

**Description**  
the part is being bend from the prolonged force of 100 N on the hinges

# Simulation of random

Date: Friday, October 25, 2024  
Designer: XYZ  
Study name: SimulationXpress Study  
Analysis type: Static

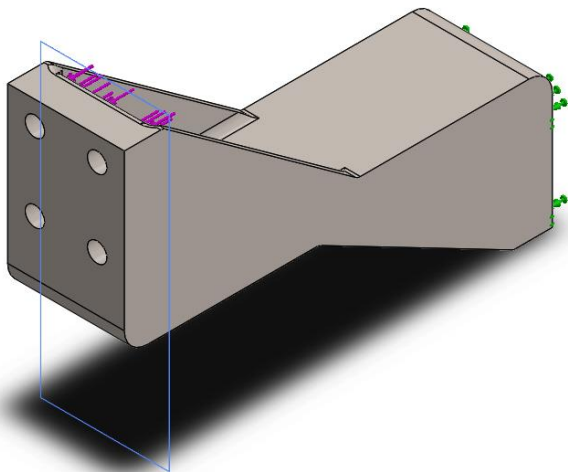
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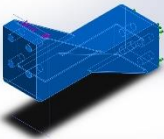
# Assumptions

# Model Information



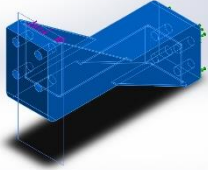
Model name: random  
Current Configuration: Default

## Solid Bodies

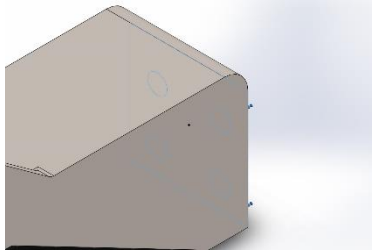
Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Mirror2 	Solid Body	Mass:0.0539324 kg Volume:7.00421e-06 m^3 Density:7,700 kg/m^3 Weight:0.528538 N	C:\Users\Muhammad Saffi Ullah\Desktop\Solid Works\New folder\random.SLDPRT Oct 25 01:23:32 2024

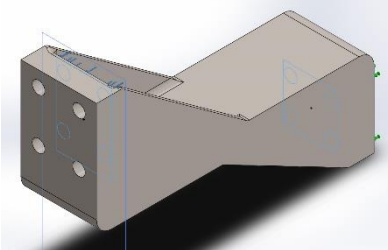


### Material Properties

Model Reference	Properties	Components
	<b>Name:</b> Alloy Steel <b>Model type:</b> Linear Elastic Isotropic <b>Default failure criterion:</b> Max von Mises Stress <b>Yield strength:</b> 6.20422e+08 N/m <sup>2</sup> <b>Tensile strength:</b> 7.23826e+08 N/m <sup>2</sup>	SolidBody 1(Mirror2)(random)

### Loads and Fixtures

Fixture name	Fixture Image	Fixture Details
Fixed-2		<b>Entities:</b> 1 face(s) <b>Type:</b> Fixed Geometry

Load name	Load Image	Load Details
Force-1		<b>Entities:</b> 2 face(s) <b>Type:</b> Apply normal force <b>Value:</b> 100 N



## Mesh information

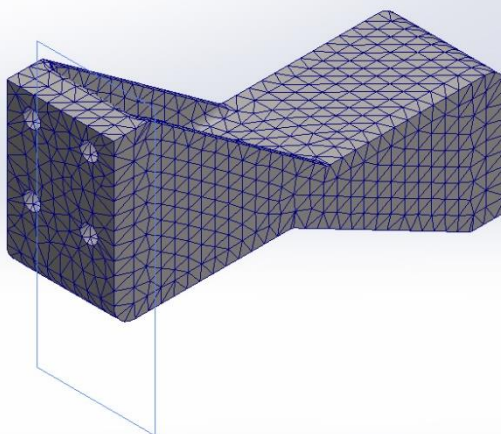
Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points for High quality mesh	16 Points
Element Size	1.91407 mm
Tolerance	0.0957036 mm
Mesh Quality	High

## Mesh information - Details

Total Nodes	16205
Total Elements	9535
Maximum Aspect Ratio	7.9689
% of elements with Aspect Ratio < 3	97.7
% of elements with Aspect Ratio > 10	0
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:01
Computer name:	LENOVO-T470S



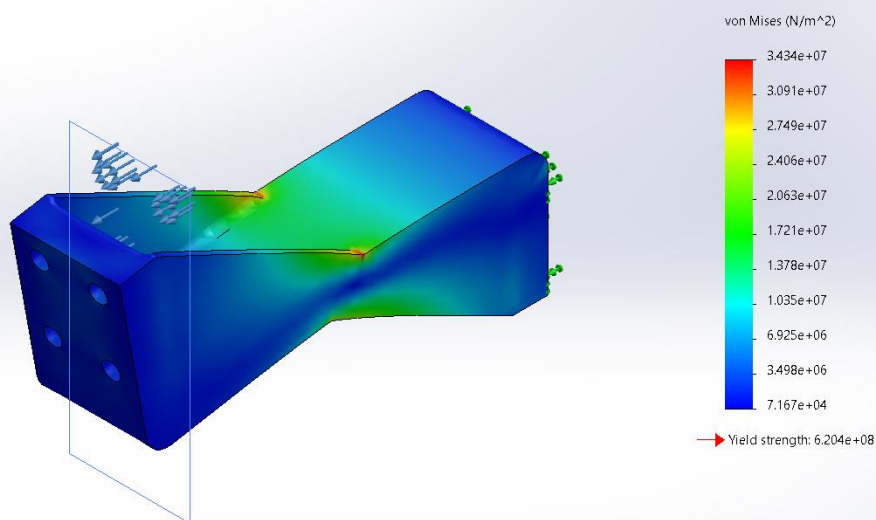
Model name: random  
Study name: SimulationXpress Study(-Default-)  
Mesh type: Solid Mesh



## Study Results

Name	Type	Min	Max
Stress	VON: von Mises Stress	7.167e+04N/m <sup>2</sup> Node: 13847	3.434e+07N/m <sup>2</sup> Node: 13374

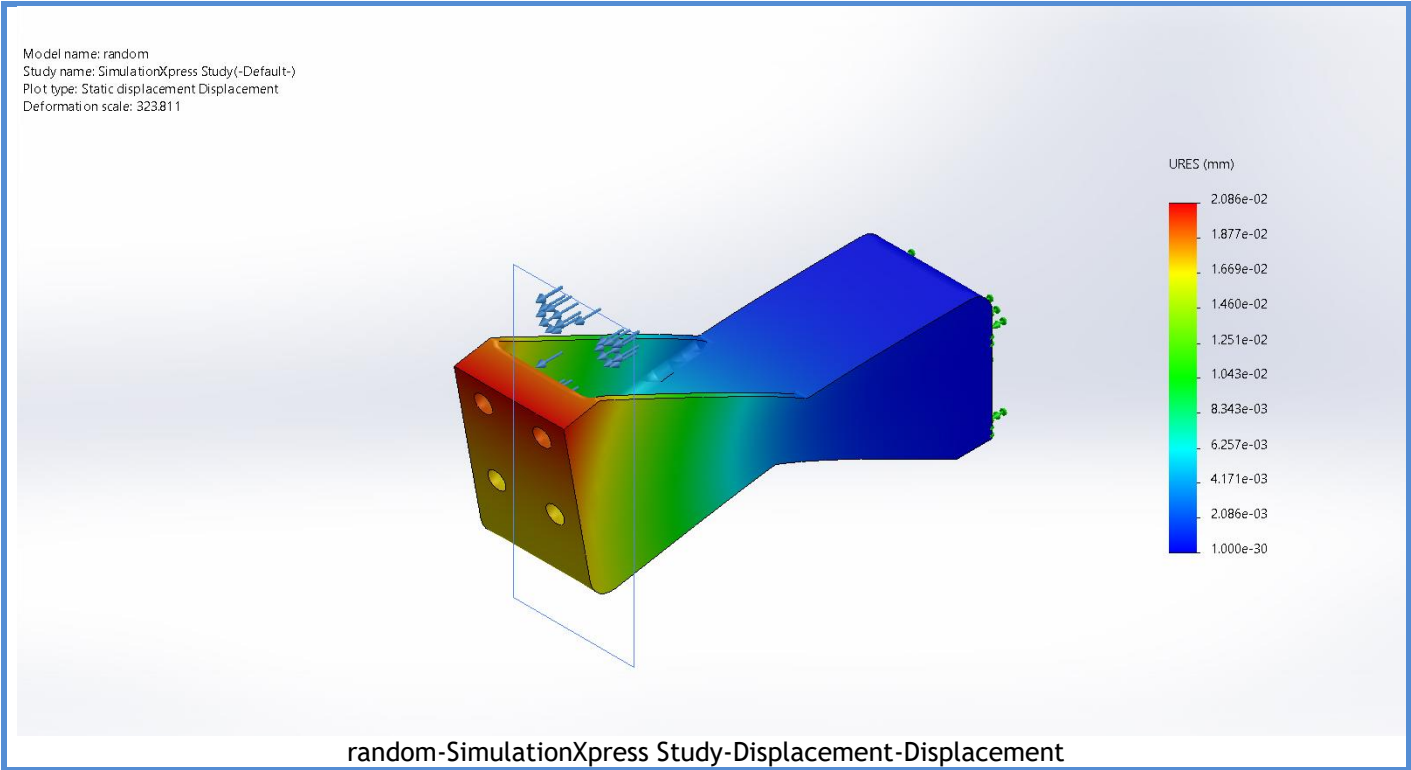
Model name: random  
Study name: SimulationXpress Study(-Default-)  
Plot type: Static nodal stress Stress  
Deformation scale: 323811



random-SimulationXpress Study-Stress-Stress

Name	Type	Min	Max
Displacement	URES: Resultant Displacement	0.000e+00mm Node: 7	2.086e-02mm Node: 594

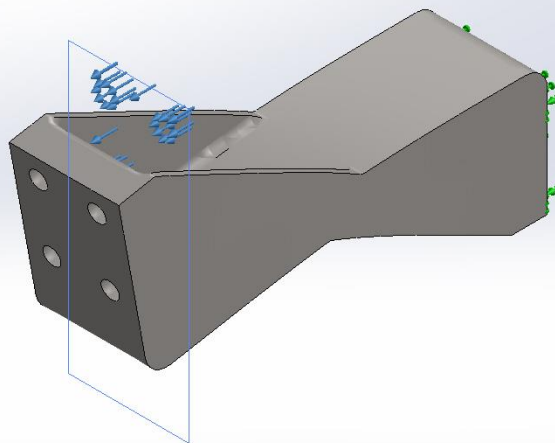




Name	Type
Deformation	Deformed shape



Model name: random  
Study name: SimulationXpress Study(-Default-)  
Plot type: Deformed shape Deformation  
Deformation scale: 323.811

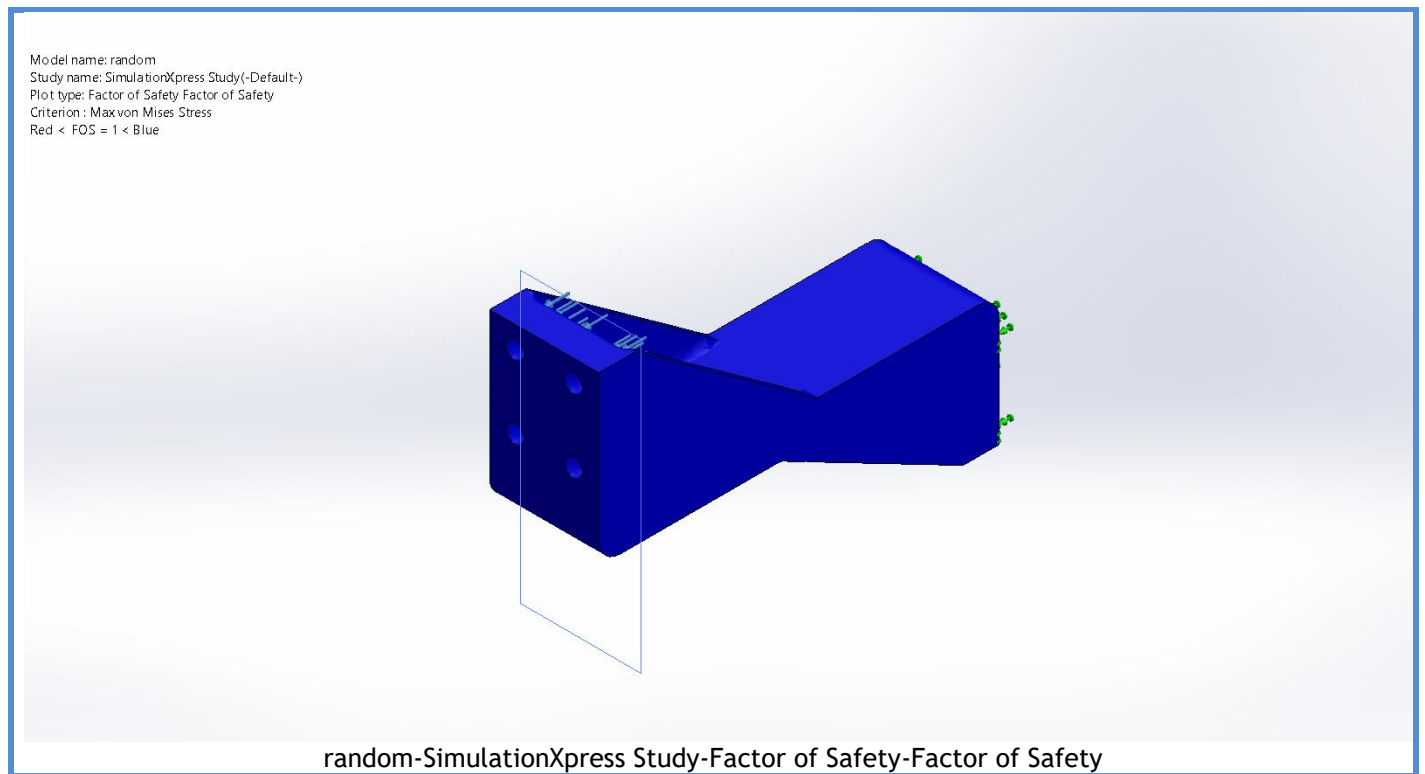


random-SimulationXpress Study-Displacement-Deformation

Name	Type	Min	Max
Factor of Safety	Max von Mises Stress	1.807e+01 Node: 13374	8.656e+03 Node: 13847







## Conclusion

the material needs to be changed or the thickness should be optimized in the way that it should withstand the force of 100 N

