

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-28-05	TIO
B	F-7 D-7	ADDED 9.075 DIM AFTER TUNING. ADDED BEFORE WELDING, AFTER WELDING, AND AFTER TUNING DIMS. ADDED GASKET ITEMS 46 & 47 TO PARTS LIST. D.M.E.	8-19-05	TIO
C		ITEMS 46&47: NEW DRAWING 7102-024 FOR GASKETS... WAS DWG 7106-007&008. D.M.E.	2-27-06	TIO
D		PART ITEM 48 ADDED.	4-18-06	VM
E		CHANGED ASM PICTORIALY & PARTS LIST TO REFLECT DESIGN REVISIONS. D.M.E.	7-26-06	JOS
F	A-7	ADDED NOTE TO FIELD TEXT	10-12-06	TIO

51	DWG# 7102-024-01	GASKET- 6.00" CF GASKET MODIF. Cu	1		PART NUMBER 2
50	DWG# 7102-024-01	GASKET- 4-5/8" CF GASKET MODIF. Cu	1		PART NUMBER 1
49	SHEET 17	INPUT POWER COUPLER SUBASM (FINISHED)	2		
48	SHEET 17	COUPLER TUBE PLUG	2		
47	SHEET 17	INPUT COUPLER 4-1/2" CF FLANGE	2		
46	SHEET 17	INPUT POWER COUPLER TUBE	2		
45	SHEET 17	INPUT POWER COUPLER BRAZING SUBASM	2		
44	SHEET 16	10-32 x 3/8 SET SCREW		3	
43	SHEET 16	4-5/8" CF ROTATABLE FLANGE		1	
42	SHEET 16	SMALL BEAM TUBE SUBASM: (FINISHED)		1	
41	SHEET 15	SMALL BEAM TUBE STUB		1	
40	SHEET 15	SMALL BEAM TUBE FLANGE		1	
39	SHEET 15	SMALL BEAM TUBE		1	
38	SHEET 14	SMALL BEAM TUBE PLUG		1	
37	SHEET 14	SMALL BEAM TUBE BRAZING SUBASM: (STEP 1)		1	
36	SHEET 13	FLANGE (PURCHD.VACUUM GENERATORS)	1		#ZFL3320A, 316LN
35	SHEET 14	SST TUBE SHORT	1		
34	SHEET 14	TI-SST TRANSITION MACHINED	1		
33	SHEET 14	TUBE WEDGE #2	1		
32	SHEET 14	TUBE WEDGE #1	1		
31	SHEET 13	2K HELIUM PORT SUBASM	1		
30	SHEET 13	FRONT WALL	1		
29	SHEET 13	FRONT WALL SUBASM	1		
28	SHEET 12	COUPLER BLOCK	1		
27	SHEET 11	RF PROBE PORT SUB-SUBASM: (FINISHED)	2		
26	SHEET 11	RF PROBE PORT PLUG	2		
25	SHEET 11	RF PROBE PORT TUBE	2		
24	SHEET 11	RF PROBE PORT FLANGE	2		
23	SHEET 11	RF PROBE PORT BRAZING SUB-SUBASM (STEP 1)	2		
22	SHEET 10	10-32 x 3/8 CUP PT. SET SCREW	3		
21	SHEET 10	6" CF ROTATABLE FLANGE MODIFICATION	1		
20	SHEET 10	LARGE BEAM TUBE SUBASM: (FINISHED)	1		
19	SHEET 9	LARGE BEAM TUBE STUB	1		
18	SHEET 9	LARGE BEAM TUBE	1		
17	SHEET 9	LARGE BEAM TUBE FLANGE	1		
16	SHEET 8	LARGE BEAM TUBE PLUG	1		
15	SHEET 8	LARGE BEAM TUBE BRAZING SUBASM: (STEP 1)	1		
14	SHEET 7	WARMING PORT SUB-SUBASM (FINISHED)		1	
13	SHEET 7	WARMING PLUG		1	
12	SHEET 7	WARMING FLANGE		1	
11	SHEET 7	WARMING TUBE		1	
10	SHEET 7	WARMING PORT BRAZING SUB-SUBASM (STEP 1)		1	
9	SHEET 7	BACK WALL SUBASM: (FINISHED)	1		
8	SHEET 6	LARGE PIPE INSERT (BEFORE MACHINING)	1		
7	SHEET 6	BACK WALL (BEFORE MACHINING)	1		
6	SHEET 6	BACK WALL SUBASM: (STEP 1)	1		
5	SHEET 5	LARGE BEAM TUBE ADAPTER	1		
4B	SHEET 4	END HALF CELL (FEMALE)	1		
4A	SHEET 4	END HALF CELL (MALE)	1		
3	SHEET 3	MALE CENTER HALF CELL	1		
2	SHEET 2	FEMALE CENTER HALF CELL	1		
1	SHEET 1	ASSEMBLY	X		

1 2-CELL CAVITY WELDMENT ASSEMBLY
FILE NAME: 7102-010
SHEET NO.: 1
DFT. SCALE: 3:4
MATERIAL: AS PER PART
QTY:
NOTES: Added Dumbell Fixtures on Sheets 20-22

THESE PRODUCTION DRAWINGS ARE BEING GENERATED IN PARALLEL WITH THE PRODUCTION FABRICATION. THE TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK PROGRESSES.

NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

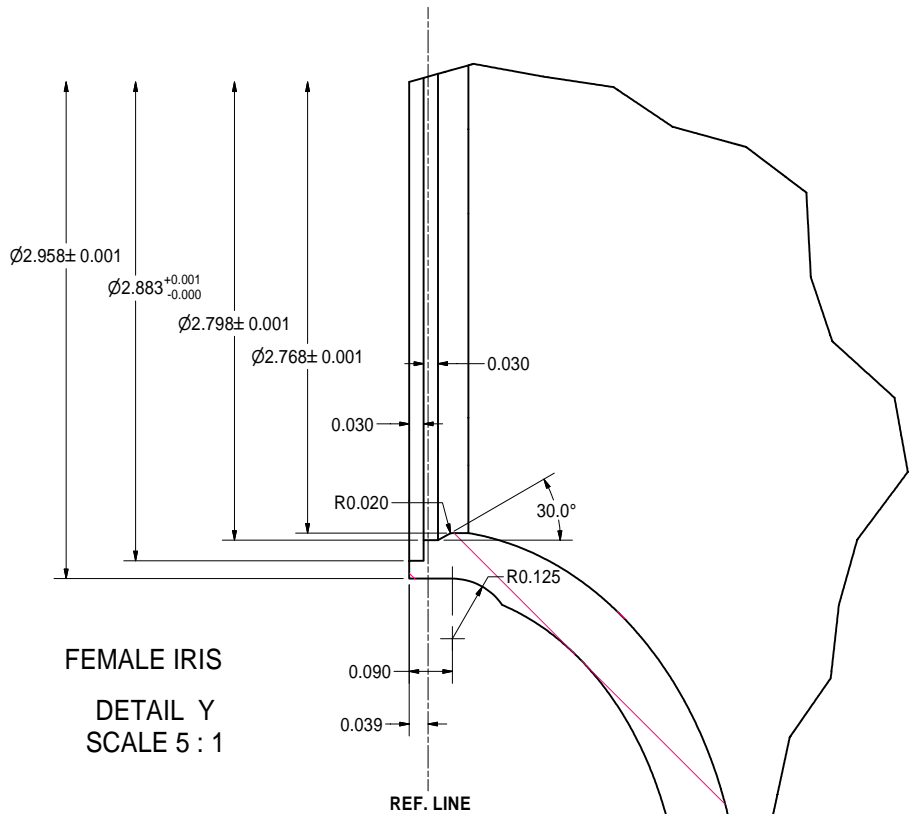
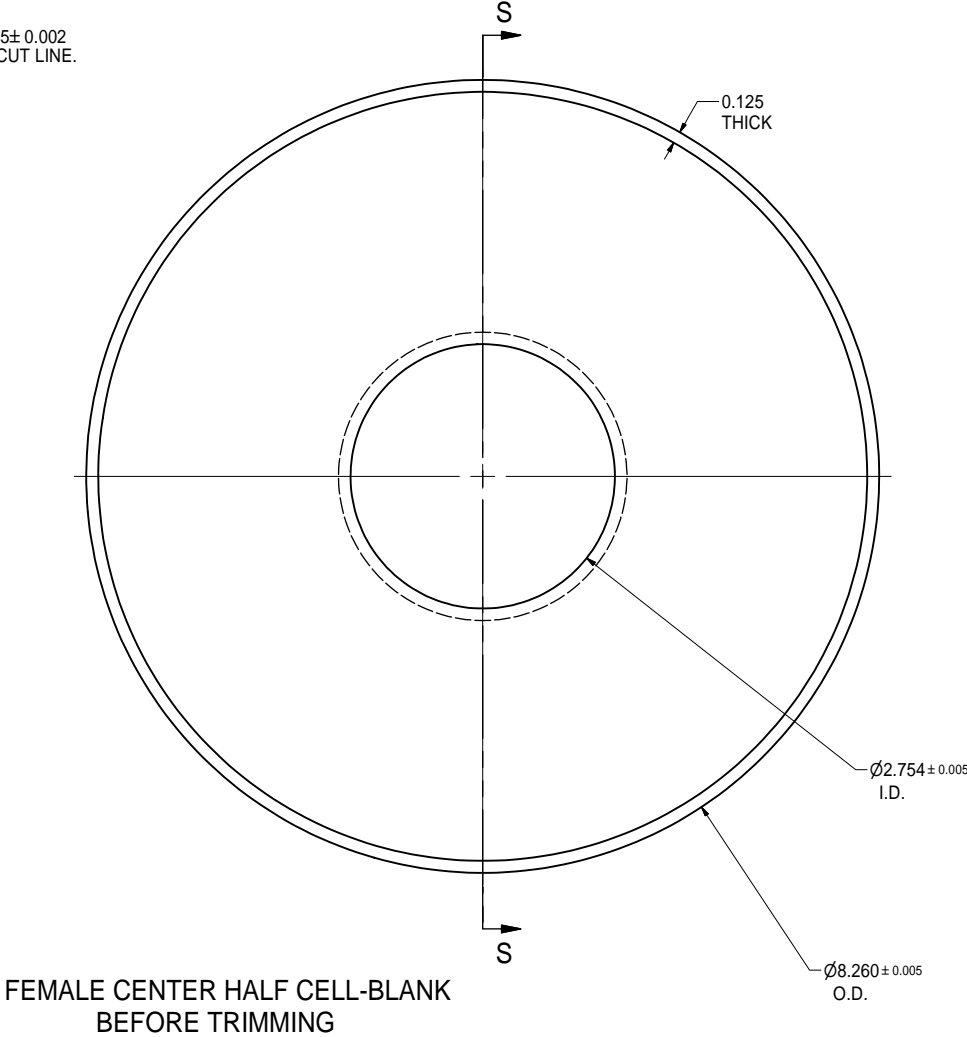
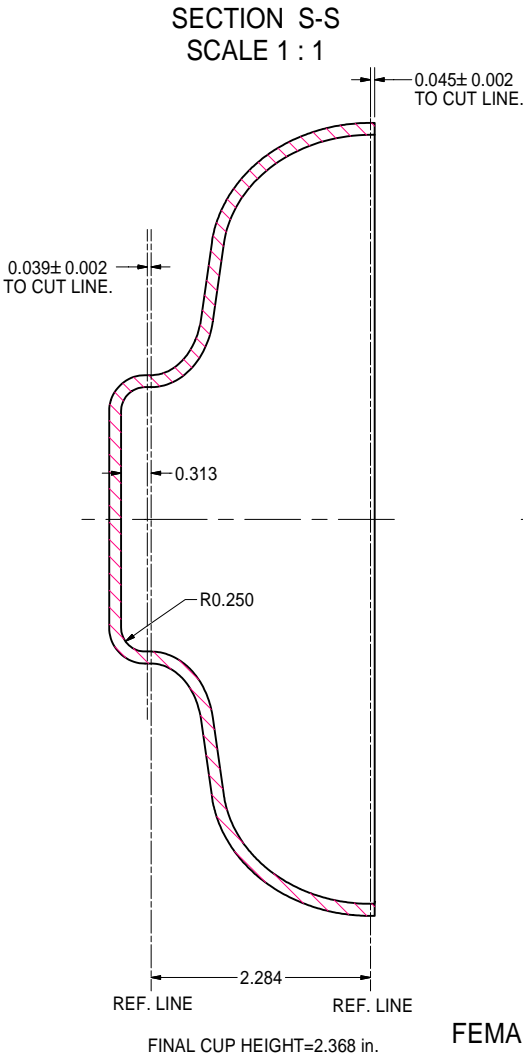
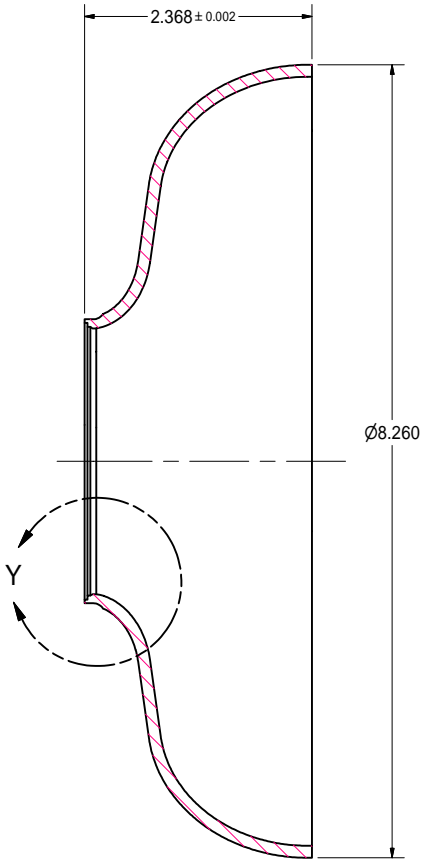
TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-28-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-27-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

		ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS		REV.		
								QUANTITY						
D		PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw												
7102-010 OF 22		CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES		<div>CORNELL UNIVERSITY LEPP LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div> <div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT ASSEMBLY WBS-3.1.1.8</div>									
REV. F		CHECKED BY: R.L. Geng APPROVED BY: M. Liepe		DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE	D		7102-010 SH. NO. 1 OF 22		REV. F		

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B	C-7,8	ADDED DIE USED IN PART INFO AREA. D.M.E.	8-19-05	TIO
C		REVISED IRIS WELD PREP. DELETED EQUATOR WELD PREP. D.M.E.	5-31-06	JOS

2 FEMALE CENTER HALF CELL




FILE NAME: 7102-010
SHEET NO.: 2
DFT. SCALE: FULL
MATERIAL: NIOBIUM RRR
QTY: 1 PER ASM
NOTES: DIE 7102-001; HALF CELL DIES & JIGS



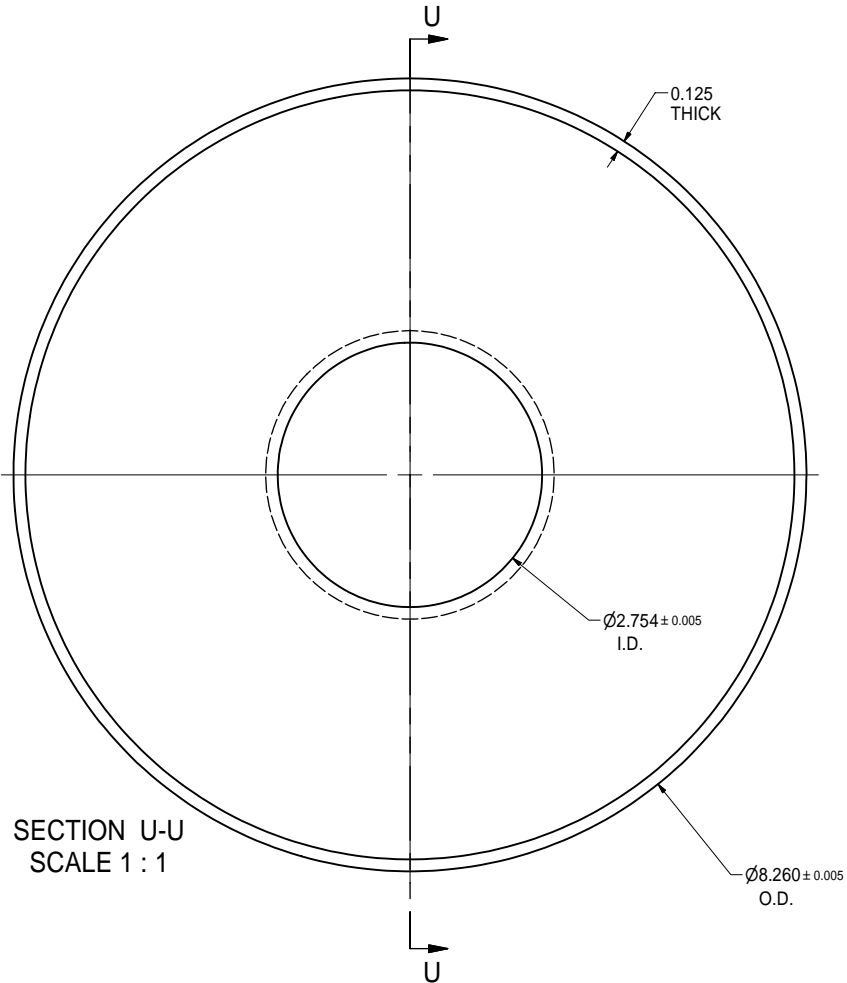
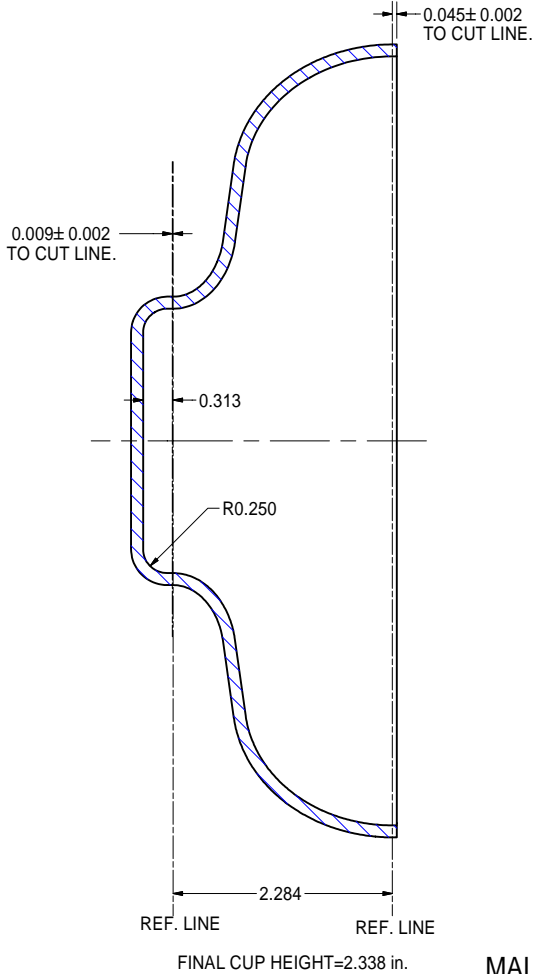
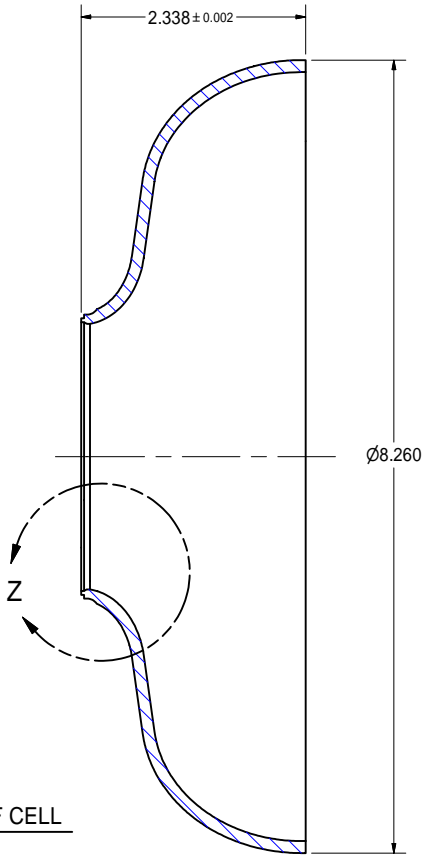
**NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.**

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

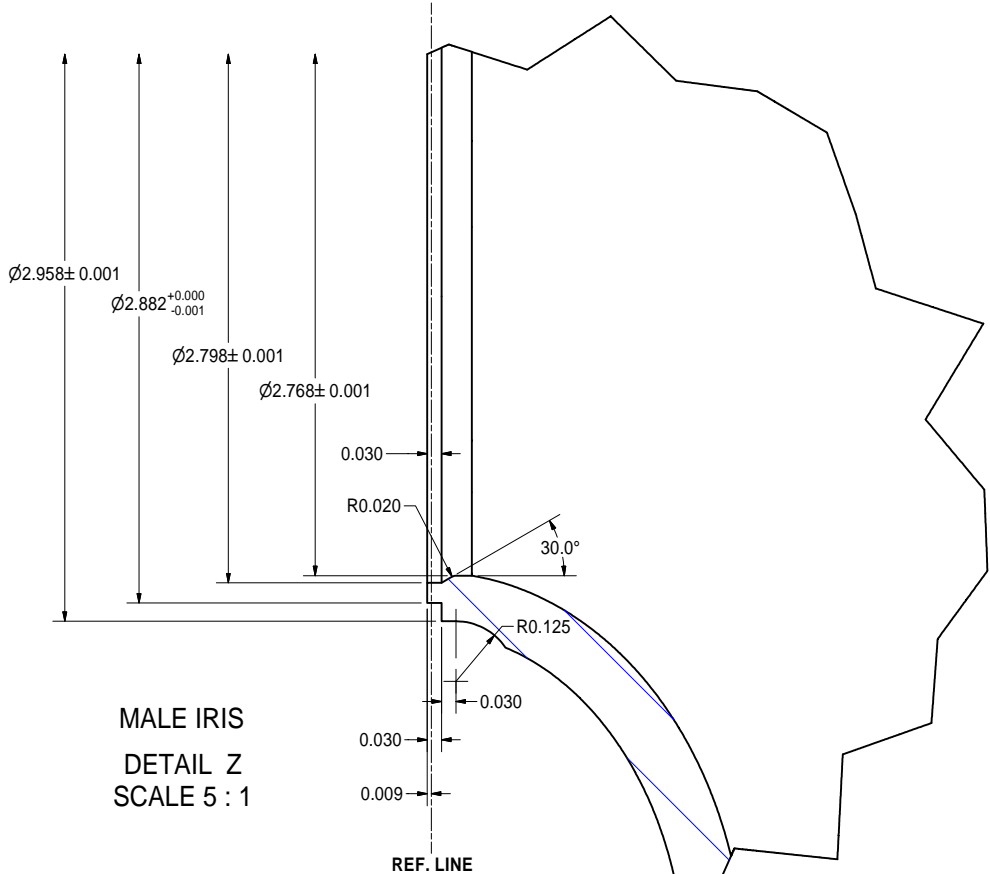
TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	6-20-05	
MACHINE SHOP (Kaminski):	JPk	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	6-17-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

		ITEM		DWG. NO.		DESCRIPTION		G1	G2	G3	REMARKS		REV.
								QUANTITY					
		PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw											
PRINT DISTR.													
7102-010 SH. NO. 2 OF 22		CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓		<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT FEMALE CENTER HALF CELL-BLANK & TRIM DETAIL</div>								
REV. C		CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE	D		7102-010 SH. NO. 2 OF 22		REV. C		

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST REVISION.	7-19-05	TIO
B	C-6	ADDED DIE USED IN PART INFO AREA. D.M.E.	8-19-05	TIO
C		REVISED IRIS WELD PREP. DELETED EQUATOR WELD PREP. D.M.E.	5-31-06	JOS



SECTION U-U
SCALE 1 : 1
MALE CENTER HALF CELL-BLANK
BEFORE TRIMMING










MALE IRIS
DETAIL Z
SCALE 5 : 1

NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

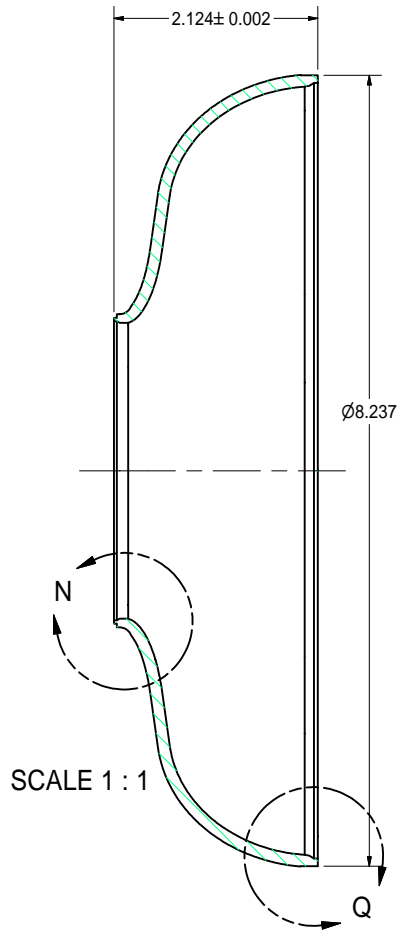
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	6-20-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	6-17-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

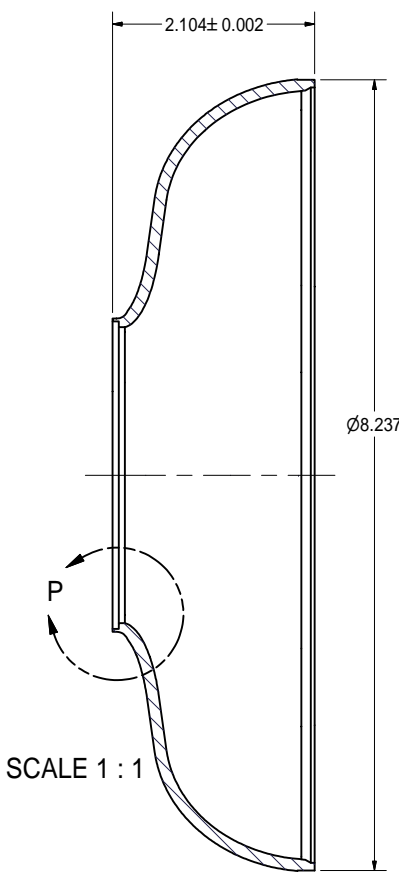
	ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS	REV.
							QUANTITY			
	PRINT	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw								
	DISTR.									
	7102-010 SH. NO. 3 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED:	<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div>						
			DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES 							
			ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT MALE CENTER HALF CELL-BLANK & TRIM DETAIL							
	REV. C	CHECKED BY: R.L. Geng	DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE		7102-010 SH. NO. 3 OF 22	REV. C	
		APPROVED BY: M. Liepe								

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TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

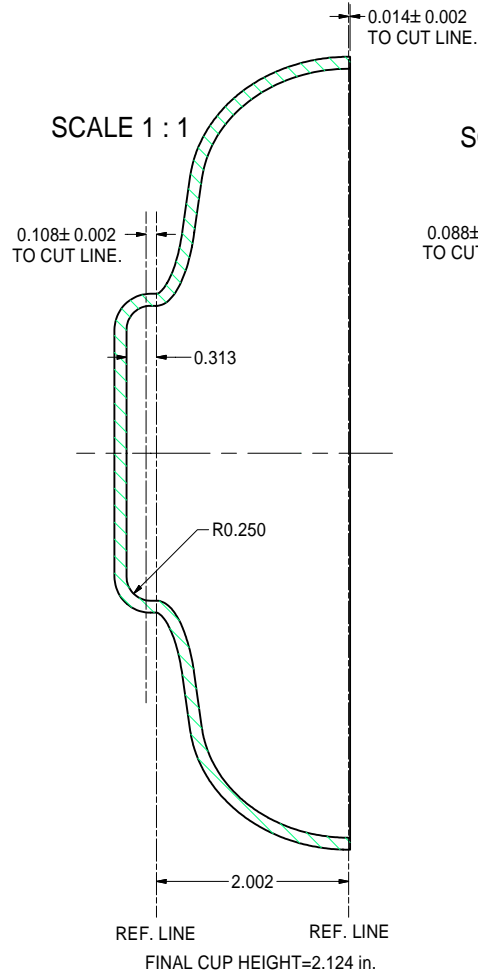
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A	B9	3.263 DIA. WAS 3.273 DIA. TMK	7/8/05	RG
B		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
C	F-8	2.104±0.002 WAS 2.104 ADDED DIE USED IN PART INFO AREA. D.M.E.	8-19-05	TIO
D		2 END CELLS WERE THE SAME. REVISED WELD PREPS. D.M.E.	6-2-06	JOS



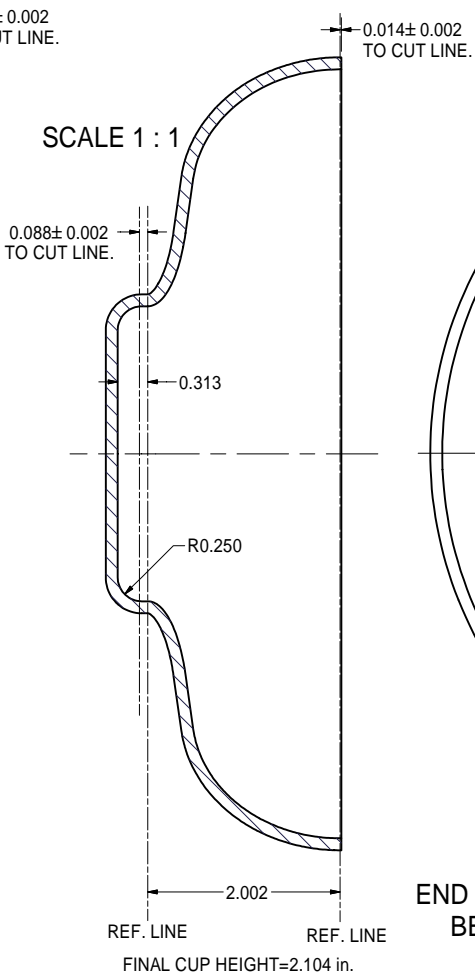
4A END HALF CELL
WELD PREP TRIMS.



4B END HALF CELL
WELD PREP TRIMS.

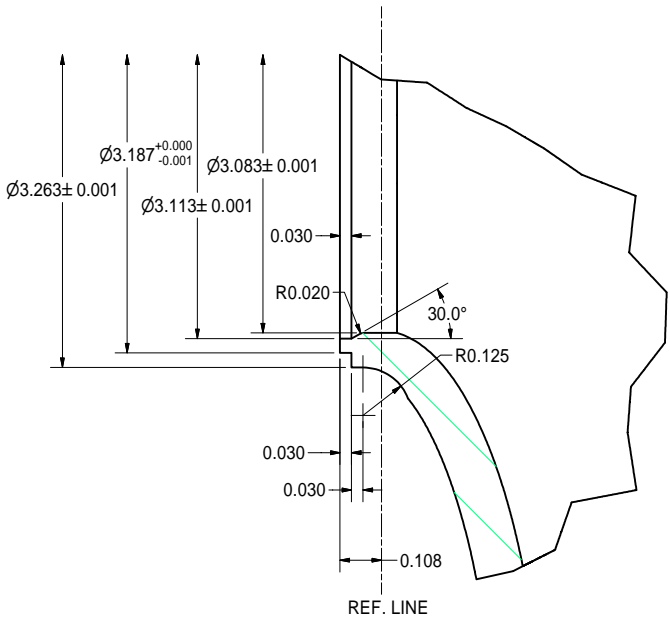
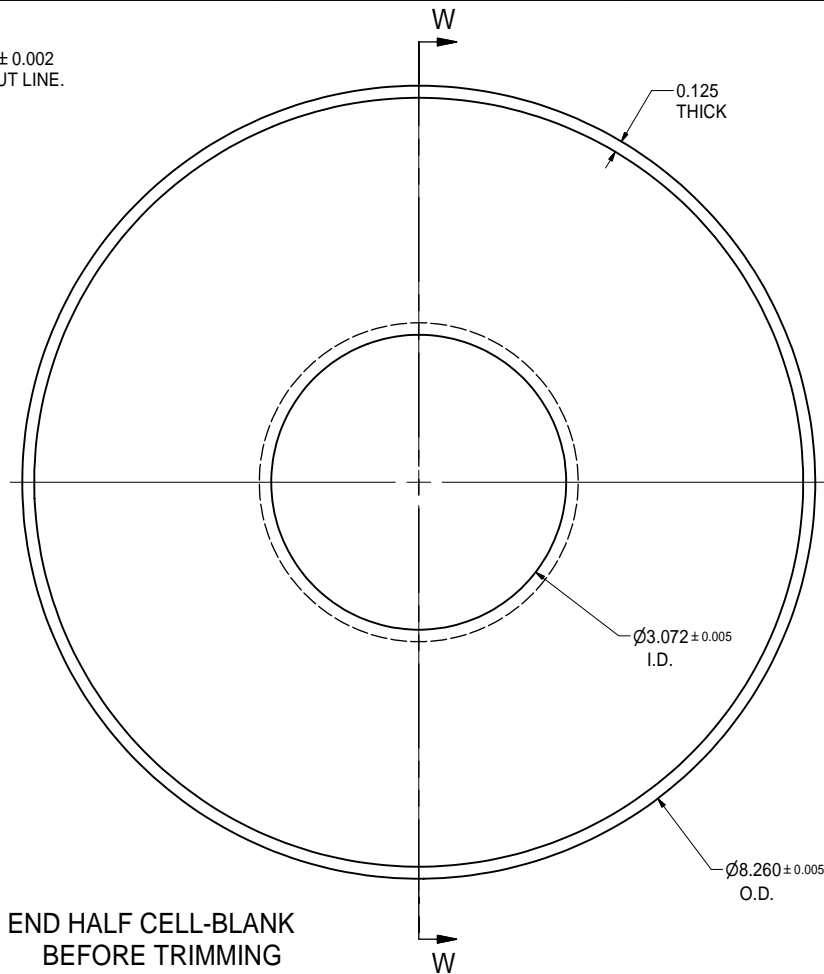


4A END HALF CELL (MALE)
FILE NAME: 7102-010
SHEET NO.: 4
DFT. SCALE: FULL
MATERIAL: NIOBIUM RRR
QTY: 1 PER ASM
NOTES: DIE 7102-001; HALF CELL DIES & JIGS

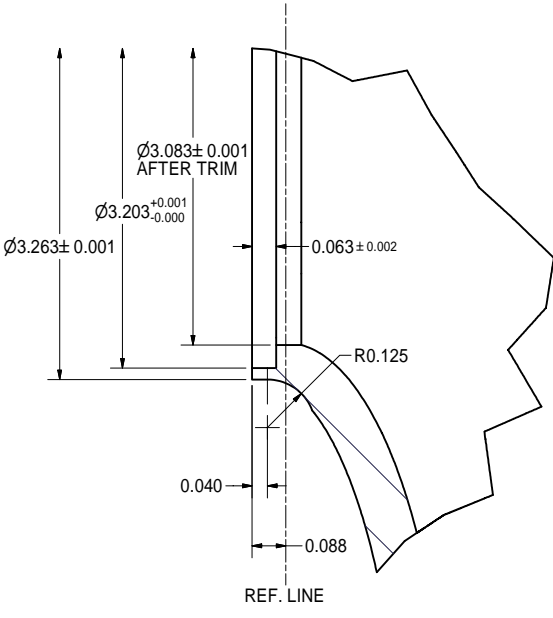


4B END HALF CELL (FEMALE)
FILE NAME: 7102-010
SHEET NO.: 4
DFT. SCALE: FULL
MATERIAL: NIOBIUM RRR
QTY: 1 PER ASM
NOTES: DIE 7102-001; HALF CELL DIES & JIGS

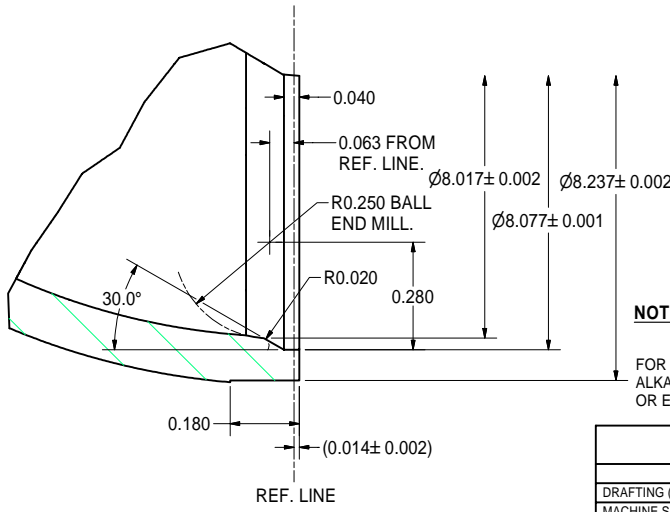
END HALF CELL-BLANK
BEFORE TRIMMING



END HALF CELL IRIS 4A (MALE)
DETAIL N
SCALE 4 : 1



END HALF CELL IRIS 4B (FEMALE)
DETAIL P
SCALE 4 : 1



END HALF CELL EQUATOR 4A & 4B
DETAIL Q
SCALE 4 : 1

NOTE: FOR NIOBIUM MACHINING LUBRICANT
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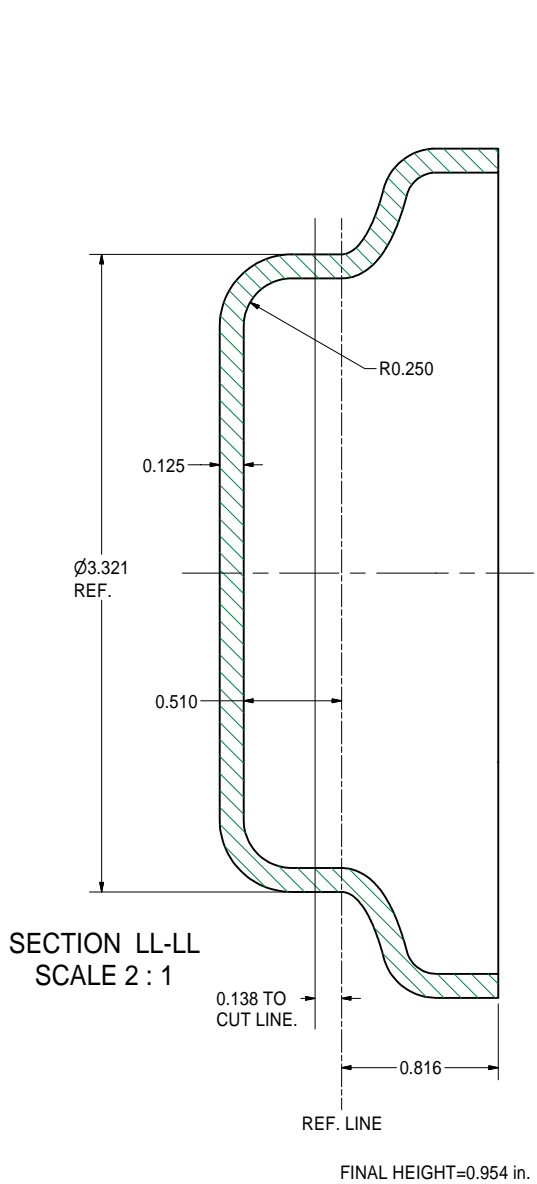
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	6-20-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			NA
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	6-17-05	
WELDING OTHER (Gallagher):			NA
UTILITIES INTEGRATION (Gallagher):			NA
STOCKROOMS (Lockwood):			NA

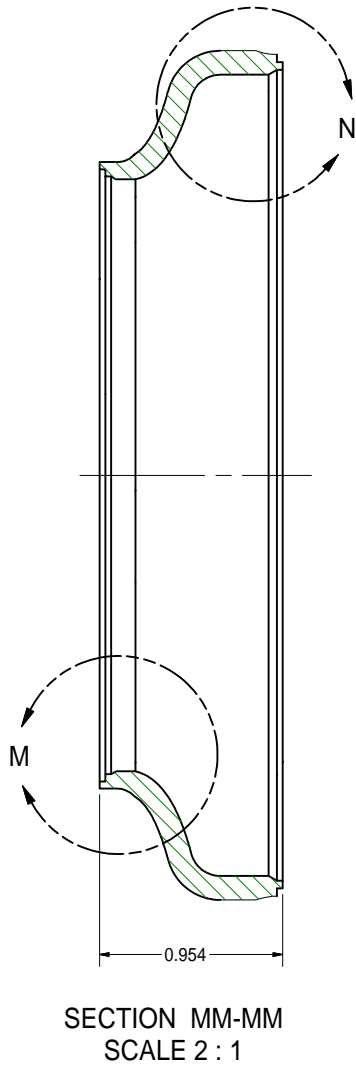
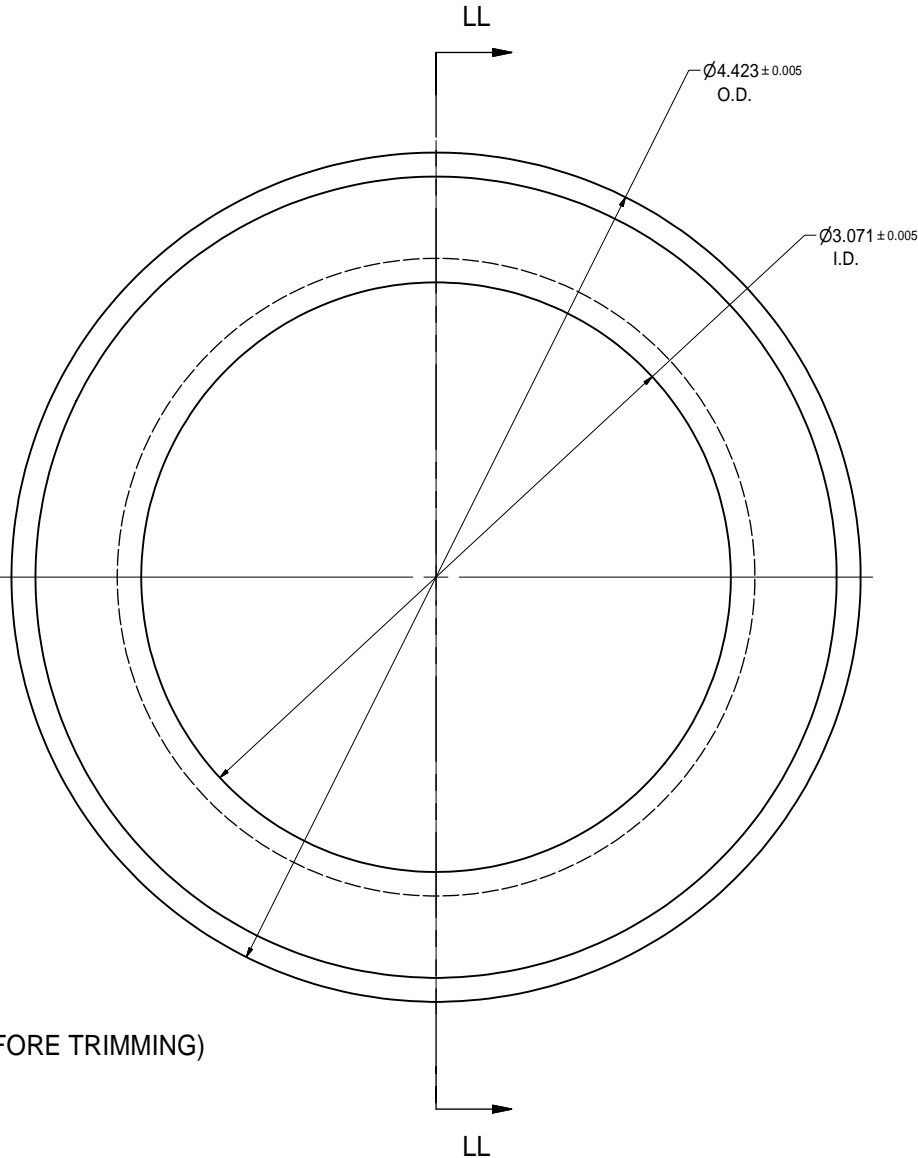
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
			QUANTITY				
PRINT DISTR.	7102-010 SH. NO. 4 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ±.010 .000 ±.005 FRACTIONS ±1/64 ANGLES ±0.5° ALL SURFACES ✓				
PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw			CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853				
ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT END HALF CELL-BLANK & TRIM DETAILS WBS-3.1.1.8							
CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY: V.Medjdzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: D	7102-010 SH. NO. 4 OF 22	REV. D	

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A	B9+E9	3.263 DIA. WAS 3.273 DIA. --- 3.321 DIA. REF. WAS 3.321 DIA. TMK	7/8/05	RG
B		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
C	D-2	ADDED DIE USED IN PART INFO AREA. D.M.E.	8-19-05	TIO
D	D-2	ITEM 5: TITLE IN PART INFO & TITLE BLOCK; "LARGE BEAM TUBE ADAPTER" WAS "LARGE BEAM TUBE STUB". D.M.E.	8-26-05	TIO
E		DETAILS M & N: REVISED WELD PREPS & LENGTHS. D.M.E.	6-28-06	JOS

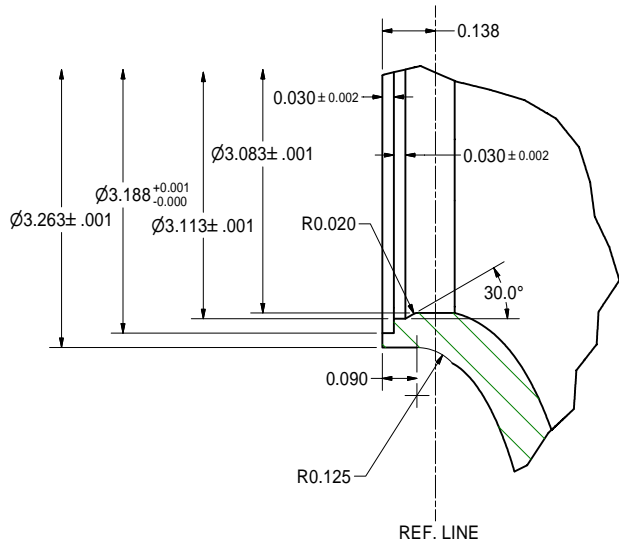


(BEFORE TRIMMING)



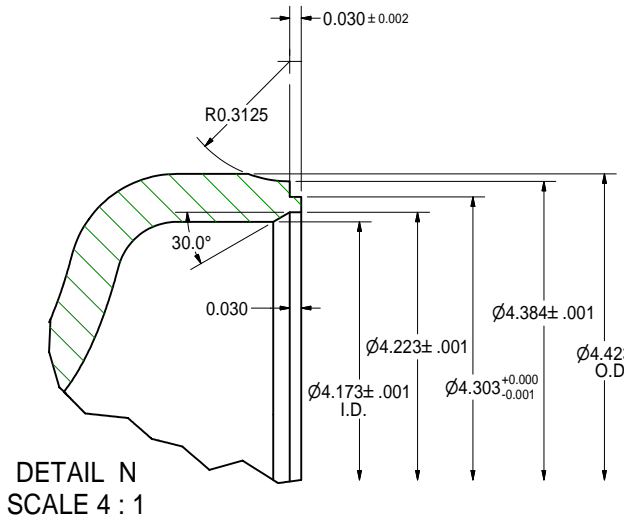
5 LARGE BEAM TUBE ADAPTER (TRIMMED)

FILE NAME: 7102-010
SHEET NO.: 5
DFT. SCALE: 2:1
MATERIAL: NIOBIUM RRR
QTY: 1 PER ASSEMBLY
NOTES: DIE 7102-001; LARGE BEAM TUBE STUB DIES AND JIG. (SH.10)



DETAIL M
SCALE 4 : 1

TRIM DETAILS







DETAIL N
SCALE 4 : 1

NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

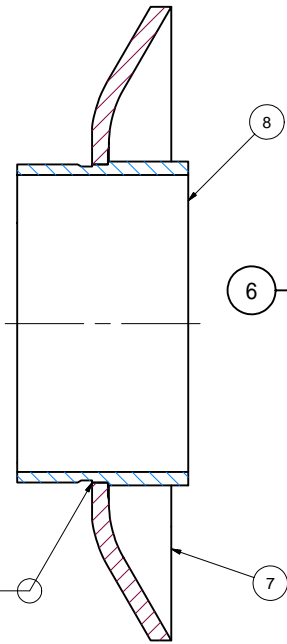
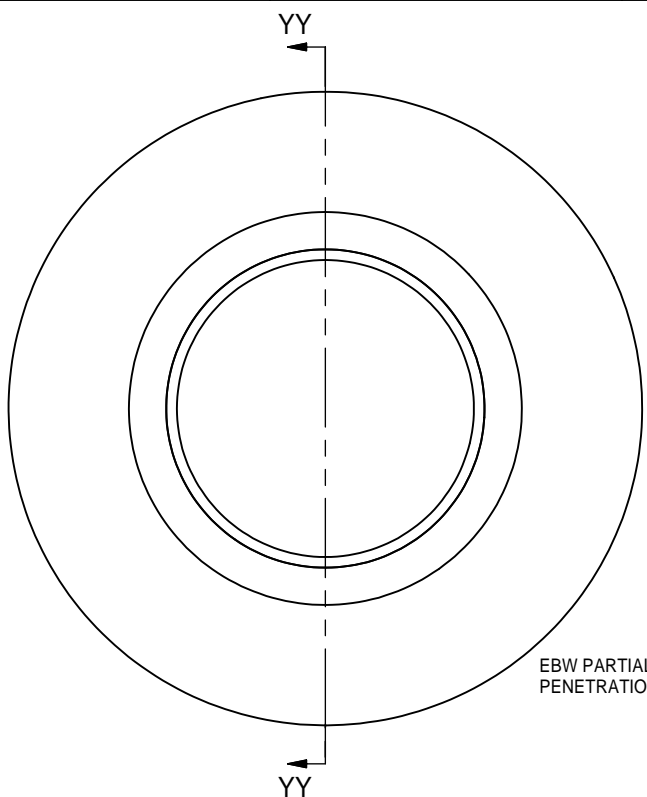
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	6/29/05	
MACHINE SHOP (Kaminski):	JPk	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	6/29/05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

	ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS	REV.
							QUANTITY			
	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw								
	7102-010 SH. NO. 5 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓			<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT LARGE BEAM TUBE ADAPTER BLANK & TRIM DETAILS WBS-3.1.1.8</div>				
		CHECKED BY: R.L. Geng	DRAWN BY: V.Medjdzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: D	7102-010 SH. NO. 5 OF 22		REV. E	
		APPROVED BY: M. Liepe								

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A	B-5	Ø5.000 WAS Ø4.622 D.M.E.	7-5-05	TOC
B		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
C		ITEM 8: Ø4.125 & Ø4.500 PRESSED DIMS WERE Ø4.125 & Ø4.500 REF. Ø4.420, 2.375 & 1.260 WERE REF. DIMS. ADDED WELD PREP DETAIL 'W'. ITEM 7: SHOW A .015' CLEAN-UP CUT IN DETAIL 'A'. REMOVED 1.070, .294, .144, Ø8.660 DIMS & FEATURES THAT DEFINE THEM FROM SECT ZZ-ZZ. IN DETAIL 'A', .015 DEPTH WAS .010, & ADDED R.188 AND ITS R2.500 LOCATING DIM. ADDED NOTE 2 TO PART INFO. D.M.E.	8-19-05	TIO

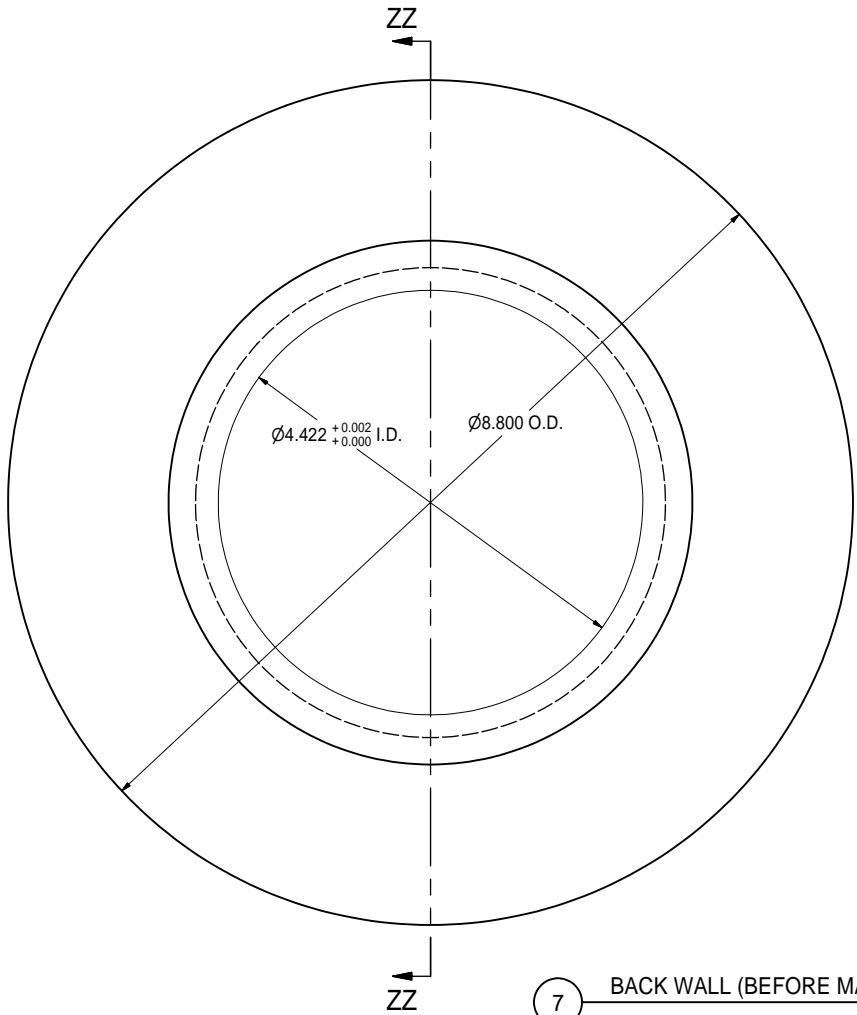


BACK WALL SUBASM: (STEP 1)

FILE NAME: 7102-010
SHEET NO.: 6
DFT. SCALE: 3/4
MATERIAL: AS PER PART
QTY: 1 PER ASSEMBLY
NOTES: SEE SHEET 7 FOR FINAL MACHINING

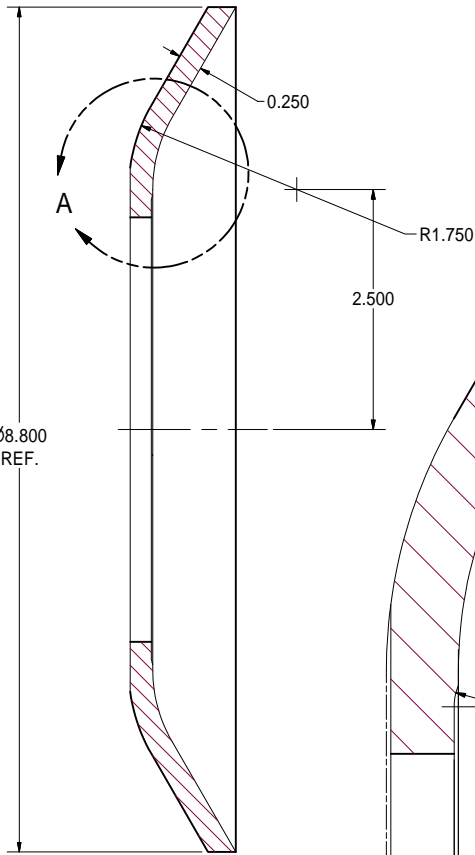
EBW PARTIAL
PENETRATION

SECTION YY-YY
SCALE 3 / 4



BACK WALL (BEFORE MACHINING)

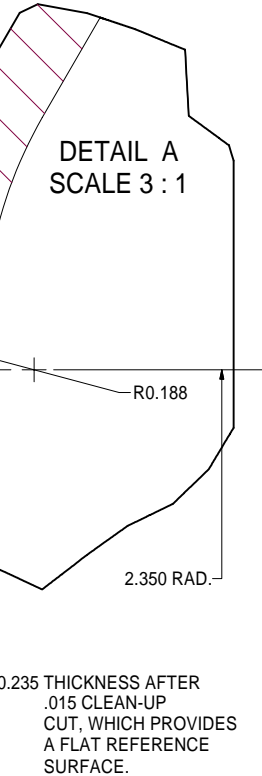
FILE NAME: 7102-010
SHEET NO.: 6
DFT. SCALE: FULL
MATERIAL: TITANIUM, GRADE 2; 1/4" x 11" DIA.
QTY: 1 PER SUBASM
NOTES: DIE 7102-009; .510 CENTERHOLE TO PRESS.



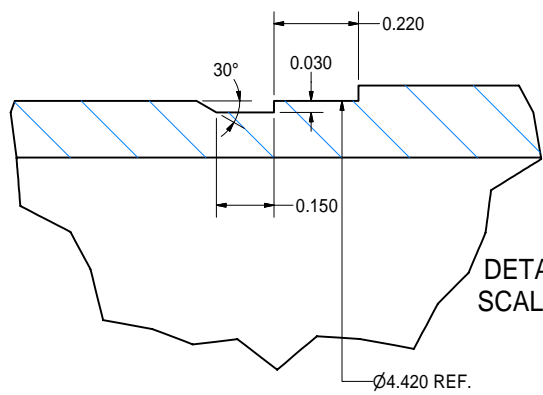
SECTION ZZ-ZZ
SCALE 1 : 1

0.015
CLEAN-UP
CUT.

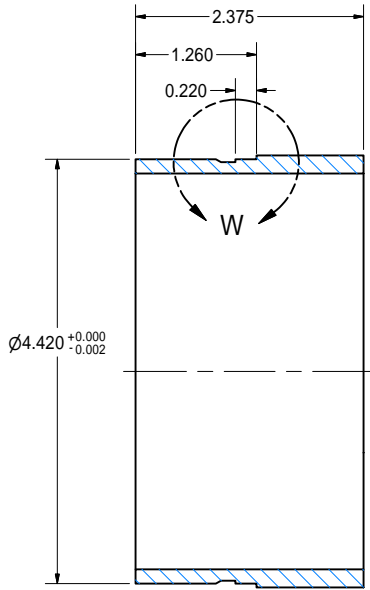
0.220



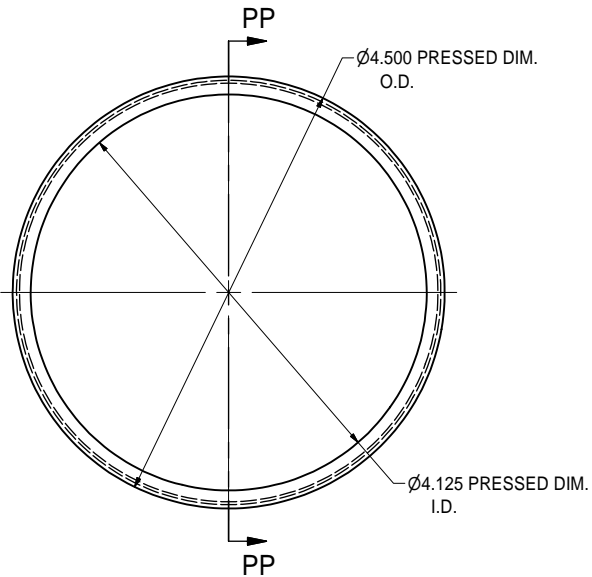
DETAIL A
SCALE 3 : 1



DETAIL W
SCALE 4 : 1



SECTION PP-PP
SCALE 1 : 1



LARGE PIPE INSERT (BEFORE MACHINING)

FILE NAME: 7102-010
SHEET NO.: 6
DFT. SCALE: FULL
MATERIAL: NIOBIUM RRR
QTY: 1 PER SUBASM
NOTES: 1.) FINAL MACHINING DETAIL SHOWN ON SHT.7
2.) DIE 7102-022; DEEP DRAWN DIES.

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	6-30-05	
MACHINE SHOP (Kaminski):	JPk	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			NA
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	6-30-05	
WELDING OTHER (Gallagher):			NA
UTILITIES INTEGRATION (Gallagher):			NA
STOCKROOMS (Lockwood):			NA

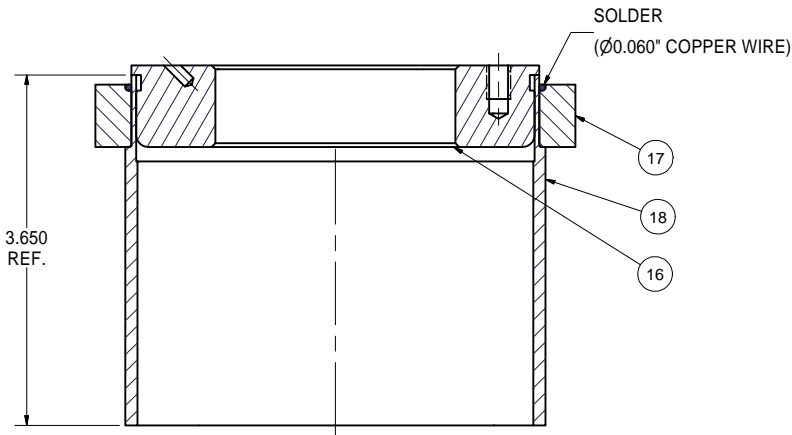
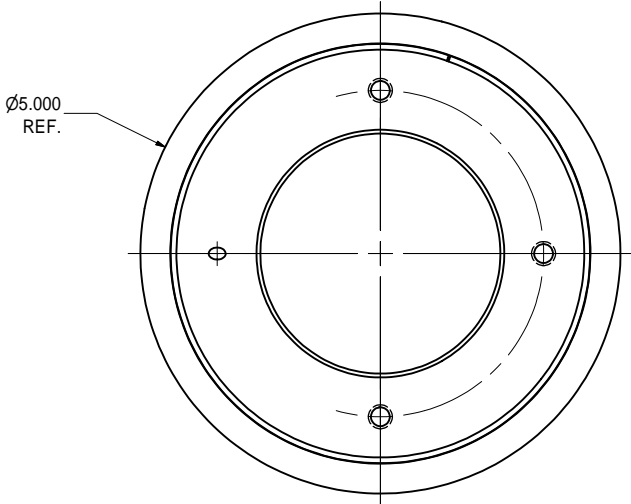
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
			QUANTITY				
PRINT DISTR.	7102-010 SH. NO. 6 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES				
CHECKED BY: R.L. Geng		DRAWN BY: V.Medjidzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: D	7102-010 SH. NO. 6 OF 22	REV. C
APPROVED BY: M. Liepe							



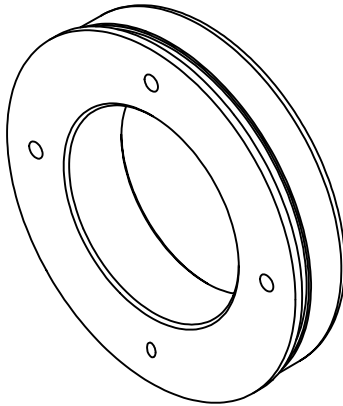
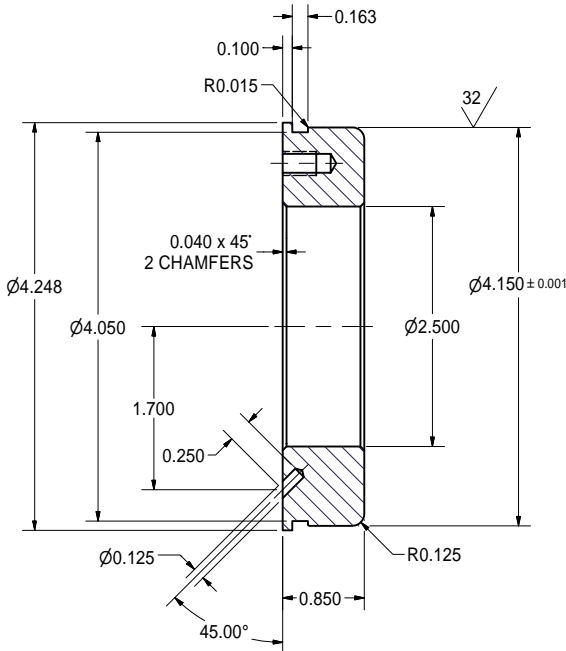
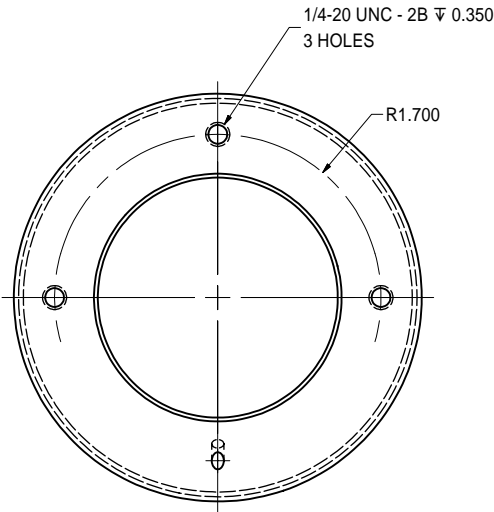
CORNELL UNIVERSITY
Floyd R. Newman Laboratory
Ithaca, NY 14853

ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT
BACK WALL SUBASM AND DETAILS WBS-3.1.1.8

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A	C3	MAT'L. 316LN WAS 316; PART#20	4/27/05	RG
B		GENERAL CHANGES WHICH REFLECT NEW ISSUE. D.M.E.	6/23/05	RG
C		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
D		ITEM 16: Ø4.050 WAS Ø4.073 & Ø4.150± 0.001 WAS Ø4.173± 0.001 D.M.E.	8-19-05	TIO



- 15** **LARGE BEAM TUBE BRAZING SUB-ASM: (STEP 1)**
- FILE NAME: 7102-010
SHEET NO.: 8
DFT. SCALE: 1:1
MATERIAL: AS PER PART
QTY: 1
- NOTES: 1. BRAZE PARTS ITEM 17 AND 18 WITH COPPER SOLDER.
2. REMOVE PART ITEM 16 AFTER BRAZING.
3. USE THIS BRAZEMENT AS BLANK PIECE FOR PART ITEM 19 ON SHEET 9.



- 16** **LARGE BEAM TUBE PLUG**
- FILE NAME: 7102-010
SHEET NO.: 8
DFT. SCALE: 1:1
MATERIAL: 316LN STAINLESS STEEL
QTY: 1
NOTES:

**NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.**

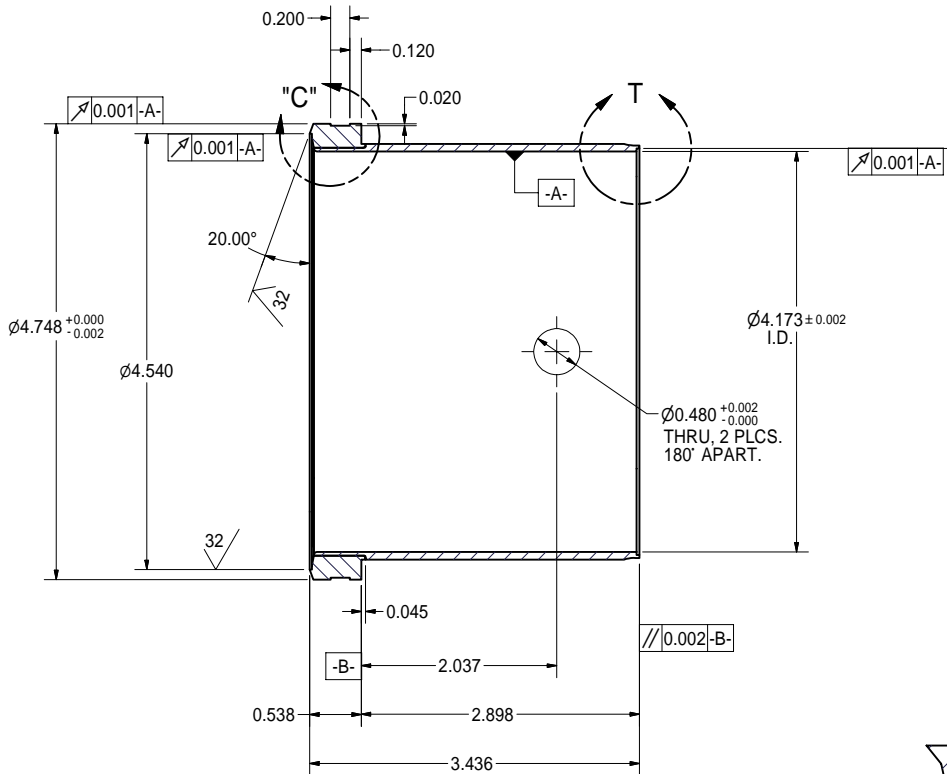
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-19-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	8-12-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

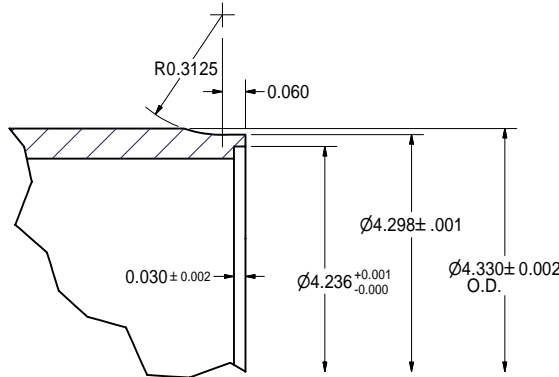
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
			QUANTITY				
PRINT DISTR.	7102-010 SH. NO. 8 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES				
			CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853				
			ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT LARGE BEAM TUBE BRAZING SUBASM & PLUG DETAIL WBS-3.1.1.8				
CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY: V.Medjdzade M.Liepe	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: 1:1	D	7102-010 SH. NO. 8 OF 22	REV. D

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
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TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

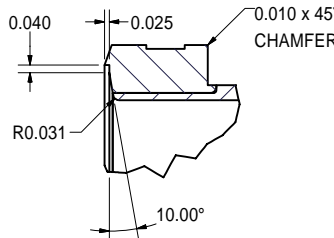
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7/19/05	TIO
B		ITEM 18: ADDED 0.900 & 4.150 I.D. DIMS. $\phi 4.125$ ROLLED & WELDED WAS $\phi 4.173 \pm .001$, $\phi 4.375$ ROLLED & WELDED WAS $\phi 4.330 \pm .001$ D.M.E.	8-19-05	TIO
C		ITEM 19: $\phi 4.173 \pm .001$ & $\phi 4.330 \pm .001$ WERE REF DIMS. DIM 3.436 WAS REF DIM & DET. 'C' R.0.031 WAS R0.040 REMOVED $\phi 4.360$ DIM. ADDED TOL TO $\phi 0.480$ THRU HOLES. $\phi 4.173 \pm .002$ WAS $\phi 4.173 \pm .001$	6-26-06	JOS



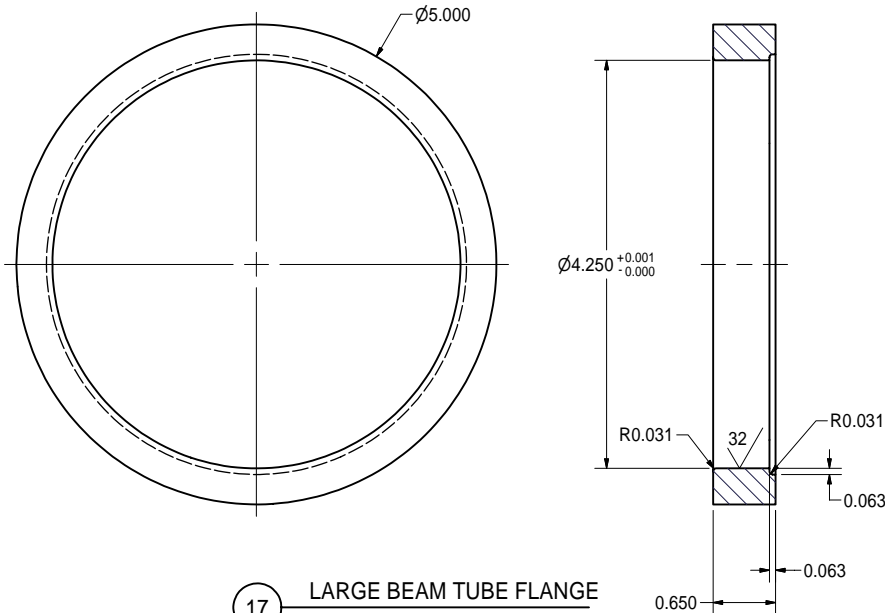
19 LARGE BEAM TUBE STUB
FILE NAME: 7102-010
SHEET NO.: 9
DFT. SCALE: 1:1
MATERIAL: MAKE FROM ITEMS 17 & 18.
QTY: 1
NOTES:



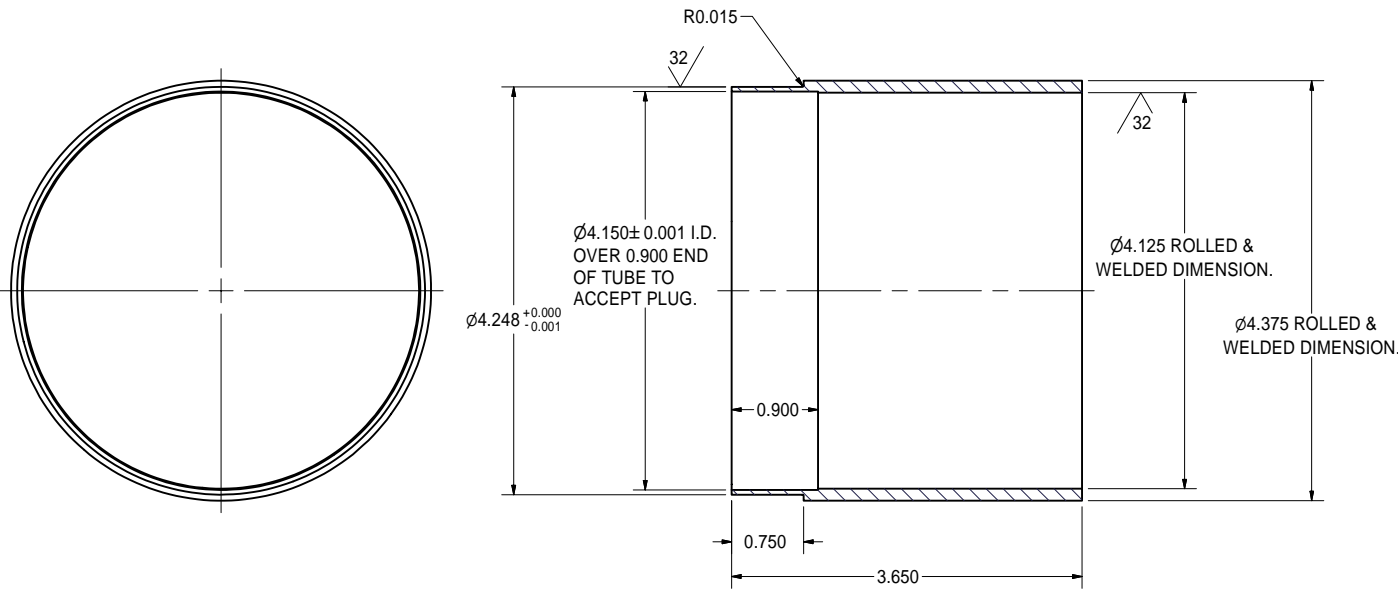
DETAIL T
SCALE 4 : 1



DETAIL "C"
SCALE 2 : 1



17 LARGE BEAM TUBE FLANGE
FILE NAME: 7102-010
SHEET NO.: 9
DFT. SCALE: 1:1
MATERIAL: 316LN STAINLESS STEEL
QTY: 1
NOTES:






18 LARGE BEAM TUBE
FILE NAME: 7102-010
SHEET NO.: 9
DFT. SCALE: 1:1
MATERIAL: REACTOR GRADE NIOBIUM, RRR <= 50
QTY: 1
NOTES:

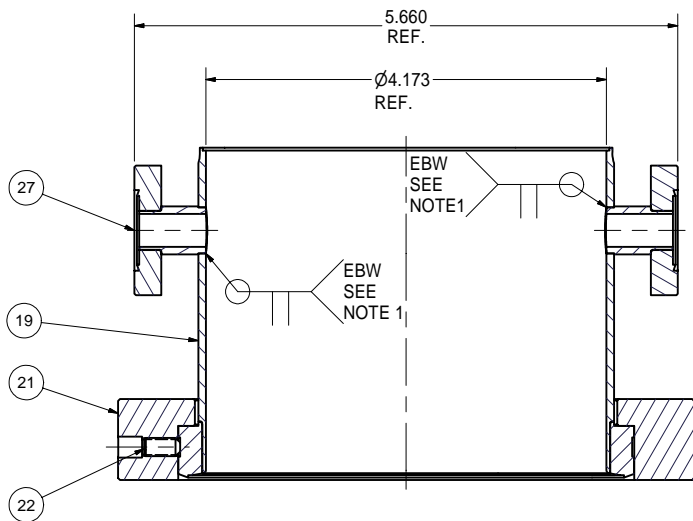
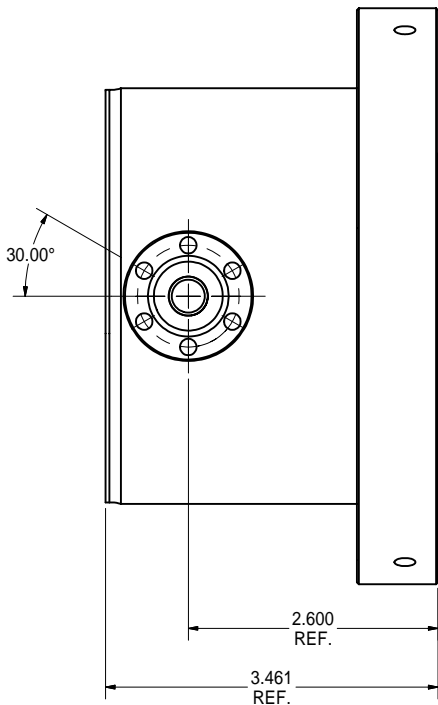
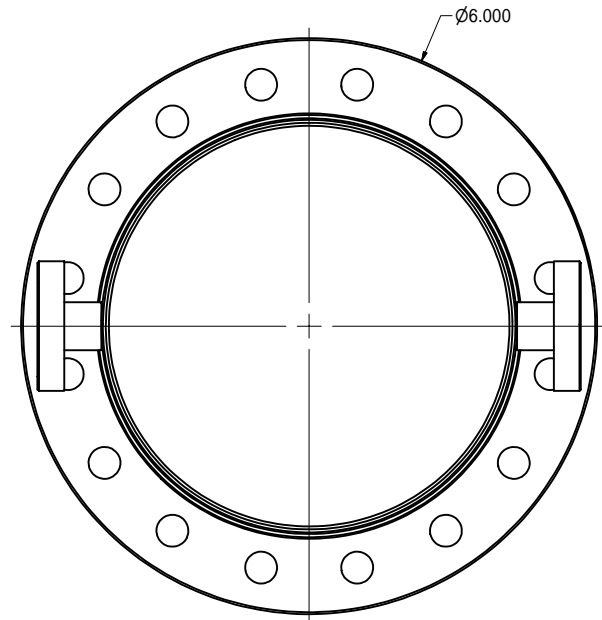
NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-19-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	8-12-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

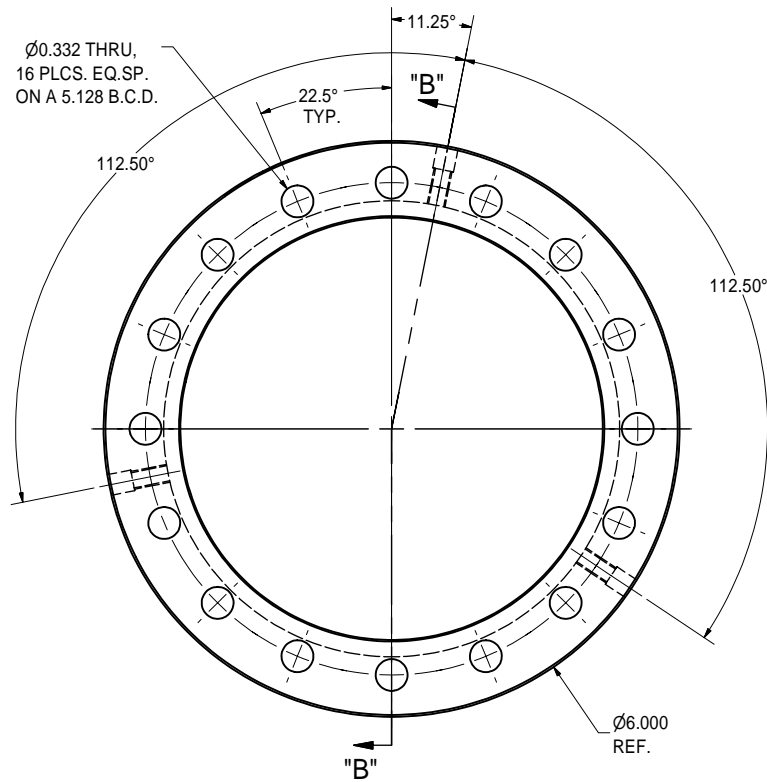
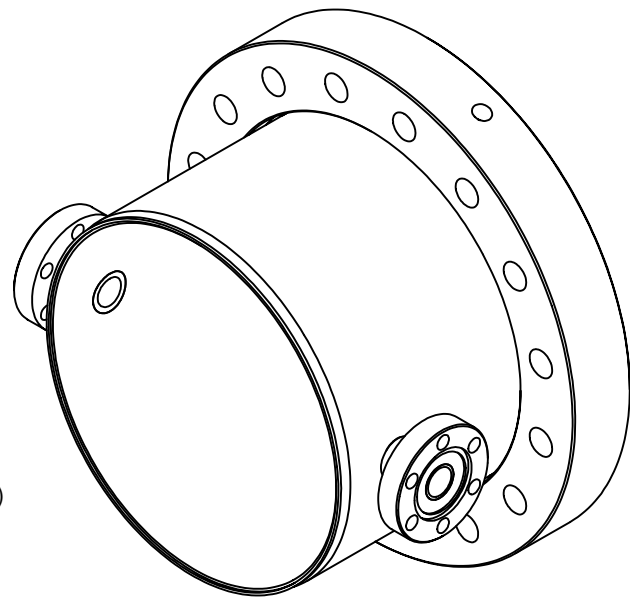
	ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS	REV.
							QUANTITY			
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw								
7102-010 SH. NO. 9 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES 	<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT LARGE BEAM TUBE DETAILS WBS-3.1.1.8</div>							
		CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY V.Medjidzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE 1:1	D	7102-010 SH. NO. 9 OF 22	REV. C	

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B		ITEM 21: ADDED BOLT HOLE DIMS. ADDED ±.002 TOL TO Ø4.750 ---- ADDED 316LN SST TO MATL. INFO D.M.E.	8-26-05	TIO
C		ITEM 20 PICTORIALY REFLECTS THE WELD PREP REVISIONS MADE TO ITEM 19 ON SH.9 D.M.E.	6-26-06	JOS



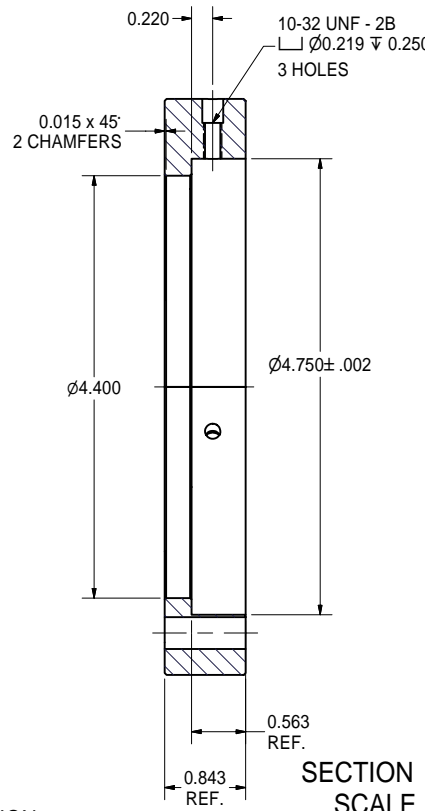
20 LARGE BEAM TUBE SUB-ASM: (FINISHED)

FILE NAME: 7102-010
SHEET NO.: 10
DFT. SCALE: 1:1
MATERIAL: AS PER PART
QTY: 1 PER ASSEMBLY
NOTES: 1. INSTALL PART ITEM 21 BEFORE WELDING.



21 6" CF ROTATABLE FLANGE MODIFICATION

FILE NAME: 7102-010
SHEET NO.: 10
DFT. SCALE: 1:1
MATERIAL: 316LN SST; CAN BE MADE FROM VARIAN'S F0600-0000-XXX(316LN SST)
QTY: 1 PER SUBASM
NOTES:





SECTION "B"- "B"
SCALE 1 : 1

THESE PRODUCTION DRAWINGS ARE BEING GENERATED IN PARALLEL WITH THE PRODUCTION FABRICATION. THE TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK PROGRESSES.

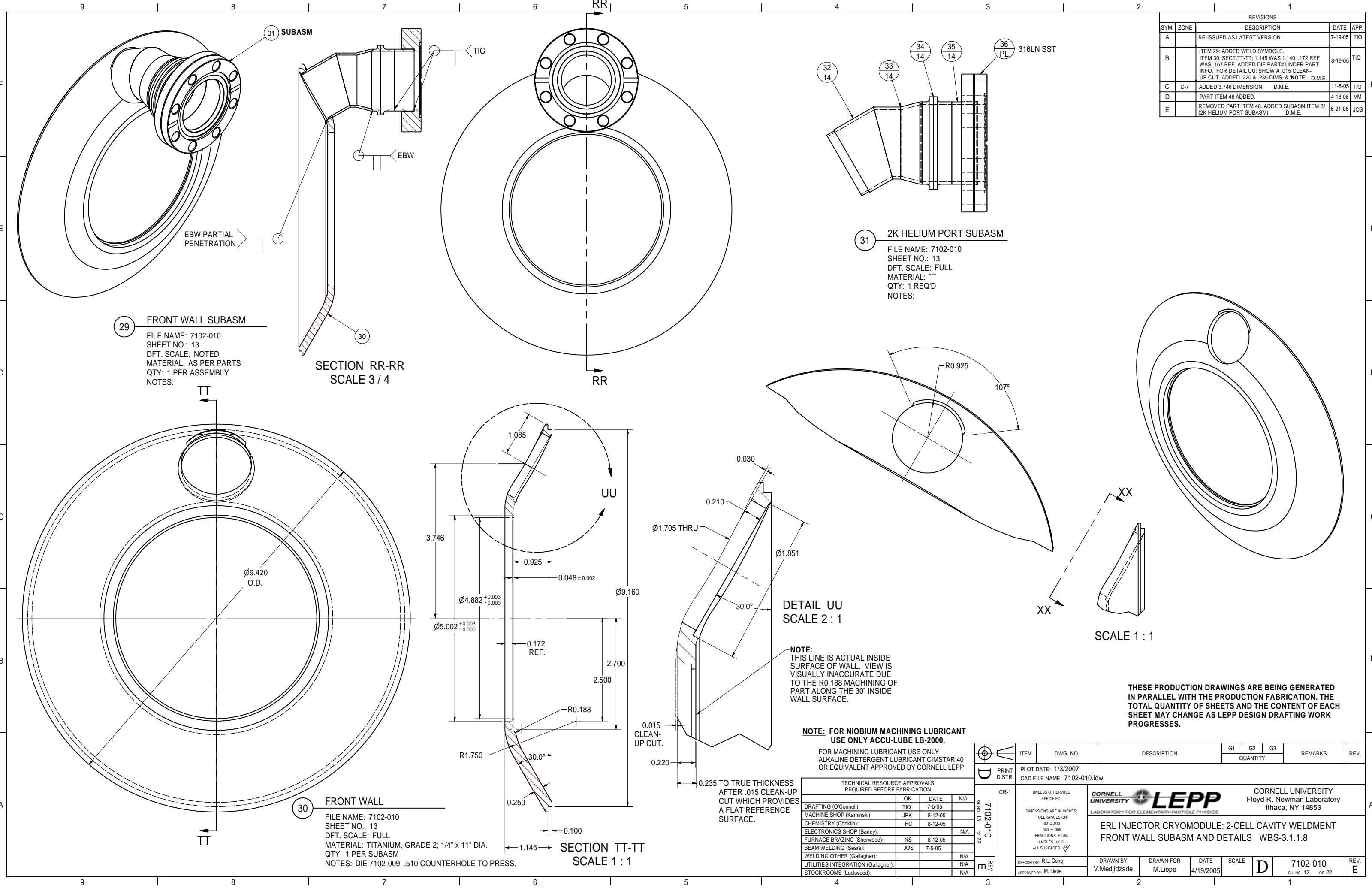
NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-19-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	J.S.	8-12-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

		ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS		REV.
								QUANTITY				
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw										
	7102-010 SH. NO. 10 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓		<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT LARGE BEAM TUBE SUBASM WBS-3.1.1.8</div>							
CHECKED BY: R.L. Geng			DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE 1:1	D	7102-010	SH. NO. 10 OF 22	REV. C		
APPROVED BY: M. Liepe												

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION	7-19-05	TIO
B		ITEM 29: ADDED WELD SYMBOLS. ITEM 30: SECT.TT-TT; 1.145 WAS 1.140, .172 REF WAS .167 REF. ADDED DIE PART# UNDER PART INFO. FOR DETAIL UU: SHOW A .015 CLEAN-UP CUT. ADDED .220 & .235 DIMS, & NOTE: D.M.E.	8-19-05	TIO
C	C-7	ADDED 3.746 DIMENSION. D.M.E.	11-8-05	TIO
D		PART ITEM 48 ADDED.	4-18-06	VM
E		REMOVED PART ITEM 48. ADDED SUBASM ITEM 31, (2K HELIUM PORT SUBASM). D.M.E.	6-21-06	JOS



29 FRONT WALL SUBASM
FILE NAME: 7102-010
SHEET NO.: 13
DFT. SCALE: NOTED
MATERIAL: AS PER PARTS
QTY: 1 PER ASSEMBLY
NOTES:

30 FRONT WALL
FILE NAME: 7102-010
SHEET NO.: 13
DFT. SCALE: FULL
MATERIAL: TITANIUM, GRADE 2; 1/4" x 11" DIA.
QTY: 1 PER SUBASM
NOTES: DIE 7102-009, .510 COUNTERHOLE TO PRESS.

31 2K HELIUM PORT SUBASM
FILE NAME: 7102-010
SHEET NO.: 13
DFT. SCALE: FULL
MATERIAL: ---
QTY: 1 REQ'D
NOTES:

DETAIL UU SCALE 2 : 1
NOTE:
THIS LINE IS ACTUAL INSIDE SURFACE OF WALL. VIEW IS VISUALLY INACCURATE DUE TO THE R0.188 MACHINING OF PART ALONG THE 30° INSIDE WALL SURFACE.

SCALE 1 : 1

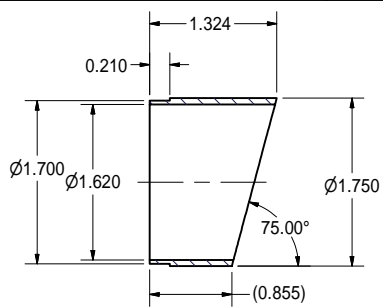
THESE PRODUCTION DRAWINGS ARE BEING GENERATED IN PARALLEL WITH THE PRODUCTION FABRICATION. THE TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK PROGRESSES.

NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.
FOR MACHINING LUBRICANT USE ONLY ALKALINE DETERGENT LUBRICANT CIMSTAR 40 OR EQUIVALENT APPROVED BY CORNELL LEPP

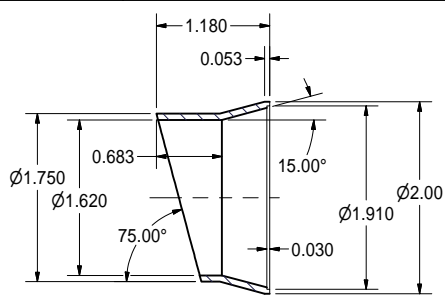
TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-5-05	
MACHINE SHOP (Kaminski):	JKP	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-5-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
			QUANTITY				
PRINT DISTR.	7102-010	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓				
CHECKED BY: R.L. Geng	DRAWN BY: V.Medjidzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: D	7102-010	REV. E	
APPROVED BY: M. Liepe					SH. NO. 13 OF 22		

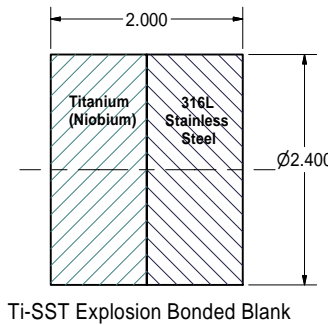
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B		ITEM 34: Ø2.960 WAS Ø2.983, Ø3.060±0.001 WAS Ø3.083±0.001	8-19-05	TIO
C		ADDED DWG DETAILS FOR NEW 2K HELIUM PORT SUBASM. ITEMS 32 THRU 35. REVISED PART ITEM NUMBERS TO REFLECT ADDITION OF NEW SUBASM. ON SH.13	6-21-06	JOS



32 TUBE WEDGE #1
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: FULL
MATERIAL: TITANIUM, GRADE 2
QTY: 1 PER SUBASM
NOTES:



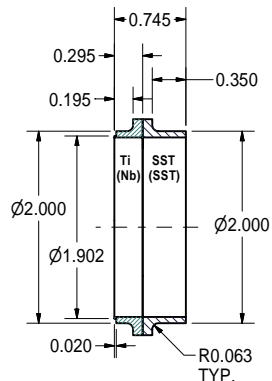
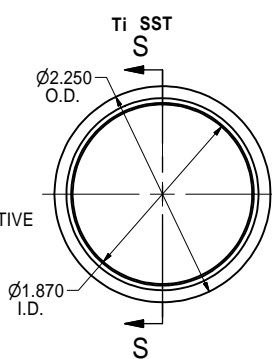
33 TUBE WEDGE #2
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: FULL
MATERIAL: TITANIUM, GRADE 2
QTY: 1 PER SUBASM
NOTES:



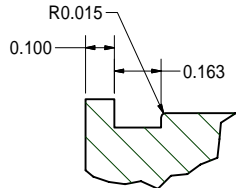
Ti-SST Explosion Bonded Blank

SCALE 1 : 1

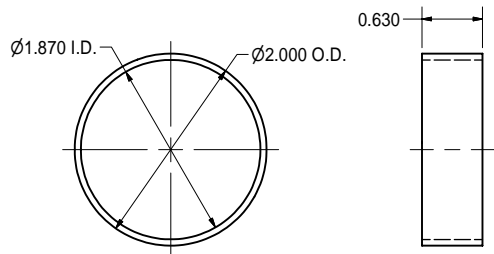
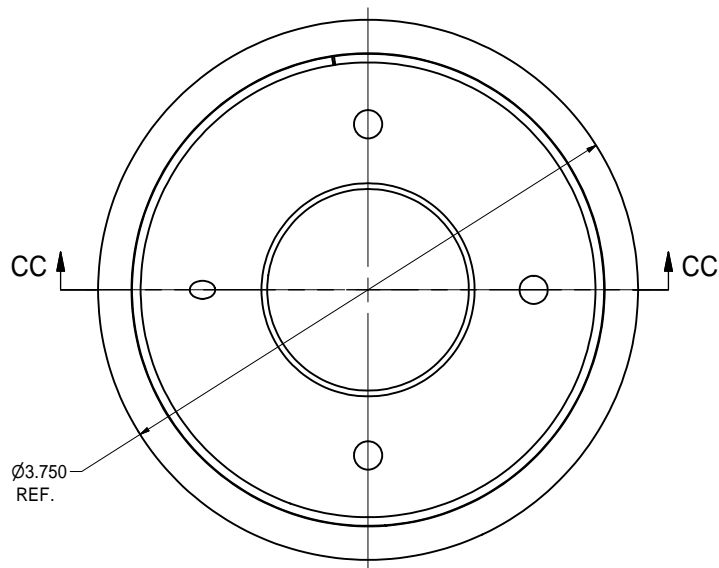
34 Ti-SST TRANSITION MACHINED
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: FULL
MATERIAL: Ti/316L SST EXPLOSION BOND
QTY: 1 PER SUBASM
NOTES: 1.) Nb/316L SST ACCEPTABLE ALTERNATIVE



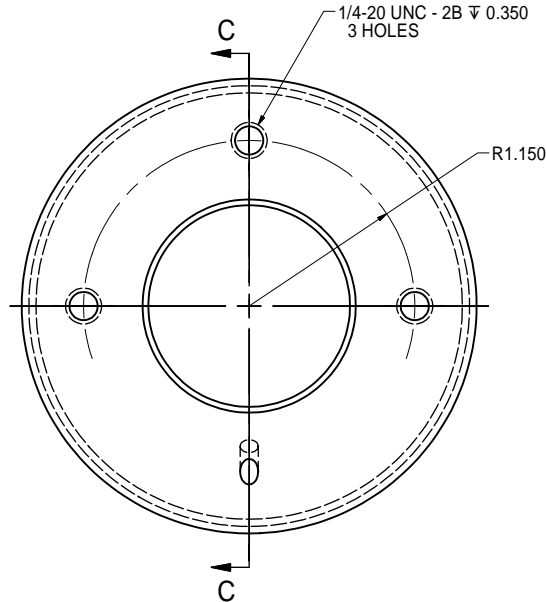
SECTION S-S
SCALE 1 : 1



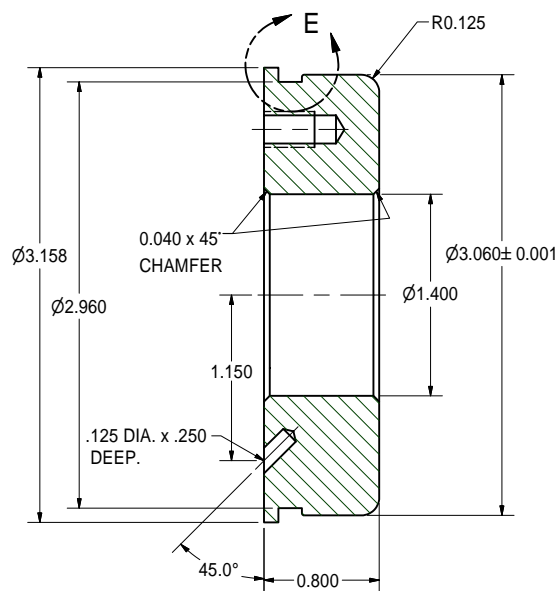
DETAIL E
SCALE 3 : 1



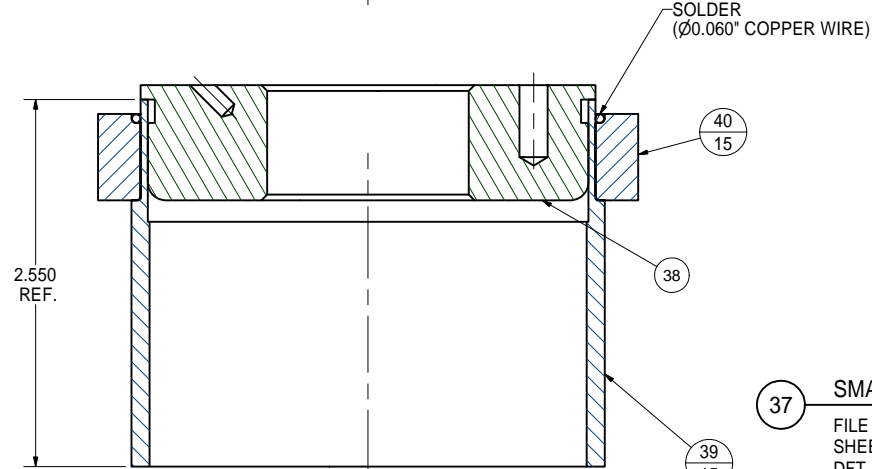
35 SST TUBE SHORT
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: FULL
MATERIAL: 316L SST
QTY: 1 PER SUBASM
NOTES:



38 SMALL BEAM TUBE PLUG
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: 1.50 : 1
MATERIAL: 316LN SST
QTY: 1 PER SUBASM
NOTES:



SECTION C-C
SCALE 1.50 : 1



37 SMALL BEAM TUBE BRAZING SUBASM
FILE NAME: 7102-010
SHEET NO.: 14
DFT. SCALE: 1.5:1
MATERIAL: AS PER PART
QTY: 1 PER ASSEMBLY
NOTES: BRAZE PARTS ITEM 39 & 40 WITH COPPER SOLDER
REMOVE PART ITEM 38 AFTER BRAZING
USE THIS BRAZEMENT AS BLANK PIECE FOR PART ITEM 41 ON SHEET 15.

SECTION CC-CC
SCALE 1.50 : 1

NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
DRAFTING (O'Connell):	OK	DATE	N/A
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):			N/A
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

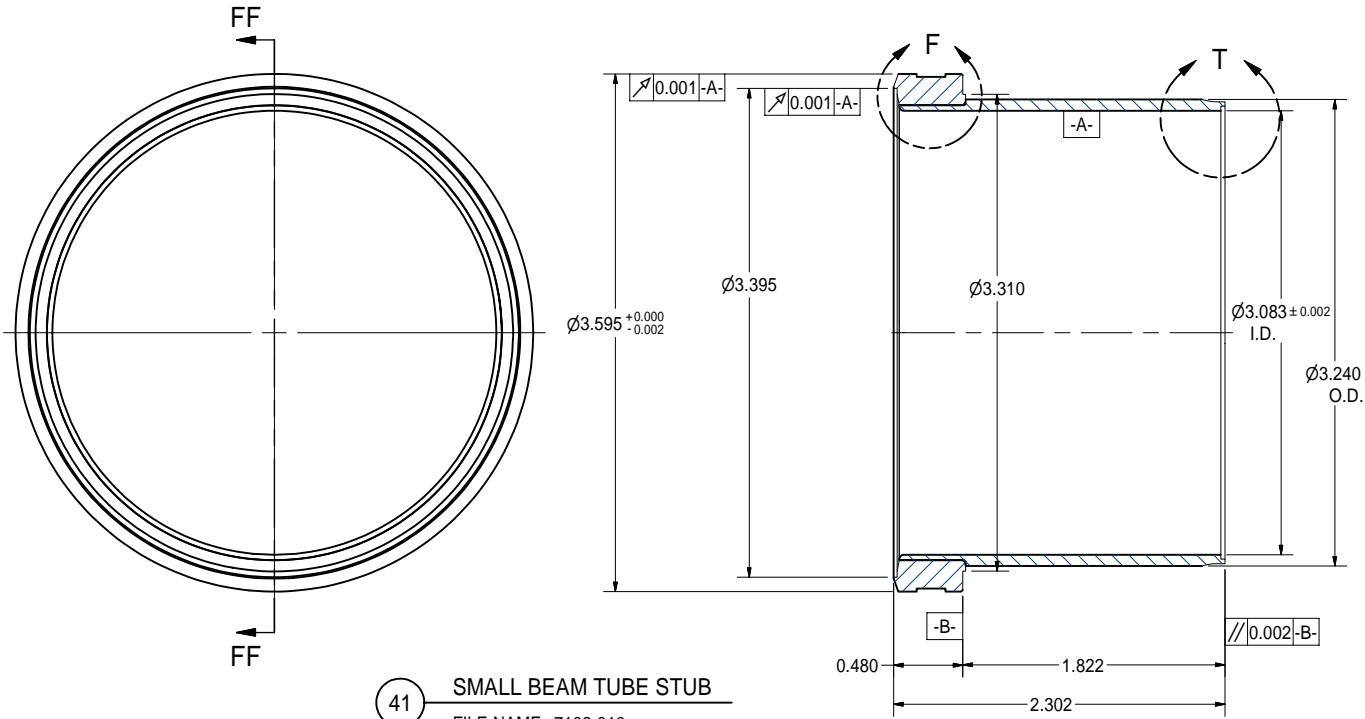
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
PRINT DISTR.	7102-010	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES	CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853			
CHECKED BY: R.L. Geng	DRAWN BY: V.Medjdzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE: D	7102-010 SH. NO. 14 OF 22	REV. C	

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.



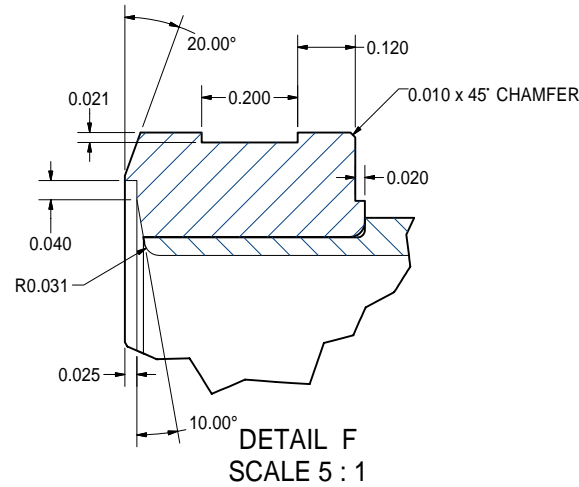
ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT
SMALL BEAM TUBE BRAZING SUBASM AND DETAILS WBS-3.1.1.8

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B		ITEM 35: Ø3.036 I.D. ROLLED & WELDED DIM WAS Ø3.083±0.001 I.D. Ø3.286 O.D. ROLLED & WELDED DIM WAS Ø3.240 O.D. ITEM 36: R0.031 WERE R0.030 ITEM 37: DETAIL 'F', R0.031 WAS R0.040 ADDED Ø3.240 AND Ø3.083±0.002 DIMS. D.M.E.	8-19-05	TIO
C		FOR ITEM 41: LENGTH DIMS 1.822 WAS 1.820, 2.302 WAS 2.300. DETAIL T IS REVISED WELD PREP. REVISED PART ITEM NO'S. TO REFLECT ADDING NEW SUBASM TO SH.13 D.M.E.	6-30-06	JOS

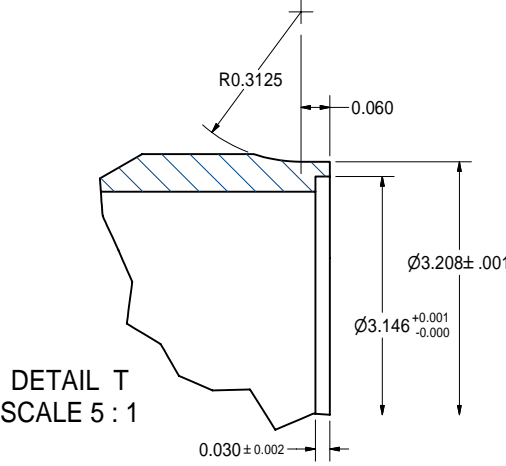


41 SMALL BEAM TUBE STUB
FILE NAME: 7102-010
SHEET NO.: 15
DFT. SCALE: 1.50:1
MATERIAL: MAKE FROM ITEM 37 - BRAZING
QTY: 1 PER SUBASM
NOTES:

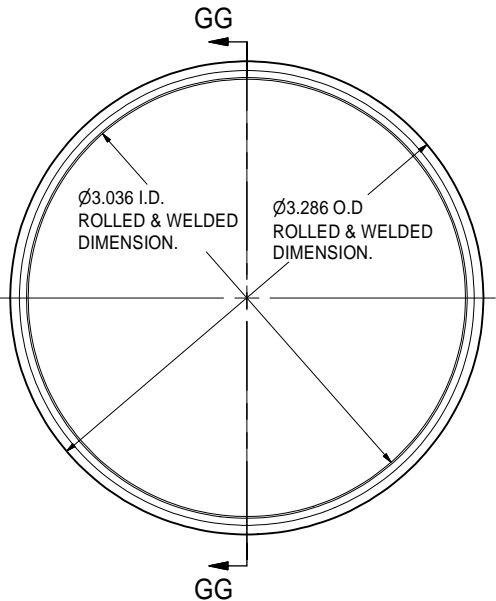
SECTION FF-FF
SCALE 1.50 : 1



DETAIL F
SCALE 5 : 1

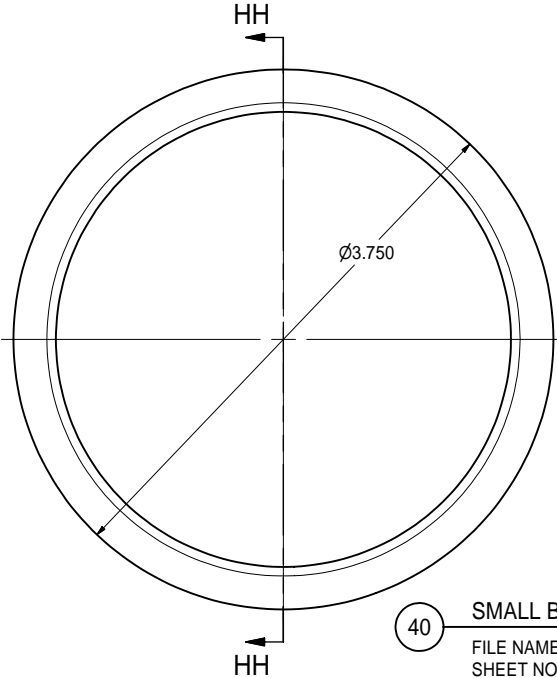


DETAIL T
SCALE 5 : 1



39 SMALL BEAM TUBE
FILE NAME: 7102-010
SHEET NO.: 15
DFT. SCALE: 1.5 : 1
MATERIAL: REACTOR GRADE NIOBIUM, RRR LESS OR EQUAL TO 50.
QTY: 1 PER SUBASM
NOTES:

SECTION GG-GG
SCALE 1.50 : 1




40 SMALL BEAM TUBE FLANGE
FILE NAME: 7102-010
SHEET NO.: 15
DFT. SCALE: 1.5 : 1
MATERIAL: 316LN SST
QTY: 1 PER SUBASM
NOTES:

SECTION HH-HH
SCALE 1.50 : 1

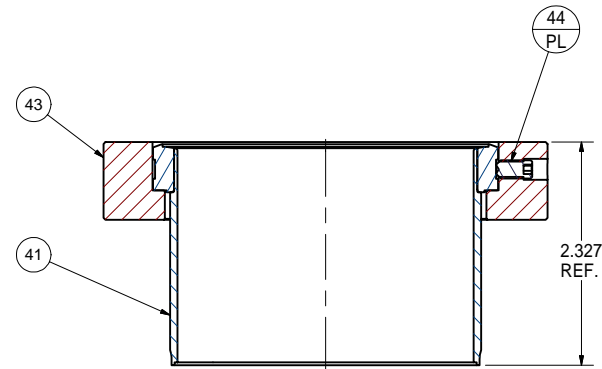
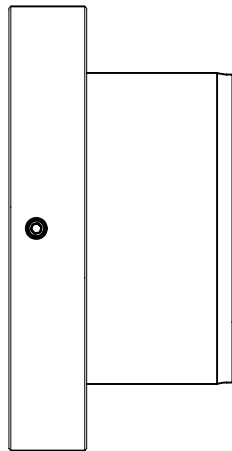
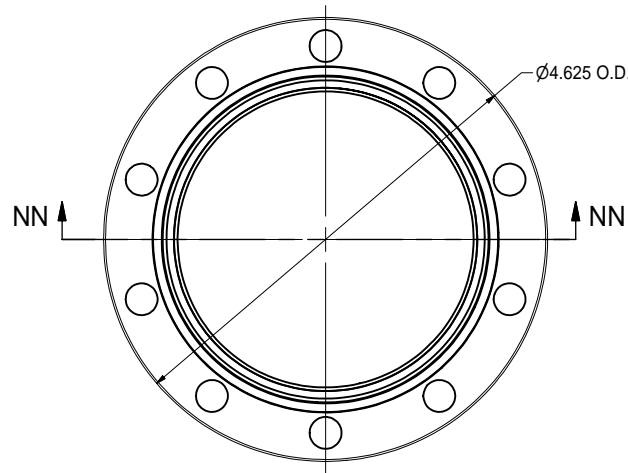
THESE PRODUCTION DRAWINGS ARE BEING GENERATED IN PARALLEL WITH THE PRODUCTION FABRICATION. THE TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK PROGRESSES.

NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.
FOR MACHINING LUBRICANT USE ONLY ALKALINE DETERGENT LUBRICANT CIMSTAR 40 OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-6-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-6-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

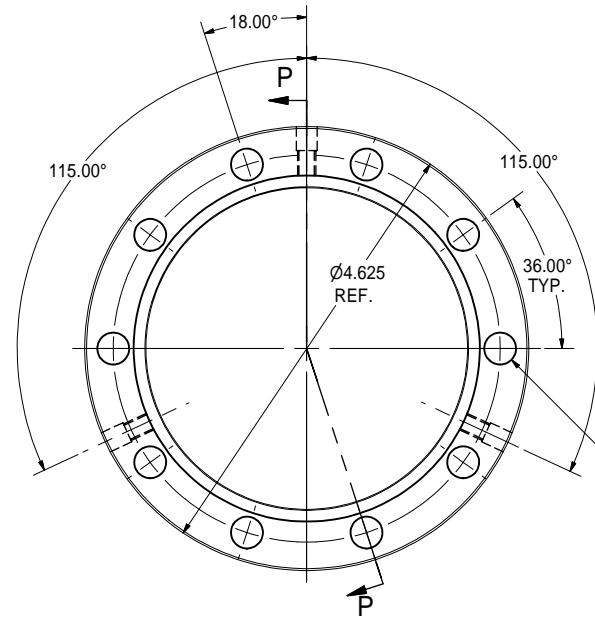
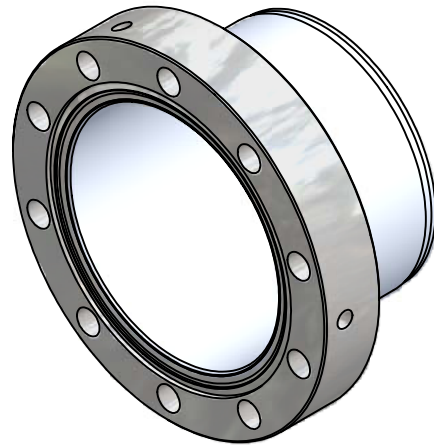
		ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS	REV.
					QUANTITY						
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw									
	7102-010 SH. NO. 15 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES		<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT SMALL BEAM TUBE SUBASM DETAILS WBS-3.1.1.8</div>						
C		REV.	CHECKED BY: R.L. Geng APPROVED BY: M. Liepe		DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE	D	7102-010 SH. NO. 15 OF 22	REV. C

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B		ITEM 39: ADDED BOLT HOLE DIMS. ADDED ± .002 TOL TO Ø3.605 → ADDED VARIAN PART NO. TO MATL. INFO. D.M.E.	8-26-05	TIO
C		PART 42 REVISED PICTORIALY TO REFLECT WELD PREP CHANGES MADE TO PART 41 ON SH.15 AND 2.327 REF. WAS 2.325 REF. REVISED PART ITEM NO'S. TO REFLECT ADDING NEW SUBASM TO SH.13 D.M.E.	6-30-06	JOS

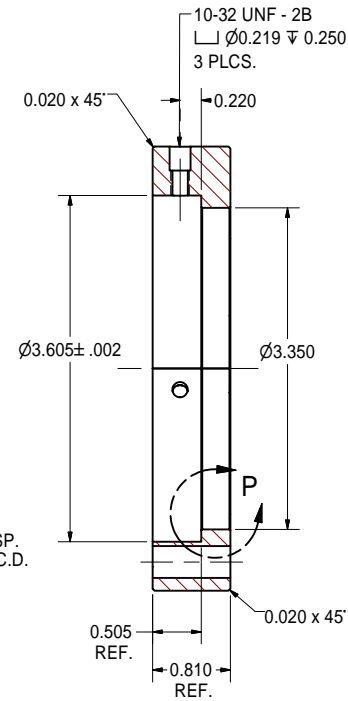


SECTION NN-NN
SCALE 1 : 1

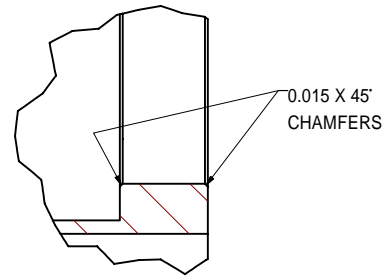
- 42 SMALL BEAM TUBE SUBASM: (FINISHED)
- FILE NAME: 7102-010
SHEET NO.: 16
DFT. SCALE: FULL
MATERIAL: AS PER PART
QTY: 1 PER ASSEMBLY
NOTES:



- 43 4-5/8" CF ROTATABLE FLG.
- FILE NAME: 7102-010
SHEET NO.: 16
DFT. SCALE: FULL
MATERIAL: 316LN SST: CAN BE MADE FROM VARIAN'S F0462-0000-XXX(316LN SST)
QTY: 1 PER SUBASM
NOTES:



SECTION P-P
SCALE 1 : 1









DETAIL P
SCALE 3 : 1

**NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.**

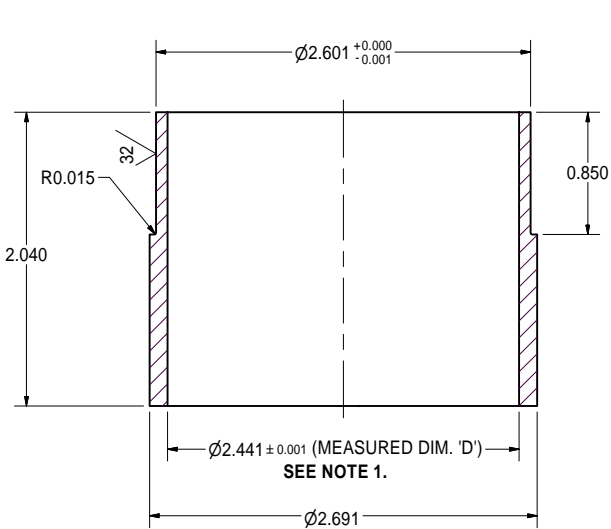
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-6-05	
MACHINE SHOP (Kaminski):	JPk	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-6-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

		ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS		REV.
								QUANTITY				
 7102-010 SH. NO. 16 OF 22	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw										
	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES 		 CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853								
				ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT SMALL BEAM TUBE SUBASM AND DETAILS WBS-3.1.1.8								
	CHECKED BY: R.L. Geng	DRAWN BY V.Medjdzade		DRAWN FOR M.Liepe		DATE 4/19/2005	SCALE		7102-010		REV. C	
	APPROVED BY: M. Liepe								SH. NO. 16 OF 22			

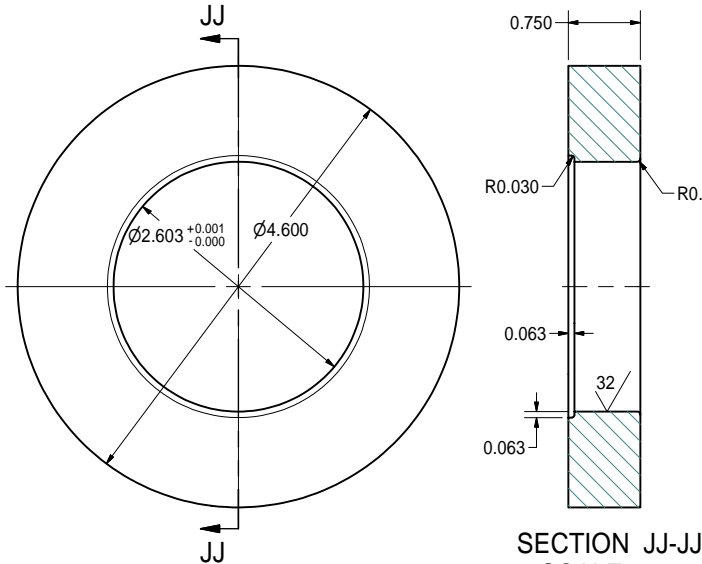
THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-19-05	TIO
B		FOR ITEM 44: ADDED HIDDEN LINES FOR 2 CHAMFERS IN TOP VIEW. ADDED ISOMETRIC VIEW TO SHOW CHAMFERS AND R0.031 WAS R0.040	7-28-05	TIO
C	F3	1TEM 43: DIA 2.441 PRESS FIT 2.441 ID OF PART 41 WAS DIA 2.441 PLUS/MINUS 0.001 JGL	9-30-05	TIO
D		FOR ITEM 41: ADDED NOTE 1 TO PART INFO. FOR ITEM 43, REPLACED PRESS FIT DIM WITH MEASURED DIM 'D' AND DIMENSION RANGE. D.M.E.	11-17-05	R.G.
E		FOR ITEM 49: SECT. MM-MM, DIM 1.810 WAS 1.825, AND REVISED WELD PREP. REVISED PART ITEM NO'S. TO REFLECT ADDING NEW SUBASM TO SH.3 D.M.E.	6-27-06	JOS



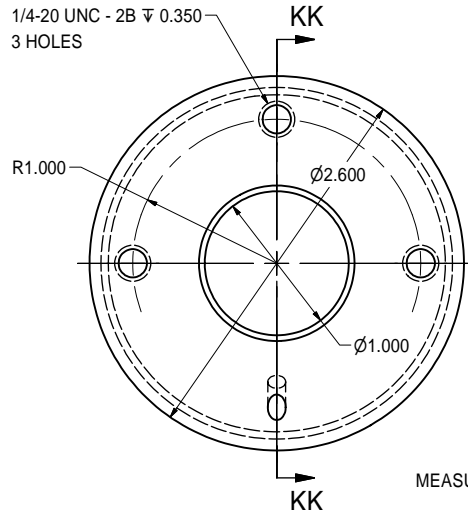
SECTION HH-HH
SCALE 1.50 : 1

46 INPUT POWER COUPLER TUBE
FILE NAME: 7102-010
SHEET NO.: 17
DFT. SCALE: 1.5 : 1
MATERIAL: REACTOR GRADE NIOBIUM, RRR < or = 50
QTY: 1 PER SUBASM
NOTES: 1.) AFTER THIS TUBE IS MADE, MEASURE THE ACTUAL I.D., THEN USE THAT DIMENSION TO MAKE ITEM 48 PLUG DIMENSION AS SHOWN ON PLUG SKETCH.



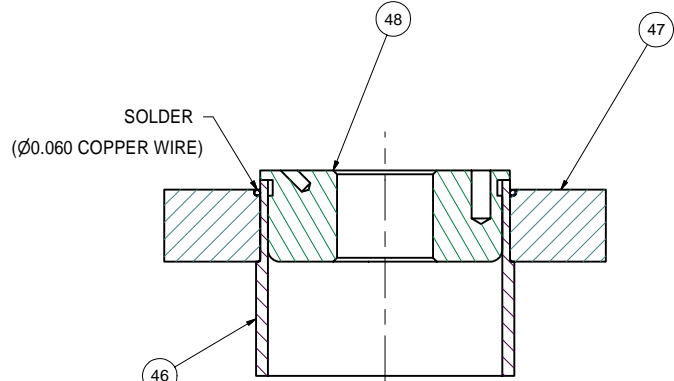
SECTION JJ-JJ
SCALE 1 : 1

47 INPUT COUPLER 4-1/2" CF FLANGE
FILE NAME: 7102-010
SHEET NO.: 17
DFT. SCALE: FULL
MATERIAL: 316LN SST
QTY: 1 PER SUBASM
NOTES:



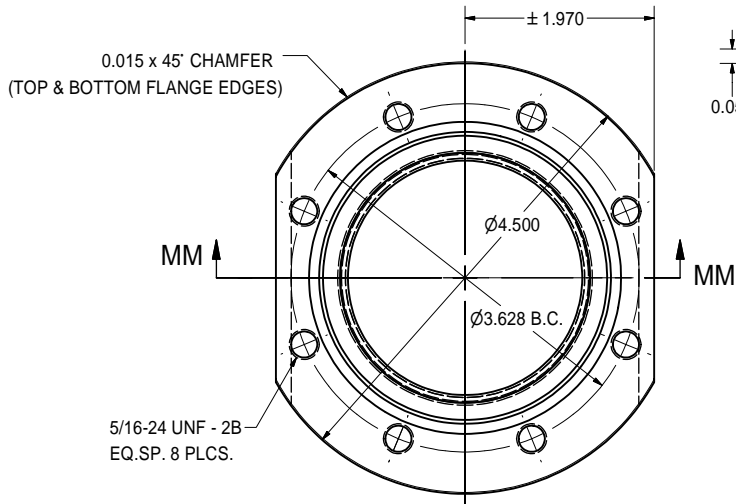
SECTION KK-KK
SCALE 1.50 : 1

48 COUPLER TUBE PLUG
FILE NAME: 7102-010
SHEET NO.: 17
DFT. SCALE: 1.5 : 1
MATERIAL: 316LN SST
QTY: 1 PER SUBASM
NOTES:

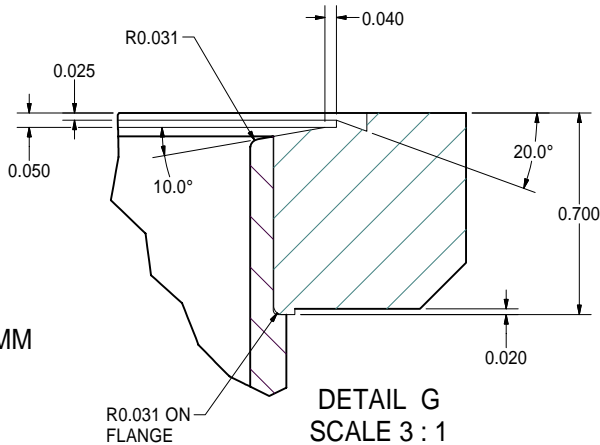


SECTION LL-LL
SCALE 1 : 1

45 INPUT POWER COUPLER BRAZING SUBASM
FILE NAME: 7102-010
SHEET NO.: 17
DFT. SCALE: FULL
MATERIAL: AS PER PARTS
QTY: 2 PER ASSEMBLY
NOTES: BRAZE PARTS ITEM 46 AND 47 WITH COPPER SOLDER. REMOVE PART ITEM 48 AFTER BRAZING. USE THIS BRAZEMENT AS BLANK PIECE FOR PART ITEM 49.

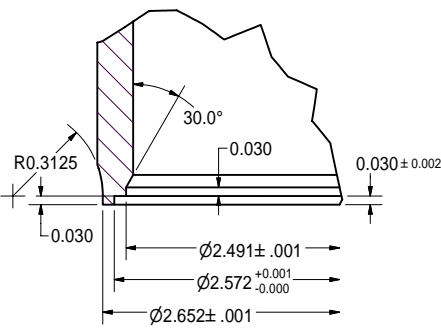


SECTION MM-MM
SCALE 1 : 1

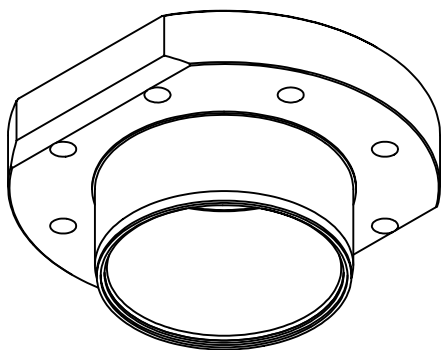


DETAIL G
SCALE 3 : 1

49 INPUT POWER COUPLER SUBASM (FINISHED)
FILE NAME: 7102-010
SHEET NO.: 17
DFT. SCALE: FULL
MATERIAL: AS PER PARTS
QTY: 2 PER ASSEMBLY
NOTES:



DETAIL T
SCALE 3 : 1



NOTE: FOR NIOBIUM MACHINING LUBRICANT
USE ONLY ACCU-LUBE LB-2000.

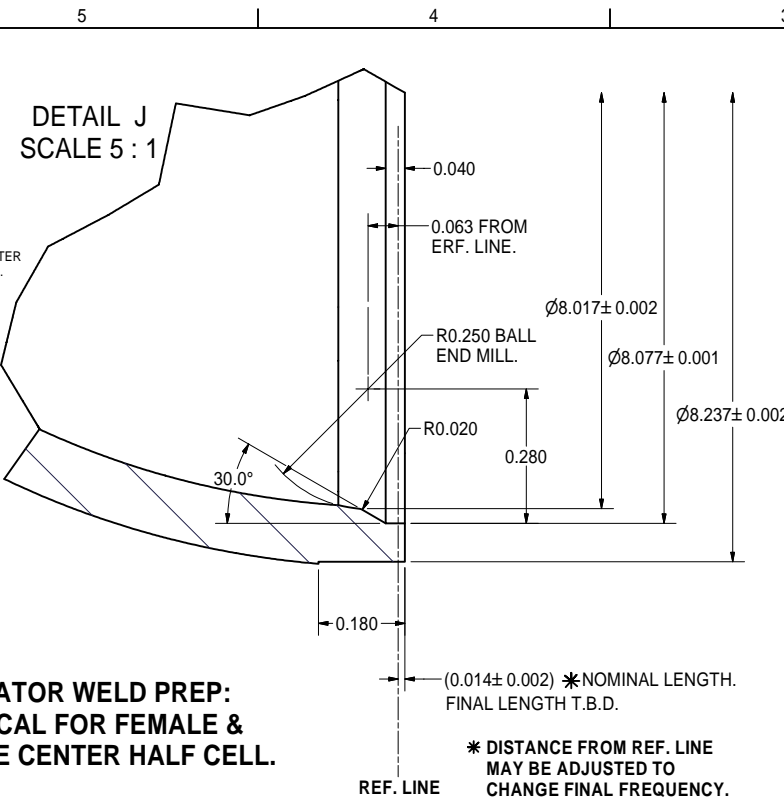
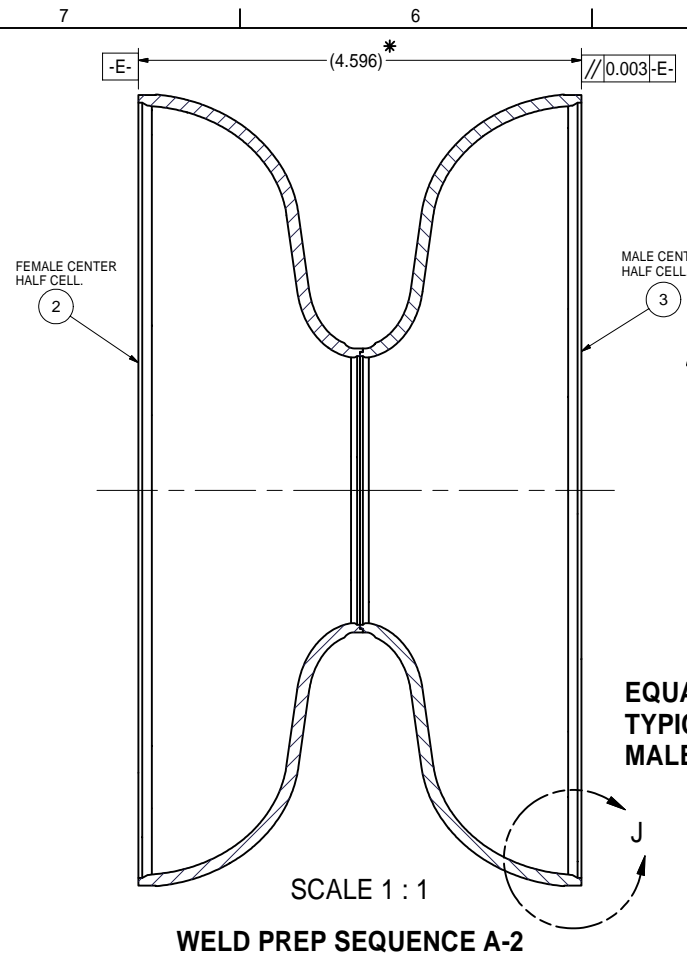
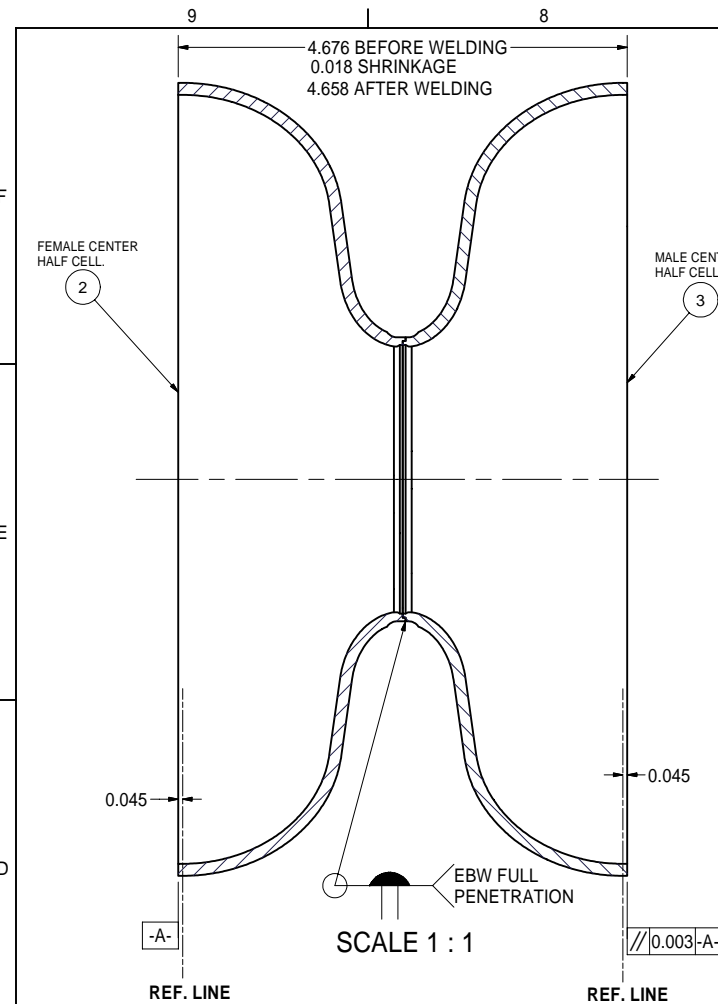
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
DRAFTING (O'Connell):	OK	DATE	N/A
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-7-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

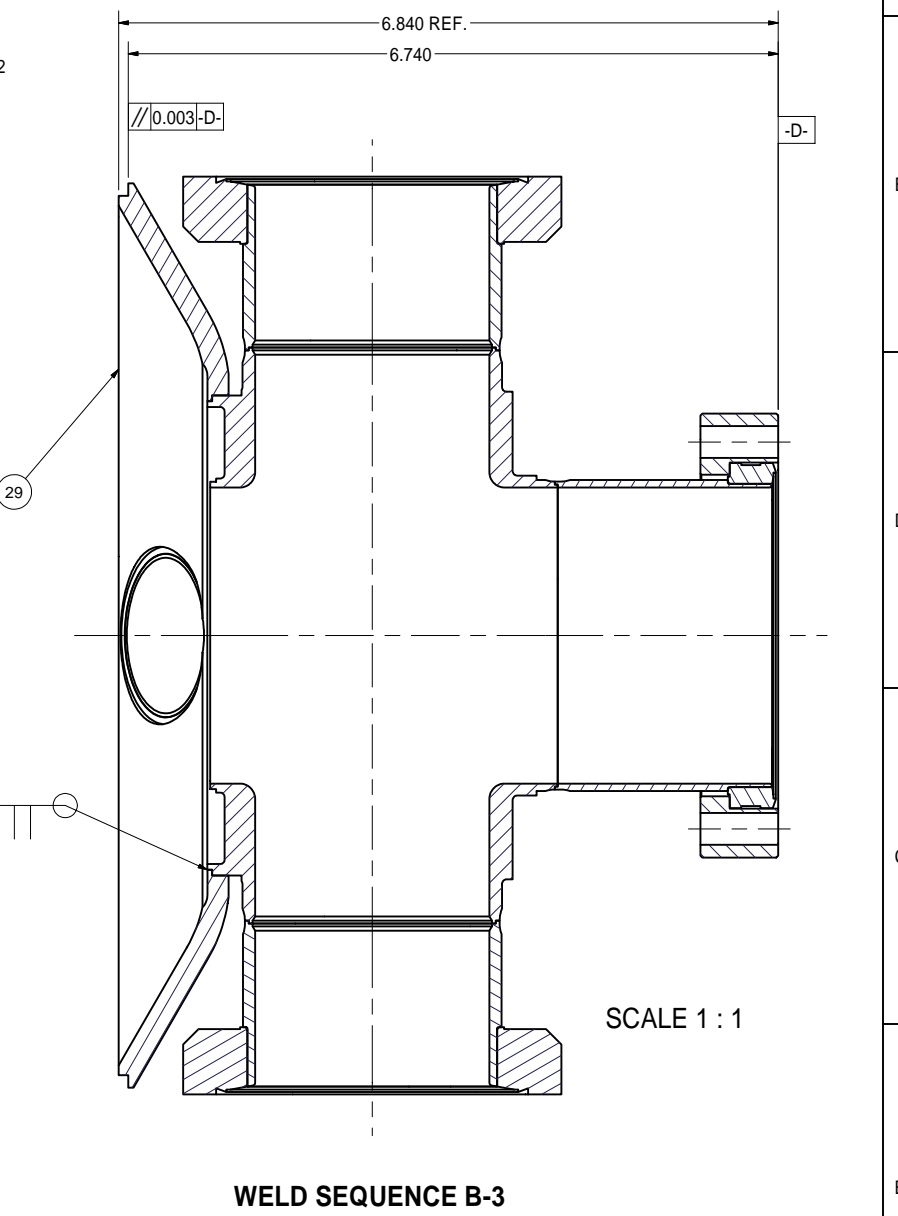
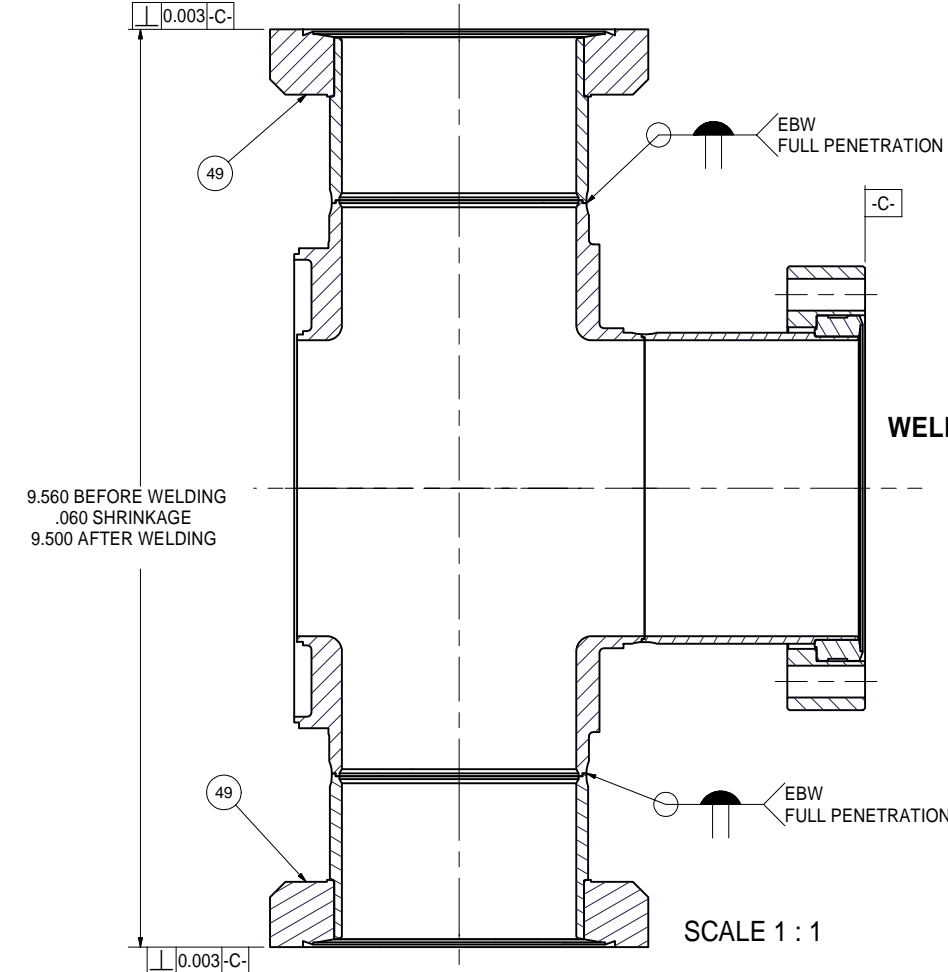
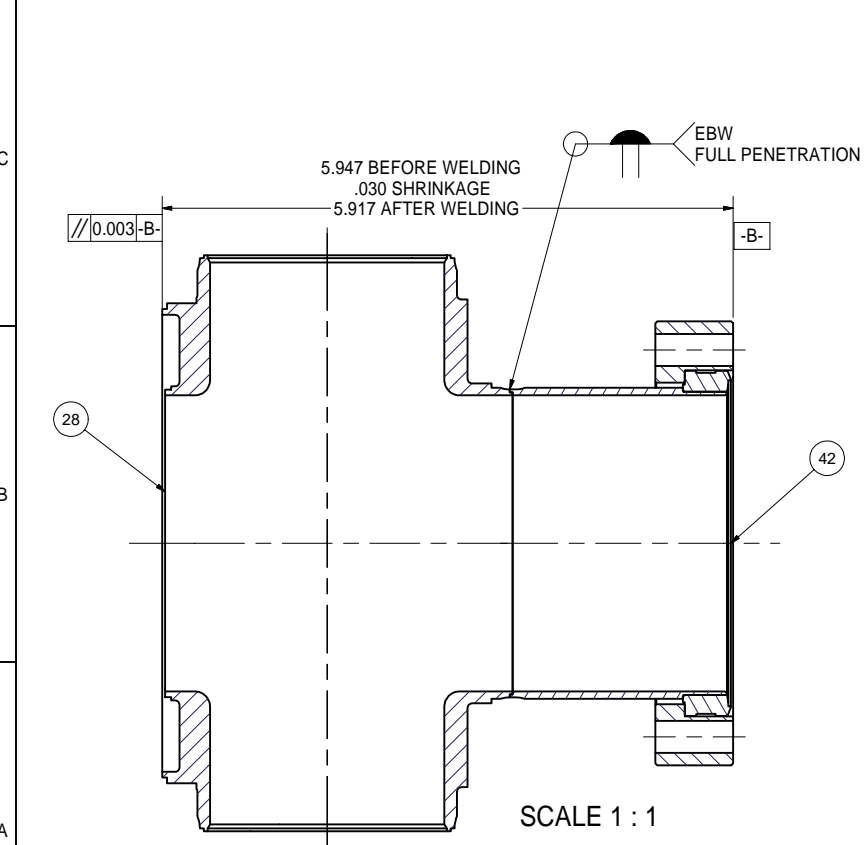
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
PRINT DISTR.	7102-010	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw	QUANTITY				
CR-1		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES					
REV.		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853					
		ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT INPUT POWER COUPLER SUBASM; BRAZE SUBASM & DETAILS WBS-3.1.1.8					
		CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY: V. Medjdzade	DRAWN FOR: M. Liepe	DATE: 4/19/2005	SCALE: D	7102-010 SH. NO. 17 OF 22

THESE PRODUCTION DRAWINGS ARE BEING GENERATED
IN PARALLEL WITH THE PRODUCTION FABRICATION. THE
TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH
SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK
PROGRESSES.

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-28-05	TIO
B		FOR WELD SEQ. A-1, REMOVED EQUATOR WELD PREP. ADDED WELD PREP SEQUENCE A-2 WITH EQUATOR WELD PREP.	6-2-06	JOS
C		WELD SEQ. DETAILS B-1, B-2, & B3 PICTORIALY REFLECT WELD PREP REVISIONS MADE. REVISED PART ITEM NO'S. TO REFLECT ADDING NEW SUBASM TO SH.13 D.M.E.	6-21-06	JOS
D		FOR WELD PREP SEQUENCE A-2, ADDED D.M.E. TABLE.	1-3-07	R.G.



ERL 2-CELL CAVITY DUMB-BELL FINAL TRIM DIMENSION			
DUMB-BELL #	CENTER HALF-CELL #	LENGTH	TOLERANCE
#1	CHC#3, CHC#4	0.045	+0.003/-0.000
#2	CHC#5, CHC#7	0.031	+0.003/-0.000
#3	CHC#6, CHC#8	0.042	+0.003/-0.000
#4	CHC#9, CHC#10	0.033	+0.003/-0.000
#5	CHC#11, CHC#12	0.028	+0.003/-0.000



NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY ALKALINE DETERGENT LUBRICANT CIMSTAR 40 OR EQUIVALENT APPROVED BY CORNELL LEPP

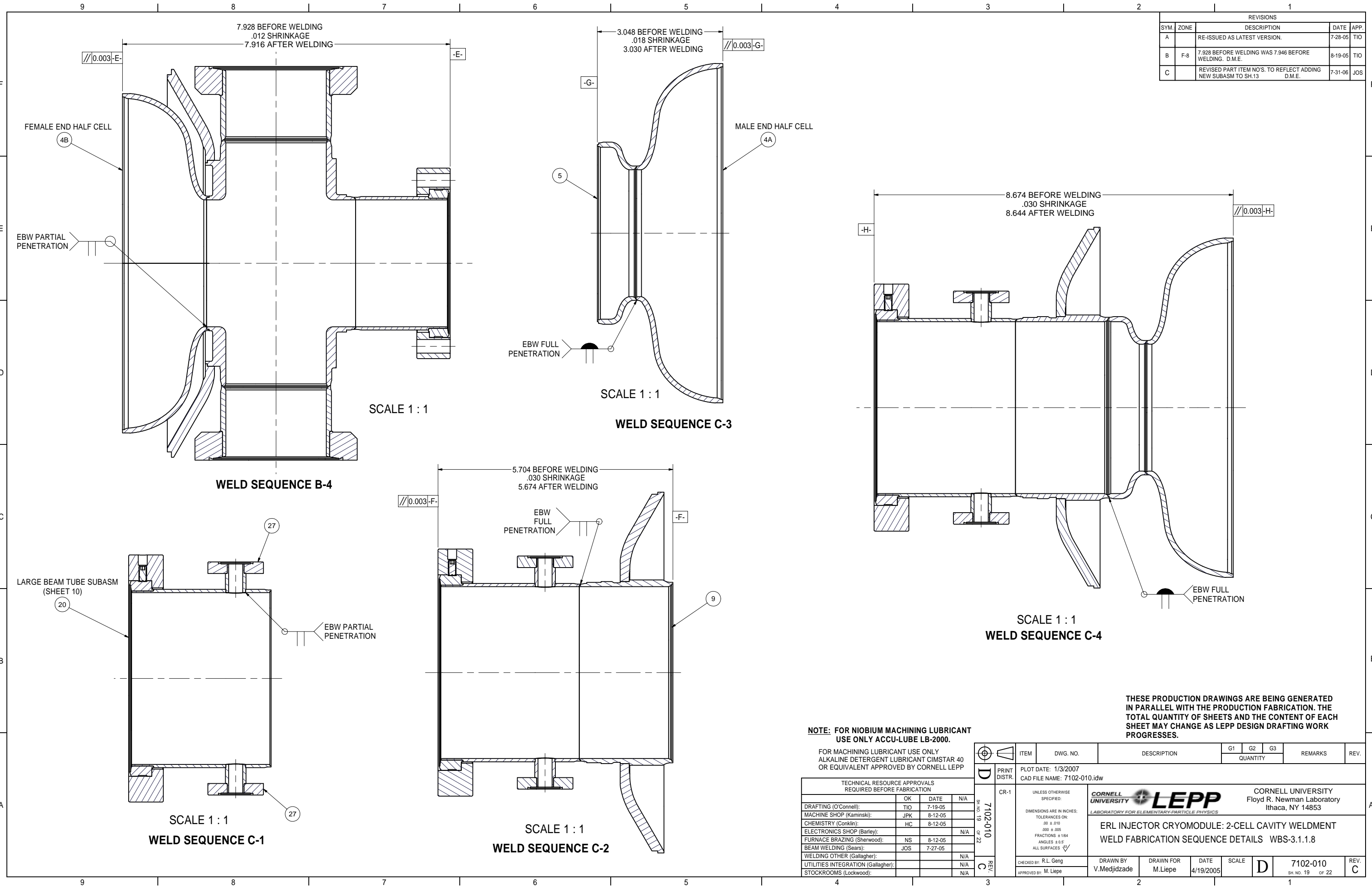
TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7/19/05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-27-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
PRINT DISTR.	7102-010	CR-1					
PLOT DATE:	1/3/2007	CAD FILE NAME:	7102-010.idw				
UNLESS OTHERWISE SPECIFIED:							
DIMENSIONS ARE IN INCHES:							
TOLERANCES ON:							
.00 ± .010							
.000 ± .005							
FRACTIONS ± 1/64							
ANGLES ± 0.5°							
ALL SURFACES							
CHECKED BY:	R.L. Geng	DRAWN BY:	V.Medjidzade	DRAWN FOR:	M.Liepe	DATE:	4/19/2005
APPROVED BY:	M. Liepe	SCALE:	D	7102-010	SH. NO. 18 OF 22	REV.:	D

THESE PRODUCTION DRAWINGS ARE BEING GENERATED IN PARALLEL WITH THE PRODUCTION FABRICATION. THE TOTAL QUANTITY OF SHEETS AND THE CONTENT OF EACH SHEET MAY CHANGE AS LEPP DESIGN DRAFTING WORK PROGRESSES.

CORNELL UNIVERSITY
FLOYD R. NEWMAN LABORATORY
ITHACA, NY 14853
ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT
WELD FABRICATION SEQUENCE DETAILS


REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		RE-ISSUED AS LATEST VERSION.	7-28-05	TIO
B	F-8	7.928 BEFORE WELDING WAS 7.946 BEFORE WELDING. D.M.E.	8-19-05	TIO
C		REVISED PART ITEM NO'S. TO REFLECT ADDING NEW SUBASM TO SH.13 D.M.E.	7-31-06	JOS



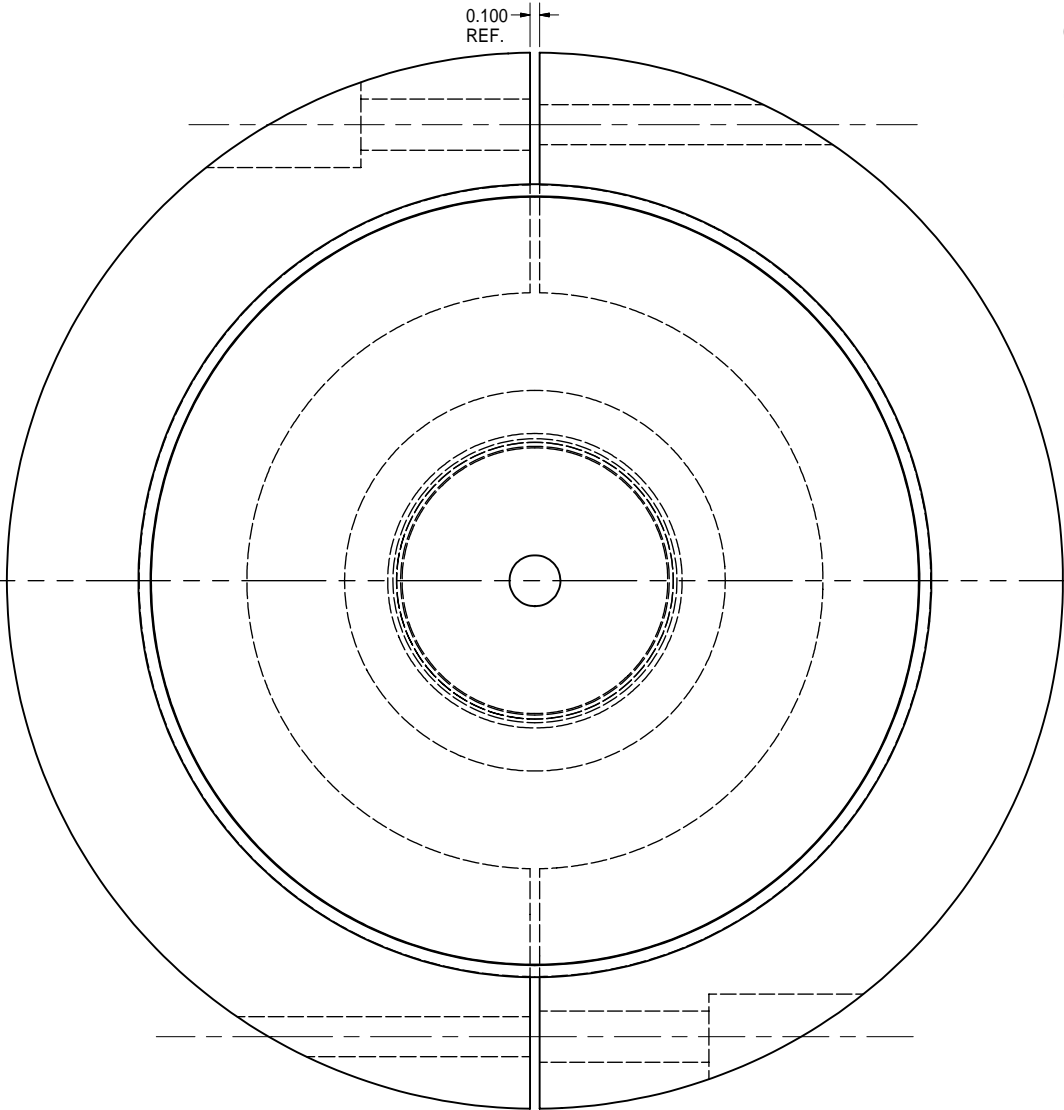
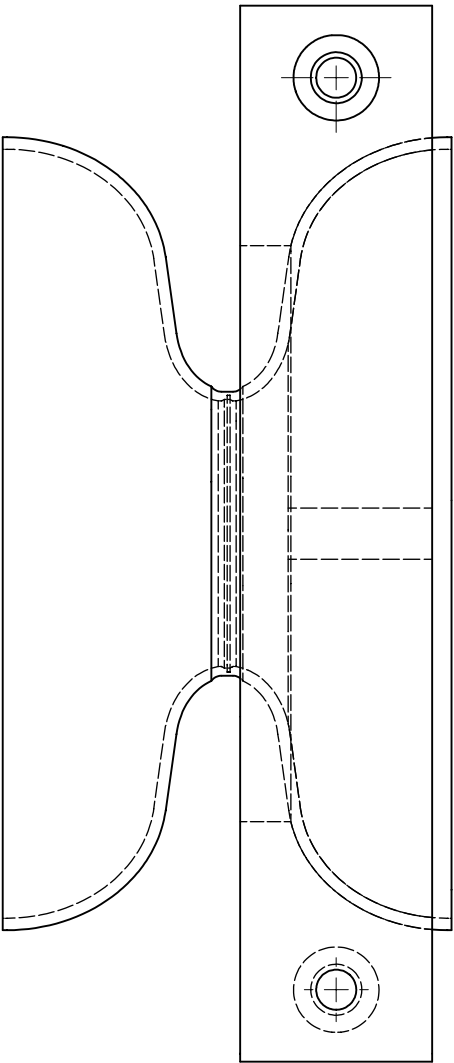
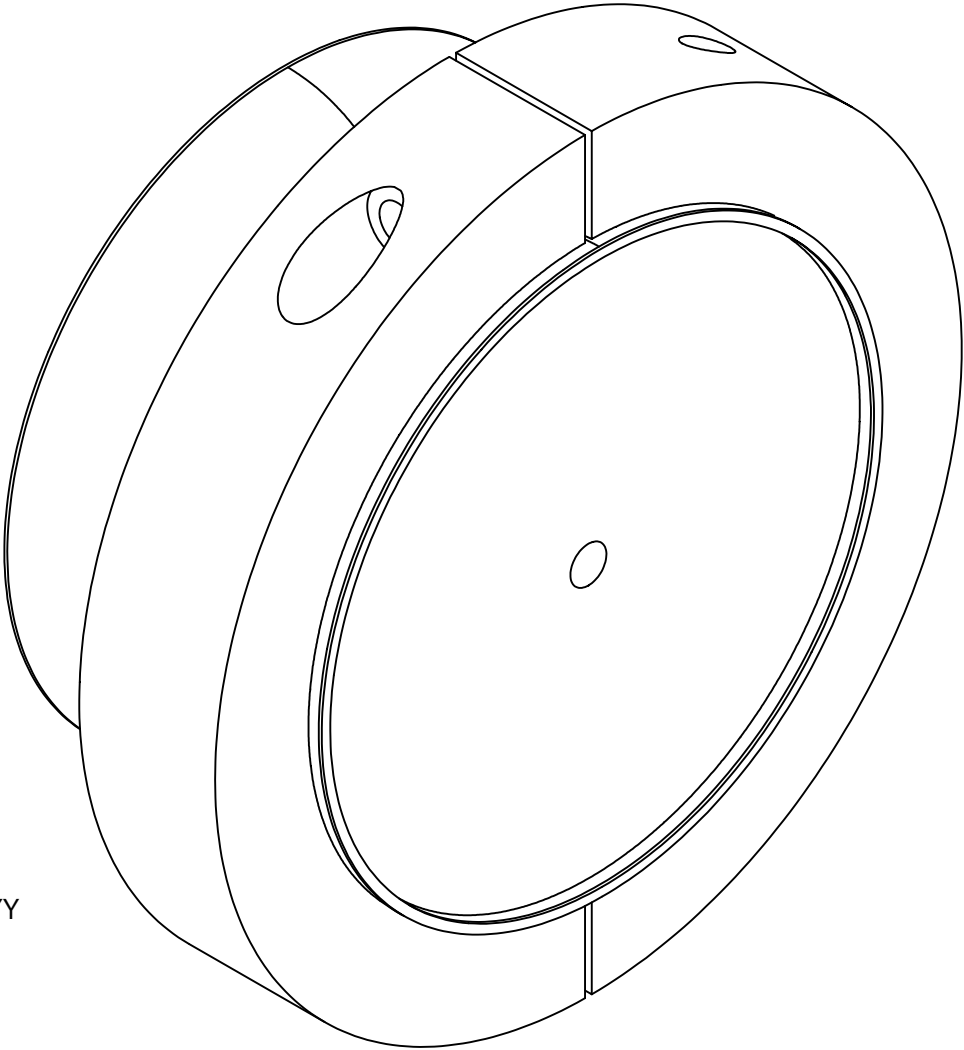
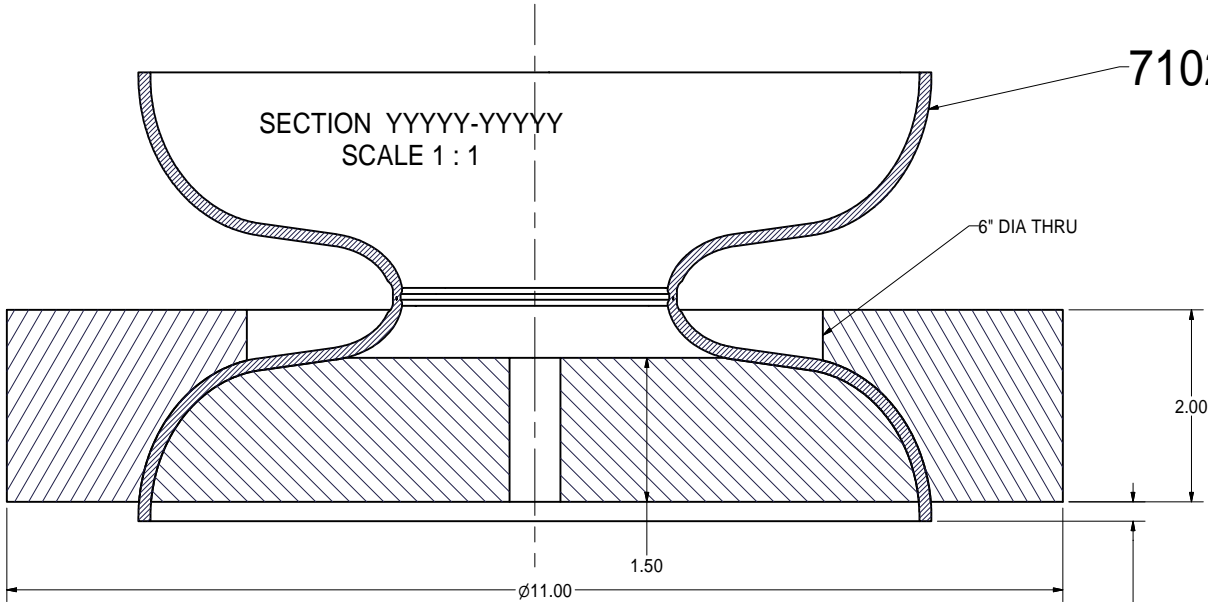
NOTE: FOR NIOBIUM MACHINING LUBRICANT USE ONLY ACCU-LUBE LB-2000.

FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

TECHNICAL RESOURCE APPROVALS REQUIRED BEFORE FABRICATION			
	OK	DATE	N/A
DRAFTING (O'Connell):	TIO	7-19-05	
MACHINE SHOP (Kaminski):	JPK	8-12-05	
CHEMISTRY (Conklin):	HC	8-12-05	
ELECTRONICS SHOP (Barley):			N/A
FURNACE BRAZING (Sherwood):	NS	8-12-05	
BEAM WELDING (Sears):	JOS	7-27-05	
WELDING OTHER (Gallagher):			N/A
UTILITIES INTEGRATION (Gallagher):			N/A
STOCKROOMS (Lockwood):			N/A

		ITEM		DWG. NO.		DESCRIPTION			G1	G2	G3	REMARKS		REV.	
									QUANTITY						
D		PRINT DISTR.		PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw											
7102-010 SH. NO. 19 OF 22		CR-1		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES			<div> CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853 ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT WELD FABRICATION SEQUENCE DETAILS WBS-3.1.1.8</div>								
REV. C		CHECKED BY: R.L. Geng APPROVED BY: M. Liepe		DRAWN BY V.Medjdzade		DRAWN FOR M.Liepe		DATE 4/19/2005		SCALE		D 7102-010 SH. NO. 19 OF 22		REV. C	

REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.

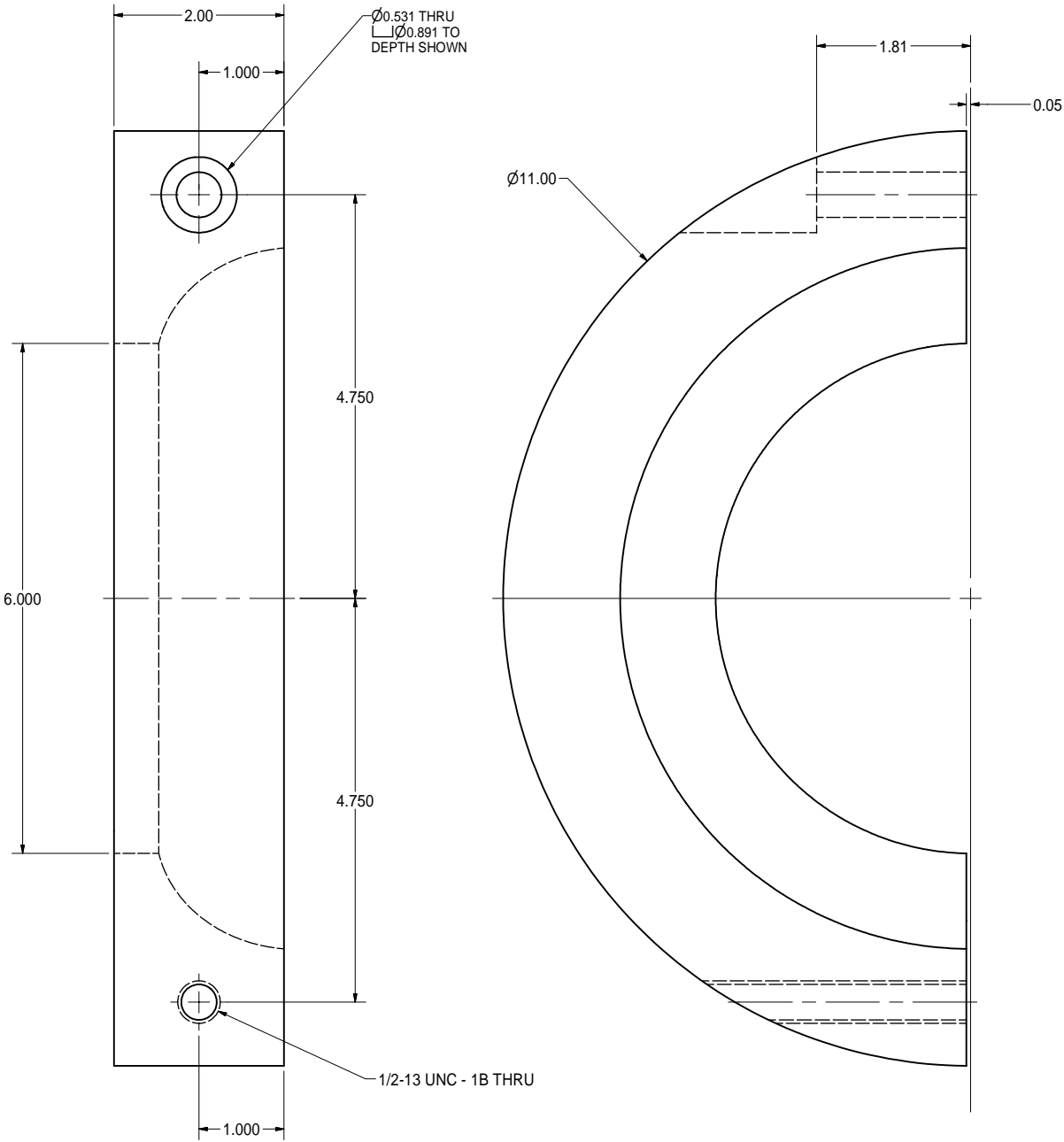


0.202 ALLOWED
FOR MACHINING
EDGE
(.180 MACHINED)

DUMBELL FIXTURE ASM
FILE NAME: 7102-010
SHEET NO.: 20
DFT. SCALE: 1:1
MATERIAL: AS NOTED
QTY: 1 REQ'D
NOTES:

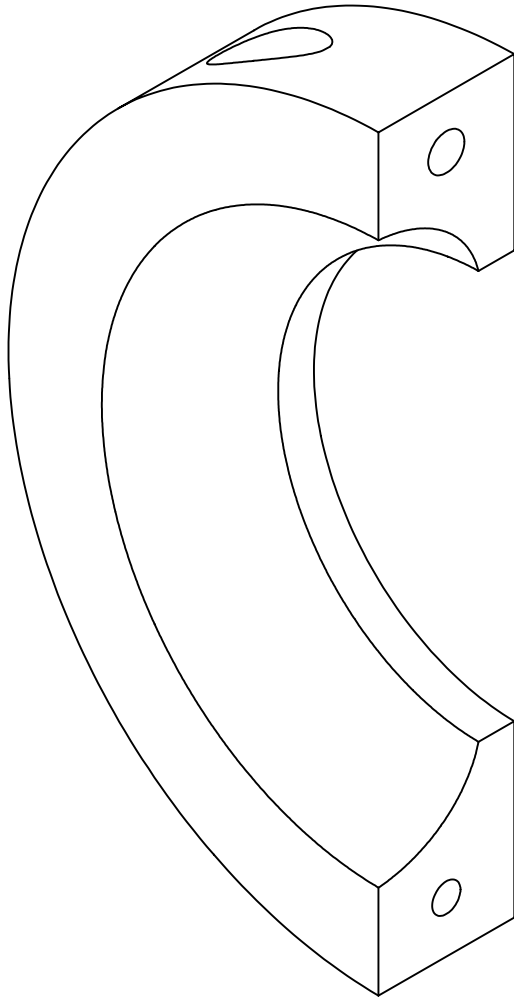
		ITEM	DWG. NO.		DESCRIPTION			G1	G2	G3	REMARKS		REV.
								QUANTITY					
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw											
7102-010 SH. NO. 20 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓			 CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853			ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT DUMBELL FIXTURE ASSEMBLY					
	REV.	CHECKED BY: R.L. Geng APPROVED BY: M. Liepe	DRAWN BY V.Medjdzade		DRAWN FOR M.Liepe		DATE 4/19/2005	SCALE	D	7102-010 SH. NO. 20 OF 22		REV.	

REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.





PROFILE CUT
ON CNC

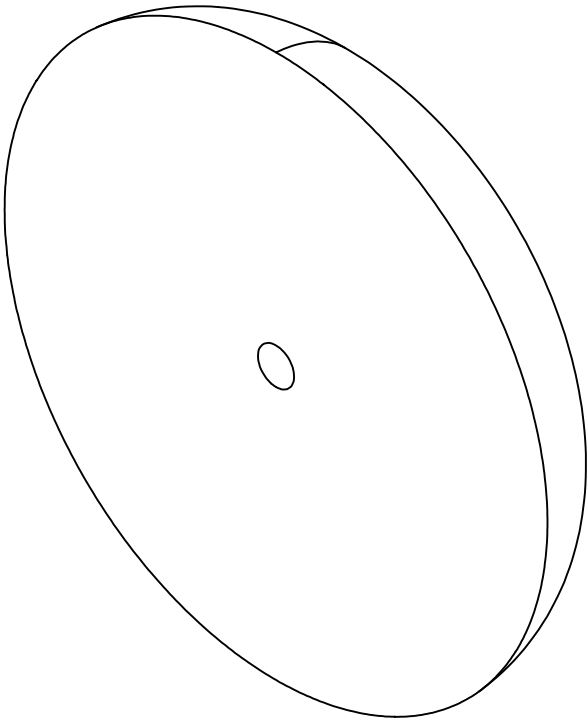
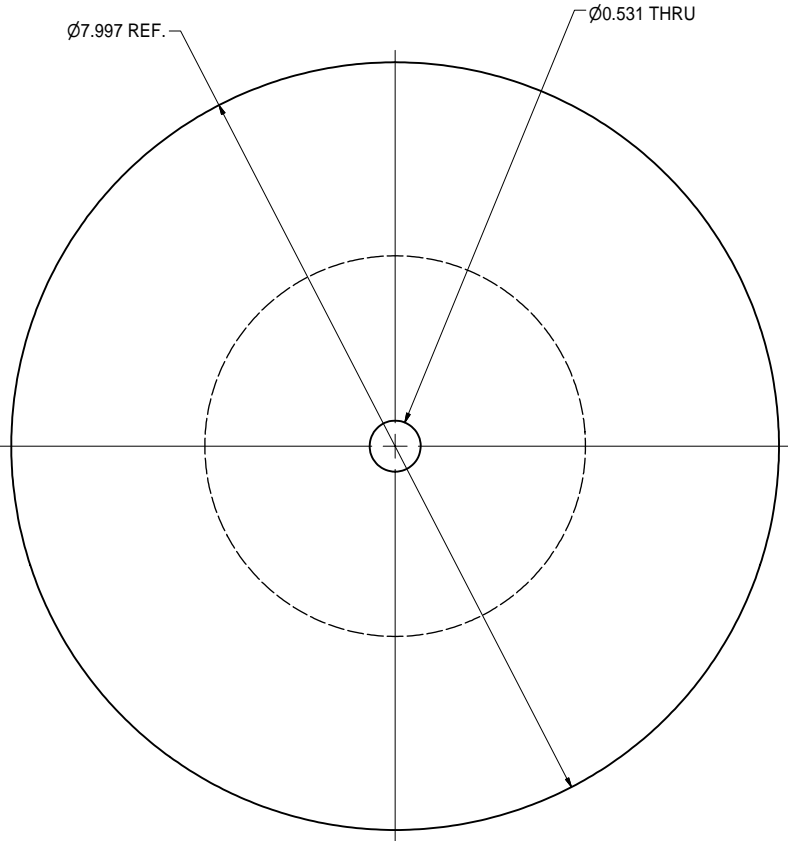
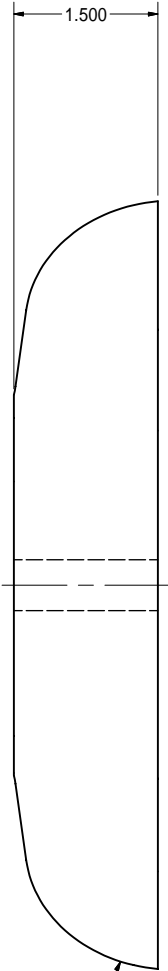
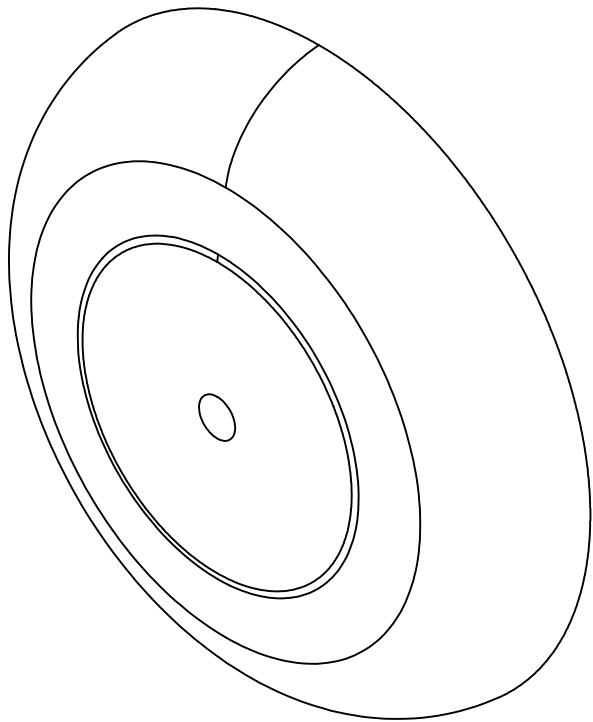
DETAIL ZZZZZ
SCALE 4 : 1



○ FIXTURE OUTER HALF
FILE NAME: 7102-010
SHEET NO.: 21
DFT. SCALE: 1:1
MATERIAL: ALUM
QTY: 2 REQ'D
NOTES: PROFILE CUT ON CNC

		ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.	
					QUANTITY					
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw								
	CR-1	<div>UNLESS OTHERWISE SPECIFIED:</div> <div>DIMENSIONS ARE IN INCHES:</div> <div>TOLERANCES ON:</div> <div>.00 ± .010</div> <div>.000 ± .005</div> <div>FRACTIONS ± 1/64</div> <div>ANGLES ± 0.5°</div> <div>ALL SURFACES <input checked="" type="checkbox"/></div>				<div><div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div></div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT DUMBELL FIXTURE OUTER HALF</div>				
SH. NO. 21 OF 22	7102-010	CHECKED BY: R.L. Geng		DRAWN BY V.Medjdzade	DRAWN FOR M.Liepe	DATE 4/19/2005	SCALE	D	7102-010 SH. NO. 21 OF 22	REV.
REV.		APPROVED BY: M. Liepe								

REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



PROFILE CUT ON CNC

○ **FIXTURE INNER**
FILE NAME: 7102-010
SHEET NO.: 22
DFT. SCALE: 1:1
MATERIAL: TEFLON
QTY: 1 REQ'D
NOTES: PROFILE MACHINED ON CNC

		ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.	
					QUANTITY					
D	PRINT DISTR.	PLOT DATE: 1/3/2007 CAD FILE NAME: 7102-010.idw								
7102-010 SH. NO. 22 OF 22	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: .00 ± .010 .000 ± .005 FRACTIONS ± 1/64 ANGLES ± 0.5° ALL SURFACES ✓			<div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div> <div> LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div> <div>ERL INJECTOR CRYOMODULE: 2-CELL CAVITY WELDMENT DUMBELL FIXTUEER INNER</div>					
		CHECKED BY: R.L. Geng		DRAWN BY: V.Medjidzade	DRAWN FOR: M.Liepe	DATE: 4/19/2005	SCALE:	D	7102-010 SH. NO. 22 OF 22	REV.
		APPROVED BY: M. Liepe								