# SOLIDWORKS® DESIGN PRODUCT MATRIX

*This information applies to SOLIDWORKS Design and SOLIDWORKS Design with Cloud Services.*

| KEY CAPABILITIES | SOLIDWORKS Design Standard | SOLIDWORKS Design Professional | SOLIDWORKS Design Premium | SOLIDWORKS Design Ultimate |
|---|---|---|---|---|
| **3D DESIGN AND MODELING** | | | | |
| **Part and Assembly Modeling**<br>Handle all aspects of your part and assembly modeling and transform ideas and concepts into virtual 3D models. | ● | ● | ● | ● |
| **2D Drawings and 3D Manufacturing Documentation**<br>Create production-ready 2D drawings or go drawingless and use intelligent, automated 3D dimensioning and tolerancing capabilities. | ● | ● | ● | ● |
| **Productivity Tools**<br>Easily analyze, compare, check, and report on your designs. | ● | ● | ● | ● |
| **Design Reuse and Automation**<br>Simplify the reuse of existing design data with search, automation, and configuration tools that help you speed up the creation of new designs. | ● | ● | ● | ● |
| **Resolving Manufacturing Issues Before Going to Manufacturing**<br>Verify in 2D and 3D that your parts and assemblies will fit, assemble, and move correctly. Review your designs for draft, undercut, thickness, hole alignments, component clearance, and more, ensuring manufacturability. | ● | ● | ● | ● |
| **Advanced CAD File Import/Export**<br>Convert incoming CAD data and export SOLIDWORKS data to other CAD applications using over 30 provided translators. | ● | ● | ● | ● |
| **Linked CAD Models**<br>Use models saved in other CAD formats directly inside SOLIDWORKS assemblies, parts, and drawings while maintaining associativity with the original CAD model. | ● | ● | ● | ● |
| **Industry 3D Component Catalog**<br>Access over 50 million components from manufacturers worldwide through our online catalog. | ● | ● | ● | ● |
| **Specialized Design Tools**<br>Speed up the design of sheet metal, plastic and cast parts, weldments, molds, tools, and dies. | ● | ● | ● | ● |

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| **3D DESIGN AND MODELING** | | | | |
| **Intelligent CAD Libraries**<br>Easily find, customize, and share hundreds of thousands of prebuilt industry-standard fasteners that configure on the fly and assemble automatically in your design. | | ● | ● | ● |
| **CAD Standards and Drawings Checking**<br>Establish design standards and check drawings and models against them to create uniform designs and documentation. | | ● | ● | ● |
| **Automated Tolerance Stackup Analysis**<br>Automatically check the effects of tolerances on parts and assemblies to ensure consistent fit of components and verify tolerancing schemes before manufacturing your designs. | | ● | ● | ● |
| **Manufacturing Cost Analysis**<br>Continuously check your designs against cost targets with automatic cost estimation tools fully integrated within the 3D CAD solution. | | ● | ● | ● |
| **Reverse Engineering**<br>Recreate designs with the ability to import, edit, evaluate, and create solid geometry from scanned point-cloud and mesh data. | | ● | ● | ● |
| **Advanced Surface Flattening**<br>Flatten complex, nondevelopable surfaces often encountered in textiles and metal stampings. | | | ● | ● |
| **Pipe and Tube Routing**<br>Speed up design and documentation of piping and tubing systems. | | | ● | ● |
| **Electrical Cable and Wiring Harness Routing**<br>Speed up 3D electrical routing design and the creation of flattened harness drawings for manufacturing. | | | ● | ● |
| **Duct and Tray Routing**<br>Route rectangular and round sections that include ducting, cable trays, conveyors, material handling chutes, and other systems. | | | ● | ● |
| **CLOUD 3D DESIGN AND MODELING** | | | | |
| **Parametric Modeling**<br>Create, review, and evaluate 3D models using an intuitive 3D CAD solution. | | | | ● |
| **2D Drawings and 3D Manufacturing Documentation**<br>Combine 3D model-based definition and 2D drawing-based capabilities in one integrated solution. Easily dimension and annotate 3D models and quickly produce 2D drawings from them in a few clicks. | | | | ● |
| **Subdivision/Freeform Modeling**<br>Create difficult-to-model organic shapes quickly and easily with an intuitive modeling solution that works seamlessly with our parametric 3D design tools. | | | | ● |
| **Specialized Design Tools**<br>Speed up the design of sheet metal, weldments, and molds. | | | | ● |

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| **AI CAPABILITIES** | | | | |
| **Integrated Virtual Companion for Mechanical Design**<br>Model faster with AI skills for Intent to CAD, Design Validation, Engineering Guidance, Manufacturing Documentation and Assembly Optimization. | ● | ● | ● | ● |
| **Integrated Virtual Companion for Knowledge and Know-how**<br>Boost productivity and collaboration with the companion's ability to generate relevant answers; summarize community posts, wikis, and help documentation; and quickly find information. | ● | ● | ● | ● |
| **SIMULATION** | | | | |
| **Linear Static Analysis for Parts and Assemblies**<br>Find the stresses and deformations of geometry using Finite Element Analysis (FEA) methods and run linear stress analysis to determine the response of parts and assemblies. | | | ● | ● |
| **Motion Analysis**<br>Watch your design moving through its operational cycle, measure the forces and loads, correctly size motors, and ensure your design meets the desired performance goals. | | | ● | ● |
| **Cloud Computing for Structural Analysis**<br>Enhance product performance and quality by evaluating the impact of static, thermal, modal, and buckling loads on your parts and assemblies by using the advanced and robust Abaqus® technology and cloud computing. | | | | ● |
| **Cloud-Based Motion Analysis**<br>Understand the impact of assembly motion on your design with motion simulation in the cloud. Study the kinematics and dynamic behavior of your designs by checking the range of motion, component interference, and performance. | | | | ● |
| **CLOUD COLLABORATION** | | | | |
| **Cross-Discipline Collaboration**<br>Collaborate in real time using configurable dashboards, social communities, Kanban-style task management, activity streams, persistent chat, and video calls. | ● | ● | ● | ● |
| **Share and Markup**<br>Invite anyone, inside or outside your organization, to view, share, and mark up your 3D designs in the cloud, directly within SOLIDWORKS. | ● | ● | ● | ● |
| **ECAD/MCAD Collaboration**<br>Share, compare, update, and track electrical design data, locally or in the cloud, so you can quickly resolve electrical and mechanical design issues. | ● | ● | ● | ● |
| **Project and Resource Management**<br>Shorten time to market with a collaborative project planning, monitoring, and execution solution, connecting your design data with all project members, tasks, deliverables, and communications. | | | | ● |
| **Lean Teamwork**<br>Put lean principles into action to address operational waste, variability, and meeting efficiency with a new, visual way to plan, facilitate, and complete objectives. | | | | ● |

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| **CLOUD DATA MANAGEMENT** | | | | |
| **Store and Revise**<br>Utilize secure cloud storage that's purpose-built with CAD relationships and collaboration in mind. Save your data to the cloud right from SOLIDWORKS. Lock designs to ensure no one overwrites your work, easily manage revisions, and create detailed markups with redline, measurements, and annotations. | ● | ● | ● | ● |
| **Data and Lifecycle Management**<br>Manage the lifecycle of any type of content, reduce design change conflicts with revision control, and streamline design change and approval workflows. | ● | ● | ● | ● |
| **Administration**<br>Easily upgrade software, manage users, and assign and remove licenses all from a single dashboard. | ● | ● | ● | ● |
| **Release Management**<br>Ensure consistent product quality by providing a shared product definition, maximizing data reuse, reducing the complexity of product structure, and aligning with corporate standards. | | | | ● |
| **Product Structure Management**<br>Reduce development time with the ability to create, modify, and explore multi-CAD product structures in a single context, reducing design iterations by making the review of design and proposed changes universally accessible to stakeholders. | | | | ● |
| **LOCAL DATA MANAGEMENT** | | | | |
| **Local Data Management**<br>Manage project data and control design revisions and access to files. | | ●* | ●* | ●* |
| **MANUFACTURING** | | | | |
| **Additive Manufacturing**<br>Prepare your models, understand the constraints of additive manufacturing, and print directly to a 3D printer from SOLIDWORKS. | ● | ● | ● | ● |
| **3-axis NC Machining and Machine Simulation**<br>Empower CNC programmers with 3-axis and 3+2-axis machining, machine simulation, and EDM to optimize tool paths before manufacturing the parts. | ● | ● | ● | ● |
| **Sheet Metal Nesting and NC Programming**<br>Validate your designs by running what-if scenarios with advanced nesting. Quickly go from design to manufacturing with production nesting and NC programming capabilities. | ● | ● | ● | ● |
| **MARKETING** | | | | |
| **Animation and Visualization**<br>Easily create basic CAD videos, renderings, animations, and 3D walk-throughs. | ● | ● | ● | ● |
| **AR/VR Exporter**<br>Export CAD data for AR, VR, and web viewing experiences while retaining geometry, appearance, motion studies, display states, and more. | ● | ● | ● | ● |

* Available only with a device license.

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| **MARKETING** | | | | |
| **Advanced Photorealistic Rendering with Artificial Intelligence**<br>Bring your products to life with stunning photorealistic renderings and leverage Artificial Intelligence to dramatically reduce render times. | | ● | ● | ● |
| **Advanced Lighting Techniques for Sun and Sky**<br>Simulate the lighting at a specific location and time, and create sun study animations. | | ● | ● | ● |
| **Advanced Photorealistic Animations and Immersive Virtual Reality**<br>Easily animate exploded views, cameras, and much more to create photo-realistic videos. Create immersive virtual reality experiences with 360-degree cameras and interactive output. | | ●** | ●** | ●** |
| **User Guides, Training Manuals, and Assembly Documentation**<br>Create outstanding digital content including interactive product presentations and technical illustrations to showcase product values, enable partners, guide use, and win customers. | | | | ● |
| **TRAINING AND SUPPORT** | | | | |
| **Support**<br>Access personalized, high-quality support from your certified local value-added sales partner and interact with peers in a vibrant community. | ● | ● | ● | ● |
| **Training**<br>Get up to speed and improve your skills with a library of over 440 learning modules comprising access to thousands of on-demand videos. | ● | ● | ● | ● |

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**Virtual Worlds for Real Life**

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