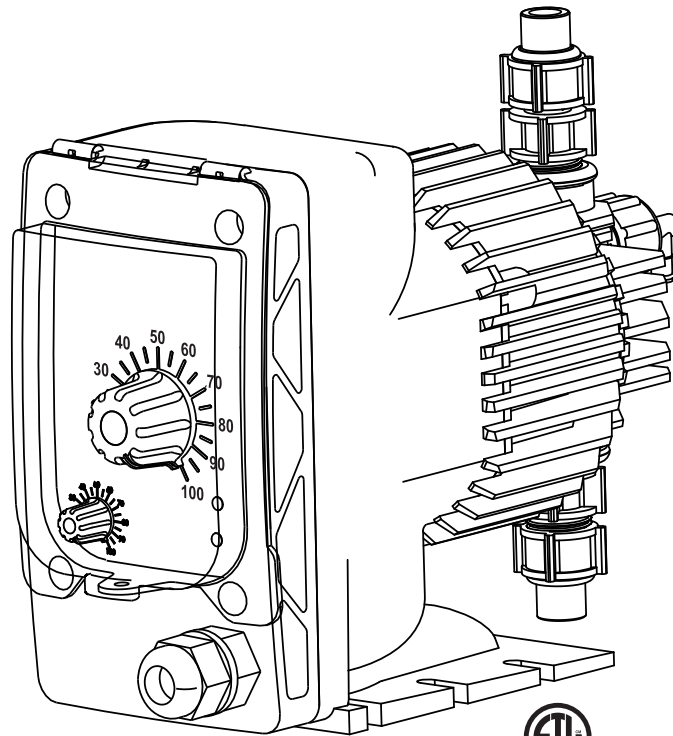


# MarleyGard™ CD metering pump

OPERATION - MAINTENANCE

Z1069151 ISSUED 4/2018

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.



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## introduction

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### Note

*This manual contains vital information for the proper installation and operation of the MarleyGard CD metering pump. Carefully read the manual before installation or operation and follow all instructions. Save this manual for future reference.*

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### Description

This manual covers all facets of operation of the MarleyGard CD chemical metering pump, including plumbing connection, and start-up. Safety, maintenance and repair is also provided. Please read this manual completely before proceeding. Observe safety protocols and heed all warnings and precautions.

If you have questions about the operation and/or maintenance of this system and you do not find the answers in this manual, please contact your Marley sales representative.

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### Safety Considerations

**Chemical Compatibility** – MarleyGard metering pumps are designed to work with most liquid chemicals. A chemical resistance chart is available for determining specific compatibility with a wide variety of chemicals. If you have further compatibility questions contact your Marley sales representative.

**Safety and Preparation** – Always wear the proper protective clothing and gear when working around chemicals and chemical metering pumps. Safety glasses, gloves, and aprons are critical in preventing accidental exposure to dangerous chemicals. Liquids under pressure can present a special hazard when a line or seal is punctured resulting in the spraying of chemical many yards away. If a chemical spillage occurs, consult the Material Safety Data Sheet (MSDS) for specific instructions regarding the chemical being used.

**Electrical** – The MarleyGard pump has a voltage regulated internal power supply capable of operating in the range of approximately 95 to 135 VAC and will draw 0.6 amp typically using .066 kW. Use a supply voltage of 100 to 120 VAC for best results. The 3-wire grounded plug must be used in a 3-wire wall plug.

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## operation

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### **Start-up**

**Priming the Pump** – Plug in the pump, set stroke to 100% and strokes per minute to maximum speed. While pump is operating, if fluid begins moving, no further priming is required. If fluid is not moving, open bleed valve approximately one turn until fluid begins to move. When suction line fills, close bleed valve. Do not over tighten bleed valve. Damage may occur.

**Adjusting Feed Rate** – The pump allows for the exact setting of the pumps stroking rate (speed) on the pump's control panel. Standard strokes per minute settings available are: 1, 2, 3, 4, 5, 6, 7, 10, 15 and increase by 5 thereafter up to the maximum of 125.

**Stroke Length** – The stroke length can be adjusted on all MarleyGard pumps. This adjustment is a mechanical adjustment made using the large knob on the control panel. To avoid damage to the pump, this adjustment should only be made while the pump is running at a high stroking rate.

**Calculating 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 strokes per minute (spm) will pump 0.000167 gallons per stroke (gps).

$$30 \div 1440 = 0.0208 \text{ gpm} \div 125 \text{ spm} = 0.000167$$

With this value and the pump's speed setting (strokes per minute) you can calculate your pump's output at it's rated pressure. A 30 gpd pump set at 50 strokes per minute:

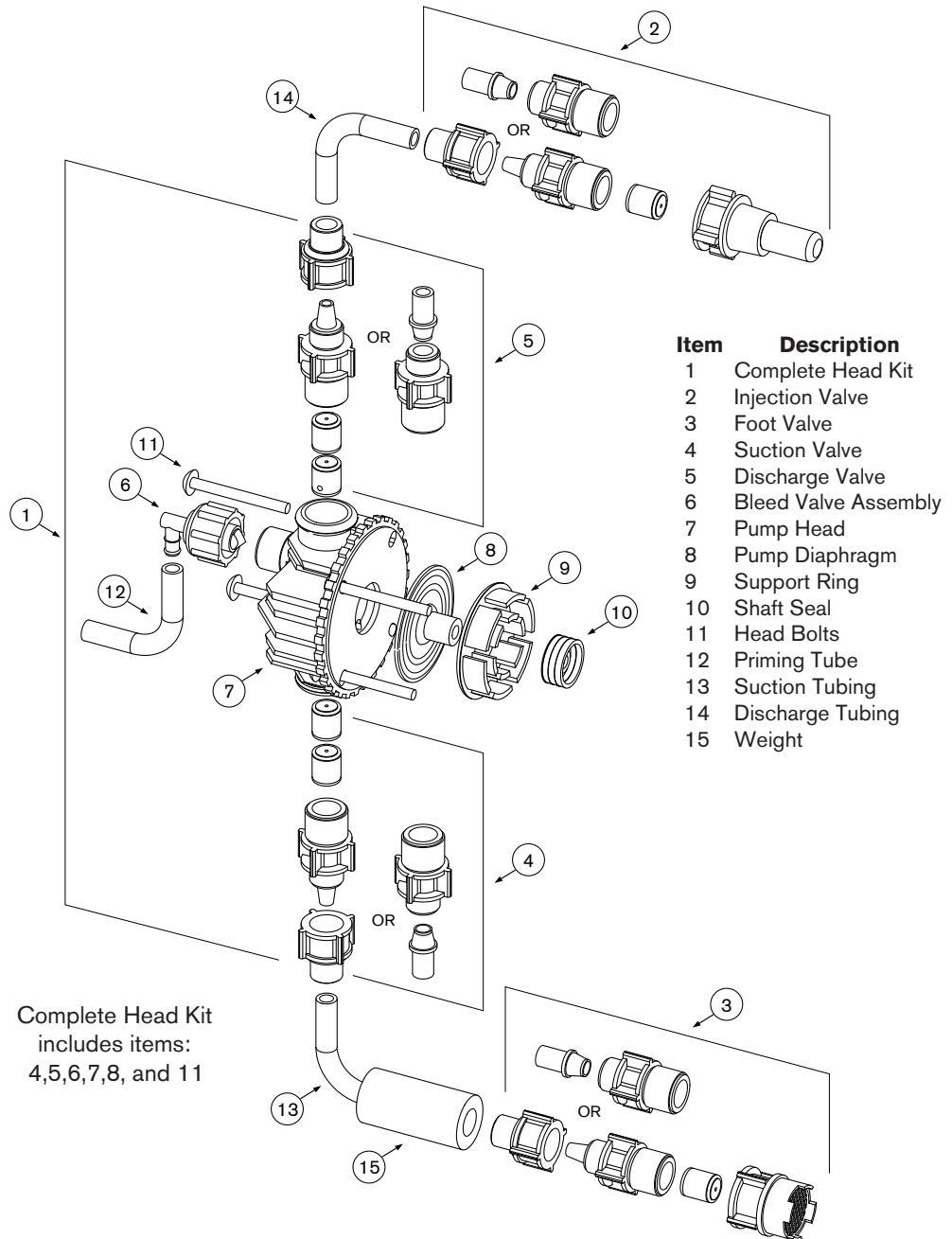
$$50 \text{ spm} \times 0.000167 \text{ gps} \times 1440 = 12.02 \text{ gallons per day}$$

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.

# maintenance

## Liquid End Diagram



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maintenance

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## Replacement Parts

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Part Assemblies		
Item	Description	SAP Item
1	Complete Head Assembly	2598460
2	Injection Valve Assembly	2601246
3	Foot Valve Assembly	2601247
4	Suction Valve Assembly	2601248
5	Discharge Valve Assembly	2601249
6	Priming Valve Assembly	2601250
Single Parts		
7	Pump Head	2601251
8	Diaphragm	2601252
9	Support Ring	2601253
10	Shaft Seal	2601254
11	Head Bolts	2601255
12	Priming Tubing	2601256
13	Suction Tubing 3/8" Clear	2601257
14	Discharge Tubing 3/8" PE	2601258
15	Weight, Suction Tubing	2601259

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## maintenance

The MarleyGard pump is designed for long service life with minimum maintenance. If for any reason, maintenance is necessary or desirable, the MarleyGard pump is easily maintained. Before any maintenance or service is performed, observe the following precautions:

- Disconnect the MarleyGard pump from power source.
- Drain chemical from discharge tubing.
- Disconnect discharge tubing from pump.
- Observe relevant safety protocols when handling parts which have been in contact with hazardous chemicals.

### **Diaphragm Replacement**

1. Remove fluid end cover by lightly prying it loose from the fluid end.
2. Remove the four screws attaching the fluid end to pump body.
3. Remove the fluid end from the pump body.
4. Unscrew the diaphragm from the pump shaft in a counter-clockwise direction. Be careful that diaphragm support ring does not fall out.
5. Do not allow sharp or abrasive objects to come in contact with pump parts.
6. Inspect end of shaft to assure that threads are in good condition. Replace shaft bellows if necessary. No further disassembly is recommended.
7. Screw new diaphragm onto pump shaft until it bottoms out on shoulder of shaft. It is not necessary to tighten further.
8. Replace fluid end. Make sure that screws are evenly tightened.
9. Reconnect plumbing and power. Prime the pump.

### **Suction and Discharge Check Valve Replacement**

1. Disconnect suction tubing from pump.
2. Unscrew fitting from pump head.
3. Remove check valve from suction fitting and replace.
4. Remove O-ring from cavity in fluid end.
5. Remove check valve from suction side pump and replace.
6. Install new O-ring in cavity of fluid end.
7. Replace valve fitting with check valve in fluid end.
8. Replace fluid end. Make sure that screws are evenly tightened.
9. Reconnect plumbing and power. Prime the pump.

Tighten pump head screws after pump's initial week of operation. When installing check valves, remember that the seats are always installed at the bottom.

## troubleshooting

Trouble	Cause	Remedy
Pump does not achieve or maintain prime	Air trapped in suction line	Straighten suction line so as to eliminate high spots.
	Foot valve contaminated or improperly installed	Inspect foot valve screen and assure that foot valve is in a vertical position below fluid level.
	Excessive lift	Maximum suction lift is 5 feet with water or fluids of similar specific gravity; less with heavier liquids such as acids. Mount 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, pump will suck air and fail to prime.
	Worn or contaminated check valves	Inspect check valves in fluid end for cleanliness. Clean or replace as necessary
	Split or pinch in suction tube	Inspect suction tube through its full length to assure that there are no splits at the connections or other restrictions. Move any objects or equipment which impinges upon suction 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 limiter 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 suction line	Check suction 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, making sure that it is screwed on fully to shoulder of shaft.
	Electronic failure	Consult Marley Sales Representative.
Excessive fluid	Failure or lack of antisiphon valve	Inspect or add anti-siphon valve. This is caused when system is in a vacuum condition or valve in delivery applications with flooded suction which feeds systems at very low pressures.
	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	Make sure that diaphragm is screwed fully unto shaft.
	Check valves worn or clogged	Clean or replace as required.
Pump will not run	Pump not turned on or not plugged in	Check outlet with meter to assure that correct or voltage is present and that power supply cord is in good condition and plugged in.
	Electronic failure	Consult Marley sales representative.
Excessive noise	Pump not primed	Prime pump.
	No output pressure	Add an anti-siphon valve to provide 25 PSI restriction on pump discharge.

# MarleyGard CD metering pump

USER MANUAL

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