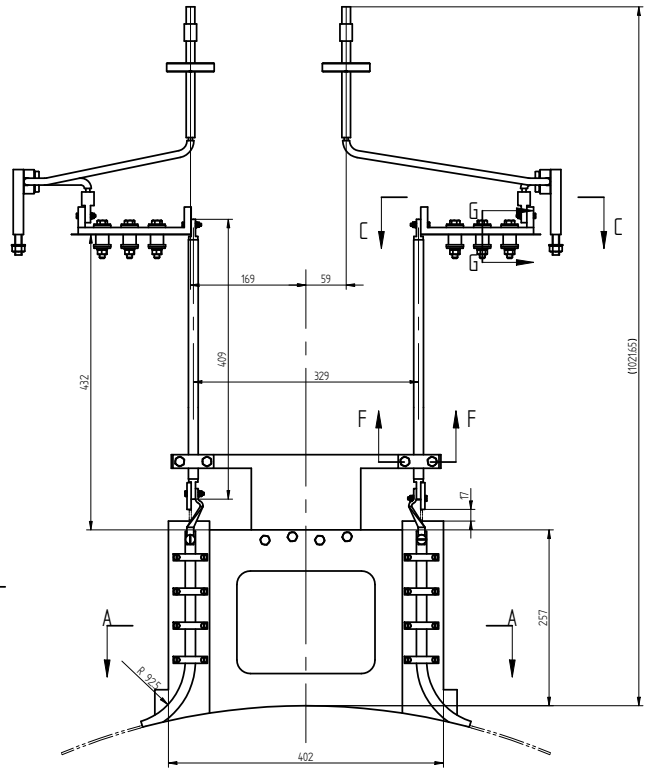
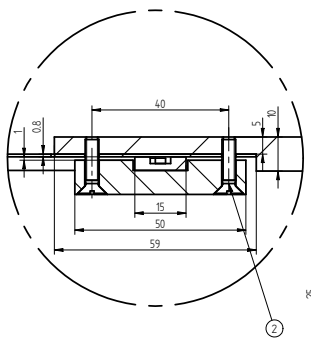
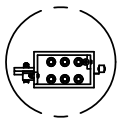
标记	处数	更改文件号	签 字	日 期



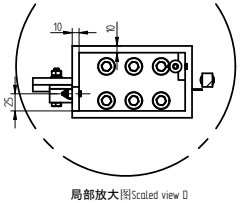
剖面 A-A



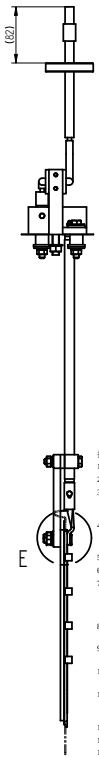
局部放大图Scaled view B
1:1



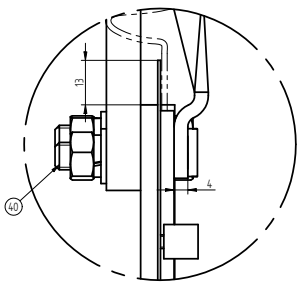
剖面 C-C

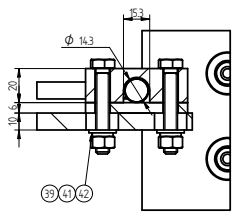


局部放大图Scaled view D



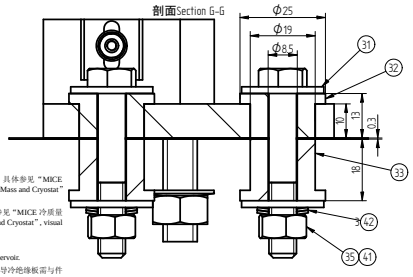
局部放大图Scaled veiw E
1:1

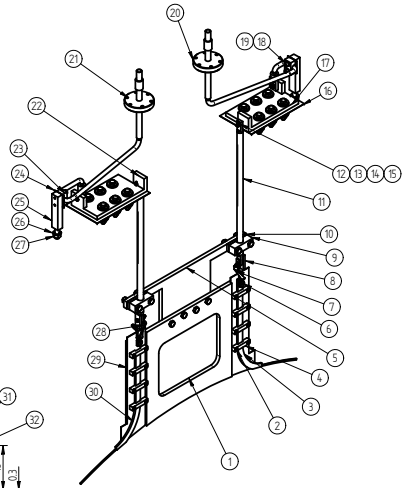




剖面Section F-F

剖面Section G-G





技术要求 Technical Req.:

1. 所有材料均需提供材料质量证明书 Properties certificate shall be provided for all materials.
2. 所有锐边 1×45° 倒钝，去尖角、毛刺或飞边 Chamfer edges to 1x45° and trim sharp edge.
3. 所有元件在焊接和装配前需清洁处理，去除油脂、污物、灰尘等，吹干或烘干，且干燥保存，具体参见“MICE 冷质量和低温恒温器清洗及焊接程序” Refer to “Cleaning and Welding Prcedure for MICE Cold Mass and Cryostat” thoroughly clean and degrease all parts and keep dry before welding;
4. 焊接完成后必须对焊缝进行外观检查，焊缝表面不得有裂缝、气孔、夹渣及咬边等焊接缺陷，参见“MICE 冷质量和低温恒温器清洗及焊接程序” Refer to “Cleaning and Welding Prcedure for MICE Cold Mass and Cryostat”, visual check welding quality. The surface of welding seams shall be defect free.
5. 焊接坡口配制 Welding bevel shall be machined to fit.
6. 件 1 导冷铝板与冷质量上氦容器贴紧角焊 Item 1 Al cooling plate shall be fillet welded with top reservoir.
7. 件 29 超导引线 G10 绝缘片需与件 1 导冷铝板和件 30 超导引线并联铜线采用环氧胶粘接;件 16 导冷绝缘板需与件 17 导冷铜板 1 和 22 导冷铜板 2 采用环氧胶粘接 Item 29 “SC lead insulation pad” shall glue to item 1 “Al support and cooling plate” and item 30 “Cu stabilizer” with epoxy; item 16 “G10 sheet” shall be glued to item 17 “Cooling plate 1” and item 22 “Cooling plate 2” as well.
8. 铜电流引线冷端与 HTS 引线高温端之间、HTS 引线低温端与超导引线之间的连接，先采用螺钉固定，而后低温钎焊（铟焊） Screw cold end of Cu lead to HTS lead heat end; screw HTS cold end to SC lead first, then soldering.
9. 件 20..21 铜电流引线与件 23..24 之间间隙配合，应允许其自由热胀冷缩 Item 20 and 21 “Cu lead 1 and 2” shall be able moving freely in item 23 “Cu lead insulation block” and itme 24“Cu lead insulation pad” because of temperature change.
10. 件 11 高温超导电流引线冷端与件 9、10 之间间隙配合，应允许其自由热胀冷缩 item 11 “Heat SC lead” cold end shall be able moving freeling in item 9 “Sliding bracket for fixing HTS lead” and itme 10 “Plate for fixing HTS lead”.
11. 铜电流引线设计电流 210A，材料采用 T2 或者铜电缆，RRR 需在 10-15 之间；引线长度 385mm，导电面积约 26.5mm^2，保持 IL/A=3.071x10^-6A/m。Design current of Cu lead is 210A, material is T2 of Cu cable, RRR shall be between 10-15; lead length is: 385mm, conducting area ~26.5mm^2, keep IL/A=3.071x10^-6A/m.
12. 铝材机械连接螺纹孔需配耐黄铜丝套 Screw holes on Al plate shall be tapped on brass inserts.
13. 零部件表面光洁，不得有划痕、刻槽等缺陷 All surfaces shall be smooth and defect free.
14. 与冷质量组装后，对地绝缘电压应≥5Kv，最大漏电流为 200μA。After assembling to cold mass, ground insuation shall be ≥5Kv, and Max. current leakage shall be 200μA.
15. 电流引线需进行极性检验和标识 Check polarity of current leads and lable.
16. 未注尺寸公差按 GB/T 1804-2000 m 级，未注形位公差按 GB/T 1184-1996 k 级制造 See title box for un-marked tolerance.

序号	代号	名称	数量	材料	单重	总重	备注
40	GB/T 5783	外六角 M8×35 ASK ABOUT	4	H62		.1	
39	GB/T 97	垫片 8 ASK ABOUT	8	H62		.0	
38	GB/T 5783	外六角 M8×50 ASK ABOUT	4	H62		.1	
37	GB/ 93	弹簧垫圈 8 ASK ABOUT	8	H62		.0	
36	GB/T 5780	外六角 M8×50 ASK ABOUT	12	H62		.3	
35	GB/ T 6170	螺母 M8 ASK ABOUT	20	H62		.1	
34		M8碟形垫片 ASK ABOUT	24	QBe1.7		.0	
33	MMSF-0301-2000－18	绝缘套2 INSULATION SLEEVE 2 FOR CURRENT LEADS	12	G10		.2	
32	MMSF-0301-2000－17	绝缘套1 INSULATION SLEEVE 1 FOR CURRENT LEADS	12	G10		.1	
31	GB/T	大垫圈 8	24	H62		.2	
30	MMSF-0301-2000－16	超导线并联铜线2 CU STABILIZER FOR SC CURRENT LEAD 2	1	TU2		.1	
29	MMSF-0301-2000－15	超导线绝缘垫片 SC LEAD 60K INSULATION PAD	2	G10		.1	
28	MMSF-0301-2000－05	连接铜软带 TWISTED CU BRIDGE FOR CURRENT LEADS	1	T1		.0	
27	GB/T 6170	螺母M10 ASK ABOUT	2	H62		.0	
26		M10碟形垫片 ASK ABOUT	2	QBe1.7		.0	
25	MMSF-0301-2000－14	铜引线支撑 CU LEAD 60K SUPPORT	2	H62		.5	
24	MMSF-0301-2000－13	铜引线绝缘垫板 CU LEAD 60KINSULATION PAD	2	G10		.0	
23	MMSF-0301-2000－12	铜引线绝缘压块 CU LEAD 60K INSULATION BLOCK	2	G10		.0	
22	MMSF-0301-2000－11	导冷铜板2 COOLING PLATE 2 FOR CU AND HTS LEAD JOINT	1	TU2		1.2	
21	MMSF-0301-2010－00	铜电流引线左 CU LEADS 1 AND 2 (LEFT)	1			.8	
20	MMSF-0301-2010－00	铜电流引线右 CU LEADS 1 AND 2 (RIGHT)	1				
19		M6碟形垫片 ASK ABOUT	4	QBe1.7		.0	
18	GB/T 70	内六角M6×25 ASK ABOUT	4	H62		.0	
17	MMSF-0301-2000－10	导冷铜板1 COOLING PLATE 1 FOR CU AND HTS LEAD JOINTS	1	TU2		1.2	
16	MMSF-0301-2000－09	导冷绝缘板 G10 SHEET FOR CURRENT LEADS	2	G10		.0	
15	GB/ T 6170	螺母 M4 ASK ABOUT	6	H62		.0	
14		M4碟形垫片 ASK ABOUT	6	QBe1.7		.0	
13	GB/T 5783	外六角 M4×25 ASK ABOUT	6	H62		.0	
12	GB/T 97	垫片 4 ASK ABOUT	6	H62		.0	
11		高温超导电流引线 ASK ABOUT	2				外购
10	MMSF-0301-2000－08	固定头垫块 PLATE FOR FIXING HTS LEAD	2	G10		.0	
9	MMSF-0301-2000－07	固定头 SLIDING BRACKET FOR FIXING HTS LEAD	2	G10		.1	
8	MMSF-0301-2000－06	冷端超导线引线接头 SC LEAD JOINT PIECE, COLD END	2	TU2		.1	
7	MMSF-0301-2000－05	连接铜软带 TWISTED CU BRIDGE FOR CURRENT LEADS	1	T1		.0	
6	GB/T 833	开槽大头螺钉 M4×8 ASK ABOUT	2	H62		.0	
5	MMSF-0301-2000－04	固定夹板 SUPPORT FOR HTS LEADS, COLD ENDS	1	G10		.7	
4	MMSF-0301-2000－03	超导线固定压块 BRACKET FOR ATTACHING SC CURRENT LEADS	8	G10		.1	
3	MMSF-0301-2000－02	超导线并联铜线1 CU STABILIZER FOR SC CURRENT LEAD 1	1	TU2		.0	
2	GB/T 68	沉头螺钉M4x16 ASK ABOUT	16	H62		.0	
1	MMSF-0301-2000－01	冷端导冷铝板 SUPPORT AND COOLING PLATE AT CURRET LEAD COLD END	1	1100		1.6	
序号	代号	名称	数量	材料	单重	总重	备注

设 计		SSRF上海光源	
绘 图			
校 核			
审 核	计算机文件名	MMSF-0301-2000-00A0.dft	冷质量及冷却组件
会 签	制图软件	Solid Edge	电流引线组件
	数 量 / 重 量	比 例 / 图 幅	
审 定	1 / 0	1:10 / A2	MMSF-0301-2000－00 版本 A
批 准	共 1 张	第 张	

REV	AUTHOR	APPROVER	DATE	CHANGE DESCRIPTION
A				INITIAL REVISION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MM
0± .25 .00± .125 .000± .050
FRACTIONS: ± -/--
ANGLES: ± --°/MM
MACH. SURFS: 125 ✓
DO NOT SCALE DRAWING
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS, WELD SPLATTER & LOOSE SCALE

PROJECT NAME: MICE
SCALE: 1:1
WEIGHT: MU 1025
FIRST ANGLE PROJECTION

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
MUON IONIZATION COOLING EXPERIMENT (MICE)
MICE/MUCOOL SUPERCONDUCTING COUPLING MAGNET
CURRET LEAD ASSEMBLY

SHEET 1 OF 1 | SIZE: 5 | DWG NO: 27H827 | REV: A