SolidWorks Premium 2010

THE COMPLETE 3D CAD SOLUTION FOR DESIGNING BETTER PRODUCTS

Sound system rendered in
SolidWorks PhotoView 360

SolidWorks Premium 2010 is a complete 3D product design solution providing ease-of-use, performance, and depth of functionality. This one product provides tools for complex part and assembly modeling, production drawing creation, data management, environmental impact evaluation, as well as the ability to perform motion, flow, structural, and tolerance stack-up simulations and optimizations.

WORK SIMPLER, SMARTER, AND FASTER

SolidWorks® Premium 2010 lets you focus on innovation and design, rather than on how to use CAD software. You'll experience a more intuitive, heads-up user interface that significantly reduces mouse travel and increases design efficiency. SolidWorks Premium 2010 further improves user productivity by automatically detecting and resolving modeling challenges that would typically be frustrating for new users. And with the new Simulation Advisor, even those unfamiliar with structural analysis will be able to design better, smarter products right from the start.

DEPTH OF FUNCTIONALITY

SolidWorks Premium 2010 has the power to handle your most complex geometry, largest assemblies, and most intricate drawings — helping you to get an entire job into production on time. The software even streamlines your design process through specialized functionality for the design of sheet metal, piping and electrical routes, plastic parts, weldments, and molds. And with millions of pre-made SolidWorks modeled parts in the Design Library and online at www.3dcontentcentral.com, there won't be many products you'll have to build totally from scratch.

2S SolidWorks

2D DRAWINGS

Develop production-quality engineering drawings, including all views, dimensions, tolerances, and bills of materials (BOMs) that automatically update each time you change your design. Completely annotate your drawings with tables, symbols, and automatic balloon notes. Compare drawings and automatically highlight differences between versions. An intuitive user interface ensures that both occasional and full-time users can quickly complete fully detailed drawings.

POWERFUL MODELING TOOLS

Make use of a full range of custom functions and innovative capabilities that help you complete your designs faster, including the most complex geometry.

- **Complex Geometry and Freeform Surface Creation** – Create complex solid and surface geometry. The freeform surfacing tool lets you easily create surfaces to improve the aesthetics and ergonomics of product designs. Simply "push and pull" control points to create stylish, curve-continuous (C2) surfaces.

- **Feature Recognition** – Import non-SolidWorks CAD data, preserve design intent, and make changes. Increase the value of translated files, while reducing the time spent rebuilding existing 3D models.

- **Timesaving Design Utilities** – Find the differences between two versions of a part. Identify and highlight problematic geometry that may affect downstream applications, such as manufacturing and analysis.

- **ECAD/MCAD Integration** – Enable bidirectional collaboration between electrical and mechanical design engineers to ensure printed circuit boards (PCBs) fit and function in mechanical products. Permit accurate cooling studies and reduce the chances of interference between PCB and mechanical components.

- **Reverse Engineering** – Scan concept sketches or data into SolidWorks using ScanTo3D and complete the product design in SolidWorks.

- **Customized Capabilities for Specialized Functions** – Access design solutions in highly targeted areas:

  → Streamline the design of machinery, industrial equipment, or processing facilities with automated design tasks for routing tubes, pipes, electrical cables, and harnesses. Speed design development with a library of routed system fittings, harnessing documentation, and drag-and-drop components.

  → Design welded structures by sketching the frame layout and choosing the structural cross-section for each member. Capabilities include trimming and cutting members as well as creating welds, end caps, and gussets. Automatically create BOMs that include cut lengths.

  → Leverage sheet-metal design capabilities, including edge flange, miter flange, selective fold/unfold, rip, tear, and auto-relief functionality. Design in flat or bent states with equal flexibility, and create flat patterns automatically, or instantly create sheet-metal designs directly from 3D solid models.

  → Import part geometry from other CAD systems, or use native SolidWorks file parts to design mold and die tooling. Check and fix draft, undercut, and thickness problems. Automatically identify parting lines and create parting surfaces so you can quickly and easily extract core, cavity, or side-action geometry.
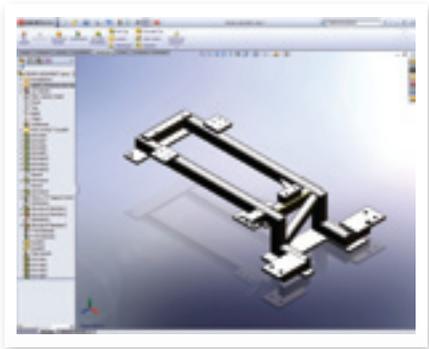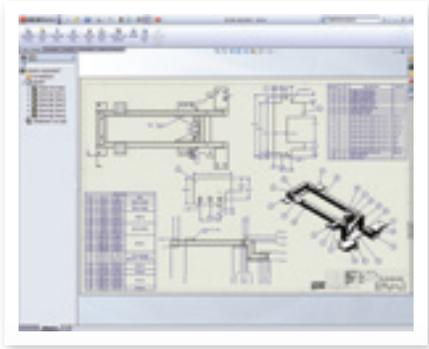
Speed machine design and simulation with built-in specialized functionality for creating welded structures and production-quality drawings.

LEVERAGE YOUR EXISTING 2D DATA

Preserve the value of your existing 2D files by importing them into SolidWorks.

- Enable users of 2D CAD systems to open, edit, create, and share drawing files.

- Edit existing 2D drawing files using a familiar user interface.

AUTOMATION AND REUSE

Use the SolidWorks search capability to locate any SolidWorks or 2D file. Mine metadata, including title blocks in drawings or file attributes. Reuse previous design work and reduce repetitive design tasks.

- **Design Automation** – Automate repetitive design tasks by capturing valuable design rules inside SolidWorks and automatically generate parts, assemblies, and drawings using DriveWorksXpress.

- **Configurations** – Create multiple configurations of parts and assemblies and save them in the same file or document for easy reference and access. Develop and manage families of parts and models with different dimensions, components, or properties.

- **Design Library** – Save frequently used parts, features, templates, sketches, and more in the Design Library. Drag and drop library items into new machine designs, promoting reuse and providing a platform for company standards.

- **Design Clipart** – Extract features, sketches, views, and blocks from DWG files and reuse them in new SolidWorks designs.

- **3D Models from Suppliers** – Accelerate design time with 3D ContentCentral®, an online component catalog. Download 3D models and 2D drawings of components from major suppliers directly into your designs.

- **Smart Components and Smart Fasteners** – Save time with assembly automation, which sizes and assembles components, fasteners, and fastener hardware. Automatically create holes and clearance cuts necessary to assemble components.

Gain performance for designing and detailing large assemblies.
Image courtesy of Gerhard Schubert GmbH

Image courtesy of Haumiller Engineering Company, rendered in SolidWorks PhotoView 360.

SIMULATION AND VALIDATION

Improve product quality by testing 3D CAD models under real-world conditions prior to manufacture. Easy-to-use design validation modules provide powerful capabilities that reduce the need for physical prototypes.

- **Motion Analysis** – Study the physics of moving assemblies to help you refine designs, and enhance reliability using SolidWorks Motion.

- **Structural Validation** – Enhance product quality by identifying areas prone to weakness and failure with simulation and validation tools built for designers and engineers. Provide real-time on-screen feedback when critical design goals are violated to allow for earlier optimization of product designs.

- **Environmental Impact Evaluation** – Provide real-time feedback about the environmental impact of the parts you design to optimize material, part geometry, and sources for manufacturing.

- **Design for Manufacturability** – Leverage this upfront design validation tool to identify geometry that is difficult, expensive, or impossible to manufacture by conventional machining operations, such as milling, drilling, and turning.

- **Fluid Flow Simulation** – Use a wizard-based tool for fluid flow simulation that displays results as slice planes or flow trajectories.

- **Stack-up Analysis** – Perform tolerance stack-up analysis and determine the effects that tolerances have on parts and assemblies, including maximum/minimum worst-case tolerance stack-up analysis. Validate tolerances and make necessary tolerance changes until you achieve the desired tolerance stack-up results.

- **Standards Compliance** – Streamline your design release process by automatically identifying elements inconsistent with your organization's design standards. Locate and remedy potential errors before releasing designs.

COLLABORATION AND PRESENTATION

Collaborate easily and efficiently on product design concepts. Share design concepts using exciting visuals that enhance understanding and streamline the product development process.

- **Photorealistic Rendering** – Create photorealistic images from 3D CAD models, increasing the impact of presentations. Help customers and colleagues easily visualize designs. Use the single-click web-publishing capability to share 3D models on password-protected websites.

- **Animations** – Create effective animations of 3D CAD models that you can email or publish on the web. Accelerate the review of product designs and reduce time-to-market.

- **Product Data Management** – Control CAD file revisions and manage project data securely and efficiently. SolidWorks Workgroup PDM automatically captures file revision histories and allows your product design team to access desired files instantly, determine who has worked on them, and know when changes were made.

- **Design Collaboration** – Collaborate conveniently and reliably with an email-enabled communication tool that allows you to share product design information. eDrawings® software delivers representations of 3D models and 2D drawings.