



396-001140

Dual Metering Tube Plumbing Kits with Dual Check Valve

SureFire dual metering tube plumbing kits are a great way to plumb a planter to apply starter fertilizer. They'll also work on other implements when applying low rates or high rates of fertilizer.

These plumbing kits will contain everything you need to distribute fertilizer from the flowmeter outlet down to the ground application device of your choice (not included).

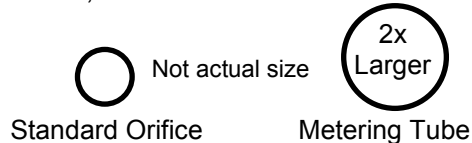
These instructions will show you where all the pieces go. It will provide guidance on how much metering tube to use. There are some optional fittings included in each plumbing kit. These instructions will show you where and why you'd want to use the optional pieces.

The dual check valve assembly is a key piece in the dual metering tube design. In addition to a check valve to stop fertilizer from draining when the system is shut off, **each check valve has an on/off valve on top of it. These on / off valves allow the operator to turn on only tube 1, only tube 2, or both tube 1 and 2. This provides for three different application ranges**, which is especially helpful when using Black Label Zn fertilizer (or any other liquid) which has a highly variable viscosity based on temperature changes.

Dual Advantage of Dual Metering Tube

Metering tube provides a larger passage-way diameter than a comparable orifice. For a 5 GPA rate on 30" rows, a size 0.046" orifice would be used. For the same rate a 0.110" meter tube that is 8' long would be used. This 8' tube with more than twice the diameter creates a fertilizer system resistant to plugging while providing excellent row to row distribution.

By using two metering tubes, the fertilizer system can handle Black Label ZN (or most other liquid solutions) and provide the proper system pressure as the fertilizer properties change due to temperature, mixtures and other factors.



Field Operation of Dual Metering Tube - Dual Check Valve System

The dual metering tube allows for three application rate ranges. Black Label ZN and other liquid fertilizers can have a widely variable viscosity range. Therefore, based on temperature, tank mixing and fertilizer batch, the best tube to use will change.

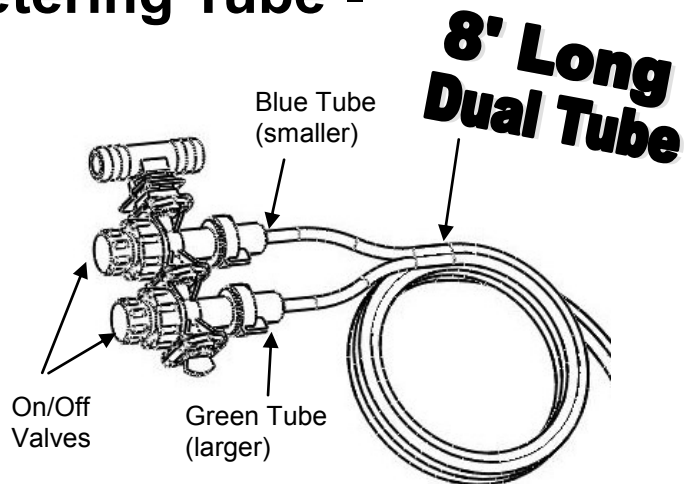
SureFire recommends you start with the Green (or larger) tube ON only. This is the middle application range and is a good starting point. Conduct a test using the test speed mode to determine your system pressure. Recommended pressure is between 8 - 30 PSI. If pressure is below 8 psi, some check valves may not open and row to row distribution will be uneven. If pressure is too high the system will operate less efficiently and Black Label ZN may react adversely.

Start with green (or larger) tube ON, blue tube OFF:

- **Pressure below 8 PSI: Turn green tube OFF and blue tube ON.**

Pressure over 30 PSI: Turn BOTH

tubes ON. (Other color tubes are available for different application rates and products.)



	GPA on 30" rows (approx, will vary)
Blue Tube	1.5 - 3
Green Tube	3 - 6
Blue & Green Tube	6 - 10
Minimum Recommended flow for Blue Tube (8 ft)	4 - 5 oz/min

** Ultra Low Rate Application –For rates from 2-5 oz/min/row use a 12 foot length of metering tube.
To calculate oz/min/row: $\text{Oz/min/row} = (\text{GPA} \times \text{MPH} \times \text{spacing (inches)}) \div 46.4$



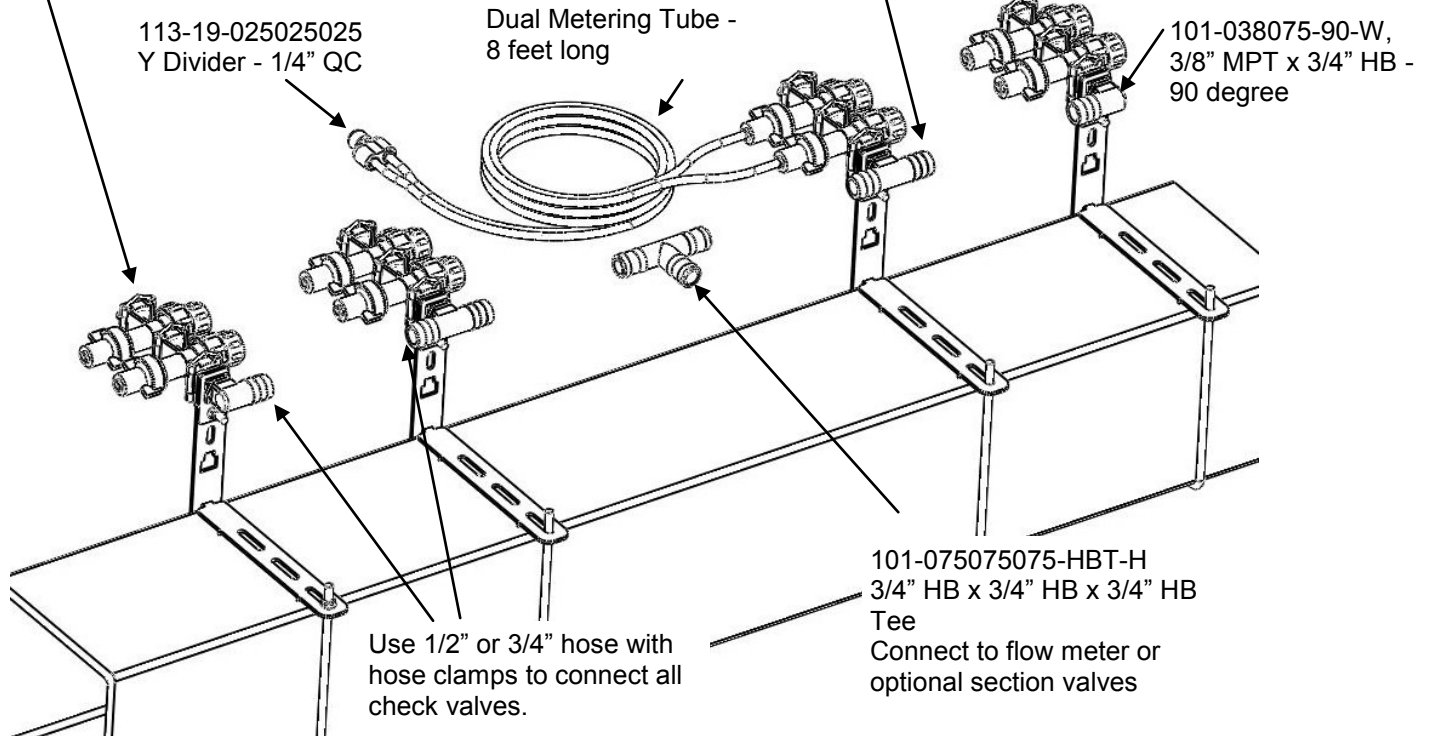
Dual Check Valve Plumbing Diagram

4 Row Planter Shown, add rows as necessary



136-04-200400, Dual 4 PSI check valve with 1/4" QC caps and 3/8" FPT inlet

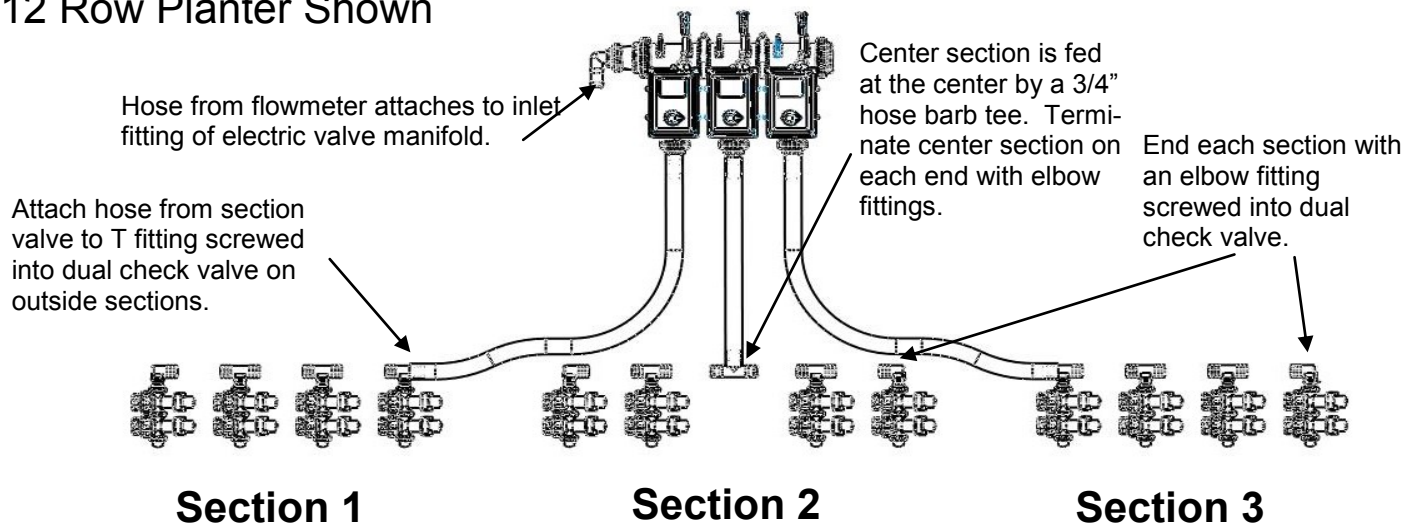
101-075075038-HBT-M-W 3/4" HB x 3/4" HB x 3/8" MPT Tee



This is a general diagram showing the dual check valve assembly mounted on a planter toolbar. The check valve and bracket are very flexible in their mounting. The check valve can mount behind, directly over, or in front of the toolbar. The check valve can be put in the bracket facing up & down or sideways (shown). In addition the steel bracket could be rotated 90 degrees and clamp around the bar. The multiple slots in the bracket are used to mount to any tube 7x7 inches or smaller.

Sectional Plumbing Diagram

12 Row Planter Shown



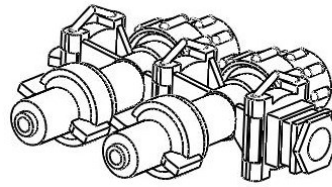
For a **2 section plumbing system**, omit the center section and plumb similar to the outside 2 sections.



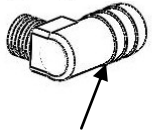
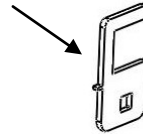
Dual Check Valve Assembly Steps

Follow these steps to mount each check valve to the steel bracket.

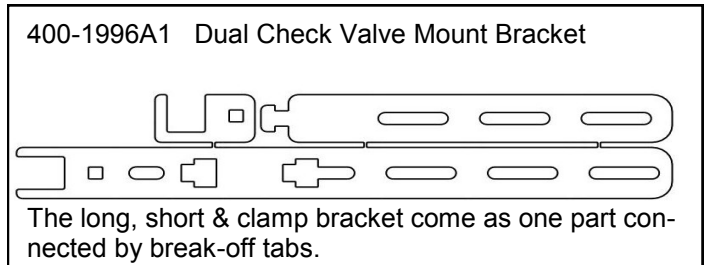
1. Screw the 3/8" MPT x 3/4" HB tee or elbow into the check valve using blue thread sealer. Orient the hose barb to run the 3/4" hose down the planter toolbar.
2. Insert the check valve into the "C" notch in the end of the bracket, according to how you want the check valve to be mounted on your planter. Orient the wire clips up or to the side for easiest access.
3. Slide the small "C" clamp bracket around the check valve to lock it in place.
4. Install the 1/4" carriage bolt and flange nut to secure the "C" clamp plate around the check valve.
5. Now, mount the check valve on the bar. Hold the check valve and long bracket assembly on the toolbar. Slide the tab on the front of the short bracket into the upper or lower notch on the long bracket.
6. Slide the L bolt into the appropriate slots on the brackets for your tube size. Tighten the 1/4" flange nuts to hold the bracket in place.



Clamp Bracket



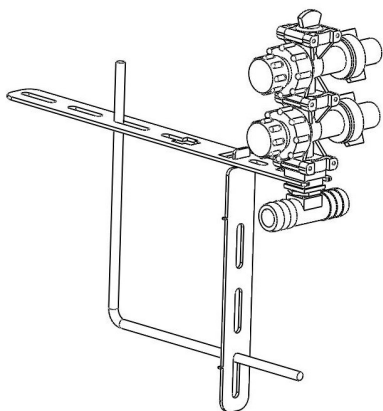
Elbow at end of section, Tee in mid-locations.



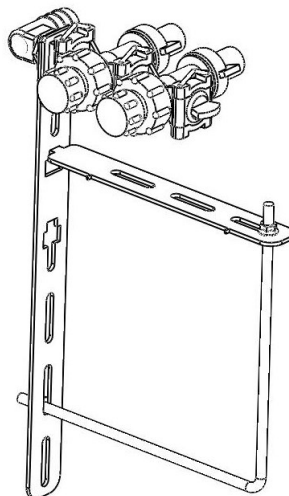
Check Valve Mounting Options

The dual check valve mounting bracket is very flexible to fit many different planter configurations. Three options are shown here to illustrate some of the possibilities.

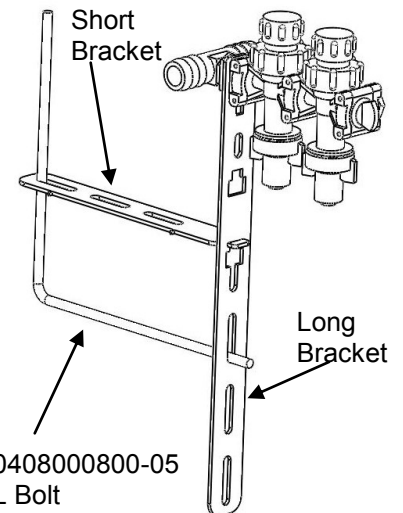
Example 1. Use the long bracket on the top of a bar. The check valve is mounted vertically. The liquid supply hose is ran directly on the front side of the bar. The U-bolt is placed in slots to clamp on a 4x6 inch tube.



Example 2. Use the long bracket on the rear of a bar. The check valve is mounted over the top of the bar. The supply line would run above and behind the bar. The short bracket is placed in the notch to mount the check valve closer to the bar.



Example 3. Use the long bracket on the front of a 3x7 bar (vacuum tube on some planters). Mount the check valve hanging forward of the bar. The supply line will run directly over the bar. The excess bolt and bracket length can be cut off.



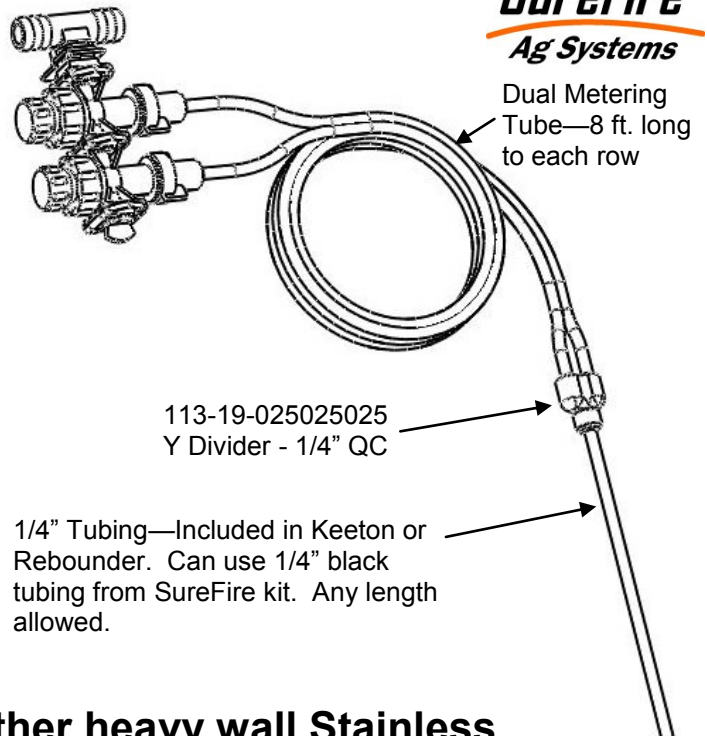
311-0408000800-05
1/4" L Bolt

Connection to Keeton Seed Firmer, Rebounder Seed Covers or through thin wall stainless steel tubes



1. Mount the Keeton Seed Firmer or Rebounder Seed Cover.
2. Route the tube included in the above kit as instructed.
3. Attach the 1/4" tube to the 1/4" QC Y divider fitting.
4. Zip all tubing to the planter and row unit in as many locations as possible.

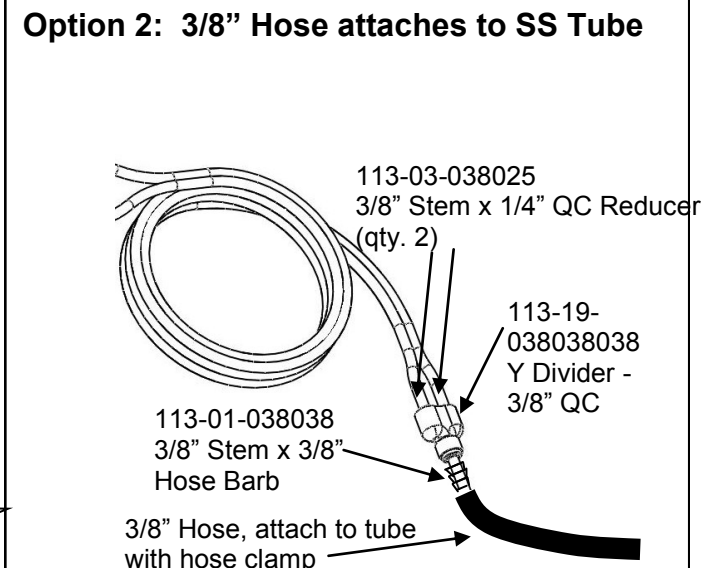
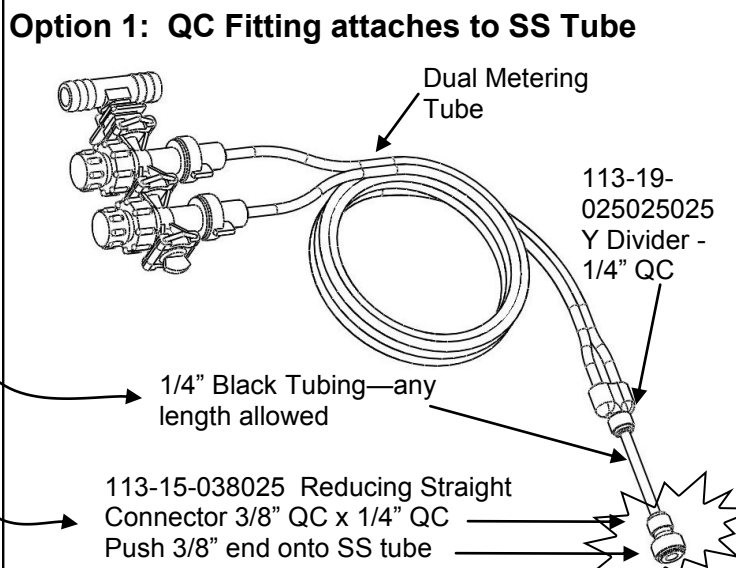
For thin wall stainless steel tubes, you can push the 1/4" black tubing all the way through the stainless steel tube so fertilizer will run directly from the tubing onto the ground.



Connection to Totally Tubular or other heavy wall Stainless Steel Tube Ground Application Devices

When using a 3/8" OD stainless steel tube to apply fertilizer to the ground, there are two options for the delivery tube plumbing. If the tube ID is less than 1/4" (tubing will not fit inside tube) this attachment method must be used. The description following is for Option 1. See bottom right picture for Option 2.

1. Use the 1/4" x 3/8" QC fitting shown. Push the 3/8" end onto the stainless steel tube. (Hint: if the fitting slips off the stainless steel tube, use sandpaper or a file to roughen the end of the tube slightly)
2. Use a short piece of 1/4" black tubing to connect the Y fitting to the reducer fitting on the stainless steel tube.
3. Zip all tubing to the planter and row unit in as many locations as possible.



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