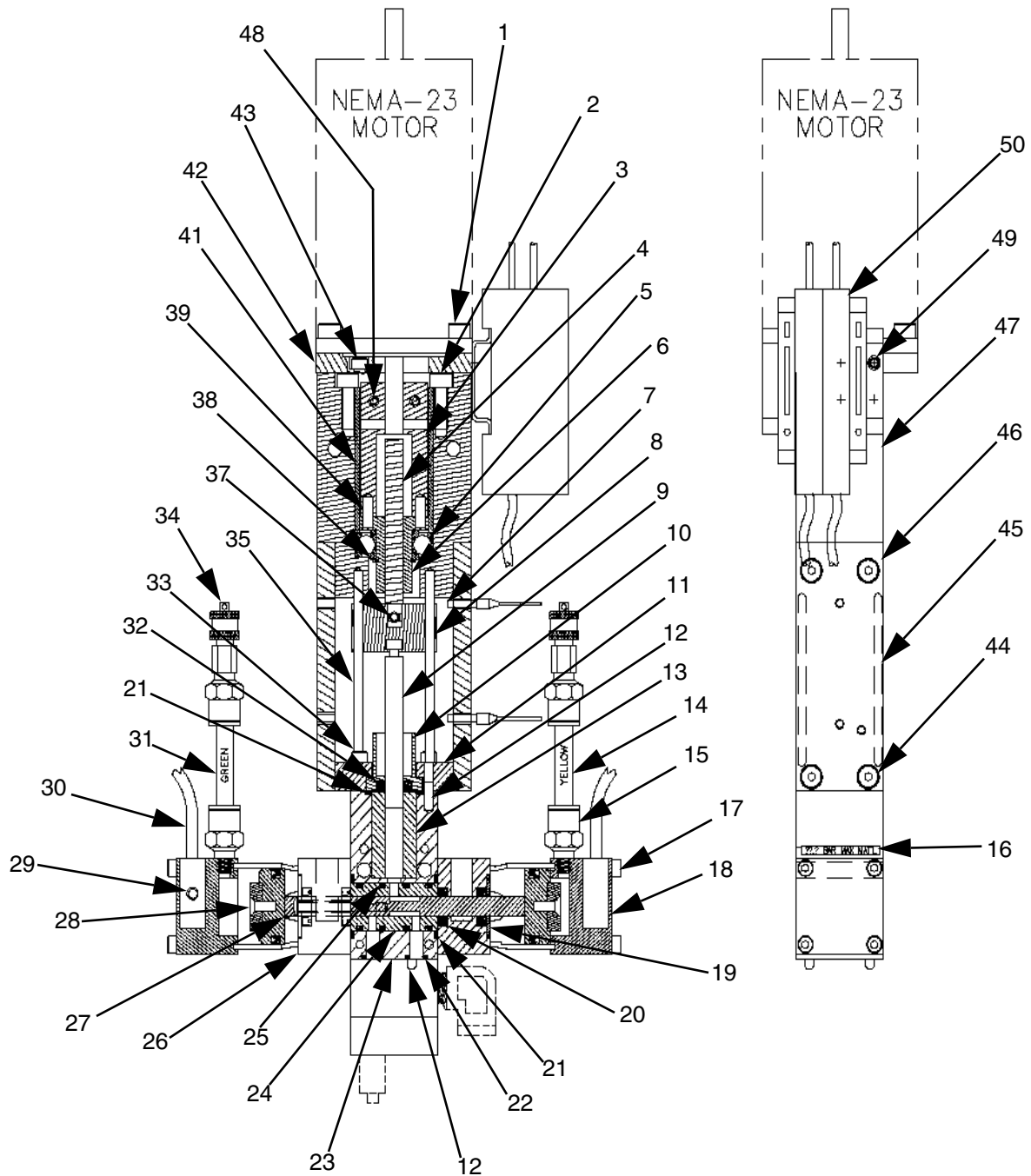
Schematics

For standard machines, the schematics will be included in the Controls Parts manual. See **Related Manuals** on page 3.

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

Parts

1053B Valve, 1" Stroke



1053B Valve Shared Components, 1" Stroke

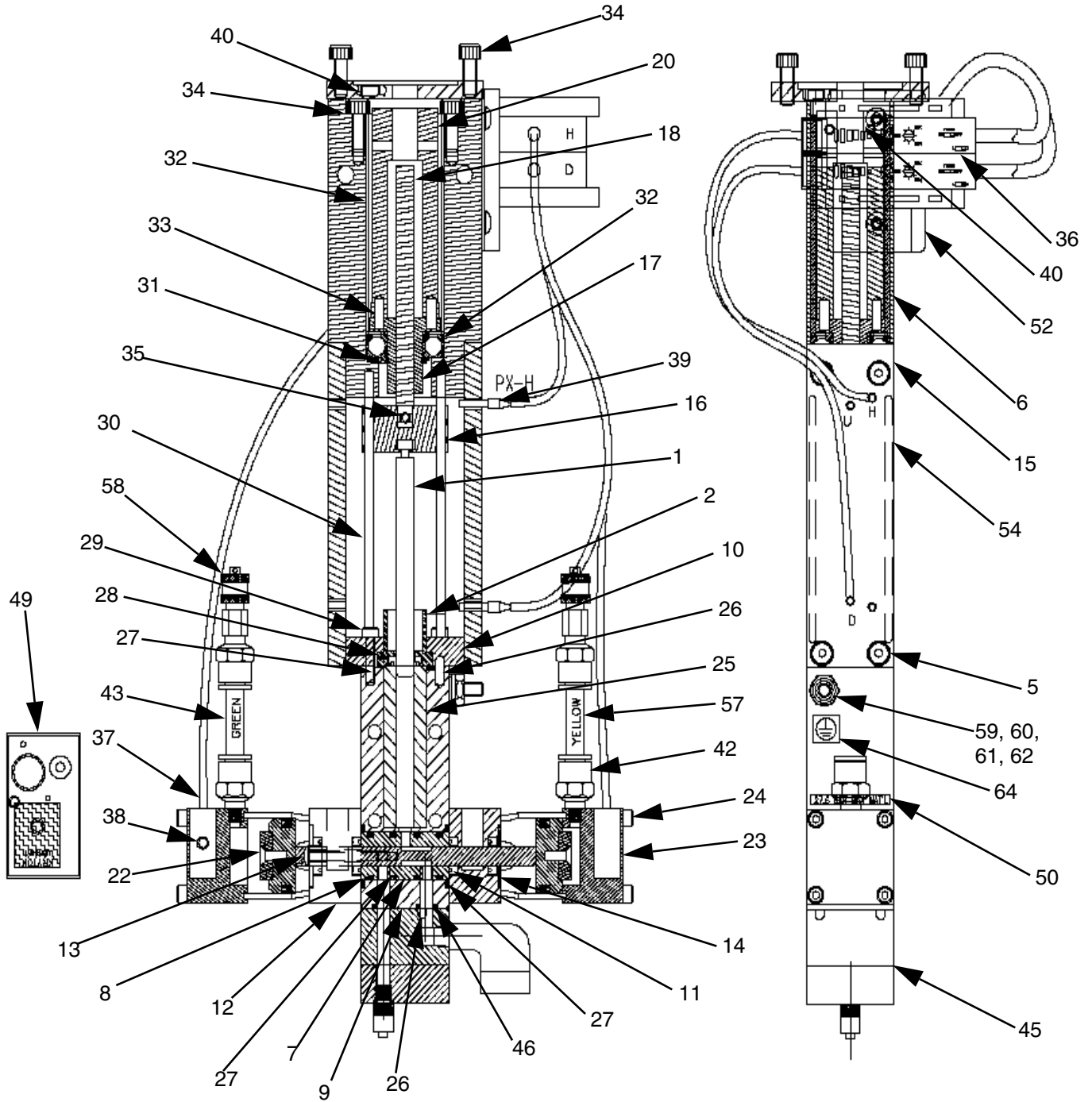
Ref	Part	Description	Qty
50	16D050	AMPLIFIER, 1 chan, photo, pnp, 24vdc	2
49	24D589	RAIL, amplifier	1
51	24P096	KIT, installation, sleeve, 1052	1
31	61/2904-GN/11	TUBE	3
14	61/2904-YL/11	TUBE	3
16	84/1050-400/11	LABEL, decal, mat'l, max, bar, clear	1
34	94/0170/99	FITTING, conn	2
15	94/0740-B/99	CONNECTOR, connector	4
21	95/0017/00	O-RING, vit	3
22	95/0503/00	O-RING, vit	2
25	95/0515/00	O-RING, vit	4
20	95/0850/11	SEAL, pospk	4
39	96/0206/98	PIN, roll	3
38	96/0370/99	RING, ret, ext	1
19	A2000098	RETAINER, 1052, seal	2
26	A2000186	CUP, 1052, seal	2
42	A2000345	PLATE, 1053, adapter, motor	1
4	A2000433	SCREW, 1053, lead	1
6	A2000434	NUT, leadscrew	1
35	A2000525	ROD	2
11	A2000527	BLOCK, 1053, divorced	1
8	A2000529	BLOCK, 1053, connecting	1
23	A2000531	HOUSING, 1053, main blk	1
41	A2000666	SLEEVE, 1053, bearing ret	1
3	A2000668	COUPLER, 1053	1
47	A2000673	BLOCK, 1053	1
46	A2000705	PLATE, 1053	2
45	A2000708	GUARD, 1053	2
52	A2010026	NEEDLE, 1052, adptr asy	1
18	A2010097	CAP, 1052, end, mag piston	2
28	A2010112	PISTON, 1052	2
17	B3000006	SCREW, shc	8
43	B3000023	SCREW, shc	6
33	B3000028	SCREW, shc	2
37	B3000061	SCREW, shs	2
29	B3500049	SCREW, shs	2
2	B4000010	SCREW, shc	2
1	B4000022	SCREW, shc	4
44	B7000021	SCREW, shc, shdr	8
30	F0200043	SWITCH, reed	2
7	F0200075	CABLE, prox-photo	2
12	J1000002	PIN, roll	3

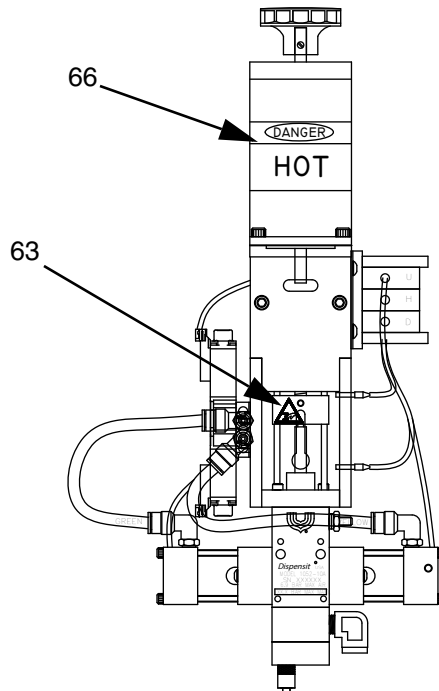
1053B Valve Variable Components, 1" Stroke

Ref. No.	Description	RS 062	RS 125	RS 188	RS 250	RS 375	Qty
		A2A10019	A2A10015	A2A10007	A2A10008	A2A10009	
5	BEARING	84/0210/11	84/0210/11	84/0210/11	84/0210/11	84/0210/11	1
32	SEAL, pospk	95/0893/11	95/0883/11	95/0884/11	95/0850/11	95/0849/11	1
27	SCREW, bhsc	B3000014	96/0341/98	96/0341/98	96/0341/98	96/0341/98	4
NOT SHOWN	FASTENER, shc	N/A	96/0360/99	N/A	N/A	N/A	4
13	SLEEVE, 1052	A2000584	A2000499	A2000183	A2000184	A2000185	1
10	SEAL, 1052, cup	A2000582	A2000500	A2000168	A2000169	A2000170	1
9	ROD, 1053, meter	A2000628	A2000535	A2000519	A2000520	A2000521	1
24	SPOOL, 1052	A2010022	A2010022	A2010022	A2010022	A2010022	1
36	KIT, seal	D5000078	D5000063	D5000064	D5000065	D5000066	1

Ref. No.	Description	TT 062	TT 125	TT 188	TT 250	TT 375	CC 250	Qty
		A2A10200	A2A10016	A2A10010	A2A10011	A2A10012	A2A10032	
5	BEARING	84/0210/11	84/0210/11	84/0210/11	84/0210/11	84/0210/11	84/0210/11	1
32	SEAL, pospk	95/0893/11	95/0883/11	95/0884/11	95/0850/11	95/0849/11	95/0850/11	1
27	SCREW, bhsc	B3000014	9696/0341/98	B3000014	B3000014	96/0341/98	96/0341/98	4
NOT SHOWN	FASTENER, shc	N/A	N/A	N/A	N/A	N/A	B2000008	4
13	SLEEVE, 1052	A2000693	A2000539	A2000515	A2000516	A2000517	A2000887	1
10	SEAL, 1052, cup	A2000582	A2000500	A2000168	A2000169	A2000170	A2000169	1
9	ROD, 1053, meter	A2000634	A2000534	A2000522	A2000523	A2000524	A2000912	1
24	SPOOL, 1052	A2010021	A2010021	A2010021	A2010021	A2010021	A2010144	1
36	KIT, seal	D5000078	D5000063	D5000064	D5000065	D5000066	D5000065	1

1053B Valve, 2" Stroke





1053B Valve Shared Components

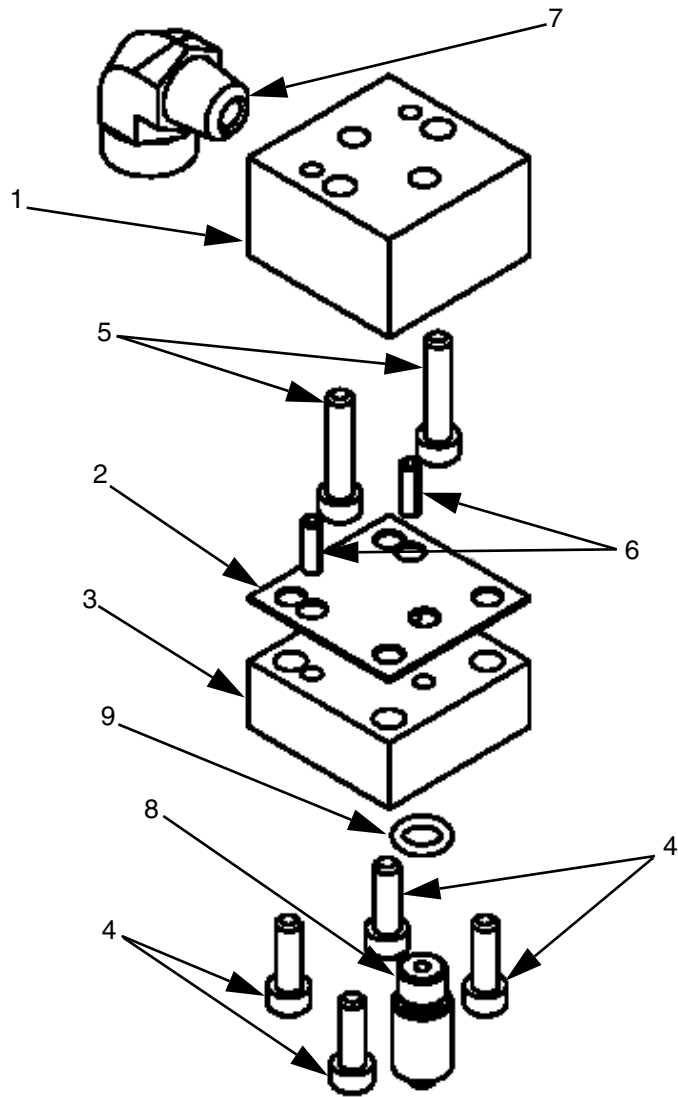
Ref	Part	Description	Qty	Ref	Part	Description	Qty
36	16D050	AMPLIFIER	2	22	A2010112	PISTON, 1052, assy,	2
52	24D589	RAIL, amplifier	1			spool	
32	84/0210/11	BEARING	1	24	B3000006	SCREW, shc	8
27	95/0017/00	O-RING, vit	3	13	B3000014	SCREW, shc	4
46	95/0503/00	O-RING, vit	2	40	B3000023	SCREW, shc	6
8	95/0515/00	O-RING, vit	4	29	B3000028	SCREW, shc	2
28	95/0849/11	SEAL, posipak	1	35	B3000061	SCREW, shs	2
11	95/0850/11	SEAL, pospk	4	34	B4000010	SCREW, shc	6
33	96/0206/98	PIN, roll	3	5	B7000021	SCREW, shc, shdr	8
31	96/0370/99	RING, ret, ext	1	37	F0200043	SWITCH, reed	2
14	A2000098	RETAINER, 1052, seal,	2	39	F0200075	CABLE, prox-photo, reflct	2
		oil cup		26	J1000002	PIN, roll	4
2	A2000170	SEAL, 1052, cup	1	65▲	172479	TAG, warning (<i>not shown</i>)	1
12	A2000186	CUP, 1052, seal, plate,	2	43	61/2904-GN/11	TUBE	3
		alum		57	61/2904-YL/11	TUBE	3
21	A2000345	PLATE, 1053, adapter,	1	61	81/0052-GY/11	WIRE	3.334
		motor		62	81/9997-M/11	TERMINAL, tongue	1
17	A2000434	NUT, leadscrew	1	66▲	84/0130-15/11	LABEL, danger, hot	1
10	A2000527	BLOCK, 1053, divorced	1	63▲	84/0130-22/11	LABEL, caution, crush	2
16	A2000529	BLOCK, 1053	1	64▲	84/0130-25/11	LABEL, prot earth(grnd)	1
30	A2000599	ROD, 1053	2	58	94/0170/99	FITTING, conn	2
18	A2000603	SCREW, 1053	1	42	94/0740-B/99	CONNECTOR, connector	4
15	A2000620	PLATE, 1053	2	60	96/0005-2/99	WASHER, lock, ext	2
9	A2000622	BLOCK, 1053, main blk	1	59	96/0124/99	NUT, hex	2
20	A2000667	COUPLER, 1053b	1	38	B3500049	SCREW, shs	2
6	A2000669	BLOCK, 1053	1	49	D5000066	KIT, seal, 1053-10a/&10b	1
19	A2000670	BEARING	1				
54	A2000707	GUARD, 1053	2				
45	A2010026	NEEDLE, 1052, adptr asy	1				
23	A2010097	CAP, 1052, end, mag piston	2				

▲Replacement Danger and Warning labels, tags, and cards are available at no cost.

1053B Valve Variable Components, 2" Stroke

Ref. No.	Description	TT 375	RS 375	Qty
		A2A10018	A2A10020	
50	LABEL, decal	84/1050-1200/11	84/1050-400/11	1
25	SLEEVE, 1053	A2000600	A2000633	1
1	ROD, 1053, disp	A2000624	A2000635	1
7	SPOOL, 1052	A2010022	A2010021	1

1053B Valve



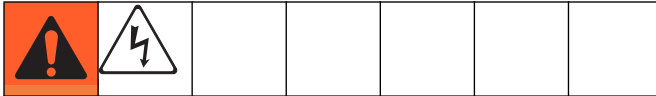
1053 Standard Inlet/Outlet Needle Block

Ref	Part	Description	Qty
7	94/0527/98	FITTING, elbw	1
9	95/0904/00	O-RING, vit	1
3	A2000148	BLOCK, 1052/1053	1
1	A2000164	BLOCK, 1052, inlet	1
2	A2000271	GASKET, 1052	1
4	B3500008	SCREW, shc	4
5	B3500026	SCREW, shc	2
8	E4000016	ADAPTER, ndl	1
6	J1000002	PIN, roll	2

Rebuild

Before proceeding, remove material feed line and pump material out of the valve. Shut power off from control panel and disconnect main power. Disconnect the motor wire harness from the system. Loosen the home and spool sensor set screws. Note the position of the sensors and slide them out of the valve. Disconnect the air lines.

Disassembly



To reduce the risk of electric shock, turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.

Disconnect electrical power before servicing the motor and motor coupling assembly. Refer to the illustrations shown on page 31.

Refer to the drawings in the back of this manual for your exact model.

Disassembly Of 1053 Valve Section

1. Remove motor from Mounting Plate (23).
2. Remove mounting screws to remove valve from its support.
3. On the right side of the valve, remove Valve End Cap (25). The Valve Piston (24) will be inside the end cap.

NOTE: If necessary, remove Valve Piston (24) from Valve End Cap (25) by applying low air pressure through valve to push out the Valve Piston (24).
4. Remove Seal Plate (14).
5. Repeat steps 3 and 4 with the left side of the valve.
6. Push the Spool/Sleeve (7) and (36) out with a finger. If it does not slide out, tap it gently using a wood or plastic dowel. *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 Needle Block (35) from Inlet Block (9).

8. Remove Inlet Block (9) from Valve Body (3).
9. Remove O-Rings (12) from Valve Body (3).
10. Remove Side Blocks (17) from Bottom Block (11) and Divorced Section (6).
11. Remove Valve Body (3) from Bottom Block (11) by removing Screws (31).
12. Remove Dispense Sleeve(27) from Valve Body (3).
13. Slide Bottom Block (11) away from Metering Rod (1) and Guide Rods (32).
14. Remove Seal Cup (2) from Bottom Block (11). Remove Posipak Seal (30) from Seal Cup (2).
15. Slide Guide Rods (32) out of Connection Block (18).
16. Remove Metering Rod (1) from Connection Block (18).

NOTE: Only perform the steps below if the Motor Coupling Section needs rebuilt.

Disassembly Of Motor Coupling Section

17. Loosen Screws (4) to disconnect Connection Block (18) from Lead Screw (20).
18. Remove Mounting Plate (23) from Divorced Section (6).
19. Remove Screws (33) from Divorced Section (6).
20. Remove Retaining Sleeve (21) from Divorced Section (6).
21. Remove Lead Screw (20) and Lead Screw Nut (19) from Divorced Section (6).

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 seal kit. Use Krytox 203GPL (part number 84/0200-K3/11) for lubricating valve parts including seals and o-rings.

Refer to FIG. 9 and the drawings in the back of this manual for your exact model.

Assembly Of 1053 Valve Section

NOTE: Check the Metering Rod (1), Dispense Sleeve (27), and Spool/Sleeve Assembly (7) and (36) for wear and if they are worn secure replacements before proceeding.

NOTE: Use caution as you install 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. Install four lubricated O-rings (8) onto the Spool/Sleeve Assembly (7) and (36). Lubricate the Spool O.D. and Sleeve O.D. too.
2. Insert the Spool/Sleeve Assembly (7) and (36) carefully into the Valve Body (3) rocking it to ease it into place. Be sure to align the Bottom holes of the Sleeve piece of the Spool/Sleeve (7) with the outlet and inlet holes of the Valve Body (3).

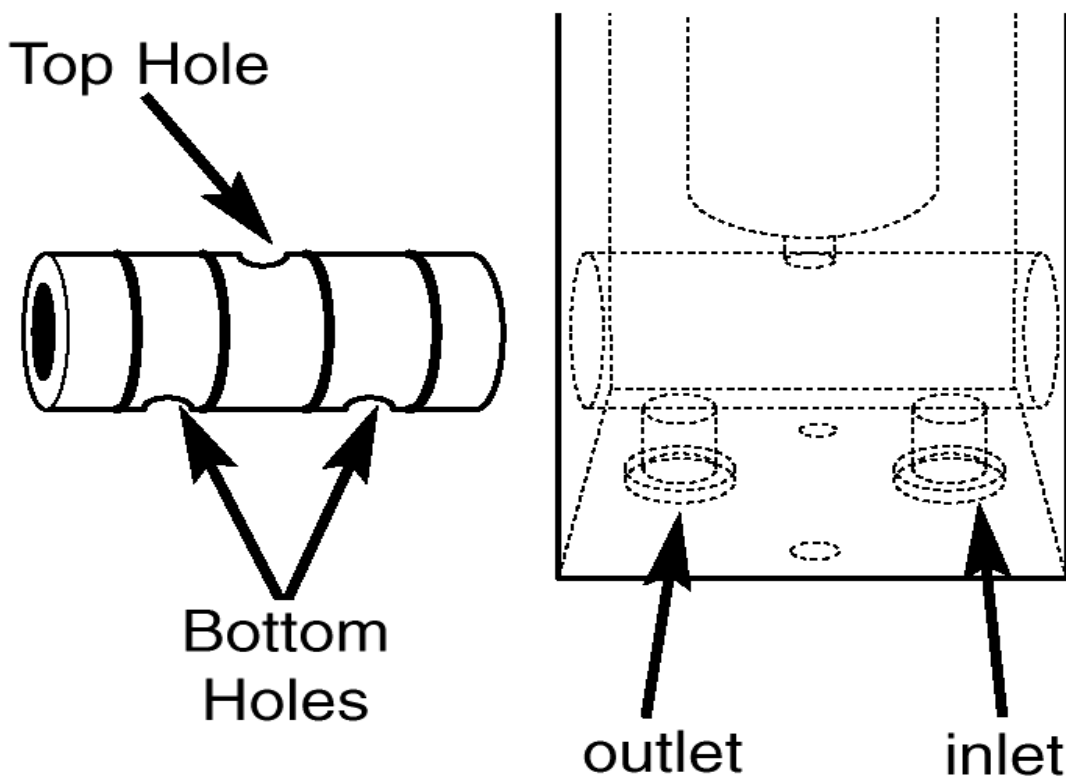


FIG. 9

Install the Seal Plates on the Main Body

3. Install a lubricated O-ring (10) on the left side of the Valve Body (3) next to the sleeve part of the Spool/Sleeve Assembly (7) and (36).
4. Install two lubricated Posipak Seals (13) in the left Seal Plate (14) so that the O-ring side of both Posipaks will be facing the Valve Body (3). Be sure to tuck the lip of the Posipak into its cavity to avoid tearing it.

5. Position the left Seal Plate (14) with the oil cup upwards and slide it over the Spool part of the Spool/Sleeve Assembly (7) and (36) with the counterbore for the Seal Retainer (16) facing out. Slide the Seal Retainer (16) over the Spool and install two Screws (15).
6. Repeat steps 3, 4 and 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 (3). Insert the Dispense Sleeve (27) into the Valve Body (3). 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 (29) over the Dispense Sleeve (27) and against the Valve Body (3).
9. Insert the Seal Cup (2) into the Bottom Block (11).
10. Slide a lubricated Posipak Seal (30) into the Seal Cup (2) with the o-ring side facing down.
11. Lubricate the Metering Rod (1) and slide it carefully through the Posipak Seal (30), Seal Cup (2) and Bottom Block (11) so that it projects about 1/2" through this assembly.
12. Using the projecting Metering Rod (1) to guide the assembly into the Dispense Sleeve (27), slide the Bottom Block (11) down against the Valve Body (3) and secure with Screws (31).
13. Pull the Metering Rod (1) away from the Valve Body (3) so that the end of it is only slightly in the Dispense Sleeve (27).
14. Slide the key slot in the Connection Block (18) over the end of the Metering Rod (1).
15. Insert the Guide Rods (13) through the Connection Block (18) and into the Bottom Block (11).

NOTE: If the Motor and Motor Coupling Assembly had been disassembled, then reassemble per the instructions below 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 (31) enter their holes in the Divorced Section (6) and the end of the Lead Screw (20) seats in the Connection Block (18).

17. Install the Screws (4) into the Connection Block (18) against the groove in the Lead Screw (20).
18. Install the left Side Block (17) with Screws (5). Insert the clear plastic Guards (not shown) into the slots in the left Side Block (17) so that the access hole in the guard is toward the top of the valve. Install the right Side Block (17) so that the Guards seat in the slots and secure with Screws (5).

Mount the Valve End Caps to the Seal Plate Cups

19. Install a lubricated U-cup Seal (24) into the groove of the left Spool Shift Piston (24). 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 End Cap (25). Slide the Spool Shift Piston (24) into the left End Cap (25) tucking the lip of the U-cup seal (24) into the End Cap (25) carefully.
21. Install the Piston/End Cap onto the left Seal Plate (14) using four Screws (26). 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. Repeat steps 19 - 21 for the right side.
23. Install lubricated O-rings (12) to the Valve Body and attach the Inlet Block (9) with Screws (39).
24. Lubricate the Gasket (37) and stick it to the Inlet Block (9).
25. Install the Needle Block (35) with Screws (38). Remount the valve. Install the home and spool sensors being careful not to overtighten the set screws. Install the air supply lines and connect the power. Perform the Dry Run, Loading & Priming and Output Verification procedures.

Motor and Motor Coupling Assembly

1. Assemble Motor Coupler (3) by inserting Roll Pins (5) and Screws (4).

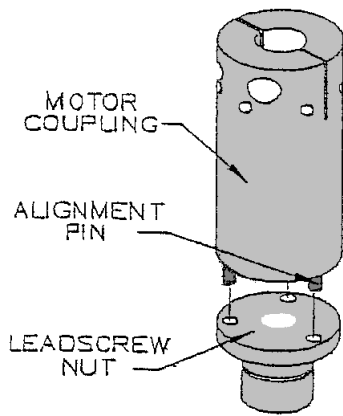
NOTE: This step is only required if the motor coupler has been disassembled for service or removed from the motor.

2. Assemble Lead Screw Nut (6) with Bearing (9) and E-ring (8).
3. Thread Lead Screw (7) into Lead Screw Nut assembly until lead screw is flush with top of nut.
4. Slide Lead Screw & Nut Assembly into Divorced Section (11).
5. Slide Bearing Retaining Sleeve (2) into Divorced Section (11) taking care to line up the slots in the two pieces. Secure in place with Socket Head Cap Screws (10).
6. Secure Motor Mounting Plate (1) to Divorced Section using Socket Head Cap Screws (15).
7. Place Motor Coupler (3) on motor shaft and lightly snug Screws (4) leaving about $\frac{1}{2}$ " of motor shaft visible between Motor Coupler and motor. Insert Motor Coupler (3) through Motor Mounting Plate (1), align 3 Roll Pins (5) and insert into Lead Screw Nut (6) 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.

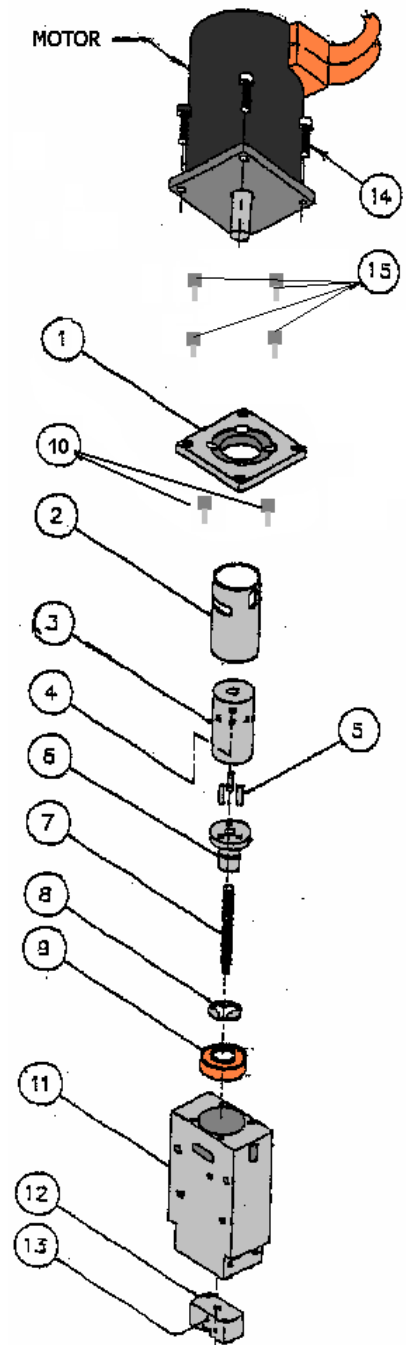
8. Remove motor and motor coupler, tighten Screws (4) and reassemble securing motor to Motor Mounting Plate using Socket Head Cap Screws (14).

Motor and Motor Coupling Illustration



Pin Alignment

Ref	DESCRIPTION
1	MOTOR MOUNTING PLATE
2	BEARING RETAINING SLEEVE
3	MOTOR COUPLER
4	SCREW, SHC, #6-32x3/8
5	ROLL PIN, 1/8 DIA.x 1/2
6	LEAD SCREW NUT
7	LEAD SCREW
8	E-RING
9	BEARING
10	SCREW, SHC, #10-32x1/2
11	DIVORCED SECTION
12	METERING ROD CONNECTION BLOCK
13	SET SCREW, #8-32x3/16
14	SCREW, SHC, #10-32x1/2
15	SCREW, SHC, #6-32x 3/8



Motor and Motor Coupling Installation.

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

Electrical Requirements PNP Amplifiers

There are three versions of Bare leads wire Valve without controls/motor integrated.

1. Devices (shown below): Amplifier/Prox Switch Motor Home, Amplifier/Prox Switch Motor Up, Amplifier/Prox Switch Motor Down, Limit Switch Open Spool Valve and Limit Switch close Spool Valve.
2. Devices shown on option one but without: Amplifier/Prox Switch Motor Up.

3. Devices shown on option one but without: Amplifier/Prox Switch Motor Up and Amplifier/Prox Switch Motor Down.

15 pin D-Sub Connector Valve with controls/motor integrated (Connector not shown) wires are terminated at the plug with the above devices on option one and also include: Solenoid Open Spool Valve and Closed Spool Valve. See **Related Manuals** on page 3.

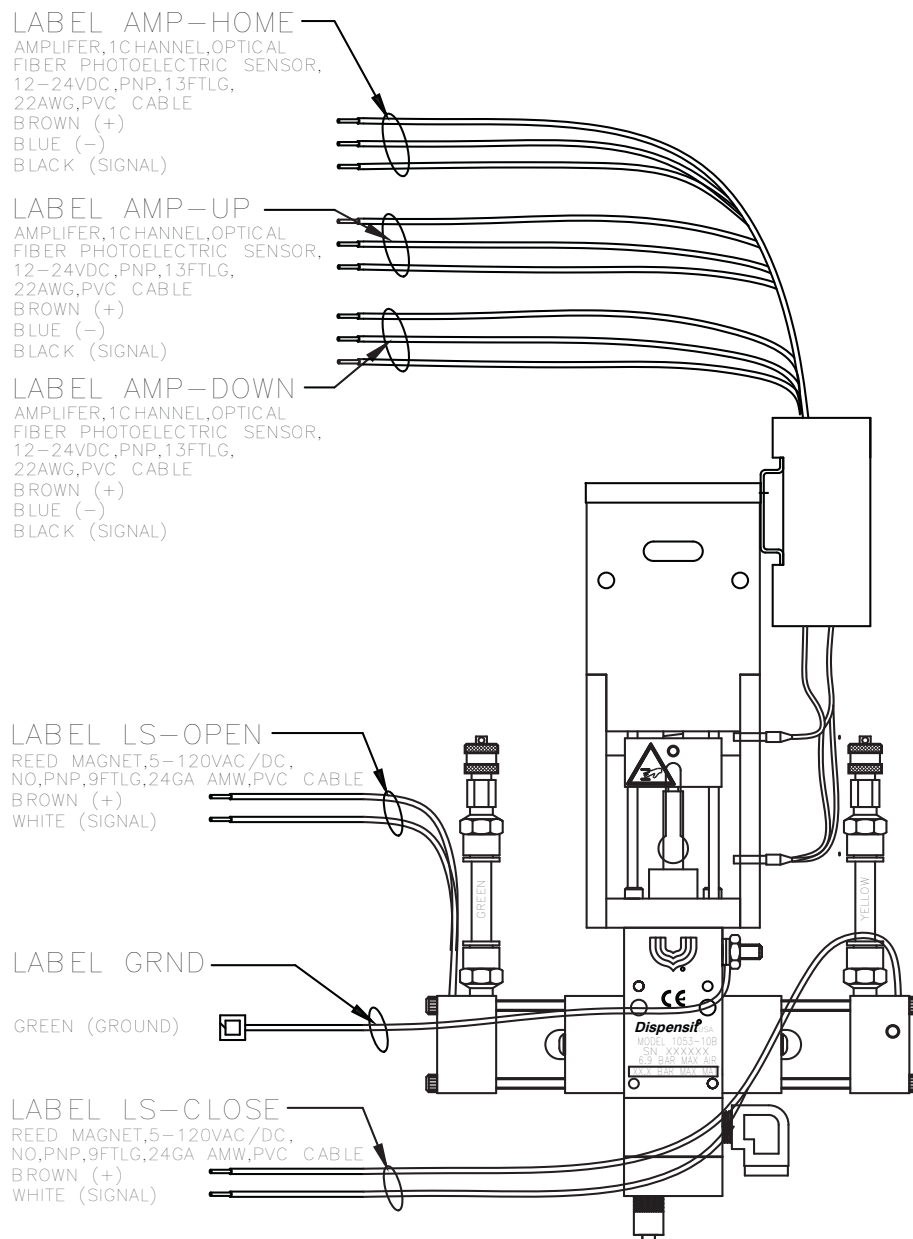


FIG. 10

Electrical Requirements NPN Amplifiers

Bare leads wire Valve with out controls/motor integrated (shown below) from devices: Amplifier/Prox Switch Motor Home, Amplifier/Prox Switch Motor Down, Limit Switch Open Spool Valve and Limit Switch Close Spool Valve.

NOTE: No options exist for Connector Valve with NPN Amplifiers and controls/motor integrated.

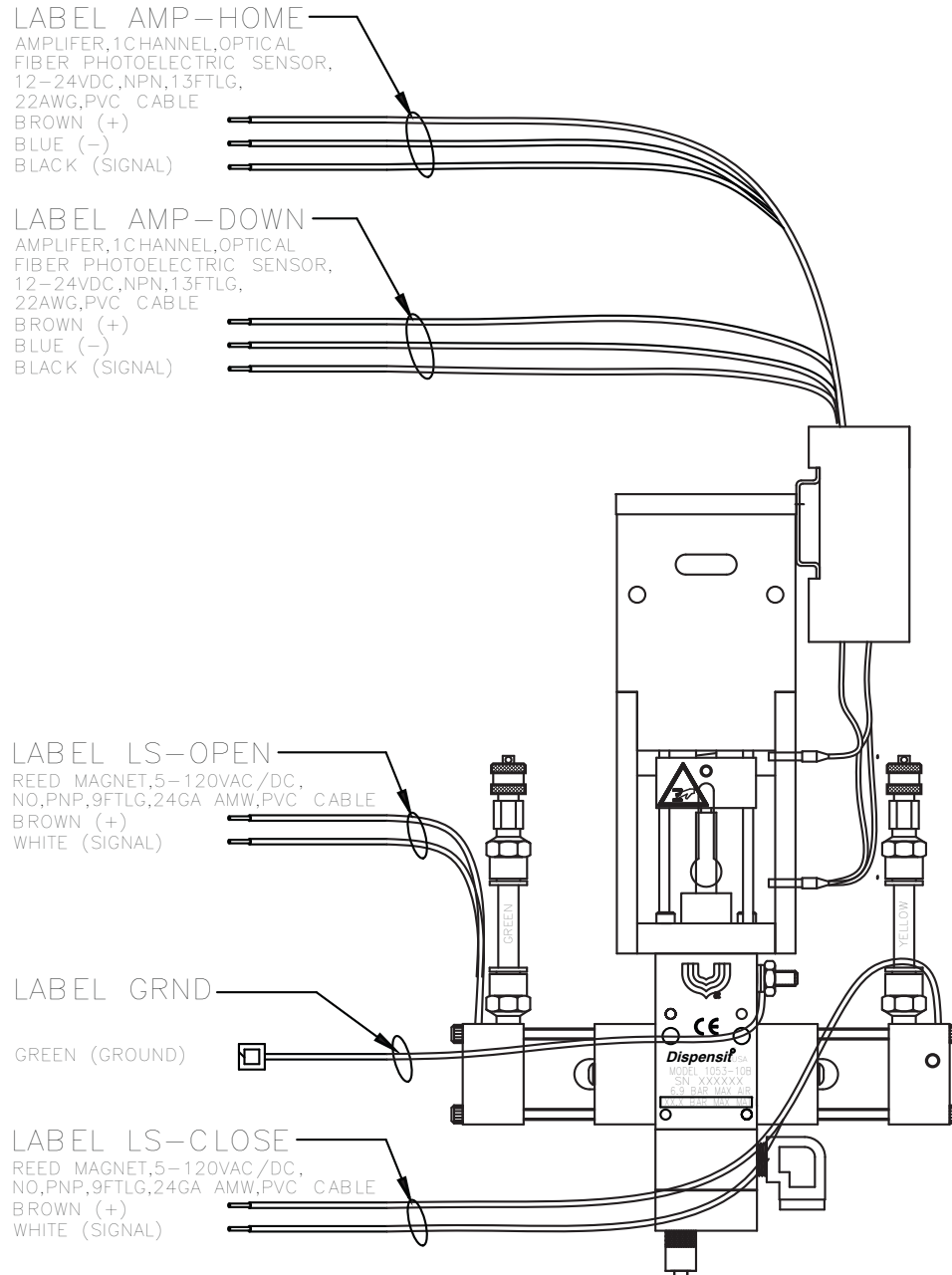


FIG. 11

Technical Data

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

Maximum Ambient Temperature	110°F (43°C)
Maximum Operating Temp	150°F (65°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) Plastic Sleeves: 400 psi (2.8 MPa, 28 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)
Dimensions (H x L x W), height to end of material inlet block (less needles)	1 in.: 14.83 x 6.23 x 2.91 in. (377 x 158 x 74 mm) 2 in.: 17.85 x 6.23 x 2.91 in. (453 x 158 x 74 mm) <i>Graco-supplied Feed System Assemblies</i> <i>(depends on selected options):</i> <i>Smallest:</i> 22.5 x 10 x 4 in. (572 x 254 x 102 mm) <i>Largest:</i> 60 x 28 x 19 in. (1524 x 711 x 483 mm)
Weight	<i>Metering Valve:</i> 3 - 5 lb (1.36 - 2.27 kg) <i>with Standard Graco motor:</i> 7-9 lb (3.18 - 4.08 kg)
Wetted Parts	<i>Metering Valve:</i> Hardened steel, 303/304, 404, UHM-WPE, Tungsten, carbide, fluoroelastomer, EPDM, PTFE <i>Graco-supplied Feed System Hoses and Fittings:</i> Mild steel, 303/304, PTFE, buna, polyethylene, polypropylene <i>Graco-supplied Tanks:</i> Polyethylene, 303/304, mild steel

Motor Specifications

Any motor used with the Motor Driven model must meet the following 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.

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.

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Original instructions. This manual contains English. MM 313812

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Revision H, April 2017