

## SOLIDWORKS SIMULATION MATRIX

Feature	SolidWorks	SolidWorks Premium	SolidWorks Simulation Professional	SolidWorks Simulation Premium
<b>GEOMETRY TYPES</b>				
Simulate Parts & Assemblies	✓ *	✓	✓	✓
Solid, Shell, Beam and Truss Models		✓	✓	✓
Rigid Components & Virtual Wall		✓	✓	✓
Distributed and Concentrated Mass		✓	✓	✓
<b>SIMULATION TYPES</b>				
Static Stress and Displacement with Contact	✓	✓	✓	✓
Natural Frequencies			✓	✓
Buckling and Instability			✓	✓
Heat Transfer-Steady State and Transient			✓	✓
Fatigue/ Durability			✓	✓
Drop Test			✓	✓
Load Combinations for Pressure Vessel Validation			✓	✓
Nonlinear Material, Large Displacement & Transient Simulation				✓
Dynamic Time-History, Harmonic& Random Response Simulation				✓
<b>MATERIAL PROPERTIES</b>				
Linear Elastic Isotropic & Orthotropic with Temperature Dependency	✓ *	✓	✓	✓
Nonlinear VonMises Plasticity			✓ *	✓
Nonlinear Elastic				✓
Mooney-Rivlin & Ogden Hyperelastic				✓
Nonlinear Visco-elastic (Creep)				✓
Nitinol				✓
Laminate Composites				✓
<b>DESIGN TOOLS</b>				
Multiple Studies/ "What if" Scenarios		✓	✓	✓
Table Driven Design Scenarios for any Combination of Inputs		✓	✓	✓
Simulation Advisor		✓	✓	✓
Sensors with Alarmed Design Limits		✓	✓	✓
Adaptive Meshing for Automatic Mesh Convergence		✓	✓	✓
Optimization Design Insight Plots& Trend Tracker	✓		✓	✓
<b>ENVIRONMENT</b>				
Normal and Directional Pressure and Force	✓	✓	✓	✓
Nonuniform Pressure and Force		✓	✓	✓
Body Loads: Gravity, Centrifugal, Linear and Rotational Acceleration		✓	✓	✓
Rigid and Distributed Remote Loads		✓	✓	✓
Bearing Load Distribution		✓	✓	✓
Temperature Loads for Thermal Expansion		✓	✓	✓
Import Loads from Motion Simulation	✓	✓	✓	✓
Symmetry & Cyclic Symmetry Restraints		✓	✓	✓
Geometry Based Restraints		✓	✓	✓

Elastic Support/ Foundation		✓	✓	✓
Ball Bearing Support		✓	✓	✓
Temperature, Convection, Radiation, Heat Power, Heat Flux			✓	✓
Import Temperatures for Static Study from Thermal Study			✓	✓
Import Flow Results as Loads in Static or Thermal Study		–	–	–
<b>ASSEMBLY CONNECTIONS</b>				
Part-to-Part Contact with Sliding & Friction		✓	✓	✓
Bond Parts at Mating Faces		✓	✓	✓
Shrink Fit/ Press Fit Contact		✓	✓	✓
Spring, Bolt, Pin and Spot Weld Connectors		✓	✓	✓
Thermal Contact Resistance			✓	✓
<b>RESULTS TOOLS</b>				
Resultant and Component Displacement Plots with Deformation	✓ *	✓	✓	✓
VonMises Stress, Principal Stresses, Component Stress Plots	✓ *	✓	✓	✓
Principal Strain, Component Strains, Strain Energy Density Plots		✓	✓	✓
VonMises, Tresca, Max Principal & Coulomb-Mohr Factor of Safety Plots	✓ *	✓	✓	
Bolt and Pin Factor of Safety Plots Based in Multi-Axial Loading		✓	✓	✓
Probe and Display Local Results		✓	✓	✓
Dynamic Section Plots		✓	✓	✓
Compare Results Across Multiple Studies		✓	✓	✓
Save Deformed Geometry as SolidWorks Part			✓	✓
Fatigue Life and Damage Plots			✓	✓
Resonant Frequency Mode Shape Plots with Animation			✓	✓
Buckled Shape Plots			✓	✓
Temperature & Heat Flux Plots			✓	✓
Linearized Stress Plots for Pressure Vessel Design			✓	✓
Response vs. Time Plots for Drop Tests			✓	✓
Response vs. Load Increment Plots				✓
Response vs. Time or Frequency Plots for Dynamic Studies with PSD Output				✓
<b>ENGINEERING COLLABORATION</b>				
HTML and .DOC Report Formats	✓ *	✓	✓	✓
Publish eDrawings® of Simulation Results	✓	✓	✓	✓
Save Plots as BMP, JPEG, VRML, XGL or AVI files		✓	✓	✓
Simulation Library Files/ Templates		✓	✓	✓
Export to Other FEA Systems			✓	✓

- ✓ = included
- = requires SolidWorks Flow Simulation
- \* = VonMises Plasticity available only for Drop Test Studies
- \*\* = SimulationXpress has limited versions of these features