

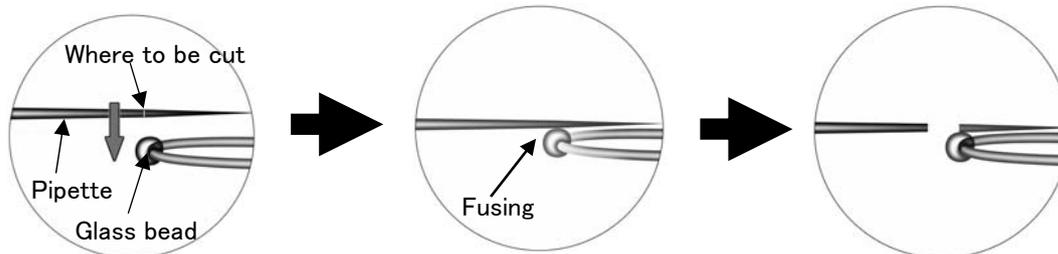
Basic Pipette Fabrication Techniques with MF-900 Microforge

In this issue, we discuss basic techniques (cutting, fire-polishing, bending and making a spike) to fabricate a raw pipette into an appropriate micropipette utilizing the MF-900 microforge.

(1) Cutting

Puller makes a capillary into a raw pipette. The raw pipette can be cut the tip at an intended diameter by the help of MF-900.

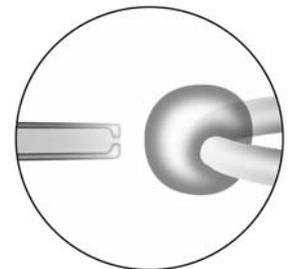
1. Move the pipette so as that where to be cut situates above the glass bead.
2. Turn down the heater temperature output to zero and put the pipette in contact with the glass bead. Step on the foot switch and keep it activated. As turn up heater temperature slowly, thermal expansion effects movement of the filament (glass bead) to the left. Then, the pipette and the glass bead start fusing.
3. As soon as the fusing is observed, step off the foot switch. By lost of temperature, the glass bead moves back to the right and the pipette is separated at where it was fused with the glass bead.



(2) Fire-polishing

The section of cut pipette can be polished (fire-polished) by heat emitted from the heater filament. The polished pipette helps minimize damage when it holds a cell.

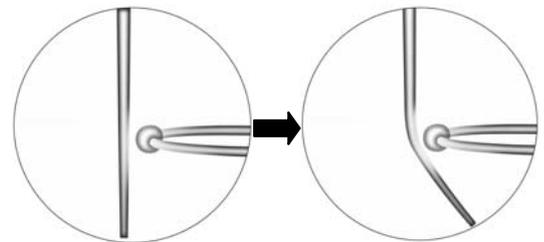
1. Move the pipette tip next to the glass bead.
2. Step on the footswitch and turn up the heater temperature until the glass bead turns the color to orange by heat. The emitted heat melts the pipette tip to polish. As the tip is kept heated, the inner diameter turns to smaller and smaller. Step off the footswitch when the tip has a proper diameter.



(3) Bending

The MF-900 allows bending a pipette tip at the desired angle.

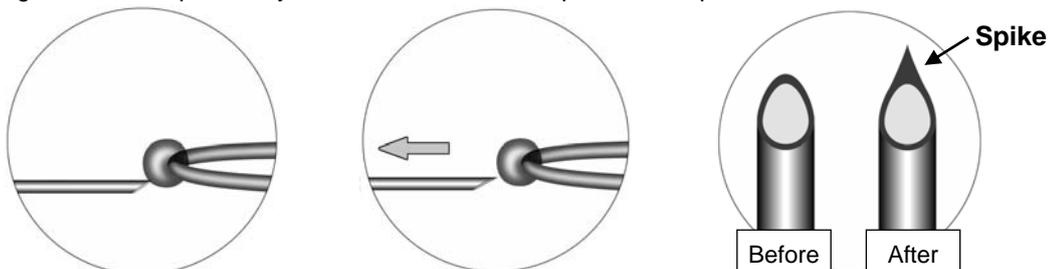
1. Set the pipette vertically.
2. Place the pipette away from the glass bead.
3. Step on the footswitch and turn up the heater temperature until the glass bead turns the color to orange by heat. Move the pipette close to the glass bead but never contact to heat the side of the pipette to bend.



(4) Equipping a spike

The MF-900 can equip a beveled pipette with a sharp point (spike). The spike allows for easier pipette penetration into a cell.

1. Bevel the pipette tip with a grinder. (Ex. EG-44 or EG-400)
2. Set the pipette with the peak up and also around 45 degrees for the glass bead.
3. Turn down the heater adjustment output to the lowest limit to melt the pipette, and step on the footswitch.
4. Keep the footswitch on and place the very peak in contact with the glass bead. When the tip is softened by heat, move the pipette away from the glass bead using the swivel knob. The tip is stretched to provide a spike. (Please note if the heat is inappropriately high or low, the tip can only be deformed and fails to provide the spike.)



NARISHIGE Customer Support Center

E-MAIL: sales@narishige.co.jp

URL: <http://narishige-group.com/>