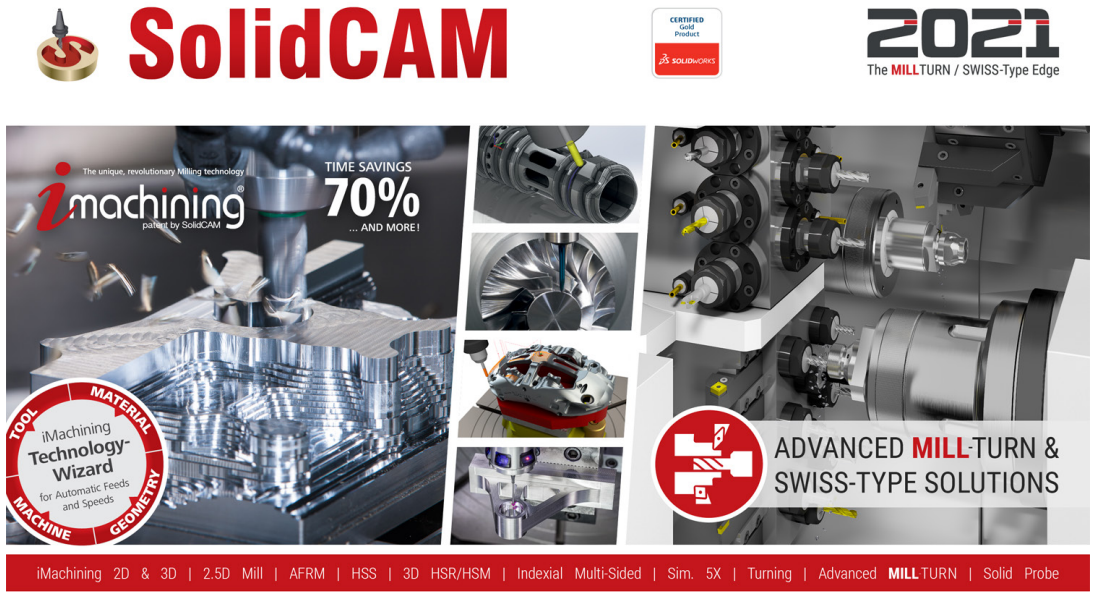
What's New in SolidCAM 2021



© 1995-2021 SolidCAM Ltd. All rights reserved.

www.solidcam.com

What's New in SolidCAM 2021

- **SolidCAM 2021 is our BEST version ever!**
- **It has a Powerful New Tool Table – ToolKit (important especially for Mill-Turn & Swiss-Type customers).**
- **It has an amazing new SolidCAM Simulator.**
- **It provides additional functionality in Advanced Mill-Turn and Swiss-Type.**
- **It also provides additional advanced functionality in all other modules – 2.5D Milling, HSR, THSR, HSM, THSM & Sim. 5x.**

New Tool Table

Getting Started with SolidCAM's New Tool Table

- **Click the PLAY buttons to see the "Getting Started with ToolKit" Recordings on YouTube**

Basics of creating and defining tools

Adding tool adaptor and holder

Handling various cutting conditions

Customizing tool list details

Adding and using multiple cutting points

Importing CAM and TAB tools

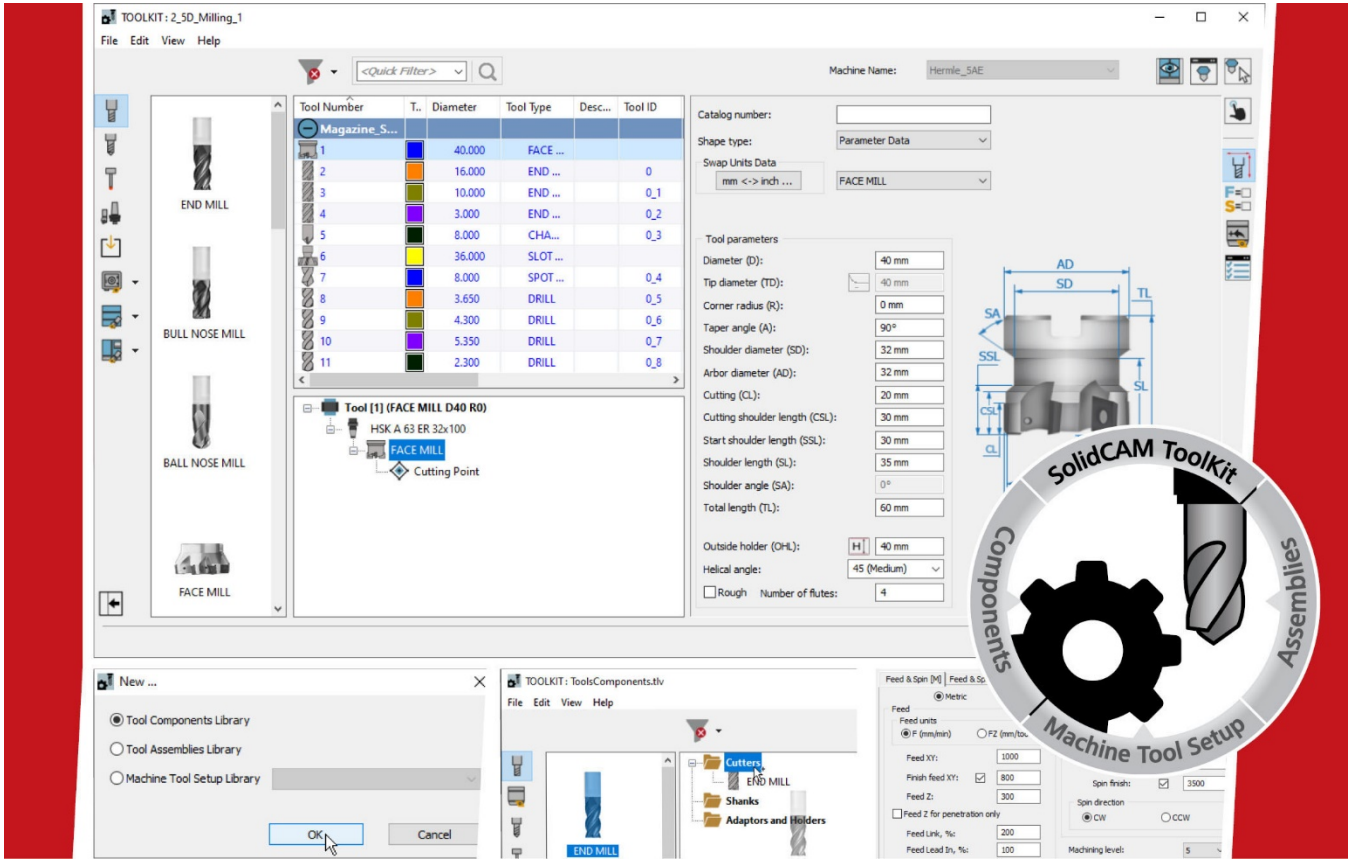
ToolKit Settings overview

Adjusting tool assembly connections

Visualizing tools and assemblies

Tool properties used in iMachining

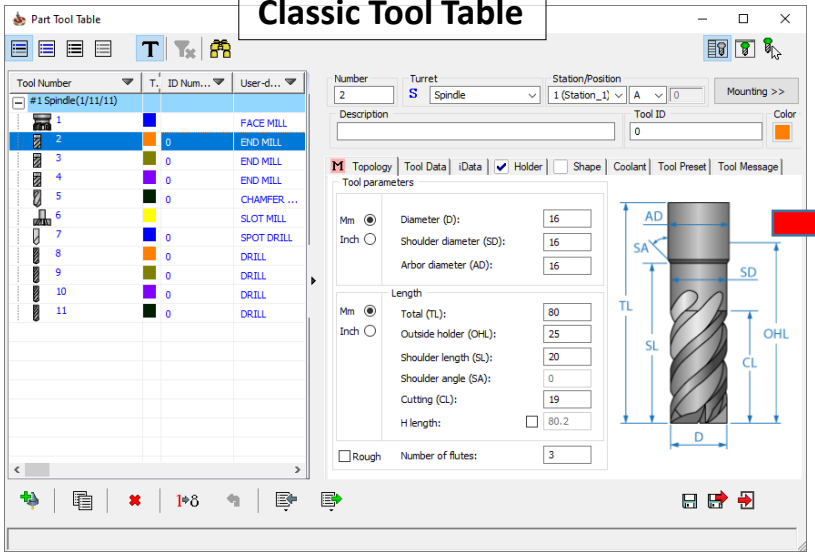
New Tool Table



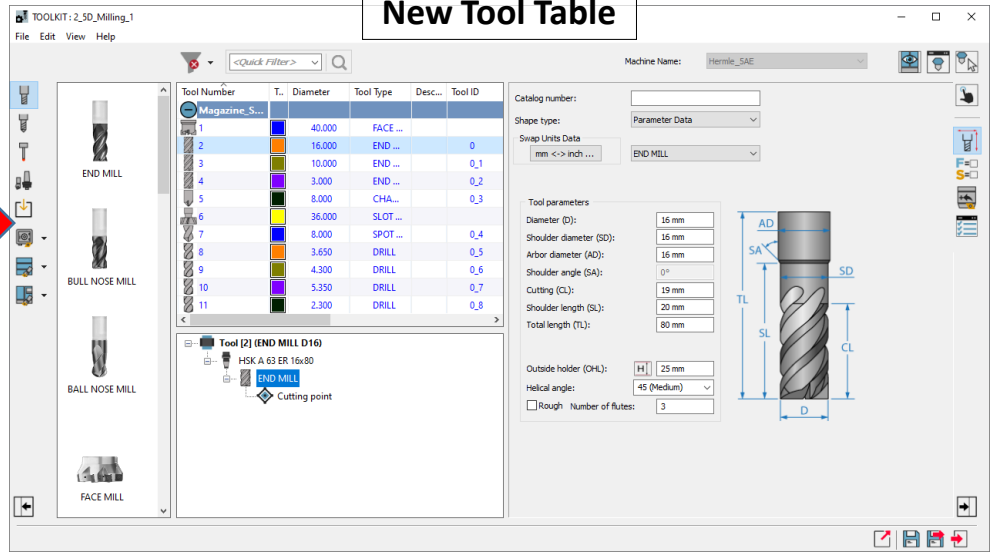
SolidCAM ToolKit

- **Classic Tool Table is replaced by SolidCAM's powerful New Tool Table feature, ToolKit**
  - **Unified Tool Library system that facilitates better tool management**
  - **Provides major enhancements in Tool definition functionality**

Classic Tool Table

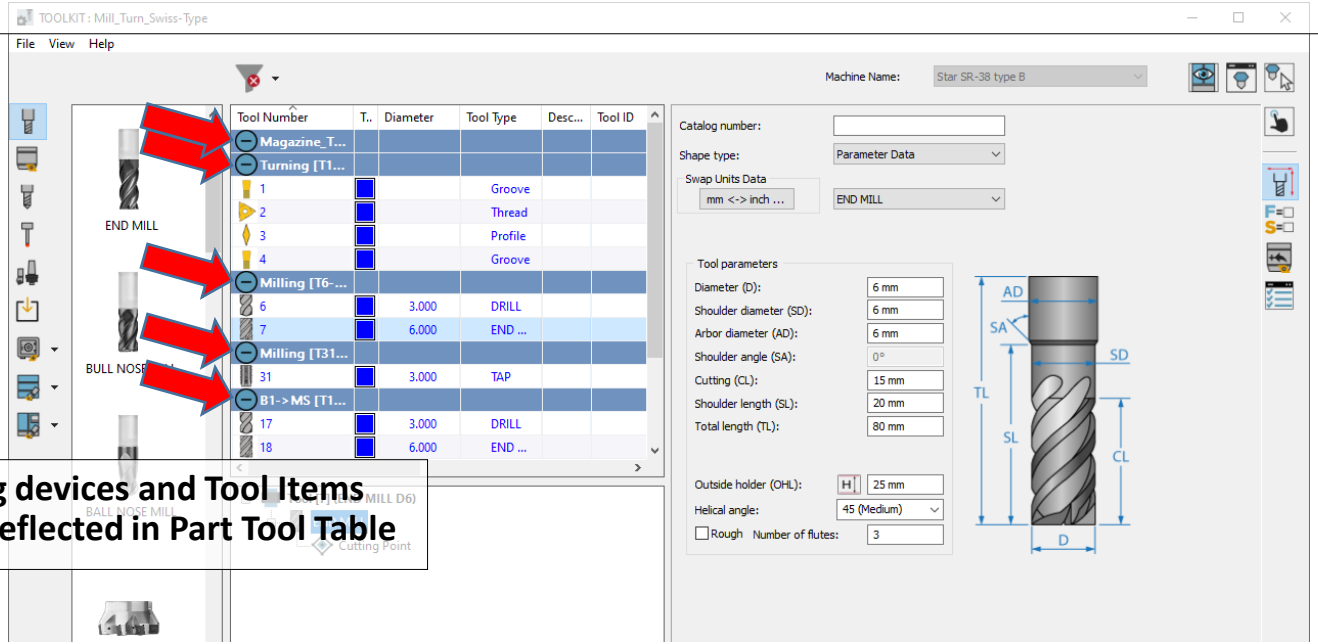


New Tool Table



ToolKit's Part Tool Library

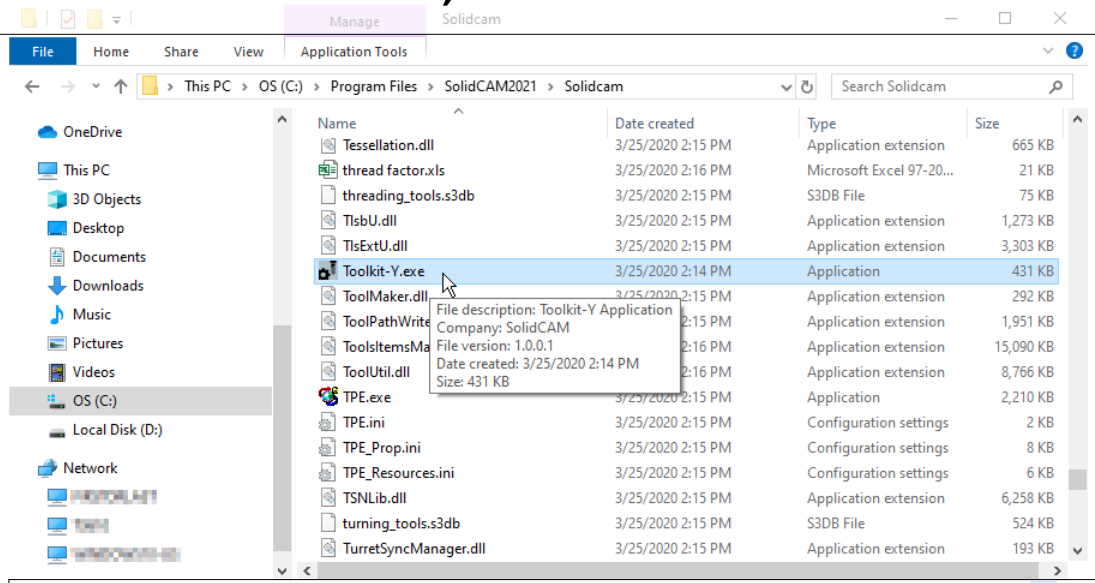
- **Manage Tool Items available for use in a specific CAM-Part and in accordance with the CNC-Machine chosen for the CAM-Part Definition**
  - **Same level of functionality as Machine Tool Setup Library**

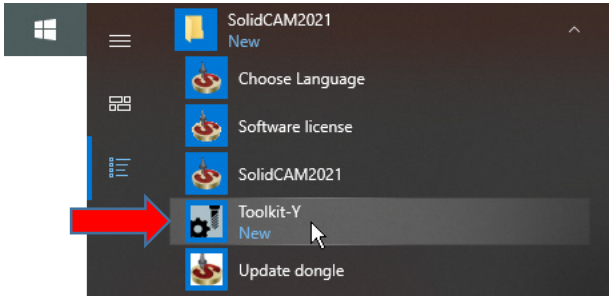


Machine tool holding devices and Tool Items mounting positions reflected in Part Tool Table

ToolKit Integrated AND Standalone

- **Make new and edit existing ToolKit Tool Libraries from inside SOLIDWORKS/SolidCAM or totally independent of your CAD/CAM software using ToolKit standalone**
- **For new Tool Libraries, launch ToolKit standalone from your Start Menu**

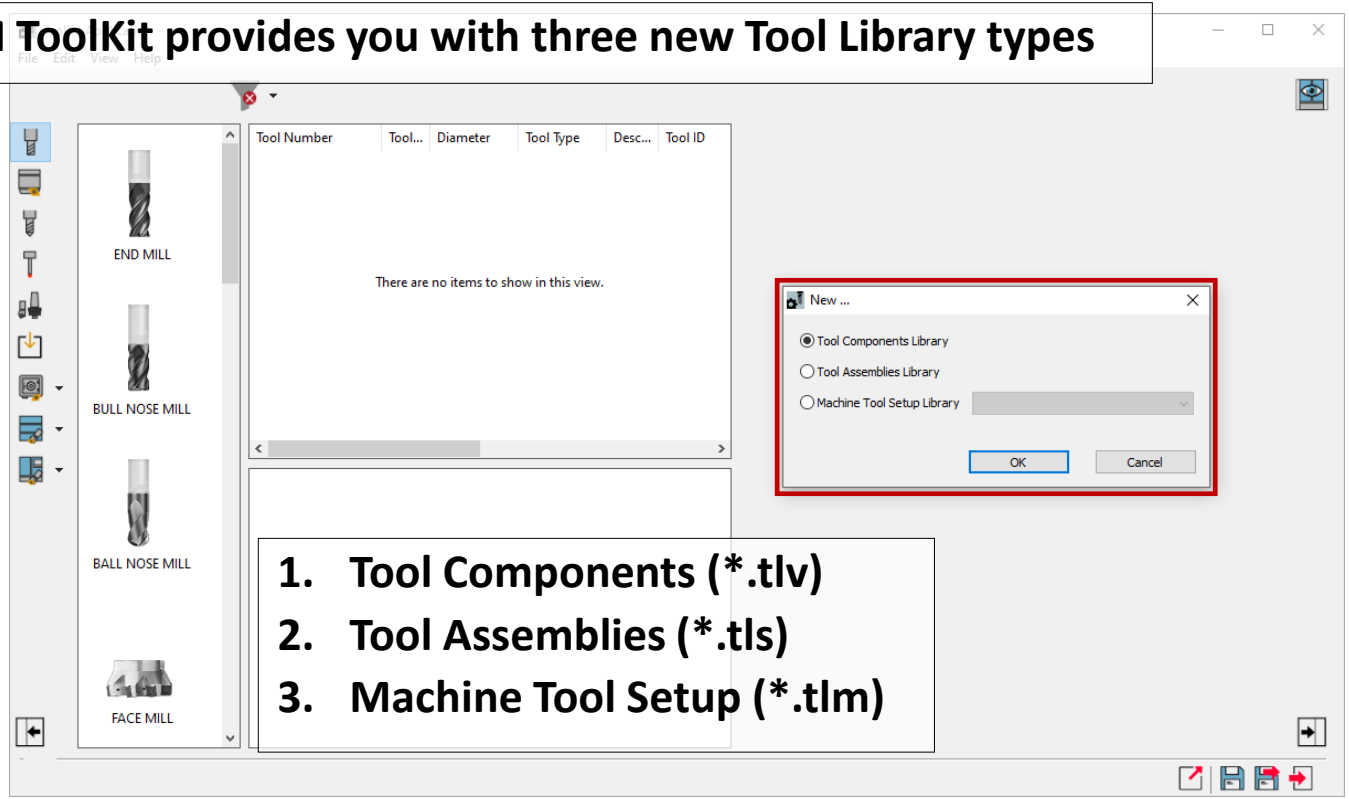




Full path to standalone application is C:\Program Files\SolidCAM2021\Solidcam\Toolkit-Y.exe

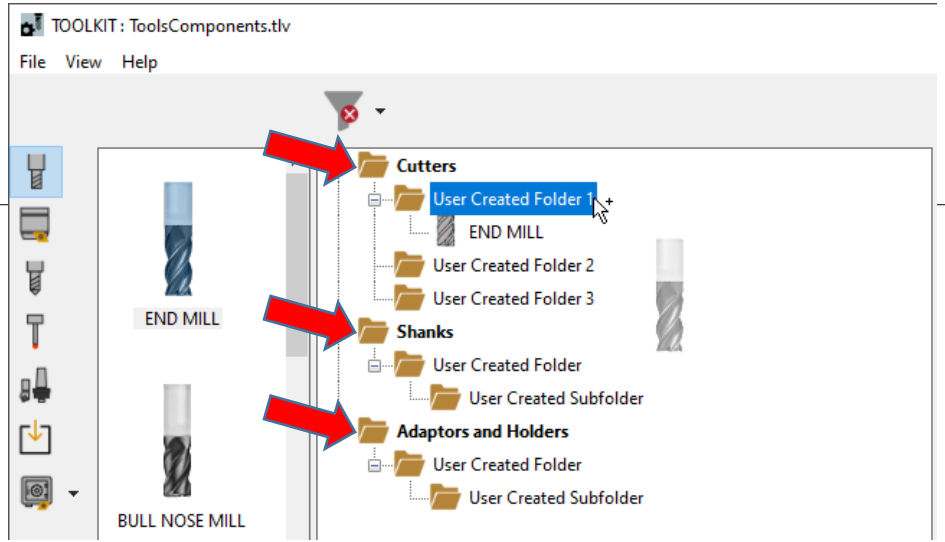
ToolKit – New Tool Libraries

- **SolidCAM ToolKit provides you with three new Tool Library types**



Tool Components Library

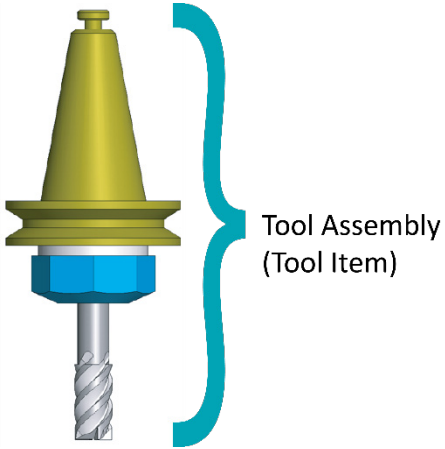
- **Manage all your individual tool components, such as those typically stocked in your machine shop warehouse**
- **Customizable folders to keep your component files organized in main library structure:**
  - **Cutters**
  - **Shanks**
  - **Adaptors and Holders**

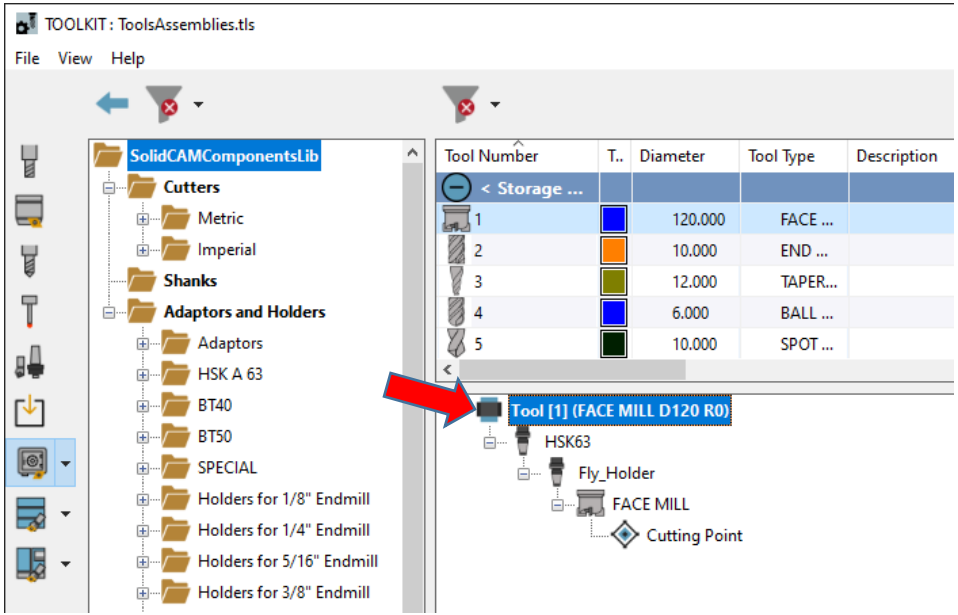


Tool Assemblies Library

- **Manage tool assemblies (Tool Items) existing in Tool Storage and prepared for use on any given CNC-Machine**

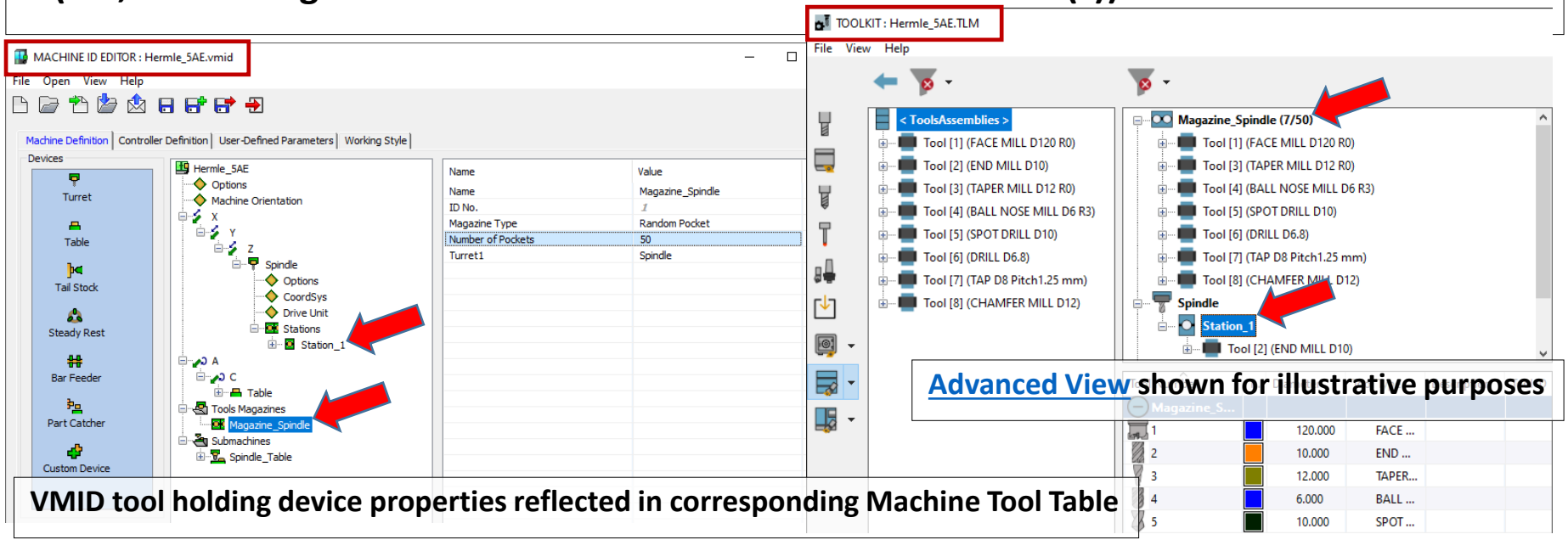
- **Each Tool Item comprises a combination of tool components, such as the cutter and the tool holding system**





Machine Tool Setup Library

- **Manage Tool Items in Machine environment, according to VMID of specific CNC-Machine**
- **The Tool Item definitions include their mounting positions on the CNC-Machine (i.e., in the Magazine Pockets and Tool Stations of the Turret(s))**



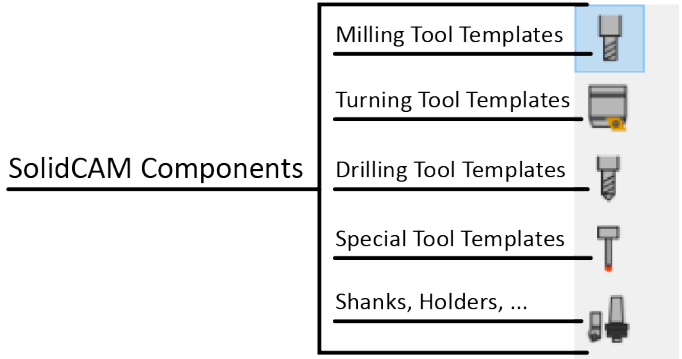
VMID tool holding device properties reflected in corresponding Machine Tool Table

Adding Components

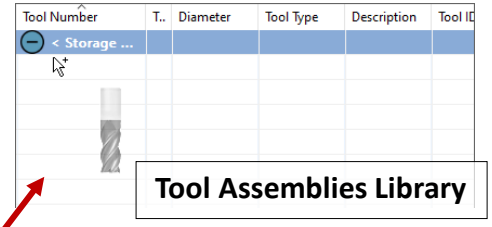
- **Easily add components to your Tool Library using the extensive SolidCAM Components**

On Library Toolbar, choose the templates you want displayed in the Selection Pane

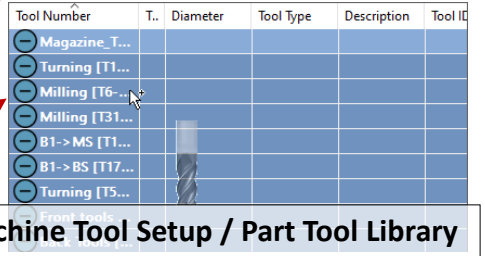
Drag & drop to your Tool Library



Tool Components Library



Tool Assemblies Library

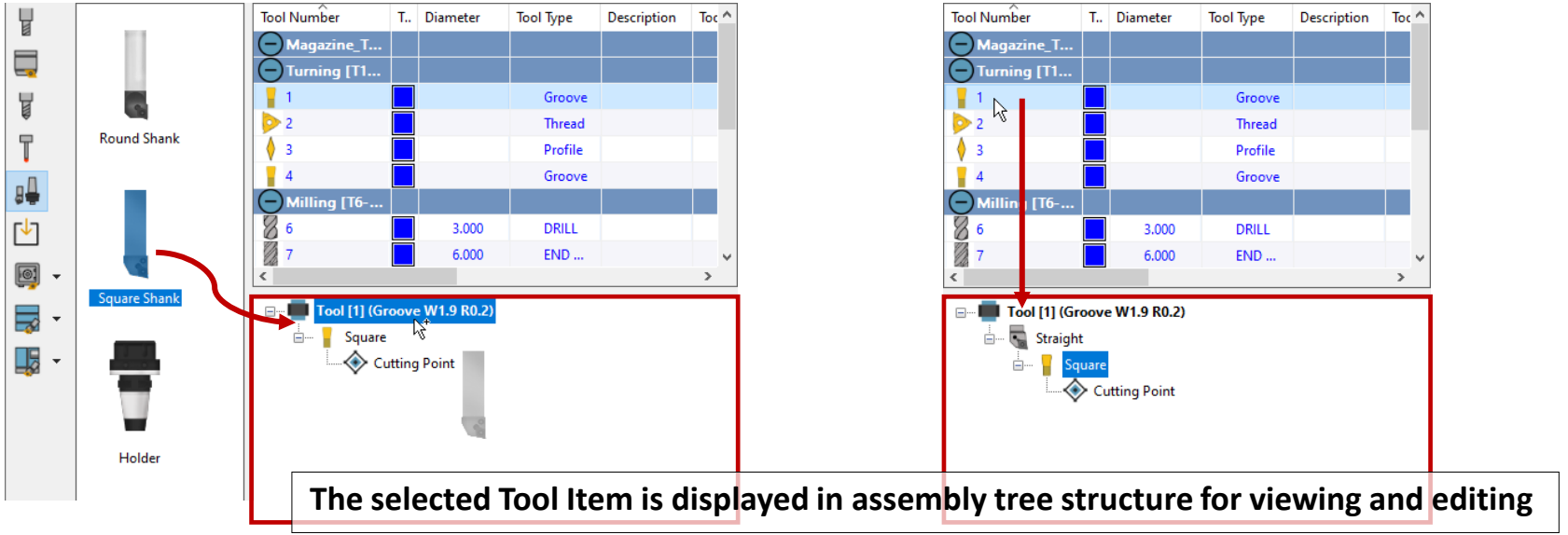


Machine Tool Setup / Part Tool Library

Note: Tool build starts by adding Cutter component to Tool Table window

Creating Tool Assemblies

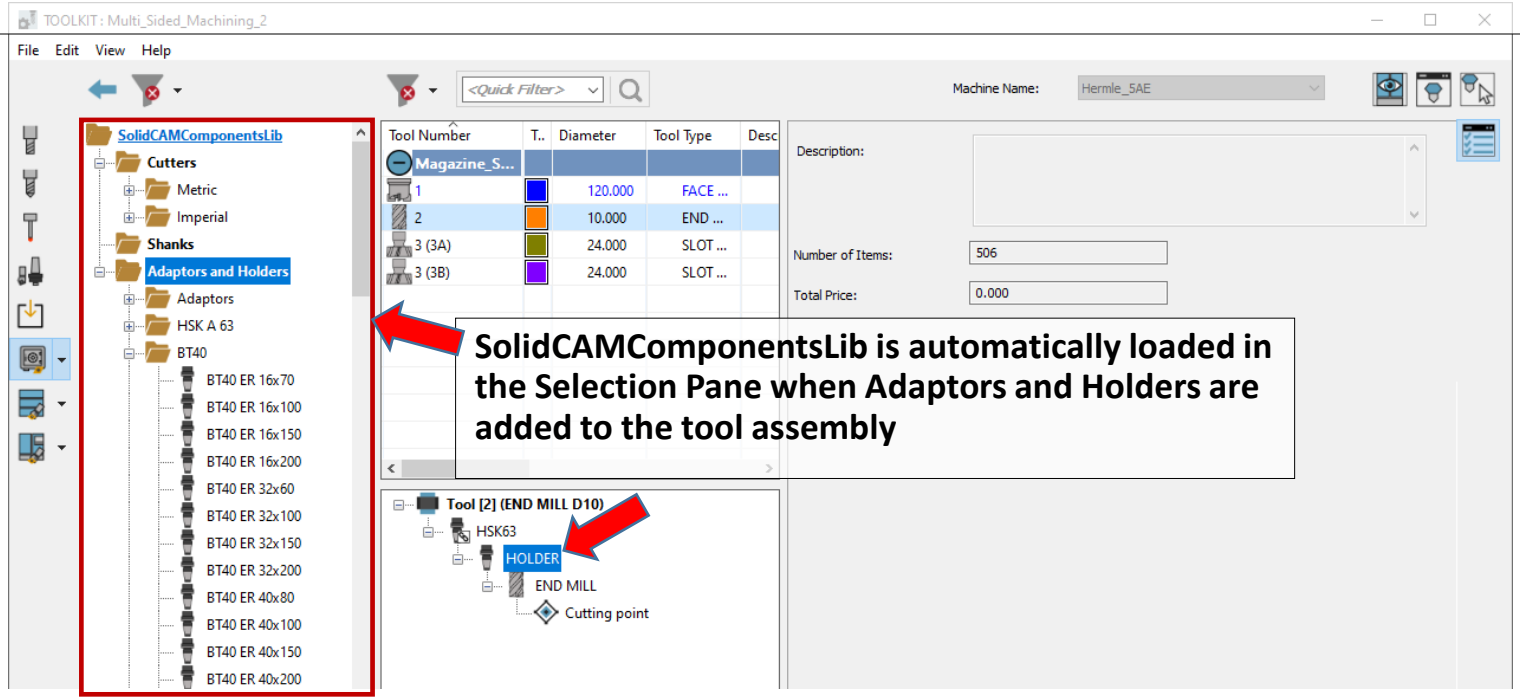
- **The Tool Item Manager (in Tool Assemblies, Machine Tool Setup and Part Tool Libraries) enables you to easily create tool assemblies, aka Tool Items**
- **Build upon the Cutter with additional components such as Shanks, Adaptors & Holders**



The selected Tool Item is displayed in assembly tree structure for viewing and editing

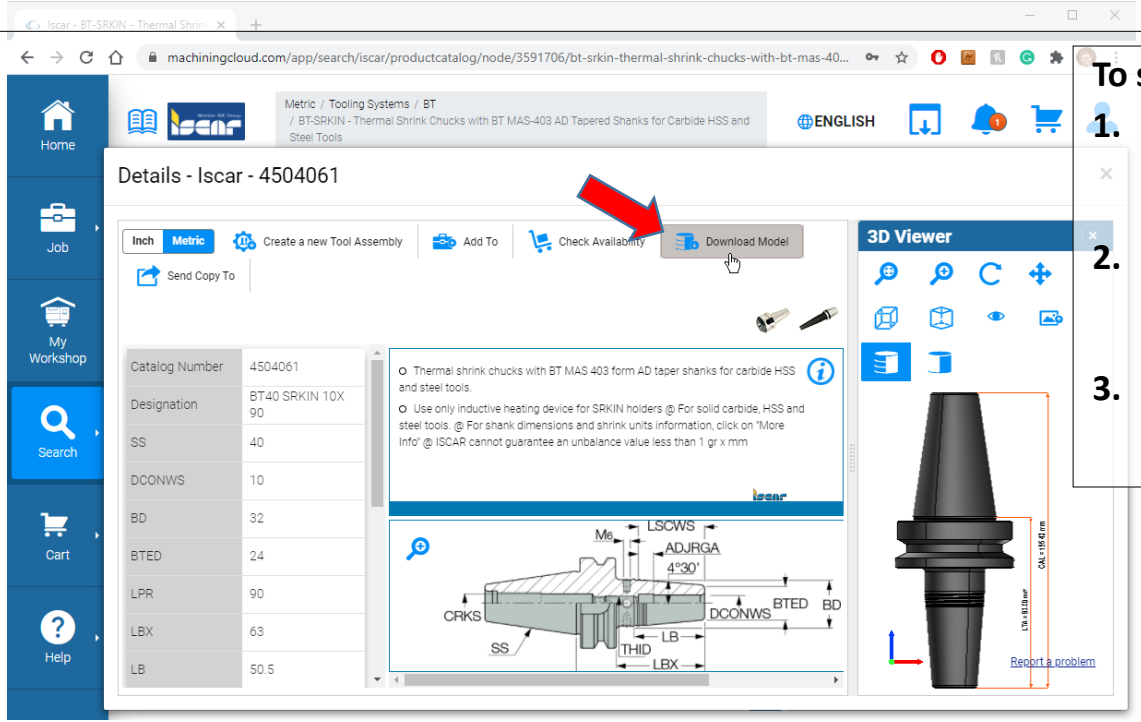
Tool Assemblies from SolidCAM Components

- **Easily build tool assemblies using SolidCAM's default Tool Components Library**
  - **SolidCAMComponentsLib.tlv is included with the installation of SolidCAM**



Tool Assemblies from STL Models

- **Easily build tool assemblies using 3D models downloaded from your preferred online resource, such as MachiningCloud and Iscar, Kennametal or any other website…**

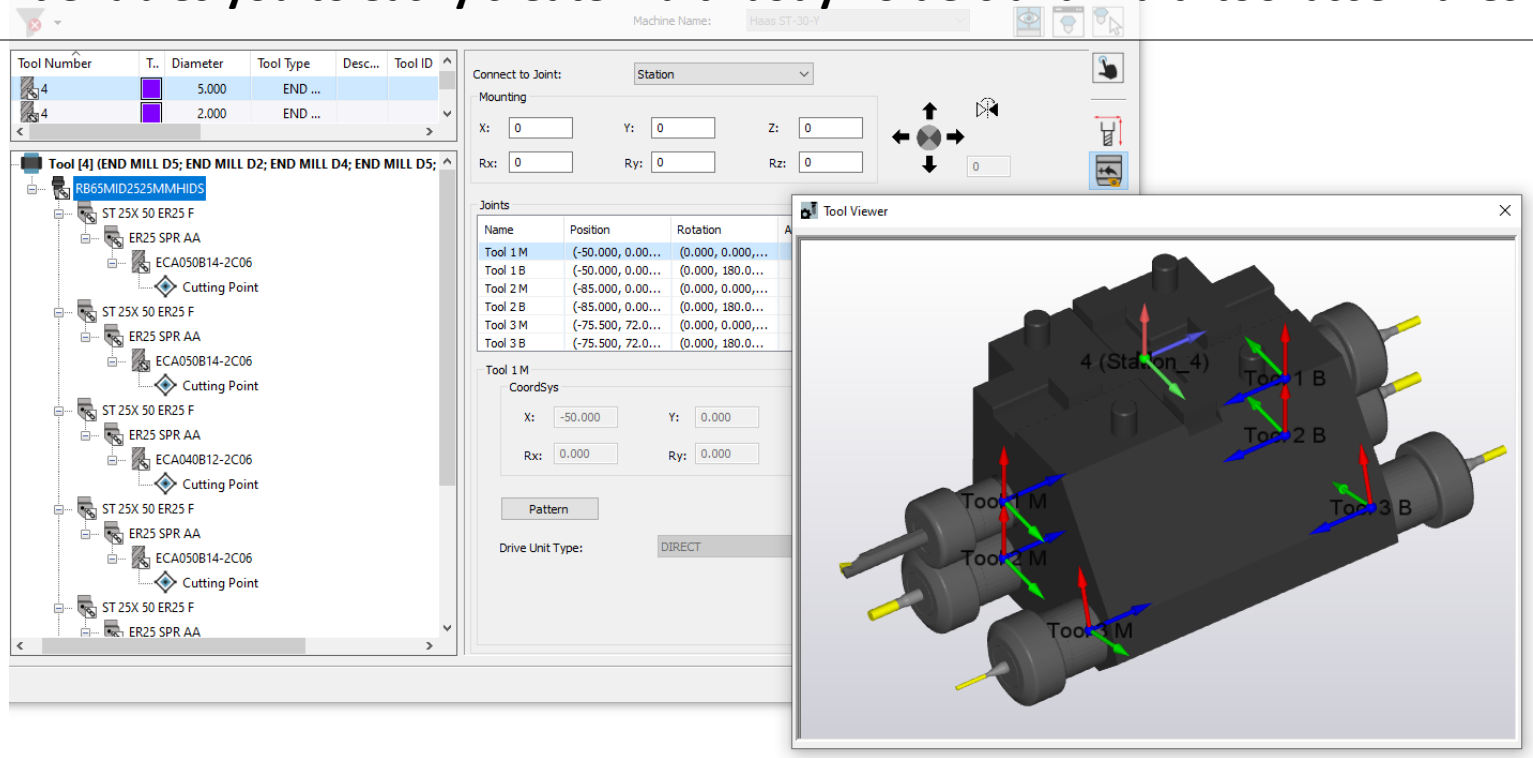


To speed up productivity, you can:

1. **Use SOLIDWORKS Task Scheduler to quickly and easily convert multiple models to STL format**
2. **Import entire folders of STL models to a Tool Components Library using the Import Structure option**
3. **Build tool assemblies with STL models from the Tool Components Library**

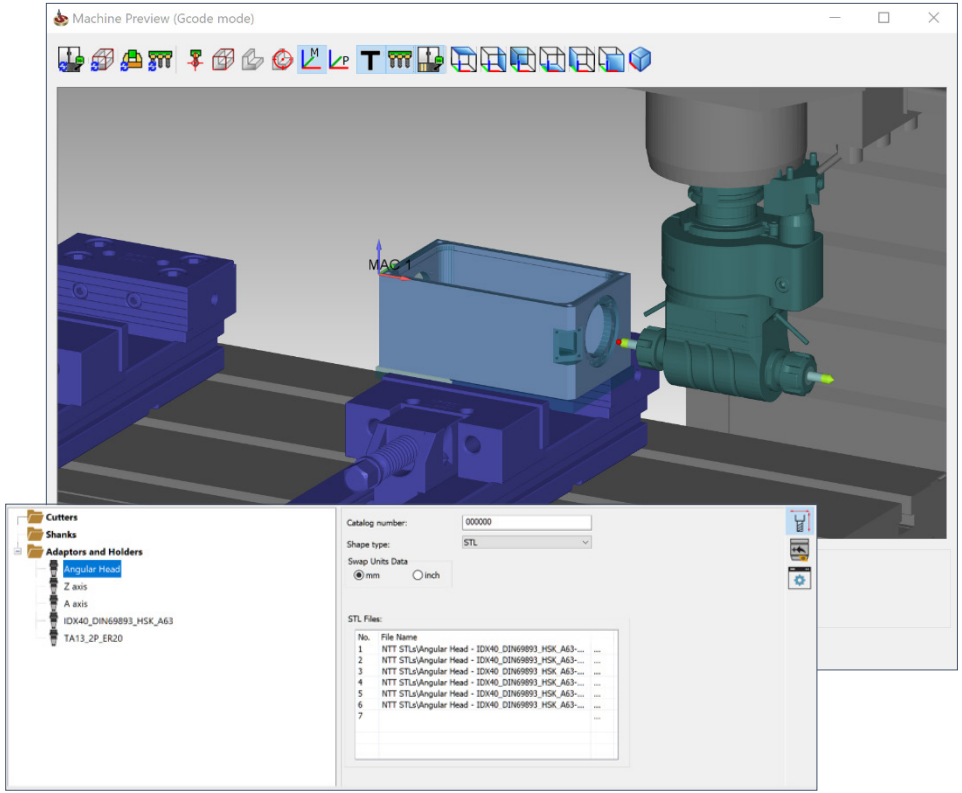
Complex Tool Assemblies

- **ToolKit enables you to easily create multi-body holders and multi-tool assemblies**



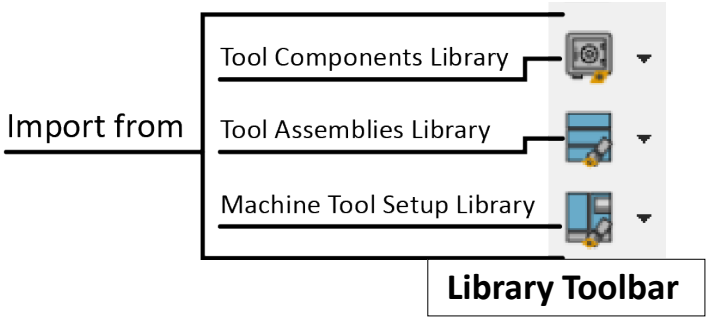
Angular Head Adaptors

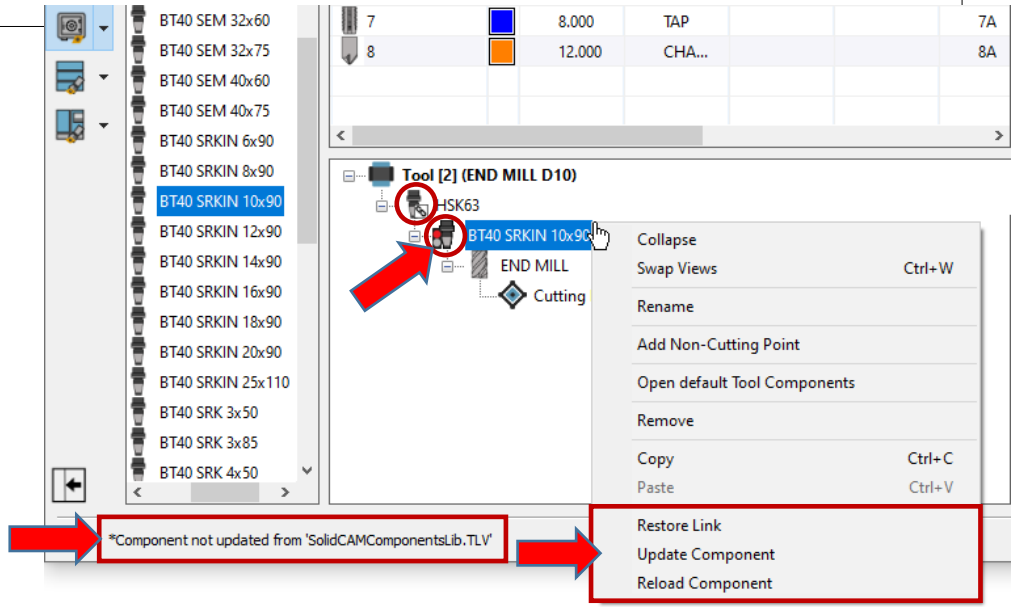
- **ToolKit enables you to easily create angular head adaptors from multiple components**
- **Assembly structure and Joints makes defining multiple tools easy**
- **VMID – Tilt Plane definition and angular head adaptors**
  - **Machine Plane by Tilt Plane**
  - **Arcs in ZX and YZ planes**
  - **Compensation in ZX and YZ planes**
  - **Machine Preview and Tilt Plane**



Tool Components/Assemblies Linking

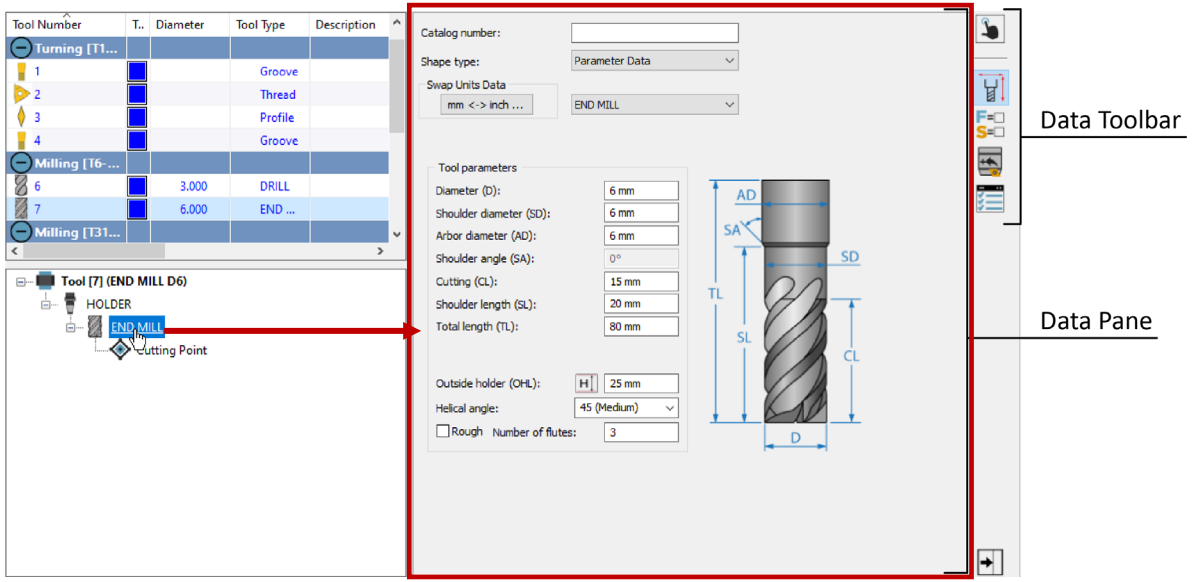
- **Possibility to work with and import from multiple Tool Components Libraries**
- **Imported components/assemblies are linked between your ToolKit Tool Libraries, making it easy to update linked components if modified in parent library**





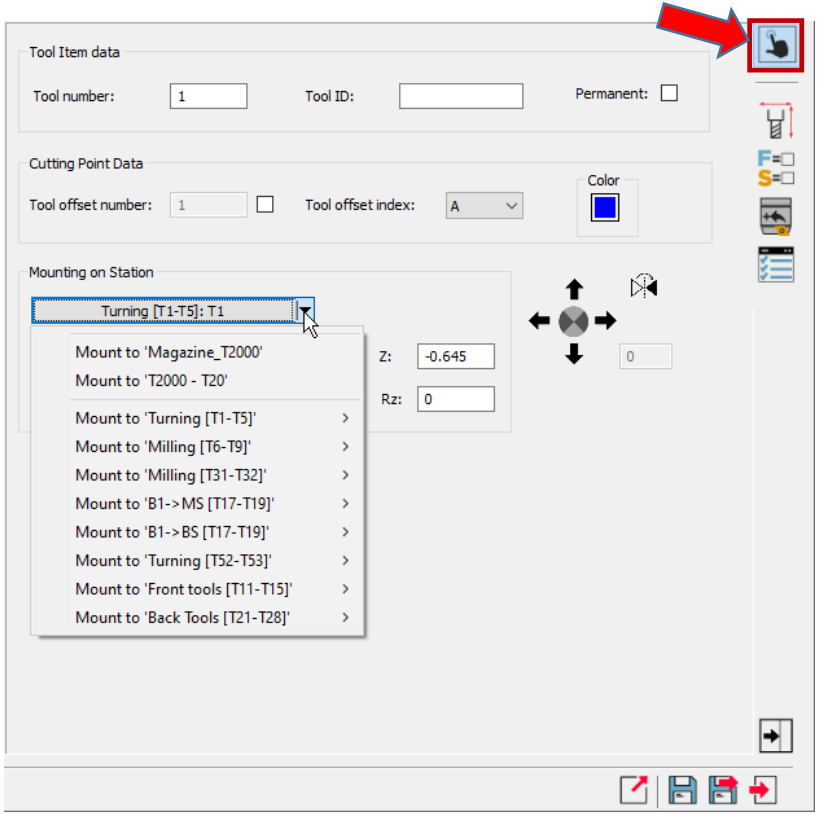
Defining the Tool Assembly Data

- **Manage complete information about the Tool Item and its assembled components using the Data Toolbar and corresponding Data Pane**
- **Tool Item tree selection determines data displayed and parameters/options availability**



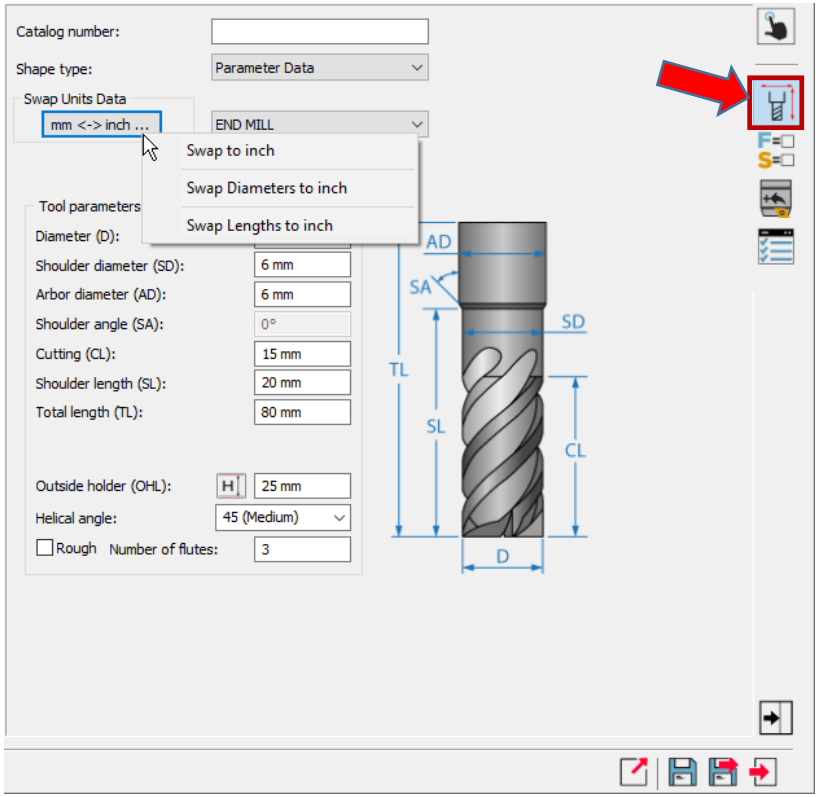
Quick Access Data

- **Quickly and easily manage important aspects of your Tool Items, such as:**
  - **Tool Item identifiers (Tool Number, Tool ID, Tool offset parameters, etc.)**
  - **Setting Tool Item as Permanent**
  - **Mounting position on CNC-Machine**



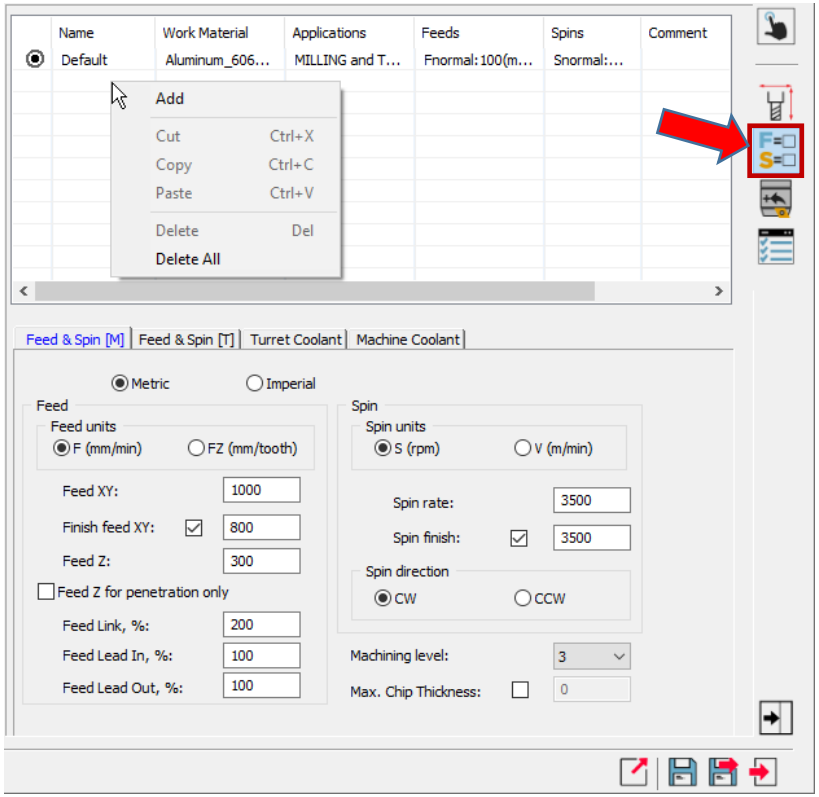
Topology Data

- **Easy management of Tool Item geometries**
- **Different components (e.g., Cutter vs. Holder) can be defined by different Shape types:**
  - **Parameter Data specifies dimensions as pictured in the image**
  - **2D Sketch specifies dimensions using a variety of segment shapes**
  - **3D Model defines component by one or more STL/STEP files**
- **Possibility to quickly swap the units (mm to inch and vice versa)**



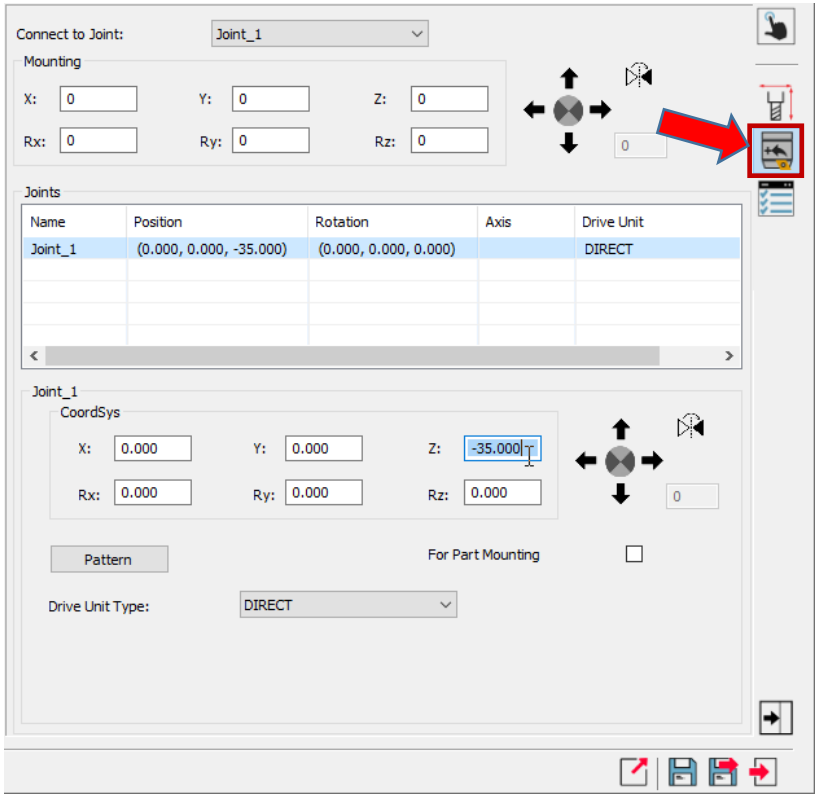
Cutting Condition Data

- **Easily manage, for Cutter components, any number of default Cutting Condition sets**
  - **Specific to different Work Materials**
  - **Specific to different Applications (Milling [M] and/or Turning [T])**
- **Define, in same place, the Feed & Spin data for Milling and Turning operations**

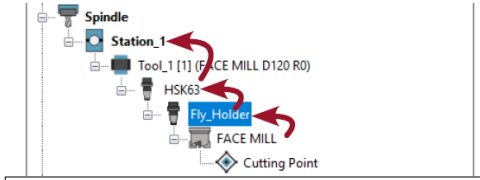


Connection Data

- **Easily manage the geometric relationships between Tool Item components**
  - **Mounting position of each component is connected to Joint CoordSys position of higher component**
  - **Mounting position of topmost component is connected to Station CoordSys position of Station to which it is mounted**
- **Possibility to shift and rotate each position**



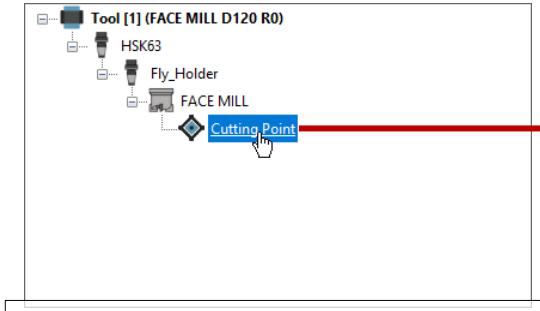
Mounting hierarchy reflected in Tool Item tree



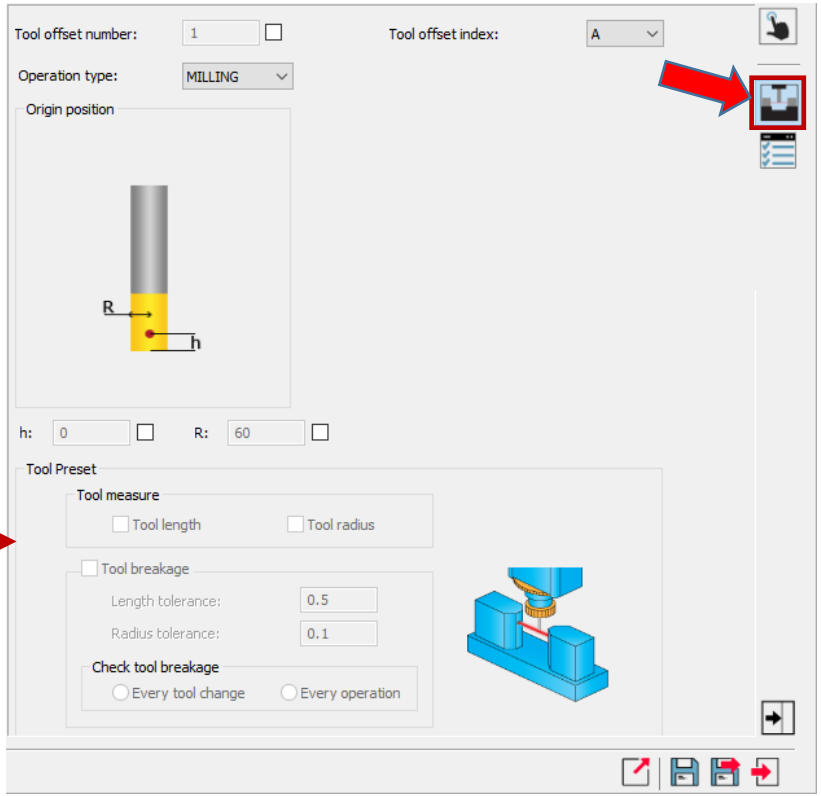
Advanced View shown for illustrative purposes

Offset Data

- **Easily manage the Tool Item's Offset Data:**
  - **Cutting Point definitions and relative Tool offset parameters**
  - **Tool Preset options (activated if supported by CNC-Machine and set in corresponding *.vmid file)**

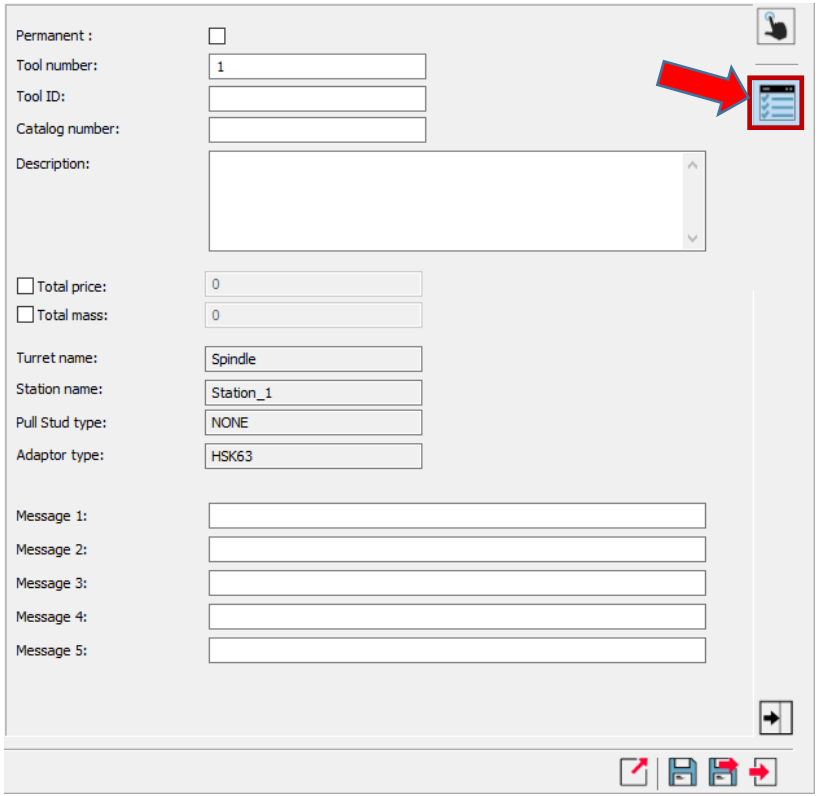


Cutting Point must be selected in Tool Item tree



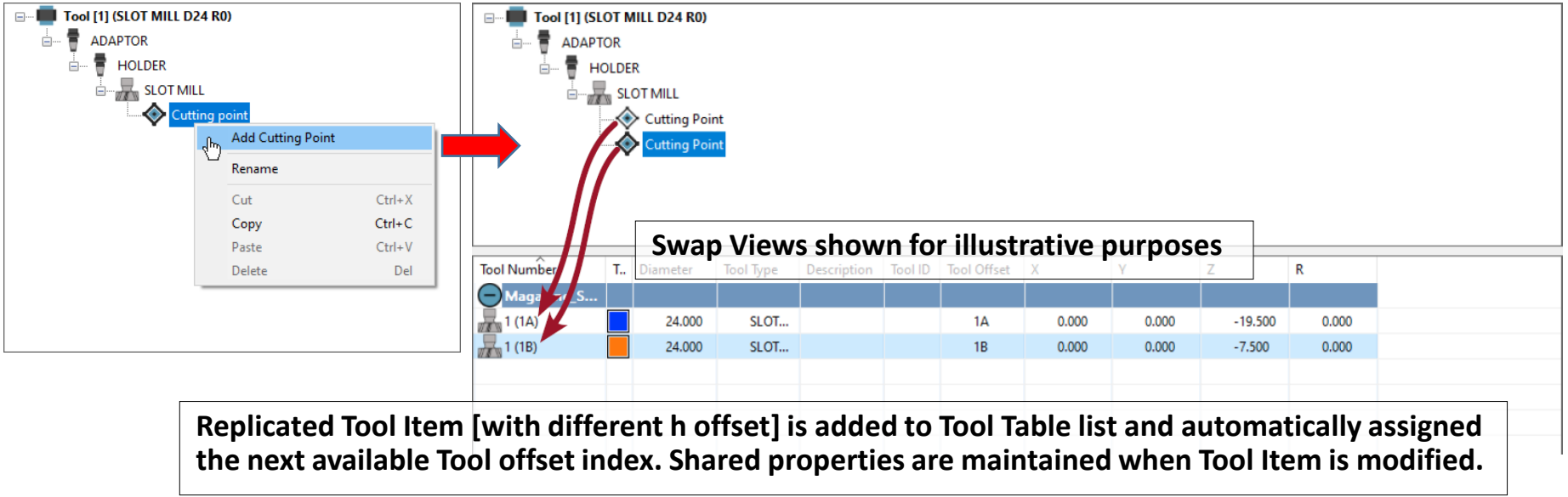
Properties Data

- **Easily manage additional information relevant to the Tool Item and its components, such as:**
  - **Price and Mass (for each and sum of all)**
  - **Cutter Material**
  - **Descriptions**
  - **Quantities**
  - **Hyperlinks (for referencing)**
  - **Tool Item Messages (for Gcode)**
  - **And many others…**



Multiple Cutting Points – Milling Tools

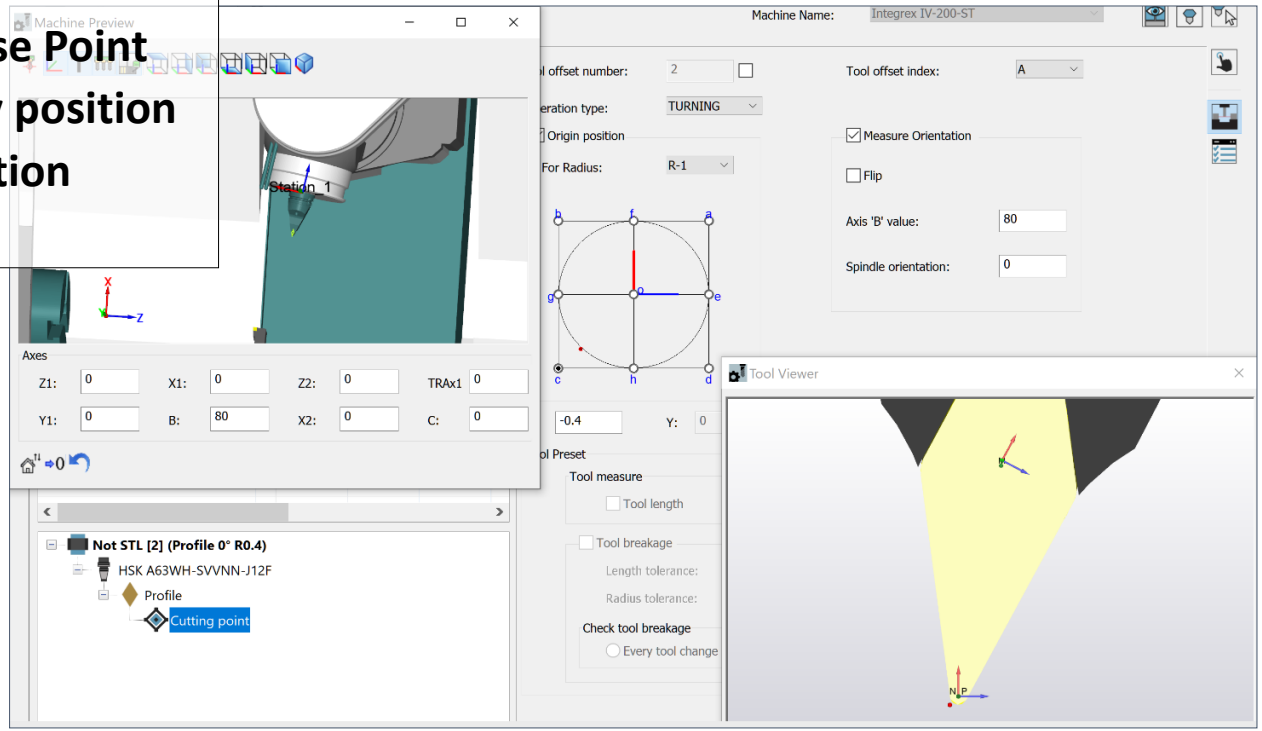
- **SolidCAM ToolKit supports multiple cutting points on a single Cutter component**
- **E.g., top and bottom cutting faces of same SLOT MILL can be used by quickly and easily adding another Cutting Point in the Tool Item Manager**



Replicated Tool Item [with different h offset] is added to Tool Table list and automatically assigned the next available Tool offset index. Shared properties are maintained when Tool Item is modified.

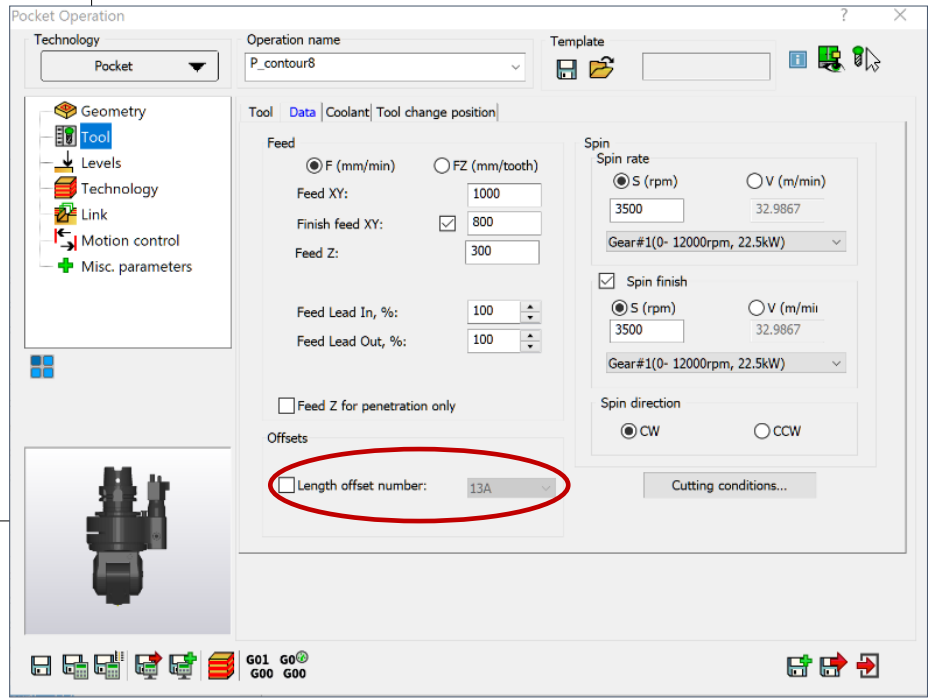
Nose Point Management – Turning Tools

- **Easily manage Nose Points**
  - **Ability to select any Nose Point**
  - **Measure the tool in any position**
  - **Automatic radius detection**



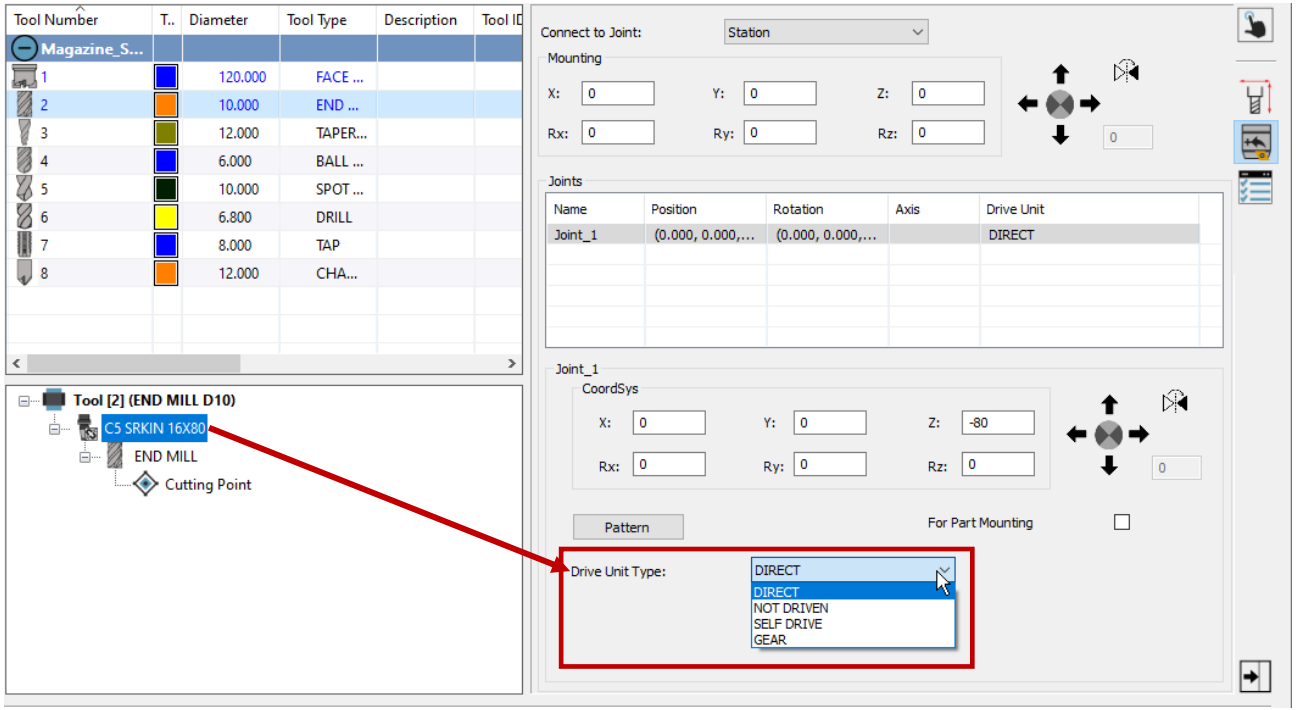
Cutting Points in SolidCAM

- **Easily manage Cutting Points with ToolKit and use them in SolidCAM**
  - **Control tool wear separately for each operation – length and diameter**
  - **T-slot having multiple cutting points**
  - **Chamfering with compensation**
- **Machine Preview functionality**
  - **Change tool (Mounting on Station)**
  - **Exchange tools between Stations**



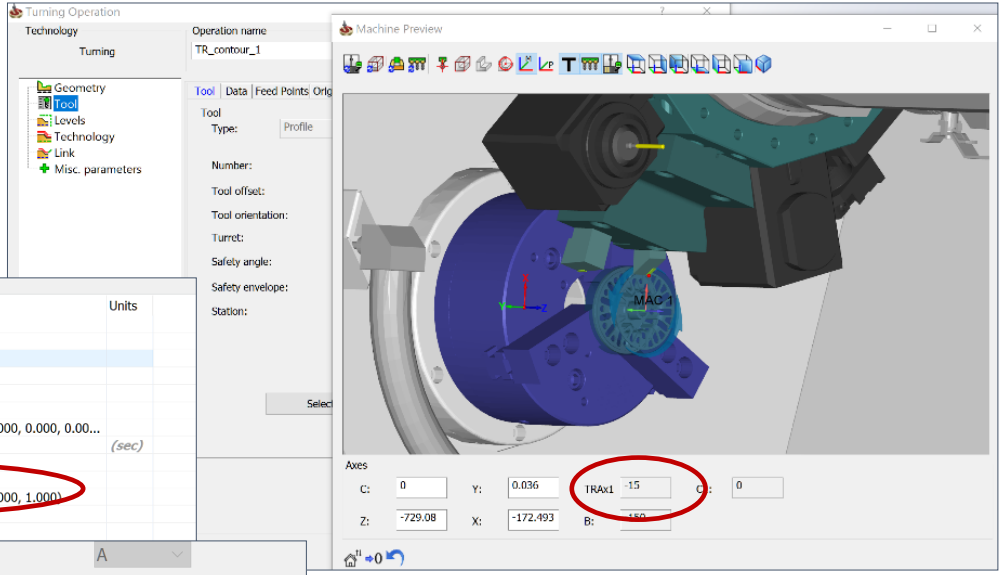
Drive Units in Holder

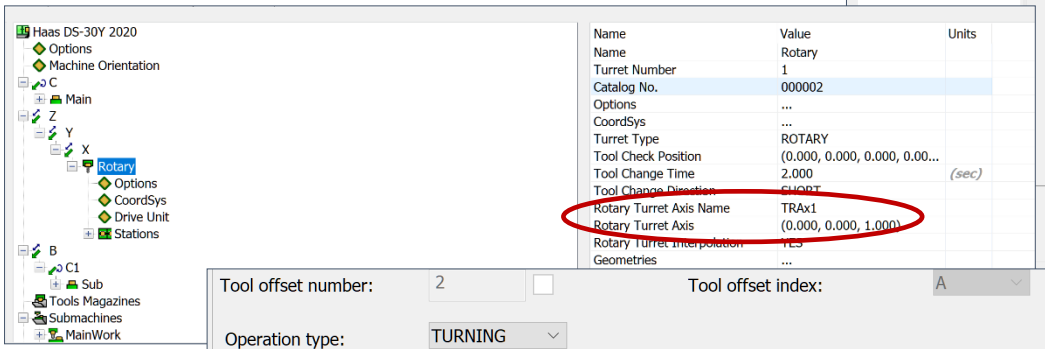
- **SolidCAM ToolKit supports definition of Drive Unit Type in Holder components**

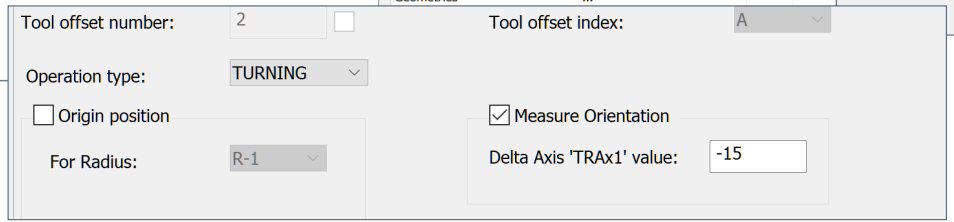


Rotary Turret Interpolation Support

- **Ability to index the rotary turret to specific angle by the turret axis to use special tool holders**

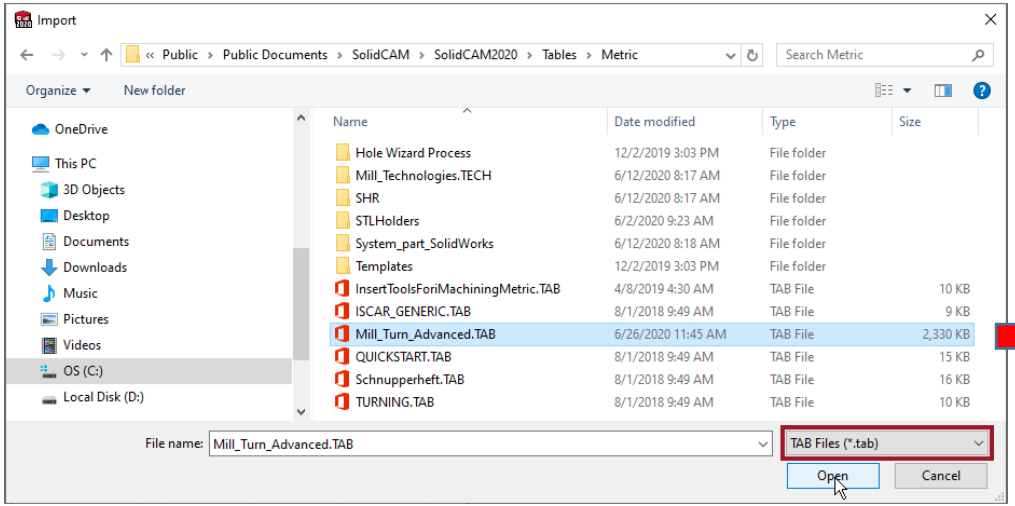


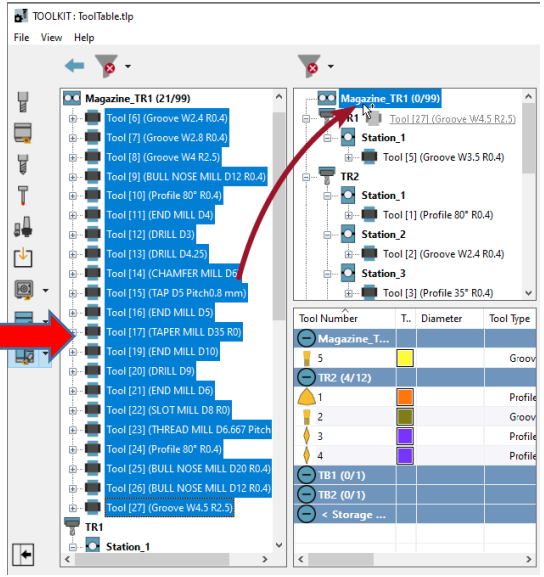




SolidCAM TAB Tool Libraries

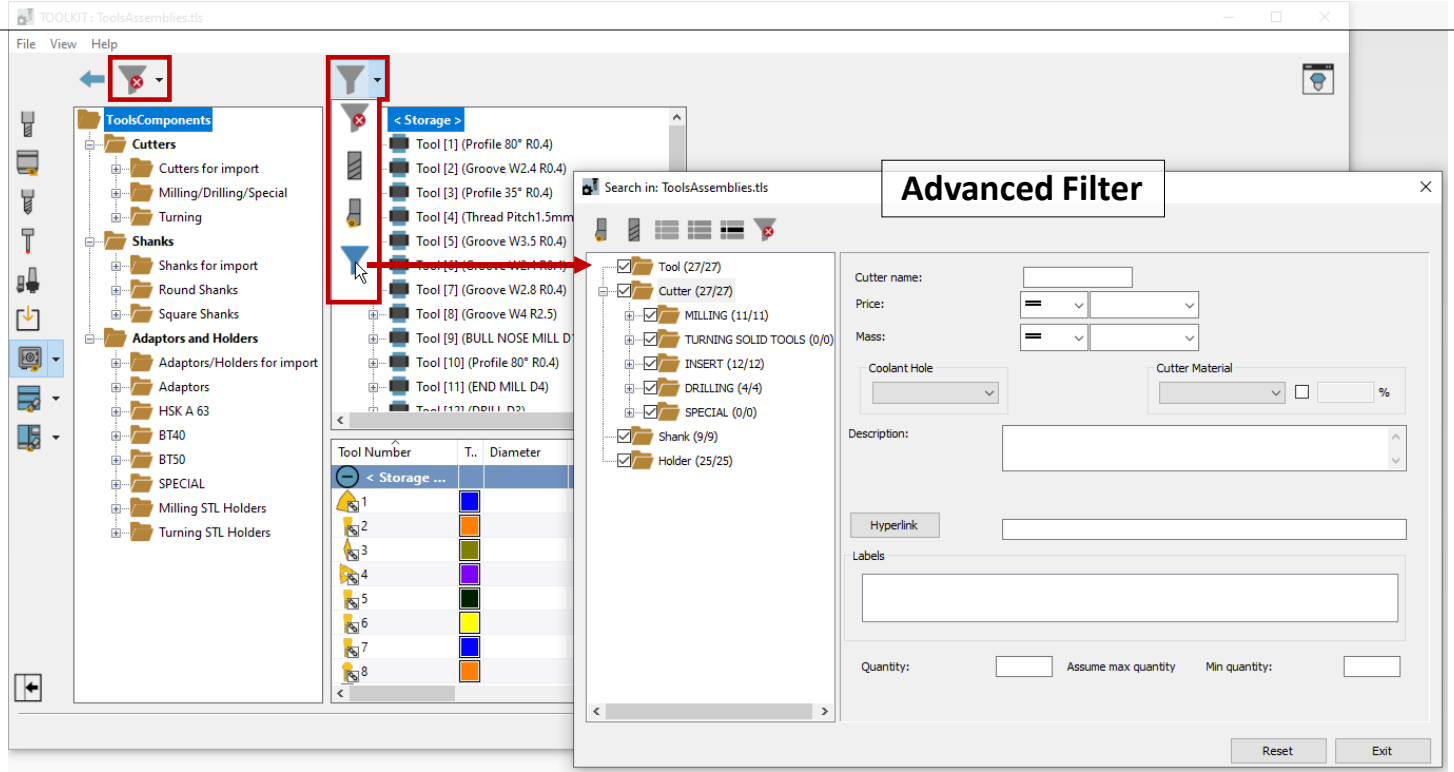
- **SolidCAM ToolKit supports importing TAB tools from *.TAB Libraries of previous versions**
- **TAB tools are automatically converted to ToolKit Tool Items that can be easily imported to Tool Assemblies, Machine Tool Setup and Part Tool Libraries**





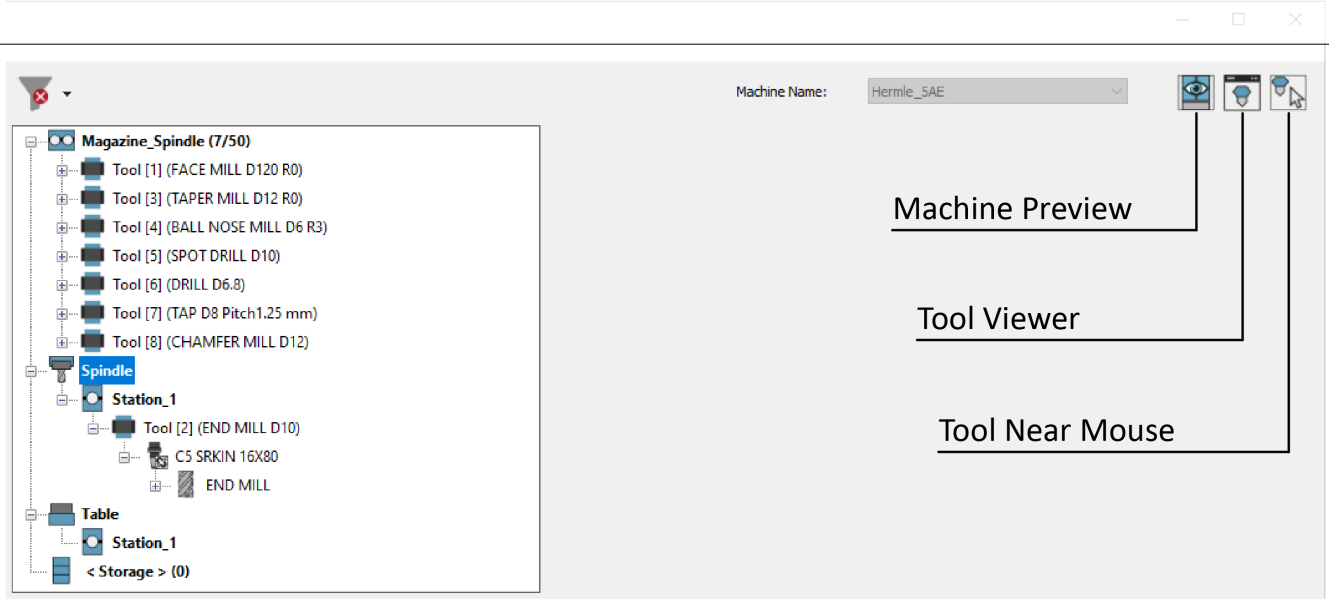
ToolKit Filtering

- **Extensive range of simple and advanced filters for facilitating tool components searches**



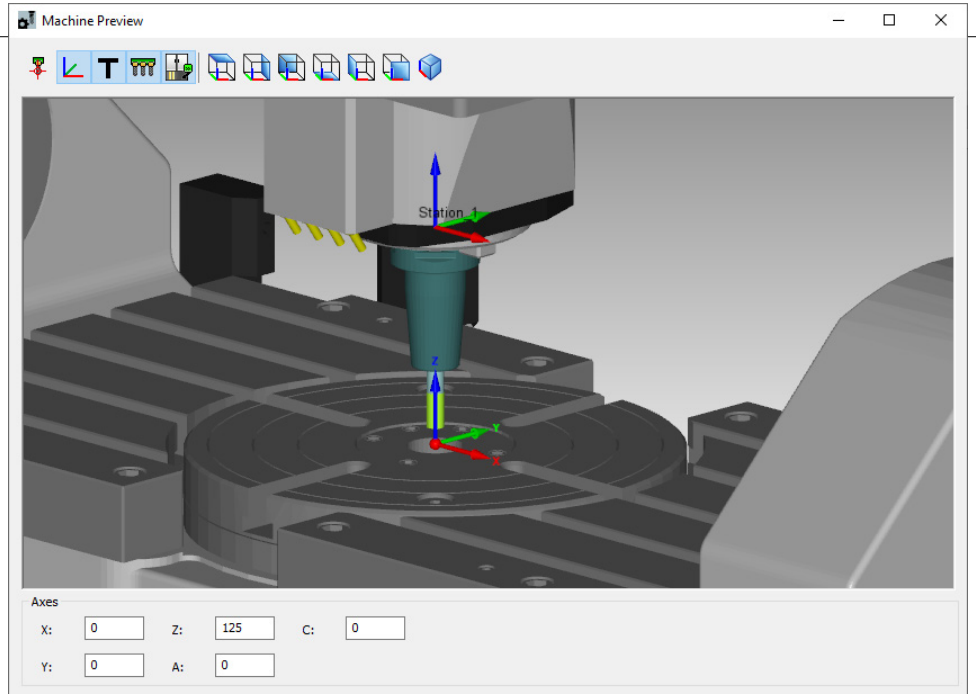
ToolKit Visualization Tools

- **Robust visualization tools for previewing and checking your Tool Item definitions**
- **Tool Item changes are updated instantaneously and can be viewed on the fly**
- **Supports preview of Revolved STL Tool Items (Cutters, Shanks & Holders)**



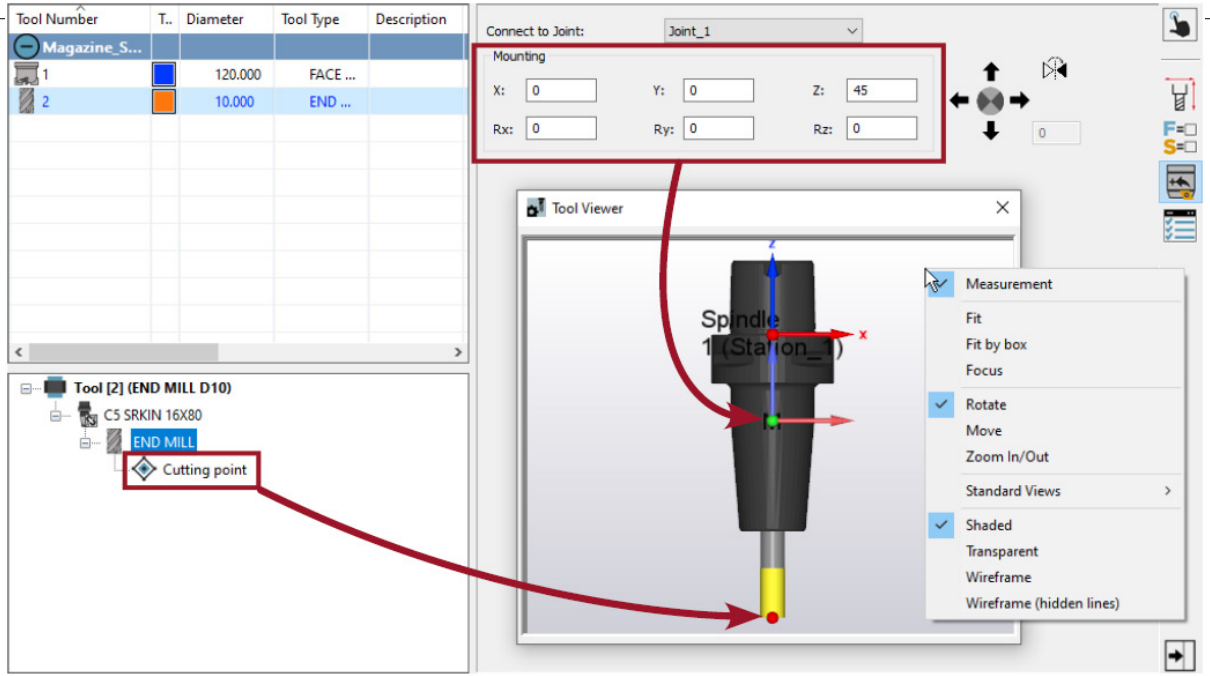
Visualization – Machine Preview

- **Visualize the Tool Item and its schematic position relative to Machine Coordinate System and in connection with the machine devices**



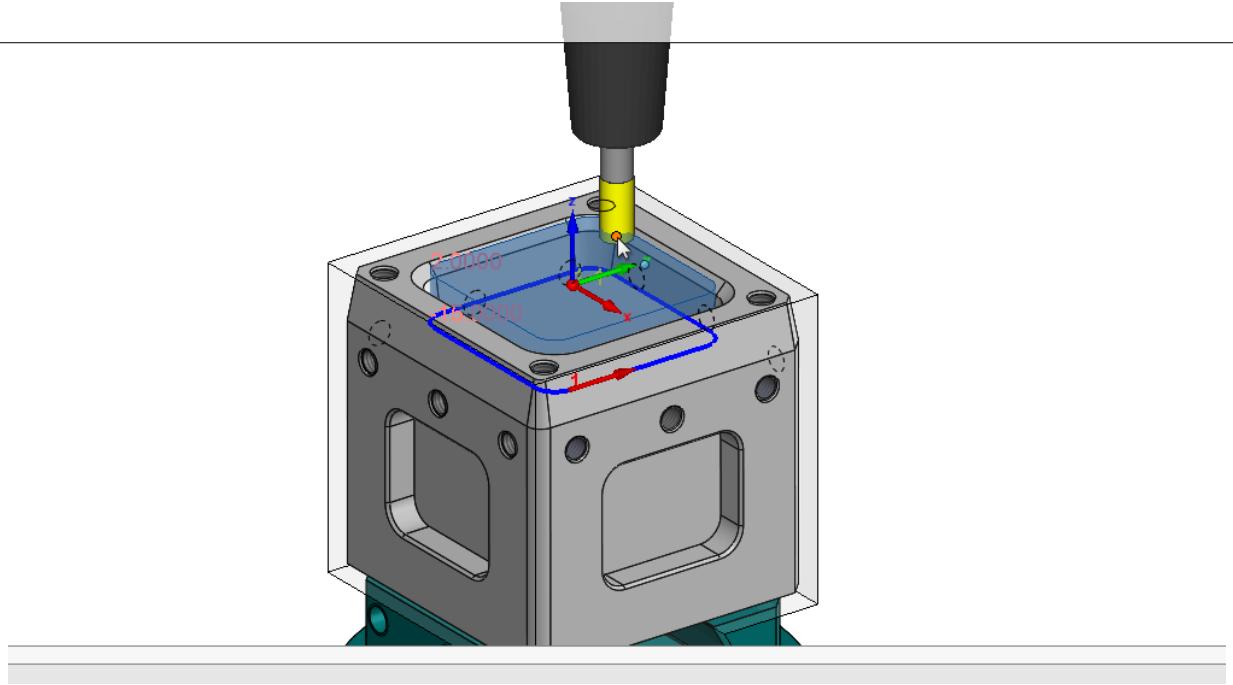
Visualization – Tool Viewer

- **Visualize a 3D model representation of your Tool Item in different orientations, etc.**
- **Dynamically displays Cutting Points, Mounting and Joint CoordSys positions, etc.**



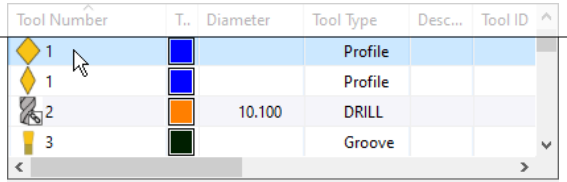
Visualization – Tool Near Mouse

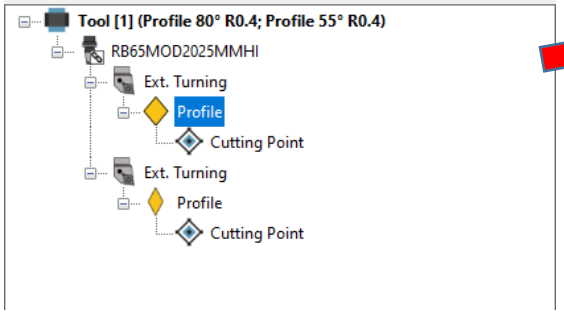
- **Toggle on/off 3D graphic representation of Tool Item in the SOLIDWORKS Graphics Area for performing visual tool checks**

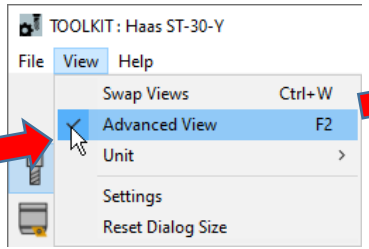


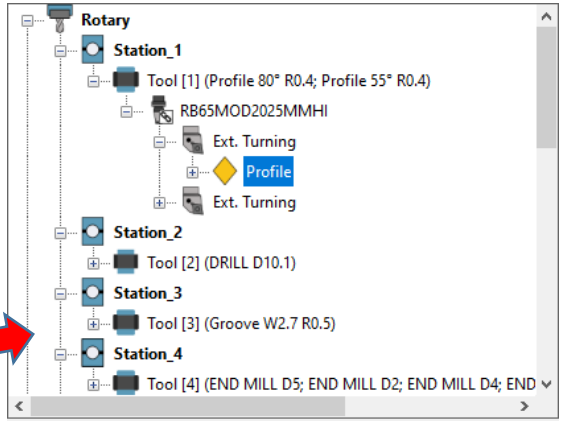
Advanced View for Experienced Users

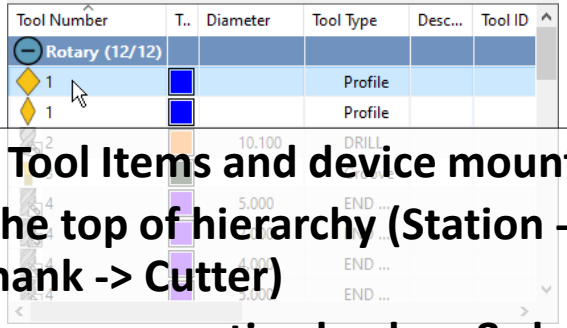
- **Simple View (default) shows Tool Items individually in Tool Item Manager**
  - **Tool build starts with Cutter component**









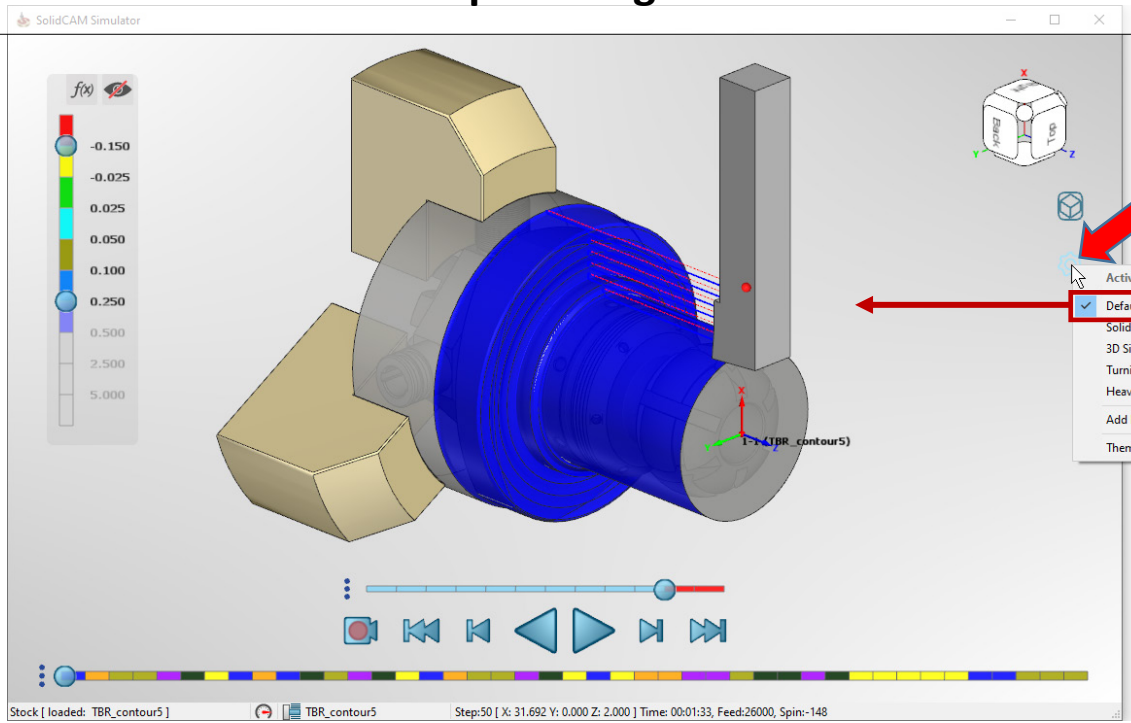


- **Advanced View shows all Tool Items and device mounting**
  - **Tool build can start at the top of hierarchy (Station -> Adaptor -> Holder -> Shank -> Cutter)**
  - **Possibility to quickly change mounting by drag & drop**

New SolidCAM Simulator

SolidCAM Simulator Themes

- **Visualization features of SolidCAM's classic Simulation modes are now available in SolidCAM Simulator as preconfigured themes**



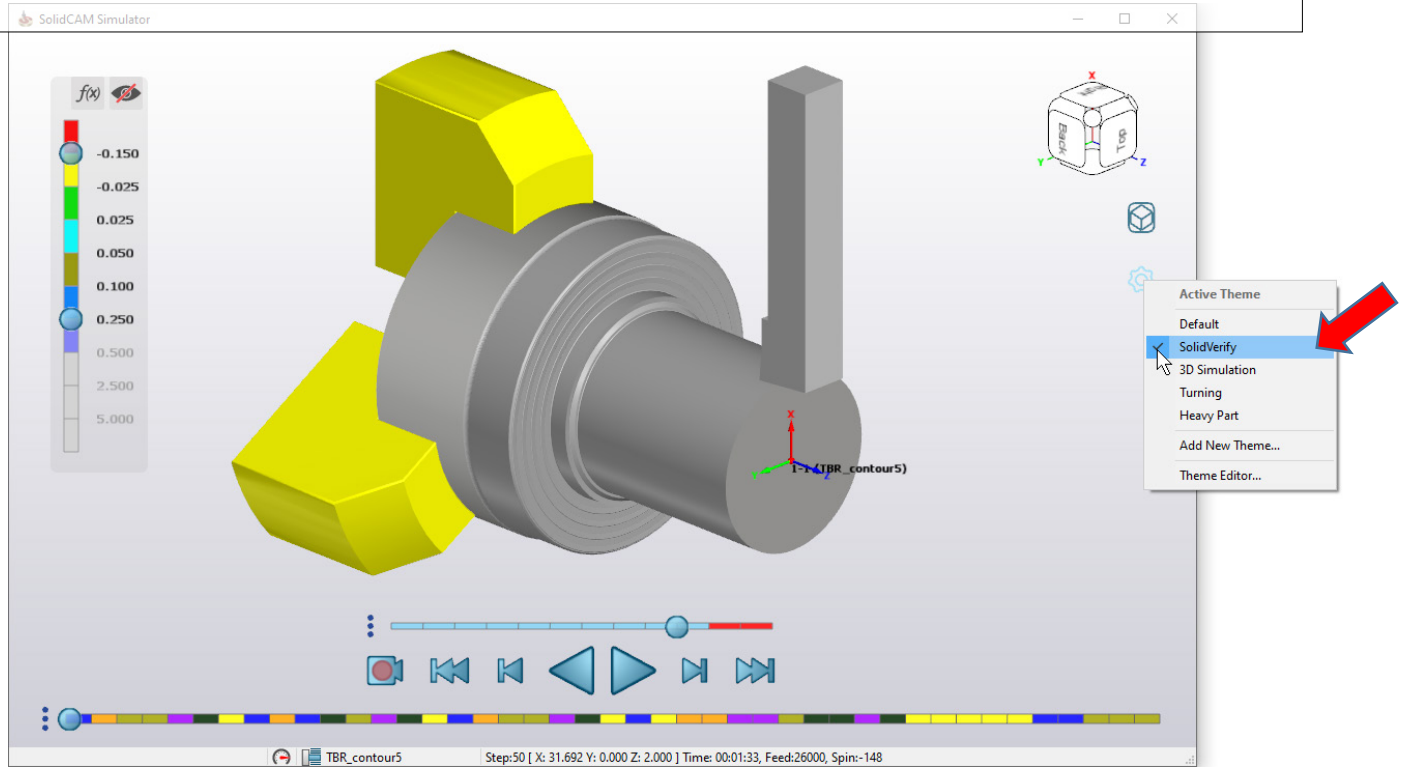
Easily select your preferred mode or toggle between available ones

Default theme now has improved graphics and optimized performance

See Demo on YouTube

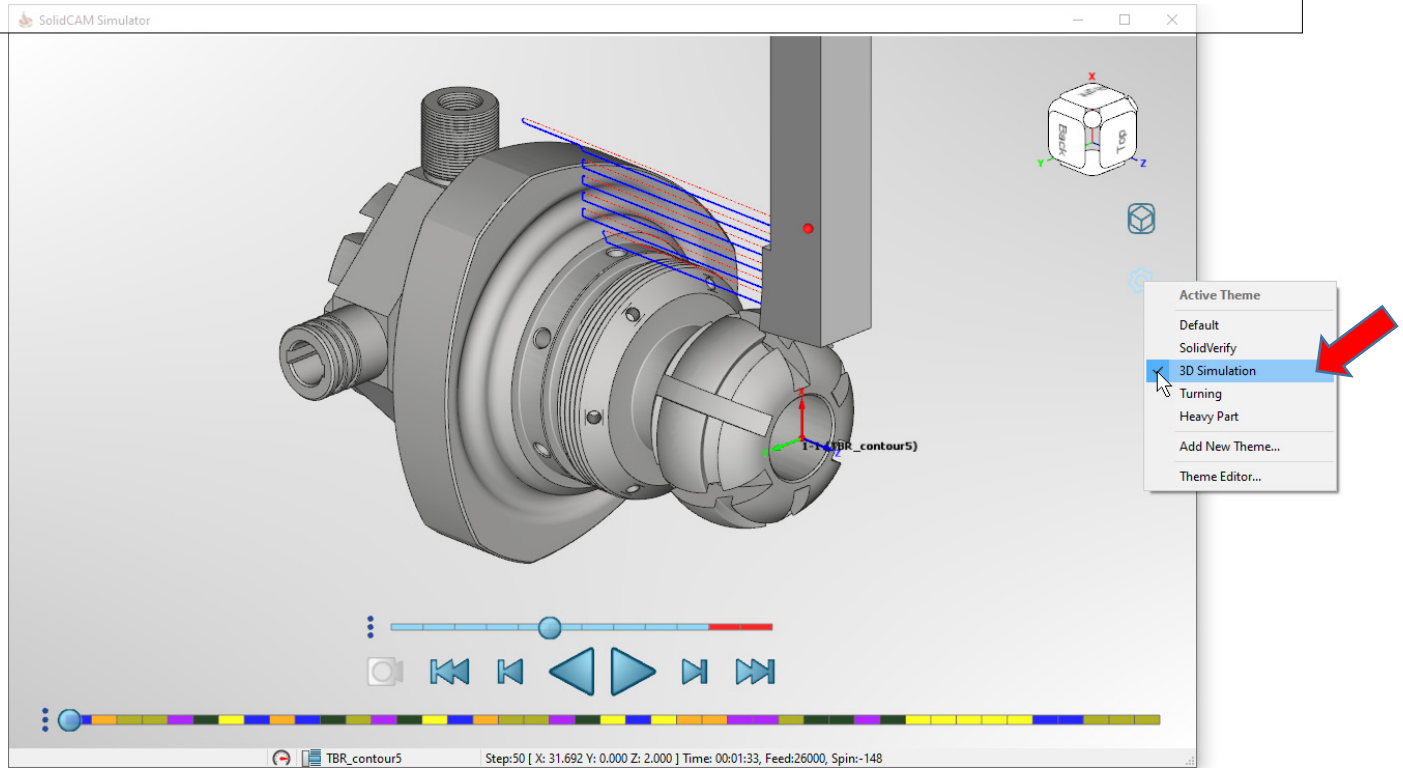
Simulator's SolidVerify Theme

- **Emulate the familiar SolidVerify Simulation inside SolidCAM Simulator**



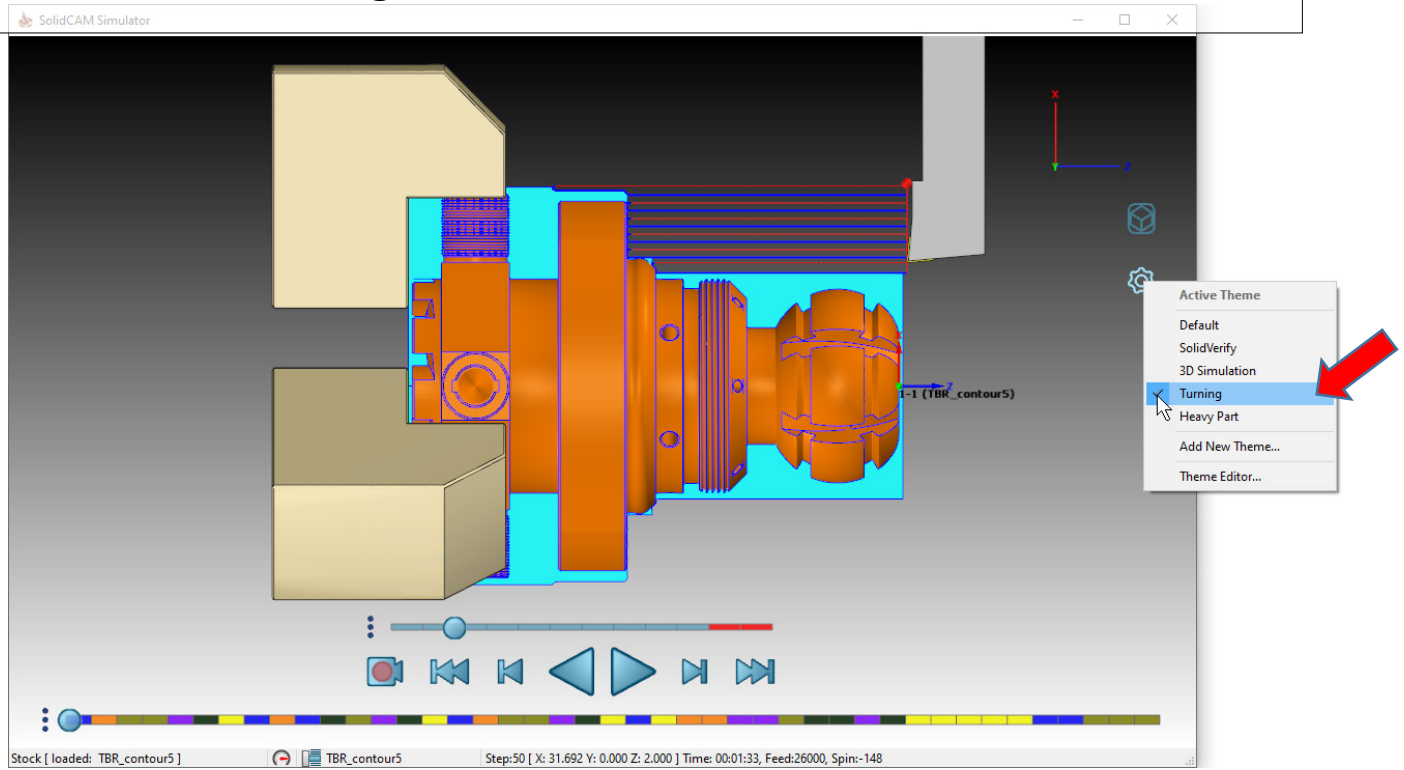
Simulator’s 3D Simulation Theme

- **Emulate the familiar 3D Simulation inside SolidCAM Simulator**



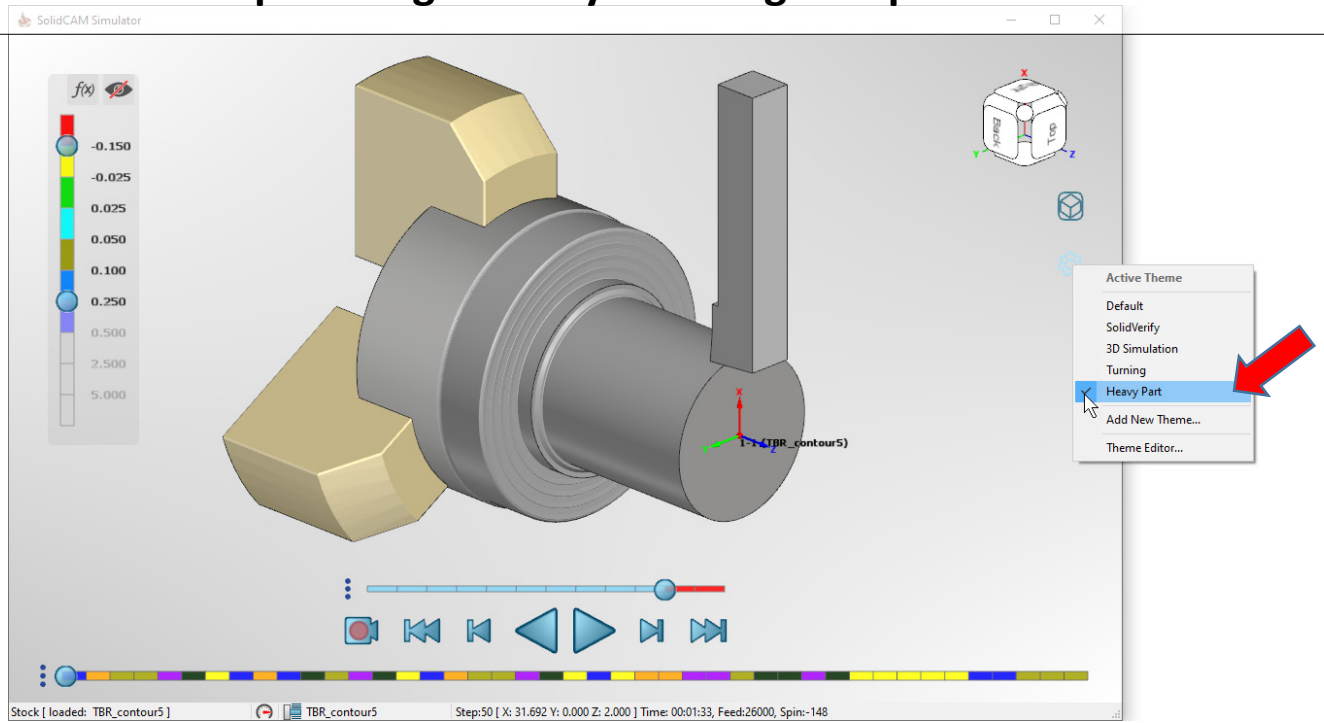
Simulator’s Turning Theme

- **Emulate the familiar Turning Simulation inside SolidCAM Simulator**



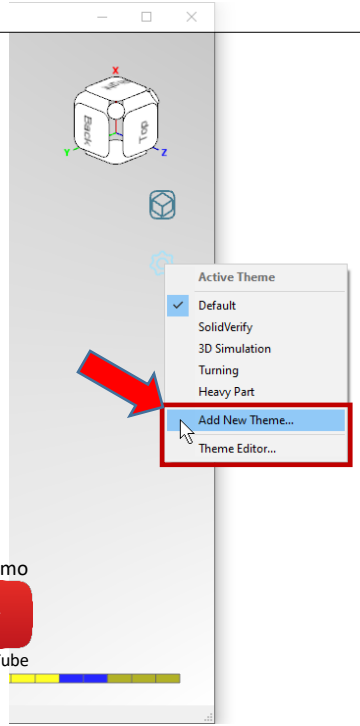
Simulator’s Heavy Part Theme

- **SolidCAM Simulator also offers a theme specifically optimized for faster processing of heavy parts with complex 3D geometry and long tool paths**



Custom Themes & Theme Editor

- **Simulator's Theme Editor enables you to manage the preconfigured themes and create any number of custom themes based on a variety of settings**



See Demo on YouTube

Theme Editor

Options filter:

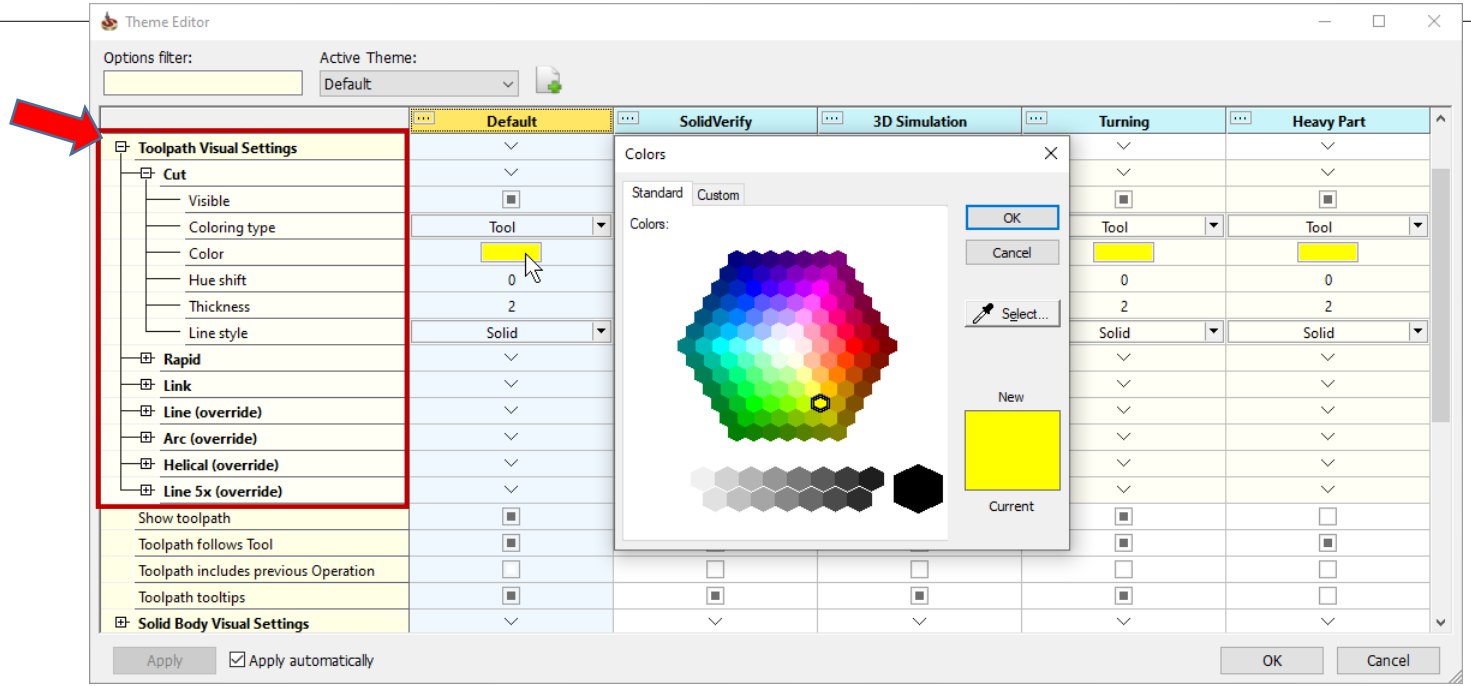
Active Theme: Default

	SolidVerify	3D Simulation	Turning	Heavy Part	Custom Theme
Render Mode (requires Sim restart)	Hardware OpenGL	Hardware OpenGL	Hardware OpenGL	Hardware OpenGL	Hardware OpenGL
Operations bar display mode	Equal size	Equal size	Equal size	Equal size	Equal size
Playback mode	Performance	Performance	Performance	Performance	Performance
Toolpath Visual Settings					
Show toolpath	☐	■	■	☐	■
Toolpath follows Tool	■	■	■	■	■
Toolpath includes previous Operation	☐	☐	☐	☐	☐
Toolpath tooltips	■	■	■	☐	■
Solid Body Visual Settings					
Solid Verification	■	☐	■	■	■
Record removed material	☐	☐	☐	☐	☐
Multicolored SV	☐	■	☐	☐	■
Clash Detection	■	■	■	☐	■
Stop playback on Clash	☐	☐	☐	☐	☐
Solid Verification playback performance					
Show current Home	■	■	■	■	■
Dynamic Highlight	■	■	■	☐	■
Dynamic Measure	■	■	■	☐	■
Target over Stock	☐	☐	■	☐	☐
Use CAD view orientation	■	■	☐	■	■
Minimized Mode (CAD view)	☐	☐	☐	☐	☐
Background					
Compare Target and Stock					

Apply ☑ Apply automatically OK Cancel

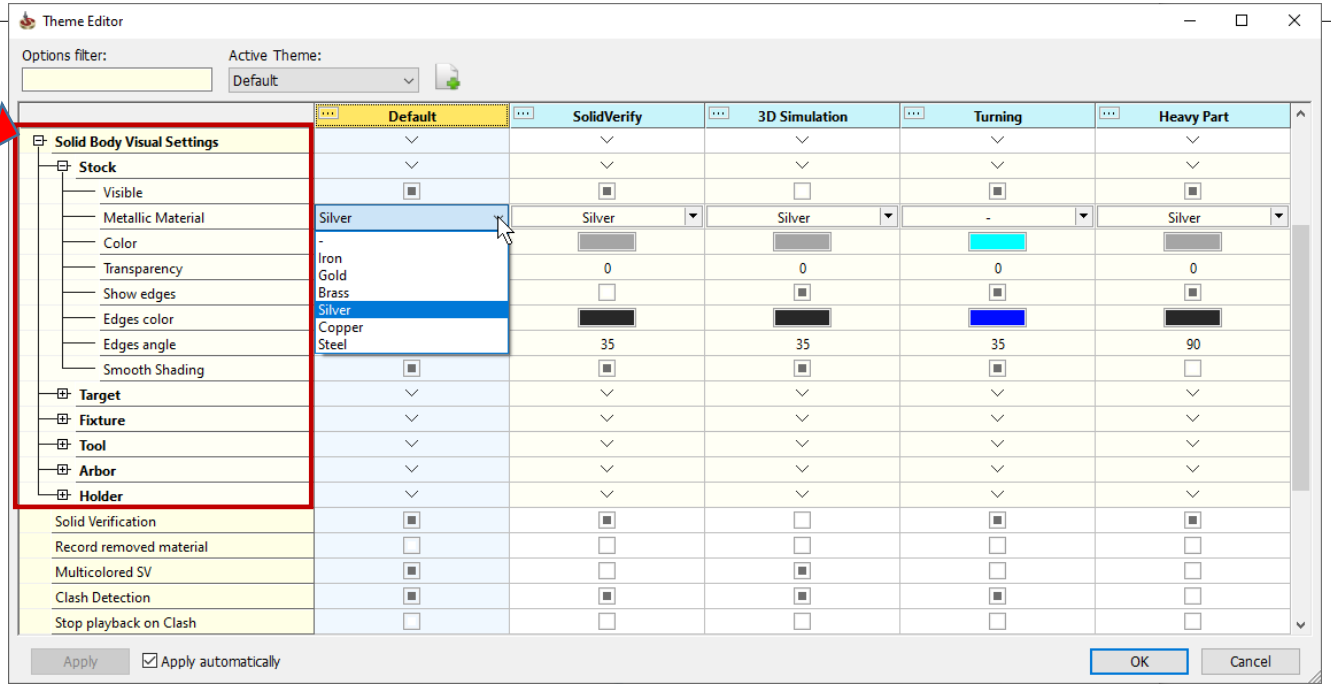
Visual Properties for Tool Path

- **Theme Editor > Toolpath Visual Settings enables you to modify the appearance of the simulated tool path**



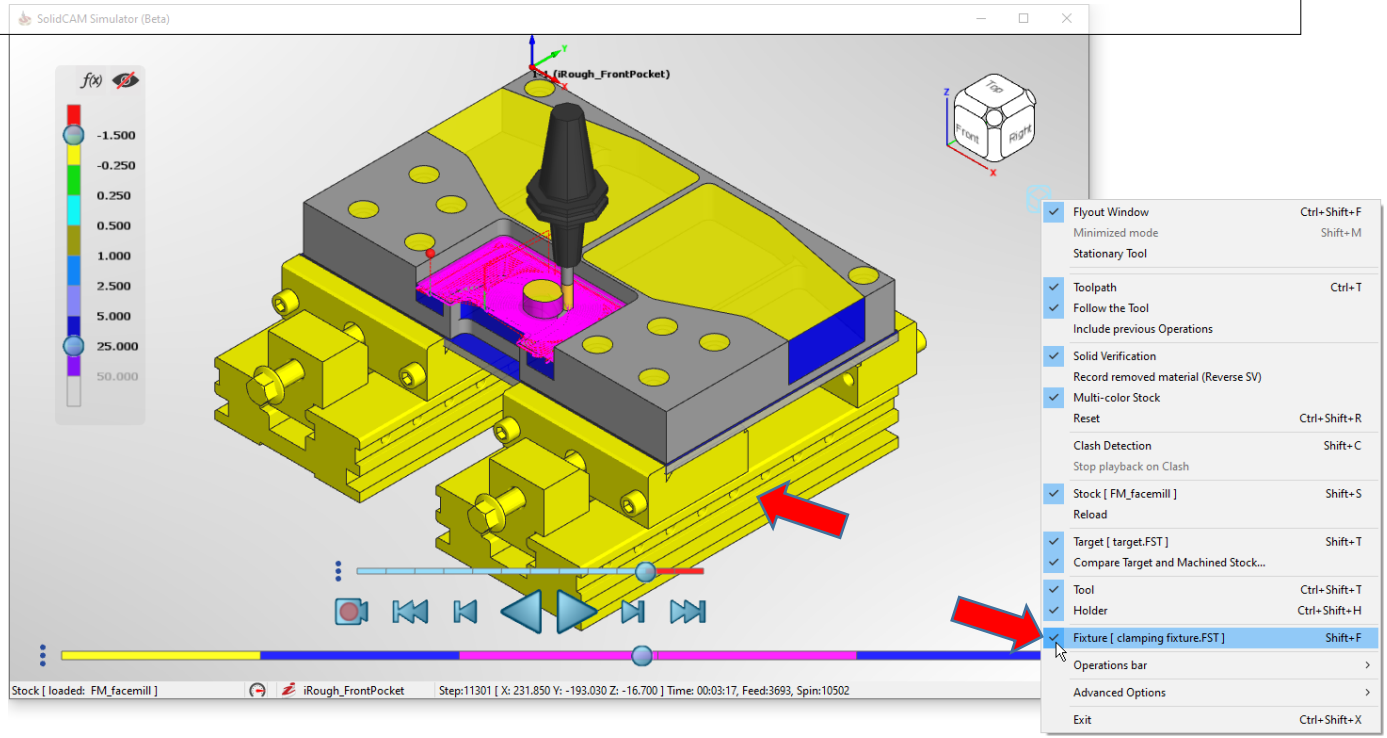
Visual Properties for Solid Bodies

- **Theme Editor > Solid Body Visual Settings enables you to modify the appearance of all solid bodies participating in the simulation**



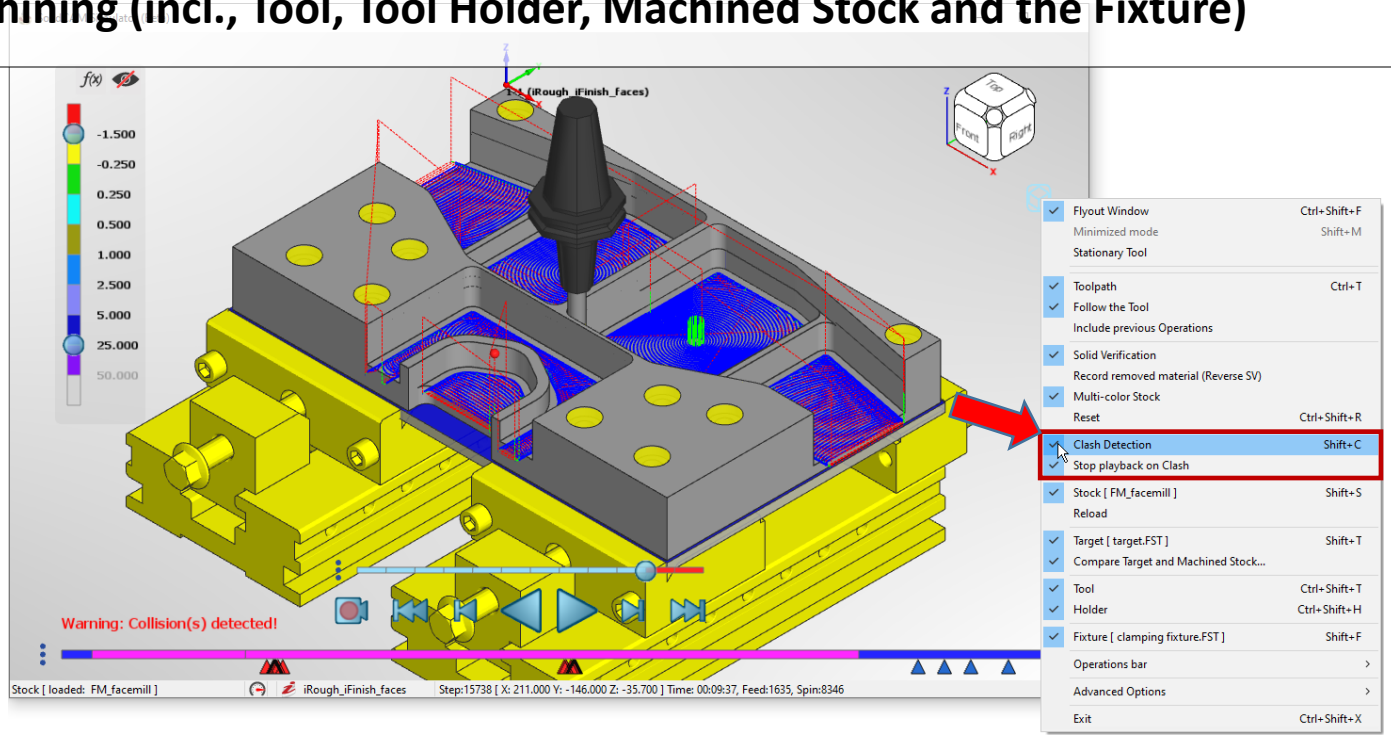
Fixture Support

- **Toggle on/off visualization of your fixture during simulation playback**



Clash Detection

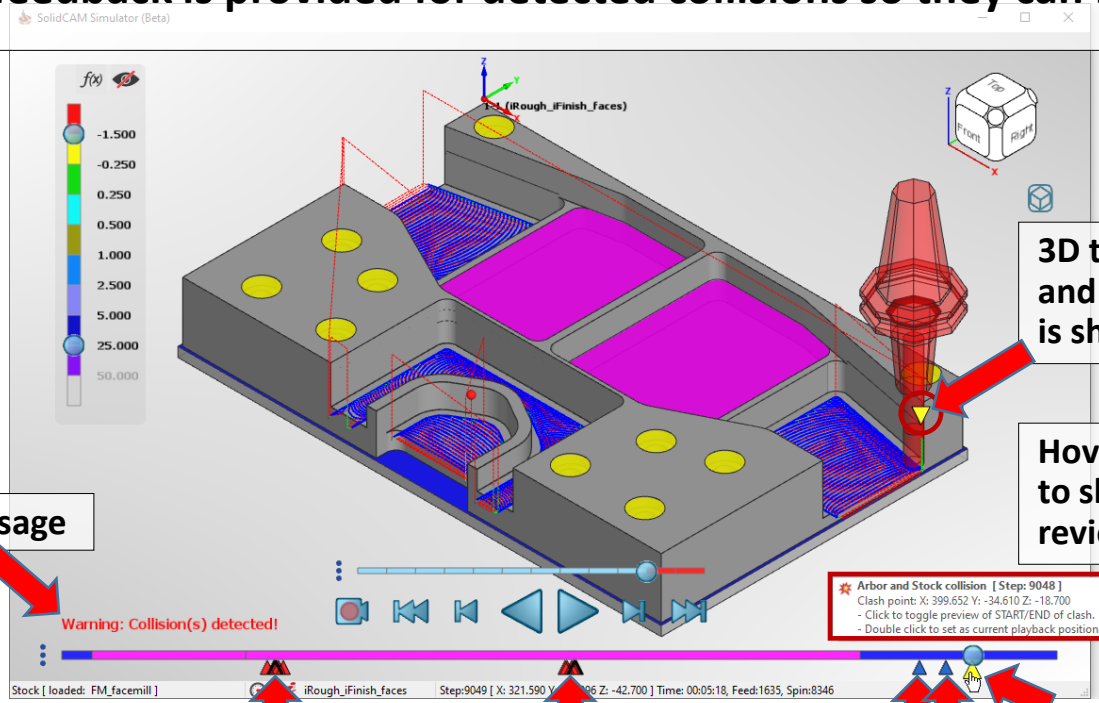
- **Option to check for possible collisions between all the components that participate in the machining (incl., Tool, Tool Holder, Machined Stock and the Fixture)**



See Demo on YouTube

Clash Detection Feedback

- **Detailed feedback is provided for detected collisions so they can be thoroughly reviewed**



3D tool and holder changes color and corresponding collision point is shown in the graphics area

Hover mouse over collision point to show detailed information and review options

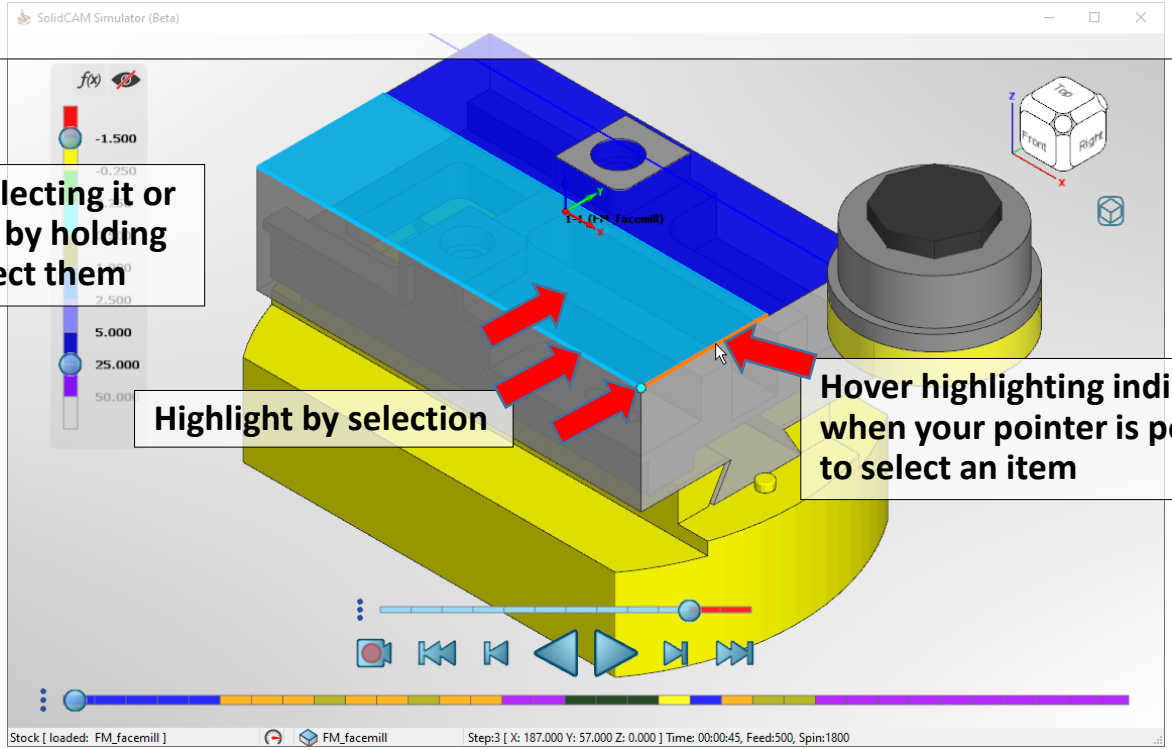
Warning Message

Collision detections and their exact locations are displayed on the Operations bar

Dynamic Highlighting

- **Dynamically highlight faces, edges and vertices on the Machined Stock at any stage of the simulation**

Highlight one item by selecting it or multiple items at a time by holding the Ctrl key to multi-select them

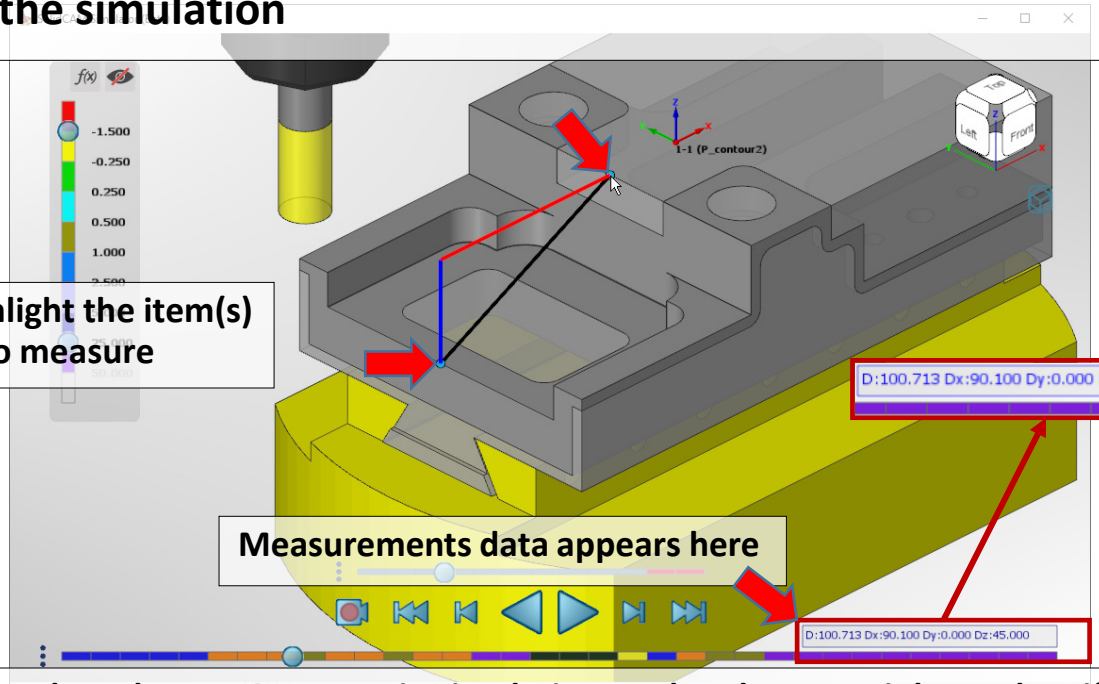


Highlight by selection

Hover highlighting indicates when your pointer is poised to select an item

Dynamic Measuring

- **Dynamically measure one item or a combination of multiple items (up to six) at any stage of the simulation**



Simply highlight the item(s) you want to measure

Data options and indicators are shown when you hover your mouse

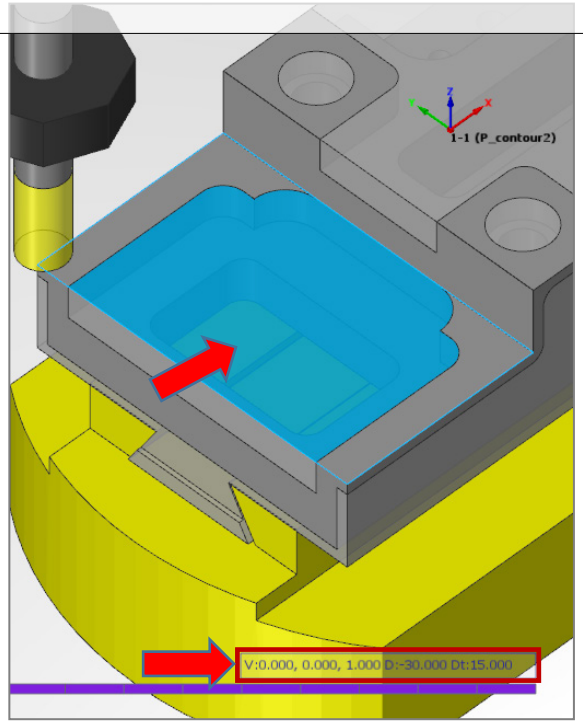
Measurements data appears here

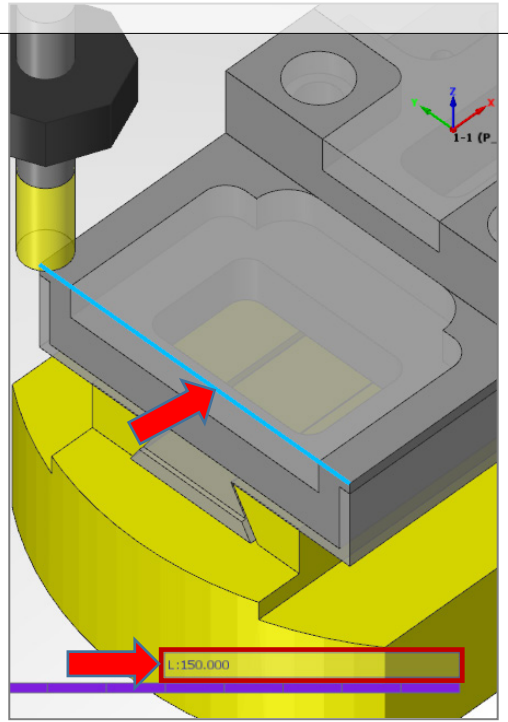
See Demo on YouTube

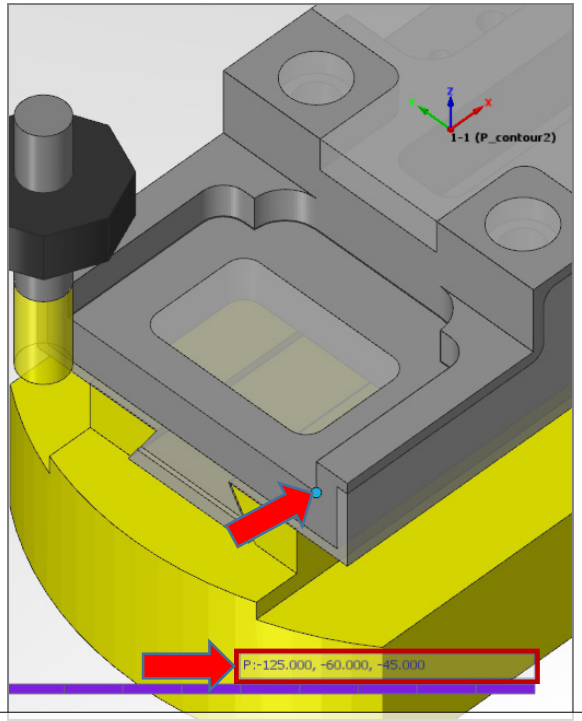
Take Machined Stock measurements in simulation, such as between jobs, and verify on the machine for accuracy

Dynamic Measuring – One Item

- **Easily and accurately measure a face, an edge or a vertex**





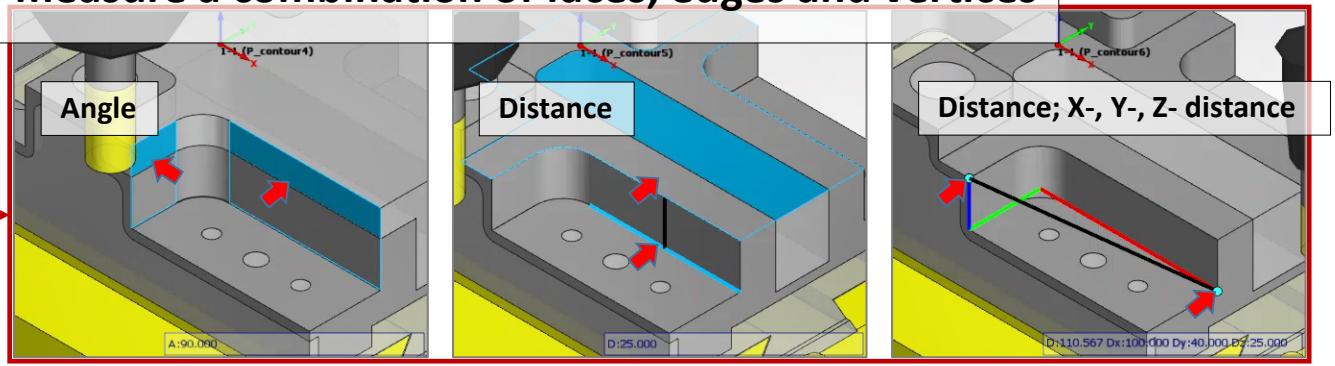


Point X-, Y-, Z- coordinates relative to CoordSys Position

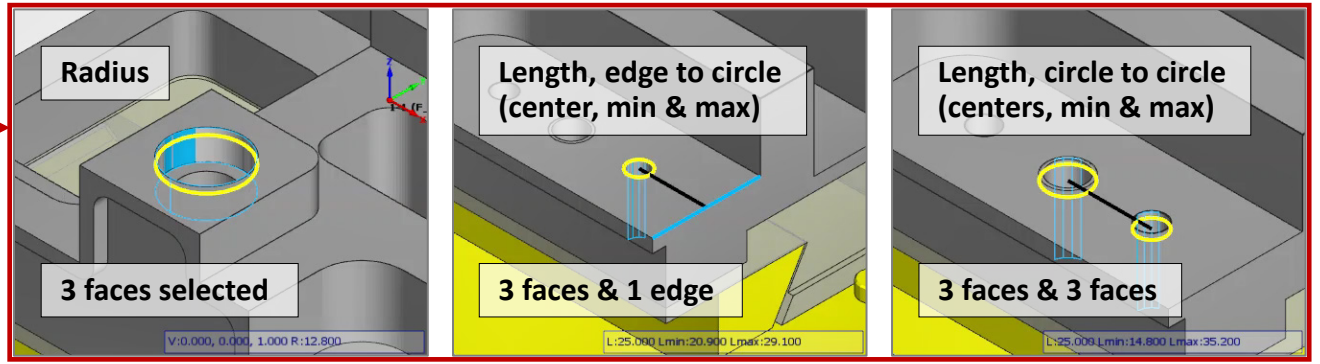
Dynamic Measuring – Multiple Items

- **Easily and accurately measure a combination of faces, edges and vertices**

Examples:
Two items selected



Examples: More than two items (up to six)



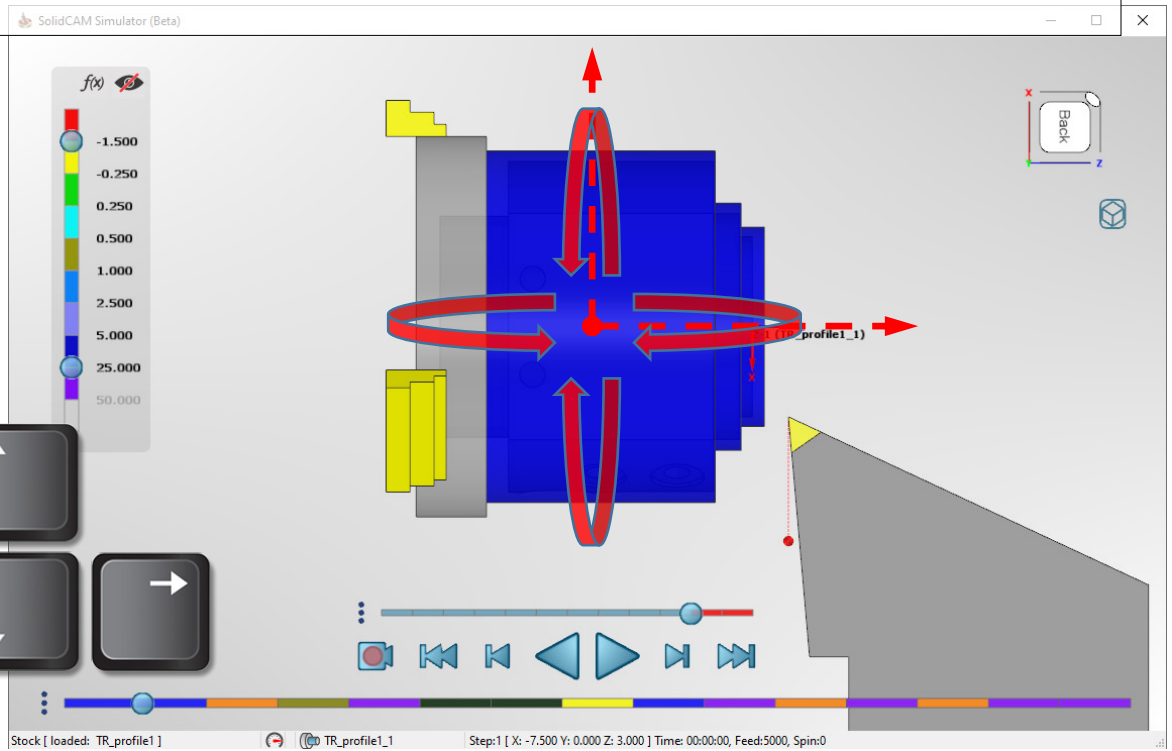
Examples shown do not cover every possible item combination

View Manipulations – Axis Rotation

- **Change the view orientation using your keyboard controls (same as SOLIDWORKS)**

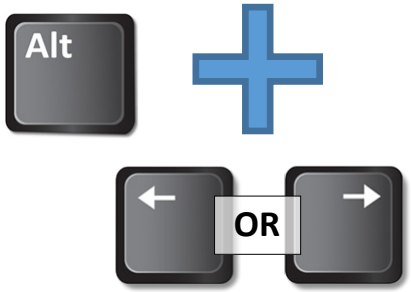
- **Left/right arrow keys – Vertical axis rotation**
- **Up/down arrow keys – Horizontal axis rotation**
- **Shift + left/right or up/down arrows – 90° rotation around vertical/horizontal axis**

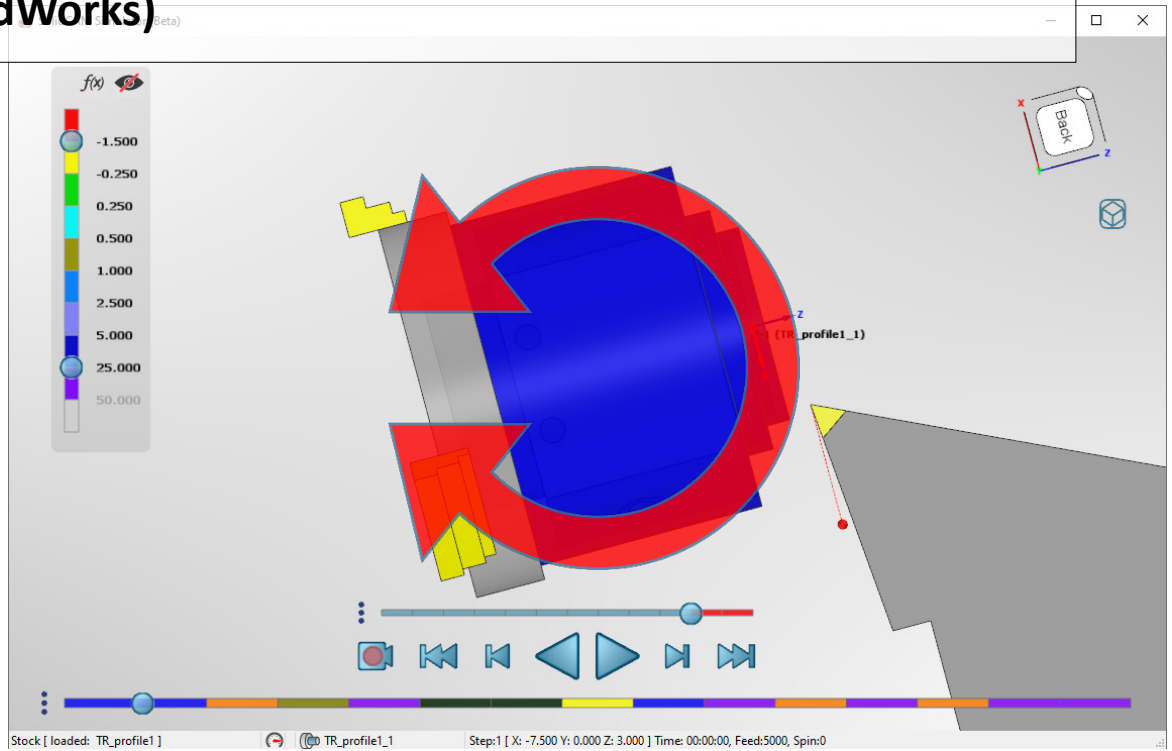
See Demo on YouTube



View Manipulations – Plane Rotation

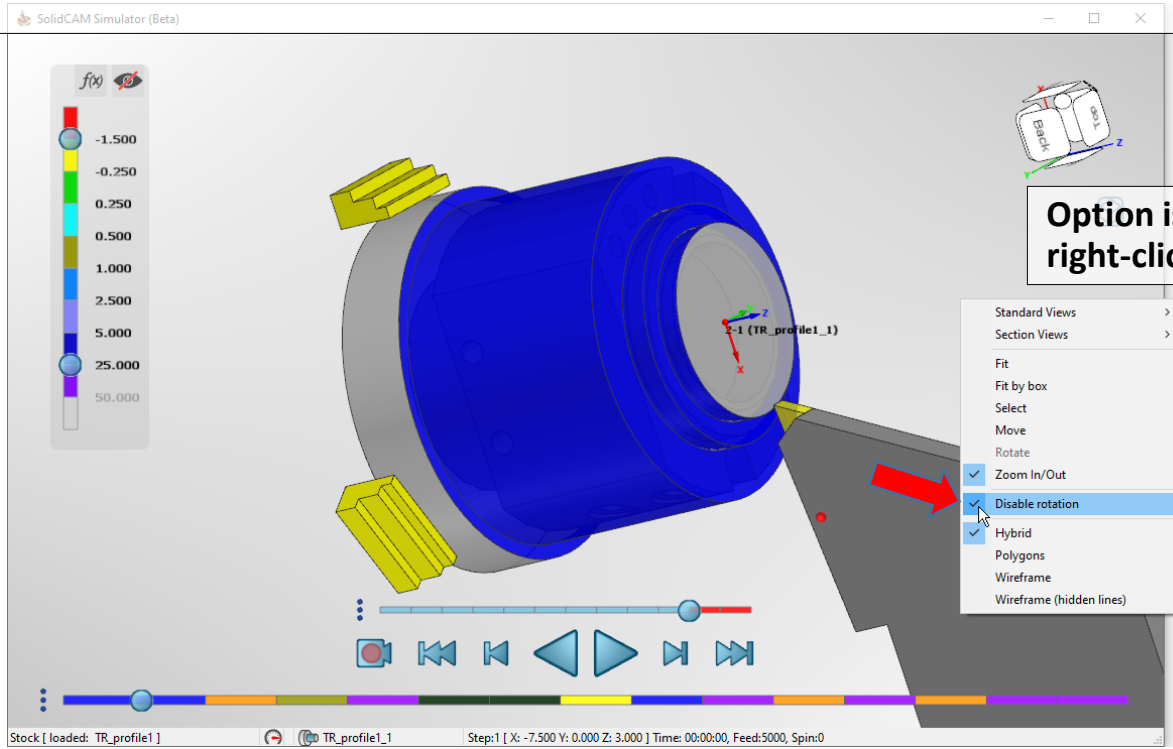
- **Alt + left/right arrow keys – Rotates model normal to the current viewing plane (similar to Roll View in SolidWorks)**





View Manipulations – Disable Rotation

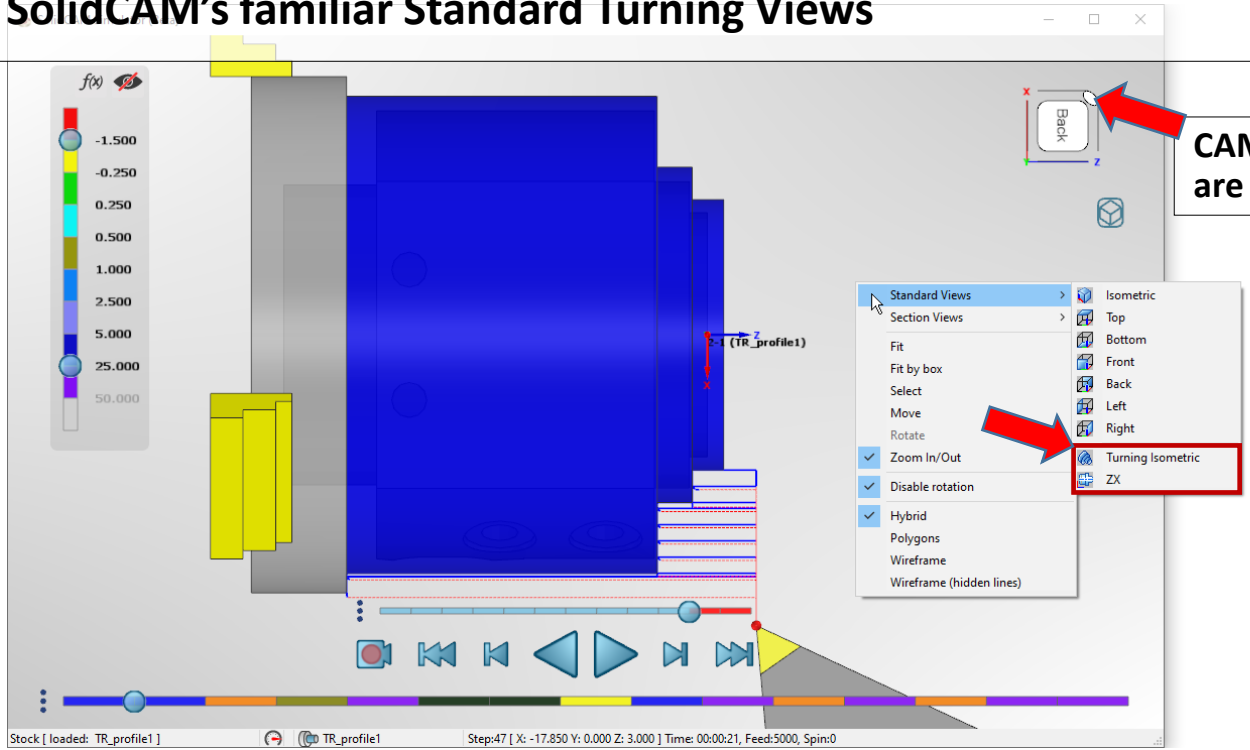
- **Disable rotation option – model will not rotate when middle mouse wheel is pressed**



Option is in View menu, displayed by right-clicking in graphics area

Standard Turning Views

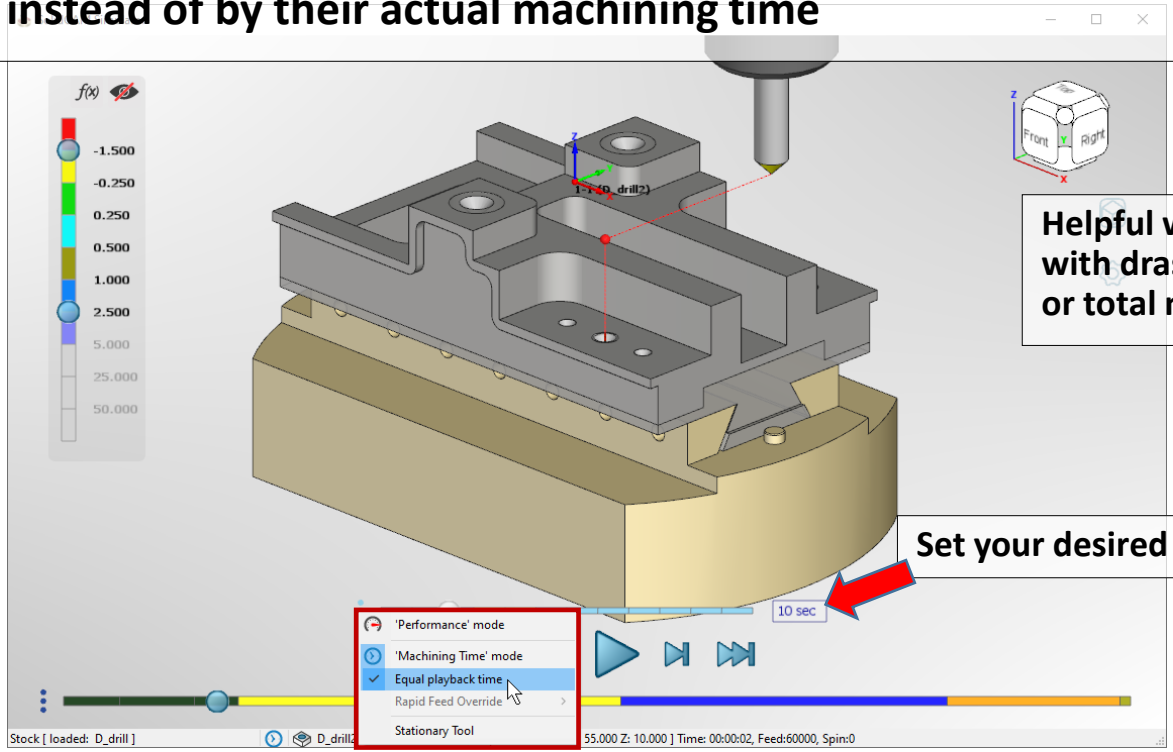
- **Quickly and easily change the view orientation of your Turning and Mill-Turn parts using SolidCAM's familiar Standard Turning Views**



CAM Iso Z Up and Turning Isometric are also available on the View Cube

Machine Time Mode – Equal Playback Time

- **New option to smoothly simulate your operations in a specified, equal amount of time instead of by their actual machining time**



Helpful when reviewing many operations with drastically different tool path steps or total machining times

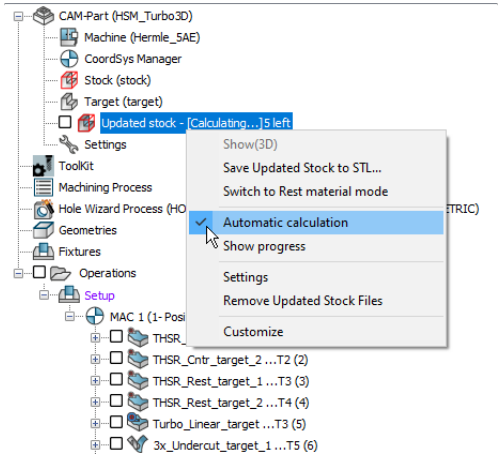
Set your desired playback time

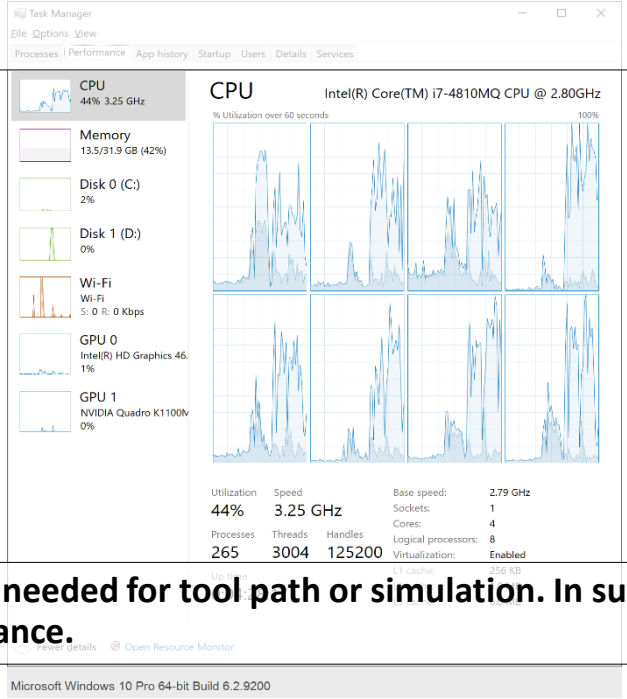
See Demo
on YouTube

General

Automatic Updated Stock Uses Half Cores

- **CPU is limited to 50% utilization of the cores when the Updated stock is calculating in the background (Automatic calculation enabled)**
  - **Increases overall system responsiveness**



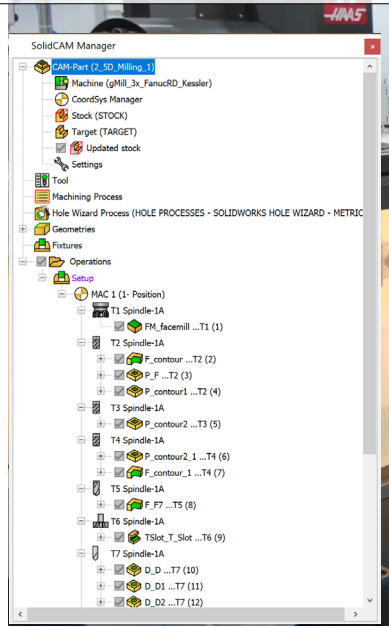


Note: This change does not affect Updated stock calculations needed for tool path or simulation. In such cases, SolidCAM uses 100% of the CPU cores for maximum performance.

SolidCAM ShopFloor Editor

- **SolidCAM's ShopFloor Editor is an excellent tool for making minor changes in operations that can be done right on the shop floor by the machinist**

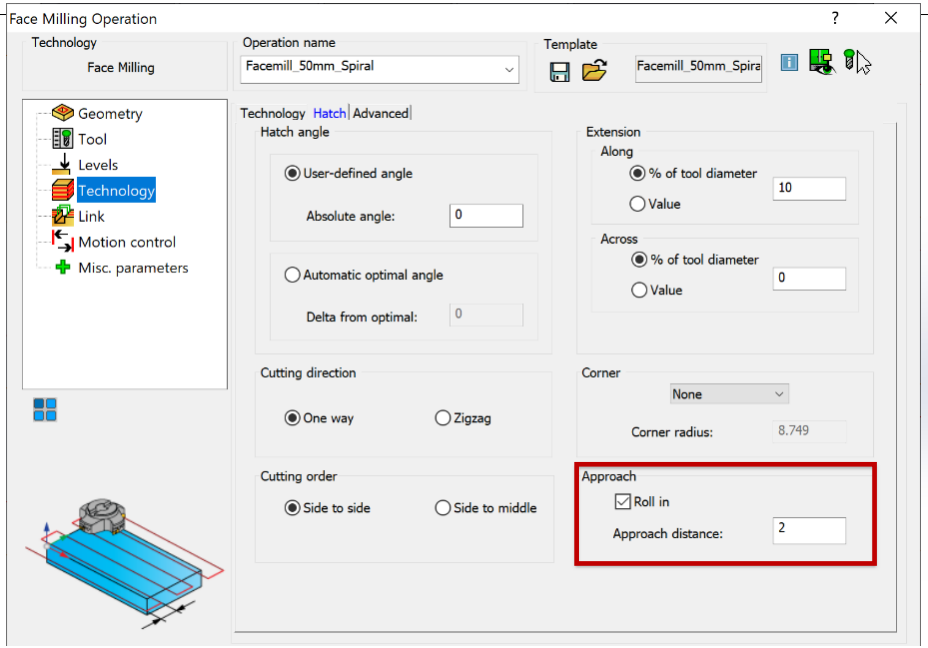
- **Perfect for:**
  - **Adjusting spin and feed rates while you work**
  - **Changing tools during a night shift when your programmers are not available**

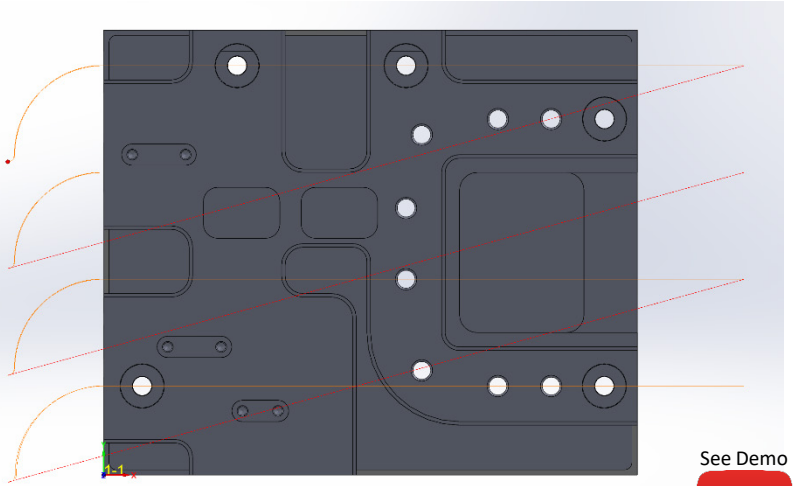


2.5D Milling

Face Milling – Roll in Approach for Hatch

- **The Roll in approach will turn into the Hatch tool path at the start point**
- **This method is recommended by tool manufactures when using Face Mill insert tools**

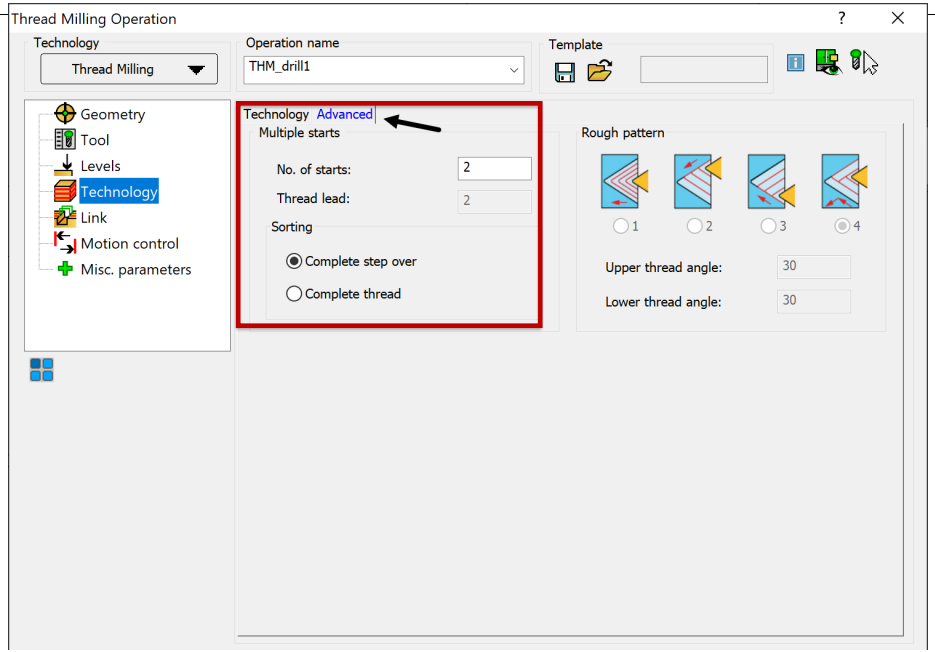


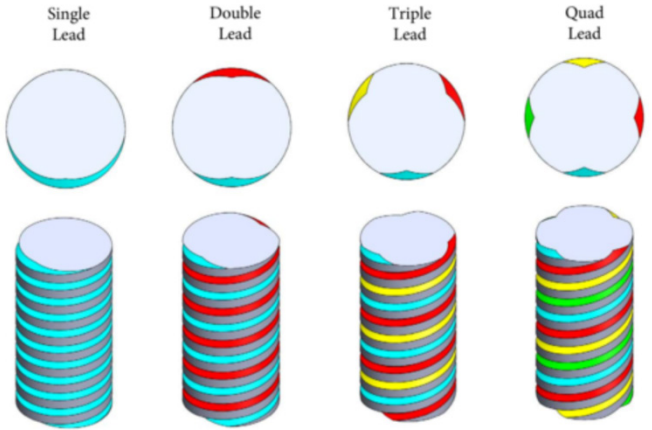


See Demo on YouTube

Thread Milling – Multi-start Threads Support

- **Thread Milling now has the option to have several leads for a thread**
- **These thread types are usually used for quick closing and release of threaded parts**

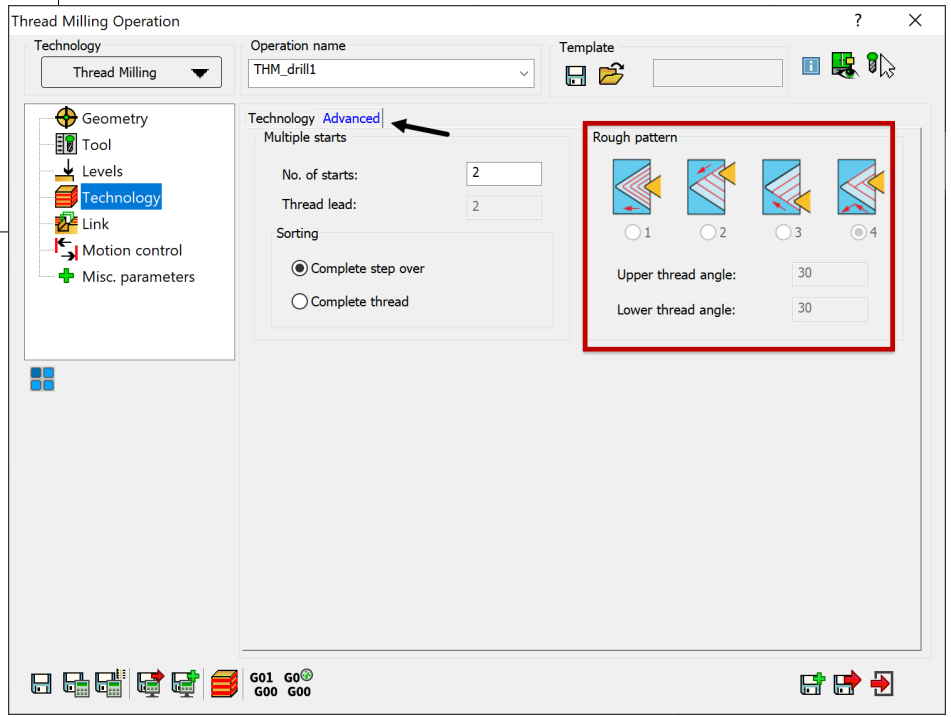




See Demo on YouTube

Thread Milling – Infeed Patterns Support

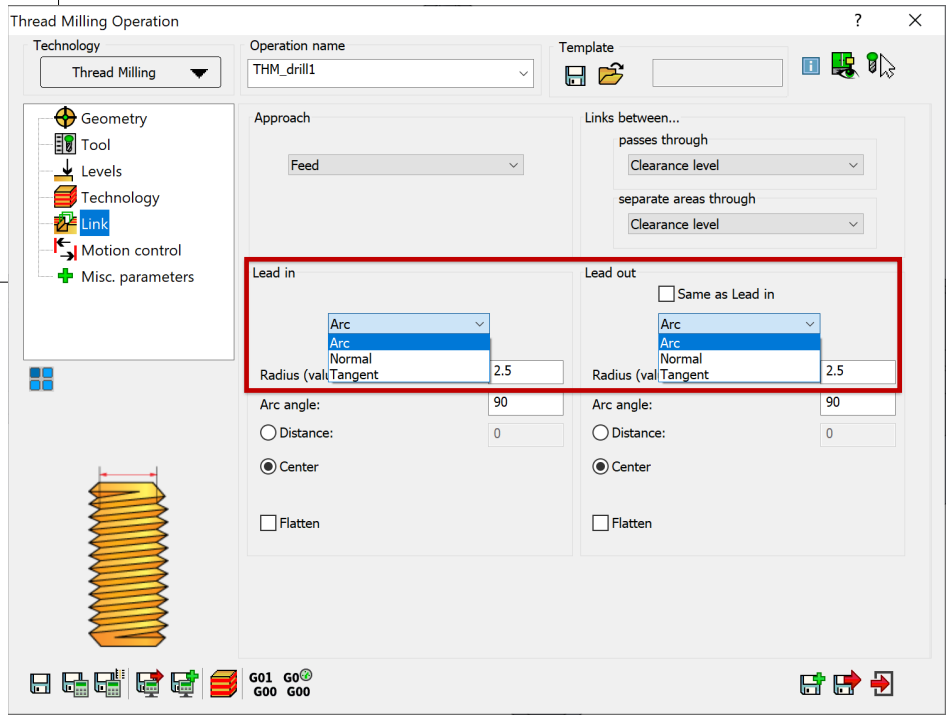
- **Rough patterns is now available in Milling (Thread Milling) as in Turning**
- **This allows you to have complete control over the cutting edge used on the part**



See Demo on YouTube

Thread Milling – Lead in/out with Arc, Normal & Tangent

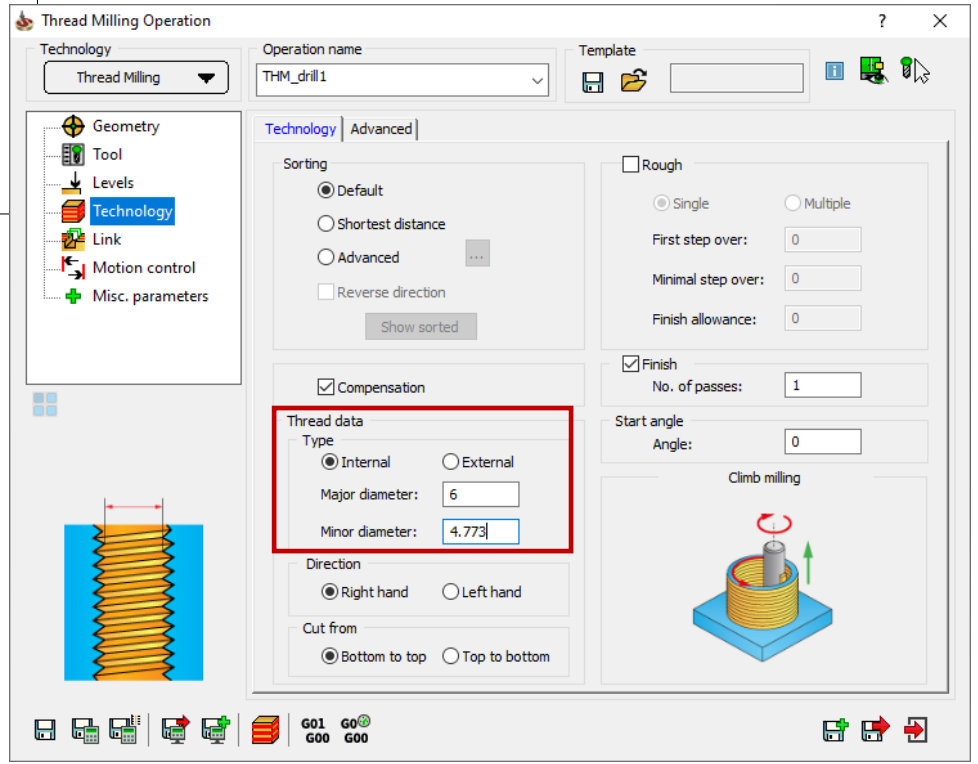
- **You now have complete control as to the method you prefer using for Lead in/out in Thread Milling**
- **You can now use Arc, Normal and Tangent (External thread only) for the Lead in/out**



See Demo on YouTube

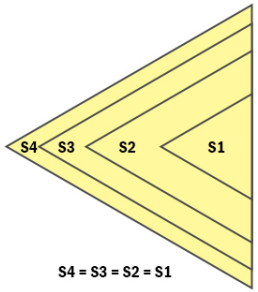
Thread Milling – Minor Diameter Definition

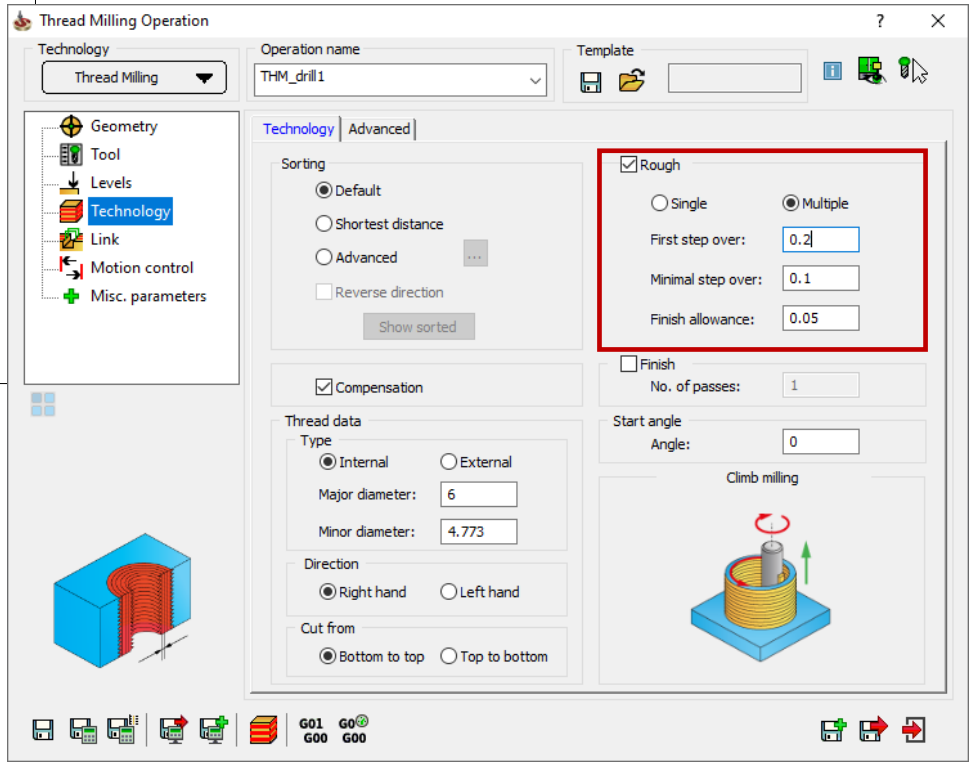
- **Thread data can now be defined with a Minor diameter**
- **This reduces air cutting passes**



Thread Milling – First Step Over Control in Rough

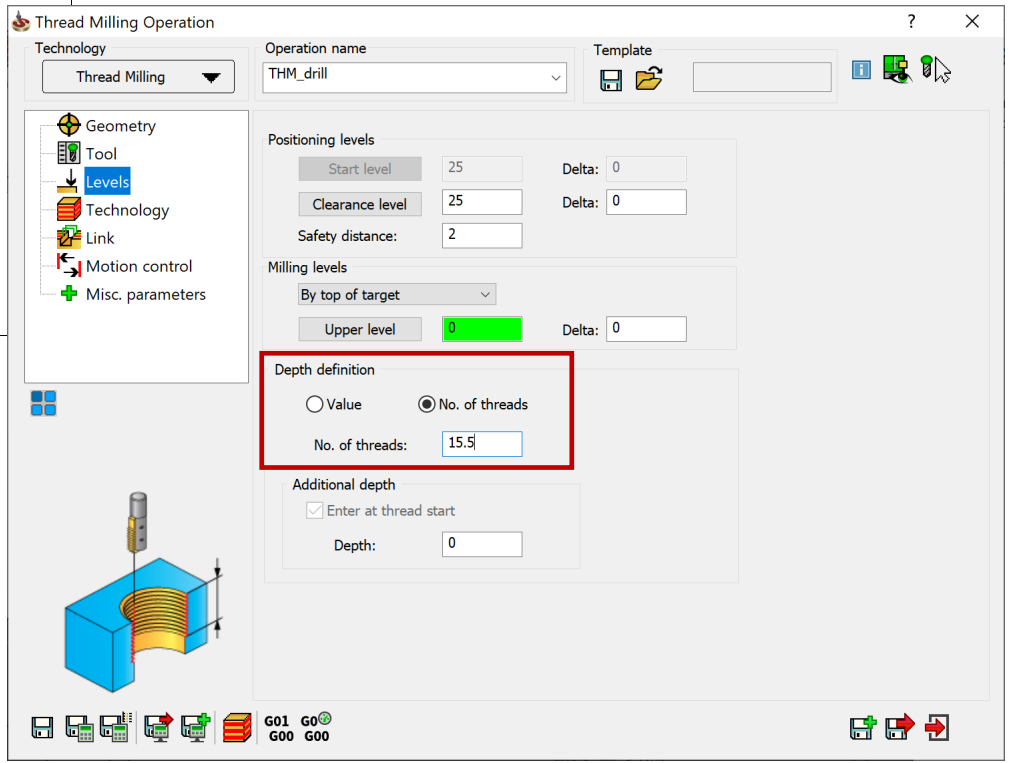
- **First step over removes the entered amount on the first Multiple step**
- **The following steps will decrease automatically to keep a constant load on the tool until it reaches the Minimal step over, and then stop when it reaches the Finish allowance**





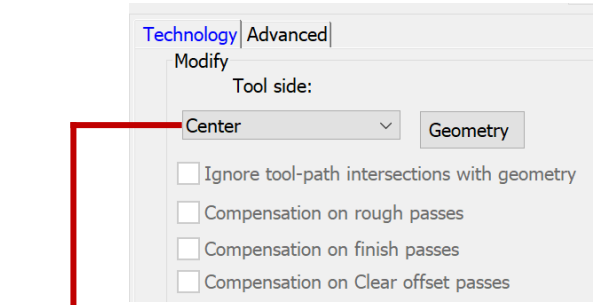
Thread Milling – Decimal Depth Support

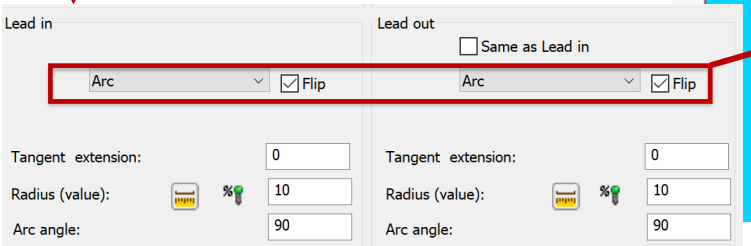
- **Depth definition in Thread Milling now supports decimal values**
- **Support implemented for Number of threads**

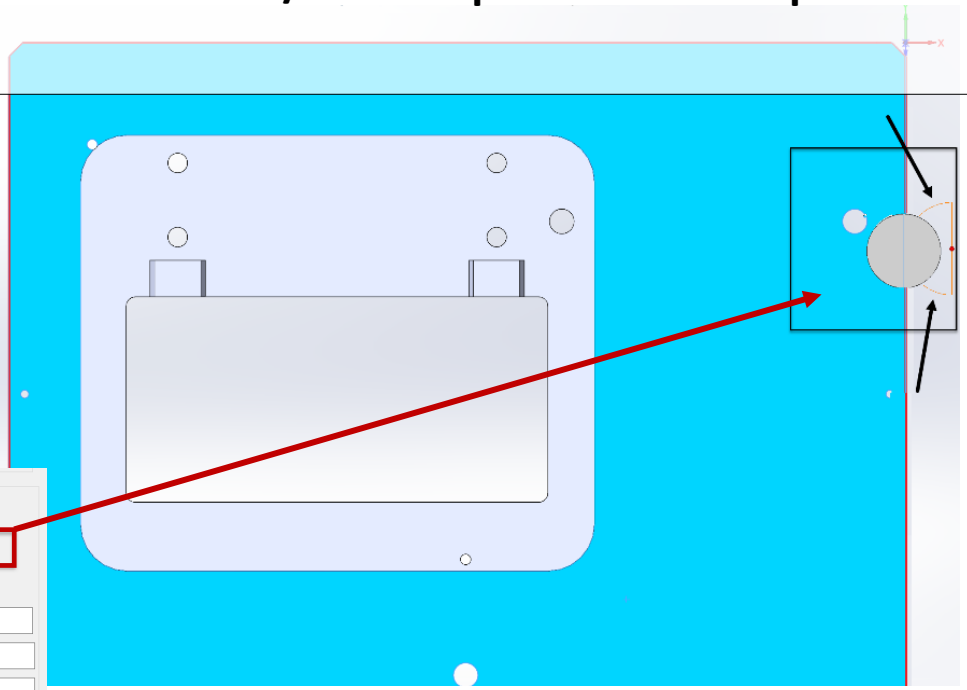


Profile – Lead in/out Flip Option for Center Tool Path

- **Option to flip orientation of Normal & Arc lead in/out tool path in Profile operations when Tool side is set to Center**



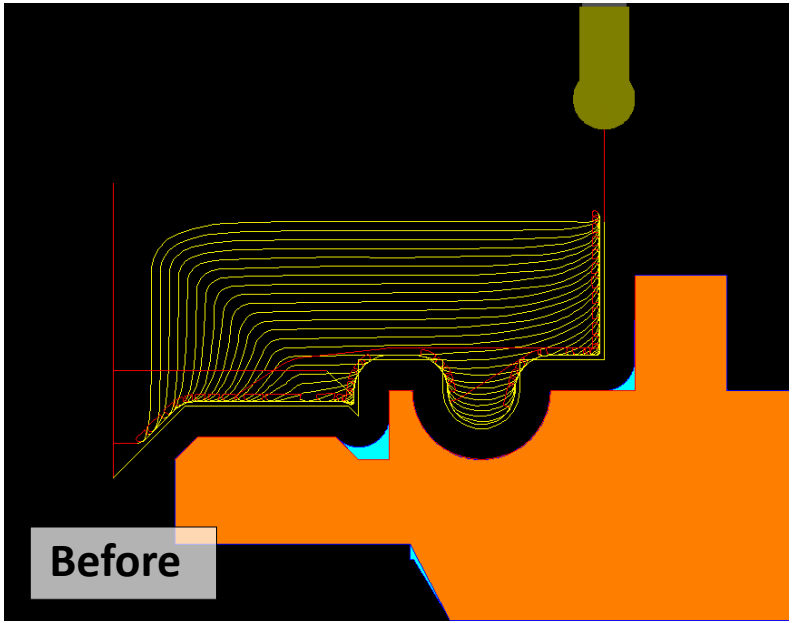


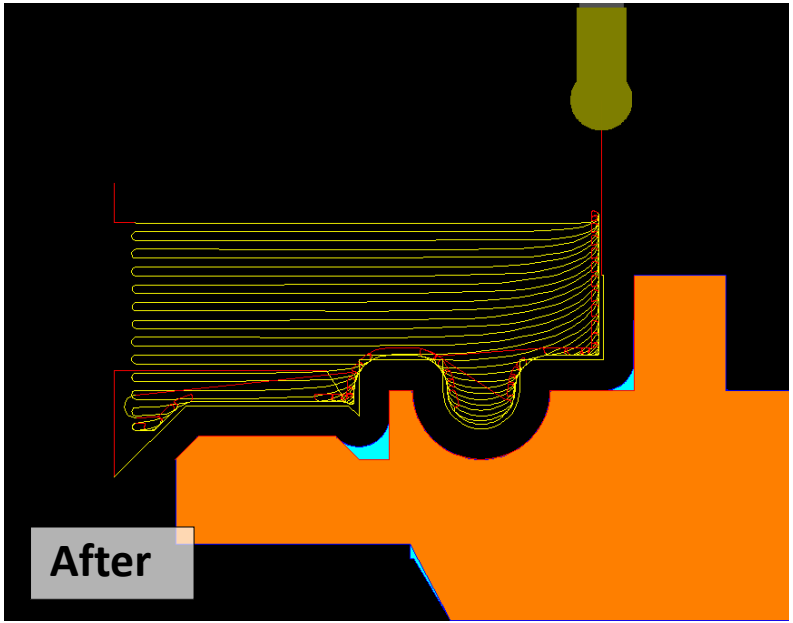


Turning

Trochoidal Turning – Improved Tool Path Algorithm

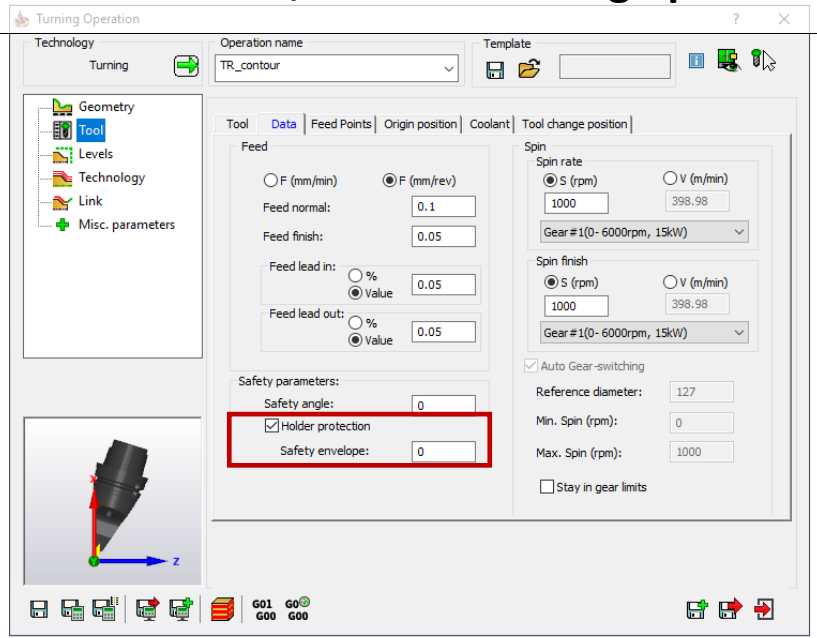
- **Improved Trochoidal Turning algorithm optimizes the entire roughing procedure by producing a more suitable tool path at the end of the stock**

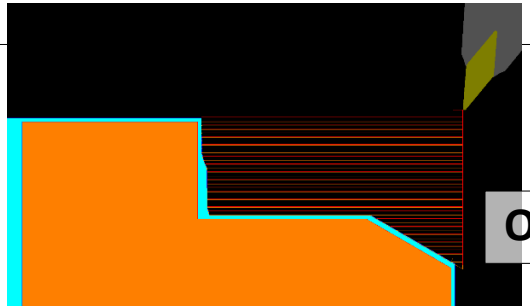




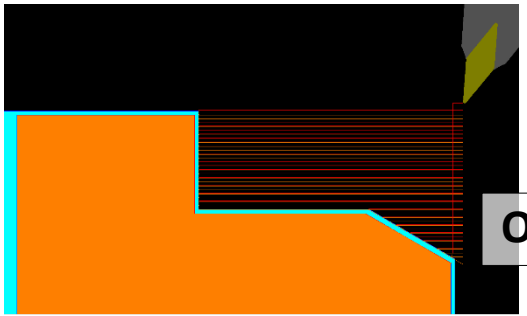
STL Holder Protection in Turning

- **Holder protection detects and avoids collisions in Turning rough and finish procedures**
- **Check box allows you to cancel holder collision detection when it's not needed, such as for Face Groove, Internal Turning operations, etc.**





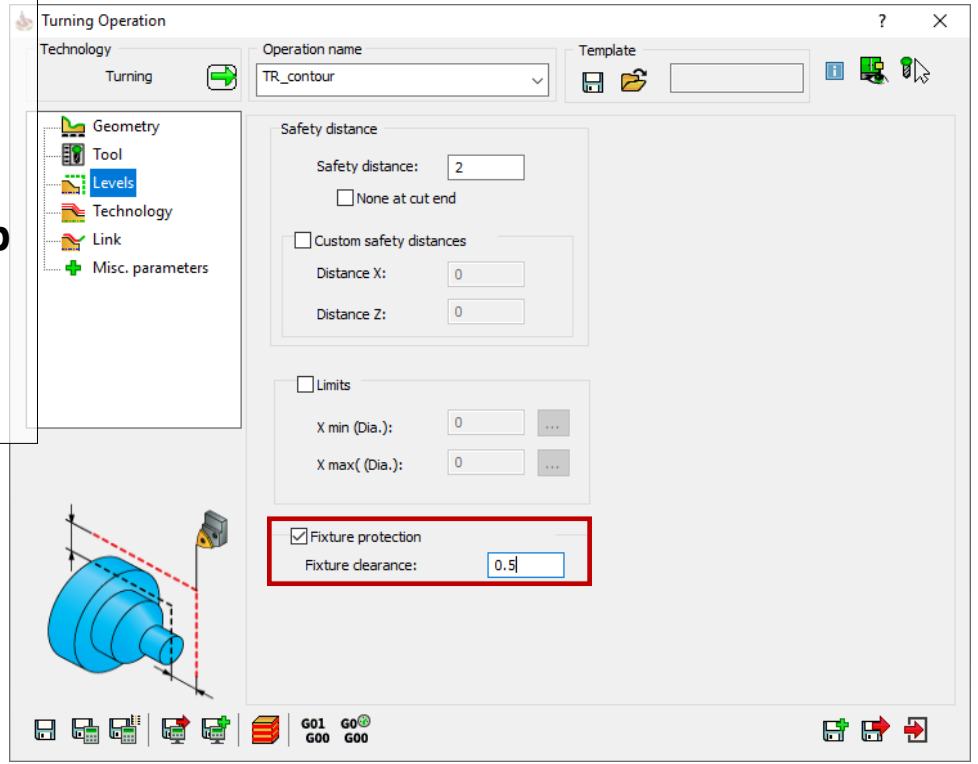
ON (default)



OFF

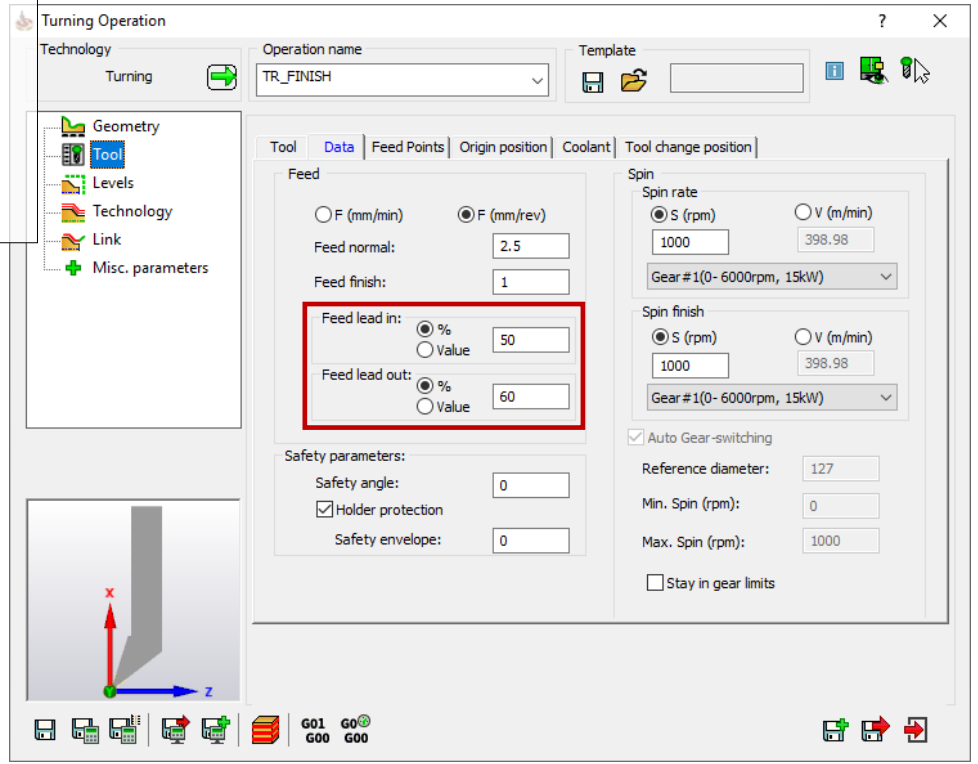
Fixture Protection in Turning

- **Fixture protection detects and avoids collisions between your defined Setup and the Cutter**
- **Fixture clearance specifies the distance by which the Cutter must avoid the Setup**
- **Turning tool path is adjusted automatically**



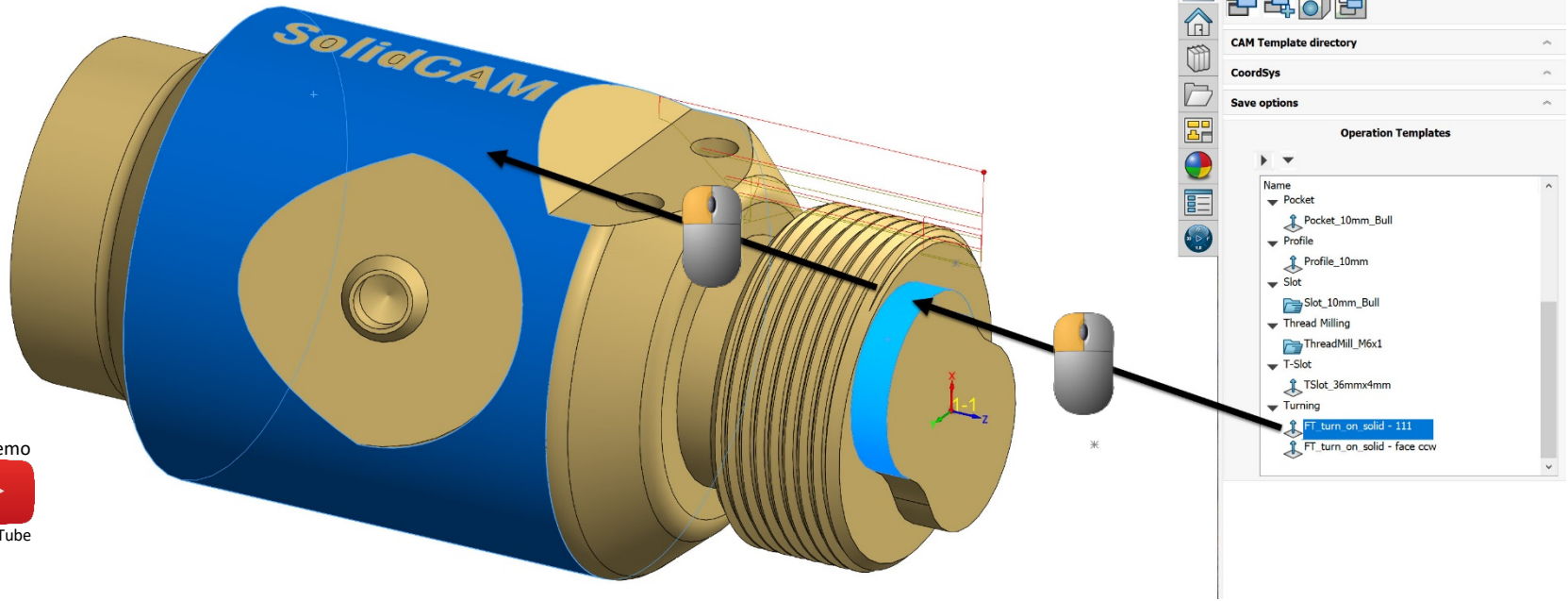
Feed Lead In/Out in Turning Tool Data

- **You now have the option to modify the Feed rate for Lead in and Lead out by a user-defined value or by a percentage increase/decrease relative to Feed finish**



Drag & Drop Templates in Turning

- **You can now drag & drop a template with your mouse from the SolidCAM Task Pane to one or more surfaces of your model to create a Turning operation**

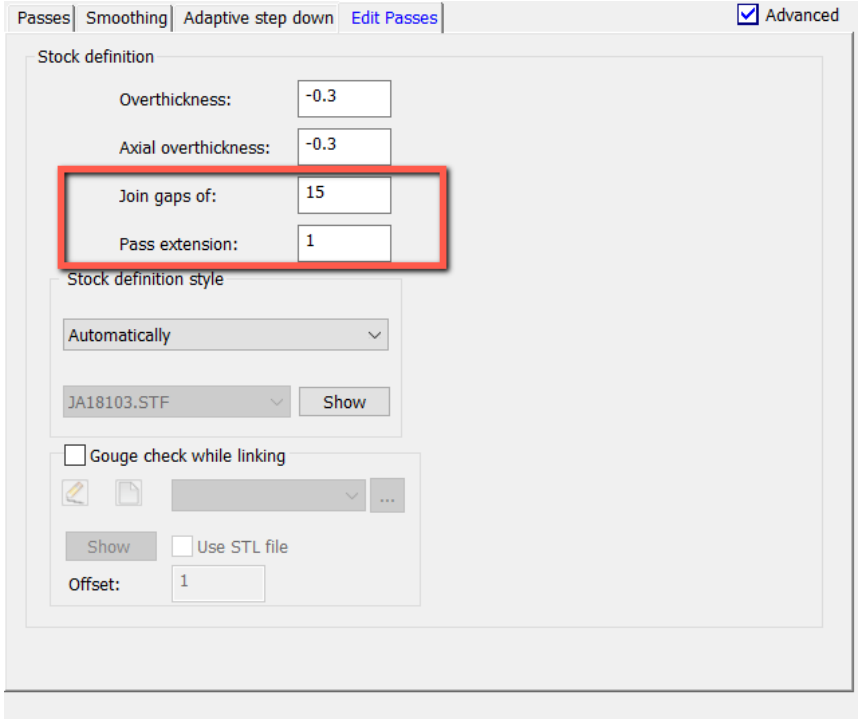


See Demo on YouTube

HSR/HSM

HSR – Join Gaps & Pass Extension

- **Join Gaps allows HSR to join gaps between 2 groups of tool paths**
- **Pass extension allows the user to extend the tool path by the user defined value**



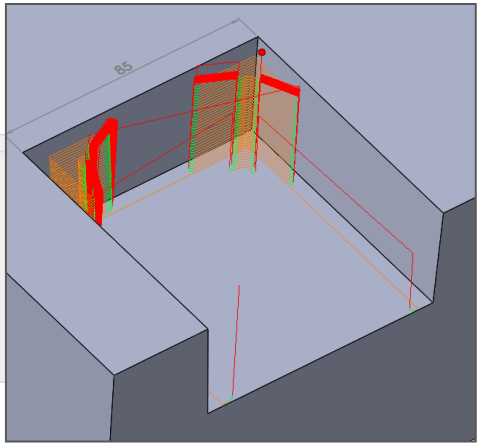
See Demo on YouTube

HSR – Join Gaps & Pass Extension Tool Path

Original tool path

Stock definition

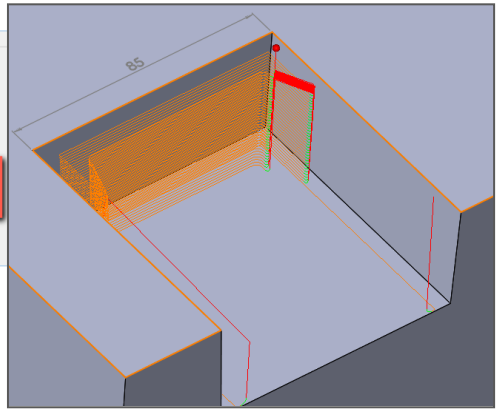
Overthickness:	-0.3
Axial overthickness:	-0.3
Join gaps of:	15
Pass extension:	1



Stock definition

Overthickness:	-0.3
Axial overthickness:	-0.3
Join gaps of:	100
Pass extension:	1

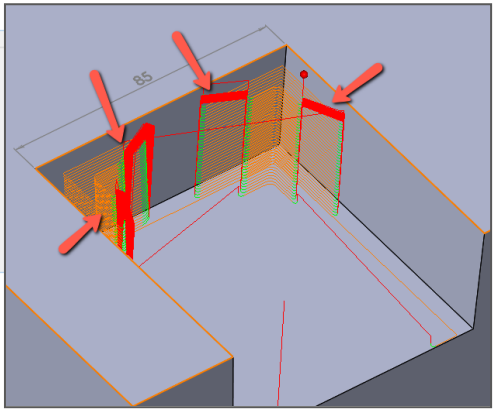
Join gaps



Stock definition

Overthickness:	-0.3
Axial overthickness:	-0.3
Join gaps of:	15
Pass extension:	7

Pass extension

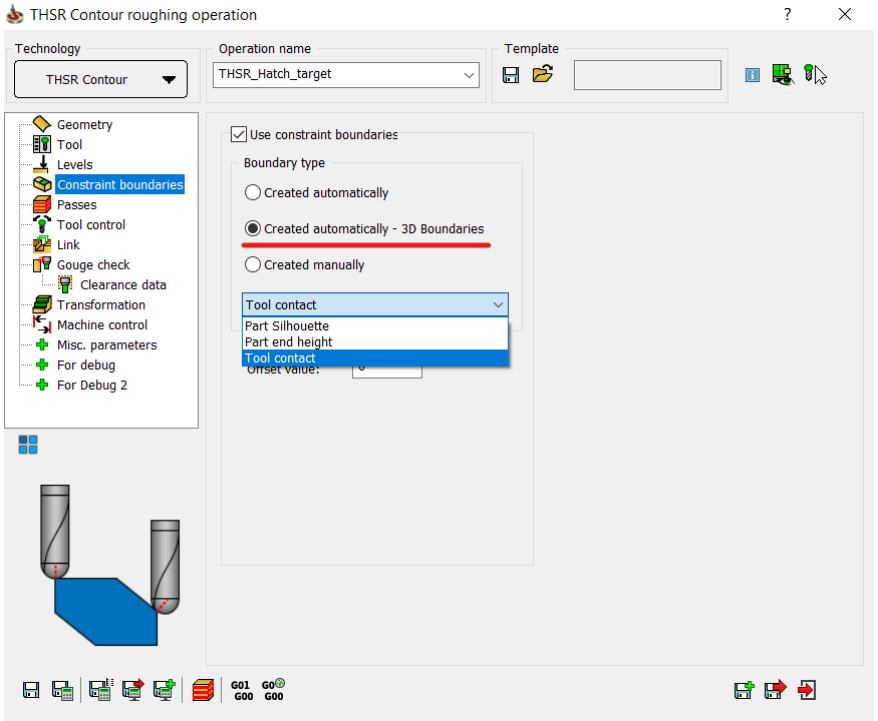


Turbo HSR

Turbo HSR – New 3D Boundaries

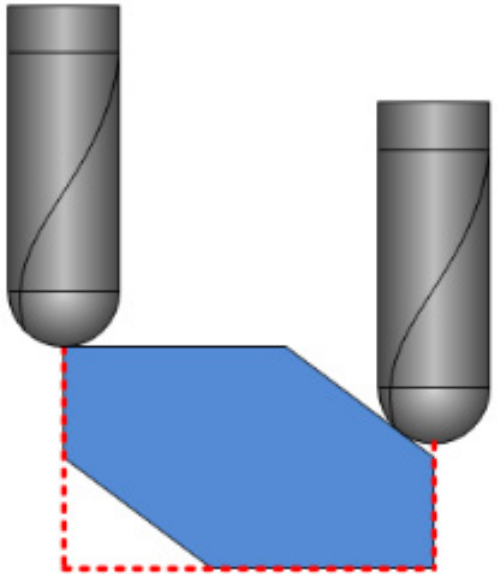
- **Turbo HSR now offers Automatic Boundary Definition based on the following:**
  - **Part Silhouette**
  - **Part end height**
  - **Tool contact**

See Demo
on YouTube



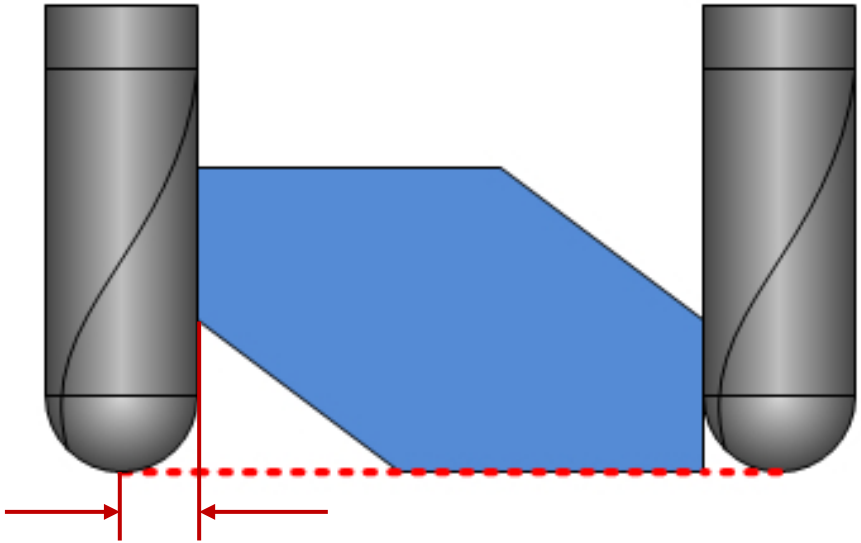
Turbo HSR – Part Silhouette Boundary

- **Part Silhouette is the default boundary**
- **The area machined is limited to the tool center line which follows exactly the actual part shadow**



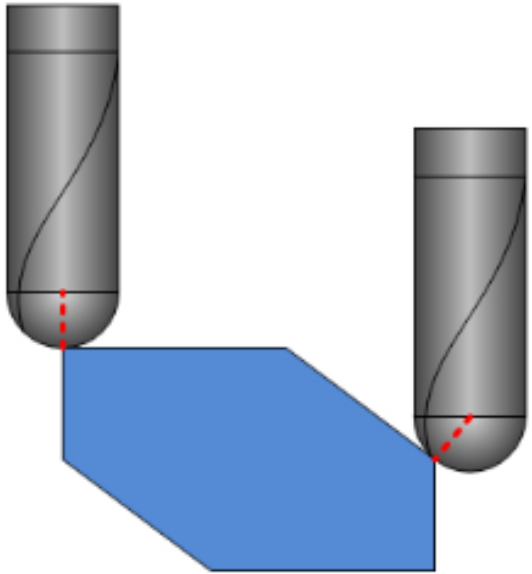
Turbo HSR – Part End Height Boundary

- **In Part end height method, 2D contour is determined by the part shadow onto machining plane offset outwards by the tool radius**



Turbo HSR – Tool Contact Boundary

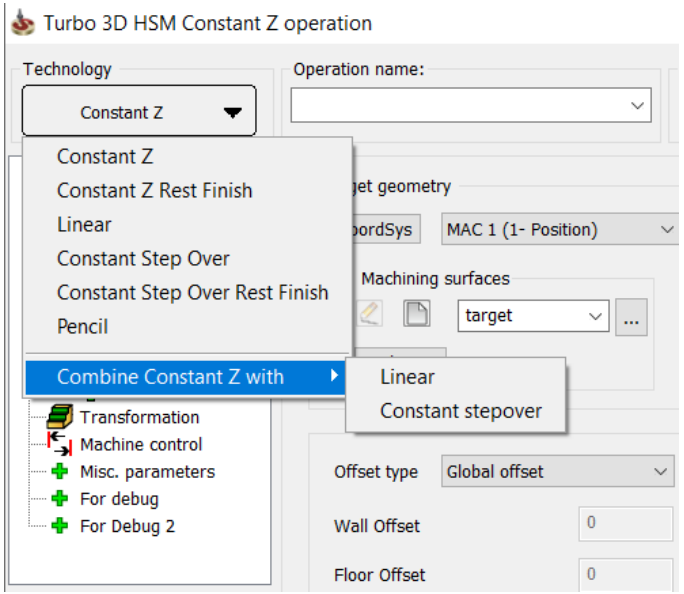
- **In Tool contact method, the silhouette is determined by the tool contact point**
- **In case of steep walls, the silhouette is the exact tool tip**
- **In shallow areas, the tool reaches a bit over the tool tip in order to machine the complete surface**



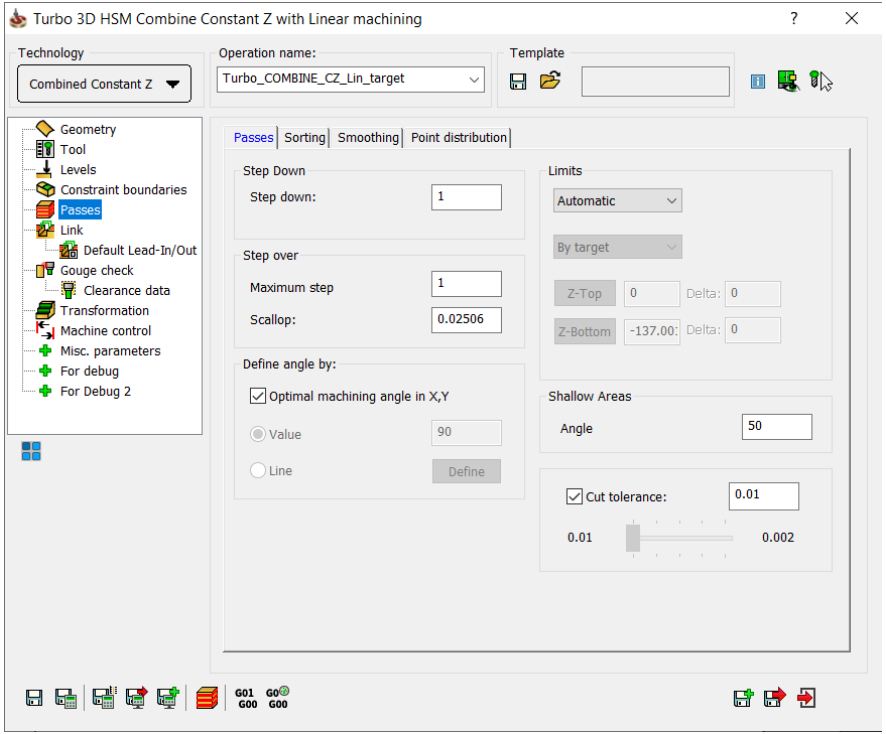
Turbo HSM

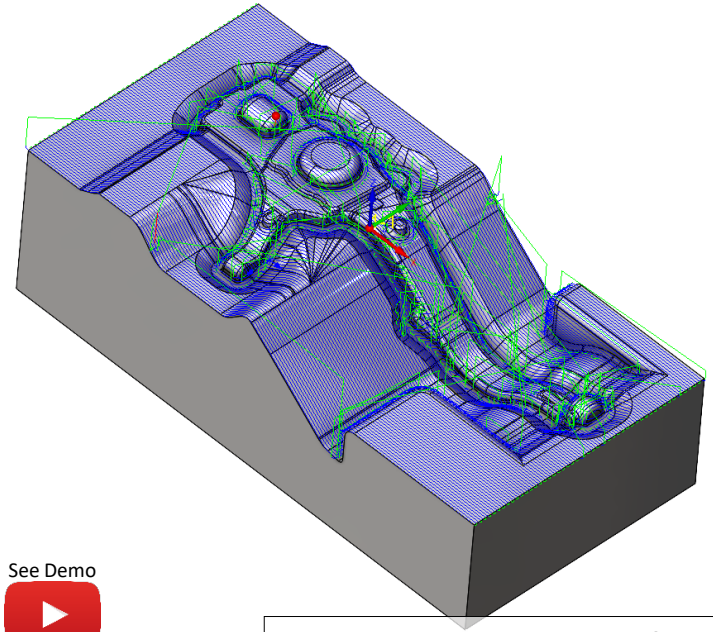
Turbo HSM – Combination Operation

- **Turbo HSM now offers combination operations, which combine 2 strategies together to provide a single tool path**
  - **Constant Z + Linear**
  - **Constant Z + Constant stepover**



Turbo HSM – Combine Constant Z + Linear Machining

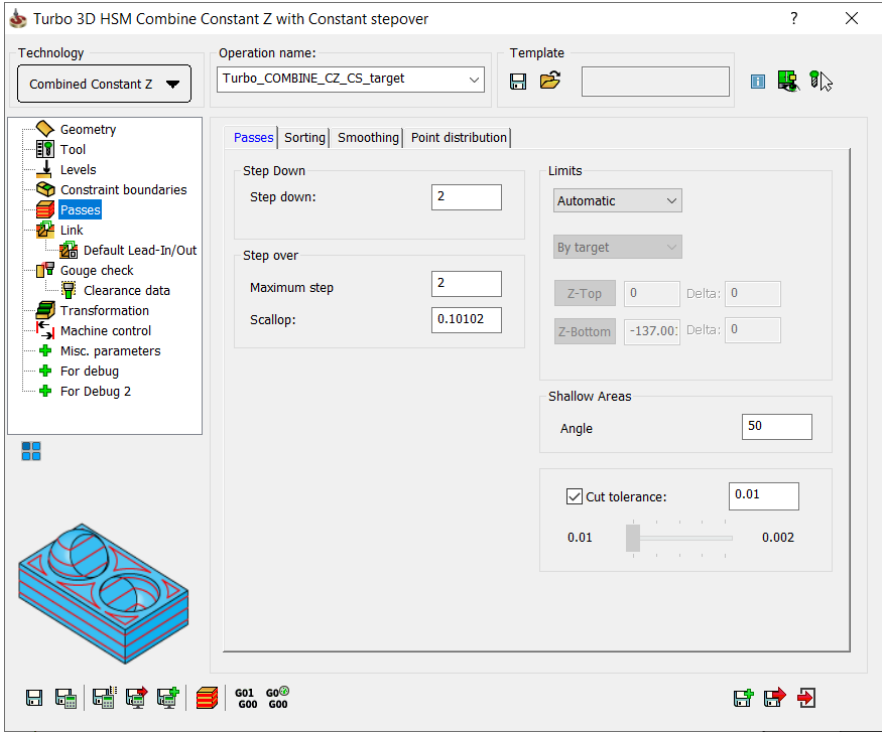


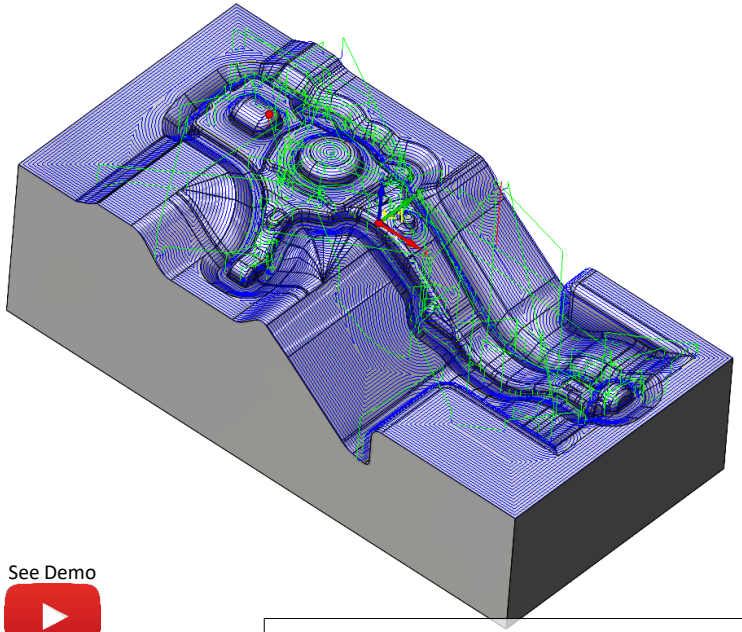


See Demo on YouTube

Constant Z + Linear machining

Turbo HSM – Combine Constant Z + Constant Stepover





See Demo

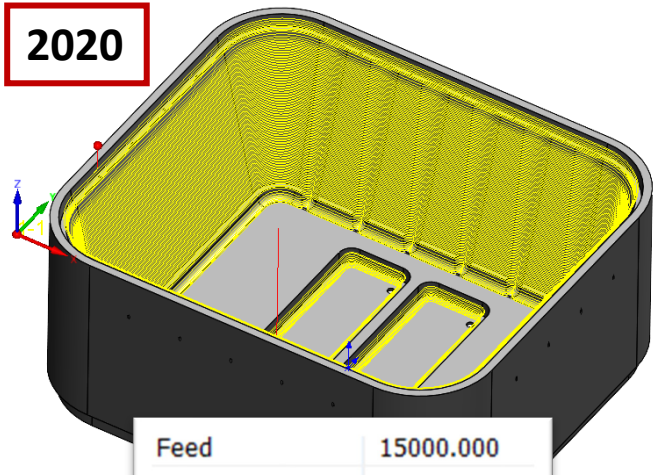
on YouTube

Constant Z + Constant stepover

Turbo HSM – Tool Path Quality Improvement

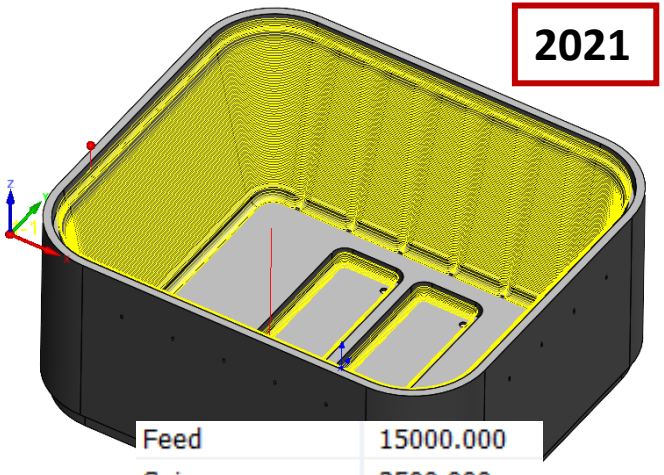
- **The generated Turbo HSM tool path now contains significantly less points while still maintaining the same tool path quality as before**

2020



Feed	15000.000
Spin	3500.000
Spindle direction	CW
Step	132647

2021



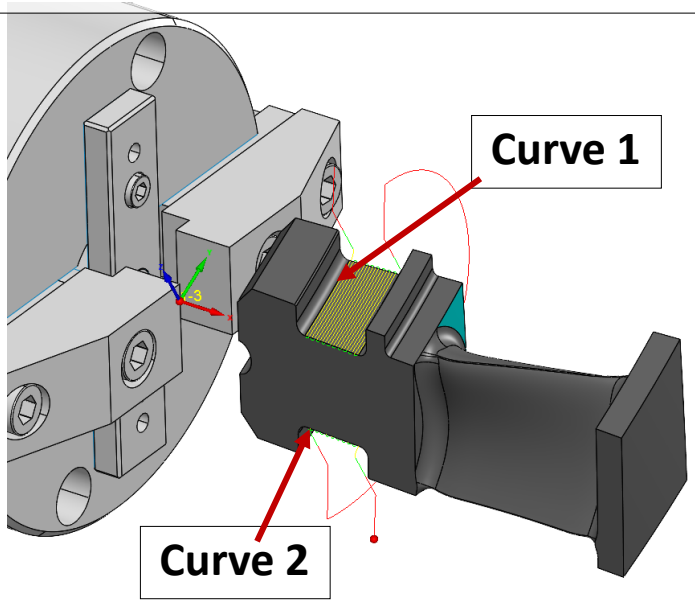
Feed	15000.000
Spin	3500.000
Spindle direction	CW
Step	86274

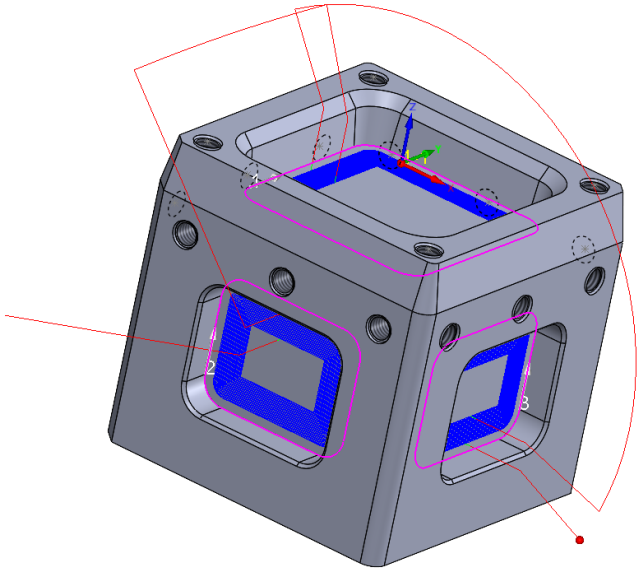
See Demo on YouTube

HSS & Sim 5X Improvements

HSS/SIM 5X – Support of Multiple Guide Curves

- **SolidCAM now enables you to define multiple guide curves, which helps you to create a single tool path for more than one region**
  - **Applicable for “Parallel to Curves” only**

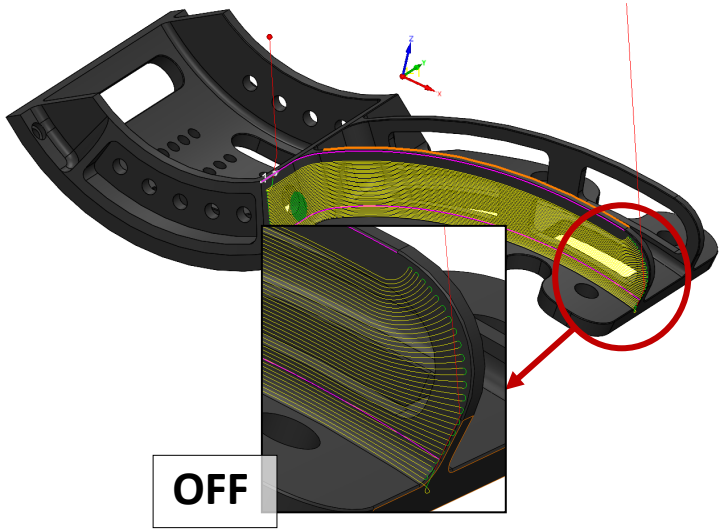


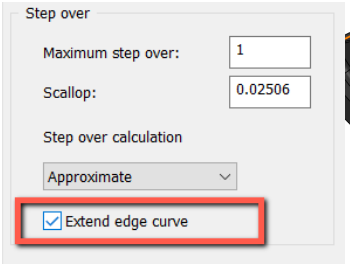


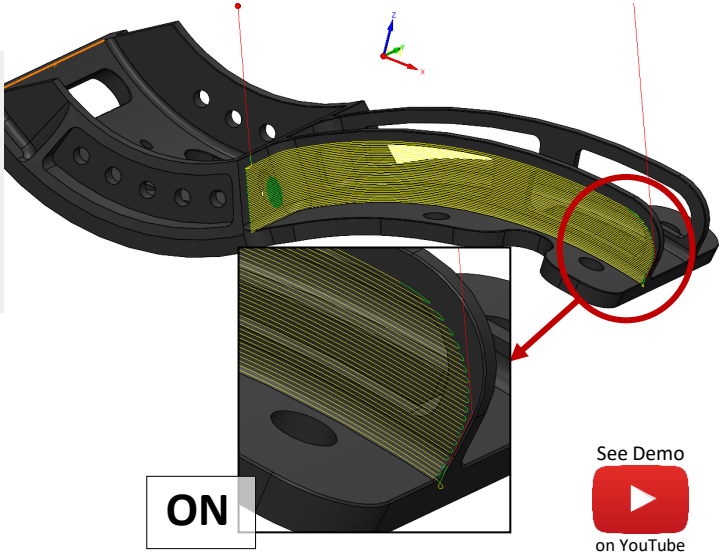
See Demo on YouTube

HSS/SIM 5X – Extend Edge Curve

- **Extend edge curve option extends the shorter curve to match longer curve, forcing the tool path pattern to follow the extended curves**
  - **Applicable for “Morph between 2 curves” & “Parallel to Curves” only**



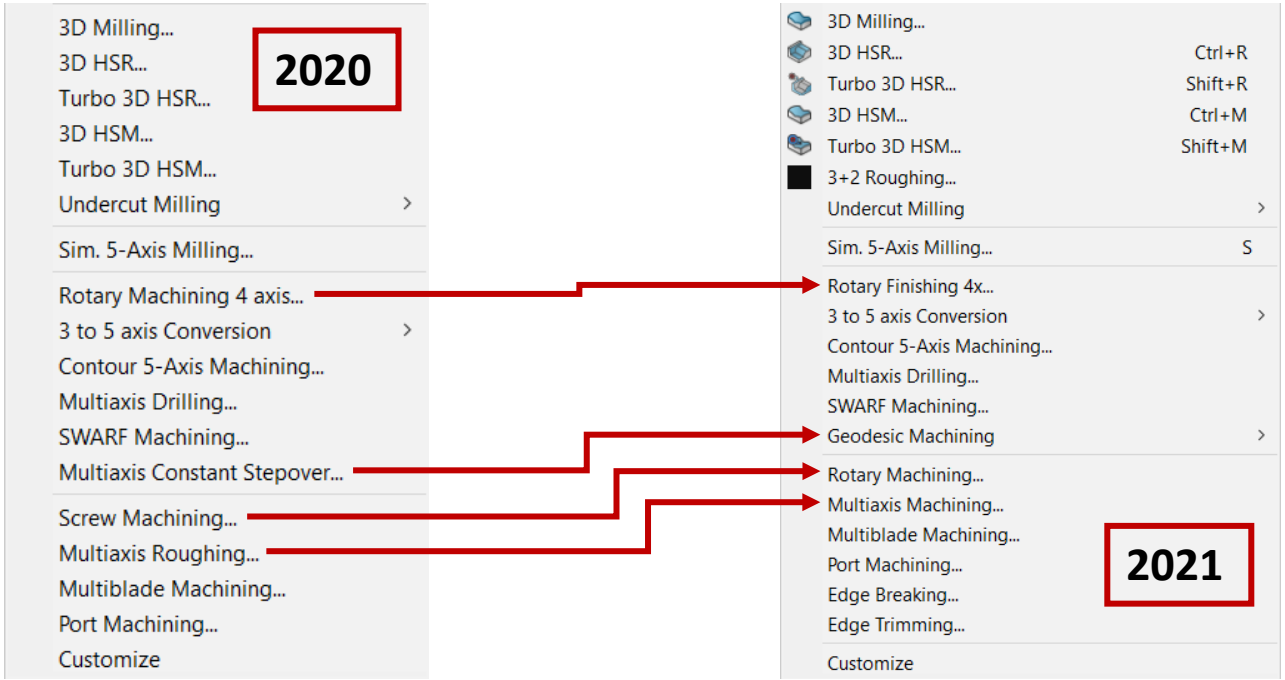




See Demo on YouTube

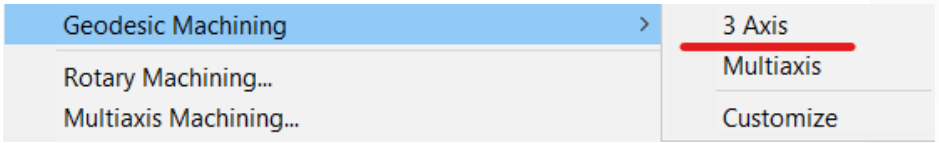
SIM 5X – Operation Name Changes

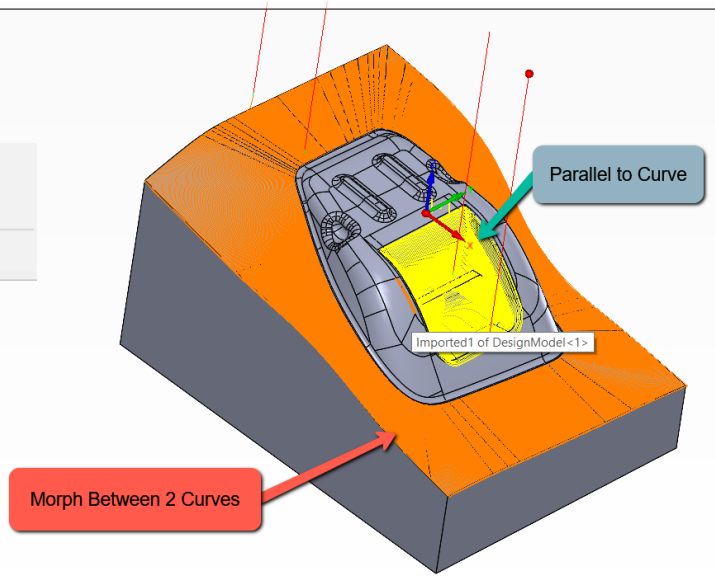
- **There are several Operation names that have been changed to suit the process for which the feature / operation is built**



Geodesic Machining – 3X Support

- **SolidCAM Geodesic Machining uses a global distance field without a fixed direction as a reference for the calculation, which enables full flexibility for calculating various pattern types while maintaining consistent distances (Constant Stepover) between cuts**

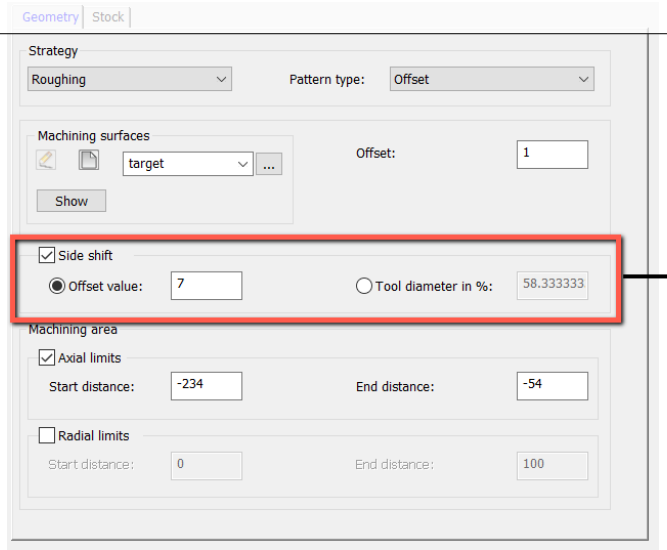


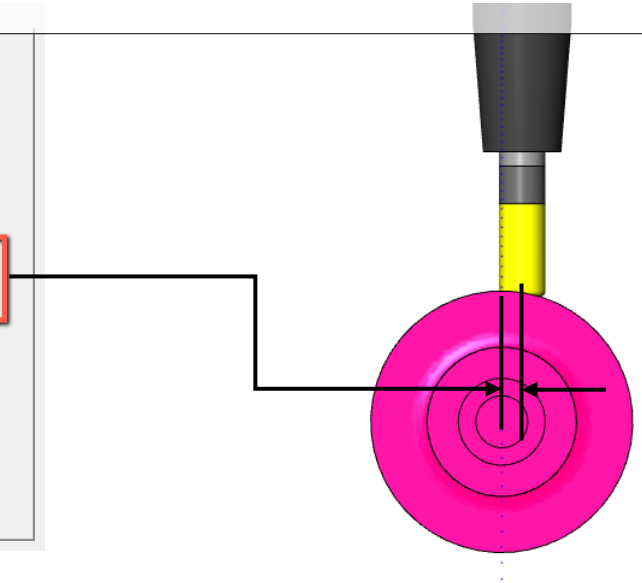


See Demo on YouTube

Rotary Machining – Side Shift

- **Side shift, available only for roughing cycles, allows rotary machining with an axis offset**
- **This option enables the tool to cut properly with the cutting edges, not the tool center, thereby enabling more stable cutting speeds and close-to-diameter cutting with non-spherical tools**

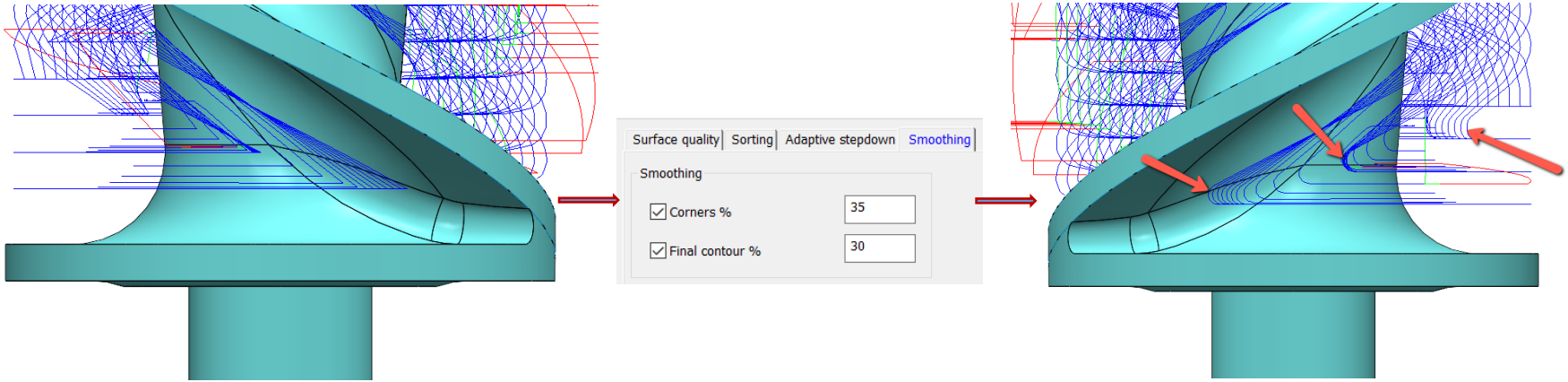




See Demo on YouTube

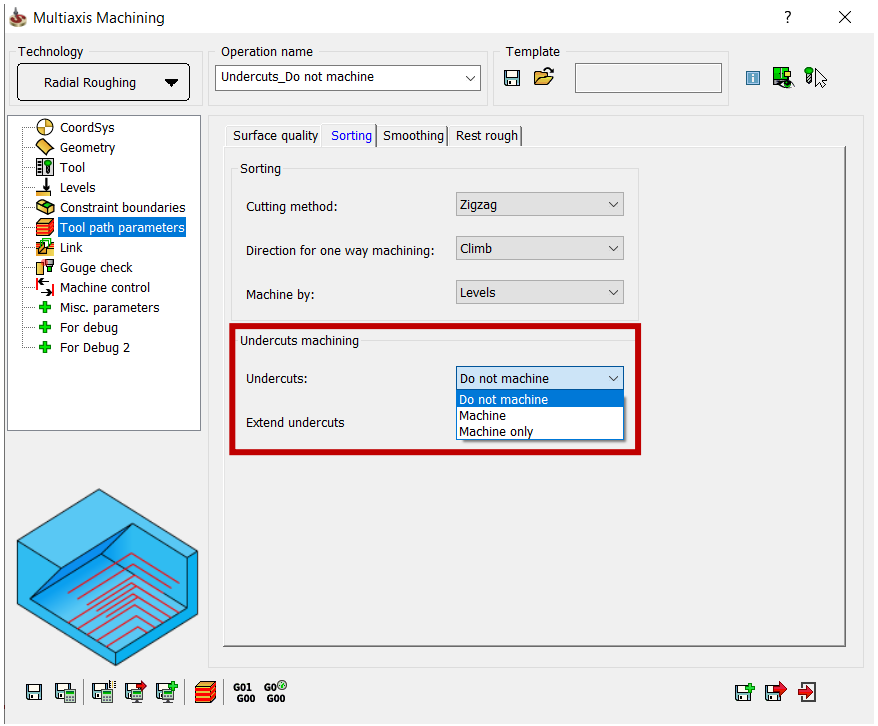
Rotary Machining – Corner Smoothing

- **Rotary machining enables you to apply corner rounding to the sharp motions on the final contour as well as intermittent contours**
- **This allows the machine to cut faster and maximizes the tool life**



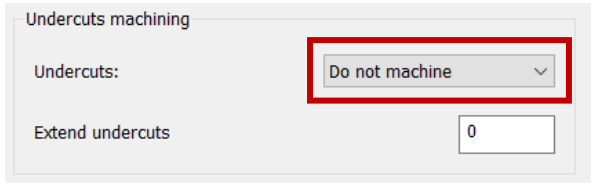
Multiaxis Machining – Undercuts machining

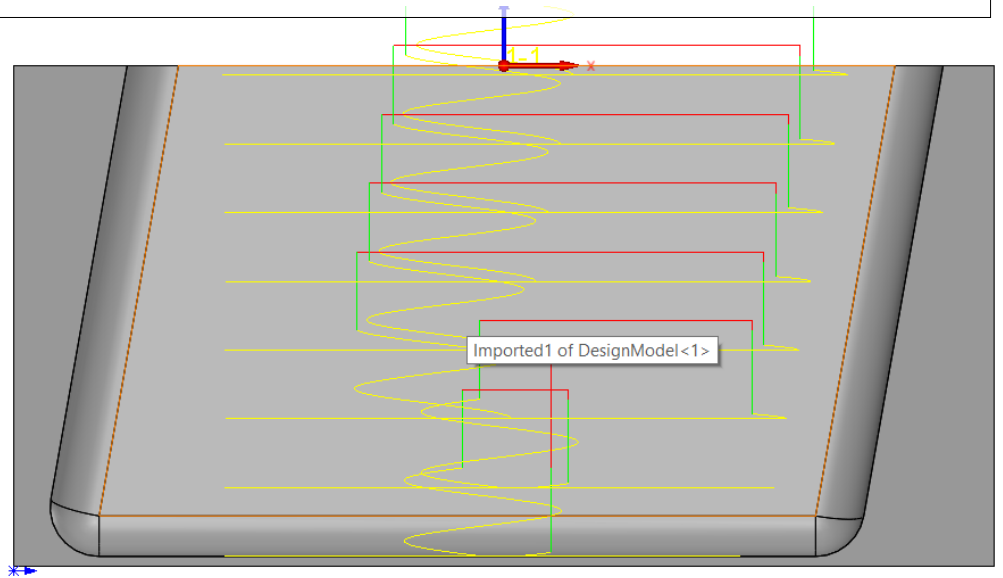
- **You can now process undercut and non-undercut areas**
- **This enables you to gain more access from different machining directions, minimizing the number of operations needed to process the part**



Undercuts machining – Do not machine

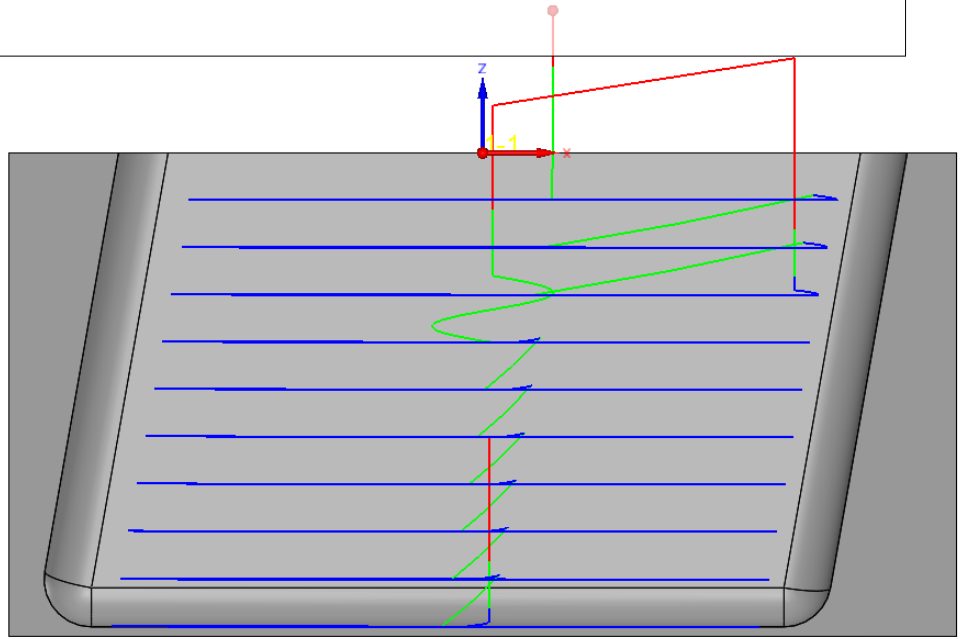
- **This option excludes undercut areas for the most productive material removal rate using non-spherical tools**
- **Supports Flat, Bull and Ball Nose End Mills**





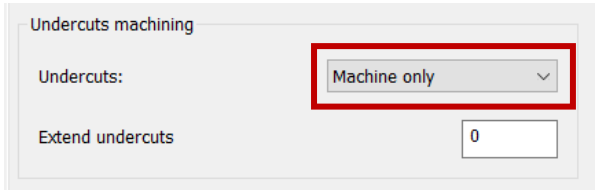
Undercuts machining – Machine

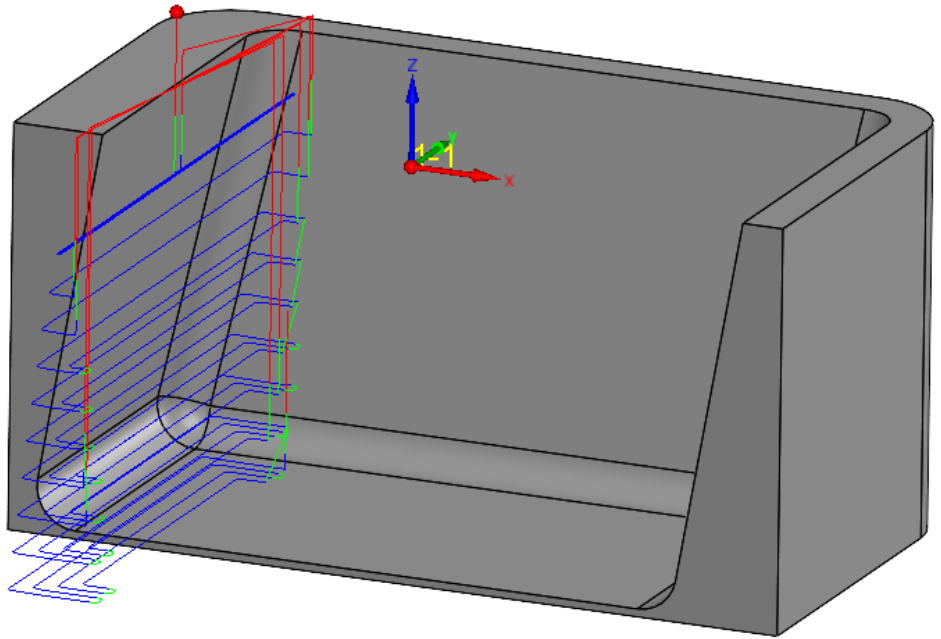
- **This option performs the machining of both undercut and non-undercut areas**
- **Supports Ball Nose Mills only**



Undercuts machining – Machine only

- **This option automatically detects undercuts for the most efficient machining of specific areas**
- **Supports Ball Nose Mills only**

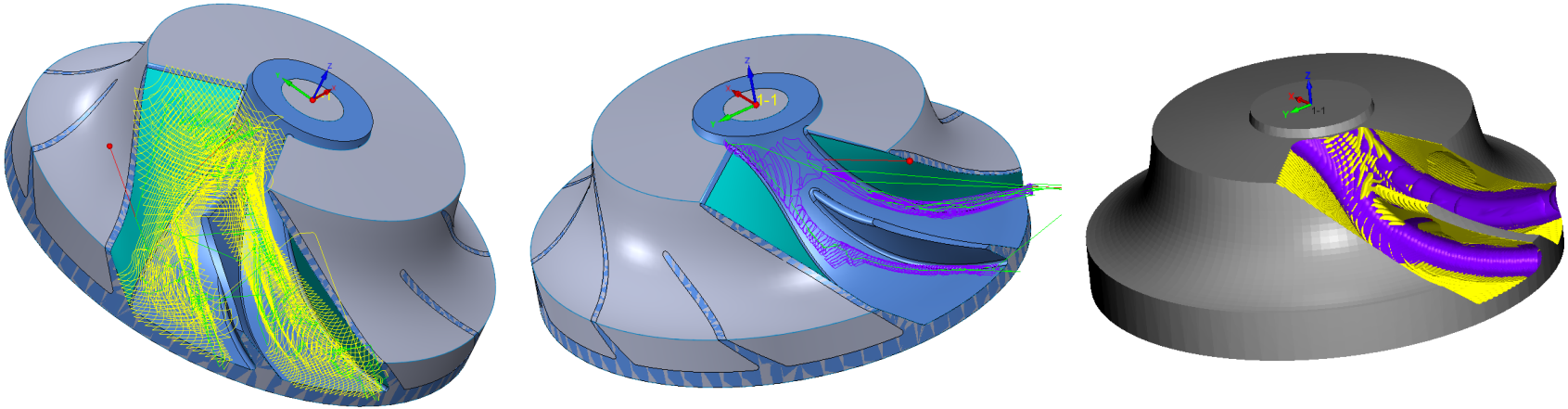




SolidCAM Auto 3+2 Roughing

SolidCAM Auto 3+2 Roughing

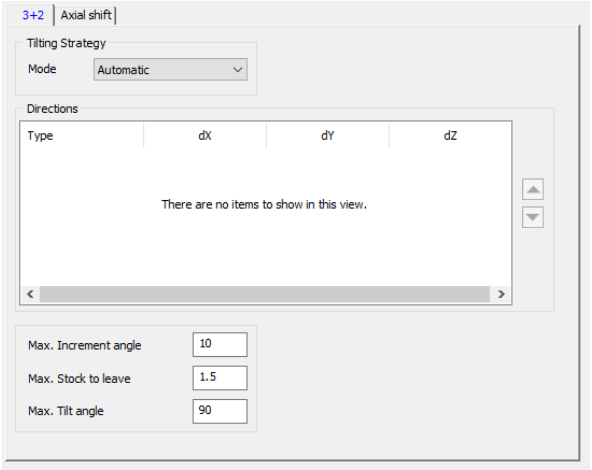
- **SolidCAM can create 3+2 Roughing tool paths using the following methods:**
  - **Automatic**
  - **Semi Automatic**
  - **Manual**

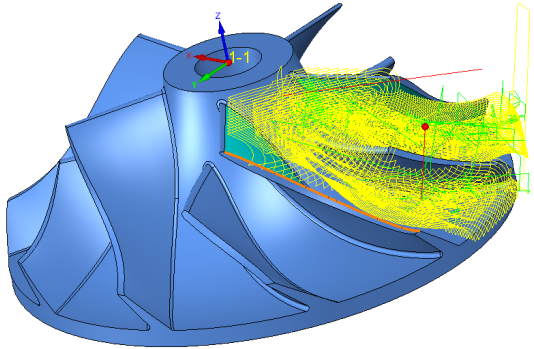


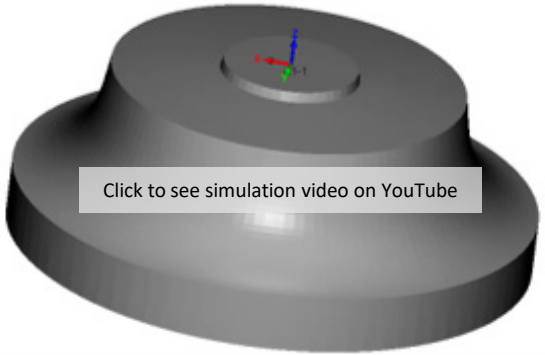
SolidCAM finds the optimal direction based on the maximum stock/material that can be machined

SolidCAM Auto 3+2 Roughing – Automatic Mode

- **In Automatic mode, SolidCAM searches the unmachined areas and processes them according to *Max. Increment angle*, *Max. Stock to leave* and *Max. Tilt angle***
  - **With these parameters, machining is performed from all possible indexed directions**

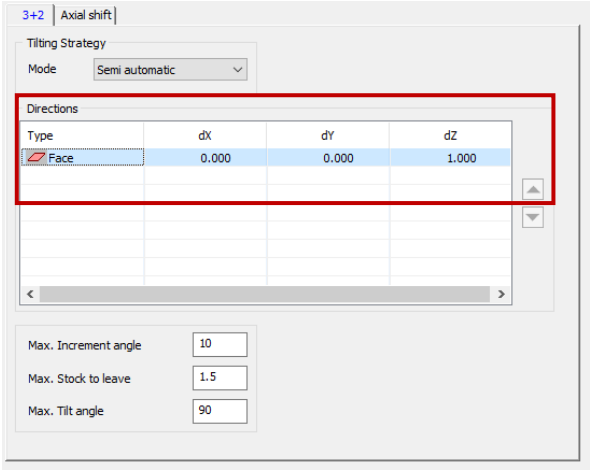


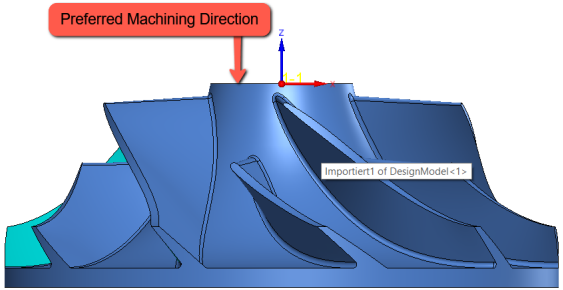




SolidCAM Auto 3+2 Roughing – Semi Automatic Mode

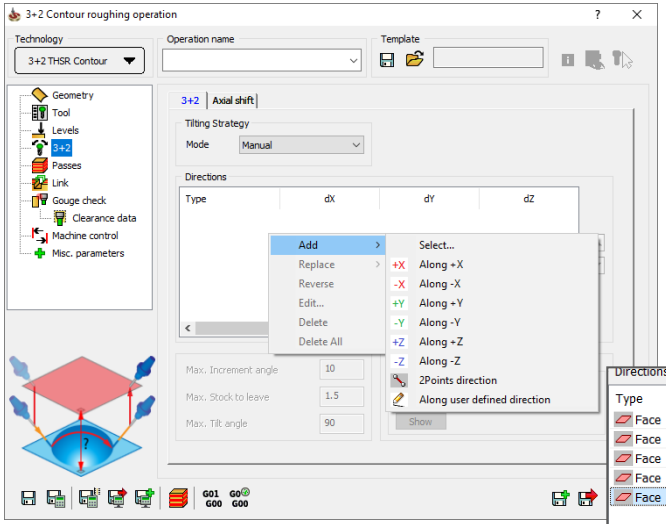
- **Semi automatic mode enables you to start the machining from a preferred direction, while allowing you to modify the *Max. Increment angle*, *Max. Stock to leave* and the *Max. Tilt angle* parameters**

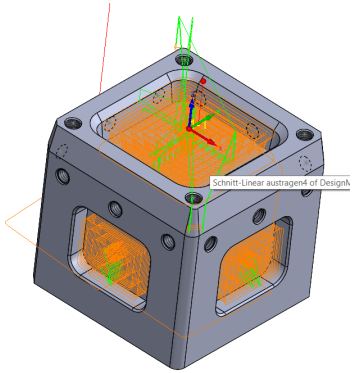


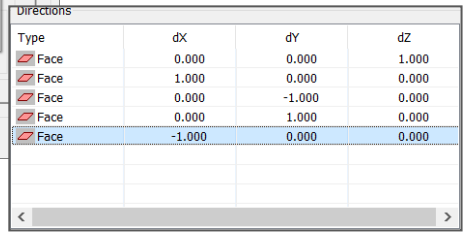


SolidCAM Auto 3+2 Roughing – Manual Mode

- **In Manual mode, SolidCAM machines only from the directions added by the user or by the tool plane**
  - **Part is machined in the chosen directions according to the maximum reach of the tool**





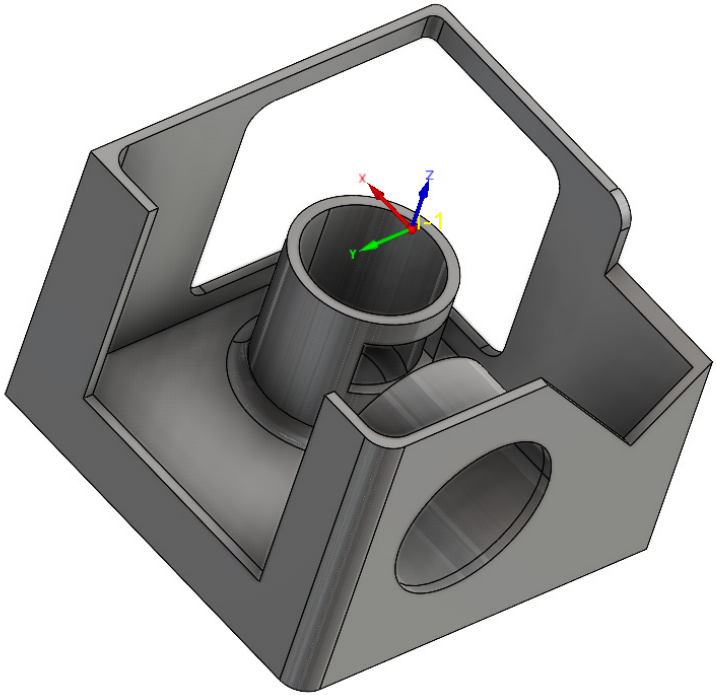


See Demo on YouTube

SolidCAM Edge Breaking

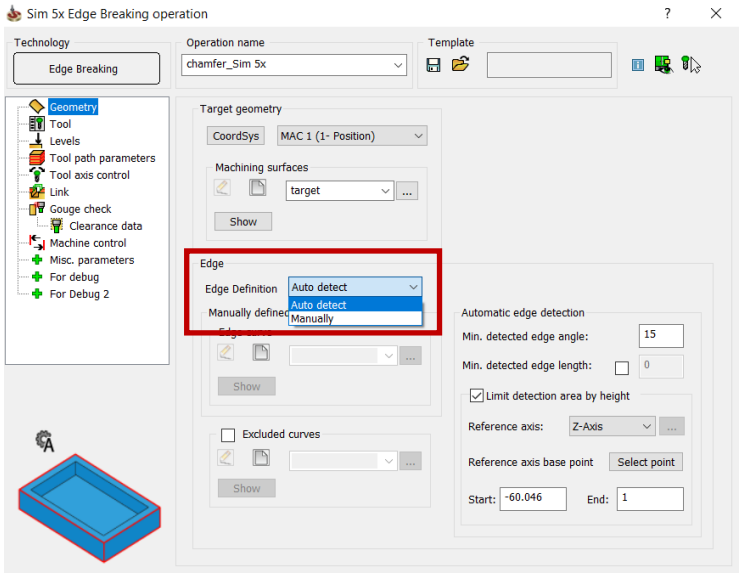
SolidCAM Edge Breaking – New Operation

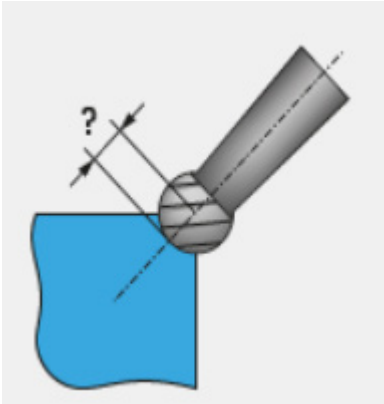
- **After machining, on all the parts that have straight edges or non-tangent outer surface topologies, you will find a burr caused by the tool which is chipping the metal off that edge**
- **SolidCAM Edge Breaking operation automatically detects these edges and creates a deburring tool path**
- **Currently this is a manual process and can approximately take the same time as that which is being spent to fully program a part programmed with a CAM system**



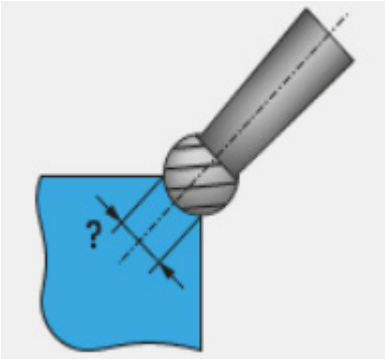
SolidCAM Edge Breaking – Edge Detection

- **Edges to be deburred can be detected automatically or detected manually by the user**
- **Chamfer can be of Constant Depth or Constant Width**
- **Only Ball Nose tools & Lollipop tools are supported for Edge Breaking**





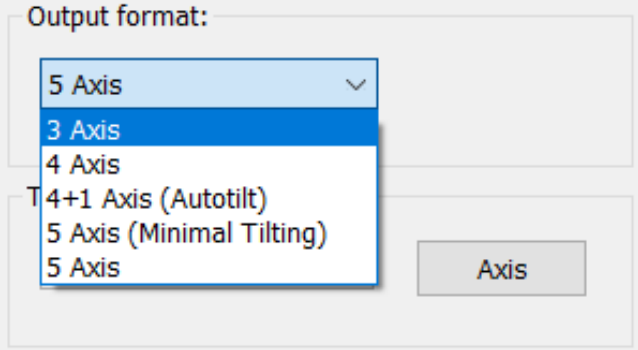
Constant Depth

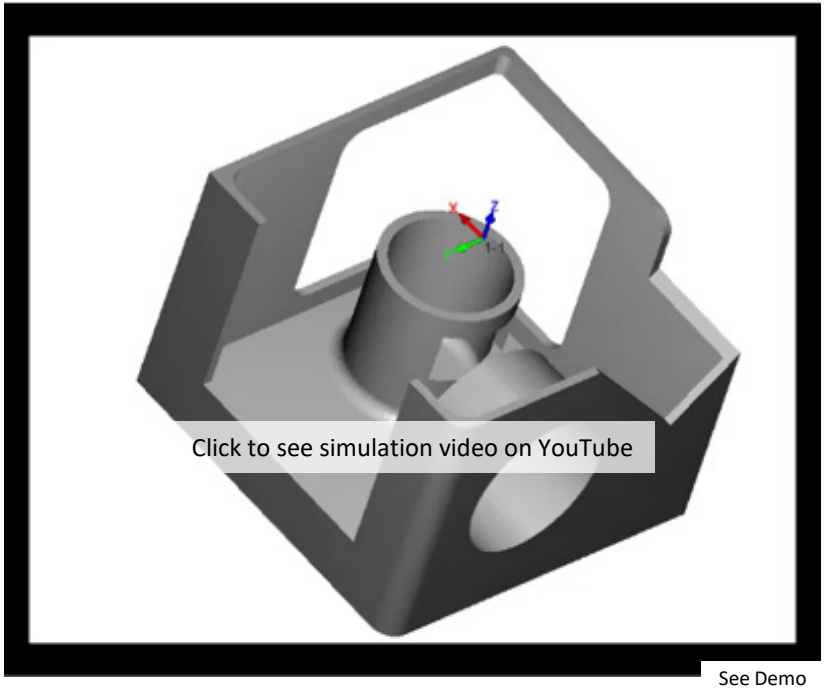


Constant Width

SolidCAM Edge Breaking – Tool Axis Control

- **5 types of Tool Axis Control are provided:**
  - **3-Axis**
  - **4-Axis**
  - **4+1 Axis**
  - **5-Axis with Minimal Tilting**
  - **Full 5-Axis**





3-Axis Edge Breaking

See Demo on YouTube

SolidCAM Edge Breaking – Tool Axis Control

4-Axis Edge Breaking

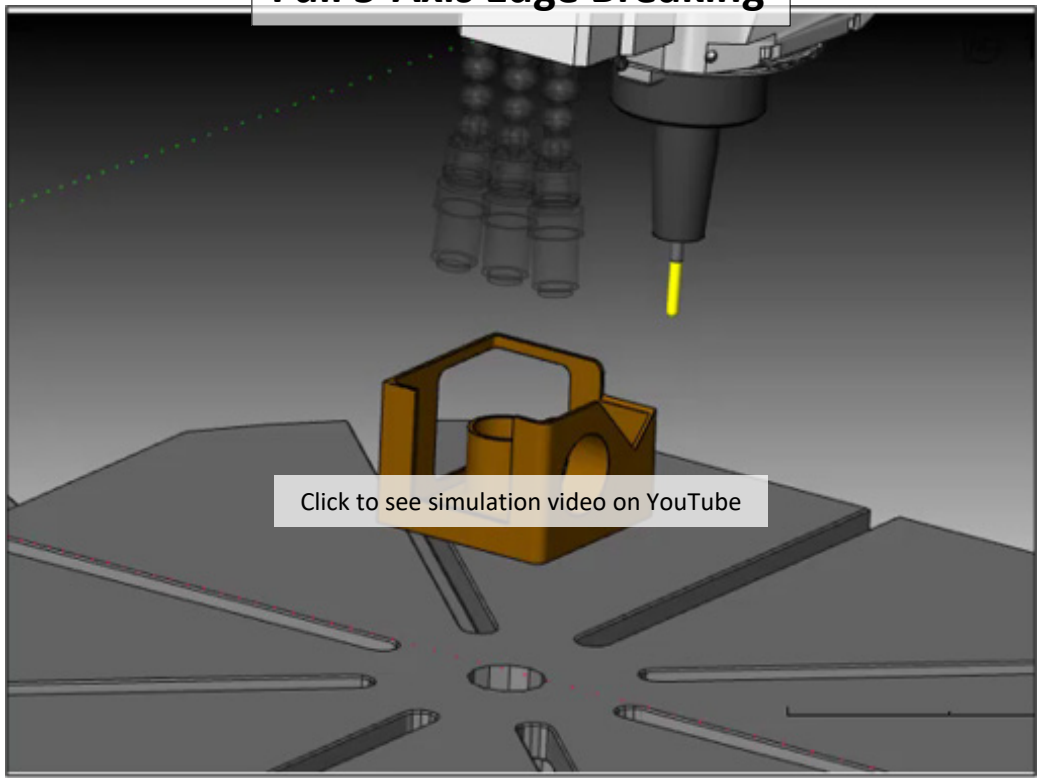
See Demo on YouTube

5-Axis Minimal Tilting

See Demo on YouTube

SolidCAM Edge Breaking – Tool Axis Control

Full 5-Axis Edge Breaking



See Demo
on YouTube

SolidCAM Edge Trimming

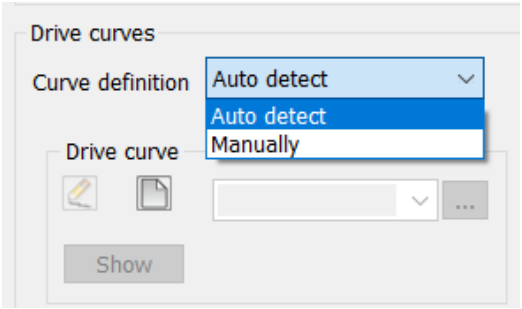
SolidCAM Edge Trimming – New Operation

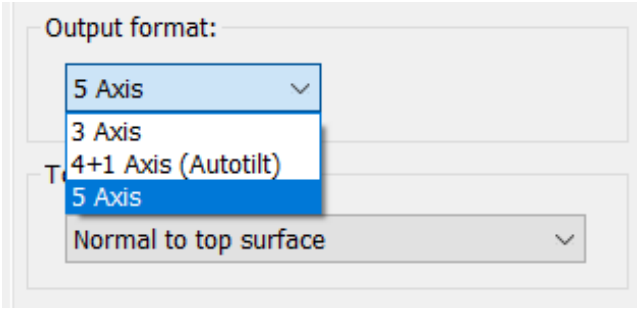
- **Energy efficient materials like composites are becoming more popular**
- **Generally cast, these parts require an edge trimming operation to get their final shape**
- **Vacuum Formed parts in automotive industry also require an edge trimming operation to get their final shape**

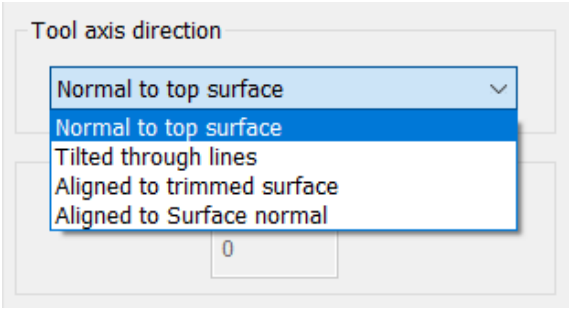
SolidCAM Edge Trimming – Sample Video

SolidCAM Edge Trimming

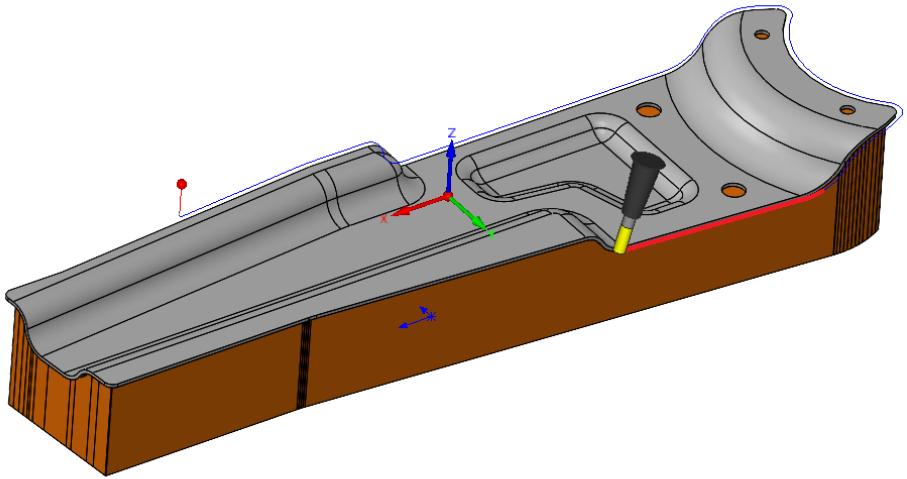
- **Edge Trimming is a highly automated algorithm to create the edge trimming tool path**
- **The trimming edge can be defined automatically, or it can be user defined**
- **The position of the tool relative to the geometry can be defined by various options, from only a 3-Axis output to a more complex 5-Axis output with different tool axis orientation options**

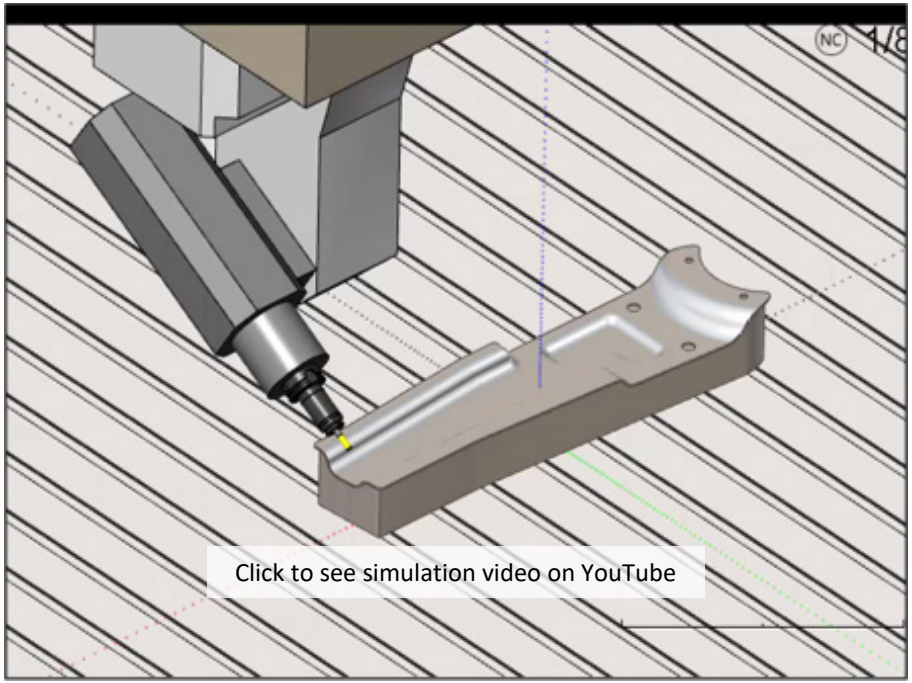






SolidCAM Edge Trimming

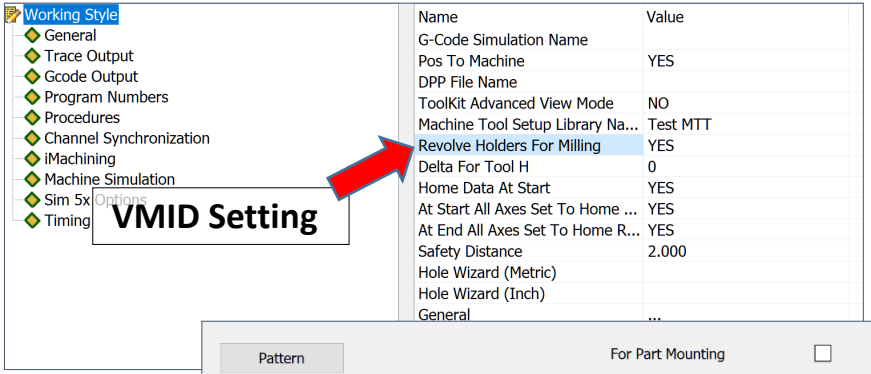


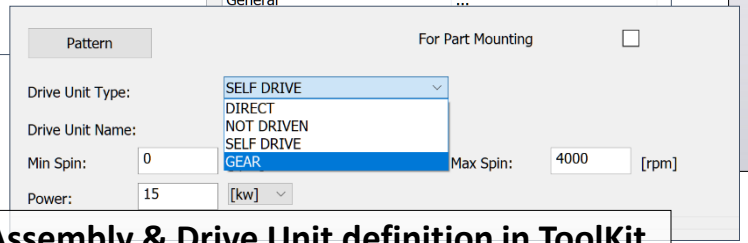


Simulations

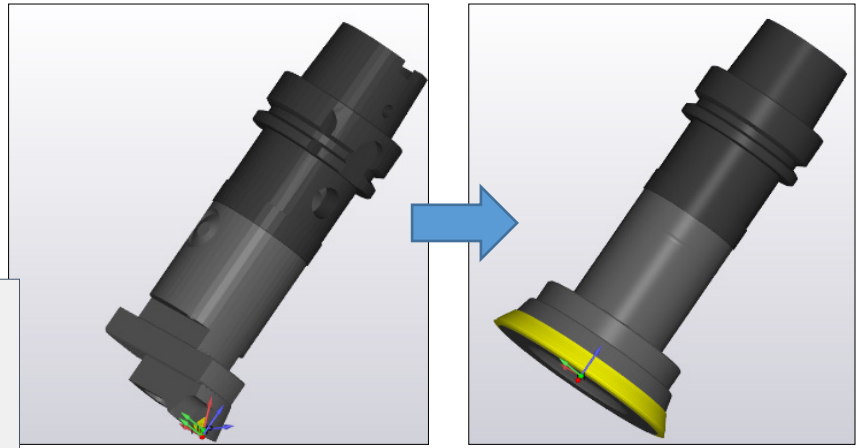
Revolved STL Tool Items in Milling Simulations

- **VMID & ToolKit together support revolved STL Tool Items for Milling Simulations**
- **Revolved bodies of Cutters, Shanks & Holders increase collision detection and material removal precision**



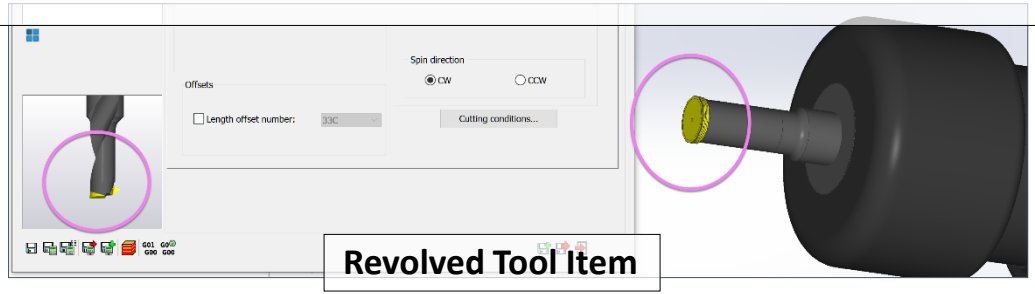


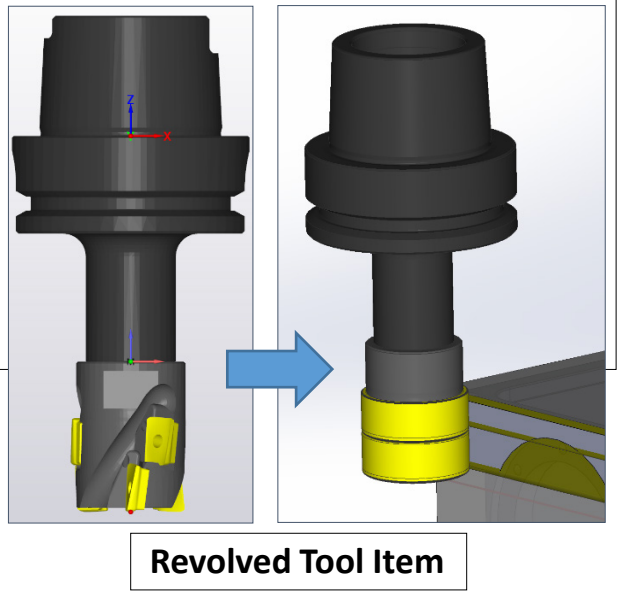
Tool Item Assembly & Drive Unit definition in ToolKit



Simulation Enhancements via ToolKit

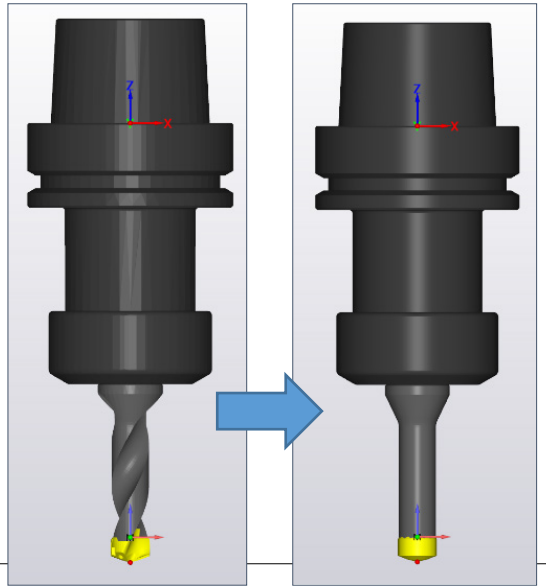
- **SolidVerify enhancements through ToolKit implementation**
  - **Shows multi-body holders and 3D fixtures**
  - **Detects collisions between all components**
  - **Supports revolved Cutters & Holders**
- **Host CAD enhancements through ToolKit implementation**
  - **Shows multi-body holders and multi-tool assemblies**
  - **Shows tool path and detects all collisions**
  - **Supports revolved Cutters, Shanks & Holders**





Simulation Enhancements via ToolKit

- **SolidCAM Simulator (Beta) enhancements through ToolKit implementation (all playback modes: forward, reverse, etc.)**
  - **Shows multi-body holders and multi-tool assemblies**
  - **Shows tool path and detects all collisions**
  - **Supports revolved Cutters, Shanks & Holders**
- **Machine Simulation enhancements through ToolKit implementation (kinematic simulation)**
  - **Shows multi-body holders and multi-tool assemblies**
  - **Shows tool path and detects all collisions**
  - **Supports revolved Cutters, Shanks & Holders**

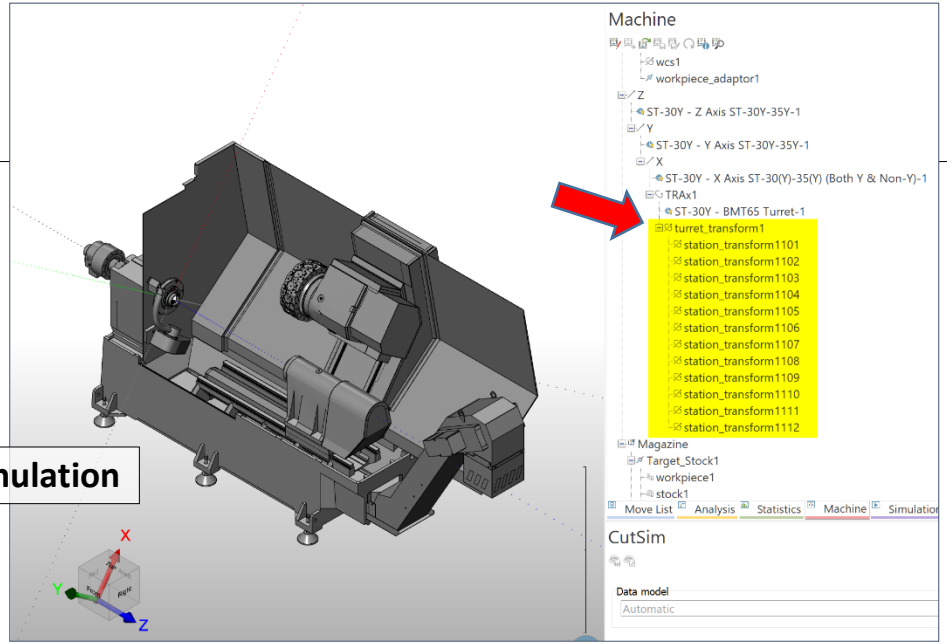


Revolved Tool Item

Machine Simulation

Simplified Structure and Complex Holder Support

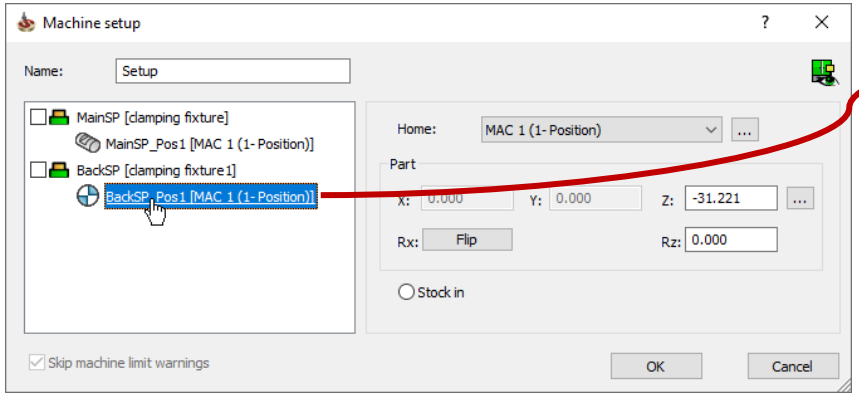
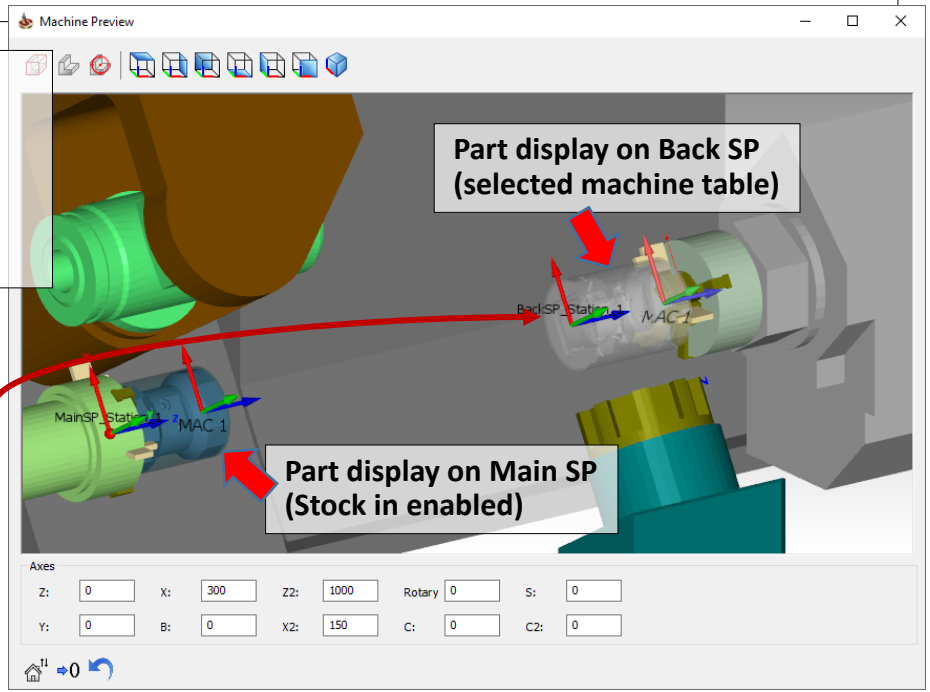
- **XML structure needs only the Station(s) defined, not entire Tool structure**
- **Fully supports multi-body holders and multi-tool assemblies from ToolKit**
- **Enables faster loading**



Machine Simulation

Machine Preview

Visualizing Part Positions in Machine Setup

- **Machine Preview now displays a transparent view of the Target model and its position on the selected machine table (in Machine setup dialog box)**

- **“Stock in” option no longer required to see another part position when more than one table is defined (e.g., Mill-Turn Machine with main and back spindles)**