

# Lafferty Equipment Manufacturing, LLC Installation & Operation Instructions

## Model # 985500HC · Drum Mount Uni-Body HC Mixing Station

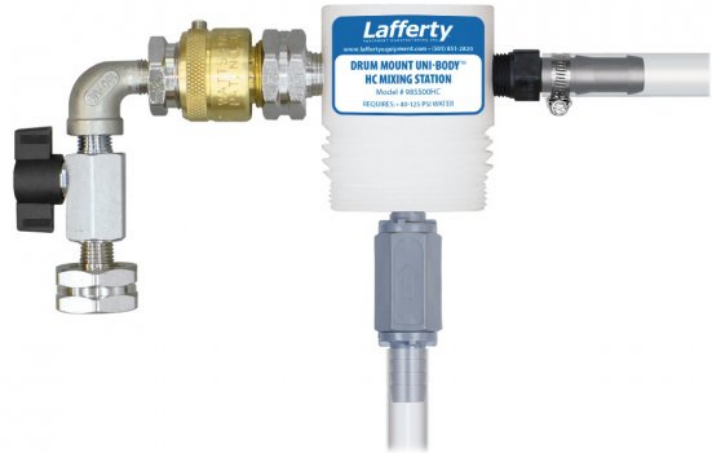
### REQUIREMENTS

#### Chemical Concentrate

<b>Water</b>	
Temperature	up to 160°F
Pressure	40 to 125 PSI
Flow	3.3 GPM @ 40 PSI
Supply Line	1/2"
<b>Hose</b>	
	1/2" ID x 10'

### OPTIONS

Alternate Check Valve - Viton Standard Check Valve, Chemical, PP, 1/2" HB (EPDM)	# 491403
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[www.laffertyequipment.com](http://www.laffertyequipment.com)

501-851-2820

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



### OVERVIEW

The HC Drum Mount Mixing Station is a drum-mounted, "high concentrate" chemical proportioner for accurately diluting chemical concentrates to strong ratios and filling any sized container with diluted, ready-to-use chemical solutions. This venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend a high concentration of chemical directly from the drum into the water stream to create a very strong solution. Ball valve activation allows for hands-free dispensing. Available with several flow rates to dispense into any sized container or equipment.

**SAFETY & OPERATIONAL PRECAUTIONS**

- For proper performance do NOT modify hose diameter or length.
- Do NOT attempt to install a discharge ball valve.
- Manufacturer assumes no liability for the use or misuse of this unit.
- **When connecting to a potable water supply follow all local codes for backflow prevention.**
- **WARNING: Contamination of your potable water supply can occur without proper backflow prevention.**
- 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 use chemicals that could be dangerous if accidentally mixed.

**Installation for Devices Plumbed to a Faucet with a Vacuum Breaker**

- This equipment features an integrated hose connection vacuum breaker.
- In cases where an installation involves a water source coming from a faucet with an integrated vacuum breaker device conforming to ASSE 1001 or ASSE 1011, a pressure bleed device conforming to IAPMO PS-104 shall be used to protect the vacuum breaker device.
- The purpose is so that continuous pressure does not adversely affect the vacuum breaker device upstream of the pressure bleed device. This also protects against a cross-connection between hot and cold water migration by encouraging the user to turn off the water supply at the faucet.

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

If you are connecting to a potable water supply follow all local codes for backflow prevention.

1. Choose and install the chemical pick up configuration you want to use.
2. Screw the unit to drum or tote bung.
3. Connect the discharge hose as shown in the diagram and close the ball valve.
4. To prevent blocking the small water jets in the injector flush any new plumbing of debris before connecting. If water piping is older and has known contaminants install a water filter.
5. Connect water supply.

Set the chemical dilution ratio by installing the inline tip holder and a metering tip into chemical pick up tube. See chemical label for dilution ratio recommendation or consult your chemical supplier.

- For the strongest possible chemical dilution ratio, do not install a metering tip.
- The dilution ratios in the metering tip chart are based on chemical with a viscosity of 1CPS.
- For water pressure other than the example, use the Metering Tip Selection Formula.
- Due to varying chemical viscosity and applications, you may need to increase/decrease the tip size to get the best result.
- Install a colored metering tip in the inline tip holder. **DO NOT OVER-TIGHTEN**
- Splice tip holder into the chemical pick up tube as shown in the drawing. Use the hose clamp as shown in the diagram (certain units only).
- Once metering tip is installed immerse the chemical strainer into your chemical concentrate.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

**TO OPERATE**

1. Hold the discharge tube inside the container to be filled, do not release it, and completely open the inlet ball valve. For units with multiple valves, only open one ball valve at a time.
2. When container is filled to the desired level, close the ball valve and keep the discharge tube in the container until it completely drains before removing it.
3. Make final metering tip adjustments based on application results. Try the next larger or smaller sized metering tip until the results are acceptable.

**METERING TIP SELECTION**

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	754:1
Clear	0.88	480:1
Bright Purple	1.38	306:1
White	2.15	196:1
Pink	2.93	144:1
Corn Yellow	3.84	110:1
Dark Green	4.88	87:1
Orange	5.77	73:1
Gray	6.01	70:1
Light Green	7.01	60:1
Med. Green	8.06	52:1
Clear Pink	9.43	45:1
Yellow Green	11.50	37:1
Burgundy	11.93	35:1
Pale Pink	13.87	30:1
Light Blue	15.14	28:1
Dark Purple	17.88	24:1
Navy Blue	25.36	17:1
Clear Aqua	28.60	15:1
Black	50.00	8:1
No Tip Ratio Up To:		2.4:1

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

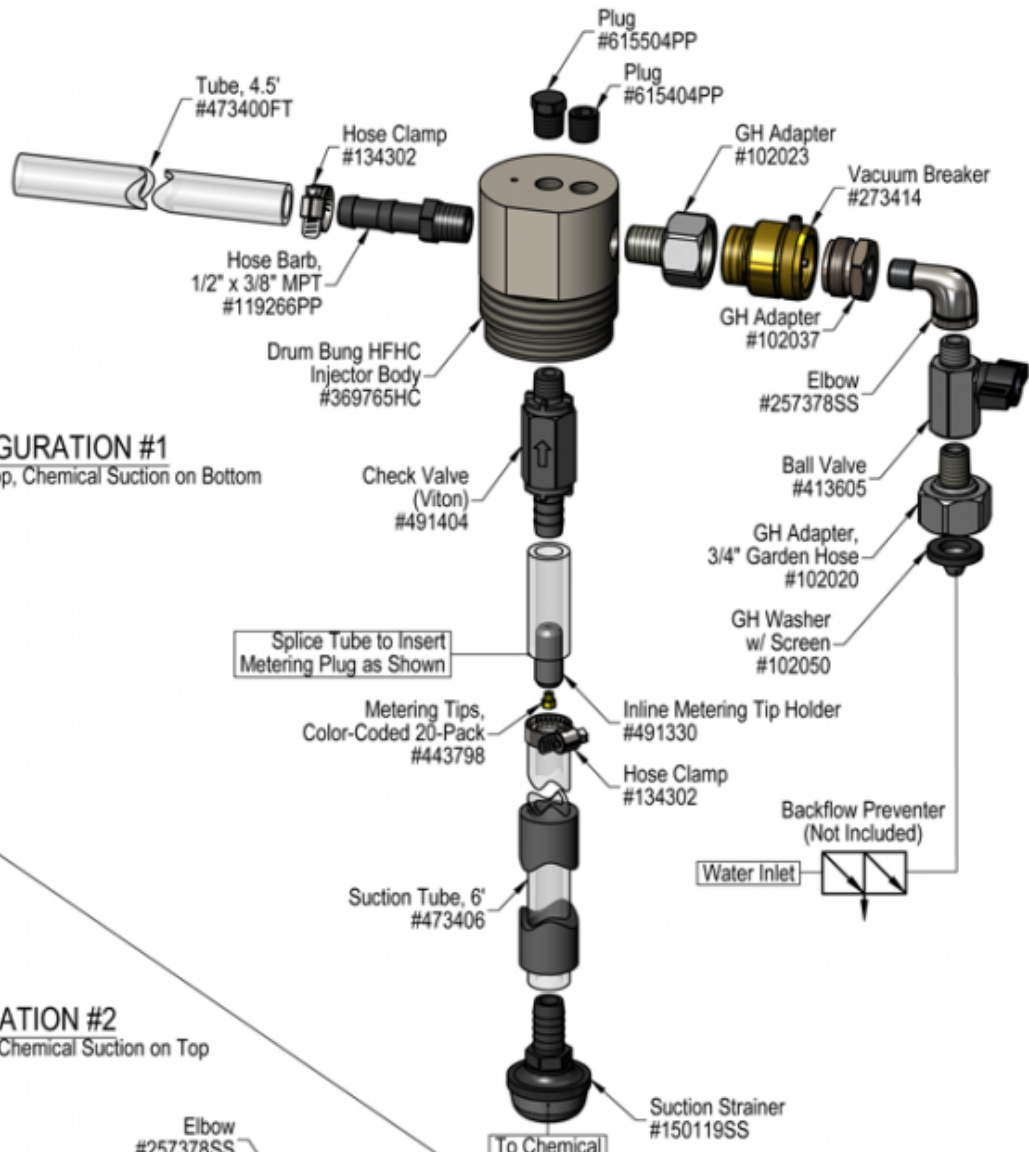
**FORMULA**

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

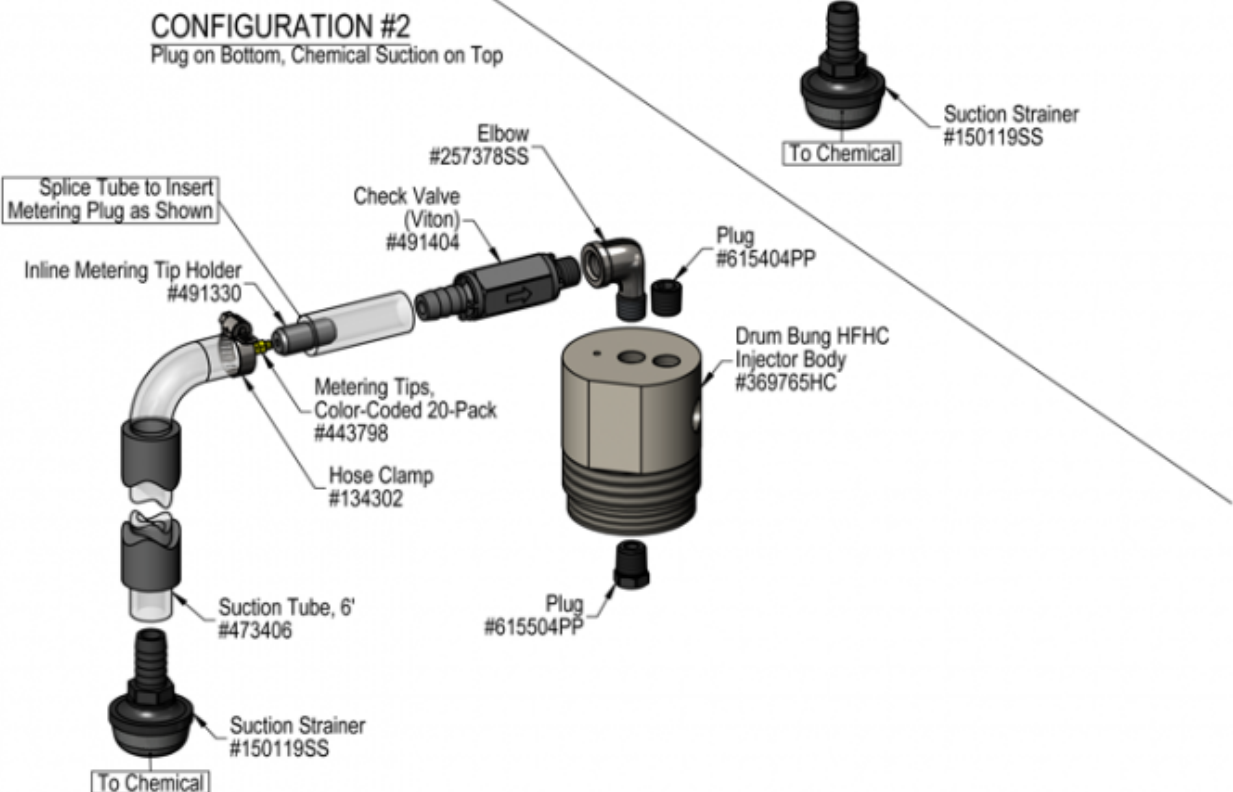
- See Unit Flow Rates chart for GPM
- Use 20 for 20:1 dilution ratio, 30 for 30:1, etc.
- Match calculated ounces per minute (oz/min) to nearest oz/min in Metering Tip Selection chart.

**UNIT FLOW RATES**

PSI	GPM
40	3.30
50	3.69
60	4.04
70	4.37
80	4.67
90	4.95
100	5.22
110	5.47
120	5.72
125	5.83



**CONFIGURATION #1**  
 Plug on Top, Chemical Suction on Bottom



**CONFIGURATION #2**  
 Plug on Bottom, Chemical Suction on Top

## Troubleshooting Guide

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

Possible Cause / Solution	
Startup	Maintenance
<ol style="list-style-type: none"> <li><b>1. Water pressure too low or water temperature too high</b> <ul style="list-style-type: none"> <li>◦ See requirements.</li> </ul> </li> <li><b>2. Ball valve not completely open</b> <ul style="list-style-type: none"> <li>◦ Completely open the ball valve.</li> </ul> </li> <li><b>3. Chemical tube not immersed in chemical or chemical depleted</b> <ul style="list-style-type: none"> <li>◦ Immerse tube or replenish.</li> </ul> </li> <li><b>4. Metering tip too small</b> <ul style="list-style-type: none"> <li>◦ Install larger metering tip.</li> </ul> </li> <li><b>5. No metering tip installed or metering tip too large</b> <ul style="list-style-type: none"> <li>◦ Install smaller metering tip.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li><b>6. Water inlet strainer screen clogged</b> <ul style="list-style-type: none"> <li>◦ Disconnect water and clean the screen.</li> </ul> </li> <li><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> </li> <li><b>8. Check valve stuck or failed</b> <ul style="list-style-type: none"> <li>◦ Clean or replace.</li> </ul> </li> <li><b>9. Vacuum leak in chemical pick-up connections</b> <ul style="list-style-type: none"> <li>◦ Tighten the connection.</li> </ul> </li> <li><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> </li> <li><b>11. 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> </li> <li><b>12. Vacuum breaker fouled or failed</b> <ul style="list-style-type: none"> <li>◦ Replace vacuum breaker.</li> <li>◦ Install filter on water supply line.</li> </ul> </li> <li><b>13. Vacuum breaker experiencing backpressure</b> <ul style="list-style-type: none"> <li>◦ The vacuum breaker(s) will vent water when experiencing backpressure that cannot exist under normal operating conditions.</li> <li>◦ Do not exceed maximum water pressure. See requirements.</li> <li>◦ Do not modify discharge assembly, attach shutoff valve, or otherwise restrict flow from unit discharge.</li> <li>◦ Descale injector body, if necessary.</li> </ul> </li> </ol>

**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.

