

Some questions in the mechanical drawings of IHEP supplied parts  
for BEPCII IR Superconducting magnets

Please see answers below in blue.

1. Drawing No. 21010010, "Housing End Volume weldment", it is a welding part, there is no related machine parts. Need drawings for the end flanges.

All of the flange dimensions are included on the 21010010 drawing. All dimensions and tolerances are after all welding and machining operations are complete.

2. Coil Support ASSY drawing No. 21010004 and its corresponding machined parts are contained inside the CDs that BNL sent to IHEP on Nov. 7, 2003, but they are not contained inside the new CDs on Dec. 10, 2003. From BNL Jan 2004's month report, BNL has started to wind the SC coils on the support tubes, have these parts already been machined in BNL?

Yes, BNL has already made these parts. That is why they were removed from the new CD. The first assembly is on the wiring machine now.

3. Drawing No. 21010104-01 □ ASSY, Wiring Box RH □ and No. 21010104-02 □ ASSY, Wiring Box LH □, there are some confusion for their corresponding part No. 21010106 and No. 21010111, maybe they should be 21010105 and 21010108. Please check their correctness.

The drawings are correct, but they do include parts supplied by BNL, specifically resistors and turret terminals. IHEP should supply 21010105 and 21010108 for the assemblies, and BNL will add the resistors and terminals later.

4. There are several standards or specifications listed in these drawings, such as ASTM, specifications for RHIC and DESY SC magnets, IHEP cannot find these standards and specifications as references. Please provide these standards and specifications.

We will provide the standards. It may be helpful if we both develop a list of what is needed to nothing is left out.

5. This sentence in the Jan, 2004 month report, “As a result, the outer helium vessel diameter will be increased slightly. Drawings are being revised and will be forwarded to IHEP when complete.” Does it refer to No. 21010020 drawing? If the dimension of the helium vessel is changed, the size of its outside support parts will be changed accordingly. This will affect the size of the retaining key (No. 21010038), retaining bracket (No. 21010039), retaining pad (No. 21010040), and also the Helium containment weldment assembly (No. 21010008).

Andy Marone will address this during the videoconference.

6. There are vacuum leak check requirements for some tubes and vessels, but they are not clearly noted checking at normal temperature or at liquid Nitrogen temperature, or even at both temperature levels. Please do some clarifications.

We perform vacuum and pressure leak check tests at normal temperature.

7. No 21010005 drawings. The LN2 tubes need to be welded on the outer LN2 Shield, are they point welding or the strip welding? For pressure test, it requires the LN2 tube can withstand 295Psi (nearly 20atm), please tell us how to close the tube ends for doing the test.

The specification is for a slot weld. The pressure test is done later when additional parts are welded and the ends become closed. The note on the drawing only refers to the welds needing to withstand this pressure at a later time.

8. A lot of machine parts are needed to put a rubber stamp on each; can they be replaced with electric pen writing? Also the height of the stamp characters are 3mm, it seems too small to be see, can they be replaced with the height of 5mm characters?

As long as the parts are identified without damaging them or interfering with their function, you can use best judgment for marking.

9. Does No. 2010045 need to be machined as whole part? The required material is “Ultem 2400, 40% glass reinforced Pol Yethermine resin (GE Plastic)”, not G10, we cannot buy this material in China. **Can BNL provide this material?**

Yes, this needs to be a single piece of material. We can provide this and any other materials discussed previously, as long as the details are reviewed and agreed between Dr. Michael Harrison and IHEP.

10. Please provide some specification for using the welding rod.

We will provide the welding rod specification. For the aluminum welding, this is a standard commercial product. For the stainless steel welding, this is a special welding material for cryogenic applications. If IHEP can not find material of this type, it can be included in the materials to be provided by BNL as described previously.

11. The No. 21010107 (200 ohms resistors) of the wiring box are not belong to mechanical machine parts, it is better for BNL to provide this parts.

Yes, we agree.

12. Material: There is only one suggested sources of supply, if we cannot get these materials in China, how can we quickly contact with the material providers? Please give the post address, together with their telephone number, Fax number and email address to us. By the reasons of no material on hand, stop production, eventually we cannot buy these materials from the suppliers. As a result, please give us at least two material suppliers.

This is a very difficult task. We will try to provide additional material suppliers if possible for materials for which you tell us there is a problem. We can not perform this task for all materials.

13. We cannot really understand the meanings of the items below, please give some

detailed descriptions and explanations for these items.

Drawing No.      Some descriptions

12010070: [SILVABRITE](#) NON-TOXIC SOLDER

[IHEP does not use this material.](#)

12010236: TAG spool with 12010236- applicable per LTR per MIL-STD-130

[This refers to tagging parts instead of rubber stamping.](#)

12010441: Stainless steel weld filler wire, type ER385L, in accordance with BNL SPECIFICATION RHIC-MAG-M-4360.

[This is the cryogenic stainless steel welding wire.](#)

12010005: 0.024 THICK COLD ROLLED COPPER SHEET, ASTM-B 152, ALLOY C 11000, TEMPER H02

[This is a specification for copper.](#)

SOLDER PER ASTM B-32 ALLOY SN 96

[IHEP does not use this material.](#)

12040128: ELECTRO ROSIN

[IHEP does not use this material.](#)

12050394: SCOTCH-WELD 2216 B/A EPOXY ADHESIVE-GRAY

[IHEP does not use this material.](#)

21010012: STAINLESS STEEL 316L Per ASTM A-240

21010016: Stainless Steel Tube 316L Per ASTM A269

21010029: STAINLESS STEEL 316LN

21010033: Stainless Steel 316L Per ASTM A276

[These are stainless steel specifications.](#)

21010045: Ultem 2400 40% glass reinforced polyetherimide resin (GE plastics)  
in accordance with DESY-MAG-M-1000,

[This is the specification for the plastic support material.](#)

21010057: Aluminum Tubing 6061-T6 Per ASTM B-210

[This is an aluminum specification.](#)

21010069: Aluminum Welding rod ER4043 in accordance with aws specification A  
5.10

This is the aluminum welding rod specification.

21010105: LAMINATED PLASTIC SHEET PER MIL-I-24768/2 TYPE GEE/CR  
GRADE G-10

This is the G-10 specification.

21010107: PRE-QUALIFY USE PER RHIC-MAG-M-7403

IHEP does not use this material.

21010117: 101-OFF-HIT UNS-C10100 HARD DRAWN copper tubing PER ASTM  
B-280

This is a copper specification.

21010122: NO.OF TOTAL COIL:5.7

This is part of a description for a spring used in the relied valve.

21010114: Pressure/Vacuum Leak Test: leak Rate Shall Not Exceed  $2 \times 10^{-10}$  STD cc  
Helium/Sec Per RHIC-CR-E-4703-0041

This is our leak test specification.

21010040: PLASTIC SHEET, LAMINATED PER MIL-I-24768/3 (NEMA GRADE  
G-11, TYPE GEB)

This is the G-11 specification.

21010043: Aluminum Welded Seam Tube 1.02 [.040] Thick, Type 1100-H14 Per  
ASTM B209

21010059: Aluminum alloy Type 6061-T6 Per ASTM B210

21010041: Aluminum Welded Seam Tube 1.02[ .040] Thick, Type 1100-H14 ASTM  
B209

21010058: Aluminum Alloy Type 6061-T651 B221

These are aluminum specifications.

21010010: WELD TO BE FLUSH IN ID

This is a weld instruction which says the weld can not be smaller in diameter than the  
tube inner diameter.