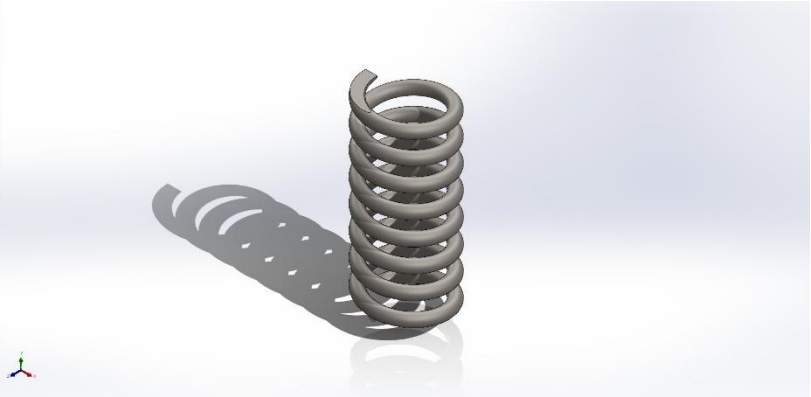


Simulation of Part1

Date: 16 March 2025
Designer: Solidworks
Study name: Static 1
Analysis type: Static

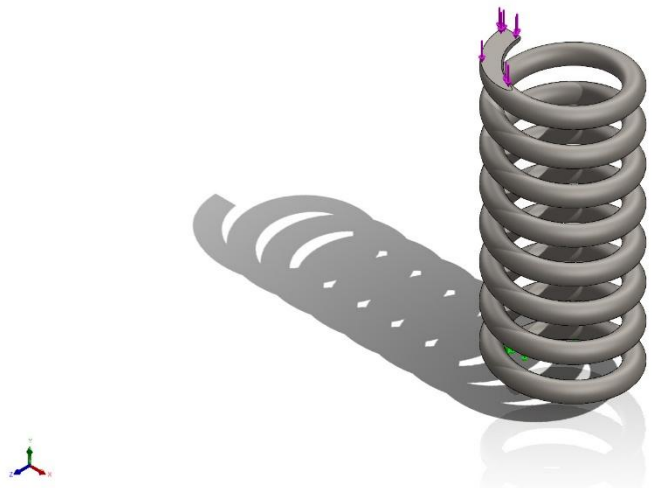
Table of Contents

Description

No Data

Assumptions

Model Information



Model name: Part1
Current Configuration: Default

Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Cut-Extrude2 	Solid Body	**Mass:0.0329663 kg** **Volume:4.19951e-06 m^3** **Density:7,850.02 kg/m^3** **Weight:0.32307 N**	

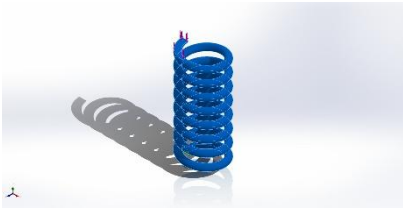
Study Properties

Study name	Static 1
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	On
Compute free body forces	On
Friction	Off
Use Adaptive Method:	Off
Result folder	SOLIDWORKS document (c:\users\pushk\appdata\local\temp)

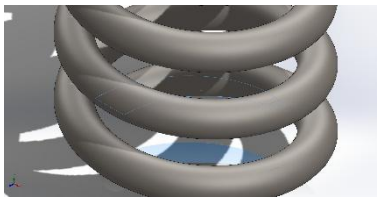
Units

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

Material Properties

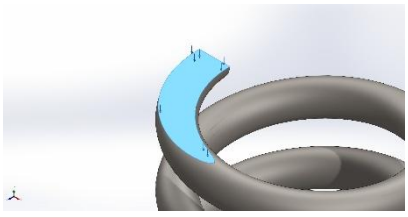
Model Reference	Properties	Components
	**Name:** AISI 1045 Steel, cold drawn **Model type:** Linear Elastic Isotropic **Default failure criterion:** Max von Mises Stress **Yield strength:** 5.3e+08 N/m^2 **Tensile strength:** 6.25e+08 N/m^2 **Elastic modulus:** 2.05e+11 N/m^2 **Poisson's ratio:** 0.29 **Mass density:** 7,850 kg/m^3 **Shear modulus:** 8e+10 N/m^2 **Thermal expansion coefficient:** 1.15e-05 /Kelvin	SolidBody 1(Cut-Extrude2)(Part1)
Curve Data:N/A		

Loads and Fixtures

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

Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	0.0606232	500.071	-0.0678902	500.071
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Force-1		**Entities:** 1 face(s) **Type:** Apply normal force **Value:** 500 N

Connector Definitions
No Data

Interaction Information
No Data

Mesh information

Mesh type	Solid Mesh
Mesher Used:	Blended curvature-based mesh
Jacobian points for High quality mesh	16 Points
Maximum element size	1.6143 mm
Minimum element size	0.538094 mm
Mesh Quality	High

Mesh information - Details

Total Nodes	25067
Total Elements	13566
Maximum Aspect Ratio	4.4326
% of elements with Aspect Ratio < 3	99.9
Percentage of elements with Aspect Ratio > 10	0
Percentage of distorted elements	0
Time to complete mesh(hh;mm;ss):	00:00:09
Computer name:	PUSHKIN

Sensor Details

No Data

Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0.0606232	500.071	-0.0678902	500.071

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	0	0	0

Free body moments

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

Beams

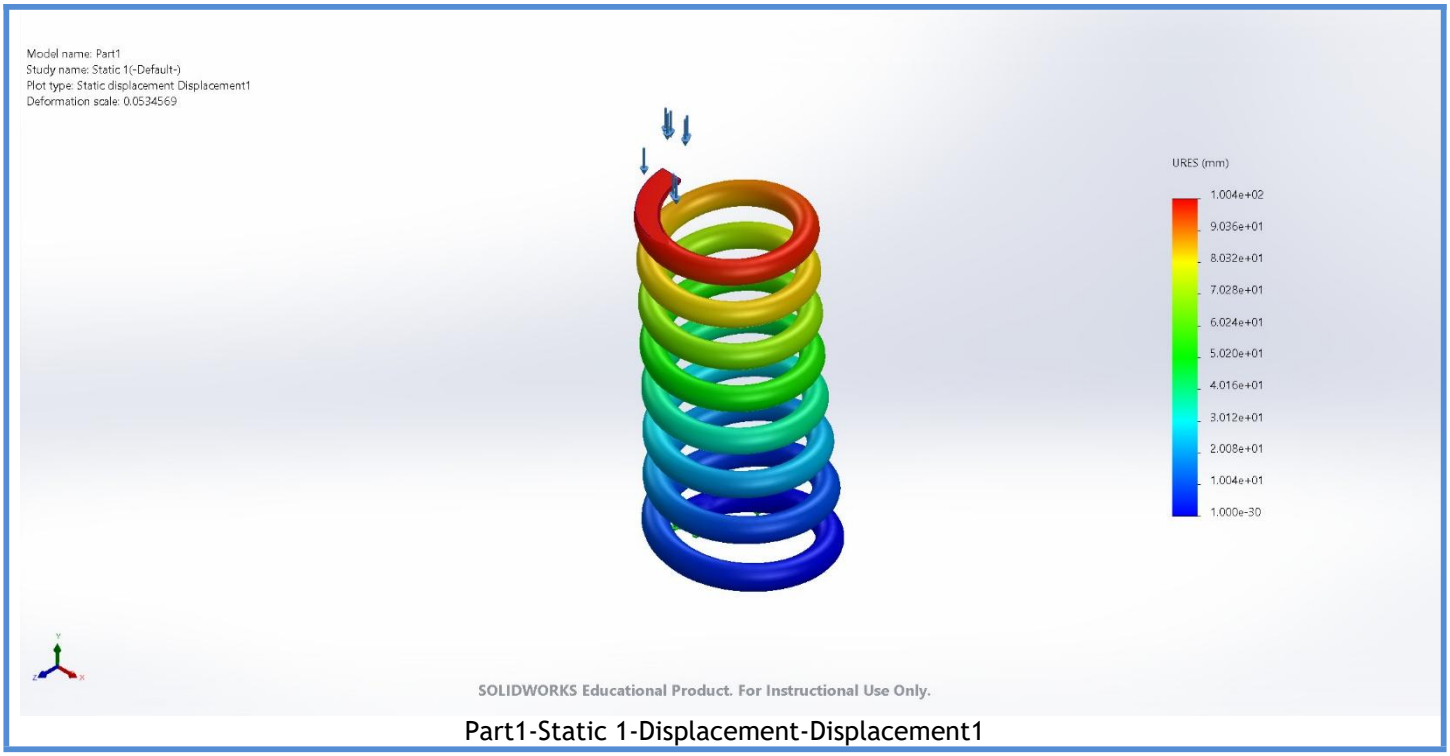
No Data

Study Results

Name	Type	Min	Max
Stress1	VON: von Mises Stress	9.097e+05N/m^2 Node: 18858	1.372e+10N/m^2 Node: 23

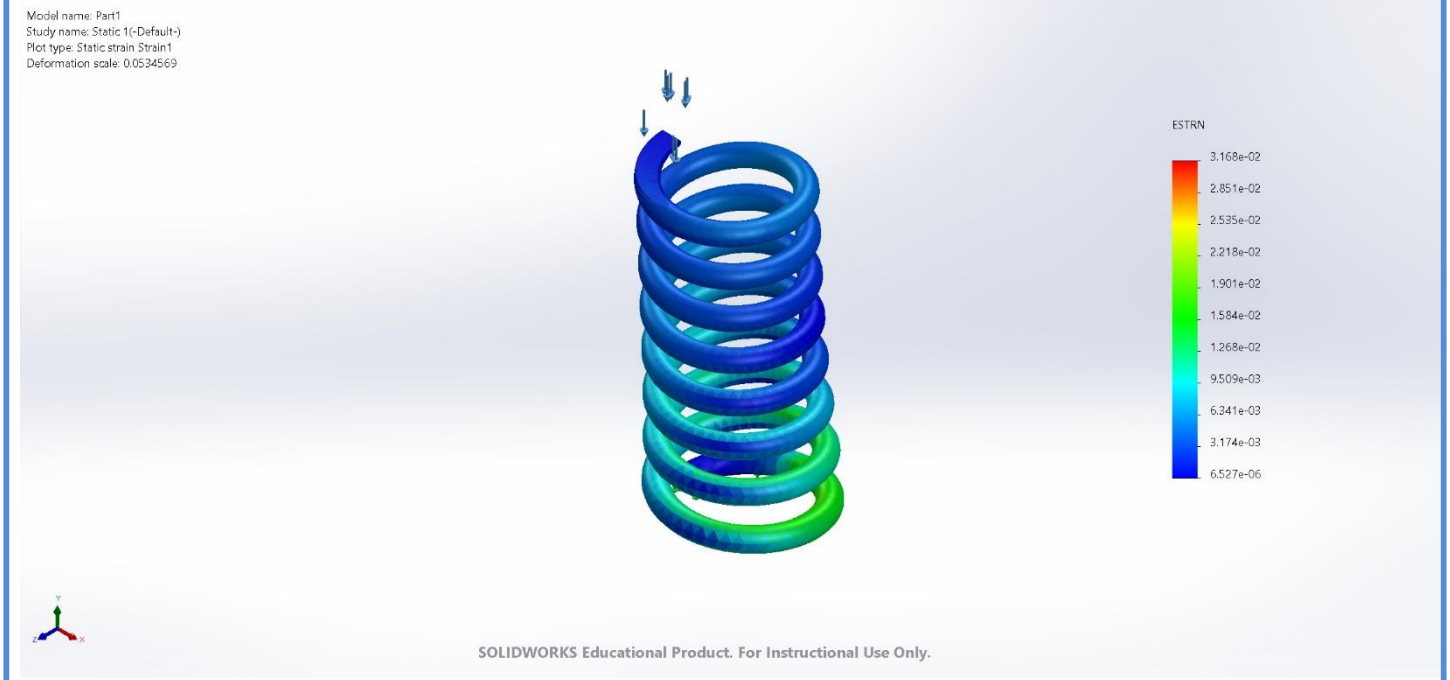
Part1-Static 1-Stress-Stress1

Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	0.000e+00mm Node: 3	1.004e+02mm Node: 42



Part1-Static 1-Displacement-Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain	6.527e-06 Element: 5121	3.168e-02 Element: 11275



Part1-Static 1-Strain-Strain1

Conclusion