SOLIDWORKS SIMULATION - FULL DETAIL
PRODUCT MATRIX

	SIMXPRESS	SIMULATION STANDARD	SIMULATION PROFESSIONAL	SIMULATION PREMIUM
FILE TYPE				
Part analysis	✔	✔	✔	✔
Assembly analysis		✔	✔	✔
Multibody part analysis		✔	✔	✔
Thin parts, sheet metal parts and assemblies, and surface analysis using shell elements		✔	✔	✔
Weldment analysis using beam elements		✔	✔	✔
Analysis combining solid, shell, and beam elements		✔	✔	✔
ANALYSIS TYPE				
Stress and displacement analysis	✔	✔	✔	✔
Strain analyses		✔	✔	✔
Trend tracker to determine trends from different iterations of a static study		✔	✔	✔
Thermal stress analysis			✔	✔
Frequency and buckling analyses			✔	✔
Heat transfer analysis			✔	✔
p-adaptive and h-adaptive analyses		✔	✔	✔
Drop test analysis			✔	✔
Fatigue analysis		✔	✔	✔
Pressure vessel design analysis			✔	✔
Optimization analysis with one variable and criterion	✔		✔	✔
Optimization analysis with multiple variables and criteria			✔	✔

OLIDWORKS SIMULATION - FULL DETAIL
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CONTACTS AND CONNECTORS				
Contact analysis of assemblies with friction		✔	✔	✔
Large displacement contact and friction				✔
Linear dynamic studies (time history, harmonic, and random vibrations)				✔
Static and dynamic nonlinear studies			✔	✔
Connectors (bearing, bolt, edge weld, elastic support, grounded bolt, link, pin, rigid, spot weld, spring, and spring-damper)		✔	✔	✔
Interference or shrink fit		✔	✔	✔
Thermostat-controlled heat generation			✔	✔
Thermal contact resistance			✔	✔
DESIGN STUDIES				
Analysis management using Simulation study tree	✔	✔	✔	✔
Analysis design library for common loads and fixtures		✔	✔	✔
Multiple studies "what-if scenarios"		✔	✔	✔
Analysis input as parameters		✔	✔	✔
Analysis design tables (batch run for studies)		✔	✔	✔
MATERIAL PROPERTIES				
Isotropic materials	✔	✔	✔	✔
Orthotropic materials		✔	✔	✔
Composite shells with isotropic or orthotropic material properties				✔
Temperature-dependent material properties		✔	✔	✔

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S-N fatigue curves		✔	✔	✔
Edit SOLIDWORKS material library or create your own using the material library editor		✔	✔	✔
Plasticity, Hyper-elasticity, Nitinol	SIMXPRESS			✔
LOADS				
Uniform and directional pressure and force on faces	✔	✔	✔	✔
Nonuniform pressure and force		✔	✔	✔
Force on edges and vertices		✔	✔	✔
Body loads: gravity and centrifugal		✔	✔	✔
Special loads: torque, remote, and bearing loads		✔	✔	✔
Heat transfer conditions: temperature, convection, radiation, heat power, and heat flux			✔	✔
RESTRAINTS				
Fixed restraints on faces	✔	✔	✔	✔
Fixed restraints on edges and vertices		✔	✔	✔
Directional fixtures		✔	✔	✔
Prescribed nonzero fixtures		✔	✔	✔
Remote mass		✔	✔	✔

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OUTPUTS	SIMXPRESS	SIMULATION STANDARD	SIMULATION PROFESSIONAL	SIMULATION PREMIUM
Stress contour plot-equivalent (von Mises) stress	✔	✔	✔	✔
Deformation plot	✔	✔	✔	✔
Create a solid from the deformed shape			✔	✔
Factor of safety calculation and plot	✔	✔	✔	✔
Principal stress, directional stress, stress error, and stress intensity		✔	✔	✔
Strain plots (various components)		✔	✔	✔
Displacement plots (various components)		✔	✔	✔
Element result plots		✔	✔	✔
Resonant frequencies			✔	✔
Resonant mode shape plots			✔	✔
Buckling load factors			✔	✔
Buckling mode plots			✔	✔
Reaction force result plot		✔	✔	✔
Temperature distribution, temperature gradients, and heat flux result plots			✔	✔
Fatigue plots		✔	✔	✔
Stress linearization plots for pressure vessel design studies			✔	✔
Result graphs		✔	✔	✔
Result listings		✔	✔	✔
Probe and list-by-entity tools		✔	✔	✔
Dynamic section iso plots		✔	✔	✔

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Plot customization, legend placement, scaled plots, legend color controls, superimposed plots		✔	✔	✔
Generate reports	✔	✔	✔	✔
Publish eDrawings® of analysis results	✔	✔	✔	✔
Animate and save as AVI	✔	✔	✔	✔
Save as Bitmap, JPEG, VRML, and XGL of analysis results	SIMXPRESS	✔	✔	✔
CONNECTIVITY TO OTHER ANALYSIS TOOLS				
Export to NASTRAN, ANSYS, PATRAN, IDEAS option available		✔	✔	✔
Import loads from SOLIDWORKS Flow Simulation		✔	✔	✔
Import loads from SOLIDWORKS Motion		✔	✔	✔

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