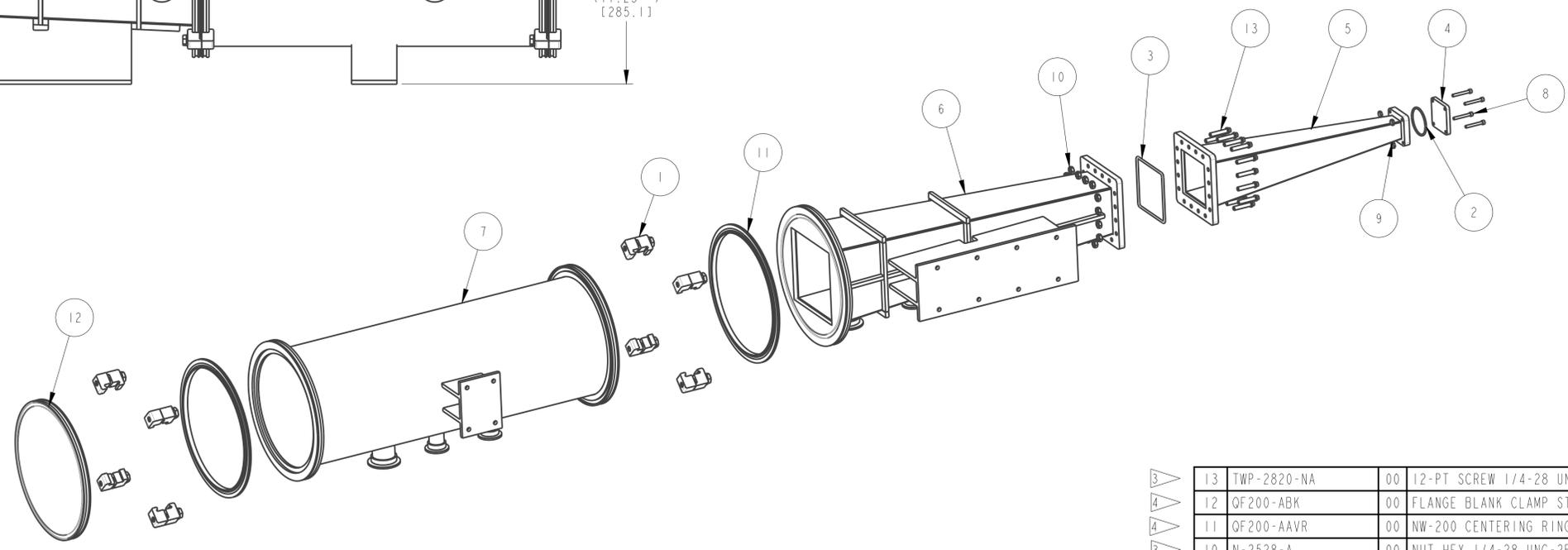
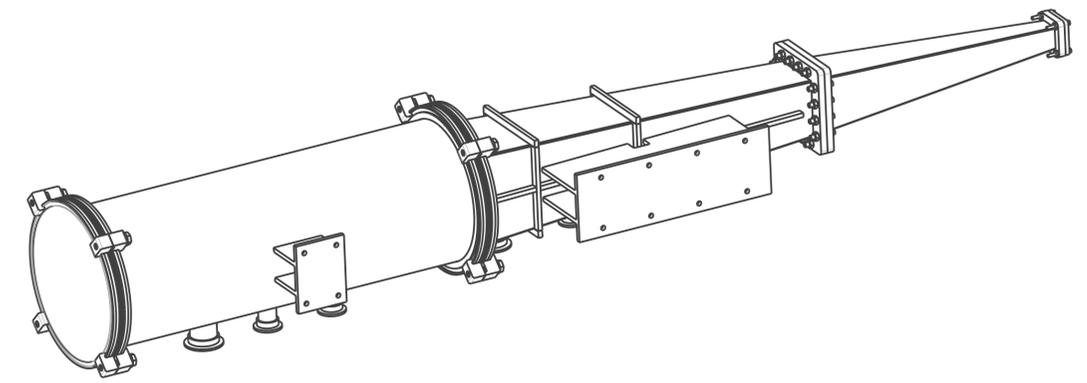
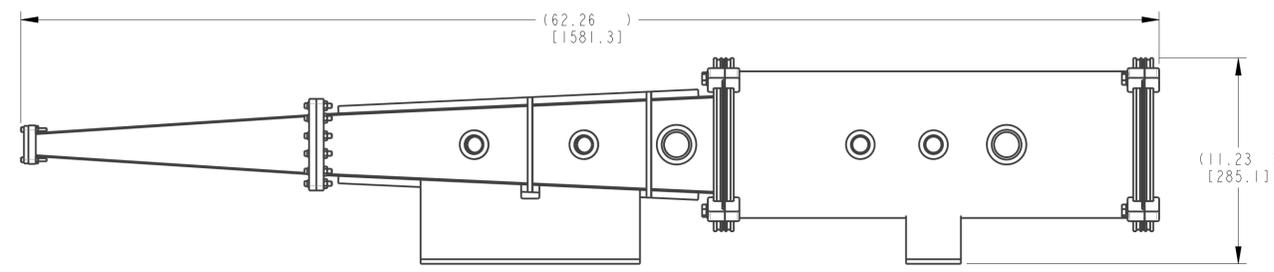
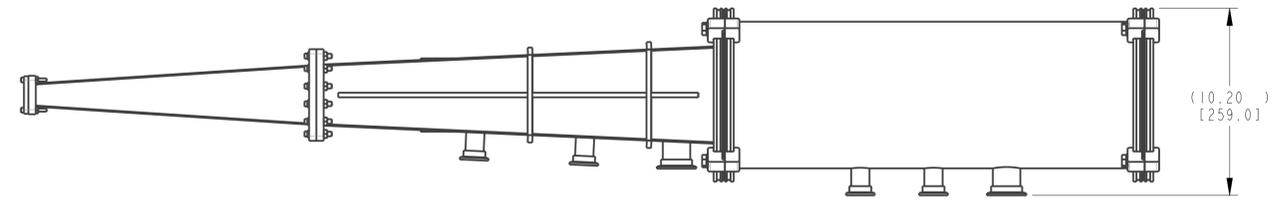


REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



1 SOURCE OR EQUIVALENT VACUUM ONE (MDC/1S1) 2502 NORTH CLARK STREET CHICAGO, IL 60614 773-244-3102

2 SOURCE OR EQUIVALENT McMASTER-CARR P.O. BOX 4355 CHICAGO, IL 60680-4355 630-833-0300

3 SOURCE OR EQUIVALENT U-C COMPONENTS, INC. 18700 ADAMS CT MORGAN HILLS, CA 95037 888-483-6833

4 SOURCE OR EQUIVALENT KURT J. LESKER P.O. BOX 10 CLARTON, PA 15025-3681 800-245-1656

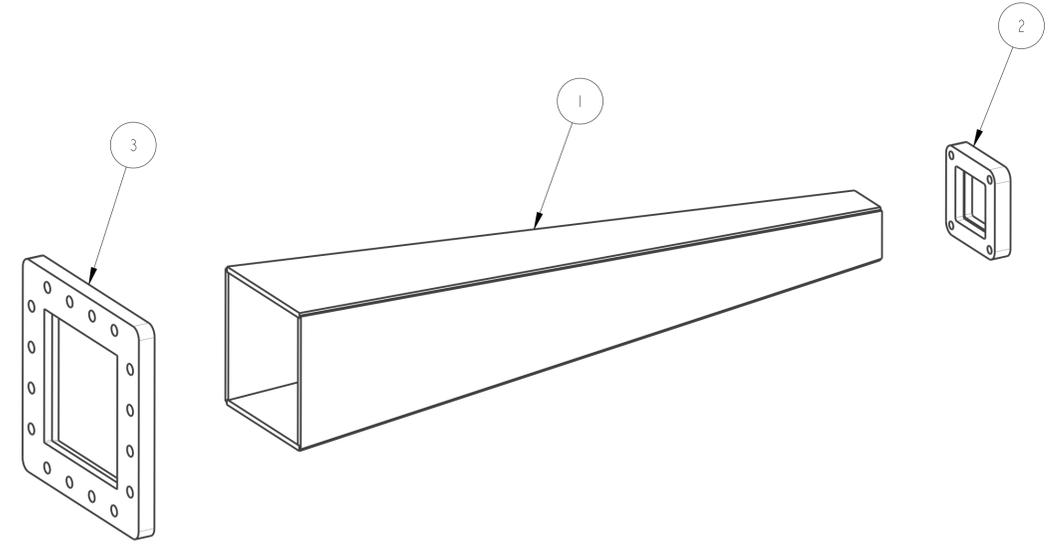
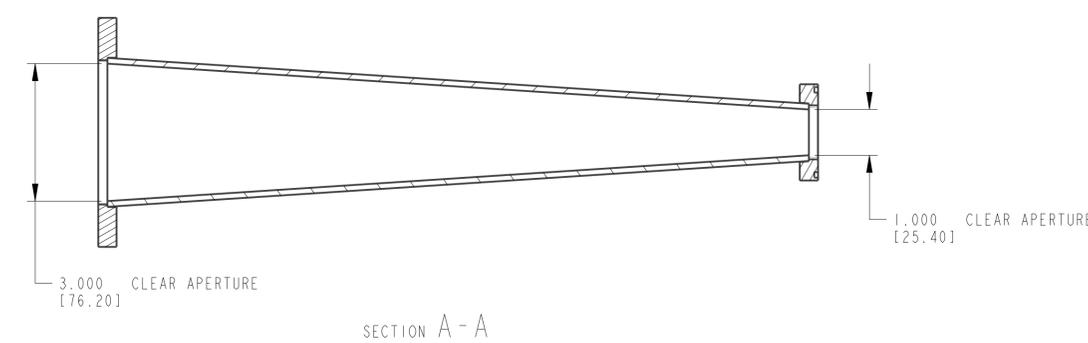
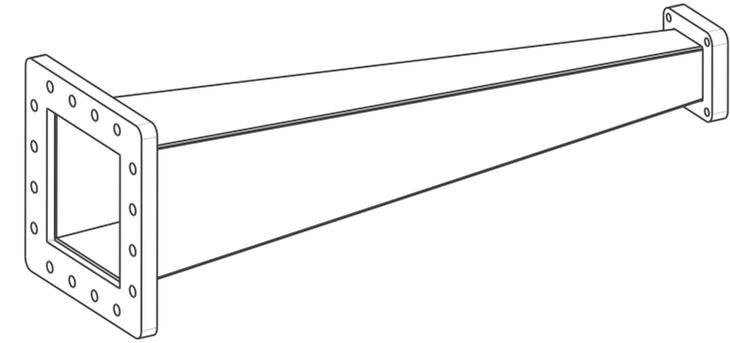
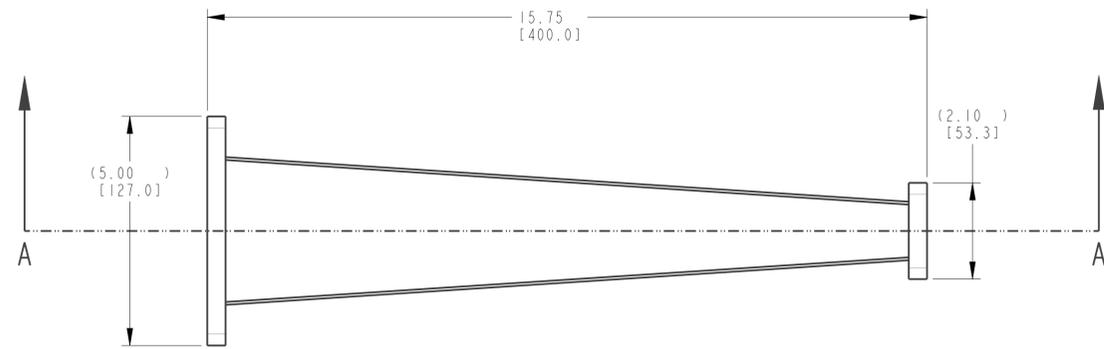
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13	TWP-2820-NA	00	12-PT SCREW 1/4-28 UNF-2A X 1.25 LG	304 SST SILVER PLATED	16
12	QF200-ABK	00	FLANGE BLANK CLAMP STYLE	ALUMINUM 6061-T6	1
11	QF200-AAVR	00	NW-200 CENTERING RING	ALUMINUM	2
10	N-2528-A	00	NUT HEX 1/4-28 UNC-2B	Ag-PLATED 18-8 SST	16
9	N-832-A	00	NUT HEX NO. 8(.164)-32 UNC-2B	Ag-PLATED 18-8 SST	4
8	C-820-NA	00	SHCS NO.8-32 X 1.25" LG	18-8 SST Ag-PLTD	4
7	A308-BI2120	00	WAXPCS FLIGHT TUBE - EXTENSION	SEE PARTS LIST	1
6	A308-BI2110	00	WAXPCS FLIGHT TUBE - CONE 2	SEE PARTS LIST	1
5	A308-BI2010	00	WAXPCS FLIGHT TUBE - CONE 1	SEE PARTS LIST	1
4	A308-BI2005	00	WAXPCS FLIGHT TUBE - WINDOW PLATE	ALUMINUM 6061-T6	1
3	9452K195_SQUARE	00	OIL RESISTANT O-RING 4.64 OD X 4.36" ID	BUNA-N RUBBER	1
2	9452K137	00	OIL RESISTANT O-RING 1.94 OD X 1.74" ID	BUNA-N RUBBER	1
1	802002	00	CLAMP DOUBLE CLAW	ALUMINUM/304 SST	8

NOTES:

- THIS CHAMBER IS INTENDED FOR ROUGH VACUUM SERVICE. HOWEVER, TO ENSURE THAT THE CHAMBER DOES NOT CONTAMINATE NEIGHBORING COMPONENTS, AND TO MAINTAIN CONSISTENT CLEANLINESS STANDARDS AT THE BEAMLINE, THE DESIGN, FABRICATION, AND CLEANING PROCEDURES SHALL BE CHOSEN AS IF IT IS INTENDED FOR UHV SERVICE.
- VENDOR IS RESPONSIBLE FOR LEAK CHECKING CHAMBER ASSEMBLY TO VERIFY LEAK RATE IS $1.0E-9$ STANDARD CC/SEC DURING HELIUM LEAK TEST.
- VENDOR IS RESPONSIBLE FOR PROVIDING ALL COMPONENTS LISTED IN THE BILL OF MATERIAL. IN ADDITION, VENDOR MUST PROVIDE A SPARE SET OF ORINGS.
- PROTECT ALL FLANGE SEALING SURFACES DURING MACHINING AND HANDLING. ANY NICKS OR SCRATCHES TO A SEALING SURFACE WILL RENDER THE PART UNACCEPTABLE.

SHARP EDGES .03" TO .765mm		DRAWN BY: KEVIN WAKEFIELD		DATE: 31-JUL-22		APPROVED BY: KEVIN WAKEFIELD		DATE: 31-JUL-22		ADVANCED PHOTON SOURCE	
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DESIGNER: KEVIN WAKEFIELD		DATE: 31-JUL-22		CHECKER: DANIEL PASHOLK		DATE: 31-JUL-22		BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT VACUUM CHAMBERS	
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in		GROUP LEADER/PROJECT LEADER/TEAM: DANIELA CAPATINA		DATE: 31-JUL-22		APPROVER: BRIAN M RUSTHOVEN		DATE: 31-JUL-22		DOC. TITLE: WAXPCS FLIGHT TUBE - VERTICAL PROJ ID: APSU DWG: BLS MODEL NAME: A308-BI2100	
DIMENSIONS IN [] ARE REF ONLY		RESPONSIBLE ENGINEER: MIKE FISHER		DATE: 31-JUL-22		MATERIAL: SEE PARTS LIST		DATE: 31-JUL-22		SCALE: 1:5 SHEET 1 OF 1	
TOLERANCES: .XX ± .01		APPROX. WT: 28 lbm		RELEASE LEVEL: RELEASED		THIRD ANGLE PROJECTION		DO NOT SCALE DRAWING		FOR CONSTRUCTION	
ANGULAR: .XXX ± .005		SURFACE ROUGHNESS: 125/									

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



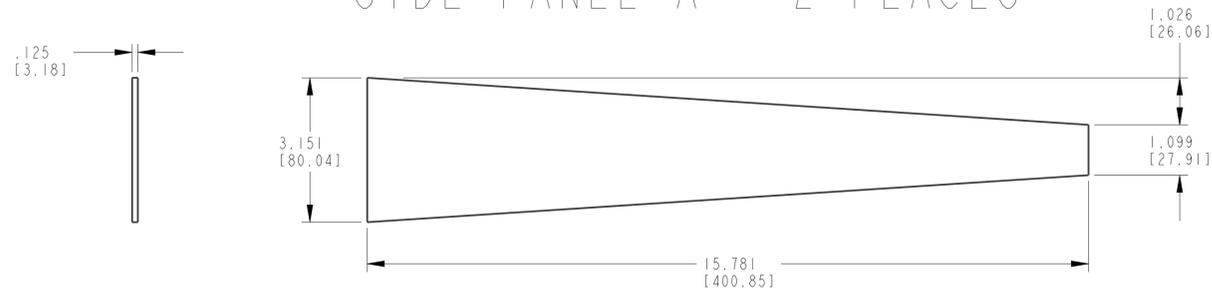
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3	A308-B12013	00	WAXPCS FLIGHT TUBE - SQUARE CF 3	ALUMINUM 6061	1
2	A308-B12012	00	WAXPCS FLIGHT TUBE - SQUARE CF 2	ALUMINUM 6061	1
1	A308-B12011	00	WAXPCS FLIGHT TUBE - CONE 1 - BODY	SEE PARTS LIST	1

- NOTES:
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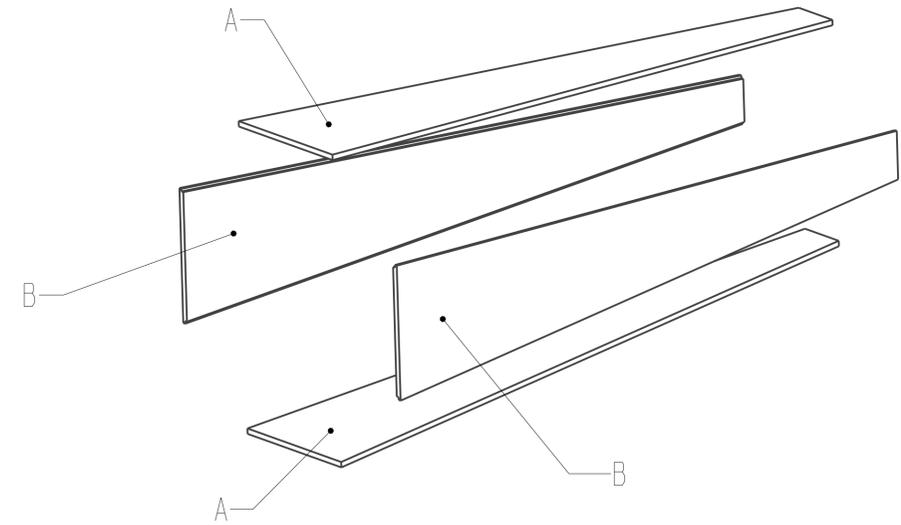
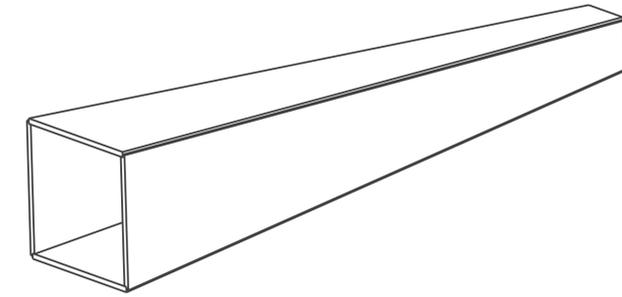
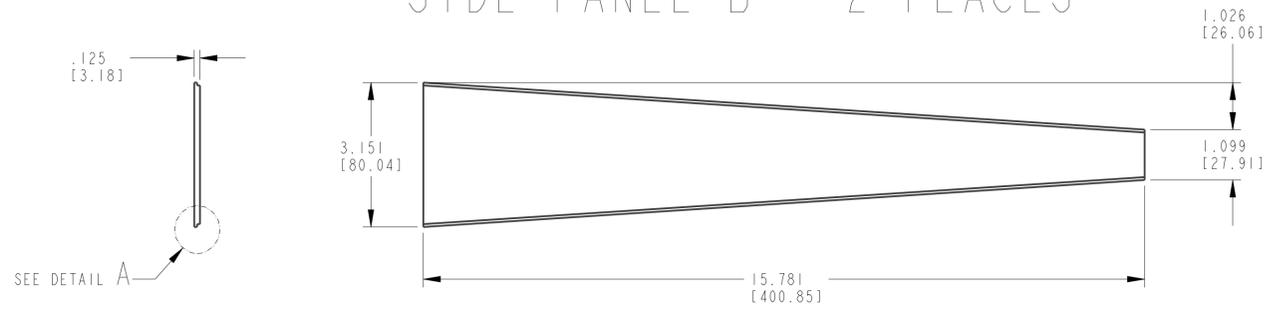
SHARP EDGES .03" TO .765mm		DRAFTER: KEVIN WAKEFIELD		DATE: 29-JUL-22		Argonne NATIONAL LABORATORY		ADVANCED PHOTON SOURCE	
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DESIGNER: KEVIN WAKEFIELD		DATE: 29-JUL-22		ML VER 5		BEAMLINE 8-ID	
UNLESS OTHERWISE SPECIFIED		CHECKER: DANIEL PASHOLK		DATE:		DRAVER 3		81D BEAMLINE INSTRUMENTATION	
ALL DIMENSIONS ARE: in		RESPONSIBLE ENGINEER: DANIELA CAPATINA		DATE:		SAT. DES		WAXPCS INSTRUMENT	
DIMS IN [] ARE REF ONLY		GROUP LEADER/PROJECT LEADER/TEAM: MIKE FISHER		DATE:		SCALE: 1:2		VACUUM CHAMBERS	
TOLERANCES		APPROVER: BRIAN M RUSTHOVEN		DATE:		SIZE D		WAXPCS FLIGHT TUBE - CONE 1	
ANGULAR .XX ± .03		MATERIAL: SEE PARTS LIST		APPROX. WT: 2.1lb		RELEASE LEVEL: RELEASED		PROJ ID: APSU	
±0.5° .XXX ± .005		SEE PARTS LIST		SCALE: 1:2		THIRD ANGLE PROJECTION		DOC TITLE: WAXPCS FLIGHT TUBE - CONE 1	
SURFACE ROUGHNESS 125/		SEE PARTS LIST		SCALE: 1:2		DO NOT SCALE DRAWING		PROJ ID: APSU	
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								LOC ID: BL	
								MODEL NAME: A308-B12010	
								REV: 00	
								SHEET 1 OF 1	

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE

SIDE PANEL A - 2 PLACES



SIDE PANEL B - 2 PLACES



.125 [3.18]

.063 [1.59]

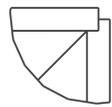
DETAIL A
SCALE 2:1

.125 [3.18]

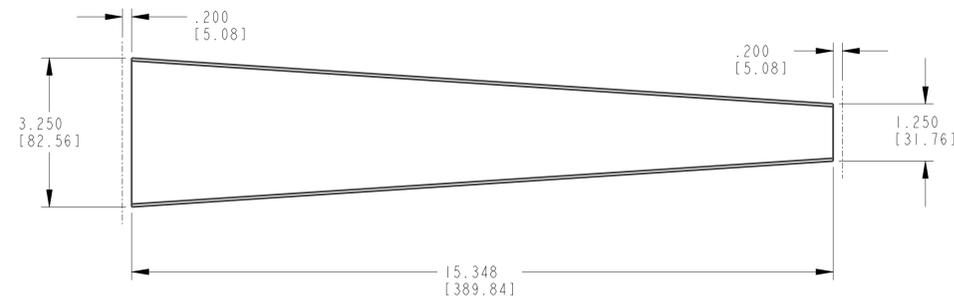
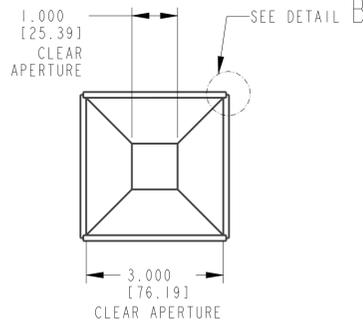
SEE DETAIL A

NOTE: THIS VIEW SHOWS A TYPICAL WELD JOINT WITH A STEP FOR FIXTURING. INTERNAL GEOMETRY IS CRITICAL FOR PART FUNCTION. VENDOR MAY PROPOSE ALTERNATE JOINTS IF INTERNAL GEOMETRY IS MAINTAINED. ANY MODIFICATIONS MUST BE APPROVED BY APS ENGINEERING.

NOTE: AFTER WELDING SIDE PANELS, MACHINE ASSEMBLY ENDS FLAT TO PREPARE FOR WELDING THE END FLANGES. REMOVE 0.200 INCHES FROM BOTH THE LARGE END AND THE SMALL END TO ACHIEVE THE FINAL GEOMETRY AS SHOWN.



DETAIL B
SCALE 2:1

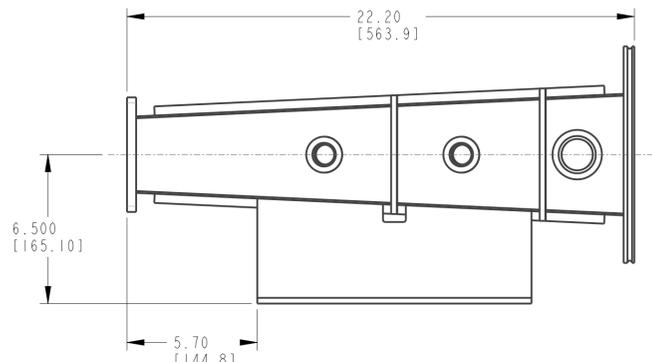
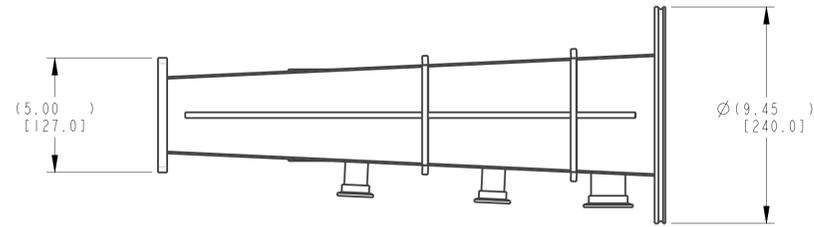


NOTES:

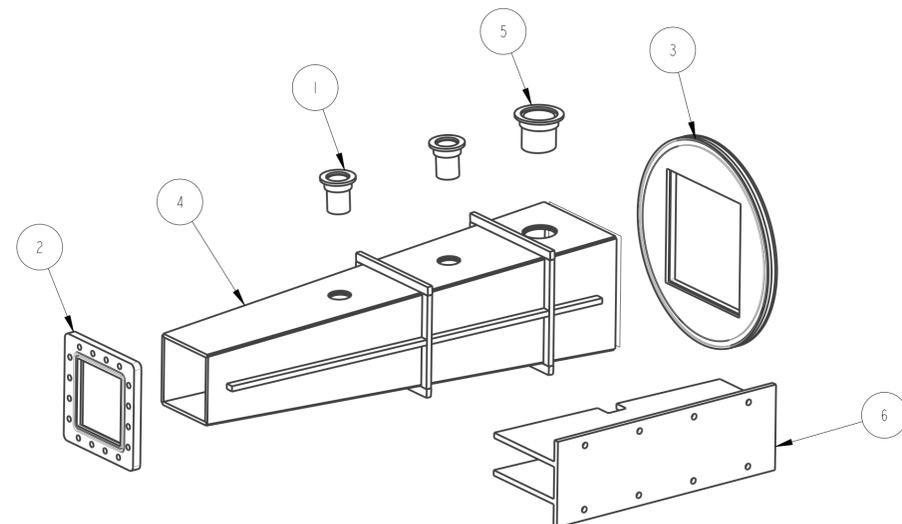
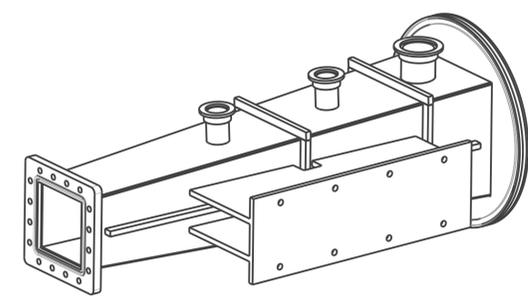
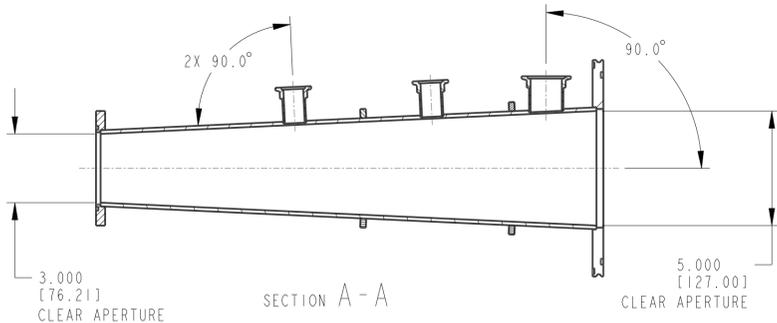
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- GRINDING AND POLISHING WITH RESIN-BONDED WHEELS, ROUGE, EMERY CLOTH, CROCUS CLOTH, OR SIMILAR ABRASIVES ARE PROHIBITED AS THESE MAY RESULT IN CONTAMINATION OF THE PART. ALL GRINDING AND POLISHING PROCEDURES MUST BE REVIEWED BY APS-U.

SHARP EDGES .03" TO .765mm		DRAWN BY: KEVIN WAKEFIELD		DATE: 30-JUL-22		THIS DRAWING IS THE PROPERTY OF	
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DESIGNED BY: KEVIN WAKEFIELD		DATE: 30-JUL-22		Argonne NATIONAL LABORATORY	
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES		CHECKED BY: DANIEL PASHOLK		DATE: 30-JUL-22		ADVANCED PHOTON SOURCE	
ANGULAR .XX ± .03		GROUP LEADER/PROJECT LEADER/TEAM: DANIELA CAPATINA		DATE: 30-JUL-22		BEAMLINE 8-ID	
E.O. 5" .XXX ± .005		APPROVER: BRIAN M RUSTHOVEN		DATE: 30-JUL-22		8ID BEAMLINE INSTRUMENTATION	
SURFACE ROUGHNESS 125/		MATERIAL: 304 SS		DATE: 30-JUL-22		WAXPCS INSTRUMENT	
APPROX. WT: 2.1lbm		SEE PARTS LIST		SCALE: 1:2		WAXPCS FLIGHT TUBE - CONE 1 - BODY	
RELEASE LEVEL: RELEASED		SCALE: 1:2		SCALE: 1:2		A308-BI2011	
FOR CONSTRUCTION		SHEET 1 OF 1		SHEET 1 OF 1		SHEET 1 OF 1	

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



****NOTE****
THE NW40 FLANGE IS PERPENDICULAR TO THE CHAMBER CENTERLINE AND THE NW25 (2X) FLANGES ARE PERPENDICULAR TO THE CHAMBER SIDE WALL



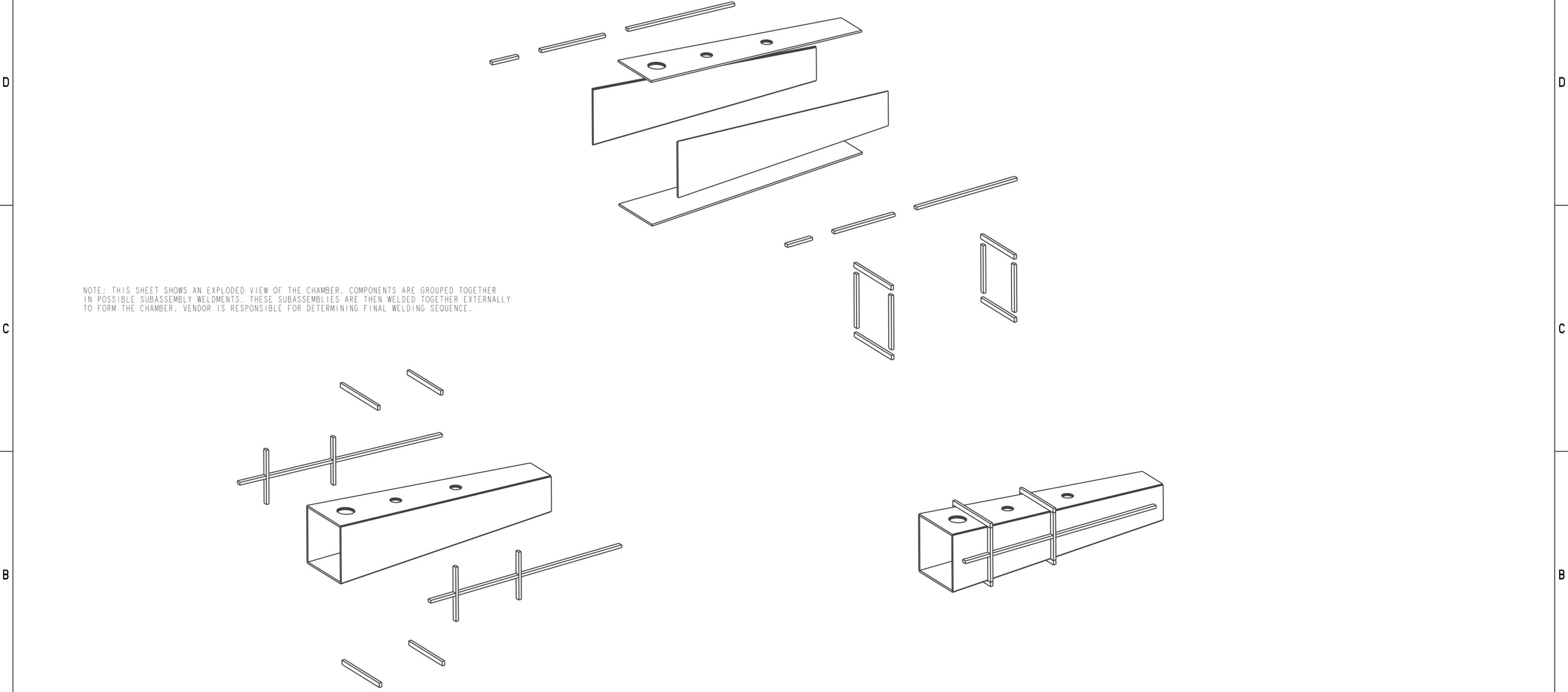
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▶ SOURCE OR EQUIVALENT VACUUM ONE (MDC/IS1) 2502 NORTH CLARK STREET CHICAGO, IL 60614 773-244-3102

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY
6	A308-BI2113	00	WAXPCS FLIGHT TUBE - SUPPORT 3	ALUMINUM 6061-T6	1
5	A308-BI2112	00	HALF NIPPLE, NW40, 1.5" TUBE - MOD	SEE PARTS LIST	1
4	A308-BI2111	00	WAXPCS FLIGHT TUBE - CONE 2 - BODY	SEE PARTS LIST	1
3	A308-BI2003	00	WAXPCS FLIGHT TUBE - NW200 ADAPTOR	SEE PARTS LIST	1
2	A308-BI2001	00	WAXPCS FLIGHT TUBE - SQUARE CF 1	ALUMINUM 6061	1
1	715111	00	WELD STUB NW25 ISO KF 1.58" LG	ALUMINUM 6061-T6	2

PARTS LIST / BILL OF MATERIALS					
SHARP EDGES .03" TO .765mm	DRAWN BY: KEVIN WAKEFIELD	DATE: 31-JUL-22	THIS DRAWING IS THE PROPERTY OF		
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009	DESIGNED BY: KEVIN WAKEFIELD	DATE: 31-JUL-22	Argonne NATIONAL LABORATORY		
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES	CHECKED BY: DANIEL PASHOLK	DATE:	ADVANCED PHOTON SOURCE		
ANGULAR .XX ± .03	RESPONSIBLE ENGINEER: DANIELA CAPATINA	DATE:	BEAMLINE 8-ID		
±0.5° .XXX ± .005	GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER	DATE:	8ID BEAMLINE INSTRUMENTATION		
SURFACE ROUGHNESS 125/	APPROVER: BRIAN M RUSTHOVEN	DATE:	WAXPCS INSTRUMENT		
	MATERIAL:	DATE:	WAXPCS FLIGHT TUBE - VERTICAL		
	SEE PARTS LIST	DATE:	WAXPCS FLIGHT TUBE - CONE 2		
	APPROX. WT: 12 lbm	RELEASE LEVEL: RELEASED	SIZE: D	PROJ ID: APSU	DOC TYP ID: DWG
			SCALE: 1:4	SYS ID: BLS	LOC ID: BL
				DO NOT SCALE DRAWING	MODEL NAME: A308-BI2110
					REV: 00

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



NOTE: THIS SHEET SHOWS AN EXPLODED VIEW OF THE CHAMBER. COMPONENTS ARE GROUPED TOGETHER IN POSSIBLE SUBASSEMBLY WELDMENTS. THESE SUBASSEMBLIES ARE THEN WELDED TOGETHER EXTERNALLY TO FORM THE CHAMBER. VENDOR IS RESPONSIBLE FOR DETERMINING FINAL WELDING SEQUENCE.

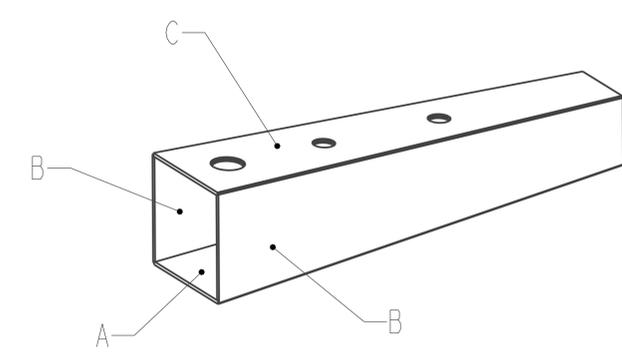
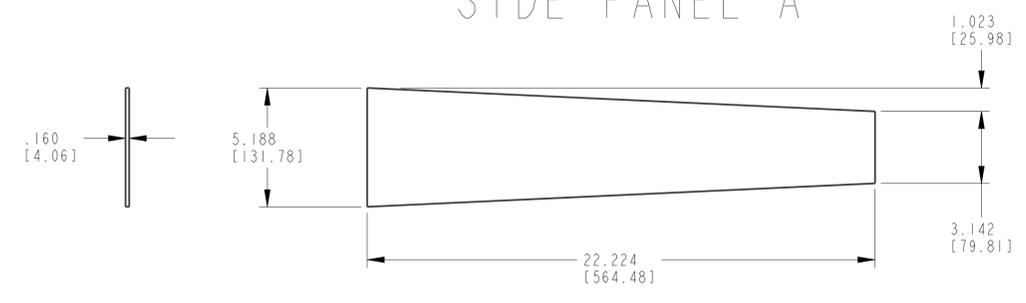
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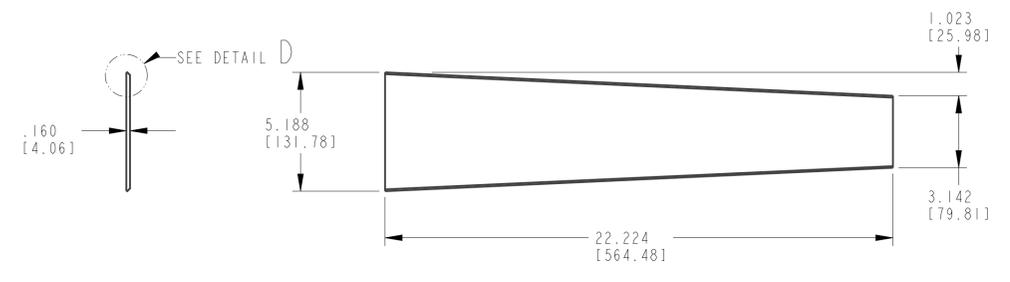
SHARP EDGES .03" TO .765mm MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.3M-2009		DRAFTER: KEVIN WAKEFIELD DESIGNER: KEVIN WAKEFIELD CHECKER: DANIEL PASHOLK RESPONSIBLE ENGINEER: DANIELA CAPATINA GROUP LEADER/PROJECT LEADER/TEAM: MIKE FISHER APPROVER: BRIAN M RUSTHOVEN MATERIAL:		DATE: 01-AUG-22 DATE: 01-AUG-22 DATE: 01-AUG-22 DATE: 01-AUG-22 DATE: 01-AUG-22 DATE: 01-AUG-22	ML VER: 4 DRA VER: 5	ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - CONE 2		THIS DRAWING IS THE PROPERTY OF ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - CONE 2 - BODY	
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES ANGULAR .XX ± .03 EQ.5" .XXX ± .005 SURFACE ROUGHNESS 125/√		SEE PARTS LIST		SCALE: 1:4	THIRD ANGLE PROJECTION DO NOT SCALE DRAWING	PROJ ID: APSU DWG: BLS SYS ID: BL LOC ID: A308-BI2111 MODEL NAME: OO	SCALE: 1:4 SHEET 1 OF 3		RELEASE LEVEL: RELEASED

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE

SIDE PANEL A

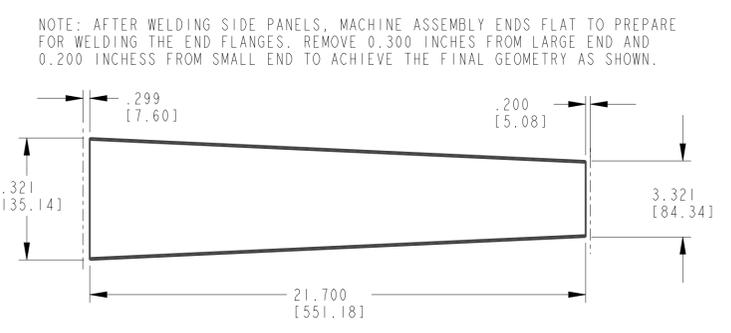
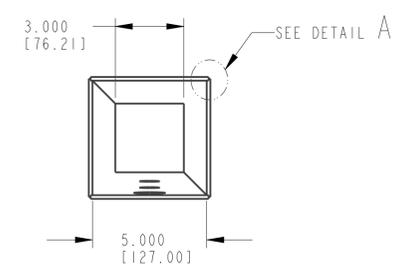
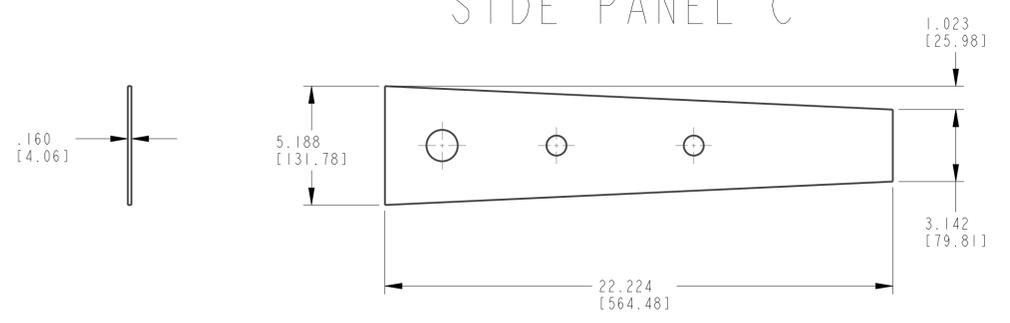


SIDE PANEL B - 2 PLACES

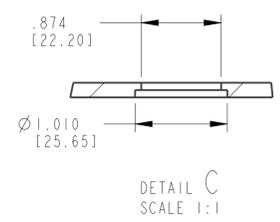
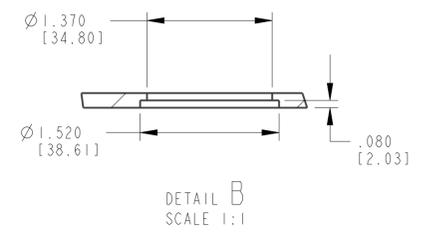
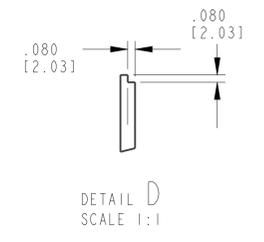
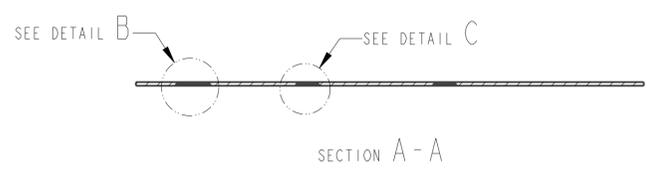


NOTE: THIS VIEW SHOWS A TYPICAL WELD JOINT WITH A STEP FOR FIXTURING. INTERNAL GEOMETRY IS CRITICAL FOR PART FUNCTION. VENDOR MAY PROPOSE ALTERNATE JOINTS IF INTERNAL GEOMETRY IS MAINTAINED. ANY MODIFICATIONS MUST BE APPROVED BY APS ENGINEERING.

SIDE PANEL C

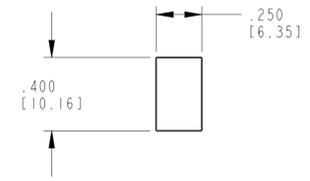
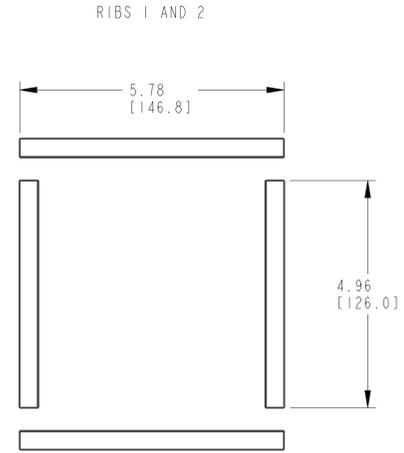
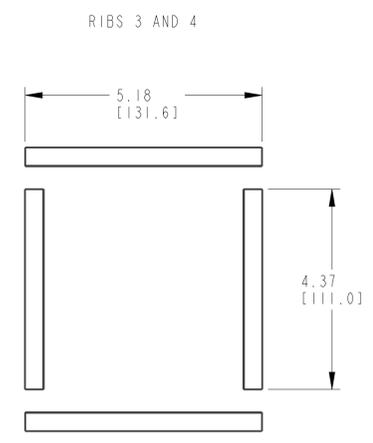
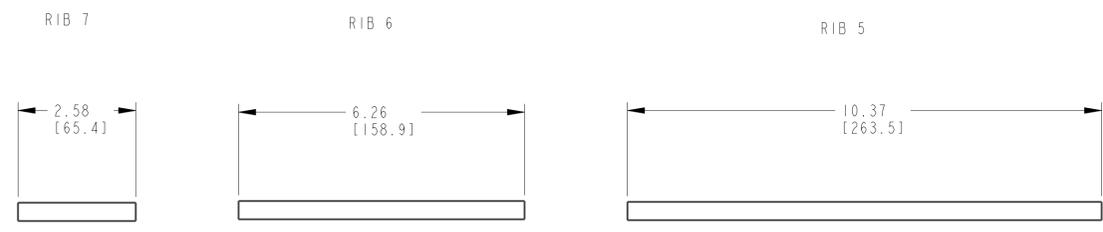
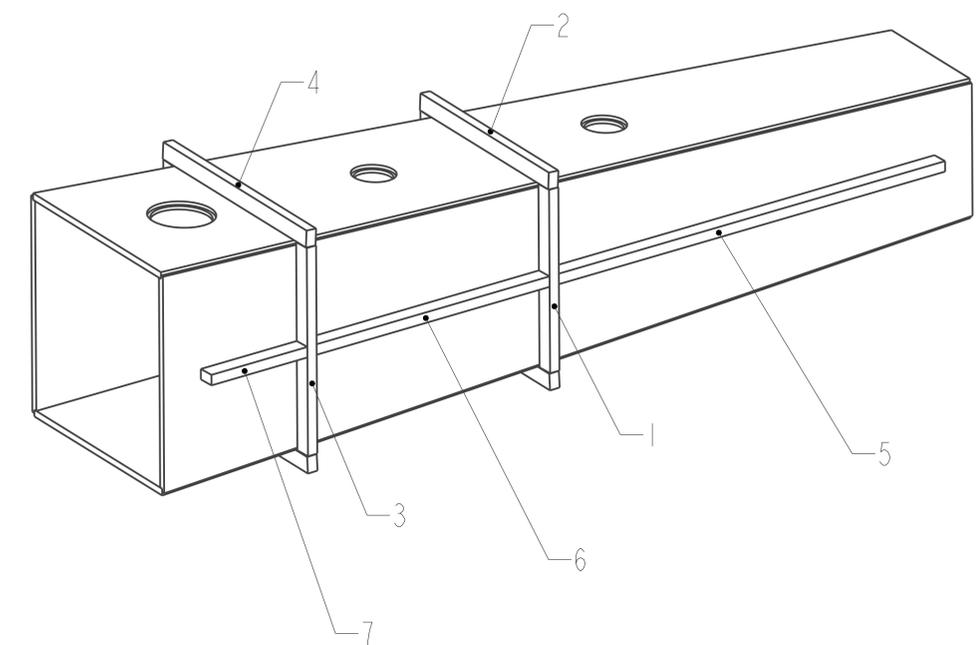
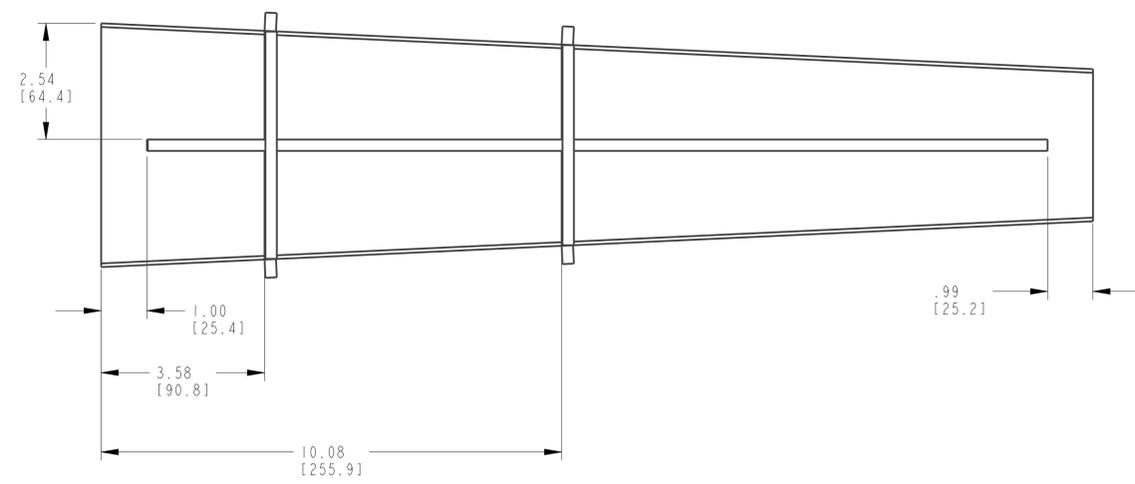


NOTE: AFTER WELDING SIDE PANELS, MACHINE ASSEMBLY ENDS FLAT TO PREPARE FOR WELDING THE END FLANGES. REMOVE 0.300 INCHES FROM LARGE END AND 0.200 INCHES FROM SMALL END TO ACHIEVE THE FINAL GEOMETRY AS SHOWN.



SHARP EDGES .03" (0.765mm) MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009	DRAWN: KEVIN WAKEFIELD	DATE: 01-AUG-22	Argonne NATIONAL LABORATORY	THIS DRAWING IS THE PROPERTY OF ADVANCED PHOTON SOURCE	
	CHECKED: DANIEL PASHOLK	DATE: 01-AUG-22		BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - CONE 2	
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES	GROUP LEADER/PROJECT LEADER/TEAM: DANIELA CAPATINA	DATE: 01-AUG-22	ML VER: 4	DOC. TITLE: WAXPCS FLIGHT TUBE - CONE 2 - BODY	
ANGULAR: .XX ± .03 EQ.5°: .XXX ± .005	APPROVER: BRIAN M RUSTHOVEN	DATE: 01-AUG-22	SAF. REV: 5	PROJ. ID: APSU	DWG. ID: BLS
SURFACE ROUGHNESS: 125/	APPROX. WT.: 6 lbm	RELEASE LEVEL: RELEASED	SCALE: 1:4	LOC. ID: BL	MODEL NAME: A308-BI2111
				DO NOT SCALE DRAWING	REV. OO

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE

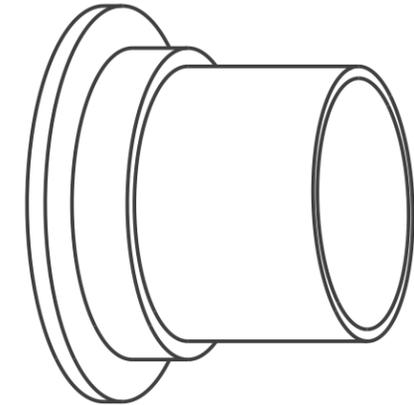
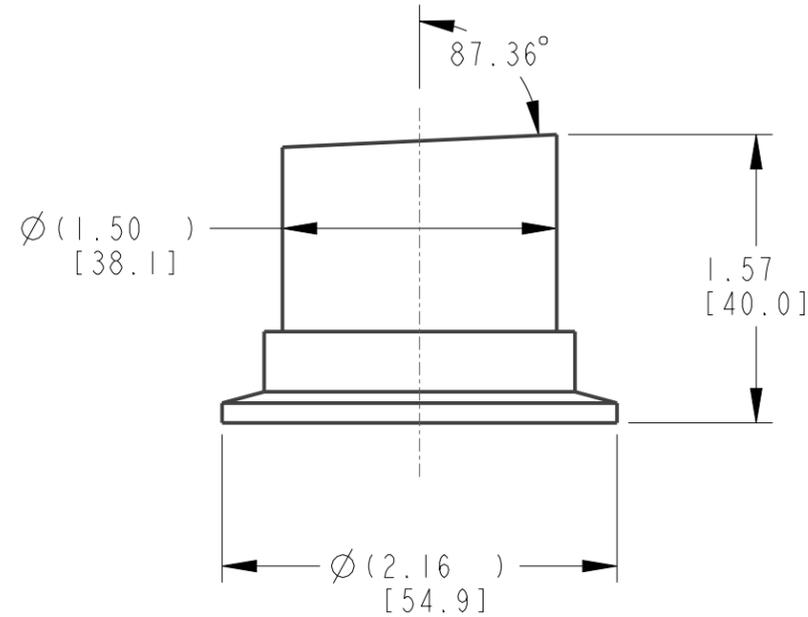


RIB CROSS SECTION
COMMON TO ALL RIBS
SCALE 2:1

SHARP EDGES .03" TO .765mm		DRAFTER: KEVIN WAKEFIELD		DATE: 20-AUG-22		THIS DRAWING IS THE PROPERTY OF	
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DESIGNER: KEVIN WAKEFIELD		DATE: 20-AUG-22		Argonne NATIONAL LABORATORY	
UNLESS OTHERWISE SPECIFIED		CHECKER: DANIEL PASHOLK		DATE: 20-AUG-22		ADVANCED PHOTON SOURCE	
ALL DIMENSIONS ARE: in		RESPONSIBLE ENGINEER: DANIELA CAPATINA		DATE: 20-AUG-22		BEAMLINE 8-ID	
DIM IN [] ARE REF ONLY		GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER		DATE: 20-AUG-22		8ID BEAMLINE INSTRUMENTATION	
TOLERANCES		APPROVER: BRIAN M RUSTHOVEN		DATE: 20-AUG-22		WAXPCS INSTRUMENT	
ANGULAR .XX ± .03		MATERIAL: SEE PARTS LIST		DATE: 20-AUG-22		WAXPCS FLIGHT TUBE - CONE 2 - BODY	
E0.5° .XXX ± .005		APPROX. WT: 6 lbm		RELEASE LEVEL: RELEASED		A308-BI2111	
SURFACE ROUGHNESS 125/		SCALE: 1:2		THIRD ANGLE PROJECTION		SHEET 3 OF 3	

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE

REMOVE MATERIAL FROM END OF WELD STUB TO CREATE AN ANGLE THAT MATCHES THE SLOPE OF THE CHAMBER SIDE WALL.



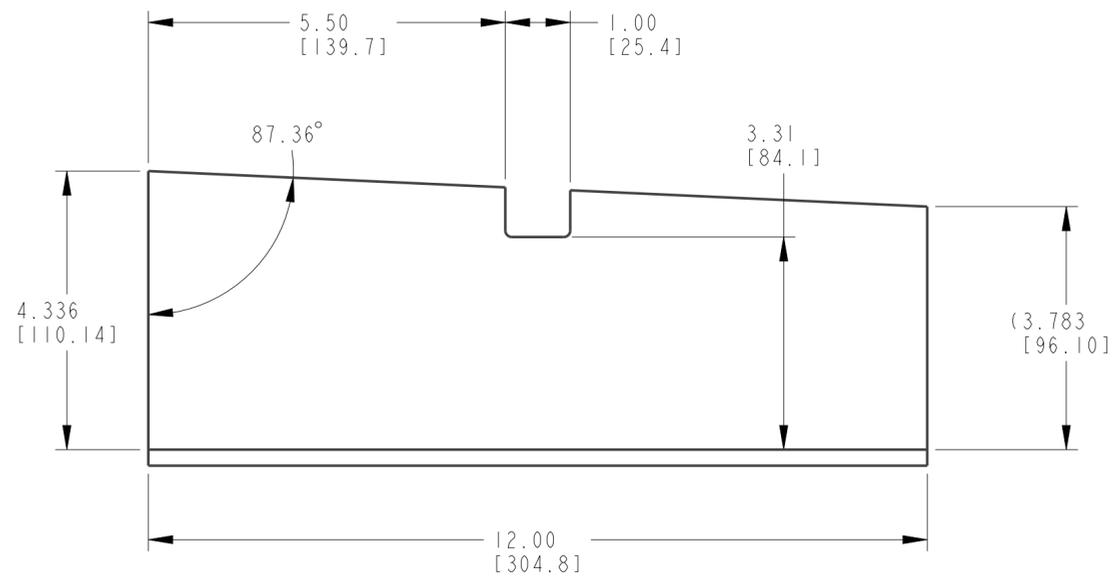
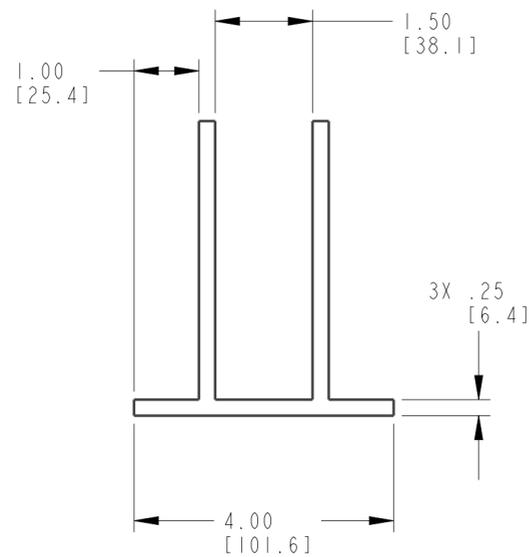
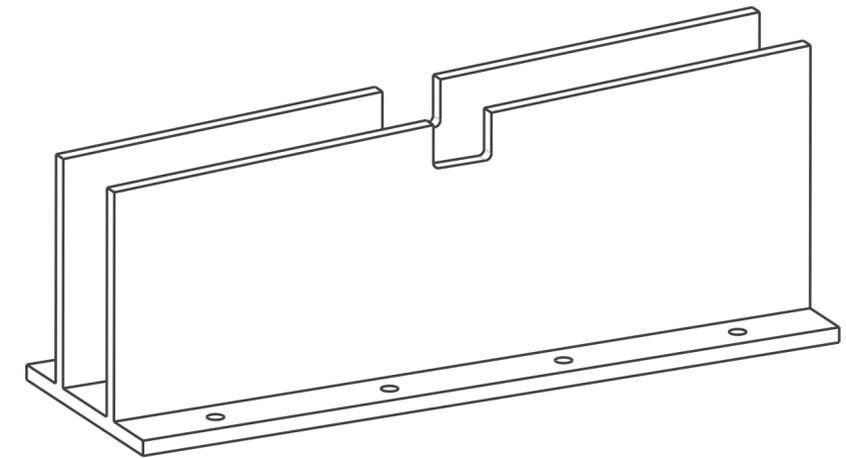
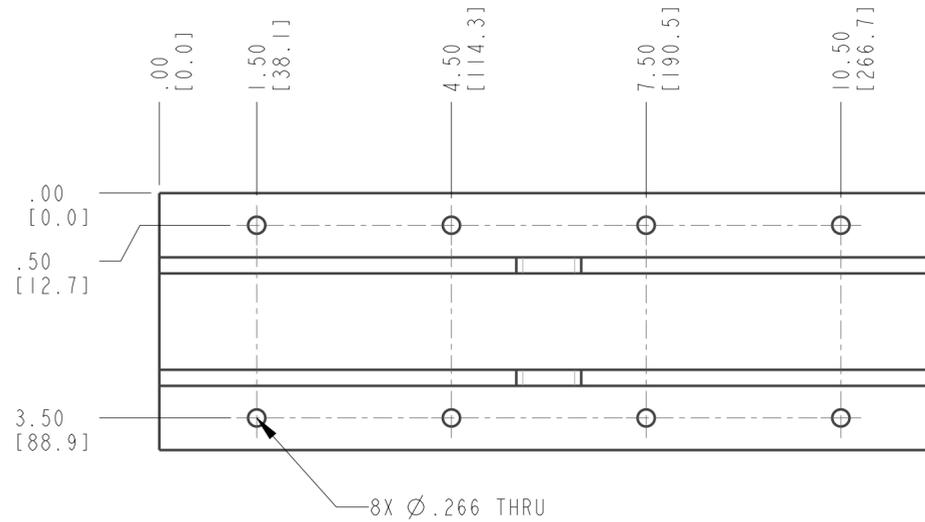
NOTES:

- THIS PART IS INTENDED FOR ROUGH VACUUM SERVICE. HOWEVER, TO ENSURE THAT THE PART DOES NOT CONTAMINATE NEIGHBORING COMPONENTS, AND TO MAINTAIN CONSISTENT CLEANLINESS STANDARDS AT THE BEAMLINE, THE DESIGN, FABRICATION, AND CLEANING PROCEDURES SHALL BE CHOSEN AS IF IT IS INTENDED FOR UHV SERVICE.
- MACHINING SHALL EITHER BE DONE DRY, USING WATER, OR USING A WATER SOLUBLE COOLANT. USE OF MACHINING FLUIDS CONTAINING SILICONE, SULFUR, PHOSPHORUS, HALOGENS, ANIMAL FATS, OR HIGH MOLECULAR WEIGHT ORGANIC COMPOUNDS, SUCH AS NAPHTHA, PHENOL, ETC, ARE STRICTLY PROHIBITED. IT SHALL BE ENSURED THAT THE MACHINING FLUID IS NOT CONTAMINATED BY THE DISTRIBUTION SYSTEM OR OTHERWISE. CIMTECH 10-610TFB IS ONE EXAMPLE OF AN ACCEPTABLE GENERAL-PURPOSE MACHINING FLUID.
- GRINDING AND POLISHING WITH RESIN-BONDED WHEELS, ROUGE, EMERY CLOTH, CROCUS CLOTH, OR SIMILAR ABRASIVES ARE PROHIBITED AS THESE MAY RESULT IN CONTAMINATION OF THE PART. ALL GRINDING AND POLISHING PROCEDURES MUST BE REVIEWED BY APS-U.
- PROTECT ALL FLANGE SEALING SURFACES DURING MACHINING. ANY NICKS OR SCRATCHES TO A SEALING SURFACE WILL RENDER THE PART UNACCEPTABLE.

▶ SOURCE OR EQUIVALENT
VACUUM ONE (MDC/ISI)
2502 NORTH CLARK STREET
CHICAGO, IL 60614
773-244-3102

1	715112	00	WELD STUB NW40 ISO KF 1.58" LG	ALUMINUM 6061-T6	1					
ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY					
PARTS LIST / BILL OF MATERIALS										
SHARP EDGES .03" [0.765mm] MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DRAFTER: KEVIN WAKEFIELD	DATE 23-AUG-22	THIS DRAWING IS THE PROPERTY OF Argonne NATIONAL LABORATORY ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - CONE 2 DOC TITLE: HALF NIPPLE, NW40, 1.5" TUBE - MOD						
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES		CHECKER: DANIEL PASHOLK	DATE 23-AUG-22							
.X ± .1 ANGULAR .XX ± .03 ±0.5° .XXX ± .005		RESPONSIBLE ENGINEER: DANIELA CAPATINA	DATE 							
SURFACE ROUGHNESS 125 ✓		GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER	DATE 							
APPROX. WT: 0.08 lbm		APPROVER: BRIAN M RUSTHOVEN	DATE 	SIZE B	PROJ ID APSU	DOC TYP ID DWG	SYS ID BLS	LOC ID BL	MODEL NAME A308-BI2112	REV. 00
RELEASE LEVEL: RELEASED		MATERIAL: SEE PARTS LIST		SCALE: 1:1	THIRD ANGLE PROJECTION		DO NOT SCALE DRAWING		CAGE CODE OHRH5	SHEET 1 OF 1 FOR CONSTRUCTION

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE

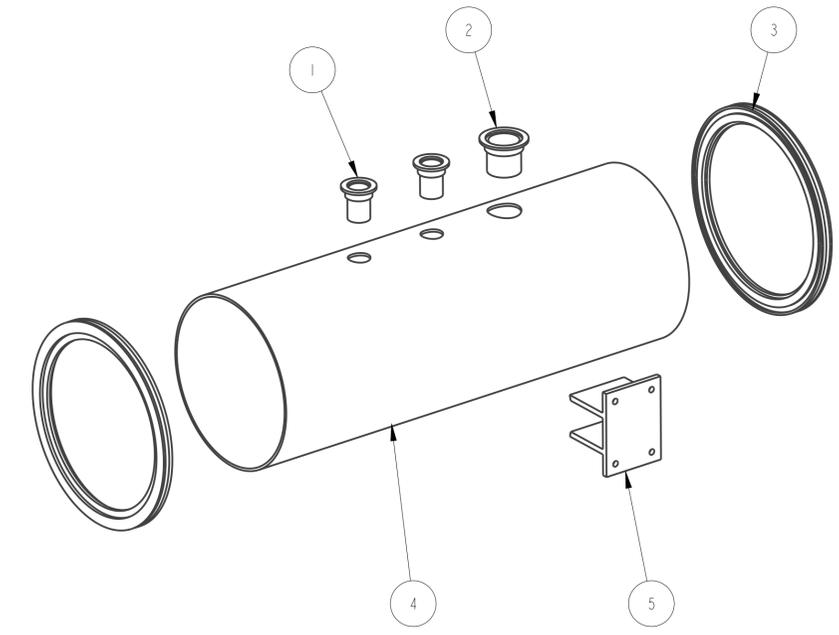
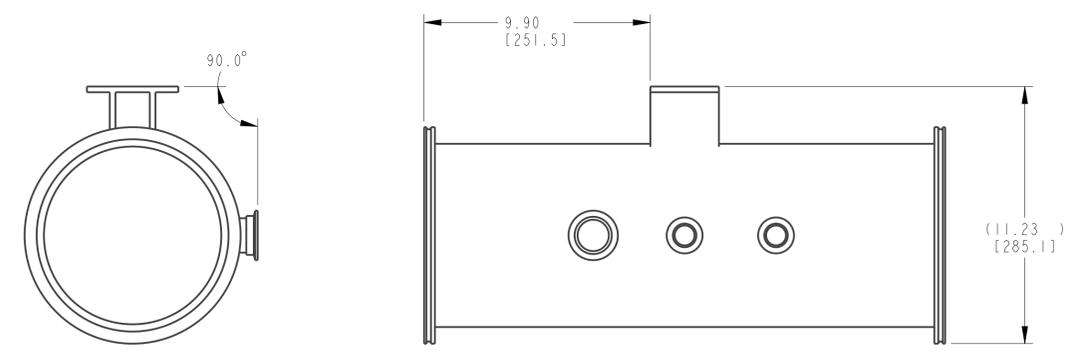
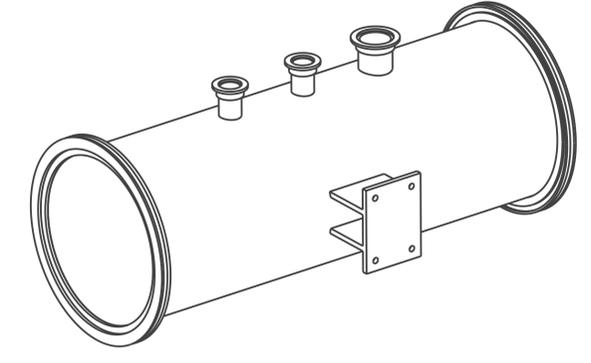
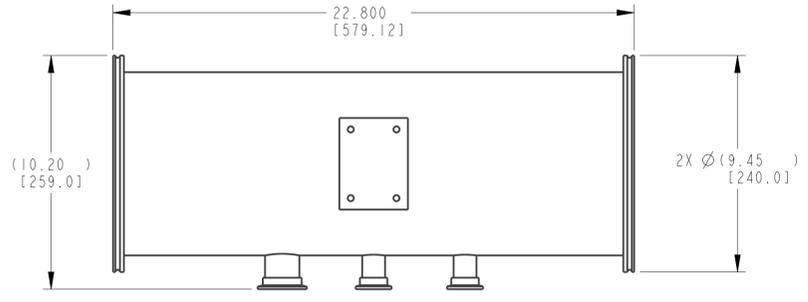


NOTES:

1. THIS COMPONENT IS INTENDED TO BE WELDED FROM STANDARD 1/4-IN ALUMINUM PLATE. VENDOR IS RESPONSIBLE FOR DETERMINING WELDING METHOD AND ORDER.

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY
PARTS LIST / BILL OF MATERIALS					
SHARP EDGES .03" [0.765mm] MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009 UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN () ARE REF ONLY TOLERANCES ANGULAR ±0.5° SURFACE ROUGHNESS 125 ✓			THIS DRAWING IS THE PROPERTY OF Argonne NATIONAL LABORATORY ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - CONE 2 DOC TITLE: WAXPCS FLIGHT TUBE - SUPPORT 3		
DRAFTER: KEVIN WAKEFIELD DESIGNER: KEVIN WAKEFIELD CHECKER: DANIEL PASHOLK RESPONSIBLE ENGINEER: DANIELA CAPATINA GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER APPROVER: BRIAN M RUSTHOVEN		DATE: 23-AUG-22 DATE: 23-AUG-22 DATE: DATE: DATE:		MDL. VER. 3 DRW. VER. 3 SKT. DES.	
MATERIAL: ALUMINUM 6061-T6 APPROX. WT.: 3 lbm		RELEASE LEVEL: RELEASED		SIZE: C PROJ. ID: APSU DWG: BLS SYS. ID: BL LOC. ID: BL MODEL NAME: A308-BI2113 REV.: 00 SCALE: 1:2 THIRD ANGLE PROJECTION DO NOT SCALE DRAWING CAGE CODE: OHRHS SHEET 1 OF 1	

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



- NOTES:
- VENDER MAY CHOOSE TO WELD COMPONENTS WITH OUTSIDE OR INSIDE WELDS. WELDING METHOD AND ORDER MUST BE CHOSEN APPROPRIATELY TO FORM A LEAK TIGHT ASSEMBLY.
 - CONTINUOUS WELDS FOR VACUUM JOINTS ARE TO BE LEAK TIGHT SUCH THAT A HELIUM LEAK TEST VERIFIES THE CHAMBER TO HAVE A LEAK RATE <1.0E-9 STANDARD CC/SEC. THIS CAN BE DONE AS PART OF THE OVERALL CHAMBER ASSEMBLY LEAK CHECK. STRUCTURAL SKIP WELDS ARE ACCEPTABLE FOR RIBS AND MOUNTING BRACKETS.
 - THIS CHAMBER IS INTENDED FOR ROUGH VACUUM SERVICE. HOWEVER, TO ENSURE THAT THE CHAMBER DOES NOT CONTAMINATE NEIGHBORING COMPONENTS, AND TO MAINTAIN CONSISTENT CLEANLINESS STANDARDS AT THE BEAMLINE, THE DESIGN, FABRICATION, AND CLEANING PROCEDURES SHALL BE CHOSEN AS IF IT IS INTENDED FOR UHV SERVICE.
 - PROTECT ALL FLANGE SEALING SURFACES DURING MACHINING. ANY NICKS OR SCRATCHES TO A SEALING SURFACE WILL RENDER THE PART UNACCEPTABLE.

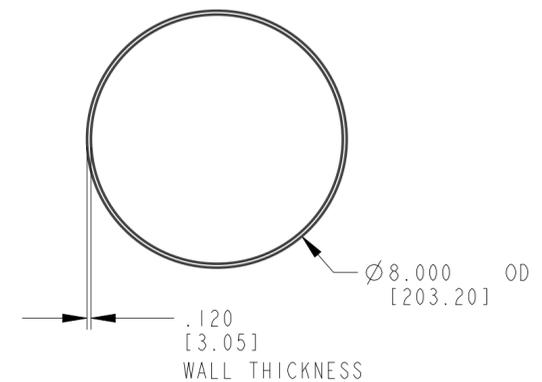
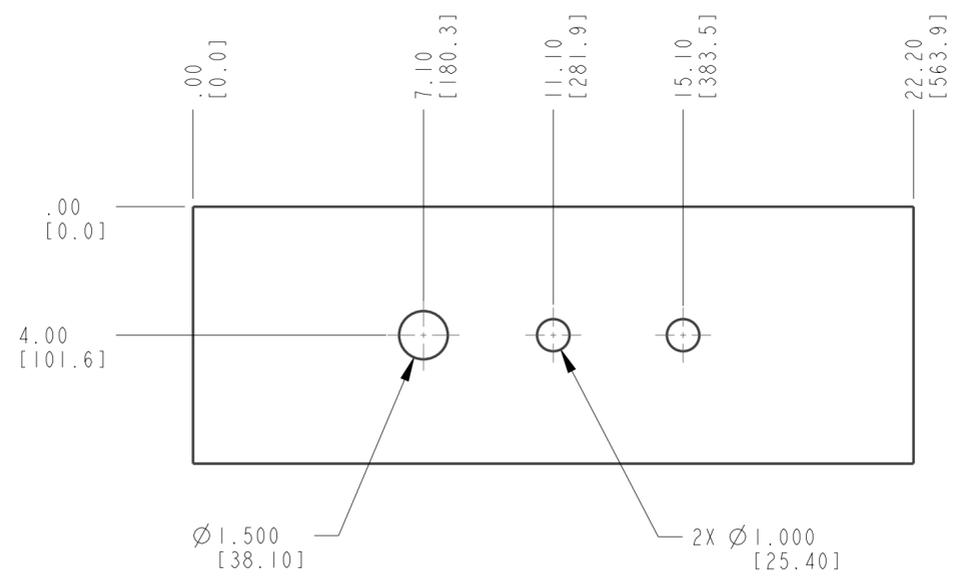
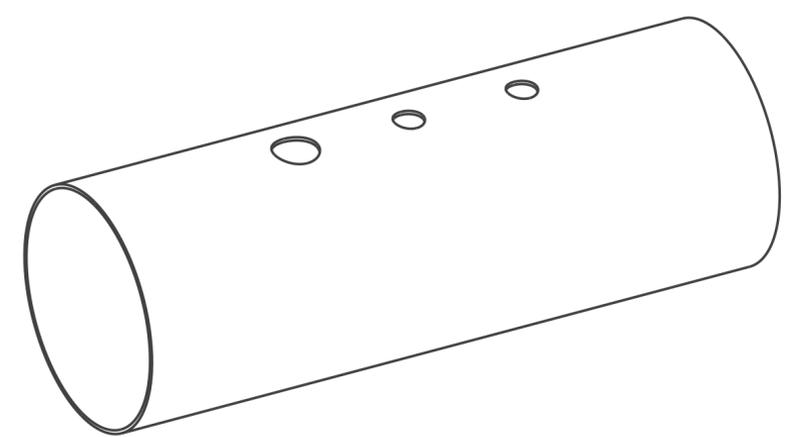
▶ SOURCE OR EQUIVALENT ANCORP
707 SW 19TH AVENUE
WILLISTON, FL 32696
352-528-4100

▶ SOURCE OR EQUIVALENT VACUUM ONE (MDC/ISI)
2502 NORTH CLARK STREET
CHICAGO, IL 60614
773-244-3102

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY
5	A308-BI2122	00	WAXPCS FLIGHT TUBE - SUPPORT 4	ALUMINUM 6061-T6	1
4	A308-BI2121	00	WAXPCS FLIGHT TUBE - EXTENSION - BODY	ALUMINUM 6061-T6	1
3	4500082	00	SOCKET FLANGE 8" BORE ISO-LF200	ALUMINUM 6061-T6	2
2	715112	00	WELD STUB NW40 ISO KF 1.58" LG	ALUMINUM 6061-T6	1
1	715111	00	WELD STUB NW25 ISO KF 1.58" LG	ALUMINUM 6061-T6	2

PARTS LIST / BILL OF MATERIALS					
SHARP EDGES .03" (0.765mm)	DRAWER: KEVIN WAKEFIELD	DATE: 24-AUG-22	THIS DRAWING IS THE PROPERTY OF		
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009	DESIGNER: KEVIN WAKEFIELD	DATE: 24-AUG-22	Argonne NATIONAL LABORATORY		
UNLESS OTHERWISE SPECIFIED	CHECKER: DANIEL PASHOLK	DATE: 24-AUG-22	ADVANCED PHOTON SOURCE		
ALL DIMENSIONS ARE: in	RESPONSIBLE ENGINEER: DANIELA CAPATINA	DATE: 24-AUG-22	BEAMLINE 8-ID		
DIMS IN [] ARE REF ONLY	GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER	DATE: 24-AUG-22	8ID BEAMLINE INSTRUMENTATION		
TOLERANCES	APPROVER: BRIAN M RUSTHOVEN	DATE: 24-AUG-22	WAXPCS INSTRUMENT		
.X ± .1	MATERIAL: 6061-T6	DATE: 24-AUG-22	WAXPCS FLIGHT TUBE - EXTENSION		
ANGULAR .XX ± .03	SEE PARTS LIST	DATE: 24-AUG-22	A308-BI2120		
±.005	APPROX. WT: 9.1lb	RELEASE LEVEL: RELEASED	00		
SURFACE ROUGHNESS 125/	SCALE: 1:4	THIRD ANGLE PROJECTION	SHEET 1 OF 1		

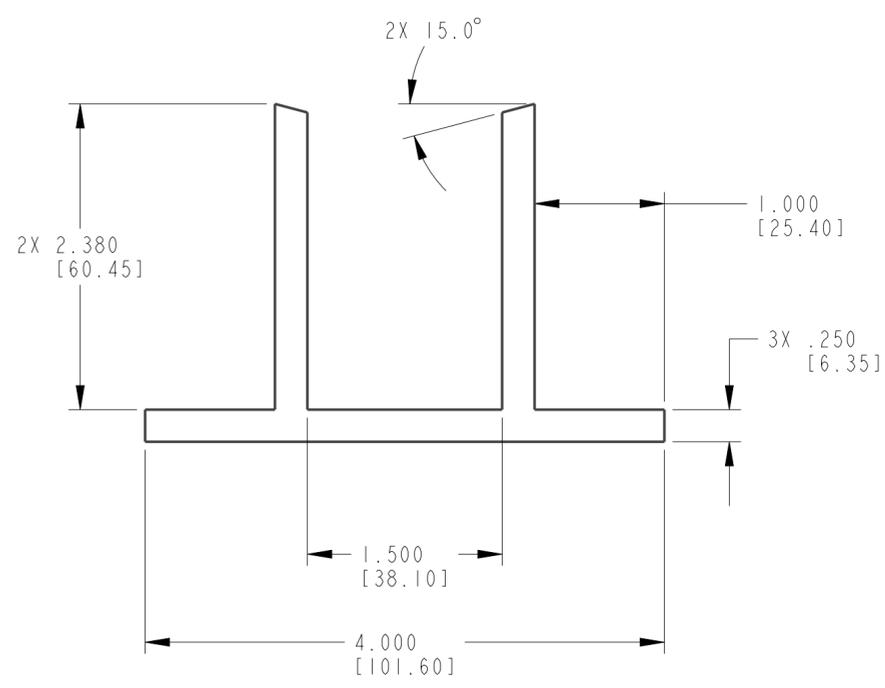
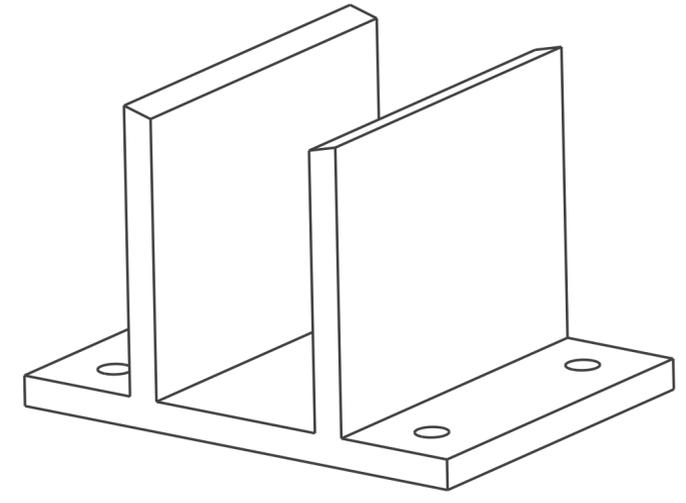
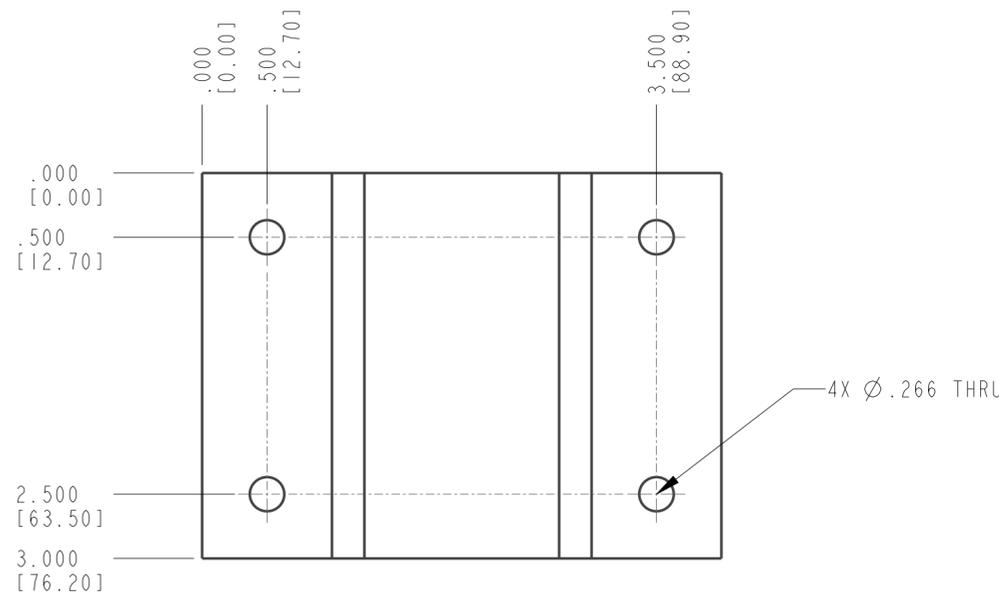
REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



- NOTES:
- THIS PART IS INTENDED FOR ROUGH VACUUM SERVICE. HOWEVER, TO ENSURE THAT THE PART DOES NOT CONTAMINATE NEIGHBORING COMPONENTS, AND TO MAINTAIN CONSISTENT CLEANLINESS STANDARDS AT THE BEAMLINE, THE DESIGN, FABRICATION, AND CLEANING PROCEDURES SHALL BE CHOSEN AS IF IT IS INTENDED FOR UHV SERVICE.
 - MACHINING SHALL EITHER BE DONE DRY, USING WATER, OR USING A WATER SOLUBLE COOLANT. USE OF MACHINING FLUIDS CONTAINING SILICONE, SULFUR, PHOSPHORUS, HALOGENS, ANIMAL FATS, OR HIGH MOLECULAR WEIGHT ORGANIC COMPOUNDS, SUCH AS NAPHTHA, PHENOL, ETC, ARE STRICTLY PROHIBITED. IT SHALL BE ENSURED THAT THE MACHINING FLUID IS NOT CONTAMINATED BY THE DISTRIBUTION SYSTEM OR OTHERWISE. CIMTECH 10-610TFB IS ONE EXAMPLE OF AN ACCEPTABLE GENERAL-PURPOSE MACHINING FLUID.
 - GRINDING AND POLISHING WITH RESIN-BONDED WHEELS, ROUGE, EMERY CLOTH, CROCUS CLOTH, OR SIMILAR ABRASIVES ARE PROHIBITED AS THESE MAY RESULT IN CONTAMINATION OF THE PART. ALL GRINDING AND POLISHING PROCEDURES MUST BE REVIEWED BY APS-U.

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY																																																
PARTS LIST / BILL OF MATERIALS																																																					
SHARP EDGES .03" [0.765mm]		DRAFTER: KEVIN WAKEFIELD		DATE: 26-AUG-22																																																	
MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DESIGNER: KEVIN WAKEFIELD		DATE: 26-AUG-22																																																	
UNLESS OTHERWISE SPECIFIED		CHECKER: DANIEL PASHOLK		DATE:																																																	
ALL DIMENSIONS ARE: in		RESPONSIBLE ENGINEER: DANIELA CAPATINA		DATE:																																																	
DIMENSIONS IN [] ARE REF ONLY		GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER		DATE:																																																	
TOLERANCES		APPROVER: BRIAN M RUSTHOVEN		DATE:																																																	
ANGULAR .X ± .1		MATERIAL: ALUMINUM 6061-T6		SIZE:																																																	
±0.5° .XX ± .03		APPROX. WT.: 6 lbm		SCALE: 1:4																																																	
SURFACE ROUGHNESS 125 ✓		RELEASE LEVEL: RELEASED		SCALE: 1:4																																																	
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Argonne NATIONAL LABORATORY		ADVANCED PHOTON SOURCE		THIS DRAWING IS THE PROPERTY OF																																																	
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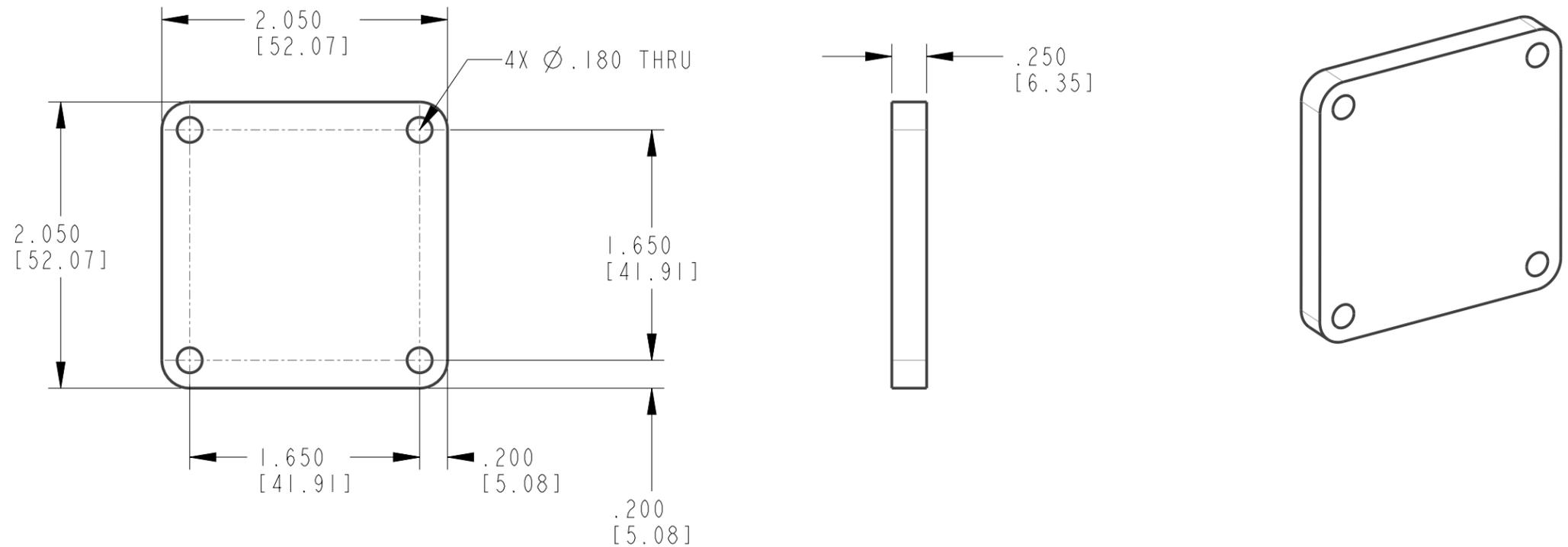
REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



NOTES:
 1. THIS COMPONENT IS INTENDED TO BE WELDED FROM STANDARD 1/4-IN ALUMINUM PLATE. VENDOR IS RESPONSIBLE FOR DETERMINING WELDING METHOD AND ORDER.

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY
PARTS LIST / BILL OF MATERIALS					
SHARP EDGES .03" [0.765mm] MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009		DRAFTER: KEVIN WAKEFIELD	DATE: 26-AUG-22	 ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT WAXPCS FLIGHT TUBE - EXTENSION DOC TITLE: WAXPCS FLIGHT TUBE - SUPPORT 4	
UNLESS OTHERWISE SPECIFIED		CHECKER: DANIEL PASHOLK	DATE: 26-AUG-22		
ALL DIMENSIONS ARE: in		RESPONSIBLE ENGINEER: DANIELA CAPATINA	DATE: 		
DIMS IN () ARE REF ONLY		GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER	DATE: 		
TOLERANCES		APPROVER: BRIAN M RUSTHOVEN	DATE: 	SIZE: C PROJ ID: APSU DOC TYP ID: DWG SYS ID: BLS LOC ID: BL MODEL NAME: A308-BI2122 REV.: 00	
ANGULAR ±0.5°		MATERIAL: ALUMINUM 6061-T6		SCALE: 1:1 THIRD ANGLE PROJECTION DO NOT SCALE DRAWING CAGE CODE: OHRHS SHEET 1 OF 1	
SURFACE ROUGHNESS 125 ✓		APPROX. WT.: 0.6 lbm		RELEASE LEVEL: RELEASED	

REVISIONS					
ZONE	REV	DESCRIPTION	BY	APPROVED	DATE



NOTES:

- THIS PART IS INTENDED FOR ROUGH VACUUM SERVICE. HOWEVER, TO ENSURE THAT THE PART DOES NOT CONTAMINATE NEIGHBORING COMPONENTS, AND TO MAINTAIN CONSISTENT CLEANLINESS STANDARDS AT THE BEAMLINE, THE DESIGN, FABRICATION, AND CLEANING PROCEDURES SHALL BE CHOSEN AS IF IT IS INTENDED FOR UHV SERVICE.
- MACHINING SHALL EITHER BE DONE DRY, USING WATER, OR USING A WATER SOLUBLE COOLANT. USE OF MACHINING FLUIDS CONTAINING SILICONE, SULFUR, PHOSPHORUS, HALOGENS, ANIMAL FATS, OR HIGH MOLECULAR WEIGHT ORGANIC COMPOUNDS, SUCH AS NAPHTHA, PHENOL, ETC, ARE STRICTLY PROHIBITED. IT SHALL BE ENSURED THAT THE MACHINING FLUID IS NOT CONTAMINATED BY THE DISTRIBUTION SYSTEM OR OTHERWISE. CIMTECH 10-610TFB IS ONE EXAMPLE OF AN ACCEPTABLE GENERAL-PURPOSE MACHINING FLUID.
- GRINDING AND POLISHING WITH RESIN-BONDED WHEELS, ROUGE, EMERY CLOTH, CROCUS CLOTH, OR SIMILAR ABRASIVES ARE PROHIBITED AS THESE MAY RESULT IN CONTAMINATION OF THE PART. ALL GRINDING AND POLISHING PROCEDURES MUST BE REVIEWED BY APS-U.

ITEM	DRAWING / PART NUMBER	REV	NOMENCLATURE OR DESCRIPTION	MATERIAL / SPEC.	QTY
PARTS LIST / BILL OF MATERIALS					
SHARP EDGES .03" [0.765mm] MAX. SURFACE TEXTURE IN ACCORDANCE WITH LATEST ASME B46.1-2002 DIMENSIONING AND TOLERANCING IN ACCORDANCE WITH LATEST ASME Y14.5M-2009 UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE: in DIMS IN [] ARE REF ONLY TOLERANCES ANGULAR .XX ± .03 ±0.5° .XXX ± .005 SURFACE ROUGHNESS 125 ✓			DRAFTER: KEVIN WAKEFIELD DATE: 23-AUG-22 DESIGNER: KEVIN WAKEFIELD DATE: 23-AUG-22 CHECKER: DANIEL PASHOLK RESPONSIBLE ENGINEER: DANIELA CAPATINA GROUP LEADER/PROJECT LEADER/CAM: MIKE FISHER APPROVER: BRIAN M RUSTHOVEN		
THIS DRAWING IS THE PROPERTY OF Argonne NATIONAL LABORATORY ADVANCED PHOTON SOURCE BEAMLINE 8-ID 8ID BEAMLINE INSTRUMENTATION WAXPCS INSTRUMENT VACUUM CHAMBERS DOC TITLE: WAXPCS FLIGHT TUBE - WINDOW PLATE			MOL VER: 5 DRW VER: 5 SKT. DES.		
MATERIAL: ALUMINUM 6061-T6 APPROX. WT: 0.10 lbm RELEASE LEVEL: RELEASED		SIZE: B SCALE: 1:1 THIRD ANGLE PROJECTION		PROJ ID: APSU DOC TYP ID: DWG SYS ID: BLS LOC ID: BL MODEL NAME: A308-BI2005 REV.: 00 CAGE CODE: OHRH5 SHEET 1 OF 1 FOR CONSTRUCTION	