

## B02T112100 Transducer Carrier Assembly rotational balance

The following parts make up this retrofit kit to balance the original 5 prototype assemblies. These parts are not used when making new additional prototype assemblies.

Qty per assy	Part Number	Rev	Description	Type <sup>1</sup>	Material
1	B02T112085	A	Tip Cover	New	TBD <sup>2</sup>
1	B02T112086	-	Shoulder Screw	New	SS
1	B02T112087	-	Lower Sleeve - Short	New	SS
1	B02T112121	D	Pulley Support	Mod	Al
1	B02T112127	B	Inner Track Plate	Mod	SS
1	B02T112151	B	Support Boss	Mod	Al
2	B02T112153	C	Small Shaft	New	SS
1	B02T112161	D	Upper Pulley Tension Block	Mod	SS
1	B02T112181	-	Fwd Top Balancer	New	SS
1	B02T112182	-	Aft Lower Balancer	New	SS

Mass properties of B02T112100

Output coordinate System : -- default --

Mass = 0.1483 pounds

Volume = 1.0616 cubic inches

Surface area = 36.3855 square inches

Center of mass: ( inches )

X = 0.0007

Y = 0.0036

Z = -5.2660

Principal axes of inertia and principal moments of inertia: ( pounds \* square inches )

Taken at the center of mass.

I<sub>x</sub> = (-0.0000, -0.0045, 1.0000)      P<sub>x</sub> = 0.0080

I<sub>y</sub> = (0.0173, -0.9998, -0.0045)      P<sub>y</sub> = 0.4121

I<sub>z</sub> = (0.9999, 0.0173, 0.0001)      P<sub>z</sub> = 0.4135

Moments of inertia: ( pounds \* square inches )

Taken at the center of mass and aligned with the output coordinate system.

L<sub>xx</sub> = 0.4135    L<sub>xy</sub> = -0.0000    L<sub>xz</sub> = -0.0000

L<sub>yx</sub> = -0.0000    L<sub>yy</sub> = 0.4121    L<sub>yz</sub> = -0.0018

L<sub>zx</sub> = -0.0000    L<sub>zy</sub> = -0.0018    L<sub>zz</sub> = 0.0080

Moments of inertia: ( pounds \* square inches )

Taken at the output coordinate system.

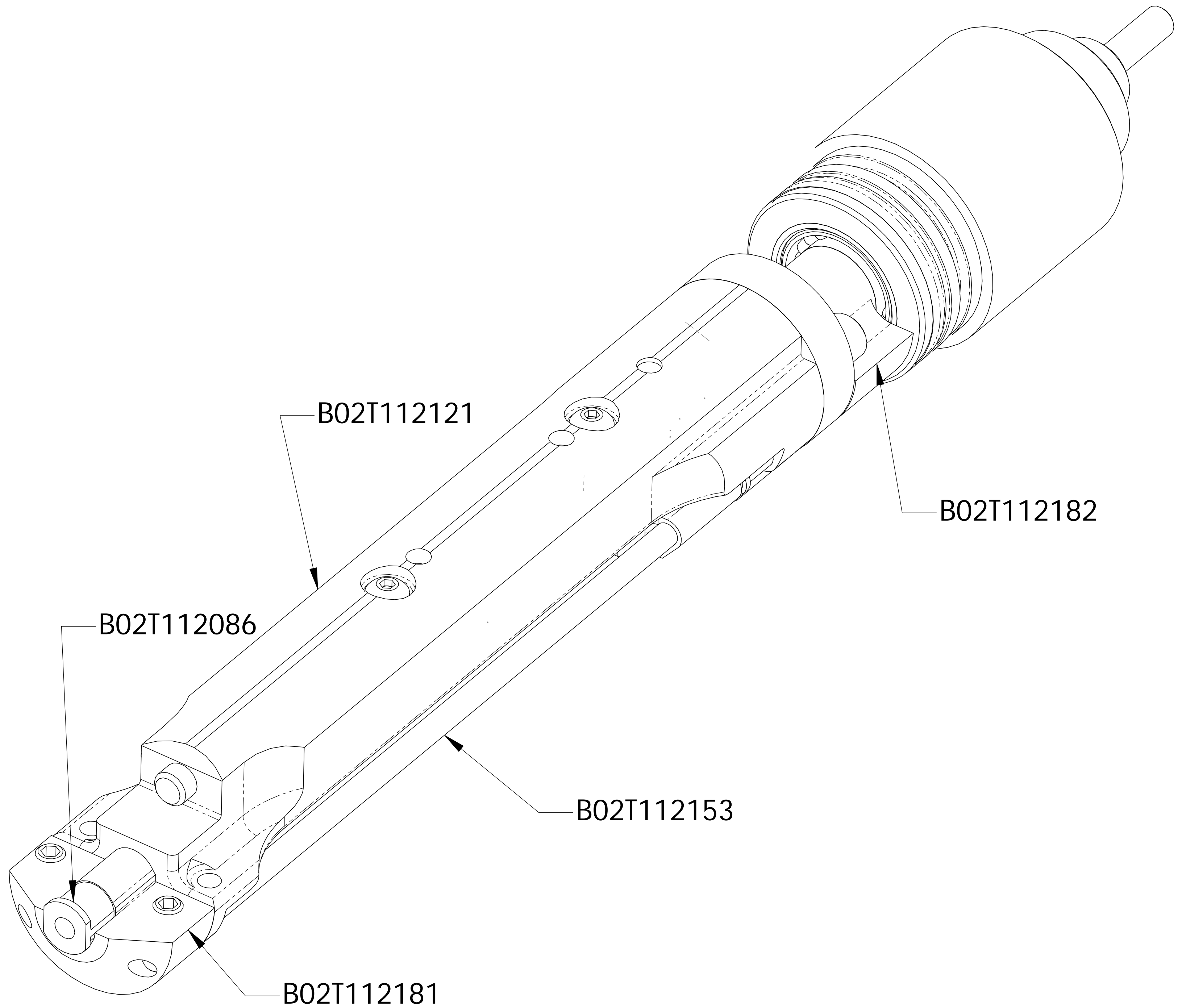
I<sub>xx</sub> = 4.5270    I<sub>xy</sub> = -0.0000    I<sub>xz</sub> = -0.0005

I<sub>yx</sub> = -0.0000    I<sub>yy</sub> = 4.5256    I<sub>yz</sub> = -0.0047

I<sub>zx</sub> = -0.0005    I<sub>zy</sub> = -0.0047    I<sub>zz</sub> = 0.0080

<sup>1</sup> New = make new part, Mod = modify existing part

<sup>2</sup> Material is to be selected to avoid interference with ultrasound

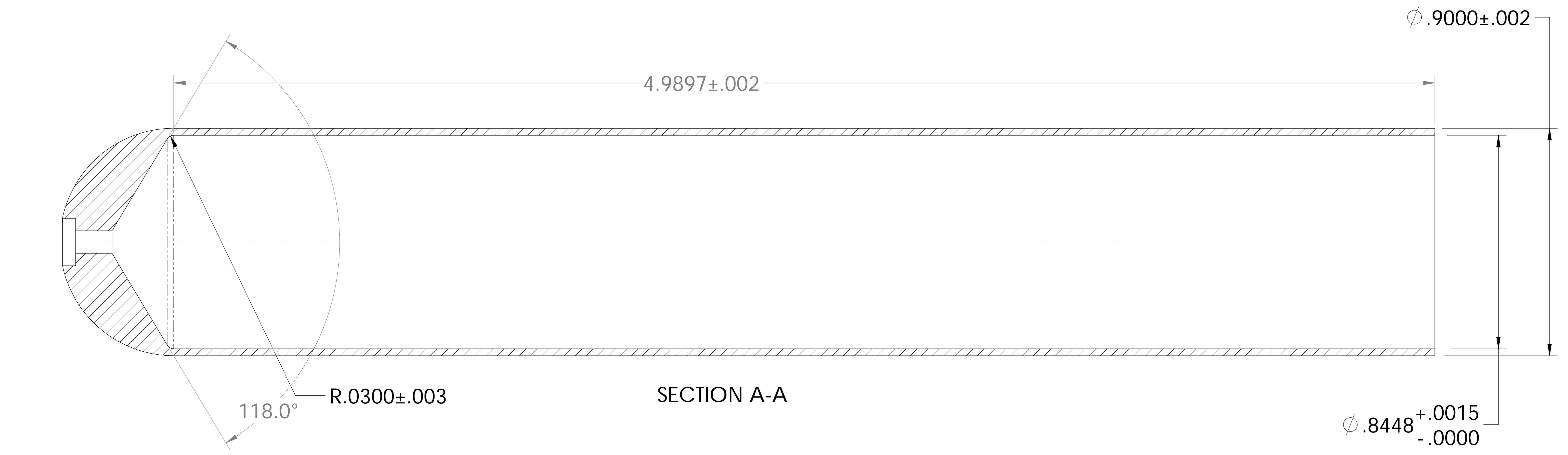
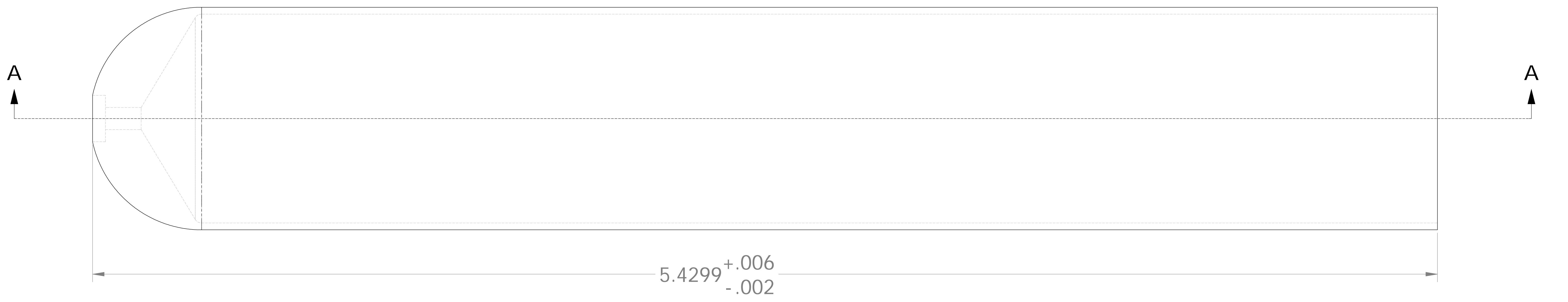
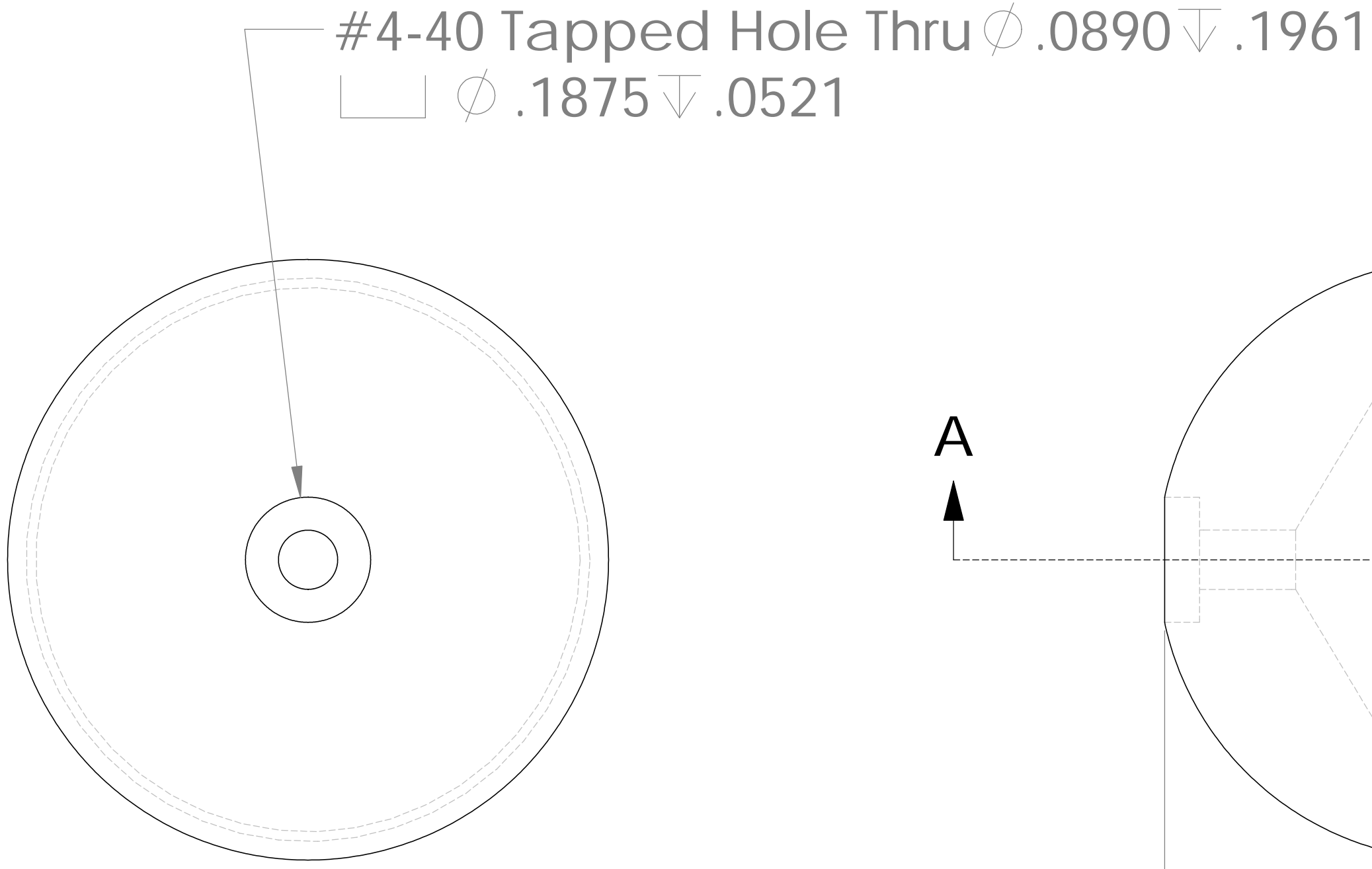


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**Cylindrical Fit Reference Only**

Class	Range Min	Range Max	Pin OD	OD Plus	OD Minus	Max Pin	Min Pin	Hole ID	ID Plus	ID Minus	Max Hole	Min Hole
RC4	0.00080	0.00280	0.84400	0.00000	0.00050	0.84400	0.84350	0.84480	0.00150	0.00000	0.84630	0.84480

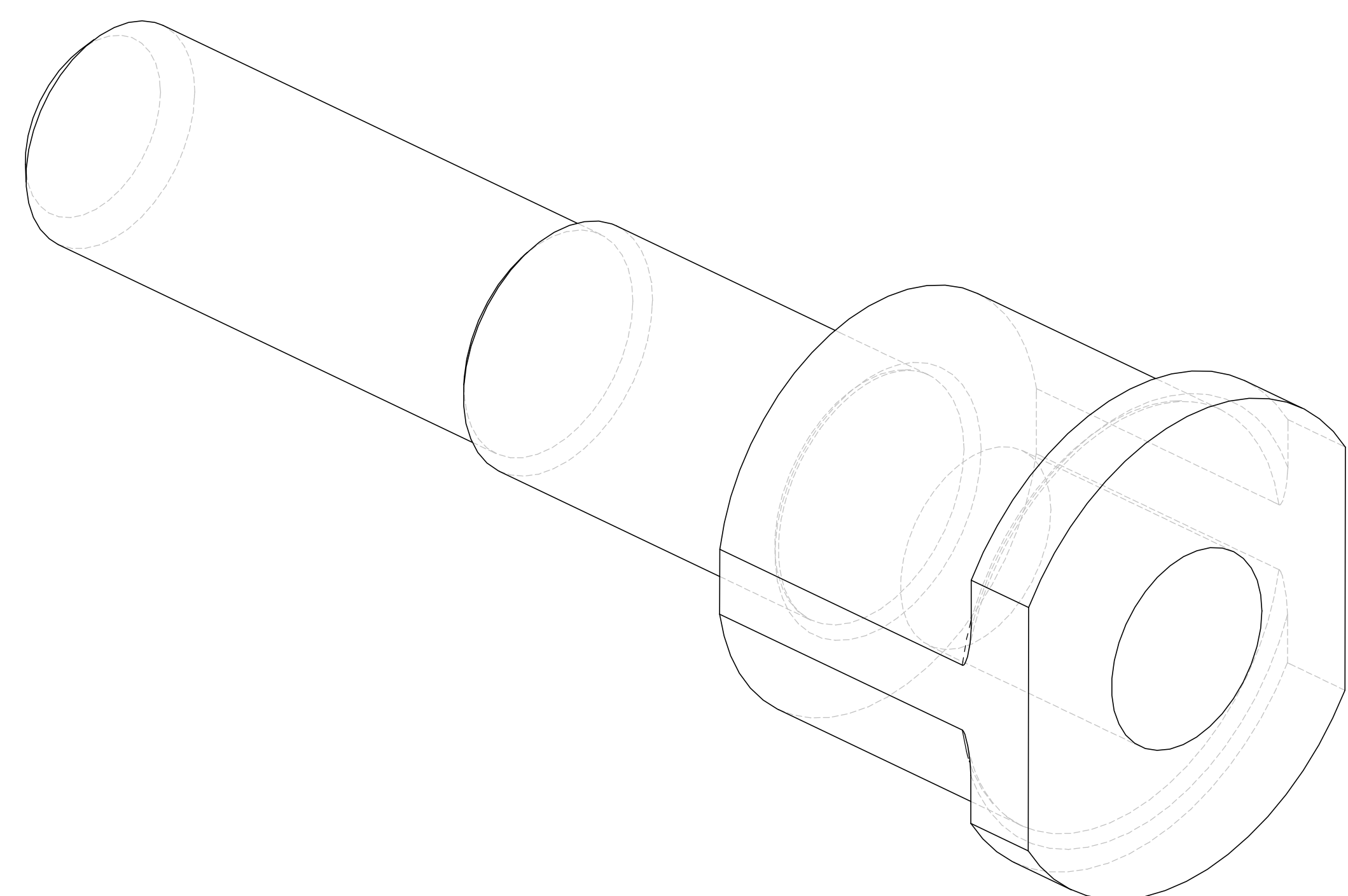
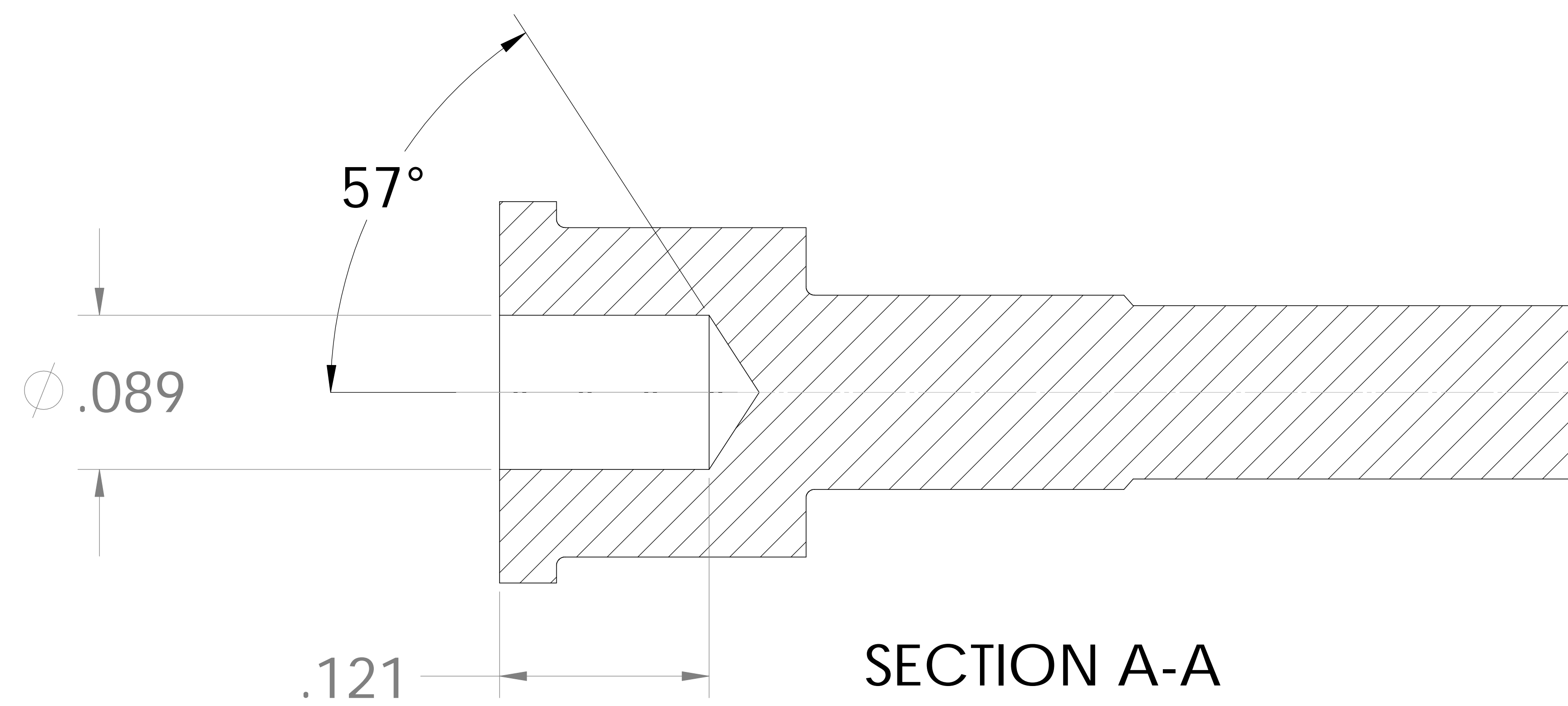
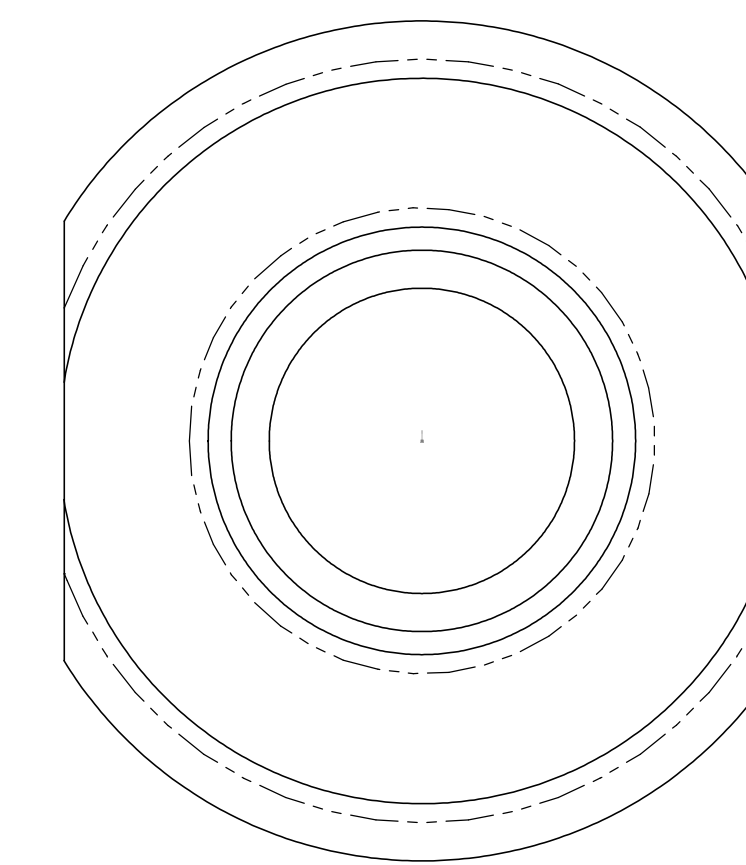
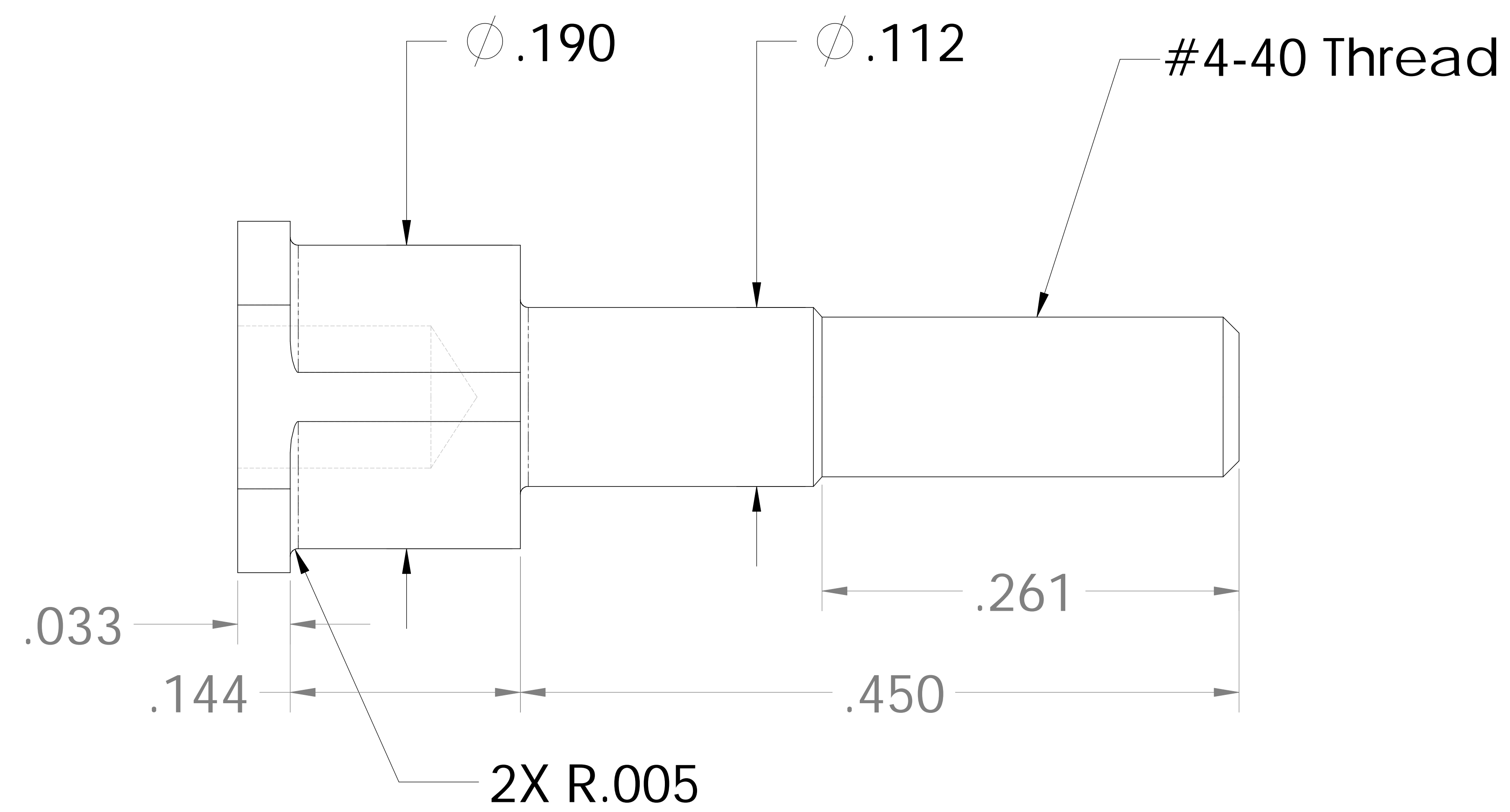
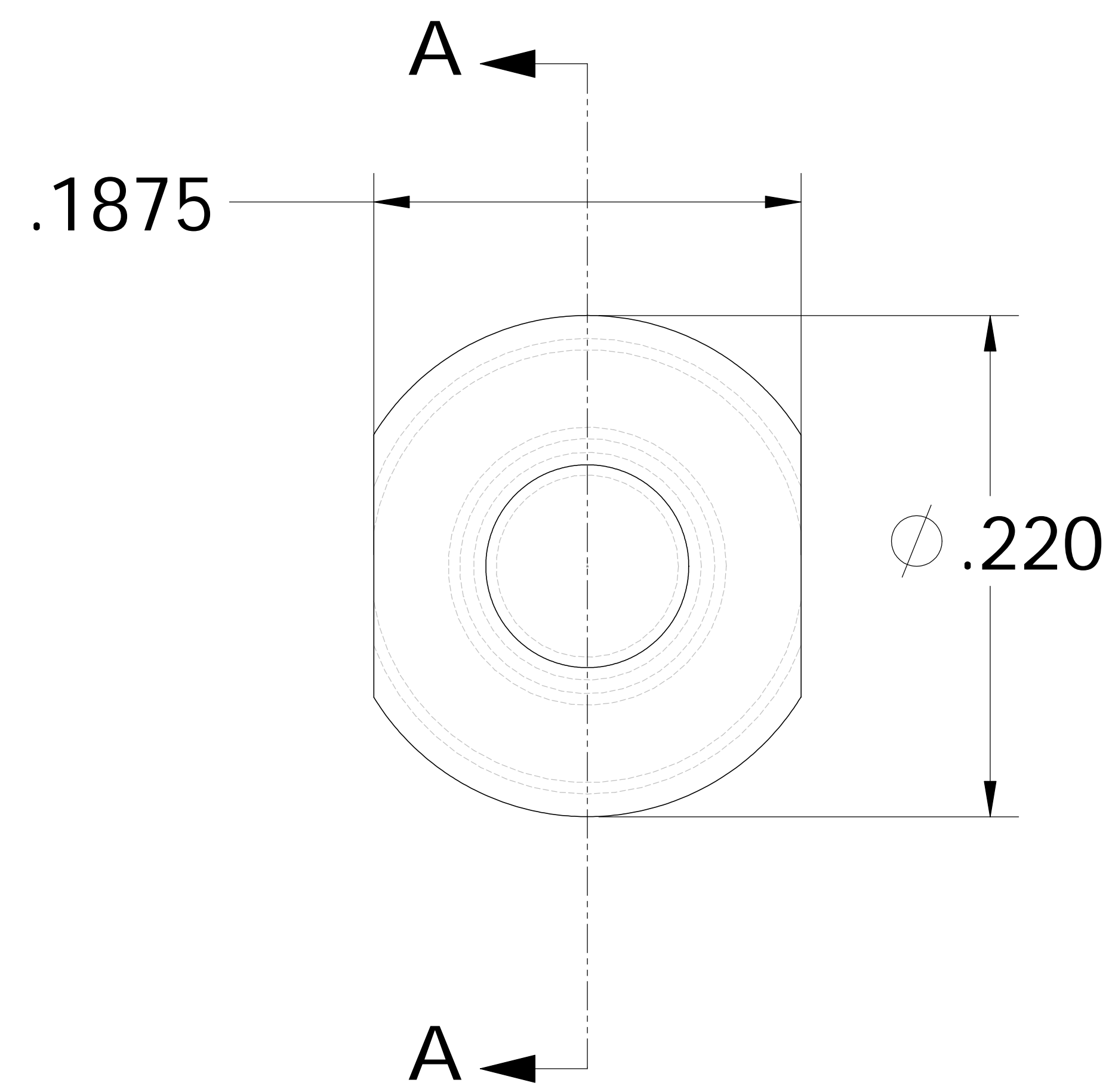
REV	DESCRIPTION	DATE	APPROVED
A	Longer to cover balance weight	1/15/02	BM



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		PARTS LIST		 Product Development Corporation	
XX	= ± 0.015	APPROVALS	DATE	<b>Tip Cover</b> B02T112085 SCALE: 1:1 SHEET 1 OF 1	
.XXX	= ± 0.005	DRAWN			
.X"	= ± 0.3"	CHECKED			
NATURAL FINISH		RESP ENG			
NEXT ASSY	USED ON	MFG ENG		SEE DWG NO: B02T112085 D: 1 SCALE: 1:1 DATE: 06/11/2005	REV: A
APPLICATION		DO NOT SCALE DRAWING	QUAL ENG		

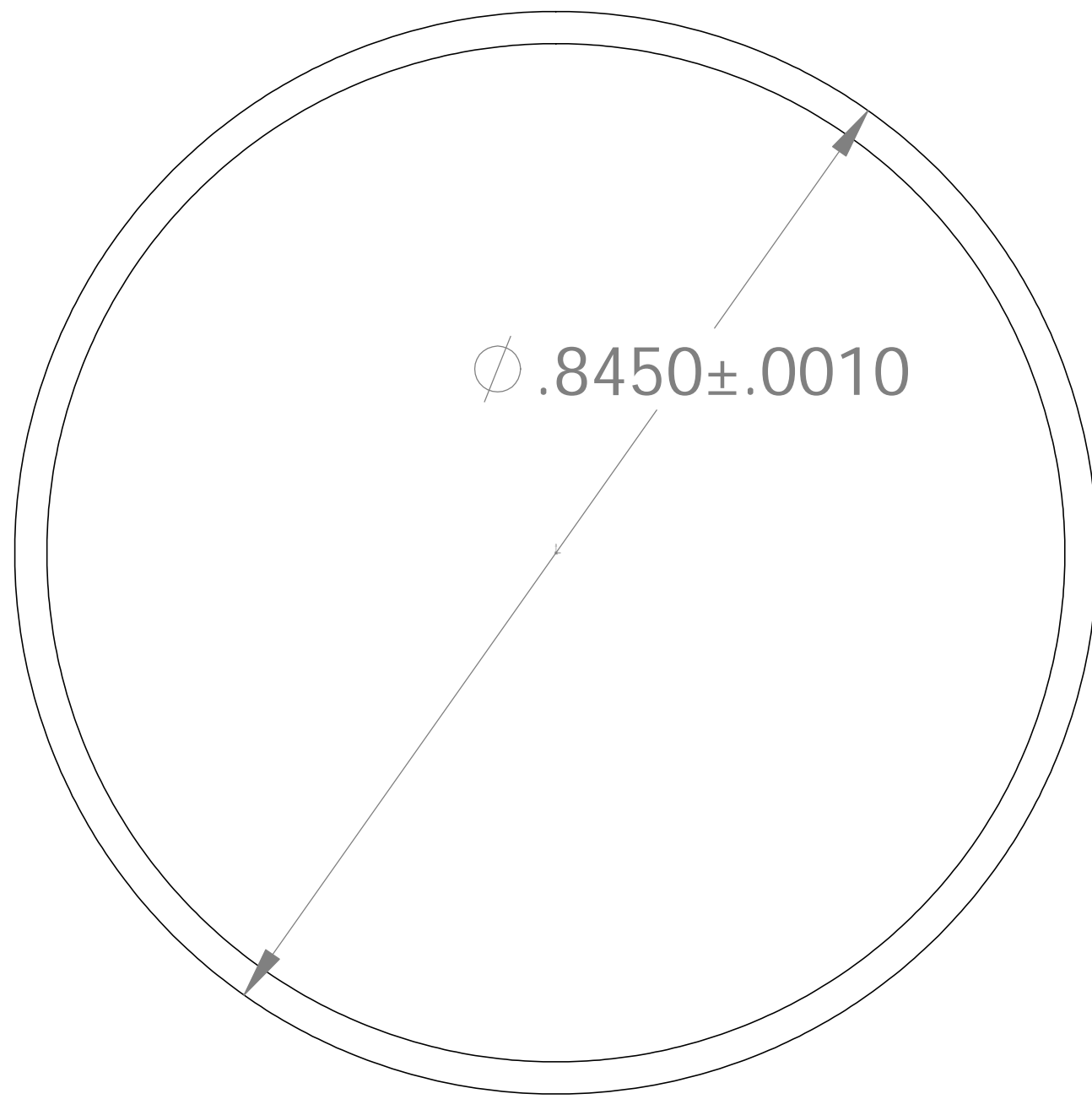
ENVISIONEERING PRODUCT DEVELOPMENT CLAIMS PROPRIETARY RIGHTS IN THE INFORMATION DISCLOSED HEREON. THIS DRAWING IS FURNISHED IN CONFIDENCE ON THE EXPRESS UNDERSTANDING THAT NEITHER IT NOR ANY REPRODUCTION THEREOF WILL BE DISCLOSED TO OTHERS OR USED FOR THE PURPOSE OF MANUFACTURE OR PROCUREMENT OF THE ARTICLE OR PART SHOWN HEREON.

REV.	DESCRIPTION	REVISIONS	DATE	APPROVED



PARTS LIST		Product Development Corporation	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE	
.XX	= ± 0.015	APPROVALS	DATE
.XXX	= ± 0.005	DRAWN	
.X°	= ± 0.3°	CHECKED	
MATERIAL	SS	RESP ENG	
FINISH		MFG ENG	
NEXT ASSY	USED ON	QUAL ENG	
APPLICATION	DO NOT SCALE DRAWING		
SIZE DWG. NO. B02T112086		REV. -	
SCALE 10:1	CAD FILE B02T112086	SHEET 1 OF 1	

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Break Edge

Break Edge

.270

Same as B02T112081 except as shown.

NEXT ASSY	USED ON
APPLICATION	

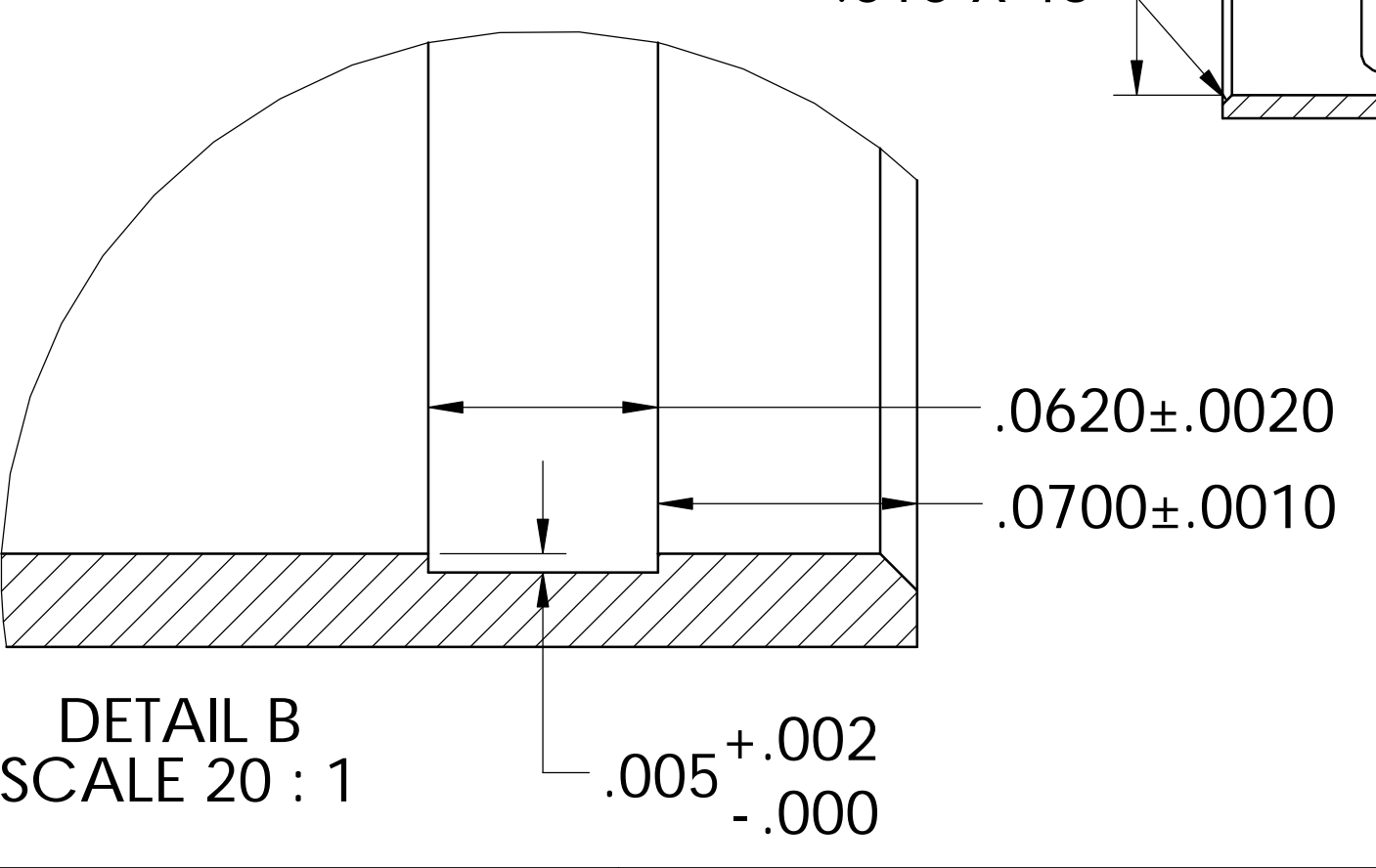
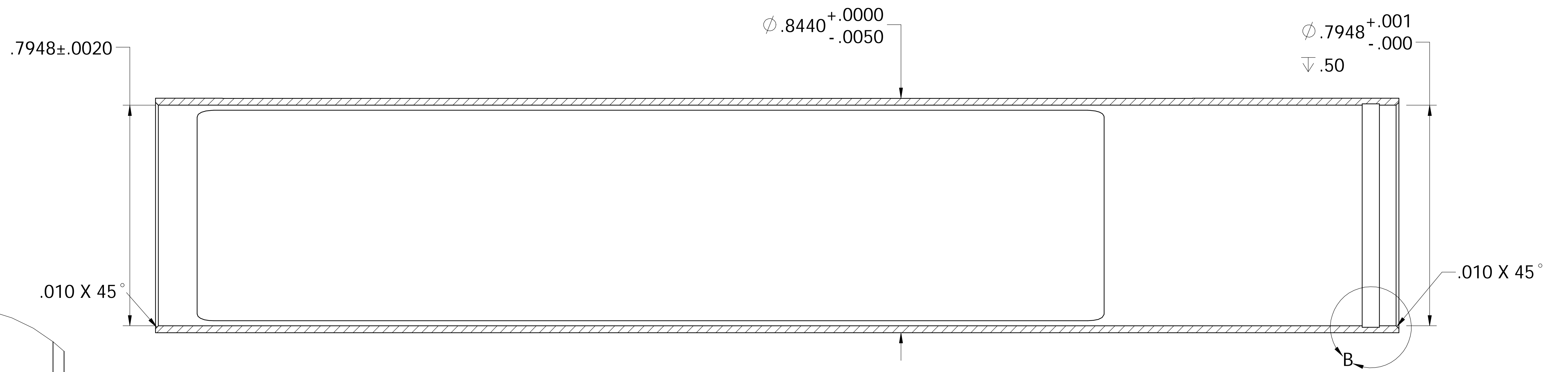
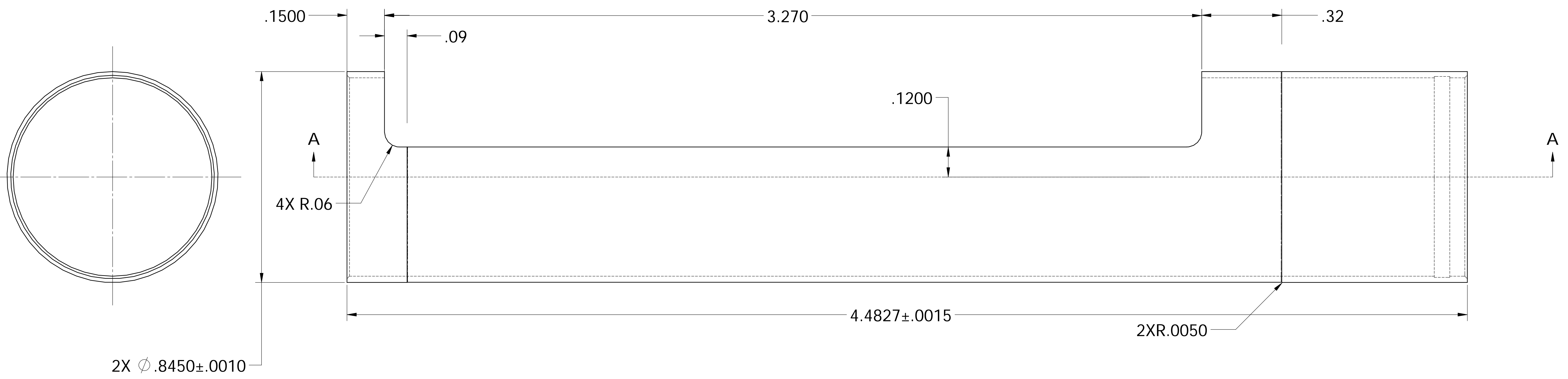
PARTS LIST			
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.XXX	= ± 0.005	DRAWN	
.X°	= ± 0.3°	CHECKED	
MATERIAL	SS	RESP ENG	
FINISH		MFG ENG	
DO NOT SCALE DRAWING		QUAL ENG	
		<p style="text-align: center; font-size: 24pt;">Lower Sleeve - Short</p>	
SIZE	DWG. NO.	REV.	
A	B02T112087	-	
SCALE	CAD FILE:	SHEET	OF
4:1	B02T112087	1	1

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Cylindrical Fit Reference Only

Class	Range Min	Range Max	Pin OD	OD Plus	OD Minus	Max Pin	Min Pin	Hole ID	ID Plus	ID Minus	Max Hole
RC4	0.00080	0.00280	0.79400	0.00000	0.00100	0.79400	0.79300	0.79480	0.00100	0.00000	0.79580
RC9	0.00400	0.00810	0.84500	0.00100	0.00100	0.84600	0.84400	0.85000	0.00210	0.00000	0.85210

REV	DESCRIPTION	DATE	APPROVED



For reference only

PARTS LIST		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CAD GENERATED DRAWING DO NOT MANUALLY UPDATE		APPROVALS		DATE	
		.XX	= ± 0.015						
		.XXX	= ± 0.005						
		.X"	= ± 0.3"						
		MATERIAL		CHECKED					
		SS		RESP ENG					
		FINISH		MFG ENG					
NEXT ASSY	USED ON			QUAL ENG					

Product Development Corporation  
Envisioneering

Top Window Sleeve

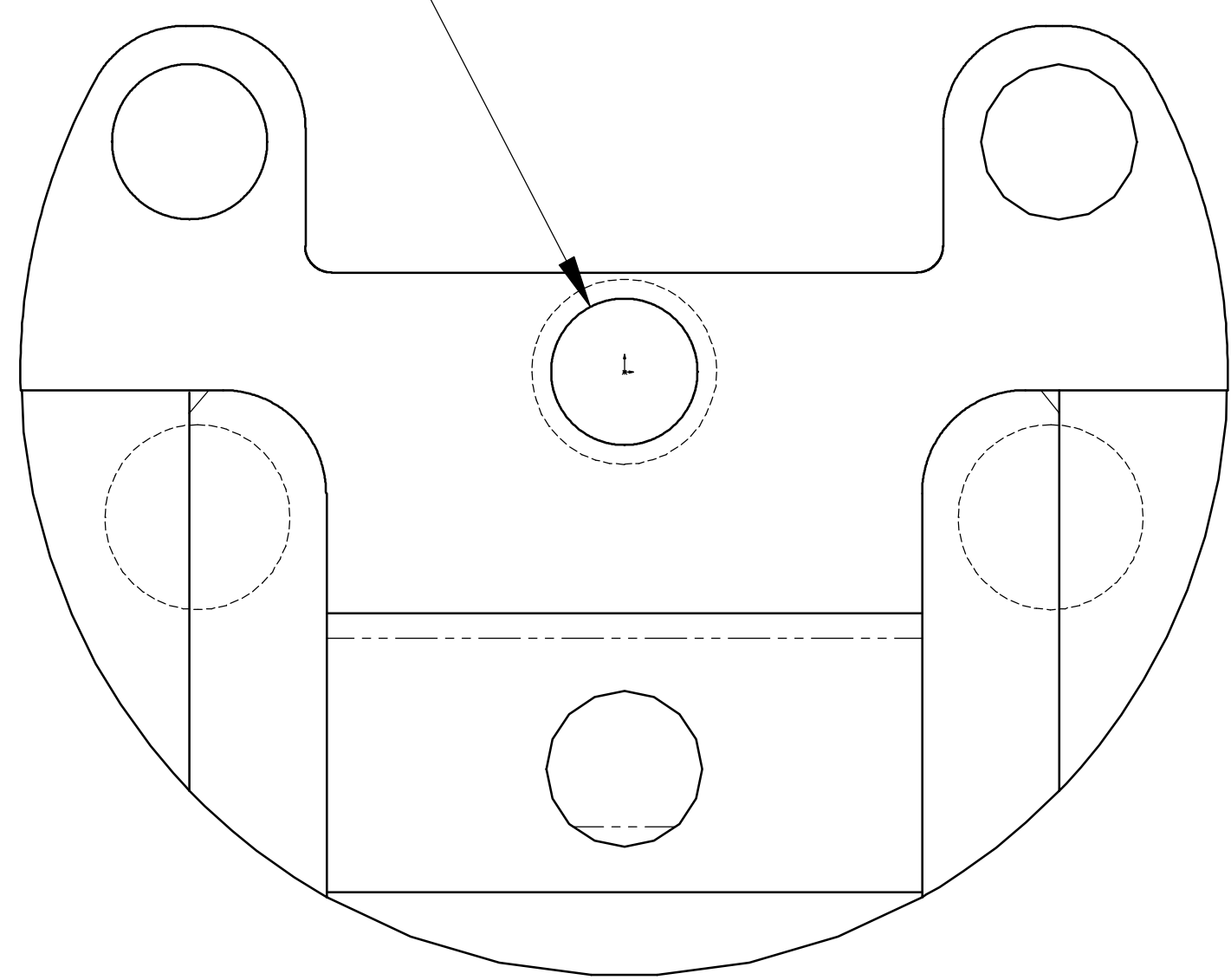
REV D    B02T112081    SCALE 5:1    SHEET 1 OF 1

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
D	Cut forward guide rod lugs to allow room for transducer cable to fold	1/16/02	RM

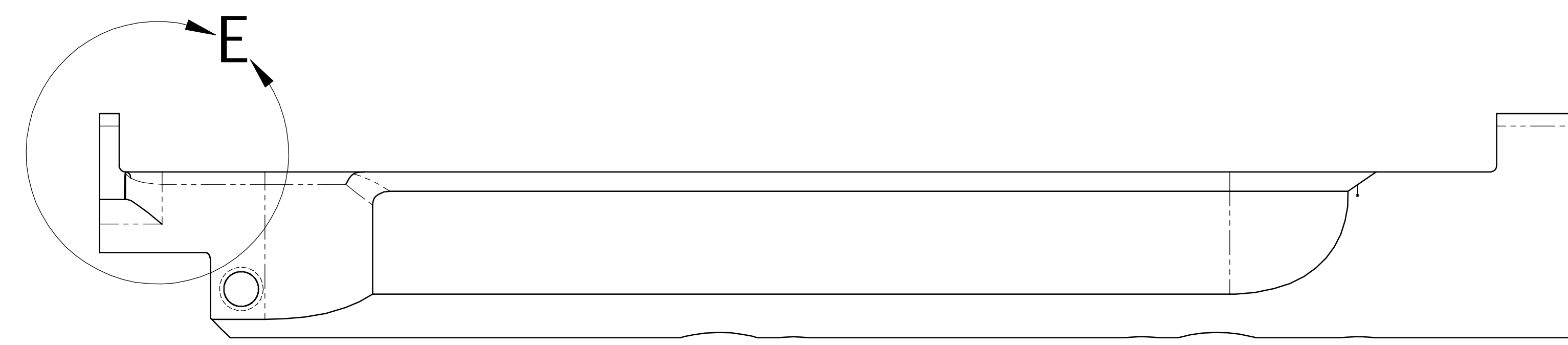
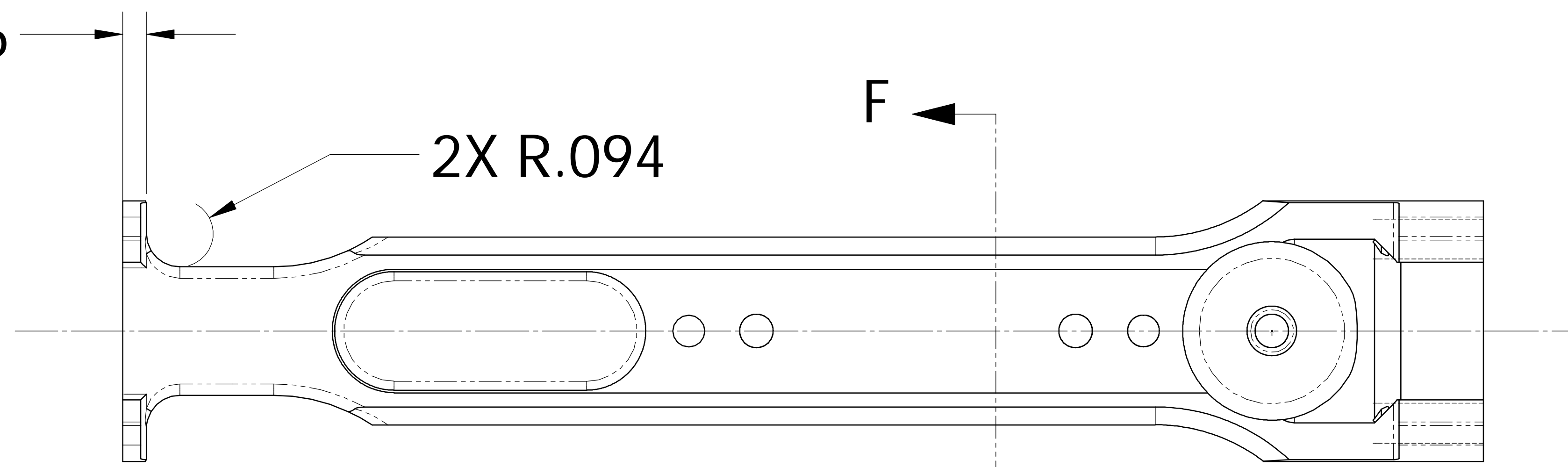
Add threads to attach balance weight.

$\phi .089 \nabla .299$   
#4-40 Thread  $\nabla .224$



2X .066

2X R.094



Add clearance for transducer signal wire as shown

.346  
Increase clearance with drive pin

.173

.040

45°

.050

SECTION F-F  
SCALE 5 : 1

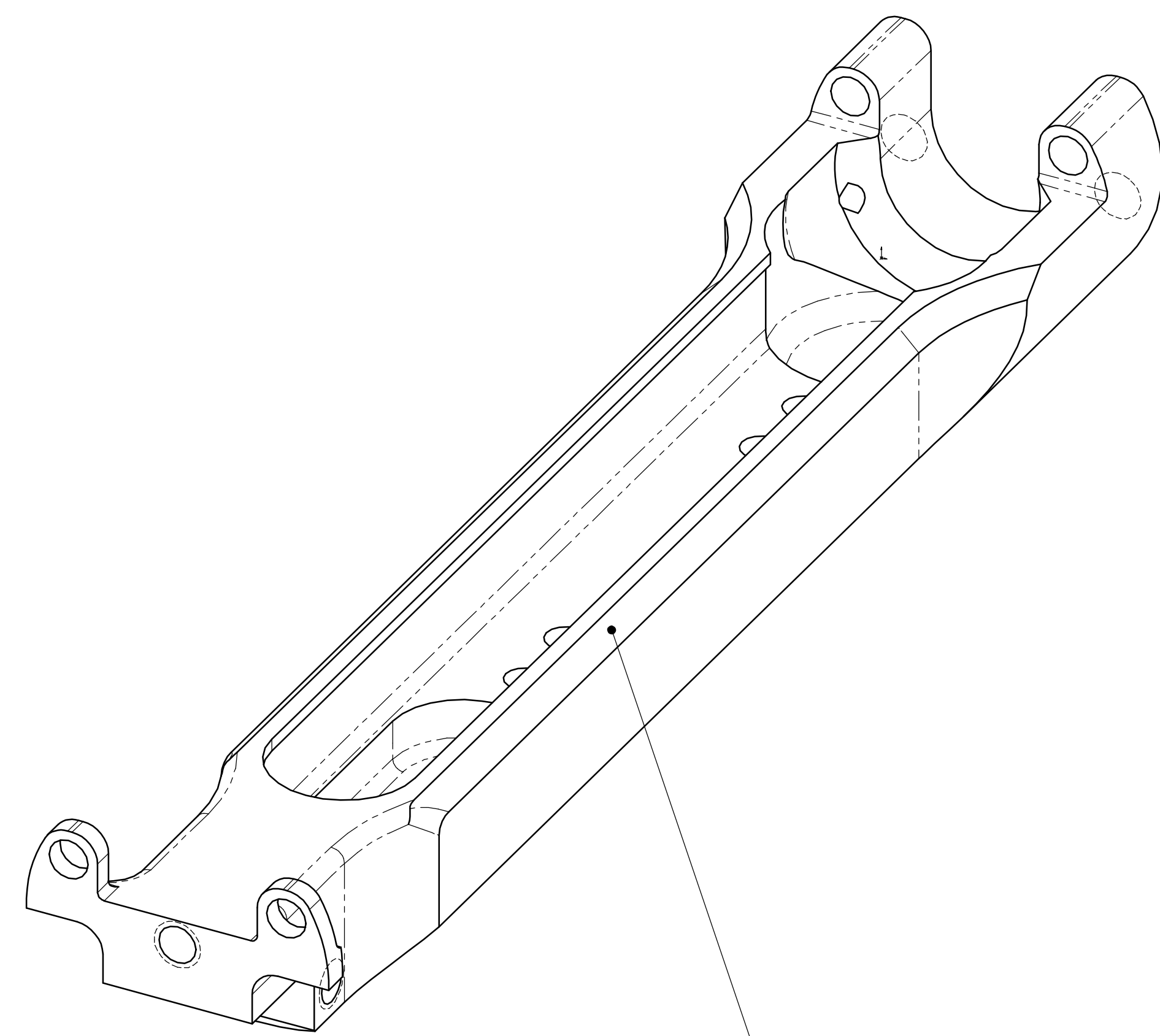
.050

Break edge 0.032

DETAIL E  
SCALE 10 : 1

Same as B02T112121 Rev C except as shown.

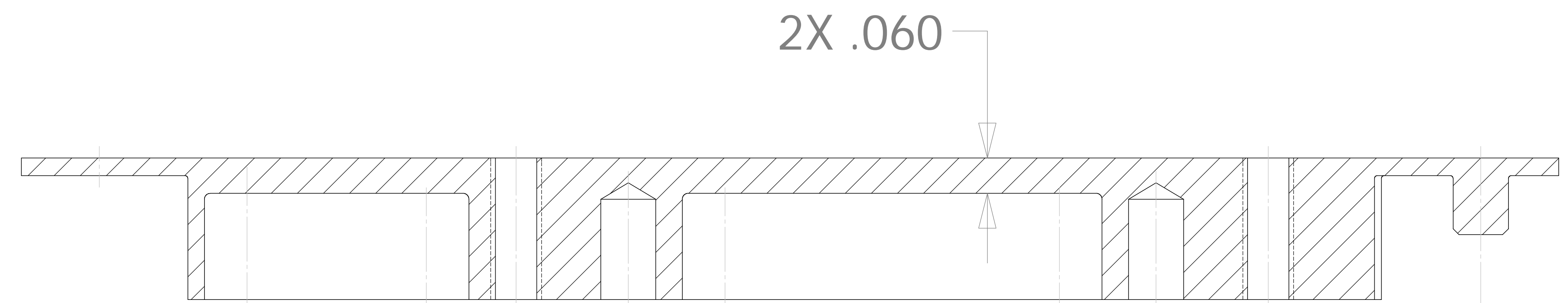
Add chamfer for wire clearance as shown 2 PL



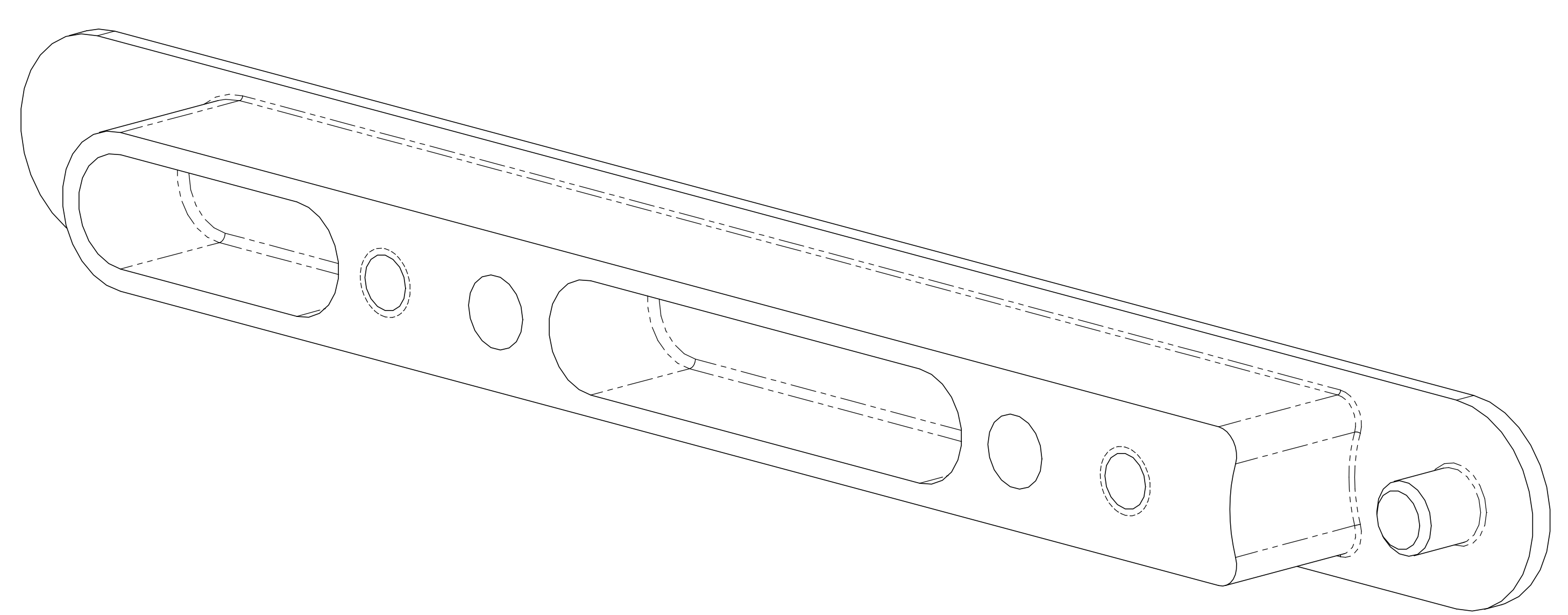
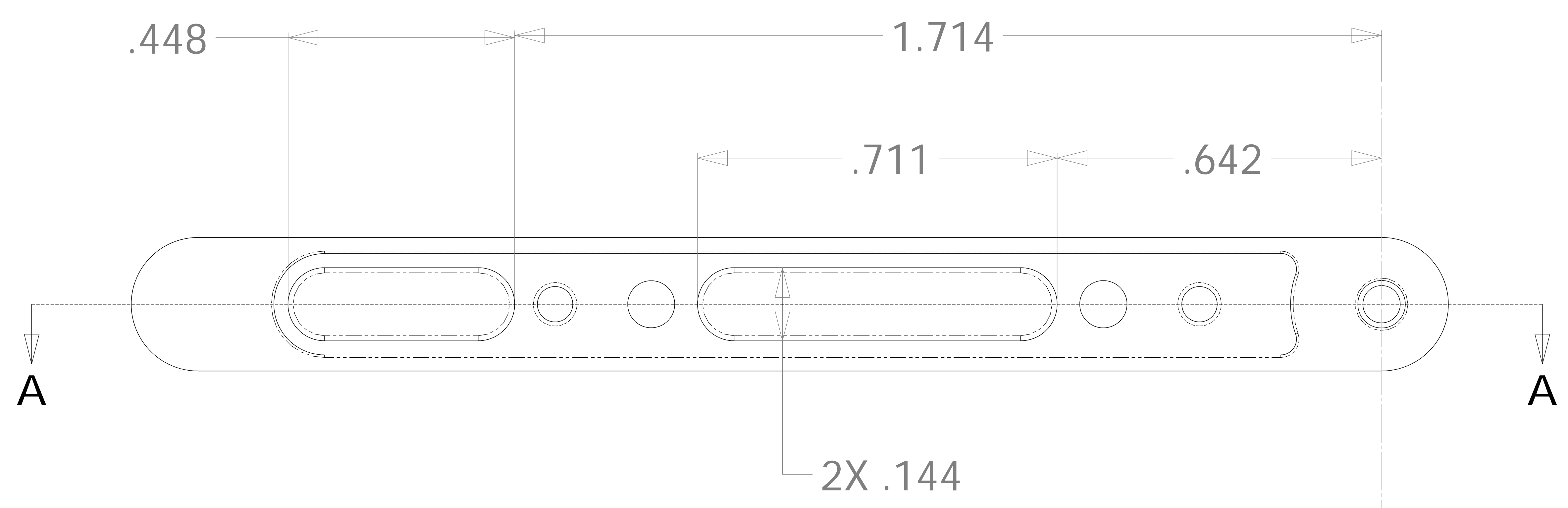
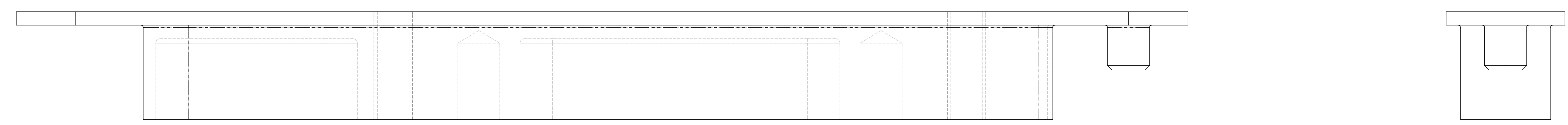
PARTS LIST		Product Development Corporation	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE	
.XX	= ± 0.015	APPROVALS	DATE
.XXX	= ± 0.005	DRAWN	
.X°	= ± 0.3°	CHECKED	
MATERIAL AL 6061 T6		RESP ENG	
FINISH		MFG ENG	
NEXT ASSY	USED ON	QUAL ENG	
APPLICATION		DO NOT SCALE DRAWING	
SCALE 2:1		DWG. NO. B02T112121	
CAD FILE B02T112121.D		REV D	
SHEET 1 OF 1			

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REV.	DESCRIPTION	REVISIONS	DATE	APPROVED



SECTION A-A



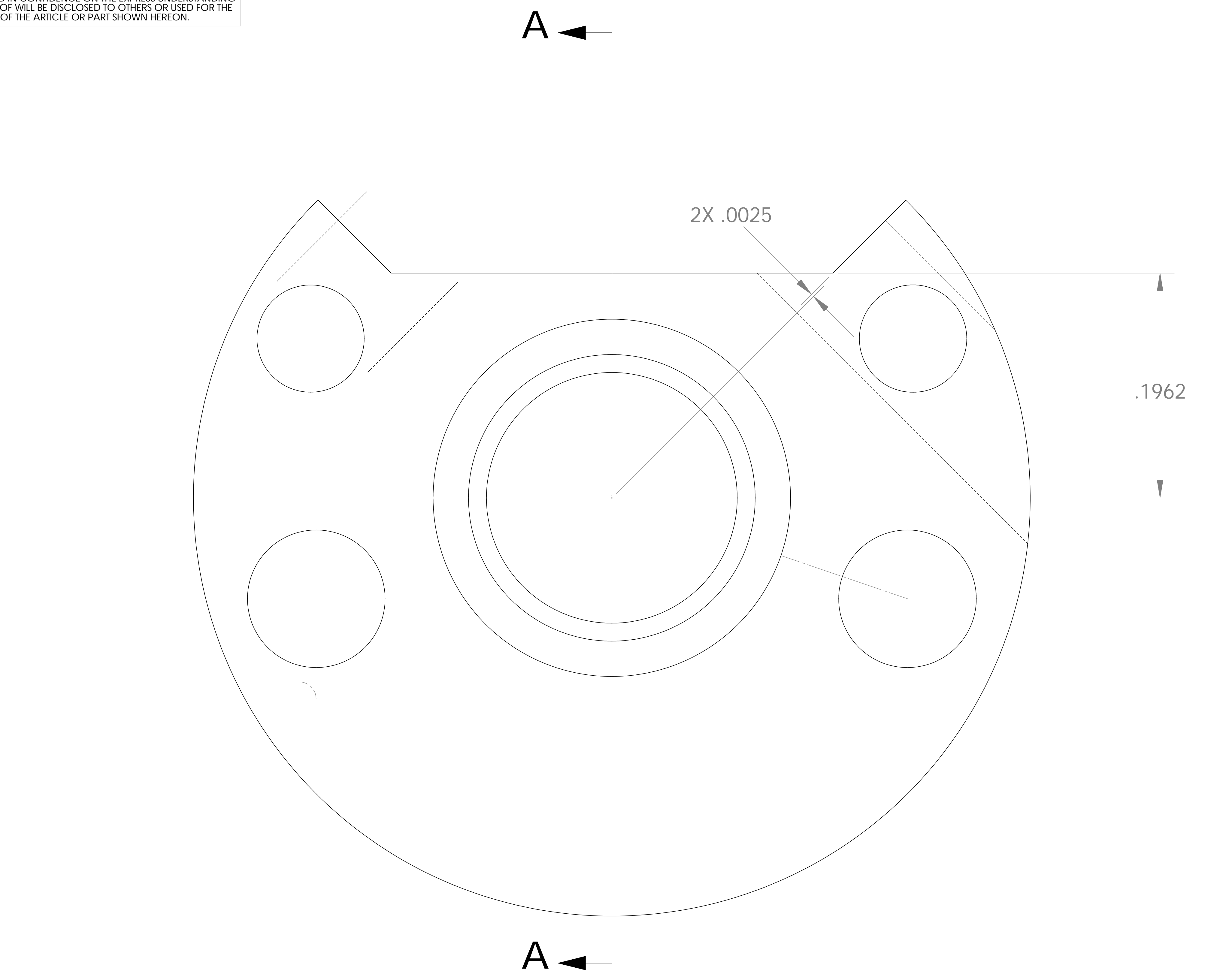
Add two slots to remove weight to help balance about rotation axis.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE		PARTS LIST	
.XX	= ± 0.015	APPROVALS	DATE	Product Development Corporation	
.XXX	= ± 0.005	DRAWN		envisioneering	
.X°	= ± 0.3°	CHECKED		Inner Track Plate	
MATERIAL	SS 303	RESP ENG		SIZE	DWG. NO. B02T112127
FINISH		MFG ENG		SCALE	4:1
NEXT ASSY	USED ON	QUAL ENG		CAD FILE	B02T112127
APPLICATION	DO NOT SCALE DRAWING			SHEET	2 OF 2



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REV.	DESCRIPTION	REVISIONS	DATE	APPROVED



SECTION A-A  
SCALE 5 : 1

Same as B02T112151 Rev - except as shown.

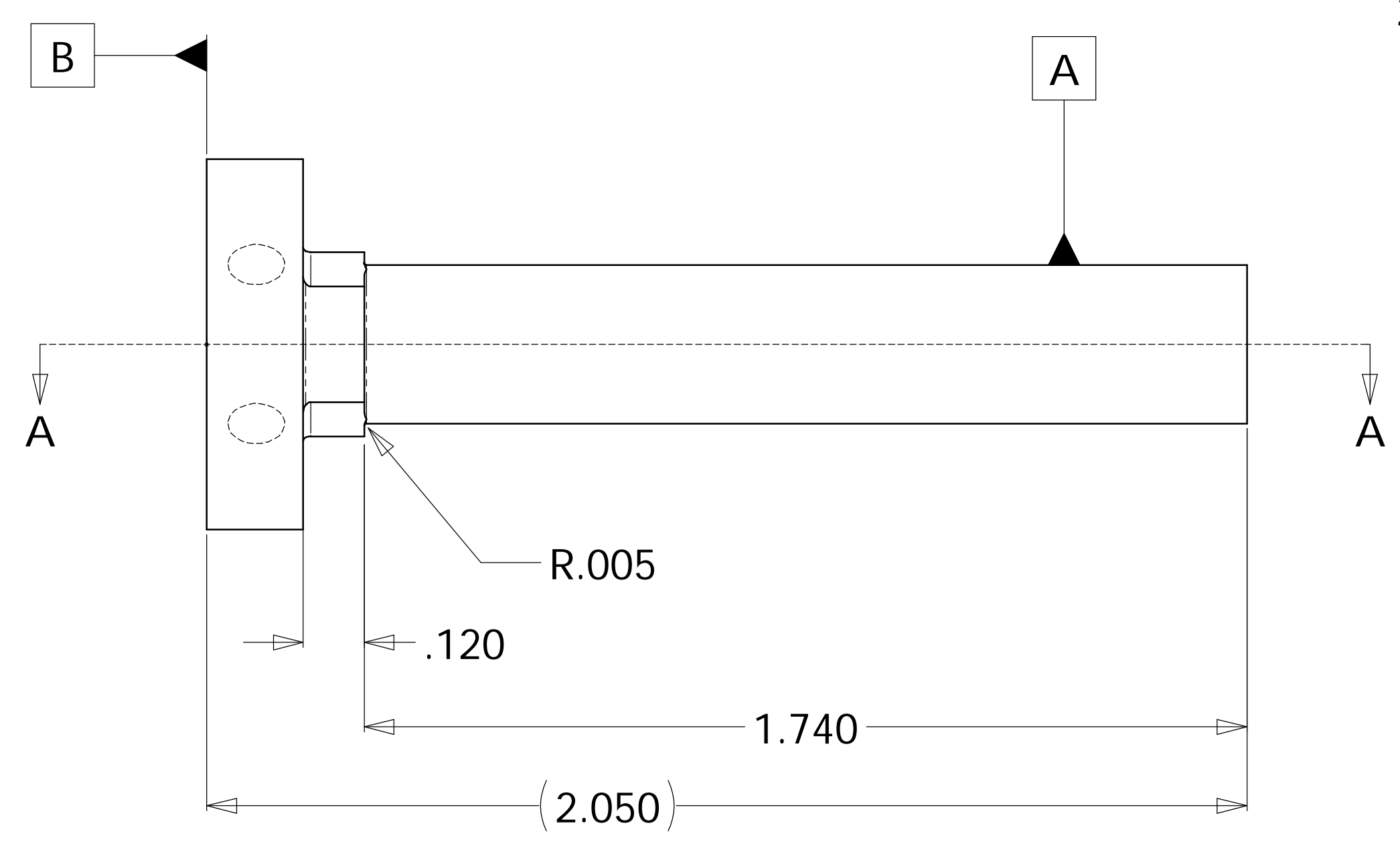
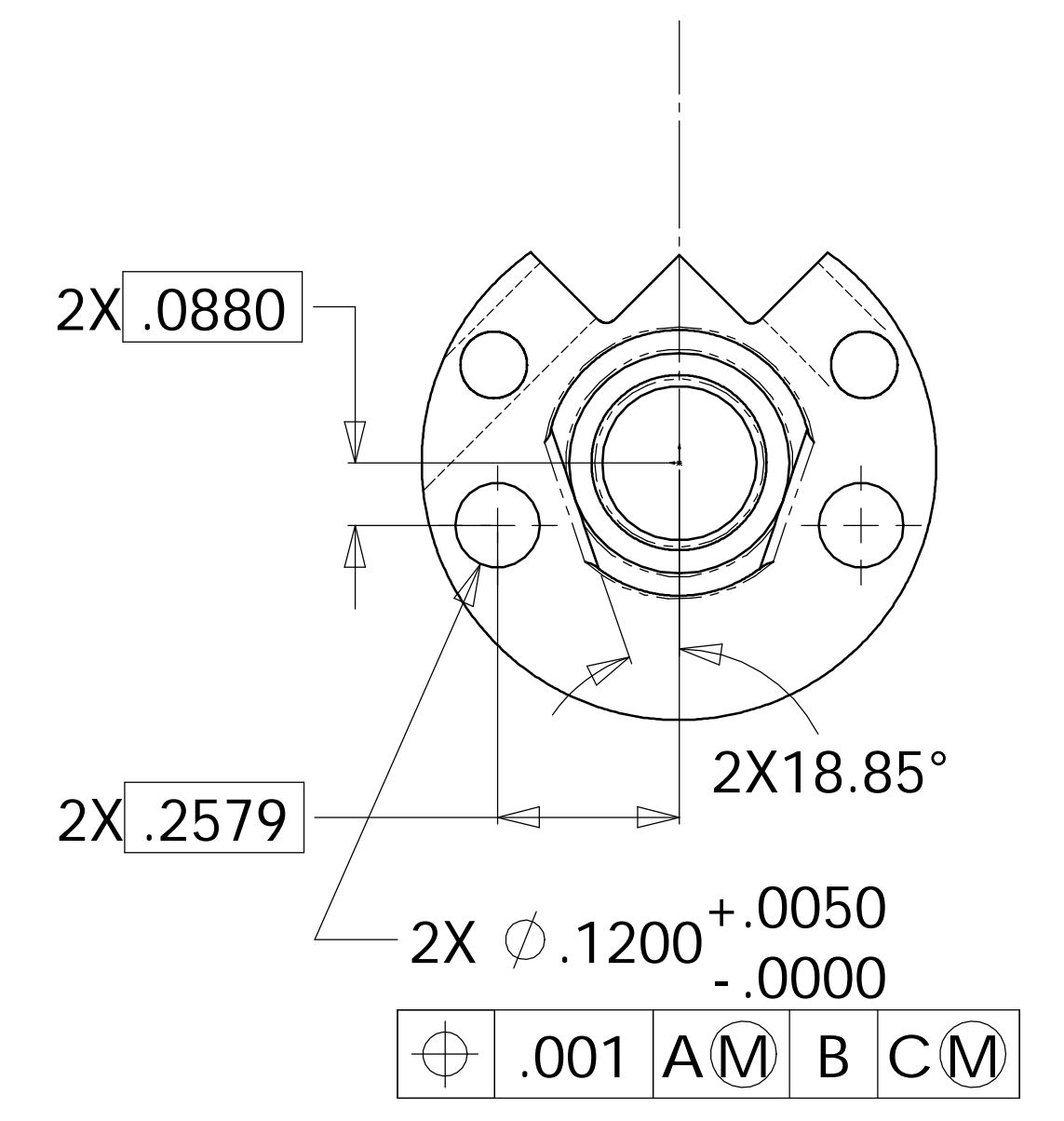
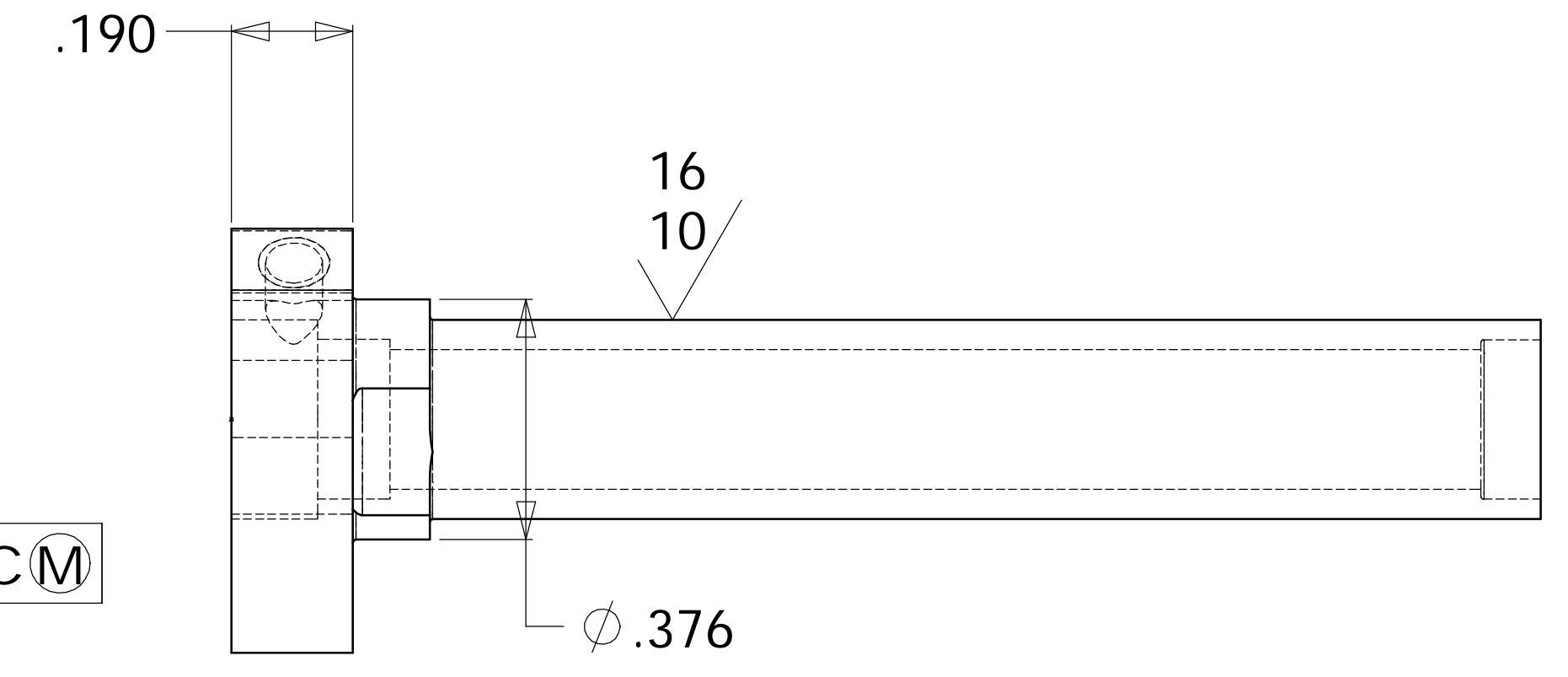
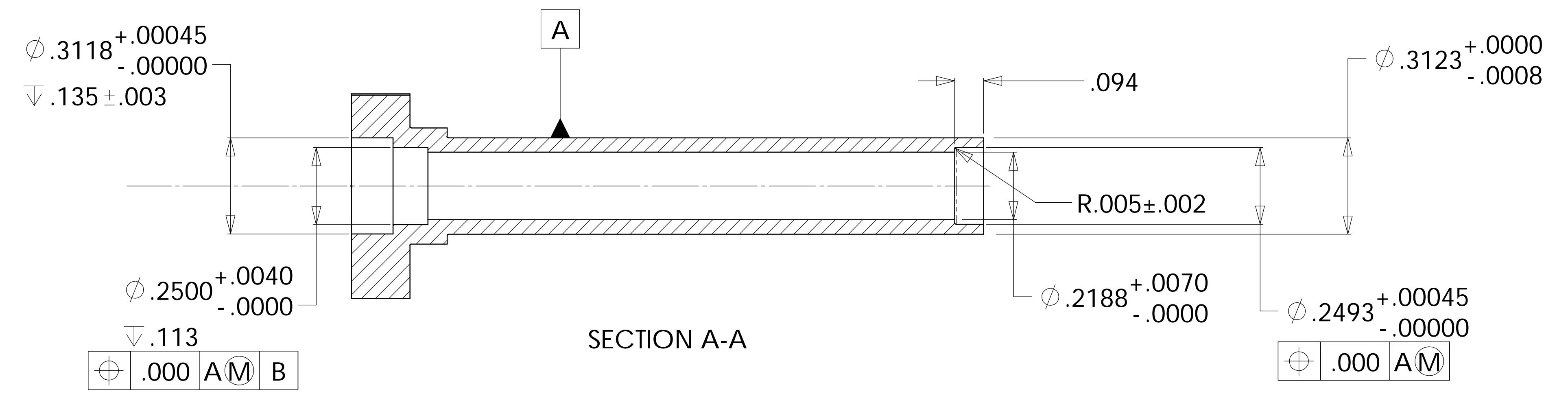
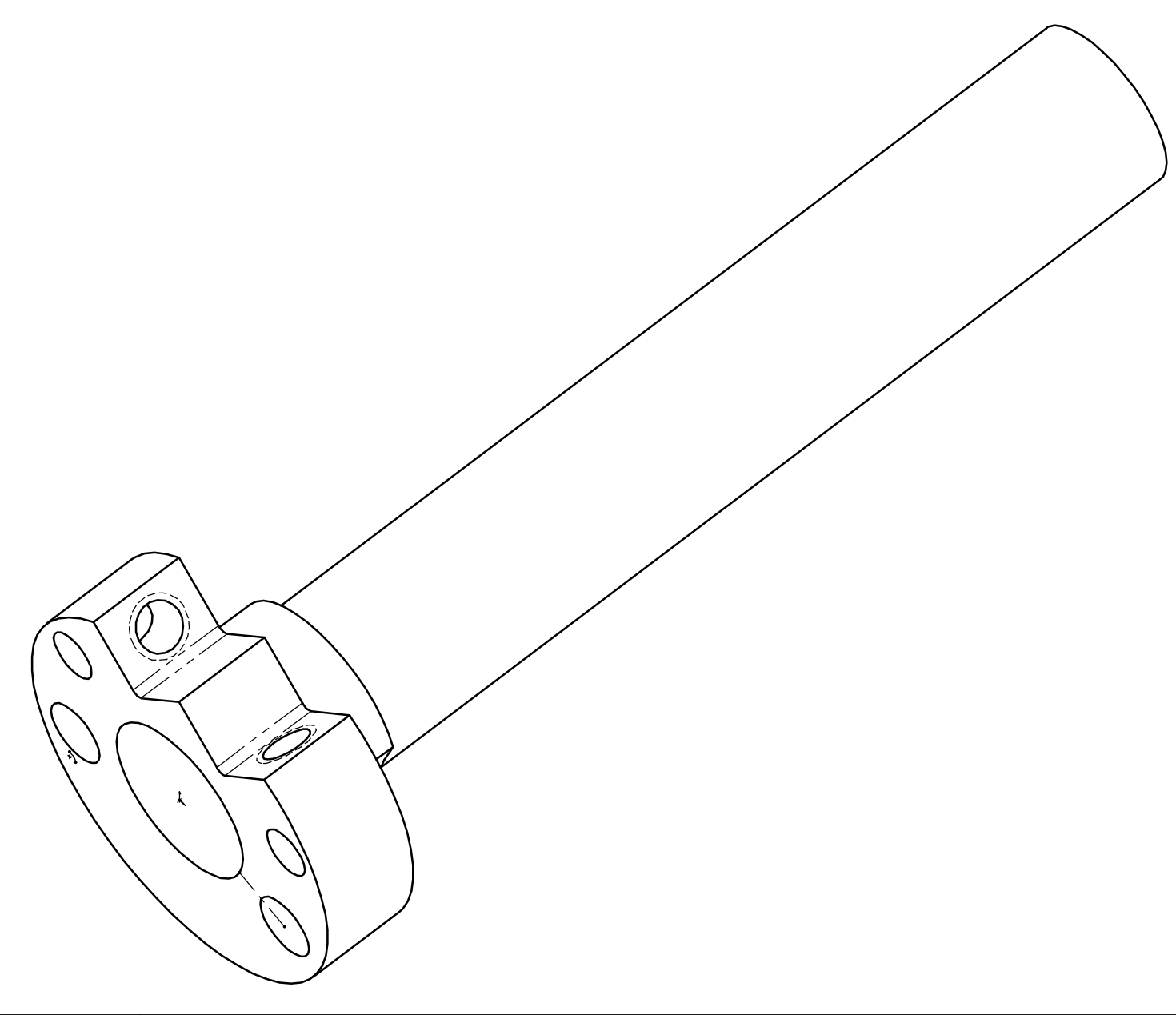
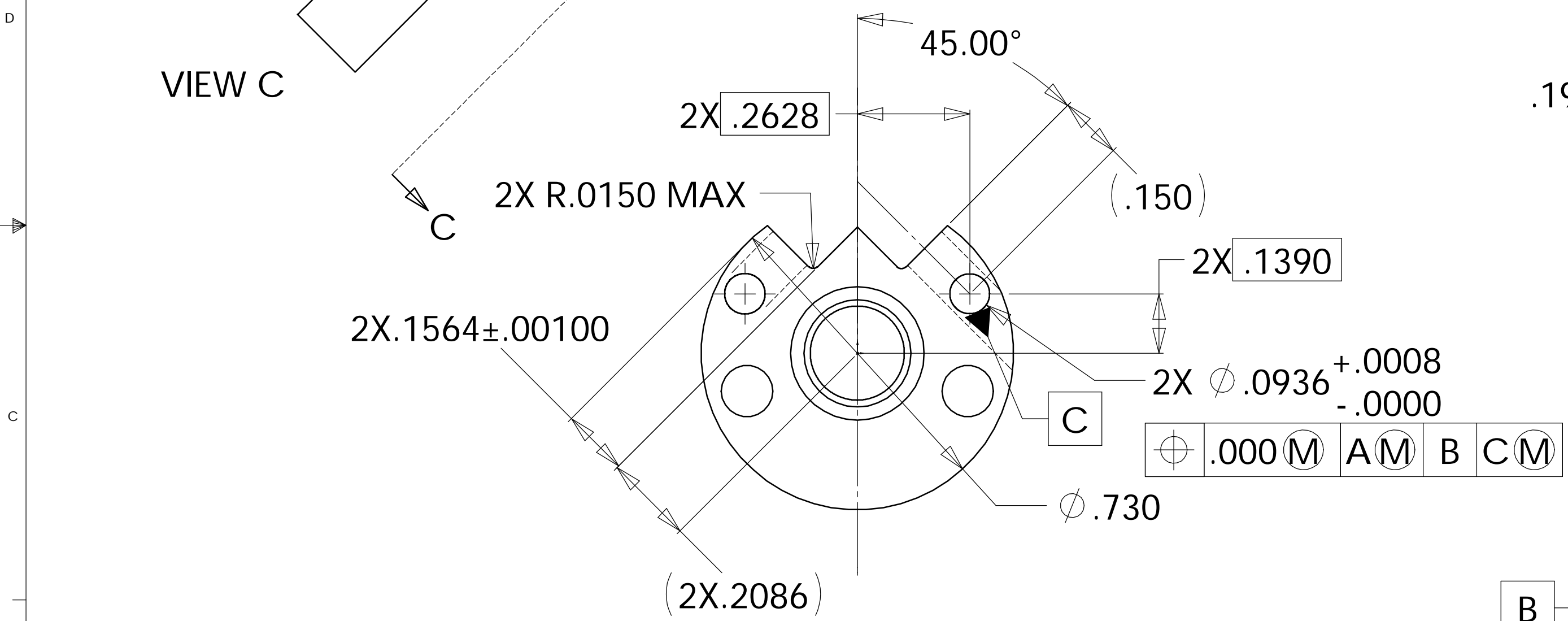
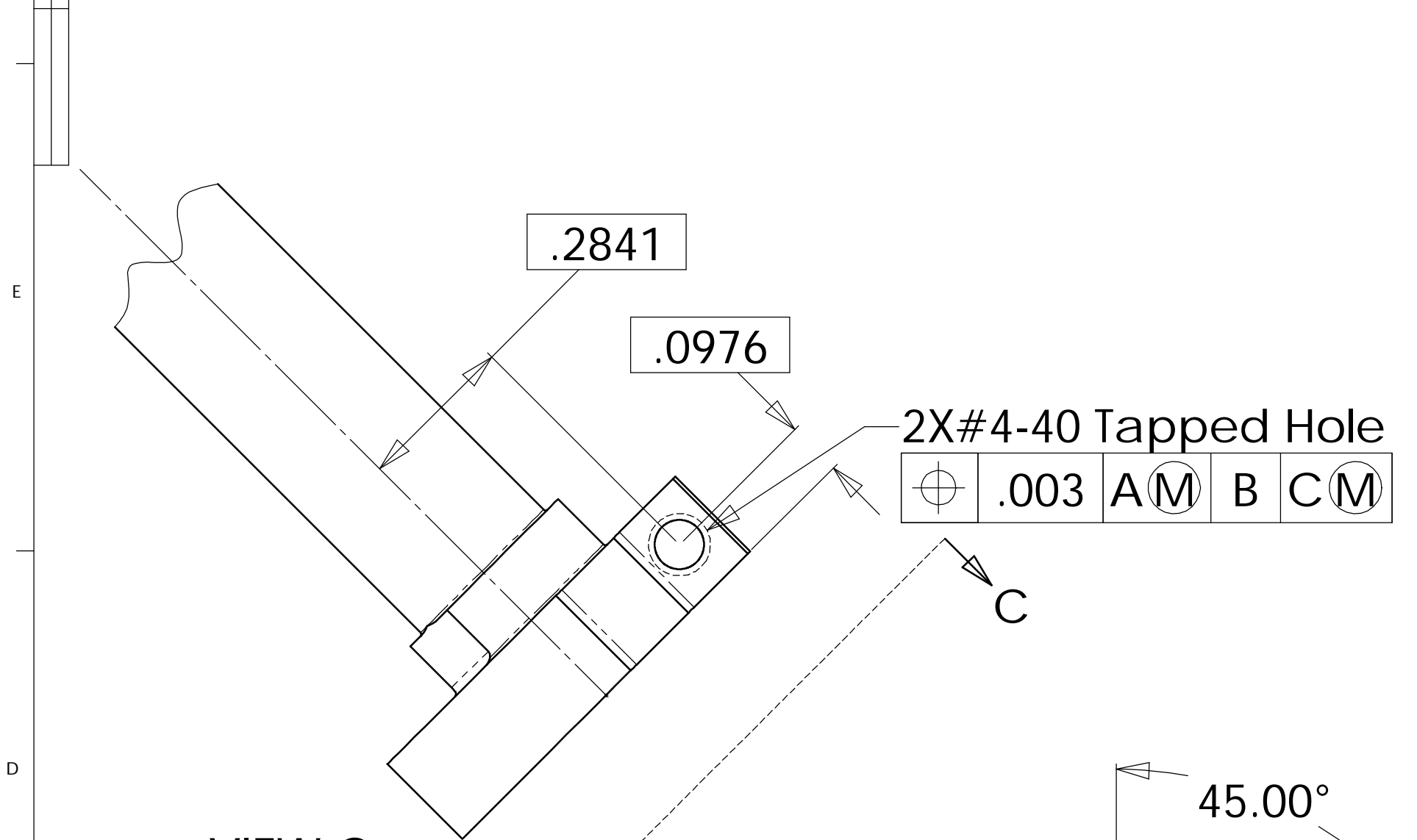
NEXT ASSY		USED ON		APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	PARTS LIST	
.XX = ± 0.015	CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE	
.XXX = ± 0.005	APPROVALS	DATE
.X° = ± 0.3°	DRAWN	
MATERIAL: AI 6061 T6	CHECKED	
FINISH	RESP ENG	
	MFG ENG	
	QUAL ENG	
DO NOT SCALE DRAWING		

Product Development Corporation		
<b>Support Boss Mod for Balance Weight</b>		
SIZE C	DWG. NO. B02T112151	REV. B
SCALE 10:1	CAD FILE B02T112151mod	SHEET 1 OF 1

Cylindrical Fit Reference Only														
Class	Range	Min	Range	Max	Pin OD	OD Plus	OD Minus	Max Pin	Min Pin	Hole ID	ID Plus	ID Minus	Max Hole	Min Hole
FN1	-0.00010	-0.00075	0.25000	0.00000	0.00020	0.25000	0.24980	0.24925	0.00045	0.00000	0.24970	0.24925		
FN1	-0.00010	-0.00075	0.31250	0.00000	0.00020	0.31250	0.31230	0.31175	0.00045	0.00000	0.31220	0.31175		
LT2	-0.00020	0.00080	0.09380	0.00000	0.00020	0.09380	0.09360	0.09360	0.00080	0.00000	0.09440	0.09360		

REVISONS			
REV	DESCRIPTION	DATE	APPROVED



For reference only

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES TOLERANCES ARE:		CAD GENERATED DRAWING: DO NOT MANUALLY UPDATE		PARTS LIST	
.XX	= ± 0.015	APPROVALS	DATE		
.XXX	= ± 0.005	DRAWN			
.X"	= ± 0.3"	CHECKED			
MATERIAL: AI 6061 T6		RESP ENG			
FINISH:		MFG ENG			
NEXT ASSY:	USED ON:	QSAL ENG		REV: D	DESC: 160
APPLICATION: DO NOT SCALE DRAWING				SCALE: A1	CAD FILE: 802112151

Product Development Corporation

Support Boss

DWG: 160

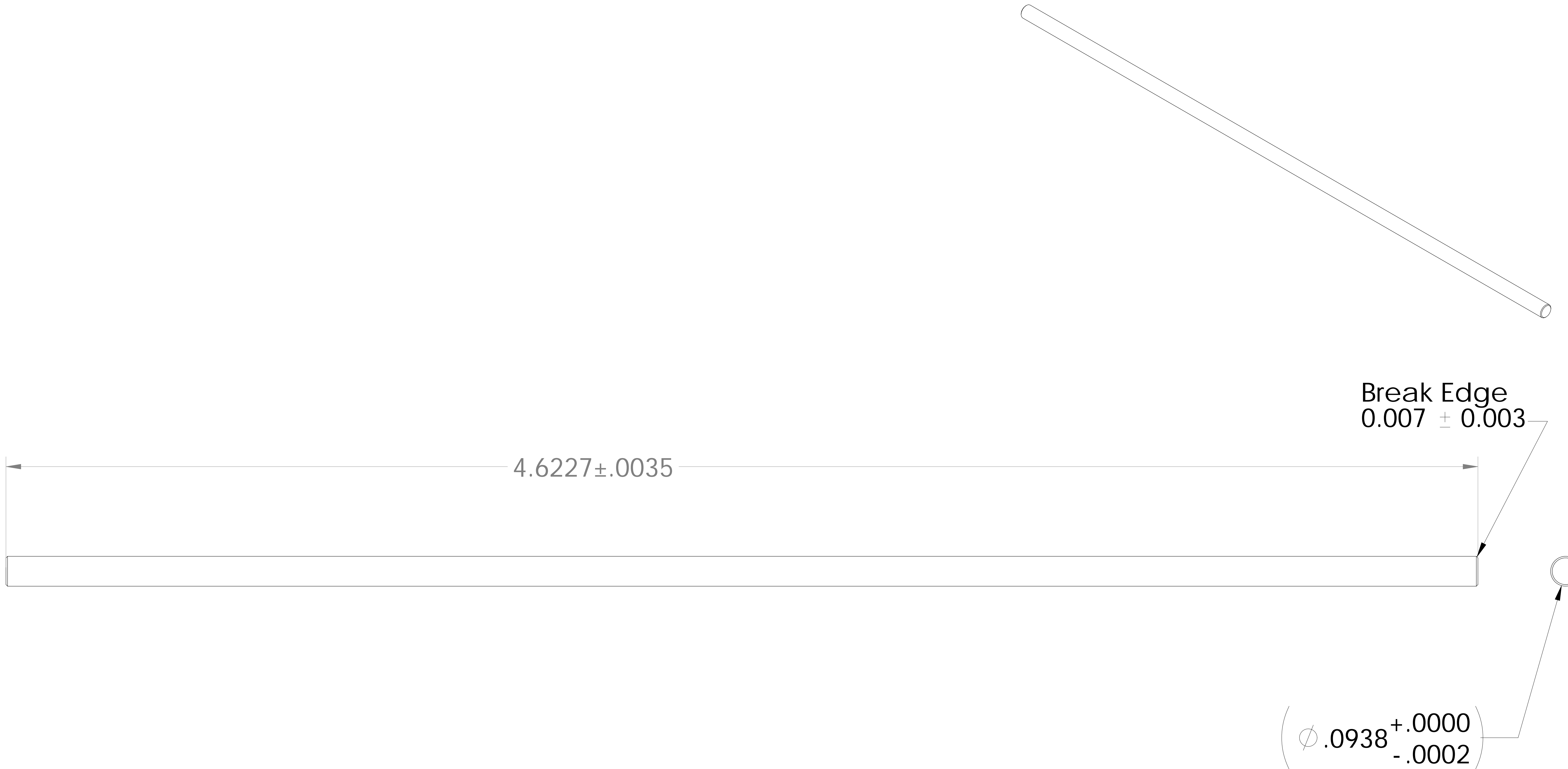
B02T112151

REV: A

SHEET 1 OF 1

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REVISIONS		DATE	APPROVED
REV.	DESCRIPTION		
C	Longer to include rotational balancing weights	1/14/02	RM



Notes:  
1. Part made from A 7X 1-0312D, Allied Devices.  
Multiple parts can be made from stock material.

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.XX = ± 0.015		APPROVALS		DATE		envisioneering	
.XXX = ± 0.005		DRAWN				Small Shaft	
.X° = ± 0.3°		CHECKED				REV. C	
MATERIAL SS 303		RESP ENG				DWG. NO. B02T112153	
FINISH		MFG ENG				SCALE 4:1	
NEXT ASSY	USED ON	QUAL ENG				CAD FILE B02T112153	
APPLICATION		DO NOT SCALE DRAWING				SHEET 1 OF 1	

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D

D

C

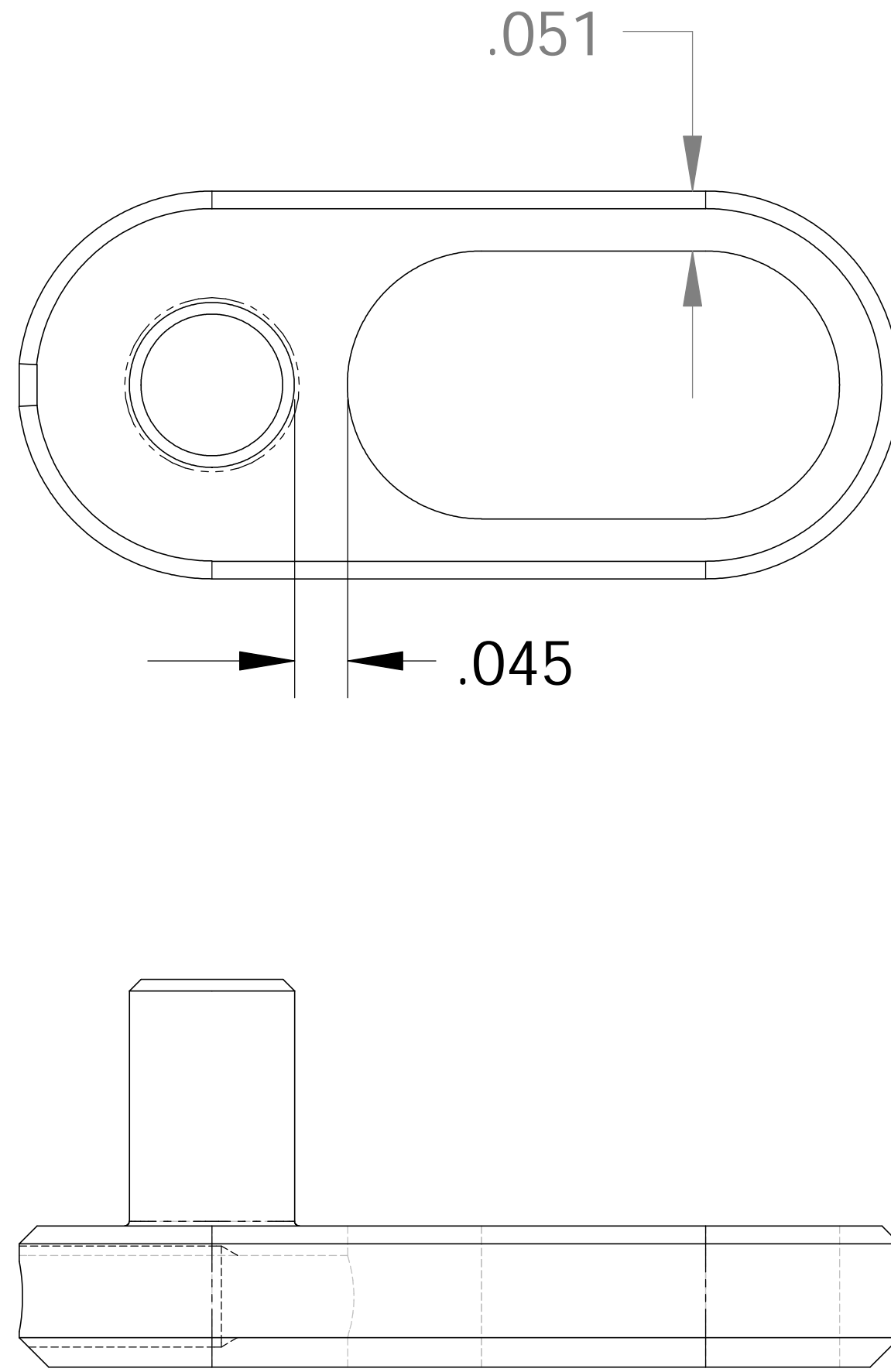
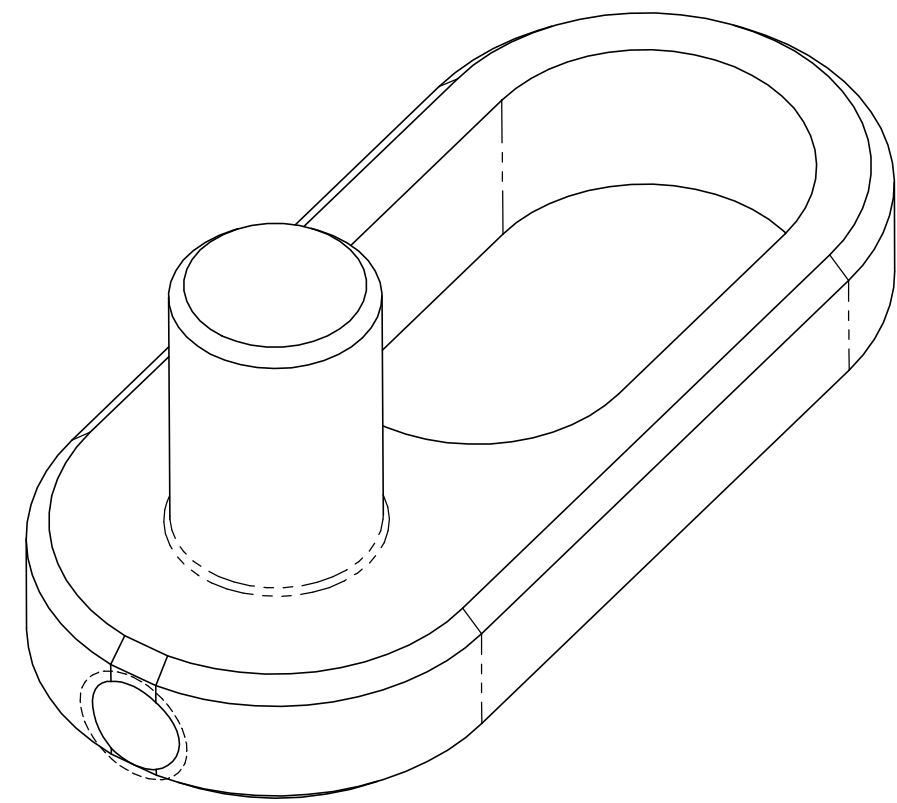
C

B

B

A

A



Same at B02T112161 Rev C except as shown.

 **Product Development Corporation**

### Upper Pulley Tension Block

SIZE A	DWG. NO. B02T112161	REV. D
SCALE 4:1	CAD FILE: B02T112161	SHEET 2 OF 2

8

7

6

5

4

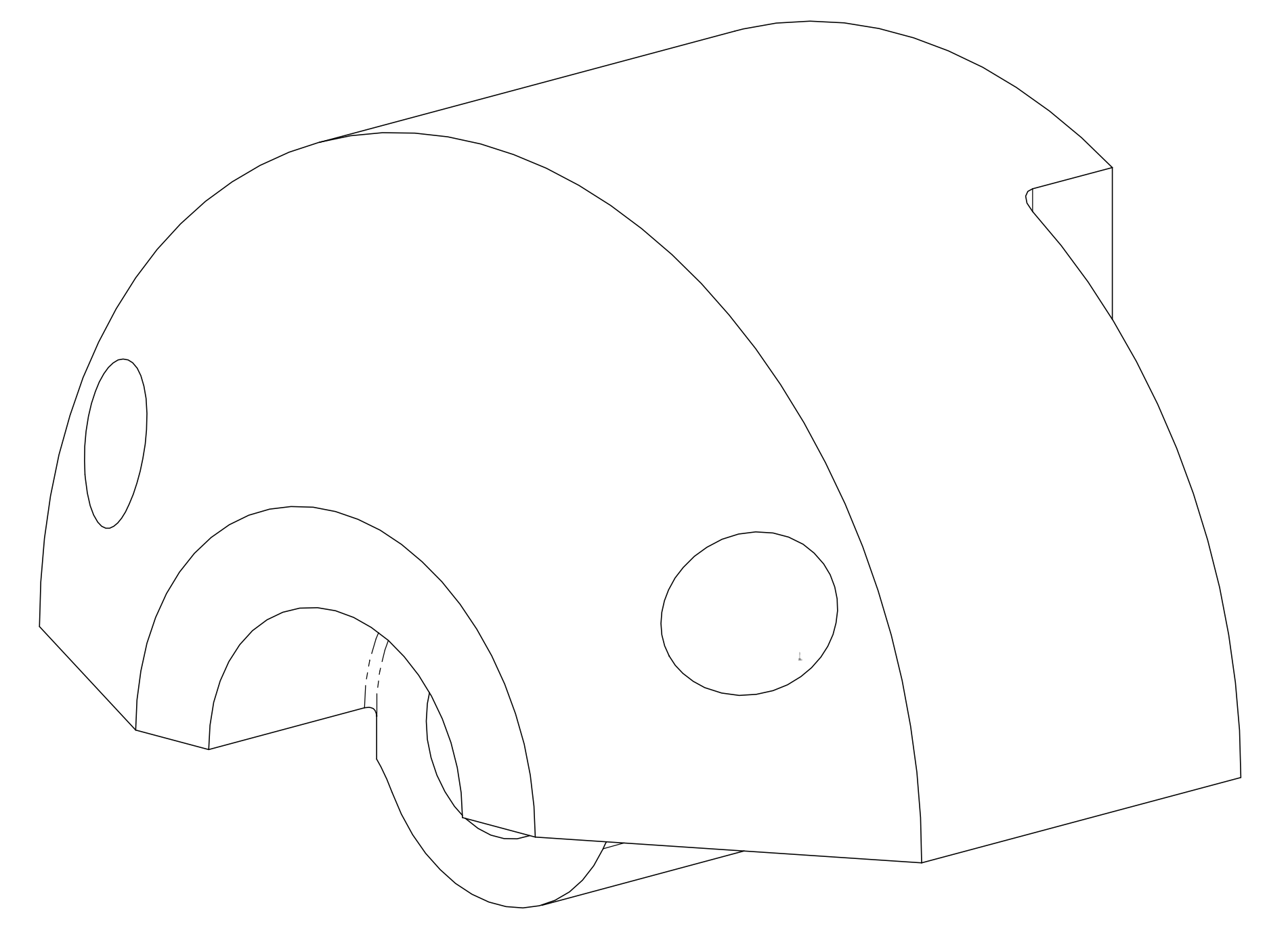
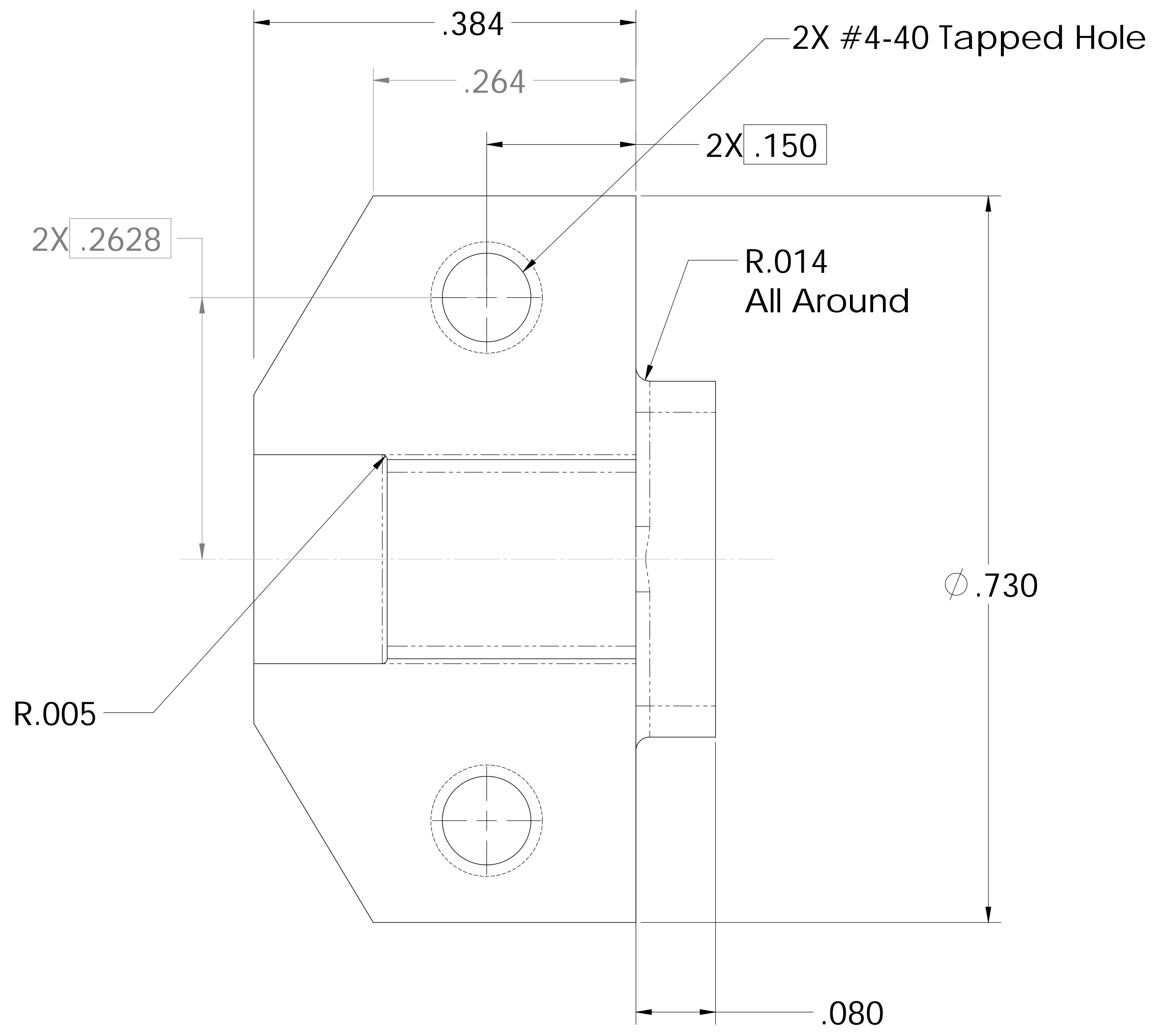
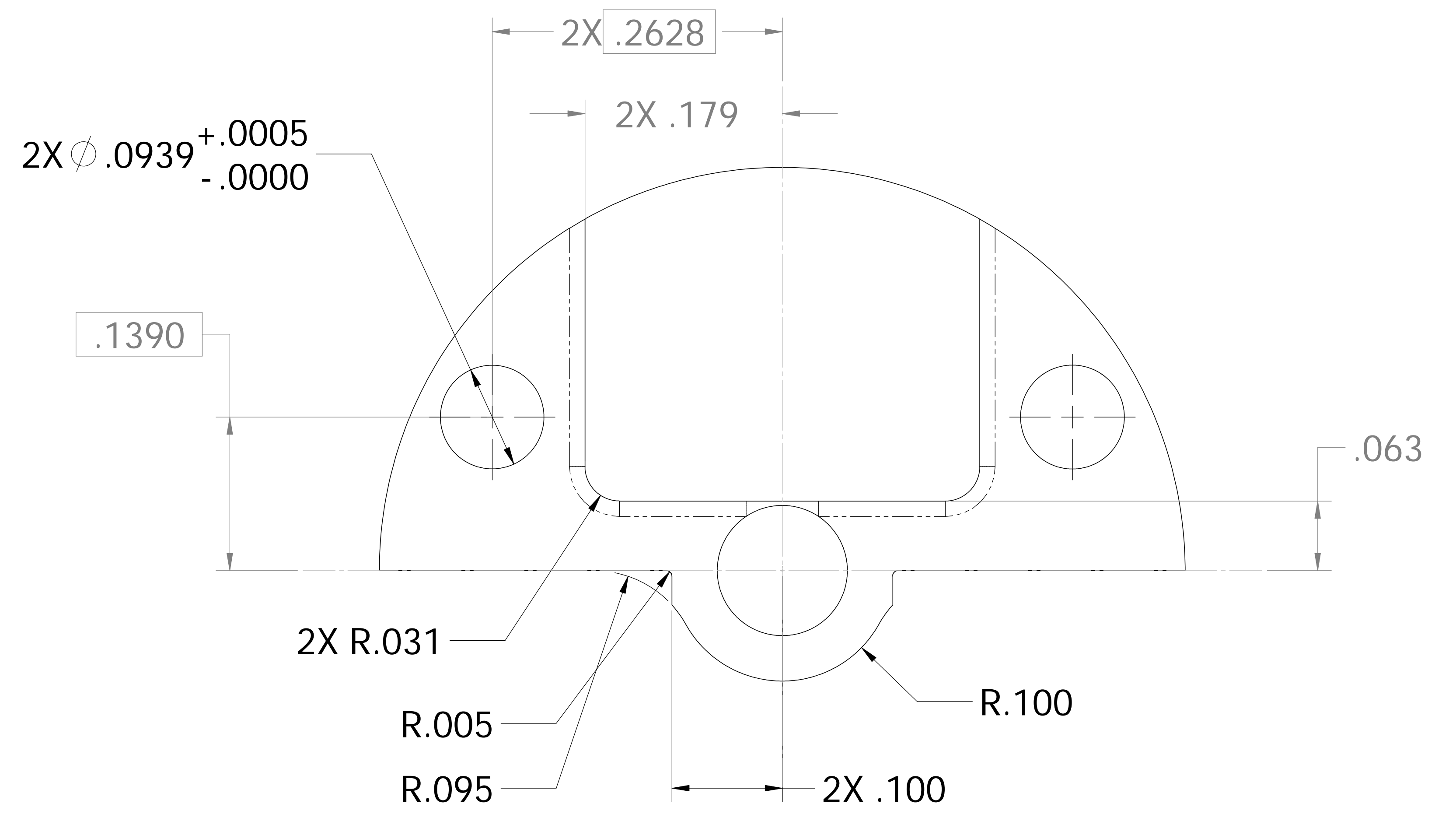
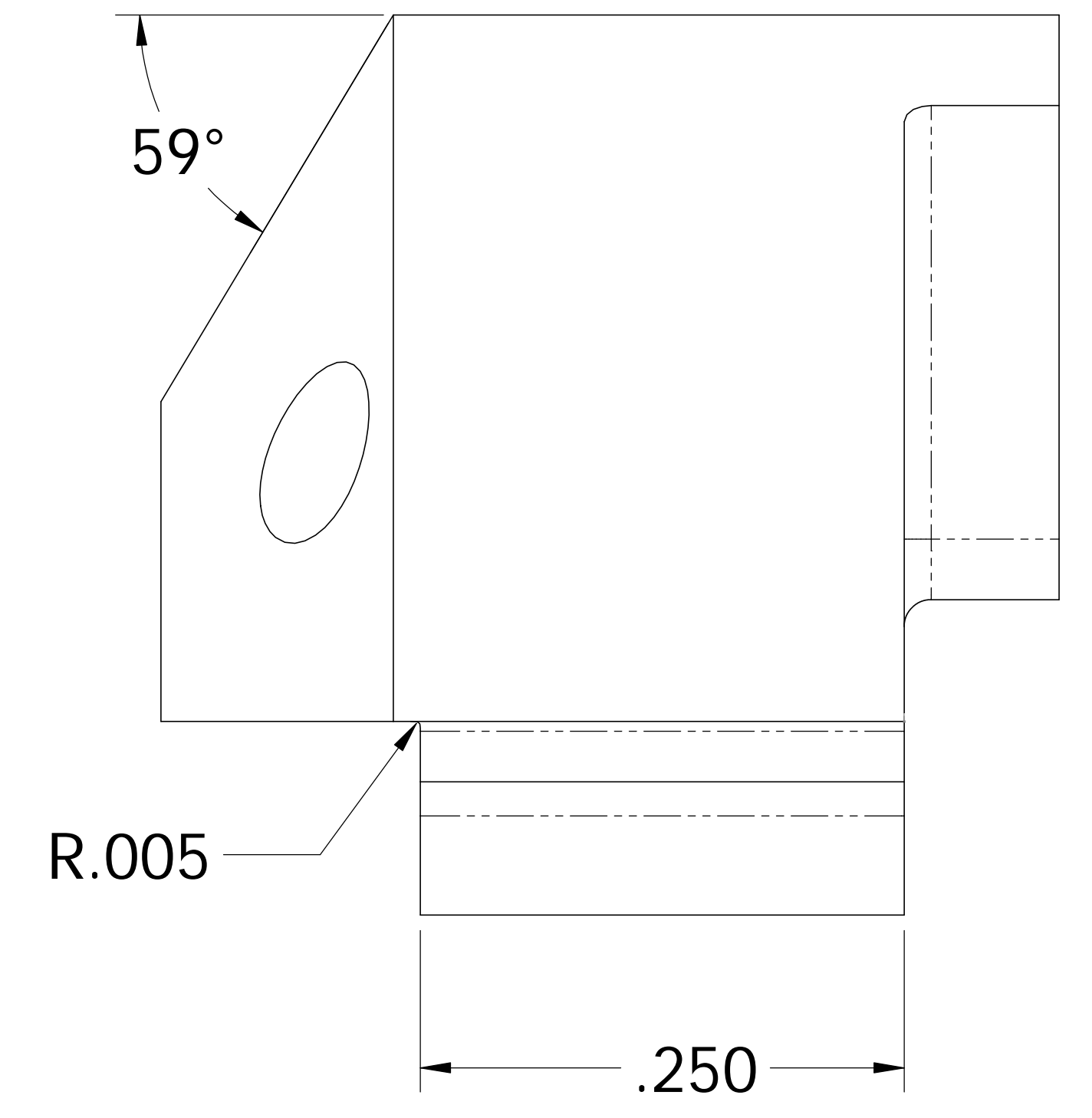
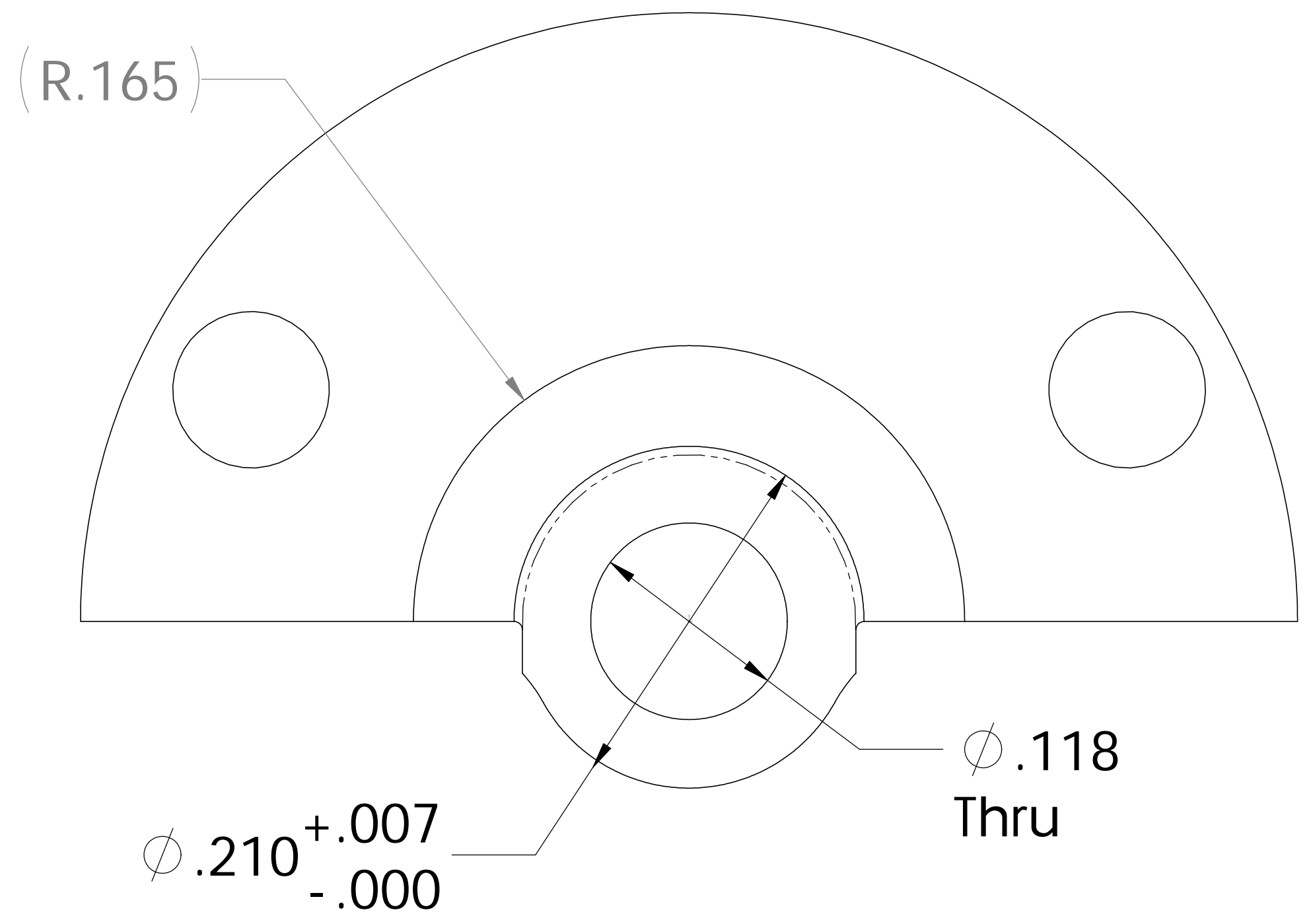
3

2

1

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REV.	DESCRIPTION	DATE	APPROVED



PARTS LIST		APPROVALS		DATE	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

XX = ± 0.015  
 .XXX = ± 0.005  
 .X" = ± 0.3"

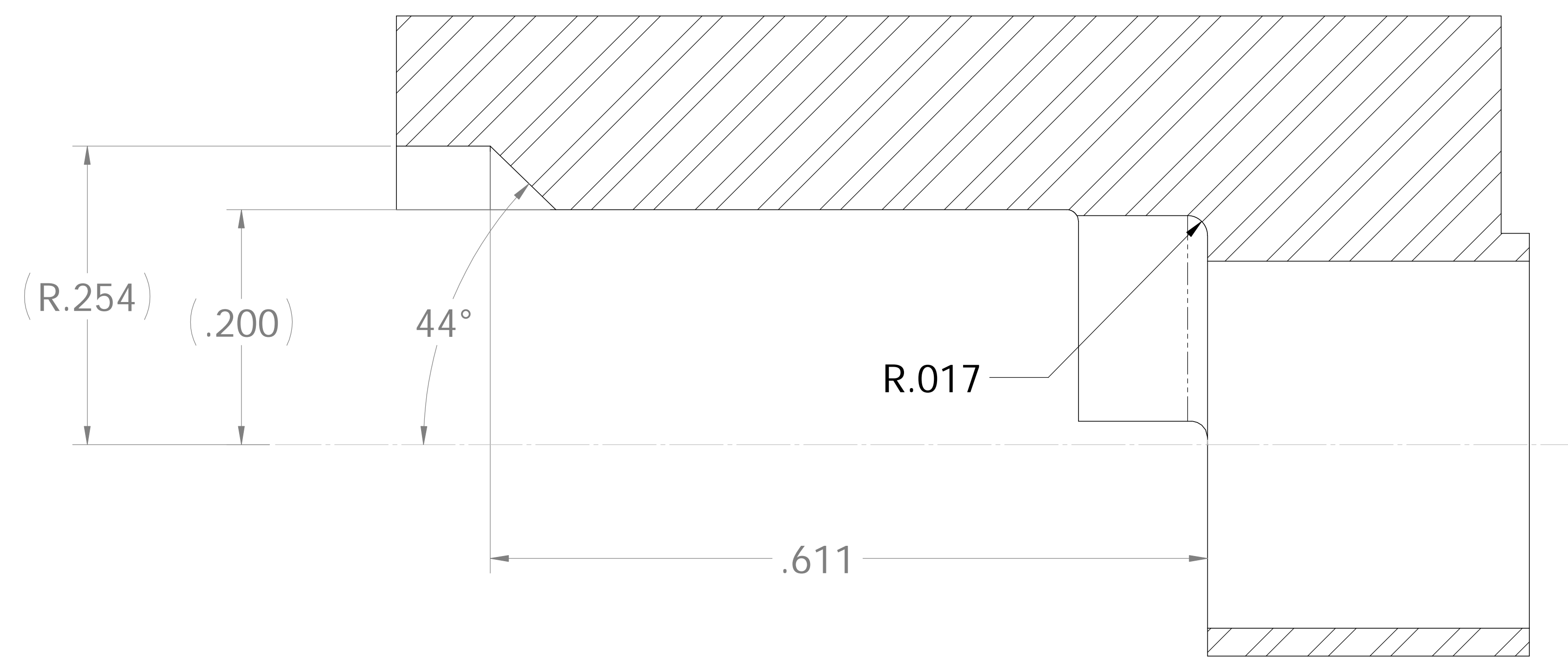
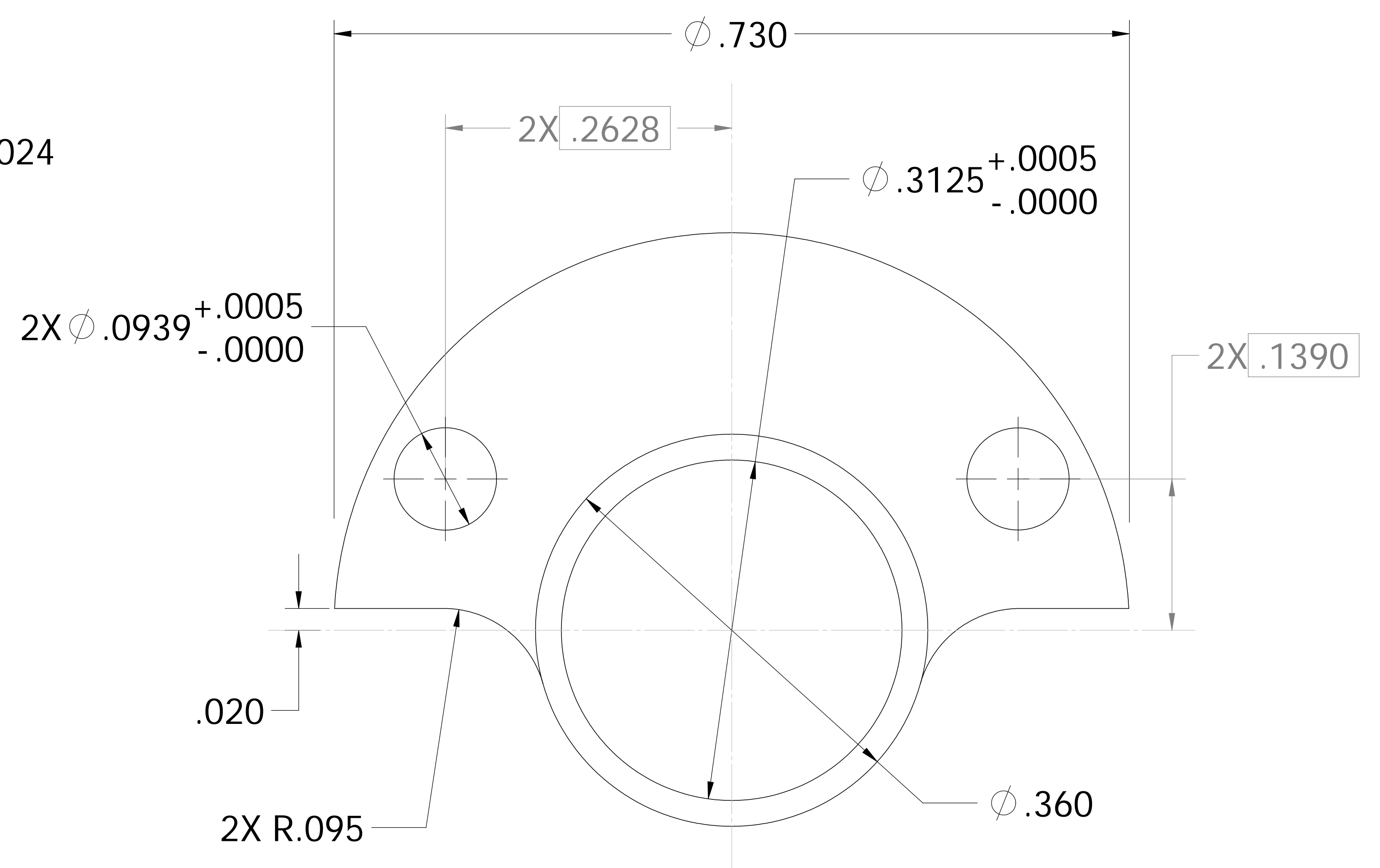
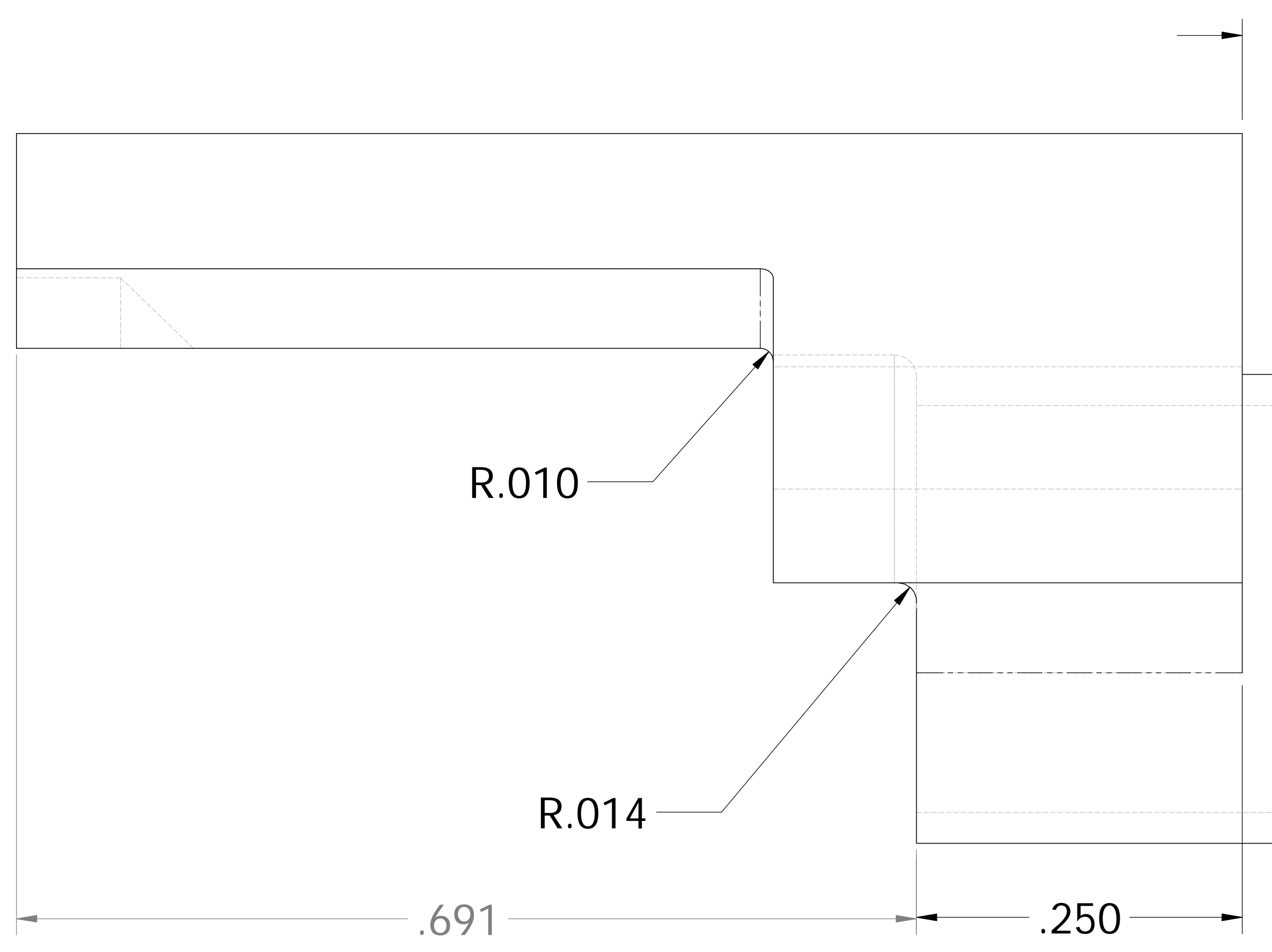
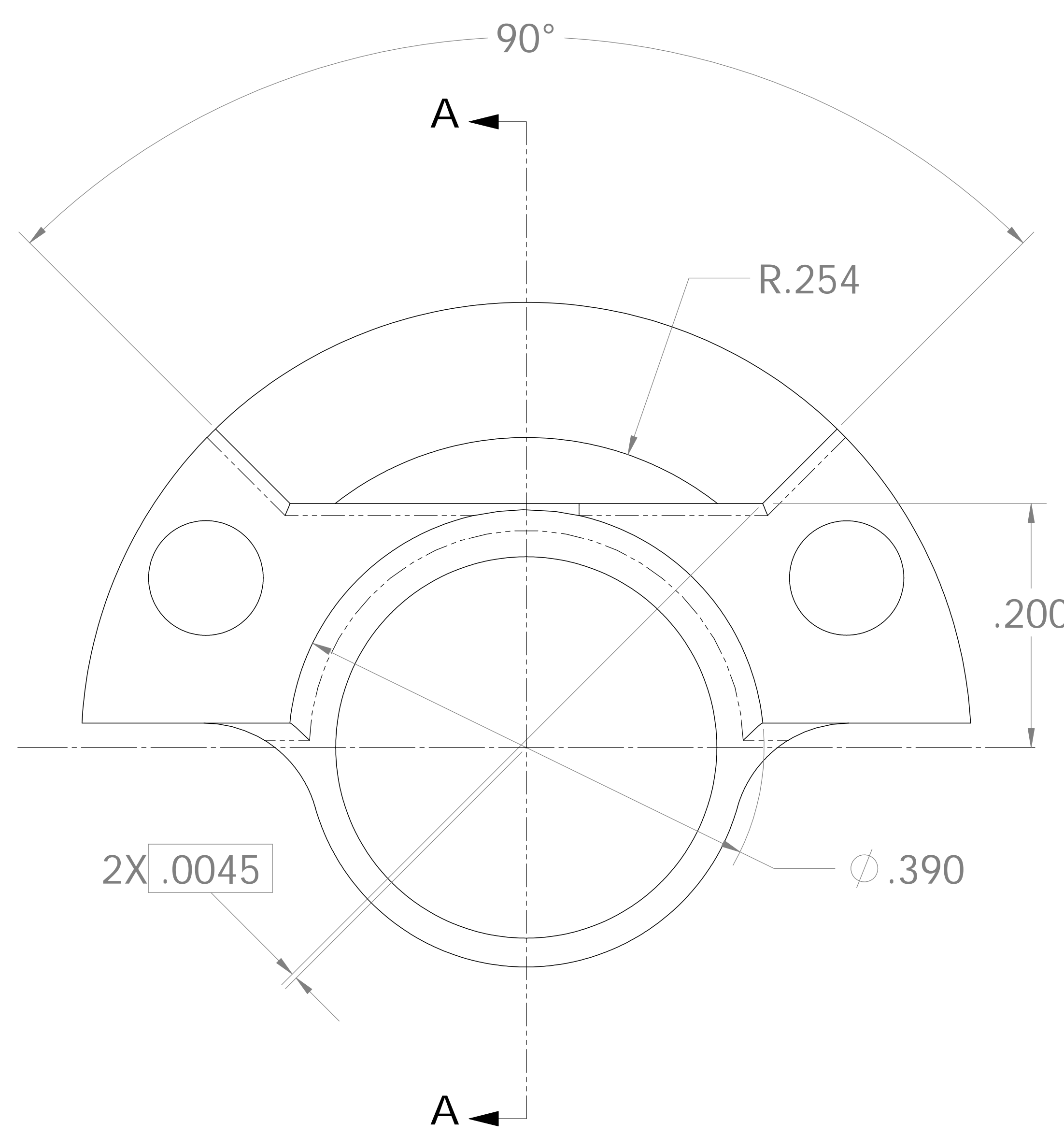
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 FINISH: FRESH

SCALE: 10:1  
 DATE: 06/11/2018

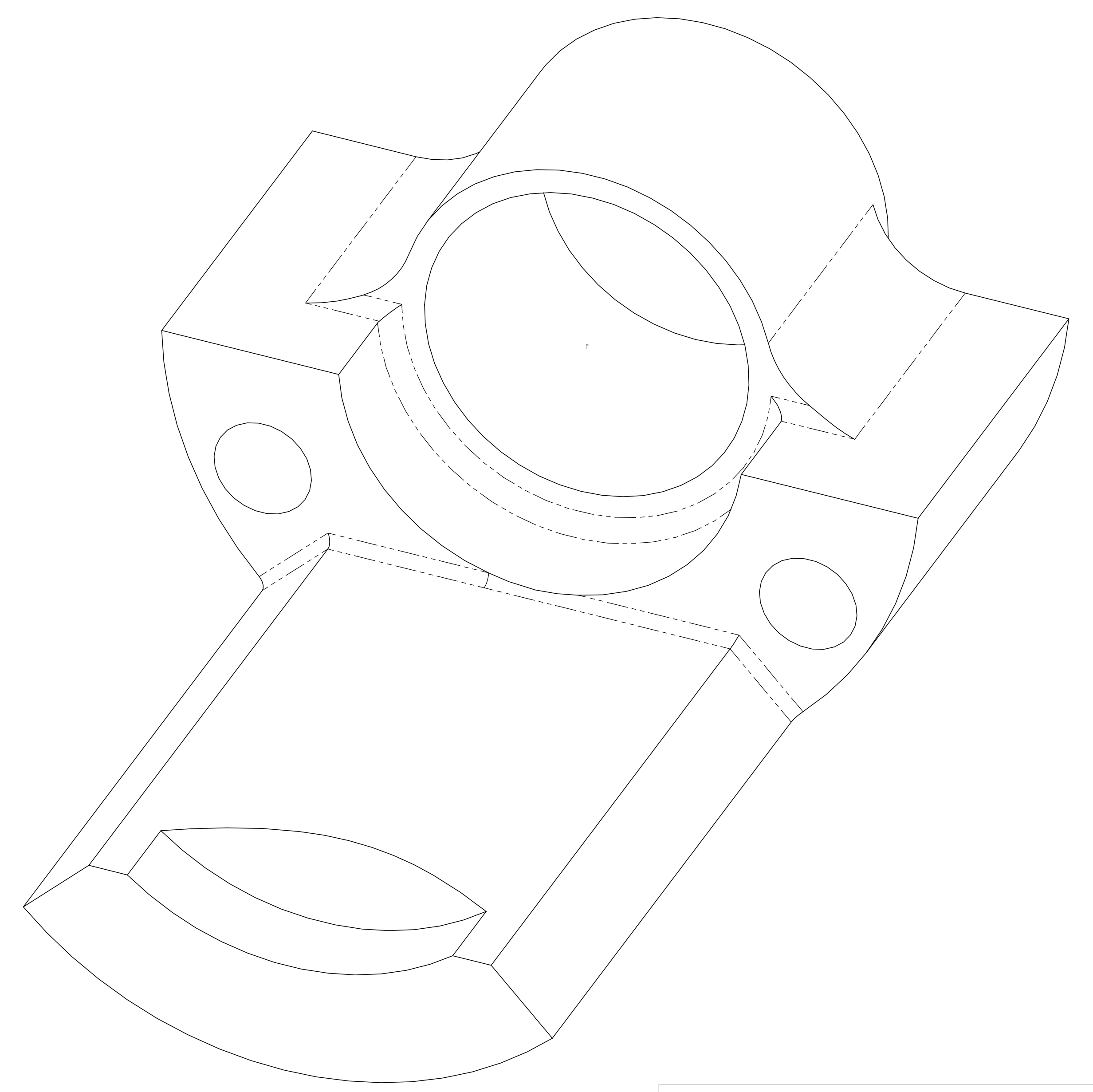
Product Development Corporation  
**Fwd Top Balancer**  
 B02T112181  
 SHEET 1 OF 1

ENVISIONEERING PRODUCT DEVELOPMENT CLAIMS PROPRIETARY RIGHTS IN THE INFORMATION DISCLOSED HEREON. THIS DRAWING IS FURNISHED IN CONFIDENCE, ON THE EXPRESS UNDERSTANDING THAT NEITHER IT NOR ANY REPRODUCTION THEREOF WILL BE DISCLOSED TO OTHERS OR USED FOR THE PURPOSE OF MANUFACTURE OR PROCUREMENT OF THE ARTICLE OR PART SHOWN HEREON.

REV.	DESCRIPTION	REVISIONS	DATE	APPROVED



SECTION A-A



PARTS LIST		APPROVALS		DATE	

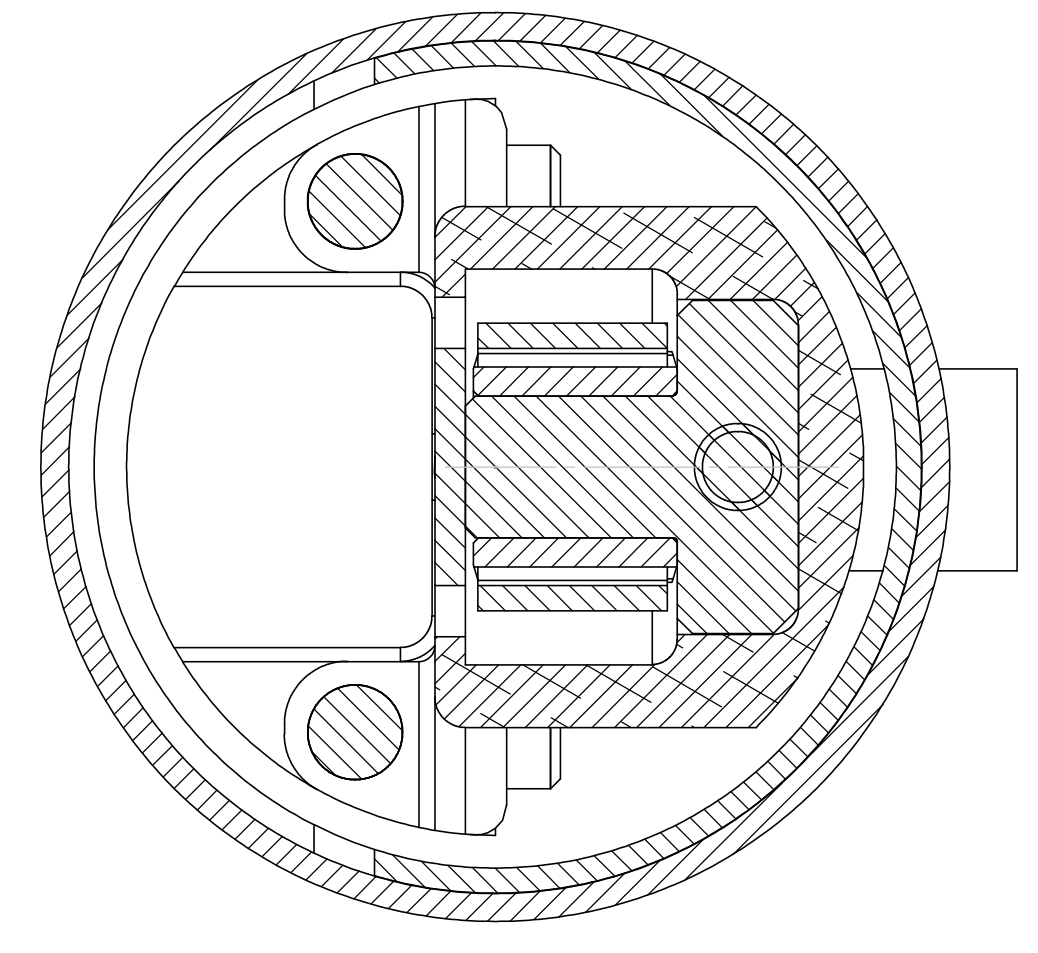
  

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	.XX = ± 0.015 .XXX = ± 0.005 .X" = ± 0.3"	CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE	Product Development Corporation <b>envisioneering</b>
MATERIAL: SS	FRESH	SCALE: 10:1	SCALE: 10:1
NEXT ASSY: APPLICATION	USED ON: DO NOT SCALE DRAWING	DATE: 1	DATE: 1
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QUAL ENG: [blank]		QUAL ENG: [blank]	
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SHEET 1 OF 1		SHEET 1 OF 1	

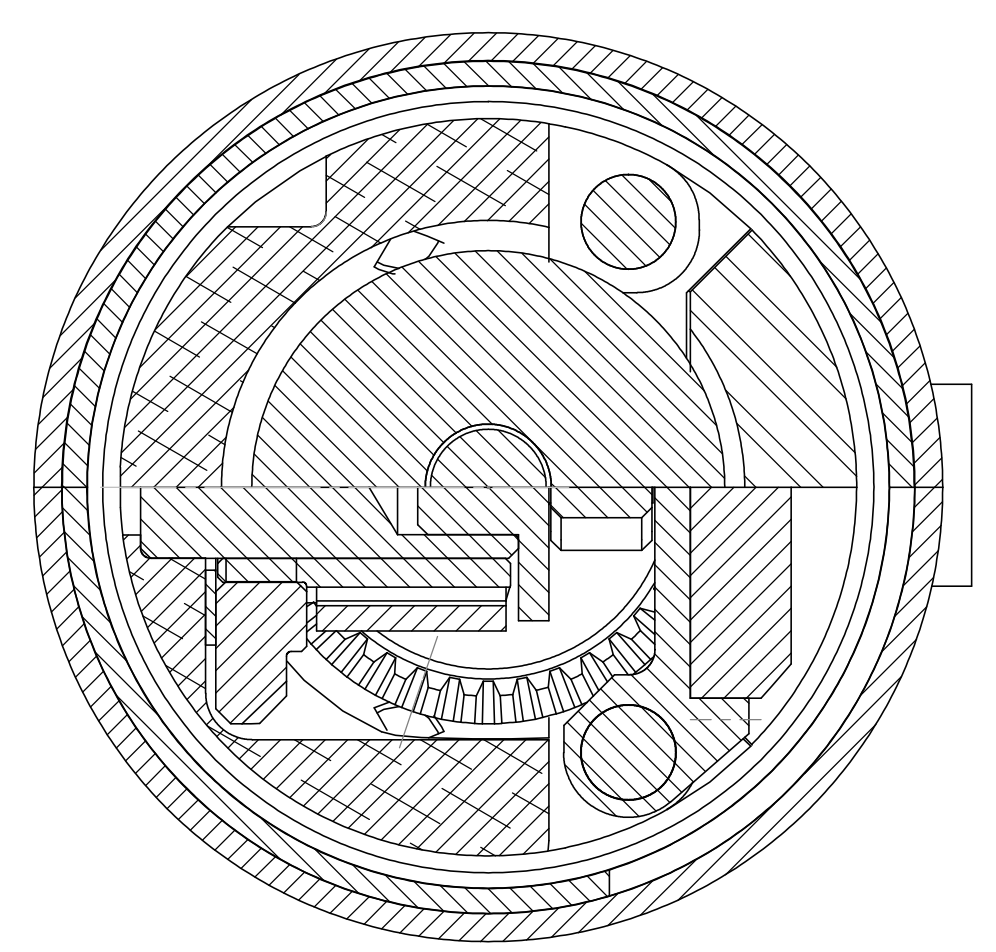


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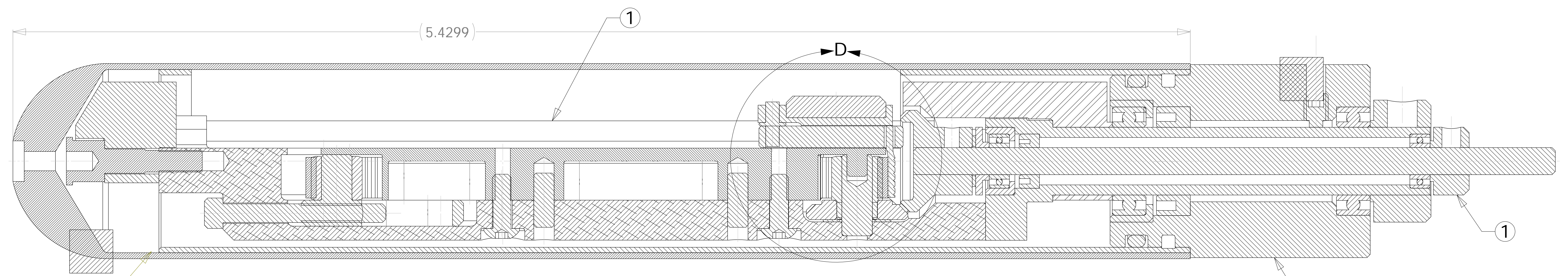
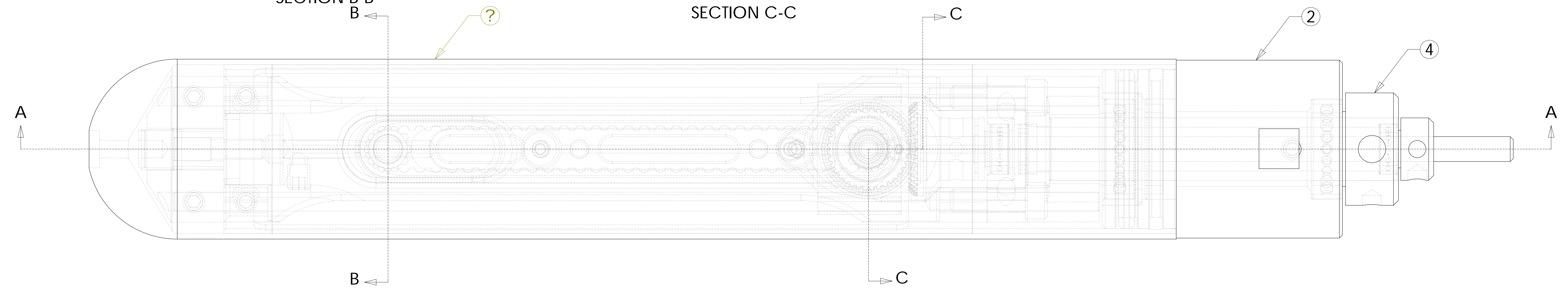
REV.	DESCRIPTION	DATE	APPROVED



SECTION B-B



SECTION C-C



SECTION A-A

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	B02T112100	Transducer Carrier Assy
2	1	B02T112200	Lower Shaft Body Assy
3	1	B02T112080	Probe Cover Assy
4	1	DC19B	Set Screw Collar
5	1	B02T112086	Tip Shoulder Screw

ENVISIONERING CORPORATION  
Product Development Corporation

Test Probe Assy

Part No: B02T112050

Scale: 4:1

Sheet: 1 of 3