Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 985500 · Drum Mount Uni-Body Mixing Station

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	4 GPM @ 40 PSI
Supply Line	1/2"

OPTIONS

Alternate Chemical Check Valve - EPDM Standard

Check Valve, Chemical, PP, 1/4" (Viton) # 491402

WEIGHT & DIMENSIONS

Single Package

Shipping Weight	4 lbs.
Shipping Dimensions	15" x 8" x 5"



Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The Drum Mount Uni-Body Mixing Station is a drum-mounted chemical proportioner for accurately diluting chemical concentrates to required ratios and filling any size container with ready-to-use chemical solutions. This venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend chemical concentrate directly from the drum into the water stream to create an accurately diluted solution. Ball valve activation allows for hands-free dispensing.

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 threading one of the color coded metering tips into each chemical check valve. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a colored metering tip.
- 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.
- Application results will ultimately determine final tip color.
- Select the tip color that is closest to your desired chemical strength and thread it into the tip holder. **DO NOT OVER-TIGHTEN.**
- Push the chemical tube over the check valve barb and place the suction tube in the 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	914:1
Clear	0.88	582:1
Bright Purple	1.38	371:1
White	2.15	238:1
Pink	2.93	175:1
Corn Yellow	3.84	133:1
Dark Green	4.88	105:1
Orange	5.77	89:1
Gray	6.01	85:1
Light Green	7.01	73:1
Med. Green	8.06	64:1
Clear Pink	9.43	54:1
Yellow Green	11.50	45:1
Burgundy	11.93	43:1
Pale Pink	13.87	37:1
Light Blue	15.14	34:1
Dark Purple	17.88	29:1
Navy Blue	25.36	20:1
Clear Aqua	28.60	18:1
Black	50.00	10:1
No Tip Ratio Up To:		9:1

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

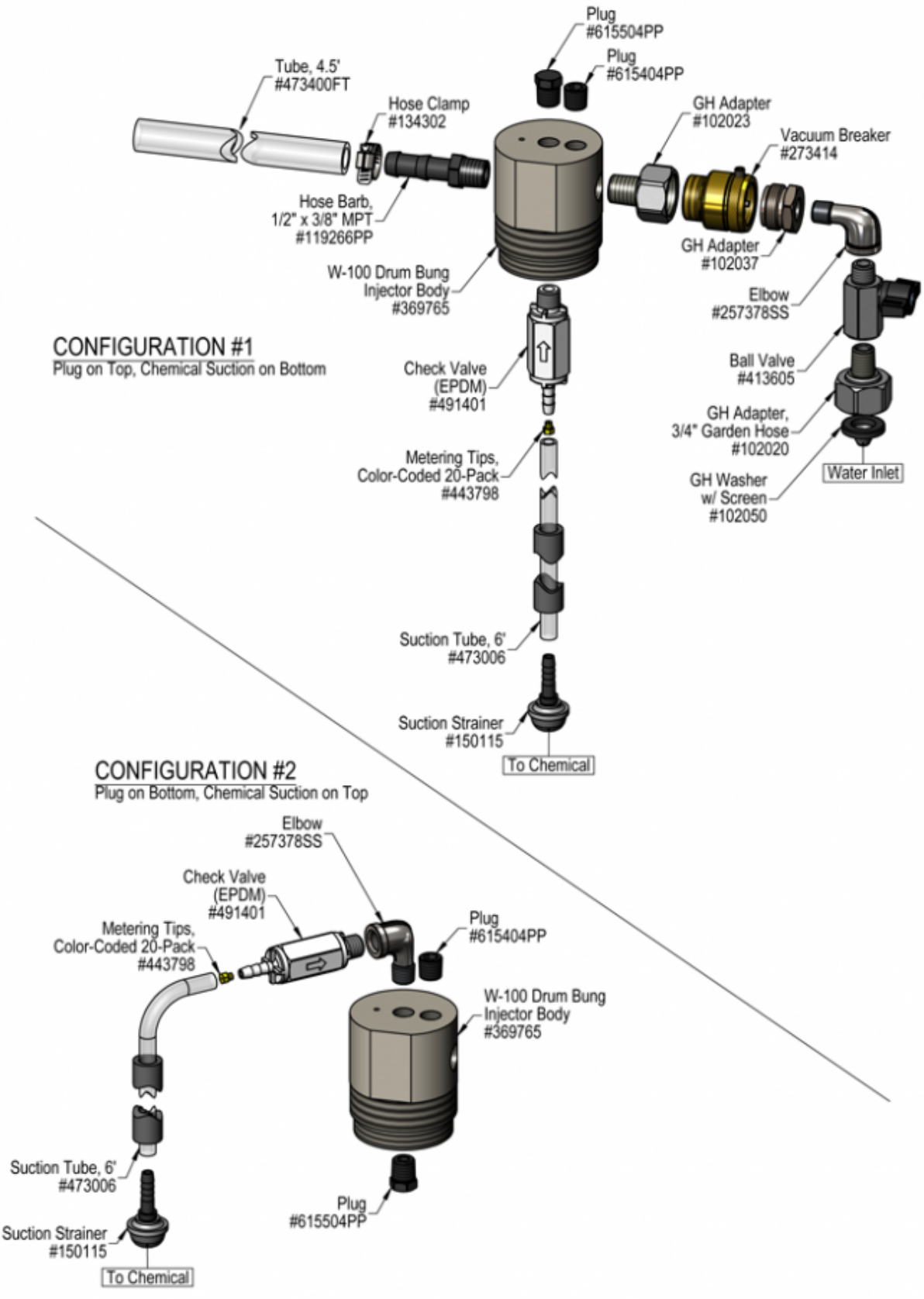
FORMULA

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
35	3.74
40	4.00
50	4.47
60	4.90
70	5.29
80	5.66
90	6.00
100	6.32
110	6.63
120	6.93
125	7.07


Plug
#615504PP
Plug
#615404PP
Tube, 4.5'
#473400FT
Hose Clamp
#134302
GH Adapter
#102023
Vacuum Breaker
#273414
Hose Barb,
1/2" x 3/8" MPT
#119266PP
GH Adapter
#102037
W-100 Drum Bung
Injector Body
#369765
Elbow
#257378SS
CONFIGURATION #1
Plug on Top, Chemical Suction on Bottom
Check Valve
(EPDM)
#491401
Ball Valve
#413605
GH Adapter,
3/4" Garden Hose
#102020
Metering Tips,
Color-Coded 20-Pack
#443798
Water Inlet
GH Washer
w/ Screen
#102050
Suction Tube, 6'
#473006
Suction Strainer
#150115
To Chemical
CONFIGURATION #2
Plug on Bottom, Chemical Suction on Top
Elbow
#257378SS
Check Valve
(EPDM)
#491401
Metering Tips,
Color-Coded 20-Pack
#443798
Plug
#615404PP
W-100 Drum Bung
Injector Body
#369765
Suction Tube, 6'
#473006
Plug
#615504PP
Suction Strainer
#150115
To Chemical

Troubleshooting Guide

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

Possible Cause / Solution

Startup

1. **Water pressure too low or water temperature too high**
   - See requirements.
2. **Ball valve not completely open**
   - Completely open the ball valve.
3. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse tube or replenish.
4. **Metering tip too small**
   - Install larger metering tip.
5. **No metering tip installed or metering tip too large**
   - Install smaller metering tip.

Maintenance

6. **Water inlet strainer screen clogged**
   - Disconnect water and clean the screen.
7. **Chemical strainer or metering tip partially blocked**
   - Clean or replace chemical strainer and/or metering tip.
8. **Check valve stuck or failed**
   - Clean or replace.
9. **Vacuum leak in chemical pick-up connections**
   - Tighten the connection.
10. **Chemical tube stretched out where tube slides over metering tip holder or pin hole/cut in chemical tube (sucking air in)**
    - Cut off end of tube or replace tube.
11. **Water scale or chemical build-up may have formed in the body causing poor or no chemical pick-up**
    - 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.
12. **Vacuum breaker fouled or failed**
    - Replace vacuum breaker.
    - Install filter on water supply line.
13. **Vacuum breaker experiencing backpressure**
    - The vacuum breaker(s) will vent water when experiencing backpressure that cannot exist under normal operating conditions.
    - Do not exceed maximum water pressure. See requirements.
    - Do not modify discharge assembly, attach shutoff valve, or otherwise restrict flow from unit discharge.
    - Descale injector body, if necessary.

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.