Stress Analysis Report

Analyzed File:	
Autodesk Inventor Version:	2015 (Build 190159000, 159)
Creation Date:	2014-12-21, 17:40
Simulation Author:	Jaman42

⊟ Project Info (iProperties)

⊟ Summary

Author	Jaman42

⊟ Project

Designer	Jaman42
Cost	0,00 kr
Date Created	2014-12-21

⊟ Status

Design Status	WorkInProgress

⊟ Physical

Mass	1,60403 kg
Area	152799 mm^2
Volume	594087 mm^3
Center of Gravity	x=-135,936 mm y=0 mm z=-53,4452 mm

Note: Physical values could be different from Physical values used by FEA reported below.

⊟ Simulation:1

General objective and settings:

Design Objective	Single Point
Simulation Type	Static Analysis
Last Modification Date	2014-12-21, 17:40
Detect and Eliminate Rigid Body Modes	Yes
Separate Stresses Across Contact Surfaces	No
Motion Loads Analysis	No

Mesh settings:

Avg. Element Size (fraction of model diameter)	0,1
Min. Element Size (fraction of avg. size)	0,2
Grading Factor	1,5
Max. Turn Angle	60 deg
Create Curved Mesh Elements	No
Use part based measure for Assembly mesh	Yes

⊟ Material(s)

Name	Aluminum 6061	

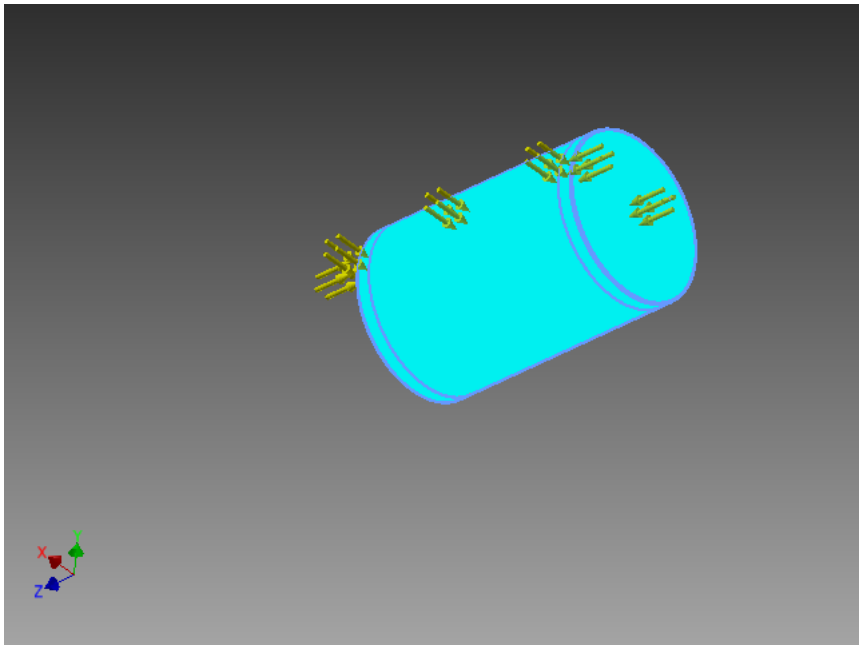
General	Mass Density	2,7 g/cm^3
	Yield Strength	275 MPa
	Ultimate Tensile Strength	310 MPa
Stress	Young's Modulus	68,9 GPa
	Poisson's Ratio	0,33 ul
	Shear Modulus	25,9023 GPa
Part Name(s)	110mm tube.ipt 110mm tube plug weld.ipt 110mm tube plug weld.ipt	

Operating conditions

Pressure:1

Load Type	Pressure
Magnitude	3.100 MPa

Selected Face(s)



Results

Reaction Force and Moment on Constraints

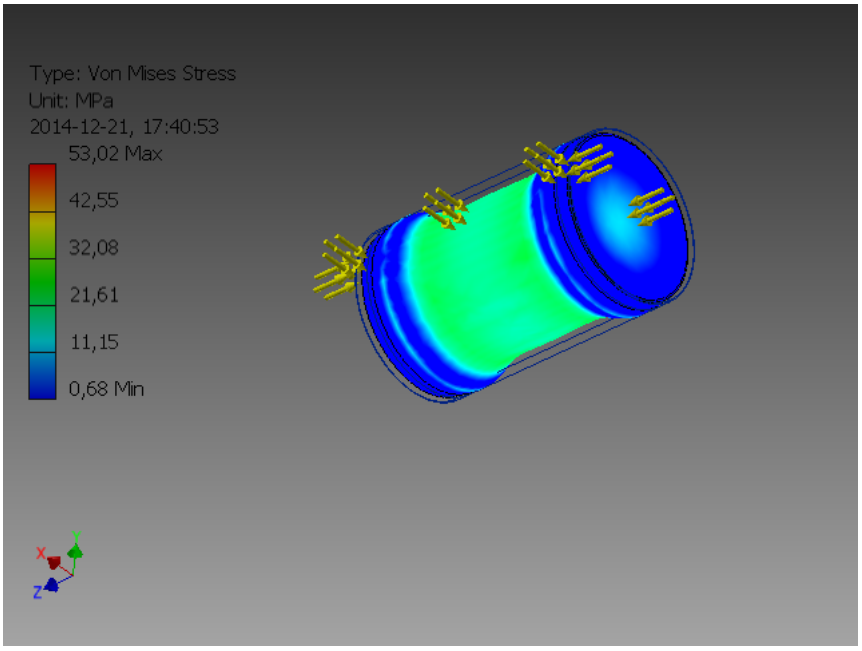
Constraint Name	Reaction Force		Reaction Moment	
	Magnitude	Component (X,Y,Z)	Magnitude	Component (X,Y,Z)

Result Summary

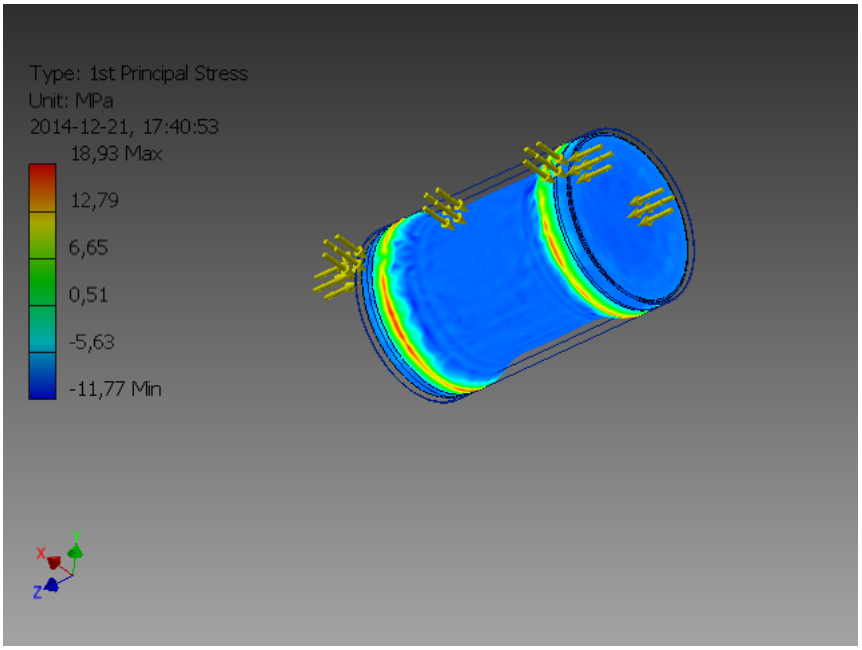
Name	Minimum	Maximum
Volume	594087 mm^3	
Mass	1,60403 kg	
Von Mises Stress	0,677634 MPa	53,0181 MPa
1st Principal Stress	-11,7709 MPa	18,9321 MPa
3rd Principal Stress	-64,2166 MPa	1,78949 MPa
Displacement	0,00457437 mm	0,029154 mm
Safety Factor	5,18691 ul	15 ul

Figures

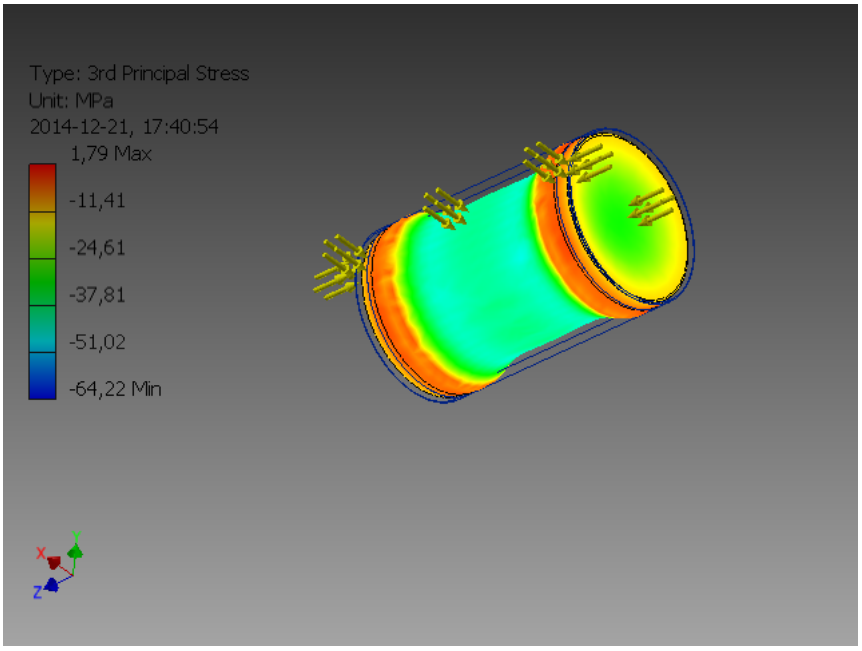
Von Mises Stress



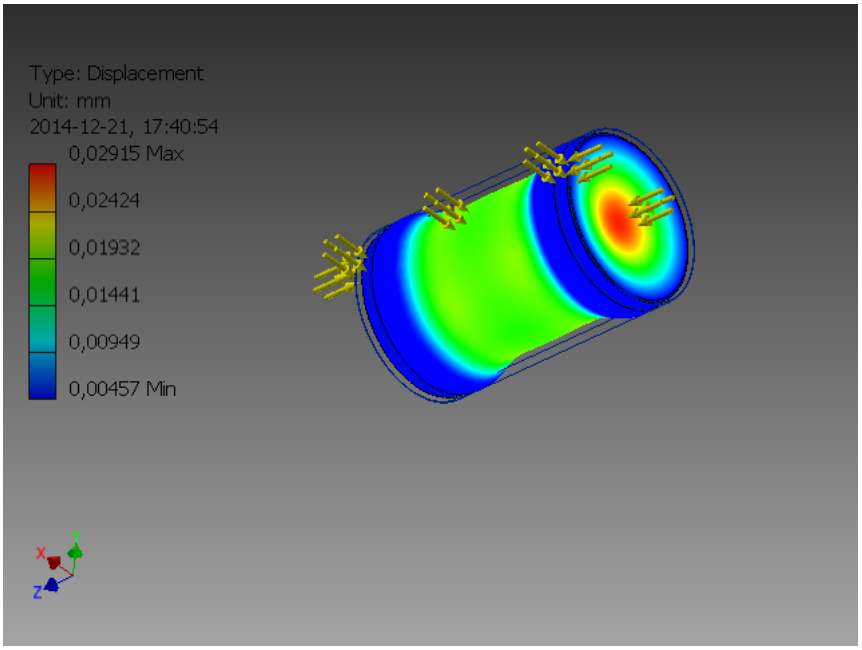
⊟ 1st Principal Stress



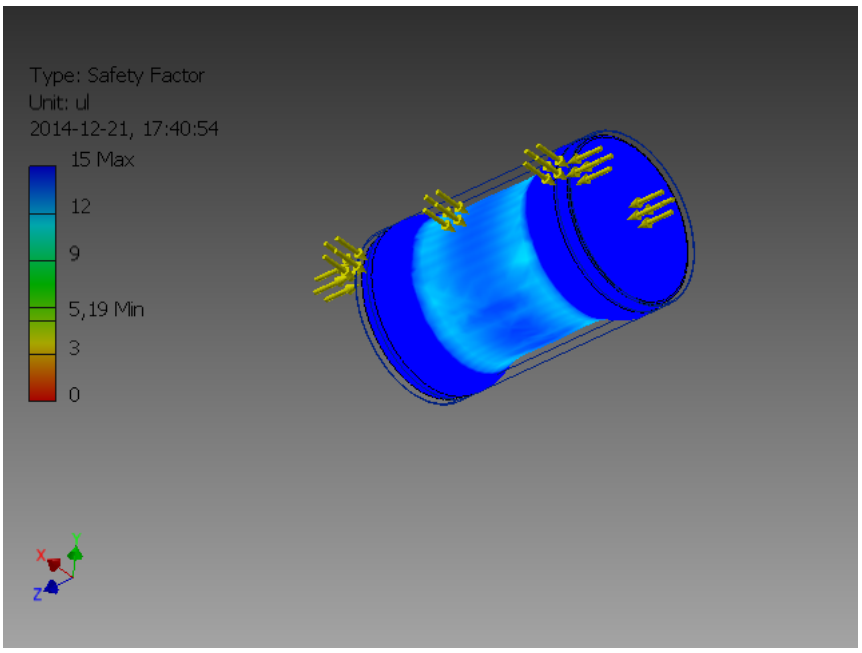
⊟ 3rd Principal Stress



⊟ Displacement



⊟ Safety Factor


Type: Safety Factor
Unit: ul
2014-12-21, 17:40:54
15 Max
12
9
5,19 Min
3
0
X
Y
Z