

DISCLAIMER

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University of Wisconsin-Synchrotron Radiation Center Technical Note	File Number: SRC-193 Original # TN-73	Page: 1-3
Subject: Specification for Aladdin Bending Magnet Coils	Name: W. R. Winter, Jr. Date: July 8, 1999 Original Date: November 18, 1977	
<p>1. Fabricate and deliver the following pancake assemblies per attached drawings and quantities:</p> <p style="padding-left: 40px;">26 pancakes per Drawing 3004E004 26 pancakes per Drawing 3004E005 26 pancakes per Drawing 3004E006 26 pancakes per Drawing 3004E007</p> <p style="padding-left: 40px;">Enclosed Drawings for Reference Only:</p> <p style="padding-left: 40px;">Assembly Drawing 3004D012 Conductor Drawing 3004A001</p> <p>2. <u>Material</u></p> <p>Hollow Copper conductor per Drawing 3004A001 will be furnished by PSL and delivered to fabricator. Conductor will be furnished in bunched coils of 100' – 125' random lengths.</p> <p>Insulating materials to be furnished by fabricator.</p> <p>3. <u>Insulating</u></p> <p>Fabricator is permitted to specify alternate methods of insulating the pancake assemblies, as long as the alternate method provides the same electrical and mechanical properties specified on the drawings and detailed in this specification.</p> <p>If an alternate insulating method is chosen, fabricator shall specify the method he is bidding on and submit with his bid a description of the method and materials that will be used.</p> <p>4. <u>Fabrication</u></p> <p>A. Prior to fabrication, the subcontractor shall provide a description of material and procedures to be used.</p> <p>B. Three (3) sample brazed joints are to be submitted for inspection for each brazer prior to actual coil brazing.</p> <p>C. All work to be done in clean shops, free of chips, heavy dust, etc.</p> <p>D. All conductor to be checked visually for laminations or other defects. If defects are found, PSL is to be notified for disposition.</p>		

- E. Brazed joints to be halogen or helium leak checked. No brazed joints at bends.
- F. Before winding, all surfaces to be cleaned with alcohol before taping. If contaminated with substances that alcohol will not remove, use emery cloth and then complete with alcohol cleaning.
- G. Conductor to be taped with one (1) layer of Fusa-Fab tape, spiral wound with ½ lap. After winding and taping, the entire pancake is to be taped with one (1) layer of tape ½ lapped. Over the Fusa-Fab, one (1) layer of .002 heat shrinkable mylar tape is wound with ½ lap.
- H. After taping, the coil is to be baked at 300° F. for one (1) hour and cooled in the oven to 100° before opening to room temperature.
- I. Inspection

Each coil shall have the following tests made and written reports submitted showing compliance:

1. Brazed Joints
 - a. Halogen or helium leak check. No leak greater than 10^{-10} ATM cc/sec at 150 psig internal pressure before insulating.
 - b. Water flow test. Pressure drop is to be recorded for each water path at a flow of .6 gpm. Pressure drop shall not exceed 50 psig.
2. Electrical test after taping and before curing. 50 volts turn-to-turn and layer-to-layer for shorts.
3. Electrical test after curing of tape
 - a. Kelvin Bridge measurement
 - b. 50 volts turn-to-turn and layer-to-layer for shorts
 - c. Hi-Pot test at 2000 volts DC for one (1) minute.
4. Pancakes must be flat within .01" after cure.

5. Exceptions

Any exceptions that the bidder makes to the drawings or this specifications must be clearly stated when his bid is submitted.

6. Shipping

All coils to be wrapped in plastic and properly crated to insure against damage in transit. The shrinkable mylar tape to be left on.

7. General

PSL reserves the right to inspect the fabrication facility at any time during the construction of the pancake assemblies.

All unused conductor and scrap conductor over 6" long shall be shipped to PSL.