Autodesk® Simulation Mechanical 2017 vs.
Autodesk® Nastran® In-CAD 2017 and **Autodesk® Inventor® Professional** 2017

Comparison matrix

	Autodesk® Inventor® Professional 2017	Autodesk® Nastran® In-CAD 2017	Autodesk® Simulation Mechanical 2017
CAD MODEL/INTEGRATIONS			
Embed into Autodesk Inventor	●	●	
Embed into SolidWorks®		●	
CAD File Translators	●	●	●
Associativity with Autodesk Inventor	●	●	●
Associativity with SolidWorks	●	●	●
Associativity with Pro/Engineer and Creo	●	●	●
Associativity with SpaceClaim			●
Associativity with Rinoceros			●
PREPROCESSING			
Direct Modeling with SimStudio Tools			●
Defeaturing with SimStudio Tools			●
Parametric Design Studies for Inventor Models	●		●
Extensive Materials Library	◒	◒	●
2D, Beam and Plate Modeling		●	●
Automatic Surface Meshing	◒	●	●
Automatic Tetrahedral Meshing	◒	●	●
Automatic Hexa-dominant Meshing			●
Automatic Midplane Meshing	●	●	●
Pressure Vessel Design and Meshing			●
CONTACT MODELING			
Rigid Bonding	●	●	●
Welded Contact		●	●
Surface Contact with Friction		●	●
Sliding Contact Without Separation	●	●	●
Separation Contact Without Sliding	●	●	●
Shrink Fit Contact (Linear, With or Without Sliding)	●		●
Thermal Contact (With or Without Resistance)		●	●

LEGEND: ◒ Partial Feature ● Full Feature

AUTODESK.

	Autodesk® Inventor® Professional 2017	Autodesk® Nastran® In-CAD 2017	Autodesk® Simulation Mechanical 2017
HEAT TRANSFER			
Steady-State Heat Transfer		●	● M
Transient Heat Transfer		●	●
LINEAR STRUCTURAL			
Static Stress	◒	●	● M
Fatigue		●	●
Natural Frequency (Modal)	◒	●	● M
Modal with Load Stiffening	◒	●	● M
Response Spectrum		◒	●
Random Vibration		●	●
Frequency Response		●	●
Transient Stress (Modal Superposition/Direct Integration)		●	●
Critical Buckling Load		●	● M
Dynamic Design Analysis Method (DDAM)			●
NONLINEAR STRUCTURAL			
Large Displacement		●	● M
Nonlinear Material Models		●	● M
Flexible and Rigid Body Motion		◒	●
Nonlinear Buckling		●	●
Dynamic Nonlinear Analysis		●	●
Mechanical Event Simulation (MES)			●
MULTIPHYSICS			
Thermal-structural Coupling			● M
Fluid-thermal Coupling*			◒
Fluid-structural Coupling			◒ M
Electrostatics-Structural			●
Electrostatics-Thermal (Joule-Heating Effect)			●
Autodesk® Simulation CFD Interoperability			● M
Autodesk® Simulation Moldflow® Interoperability			●

* Fully coupled fluid/thermal analyses can be performed by CFD alone, where temperature affects convective flow and vice versa (so iterative solving is necessary)

M The Autodesk® Nastran® solver option availble for finite element analysis (FEA)

LEGEND: ◒ Partial Feature ● Full Feature

AUTODESK.

	Autodesk® Inventor® Professional 2017	Autodesk® Nastran® In-CAD 2017	Autodesk® Simulation Mechanical 2017
POST PROCESSING			
Contour Display	◒	●	●
Vector Display		●	●
Isoline and Isosurface Display		●	●
Custom Result Types		◒	●
Stress Linearization			●
Slice Planes		◒	●
Mirror Planes			●
3D Model Visualization for 2D, Plate, and Beam			●
Customizable Presentations		◒	●
Animations	◒	●	●
Image and CSV File Export	◒	◒	●
Custom Reporting (PDF, HTML, Word)	◒	◒	●
GENERAL			
Parallel Windows Solvers		●	●
Autodesk® Vault Data Management Interoperability	●		●
Autodesk® Showcase® Interoperability			●
Topology Optimization	●		
Recurdyn Interoperability			●

LEGEND: ◒ Partial Feature ● Full Feature

AUTODESK.