SolidCAM

The Solid Platform for Manufacturing

Building the Future of Manufacturing together!

The Future of CAM in Your Shop Today!

The complete CAM Solution for your Manufacturing, with revolutionary iMachining, best MillTurn and Swiss CNCs support, seamlessly integrated and fully associative into SOLIDWORKS, Solid Edge and Inventor.

Leaders in Hybrid manufacturing, combining Metal 3D Printing and CNC Machining.

The unique, revolutionary Milling Technology
iMachining®
patent by SolidCAM

SolidCAM MillTurn & Swiss

SolidCAM Additive Manufacturing

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Dr. Emil Somekh with SolidCAM Team at Customer BAK Kohler

Dear CNC Machine Shop and Manufacturing Managers,

Modern manufacturing relies on powerful and versatile CNC machines. All of your CNCs make up the backbone of your production and your profits – but how are you going to leverage them in the best possible way? How will you program all your CNC-machines – current and new, standard to complex, no matter what controller – with one single CAM-solution?

We are confident that you want your CNCs to machine with maximum performance, cutting the maximum number of parts, in the shortest possible time, with lowest cutting tool cost, and with minimal wear on your CNCs.

SolidCAM's amazing and patented iMachining provides optimal toolpaths, most efficient feeds and speeds generated automatically by our unique Technology Wizard, will enable you to achieve amazing savings in cycle time and tool life!

To increase your productity, you are introducing today to your manufacturing those complex Multi-channel MillTurn and Swiss CNCs. SolidCAM provides you with the absolute best CAM Solution for easy programming of these complex CNCs.

Interested? Read on and we will tell you how!

- Program smarter – machine faster
- The most intuitive user interface in CAM
- Seamlessly integrated and fully associative to SOLIDWORKS, Solid Edge and Inventor
- Unique and revolutionary iMachining 2D/3D technology
- Complete milling solution from 2,5D Milling, to 3D Milling and up to Sim5X
- Mill-Turn up to highly complex multi-channel machines, including Swiss-Type
- Certified postprocessors for all CNC machines and brands in the market

Dr. Emil Somekh
Founder and CEO of SolidCAM

Overcome all the Manufacturing Challenges for Modern Machine Shops

Best-in-class, complete CAM-Solution seamlessly integrated in SOLIDWORKS, Solid Edge and Inventor.

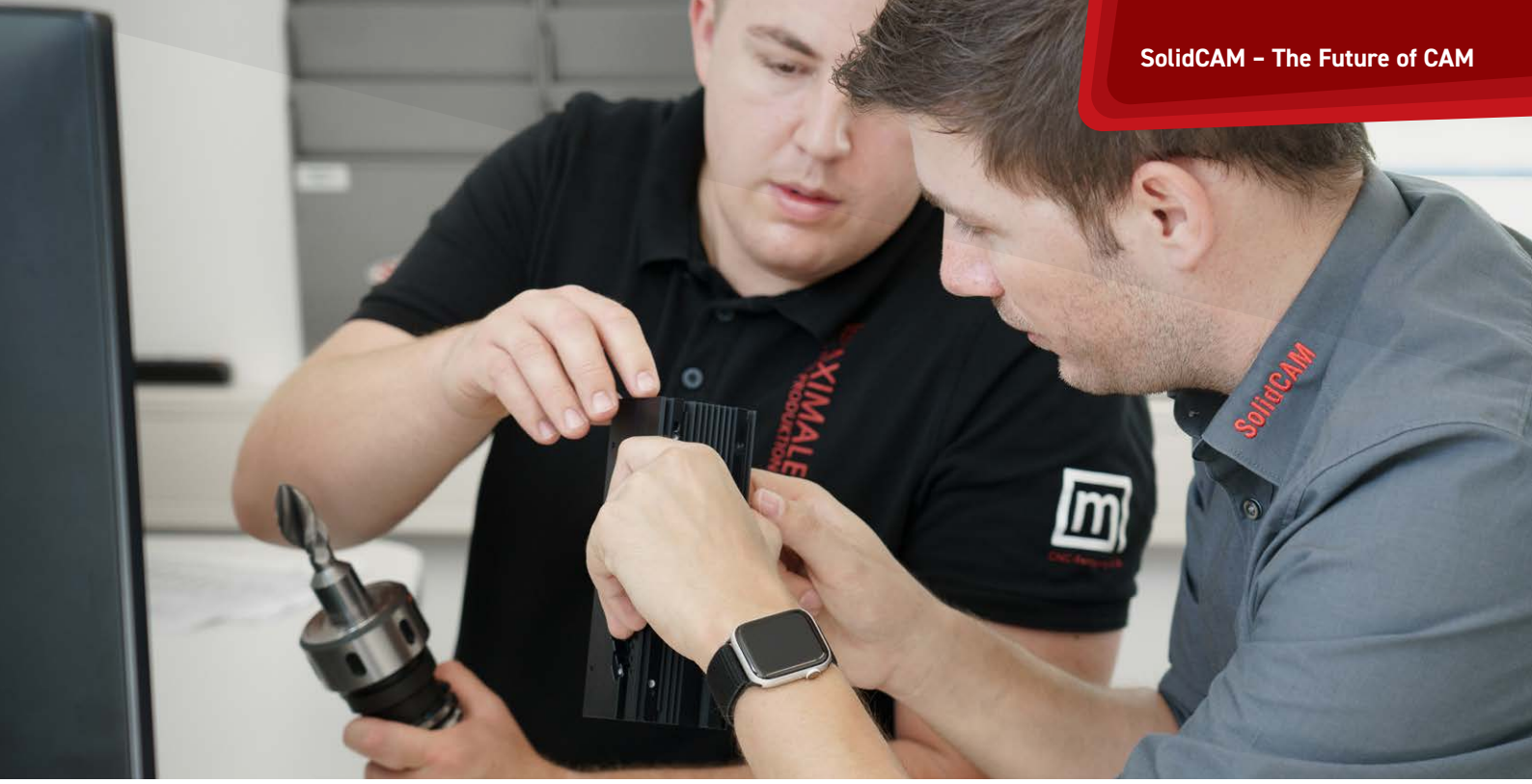
Easy to learn and to use. Fast programming for Maximum Productivity.

Supports all CNC machine types and brands on the market - up to complex multi-channel MillTurn CNCs including Swiss-Type.

Automatic Feature Recognition and Machining, using pre-defined templates for fast programming.

Advanced collision control and machine preview shows the complete machine kinematics during programming.

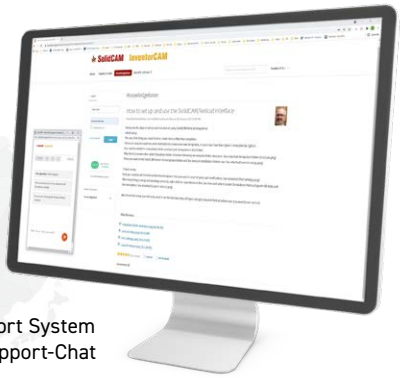
Certified post-processors which reliably generate the G-code – specially tailored to customer requirements.



AMAZING TECHNICAL SUPPORT – WORLDWIDE

SolidCAM employs a large team of very experienced technical staff, supporting customers and resellers in programming parts and customizing Post-Processors – all over the world.

In our technology centers all our Milling, Turning, Mill-Turn and Additive technologies are thoroughly checked and can be demonstrated live on our latest CNC machines. Customers, resellers, technology partners and participants of our trainings all benefit from this practical experience.



Online-Support System
with Live-Support-Chat

★★★★★

The SolidCAM crew is the best in the business. Of all the CAM software I have owned, this is far and above all others. The support is top notch. They constantly tell you to "Just call us" if you are stuck, or have a question. Others make you submit a ticket, and they will get back to you. SolidCAM answers the phone!

Randy Knight | Knight Design LLC

★★★★★

SolidCAM's seamless integration into SOLIDWORKS makes it a very intuitive CAD/CAM system. Coupled with SolidCAM's excellent, and responsive, customer service, this software package is both easy to use and very powerful. The iMachining system in SolidCAM is outstanding and delivers everything that is promised.

Brian Mugavero | National Manufacturing

★★★★★

SolidCAM so far has been not only the easiest learning curve, but one of the most powerful pieces of CAM software I've used. Could I do all of the same things in other software? Yes, but not as easy and the fact that in under six months I can do more in SolidCAM than anything else, that's saying a lot since I come from some big CAM players like ...

Duncan Lewis | Halcyon MFG Inc.

All SolidCAM support and application engineers have a strong technical background as well as CNC and manufacturing experience.

Modern technology and training centers enable us to test, demonstrate and train latest CNC, CAM and Additive technologies.

Faster from the CAD model to the finished workpiece.

We live this motto in technical support and in our technology centers – day after day!

ABOUT SOLIDCAM

With close to 40 years of experience in the development and support of SolidCAM, we have created the most powerful CAM solution that takes your CNC machines to maximum productivity.

Founded in 1984, SolidCAM's strategy of integrating with the most popular CAD systems has created tremendous growth and established SolidCAM as the ultimate solution for integrated CAM systems.

SolidCAM's Add-ins for SOLIDWORKS, Solid Edge and Inventor provide seamless, single-window integration and full associativity to their design models.

OUR MISSION

In today's world of manufacturing, productivity counts, and every CNC-machine must be utilized to the maximum. SolidCAM provides the ability to drive CNC machines in the most efficient and productive way.

In 2011, we launched the revolutionary iMachining, taking the machining industry to a new level. Still today, the patented iMachining technology offeres tens of thousands of users unique, amazing benefits, including more than 70% faster machining times and dramatically increased tool life. In addition, iMachining's patented Technology Wizard guides machinists all over the world to perfect machining results on every single part.

SolidCAM is the perfect solution for multi-tasking machining needs, with the ultimate in programming flexibility and configurability. With full channel synchronization, you can optimally program multi-turret and multi-spindle operations, then watch SolidCAM's simulation of your part being machined in multiple stages. SolidCAM best supports Swiss-Type and MillTurn machines, including multi-channel synchronization.

SolidCAM's large customer base spans across all industries including aerospace, automotive, electronics, medical, optics, energy, mold making, prototyping, and more. SolidCAM customers include Job Shops, medium size Engineering and Manufacturing companies, large Aerospace and Automotive companies as well as technical colleges and vocational institutions.

We believe that the perfect CAM solution involves both, the best software and the best support. SolidCAM's technical and postprocessor support, appreciated by tens of thousands of our customers, is a core philosophy of our company and is routinely enhanced to provide maximum service to our customers.

THE SOLIDCAM ADVANTAGE

- Easiest-to-use CAM system with short learning curve
- Seamlessly integrated in SOLIDWORKS, Solid Edge and Inventor, with extensive import of all common CAD data formats
- Patented iMachining – amazing and unique technology
- The leading integrated CAD/CAM solution that can control the most complex Mill-Turn & Swiss-Type CNC-machines
- SolidCAM supports Hybrid Manufacturing – combining 3D Metal printing with CNC Manufacturing

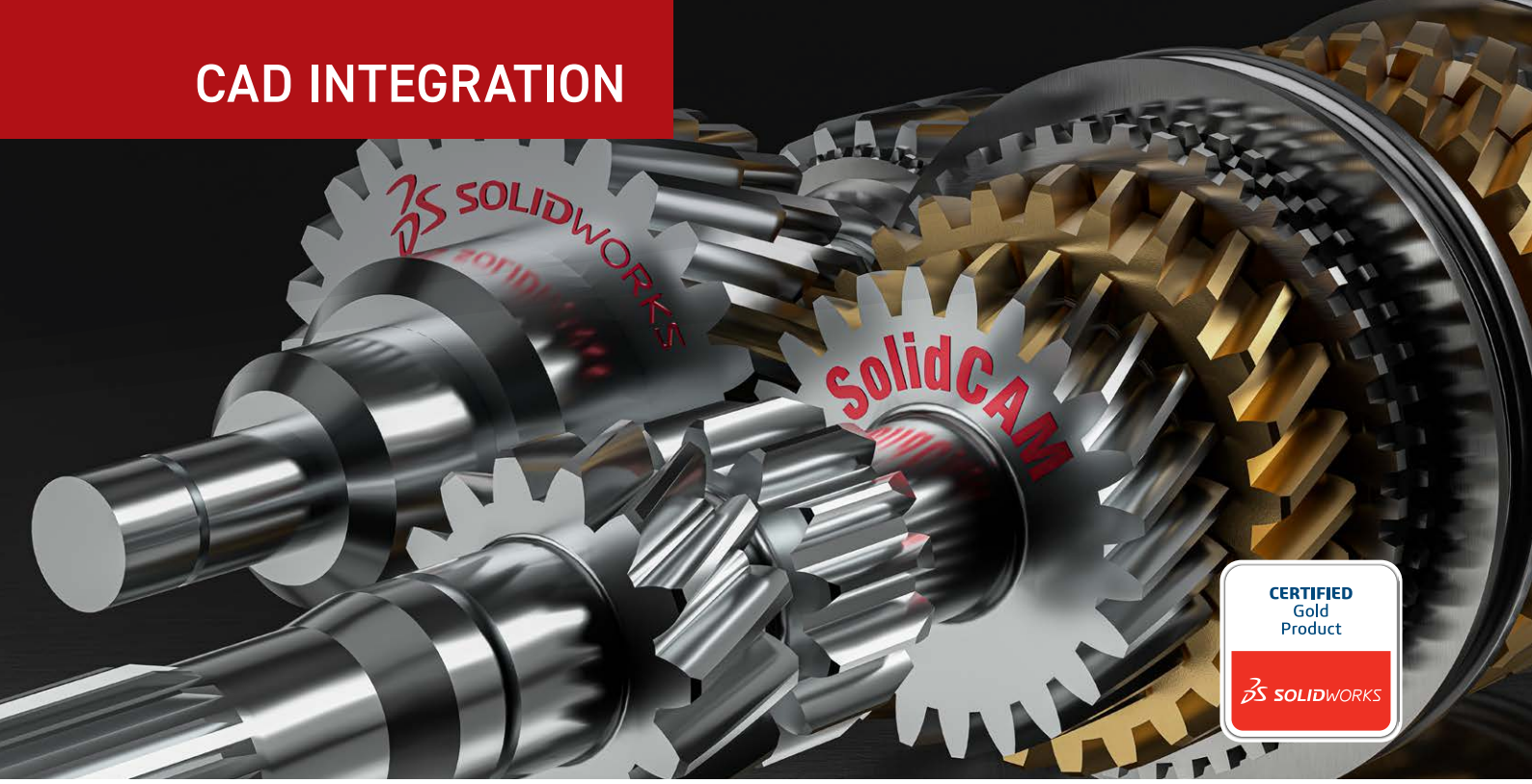
SOLIDCAM TECHNOLOGY PARTNERS

Our worldwide cooperation with a large number of leading suppliers of CNC machine tools, CNC controllers, cutting tools, tool holders, fixtures and clamping, as well as toolpath verification and tool data integrators, has great benefits for SolidCAM's large customer base.

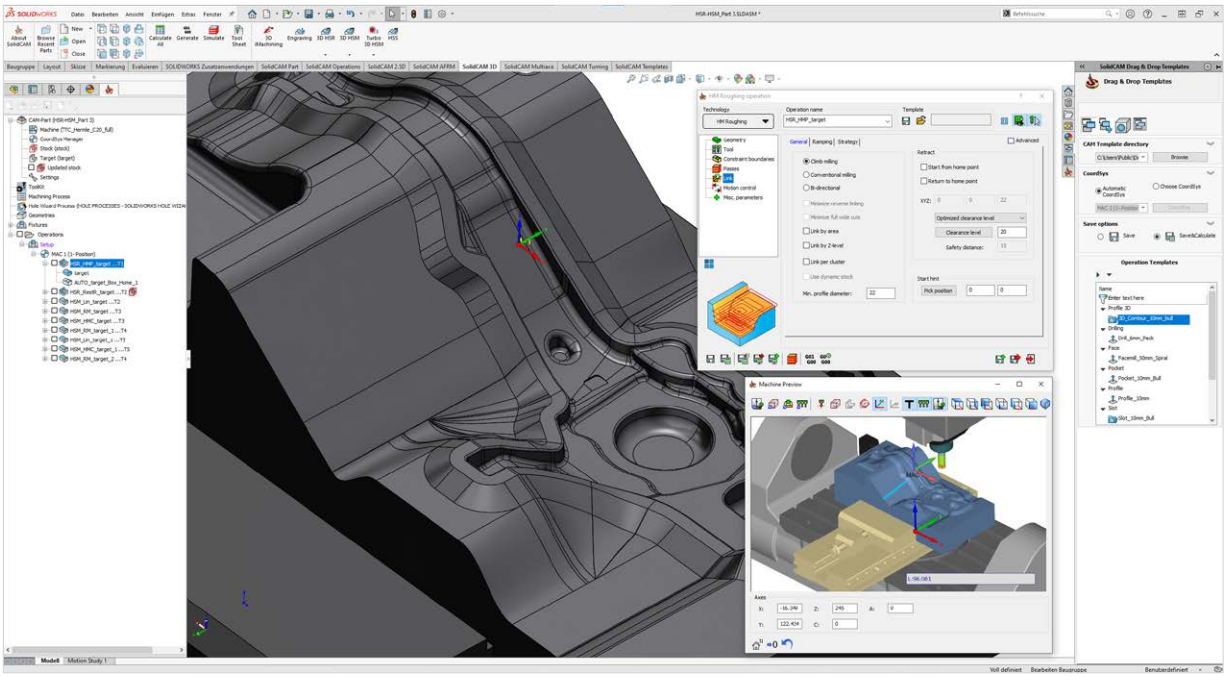
GROB
brother
star
CITIZEN
TSUGAMI
NOMURA SWISS
KENNAMETAL
SIEMENS
TORNOS
DMG MORI
CGTech VERICUT
FANUC
NEXTURN SWISS TURN LEADER
HEDELIUS
Hoffmann Group
HEIDENHAIN
OKUMA OPEN POSSIBILITIES
HERMLE besser fräsen
ALBRECHT Präzisions Spannfutter
ALZMETALL we drive productivity
röders TEC
Member IMC Group ISCAR
FAHRION PRÄZISION
ZOLLER expect great measures
EMUGE FRANKEN
SECO
MHT INTELLIGENZ FÜR WERKZEUGMASCHINEN
CERATIZIT GROUP
WIDIA
MAPAL
SPREITZER
SCHUNK
BLUM focus on productivity
GÜHRING

For a more complete listing, please visit www.solidcam.com

CAD INTEGRATION



The complete, 'Best-in-Class' CAM Suite for Profitable CNC-Programming in SOLIDWORKS



Major Benefits of SolidCAM seamlessly integrated in SOLIDWORKS:

- SOLIDWORKS look and feel through seamless single window integration – with full support for modern 4K displays
- Full associativity: toolpaths automatically update when the SOLIDWORKS model changes
- SolidCAM works in the SOLIDWORKS assembly mode to define fixtures, tooling and vices

With the single-window integration, all machining operations can be defined, calculated and verified without leaving the SOLIDWORKS assembly environment.

All 2D and 3D geometries used for machining are fully associative to the SOLIDWORKS design model. If you make any changes to your SOLIDWORKS model, all of your CAM operations will be automatically updated.

SolidCAM + SOLIDWORKS is scalable for all CNC machine types and applications. The integrated CAD/CAM Solution, is available from SolidCAM, as a bundle-package.

Customers rave about SolidCAM's integration in SOLIDWORKS

> This approach shortens the learning curve for programmers, offers greater geometry editing and manipulation power to manufacturing and provides a common tool for supporting interaction between designers and machinists."

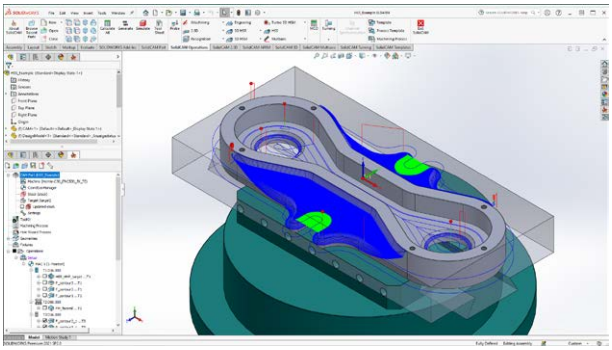
> If changes are made on the manufacturing side, we capture them on both the design side and the manufacturing side because SOLIDWORKS and SolidCAM are fully associative."

> The integrated approach facilitates discussion and resolution of manufacturing issues because everyone is working with the same model and modeler. We communicate issues and features a lot better working with an integrated system."

> The integrated approach has a lot of advantages, including saving time, accessing a single geometry file, and using the intelligence of our design data in a more efficient, systematic way."

> SolidCAM is the Swiss pocket knife for machining. With the modules for the 2.5D, 3D, simultaneous 5-axis machining and rotary milling, all daily machining tasks can be done quickly – from the complex drilling pattern to the most demanding 5-axis impeller. Program the part, simulate and off you go on the machine. The software delivers, what it has promised!"

You Never Have to Leave the SOLIDWORKS Window!



> Since loading the SolidCAM trial version integrated in SOLIDWORKS, I've been able to program complex parts and run them without concern. The machine seems to run smoother than before, cutters last longer and confidence levels are high. I am able to train others here to use SolidCAM with ease. The software is pretty self-explanatory and the tutorials are easy to follow."

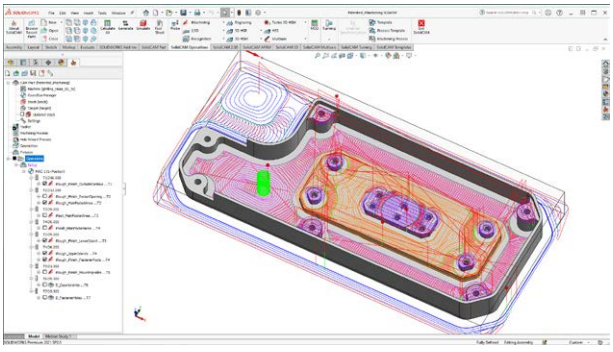
> The tight integration with SOLIDWORKS makes my design-to-production life cycle easy and fast. The SolidCAM support team is rock solid. I do some pretty complex 4-axis production projects and SolidCAM handles them very nicely."

iMachining 2D

Imagine putting the Knowledge and Experience of Hundreds of CAM and CNC Masters in the Palm of Your Hand – Experience iMachining's Exclusive Wizard & Toolpath!

Patented iMachining: "Truly Amazing"

This is what customers, machine tool manufacturers and tooling companies alike say about iMachining. The revolutionary iMachining CAM module, fully integrated in SOLIDWORKS, will make you and your CNC machines more profitable and more competitive than ever before.



The Revolution in CNC Machining

- Increased productivity due to shorter cycles times - 70% savings and more!
- Dramatically increased tool life – 5 times and more
- Unmatched hard material machining
- Outstanding small tool performance
- 4-axis and Mill-Turn iMachining
- Automatic, optimal feeds and speeds
- High programming productivity
- Shortest learning curve in the CAM industry

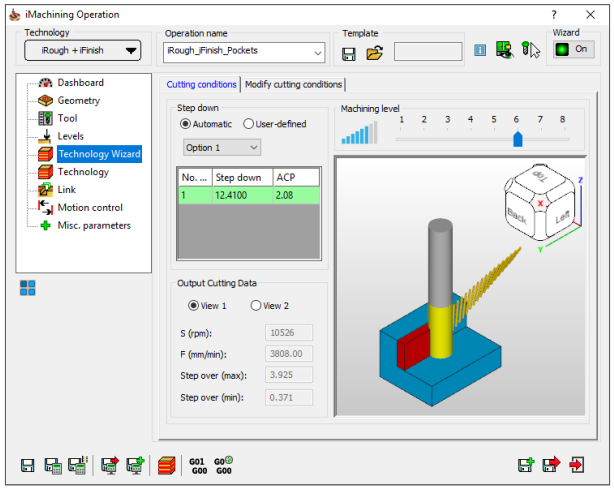
Unique Technology Wizard

SolidCAM's iMachining has the exclusive patented iMachining Technology Wizard, the industry's first and only Wizard that automatically calculates optimal cutting conditions for every segment of the iMachining toolpath.

The Wizard provides synchronized values of feed rate, spindle speed, axial depth of cut, cutting angles and chip thickness based on the mechanical properties of the workpiece and tool, while also taking into account the technical limits of the CNC machine.

The "iMachining level slider" lets the user choose from 8 selectable levels, to automatically adjust for "real-world" fixture, tool holding and machine conditions. The slider makes it easy to overcome standard problems with spindle rigidity, fixture rigidity and cutting tool stability.

All SolidCAM customers worldwide, who use iMachining, are enjoying immense savings and have gained a real competitive advantage.



iRough, iRest, iFinish and Multi-tool Technologies

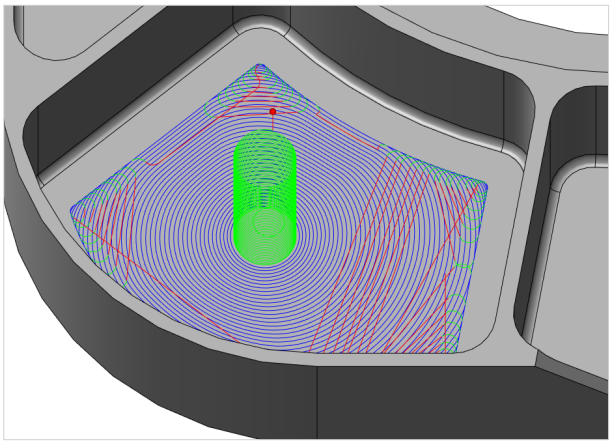
- Combined roughing, finishing and rest material functionality in one single job.
- Multi-tool: Easily define and edit related jobs that use multiple tools, all from within a single interface. Geometry and Levels are synchronized and rest material is tracked automatically.
- iRough + iFinish: Optimized roughing and finishing in the same job with the same tool. Ideal for prototyping and the machining of soft materials.
- iFinish: Suitable for hard materials and precise machining with separate tool for finishing floors and walls.
- Optimized rest roughing and bottom finishing of 2.5D features with various strategies.
- Automatic recognition and removal of rest material remaining through the drill tip.

Distinctive & Proprietary iMachining Toolpaths!

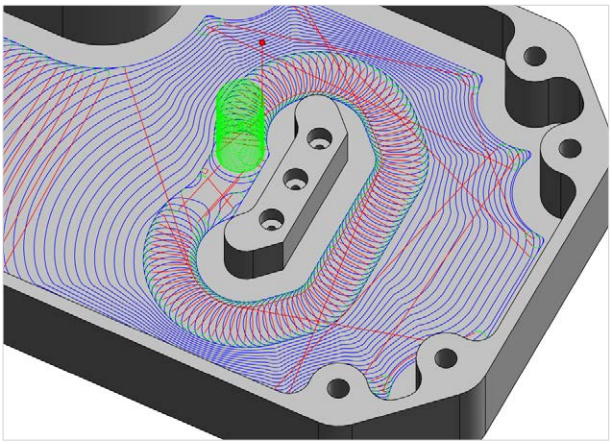
Morphing Spirals – iMachining uses an advanced, patented morphing spiral that gradually conforms to the geometry of the feature being machined rather than a conventional offset toolpath. This maximizes tool to stock contact or "tool in the cut" time.

Channels and Moats: Divide & Conquer – In order to most efficiently attack large areas of material removal as well as stand-alone islands, they are separated or subdivided into smaller sections using iMachining's patented Moating technology. This maximizes the continuous morphed spiral cutting.

Eliminate Wasted Time & Motion – iMachining toolpaths only cut the stock that needs to be removed, eliminating "air cuts". From the initial approach, right to the last cut, rest material tracking ensures every toolpath is always efficiently cutting material.

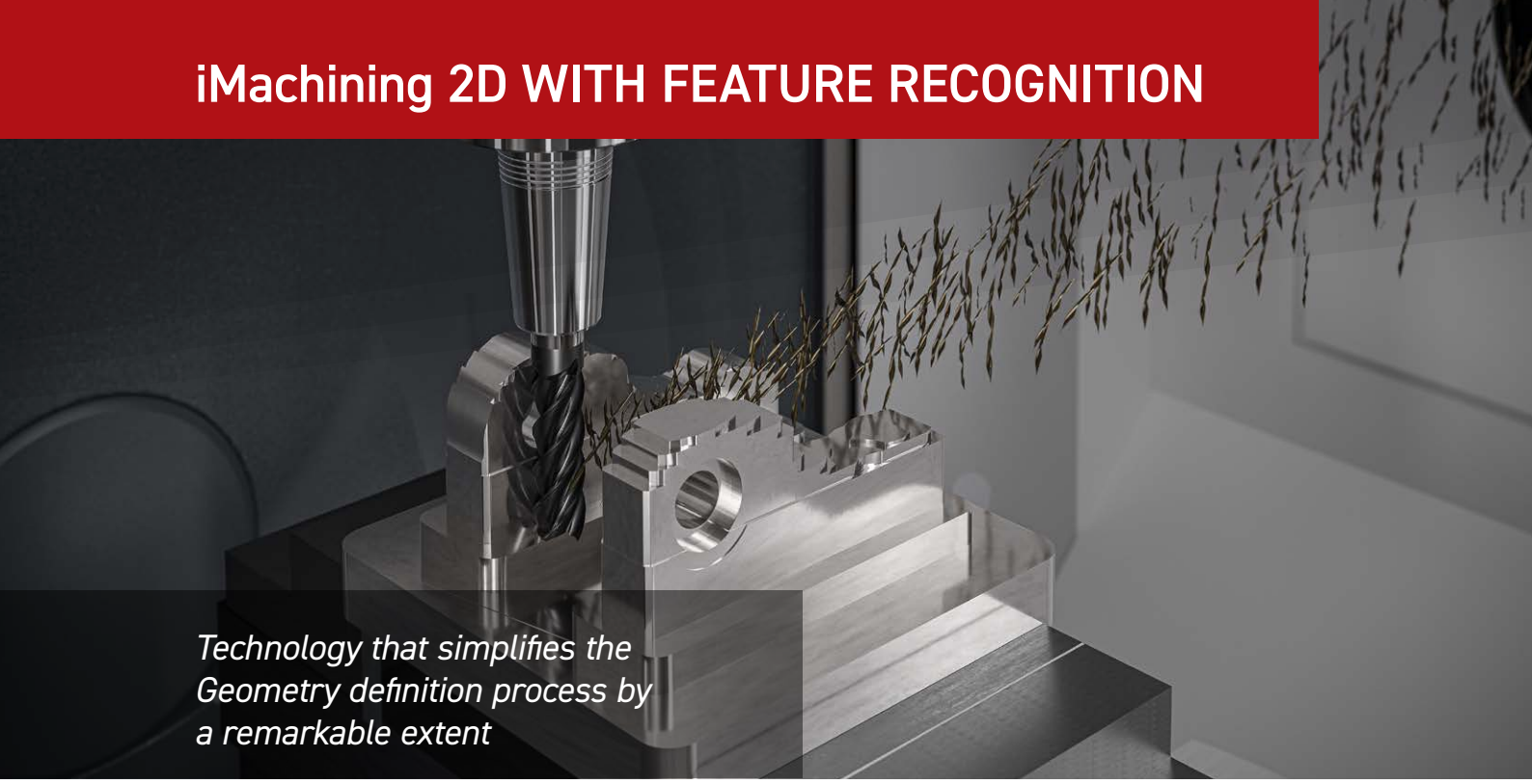


Most efficient iMachining Morphing Spirals toolpath



Moating: Intelligent Division of Areas to maximize Morphed Spirals

iMachining 2D WITH FEATURE RECOGNITION

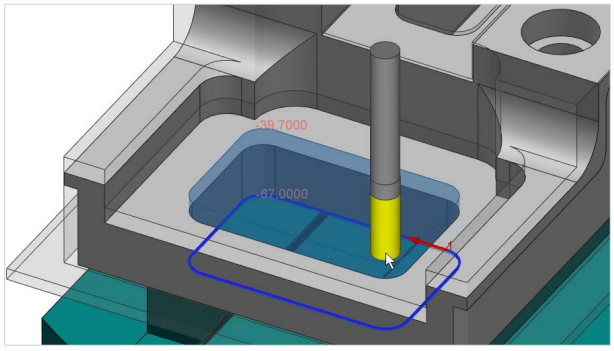


Technology that simplifies the Geometry definition process by a remarkable extent

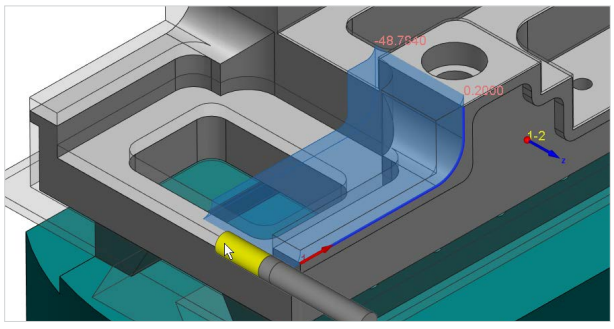
iMachining 2D's Feature Recognition technology detects and defines the part machinable features by utilizing the solid model data, with minimal input from the user.

Feature Recognition Modes

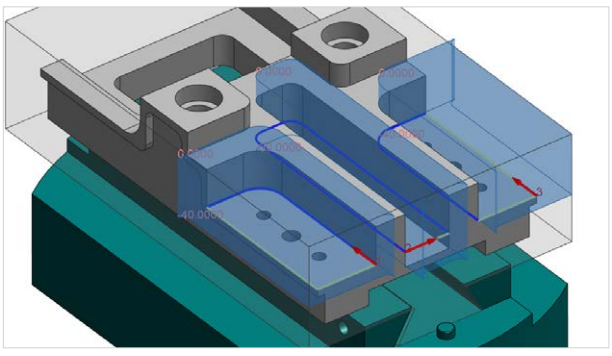
- **Faces**: Smart Face technology builds chains by just the simple selection of faces. Entire pocket features and their levels, which can consist of varying depths, are recognized automatically.
- **Chains**: Machinable areas are recognized by chains in combination with the solid model data. Perfect for features not having a floor face to select, such as when milling through pockets and side profiles.
- **Outside Feature Recognition**: Machinable stock surrounding the target is recognized and its levels are detected automatically.
- **Chains without Feature Recognition**: Option to use SolidCAM's standard chaining method, without iMachining's Recognition and Protection functionality.



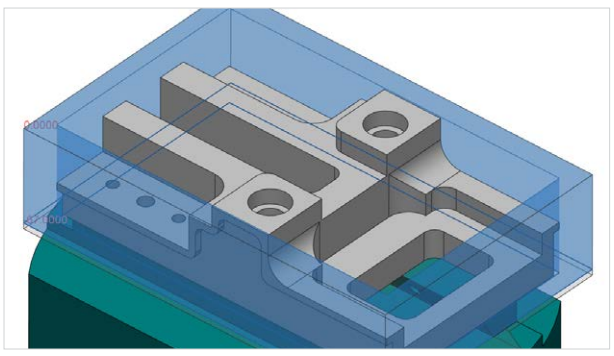
Chains Recognition for Through Pockets



Chains Recognition for Side Profiles



Faces Recognition



Outside Feature Recognition

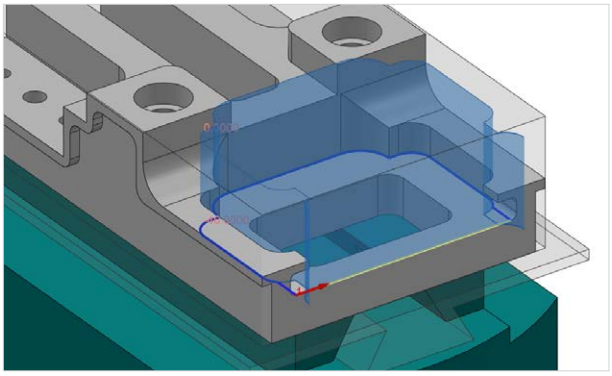
Recognition + Protection

Taking into account the Stock/Updated Stock and Target models, iMachining 2D automatically:

- Detects and avoids part features that create undercut areas
- Detects and extends stock material in open pocket areas
- Detects rest material at every stage of the machining process
- Protects the solid geometries against cutting tool collisions

Dynamic Display of Depths and iMachining Region

iMachining generates and displays a preview of the machinable regions and their levels. The machining geometry can have varying depths and its preview is dynamically updated on job editing, all of which can be visualized in the SOLIDWORKS Graphics Area.



iMachining's Faces Recognition: Features that make undercut areas are handled with ease

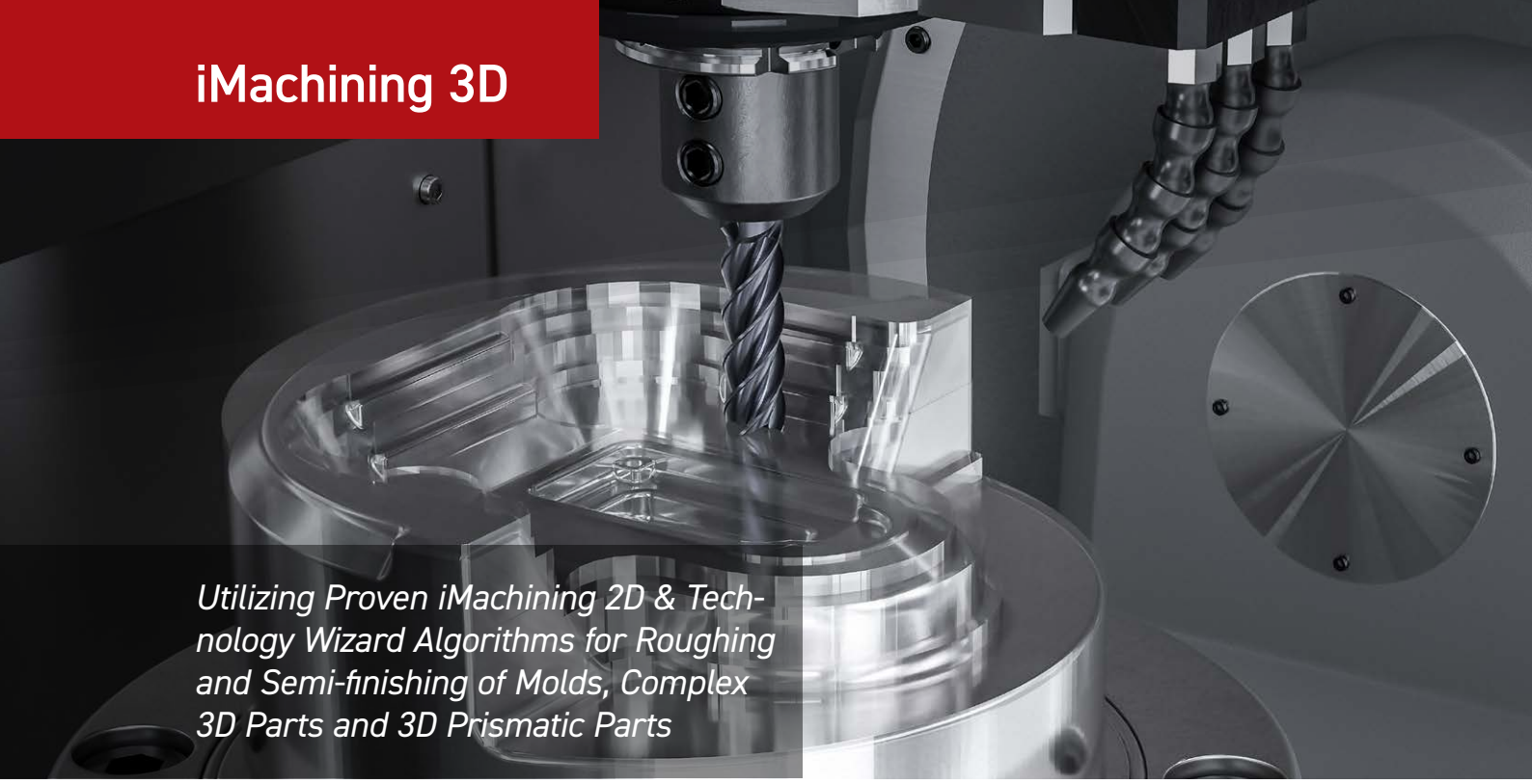
"We have found all the claims for iMachining to hold true for our applications in Dixons Surgical – incredible tool life, faster cycles, lighter cutting loads reducing vibration in poor work holding situations (mill-turn), and protection of small diameter cutters. The user interface is very clear and simple, and programming iMachining is faster than traditional strategies."

Jay Dixon, Dixons Surgical Instruments

"We discovered that SolidCAM reduced our NC programming time by half. On our previous CAD/CAM system, we had to substantially edit G-codes to make the program operate. Now, with SolidCAM, the post processor produces perfect NC-code, making it far simpler and quicker to produce a new CAM program."

Bob Luck, Alcon Components Ltd

iMachining 3D



Utilizing Proven iMachining 2D & Technology Wizard Algorithms for Roughing and Semi-finishing of Molds, Complex 3D Parts and 3D Prismatic Parts

iMachining 3D provides amazing 3D machining results, regularly saving 70% in machining time, reaching up to 90% in many cases.

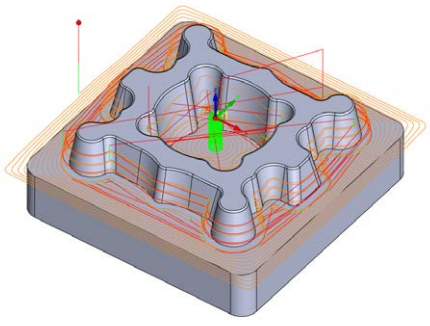
iMachining 3D automatically produces a complete, ready to run CNC program, with optimal cutting conditions, achieved by the expert knowledge-based Technology Wizard, to rough and rest rough an entire 3D part in a single operation.

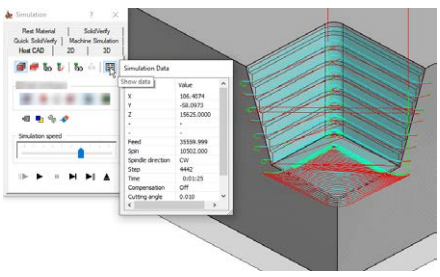
iMachining 3D uses sophisticated analysis algorithms to determine the optimal order of its rough and rest rough toolpaths. Combined with its unique local machining feature, full-depth Step down, intelligent Step-up and smart positioning, iMachining 3D achieves the shortest possible cycle time for roughing and semi-finishing of molds, complex 3D parts and 3D prismatic parts.

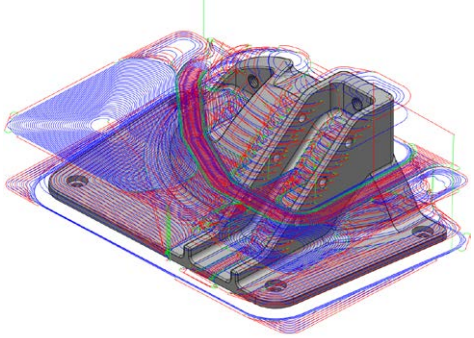
iMachining 3D provides a complete machining solution when combined with other SolidCAM technologies, such as 3D HSM for finishing molds and complex 3D parts or iMachining 2D for finishing 3D prismatic parts.

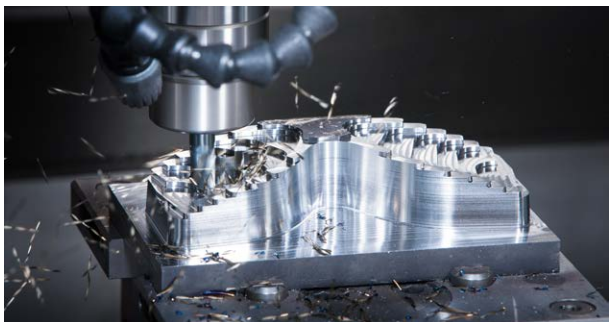
iMachining 3D is a Must-Have!

- Quick solid geometry selection and automatic target model protection
- Optimized machining of each Z-Step, using proven iMachining 2D technology
- Deep roughing with the whole flute length, resulting in shorter cycle times and increased tool life
- Rest material machining in small upward steps, optimized for constant scallop height, further shortens cycle time
- Intelligent localized machining and optimal ordering eliminates retracts and long position moves, producing the shortest times in the industry
- A dynamically Updated Stock model and "Cut only the Rest material" mode eliminates all air cutting
- Toolpath automatically adjusts to avoid collisions between the tool holder and Updated Stock model, at every stage of the machining process



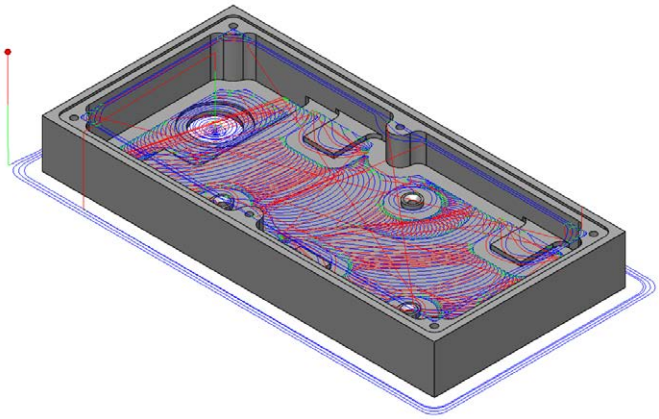






iMachining 3D for Prismatic Parts

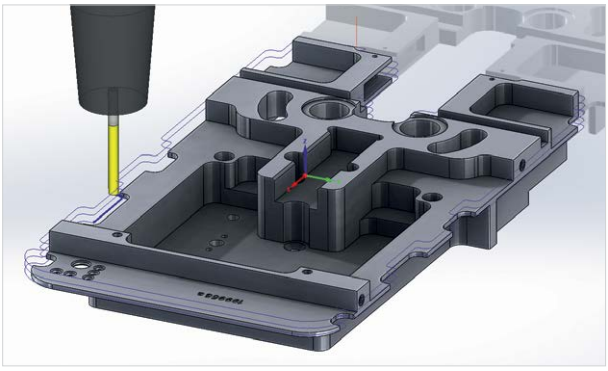
Programming times for prismatic parts are drastically reduced with iMachining 3D. In a single operation, rough and rest rough an entire 3D prismatic part that includes any number of pockets and islands, without chaining or sketching a single contour. With just the solid geometry and cutting tool as input, iMachining 3D calculates the rest - automatically and optimally.



> Growth at the company is continuing at a very healthy rate with an emphasis on lean manufacturing. The introduction of SolidCAM has contributed to this expansion, enabling the company to manufacture more complex parts in a shorter lead time, raising throughput, and maximizing the productivity of our machines."
>
> **Dan Patrick, Big Bear Plastics**

> SolidCAM has enabled us to get the time down on downtime! It's allowed much more synergy going from one complex product to the next, more so if you have a complete new set-up on tooling. We need to make sure that from one set-up to the next that the downtime is as minimal as possible."
>
> **Shaun Palmer, Director, Oracle Precision Ltd**

2.5D MILLING



The most straightforward, easy-to-use interface, seamlessly integrated in SOLIDWORKS, combined with the latest toolpath technology, provides the fastest, most powerful and easiest to create 2.5D CNC Milling toolpaths.

Easily work on parts, assemblies, and sketch geometry to define your CNC machining operations. Quickly place fixtures and components for full visualization.

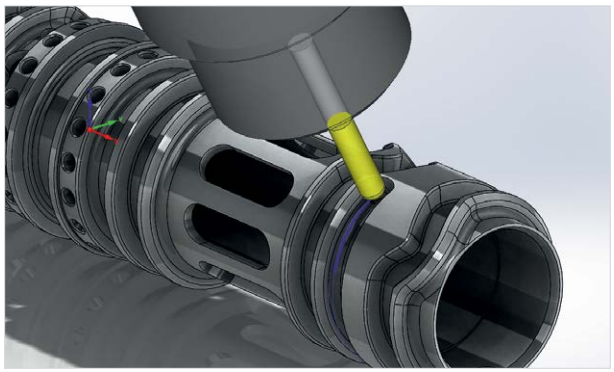
Best of Both Worlds: Complete Interactive Control + Feature Recognition

SolidCAM provides both interactive and automated 2.5D milling operations on SOLIDWORKS models. Designed for both the novice and advanced user, SolidCAM offers the best of both worlds, with your choice of fully controlled selection of geometry, parameters and CNC programming strategies or Automated Pocket and Drill Recognition and machining with Feature Recognition.

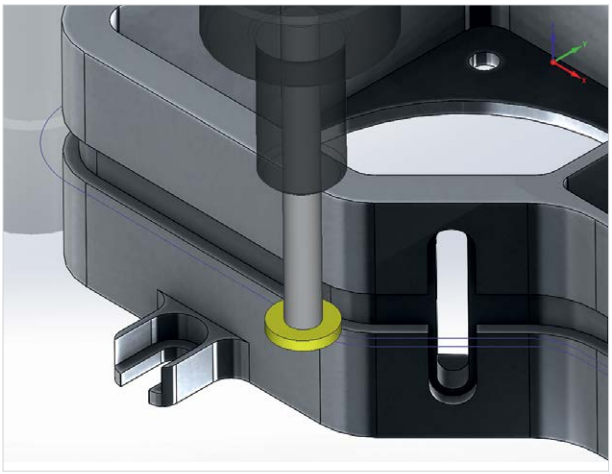
Interactive 2.5D Mill Operations

Besides the standard 2.5D milling profiling, pocketing and drilling operations, SolidCAM offers:

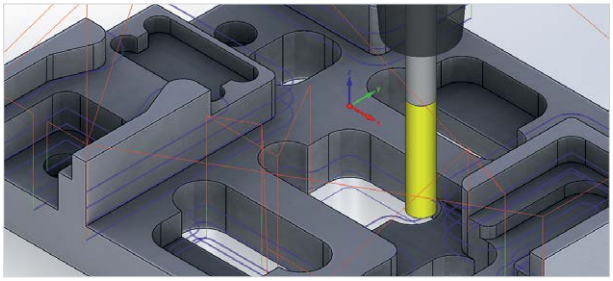
- Chain modification options (offsetting, trimming, extending etc.), enabling changes to geometry without changing the CAD model
- Automatic rest material machining to cut the material remaining after using larger tools
- Chamfer machining using the same geometry defined in Profile and Pocket operations
- Thread Milling operation for machining of standard internal and external threads
- Variable levels of pockets and profiles in a single job
- Engraving of text on flat and wrapped faces and middle line engraving of a multi-line text
- Contour 3D operation drives the tool along a 3D curve, cutting the model at different depths
- Machining of geometry wrapped around rotation axes, by transforming movement from linear to rotary
- Special operation for machining of the side slots with undercut by a T-slot tool



Pocket Recognition

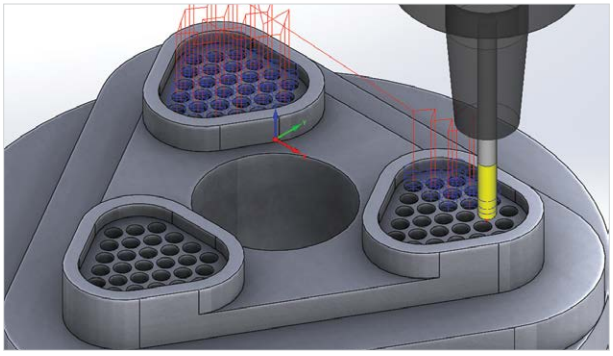


Takes SolidCAM's powerful pocketing operation to the next level, by automatically identifying all pockets on the CAD model. All strategies and options of the standard Pocket operation are available, combined with variable levels and depths recognized from the model faces.



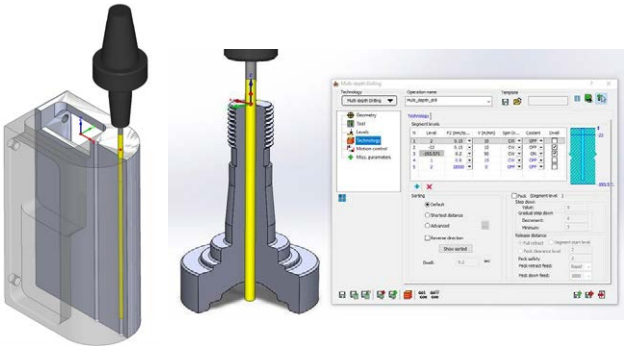
Drill Recognition

Automatic recognition and grouping of holes from the solid model with option to modify resulting geometry. A single Drill Recognition operation can machine groups of holes on varying levels and depths.



Multi-Depth-Drilling

This powerful Drilling operation gives you full control allowing you to customize your drilling operation at every step and every depth. This is the perfect Drilling operation for Deep drilling and Cross hole drilling.

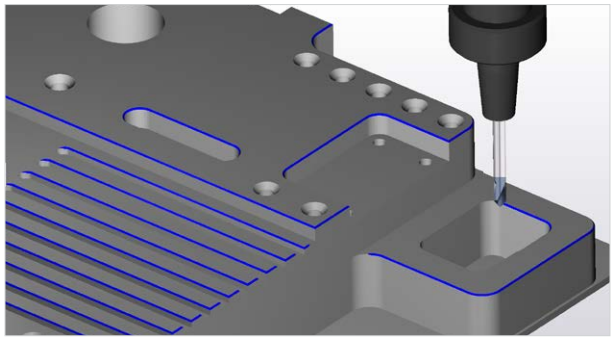


AUTOMATIC FEATURE RECOGNITION & MACHINING

Advanced Pocket Recognition

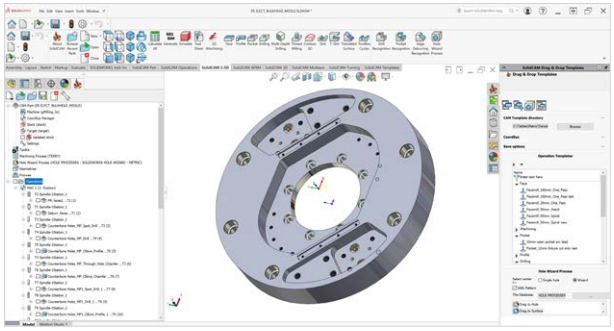
SolidCAM AFRM sets the new standards. Instead of machining each individual pocket in a separate operation, all pockets, no matter whether they are open, closed, blind or through pockets, are being identified with their corresponding depth and Z-level and machined in one operation. Full fixture protection in pocket, pocket recognition and 2D drilling allows you to machine your parts while protecting your fixtures.

- All strategies and options of the standard pocket operation are available, combined with variable upper levels and depths recognized from the model faces. User controls the choice of the Tool, Technology and Cutting Strategy.
- Automatic recognition and machining of fillets on the pocket floor
- Automatic rest material recognition on each pocket
- The perfect tool for multi pocketed parts

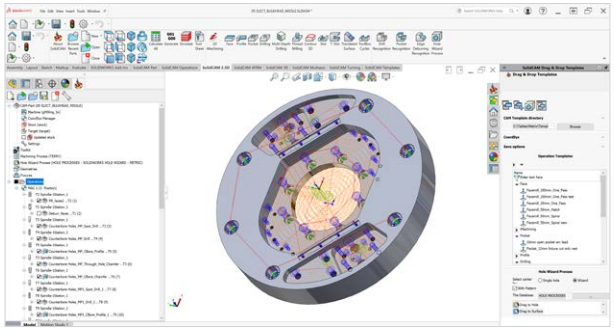


Chamfering and Deburring

SolidCAM automatically recognizes all sharp edges where a chamfer can be applied. The user only sets the depth of the chamfer, the cutting diameter of the tool and a safety offset. SolidCAM's chamfer recognition automatically avoids vertical walls and machines as much as possible, while protecting the part from collisions with the shank. The option Dynamic Tool Diameter results in less wear and tear of the tool, which is particularly helpful with hard materials.



Drag & Drop Hole Wizard Process applied to a single hole feature

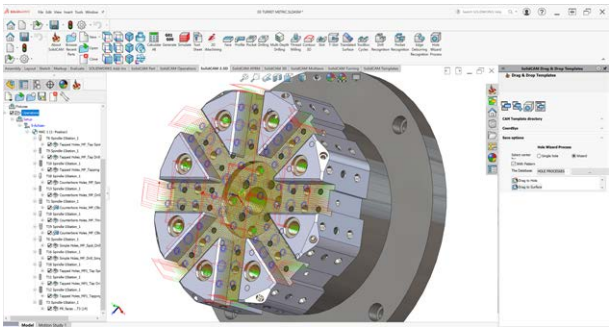


Drag & Drop Hole Wizard Processes applied to the entire part

Advanced Drill Recognition

SolidCAM automatically identifies all drills on the solid model and generates the necessary CNC operations.

- To select the drills to be machined, powerful filter tools such as diameter, Z-level or drill depth are available.
- Spot drills can be generated on all drill positions, where the depth relates to the diameter of the drill tool being used.

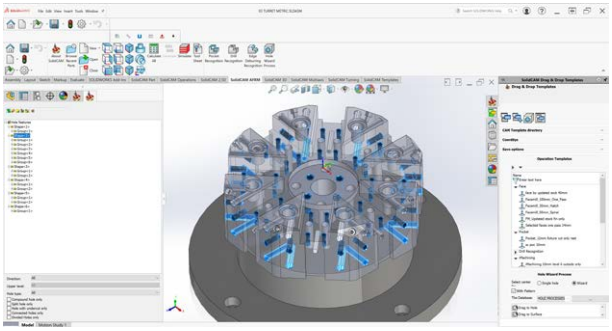


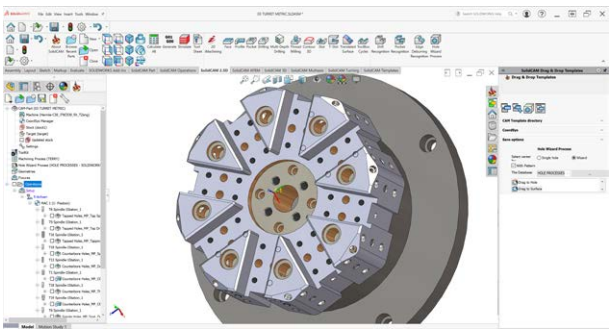
Drill features detection & Automatic Toolpath generation

SolidCAM's Hole Wizard, with Drag & Drop Machine Processes

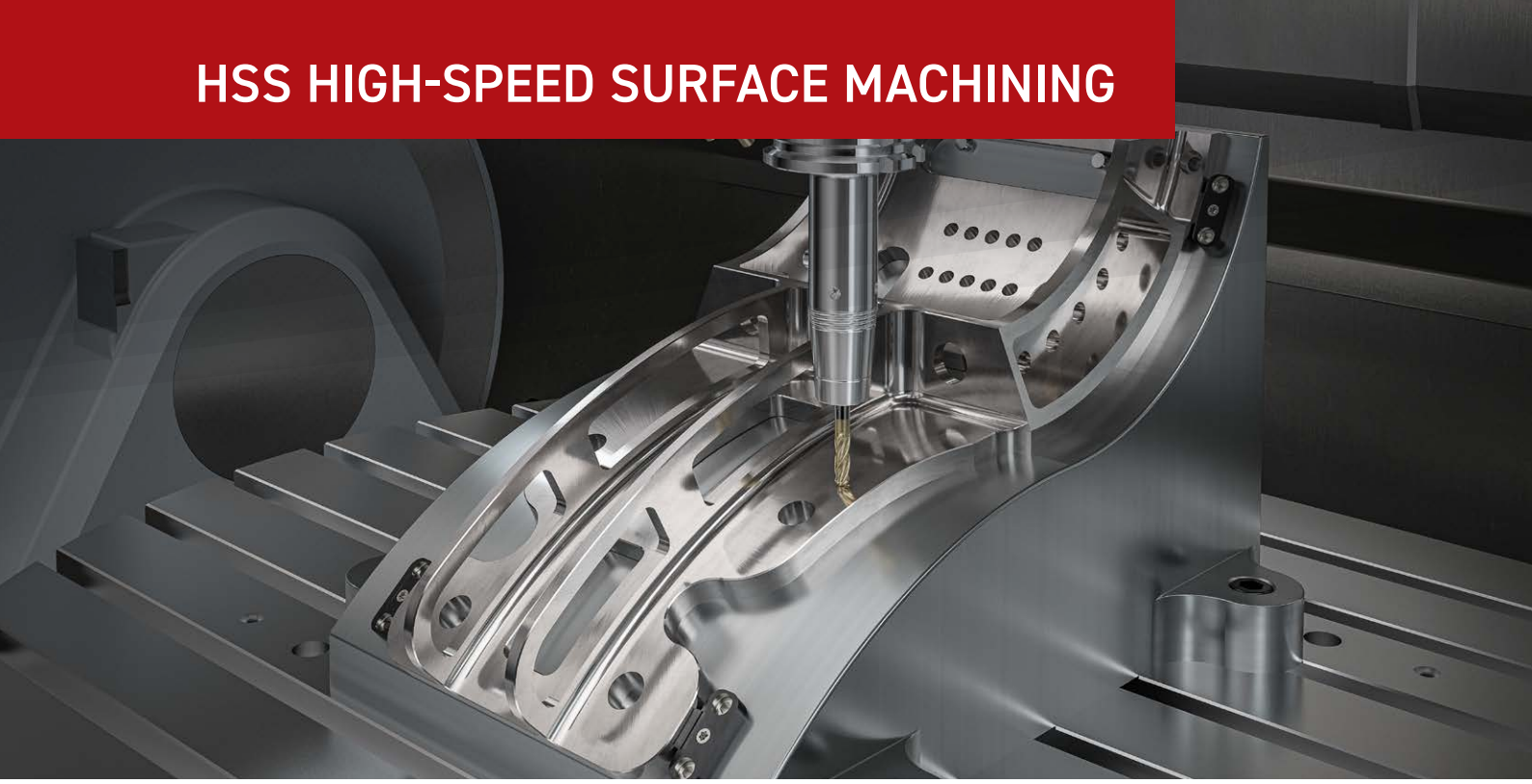
SolidCAM's Hole Wizard, with Drag & Drop Machine Processes optimizes the task of programming multiple operation for complex holes.

- All holes in the CAD feature, including subordinate patterns are recognized.
- All Geometry and Dimensional parameters of the CAD Feature are available for use in the machining process, including Hole Wizard tolerances.
- Complex logic including conditional equations provides greater flexibility.
- Simple, Counter Sunk, Counter Bored & Tapped hole sets are programmed with a single mouse click.

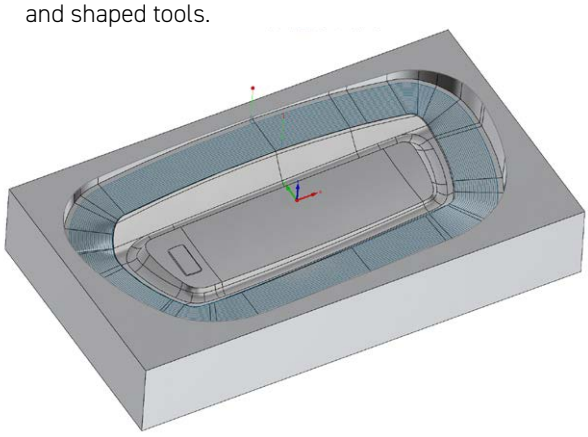




HSS HIGH-SPEED SURFACE MACHINING



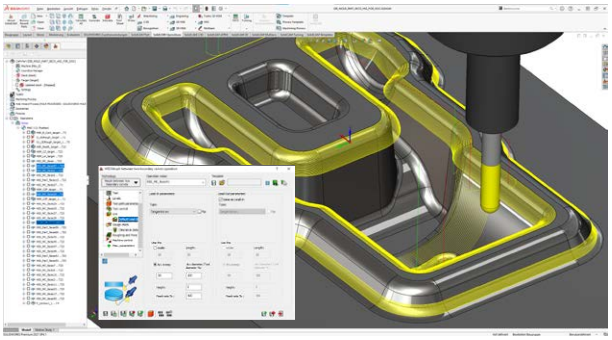
SolidCAM's HSS is a high speed surface machining module for smooth and powerful machining of localized surface areas in the part, including undercuts. It provides easy selection of the surfaces to be machined, eliminating the need to define boundaries. It supports both standard and shaped tools.



Powerful Surface Machining Strategies for Smooth, Gouge-Free & Optimal Toolpaths

SolidCAM's HSS Module provides numerous surface machining strategies, that produce an efficient, smooth, gouge-free and optimal toolpaths to finish the selected surfaces.

HSS provides special toolpath linking options, generating smooth and tangential lead-ins and lead-outs. The linking moves between the toolpaths can be controlled by the user to avoid holes and slots, without the need to modify the model's surface. Retracts can be performed to any major plane.

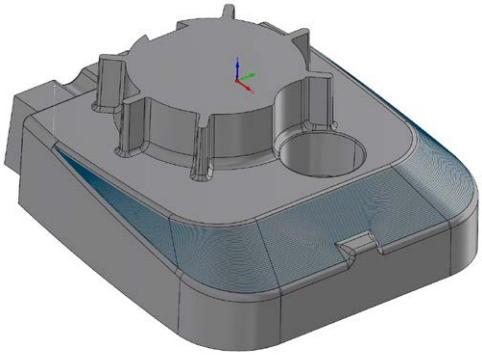


Total Tool Control to Machine Only the Areas You Choose

HSS is the CAM module that takes your 2.5D machining far beyond profiles, pockets and faces, providing a 3D machining capability by driving along specific surfaces on prismatic and 3D parts.

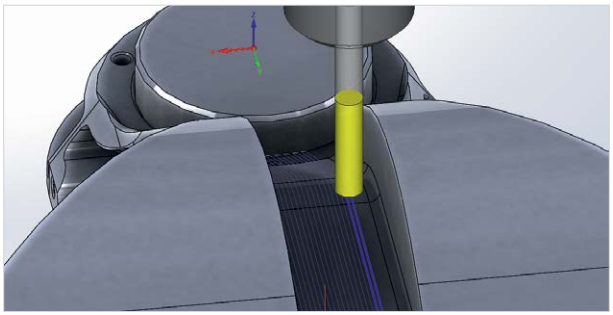
The HSS toolpath is focused on single or multiple surfaces and excels in creating a flowing toolpath on a group of surfaces that form a complex 3D shape, e.g. fillets.

Experience total tool control to machine only areas you choose, without the need for constraint boundaries or construction geometry.



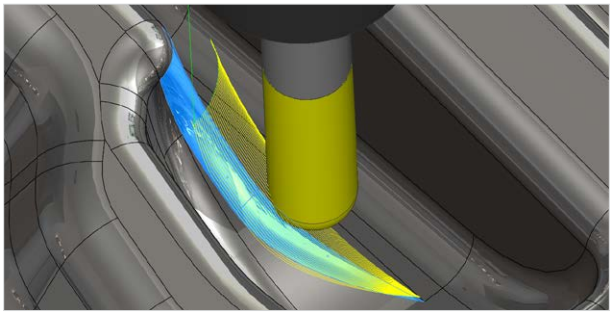
Advanced Gouge Control for Holder, Arbor and Tool

Complete collision control is available for Holder, Arbor and Tool. Adjoining Check surfaces that are to be avoided can be selected. Several retract strategies are available under full user control.



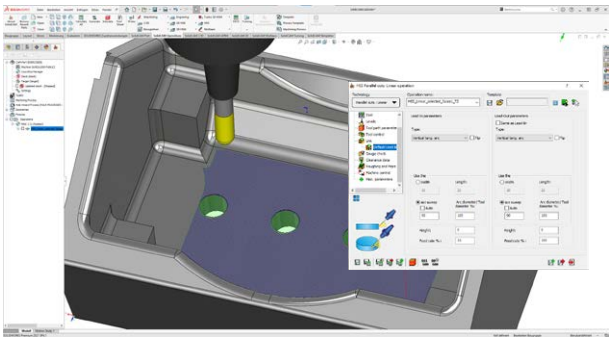
Advanced Linking

Total freedom to control tool entry and tool exit motion, no surface modifications needed. Toolpaths can be extended or trimmed, gaps and holes can be jumped and you can choose from multiple lead-in/lead-out options.



Important Module for Every Machine Shop

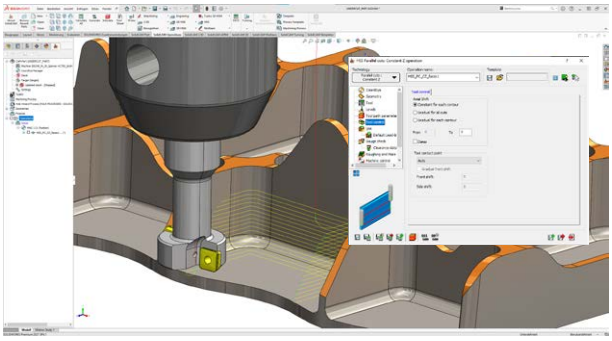
The advantages of SolidCAM's HSS module translate into significantly increased surface quality. The HSS module is an important and valuable add-on for every machine shop for the machining of all types of parts.



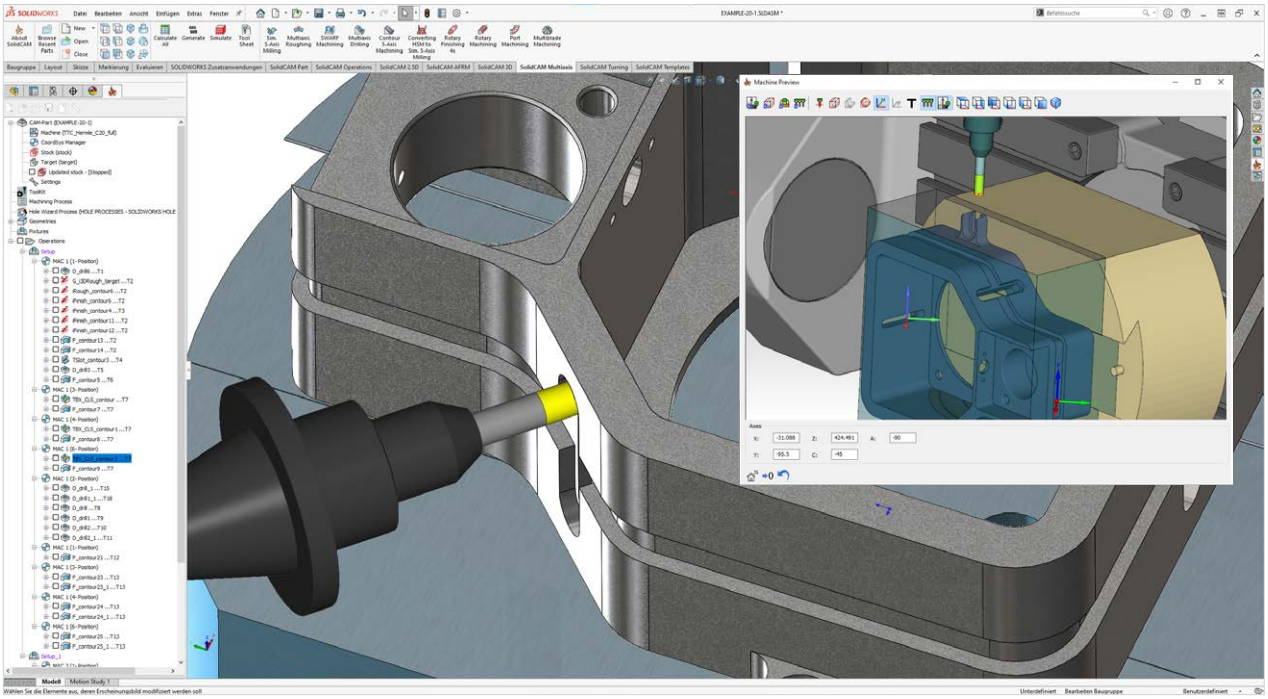
Linear High Speed Finishing toolpath on selected surface

Handling Undercut in HSS

Use Tapered, Lollipop, or T-Slot tools for undercuts or geometry that is difficult to cut.



INDEXIAL 4/5-AXIS MILLING



A common scene in any machine shop today is that 4- and 5-axis CNC machines are increasing production, providing faster cycle times.

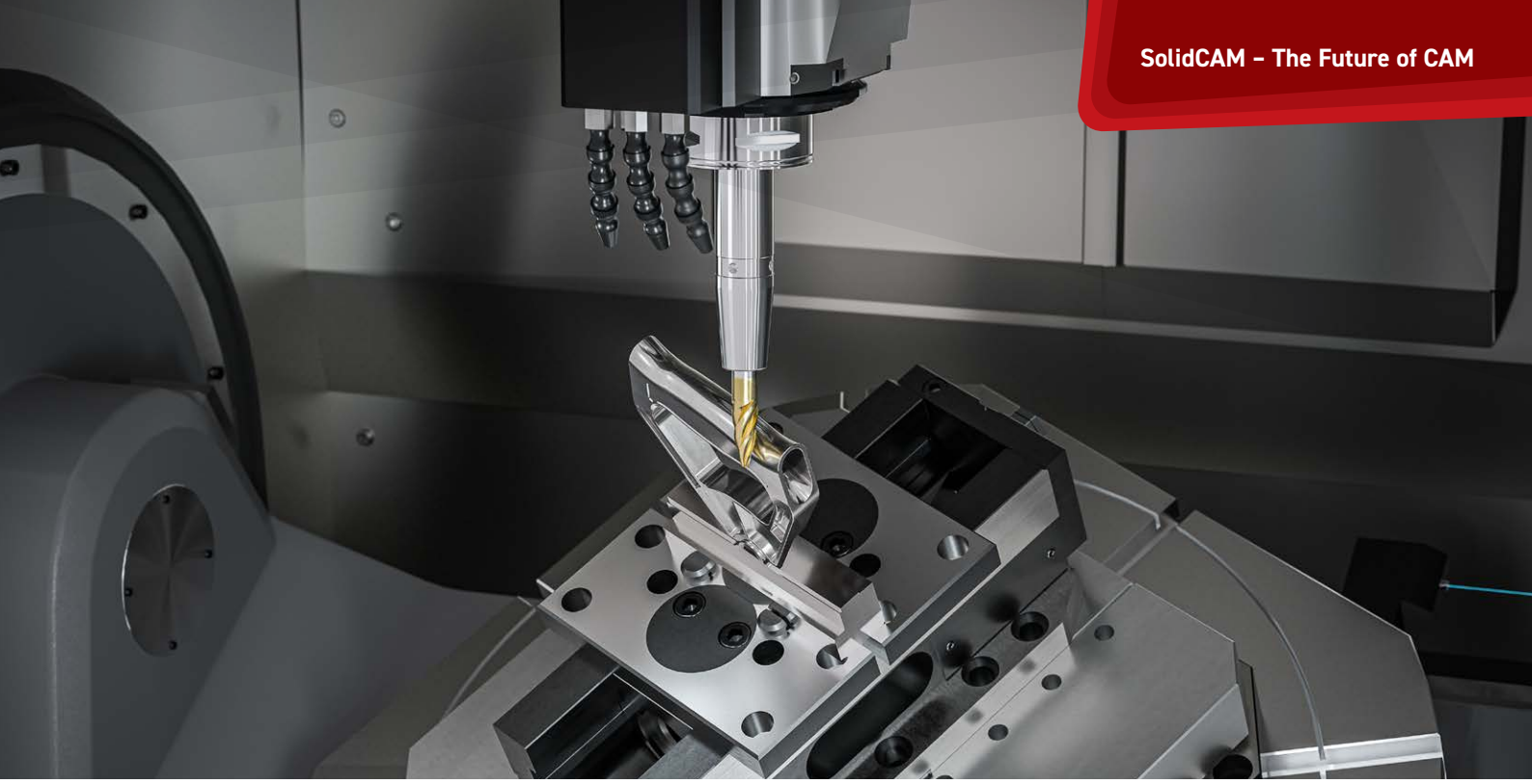
SolidCAM provides an effective and easy way to program on multiple sides of a part. Moreover, SolidCAM excels in indexial 4/5-axis machining.

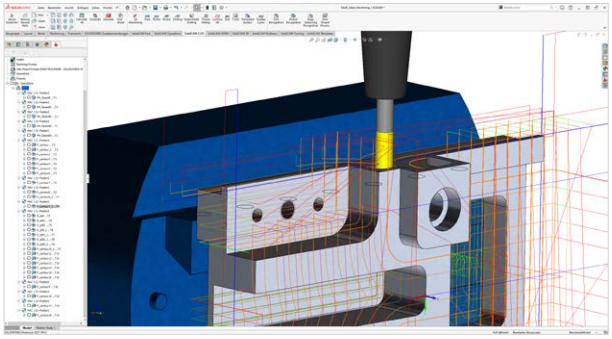
Easiest Definition of Coordinate Systems for Indexial 5-Axes!

Tired of dealing with construction views, copying models, and rotating them in space for new alignments? Do you still copy and transform geometry to separate layers for indexial programming?

Experience single machine home position, with One-click orientations for indexed setups – SolidCAM speeds up multi-sided machining by eliminating multiple coordinate system constructions. Define a Coordinate System on the fly by simply picking a face, and continue programming your part.

- SolidCAM's "select a face and machine" feature offers the fastest approach to indexial programming.
- Our coordinate system manager keeps track of all necessary data for each tool orientation.
- SolidVerify simulation displays tool holders and fixtures, alongside material removal for all machining operations.





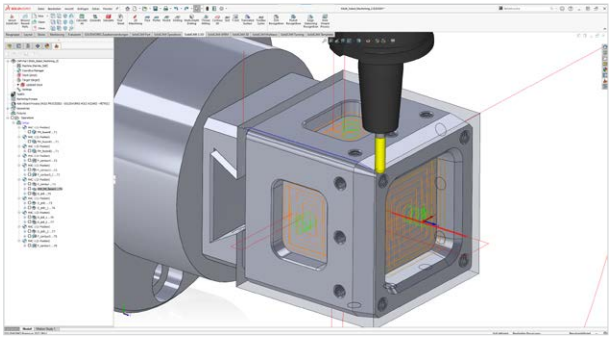
Efficient, Edit-Free G-Code for Multi-Axis Machines

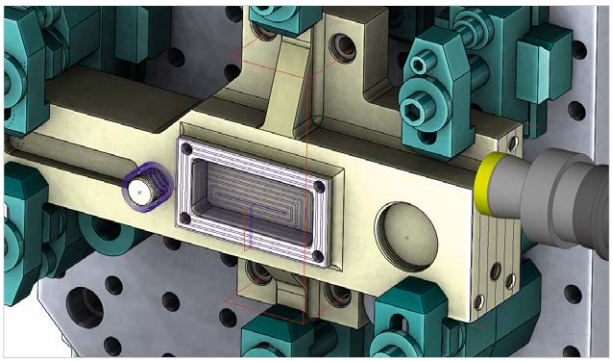
SolidCAM offers multiple options to get efficient G-code for multi-axis machines.

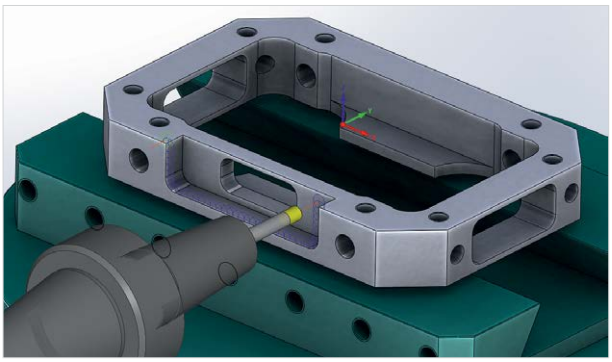
SolidCAM's post processor can be configured to handle all rotations and work offset shifts, eliminating the need for setting up multiple work offsets at the machine. Whether your controller can calculate part rotations internally or it needs the post processor to handle rotations, SolidCAM has you covered. For controllers with advanced plane rotation or coordinate rotation functions, SolidCAM's post processors are built to utilize these internal CNC functions. If your machine lacks such functions, you can input the part location within SolidCAM and the G-code will automatically handle all of the transformations for each rotation.

Our approach to indexial milling is straightforward: from software to G-code we make the process for indexial milling as seamless as single-sided milling.

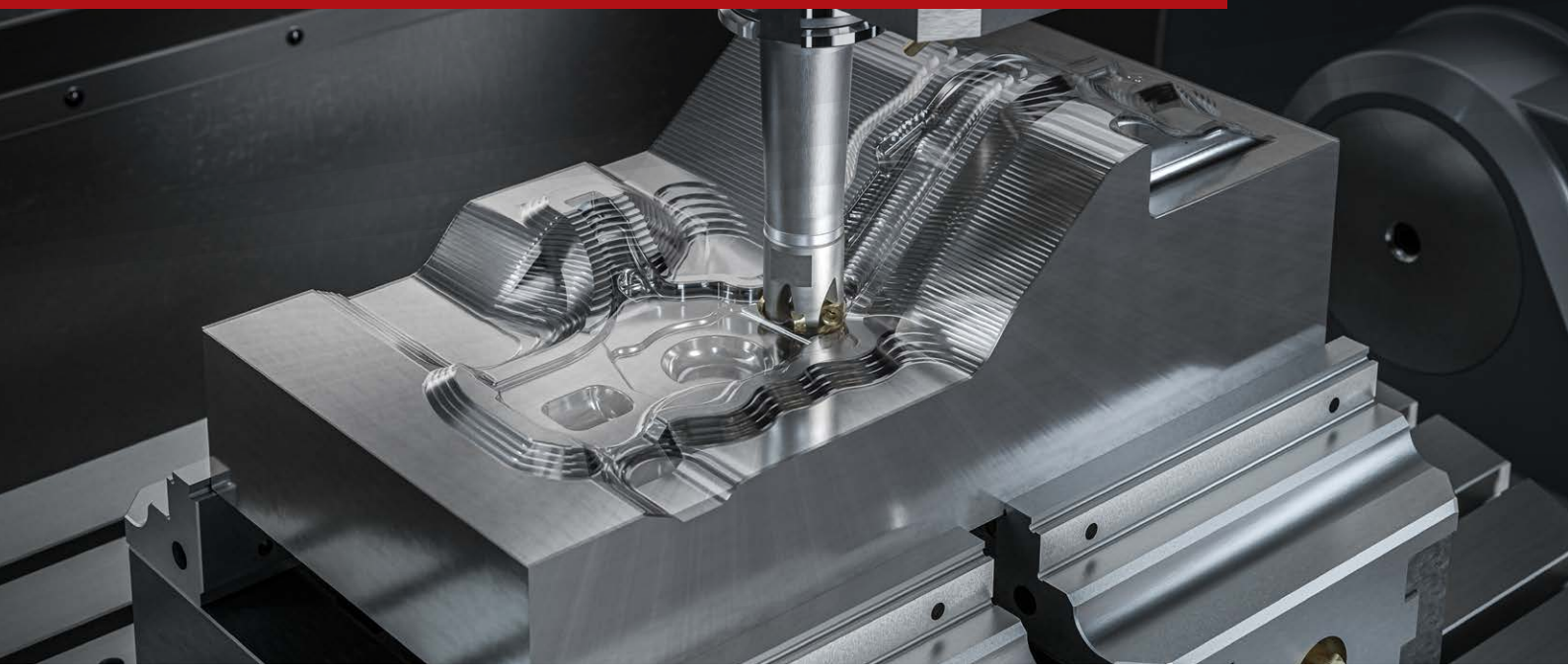
No specialized functions or software tricks are required to machine multi-sided parts – it just works!

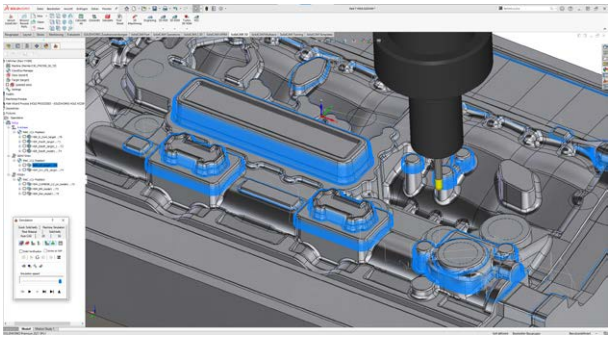






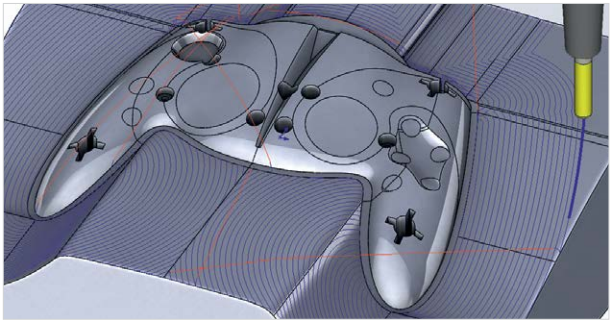
HSR & HSM | 3D HIGH SPEED MACHINING





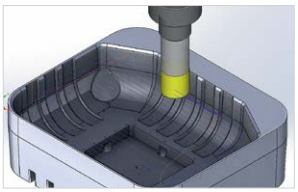
SolidCAM's High-Speed Machining (HSM) offers unique machining and linking strategies for 3D high-speed toolpaths. It smoothens the paths of both cutting moves and retracts, wherever possible, to maintain a continuous machine tool motion – an essential requirement for maintaining higher feed rates and eliminating dwelling.

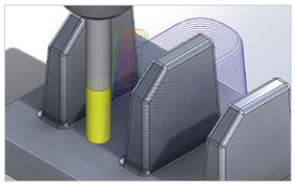
- 3D machining taken to an entirely new level of smoothness, efficiency and smart machining.
- The finest toolpaths available anywhere for complex 3D parts, aerospace parts, molds, tools and dies.

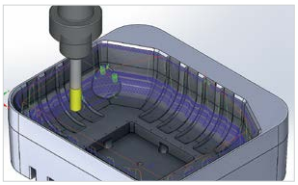


HSR – High Speed Roughing

SolidCAM HSR provides powerful high-speed roughing strategies including: HM roughing, contour, hatch, hybrid rib-roughing, and rest roughing.



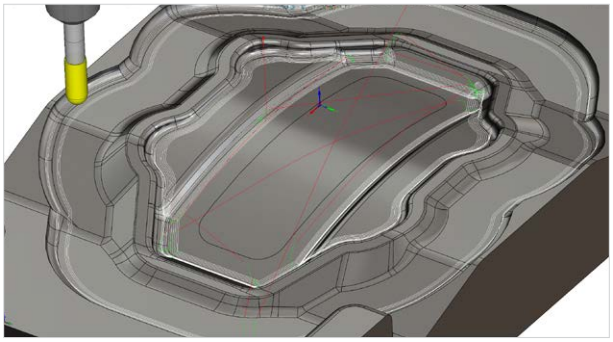




High Speed Finishing

With SolidCAM's HSM module, retracts to high Z levels are kept to a minimum. Angles are smoothed with arcs wherever possible, ensuring that retractions never exceed what is necessary. This minimizes air cutting and machining time.

- Efficient and smooth toolpath that translates to increased surface quality, reduced wear on your tools and a longer life for your machine tools.
- High Speed Machining is a must in today's machine shops to meet demands for ever-shorter lead and production times, lower costs and improved quality.



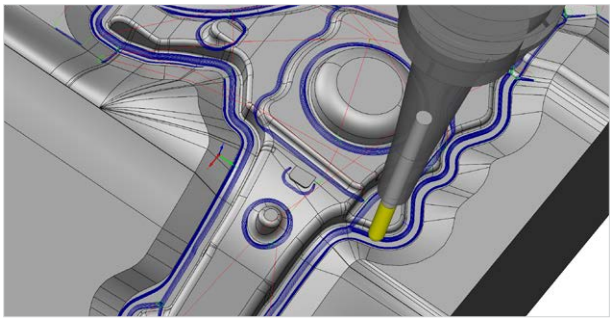
3D Machining to the Highest Level

SolidCAM's HSM module is a powerful solution for all users who demand advanced High-Speed Machining capabilities. It can also be used to improve the productivity of older CNCs with reduced air cutting and smoothing arcs thus maintaining continuous tool motion.

Let us show you how HSM takes 3D Machining performance to the highest level – all with your current machines.

SolidCAM's HSM module features several enhancements to CAM technology that make high speed operations possible, e.g. avoiding sharp angles in the toolpath and generating smooth and tangential lead-ins and lead-outs.

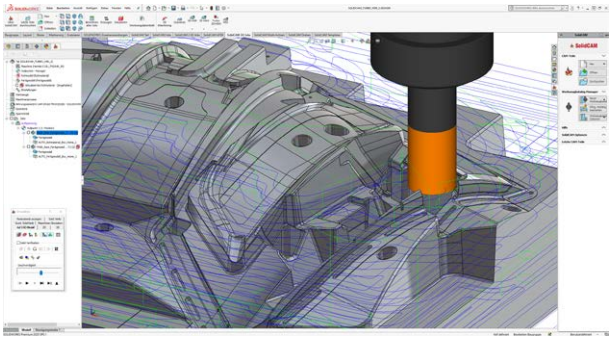
- Tool stays in contact with the material as much as possible, reducing non-machining moves.
- Working area can be precisely controlled using a comprehensive set of options, including silhouette boundaries, cutter contact area boundaries, shallow area boundaries, rest area boundaries.
- HSR/HSM toolpaths can be edited after toolpath creation using working areas, Z-level limits or a combination of both to control cutting moves or to exclude specific areas from machining.



TURBO HSR & TURBO HSM

SolidCAM's THSR and THSM

SolidCAM's Turbo 3D HSR (THSR) and Turbo 3D HSM (THSM) are powerful High Speed Roughing (HSR) and High Speed Machining (HSM) modules for much faster calculations than the regular HSR / HSM modules.



THSR and THSM offer unique machining and linking strategies for generating high-speed toolpaths. The 3-Axis calculation engine recalculates the toolpath at lightning speeds. Its 64-bit architecture completely utilizes all the cores for toolpath calculations.

The current THSR strategies (Hatch, Contour, and Rest) remove large volume of excess material rapidly and leave a small amount of stock for semi-finishing and finishing strategies. The biggest advantage of these strategies is that the toolpath contours are always collision free while machining.

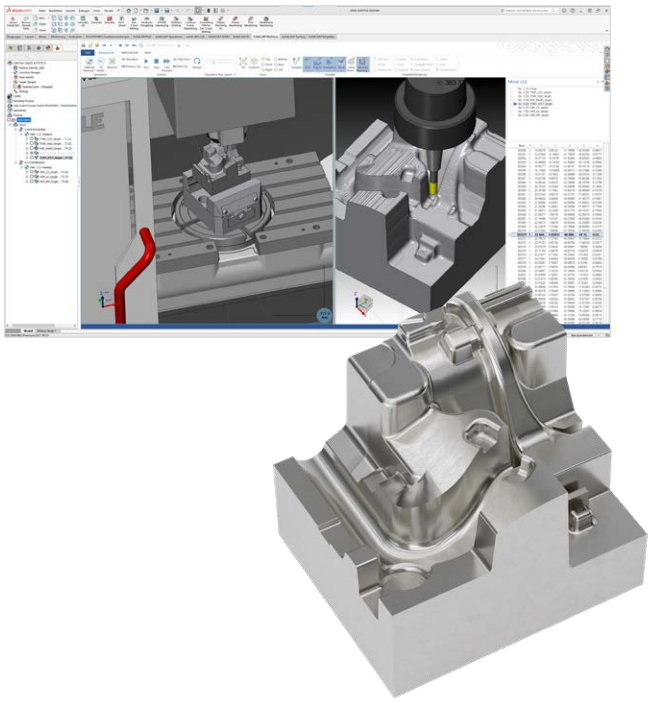
- Extremely fast calculation and generation of toolpaths.
- Fewer options – quicker definition of High-Speed Machining jobs.
- Advanced gouge checking strategies.
- Most efficient, collision free toolpath.

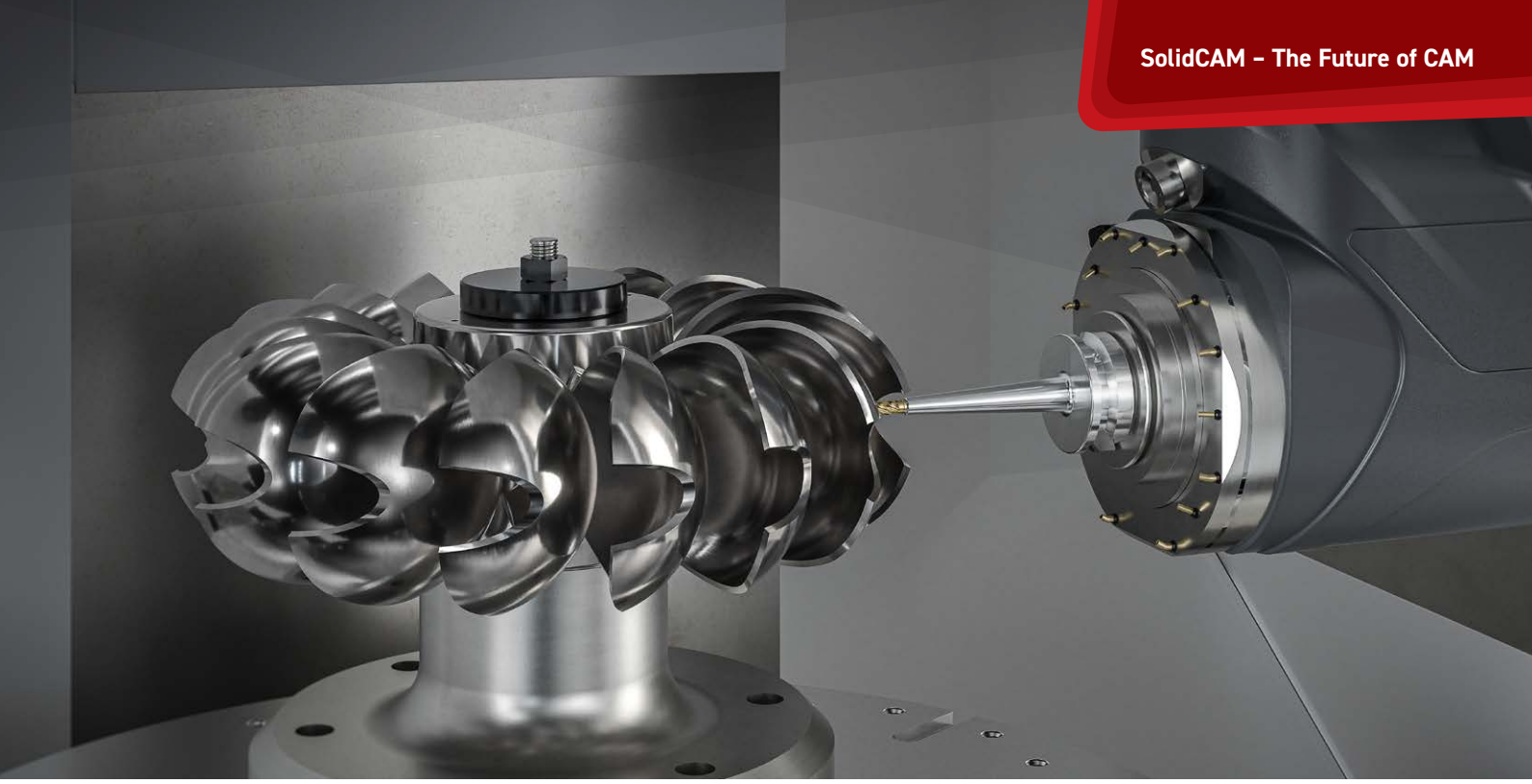
Auto 3+2 High Speed Roughing

Hybrid High Speed Roughing with 5X-transitions between THSR Jobs

SolidCAM's Auto 3+2 THSR Hatch and Contour technologies detect and process undercut areas in the specified range of processing angles. The functionalities of these technologies remain mainly the same as Turbo 3D HSR with an added advantage of Auto 3+2 Axis support.

The Auto 3+2 module is useful to efficiently machine undercut areas and gaining increased access from a single direction. It minimizes the number of operations with different machining directions.

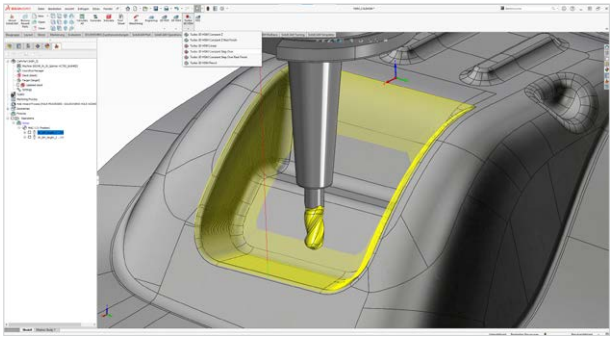


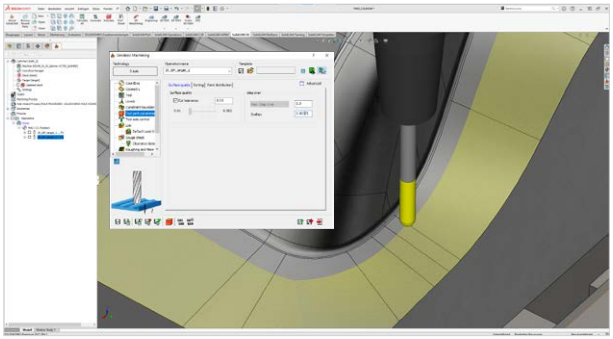


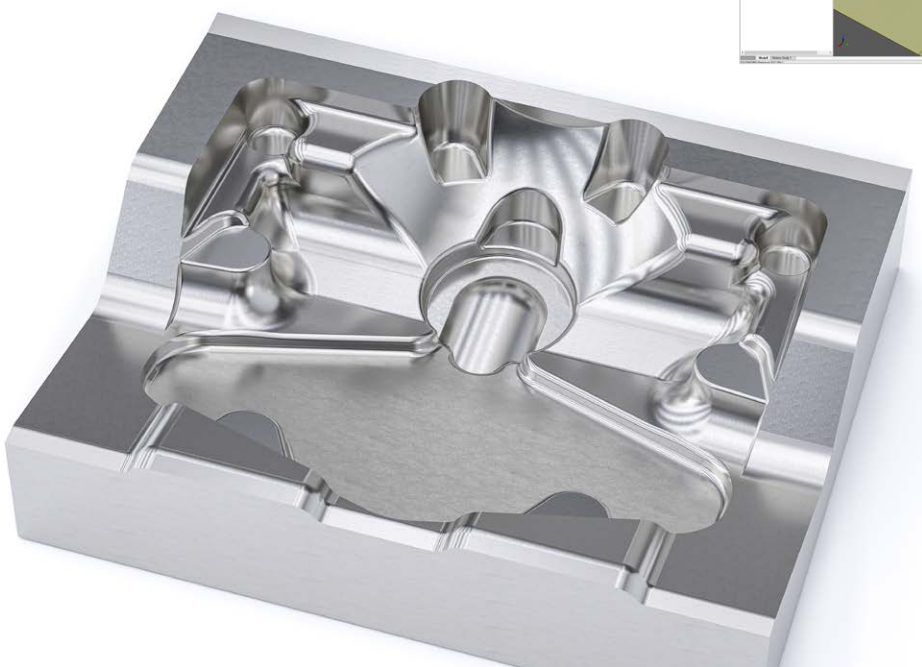
Geodesic Machining

SolidCAM's Geodesic Machining enables machining of complex 3D Shapes (Solid Model & Surface Groups) with a toolpath that has constant stepover and undercut areas. This module generates a pattern of toolpath with measurable constant step over. The stepover remains constant even on steep and shallow walls as it machines different surfaces or an entire model. SolidCAM uses a global distance field without a fixed direction. Typically, a stepover is calculated with reference to a vector direction, but in Geodesic Machining global distance and a stepover are used without a fixed direction.

- Various toolpath patterns are available.
- Constant 3D distance between consecutive cuts.
- Works effectively even in undercut situations.
- Utilizes single entry and exit move.



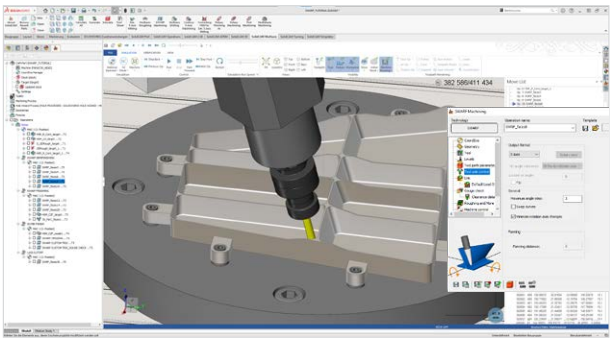


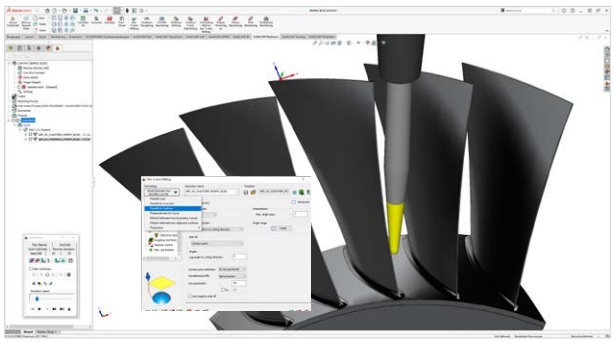


Excellent surface finish of 0.4 µm with SolidCAM HSM strategies

SIMULTANEOUS 5-AXIS MILLING

Impeller Manufacturing





Circular-segment cutters with barrel-, oval- and tapered geometry are being supported in SolidCAM

Benefit from the most tested and proven 5-Axis machining toolpaths in the industry, with a user-friendly interface, collision checking and the most advanced control over all aspects of the toolpath:

- Wide variety of Simultaneous 5X cutting strategies.
- Flow line cutting that produces a toolpath following the natural shape of the component.
- Multi-surface finish machining keeps the tool normal to the surface (or with specified lead and lag) to achieve a smooth surface finish.
- Advanced tool tilting control including direct control over side tilting and lead/lag angles.
- Automatic collision avoidance strategies that assess each part of both the tool and holder.
- Multi-axis rest roughing efficiently removes the remaining material of the larger cutter diameter used previously.
- Realistic full 3D machine simulation offering comprehensive collision and axis limits checking.

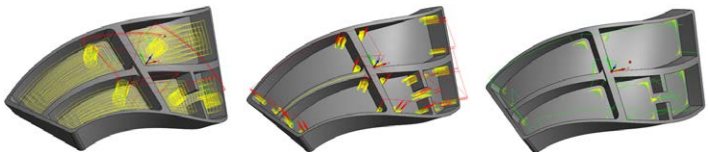
Flexibility and Control

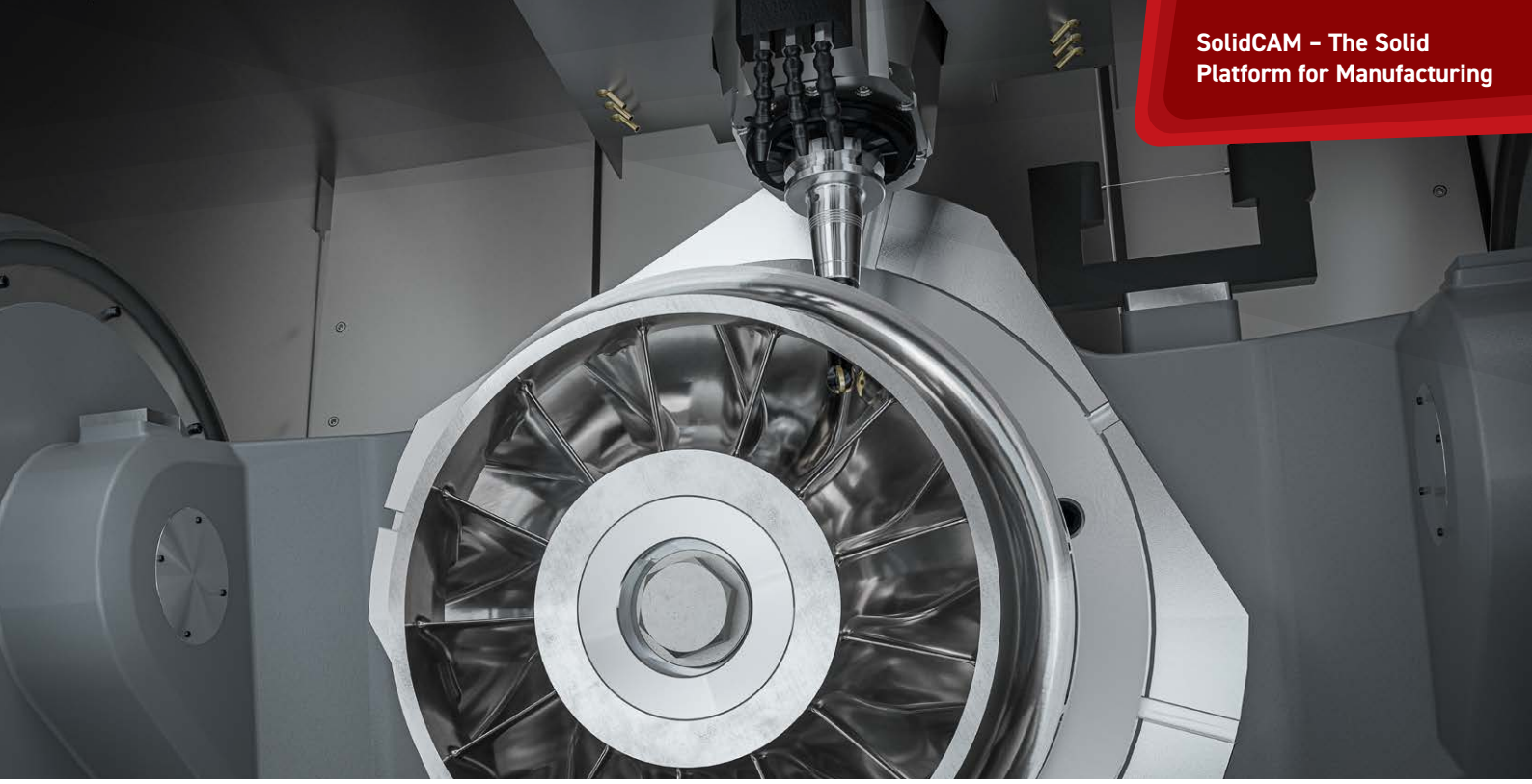
Each 5-Axis machining strategy provides sophisticated options for approach/link control and tool axis control.

Link and approach moves are fully gouge protected and different strategies may be used depending on the distance of the link move. SolidCAM also provides options for control over lead/lag and side tilt angles to give complete control over the final toolpath.

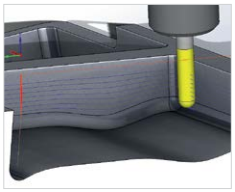
Collision Avoidance for Tool and Holder

Collision avoidance is supported for both the tool and holder, and a range of strategies is offered for avoiding collisions. The Machine Simulation provides complete visualization of the gouge checking.



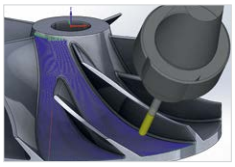


SWARF Machining



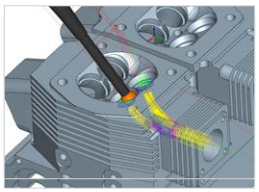
With SWARF machining, the tool is tilted over to cut with its lateral surface. SWARF cutting utilizes the entire cutting length of the tool, resulting in better surface quality and shorter machining time.

Multiblade Machining



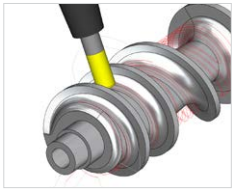
The Multiblade machining operation easily handles impellers and bladed disks, with multiple strategies to efficiently rough and finish each part of these complex shapes, which are being used in many industries.

Port Machining



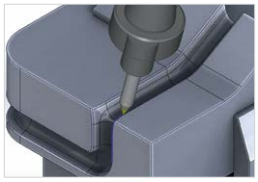
With this 5X operation you can machine intake and exhaust ducts as well as inlets or outlets of pumps, in castings or steel blocks with tapered lollipop tools. Roughing and finishing operations can be quickly and easily defined and reliably simulated with complete collision control for the entire tool and holder.

Screw Machining



This operation generates 4-Axis rotary roughing and finishing toolpath for screws using bull nose, ball nose or flat end mills.

Contour 5-Axis Machining

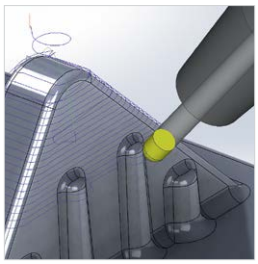


The Contour 5-Axis machining strategy tilts the tool along a chained 3D profile drive curve, while aligning the tool axis according to defined tilt lines, making it ideal for generating 5-axis toolpath for deburring and trimming.

Multi-Axis Drilling

The Multi-Axis Drilling operation uses SolidCAM's automatic hole recognition and then performs drilling, tapping or boring cycles, at any hole direction, easily and quickly. All the advanced linking, tilting and collision avoidance strategies are available in this operation.

Convert HSM to Sim. 5-Axis

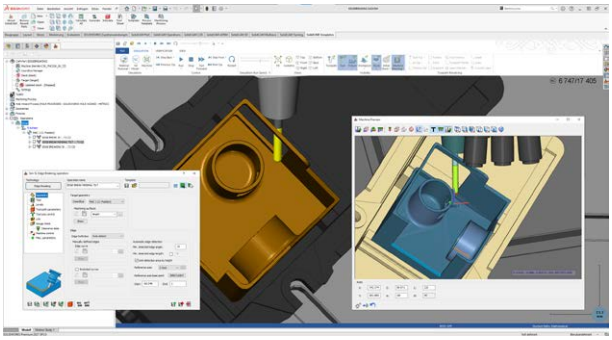


The Convert HSM to Sim. 5-Axis milling operation converts HSM 3D toolpaths to full 5-Axis collision-protected toolpaths. This maintains optimum contact point between the tool and the part, enabling the use of shorter tools for more stability and rigidity.

SIMULTANEOUS 5-AXIS MILLING

Simultaneous 5X Edge Breaking

After machining a CAM part, a burr can sometimes be found that have straight edges or non-tangent outer surface topologies. This occurs when the tool chips the metal off the edge, potentially compromising the functionality of the part, endangering the user due to its razor-sharp nature. Removing it is the best option.

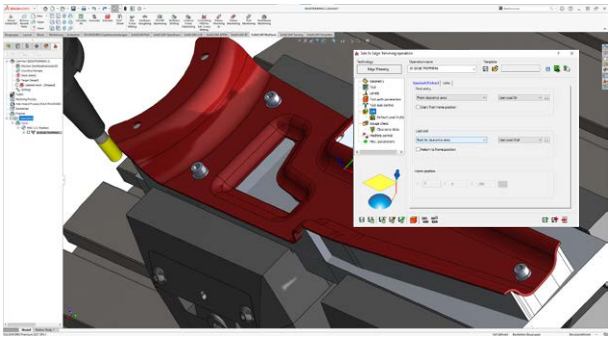


SolidCAM's Edge Breaking operation creates a deburring toolpath on the outer edges of a part geometry. The position of the tool relative to the edge is always the bi-vector between the two surfaces of that edge.

- Enables creation of a fully automatic toolpath by just selecting the part geometry.
- Additional features include Automatic Feature Detection, Linking, Lead-In and Collision avoidance.
- Ball mill cutters and quality geometry input (mesh) are required for the detection feature to work properly.

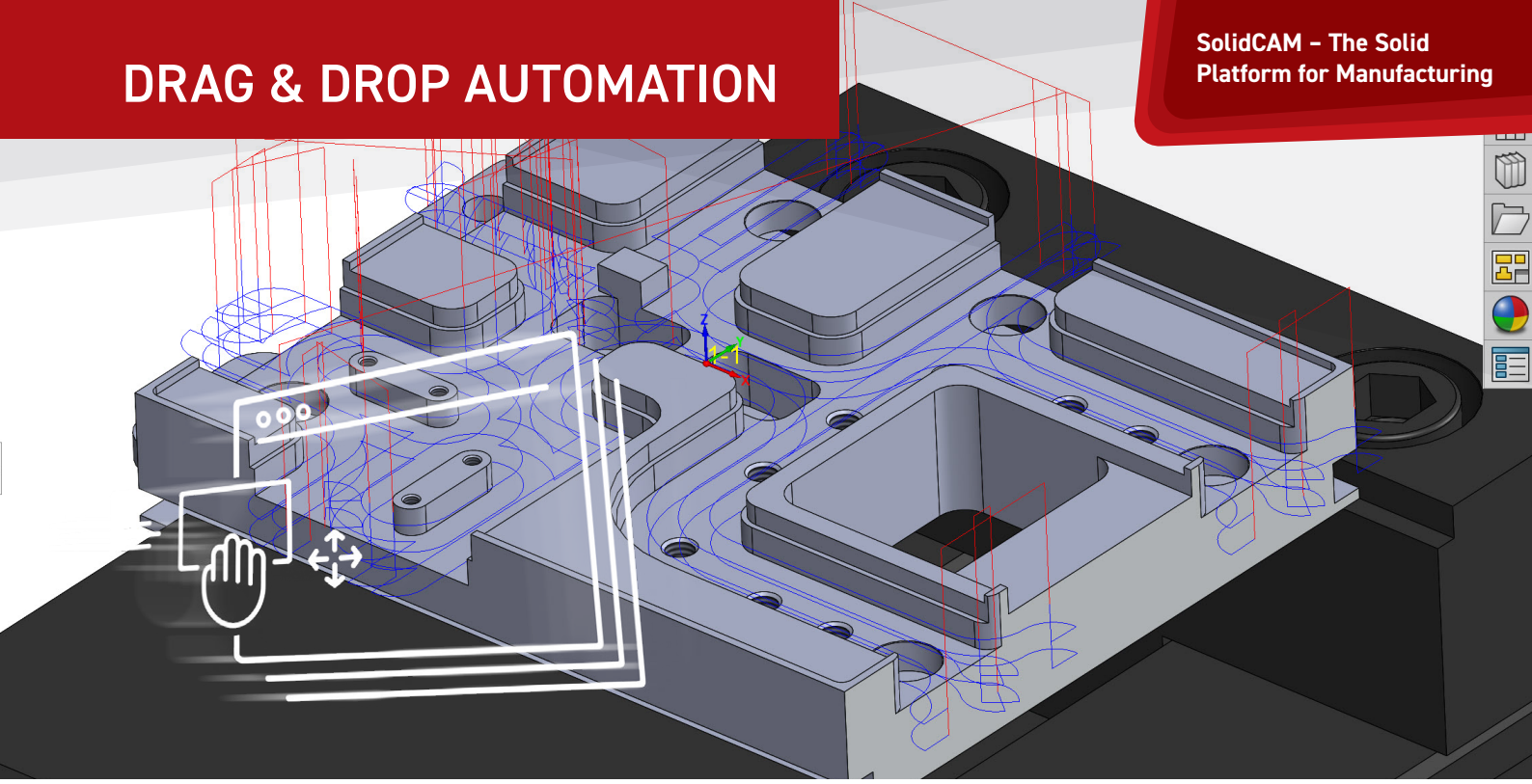
Simultaneous 5X Edge Trimming

SolidCAM's Edge Trimming operation efficiently machines parts that require edge trimming to get their final shape. This operation uses a highly automated algorithm to create a toolpath to trim the edge thin materials.



- Designed for the edge trimming of thin materials.
- Position of the tool relative to the geometry can be defined by various options from only a 3-axis output to a more complex 5-axis output with different tool axis orientation options.
- Axial shift enables the tool to be engaged with a certain value into the material.
- Edge trimming can be automated or user defined, and offers a variety of corner handling functions to create a seamless toolpath.

DRAG & DROP AUTOMATION

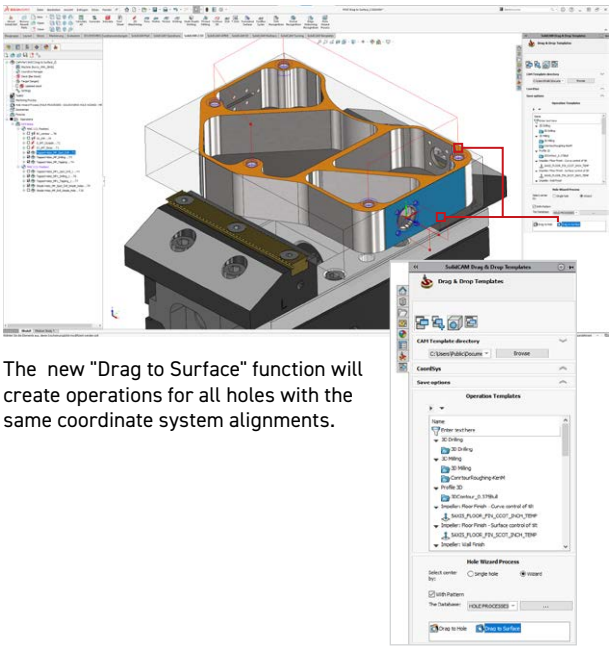


Drag & Drop Templates

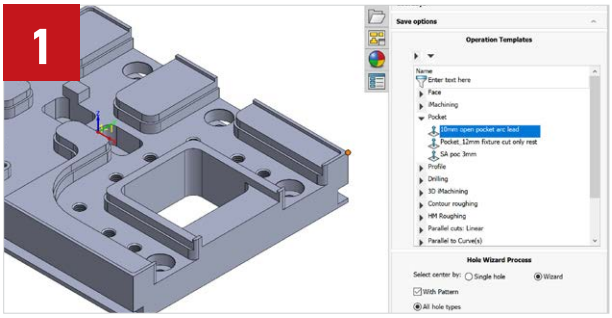
One of the most intuitive and fastest ways of programming a part is to use SolidCAM's Drag & Drop templates. These are ready-made templates that you can drag directly onto surfaces and holes.

The templates can be created by the user directly from existing jobs and can be flexibly adapted at any time in a clearly structured database.

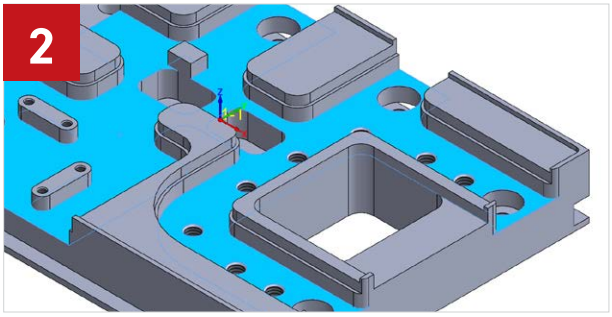
Drag & Drop is available in a wide span of SolidCAM's operations including 2,5D, iMachining, HSS, HSM etc.



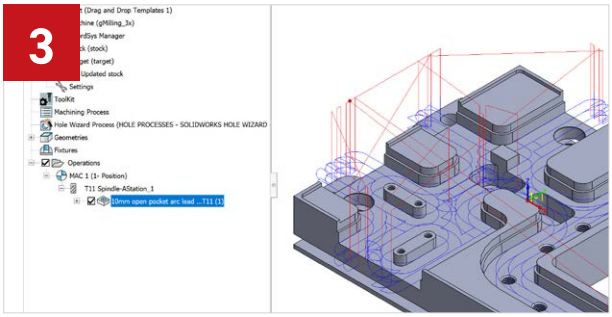
The new "Drag to Surface" function will create operations for all holes with the same coordinate system alignments.



Grab operation template from template directory



Drag the template to the face to be machined



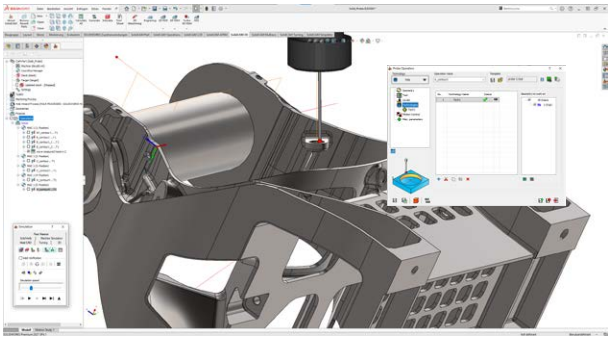
A new Operation is added to the CAM Manager operation tree and the toolpath will be calculated

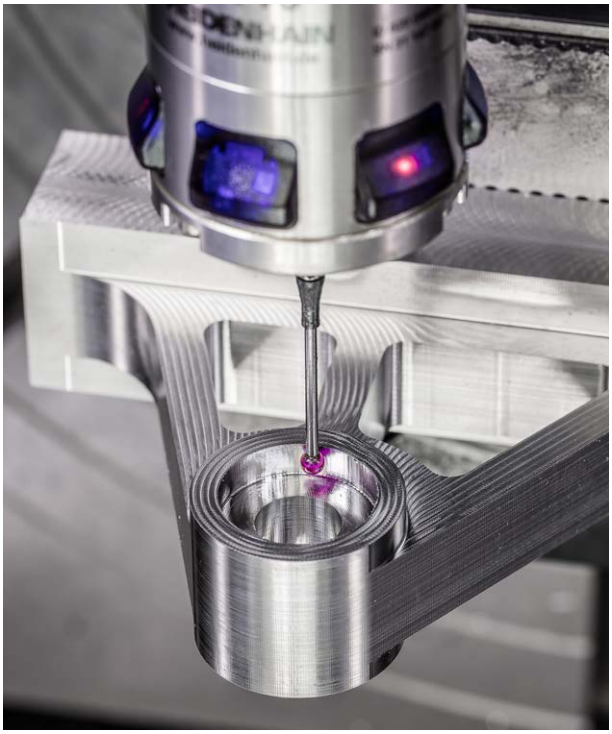
SOLID PROBE

Probing & Measuring Made Easy

Solid Probe is the SolidCAM module that provides capabilities for Home definition and On-Machine Verification, using probes on the CNC machine, to do setup and control the quality of machined parts.

Full visualization of all the probe movements, provided by SolidCAM Machine Simulation, enables you to avoid any potential damage to the Probe tool.





Solid Probe is a Must for Every Machinist using Probes:

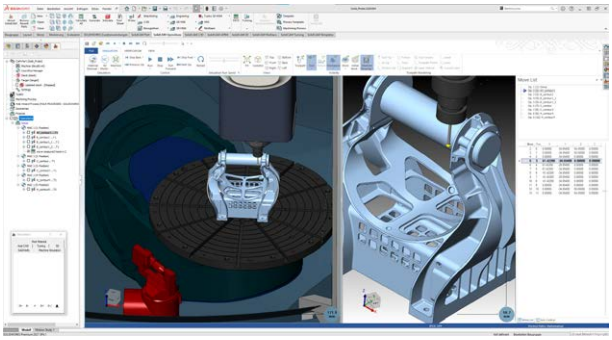
- Easy Home definition
- On-Machine Verification
- Tool Presetter support
- Easy geometry selection on solid model
- Supports a wide range of probe cycles
- Visualization of all the Probe tool movements
- Support of different Probe controllers

Combined Probe and Machining Operations

Machining operations and Probe operations are intermixed in the SolidCAM CAM manager and can use the same geometries on the solid CAD model. When the solid model is changed, both the machining and probe operations can be automatically synchronized to the change.

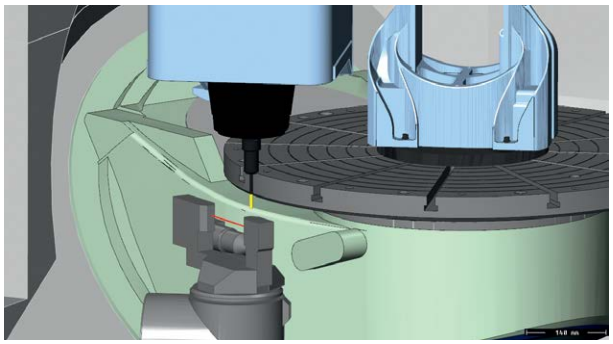
Home Definition

Solid Probe provides an easy solution for home setting, using 16 different cycles, to easily define home positions, replacing manual setup procedures.



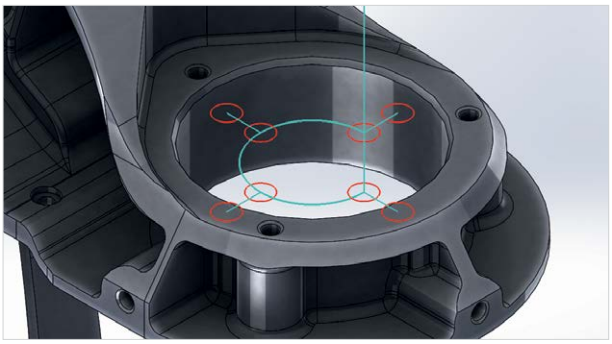
On-Machine Verification

Solid Probe cycles are used for measuring machined surfaces, without transferring the part to a CMM machine – the part can be inspected on the CNC machine itself.



Tool Presetter Support

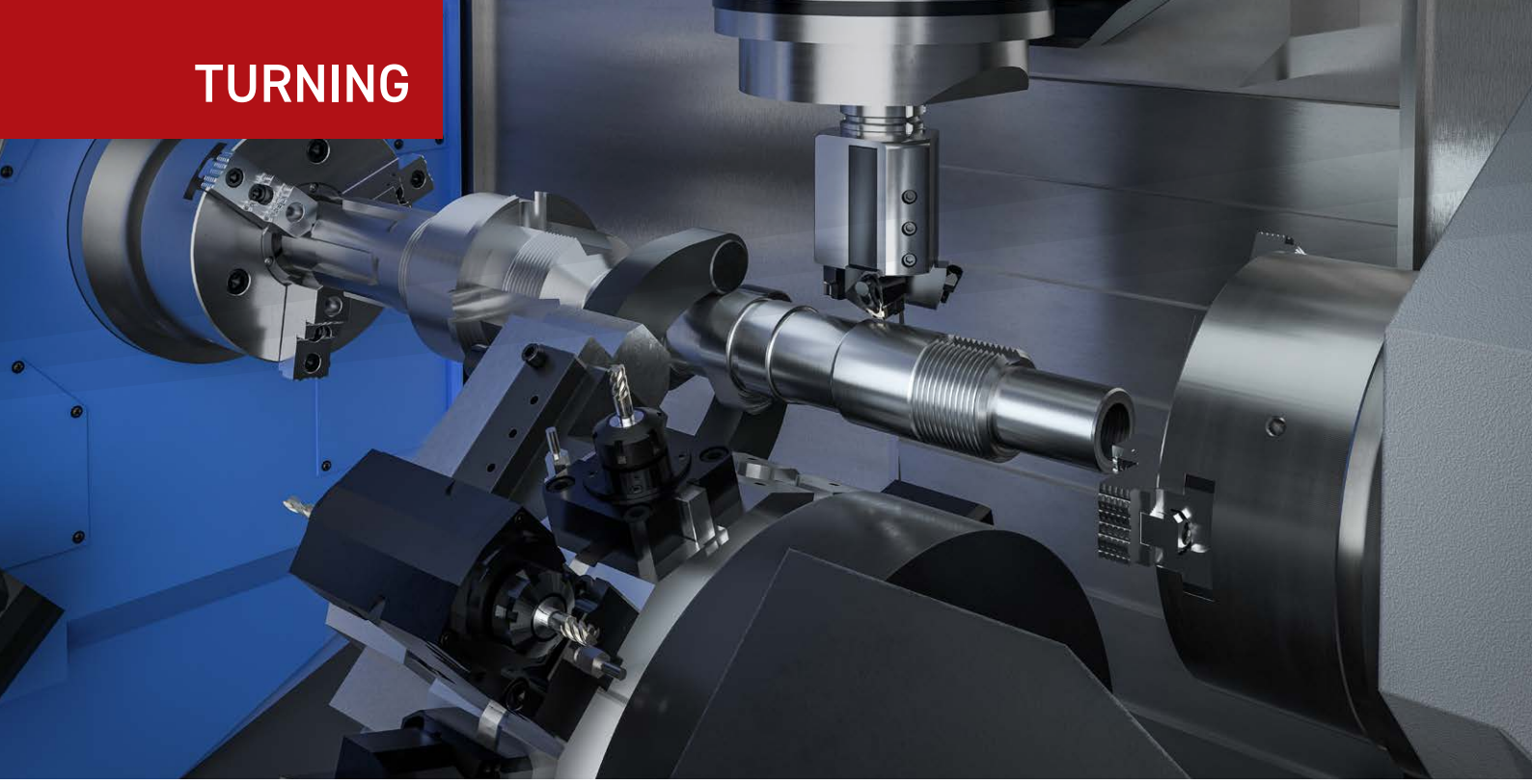
Solid Probe includes Tool Presetter support to check your milling and turning tools, between Machining operations and tool change events. It also provides tool breakage detection for continuous and safe machining.



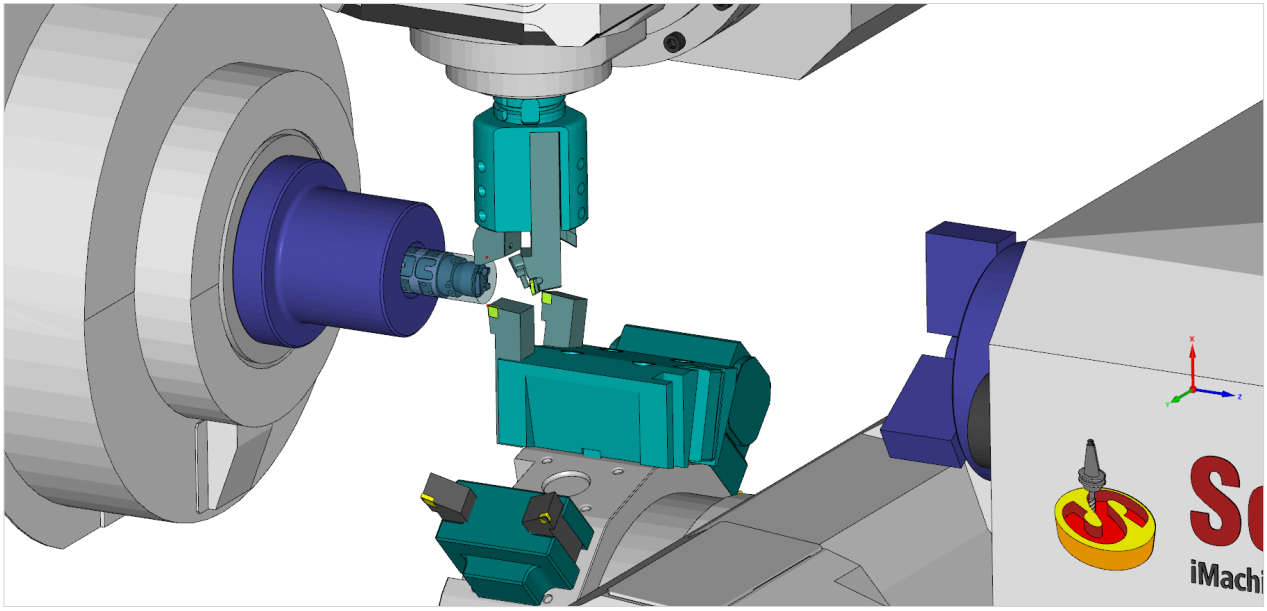
Preview of Cycle Movements

Solid Probe uses the same geometry as the 2.5D milling operations. Full control over tolerances, different sorting options and preview of cycle movements are provided.

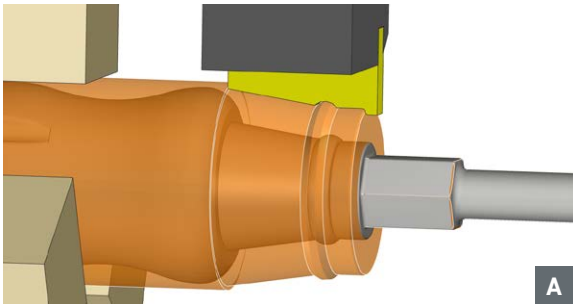
TURNING



SolidCAM Module for Fast and Efficient Turning



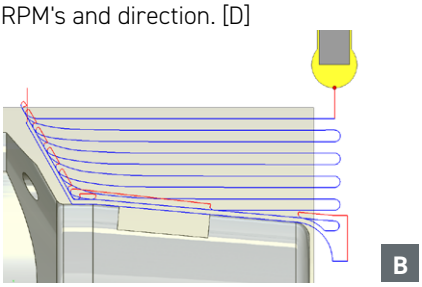
- SolidCAM provides a comprehensive turning package with powerful toolpaths and techniques for fast and efficient turning with fixture and holder protection.
- SolidCAM produces advanced rough and finish profile turning, together with support for facing, grooving, threading and drilling cycles.
- Turning geometries and profile can be generated very quickly, easily adopted or modified for production.
- The Machine Preview allows you to interactively, in machine environment, check and verify your setup and machine position, at every stage of the toolpath, minimizing programming and setup errors.
- SolidCAM turning supports the widest range of machine tools, including 2-Axis lathes, multi-turret configurations with or without sub-spindles.
- Custom turning inserts, shape inserts with multiple cutting edges can be used. [A]

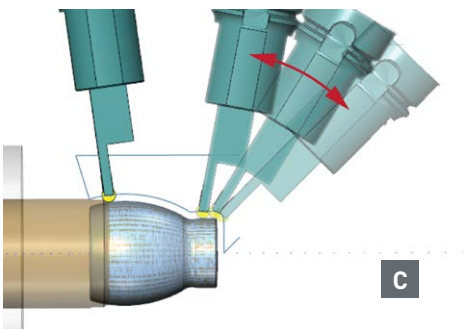


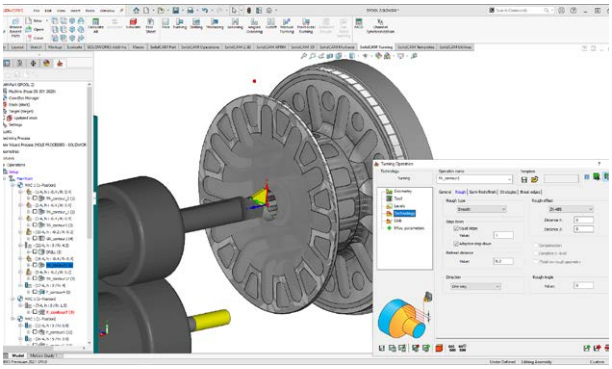
A

Advanced Turning Capabilities

- Balanced Roughing: two turning tools working simultaneously, or in trailing mode, to perform roughing turning of long and large parts.
- Angled Grooving: performs internal or external inclined grooves, at any defined angle.
- Manual Turning: performs turning according to user-defined geometry, regardless of stock and target
- A new Trochoidal toolpath of round grooving tools for increased efficiency. [B]
- 4th Axis Simultaneous Turning: performs machining of curved profile using the B-axis tilting capabilities of the tool, in order to machine undercut areas in a single machining step. [C]
- Drive Unit Sharing: two tools working simultaneously while single Drive Unit (spindle) rotates with the same RPM's and direction. [D]



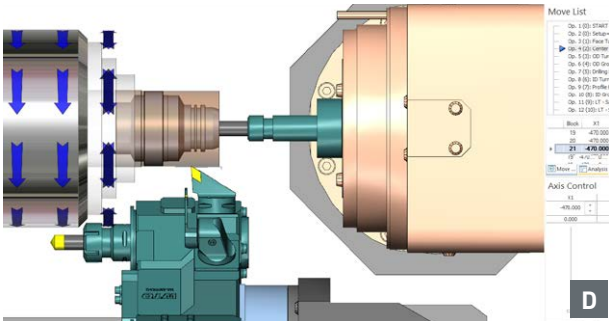




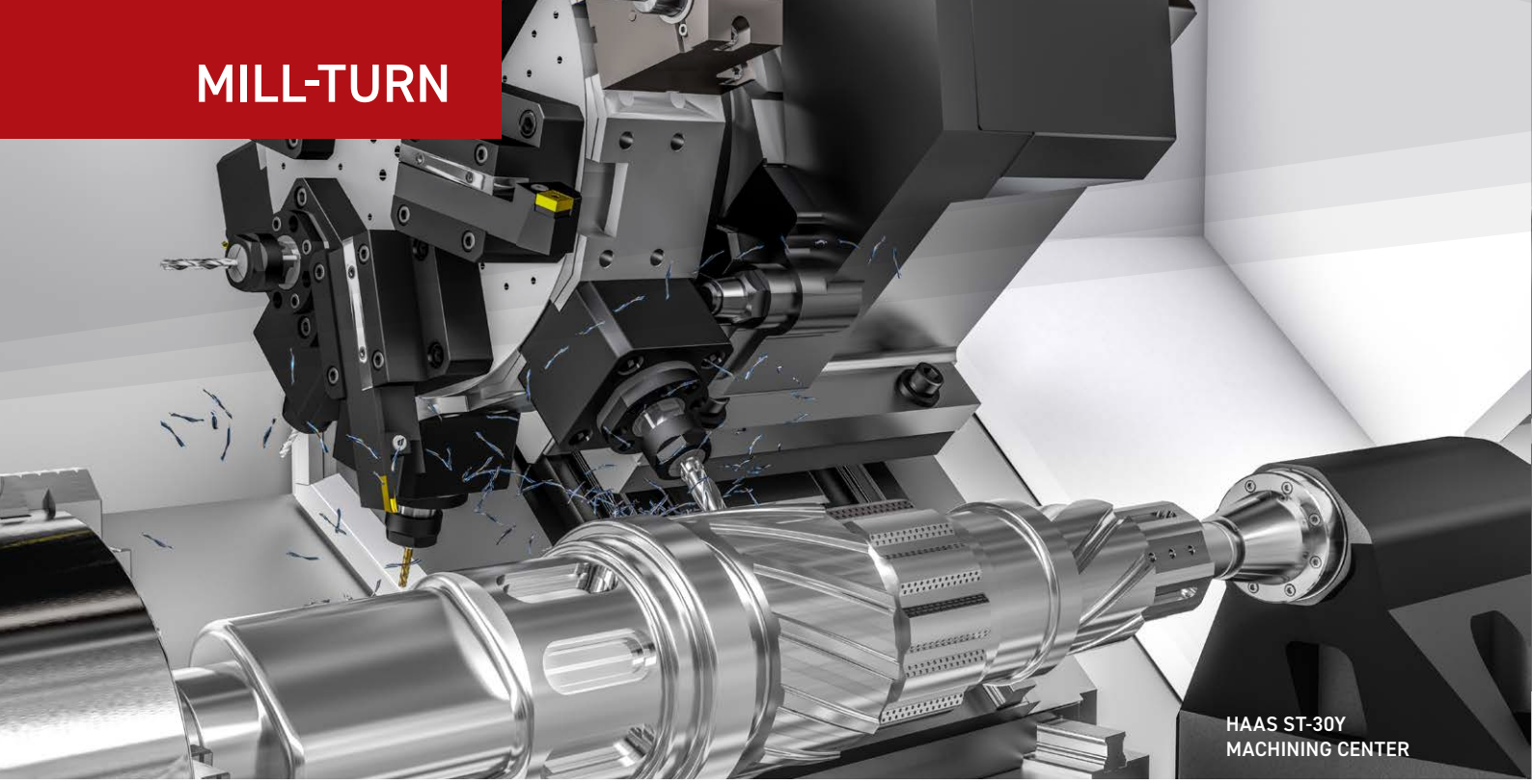
Updated Stock

SolidCAM has the ability to keep the stock updated live within the operations tree. Updated stock is supported from the most basic 2-Axis Turning Center, right through to a CYB Multi-turret, Sub-spindle Mill-Turn CNC-Machine.

On a Sub-spindle Turning Center, when a component is transferred from the main to the sub-spindle, the Updated stock model is transferred with it. Any subsequent machining on the sub-spindle will detect the stock in the state that it left the main spindle, ultimately providing the most efficient machining sequence possible.



MILL-TURN



A Complete Solution for Advanced Multi-Turret/Spindle Mill-Turn Machines

Modern Multi-Axis machining centers are designed to combine as many milling and turning operations as possible to manufacture workpieces at maximum productivity.

Manual CNC programming of sophisticated parts on complex machines, directly at the machine controller is – if at all humanly possible – unproductive, error-prone and expensive.

TURNING OPERATIONS


Manual


Face


Turning


Grooving


Drilling


Balanced Roughing


Threading


Angled Grooving


Trochoidal Turning

MILLING OPERATIONS


2D iMachining


Face


Profile


Pocket


Drill


Multi-Depth Drilling


Threading


Contour 3D


Slot / T-Slot


Translated Surface

3D iMachining

Engraving

HSR / HSM / HSS


Sim. 5X

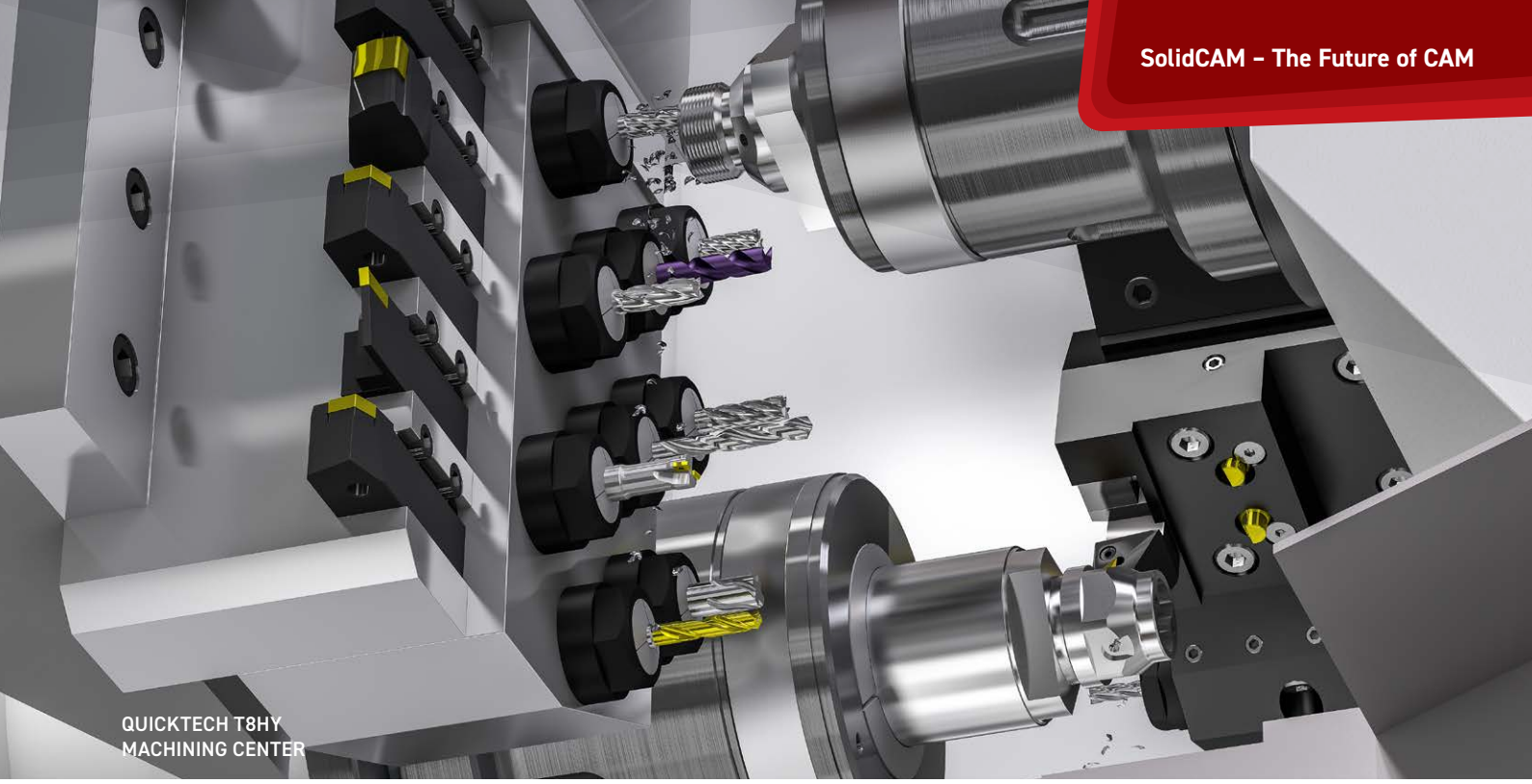

Blade Machining


Screw Machining

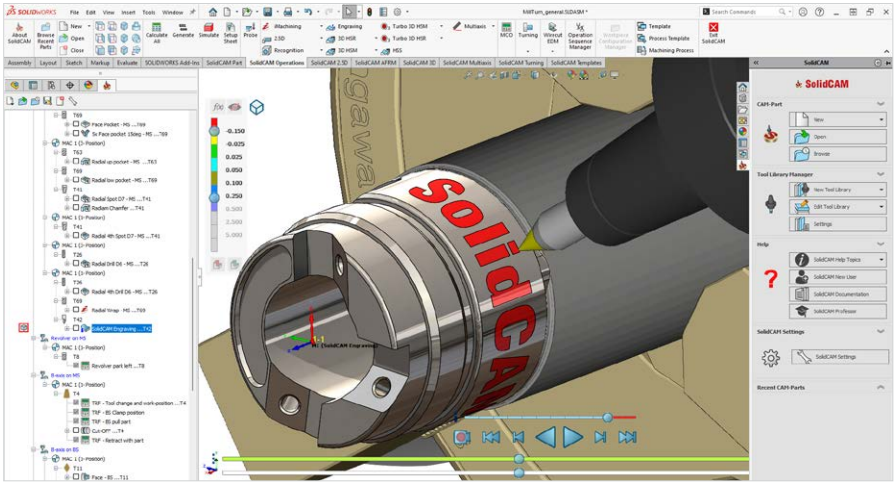

Rotary Machining


Multiaxis Drilling

... and many more!



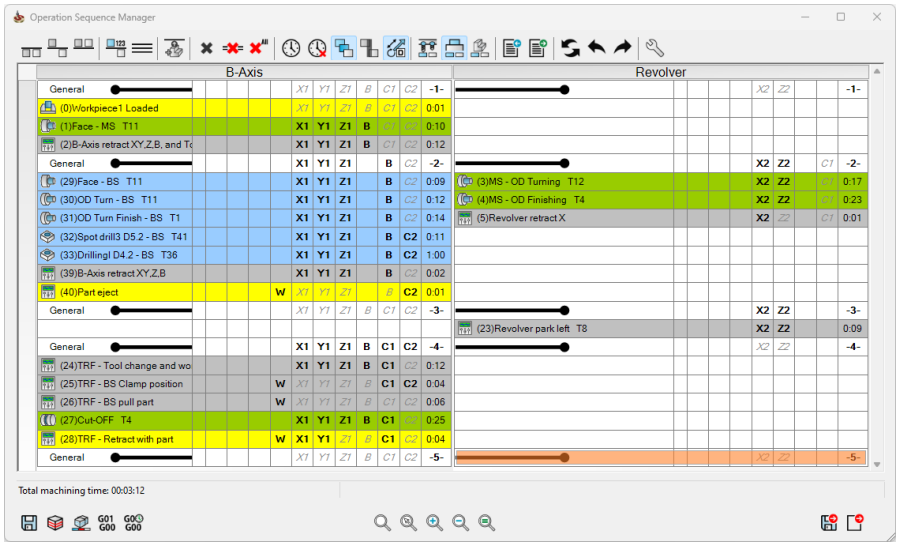
Integrated. Easy-to-Use. Complete.



Within the SolidCAM user interface, seamlessly integrated into your SOLIDWORKS or Autodesk Inventor CAD, you program milling and turning operations on main and back spindles, control turrets, tailstocks, steady rests and linear tool carriers.

Milling operations include the unique and patented iMachining technology available only from SolidCAM.

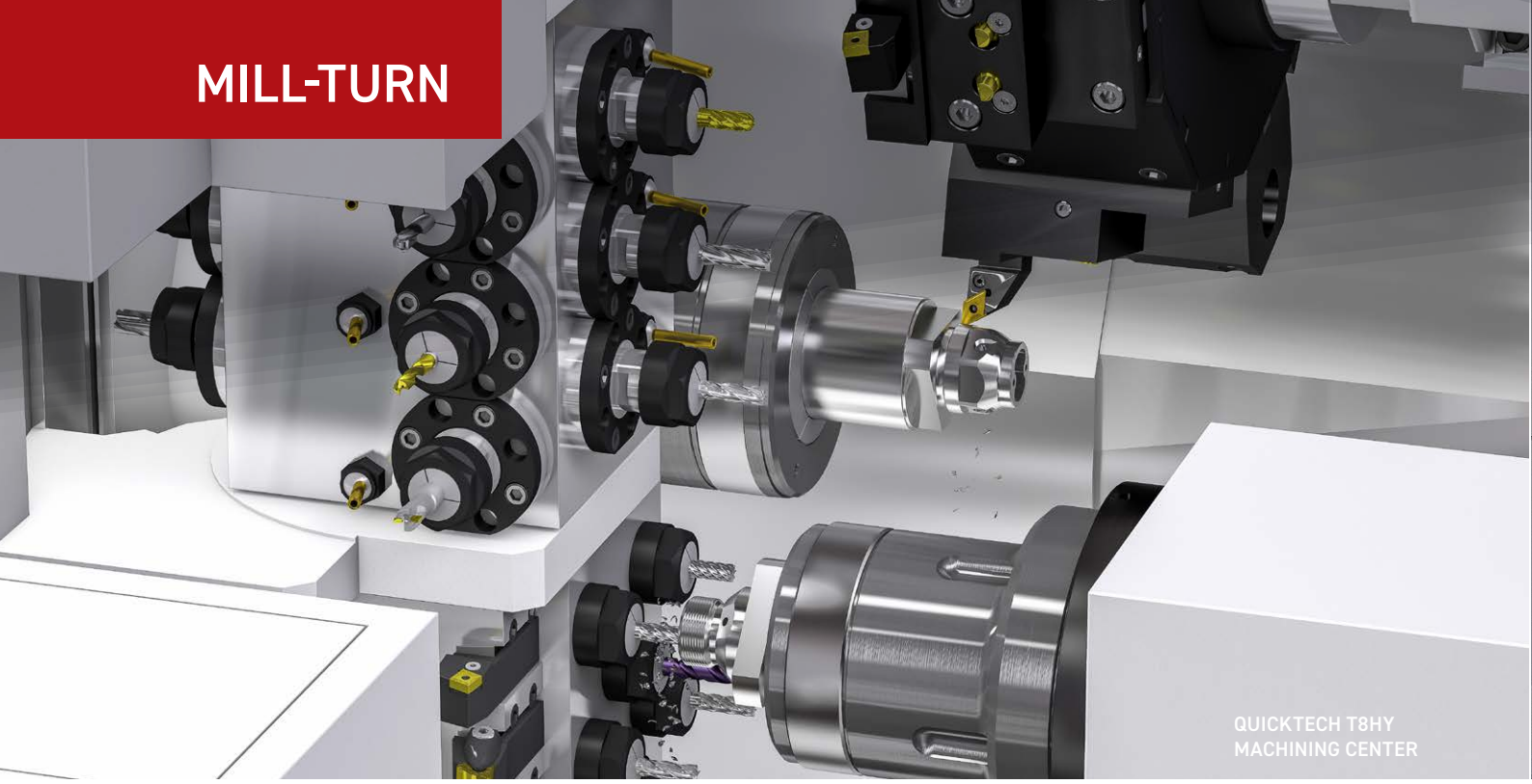
Short Cycle Times. Maximum Productivity.



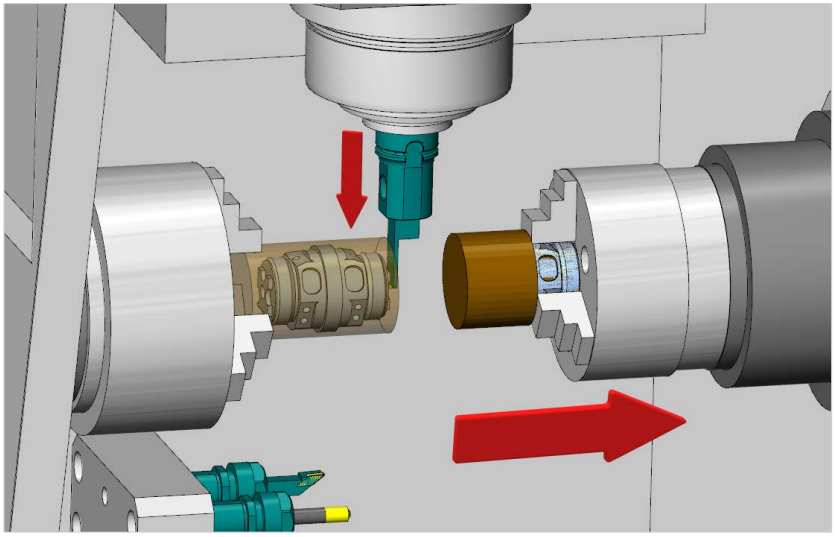
Easy-to-use Operation Sequence Manager is ideal for synchronising and optimising job sequences across all turrets, channels, and workpieces on spindles, maximising production efficiency. Its intelligent engine detect possible clashes and guides you towards solution.

SolidCAM can control an unlimited number of channels and supports a wide range of machine functions and cutting modes.

MILL-TURN



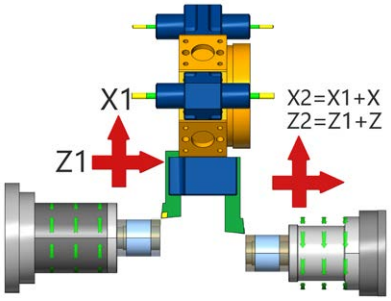
Advanced Rest Material Handling



SolidCAM always keeps the stock updated live, within the operations tree, to optimize the tool-path, avoid air-cutting and to achieve minimal cycle time.

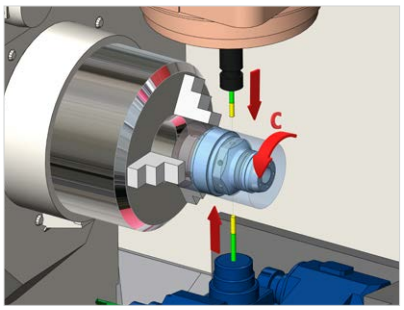
When the workpiece is transferred from the main to the sub-spindle, the updated stock model is also transferred to the new position.

Any subsequent machining on the sub-spindle will detect the stock in the state that it left the main spindle, ultimately providing the most efficient machining.



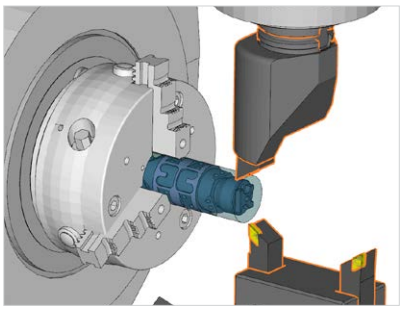
SolidCAM supports three different superimposition modes. A pair of axes can be superimposed one to another, where the slave one follows the master one.

For applicable Mill-Turn machines, SolidCAM will automatically detect this mode.



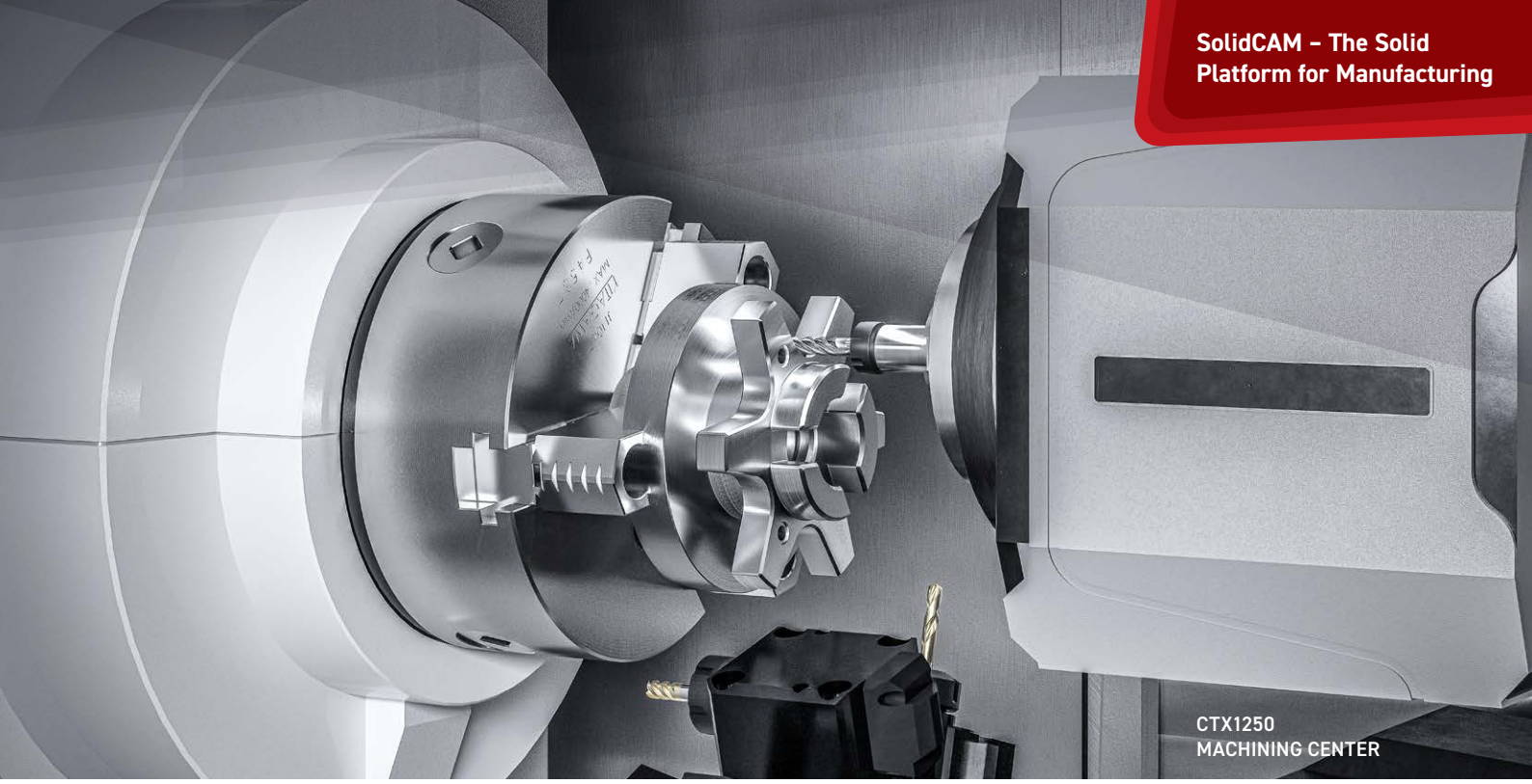
Reduce machining time by sharing axes and drive units.

Synchronize your milling/turning operations, on different turrets, on the same table device, under specific conditions.

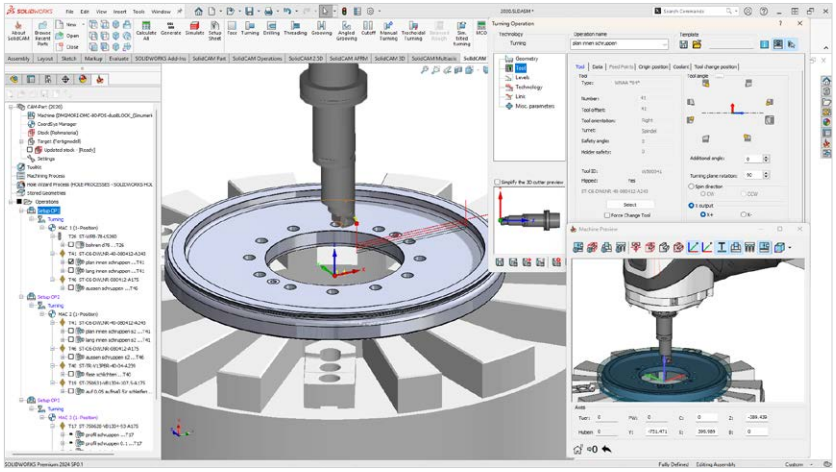


Balanced rough is a special drive unit (spindle) sharing mode designed to increase productivity and stability of part machining.

There are 3 different modes supported by SolidCAM: Simultaneous, Synchronous, and Trailing.



Support for Milling machines equipped with Turning and Tilting axis



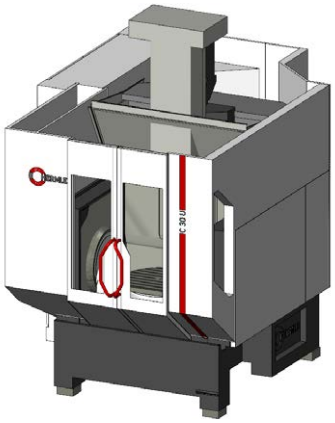
Another type of multi-tasking machine that, in addition to 5-axis indexial and simultaneous milling capabilities, may provide an advanced turning operation option to process highly complex parts productively in a single setup.

SolidCAM Mill-Turn tool-path may be applied along these machines withing the same intuitive interface, supported by Machine Preview showing active Fixture, Spin Direction, Tool Orientation, Tilting angle, and axis position.

Machines with these characteristics can be configured as Table-Table or Head-Table, and controlling the Turning coordinate system is critical since it can be orientated differently depending on the Tilting angle. SolidCAM ensures and fully controls the Turning Tilting cycles.

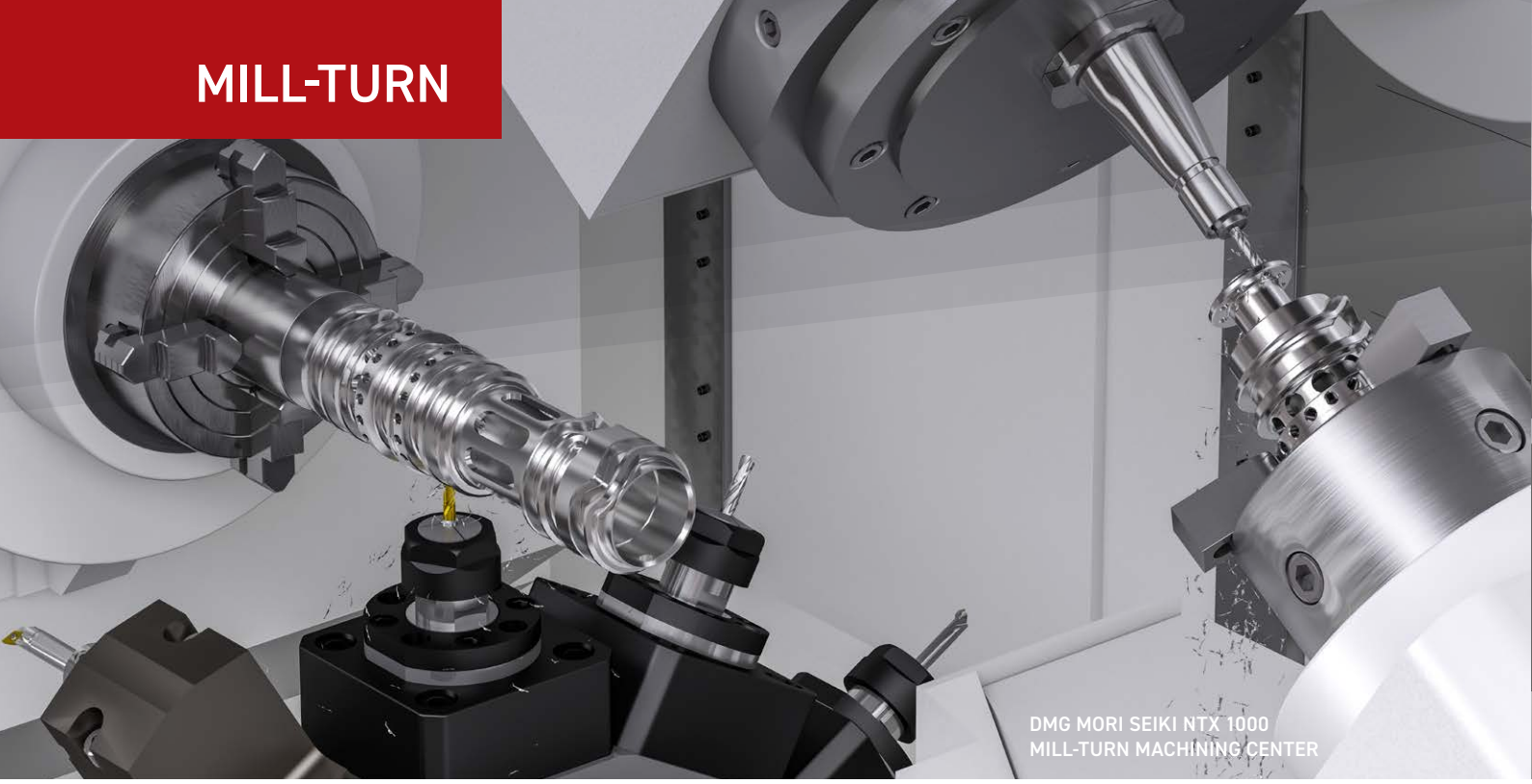
Mazak Variaxis i700T

Brother Speedio M140X2

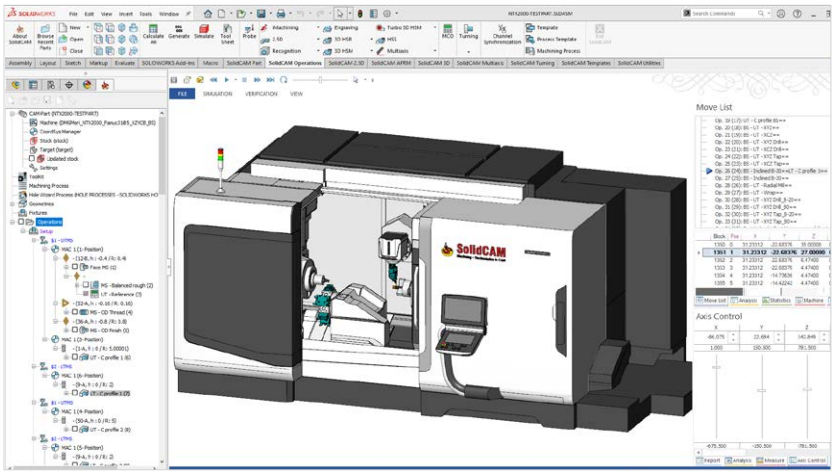


Hermle C32U dynamic

MILL-TURN



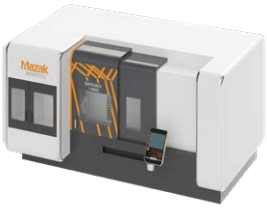
Advanced Machine Simulation



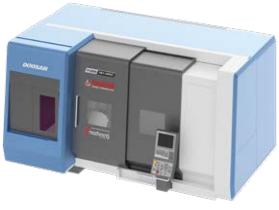
The Advanced Machine Simulation is an essential tool that provides a virtual environment for visualising and verifying the entire machining process, allowing you to detect potential collisions, tool-path errors, and fixture setup issues prior to actual machining, lowering the risk of costly mistakes and downtime.

SolidCAM's Machine Simulation allows you to confidently shift from programming to production, resulting in a smooth and safe machining process.

Chiron FZ08MT



Mazak Integrex i-400S



Doosan SMX2600SX

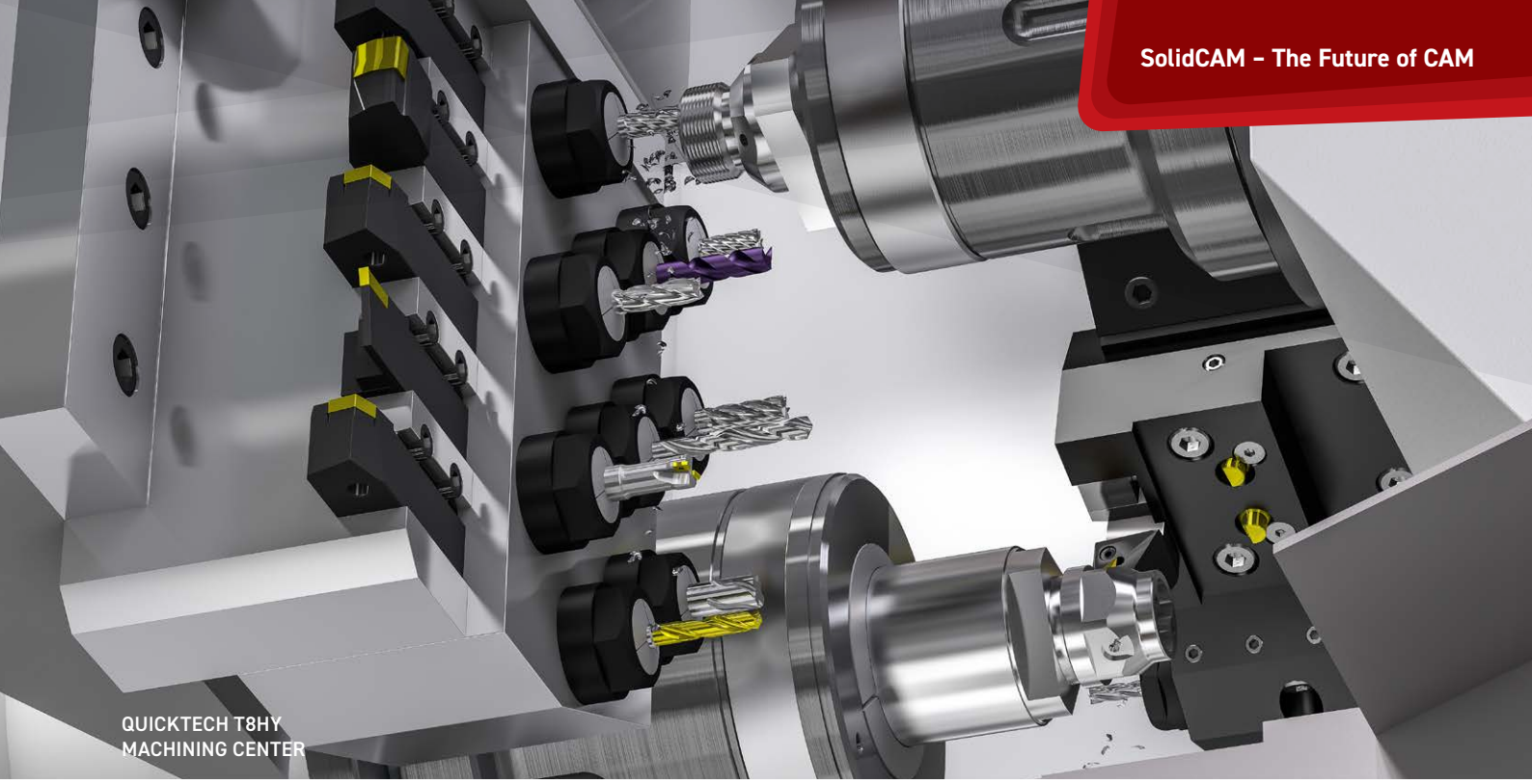
INDEX G200

Okuma U3000

QuickTech T8HY

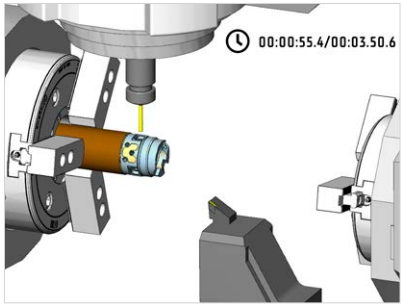
HURCO TMX 8MYi i6

HAAS ST20Y

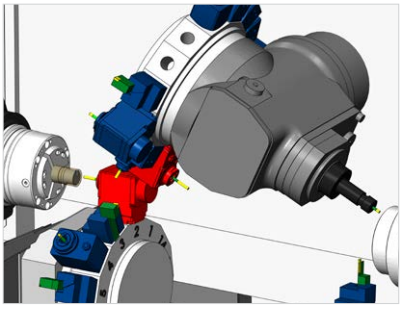


QUICKTECH T8HY
MACHINING CENTER

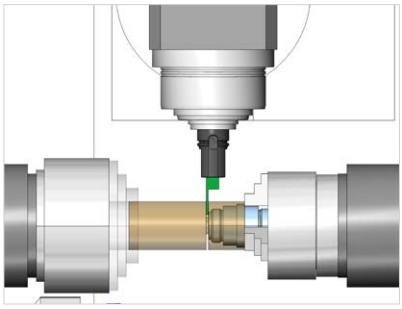
Machine Simulation – Additional Features



The calculated cycle time is displayed in the simulation module.



Collision detection



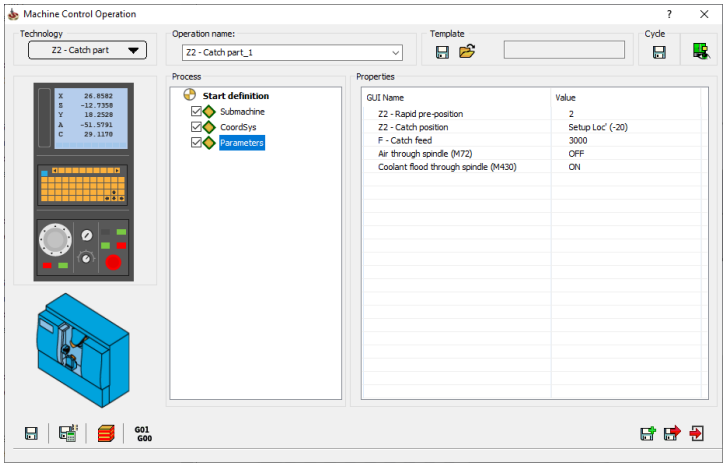
Part transfer: simulating the cut-off process

Machine Control Operations: MCO

With MCOs you can define various CNC machine actions, in addition to machining operations programmed in SolidCAM.

Such actions include:

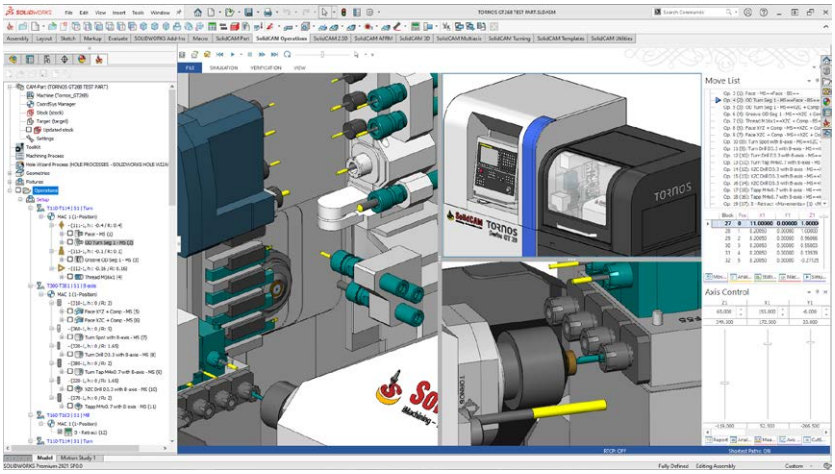
- Move machine components
- Transfer stock/workpiece
- Clamp/unclamp fixture/jaws/collet
- Program bar feeder
- Control coolants
- Machine mode
- Axes and phase synchronization
- Customize Change Tool routines
- Output any G/M command



SWISS-TYPE

Swiss-Type Manufacturing at SolidCAM
Customer HIPP medical AG | Germany

SolidCAM Swiss-Type solution – made to your needs



Swiss-type CNC turning centers provide a cost-effective way to produce small, complex, and precision parts by feeding the stock through a guide bushing and cutting it within linearly or revolver-sorted cutting tools in a single setup.

Today, production series on Swiss-type machines are shorter, machines are more complex, risky, and unproductive to program manually.

Hanwha XD38II-H-Y2

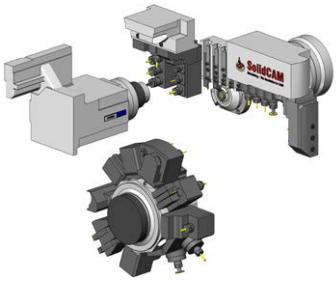
Citizen D25-M8

STAR SB20R-Type G

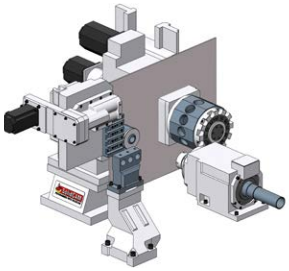
Tornos SwissDeco 36TB

Tornos Swiss Nano 7

Tsugami B0326-II



Citizen M32-4M8



Tsugami BH38E

"I have used a lot of other softwares before. SolidCAM is just amazing!"

Donnie Hinske
Swiss-Type Machining Supervisor
TITANS of CNC

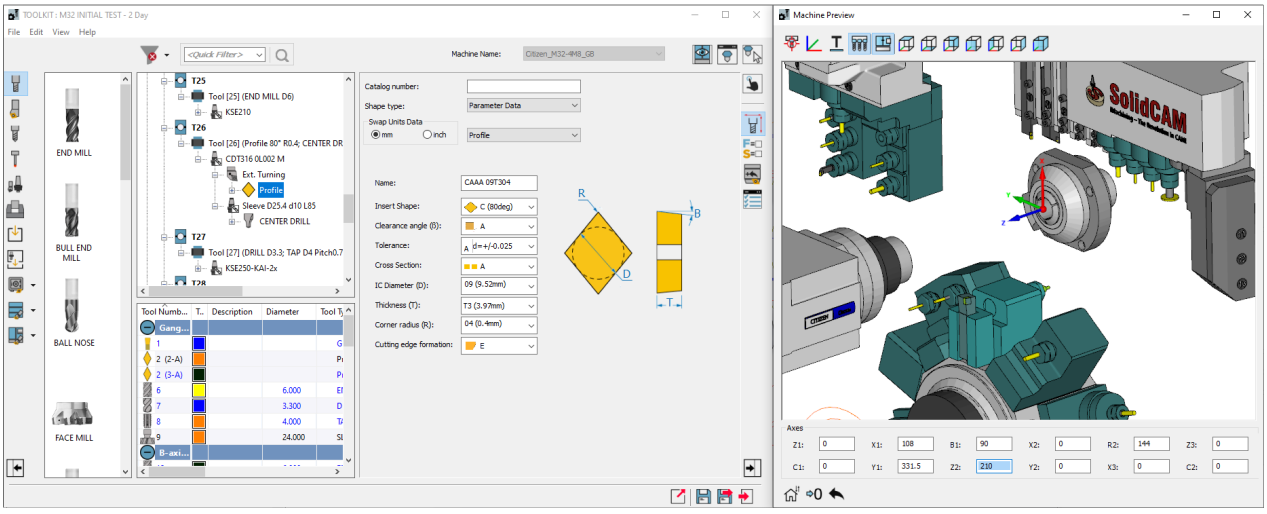
The Best-in-class already proven solution

Driven by the already-proven concept of Advance Mill-Turn, SolidCAM develops a set of advanced features and delivers best-in-class the Swiss-Type Solution allowing you to do offline part programming, optimization, tool-path simulation, and verification directly inside your SOLIDWORKS, Solid Edge and Autodesk Inventor. You program setup, milling and turning operations on main and back spindles and synchronize them inside intuitive Operation Sequence Manager.

A wide pallet of Turning and C-, Y- and B-axis Milling operations including the unique and patented iMachining technology available only from SolidCAM ensures every part can be machined.

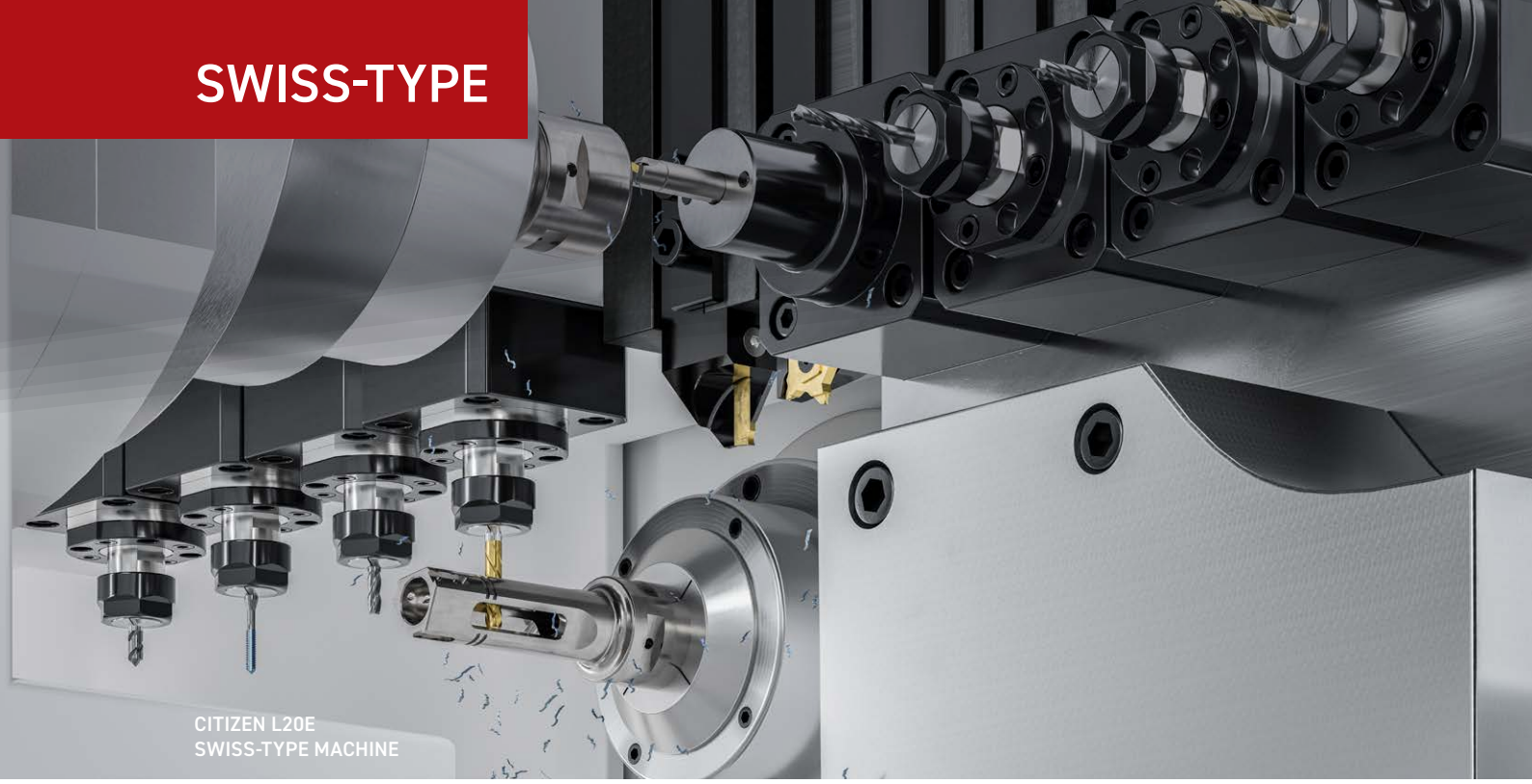
CITIZEN
star
TORNOS
DMG MORI
TSUGAMI
Hanwha
NOMURA SWISS
TRAUB
EUROTECH
MAIER

ToolKit - LIMITLESS TOOL MANAGER

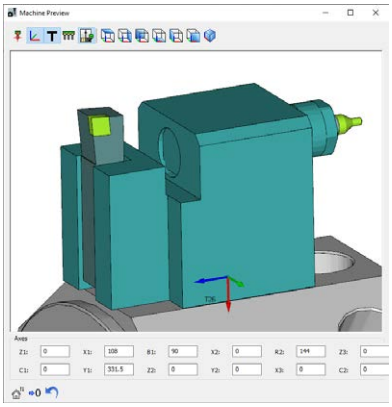


The best tool manager in the CAM industry allows to load, assemble and manage Tools and cutting conditions and guarantees a fast tool configuration switching supported by a virtual machine environment (Machine Preview) and user-friendly interface, eliminating the error of tool setup.

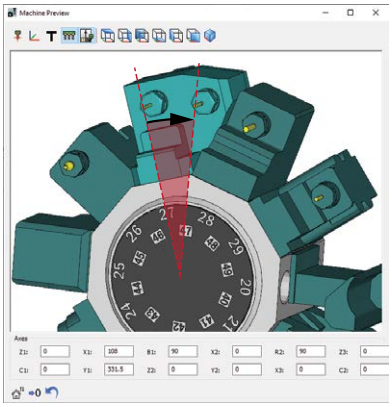
SWISS-TYPE



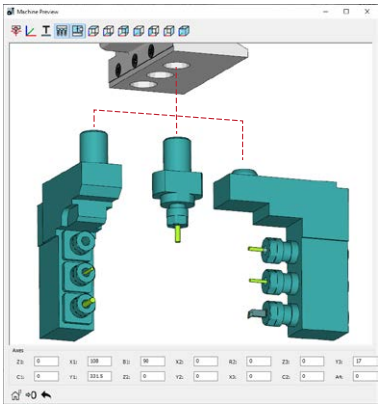
CITIZEN L20E
SWISS-TYPE MACHINE



Double sided holder

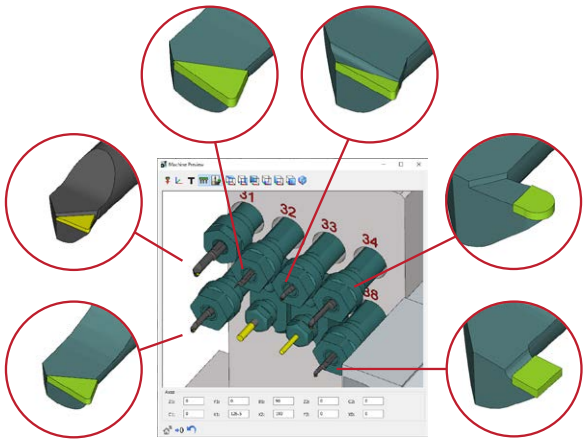


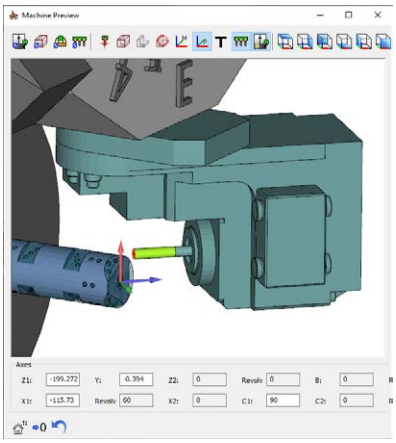
Revolver Indexing Holder



Angular Holders

Any tool components, including small and custom shaped inserts can be directly imported as CAD data from the tool manufacturer's online catalog. Setting up tool offset and number for each cutter is simple. It is quick and easy to change the tool layout.



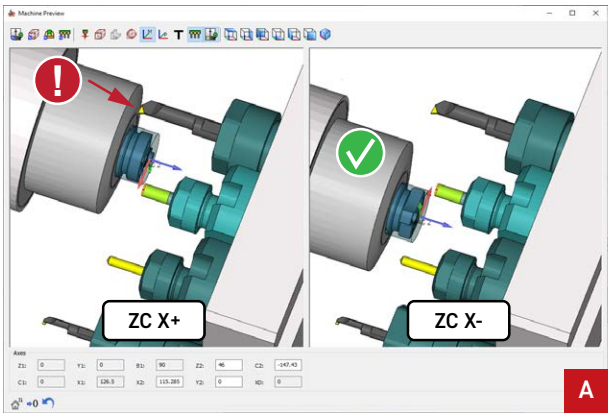


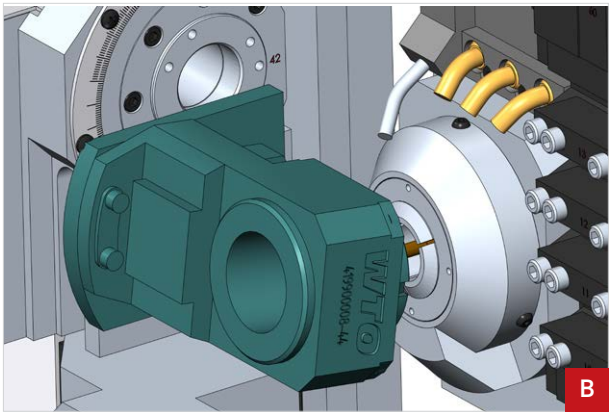
Any kind of Face, Axial, Angular, and Multi-Cutter holder is supported by the ToolKit. If diameter compensation and circular interpolation can be carried out in the machining plane, SolidCAM will immediately recognize this. Regardless of the rotation vector, the angular head machining plane is automatically formed if the controller unit supports it.

Swiss-Type Manufacturing at SolidCAM
Customer Rudischhauser GmbH | Germany

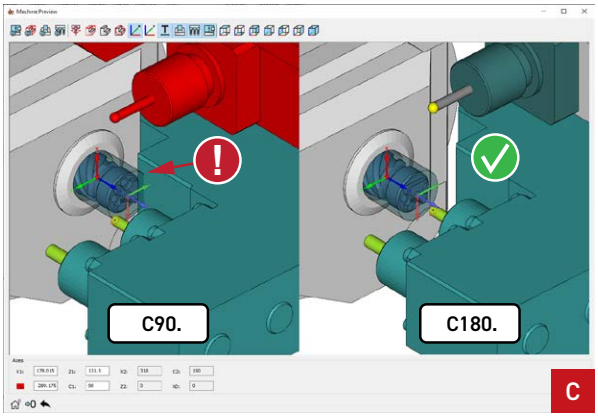
PROGRAM. SIMULATE. PRODUCE!

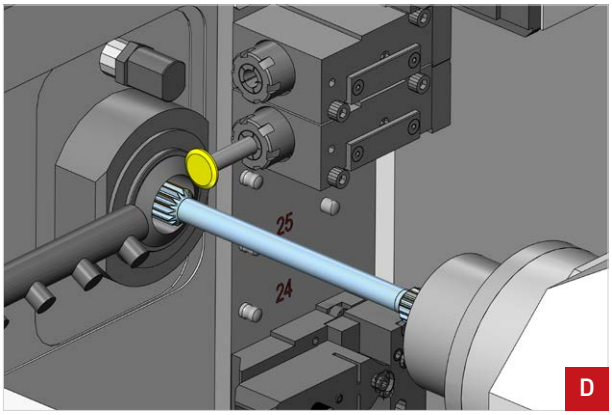
Milling and Turning operations give complete control over the X-axis (positive or negative) output avoiding potential collisions of neighbor tools with machine components. Polar Coordinate Interpolations cycles (radial or face) are fully supported [A]. Supporting Thread Whirling as an unreplaceable method in the Swiss-Type machines for precisely machining medical screws [B].



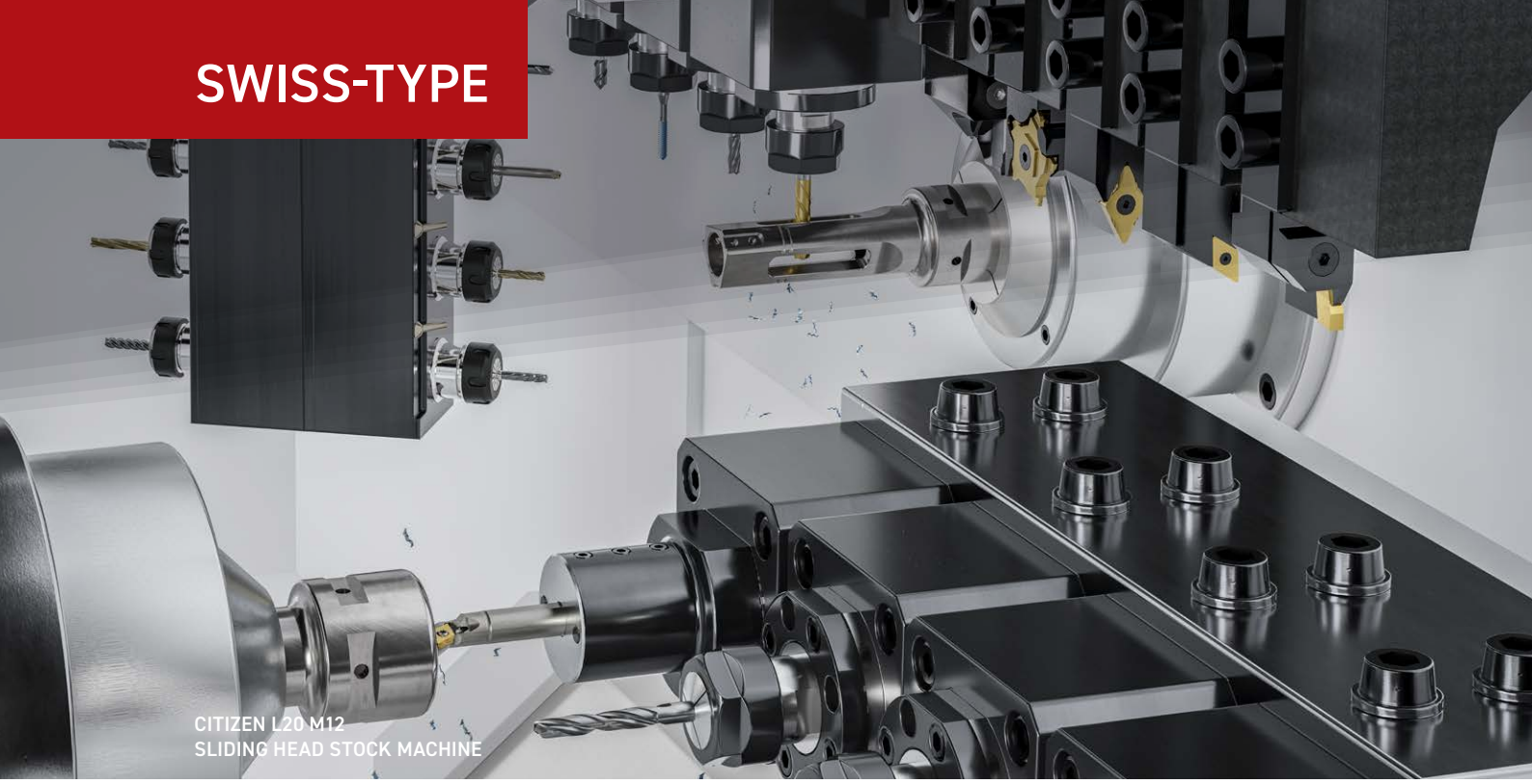


Multi-positional holders may lead to a risky situation of potential collisions or reaching the machine axes soft limits. SolidCAM gives you full control over the C-axis output for the selected contour to keep you away from these situations [C]. Advanced re-chucking and back spindle support machining in the Axes Synchronization [D] and superimposition mode.



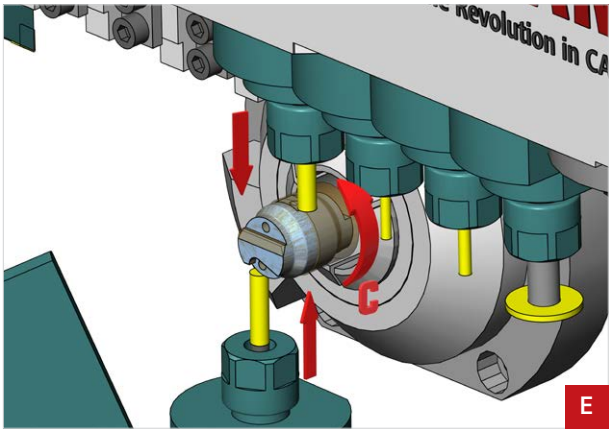


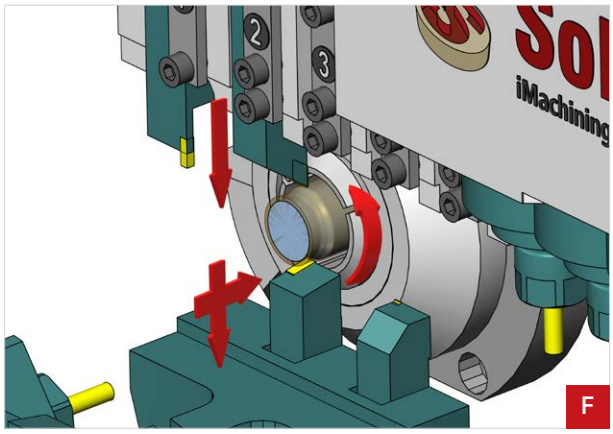
SWISS-TYPE



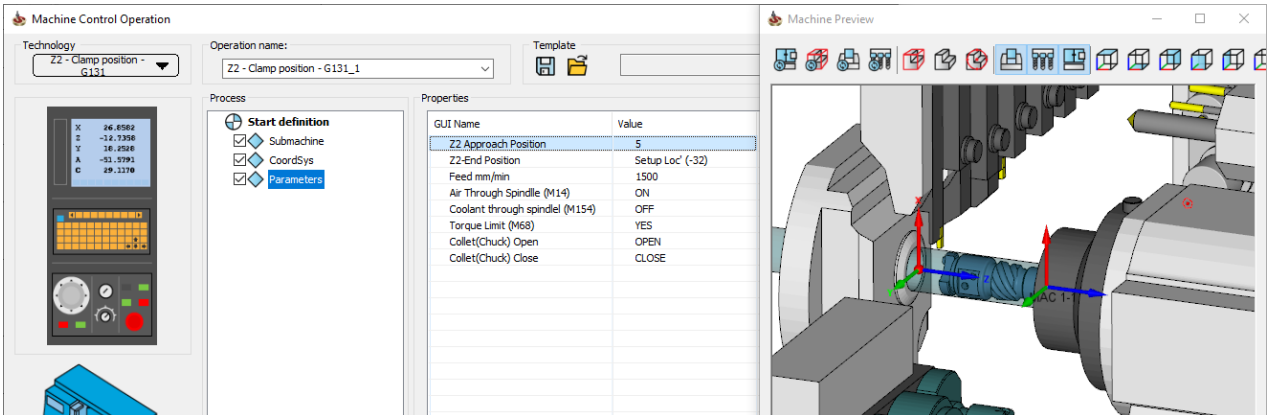
CITIZEN L20 M12
SLIDING HEAD STOCK MACHINE

Reduce machining time and stable machining process by sharing axes [E] and drive units [F]. Synchronize two turning operations on different turrets at the same time and under specific conditions use the same spindle or synchronize two milling operations on different turrets on the same rotary axis.

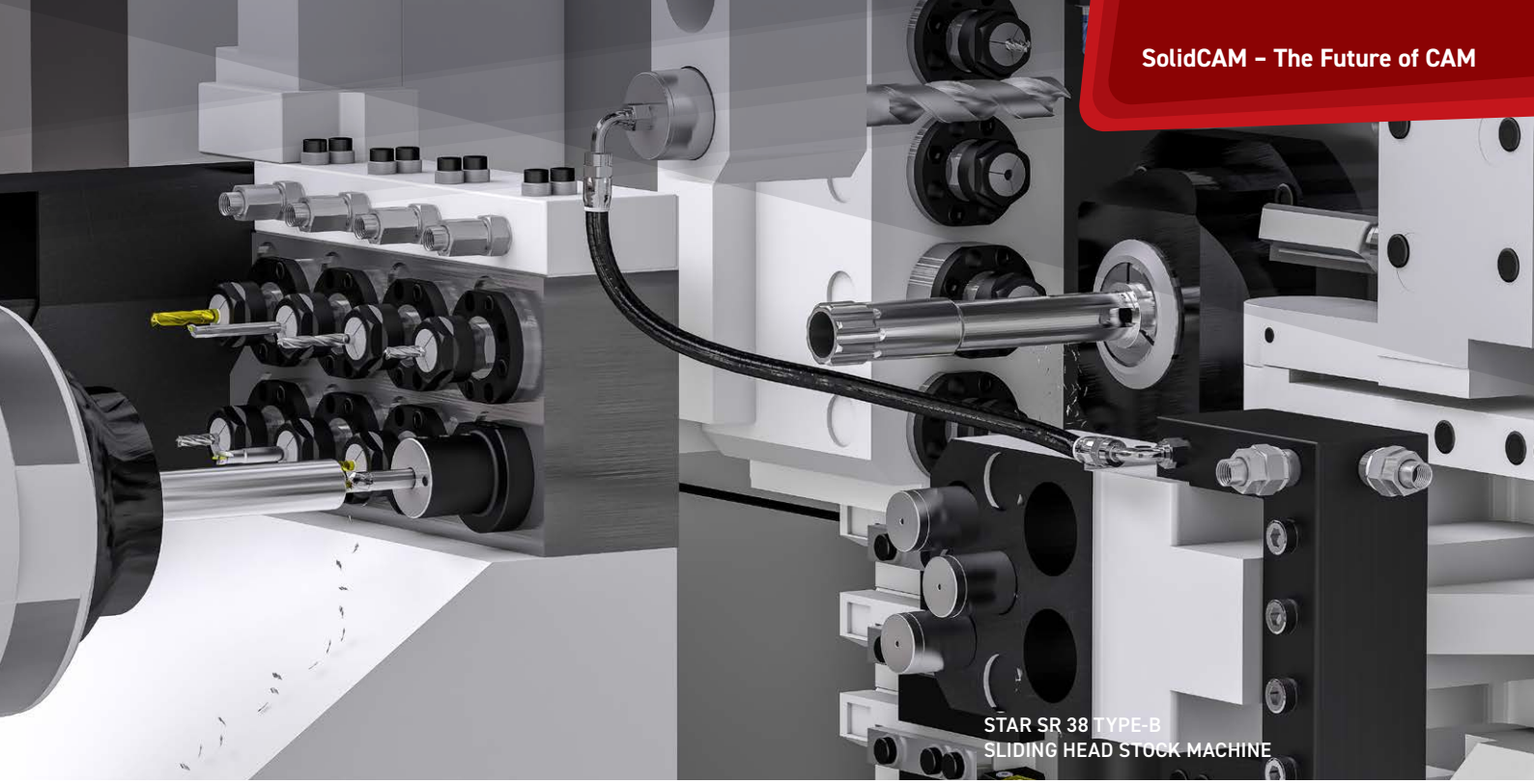




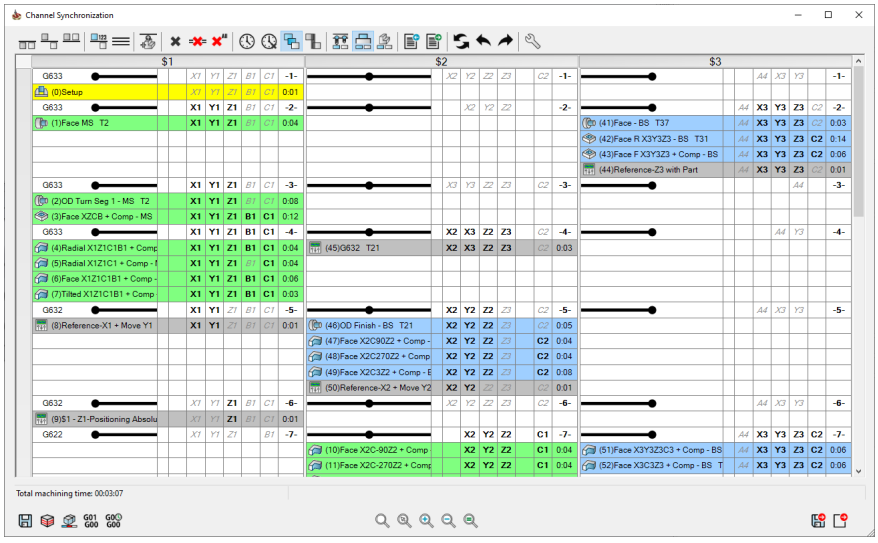
Machine Control Operation: Pre-defined for your needs!



Swiss-Type post-processors are equipped with pre-defined standard MCO cycles that covers all basic and advance machine motions and modes (part transfers, retracts, axes and spindle synchronizations, etc.). Each cycle consist of parameters that requires minimum user input for taking necessary machine actions. Defining MCOs besides standard cycles are also possible.



Synchronize. Optimise. Maximize Productivity.

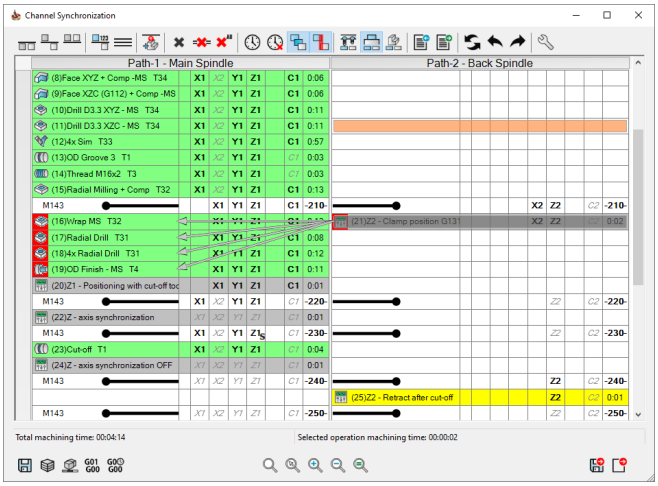


Easy-to-use Operation Sequence Manager is ideal for synchronising and optimising job sequences across all turrets, channels, and workpieces on spindles, maximising production efficiency. Its intelligent engine detect possible clashes and guides you towards solution.

SolidCAM can control an unlimited number of channels and supports a wide range of machine functions and cutting modes.

Operation Sequence Manager – Intelligent clash engine

The Operation Sequence Manager's clash engine holds the generation of G-code or simulation if there is any issue with defined synchronization. If active it will mark operations that require an action, guiding you with pointed arrows with logical comments. The intelligent system holds the logic and checks the possibilities of the synchronization taking into account the machine kinematics, axes sharing, and synchronization wait-marks rules.

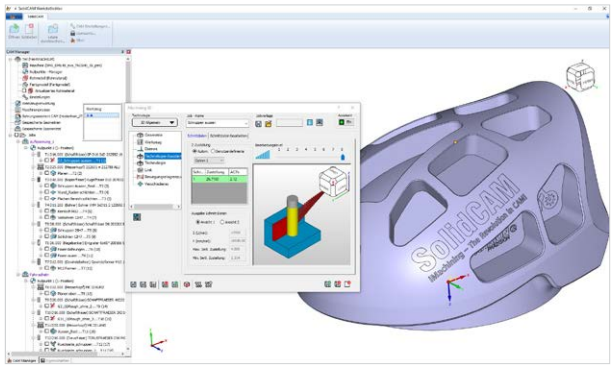


SolidCAM FOR OPERATORS

Powerful Tools for your CNC Operators

In many machine shops, there is a complete separation between CAM Programmers and CNC machine operators. However, it is often very helpful for machine setters and operators to have precise information about the clamping situation and tooling details or to be able to visually simulate the machining process. The SolidCAM workshop editor even allows production staff to make certain changes to the CNC programme, such as cutting conditions or infeeds, without having to contact the CAM programmer for every small adjustmens. Your benefits:

- Significantly shorter set-up times as staff can exactly see and visually check what needs to be done.
- Minimize Reliance on 'Dry-Runs': SolidCAM for Operators enables your staff to step-through each move in the G-Code program, reducing setup time and the need to 'dry-run' programs on the CNC.
- Preventing CNC machine and tool damage: Operators see full simulations so they can prevent unexpected crashes or collisions.
- Working efficiently: Operators can make minor adjustments, without needing to rely on the CAM programmer, who might be unavailable or busy programming other parts.
- Full setup picture: SolidCAM for Operators enables your staff to see all details of each operation, including Tools, Setup Definition, Stock Clamping, Work Offsets, and full simulation of the process.
- Lower licence and maintenance costs: use of the low-cost workshop tools for employees who do not require a full SolidCAM licence.



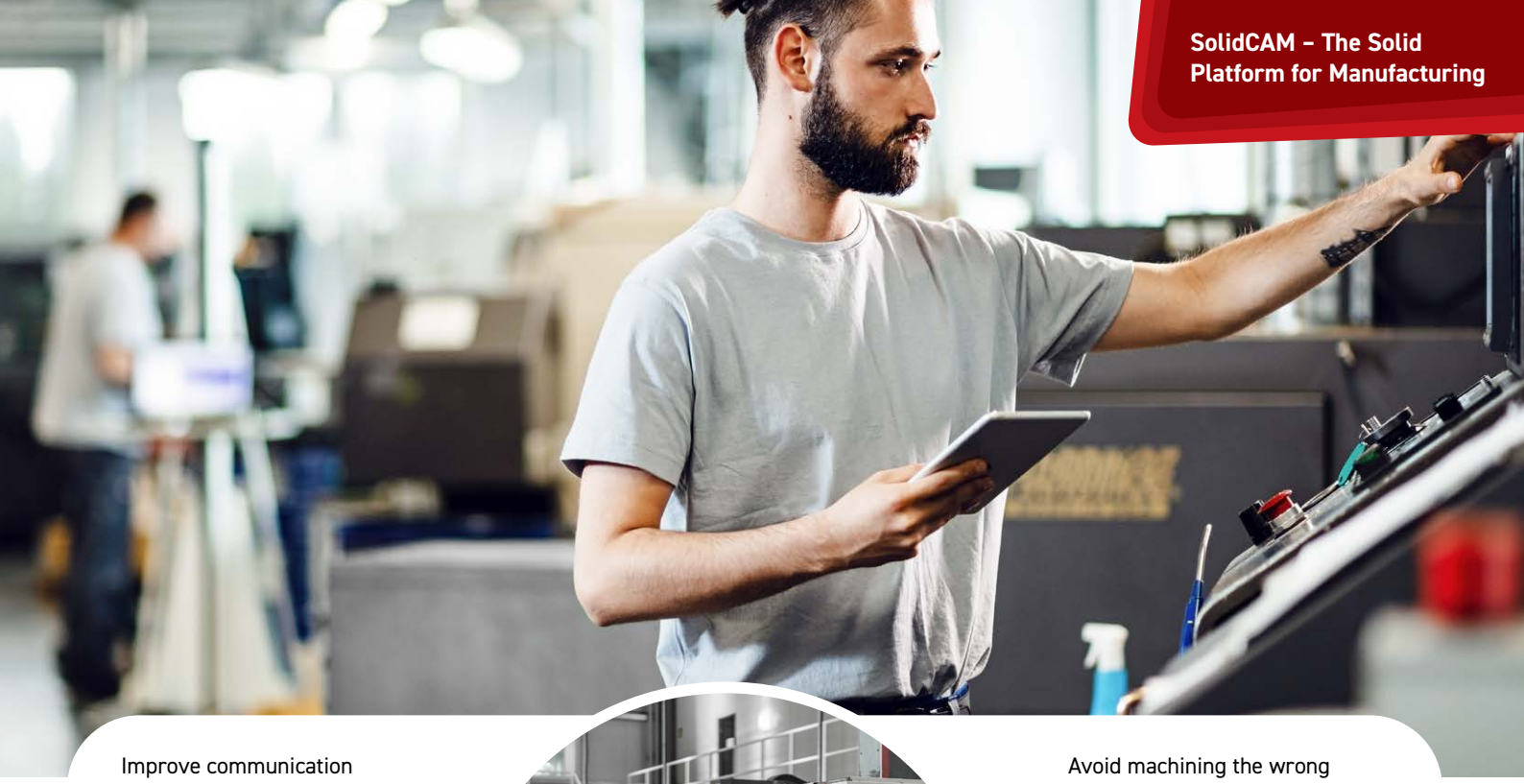
With the software license tool, production managers control, what functions each employee has access to: There are three different versions of SolidCAM for Operators to choose from:

Editor Mode

SolidCAM for Operator Editor mode enables the CNC Operator to open existing CAM parts, created by the SolidCAM Programmers, edit the operations if needed (e.g. change step down or change speeds and feeds), recalculate, simulate, then post-process new G-code, right by the CNC. The optionally available **SolidCAM for Operator Editor LT mode** enables the CNC machine Operator to open existing CAM parts, view the operations, edit toolkit, view the part setup, simulate, then post-process G-code, right by the CNC machine.

Simulator Mode

SolidCAM for Operator Simulator mode enables the CNC Operator to see the Tool table list with full details, understand the clamping, work offsets, and see simulation of the CAM Part, before running the G-Code on the CNC machine. Simulator mode has no CAM part editing capabilities at all.



Improve communication between CAM Programmers and CNC Operators

Reduce setup time and minimize need for dry-runs

Reduce CNC machine downtime

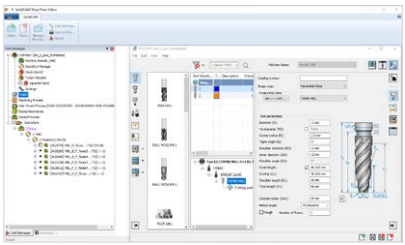
Avoid machining the wrong revision of CAM parts

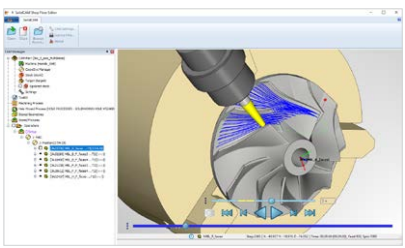
Avoid costly collisions that cause damage to CNC and tools

Verify and simulate CAM programs right at the CNC machine

Powerful Tool for Operators at the CNC

	EDITOR	EDITOR LT	SIMULATOR
View the model, including Fixtures and location of work offsets	✅	✅	✅
View the tool table in full detail	✅	✅	✅
View all machining operations, data and defined geometries	✅	✅	✅
View Cutting conditions for each operation	✅	✅	✅
Fully simulate the machining process	✅	✅	✅
Change the Tool data and cutting conditions	✅	✅	
Calculate operations	✅	✅	
Regenerate G-Code after edits	✅	✅	
Change the operations data	✅		
Change the setup definition	✅		





SolidShop

powered by CIMCO

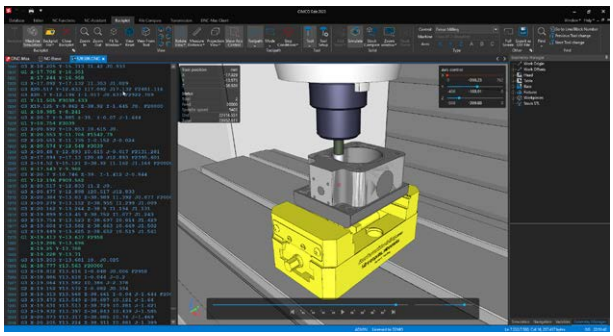
CONTROL. MONITOR. MAXIMIZE PRODUCTIVITY.

SolidShop – the Eco-System for Digital Manufacturing

SolidShop is SolidCAM's ecosystem for optimal management of shop floor data. It provides a globally proven set of software modules for shop digitization.

SolidShop encompasses document and manufacturing process management (PDM), bi-directional communication with CNC machines (DNC), real-time CNC machine monitoring (MDC), and tracking & scheduling of production orders and jobs in real-time.

For many years, manufacturers have been waiting for affordable shop floor digitization, that is proven in the field, compatible with older and newer CNC machines, and with shorter implementation times – SolidShop is SolidCAM's answer to all these demands.



SolidShop Editor

A powerful CNC editor able to manipulate NC code and automate programming tasks

- Simulate parametric code using solid models and watch program variables changing values during the execution
- Compare files, program canned or complex probing cycles and parametric code through the editor macros with just a few clicks
- Apply mathematical transformations to G-code (mirror, rotation, scaling, plane transposals, basic math operations, handle angle heads, etc.)
- Convert proven G-code from one CNC type to another (e.g., Heidenhain to ISO or FANUC to Siemens, etc.)
- Gain the ability to simulate canned & parametric cycles for turning (Roughing, threading, drilling), milling (Pocketing, drilling, engraving), probing, block skips, and conditional logic used by the mainstream CNC controls

G-code Machine Simulator

An add-on for the SolidShop Editor that enables you to verify your G-code for CNC machines from 2 to 5 axes, and lathes equipped with a C axis and a turret

- Detects collisions between machine elements and axis overtravel, allowing work envelope studies and offline training on the programming aspects of the machine, as well as static and dynamic stock sectioning
- Rigorous and configurable syntax checker that enables you to deliver verified code to the CNC machine
- When used with SolidShop DNC, provides bi-directional protection for your processes and machines
- Lightning fast material removal simulation

SolidShop PDM

Our manufacturing-oriented Product Data Management module delivers one of the most important steps towards shop floor digitization. Fully integrated into SolidShop Editor, SolidShop PDM manages all types of documents in a centralized database accessible to anyone in the company, through a desktop application or web clients.

- 100% oriented to manufacturing and shop floor staff
- Single source of truth (SSOT) for all CAM, CMM, CNC files, sub-programs, setup sheets, tool lists, quotations, drawings, CAD models, e-mails, catalogs, and anything else that must be centralized
- Eliminates hard copies and out-of-revision documents
- Efficiently manage programs, sub-programs, and their parent/child relationships with other programs. In conjunction with the SolidShop DNC, one click is enough to send main programs and linked sub-programs directly to the CNC machines, all at once
- Advanced access controls to manage precisely what and who can perform tasks
- All interactions with the system and documents or programs are tracked and traceable
- Ideal solution for highly regulated industries looking for robust change and access controls for sensitive manufacturing data, especially when industrial cyber security is becoming critical
- Supports ISO 9001, AS9100, API, and other standards
- Tightly integrated with SolidCAM and SolidCAM for Operators - An end-to-end paperless solution
- Control backups and revisions in SolidCAM files, NC programs and documents in general. Rollback changes with a few clicks & implement design revisions without overwriting files permanently

SolidShop DNC

Enables robust communication with CNC controls to upload/download NC programs, or also signal capturing from PLCs or sensors.

- Supports all models in the market, ranging from serial RS-232/RS-422 communications to ethernet, using proprietary or open-source protocols, such as FANUC Focas, Heidenhain LSV2, OPC UA/DA, MTConnect, Haas M-Net, Brother HTTP, Mitsubishi, Toshiba, Modbus, OPC, and modern IoT protocols like MQTT for PLCs, sensors, and special machines
- Perfectly integrated into SolidShop PDM, it provides bi-directional communication, traceability and version control for any changes performed by the CNC programmers or the machine operators

SolidShop Machine Monitoring

A real-time machine monitoring solution with interface to ERP, FMS systems, Power BI, Graphana, SQL databases (Read/Write), TCP connections & pure text-based protocols. It supports integration with other systems to read/write & manage production order information and execution status, turning SolidShop PDM and SolidShop Machine Monitoring into an MES solution.

SolidShop Planner

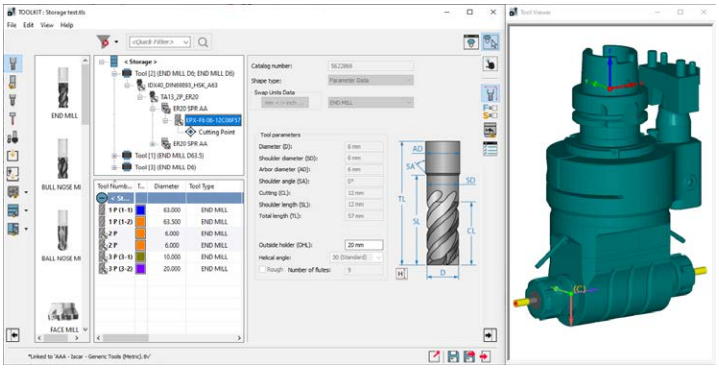
Advanced module for production planners to determine when to start production to deliver on time (Backward planning), find slots in upcoming days, weeks, or months to schedule, track in real-time production orders and keep the machines loaded with work (Forward planning).

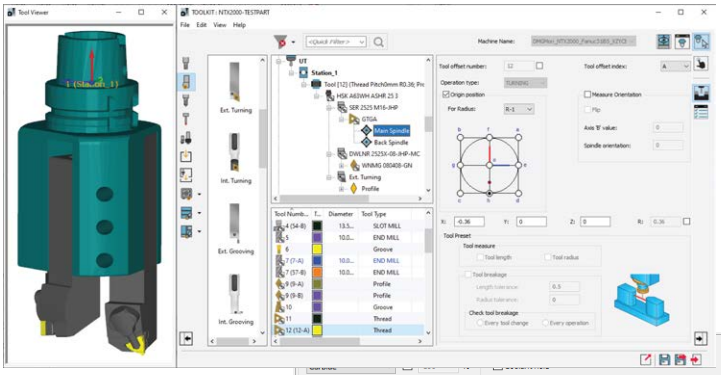
SolidCAM TOOLKIT

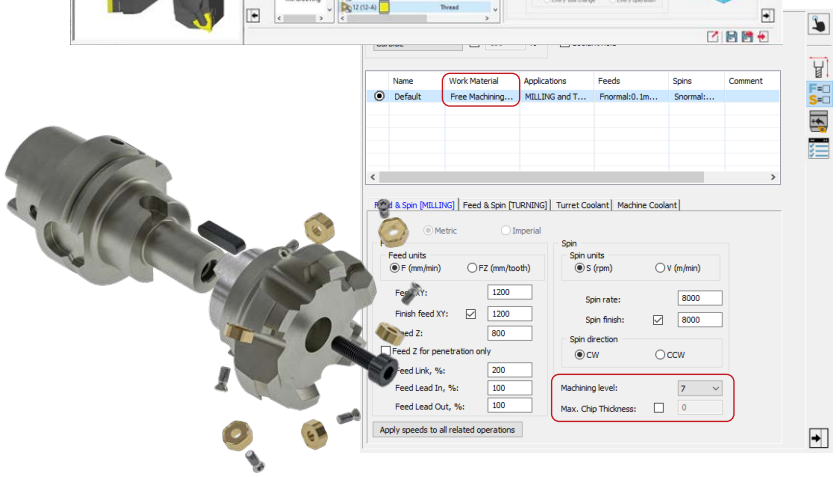
SolidCAM ToolKit: Flexible. Advanced. Complete.

SolidCAM's Tool Table feature, named ToolKit, is a powerful system that facilitates better tool management and provides major enhancements in Tool definition functionality. SolidCAM ToolKit offers three Tool Library types, each having a graduated level of tool managing capabilities:

- Tool Components Library
- Tool Assemblies Library
- Machine Tool Setup Library

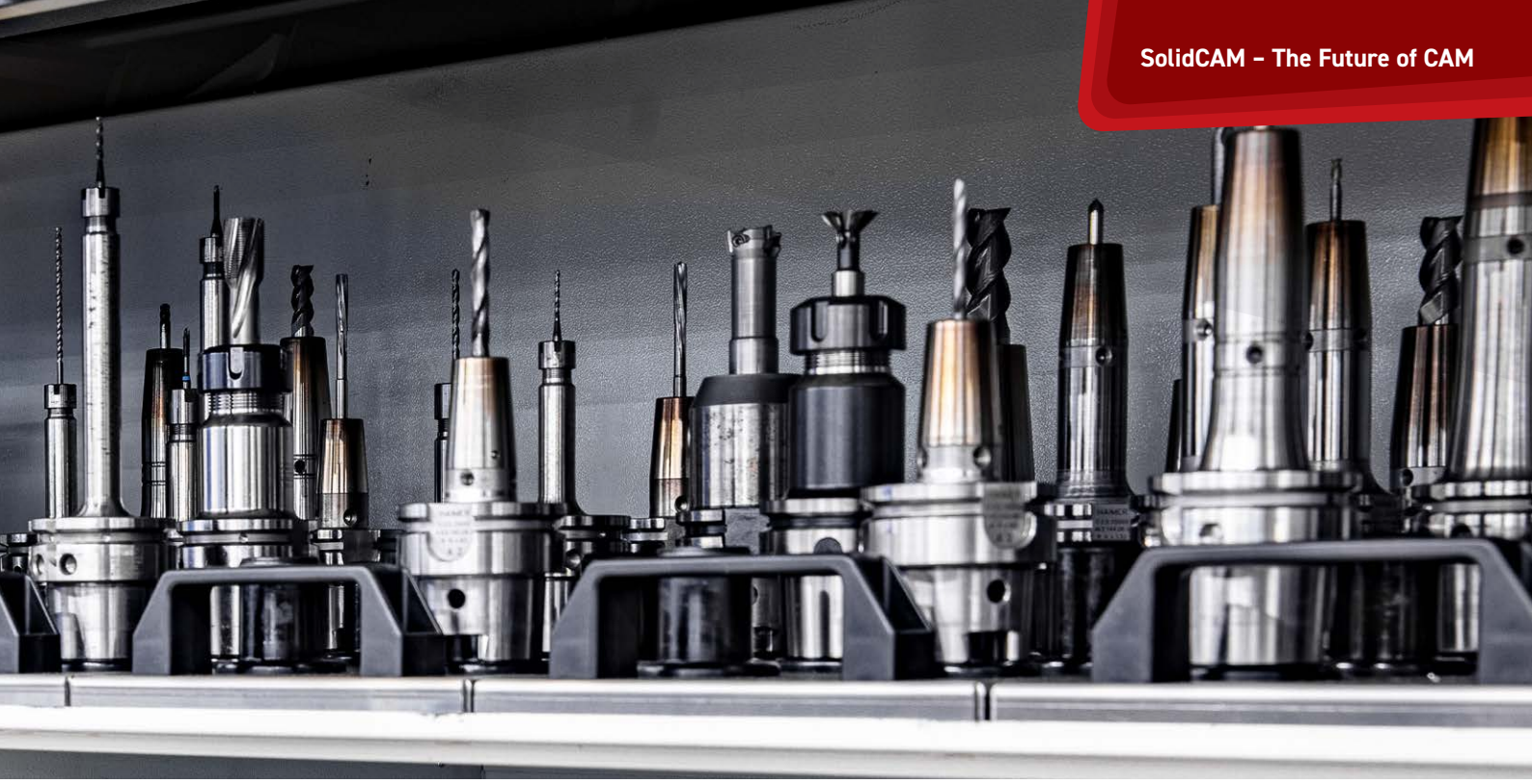


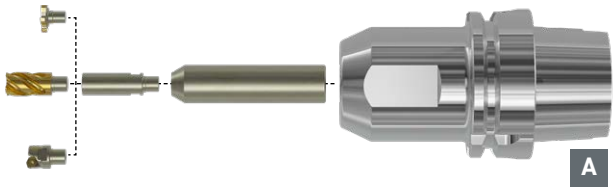




ToolKit Highlights

- Import any 3D model Milling/Turning/ Fixture component
- Angular holders supported
- Cutting conditions according to workpiece material: the cutter material, work material, and machining level selection affects the maximum cutting speed adjustments generated by the iMachining Technology Wizard
- Swapping between metric and inch parameter units was never easier.
- Multiple cutting points: pre-define any number of cutting points (tool offsets) on a single cutter component.



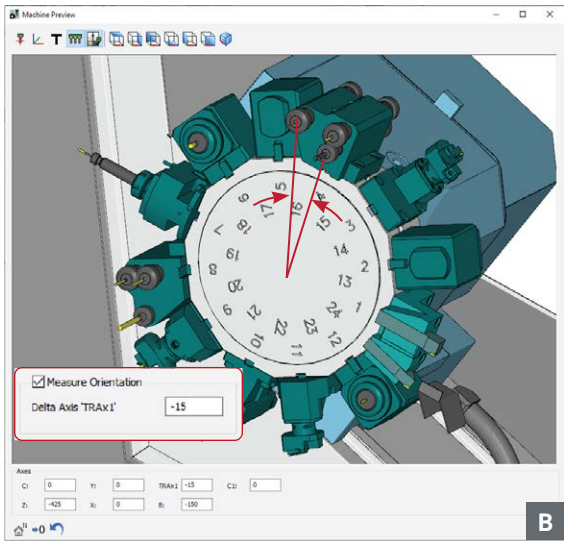


All Tool components are linked: any change may update the tool for all projects where it was used. [A]

Measure Tool Orientation & Preview

Depending on the turret type, you can measure the tool on a specific spindle orientation, tilting angle, or indexed position and get the Tool offset output and simulation accordingly. [B]

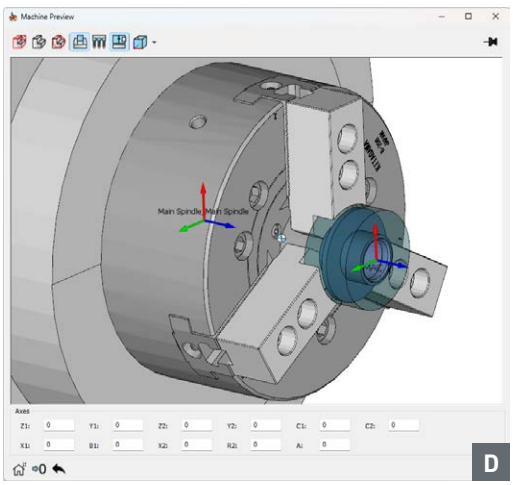
Machine Preview helps you to define and visually check all tools in the machine environment of your CNC machine. [C]

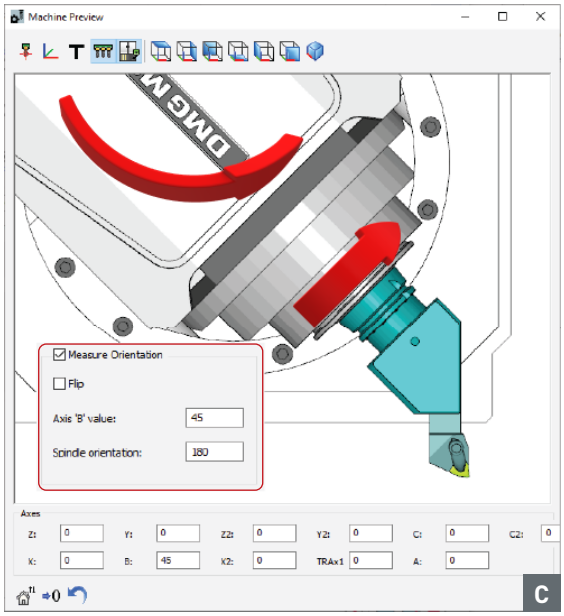


Measured tool orientation on indexed capable revolver

ToolKit – Fixture components

The ToolKit is also a platform for Fixtures, allowing the definition of any Fixture components and assemblies in libraries and their use in applications [D].





Measured tool orientation on spindle with tilt axis

3RD PARTY INTERFACES

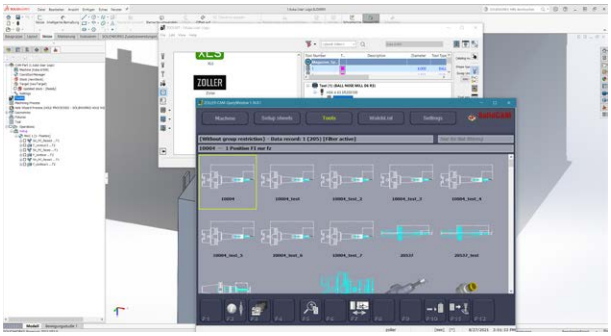
Stay Connected with the Machining Digital World

Tool data management has been a challenge for mid-size and large enterprises for decades. The digitalization of our machining world is progressing rapidly and SolidCAM is moving fast to ensure our customers benefit the most from the advancing digitalization.

With the new Tool Catalogue, SolidCAM provides advanced interfaces to 3rd Party Tool Management Softwares.

Any interface to specific Tool Management Systems can be accessed directly from within SolidCAM's Tool Table, enabling the import and immediate use of complete tools for machining.

The Tool data may include parametric and 3D / 2D data for holder and tools, recommended feeds, spins and machining parameters for milling and turning tools.



SolidCAM provides interfaces to the following external Tool Management Systems:

tdmsystems

TDM from tdm systems
www.tdmsystems.com

WINTOOL

Wintool from Wintool AG
www.wintool.com

ZOLLER

TMS Tool Management Solutions from
E. ZOLLER GmbH & Co. KG
www.zoller.info

The following 3rd Party products have already developed their Interface to SolidCAM:

InovaTools GERMAN TOOLS GROUP

Inovatools Eckerle & Ertel GmbH –
Tool manufacturer: www.inovatools.eu

EMUGE FRANKEN

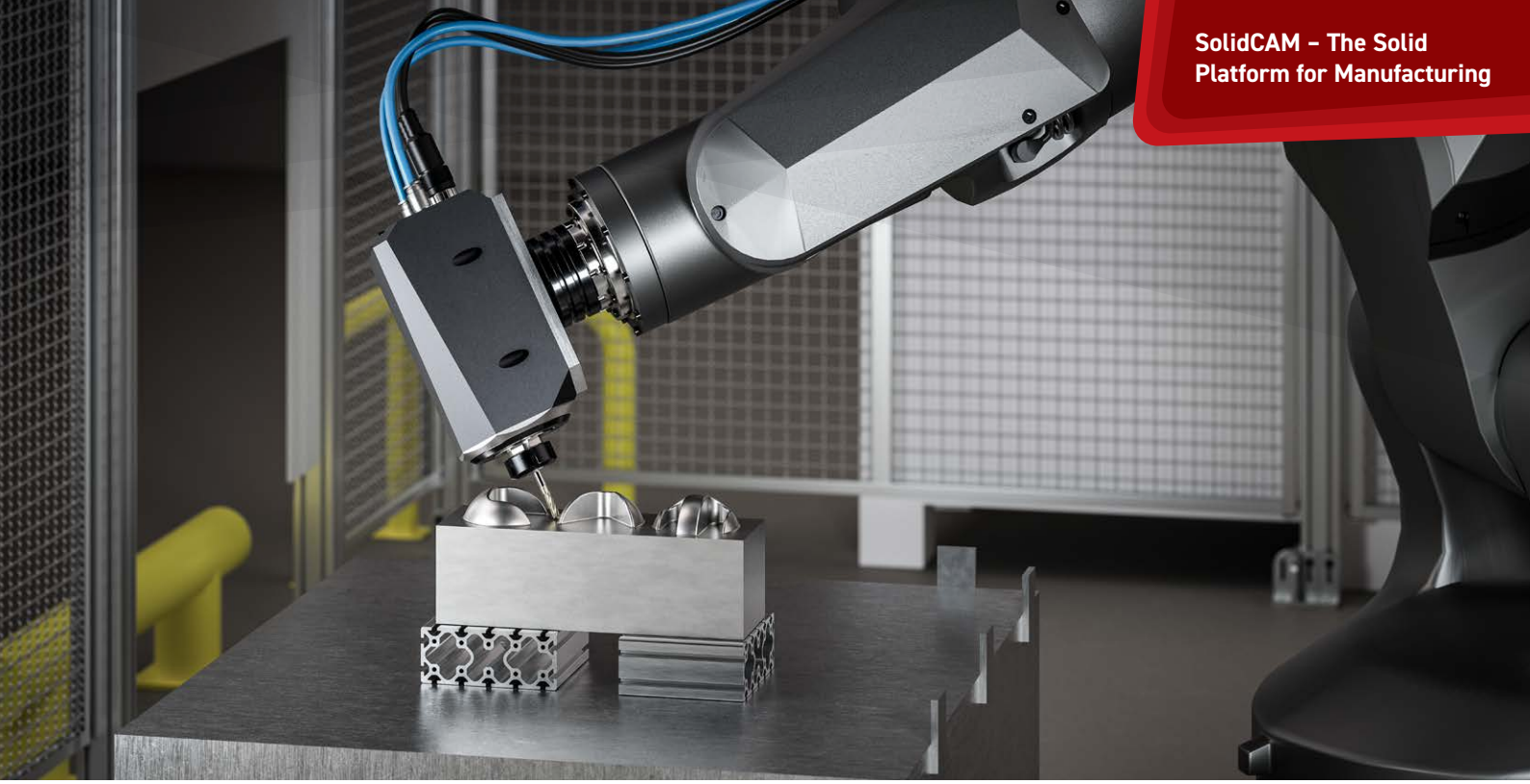
www.emuge-franken-group.com

KENNAMETAL

www.kennametal.com

Coming soon!

It depends on the functionality of the 3rd Party Interface how tools can be managed and selected to be imported directly to the SolidCAM Tool Table.



Interfaces to 3rd Party G-Code Verification and Robotics

NC-Code Verification

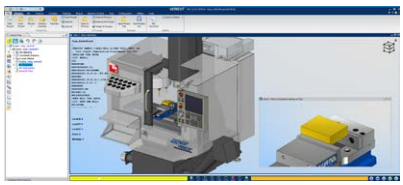
Third party G-Code verification provides an extra level of validation for SolidCAM's NC-code output. It can detect collisions and takes into account tolerances between all machine components such as axis slides, heads, rotary tables, spindles, tool changers, devices, workpieces, tools as well as other defined objects to validate the NC-code generated by SolidCAM.

It reduces the probability of errors and the need for single-step test-ingon the CNC-machine. SolidCAM has interfaces to various 3rd party NC-program verificators.

Robotics

With its interface to 3rd party robotic solutions, the calculated toolpath by SolidCAM is transferred together with the CAD data to the robotic application that converts it to kinematic robot moves and simulates the robotic operations.

The CAD 3D data includes the design, stock, and fixtures models. All data is exported in the format of the specific robotic solution. The toolpath generated in SolidCAM is provided in a neutral format – the robotic software uses this information to generate robot specific G-code to control the industrial robot.



CGTech VERICUT

Vericut from CGtech
www.cgtech.com

NCVIEW MACHINE SIMULATOR

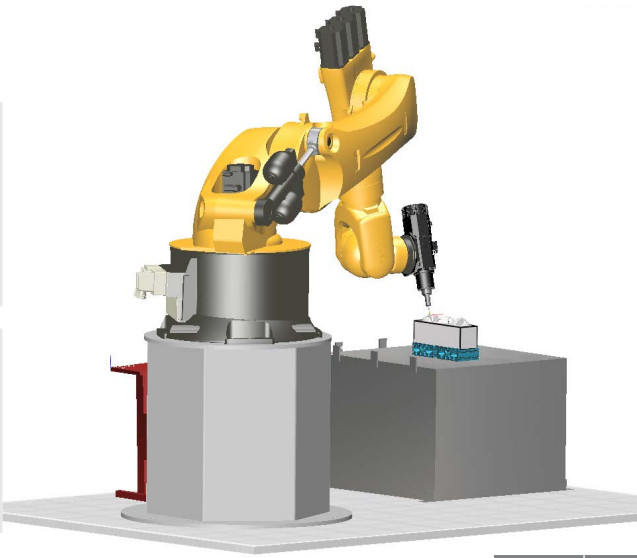
NCView from Cimple Technology Inc.
www.cimple.co.jp/e/ncview/

CIMCO

CIMCO Edit Professional
www.cimco.com

NCSIMUL BY HEXAGON

www.ncsimul.com/ncsimul-machine



TECHNOLOGY CENTERS

SolidCAM GmbH Technology Center

The Perfect Place to Demonstrate the Power of SolidCAM Software, with Live CNC-Machining

SolidCAM GmbH | Germany

Our major technology center is located at the SolidCAM GmbH office in Schramberg, Germany. In addition we maintain technology centers in Suhl and Rosenheim. All our Milling, Mill-Turn, Swiss-Type and Additive technologies are thoroughly checked and can be demonstrated live on our latest CNCs and Metal 3D-Printing systems:

- Hermle C30 5-Axis CNC with Heidenhain controller
- DMG NTX 1000 Mill-Turn Machine with Upper B-Axis, Lower Turret and Sub-Spindle, Siemens controller
- Citizen L20 ATC sliding headstock Swiss CNC
- Alzmetall GS 800/5-FDT, Siemens 840 controller, 5-X Milling and Mill-Turn Center
- Quaser MF400 Milling 5X-Milling center, Heidenhain 530 Controller
- Desktop Metal Shop System, Studio System, ETEC Envision One 3D printing systems

SolidCAM customers, resellers and participants of our trainings all benefit from this practical experience.

TC Rosenheim


TC Suhl

3D Metal Printing Shop System in TC Schramberg

SolidCAM UK Ltd. | United Kingdom

SolidCAM UK Ltd, based in South Yorkshire, is the UK and Ireland reseller of SolidCAM. SolidCAM is a Technical Member of the British Turned Parts Manufacturers Association (BTMA). As well as employing Sliding Head Swiss Technical experts, SolidCAM UK features a Star SR-38 Type B Swiss CNC as an integral asset in delivering unrivalled support to the Association's members. In addition, two 5-axis machining centers are being used to test and demonstrate the latest CAM technologies.

SolidCAM Inc. | United States

The USA Technology Center is located at our SolidCAM Inc. offices in Newtown, Pennsylvania.

A Hermle C42 Sim5X Milling center and a Haas ST-20 lathe are used to develop and test new Milling and Turning toolpaths, to further advance SolidCAM's amazing Mill-Turn capabilities.

The USA Technology Center also includes Desktop Metal 3D printing systems, mainly the Shop System that provides mass production for metal parts, using the very fast binder jetting technology.

Join Our LIVE Cutting Webinars from our Technology Centers

Attend our Live-Cutting webinar events to see live the power of iMachining 2D/3D, our advanced Mill-Turn and Swiss solutions. Visit solidcam.com for more information.

ADDITIVE MANUFACTURING

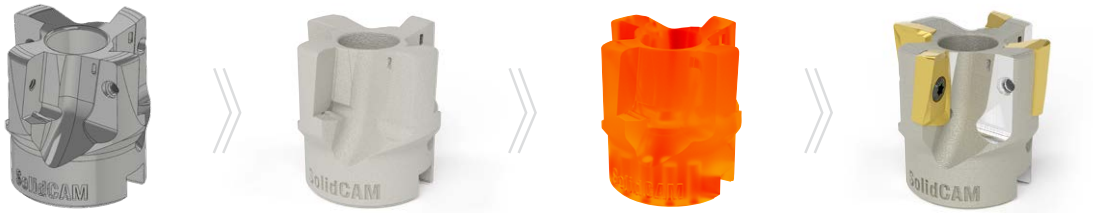
MANUFACTURING UNLIMITED

The complete Solution for cost effective combined Metal 3D printing & CNC machining, all from one Source – SolidCAM!

Combining 3D Metal Printing with CNC Machining!

SolidCAM Additive – Upgrade Your Manufacturing!

- SolidCAM Additive adds 3D Metal Printing into your manufacturing process.
- Our extensive machining knowledge will help guide the entire process from Design to 3Dprinting, and to CNC Machining.
- 3Dprint near-net target stock, then CNC post-process to spec with SolidCAM
- 3Dprint complex model geometry, at no additional cost, vs simpler geometry
- 3Dprint impossible to machine geometry (Internal passages, infills, undercuts, etc.)



Design | 3D Print | Sinter | CNC-Machine

SolidCAM's Global Partnership with Desktop Metal

SolidCAM has established combined CNC and AM Technology Centers in the US, Germany and Israel. These centers feature Desktop Metal's Studio 2 Systems and Shop Systems solutions, in addition to CNC machines, to demonstrate how Desktop Metal's AM 2.0 solutions complement traditional subtractive CNC machining technologies and workflows.

Desktop Metal, Inc., based in Burlington, Massachusetts, is accelerating the transformation of manufacturing with an expansive portfolio of 3D printing solutions, from rapid prototyping to mass production. Founded in 2015 by leaders in advanced manufacturing and metallurgy, the company is addressing the unmet challenges of speed, cost, and quality to make additive manufacturing an essential tool for engineers and manufacturers around the world.

Desktop Metal® Exists to Deliver on the Vision of 3D Printing: Mass Production

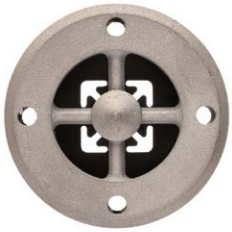
The Promise of 3D Printing

Rapid prototyping

Part consolidation

Complex geometries

Design customization



Rapid tooling

On-demand manufacturing

Shop System

Designed with the modern machine shop in mind, the Shop System™ is built to introduce high quality binder jetting seamlessly into your workflow. Produce parts with superior surface finish and resolution versus laser-based 3D printing systems at a fraction of the cost.

- High resolution printhead for superior surface finish, bleed control and rich feature detail at high speed
- Unparalleled productivity – up to 70 kg of metal parts/day
- No tooling required
- Simplified post-processing

3D printing on the manufacturing floor: volume production with no tooling!

InventX

ExOne

Compact, easy-to-use system for high-quality small parts

The entry-level InventX reliably produces functional parts in a variety of materials, including metal, ceramics, and composites by selectively binding thin, cross-sectional layers of fine powder with Triple ACT advanced compaction technology. With an open control system and various printhead sizes (80, 30, or 10 picoliters), you're in full control of the output in an easy-to-manage build volume. The InventX is used to process stainless steels, tool steels, nickel alloys, aluminum and titanium alloys, and metal composites as well as technical ceramics such as silicon carbide and aluminum-infiltrated boron carbide (B4C).

- Compact and affordable: it only takes only 8 kg standard MIM powder to get started. The small build volume keeps ongoing operating costs low
- Using widely available and relatively low cost feedstock from powder injection molding processes makes the system affordable to operate for education, research, prototyping, rapid product development, and short-run production of small components
- Patented Triple ACT advanced compaction technology dispenses, spreads and compacts ultra-fine MIM powders
- Wide range of metal print materials: 316L, 17-4PH, 304L, Inconel 718, M2 and H13 Tool Steels, Copper and more

Print technology:
Triple ACT binder jetting

Build envelope (L × W × H):
160 x 65 x 65 mm (6,3 × 2,5 × 2,5 in)

Propriarity:
54cc/hr at 65 µm layer thickness

Print resolution:
400 µm

Studio System 2

Desktop Metal's Studio System 2 was designed from the ground-up to fit into your team's workflow. With no solvents, no loose metal powders or lasers and very little operator intervention required, the system makes it easy to start printing metal parts - no third-party equipment or special facilities required.

Using Bound Metal Deposition™ (BMD) process, making complex, high-performance metal parts has never been easier. Bound metal rods allow higher loading of metal powder to binder as they do not require the flexibility of a spooled filament.

- Easy, two-step processing
- User-friendly software-controlled workflow
- Patented smart Separable SupportsTM technology for quick post-processing
- Qualified for eight materials
- Designed for office-friendly printing
- A trusted system used worldwide with success

Functional prototyping

Jigs & Fixtures

Low volume production

Manufacturing tools

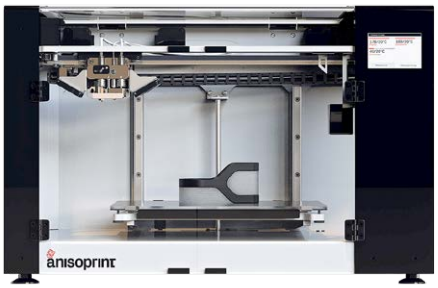
Anisoprint Composer A3 / A4

Composite fiber 3D printing

Anisoprinting technology is a new solution for the production of extremely strong and lightweight composite material parts and structures with the a broad range of physical and mechanical characteristics.

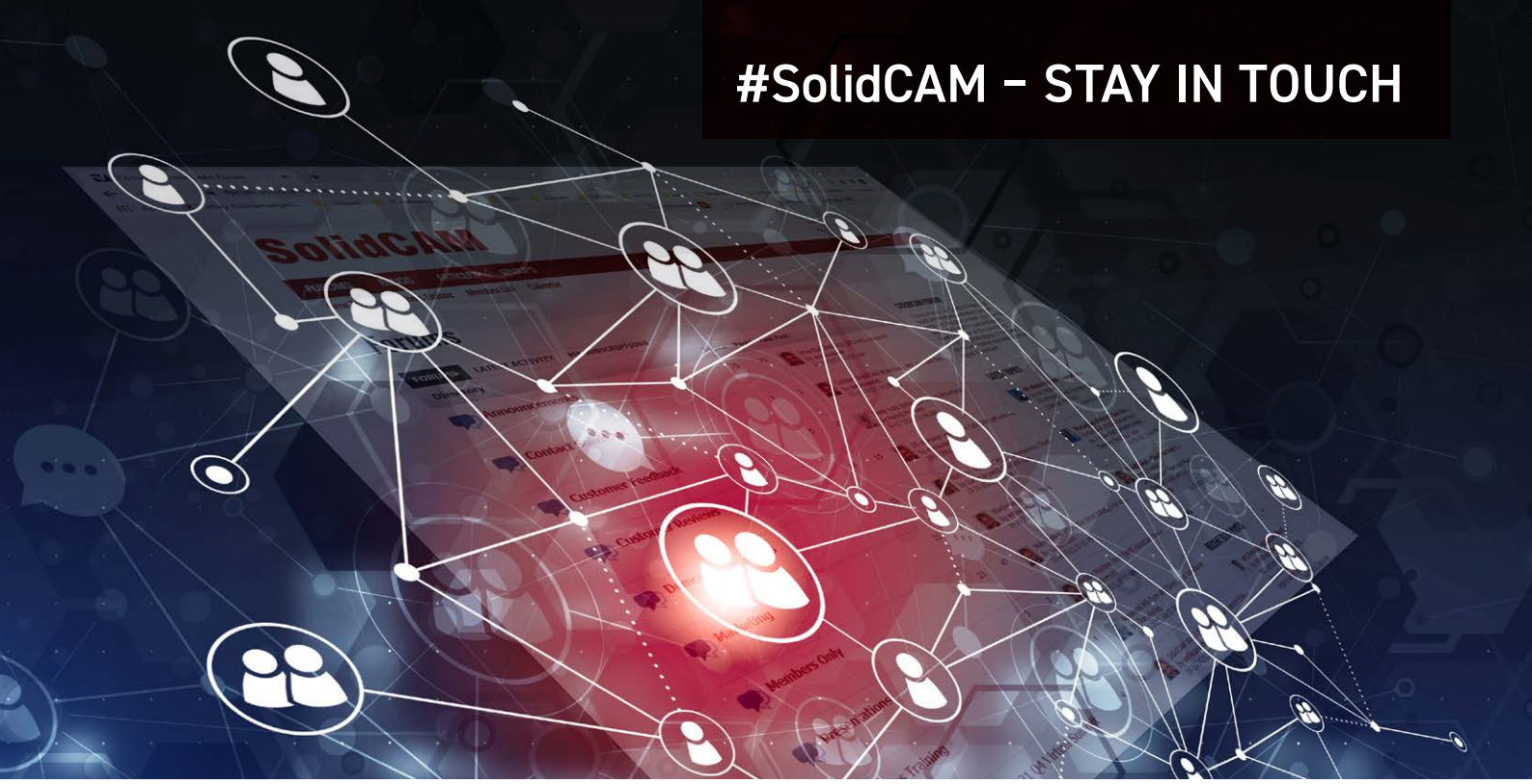
The Anisoprint solution is based on patent pending Composite Filament Coextrusion (CFC) technology. Different thermoplastic polymers can be reinforced with continuous fibres, consolidated and cured within a single-stage fully automated process that does not require post processing or tooling. The two-matrix ANISOPRINTING (thermo-set+thermoplastic) approach ensures low porosity, good adhesion of fiber to polymer and superior mechanical properties.

Anisoprint enables additive manufacturing of lightweight, complex shape composite material parts with superior mechanical properties for end-use production in aerospace, automotive, robotics and healthcare industries. Disruptive technology aims to replace metal parts with more optimal composite material parts in a broad range of use cases.



Anisoprint A3 / A4
Build envelope: 297 x 210 x 140 mm / 460 x 297 x 210 mm
Dimensions: 610 x 400 x 400 mm / 720 x 630 x 490 mm
Weight: 25 kg / 65 kg

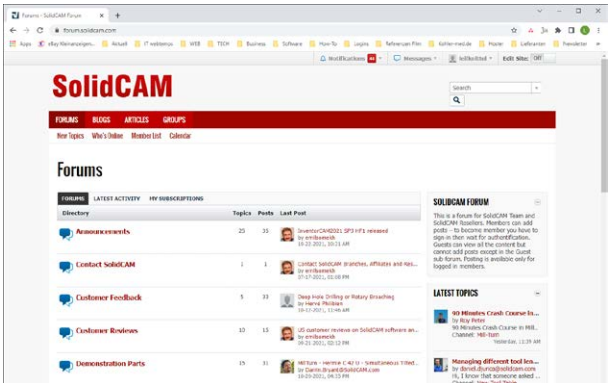
#SolidCAM – STAY IN TOUCH



Welcome to the SolidCAM Forum

We believe that up-to-date information for our customers and resellers is a priority, so we launched the SolidCAM forum, where everyone can get in depth information about SolidCAM products and future developments.

Check out **forum.solidcam.com** for more details or get the **SolidCAM Forum App** available for IOS and Android from the App-Store & Google Playstore.



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Join our Facebook page for daily posts in your News Feed about SolidCAM News, iMachining Success Stories, SolidCAM Professor Recordings, Upcoming Webinars, Events and Product releases.

www.facebook.com/SolidCAM

SolidCAM on YouTube

See recorded SolidCAM webinars and powerful cutting videos of SolidCAM & iMachining, on our SolidCAM YouTube channels:

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AMERICAS

SolidCAM Inc.
E-Mail: infousa@solidcam.com
Phone: +1 866 975 1115

SolidCAM LATAM
E-mail: comercial.latam@solidcam.com
Phone: +55 19 3500-8206

ASIA-PACIFIC

SolidCAM India
E-Mail: info.india@solidcam.com
Phone: +91 11 49425170

SolidCAM China
E-Mail: marketing.china@solidcam.com
Phone: +86 10 8599 7302

SolidCAM Japan K.K.
E-Mail: info.japan@solidcam.com
Phone: +81 3 6300 6730

SolidCAM Korea
E-Mail: info_korea@solidcam.com
Phone: +82 506 5681225

SolidCAM ANZ
E-Mail: info@solidcam.com.au
Phone: +61 7 3805 7518

EUROPE

SolidCAM GmbH
E-Mail: info@solidcam.de
Phone: +49 7422 2494-0

SolidCAM UK
E-Mail: info@solidcamuk.com
Phone: +44 1226 241744

SolidCAM Spain
E-Mail: info@solidcam.es
Phone: +34 900 909 878

SolidCAM France
E-Mail: info@solidcam.fr
Phone: +33 4370623

SolidCAM Italia
E-Mail: info@solidcam.it
Phone: +39 051 0952911

SolidCAM CZ
E-Mail: vojtech.havlicek@solidcam.cz
Phone: +420 734 156 443

SolidCAM Ltd.
E-Mail: info@solidcam.com
Phone: +972 3 5333 150

CERTIFIED Gold Product SOLIDWORKS

CERTIFIED AUTODESK INVENTOR AUTODESK

Solution Partner PLM SIEMENS

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Contacting a SolidCAM office or reseller is easy. The complete list of our worldwide, dedicated distribution and support network is available on solidcam.com

SolidCAM
The Solid Platform for Manufacturing

The unique, revolutionary Milling technology
iMachining®
patent by SolidCAM

SolidCAM
MillTurn & Swiss

"My personal goal was to be able to program all CNC machining operations consistently with a single CAM system. The biggest challenge here was to bring the Swiss-type lathes on board. Thanks to the extensive support provided by SolidCAM, that also worked out wonderfully!"

Steffen Rudischhauser | Managing Director
Rudischhauser Surgical Instruments & Implants Manufacturing GmbH | rudischhauser.com

"What matters to us are the structure and quality of the generated CNC programs that go to the machine, as well as how quickly and easily they can be generated. The service at SolidCAM is unparalleled. The technicians have done a great job with the post-processors for our complex Bumotec machines. And if we ever have a problem, someone from the support team is immediately offering help. These days, that isn't a given; it's unique!"

Stjepan Matacun | Production Manager
Stuckenbrock Medizintechnik GmbH

"After only two weeks with SolidCAM we had more success than with the previous CAM system after three years. We can now program the most complex workpieces much faster. Creating the tools is much easier and I can already program a part even if the final tool data is not yet completely available. This was not possible in the past."

Franz Fuchs | CNC & CAM Programming
Hefter Maschinenbau GmbH & Co. KG | hefter.de