Indian Institute of Technology Kanpur

TA-211
Group 11
Vintage Telephone

Team Members			
S No.	**Roll No.**	**Name**	**Signature**
1	230875	Ronit Kumar	
2	230950	Shaik Abdul Sameer	
3	230947	Shachhi Shrivastav	
4	230879	Ruchika Raj	
5	230957	Shashwat Bansal	
6	230931	Sarthak Verma	
7	230929	Sarthak Shekhar	

Course In-Charge:
Prof. Kallol Mondal

Tutor Name:
Prof. Kallol Mondal

Lab-in Charge:
Mr. Anil Kumar Verma

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Certificate of Plagiarism

We, the undersigned, hereby declare that the project titled **"Construction of the Vintage Telephone Model"** is our original work. We affirm that no part of this project has been copied or reproduced from any other source without proper acknowledgment. All references, sources, and contributions from other works have been appropriately cited and credited. This project has been completed with integrity and in adherence to academic and ethical standards.

We take full responsibility for the originality of the work submitted. Team Members:

RONIT KUMAR

SHAIK ABDUL SAMEER

SHACHHI SHRIVASTAV

RUCHIKA RAJ

SHASHWAT BANSAL

SARTHAK VERMA

SARTHAK SHEKHAR

Acknowledgement

We are deeply grateful to our course instructor and tutor **Prof. Kallol Mondal** for his valuable and constructive suggestions throughout the planning and development of this project. His dedication, keen interest, and above all, his overwhelming attitude has gone a long way in helping us achieve what we intended to. We also express our deep appreciation to the highly experienced lab staff for their constant guidance, supervision, and support, which played a vital role in the completion of our project:

- Mr. Anil Kumar Verma
- Mr. Rakesh Kumar
- Mr. Gaurav Mishra
- Mr. Bharat Raj Singh
- Mr. Surya Prakash Sonkar
- Mr. Rajdipta Samadder
- Mr. Gyanendra Singh
- Mr. Pappu
- Mr. Avinash Chandra Saini

Finally, we also would like to thank the MSE Laboratory in-charge, **Mr. Anil Kumar Verma** for giving us this invaluable opportunity to do something constructive using the various available manufacturing processes.

Introduction

The manufacturing of mechanical has evolved significantly over the years, yet traditional craftsmanship and historical designs continue to inspire modern engineering. In this project, we aim to design and fabricate a vintage telephone model as part of our coursework in Manufacturing Processes. This project integrates multiple manufacturing techniques, including casting, machining, forming, and assembly, to replicate the classic aesthetics and mechanical functionality of an early 20th-century telephone.

Vintage telephones, characterized by rotary dials, metal casings, and intricate mechanical components, were widely used before the advent of digital communication. Our objective is to understand the manufacturing processes that were historically used in making such devices and apply contemporary manufacturing techniques to create a aesthetic prototype. This project not only provides hands-on experience in material selection, machining operations, and assembly techniques but also enhances our understanding of the design constraints and production challenges associated with historical manufacturing.

Through this project, we explored various fabrication methods, including CNC machining, and casting, to replicate key components such as the handset, rotary dial, and base. This report aims to present a detailed overview of our design approach, the manufacturing techniques utilized, and the challenges encountered during the fabrication process.

By completing this project, we aim to bridge the gap between historical craftsmanship and modern manufacturing technologies, reinforcing key concepts in mechanical engineering, material science, and production techniques.

Motivation

The charm of vintage telephones lies in their timeless elegance and historical significance. In an era dominated by digital communication, creating a vintage telephone serves as a bridge between the past and present, celebrating the evolution of technology.

This project is driven by a passion for classic design, craftsmanship, and the intricate mechanics that powered early telecommunication. By reconstructing a vintage telephone, we aim to understand its working principles, appreciate its aesthetic appeal, and highlight the ingenuity of early inventors.

By reconstructing a vintage telephone, we not only revive nostalgia but also create an educational tool that demonstrates foundational advancements in communication technology. This hands-on exploration helps connect historical engineering marvels with modern technological understanding, preserving mechanical heritage while inspiring future innovation.

Group Member Work Distribution

S No.	Name	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
1	Ronit Kumar	Handle	Handle	Handle	Handle	Assembly	Assembly
2	Shaik Abdul Sameer	Bell Shape Support	Bell Shape Support	Bell Shape Support	Bell Shape Support	Assembly	Assembly
3	Shachchi Shrivastav	Rotary Dial	Rotary Dial	Rotary Dial	Rotary Dial	Assembly	Assembly
4	Ruchika Raj	Holder	Holder	Holder	Holder	Assembly	Assembly
5	Shashwat Bansal	Top Plate and Main Body	Top Plate and Main Body	Top Plate and Main Body	Top Plate and Main Body	Assembly	Assembly
6	Sarthak Verma	Mouth Piece	Mouth Piece	Mouth Piece	Mouth Piece	Assembly	Assembly
7	Sarthak Shekhar	Handle Rod and Earpiece	Handle Rod and Earpiece	Handle Rod and Earpiece	Handle Rod and Earpiece	Assembly	Assembly

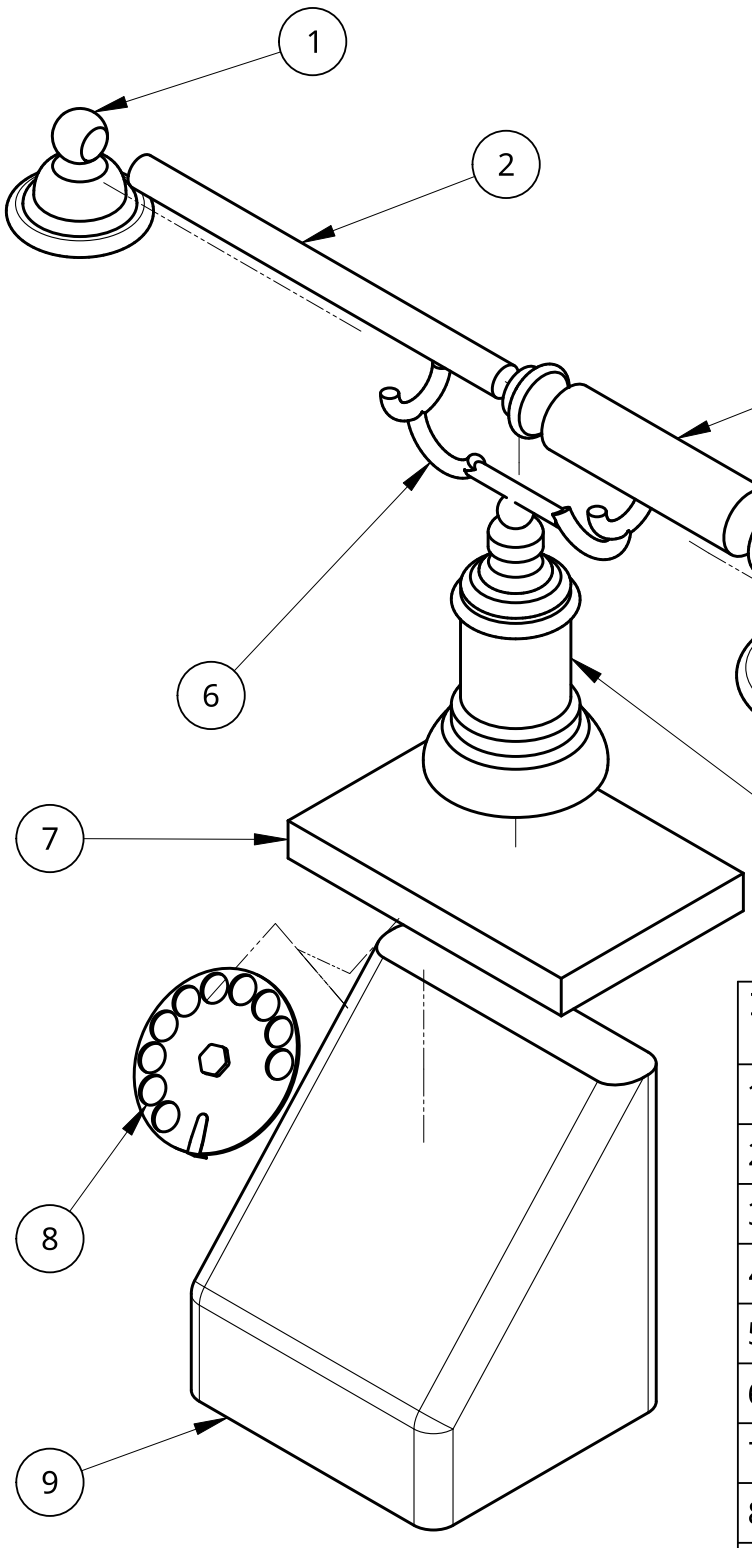
Material List

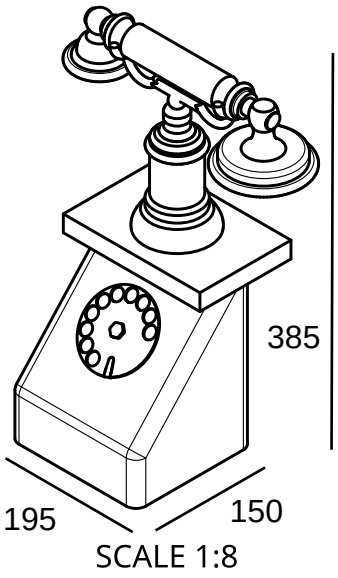
S No.	Name	Material Required	Process Used
1	Mouth Piece	Thermocol, Aluminium	Sand Moulding and Casting
2	Handle Rod	Mild Steel	Cutting, Swaging
3	Handle	Thermocol, Aluminium	Sand Moulding and Casting
4	Ear Piece	Thermocol, Aluminium	Sand Moulding and Casting
5	Bell-shape Support	Mild Steel	Sheet Metal Forming, Bending
6	Holder	Mild Steel	Cutting, Welding
7	Top Plate	Mild Steel	Sheet Metal Forming, Drilling
8	Rotary Dial	Mild Steel	Sheet Metal Forming, Cutting, Drilling
9	Main Body	Mild Steel	Cutting, Welding

Cost Analysis for Vintage Telephone Model

Part No.	Part Name	Material Used	Dimensions (cm)	Cost/Unit Area or Volume (₹)	Estimated Cost (₹)
1	Mouth Piece	Thermocol, Aluminium	6 x 6 x 4	Thermocol: ₹50/m^2, Aluminium: ₹300/m^2	95
2	Handle Rod	Mild Steel	20 x 2 (cylindrical)	₹80/m	80
3	Handle	Thermocol, Aluminium	12 x 4 x 4	Thermocol: ₹50/m^2, Aluminium: ₹300/m^2	45
4	Ear Piece	Thermocol, Aluminium	6 x 6 x 4	Thermocol: ₹50/m^2, Aluminium: ₹300/m^2	70
5	Bell-shape Support	Mild Steel	10 x 10 x 5	₹120/m^2	150
6	Holder	Mild Steel	12 x 6 x 6	₹120/m^2	70
7	Top Plate	Mild Steel	15 x 15 x 0.5	₹120/m^2	30
8	Rotary Dial	Mild Steel Sheet	12 diameter	₹150/m^2	40
9	Main Body	Mild Steel	30 x 25 x 20	₹120/m^2	150

Total Cost of Materials: ₹730.00



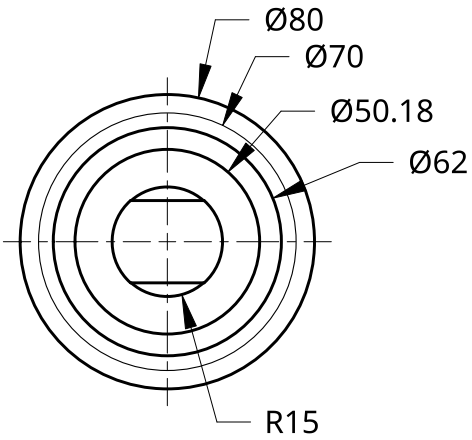


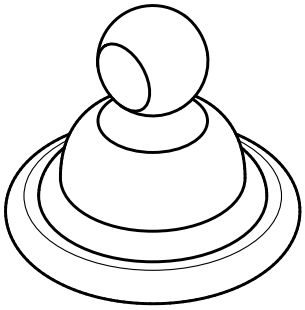
Item No.	Part Name	Quantity
1	Mouth Piece	1
2	Handle Rod	1
3	Handle	1
4	Ear Piece	1
5	Bell-Shape Support	1
6	Holder	1
7	Top Plate	1
8	Rotary Dial	1
9	Main Body	1

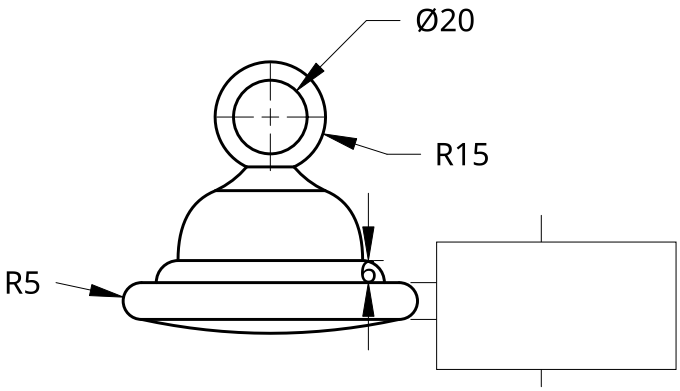
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH		NAME	DATE
	DRAWN	RONIT KUMAR	02/01/2025
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

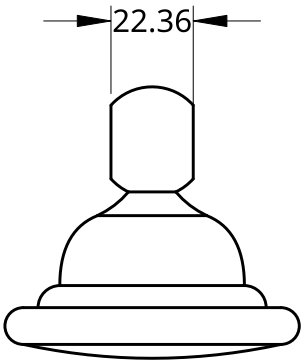
TITLE

SIZE	DWG NO.	REV.
A		
SCALE 1:4	WEIGHT	SHEET 1 of 1









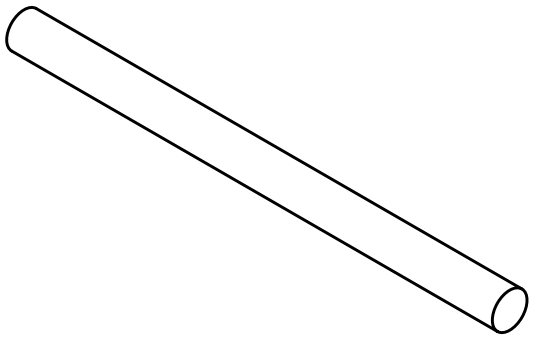
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS		NAME	DATE
ANGULAR = ± °	DRAWN	RUCHIKA RAJ	02/01/2025
SURFACE FINISH	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

Material Used: Thermocol, Aluminium
Method Used: Casting

TITLE

Mouth Piece

SIZE	DWG NO.	REV.
A		
SCALE 1:2	WEIGHT	SHEET 1 of 1



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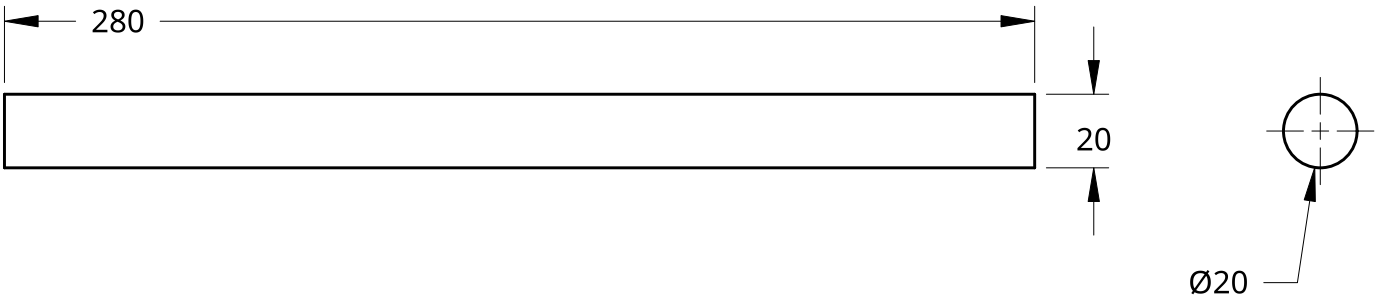

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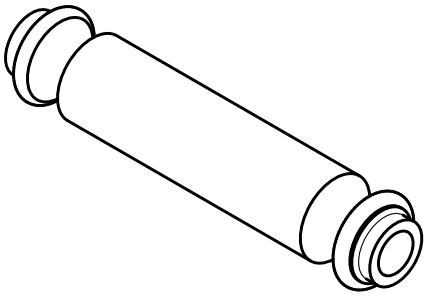
	DRAWN	RONIT KUMAR	02/01/2025
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

Item Used: Nuts and Bolt

TITLE

Handle Rod

SIZE	DWG NO.	REV.
A		
SCALE 1:2	WEIGHT	SHEET 1 of 1



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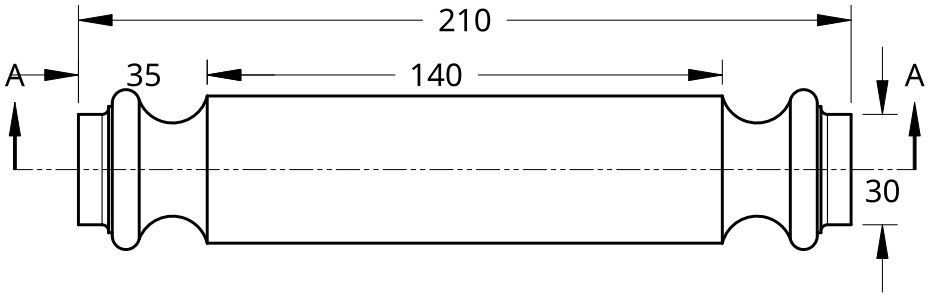
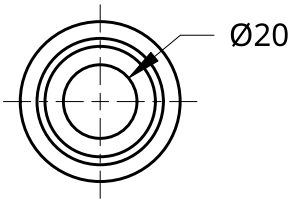
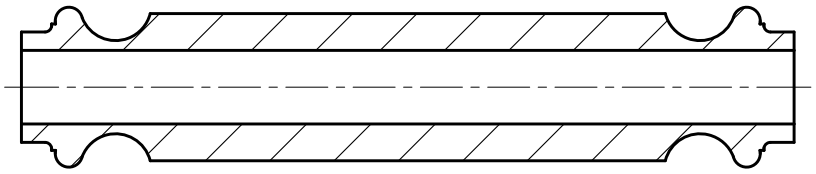






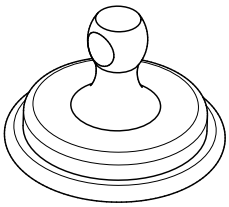
SECTION A - A

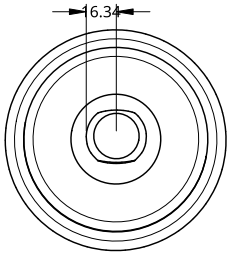
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH		NAME	DATE
	DRAWN	RONIT KUMAR	01/26/2025
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

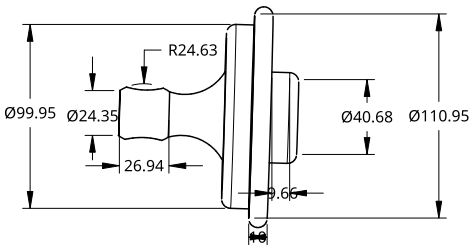
Material Used: Thermocol, Aluminium
Method Used: Casting

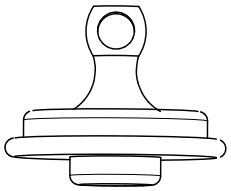
Handle

SIZE	DWG NO.	REV.
A		
SCALE 1:2	WEIGHT	SHEET 1 of 1







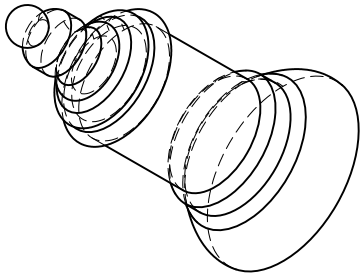


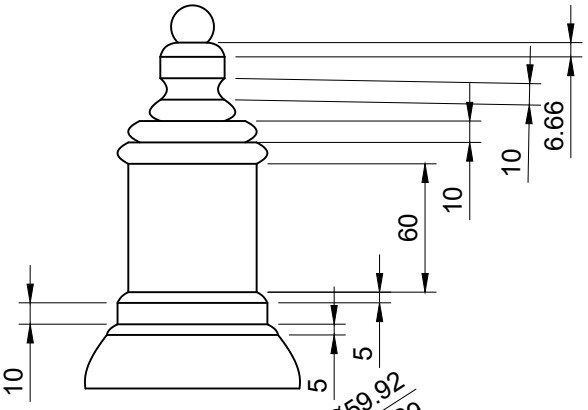
Material Used:Thermocol,Aluminium
Method Used: Casting

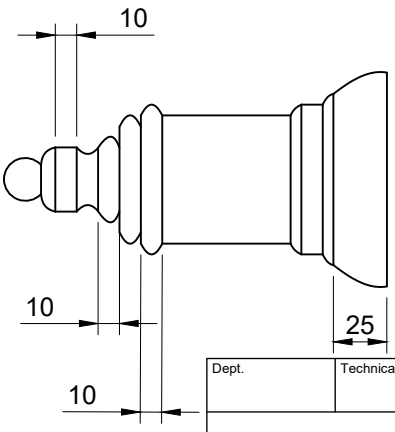
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS		NAME	DATE
ANGULAR = ± °	DRAWN	SHACHHI S	02/01/2025
SURFACE FINISH	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

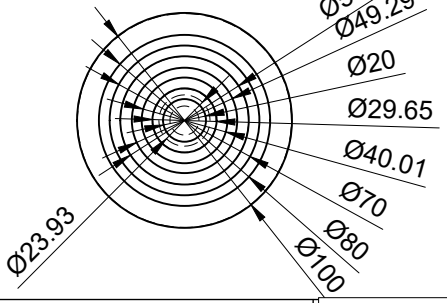
TITLE: Ear Piece

SIZE B	DWG NO.		REV.
SCALE 1:2	WEIGHT	SHEET 1 of 1	









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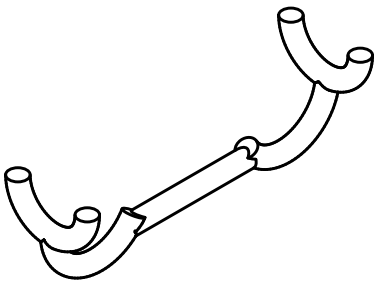
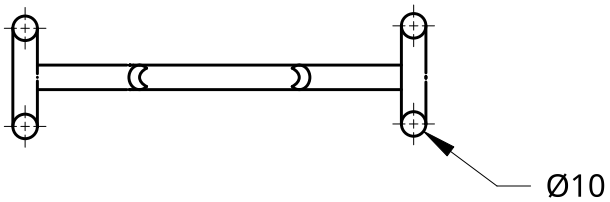
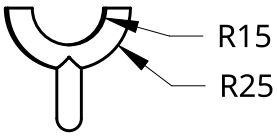
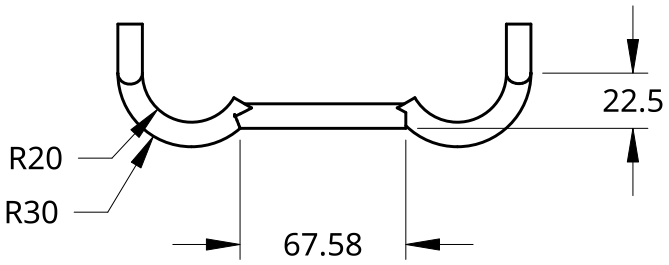
			Rev. / Date of issue / Sheet: 1/1









Material Used: steel wires
Method Used: wire bending, welding

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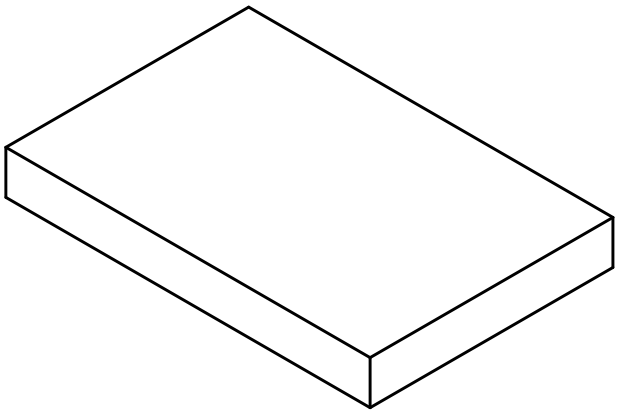
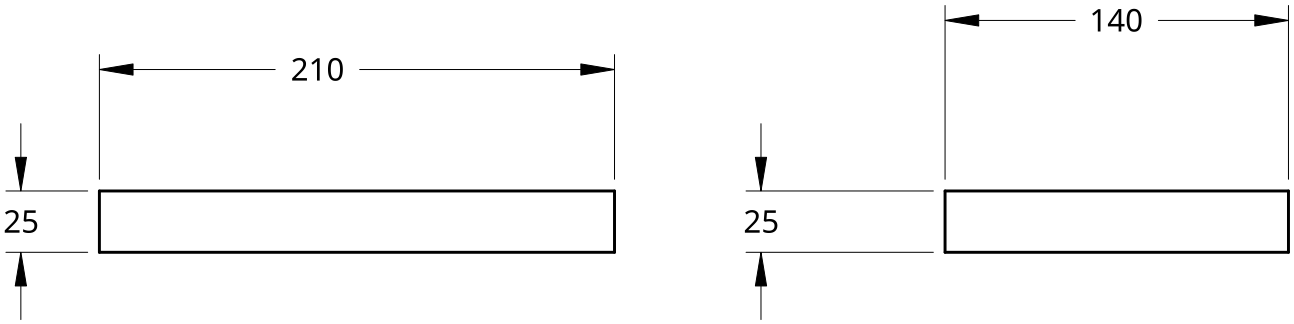
	DRAWN	ABDUL SAMEER SHAIK	02/01/2025
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
	MATERIAL	FINISH	

TITLE: Holder

SIZE A	DWG NO.	REV.
SCALE	WEIGHT	SHEET 1 of 1

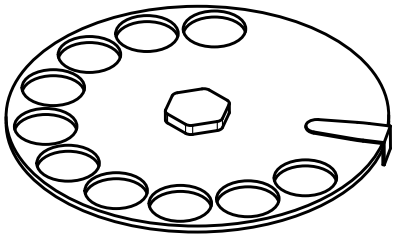


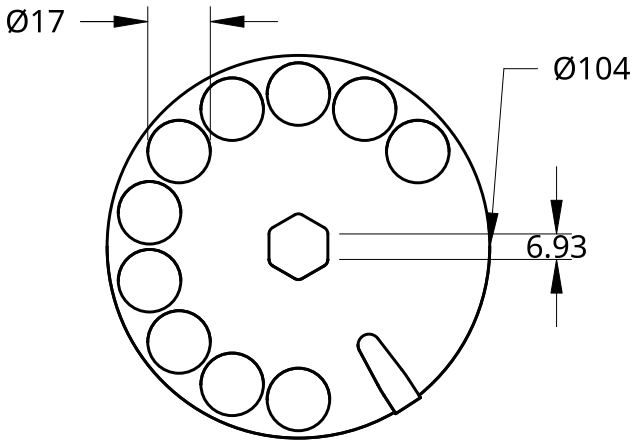


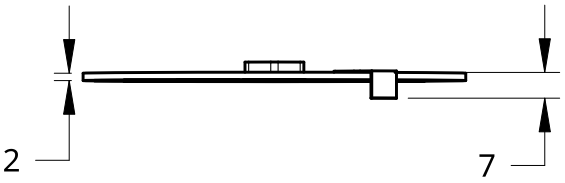
Material Used: mild steelsheets
Method Used: sheet metal forming

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH		NAME	DATE
	DRAWN	BTS_FANBOY	02/01/2025
	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL		FINISH

TITLE: Top Plate		
SIZE A	DWG NO.	REV.
SCALE 1:3	WEIGHT	SHEET 1 of 1





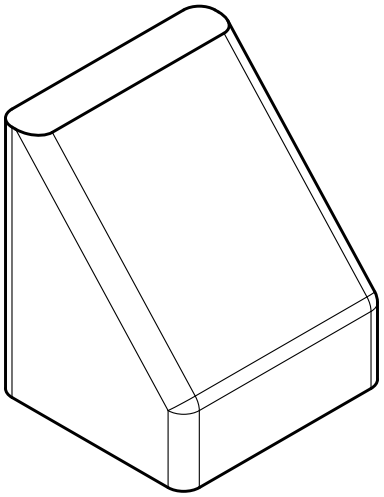


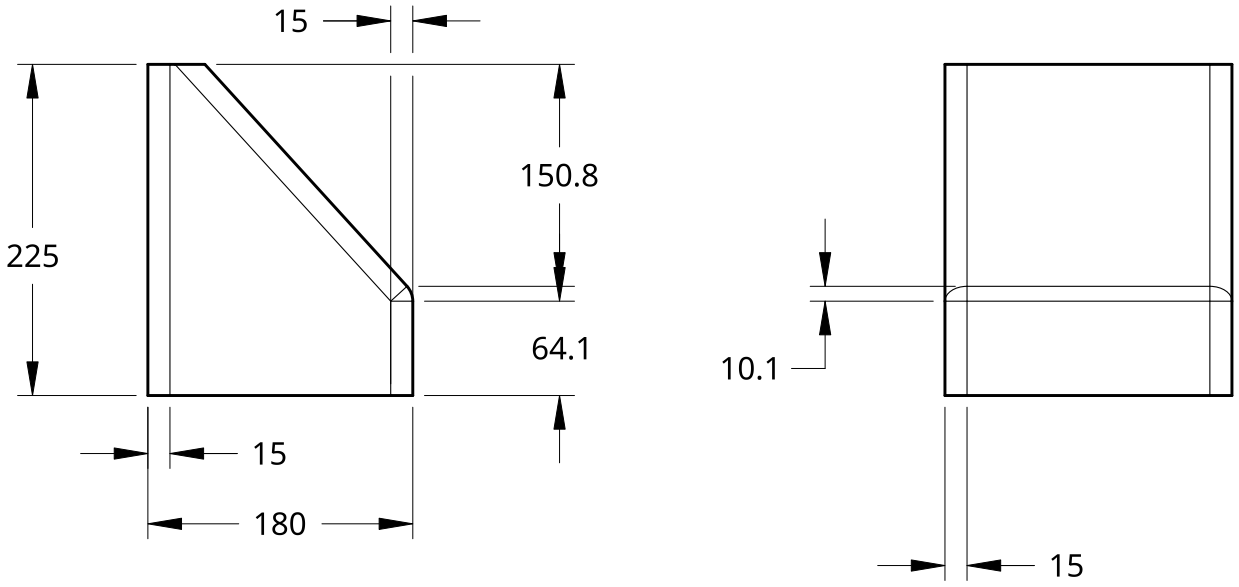
Material Used: mild steel sheets
Method Used: sheet cutting, drilling

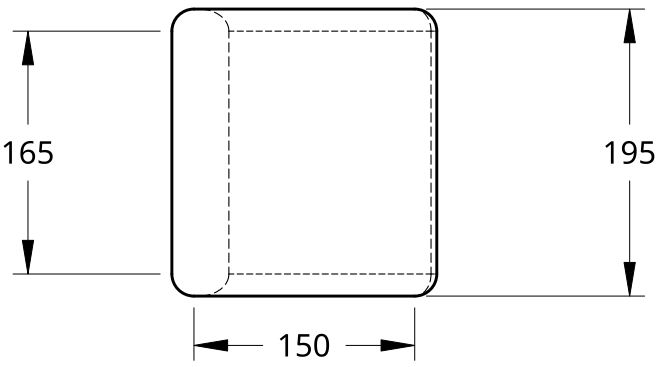
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS		NAME	DATE
ANGULAR = ± °	DRAWN	SARTHAK VERMA	02/01/2025
SURFACE FINISH	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Rotary Dial

SIZE A	DWG NO.	REV.
SCALE 1:2	WEIGHT	SHEET 1 of 1







Material Used: mild steel sheets
Method Used: sheet cutting, forming, welding

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH		NAME	DATE
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	CHECKED		
	APPROVED		
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	FINISH	

TITLE: Main Body

SIZE	DWG NO.	REV.
A		

SCALE	WEIGHT	SHEET
1:5		1 of 1