

Stress analysis of adaptador

Author: Juan Sebastian Elejalde Sierra

Company: Universidad EAFIT

Date: Junio 2 de 2010

1. [Introduction](#)
2. [File Information](#)
3. [Materials](#)
4. [Load & Restraint Information](#)
5. [Study Property](#)
6. [Contact](#)
7. [Results](#)
 - a. [Default Results](#)
8. [Appendix](#)

1. Introduction

Summarize the FEM analysis on adaptador

Note:

Do not base your design decisions solely on the data presented in this report. Use this information in conjunction with experimental data and practical experience. Field testing is mandatory to validate your final design. COSMOSWorks helps you reduce your time-to-market by reducing but not eliminating field tests.

2. File Information

Model name: adaptador

Model location: D:\Archivos\Documentos\Universidad\Tesis\Modelacion\adaptador.SLDPR T

Results location: C:\DOCUME~1\SEBAST~1\LOCALS~1\Temp

Study name: Study 1 (-Default-)

3. Materials

No.	Part Name	Material	Mass	Volume
1	adaptador	AISI 304	0.00117984 kg	1.4748e-007 m ³

4. Load & Restraint Information

Restraint	
Restraint-1 <adaptador>	on 1 Face(s) fixed.
Description:	

Load		
Pressure-1	on 4 Face(s) with Pressure	Sequential

<adaptador>	6.0795e+006 N/m ² along direction normal to selected face	Loading
Description:		
Temperature-3 <adaptador>	on 5 Face(s) with temperature 200 Celsius	
Description:		

5. Study Property

Mesh Information	
Mesh Type:	Solid mesh
Mesher Used:	Standard
Automatic Transition:	Off
Smooth Surface:	On
Jacobian Check:	4 Points
Element Size:	0.26876 mm
Tolerance:	0.013438 mm
Quality:	High
Number of elements:	49199
Number of nodes:	72949
Time to complete mesh(hh:mm:ss):	00:00:33
Computer name:	ACER-2E68C49B20

Solver Information	
Quality:	High
Solver Type:	FFEPlus
Option:	Include Thermal Effects
Thermal Option:	Input Temperature
Thermal Option:	Reference Temperature at zero strain: 298 Kelvin

6. Contact

Contact state: Touching faces - Bonded

7. Results

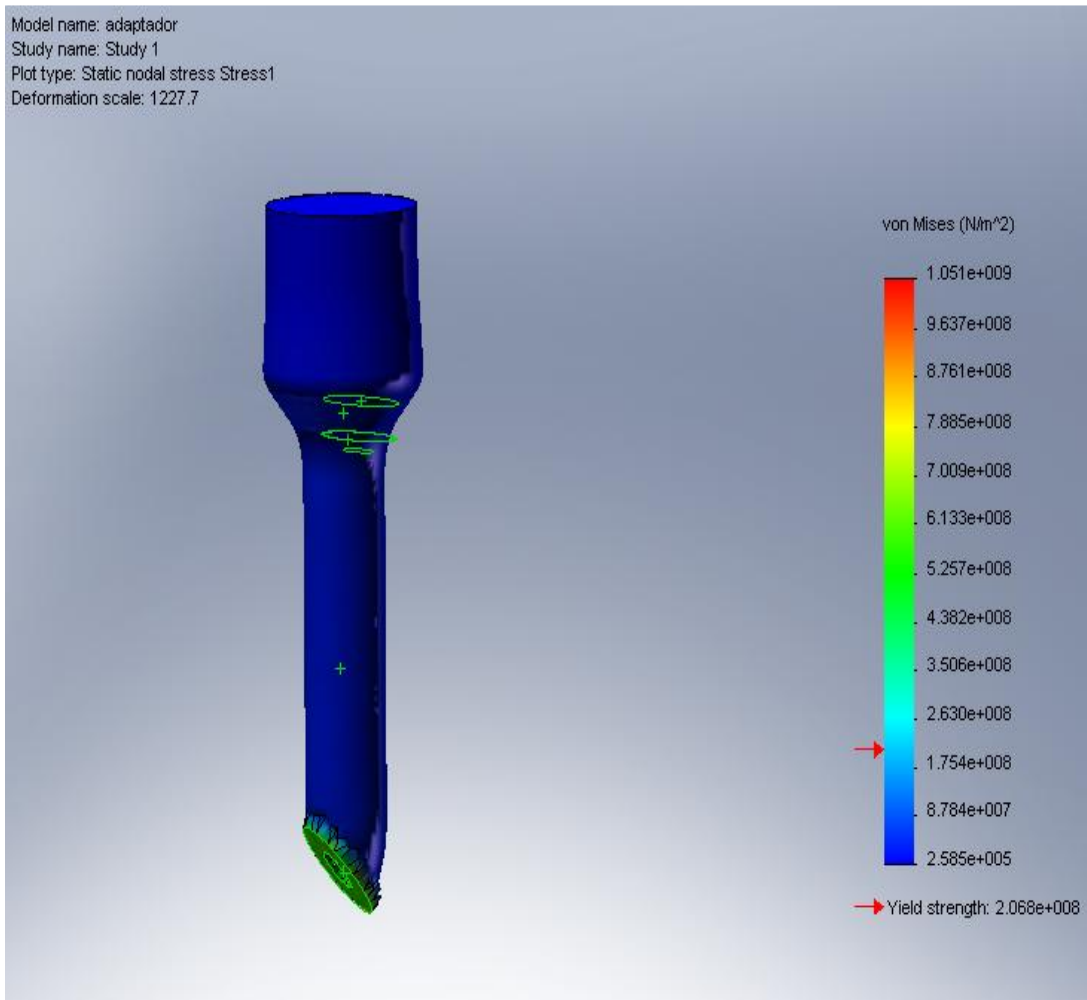
7a. Default Results

Name	Type	Min	Location	Max	Location
Stress1	VON: von Mises stress	258453 N/m ² Node: 3447	(1.01684 mm, -2.28386 mm, -8.70409 mm)	1.05124e+009 N/m ² Node: 64514	(-0.25 mm, -0.433013 mm, 7.60291 mm)
Displacement1	URES: Resultant displacement	0 m Node: 1176	(-0.5 mm, 9.18485e- 017 mm, 8.03592 mm)	1.62269e-006 m Node: 841	(- 0.261321 mm, 2.4863 mm, -9.23592 mm)
Strain1	ESTRN: Equivalent strain	8.39808e- 007 Element: 4708	(0.124313 mm, 0.0228002 mm, -6.68566 mm)	0.00267625 Element: 5436	(0.204938 mm, -0.483023 mm, 7.48746 mm)

adaptador-Study 1-Stress-Stress1

JPEG

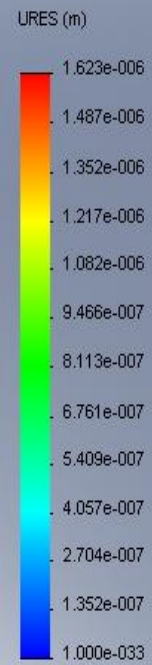
Model name: adaptador
Study name: Study 1
Plot type: Static nodal stress Stress1
Deformation scale: 1227.7



adaptador-Study 1-Displacement-Displacement1

JPEG

Model name: adaptor
Study name: Study 1
Plot type: Static displacement Displacement1
Deformation scale: 1227.7



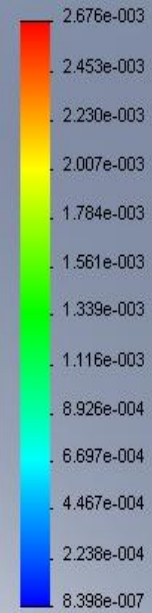
adaptor-Study 1-Strain-Strain1

JPEG

Model name: adaptador
Study name: Study 1
Plot type: Static strain Strain1
Deformation scale: 1227.7

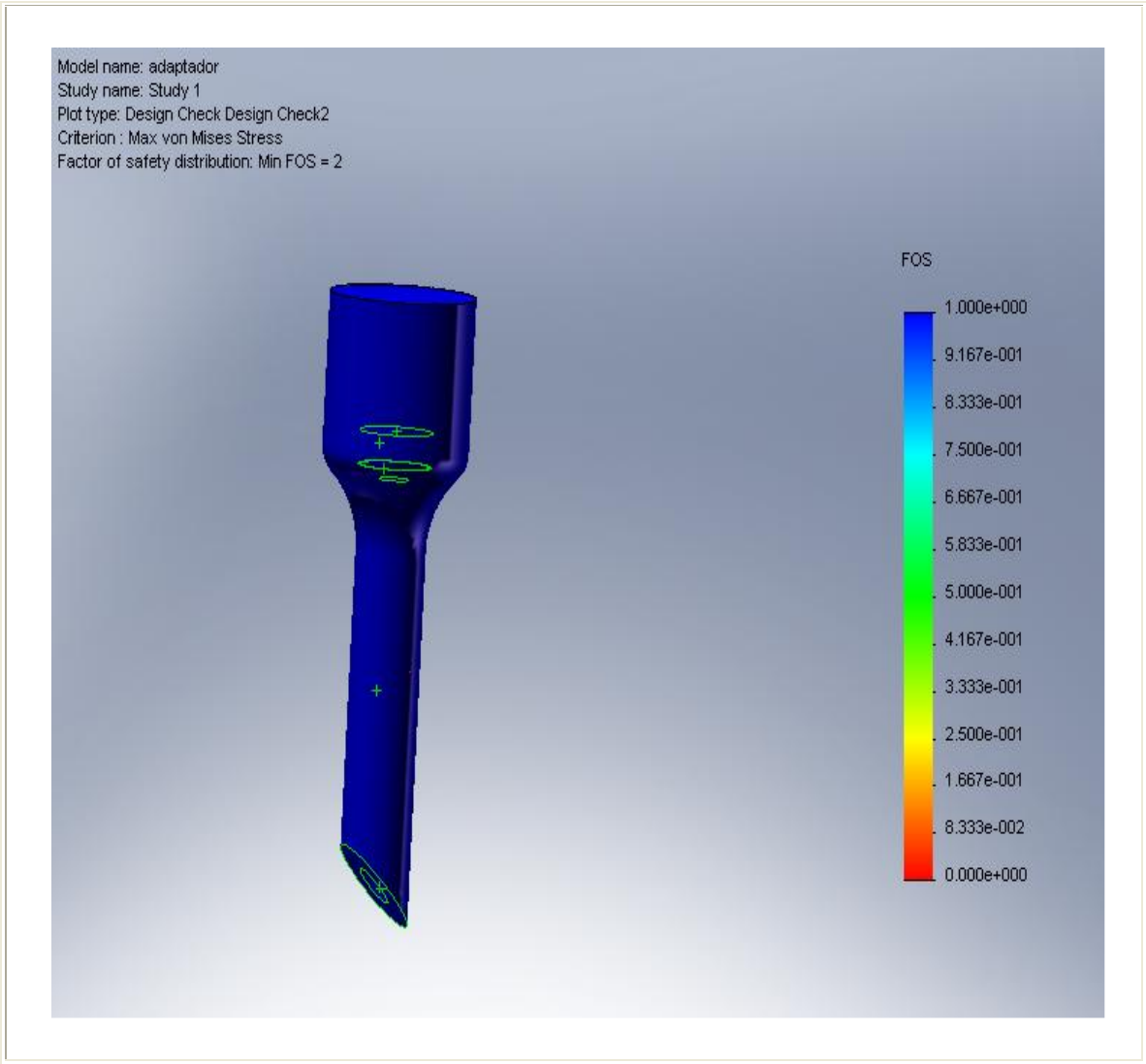


ESTRN



adaptador-Study 1-Design Check-Design Check2

JPEG



8. Appendix

Material name:	AISI 304
Description:	
Material Source:	Library files
Material Library Name:	cosmos materials

Material Model Type:

Linear Elastic Isotropic

Property Name	Value	Units	Value Type
Elastic modulus	1.9e+011	N/m ²	Constant
Poisson's ratio	0.29	NA	Constant
Shear modulus	7.5e+010	N/m ²	Constant
Mass density	8000	kg/m ³	Constant
Tensile strength	5.1702e+008	N/m ²	Constant
Yield strength	2.0681e+008	N/m ²	Constant
Thermal expansion coefficient	1.8e-005	/Kelvin	Constant
Thermal conductivity	16	W/(m.K)	Constant
Specific heat	500	J/(kg.K)	Constant
