

The only official copy of this file is the one on-line on the Superconducting Magnet Division website. Before using a printed copy, verify that it is the most current version by checking the document issue date on the website.

DESY-MAG-R-4004A
Page 1 of 3

1. Scope:
This specification describes the procedure used to produce DESY GO Beam Tube Assemblies.
2. Applicable Documents:

DESY GO Beam Tube	BNL Dwg. No. 15010002
DESY GO Beam Tube Assembly	BNL Dwg. No. 15010048
3. Requirements:
 - 3.1 Material/Equipment

Veeco Vacuum Pump /Leak Detector Model MS-17
 - 3.2 Safety Precautions:
 - 3.2.1 Operators shall wear safety glasses with side shields, or goggles.
 - 3.2.2 Operators shall be trained by their cognizant technical supervisor and qualified in the operation of the required welding equipment.
 - 3.2.3 No welding shall take place unless all welding screens are in place around the welding station, and all personnel not directly involved with the welding process are outside the screens. Any personnel inside the screens shall wear protective gear to prevent eye injury, and shall be clothed to prevent burns caused by intense ultra-violet light.
 - 3.2.4 Specific steps of this procedure contain Electrical & Mechanical Assembly operations that impact the environment. Prior to performing these steps, personnel shall complete the applicable facility specific environmental training.
 - 3.3 Procedure
 - 3.3.1 Beam Tube Sub-Assembly
 - 3.3.1.1 Weld together beam tube halves as shown on drawing 15010048.
 - 3.3.1.2 Leak check assembly. Max leak rate is 2×10^{-10} Std cc /Sec He.
 - 3.3.2 Bellows Sub-Assembly
 - 3.3.2.1 Weld bellows extension ring to neck end of non-lead end bellows 15010025.

The only official copy of this file is the one on-line on the Superconducting Magnet Division website. Before using a printed copy, verify that it is the most current version by checking the document issue date on the website.

DESY-MAG-R-4004A
Page 2 of 3

- 3.3.3 End Flange Sub-Assembly
 - 3.3.3.1 Weld 15010106 bellows sleeve to end flange 15010047.
- 3.3.4 Bellows Flange Sub-Assembly
 - 3.3.4.1 Insert travel limiter screws 15010084 thread first into large end of traveler limiter bearing 15010085
 - 3.3.4.2 Temporarily insert cotter pin through limiter screw to prevent parts from separating.
 - 3.3.4.3 Tack weld travel limiter assemblies to bellows flange 15010026.
- 3.3.5 Helium Tube

NOTE

Ensure unused solder is recycled or disposed of properly

- 3.3.5.1 Using the configuration and spacing straps shown on drawing 15010002 (beam tube assembly) silver solder copper straps 15010216 to the helium pipe 15010043.
 - 3.3.5.2 Silver solder the ends of all copper straps to the beam tube. The straps should be held as tight to the tube as possible.
- 3.3.6 Beam Tube Main Assembly
 - 3.3.6.1 Weld the bellows flange sub-assembly to one end of the beam tube. This is now the non-lead end of the beam tube assembly.

CAUTION

Be sure to slide bellows sub-assembly onto tube in proper orientation first.

- 3.3.6.2 Refer to cryostat assembly drawing 15010005, weld RF Shield 15010052 to bellows flange 15010026.
- 3.3.6.3 Using V-blocks for fixturing, carefully slide the RF shield fingers into their slot in the end flange sub-assembly.
- 3.3.6.4 Using permanent lock-tight, screw traveler limiter assemblies into end flange 15010047.

The only official copy of this file is the one on-line on the Superconducting Magnet Division website. Before using a printed copy, verify that it is the most current version by checking the document issue date on the website.

DESY-MAG-R-4004A

Page 3 of 3

- 3.3.6.5 Ensure screws are tightened until the shoulder is in contact with the surface of the flange.
- 3.3.6.6 Slide bellows sub-assembly into position.
- 3.3.6.7 Weld bellows assembly in place.
- 3.3.7 Insulation Blanket
 - 3.3.7.1 Cut 3 pieces of .005” Nexus paper and 15 pieces of single sided aluminized Mylar 12”x140”.
 - 3.3.7.2 Assembly insulation blanket as follows:
 - A) 1 sheet Nexus paper
 - B) 4 sheets aluminized Mylar aluminum side down toward Nexus
 - C) 1 sheet Nexus
 - D) Same as B
 - E) 1 sheet Nexus
 - F) Same as B
 - 3.3.7.3 Spot weld blankets together by ultrasonic spot welding 2” in from edge every 24”.
 - 3.3.7.4 Install insulation blanket onto beam tube assembly with the seam at the bottom of the minor diameter.
- 4. Quality Assurance Provisions:
 - 4.1 The Quality Assurance provisions of this procedure require that the technician shall be responsible for performing all assembly operations in compliance with the procedural instructions contained herein and the recording of the results on the production traveler.
 - 4.2 The technician is responsible for notifying the technical supervisor and/or the cognizant engineer of any discrepancies occurring during the performance of this procedure. All discrepancies shall be identified and reported in accordance with RHIC- MAG-Q-1004.
 - 4.3 Measuring and test equipment used for this procedure shall contain a valid calibration label in accordance with RHIC-MAG-Q-1000.
- 5. Preparation for Delivery:

N/A