

## Simulation of New blade

**Date:** Monday, June 11, 2018  
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**Study name:** SimulationXpress Study  
**Analysis type:** Static

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### Description

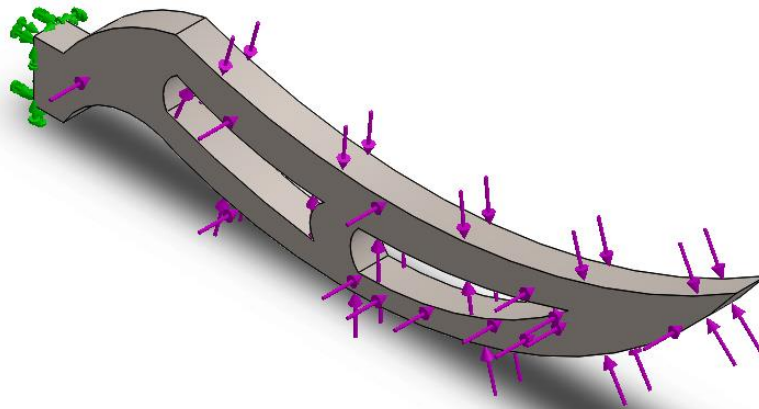
Simulation Flow SolidWorks II



# Assumptions

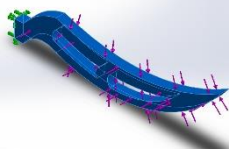


### Model Information



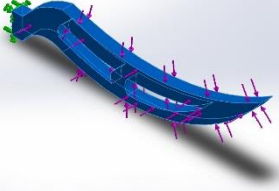
Model name: New blade  
Current Configuration: Default

#### Solid Bodies

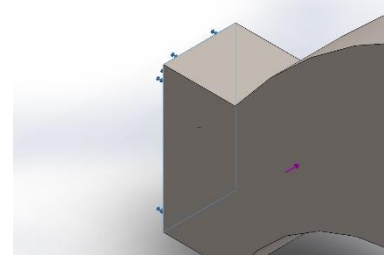
Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Cut-Extrude3 	Solid Body	Mass:0.747887 kg Volume:9.5151e-005 m <sup>3</sup> Density:7860 kg/m <sup>3</sup> Weight:7.32929 N	F:\Summer 2018\Mech 3510 (solidworks)\Day 6\New blade.SLDPRT Jun 07 19:12:34 2018

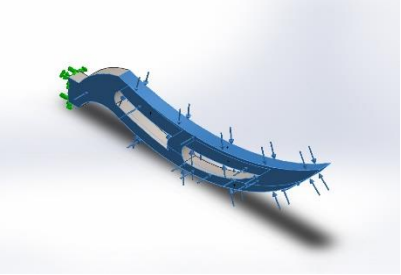


### Material Properties

Model Reference	Properties	Components
	<p><b>Name:</b> 201 Annealed Stainless Steel (SS)</p> <p><b>Model type:</b> Linear Elastic Isotropic</p> <p><b>Default failure criterion:</b> Max von Mises Stress</p> <p><b>Yield strength:</b> 2.92e+008 N/m<sup>2</sup></p> <p><b>Tensile strength:</b> 6.85e+008 N/m<sup>2</sup></p>	<p>SolidBody 1(Cut-Extrude3)(New blade)</p>

### Loads and Fixtures

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

Load name	Load Image	Load Details
Force-1		<p><b>Entities:</b> 5 face(s)</p> <p><b>Type:</b> Apply normal force</p> <p><b>Value:</b> 1 N</p>



**Mesh information**

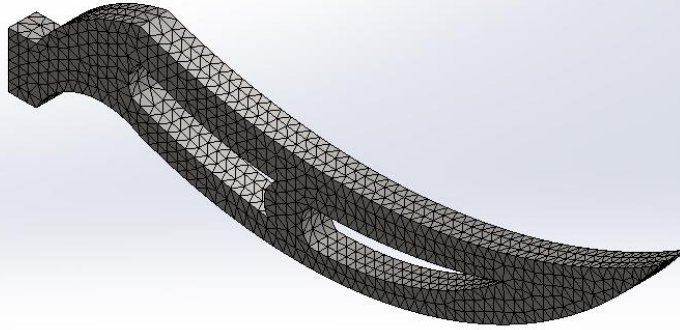
Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points	4 Points
Element Size	0.179792 in
Tolerance	0.00898962 in
Mesh Quality Plot	High

**Mesh information - Details**

Total Nodes	13511
Total Elements	7824
Maximum Aspect Ratio	3.6508
% of elements with Aspect Ratio < 3	99.8
% of elements with Aspect Ratio > 10	0
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:01
Computer name:	V511A-10



Model name: New blade  
Study name: SimulationXpress Study (Default)  
Mesh type: Solid Mesh



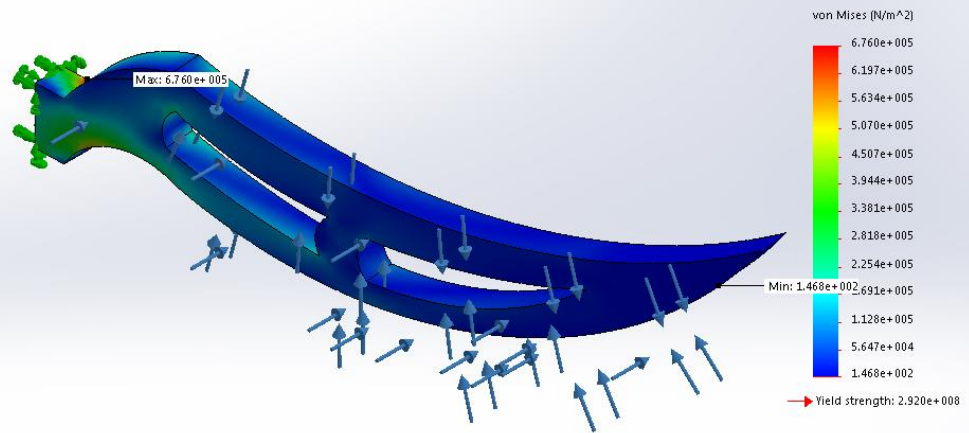
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## Study Results

Name	Type	Min	Max
Stress	VON: von Mises Stress	1.468e+002N/m <sup>2</sup> Node: 154	6.760e+005N/m <sup>2</sup> Node: 10188

Model name: New blade  
Study name: SimulationXpress Study-(Default-)  
Plot type: Static nodal stress Stress  
Deformation scale: 8378.89

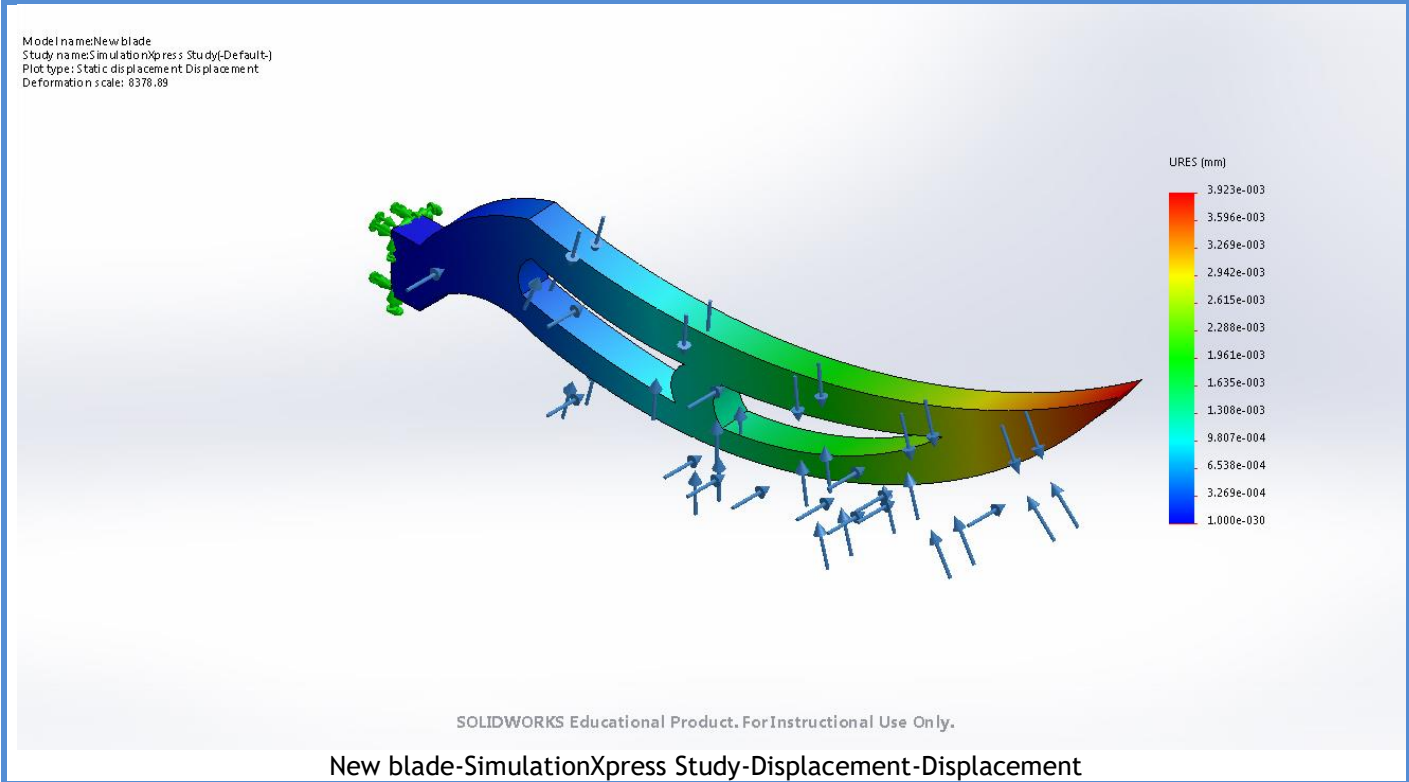


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New blade-SimulationXpress Study-Stress-Stress

Name	Type	Min	Max
Displacement	URES: Resultant Displacement	0.000e+000mm Node: 1	3.923e-003mm Node: 145

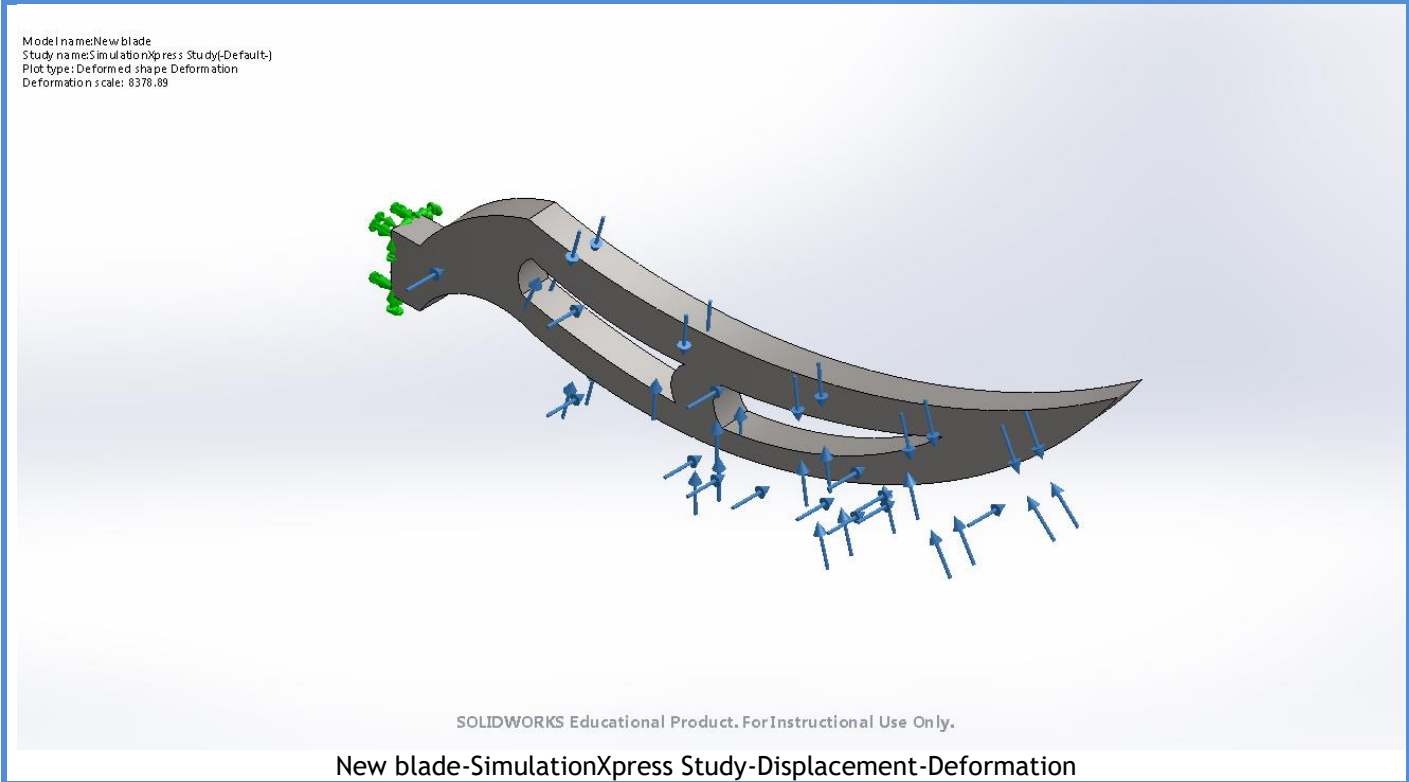




Name	Type
Deformation	Deformed shape

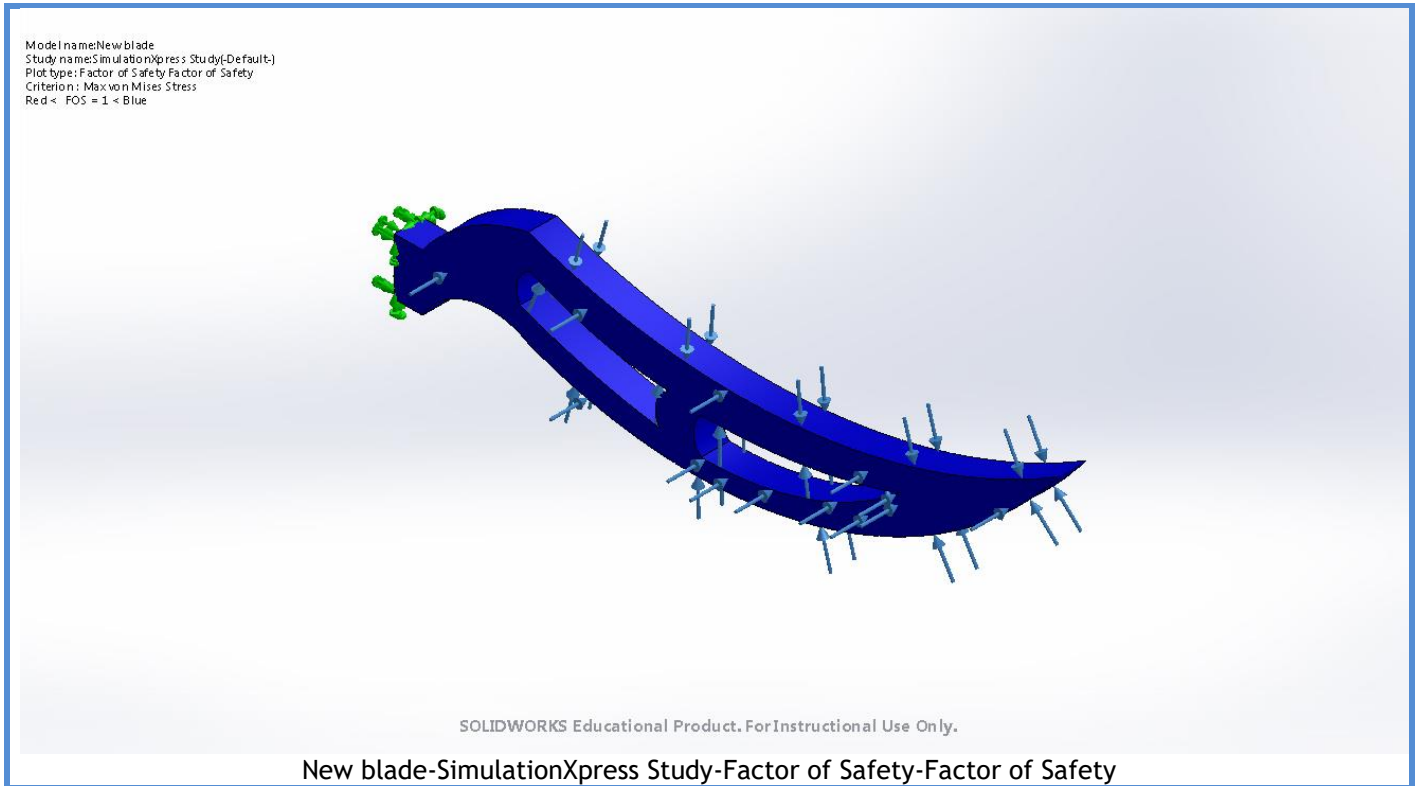






Name	Type	Min	Max
Factor of Safety	Max von Mises Stress	4.319e+002 Node: 10188	1.990e+006 Node: 154





## Conclusion

