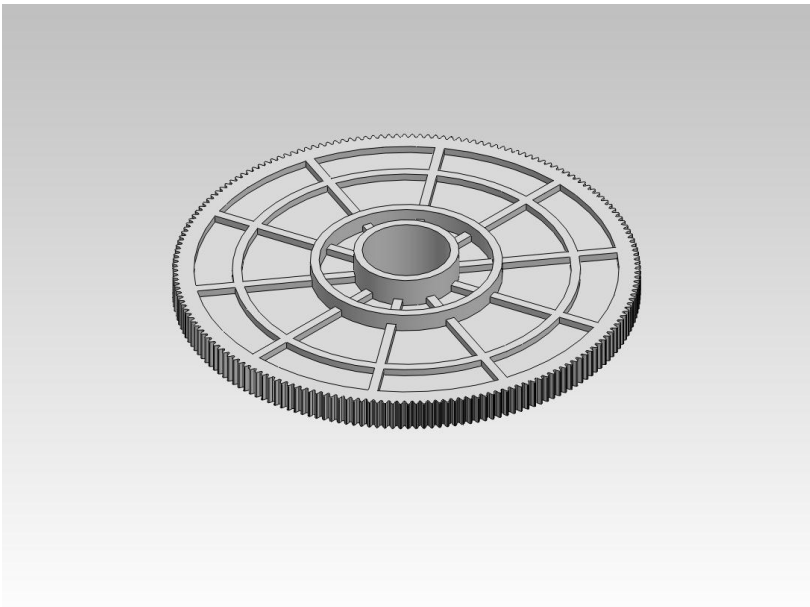


Simulation of Current_LargeGear (I)

Date: Tuesday, November 06, 2012
Designer: Solidworks
Study name: SimulationXpress Study
Analysis type: Static

Table of Contents

Description.....	1
Assumptions	2
Model Information	2
Material Properties	3
Loads and Fixtures.....	4
Mesh Information	5
Study Results	7
Conclusion	9

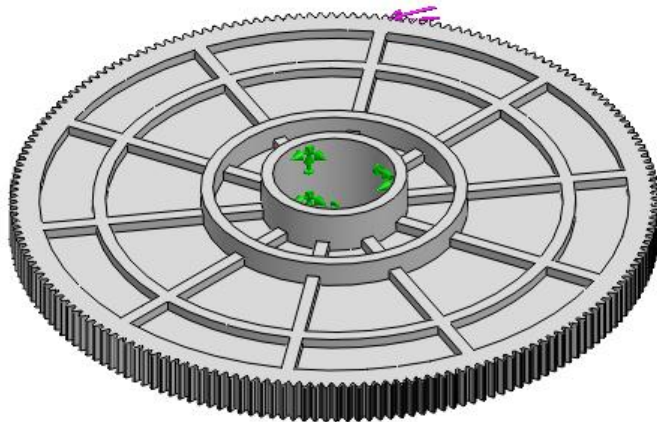


Description

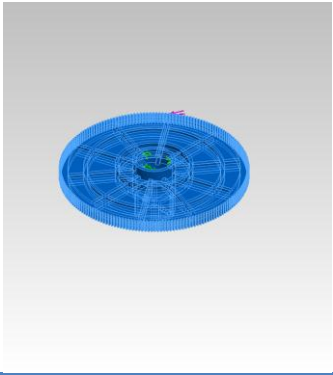
Current Large Gear when 25 lbf is applied to pedal on crank arm.

Assumptions

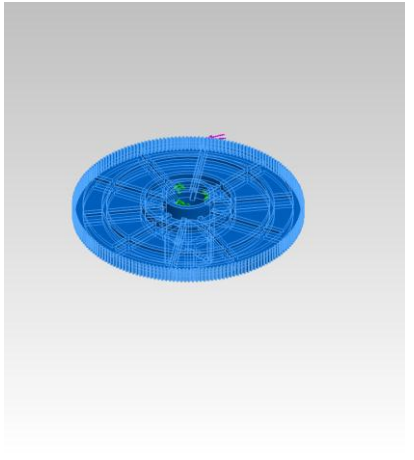
Model Information



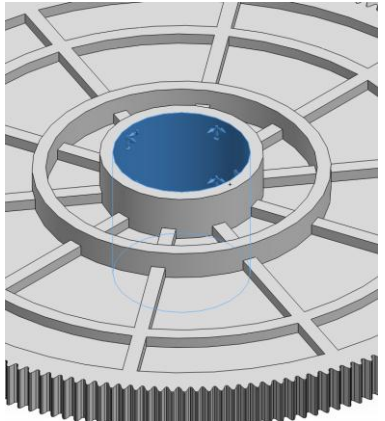
Model name: Current_LargeGear (I)
Current Configuration: Default

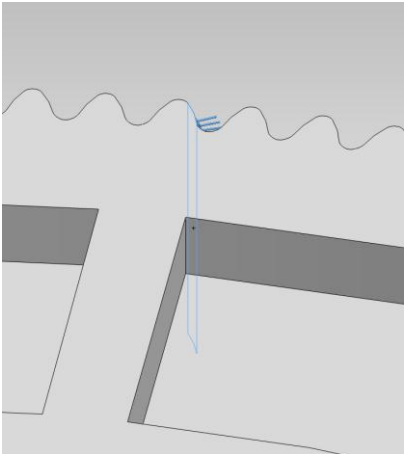
Solid Bodies			
Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Boss-Extrude9 	Solid Body	Mass:0.310852 lb Volume:8.28497 in ³ Density:0.03752 lb/in ³ Weight:0.310641 lbf	E:\Sr. Design\Concept Parts\Current CAD\Current_LargeGear (I).SLDPRT Nov 06 00:01:12 2012

Material Properties

Model Reference	Properties	Components
	Name: HARBEC Plastic Model type: Linear Elastic Isotropic Default failure criterion: Max von Mises Stress Tensile strength: 10700 psi	SolidBody 1(Boss-Extrude9)(Current_LargeGear (I))

Loads and Fixtures

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

Load name	Load Image	Load Details
Force-1		<p>Entities: 1 face(s) Type: Apply normal force Value: 44.64 lbf</p>

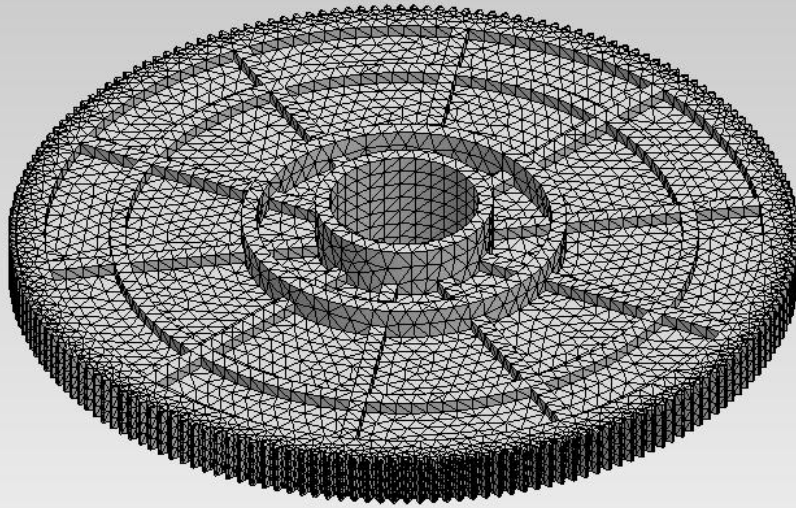
Mesh Information

Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points	4 Points
Element Size	0.125773 in
Tolerance	0.00628863 in
Mesh Quality	High

Mesh Information - Details

Total Nodes	113927
Total Elements	66114
Maximum Aspect Ratio	12.169
% of elements with Aspect Ratio < 3	78.3
% of elements with Aspect Ratio > 10	0.065
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:52
Computer name:	TWCVIA07

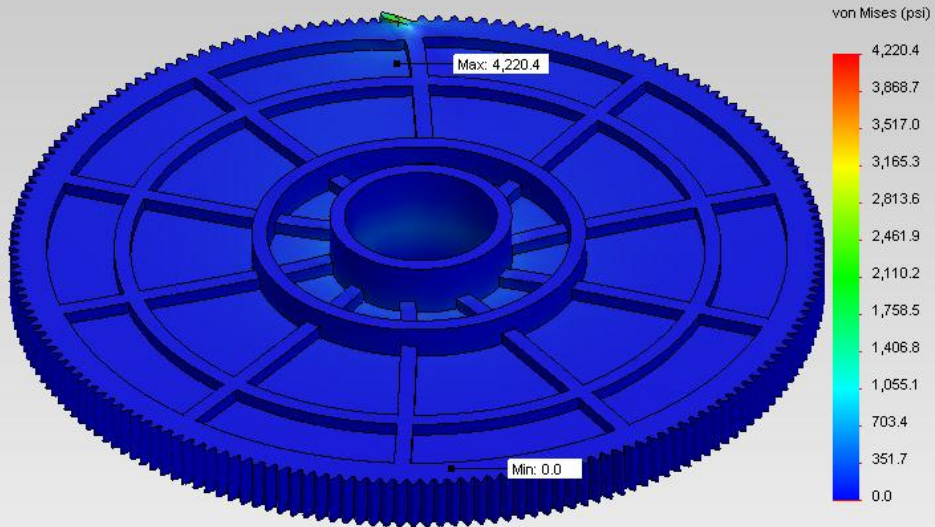
Model name: Current_LargeGear (1)
Study name: SimulationXpress Study
Meshtype: Solid mesh



Study Results

Name	Type	Min	Max
Stress	VON: von Mises Stress	0.00019689 psi Node: 54198	4220.4 psi Node: 100963

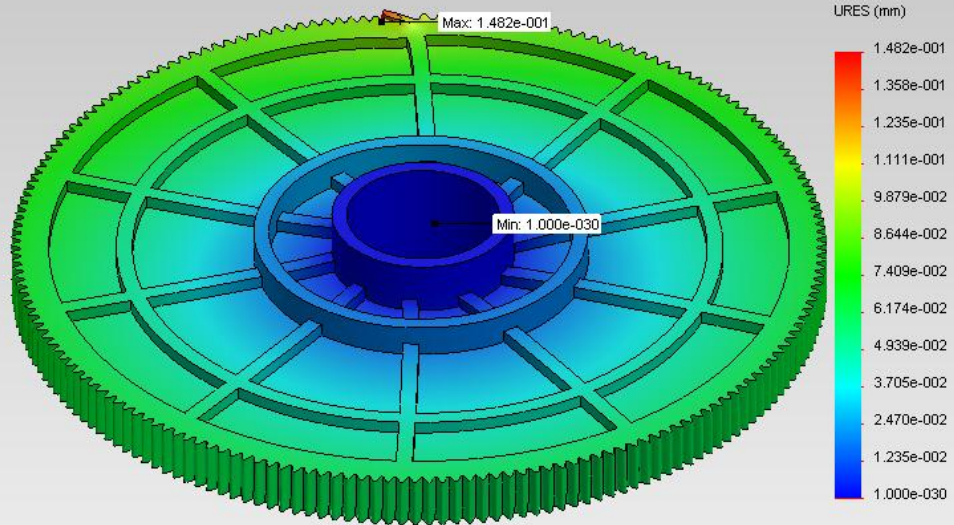
Model name: Current_LargeGear (I)
 Study name: SimulationXpress Study
 Plot type: Static nodal stress Stress
 Deformation scale: 1.37.333



Current_LargeGear (I)-SimulationXpress Study-Stress-Stress

Name	Type	Min	Max
Displacement	URES: Resultant Displacement	0 mm Node: 819	0.148184 mm Node: 10486

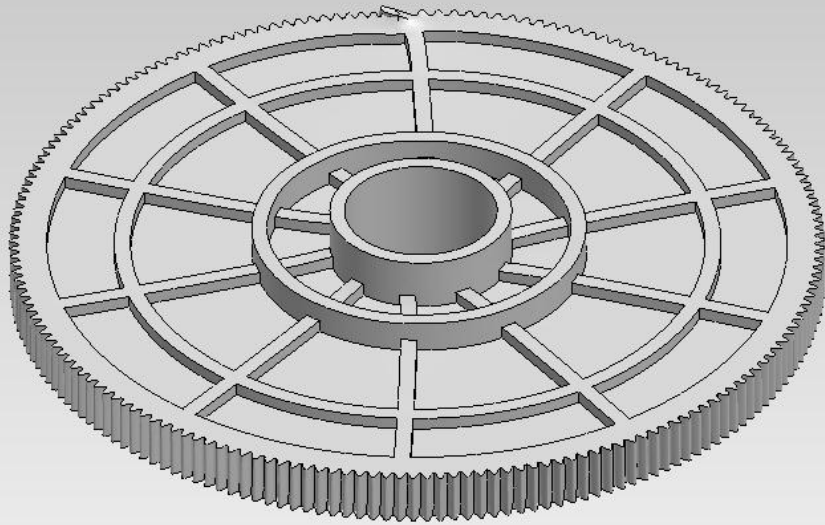
Model name: Current_LargeGear (I)
 Study name: SimulationXpress Study
 Plot type: Static displacement Displacement
 Deformation scale: 137.333



Current_LargeGear (I)-SimulationXpress Study-Displacement-Displacement

Name	Type
Deformation	Deformed Shape

Model name: Current_LargeGear (I)
Study name: SimulationXpress Study
Plot type: Deformed Shape Deformation
Deformation scale: 137.333



Current_LargeGear (I)-SimulationXpress Study-Displacement-Deformation

Conclusion