



Using the XenoWorks Analog Injector (BRI) with a Three-way Valve. Recommended when using Water or Oil.



1. Fill the Hamilton syringe with oil or water and make sure there are no air bubbles.



2. Turn the coarse dial on injector (counter clockwise) to draw back the plunger retaining block and install the oil or water filled Hamilton syringe onto XenoWorks Analog Injector. Make sure the front and back ends of the syringe are not sitting within the groove of the black clamp. Tighten the rear screw that holds the end of the metal plunger in place. Then tighten the knob and clamp onto the glass body of the Hamilton syringe.



3. Remove the front connector of the pipette holder. Insert tubing from the back end through the front and make sure the black metal ends are screwed on tight.



4. Slide the plastic ferrule onto the tubing as shown above, press the ferrule and tubing flush to the male connector, then replace the front female connector and screw it on so it is very firmly seated.



5. Insert tubing through rear connector and install the ferrule. **First** attach the 3-way connector to the Hamilton syringe and **then** attach rear connector to the three-way valve.



6. Fill a 3cc syringe with oil or water and make sure there are no air bubbles. Screw it onto the top port of the 3-way valve and position the selector east. Then turn the coarse dial of the injector clockwise six complete turns to advance the plunger and introduce oil/water into the 3-way valve.

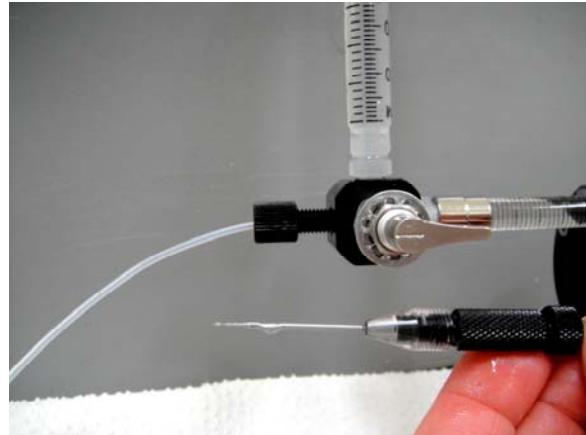
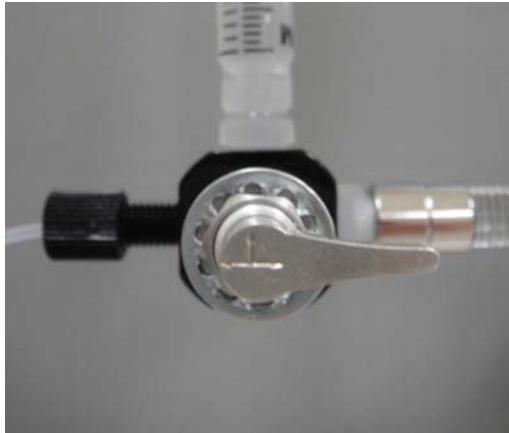


7. Tighten the clear plastic tip of the pipette holder (without a pipette installed) and use the 3cc syringe to advance oil/water into the tubing and to the tip of the pipette holder. Advance the oil/water until all air bubbles are flushed out.

Filling the pipette



8. Turn the clear plastic tip of the pipette holder $\frac{1}{2}$ turn to loosen the seal, allowing you to insert your pipette. Push the pipette all the way into the holder (the o-rings might offer some resistance) until it goes no further. The holder is designed to accept 1mm outer diameter glass. If you are using glass with a 1.2mm or 1.5mm OD, contact Sutter Instrument to purchase a custom holder to accept the size of your glass.



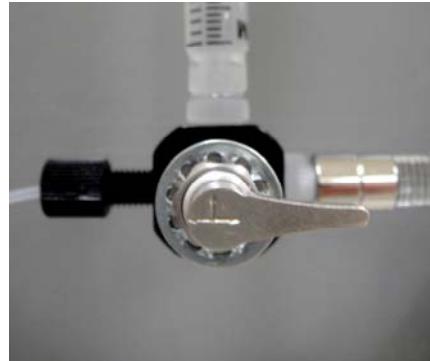
9. With the selector facing east, use either the 3cc syringe or the Hamilton syringe (by turning the coarse dial on the XenoWorks injector) to fill the pipette and advance the oil/water all the way to the tip.

- If your pipette tip is larger than 15 microns, there will be less resistance and the pipette should fill easily.
- If your pipette tip is smaller than 15 microns, there might be too much resistance and you will need to turn the selector west and use the coarse dial on the XenoWorks injector advance oil/water to the tip of the pipette.

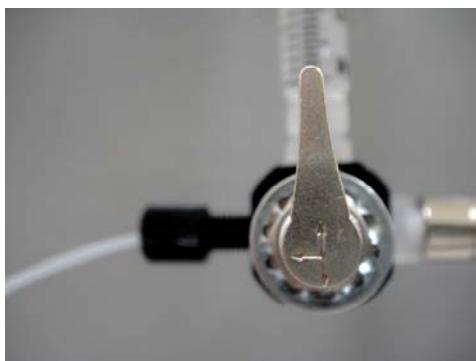


10. Turn the selector west to begin using the injector. You may now remove (optional) the 3cc filling syringe.

Refilling Hamilton Syringe when Oil or Water volume is low



1. If the volume in the Hamilton syringe gets low, first remove the pipette and reattach the 3cc filling syringe. Then turn the selector east. Use the coarse dial on the Injector (counter clock-wise) to draw oil/water into the Hamilton syringe.



2. Turn the selector north and use the 3cc syringe to re-refill the tubing and advance the oil/water to the tip of the pipette holder



3. Replace the pipette and turn the selector back facing east. Then use the coarse dial on the injector or the 3cc syringe to fill the pipette.



4. Return the selector facing west, remove the 3cc syringe (optional) and continue injecting/transferring.

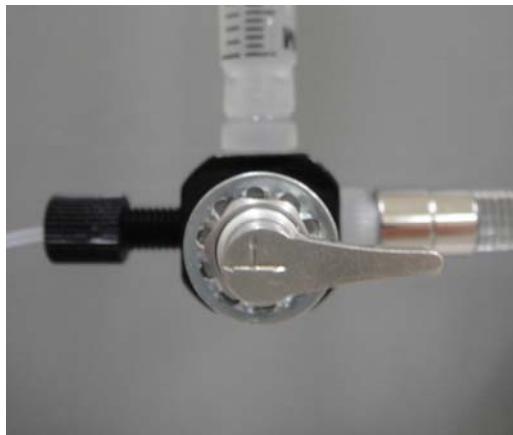
Positions of selector on three-way valve

NORTH



Open to filling syringe and tubing.
To fill tubing and pipette.

EAST



Open to all three directions.
To fill syringe or tubing and pipette.

WEST



Open to Hamilton syringe and tubing.
To transfer or inject.

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