

# Autodesk® Inventor® Professional vs. Autodesk® Simulation Mechanical/Multiphysics Comparison Matrix

Compare the features of Autodesk® Inventor® Professional, Autodesk® Simulation Mechanical, and Autodesk® Simulation Multiphysics software to learn how each aligns with the needs of your product development process.

<b>LEGEND</b>	<b>Autodesk Inventor Professional</b>	<b>Autodesk Simulation Mechanical</b>	<b>Autodesk Simulation Multiphysics</b>
✓ Feature supported			
<b>PREPROCESSING</b>			
Direct Modeling with Autodesk® Inventor® Fusion	✓	✓	✓
Defeaturing with Inventor Fusion	✓	✓	✓
Autodesk® Inventor® Parameters	✓	✓	✓
Multi-CAD Data Exchange	✓	✓	✓
8,000+ Materials in Library		✓	✓
2D Modeling		✓	✓
Beam and Plate Modeling	✓	✓	✓
Automatic Surface Meshing	✓	✓	✓
Automatic Tetrahedral Meshing	✓	✓	✓
Automatic Hexa-Dominant Meshing		✓	✓
Automatic Boundary Layer Meshing		✓	✓
Automatic Midplane Meshing	✓	✓	✓
Pressure Vessel Design and Meshing		✓	✓
<b>CONTACT MODELING</b>			
Rigid Bonding	✓	✓	✓
Butt Welds		✓	✓
Surface Contact with Friction		✓	✓
Surface Contact Without Sliding	✓	✓	✓
Sliding Without Separation	✓	✓	✓
Shrink Fit		✓	✓
Thermal Contact		✓	✓
<b>LINEAR STRUCTURAL</b>			
Static Stress	✓	✓	✓
Fatigue		✓	✓
Natural Frequency (Modal)	✓	✓	✓
Modal with Load Stiffening	✓	✓	✓
Response Spectrum		✓	✓
Random Vibration		✓	✓
Frequency Response		✓	✓
Transient Stress		✓	✓
Critical Buckling Load		✓	✓
Dynamic Design Analysis Method			✓
<b>NONLINEAR STRUCTURAL</b>			
Large Displacement		✓	✓
Nonlinear Material Models		✓	✓
Flexible and Rigid Body Motion		✓	✓
Nonlinear Buckling		✓	✓
Dynamic Analysis (MES)		✓	✓

<b>LEGEND</b>	<b>Autodesk Inventor Professional</b>	<b>Autodesk Simulation Mechanical</b>	<b>Autodesk Simulation Multiphysics</b>
✓ Feature supported			
<b>HEAT TRANSFER</b>			
Steady-State Heat Transfer		✓	✓
Transient Heat Transfer		✓	✓
<b>INCOMPRESSIBLE FLUID FLOW</b>			
Steady-State Fluid Flow			✓
Unsteady Fluid Flow			✓
Flow Through Porous Media			✓
Open Channel Flow			✓
Mass Transfer			✓
<b>MULTIPHYSICS</b>			
Thermal-Structural Coupling		✓	✓
Fluid-Thermal Coupling			✓
Fluid-Structural Coupling			✓
Electrostatics			✓
Joule Heating Effect			✓
Autodesk® Simulation Moldflow® Interoperability		✓	✓
<b>POST-PROCESSING</b>			
Contour Display	✓	✓	✓
Vector Display		✓	✓
Isoline and Isosurface Display		✓	✓
Custom Result Types		✓	✓
Stress Linearization		✓	✓
Slice Planes		✓	✓
Mirror Planes		✓	✓
3D Visualization for 2D and Beam Models		✓	✓
Particle and Streamline Tracking			✓
Graphing over Time or Along Path		✓	✓
Customizable Presentations		✓	✓
Animations	✓	✓	✓
Image and CSV File Export	✓	✓	✓
Custom Reporting (PDF, HTML, Word)	✓	✓	✓
Autodesk® Showcase® Interoperability		✓	✓
<b>GENERAL</b>			
Parallel Windows® Solvers	✓	✓	✓
Parallel Linux® Solvers		✓	✓
Distributed Computing (MUMPS)		✓	✓
Autodesk® Vault PDM Interoperability	✓	✓	✓