



**QUIK-jet®
Micro-Injection™ System**

Training Manual

Introduction to Arborjet's QUIK-jet® Micro-Injection™

QUIK-jet's speedy delivery in fast uptake trees allows the applicator to work effectively and profitably in a variety of situations.

Low volume injections with the QUIK-jet® are a breeze on ring porous oaks and diffuse porous maples.

The QUIK-jet® utilizes either VIPER or STINGER micro-injection interface technology.

VIPER

Volume Injection Pressure
Enhanced Reservoir

- Inject via Arborplug®
- Fast uptake
- No leakage
- Faster wound closure
- Can be used on Conifers
- Suitable for infection-prone trees



STINGER

Stick -> Inject -> Remove

- Inject without Arborplug®
- Faster set up
- Simple injection process
- Best for Ring Porous Trees
- Can be used by Non-Arborists



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What's Included in your QUIK-jet® Kit

P/N: 070-2252



- QUIK-jet® Device
- Cap Assembly and Supply Line
- 1L Supply Bottle (2)
- Arborplug Setter
- VIPER Needle Clean-out Tools (2)
- 3.5 Gallon Bucket with Lid
- Safety Glasses
- Storage Bag
- Device Belt Hook and Bottle Clip
- 3/8" & 9/32" Drill Bit
- 500mL CLEAN-jet
- Funnel
- Graduated Cylinder
- Manual & Warranty Card

Three Easy Steps for Using the QUIK-jet System

1. DRILL



2. PLUG



3. INJECT



IMPORTANT SAFETY REMINDER

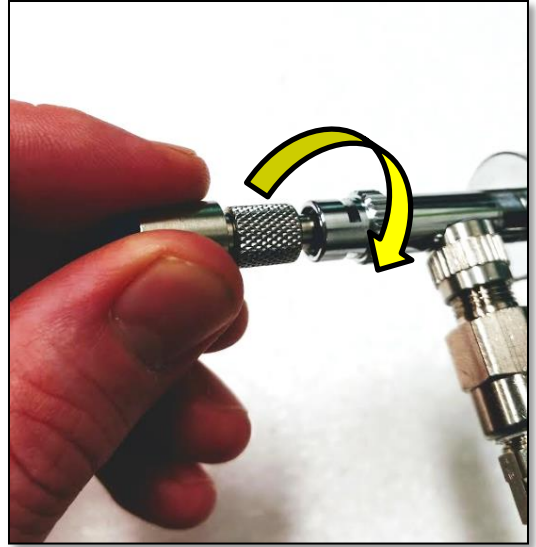


Always wear proper PPE when handling products and equipment

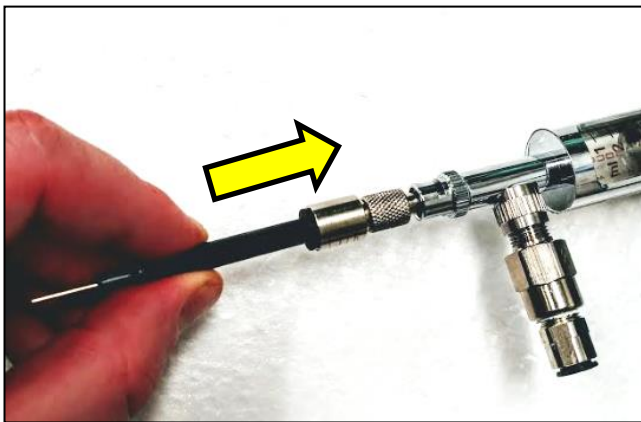
How to Assemble the QUIK-jet Device - VIPER



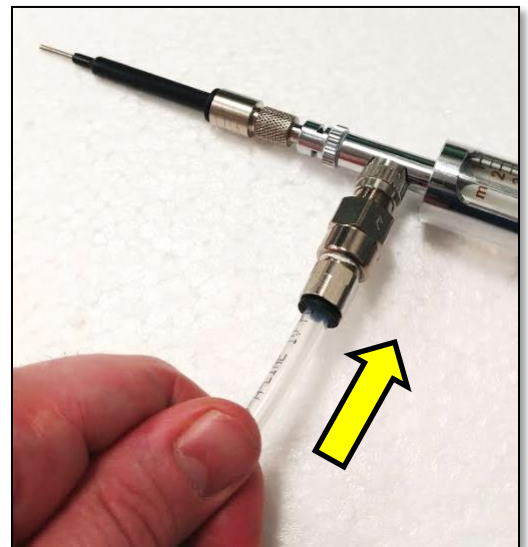
Twist PTC into Luer Fitting*



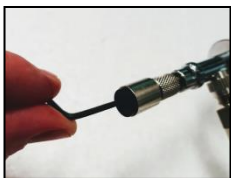
Connect Luer-PTC Assembly to QUIK-jet Device with single turn



Push VIPER Needle into PTC

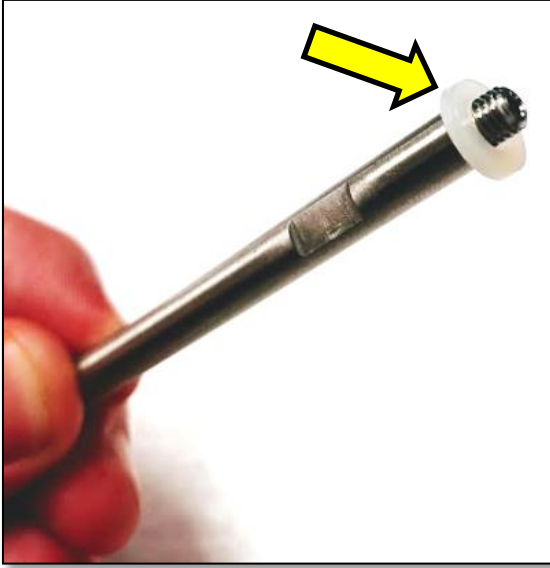


Attach 1/4" Supply Line



*PTC Fittings can be tightened/ removed with a 5/64" Hex Key

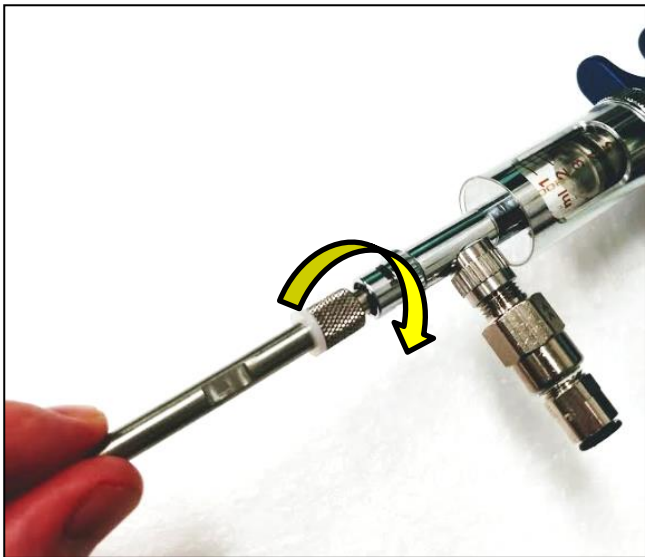
How to Assemble the QUIK-jet Device - STINGER



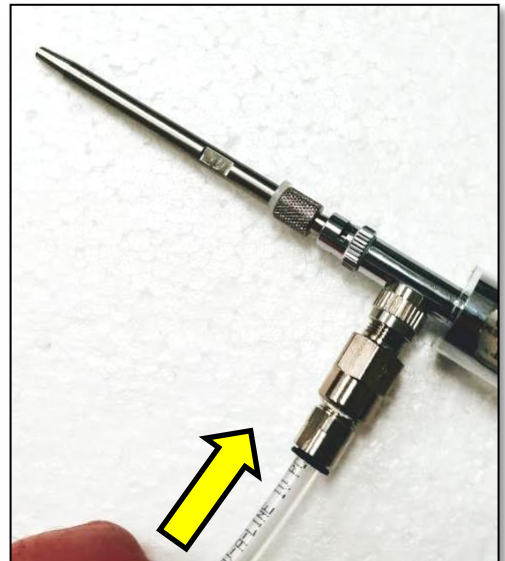
Seat SMC Washer onto Stinger Needle



Twist Stinger Needle into Luer Fitting



Twist Stinger-Luer Assembly onto QUIK-jet Device

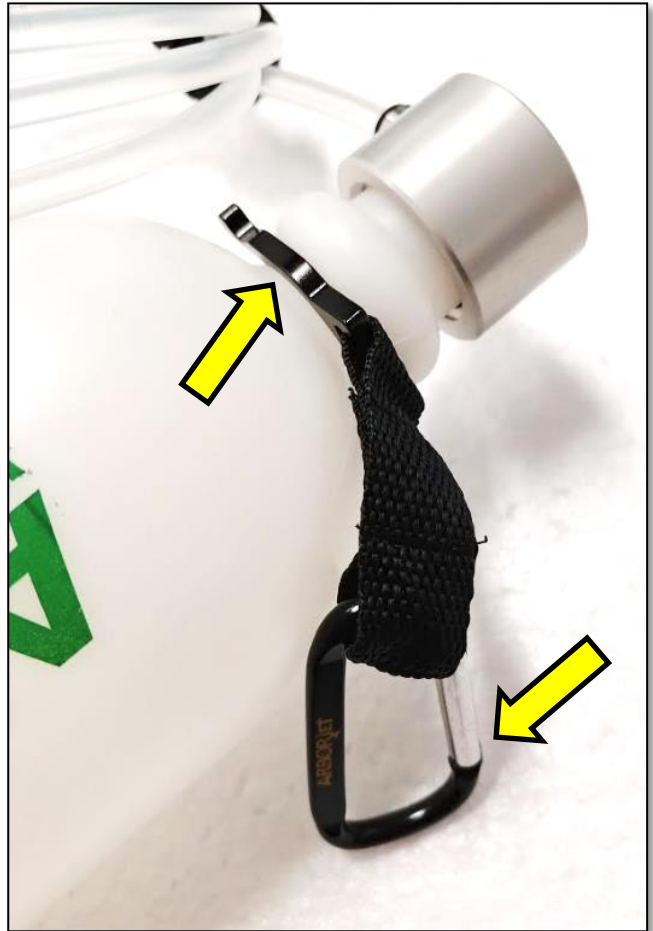


Attach 1/4" Supply Line

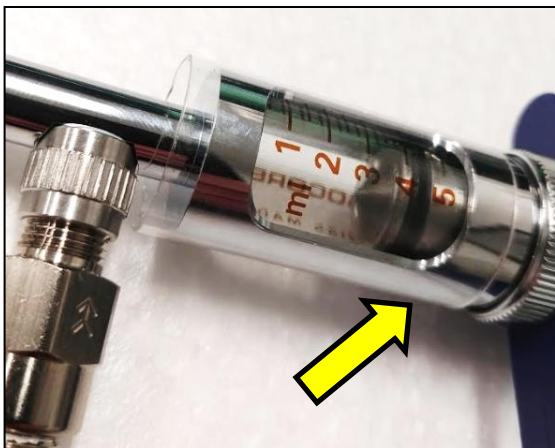
Bottle Holder, Device Clip, and Barrel Guard



Monster Hook Device Clip secured to Belt



Bottle Clip secured to Bottle Neck, attach Carabiner to your Belt loop



Leave the Plastic Guard in place to protect the glass barrel

Before Your First Injection...

ARBOR-jet strongly recommends testing your equipment with water or CLEAN-jet® before attempting to inject any of our approved Formulations.

If the box your kit came packaged in does not have security tape, or appears to have been opened or tampered with, do not use the Equipment, and contact Arborjet for replacement instructions.

Our Quality Control procedures include testing fittings with a torque wrench, pressure testing the Pressure Bottles, and using a checklist to perform an audit of contents for every Kit that ships out of our facility. The checklist is initialed by the assembler and supervisor, and included with your completed kit for your reference.

We understand that no measure of Quality Control can mitigate every potential issue that might arise during assembly and shipment, so a final “dry” run with water or CLEAN-jet® will confirm fittings are sealed, and eliminates the potential of losing valuable product if a leak or failure is detected.

- Arborjet Production Team

Preparing the QUIK-jet for Micro-Injection™

1. Determine the Diameter at Breast Height (in.)



Measure tree diameter in inches, at breast height by using a diameter tape, OR measure circumference and divide by Pi (3.1415).



Arborjet DBH™ Measuring Tape

2. Carefully read label of Product to be Injected



Use DBH™ to determine total injection volume for treatment application.

Keep in mind, the maximum capacity of each Supply Bottle is 600mL, allowing space for pressurized air.

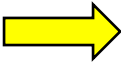
QUIK-jet WARRANTY IS VOID WITH USE OF NON-ARBORJET APPROVED FORMULATIONS

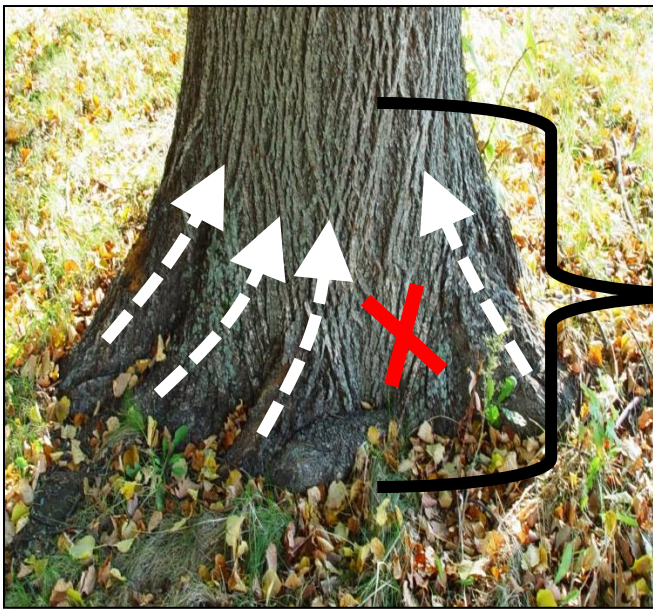
3. Using the Graduated Cylinder and Funnel provided with your Kit, measure the calculated volume and pour liquid into Supply Bottle.

Be sure to wear Safety Glasses and Nitrile Gloves when handling Product to be Injected.

Selecting Arborplug™ Injection Sites

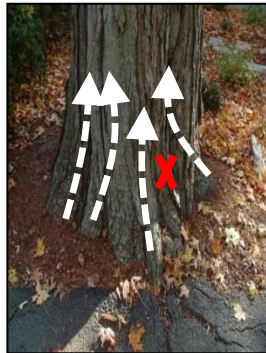
To determine how many Arborplugs™ will be needed per Tree, use the following calculation: $DBH'' \div 3$

ex) 24" DBH / 3 = 8 Plugs  8 Arborplug™ sites will be acceptable for this Tree



Sites must be plugged within 36" of the soil line. Avoid plugging in between flares, damaged areas, and tree crotches.

Root Flares provide the best uptake and product distribution to the canopy.



Drilling Technique

Your QUIK-jet Kit comes with two High Helix Brad Point Auger Drill Bits designed specifically for Arborplug™ Drill Sites



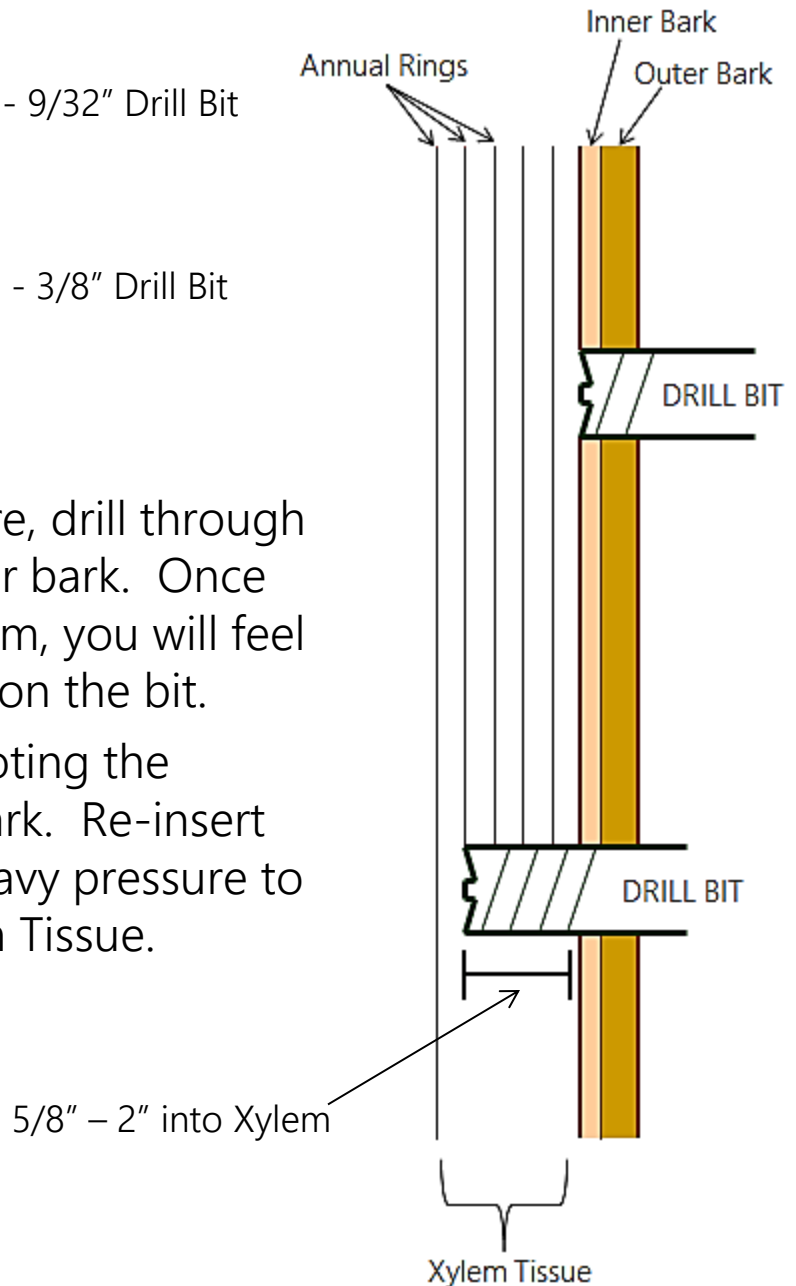
#3 Arborplug™ - 9/32" Drill Bit



#4 Arborplug™ - 3/8" Drill Bit

Drilling in Two Steps:

1. Using light pressure, drill through the outer and inner bark. Once you reach the Xylem, you will feel greater resistance on the bit.
2. Remove the bit, noting the thickness of the bark. Re-insert the bit and use heavy pressure to drill into the Xylem Tissue.



Setting the Arborplugs™

The effectiveness of the QUIK-jet system is dependent upon the user properly setting the Arborplugs™ into the Xylem Tissue of the Tree to be injected.



Select the correct Arborplug™ based on the bit used to drill the tree.



Using the Arborplug™ Setter provided with your kit, hammer the Arborplug™ until the Barbs make a seal between the Xylem and Inner Bark as illustrated below

Too Deep



Results in slower uptake

Too Shallow



Causes damage to the bark and cambium layers

Just Right



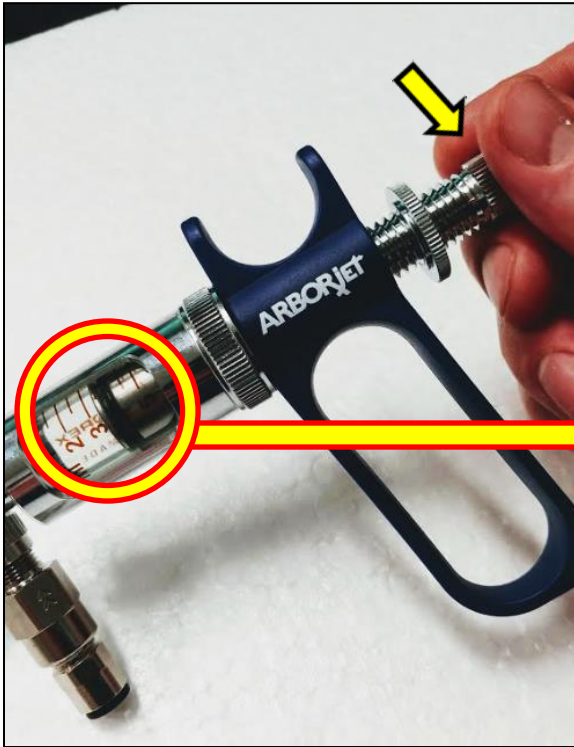
Best results with fast uptake and no damage to the tree tissue

"If you're gonna miss... miss deep!"

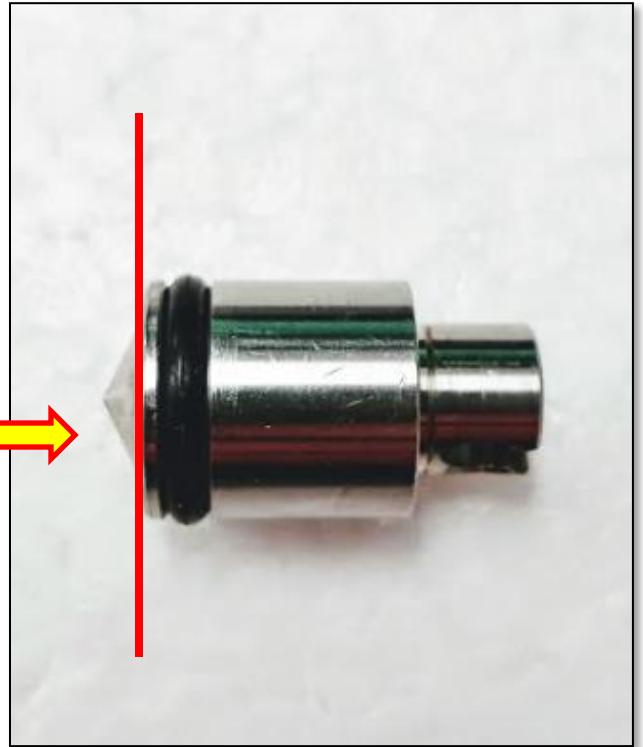
Adjusting the QUIK-jet Dosing Chamber

Once you have determined the total Injection Volume, you may need to adjust the Dosing Chamber for accuracy.

ie) 9mL = 3mL Dose x 3 Injections



Twist Piston Rod to adjust Dosing size



For best accuracy, line up the Barrel Measurements with this part of the Fluid Piston



When dosage has been set, twist Stop Nut to lock in place

Priming the Lines and Dosing Chamber

Prior to injection, it is important that you Prime the Lines and Dosing Chamber so volume is accurate and avoid embolism.



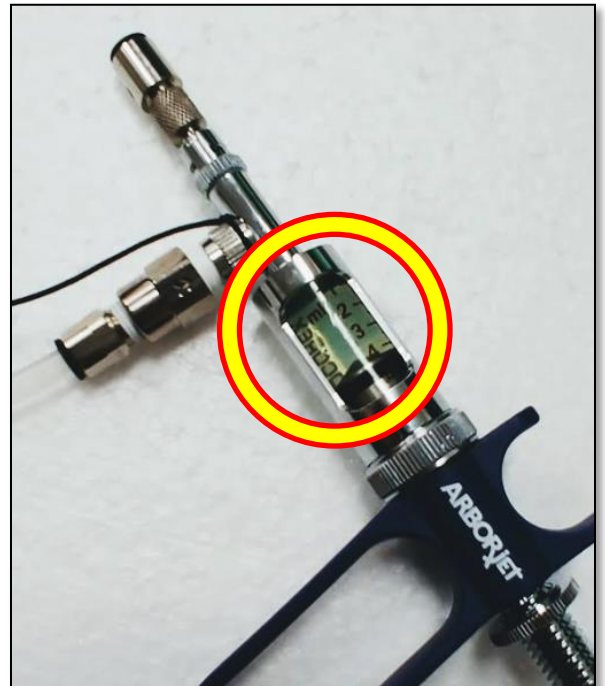
Connect the Supply Line from the Supply Bottle to the Device and begin plunging until the lines start to pull product into the chamber.

Spray product into a graduated cylinder to bleed any air bubbles out of the system

Once the Chamber is full of product, the Device is adequately primed and ready for injection.

If air bubbles* are detected in the chamber, point the device upwards and expel some liquid.

***Small air bubbles will not affect dosing accuracy, or cause embolism**



Using your QUIK-jet Device for Micro-Injection

To determine the dosage per Injection Site, take the total volume and divide by number of Arborplug Sites.



Insert VIPER Needle and push Trigger slowly, keeping even, light pressure during Injection

Note: Excessive Pressure on the Trigger will not advance the dose more quickly, and may cause damage to the tree

Continue Dosing for each injection site until the total Application Volume is achieved.

*Reminder – Always wear Safety Gloves and Glasses during Application



STINGER Needle – Injecting without Arborplugs™

When applicators choose to make plug-less injections, we recommend using the Arborjet STINGER Needle.

Plug-less applications are most efficient on trees with moderate to rapid translocation when low volumes of solution are required.



STINGER Injection sites should be low on the tree, close to the soil line, avoiding injured areas of the trunk



STINGER Needle modification on QUIK-JET Device

Injection Process

1. Angled downward slightly, Drill injection sites with a 7/32" bit, favoring trunk flares. Drilling depth should be 1/2" to 1" into the Xylem.
2. Insert Device with STINGER Needle, seating with a slight twist placed in the 1st and 2nd year growth ring. Do not force.
3. Inject product slowly and evenly to each Drill Site



Apple Trees are a suitable choice for plug-less STINGER Injection

Cleaning the QUIK-jet System



CLEAN-jet Solution is an all purpose cleaner and lubricant for all Arborjet injection devices. It may be used to prime the QUIK-jet System and is also designed as a short term storage solution for all Arborjet devices. If storing for more than one day, flush with water before Treatment.

Cleaning Process

1. Before Clean-out, make sure all product has been drained from HP Bottles and supply line.
2. Pour CLEAN-jet into HP Bottle and shake to coat inside
3. Initiate Priming process referenced earlier in this manual
4. Bleed remaining CLEAN-jet from Supply Line and Device
5. Equipment parts can be stored in the solution if needed

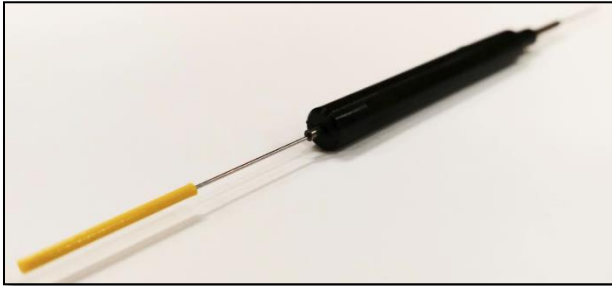
** CLEAN-jet rinse can be squirted into the soil at the base of the tree unless near ground water or waterways*

** Be sure to rinse all CLEAN-jet out of the bottle, tubing, and device*

** CLEAN-jet should never be mixed with other formulations*

** Dispose of Waste according to State and Local Regulations*

QUIK-jet System Maintenance

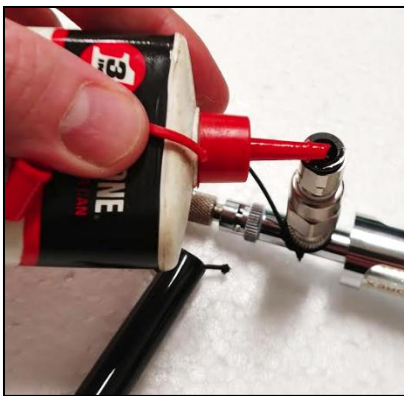
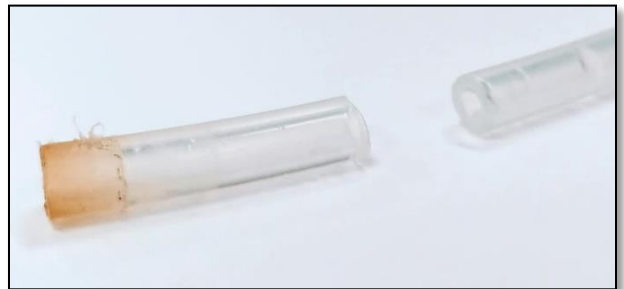


Cleaning Viper Needles

Remove clogged VIPER Needle from Device then insert a VIPER Needle clean-out tool in and out of the Needle to free any obstructions

Trimming Supply Line Tubing

Occasionally you may need to trim the ends of the Supply Line Tubing to ensure a snug fit when inserting into PTC's

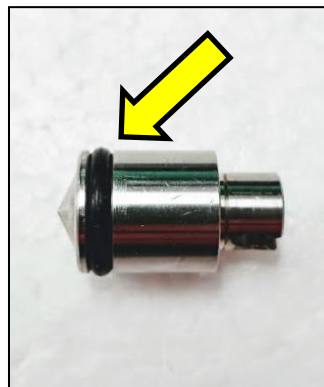


Lubricating Check Valve

Add a small amount of 3-IN-ONE Oil or silicone to Inlet Check Valve and push trigger several times

O-Ring Replacement

Over time with extended use, the Piston O-Ring may wear out and require replacement.
P/N: 070-2233



QUIK-jet Treatment: Conifers vs. Deciduous Trees

Conifers – Cone bearing trees



Sap will flow out of Conifers as a protective response to drilling, therefore if too much time has passed between Setting and Injection, sap may flow into Injection Site.

Due to their large size and slow uptake, we recommend using Arborjet's TREE IV System or F-Series Equipment for Coniferous Trees

1. Prime Supply Line and Device with Product
2. Drill and Set one Arborplug™
3. Insert Viper Needle and Inject Product
4. Continue plugging and injecting one site at a time until complete

Deciduous – Trees that seasonally shed leaves, petals, or fruit



Sap will not flow out of Deciduous Trees after drilling, therefore you can Drill and Set all Arborplugs™ before beginning Micro-Injection™ process.

QUIK-jet and QUIK-jet AIR systems are best suited for Deciduous Trees

QUIK-jet Troubleshooting

Barrel Leaking Fluid

- Replace Barrel Casing Washer (070-2283)

Trigger Handle Not Retracting

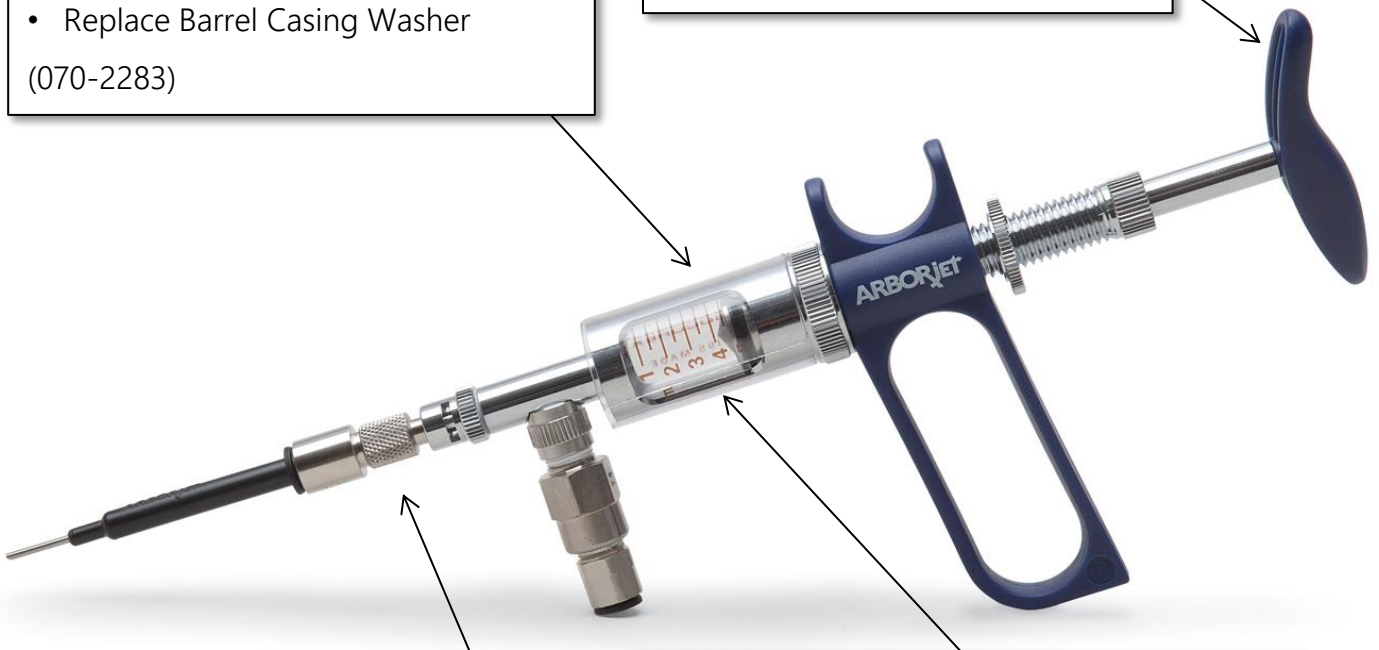
- Replace Piston O-Ring (070-2283 or 070-2280)

Dosing Chamber not Filling/ Dispensing

- See Valve Troubleshooting on next page

VIPER Needle-PTC Nozzle Leaking Fluid

- Make sure VIPER is pushed fully into PTC
- Tighten PTC with 5/64" Hex Key
- If still leaking, order replacement Connect Kit (070-2220)



Troubleshooting Check Valve Issues

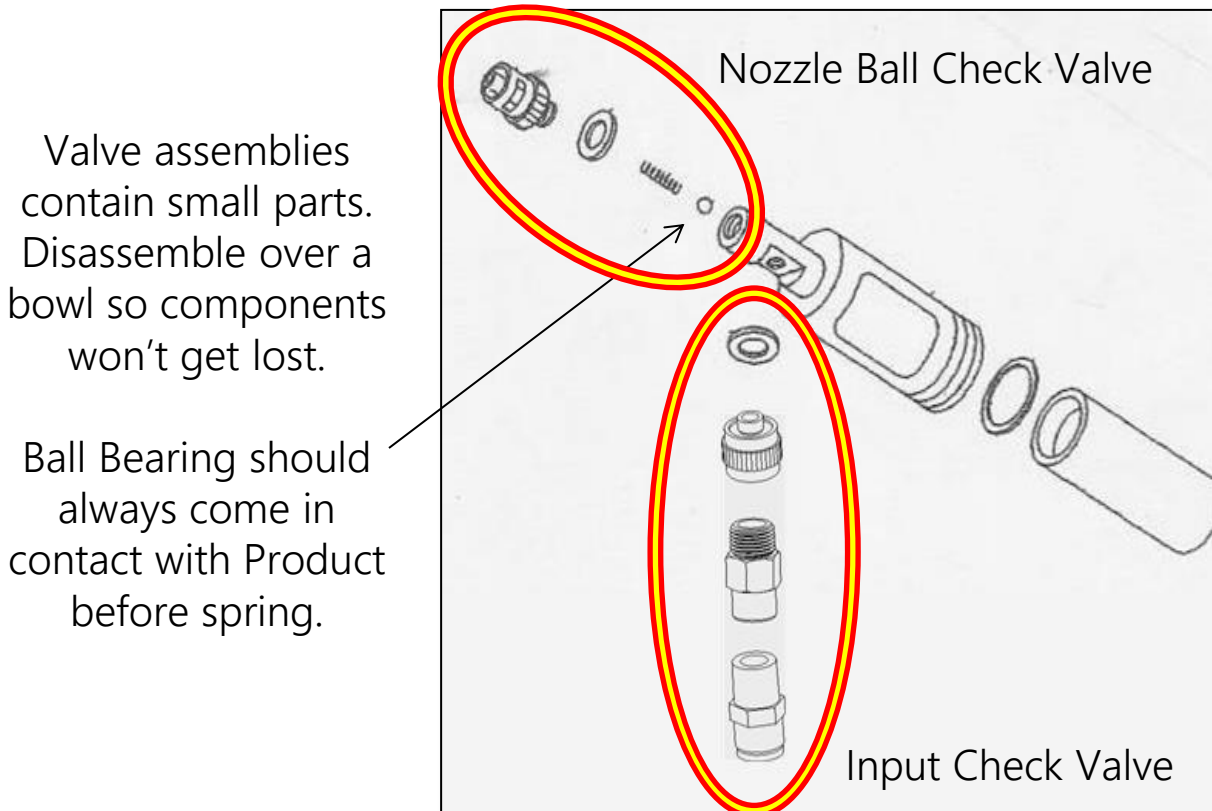
If the QUIK-jet Device is not dispensing product, or if it is not pulling product in from the Supply Bottle, the Inlet or Nozzle Check Valve may be stuck in the open or closed position.

Nozzle Ball Valve Repair

- First, attempt to free the ball valve by inserting a 5/64" Hex Key into Nozzle
- Disassemble Nozzle as shown, clean and lubricate parts, then re-assemble

Input Check Valve Repair

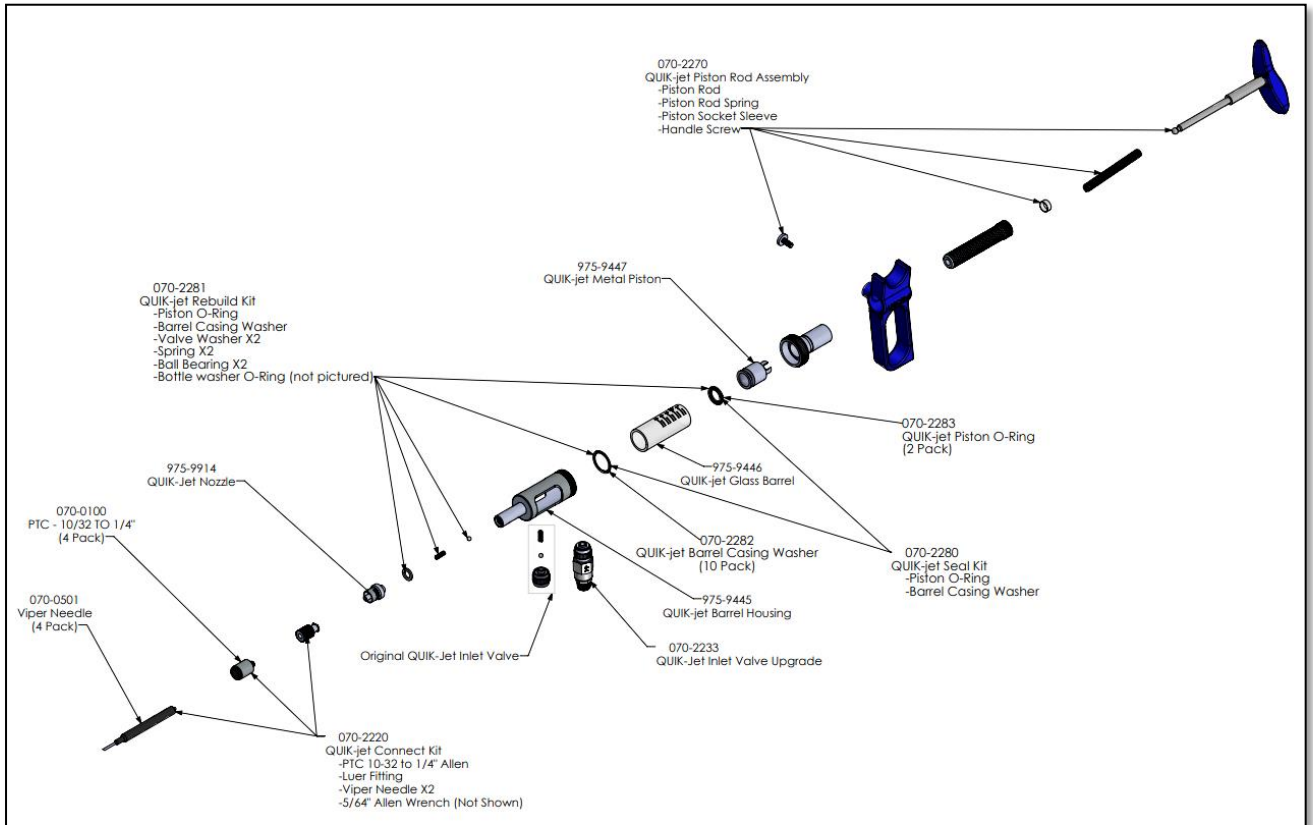
- First, attempt to free the valve with a VIPER Needle Clean-out Tool
- Disassemble Nozzle as shown, clean and lubricate parts, then re-assemble



QUIK-jet Replacement Parts List

Part No.	Item Description
070-2231	QUIK-jet Syringe
070-2236	QUIK-jet Device and Bottle Assembly
070-2200	QUIK-jet Bottle Assembly
070-2270	QUIK-jet Piston Rod Assembly
975-9447	QUIK-jet Metal Piston
975-9446	QUIK-jet Glass Barrel
070-2281	QUIK-jet Rebuild Kit
975-9914	QUIK-jet Nozzle
070-2280	QUIK-jet Seal Kit
070-2220	QUIK-jet Connect Kit
070-2233	QUIK-jet Inlet Valve Upgrade
070-2283	QUIK-jet Tightness O-ring 2PK
070-0535	QUIK-jet Valve Spring 2PK
070-0501	VIPER Needle 4pk
070-0100	10/32" to 1/4" PTC 4pk – Push To Connect Fittings, 5/64" Hex Key
070-0104	Mixing & Measuring Kit – Funnel, Cylinder, Mixing Container
070-0660	Drill Bit 2pk – 3/8" Bit and 9/32" Bit
070-0130	VIPER Needle Clean-out Tool 2pk – Stainless Steel wires with grip
070-0120	Arborplug™ Setter 2pk – Tools for setting Arborplugs
030-2030	CLEAN-jet Solvent – 1000mL

QUIK-jet Exploded View Parts List



Contacting Arborjet

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