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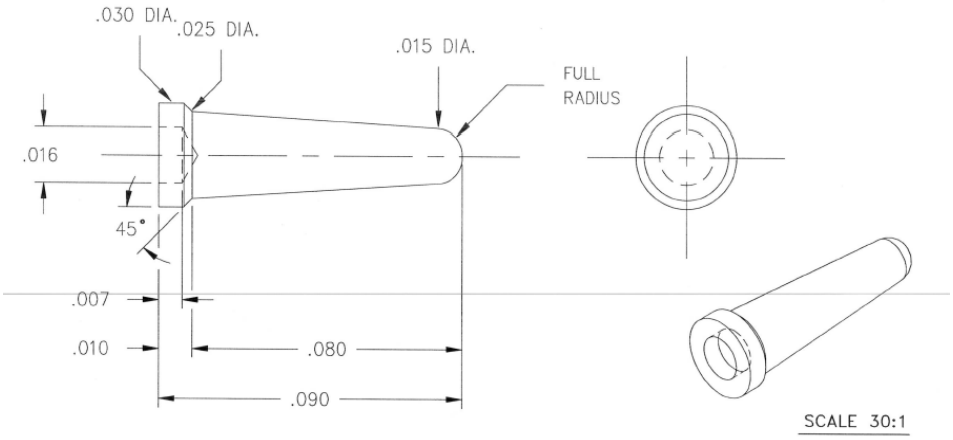
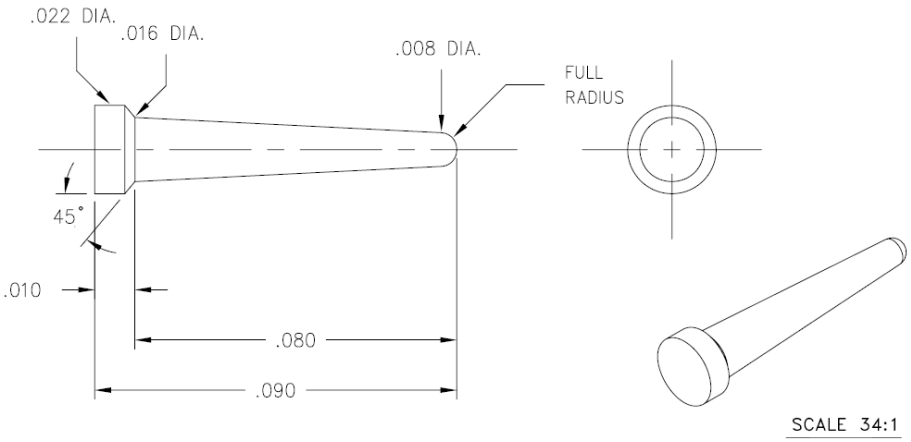
The Complete Solution for Electrophysiology Research

Large Electrode Attachment Pin



Small Electrode Attachment Pin



Electrode Attachment Pins

Pins used for connecting electrodes to Neuralynx Electrode Interface Boards

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Table of Contents

List of Figures and Tables

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1 Document Overview

This document will describe the use and versatility of the Electrode Attachment Pins along with installation instructions.

2 Electrode Attachment Pins Overview

The Electrode Attachment Pins are used to connect electrode wires to Electrode Interface Board (EIB) holes. These pins provide an easy and very reliable long-term connection; much better than by using cactus needles, solder, or silver epoxy.

The electrode insulation should NOT be removed from the electrode wire. Flaming the insulation to expose the metal causes the wire to become brittle and weakened. Connection tests showed 100% success versus 65% if flamed due to wire breakage.

Two sizes of EIB Pins are available:

-The Large Pins are gold plated and tapered from .015” (tip) to .025” (below the head). The Large Pins are designed to fit the .021” diameter holes in EIBs.

-The Small Pins are gold plated and tapered from .008” (tip) to .016” (below the head). The Small Pins are designed to fit the .012” diameter holes in EIBs.

The proper technique requires the electrode microwire to be inserted thru the EIB hole from the bottom side of the EIB and the EIB Pin to be inserted through the top side of the EIB hole. This is important because the EIB hole walls are parallel and the EIB Pin is tapered. This creates a pressure gradient on the wire, minimum at the bottom and maximum at the top. When the Pin is “cinched” into place this gradient will securely hold the wire on the bottom and crush the insulation and deform the microwire metal to the pin and the EIB hole surface.

3 Glossary

EIB – An Electrode Interface Board (EIB) is the interface between experiment electrodes in a microdrive and the appropriate headstage.

Electrode Attachment Pin – Gold plated pin which provides a conductive connection between the EIB and an electrode.

3.1 Tools Needed

The tools used to install the Electrode Attachment Pins are shown in Figure 3-1 Tools Needed.

Figure 3-1 Tools Needed

The precision tweezers are used to place the pins in the EIB electrode holes, and the pliers are used to force the pins to cinch into the EIB holes.

The items shown in Figure 3-1 are components of the "EIB Pins Tooling," and are available for direct purchase from Neuralynx.

Note: The tweezers are stainless steel but can be slightly magnetized by stroking (in one direction only) against a magnet. The EIB Pins are magnetically attractive and can be easily picked up with the magnetic force of the tweezers and placed into the EIB hole. The pin will naturally hang from the head of the tweezer-tips. If you try to pickup the pins by grabbing with the tweezers pins may shoot out of the tweezers and be lost forever.

3.2 Installation Procedure

To install the Electrode Attachment Pins follow the procedure stated below.

1. Insert the Electrode Wire through the EIB electrode hole from the bottom of the EIB.
2. Pick up an Electrode Attachment Pin with the tweezers so the pin is pointing down.
3. Using the tweezers place the pin in the EIB electrode hole as shown in Figure 3-2 Placing Pin into the EIB hole.

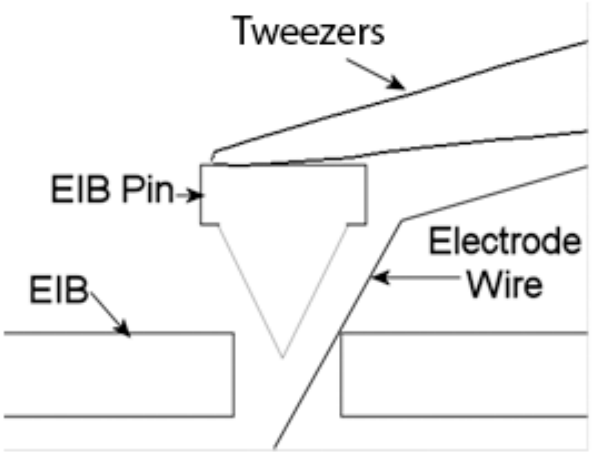

Figure 3-2 Placing Pin into the EIB hole

4. Lightly tap the pin into the hole with the tip of the tweezers.
5. Cinch the pin into the EIB Hole with the pliers as shown in Figure 3-3 Cinch Pin into the EIB hole.

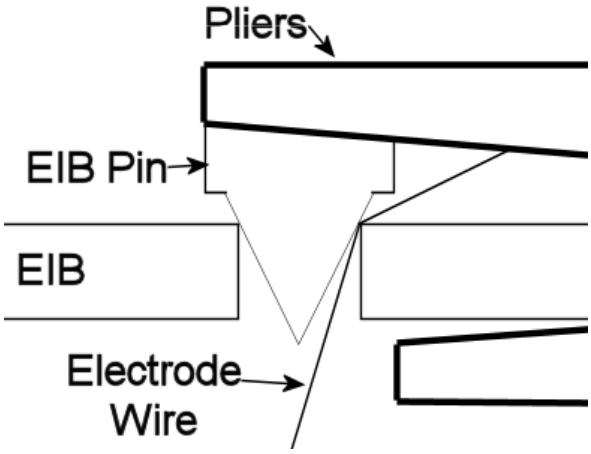

Figure 3-3 Cinch Pin into the EIB hole

This process secures the Electrode Attachment Pins into the EIB electrode holes. Please note that the pins may still be removed by pushing up from the bottom (tip) of the pin. Under normal circumstances the pin is sufficiently retained with the above procedure.

To test the force needed to remove an Electrode Attachment Pin, apply upward force on the top of the pin with the tweezers, hemostats, or pliers (invert and use the longer jaw to apply force from the tip of the EIB Pin, but be careful not to touch the microwire).

4 Additional Information

If Electrode Attachment Pins and EIBs have not been soldered they may be reused. However, this process does strain the EIB board, and may cause it to fail. Before the reuse of any EIB, we recommend testing for continuity and adjacency in the board components. These tests will help ensure that the integrity of the used EIB is not compromised, and will function as expected if used again.

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