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PHOTOCATHODE MOUNTING ON MOLYBDENUM PUCK BODY

CIS

Jefferson Lab

This note summarizes the steps to mount photocathode to molybdenum puck body described in drawing JL0047248.

1. Collect items
    a. Mo puck, photocathode removed
    b. Tantalum cup, choose ID
    c. Photocathode (nominal 600um thick)
    d. Ta cup recessed pressing tool
    e. Ta cup crimping tool
    f. Indium foil
    g. Indium tweezers (only touch indium foil)
    h. Non-indium tweezers (only touch photocathode or moly puck)
    i. Pliers to lift puck from hot plate

2. Dry fit tests
    a. Place photocathode on puck recess, ensure it fits, then remove
    b. Place Ta cup on puck, ensure fit is not too tight or loose, carefully use Ta cup pressing tool if helpful, but do not dent Ta cup
    c. Carefully remove Ta cup

3. Mount photocathode under GN2 glove box
    a. Cut indium square, place on puck center
    b. Place puck on heater, start heater, indium will melt 156 C. Note - thermocouples typically read over 200C due to temperature gradients
    c. Place photocathode on indium, press flat on edges
    d. Check that puck is well seated, flat; excess indium is OK, remove later
    e. Remove puck from heater using pliers, to cooling plate

4. Mount Ta cup (once cool, outside glove box)
    a. If indium ‘ball’ remove w/ vertical force, don’t push photocathode
    b. Place Ta cup on puck
    c. Press down with recessed pressing tool if required/desired
    d. Place crimping screws on puck, thumb screw until uniform circle
    e. Place crimping cylinder over puck/screw
    f. Test Ta cup well seated (add/remove crimping cylinder)
    g. Turn opposing pairs of thumb screws 1 turn at a time, until Ta cup is sufficiently crimped to puck body; note – turning until stopped will make Ta cup removal difficult
    h. Remove Ta crimping tool
    i. Use Ta cup recessed pressing tool if desired