

DEVELOP 3D

(TECHNOLOGY FOR THE PRODUCT LIFECYCLE)

SPECIAL REPORT: Solid Edge

WHAT MAKES SOLID EDGE STAND OUT?

EXPLORING SYNCHRONOUS
TECHNOLOGY, AND ALL THAT
SOLID EDGE HAS TO OFFER



EXPLORING THE BENEFITS OF RAPID DESIGN

SOLID EDGE: DECLASSIFIED

The tenets of Synchronous Technology



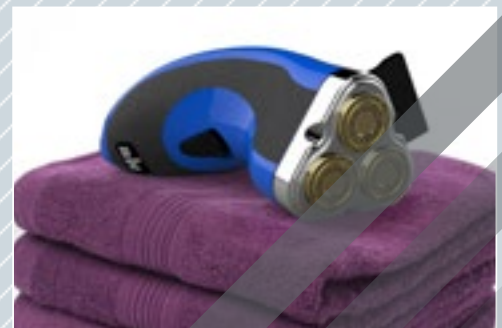
POWERFUL DESIGN

With lightning fast modelling & editing



RICH TOOLSET

What else does Solid Edge offer users?



SOLID EDGE

DECLASSIFIED

With the introduction of Synchronous Technology, Siemens gave Solid Edge a differentiator that no-one else has been able to match. We explore what it does and how you can benefit from it.

The process of creating a new product is one that faces all manner of challenges and bottlenecks. The use of 3D CAD allows you to take ideas, concepts, and requirements and turn them into high fidelity models that can then be tested without having to build physical prototypes. But not all systems do all of this as efficiently as others.

Having the freedom to make rapid changes early in the design and add design intent as the 3D model evolves are crucial in a modern system. While the feature tree and dimension driven approach make history-based modellers good at capturing design intent and highly automated, to make use of this, users have to plan their design approach rigorously, slowing down early design stages.

Subsequent edits are hard to predict and models with many features can be slow to regenerate.

On the other hand, direct modellers provide fluid editing early in product development and don't generally suffer performance slowing on complex models, but they're not so good at capturing design intent when changes are required later down the line. Additionally, weak dimension driven editing makes them poor at automating designs to quickly re-purpose your work. Wouldn't it be ideal if both approaches could be combined?

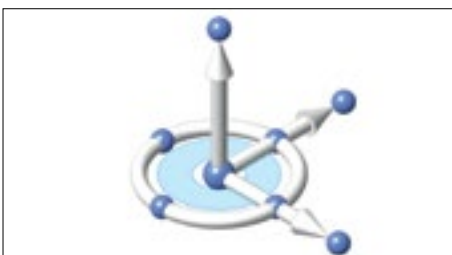
Solid Edge is a system that combines the best of both. The key to this is Synchronous Technology, delivering direct manipulation of 3D geometry, the ability to add design intent when it's needed and make precise changes.

Procedural features like holes, rounds and patterns are easily changed by altering their properties such as diameter or radius, aiding automated design.

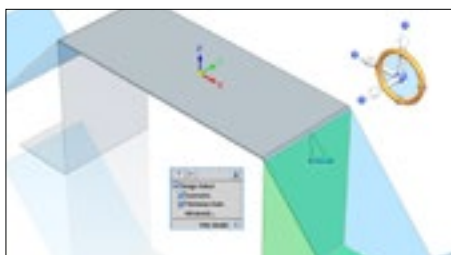
This offers an alternative to traditional history-based modelling that's more flexible to operate, doesn't require a PHD to pick apart endless lists of features to effect a design change and allows you to manipulate geometry in a very free-form manner. And because it does not rely on a history tree, it works just as well with imported geometry from other 3D design systems.

Synchronous Technology is a unique capability that controls how solid models behave - let's unlock some of the secrets of Synchronous Technology in Solid Edge, the key benefits it brings and some practical applications.

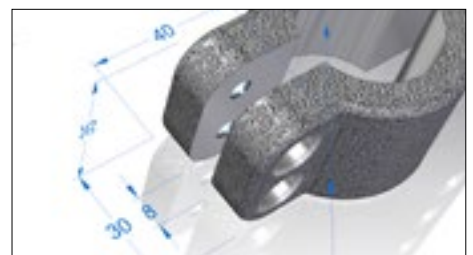
SYNCHRONOUS UNLOCKED: The three key tools driving modelling speed



STEERING WHEEL: Like in your car, this is the main control of Synchronous Technology. This gives you control over translation, rotation, and scaling of the faces you have selected. It can be dragged, dropped and snapped to axial positions to allow precise manipulation. Combined with Design Intent (see the panel to the right) it gives you control over your model.

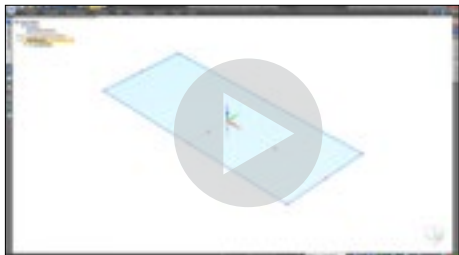


DESIGN INTENT: Design Intent in Synchronous Technology is stored right on the model, rather than indirectly in the sketches. A set of filters and face selection criteria allow you to enforce relationships such as parallelism and dimensional constraints, or easily remove them to change the design intent and make edits to your model.



3D DIMENSIONS: History-based systems require dimensions to build geometric features individually. With Synchronous Technology, dimensions can be placed in 3D space to define real world relationships, rather than having to define them just to derive features. And it works as well on third party data as it does with native.

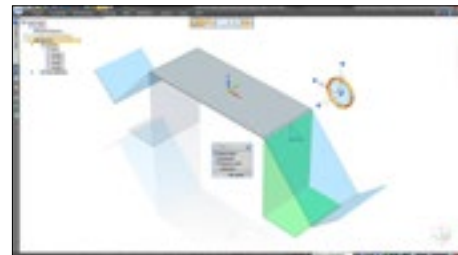
FAST AND FLEXIBLE DESIGN CREATION



CHALLENGE: Clean sheet design is a complex, frenetic and increasingly pressurised process. Many organisations find a bottleneck at this earliest of stages (39% of companies, according to a recent Aberdeen report).



SOLUTION: Synchronous Technology in Solid Edge removes the need for pre-planning of part and assembly construction processes - it lets you dive straight into the task, without having to worry about operating the software.

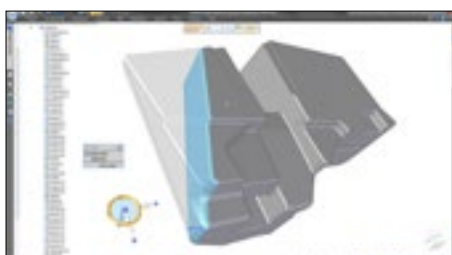


BENEFITS: Beat deadlines and deliver products to market faster than your competition by working smarter and leaner. That'll also give you more resources for developing the next generation or new areas for innovation.

QUICK RESPONSE TO LATE-STAGE DESIGN CHANGES



CHALLENGE: Late-stage design changes are a fact of life for the majority. The issue with history-based systems is that unpicking that construction history can not only take time, but can often break the 3D model entirely.



SOLUTION: Solid Edge with Synchronous Technology allows you to dive in and directly manipulate the geometry to accommodate your design changes, without having to unpick the history tree or wait for it to recompute.

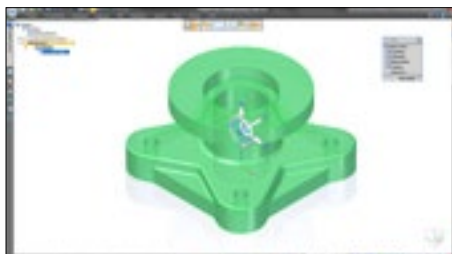


BENEFITS: Late-stage design changes are, by their very definition, factors that are holding up the process. By allowing you to make the changes you need, without having to rebuild geometry, Solid Edge gets them done faster.

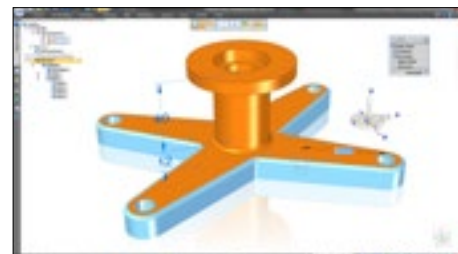
EDITING IMPORTED 3D CAD DATA



CHALLENGE: We're all used to receiving third party data that has all the intelligence stripped out of it. Traditionally, modifying that data is a time consuming and error prone process that can add days to a project.

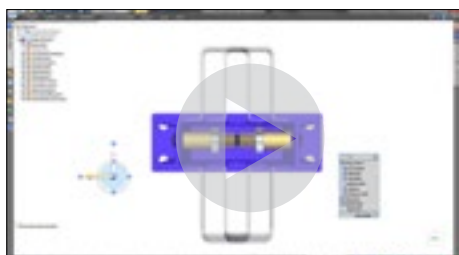


SOLUTION: Solid Edge, using Synchronous Technology, allows you to work with imported geometry just as you would with native data. It allows you to make the edits you require, using the same set of tools you use for native models.

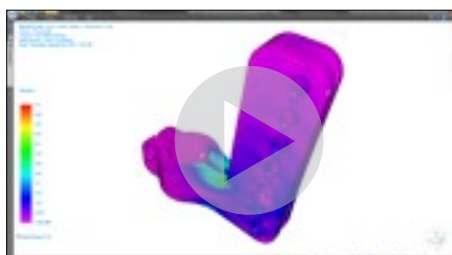


BENEFITS: Time is a precious commodity and having engineers hacking imported geometry or remodelling from scratch eats it up. The ability to work with both native and imported data saves it for more pressing matters.

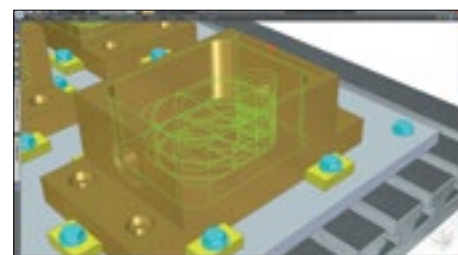
PRACTICAL DOWNSTREAM USES



ASSEMBLIES: Synchronous Technology allows you to work across multiple parts within an assembly - making edits faster and more accurate. Many other systems with direct editing capability focus on single parts.



SIMULATION PREPARATION: Repurposing of geometry is a ubiquitous part of the simulation workflow. Synchronous Technology allows you to quickly edit and defeature geometry to make your simulation more efficient.



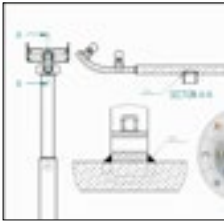
MACHINING PREPARATION: Whether it's creating casting patterns, adding machine stock or generating parting lines, Synchronous Technology gets the job done faster, on all manner of geometry types.

SOLID EDGE

A COMPLETE SOLUTION

While Synchronous Technology is key a differentiator for Solid Edge, the system has 20 years worth of development and its toolset is broad and deep. Here are some of the highlights

2D documentation



Documentation is critical to production of new products. Solid Edge includes all of the tools you'll need to take your 3D models, generate the views and add the key annotations required to push into the production environment. Geometric views, as well as parts lists, bills of materials and many others are automatically created from the 3D model.

KeyShot visualisation



Rendering is no longer the sole preserve of the industrial design crowd. Today, many are looking to create high quality images to impress colleagues and clients, to create pre-manufacture marketing imagery and to gain a better understanding of how a product will appear once made. Solid Edge comes with industry leading KeyShot as standard.

Large assembly design



The ability to handle large assemblies is not purely about how many parts your design system can handle, but how it supports the process. Solid Edge has a wealth of tools in this regard, from adaptive display controls and pre-modelling assembly structure planning to all the bells and whistles you'd expect to tackle the big projects.

Sheet metal design



From raw design and engineering design tools, Solid Edge supports sheet metal design and fabrication with forms automatically flattened using industry standard calculations for bend radii. It also supports downstream processes, with the ability to create a CAM-ready flat pattern DXF without the need to create a drawing first.

Solid Edge: Much more than just a CAD system

We've looked at what makes Solid Edge unique. It brings together world class 3D modelling tools that allow you to work quickly, efficiently and intelligently with both native and imported data.

We've also looked at how it also includes tools for drawings and documentation, simulation (based on industry leading FEMAP and Nastran technology), NC programming and part manufacturing. Design and engineering data

can be managed but can then be scaled up to cover full lifecycle management (based on Siemens' leading PLM system, Teamcenter).

To learn more about Solid Edge and download a 45 day free trial, visit the links below:

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