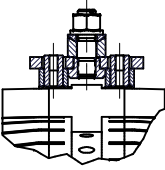
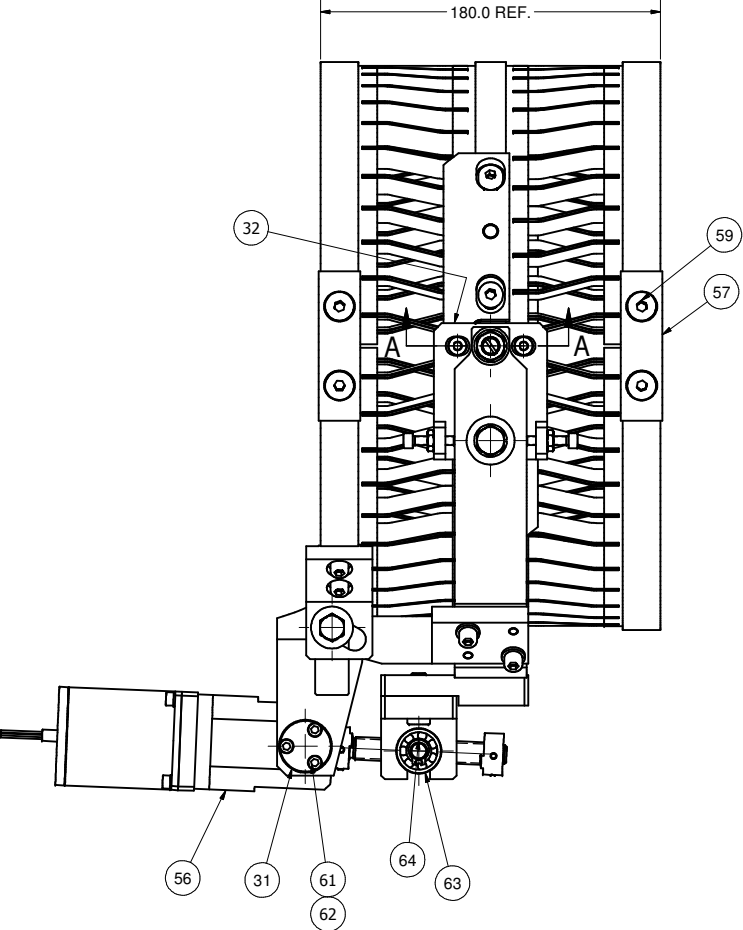
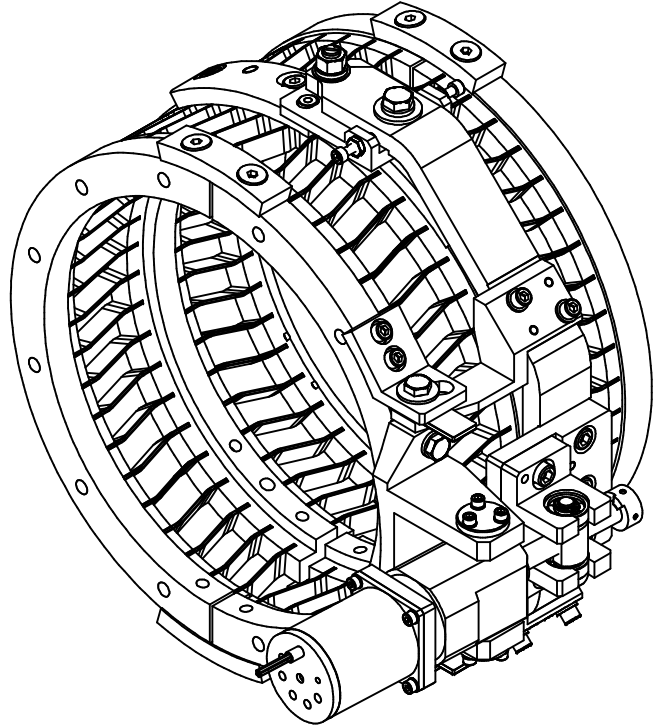
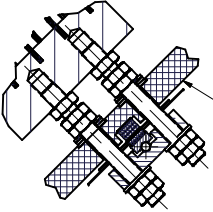
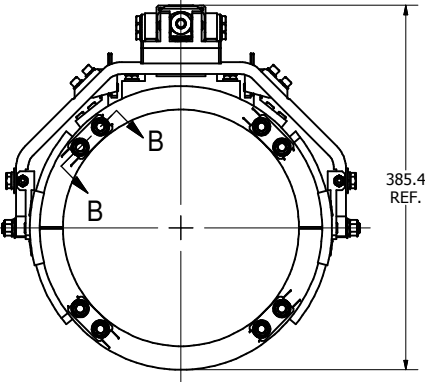
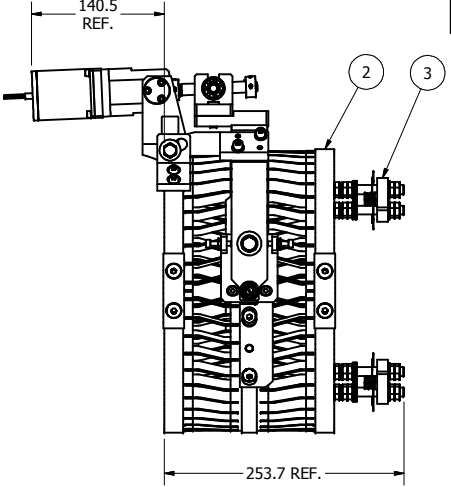


REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A	A7	ADDED NOTE 2 TO PART 2 INFO BLOCK. TMK	9/12/07	TIO

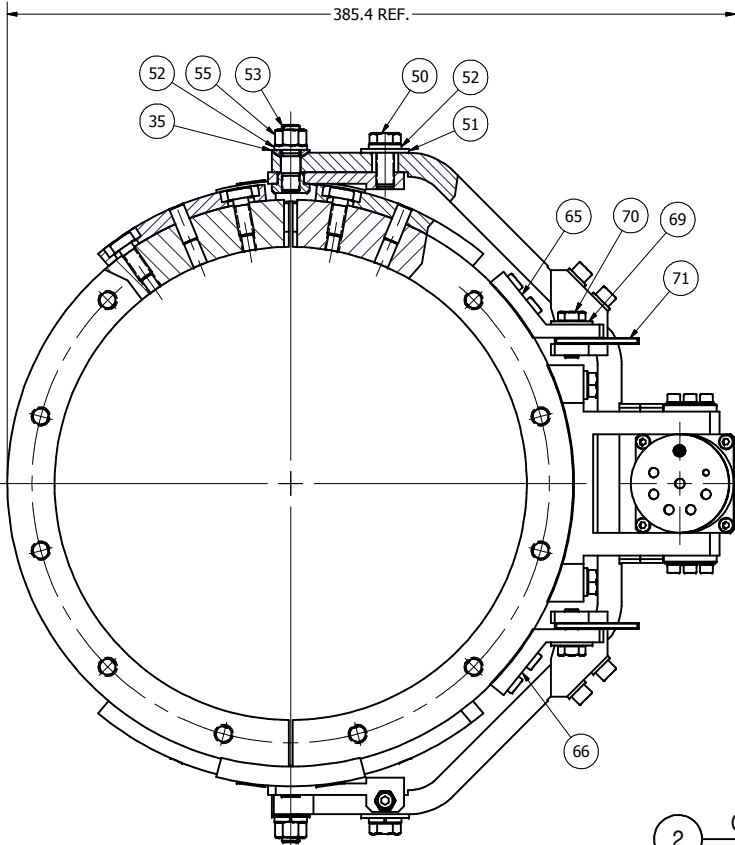


SECTION A-A

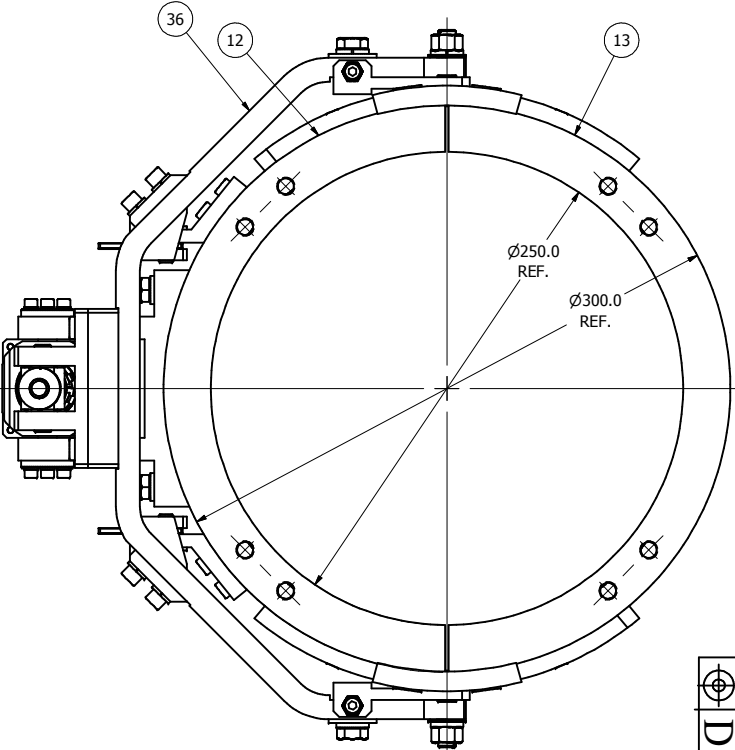


SECTION B-B

1 TUNER WITH PIEZO ASSEMBLY
FILE NAME: 7102-005
SHEET NO.: 1
DFT. SCALE: 1:4
MATERIAL:
QTY: 1 PER CAVITY
NOTES:



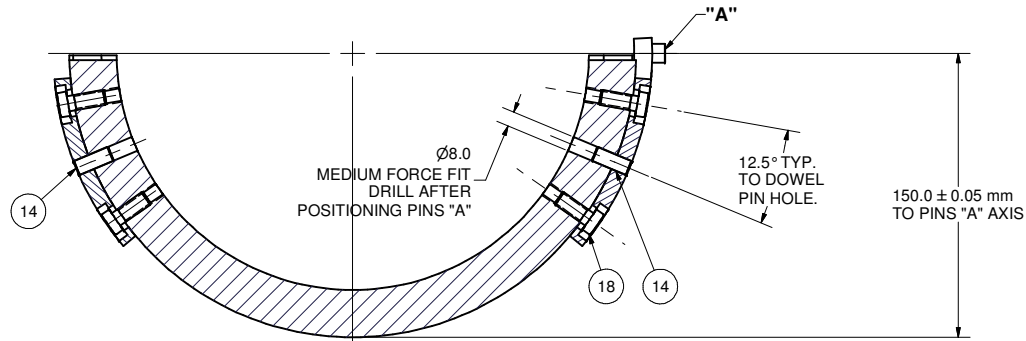
2 CAVITY BLADE TUNER ASSEMBLY
FILE NAME: 7102-005
SHEET NO.: 1
DFT. SCALE: 1:2
MATERIAL:
QTY: 1 PER CAVITY
NOTES: 1. INSTALL SHIMS 71 BEFORE MECHANISM REMOVAL.
REMOVE SHIMS AFTER MECHANISM INSTALLATION.
2. SEE NOTE ON PT.36, SECTION A-A FOR MACHINING OPERATION INSTRUCTIONS
AND INSERTION OF PARTS 45 THAT TAKE PLACE AT THIS (PT.2) ASSEMBLY



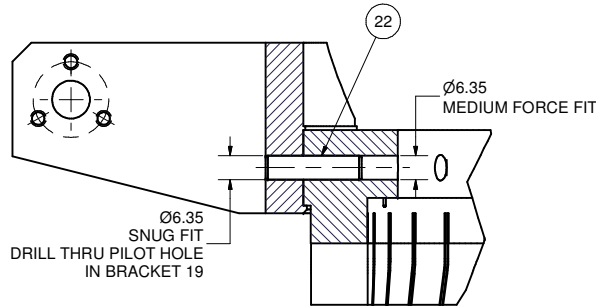
71	Sheet 6	SHIMS SET	2						
70	-	5/16-24 x 3/4 Hex Cap Screw	2					316 St. Steel, Diconited	
69	-	5/16 Washer	2					316 St. Steel	
68	-	1/4-28 x 5/8 Socket Head Cap Screw	4					316 St. Steel	
67	-	1/4 Spring Lock Washer	4					316 St. Steel	
66	Sheet 10	FLANGE LOCK BRACKET LEFT	1						
65	Sheet 9	FLANGE LOCK BRACKET RIGHT	1						
64	-	9 MM EXTERNAL RETAINING RING	2					Bronze	
63	-	9 x 24 x 7 (SKF 609) BALL BEARING	2					St. Steel, Diconited	
62	-	#8 Spring Lock Washer	6					316 St. Steel	
61	-	#8-32 x 5/8 Socket Head Cap Screw	6					316 St. Steel, Diconited	
59	-	M8 x 20 Sock. Countersunk Hd. Screw	8					316 St. Steel	
57	Sheet 6	CONNECTOR PLATE	4						
56	Sheet 11	MECHANISM ASSEMBLY	1						
55	-	3/8-24 Hex Nut	2					316 St. Steel	
53	Sheet 9	STUD	2						
52	-	3/8 Spring Lock Washer	4					316 St. Steel	
51	-	3/8 Washer	2					316 St. Steel	
50	-	3/8-24 x 7/8 Hex Cap Screw	2					316 St. Steel	
49	-	#10-32 x 7/8 Socket Head Cap Screw	4					316 St. Steel	
48	-	#10-32 Hex Machine Screw Nut	4					316 St. Steel	
36	Sheet 8	LEVER ASSEMBLY	1						
35	Sheet 8	SPHERICAL WASHER	2						
32	Sheet 7	ROTATION PLATE SUB-ASM	2						
31	Sheet 5	MOTOR CENTER	2						
13	Sheet 2	TUNER BACK HALF ASSEMBLY	1						
12	Sheet 2	TUNER FRONT HALF ASSEMBLY	1						

ITEM	DWG. NO.	DESCRIPTION	QUANTITY	REMARKS	REV.
3	Sheet 10	PIEZO UNIT ASSEMBLY	4		
2	Sheet 1	CAVITY BLADE TUNER ASSEMBLY	X		
1	Sheet 1	TUNER WITH PIEZO ASSEMBLY	X		
PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw					
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ±0.1 0.00 ±0.05 ANGLES ±0.5° ALL SURFACES					
CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853					
ERL Injection Cryomodule-Production Version Cavity Tuner Asm					
CHECKED BY: JOS	DRAWN BY: dme4	DRAWN FOR: V.M.	DATE: 9/25/2006	SCALE: D	7102-005 SH. NO. 1 OF 14
APPROVED BY: ML					REV. A

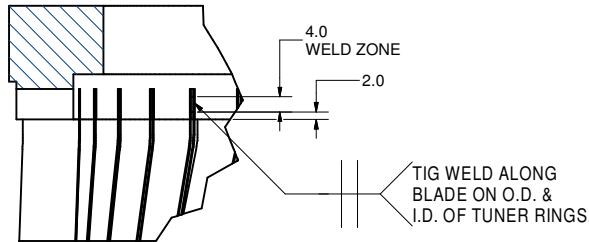
REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



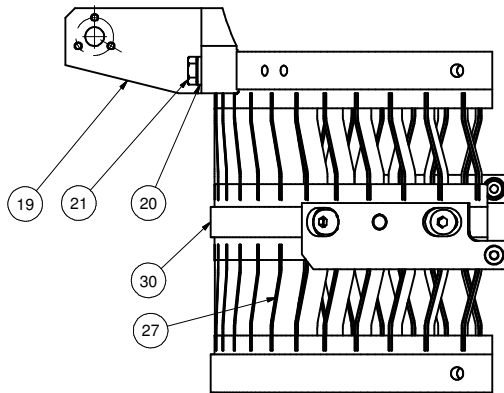
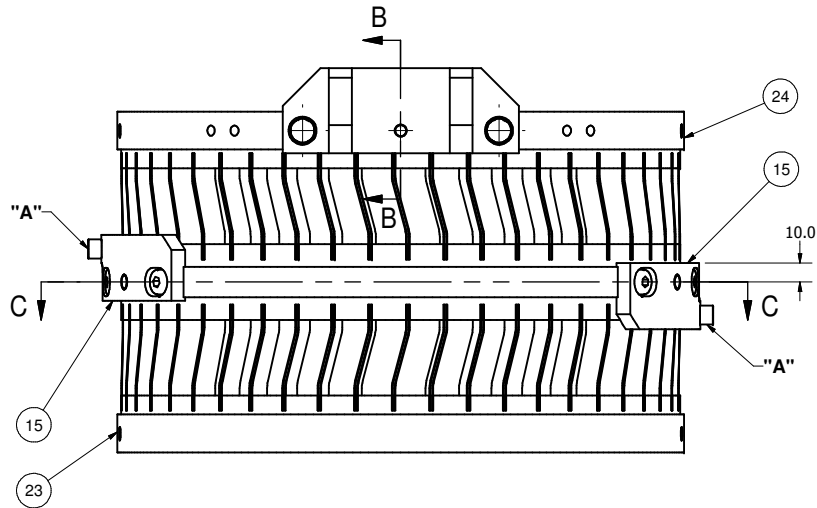
TYPICAL FOR ITEMS 12 & 13
SECTION C-C
SCALE 1:2



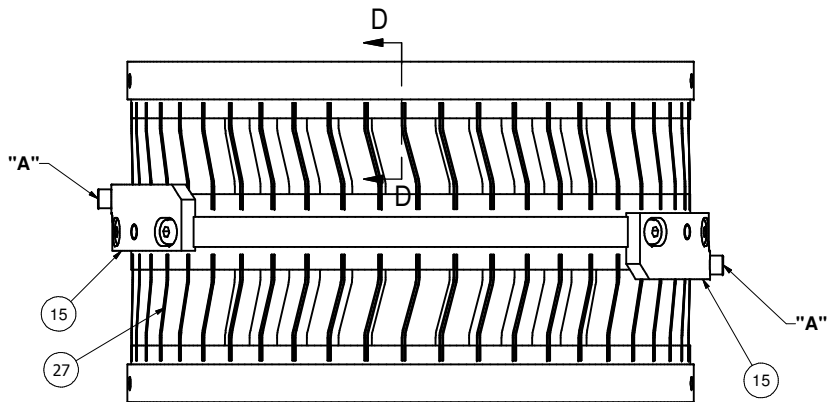
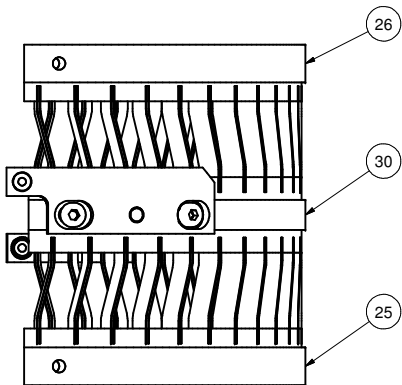
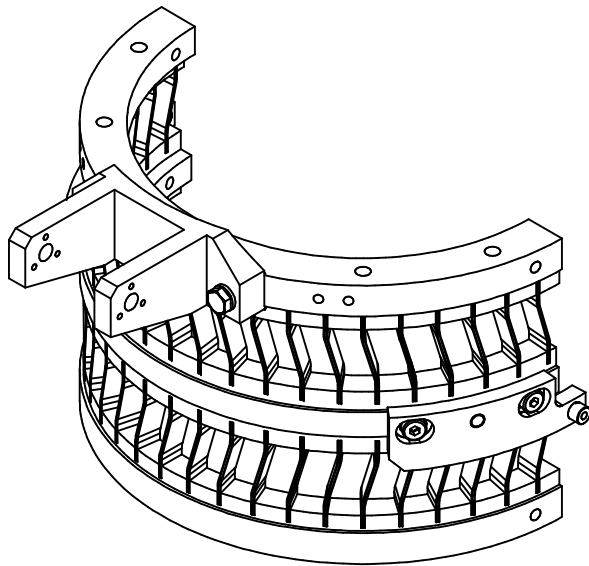
SECTION B-B
SCALE 1:1



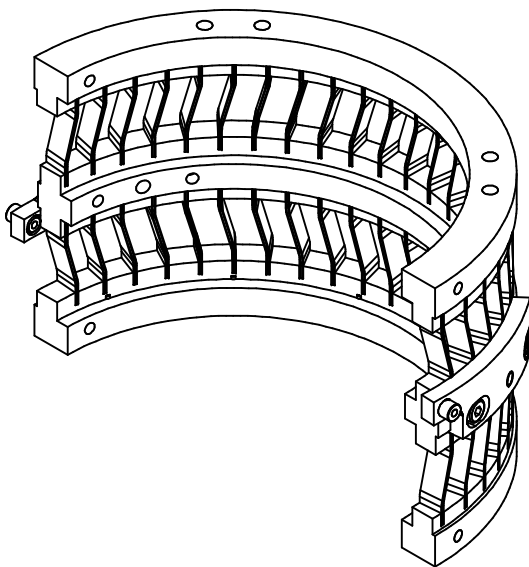
SECTION D-D
SCALE 1:1
FOR ITEMS 12 & 13



12 Tuner Front Half Assembly
FILE NAME: 7102-005
SHEET NO.: 2
DFT. SCALE: 1:2
MATERIAL: As Noted
QTY: 1 Per Asm
NOTES:



13 Tuner Back Half Assembly
FILE NAME: 7102-005
SHEET NO.: 2
DFT. SCALE: 1:2
MATERIAL: As Noted
QTY: 1 Per Asm
NOTES:



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ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

30	Sheet 5	Inner Tuner Ring	1	1					
27	Sheet 3	Blade Assembly	46	46					
26	Sheet 4	Left Back Tuner Ring		1					
25	Sheet 3	Right Back Tuner Ring		1					
24	Sheet 4	Right Front Tuner Ring	1						
23	Sheet 3	Left Front Tuner Ring	1						
22	-	1/4 x 1 Dowel Pin	1			Brass			
21	-	5/16-24 x 1-1/4 Hex Cap Screw	2			316 SST			
20	-	5/16 Spring Lock Washer	2			316 SST			
19	Sheet 5	MECHANISM BRACKET	1						
18	-	M8 X 20 Socket Head Cap Screw, DIN 7984 (Low Head)	4	4		316 SST			
15	Sheet 6	Pin Plate Sub-Asm	2	2					
14	-	8mm Dowel Pin X 20 mm Lg.	2	2		316 SST			
13	Sheet 2	Tuner Back Half Assembly		X					
12	Sheet 2	Tuner Front Half Assembly		X					

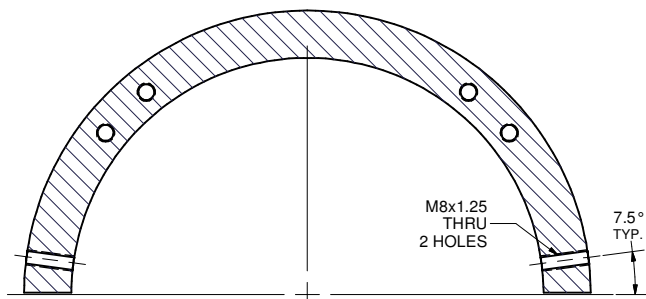
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	QUANTITY	REMARKS	REV.
PRINT	DISTR.	PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw						
7102-005	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES						
REV.		CHECKED BY: JDS APPROVED BY: ML						
		DRAWN BY: dme4						
		DRAWN FOR: V.M.						
		DATE: 9/25/2006						
		SCALE: D						
		7102-005						
		SH. NO. 2 OF 14						



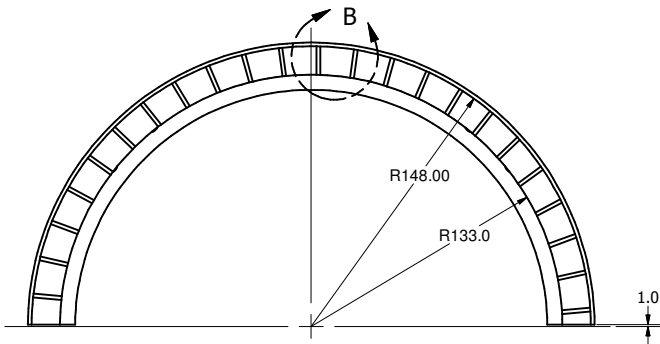
CORNELL UNIVERSITY
Floyd R. Newman Laboratory
Ithaca, NY 14853

ERL Injection Cryomodule-Production Version Cavity Tuner Asm
Tuner Front & Back Half Assembly

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.

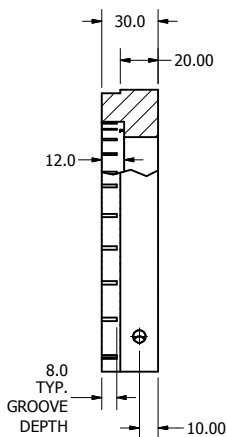
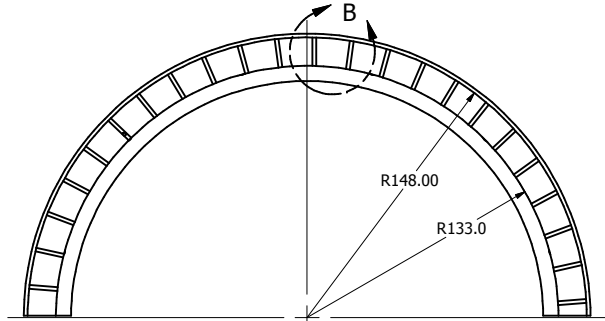
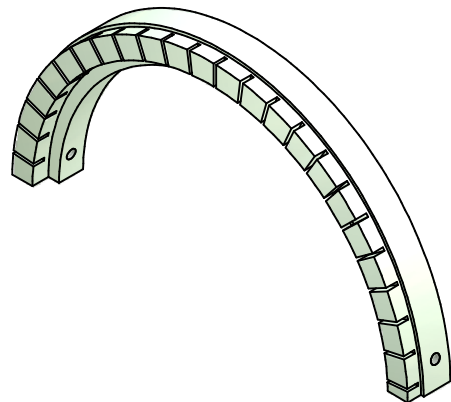
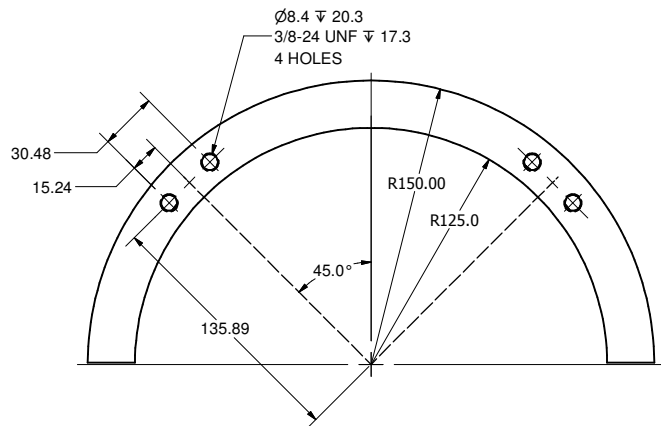
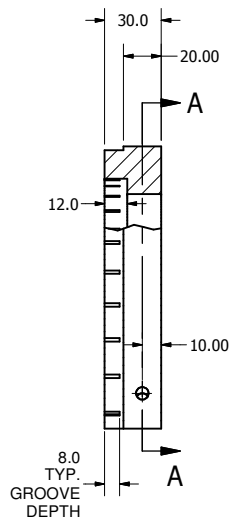


SECTION A-A



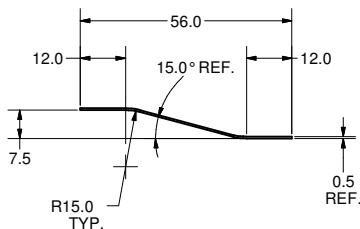
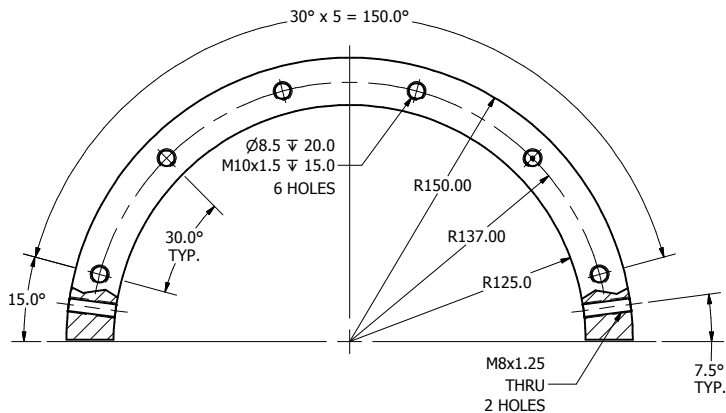
23 LEFT FRONT TUNER RING

FILE NAME: 7102-005
SHEET NO.: 3
DFT. SCALE: 1:2
MATERIAL: GRADE 2 TITANIUM
QTY: 1 PER ASSEMBLY
NOTES:



25 RIGHT BACK TUNER RING

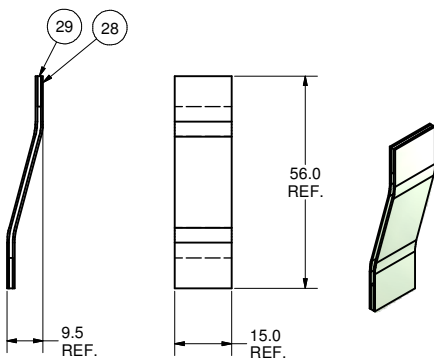
FILE NAME: 7102-005
SHEET NO.: 3
DFT. SCALE: 1:2
MATERIAL: GRADE 2 TITANIUM
QTY: 1 PER ASSEMBLY
NOTES:



28 BLADE PETAL

FILE NAME: 7102-005
SHEET NO.: 3
DFT. SCALE: 1:1
MATERIAL: 0.5 MM GRADE 5 TITANIUM SHEET
QTY: 184 PER TUNER
NOTES: DEVELOPED LENGTH = 56.93mm

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ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP



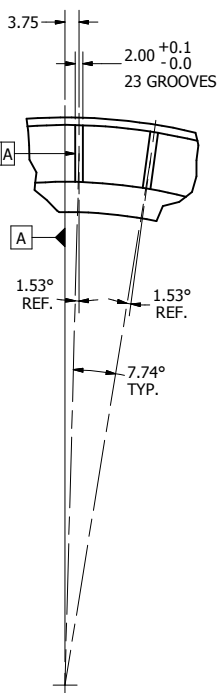
27 BLADE ASSEMBLY

FILE NAME: 7102-005
SHEET NO.: 3
DFT. SCALE: 2:1
MATERIAL:
QTY: 92 PER TUNER
NOTES:



29 BLADE SPACER

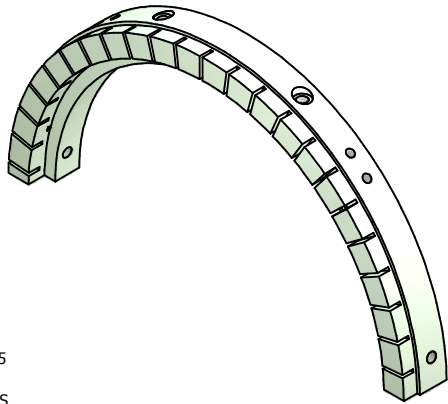
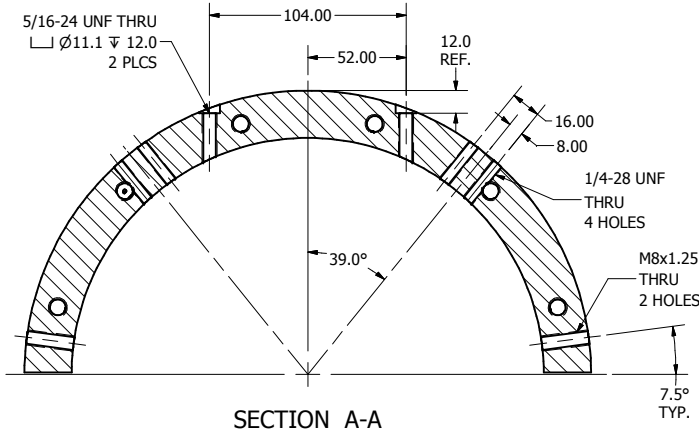
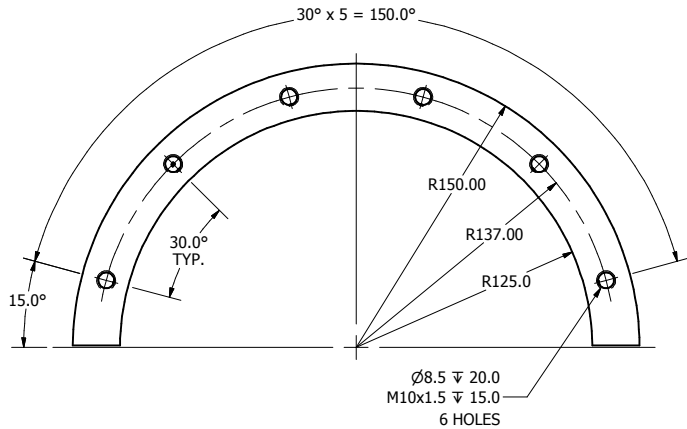
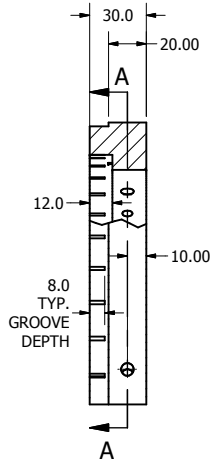
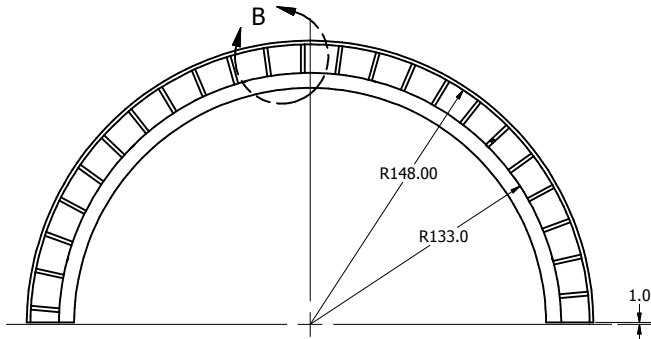
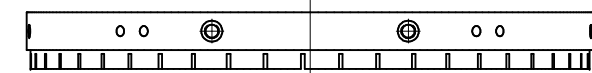
FILE NAME: 7102-005
SHEET NO.: 3
DFT. SCALE: 1:1
MATERIAL: 1 MM GRADE 5 TITANIUM SHEET
QTY: 184 PER TUNER
NOTES:



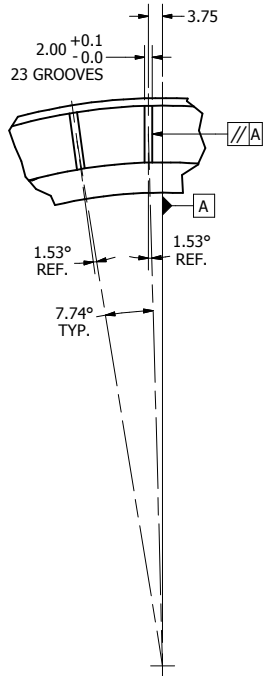
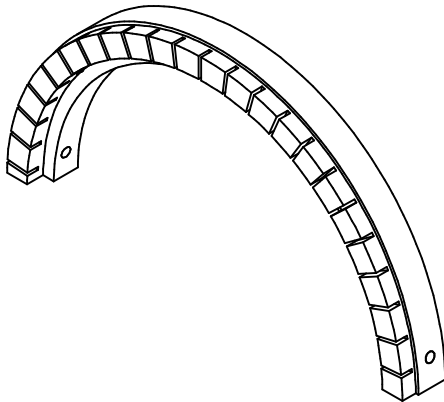
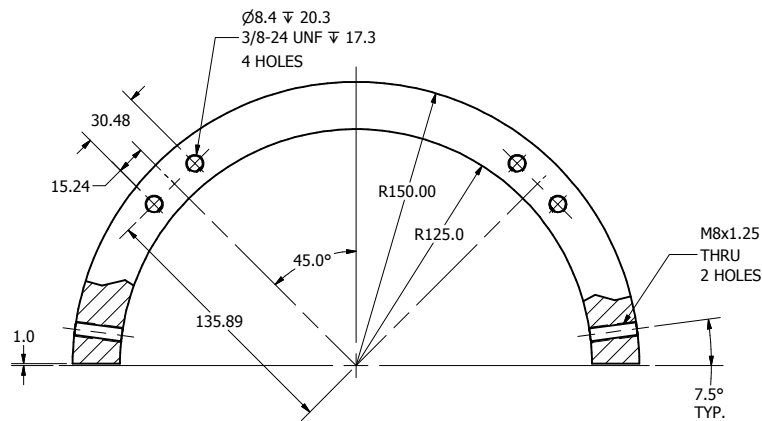
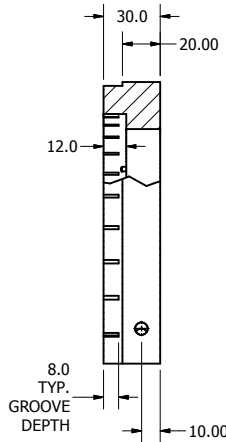
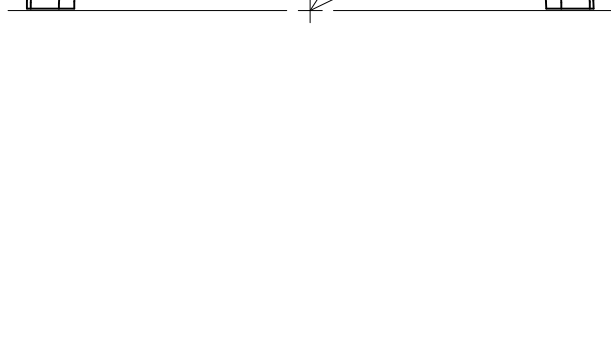
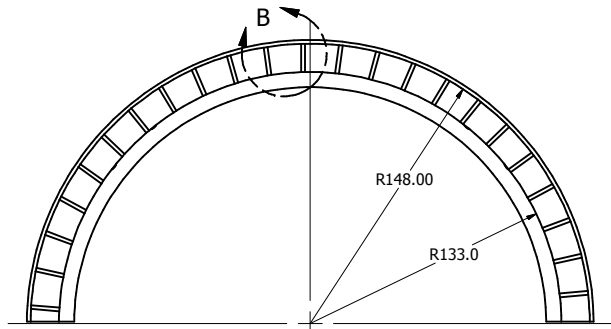
DETAIL B
SCALE 1 : 1

29	Sheet 3	Blade Spacer	2						
28	Sheet 3	Blade Petal	2						
27	Sheet 3	Blade Assembly	X						
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	QUANTITY	REMARKS	REV.	
PRINT	DISTR.	PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw							
CR-1	7102-005	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES							
REV.		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853							
		ERL Injection Cryomodule-Production Version Cavity Tuner Asm Tuner Rings & Blade Details							
		CHECKED BY: JOS APPROVED BY: ML							
		DRAWN BY: dme4 DRAWN FOR: V.M.							
		DATE: 9/25/2006							
		SCALE: D							
		7102-005 SH. NO. 3 OF 14							

REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



24 RIGHT FRONT TUNER RING
 FILE NAME: 7102-005
 SHEET NO.: 4
 DFT. SCALE: 1:2
 MATERIAL: GRADE 2 TITANIUM
 QTY: 1 PER ASSEMBLY
 NOTES:

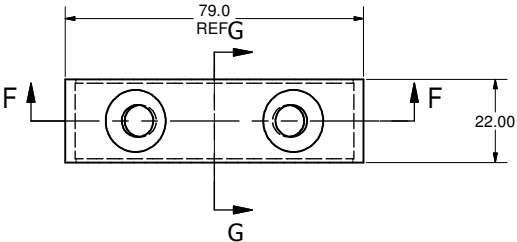


DETAIL B
 SCALE 1 : 1

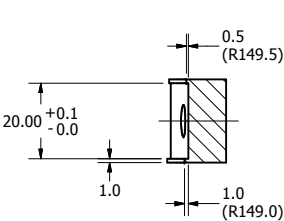
26 LEFT BACK TUNER RING
 FILE NAME: 7102-005
 SHEET NO.: 4
 DFT. SCALE: 1:2
 MATERIAL: GRADE 2 TITANIUM
 QTY: 1 PER ASSEMBLY
 NOTES:

		ITEM	DWG. NO.	DESCRIPTION			G1	G2	G3	REMARKS		REV.
		QUANTITY										
	PRINT DISTR.	PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw										
	7102-005 SH. NO. 4 OF 14	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES		<div><div>CORNELL UNIVERSITY</div><div>LEPP</div><div>LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div></div> <div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div>							
		ERL Injection Cryomodule-Production Version Cavity Tuner Asm										
REV.	CHECKED BY: JOS APPROVED BY: ML	DRAWN BY dme4	DRAWN FOR V.M.	DATE 9/25/2006	SCALE		7102-005 SH. NO. 4 OF 14		REV.			

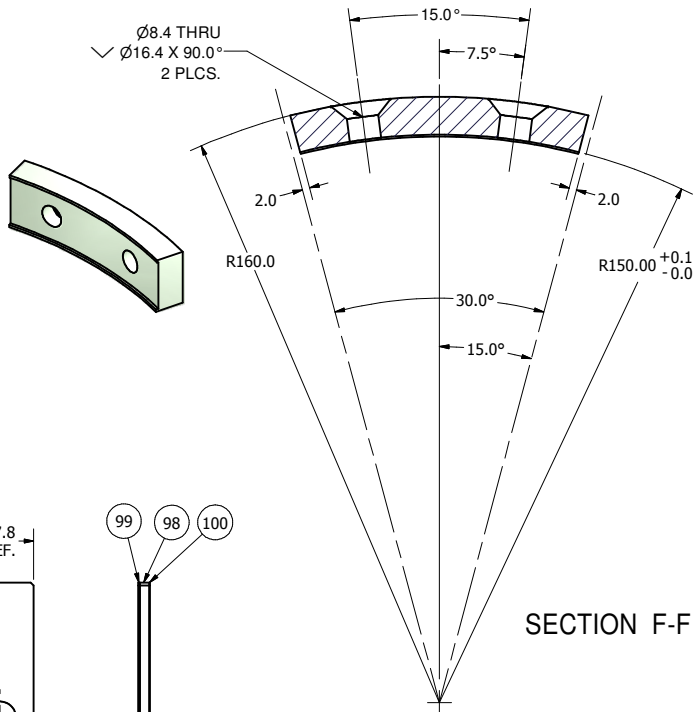
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



SECTION G-G



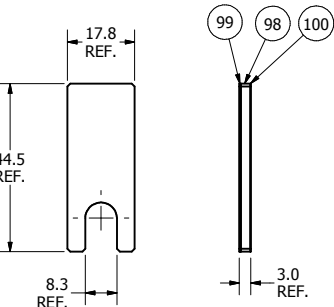
SECTION G-G



SECTION F-F

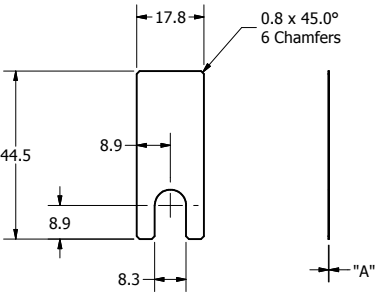
57 CONNECTOR PLATE

FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: 316L SST
QTY: 4 PER ASSEMBLY
NOTES:



71 SHIMS SET

FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL:
QTY: 2 PER ASSEMBLY
NOTES: 1. NUMBER OF SHIMS IN SET DEPENDS ON GAP
BETWEEN ARM LOCK BRACKET (ITEMS 43 AND 44)
AND FLANGE LOCK BRACKET (ITEMS 65 AND 66).



99 SHIM 0.01 IN.

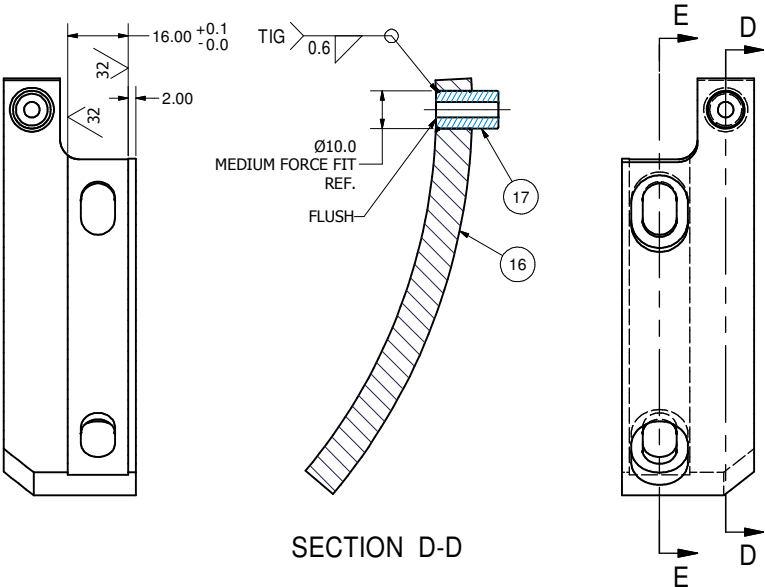
FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: ST. STEEL
QTY: 4 PER ASSEMBLY
NOTES: 1. DIMENSION "A" = 0.01 IN.

100 SHIM 0.005 IN.

FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: ST. STEEL
QTY: 10 PER ASSEMBLY
NOTES: 1. DIMENSION "A" = 0.005 IN.

98 SHIM 0.1 IN.

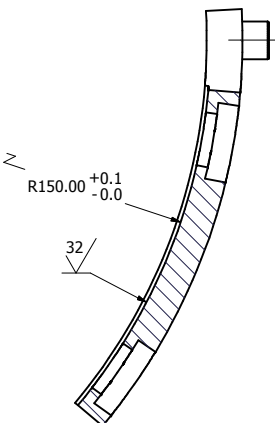
FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: ST. STEEL
QTY: 2 PER ASSEMBLY
NOTES: 1. DIMENSION "A" = 0.1 IN.



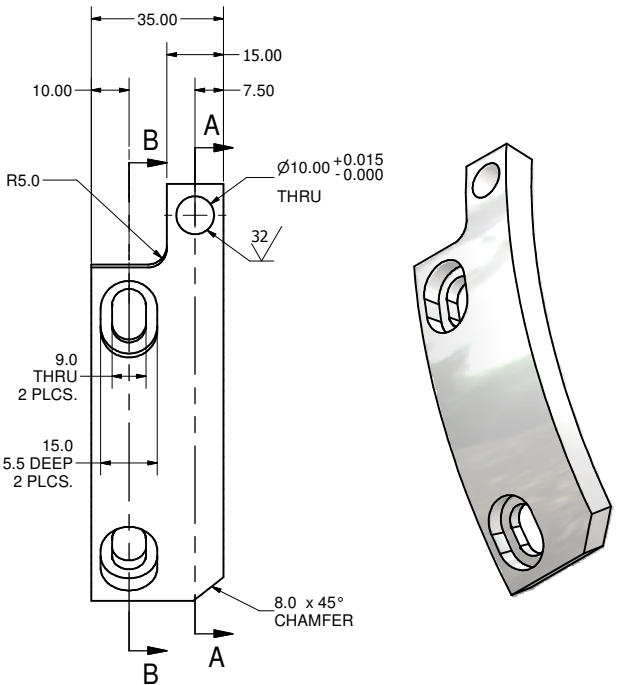
SECTION D-D

15 PIN PLATE SUB-ASM

FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: NOTED
QTY: 2 REQ'D.
NOTES:

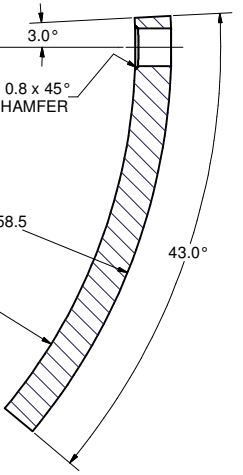


SECTION E-E

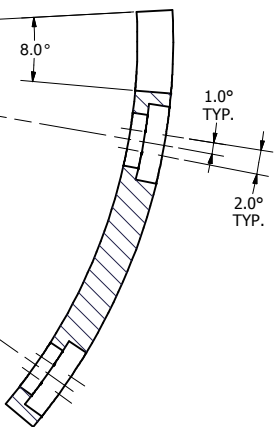


16 PIN PLATE BLANK

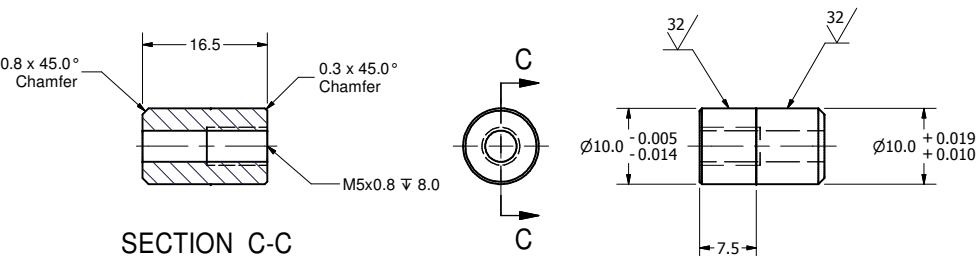
FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 1:1
MATERIAL: 316L SST
QTY: 1 PER WELDMENT
NOTES:



SECTION A-A



SECTION B-B



SECTION C-C

17 PIN

FILE NAME: 7102-005
SHEET NO.: 6
DFT. SCALE: 2:1
MATERIAL: 316L SST
QTY: 1 PER SUB-ASM
NOTES:

100	Sheet 6	SHIM 0.005 IN.	5*		* As needed
99	Sheet 6	SHIM 0.01 IN.	2*		* As needed
98	Sheet 6	SHIM 0.1 IN.	1		
71	Sheet 6	SHIMS SET	X		

17	Sheet 6	PIN	1		
16	Sheet 6	PIN PLATE BLANK	1		
15	Sheet 6	PIN PLATE SUB-ASM	X		

ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
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PRINT	7102-005	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES	CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY LABORATORY FOR ELEMENTARY PARTICLE PHYSICS	CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853
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7102-005	7102-005	7102-005	7102-005	7102-005	7102-005
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7102-005	7102-005	7102-005	7102-005	7102-005	7102-005
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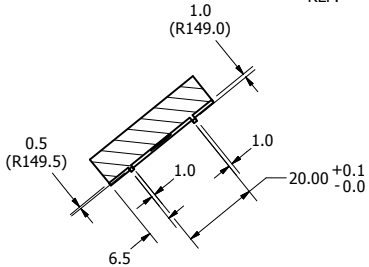
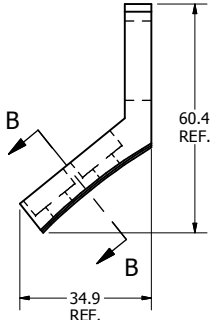
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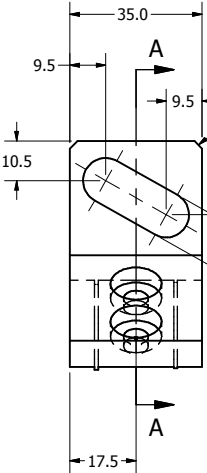
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FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.
A		PART ITEM 37 CHANGED: DIM. 12.7 WAS 12.0, 38.1 WAS 40.0; 55.0 MM x 0.7 MM DEEP MACHINING ADDED.	11/20/06	VM
B	F8	MODIFIED C'BORE HOLES IN PT.38 TO BE 'SLOT THRU' C'BORE HOLES. TMK	9/12/07	TIO

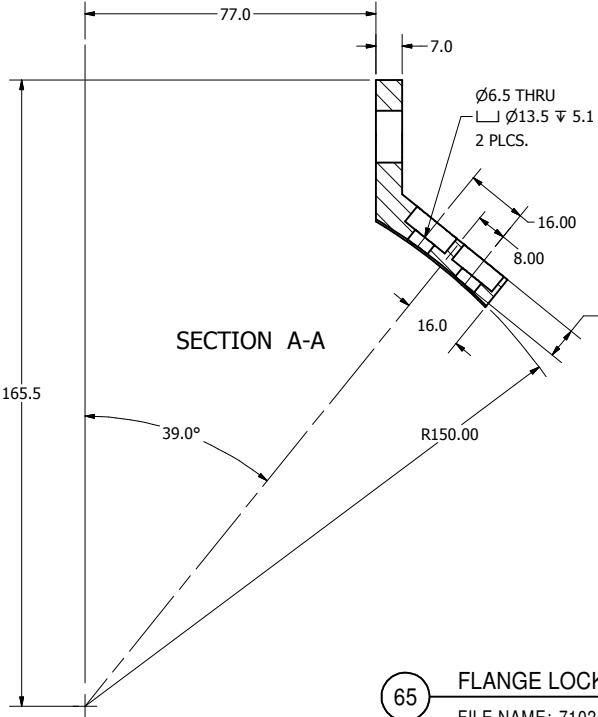


SECTION B-B

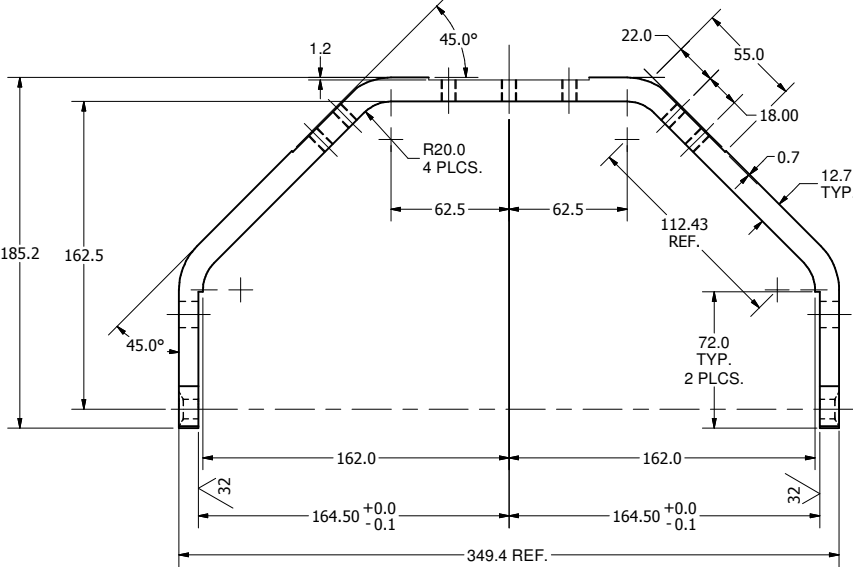
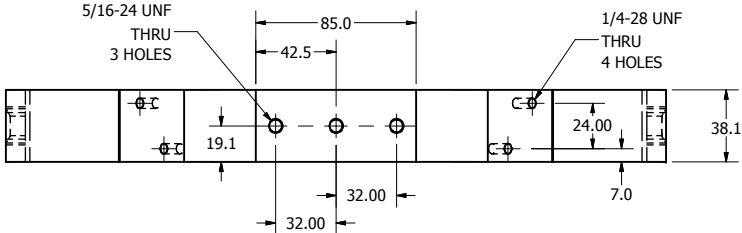


65 FLANGE LOCK BRACKET, RIGHT

FILE NAME: 7102-005
SHEET NO.: 9
DFT. SCALE: 1:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:

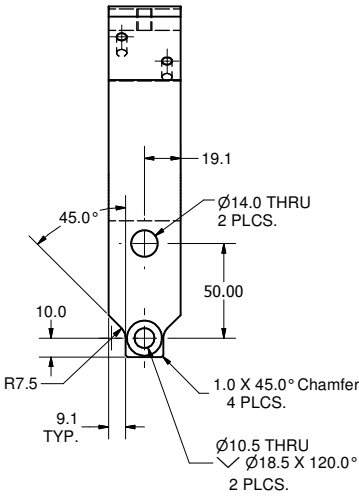


65

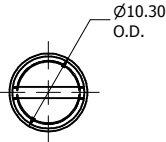
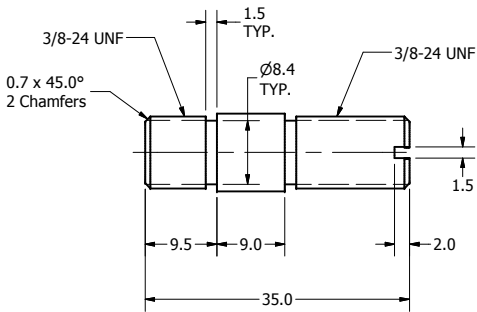


37 LEVER ARM

FILE NAME: 7102-005
SHEET NO.: 9
DFT. SCALE: 1:2
MATERIAL: 316L SST
QTY: 1 REQ'D.
NOTES: 1. DEVELOPED LENGTH: L = 577.54 MM (REF.)








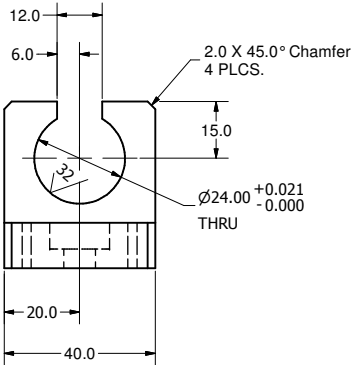
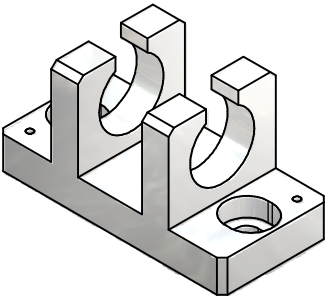
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP



53 STUD

FILE NAME: 7102-005
SHEET NO.: 9
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 2 PER ASSEMBLY
NOTES: 1. DICRONITE THREADS.

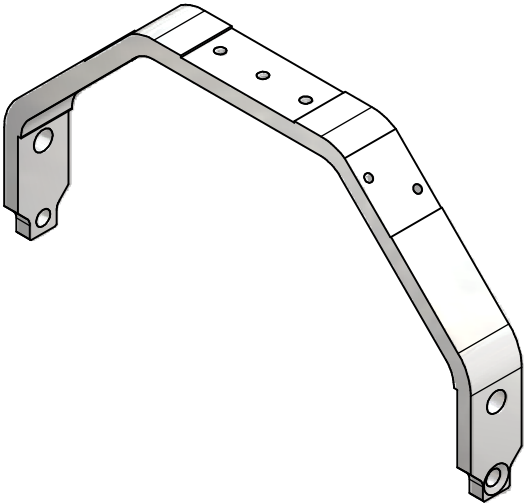
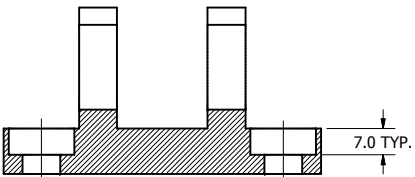
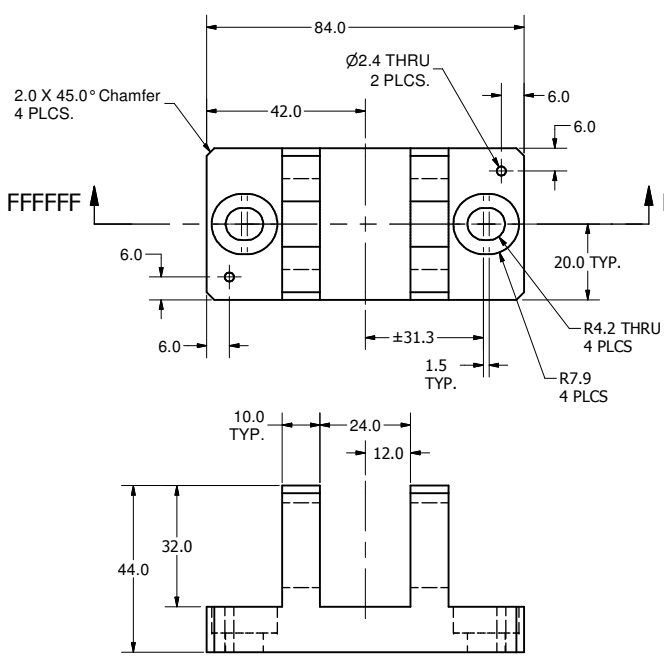
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								QUANTITY					
	PRINT DISTR.	PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw											
	7102-005 SH. NO. 9 OF 14	CR-1	UNLESS OTHERWISE SPECIFIED:		 CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853								
DIMENSIONS ARE IN MM; TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES ✓													
CHECKED BY: JQS			DRAWN BY dme4		DRAWN FOR V.M.		DATE 9/25/2006		SCALE			7102-005	REV. B
APPROVED BY: ML		SH. NO. 9 OF 14											



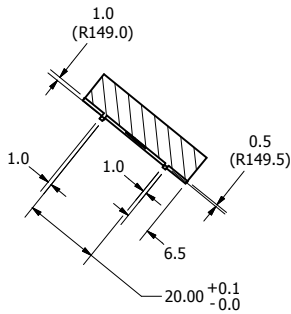
SECTION FFFFFFF-FFFFFF

38 LEVER BRACKET

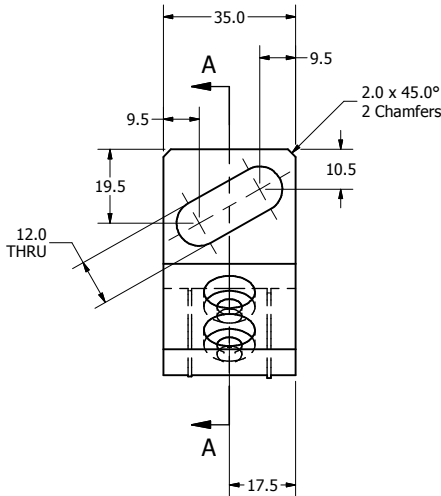
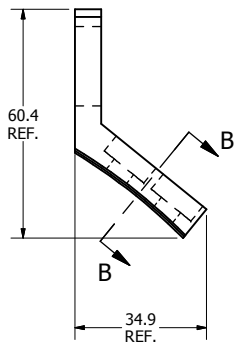
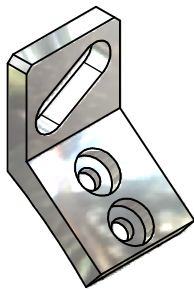
FILE NAME: 7102-005
SHEET NO.: 9
DFT. SCALE: 1:1
MATERIAL: 316L SST
QTY: 1 REQ'D.
NOTES:



REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.

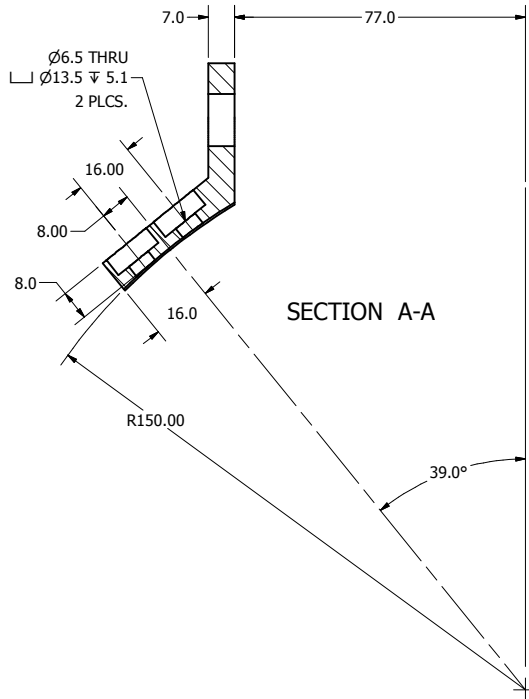


SECTION B-B

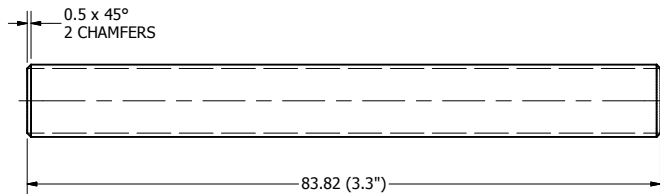
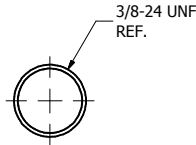


66 FLANGE LOCK BRACKET, LEFT

FILE NAME: 7102-005
SHEET NO.: 10
DFT. SCALE: 1:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:

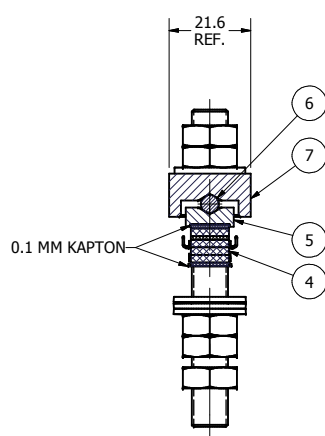


SECTION A-A

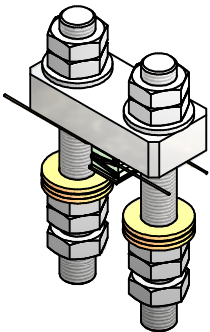
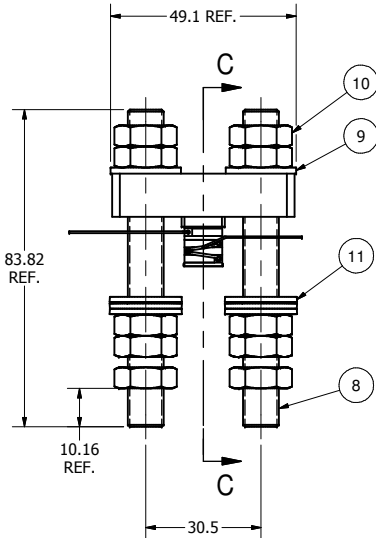


8 THREADED ROD

FILE NAME: 7102-005
SHEET NO.: 10
DFT. SCALE: 2:1
MATERIAL: 3/8-24 316 ST. STEEL THREADED ROD
QTY: 2 PER PIEZO UNIT
NOTES: 1. DICRONITE THREAD.

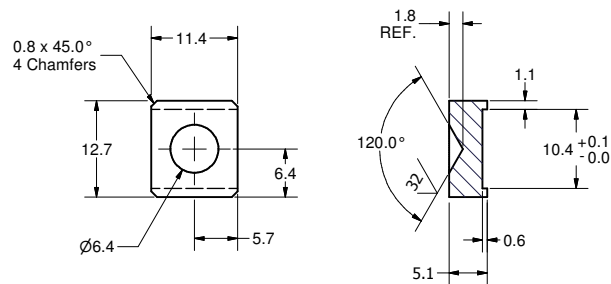


SECTION C-C



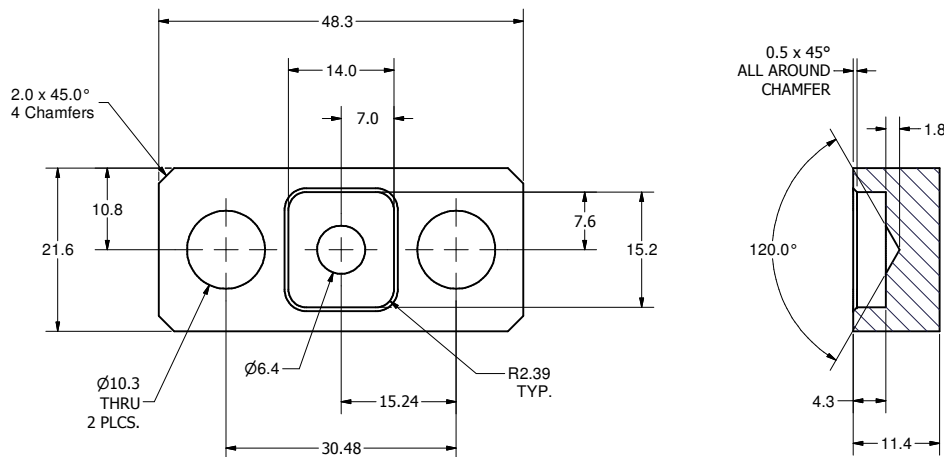
3 PIEZO UNIT ASSEMBLY

FILE NAME: 7102-005
SHEET NO.: 10
DFT. SCALE: 1:1
MATERIAL:
QTY: 4 REQ'D.
NOTES:



5 PUSH BLOCK

FILE NAME: 7102-005
SHEET NO.: 10
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER PIEZO UNIT
NOTES:



7 PUSH PLATE

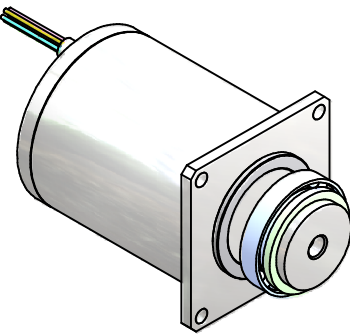
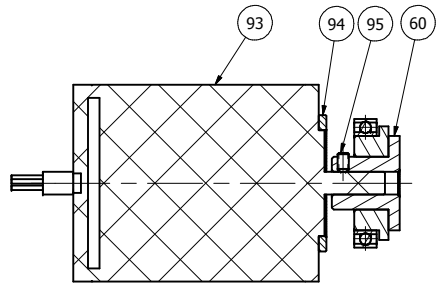
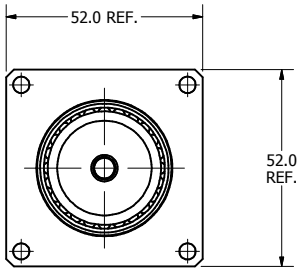
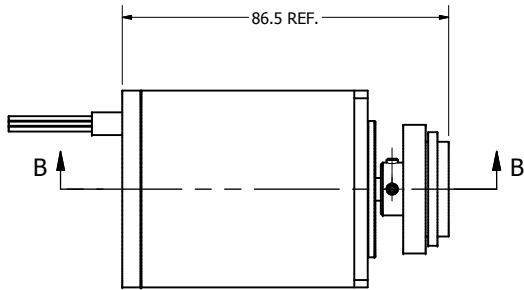
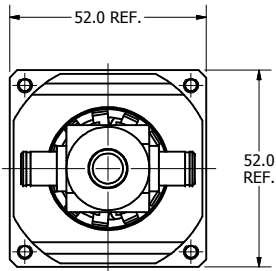
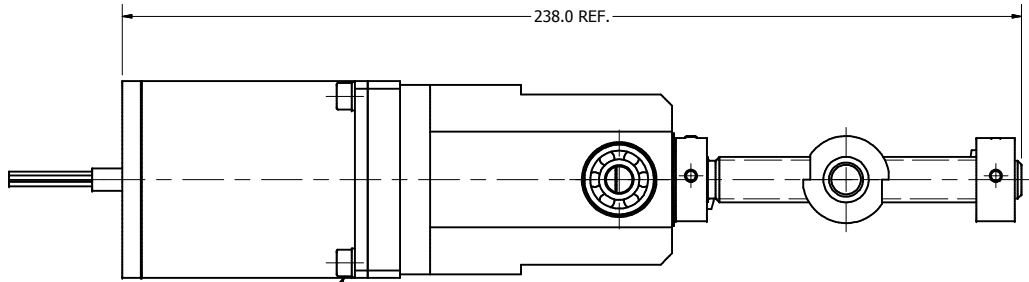
FILE NAME: 7102-005
SHEET NO.: 10
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER PIEZO UNIT
NOTES:

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

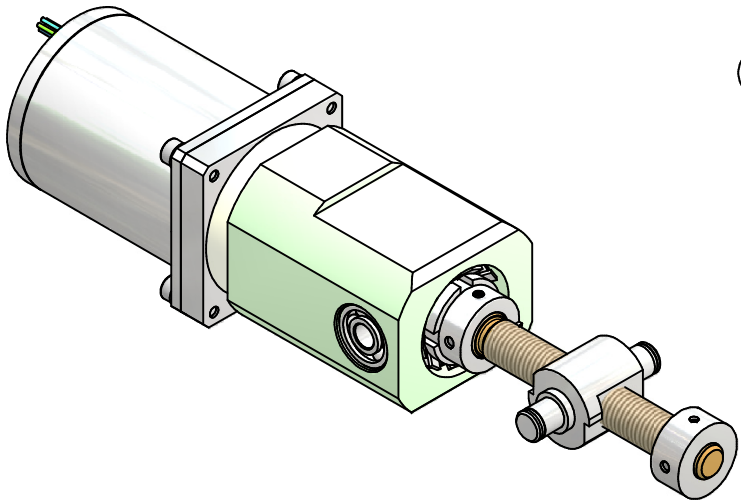
11	Purchase	0.755"OD x 0.04"THK Belleville Washer	6		Inconel 718	
10	Purchase	3/8-24 Hex Jam Nut	10		316L St. Steel	
9	Purchase	3/8 Washer	2		316L St. Steel	
8	Sheet 10	THREADED ROD	2			
7	Sheet 10	PUSH PLATE	1			
6	Purchase	3/16" Ball	1		316 St. Steel	
5	Sheet 10	PUSH BLOCK	1			
4	Purchase	NOLIA SCMA-P9 PIEZO STACK	1			
3	Sheet 10	PIEZO UNIT ASSEMBLY	X			

ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
PRINT	7102-005	PLLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw					
DISTR.	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ±0.1 0.00 ±0.05 ANGLES ±0.5° ALL SURFACES					
		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853					
		ERL Injection Cryomodule-Production Version Cavity Tuner Asm Piezo Unit Details					
CHECKED BY: JQS	DRAWN BY: dme4	DRAWN FOR: V.M.	DATE: 9/25/2006	SCALE: D	7102-005	REV.	
APPROVED BY: ML					SH. NO. 10 OF 14		

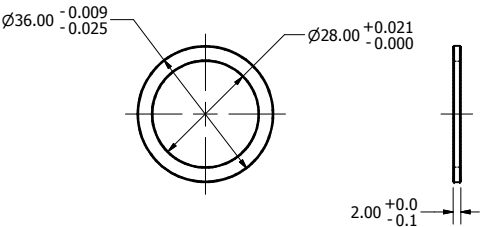
REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



SECTION B-B

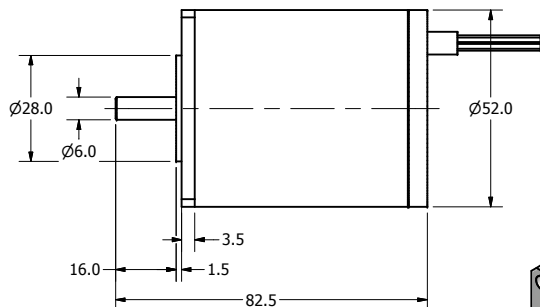
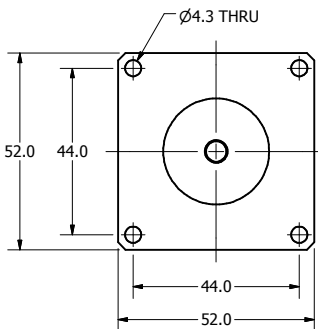


56 MECHANISM ASSEMBLY
FILE NAME: 7102-005
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL:
QTY: 1 PER TUNER
NOTES: 1. PAY ATTENTION ON CORRECT ENGAGEMENT
OF HARMONIC DRIVE COMPONENTS DURING ASSEMBLY.

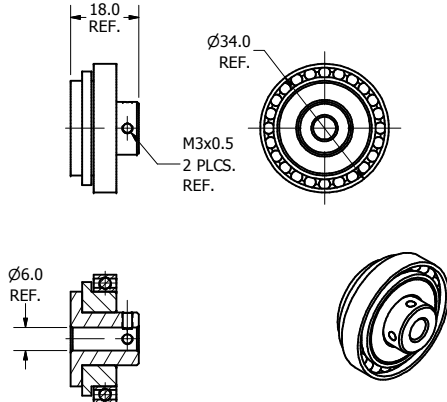
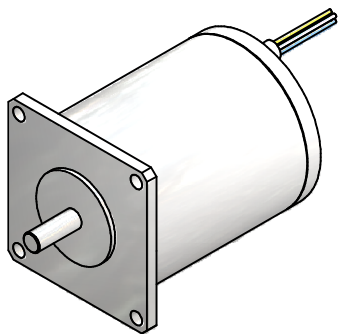


94 CENTER RING
FILE NAME: 7102-005
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:

58 MOTOR WITH WAVE GENERATOR SUB-ASM
FILE NAME: 7102-005
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL:
QTY: 1 PER ASSEMBLY
NOTES:



93 VSS-52 STEPPER MOTOR
FILE NAME: 7102-005
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL: VSS 52.200.1.2 - UHVC - JEFF STEPPER MOTOR
QTY: 1 PER ASSEMBLY
NOTES: 1. ALL DIMENSIONS FOR REFERENCE ONLY.

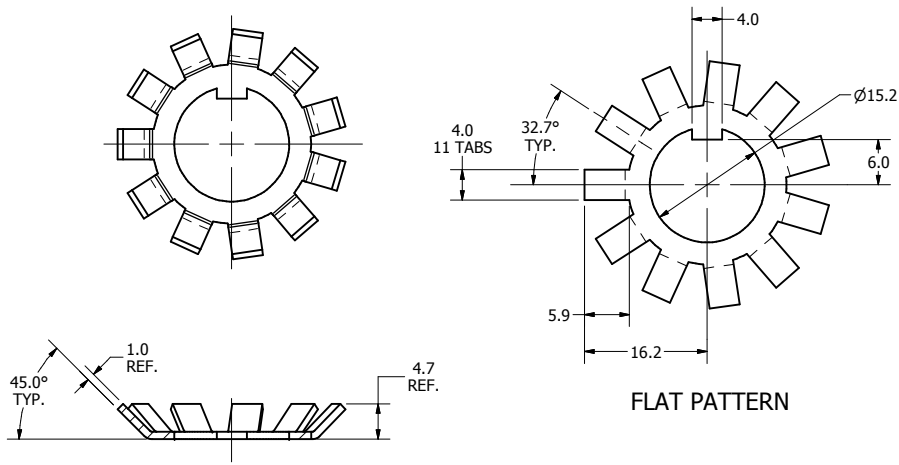


60 WAVE GENERATOR SUB-ASM OF HARMONIC DRIVE
FILE NAME: 7102-005
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL: PART OF HDC-014-100-2A SP HARMONIC DRIVE
QTY: 1 PER ASSEMBLY
NOTES:

95	-	M3 x 0.5 x 5 Set Screw - Cup Point	2		316 St. Steel	
94	Sheet 11	CENTER RING	1			
93	Sheet 11	VSS-52 STEPPER MOTOR	1			
60	Sheet 11	WAVE GENERATOR SUB-ASM OF HARMONIC DRIVE	1		HDC-014-100-2A SP Harmonic Drive	
97	-	4 Spring Washer	4		316 St. Steel	
96	-	M4 x 12 Socket Head Cap Screw	4		316 St. Steel, Diconited	
72	Sheet 12	HOUSING SUB-ASM	1			
58	Sheet 11	MOTOR WITH WAVE GENERATOR SUB-ASM	1	X		
56	Sheet 11	MECHANISM ASSEMBLY	X			

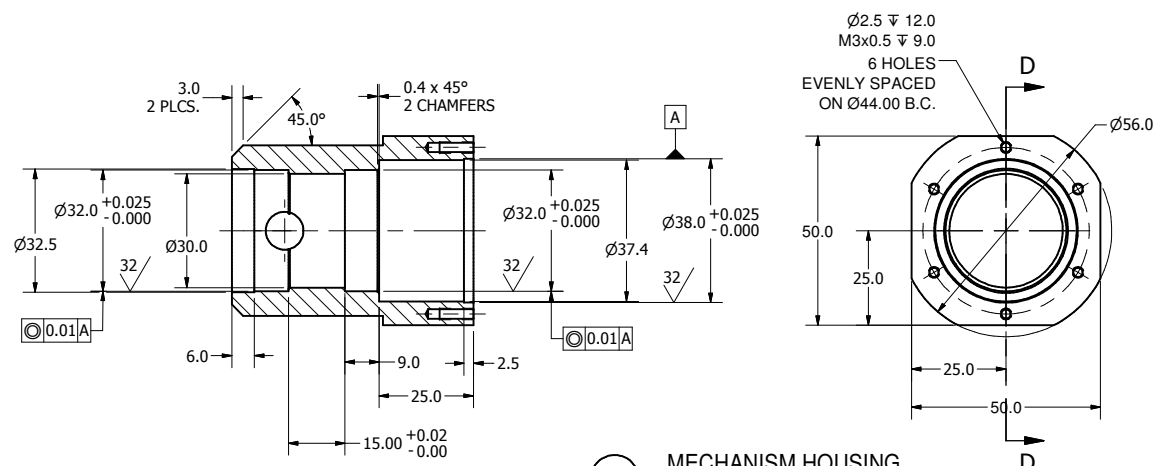
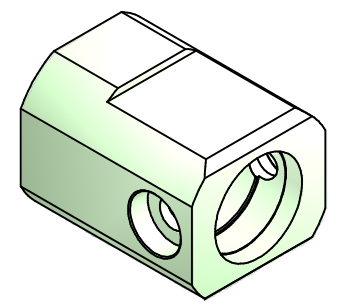
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw			QUANTITY				
7102-005			CR-1				
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES			CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY Ithaca, NY 14853			ERL Injection Cryomodule-Production Version Cavity Tuner Asm	
CHECKED BY: JOS APPROVED BY: ML			DRAWN BY: dme4	DRAWN FOR: V.M.	DATE: 9/25/2006	SCALE: D	7102-005 SH. NO. 11 OF 14

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



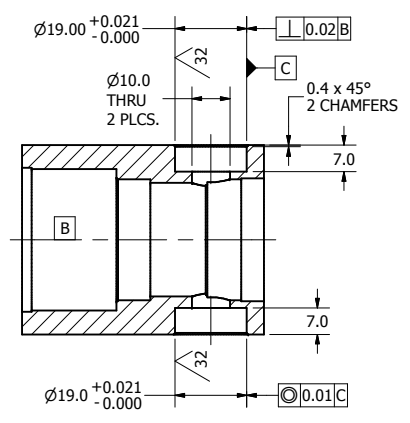
FLAT PATTERN

85 15 MM LOCK WASHER
FILE NAME: 7102-005
SHEET NO.: 12
DFT. SCALE: 2:1
MATERIAL: 1 MM 316L ST. STEEL SHEET
QTY: 1 PER ASSEMBLY
NOTES: 1. MAY BE REPLACED BY STANDARD 15 MM LOCK WASHER OF THIS TYPE.

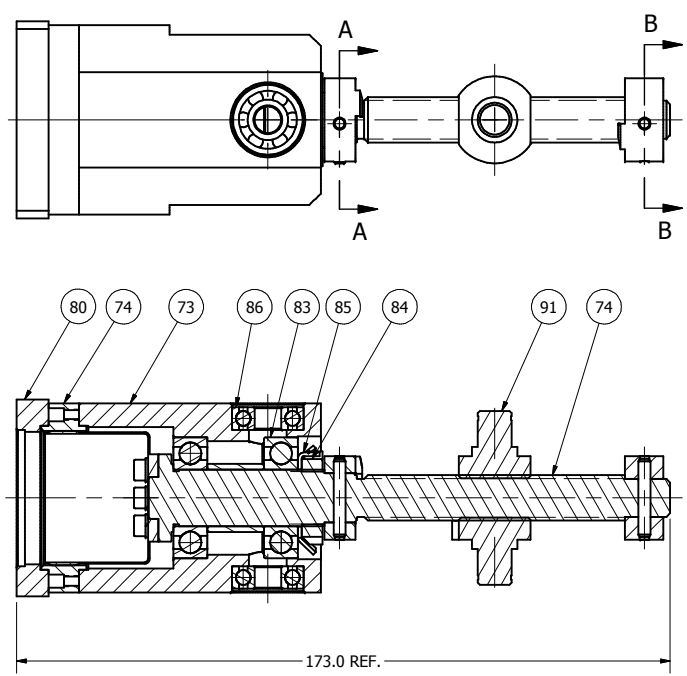
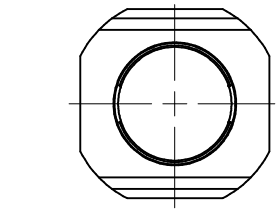
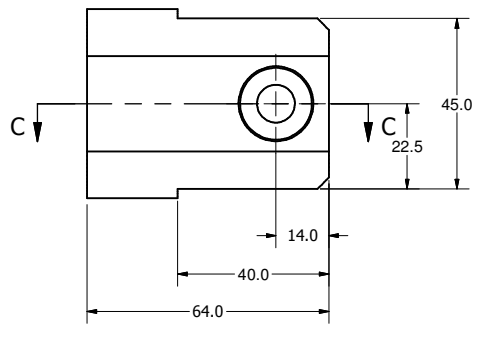


SECTION D-D

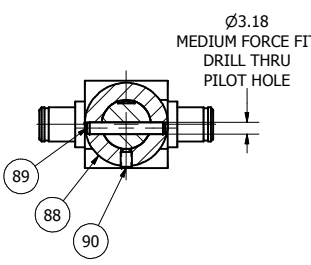
73 MECHANISM HOUSING
FILE NAME: 7102-005
SHEET NO.: 12
DFT. SCALE: 1:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:



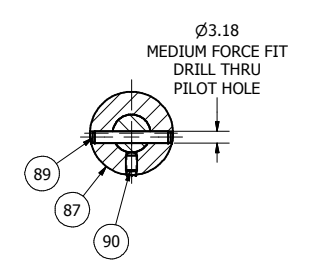
SECTION C-C



72 HOUSING SUB-ASM
FILE NAME: 7102-005
SHEET NO.: 12
DFT. SCALE: 1:1
MATERIAL:
QTY: 1 PER ASSEMBLY
NOTES: 1. POWER NUT (ITEM 91) TRAVEL: L ~ 45 MM.



SECTION A-A

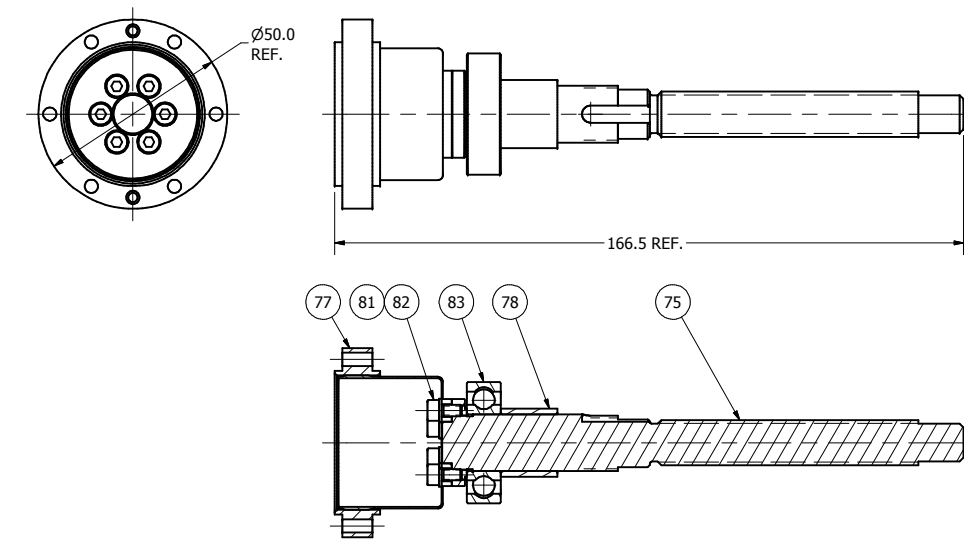
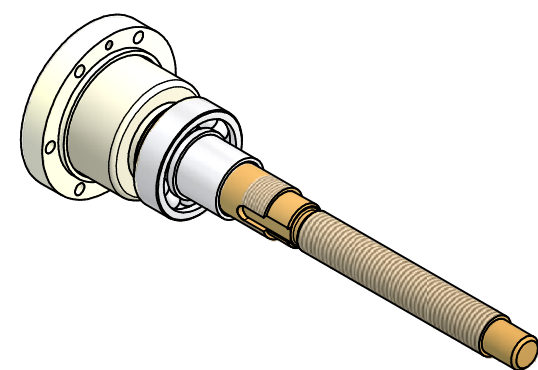
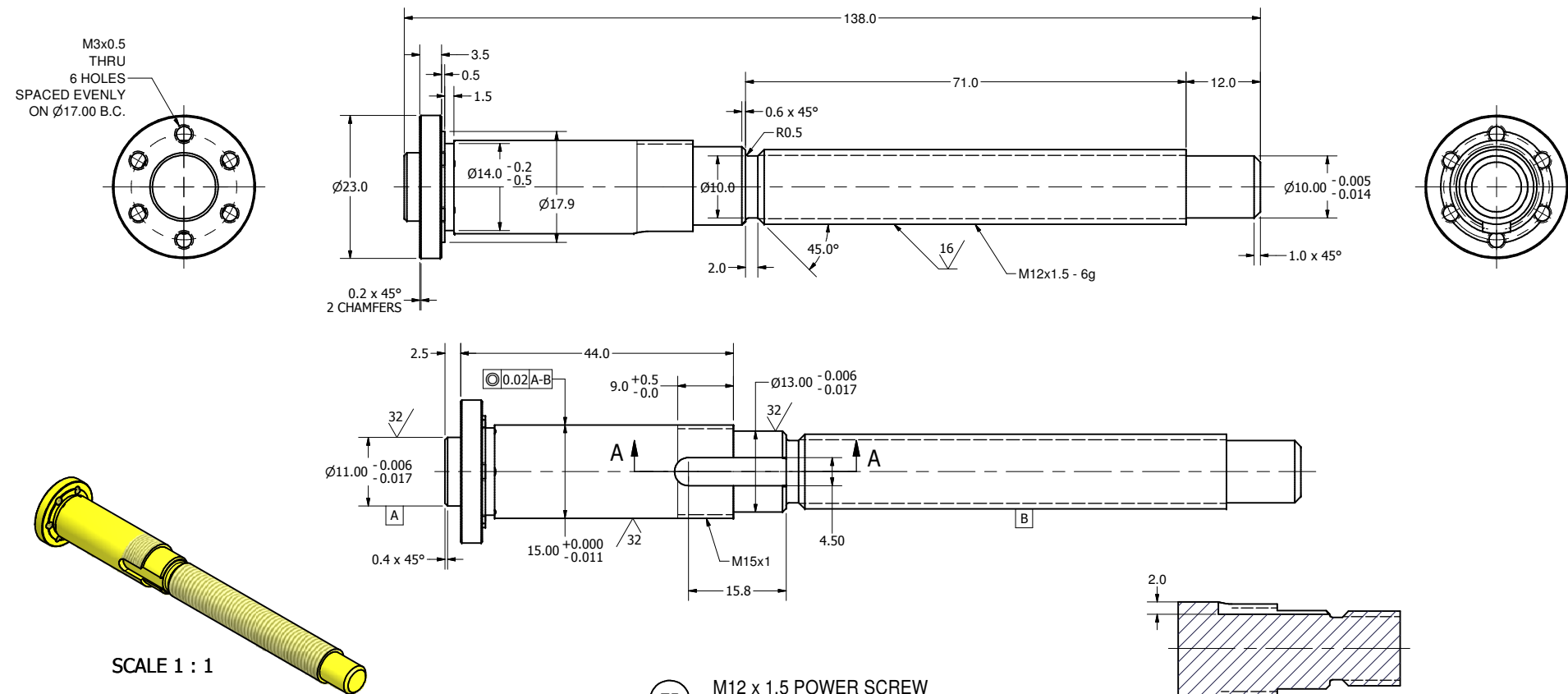


SECTION B-B

92	-	M3 x 20 Socket Head Cap Screw	6		316 St. Steel, Diconited
91	Sheet 14	POWER NUT	1		
90	-	M3x0.5 x 5 Set Screw - Cup Point	2		316 St. Steel, Diconited
89	-	1/8 x 13/16 Pin	2		316 St. Steel
88	Sheet 14	STOP RING 2	1		
87	Sheet 14	STOP RING 1	1		
86	-	7 x 19 x 6 (SKF 607) BALL BEARING	2		St. Steel, Diconited
85	Sheet 12	15 MM LOCK WASHER	1		
84	Sheet 14	M15 x 1 LOCK NUT	1		
83	-	15 x 32 x 9 (SKF 6002) BALL BEARING	1		St. Steel, Diconited
81	-	3 mm Spring Washer	6		316 St. Steel
80	Sheet 13	ADAPTER PLATE	1		
74	Sheet 13	POWER SCREW SUB-ASM	1		
73	Sheet 12	MECHANISM HOUSING	1		
72	Sheet 12	HOUSING SUB-ASM	X		

ITEM	DWG. NO.	DESCRIPTION	QUANTITY	REMARKS	REV.
92		M3 x 20 Socket Head Cap Screw	6		
91	Sheet 14	POWER NUT	1		
90		M3x0.5 x 5 Set Screw - Cup Point	2		
89		1/8 x 13/16 Pin	2		
88	Sheet 14	STOP RING 2	1		
87	Sheet 14	STOP RING 1	1		
86		7 x 19 x 6 (SKF 607) BALL BEARING	2		
85	Sheet 12	15 MM LOCK WASHER	1		
84	Sheet 14	M15 x 1 LOCK NUT	1		
83		15 x 32 x 9 (SKF 6002) BALL BEARING	1		
81		3 mm Spring Washer	6		
80	Sheet 13	ADAPTER PLATE	1		
74	Sheet 13	POWER SCREW SUB-ASM	1		
73	Sheet 12	MECHANISM HOUSING	1		
72	Sheet 12	HOUSING SUB-ASM	X		
PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw					
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ±0.1 0.00 ±0.05 ANGLES ±0.5° ALL SURFACES					
CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853					
ERL Injection Cryomodule-Production Version Cavity Tuner Asm Housing Assembly & Details					
CHECKED BY: JOS	DRAWN BY: dme4	DRAWN FOR: V.M.	DATE: 9/25/2006	SCALE: D	7102-005 SH. NO. 12 OF 14
APPROVED BY: ML					

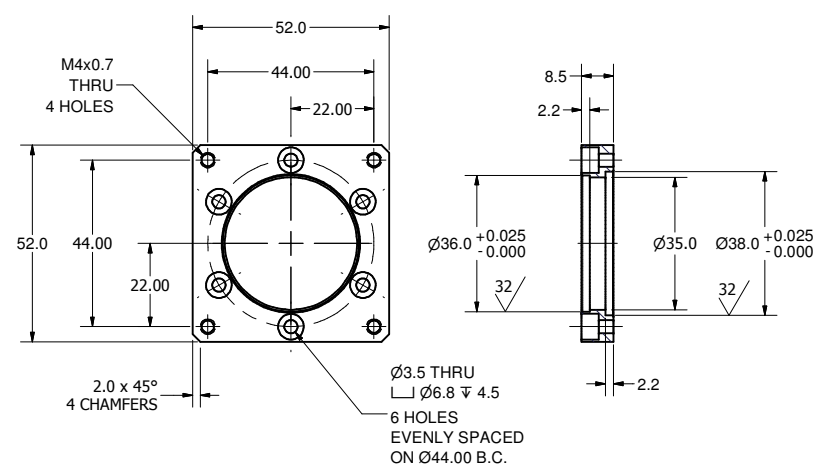
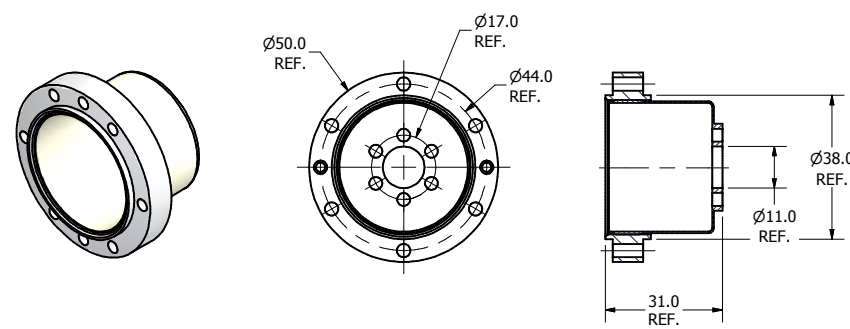
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OR EQUIVALENT APPROVED BY CORNELL LEPP



SECTION A-A

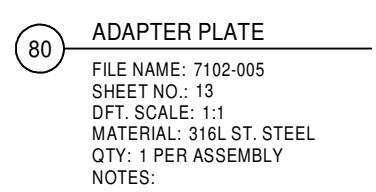
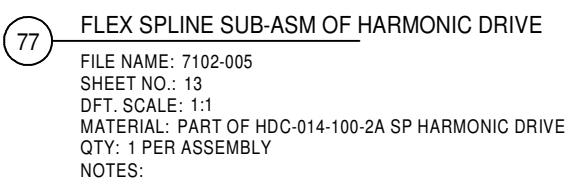
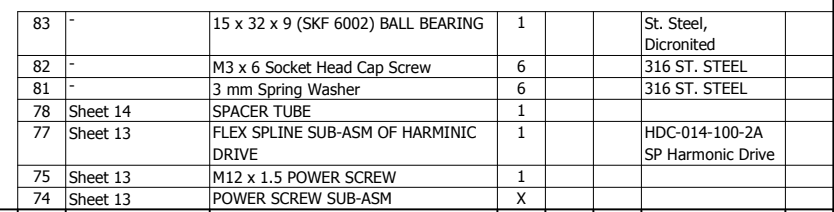
75 M12 x 1.5 POWER SCREW

FILE NAME: 7102-005
 SHEET NO.: 13
 DFT. SCALE: 2:1
 MATERIAL: C172-AT BERILLIUM COPPER
 QTY: 1 REQ'D.
 NOTES:





74 POWER SCREW SUB-ASM

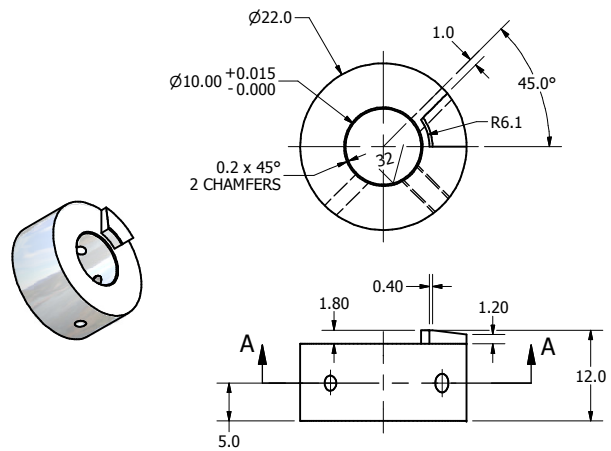
FILE NAME: 7102-005
SHEET NO.: 13
DFT. SCALE: 1:1
MATERIAL:
QTY: 1 PER ASSEMBLY
NOTES:



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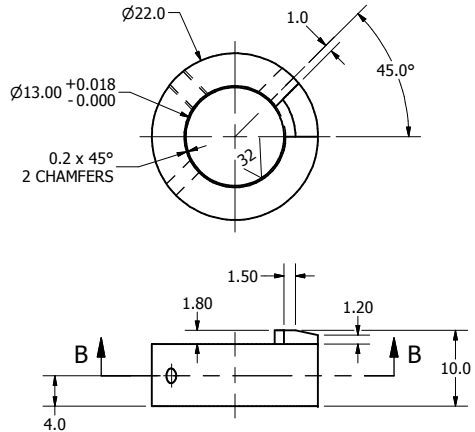
		7102-005		POWER KICKER SUB-ASSEMBLY		X		Y		Z		REV.	
ITEM		DWG. NO.		DESCRIPTION		G1		G2		G3		REMARKS	
						QUANTITY							
D		PRINT DISTR.		PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw									
SH NO. 13 OF 14 7102-005		CR-1		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ± 0.1 0.00 ± 0.05 ANGLES ± 0.5° ALL SURFACES ✓		 CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853							
						ERL Injection Cryomodule-Production Version Cavity Tuner Asm							
REV.		CHECKED BY: JOS		DRAWN BY dme4		DRAWN FOR V.M.		DATE 9/25/2006		SCALE		D	
		APPROVED BY: ML										7102-005 SH NO. 13 OF 14	

REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



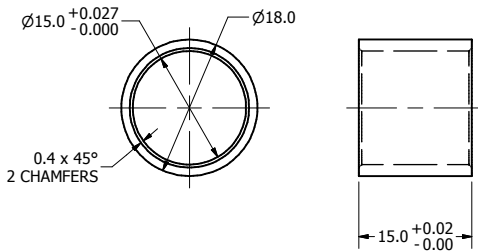
SECTION A-A

87 STOP RING 1
FILE NAME: 7102-005
SHEET NO.: 14
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:

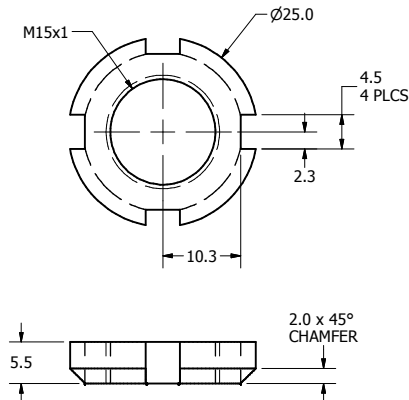
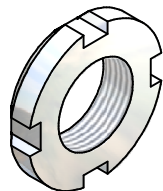


SECTION B-B

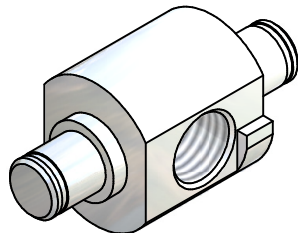
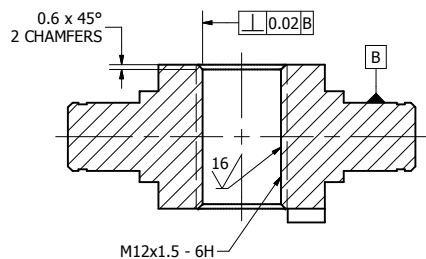
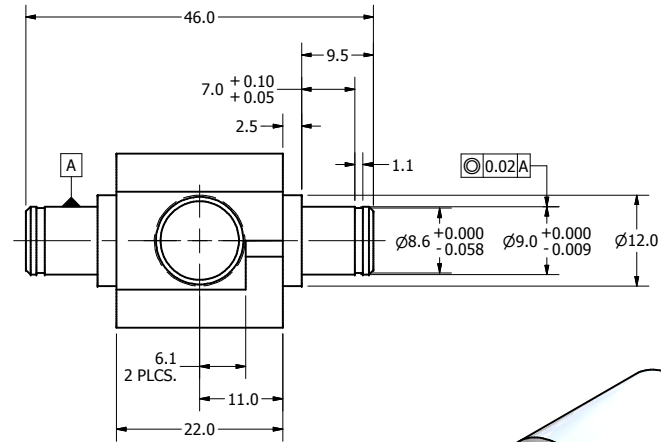
88 STOP RING 2
FILE NAME: 7102-005
SHEET NO.: 14
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:



78 SPACER TUBE
FILE NAME: 7102-005
SHEET NO.: 14
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:



84 M15 x 1 LOCK NUT
FILE NAME: 7102-005
SHEET NO.: 14
DFT. SCALE: 2:1
MATERIAL: 316L ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:



91 POWER NUT
FILE NAME: 7102-005
SHEET NO.: 14
DFT. SCALE: 2:1
MATERIAL: 630 (17-4 PH) ST. STEEL
QTY: 1 PER ASSEMBLY
NOTES:

		ITEM	DWG. NO.		DESCRIPTION			G1	G2	G3	REMARKS		REV.	
								QUANTITY						
D	PRINT DISTR.	PLOT DATE: 9/13/2007 CAD FILE NAME: 7102-005.idw												
7102-005 SH. NO. 14 OF 14	CR-1	UNLESS OTHERWISE SPECIFIED:		<div>CORNELL UNIVERSITY</div> <div></div> <div>LEPP</div> <div>CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div> <div>LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div>										
		DIMENSIONS ARE IN MM: TOLERANCES ON: 0.0 ±0.1 0.00 ±0.05 ANGLES ±0.5° ALL SURFACES												
		ERL Injection Cryomodule-Production Version Cavity Tuner Asm												
REV.		CHECKED BY: JQS		DRAWN BY		DRAWN FOR		DATE		SCALE		D	7102-005 SH. NO. 14 OF 14	REV.
		APPROVED BY: ML		dme4		V.M.		9/25/2006						

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