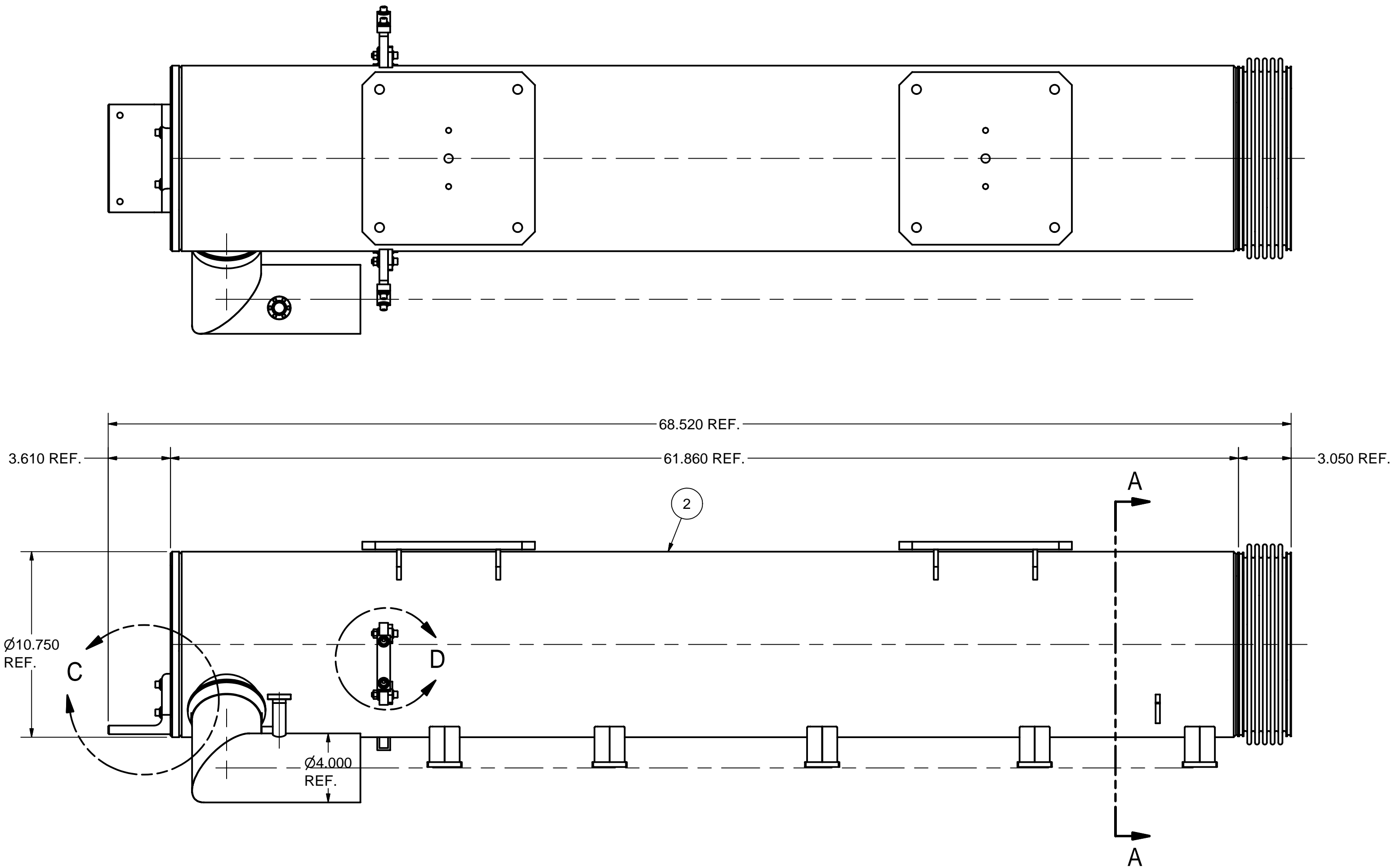
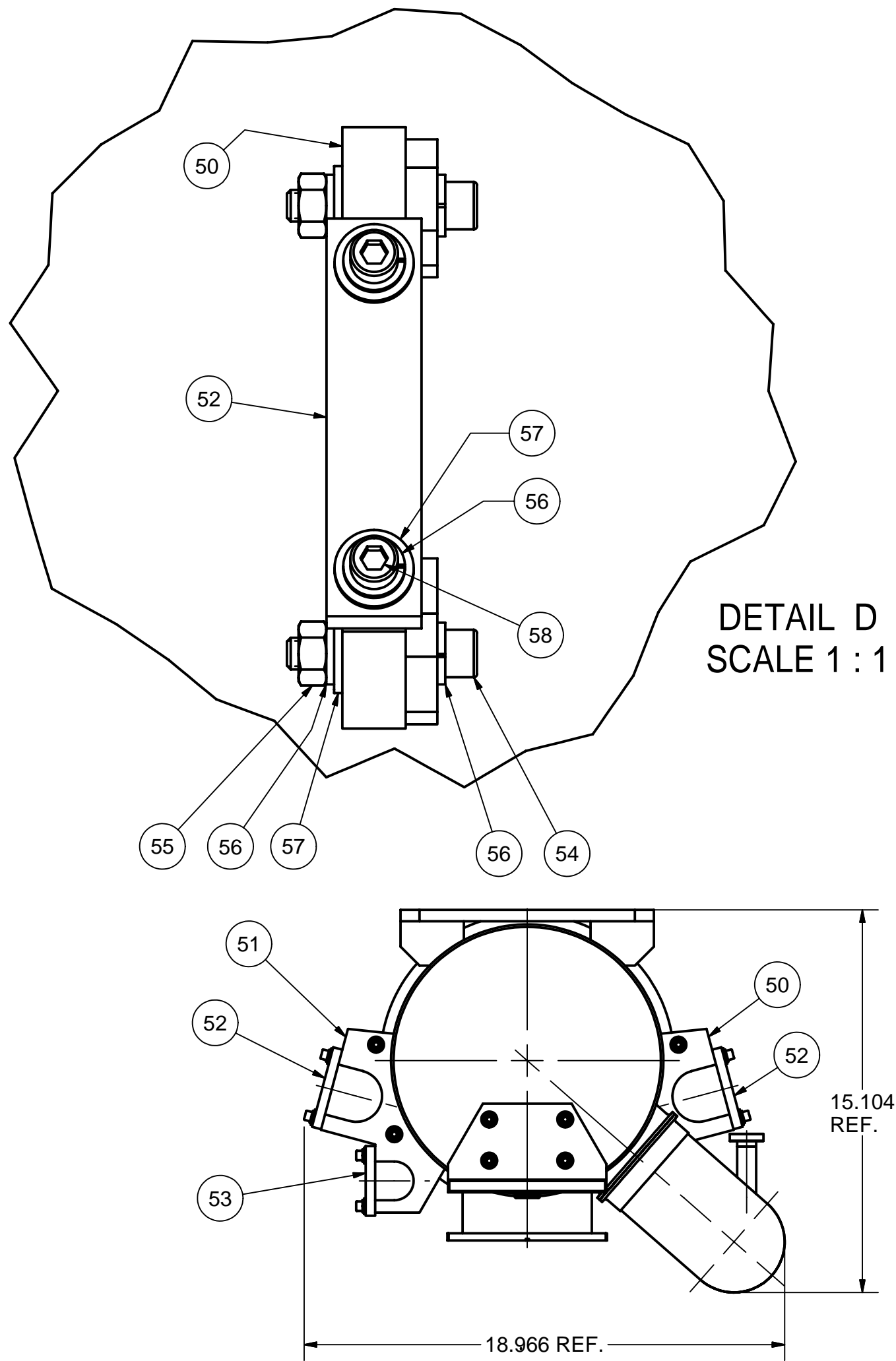
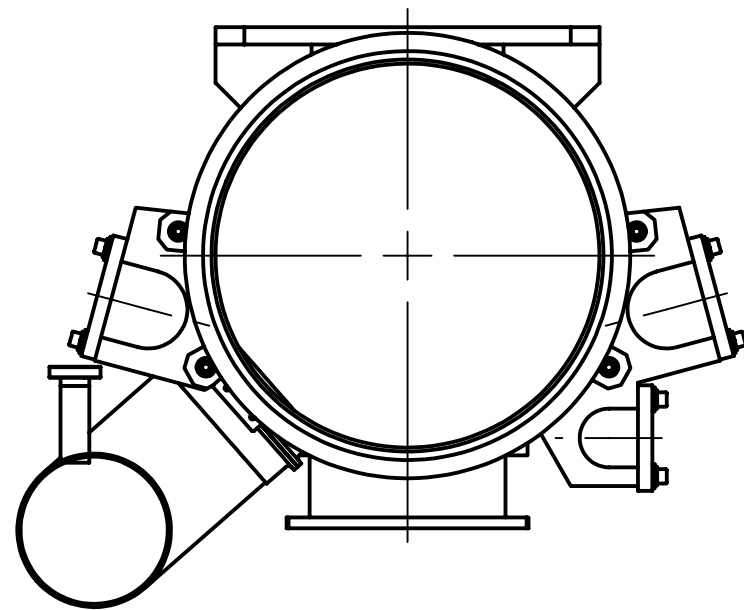


REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.

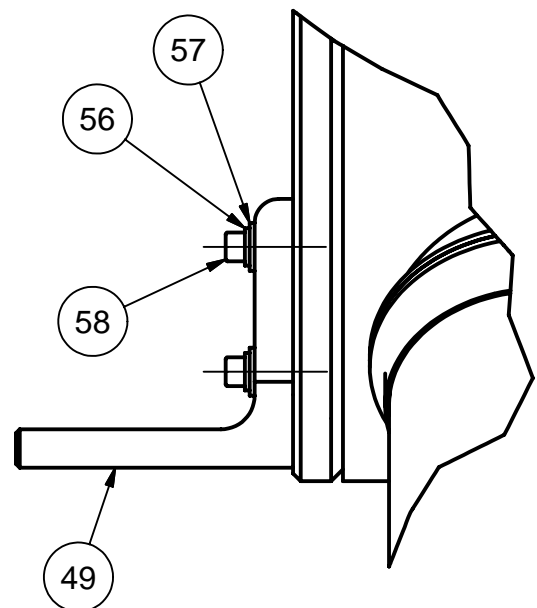


SECTION A-A

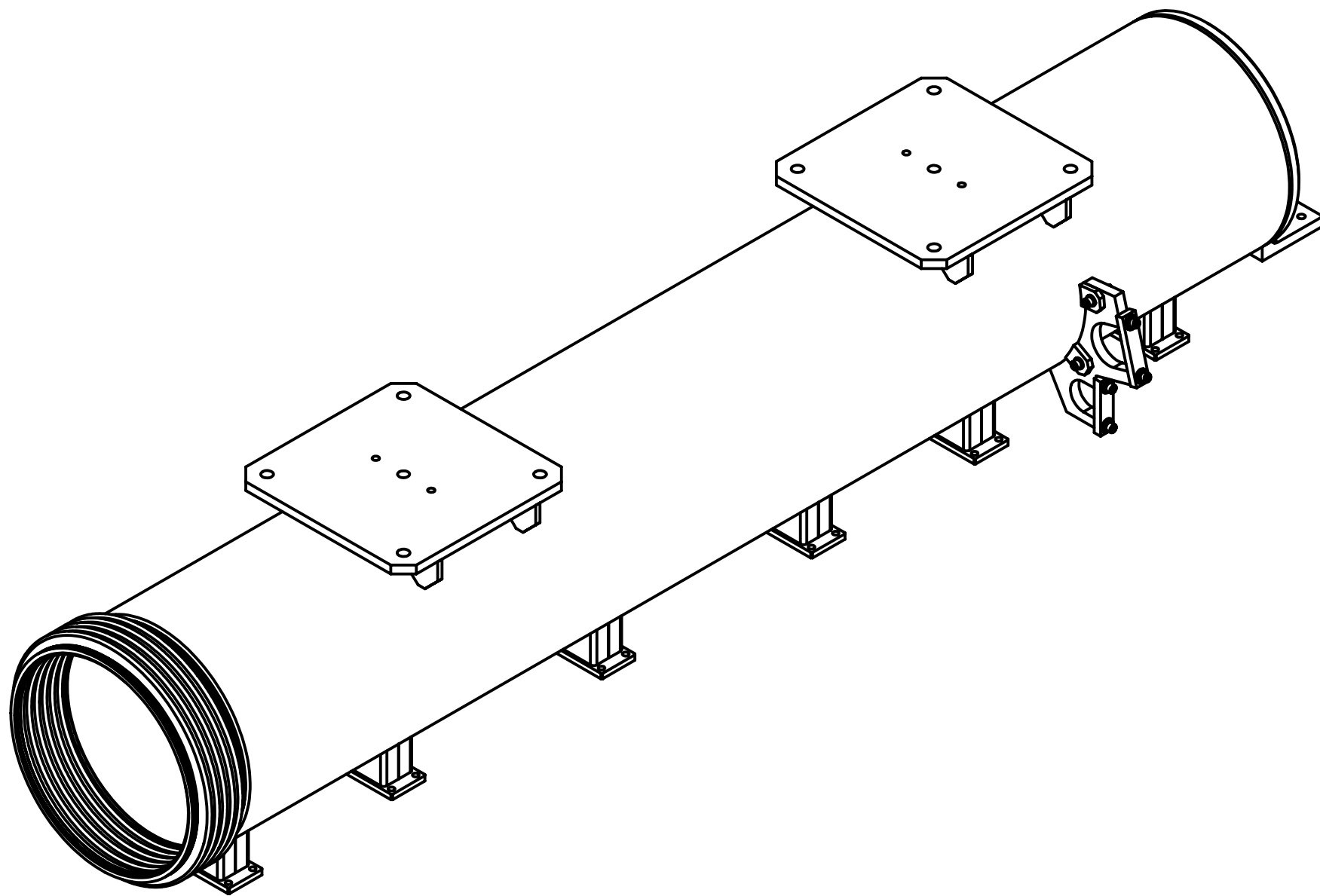
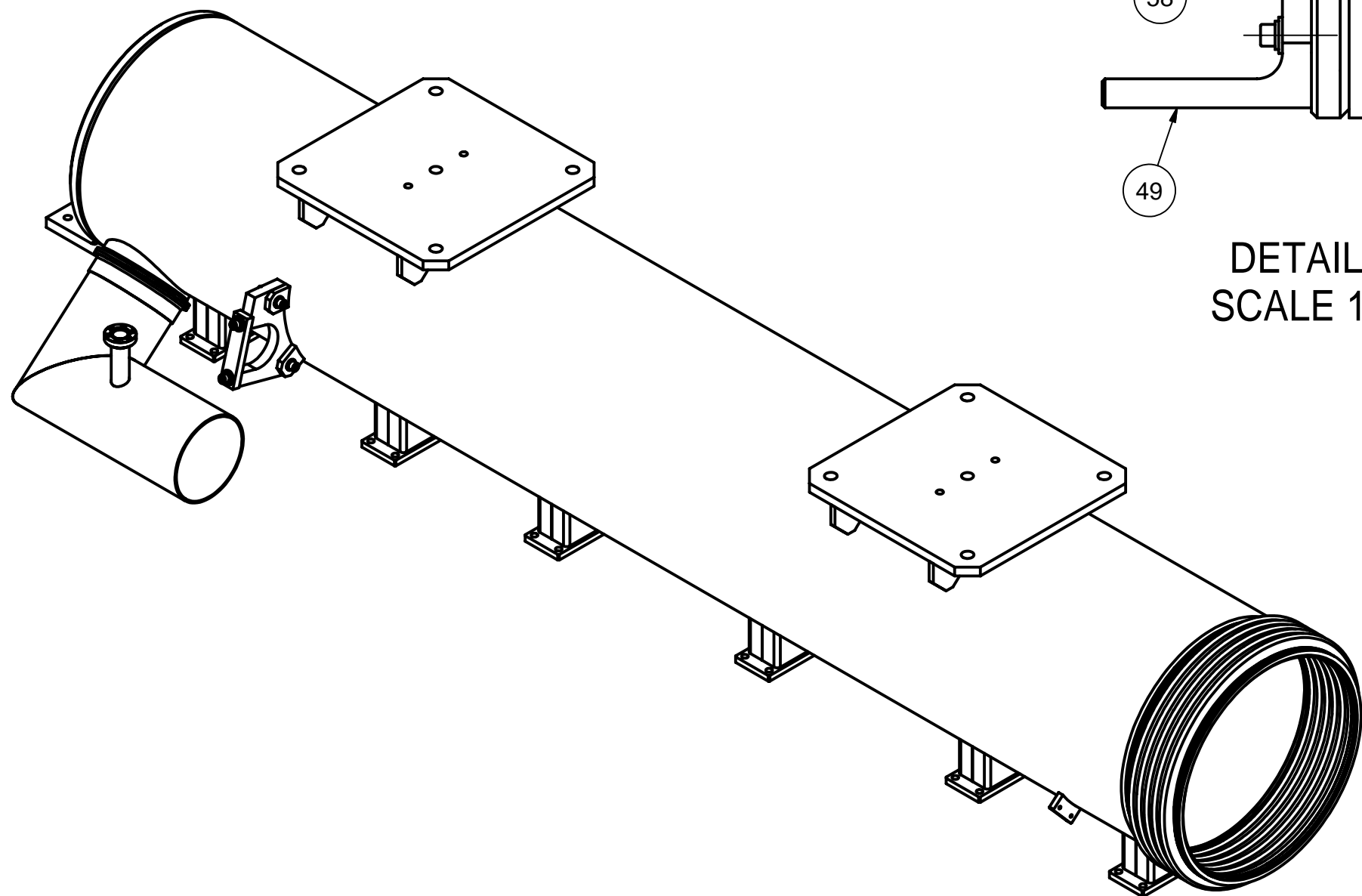


1 HELIUM GAS RETURN PIPE, BEAM ENTRANCE SECTION (BErS), ASSEMBLY

FILE NAME: 7102-050
SHEET NO.: 1
DFT. SCALE: 1:5
MATERIAL: AS NOTED
QTY: 1 REQ'D
NOTES: 1. MAKE LN THERMAL COLD SHOCK AND LEAK TEST.
LEAK RATE: < 2.0E-10 TORR-L/SEC.



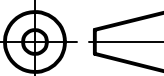




DETAIL C
SCALE 1:2.5



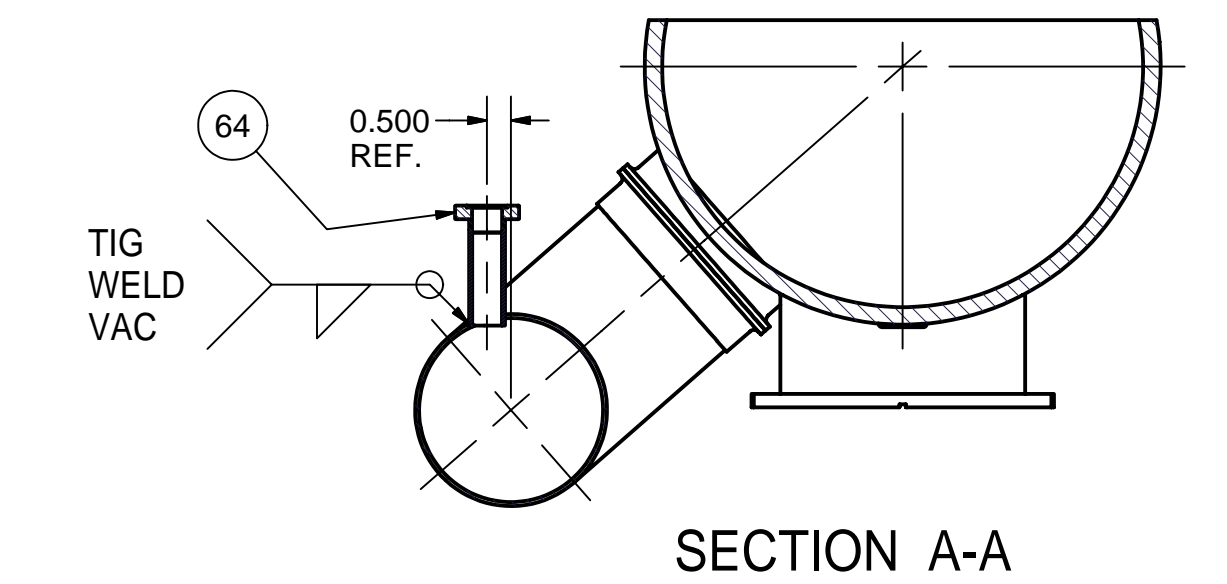
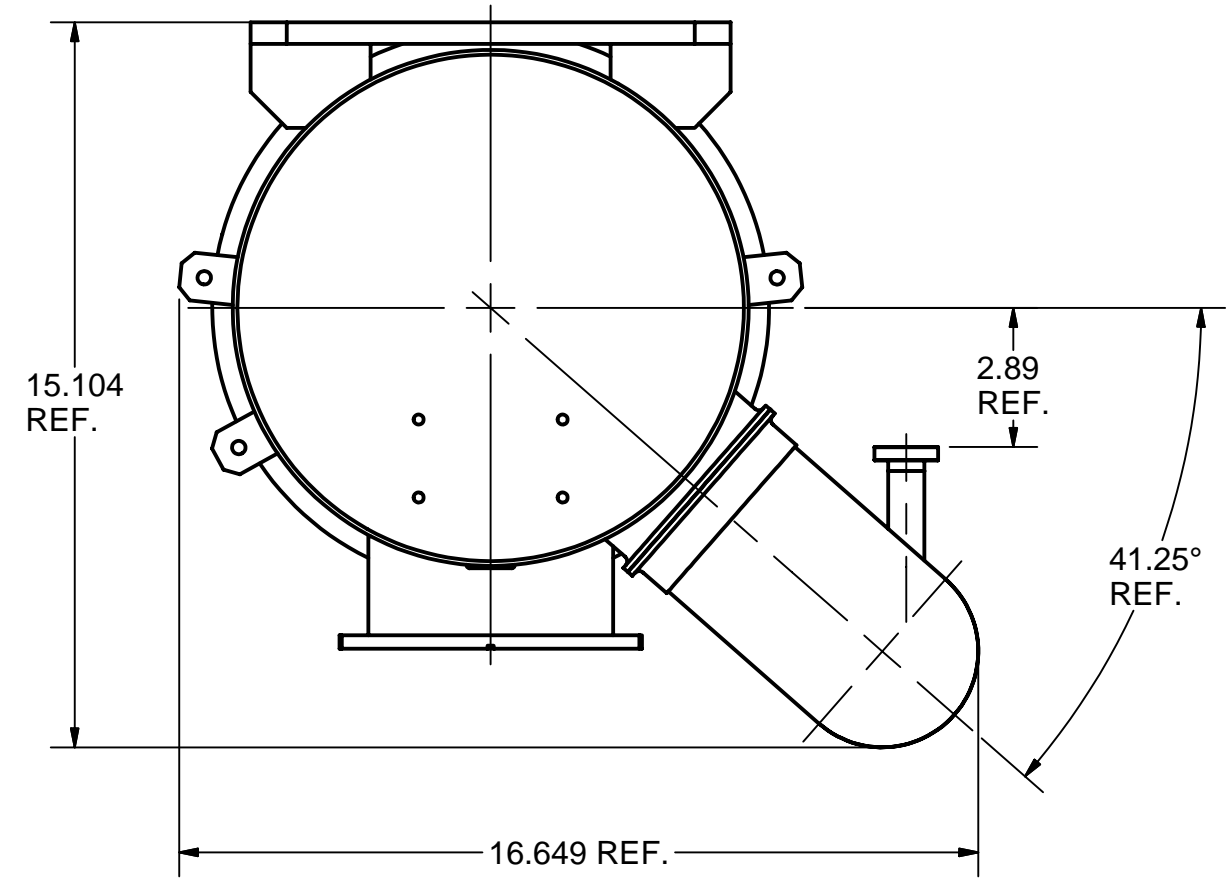
FOR MACHINING LUBRICANT USE ONLY
ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

Release of final PO version for Meyer Tool - June 19, 2007.

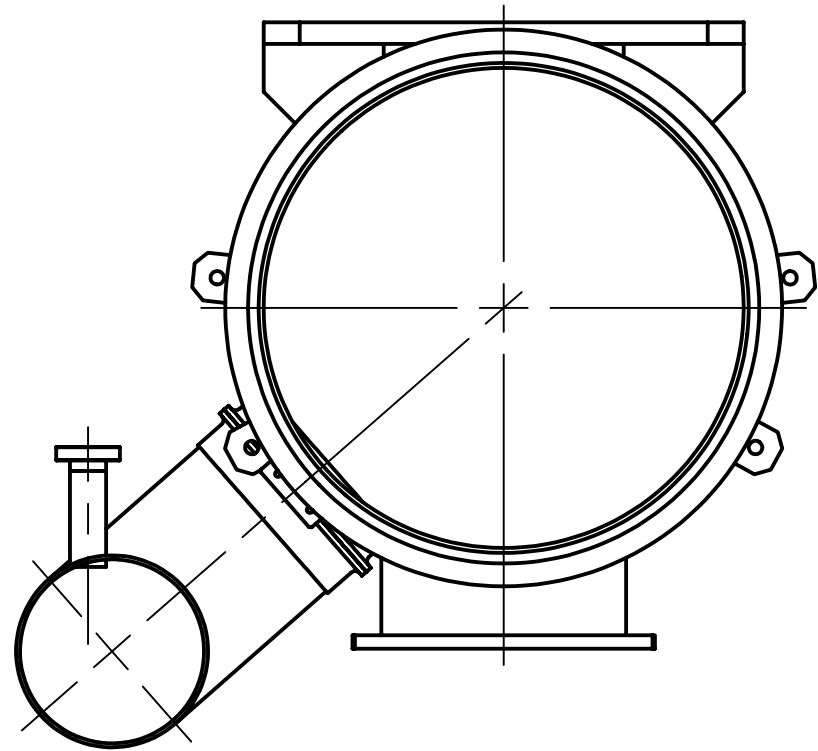
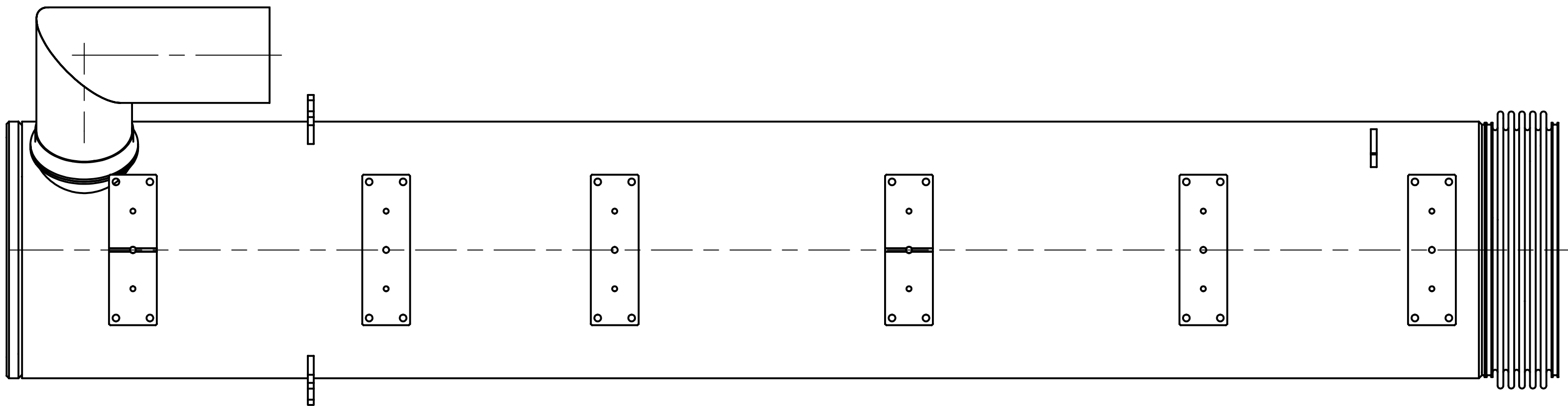
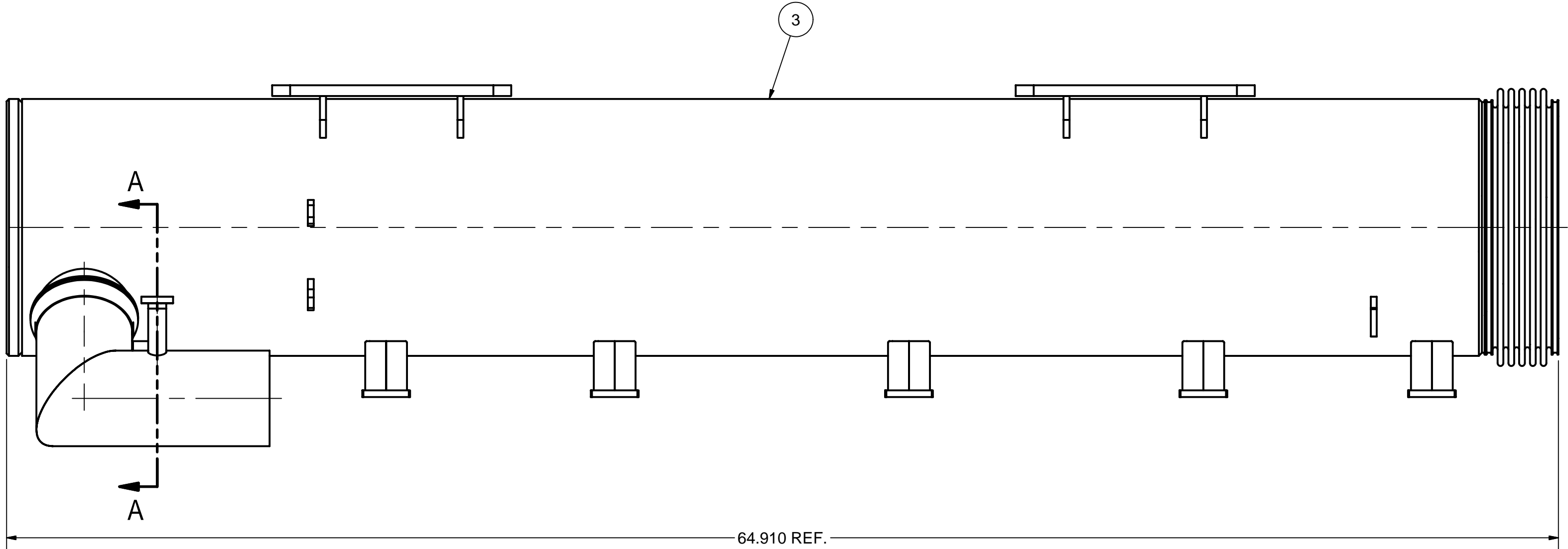
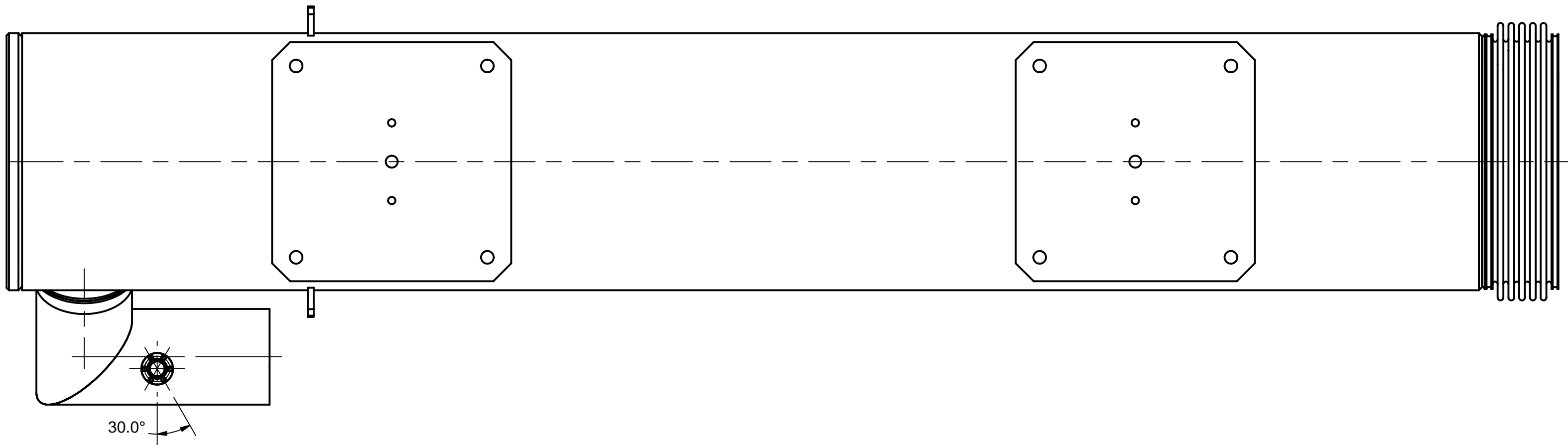
58	-	1/4-20 x 7/8 Sock. Head Cap Screw	10			316 St. Steel	
57	-	1/4 Washer	14			316 St. Steel	
56	-	1/4 Spring Lock Washer	18			316 St. Steel	
55	-	1/4-20 Hex Nut	4			Silicon Bronze	
54	-	1/4-20 x 1-1/4 Socket Head Cap Screw	4			316 St. Steel	
53	7102-050 (SH. 13)	WARM-UP TUBE CLAMP	1				
52	7102-050 (SH. 13)	5 K TUBE CLAMP	2				
51	7102-050 (SH. 13)	5 K TUBE BRACKET RIGHT	1				
50	7102-050 (SH. 13)	5 K TUBE BRACKET LEFT	1				
49	7102-050 (SH. 13)	GATE VALVE BRACKET	1				
2	7102-050 (SH. 2)	HGRP BErS WELDMENT III	1				
1	7102-050 (Sh. 1)	HELIUM GAS RETURN PIPE, BEAM ENTRANCE SECTION (BErS), ASSEMBLY	X				

	ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
				QUANTITY				
PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw							
7102-050 SH. NO. 1 OF 13	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 	<div>  CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div> <div>LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div>					
			ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section Assembly					
			CHECKED BY: VM	DRAWN BY	DRAWN FOR	DATE	SCALE	7102-050
APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007		SH. NO. 1 OF 13			

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



SECTION A-A

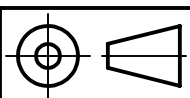


2 HGRP BE_nS WELDMENT III

FILE NAME: 7102-050
SHEET NO.: 2
DFT. SCALE: 1:4
MATERIAL: AS NOTED
QTY: 1 REQ'D
NOTES:

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64	7102-050 (SH. 11)	He LEVEL SENSOR TUBE SUB-ASM	1				
3	7102-050 (SH. 3)	HGRP BE _n S WELDMENT II (MACHINING)	1				
2	7102-050 (SH. 2)	HGRP BE _n S WELDMENT III	X	1			
ITEM	DWG. NO.	DESCRIPTION	QUANTITY			REMARKS	REV.
			G1	G2	G3		



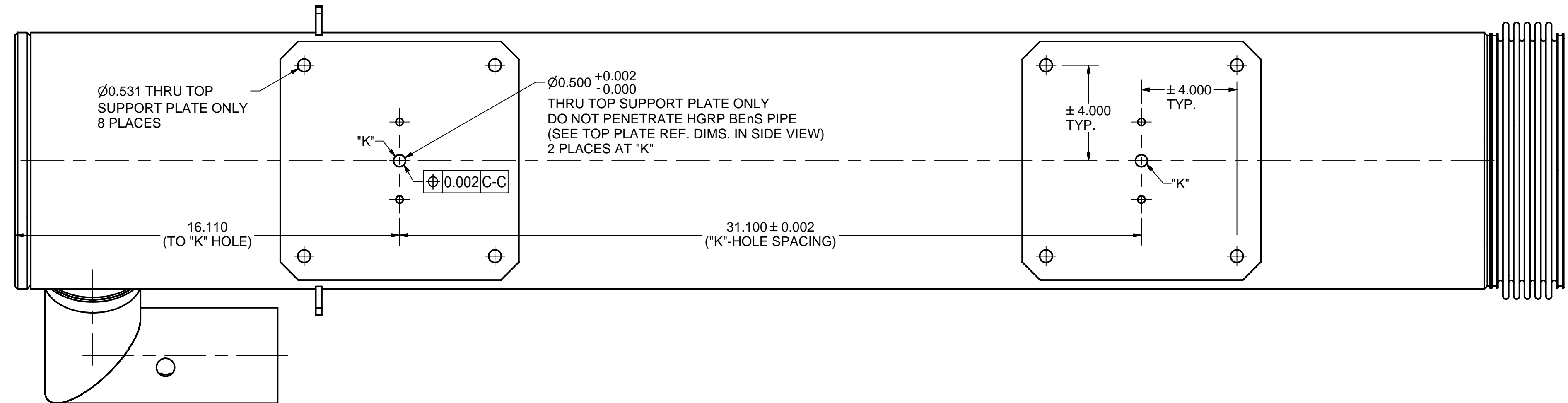
PRINT
DISTR.

7102-050
SH. NO. 2 OF 13

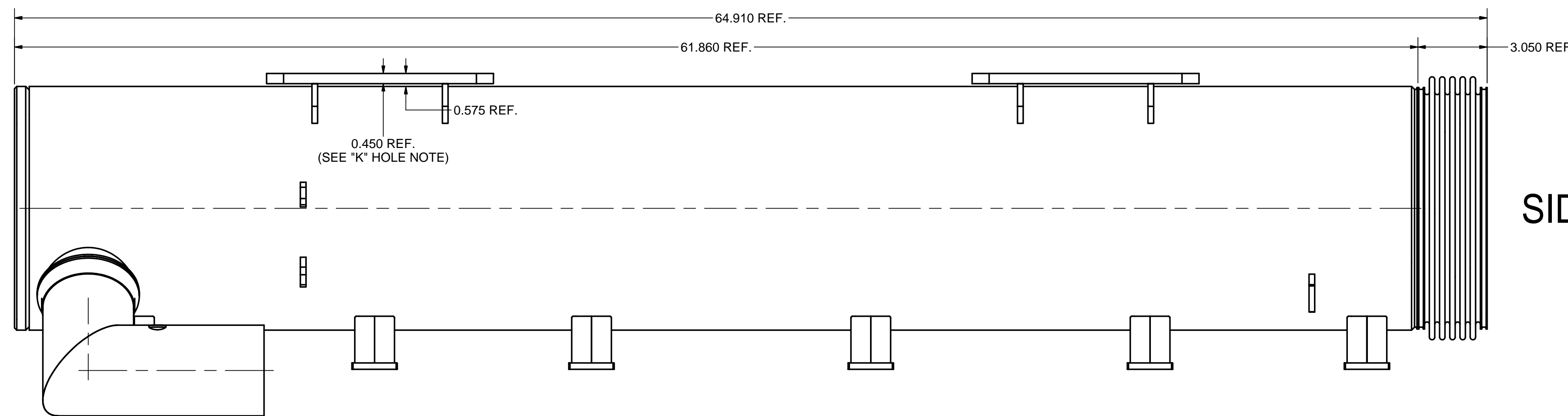
PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853	
ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section HGRP BE _n S Weldment III		DRAWN BY RHE/Di		DATE 2/6/2007	
CHECKED BY: VM APPROVED BY: ML		SCALE D		7102-050 SH. NO. 2 OF 13	

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OR EQUIVALENT APPROVED BY CORNELL LEPP

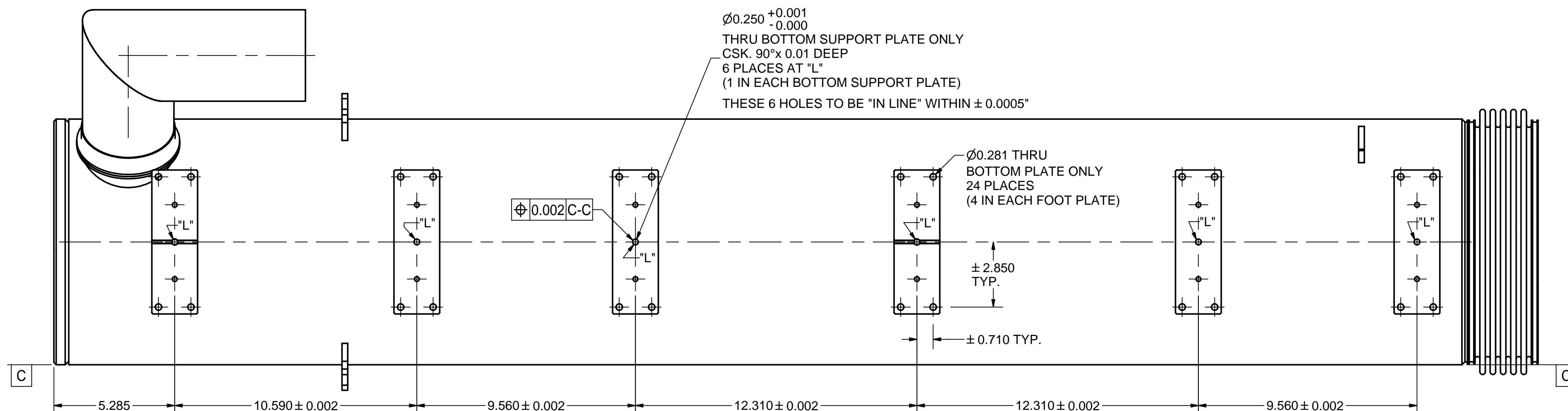
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



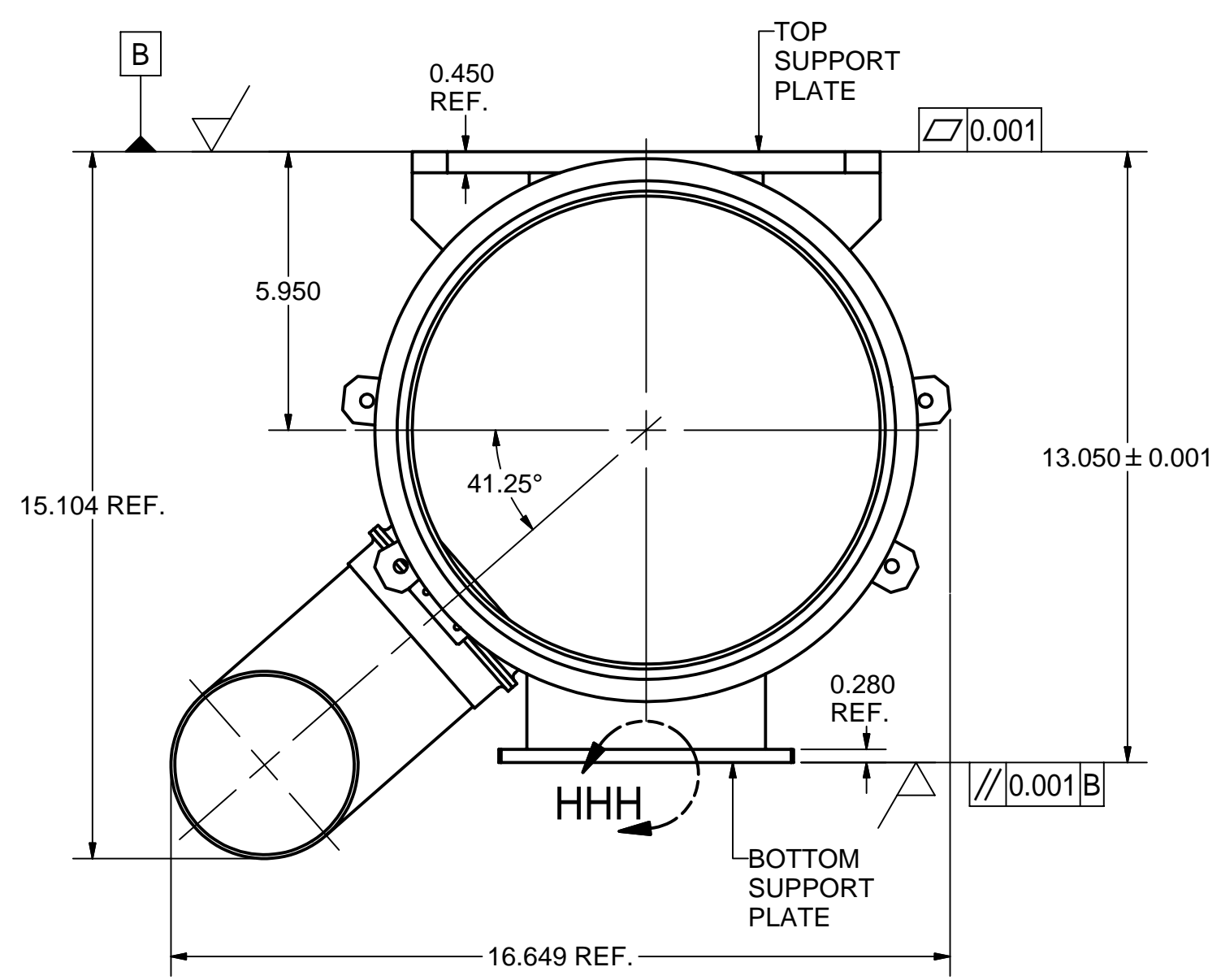
TOP VIEW



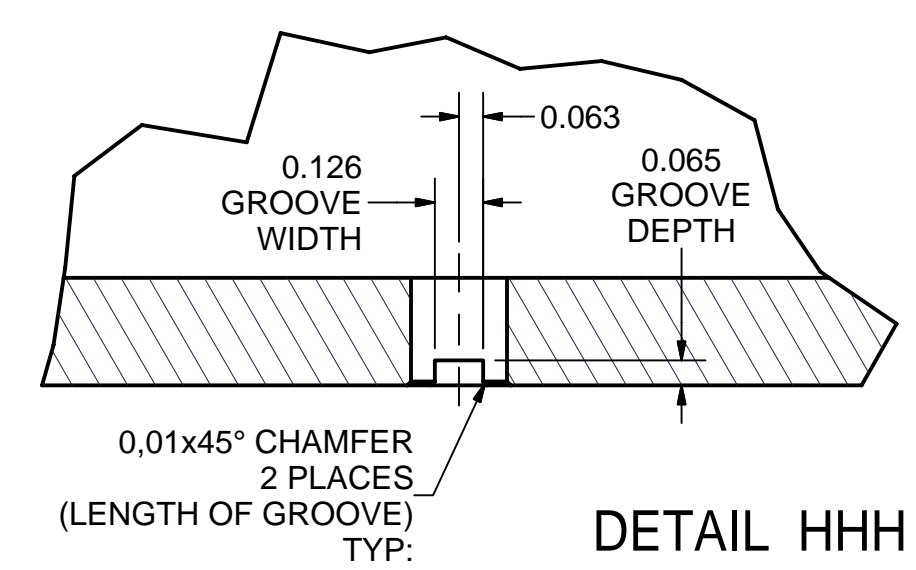
SIDE VIEW



BOTTOM VIEW




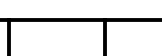

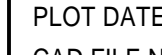



FRONT VIEW



DETAIL HHH
SCALE 2 : 1

NOTE: 0.126 WD. GROOVE IS CUT ONLY IN
TWO BOTTOM SUPPORT PLATES.
SEE BOTTOM VIEW

Release of final PO version for Meyer Tool - June 19, 2007.

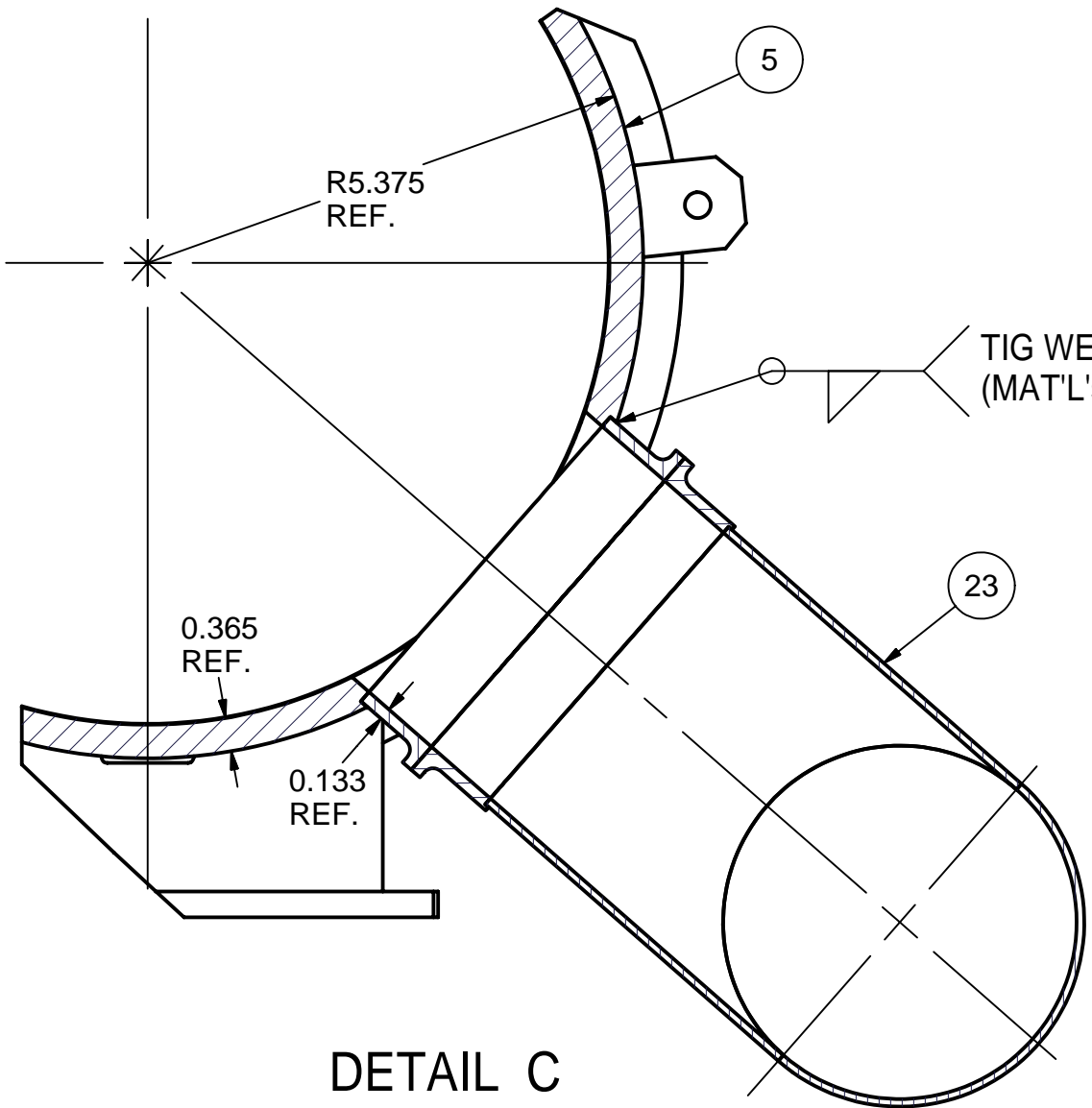
				ITEM	DWG. NO.	DESCRIPTION				G1	G2	G3	REMARKS		REV.
											QUANTITY				
				PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw										
7102-050 SH. NO. 3 OF 13		CR-1		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES ON: 0+ .02 .00 ± .010 .000 ± .005 FRACTIONS 1/32 ANGLES ± 0.5° ALL SURFACES 	<div>CORNELL UNIVERSITY  LEPP CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853 LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS</div>										
					ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section HGRP BeNS Weldment II (Machining)										
REV.				CHECKED BY: VM	DRAWN BY	DRAWN FOR	DATE	SCALE		7102-050	REV.				
				APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007								
										SH. NO. 3 OF 13					

HGRP BEnS WELDMENT II (MACHINING)

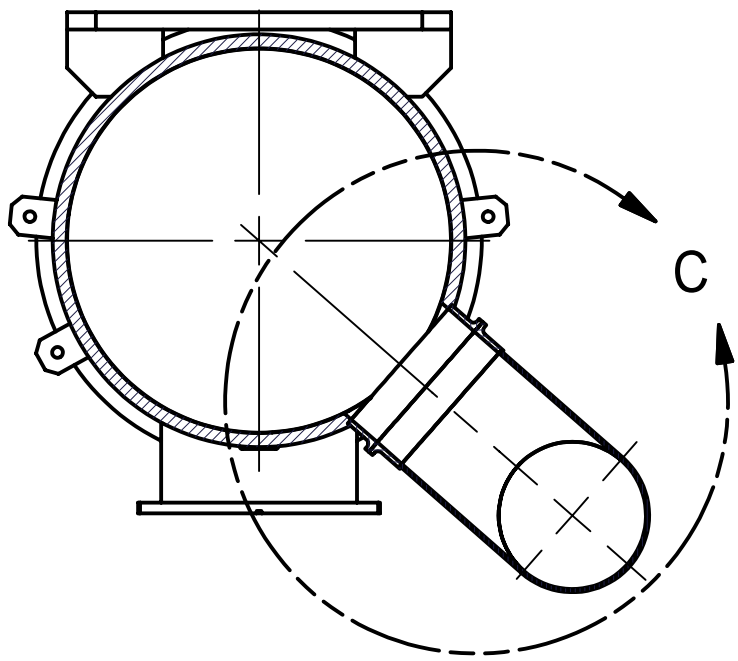
FILE NAME: 7102-050
SHEET NO.: 3
DFT. SCALE: 0.3:1
MATERIAL: MAKE FROM ITEM 4 (SEE NEXT SHEET)
QTY: 1 REQ'D
NOTES: 1. HEAT TREAT OR VIBRATE TO RELIEVE STRESS BEFORE FINAL MACHINING
2. MACHINE SURFACES OF TOP AND BOTTOM SUPPORT PLATES (SEE FRONT VIEW).
3. MACHINE HOLES IN TOP SUPPORT PLATES (SEE TOP SIDE VIEW).
4. MACHINE GROOVES AND HOLES IN BOTTOM SUPPORT PLATES (SEE DETAIL-HHH AND BOTTOM VIEW)

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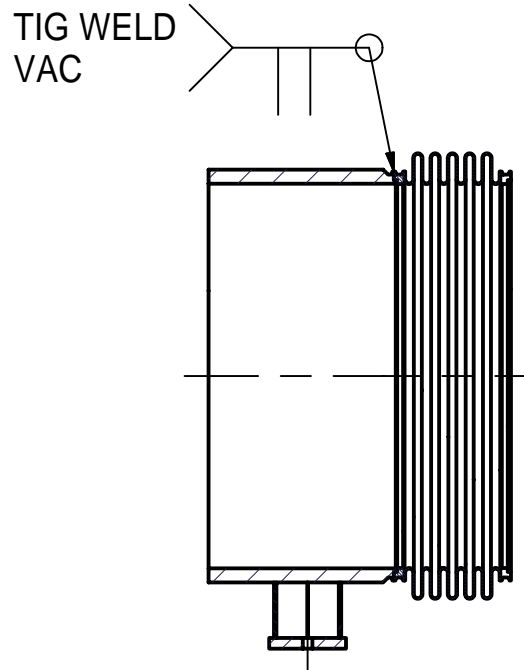
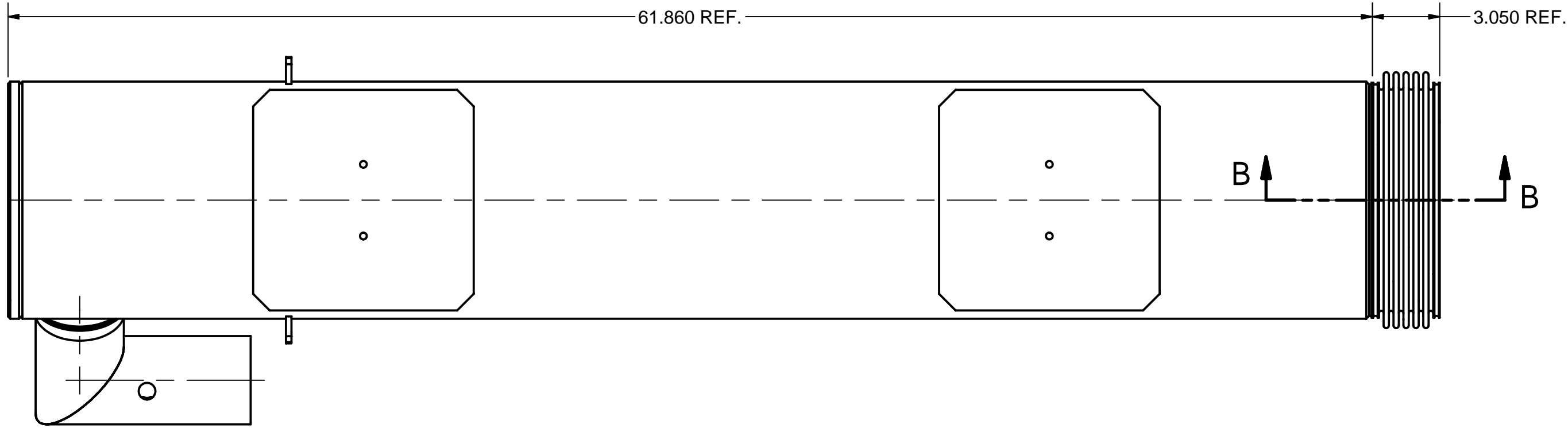
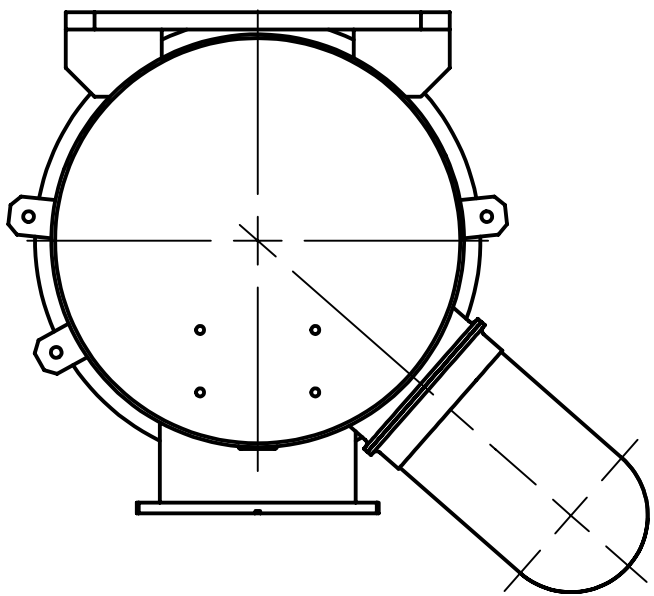
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



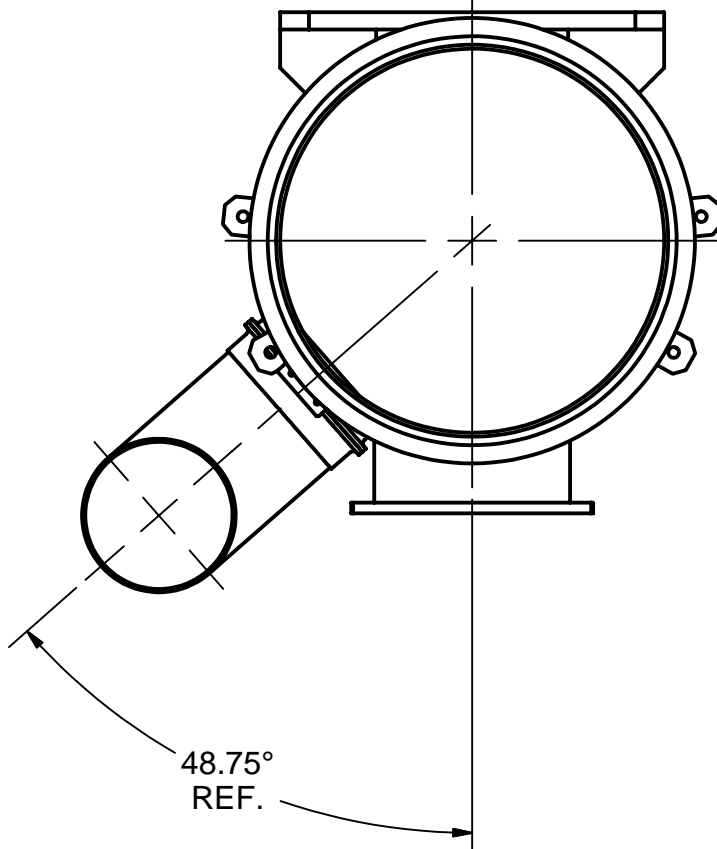
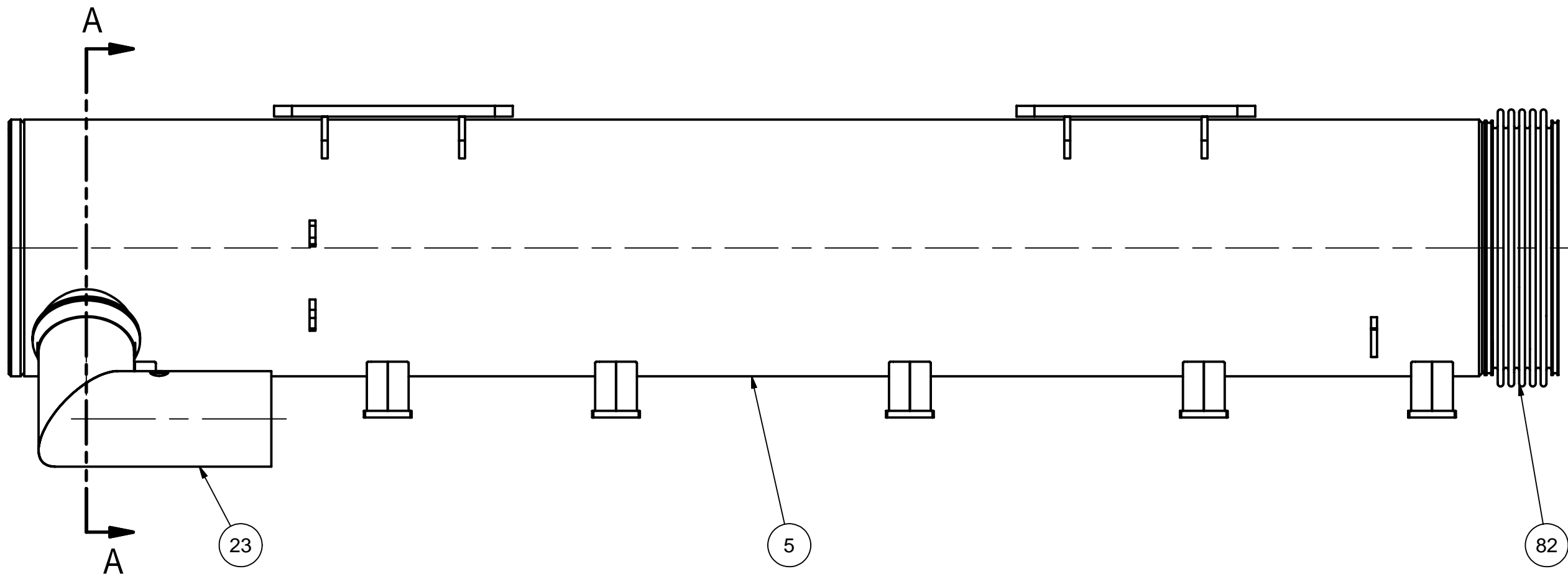
DETAIL C
SCALE 1:2



SECTION A-A



SECTION B-B

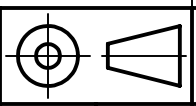


4 HGRP BE_nS WELDMENT II

FILE NAME: 7102-050
SHEET NO.: 4
DFT. SCALE: 1:5
MATERIAL: AS NOTED
QTY: 1 REQ'D
NOTES: 1. ADDITIONAL MACHINING ON PREVIOUS SHEET.
2. HORIZONTAL TUBE OF PART 23
SHOULD BE ALIGNED WITHIN ±0.2°.

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82	7102-050 (SH. 12)	TI-BELLOWS, SUB-ASM	1				
23	7102-050 (SH. 9)	2-PHASE 2 K ELBOW BACK , SUB-ASM	1				
5	7102-050 (SH. 5)	HGRP BE _n S WELDMENT I (MACHINING)	1				
4	7102-050 (SH. 4)	HGRP BE _n S WELDMENT II	X 1				
ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.
			QUANTITY				

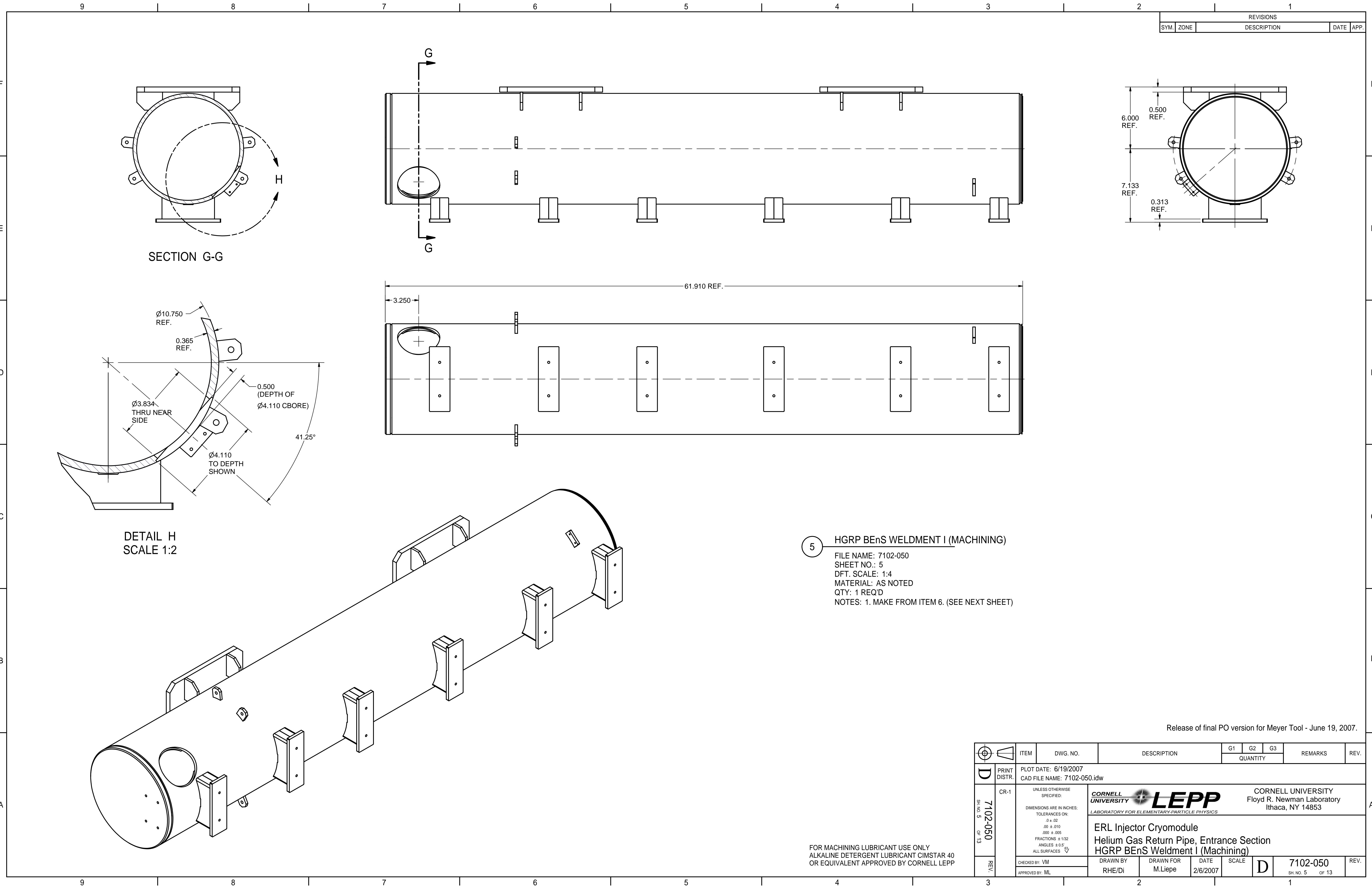


PRINT
DISTR.

7102-050
SH. NO. 4
OF 13

PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853	
CR-1		ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section HGRP BE _n S Weldment II		CORNELL UNIVERSITY FLOYD R. NEWMAN LABORATORY ITHACA, NY 14853	
CHECKED BY: VM	DRAWN BY: RHE/Di	DRAWN FOR: M.Liepe	DATE: 2/6/2007	SCALE: D	7102-050 SH. NO. 4 OF 13
APPROVED BY: ML					

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OR EQUIVALENT APPROVED BY CORNELL LEPP



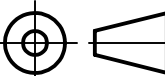



SECTION G-G

DETAIL H
SCALE 1:2

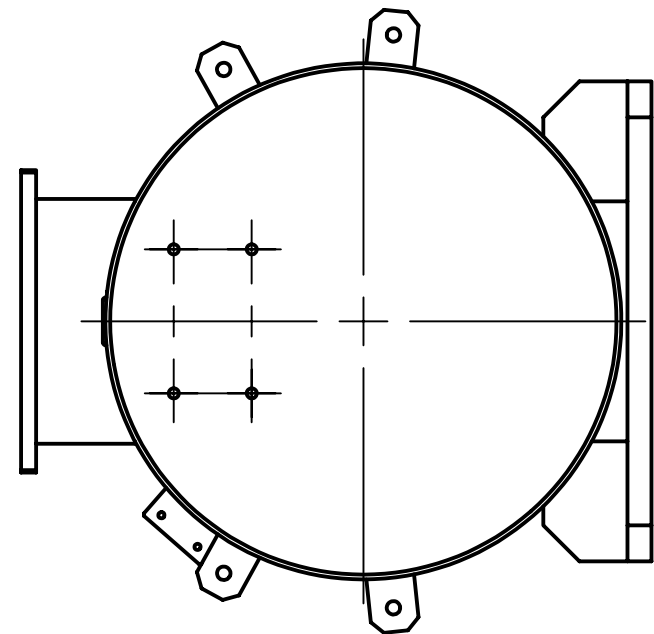
5 HGRP BEñS WELDMENT I (MACHINING)
FILE NAME: 7102-050
SHEET NO.: 5
DFT. SCALE: 1:4
MATERIAL: AS NOTED
QTY: 1 REQ'D
NOTES: 1. MAKE FROM ITEM 6. (SEE NEXT SHEET)

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

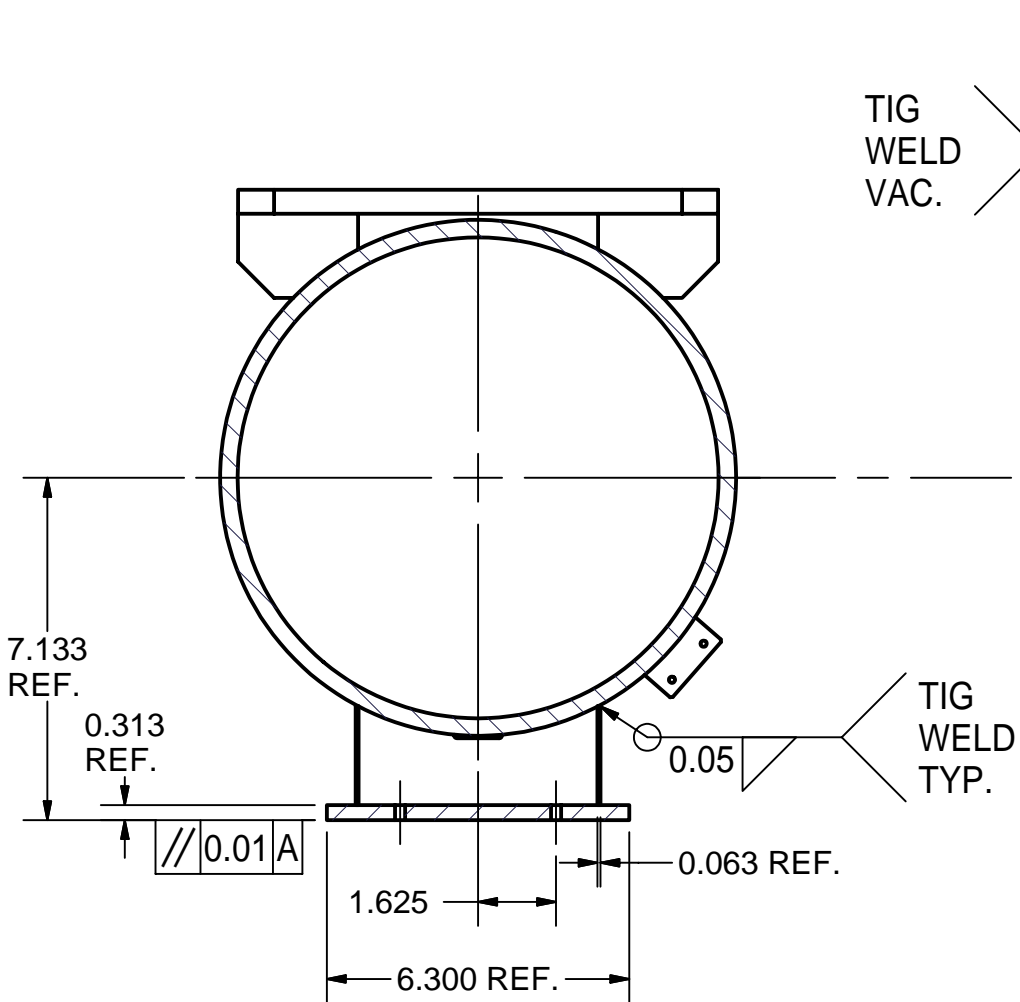
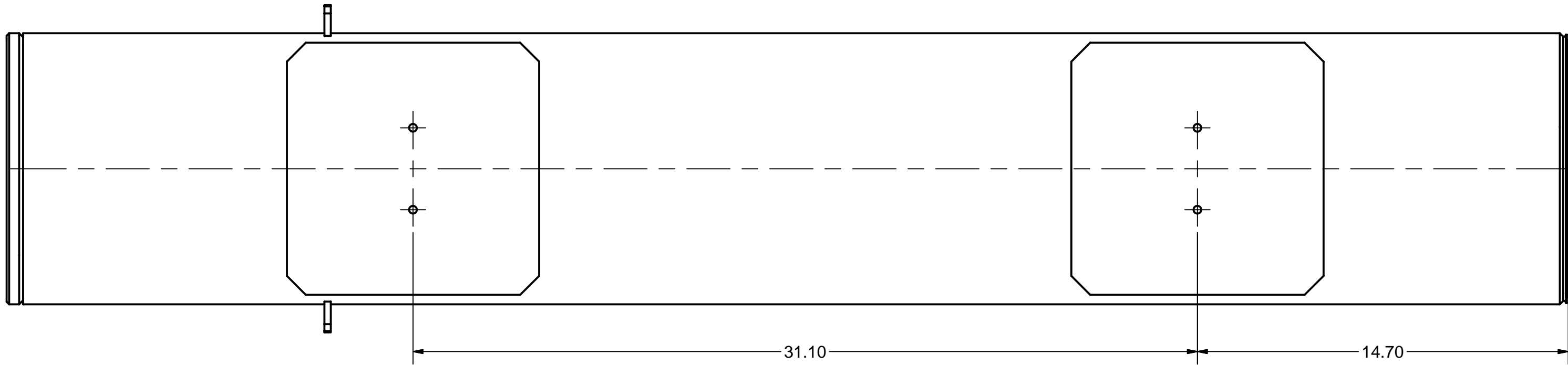
Release of final PO version for Meyer Tool - June 19, 2007.

	ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.	
				QUANTITY					
PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw								
7102-050 SH. NO. 5 OF 13	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 	 CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853 ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section HGRP BEaS Weldment I (Machining)						
			CHECKED BY: VM	DRAWN BY	DRAWN FOR	DATE	SCALE	7102-050 SH. NO. 5 OF 13	REV.
			APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007			

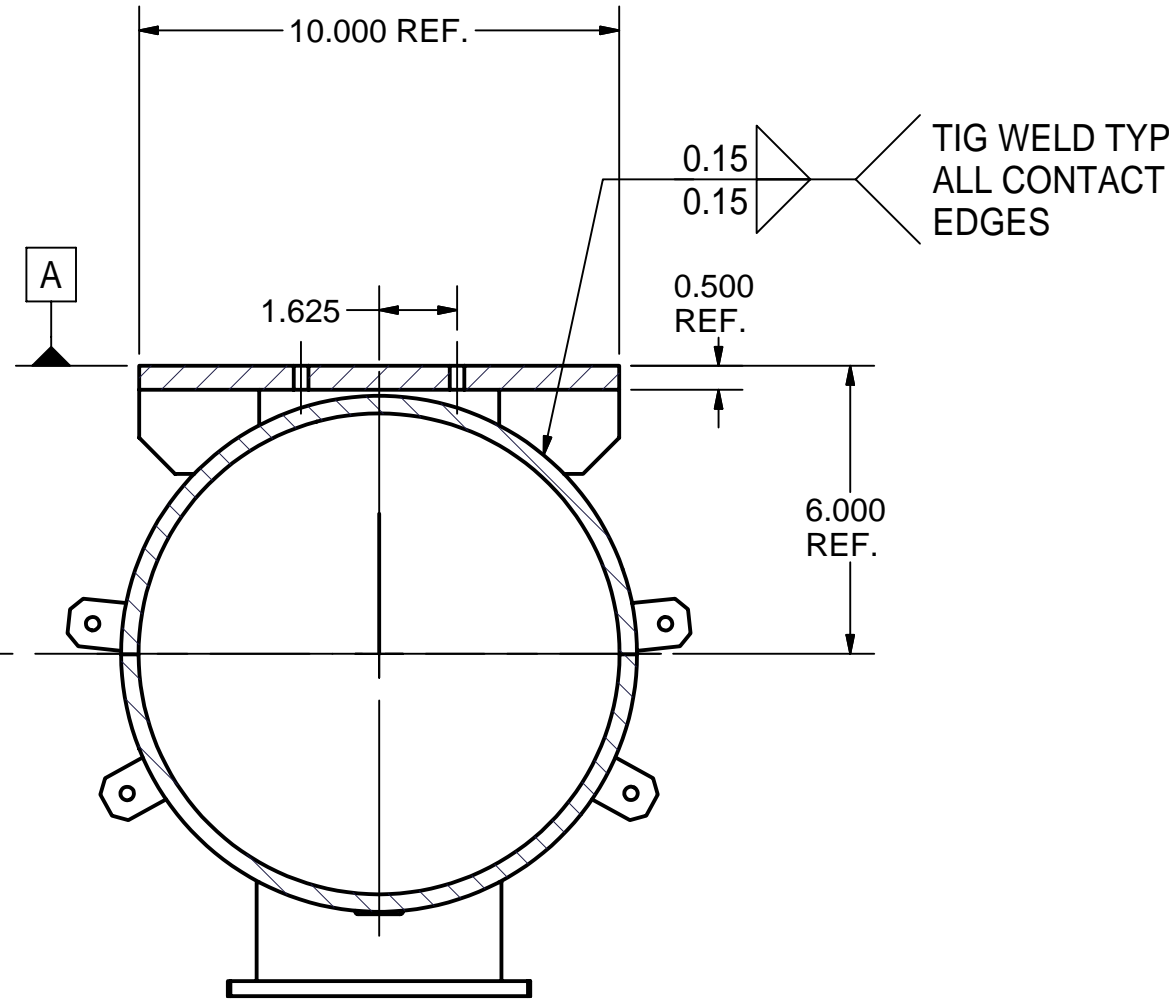
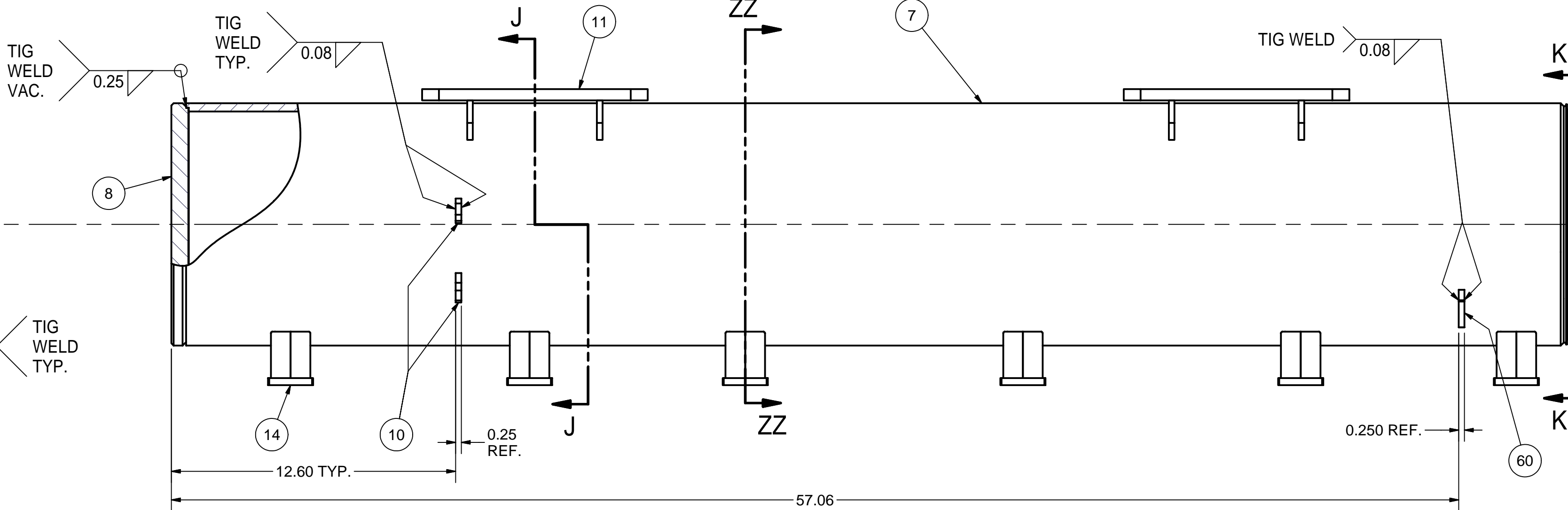
REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



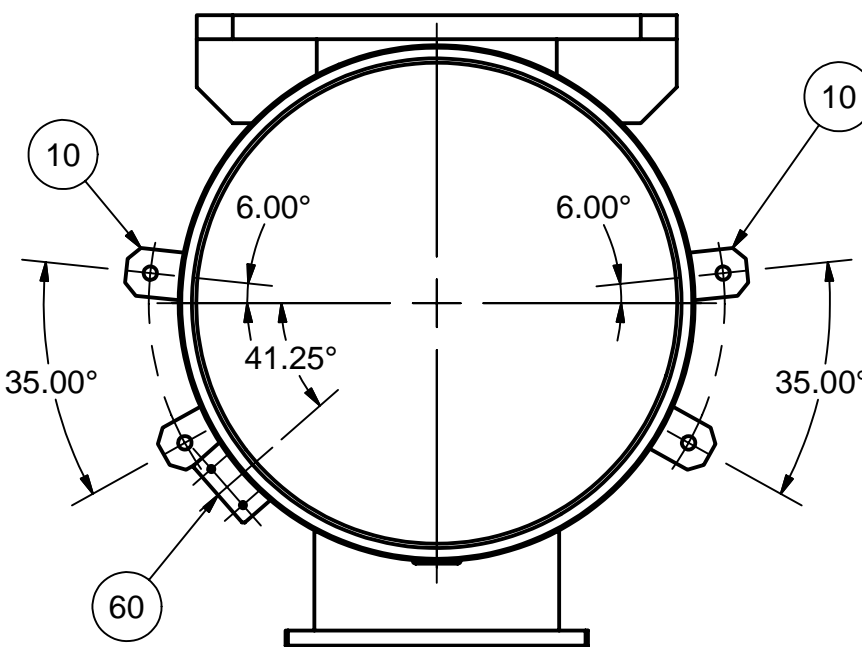
VIEW TO SHOW ORIENTATION OF
1/4-28UNF HOLES IN ITEM 8 TO SUB-ASM



SECTION ZZ-ZZ



SECTION J-J
NOTE: SEE TOP VIEW



VIEW K-K
NOTE: SEE TOP + SIDE VIEW

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60	7102-050 (SH. 11)	2-PHASE TUBE SUPPORT TAB	1					
14	7102-050 (SH. 8)	BOTTOM SUPPORT, SUB-ASM	6					
11	7102-050 (SH. 8)	TOP SUPPORT PLATE, SUB-ASM	2					
10	7102-050 (SH. 7)	5 K TUBE SUPPORT PLATE	4					
8	7102-050 (SH. 7)	HGRP ENDPLATE I	1					
7	7102-050 (SH. 7)	HGRP BEs PIPE	1					
6	7102-050 (SH. 6)	HGRP BEs WELDMENT I (PRE-MACHINING)	X	1				

ITEM	DWG. NO.	DESCRIPTION	QUANTITY			REMARKS	REV.
			G1	G2	G3		
60	7102-050 (SH. 11)	2-PHASE TUBE SUPPORT TAB	1				
14	7102-050 (SH. 8)	BOTTOM SUPPORT, SUB-ASM	6				
11	7102-050 (SH. 8)	TOP SUPPORT PLATE, SUB-ASM	2				
10	7102-050 (SH. 7)	5 K TUBE SUPPORT PLATE	4				
8	7102-050 (SH. 7)	HGRP ENDPLATE I	1				
7	7102-050 (SH. 7)	HGRP BEs PIPE	1				
6	7102-050 (SH. 6)	HGRP BEs WELDMENT I (PRE-MACHINING)	X	1			

PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw						
CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES						
7102-050 SH. NO. 6 OF 13	REVISIONS						
REV.	CHECKED BY: VM APPROVED BY: ML	DRAWN BY: RHE/Di	DRAWN FOR: M.Liepe	DATE: 2/6/2007	SCALE: D	7102-050 SH. NO. 6 OF 13	REV.

6 HGRP BEs WELDMENT I (PRE-MACHINING)

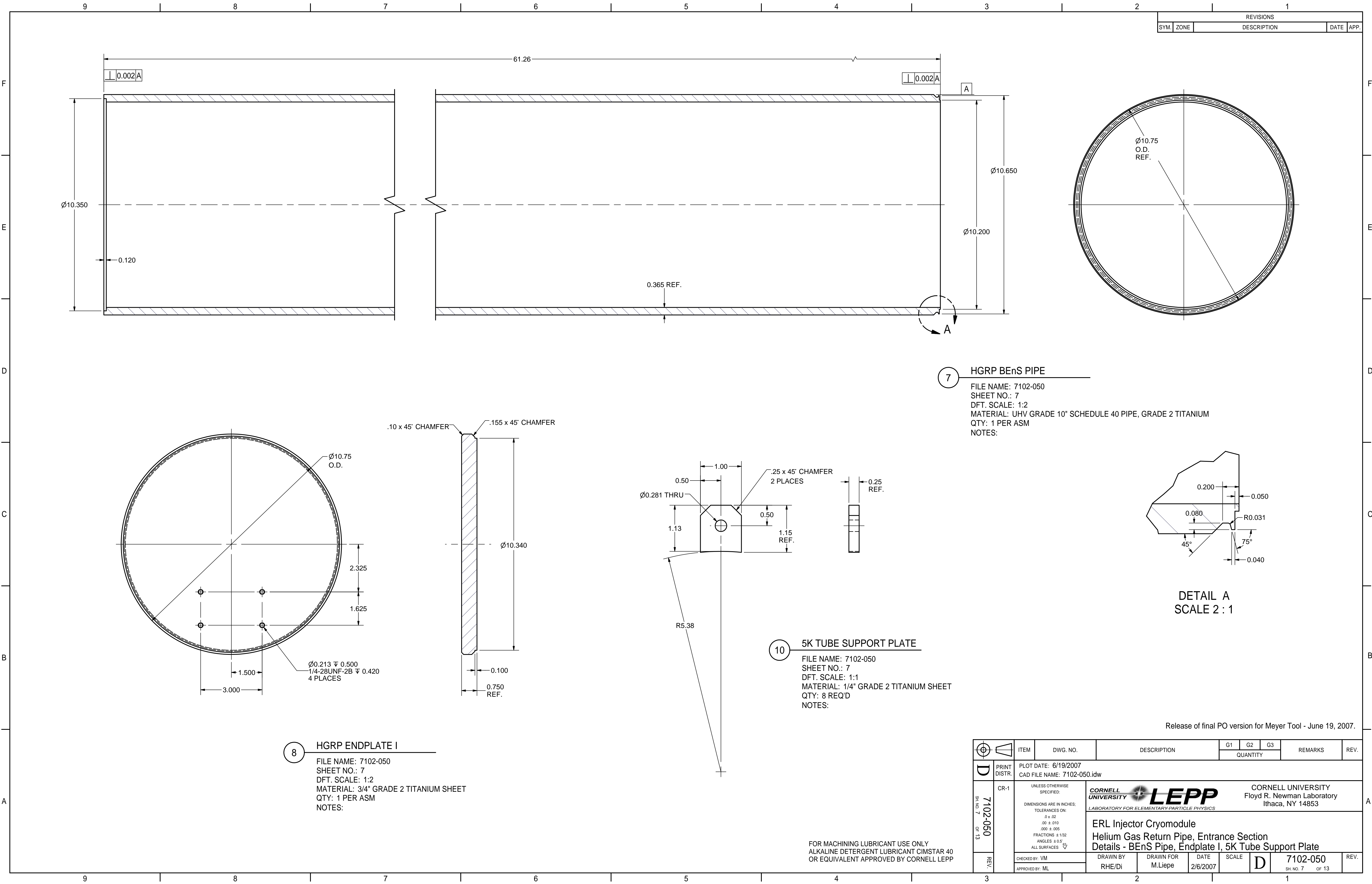
FILE NAME: 7102-050
SHEET NO.: 6
DFT. SCALE: 1:4
MATERIAL: AS NOTED
QTY: 1 REQ'D.
NOTES: SEE PREVIOUS SHEET FOR
ADDITIONAL MACHINING.

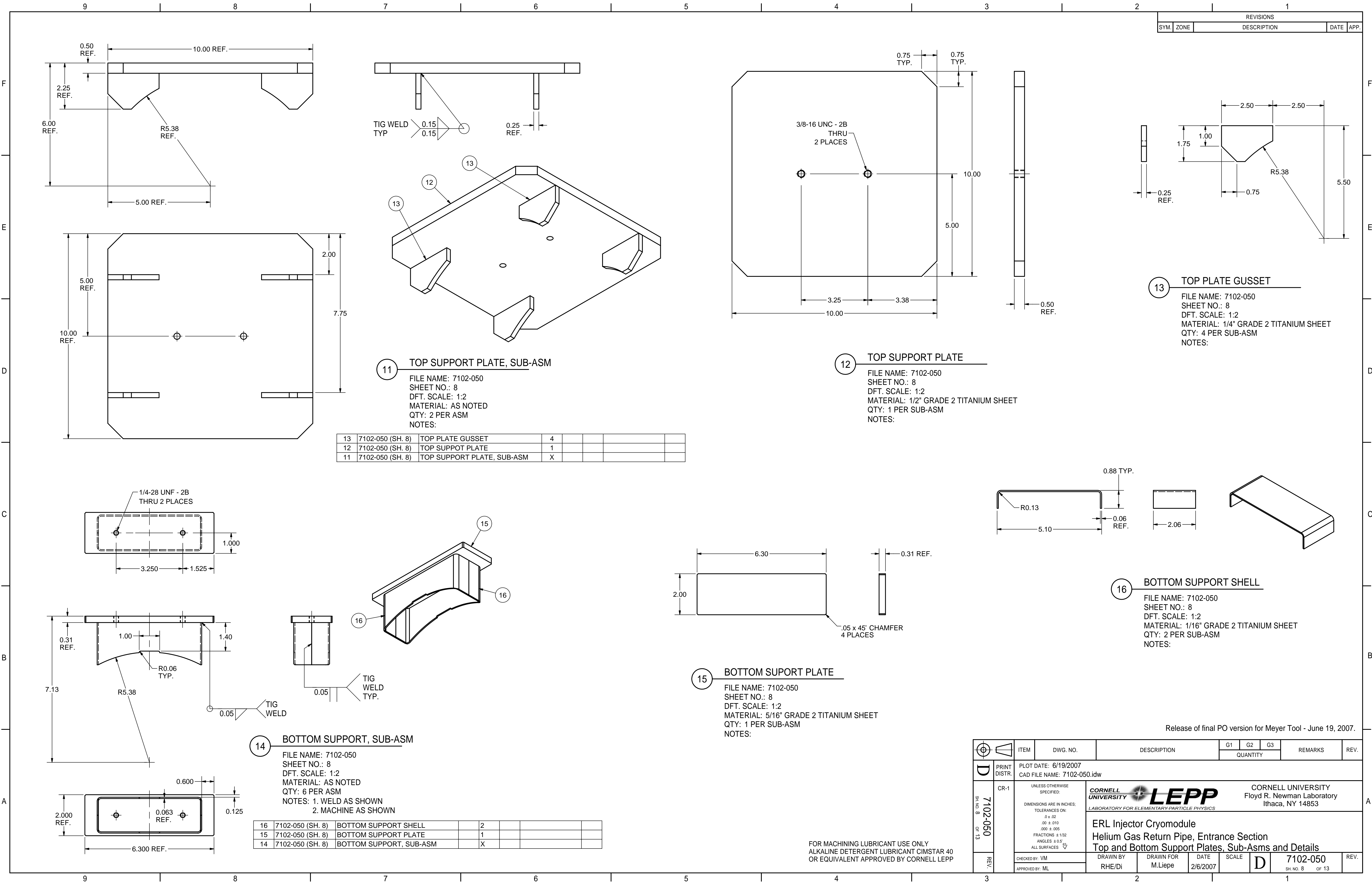
FOR MACHINING LUBRICANT USE ONLY
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OR EQUIVALENT APPROVED BY CORNELL LEPP



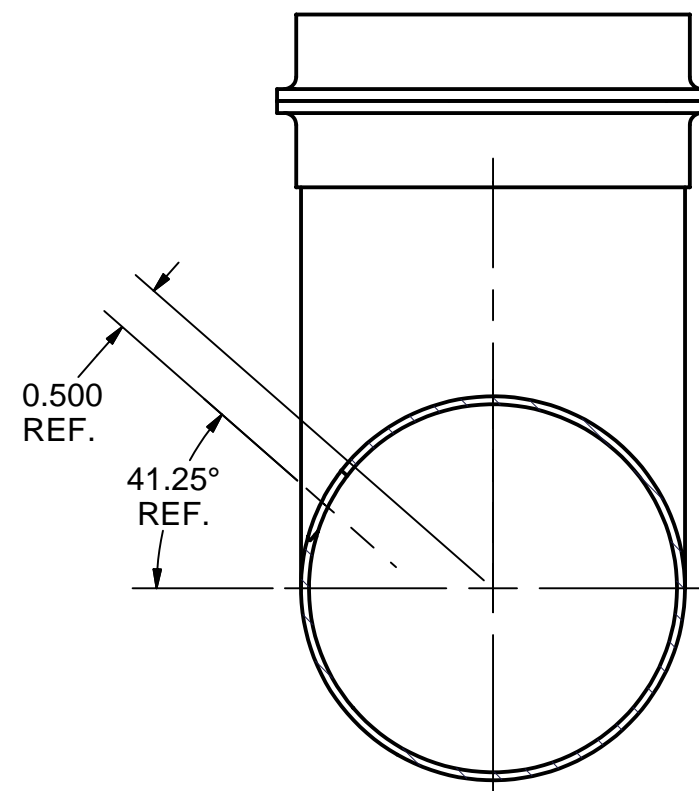
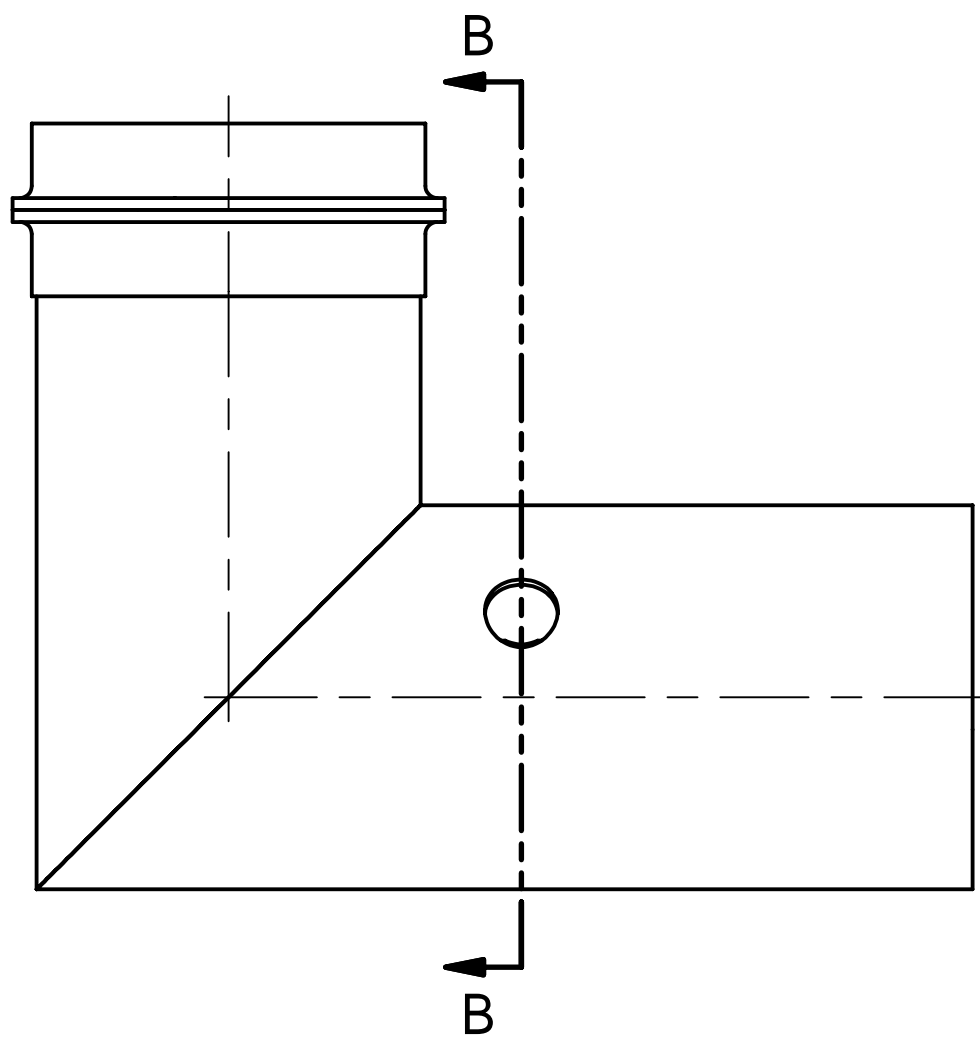
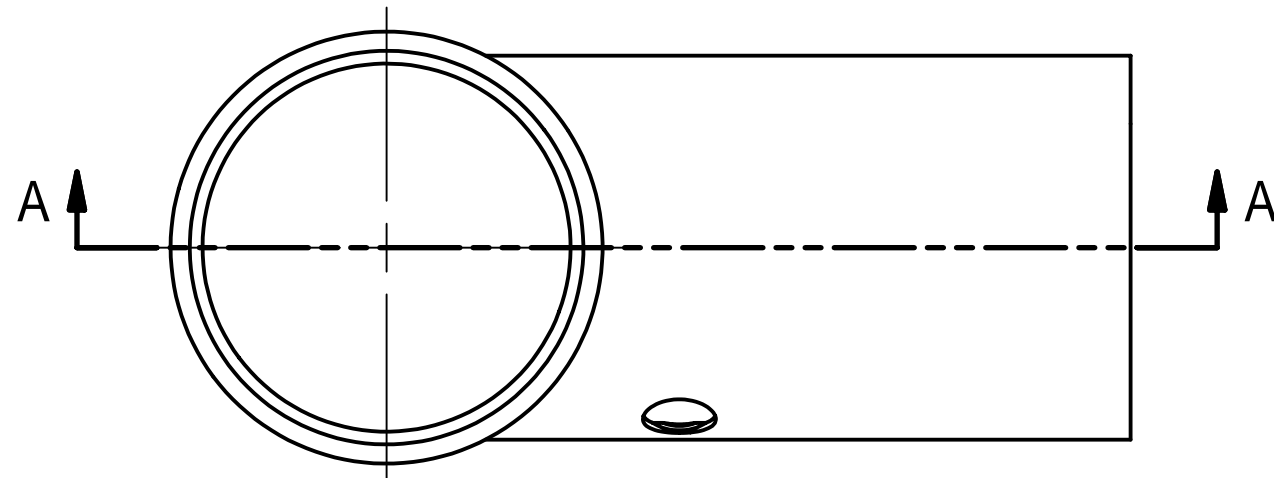
CORNELL UNIVERSITY
Floyd R. Newman Laboratory
Ithaca, NY 14853

ERL Injector Cryomodule
Helium Gas Return Pipe, Entrance Section
HGRP Weldment I (Pre-Machining)

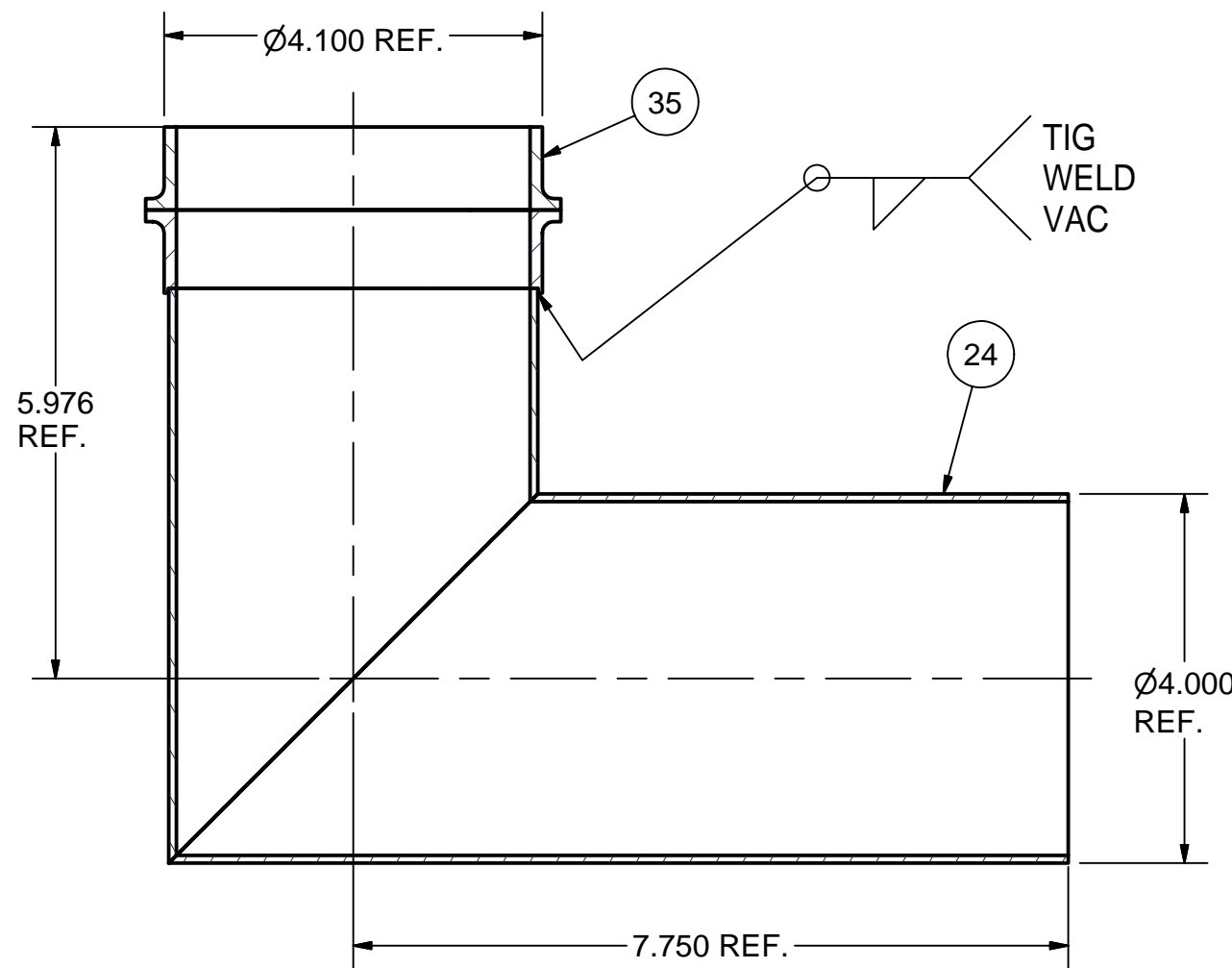




REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



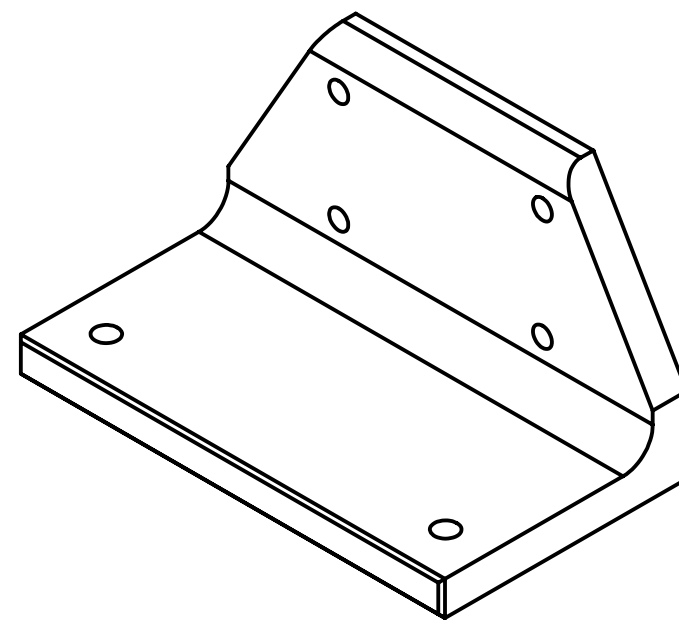
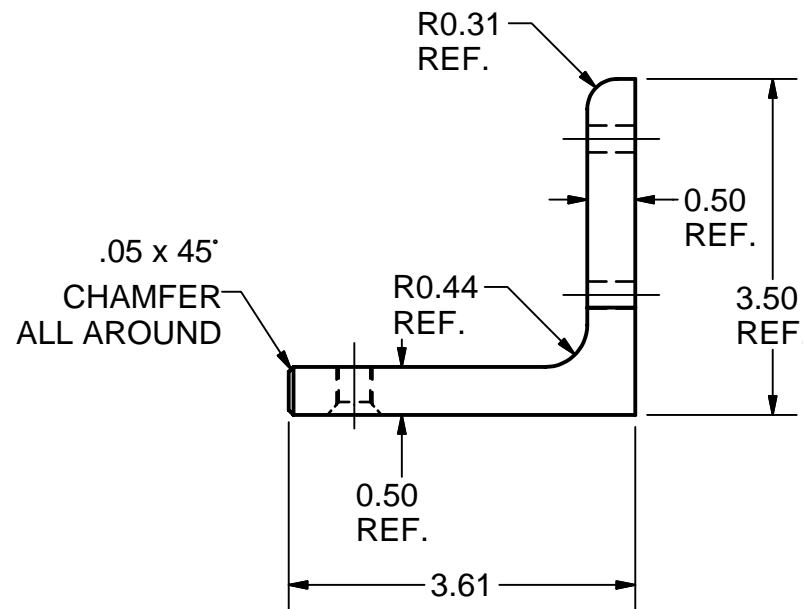
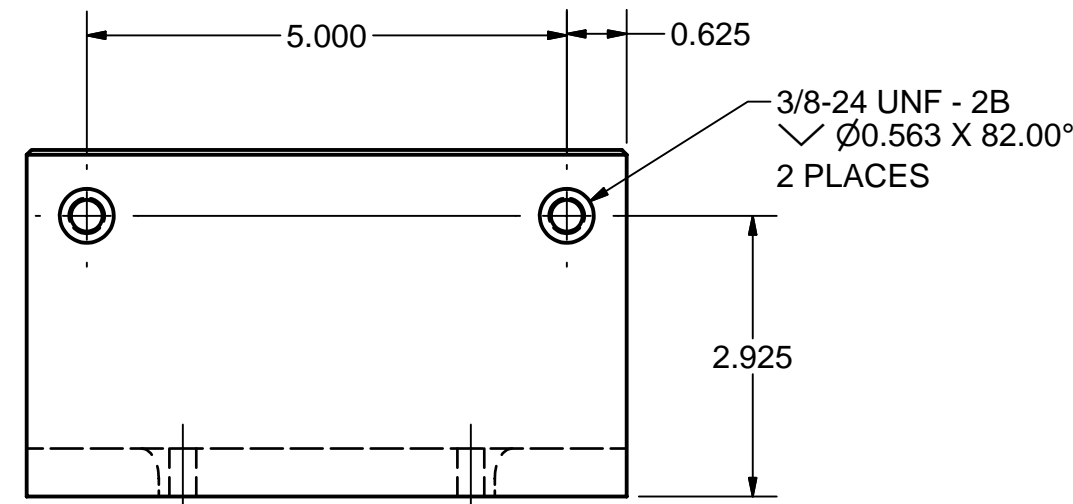
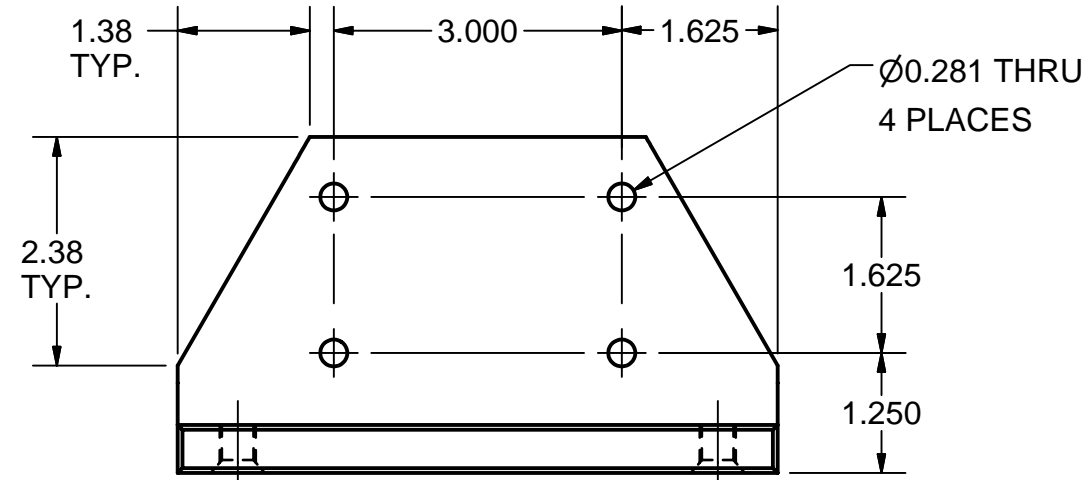
SECTION B-B



SECTION A-A

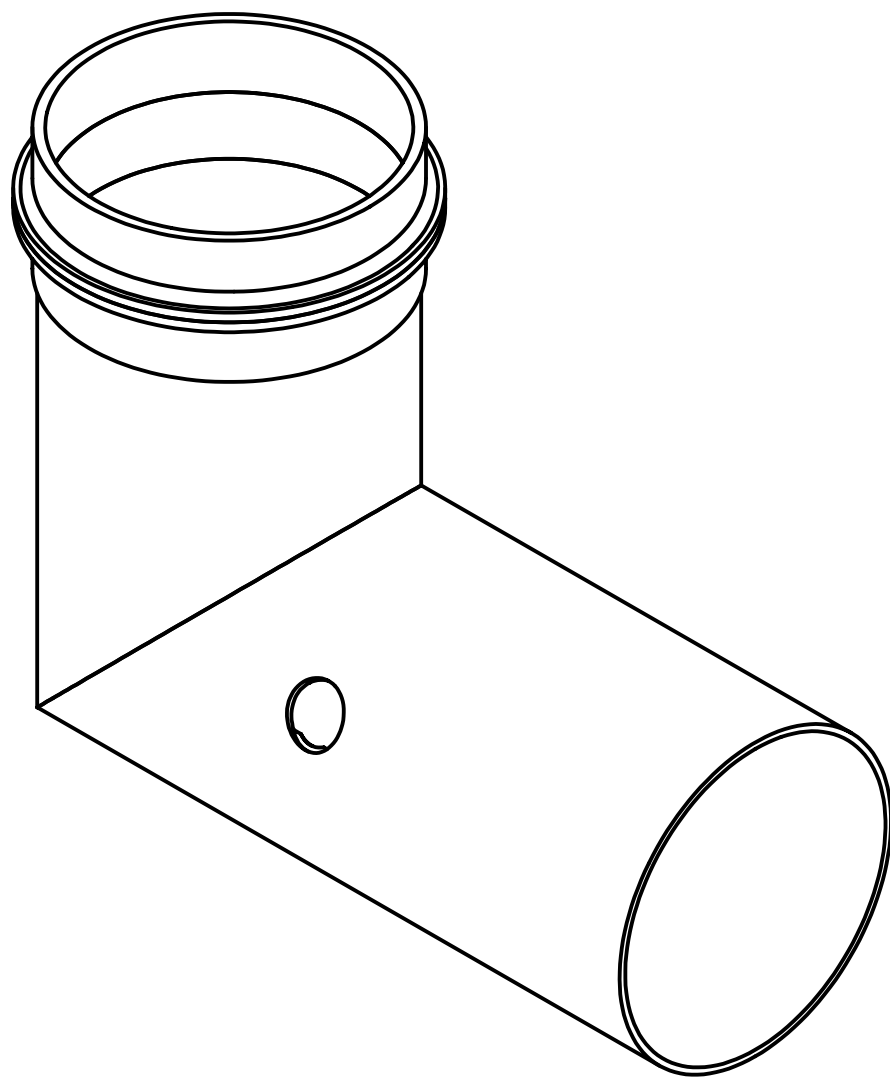
23 2-PHASE 2 K ELBOW BACK, SUB-ASM

FILE NAME: 7102-050
SHEET NO.: 9
DFT. SCALE: 1:2
MATERIAL: AS NOTED
QTY: 1 PER ASM
NOTES:



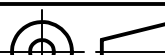




49 GATE VALVE BRACKET

FILE NAME: 7102-050
SHEET NO.: 9
DFT. SCALE: 1:2
MATERIAL: 3.5" x 5" x 0.50 THK. 6061-T6 ALUM ANGLE
QTY: 1 PER ASM
NOTES:



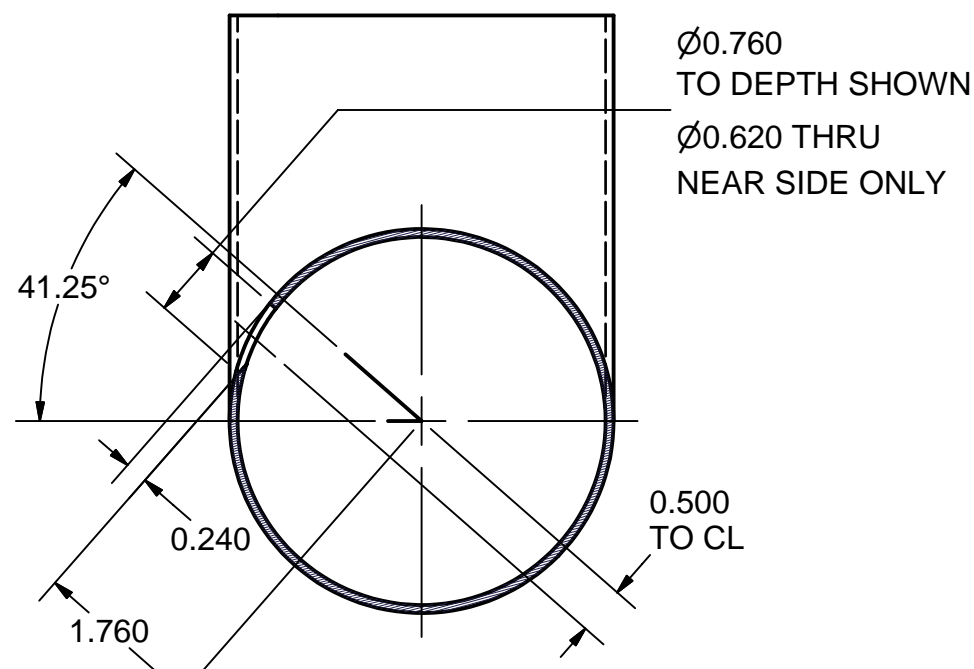
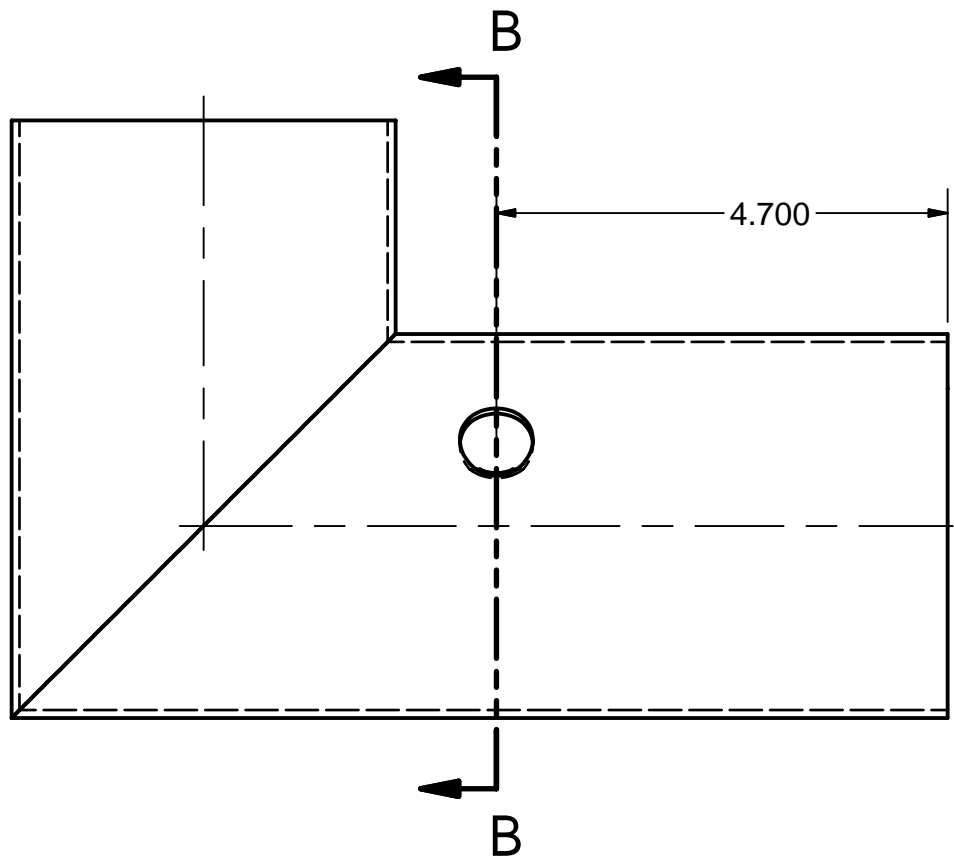
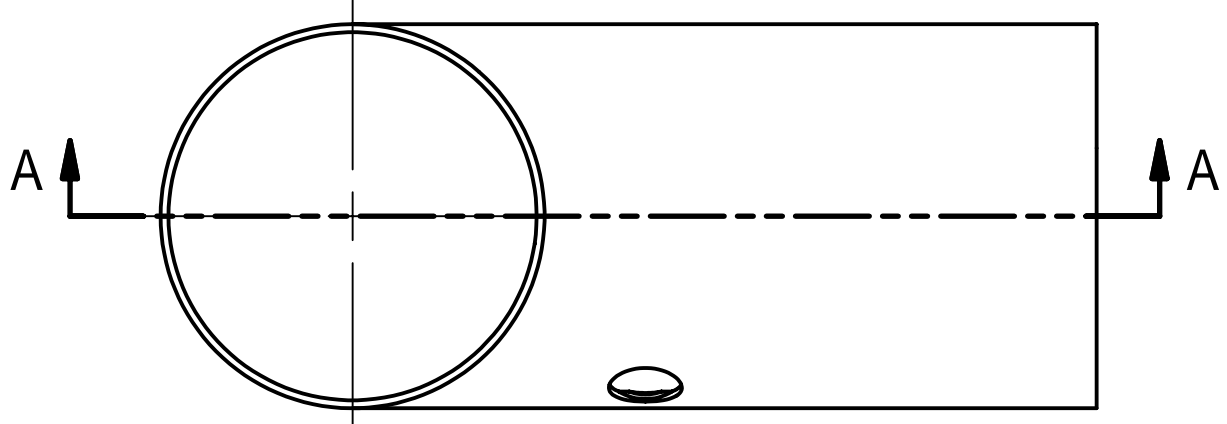
Release of final PO version for Meyer Tool - June 19, 2007.

35	7102-050 (SH. 11)	Ti-SST 4" TRANSITION	1					
24	7102-050 (SH. 10)	2 K ELBOW BACK, SUB-ASM	1					
23	7102-050 (SH. 9)	2-PHASE 2 K ELBOW BACK, SUB-ASM	X					

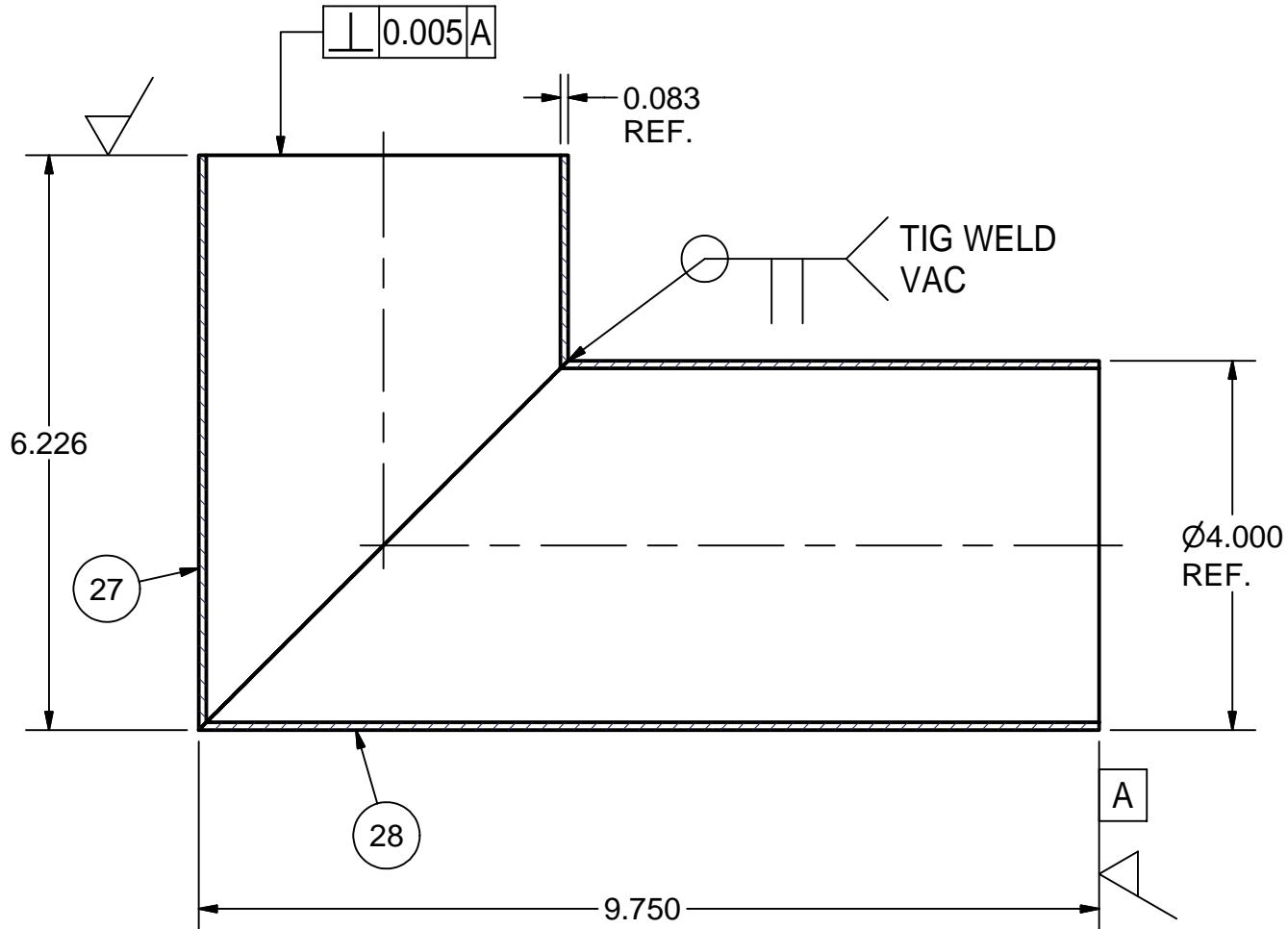
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							QUANTITY			
	PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw								
	7102-050 SH. NO. 9 OF 13	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 	CORNELL UNIVERSITY  CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853 ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section 2 Phase-2K Elbow, Sub-Assemblies (Back)						
CHECKED BY: VM				DRAWN BY	DRAWN FOR	DATE	SCALE		7102-050 SH. NO. 9 OF 13	REV.
REV.	APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007						

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OR EQUIVALENT APPROVED BY CORNELL LEPP

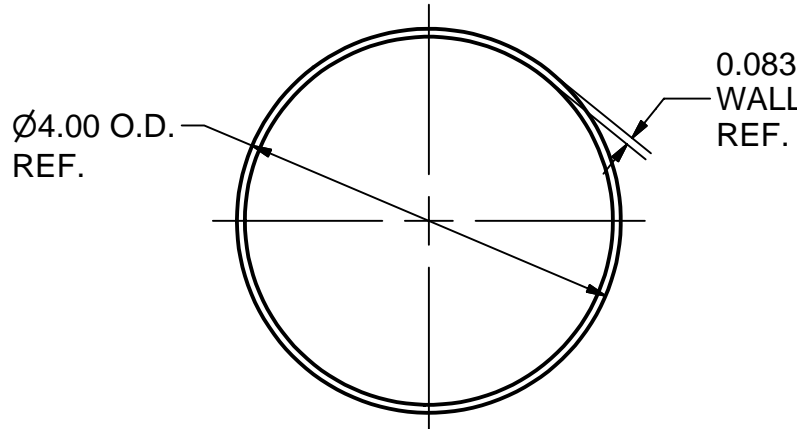
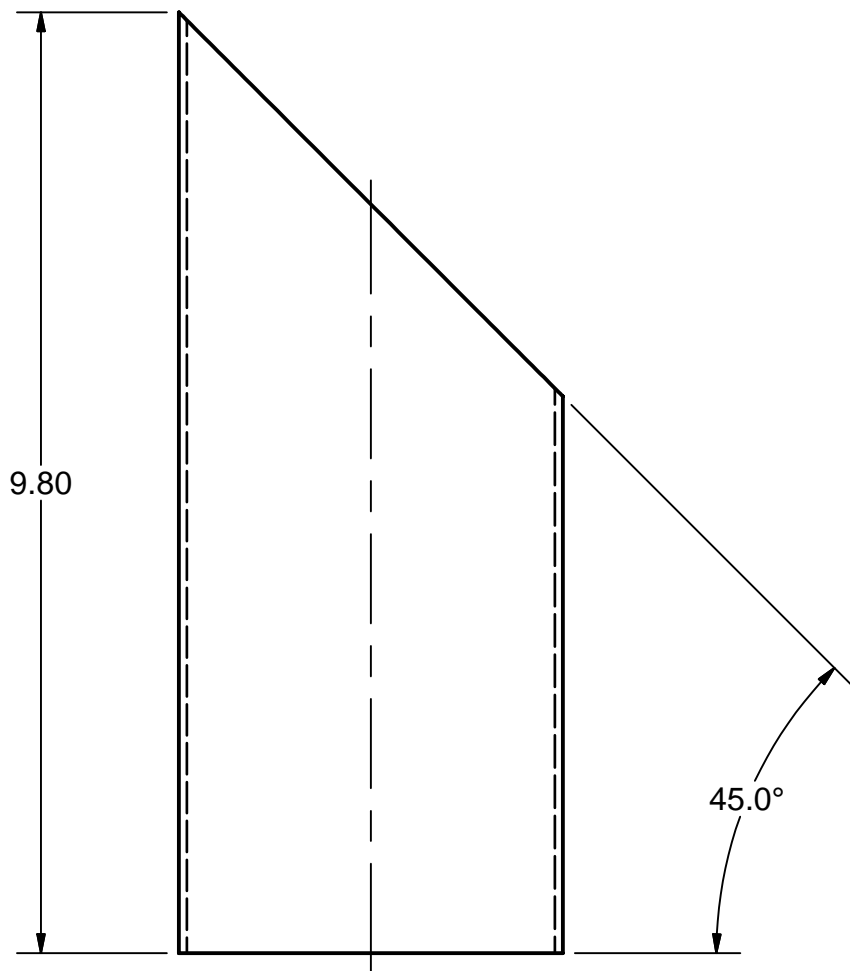
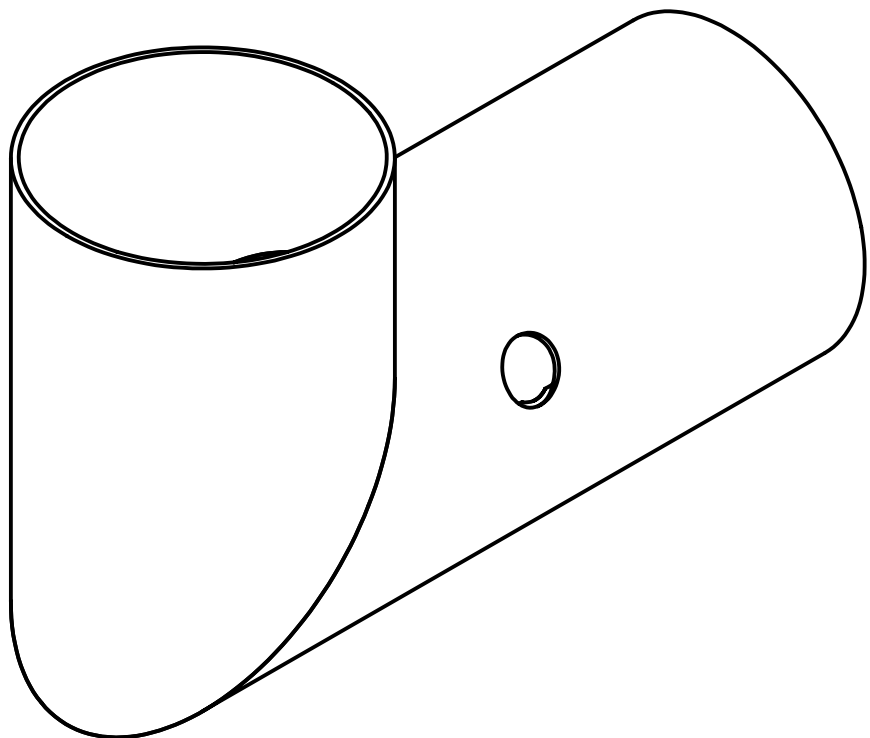
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.



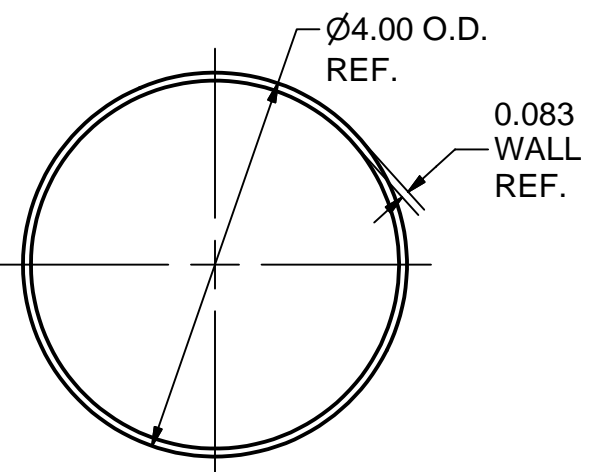
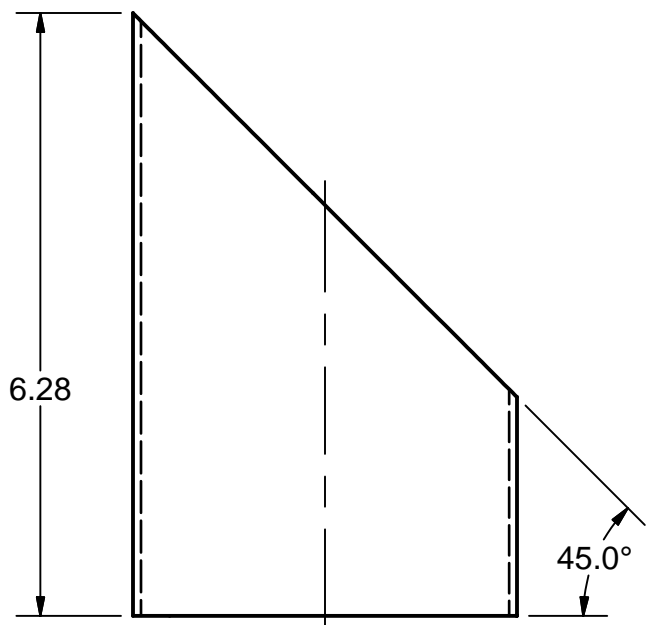
SECTION B-B



SECTION A-A



28 ELBOW PIPE 2
FILE NAME: 7102-050
SHEET NO.: 10
DFT. SCALE: 1:2
MATERIAL: 4" O.D. x 0.083 WALL UHV GRADE 316L STN STL TUBE
QTY: 1 PER SUB-ASM
NOTES:

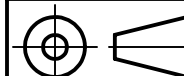






27 ELBOW PIPE 1
FILE NAME: 7102-050
SHEET NO.: 10
DFT. SCALE: 1:2
MATERIAL: 4" O.D. x 0.083 WALL UHV GRADE 316L STN STL TUBE
QTY: 1 PER SUB-ASM
NOTES:

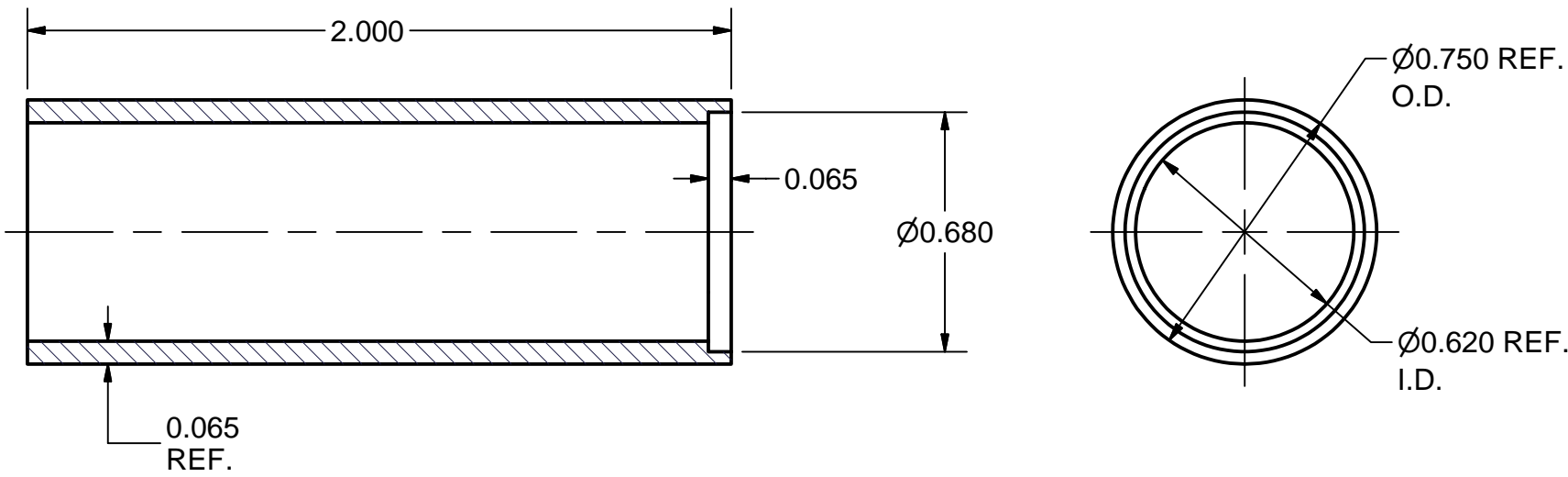
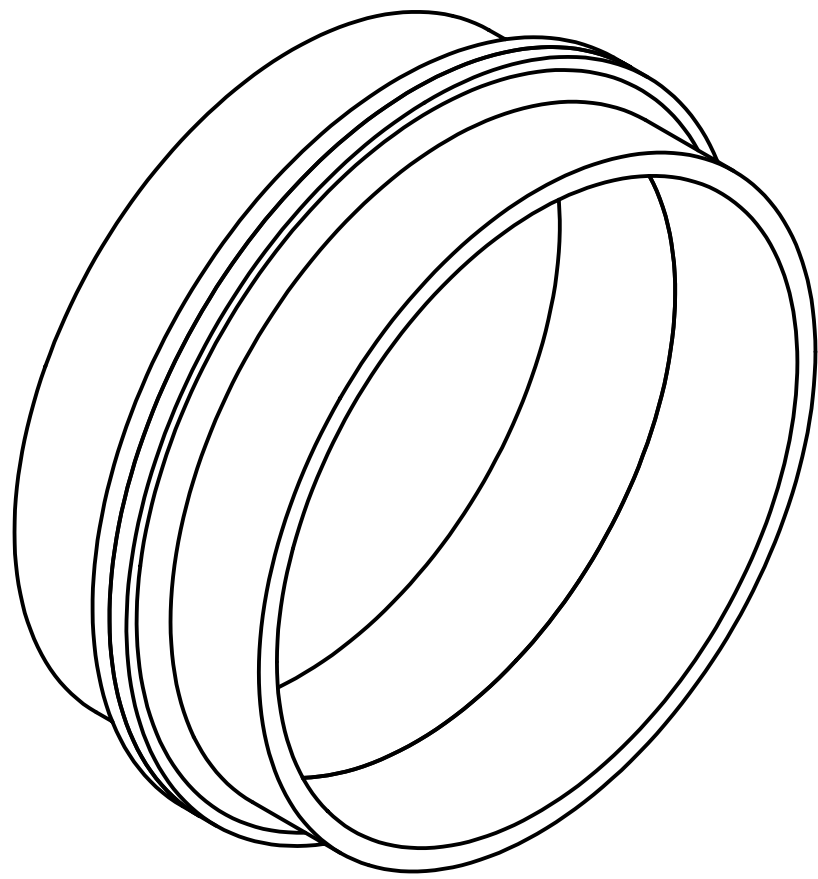
24 2 K ELBOW BACK, SUB-ASM
FILE NAME: 7102-050
SHEET NO.: 10
DFT. SCALE: 1:2
MATERIAL: AS NOTED
QTY: 1 PER ASM
NOTES: HOLE TO BE MACHINED
AFTER WELDING

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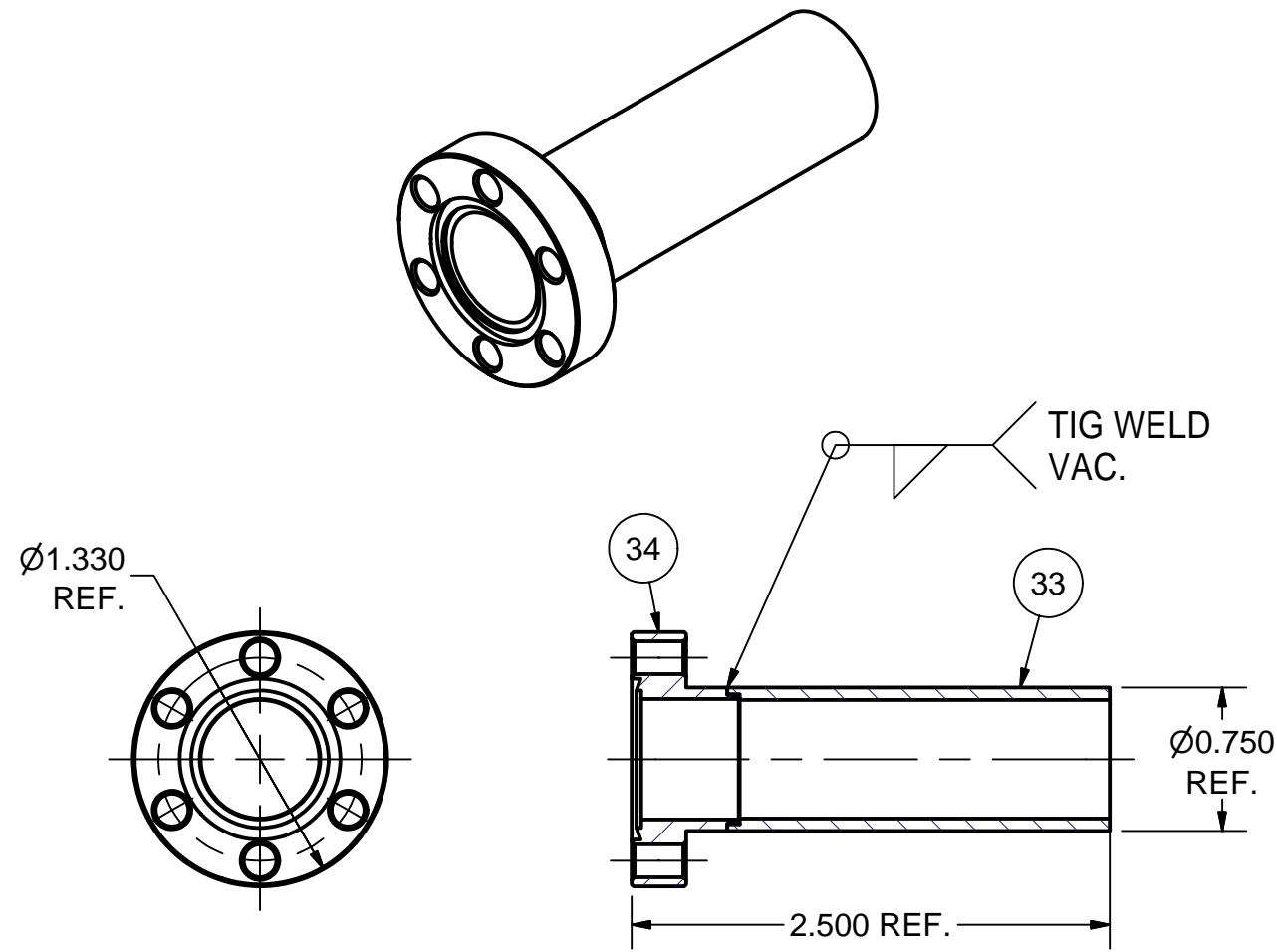
Release of final PO version for Meyer Tool - June 19, 2007.

		28	7102-050 (SH. 10)	ELBOW PIPE II	1				
		27	7102-050 (SH. 10)	ELBOW PIPE I	1				
		24	7102-050 (SH. 10)	2 K ELBOW BACK, SUB-ASM	X				
	ITEM	DWG. NO.		DESCRIPTION	G1	G2	G3	REMARKS	REV.
					QUANTITY				
	PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw							
SH. NO. 10 OF 13	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 			CORNELL UNIVERSITY  LEPP LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853				
					ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section 2K Elbow Back, Sub-Assembly				
REV.	CHECKED BY: VM	DRAWN BY	DRAWN FOR	DATE	SCALE		7102-050		REV.
	APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007			SH. NO. 10 OF 13		

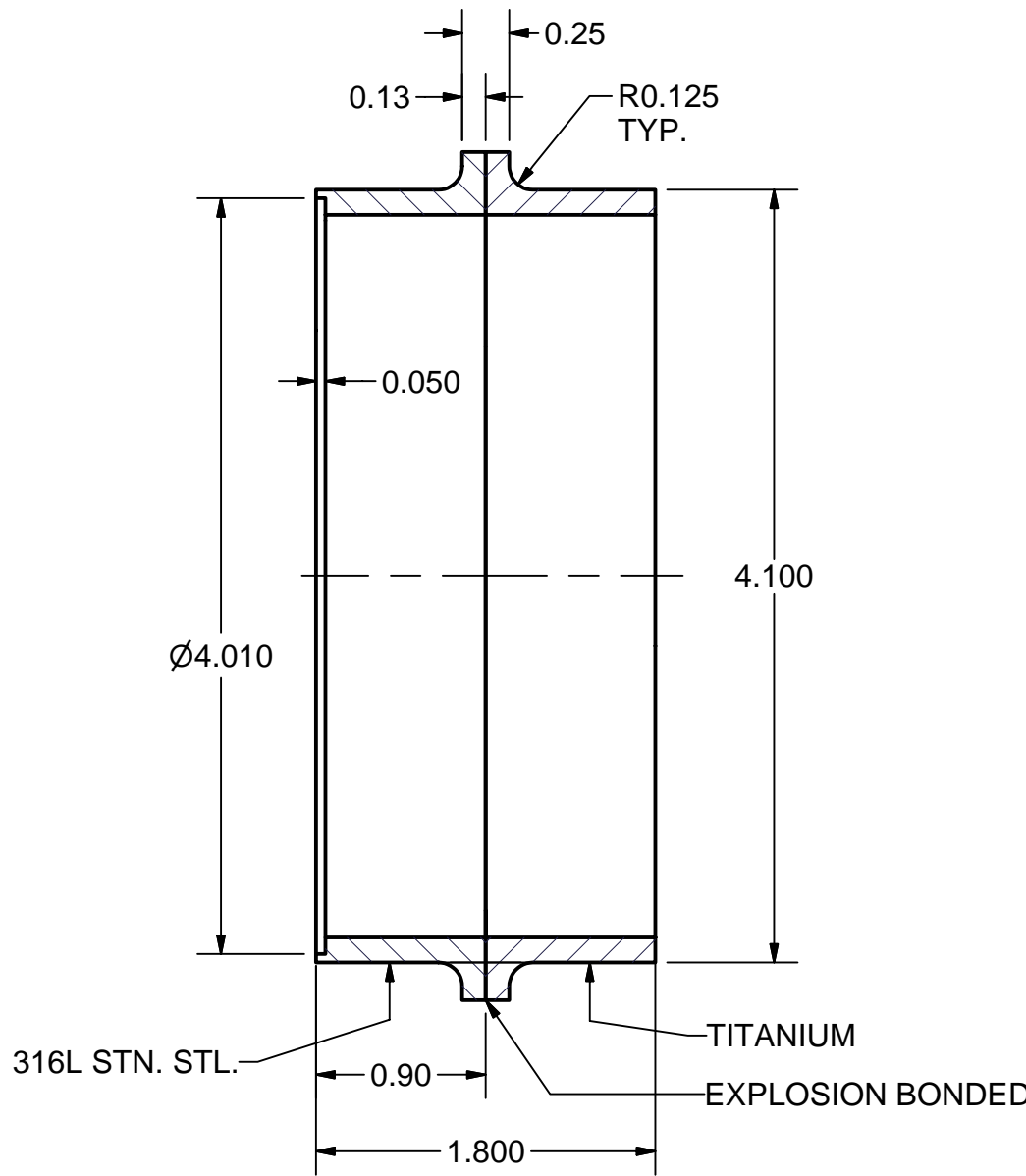
REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.



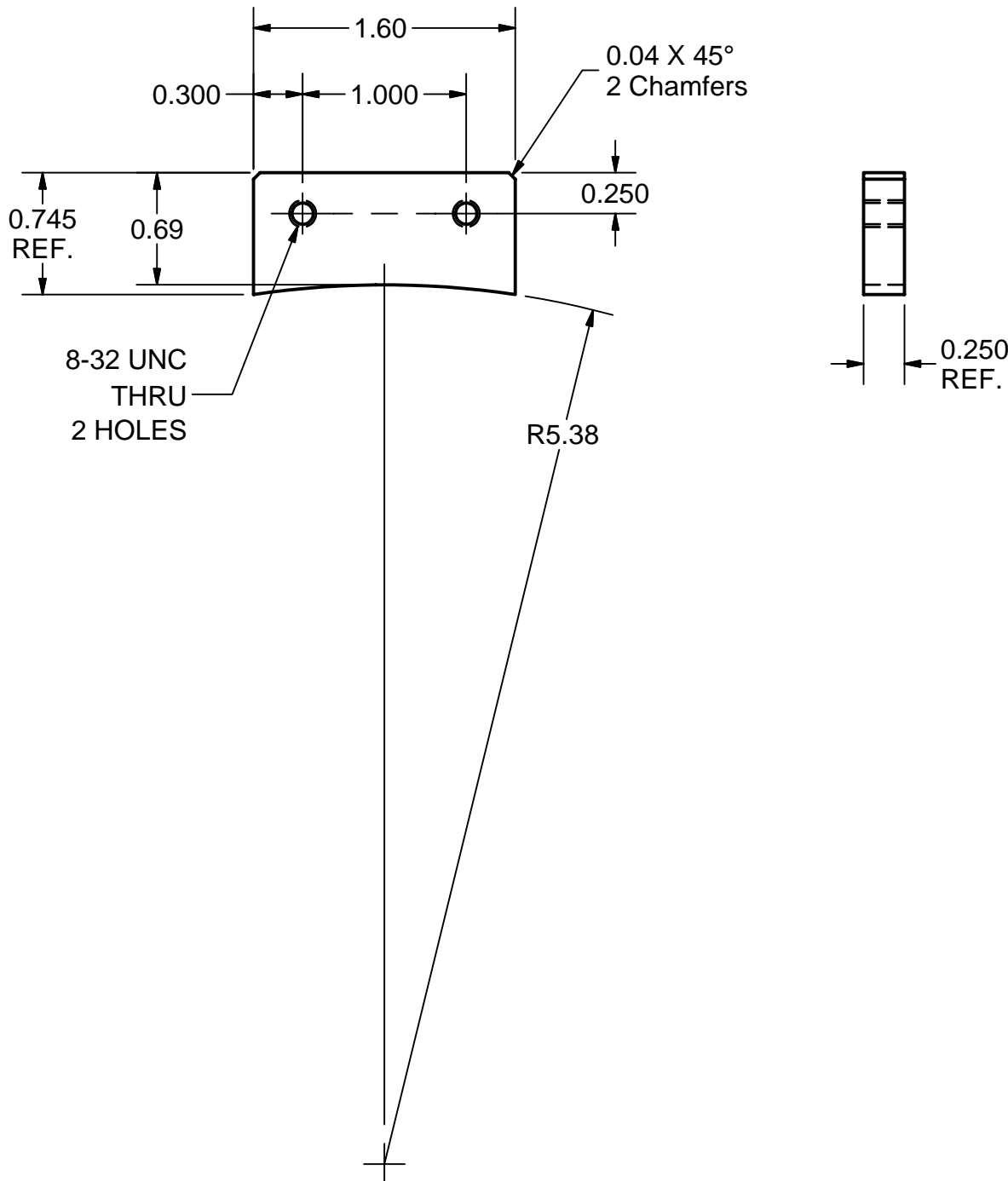
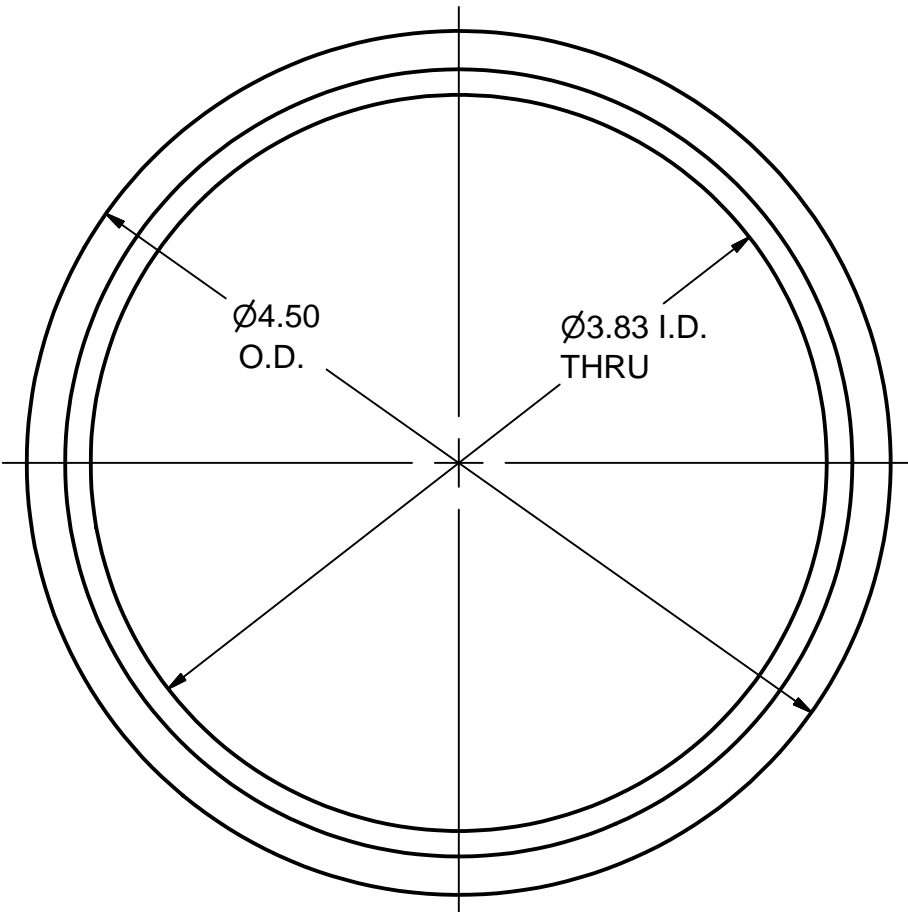
33 He LEVEL SENSOR TUBE
FILE NAME: 7102-050
SHEET NO.: 11
DFT. SCALE: 2:1
MATERIAL: 3/4" O.D. x 0.065 WALL UHV GRADE 316L STN STL TUBE
QTY: 1 PER SUB ASM
NOTES:



64 He LEVEL SENSOR TUBE SUB-ASM
FILE NAME: 7102-050
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL:
QTY: 2 PER ASSEMBLY
NOTES:

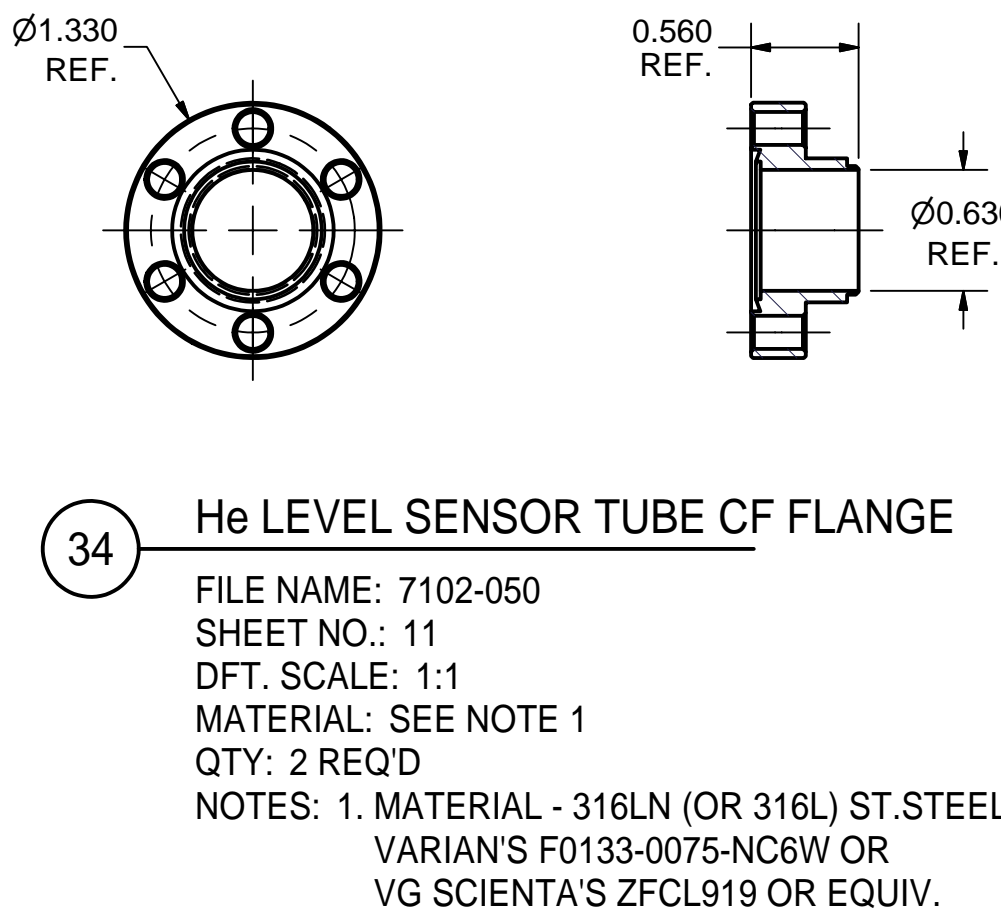


35 Ti-SST 4.00" TRANSITION
FILE NAME: 7102-050
SHEET NO.: 11
DFT. SCALE: 1:2
MATERIAL: USE EXPLOSION BONDED TITANIUM AND 316L STN STL
QTY: 1 PER SUB-ASM
NOTES:





60 2-PHASE TUBE SUPPORT TAB
FILE NAME: 7102-050
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL: 1/4" GRADE 2 TITANIUM SHEET
QTY: 1 PER ASSEMBLY
NOTES:

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OR EQUIVALENT APPROVED BY CORNELL LEPP



34 He LEVEL SENSOR TUBE CF FLANGE
FILE NAME: 7102-050
SHEET NO.: 11
DFT. SCALE: 1:1
MATERIAL: SEE NOTE 1
QTY: 2 REQ'D
NOTES: 1. MATERIAL - 316LN (OR 316L) ST. STEEL,
VARIAN'S F0133-0075-NC6W OR
VG SCIENTA'S ZFCL919 OR EQUIV.

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<div><div></div><div></div><div></div></div> <div>PRINT DISTR.</div>		34	7102-050 (SH. 11)	1-1/3" CF Non-Rotatable 3/4" Stub Flange	1			Varian's F0133-0075-NC6 W OR EQUIV.			
		33	7102-050 (SH. 11)	He LEVEL SENSOR TUBE	1						
		64	7102-050 (SH. 11)	He LEVEL SENSOR TUB, SUB-ASM	X						
<div></div>		ITEM	DWG. NO.	DESCRIPTION	G1	G2	G3	REMARKS	REV.		
					QUANTITY						
D		PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw									
SH NO. 11 OF 13 7102-050		CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 		CORNELL UNIVERSITY  LEPP LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS					CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853	
					ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section Details and Sub-Assemblies						
					CHECKED BY: VM APPROVED BY: ML					DRAWN BY RHE/Di	DRAWN FOR M.Liepe

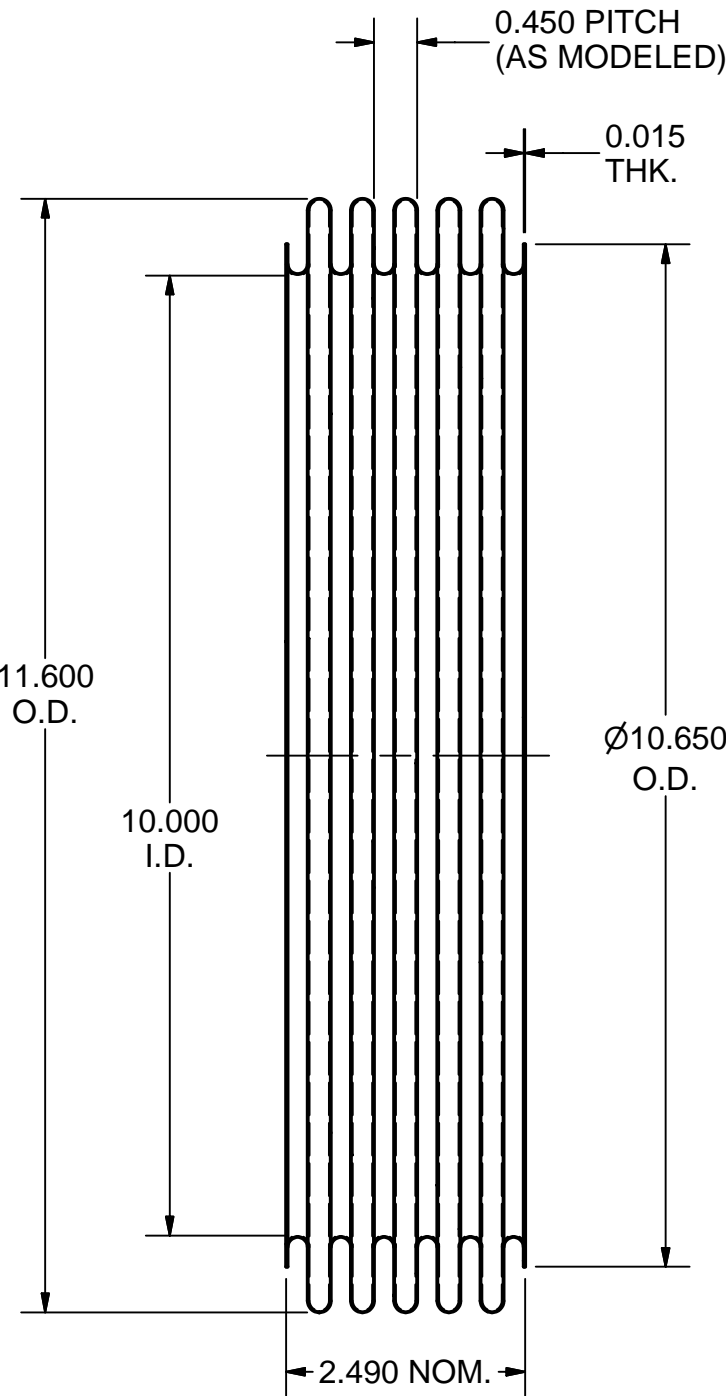
REVISIONS			
SYM.	ZONE	DESCRIPTION	DATE APP.

OPERATING CONDITIONS:
Temperature: 2 K
Vacuum outside
Helium gas Inside
Working pressure, internal: >= 0.45 psia (30 mbar) @ 2K
Burst pressure, external: >= 22.5 psia (1.5 bar) @ 293 K
Burst pressure, internal: >= 30 psia (2 bar) @ 293 K
Stroke: 6.35 mm (± 0.25 inch)
Shift: ± 1.016 mm (± 0.04 inch)
Leak Rate: <= 1.0E-9 mbar x l/sec

DESIGN SPECIFICATION:
Material: Titanium
O.D.: 11.6 inch (294.6 mm)
I.D.: 10.0 inch (254.0 mm)
Wall Thickness: 0.015 inch (0.381 mm)
Pitch: 0.45 inch (11.43 mm)
Overall Length: 2.49 inch (63.25 mm)
No. of convolutions: 5
Maximum Stroke: ± 0.7 inch (± 17.78 mm)
Minimum Lateral Shift: ± 0.05 inch (± 1.27 mm)
Lateral spring rate (calculated by comparison):
8660 lbs/in (1520 N/mm) (155 kgf/mm)
Test pressure, interal (with fixed ends): 65.0 psia (4.5 bar)
Maximum temperature: 200°C (473 K)
Minimum temperature: -271°C (2 K)
Minimum Cycle Life: 10000

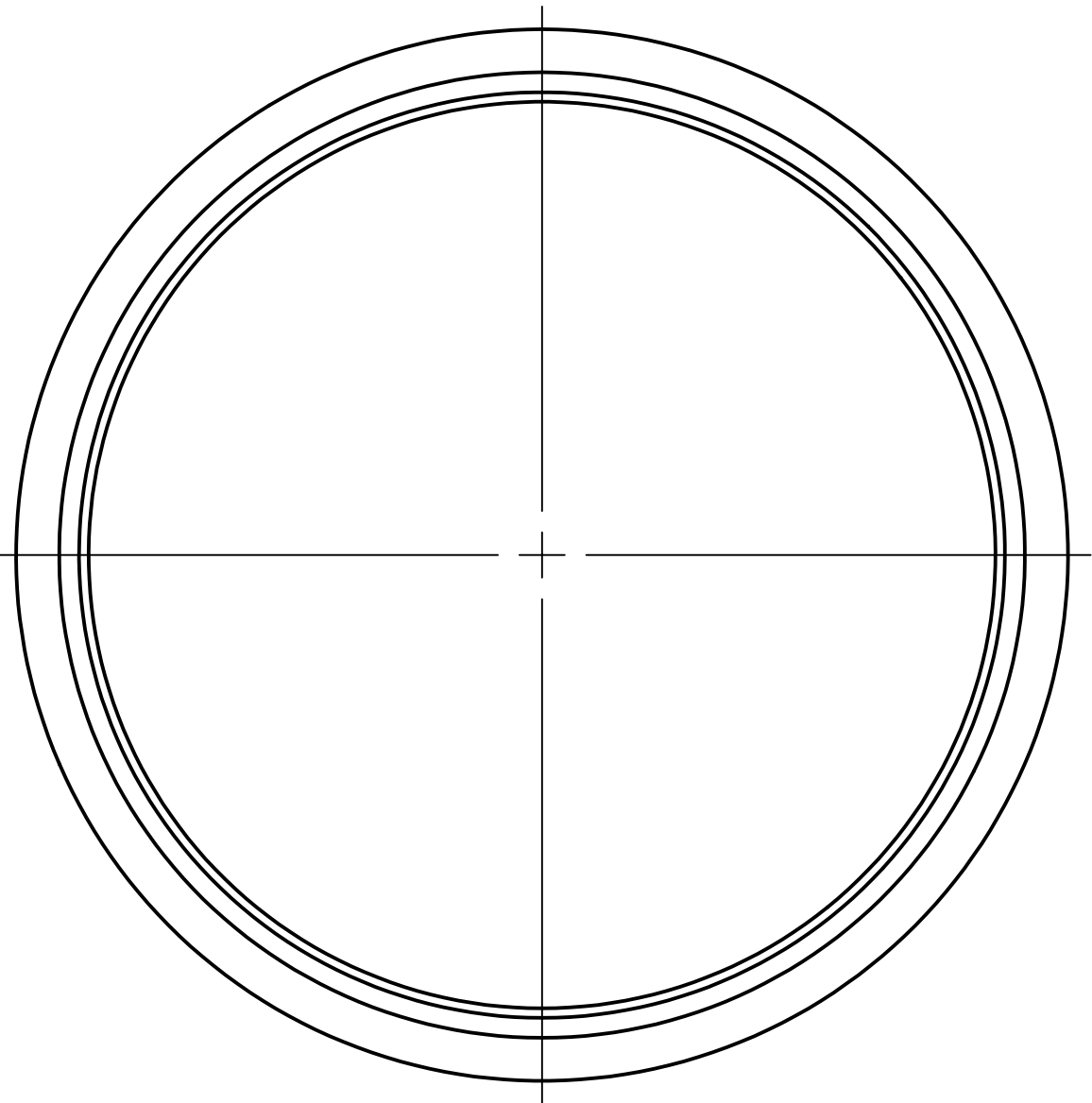
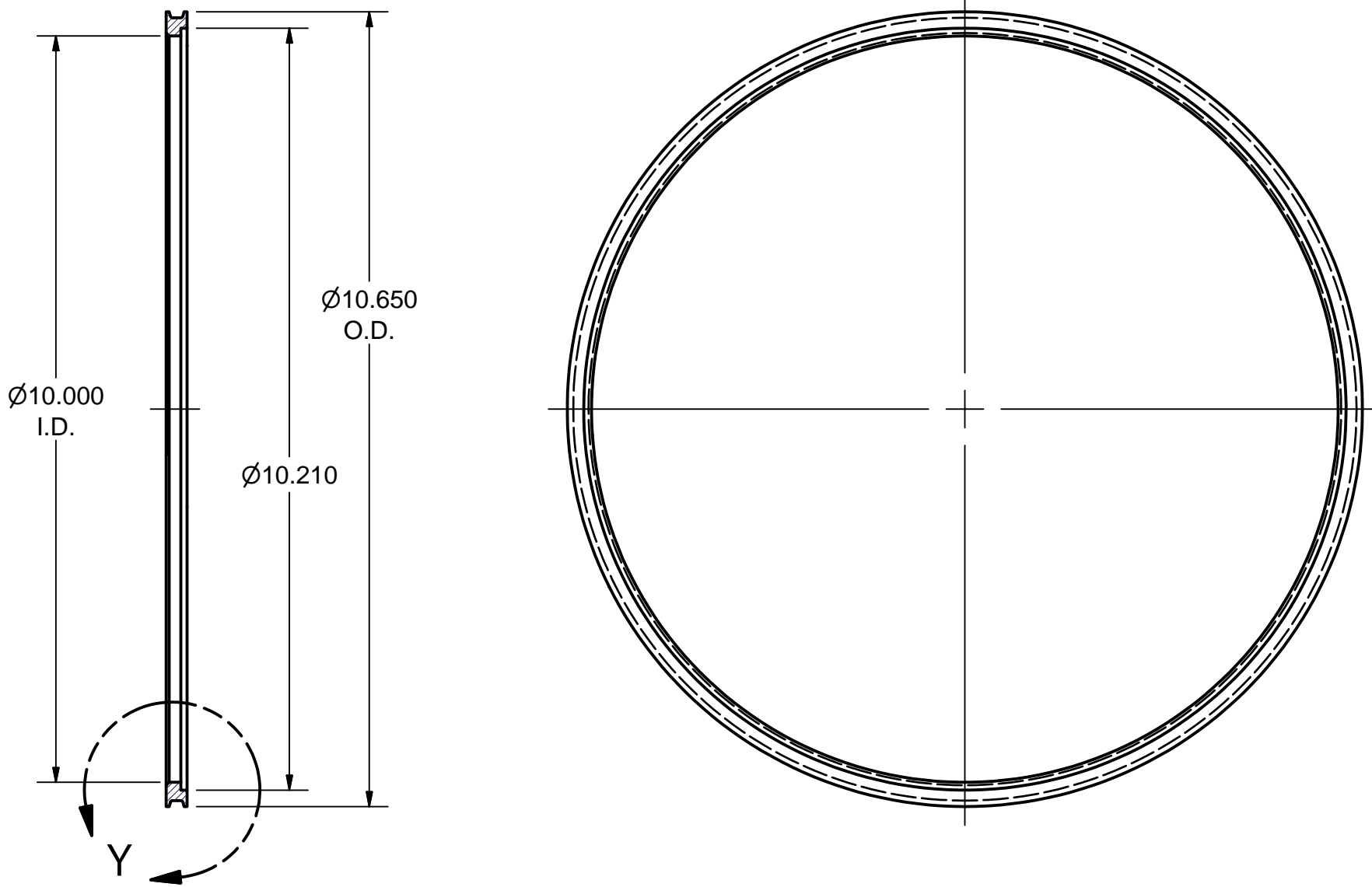
84 Ti-BELLOWS HGRP

FILE NAME: 7102-050
SHEET NO.: 12
DFT. SCALE: 1:2
MATERIAL: TITANIUM
QTY: 4 TOTAL
NOTES:



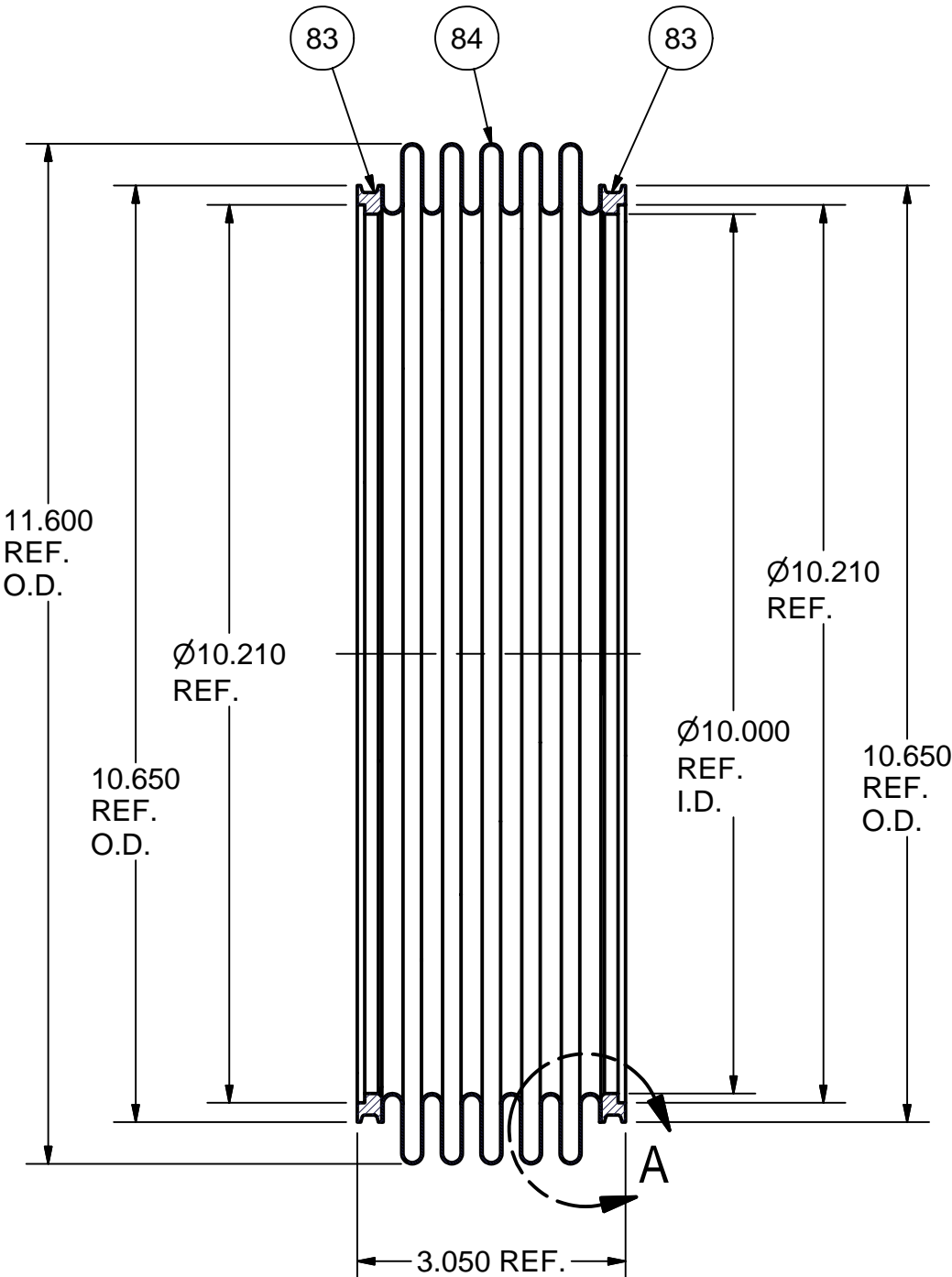
83 BELLOWS CUFF

FILE NAME: 7102-050
SHEET NO.: 12
DFT. SCALE: 1:2
MATERIAL: TITANIUM
QTY: 8 TOTAL
NOTES:

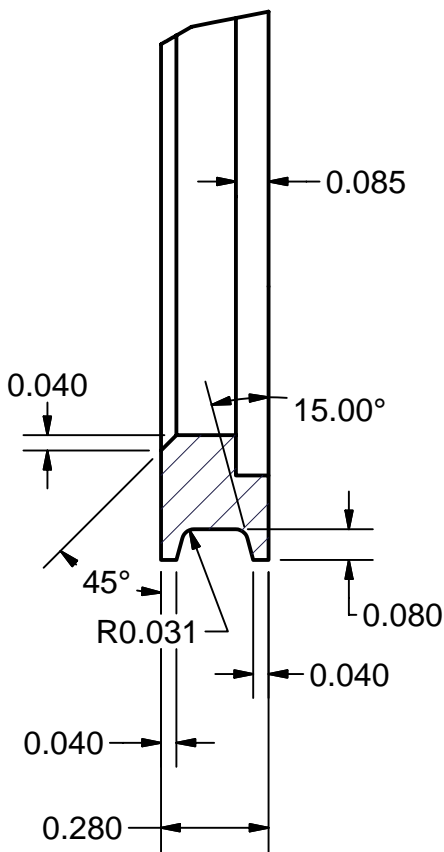


82 Ti-BELLOWS, SUB-ASM

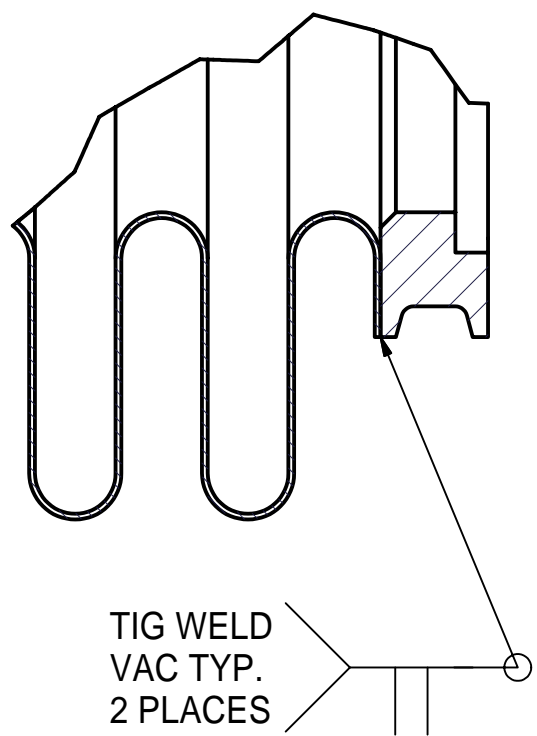
FILE NAME: 7102-050
SHEET NO.: 12
DFT. SCALE: 1:2
MATERIAL:
QTY: 4 TOTAL
NOTES: ALL DEMENSIONS FOR REFERENCE ONLY



**DETAIL Y
SCALE 2 : 1**

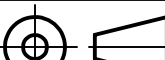




**DETAIL A
SCALE 2 : 1**



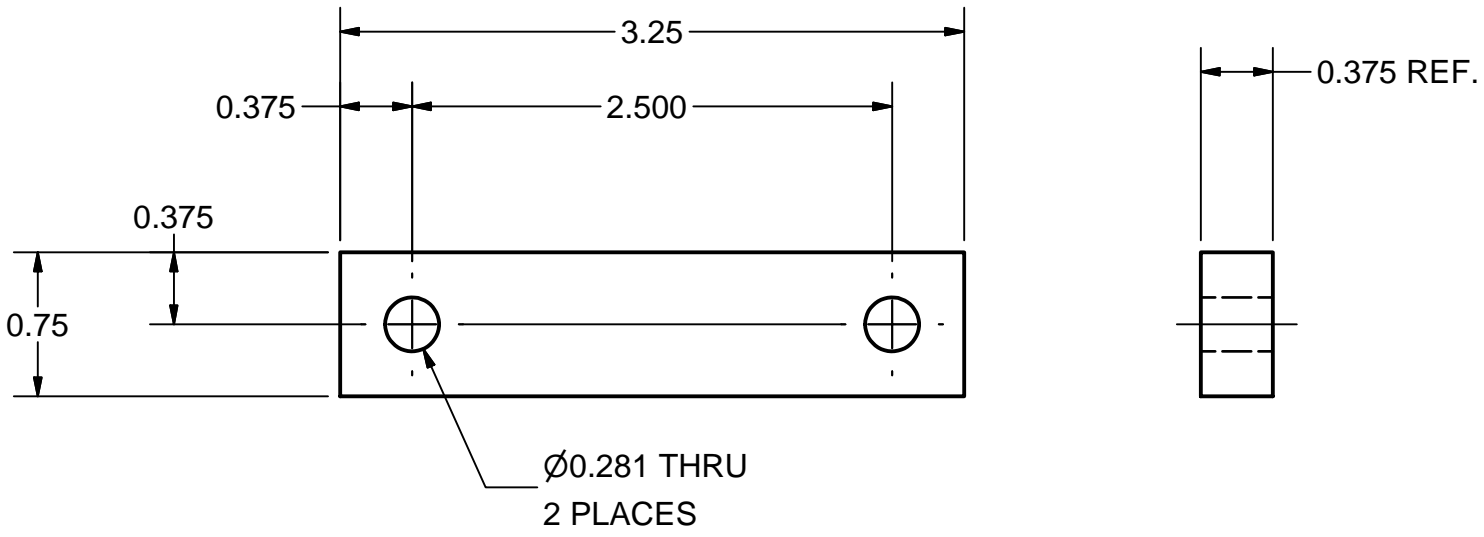
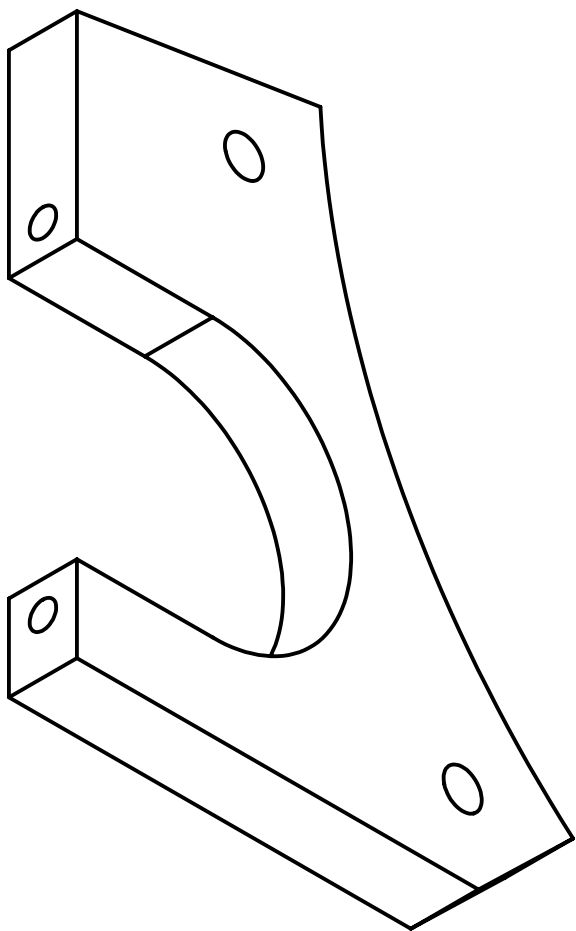
TIG WELD
VAC TYP.
2 PLACES

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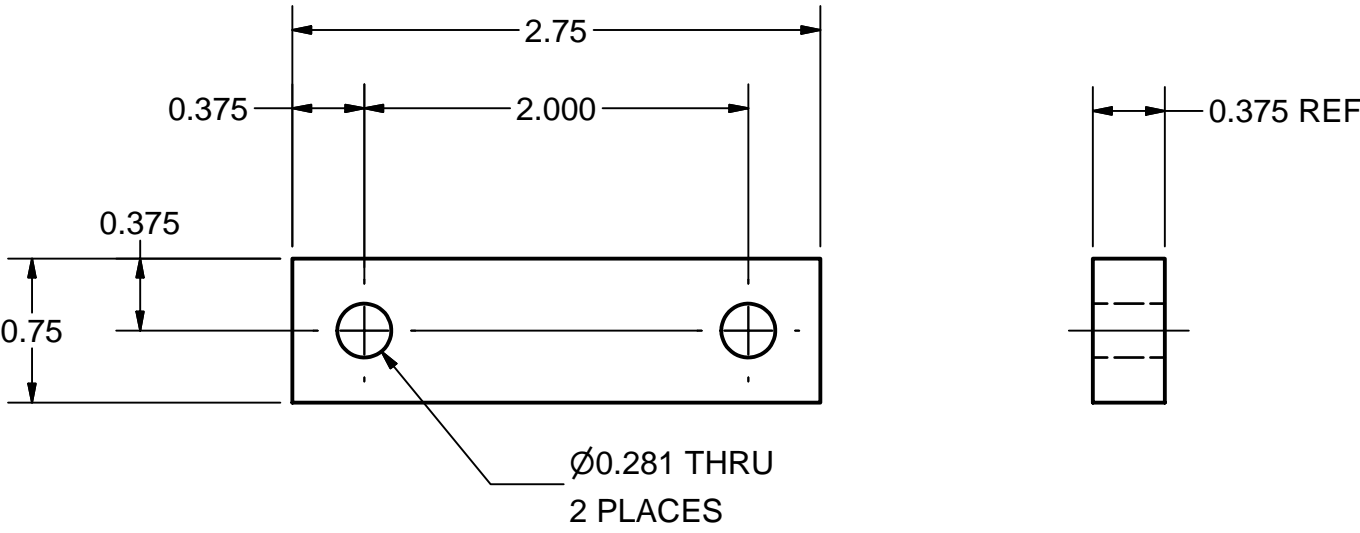
		84	7102-050 (SH. 12)	TI-BELLOW HGRP	1					
		83	7102-050 (SH. 12)	BELLOW CONNETION HGRP	2					
		82	7102-050 (SH. 12)	TI-BELLOWS, SUB-ASM	x					
	ITEM	DWG. NO.		DESCRIPTION	G1	G2	G3	REMARKS	REV.	
					QUANTITY					
	PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw								
SH. NO. 12 OF 13	7102-050	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES 							
			CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853 ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section Ti Bellows, Details + Sub-Asm							
REV.		CHECKED BY: VM	DRAWN BY	DRAWN FOR	DATE	SCALE	D	7102-050	REV.	
		APPROVED BY: ML	RHE/Di	M.Liepe	2/6/2007					
								SH. NO. 12 OF 13		

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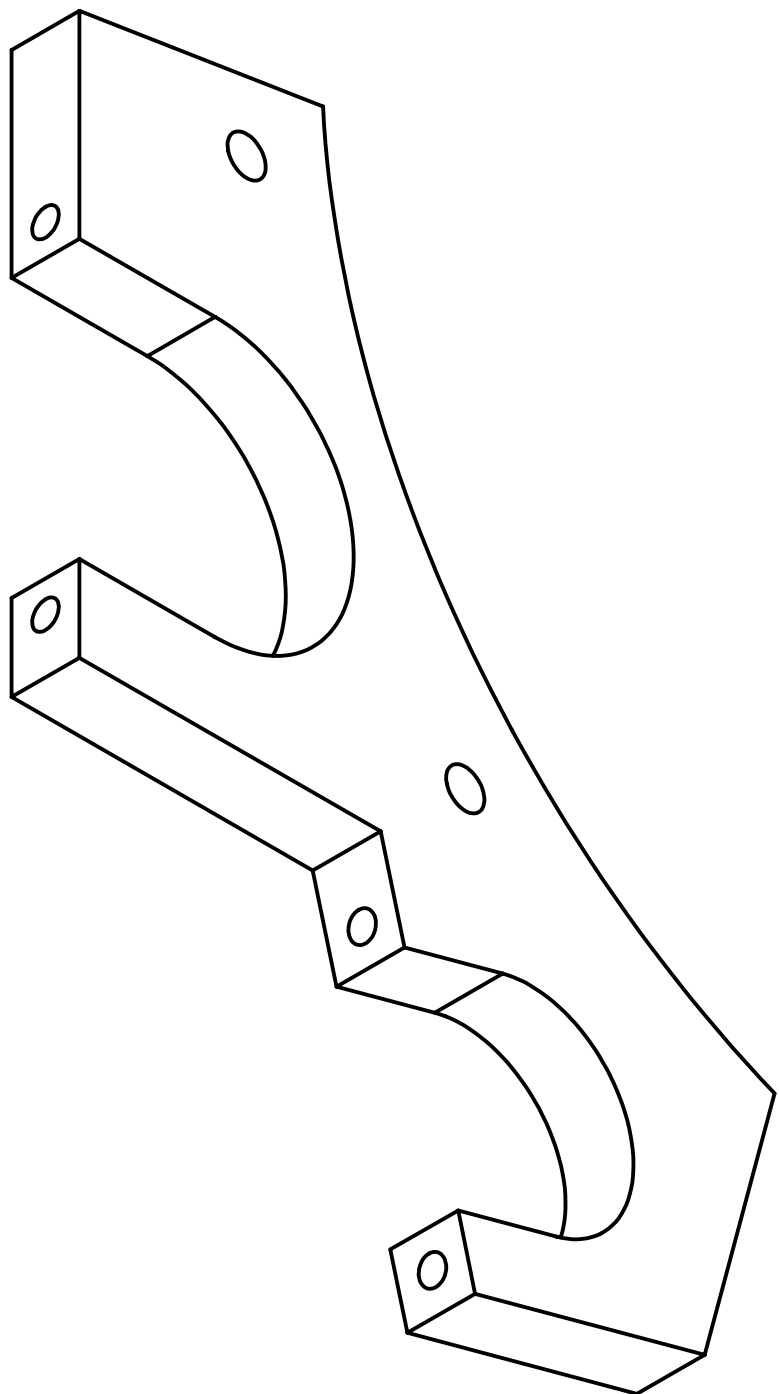
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APP.




52 **5K TUBE CLAMP**
FILE NAME: 7102-050
SHEET NO.: 13
DFT. SCALE: 1:1
MATERIAL: 3/8" SHEET G-10
QTY: 6 TOTAL
NOTES:



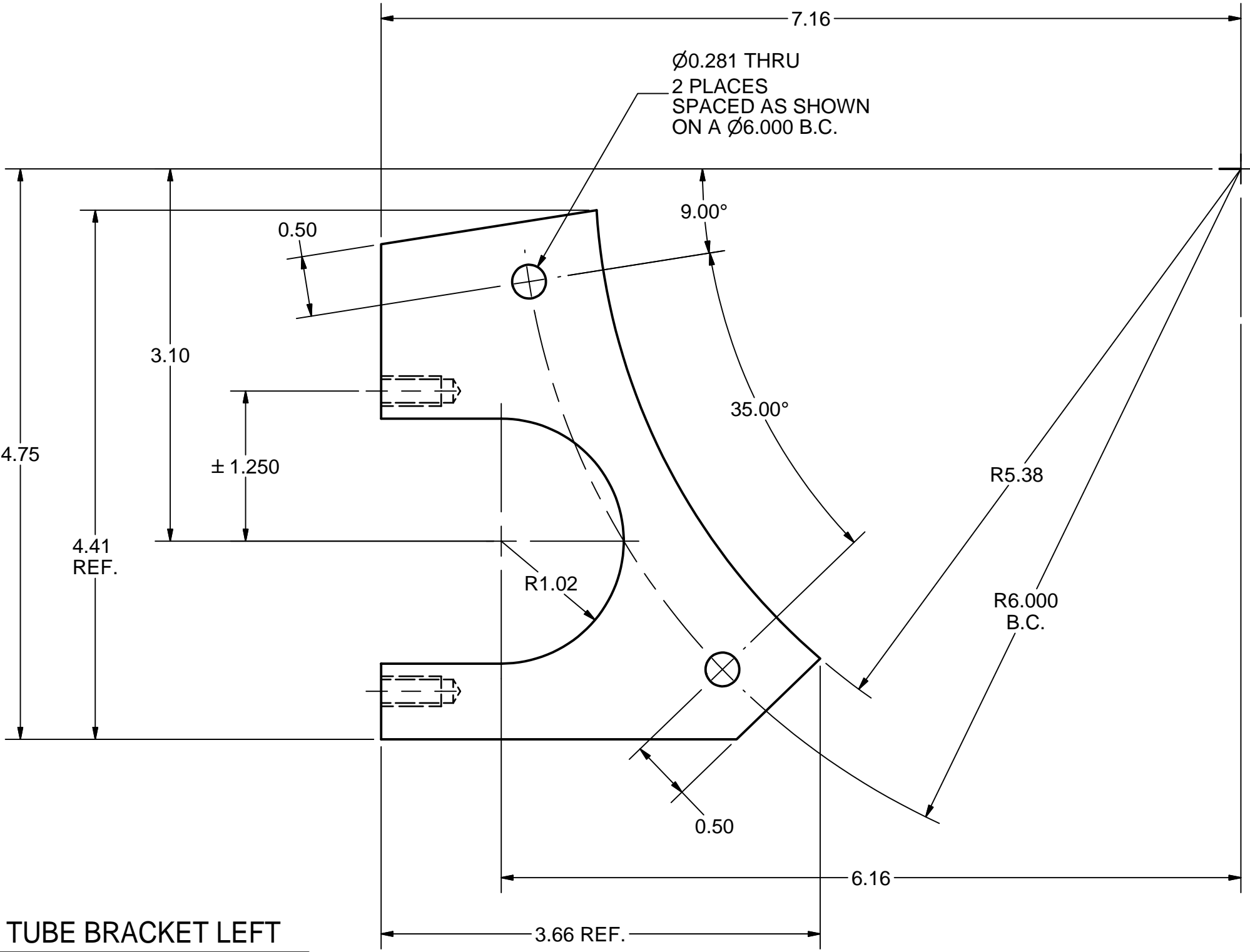
53 **WARM UP TUBE CLAMP**
FILE NAME: 7102-050
SHEET NO.: 13
DFT. SCALE: 1:1
MATERIAL: 3/8" SHEET G-10
QTY: 3 TOTAL
NOTES:



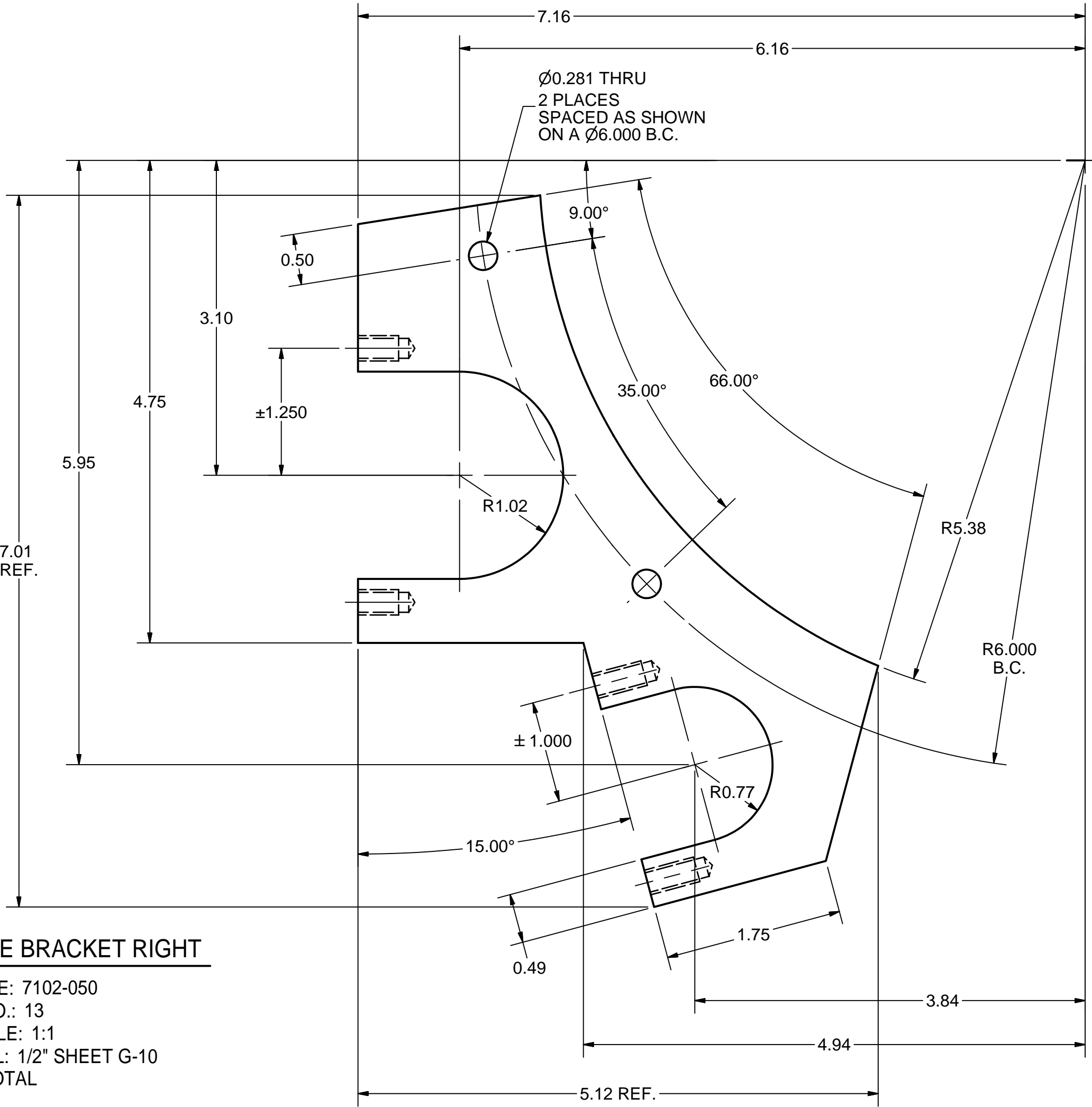
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ALKALINE DETERGENT LUBRICANT CIMSTAR 40
OR EQUIVALENT APPROVED BY CORNELL LEPP

		ITEM	DWG. NO.	DESCRIPTION				G1	G2	G3	REMARKS	REV.	
						QUANTITY							
D	PRINT DISTR.	PLOT DATE: 6/19/2007 CAD FILE NAME: 7102-050.idw											
7102-050 SH. NO. 13 OF 13	CR-1	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES; TOLERANCES ON: .0 ± .02 .00 ± .010 .000 ± .005 FRACTIONS ± 1/32 ANGLES ± 0.5° ALL SURFACES		<div> CORNELL UNIVERSITY Floyd R. Newman Laboratory Ithaca, NY 14853</div> ERL Injector Cryomodule Helium Gas Return Pipe, Entrance Section 5K Brackets and Clamps									
REV.		CHECKED BY: VM		DRAWN BY RHE/Di		DRAWN FOR M.Liepe		DATE 2/6/2007		SCALE D		7102-050 SH. NO. 13 OF 13	REV.
		APPROVED BY: ML											

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50 **5 K TUBE BRACKET LEFT**
FILE NAME: 7102-050
SHEET NO.: 13
DFT. SCALE: 1:1
MATERIAL: 1/2" SHEET G-10
QTY: 3 TOTAL
NOTES:



51 **5 K TUBE BRACKET RIGHT**
FILE NAME: 7102-050
SHEET NO.: 13
DFT. SCALE: 1:1
MATERIAL: 1/2" SHEET G-10
QTY: 3 TOTAL
NOTES:

