

“The 15 Questions”

When working with the Sutter P-87, P-97 or P-1000 Pipette Pullers, about 95% of all difficulties one might experience with the puller are a result of unstable parameter settings, poor alignment of the filament, misalignment of the glass, a poorly shaped filament, and/or an incorrect placement of the air-jet. Please provide the following details so we can let you know if any of these foundational concerns are an ingredient in the difficulties you are experiencing.

- 1) Which puller do you have (P-87, P-97, or P-1000) and what is the serial number of the puller? For newer pullers the serial number will be "P97-_____" or "P1000-_____" and for old pullers, the serial number will be a series of 4 - 5 numbers.
- 2) Ramp Test Value of your filament using your glass?
- 3) Trough or Box filament installed in the puller?
- 4) Width of the filament or the item number of the filament?
- 5) Application: slice patch, whole cell patch, dissociated/cultured cell patch, microinjection (and type), extracellular recording, or high resistance intracellular recording?
- 6) What taper length, tips size and/or resistance do you aim for?
- 7) OD and ID of the glass (outer and inner diameter)?
- 8) Item number of the glass?
- 9) Parameter settings (Heat, Pull, Velocity, Time/Delay, and Pressure)?
- 10) Are you using a one-line program?
- 11) If a one-line program, check line 2 to make sure it is blank. Let us know how many times it loops.
- 12) If it is a multi-line program, provide all lines of the program and indicate on what line the glass separates.
- 13) Send images of the filament installed in the puller (top view and a horizontal view from the left looking into the right). Provide two images of each, one with the glass in the right puller bar, and one without the glass in place. We need 4 pictures total.
- 14) Push the puller bars all the way back (in their position after a pull) and this will lift the cable off the black pulley (to the far right and left of the puller). Now spin the black pulley and let us know if it spins freely and many times around. Is there resistance and uneven friction?
- 15) There is also a pair of pulleys inside the puller and these too might need to be examined. Remove the front panel screws, drop down the front panel and the pulleys are mounted center and right below the base plate.

Providing a response to each and every question will rapidly accelerate our ability to trouble shoot and resolve problems you are now encountering. If it is determined that the puller has an electronic and/or mechanical issue that cannot easily be addressed on-site, we recommend you return the puller to the Sutter Factory for a REPAIR or a REFURBISH.



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