

## PIPESMITH TAPER BORE STEM KIT ASSEMBLY GUIDE

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Your PipeSmith Taper Bore Stem Kit consists of a pre-bored vulcanite stem blank, and an adapter insert to allow fitment to industry standard drip tip ports.

The actual components of your kit may differ from those shown in this guide, but the process will be the same to properly set up your stem for the best performance.

It is recommended to read through the guide in entirety to familiarize yourself with the build process before beginning your Taper Bore Stem build.

### **Additional items required to complete this process successfully:**

- Means to secure the atomizer in a vertical position
- Alcohol & q-tip or similar
- Heat source
- Adhesive (Super glue or similar)
- Pipe Cleaner or similar
- Glass jar/ bottle/ etc to create the bend radius

### **Fitting the stem to the atomizer -**



Test fit the stem blank to the atomizer that you will be using for setting up the stem. Any light adjustments to the base necessary to establish a solid and square seating should be taken care of now. Note: this refers to adjustments to the chamfered base only, and will apply primarily to seating the stem against an atomizer with a flat top. Adjustments to the stem diameter to achieve more fluid line of transition from atomizer to stem will be taken care of later.



\*\*\*Using sand paper or a file, make sure to scuff the portion of the adapter that will be seated in the stem.\*\*\*

Apply a light coat of wax or similar around the atomizer's drip tip port.

Insert the adapter into the atomizer drip tip port.

\*A light wetting of the o-rings and a twisting motion during seating will help the adapter seat completely into the device.

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With the insert fully seated, clean both the outer surface of the insert and the inner chamber of the stem blank with alcohol.

Some of the following steps require the softening of the vulcanite by application of heat. There are many ways to achieve this, such as hot water, open flame from a lighter or candle, oven, small torch, or heat gun. I am not a fan at all of using hot water, as it takes a great deal more time to achieve the desired working temperature, is less predictable, less able to be focused, and will accelerate the oxidation of the vulcanite.

My preferred means to heat vulcanite for working/ shaping is by means of a small butane torch with a hot air attachment. Regardless the means you choose, be careful.



Using your choice of heat source, heat the base of the stem. Take your time and heat the base thoroughly and evenly, while taking care to not scorch or blister the stem surface.

When the stem base appears to have a more “rubbery” surface, apply a line of adhesive around the stem inner chamber wall, and seat the stem over the adapter insert using a slight twisting motion to best distribute the adhesive. Once seated completely and squarely, leave the new stem assembly in place to cool and dry.

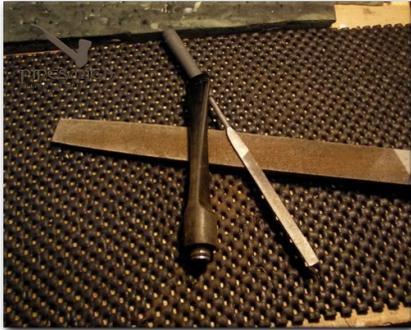
**\*\*When applying adhesive – especially cyanoacrylate adhesives - to a hot surface, the adhesive will emit a great deal more fumes than when used on room temperature media. Take care to ensure proper ventilation, and to not position yourself directly over the fumes.**



Once the adhesive has been allowed to completely cure, remove the stem from the atomizer using a twisting/ pulling motion (never rock a stem side-to-side to remove).

You should see that you've created a seating that corresponds to your atomizer shouldering.

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Now you can finish the stem to your liking, using a series of files or sand papers to remove any flashing, file away the shouldering bulge created by seating the adapter, achieve a smooth, uniform surface on the stem, and mate the stem base diameter to that of your atomizer.

Once satisfied with the shape and surface of your stem, wet sand to achieve a smooth surface. Wet sanding up to ~600 grit paper will result in a matte to semi-gloss final surface, while continuing to 1000 – 1200 grit paper will result in a shinier final appearance.

\*Vulcanite produces A LOT of dust when worked – take necessary precautions.

## Bending the Stem -



Before heating the stem for bending, you'll need to insert a pipe cleaner or similar to prevent collapsing or pinching of the stem's bore.

Using your choice of heat application, heat the center portion of the stem, taking care to keep the stem rotating so that the heat is not focused at any one point for too long. Heat the entire circumference of the stem to achieve thorough and even heating.



Once you have achieved adequate heating of the stem, it is ready to be bent. To achieve a uniform, straight bend, you'll need something to act as a mandrel to pull the stem across. I often use an empty 60ml e-juice bottle, but fruit jars, drinking glasses, or similar are also helpful to maintain your bend radius, and help prevent twisting of the bit in relation to the stem line and base.

Once the desired bend is achieved, the stem must remain in this position until cool, or it will return to the original straight shape. To set this position, I keep the stem on the chosen mandrel and run the pair under cool water, making sure to cool the entire stem, as well as run water through the bore of the stem.

\*If you try to bend the stem too quickly, or attempt to bend a stem that has not been heated adequately – you will break the vulcanite. Take your time bending – slow and steady will generate the best results. Deeper bends may require additional heating to accomplish.

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Congratulations!



You've assembled your PipeSmith Taper Bore Stem, and it is now ready for use.

A quick wipe-down with PipeSmith Pipe Butter or similar protectant will return the luster to the vulcanite and protect the stem. To maintain the appearance of your stem, wiping it down when you clean/ polish your pipe will ensure long service.

If you have any questions at all during your stem build, don't hesitate to contact us.

