

OFFICE COPYBhabha Atomic Research Centre
Electromagnetic Application & Instrumentation Division

Ref: EmA&ID/MFS/2022/30830

Date: 21/02/2022

-----To whom so ever it may concern-----

Sub: Minor Fabrication / Invitation of Quotations

Dear Sir/Madam,

1. Quotations are invited for ... Fabrication and Supply of (a) Guide Tubes as per specifications and drawings enclosed in **Annexure I**.
2. Bidder shall quote as per the tender technical specification.
3. Taxes and Excise Duties shall be quoted separately. Form AF / H whichever is applicable shall be provided, if required.


The quotation must reach The Head, Electromagnetic Application & Instrumentation Division by 23-03-2022 (12:00 PM) and must be sent in a sealed envelope super scribed with the reference number & the due date given above only through India Ordinary Post/Speed Post.

4. The address on the envelop should read:

The Head,
Electromagnetic Application & Instrumentation Division,
RCnD Bldg., North Site
BARC, Trombay,
Mumbai - 400 085.
(Kind Attn: A.K.Sinha, SO/G)

5. The bidder shall complete the job within 6 weeks from the date of firm work order issued to the bidder.
6. Head, Electromagnetic Application & Instrumentation Division reserves the rights to accept / reject any or all quotations without assigning any reason.
7. Quotation must also indicate the validity of offer. Quotation must also indicate the GST No and PAN number of the supplier.
8. The quotation has to be signed by authorized person with company seal.
9. Payment will be made by EFT only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. Income tax as applicable will be collected at the time of payment.
10. In case of any technical clarifications, the supplier may kindly contact the following:
Name of Indenting officer: A K Sinha (Email ID aksinha@barc.gov.in, Tel No : 25593430)

Encl.: Technical Specification Sheet no: EmA&ID/MFS/2022/30830 dated 21-02-2022


A.K.Sinha
SO/G, EmA&ID

ANNEXURE I

TECHNICAL SPECIFICATIONS AND GUIDELINES FOR MANUFACTURE OF GUIDE TUBES

Ref : EmA&ID /MFS/2022/30830 dated 21/02/2022

1.0 Material :

Principal material of construction of Guide Tubes SA-6061 AL. After welding all the parts have to be silver anodized with a thickness of 10 microns.

4 Guide Tubes are to be fabricated ,assembled and tested as per the specifications and guidelines. Total No. of Drawings enclosed are Twenty One (21).

Linkable test reports for all raw materials and proprietary items shall be furnished to the purchaser for approval. In case, linkable certificates are not available, then the manufacturer shall carry out chemical composition through government approved labs. However, if cracks / laminations are found in raw material at any stage of procurement/manufacture, the manufacturer shall immediately replace the material.

2.0 Manufacture of Components :The method of manufacture of parts is left to the choice of the manufacturer. He shall employ machines & operators qualified for the manufacturing operations to be carried out and ensure meeting of specified tolerances prior to undertaking of manufacture. The manufacturer shall inform the purchaser about the machines he proposes to use to achieve the tolerances.

3.0 Welding :

3.1 TIG Welding process shall be adopted for welding & fabricating the components of this tender.

3.2 Weld repair wherever necessary shall be carried out only after obtaining prior approval of the Purchaser. Parts found unacceptable due to material or workmanship shall be repaired / replaced by the manufacturer.

4.0 INSPECTION, TESTS AND REPORTS

4.1 General ----

The manufacturer shall prepare inspection and test procedure for dimensional inspection, LPE, and leak test . These inspections shall be carried out as per BARC approved procedure by certified inspection personnel. .

The following activities have to be witnessed by the purchaser's inspection wing:

(1)Weld edge preparation/fit up for all butt welds and welds which can cause deviation from tolerances / strength requirement difficulties in assembly.

(2) The manufacturer shall provide all testing and inspection services and facilities for shop work except where otherwise specified. The manufacturer shall maintain records of all inspection, tests and calibration, which shall be made freely available to the purchaser.

The inspection and the testing shall be conducted in a manner satisfactory to and shall be subject to approval by the purchaser.

4.2 Dimensional Inspection -----

Dimensional check for the individual components and the completed subassembly and assembly of Guide Tubes shall be carried out as per the approved procedures and shall meet the requirement specified in the drawing. Manufacturer will submit dimensional and geometrical inspection report for purchaser's approval.

It is manufacturer's responsibility to ensure that all dimensional tolerances as per drawings are met. The dimensional verification of parts before and after fabrication shall be done by the supplier. He shall establish the procedure for dimensional verification defining measuring instruments, inspection method and accuracy of measurement. The Purchaser's representative shall participate in these verifications. The manufacturer shall have instruments to measure geometrical features such as flatness, parallelism ,straightness, concentricity etc. In addition to stage inspection of dimensions, the final dimensional checks of assembly shall be conducted by the supplier in the presence of Purchaser's authorized inspector. The Purchaser will take decision regarding the acceptance of part which are outside the tolerance limits. The manufacturer is bound to carry out repair / replacement as directed by purchaser.

4.3 Inspection of welds

4.3.1 Weld surface finish

The welds shall have a regular surface and welds are acceptable provided they are smoothly merged with the adjacent base metal without any defect. However all the butt welds have to be ground flush.

4.3.2 Visual examination

This shall be done with the naked eye or with magnifying lenses, wherever necessary. This examination shall be conducted after each weld pass. In the area to be examined, sufficient lighting, natural or artificial is required. Weld spatter, surface cracks, surface porosity and such other defects shall not be permitted.

4.3.3 Liquid Penetrant Examination (LPE)

Liquid penetrant examination of weld edge preparation, root pass, back gouging, back weld, finished butt weld and first and every alternate passes of fillet weld shall be carried out as per specifications in **ASME Section V**.

4.3.4 All external side butt welds shall be ground flush, other welds shall be ground smooth & radiused, and shall meet the weld profile and other tolerances as specified in the drawing / specification. Whenever weld fit up tolerances are not given, the manufacturer shall prepare the same and obtain purchaser's approval before welding.

4.4 Leak Testing :

Soap solution bubble leak test to detect gross leakage on welds and other joint areas is to be carried out for the components where-ever required. The soap solution should be removed using acetone and D.M. Water. Required arrangements are to be made to check leakage at all O-ring / gasket locations.

4.5 Straightness Check ---

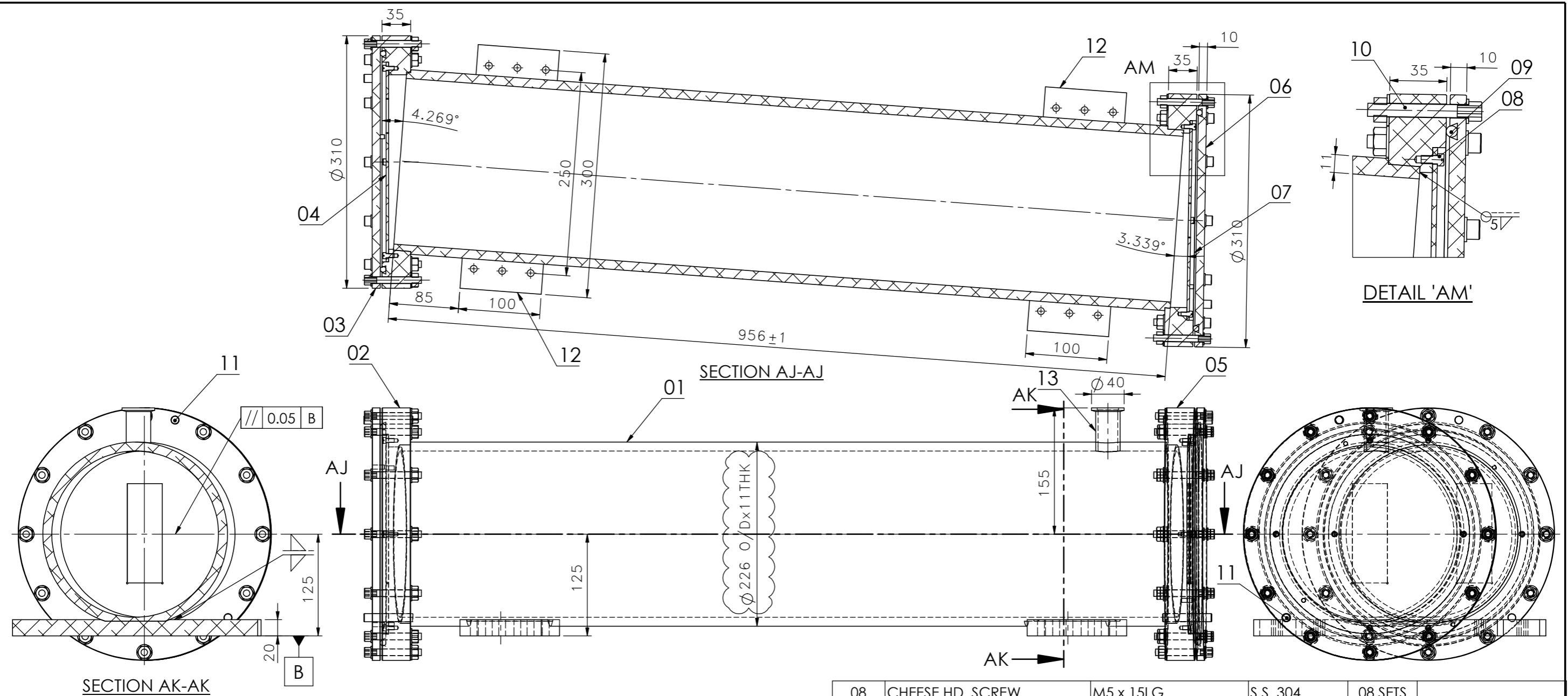
The straightness of the completed assembly shall be checked in vertical condition in a rotating fixture with dial gauges or by suitable optical method and also in horizontal position.

4.6 Tests and Inspection Reports --

The manufacturer shall submit for approval the manufacturing process, sequence in detail with clear definition of inspection stages and explain where the inspection will be carried out by the manufacturer in the presence of purchaser. Tests shall be conducted on all the 4 Units and assembly to be supplied.

Two (2) sets of all qualification, inspection and testing reports shall be supplied to the purchaser. The testing and inspection instruments and equipment shall be calibrated according to applicable standards and records of such calibration shall be made available to the purchaser's authorised representative.

4.7 Wherever specifications are not mentioned, the manufacturer shall take guidance from the relevant IS / ASTM / ASME standards. In addition to the above-mentioned applicable specifications and drawings, any additional specification and / or drawing prepared by the purchaser or supplier and duly approved by the purchaser shall also become applicable . Such changes shall be considered within the scope of work specified in this specification and shall not be considered extra.



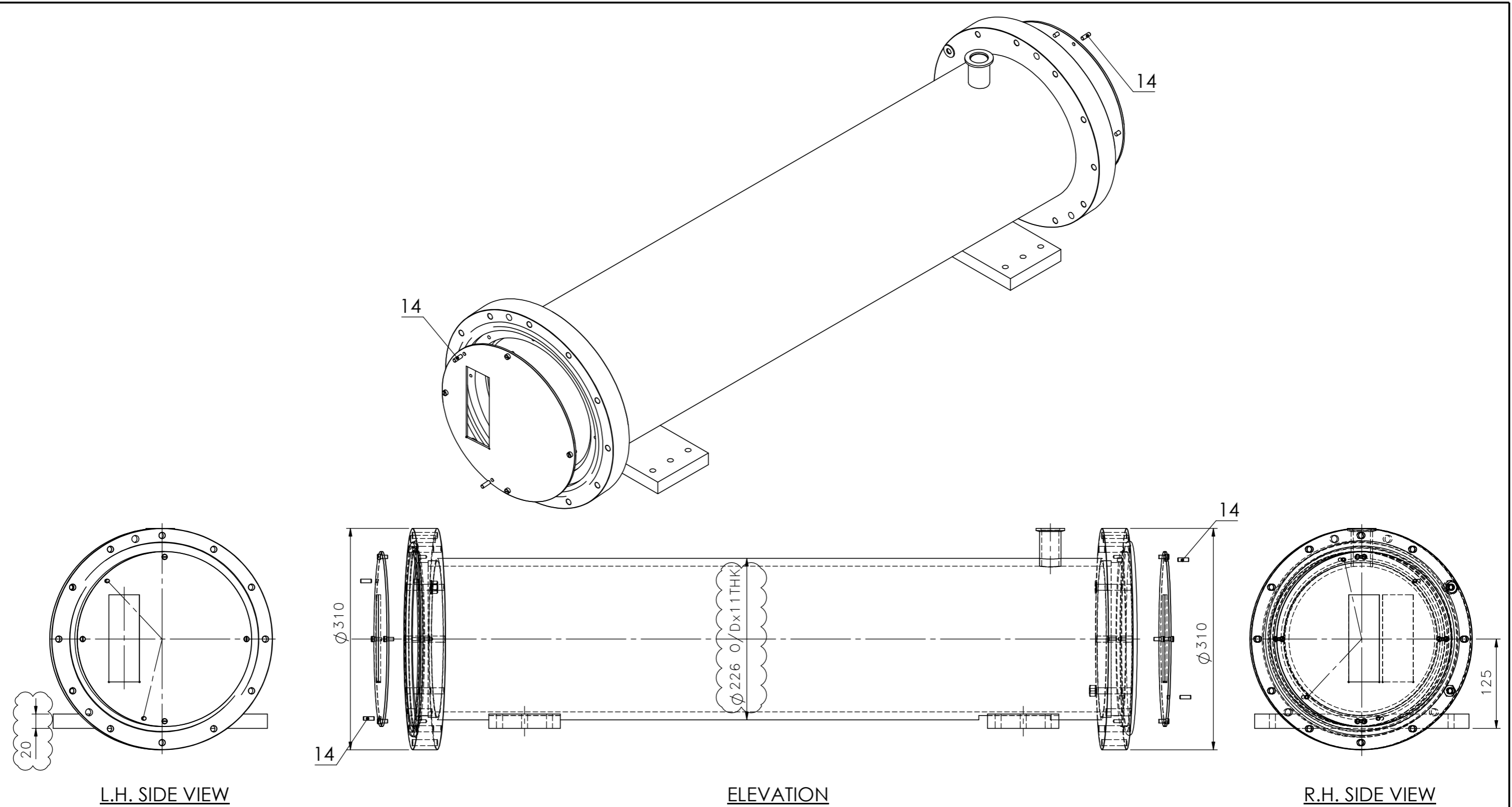
16					
15					
14	GUIDE PIN FOR GUIDE PLATE	Ø5x 15 LG.	S.S. 304	04	
13	KF. COUPLING	ISO KF 25	SA 6061 AL.	01	
12	BASE PLATE	100 x 300 x 20 THK	SA 6061 AL.	02	
11	GUIDE PIN	Ø10x60 LG.	S.S. 304	04	
10	HEX.SOC.HD.BOLT+NUT+W.	M8x75 LG.	S.S.	24 SETS	
09	'O' RING	Ø258 I/D x6.99 C/S	S.S. 304	02	
S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS

08	CHEESE HD. SCREW	M5 x 15LG.	S.S. 304	08 SETS	
07	R.H. GUIDE PLATE	Ø245 x 3 THK	SA 6061 AL.	01	
06	R.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITH GROOVE
05	R.H. END FLANGE	Ø310 x 35THK	SA 6061 AL.	01	WITHOUT GROOVE
04	L.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
03	L.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITHOUT GROOVE
02	L.H. END FLANGE	Ø310 x 35 THK	SA 6061 AL.	01	WITH GROOVE
01	PIPE	Ø226 x 11Tx 956LG.	SA 6061 AL.	01	
S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	±0.1			
6	- 30	±0.2	1 - 6	±0.1°	
30	- 120	±0.3	6 - 30	±0°-30'	CHAMFER 1x45°
120	- 315	±0.5	30 - 120	±0°-20'	
315	- 1000	±0.8	120 - 400	±0°-10'	
1000	- 2000	±1.2	1. ALL DIMENSIONS ARE IN MILIMETERS		
2000	- 4000	±2.0	2. REMOVE SHARP CORNERS AND BURRS		

BILL OF MATERIAL					
PROJECT/DIVISION/NO:					
DRAWN	NAME	SIGNATURE	DATE	TITLE: GUIDE HOUSING 1.0m TAPER	
CHK'D					
CHK'D				PROJ.:	DWG NO.:
REVIEW					A3
APPV'D				MATERIAL: SA6061AL	SCALE:1:4
				WEIGHT:	SHEET 1 OF 5



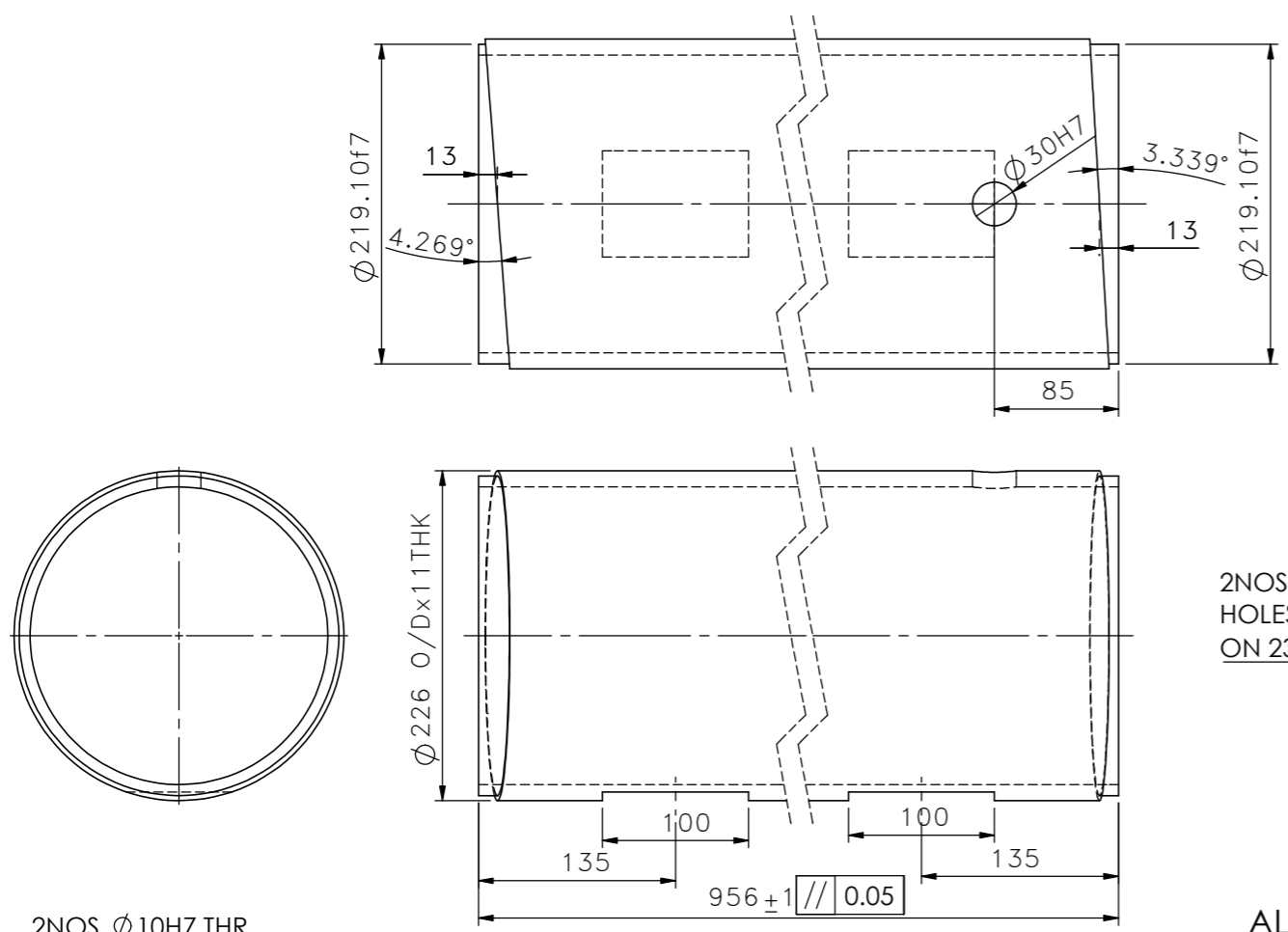
L.H. SIDE VIEW

ELEVATION

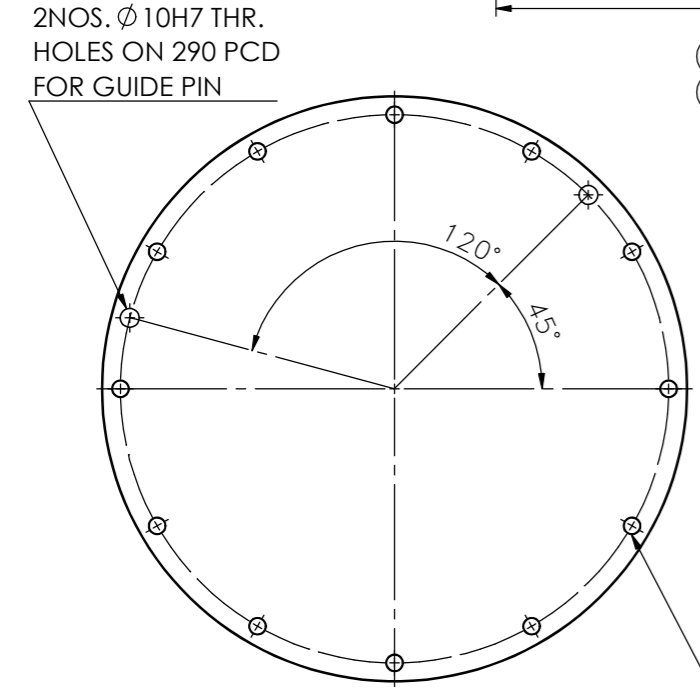
R.H. SIDE VIEW

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH
UPTO	6	±0.1	1	6	±0.1°
6	- 30	±0.2	6	- 30	±0°-30'
30	- 120	±0.3	30	- 120	±0°-20'
120	- 315	±0.5	120	- 400	±0°-10'
315	- 1000	±0.8	1. ALL DIMENSIONS ARE IN MILIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	±1.2			
2000	- 4000	±2.0			

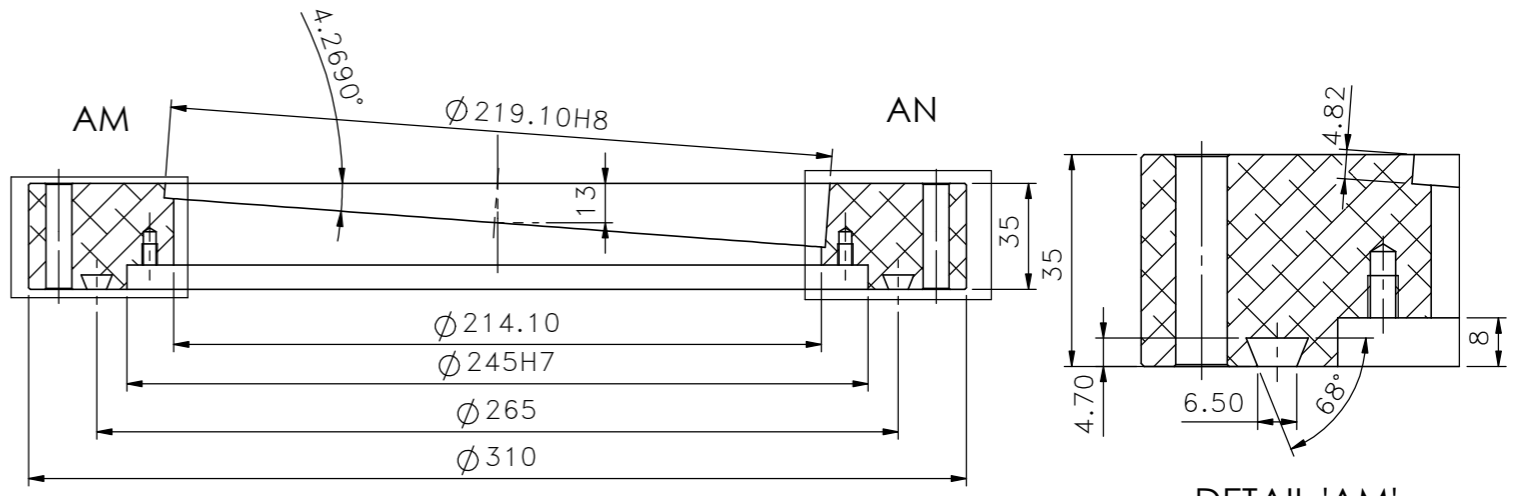
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NAME	SIGNATURE	DATE	GUIDE HOUSING 1.0m TAPER		
DRAWN			PROJ.:	DWG NO.:	A3
CHK'D				D-2021-118B	REV. 2
REVIEW					MATERIAL: SA6061AL
APPV'D					SHEET 2 OF 5



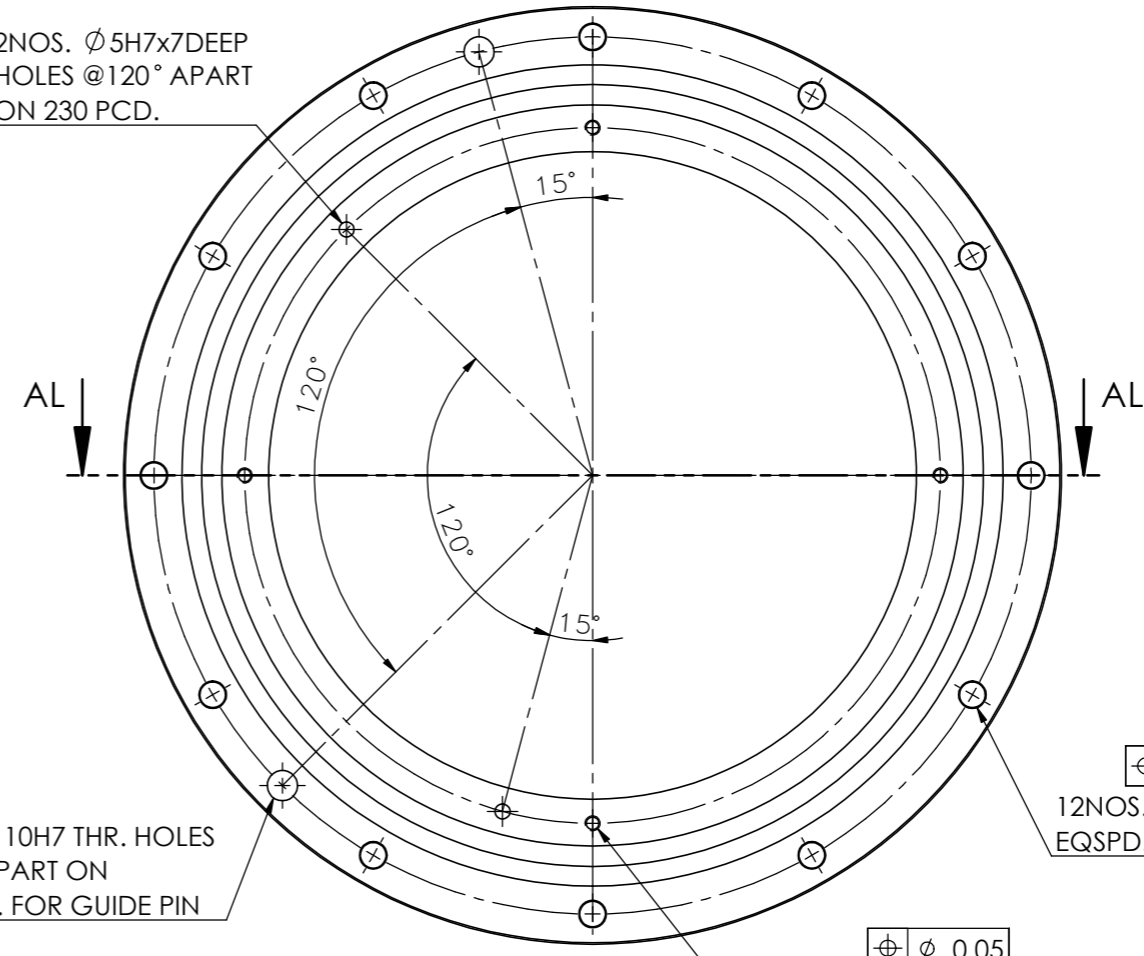
PART NO. 01



PART NO. 03



2NOS. $\phi 5H7 \times 7$ DEEP HOLES @ 120° APART ON 230 PCD.



PART NO. 02

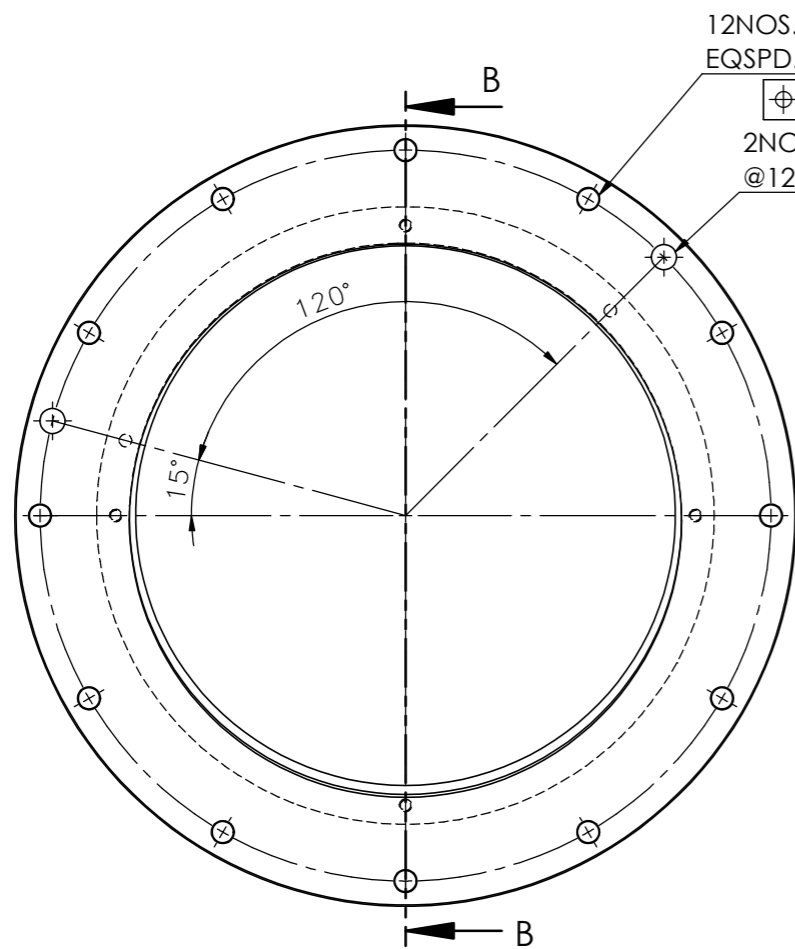
DETAIL 'AM'

DETAIL 'AN'

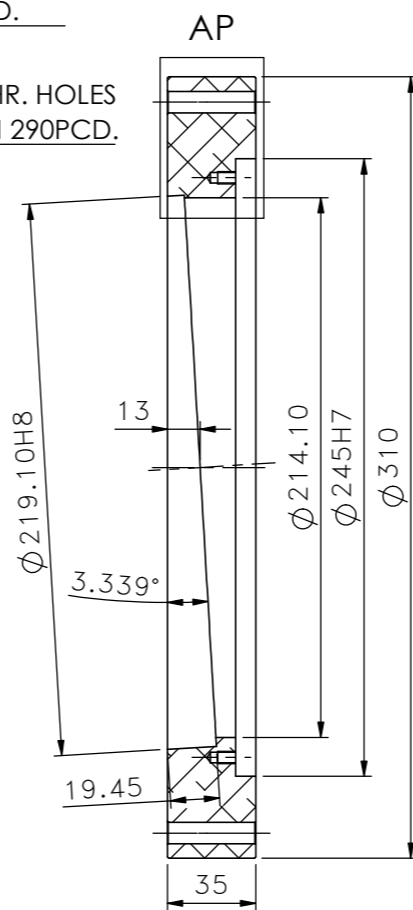
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)		
LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ±0.1	1 - 6 ±0.1°	
6 - 30 ±0.2	6 - 30 ±0°-30'	CHAMFER 1x45°
30 - 120 ±0.3	30 - 120 ±0°-20'	
120 - 315 ±0.5	120 - 400 ±0°-10'	
315 - 1000 ±0.8		
1000 - 2000 ±1.2		
2000 - 4000 ±2.0		

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. REMOVE SHARP CORNERS AND BURRS

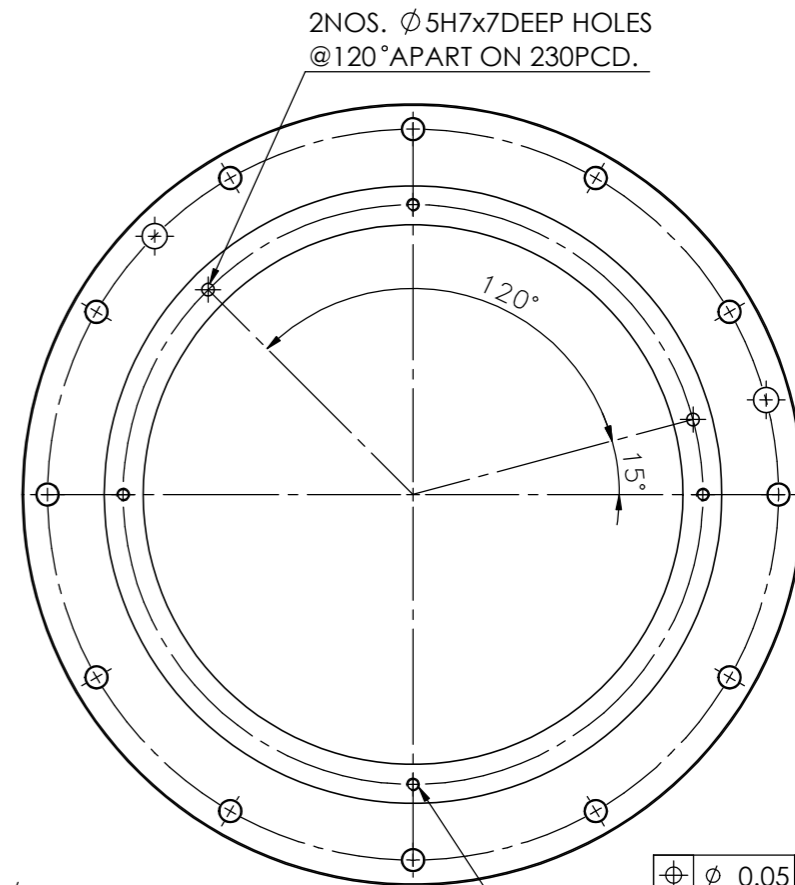
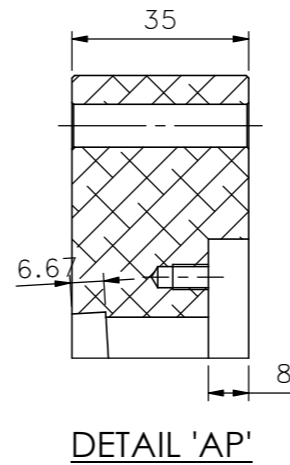
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DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:
CHK'D					D-2021-118C
CHK'D					
REVIEW				MATERIAL: SA6061AL	WEIGHT:
APPV'D				SCALE: 1:4	SHEET 3 OF 5



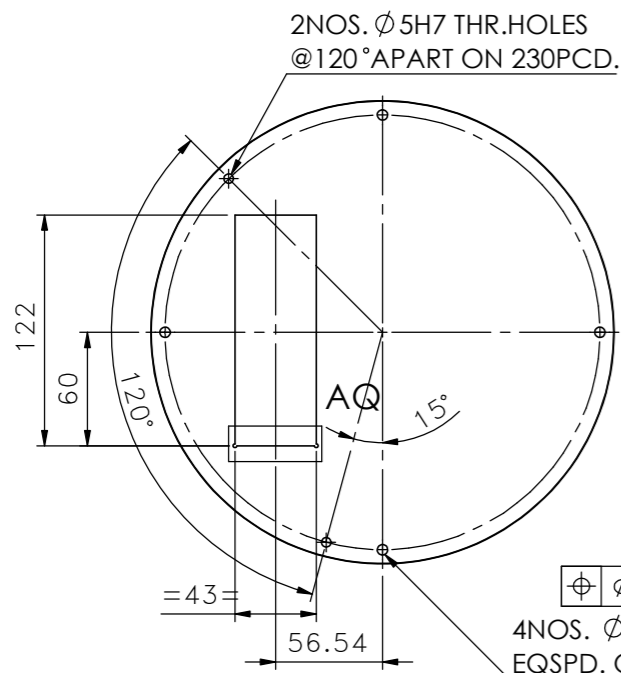
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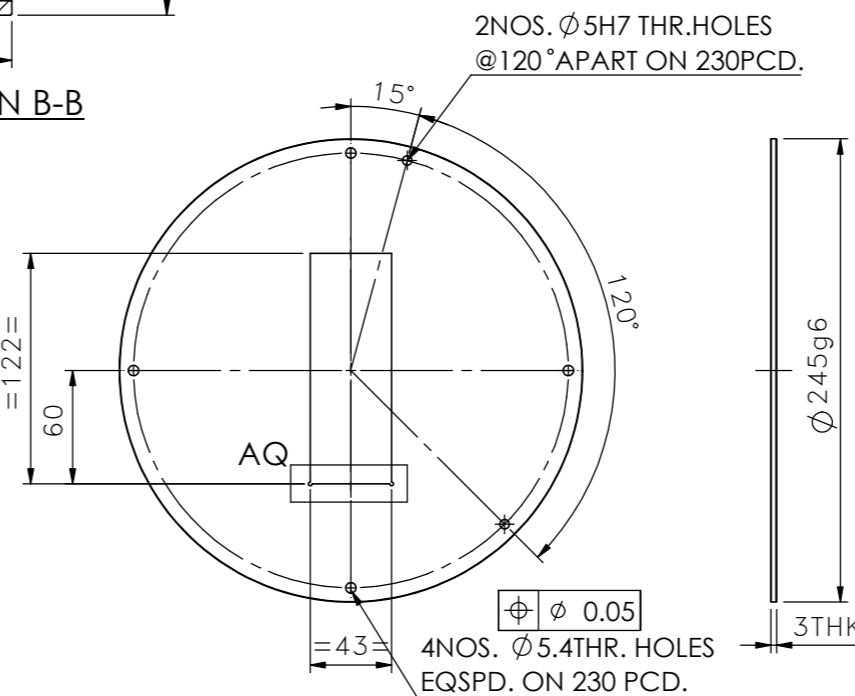
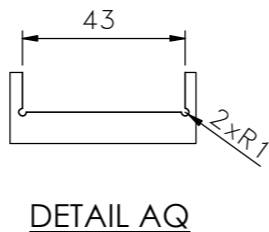
SECTION B-B



REAR VIEW



PART NO. 04

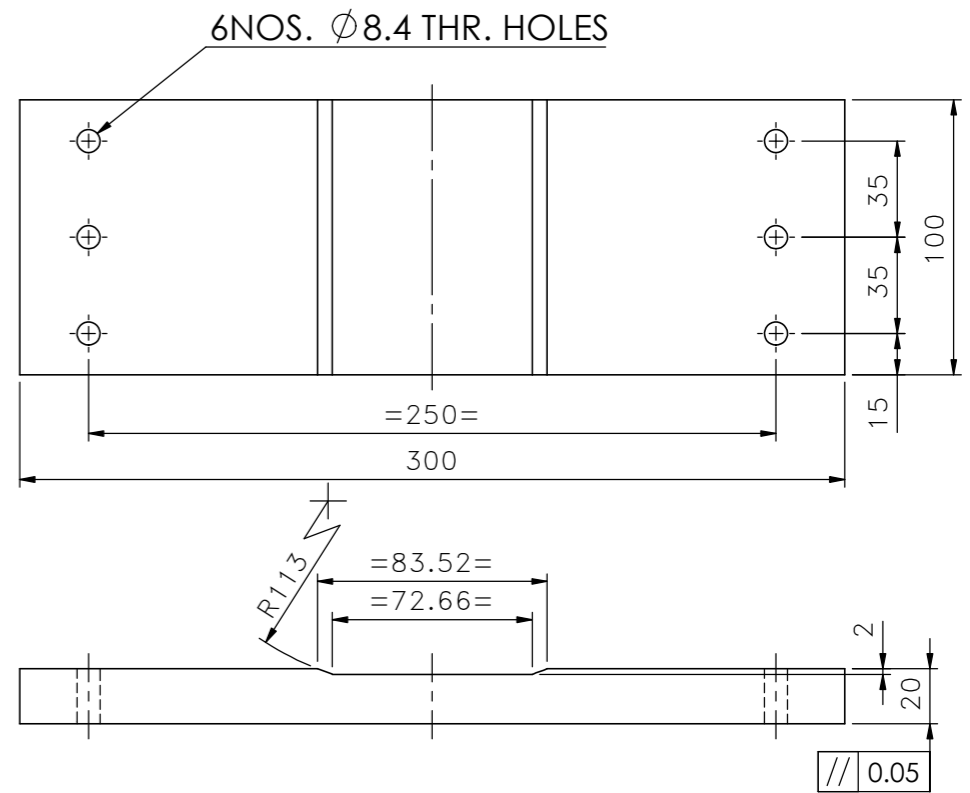
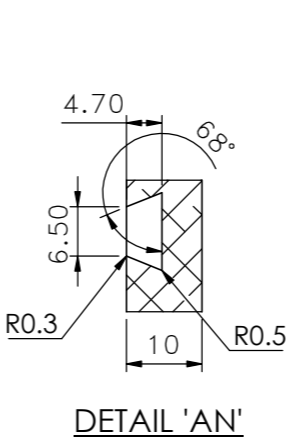
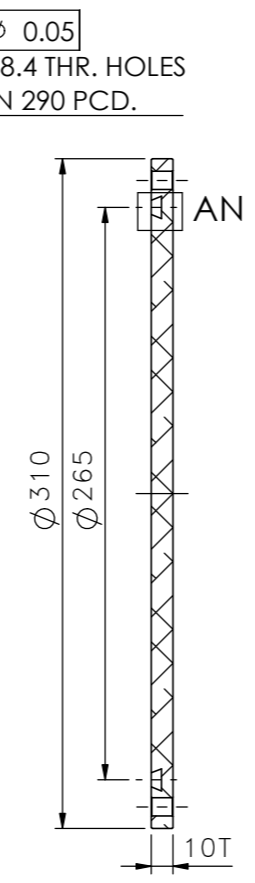
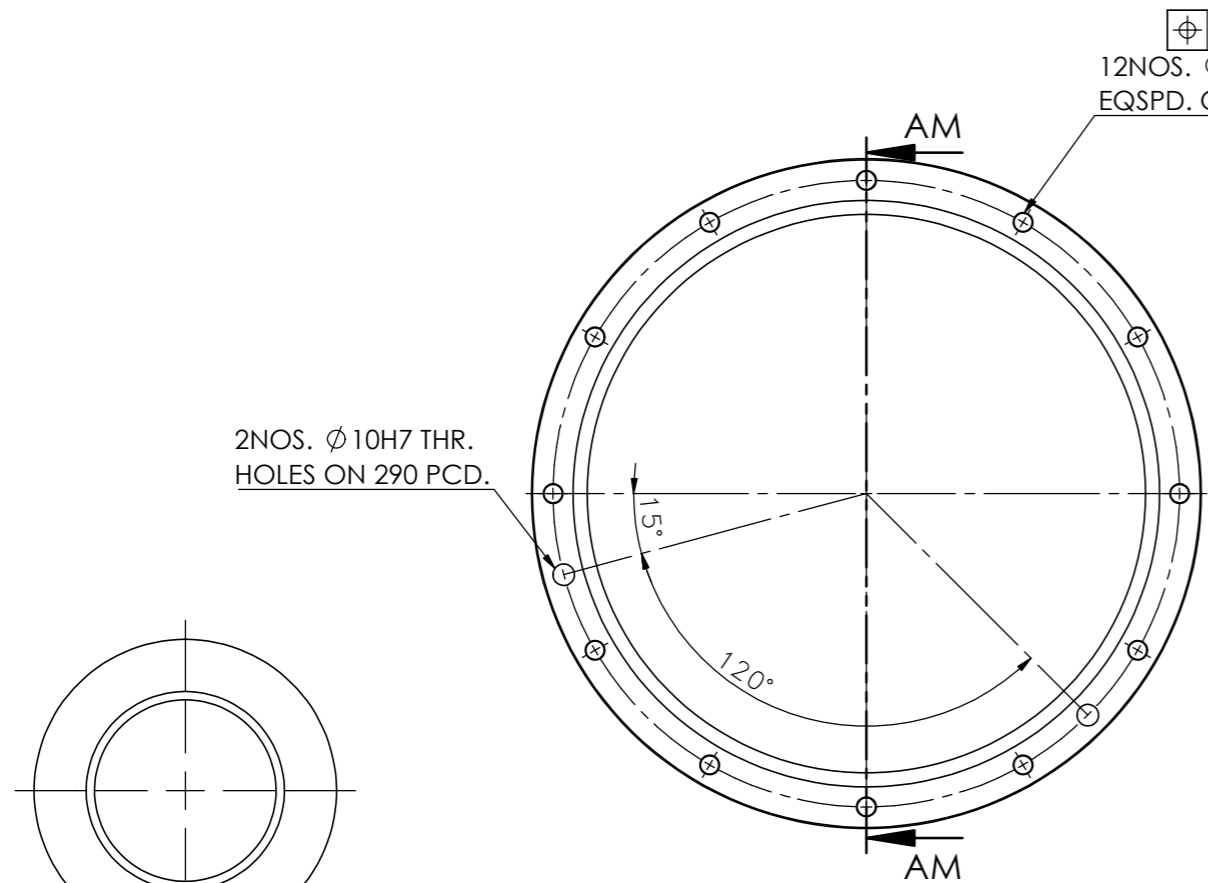


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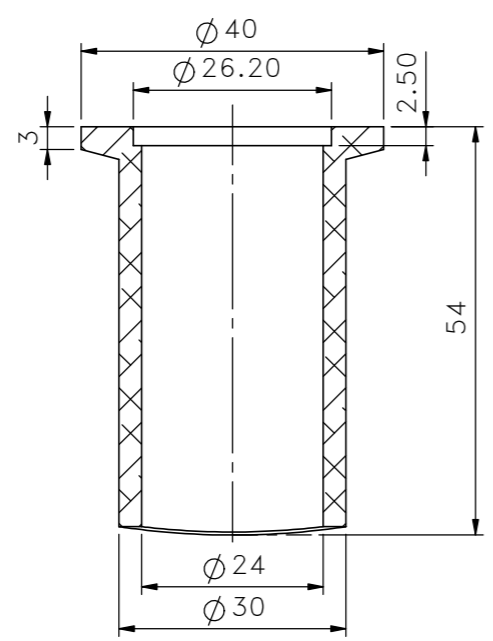
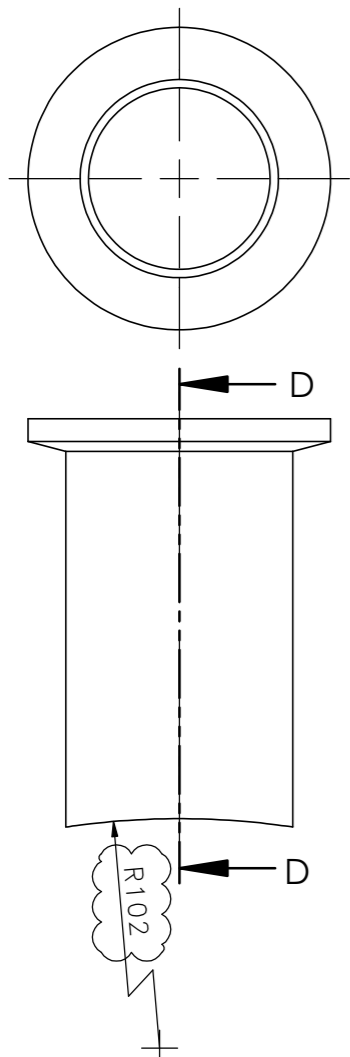
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1	1 - 6	$\pm 0.1^\circ$	
6	- 30	± 0.2	6 - 30	$\pm 0^\circ - 30'$	CHAMFER 1x45°
30	- 120	± 0.3	30 - 120	$\pm 0^\circ - 20'$	
120	- 315	± 0.5	120 - 400	$\pm 0^\circ - 10'$	
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	± 1.2			
2000	- 4000	± 2.0			

PROJECT/DIVISION/NO:				TITLE:	
				GUIDE HOUSING 1.0m TAPER	
DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:
CHK'D					A3
CHK'D					D-2021-118D
REVIEW				MATERIAL: SA6061AL	WEIGHT:
APP'VD				SCALE: 1:4	SHEET 4 OF 5



PART NO. 12

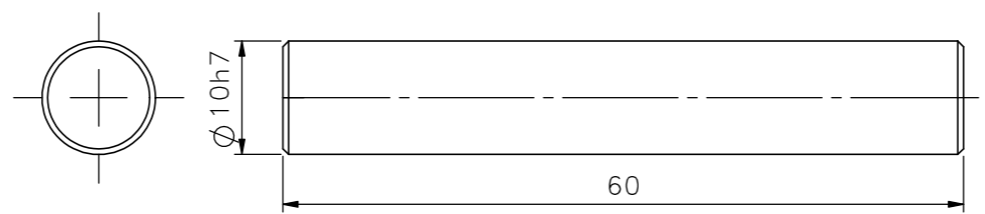
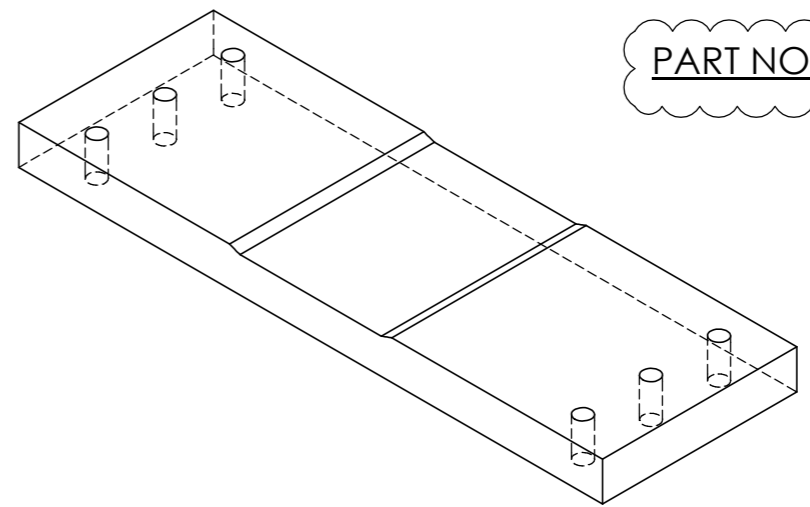


SECTION D-D

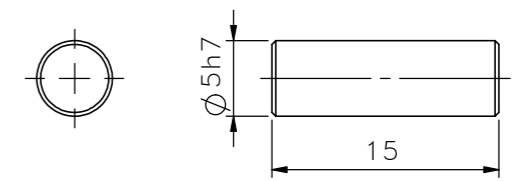
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PART NO. 06

SECTION M-M



PART NO. 11

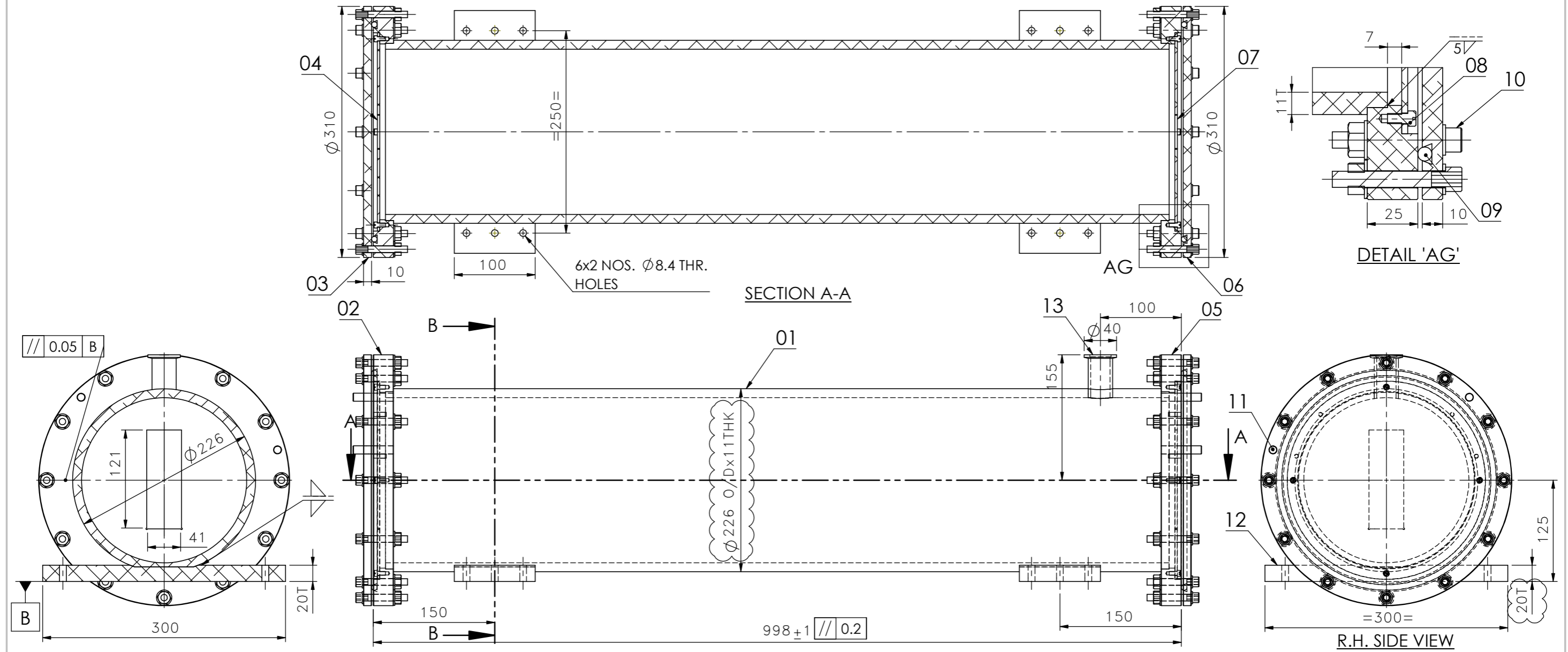


PART NO. 14

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1			
6	- 30	± 0.2	1 - 6	$\pm 0.1^\circ$	
30	- 120	± 0.3	6 - 30	$\pm 0^\circ - 30'$	CHAMFER 1x45°
120	- 315	± 0.5	30 - 120	$\pm 0^\circ - 20'$	
315	- 1000	± 0.8	120 - 400	$\pm 0^\circ - 10'$	
1000	- 2000	± 1.2	1. ALL DIMENSIONS ARE IN MILLIMETERS		
2000	- 4000	± 2.0	2. REMOVE SHARP CORNERS AND BURRS		

PROJECT/DIVISION/WO:					
NAME	SIGNATURE	DATE	TITLE: GUIDE HOUSING 1.0m TAPER		
DRAWN			PROJ.:		DWG NO.:
CHK'D					A3
CHK'D			D-2021-118E		REV. 2
REVIEW			MATERIAL: SA6061AL	WEIGHT:	SCALE:1:2
APPV'D					SHEET 5 OF 5



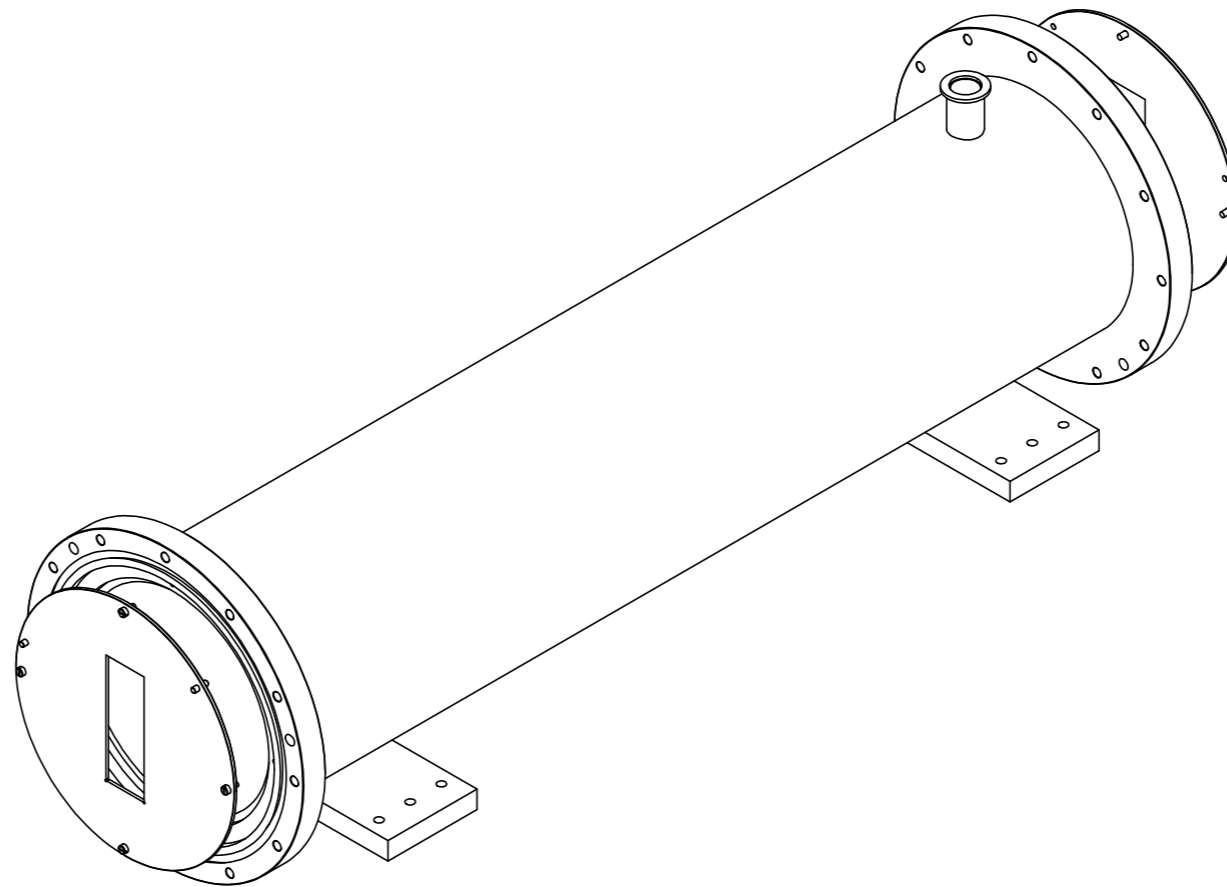
16					
15					
14	GUIPE PIN FOR GUIDE PLATE	Ø5 x 15 LG.	S.S. 304	04	
13	KF. COUPLING	ISO KF25	SA 6061 AL.	01	
12	BASE PLATE	100 x 300 x 20THK	SA 6061 AL.	02	
11	GUIDE PIN	Ø10x 50LG.	S.S. 304	04	
10	HEX.SOC.HD.BOLT+NUT+W.	M8x70LG.	S.S. 304	24SETS	
09	'O' RING	Ø258 I/Dx6.99 C/S	VITON	02	
S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS

08	CHEESE HD. SCREW	M5 x 15LG.	S.S. 304	08SETS	
07	R.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
06	R.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITH GROOVE
05	R.H. END FLANGE	Ø310 x 25 THK	SA 6061 AL.	01	WITHOUT GROOVE
04	L.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
03	L.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITHOUT GROOVE
02	L.H.END FLANGE	Ø310 x 25 THK	SA 6061 AL.	01	WITH GROOVE
01	PIPE	Ø226 x 11Tx 968LG.	SA 6061 AL.	01	
S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

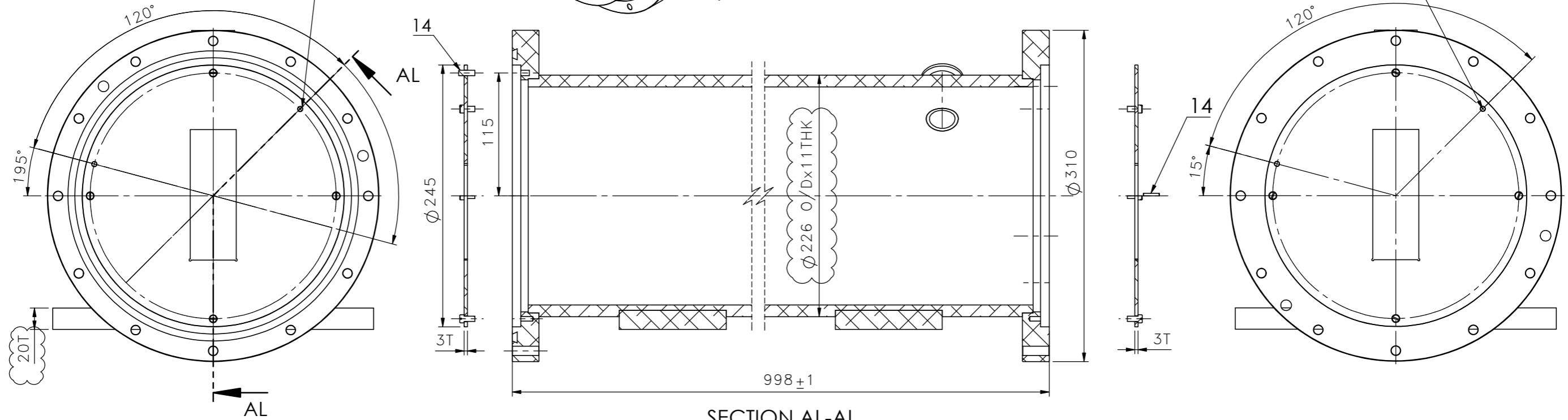
LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ±0.1	1 - 6 ±0.1°	
6 - 30 ±0.2	6 - 30 ±0°-30'	CHAMFER 1x45°
30 - 120 ±0.3	30 - 120 ±0°-20'	
120 - 315 ±0.5	120 - 400 ±0°-10'	
315 - 1000 ±0.8		
1000 - 2000 ±1.2	1. ALL DIMENSIONS ARE IN MILIMETERS 2. REMOVE SHARP CORNERS AND BURRS	
2000 - 4000 ±2.0		

BILL OF MATERIAL					
PROJECT/DIVISION/NO:			TITLE:		
DRAWN	NAME	SIGNATURE	DATE	GUIDE HOUSING 1.0m	
CHK'D					
CHK'D				PROJ.:	DWG NO.:
REVIEW				D-2021-117A	
APPV'D				MATERIAL: SA6061AL	SCALE:1:4
				WEIGHT:	SHEET 1 OF 5



14
2NOS. $\phi 5$ GUIDE PINS
@120° APART ON 230 PCD.

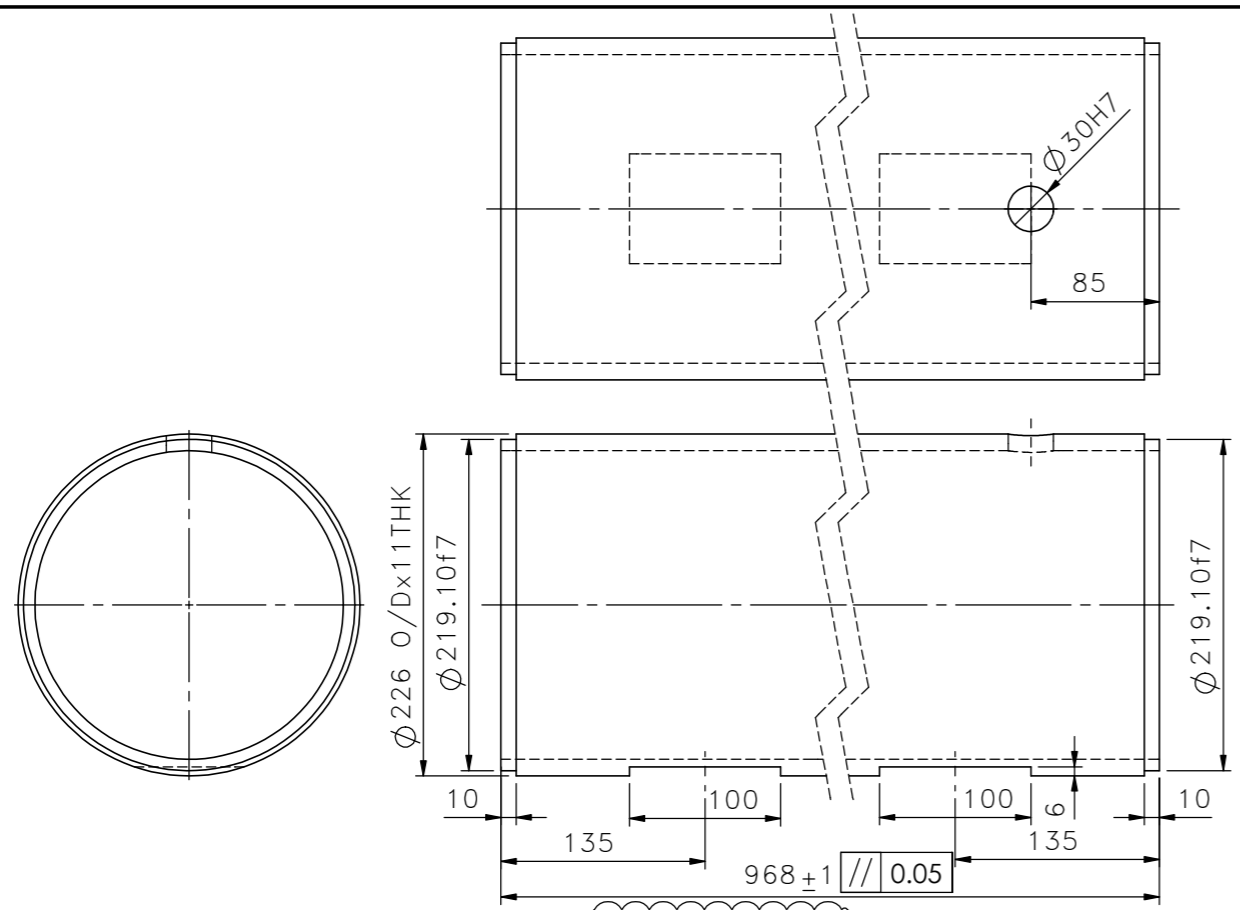
14
2NOS. $\phi 5$ GUIDE PINS
@120° APART ON 230 PCD.



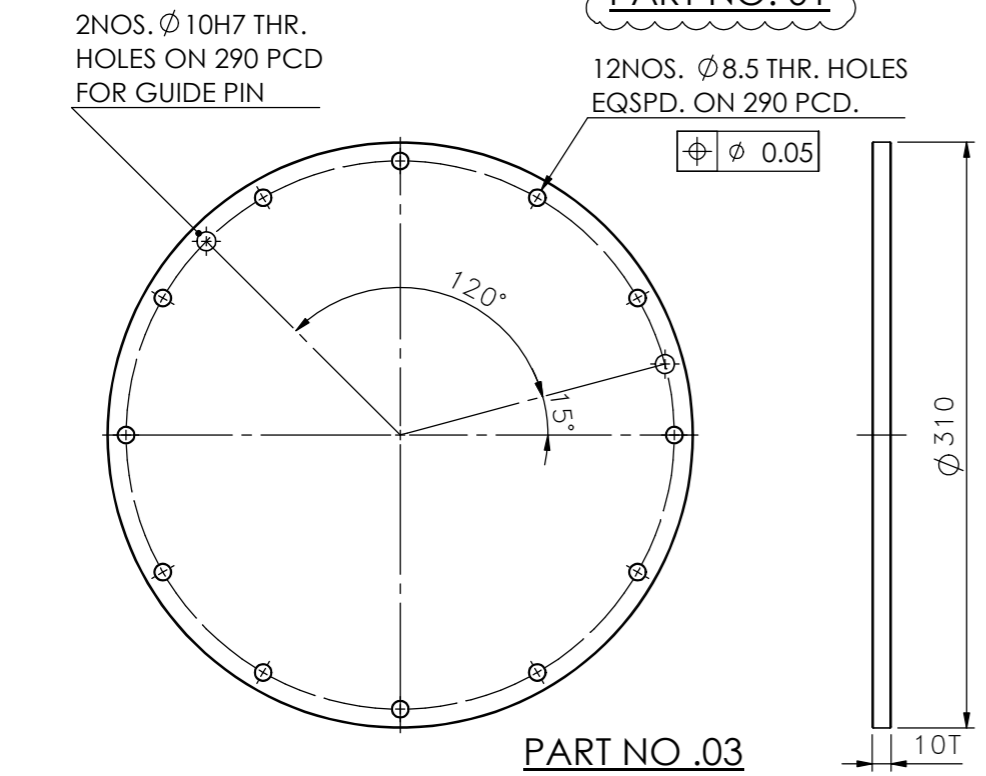
SECTION AL-AL

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH
UPTO	6	±0.1	1	6	
6	- 30	±0.2	6	30	±0°-30'
30	- 120	±0.3	30	120	±0°-20'
120	- 315	±0.5	120	400	±0°-10'
315	- 1000	±0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	±1.2			
2000	- 4000	±2.0			

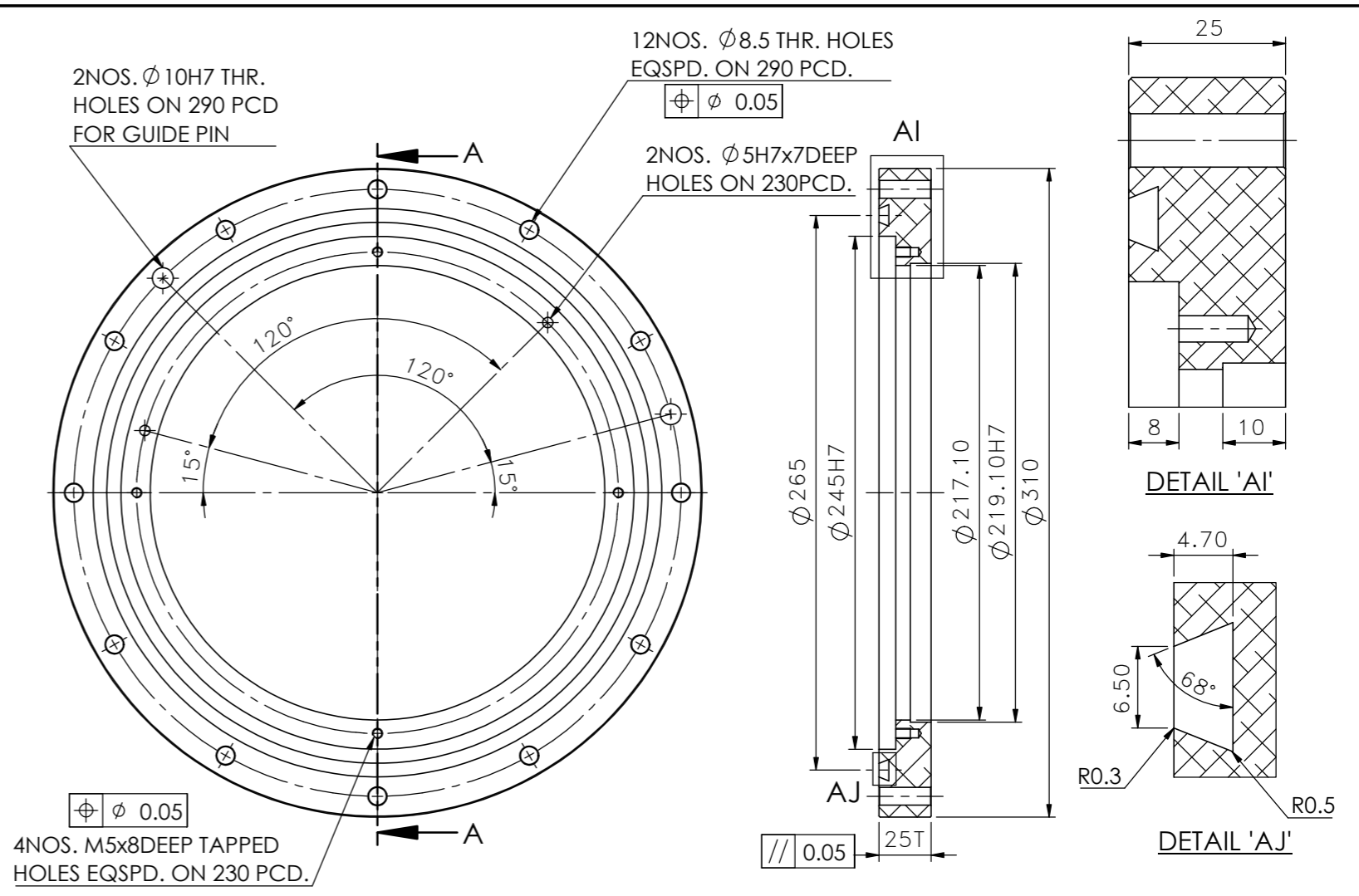
PROJECT/DIVISION/NO:				TITLE:	
				GUIDE HOUSING 1.0m	
DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:
CHK'D					A3
CHK'D					D-2021-117B
REVIEW				MATERIAL: SA6061AL	WEIGHT:
APPV'D				SCALE:1:4	SHEET 2 OF 5



PART NO. 01



PART NO. 03



PART NO. 02

SECTION A-A

DETAIL 'AI'

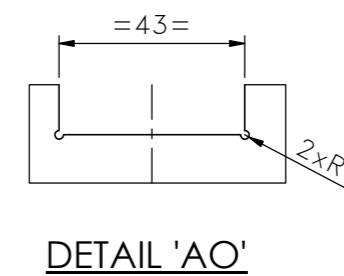
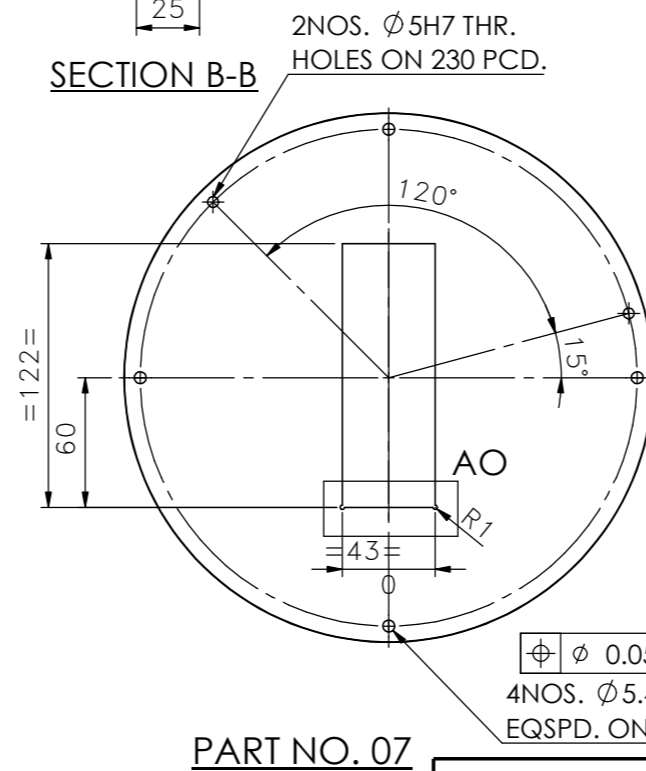
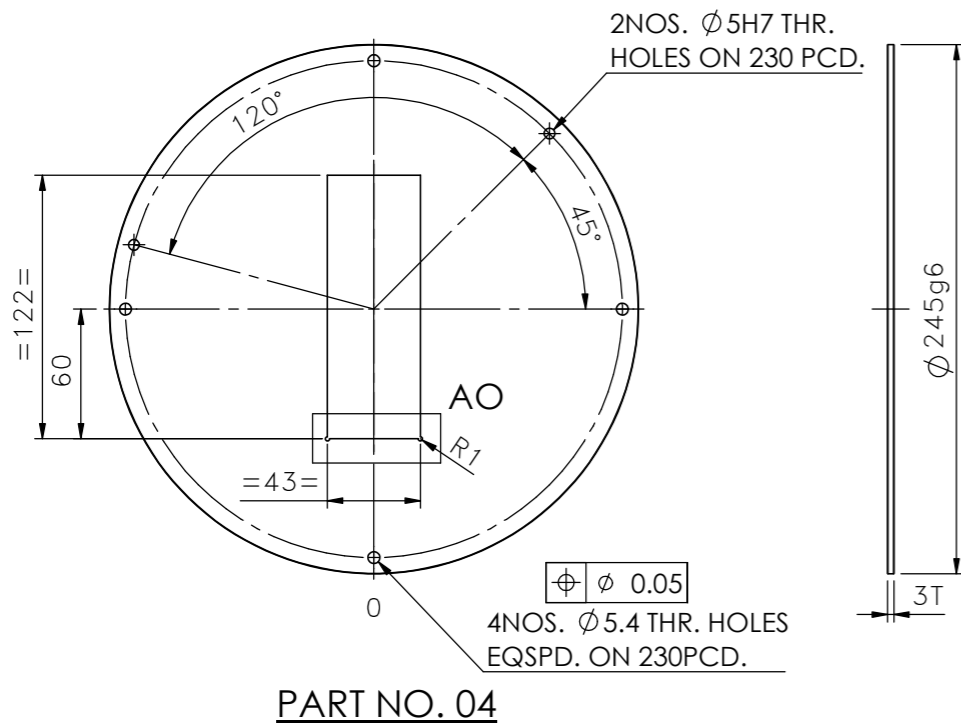
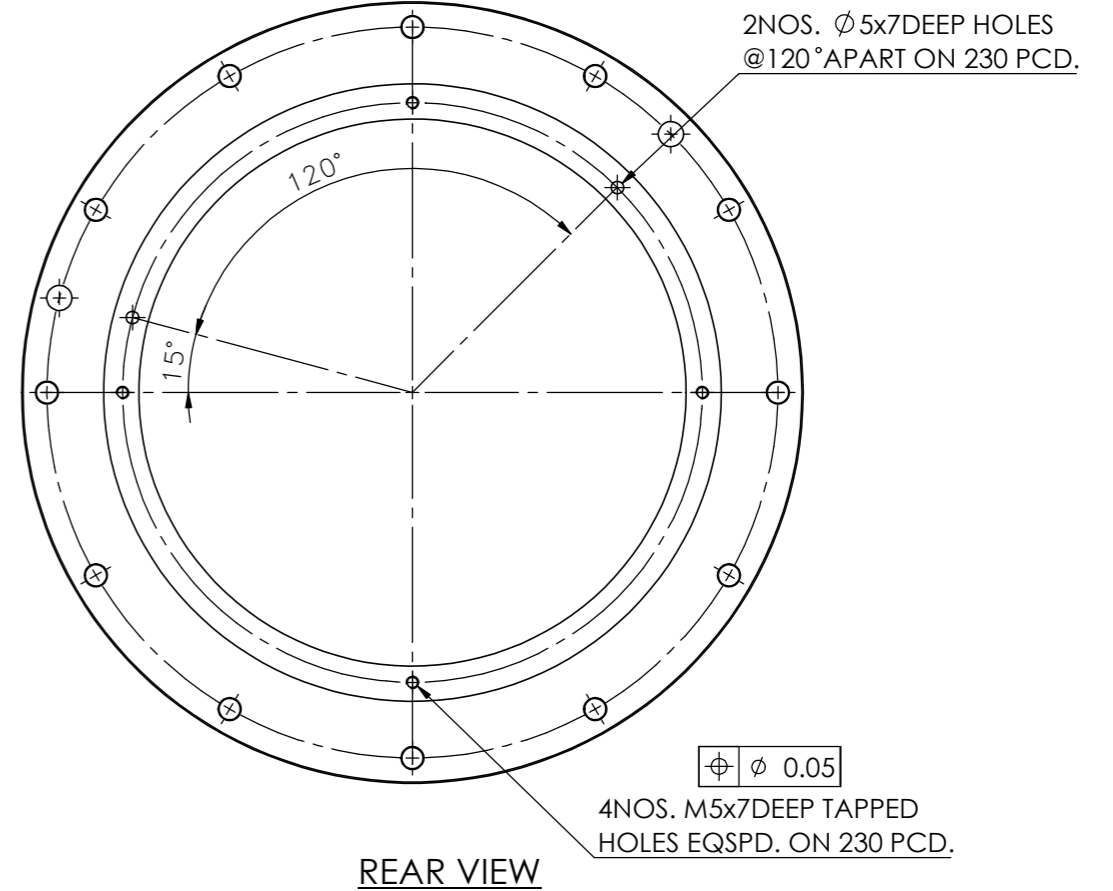
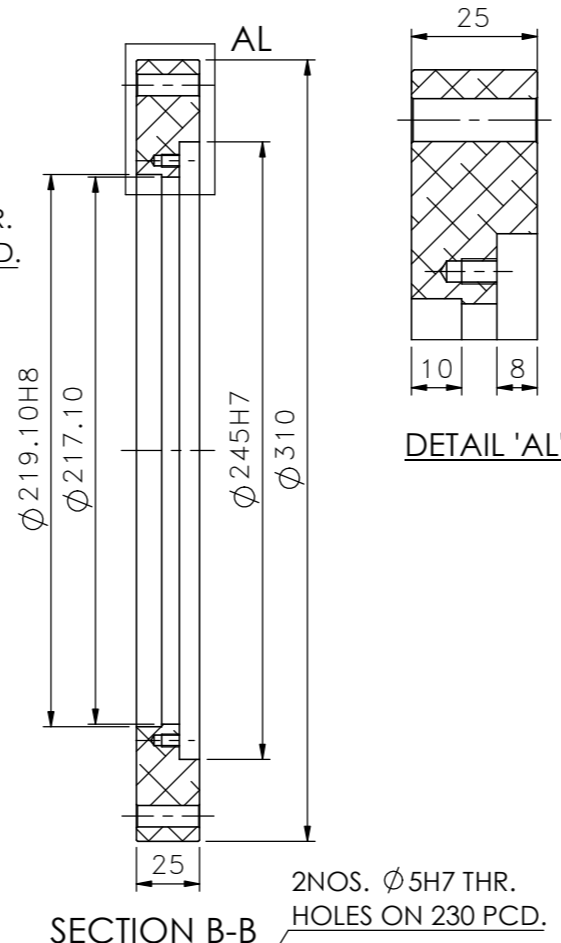
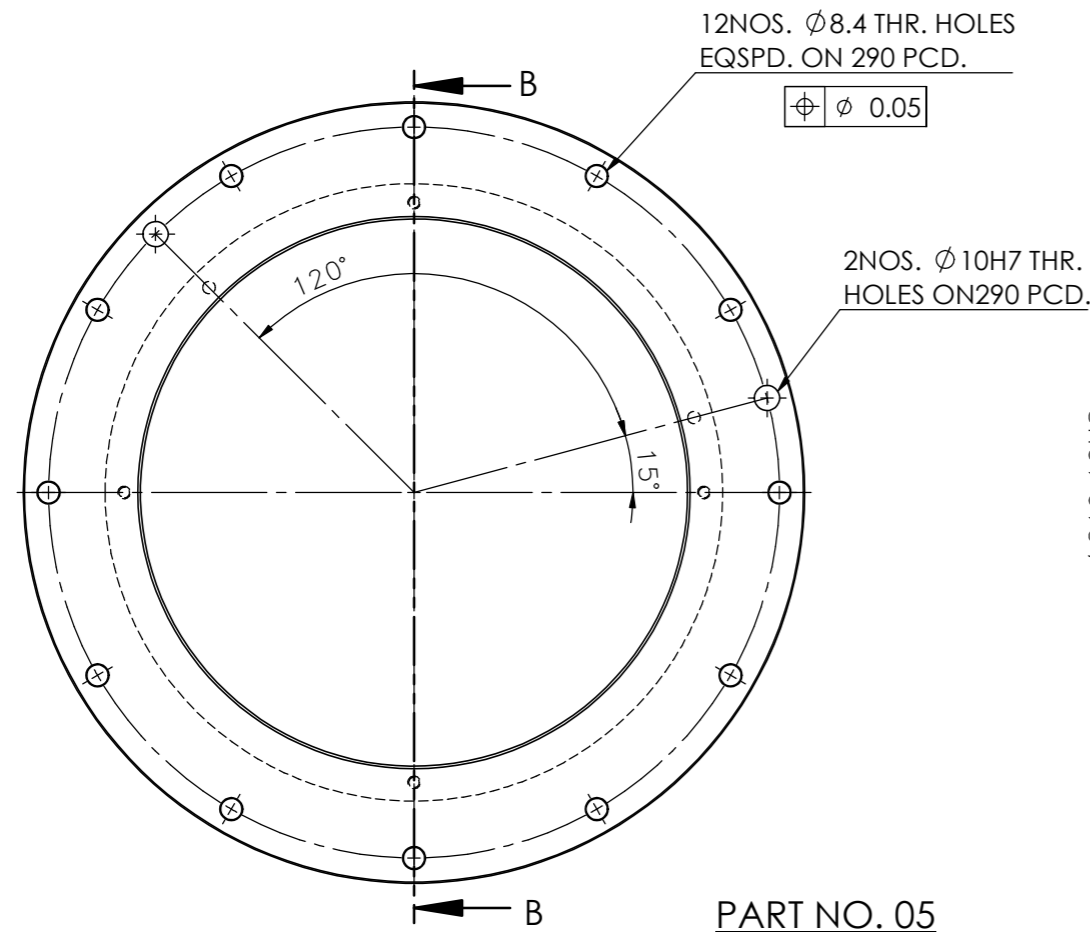
DETAIL 'AJ'

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ±0.1	1 - 6 ±0.1°	
6 - 30 ±0.2	6 - 30 ±0°-30'	CHAMFER 1x45°
30 - 120 ±0.3	30 - 120 ±0°-20'	
120 - 315 ±0.5	120 - 400 ±0°-10'	
315 - 1000 ±0.8		
1000 - 2000 ±1.2		
2000 - 4000 ±2.0		

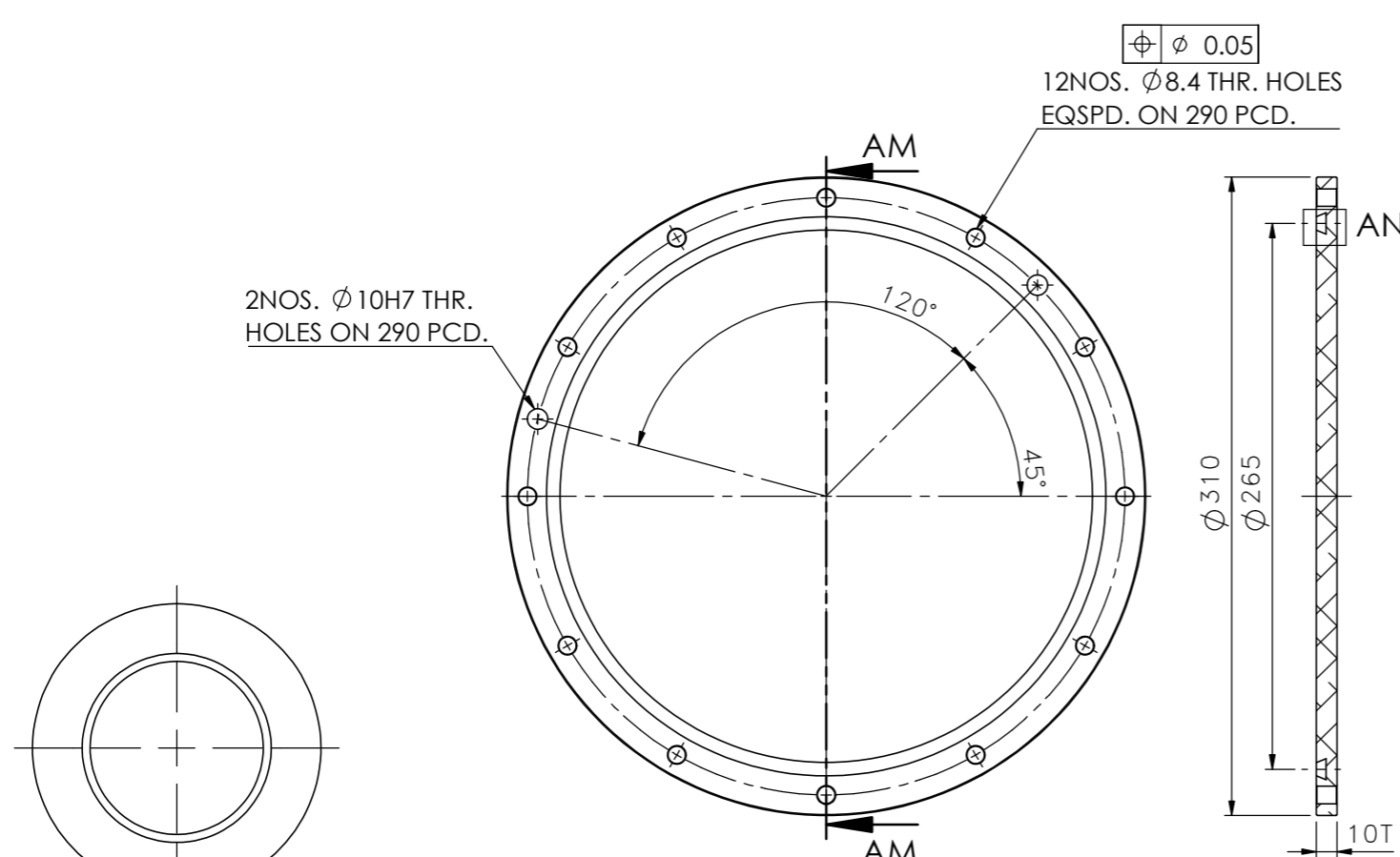
1. ALL DIMENSIONS ARE IN MILLIMETERS
2. REMOVE SHARP CORNERS AND BURRS

PROJECT/DIVISION/WO:					
NAME	SIGNATURE	DATE	TITLE: GUIDE HOUSING 1.0m		
DRAWN			PROJ.:		A3
CHK'D			DWG NO.:		REV. 2
CHK'D			D-2021-117C		
REVIEW			MATERIAL: SA6061AL		
APPV'D			WEIGHT:	SCALE: 1:4	SHEET 3 OF 5

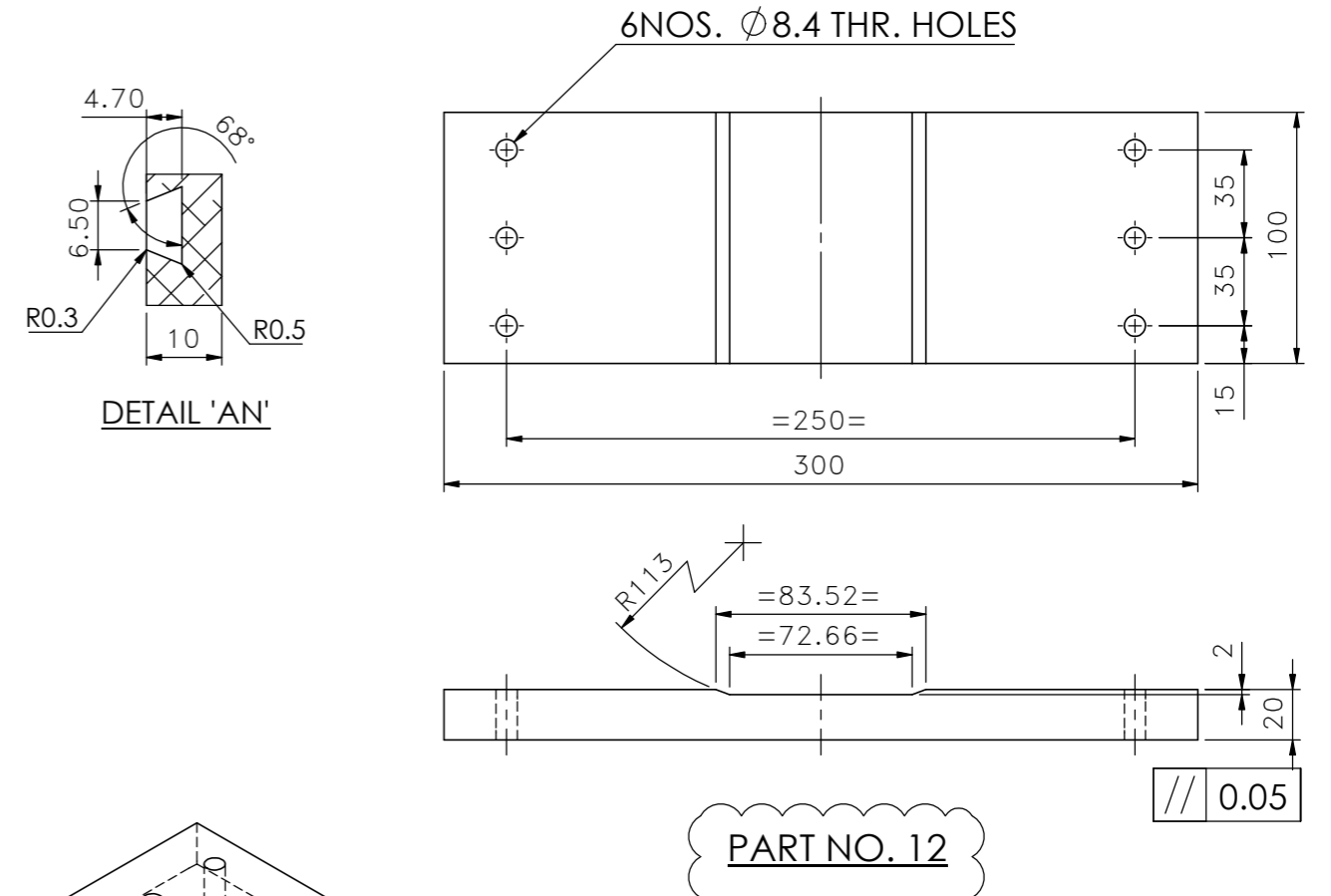


GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)							
LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH			
UPTO	6	± 0.1	1	-	6	$\pm 0.1^\circ$	
6	-	30	± 0.2	6	-	30	$\pm 0^\circ - 30'$
30	-	120	± 0.3	30	-	120	$\pm 0^\circ - 20'$
120	-	315	± 0.5	120	-	400	$\pm 0^\circ - 10'$
315	-	1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS			
1000	-	2000	± 1.2	2. REMOVE SHARP CORNERS AND BURRS			
2000	-	4000	± 2.0				

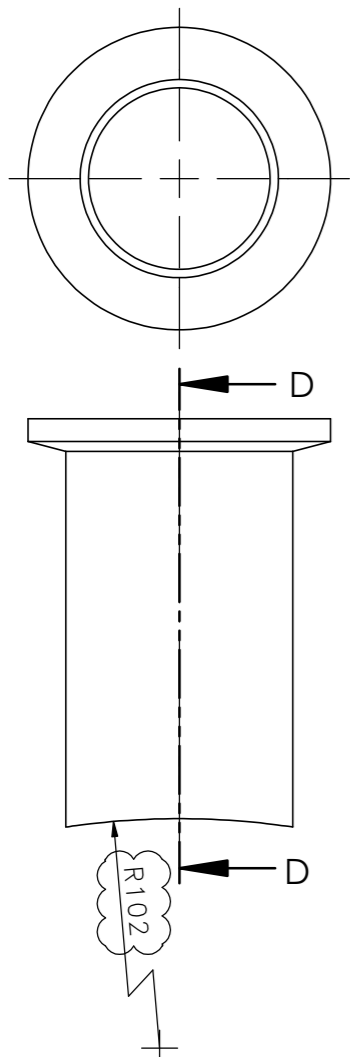
PROJECT/DIVISION/WO:					
NAME	SIGNATURE	DATE	TITLE:		
			GUIDE HOUSING 1.0m		
DRAWN			PROJ.:	DWG NO.:	A3
CHK'D				D-2021-117D	REV. 2
CHK'D					
REVIEW			MATERIAL: SA6061AL	WEIGHT:	SCALE: 1:4
APP'VD					SHEET 4 OF 5



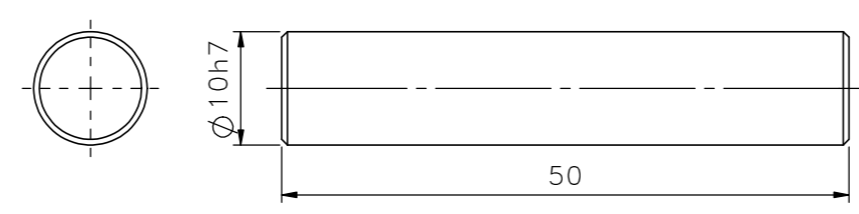
PART NO. 06



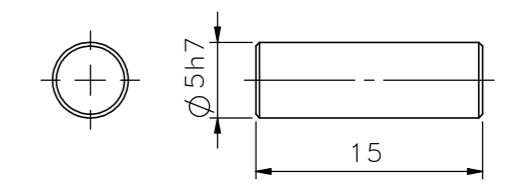
PART NO. 12



PART NO. 13



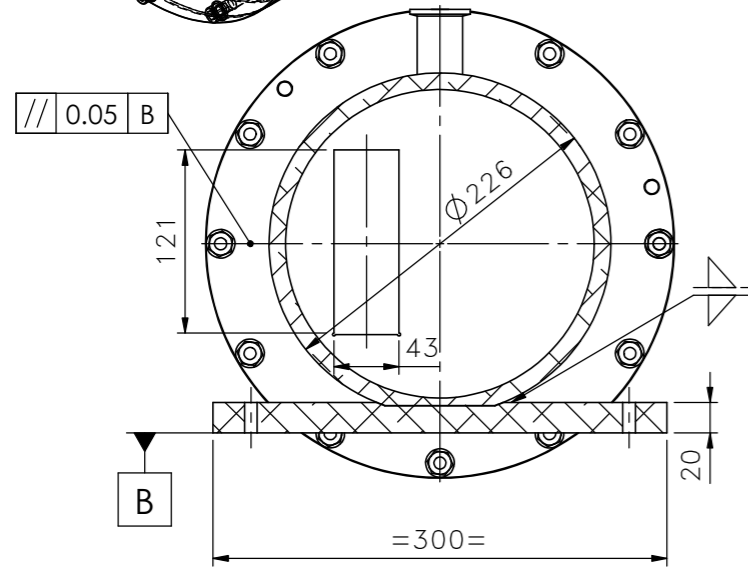
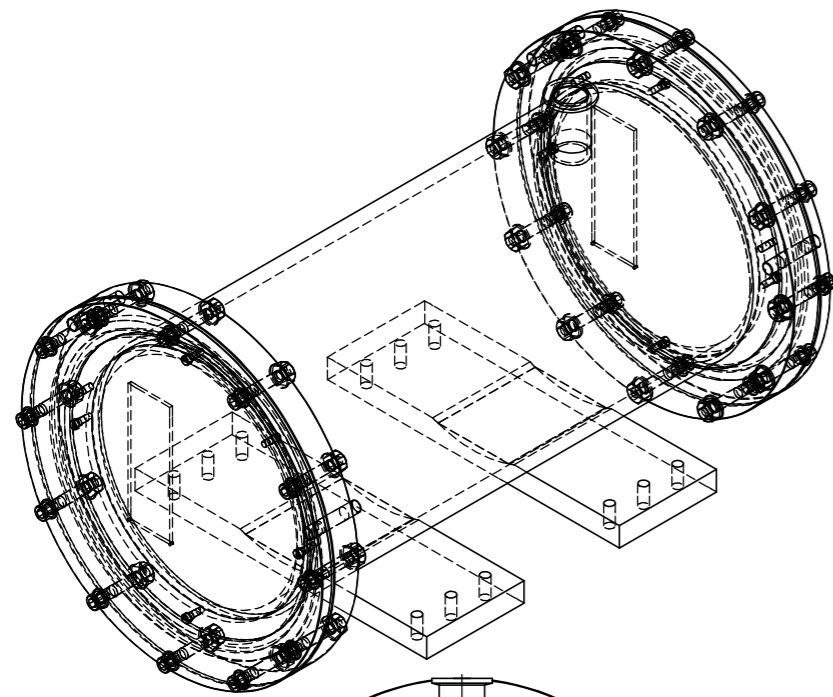
PART NO. 11



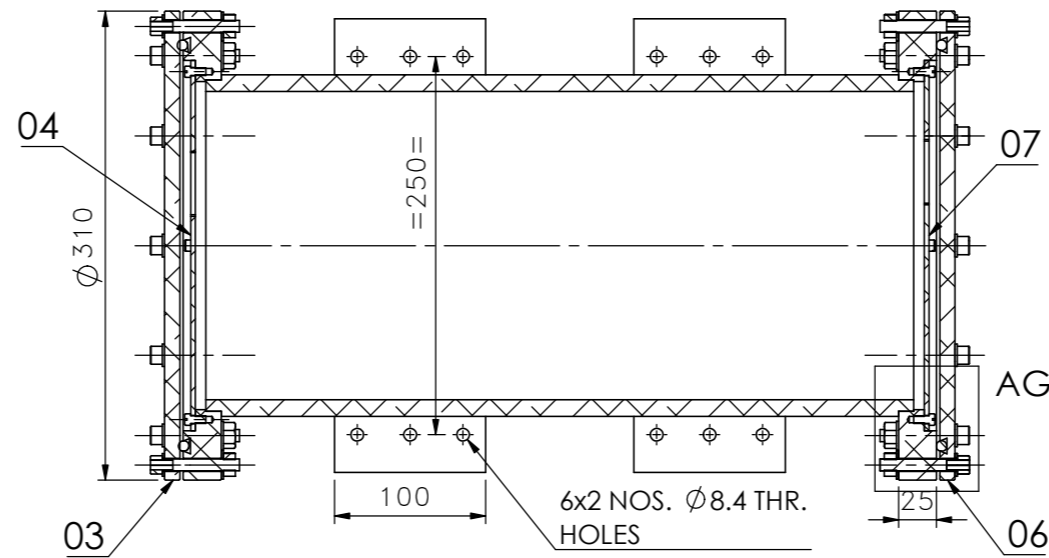
PART NO. 14

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1	1 - 6	$\pm 0.1^\circ$	
6	- 30	± 0.2	6 - 30	$\pm 0^\circ - 30'$	CHAMFER 1x45°
30	- 120	± 0.3	30 - 120	$\pm 0^\circ - 20'$	
120	- 315	± 0.5	120 - 400	$\pm 0^\circ - 10'$	
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS		
1000	- 2000	± 1.2	2. REMOVE SHARP CORNERS AND BURRS		
2000	- 4000	± 2.0			

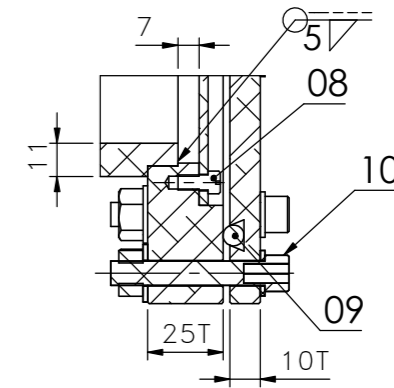
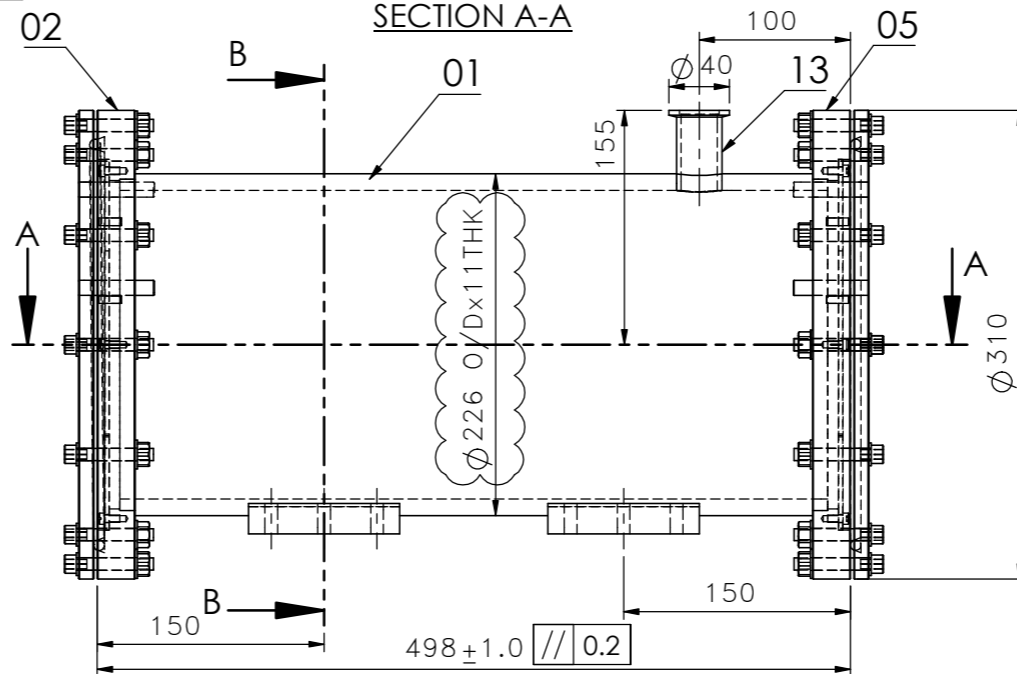
PROJECT/DIVISION/NO:				TITLE:	
				GUIDE HOUSING 1.0m	
DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:
CHK'D					A3
CHK'D					D-2021-117E
REVIEW				MATERIAL: SA6061AL	WEIGHT:
APPV'D				SCALE:1:2	SHEET 5 OF 5



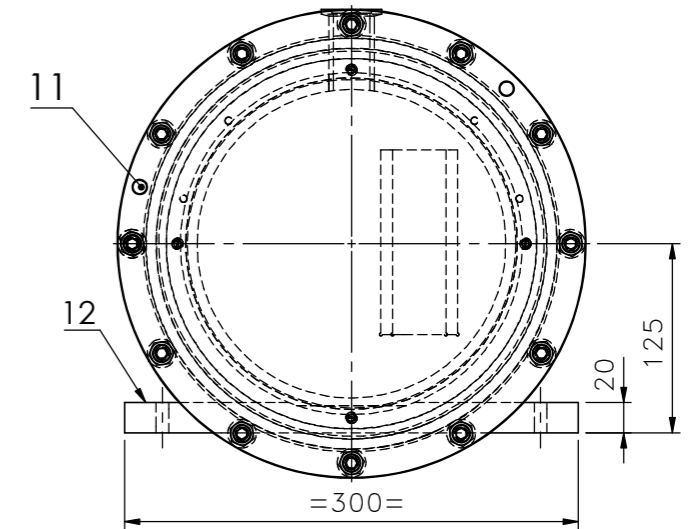
SECTION B-B



SECTION A-A



DETAIL 'AG'



R.H. SIDE VIEW

S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS
15					
14	GUIDE PIN FOR GUIDE PLATE	Ø5x15 LG	S.S. 304	04	
13	KF. COUPLING	ISO KF25	SA 6061 AL.	01	
12	BASE PLATE	100 x 300 x 20THK	SA 6061 AL.	02	
11	GUIDE PIN	Ø10x 50LG.	S.S. 304	04	
10	HEX.SOC.HD.BOLT+NUT+W.	M8x70 LG	S.S. 304	24SETS	
09	'O' RING	Ø258 I/Dx6.99 C/S	VITON	02	

08	CHEESE HD. SCREW	M5 x 15LG.	S.S. 304	08SETS	
07	R.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
06	R.H. END COVER	Ø310x10THK	SA6061 AL.	01	WITH GROOVE
05	R.H. END FLANGE	Ø310x25THK	SA6061 AL.	01	WITHOUT GROOVE
04	L.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
03	L.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITHOUT GROOVE
02	L.H. END FLANGE	Ø310 x 25 THK	SA 6061 AL.	01	WITH GROOVE
01	PIPE	Ø226 x 11Tx 468LG.	SA 6061 AL.	01	

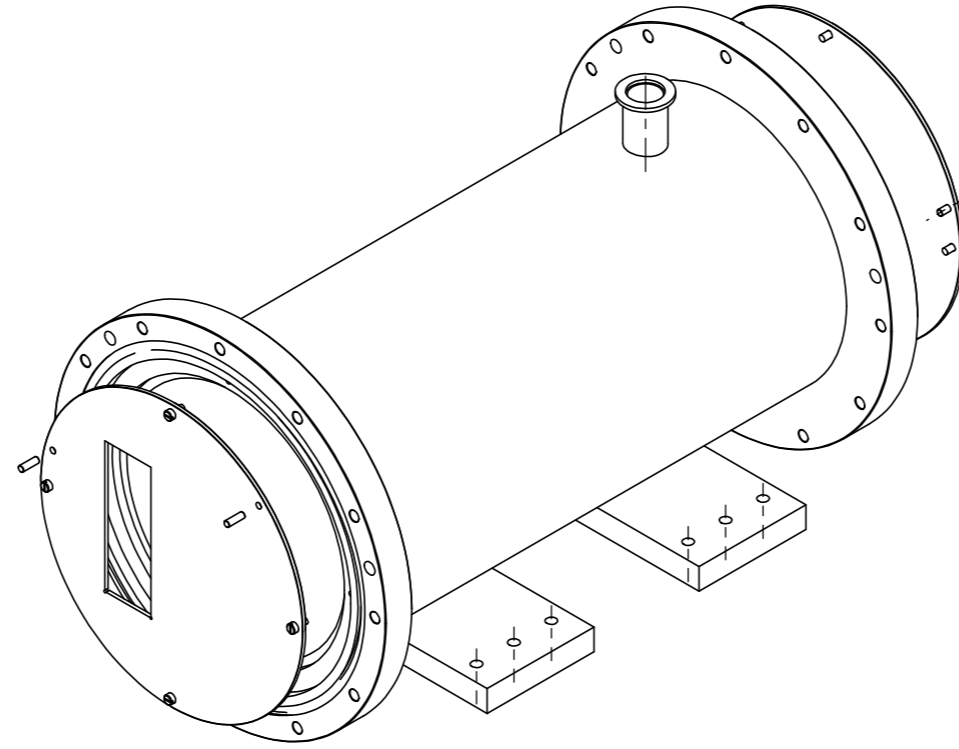
BILL OF MATERIAL

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

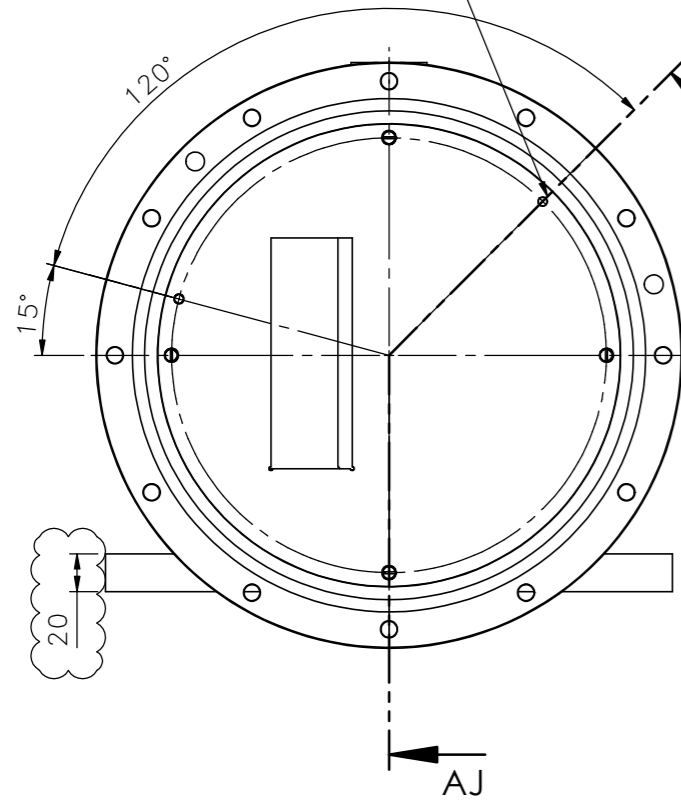
LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ±0.1	1 - 6 ±0.1°	
6 - 30 ±0.2	6 - 30 ±0°-30'	CHAMFER 1x45°
30 - 120 ±0.3	30 - 120 ±0°-20'	
120 - 315 ±0.5	120 - 400 ±0°-10'	
315 - 1000 ±0.8		
1000 - 2000 ±1.2		
2000 - 4000 ±2.0		

1. ALL DIMENSIONS ARE IN MILIMETERS
2. REMOVE SHARP CORNERS AND BURRS

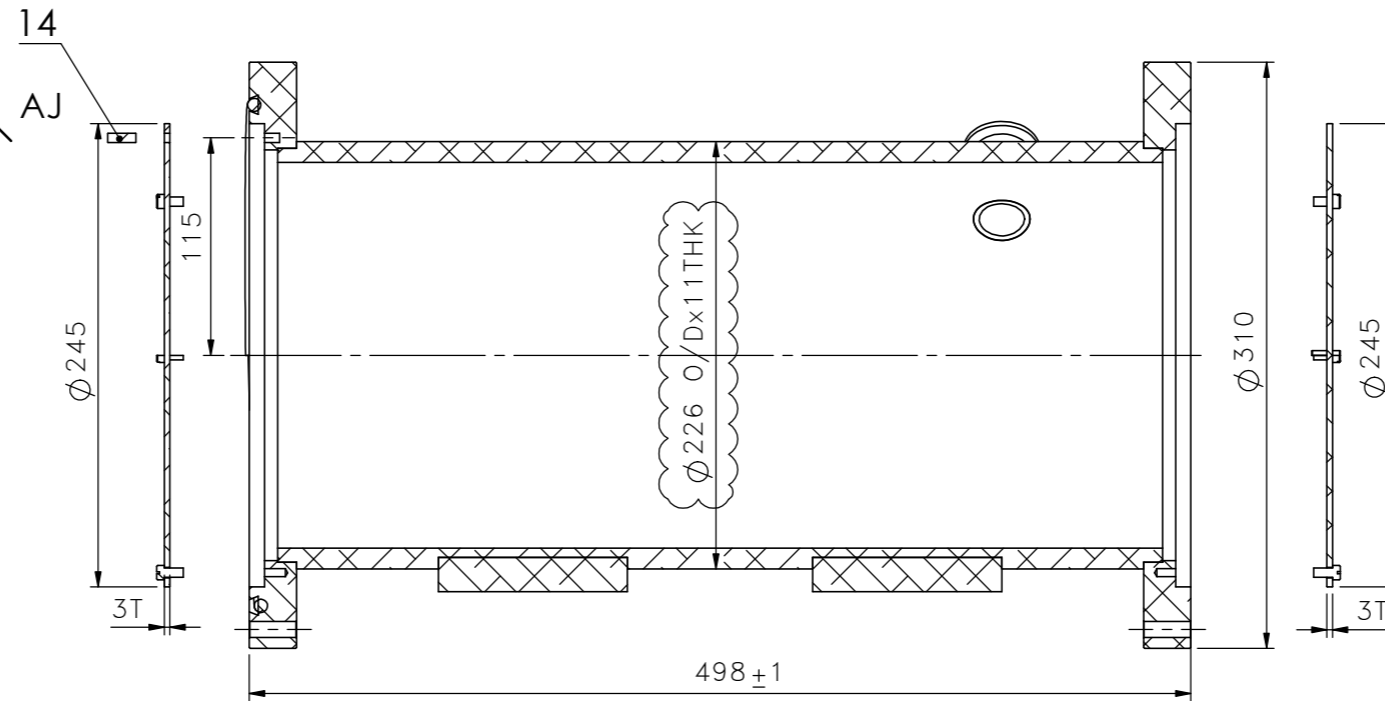
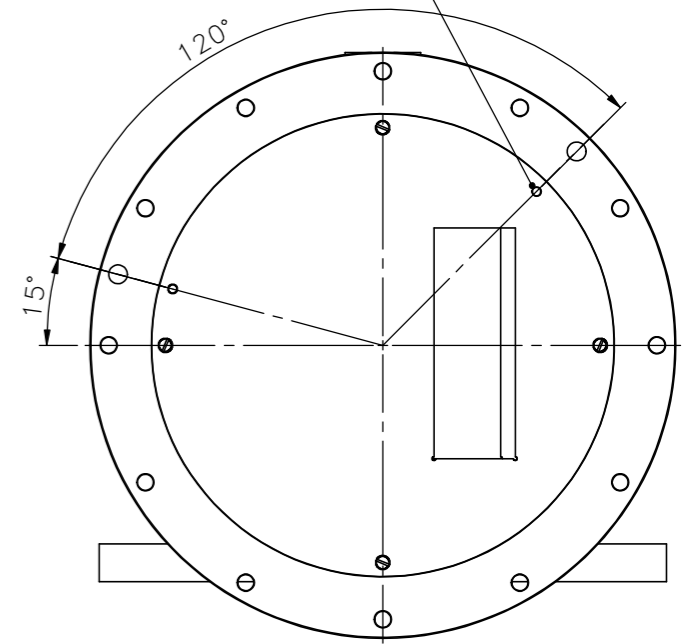
PROJECT/DIVISION/WO:				TITLE:	
NAME	SIGNATURE	DATE	<p style="text-align: center;">GUIDE HOUSING 0.5m (TYPE-II)</p>		
DRAWN					
CHK'D					
CHK'D					
REVIEW					
APPV'D			PROJ.:	DWG NO.:	A3
			MATERIAL: SA6061AL	WEIGHT:	SCALE:1:4
					SHEET 1 OF 5



14
2NOS. Ø5 GUIDE PIN
@120° APART ON 230PCD



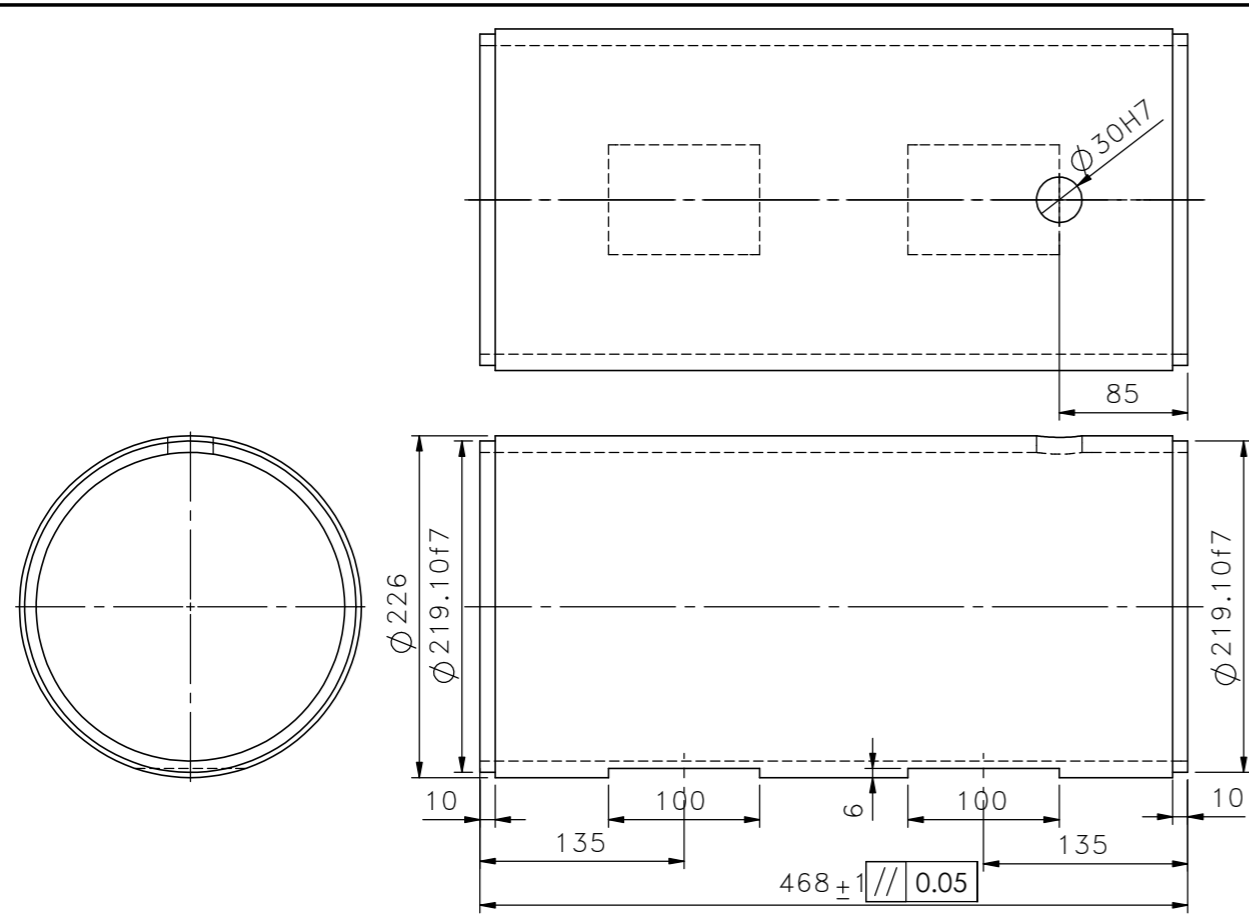
14
2NOS. Ø5 GUIDE PIN
@120° APART ON 230 PCD.



SECTION AJ-AJ

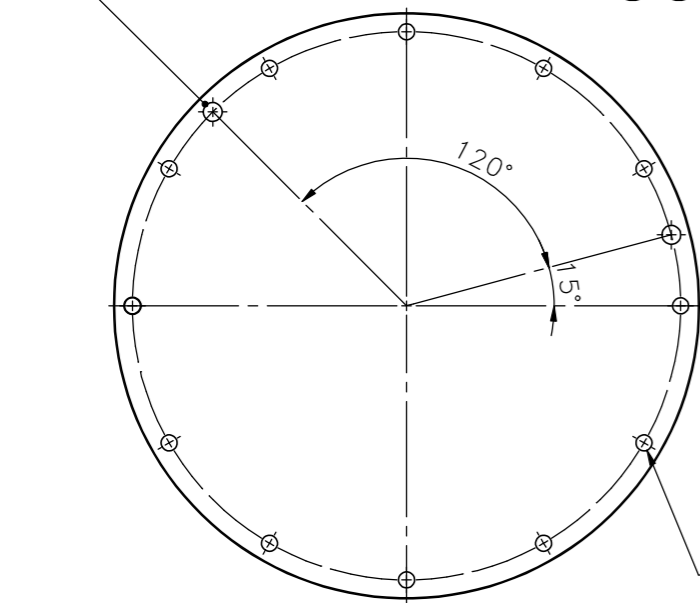
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)								
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH			
UPTO	6	±0.1	1	6	±0.1°			
6	-	30	±0.2	6	-	30	±0°-30'	CHAMFER 1x45°
30	-	120	±0.3	30	-	120	±0°-20'	
120	-	315	±0.5	120	-	400	±0°-10'	
315	-	1000	±0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS				
1000	-	2000	±1.2					
2000	-	4000	±2.0					

PROJECT/DIVISION/NO:				TITLE:		
				GUIDE HOUSING 0.5m (TYPE-II)		
DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:	A3
CHK'D					D-2021-122B	REV. 1
CHK'D						
REVIEW				MATERIAL: SA6061AL	WEIGHT:	SCALE:1:4
APPV'D						SHEET 2 OF 5



PART NO. 01

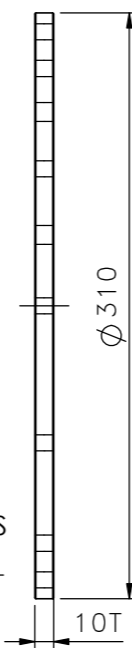
2NOS. ϕ 10H7 THR. HOLES ON 290 PCD FOR GUIDE PIN



PART NO. 03

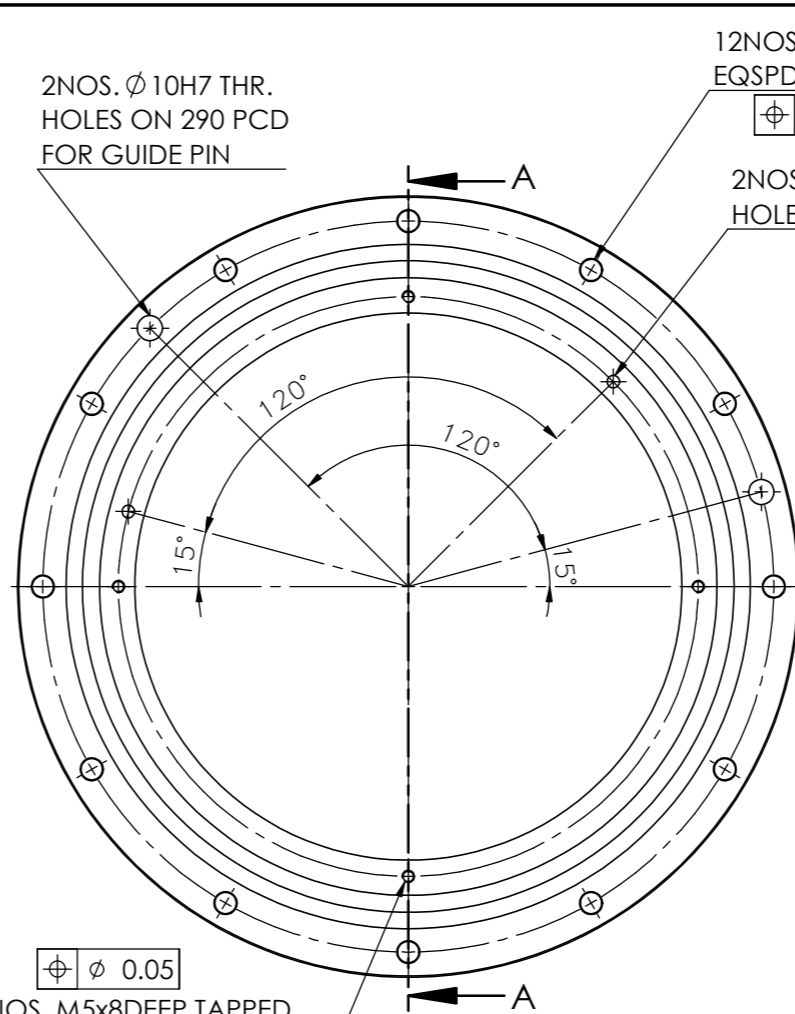
12NOS. ϕ 8.5 THR. HOLES EQSPD. ON 290 PCD.

ϕ 0.05



4NOS. M5x8 DEEP TAPPED HOLES EQSPD. ON 230 PCD.

ϕ 0.05

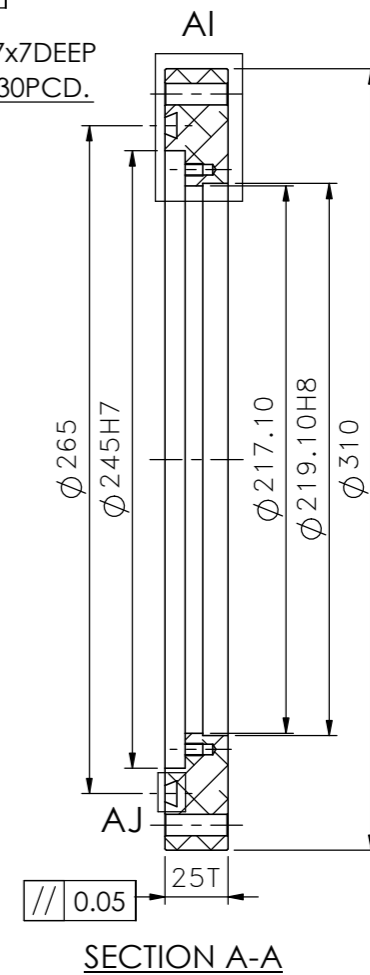


PART NO. 02

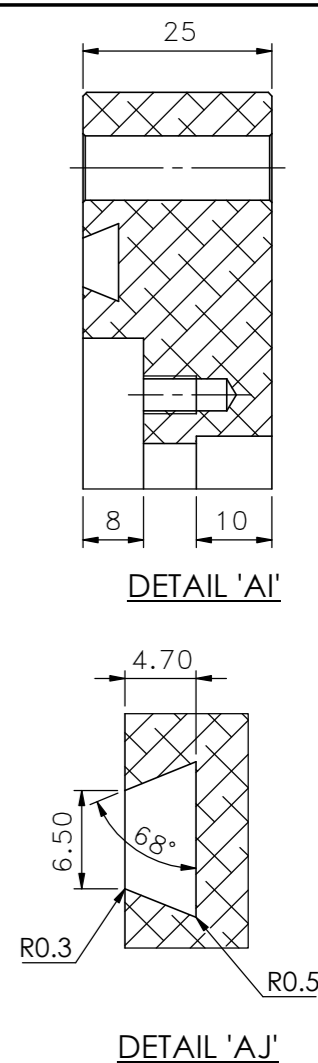
12NOS. ϕ 8.5 THR. HOLES EQSPD. ON 290 PCD.

ϕ 0.05

2NOS. ϕ 5H7x7 DEEP HOLES ON 230PCD.



SECTION A-A

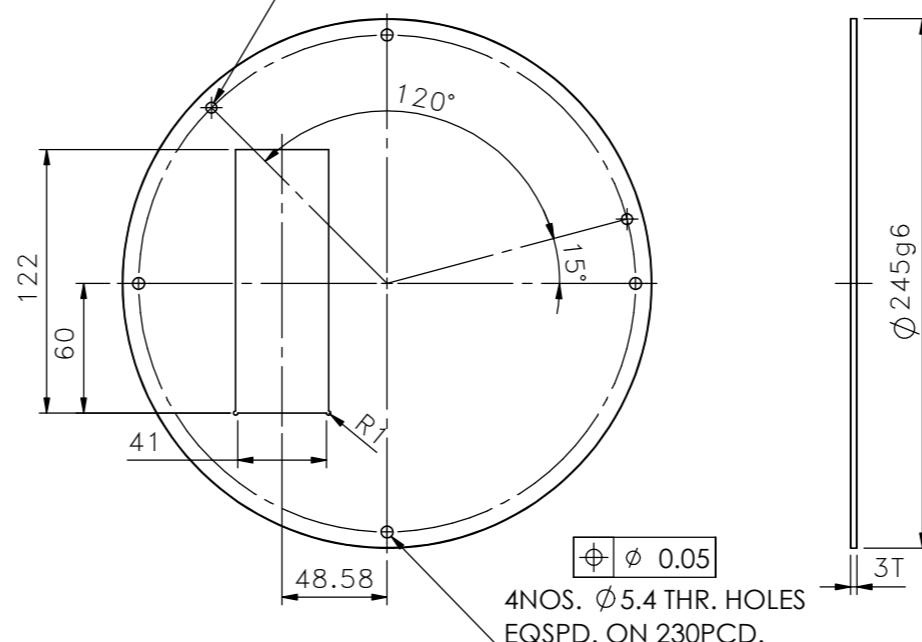
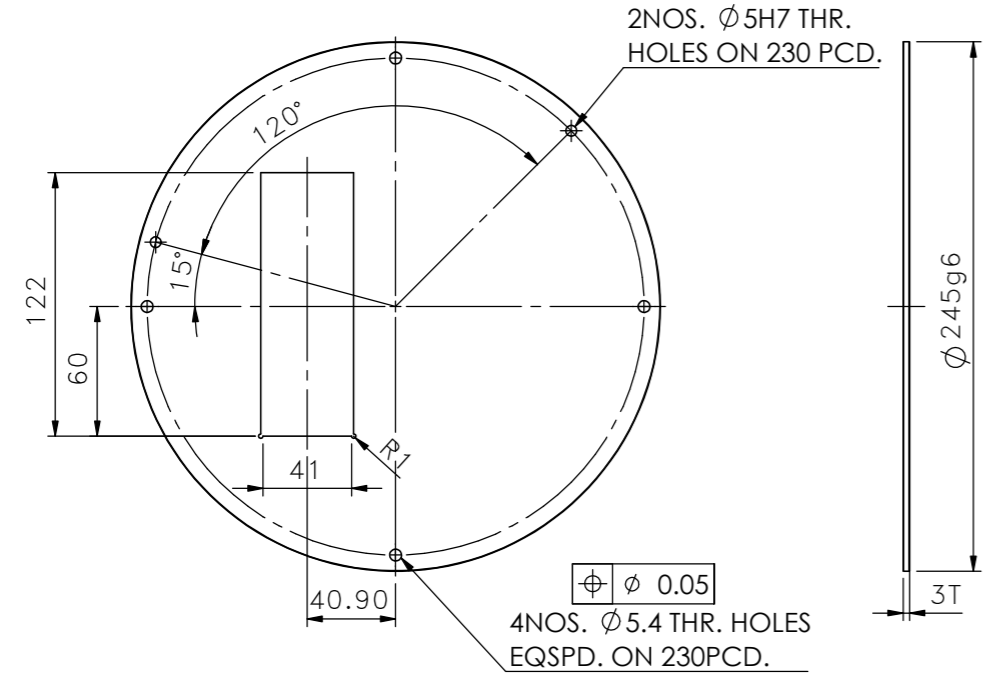
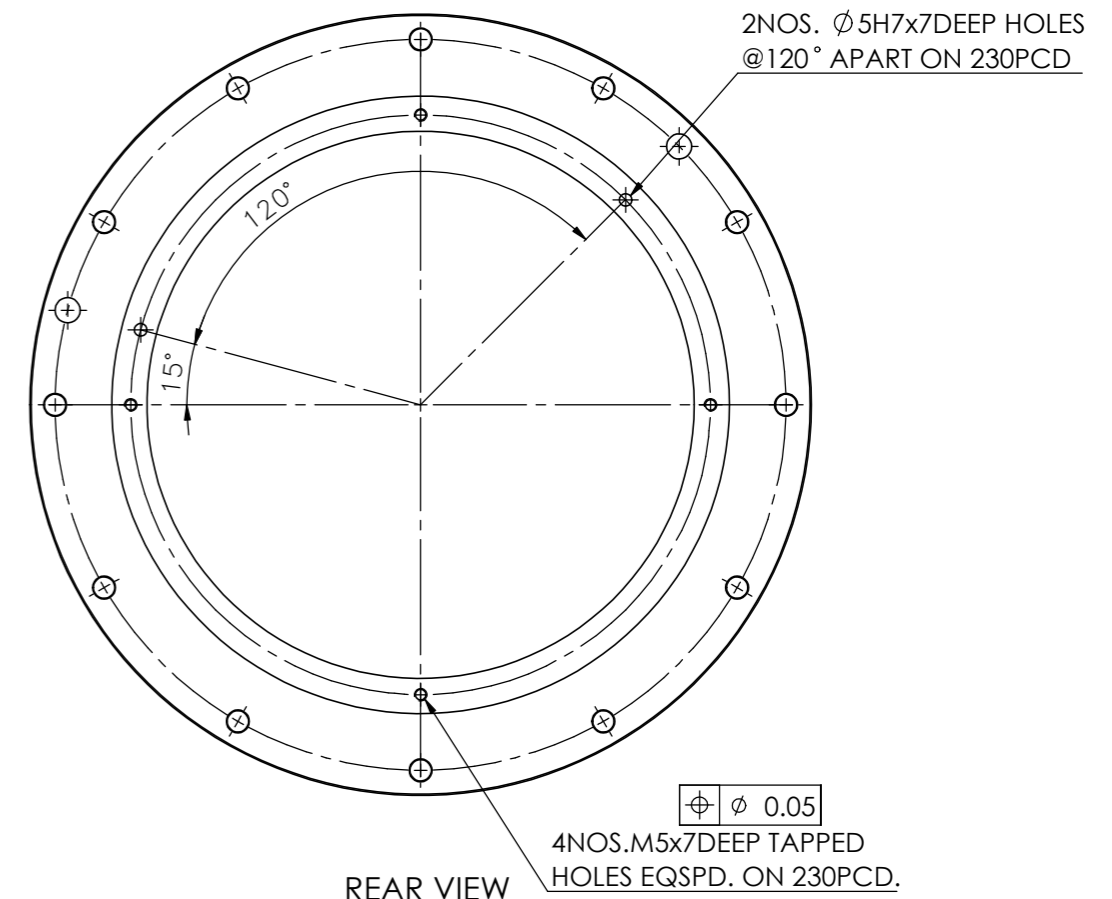
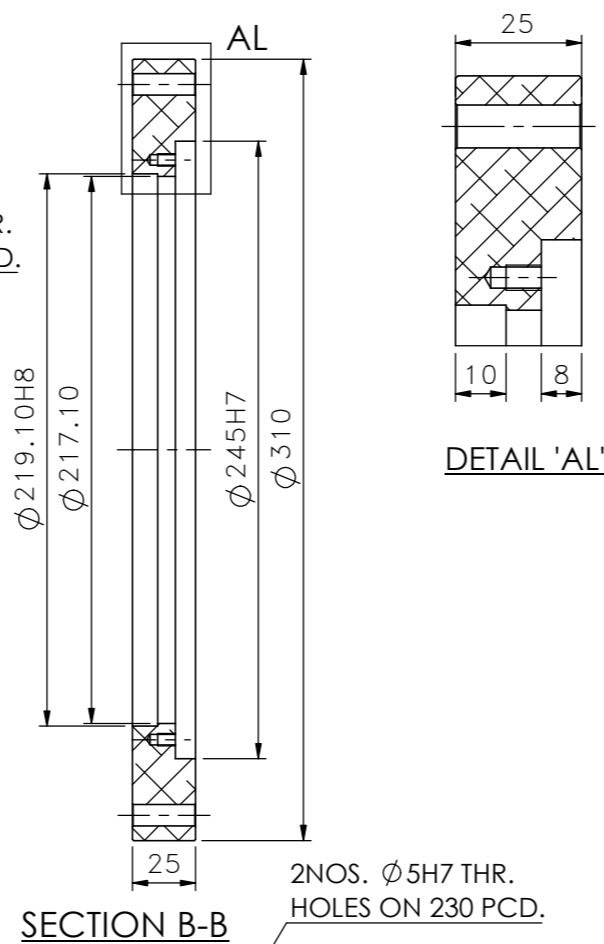
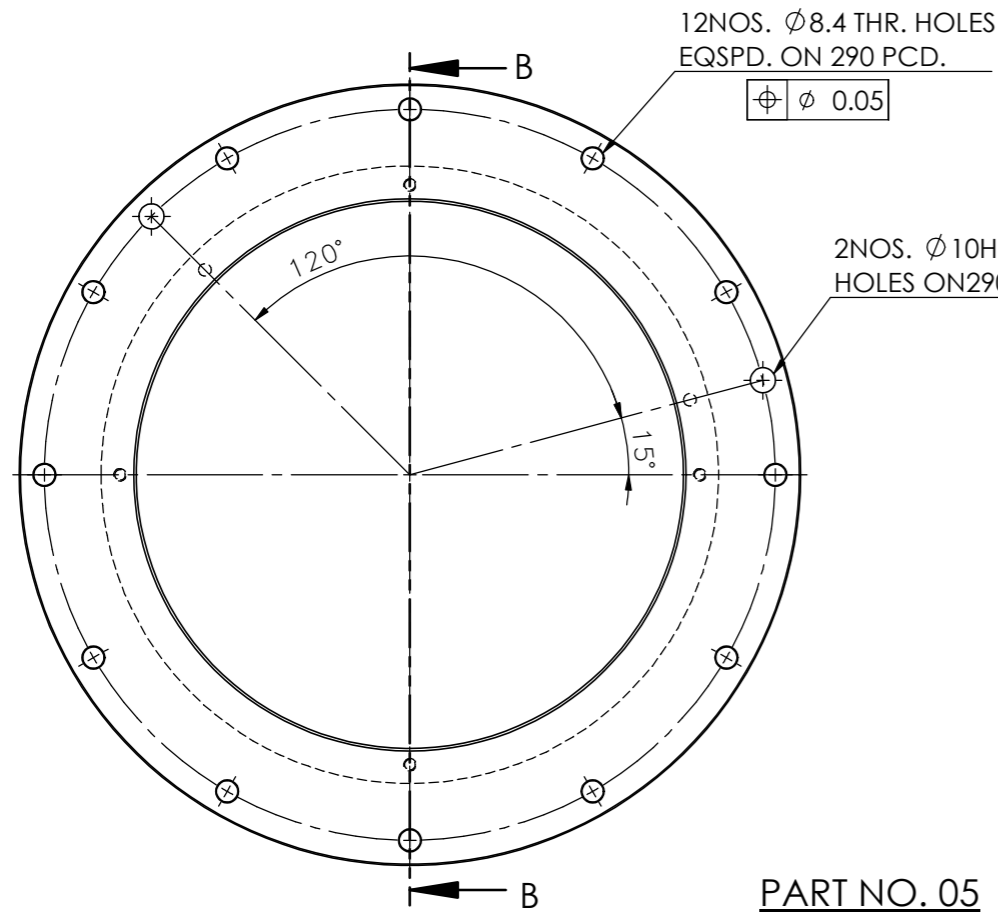


DETAIL 'AI'

DETAIL 'AJ'

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1	1 - 6	$\pm 0.1^\circ$	
6	- 30	± 0.2	6 - 30	$\pm 0^\circ - 30'$	CHAMFER 1x45°
30	- 120	± 0.3	30 - 120	$\pm 0^\circ - 20'$	
120	- 315	± 0.5	120 - 400	$\pm 0^\circ - 10'$	
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS		
1000	- 2000	± 1.2	2. REMOVE SHARP CORNERS AND BURRS		
2000	- 4000	± 2.0			

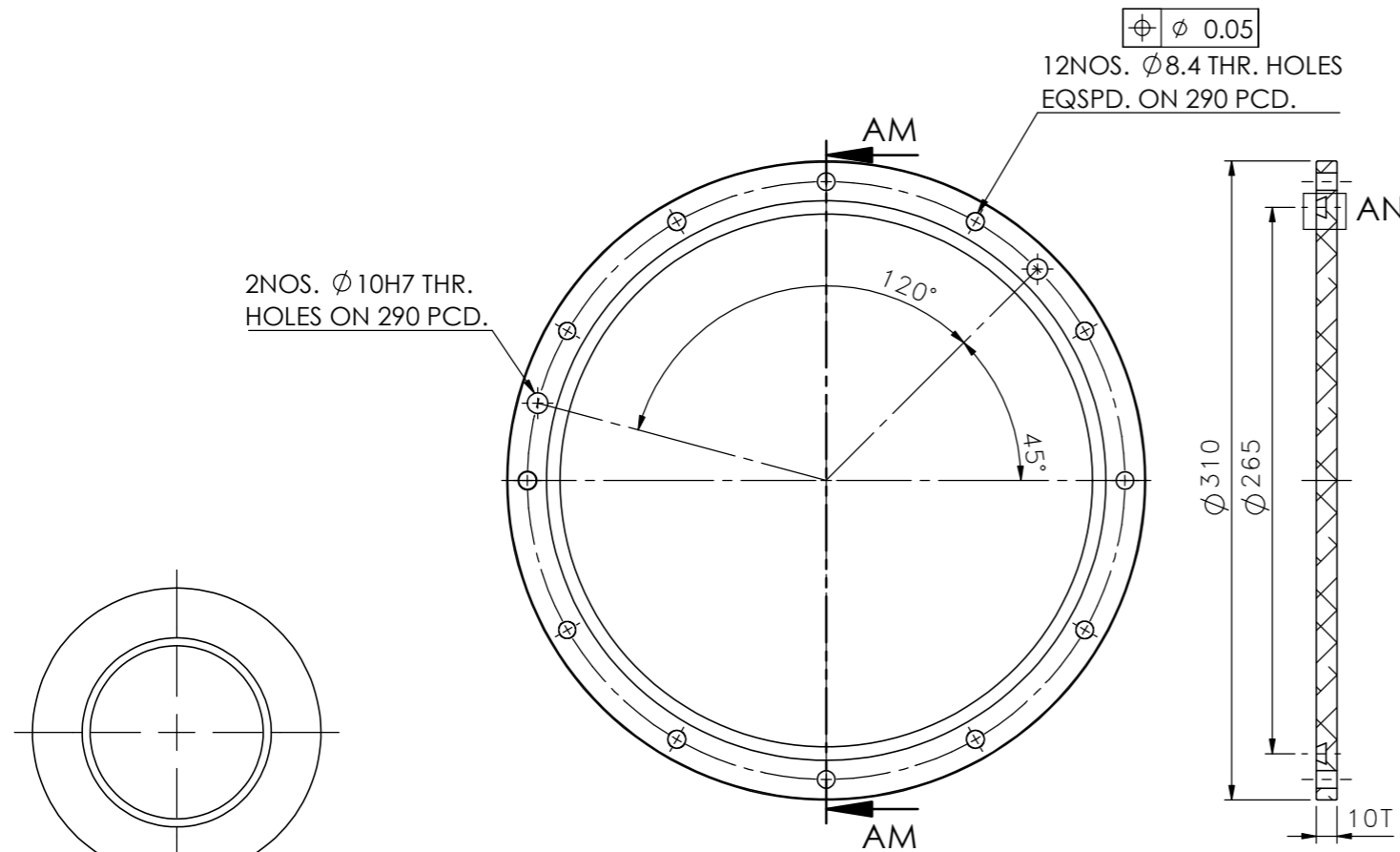
PROJECT/DIVISION/WO:						
NAME	SIGNATURE	DATE	TITLE: GUIDE HOUSING 0.5m (TYPE-II)			
DRAWN			PROJ.:		DWG NO.:	A3
CHK'D					D-2021-122C	REV. 1
CHK'D			MATERIAL: SA6061AL		WEIGHT:	SCALE: 1:4
REVIEW						SHEET 3 OF 5
APPV'D						



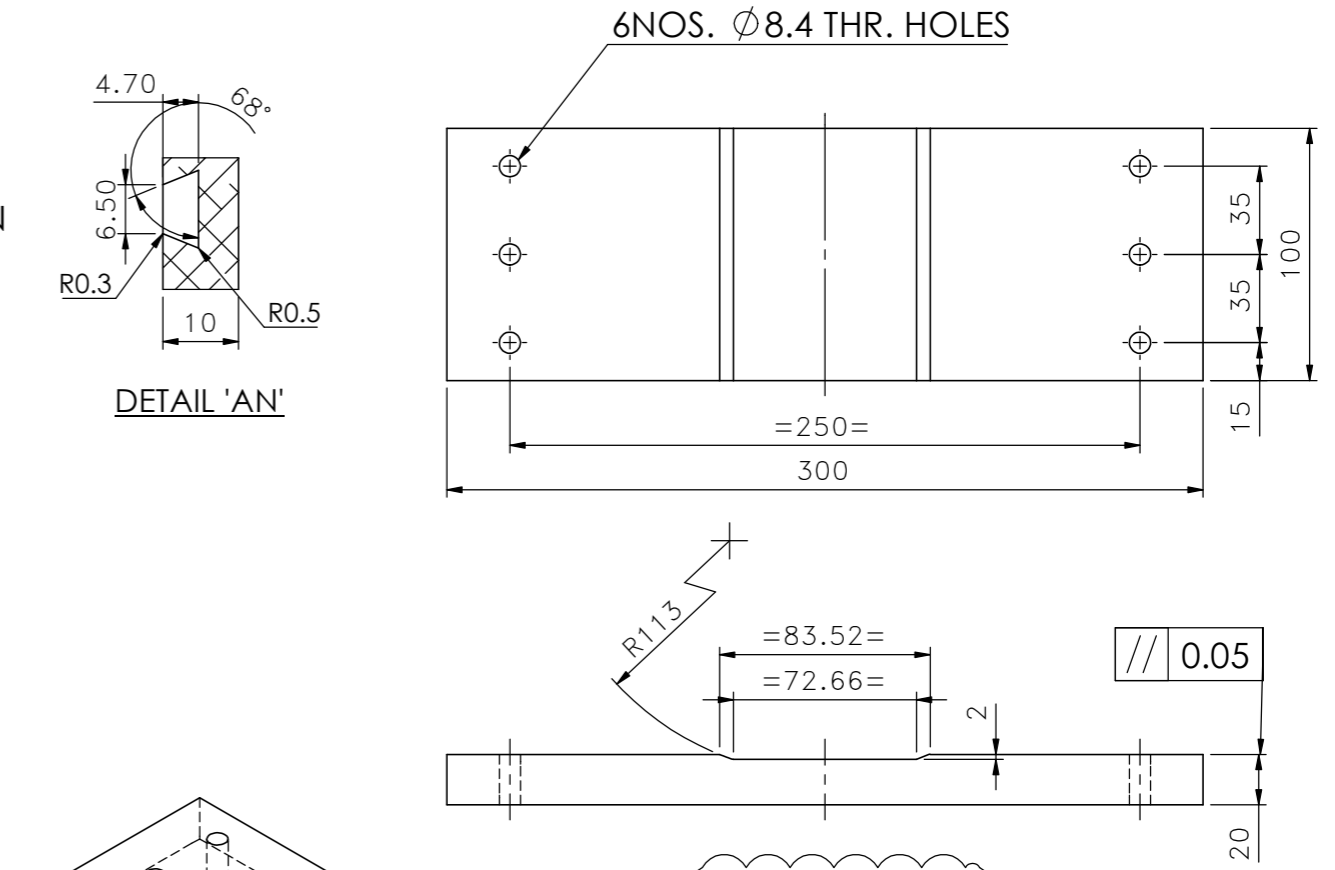
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ± 0.1	1 - 6 $\pm 0.1^\circ$	CHAMFER 1x45°
6 - 30 ± 0.2	6 - 30 $\pm 0^\circ - 30'$	
30 - 120 ± 0.3	30 - 120 $\pm 0^\circ - 20'$	
120 - 315 ± 0.5	120 - 400 $\pm 0^\circ - 10'$	
315 - 1000 ± 0.8		
1000 - 2000 ± 1.2	1. ALL DIMENSIONS ARE IN MILLIMETERS	
2000 - 4000 ± 2.0	2. REMOVE SHARP CORNERS AND BURRS	

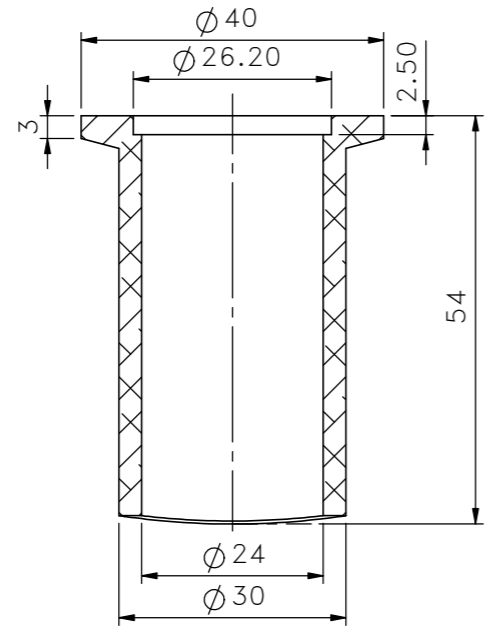
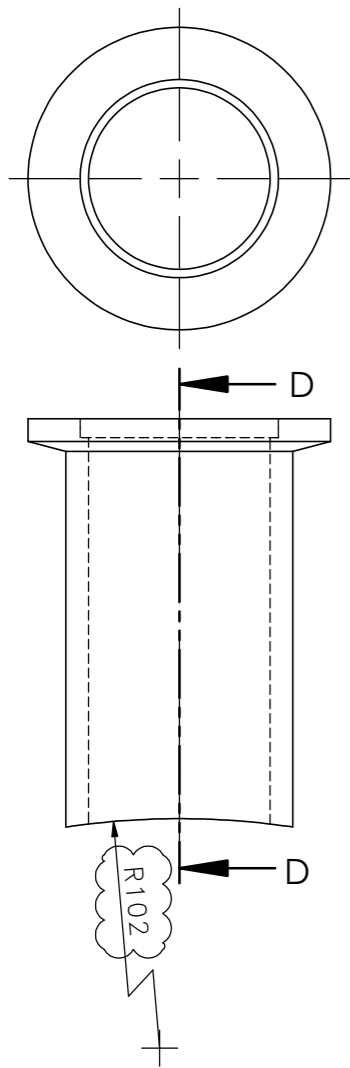
PROJECT/DIVISION/WO:				TITLE:	
NAME	SIGNATURE	DATE	GUIDE HOUSING 0.5m (TYPE-II)		
DRAWN			PROJ.:	DWG NO.:	A3
CHK'D				D-2021-122D	REV. 1
CHK'D					
REVIEW			MATERIAL: SA6061AL	WEIGHT:	SCALE: 1:4
APP'VD					SHEET 4 OF 5



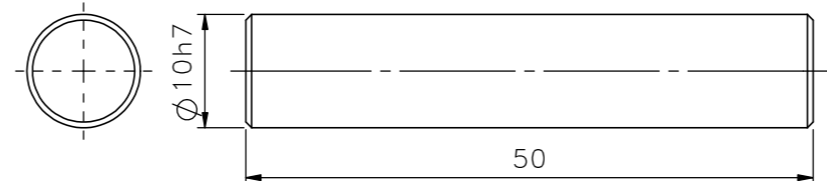
PART NO. 06



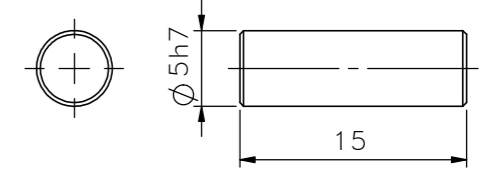
PART NO. 12



PART NO. 13

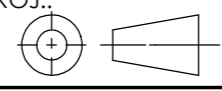


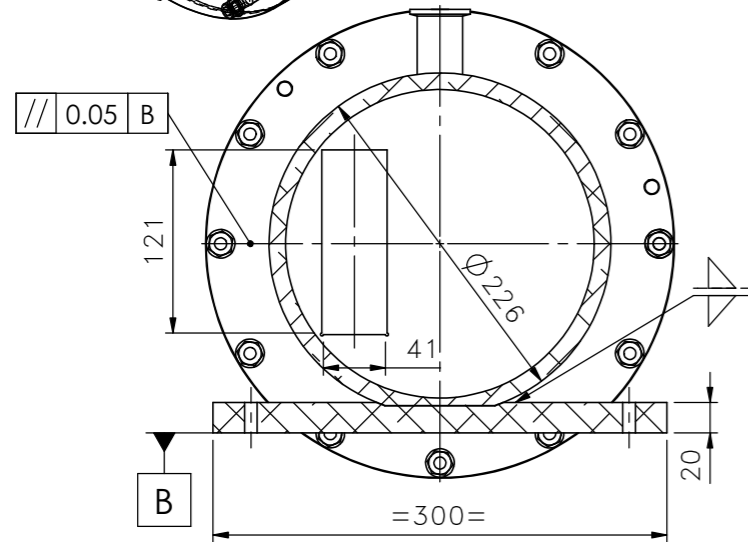
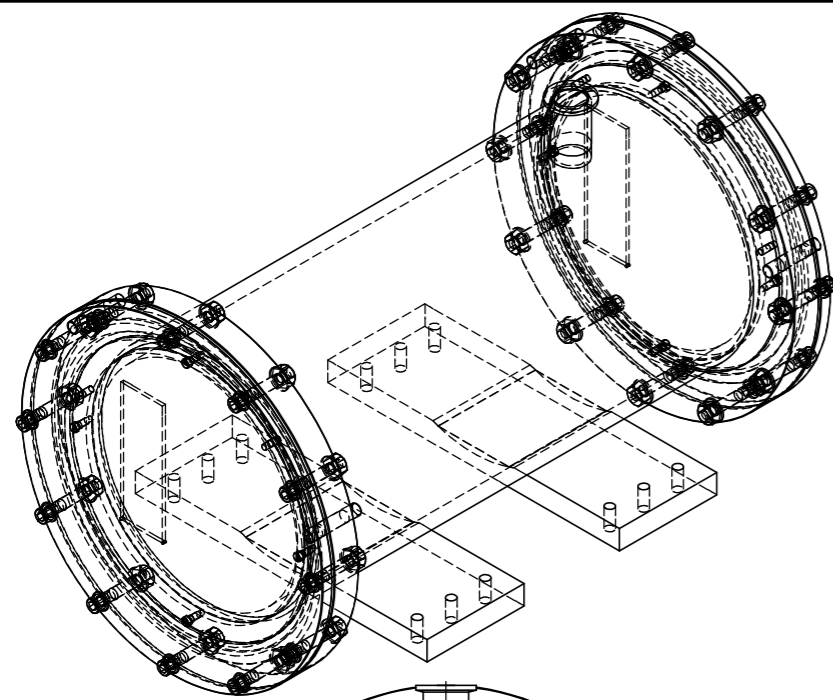
PART NO. 11



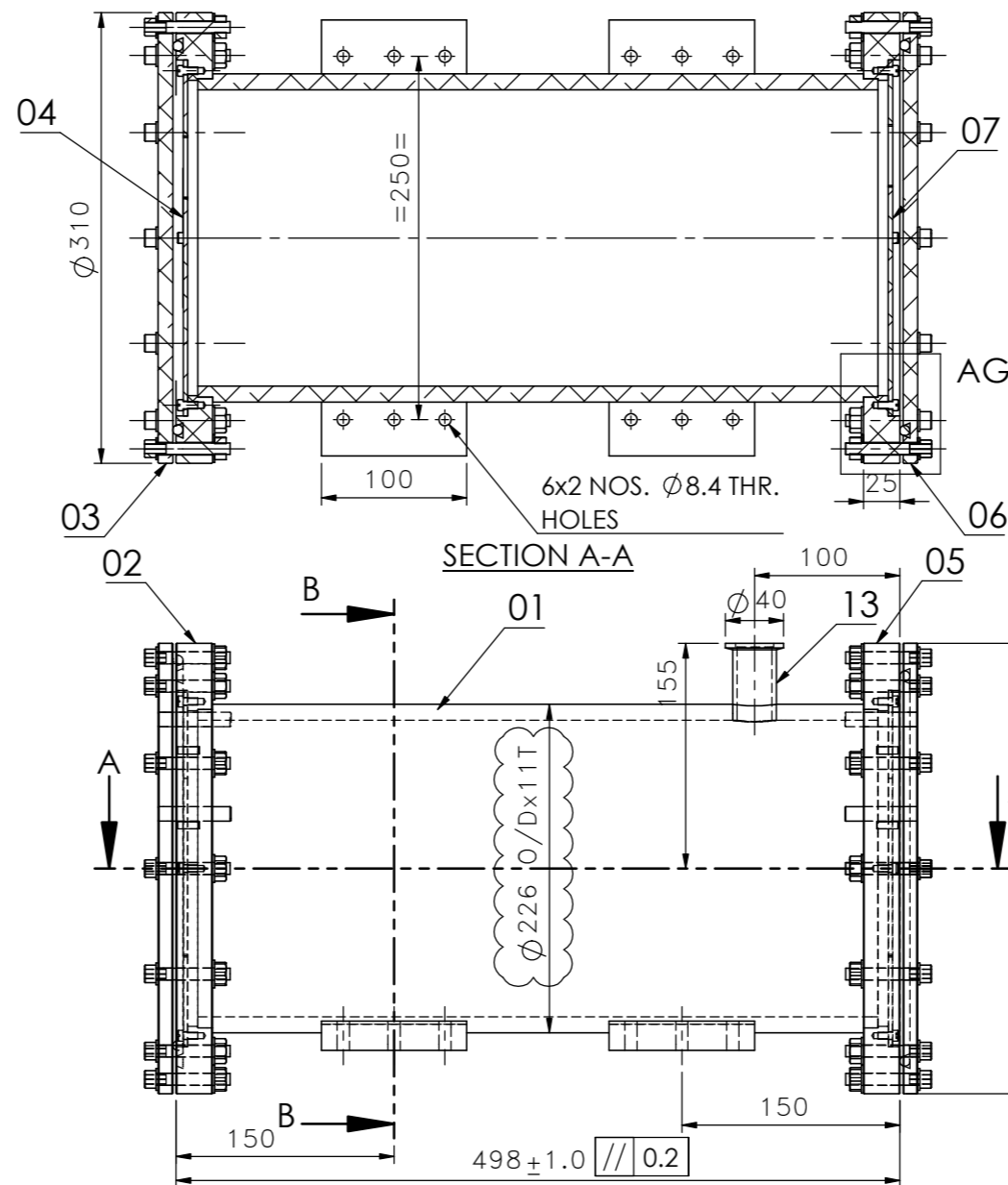
PART NO. 14

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1	1 - 6	$\pm 0.1^\circ$	CHAMFER 1x45°
6	- 30	± 0.2	6 - 30	$\pm 0^\circ-30'$	
30	- 120	± 0.3	30 - 120	$\pm 0^\circ-20'$	
120	- 315	± 0.5	120 - 400	$\pm 0^\circ-10'$	
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	± 1.2			
2000	- 4000	± 2.0			

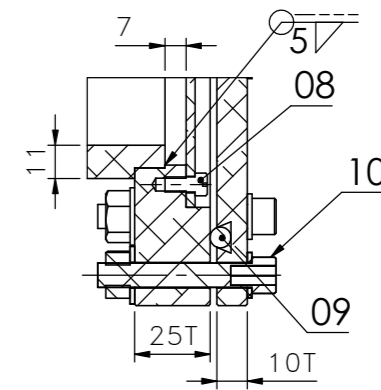
PROJECT/DIVISION/NO:				TITLE: GUIDE HOUSING 0.5m (TYPE-II)		
DRAWN	NAME	SIGNATURE	DATE			
CHK'D				PROJ.:	DWG NO.:	A3
CHK'D					D-2021-122E	REV. 1
REVIEW						MATERIAL: SA6061AL
APPV'D						SHEET 5 OF 5



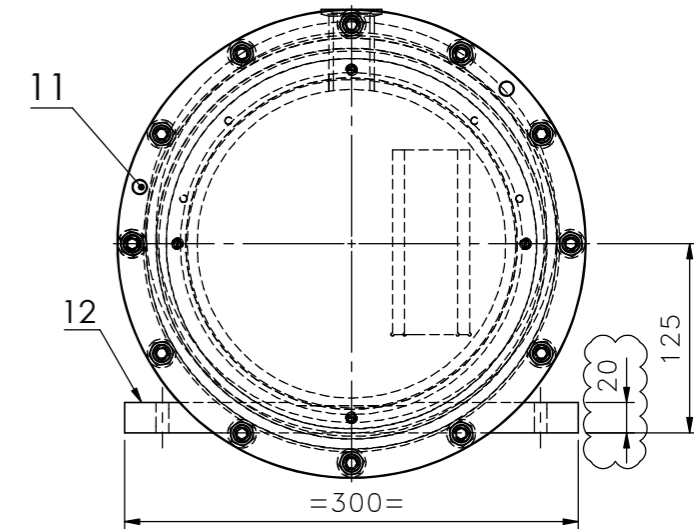
SECTION B-B



SECTION A-A



DETAIL 'AG'



R.H. SIDE VIEW

S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS
15					
14	GUIDE PIN FOR GUIDE PLATE	Ø5x15 LG	S.S. 304	04	
13	KF. COUPLING	ISO KF25	SA 6061 AL.	01	
12	BASE PLATE	100 x 300 x 20THK	SA 6061 AL.	02	
11	GUIDE PIN	Ø10x 50LG.	S.S. 304	04	
10	HEX.SOC.HD.BOLT+NUT+W.	M8x70 LG	S.S. 304	24SETS	
09	'O' RING	Ø258 I/Dx6.99 C/S	VITON	02	

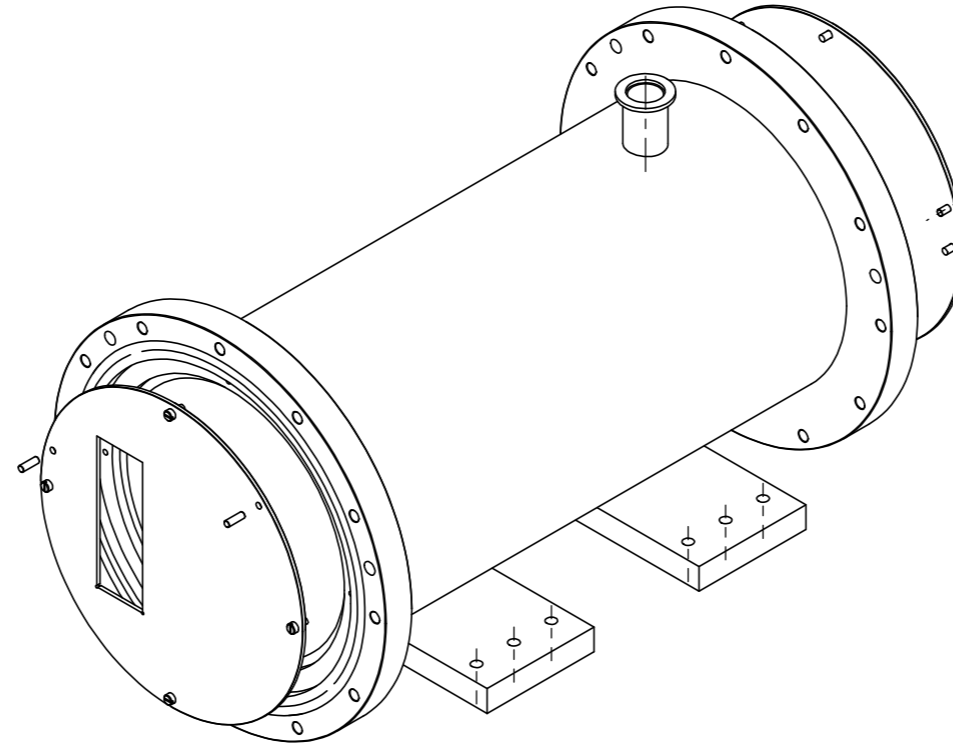
08	CHEESE HD. SCREW	M5 x 15LG.	S.S. 304	08SETS	
07	R.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
06	R.H. END COVER	Ø310x10THK	SA6061 AL.	01	WITH GROOVE
05	R.H. END FLANGE	Ø310x25THK	SA6061 AL.	01	WITHOUT GROOVE
04	L.H. GUIDE PLATE	Ø245 x 3THK	SA 6061 AL.	01	
03	L.H. END COVER	Ø310 x 10 THK	SA 6061 AL.	01	WITHOUT GROOVE
02	L.H. END FLANGE	Ø310 x 25 THK	SA 6061 AL.	01	WITH GROOVE
01	PIPE	Ø226 x 11Tx 468LG.	SA 6061 AL.	01	
S.NO	DESCRIPTION	SIZE	MATERIAL	QTY	REMARKS

BILL OF MATERIAL

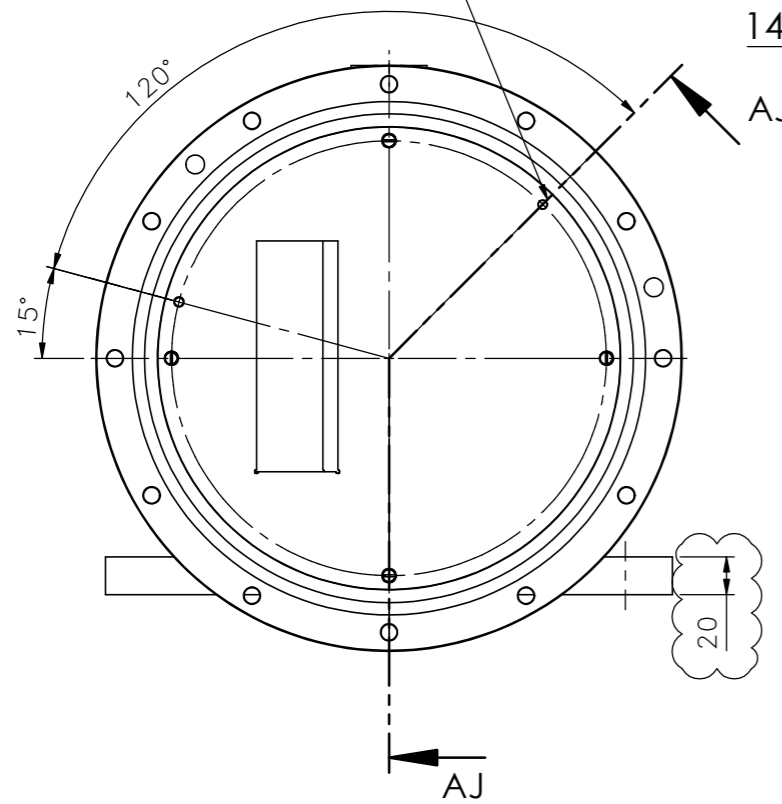
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE	LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH
UPTO 6 ±0.1	1 - 6 ±0.1°	
6 - 30 ±0.2	6 - 30 ±0°-30'	CHAMFER 1x45°
30 - 120 ±0.3	30 - 120 ±0°-20'	
120 - 315 ±0.5	120 - 400 ±0°-10'	
315 - 1000 ±0.8		
1000 - 2000 ±1.2	1. ALL DIMENSIONS ARE IN MILIMETERS 2. REMOVE SHARP CORNERS AND BURRS	
2000 - 4000 ±2.0		

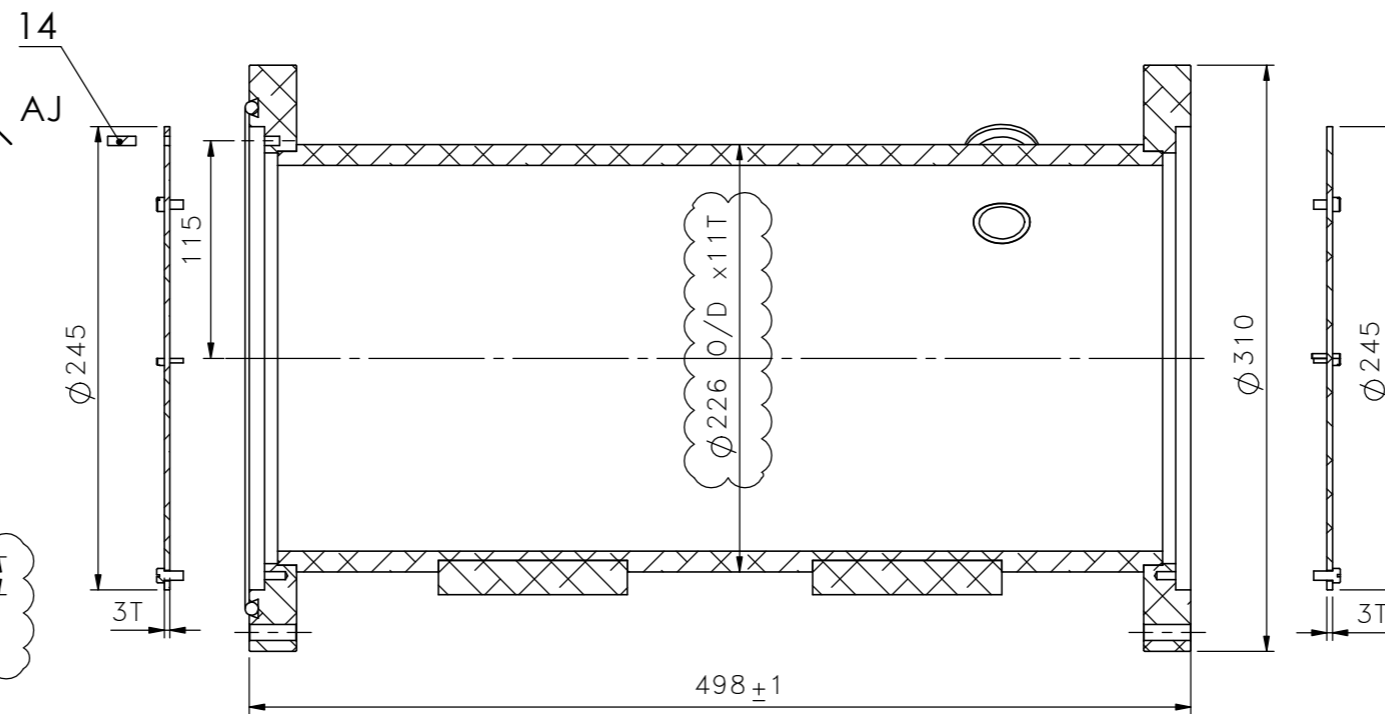
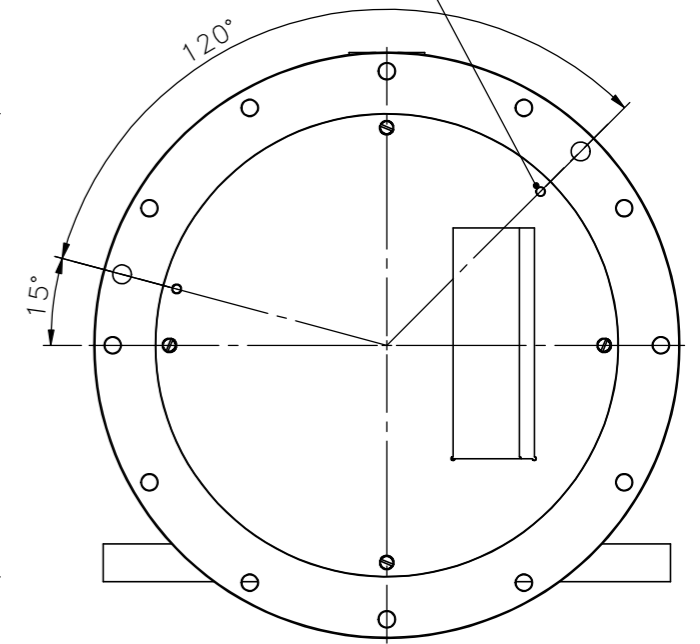
PROJECT/DIVISION/WO:				TITLE:	
				GUIDE HOUSING 0.5m (TYPE-I)	
DRAWN	NAME	SIGNATURE	DATE	PROJ.:	DWG NO.:
CHK'D					A3
CHK'D					D-2021-116A
REVIEW				MATERIAL: SA6061AL	SCALE:1:4
APPV'D				WEIGHT:	SHEET 1 OF 5



14
2NOS. Ø5 GUIDE PIN
@120° APART ON 230PCD



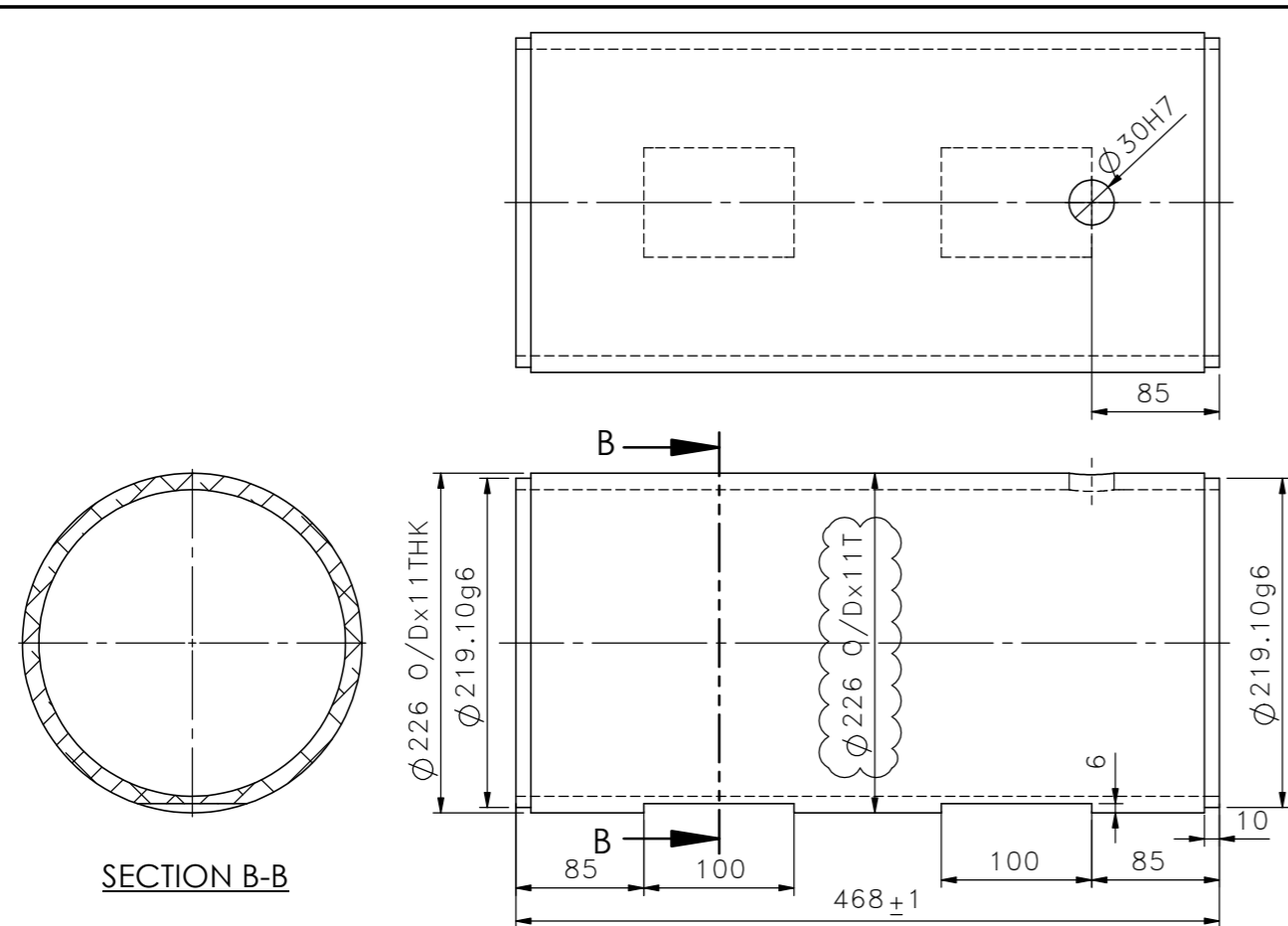
14
2NOS. Ø5 GUIDE PIN
@120° APART ON 230 PCD.



SECTION AJ-AJ

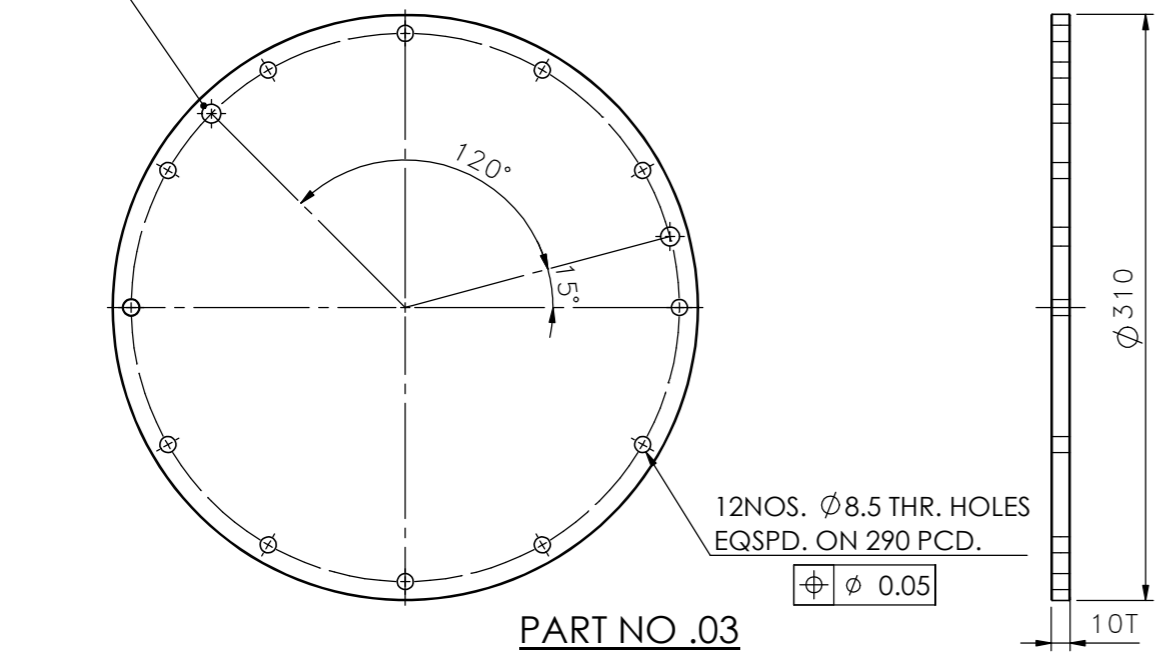
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH
UPTO	6	±0.1	1	- 6	±0.1°
6	- 30	±0.2	6	- 30	±0°-30'
30	- 120	±0.3	30	- 120	±0°-20'
120	- 315	±0.5	120	- 400	±0°-10'
315	- 1000	±0.8	1. ALL DIMENSIONS ARE IN MILIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	±1.2			
2000	- 4000	±2.0			

PROJECT/DIVISION/NO:				TITLE: GUIDE HOUSING 0.5m (TYPE-I)		
DRAWN	NAME	SIGNATURE	DATE			
CHK'D				PROJ.:	DWG NO.:	A3
CHK'D					D-2021-116B	REV. 1
REVIEW						MATERIAL: SA6061AL
APPV'D						SHEET 2 OF 5



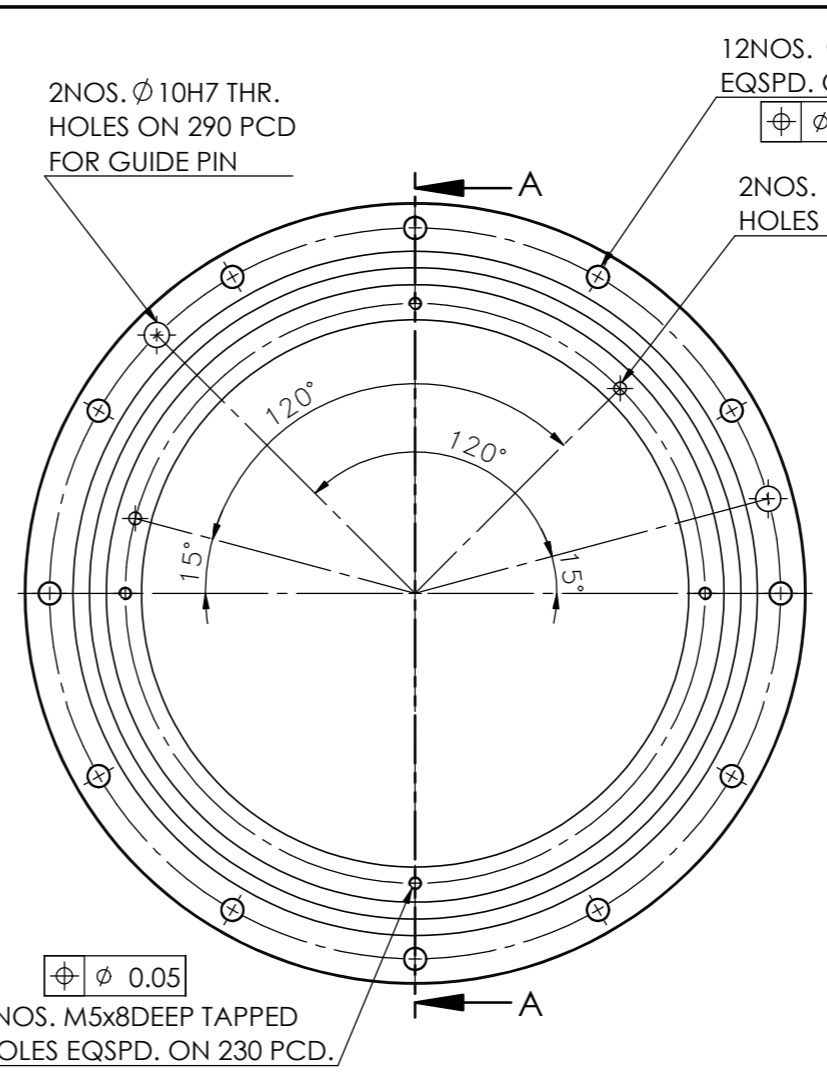
PART NO. 01

2NOS. ϕ 10H7 THR. HOLES ON 290 PCD FOR GUIDE PIN



PART NO. 03

12NOS. ϕ 8.5 THR. HOLES EQSPD. ON 290 PCD.



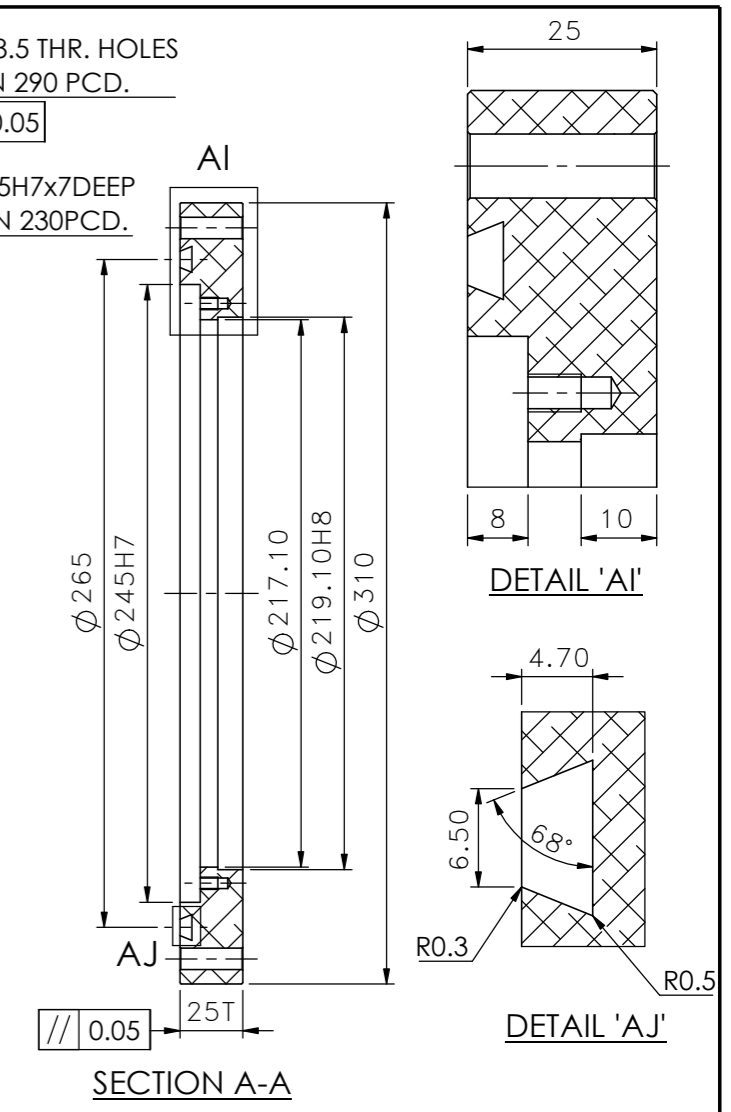
PART NO. 02

2NOS. ϕ 10H7 THR. HOLES ON 290 PCD FOR GUIDE PIN

12NOS. ϕ 8.5 THR. HOLES EQSPD. ON 290 PCD.

2NOS. ϕ 5H7x7DEEP HOLES ON 230PCD.

4NOS. M5x8DEEP TAPPED HOLES EQSPD. ON 230 PCD.



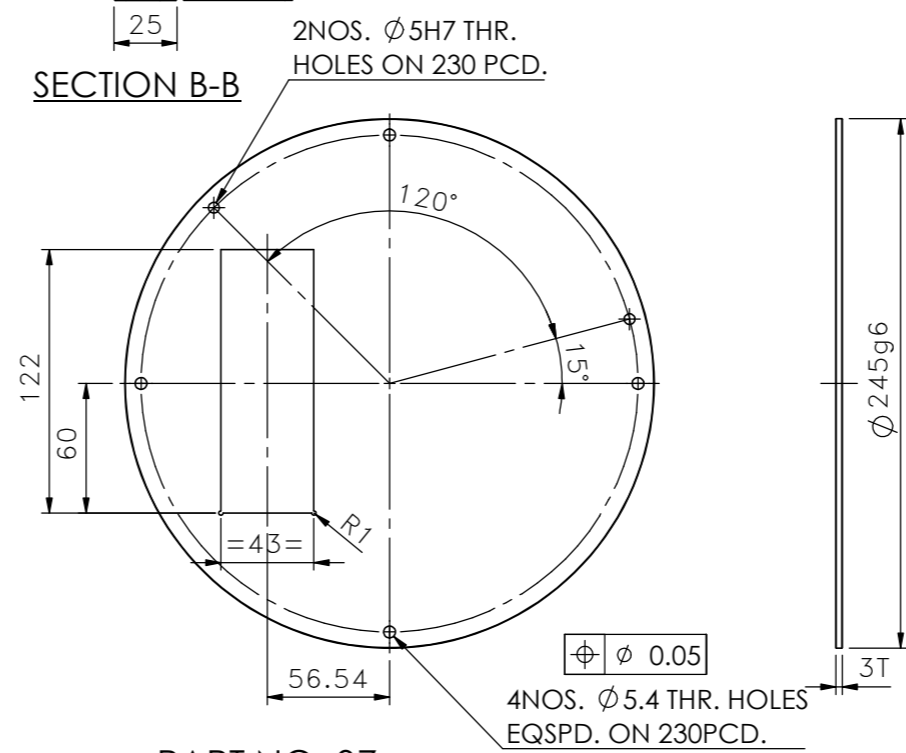
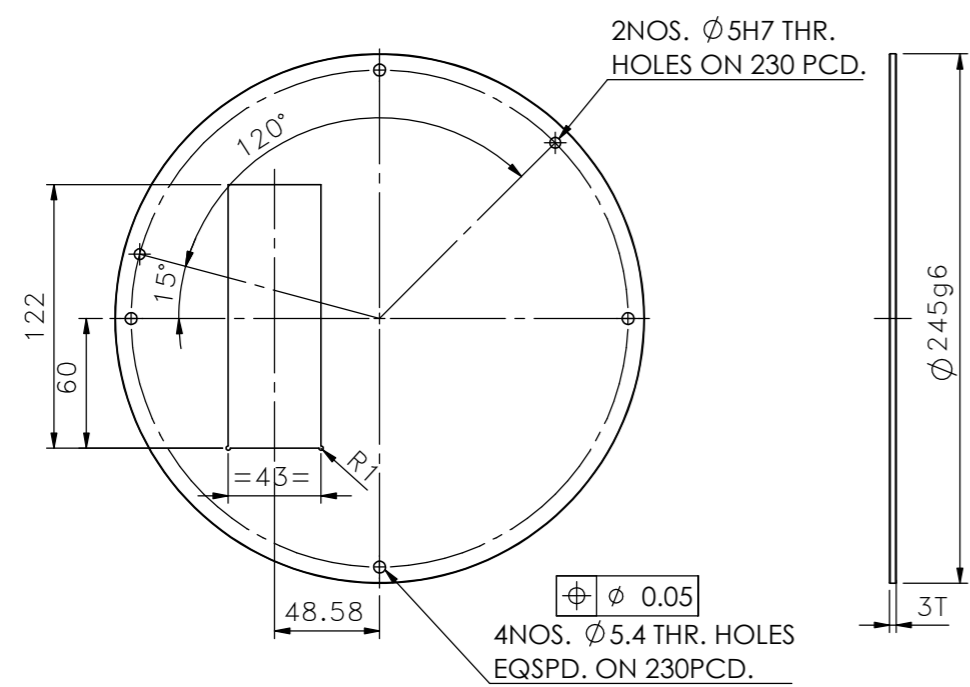
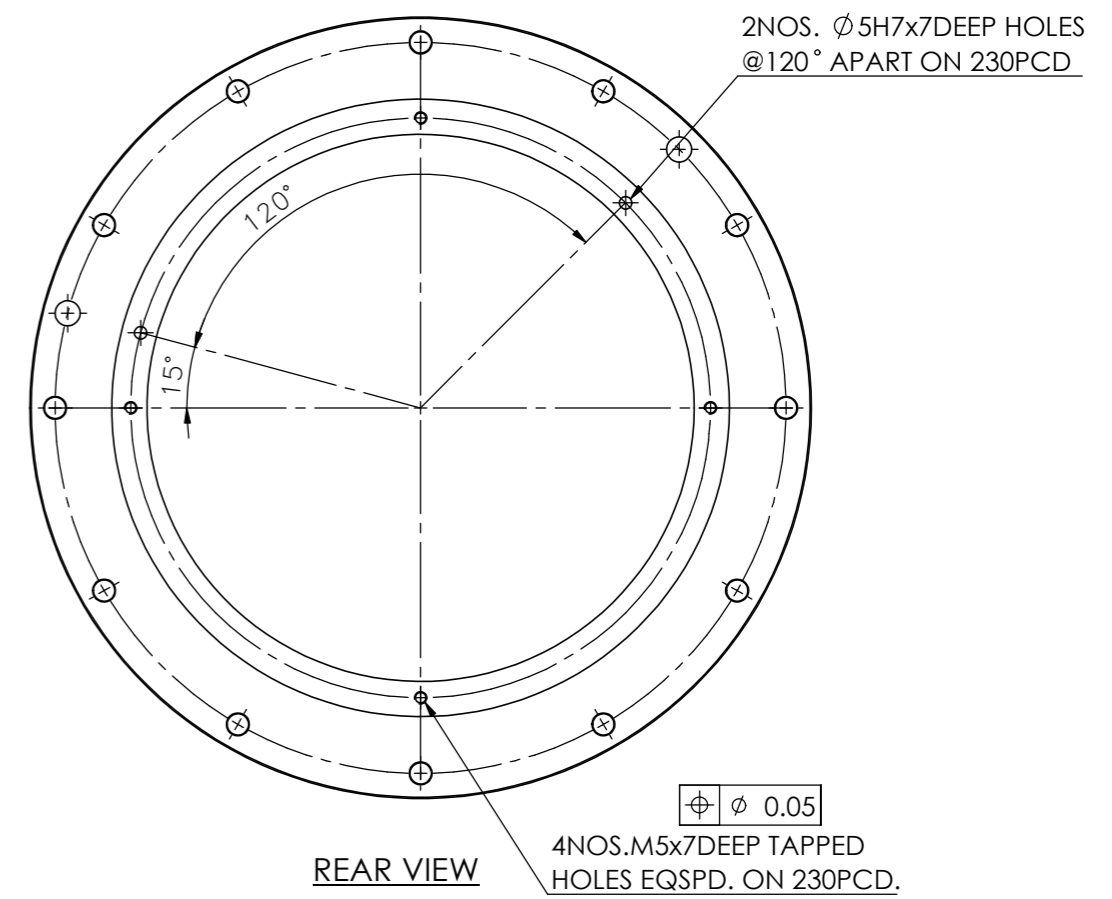
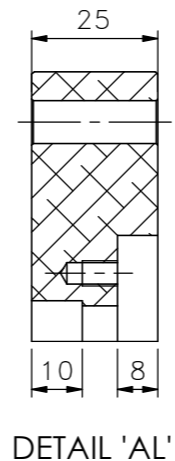
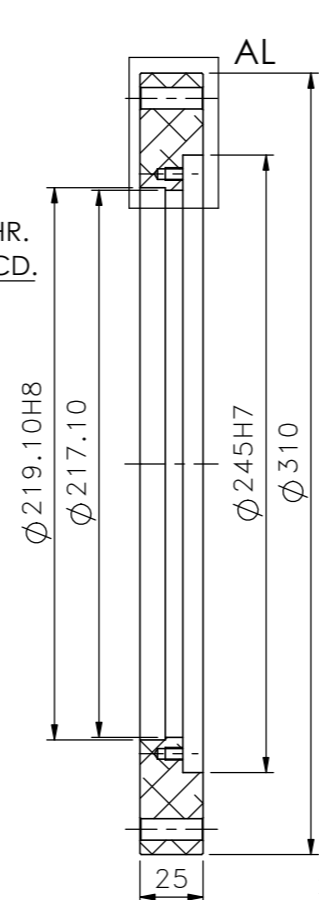
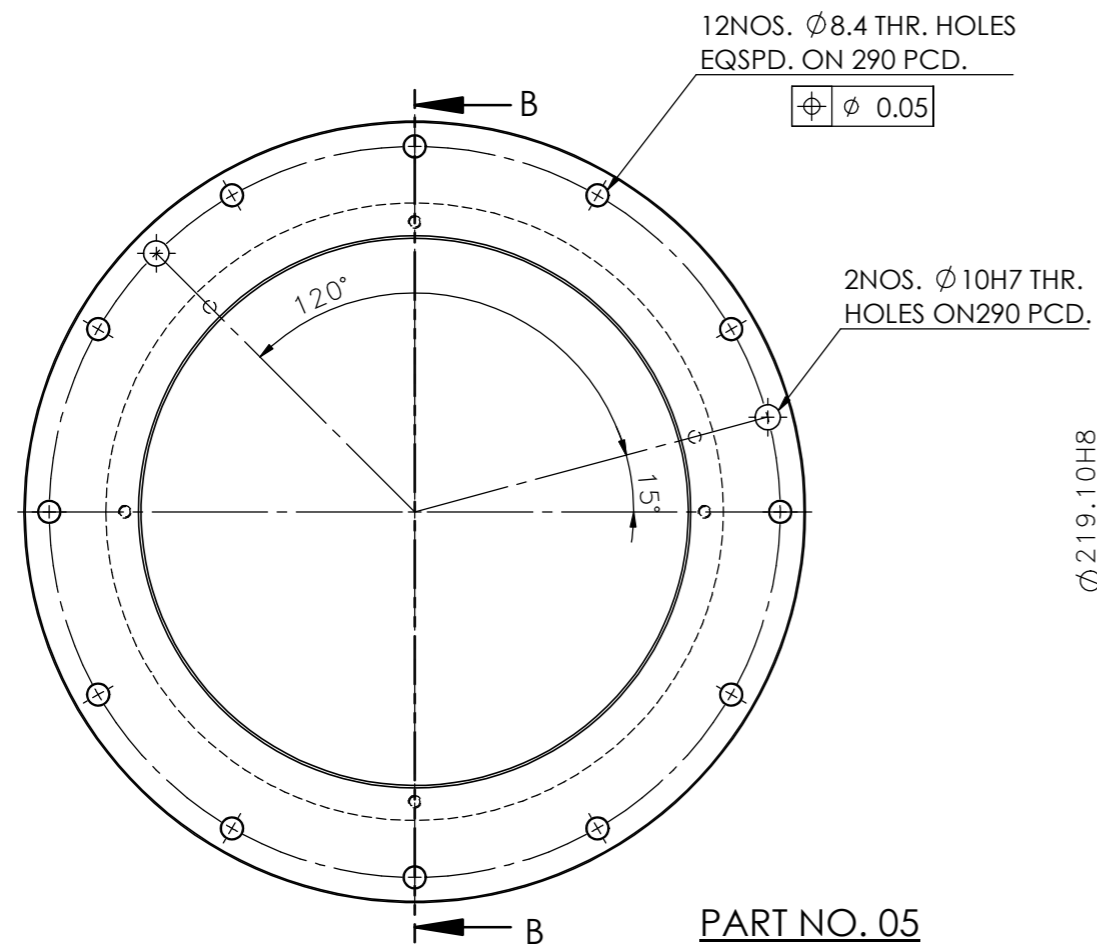
SECTION A-A

DETAIL 'AI'

DETAIL 'AJ'

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE	SURFACE FINISH		
UPTO	6		±0.1		
6	- 30	±0.2	1	- 6	±0.1°
30	- 120	±0.3	6	- 30	±0°-30'
120	- 315	±0.5	30	- 120	±0°-20'
315	- 1000	±0.8	120	- 400	±0°-10'
1000	- 2000	±1.2	1. ALL DIMENSIONS ARE IN MILIMETERS		
2000	- 4000	±2.0	2. REMOVE SHARP CORNERS AND BURRS		

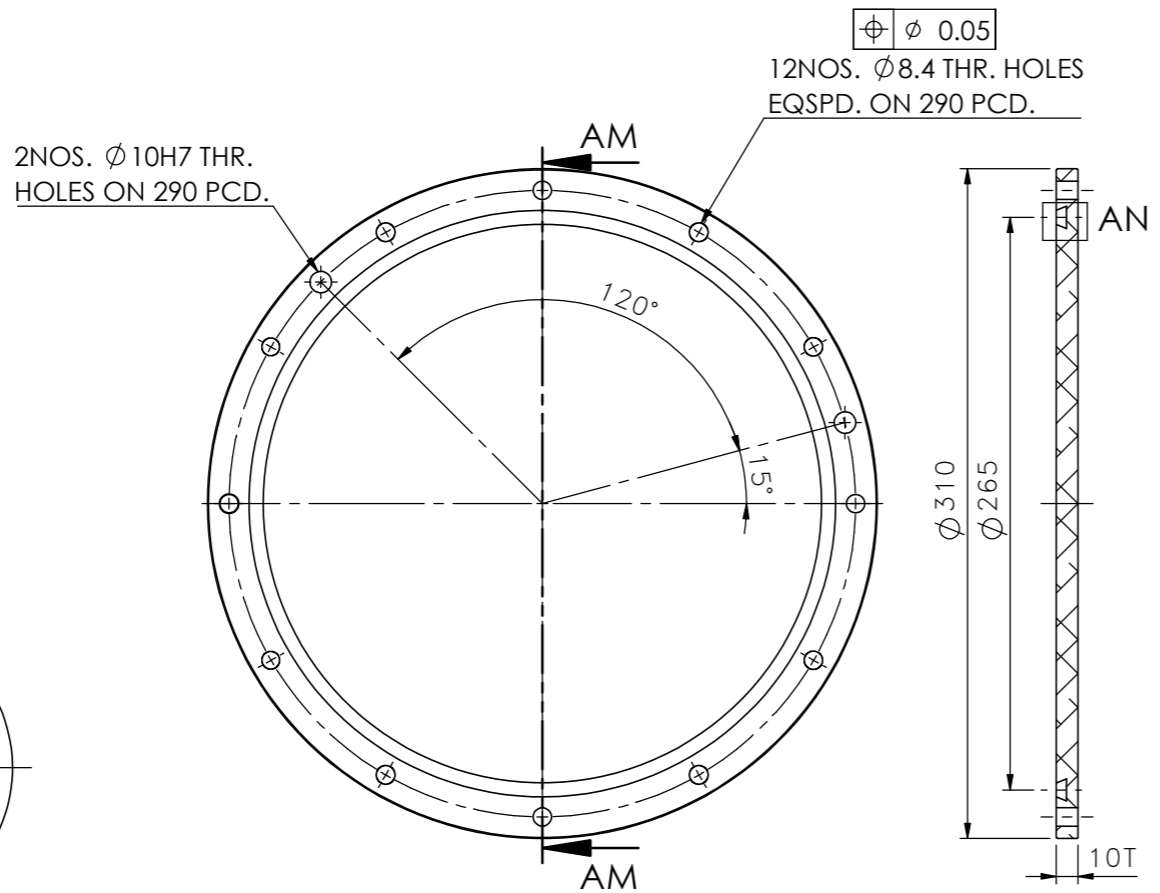
PROJECT/DIVISION/WO:					
NAME	SIGNATURE	DATE	TITLE:		
			GUIDE HOUSING 0.5m (TYPE-I)		
DRAWN			PROJ.:	DWG NO.:	A3
CHK'D					D-2021-116C
CHK'D					REV. 1
REVIEW					
APPV'D			MATERIAL: SA6061AL	WEIGHT:	SCALE:1:4
			SHEET 3 OF 5		



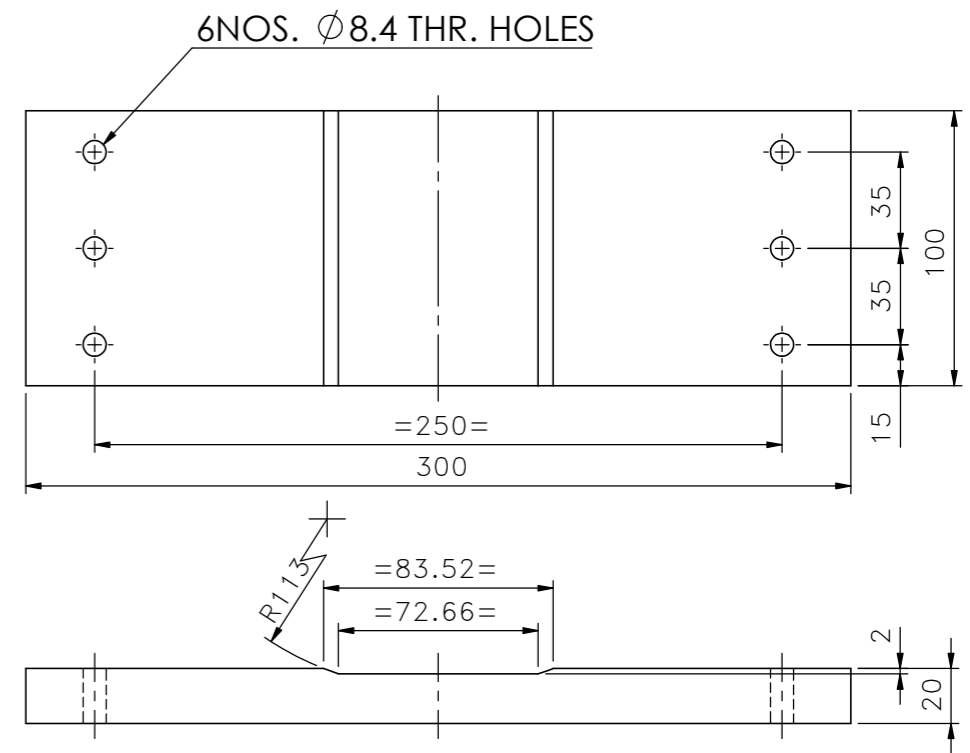
GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)

LINEAR TOLERANCE		LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	± 0.1	1 - 6	$\pm 0.1^\circ$	
6	- 30	± 0.2	6 - 30	$\pm 0^\circ - 30'$	CHAMFER 1x45°
30	- 120	± 0.3	30 - 120	$\pm 0^\circ - 20'$	
120	- 315	± 0.5	120 - 400	$\pm 0^\circ - 10'$	
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	± 1.2			
2000	- 4000	± 2.0			

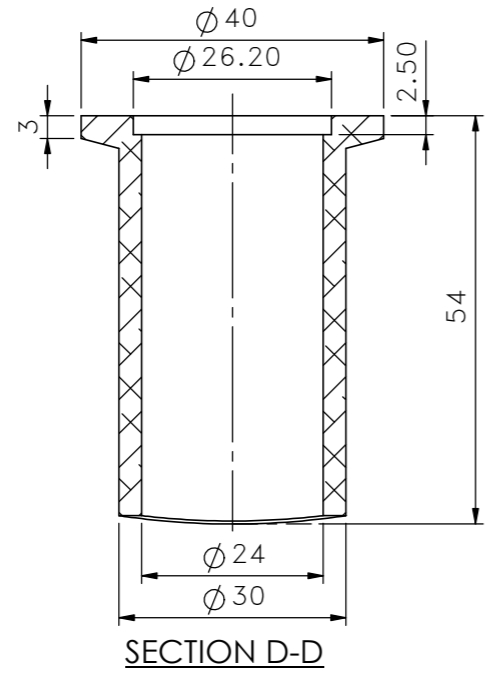
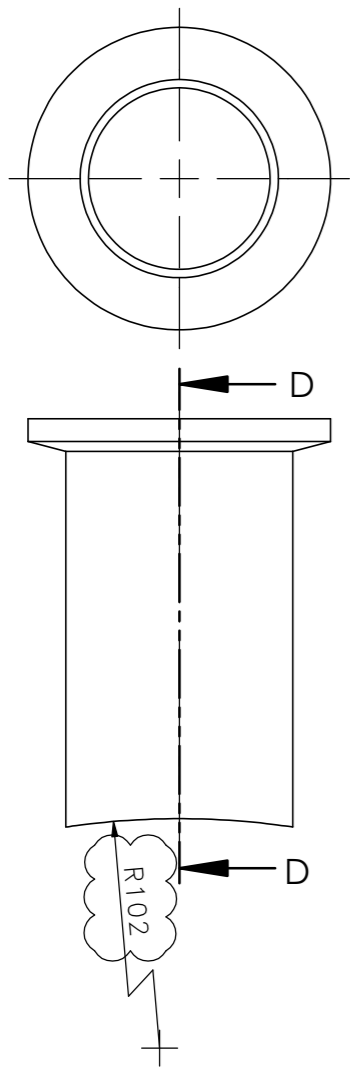
PROJECT/DIVISION/NO:				TITLE:	
NAME	SIGNATURE	DATE	GUIDE HOUSING 0.5m (TYPE-I)		
DRAWN			PROJ.:	DWG NO.:	A3
CHK'D				D-2021-116D	REV. 1
CHK'D			MATERIAL: SA6061AL	WEIGHT:	SCALE: 1:4
REVIEW					SHEET 4 OF 5
APPV'D					



PART NO. 06



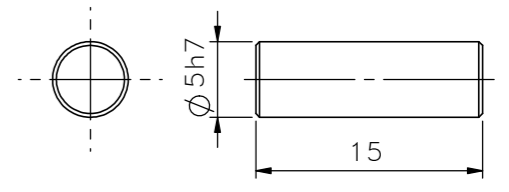
PART NO. 12



PART NO. 13

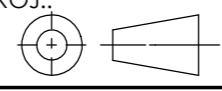


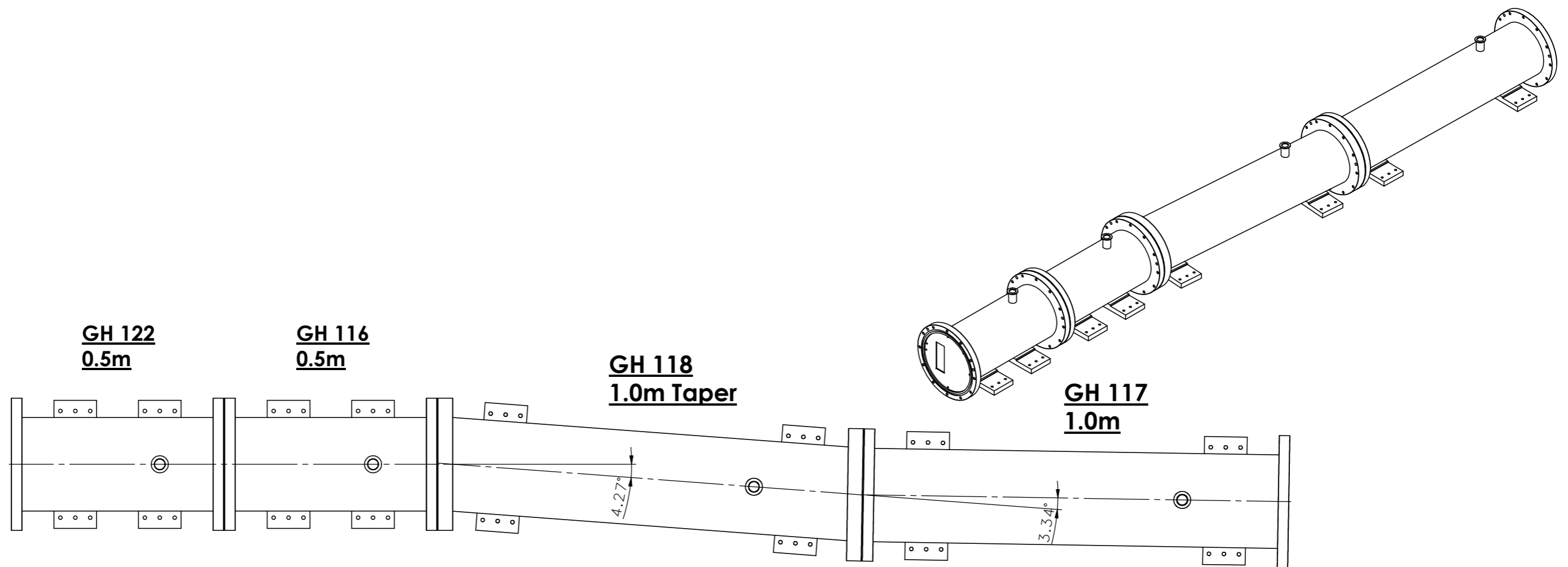
PART NO. 11



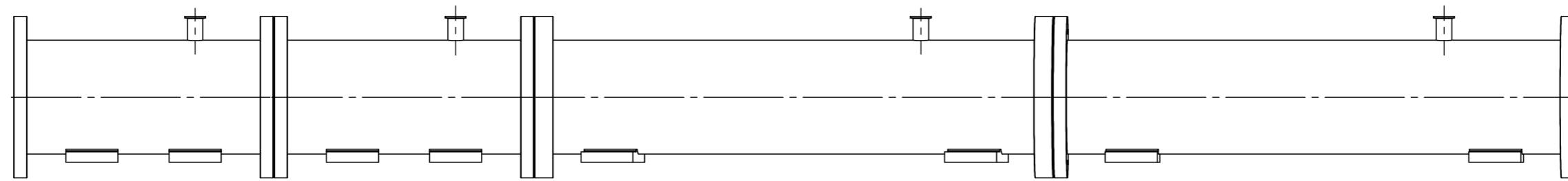
PART NO. 14

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)					
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH
UPTO	6	± 0.1	1	6	
6	- 30	± 0.2	6	30	$\pm 0^\circ - 30'$
30	- 120	± 0.3	30	120	$\pm 0^\circ - 20'$
120	- 315	± 0.5	120	400	$\pm 0^\circ - 10'$
315	- 1000	± 0.8	1. ALL DIMENSIONS ARE IN MILLIMETERS 2. REMOVE SHARP CORNERS AND BURRS		
1000	- 2000	± 1.2			
2000	- 4000	± 2.0			

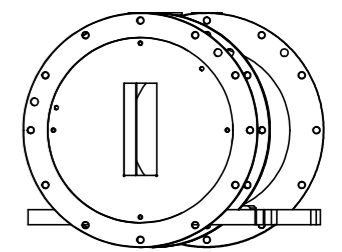
PROJECT/DIVISION/WO:				TITLE: GUIDE HOUSING 0.5m (TYPE-I)		
DRAWN	NAME	SIGNATURE	DATE			
CHK'D				PROJ.:	DWG NO.:	A3
CHK'D					D-2021-116E	REV. 1
REVIEW						MATERIAL: SA6061AL
APP'VD						SHEET 5 OF 5



TOP VIEW



ELEVATION



R.H. SIDE VIEW

GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED IS 2102 (MEDIUM CLASS)						
LINEAR TOLERANCE			LENGTH OF SHORTER SIDE OF ANGLE		SURFACE FINISH	
UPTO	6	±0.1	1	6		CHAMFER 1x45°
6	- 30	±0.2	1	6	±0.1°	
30	- 120	±0.3	6	30	±0°-30'	
120	- 315	±0.5	30	120	±0°-20'	
315	- 1000	±0.8	120	400	±0°-10'	
1000	- 2000	±1.2	1. ALL DIMENSIONS ARE IN MILIMETERS			
2000	- 4000	±2.0	2. REMOVE SHARP CORNERS AND BURRS			

PROJECT/DIVISION/NO:				GUIDE HOUSING 0.5m AND 1.0M ASSEMBLY				
DRAWN	NAME	SIGNATURE	DATE				PROJ.:	DWG NO.:
CHK'D								D-2021-123A
CHK'D								
REVIEW				MATERIAL: SA6061AL	WEIGHT:			
APP'VD				SCALE:1:4	SHEET 1 OF 1			