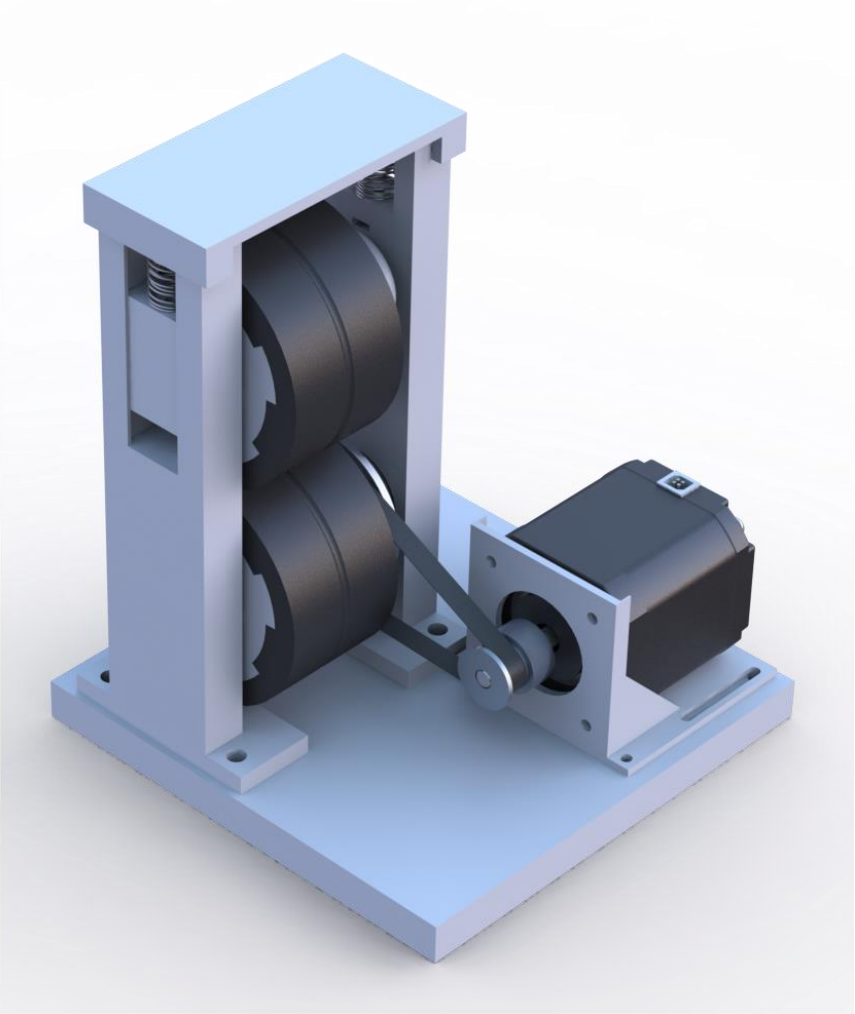
Engineering Drawings for:

Tensioning (Puller) Version 3

Filament Spooling Team

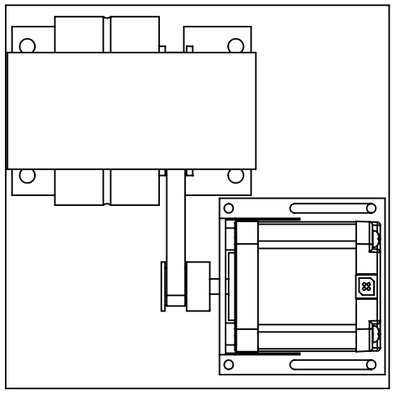
University of Technology Sydney

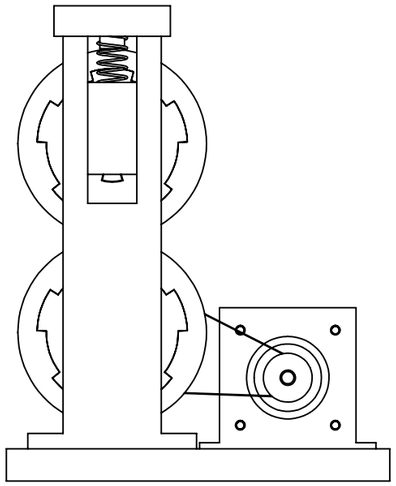
for 43019 Design in Mechanical and Mechatronic Systems - Autumn 2024

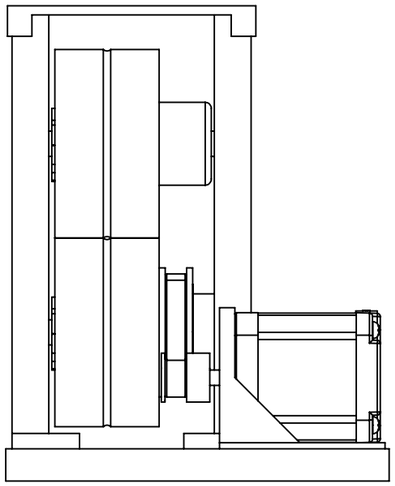


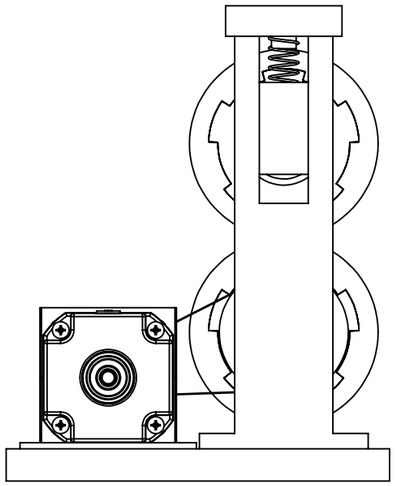
Design and Drawings: Jeremy Chu

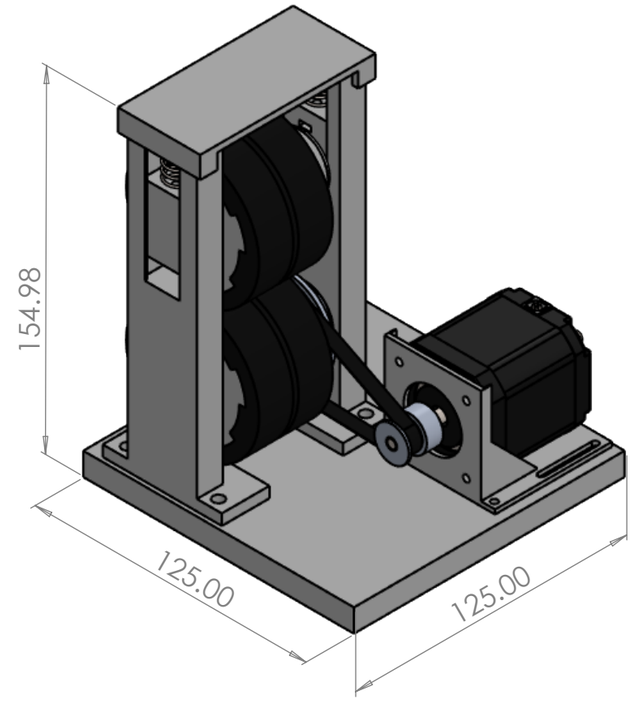
P-V3 Stationary Bearing Assembly(A) 2
P-V3 Bearing Housing(SA) 4
P-V3 Roller Assembly(SA) 5
P-V3 BasePlate 7
P-V3 Stationary Bearing Body 8
Nema17-StepperMotor Bracket 9
StepperMotor-MMC(6627T64) 10
P-V3 TopCap 11
P-V3 TPU Roller 12
P-V3 Roller Shaft 13
P-V3 Roller Small Shaft 15
P-V3 Metal Shaft for Rollers 16
BallBearing_V1 17
CompSpring_V2 18
GT2-20T-Pulley 19
GT2-60T-Pulley 20

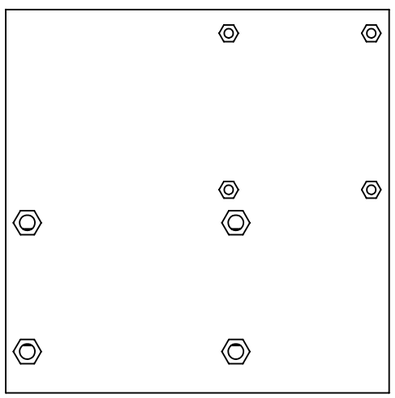












UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES			UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):
MAT: Various			DO NOT SCALE DRAWING THIRD ANGLE PROJECTION
TREAT:			
FINISH:			
MASS (kg):		COST ($):	
	NAME	DATE	
DRN	Jeremy Chu	25/05/2024	
CHKD	Jeremy Chu	25/05/2024	

TITLE:

P-V3 Stationary Bearing Assembly

DWG. NO. 1	REVISION: 1	
	Sheet 1 of 2	
	Scale: 1:2	A3

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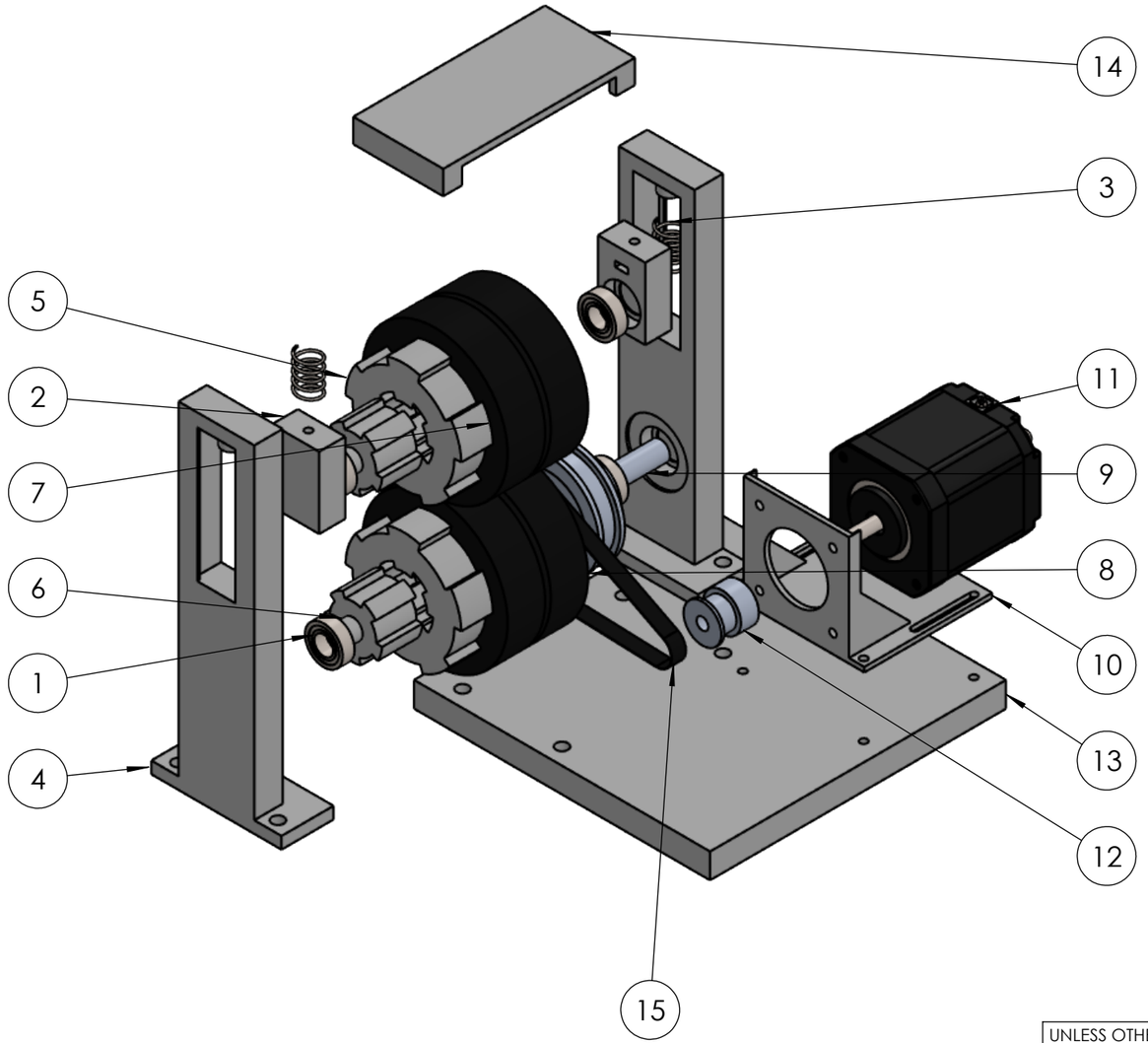

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	BallBearing_V1	688ZZ	4
2	P-V3 Bearing Housing		2
3	CompSpring_V2	Unknown k	4
4	P-V3 Stationary Bearing Body		2
5	P-V3 Roller Shaft		2
6	P-V3 Roller Small Shaft		2
7	P-V3 TPU Roller		2
8	GT2-60T-Pulley	W=6mm	1
9	P-V3 Metal Shaft for Rollers		1
10	Nema17-StepperMotor Bracket		1
11	Nema-17 Stepper Motor	17HE19-2004S	1
12	GT2-20T-Pulley	W=6mm	1
13	P-V3 BasePlate		1
14	P-V3 TopCap		1
15	GT2 200mm TimingBelt	GT2 W=6mm, 200mm	1

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
DEBURR AND BREAK SHARP EDGES
MAT:
TREAT:
FINISH:
MASS (kg): COST ($):

	NAME	DATE
DRN	Jeremy Chu	25/05/2024
CHKD	Jeremy Chu	25/05/2024

UNLESS STATED TOLERANCES ARE:
LINEAR TOLERANCE (mm): 0.5
ANGULAR TOLERANCE (°): 2
SURFACE (mm):
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TITLE:
P-V3 Stationary Bearing Assembly

DWG. NO. **2**
REVISION: 1
Sheet 2 of 2
Scale: 1:1.8 A3

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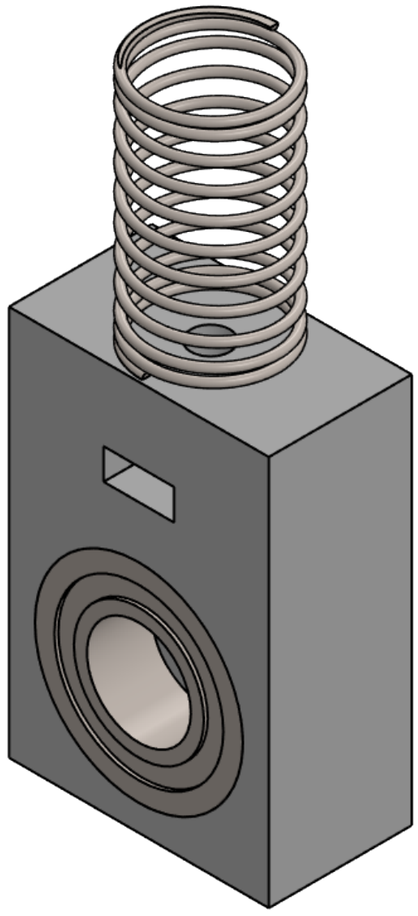

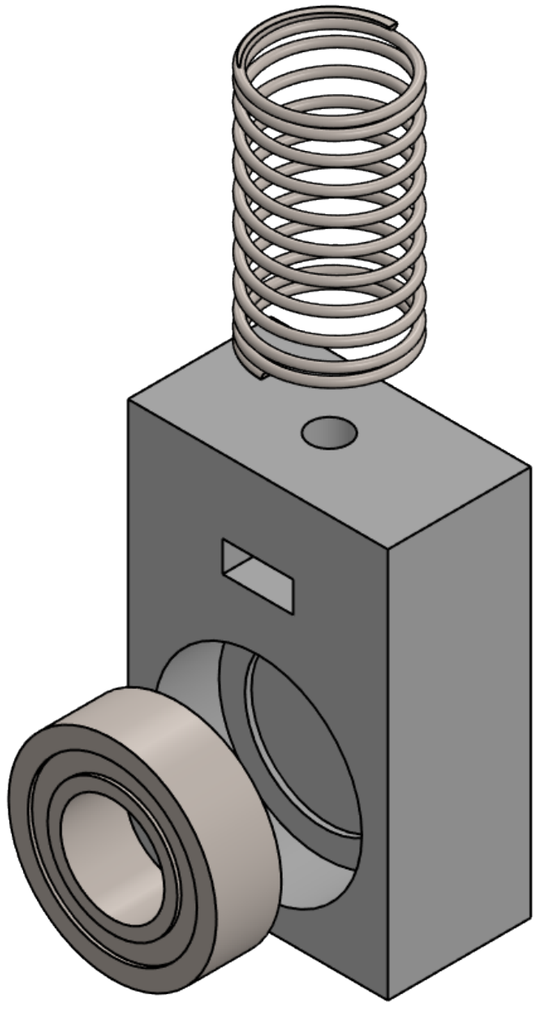

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **P-V3 Bearing Housing(SA)**
MAT: Various		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	
MASS (kg): / COST ($):		DWG. NO. **1** / REVISION: 1
NAME / DATE		Sheet 1 of 1
DRN: Jeremy Chu / 26/05/2024		Scale: 3:1 / A3
CHKD: Jeremy Chu / 26/05/2024		

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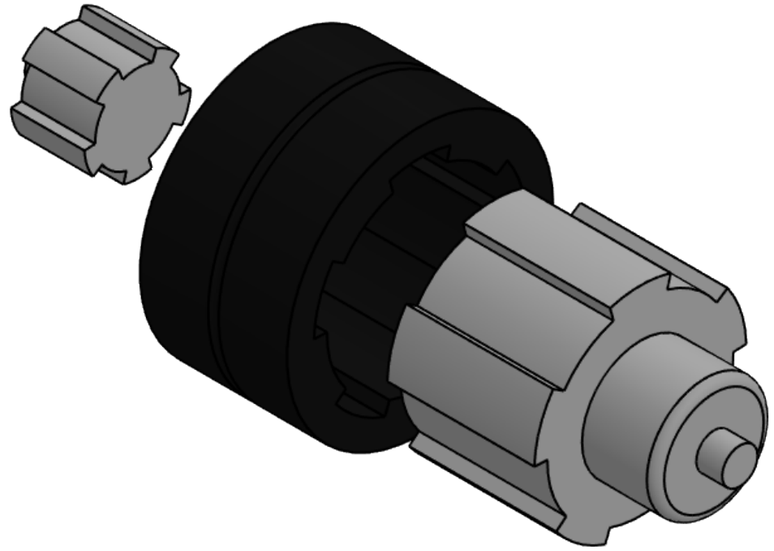

Driven Subassembly

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **P-V3 Roller Assembly(SA)**
MAT:		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	
MASS (kg): COST ($):		DWG. NO. **1** / REVISION: 1
NAME / DATE		Sheet 1 of 2
DRN: Jeremy Chu / 26/05/2024		Scale: 1:1 / A3
CHKD: Jeremy Chu / 26/05/2024		

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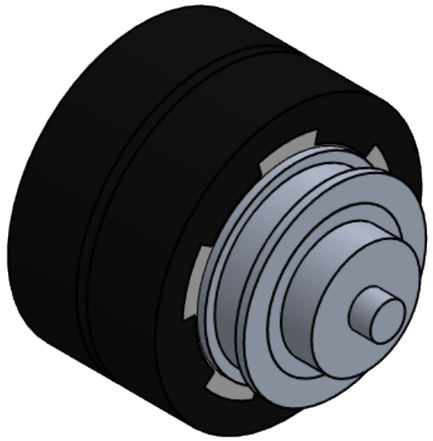

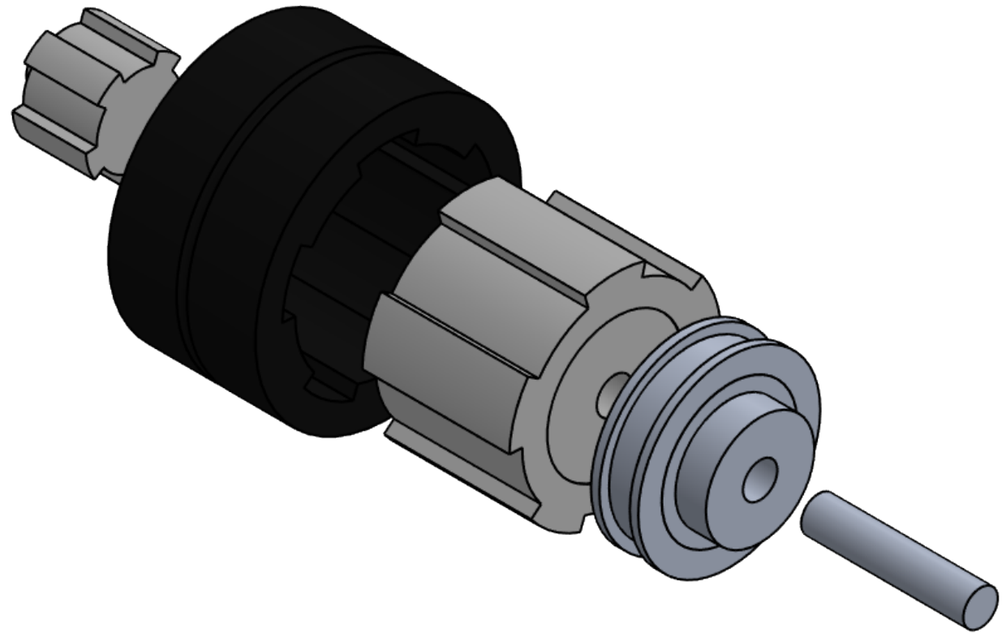

Driver Assembly

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES			UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):
MAT:			DO NOT SCALE DRAWING THIRD ANGLE PROJECTION
TREAT:			
FINISH:			
MASS (kg):		COST ($):	
	NAME	DATE	
DRN	Jeremy Chu	26/05/2024	
CHKD	Jeremy Chu	26/05/2024	

TITLE:
P-V3 Roller Assembly(SA)

DWG. NO.
2

REVISION: 1

Sheet 2 of 2

Scale: 1:1 | A3

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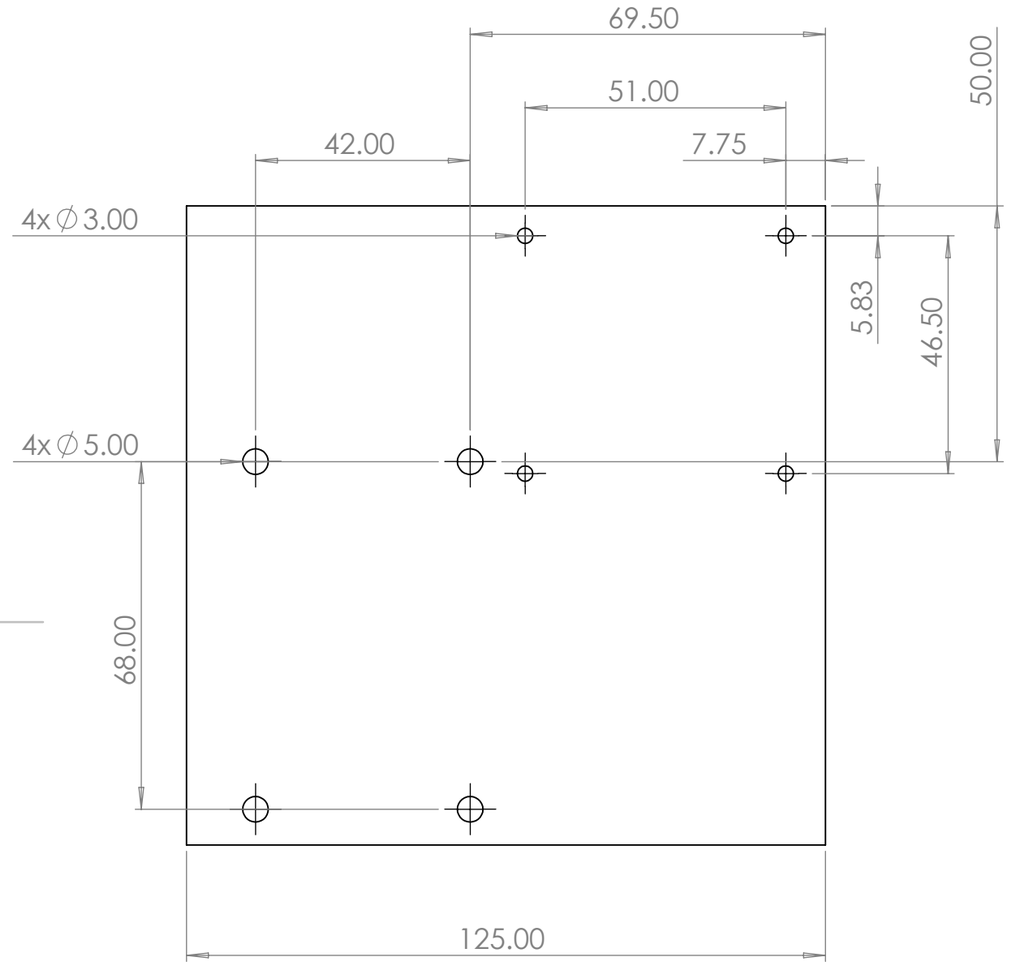

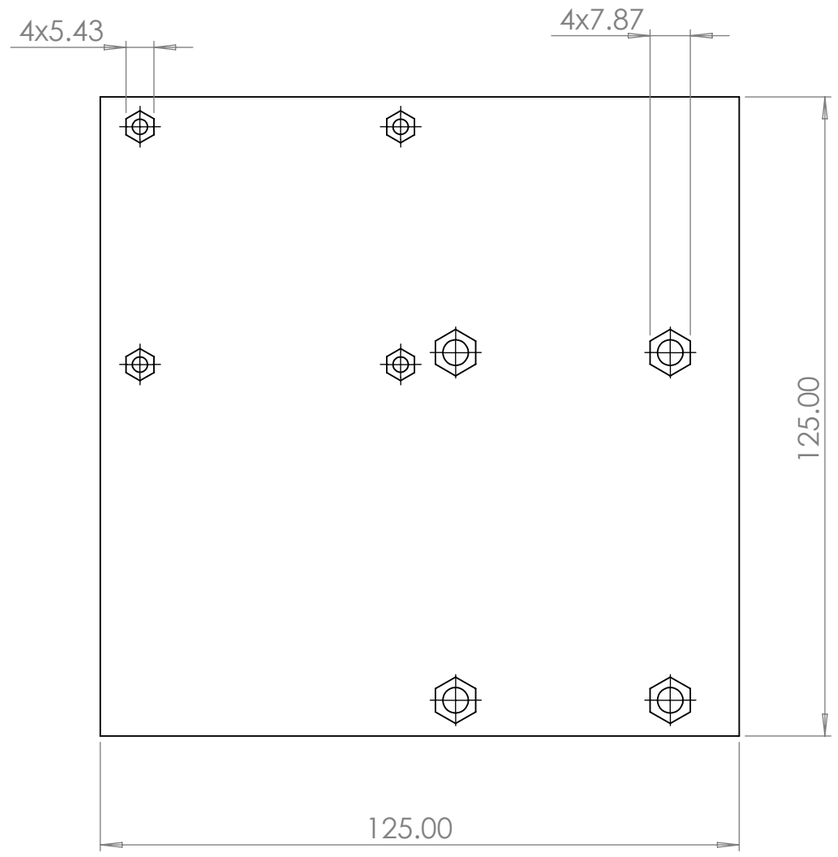

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MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1** / REVISION: 1
MASS (kg): / COST ($):		Sheet 1 of 1
NAME / DATE		Scale: 1:1.2 / A3
DRN: Jeremy Chu 26/05/2024		
CHKD: Jeremy Chu 26/05/2024		

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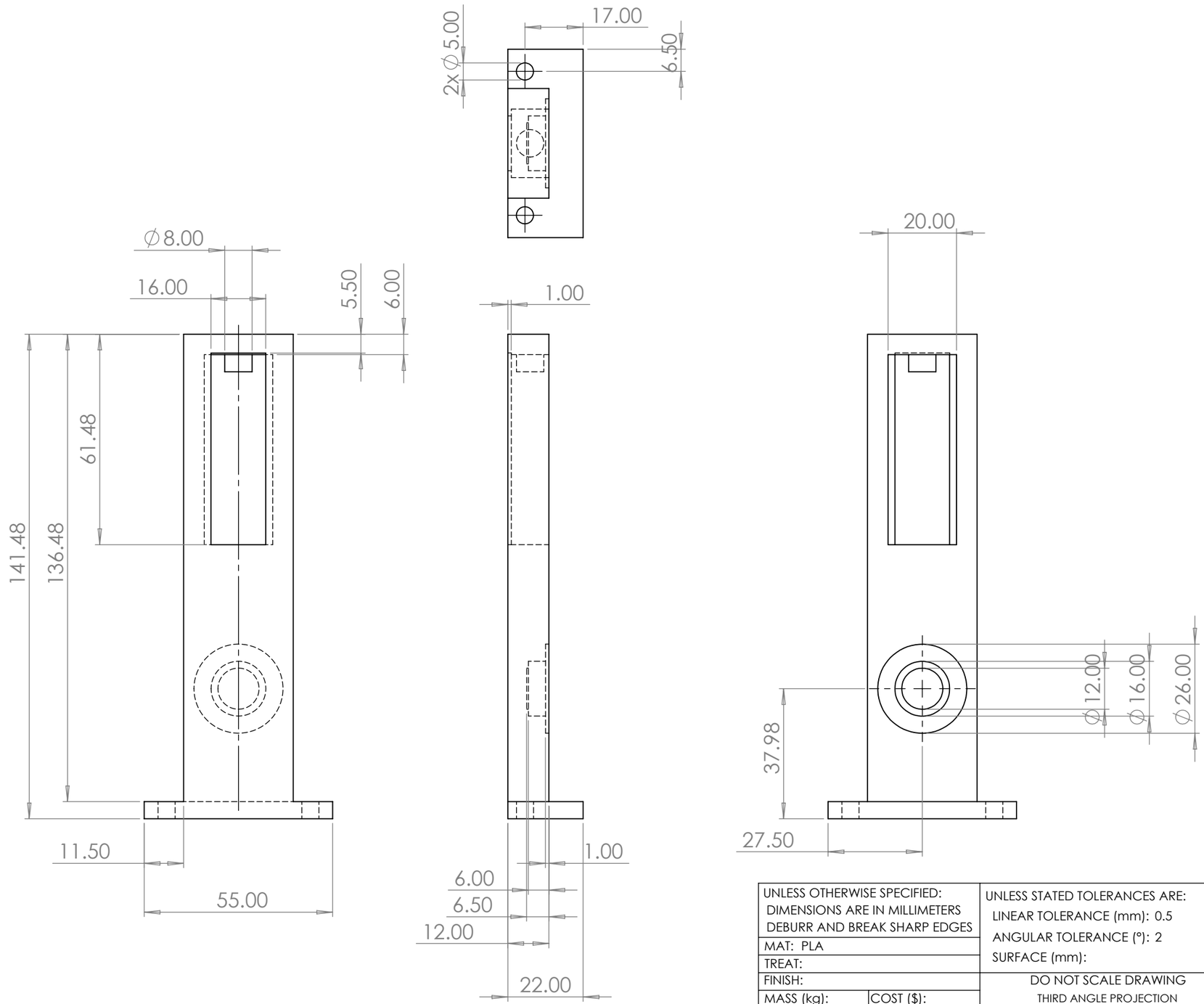

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MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1**
MASS (kg): COST ($):		REVISION: 1
NAME DATE		Sheet 1 of 1
DRN Jeremy Chu 26/05/2024		Scale: 1:1.3 A3
CHKD Jeremy Chu 26/05/2024		

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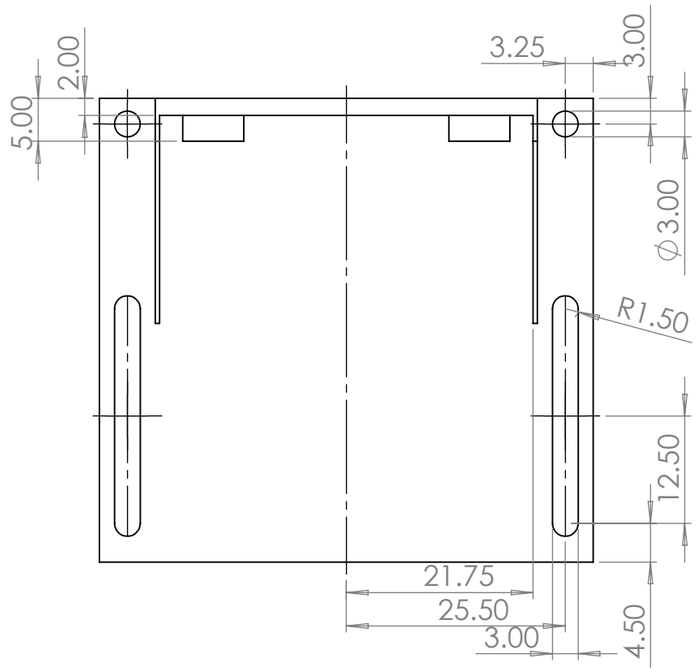

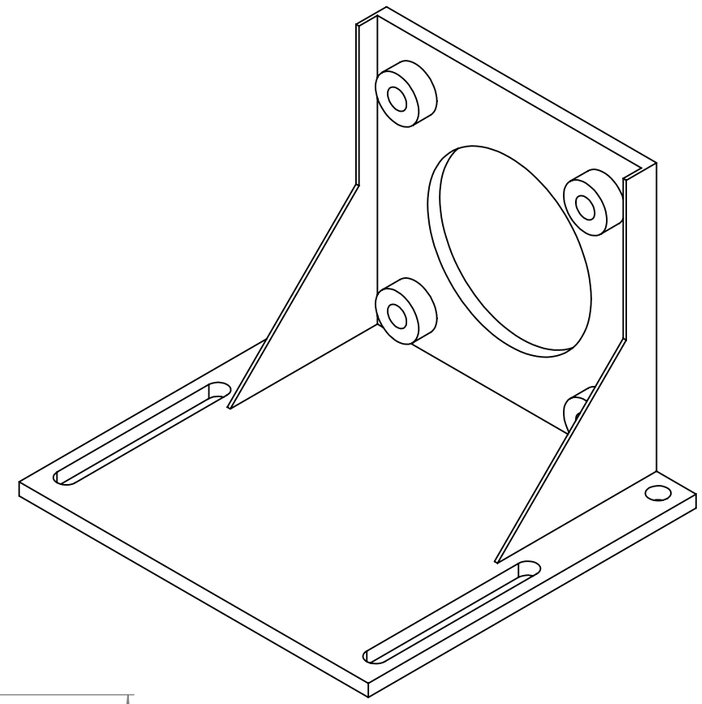

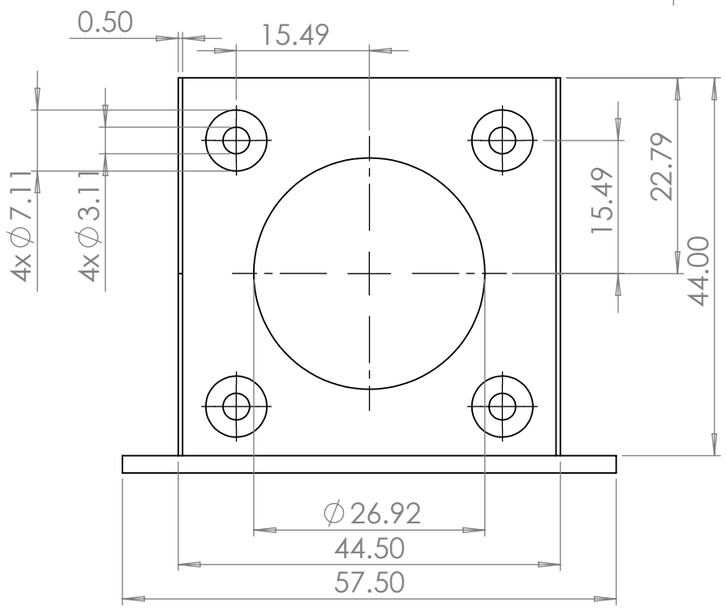

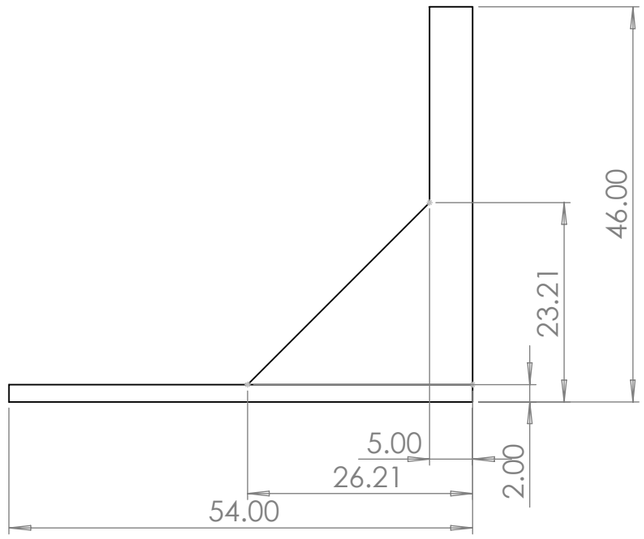

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **Nema17-StepperMotor Bracket**
MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1**
MASS (kg): COST ($):		REVISION: 1
NAME / DATE		Sheet 1 of 1
DRN Jeremy Chu 26/05/2024		Scale: 1.4:1 A3
CHKD Jeremy Chu 26/05/2024		

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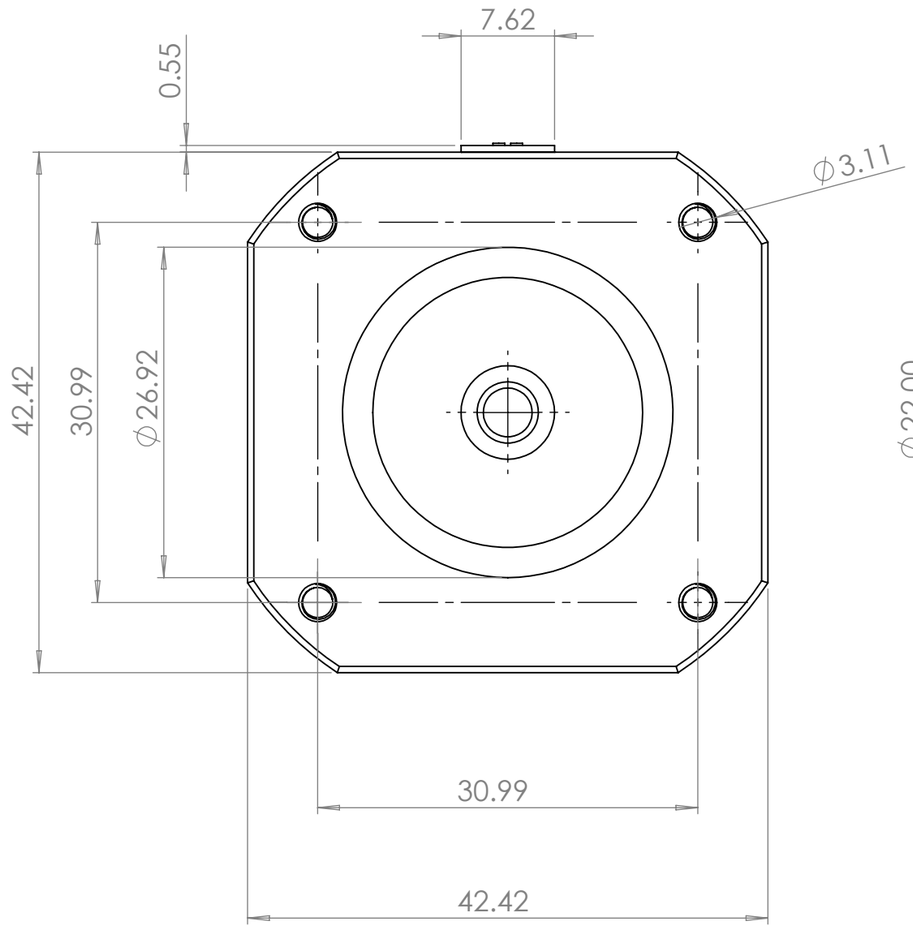

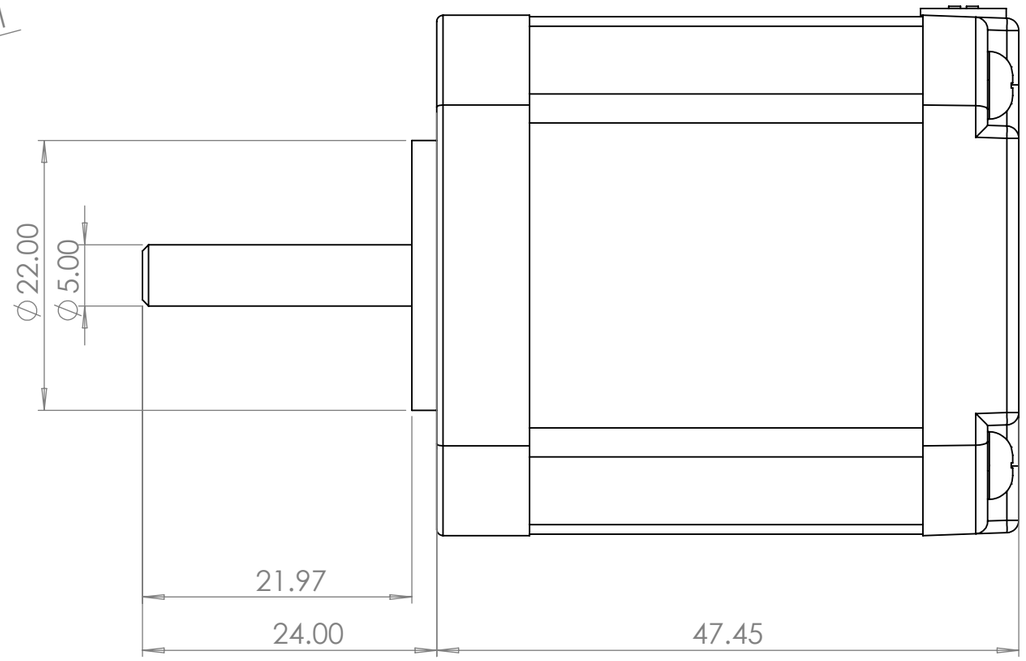

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MAT: Various		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1**
MASS (kg): COST ($):		REVISION: 1
NAME DATE		Sheet 1 of 1
DRN Jeremy Chu 26/05/2024		Scale: 2:1 A3
CHKD Jeremy Chu 26/05/2024		

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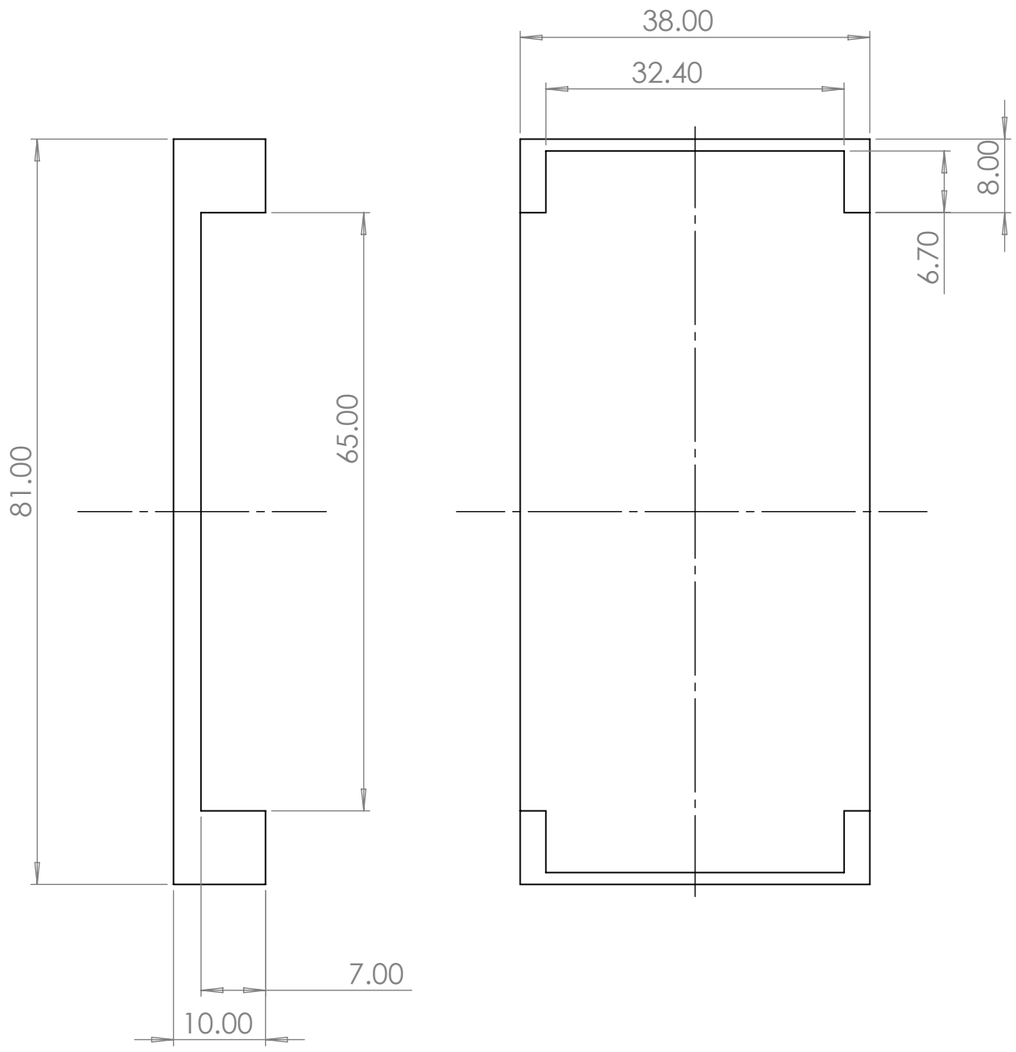

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **P-V3 TopCap**
MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1**
MASS (kg): COST ($):		REVISION: 1
NAME DATE		Sheet 1 of 1
DRN Jeremy Chu 26/05/2024		Scale: 1.5:1 A3
CHKD Jeremy Chu 26/05/2024		

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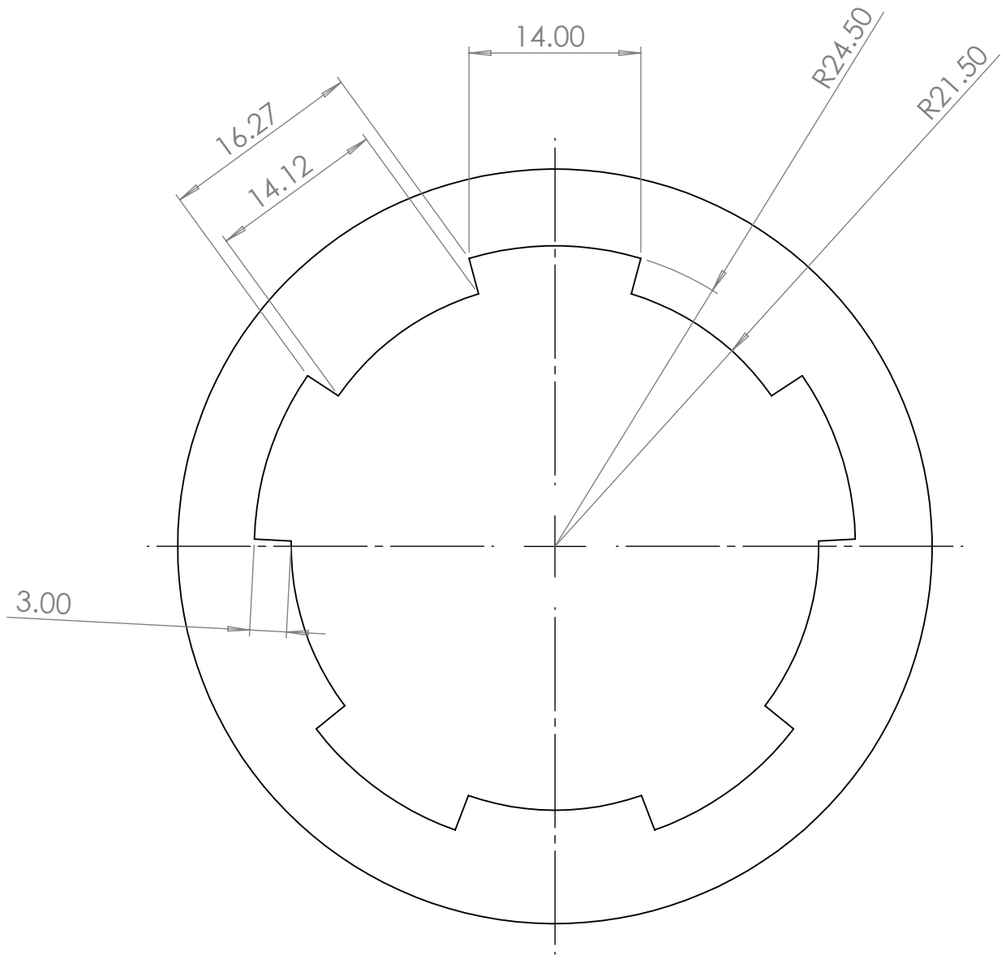

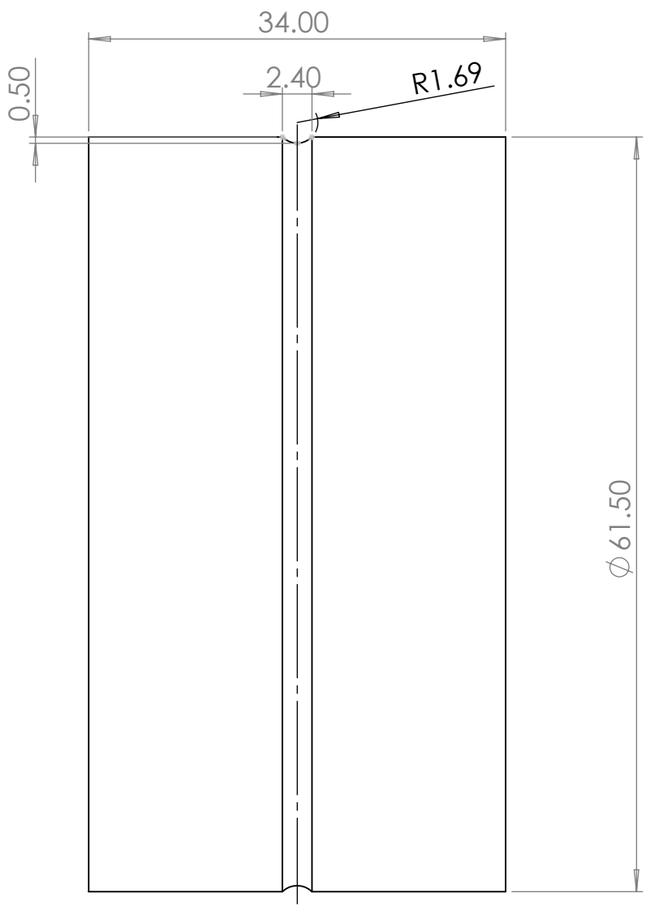

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES			UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):
MAT:			DO NOT SCALE DRAWING THIRD ANGLE PROJECTION
TREAT:			
FINISH:			
MASS (kg):	COST ($):		
	NAME	DATE	
DRN	Jeremy Chu	26/05/2024	
CHKD	Jeremy Chu	26/05/2024	

TITLE:

P-V3 TPU Roller

DWG. NO. **1**	REVISION: 1
	Sheet 1 of 1
	Scale: 2:1 A3

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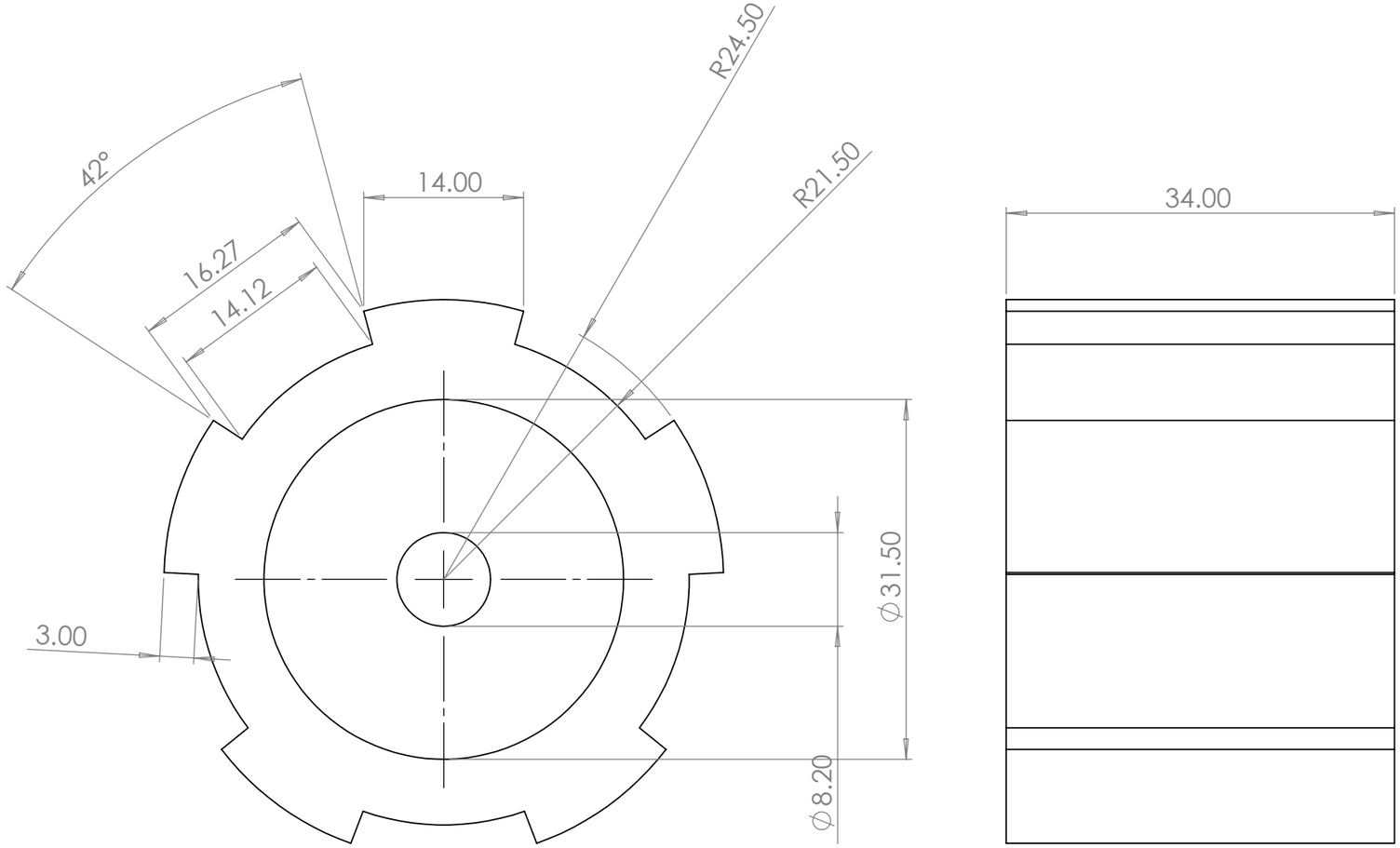

Driver Configuration

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm): D	TITLE: **P-V3 Roller Shaft**
MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	
MASS (kg): COST ($):		DWG. NO. **1** / REVISION: 1
NAME / DATE		Sheet 1 of 2
DRN Jeremy Chu 26/05/2024		Scale: 2:1 / A3
CHKD Jeremy Chu 26/05/2024		

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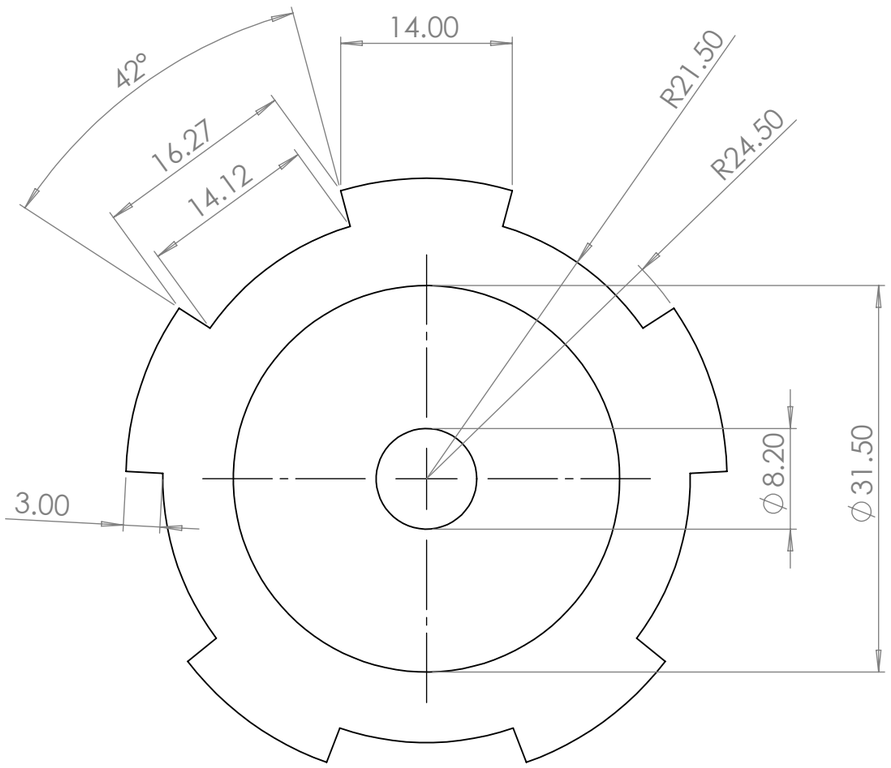
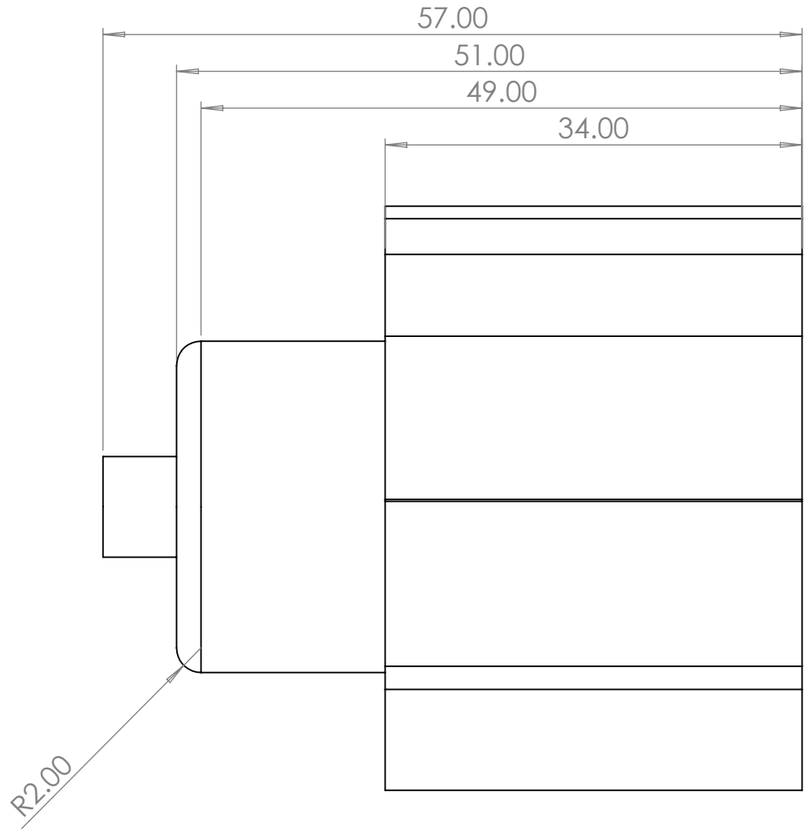
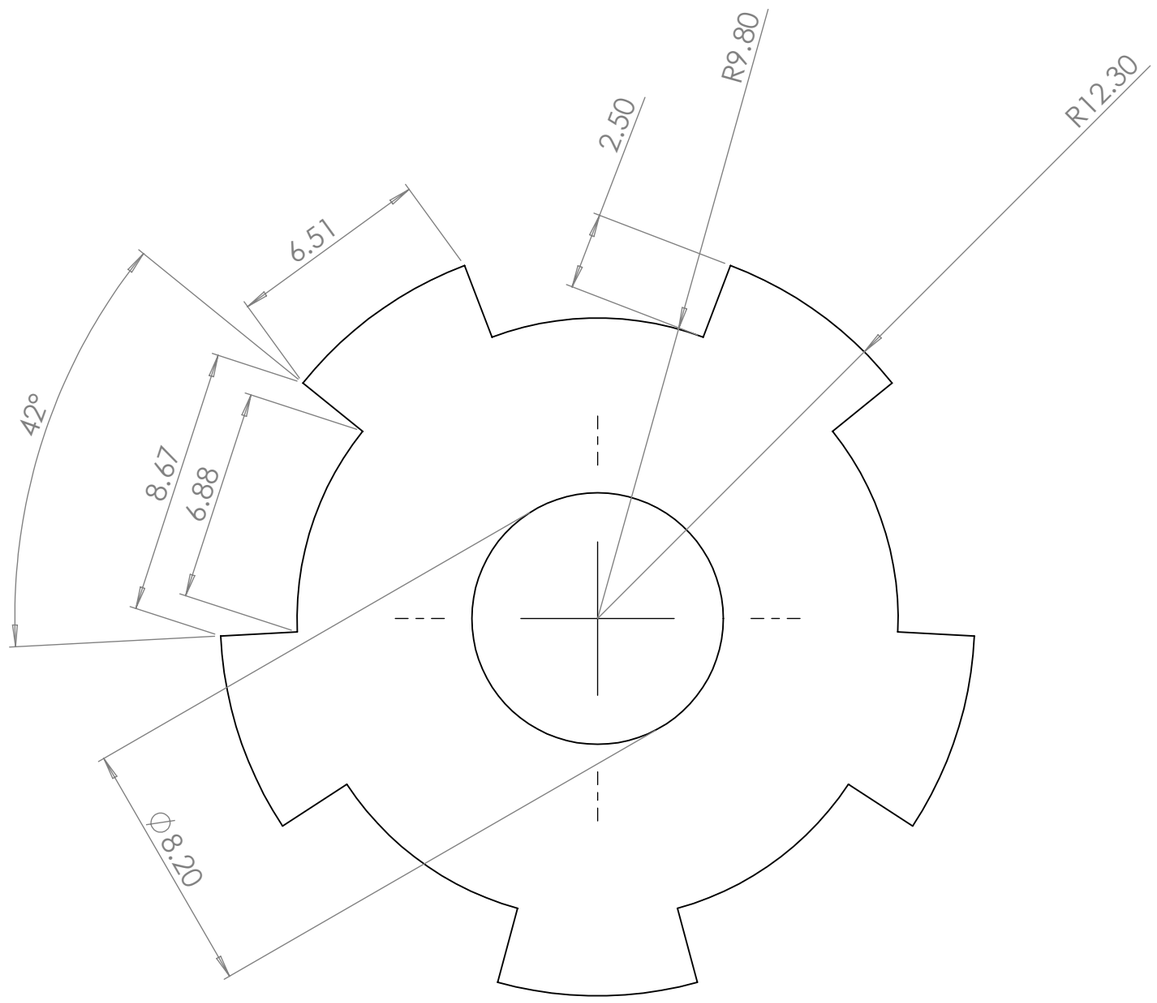


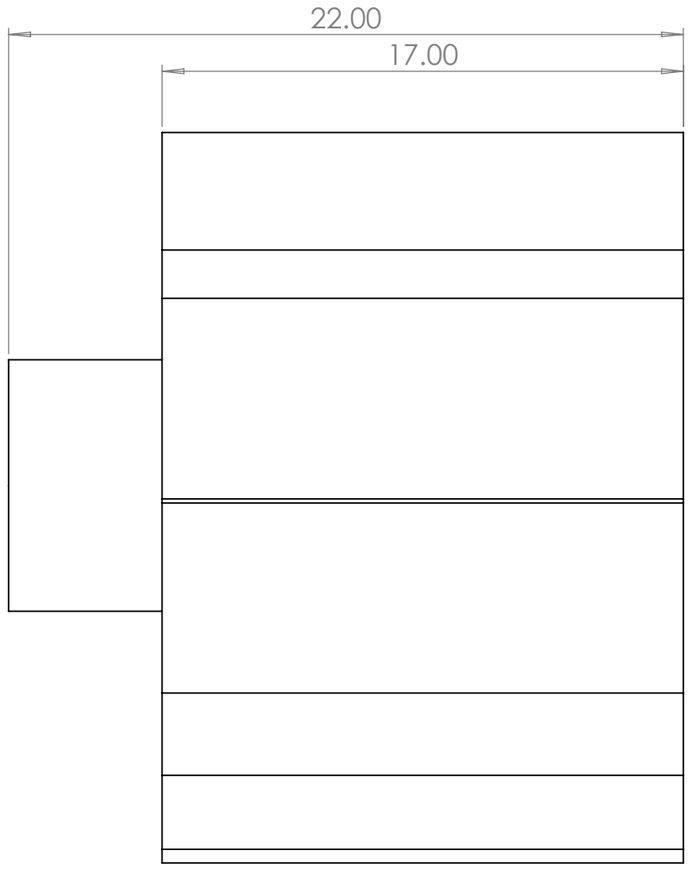


Driven Configuration

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **P-V3 Roller Shaft**
MAT: PLA		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **2**
MASS (kg): COST ($):		REVISION: 1
NAME / DATE		Sheet 2 of 2
DRN Jeremy Chu 26/05/2024		Scale: 2:1 A3
CHKD Jeremy Chu 26/05/2024		

SOLIDWORKS Educational Product. For Instructional Use Only.





UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **P-V3 Roller Small Shaft**
MAT:		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	
MASS (kg): COST ($):		DWG. NO. **1** / REVISION: 1
NAME / DATE		Sheet 1 of 1
DRN Jeremy Chu 26/05/2024		Scale: 5:1 / A3
CHKD Jeremy Chu 26/05/2024		

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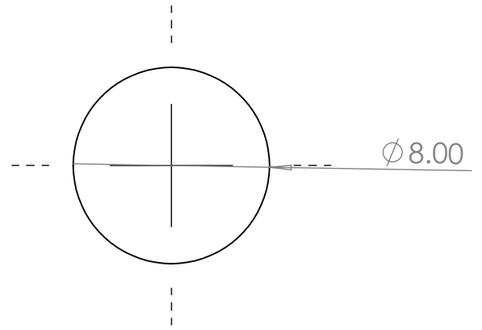

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES		
MAT: Steel		
TREAT:		
FINISH:		
MASS (kg):	COST ($):	
	NAME	DATE
DRN	Jeremy Chu	26/05/2024
CHKD	Jeremy Chu	26/05/2024

UNLESS STATED TOLERANCES ARE:
LINEAR TOLERANCE (mm): 0.5
ANGULAR TOLERANCE (°): 2
SURFACE (mm):

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TITLE:
P-V3 Metal Shaft for Rollers

DWG. NO.
1

REVISION: 1
Sheet 1 of 1
Scale: 4:1 | A3

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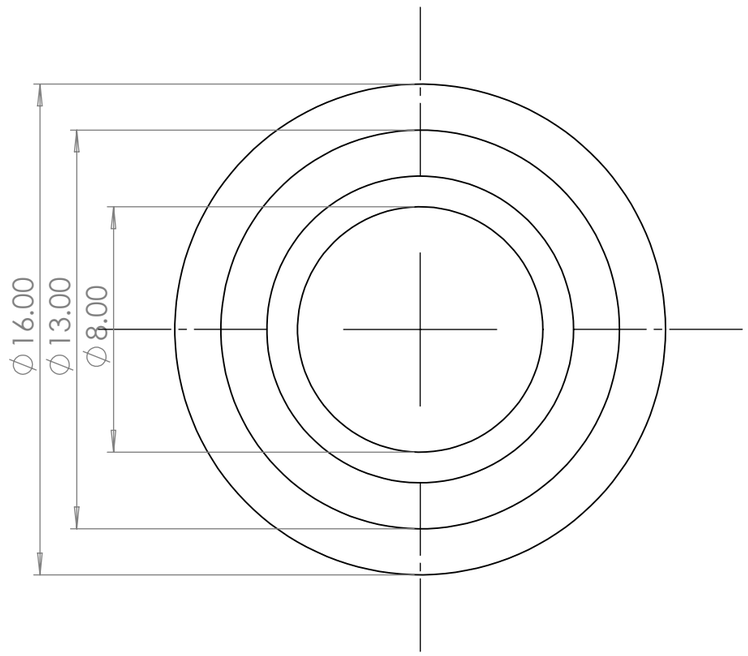

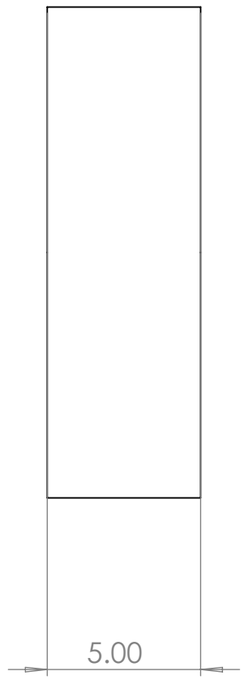

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): ANGULAR TOLERANCE (°): SURFACE (mm):	TITLE: **BallBearing_V1**
MAT: 688ZZ		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	
MASS (kg): COST ($):		DWG. NO. **1** / REVISION: 1
NAME / DATE		Sheet 1 of 1
DRN: Jeremy Chu / 25/05/2024		Scale: 5:1 / A3
CHKD: Jeremy Chu / 25/05/2024		

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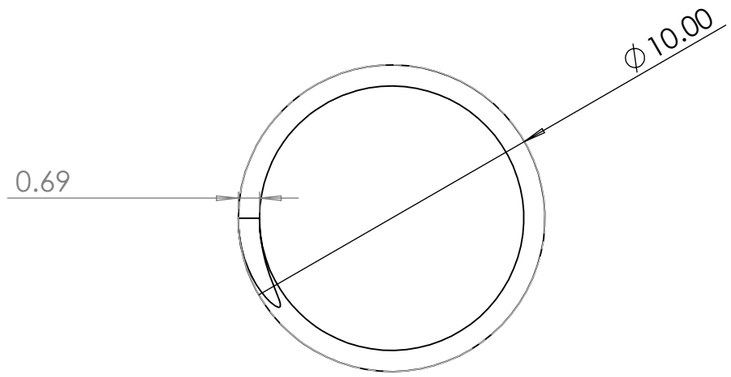

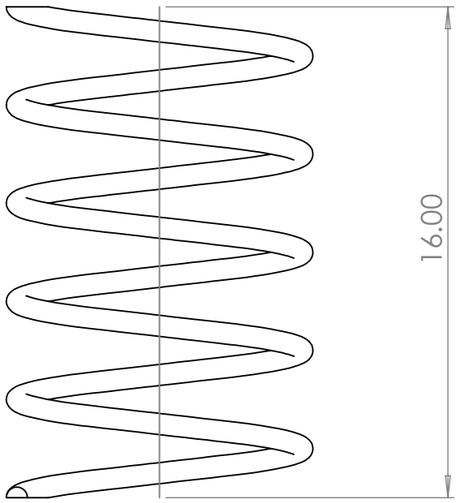

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): ANGULAR TOLERANCE (°): SURFACE (mm):	TITLE: **CompSpring_V2**
MAT: Spring steel		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1** / REVISION: 1
MASS (kg): / COST ($):		Sheet 1 of 1
NAME / DATE		Scale: 5:1 / A3
DRN: Jeremy Chu / 25/05/2024		
CHKD: Jeremy Chu / 25/05/2024		

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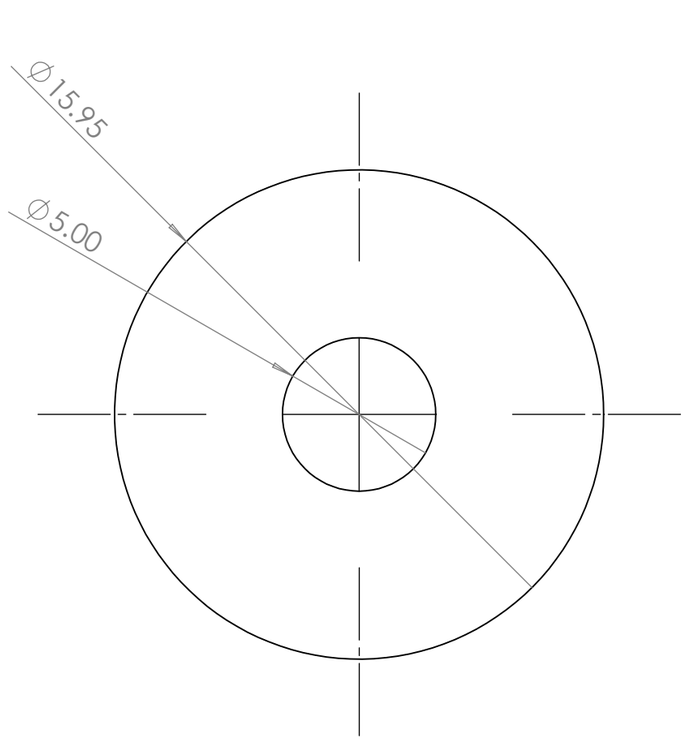

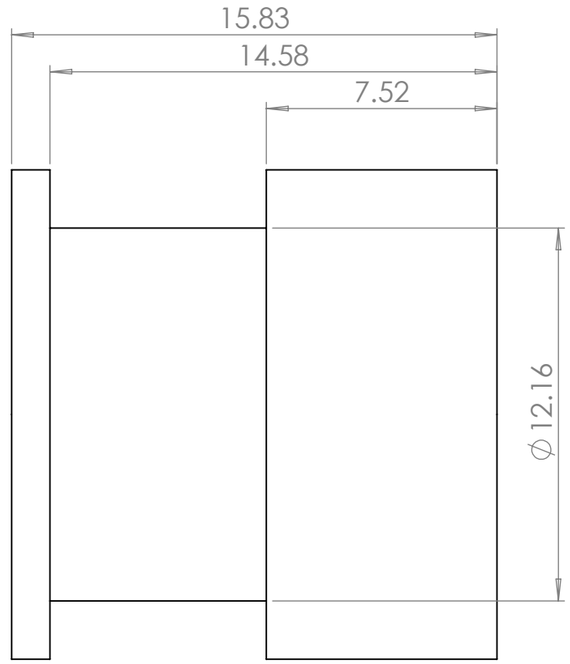

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **GT2-20T-Pulley**
MAT: Aluminium alloy		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1**
MASS (kg): COST ($):		REVISION: 1
NAME DATE		Sheet 1 of 1
DRN Jeremy Chu 25/05/2024		Scale: 5:1 A3
CHKD Jeremy Chu 25/05/2024		

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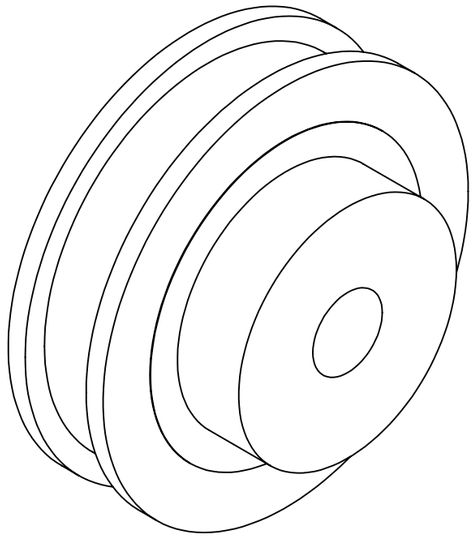

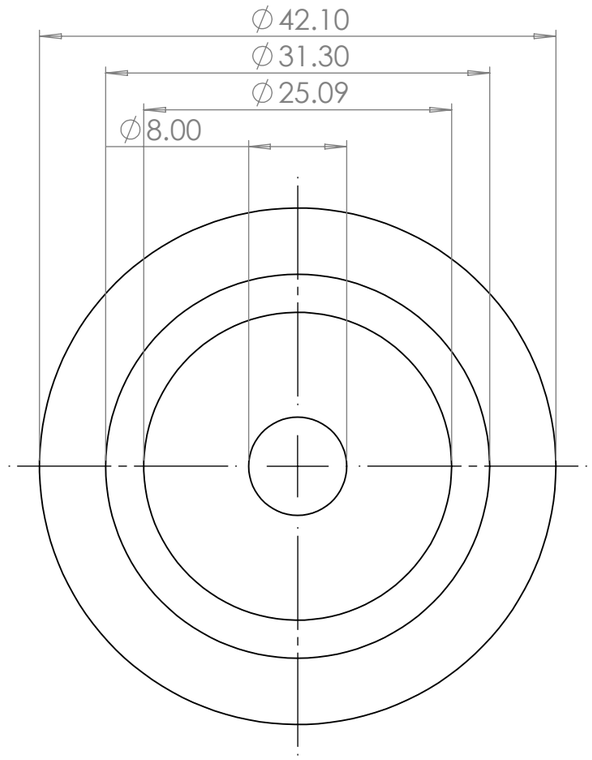

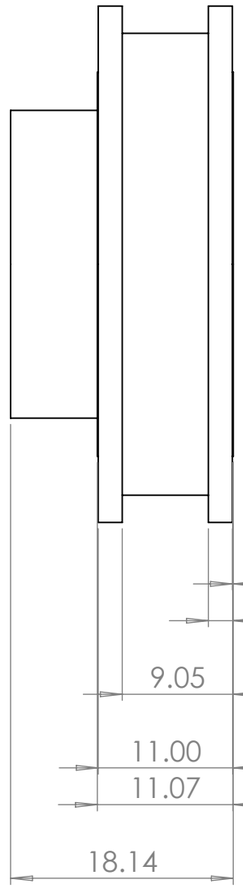

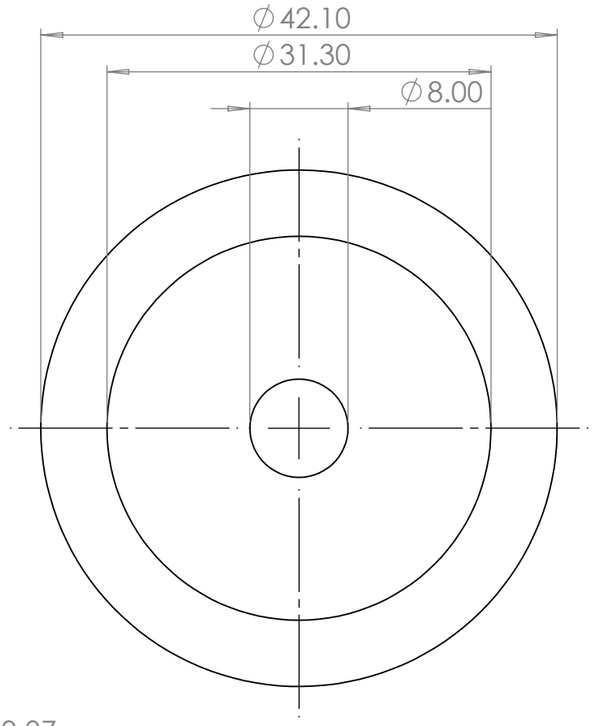

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DEBURR AND BREAK SHARP EDGES	UNLESS STATED TOLERANCES ARE: LINEAR TOLERANCE (mm): 0.5 ANGULAR TOLERANCE (°): 2 SURFACE (mm):	TITLE: **GT2-60T-Pulley**
MAT: Aluminium alloy		
TREAT:		
FINISH:	DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	DWG. NO. **1** / REVISION: 1 / Sheet 1 of 1 / Scale: 2:1 / A3
MASS (kg): / COST ($):		

	NAME	DATE
DRN	Jeremy Chu	25/05/2024
CHKD	Jeremy Chu	26/05/2024

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