THE FORERUNNER
IN SPECIALTY METALS

Welding and Joining CMW® High Density Metals (Anviloy® 1150, CMW® 1000 [No-Chat®], CMW® 2000, CMW® 3000, CMW® 3950, CMW® 3970, Elkonite® 40W3, Elkonite® 50W3)

Welding

CMW® High Density Metals (except Elkonite® copper-tungsten) can be welded to themselves or to other metals using TIG or MIG welding processes. Welds have good strength but low ductility. Welds should be allowed to cool slowly in a protective gas shield. Do not quench. **No post weld heat treatment is required.**

Rod: CMW's "Anviloy® Weld Rod" should be used for welding. It is readily available in 0.120" [3.05 mm] dia. x 7" [20.3 cm] lengths. Request CMW part #50-07644.

Equipment: A TIG setup with 300 amp power supply. Use argon gas shielding.

Procedure: Use a high d.c. setting adjusted to maximum output. Preheat the work area using the electrode. Do not preheat with an acetylene torch. When the work-piece is heated, begin the weld. Do not work beyond the preheated area. Allow the weld to cool in the shield of argon gas. Do not quench. No post weld heat treatment is required.

Copper Brazing

Copper brazing should be done at 1100°C in a reducing atmosphere, using pure copper (AWS BCu-1) or a 92% copper-nickel alloy. Standard practice can be employed with respect to metal surface finish, copper braze sheet thickness, brazing temperature and time. No flux (but reducing atmosphere) is required. Surface etching with potassium ferricyanide or fused sodium nitrate prior to brazing will help insure a good braze. The Elkonite® grades should not be copper brazed (see "Silver Brazing" below)

Silver Brazing

Silver brazing should be done in a reducing atmosphere using a non-phosphorous bearing silver braze alloy. For best results, first tin the surface with copper in a reducing atmosphere before brazing. Elkonite® grades should be etched prior to silver brazing.

Mechanical Joining

- Minimum distance of a hole from edge = 1.5 times the hole diameter.
- Avoid hole diameters greater than 3 times the material thickness.
- Use a design strength of 75,000 psi [515 MPa].