

SOLIDWORKS SIMULATION MATRIX

Feature	SolidWorks SimulationXpress	SolidWorks Premium	SolidWorks Simulation Professional	SolidWorks Simulation Premium
GEOMETRY TYPES				
Simulate Parts & Assemblies	+ (2)	+	+	+
Solid, Shell, Beam and Truss Models		+	+	+
Rigid Components & Virtual Wall		+	+	+
Distributed and Concentrated Mass		+	+	+
SIMULATION TYPES				
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				+
MATERIAL PROPERTIES				
Linear Elastic Isotropic & Orthotropic with Temperature Dependency	+ (2)	+	+	+
Nonlinear VonMises Plasticity			+ (1)	+
Nonlinear Elastic				+
Mooney-Rivlin & Ogden Hyperelastic				+
Nonlinear Visco-elastic (Creep)				+
Nitinol				+
Laminate Composites				+
DESIGN TOOLS				
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	+ (2)		+	+
ENVIRONMENT (LOADS/RESTRAINTS)				
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 (Fixed, Cylinder, Sphere, Flat Face) 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		o	o	o
ASSEMBLY CONNECTIONS				
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			+	+
RESULTS TOOLS				
Resultant and Component Displacement Plots with Deformation	+ (2)	+	+	+
VonMises Stress, Principal Stresses, Component Stress Plots	+ (2)	+	+	+
Principal Strain, Component Strains, Strain Energy Density Plots		+	+	+
VonMises, Tresca, Max Principal & Coulomb-Mohr Factor of Safety Plots	+ (2)	+	+	+
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				+
ENGINEERING COLLABORATION				
HTML and .DOC Report Formats	+ (2)	+	+	+
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 "o" Requires SolidWorks Flow Simulation

(1) VonMises Plasticity available only for Drop Test Studies

(2) SimulationXpress has limited versions of these features