

X-Series X3-64 Unboxing & Implant Instructions

Created May 18, 2023

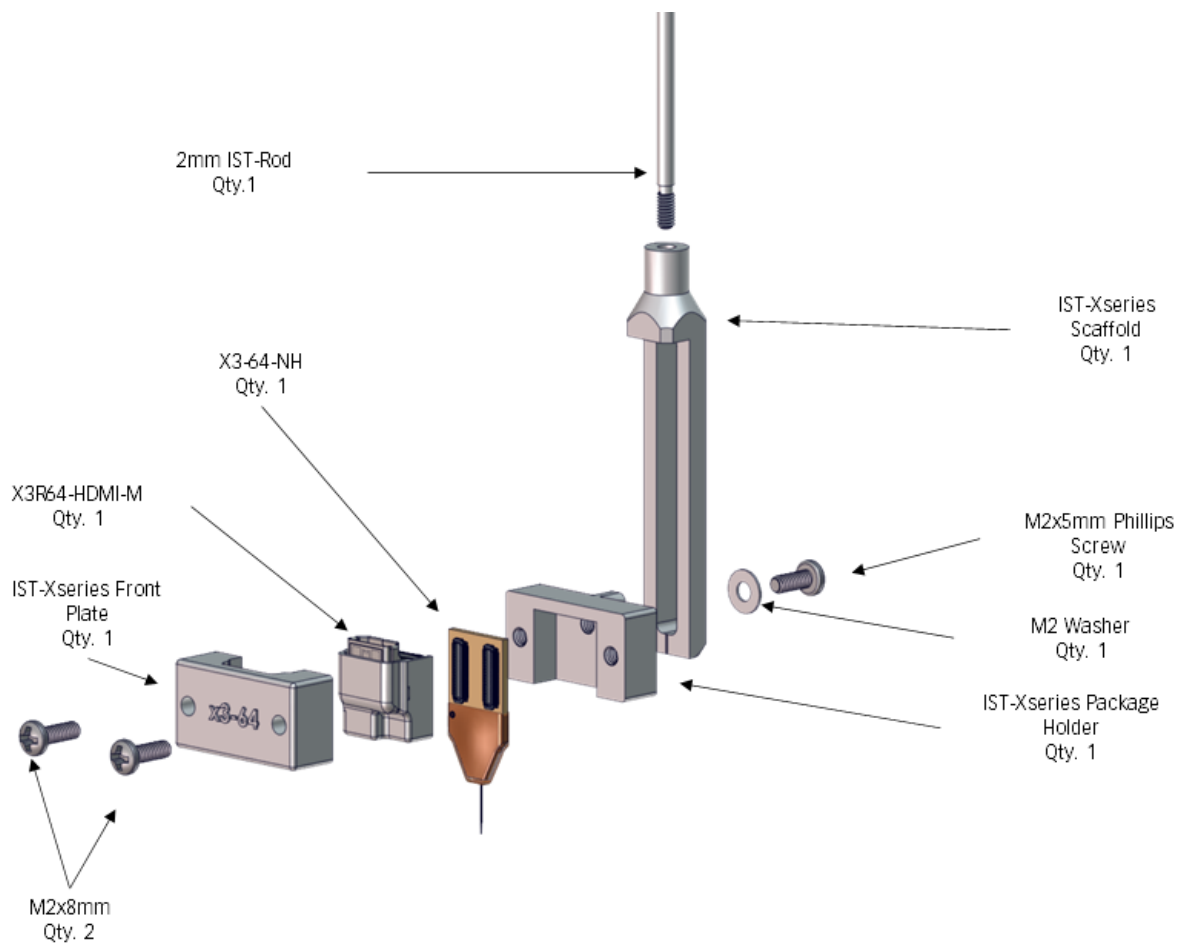
Read this manual carefully before planning your surgery.

- Examine the probe before opening the box.
- Make sure the probe hasn't broken
- **Note:** Any damage one might see that has occurred before the box has been opened.
- If there is visual damage, please document it with photos. Then reach out to your account manager to see about replacement.

General surgical guidelines and craniotomy instructions can be found here:

<https://www.neuronexus.com/files/technicalsupportdocuments/General-Surgery-Guidelines.pdf>

Product Component Callouts



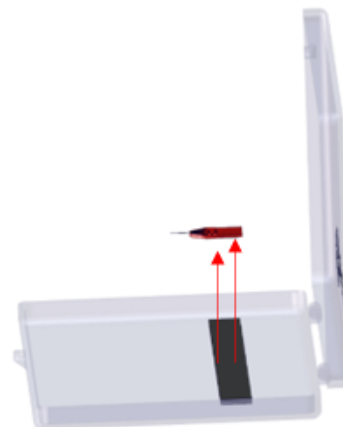
1 Remove X3-64 From Shipping Box

- A. Remove tape from Shipping Box, then open the lid (see figure 1).
 - B. While holding the probe, Slowly and Carefully lift the x3-64-NH Package from the foam (see figure B).
- NOTE: If there are more than one probe in a box, **be very mindful** of you fingers in relations to other probes, so no probes get damaged while being removed.

A.



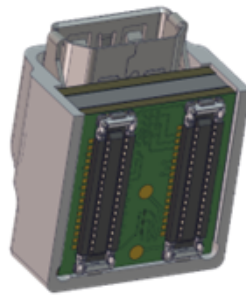
B.



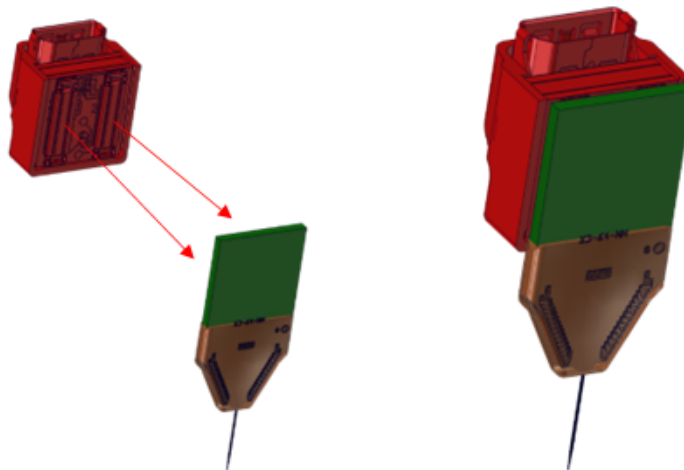
2 **Plugging X3-64 into X3R64-M**

- A. Retrieve the X3R64-M head stage as it will be needed for the following steps.
- B. Carefully plug the X3-64 into the Head Stage. While Be Very Mindful of the probe at all times (see figures B).

A.



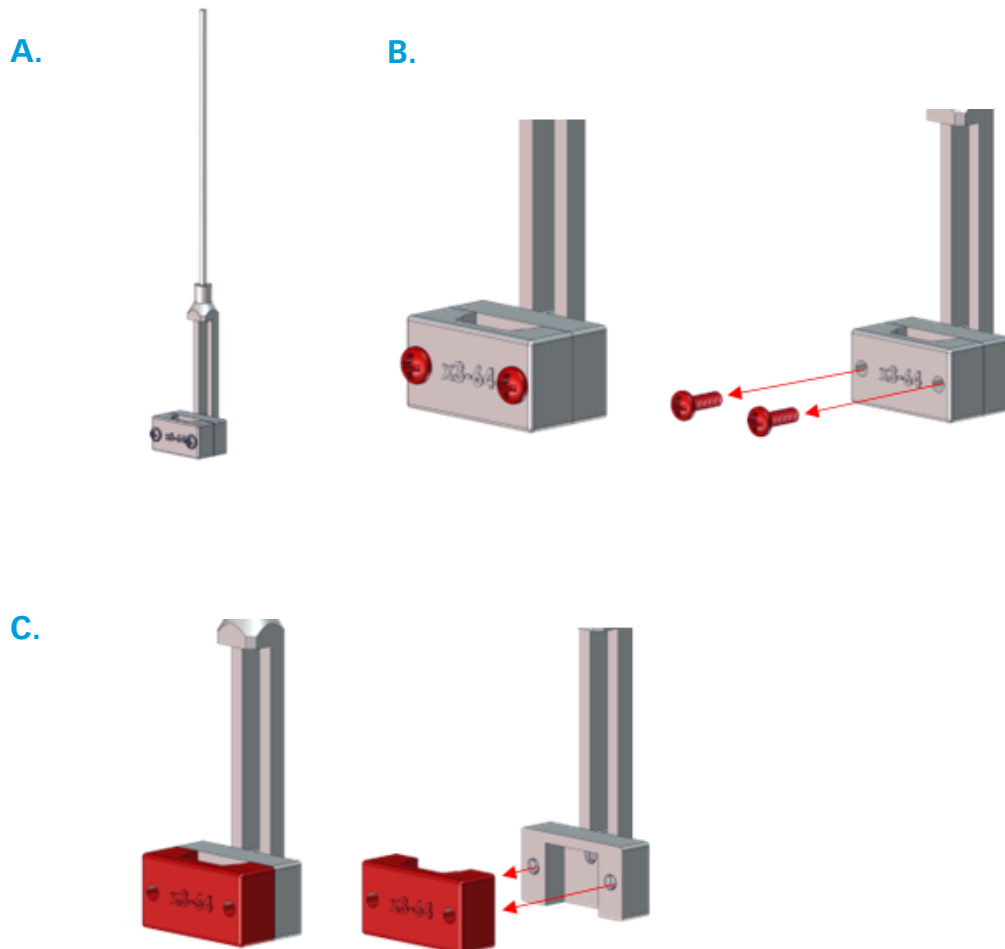
B.



3

Preparing IST-Hybrid For Mounting X3-64

- A. Remove the IST-X-Series from the Bag. Make Sure you have all the components. It should be assembled, which is to insure all the components are there (See Call Out).
- B. Remove the two M2x8mm Phillips Screws from the IST-X-series Front Plate (see figure B). Don't Discard.
- C. Remove the IST-X-Series Front Plate (see figure C).

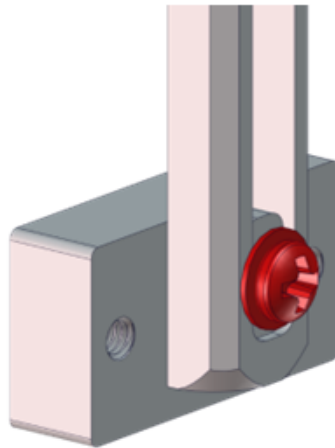


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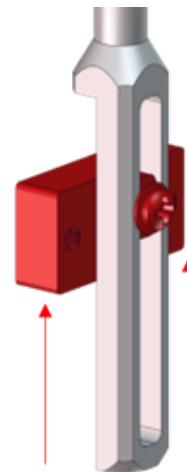
Preparing IST-Hybrid For Mounting X3-64

- A. Adjust the IST-Xseries Package Holder by loosening up the M2x8mm Phillips Screw. **Do not completely remove it** (see figure A).
- B. Raise the IST-X-Series Package Holder so when the package is in place the tip of the probe would be above the bottom of the IST-X-Series Scaffold (see figure B).
- C. Now retighten the screw so that package holder is held in place.
- D. There are two reasons to do this. First reason, is it protect the shank more than if it was over hanging. Second reason, is when wanting to replace the holder so that it will reach the desired target. If one attaches the IST-X-Series to a stereotactic one can make sure everything is lined up by lowering it with or without the probe loaded. As the bottom of the IST-X-Series Scaffold will hit the target with out damaging the probe.

A.



B.

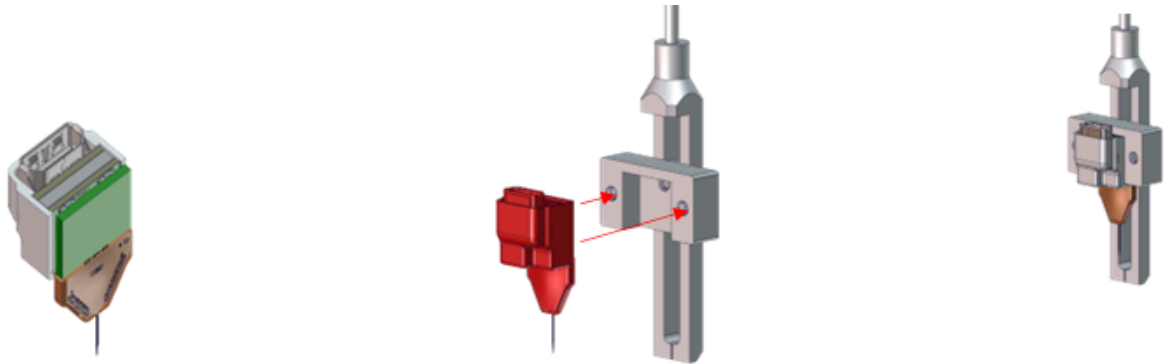


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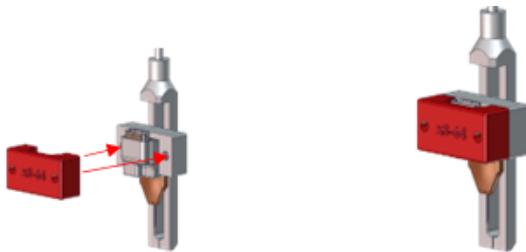
Mount the X3-64 Package in the IST-Hybrid Holder

- A. Carefully lower the X3-64 into the IST-X-Series Package Holder, be **very mindful** where the probe is. The probe should fit snugging in there but Hold it in Position while completing the **next steps**.
NOTE: It is best to load the IST-X-Series with the probe before it is attached to the stereotactic equipment.
- B. Once the package is seated in the IST-X-Series Package Holder. Retrieve the IST-X-Series Front Plate and **carefully** lower into position.
- C. Retrieve the M2x8mm Phillips Screws and screw them into the front plate.

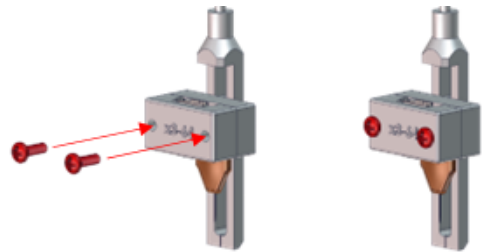
A.



B.

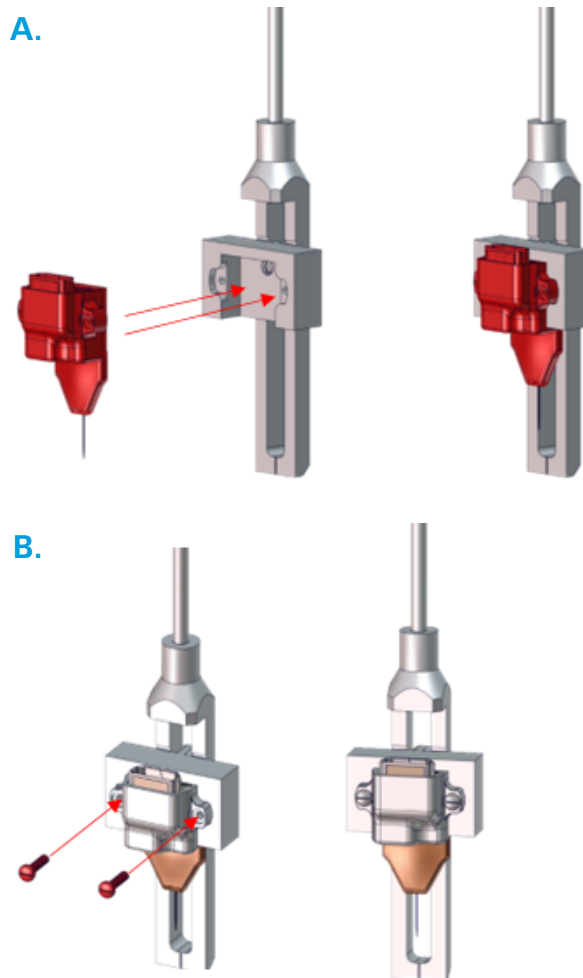


C.



6 Mount the X3-64 Package in the IST-Hybrid Holder (only for headstage version S)

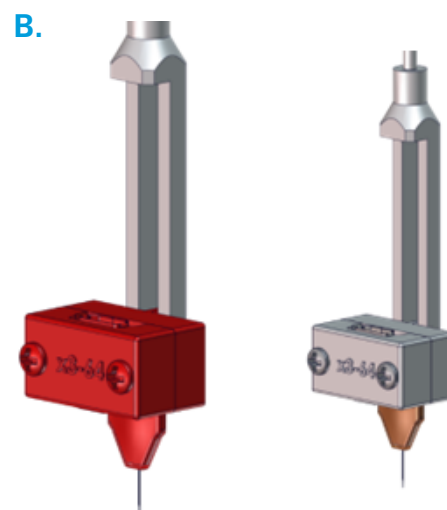
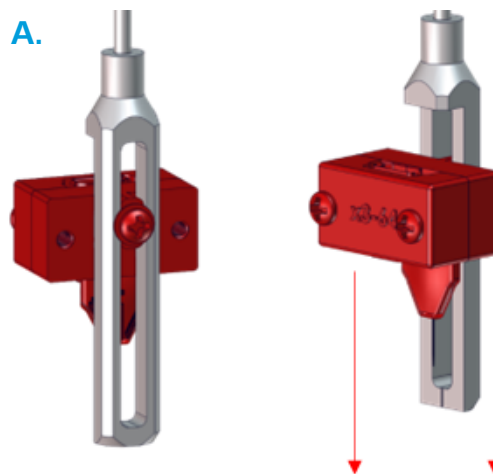
- A. Carefully lower the X3-64 into the IST-X-Series Package Holder, be **very mindful** where the probe is. The probe should fit snugly in there but Hold it in Position while completing the **next steps**.
NOTE: It is best to load the IIST-X-Series with the probe before it is attached to the stereotactic equipment.
- B. Once the package is seated in the IST-X-Series Package Holder. Retrieve two M1.2x 8mm Screws. Thread the screws through the shield so that they hold the package to the IST-X-Series Package Holder.



7

Mount the X3-64 Package in the IST-X-Series Holder

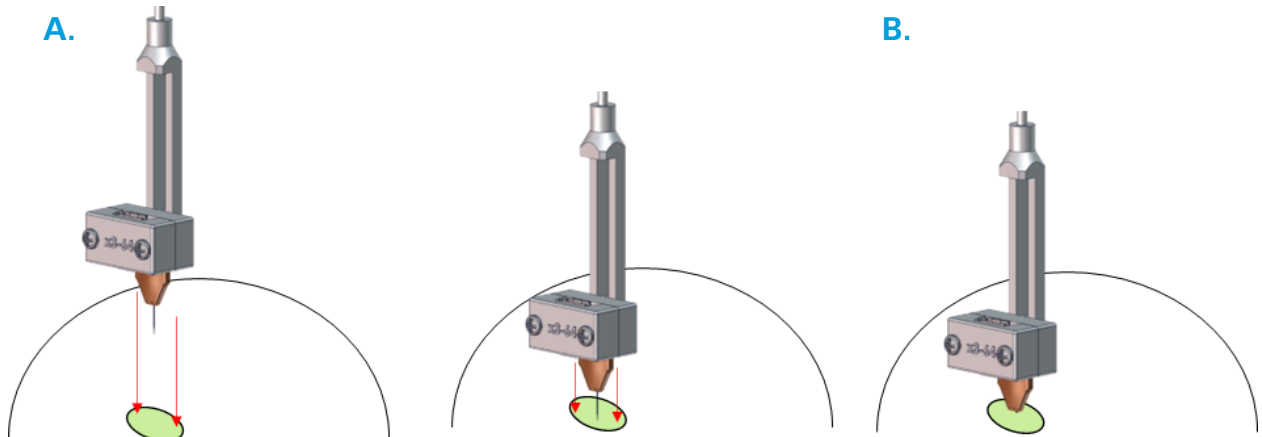
- A. Carefully loosen up the screw, **nt too loose** that the holder crashes to the bottom of the IST-Xseries Scaffold. So, continue to hold the sides of the IST-X-Series Package Holder.
- B. Once the screw is slightly loose, lower the holder so it bottoms out on the IST-X-Series scaffold. If the IST-X-Series is attach to the stereotactic equipment, **make sure** that ST-X-Series is **high enough** when it is lower that it **doesn't touch** any part of the animal as this could damage the probe. NOTE: The above steps can be preformed before or after attaching ST-X-Series to the stereotactic equipment.



8

Implanting Probes

- A. Attach the IST-X-Series Package Holder to the stereotactic equipment and **slowly lower** the probe into the craniotomy until the probe meet the desired depth. As the probe reaches the brain surface, it is a good idea to go **very slow** as the probe precious the brain (unless using a motorize stereotactic, in that case follow motorize instructions).
- B. Lower the probe to the desired depth. If this is just an acute study, one and now ready to connect the HDMI cable that runs from the data acquisition equipment to the probe and begin running test. If it is for a chronic use continue with the steps.

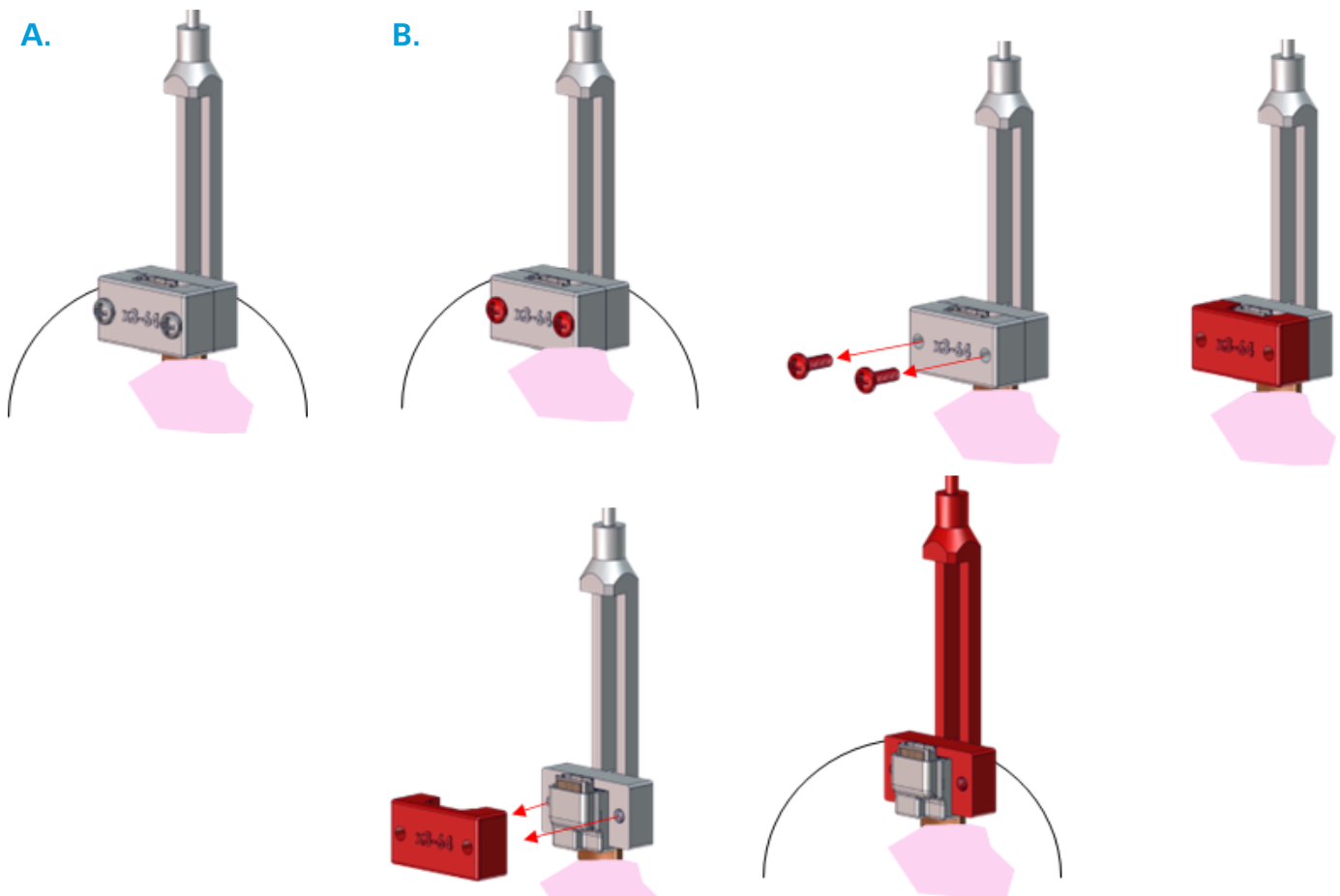


9

For Chronic Use:

Removing the IST-X-Series Package Holder from the X-Series Package and Securing Package to the Skull

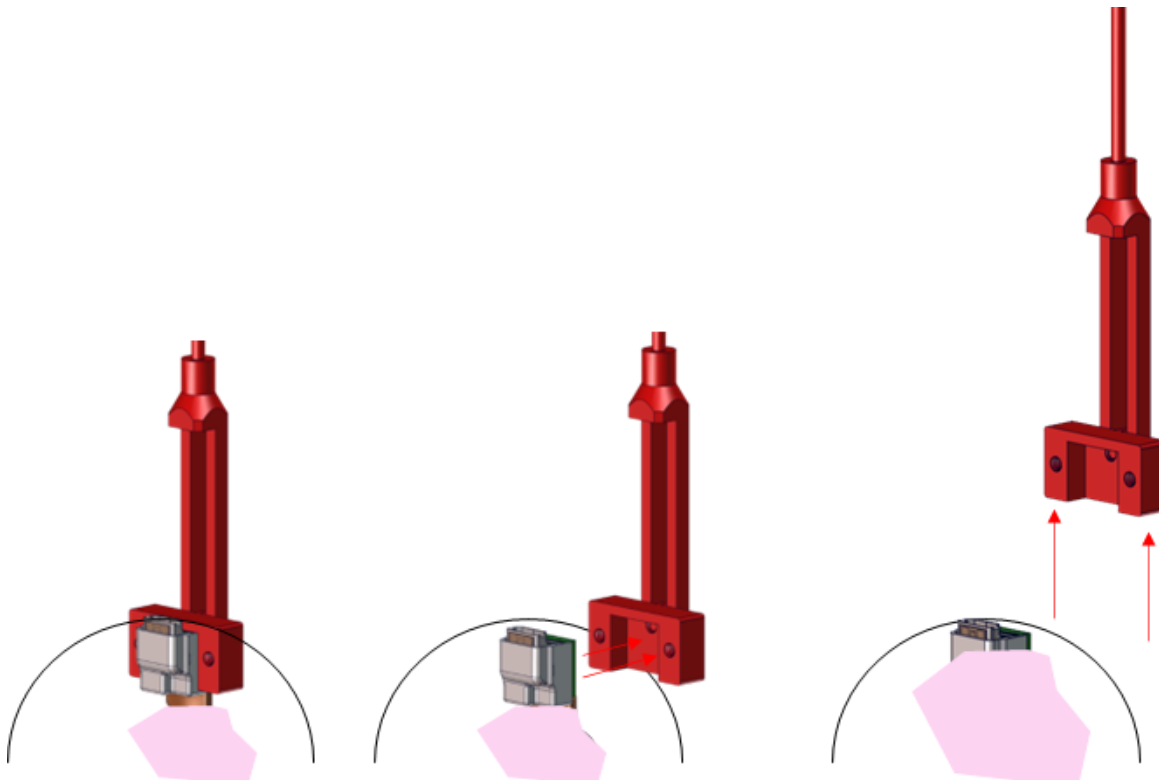
- A. At this point, it is time to secure the lower portion of the probe package to the skull using dental cement. Apply dental cement around the lower portion of the probe. Let harden so that the probe package could stand on its own. **make sure** Not to get any dental cement on the IST-Series.
 - B. Remove the two M2x 8mm Phillips screws that is holding the front plate. While removing these screw, continue Holding the front plates so it **doesn't fall** onto the probes. Once free completely remove the front plate and screws.
- NOTE: If removing a package that has the X3R64-HDMI/OM12-S Headstage, reverse steps 6.



10

Removing the IST-X-Series from the X3-64 Package and Securing Package to the Skull

- A. With the stereotactic controls, move the IST-X-Series **very slowly** back away from the Package. One might hold the package in place while breaks free from the holder.
- B. Now raise the IST-X-Series upwards and out of the way. As it is now ready for final steps.



Final Steps**10**

- A. Add more dental cement to build up the support around the package and head stage. The head stage is protected. Do Not get any dental cement inside the micro-HDMI connector as this could lead to the micro-HDMI not plugging in correctly or at all.

NOTE: After the chronic experiment/study is completed, the headstage can be retrieved.

- B. Complete surgical procedure by following internal procedures.

