DIGITAL INDUSTRIES SOFTWARE

Designcenter Solid Edge 3D Design

Today's hottest 3D design built on next-generation technologies

Benefits

- Easy to use for rapid realization of value

- Next-generation design tools that enable disruptive innovation

- Decades of core 3D CAD development for any design challenge

- Accelerates and optimizes product design for reduced costs

- Visualizes and validates product designs in 3D for improved product quality

- Integrated with a portfolio of development applications for design through manufacturing

Summary

The cornerstone of the Siemens Designcenter Solid Edge® portfolio, Solid Edge mechanical design software is a market-leading 3D computer-aided design (CAD) application that enables the future of product development with capabilities such as generative design, reverse engineering and design for additive manufacturing. These next-generation techniques are seamlessly integrated with traditional methods thanks to Convergent Modeling™ and accelerated by industry-unique synchronous technology. The decades-strong part, assembly and drawing design environment integrates seamlessly with a portfolio of affordable, easy-to-use software tools that address all aspects of the product development process, enabling you to go from 3D mechanical design to electrical design, simulation, manufacturing, and more, assisted with integrated data management along the way.

Next-generation design

Solid Edge incorporates next-generation design methods seamlessly into your development workflow, enabling you to disrupt your field.

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Synchronous technology allows you to rapidly create new concept designs, easily respond to change requests, edit imported 3D CAD data as if it were native data, make simultaneous updates to parts within an assembly and more. It combines the speed and simplicity of direct modeling with the flexibility and control of history-based design, simultaneously, in a unified design environment.

Generative design accelerates creation of lighter components perfectly suited for immediate manufacture via today's additive processes (3D printing) or restrained to more traditional manufacturing methods. Designing lighter, stronger parts can help you decrease manufacturing cost, improve in-field performance and increase customer satisfaction.

Reverse engineering enables digitally scanned bodies to be incorporated into your design workflow, either directly as mesh triangles (facets), or as traditional solids and surfaces. Use of scanned data is made possible through assisted reverse modeling, including intuitive mesh cleanup tools to remove errors that may have resulted from the import process.

Convergent Modeling enables you to work with faceted data in the same way you would typically use traditional boundary representation (b-rep) data. Mesh bodies are seamlessly integrated into the normal model editing process, allowing you to get the final design needed for the task at hand – no more waiting for tedious, inaccurate conversions from triangular mesh to b-rep. Unique hybrid model capabilities allow b-rep and mesh geometries to coexist in the same model for downstream use.

Subdivision modeling makes it easy to develop distinctively unique products based on organic shapes, without the need for expert knowledge. The technology is an easy way to create complex geometry, which can be subdivided to give a shape flexibility. By continuously manipulating and subdividing an initial shape, you can add greater levels of detail to a design.

Augmented reality (AR) allows you to validate your digital design in a physical environment. Using AR technology via a smart phone or tablet, you can review designs in their intended settings, showcasing products in a compelling way even before they are built. Furthermore, other third-party augmented, virtual and mixed reality (AR/VR/MR) experiences can be accessed via export of the OBJ neutral interchange file format.

Core 3D CAD

3D design enables faster time to market while reducing engineering costs. Solid Edge 3D design is distinguished by its ability to provide superior part and assembly modeling, flexible drafting, best-in-class sheet metal capabilities, and industry-leading visualization. These attributes enable Solid Edge to deliver a fast and flexible design experience while easing the challenges inherent in product development.

3D part modeling

Solid Edge enables fast and flexible modeling for almost any component, including automated tools for common engineering parts such as gears, cams, springs and beams, surface modeling capabilities for complex stylized shapes, and a dedicated feature set for the design of plastic parts. Stylus sketching enables you to freely sketch on your tablet as Solid Edge converts your rough sketch into perfect shapes. Solid Edge also solves complex fit and positioning by automating engineering calculations to achieve a specific design goal with Goal Seek.

Sheet metal design

Solid Edge provides the industry's best-in-class sheet metal design system, with support for the entire design-through-fabrication process. With capabilities to handle complex sheet metal design challenges including manufacturability, Solid Edge streamlines the entire product development process, from CAD design through flat pattern and drawing development.

Drawing and drafting

Solid Edge streamlines the creation of drawings from 3D models, providing graphical alerts when drawing views are out of date and a built-in tool that alerts you to design changes. Solid Edge also optimizes for speed and performance and automatically complies with the mechanical drafting standard you select. Artificial Intelligence (AI)-powered automatic drawing generation creates 2D drawings based off your specifications with intelligent view placement, dimensioning and template selection built in. Orthogonal, broken and isometric views are handled while staying aligned with your drafting standards.

Assembly modeling and management

Solid Edge helps you quickly create and manage even the largest assemblies, from conceptual layout to an exact representation of all components. A complete digital mockup allows for more accurate design and analysis, from interference detection to in-context modeling. And, as your design grows, Solid Edge automatically activates its high-performance mode for large assemblies, delivering significant performance gains. Parts within large assemblies can also be quickly snapped together thanks to Artificial Intelligence (AI), which automatically detects the right relationships and constraints for them. You may quickly open large assemblies in an Assembly

Preview mode to reduce the amount of data loaded to only that which is needed to edit the design.

Rule-based automation

Solid Edge Design Configurator software automatically generates new designs based on defined parameters and rules. A design automation application completely embedded in a user's familiar 3D environment, Solid Edge Design Configurator can boost productivity and design speed using rule-based automation.

Visualization

Solid Edge 3D visualization, with rendering capabilities powered by best-in-class KeyShot® technology, provides photorealistic images and animations to bring your models to life. Explode your assemblies, spotlight your scenes, incorporate scattering medium such as fog and smoke, and leverage the latest appearances such as foam and multilayer optics. You can also showcase the internal workings of designs with rendered cutaways. Wrapped decals may be passed to KeyShot for rendering.

Solid Edge also provides full-color point cloud visualization for assemblies, providing the confidence you need to retrofit factories or plants. Solid Edge assembly measurement and viewing tools can be used to position and design equipment in the context of point clouds.

The Walkthrough command lets you navigate your design from a first-person point of view. You can move around with a keyboard, a mouse or even an Xbox controller. You can also record paths and bring them into the Animation Editor to create smooth flythroughs. From there, you can export them or take them into KeyShot for high-quality visuals.

Adaptive UI

Solid Edge improves productivity with adaptive UI capabilities that harness artificial intelligence to predict next steps based on a user's behavior. The adaptive UI functionality suggests the next ten commands a design might need based on previous inputs. The learned data model constructed during usage can be shared, enabling novice users to experience command predictions based on the usage of experts.

Costing

Solid Edge helps you keep your product on track and within budget with capabilities that assist engineers in designing for cost, including support for sheet metal. You can compare designs by cost and accelerate sales quotes.

Standard part library

Standardizing on components helps optimize inventory and improve manufacturing workflow. Solid Edge provides a powerful parts management system that allows you to define, store, select and position commonly used parts – like fasteners, bearings, structural steel members, pipes and fittings – quickly and efficiently, enabling rapid and precise completion of 3D assemblies. Pre-populated standards-based libraries are available ready-to-use, enabling designers to concentrate on creative design.

Supplier catalog integration

Solid Edge streamlines the process of finding 3D models through integration with cloud-based supplier catalogs. 3Dfindit.com is a next-dimension visual search engine that crawls billions of 3D CAD and BIM models in hundreds of manufacturers' catalogs worldwide. Intelligent search functions such as visual search, geared towards the technical sector, make it easy to find your exact part. Users in a workgroup can download parts to a shared folder location to avoid duplicates if the same part is downloaded again from 3Dfindit.com by another engineer.

Data re-use

Solid Edge simplifies data migration of 3D models and 2D drawings from other industry software, with dedicated migrators for SolidWorks®, Creo® Elements/Direct, Creo (previously Pro/Engineer) and Inventor®. These migrators maintain rich model information and associated drawings during the migration process. Alternatively, all popular formats can be re-used as needed, including Industry Foundation Classes (IFC) for Building Information Modeling (BIM) and AutoCAD®.

CAD Direct

Siemens NX®, SolidWorks®, Inventor®, CATIA®, ACIS®, JT and STEP files, as well as Parasolid part and assembly files, may be inserted into a Solid Edge assembly directly without the need to translate the file separately, using built-in CAD Direct capability. Data is stored in the 3D design assembly file, preventing data duplication and maintaining associativity between files.

2.5 axis milling

Solid Edge CAM Pro 2.5 Axis, a complete suite of 2.5-axis milling capabilities, bundled with Solid Edge Classic, Foundation and Premium, enables users to automate manufacturing processes and maximize their design data. Fully integrated with CAM Pro allows users to maintain full associativity with design data, while instilling confidence with automated tool path creation and visualizations for optimized machining processes.

Dynamic visualization

Built-in functionality for Solid Edge, dynamic visualization, provides customized reports that offer dynamic methods for viewing and sorting assembly parts and components. The visual reports are built on rules that are easily created using filters within interactive tables.

Integration with Teamcenter Share

Teamcenter Share, the new design-centric project collaboration tool from Siemens Digital Industries Software, allows users to seamlessly synchronize their design and manufacturing data from Solid Edge to cloud storage. Users can access their CAD data from anywhere, on any device with a browser-based application that makes it easy to view, measure and mark up models in 3D. Share's augmented reality (AR) functionalities allow users to see their products in a real-world environment. This and much more makes Share an ideal solution to accelerate the decision-making process, by improving communication with colleagues, customers and suppliers.

Flexible licensing model

A modular and scalable CAD application, Solid Edge is available in four different tiers, ranging from basic design and drafting capabilities to a premium version that includes capabilities for designing more advanced embedded systems. All tiers are available as a perpetual (permanent) license or by subscription (monthly or annual), with maintenance, support, and cloud-based-licensing options – the choice is yours.

Trusted technology

The engine behind Solid Edge is Parasolid® software, the most widely used computer-aided geometric modeling kernel in the industry. Parasolid, a Siemens technology, delivers 100 percent 3D model compatibility

between product development applications. By enabling the creation and modification of digital 3D models, Solid Edge delivers on the Siemens commitment to provide digital transformation capabilities to its users. Digital transformation allows even the smallest organizations to leverage technology to level the playing field with large enterprises.

Extending value

The Designcenter Solid Edge portfolio is an integrated set of powerful, comprehensive and accessible tools that advance all aspects of the product development process. Solid Edge addresses today's complexity challenges with automated digital solutions that cultivate creativity and collaboration.

By harnessing the latest innovative technologies in mechanical and electrical design, simulation, manufacturing, publications, data management and cloud-based collaboration, using Solid Edge dramatically shortens time-to-market, provides greater production flexibility and significantly reduces costs with its collaborative and scalable solutions.

Minimum system requirements

- Windows 10 Enterprise or Professional (64-bit only) version 1809 or later
- 16 GB RAM
- 65K colors
- Screen resolution: 1920 x 1080
- 8.5 GB of disk space required to install Solid Edge