YOU ARE ENTERING MY

DESIGN ARENA

Beisil Benny

Hi,

My name is Beisil Benny and I'm a Mechanical Engineering graduate from Kerala Technological University.

I am a dedicated and innovative Mechanical Engineer with a passion for designing and improving mechanical systems. With a strong background in mechanical design, thermal systems, and materials science, I strive to create solutions that are both efficient and sustainable.

I have extensive experience in the mechanical engineering field, having worked on a variety of projects ranging from the design of complex machinery. My work has involved collaboration with cross-functional teams to bring innovative ideas from concept to reality.

CONTACT

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PERSONAL DETAILS

- Date of Birth : 10 February 2000
- Gender : Male
- Marital Status : Single
- Nationality : Indian

SKILLS

AutoCAD - 2D | Solidworks - Part Design, Modeling, Assembly | Ansys - Static Structural Analysis

PROJECTS

- Designed and developed a demonstration model of Aqua Filter Bin
- Designed and Analysed Tractor Model
- Design and Analysis of differential gear box
- 3D model of ASUS Laptop
- Modelled a mini Bobcat
- Designed a Pen with scale
- Designed a multipurpose hammer

AREAS OF INTEREST

Design and Manufacturing | Automobile | Part Design | Modeling | Analysis | 3D Design

ACADEMIC DETAILS

B.TECH - MECHANICAL ENGINEERING
7.4 CGPA | A.P.J Abdul Kalam Technological University | August 2018 - July 2022
Amal Jyothi College of Engineering, Kanjirapally

HIGHER SECONDARY EDUCATION
87% | Kerala DHSE | 2018
St. Thomas H.S.S, Erumely

SECONDARY EDUCATION
98% | Kerala SSLC | 2016
St. Mary's H.S, Umikuppa

INTERNSHIPS AND WORKSHOPS

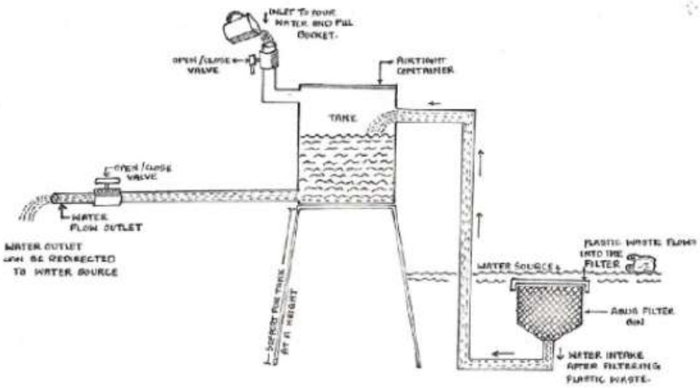
- Study on Various Container Handling Equipment | Intern | 10 days | October 2021 | Jawaharlal Nehru Port Trust | Navi Mumbai
- Tractor Design Competition Workshop | 2 days | February 2020 | Bannari Amman Institute of Technology | Sathyamangalam
- Project-based Training Program on Automobile Prototyping | 2 days | January 2020 | Skyfi labs | Amrita Vishw Vidhyapeetham | Kollam
- Intership Programme on AutoCAD | 5 days | July 2019 | Pace Lab, Kochi | The Institution of Engineering and Technology, Kerala | CET | Trivandrum

ACHIEVEMENTS

- Swachhta Saarthi Fellowship (SSF) 2021 | June 2021 | Waste to Wealth Mission | The Office of the Principal Scientific Adviser to the Government of India | Invest India
- Participated in the Second Level Evaluation of Young Innovators Program (YIP 2020) | June 2021 | Kerala Development and Innovation Strategic Council
- AICERA (Annual International Conference on Emerging Research Areas) 2019 | Volunteer | 2019
- Club Torero | AJCE Technical Club | Active member | 2019 - 2022
- Design Practice | NPTEL course | February - April 2022 | Indian Institute of Technology, Kanpur | Silver Medalist | 76%
- Association of Mechanical Engineering (AME) | AJCE | Active member | 2018 - 2022
- Society of Energy Engineers and Managers SEEM Student Chapter | AJCE | Active member | 2019 - 2022

AQUA FILTER BIN

The use of the sea Filter Bin offers a ray of hope in the quest for cleaning water bodies. Since the oceans are key sources of nourishment and other necessities, there is a need to ensure they are clean so as to preserve different marine species that dwell in them. Aqua Filter Bin is aimed at achieving this purpose and help make sure that our seas remain clean.

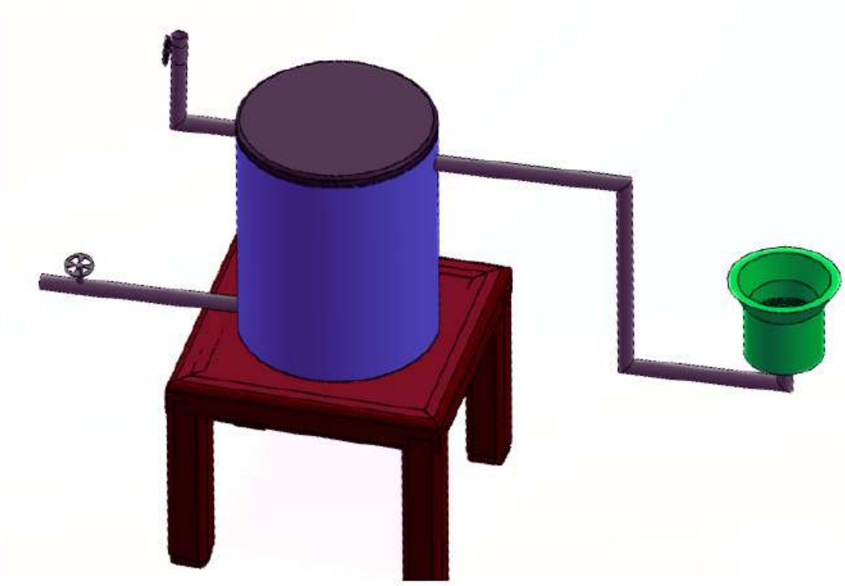


FINAL PRODUCT

The diagram illustrates a water filtration system designed to remove plastic waste. The main components are,

- Inlet Valve and Funnel
- Airtight Container (Tank)
- Stand
- Water Flow Outlet
- Filter Bin (Aqua Filter Bin)

SOLIDWORK 3D MODEL OF AQUA FILTER BIN

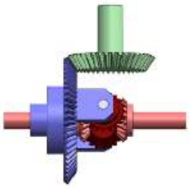


FINAL RENDER

Cross Section of Filter

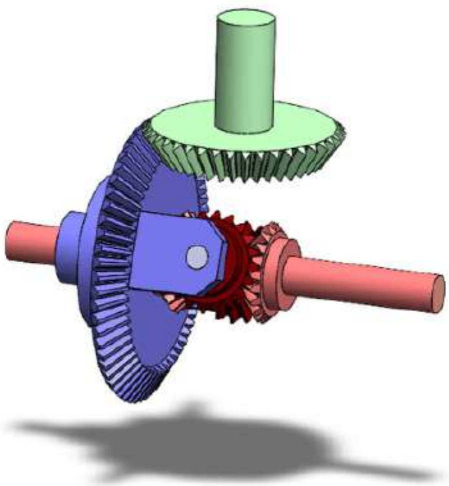
DIFFERENTIAL GEAR BOX

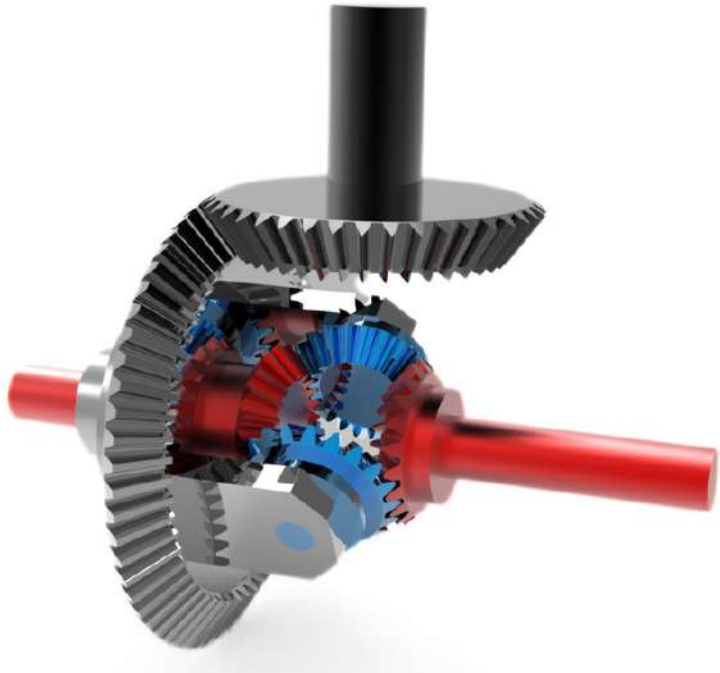
The differential is a critical component of a vehicle because it is responsible for transferring engine power to the wheels. In this work, straight bevel gears are employed to create the differential. The bevel gears are used to transmit power between two shafts whose axes cross at a given angle at a fixed velocity ratio.



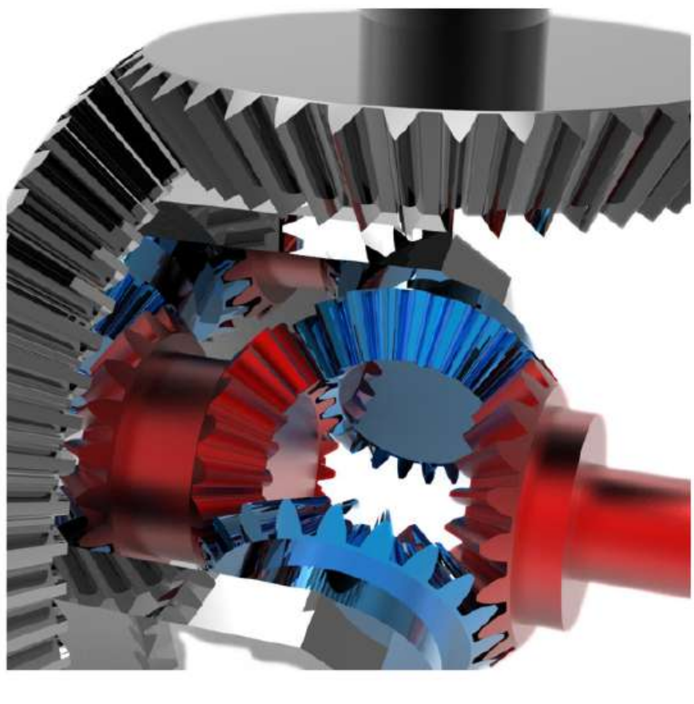
DESIGN CONSIDERATIONS

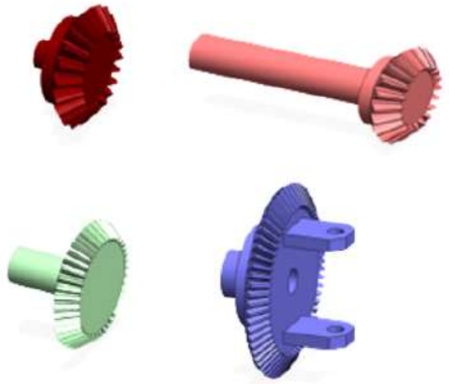
- Vehicle : SUV
- Maximum power : 147 BHP @4000rpm
- Maximum Torque : 320 Nm @1500-3000rpm
- Maximum speed : 165 kmph





FINAL RENDERD IMAGE ALONG WITH THE 3D MODEL MADE USING SOLIDWORKS



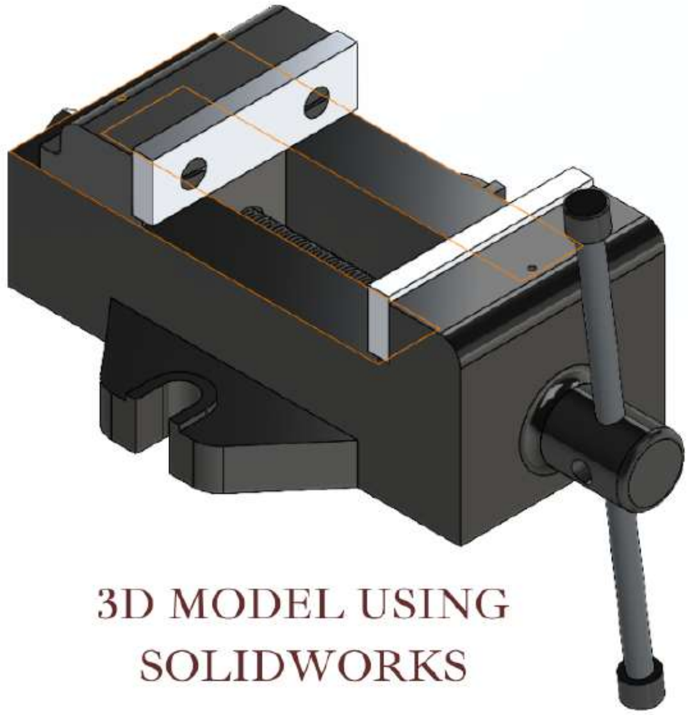


PRECISION BENCH-VICE DESIGN IN SOLIDWORKS

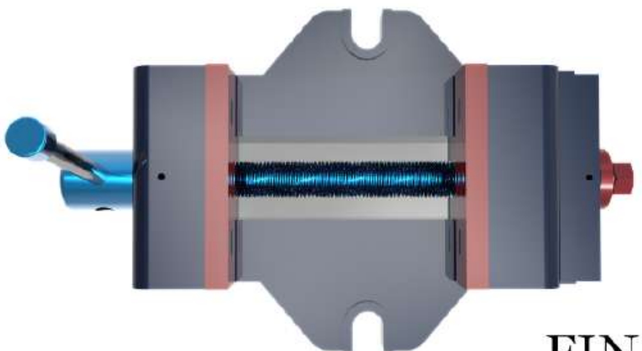
In this project, I designed a precision Bench-Vice using SolidWorks, a leading CAD software. The vise is a critical tool in machining processes, used to hold objects securely in place while operations like drilling, milling, or grinding are performed.

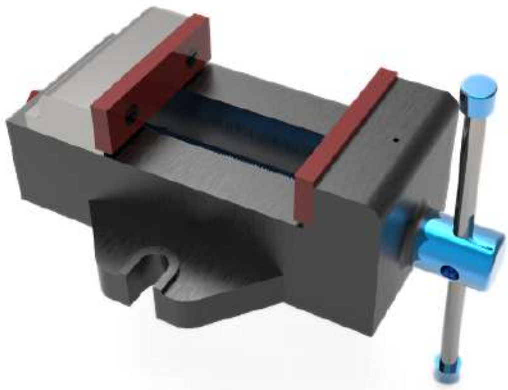
Key Features:

1. Solid Model: The design includes a detailed solid model of the vise, showcasing all components and assembly.
2. Functionality: The vise features a robust clamping mechanism to ensure a firm grip on the workpiece.
3. Material Selection: Suitable materials were chosen for durability and strength, essential for machining operations.
4. Assembly and Simulation: The project includes the assembly of different parts and a basic simulation to ensure proper functionality

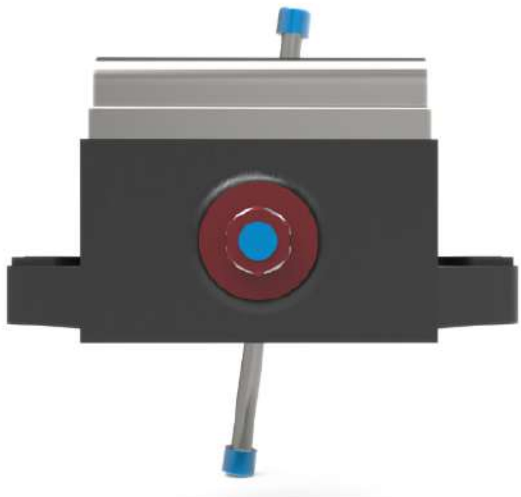


3D MODEL USING SOLIDWORKS





FINAL RENDERED IMAGES



PEN WITH RETRACTABLE SCALE

+

→ IDEA

Introducing the Pen with Retractable Scale, a versatile and practical tool designed for professionals, students, and anyone in need of a reliable writing instrument coupled with a handy measuring device. This innovative product seamlessly combines the functionalities of a high-quality pen and a precision scale, offering convenience and efficiency in one sleek package.

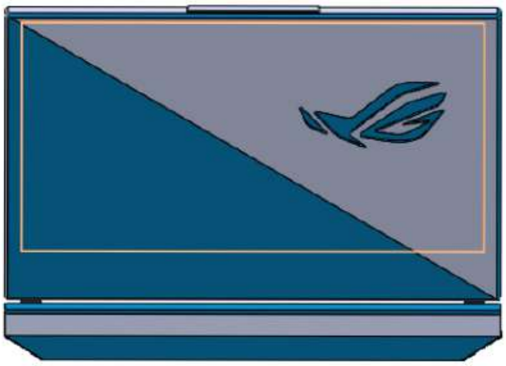
3D Model using Solidworks

Final Render

APPLICATIONS

- Education: Students can measure and take notes seamlessly during classes and exams.
- Engineering and Architecture: Professionals can quickly draft and measure dimensions on site.
- Everyday Use: Perfect for everyday tasks such as drawing, crafting, and general use around the office or home.

LAPTOP MODEL



This project showcases a **modern laptop designed using** SolidWorks, **focusing** on **both** aesthetics **and functionality**. The **sleek design features** a **full-sized ergonomic keyboard**, a large touchpad, **and** robust hinges for **durability**. **The** body is **made** of **high-quality** plastic with **a** matte **finish**, and the **laptop includes** various **connectivity ports** such as **USB**, **HDMI**, **and audio jacks**. **Through detailed 3D modeling** and **realistic rendering**, **this project highlights my skills in product design and 3D modeling.**

Final Renderd Images

Mustang Car Model Design

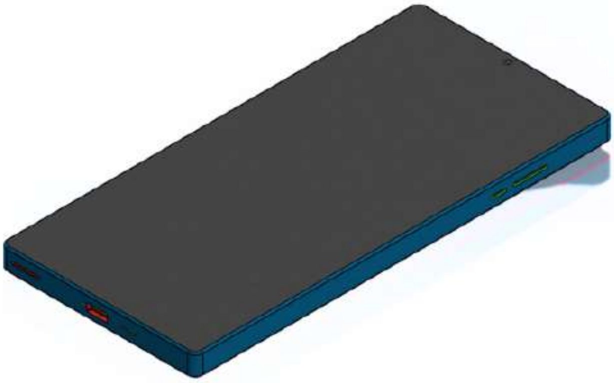
3D MODEL DONE IN SOLIDWORKS

This project showcases a detailed 3D model of a sports car, specifically a modified Ford Mustang, created using SolidWorks. The design features a sleek and aerodynamic body with distinctive elements such as a prominent rear spoiler, aggressive front fascia, and custom wheels. The color scheme combines matte black and red accents, enhancing the car's sporty and dynamic appearance. The model highlights advanced surface modeling techniques and attention to detail, demonstrating proficiency in using SolidWorks for complex automotive designs. This project exemplifies my ability to create realistic and intricate 3D models for engineering and design purposes.

The final render of the car showcases a high level of detail and realism, highlighting the capabilities in 3D design and rendering. The project demonstrates a comprehensive understanding of vehicle design, from the aerodynamic shape to the intricate details of the wheels and lights. The use of advanced rendering techniques has resulted in a polished and professional image that effectively communicates the concept. This project not only illustrates technical proficiency in using industry-standard software but also an eye for aesthetic balance and innovative design. The successful completion of this project underlines the ability to take a concept from initial sketches to a fully realized, high-quality 3D model, ready for presentation or further development.

FINAL RENDERED IMAGES

IQOO SMARTPHONE DESIGN

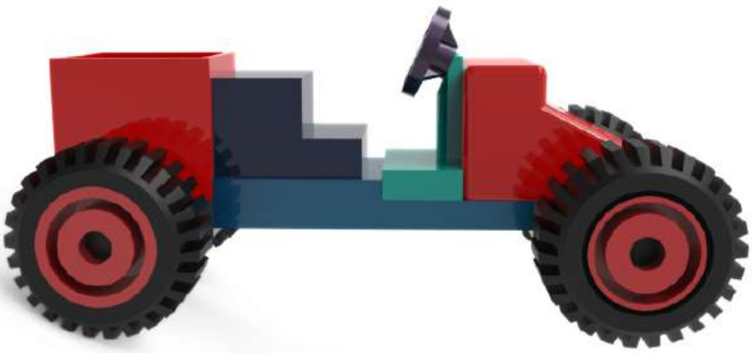


3D MODEL USING SOLIDWORKS

This project involved designing a modern smartphone using SolidWorks. Inspired by the sleek and minimalist design trends in the tech industry, the aim was to create a device that combines aesthetic appeal with functional innovation. The project started with brainstorming sessions and sketching out initial concepts. Various design iterations were created, refining the form factor, ergonomics, and user interface elements to achieve a balanced and user-friendly product.

One of the main challenges was ensuring that the design was both aesthetically pleasing and structurally sound. This was addressed by conducting stress analysis simulations in SolidWorks to ensure durability without compromising on design.The design aims to cater to tech-savvy consumers looking for a high-performance device with a premium look and feel. The innovative design features enhance the user experience, making it a competitive product in the smartphone market.This project has been a valuable experience, enhancing my skills in SolidWorks and providing insights into the complexities of product design. It demonstrates my ability to create functional and visually appealing designs, preparing me for future challenges in the field of industrial design.

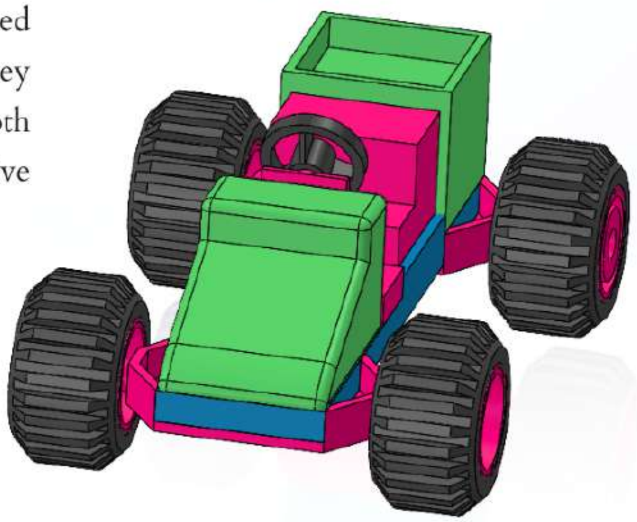
FINAL RENDERED IMAGES



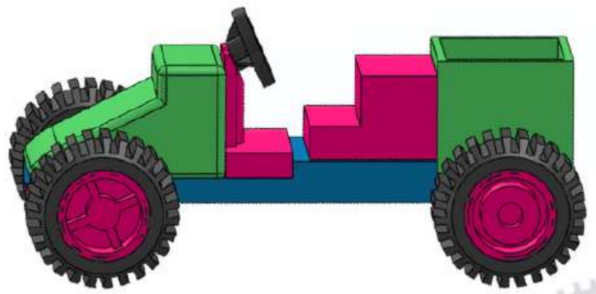
TOY CAR DESIGN

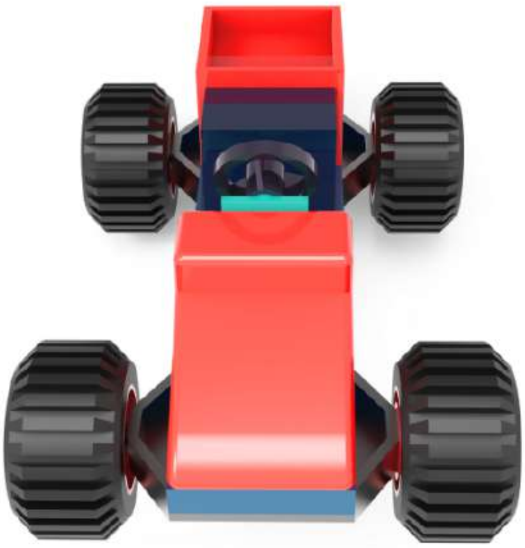
This project showcases a detailed design of a toy car created using SolidWorks. The model highlights various key components and their assembly, emphasizing both functionality and aesthetics. Below is a comprehensive description of the design elements and features.

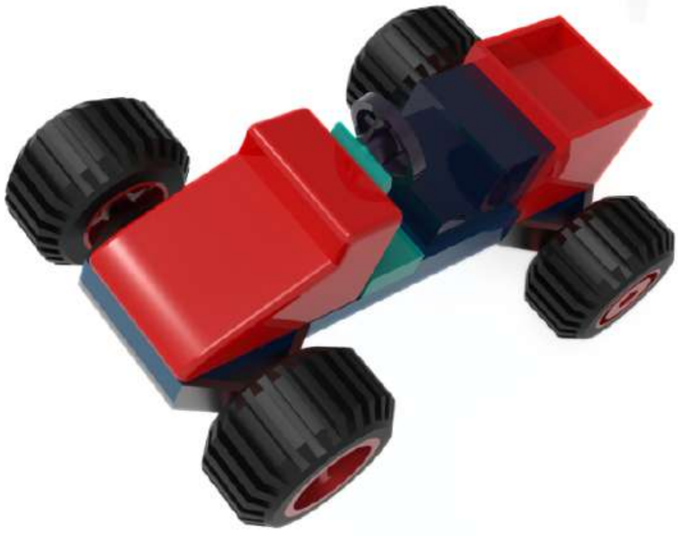
- The main body of the toy car is segmented into distinct parts, providing a clear layout of the design.
- The use of multiple colors for different parts enhances the visual understanding of the assembly.
- The car features four robust wheels with textured surfaces for better grip.
- The wheel design includes realistic treads, adding to the model's authenticity.
- A detailed steering wheel is included, showcasing the car's interactive components.
- The steering assembly is integrated with the front wheels, demonstrating the car's maneuverability.
- The car includes a designated seating area, making it suitable for toy figures.
- The back of the car features an open compartment, potentially for storage or additional design elements.



3D MODEL DONE IN SOLIDWORKS







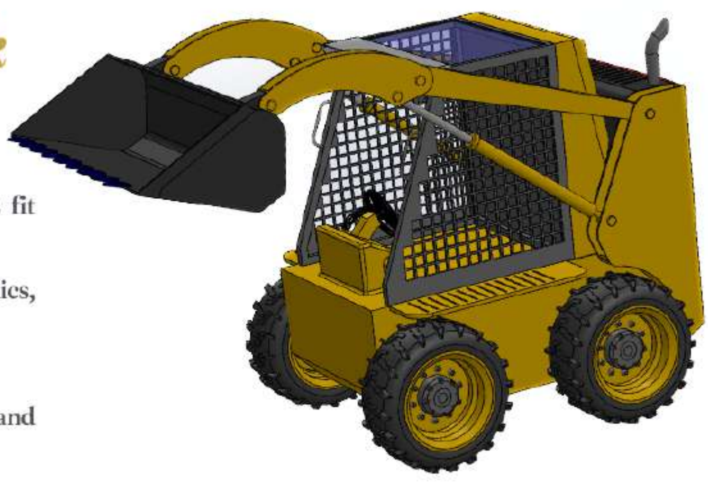
FINAL RENDERED IMAGES

Bobcat Loader

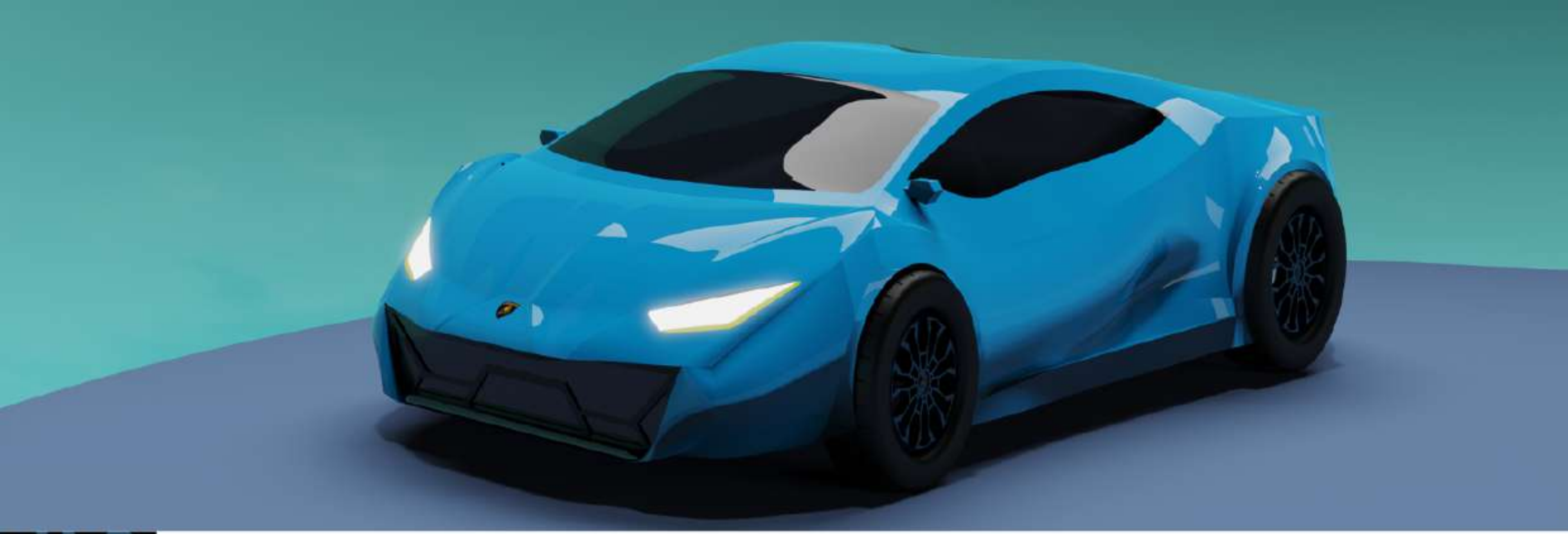
Designed this Bobcat loader using SolidWorks to demonstrate my proficiency in creating detailed and functional 3D models of heavy machinery. The Bobcat loader, known for its versatility and robust performance in various construction and agricultural tasks, provided an ideal subject for showcasing my design skills. This project involved a comprehensive design process, from initial concept sketches to detailed 3D modeling and realistic rendering. The focus was on achieving a balance between aesthetic appeal, mechanical functionality, and practical usability, ensuring that the design not only looks good but also performs effectively in real-world scenarios.

This Bobcat loader design project showcases my capability to create complex, functional machinery using SolidWorks. By focusing on both mechanical and aesthetic elements, I successfully designed a realistic and operational model. This project further developed my skills in 3D modeling, assembly, and rendering, preparing me for more advanced design challenges in the field of heavy machinery and equipment.

Achieving a Timelessly Elegant Look using Modeling Techniques;

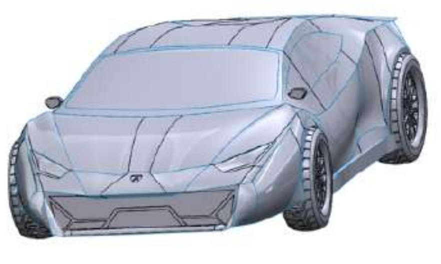


- Assembly modeling for the entire loader structure, ensuring all parts fit and work together.
- Detailed part design for individual components like the bucket, hydraulics, cab, and wheels.
- Surface modeling for smooth and precise contours.
- Realistic rendering for lifelike presentation, using advanced materials and lighting settings.

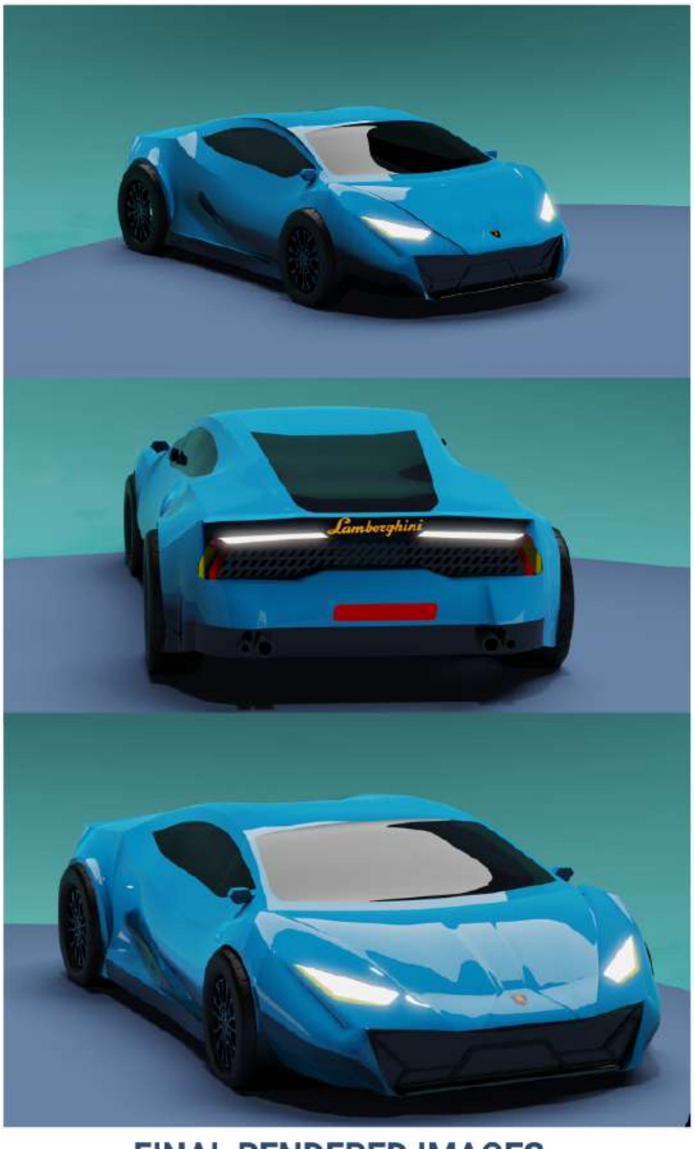


DESIGN OF LAMBORGHINI HURACAN

This project involved the detailed 3D modeling of a Lamborghini Huracan, focusing on capturing its signature aggressive and sleek design. Using advanced surface modeling techniques in SolidWorks, the car was meticulously recreated with attention to every curve, angle, and aerodynamic feature. The goal was to achieve a faithful representation of the Huracan's dynamic form, characterized by its sharp lines, low stance, and powerful silhouette, while emphasizing both aesthetics and aerodynamic performance.



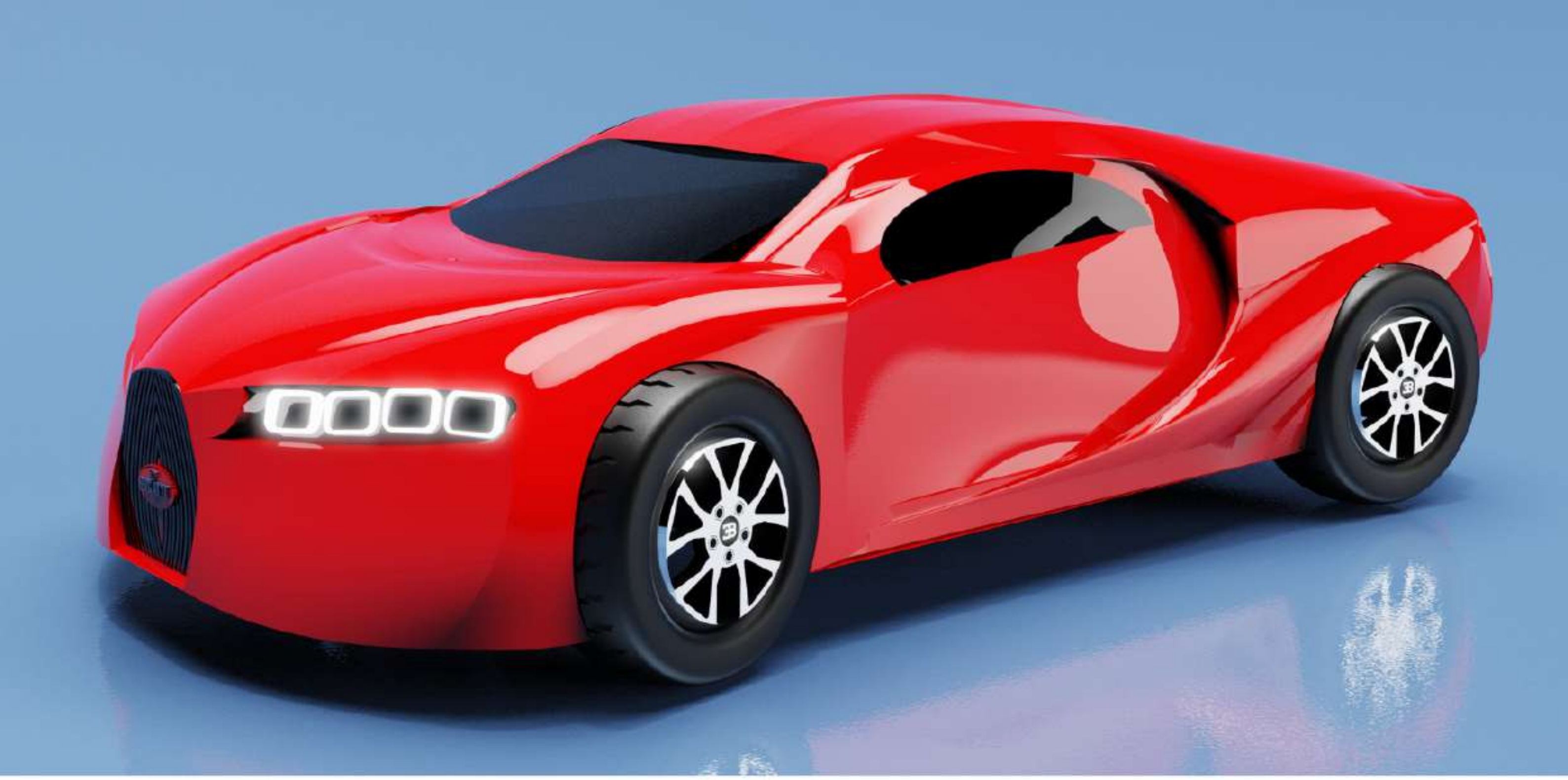
3D MODEL USING SOLIDWORKS



FINAL RENDERED IMAGES

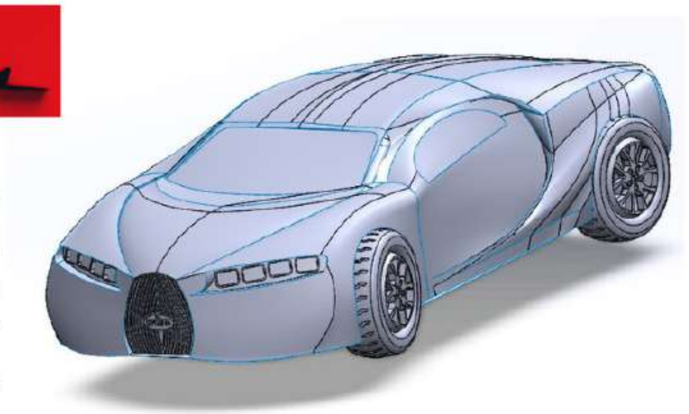
The modeling process began with defining the key profiles and splines that outline the Huracan's iconic shape. Advanced surface modeling tools such as lofts, sweeps, and boundary surfaces were used to accurately replicate the car's complex bodywork, from the sharp front splitter to the flowing side panels and rear diffuser. Special attention was given to maintaining curvature continuity across the surfaces, ensuring smooth transitions and precise alignment, which are critical for both the visual appeal and aerodynamic functionality of the car.

Once the model was completed, realistic rendering techniques were applied to bring the Lamborghini Huracan to life. Materials such as glossy paint, reflective glass, and matte rubber were carefully chosen to highlight the car's luxurious and high-performance character. The rendering environment was set up with controlled lighting to accentuate the sharp edges and smooth surfaces of the Huracan, creating a photorealistic visual representation.



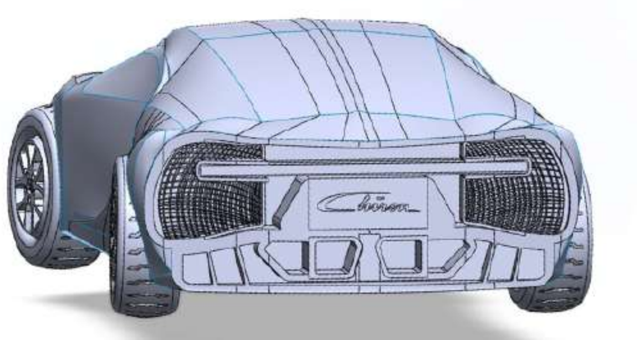
DESIGN OF BUGATTI

This project features a sleek, high-performance concept car modeled in SolidWorks using advanced surface modeling techniques. The design draws inspiration from the aerodynamic elegance of Bugatti vehicles, combining smooth curves with aggressive styling.



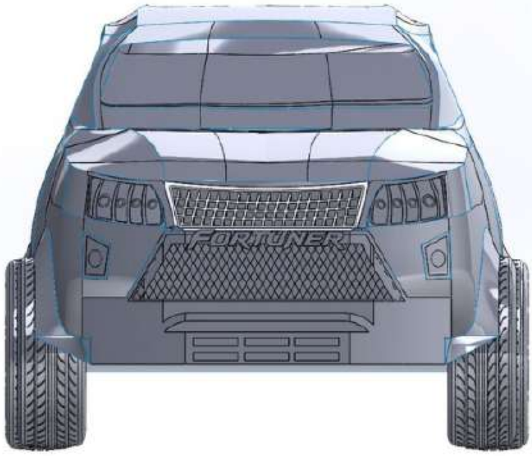
The final renders were created using KeyShot, highlighting the glossy red finish and detailed lighting effects. The project emphasizes both form and function, showcasing a futuristic design with fluid body lines and a bold front fascia, accentuated by signature LED headlight arrangements and refined rear light clusters. The car's distinct, dynamic contours reflect high-speed performance while maintaining a luxurious aesthetic.

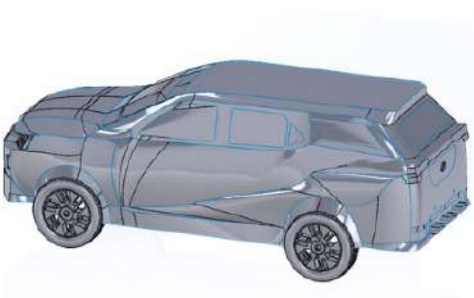
This project demonstrates proficiency in advanced surface modeling, attention to detail, and the ability to render high-quality, photo-realistic visuals. The design is not only a study in aesthetics but also explores practical considerations in automotive design such as aerodynamics and ergonomics.



SUV Concept Design

In this project, I developed a conceptual SUV model using advanced surface modeling techniques in SolidWorks, followed by high-quality rendering in KeyShot. The vehicle design draws inspiration from modern SUVs, with a particular focus on a sleek, futuristic aesthetic that balances both form and function. The project demonstrates expertise in surface modeling, attention to detail, and the ability to visualize and present a design with photorealistic renderings.

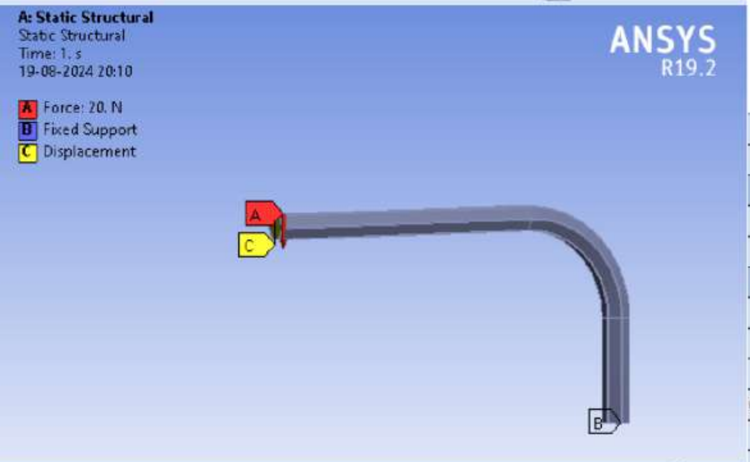


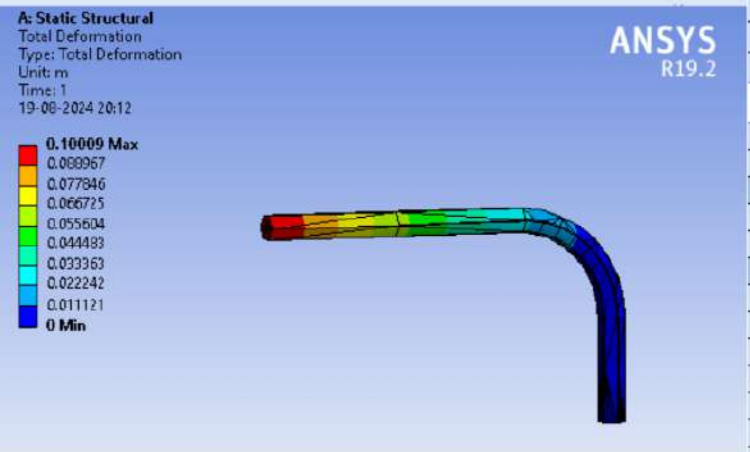


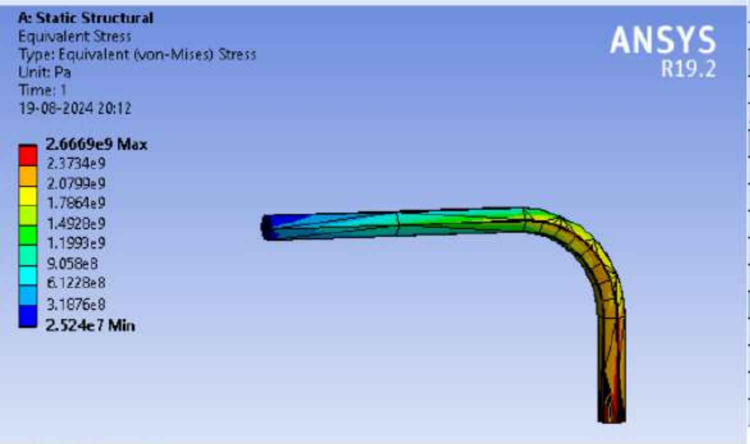
The front fascia showcases a bold grille and intricate headlight designs, contributing to the vehicle's commanding presence. The side profile emphasizes strong character lines, which enhance the sense of motion even when the vehicle is stationary. At the rear, the design maintains a consistent and modern aesthetic, with angular elements that mirror the front design cues. The overall form is a blend of functionality and style, making it suitable for both urban and off-road environments.

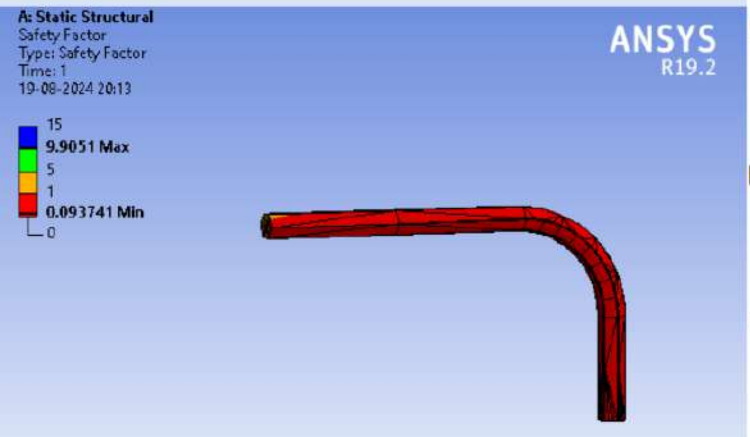
Achieving a Timelessly Elegant Look

After completing the design, the model was imported into KeyShot for rendering. High-quality materials and textures were applied to simulate realistic surfaces, and advanced lighting techniques were used to highlight the vehicle's shape and contours. The final renders provide a photorealistic view of the concept, showcasing the vehicle in various angles to highlight key design elements.









Project

Author	Beisil Benny
Subject	Static Structural Analysis of Allen Wrench
Prepared for	CAD Center

Model (A4) > Static Structural (A5) > Loads

Object Name	*Force*	*Fixed Support*	*Displacement*
State	Fully Defined		
Scope			
Scoping Method	Geometry Selection		
Geometry	1 Face		
Definition			
ID (Beta)	32	34	36
Type	Force	Fixed Support	Displacement
Define By	Components		Components
Coordinate System	Global Coordinate System		Global Coordinate System
X Component	0. N (ramped)		Free
Y Component	-20. N (ramped)		Free
Z Component	0. N (ramped)		-100. mm (ramped)
Suppressed	No		

Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Equivalent Stress*	*Total Deformation*	*Directional Deformation*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Equivalent (von-Mises) Stress	Total Deformation	Directional Deformation
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Orientation			X Axis
Coordinate System			Global Coordinate System
Integration Point Results			
Display Option	Averaged		
Average Across Bodies	No		
Results			
Minimum	0.91942 MPa	0. mm	-4.1549 mm
Maximum	3421.1 MPa	100.09 mm	4.0842 mm
Average	914.51 MPa	32.897 mm	-1.5755e-002 mm
Minimum Occurs On	Solid		
Maximum Occurs On	Solid		
Information			
Time	1. s		
Load Step	1		
Substep	1		
Iteration Number	1		

Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

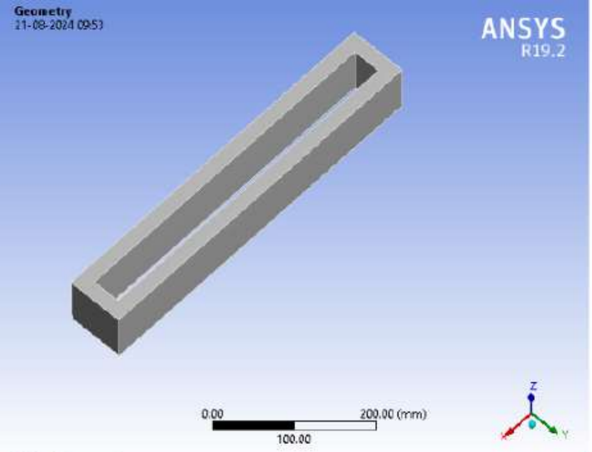
Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	100.09	32.897

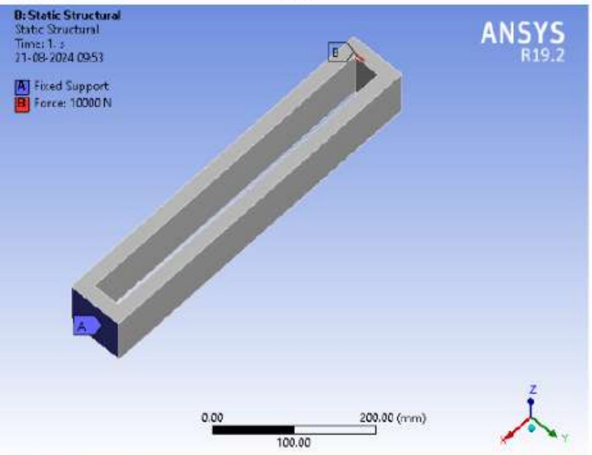
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

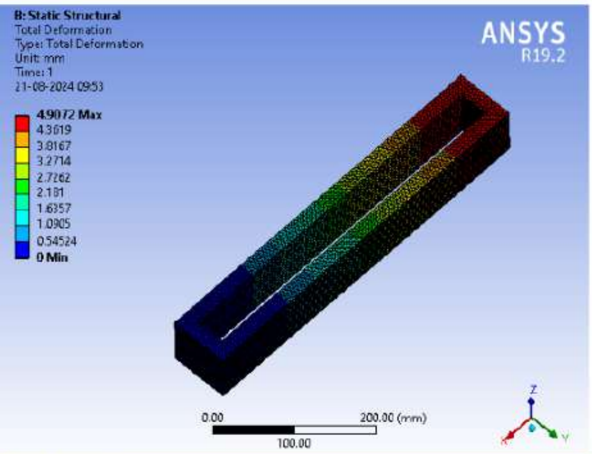
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	0.91942	3421.1	914.51

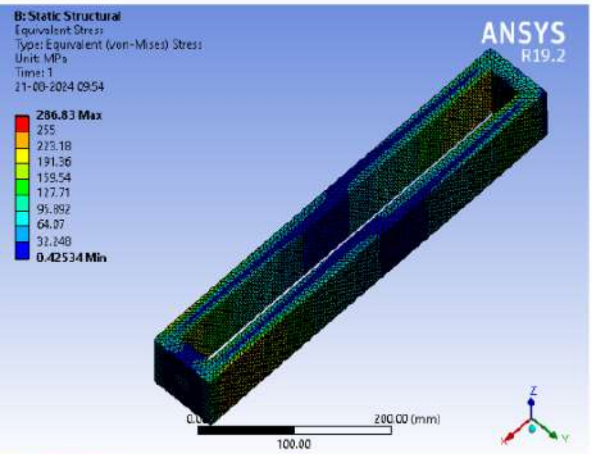
Model (A4) > Static Structural (A5) > Solution (A6) > Stress Tool > Safety Factor

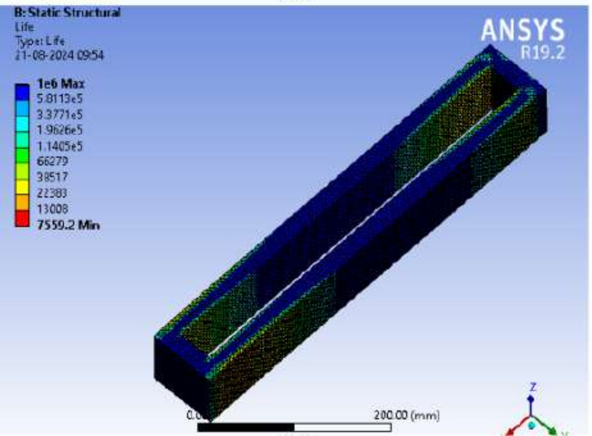
Time [s]	Minimum	Maximum	Average
1.	7.3075e-002	15.	0.73454











ANSYS®

Project

Author	Beisil Benny
Subject	Static Structural - Block
Prepared for	CAD Center

Model (B4) > Static Structural (B5) > Solution (B6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Total Deformation	Equivalent (von-Mises) Stress
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Results		
Minimum	0. mm	0.42534 MPa
Maximum	4.9072 mm	286.83 MPa
Average	2.3472 mm	78.213 MPa
Minimum Occurs On	Solid	
Maximum Occurs On	Solid	

Model (B4) > Static Structural (B5) > Solution (B6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	4.9072	2.3472

Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

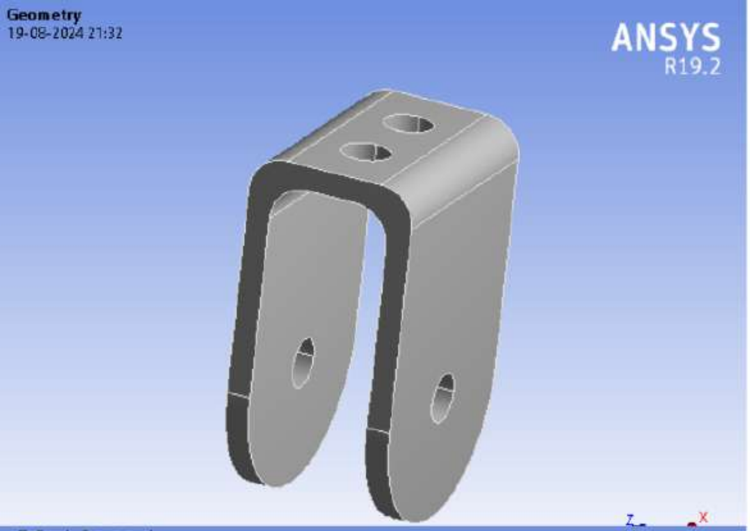
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	0.42534	286.83	78.213

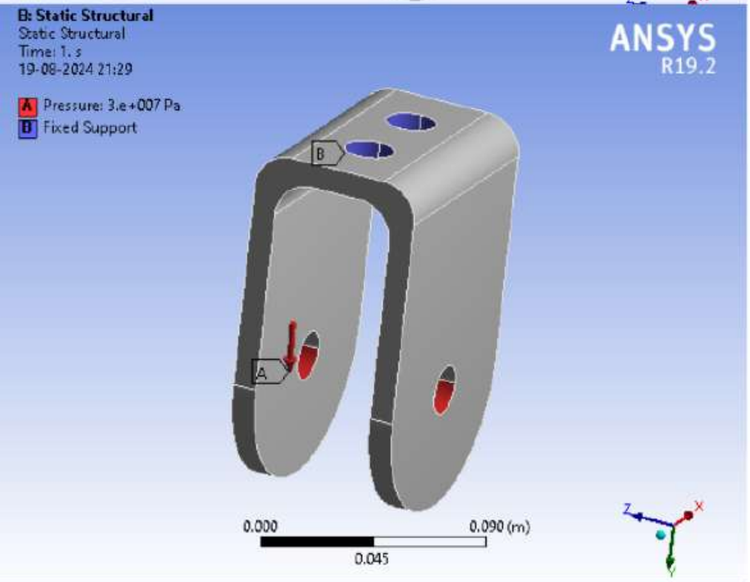
Model (B4) > Static Structural (B5) > Solution (B6) > Fatigue Tool > Results

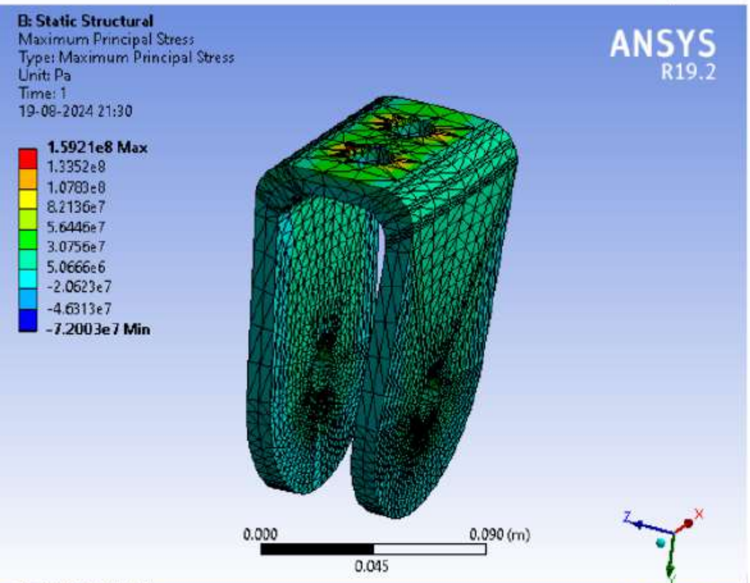
Object Name	*Life*	*Damage*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Life	Damage
Identifier		
Suppressed	No	
Design Life		1.e+009 cycles
Integration Point Results		
Average Across Bodies	No	
Results		
Minimum	7559.2 cycles	
Minimum Occurs On	Solid	
Maximum		1.3229e+005
Maximum Occurs On		Solid

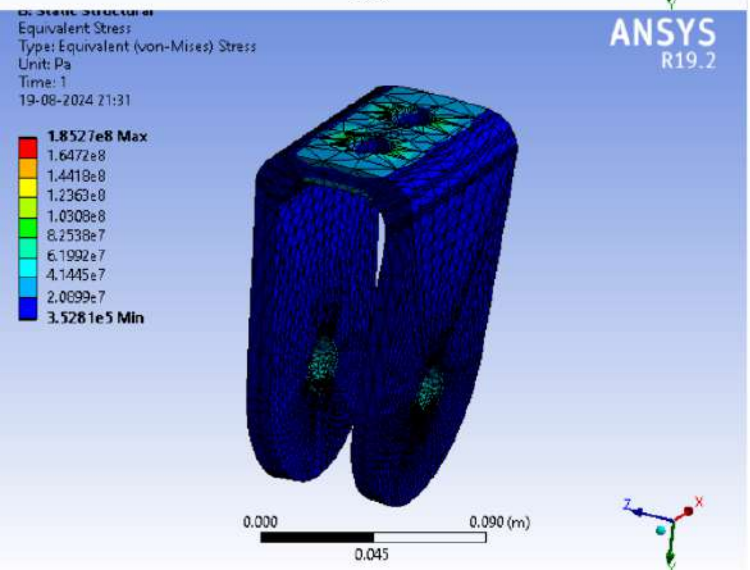
Model (B4) > Static Structural (B5) > Solution (B6) > Fatigue Tool > Life

Time [s]	Minimum	Maximum	Average
1.	7559.2	1.e+006	6.9992e+005









Project

Author	Beisil Benny
Subject	Static Structural - Steel Bracket
Prepared for	CAD Center

Model (B4) > Static Structural (B5) > Solution (B6) > Results

Object Name	*Maximum Principal Stress*	*Equivalent Stress*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Maximum Principal Stress	Equivalent (von-Mises) Stress
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Integration Point Results		
Display Option	Averaged	
Average Across Bodies	No	
Results		
Minimum	-72.003 MPa	0.35281 MPa
Maximum	159.21 MPa	185.27 MPa
Average	8.5261 MPa	13.677 MPa
Minimum Occurs On	Steel Bracket-FreeParts	
Maximum Occurs On	Steel Bracket-FreeParts	

Model (B4) > Static Structural (B5) > Solution (B6) > Equivalent Stress

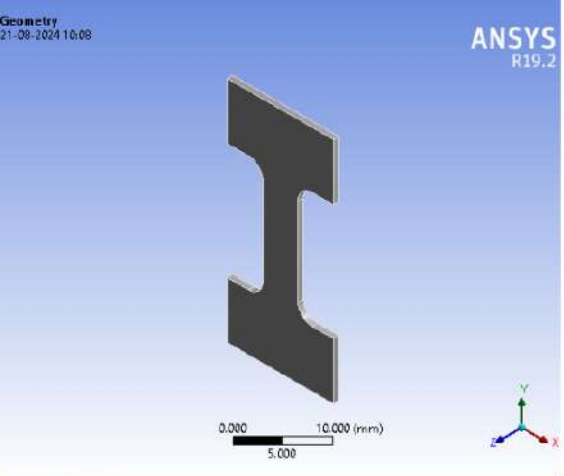
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	0.35281	185.27	13.677

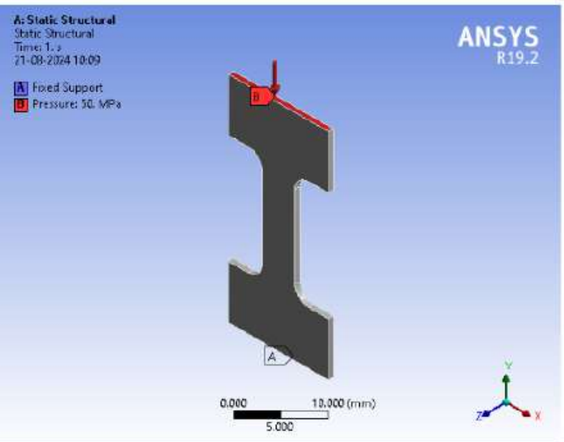
TABLE 15
Model (B4) > Static Structural (B5) > Solution (B6) > Stress Safety Tools

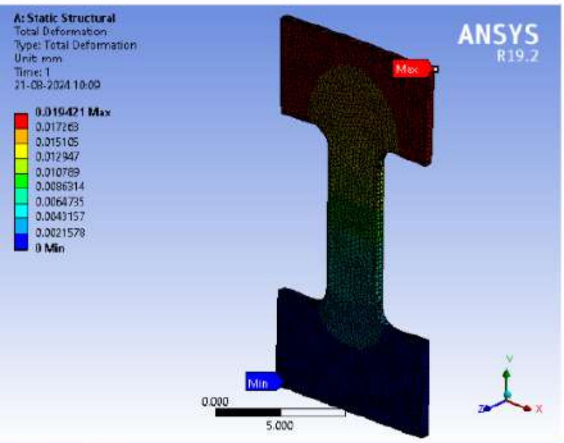
Object Name	*Stress Tool*
State	Solved
Definition	
Theory	Max Equivalent Stress
Stress Limit Type	Tensile Yield Per Material

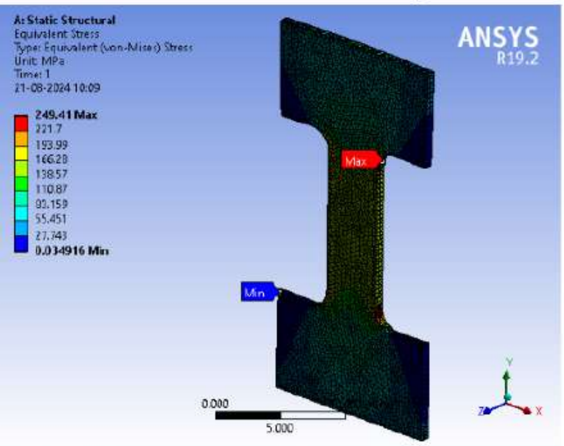
TABLE 16
Model (B4) > Static Structural (B5) > Solution (B6) > Stress Tool > Results

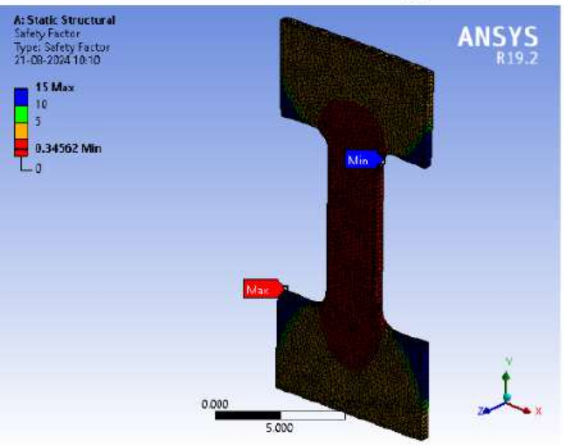
Object Name	*Safety Factor*	*Safety Margin*	*Stress Ratio*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Safety Factor	Safety Margin	Stress Ratio
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Integration Point Results			
Display Option	Averaged		
Average Across Bodies	No		
Results			
Minimum	1.3494	0.34938	1.4112e-003
Minimum Occurs On	Steel Bracket-FreeParts		
Maximum			0.74108
Average			5.4709e-002
Maximum Occurs On			Steel Bracket-FreeParts











Project

Author	Beisil Benny
Subject	Fatigue Analysis - I Section
Prepared for	CAD Center

Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Equivalent Stress*	*Total Deformation*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Equivalent (von-Mises) Stress	Total Deformation
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Integration Point Results		
Display Option	Averaged	
Average Across Bodies	No	
Results		
Minimum	3.4916e-002 MPa	0. mm
Maximum	249.41 MPa	1.9421e-002 mm
Average	79.19 MPa	9.2042e-003 mm
Minimum Occurs On	Solid	
Maximum Occurs On	Solid	

Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

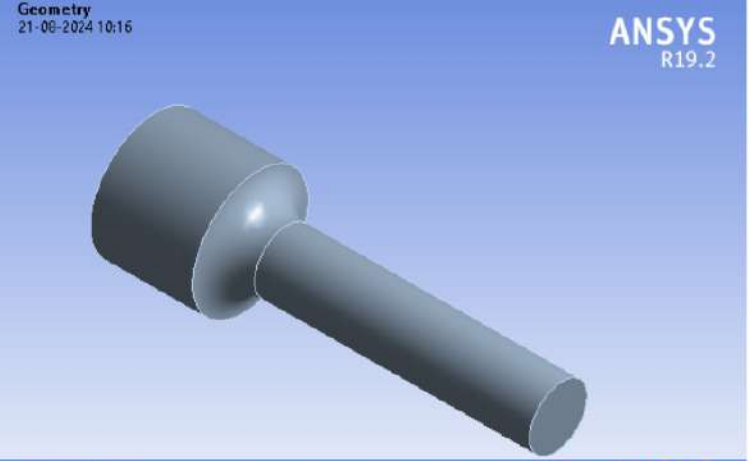
Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	1.9421e-002	9.2042e-003

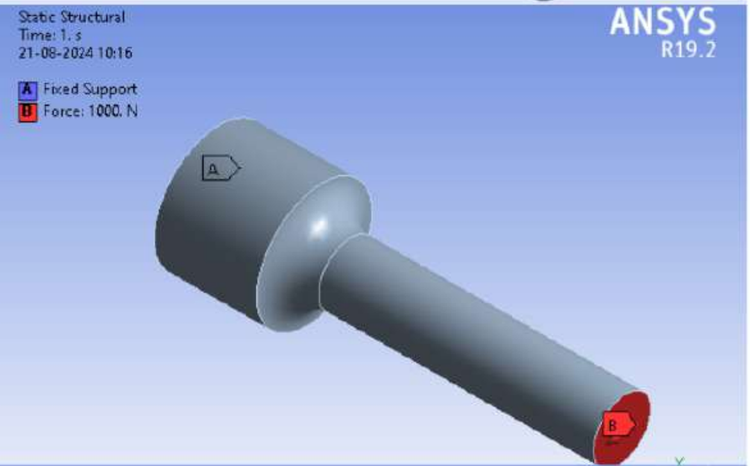
Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

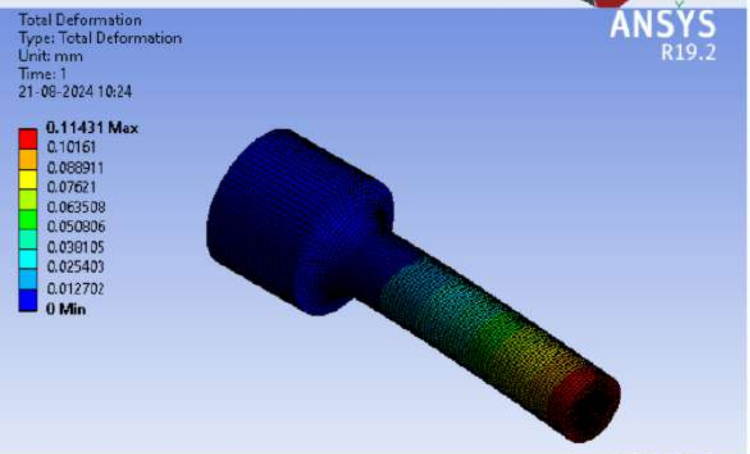
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	3.4916e-002	249.41	79.19

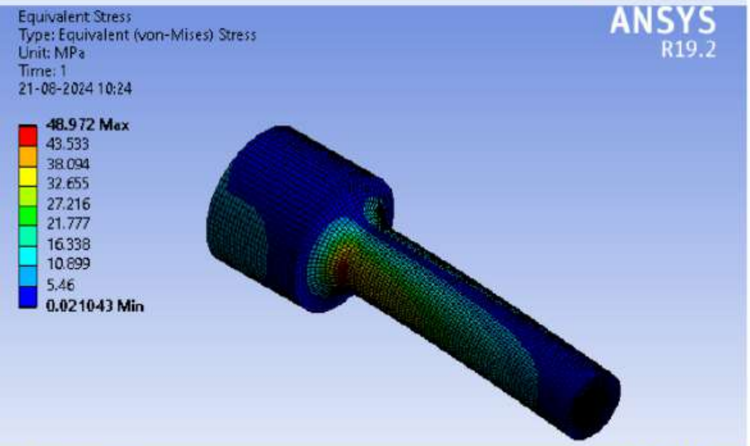
Model (A4) > Static Structural (A5) > Solution (A6) > Fatigue Tool > Result

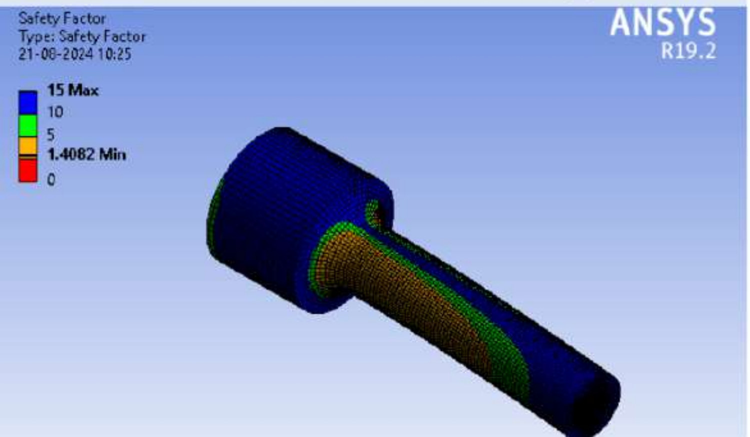
Object Name	*Life*	*Damage*	*Safety Factor*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Life	Damage	Safety Factor
Identifier			
Suppressed	No		
Design Life		1.e+009 cycles	
Integration Point Results			
Average Across Bodies	No		
Results			
Minimum	11838 cycles		0.34562
Minimum Occurs On	Solid		Solid
Maximum		84474	
Maximum Occurs On		Solid	











Project

Author	Beisil Benny
Subject	Static Structural Analysis of Allen Wrench
Prepared for	CAD Center

Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Equivalent Stress*	*Total Deformation*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Equivalent (von-Mises) Stress	Total Deformation
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Integration Point Results		
Display Option	Averaged	
Average Across Bodies	No	
Results		
Minimum	2.1043e-002 MPa	0. mm
Maximum	48.972 MPa	0.11431 mm
Average	7.2445 MPa	3.2104e-002 mm
Minimum Occurs On	Solid	
Maximum Occurs On	Solid	
Information		
Time	1. s	
Load Step	1	
Substep	1	
Iteration Number	1	

Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	0.11431	3.2104e-002

Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

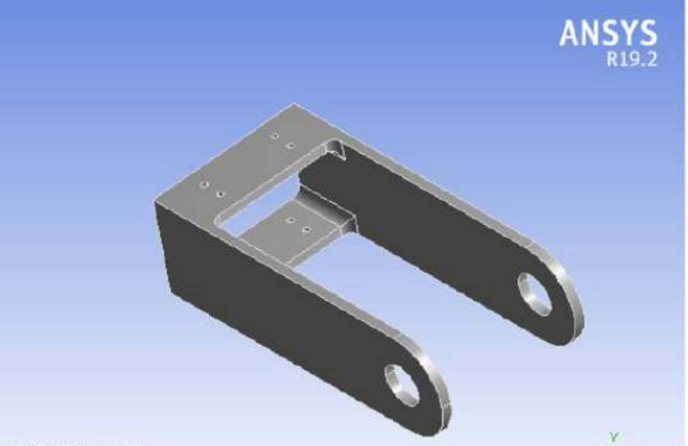
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	2.1043e-002	48.972	7.2445

Model (A4) > Static Structural (A5) > Solution (A6) > Fatigue Tool > Results

Object Name	*Life*	*Damage*	*Safety Factor*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Life	Damage	Safety Factor
Identifier			
Suppressed	No		
Design Life		1.e+009 cycles	
Integration Point Results			
Average Across Bodies	No		
Results			
Minimum	1.e+006 cycles		1.4082
Minimum Occurs On	Solid		Solid
Maximum		1000.	
Maximum Occurs On		Solid	

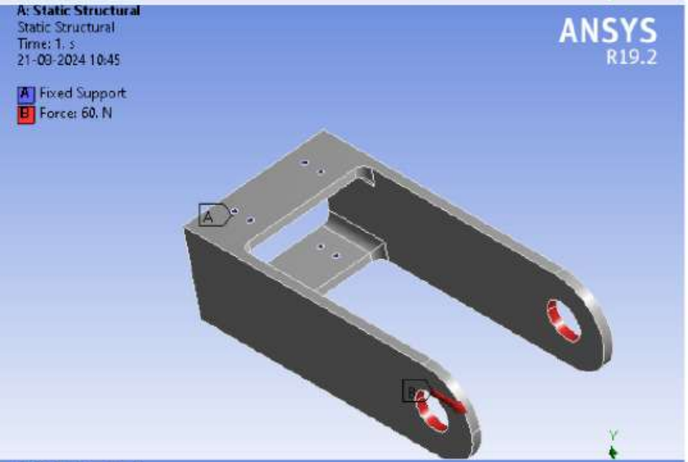
Model (A4) > Static Structural (A5) > Solution (A6) > Fatigue Tool > Safety Factor

Time [s]	Minimum	Maximum	Average
1.	1.4082	15.	11.259



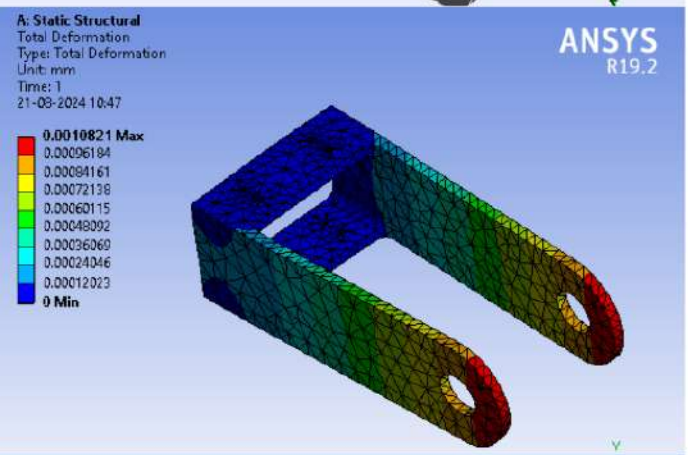
Project

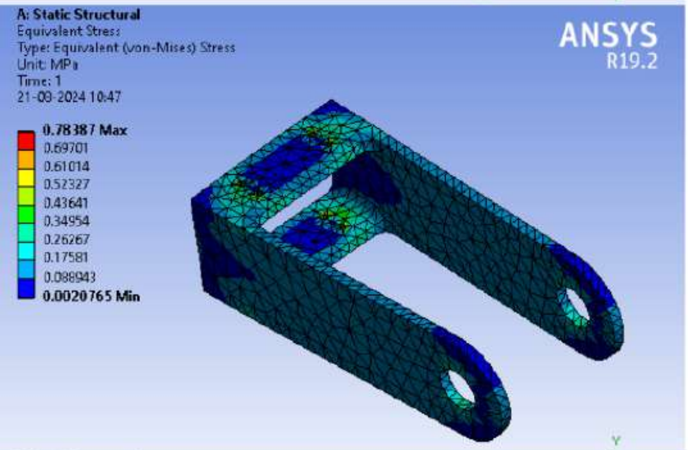
Author	Beisil Benny
Subject	Static Structural - Bracket
Prepared for	CAD Center



Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Maximum Principal Stress*	*Minimum Principal Stress*
State	Solved			
Scope				
Scoping Method	Geometry Selection			
Geometry	All Bodies			
Definition				
Type	Total Deformation	Equivalent (von-Mises) Stress	Maximum Principal Stress	Minimum Principal Stress
By	Time			
Display Time	Last			
Calculate Time History	Yes			
Identifier				
Suppressed	No			
Orientation				
Coordinate System				
Results				
Minimum	0. mm	2.0765e-003 MPa	-0.10277 MPa	-0.65044 MPa
Maximum	1.0821e-003 mm	0.78387 MPa	0.74008 MPa	0.12641 MPa
Average	3.1016e-004 mm	0.14888 MPa	0.10772 MPa	-5.2254e-002 MPa
Minimum Occurs On	Bracket-FreeParts			
Maximum Occurs On	Bracket-FreeParts			
Information				
Time	1. s			
Load Step	1			
Substep	1			
Iteration Number	1			
Integration Point Results				
Display Option		Averaged		
Average Across Bodies		No		





Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

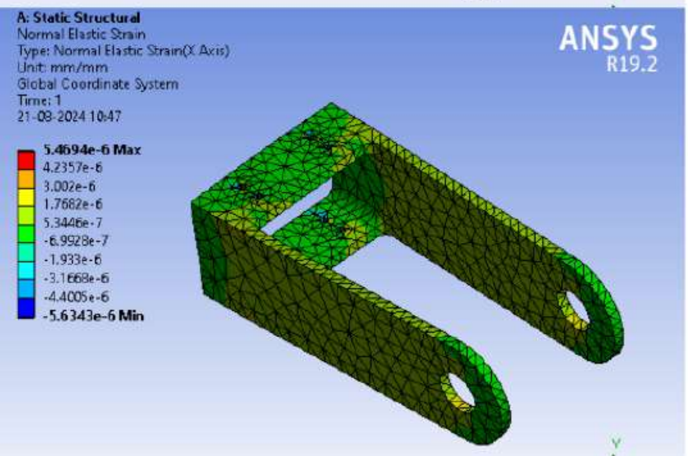
Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	1.0821e-003	3.1016e-004

Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	2.0765e-003	0.78387	0.14888

Model (A4) > Static Structural (A5) > Solution (A6) > Maximum Principal Stress

Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	-0.10277	0.74008	0.10772

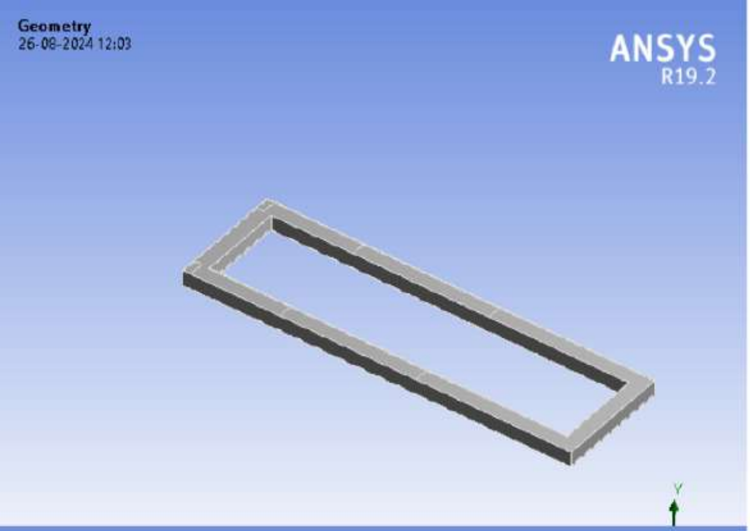


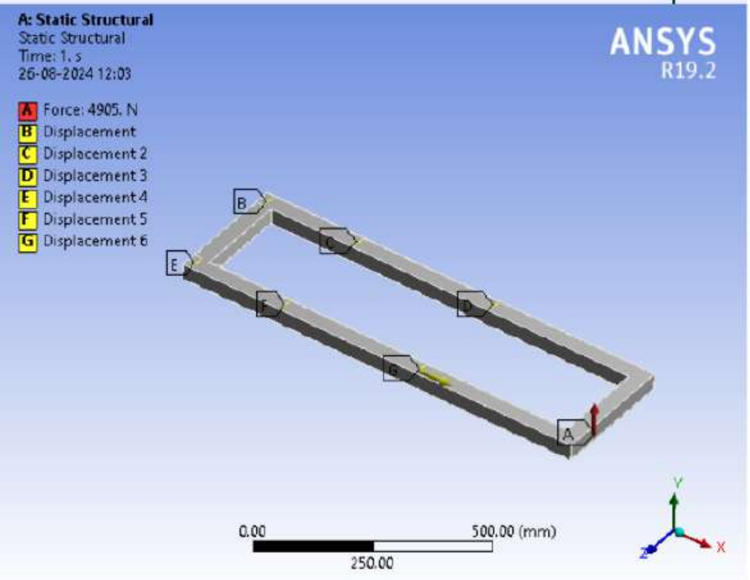
Model (A4) > Static Structural (A5) > Solution (A6) > Minimum Principal Stress

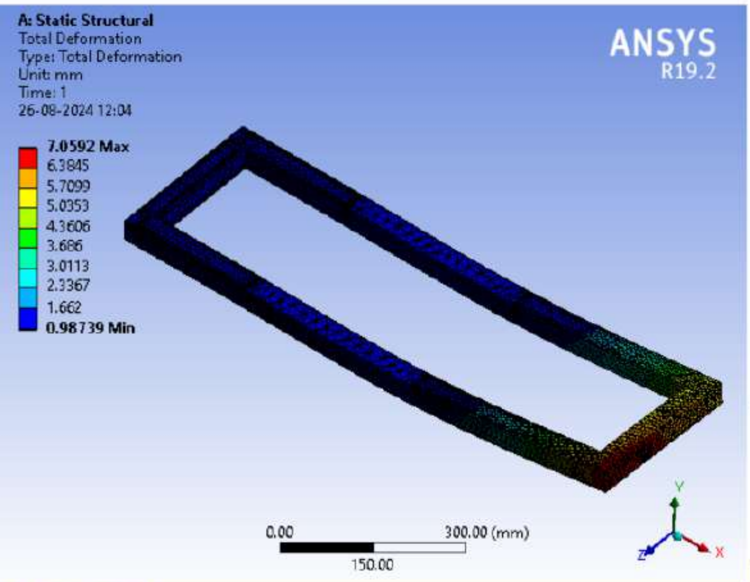
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	-0.65044	0.12641	-5.2254e-002

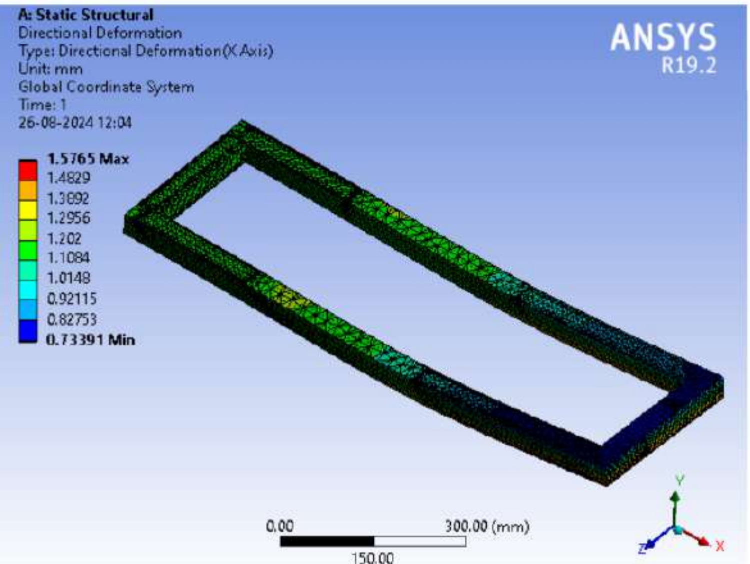
Model (A4) > Static Structural (A5) > Solution (A6) > Normal Elastic Strain

Time [s]	Minimum [mm/mm]	Maximum [mm/mm]	Average [mm/mm]
1.	-5.6343e-006	5.4694e-006	5.2923e-007









Project

Author	Beisil Benny
Subject	Static Structural - Rectangular block
Prepared for	CADD Center

Model (A4) > Static Structural (A5) > Solution (A6) > Results

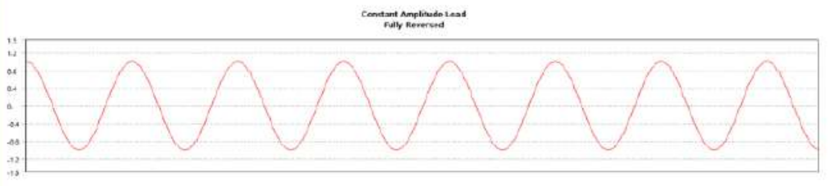
Object Name	*Total Deformation*	*Directional Deformation*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Total Deformation	Directional Deformation
By	Time	
Display Time	Last	
Calculate Time History	Yes	
Identifier		
Suppressed	No	
Orientation		X Axis
Coordinate System		Global Coordinate System
Results		
Minimum	0.98739 mm	0.73391 mm
Maximum	7.0592 mm	1.5765 mm
Average	2.2301 mm	1.1467 mm
Minimum Occurs On	Belt-FreeParts	
Maximum Occurs On	Belt-FreeParts	
Information		
Time	1. s	
Load Step	1	
Substep	1	
Iteration Number	1	

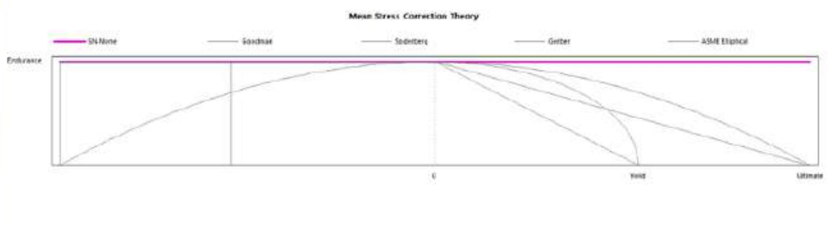
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

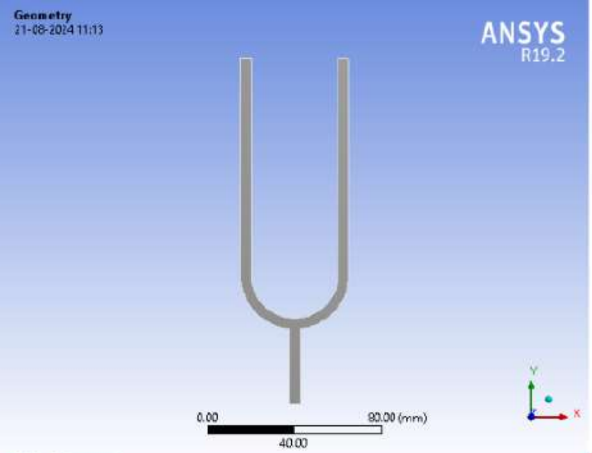
Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.98739	7.0592	2.2301

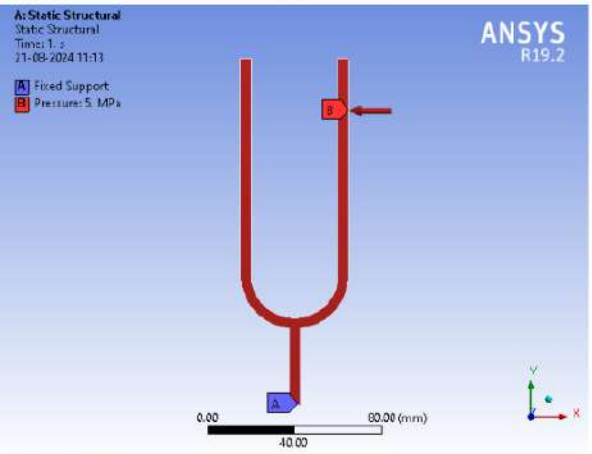
Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

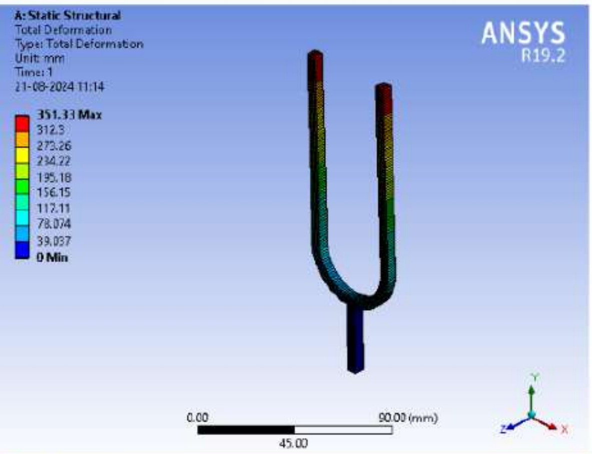
Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.98739	7.0592	2.2301

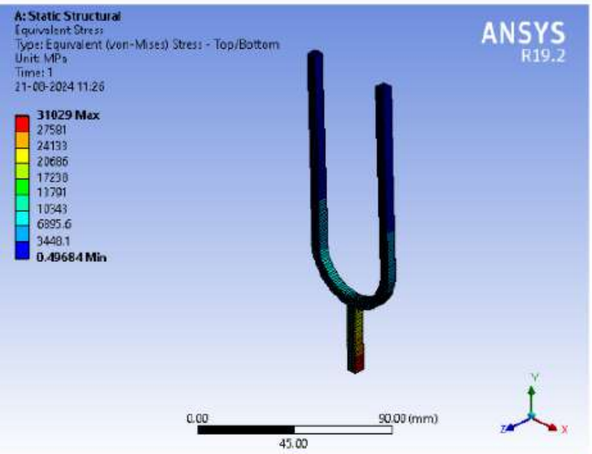


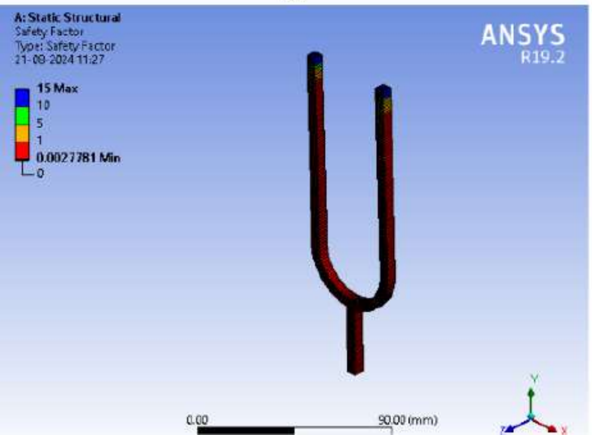












Project

Author	Beisil Benny
Subject	Static Structural - Tuning Fork
Prepared for	CAD Center

Model (A4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Total Deformation*	*Equivalent Stress*	*Maximum Principal Stress*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Layer		Entire Section	
Position		Top/Bottom	
Definition			
Type	Total Deformation	Equivalent (von-Mises) Stress	Maximum Principal Stress
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Results			
Minimum	0. mm	0.49684 MPa	0. MPa
Maximum	351.33 mm	31029 MPa	31903 MPa
Average	159.07 mm	3603.4 MPa	1826.6 MPa
Minimum Occurs On	Surface Body		
Maximum Occurs On	Surface Body		
Information			
Time	1. s		
Load Step	1		
Substep	1		
Iteration Number	1		
Integration Point Results			
Display Option		Averaged	
Average Across Bodies		No	

Model (A4) > Static Structural (A5) > Solution (A6) > Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]	Average [mm]
1.	0.	351.33	159.07

Model (A4) > Static Structural (A5) > Solution (A6) > Equivalent Stress

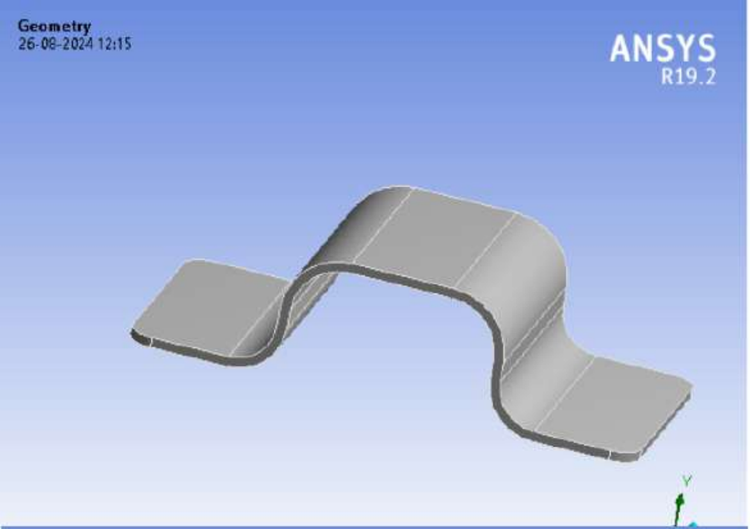
Time [s]	Minimum [MPa]	Maximum [MPa]	Average [MPa]
1.	0.49684	31029	3603.4

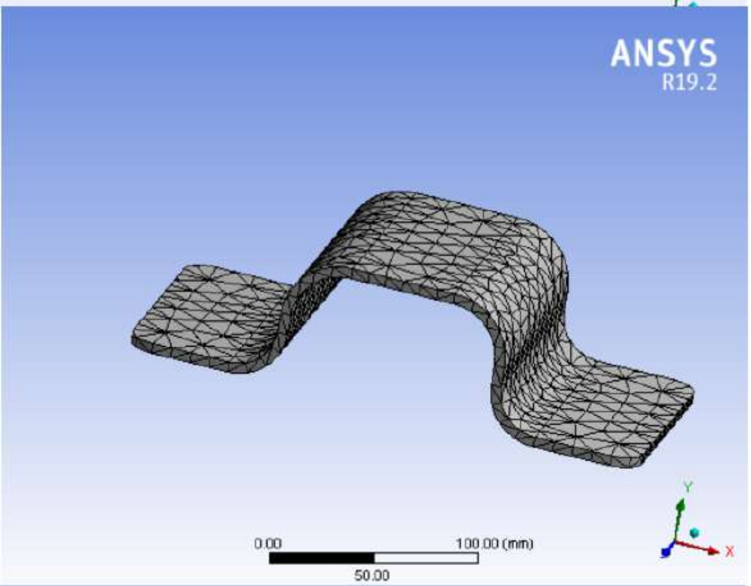
Model (A4) > Static Structural (A5) > Solution (A6) > Fatigue Tool > Results

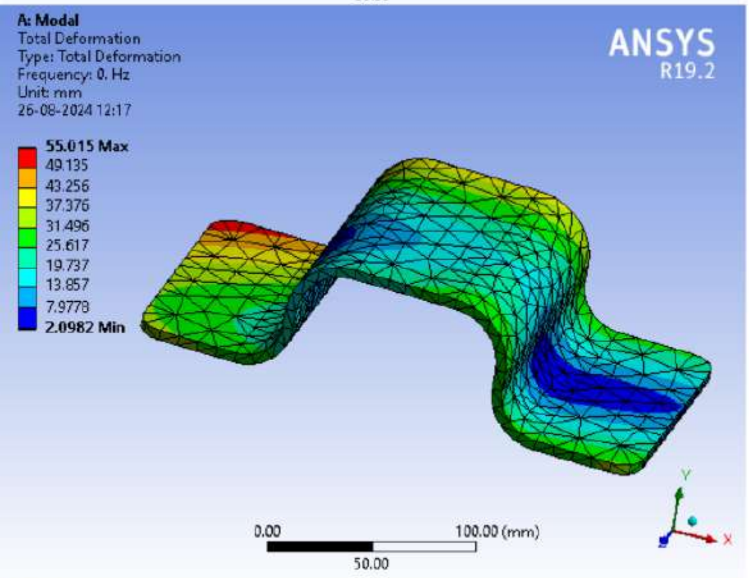
Object Name	*Life*	*Safety Factor*
State	Solved	
Scope		
Scoping Method	Geometry Selection	
Geometry	All Bodies	
Definition		
Type	Life	Safety Factor
Identifier		
Suppressed	No	
Design Life		1.e+009 cycles
Integration Point Results		
Average Across Bodies	No	
Results		
Minimum	0. cycles	2.7781e-003
Minimum Occurs On	Surface Body	

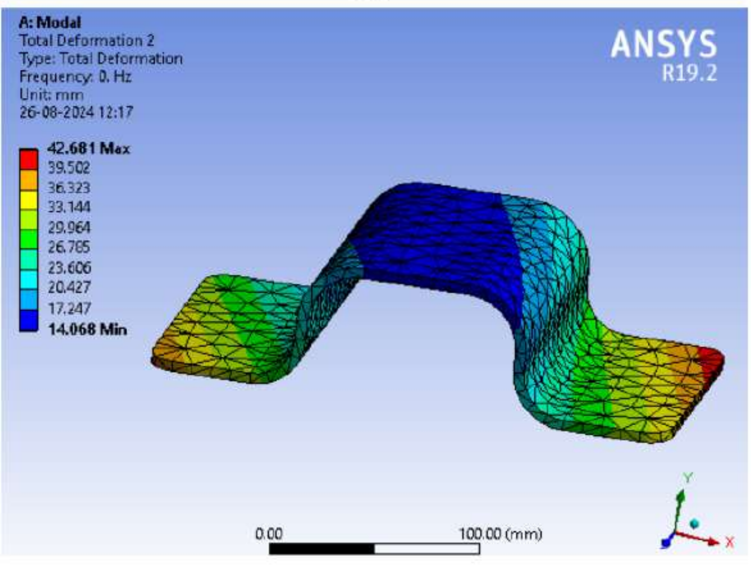
Model (A4) > Static Structural (A5) > Solution (A6) > Fatigue Tool > Safety Factor

Time [s]	Minimum	Maximum	Average
1.	2.7781e-003	15.	0.76621







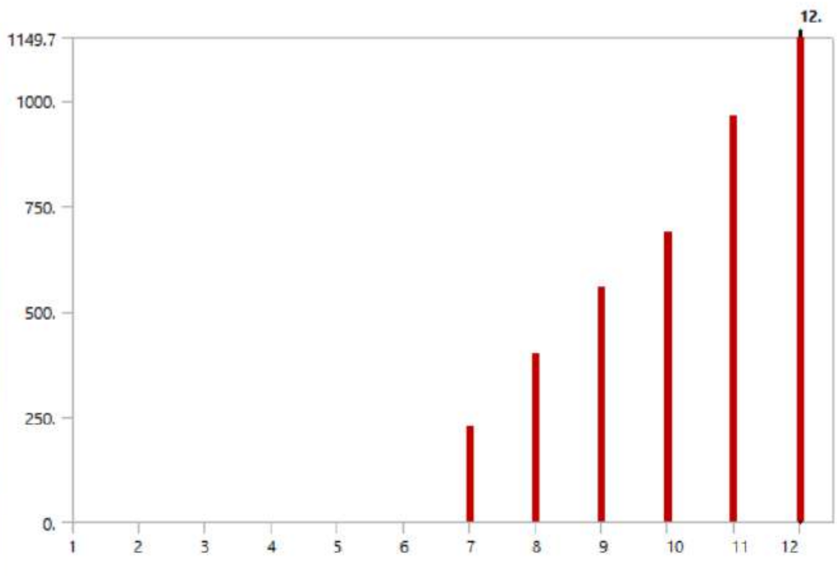


Project

Author	Beisil Benny
Subject	Modal Analysis - Steel Bracket
Prepared for	CADD Center

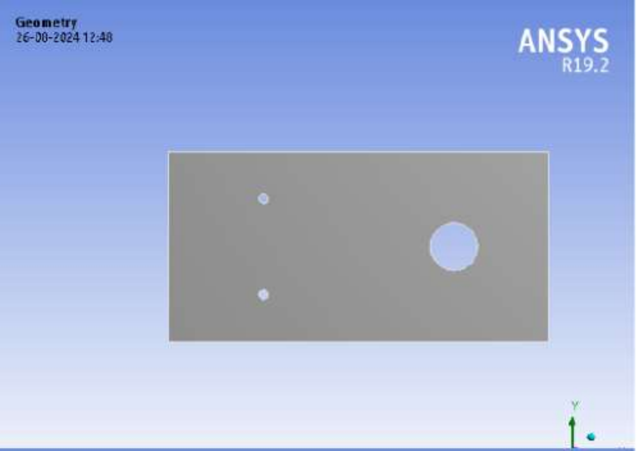
Model (A4) > Modal (A5) > Solution (A6) > Results

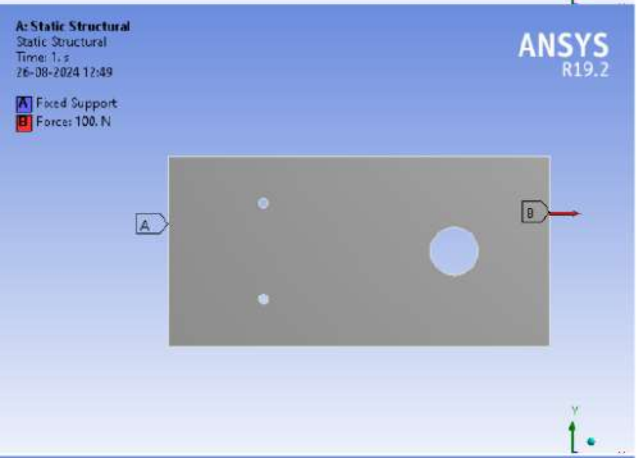
Object Name	*Total Deformation 12*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Total Deformation
Mode	12.
Identifier	
Suppressed	No
Results	
Minimum	3.1174e-002 mm
Maximum	53.878 mm
Average	23.169 mm
Minimum Occurs On	Free Vibration-FreeParts
Maximum Occurs On	Free Vibration-FreeParts
Information	
Frequency	1149.7 Hz

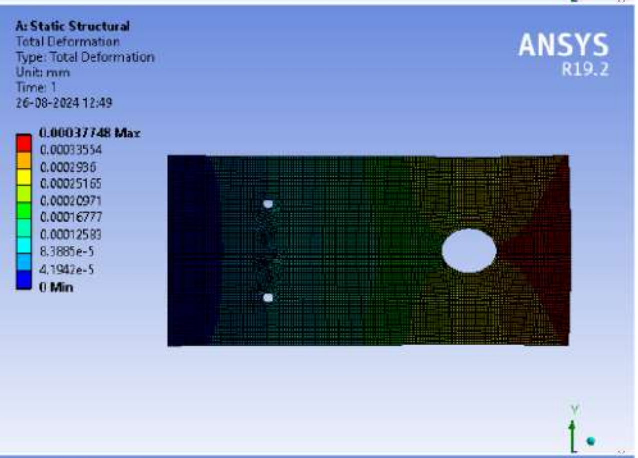


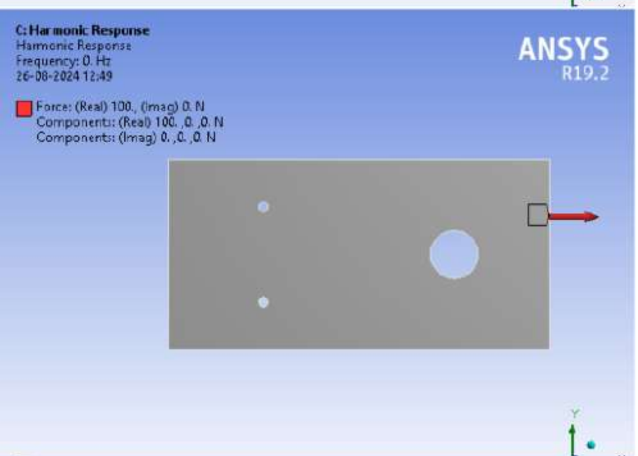
Project

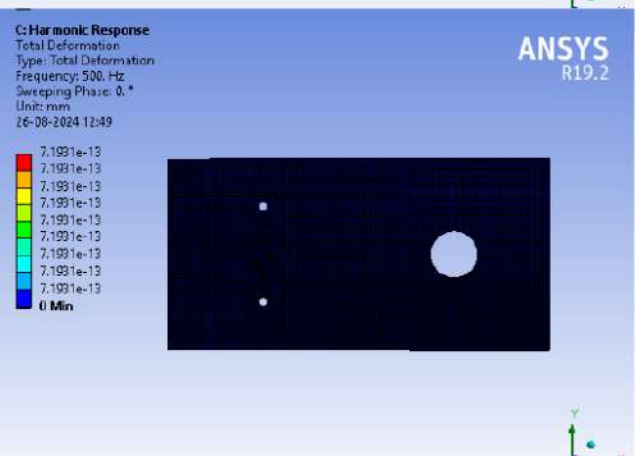
Author	Beisil Benny
Subject	Harmonic Analysis - Simple Plate
Prepared for	CADD Center









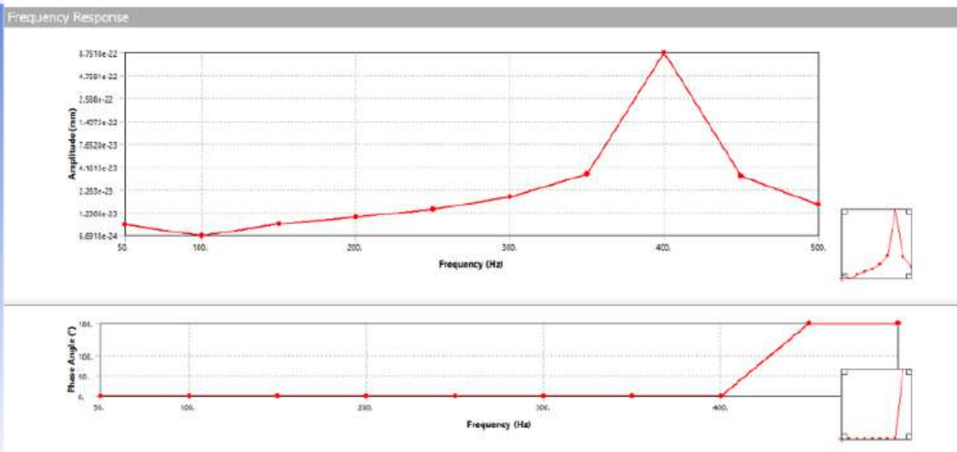


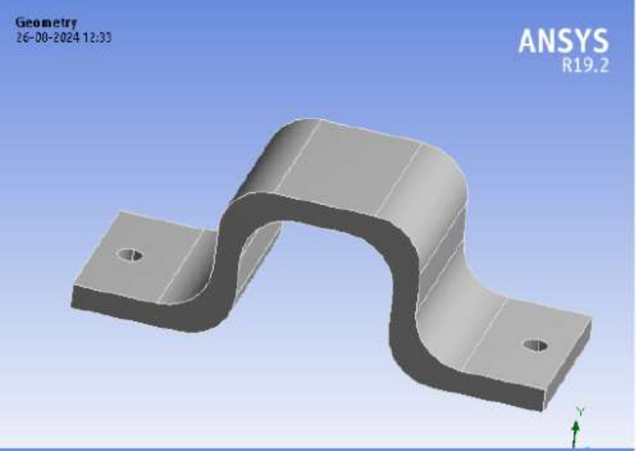
Model (A4, B4, C4) > Static Structural (A5) > Solution (A6) > Results

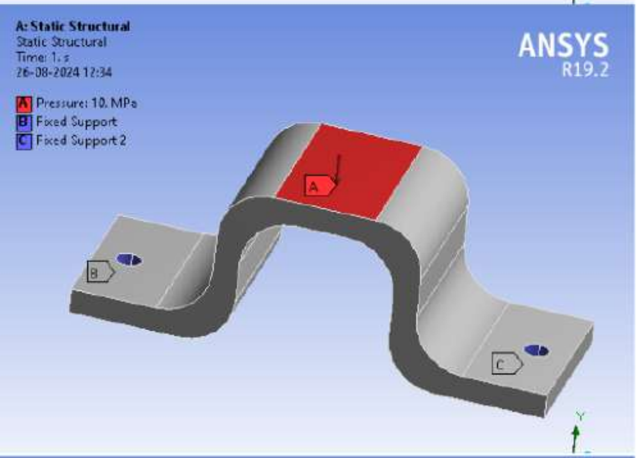
Object Name	*Total Deformation*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Total Deformation
By	Time
Display Time	Last
Calculate Time History	Yes
Identifier	
Suppressed	No
Results	
Minimum	0. mm
Maximum	3.7748e-004 mm
Average	1.717e-004 mm
Minimum Occurs On	Harmonic Plate-FreeParts
Maximum Occurs On	Harmonic Plate-FreeParts

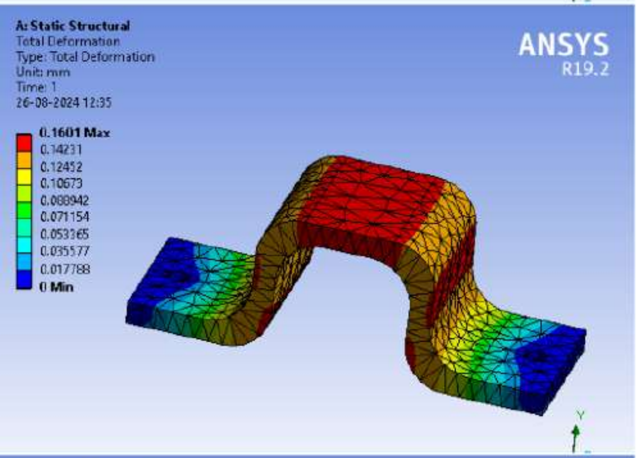
Model (A4, B4, C4) > Harmonic Response (C5) > Solution (C6) > Results

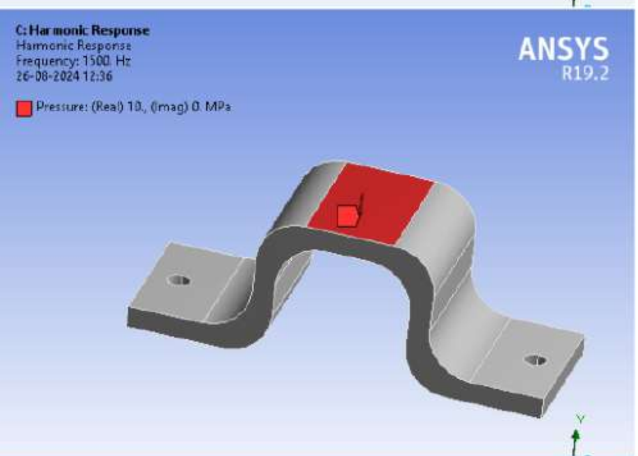
Object Name	*Total Deformation*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Total Deformation
By	Frequency
Frequency	Last
Amplitude	No
Sweeping Phase	0. °
Identifier	
Suppressed	No
Results	
Minimum	0. mm
Maximum	7.1931e-013 mm
Average	1.7768e-013 mm
Minimum Occurs On	Harmonic Plate-FreeParts
Maximum Occurs On	Harmonic Plate-FreeParts
Information	
Reported Frequency	500. Hz

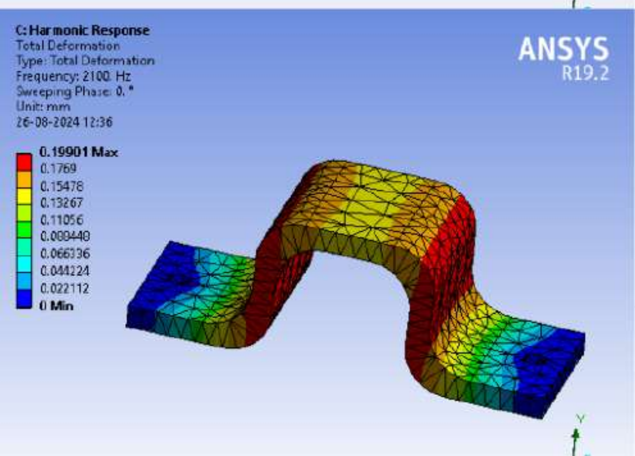












Project

Author	Beisil Benny
Subject	Harmonic Analysis - Bracket
Prepared for	CADD Center

Model (A4, B4, C4) > Harmonic Response (C5) > Solution (C6) > Result Charts

Object Name	*Frequency Response*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	1 Body
Spatial Resolution	Use Average
Definition	
Type	Directional Deformation
Orientation	X Axis
Coordinate System	Global Coordinate System
Suppressed	No
Options	
Frequency Range	Use Parent
Minimum Frequency	1500. Hz
Maximum Frequency	2100. Hz
Display	Bode
Chart Viewing Style	Log Y
Results	
Maximum Amplitude	0.14969 mm
Frequency	1560. Hz
Phase Angle	0. °
Real	0.14969 mm
Imaginary	0. mm

Model (A4, B4, C4) > Modal (B5) > Solution (B6)

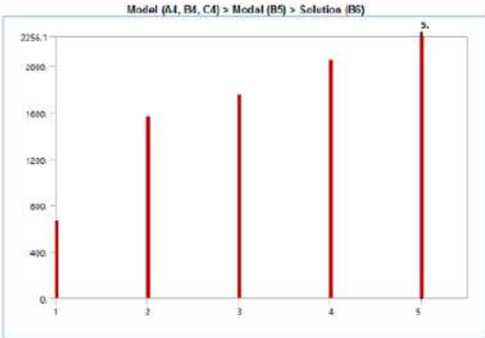
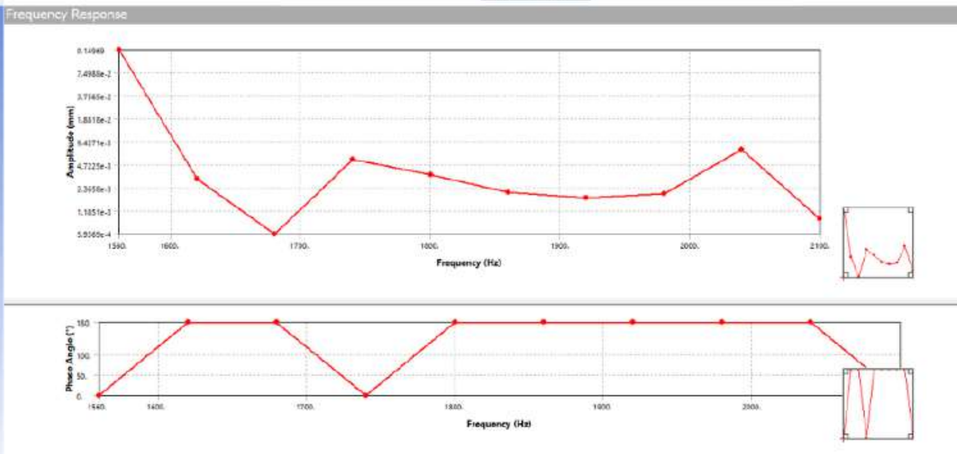
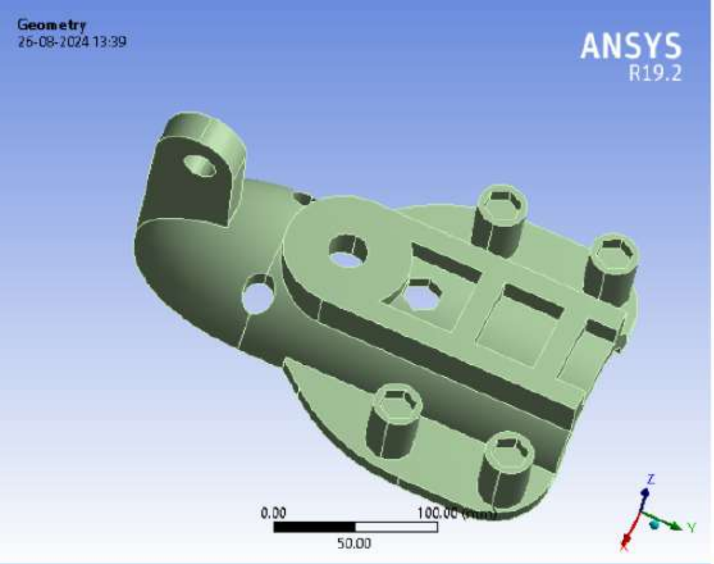
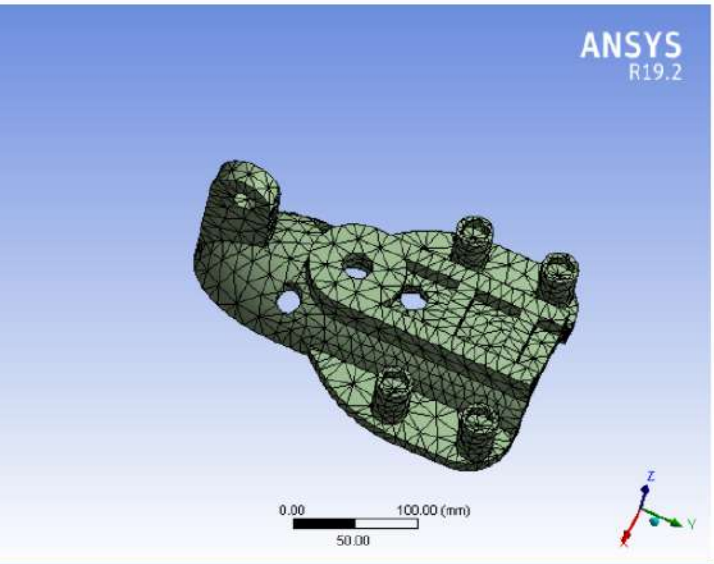


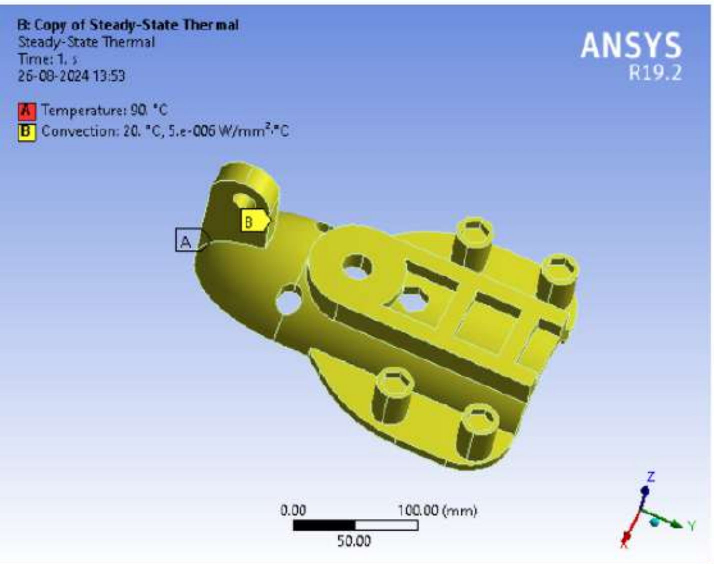
TABLE 17
Model (A4, B4, C4) > Modal (B5) > Solution (B6)

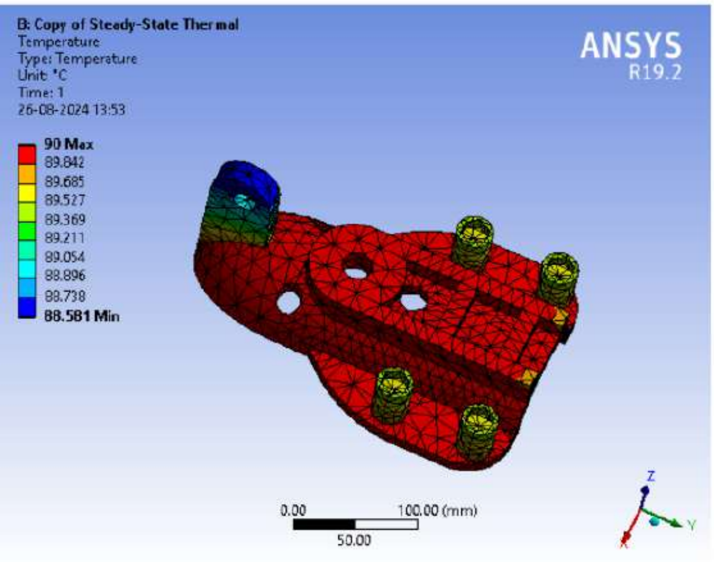
Mode	Frequency [Hz]
1.	673.76
2.	1561.5
3.	1756.1
4.	2061.5
5.	2256.1











Project

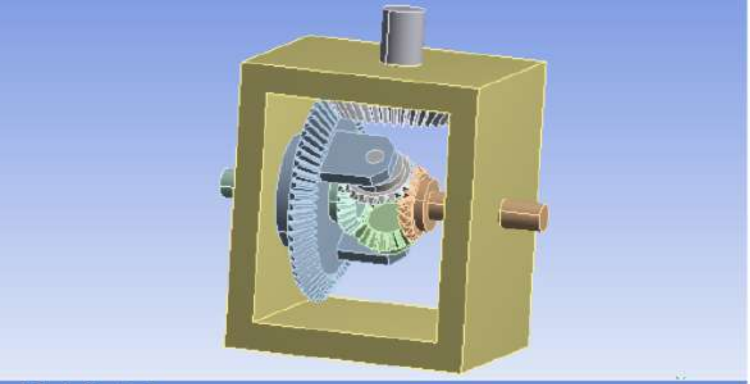
Author	Beisil Benny
Subject	Steady State Thermal - Gearbox Housing
Prepared for	CADD Center

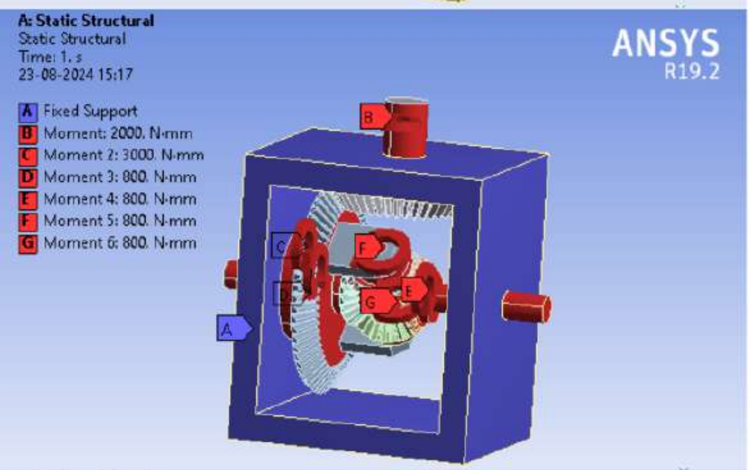
Model (B4) > Steady-State Thermal (B5) > Loads

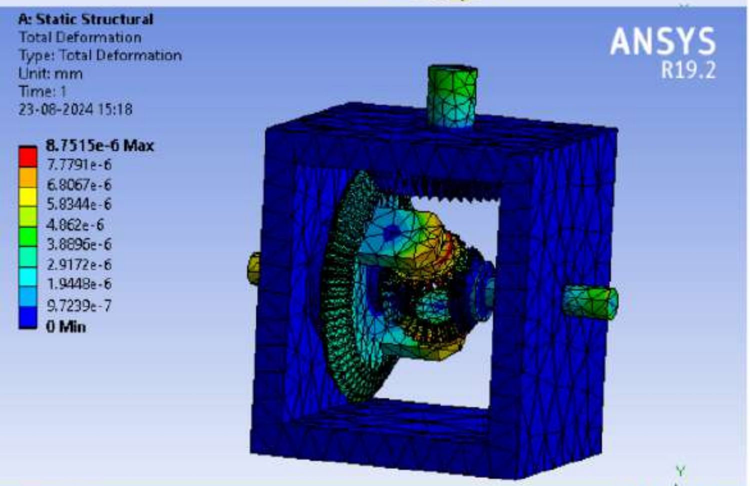
Object Name	*Temperature*	*Convection*
State	Fully Defined	
Scope		
Scoping Method	Geometry Selection	
Geometry	3 Faces	96 Faces
Definition		
ID (Beta)	39	41
Type	Temperature	Convection
Magnitude	90. °C (ramped)	
Suppressed	No	
Film Coefficient		5.e-006 W/mm²·°C (step applied)
Coefficient Type		Average Film Temperature
Ambient Temperature		20. °C (ramped)
Convection Matrix		Program Controlled

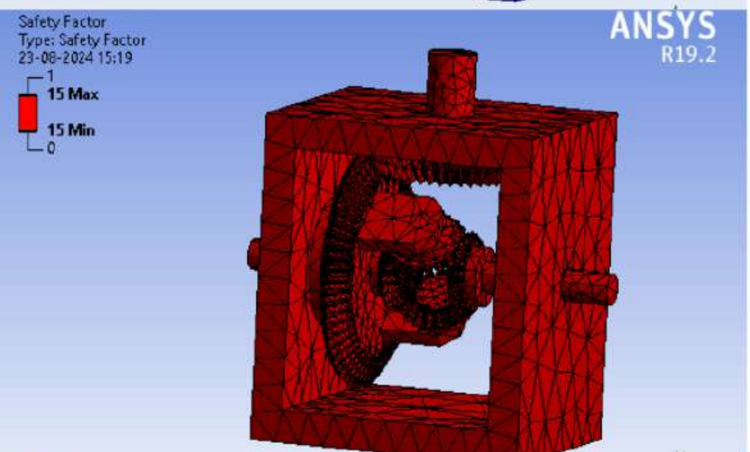
Model (B4) > Steady-State Thermal (B5) > Solution (B6) > Results

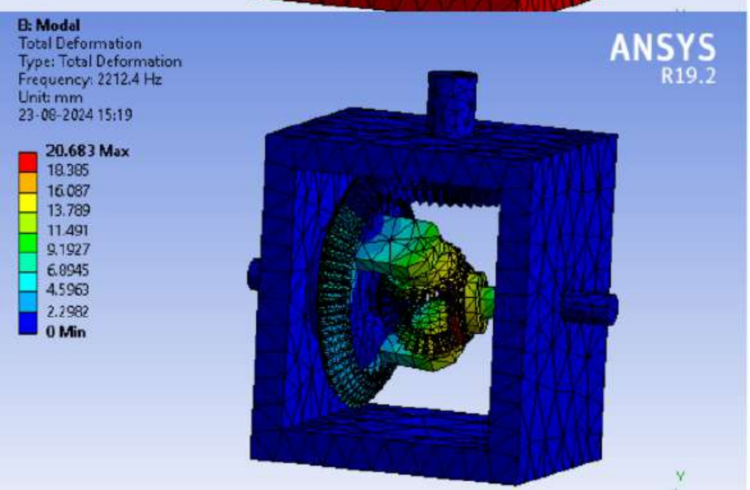
Object Name	*Temperature*
State	Solved
Scope	
Scoping Method	Geometry Selection
Geometry	All Bodies
Definition	
Type	Temperature
By	Time
Display Time	Last
Calculate Time History	Yes
Identifier	
Suppressed	No
Results	
Minimum	88.581 °C
Maximum	90. °C
Average	89.846 °C











ANSYS

Project

Author	Beisil Benny
Subject	Static Structural Analysis of a Gearbox Assembly
Prepared for	CAD Center

Structural Steel > Constants

Density	7.85e-006 kg mm^-3
Isotropic Secant Coefficient of Thermal Expansion	1.2e-005 C^-1
Specific Heat Constant Pressure	4.34e+005 mJ kg^-1 C^-1
Isotropic Thermal Conductivity	6.05e-002 W mm^-1 C^-1
Isotropic Resistivity	1.7e-004 ohm mm

Model (A4, B4) > Static Structural (A5) > Solution (A6) > Results

Object Name	*Total Deformation*	*Directional Deformation*	*Equivalent Stress*
State	Solved		
Scope			
Scoping Method	Geometry Selection		
Geometry	All Bodies		
Definition			
Type	Total Deformation	Directional Deformation	Equivalent (von-Mises) Stress
By	Time		
Display Time	Last		
Calculate Time History	Yes		
Identifier			
Suppressed	No		
Orientation		X Axis	
Coordinate System		Global Coordinate System	
Results			
Minimum	0. mm	-7.1639e-006 mm	0. MPa
Maximum	8.7515e-006 mm	7.2388e-006 mm	8.5964e-002 MPa
Average	2.3852e-006 mm	-5.0776e-008 mm	4.3869e-003 MPa
Minimum Occurs On	box	gear spur 20 2	box
Maximum Occurs On	gear spur 20 2	gear spur 20 2[2]	
Information			
Time	1. s		
Load Step	1		
Substep	1		
Iteration Number	1		
Integration Point Results			
Display Option			Averaged
Average Across Bodies			No