

# Lafferty Equipment Manufacturing, LLC Installation & Operation Instructions

Model # 980136 · 105HC 2-Way Electric Mixing Station

## REQUIREMENTS

Chemical Concentrate(s)

Static Tank of Water

Temperature up to 160°F

Electric

120V

Hose

1/2" x 5' (Open Flow)



**Lafferty**  
EQUIPMENT MANUFACTURING LLC  
CFS TECHNOLOGIES

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**WARNING! READ ALL  
INSTRUCTIONS BEFORE  
USING EQUIPMENT!**

## OVERVIEW

The 105HC 2-Way Electric Mixing Station is a "high concentrate" 2-chemical proportioner for filling smaller sized containers with strong solutions. It is designed for facilities with low or fluctuating water pressure and features a stainless steel enclosure with an electric pump to draw water from a static tank. The pressurized water flows through a venturi injector that draws and blends a high concentration of chemical into the water stream to create up to 1:1 dilution ratios. Use ball valves to switch between chemicals.

## SAFETY &amp; OPERATIONAL PRECAUTIONS

- For proper performance do NOT modify, substitute nozzle, hose diameter or length.
- Manufacturer assumes no liability for the use or misuse of this unit.
- Wear protective clothing, gloves and eye wear when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.
- Operate the electric pump according to the limitations specified on the data label.
- Do not use with flammable or hazardous fluids not compatible with Santoprene.
- Always consider electrical shock hazard when working with and handling electrical equipment. If uncertain, consult an Electrician. Electrical wiring should only be done by a qualified Electrician per Local and State Electrical Codes.

## TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

- **This system can be fed with 10-50 PSI water OR it will draw water from a static tank. Positive inlet pressure will increase the pump outlet pressure by a similar amount, for a given flow.**
1. Mount the unit above chemical (and water container) to prevent siphoning.
  2. Attach discharge hose to the hose barb and secure it with a clamp.
  3. To ensure the dry pump will prime, fill the larger clear suction tube with water. Securely attach the full suction tube to the pump as shown in the drawing and place the strainer in a static container of water.
  4. DO NOT PLUG IN YET.

**Set the chemical dilution ratio by threading one of the color coded metering tip or plug in the chemical suction line. See chemical labels for dilution ratio recommendation or consult your chemical supplier.**

- For the strongest dilution ratio do NOT install a metering plug or colored metering tip.
- An inline metering tip holder is provided, along with two plugs for 2:1 or 3:1 ratios.
- The dilution ratios in the metering tip chart are based on water thin chemicals with a viscosity of 1CPS.
- Thicker chemicals will require a larger tip than the ratios shown in the chart.
- Select the tip color that is closest to your desired chemical strength and thread into the tip holder as a starting place. **DO NOT OVER-TIGHTEN.**
- Splice metering tip holder or plug into suction tube, as shown in the diagram, and secure with clamp (certain models only).
- Application results will ultimately determine final tip color or plug size.
- Push the chemical tubes over the suction hose barb and the tip holder, and place the strainer in the chemical concentrate.
- Push the discharge tubes completely over the discharge barb.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

## TO OPERATE

1. Ensure that the switch is in the off position and plug the power cord into a 120 VAC power outlet. GFI recommended.
2. Hold the discharge tube inside the container to be filled, do not release it.
3. Flip the switch to the on position to begin filling.
4. When container is filled to the desired level, flip the switch to the off position and keep the discharge tube in the container until it completely drains before removing it. Do NOT kink the discharge hose.
5. Make final tip metering tip / plug adjustments based on results.

## METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	229:1
Clear	0.88	145:1
Bright Purple	1.38	93:1
White	2.15	60:1
Pink	2.93	44:1
Corn Yellow	3.84	33:1
Dark Green	4.88	26:1
Orange	5.77	22:1
Gray	6.01	21:1
Light Green	7.01	18:1
Med. Green	8.06	16:1
Clear Pink	9.43	14:1
Yellow Green	11.50	11:1
Burgundy	11.93	11:1
Pale Pink	13.87	9:1
Light Blue	15.14	8:1
Dark Purple	17.88	7:1
Navy Blue	25.36	5:1
Clear Aqua	28.60	4:1
Black	50.00	3:1
No Tip Ratio Up To:		1:1

The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.

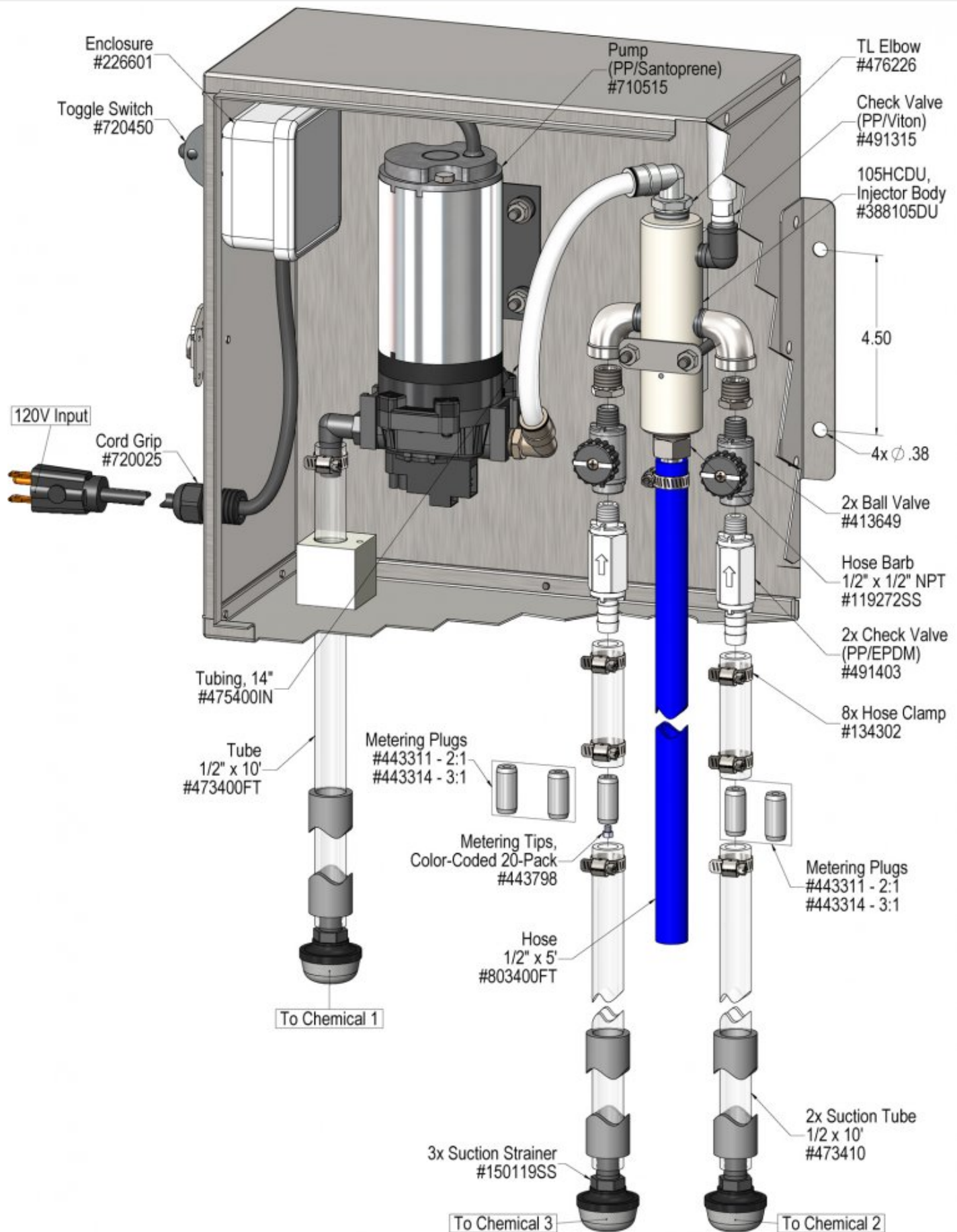
## FORMULA

**GPM × 128 ÷ Desired Dilution Ratio = oz/min**

- See Unit Flow Rates chart for GPM
- Use 20 for 20:1 dilution ratio, 30 for 30:1, etc.
- Match calculated ounces per minute (oz/min) to nearest oz/min in Metering Tip Selection chart.

## UNIT FLOW RATES

PSI	GPM
40	1.00
50	1.12
60	1.22
70	1.32
80	1.41



## Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Unit will not draw chemical.	1, 2, 5	7, 8, 9, 10, 11, 12
B) Dilution too weak.	3	11
C) Dilution too strong	4	
D) Water backing up into chemical container.		8
E) Unit doesn't come on	6	13

Possible Cause / Solution	
Startup	Maintenance
<b>1. Water pressure or volume too low</b> <ul style="list-style-type: none"> <li>Ensure the water strainer is fully submerged in water tank.</li> <li>Pump pressure is pre-set; do not adjust.</li> </ul> <b>2. Chemical tube not immersed in chemical or chemical depleted</b> <ul style="list-style-type: none"> <li>Immerse tube or replenish.</li> </ul> <b>3. Metering plug too small</b> <ul style="list-style-type: none"> <li>Install larger metering plug.</li> </ul> <b>4. No metering plug installed or metering plug too large</b> <ul style="list-style-type: none"> <li>Install smaller metering plug.</li> </ul> <b>5. Discharge hose kinked or wrong size</b> <ul style="list-style-type: none"> <li>Straighten hose / See requirements</li> </ul> <b>6. Electricity not reaching unit</b> <ul style="list-style-type: none"> <li>Ensure unit is plugged in securely (GFI recommended)</li> <li>Turn Switch to the "On" position.</li> </ul>	<b>7. Chemical strainer or metering tip partially blocked</b> <ul style="list-style-type: none"> <li>Clean or replace chemical strainer and/or metering tip.</li> </ul> <b>8. Chemical valve stuck or failed</b> <ul style="list-style-type: none"> <li>Clean or replace.</li> </ul> <b>9. Vacuum leak in chemical pick-up connections</b> <ul style="list-style-type: none"> <li>Tighten the connection.</li> </ul> <b>10. Chemical tube stretched out where tube slides over metering tip holder or pin hole/cut in chemical tube (sucking air in)</b> <ul style="list-style-type: none"> <li>Cut off end of tube or replace tube.</li> </ul> <b>11. Hard water scale or chemical build-up may have formed in the body causing poor or no chemical pick-up</b> <ul style="list-style-type: none"> <li>Follow Preventive Maintenance instructions below, using hot water and/or descaling acid. When there is no draw at all carefully remove fittings and soak entire body in descaling acid.</li> </ul> <b>12. Optional discharge ball valve or trigger gun not completely open</b> <ul style="list-style-type: none"> <li>Completely open / depress trigger</li> </ul> <b>13. May have pump or electrical problems</b> <ul style="list-style-type: none"> <li>Refer to pump manual</li> <li>Fuse may have blown</li> <li>Consult with a qualified electrician</li> </ul>

**PREVENTIVE MAINTENANCE:** When the unit will be out of service for extended periods, place chemical tube(s) in water and flush the chemical out of the unit to help prevent chemical from drying out and causing build-up. Periodically check and clean chemical strainer and replace if missing.

