

Nut Weld Head & Upper Electrode Refacing Process

CenterLine Nut Weld Heads & Upper Electrodes can be refaced to extend their life. The following procedures outline the recommended processes:

1. Nut Weld Head Refacing Process

Practice all safety lockout procedures before removing the nut weld head for resurfacing.

Procedure

1. Remove the nut weld head from the weld body (if equipped, **make sure that all air supply to the electrode is shut off first**, then remove the nut weld head from the body).
2. Place the nut weld head in a lathe so that the face is parallel to the cutting tool surface. It is recommended that a jig be made for the threads of the head since the face is originally machined aligned from the threads.

Note the following specifications:

Series 2 have 5/8-18 threads

Series 3 have 7/8-14 threads

Series 4 have 1-1/8-12 threads

3. Regardless of head style, the head **must be faced off from the inside of the bored hole to the outside edge** using a high speed tool bit. The bit needs to be sharp and on center to the inside hole. Machining from the outside edge to the center of the head (bored hole) can result in the copper rolling over into the bore which, in turn, may cause arcing with the stainless sleeve. Should this occur, a relief will need to be machined to the bored hole to prevent arcing. **Make sure not to remove more material than necessary. It is recommended not to machine the class 11 to below 1/8" thickness.**
4. Once weld deformations have been removed and a visually smooth head is present, the weld head can be removed from the chuck or jig.
5. It is important to note **how much material was removed** from the original factory finish. This information will be needed when the nut weld electrode is used in conjunction with a **CenterLine fastener detection unit**. The detection unit will need to be re-programmed before use.
6. For **insulated style heads (see Step 8 for instructions on non-insulated heads)** be sure to also check for conductivity between the nut weld face and the internal insulated sleeve. If conductivity is present, then the internal sleeve should be cut to .030" below the finished head and re-checked to **verify that conductivity is not present**.

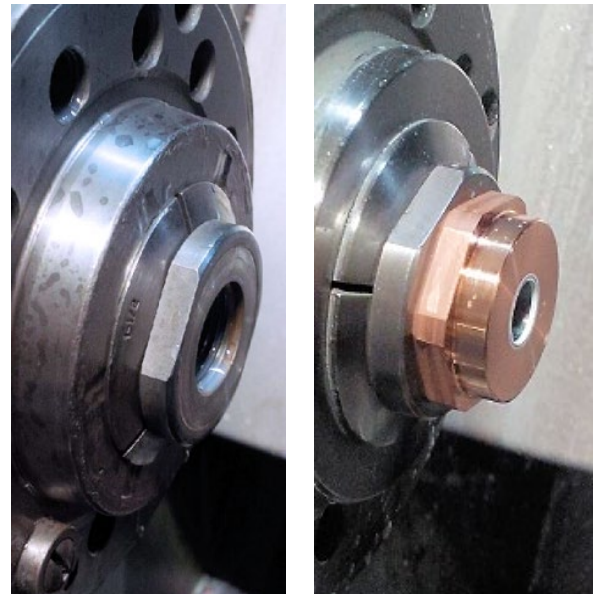


Figure 1

- For **PH Style insulated heads**, follow the guidelines shown in Figure 2. Be sure to machine from the inside bored hole edge to the outside edge of the head, as previously outlined in Step 3.

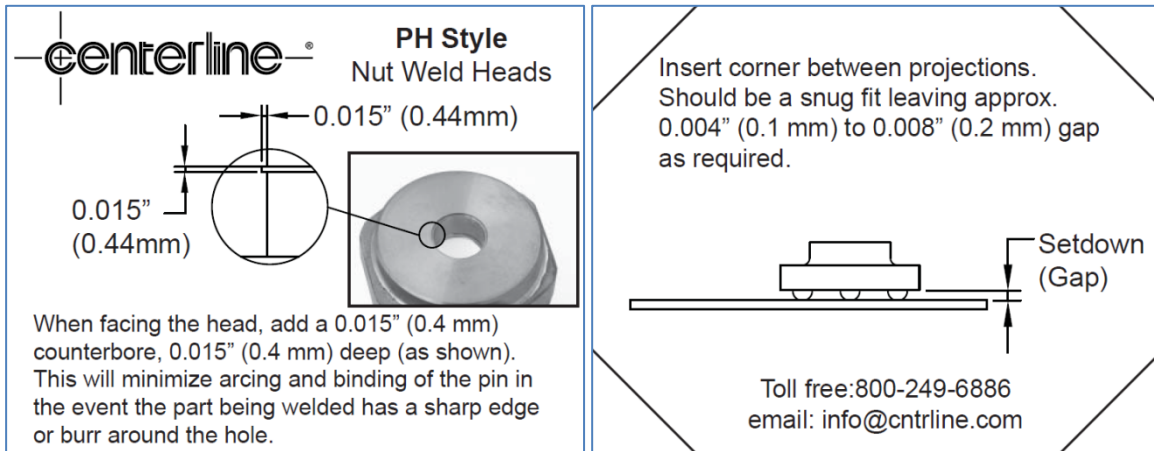


Figure 2

- For **GH Style non-insulated heads**, machine the head as outlined in Step 3. After machining, check to ensure that the ID edge is broken (**at the most .005"**).
- Upon verifying that refacing machining guidelines have been met, reinstall the nut weld head on the body with the pin and torque it to the following specifications.

Nut Weld Head Torque Specification

Series 2 - Torque to 15 ft-lb.

Series 3 - Torque to 30 ft-lb.

Series 4 - Torque to 100 ft-lb.

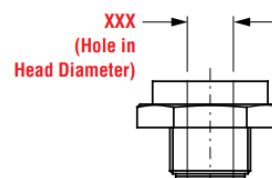
- Next, turn air blow-by back on if equipped.
- If you are using the refaced head with a CenterLine fastener detection unit (i.e. VeriFast™), recalibrate the device per the directions supplied in the User Manual.

ADDITIONAL SPECIFICATIONS

The catalogue **maximum inside diameter** of the finished hole by series is:

Series 2		Series 3		Series 4	
GH Number	PH Number	GH Number	PH Number	GH Number	PH Number
Max. XXX = .427	Max. XXX = .377	Max. XXX = .642	Max. XXX = .638	Max. XXX = .852	Max. XXX = .825
GH2050T062XXX	PH2050T062XXX	GH3050T087XXX	PH3050T087XXX	GH4062T100XXX	PH4062T100XXX
GH2050T075XXX	PH2050T075XXX	GH3050T100XXX	PH3050T100XXX	GH4062T125XXX	PH4062T125XXX
GH2050T087XXX	PH2050T087XXX	GH3050T125XXX	PH3050T125XXX	GH4062T150XXX	PH4062T150XXX
GH2050T100XXX	PH2050T100XXX				

XXX represents the maximum allowable Hole in Head Diameter.



2. UPPER ELECTRODE REFACING PROCESS

Practice all safety lockout procedures before removing the Nut Weld Head for resurfacing.

PROCEDURE

1. Ensure the water is turned off and purged before removing the Upper Backup Electrode. Use the proper tool to remove the electrode so as to not damage the taper.
2. Place the Upper Backup Electrode in a lathe and resurface the electrode or backup in the same manner as the Nut Weld Head outlined in the previous procedure. The electrode will be made in either RWMA class 2 copper (C18150 or C18200 - 75 RB) or RWMA class 3 copper (C17510 or C18000 - 95+ RB). In the event the electrode has Class 11 face soldered to it (see Figure 3), only machine the Class 11 down to a minimum of 1/8" thickness. Ensure when refacing the upper electrodes that you make smaller cuts so as not to deform the electrode.
3. **Do not remove more material than necessary.** The upper electrodes are designed with a clearance hole on the face to prevent coming in contact with the weld pin and causing it to depress when the gun is closed onto the part. This hole is drilled 1/4" deeper than the maximum pin stick out; as a result, the electrode can be refaced to a maximum of 1/8" shorter than the original factory length without the need to drill a deeper clearance hole (**not recommended**).

A simple check for verifying that not too much material has been removed is to reinstall the upper electrode onto the weld gun and then close the gun without a part in it. Next, check the fastener detection device for the pin return signal. If the detection device shows that the pin **is not returned** this will indicate that the pin is being depressed by the electrode and that the Backup Electrode was over-machined and must be replaced.

4. Note that for conditions where the nut is loaded with the projections facing the upper electrode, it is recommended that the electrode have a surface made of Class 11. This is visible due to the silver color appearance on the face (see Figure 3).
5. The Upper Backup Electrodes are susceptible to slag filling up the clearance hole. If the electrodes are used in systems incorporating CenterLine fastener detection units, be sure to clean the clearance hole on an as needed basis (application dependent) to ensure proper operation.

Back-Up Electrode
with Class 11 face

Back-Up Electrode
without Class 11 face



Figure 3

CONTACT CENTERLINE WITH ANY QUESTIONS YOU MAY HAVE ABOUT THESE PROCEDURES.