

Simulation of Montaj2

Date: 22 March 2023 Wednesday

Designer: Solidworks

Study name: Nuqoosh

Analysis type: Static



Description

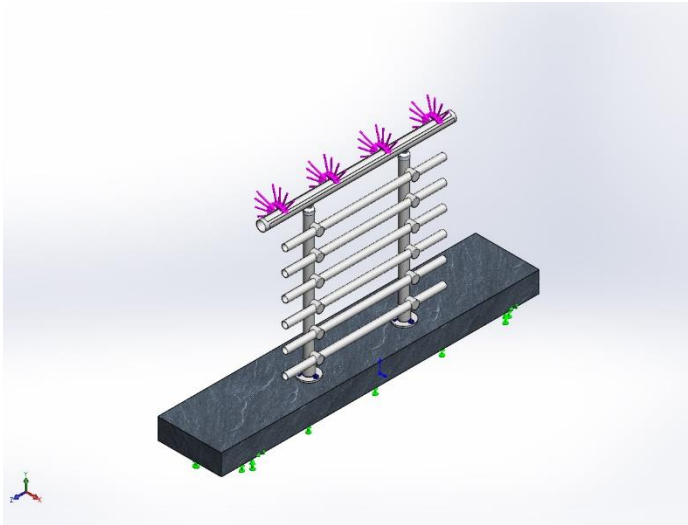
NUQOOSH SYSTEMS

Table of Contents

Description	1
Assumptions.....	2
Study Properties.....	3
Material Properties	4
Loads and Fixtures	5
Connector Definitions	6
Interaction Information	9
Mesh information.....	9
Resultant Forces	10
Study Results	11
Conclusion.....	14



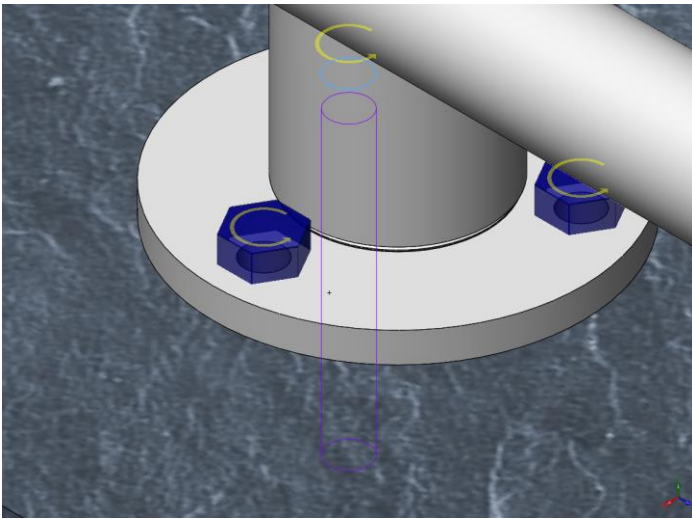
Assumptions



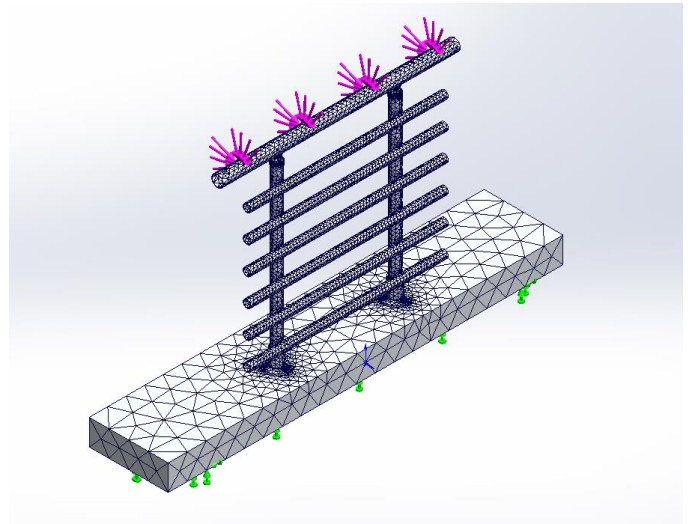
Original Model



Model Analyzed



Model Analyzed



Model Analyzed



Study Properties

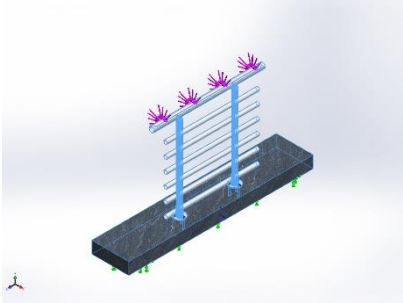
Study name	Nuqoosh
Analysis type	Static
Mesh type	Solid Mesh
Thermal Effect:	On
Thermal option	Include temperature loads
Zero strain temperature	298 Kelvin
Include fluid pressure effects from SOLIDWORKS Flow Simulation	Off
Solver type	Automatic
Inplane Effect:	Off
Soft Spring:	Off
Inertial Relief:	Off
Incompatible bonding options	Automatic
Large displacement	Off
Compute free body forces	On
Friction	Off
Use Adaptive Method:	Off
Result folder	c50\ANALIZ_NUQOOSH

Units

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

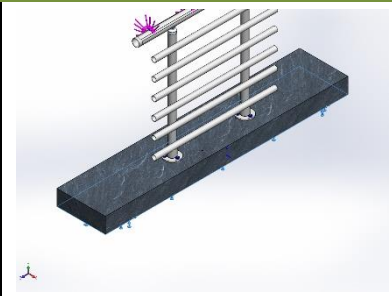


Material Properties

Model Reference	Properties	Components
	<p> Name: 6063-T6 Model type: Linear Elastic Isotropic Default failure criterion: Max von Mises Stress Yield strength: 2,15e+08 N/m² Tensile strength: 2,4e+08 N/m² Elastic modulus: 6,9e+10 N/m² Poisson's ratio: 0,33 Mass density: 2.700 kg/m³ Shear modulus: 2,58e+10 N/m² Thermal expansion coefficient: 2,34e-05 /Kelvin </p>	<p> SolidBody 1(30-150-108-4/60' yeni numune_1_alt-1-solid1)(Montaj2), SolidBody 2(30-150-108-5/60' yeni numune_1_üst-1-solid1)(Montaj2), SolidBody 3(10105-kısa-1-solid1)(Montaj2), SolidBody 4(30-150-320-02-1-solid1)(Montaj2), SolidBody 6(30-150-320-01-3-solid1)(Montaj2), SolidBody 7(30-150-320-01-1-solid1)(Montaj2), SolidBody 9(2904_c50-1-solid1)(Montaj2), SolidBody 10(40 lık _ 1,8 mm profil-11-solid1)(Montaj2), SolidBody 12(40 lık _ 1,8 mm profil-9-solid1)(Montaj2), SolidBody 13(2904_c50-3-solid1)(Montaj2), SolidBody 16(30-150-320-02-3-solid1)(Montaj2), SolidBody 18(30-150-108-4/60' yeni numune_1_üst-1-solid1)(Montaj2), SolidBody 19(40 lık _ 1,8 mm profil-10-solid1)(Montaj2), SolidBody 21(30-150-108-5/60' yeni numune_1_alt-1-solid1)(Montaj2), SolidBody 22(40 lık _ 1,8 mm profil-8-solid1)(Montaj2), SolidBody 26(40 lık _ 1,8 mm profil-1-solid1)(Montaj2), SolidBody 28(40 lık _ 1,8 mm profil-7-solid1)(Montaj2), SolidBody 30(platform-1-solid1)(Montaj2) </p>
Curve Data:N/A		

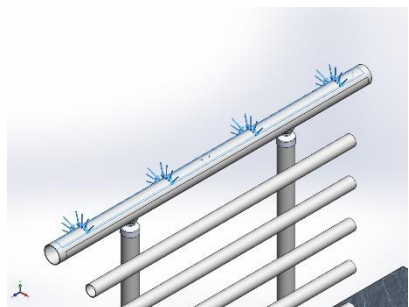


Loads and Fixtures

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

Resultant Forces

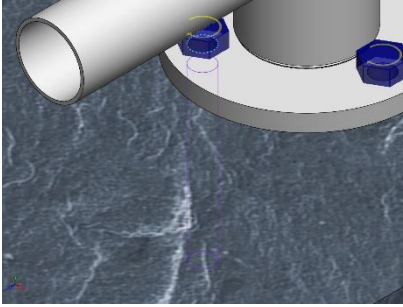
Components	X	Y	Z	Resultant
Reaction force(N)	-585,633	666,82	-0,00308609	887,477
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Force		Entities: 2 face(s) Type: Apply normal force Value: 750 N



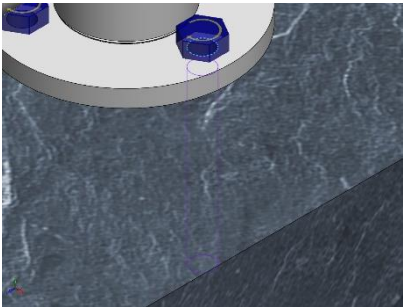
Connector Definitions

Pin/Bolt/Bearing Connector

Model Reference	Connector Details	Strength Details
 <p>screw-1</p>	<p>Entities: 1 edge(s), 1 face(s)</p> <p>Type: Bolt(Head/Nut diameter)(Count erbore screw)</p> <p>Connection Type: Distributed</p> <p>Head diameter: 19,5 mm</p> <p>Nominal shank diameter: 13 mm</p> <p>Material name: 1.4301</p> <p>Young's modulus: 2,1e+11 N/m²</p> <p>Poisson's ratio: 0,28</p> <p>Preload (Torque): 60 N.m</p> <p>Friction Factor (K): 0,2</p> <p>Tight Fit: No</p>	

Connector Forces

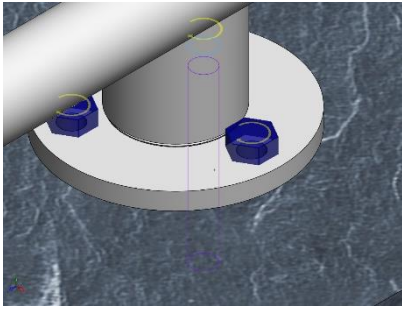
Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.297	0	19.297
Shear Force (N)	4,9405	0	-16,396	17,124
Bending moment (N.m)	0,68163	0	0,17078	0,7027

 <p>screw-2</p>	<p>Entities: 1 edge(s), 1 face(s)</p> <p>Type: Bolt(Head/Nut diameter)(Count erbore screw)</p> <p>Connection Type: Distributed</p> <p>Head diameter: 19,5 mm</p> <p>Nominal shank diameter: 13 mm</p> <p>Material name: 1.4301</p> <p>Young's modulus: 2,1e+11 N/m²</p> <p>Poisson's ratio: 0,28</p> <p>Preload (Torque): 60 N.m</p> <p>Friction Factor (K): 0,2</p> <p>Tight Fit: No</p>	
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Connector Forces

Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.100	0	19.100
Shear Force (N)	1,4962	0	5,736	5,9279
Bending moment (N.m)	-0,22787	0	0,20403	0,30586



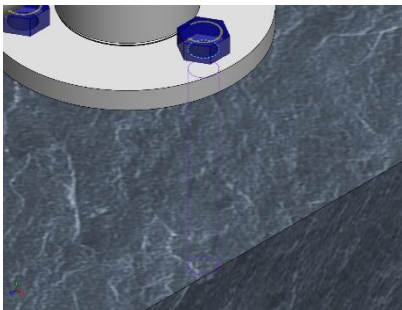


screw-3

Entities: 1 edge(s), 1 face(s)
Type: Bolt(Head/Nut diameter)(Count er bore screw)
Connection Type: Distributed
Head diameter: 19,5 mm
Nominal shank diameter: 13 mm
Material name: 1.4301
Young's modulus: 2,1e+11 N/m²
Poisson's ratio: 0,28
Preload (Torque): 60 N.m
Friction Factor (K): 0,2
Tight Fit: No

Connector Forces

Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.294	0	19.294
Shear Force (N)	6,3241	0	12,052	13,611
Bending moment (N.m)	-0,51202	0	0,2282	0,56057



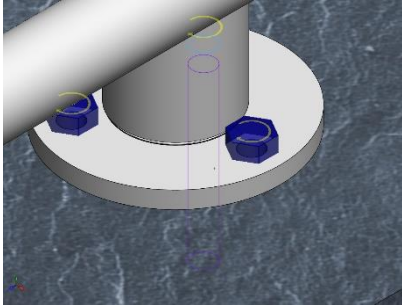
screw-4

Entities: 1 edge(s), 1 face(s)
Type: Bolt(Head/Nut diameter)(Count er bore screw)
Connection Type: Distributed
Head diameter: 19,5 mm
Nominal shank diameter: 13 mm
Material name: 1.4301
Young's modulus: 2,1e+11 N/m²
Poisson's ratio: 0,28
Preload (Torque): 60 N.m
Friction Factor (K): 0,2
Tight Fit: No



Connector Forces

Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.098	0	19.098
Shear Force (N)	5,0034	0	7,1961	8,7646
Bending moment (N.m)	-0,28497	0	0,34213	0,44527

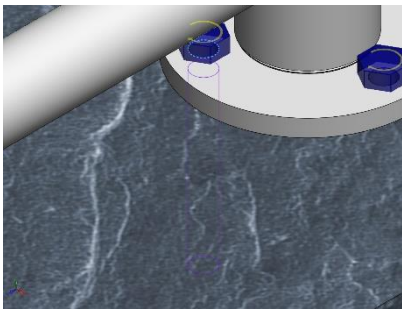


screw-5

Entities: 1 edge(s), 1 face(s)
Type: Bolt(Head/Nut diameter)(Count erbare screw)
Connection Type: Distributed
Head diameter: 19,5 mm
Nominal shank diameter: 13 mm
Material name: 1.4301
Young's modulus: 2,1e+11 N/m²
Poisson's ratio: 0,28
Preload (Torque): 60 N.m
Friction Factor (K): 0,2
Tight Fit: No

Connector Forces

Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.295	0	19.295
Shear Force (N)	7,5984	0	16,697	18,344
Bending moment (N.m)	-0,69943	0	0,27734	0,75241



screw-6

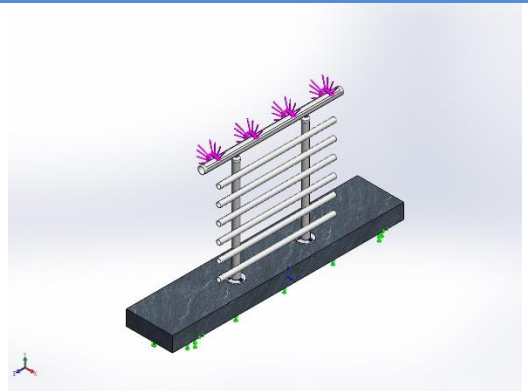
Entities: 1 edge(s), 1 face(s)
Type: Bolt(Head/Nut diameter)(Count erbare screw)
Connection Type: Distributed
Head diameter: 19,5 mm
Nominal shank diameter: 13 mm
Material name: 1.4301
Young's modulus: 2,1e+11 N/m²
Poisson's ratio: 0,28
Preload (Torque): 60 N.m
Friction Factor (K): 0,2
Tight Fit: No

Connector Forces

Type	X-Component	Y-Component	Z-Component	Resultant
Axial Force (N)	0	19.298	0	19.298
Shear Force (N)	2,2004	0	-12,108	12,307
Bending moment (N.m)	0,5016	0	0,058299	0,50498



Interaction Information

Interaction	Interaction Image	Interaction Properties
Global interaction		Type: Bonded Components: 1 component(s) Options: Independent mesh

Mesh information

Mesh type	Solid Mesh
Mesher Used:	Blended curvature-based mesh
Jacobian points for High quality mesh	16 Points
Maximum element size	95,1232 mm
Minimum element size	4,75616 mm
Mesh Quality	High

Mesh information - Details

Total Nodes	360910
Total Elements	203486
Maximum Aspect Ratio	34.611
% of elements with Aspect Ratio < 3	41,6
Percentage of elements with Aspect Ratio > 10	28,2
Percentage of distorted elements	0
Time to complete mesh(hh;mm;ss):	00:00:45
Computer name:	Byildiz



Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	-585,633	666,82	-0,00308609	887,477

Reaction Moments

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

Free body forces

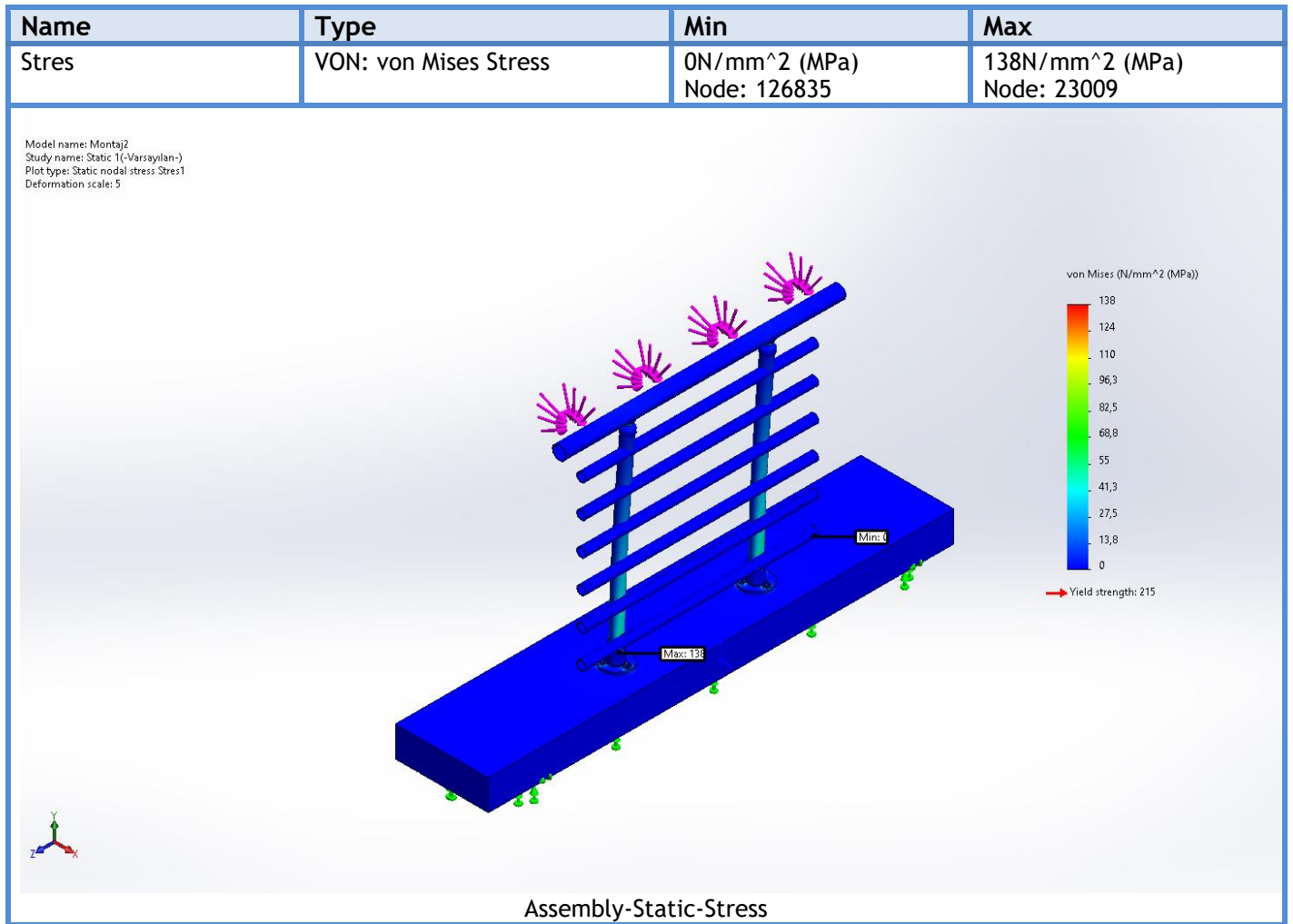
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	-0,00356483	-0,0106812	0,00108337	0,0113123

Free body moments

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	1e-33

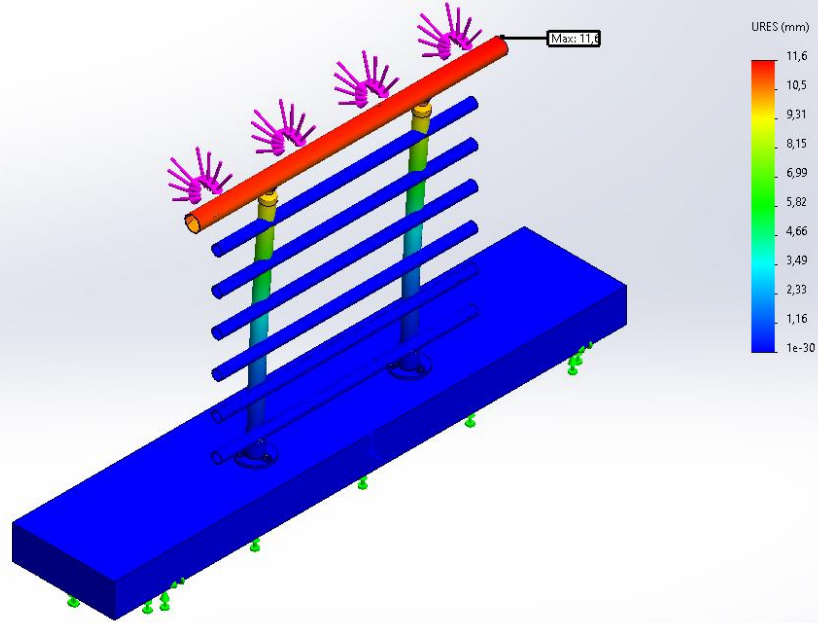


Study Results



Name	Type	Min	Max
Displacement	URES: Resultant Displacement	0mm Node: 126835	11,6mm Node: 3682

Model name: Montaj2
Study name: Static 1(-Varsayilan-)
Plot type: Static displacement Yer deęiřtirme1
Deformation scale: 5

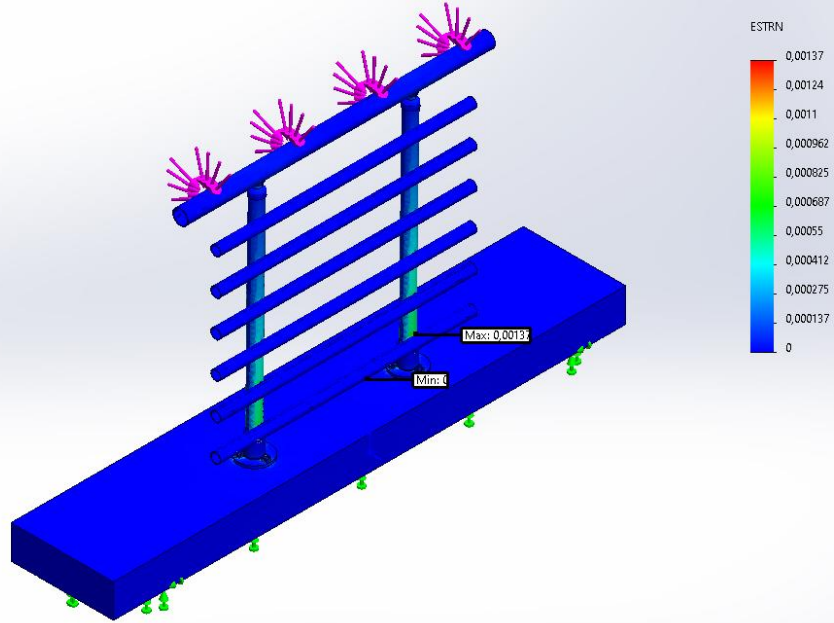


Assembly-Static-Displacement



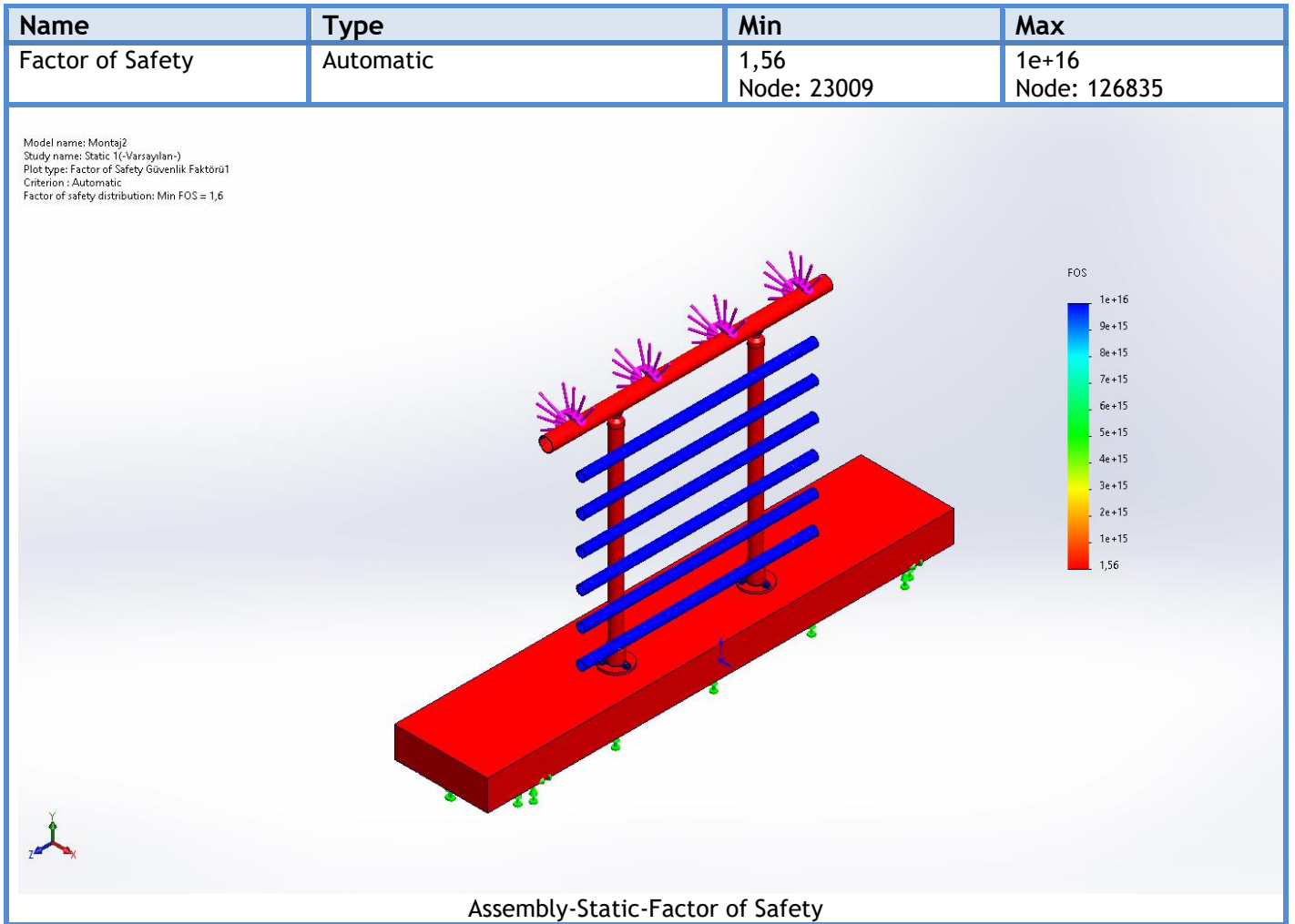
Name	Type	Min	Max
Strain	ESTRN: Equivalent Strain	0 Element: 66857	0,00137 Element: 83053

Model name: Montaj2
 Study name: Static 1(-Varsayilan-)
 Plot type: Static strain Gerinim1
 Deformation scale: 1



Assembly-Static-Strain





Conclusion

