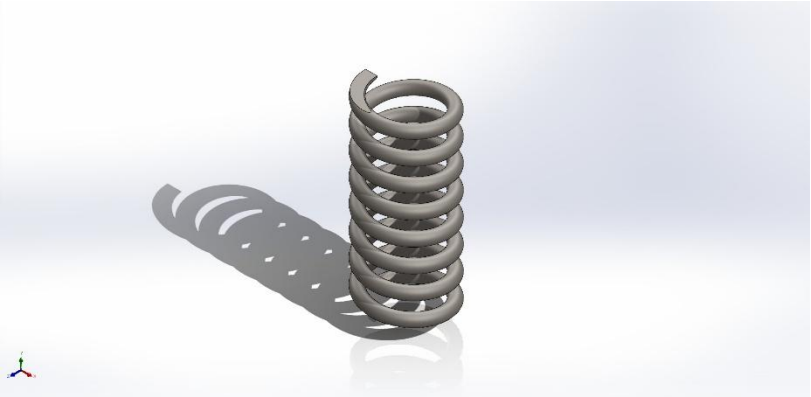

Simulation of Part1

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

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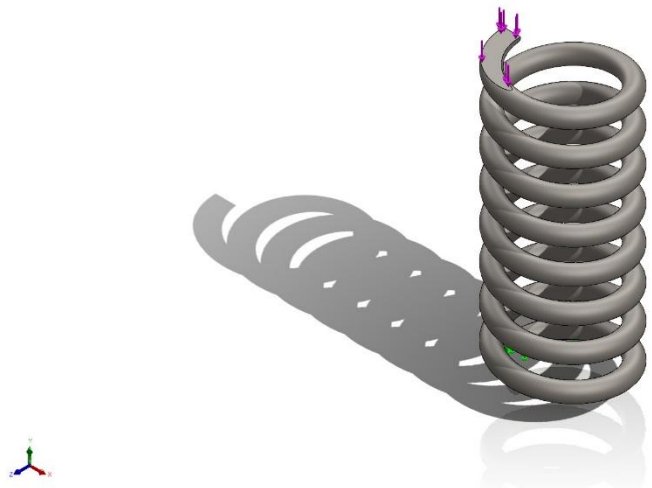
Description

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**	

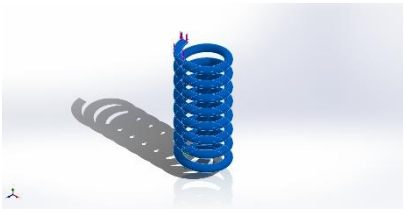
Study Properties

Study name	Buckling 1
Analysis type	Buckling
Mesh type	Solid Mesh
Number of modes	1
Solver type	FFEPlus
Incompatible bonding options	Automatic
Thermal Effect:	On
Thermal option	Include temperature loads
Zero strain temperature	298 Kelvin
Include fluid pressure effects from SOLIDWORKS Flow Simulation	Off
Soft Spring:	Off
Result folder	SOLIDWORKS document (c:\users\pushk\appdata\local\temp)

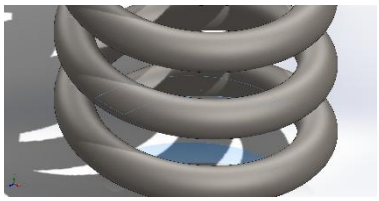
Units

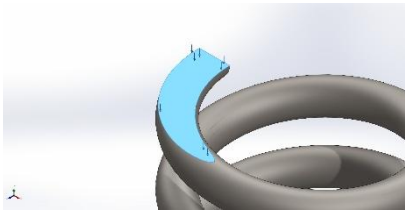
Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Kelvin
Angular velocity	Rad/sec
Pressure/Stress	N/m^2

Material Properties

Model Reference	Properties		Components
	**Name:**	AISI 1045 Steel, cold drawn	SolidBody 1(Cut-Extrude2)(Part1)
	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	
	Mass density:	7,850 kg/m^3	
	Elastic modulus:	2.05e+11 N/m^2	
	Poisson's ratio:	0.29	
	Thermal expansion coefficient:	1.15e-05 /Kelvin	
Curve Data:N/A			

Loads and Fixtures

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

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

Study Results

Name	Type	Min	Max
Amplitude1	AMPRES: Resultant Amplitude Plot for Mode Shape: 1(Load Factor = 0.150365)	0.000e+00 Node: 3	8.077e-03 Node: 5396

Part1-Buckling 1-Amplitude-Amplitude1

Mode List

Mode Number	Load Factor
1	0.15037

Conclusion