

Mongoose Chemical Metering Pump

3A4131H

EN

Electric metering pump for injecting chemicals at well sites. For professional use only.

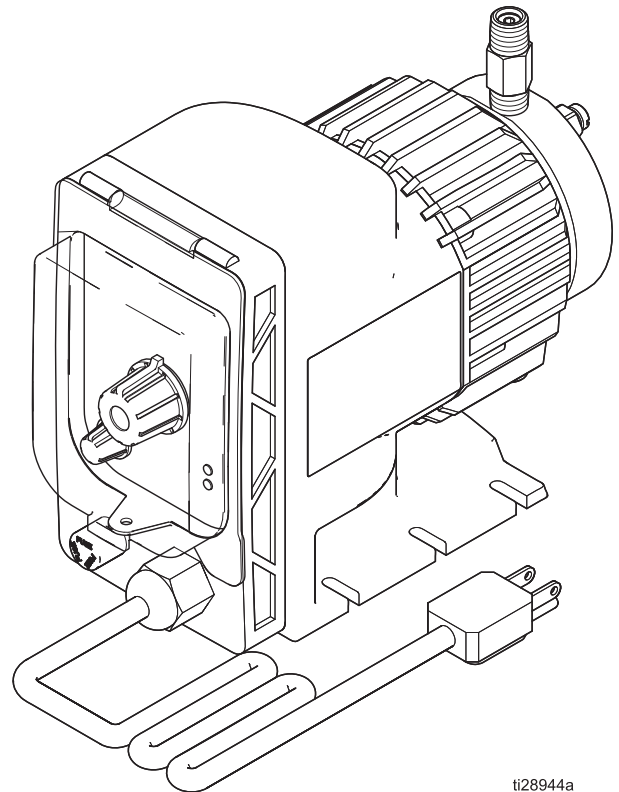
Not approved for use in explosive atmospheres or hazardous locations.

See page 2 for model information, including maximum working pressures.



Important Safety Instructions

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




ti28944a

Contents










Warnings	3	Troubleshooting	11
Installation	5	Repair	13
Grounding	5	Stainless Steel Fluid End Repairs	13
Flush Before Using Equipment	5	Plastic Fluid End Repairs	14
Location Requirements	5	Parts	17
Plumbing Requirements for Stainless Steel / Plastic Fluid Sections	5	Mongoose Metering Pump	17
Component Identification	6	Kits and Accessories	19
Mounting and Chemical Supply Connection	7	Dimensions	20
Typical Installation	8	Technical Data	21
Operation	9	Graco Standard Warranty	22
Pressure Relief Procedure	9		
Flush the Equipment	9		
Prime the Pump	9		
Adjust Feed Rate	10		
Adjust Stroke Length	10		
Calculate Output	10		

Models and Approvals

Models	Voltage	Fluid Section Material	Flow (GPD)	Maximum Working Pressure psi (MPa, bar)	Approvals
A21000	120 VAC	316 SST	17	250 (1.72, 17.2)	 Intertek 3008494 Conforms to UL STD 778 Certified to CSA C22.2 No. 108
A21001	120 VAC	316 SST	17	250 (1.72, 17.2)	
A21004	230 VAC	316 SST	17	250 (1.72, 17.2)	
A21008	120 VAC	PVDF	17	250 (1.72, 17.2)	
A21009	120 VAC	PVDF	15	150 (1.03, 10.3)	
A21010	120 VAC	PVDF	30	110 (0.76, 7.6)	
A21011	120 VAC	PVDF	45	75 (0.52, 5.2)	
A21012	230 VAC	PVDF	17	250 (1.72, 17.2)	
A21013	230 VAC	PVDF	15	150 (1.03, 10.3)	
A21014	230 VAC	PVDF	30	110 (0.76, 7.6)	
A21015	230 VAC	PVDF	45	75 (0.52, 5.2)	
A21016	12 VDC	316 SST	10	140 (0.97, 9.7)	

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	
 	FIRE AND EXPLOSION HAZARD When flammable fluids are present in the work area be aware that flammable fumes can ignite or explode. To help prevent fire and explosion: <ul style="list-style-type: none"> • Use equipment only in well ventilated area. • Eliminate all ignition sources, such as cigarettes and portable electric lamps. • Ground all equipment in the work area. • Keep work area free of debris, including rags and spilled or open containers of solvent. • Do not plug or unplug power cords or turn lights on or off when flammable fumes are present. • Use only grounded hoses. • 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.
 	ELECTRIC SHOCK HAZARD This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock. <ul style="list-style-type: none"> • Turn off and disconnect power cord before servicing equipment. • Connect to grounded outlet protected by Class A GFCI. • Use only 3-wire extension cords. • Ensure ground prongs are intact on power and extension cords.
  	PRESSURIZED EQUIPMENT HAZARD Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury. <ul style="list-style-type: none"> • Follow the Pressure Relief Procedure when you stop spraying/dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
	TOXIC FLUID OR FUMES HAZARD Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed. <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.

WARNING



PERSONAL PROTECTIVE EQUIPMENT

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:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment regularly. 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.



Installation

NOTICE

It is recommended that adequate surge protection be used in order to protect products from voltage changes in your application.

Grounding



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

- Never remove ground wire from plug. Connect to grounded outlet protected by Class A GFCI.

Pump: grounded through electrical cord.

Fluid lines: use only electrically conductive lines.

Plumbing Requirements for Stainless Steel / Plastic Fluid Sections

The Mongoose pump uses carefully matched components to achieve a predictable metering output. This predictability can only be maintained if all fitting sizes remain unaltered.

All connections should be double checked to insure against leakage. If hazardous chemicals are being pumped, use shielding around outlet fluid lines. **NOTES:**

- There is an approximate 2.5 psi capability lost for every 1 foot of vertical rise of the outlet fluid line to the injection point.
- **Do not** attempt to reduce tubing size; this may reduce performance of unit.

Stainless Steel Fluid Section Models

Inlet and outlet valves are both 1/4 in. NPT fittings.

NOTE: Apply PTFE tape to threads on NPT fittings.

Plastic Fluid Section Models

Inlet and outlet valves use 3/8 in. or 1/4 in. tubing connectors, and 3/8 in. or 1/4 in. tubing. See FIG. 1.

Fluid supply container: follow local code.

NOTICE

In order to prevent over pumping at low back pressure (less than 50 PSI) install an inline check valve on the outlet line.

Flush Before Using Equipment

The equipment was tested with water. To avoid contaminating your fluid with water, flush the equipment with a compatible solvent before using the equipment. See **Flush the Equipment**, page 9.

Location Requirements

Select a mounting location convenient to both the chemical supply and a source of power for the pump.

NOTICE

Do not install the pump in a location where the ambient temperature exceeds 120° F (50° C). Higher temperatures will affect the output as well as the useful life of the pump.

NOTE: The prime/bleed valve on the plastic fluid section includes a 1/16 in. clear poly tubing. This tubing is to be used only with the prime/bleed valve and is not intended for pressurized use. Do not use with the inlet and outlet valves.

Tighten connectors no more than a 1/4 turn after the connection feels snug. Hand tighten only. Do not over-tighten.

NOTE: Do not apply PTFE tape to threads.

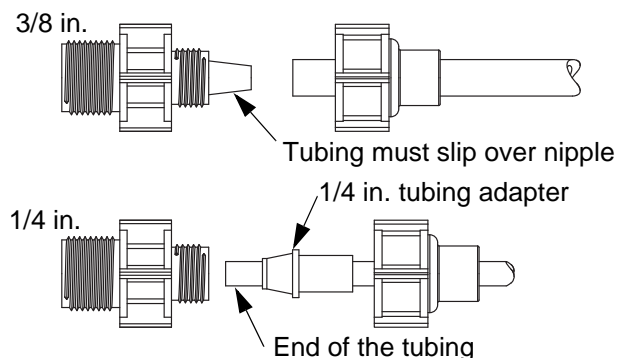


FIG. 1: Tubing Connections

Component Identification

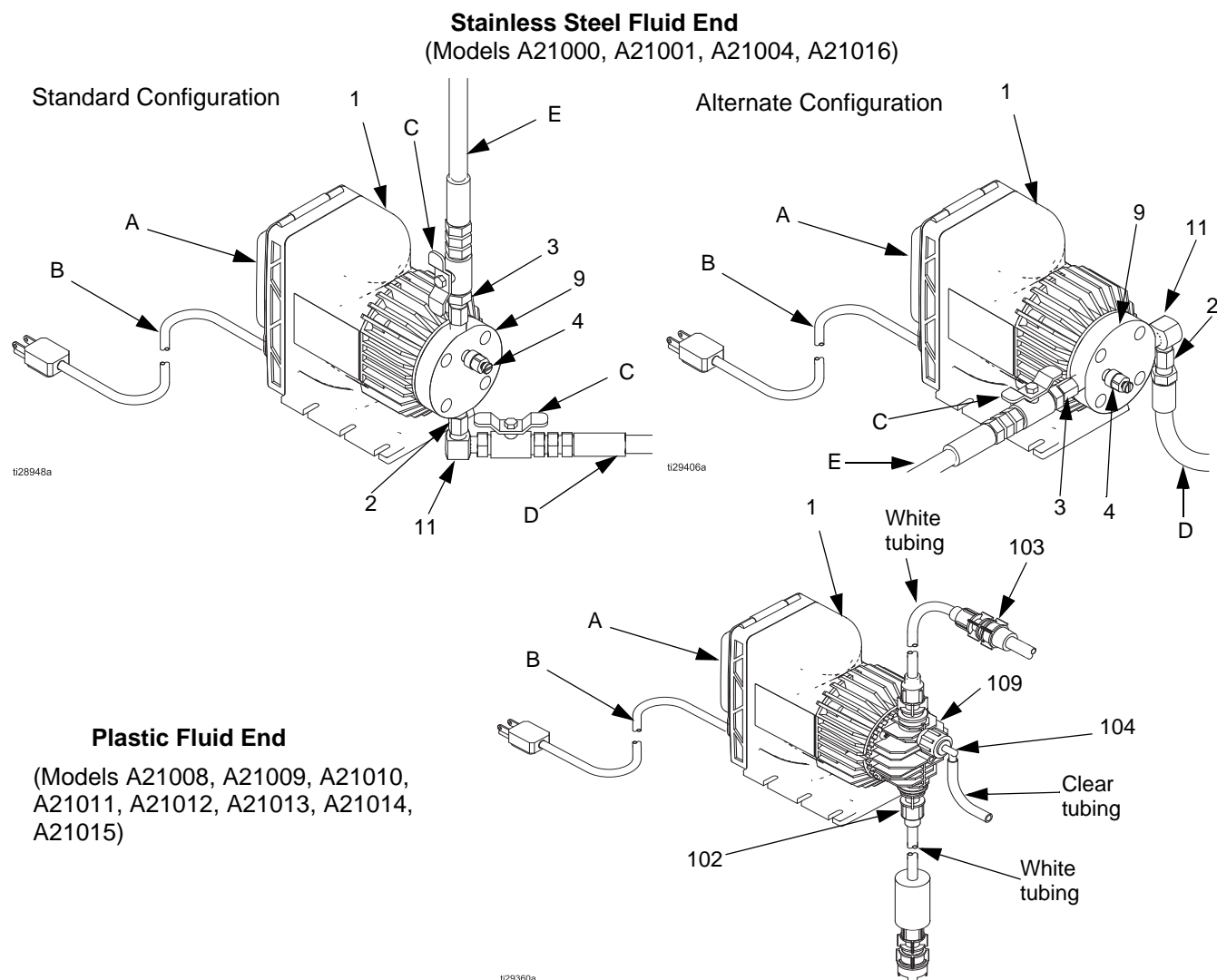


FIG. 2: Component Identification

Components Supplied by Graco

The following components are supplied by Graco:

- 1 Motor Assembly
- 2 Inlet Valve (stainless steel fluid end)
- 3 Outlet Valve (stainless steel fluid end)
- 4 Prime/Bleed Valve (stainless steel fluid end; not available on A21001)
- 9 Stainless Steel Fluid End
- 11 Elbow Fitting (stainless steel only; not supplied with A21001)
- 102 Inlet Valve Assembly (plastic fluid end, includes white tubing)
- 103 Outlet Valve Assembly (plastic fluid end, includes white tubing)

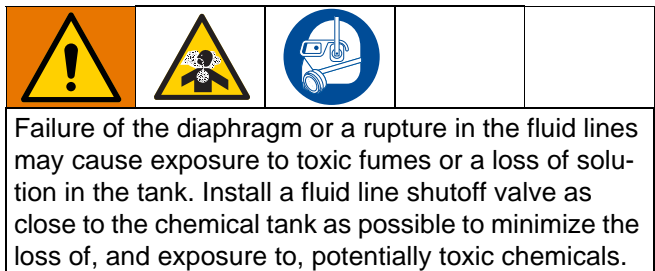
- 104 Prime/Bleed Valve Assembly (plastic fluid end, includes clear poly tubing)
- 109 Plastic Fluid End
- A Control Panel
- B Power Cord

Components Supplied by Customer

The following components are required to be supplied by the customer:

- C Shutoff Valve (inlet/outlet, stainless steel fluid end)
- D Inlet Fluid Line (stainless steel fluid end)
- E Outlet Fluid Line (stainless steel fluid end)

Mounting and Chemical Supply Connection



Flooded Suction Mounting

The fluid end (9) of the pump, shown in FIG. 2, is set up to accommodate mounting of the pump next to the chemical supply container (G), shown in FIG. 4.

NOTE: The inlet valve (2 or 102) must be kept in a vertical position for proper operation. The fluid end (9 or 109) can be removed and rotated 90° if needed.

Suction Lift Mounting (Plastic Fluid Section only)

The pump is mounted on top of a chemical supply container, shown in FIG. 4, so that the distance from the pump to the bottom of the container does not exceed 5 ft.

A weight is provided to hold the inlet fluid line (D) and foot valve (H) in a vertical position at the bottom of the container. Keep the inlet fluid line (D) relatively short, and avoid high spots or bends.

NOTE: Do not allow the foot valve (H) to lie horizontally in the tank. This defeats the action of the valve and causes the pump to lose prime.

Injection Check Valve Connection (Plastic Fluid Section only)

The injection check valve is designed to prevent a back flow and to inject chemical into a piping system. This valve must be mounted within 45° of vertical (see FIG. 3).

1. Install the 1/2 in. NPT end into the piping system. Apply PTFE tape to this end only.
2. Connect the outlet fluid line (E) from the Mongoose pump to the other end of the injection check valve.

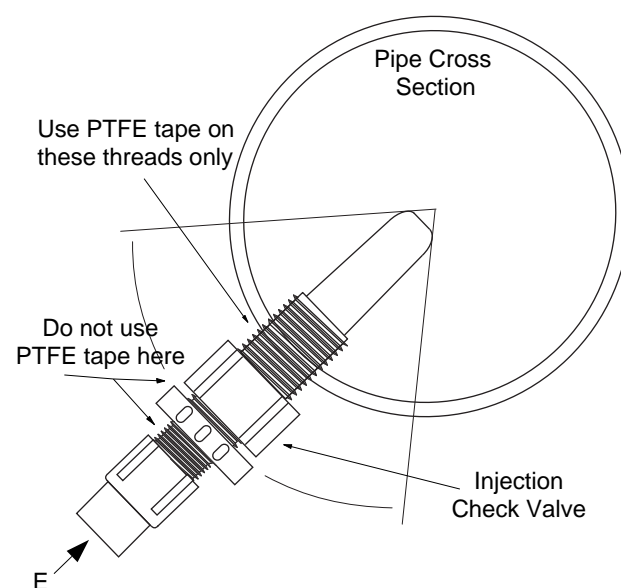


FIG. 3: Injection Valve Connection

Three-Function Valve Injection Assembly (Plastic Fluid Section only; Optional)

The optional three-function valve injection assembly provides three functions in one injection valve assembly.

- **Anti-siphon** - which allows metering of liquids into the inlet side of a circulating pump. It provides protection against an accidental application of suction pressure at the fluid injection point. A PTFE coated diaphragm provides a positive anti-siphon action.
- **Back pressure** - which permits metering into atmospheric discharge (such as an open container) without overpumping.
- **Line check** - which permits removal of outlet tubing without release of system fluid.

Typical Installation

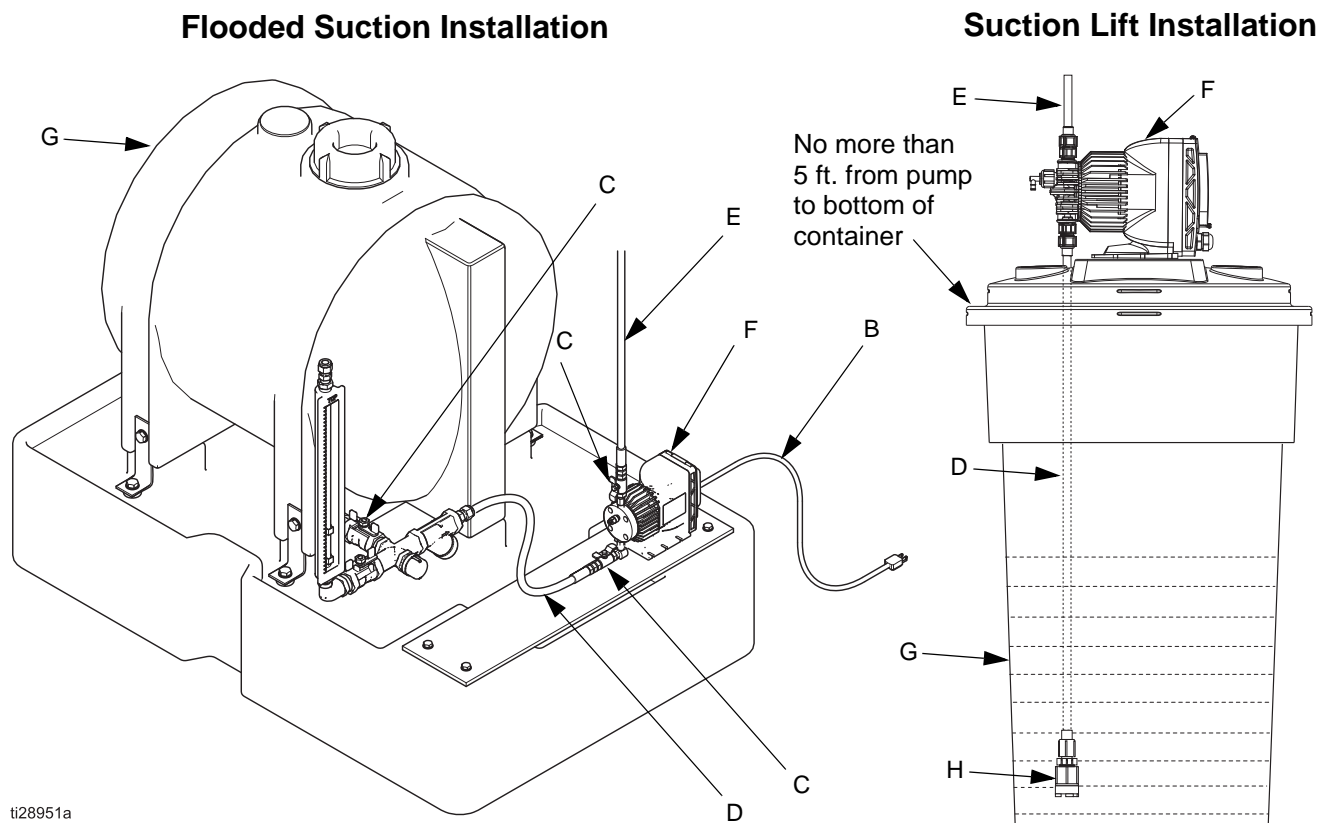


FIG. 4: Typical Installation

FIG. 4 shows two examples of an installation with a Mongoose chemical metering pump. Your installation may differ from what is shown here. The Mongoose pump (F) and the attached power cord (B) are the only components in FIG. 4 supplied by Graco. All other components are supplied by customer.

Key:

- B Power Cord
- C Shutoff Valve (Inlet/Outlet)
- D Inlet Fluid Line
- E Outlet Fluid Line
- F Mongoose Pump
- G Chemical Supply Container
- H Foot Valve

Operation

Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.

<p>This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as splashing fluid, follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing the equipment.</p>				

NOTE: Always discharge fluid into an approved container or location.

1. Turn SPEED knob (H) to off and disconnect power cord (B).
2. Shut off the inlet and outlet lines using shutoff valves (C).
3. Slowly crack the fitting connected to the outlet check valve to relieve downstream fluid pressure.

Flush the Equipment

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

- Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts.
1. Follow the **Pressure Relief Procedure**.
 2. Connect inlet fluid line (D) to the supply source of the flushing fluid.
 3. Connect outlet fluid line (E) to a waste container.

4. Run the pump until the dispensed fluid is predominately flushing fluid.
5. Follow the **Pressure Relief Procedure**.

Prime the Pump

--	--	--	--	--

1. Connect power (B) to the pump.
2. Set the STROKE % knob (J) to 100%. (See FIG. 5 on page 10.)
3. Set the SPEED knob (H) to maximum cycles per second.

While pump is operating, if fluid begins moving, no further priming is required.

If fluid is not moving, open prime/bleed valve (4 or 104) approximately one turn until fluid begins to move. When the inlet fluid line (D) fills, close prime/bleed valve (4 or 104).

NOTICE

Do not overtighten prime/bleed valve. Damage may occur.

Adjust Feed Rate

The Mongoose pump allows for the exact setting of the pump's SPEED knob (H) on the pump's control panel. See FIG. 5.

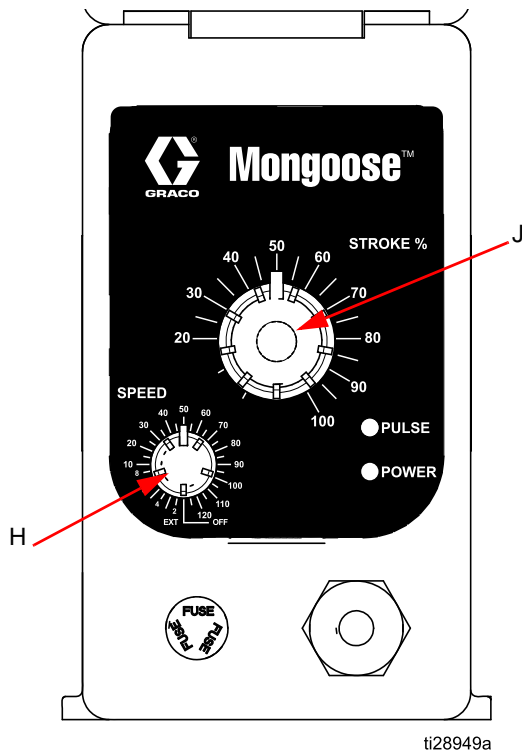


FIG. 5: Mongoose Control Panel

NOTE: Standard cycles per minute settings available are: 1, 2, 3, 4, 5, 6, 7, 8, 10, and increase by 5 thereafter up to the maximum of 125.

Adjust Stroke Length

The stroke length can be adjusted on the Mongoose pump. This is a mechanical adjustment made using STROKE % knob (J) on the control panel.

NOTICE

To avoid damage to the pump, this adjustment should only be made while the pump is running at a high-stroking rate.

Calculate Output

A pump's output per minute can be determined by dividing the maximum rated gallons per day by 1440 (minutes per day).

For example, a 30 gallons per day (gpd) pump at a maximum stroke length and speed setting of 125 cycles per minute (cpm) will pump 0.000167 gallons per stroke (gps).

$$30 \text{ gpd} \div 1440 \text{ min/day} = 0.0208 \text{ gpm} \div 125 \text{ spm} = 0.000167 \text{ gal/stroke}$$

With this value and the pump's speed setting (cycles per minute) you can calculate your pump's output at it's rated pressure.

A 30 gpd pump set at 50 cycles per minute:

$$50 \text{ cpm} \times .000167 \text{ gps} \times 1440 \text{ min/day} = 12.02 \text{ gpd}$$

Reducing the stroke length will reduce the pump's output again. If the example pump above had it's stroke length reduced to 50% the 12.02 gallons per day output is reduced to 6.01. (Example: $12.02 \text{ gpd} \times 0.50 = 6.01 \text{ gpd}$).

A higher product viscosity will reduce the output. Pressures lower than the pump's rating can increase the output.

Troubleshooting



1. Follow **Pressure Relief Procedure**, page 9, before checking pump.

Problem	Cause	Solution
Pump does not achieve or maintain prime	Air trapped in inlet line	Straighten inlet line to eliminate high spots.
	Worn or contaminated check valves	Inspect check valves in fluid end for cleanliness.
	Excessive lift	Verify the appropriate lift for the liquid being pumped. Maximum suction lift is 5 ft. with water or liquids of similar specific gravity; though less with heavier liquids, such as acids. Mount the pump in a lower position relative to the chemical container.
	Suction fittings not properly tightened	Check fittings. Overtightening may cause restriction. Conversely, if any leakage occurs, the pump will suck air and fail to prime.
	Split or pinch in inlet tube	Inspect inlet tube through its full length to assure there are no splits at the connections or other restrictions. Move objects or equipment which impinges upon the inlet tube, or reroute as required to assure a smooth transition from foot valve to pump.
	Low chemical level	Check fluid level in chemical supply tank.
Insufficient fluid	Stroke adjustment set too low	Check operation of STROKE % knob. If pump delivers too low adjustable rate, check settings. Readjust as required.
	Worn or contaminated check valves	Inspect, clean, or replace as necessary.
	Obstruction in inlet line	Check inlet line for obstructions, clogging, kinks, or pinch points.
	Clogged foot valve screen	Clean or replace foot valve screen.
	Output (system) pressure too high	Relocate the injector to a lower pressure part of the system.
	Diaphragm worn or torn	Replace diaphragm.
	Blown fuse	Replace fuse with like kind.

Problem	Cause	Solution
Excessive fluid	Excessive stroke rate	Lower the stroke rate if adjustable on your pump.
	Improper stroke length	Reduce stroke length.
Pump will not pump	System pressure too high	Check system pressure to assure that it is within system-rated parameters of the pressure.
	Diaphragm improperly installed	Ensure the diaphragm is screwed fully onto shaft.
	Check valves worn or clogged	Clean or replace as required.
Pump will not run	Pump not turned on or plugged in	Check outlet with meter to assure that correct voltage is present, and that power supply cord is in good condition and plugged in.
	Blown fuse	Replace fuse with like kind.
Excessive noise	Pump not primed	Prime pump.

Repair

Stainless Steel Fluid End Repairs



NOTE: The following procedures apply only to models with stainless steel fluid ends (A21000, A21001, A21004, and A21016).

Replacing the Diaphragm

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Drain the fluid from the outlet fluid line (E).
5. Disconnect the outlet fluid line (E).
6. Remove the four fluid end screws (10) from the fluid end (9).
7. Remove the fluid end from the motor assembly (1).
8. Unscrew the diaphragm (7) counterclockwise from the pump shaft.
9. Inspect the pump shaft and support ring (8) for damage.
10. Screw the new diaphragm (7) clockwise onto the pump shaft.
11. Replace the fluid end (9) and the four screws (10). Tighten the screws evenly.
12. Reconnect the outlet fluid line (E).
13. Reconnect power (B).
14. **Prime the Pump**, page 9.

NOTE: Tighten fluid end screws (10) after the pump's initial week of operation.

Replacing the Inlet Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Close the inlet shutoff valve (C).
5. Disconnect the shutoff valve (C) from the inlet valve (2); or elbow fitting (11), if attached.
6. Remove the elbow fitting (11), if attached. Inspect and replace, if necessary.
7. Remove the inlet valve (2) from the fluid end (9). Inspect the inlet valve and replace, if necessary.
8. Apply PTFE tape on the threads of the inlet valve (2).
9. Reattach the inlet valve (2) to the fluid end (9).

NOTE: The inlet valve (2) has flow arrow that must point towards the fluid end (9).

10. Reattach the elbow fitting (11), if used, to the inlet valve (2).
11. Reconnect the shutoff valve (C).
12. Reconnect the power (B).
13. **Prime the Pump**, page 9.

Replacing the Outlet Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Close the inlet shutoff valve (C).
5. Disconnect the shutoff valve (C) from the outlet valve (3).
6. Remove the outlet valve (3) from the fluid end (9). Inspect and replace, if necessary.
7. Apply PTFE tape on the threads of the outlet valve (3).
8. Reattach the inlet valve (3) to the fluid end (9).

NOTE: The outlet valve (3) has flow arrow that must point away from the fluid end (9).

9. Reconnect the shutoff valve (C).
10. Reconnect the power (B).
11. **Prime the Pump**, page 9.

Replacing the Prime/Bleed Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Close the inlet shutoff valve (C).
5. Remove the prime/bleed valve (4) from the fluid end (9). Inspect and replace, if necessary.
6. Apply PTFE tape on the threads of the prime/bleed valve (4).
7. Reattach the prime/bleed valve (4) to the fluid end (9).
8. Reconnect the power (B).
9. **Prime the Pump**, page 9.

Plastic Fluid End Repairs



NOTE: The following procedures apply only to models with plastic fluid ends (A21008, A21009, A21010, A21011, A21012, A21013, A21014, A21015).

Replacing the Diaphragm

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Drain the fluid from the outlet fluid line (E).
5. Disconnect the outlet fluid line (E).
6. Remove the four fluid end screws (110) from the fluid end (109).
7. Remove the fluid end (109) from the motor assembly (1).
8. Unscrew the diaphragm (7) counterclockwise from the pump shaft.
9. Inspect the pump shaft and support ring (8) for damage.
10. Screw the new diaphragm (7) clockwise onto the pump shaft.
11. Replace the fluid end (109) and the four screws (110). Tighten the screws evenly.
12. Reconnect the outlet fluid line (E).
13. Reconnect power (B).
14. **Prime the Pump**, page 9.

NOTE: Tighten fluid end screws (110) after the pump's initial week of operation.

Replacing the Inlet Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Remove the inlet valve (102) from the from the fluid end (109).
5. Remove the o-ring from the inlet port of the fluid end (109).
6. Reattach the inlet valve (102) to the fluid end (109).
7. Reconnect the power (B).
8. **Prime the Pump**, page 9.

Replacing the Outlet Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Remove the outlet valve (103) from the from the fluid end (109).
5. Remove the o-ring from the outlet port of the fluid end (109).
6. Reattach the outlet valve (103) to the fluid end (109).
7. Reconnect the power (B).
8. **Prime the Pump**, page 9.

Replacing the Valve Ball Check Cartridge

The following procedure is the same for all plastic valve assemblies: inlet (102), outlet (103), foot (111), injection (112), and three-function (113). See the **Model A21008 (Plastic Fluid End)** shown parts diagram on page 18. Follow the **Pressure Relief Procedure**, page 9. is explained on page 15.

The part of the valve that holds the ball check cartridge is interchangeable among each of the valve assemblies. The ball check cartridge is in the end away from any connected tubing. See FIG. 6.

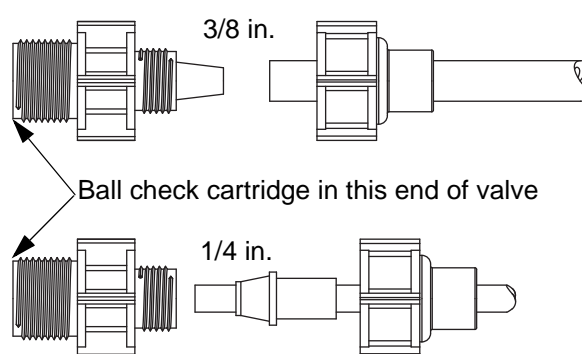


FIG. 6: Location of Valve Ball Check Cartridge

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Disconnect the valve at the end away from the tubing. Verify that the ball check o-ring is still attached to, or came out with, the ball check cartridge (114).
5. Use a hooked tool to pull out the ball check cartridge (114). Verify that the second o-ring is not left in the valve.
6. Discard the ball check cartridge (114) and o-rings.
7. Attach new o-rings to both ends of the new ball check cartridge (114).

NOTICE

To ensure the proper function of the pump and to avoid potential damage, consider the direction of flow before inserting the ball check cartridge (114) into the valve. The cartridge has a hole on each end, with one being larger than the other. The cartridge needs to be oriented so that the flow goes in the larger hole and out the smaller.

8. Insert the ball check cartridge (114), with o-rings, into the end of the valve.
9. Reconnect the valve.
10. Repeat steps 4-9 for each valve ball check cartridge (114) being replace.
11. Reconnect the power (B).
12. **Prime the Pump**, page 9.

Replacing the Fluid End Ball Check Cartridges

The following procedure applies only to the two ball check cartridges (114 and 115) in the plastic fluid end (109). **Replacing the Valve Ball Check Cartridge** is explained on page 15.

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Disconnect both the inlet valve (102) and the outlet valve (103) at the end away from their respective tubing.
5. Use a hooked tool to pull the ball check cartridges (114 and 115) from the inlet and outlet ports, respectively, of the fluid end (109). Verify that both o-rings on both cartridges are removed.
6. Discard the ball check cartridges (114 and 115) and o-rings.
7. Attach new o-rings to both ends of each new ball check cartridge (114 and 115).

NOTICE

To ensure the proper function of the pump and to avoid potential damage, consider the direction of flow before inserting each ball check cartridge (114 and 115) into the fluid end ports. Each cartridge has a hole on each end, with one being larger than the other. The cartridges need to be oriented so that the flow goes in the larger holes and out the smaller.

8. Insert the ball check cartridge (114), with o-rings, into the inlet port of the fluid end (109).
9. Reconnect the inlet valve (102) to the inlet port on the fluid end (109).
10. Align the priming hole on the side of the ball check cartridge (115) with the prime/bleed valve (104) before inserting the cartridge (115) into the outlet port of the fluid end (109).
11. Reconnect the outlet valve (103) to the outlet port on the fluid end (109).
12. Reconnect the power (B).
13. **Prime the Pump**, page 9.

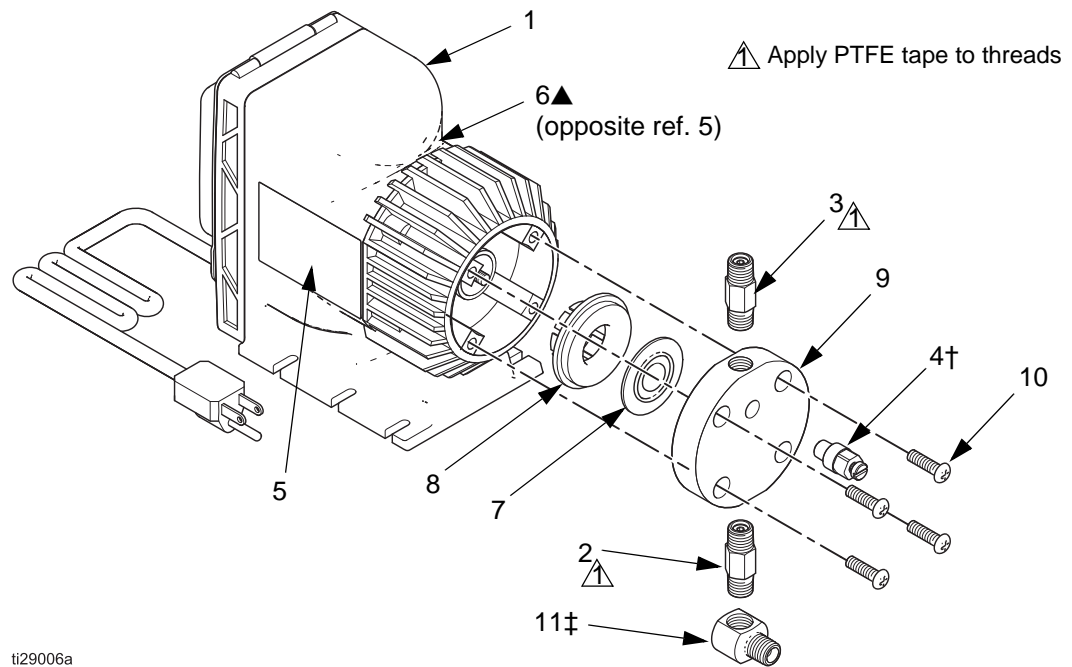
Replacing the Prime/Bleed Valve

1. Follow the **Pressure Relief Procedure**, page 9.
2. **Flush the Equipment**, page 9.
3. Disconnect the power (B).
4. Remove the prime/bleed valve (104) from the fluid end (9). Inspect and replace, if necessary.
5. Reattach the prime/bleed valve (104) to the fluid end (109).
6. Reconnect the power (B).
7. **Prime the Pump**, page 9.

Parts

Mongoose Metering Pump

Model A21000 (Stainless Steel Fluid End) shown



ti29006a

Mongoose Metering Pump Parts List (Stainless Steel Fluid End)

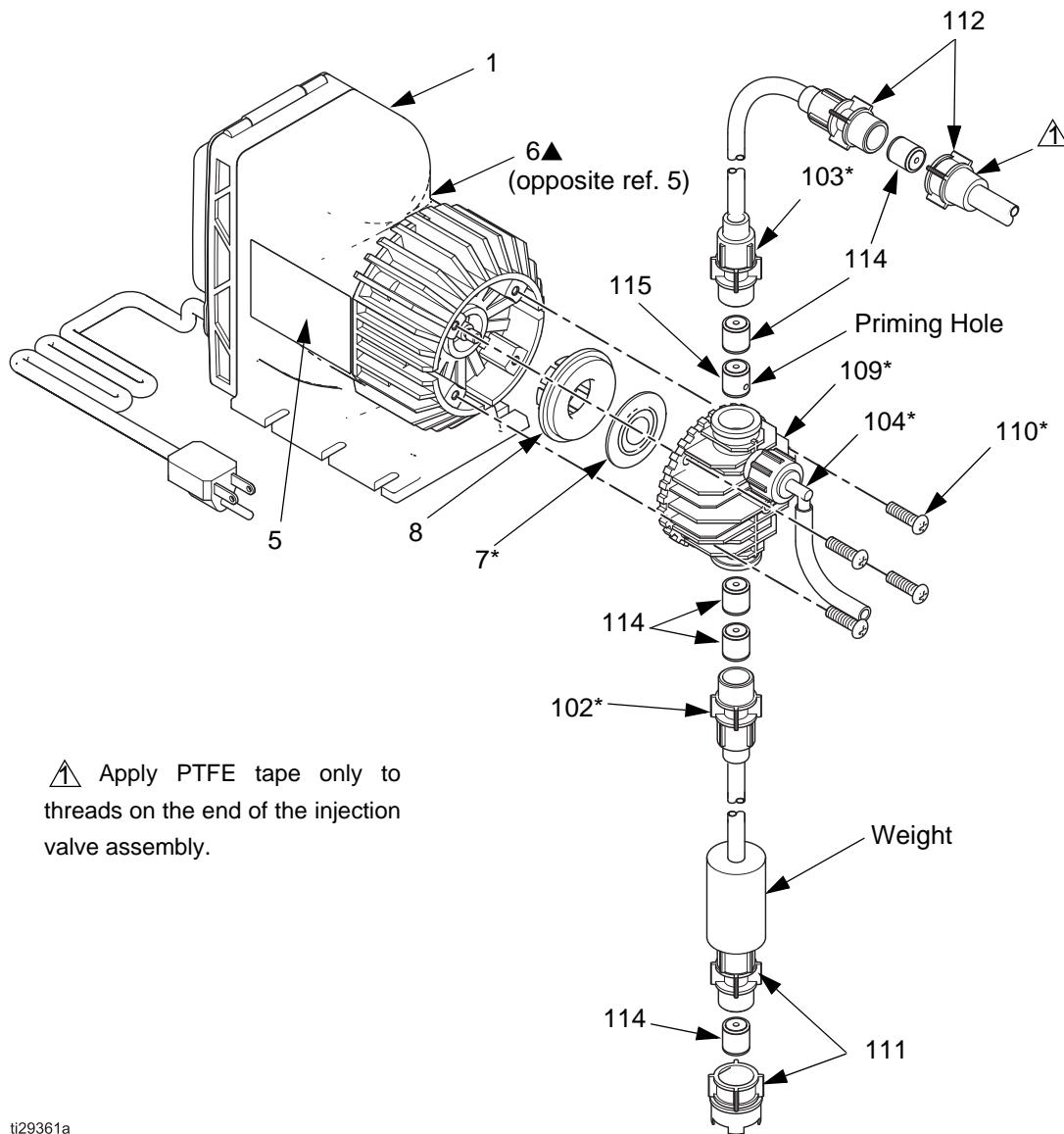
Ref.	Part	Description	Qty
1	--	Motor assembly	1
2	B32279	Inlet check valve	1
3	B32280	Outlet check valve	1
4†	B32191	Prime/bleed valve	1
5	--	Branding label	1
6▲	17M292	Warning label	1
7	B32281	Diaphragm; 75, 110 psi	1
	B32282	Diaphragm; 150, 250 psi	1
8	--	Support ring	1
9	--	Fluid end	1
10	--	Fluid end screws	4
11‡	17M529	Elbow fitting	1

▲ Replacement Warning label is available at no cost.

† Not available with A21001.

‡ Not provided with A21001.

Model A21008 (Plastic Fluid End) shown



ti29361a

Mongoose Metering Pump Parts List (Plastic Fluid End)

Ref.	Part	Description	Qty
1	--	Motor assembly	1
5	--	Branding label	1
6▲	17M292	Warning label	1
7*	B32281	Diaphragm; 75, 110 psi	1
	B32282	Diaphragm; 150, 250 psi	1
8	--	Support ring	1
102*	B32290	Inlet check valve assembly, 3/8 in. (includes tubing)	1
	B32291	Inlet check valve assembly, 1/4 in. (includes tubing)	1
103*	B32292	Outlet check valve assembly, 3/8 in. (includes tubing)	1
	B32293	Outlet check valve assembly, 1/4 in. (includes tubing)	1
104*	B32296	Prime/bleed valve assembly (includes clear poly tubing)	1
109*	--	Fluid end	1
110*	--	Fluid end screws	4
111	B32288	Foot valve assembly, 3/8 in.	1
	B32289	Foot valve assembly, 1/4 in.	1
112	B32286	Injection valve assembly, 3/8 in.	1
	B32287	Injection valve assembly, 1/4 in.	1
113	B32294	Three-function valve assembly, 3/8 in. (not shown)	1
	B32295	Three-function valve assembly, 1/4 in. (not shown)	1
114†	B32298	Ball check cartridge assembly	5
115†	B32299	Ball check cartridge assembly, with priming hole	1

▲ Replacement Warning label is available at no cost.

* Included in Pump Kits B32283, B32284, and B32285.

† Included in Ball Check Kit B32297.

Kits and Accessories

Part No.	Description
B32283*	Pump Kit, 110 psi, 3/8 in. tubing
B32284*	Pump Kit, 150 psi, 3/8 in. tubing
B32285*	Pump Kit, 250 psi, 1/4 in. tubing
B32297†	Ball Check Kit (six ball check cartridge assemblies)

* Includes 7, 102, 103, 104, 109, and 110.

† Includes 114 and 115.

Dimensions

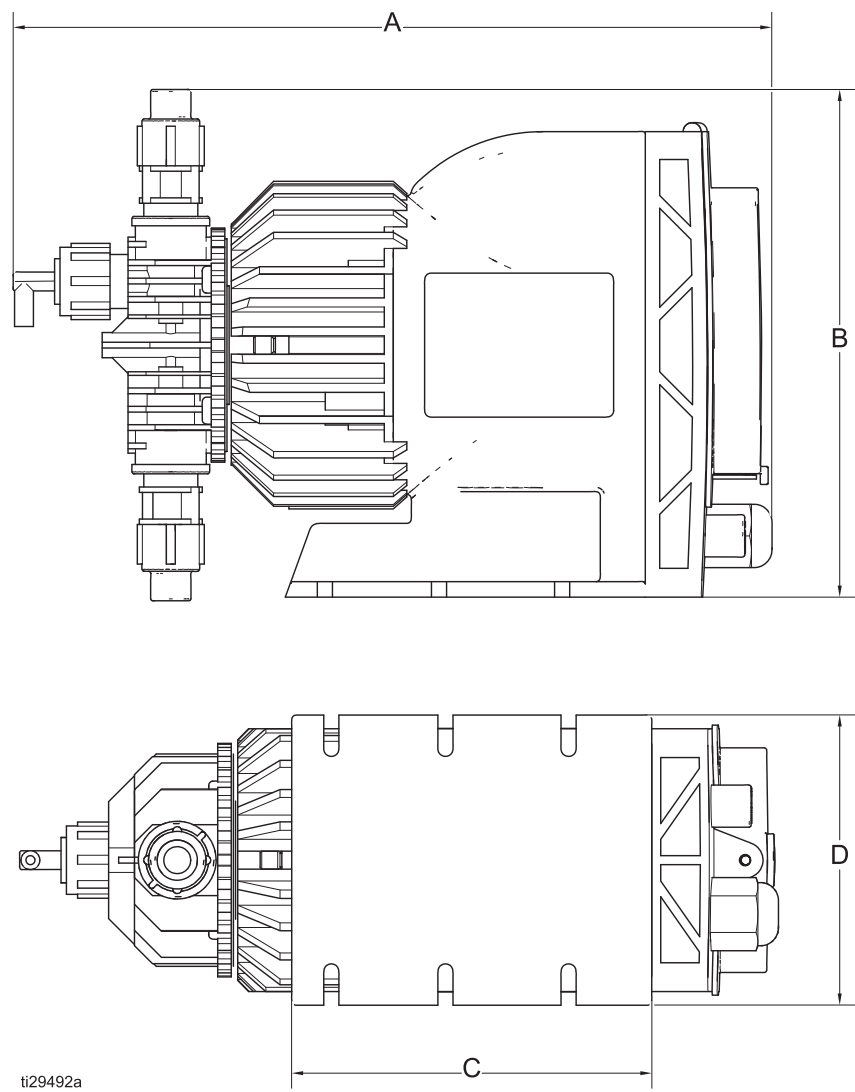


FIG. 7: Mongoose Pump Dimensions

A	B	C	D
10.6 in. (26.9 cm)	7.5 in. (19.0 cm)	5.0 in. (12.7 cm)	4.13 in (10.5 cm)

Technical Data

Mongoose Chemical Metering Pump		
	US	Metric
Maximum fluid working pressure	See Models and Approvals , page 2.	
Maximum cycle rate (A21011 & A21015)	160 cpm	
Maximum cycle rate (all except A21011 & A21015)	125 cpm	
Input Voltage (A21016)	10.5 - 16.0 VDC	
Input Voltage (A21000, A21001, A21008, A21009, A21010, A21011)	95 - 135 VAC; 50/60 Hz (100 - 120 VAC recommended)	
Input Voltage (A21004, A21012, A21013, A21014, A21015)	195 - 260 VAC; 50/60 Hz (210 - 250 VAC recommended)	
Rated Amperage	.35 A	
Fuse	Fast Blow 3A Barrel Style 314	
Environmental temperature range	-40°– 120°F	-40°– 50°C
Inlet/Outlet Sizes		
Stainless Steel Fluid Section		
Fluid inlet/outlet size (A21000, A21001, A21004, A21016)	1/4 in. NPT	
Prime/bleed size	1/16 in. NPT	
Plastic Fluid Section		
Fluid inlet/outlet size (A21008 & A21012)	1/4 in. tubing	
Fluid inlet/outlet size (A21009, A21010, A21011, A21013, A21014, A21015)	3/8 in. tubing	
Prime/bleed size	1/16 in. clear poly tubing	
Wetted Parts		
Diaphragm Seal Material	PTFE	
Check Valve Seal Material Plastic Fluid Section	FKM	
Check Valve Seal Material Stainless Steel Fluid Section	FFKM	
Weight		
All models	10 lbs.	4.5 kg

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

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 or call to identify the nearest distributor.

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

*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 3A4131

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. AND SUBSIDIARIES • P.O. BOX 1441 • MINNEAPOLIS MN 55440-1441 • USA
Copyright 2016, Graco Inc. All Graco manufacturing locations are registered to ISO 9001.

www.graco.com

Revision H, June 2019