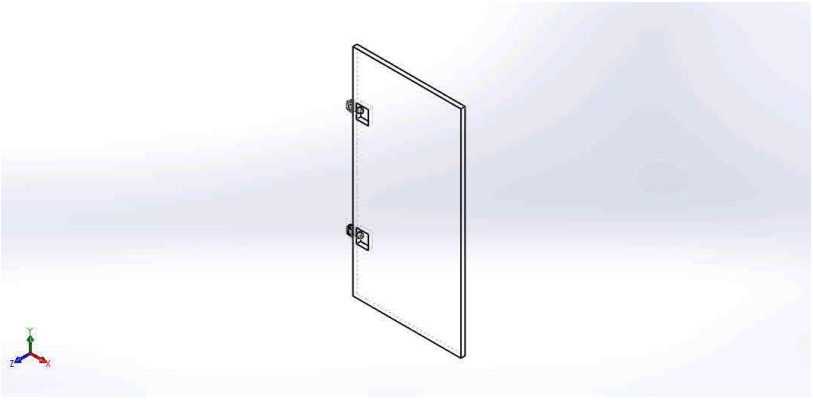

Simulation of MGPS1202409 005-01

Date: Friday, March 21, 2025
Designer: Solidworks
Study name: DLSG-01
Analysis type: Static

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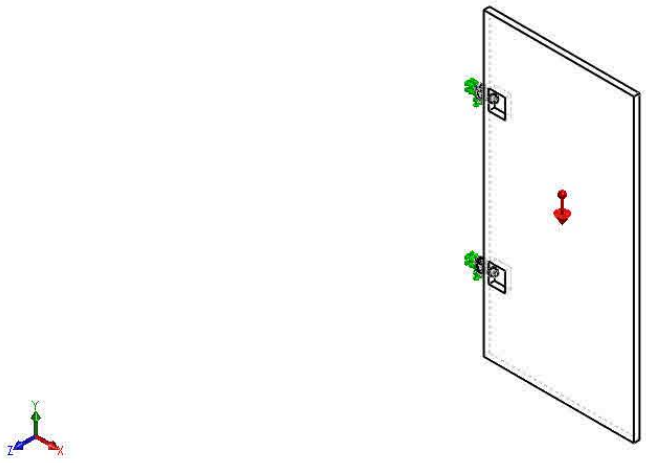
Description

Sr. No.	Particular	Value
1.	Hinge Used	MGPS1202409
2.	No of Hinges	2 @ 915 mm Apart
3.	Wt of door	450 Kgs Approx
4.	Size of Door	1220x1830 mm
5.	Center of Gravity Acting at horizontal distance of	1220/2 = 610 mm from Hinge

Model Information



Model name: MGPS1202409 005-01
Current Configuration: Default

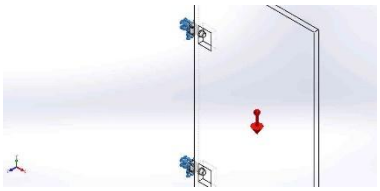
Study Properties

Study name	DLSG-01
Analysis type	Static
Mesh type	Solid Mesh
Thermal Effect:	On
Thermal option	Include temperature loads
Zero strain temperature	298 Kelvin
Include fluid pressure effects from SOLIDWORKS Flow Simulation	Off
Solver type	FFEPlus
Inplane Effect:	Off
Soft Spring:	Off
Inertial Relief:	Off
Incompatible bonding options	Automatic
Large displacement	Off
Compute free body forces	On
Friction	Off
Use Adaptive Method:	Off

Units

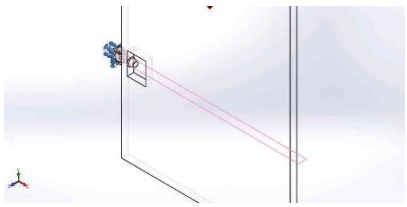
Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Kelvin
Angular velocity	Rad/sec
Pressure/Stress	N/m^2

Loads and Fixtures

Fixture name	Fixture Image	Fixture Details
Fixed-1		**Entities:** 2 face(s) **Type:** Fixed Geometry

Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	0.126007	4434.08	-0.126811	4434.08
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Gravity-1		**Reference:** Top Plane **Values:** 0 0 -9.81 **Units:** SI

Resultant Forces

Reaction forces

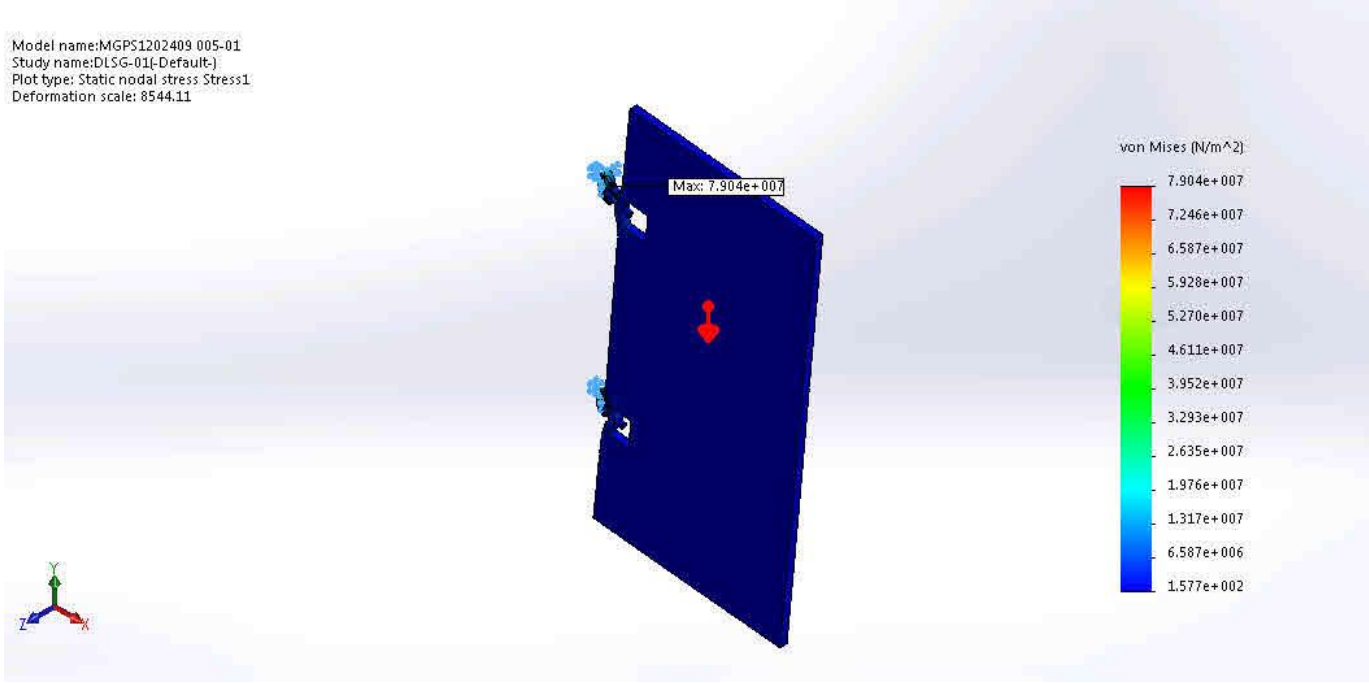
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0.126007	4434.08	-0.126811	4434.08

Reaction Moments

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	0

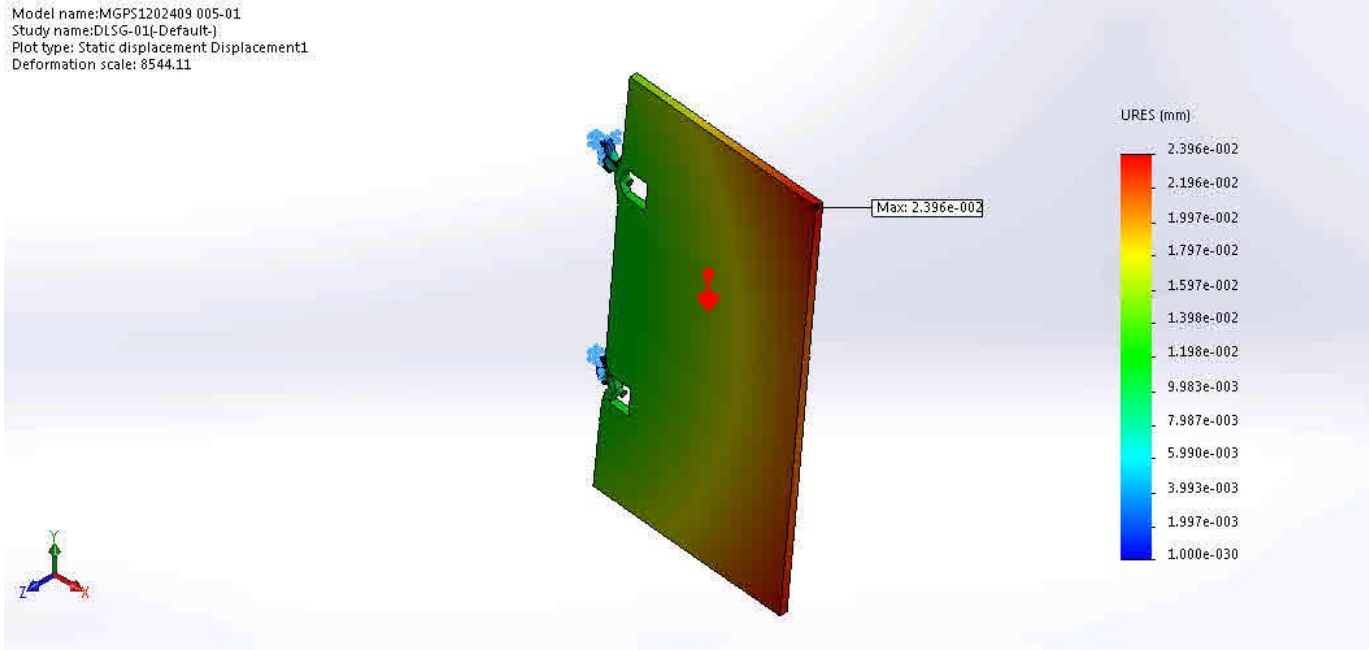
Study Results

Name	Type	Min	Max
Stress1	VON: von Mises Stress	157.72 N/m^2 Node: 1407	7.90428e+007 N/m^2 Node: 12889



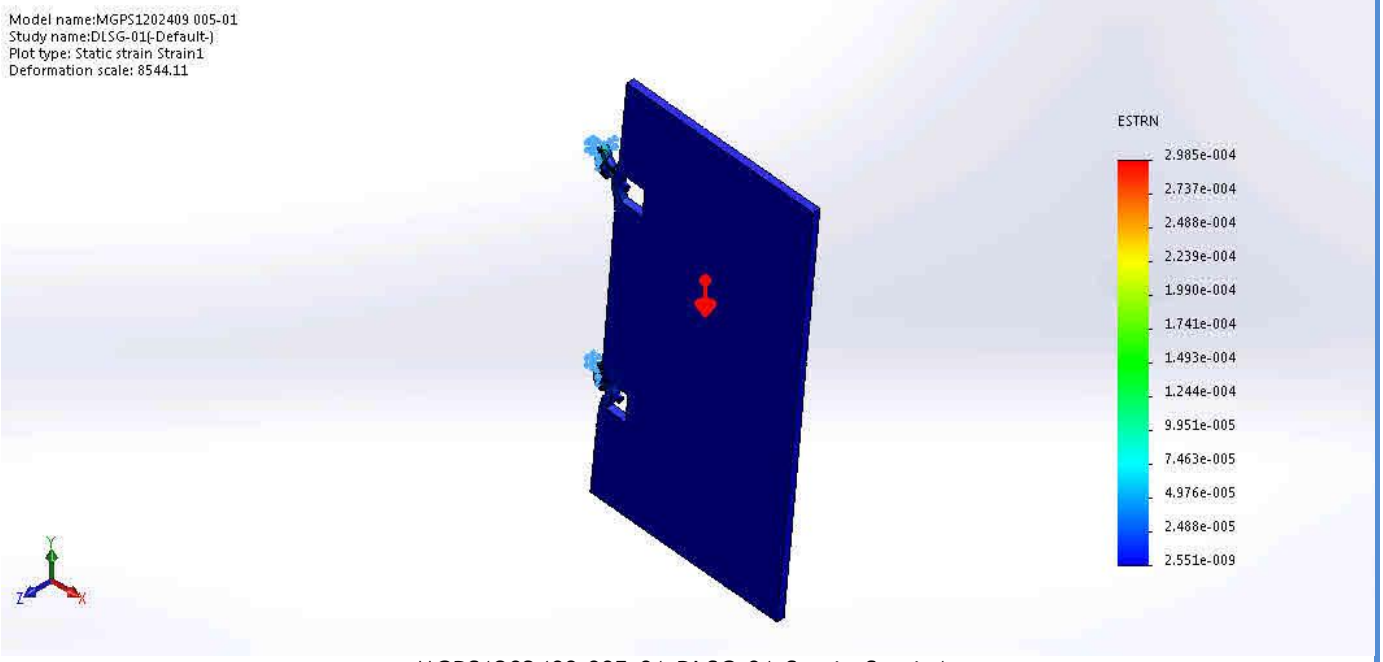
MGPS1202409 005-01-DLSG-01-Stress-Stress1

Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	0 mm Node: 11650	0.0239595 mm Node: 9



MGPS1202409 005-01-DLSG-01-Displacement-Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain	2.5507e-009 Element: 30	0.000298527 Element: 9098



MGPS1202409 005-01-DLSG-01-Strain-Strain1

Conclusion

Max Stress Induced in Hinge is 79 N/mm^2 Allowed for MS 240 N/mm^2

Max Deflection at far edge of Gate is 0.02 mm which is Negligible

So we can say that 2 M20 Hinges 915 mm apart can hold wt of door upto 450 Kgs