

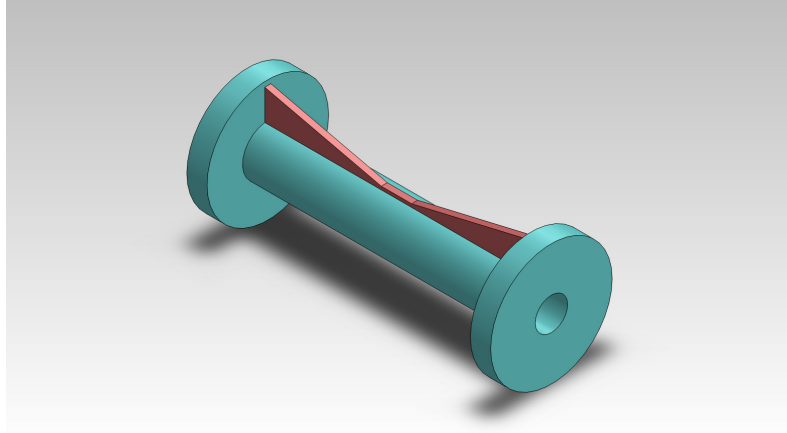


## Simulation of boru

Date: 21 Mayıs 2012 Pazartesi  
Designer: Solidworks  
Study name: Study 4  
Analysis type: Static

### Table of Contents

Description .....	1
Assumptions .....	2
Model Information .....	2
Study Properties .....	3
Units .....	3
Material Properties .....	4
Loads and Fixtures .....	5
Connector Definitions .....	5
Contact Information .....	5
Mesh Information .....	6
Sensor Details .....	7
Resultant Forces .....	7
Beams .....	8
Study Results .....	9
Conclusion .....	11

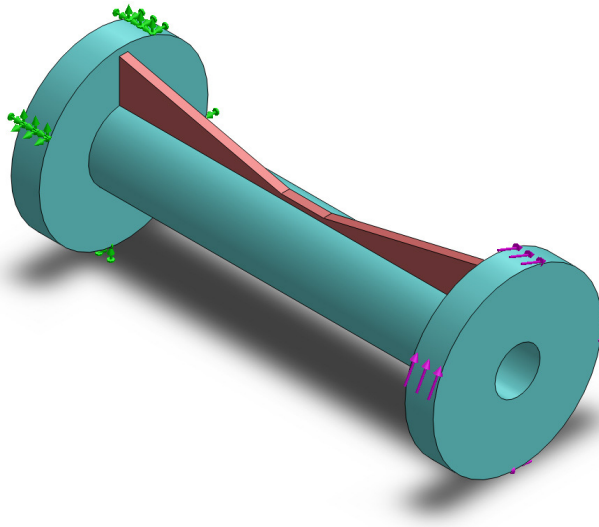


### Description

No Data

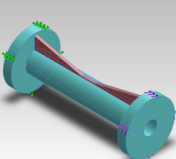
## Assumptions

## Model Information



Model name: boru  
Current Configuration: kısa kesikli

### Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Cut-Extrude4 	Solid Body	Mass:5.84847 kg Volume:0.000745028 m <sup>3</sup> Density:7850 kg/m <sup>3</sup> Weight:57.315 N	C:\Users\barisyilmaz\Desktop\CAD-CAE\Boru feder çalışması\boru.SLDPRT Dec 02 10:37:23 2011

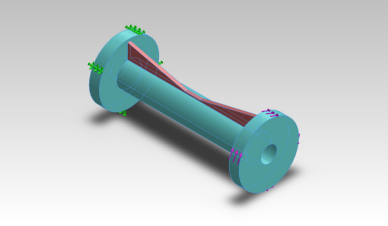
## Study Properties

Study name	Study 4
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
Result folder	SolidWorks document (C:\Users\barisyilmaz\Desktop\CAD-CAE\Boru feder çalışması)

## Units

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

## Material Properties

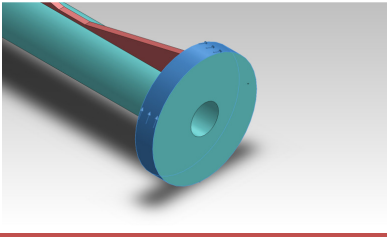
Model Reference	Properties	Components
	<p><b>Name:</b> AISI 1045 Steel, cold drawn</p> <p><b>Model type:</b> Linear Elastic Isotropic</p> <p><b>Default failure criterion:</b> Unknown</p> <p><b>Yield strength:</b> 5.3e+008 N/m<sup>2</sup></p> <p><b>Tensile strength:</b> 6.25e+008 N/m<sup>2</sup></p> <p><b>Elastic modulus:</b> 2.05e+011 N/m<sup>2</sup></p> <p><b>Poisson's ratio:</b> 0.29</p> <p><b>Mass density:</b> 7850 kg/m<sup>3</sup></p> <p><b>Shear modulus:</b> 8e+010 N/m<sup>2</sup></p> <p><b>Thermal expansion coefficient:</b> 1.2e-005 /Kelvin</p>	SolidBody 1(Cut-Extrude4)(boru)
Curve Data:N/A		

## Loads and Fixtures

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

### Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	-0.561962	-0.0271416	-0.0669136	0.566582
Reaction Moment(N-m)	0	0	0	0

Load name	Load Image	Load Details
Torque-1		<b>Entities:</b> 1 face(s) <b>Type:</b> Apply torque <b>Value:</b> 2000 N-m

## Connector Definitions

No Data

## Contact Information

No Data

## Mesh Information

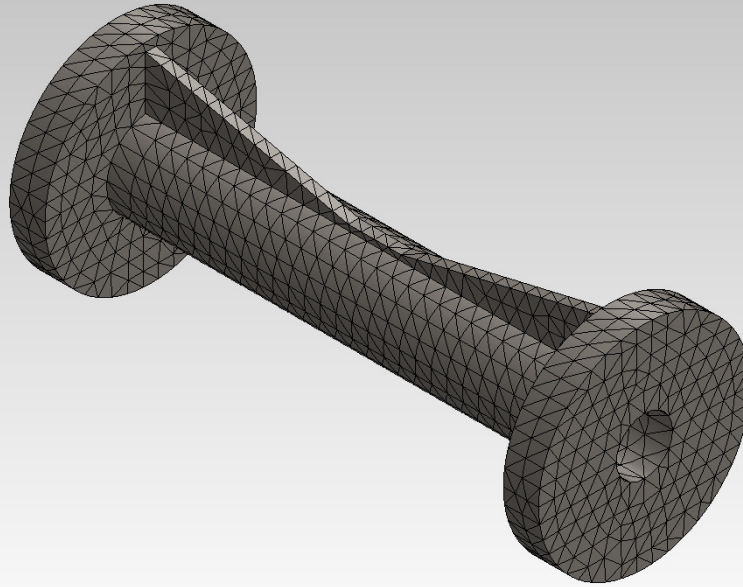
Mesh type	Solid Mesh
Mesher Used:	Curvature based mesh
Jacobian points	4 Points
Maximum element size	0 mm
Minimum element size	0 mm
Mesh Quality	High

## Mesh Information - Details

Total Nodes	14523
Total Elements	8285
Maximum Aspect Ratio	4.1072
% of elements with Aspect Ratio < 3	99.6
% of elements with Aspect Ratio > 10	0
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:02
Computer name:	BARISY



Model name: boru  
Study name: Study 4  
Mesh type: Solid mesh



## Sensor Details

No Data

## Resultant Forces

### Reaction Forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	-0.561962	-0.0271416	-0.0669136	0.566582

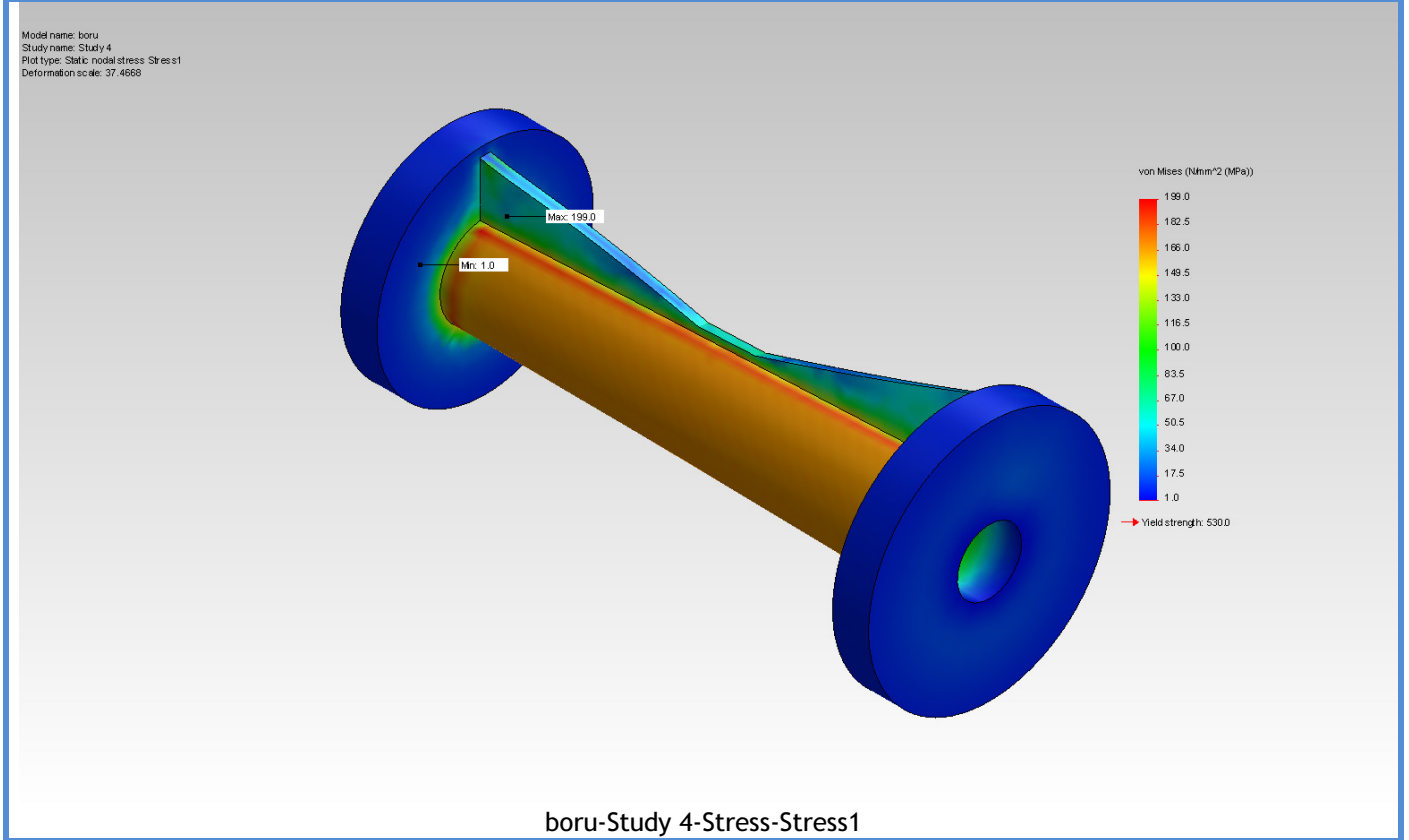
### Reaction Moments

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

**Beams**  
No Data

## Study Results

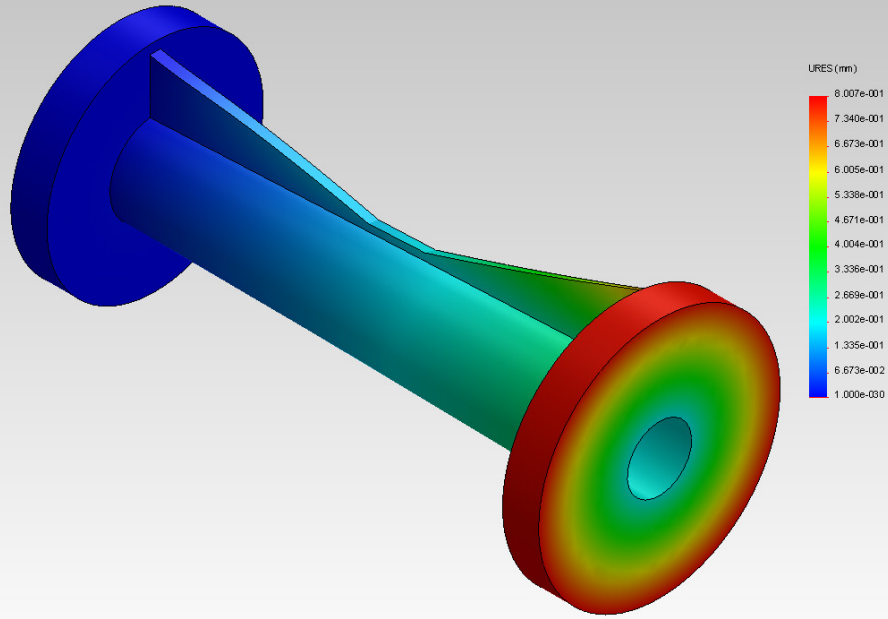
Name	Type	Min	Max
Stress1	VON: von Mises Stress	1.01917 N/mm <sup>2</sup> (MPa) Node: 42	198.981 N/mm <sup>2</sup> (MPa) Node: 10205



Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	0 mm Node: 771	0.80071 mm Node: 1388



Model name: boru  
Study name: Study 4  
Plot type: Static displacement Displacement1  
Deformation scale: 37.4668

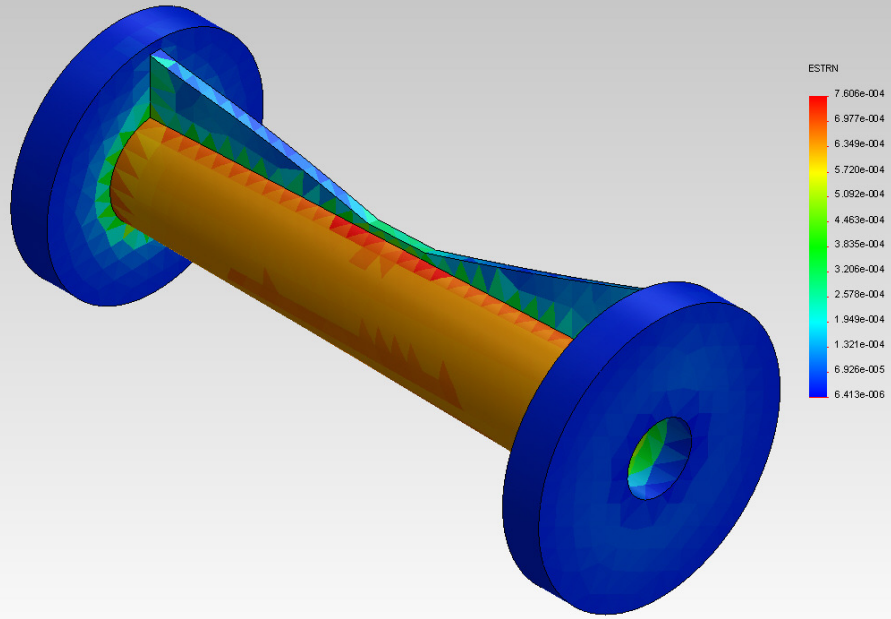


boru-Study 4-Displacement-Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain	6.41329e-006 Element: 5108	0.000760559 Element: 854



Model name: boru  
Study name: Study 4  
Plot type: Static strain Strain1  
Deformation scale: 37.4668



boru-Study 4-Strain-Strain1

Name	Type		
<SR_Name/>	<SR_Type/>	<SR_Min/>	<SR_Max/>
<Image_StudyResult/> <ImageCaption_StudyResult/>			

## Conclusion