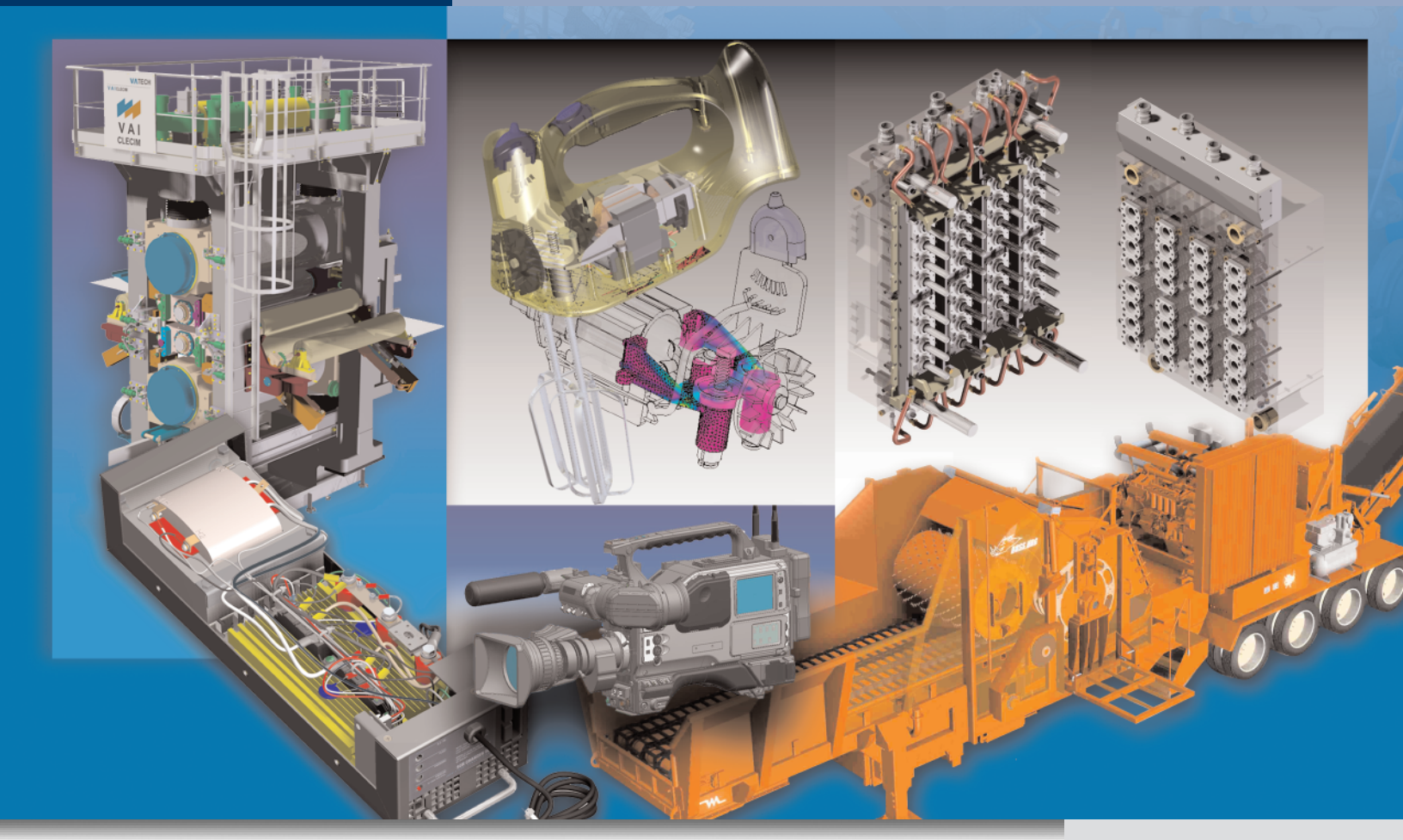
Solid Edge

Version 18 highlights

UGS

www.solidedge.com



Solid Edge® Version 18 continues to deliver new and innovative tools and applications to customers in diverse markets, helping them to reduce costs, deliver products to market faster and enjoy an exceptional return on investment for a low total cost of ownership.

SOLID EDGE

UGS

Transforming the process of innovation

Introduction

Solid Edge is now a core component of the new UGS Velocity Series of PLM products – a family of modular and integrated, preconfigured, easy-to-deploy, design and data management solutions, that also includes Teamcenter® Express for cPDM and Femap® for analysis.

With its groundbreaking Insight technology, Solid Edge became the only mainstream mechanical system to merge design management capabilities with the CAD tools that designers use every day. Setting a new standard in CAD/PDM integration, Solid Edge builds on the success of Insight, letting customers choose from a range of easily scalable cPDM solutions. Solid Edge Insight continues to provide proven management capabilities for departmental teams. Solid Edge's integration with the powerful Teamcenter platform provides seamless and transparent connectivity between the applications. All essential Solid Edge commands are encapsulated, making sophisticated data management functions easily available to the Solid Edge user. Solid Edge-related data is easily captured for re-use in future projects without placing an additional burden on the CAD user, while full scalability means customers can grow their cPDM solution to meet growing business demands without starting from scratch.

These new capabilities deliver a groundbreaking PDM user experience, modeled on the success of Solid Edge Insight. Now customers with varying needs can take advantage of single-vendor support for both CAD and PDM.

Solid Edge Version 18 introduces two complementary methods for designs to be analyzed and validated much earlier in the design cycle. The first – Femap Express – is built into Solid Edge and provides preconfigured, best-practice, process guidance for fast, accurate analysis of solid and sheet metal parts. Second, Solid Edge integrates further with full-blown Femap, the leading CAD-independent finite element analysis (FEA) tool for advanced analysis to ensure quality and optimize materials within complete assemblies. Both solutions utilize well-proven Nastran solver technology for accurate and repeatable results.

A new wire harness design package utilizes electrical circuit diagrams from popular eCAD systems to automate wire harness designs in Solid Edge. Electrical and mechanical design teams can now collaborate more closely and create a complete digital mockup that includes cables and wires. Dedicated tools deliver streamlined ways to create wires, cables and bundles. Correct cut-length information is easily accessible for manufacture.

Solid Edge diagramming in Version 18 lets users develop electrical, P&ID and other diagrams by leveraging industry-standard libraries of 2D blocks (also referred to as symbols). These innovative 2D capabilities further strengthen Solid Edge's ability to create and maintain 2D drawings and remove the need for companies to maintain separate CAD systems for 2D and 3D requirements.

UGS Velocity Series overview

The UGS Velocity Series is a family of modular and integrated, preconfigured and easy-to-deploy design and data management solutions that are part of UGS' completely scalable, industry-leading PLM portfolio. The UGS Velocity Series features Solid Edge and an extended series of applications to address the complete engineering needs of emerging manufacturers; Teamcenter Express, with standardized workflows, multi-CAD and multi-site PDM capabilities, complements the existing Solid Edge Insight application; and Femap, a robust full-featured CAE solution. completes the UGS Velocity Series.

With an impressive history of functional enhancements and increasing CAD market share, it's no wonder Solid Edge enjoys 12 consecutive quarters of growth. Version 18 continues this trend of offering enhanced design tools that enable customers to ease the design of increasingly complex products and transform their process of innovation as they evolve to 3D. By implementing the complete UGS Velocity Series, customers can take advantage of single-source support as they reap the benefits of a fully integrated and managed design discipline.

Contents

Overview

A new tight integration with Teamcenter provides Solid Edge customers now have a choice of highly scalable and unobtrusive design management solutions, from departmental, single CAD, single site with basic workflow; through multiCAD, and multisite, complete workflow; to full PLM.

Two new levels of analyzing 3D digital designs. Femap Express is a built-in component analysis wizard for engineers and designers, while engineers and analysts can now take advantage of single-button associative data transfer between Solid Edge and Femap.

A new add-on application for wire harness design provides integration between popular electrical circuit design systems and Solid Edge, allowing electrical and mechanical design teams to collaborate more closely and create a complete digital mock-up.

A new diagramming capability leverages industry standard libraries of 2D Blocks, already in use at many companies and easily available over the web to develop electrical, P&ID and other diagrams.

A new Electrode Design application complements the Solid Edge Mold Tooling package by providing a streamlined method for developing electrodes that are frequently necessary in the manufacture of complex mold components.

Solid Edge now provides single-button associative transfer of Solid Edge data to NX Machining – UGS's industry-leading manufacturing solution.

Solid Edge Teamcenter integration

A new standard in CAD/PDM integration

The new Solid Edge Embedded Client provides seamless and transparent connectivity between Solid Edge and Teamcenter, the de facto standard in cPDM. This integration enables the capture of Solid Edge-related data for re-use in future projects. Unlike traditional approaches to CAD-PDM integration, the Solid Edge-Teamcenter integration is designed to make sophisticated data management functions completely transparent to the Solid Edge user. Many other PDM solutions today are "bolt on," meaning there is a separate user interface and a set of PDM commands running alongside the CAD system. This dual command set is often from different vendors and can be confusing and counterproductive. In contrast, the Solid Edge Embedded Client is completely transparent to the end user, even adapting to specific user profiles. Complete CAD coverage ensures all essential Solid Edge commands are encapsulated, providing access to a complete product lifecycle management solution without placing any additional burden on the CAD user. The integration is available for both Teamcenter Express and Teamcenter Engineering installations, providing an easily scalable solution to meet growing business demands. Both Solid Edge and Teamcenter are developed by UGS, ensuring this level of integration is synchronized and new Solid Edge functionality is added as it appears with every Solid Edge release.

Solid Edge Embedded Client highlights:

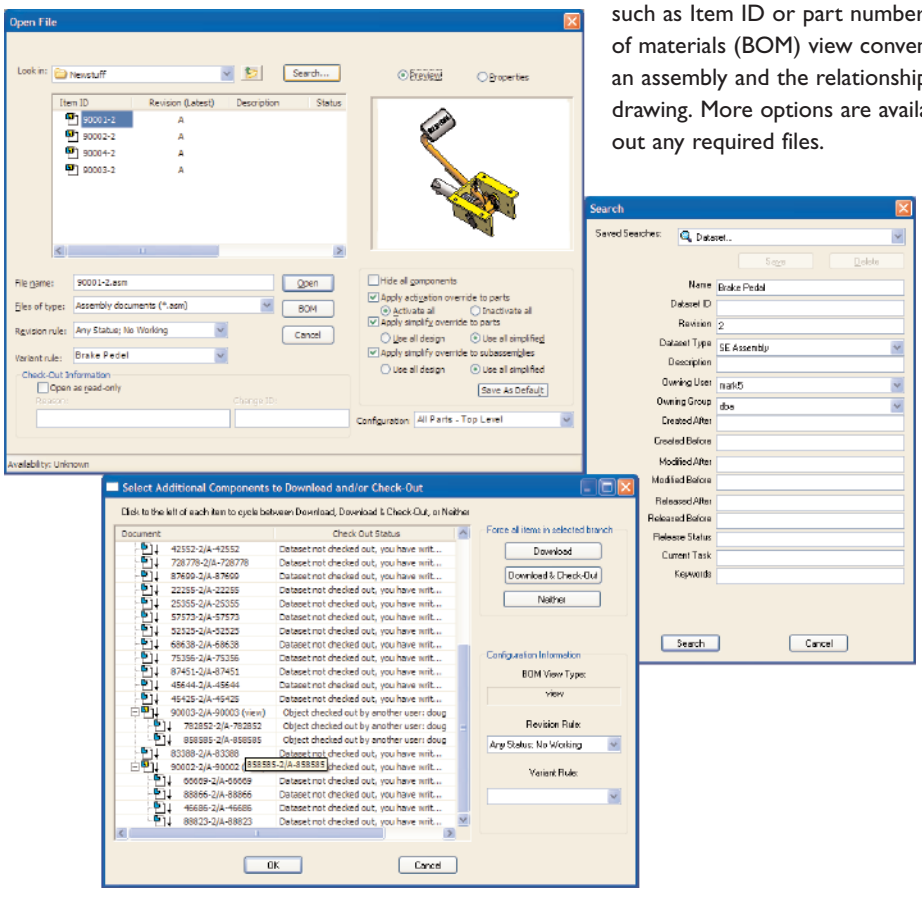
- Completely transparent user interface
  - No separate commands
- Unmatched CAD breadth
  - Complete CAD coverage
- Synchronized release
  - Compatibility with latest Solid Edge releases
  - Latest Solid Edge commands integrated with Teamcenter

Completely transparent user interface

A tightly integrated user interface ensures users work uninterrupted using familiar tools inside of Solid Edge. Users are identified with Teamcenter, without the need for a separate login, automatically adapting the interface and privileges accordingly. A Teamcenter user flag modifies the Solid Edge file open dialog, adds assembly pathfinder enhancements and enhances drag-and-drop operations where appropriate when Teamcenter is detected.

Convenient retrieval of managed data using Solid Edge commands

An enhanced "file open" dialog allows users direct access to data stored in Teamcenter. It automatically filters Solid Edge documents and displays them in the dialog using Teamcenter item information, such as Item ID or part number, to sort them. An alternative bill of materials (BOM) view conveniently lists file dependencies within an assembly and the relationships parts or assemblies have to a drawing. More options are available to download and/or check out any required files.

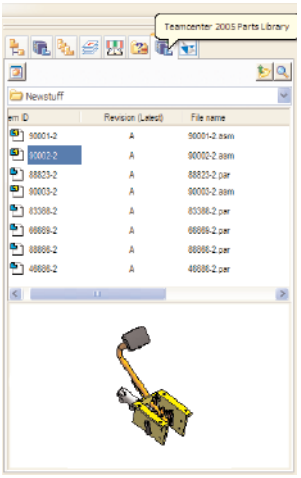


Fast, controlled data retrieval

Advanced Teamcenter search and browse tools are integrated into the dialog allowing users to find data based on Teamcenter attributes such as part number, revision or any defined property. Additional filters can also be applied to retrieve files using the latest saved, latest released or last saved files versions. None of the existing Solid Edge 'file open' options, which speed up file open times and conveniently return users to an assembly in the state in which they previously worked, are lost under Teamcenter.

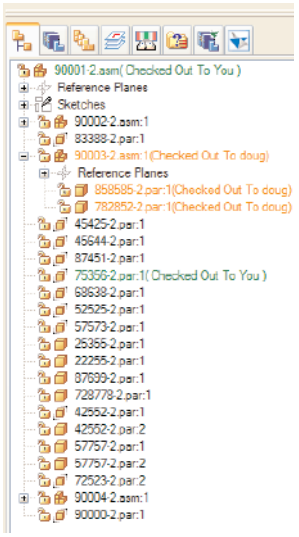
Managed access

Teamcenter can be configured to restrict access to data depending on a user's profile and rights. Your shop floor may require only the latest released files for manufacturing products, while your design team needs the latest version while they are designing components or revising a previously released design.



Up-to-date design status at a glance

Enhancements to the Solid Edge EdgeBar provide users with up-to-date feedback on different functions within Solid Edge and Teamcenter, such as assembly structure, Item ID, Revision and Version information and status (whether a file is checked out, for example) of each component. A new tab on the EdgeBar provides direct access to the Teamcenter Library through an enhanced view or portal to the Teamcenter home folder, similar to the new file open dialog, even displaying search results. Users simply drag and drop files or features into Solid Edge to build their parts or assemblies.



Uninterrupted workflow

As users work on their designs, implicit file operations look after everyday tasks, automatically checking out and changing the status of files as they are worked on. For example, if a part needs to be edited within a subassembly, the subassembly will be implicitly checked out to the user without the need for a separate operation or conscious effort. As a safeguard, users are informed if another designer is already accessing a file and are prevented from simultaneously editing the same file at the same time.

Optimum performance

By utilizing a local cache, system network performance is significantly improved. Projects are automatically cached on the local machine as they are retrieved from Teamcenter, enabling fast access to files as users work on the data. Smart cache management tools monitor for out-of-date files and powerful synchronization technology ensures that file and BOM information is synchronized between the cache and Teamcenter.

User interface highlights:

- No bolt-on commands or unique toolbar
- Solid Edge commands launch Teamcenter-specific functionality
  - File new, open, save as, create in place etc.
  - Launch Teamcenter browse/search capability
  - View files or BOM
- VC publish, mirror assembly, etc.
- Property manager style interface to facilitate bulk check-in
- Common edit property dialog
- TC aware, all file creation points are covered
  - asm, par, psm, dft, Tubes, FOP, weldments etc.
- Implicit operations improve productivity
  - Auto check-out on open or edit and auto check-in on close
- Assembly pathfinder integration for up-to-date feedback on file status
  - Show property information instead of filename and cache status
- Local cache optimizes performance
- Teamcenter user identified through login dialog
- New TC library tab
  - Direct access to Teamcenter
  - Drag and drop
  - Search or browse

Complete CAD coverage

Virtually all PDM systems today cover a small subset of the commands available in modern CAD systems. This is because a "generic" approach is cost effective for the vendor and has largely been tolerated by customers. However, it results in key functionalities not being available to PDM users. Tailored to Solid Edge, the complete CAD coverage ensures all Solid Edge commands are encapsulated. Teamcenter functionality is implicitly invoked as appropriate on all document creation points for asm, par, psm and dft files, including Tubes, Libraries, Divide Part, Virtual Components, Family of Parts and Mirror Assembly. For example, Mirror Assembly will create opposite hand components during its operation which are automatically managed by Teamcenter.

Synchronized release

Many PDM systems release independently and on a different schedule than the CAD system they support. This means that a complete end-user solution may lag a new release by many months, creating lost productivity and difficult support conditions. Solid Edge and Teamcenter are both developed by UGS, so product planning, development, testing and certification are carried out at the same time. This means the PDM tools are upgraded with each Solid Edge release, and customers are never out of synch with latest versions. Of course, Solid Edge can be upgraded independently of Teamcenter or Teamcenter Express without risk to data integrity. Tested as a "matched set" means Teamcenter will capture all the latest Solid Edge technologies as they are developed, continually upping the ante for unmatched CAD support.

Synchronized release highlights:

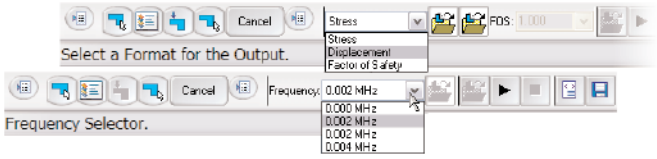
- Compatible with latest Solid Edge releases
  - Able to take advantage of the latest Solid Edge enhancements
  - Tested as a "matched set" ensuring compatibility
- Continually improved to provide unmatched productivity through ease of use
- Provide "peace of mind" through single-vendor support

Femap Express and Femap integration

Market pressures to reduce design cycle time, increase speed-to-market and improve quality are driving the growth in the use of digital simulation throughout the product lifecycle. Femap Express allows designers to perform fast, accurate analysis and validate that parts are "fit for purpose" while keeping costs low. By moving analysis to an earlier stage in the design cycle, Solid Edge users can make sure their designs will be strong enough and function as intended to avoid costly recalls.

Femap Express, built-in analysis for engineers

Created specifically for design engineers, Femap Express provides preconfigured, best-practice, process guidance to the user for simple finite element analysis. Using the same process-based approach found within other Solid Edge capabilities. Finite element technology is presented to the user in an easy-to-follow workflow using Solid Edge's patented SmartStep approach, and detailed analysis tasks are undertaken within a single Solid Edge window. Analysis settings and results are stored with the component so that if the part changes the results are modified without needing to repeat the process of applying loads and constraints. Detailed html reporting capabilities and animations capture response due to analysis conditions, and full documentation of the results – containing meaningful images of stress contours – are provided.



Femap Express flexible analysis tools

Two main analysis types are available – static where stress, safety factor and deflection can be analyzed; and modal to determine the natural frequencies. Both can be used to analyze a 3D solid component or a sheet metal part using its mid-surface.

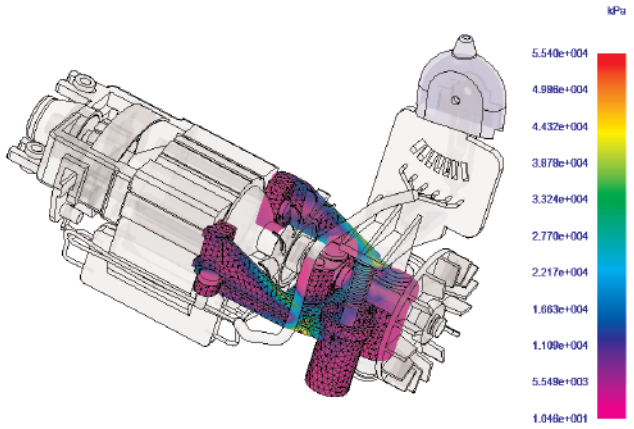
Functional advantages

Due in part to its heritage, Femap Express enjoys several capabilities that provide functional advantages over seemingly comparable analysis tools.

First, use of a well-respected, proven and recognized solver (NX™ Nastran) ensures that users can be highly confident in their results.

Individual parts can be analyzed either independently or in the context of an assembly, where surrounding parts can be used to help determine where a force vector or holding constraint should be applied.

The ability to predict component strength in a static condition is only one of the problems engineers face. In machine design, many components operate at high speed; these components can start to resonate at a particular speed (rpm) or frequency (Hz), which can lead to catastrophic failure. This resonance is hard to predict and may not be recognized until the machine is operational, resulting in



some costly consequences. The ability to predict the four major natural frequencies (modal) of a given component makes Femap Express the first practical embedded solution for engineers to solve real problems early in the design, leading to higher quality products at a lower cost.

Analyzing disproportional components that are extremely thin in relation to their length (like sheet metal components), using the normal 3D finite element mesh approach, is both very resource hungry and yields highly inaccurate results. The Solid Edge stress wizard uses 2D plate elements to analyze an automatically extracted sheet metal mid-surface delivering fast, accurate results.

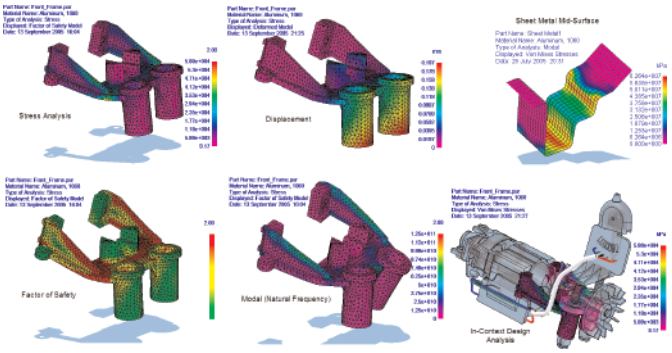
In addition, the stress wizard can take advantage of the Solid Edge concept of simplified parts, ignoring design details that are not important to the analysis. Accurate results are returned in less time.

Solid Edge Femap Express key advantages:

- *Modal analysis*
- *Sheet metal mid-surface*
- *Nastran-based solver*
- *In-context part analysis*
- *Works with simplified models*
- *Automatic html reports*

Results and reports

Detailed html reports, images and animations are quick and easy to produce. The reports include detailed information on part and material properties, constraint Information, as well as the results for modal or static analyses. Stress contour images graphically show stress levels, displacement and factor of safety.



Femap Express highlights

- Built-in analysis for part and sheet metal models
  - Stress analysis
  - Modal analysis (natural frequency)
  - In-context (within assembly) part analysis
  - Factor of safety
  - Deflection
  - Sheet metal mid-surface support
  - Adjustable accuracy settings (coarse to fine)
  - Simplified part = less complex mesh = faster performance
- In-window, pre- and post-processing
- Uses NX Nastran solver
  - Provides functional advantage over competitive products
  - Proven reliability
  - Adds credibility
- Results and reports
  - html reports
  - Save animation – avi
  - Show/hide contours

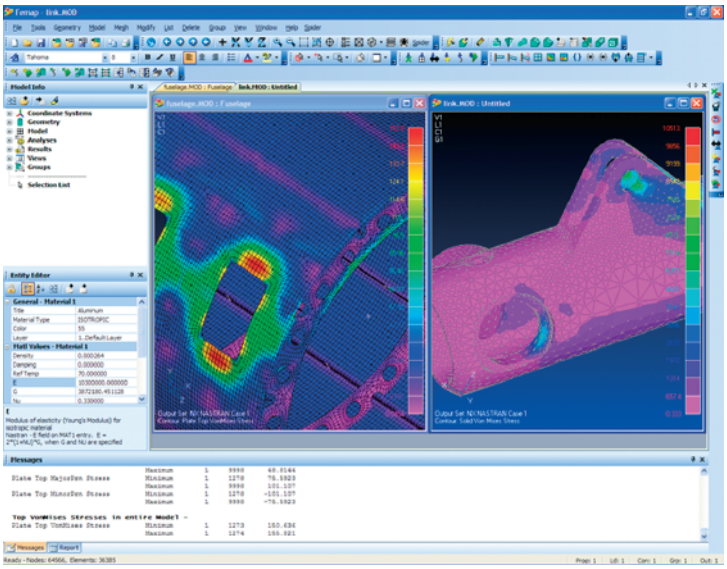
Femap is the world's leading Windows-based engineering simulation tool for finite element analysis.

Engineers worldwide use Femap to model and simulate everything from simple solid components to entire spacecraft assemblies throughout a broad range of engineering disciplines. From simple linear static analysis right through to advanced solutions-based computational fluid dynamics, engineers and analysts use Femap to virtually simulate a complete range of product behavior before committing to expensive product development plans. This ensures higher product quality, lower development costs and reduced product development time.

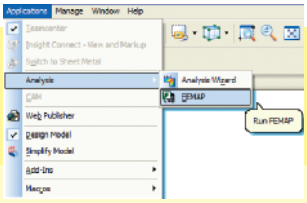
Integration with Femap

Solid Edge models can now be associatively passed to Femap from Solid Edge for more detailed and advanced analysis types, including static, modal, buckling, heat transfer and nonlinear studies for parts and assemblies. Design detail that is not necessary for the analysis can be removed by simplifying the parts, when parts (including sheet metal) and assemblies are transferred to Femap. If simplified part representations or sheet metal mid-surfaces are present in the Solid Edge files, they are automatically recognized, and users can choose to use them in place of the designed body, which will speed up the meshing and processing operation returning faster results. Full associativity is maintained between Solid Edge and Femap and all material properties and colors are transferred with the Solid Edge model.

For more information on Femap, visit *www.ugs.com/femap*



Femap integration highlights:

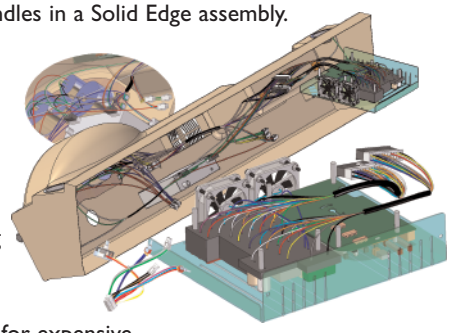


- Femap for Solid Edge
  - Solid Edge add-in
  - Integrated front-end
  - PLM-XML data pipeline
- Solid Edge add-in
  - Direct model transfer
  - Parts, sheet metal and assemblies
  - Simplified body sheet metal mid-surface
  - Materials and color transfer

Wire harness design

Seamless collaboration

Solid Edge Wire Harness Design is a dedicated process-driven environment for the efficient creation, routing and organization of wires, cables and bundles in a Solid Edge assembly.



Wire Harness Design allows electrical and mechanical design teams to collaborate on designs to create complete and accurate digitalmockups containing both mechanical and electrical components and removing the need for expensive physical prototypes. Design violations such as exceeding physical bundle size or a bend radius being too tightly routed are constantly monitored as the harness is being designed; live feedback displays any problems for rectification. Reporting of cable and wire cut length and attributes (allowing for a slack percentage and wire stripping) are captured during the harness design process. The export of ready-to-use net list files adds these mechanical attributes to generate harness designs that are ready for manufacturing.

Automatic wire harness design

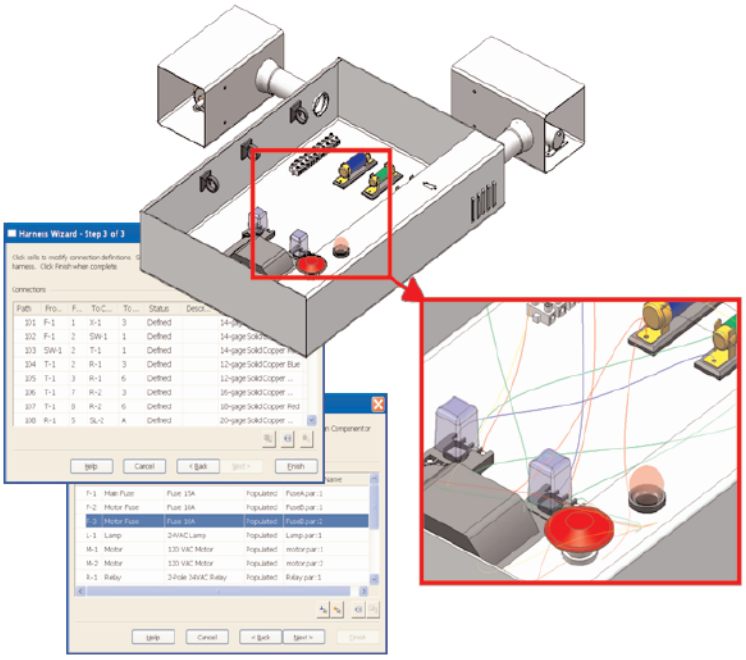
Once electrical engineers have developed and proven their designs using electrical prototypes (a task becoming increasingly important as the size and complexity of electrical systems increase), the harness wizard allows mechanical engineers to automatically generate and route physical wires and cables. The harness wizard uses input from dedicated electrical schematics applications such as Mentor Graphics, Cimteam and Vesys to automatically transfer any net-list components and connections to Solid Edge. Using the wizard, engineers can quickly establish a "rat nest" of wires from a predefined connector on one component to a corresponding connector on another.

BlueDots

Patent pending BlueDots can be used to connect multiple paths for wires, cables or bundles. They have a powerful use in wire harness design within Solid Edge, because path connectivity and edits can be done in a history-free manner. Users can simply move a BlueDots to a desired location, and all connected paths dynamically update with the change.

Wire Harness Design highlights:

- Import ready-to-use net-list files from:
  Vesys, Mentor Graphics, Promis-e, LTX, Cimteam
  Expandable to read *any* net-list file with some minimal data being written
- Automatically adds missing components as listed in the net-list file
- Reassign occurrences (light:1 to light:2)
- Automatic tangency on from/to connections
- Dedicated commands in part for component attributing – can be done on the fly
- Preview capability
- Straight-line connections can be directly edited – no data re-creation
- Graphical identification of minimum bend violations
- Smart paths through cylinders and automatic tangency
- Patented BlueDot technology for path connectivity
- Patented dynamic edit for real-time feedback of path edits
- Automatic path color based on conductor type
- Easy bundling and routing of wires and cables



Flexible wire design tools

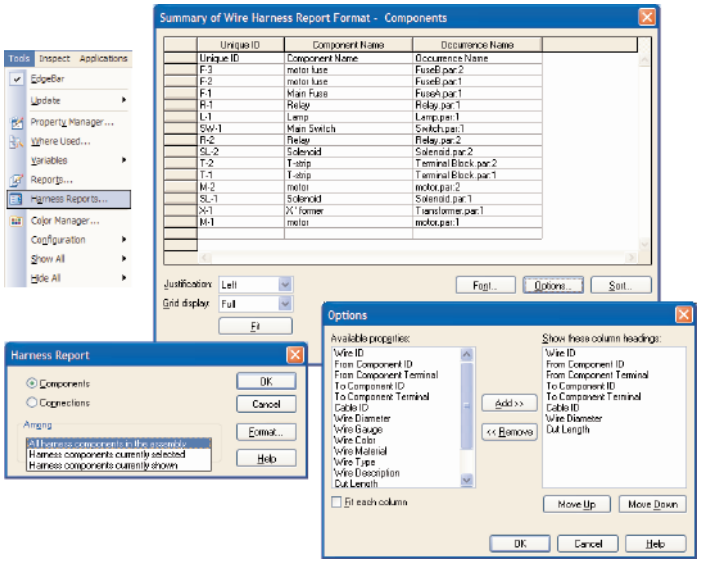
Companies without a dedicated eCAD system can still enjoy the benefits of Solid Edge Wire Harness Design. Efficient creation and editing tools are used to ensure the best routing for cables and establish correct cable lengths. With the Create Wire command both path and wire attributes are created in the same process. Solid Edge Wire Harness Design uses smart path technology to create wires in free space quickly routing them around a design, accurately threading them through other components such as clips or trucking (conduit). Single wires can be collected together to form a cable. Cables and wires may be bundled together to form the harness, ensuring the correct wire length and checking for design violations.

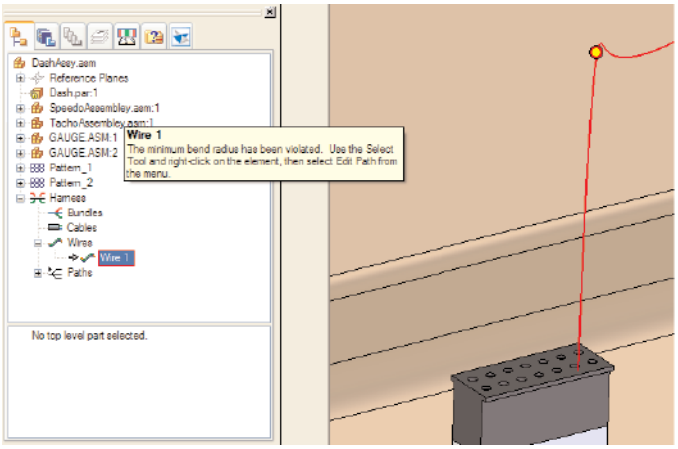
Live feedback of design violations

Individual wires can be grouped into cables and wires and cables grouped into bundles to neatly route them within a design. Built-in design-error checkers provide persistent live feedback, warning of design violations, such as checking for minimum bend radius violations or exceeding maximum bundle size of cables and wires. Violations are relayed to the user by showing a graphical symbol next to the wire in EdgeBar, highlighting the wire; and a tool tip offers advice on how to fix the problem. Any design violations are easy to fix, components can be easily repositioned and wire paths can be adjusted easily using keypoint curves and blue dots as required.

Auto placement and terminal assignment

When using the harness wizard with a predefined net-list file, electrical components and connection information is automatically assigned to preconfigured Solid Edge parts. If no mechanical parts are present in Solid Edge, the components can be selected and will be automatically placed using a predefined grid. Wires are automatically connected. Components can be easily positioned





using Solid Edge assembly tools. All wires remain connected to their original components, and wire length is updated in any manufacturing reports. For electrical components that have not had terminals assigned or connection information attributed, users can assign this information on the fly while the harness is created, allowing customers to capture knowledge while they build their component libraries. Once electrical components have been assigned, the information is stored for future designs.

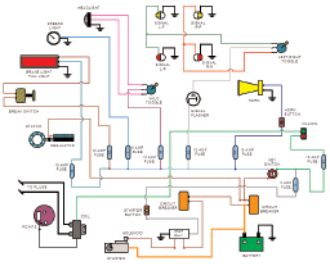
Realistic wire representation for complete digital mockups

Wires created with Solid Edge Wire Harness Design contain all of the information required for manufacturing and do not require a 3D representation for the wire design. This approach speeds the initial design and editing of the wire harness. However, for a more realistic 3D mechanical view, or if a detailed drawing is required, designers can choose to generate an associative 3D model of the wires, including individual wires, cables and bundles with colors. Automatic tangency of wire paths from terminals and through wire clips ensures wires look natural as they are routed.

Output to manufacturing

Mechanical properties not present in the electrical wire design and circuit simulation package, such as wire length, are fed back to the eCAD system with the additional information to build a nail board which is basically dependent on components, connection terminals, slack and strip back allowance, bundle information and of course the cut length.

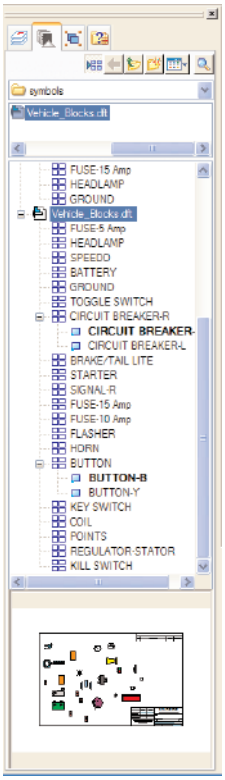
Integrated diagramming



Many companies are now switching to 3D design systems to cut costs, improve quality and remain competitive. The popular UGS Evolve to 3D program provides four easy steps to help many companies transition from 2D to 3D. UGS recognizes that some design problems are still best solved using simple 2D geometry, such as machine layouts and schematic diagrams. Solid Edge diagramming lets you develop electrical, P&ID and other diagrams by leveraging industry standard libraries of 2D blocks. These innovative 2D capabilities further strengthen Solid Edge's ability to create and maintain 2D drawings and remove the need for companies to maintain separate CAD systems for 2D and 3D requirements.

Three main components make up the diagramming capabilities, blocks, connectors and the ability to convert native DWG blocks.

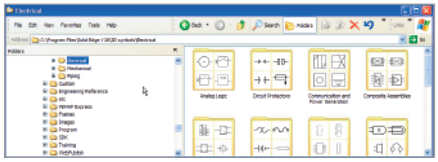
Industry-standard blocks



Diagramming uses industry-standard blocks (also referred to as symbols or cells) to automate the creation of basic electrical and P&ID diagrams in Solid Edge, without the need for a complete schematics system. Users simply drag-and-drop blocks into Solid Edge.

A new EdgeBar enhancement delivers convenient navigation and fast access to block libraries. Blocks, symbols or cells as they are often referred to, depending on the CAD system being used, are all basically the same thing – a number of elements that are grouped together to create a single object, which can be easily created from existing data, stored and quickly re-used. Blocks usually represent a much more complex component and are commonly used for electrical and P&ID diagrams. Blocks have several other special qualities. A single instance can be placed in many locations; these lightweight occurrences result in an efficient drawing format and reduced file size. Individual blocks can be replaced easily if their design changes. If a master occurrence is modified, all instances of the same symbol will be updated. Blocks support multiple representations that can be placed in alternate positions. For example, the same symbol reference can show a switch in the open or closed position, so accurate equipment lists can be generated.

Built in-block libraries



Solid Edge is delivered with extensive libraries of electrical, hydraulic, pneumatic and P&ID symbols, for electrical, mechanical schematics and piping (P&ID).

Automatically convert thousands of industry-standard AutoCAD blocks

A capability to convert Autocad DWG blocks directly to Solid Edge blocks on the fly provides access to a rich resource of thousands of standard block libraries and allows users transitioning from AutoCAD to continue to use their legacy data and transition to 3D using one common design system. Layer to color, line type and weight mapping are honored during DXF\DWG import.

Connectors

Blocks are joined together using connectors, a more lightweight and efficient version of a normal line and behave very much like enhanced leader lines, which can be locked to any standard keypoint or grid. Connectors provide an efficient way to connect blocks; four types of connector objects (lines, jumps, corner steps and u-shapes) are specifically designed to provide different options to quickly depict flow lines or schematic paths between blocks. Connectors behave like an enhanced leader line and snap to all keypoint locations on a block. Connectors are faster and more efficient than using lines to draw the same detail. Like any 2D drawings, diagrams will need to be edited at some time in their lifecycle; editing is made quick and easy by the associative link created between connectors and blocks.

Solid Edge diagramming allows you to develop electrical, P&ID and other diagrams using industry-standard libraries of 2D blocks. These innovative 2D capabilities further strengthen Solid Edge's ability to create and maintain 2D drawings, allowing you to work in both 2D and 3D using a single dedicated CAD system.

Diagramming highlights

- Blocks
  - Easy navigation of libraries with EdgeBar
    - New preview
  - Drag-and-drop from EdgeBar
    - CTRL drag, for quick copy/placement
  - Instancing – single copy, used in multiple locations
  - Supports multiple representations
- Built-in block libraries
  - Extensive libraries of electrical, hydraulic, pneumatic and P&ID symbols are built directly into Solid Edge
- Convert AutoCAD blocks directly to Solid Edge blocks
  - On-the-fly conversion from DWG
- Connector object (faster more efficient)
  - Connect to any keypoint
  - Lines, jumps, corners, steps, u-shapes

Electrode Design – complement to mold tooling

Solid Edge Mold Tooling established a powerful step-by-step process workflow for removing much of the repetition prevalent in the design of plastic injection molds. Version 18 extends this dramatic time-saving potential beyond tooling design and into manufacturing, with a new Electrode Design application.

Process-oriented workflow

Using Solid Edge's award winning SmartStep interface, users are guided through a logical step-by-step approach to develop single or compound electrodes that are frequently necessary in the manufacture of complex mold components. Users simply identify the feature to be "burned" and Solid Edge will create a solid model of the electrode, using predefined parameters to adjust for the spark gap. Electrodes are created for the rough, semi-finish and finish stages of manufacture, and all remain associative to the original mold design so any changes will be automatically recognized and the electrodes will update accordingly.

Output for manufacturing documentation

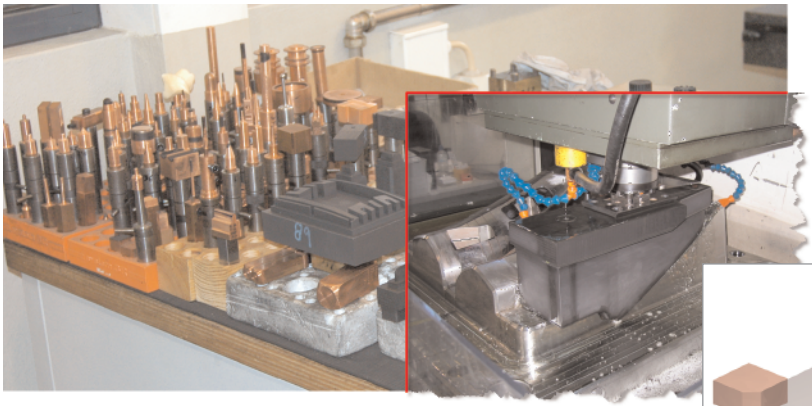
Solid Edge Quicksheet Templates provide a fast an efficient method for generating information for manufacturing. After selecting any number of electrodes, Solid Edge automatically creates a setup sheet for each one. The sheet contains three standard views of the electrode, along with the spark gap information and reference point coordinates.

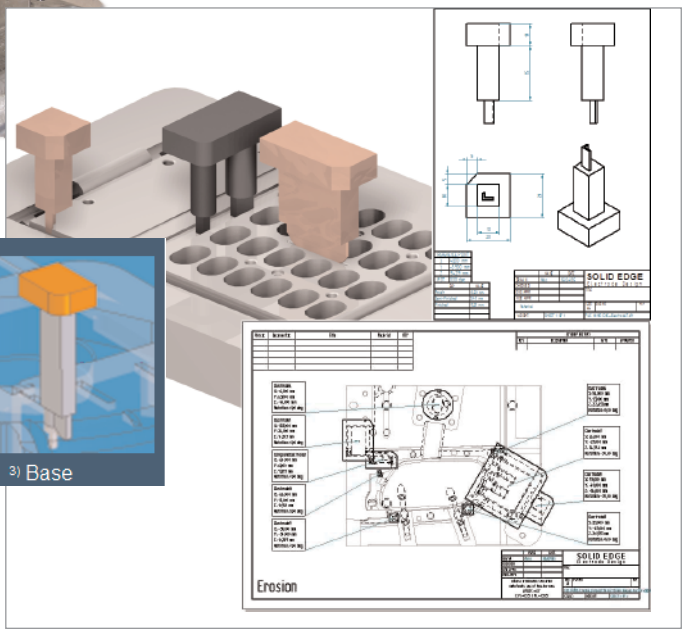
Users can also create an erosion output sheet – an assembly drawing that shows each electrode relative to the component being manufactured.

These new electrode design capabilities are included in Solid Edge Mold Tooling, but can also be purchased separately to allow companies to purchase the appropriate tools depending on their design and manufacturing needs.

Electrode Design highlights:

- Full set of electrode design tools for mold creation
- Included in Solid Edge Mold Tooling or available as separate application
- Import plate/insert
- Create front
- Create simple electrode
- Create compound electrode
- Generate setup sheets
- Generate erosion output





NX Machining associativity

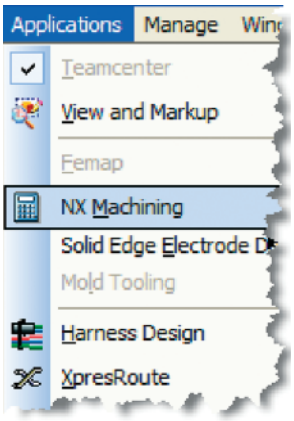
Solid Edge Version 18 includes an upgrade to the existing integration of Solid Edge and NX Machining – now providing single-button associative transfer of Solid Edge part, sheet metal or assembly documents to NX Machining ready for manufacture.

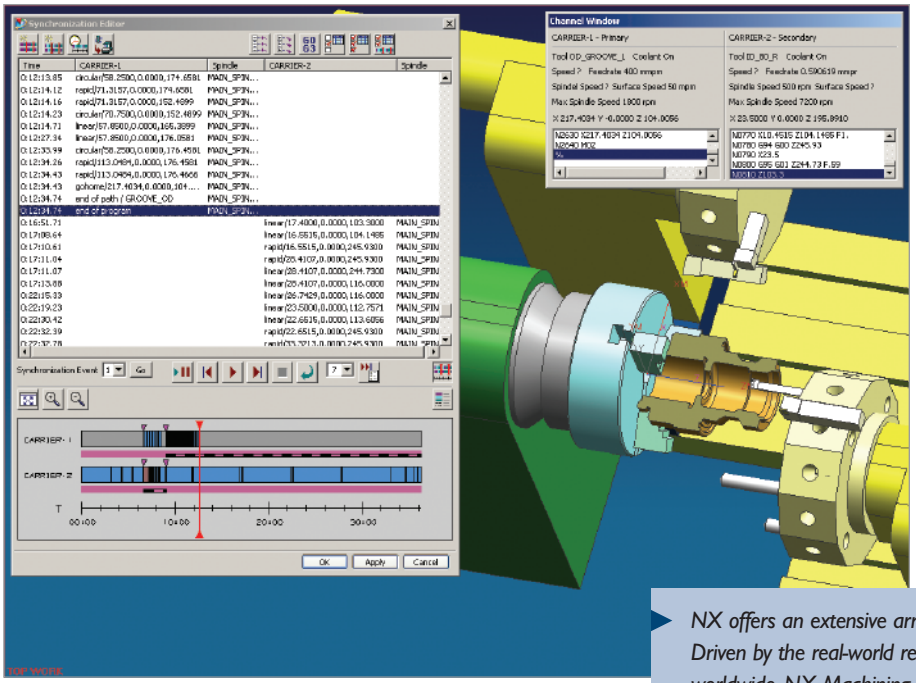
Associative transfer and update

Solid Edge and NX machining are designed to provide associativity so components designed in Solid Edge can be easily transferred to NX Machining for manufacture. NX machining is aware of any design changes carried out in Solid Edge. Changes in geometry will result in the part being updated in NX Machining, and tool paths will be regenerated, saving both time and effort.

NX Machining is a complete solution for machine-tool programming, applying leading-edge technology and advanced machining methods to maximize efficiency of manufacturing engineers and NC programmers.

For more information on NX Machining, visit www.ugs.com/machining





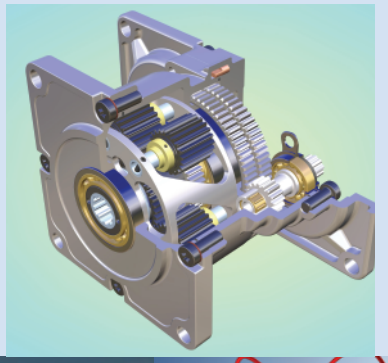
NX offers an extensive array of tools for the NC programmer. Driven by the real-world requirements of manufacturing companies worldwide, NX Machining offers great flexibility in methods and a wide range of practical machine-tool programming capabilities.

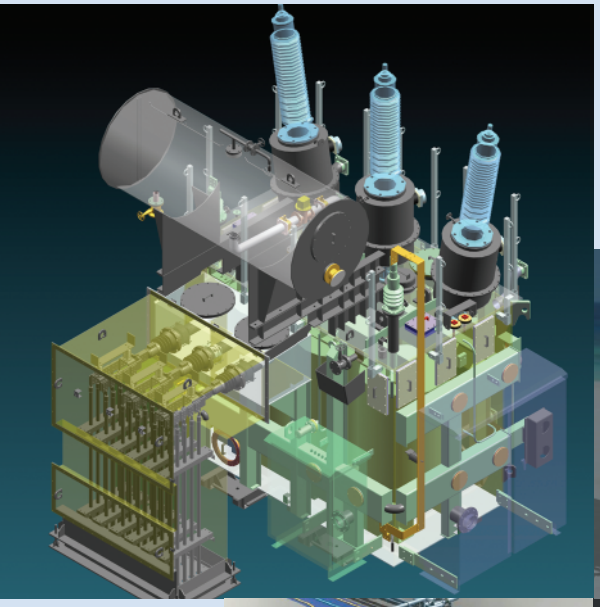
Summary

With Version 18, Solid Edge once again raises the bar on performance-enhancing tools for designers of mechanical machinery, electro-mechanical equipment, consumer products, jigs, fixtures and molds, while maintaining UGS' focus on transitioning users of 2D CAD to the productive world of 3D. The new tools delivered with Version 18 continue to extend traditional design capabilities beyond assembly design and into fully functional digital mockup. By moving design verification to an earlier point in the design cycle, overall product costs are significantly reduced and component optimization can have a greater impact on downstream quality.

Remaining true to Solid Edge's "by engineers for engineers" roots, Version 18 continues an impressive trend of offering enhanced design tools that allow customers to transform their process of innovation. By optimizing this critical stage of the product lifecycle, Solid Edge customers achieve competitive advantage through cost reduction, while increasing top-line revenues. With the new capabilities in Version 18 and its role as a core component of the UGS Velocity Series portfolio, Solid Edge delivers an exceptional return on investment for a low total cost of ownership. Hundreds of customer-requested enhancements combine with the new scalable design management and built-in analysis capabilities to complement Solid Edge's already superior core modeling, design validation and process workflows.

Version 18 strengthens Solid Edge's position as a leading vendor in the PLM market, offering customers the advantage of single-source support as they reap the benefits of a fully integrated and managed design discipline to greatly ease the growing complexity of product design.



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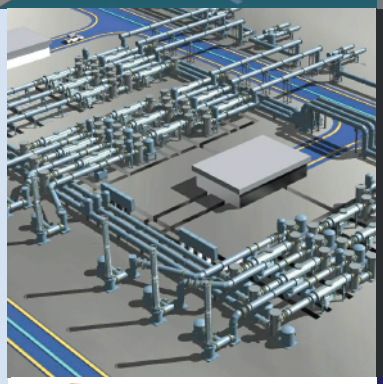

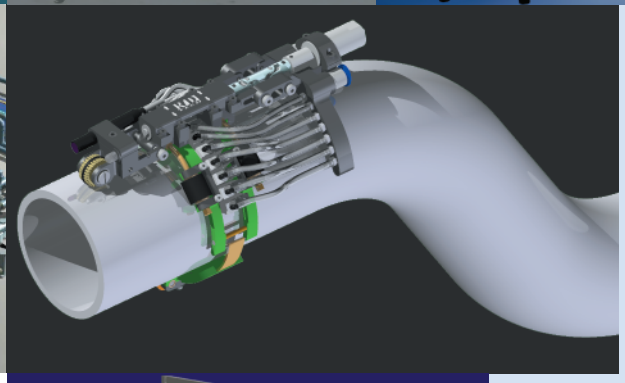

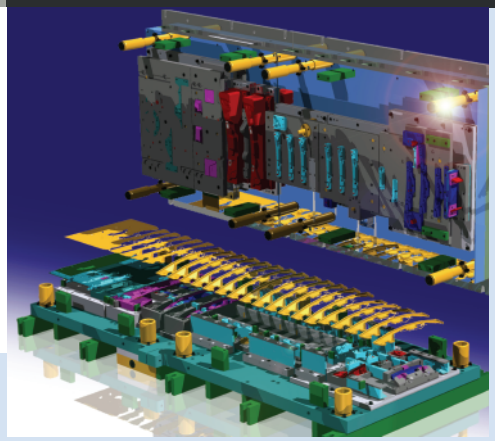

About Solid Edge

Solid Edge from UGS is powerful 3D CAD software that allows manufacturing companies to transform their process of innovation and achieve competitive advantage through cost reduction, while increasing top-line revenues. A fundamental component of the UGS Velocity Series portfolio, Solid Edge delivers an exceptional return on investment for a low total cost of ownership. Embedded and scalable design management capabilities complement Solid Edge's superior core modeling, design validation and process workflows to greatly ease the growing complexity of product design. The extensive Solid Edge user community is comprised of designers at thousands of companies worldwide, including Alcoa, NEC Engineering and Volvo. The Solid Edge Voyager Program includes 200 integrated engineering software applications and computer hardware solutions. For more information on Solid Edge products and services, visit **www.solidedge.com**.

About UGS

UGS is a leading global provider of product lifecycle management (PLM) software and services with nearly 4 million licensed seats and 46,000 customers worldwide. Headquartered in Plano, Texas, UGS' vision is to enable a world where organizations and their partners collaborate through global innovation networks to deliver world-class products and services while leveraging UGS' open enterprise solutions, fulfilling the mission of enabling them to transform their process of innovation. For more information on UGS products and services, visit **www.ugs.com**.

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Transforming the process of innovation

For more information, contact your local Solid Edge representative:

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