Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 985835 · High Volume Mixing Station

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	35 to 125 PSI
Flow	9.9 GPM @ 40 PSI
Supply Line	3/4"
Hose	3/4" ID x 10'

OPTIONS

Stainless Steel Hose Racks	
Small Stainless Steel Hose Rack	# 224145
Stainless Steel Jug Racks	
5 Gallon Round/Square Locking (12" x 12")	# 224214
5 Gallon Round/Square (12" x 12")	# 224215
For Stronger Ratios or Viscous Chemicals	
1/2" Chemical Pick-up Assembly (Viton)	# 491404-A
1/2" Chemical Pick-up Assembly (EPDM)	# 491403-A
Hose & Trigger Gun	
Hose, Blue, 3/4" x 25', 1/2" MPT	# 803725
Trigger Gun, PP-V	# 320800
Hose, Ball Valve & Wand	
Hose, Blue, 3/4" x 25', 1/2" MPT	# 803725
Ball Valve, SS, 1/2" FM	# 413641RH
Wand, PP	# 536603
Alternate Chemical Check Valve - Viton Standard	
Check Valve, Chemical, PP(W), 1/4" (EPDM)	# 491401

WEIGHT & DIMENSIONS

Single Package	
Shipping Weight	7 lbs.
Shipping Dimensions	15" x 15" x 5"



Lafferty
EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The High Volume Mixing Station is a 9.9 GPM @ 40 PSI chemical proportioner for accurately diluting a chemical concentrate and quickly filling large containers with ready-to-use chemical solution. This venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend chemical concentrate into the water stream. Ball valve activation allows for hands-free dispensing.

SAFETY & OPERATIONAL PRECAUTIONS

- **When connecting to a potable water supply follow all local codes for backflow prevention.**
- **WARNING: Severe damage to your facility, or contamination of your potable water supply, can occur without proper backflow prevention.**
- 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 safety goggles when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- For pressures over 100 PSI, remove the discharge valve or lower pressure.
- Never leave inlet ball valves on when unit is not in use.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.

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. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
2. Connect hose(s) as shown in the diagram.
3. Flush any new plumbing of debris before connecting water.
4. Connect water supply. Install a water filter if water piping is older or has known contaminants.

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

- For the strongest dilution ratio do NOT install a colored metering tip. See note*
- 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 and thread the tip color that is closest to your desired chemical strength into the tip holder as a starting place. **DO NOT OVER-TIGHTEN.**
- Application results will ultimately determine final tip color.
- Push the chemical tubes over the check valves and place the strainer in the chemical concentrate.
- Push the discharge hose completely over the barb.

* For stronger no tip concentration to be achieved order and install the optional dual pick up kit. See chart.

- Remove the plug and siphon breaker, install kit, and replace siphon breaker.
- In the ratio chart, the dual pick up column shows ratios assuming that the standard suction tube has NO metering tip installed.

**This will also allow 2 different chemicals to be blended. Mix and match metering tips in the standard and optional second pick up assemblies to obtain ratios that are not possible using a single tip.*

TO OPERATE

1. Hold the discharge hose inside the container to be filled, do not release it, and completely open the appropriate inlet ball valve.
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.

WITH OPTIONAL TRIGGER GUN

1. Hold the trigger gun, open the inlet ball valve, place the nozzle in the container to be filled. Pull the trigger and begin.
2. When container is filled to the desired level, release the trigger. Close the inlet ball valve and pull the trigger to relieve pressure in the hose.
3. Make final metering tip adjustments based on application results. Try the next larger or smaller sized metering tip until the results are acceptable.

WITH OPTIONAL DISCHARGE BALL VALVE

1. Hold the ball valve/wand make sure the ball valve is closed, open the inlet ball valve, place the wand in the container to be filled. Open the ball valve to fill container.
2. When container is filled to the desired level, close the discharge and inlet ball valves. Briefly open the discharge ball valve to relieve pressure in the hose.
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	
		985835	DUAL PICK-UP (NO TIP)
Brown	0.56	2263:1	9.3:1
Clear	0.88	1440:1	9.2:1
Bright Purple	1.38	918:1	9.2:1
White	2.15	589:1	9.2:1
Pink	2.93	432:1	9.1:1
Corn Yellow	3.84	330:1	9.0:1
Dark Green	4.88	260:1	9.0:1
Orange	5.77	220:1	8.9:1
Gray	6.01	211:1	8.9:1
Light Green	7.01	181:1	8.8:1
Med. Green	8.06	157:1	8.8:1
Clear Pink	9.43	134:1	8.7:1
Yellow Green	11.50	110:1	8.6:1
Burgundy	11.93	106:1	8.6:1
Pale Pink	13.87	91:1	8.4:1
Light Blue	15.14	84:1	8.4:1
Dark Purple	17.88	71:1	8.2:1
Navy Blue	25.36	50:1	7.8:1
Clear Aqua	28.60	44:1	7.7:1
Black	50.00	25:1	6.8:1
No Tip Ratio Up To:		9.3:1	4.7:1

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

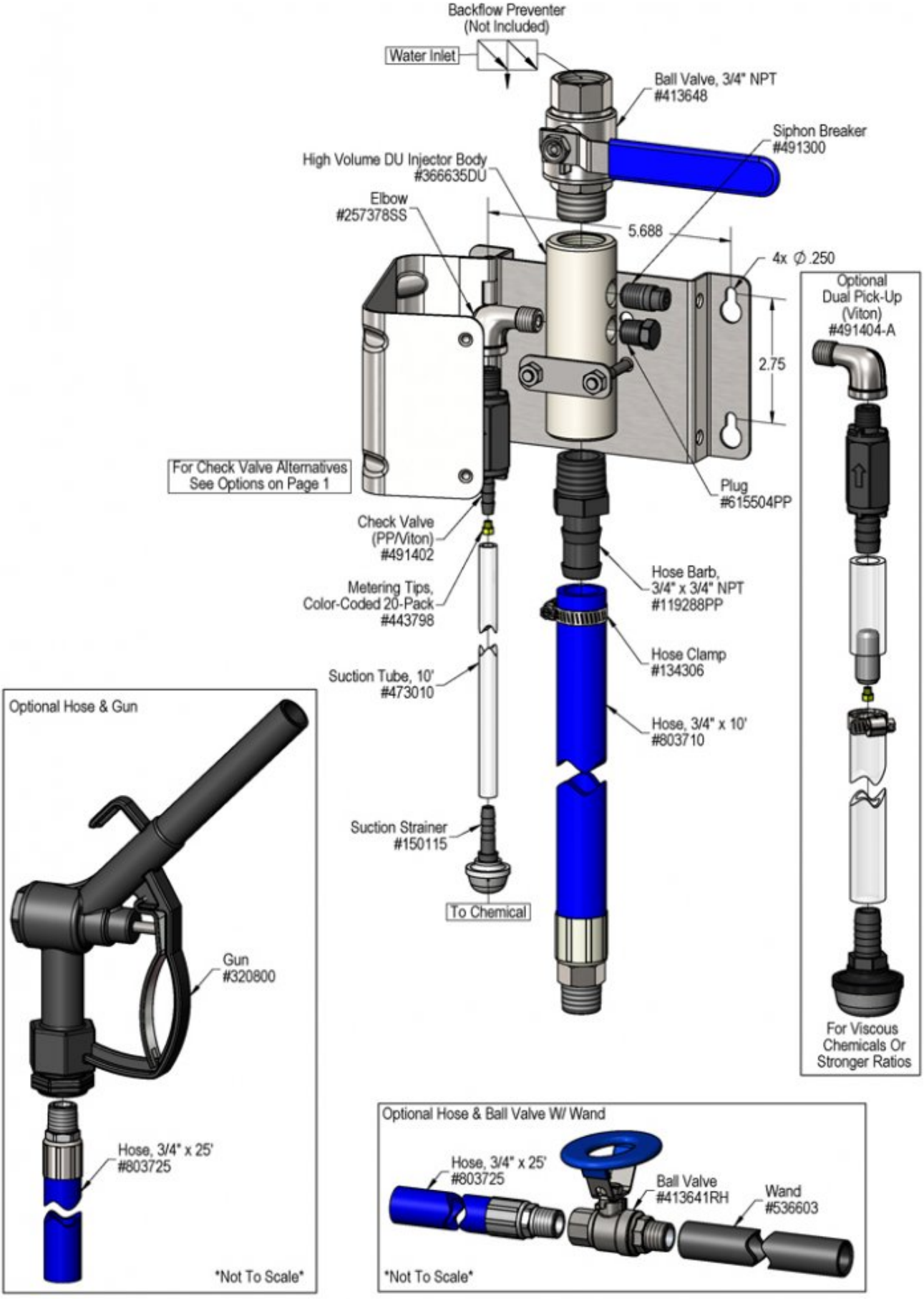
FORMULA

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	9.26
40	9.90
50	11.07
60	12.12
70	13.10
80	14.00
90	14.85
100	15.65
110	16.42
120	17.15
125	17.50


Backflow Preventer
(Not Included)
Water Inlet
Ball Valve, 3/4" NPT
#413648
Siphon Breaker
#491300
High Volume DU Injector Body
#366635DU
Elbow
#257378SS
5.688
4x Ø.250
2.75
Optional
Dual Pick-Up
(Viton)
#491404-A
For Check Valve Alternatives
See Options on Page 1
Plug
#615504PP
Check Valve
(PP/Viton)
#491402
Metering Tips,
Color-Coded 20-Pack
#443798
Hose Barb,
3/4" x 3/4" NPT
#119288PP
Hose Clamp
#134306
Suction Tube, 10'
#473010
Hose, 3/4" x 10'
#803710
Suction Strainer
#150115
To Chemical
For Viscous
Chemicals Or
Stronger Ratios
Optional Hose & Gun
Gun
#320800
Hose, 3/4" x 25'
#803725
Not To Scale
Optional Hose & Ball Valve W/ Wand
Hose, 3/4" x 25'
#803725
Ball Valve
#413641RH
Wand
#536603
Not To Scale

Troubleshooting Guide

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

Possible Cause / Solution

Startup

1. **Water pressure or volume too low**
   - 35 PSI water pressure minimum see requirements.
2. **Inlet or chemical ball valve not completely open**
   - Completely open the ball valves.
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.
6. **Discharge hose kinked or wrong size**
   - See requirements.

Maintenance

7. **Chemical strainer or metering tip partially blocked**
   - Clean or replace chemical strainer and/or metering tip.
8. **Chemical 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. **Hard 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. **Optional trigger gun or discharge ball valve not completely open (select models only)**
    - Completely depress trigger/open ball valve

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.