MPM-Probe Mount-NP2.0 Item # 08000-3-0000

Description: A hardware kit that mounts a Neuropixels 2.0 Neural Probe (not provided) to the Z-axis stage of a New Scale M3-LS-3.4-XYZ-MPM assembly, for use with a Multi-Probe Micromanipulator 4-Degree of Freedom Arm (MPM-4 DOF Arm-Upright and/or MPM-4 DOF Arm-Inverted).

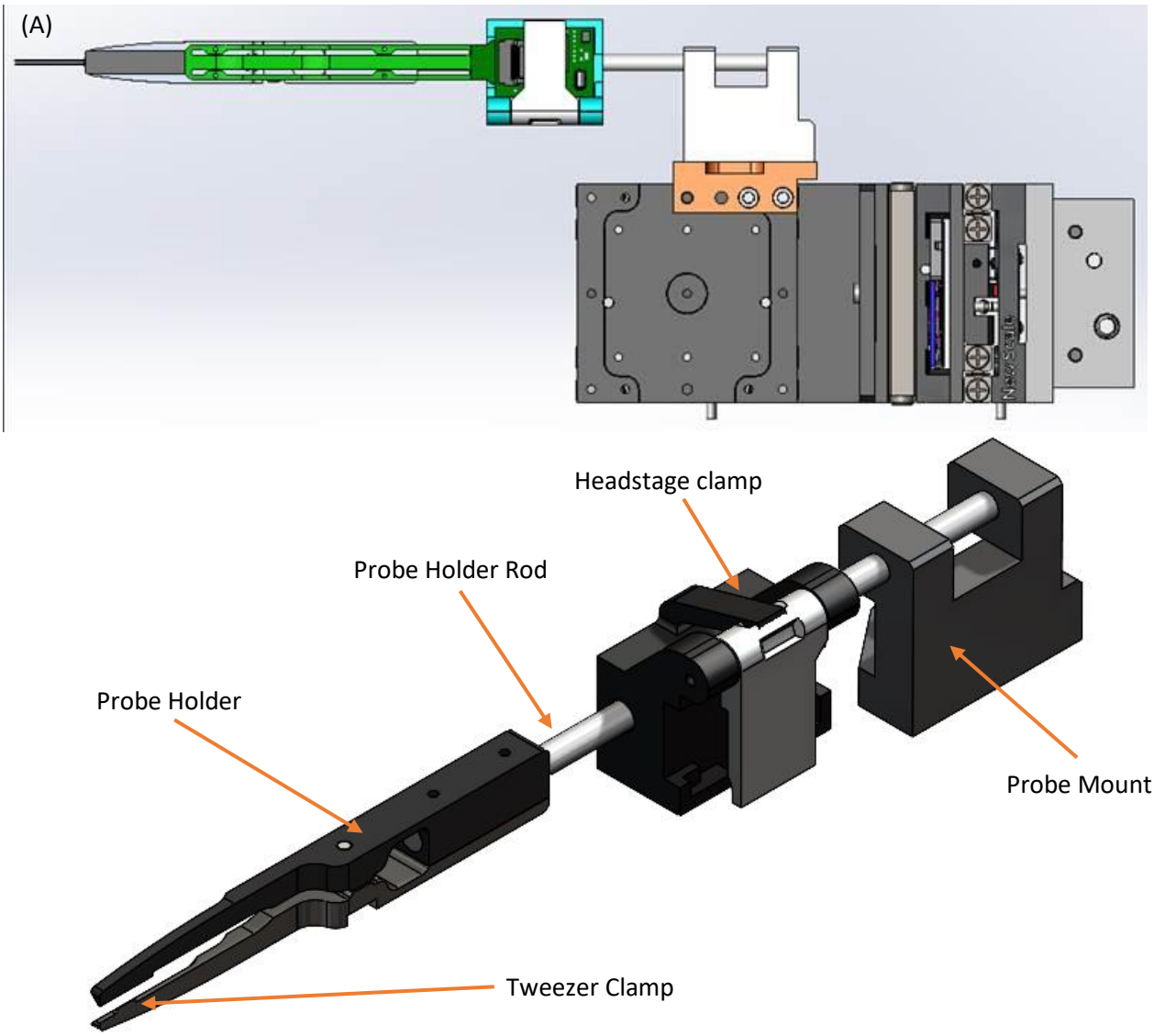
This Probe Mount is designed for Neuropixels 2.0 Neural Probes and is ONLY compatible with the NP2.0 probe **that *includes* the metal dovetail cap**.

MPM-Probe Mount-NP2.0 (08000-3-0000)

(A) Probe Mount NP2.0 and (B) steel reference probe

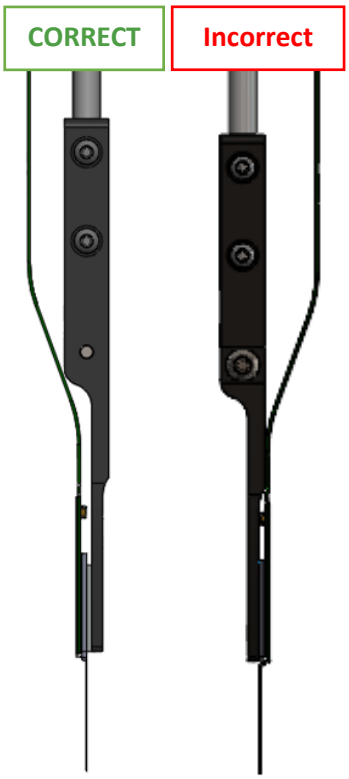
(B)

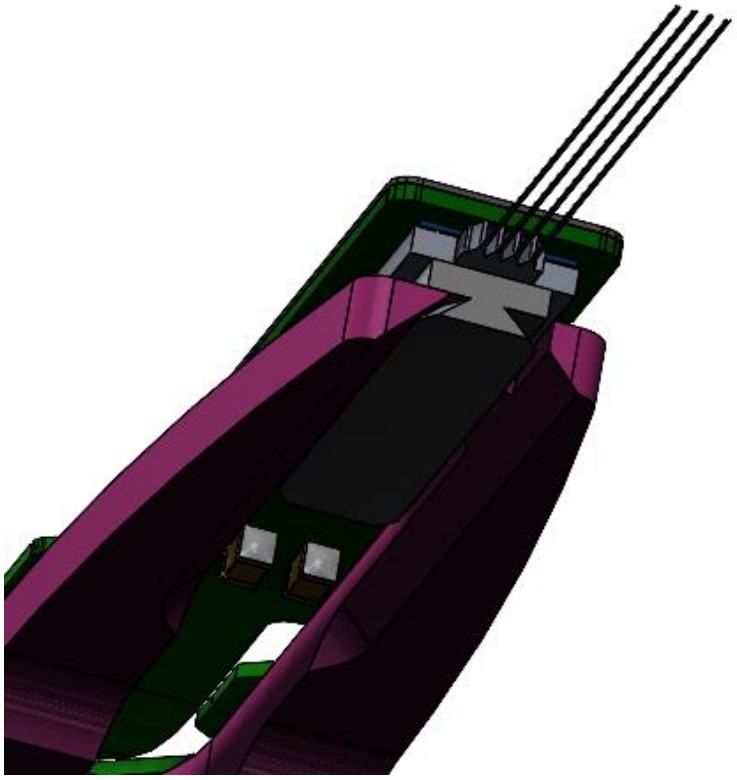
(A)

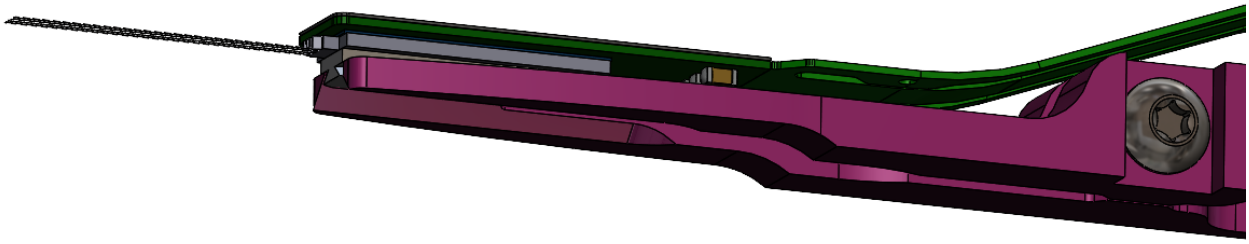


Install a probe into MPM-Probe Mount-NP2.0

Installing the Neuropixels 2.0 probe into the probe mount requires proper engagement with the NP2.0 metal dovetail cap. Pictured below you can see correct and incorrect mountings of the NP2.0 probe within the mount, and a cross-section on how the tweezer engages with the metal dovetail clamp.







Install a probe into MPM-Probe Mount-NP2.0 (continued)

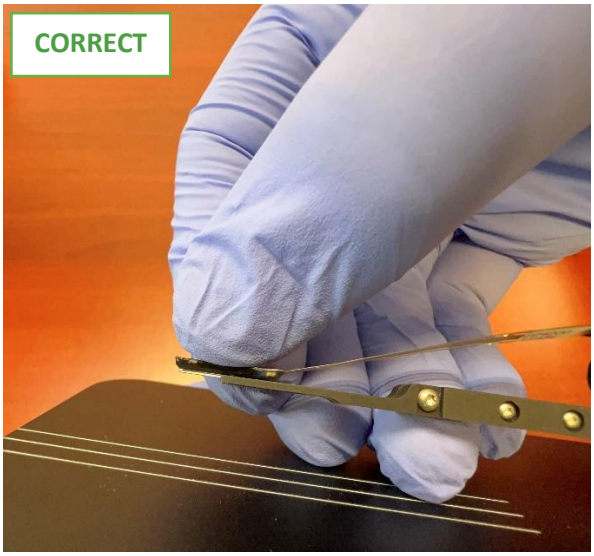
There are two recommended ways to complete the installation of the NP2.0 probe into the mount:

1. Alignment Fixture – It is recommended to use a 07680-3-0000 MPM-Probe Mount-NP Alignment Fixture to aid in this process. The dovetail provides <0.25° of error, so no alignment of the probe post-installation is required, but this fixture can make the installation process easier.
2. Freehand – Holding the NP2.0 probe in one hand, and the NP2.0 probe mount in the other, without the aid of the alignment fixture.

Installation with Alignent Fixture:

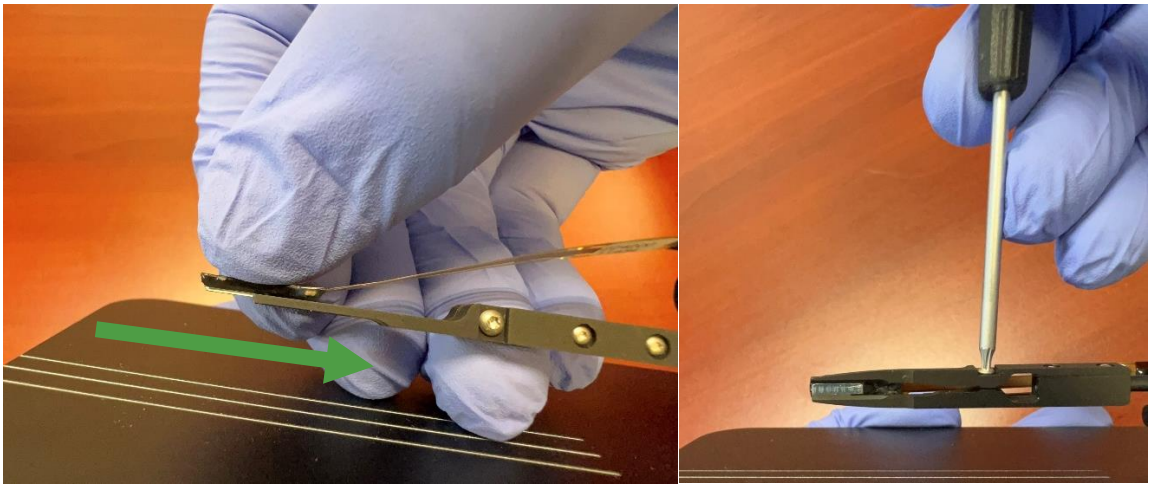
Secure the probe holder rod into the alignment fixture.

Press the dovetail flush and parallel with the NP2.0 tweezer tips, so the dovetail is in position to slide between the tweezer tips.

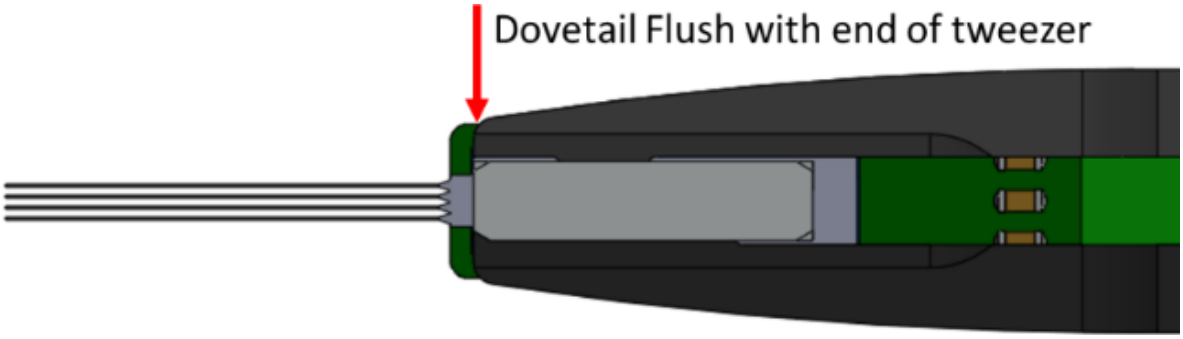


Slide the NP2.0 probe down to engage the tweezer teeth into the NP2.0 probe metal dovetail cap.

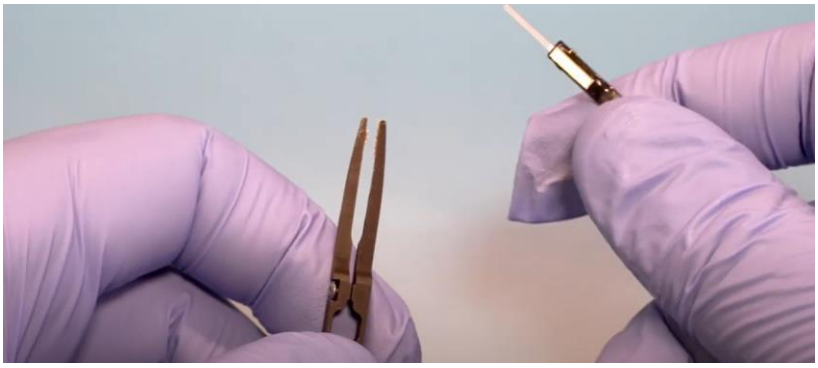
After the end of the tweezer is flush with the top of the probe metal dovetail cap, tighten the screw to clamp the tweezer within the dovetial. DO NOT OVERTIGHTEN, as this can cause improper alignment of the probe within the mount. It is recommended to turn the screwdriver to a light finger-tight fitting.



Important note – keep the probe horizontal, parallel to your worksurface, until you tighten the screw. This will help ensure the probe does not slip out of the tweezer fingers, due to gravity, prior to securing it in place. You can lightly push on the probe dovetail to test that it is securely held by the tweezers.

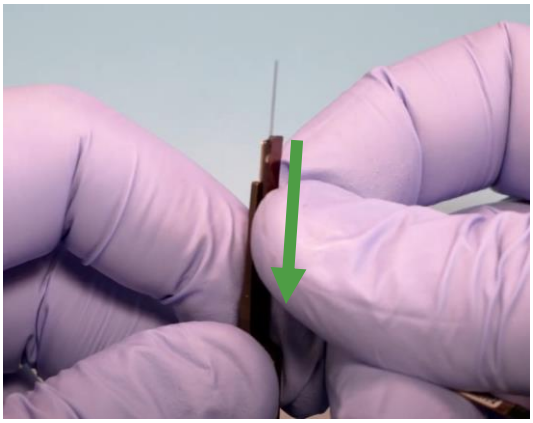


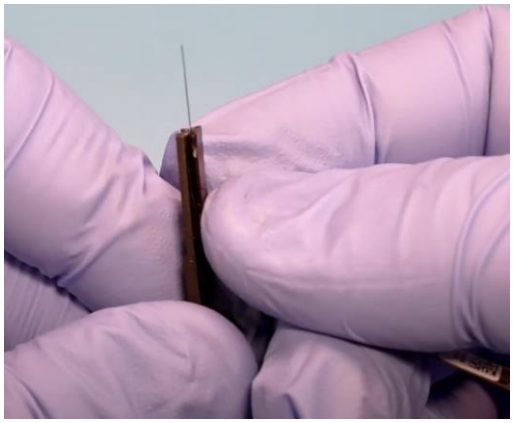
Freehand Installation:



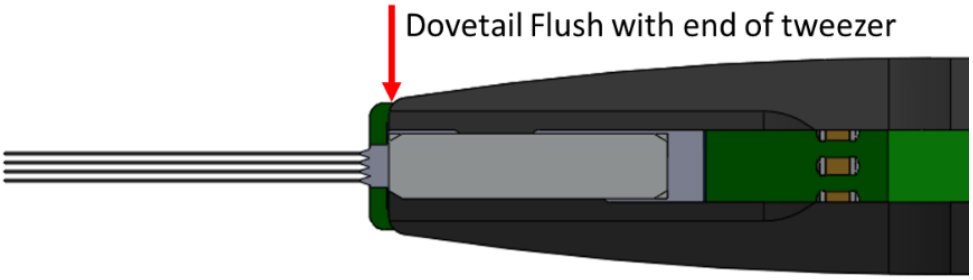
Press the dovetail flush and parallel with the NP2.0 tweezer tips, so the dovetail is in position to slide between the tweezer tips.

Slide the NP2.0 probe down to engage the tweezer teeth into the NP2.0 probe metal dovetail cap. The end of the tweezer should be flush with the top of the probe's metal dovetail cap.





Important note – hold the probe in place until you tighten the screw. This will help ensure the probe does not slip out of the tweezer fingers, due to gravity, prior to securing it in place. You can lightly push on the probe dovetail to test that it is securely held by the tweezers.

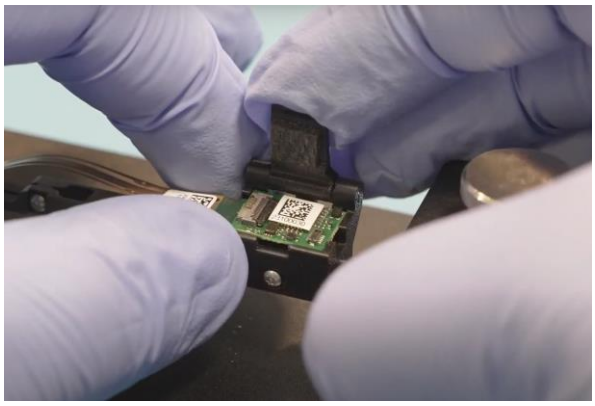


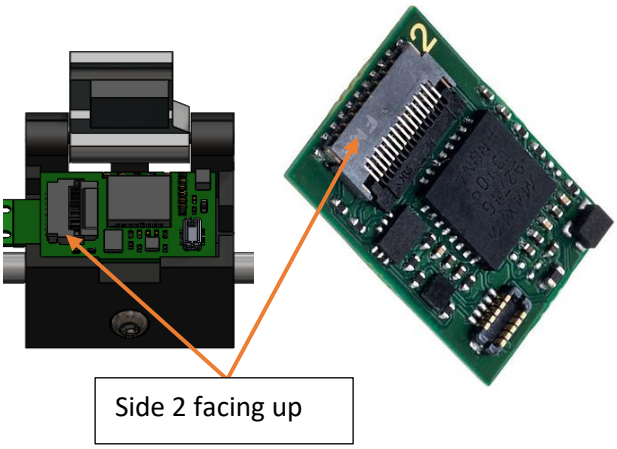
Install the headstage into MPM-Probe Mount-NP2.0

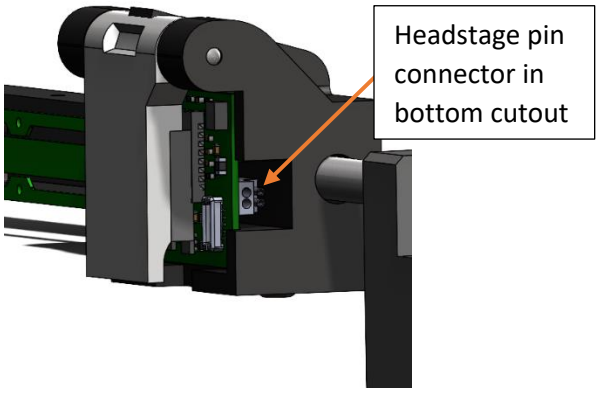
MPM-Probe Mount-NP2.0 can hold up to (1) headstage. It is highly recommended to use a 07680-3-0000 MPM-Probe Mount-NP Alignment Fixture as shown to aid in this process, as this fixture will free your other hand to aid in the installation.

Important note: to ensure the headstage fits securely within the probe mount, you must connect to the connector on side 1 pictured below.

Once the probe is connected to the Neuropixels 2.0 Headstage, you will place the connector into the headstage holder **with side 1 down**, so the empty connector 2 is facing up, as shown below.



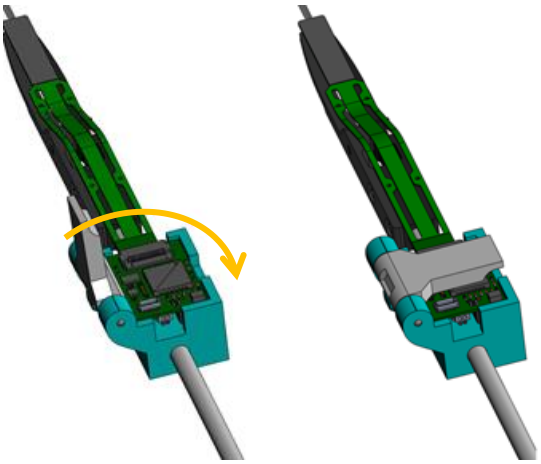




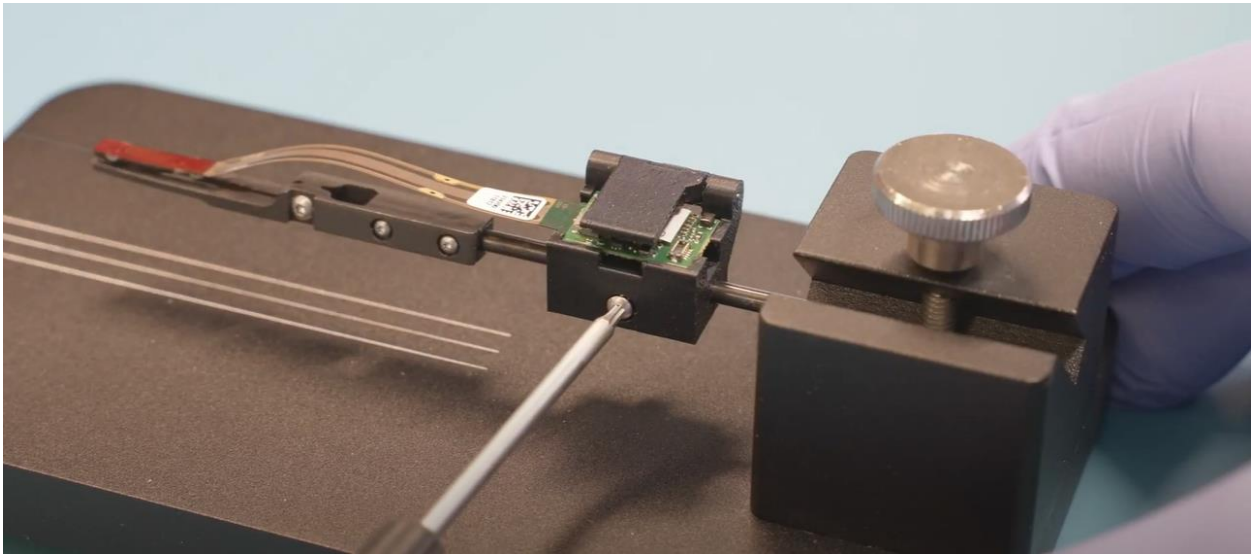
Install the headstage into MPM-Probe Mount-NP2.0 (Continued)

The Neuropixels cable will exit the probe mount from the bottom cutout of the headstage holder.

The clamp springs down and clamps the headstage.

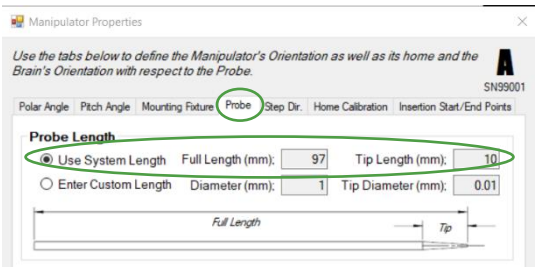


The headstage holder is secured to the probe mount shaft via a friction fit and set screw. If you need to adjust the position of the headstage clamp, you can simply loosen the screw, adjust the headstage position, and retighten.

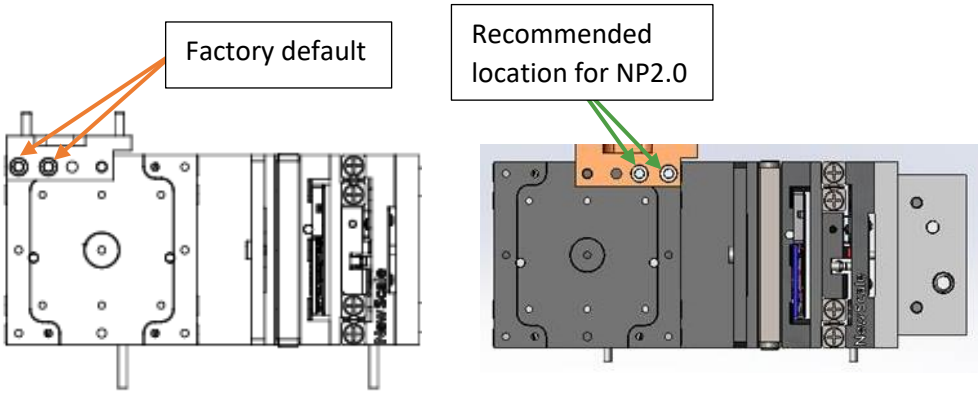


Install MPM-Probe Mount-NP2.0 onto M3-LS-3.4-XYZ-MPM assembly

The factory default position of the Z-stage mount plate is at the forward-most position of the M3-LS-3.4-15 Z-stage and mount plate holes, providing most MPM neural probe mounts at the default full length value of 97mm in MPM Pathfinder Software.

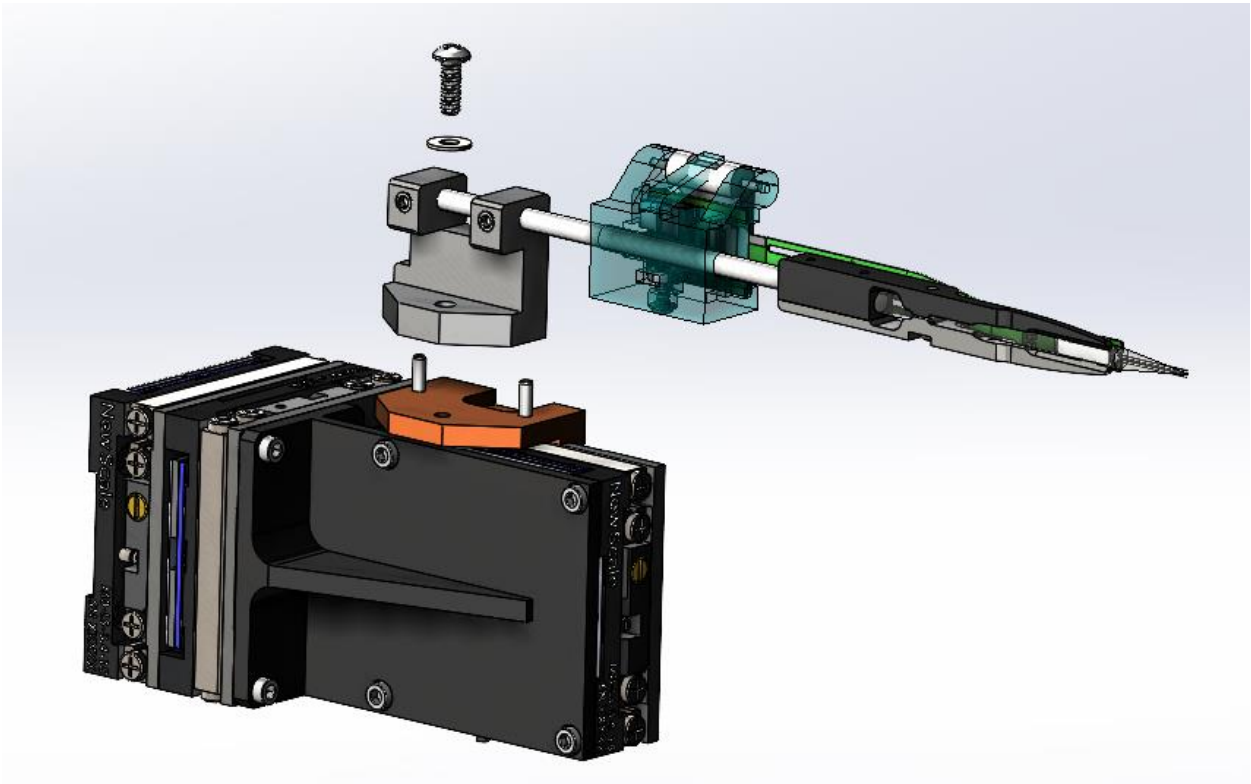


To maintain this factory default length of 97mm, you must move this Z-stage mount plate to the rear position of both the M3-LS-3.4-15 Z-stage mounting holes and mount plate holes, as pictured below.



Use the included alignment pins (2) captured Philips head screw (1) to mount the MPM-Probe Mount-NP2.0 to Z-stage mount plate, as pictured below.

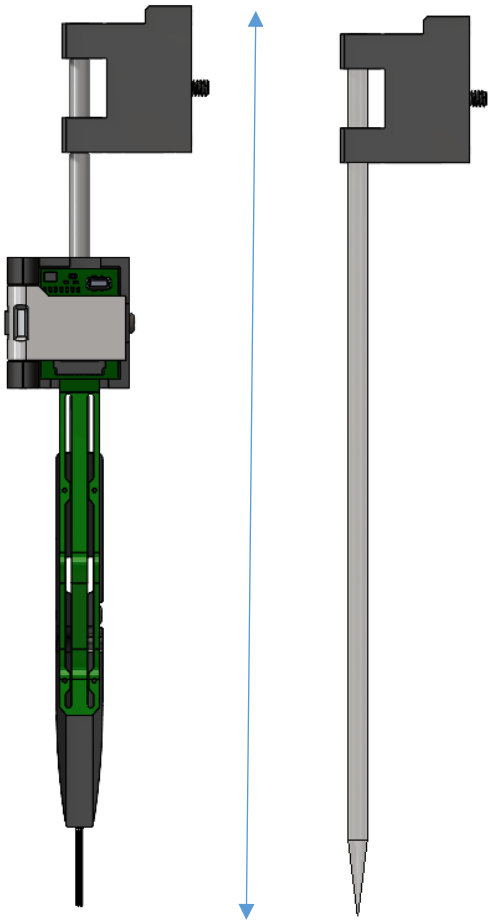
NOTE: See 08000-8-0000, MPM-Probe Mount-NP2.0 specification drawing for more information.



Using the Reference Probe to Pre-Align the MPM-4 DOF Arm

A steel reference probe is provided to allow pre-alignment of the MPM-4 DOF Arm without risking damage to your Neuropixels probe. To make the best use of the steel reference probe, the distance from the base to the tip of the probe should be known and constant. The steel reference probe is used as follows:

1. Remove the probe holder rod from the probe mount base and replace it with the steel reference probe as shown below.
   CAUTION – this steel reference probe is extremely sharp! HANDLE WITH CARE!
2. Adjust the steel reference probe to the same length as the Neuropixel probe as shown.
3. With the MPM 4-DOF Arm in the down position, complete pre-alignment of the MPM-4 DOF Arm's vertical, horizontal and insertion angle adjustments to place the steel reference probe tip at the correct insertion angle and starting location.
4. Move the Arm to the up position and replace the steel reference probe with the probe holder.
5. Move the Arm to the down position and operate XYZ manipulator to place probe and begin recording.



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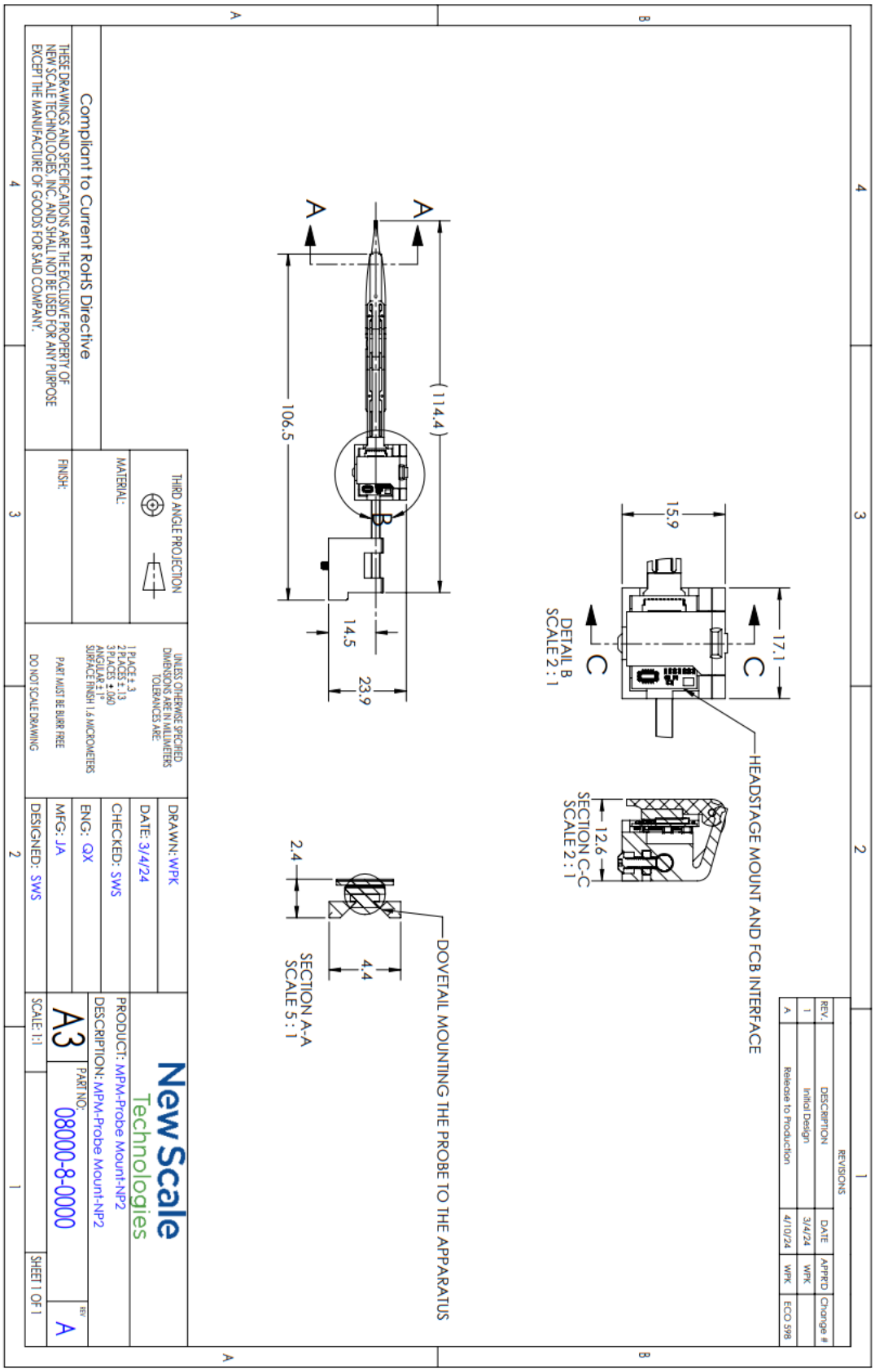
www.newscaletech.com

Revision History

Revision	Description of changes	Release Date
A	Initial Release	February 17, 2024
B	Added -8 Drawing	April 16, 2024


REVISIONS
REV.
DESCRIPTION
DATE
APPRD
Change #
1
Initial Design
3/4/24
WPK
A
Release to Production
4/10/24
WPK
ECO 598
HEADSTAGE MOUNT AND FCB INTERFACE
DOVETAIL MOUNTING THE PROBE TO THE APPARATUS
DETAIL B
SCALE 2 : 1
SECTION C-C
SCALE 2 : 1
SECTION A-A
SCALE 5 : 1
15.9
17.1
12.6
2.4
4.4
114.4
106.5
14.5
23.9
THIRD ANGLE PROJECTION
MATERIAL:
FINISH:
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
1 PLACE ± .3
2 PLACE ± .13
3 PLACE ± .050
ANGULAR ± 1°
SURFACE FINISH 1.6 MICROMETERS
PART MUST BE BURR FREE
DO NOT SCALE DRAWING
DRAWN: WPK
DATE: 3/4/24
CHECKED: SWS
ENG: QX
MFG: JA
DESIGNED: SWS
New Scale
Technologies
PRODUCT: MPM-Probe Mount-NP2
DESCRIPTION: MPM-Probe Mount-NP2
A3
PART NO:
08000-8-0000
REV
A
SCALE: 1:1
SHEET 1 OF 1
Compliant to Current RoHS Directive
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