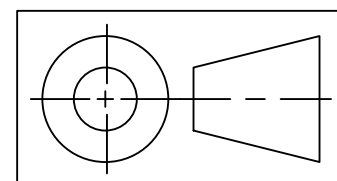
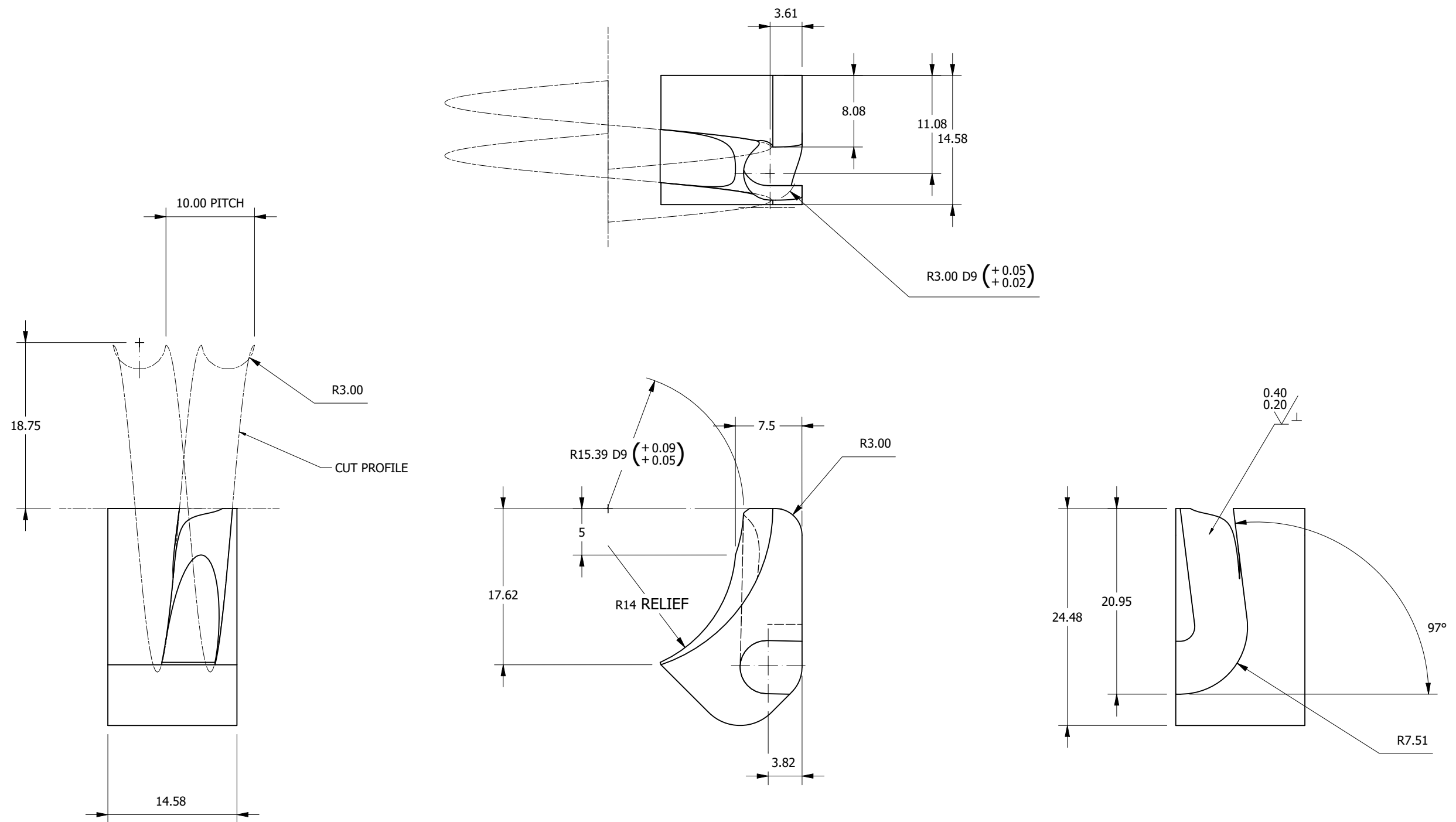


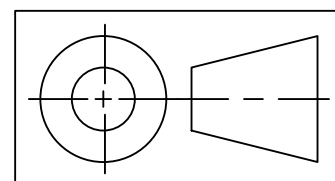
DO NOT SCALE ALL DIMENSIONS IN MM



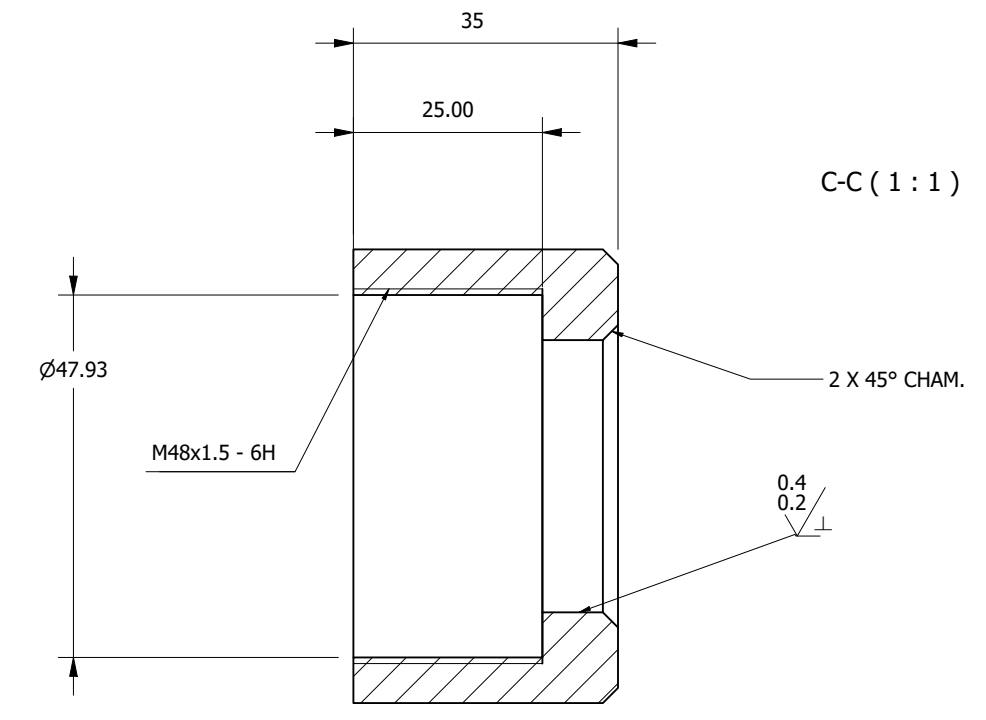
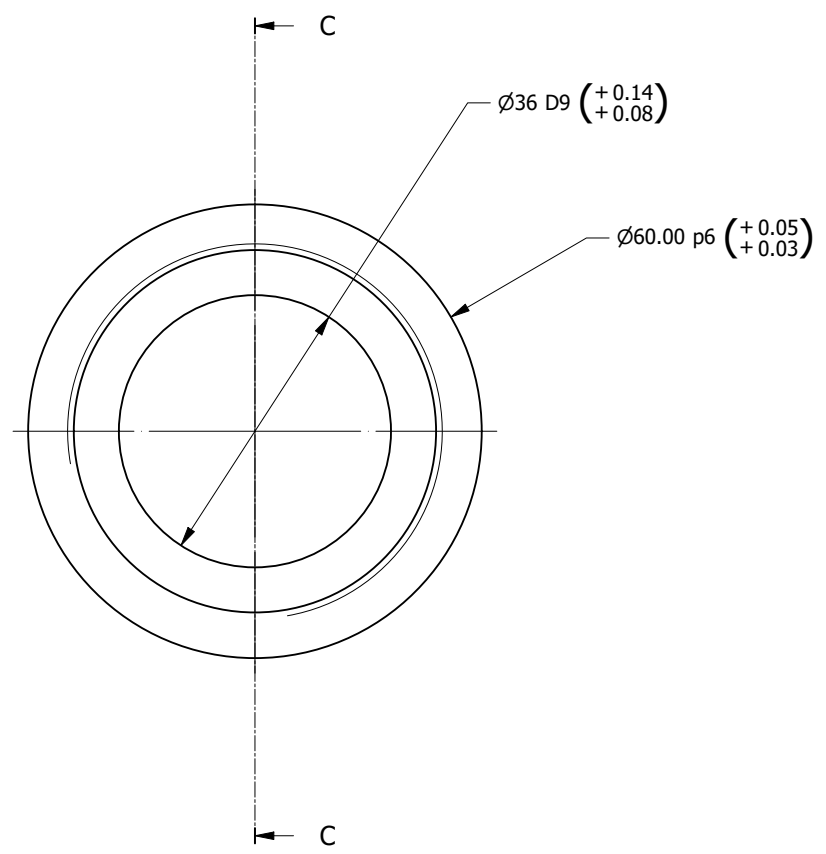
<div>UNLESS OTHERWISE SPECIFIED</div> <div>X ± 0.5 ANGLES ± 0.5 DEG</div> <div>X.X ± 0.3</div> <div>X.XX ± 0.1</div> <div>X.XXX ± 0.05</div> <div>SURFACE ROUGHNESS Ra1.6µm</div> <div>SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG</div>	DRAWN BY:	CURTIN UNIVERSITY, MALAYSIA		
	TANG KANG NING			
	DATE:	REMARKS:		1/20
	16/10/2020			
	CHECKED BY:	PART NUMBER:	DESCRIPTION:	A3
	CHONG YAO WEN	MCEN4000:B2	NUT BODY OF THE BALL SCREW	
APPROVED BY:	SCALE:	MATERIAL:		
DR. MAHZAN BIN JOHAR	1 : 2	STAINLESS STEEL, AISI 302		



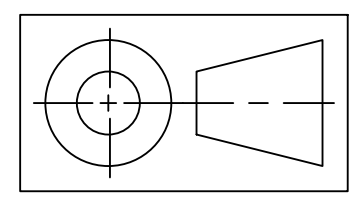
DO NOT SCALE ALL DIMENSIONS IN MM



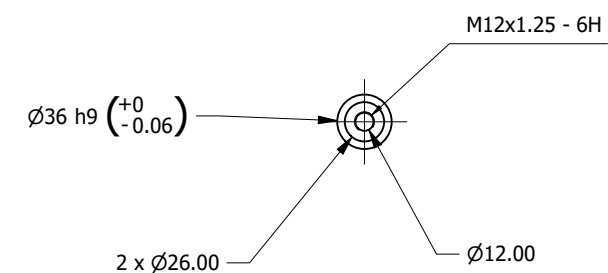
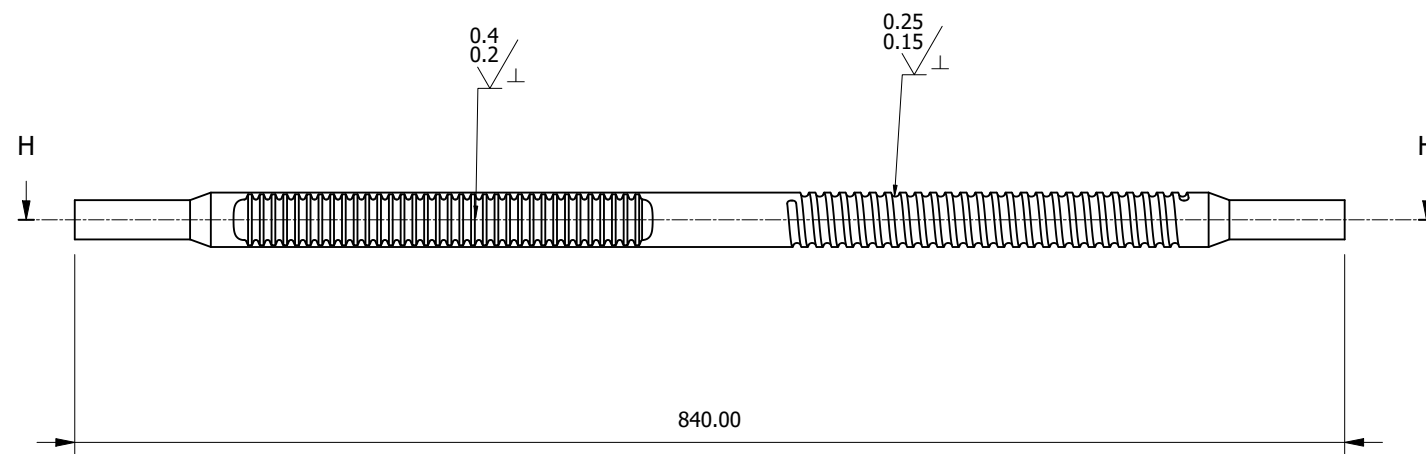
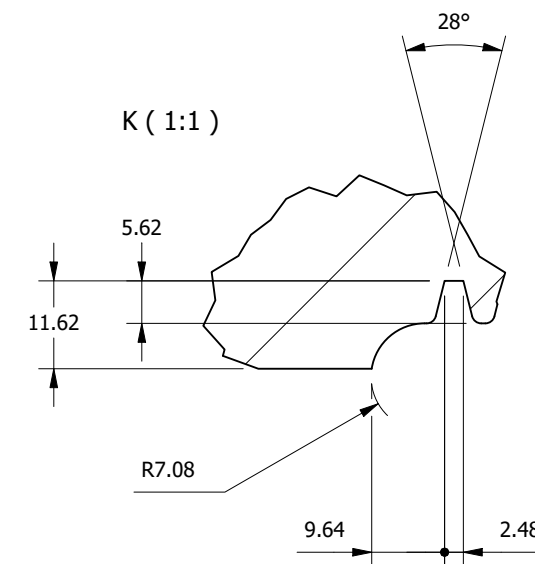
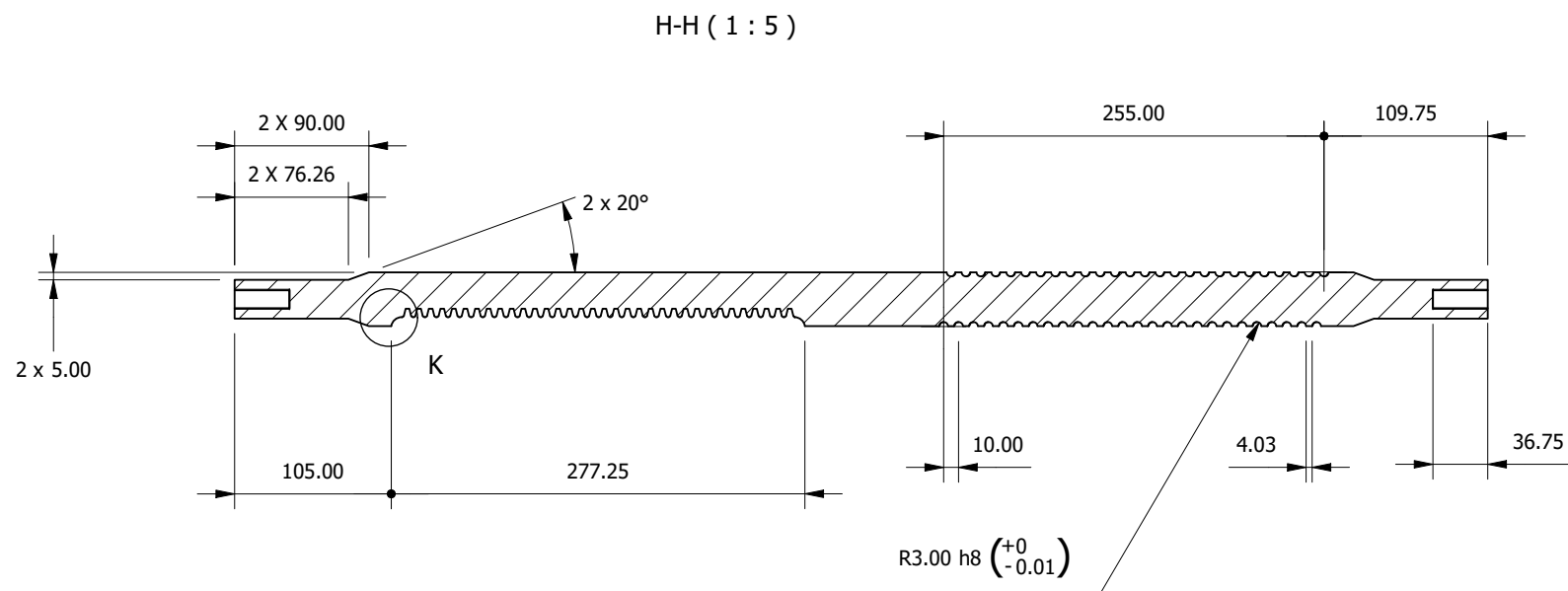
<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA		
	DATE: 14/10/2020	REMARKS:		
	CHECKED BY: CHONG YAO WEN			
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:B3	DESCRIPTION: BALL SCREW DEFLECTOR	2/20
		SCALE: 2 : 1	MATERIAL: STAINLESS STEEL, AISI 302	A3



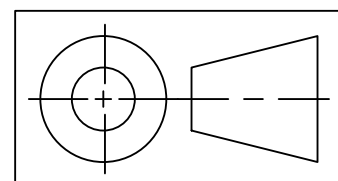
DO NOT SCALE ALL DIMENSIONS IN MM



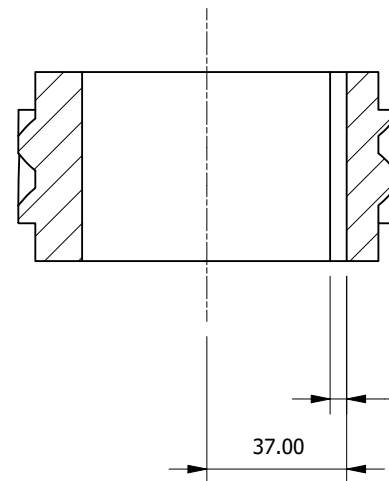
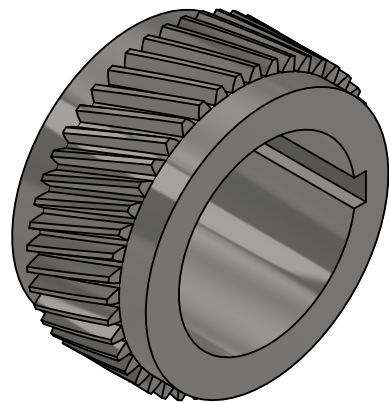
<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA		
	DATE: 16/10/2020	REMARKS:		
	CHECKED BY: CHONG YAO WEN			
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:B4	DESCRIPTION: BALL SCREW DEFLECTOR FASTENER	3/20
		SCALE: 1 : 1	MATERIAL: STAINLESS STEEL, AISI 302	A3



DO NOT SCALE ALL DIMENSIONS IN MM



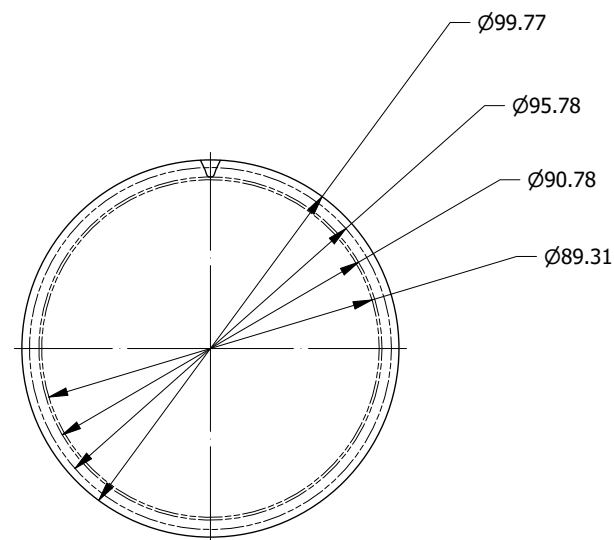
<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA			
	DATE: 18/10/2020	REMARKS:		4/20	
	CHECKED BY: CHONG YAO WEN				
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:B5	DESCRIPTION: STEERING RACK/ BALL SCREW'S SCREW		A3
		SCALE: 1 : 5	MATERIAL: STAINLESS STEEL, AISI 302		



D-D (1 : 2)

4.38 ± 0.1

37.00

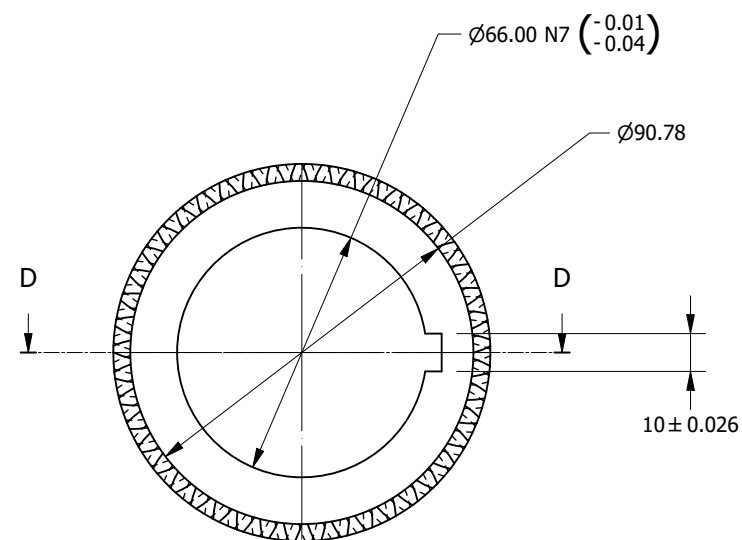


Ø99.77

Ø95.78

Ø90.78

Ø89.31



Ø66.00 N7 $\begin{pmatrix} -0.01 \\ -0.04 \end{pmatrix}$

Ø90.78

10 ± 0.026

20° HELIX
ANGLE

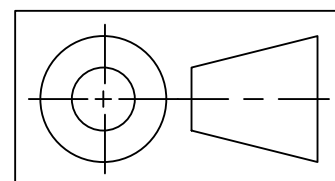
10.00

30.00

50.00

DO NOT SCALE

ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

20/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

5/20

PART NUMBER:

MCEN4000:G1

DESCRIPTION:

GEAR (ATTACHED AT THE NUT)

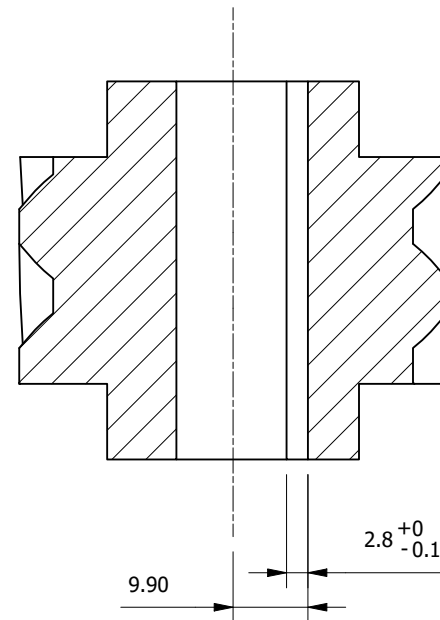
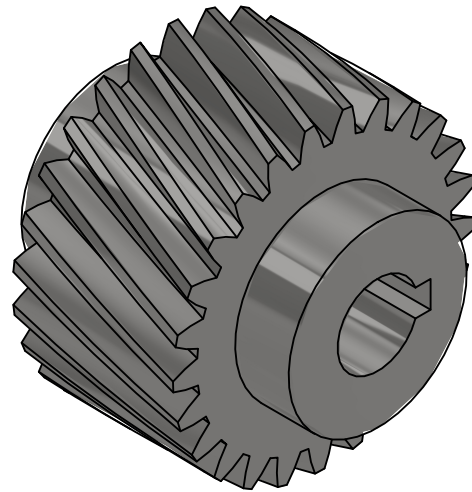
SCALE:

1 : 2

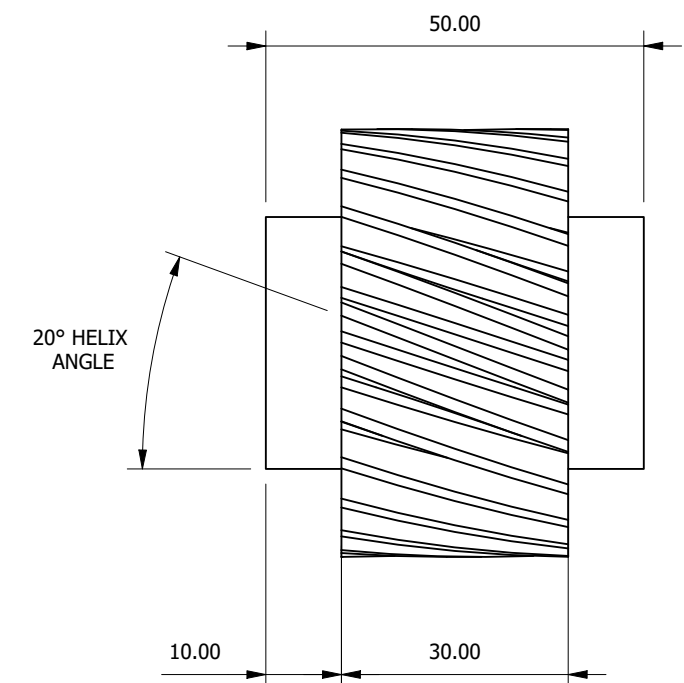
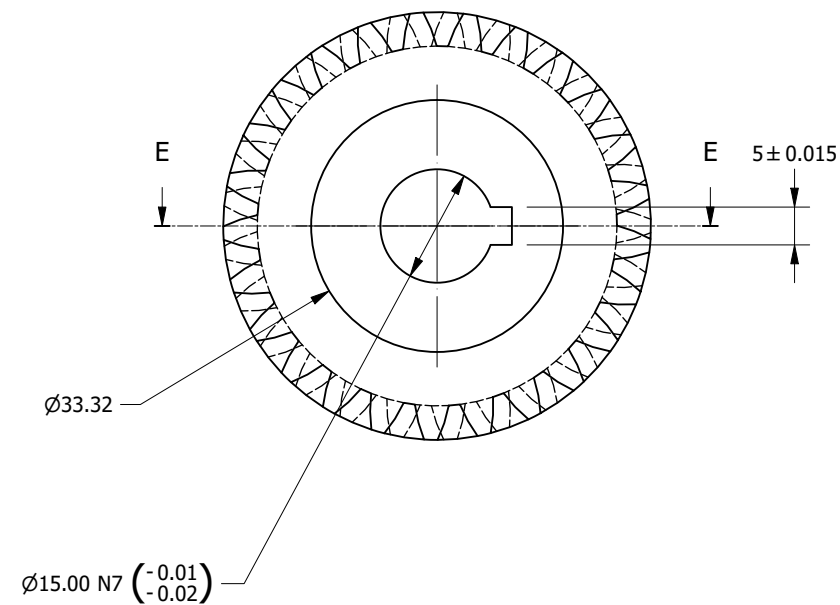
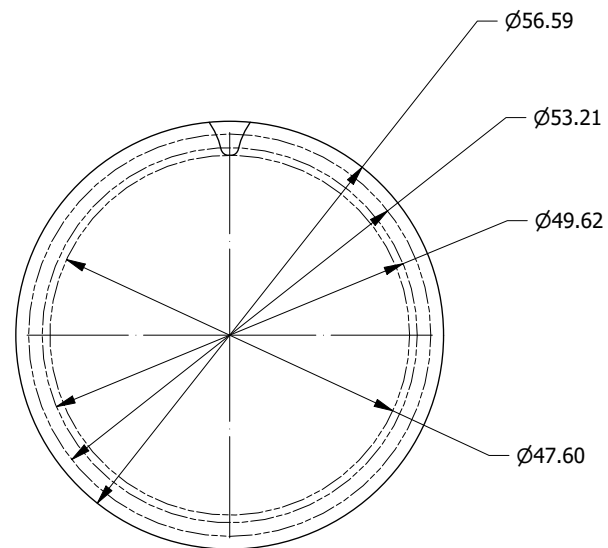
MATERIAL:

STEEL, AISI 1040

A3

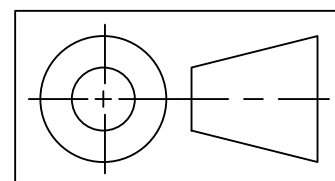


E-E (1 : 1)



DO NOT SCALE

ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

20/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

PART NUMBER:

MCEN4000:G2

SCALE:

1 : 1

DESCRIPTION:

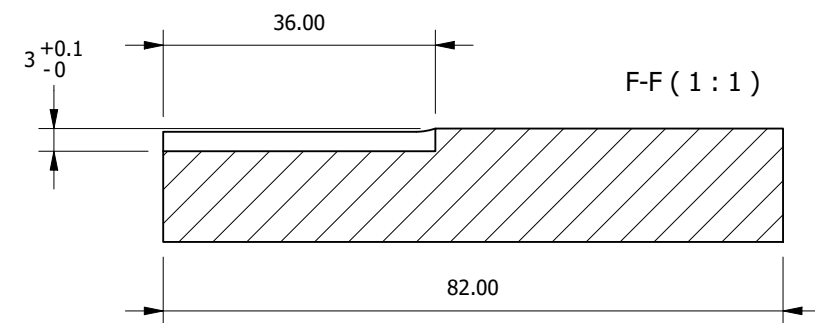
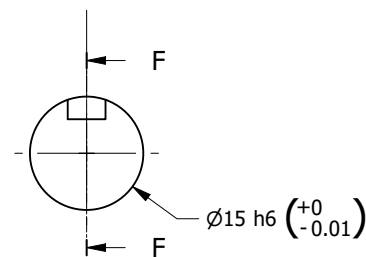
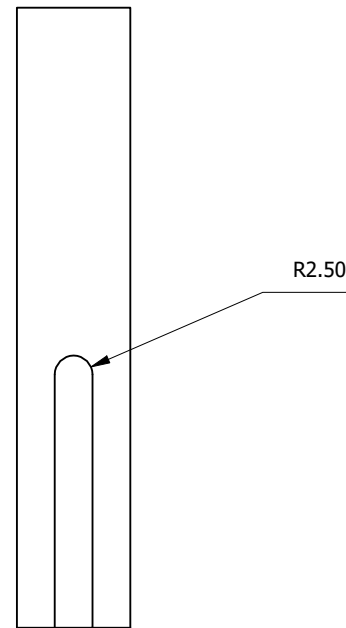
IDLE GEAR

MATERIAL:

STEEL, AISI 1040

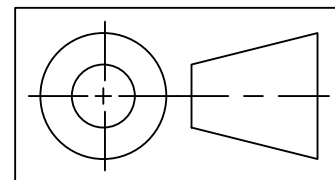
6/20

A3



DO NOT SCALE

ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

18/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

7/20

PART NUMBER:

MCEN4000:G2P

DESCRIPTION:

IDLE GEAR MOUNTING PIN

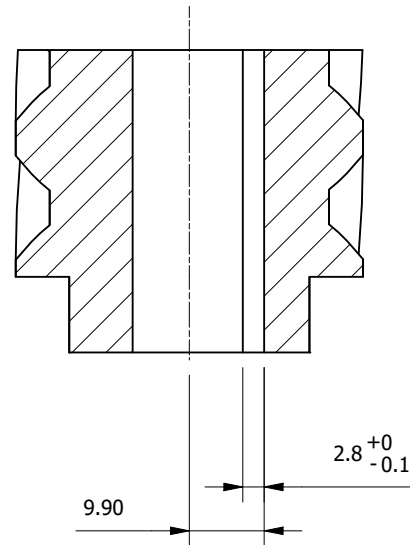
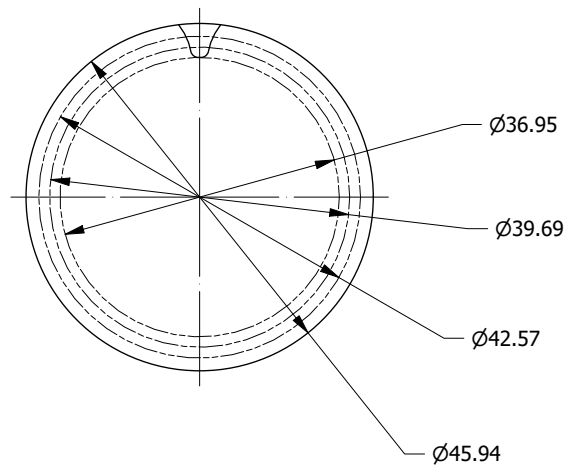
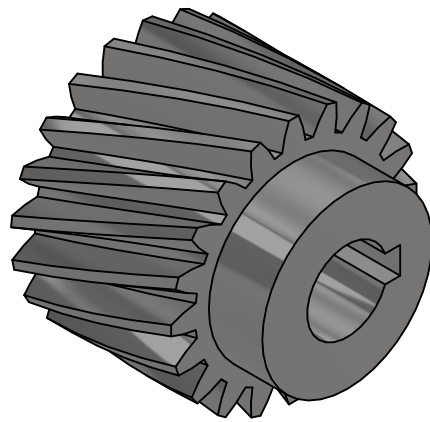
SCALE:

1 : 1

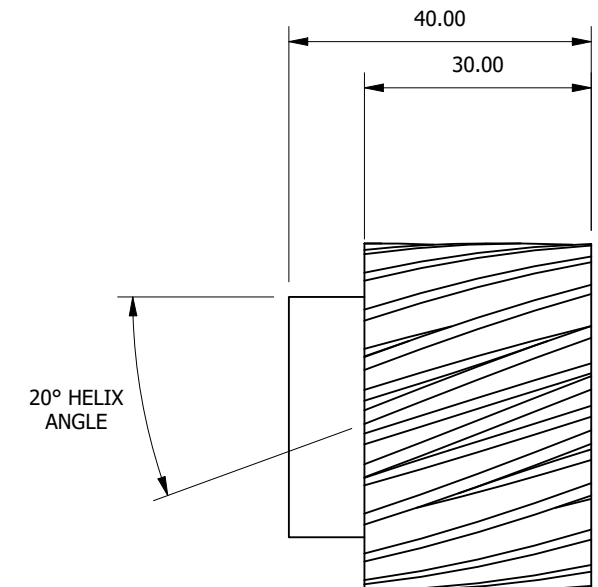
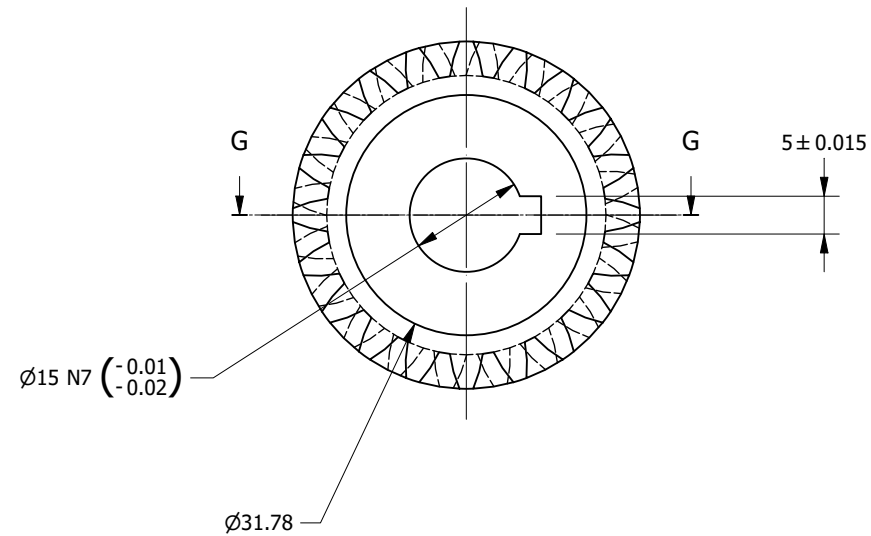
MATERIAL:

STEEL, AISI 1015

A3

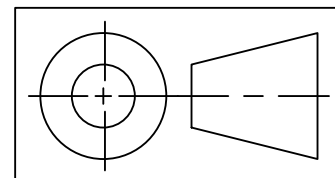


G-G (1 : 1)



DO NOT SCALE

ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

20/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

8/20

PART NUMBER:

MCEN4000:G3

DESCRIPTION:

PINION (ATTACHED AT THE MOTOR SHAFT)

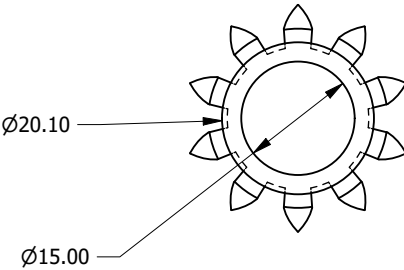
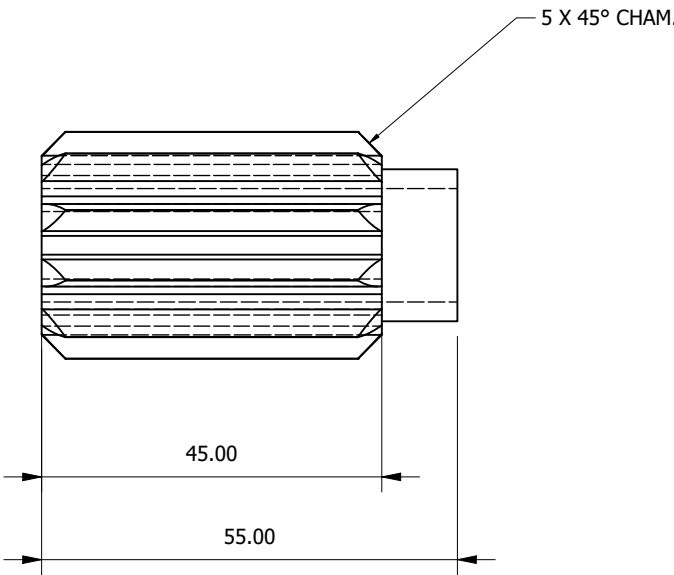
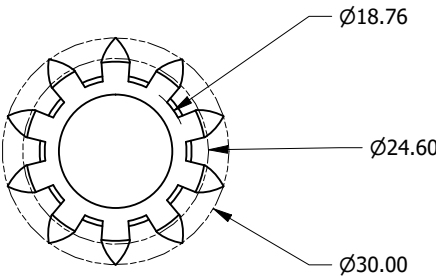
SCALE:

1 : 1

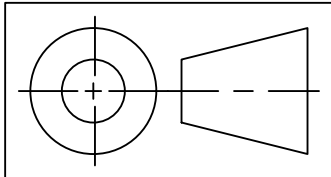
MATERIAL:

STEEL, AISI 1040

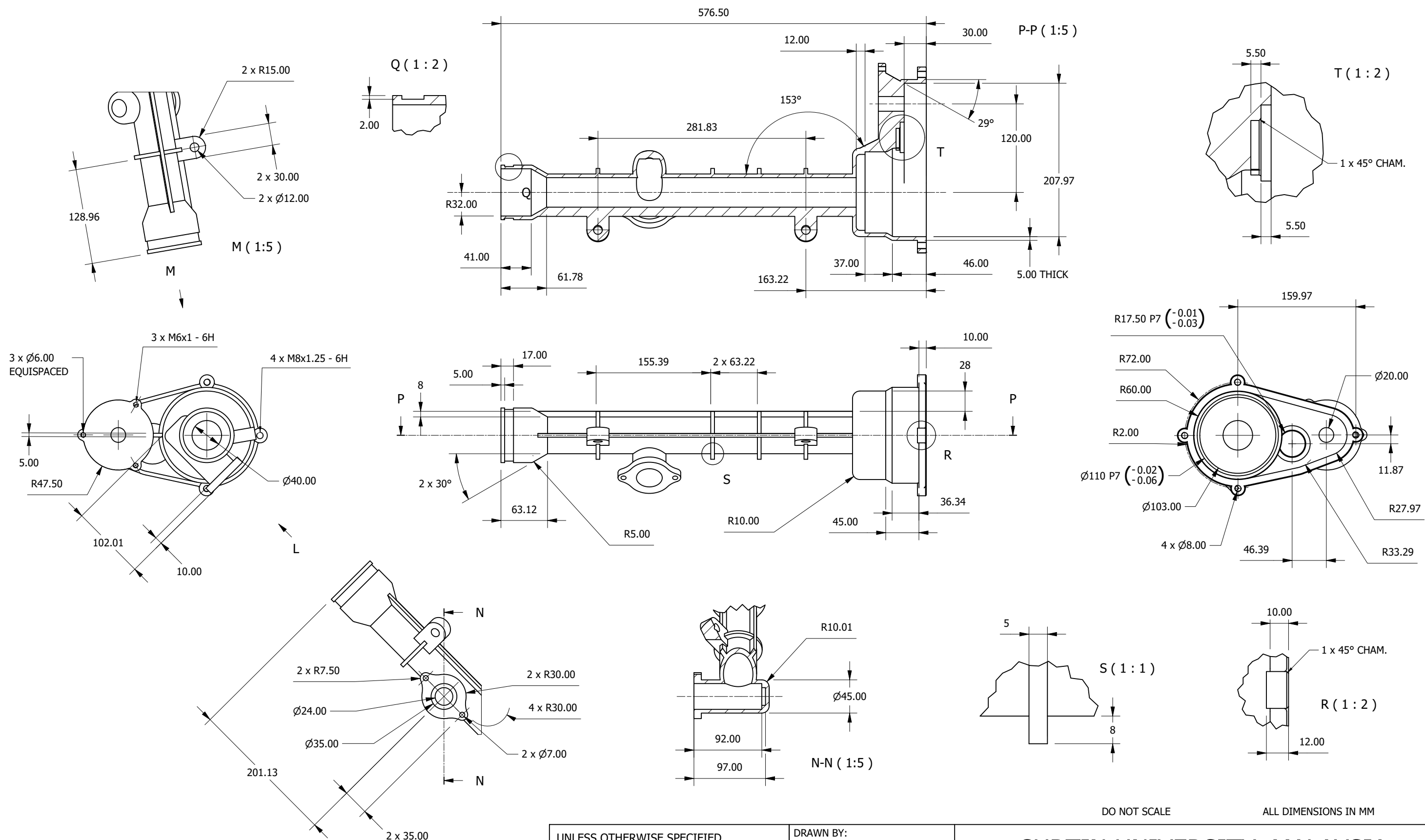
A3



DO NOT SCALE ALL DIMENSIONS IN MM



<div>UNLESS OTHERWISE SPECIFIED</div> <div>X ± 0.5 ANGLES ± 0.5 DEG</div> <div>X.X ± 0.3</div> <div>X.XX ± 0.1</div> <div>X.XXX ± 0.05</div> <div>SURFACE ROUGHNESS Ra1.6µm</div> <div>SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG</div>	DRAWN BY:	CURTIN UNIVERSITY, MALAYSIA		
	TANG KANG NING			
	DATE:	REMARKS:		
	18/10/2020			
	CHECKED BY:			
	CHONG YAO WEN	PART NUMBER:	DESCRIPTION:	A3
	APPROVED BY:	MCEN4000:GS	STEERING PINION	
	DR. MAHZAN BIN JOHAR	SCALE:	MATERIAL:	
		1 : 1	STEEL, AISI 1040	



DO NOT SCALE

ALL DIMENSIONS IN MM

UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

18/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

PART NUMBER:

MCEN4000:S1

SCALE:

1:5

DESCRIPTION:

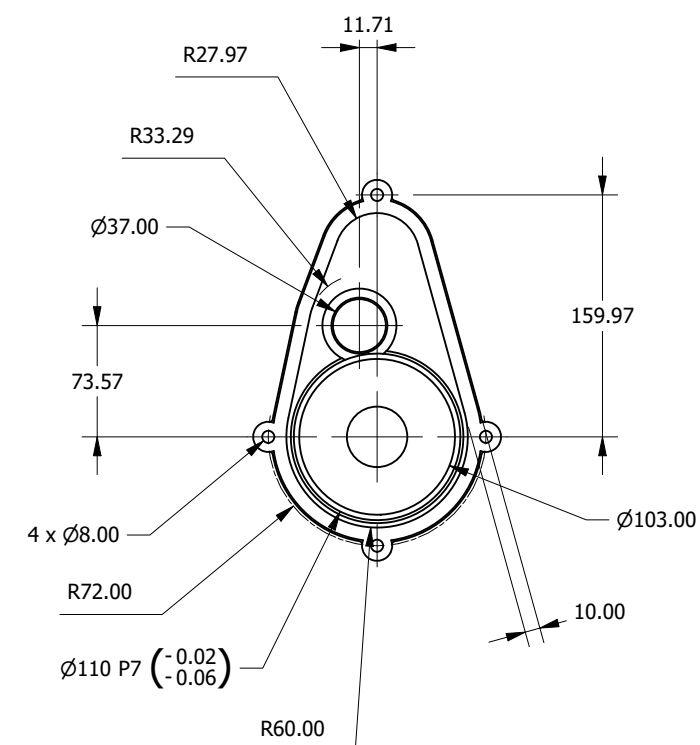
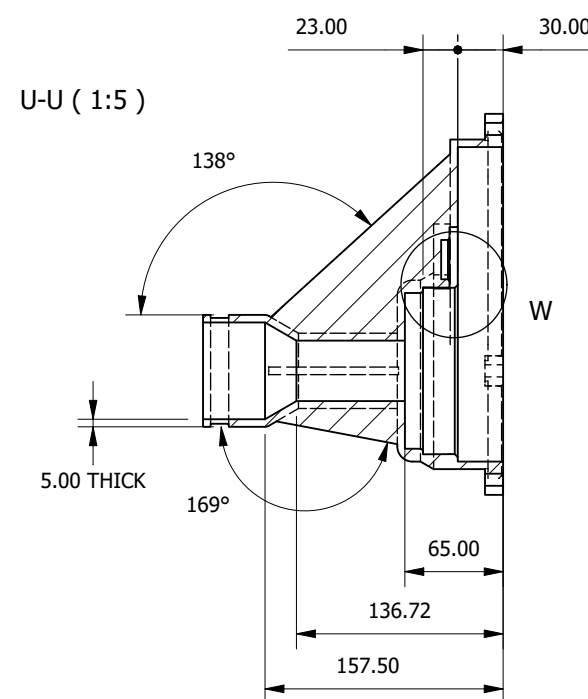
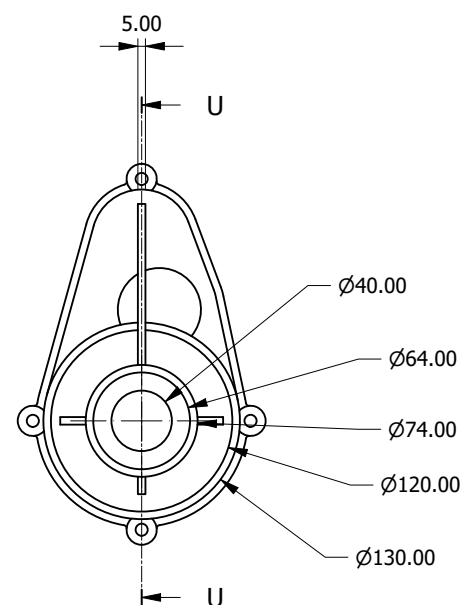
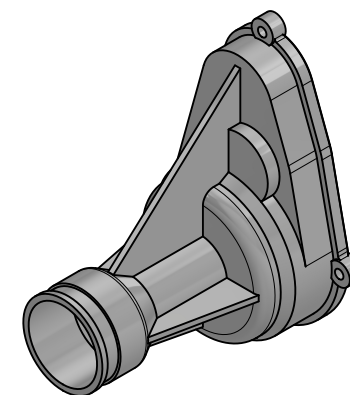
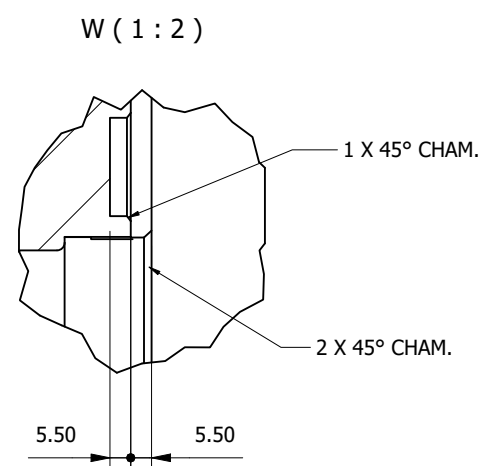
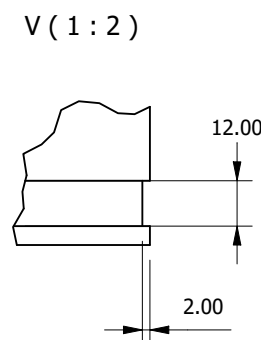
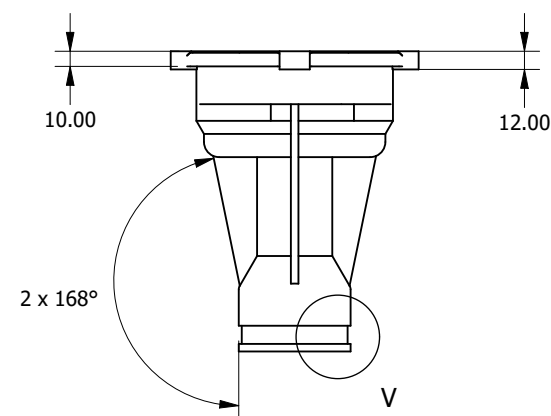
HOUSING (BODY)

MATERIAL:

CAST ALUMINIUM, 518

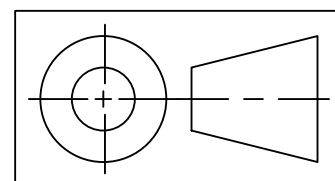
10/20

A3



DO NOT SCALE

ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

18/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

PART NUMBER:

MCEN4000:S2

SCALE:

1:5

DESCRIPTION:

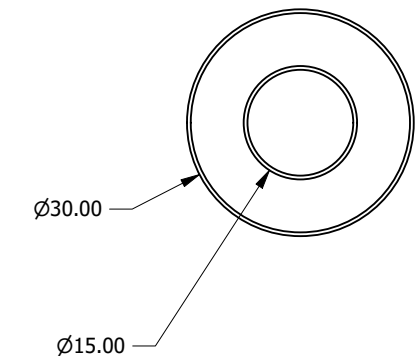
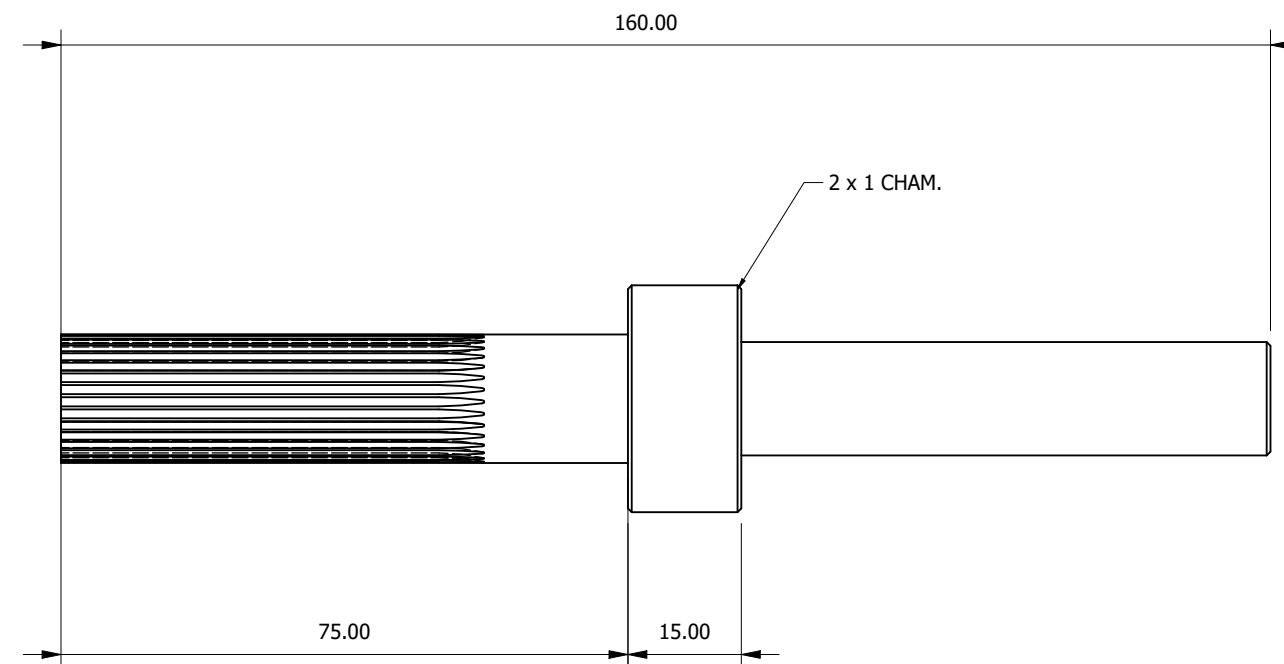
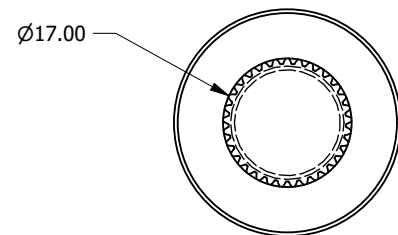
HOUSING (CAP)

MATERIAL:

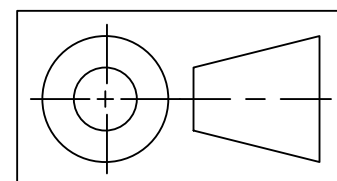
CAST ALUMINIUM, 518

11/20

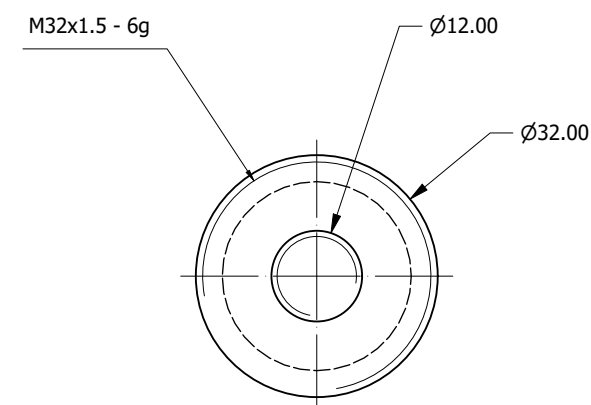
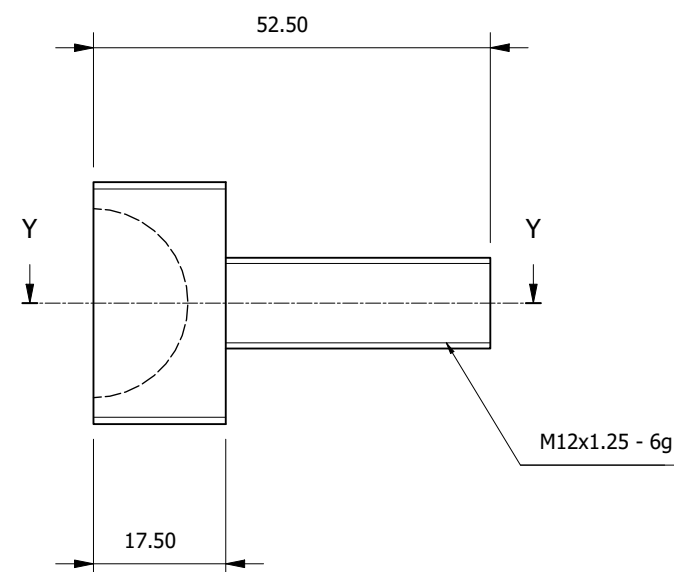
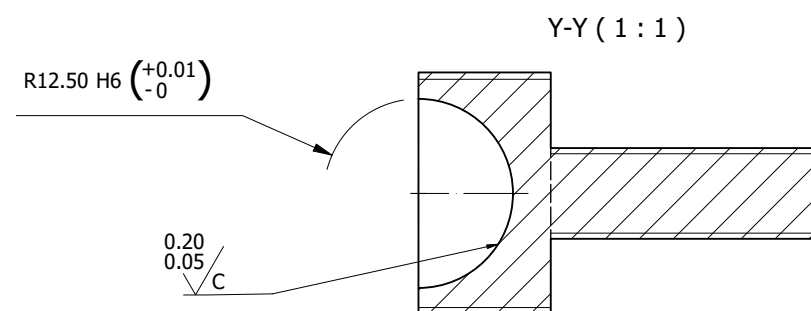
A3



DO NOT SCALE ALL DIMENSIONS IN MM

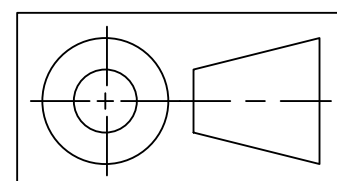


<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA		
	DATE: 17/10/2020	REMARKS:		12/20
	CHECKED BY: CHONG YAO WEN			
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:SPL	DESCRIPTION: STEERING INPUT SHAFT	A3
		SCALE: 1 : 1	MATERIAL: STEEL, AISI 1040	

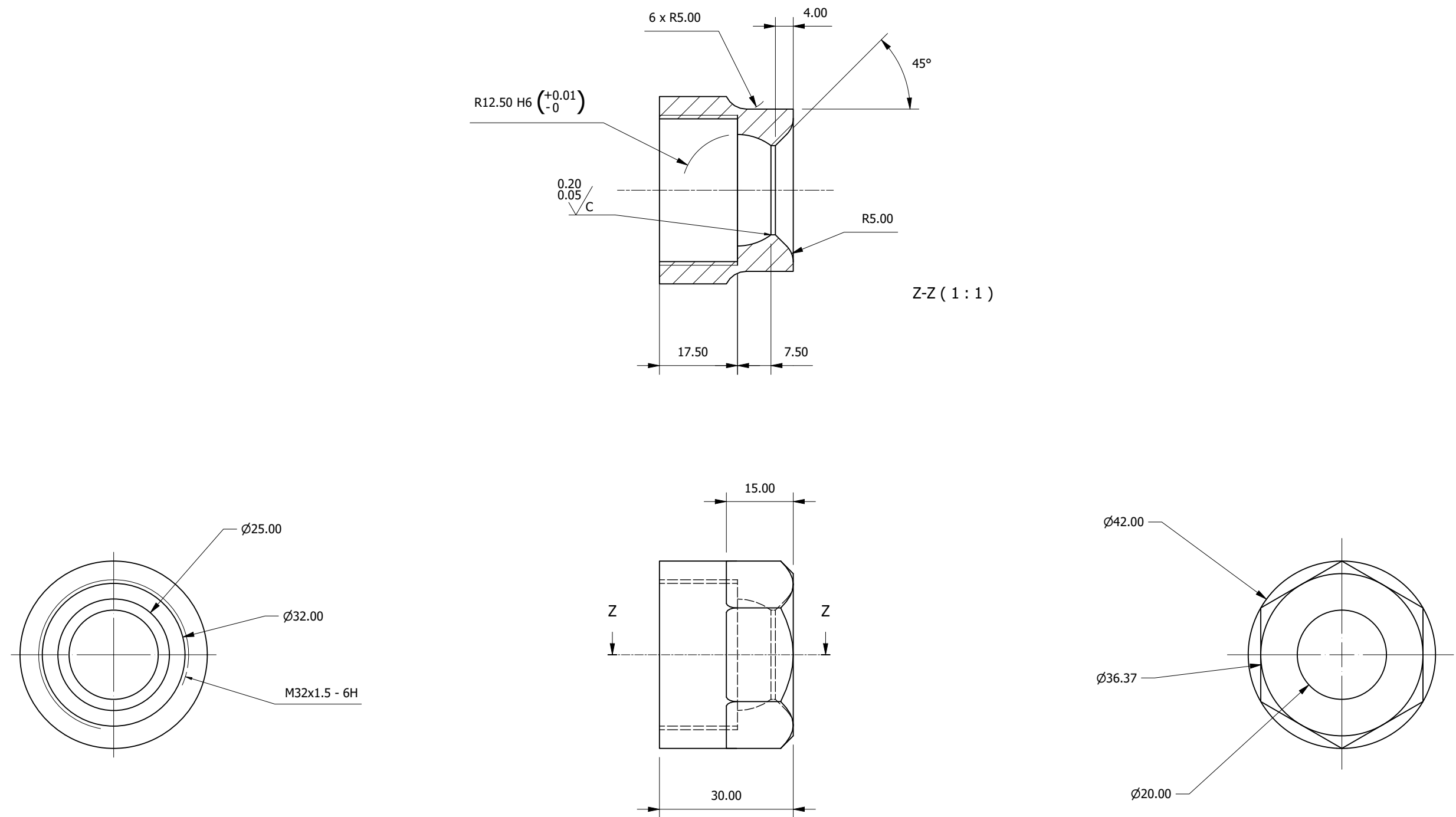


DO NOT SCALE

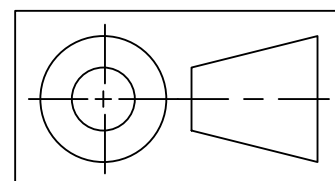
ALL DIMENSIONS IN MM



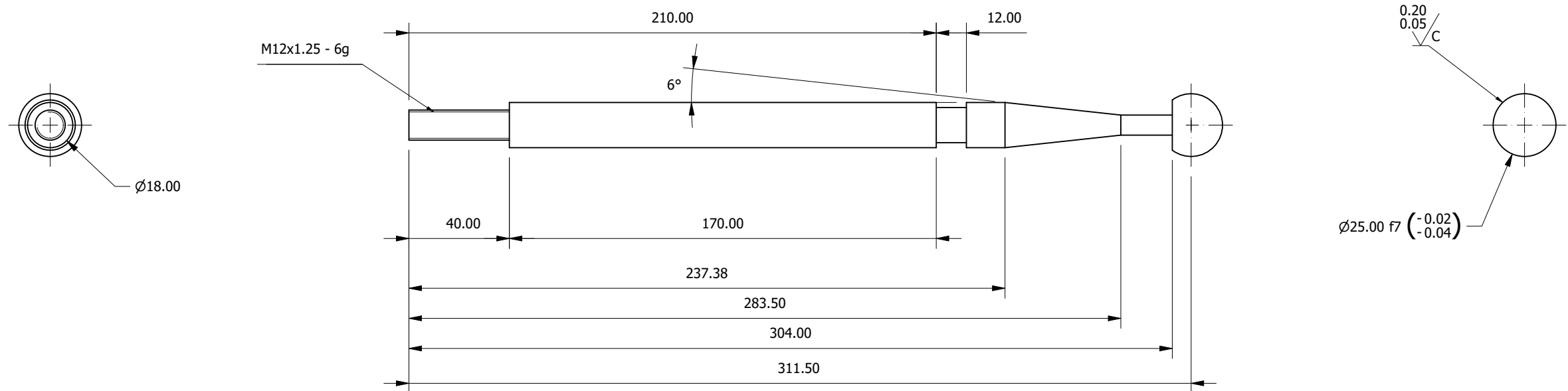
<div>UNLESS OTHERWISE SPECIFIED</div> <div>X ± 0.5 ANGLES ± 0.5 DEG</div> <div>X.X ± 0.3</div> <div>X.XX ± 0.1</div> <div>X.XXX ± 0.05</div> <div>SURFACE ROUGHNESS Ra1.6µm</div> <div>SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG</div>	DRAWN BY:	CURTIN UNIVERSITY, MALAYSIA			
	TANG KANG NING				
	DATE:	REMARKS:		13/20	
	15/10/2020				
	CHECKED BY:	PART NUMBER:		DESCRIPTION:	A3
	CHONG YAO WEN	MCEN4000:T1			
APPROVED BY:	SCALE:	MATERIAL:			
DR. MAHZAN BIN JOHAR	1 : 1	STEEL, AISI 1040			



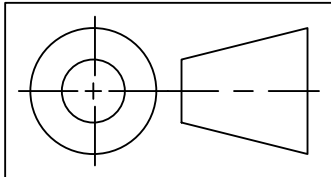
DO NOT SCALE ALL DIMENSIONS IN MM



<div>UNLESS OTHERWISE SPECIFIED</div> <div>X ± 0.5 ANGLES ± 0.5 DEG</div> <div>X.X ± 0.3</div> <div>X.XX ± 0.1</div> <div>X.XXX ± 0.05</div> <div>SURFACE ROUGHNESS Ra1.6µm</div> <div>SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG</div>	DRAWN BY: <div>TANG KANG NING</div>	CURTIN UNIVERSITY, MALAYSIA			
	DATE: <div>16/10/2020</div>	REMARKS:		14/20	
	CHECKED BY: <div>CHONG YAO WEN</div>				
	APPROVED BY: <div>DR. MAHZAN BIN JOHAR</div>	PART NUMBER: <div>MCEN4000:T2</div>	DESCRIPTION: <div>TIE ROD INNER CUP CAP</div>		A3
		SCALE: <div>1 : 1</div>	MATERIAL: <div>STEEL, AISI 1015</div>		



DO NOT SCALE ALL DIMENSIONS IN MM



UNLESS OTHERWISE SPECIFIED

X ± 0.5 ANGLES ± 0.5 DEG

X.X ± 0.3

X.XX ± 0.1

X.XXX ± 0.05

SURFACE ROUGHNESS Ra1.6µm

SHARP EDGES AND CORNERS R0.3 mm OR
0.3 mm x 45 DEG

DRAWN BY:

TANG KANG NING

DATE:

16/10/2020

CHECKED BY:

CHONG YAO WEN

APPROVED BY:

DR. MAHZAN BIN JOHAR

CURTIN UNIVERSITY, MALAYSIA

REMARKS:

15/20

PART NUMBER:

MCEN4000:T3

DESCRIPTION:

TIE ROD

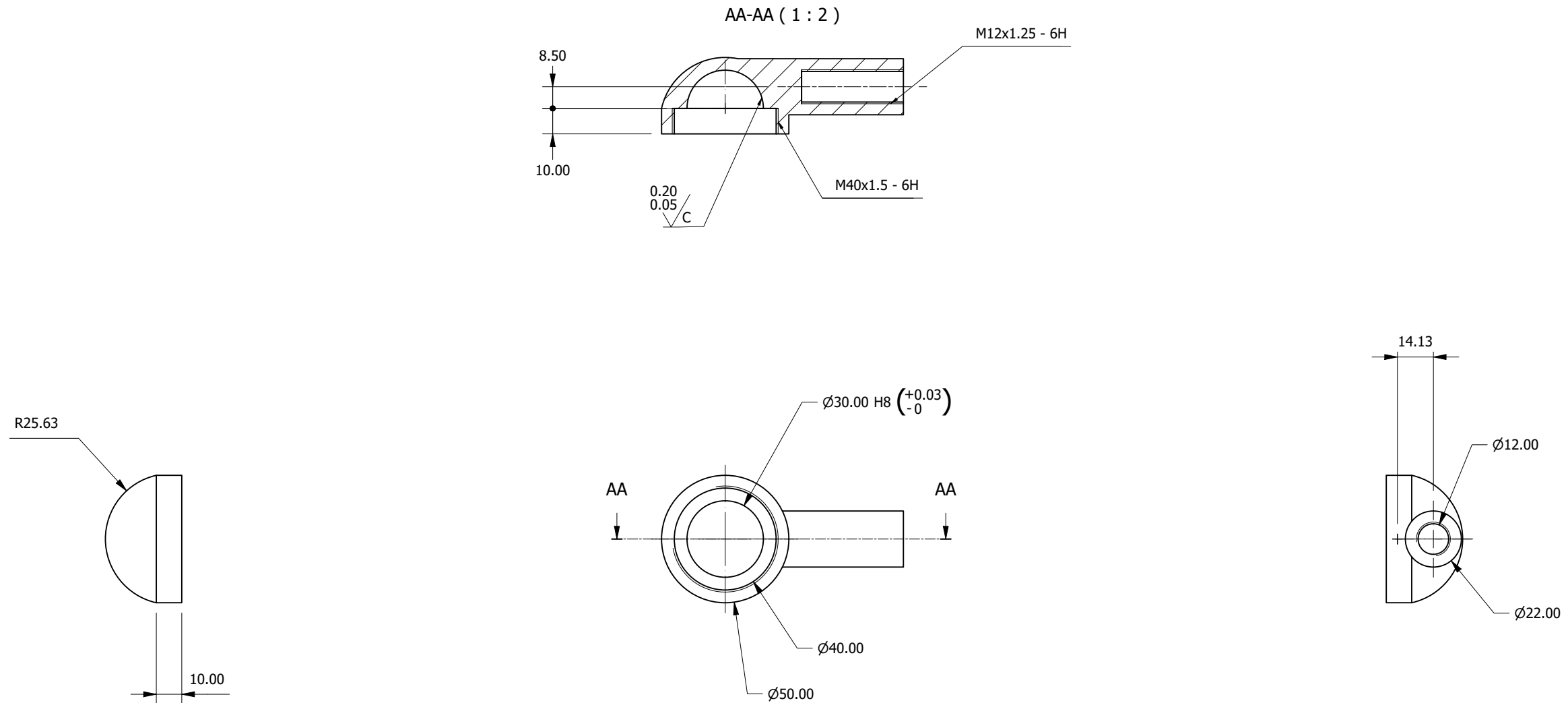
SCALE:

1 : 2

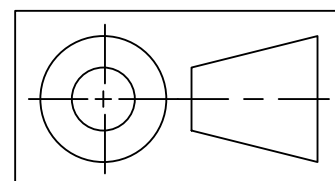
MATERIAL:

STEEL, AISI 1015

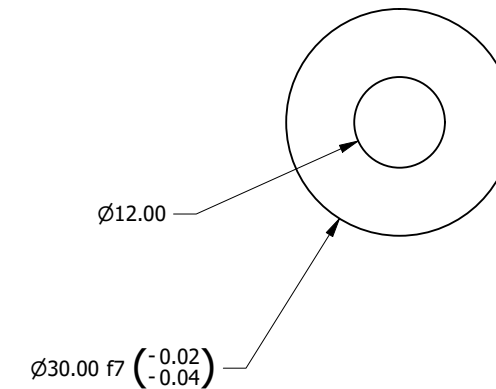
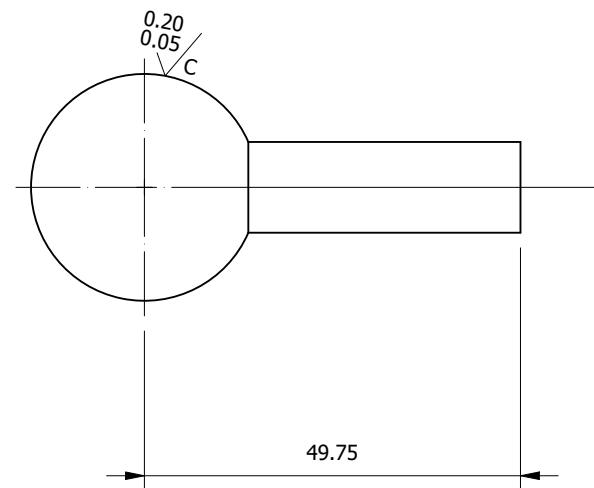
A3



DO NOT SCALE ALL DIMENSIONS IN MM

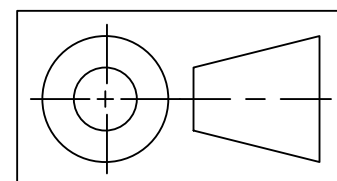


<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA		
	DATE: 18/10/2020	REMARKS:		
	CHECKED BY: CHONG YAO WEN			
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:T4	DESCRIPTION: TIE ROD OUTER CUP	16/20
		SCALE: 1 : 2	MATERIAL: STEEL, AISI 1040	A3

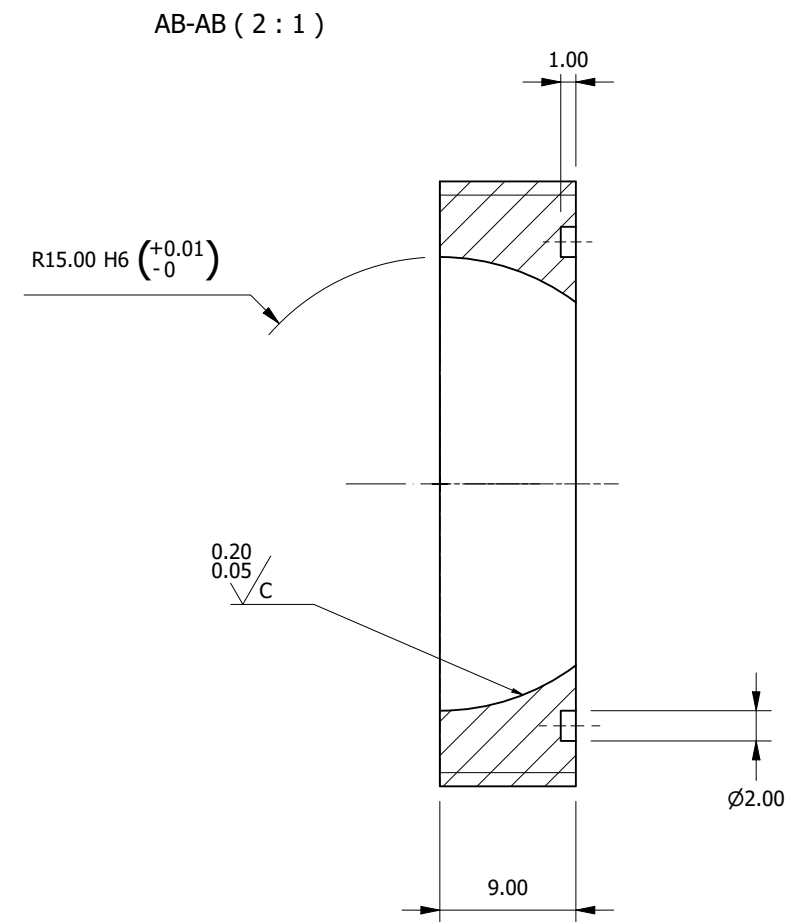
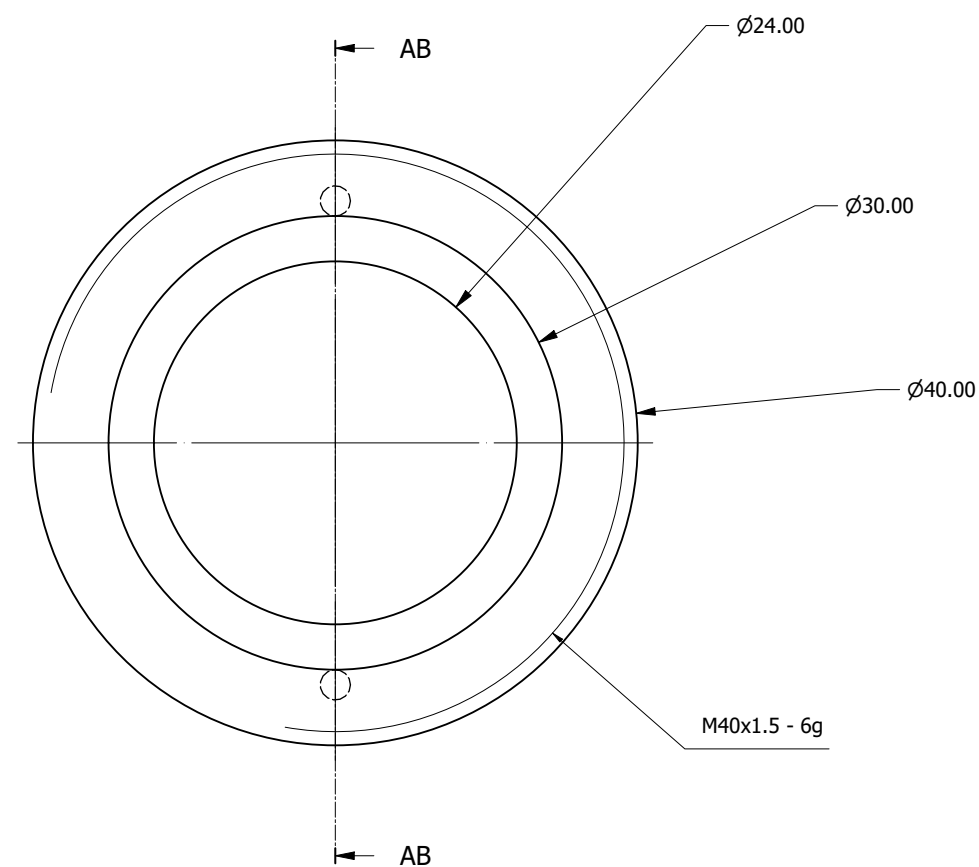


DO NOT SCALE

ALL DIMENSIONS IN MM

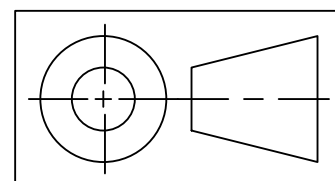


<div>UNLESS OTHERWISE SPECIFIED</div> <div>X ± 0.5 ANGLES ± 0.5 DEG</div> <div>X.X ± 0.3</div> <div>X.XX ± 0.1</div> <div>X.XXX ± 0.05</div> <div>SURFACE ROUGHNESS Ra1.6µm</div> <div>SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG</div>	DRAWN BY: <div>TANG KANG NING</div>	CURTIN UNIVERSITY, MALAYSIA			
	DATE: <div>18/10/2020</div>	REMARKS:		17/20	
	CHECKED BY: <div>CHONG YAO WEN</div>				
	APPROVED BY: <div>DR. MAHZAN BIN JOHAR</div>	PART NUMBER: <div>MCEN4000:T5</div>	DESCRIPTION: <div>TIE ROD OUTER BALL JOINT</div>		A3
	SCALE: <div>1 : 1</div>	MATERIAL: <div>STEEL, AISI 1015</div>			



DO NOT SCALE

ALL DIMENSIONS IN MM

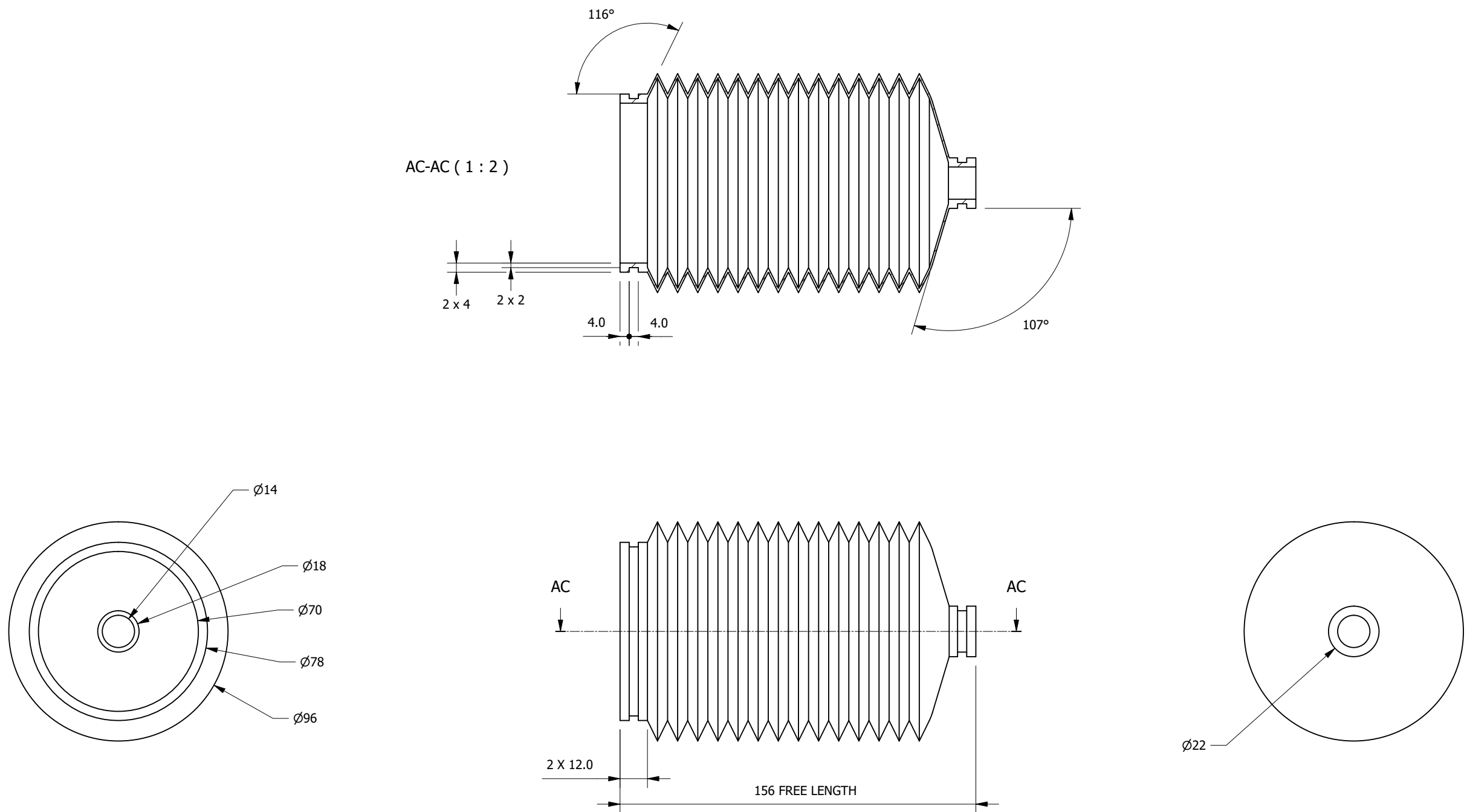


UNLESS OTHERWISE SPECIFIED
 $X \pm 0.5$ ANGLES ± 0.5 DEG
 $X.X \pm 0.3$
 $X.XX \pm 0.1$
 $X.XXX \pm 0.05$
 SURFACE ROUGHNESS $Ra1.6\mu m$
 SHARP EDGES AND CORNERS $R0.3\ mm$ OR
 $0.3\ mm \times 45\ DEG$

DRAWN BY:
TANG KANG NING
 DATE:
18/10/2020
 CHECKED BY:
CHONG YAO WEN
 APPROVED BY:
DR. MAHZAN BIN JOHAR

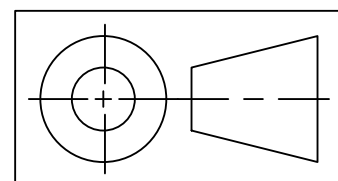
CURTIN UNIVERSITY, MALAYSIA

REMARKS:		18/20
PART NUMBER: MCEN4000:T6	DESCRIPTION: TIE ROD OUTER CUP CAP	A3
SCALE: 2 : 1	MATERIAL: STEEL, AISI 1040	

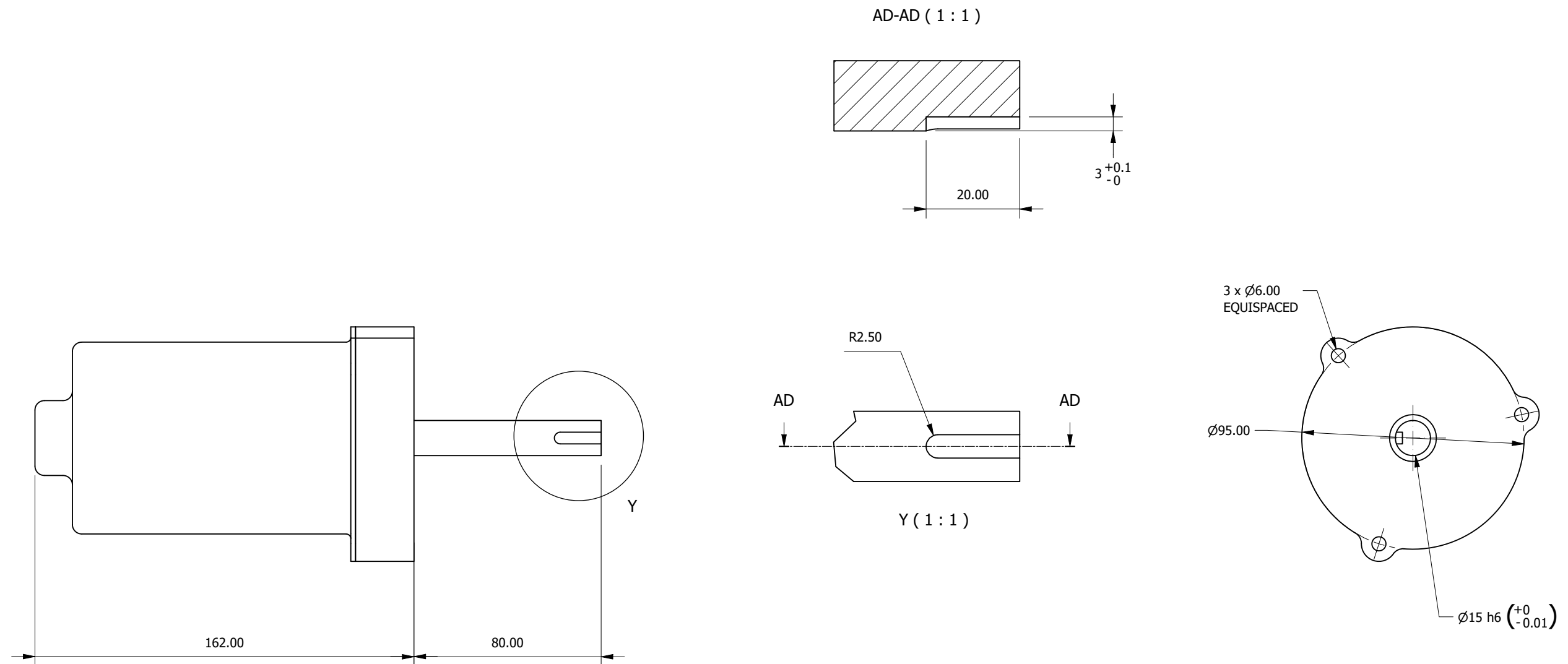


DO NOT SCALE

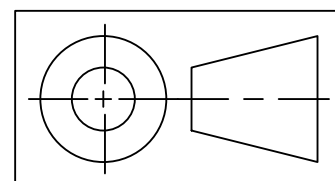
ALL DIMENSIONS IN MM



<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA		
	DATE: 22/10/2020	REMARKS:		19/20
	CHECKED BY: CHONG YAO WEN	PART NUMBER: MCEN4000:T7	DESCRIPTION: BALL JOINT BELLOW	A3
	APPROVED BY: DR. MAHZAN BIN JOHAR	SCALE: 1 : 2	MATERIAL: RUBBER, SILICONE	



DO NOT SCALE ALL DIMENSIONS IN MM



<u>UNLESS OTHERWISE SPECIFIED</u> X ± 0.5 ANGLES ± 0.5 DEG X.X ± 0.3 X.XX ± 0.1 X.XXX ± 0.05 SURFACE ROUGHNESS Ra1.6µm SHARP EDGES AND CORNERS R0.3 mm OR 0.3 mm x 45 DEG	DRAWN BY: TANG KANG NING	CURTIN UNIVERSITY, MALAYSIA			
	DATE: 18/10/2020	REMARKS:		20/20	
	CHECKED BY: CHONG YAO WEN				
	APPROVED BY: DR. MAHZAN BIN JOHAR	PART NUMBER: MCEN4000:M0	DESCRIPTION: ELECTRIC SERVO MOTOR		A3
		SCALE: 1 : 2	MATERIAL:		