

DCA313 Heater Strips Inspection Report

TS-SSC 91-137
Steve Delchamps
July 7, 1991

The Fermilab Quality Control inspection report number 13139 pertains to the quench protection heater strips intended for magnet DCA313. Several discrepancies from the design dimension were found. (The inspection report is attached as an appendix.) The relevant drawing is 0102-MD-292218, revision A.

1) $1.628 \pm .010$ " was found to be 1.656 " at end. This 28 mil discrepancy in the width of the heater strip package insulator will not affect performance of the heater strip. Its only possible importance will be that the insulator thickness might be increased slightly over some portion of the outer coil surface.

2) $.100 \pm .010$ " reads $.118$ ". This is the distance between the edge of the heater strip element and the edge of the heater strip package insulation. The 18 mils shouldn't affect heater performance.

3) $13.750 \pm .040$ " reads between 13.770 " and 13.680 ". This is the length of the copper-plated sections at the very ends of the heater strip. The contribution to the total cold heater strip resistance of 30 mils of extra unplated stainless steel strip is about .001 Ohms, while the total cold strip resistance is 11.36 Ohms. Therefore, this discrepancy is negligible.

4) $3.000 \pm .040$ " reads 15.00 plus on both ends. This is just because the manufacturer includes some extra on both ends, which gets trimmed off anyway.

5) $26.000 \pm .040$ " reads 25.940 " in two places. This will mean that there are two extra 60 mil length stainless steel sections, contributing a total of .004 Ohms to the total heater strip cold resistance of 11.36 Ohms. This discrepancy is acceptable.

6) 595.5 " reads 595.062 ". This means that the entire insulated portion of the heater strip package is .438" shorter than the design value. This won't affect performance, since the installed heater strip package extends beyond the ends of the coils before this uninsulated section. This is in the end clamps of the magnet. However, the manufacturer should be informed.

Distribution:

R. Bossert
J. Carson
S. Gourlay
C. Haddock
W. Koska
J. Strait
M. Wake

TYPE OF DISCREPANCY (check one)

- Purchase Item - to document discrepant purchased material
- Internal Fabrication - to document discrepant material, assembly or procedure
- Customer Report - to document discrepant final product

R. F. NO. 44140

SECTION 1

Part No. MD 292218 rev A Part Name Header Strips

Purchase Order No. _____ Batch Receiving Date 6-26-91

Batch Quantity Received 4 Qty. Inspected 1

Item No. Discrepancy Details (For measurements, list print requirement and tolerance followed by "Reads" followed by actual measurement.)
Fill out "Red" hold tags.

- 1) $1.628 \pm .010$ reads 1.656 at end.
- 2) $.100 \pm .010$ reads $.118$
- 3) $13.750 \pm .040$ reads between 13.770 to 13.680
- 4) $3.000 \pm .040$ reads 15.00 plus on both ends
- 5) $26.00 \pm .040$ reads 25.940 in two places
- 6) 595.5 reads 595.062

"SSCL"

Final Disposition (completed by signatories below)

Hand carry completed form to Requisitioner

(After signature, route copies as follows)

Do copies go with Parts Yes _____ No _____	Signature	
	Accepted	Rejected
Production Manager		
Engineering Manager		
Material Control Manager		

- Material Control Office—Original
- Requisitioner—(1)
- Production Manager—(1) J. CARSON, R. BOSSERT
- Engineering Manager—(1)
- Quality Control—(2)
- Contracts Administrator—(1)
- Material Control Manager—(1)