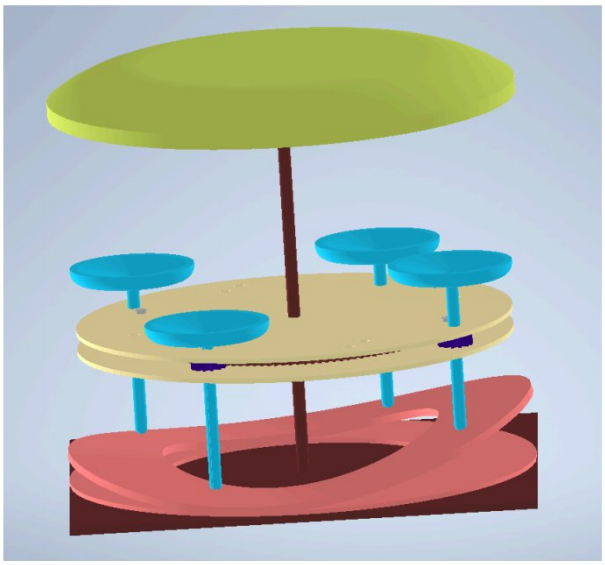
TA 212 (Manufacturing Processes)

MERRY GO ROUND

Group 1



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Guide - Mr. Rakesh Thapliyal

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Chhavi Tanwar 230329

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PROJECT OVERVIEW

In this project, we are building a fully functional working model of a real-life merry-go-round on a small scale. This project focuses on the design and development of a merry-go-round. The primary aim is to create a safe, durable, and aesthetically pleasing model. The merry-go-round will be powered electrically and controlled using Arduino and motor controllers.

PROJECT OBJECTIVES

Concept Development: Sketch initial designs, calculate mechanical loads and select materials.

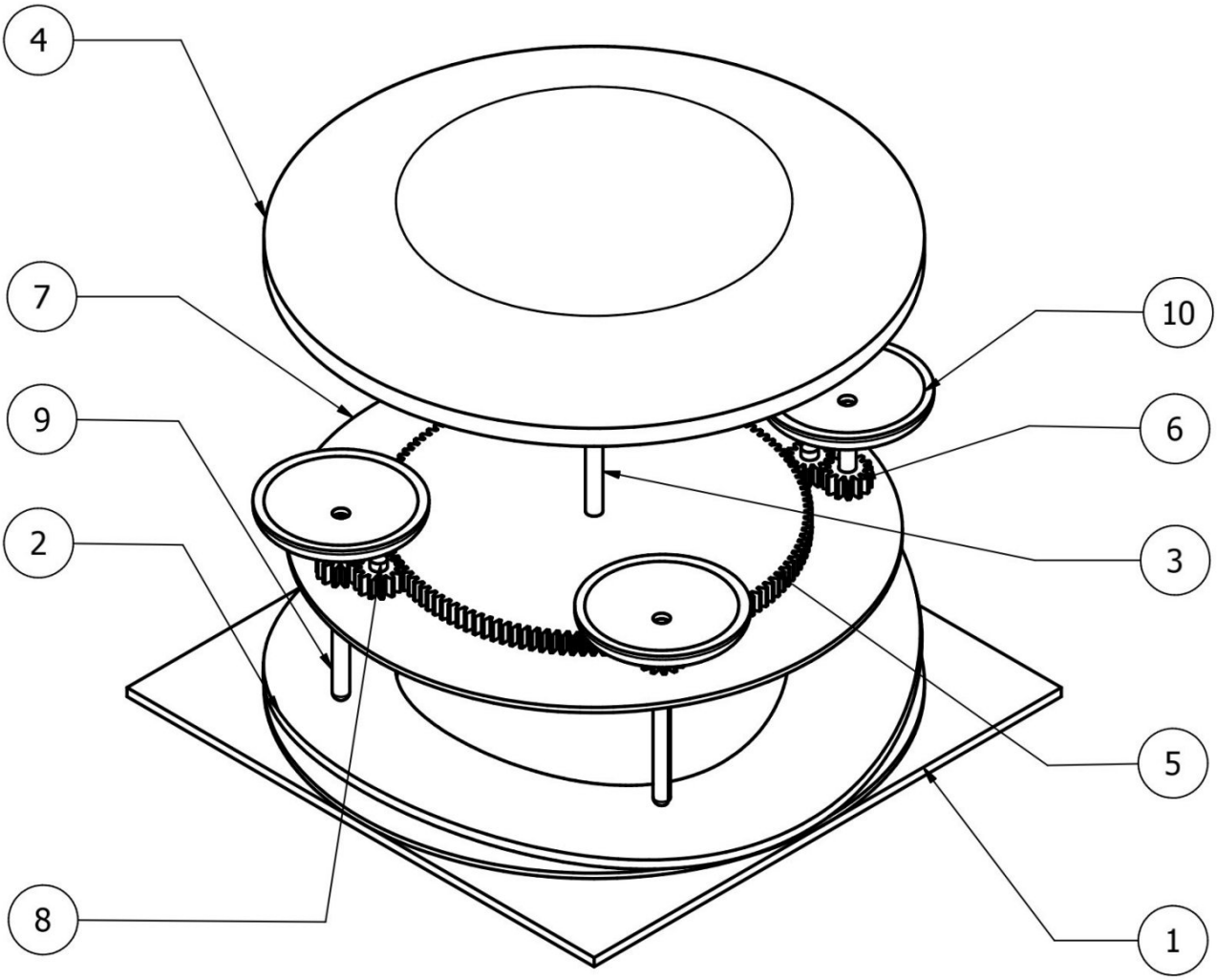
Design: Use CAD software to create detailed blueprints and simulate performance.

Fabrication: Procure materials and assemble the merry-go-round structure and mechanism.

Educational Application:
A tangible demonstration of engineering principles, such as rotational mechanics, load distribution, and energy conversion.

MODEL PARTS

S.No.	Part Name	Quantity	Dimension (in mm)	Page No.
1	Base 1	1	300 x 300 x 5	1
2	Wavy plate	1	Ø300 (outer), Ø180 (inner), 47.84 height	2
3	Shaft (Main)	1	Ø8, 150 long	3
4	Dome	1	Ø300, 30 height	4
5	Spur gear 1	1	130 teeth, Ø198, Ø8 hole, 10 height	5
6	Spur gear 2	6	13 teeth, Ø22.5, Ø8 hole, 10 height	6
7	Base 2	2	Ø280 x 3, Ø8 x 7 holes	7
8	Small rod	2	Ø8, 17.5 long	8
9	Shaft (Slotted)	4	Ø8, 100 long 3 x 3 (Slot)	9
10	Saucer	4	Ø80, 10 height	10
11	Spur gear 3	1	10 teeth, Ø18, Ø8 hole, 10 height	11
12	Spur gear 4	1	20 teeth, Ø33, Ø8 hole,10 height	12



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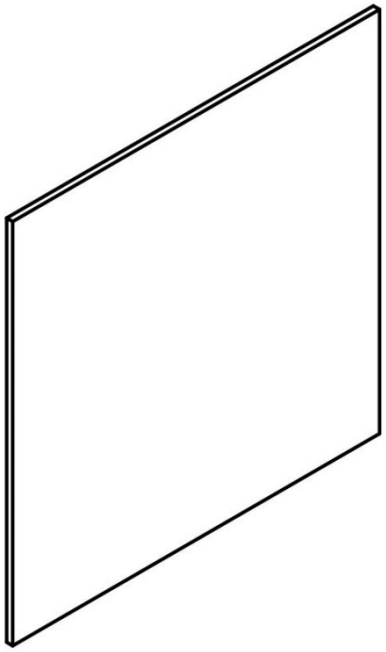
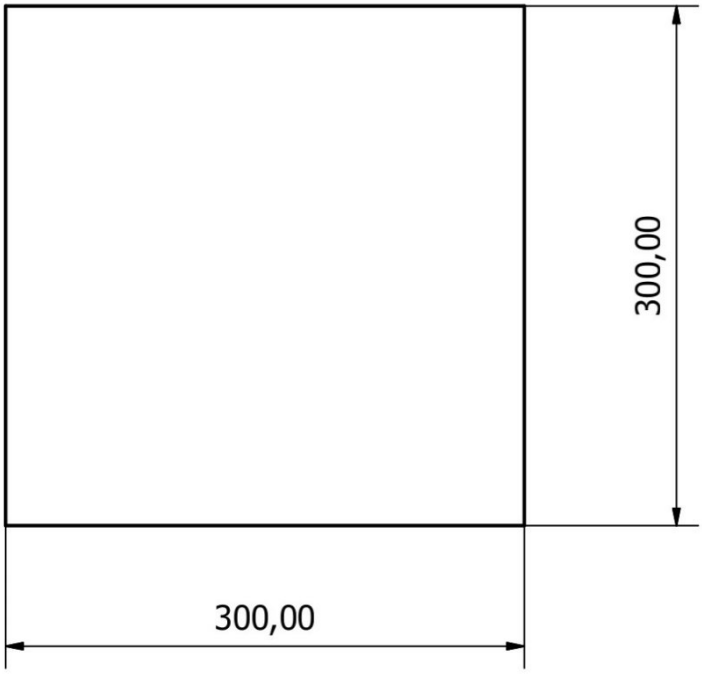
Merry Go Round		Edition	Sheet 1 / 1

1





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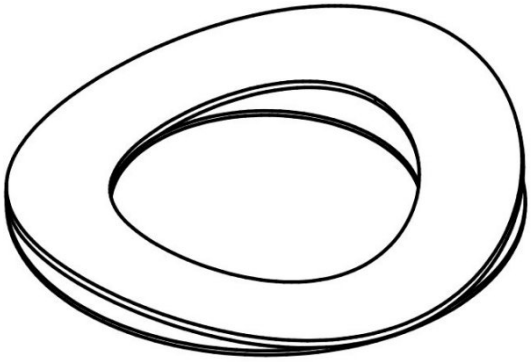
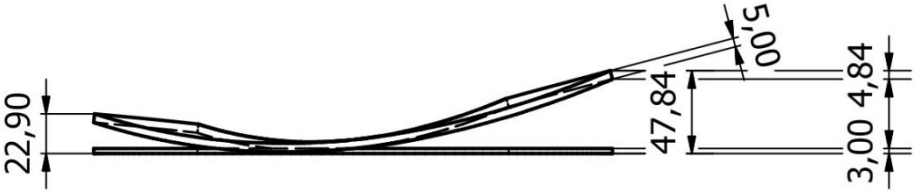
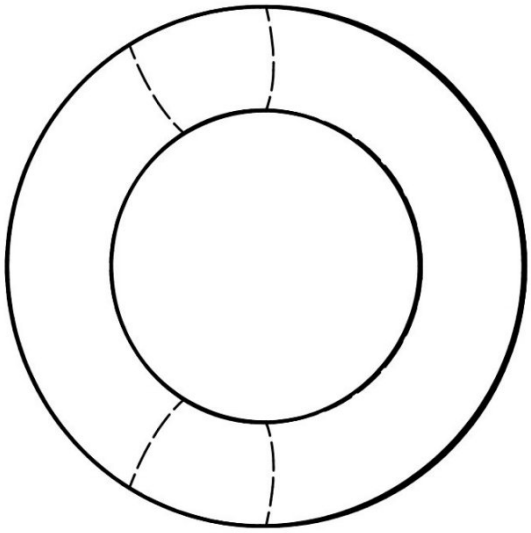
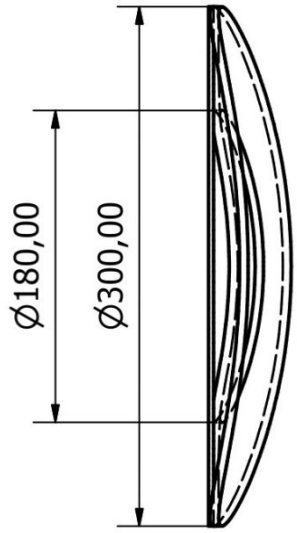
Base 1		Edition	Sheet 1 / 1

2









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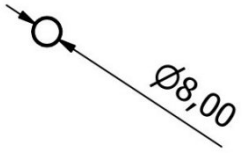
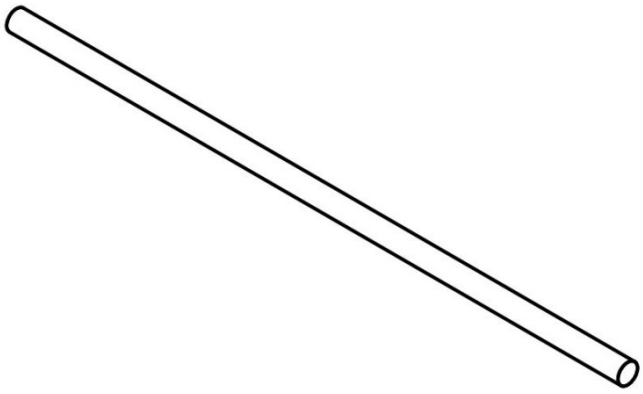
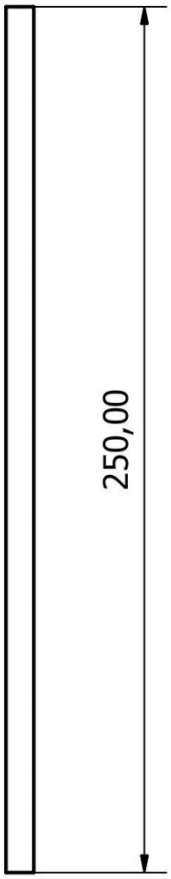
Wavy Plate		Edition	Sheet 1 / 1

3







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	Shaft (Main)	Edition	Sheet 1 / 1

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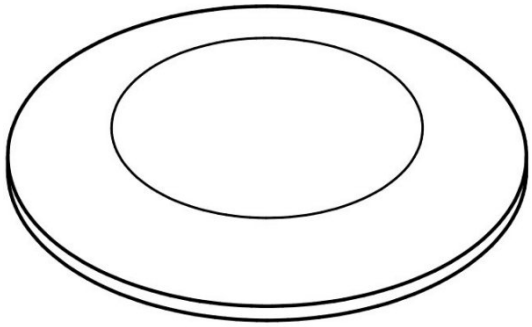

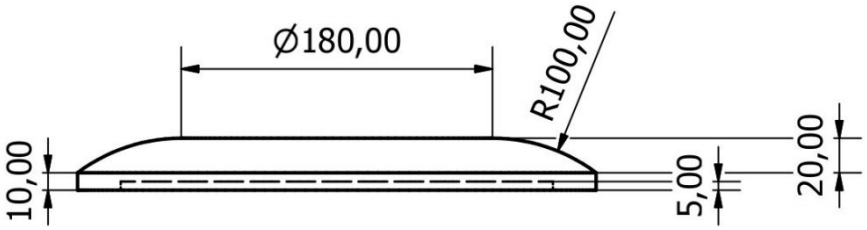

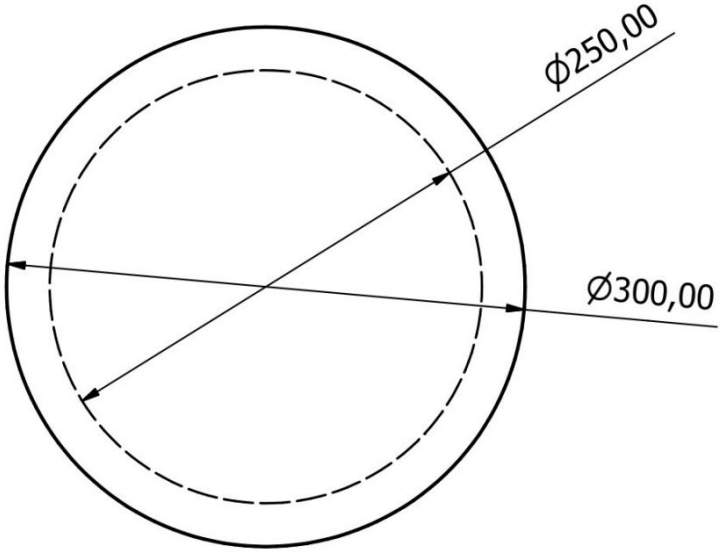

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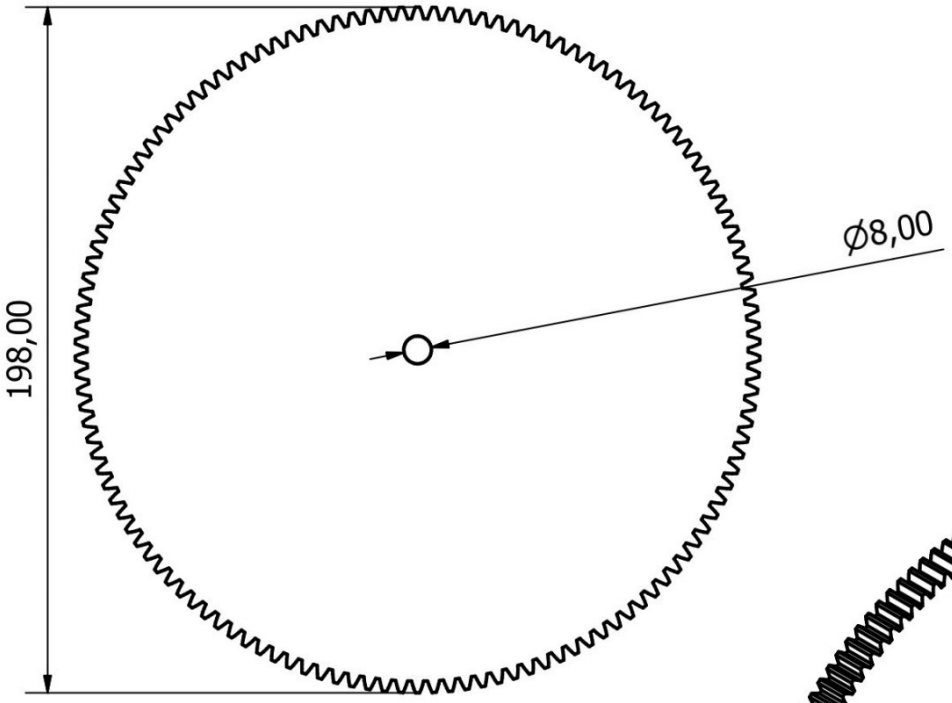
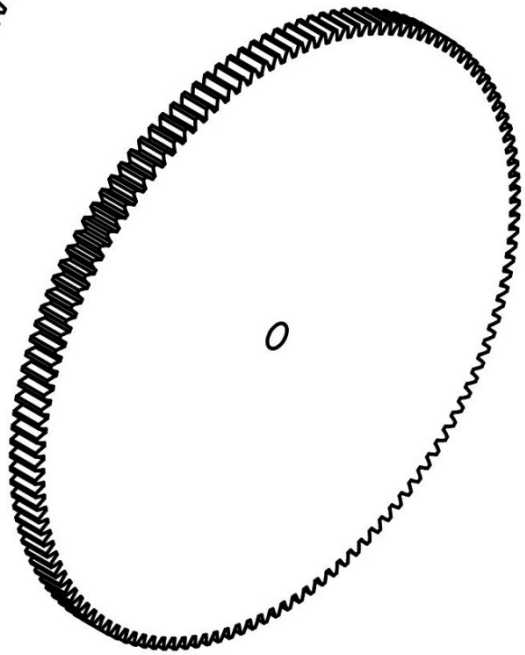
Dome		Edition	Sheet 1 / 1

5





no. of teeth = 130
module = 1.5

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	Spur gear 1	Edition	Sheet 1 / 1

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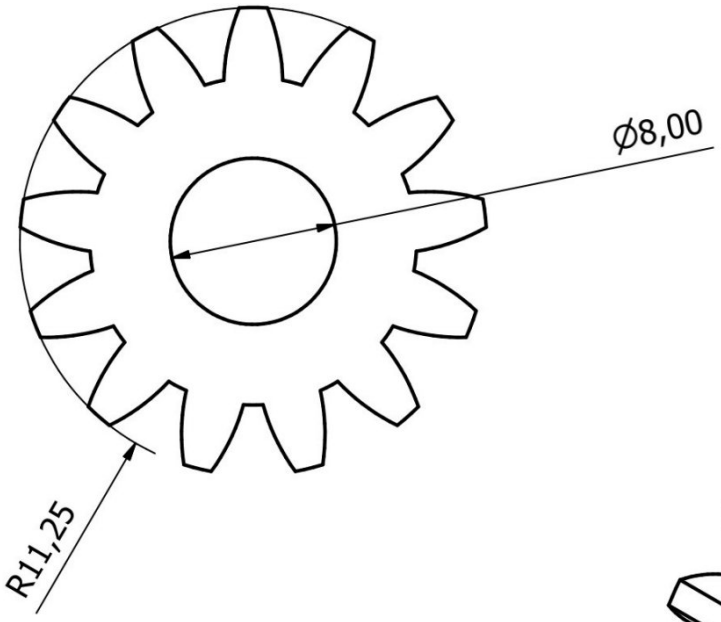

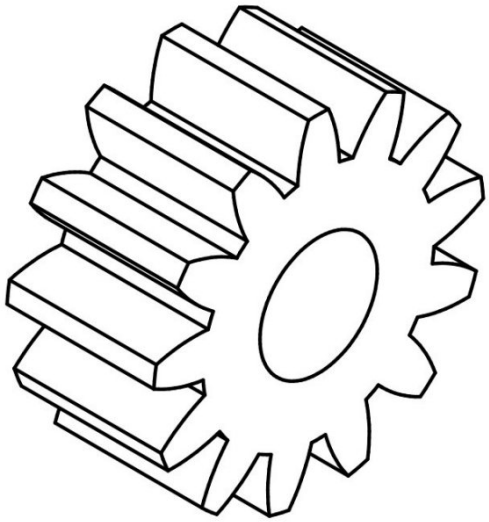

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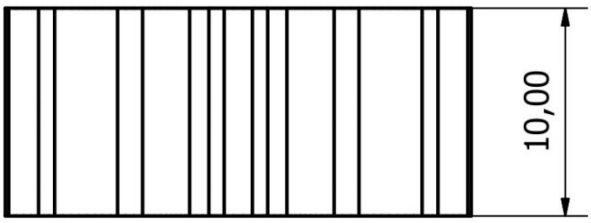

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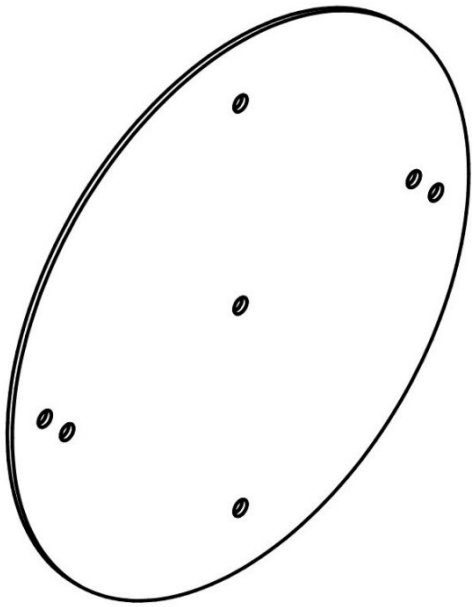
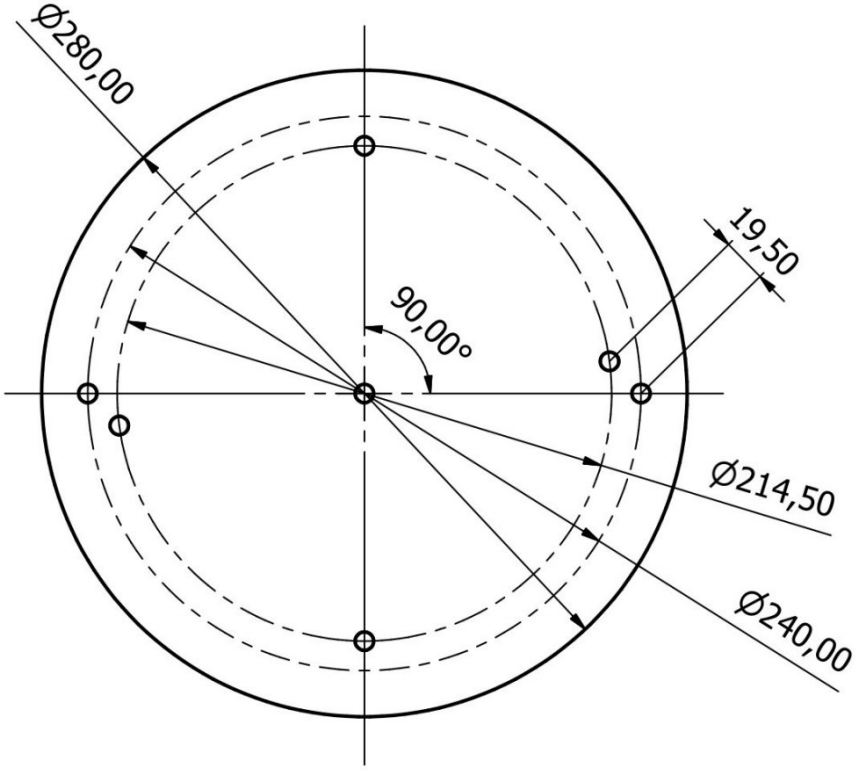
Spur gear 2		Edition	Sheet 1 / 1

7





Diameter of each hole = 8 mm

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Base 2		Edition	Sheet 1 / 1

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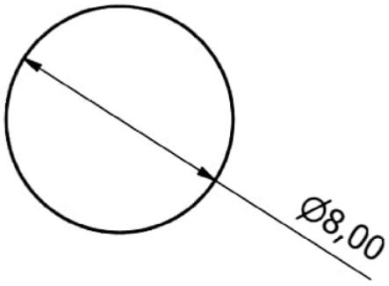

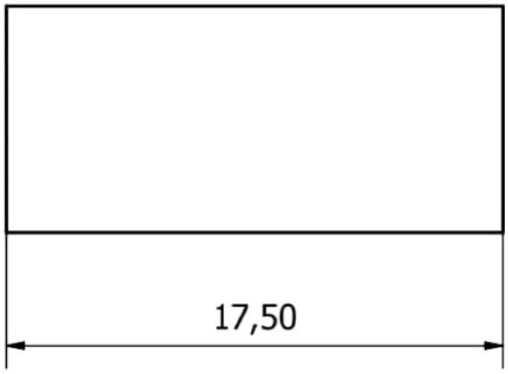

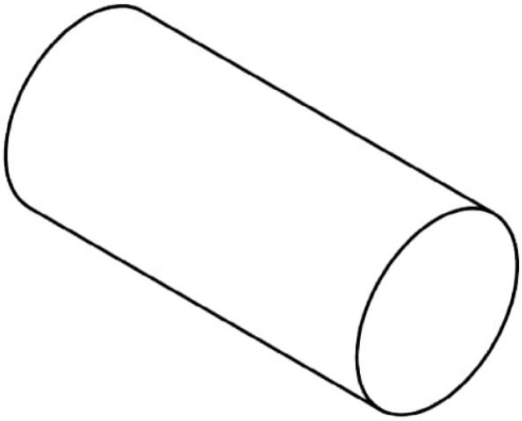

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Small rod	Edition	Sheet	1 / 1

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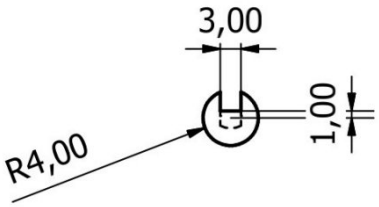

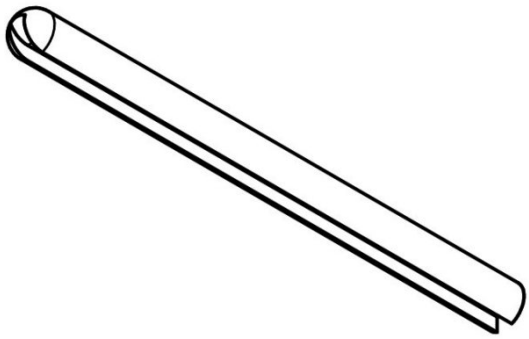

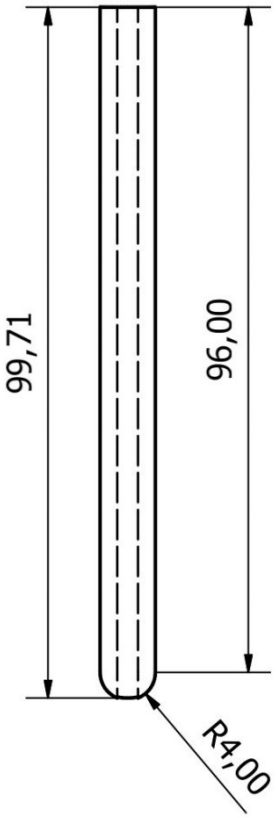

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Shaft (Slotted)		Edition	Sheet 1 / 1

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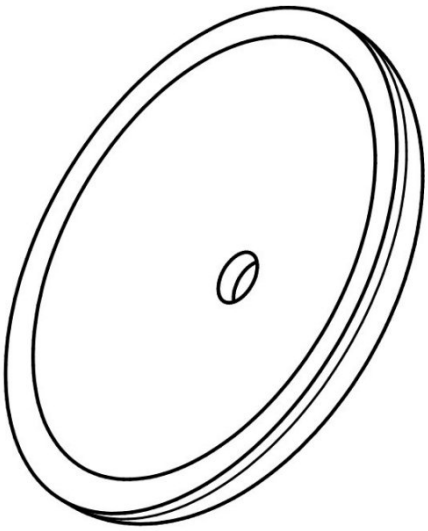

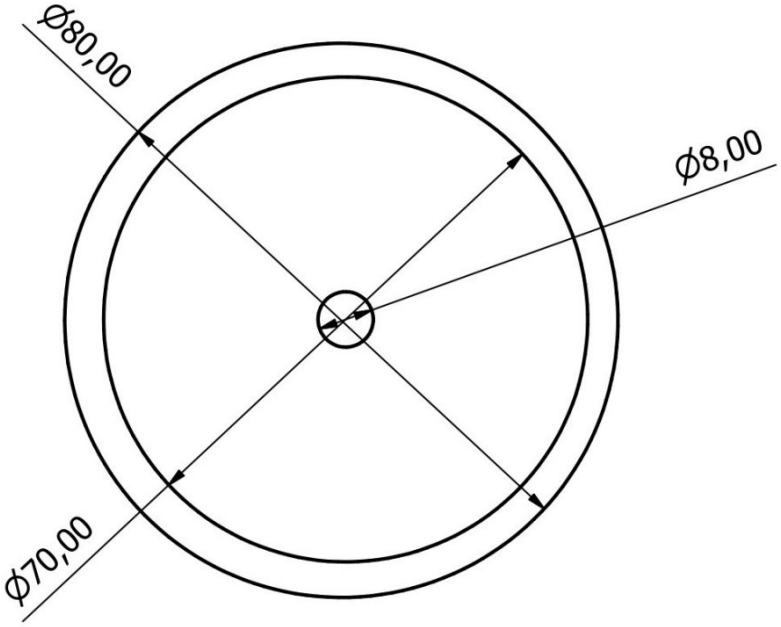

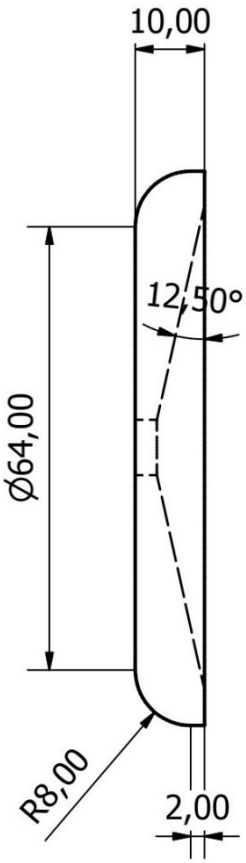

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Saucer	Edition	Sheet 1 / 1	

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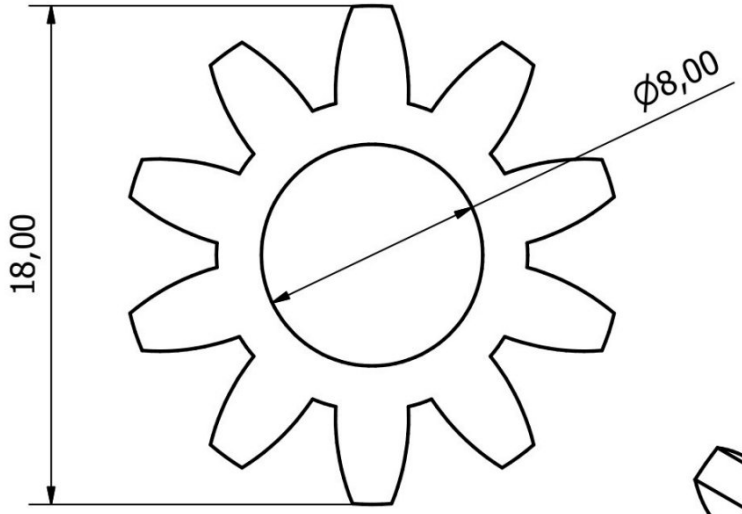

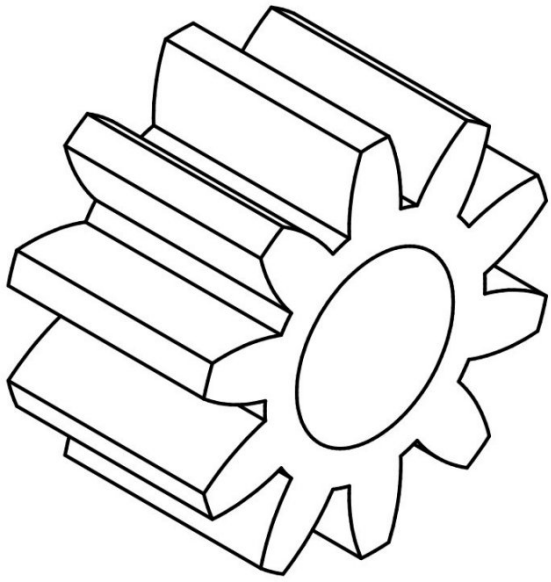

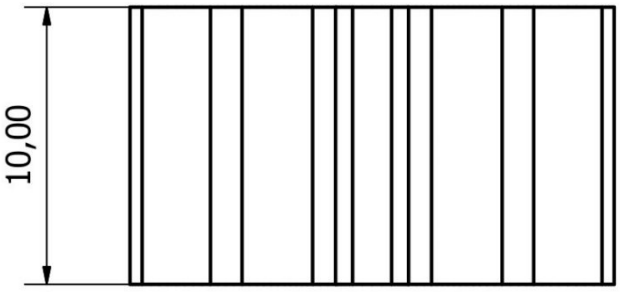

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Spur gear 3	Edition	Sheet 1 / 1	

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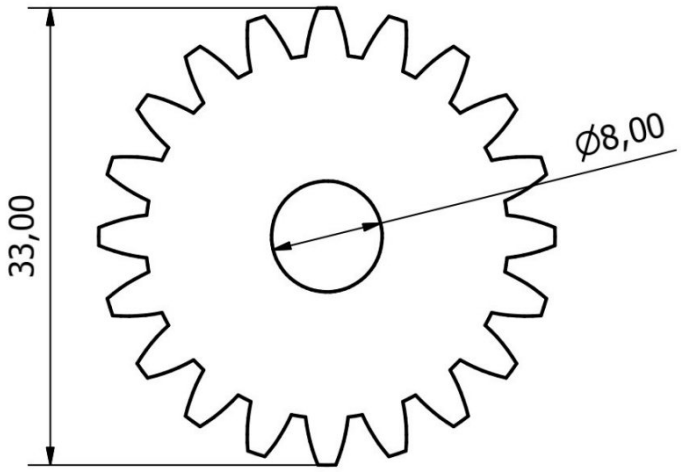

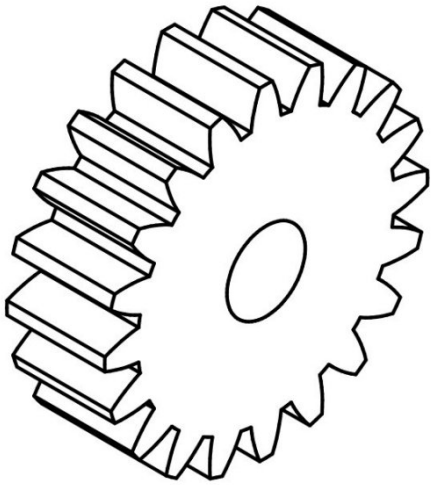

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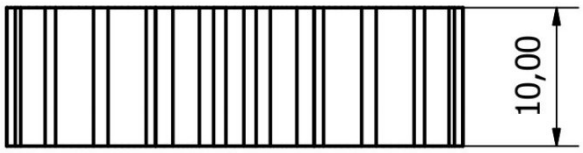

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				Spur Gear 4	Edition	Sheet 1 / 1