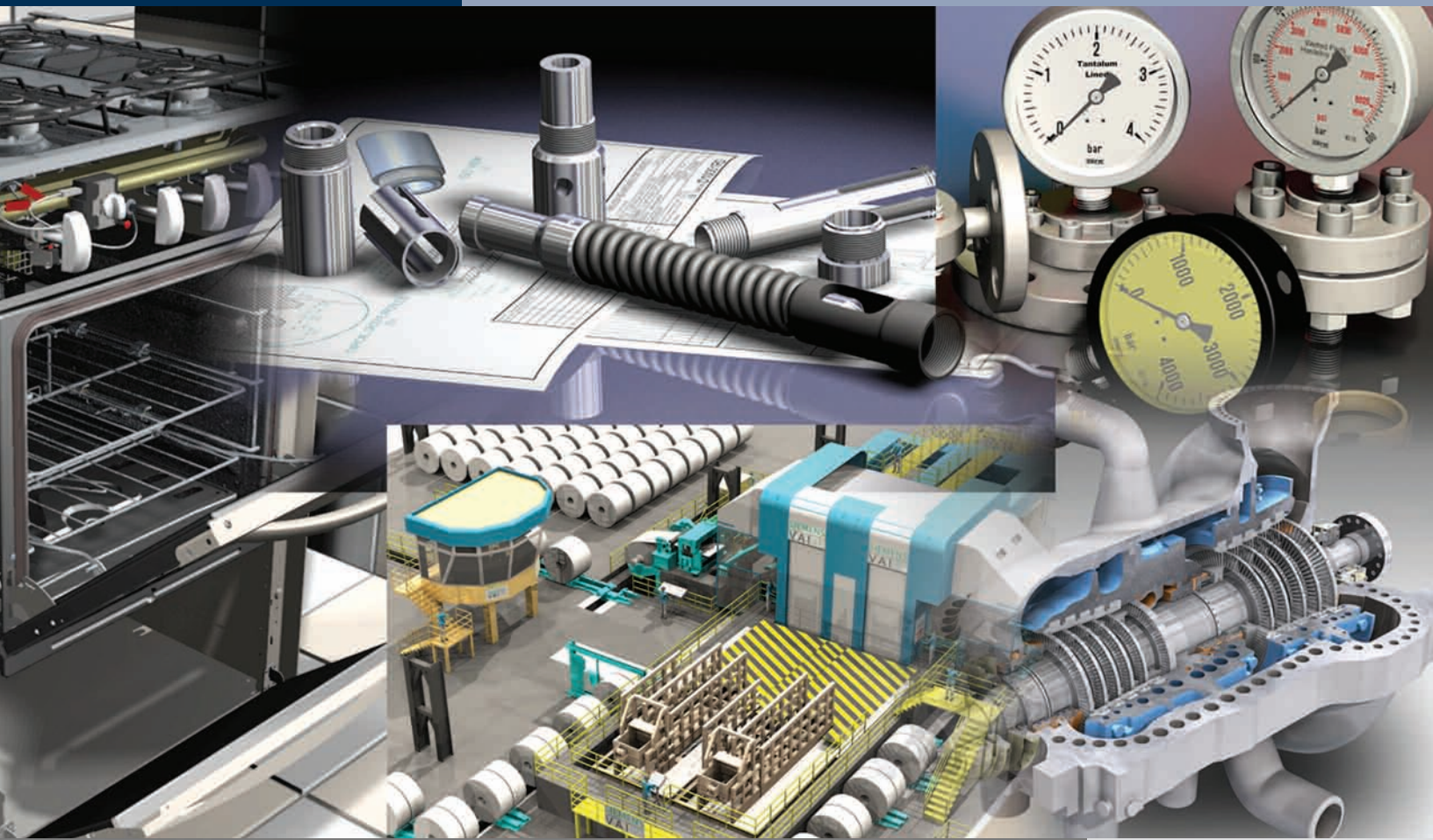


# Solid Edge

Siemens PLM Software

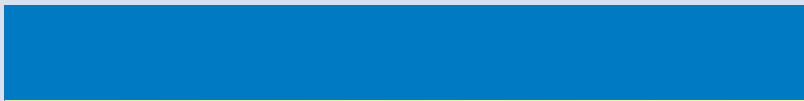
[www.siemens.com/solidedge](http://www.siemens.com/solidedge)



Solid Edge® software with Synchronous Technology is the most complete feature-based 2D/3D CAD system available to the market today that combines the speed and flexibility of direct modeling with precise control of dimension-driven design, to provide the fastest, most flexible design experience possible. With superior part and assembly modeling, drafting, transparent data management, and built-in finite element analysis, Solid Edge with Synchronous Technology is a core component of the Velocity Series™ portfolio that eases the growing complexity of product design.

## VELOCITY SERIES

## SIEMENS



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Solid Edge modeling and assembly tools enable your engineering team to easily develop a full range of products, from single parts to assemblies containing thousands of components. Tailored commands and structured workflows accelerate the design of features common in specific industries and you ensure accurate fit and function of parts by designing, analyzing and modifying them within the assembly model. With Solid Edge, your products come together right first time, every time.

Solid Edge is the only mainstream mechanical system that merges design management capabilities with the CAD tools that designers use every day. Solid Edge customers have a choice of scalable product data management solutions that manage designs as quickly as they are created. Practical tools for managed collaboration help to better coordinate design team activities and remove the errors that result from miscommunication.

Product and process complexity is a growing concern for manufacturing organizations. Thousands of companies around the world have come to rely on Solid Edge to battle this increasing complexity head-on. Taking advantage of Solid Edge's family of modular and integrated solutions, they are first to benefit from the CAD industry's most functional innovations, first to complete their designs, first to market with an error-free product.

## Fast, flexible component modeling

### Superior modeling

Solid Edge is built on a foundation of superior modeling capabilities that help engineers design more rapidly than other CAD systems. By harnessing the power of Siemens' Parasolid® software, the most powerful geometric modeling kernel. Users can create the most complex products faster. And with Synchronous Technology, more design alternatives can be explored with fewer steps.

### Synchronous Technology

This breakthrough combines the speed and flexibility of explicit modeling with the precise control of parameterized design. Models can be developed faster because designs no longer require preplanning. Changes are more flexible since users can apply 3D driving dimensions to completed models, and Live Rules maintains model integrity throughout design iterations. During any change, models are not regenerated so performance is nearly instant. The same edit tools can be used on imported data so changes to outsourced data can be made on the spot.



### Process-specific features

Solid Edge boosts design productivity of complex geometry with tailored commands and structured workflows that are faster and more efficient than general purpose modeling tools. Process-specific features create complex model features such as web networks, cooling vents and mounting bosses within a single operation. Procedural features within Synchronous Technology allow feature-based create and edit, but eliminate model regeneration to further boost productivity.

### Industry-leading sheet metal

Sheet metal is a core design capability of Solid Edge, with support for the entire design-through-fabrication process. From streamlined modeling commands that are tailored to the unique needs of sheet metal design through flat pattern development and the creation of engineering drawings, Solid Edge delivers the most advanced sheet metal CAD package available.

# Comprehensive digital prototypes

## Digital prototypes

Solid Edge helps battle design complexity by creating functional 3D virtual prototypes that help optimize designs before production. Solid Edge is assembly-centric using both top-down and bottom-up modeling techniques with the core tools to ensure original design intent is captured, stored and maintained throughout the complete design process.

## Synchronous Technology for assemblies

Solid Edge extends assembly design with Synchronous Technology. Designers can make changes across multiple parts in assemblies without the need to build or manage complex inter-part relationships. Edits are as easy as drawing a 3D fence around key model areas and dragging to a new size. Unique tools such as Live Rules finds and maintains critical geometric conditions with no user intervention.

## Unsurpassed productivity for massive assemblies

Solid Edge easily tackles massive assembly design with powerful tools helping customers create assemblies topping 100,000 parts. Lightweight, simplification, zones and component grouping make working with massive assemblies easy and efficient.

## Systems design: capturing and maintaining design intent

With Solid Edge's unique systems design capabilities, users can define and store sets of parts, features and constraints for re-use as a fully functional system. Each system captures critical relationships and motion parameters ensuring the correct position and operation during placement.

## Practical design analysis

Digital simulation realizes reduced product development costs while improving quality. Created specifically for design engineers, Siemens' Femap® Express finite element analysis (FEA) software provides an easy-to-use process for performing a fast, accurate, first pass static or modal analysis on a part or sheet metal model. For more detailed and advanced analysis, Solid Edge integrates directly with Femap.

## Machine and factory design and layout

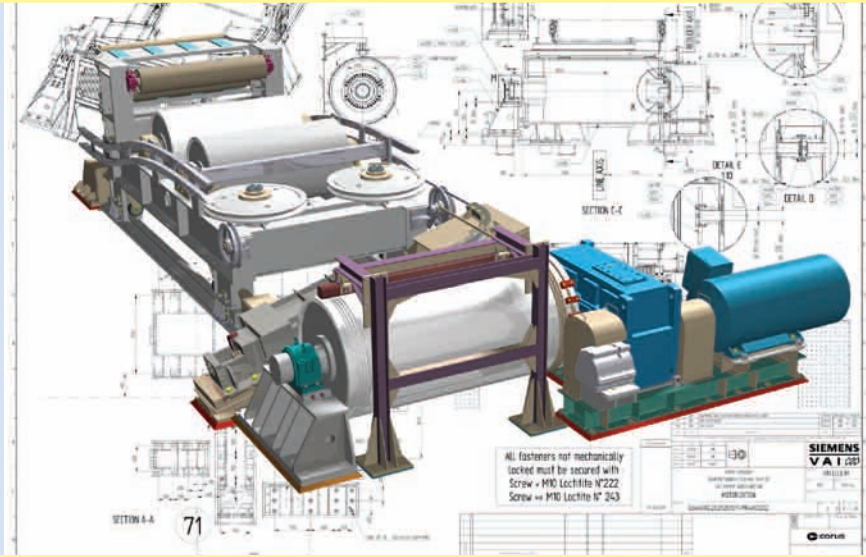
Massive assembly design features in Solid Edge extend beyond single machines and into factory floor layouts. Solid Edge can handle complete production lines and the interconnectivity such as piping, wiring and tubing. Solid Edge is the only tool for part modeling through complete production line development.

## Zero D: encapsulating the design process

Many design processes start an initial product structure and a 2D layout of key components. Solid Edge's exclusive Zero D lets designers define key elements of a product structure with Virtual Components. At any point in the design process, user can turn the Virtual Components into 3D geometry. When coupled with Zero D, powerful 2D/3D hybrid design capabilities help engineers quickly outline designs virtually, add details in 2D, then develop complete 3D digital prototypes.



# Speeding digital prototypes with process applications



## Process applications

Solid Edge boosts design productivity with environments specific to particular design tasks. These process-specific applications take the complexity out of modeling and assist complete digital prototype design more efficiently than general purpose CAD tools.

**Frame design:** Solid Edge speeds design of rigid frame structures beginning with a 3D sketch defining the frame skeleton. Solid Edge automatically creates frame components using standard cross-sections and generates cut lists for manufacturing.

**Weldments:** A dedicated environment assists the development of welded structures. All weld types are supported and tools are included for defining pre- and post-weld operations. Solid Edge captures the entire process, and provides bills of materials and component drawings.

**Piping and tubing:** Piping and tubing assemblies are created in the XpresRoute environment. Using a 3D path, pipes with correct fittings, or tubes, are automatically created. Pipes and tubes adapt to design changes and cut lists, bills of materials and manufacturing information are automatically produced.

**Wire harness design:** Wire harnesses in Solid Edge can be created manually or automatically from electrical CAD systems. Solid Edge includes a complete suite of tools for wire creation, routing, bundling and constantly monitors the design for manufacturability. Cut length and reports are also provided.

**Standard parts:** Solid Edge Standard Parts allows designers to add, select and place fasteners, bearings, pipe fittings and structural steel members. Users can place standard parts from optional libraries or use their own custom components.

**Animated and dynamic documentation:** Explode and motion simulations help communicate design ideas, show operations and improve documentation. A timeline-based approach lets users document explode sequences, create realistic motions and animate fly-throughs. When combined with Virtual Studio+, photorealistic movies can showcase products in action.

**Mold and electrode design:** Solid Edge Mold Tooling is a powerful automated system for plastic injection mold design. This complete system includes component libraries, support for multi-core/cavity and cooling lines. A complementary electrode design application guides mold manufacturers through a step-by-step workflow to develop single or compound electrodes.

## Production-ready drafting and documentation



### Production drafting

Solid Edge is the industry's best for creating 2D drawings. Whether drawings are generated automatically from 3D models, or from scratch, Solid Edge includes unmatched tools and processes for layouts, detailing, diagramming, annotating and dimensioning. Also included is Goal Seeking that helps engineers solve complex problems and what-if scenarios. Results can be used to drive 3D geometry in a true hybrid 2D/3D design environment.

### Streamlined automatic drawing creation

Solid Edge automatically creates drawings from 3D models including standard, auxiliary, section, detail, broken and isometric views – even shaded. Solid Edge's comprehensive dimensioning and annotating tools help document fully detailed drawings remarkably fast. As changes are made to 3D models, drawings update automatically and a Dimension Tracking tool captures any changed annotations.

### A complete 2D drafting system

Unlike other 3D-only products, Solid Edge supports 2D drawing creation from scratch as well as editing existing 2D data. Open 2D files such as AutoCAD and continue to work even in a familiar "paper space" workflow, or migrate the data into 3D.

### Documenting massive assemblies

Solid Edge dramatically accelerates the production of massive assembly drawings with exploded views, balloons and parts lists. Drawing views of only relevant components can be easily generated using assembly configurations or queries. Drawing Review Mode allows rapid opening of drawings and is ideal for reviewing, detailing or printing.

### Drawing automation with Quicksheet templates

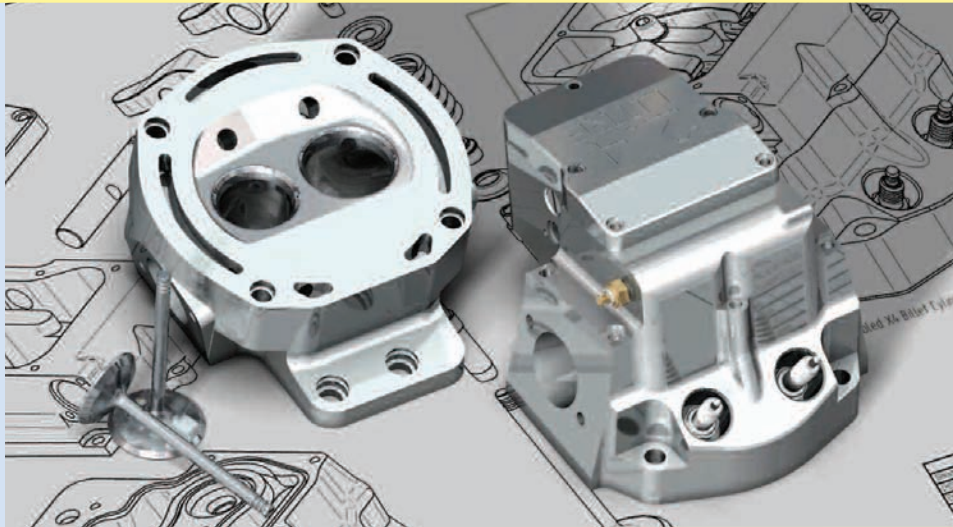
Many manufacturing companies have standards for creating drawings that specify drawing views, scale, parts list information and dimensioning styles. Quicksheet templates in Solid Edge eliminate repetitive tasks by initiating drawings from templates defining view layouts and all annotation standards. Documenting complete drawings can be done by a simple drag and drop.

### Diagramming

Solid Edge includes dedicated tools as well as a library of industry standard symbols to simplify the creation of 2D diagrams such as electrical schematics and P&ID layouts. Each symbol can contain property information to be included in a parts list.



## Unparalleled returns through ease of adoption



### Built for ease of use

Solid Edge has a long history of developing a user interaction model that streamlines design for maximum productivity. Commands and options are carefully organized for easy access to increase adoption by novice users but are unobtrusive to experienced users. Solid Edge is designed by engineers for engineers so operations and workflows are carefully structured to remove the need for users to make unnecessary decisions that restrict productivity.

### Microsoft Office 2007 compliant

To maximize desktop productivity, the user interface for Solid Edge matches other office applications. Maintaining a consistent interface reduces learning curves as common operations are presented in a familiar location. A familiar Ribbon toolbar lists the most common operations, but less common are just a click away. View manipulation commands such as fit, zoom and shading are conveniently located in the exactly same location as Microsoft Word or Excel. As engineers migrate from other CAD systems, a Command Finder tool can be used to cross reference equivalent Solid Edge commands.

### Optimized for Synchronous Technology

The user interaction for Solid Edge uses a direct approach, meaning only relevant operations are presented when specific items are selected. Select a face and options are presented that allow move, rotate and relate. Select a 2D sketch region and handles are presented allowing immediate 3D geometry creation. With this direct approach, models can be created with few or no commands.

### Practical evolution from 2D to 3D

Solid Edge removes the traditional roadblocks when moving from 2D to 3D. Using Solid Edge's simple four-step process, users can quickly evolve from 2D taking immediate advantage of 3D design at a comfortable pace. Here's how:

Step 1 – Get the job done today, while moving to 3D at your own pace

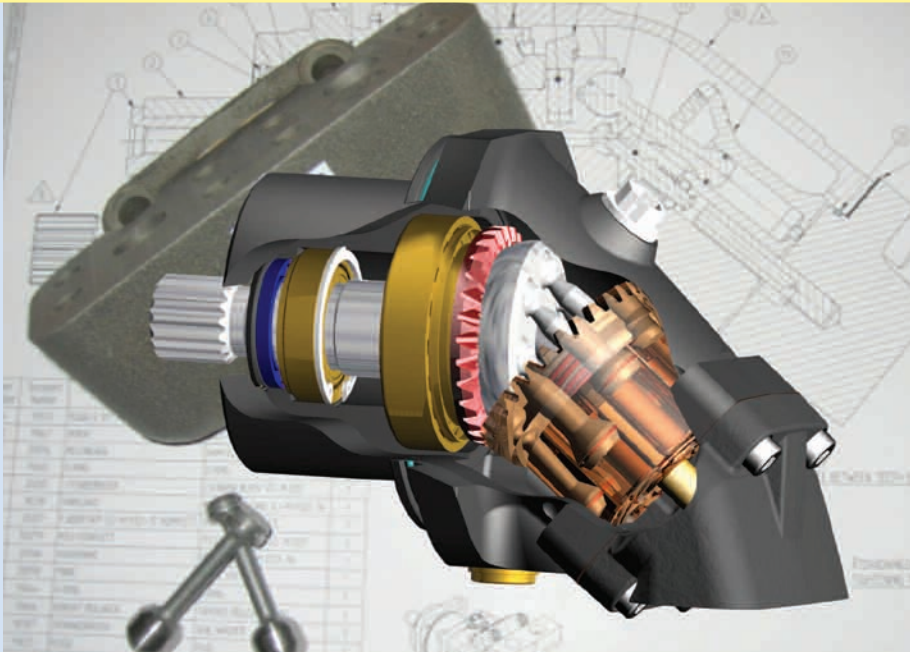
Step 2 – Quickly turn simple 2D geometry into intelligent, real 3D parts

Step 3 – Apply the power of the new Solid Edge hybrid 2D/3D design workflow

Step 4 – Move to full 3D design when ready

Each step includes a proven set of tools and workflows to help users evolve from 2D to 3D while maintaining all data. To continue a common edit practice used in 2D, a familiar 3D stretching can be used to modify 3D models. Users simply draw a fence around any part of a 3D model and drag into a new position using precision key-in or 3D driving dimensions.

## Unmatched collaboration with the entire supply chain



Siemens recognizes the demands globalization places on manufacturing companies. To keep up with high competitive pressures, designers continue to outsource design and manufacturing to firms around the globe so shrinking deadlines can be met and costs contained. Siemens is the leader in developing collaboration tools to help engineers communicate with their supply chain even if they are using different systems or are in different time zones. A full suite of tools is available to let designers or managers author, edit, manage and distribute designs to better communicate requirements or modifications.

### **XpresReview for authoring, distributing and reviewing**

Solid Edge sets a new standard for how companies document and package ideas. Designers can quickly annotate 3D models with dimensions or annotations and package them along with requirements documents, spreadsheets, images and even 2D drawings. A single compact file can be emailed to customers or suppliers and opened in XpresReview. This no-cost application lets the team view and markup documents, and any notes can be easily managed and merged for fast review. Manufacturing companies have never had such a complete solution for communicating with their entire supply chain.

### **JT for visualization**

Extremely compact JT files can store 3D visualization data or the complete model data for precise measuring. And because of its lightweight yet robust nature, JT files can be easily inserted in standard office documents for illustrating products or requirements. Customers or suppliers can also view JT files in a no-cost viewing application.

### **Migration from other products**

Solid Edge allows you to preserve your investment in data from other 3D systems, such as Pro/Engineer, Autodesk Inventor or Mechanical Desktop or Ideas® software, with tools that let users migrate this data into Solid Edge in a bulk manner. Moving parts, assemblies and drawings into Solid Edge is a simple step-by-step approach, automatically checking files into the PDM system where relevant. This powerful process can save a significant amount of time and money when compared to file-by-file translations.

### **Synchronous Technology for editing supplier data**

While viewing customer and supplier data is important, many designers need to make changes to imported model files in order to reduce turnaround times or eliminate change fees. The tools in Solid Edge with Synchronous Technology allow edits to imported data as fast and flexibly as native models. Changes are as easy as applying a 3D driving dimension or drawing a 3D fence and dragging a region of the model into the correct position.

## Extend the value of Solid Edge

### Maximize your investment with Solid Edge maintenance

Siemens understands companies' goals are to design great products – not necessarily to become an expert in the design software – so Siemens makes it easy for companies to stay in touch and stay up to date. Solid Edge maintenance helps customers protect and maximize their return on investment, not just in the software, but in their people. An industry leading four-point security program provides you access to qualified technicians, software updates and technical publications, live and online. The Solid Edge maintenance program helps you achieve high levels of productivity with a minimum of inconvenience. Your engineers are always up to date with the latest Solid Edge enhancements, taking advantage of the best tools available to keep your company competitive.



### The Solid Edge community

The Solid Edge community is growing every day. Here are some programs that have helped thousands of companies keep in touch as well as grow their business.

#### ▶ User groups

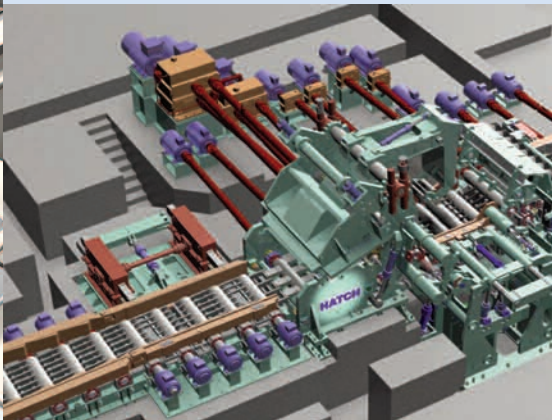
Solid Edge user groups are a great way of sharing ideas and learning from other Solid Edge users. Learn new ways to use Solid Edge and reach its maximum potential. These groups include educational workshops, hands-on training, new tips and technique sessions and input roundtables.

#### ▶ User certification

The Solid Edge Professional Certification Program is an opportunity to become formally trained on Solid Edge. Having expert knowledge helps companies know that they have the best.

#### ▶ News group

Users love to help users, and the Solid Edge news group is an excellent way to share ideas and solutions. Customers can actively participate and collaborate across a wide variety of subjects.



## About Velocity Series

Velocity Series is a comprehensive family of modular, yet integrated solutions addressing the product lifecycle management (PLM) needs of the mid-market. Consisting of a preconfigured family of digital product design, analysis, manufacturing and data management software offerings, Velocity Series leverages the industry's best practices to provide significant breakthroughs in ease-of-use and deployment. Emerging manufacturers can leverage the power of Velocity Series to transform their process of innovation while maintaining a low total cost of ownership; and all Velocity Series products are completely scalable to the full range of Siemens PLM Software's industry leading, enterprise-level PLM portfolio.

## About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with 5.5 million licensed seats and 51,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software's open enterprise solutions enable a world where organizations and their partners collaborate through Global Innovation Networks to deliver world-class products and services. For more information on Siemens PLM Software products and services, visit [www.siemens.com/plm](http://www.siemens.com/plm).

### Solid Edge – [www.siemens.com/solidedge](http://www.siemens.com/solidedge)

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► For more information, contact your local Solid Edge representative: