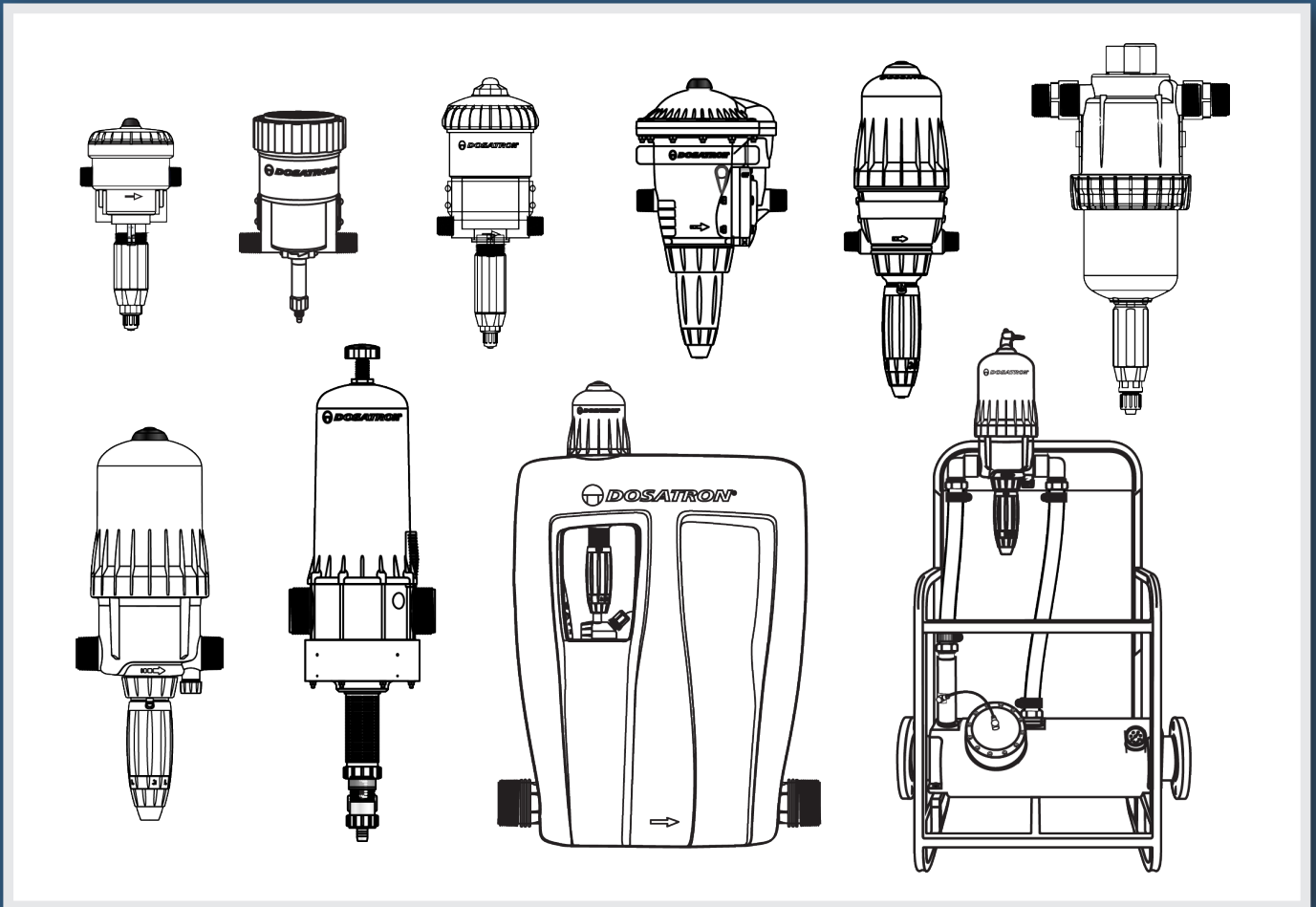




DOSATRON®

An Ingersoll Rand Business

COMPLETE GUIDE OF BEST PRACTICES



FOR DOSATRON INJECTORS

www.dosatron.com

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BEST PRACTICES

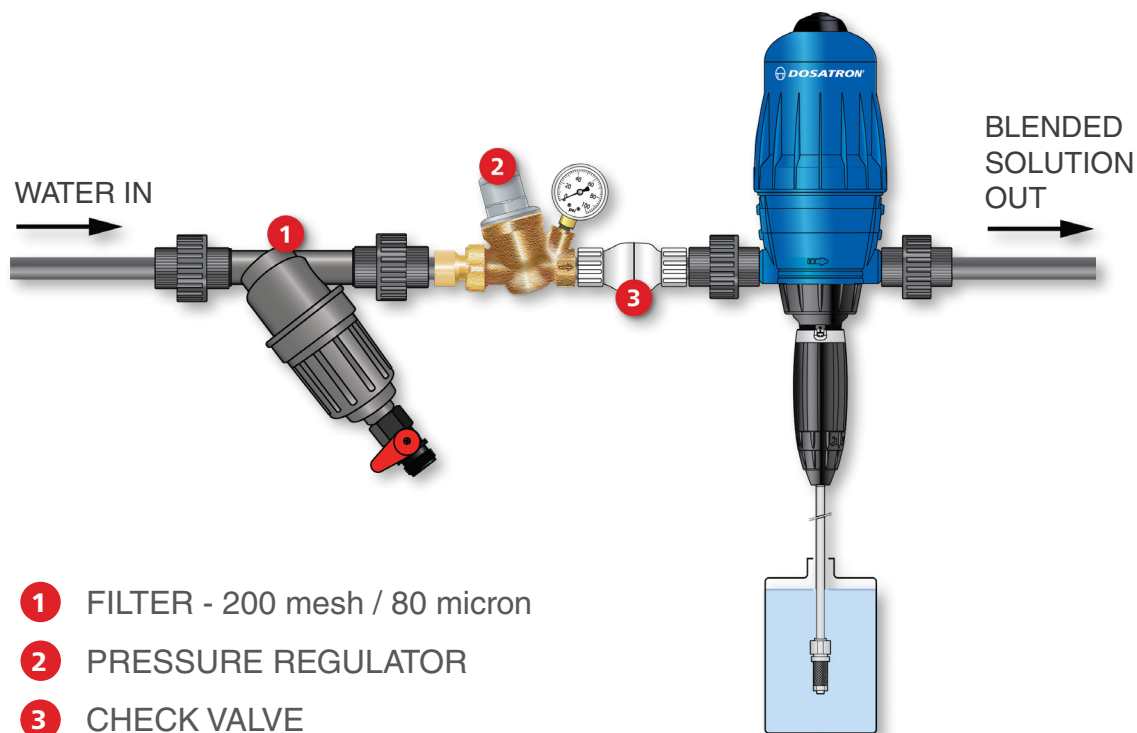
Introduction

Dosatron features superior engineering to create the most durable, easy-to-use, low-maintenance product on the market. We manage your chemical application through repeatability, regardless of fluctuations in pressure or flow

We support our users every step of the way, with valuable and reliable tips and recommendations, to make sure you make the most of your Dosatron injector and keep it in tip-top shape. You can trust our genuine Dosatron products!

RECOMMENDED BASIC INSTALLATION

- Protect your Dosatron unit by including the recommended components in your Basic Installation



A INSTALLATION TIPS

1 WATER QUALITY

- **Requirement** - Install a 200 mesh / 80 micron filter on the inlet side of the Dosatron unit
- In cases where poor water quality exists, the installation may require further pre-filtration to eliminate any large solids, sand, or grit before the water reaches the Dosatron unit

2 WATER TEMPERATURE

- Maximum Temperature 104°F (40°C)

3 WATER FLOW (Volume)

- Install the Dosatron unit with the arrow pointing in the direction of the Water Flow (the directional arrow is located on the body of the Dosatron)



- Introduction and shut-off of Water Flow to the unit should be gradual – DO NOT fast-close valves on either side of the Dosatron (see **Water Hammer** section - pages 4 - 5)
- Keep Water Flow within the specified range for each Dosatron unit, never to exceed the maximum Flow Rate. 2 clicks per second, or more, is an indicator that the maximum Flow Rate has been exceeded (see **Unit Specification Chart** - pages 8 - 9)
- Installing a Flow Restrictor on the inlet side of the Dosatron unit, can help regulate the Flow Volume, and reduce the chances of overflowing the unit

4 WATER PRESSURE

- Keep Water Pressure within specified range for each Dosatron unit (see **Unit Specification Chart** - pages 8 - 9)

- Install a Pressure Regulating Valve on the inlet side of the Dosatron unit particularly when Pressure Spikes, beyond the specified range of the Dosatron unit, could be present

5 CONCENTRATE TANK

- **Location** - Install the Dosatron unit within a 10 foot (3 meters) area of the Concentrate Container / Stock Tank
- The Dosatron unit will draw 13 vertical feet (4 meters)
- Use a single length of suction hose from unit to strainer, avoiding any connections or junctions as they may restrict suction, or allow air leaks greatly reducing injection capacity. If a connection along the suction line is necessary, use exterior couplings when possible, and always test the connections for air leaks using soapy water
- Keep the suction hose strainer approximately 2 inches (5 cm) above the bottom of the Concentrate Tank to minimize the uptake of solids, and reduce strainer clogs
- The suction hose cannot be pressurized or put under tension
- Keep suction hose, hose barbs, compression fittings, check valve(s), and strainer clean and free of debris, or build-up, to allow for the proper uptake of Concentrate

6 CHEMICAL HANDLING

ALWAYS wear proper personal protective equipment when handling Concentrated Chemicals and / or Diluted Solutions

- Review all Chemical compatibilities and / or contradictions as follows:
 - With Dosatron Support Staff prior to **Selecting** the proper Dosatron unit for your specific application
 - Before **Using** the Dosatron unit for your specific application
 - Before **Mixing** or **Blending** chemistries in a stock concentrate or blended solution
- Mixing two or more products in a stock concentrate, and / or a blended solution, may cause Chemical compatibility issues and damage the mechanics of the Dosatron
- Please follow the Chemical manufacturer's instructions for proper product dilution, application rates, and general usage recommendations

7 WATER HAMMER

▶ What is Water Hammer?

Water Hammer is defined as a pressure surge, or wave, caused when a fluid in motion is forced to stop or change directions suddenly, due to a shock

▶ What could be the Shock Source?

A Shock Source may be a:

- Solenoid Valve
- Quarter Turn Valve
- Trigger Gun

Water Hammer commonly occurs when a valve closes suddenly at the solenoid manifold, and as a pressure wave propagates in the pipe, it is forced back at the source at an exponential rate (sometimes 4x the force / pressure)

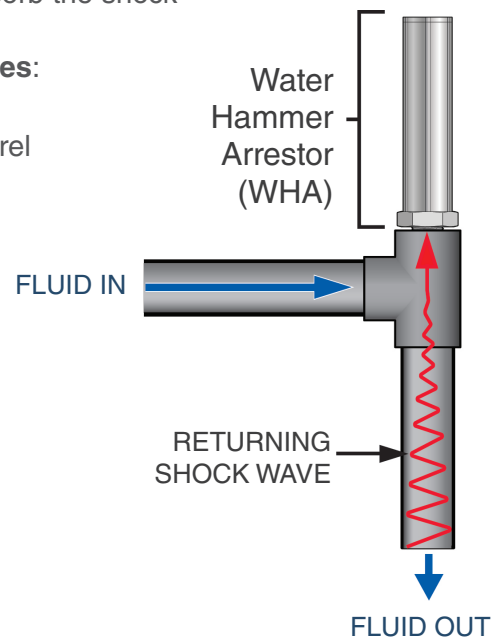
This pressure wave can cause problems from noise and vibration, to pipe collapse or bursting. In cases of Water Hammer occurrences, a Water Hammer Arrestor (WHA) must be installed to protect the Dosatron units, and components, from the phenomenon

▶ What is a Water Hammer Arrestor (WHA)?

A Water Hammer Arrestor (WHA) is a gas-filled cylinder with a movable diaphragm, or piston, that adjusts to absorb the shock

Required Water Hammer Arrestors (WHA) features:

- Stainless steel adaptor, cap, piston, and barrel
- High pressure EPDM o-rings
- Threaded arrestor
- Nitrogen preload: 60 psi



▶ Water Hammer Arrestor (WHA) Installation Tips

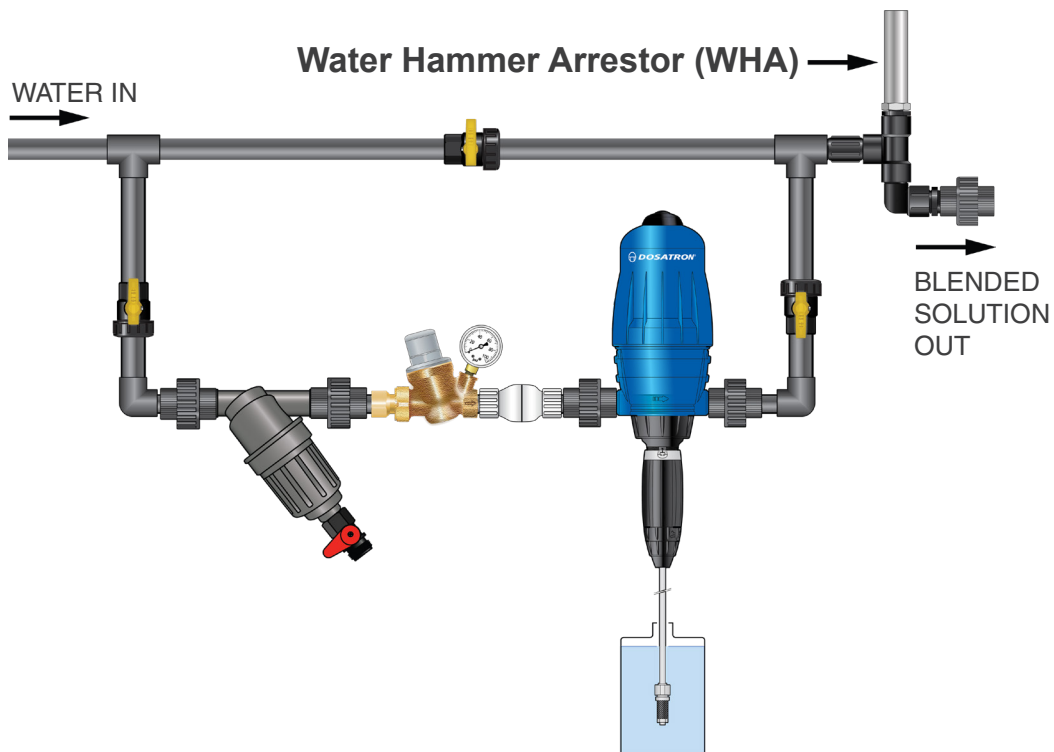
A Water Hammer Arrestor should always be installed so the shock **dead-ends** into the arrestor. Arrestors should always be placed as near to the source of shock as possible



1. Flush line prior to installation
2. Use thread tape to seal pipe threads
3. To tighten, place wrench on hex only
4. For best results, match Arrestor to pipe size at the point of installation. Call 1-800-523-8499 to learn about our WHA Kits option
5. Vertical-upward, or horizontal installations are acceptable. Vertical-downward position is not recommended
6. Verify manufacturer's recommended pressure rating

▶ Proper Installation of Water Hammer Arrestors (WHA)

This image illustrates the proper positioning for the Arrestor, where the shock would be absorbed with 100% effectiveness



8 SIPHONING

► Potential Siphoning situation affecting the Injection Rate of the Dosatron proportional injector

BACKGROUND

The design of the Dosatron injector does not allow for the injection rate to exceed the ratio it is set at, if it is installed in the proper fashion (for example, it can inject less if the seals are worn, or if the product injected is very viscous)

However, if the injector is placed in a line where a Siphon occurs, then this Siphon can force the chemical up through the Dosatron, and up or down the line, depending where the vacuum is created

In these situations, the accuracy of the injector is no longer warranted, and high concentration of chemicals can be found before or after the unit

3 Examples of Siphoning that can occur in a line

(There may be a need to accommodate for all 3 situations in some installations)

SIPHONING SITUATION

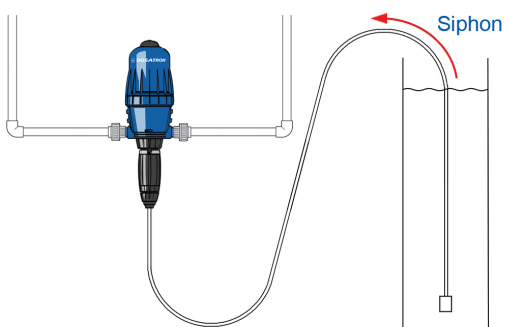
SOLUTION

EXAMPLE 1

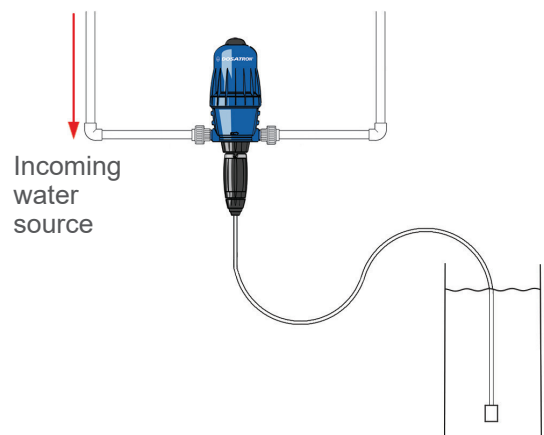
The top level of the stock solution is higher than the level of the inlet and outlet of the unit (similar to siphoning gas out of the tank of a car)

Lower the top level of the stock tank so it is below the inlet and outlet of the injector

Note: If the chemical tank is too large to realize this configuration, you may need to install a secondary holding tank equipped with a simple float valve system

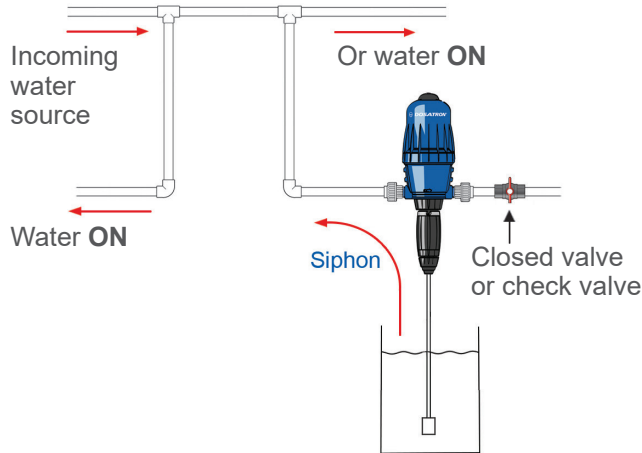


Chemical level too high compared to Injector - SIPHON IS CREATED



EXAMPLE 2

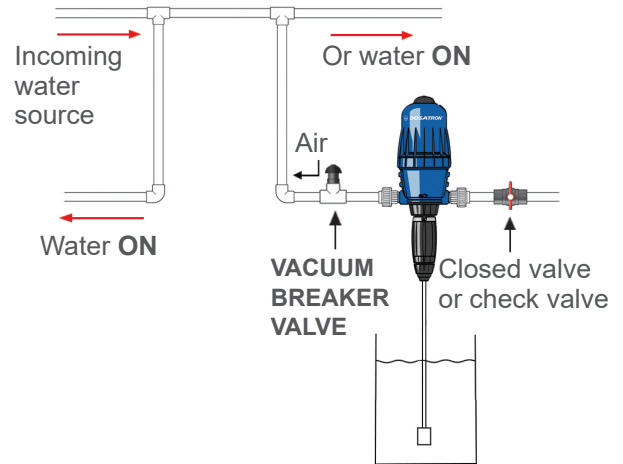
Water is being used on the same line feeding the Dosatron, and the line downstream from the Dosatron is shut OFF by a valve or check valve



Note: This is true even if there is a shut solenoid valve placed before the inlet of the injector as most solenoids do not prevent liquids from flowing back through them

Install a vacuum breaker device or an air relief valve prior to the unit, to allow air to enter the water line breaking the Siphon caused from water passing through a tee upstream from the unit

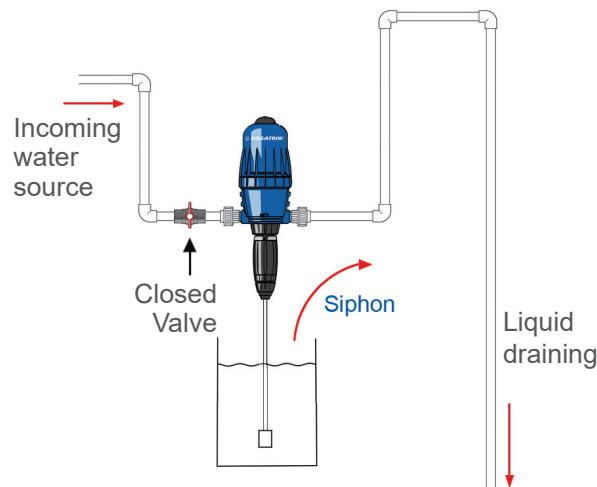
This stops the pulling of water / solution backwards toward the tee in the same upstream



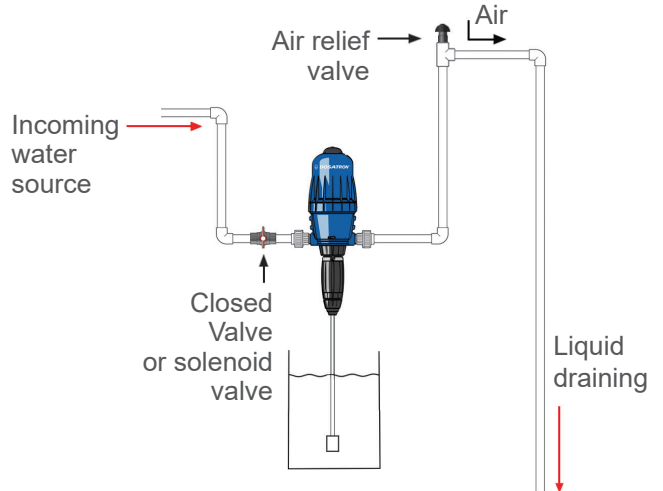
Atmospheric pressure will stop the vacuum effect and therefore stop the Siphon

EXAMPLE 3

The water is shut off prior to the Dosatron (with a valve or solenoid valve), and liquid is draining downstream from the unit



Install a vacuum breaker device or an air relief valve after the unit, to allow air in the line if a Siphon is created by the draining of the downstream line



Atmospheric pressure will stop the vacuum effect and therefore stop the Siphon

When connecting a Dosatron unit, either to the public water supply or to its own water source, you must respect the regulations in force concerning protection of the water source

► Dosatron Units Specification Chart

Dosatron Unit	Max. Flow	Flow Range	Pressure	Ratios	Connection
D07RE5	3 GPM / 12 LPM	0.02 to 3 GPM (0.08 to 12 LPM)	4.3 to 85 PSI	1:128 to 1:18	3/4" NPT
D07RE125	3 GPM / 12 LPM	0.02 to 3 GPM (0.08 to 12 LPM)	4.3 to 85 PSI	1:667 to 1:80	3/4" NPT
D128R	7 GPM / 27 LPM	0.09 to 7 GPM (0.34 to 27 LPM)	7 to 70 PSI	1:200/1:128/1:100	3/4" NPT
D25RE10	8.8 GPM / 33.3 LPM	0.05 to 8.8 GPM (0.19 to 33.3 LPM)	4.3 to 57 PSI	1:33 to 1:10	3/4" NPT
D14MZ520	9 GPM / 34 LPM	0.05 to 9 GPM (0.19 to 34 LPM)	7 to 57 PSI	1:20 to 1:5	3/4" NPT
D25F	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:128 Fixed	3/4" NPT
D25F1	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:100 Fixed	3/4" NPT
D25RE2	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:500 to 1:50	3/4" NPT
D25RE5	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:100 to 1:20	3/4" NPT
D25RE09	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:1000 to 1:112	3/4" NPT
D25RE09VFBPHY	11 GPM / 42 LPM	0.05 to 11 GPM (0.19 to 42 LPM)	4.3 to 85 PSI	1:1000 to 1:112	3/4" NPT
DM11F	11 GPM / 42 LPM	0.02 to 11 GPM (0.08 to 42 LPM)	1.5 to 85 PSI	1:128 Fixed	3/4" NPT
DM11RE3	11 GPM / 42 LPM	0.02 to 11 GPM (0.08 to 42 LPM)	2.2 to 57 PSI	1:128 to 1:32	3/4" NPT
D14MZ2	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:500 to 1:50	3/4" NPT
D14MZ2-D (Vehicle Wash)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:500 to 1:50	3/4" NPT
D14MZ5	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:200 to 1:20	3/4" NPT
D14MZ5-D (Vehicle Wash)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:200 to 1:20	3/4" NPT
D14MZ10	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	7 to 85 PSI	1:100 to 1:10	3/4" NPT
D14MZ10-D (Vehicle Wash)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	7 to 85 PSI	1:100 to 1:10	3/4" NPT
D14MZ1000	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:1000 to 1:100	3/4" NPT
D14MZ3000	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D14MZ3000-D (Vehicle Wash)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D14WL2NAF (NSF Approved)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:500 to 1:50	3/4" NPT
D14WL3000NAF (NSF Approved)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D14WL3000NIEAF (NSF Approved)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D14MZ2VFBPHY (Nutrient Delivery System)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:500 to 1:50	3/4" NPT

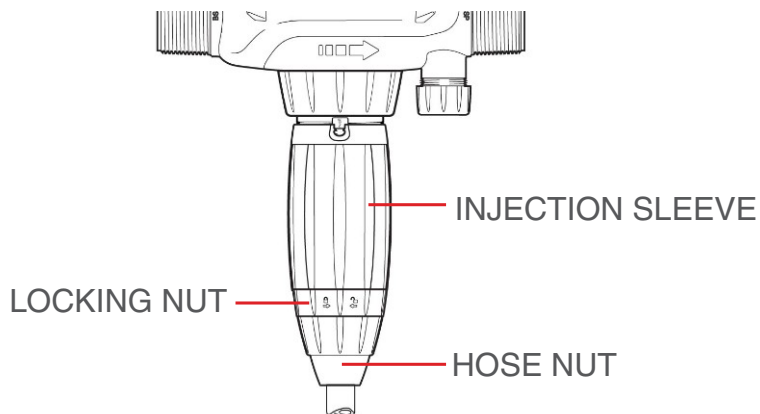
Dosatron Unit	Max. Flow	Flow Range	Pressure	Ratios	Connection
D14MZ10VFBPHY (Nutrient Delivery System)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	7 to 85 PSI	1:100 to 1:10	3/4" NPT
D14MZ1000BPVFHY (Nutrient Delivery System)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:1000 to 1:100	3/4" NPT
D14MZ3000VFBPHY (Nutrient Delivery System)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D14TMZ5 (Hot-Water units)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:200 to 1:20	3/4" NPT
D14TMZ10 (Hot-Water units)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:100 to 1:10	3/4" NPT
D14TMZ3000 (Hot-Water units)	14 GPM / 50 LPM	0.05 to 14 GPM (0.19 to 50 LPM)	4.3 to 85 PSI	1:3000 to 1:333	3/4" NPT
D45RE3	20 GPM / 76 LPM	0.4 to 20 GPM (1.51 to 76 LPM)	7 to 70 PSI	1:200 to 1:33	1" NPT
D45RE8	20 GPM / 76 LPM	0.4 to 20 GPM (1.51 to 76 LPM)	7 to 70 PSI	1:33 to 1:12	1" NPT
D45RE15	20 GPM / 76 LPM	0.4 to 20 GPM (1.51 to 76 LPM)	7 to 70 PSI	1:500 to 1:66	1" NPT
D40MZ2	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:500 to 1:50	1 1/2" NPT
D40MZ5	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	7.2 to 116 PSI	1:100 to 1:20	1 1/2" NPT
D40MZ1000	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:1000 to 1:100	1 1/2" NPT
D40MZ3000	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:3000 to 1:500	1 1/2" NPT
D40MZ2BPVFHY (Nutrient Delivery System)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:500 to 1:50	1 1/2" NPT
D40MZ5BPVFHY (Nutrient Delivery System)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	7.2 to 116 PSI	1:100 to 1:20	1 1/2" NPT
D40MZ1000BPVFHY (Nutrient Delivery System)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:1000 to 1:100	1 1/2" NPT
D40MZ3000BPVFHY (Nutrient Delivery System)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	4.3 to 116 PSI	1:3000 to 1:500	1 1/2" NPT
D40WL3000NAF (NSF Approved)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	2.2 to 116 PSI	1:3000 to 1:800	1 1/2" NPT
D40WL3000NIEAF (NSF Approved)	40 GPM / 151 LPM	2.2 to 40 GPM (8.32 to 151 LPM)	5 to 116 PSI	1:3000 to 1:800	1 1/2" NPT
D20S	100 GPM / 379 LPM	5 to 100 GPM (18.9 to 379 LPM)	2 to 120 PSI	1:500 to 1:50	2" NPT
D132MZ1	132 GPM / 500 LPM	35.2 to 132 GPM (133 to 500 LPM)	7 to 87 PSI	1:1000 to 1:100	3" NPT
D132WL5000	132 GPM / 500 LPM	35.2 to 132 GPM (133 to 500 LPM)	7 to 87 PSI	1:5000 to 1:500	3" NPT
D132WL30000	132 GPM / 500 LPM	35.2 to 132 GPM (133 to 500 LPM)	7 to 87 PSI	1:30000 to 1:3000	3" NPT
D400MZ02	400 GPM / 1514 LPM	110 to 400 GPM (416 to 1514 LPM)	7.25 to 116 PSI	1:5000 to 1:500	4" flange
D400MZ05	400 GPM / 1514 LPM	110 to 400 GPM (416 to 1514 LPM)	7.25 to 116 PSI	1:1000 to 1:200	4" flange
D400MZ30000	400 GPM / 1514 LPM	110 to 400 GPM (416 to 1514 LPM)	7.25 to 116 PSI	1:30000 to 1:8000	4" flange

B ADJUSTMENT & CALIBRATION TIPS

1 DOSAGE ADJUSTMENT

- When adjusting the Dosage setting on your Dosatron unit by turning the **Injection Sleeve**, it is **NECESSARY** that the **Locking Nut** is in the UNLOCK position before turning the sleeve. This will avoid the damage or breakage, and eliminate the fusing or nesting of the **Hose Nut** and the **Lock Nut**

Forcing the Adjustment when the unit is in the LOCK position could push the Check Valve Nut down onto the hose, making them difficult to separate



2 VOLUMETRIC INJECTION TEST PROCEDURE

- This simple **Volume Test** will monitor the calibration of the Dosatron doser, set at a specific injection rate. It **approximately** verifies that the amount of solution injected is in the correct proportion to the Volume of fluid going through the doser, according to its ratio. Performing this test helps to determine if it's time for routine maintenance



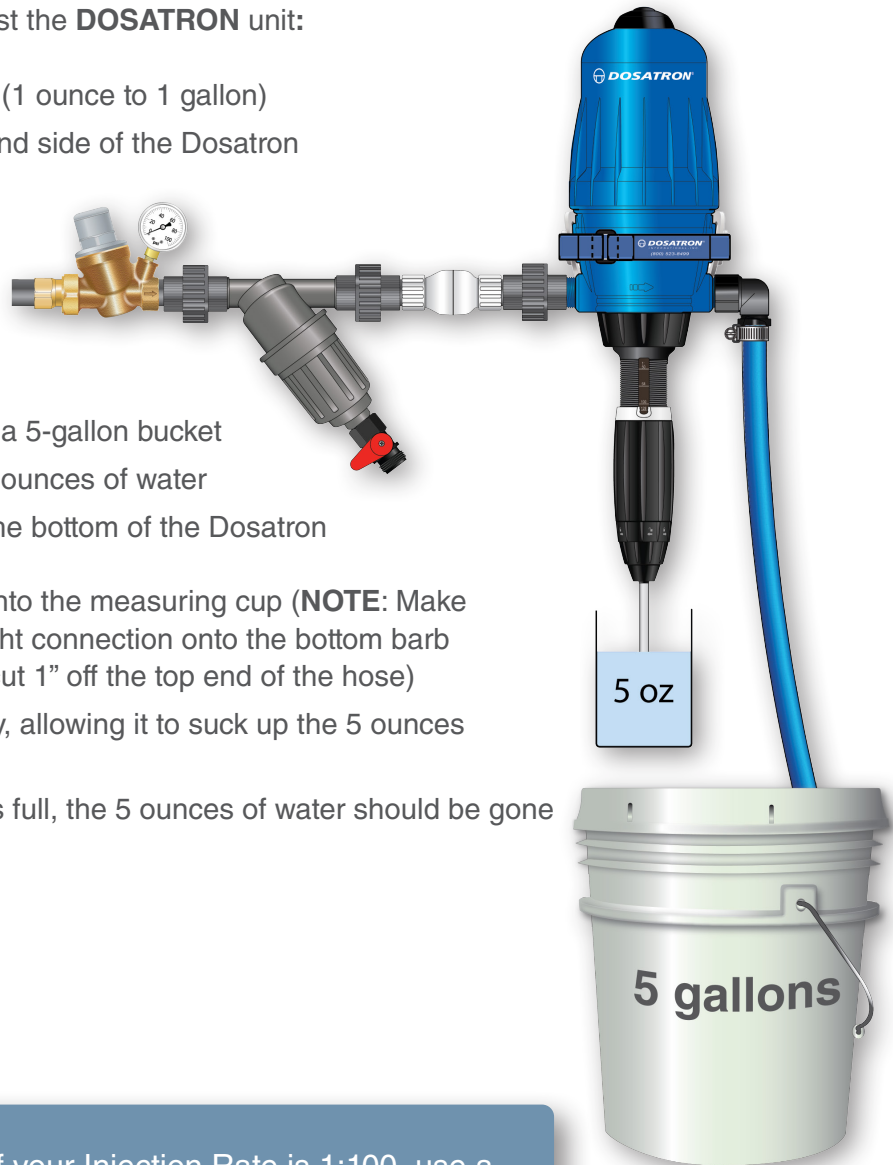
CAUTION: Chemicals are dangerous. Before you start this test, read your relevant Safety Data Sheet. Make sure you are clear on what action to take in case of accidental chemical splashes and spills

Wear proper Personal Protective Equipment (PPE) including, but not limited to, eye protection, skin protection (safety apron), and gloves of the appropriate material. If you are in doubt or have any questions, call your supervisor, engineering support, or Dosatron at 1-800-523-8499

► Volumetric Injection Test Procedure Steps - Dosatron Doser

Follow these simple steps to test the **DOSATRON** unit:

1. Set your Dosatron to 1:128 (1 ounce to 1 gallon)
2. Have a hose on the outbound side of the Dosatron



3. Place the garden hose into a 5-gallon bucket
4. Fill a measuring cup with 5 ounces of water
5. Remove the strainer from the bottom of the Dosatron suction hose
6. Insert, and hold, the hose into the measuring cup (**NOTE:** Make sure the hose has an air tight connection onto the bottom barb of the doser. If necessary, cut 1" off the top end of the hose)
7. Turn the Dosatron on slowly, allowing it to suck up the 5 ounces of water from the cup
8. When the 5-gallon bucket is full, the 5 ounces of water should be gone



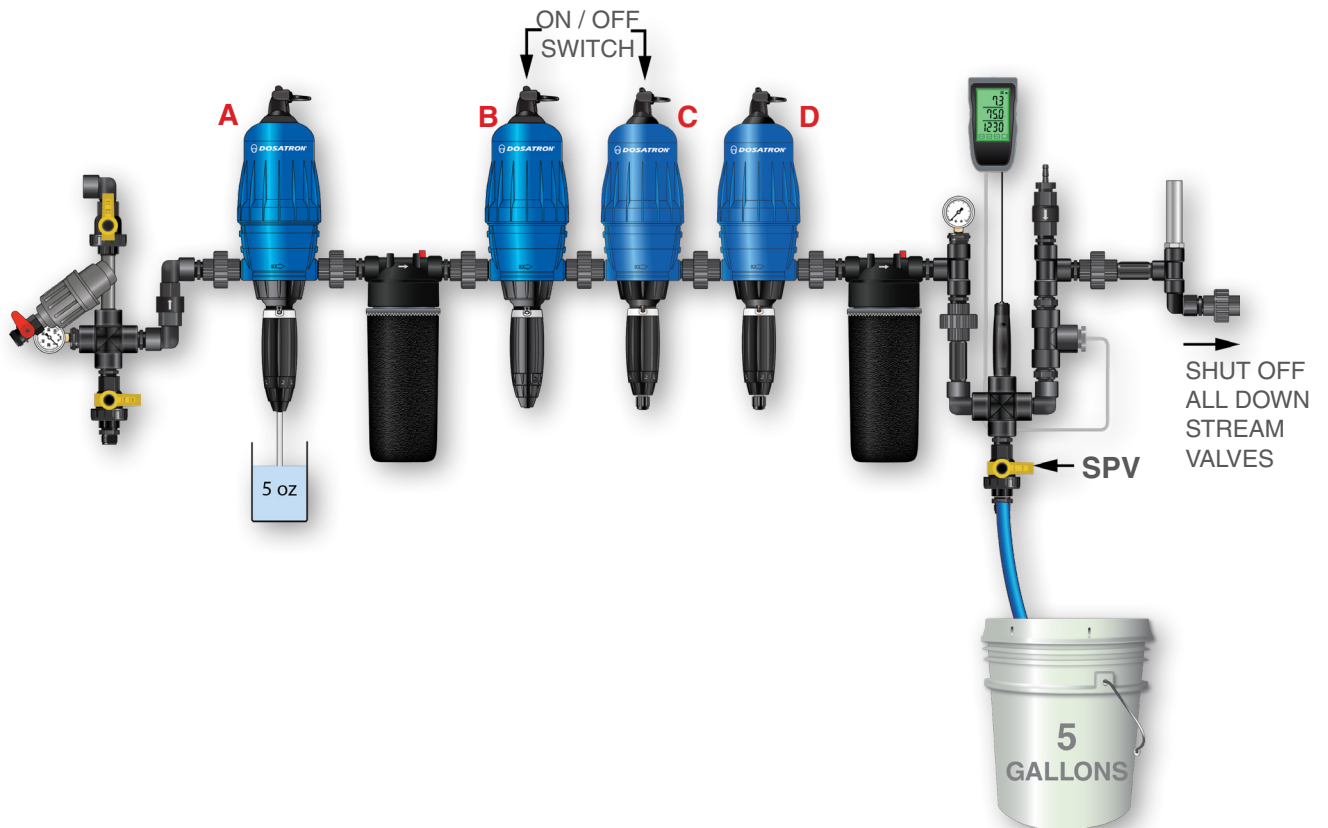
NOTE: If your Injection Rate is 1:100, use a 6.4 ounce cup

This test will not work for the 100 gallon per minute Dosatron, due to the volume of water. It may be best to use larger amounts, or check your fertilizer injection with a calibrated EC meter

► Volumetric Injection Test Procedure Steps - Nutrient Delivery System

Instructions for testing the calibration of your Dosatron doser for your **Nutrient Delivery System** set-up

- Follow these simple steps to test **DOSER A**:
 1. Set **DOSER A** to 1:128 injection rate (0.78%)
 2. Turn the switch **OFF** on all Dosers except **DOSER A**
 3. Shut water **OFF** downstream from the system. Nothing should be running at the time of the test
 4. Hook up a garden hose to the sample port at the exit of the system and place the other end in an empty 5-gallon bucket
 5. Fill a measuring cup with 5 ounces of water
 6. Remove the strainer from the bottom of the Dosatron **DOSER A** suction hose
 7. Insert and hold the hose into the measuring cup (**NOTE**: Make sure the hose has an air tight connection onto the bottom barb of the Doser. If necessary, cut 1" off the top end of the hose.)
 8. Turn the **Sample Port Valve (SPV)** on slowly, allowing the Dosatron to suction the 5 ounces of water
 9. When the 5-gallon bucket is full, the 5 ounces of water should be gone



To test **DOSER B**:

1. Set **Doser B** to 1:128 (0.78%)
2. Turn the switch **OFF** on all Dosers except **DOSER B**
3. Repeat same steps 3 to 9 from **steps to test DOSER A**

- REPEAT THIS SAME PROCESS FOR THE REST OF THE DOSERS -



NOTE: If your injection rate is set on **1:100**, use **6.4 ounces** of water instead of 5

3 PERIODIC CLICK TEST

- When your Dosatron unit is first installed and in full function, perform a click test. Using your phone's voice-recording feature, record the number of clicks over 15 seconds. Use the click charts on pages 14 - 15 as a reference for your specific unit

Over a period of time, if you notice a change in chemical consumption but nothing has changed in the application, and the solution still titrates correctly, perform the click test again

The Dosatrons are proportional, so the dilution will remain the same, but the flow and the amount of chemical used will increase. At this point look for any leaks, or the cause for the flow change, and repair

► Dosatron Units Click Charts

3 GPM (11 LPM) D07RE5 - D07RE125		
Clicks per 15 seconds		
CLICKS	GPM	LPM
4	0.5	2
8	1	4
12	1.5	6
16	2	8
20	2.5	10
24	3	11

*D25RE10 flows up to 8.8 GPM
which equals 36 clicks

11 GPM (42 LPM) DM11F - DM11RE3		
Clicks per 2 minutes		
CLICKS	GPM	ml
1	0.02	75
2	0.05	189
3	0.1	379
Clicks per 1 minute		
CLICKS	GPM	LPM
3	0.2	1
6	0.4	2
Clicks per 15 seconds		
CLICKS	GPM	LPM
2	0.5	2
4	1	4
12	3	11
24	6	23
34	9	34
40	11	42

7 GPM (26.5 LPM) D128R		
Clicks per 15 seconds		
CLICKS	GPM	LPM
4	1	4
9	2	8
15	3.5	13
22	5	19
31	7	27

11 GPM (42 LPM) D25RE2 - D25RE5 - D25F D25F1 - D25RE09 - D25RE10*		
Clicks per 15 seconds		
CLICKS	GPM	LPM
4	1	4
15	3	11
22	5	19
31	7	27
39	9	34
46	11	42

20 GPM (76 LPM) D45RE3 - D45RE8 - D45RE15		
Clicks per 15 seconds		
CLICKS	GPM	LPM
2	1	4
7	3	11
12	5	19
25	10	38
37	15	57
45	20	76

9 GPM (34 LPM) D14MZ520		
Clicks per 15 seconds		
CLICKS	GPM	LPM
3	1	4
10	3	11
19	5	19
22	7	27
31	9	34

14 GPM (53 LPM) D14MZ2 - D14MZ5 D14MZ10 - D14MZ1000 - D14MZ3000 - D14TMZ5 - D14TMZ10 - D14TMZ3000		
Clicks per 15 seconds		
CLICKS	GPM	LPM
2	0.5	2
3	1	4
10	3	11
21	6	23
35	10	38
49	14	53

40 GPM (152 LPM) D8RE2 - D8R5 - D8RE3000		
Clicks per 15 seconds		
CLICKS	GPM	LPM
1	2	8
4	5	19
9	10	38
18	20	76
27	30	114
36	40	152

40 GPM (152 LPM) D40MZ2 - D40MZ5 - D40MZ1000 - D40MZ3000		
Clicks per 15 seconds		
CLICKS	GPM	LPM
1	0.9	3.6
5	4.5	17
11	10	38
22	20	76
33	30	114
44	40	152

100 GPM (379 LPM) D20S		
Clicks per 15 seconds		
CLICKS	GPM	LPM
2	6	23
4	12	45
9	25	95
18	50	190
36	100	379

4 SQUEAKING UNIT

- This is NOT a sign of a technical issue with the Dosatron unit. However, to resolve the noise, you can:
 1. Open the unit
 2. Clean the inside of the body and flanges
 3. Use a non-ionic surfactant, compatible with chemical stock tank / tank-mix applications to eliminate the noise. You can also spray the flanges with a small amount of plain cooking spray, or food-grade spray silicone to lubricate
 4. Close the unit and put it back to function

5 SUCTION HOSE AIR BUBBLES

- An air bubble in the suction hose will NOT change the dosing, as long as the hose is fully primed from the bubble to the Dosatron

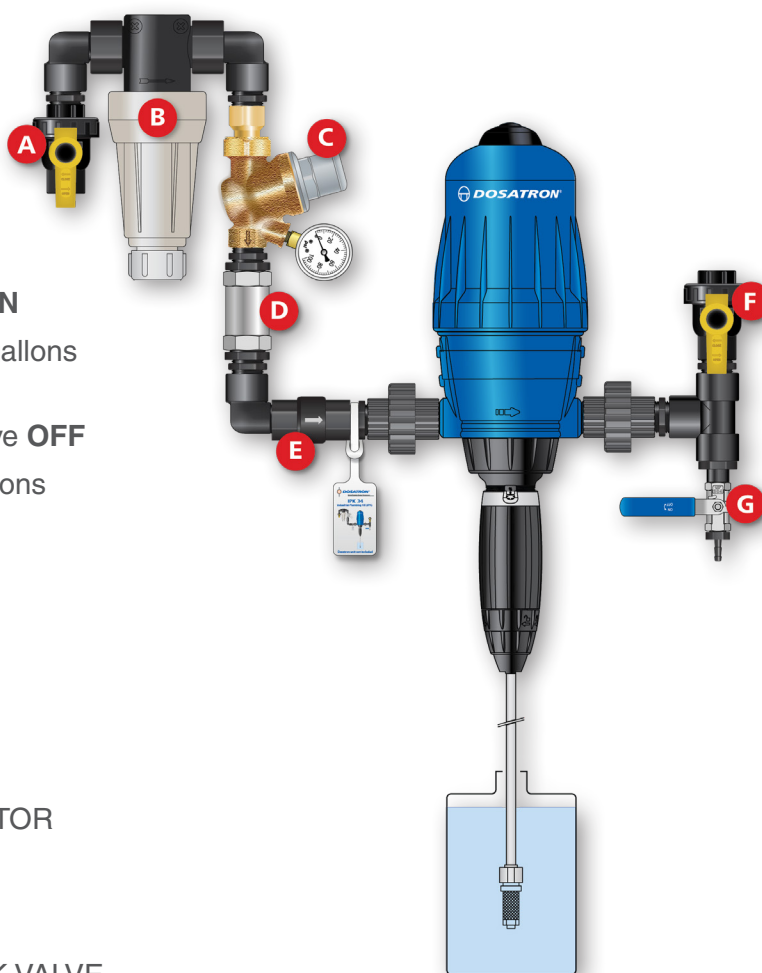
If you'd like to remove the bubble, lift the hose so the bubble gradually moves towards the Dosatron until its drawn inside. The hose should now remain fully primed without bubbles

6 QUICK PRIMING & SAMPLE COLLECTION

For Industrial Applications

- Steps for Quick Priming (helpful at low water flows):
 1. Shut the Outlet Ball Valve
 2. Insert injection hose into the chemical container
 3. Turn **ON** the Stainless Steel Ball Valve (collect discharged solution or send it to drain)
 4. Observe the injection hose, when full count 10 clicks
 5. Shut Stainless Steel Ball Valve **OFF**
 6. Turn **ON** the Outlet Ball Valve

- Steps for Sample Collection:
 1. Make sure the unit is primed
 2. Shut the Outlet Ball Valve **OFF**
 3. Turn Stainless Steel Ball Valve **ON**
 4. In a clean container, collect 2.5 gallons of diluted solution
 5. Shut the Stainless Steel Ball Valve **OFF**
 6. Collect sample out of the 2.5 gallons and check concentration
 7. Turn **ON** the Outlet Ball Valve



A INLET BALL VALVE

B FILTER

C PRESSURE REGULATOR

D FLOW RESTRICTOR

E CHECK VALVE

F OUTLET BALL VALVE

G STAINLESS STEEL BALL VALVE

► Industrial Plumbing Kit (IPK) - for Industrial Applications

Each NEW Industrial Installation requires an IPK to ensure proper performance and durability of the Dosatron unit

WHY THE COMPONENTS ARE ESSENTIAL IN AN IPK:

- **FILTER** - Even using clean city water or RO, the plumbing to the Dosatron may be old, and could allow debris to dislodge and enter the Dosatron unit, causing damage. The filter prevents that occurrence
- **PRESSURE REGULATOR** - Will prevent potential spikes in the supply pressure that could exceed the maximum rating of the Dosatron, possibly causing internal damage
- **FLOW RESTRICTOR** - IMPORTANT: Without a Flow Restrictor, the connection to the Dosatron unit could easily exceed the flow capacity

By design, the Dosatron piston stroke frequency will speed up trying to maintain proportionality (this is similar to driving your car in first gear). The high speed piston stroke will either cause the piston to break, or the plunger to cavitate resulting in underdosing

- **CHECK VALVE** - Although a Check Valve is not considered a true back-flow prevention, it assists in blocking chemical from migrating upstream. The local plumbing code will specify any necessary back-flow prevention



For more information about our IPKs
call 1-800-451-6628 or CHAT with us
@ www.dilutionsolutions.com



C SERVICE & MAINTENANCE TIPS

1 CLEANING & INSPECTING

ALWAYS wear proper Personal protective equipment (PPE) when handling concentrated chemicals and/or diluted solutions

- Use **Proper Protection / Precaution** when disassembling the Dosatron injector, it will be full of water and chemical in its concentrated form (especially the stem area). Protective Equipment such as gloves, eyewear, and aprons are recommended
- **Rinse the Dosatron Unit** by injecting clear water through the injection hose for a few minutes, especially when using aggressive chemicals, suspended chemicals, or chemicals likely to come out of suspension
- **Rinse the Stock Tank** before each use. This will eliminate the possibility of mixing two or more different products that may not mix well, causing unit damage
- **Remove any Buildup** inside your Dosatron unit by submerging the unit, and parts, in a mixture of 1:1 water and vinegar for 24 hours. Rinse with clean plain water before placing the unit in storage or returning to service
- Before placing the Dosatron unit in **Storage** - drain, clean, and protect from freezing temperatures
- Make sure the **Suction Tube** is securely tight on the barb to avoid the suction of air. Inspect the tube, if it flares, cut 1 inch (2.5 cm) from the end and reinstall. If you find cracks, or looks very old, replace it

2 SERVICE

- We recommend a Dosatron unit to have a FULL SERVICE performed every 3 - 4 years, to allow the unit to get back to the simple, reliable, expected performance
- Dosatron units can easily be serviced in-the-field. Please visit your specific unit page at www.dosatronusa.com for Maintenance, Troubleshooting, and Service videos. You can also visit our **DosatronIntl YouTube** channel to view our whole video library
- If in-the-field service is not the best option for you, simply send the Dosatron unit to our **Clearwater Service Center** for a comprehensive evaluation and any necessary maintenance. Call **1-800-523-8499** for more details

3 MAINTENANCE

▶ DIY Kits & Recommended Maintenance

The DIY Maintenance Kits are an easy and economical way to perform maintenance to your Dosatron, they include all the wear parts and instructions. Perfect for in-the-field maintenance. Please, ONLY use Genuine Dosatron Parts!



THERE ARE 3 LEVELS OF MAINTENANCE:







- 1 BASIC - Mini Maintenance Kits**
Perfect, economical option for Dosatron users who perform maintenance on a regular schedule. They can be used as often as necessary to ensure your Dosatron injects accurately and runs smoothly
- 2 STANDARD - Seal Kits**
Recommended for annual seal maintenance. The Seal Kits include all the parts necessary to keep your specific Dosatron in tip-top shape. No tools necessary!
- 3 COMPLETE - Rebuild Kits**
The Rebuild Kits can extend the life of your Dosatron unit. They consist of 2 parts:
Part 1 – Piston Kit
Part 2 – Seal Kit

1 BASIC - MINI MAINTENANCE KITS

For the 11, 14, 20, 40, and 100 GPM injectors. Only available in VITON seals, for other seal type contact our technical service team

Mini Maintenance Kits include:

- Wear Parts
- Dosa-Lube packet

DOSATRON	MODEL	DESCRIPTION	KIT PART NUMBER
	D25F1	11 GPM	PJ117MINI-H
	D25RE2	11 GPM	PJ117MINI-H
	D25RE09	11 GPM	PJ127MINI-H
	DM11F	11 GPM	PJDI900MINI-LS
	D14MZ2	14 GPM	PJDI116MINI-H
	D14MZ10	14 GPM	PJDI122MINI-H
	D14MZ3000	14 GPM	PJDI139MINI
	D45RE15	20 GPM	PJ096MINI-H
	D40MZ2	40 GPM	PJDI120VMINI-H
	D40MZ3000	40 GPM	PJDI216MINI
	D20S	100 GPM	20PJ030MINI-H

2 STANDARD - SEAL KITS

DOSATRON UNIT	DESCRIPTION	KIT PART NUMBER
D07RE5	3 GPM	PJDI095
D07RE125	3 GPM	PJDI106 (for serial # > 05370953)
D25RE10	8.8 GPM	PJ120
D14MZ520	9 GPM	PJDI135 (for serial # < 13400000) PJDI167 (for serial # > 13400000) PJDI199 (for serial # < 16290362)
D25F	11 GPM	PJ117
D25F1	11 GPM	PJ117
D25RE2	11 GPM	PJ093
D25RE5	11 GPM	PJ119
D25RE09	11 GPM	PJ127
D14MZ2	14 GPM	PJDI116
D14MZ2-D	14 GPM	PJDI116
D14MZ5 & D14TMZ5	14 GPM	PJDI120 PJDI120V
D14MZ5-D	14 GPM	PJDI120
D14MZ10 & D14TMZ10	14 GPM	PJDI122 PJDI122V
D14MZ10-D	14 GPM	PJDI122
D14MZ3000 & D14TMZ3000	14 GPM	PJDI139
D14MZ3000-D	14 GPM	PJDI139
D45RE3	20 GPM	PJ084 PJ095 (side-inject)
D45RE8	20 GPM	PJ098 (for serial # < 07141221) PJ151 (for serial # > 07141221)
D45RE15	20 GPM	PJ096 PJ097 (side-inject)
D8RE2	40 GPM	PJDI120V
D8RE5	40 GPM	PJDI122V
D8RE3000	40 GPM	8PJ075
D40MZ2	40 GPM	PJDI120V
D40MZ5	40 GPM	PJDI122V
D40MZ3000	40 GPM	PJDI216
D40WL3000NAF	40 GPM	8PJ075NAF
D20S	100 GPM	20PJ030

3 COMPLETE - REBUILD KITS

DOSATRON UNIT	DESCRIPTION	KIT PART NUMBER
D25F	11 GPM	MKD25F
D25RE2	11 GPM	MKD25RE2VF
D128R	7 GPM	MKD128R
D14MZ2AFII	14 GPM	MKD14MZ2AF
D14MZ2VFII	14 GPM	MKD14MZ2VF
D14MZ2VFIK	14 GPM	MKD14MZ2K
D14MZ5AFII	14 GPM	MKD14MZ5AF
D14MZ5VAFII	14 GPM	MKD14MZ5VAF
D14MZ5VFII	14 GPM	MKD14MZ5VF
D14MZ5VVFII	14 GPM	MKD14MZ5VVF
D14MZ10AFII	14 GPM	MKD14MZ10AF
D14MZ10VAFII	14 GPM	MKD14MZ10VAF
D14MZ10VFII	14 GPM	MKD14MZ10VF
D14MZ10VVFII	14 GPM	MKD14MZ10VVF
D14MZ3000AFII	14 GPM	MKD14MZ3000AF
D14MZ3000VFII	14 GPM	MKD14MZ3000VF
D14MZ3000VFIK	14 GPM	MKD14MZ3000K
D40MZ2AFII	40 GPM	MKD40MZ2AF
D40MZ2VFII	40 GPM	MKD40MZ2VF
D40MZ2VFIK	40 GPM	MKD40MZ2K
D40MZ5AFII	40 GPM	MKD40MZ5AF
D40MZ5VFII	40 GPM	MKD40MZ5VF
D40MZ5VFIK	40 GPM	MKD40MZ5K
D40MZ3000AFII	40 GPM	MKD40MZ3000AF
D40MZ3000VFII	40 GPM	MKD40MZ3000VF
D40MZ3000VFIK	40 GPM	MKD40MZ3000K

● SEAL TYPES

VF = Units with dosing seals for Acid Additives

AF = Units with dosing seals for Alkaline Additives

K = Units with dosing seals for Concentrated Acid Additives

Most PAA products can be applied through a Dosatron using the **VF** seals, but they can wear prematurely and begin to reduce injection. **K** seals will last a lot longer with PAA

D RESOURCES

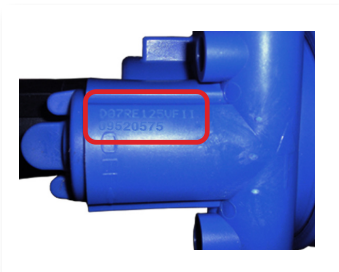
1 SERIAL NUMBER LOCATOR

- The Serial Number consists of 8-digits etched on your Dosatron unit:

The **FIRST 2** numbers represent the **YEAR** the unit was manufactured
 The **NEXT 2** numbers identify the **WEEK** it was manufactured
 The **LAST 4** digits identify the **LOT NUMBER**

► Dosatron Unit Serial Number Location

Identify the model of your injector, then use the images below to find the location of the Serial Number



D07



D128



D25



DM11



D14



D45



D40 (D8R)



D20S*

*The **D20S** Serial Number consists of a 5-digit number

2 DOSATRON TUBING

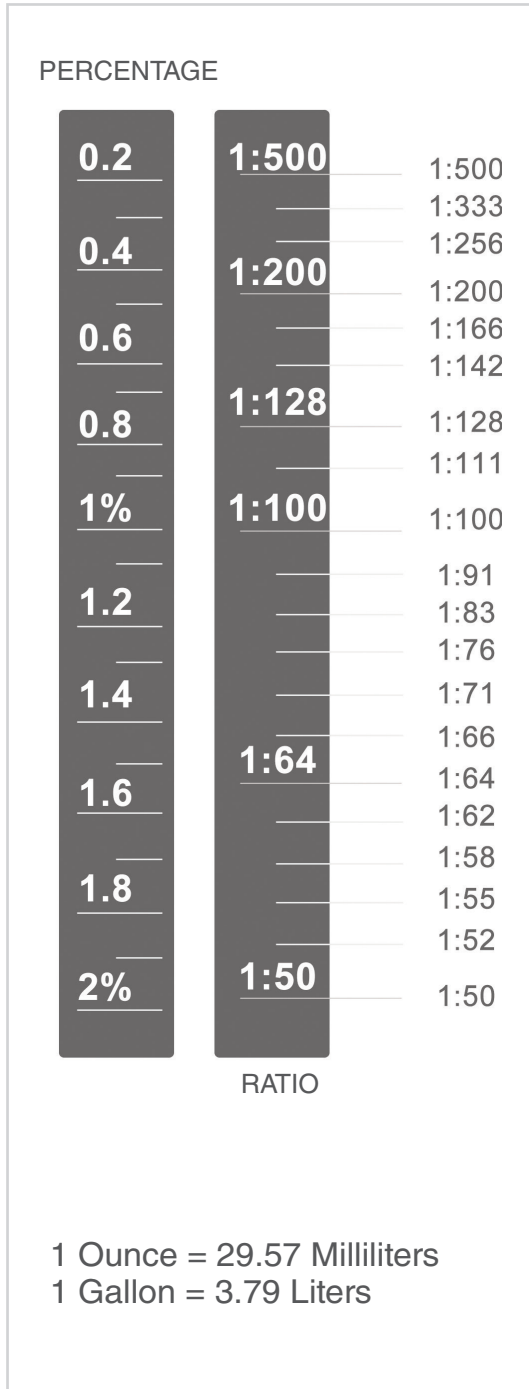
► Dosatron Tubing Specification Chart

DOSATRON UNIT	TYPE OF HOSE (from factory)	HOSE LENGTH (from factory)	PART # (from schematics)	PART # (sold per foot)**	ID	OD	WALL	PART # Hose Assembly
D128R	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MP004
D25RE2	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MP004
D25RE2V	PVC	6 feet	8P045	12MM	0.5"	0.6"	0.06"	8MP006
D25F	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MP004
D25RE1500	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MPDI005
D25RE5	PVC	6 feet	8P045	12MM	0.5"	0.6"	0.06"	8MP006
D25RE10	PVC	4 feet	8P045	12MM	0.5"	0.6"	0.06"	8MP006
D25RE09	PVC	6 feet	PDI042	6 MM	0.25"	0.37"	0.06"	MPDI005
DM11F	PVC	6 feet	PDI806	8MM	0.3"	0.44"	0.06"	MPDI185
D14MZ2	PVC	6 feet	PDI806	8MM	0.3"	0.44"	0.06"	MPDI185
D14MZ5 / D14TMZ5	PVC	6 feet	8P045D	12MM	0.5"	0.6"	0.06"	8MP006
D14MZ5V	PVC Reinforced	6 feet	Sold per foot	16MM	0.6"	0.891"	0.133"	MPDI189
D14MZ10 / D14TMZ10	PVC Reinforced	6 feet	Sold per foot	16MM	0.6"	0.891"	0.133"	MPDI189
D14MZ10V	PVC Reinforced	9 feet	Sold per foot	20MMR	0.75"	1.031"	0.141"	MPDI013
D14MZ520	PVC Reinforced	6 feet	PDI807D	16 MM	0.6"	0.891"	0.133"	MPDI189
D14MZ520V	PVC Reinforced	4 feet	20P041	20MMR	0.75"	1.031"	0.141"	MPDI013
D14MZ1000	Poly or Teflon	6 feet	Sold per foot	6MM-PE	0.157"	0.236"	0.039"	MPDI215
D14MZ3000 / D14TMZ3000	Poly or Teflon	6 feet	PDI578	4 MM	0.157"	0.236"	0.039"	MPDI205
D45RE3000	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MPDI005
D45RE15	PVC	6 feet	8P045	12MM	0.5"	0.6"	0.06"	8MP006
D45RE3	PVC	6 feet	8P045	12MM	0.5"	0.6"	0.06"	8MP006
D45RE8	PVC Reinforced	4 feet	Sold per foot	20MMR	0.75"	1.031"	0.141"	MPDI013
D8RE2	PVC Reinforced	6 feet	Sold per foot	16MM	0.6"	0.891"	0.133"	MPDI189
D8RE5	PVC Reinforced	4 feet	Sold per foot	20MMR	0.75"	1.031"	0.141"	MPDI013
D8RE3000	Polyethylene	6 feet	Sold per foot	4MM	0.157"	0.236"	0.039"	MPDI205
D40MZ2	PVC Reinforced	6 feet	Sold per foot	16MM	0.6"	0.891"	0.133"	MPDI189
D40MZ5	PVC Reinforced	4 feet	Sold per foot	20MMR	0.75"	1.031"	0.141"	MPDI013
D40MZ3000	Poly or Teflon	6 feet	Sold per foot	6MM-PE	0.157"	0.236"	0.039"	MPDI215
D20S	PVC Reinforced	6 feet	Sold per foot	20MMR	0.75"	1.031"	0.141"	20PP001
D07RE125	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MP004
D07RE5	PVC	6 feet	PDI042	6MM	0.25"	0.37"	0.06"	MP004

** 6MM, 12MM, and 20MMR sold by the foot. The Hose Assemblies are the same length as those supplied with the units from the factory, as specified above

3 DILUTION CONVERSION

► Dosatron Dilution Conversion Chart



VOLUME OF PRODUCT INJECTED PER VOLUME OF INCOMING WATER			
PERCENTAGE	RATIO (chemical : water)	OUNCES PER US GALLONS	MILLILITERS PER LITER
10	1:10	12.800	100
5	1:20	6.400	50
4	1:25	5.120	40
3.333	1:30	4.267	33.33
3.125	1:32	4.000	31.25
3.03	1:33	3.879	30.3
2.5	1:40	3.200	25
2	1:50	2.560	20
1.667	1:60	2.133	16.6
1.429	1:70	1.829	14.29
1.25	1:80	1.600	12.5
1.111	1:90	1.422	11.11
1	1:100	1.280	10
0.781	1:128	1.000	7.8
0.667	1:150	0.853	6.67
0.571	1:175	0.731	5.71
0.526	1:190	0.674	5.26
0.5	1:200	0.640	5
0.391	1:256	0.500	3.91
0.333	1:300	0.427	3.33
0.313	1:320	0.400	3.13
0.286	1:350	0.366	2.86
0.25	1:400	0.320	2.5
0.2	1:500	0.256	2
0.195	1:512	0.250	1.95
0.167	1:600	0.213	1.67
0.156	1:640	0.200	1.56
0.143	1:700	0.183	1.43
0.133	1:750	0.171	1.33
0.125	1:800	0.160	1.25
0.111	1:900	0.142	1.11
0.1	1:1000	0.128	1
0.080	1:1250	0.102	0.8
0.067	1:1500	0.085	0.67
0.050	1:2000	0.064	0.5
0.033	1:3000	0.043	0.33

► **Nutrient Delivery System - Dilution Conversion Chart**

DESIRED DOSAGE CONCENTRATION			DOSER SETTING	
mL / gallon (milliliters)	tsp / gallon (teaspoons)	oz / gallon (ounces)	Set % to:	Set Ratio to:
1	0.2	0.033	0.026	3875
1.25	0.25	0.042	0.03	3000
2	0.4	0.067	0.05	2000
3	0.6	0.100	0.08	1250
3.5	0.7	0.117	0.10	1000
4	0.8	0.133	0.11	950
5	1	0.167	0.13	750
6	1.2	0.20	0.16	625
7	1.4	0.23	0.18	540
7.5	1.5	0.25	0.20	500
8	1.6	0.27	0.21	475
9	1.8	0.30	0.24	425
10	2	0.33	0.26	375
11	2.2	0.37	0.29	350
12.5	2.5	0.42	0.33	300
15	3	0.50	0.40	250
17.5	3.5	0.58	0.46	220
20	4	0.67	0.53	190
25	5	0.83	0.66	150
30	6	1.0	0.79	128
34	6.8	1.1	0.9	112
37.5	7.5	1.3	1.0	100
50	10	1.7	1.3	75
75	15	2.5	2.0	50
190	38	6.3	5.0	20
375	75	12.5	10.0	10
750	150	25.0	20.0	5

NEED HELP with CONVERSIONS - Call 1-800-523-8499 or CHAT with us at www.dilutionsolutions.com

4 SPECIFIC UNIT RECOMMENDATIONS

► Upgrading from the D8R to the D8RE or D40MZ Series (40 GPM)

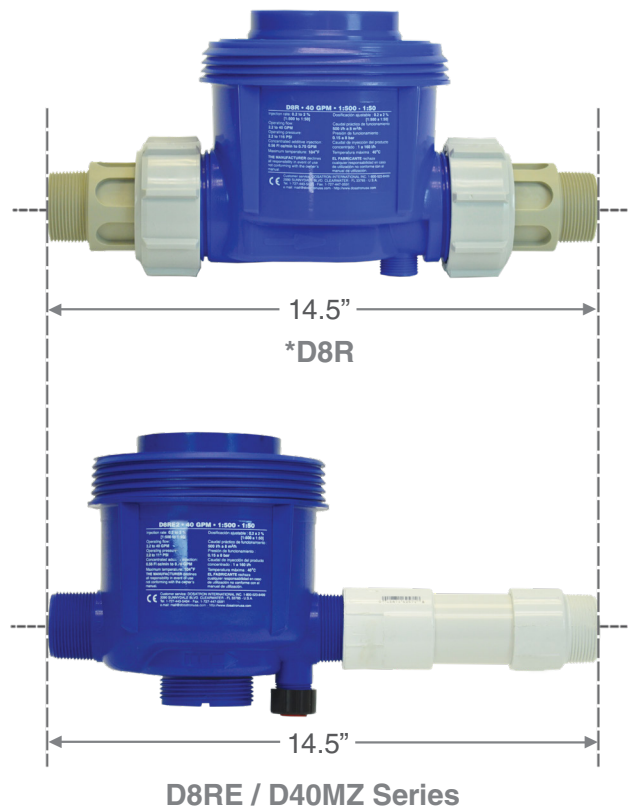
The width on the *D8R and all D8RE / D40MZ Series is different due to the different body styles. There is an easy plumbing option to install your NEW D8RE / D40MZ units to fit in the space of your old *D8R unit

It will require an ADAPTER that consists of:

- A** 1.5" slip x 1.5" female NPT Thread Adapter
- B** Approximately 4.25" to 4.5" section of 1.5" PVC
- C** 1.5" slip x 1.5" male NPT Thread Adapter
- D** PVC glue

INSTRUCTIONS

- Glue the piece of pipe **B** to the slip side of each fitting **A** and **C**
- Wrap thread tape onto the threaded part of the injector's body
- Screw the new adapter onto the D8RE / D40MZ Series injector body

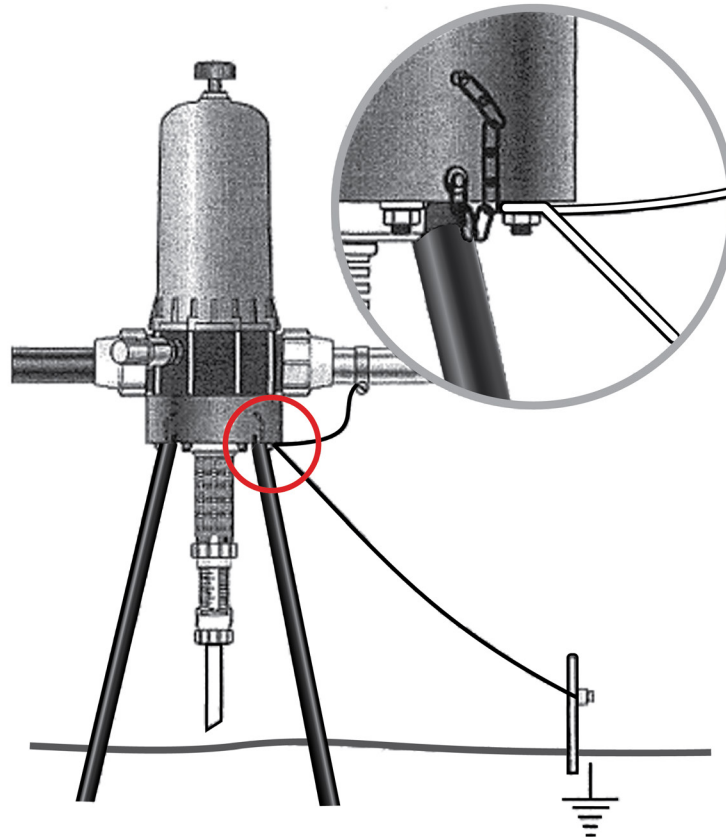


Kit Part #: 8P107

NOTE: Old Dosatron *D8R unit replacement parts have limited availability and will be phasing out soon. If you need replacement parts for your old D8R unit, call 1-800-523-8499 to check on availability, or to order your D8RE / D40MZ Unit

► Dosatron D20S - 100 GPM Grounding

RECOMMENDATION - In order to avoid Electrolysis Phenomena, it is advised to ground your Dosatron D20S unit into the earth using a not-coiled solid metal wire. See image below



5 CALCULATORS

- Let our Calculators help you determine which setting is the right one to use for your specific application. You can find our Calculators by visiting our Dosatron website @ www.dosatron.com/resources

IMPORTANT: The user of these Calculators is responsible for verifying the calculations. These Calculators are for informational and educational purposes only. Dosatron International, LLC, nor its employees, assume any legal liability or responsibility for their accuracy, and any consequential damages or faults that may arise from the use of these Calculators

6 WARRANTY INFORMATION

- Dosatron International S.A.S. will provide for replacement of all parts shown to be defective in material or workmanship during a period of twelve months from the date of purchase by the original purchaser. To obtain warranty replacement of a part, the unit must be returned with original proof of purchase receipt to Dosatron and thereafter recognized as defective after examination by the technical services of the aforementioned company. The unit must be sent to Dosatron prepaid, but will be returned free of charge if found to be covered by the warranty and repairs are made

This warranty only covers circumstances where the part has failed due to defects caused by the manufacturing process. This warranty is invalid if the defects are found to be due to the product's misuse, inappropriate use of tools, lack of maintenance or defective installation or environmental accidents or corrosion by foreign bodies and liquids found within or in proximity to the unit. The seals and 'o' rings are not covered under this warranty, nor is damage to the unit caused by water impurities such as sand. A filter (80 microns or less) must be used in front of the unit for the warranty to be valid. The aforementioned company declines any responsibility if the unit is used under conditions outside of its operating tolerance as indicated herein

This warranty gives you specific legal rights and you may also have other rights which vary from state to state, but any implied warranty of merchantability or fitness for a particular purpose applicable to this product is limited in duration to the time period of this written warranty or any implied warranty

There is no warranty express or implied relating in any way to products used in conjunction with the Dosatron Injector

The aforementioned company shall not be liable for incidental or consequential damage, such as any economic loss, resulting from breach of this written warranty or any implied warranty

There are no warranties, express or implied, which extend beyond those described above

Representations and warranties applicable to your Dosatron are limited as set forth in the documentation delivered at the time of your purchase. The results achieved with your Dosatron depend upon a professional determination of the specifications of the chemicals or other products to be applied. In some cases, it may require an accurate analysis of the water source. Finally, results are dependent upon proper installation, usage, and maintenance of your Dosatron. Please consult a reputable dealer or Dosatron International for assistance and details

7 SUPPORT

▶ Orders & Questions

For any questions, orders, recommendations, or to find a Distributor near you:

- Call - 1-800-523-8499 or 1-727-443-5404
- Fax - 1-727-447-0591
- Email - mailbox@dosatronusa.com
- Or CHAT with us @ www.dilutionsolutions.com

▶ Find Parts & Accessories

If you are looking for Dosatron Replacement Parts or Installation Accessories:

- Visit www.dilutionsolutions.com
- Call - 1-800-451-6628 or 1-727-451-1198
- Fax - 1-727-447-0591
- Email - mailbox@dilutionsolutions.com
- Or CHAT with us @ www.dilutionsolutions.com

▶ Issue a Return

All product returns must first be authorized by calling Dosatron at 1-800-523-8499 and Dosatron may approve or reject a return request in its sole and reasonable discretion, as long as no chemical has been run through the products

A 20% restocking fee will apply to all authorized returns. Subject to any applicable product warranty, in no event will product returns be accepted after 60 days from delivery

▶ Technical Support & Customer Service

- Call - 1-800-523-8499 or 1-727-443-5404
- Fax - 1-727-447-0591
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