Best Sanitizers, Inc.
Installation & Operation Instructions

Model # MD20003 · BSI Push Lever Mixing Station

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	25-125 PSI
Supply Line	1/2" Minimum

Flow

High Flow	4.0 - 7.3 GPM
Low Flow	1.9 - 3.4 GPM
Bottle Fill	0.6 - 1.0 GPM

OPTIONS

Stainless Steel Pail Racks

Pail Rack, 5 Gal., Round, Locking, SS	# MD20004

Stainless Steel Hose Racks

Hose Rack, Large, SS	# USP20034-L
Hose Rack, Small, SS	# USP20034-SM

Bottle / Pail Lid with Suction Tube

For 1 Gallon Bottles	# USP20036
For 5 Gallon Pails	# USP20037

Alternate Chemical Check Valve - EPDM Standard

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

WEIGHT & DIMENSIONS

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

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The BSI Push Lever Mixing Station is a chemical proportioner for accurately diluting a chemical concentrate to the required ratio and filling any sized container with diluted, ready-to-use chemical solution. This venturi injection system uses city water pressure (25 - 125 PSI) to draw and blend chemical concentrate into the water stream to create an accurately diluted solution. Push Lever Mixing Stations require the user to push and hold the lever to dispense. 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 if accidentally mixed could be dangerous.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

1. **DO NOT MOUNT** until metering tips and all tubes are installed.
2. Once metering tips and tubes are installed mount to a suitable surface above the chemical.

Set the chemical dilution ratio by threading one of the color coded metering tip into each tip holder. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a colored metering tip.
- Select the tip color in the adjacent chart that is closest to your desired ratio and thread it into the tip holder. DO NOT OVER TIGHTEN.
- The dilution ratios in the metering tip chart are based on 40 PSI with the Mixing Station running and wate thin chemicals with a viscosity of 1CPS.
- If your water pressure is other than 40 PSI use the "Metering Tip Selection Formula" GPM x 128 ÷ dilutio ratio = chemical oz. per minute (match to tip color)
- Thicker chemicals will require a larger tip than the ratios shown in the chart.
- Application results will ultimately determine final tip color.
- Push the chemical tubes over the tip holders and place the strainer in the chemical concentrate.
- Push the discharge tubes completely over the barbs.

TO OPERATE

1. Once metering tips are installed, connect the chemical and discharge tubes as shown in the diagram.
2. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
3. 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.
4. Connect water supply.
5. Immerse the chemical strainers into your chemical concentrates.
6. Hold the discharge tube inside the container to be filled, do not release it, completely depress the push lever.
7. When container is filled to the desired level, release the lever and keep the discharge tube in the containe till it completely drains before removing it.
8. Make final metering tip adjustments based on application results. Try the next larger sized metering tip until the results are acceptable.

Metering Tip Selection Chart

Metering Tip Color	Oz. per Min.	Example: Dilution Ratio @ 40 PSI		
		High Flow	Low Flow	Bottle Fill
Brown	0.56	1031:1	480:1	142:1
Clear	0.88	656:1	305:1	90:1
Bright Purple	1.38	418:1	195:1	58:1
White	2.15	269:1	125:1	37:1
Pink	2.93	197:1	92:1	27:1
Corn Yellow	3.84	150:1	70:1	21:1
Dark Green	4.88	118:1	55:1	16:1
Orange	5.77	100:1	47:1	14:1
Gray	6.01	96:1	45:1	13:1
Light Green	7.01	82:1	38:1	11:1
Med. Green	8.06	72:1	33:1	10:1
Clear Pink	9.43	61:1	29:1	8:1
Yellow Green	11.50	50:1	23:1	7:1
Burgandy	11.93	48:1	23:1	7:1
Pale Pink	13.87	42:1	19:1	6:1
Light Blue	15.14	38:1	18:1	5:1
Dark Purple	17.88	32:1	15:1	4:1
Navy Blue	25.36	23:1	11:1	3:1
Clear Aqua	28.60	20:1	9:1	3:1
Black	50.00	12:1	5:1	—
No Tip Ratio Up To:		4.8:1	3.5:1	1.7:1

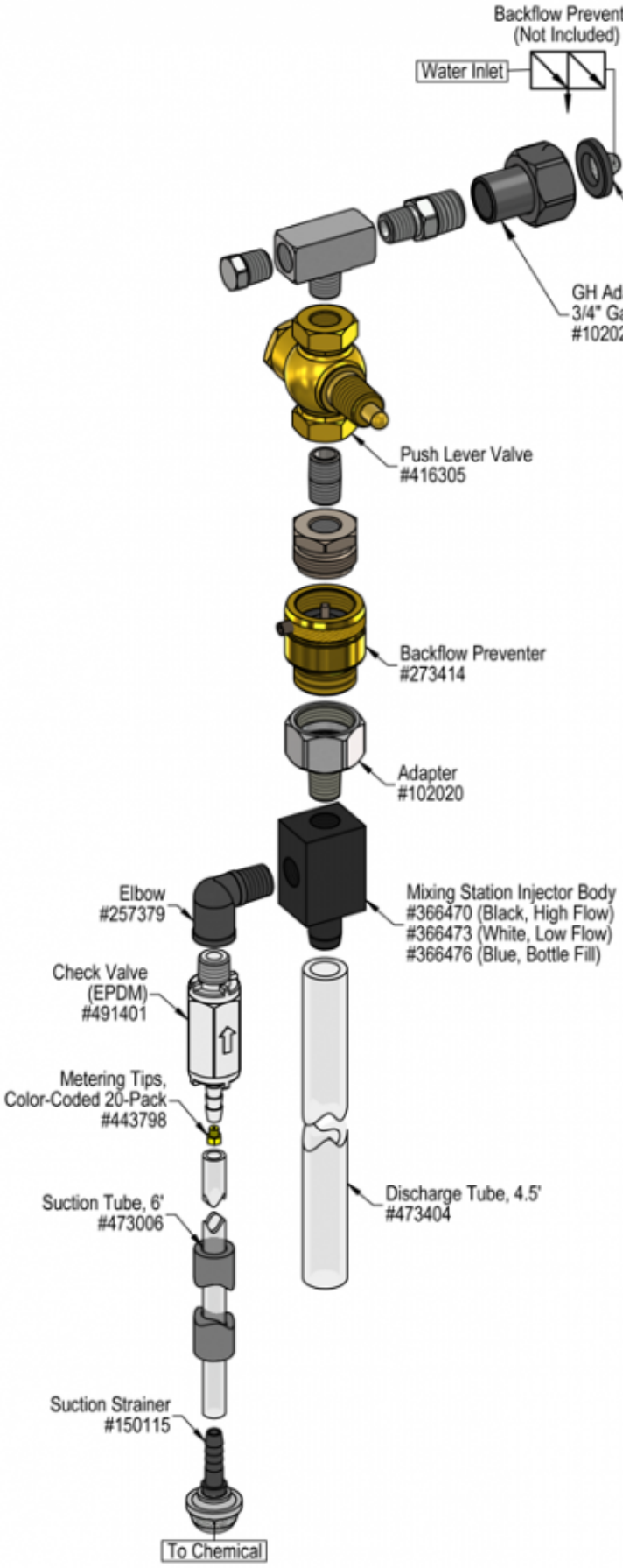
The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.

Metering Tip Selection Formula

(GPM x 128) / Dilution Ratio = Oz per Min

Flow Rate Chart

Pressure	Flow Rate		
PSI	High Flow	Low Flow	Bottle Fill
40	4.51	2.10	0.62
50	5.04	2.35	0.69
60	5.52	2.57	0.76
70	5.97	2.78	0.82
80	6.38	2.97	0.88
90	6.77	3.15	0.93
100	7.13	3.32	0.98
110	7.48	3.48	1.03
120	7.81	3.64	1.07


Backflow Preventer
(Not Included)
Water Inlet
GH Washer
W/ Screen
#102050
GH Adapter,
3/4" Garden Hose
#102024
Push Lever Valve
#416305
Backflow Preventer
#273414
Adapter
#102020
Elbow
#257379
Mixing Station Injector Body
#366470 (Black, High Flow)
#366473 (White, Low Flow)
#366476 (Blue, Bottle Fill)
Check Valve
(EPDM)
#491401
Metering Tips,
Color-Coded 20-Pack
#443798
Discharge Tube, 4.5'
#473404
Suction Tube, 6'
#473006
Suction Strainer
#150115
To Chemical

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) Backflow preventer constantly dripping / leaking.		12

Possible Cause / Solution

Startup

1. **1. Water pressure too low or water temperature too high**
   - 35 PSI water pressure minimum.
2. **Push lever not completely depressed**
   - Completely depress the push lever
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. **Foot valve stuck or failed**
   - Clean or replace.
9. **Vacuum leak in chemical pick-up connections**
   - Tighten the connection.
10. **Chemical tube stretched out where it 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 hotwater and/or descaling acid. When there is no draw at all carefully remove fittings and soak entire body in descaling acid.
12. **Backflow preventer failed or defective**
    - Replace backflow preventer.

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.