**A PROJECT REPORT**

**ON**

# "MULTIFUNCTIONAL FOLDING TABLE"

Submitted by

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*In partial fulfilment for the award of the Degree*
*Of*

**BACHELOR OF ENGINEERING**

**IN**

**MECHANICAL ENGINEERING**

**UNDER THE GUIDANCE**

**Of**

**Prof. JAWED SHAIKH**


***DEPARTMENT OF MECHANICAL ENGINEERING***

ANJUMAN-I-ISLAM

KALSEKAR TECHNICAL CAMPUS NEW PANVEL,

NAVI MUMBAI – 410206

# UNIVERSITY OF MUMBAI

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ANJUMAN-I-ISLAM

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# *CERTIFICATE*

This is to certify that the project entitled

## "MULTIFUNCTIONAL FOLDING TABLE"

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To the Kalsekar Technical Campus, New Panvel is a record of bonafide work carried out by him under our supervision and guidance, for partial fulfillment of the requirements for the award of the Degree of Bachelor of Engineering in Mechanical Engineering as prescribed by **University of Mumbai**, is approved.

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**Principal** — (Dr. Abdul Razak Honnutagi)

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## APPROVAL OF DISSERTATION

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In partial fulfillment of the requirements for the award of the Degree of Bachelor of Engineering in Mechanical Engineering, as prescribed by University of Mumbai approved.

**(Internal Examiner)** **(External Examiner)**

Jawed Shaikh _____

Date: 29-May-2021

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# CHAPTER 01

## INTRODUCTION:

This report describes the design of an adjustable folding table for the home and office utility by the students of Anjuman-I-Islam Kalsekar Technical Campus. Over project is on Design and Product Development.

As an engineer, we are blessed to design such kind of project which is problem-solving. Also, we concerned about costumer's experience which aims to avoid this kind of problems with a new set of products based on ergonomics Also, we concerned about costumer's experience which aims to avoid this kind of problems with a new set of products based on ergonomics.

In this, we will be discussing the multifunctional folding table. This is compact in size and easy to handle. Also, will be cost-effective as compared to the other table available in the market. As there are lots of folding tables available in the market, but the tables we can't use in both conditions when we are sitting on the floor or chair. As the tabletop of all the tables is different like layer table, wood folding table, aluminium table, etc. The material is chosen according to their requirements. Our table includes a mechanism that can be folded in multi ways and doesn't require more space. We will also discuss the fabrication process describing the process from sketching the figure to the final product also the operation requires during the process.

The idea is to design a multifunctional folding table to use at home which can adapt into the office environment and also for work from the home scenario that makes better experience while using this kind of devices as well as the activities that they perform normally.

The demand requires a new design of the existing table in order to be more adapted to the environment and the user and improve its design in general taking into account ergonomics, customer interaction, aesthetics, functionality, and sustainability.

## PROBLEM DEFINITION:

1. Due to pandemic circumstances most of people are working from home, for them making a good and reliable product.

2. In the current scenario identify the customer's need.

3. There are already variety of tables in the market, but they are not more flexible which can be found easily, portable and only one person to carried out.

4. When we have to move the normal table, which take more space in our house, and more effort require, and they are space-consuming.

## AIM/OBJECTIVE/PURPOSE OF THE STUDY:

As we all are aware of the current pandemic situation. Due to this situation, people are working from home. As the work from home concept is applied all over the world, the facilities that a user gets in office environments are not available at home as a perfect chair for sitting and a table to keep a laptop/system on it.

So, we are making a multifunctional foldable working table that can be used according to their suitable postures and comfort while a long-term work. Also, we are trying to make it cost-effective so that it can suit everyone's pocket.

## ERGONOMICS OF DESIGN:

Ergonomics is defined as the scientific study of the man-machine-working environment relationship and the application of anatomical, physiological, and psychological principles to solve the problems arising from the relationship. Ergonomics is related to the comfort between the man and the things while operating the machine.

The objective of ergonomics is to make things fit for the user rather than to make the user adapt himself or herself to the product. There is a common problem in our home environment not to have an ergonomically designed folding table, which results in abnormal postures. This causes increased physical strain, generates muscular back, neck, and head pains, loss of concentration, and restlessness in an attempt to find a better position. A number of studies have shown that most of the physical problems in the human environment are due to the mismatch between anthropometric dimensions of the human at different ages and dimensions and also closely related to the incorrect sitting posture.

Human factors and ergonomics (commonly referred to as human factors) are the application of psychological and physiological principles to the engineering and design of products, processes, and systems. The goal of human factors is to reduce human error, increase productivity, and enhance safety and comfort with a specific focus on the interaction between the human and the thing of interest.

## MECHANISM:

A mechanism is an assembly of moving parts performing a complete functional motion, often being part of a large machine, product; linkage. There are two main types of folding tables. Those that have leaves that fold down such as, gate leg table, and those that fold by having legs that bend on a hinge located at the connection point between the tabletop and the leg. The leg is designed to fold and fit securely against the underside of the tabletop while remaining attached. Because the hinge requires a stable material such as metal for dexterity, some producers use lightweight materials such as aluminium for an increased degree of portability in the folding mechanism. In the folding table mechanism, there are many types of links that are also used for joining and connecting the link. For tightening the folding table with a supporting rod, we use a screws type tightening mechanism. For rotation of the table from one side to another side, we have to use rotation bearing and angle bearing for motion.

# CHAPTER 02

## LITERATURE REVIEW

### 1) Various multipurpose furniture's:

This paper, introduce the innovation designs, the hard wares, the application and future development, cost & price and the important market of transformable space saving furniture. This paper will help people to understand the importance and the potential value of transformable multipurpose space saving seating arrangements in different places.

### 2) Multipurpose, space saving seating arrangements:

Study objectives of this paper is that can be provide some different modelling parts of seating arrangements by using CAD approach and one part of seating arrangements can Finite Element Analysis using ANSYS tools with different load applicable in comparison of different material selections.

### 3) Multipurpose modular, flexible and space saving dining 'table:

Existing dining furniture was analyzed in detail including its components and parts and assembly and sub-assemblies. After the data collection the user needs were analyzed and QFD was generated. Priorities in the QFD were modular, flexible, shape and size. PDS was arrived at based on the QFD. Five concepts were developed and based on PDS and one concept was finalized for further detailing. Final concept was selected using weighted ranking method by evaluating all the concepts. Drawings were developed for final concept a prototype was made and ergonomic validation was done. In stowed form, the proposed concept is found to occupy just less than 25% of its deployed area. We thereby believe that the proposed design will largely suit the constrained space conditions of the urban segment in India.

### 4) Foldable seating device useful in public places:

This paper relates to a foldable, a portable stool, and more particularly, ta a portable stool that can he carried in a compact manner and utilized in situations of inadequate seating. Study Objective of this paper is that we can provide some means to the elderly people or those with chronic conditions. Who do not get seat in the train/buses/public places should be beneficial. Also,

one can use it anywhere at their own will. This paper relates ta foldable/ portable stools and has its general objective to produce a device of such a kind which is of compact nature when folded or in inoperative position and is of strong and sturdy character when open or operative.

## 5) Transformable space saving furniture:

In most metropolises in the world, people's average living area is getting smaller and smaller. Moreover, high population density leads many other problems such as high gap between rich and poor, high energy cost and house price. These are common problems in metropolis nowadays. Transformable space saving furniture is one of the options to solve these problems. This report will help people to understand the importance and the potential value of transformable space saving furniture in metropolises.

## 6) New concept of furniture design by using space saving approach:

The method to use for select the best concept design among the five-concept design is “weighted rating method". The highest weight rating of design concept will continue the future development in this project. All the part of table is drawn by using AutoCAD Inventor. After that, some of the table part to be used for FEM analysis to obtain some useful information. Besides that, the manual calculation will compare with the FEM analysis result. Finally, all the table part will convert into detail drawing and attach it in this report.

# CHAPTER 03

## METHODOLOGY

- **MECHANISM**

  We have used the various mechanisms in a foldable table.

  - Various mechanisms are used in a foldable table.
  - Leg folding mechanism, in which if we try to fold one leg it will mechanically close the other leg.
  - Stand folding mechanism, in which it can open in 180 degree and when not in use can be folded to 90 degree, by using links and clips.
  - Up and down mechanism, by using the know we can adjust the height of the table.

- **SKETCHING AND DIMENSION**
  - First make table using the standard required dimension for multi-use.
  - Some of dimension are drawn using trial and error method.

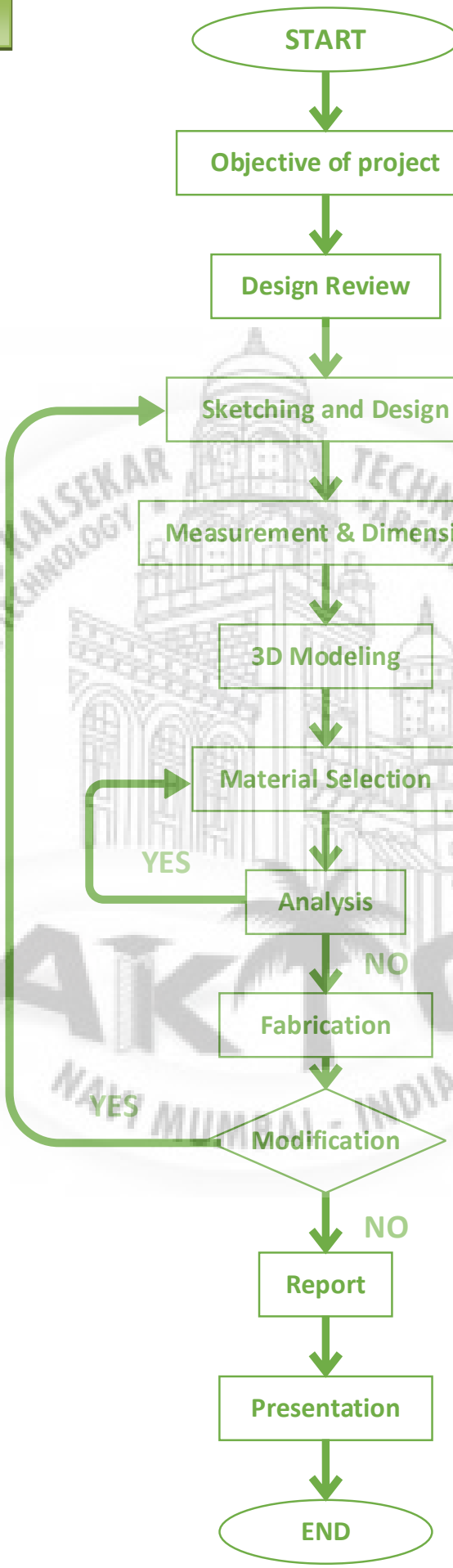
- **3D MODEL AND ANALYSIS**
  - By using the 3D model, in inventor we have make a realistic model of a multi-functional foldable table.
  - We have made use of different material in object, according to design, shape, looks and weight.
  - Using 3d model we can check the stability of a model.
  - Bending stress, deformation, normal stress and shear stress can be known, using software.

- **MATERIAL AND FABRICATION**
  - Using different material, we have estimated the cost estimation of the table.

- As a different material include light weight and medium weight and also their looks, smoothness and attractive which vary in costs.
- Different material has different properties and different loading conditions.

- **MARKET ANALYSIS**
  - Comparing our product material with the other product available in the market and also their load carrying capacity.
  - Chosen the material which is light in weight, cost effective, eco-friendly, low machining cost of product and easily available.

# FLOW CHART


START
Objective of project
Design Review
Sketching and Design
Measurement & Dimension
3D Modeling
Material Selection
YES
Analysis
NO
Fabrication
YES
Modification
NO
Report
Presentation
END

## MORPHOLOGY OF DESIGN

Morphology of design refers to the study of the chronological structure of design projects. The following phases are usually involved in any design project:

a) Feasibility study
b) Preliminary design
c) Detailed design
d) Production planning
e) Distribution planning
f) Consumption planning
g) Retirement planning

Various steps involved in each phase of Morphology of design are discussed below:

1) **Feasibility study**: Provides a set of useful solutions to a problem. Various steps are;

a) To demonstrate that the original need has current existence.
b) To explore the design problem and identify elements
c) like parameters, constraints, major design criteria etc.
d) To conceive a number of possible solutions.
e) To sort out potentially useful solutions on the basis of physical
f) reliability, economic worthwhileness, and financial feasibility.

2) **Preliminary design**: Establishes which the best design concept is. Various steps involved Preliminary design are;

a) To subject each alternative solution to order of magnitude analysis until one is proved to be the best.
b) To initiate synthesis studies for establishing the fineness of the range within which the major design parameters must be controlled.
c) To study how the design will meet consumer's taste, how it will match with products of competitors, whether scarce and critical raw materials will continue to be available, rate of obsolescence.
d) The rate of deterioration of performance with corrosion, wear fatigue, etc.
e) To test the critical aspects of the design in order to validate the design concept and provide information for subsequent phases.

3) **Detailed design**: Furnishes the engineering description of a feasible design.

Various steps of Detailed design are;

a) To develop an overall, provisional synthesis as a master layout.
b) To prepare specifications of components.
c) To initiate experimental design by constructing models to check out untried ideas.
d) To test prototypes and using information obtained as basis of redesign and refinement.

## MORPHOLOGY OF DESIGN

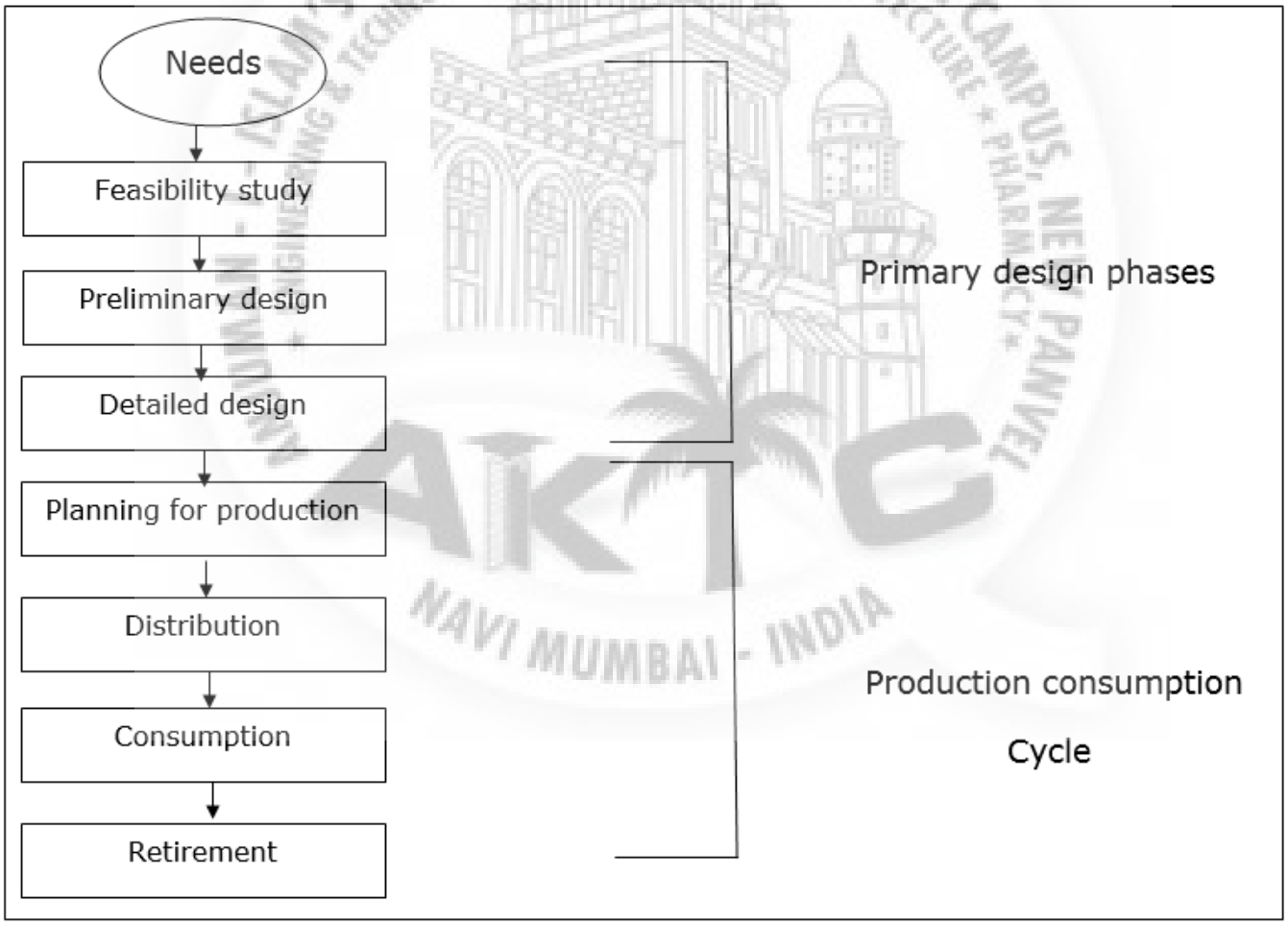



**Fig. 3.1: Morphology of Design**

## METHODOLOGY OF DESIGN:

The Design Methodology specifies steps that enable the designer to reach these design goals indicated in Figure. Although the specifics of each step vary with each design, the steps essentially remain the same for all designs.

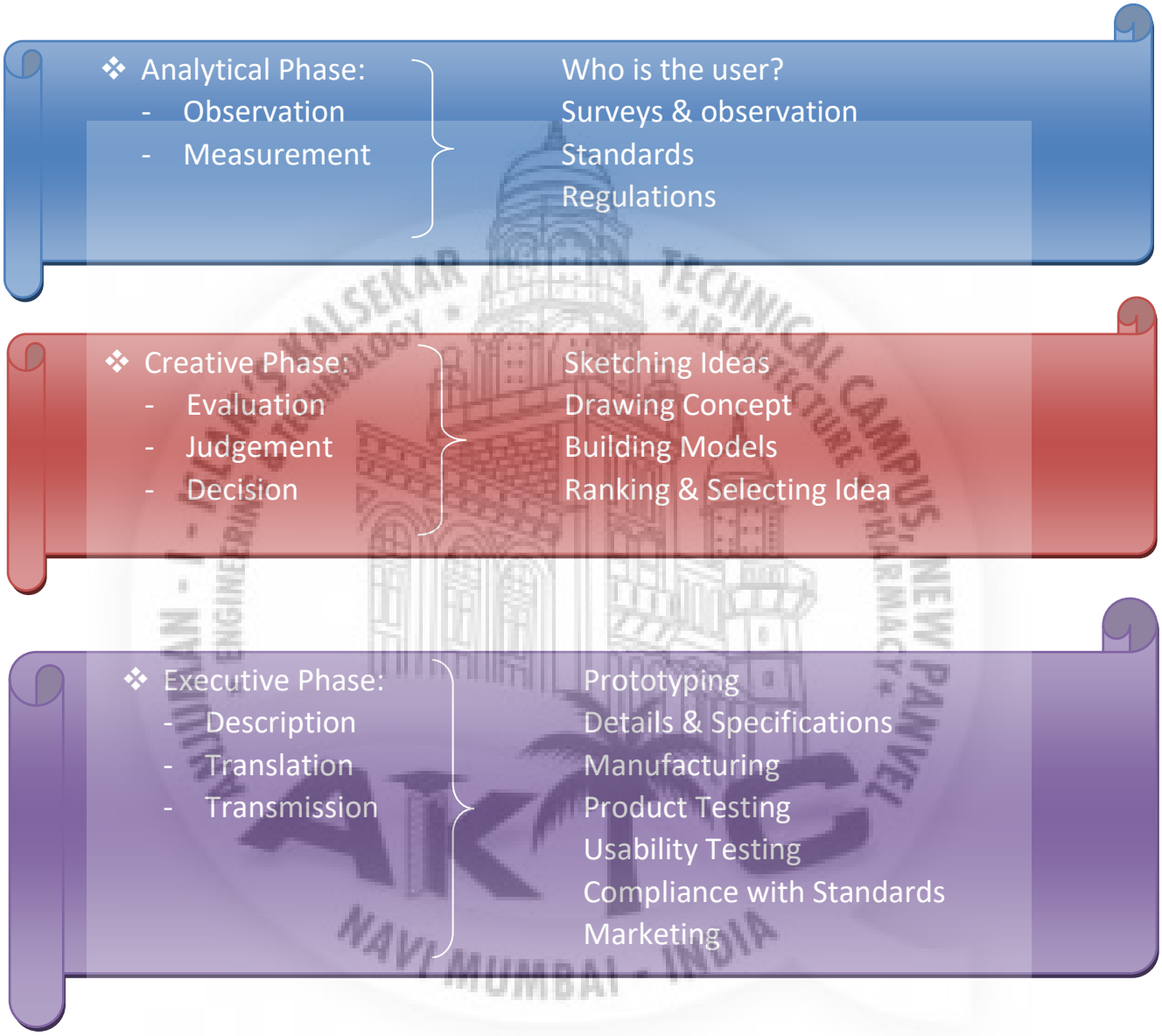
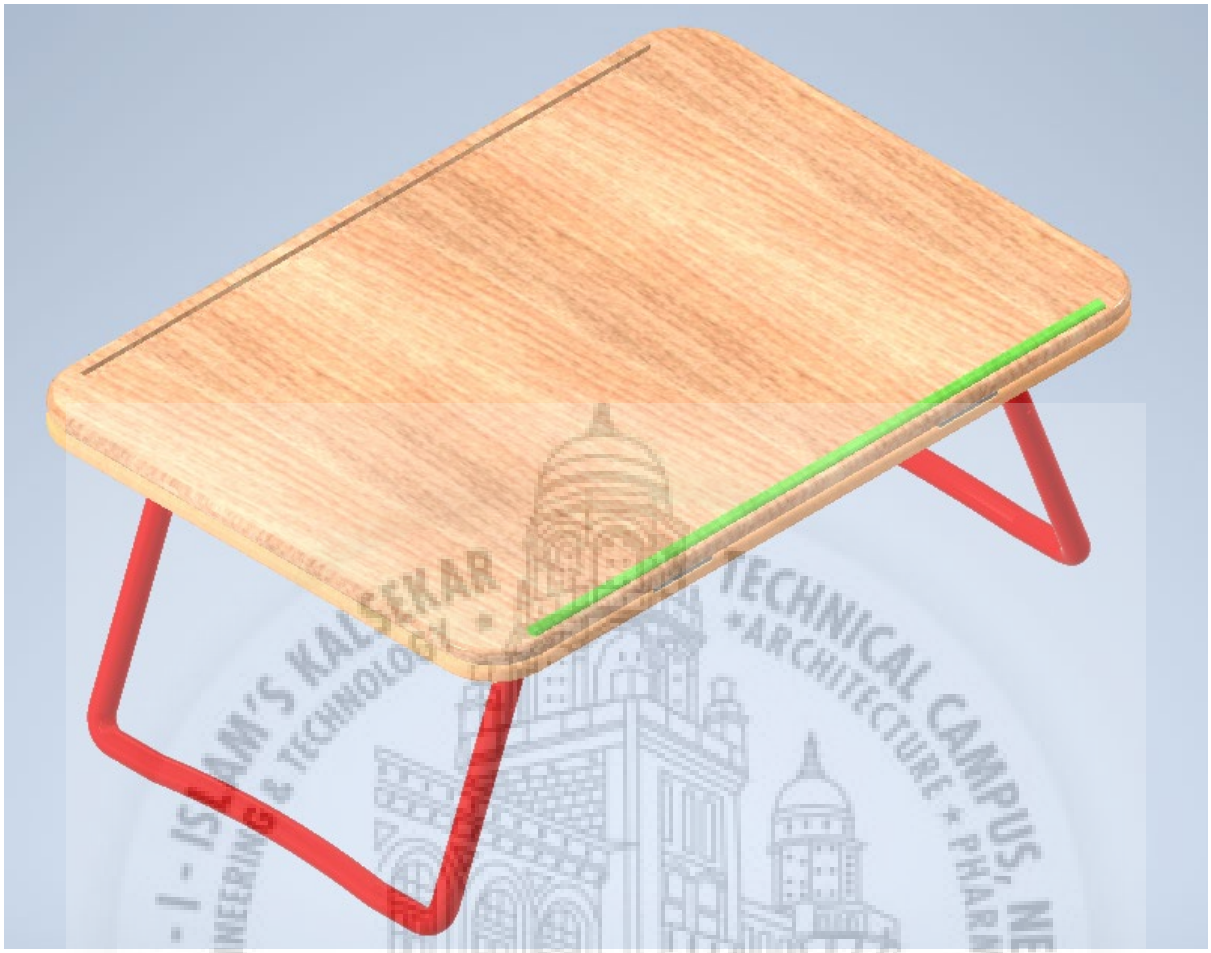
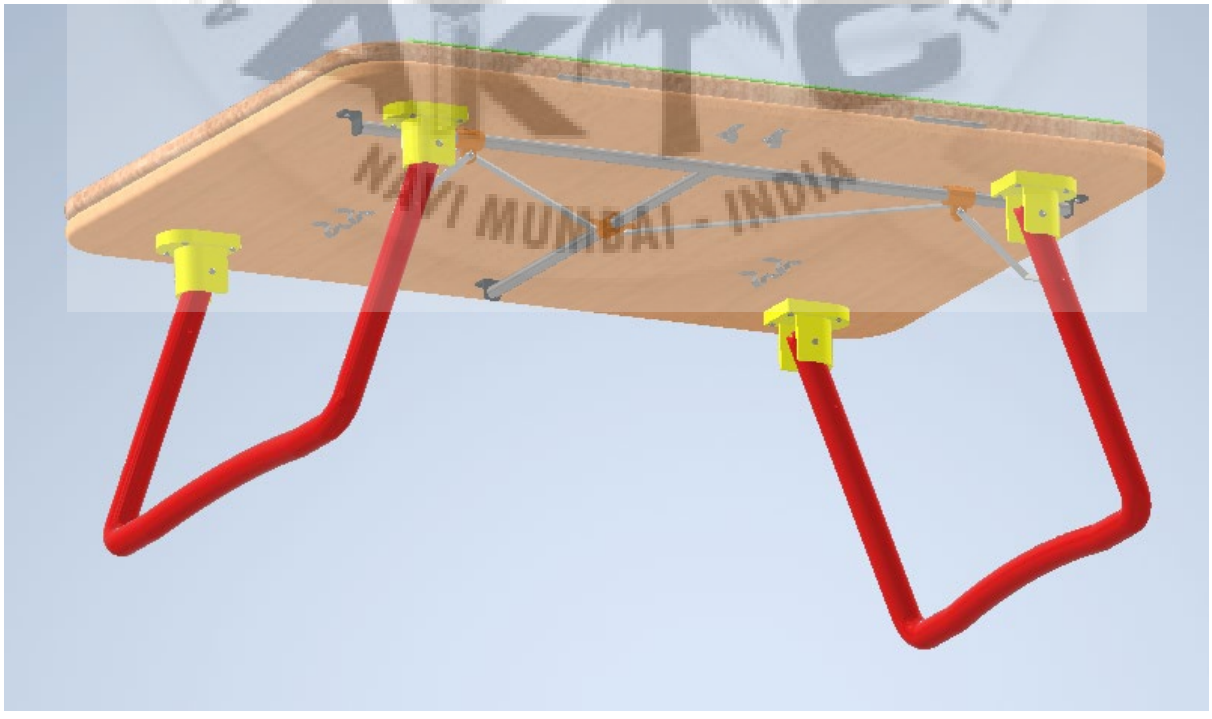



**Fig. 3.2: Design Methodology**

## 3D-MODEL:

**Fig. 3.3: Table**





## MATERIAL SELECTION:

Given the application requirements, possible materials, and physical principles we can select the best material. Thus, in the selection of a material:

1. First, we decide on the requirements of the application.
2. Second, we decide on the possible materials we can use in the application.
3. Third, we decide what changes in the material properties are needed. Lastly, we decide which material out of the possible materials best fulfils the requirements of the application given possible changes in the material properties

In manufacturing process selection of materials for the design of a machine is an essential step to accomplish the reliable functionality of the machine. The selected material should satisfy both the availability as well as the function and many other factors. Those are discussed in brief.
There are some factors need to be considered while selecting a material for a machine part.

- Factors Effecting in the selection of Materials for Engineering purpose
- Mechanical Forces or Loads,
- Wear and tear
- Electrical insulation
- Thermal properties
- Availability & cost

These are the factors need to consider in the selection of material for the engineering purpose. Let's go with one by one.

### 1. Mechanical Forces or Loads:

There are the different type of mechanical forces can act on machine members and produces different stress and strains. These following actions produce the different types of forces in the machine parts.

a. Self-weight of the machine
b. Energy Transmitted
c. Change of temperature
d. Frictional resistance
e. The inertia of reciprocating parts
f. Unbalance of Moving parts.

Due to these actions, the following loads/Forces will produce.

a. Tensile Forces
b. Compressive Forces
c. Shear Forces
d. Bending Forces
e. Torsion Forces
f. Bearing Force

Due to these loads, different materials can be responds in a different way. These responses will depend on the Mechanical properties of the materials.

Following are the different material properties available.

a. Elasticity
b. Plasticity
c. Ductility
d. Malleability
e. Stiffness
f. Brittleness
g. Hardness
h. Toughness

Understand the full details about the different material properties here.
With the help of these material properties, we can select the material for the suitable application. The second factor in the list is Wear and Tear.

## 2. Wear and Tear

As the moving parts or sliding parts needed to withstand the wear and tear as they getting aged. So, this is also a factor that makes the difference in selecting a material for the machine parts.

## 3. Electrical Insulation

It is very important that whether the component should resist the electric current between the two mated components, or it is not necessary to insulate the current. So, there are some special materials available to resist the electric current. PVC, glass and asbestos are the examples of Insulation material. These insulating materials can be used in between the mating parts to resist the electrical current.

### 4. Thermal Properties

Thermal properties of the materials, that are necessary to consider while picking a material for a machine part. it might affect the mechanical properties of the materials due to the heat. In some applications, it is necessary to insulate the thermal energy to flow between the mating parts.

### 5. Availability & cost

Finally, the most important factor is that the availability of the material resource. From the economical point of view, the material should be easily available in nature. This availability decides the cost of the material. So, it is necessary to consider this factor as the major one in the selection of materials for the engineering purpose.

By considering these factors, we can select a suitable material that can fulfil the designer requirement from all perspectives such as the functionality, Cost, availability to build reliable machines.

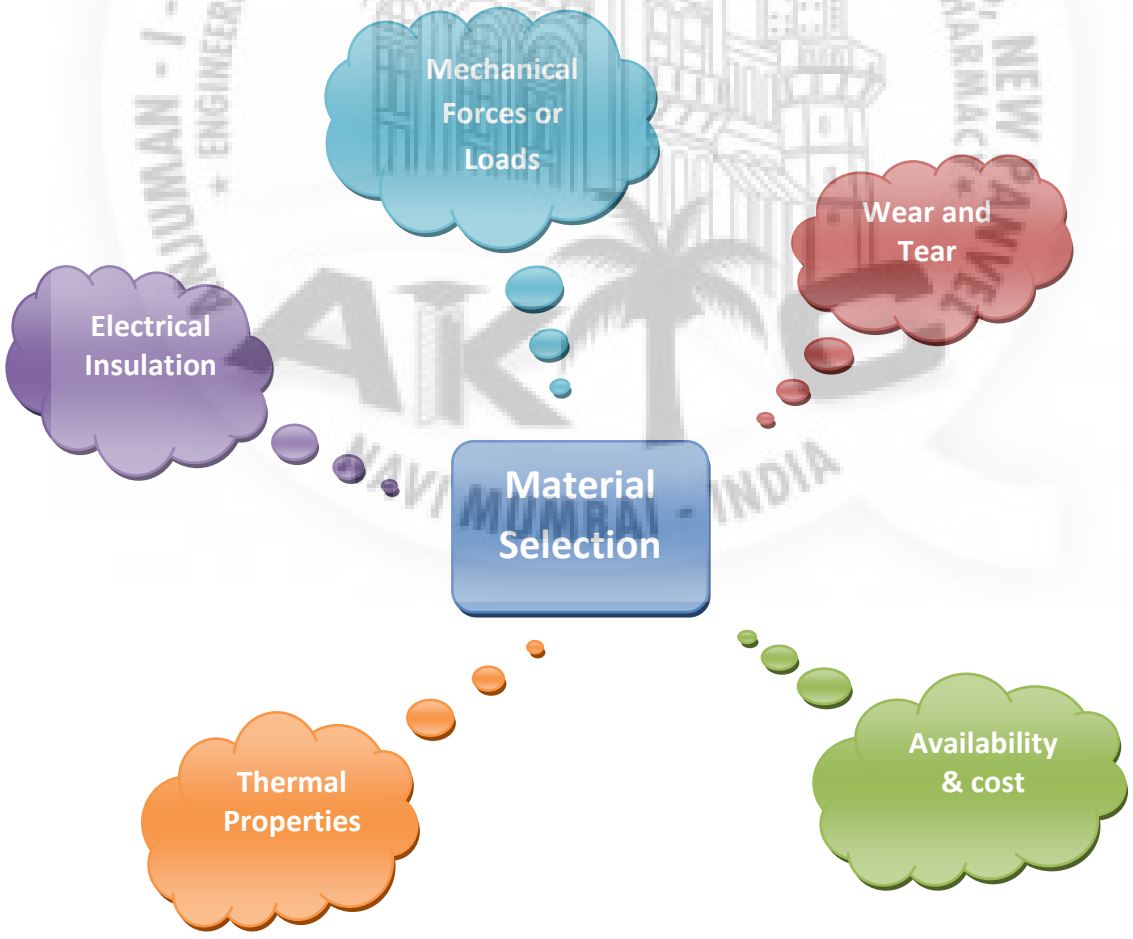



**Fig. 3.4: Factors Effecting in the selection of Materials**

# CHAPTER 04

## CENTROID AND CENTRE OF GRAVITY

- Centre of gravity is the average location of the weight of an object.
- A centre of gravity is the point around which the overall resultant torque due to of gravity will vanishes.
- In a uniform gravity field , the centre of mass and gavity is same.
- In a case of single rigid body , the centre of mass is fixed in relation to the body , if the body has uniform density.
- If density is same than it will be located at the centroid.
- This fundamental is ued to check the stability of an objet.
- By using the centroid calculation we get to know the system is stable or not.

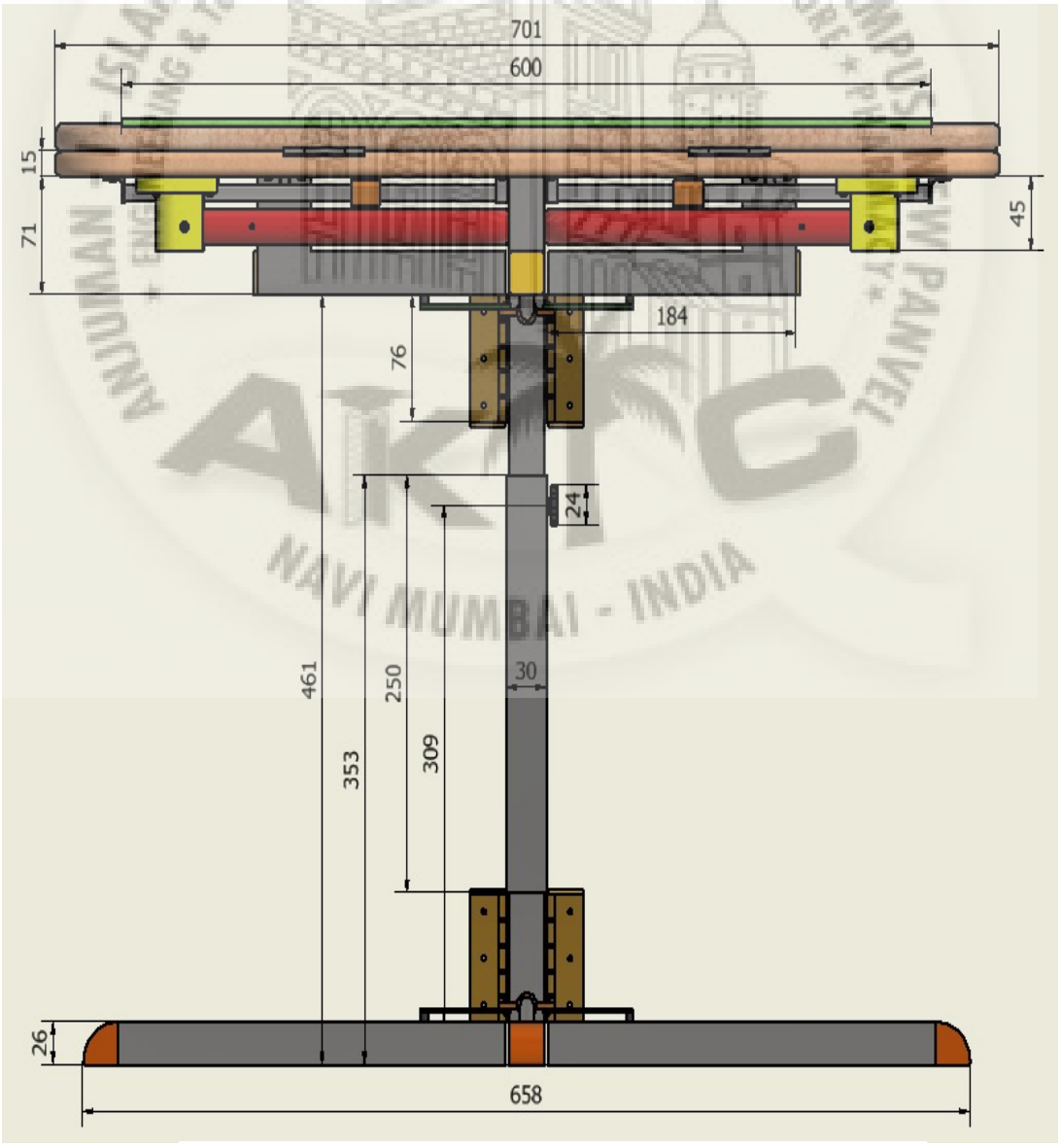



**Fig. 4.1: Table Dimension**

## CALCULATION

| PART | AREA Ai (mm^2) | X-mm | Y-mm | AiXi | AiYi |
|---|---|---|---|---|---|
| Rectangle | 701x30=21030 | 350.5 | -15 | 7371015 | -315450 |
| Rectangle | 406x45=18270 | 350.5 | -52.5 | 6403635 | -959175 |
| Rectangle | 406x26=10556 | 350.5 | -88 | 3699878 | -928928 |
| Rectangle | 76x84=6384 | 350.5 | -139 | 2237592 | -887376 |
| Rectangle | 461x30=13830 | 350.5 | -331.5 | 4847415 | -4584645 |
| Rectangle | 76x84=6384 | 350.5 | -524 | 2237592 | -3345216 |
| Rectangle | 658x26=17108 | 350.5 | -575 | 5996354 | -9837100 |
| | ∑Ai=93562 | | | ∑AiXi=32793481 | ∑AiYi=-20857890 |

$$\bar{X} = \frac{\sum AiXi}{\sum Ai} \qquad \bar{Y} = \frac{\sum AiYi}{\sum Ai}$$

$$= \frac{32793481}{93562} \qquad = \frac{-2087890}{93562}$$

$\bar{X}$ = 350.5 mm $\qquad$ $\bar{Y}$ = - 222.93 mm

( $\bar{X}$ , $\bar{Y}$ ) = (350.5, -222.93) mm

## ANALYSIS:

A common CAD simulation and analysis tool is finite element analysis (FEA). This is illustrating how parts and assemblies behave when dynamically loaded. Examples included stress, strain, structural and vibration testing.

## FAST LOCK

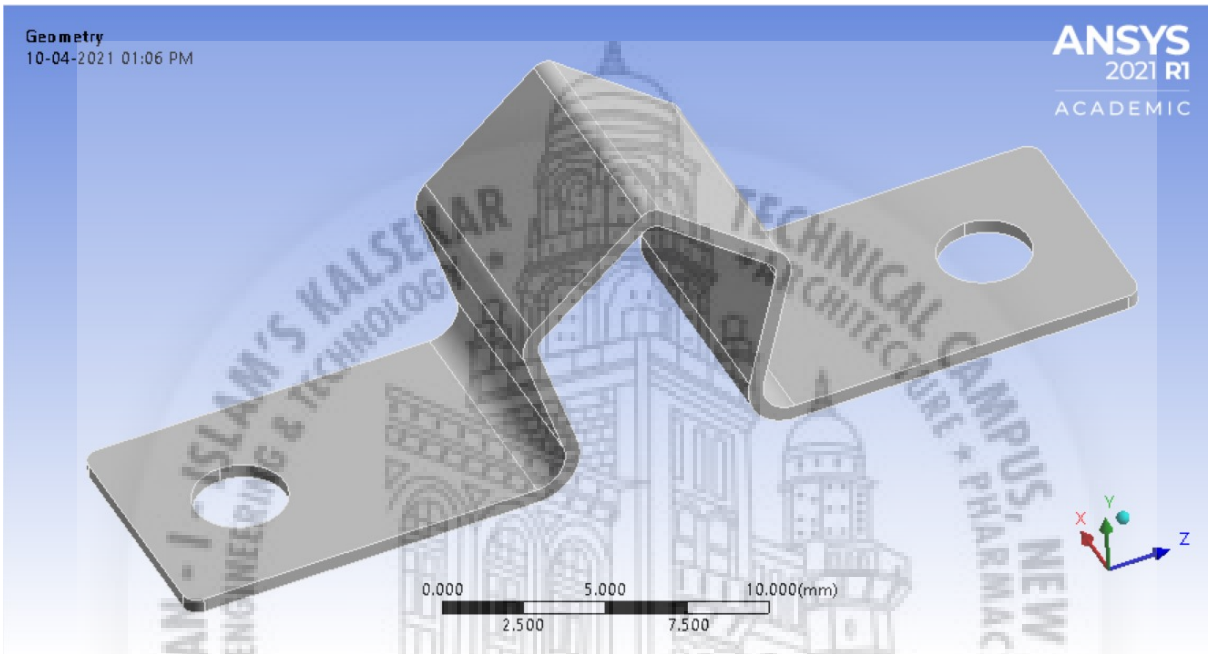



**Fig. 4.2: Male Fast lock**

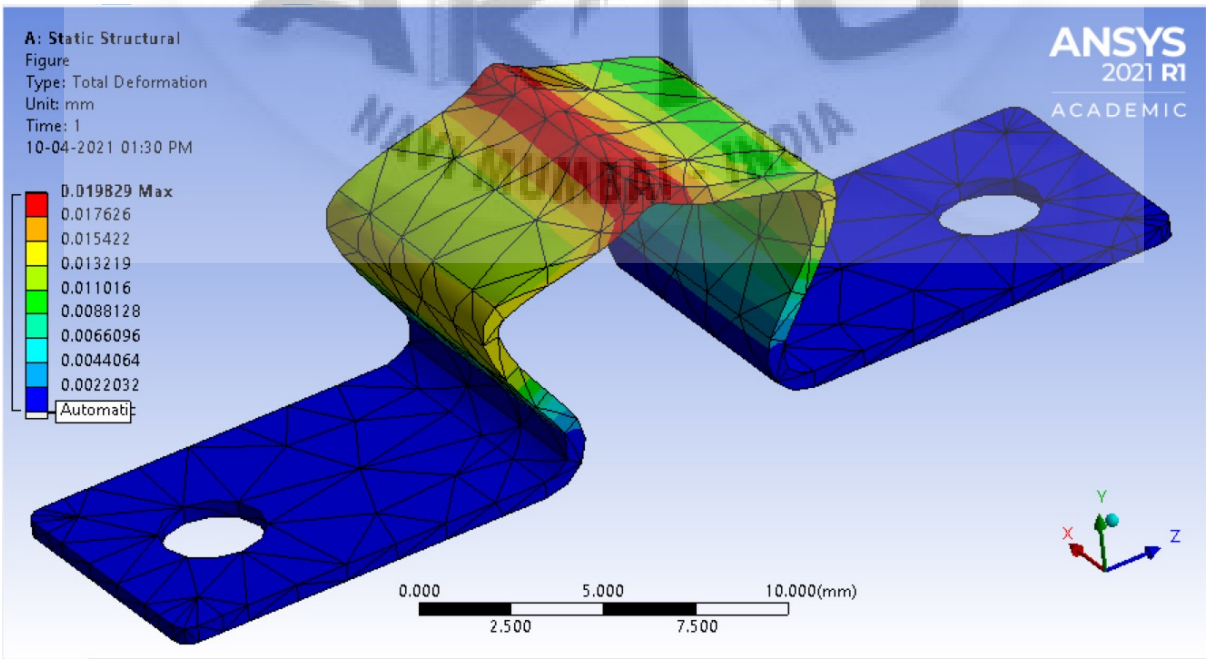



**Fig. 4.3: Male Fast lock (Total Deformation)**

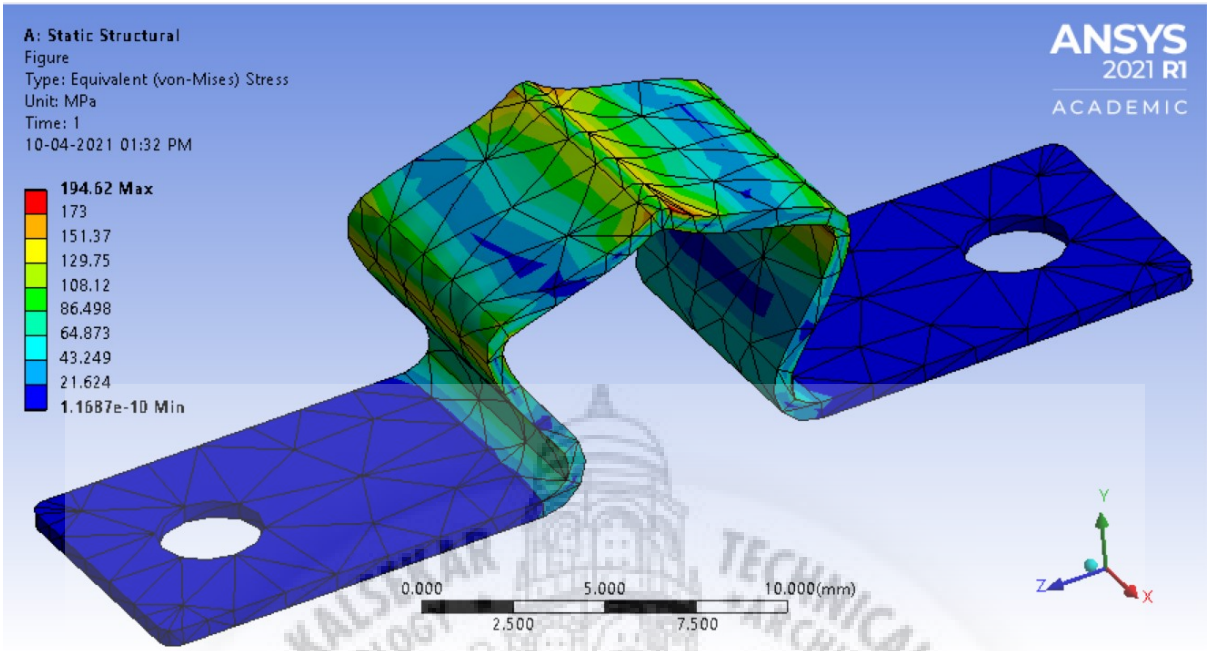



**Fig. 4.4: Male Fast lock (Equivalent Stress)**

**Fig. 4.5: Female Fast lock**

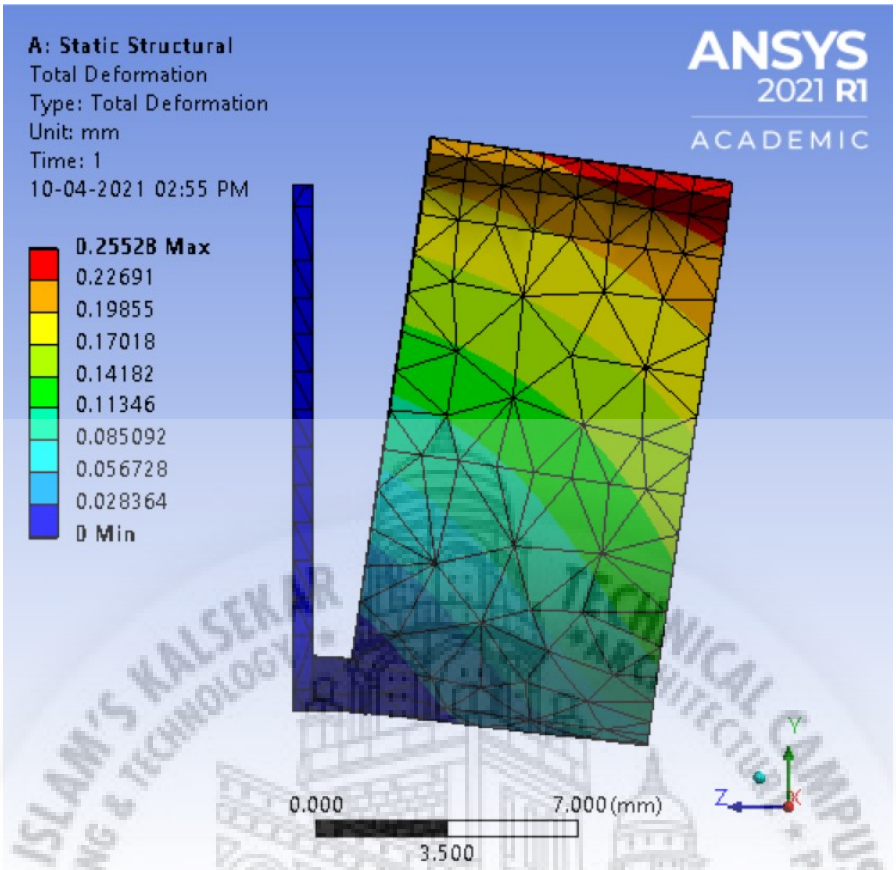



**Fig. 4.6: Female Fast lock (Total Deformation)**

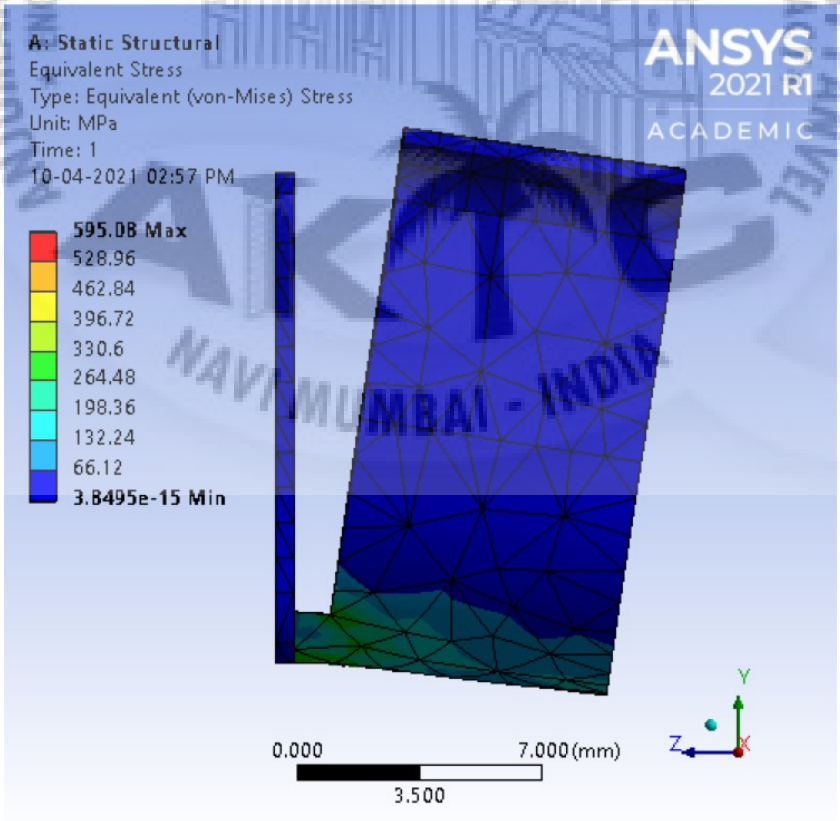



**Fig. 4.7: Female Fast lock (Equivalent Stress)**

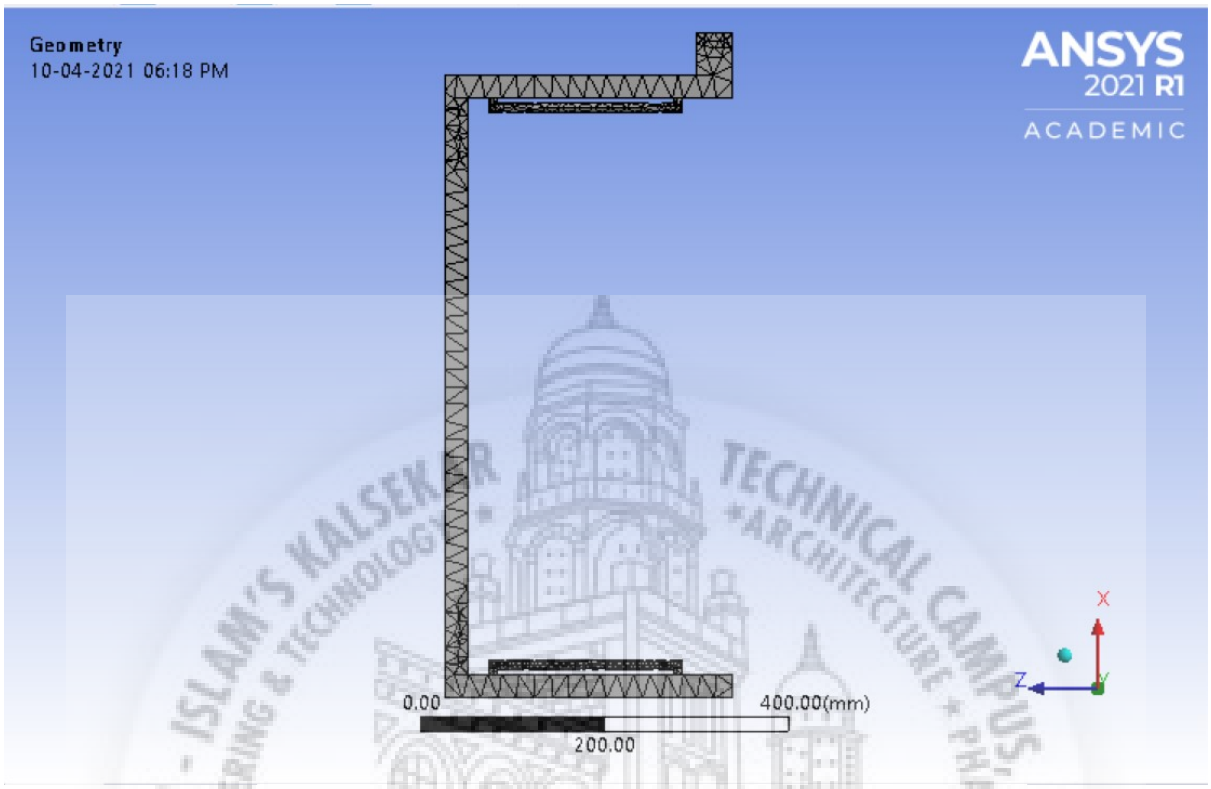



**Fig. 4.8: Main Frame**

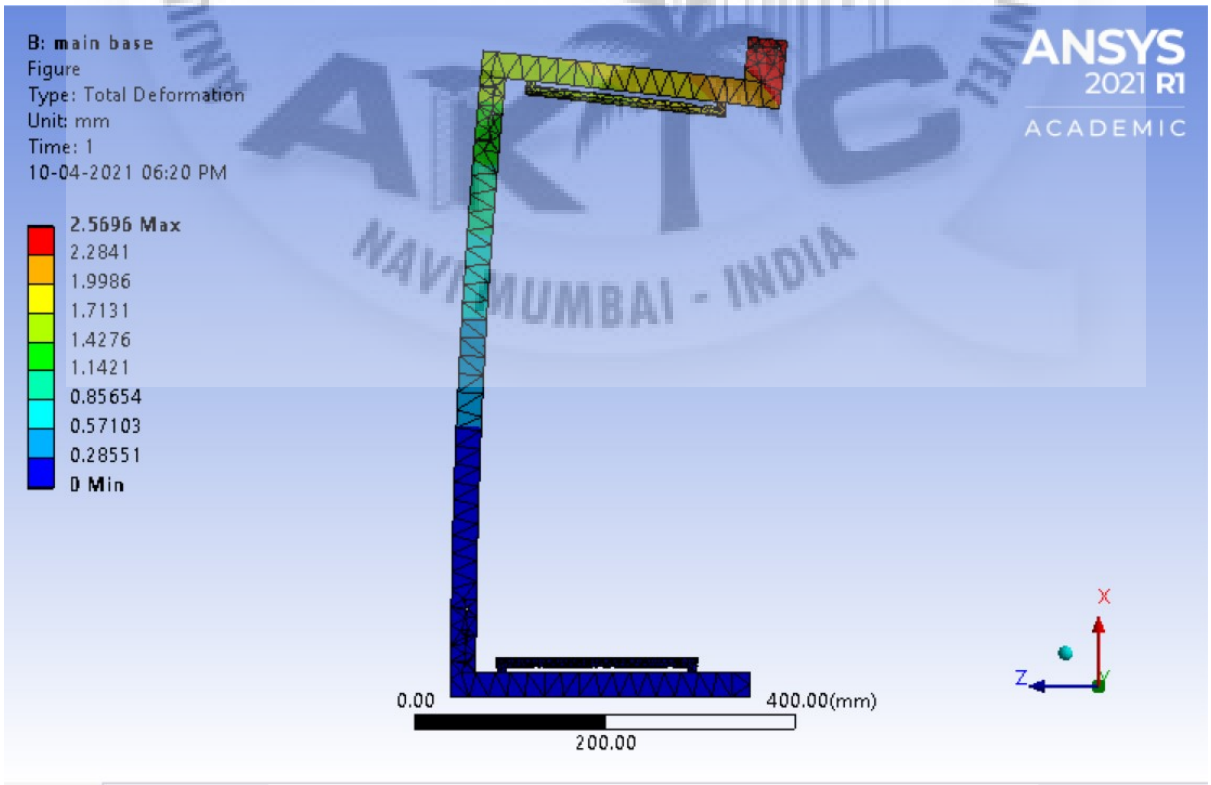



**Fig. 4.10: Main Frame (Total Deformation)**

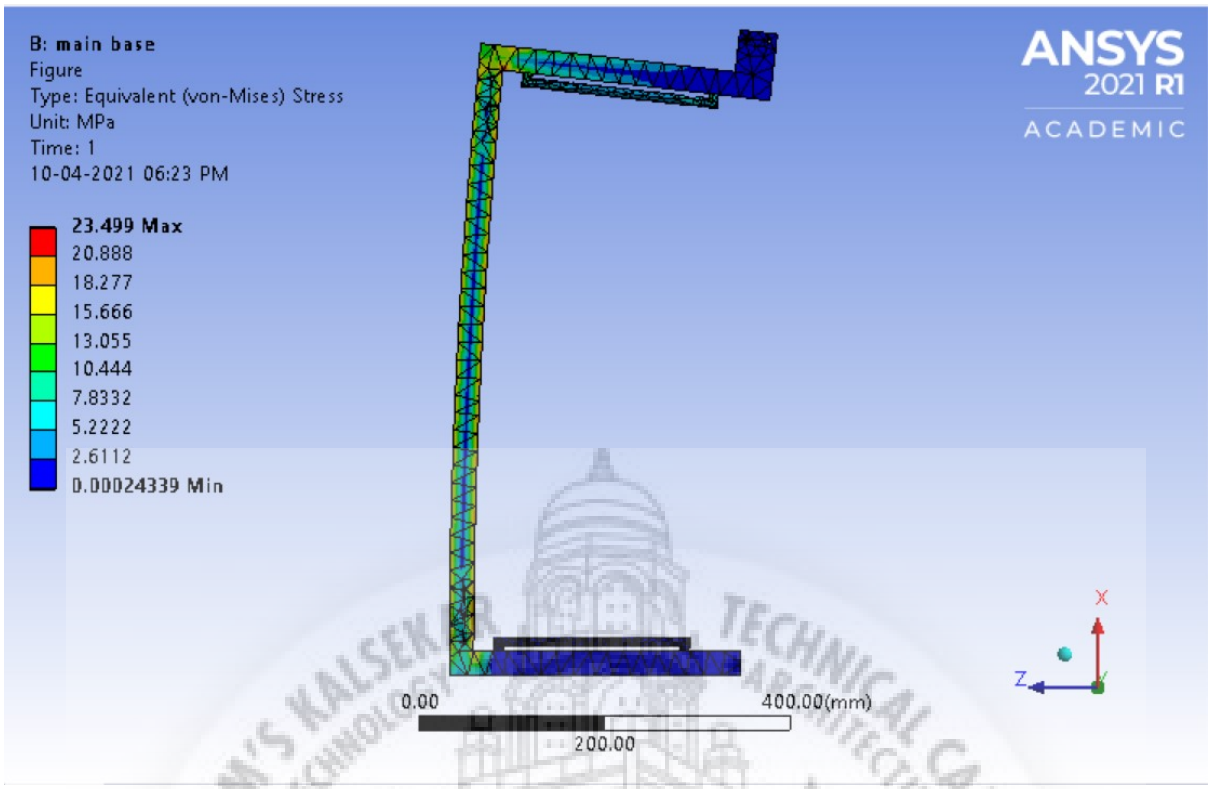



**Fig. 4.10: Main Frame (Equivalent Stress)**

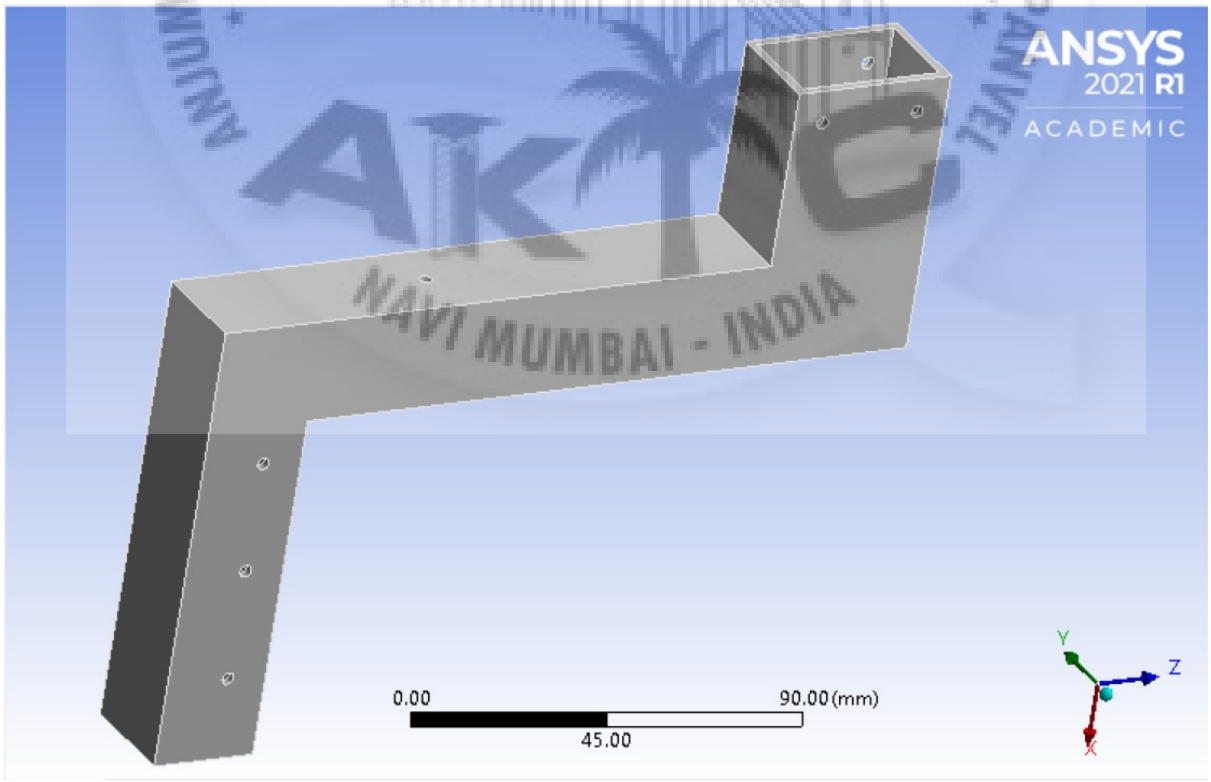



**Fig. 4.11: Side Frame**

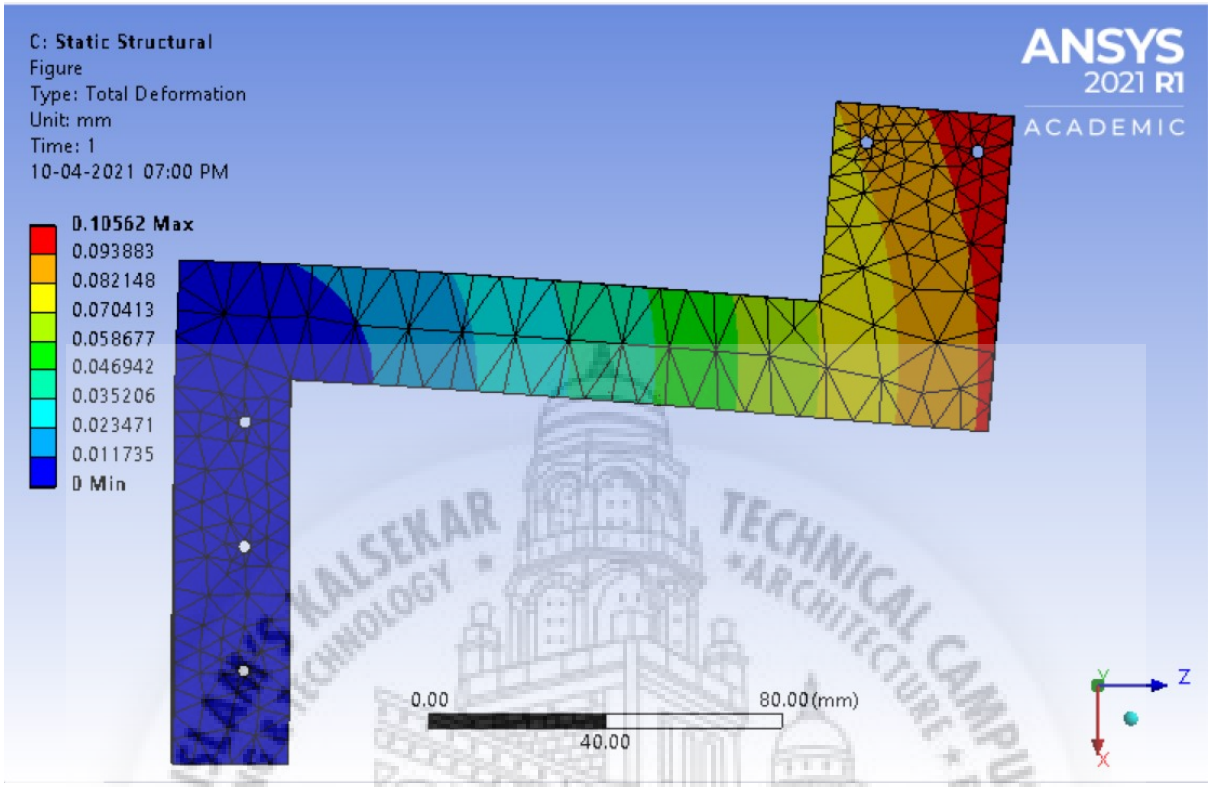



**Fig. 4.12: Side Frame (Total Deformation)**

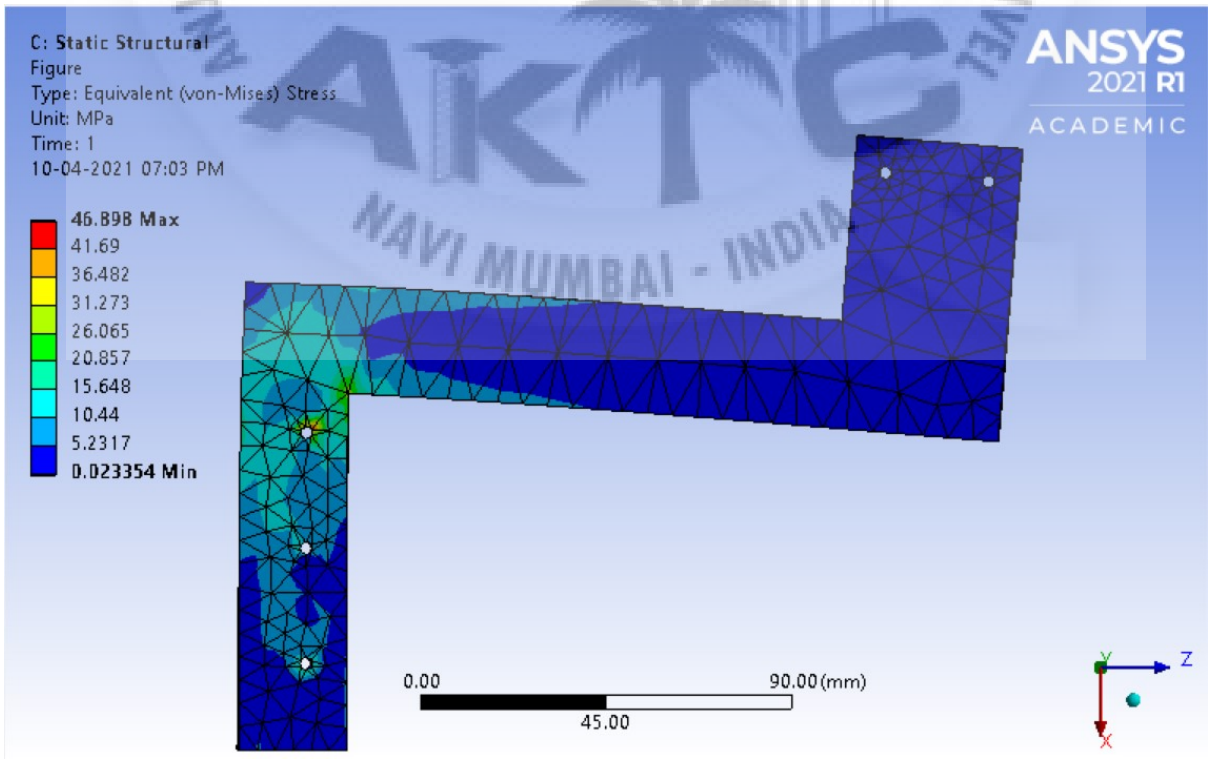



**Fig. 4.13: Side Frame (Equivalent Stress)**

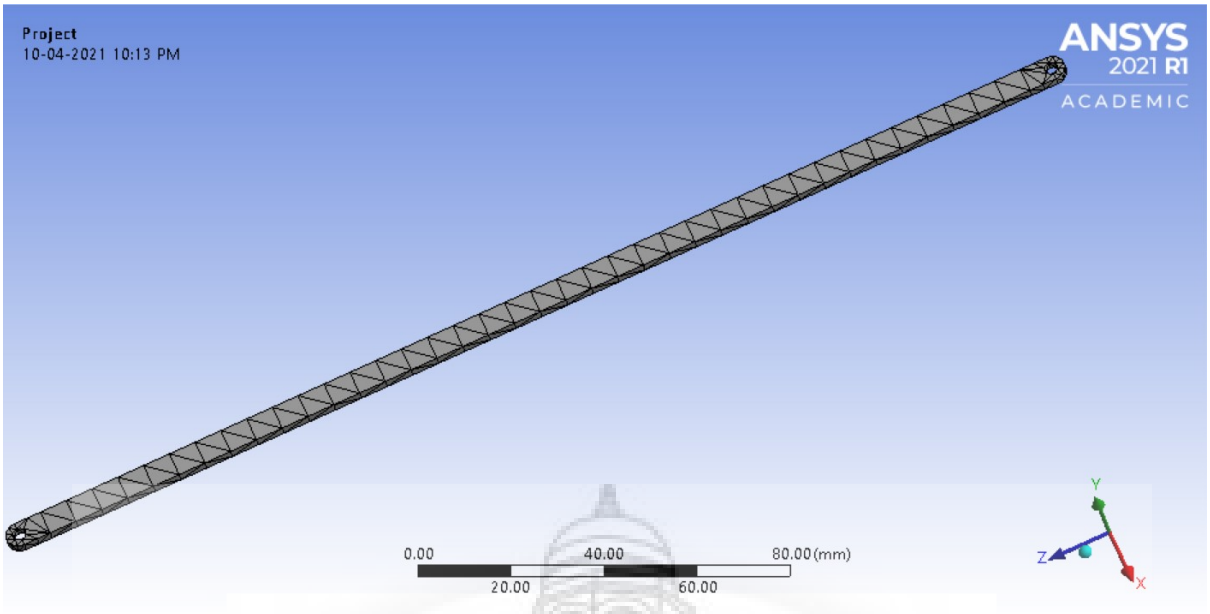



**Fig. 4.14: Link**

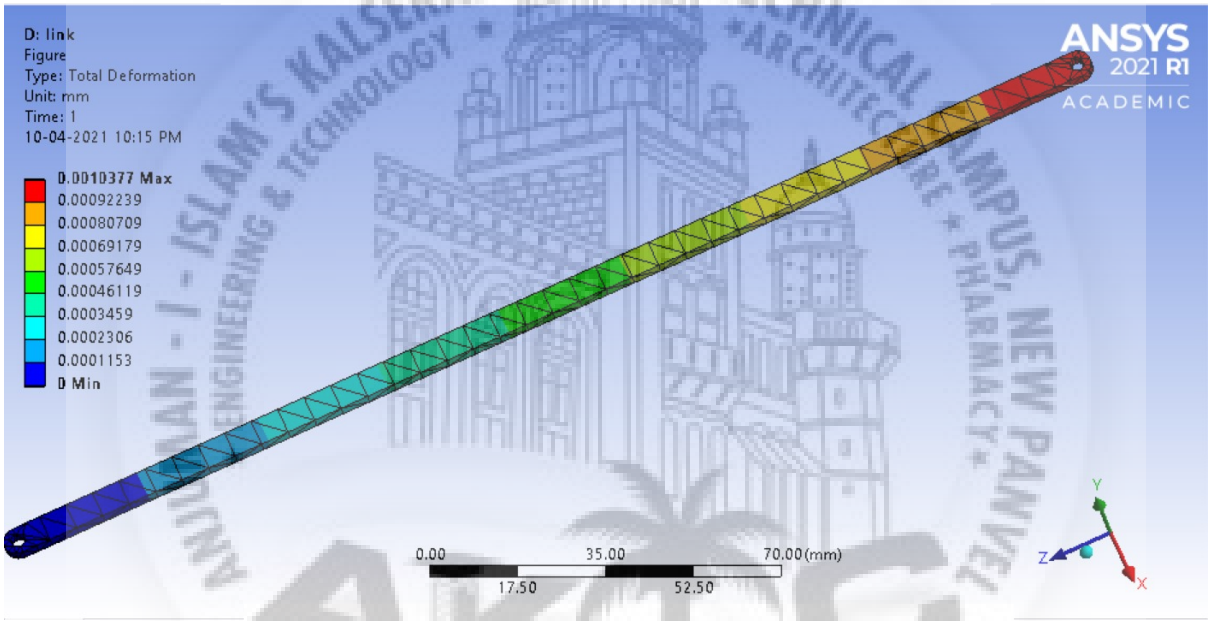



**Fig. 4.15: Link (Total Deformation)**

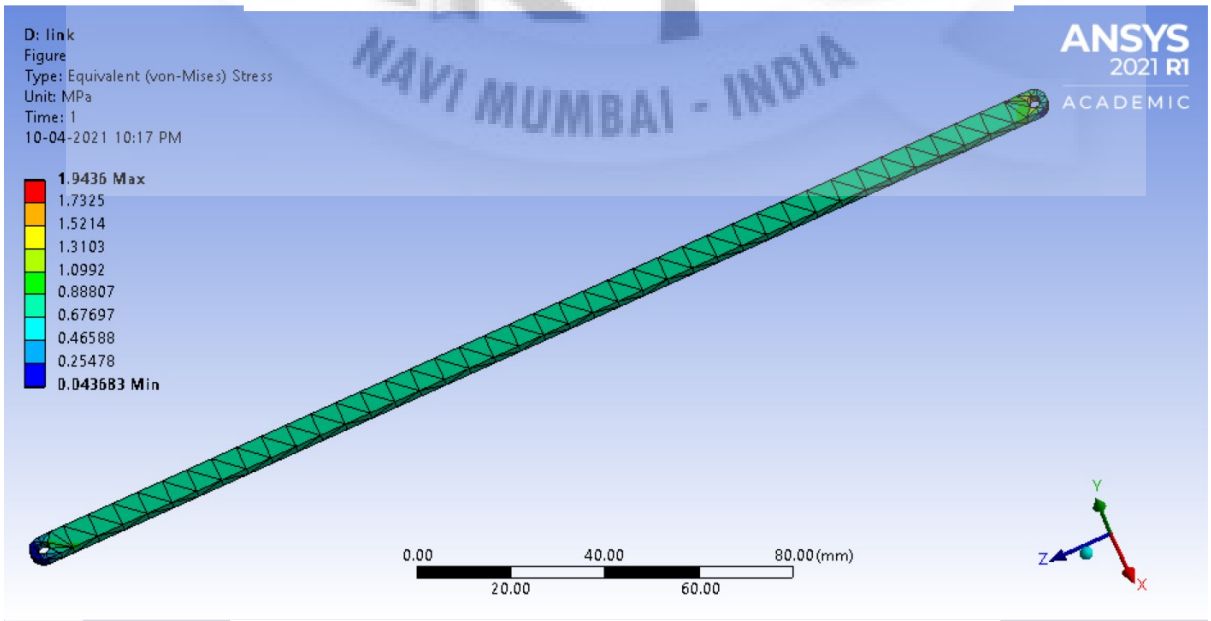





**Fig. 4.16: Link (Equivalent Stress)**

## PROBLEM STATEMENT:

### Problem:

Development of a product design (multi-purpose folding table) for purpose of usage of working professionals and students who are facing the environment requirement after the work from home guidelines.

### Our goals for creating changes:

1. Table that can be used according to user purpose.
2. The main function of our table is its compact structure which can be attained by folding some parts of table.
3. One of our main motive is also to create an affordable table (cost effective).
4. Aesthetic and ergonomics of table are developed according to standard data.
5. Light in weight for easy handling.
6. Adding slider mechanisms for folding of legs.

## DISCRETIZATION PROCESS:

1. The PDE system is transformed into a set of algebraic equations.
2. Mesh Generation {Decomposition into cells/ elements).
3. Structured or unstructured, triangular or quadrilateral?
4. CADD tools+ grid generation (Delaunay, Advancing front).
5. Mesh size, adaptive refinement in “intersecting” flow regions.
6. Space discretization approximation of spatial derivative).
7. Finite differences/volumes/elements.

# CHAPTER 05

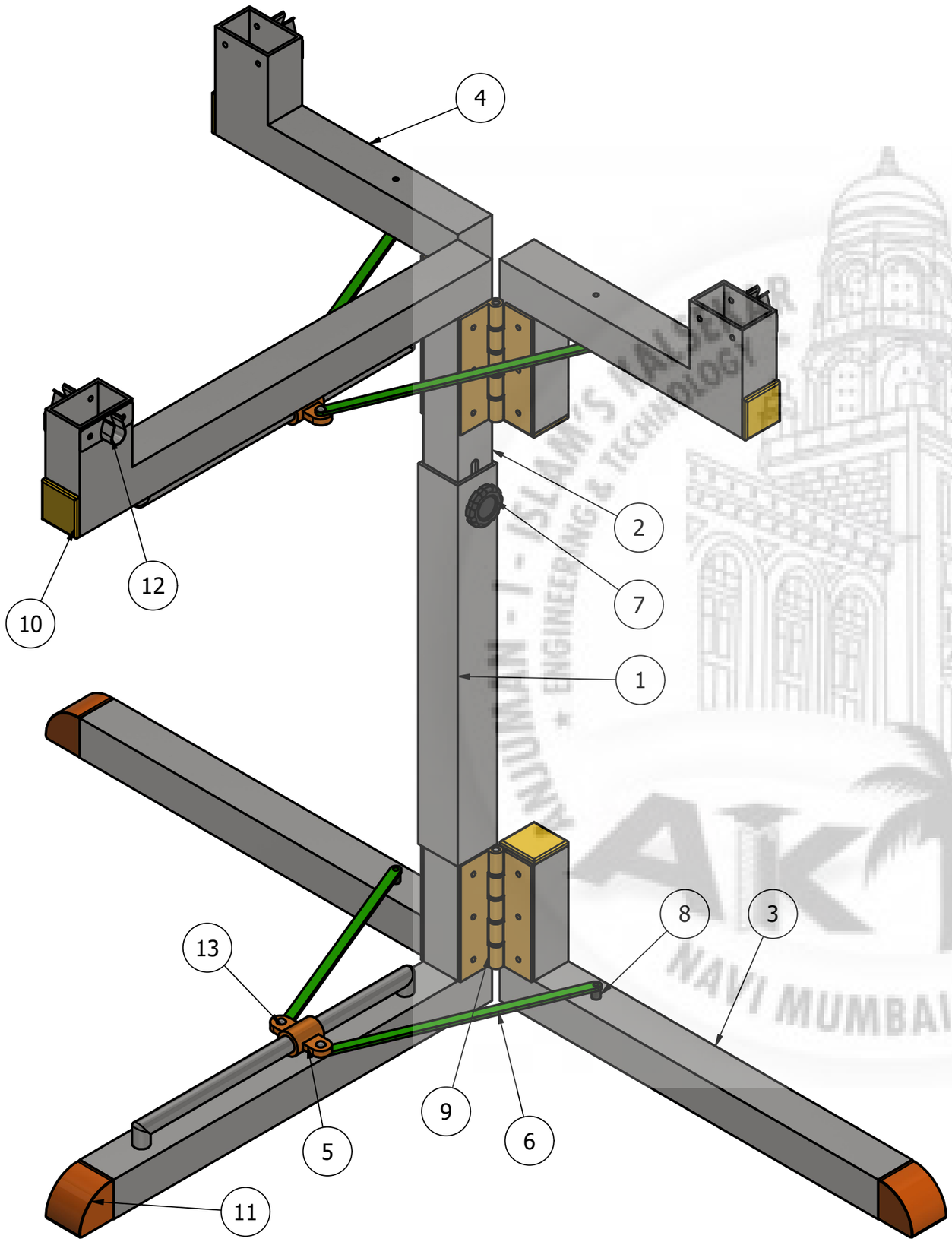
## COST ESTIMATION:

| Sr.no. | MATERIALS | | ESTIMATE COST ₹ |
|---|---|---|---|
| 1. | NO OF SPECIMENS | | ₹ 1165/- |
| | 1.1 | Upper and lower frame leg | |
| | 1.2 | Upper and lower side frame | |
| | 1.3 | Upper and lower side frame | |
| | 1.4 | Top and bottom links | |
| | 1.5 | Hinge, knob screw | |
| | 1.6 | 180-degree slider, washer | |
| | 1.7 | Fast lock | |
| | 1.8 | BS4620-3x12 | |
| 2. | Other materials | | ₹ 100/- |
| | 2.1 | Filler road | |
| | 2.2 | Grinding blade | |
| | 2.3 | Machine lubricant | |
| | 2.4 | Other small things | |
| 3 | Labour charge | | ₹ 150/- |
| | 3.1 | Welding | |
| | 3.2 | Cutting | |
| | 3.3 | Assembly | |
| 4 | Maintenance material | | ₹ 75/- |
| 5 | Total Cost estimated | | ₹ 1500/- |

## RESULT AND DISCUSSION:

After applying a variety of mechanisms and suggesting different kind of ideas to create the table according to user preference at last we were satisfied over the idea which we are presenting in this report. The ideas of design and mechanisms that we are using in our folding table are discussed between our group members and also taken advice from our project guide.

In the final result the table has been created in such a manner that were suggested by some of our friends and family members from whom we have taken the survey for requirements of a compact table that they would prefer and in future we will update the product according to the feedbacks that we will receive once the product is available across marketing platforms.




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | Frame Lower Leg | Steel, Galvanized |
| 2 | 1 | Frame Upper Leg | Steel, Galvanized |
| 3 | 2 | Upper Side Frame | Steel, Galvanized |
| 4 | 2 | Lower Side Frame | Steel, Galvanized |
| 5 | 2 | 180 Degree Slider | Cast Iron |
| 6 | 4 | Link 3 | Cast Iron |
| 7 | 1 | Knob Screw | |
| 8 | 4 | Slider Washer | Cast Iron |
| 9 | 4 | Hinge | Stainless Steel |
| 10 | 7 | Frame Cap 1 | Phenolic Resin |
| 11 | 3 | Frame Cap 2 | Phenolic Resin |
| 12 | 4 | Fast Lock (Female) | Stainless Steel |
| 13 | 4 | BS 4620 - 3 x 12 | Steel, Mild |

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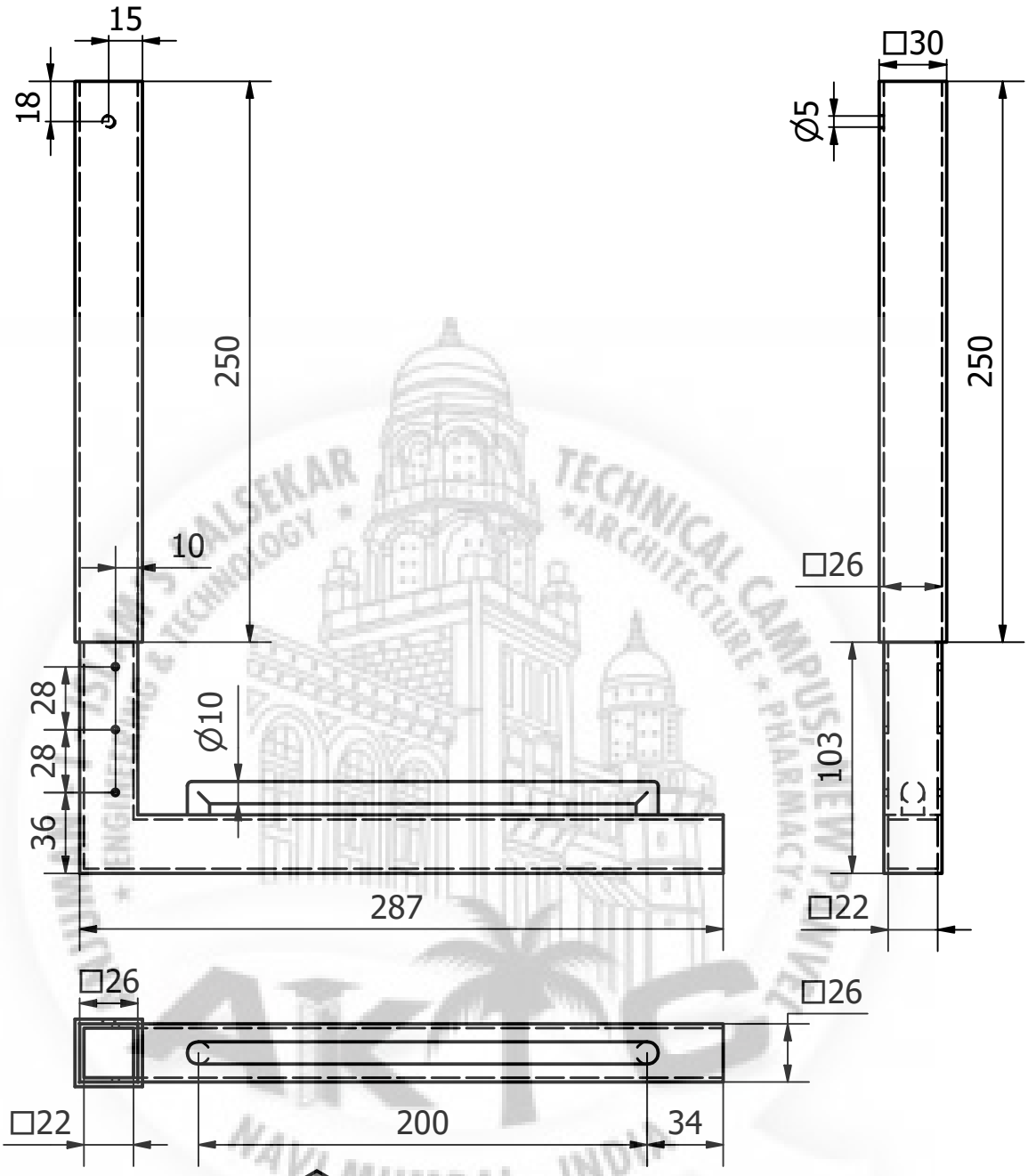
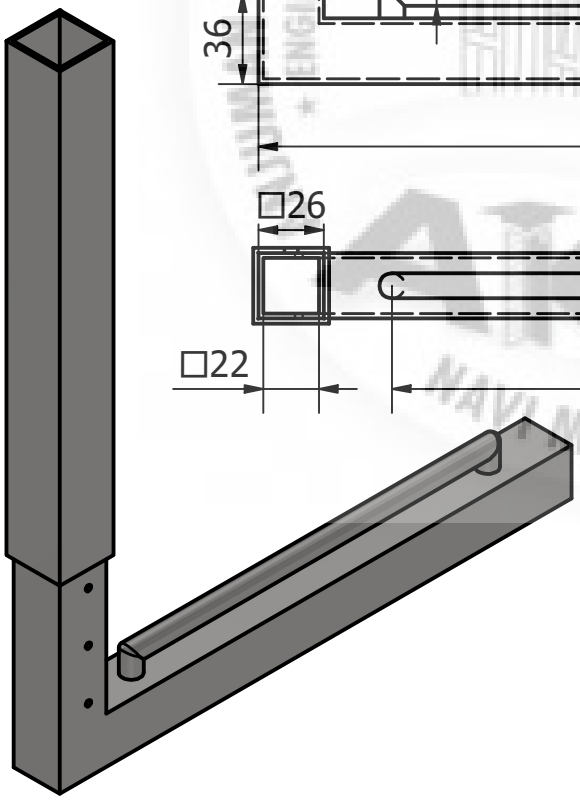
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | Lower Leg | Steel, Galvanized |



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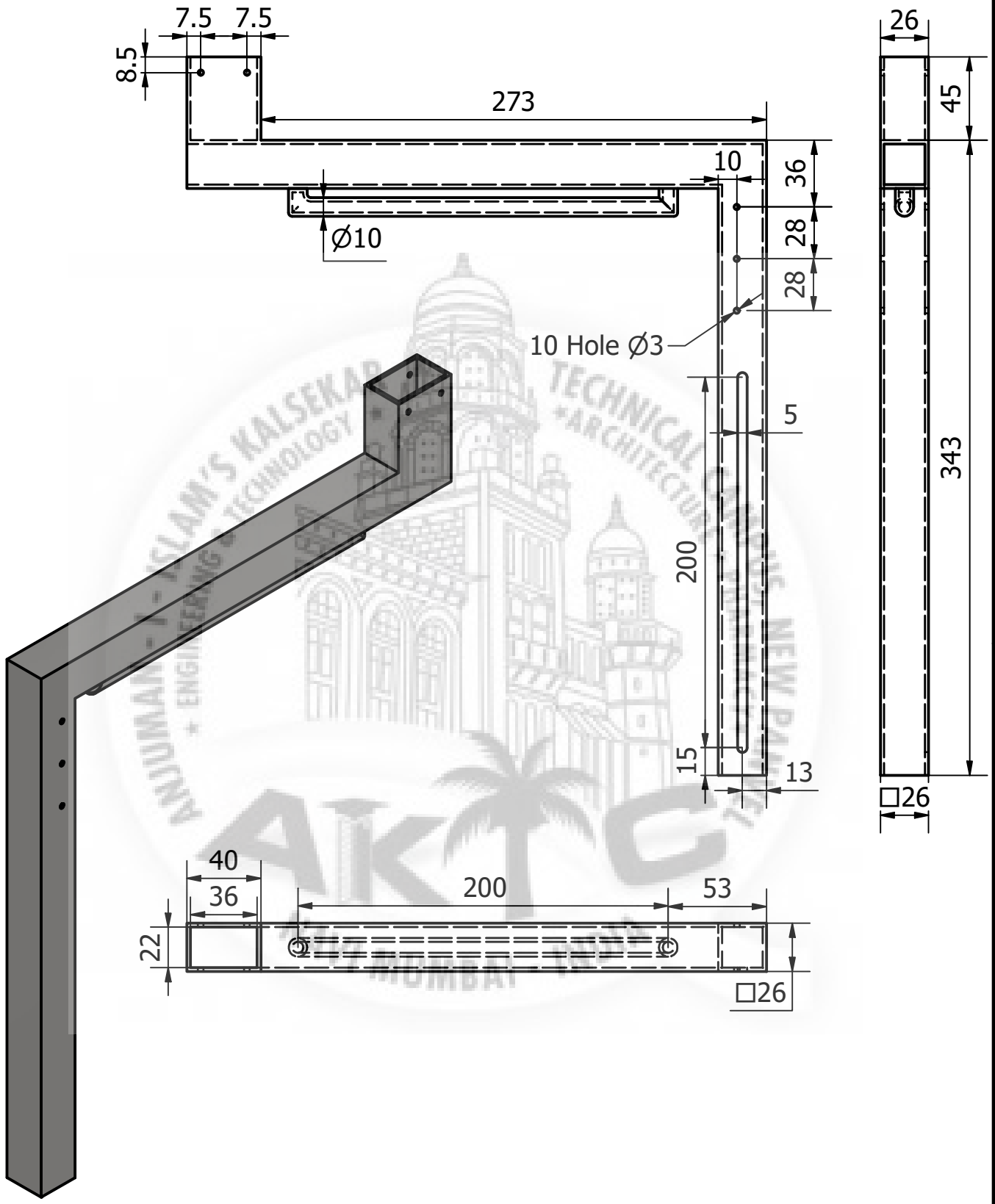
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | upper leg | Steel, Galvanized |

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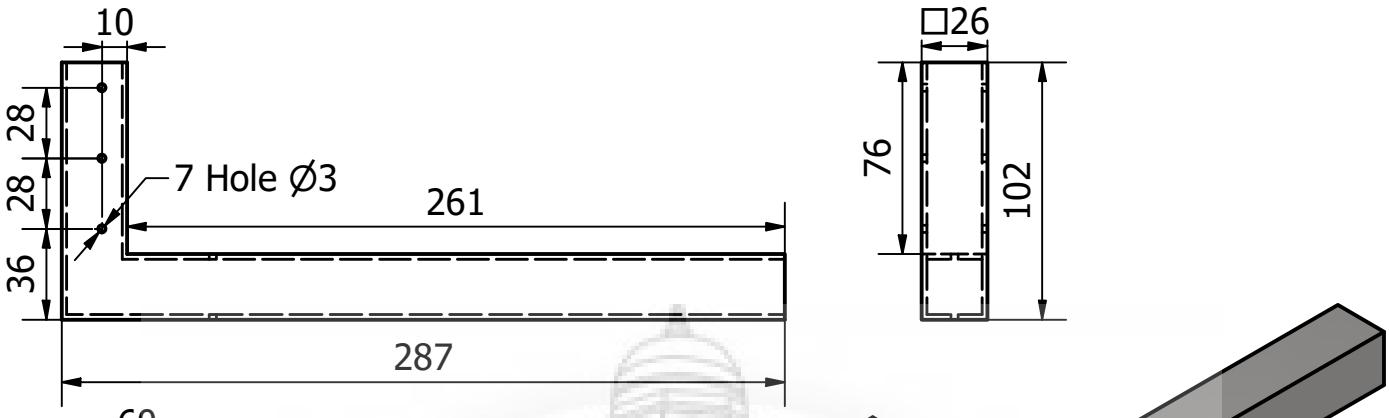
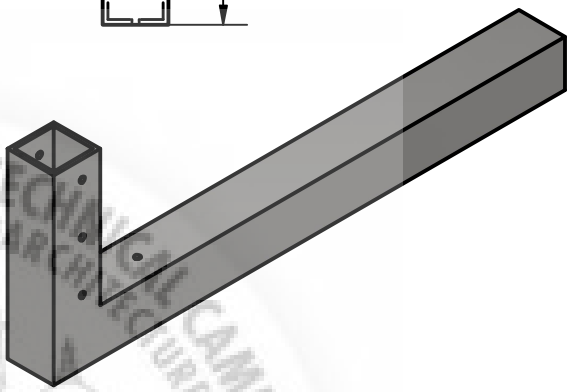
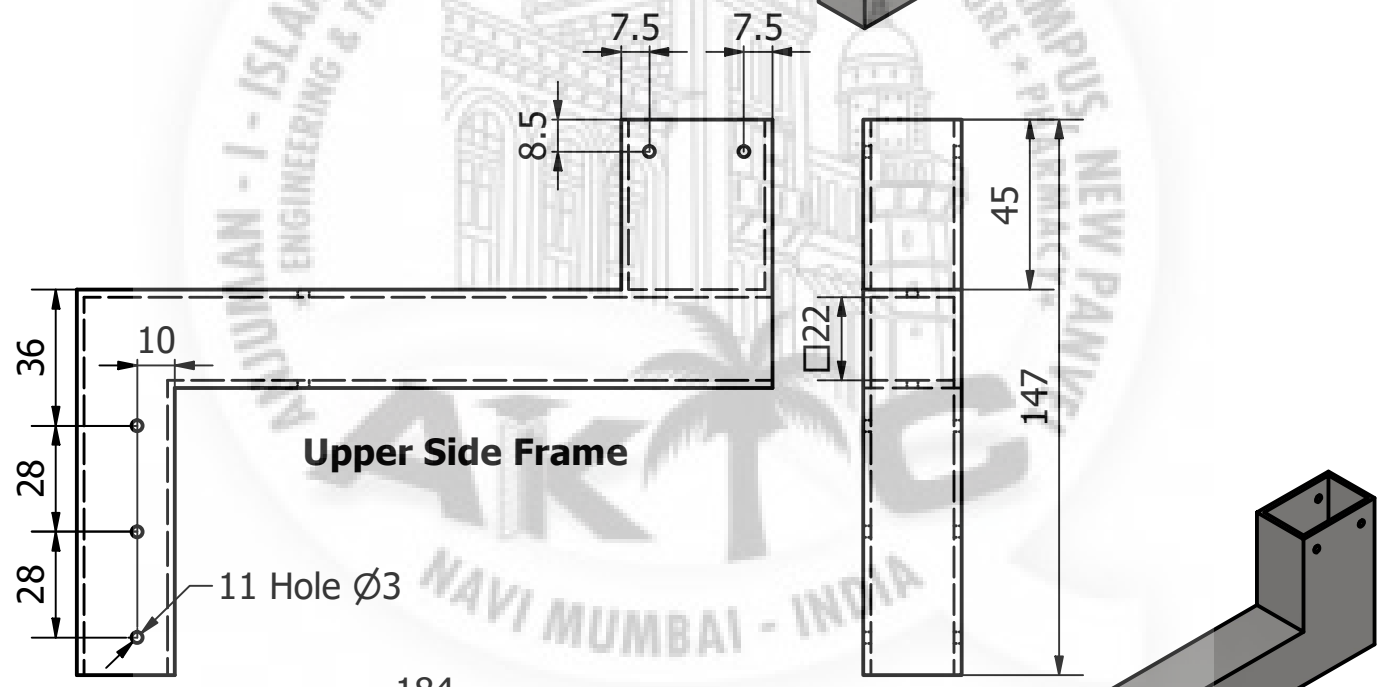
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 2 | Lower Side Frame | Steel, Galvanized |
| 2 | 2 | Upper Side Frame | Steel, Galvanized |

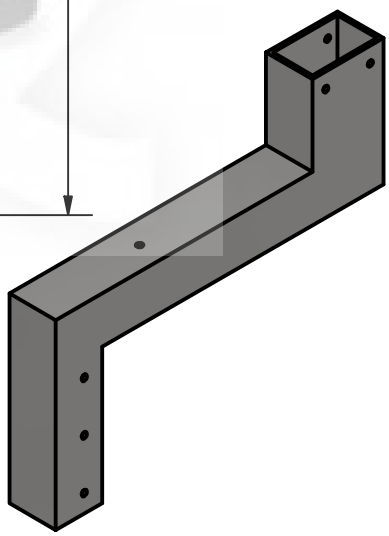



**Lower Side Frame**






**Upper Side Frame**



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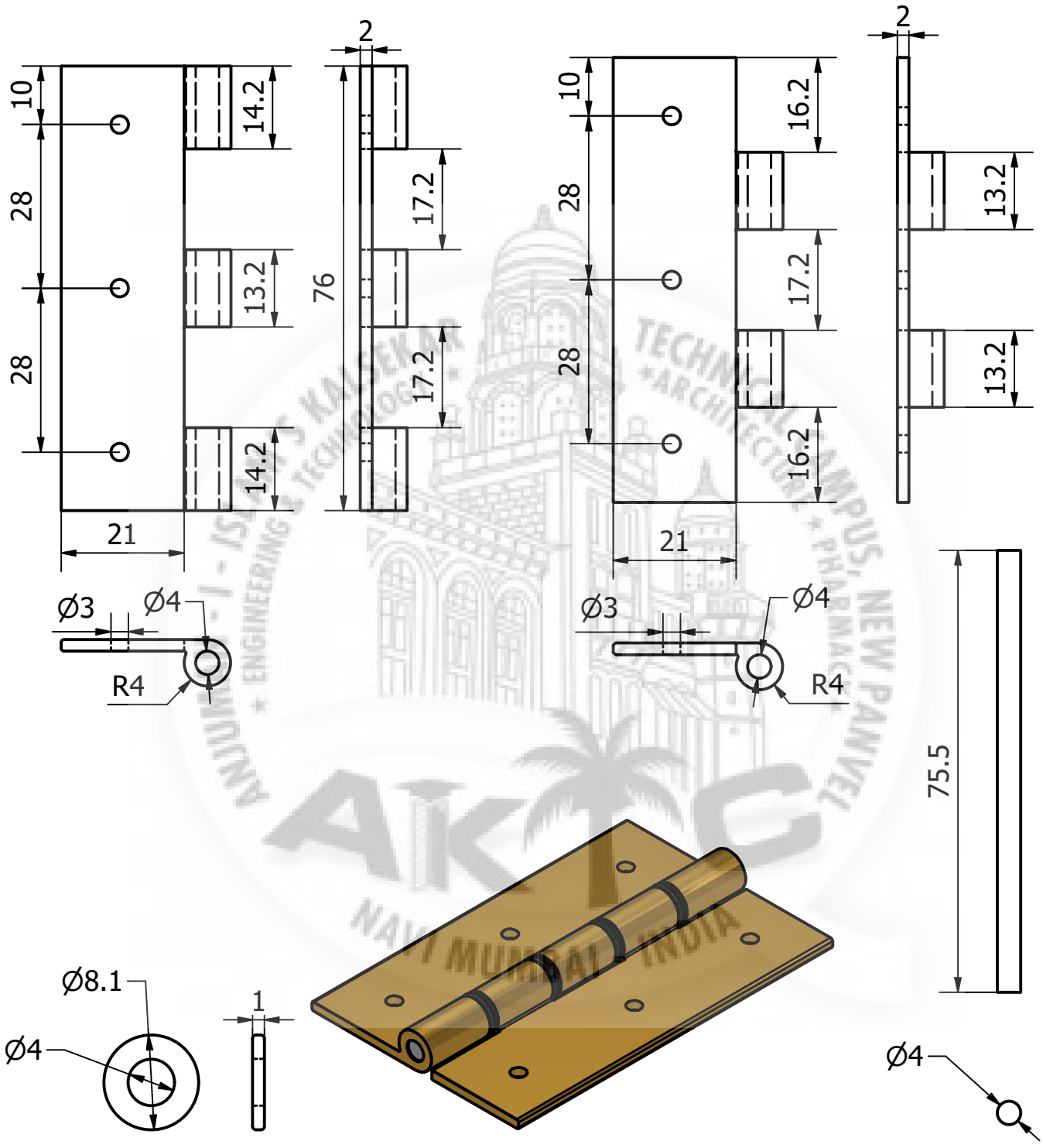
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 4 | Hinge | |




**Hinge**

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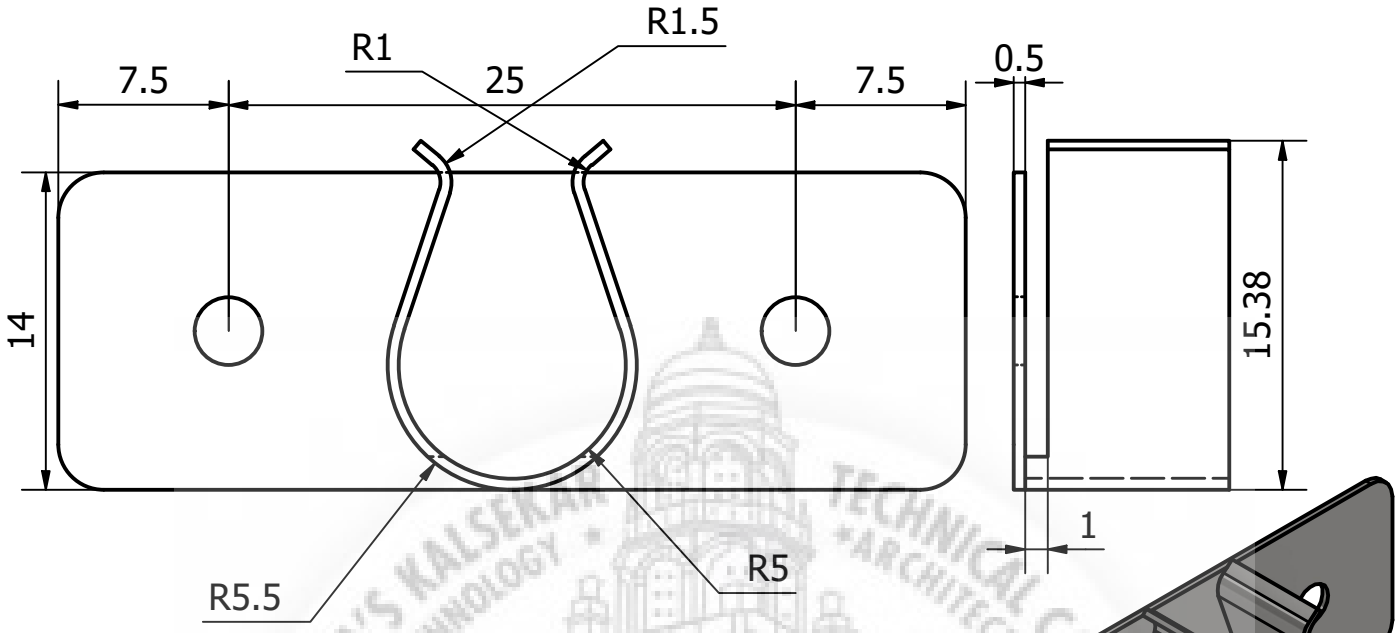
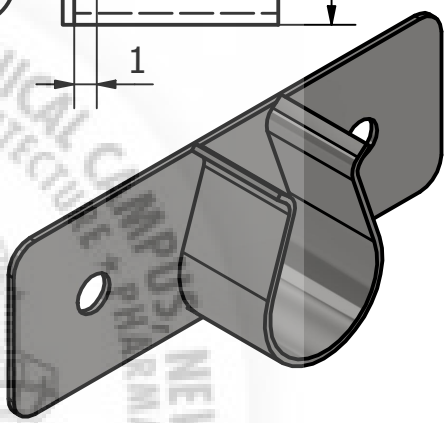
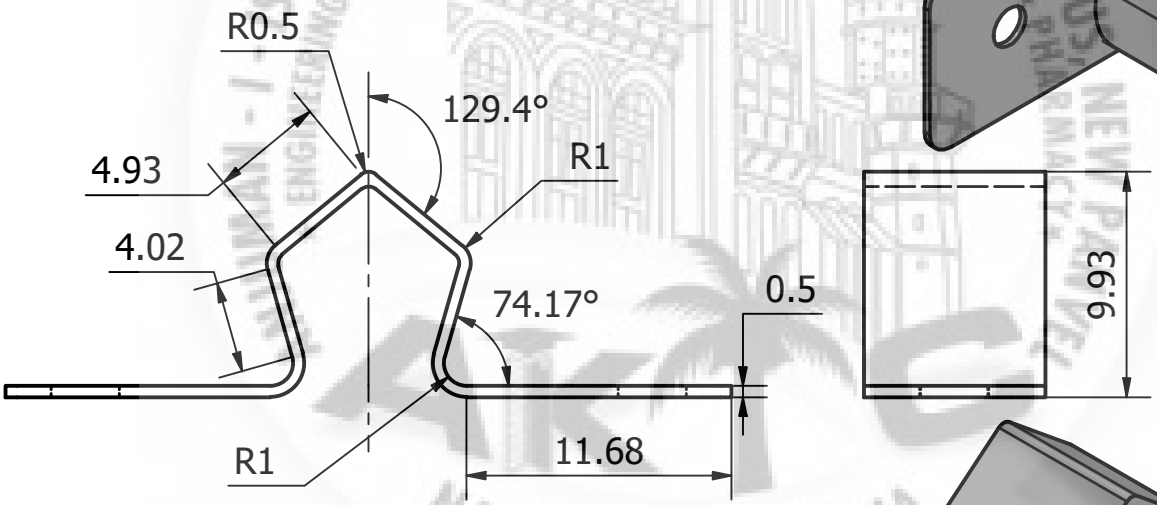
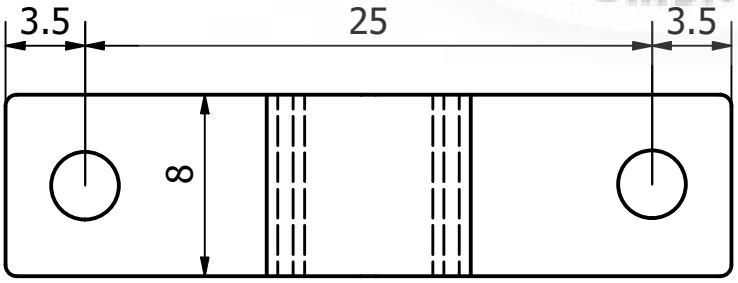
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 4 | Fast Lock (Female) | Stainless Steel |
| 2 | 4 | Fast Lock (Male) | Stainless Steel |

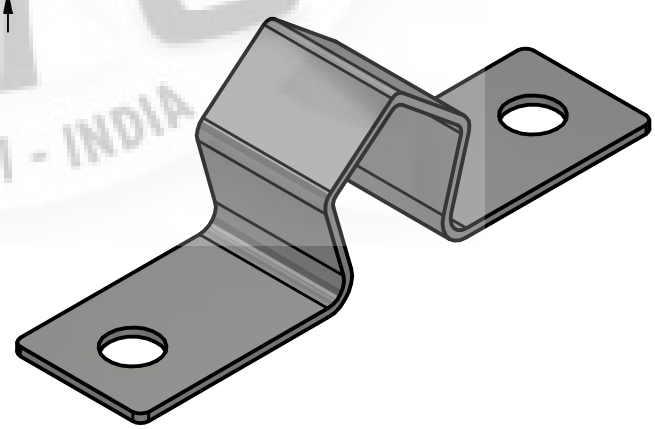



## Fast Lock (Female)





## Fast Lock (Male)

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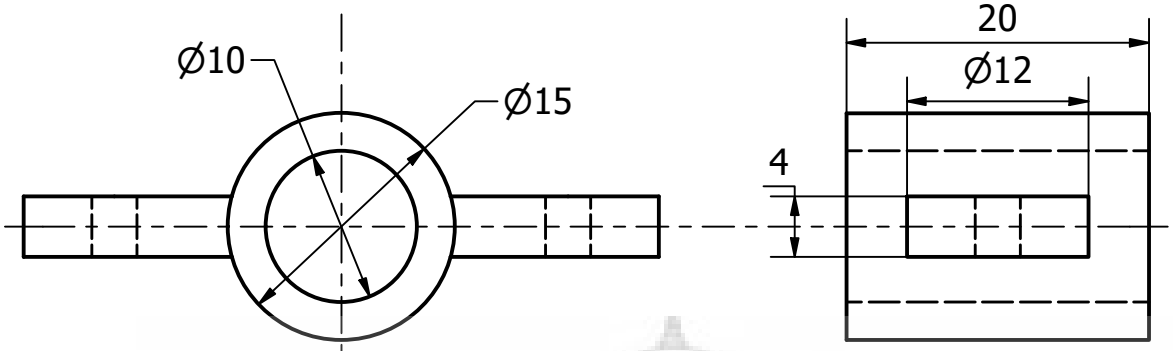
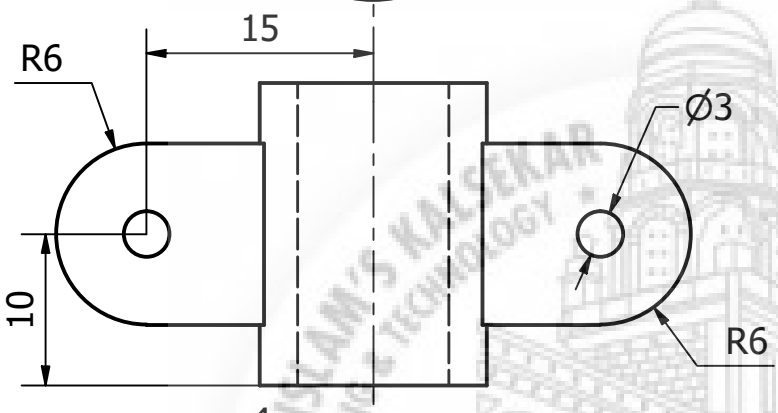
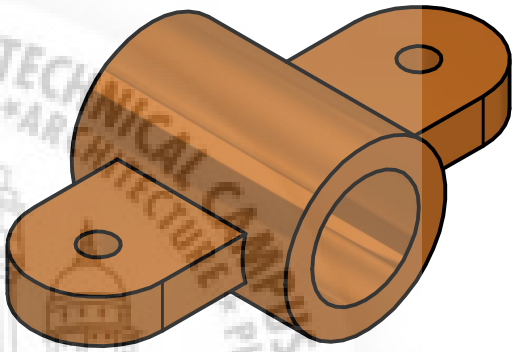
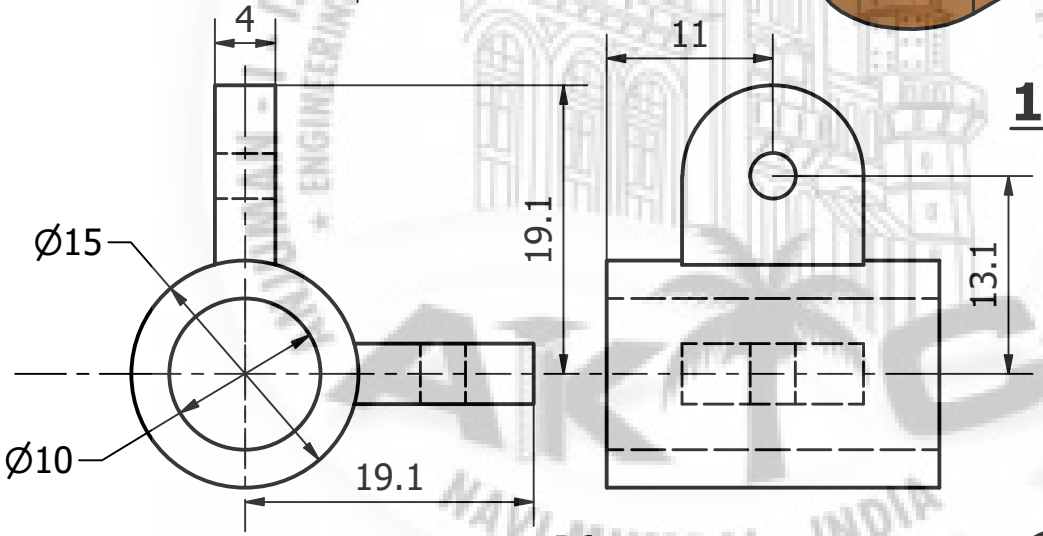
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 3 | 180 Degree Slider | Cast Iron |
| 2 | 2 | 90 Degree Slider | Cast Iron |

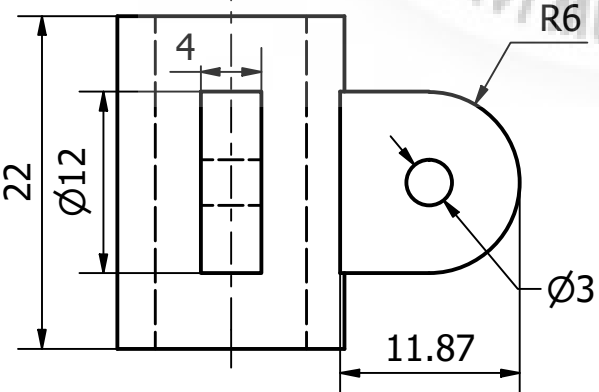


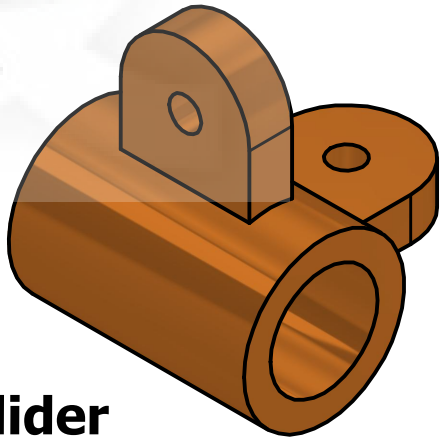



## 180° Slider



## 90° Slider

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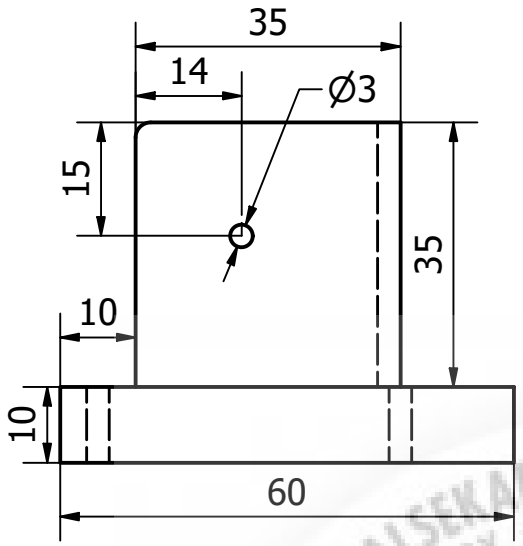
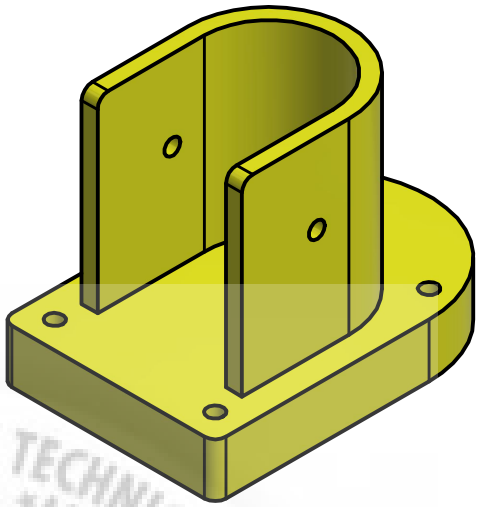
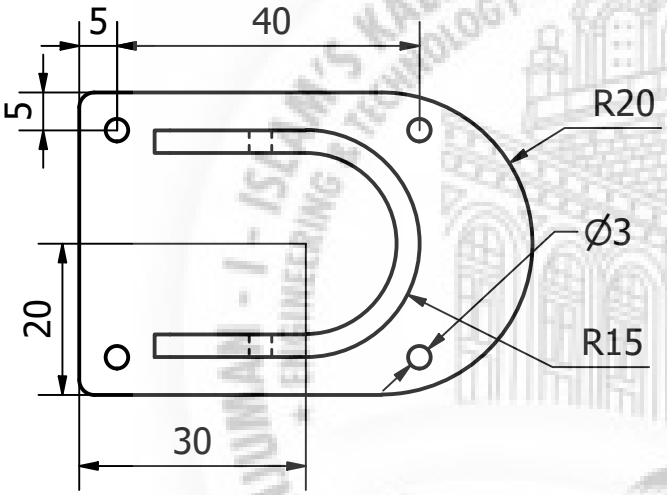
PARTS LIST

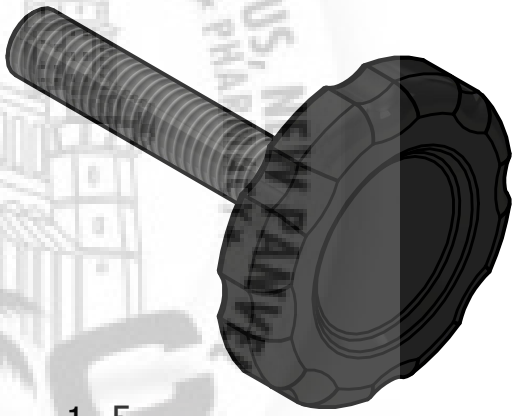
| ITEM | QTY | PART NUMBER | MATERIAL |
|---|---|---|---|
| 1 | 4 | Leg Holder | PBT Plastic |
| 2 | 1 | Knob Screw | |

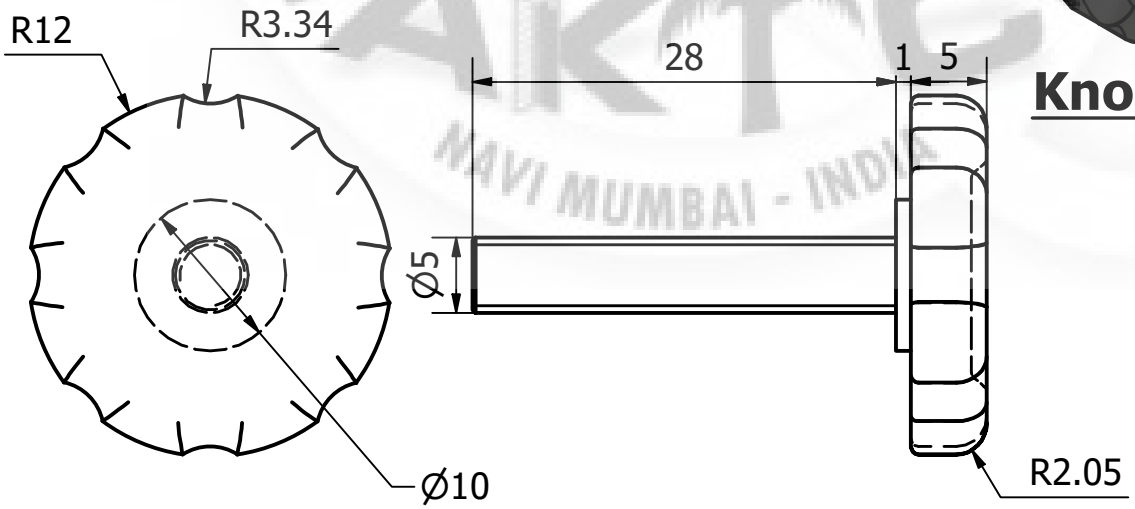


**Leg Holder**






**Knob Screw**

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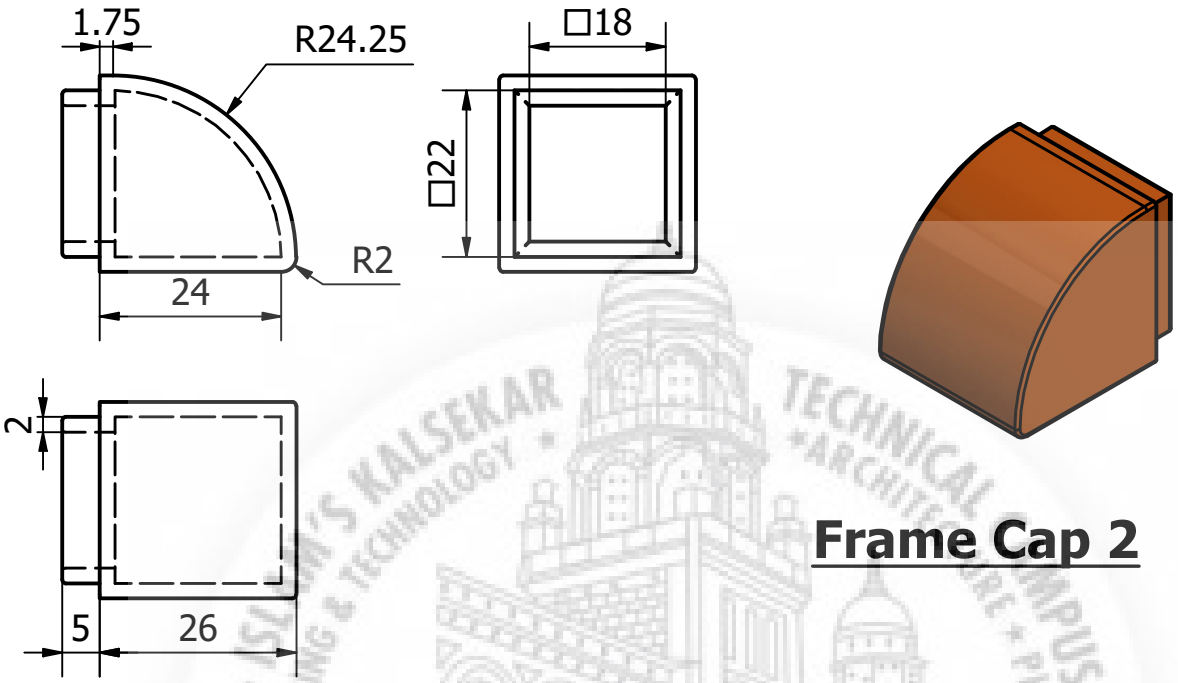
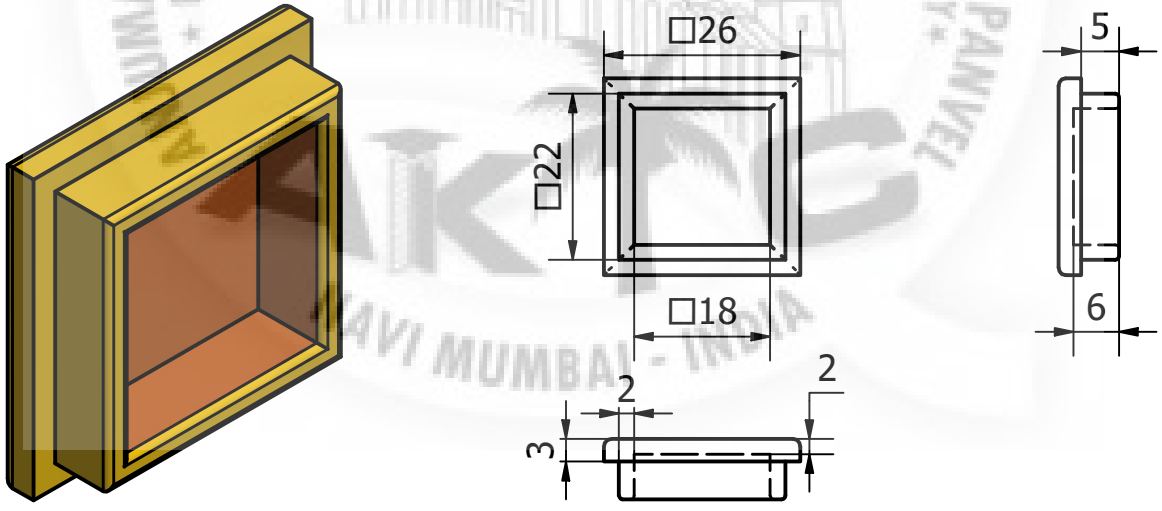
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 7 | Frame Cap 1 | Phenolic Resin |
| 2 | 3 | Frame Cap 2 | Phenolic Resin |




## Frame Cap 2




## Frame Cap 1

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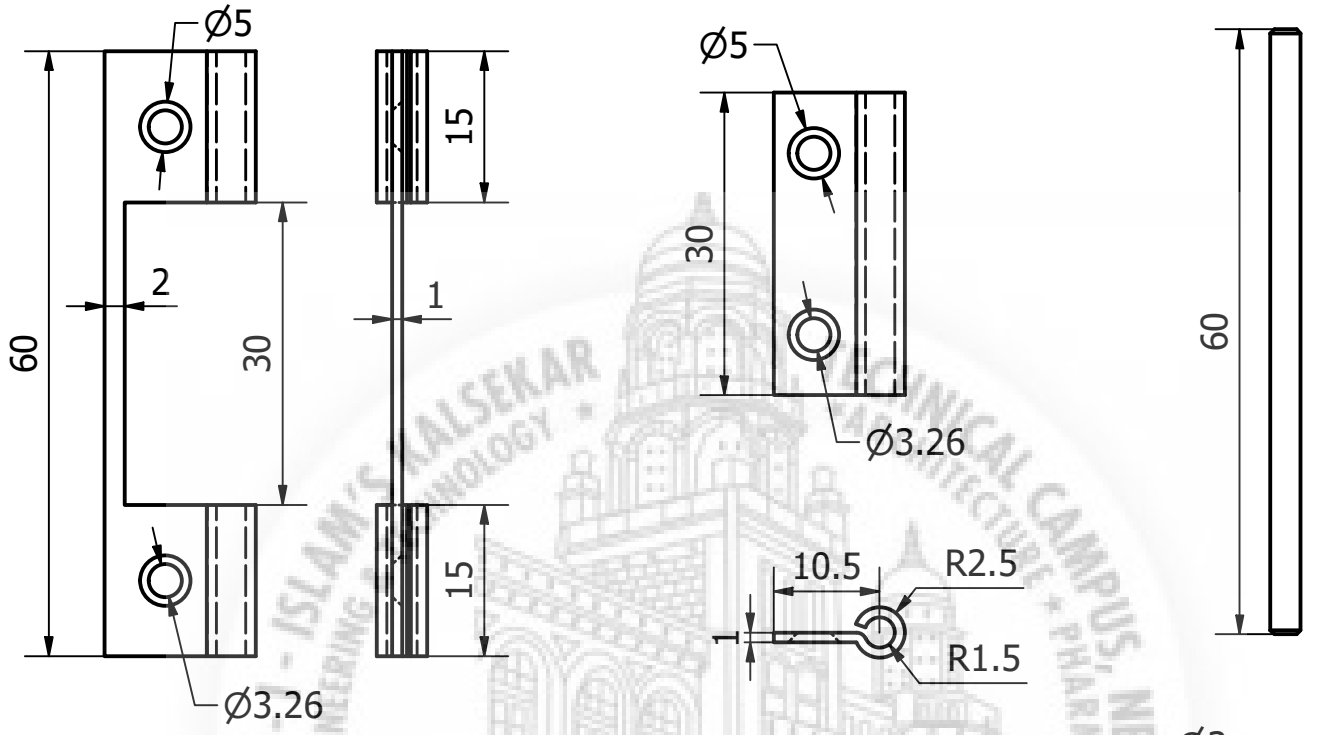
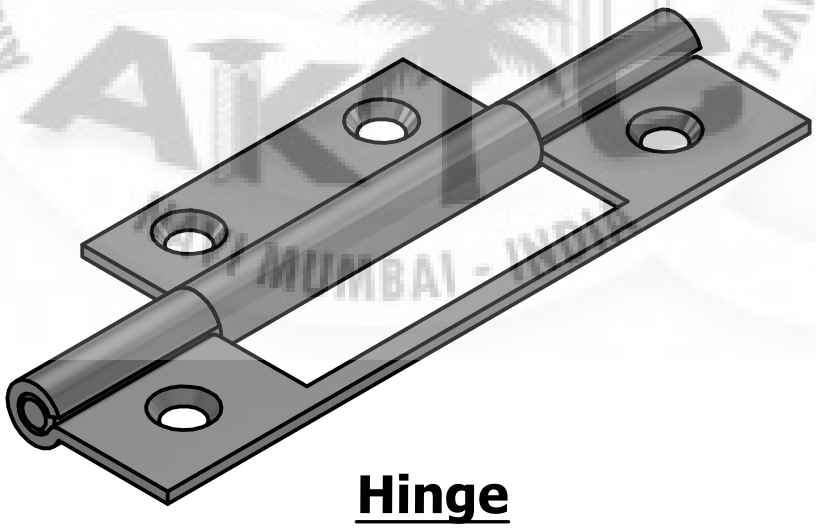
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 2 | Hinge 1.0 | Stainless Steel |



# Hinge

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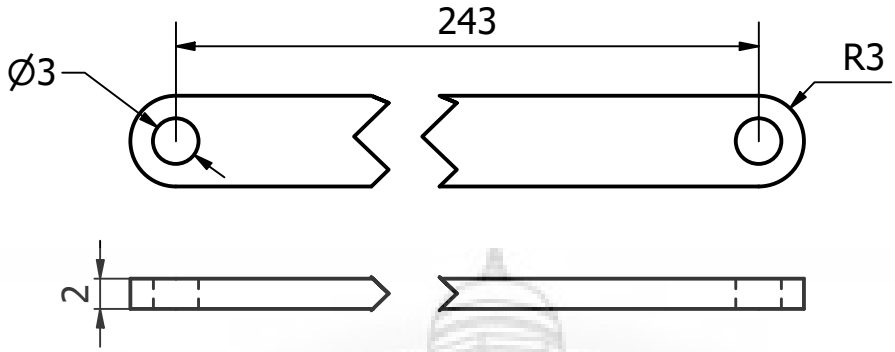
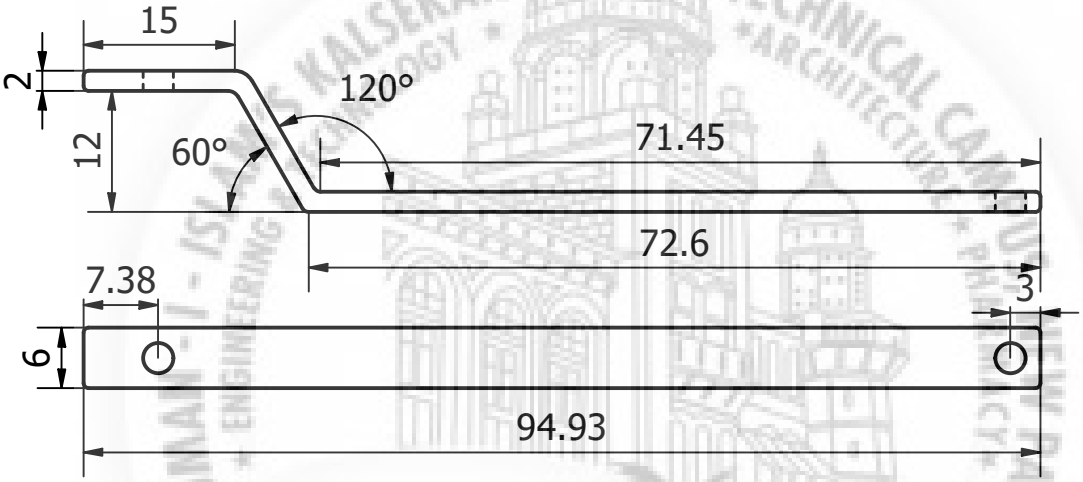
PARTS LIST

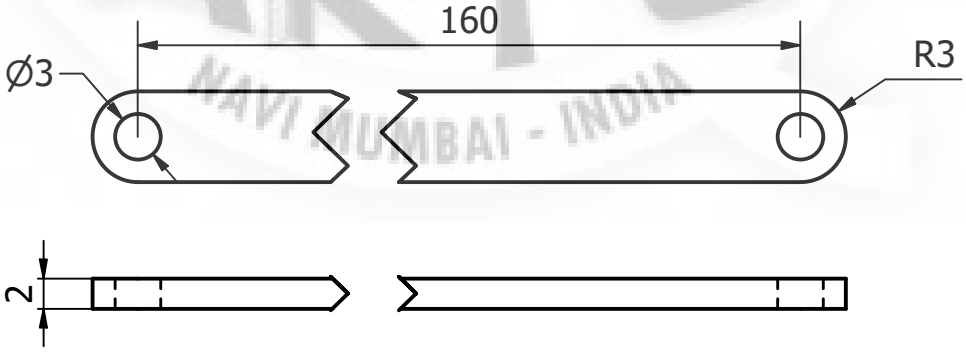
| ITEM | QTY | PART NUMBER | MATERIAL |
|---|---|---|---|
| 1 | 2 | LINK Top 1 | |
| 2 | 2 | LINK Top 2 | |
| 3 | 2 | Main Frame Link | |




## Link Top 1




## Link Top 2




## Main Frame Link

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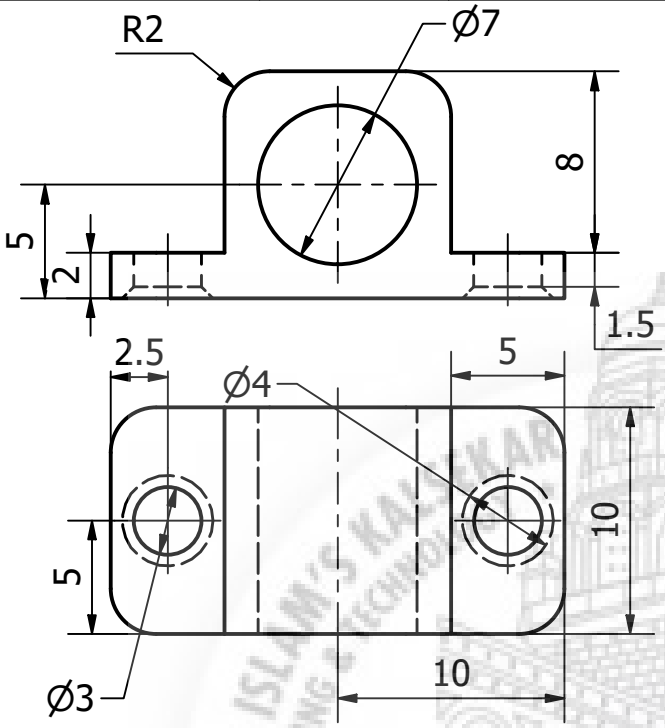
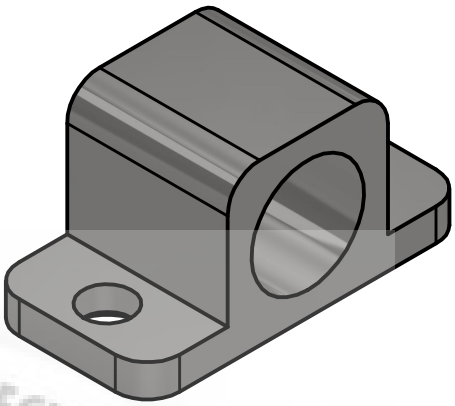
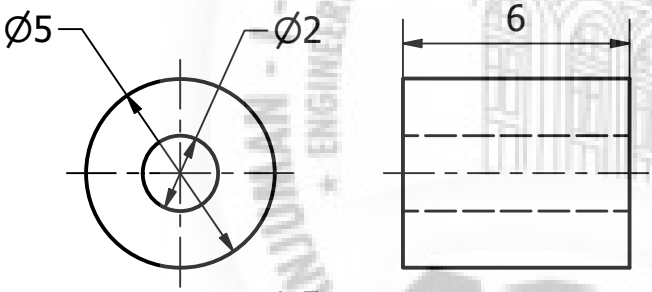
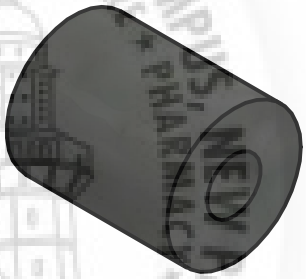
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 2 | Holder (Stand) | Cast Iron |
| 2 | 4 | Washer (Main Frame) | Cast Iron |
| 3 | 3 | Slider Holder | Cast Iron |



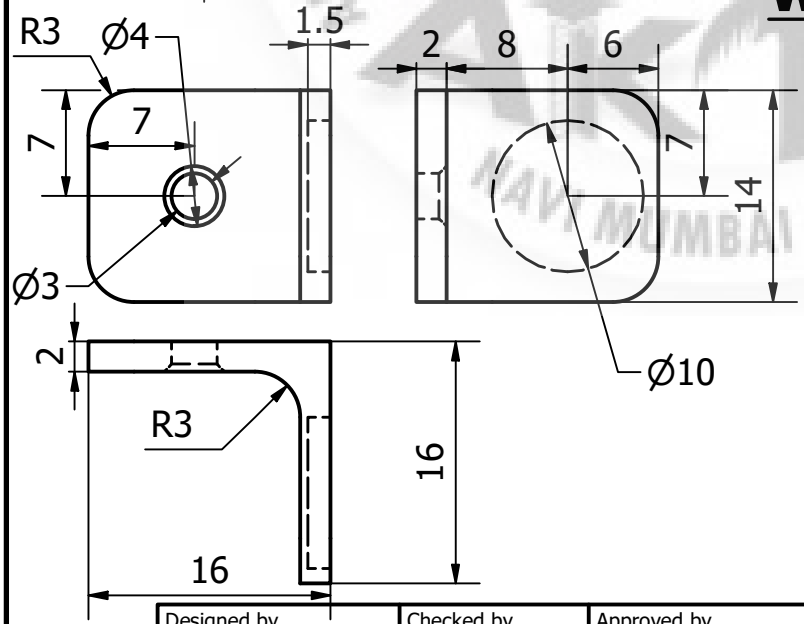



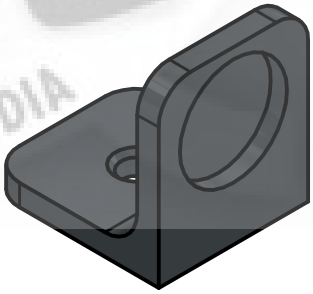
**Holder (Stand)**



**Washer (Main frame)**



**Slider Holder**

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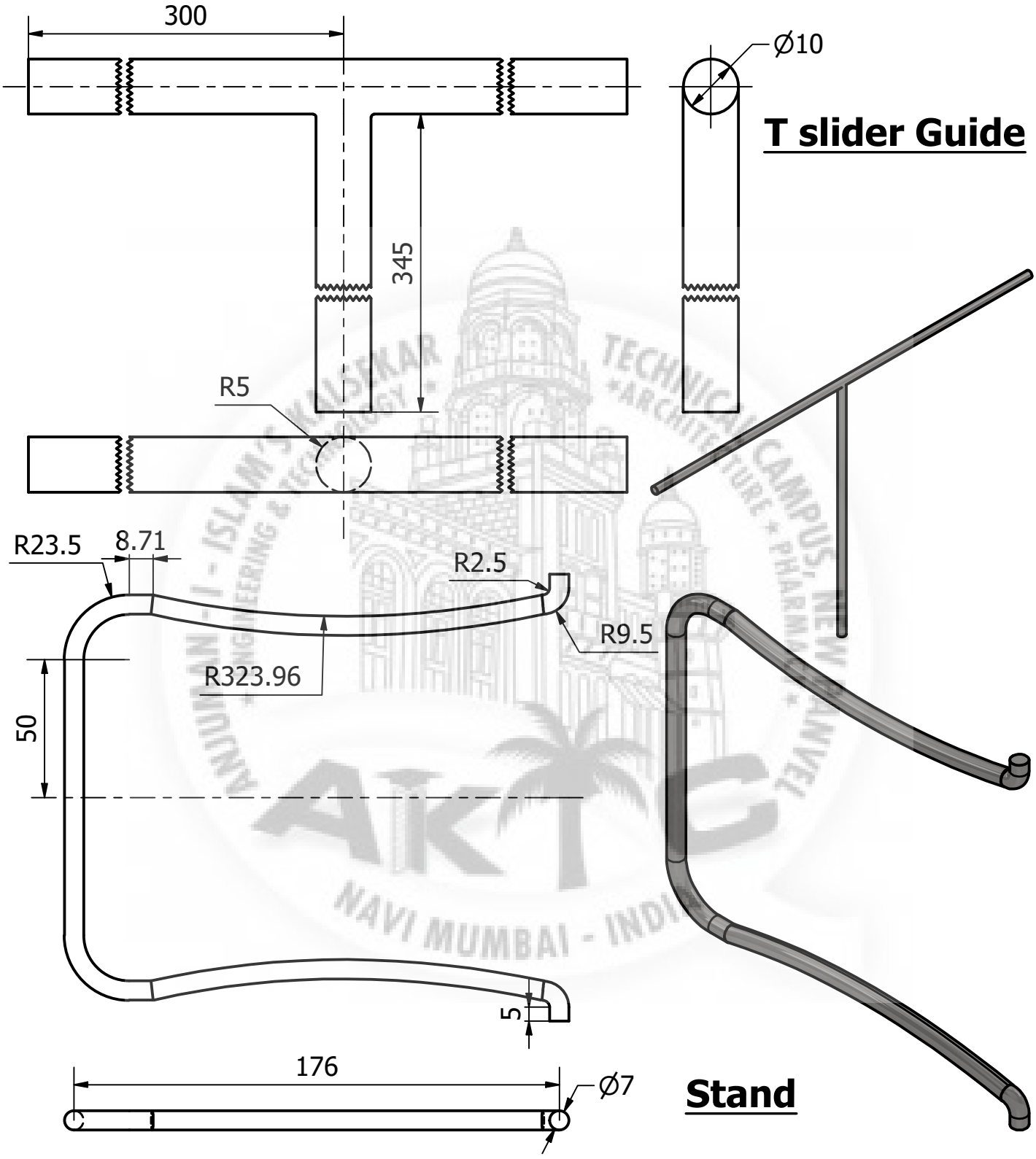
| | | 12 / 16 |

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | T Slider Guid | Stainless Steel |
| 2 | 1 | Stand | Stainless Steel |




**T slider Guide**

**Stand**

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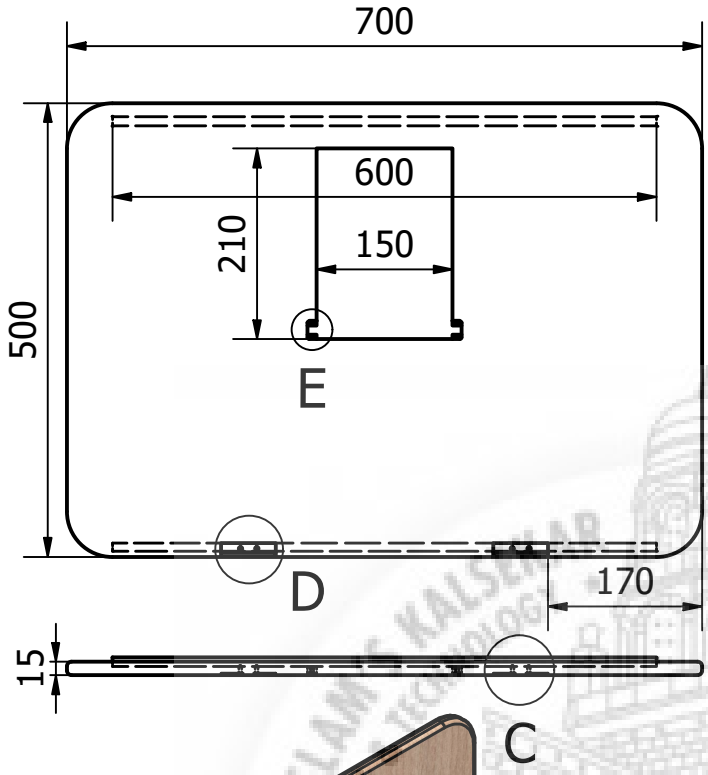
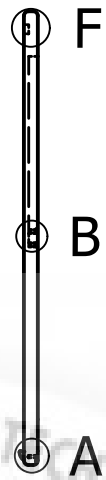
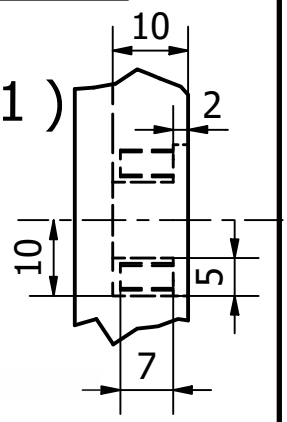
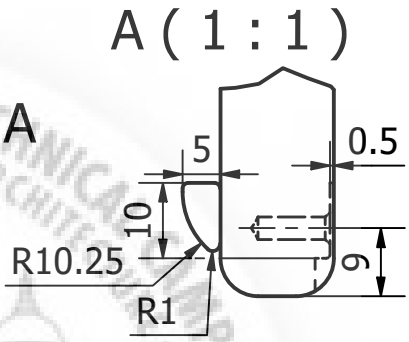
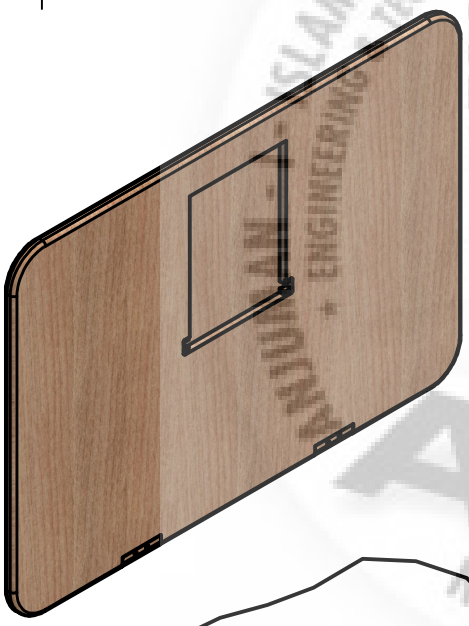
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | Top Desk | Wood (Birch) |

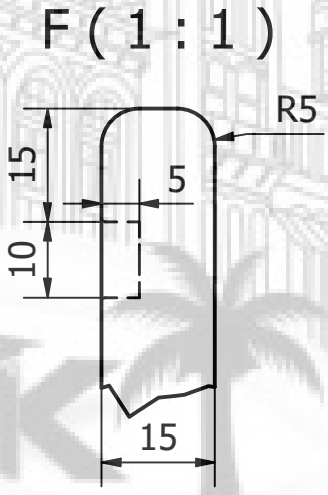


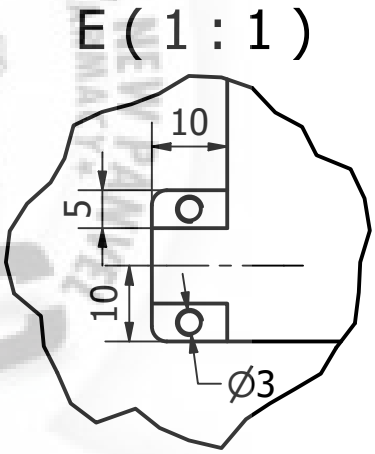



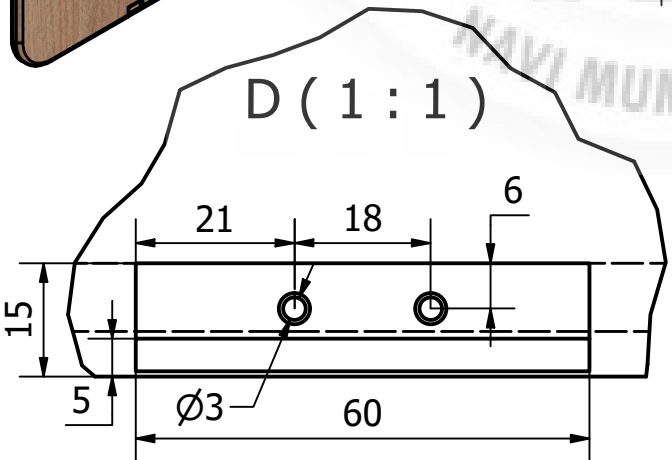



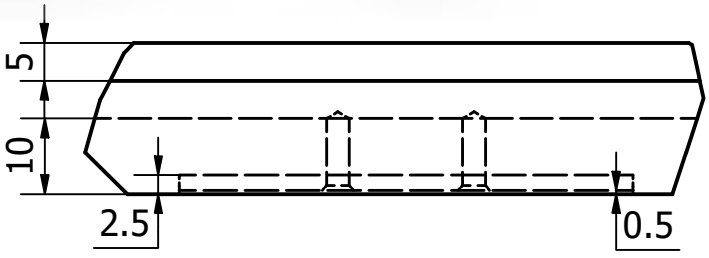



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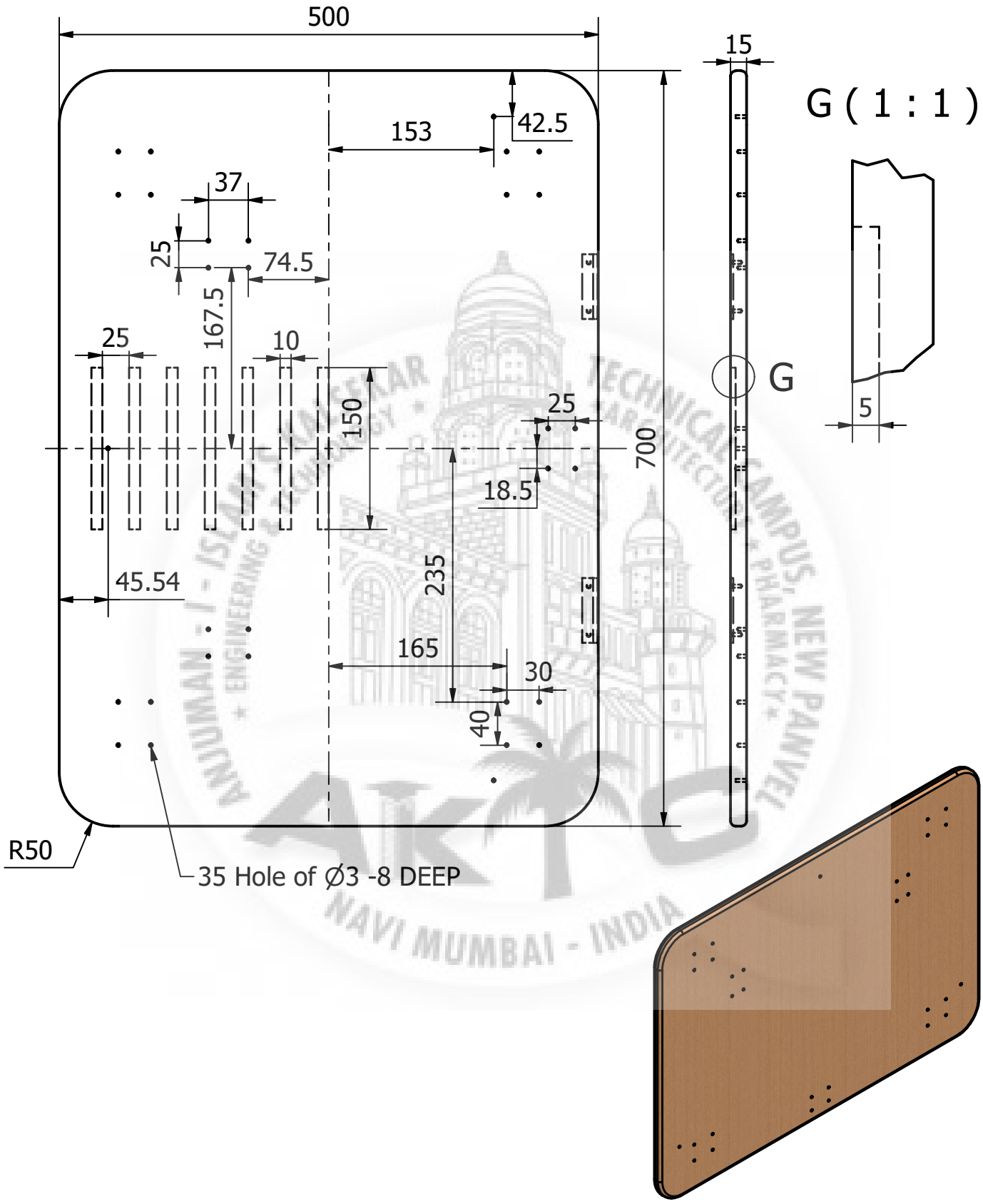
| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | MATERIAL |
| 1 | 1 | Lower Dsak Support | Wood (Cherry) |



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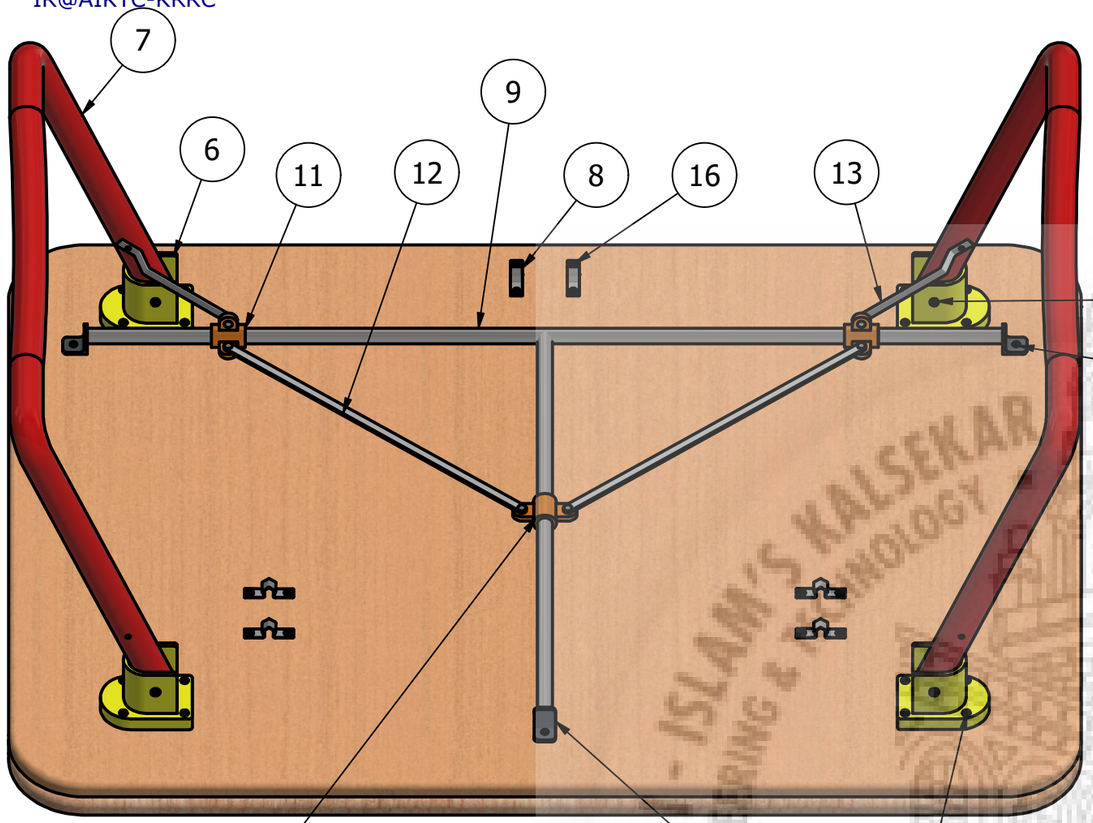


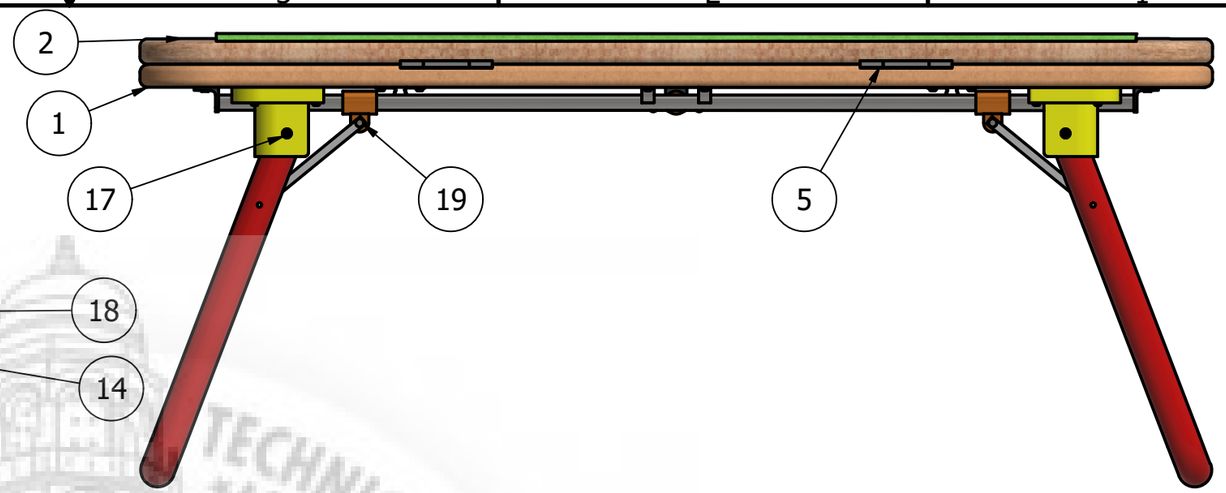


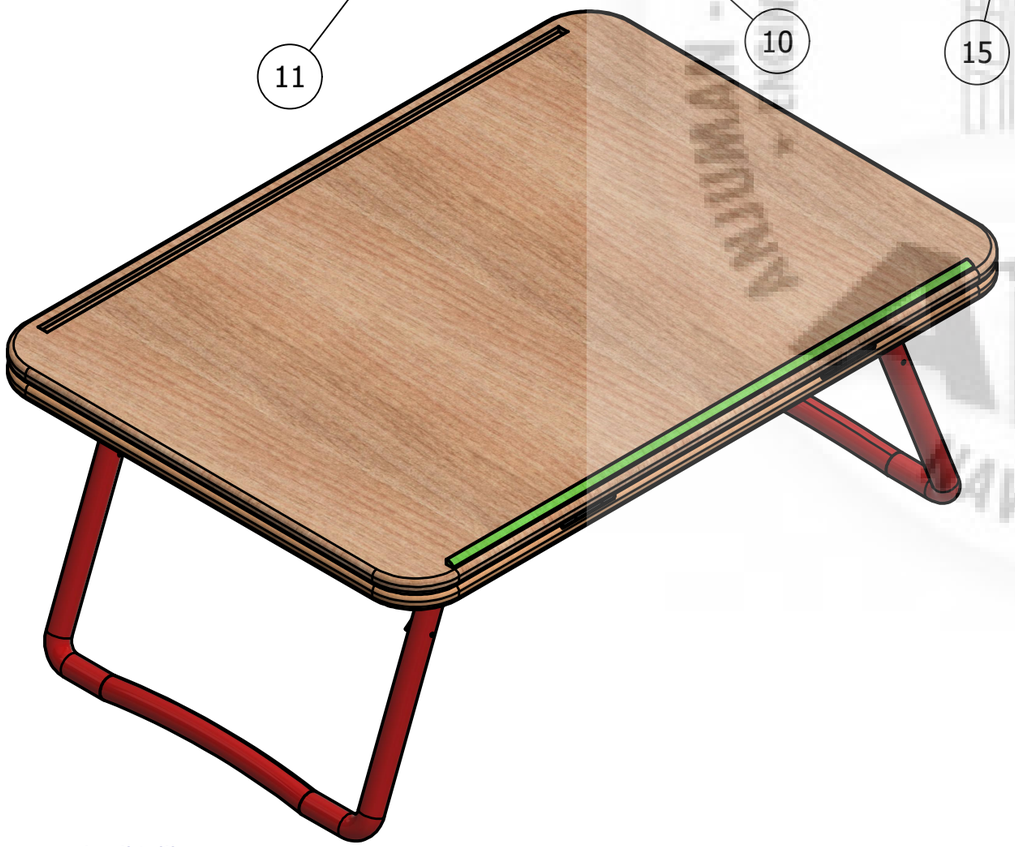


PARTS LIST

| ITEM | QTY | PART NUMBER | MATERIAL |
|---|---|---|---|
| 1 | 1 | Desk Support | Wood |
| 2 | 1 | Desk | Wood |
| 3 | 2 | Stand Holder | Stainless Steel |
| 4 | 1 | Stand | Steel, Carbon |
| 5 | 2 | Hinge 1 | Stainless Steel |
| 6 | 4 | Leg Holder | PBT Plastic |
| 7 | 2 | Table Leg | PVC, Unplasticized |
| 8 | 6 | Fastlock (Male) | Stainless Steel |
| 9 | 1 | T Slider Guid | Stainless Steel |
| 10 | 3 | Slider Holder | Iron, Cast |
| 11 | 3 | Slider | Gold |
| 12 | 2 | Link 1 | Generic |
| 13 | 2 | Link 2 | Generic |
| 14 | 3 | AS 1427 - M2.5 x 8 | Steel, Mild |
| 15 | 16 | AS 1427 - M2.5 x 16 | Steel, Mild |
| 16 | 12 | AS 1427 - M2.5 x 5 | Steel, Mild |
| 17 | 4 | ANSI B18.6.3 - No. 4 - 40 - 1 1/4, CRBHMSTII(2) | Steel, Mild |
| 18 | 4 | ASME B18.6.3 - 2-56 | Steel, Mild |
| 19 | 6 | BS 4620 - 3 x 12 | Steel, Mild |

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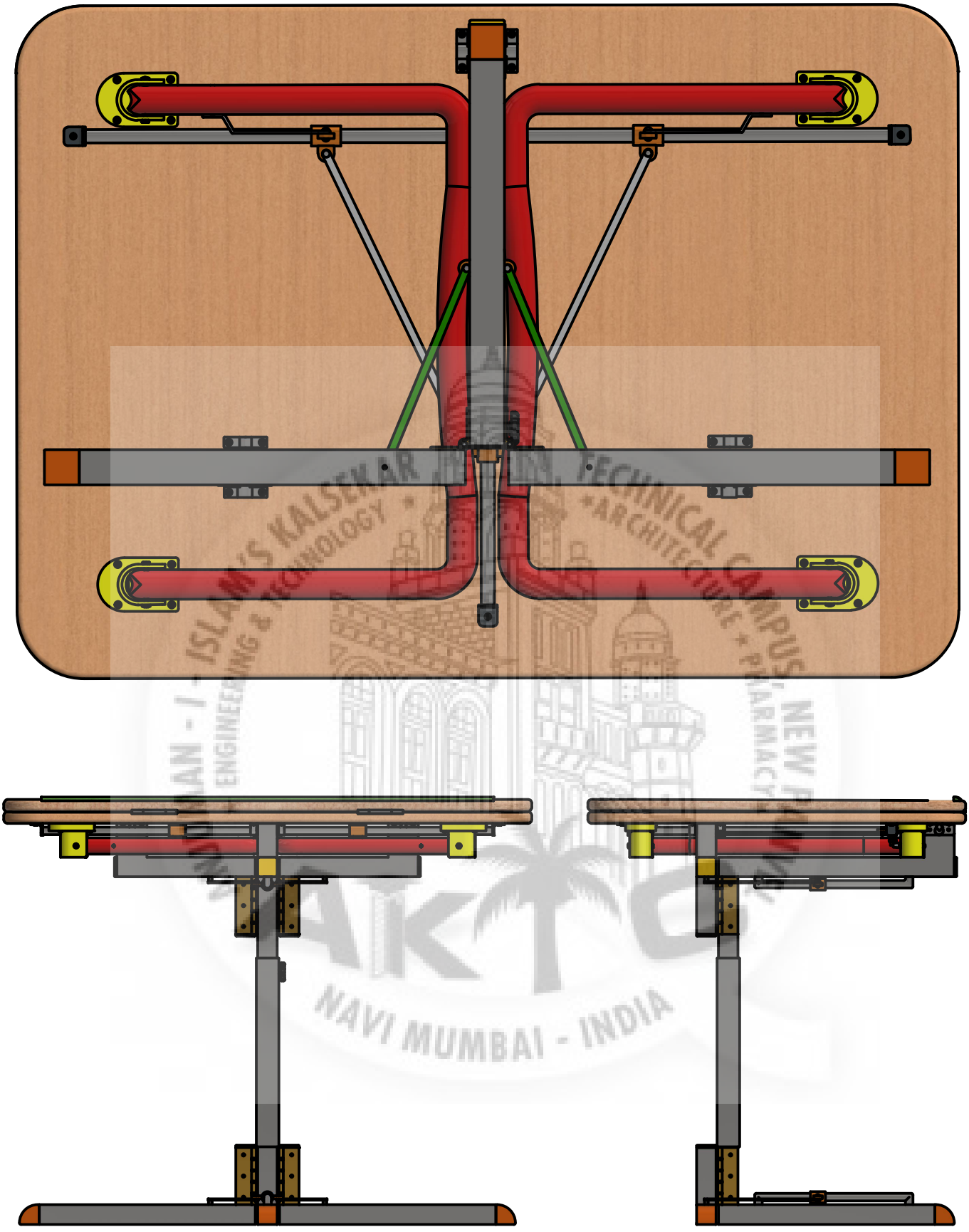

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| Product | | Edition | Sheet 2 / 3 |

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| Product | | Edition | Sheet 3 / 3 |

# CHAPTER 06

## CONCLUSION:

Nowadays the most common activities in our home are working with laptop whole day. Younger to learn how to use them since they are very young at their age. But this fact that looks an advantage, also has his disadvantages. It is not a good idea if we take into account working professional's health. The misuse and take a bad position while sitting in front of this technologies can seriously damages the new generation health because of working from home.

This new ergonomic desk is my response to the problems that normal desks can produce. It is a new product that fits on the market and clearly differentiate it for the others. It is distinguished by its characteristic pneumatic adjustable system, drawer and tilted computer support. It is innovative, collaborative, durable and designed for modern environments.

In order to develop this product, it would be necessary to test it with the final user after producing some real desks in order to observe the interaction between the user and the product and evaluate its effectiveness and find possible problems of it.

## FUTURE SCOPE

As the product which we are designing is ergonomically and aesthetically designed hence the product would be reliable according to user preference. The designing of product has ability of compactness due to which it is easy to fold and unfold due to the folding mechanism we have added to the design that can be used by every age group people according to their usage.

It doesn't require more space as the product is compact and best for small homes. In future as we all know work from home will be preferred by most of the companies and most of the people are going to work from home hence our product would much helpful in such kind of scenario. As the product is designed according to aesthetic and ergonomic requirements it will help to maintain their health condition because sometime body posture can cause health issues if that are not maintained.

The product that we are designing will be analyzed with different material to check the best preferred material according to day-to-day requirements of user and one of the best features is the price of the table is affordable comparing to other similar kind of products that are available in market

**The Future of Ergonomic Office Seating:** Today, one can find a wide array of table reflecting the current understanding of ergonomic experts and designers as how to best support traditional office tasks. But office work is changing. Traditional jobs involving only one primary, forward oriented task is giving way to new approaches to work and a wide variety of task postures and positions. This white paper addresses five related issues:

a. The importance of ergonomic seating.
b. How do we sit?
c. What research tells us about table designs.
d. What a table should do?
e. The future of ergonomic of compact tables.

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