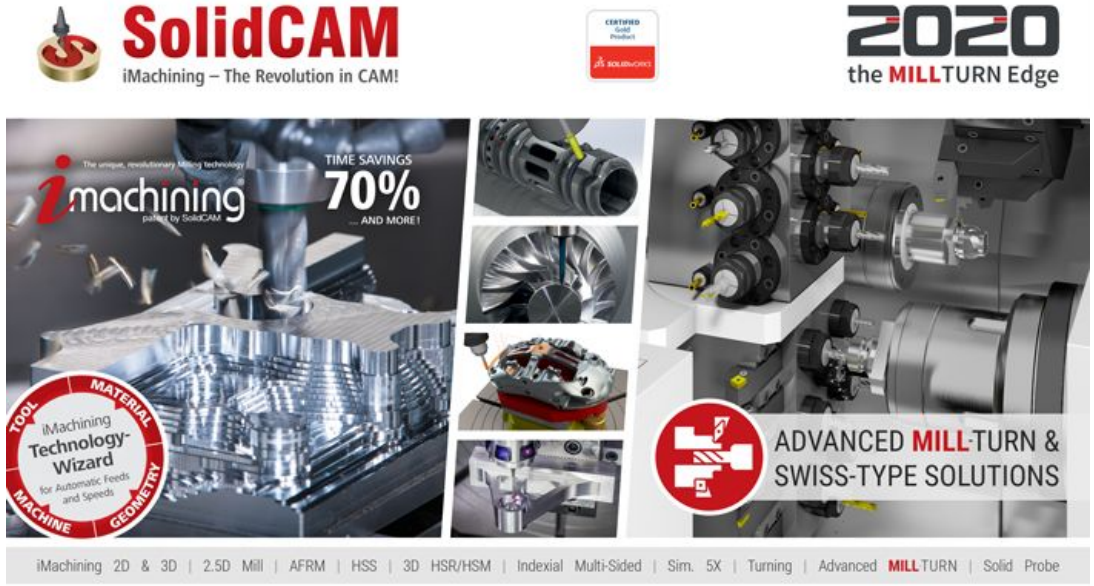
What's New in SolidCAM 2020

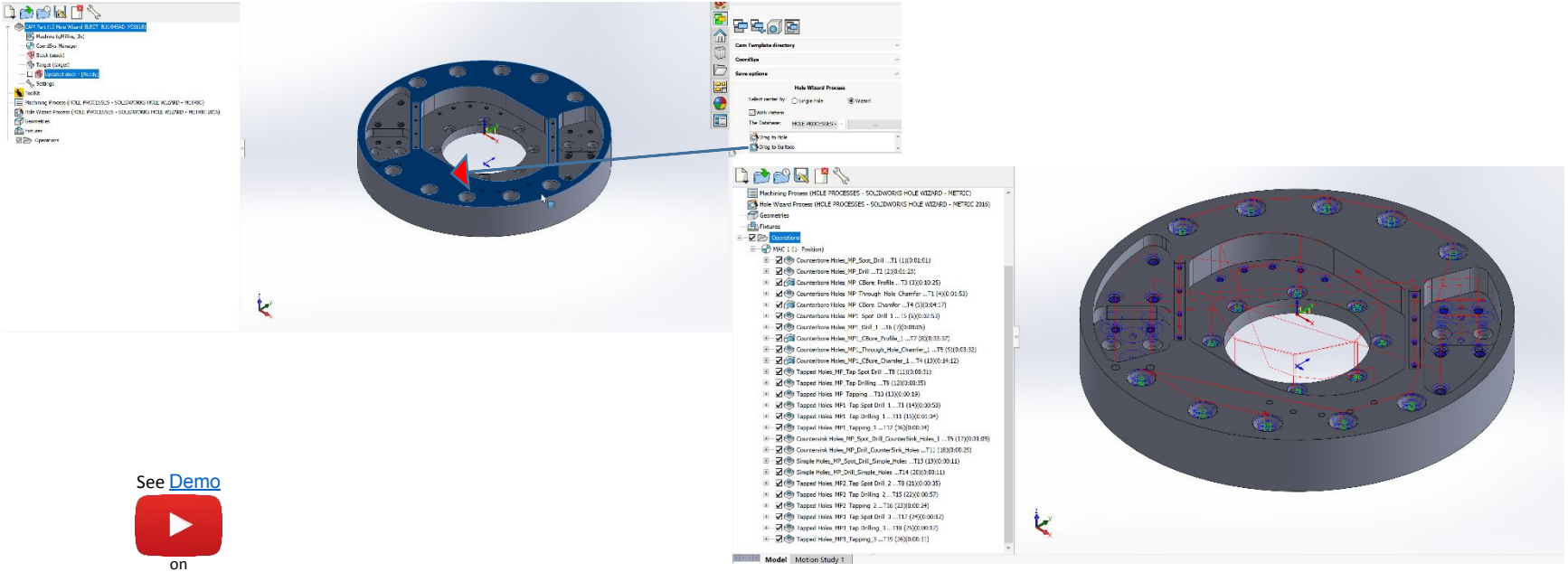


www.solidcam.com

2.5D Milling

Hole Wizard Process – Drag to Surface

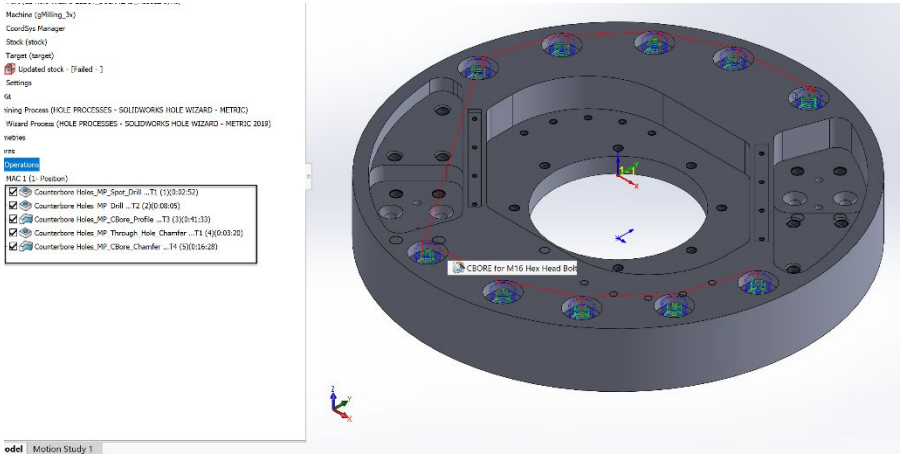
- **Finds all holes, perpendicular to the surface, that are created with the Hole Wizard and automatically adds operations for the holes**

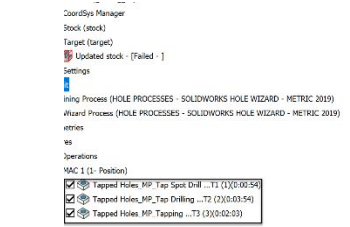


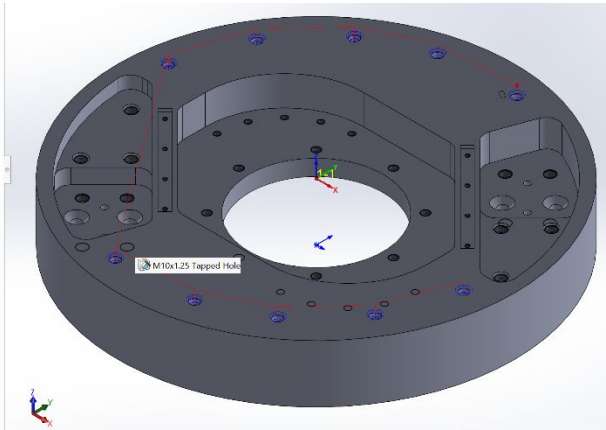
See Demo on YouTube

Full Syncronization in Hole Wizard Process

- **Changing hole type or size will automatically change the tools and update the operations**



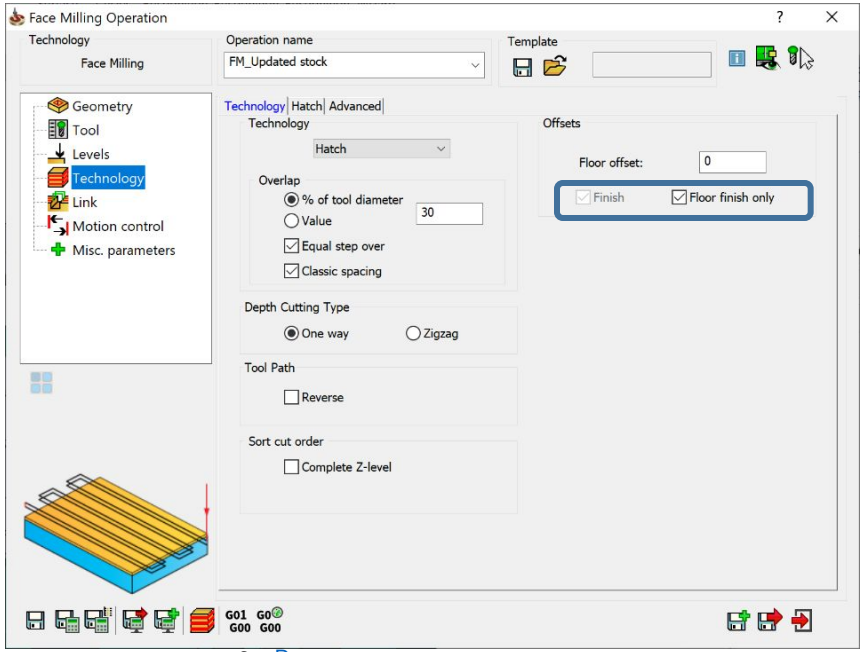


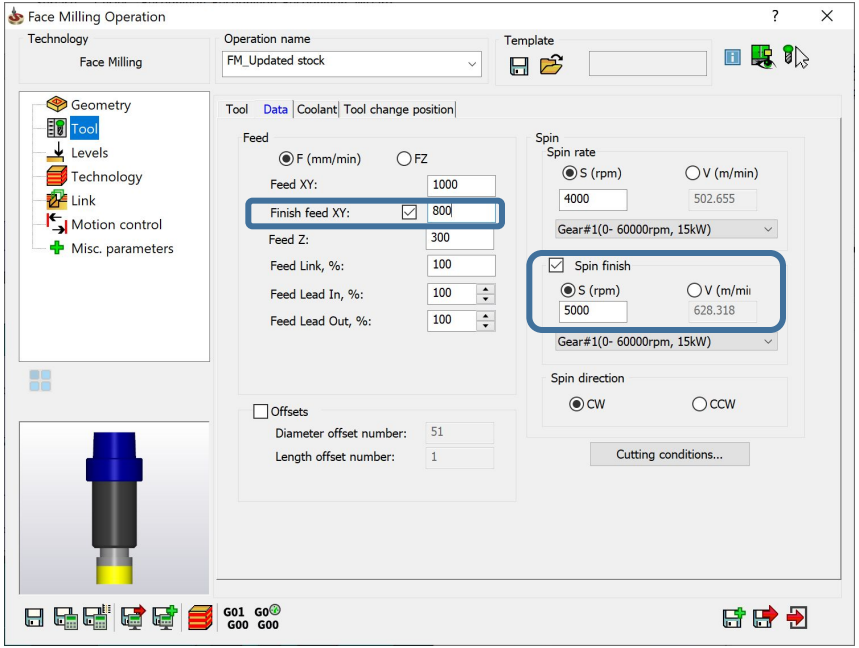


See Demo on YouTube

Face Milling Operation – Floor Finish Only

- **You can now use *Floor finish only* to apply tool path only on the finish level**
- **Uses the Spin and Feed rates defined for Finish**



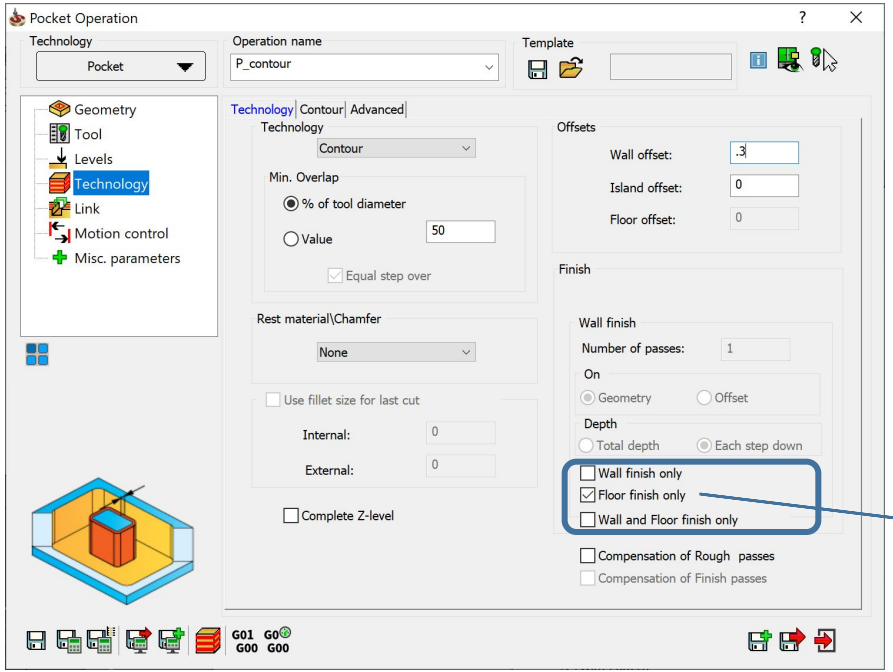


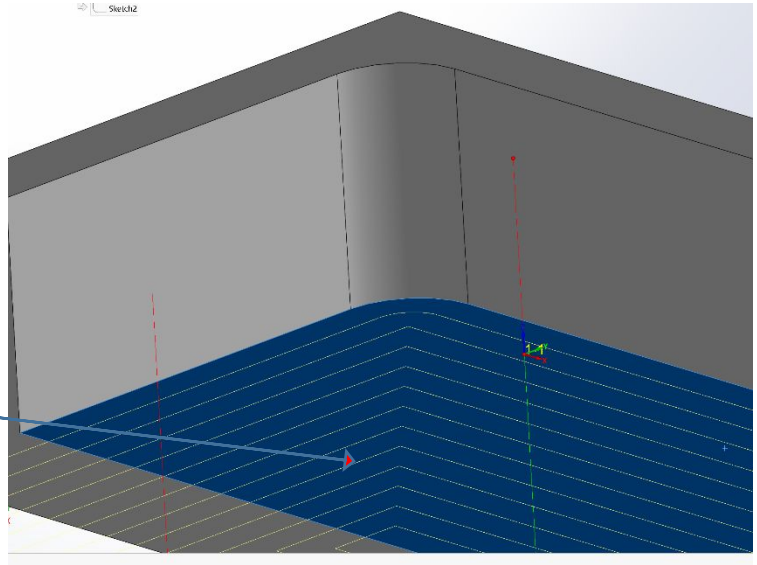
See Demo on YouTube

Pocket Operation – Floor Finish Only

- **You can now apply a *Floor finish only* that will go up to the wall offset**

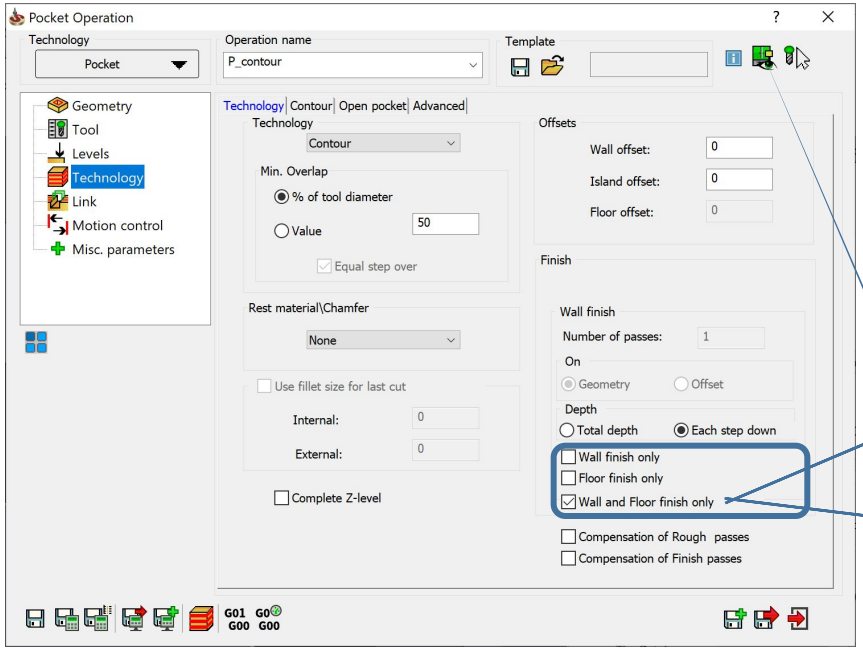
See Demo on YouTube

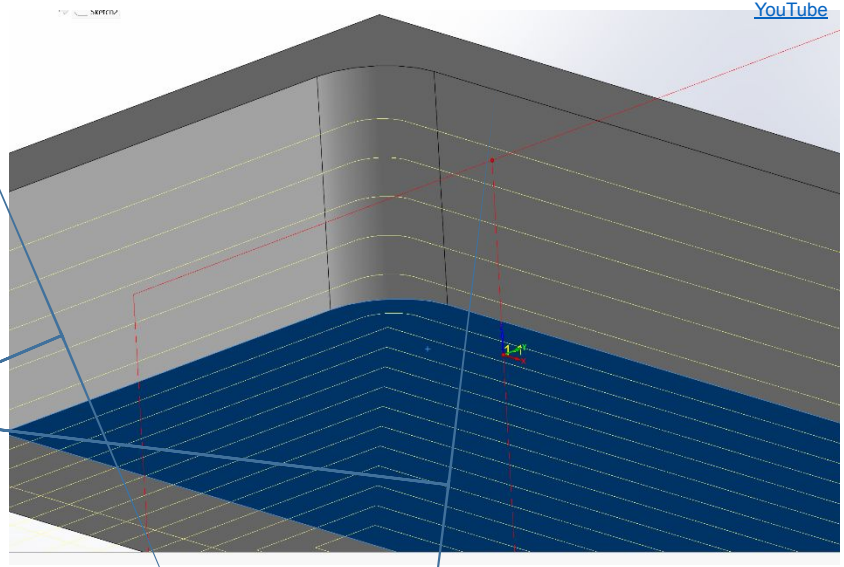




Pocket Operation – Wall and Floor Finish Only

- **You can now apply a *Wall and Floor finish only* that will go up to the wall offset on the floor, and then finish the wall with the defined step down**

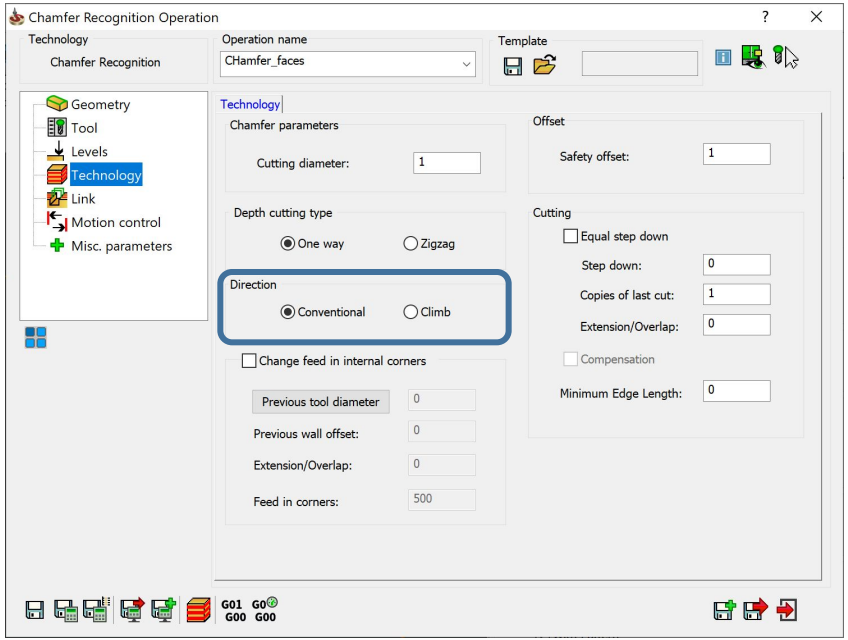


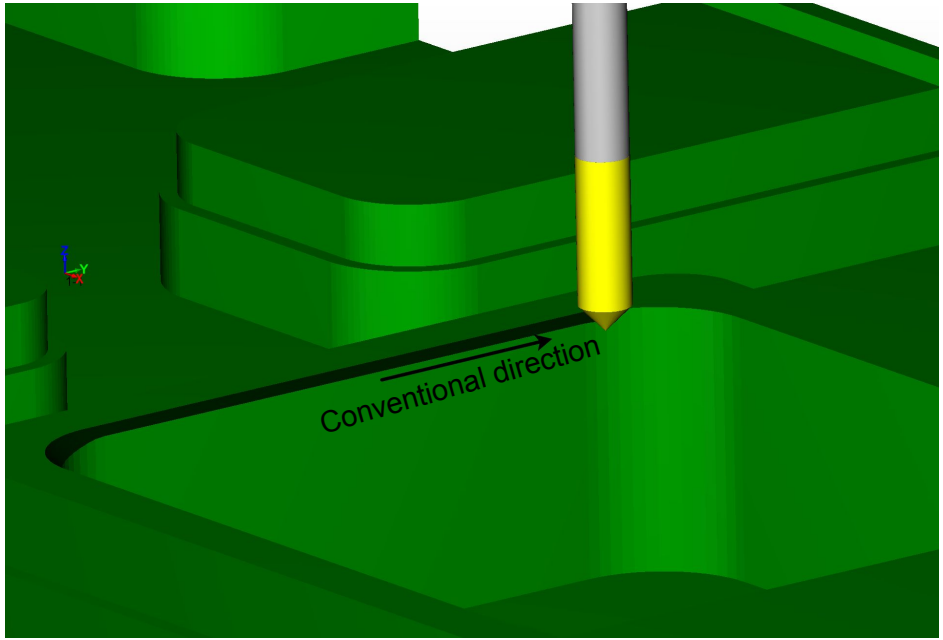


See Demo on YouTube

Chamfer Recognition – Conventional Direction Enabled

- **You now have the option of *Conventional* cutting direction**

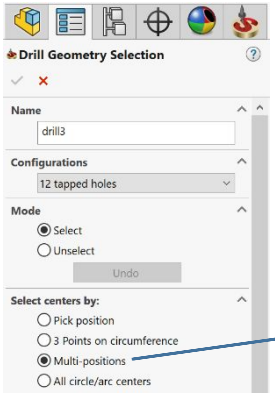


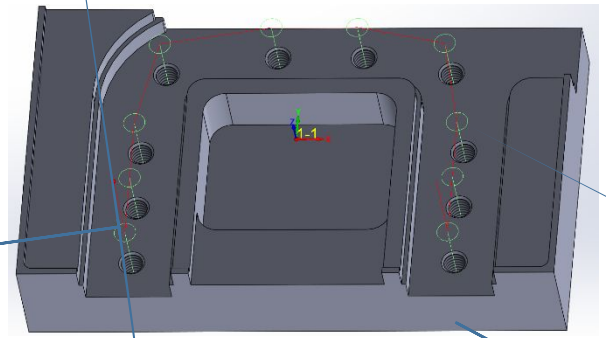


See Demo on YouTube

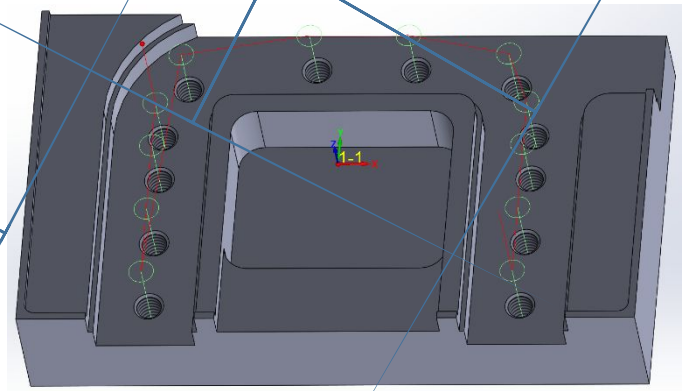
Drill Geometry – Improved Synchronization with Multi-positions

- **Adding or removing holes from a face will now be recognized on synchronization, when using *Multi-positions* to choose the drilling geometry**





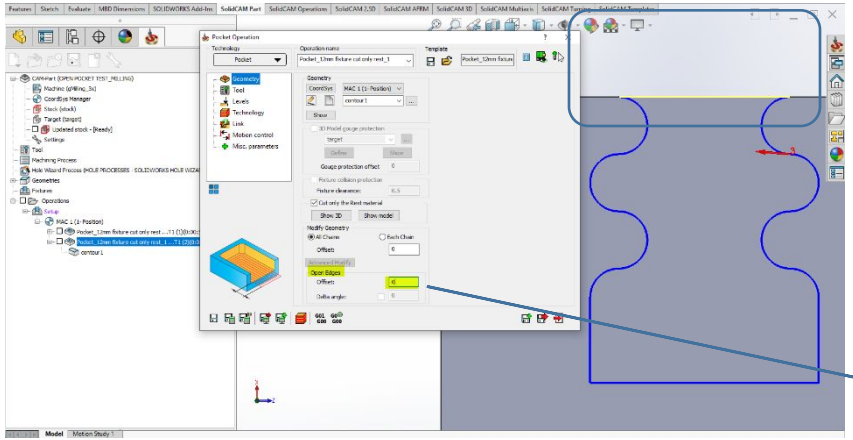
New holes

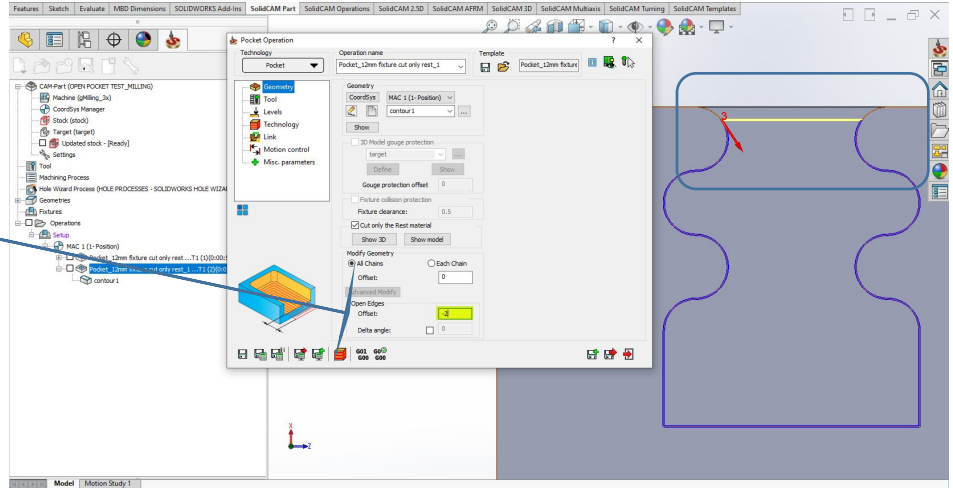


See Demo on YouTube

Pocket Operation – Open Edge Negative Offset

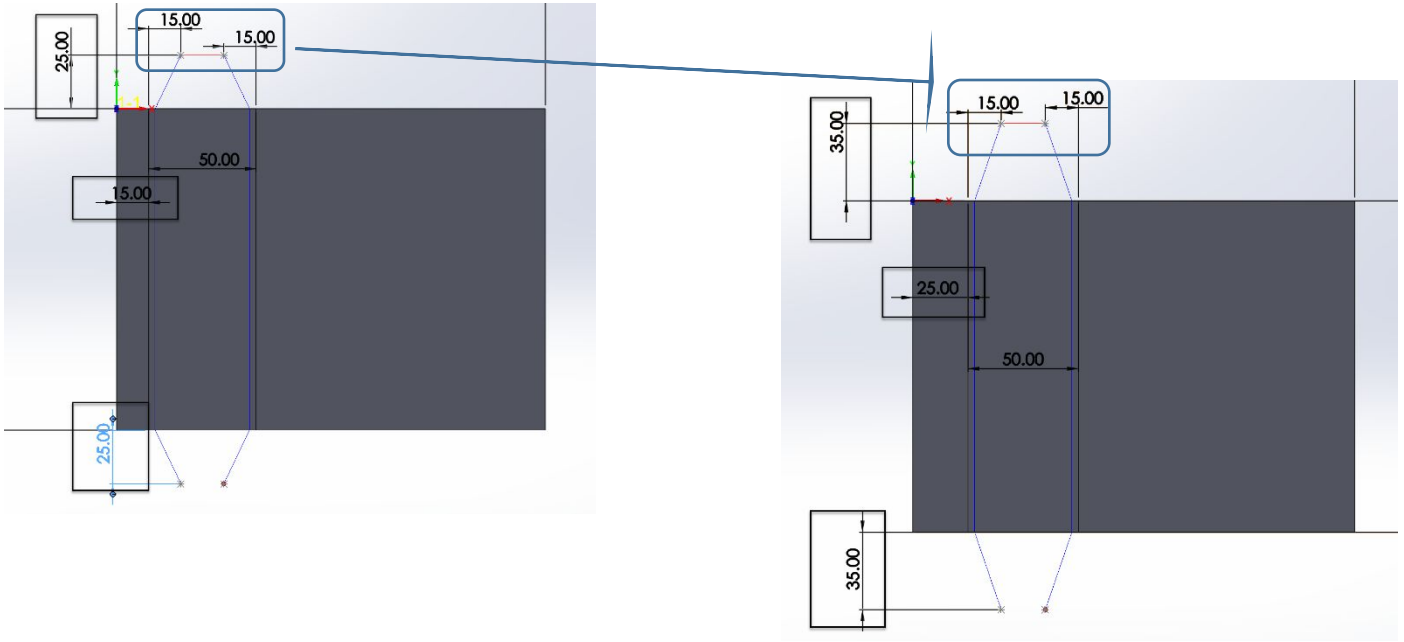
- **Modify Geometry now supports negative offset values on open edges**
- **Very helpful when trying to avoid objects near the open edge**





Profile Operation – Syncronized Link by Points

- **Lead in/out with points are now fully associative**
- **The points will synchronize and update the tool path if location is changed**

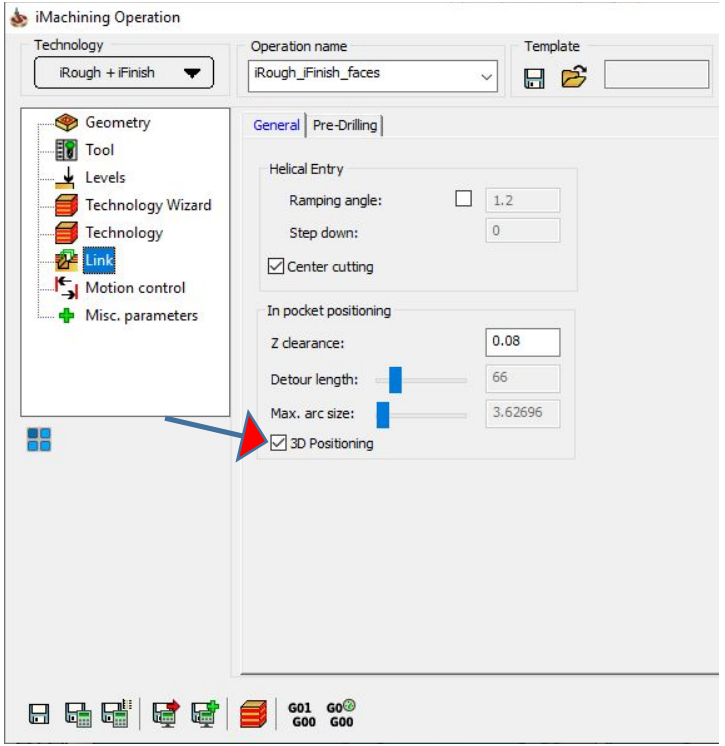


iMachining

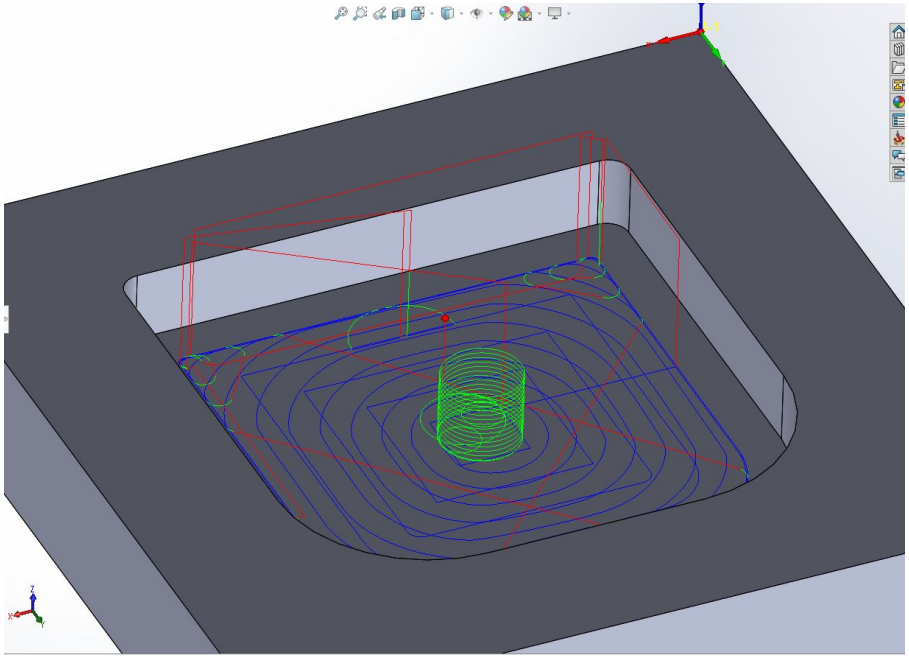
3D Positioning in iMachining 2D

- **iMachining 2D can now perform 3D in-pocket positioning like iMachining 3D**
- **Made possible by using the Stock model that is dynamically updated by each cutting move**
- **Smart positioning greatly reduces retracts and further optimizes iMachining 2D tool path**
- **3D Positioning status:**
  - **On (by default) for newly added operations**
  - **Off for all existing operations**

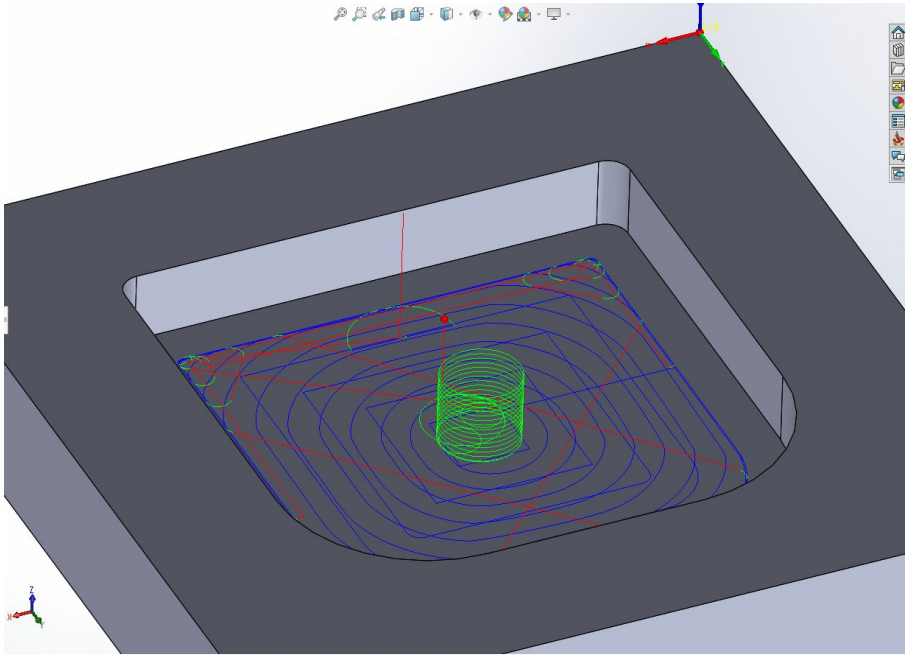
See Demo on YouTube



3D Positioning Comparison – Tool Path Results



3D Positioning Off

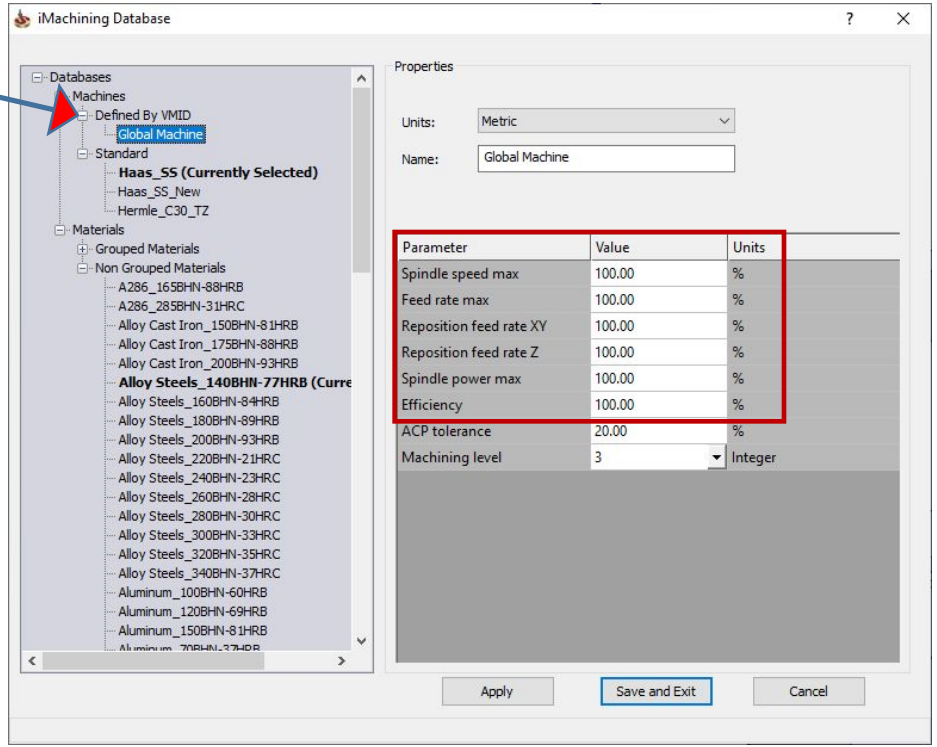


3D Positioning On

Machine Database from VMID and Station Data

- **iMachining Database now offers new Machines category - Defined By VMID**
- **Add new machines with values based on those defined in VMID**
- **Default Machine Database values set to 100% of VMID values**
- **Option to create “Global Machine” that can quickly and easily be used with any CNC-Machine selection**

See Demo on YouTube

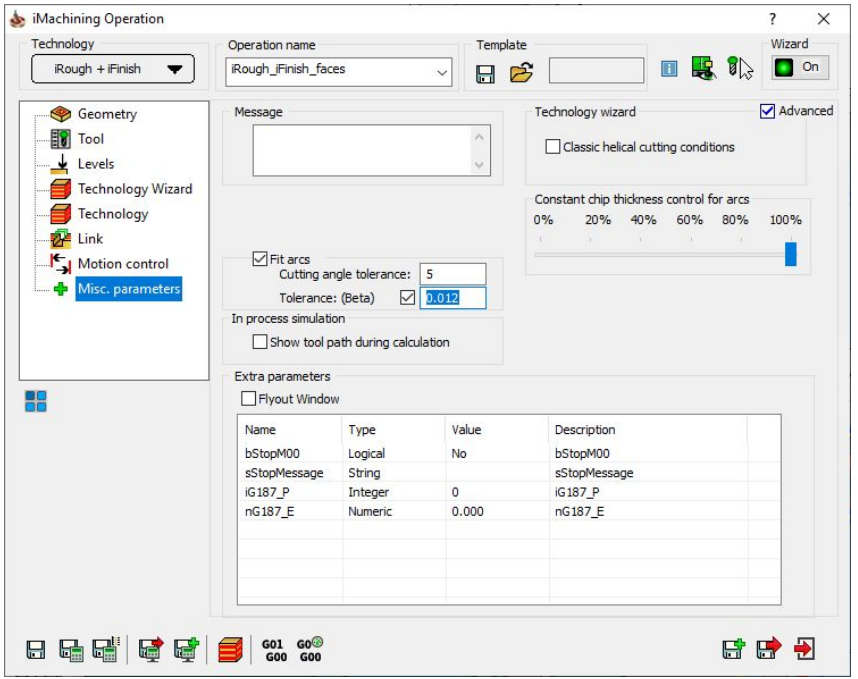


User-defined Arc Fitting Tolerance

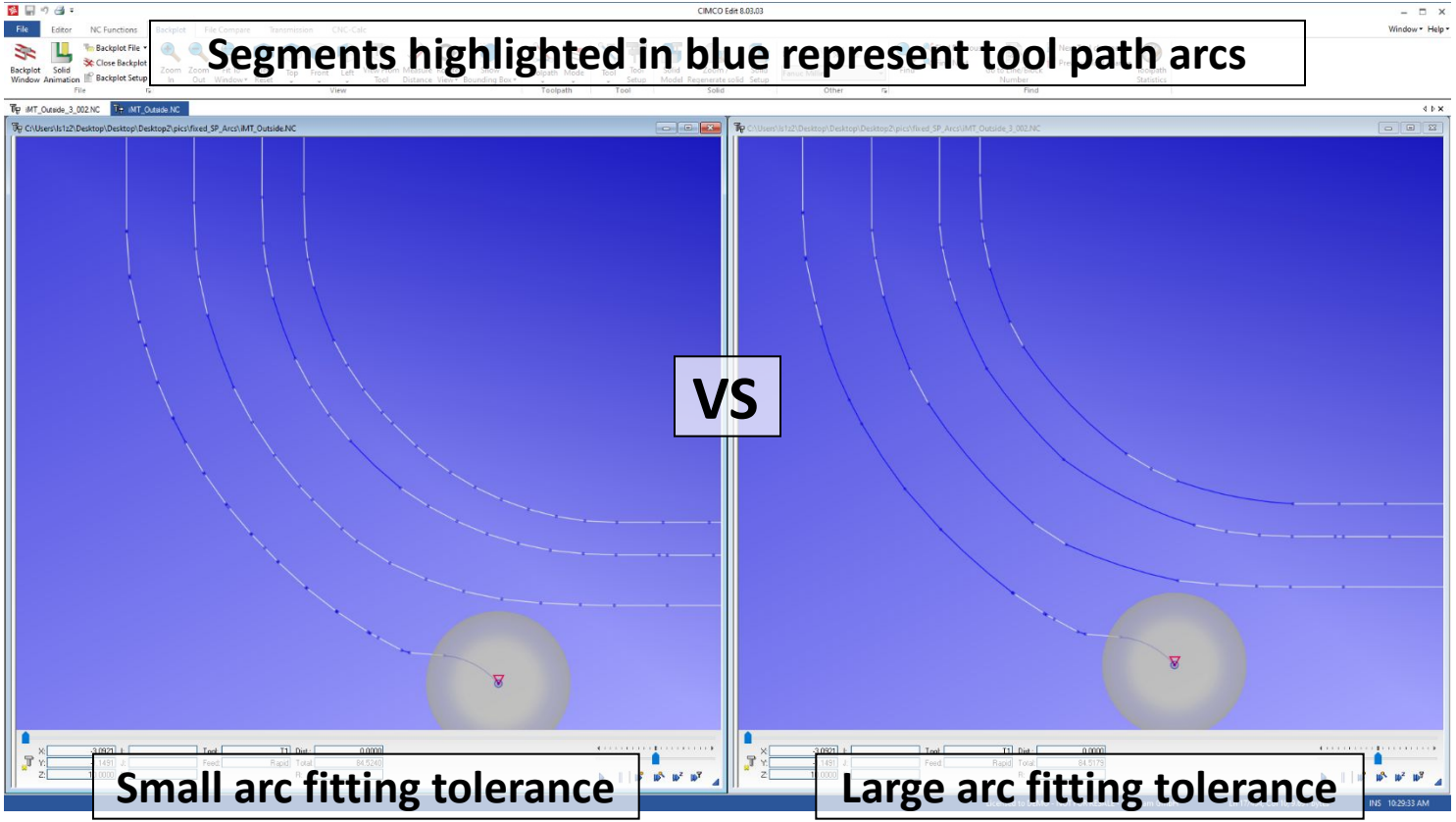
- **iMachining tool path minimizes arcs according to a small arc fitting tolerance by default, resulting in many points but very precise engagement angles**

- **You can now modify the default tolerance with a preferred, larger tolerance**
  - **Useful for limited memory machines**
- **Defining larger than default tolerance will:**
  - **Decrease length of GCode (pro)**
  - **Decrease accuracy of engagement angles (con)**

See Demo
on YouTube



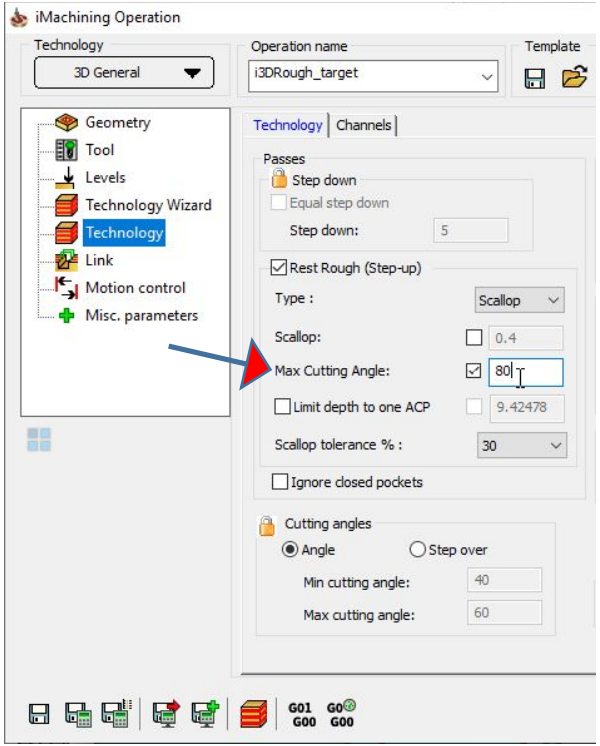
Arc Fitting Tolerance Comparison – GCode Results



User-defined Max Cutting Angle Step-up in iMachining 3D

- **With each higher Step-up, iMachining automatically increases the Cutting Angle as the axial depth of cut gets smaller**
- **Max Cutting Angle now visible on Technology page**
- **Default Max Cutting Angle values for Step-up are:**
  - **80° for soft materials**
  - **45° for hard materials**
- **Max Cutting Angle option lets you override the default values**

See Demo on YouTube

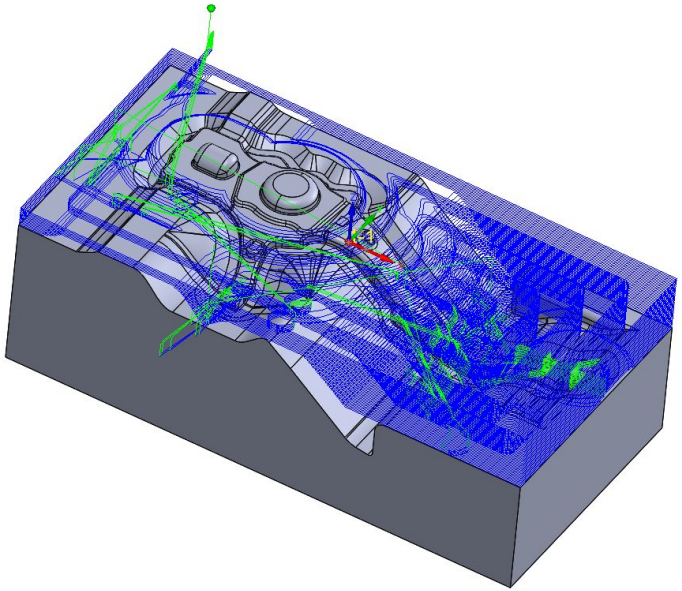


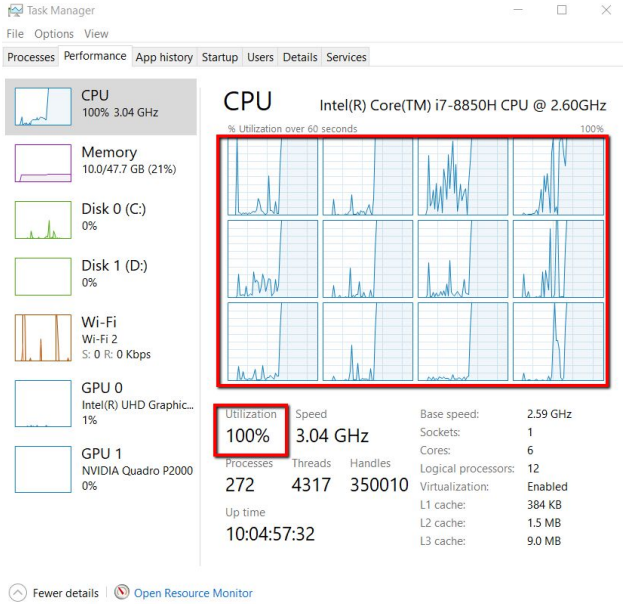
HSR/HSM

New Operation – Turbo 3D HSR

- New Roughing Tool Path Engine
- True 64-bit, Multicore Support
- Multi Surface Offset Capability
- Hatch, Contour & Rest Roughing
- Stock Model Definition Including Undercut Stock
- Collision Check Against Fixtures
- Pre-Drill Holes Definition for Entry
- Dynamic Holder Collision Checking
- Feed Control Zone Definition for Variable Feeds
- Variable Depth of Cuts
- Arc Fitting for Reduction in GCodes

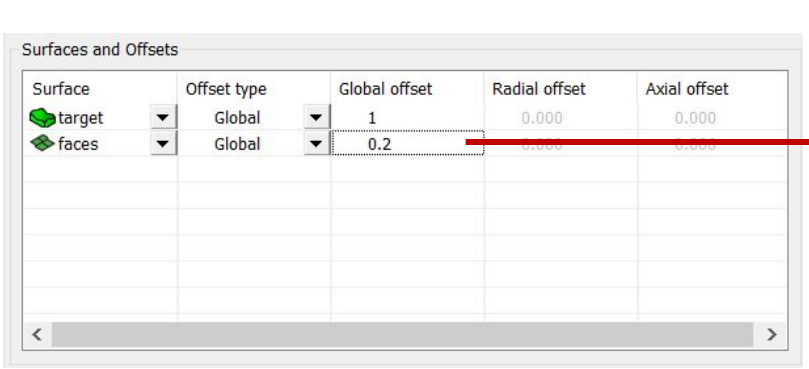
Turbo 3D HSR – Multicore Support

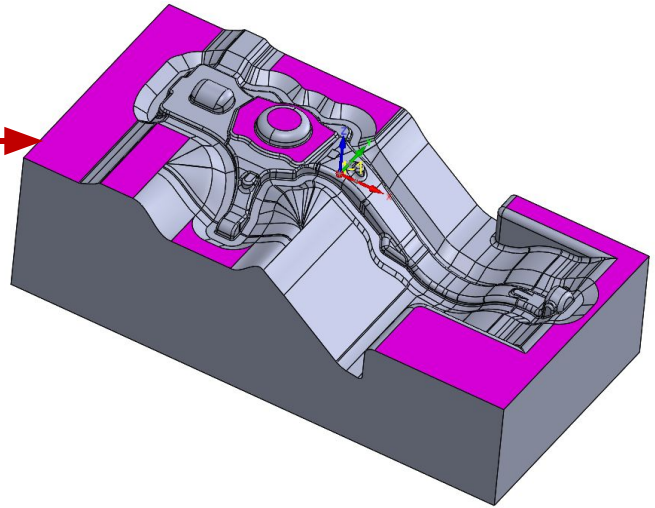




- **64-bit calculation engine – multicore support**
- **Speed of calculation increases as the # of cores increase**
- **Tool path caching = even faster recalculation**

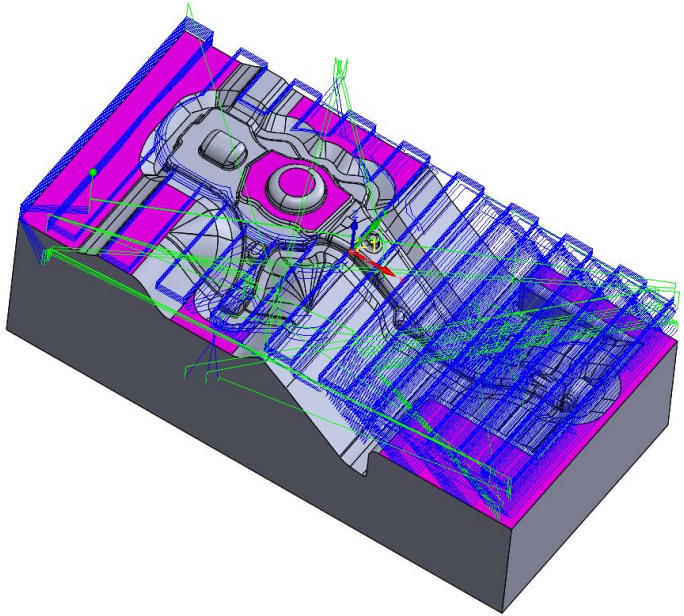
Turbo 3D HSR – Multiple Surface Offset

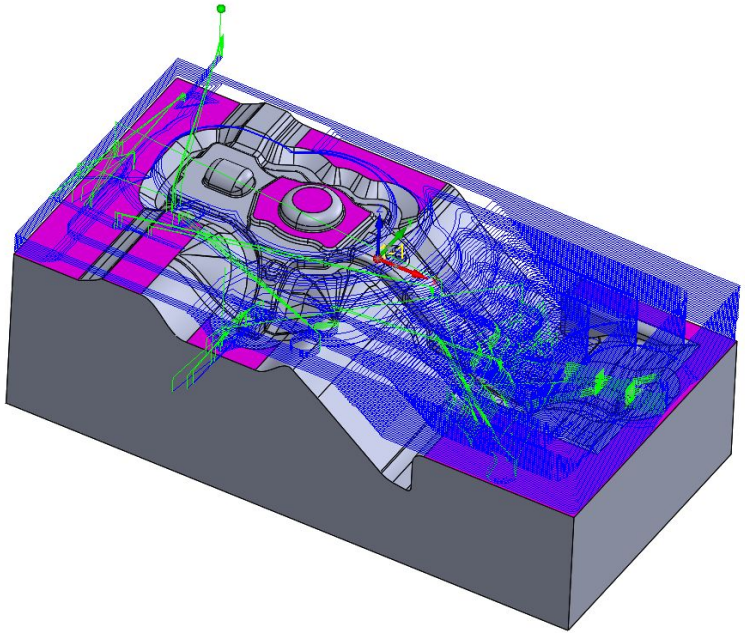




- **Turbo roughing allows multiple surface offsets to be defined**
- **Infinite groups can be created with different surface offsets**
- **Very useful when machining tools & molds where flat parting surfaces are finished in the roughing stage**

Turbo 3D HSR – Strategies

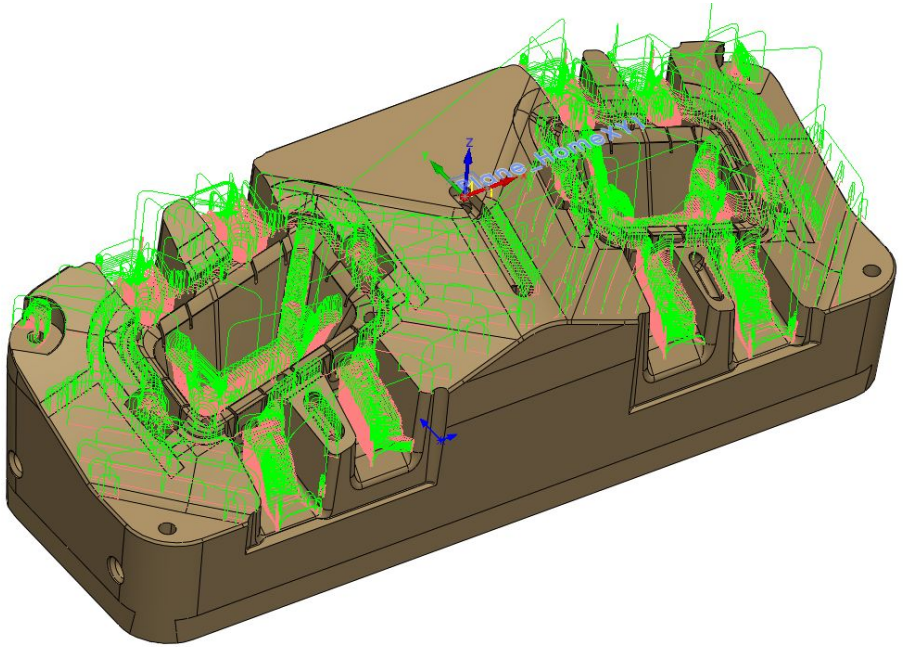




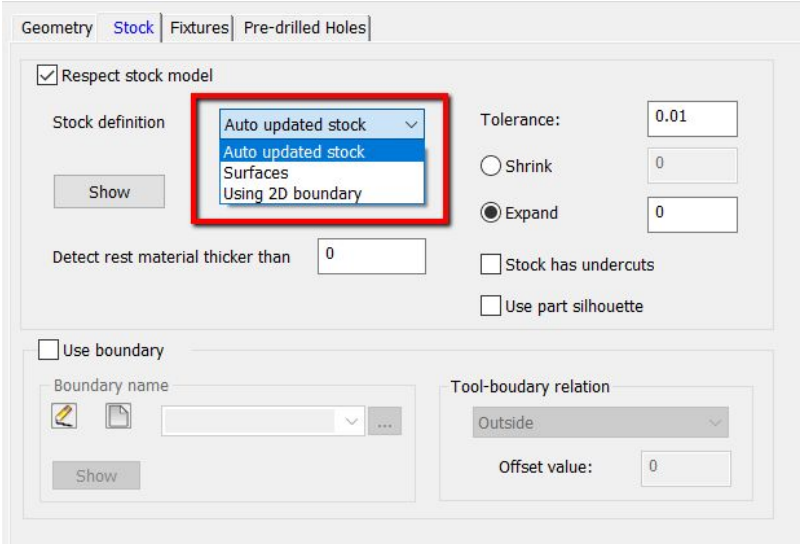
- **Different machining patterns available**
  - **Hatch, Contour and Rest roughing**

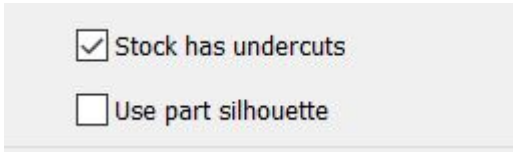
Turbo 3D HSR – Rest Roughing

- **Rest roughing in Turbo 3D HSR**
- **Based on either Updated Stock or previous tool**
- **User can specify the minimum stock thickness above which the tool path will be generated**
- **Arc fitting in rapid moves provides smooth transition between passes**



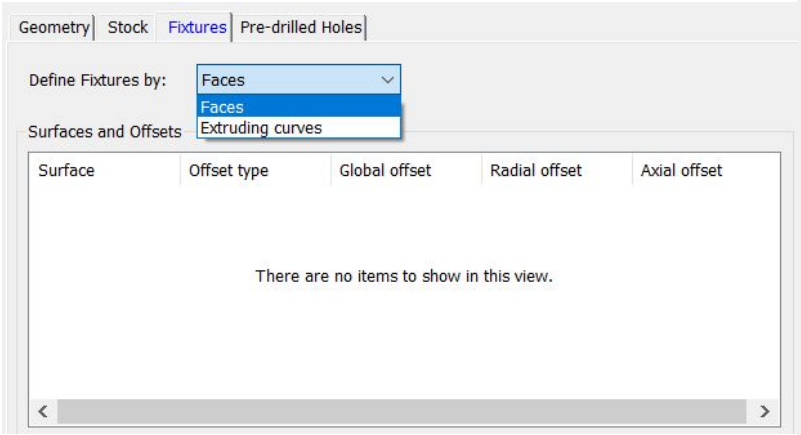
Turbo 3D HSR – Local Stock Definition

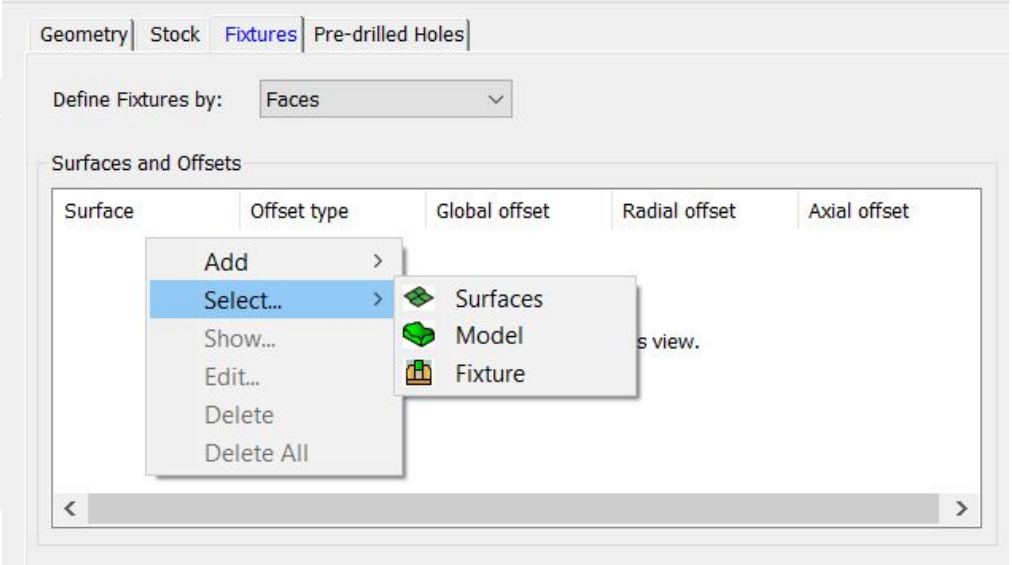




- **Stock definition including undercut stock definition**
- **Local Stock can be defined for the operation**

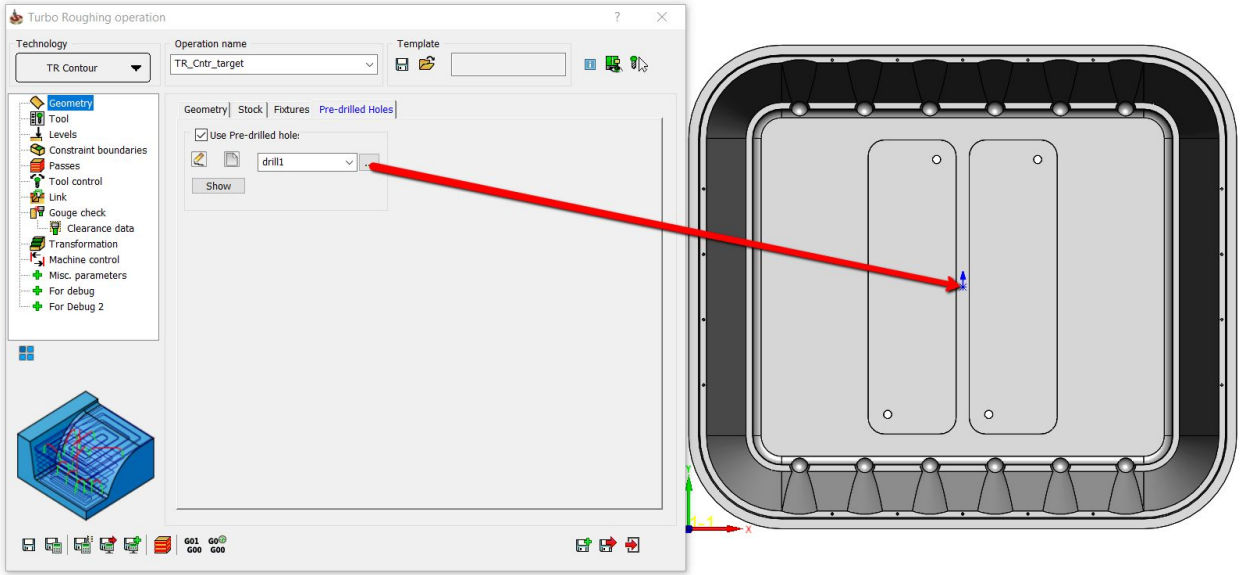
Turbo 3D HSR – Fixture Collision Protection





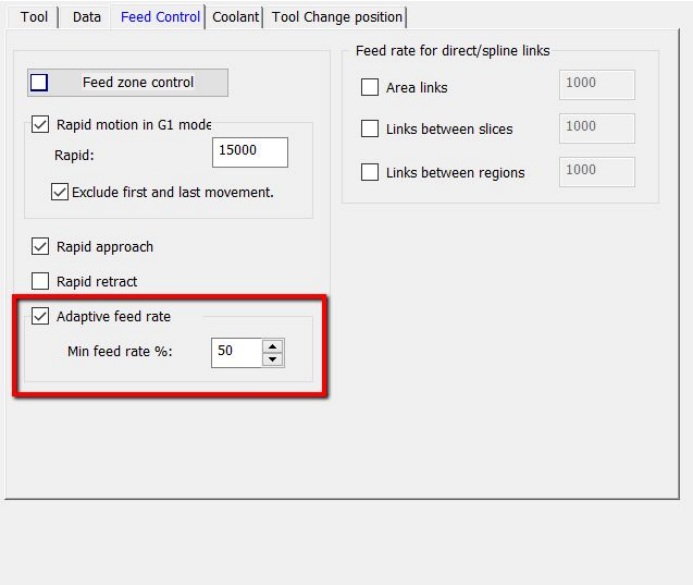
- **Collision checking against fixtures using either Faces or Curves definition**
- **Fixture definition can be done using Faces, Part Model or Fixture Definition in Machine Setup**

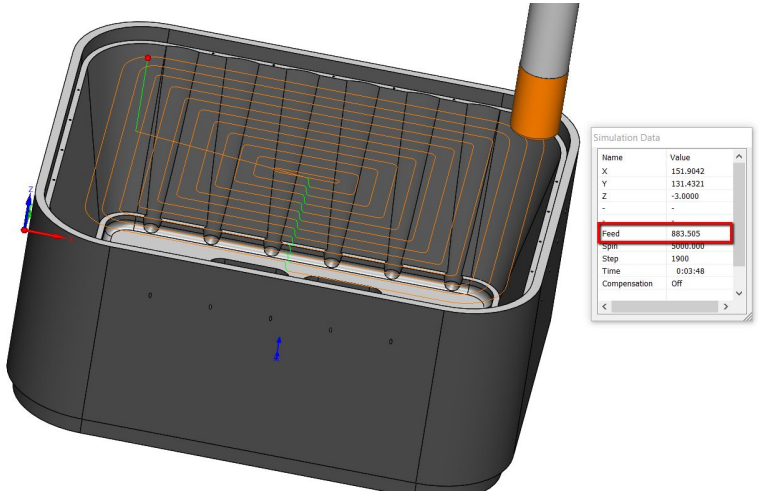
Turbo 3D HSR – Pre-drilled Points



- **Pre-drilled holes can be defined for tool entry; depth of drilling is recognized and ramping beyond the drilling depth is started automatically**
- **Very useful feature for roughing with non-center cutting tools**

Turbo 3D HSR – Adaptive Feed Rate

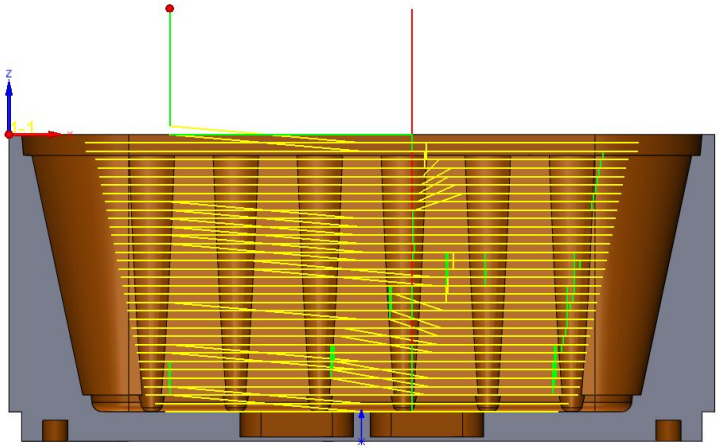


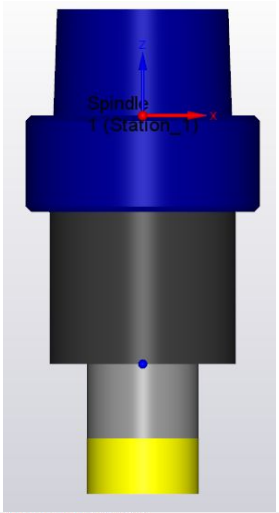


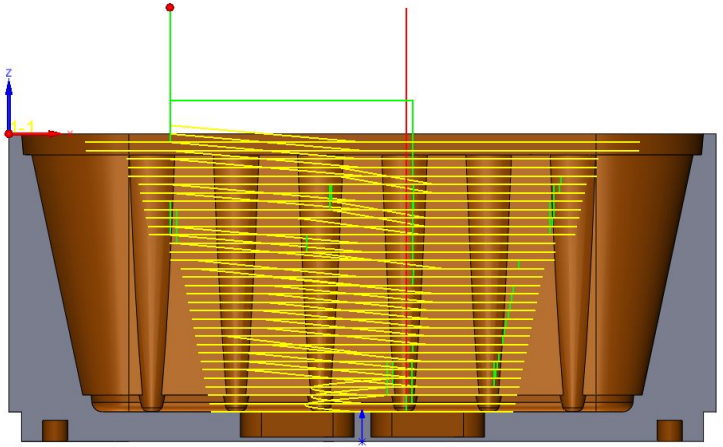

```
N570 G1 X84.357 Y72.739 F1000
N575 G1 X84.639 Y72.562
N580 G1 X84.859 Y72.286 F984
N585 G1 X85.029 Y71.927 F861
N590 G1 X85.258 Y71.031 F720
N595 G1 X85.405 Y70.003 F629
N600 G1 X85.552 Y68.975 F587
N605 G1 X85.781 Y68.078 F582
N610 G1 X85.95 Y67.72 F619
N615 G1 X86.171 Y67.444 F671
N620 G1 X86.453 Y67.266 F777
N625 G1 X86.805 Y67.203 F909
N630 G1 X92.739 Y67.206 F824
N635 G1 X98.673 Y67.208 F561
```

- **Adaptive feed rate function allows for constant cutting conditions**
- **Very useful feature for roughing that maximizes tool life**

Turbo 3D HSR – Dynamic Holder Collision







Dynamic Holder Checking

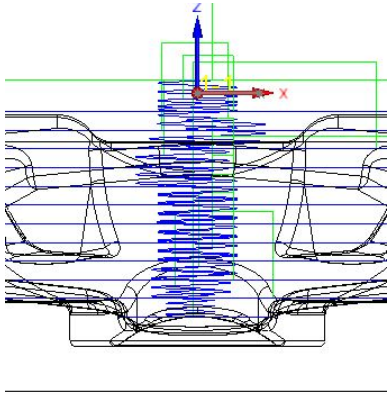
☑ Check with machining surfaces

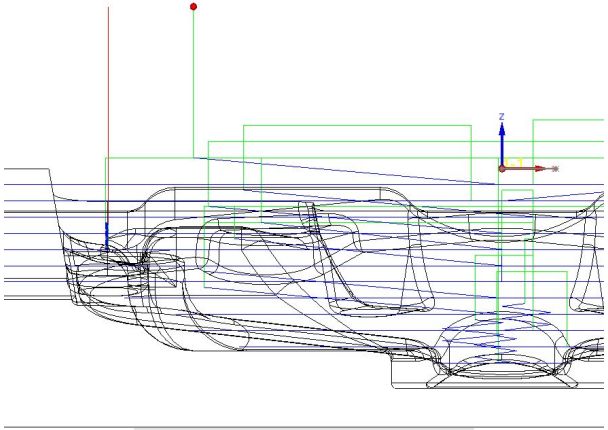
☐ Check with in-process stock

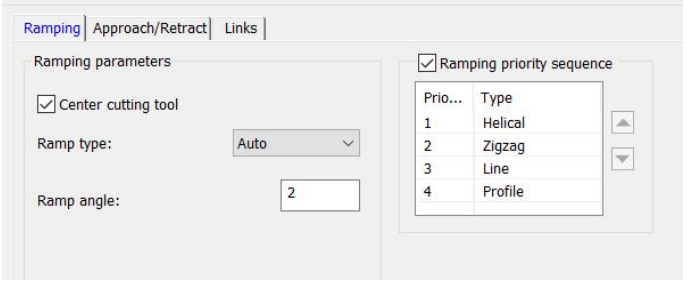
Clearance: 10

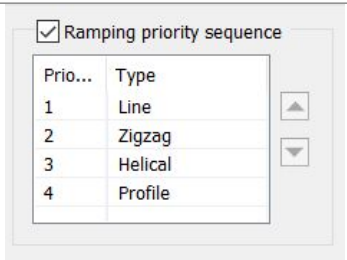
- **Dynamic Holder Checking provides collision free tool paths when using short tools**

Turbo 3D HSR – Automatic Ramping



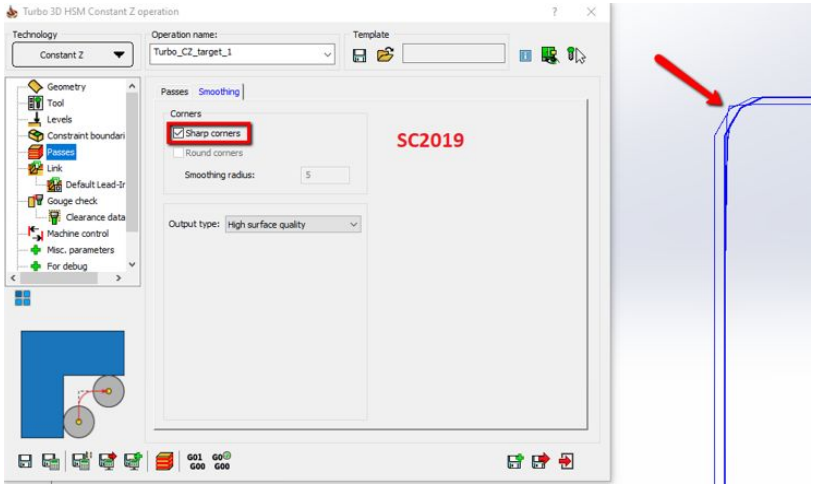


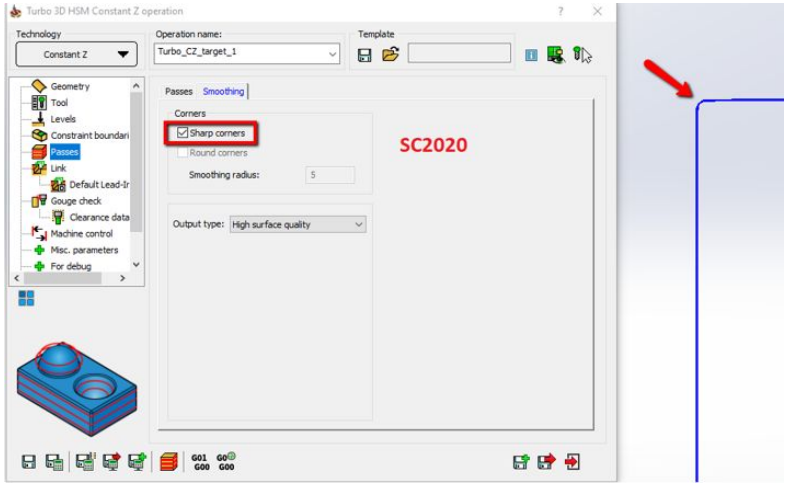




- **Automatic ramping makes decision of applying Ramp Type easy with a pre-defined fall back sequence in event a certain style of ramping is not possible**

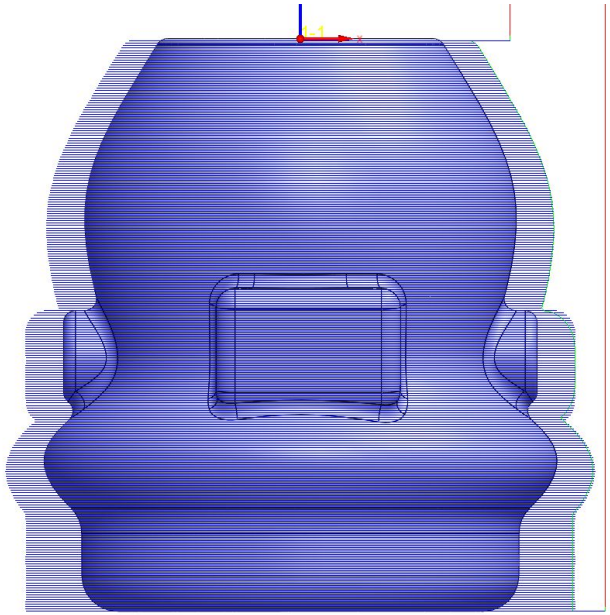
Turbo 3D HSM – Sharp Corners





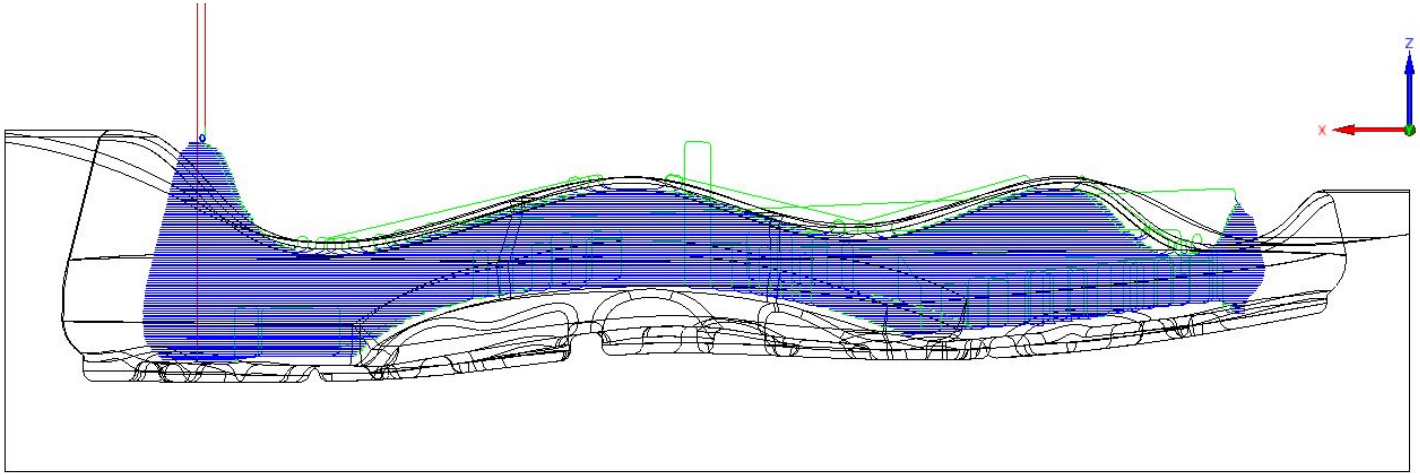
- **More accurate sharp corner motion is now created in Turbo 3D HSM tool path**
- **A fine radius is now added to prevent part wall damage**

New Operation – 3-Axis Undercut Milling



- **New 3 Axis Undercut Machining operation works directly on models**
- **Constant Z strategy is currently available**

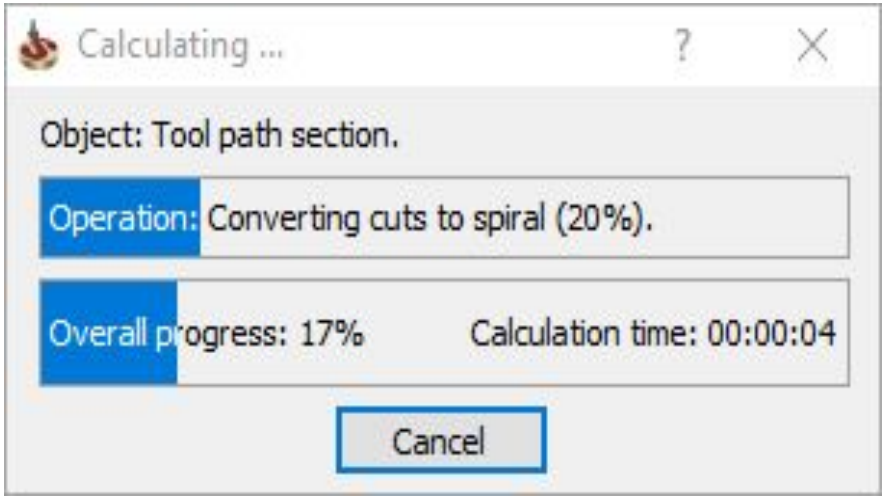
New Operation – 3-Axis Undercut Milling



- **Gouge free tool paths**
- **Support for Slot Mills & Lollipop Cutters**
- **Automatic collision control for Shank & Holders**

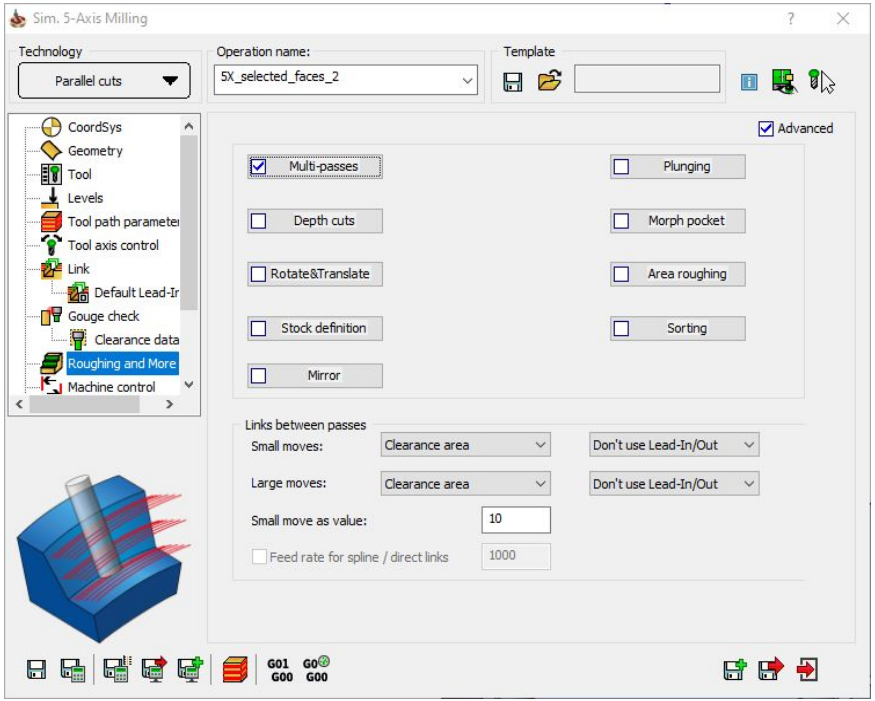
HSS & SIM 5X

HSS & SIM 5X – Progress Bar



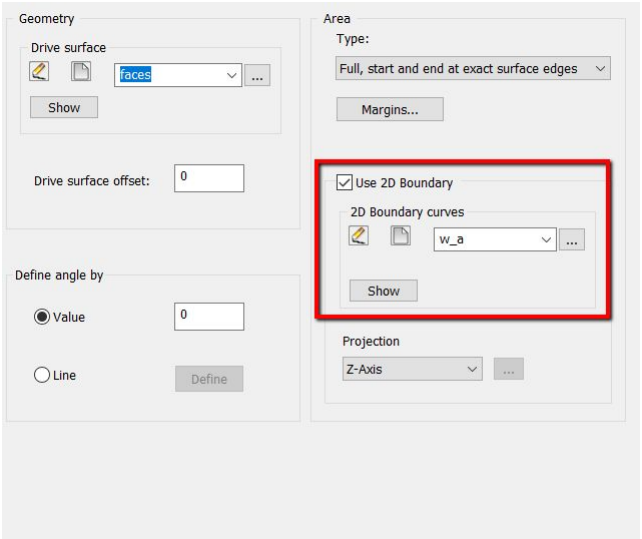
- **Calculation progress bar is now visible for all HSS & SIM 5X Operations**

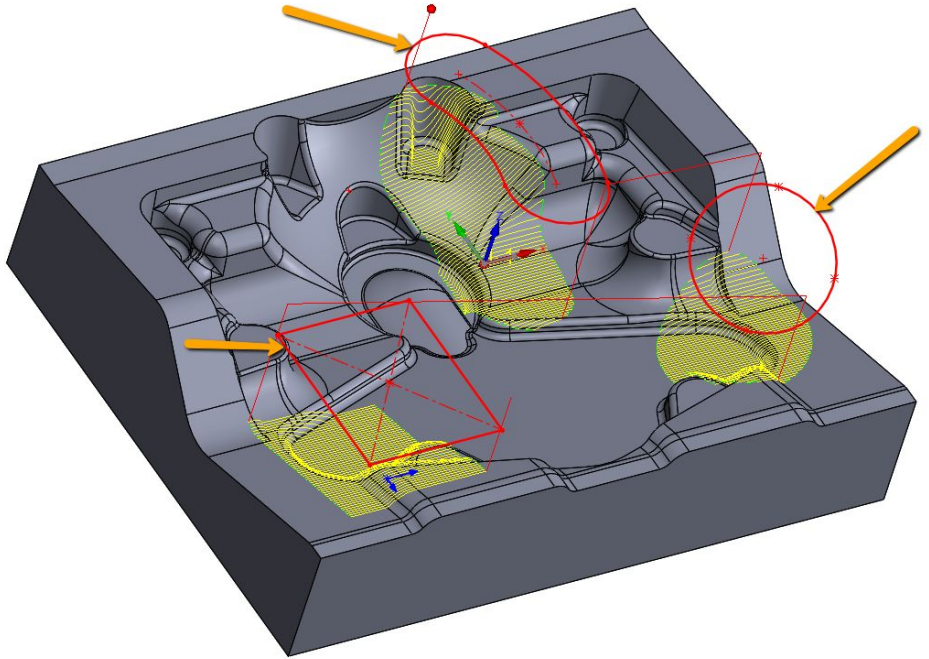
HSS & SIM 5X – Activating & Deactivating Options



- **The options on Roughing and More page can now be activated/deactivated by just clicking on the corresponding check boxes**

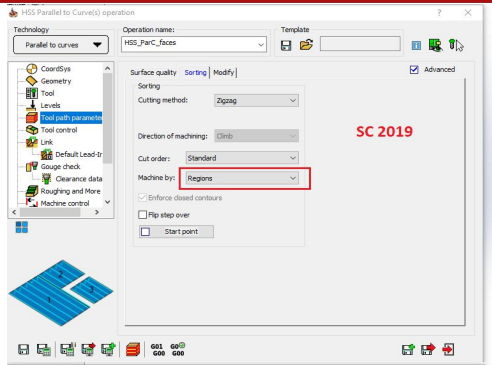
HSS & SIM 5X – Multiple Boundaries Definition

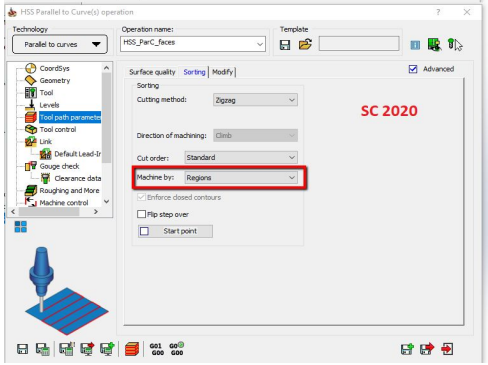


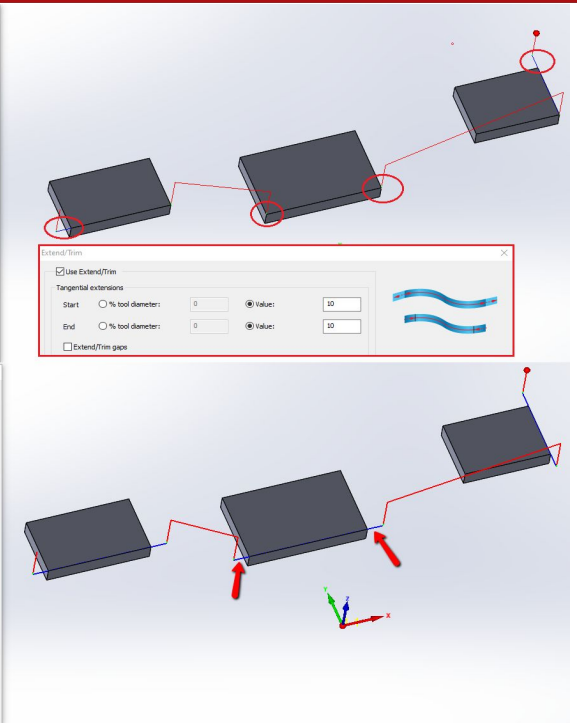


- **Multiple boundaries are now supported in a single operation for HSS & SIM 5X**

HSS & SIM 5X – Extend Toolpath

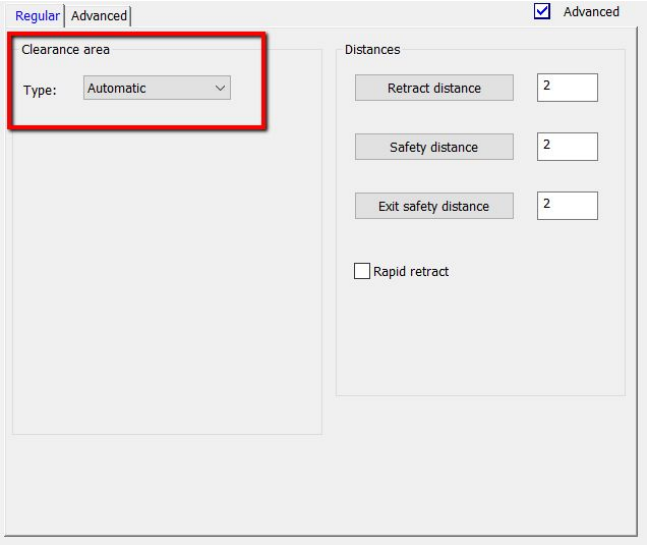


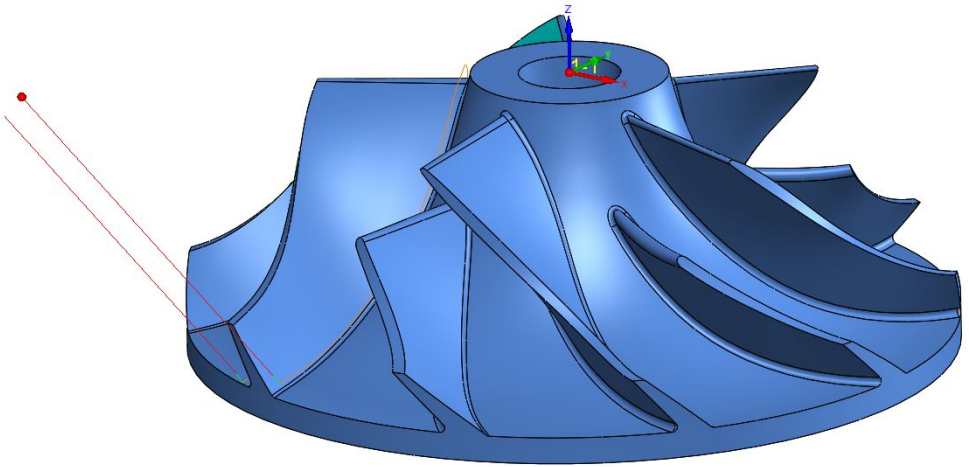




- **Tool path extension now extends the tool path for each region**

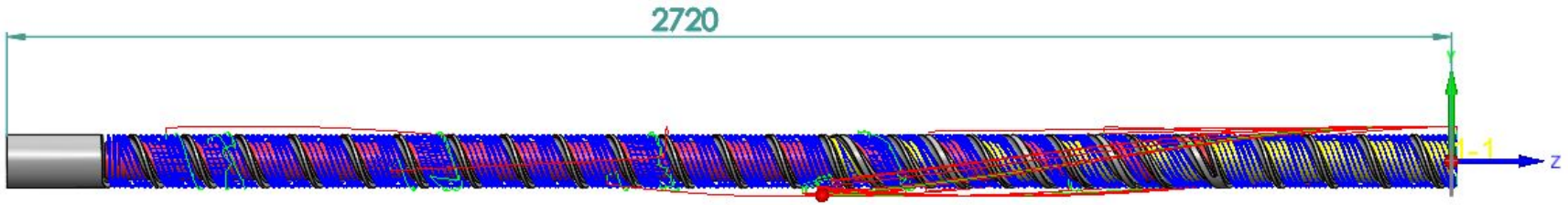
HSS & SIM 5X – Automatic Clearance Plane





- **Automatic – Clearance area direction, type and value are automatically set by SolidCAM based on the part geometry and tool path type**

Screw Machining – Improvements

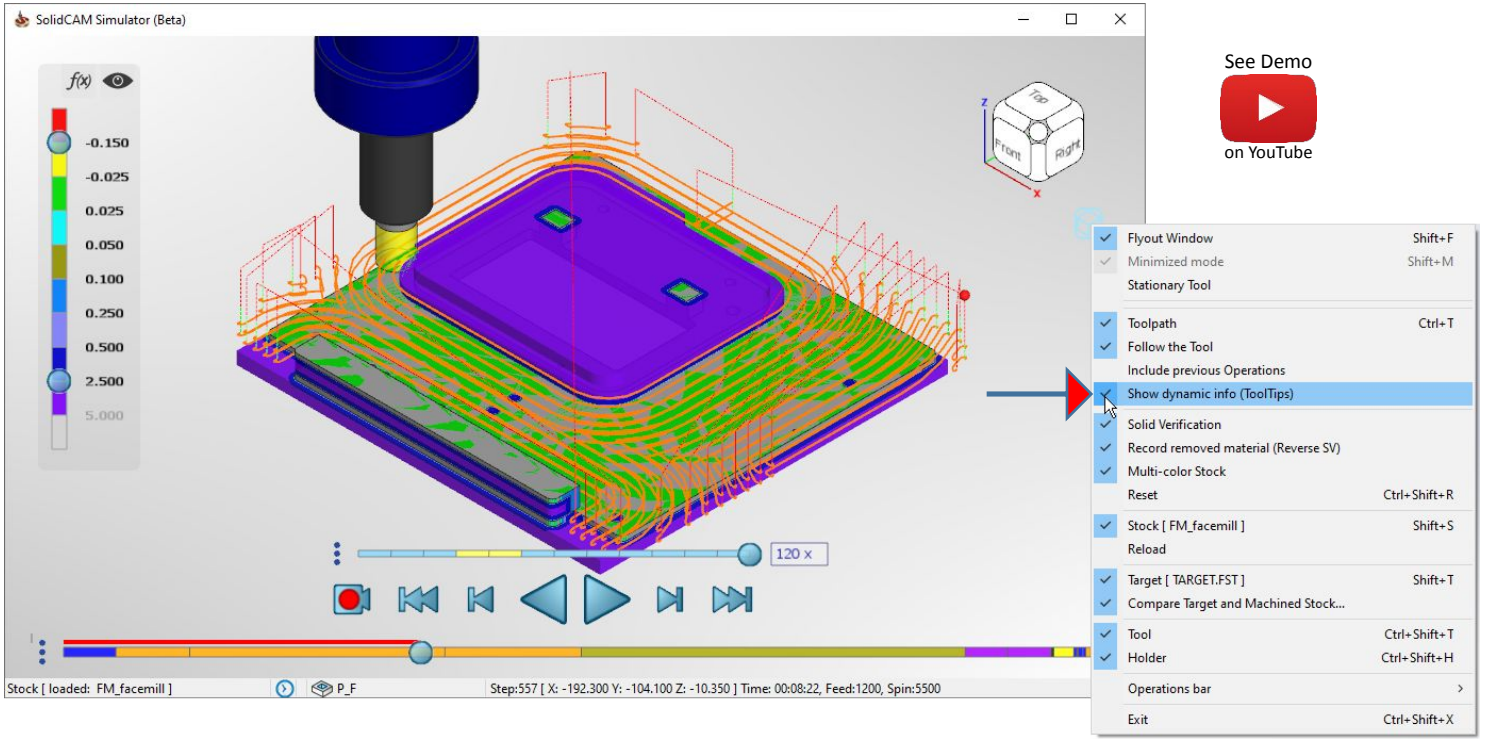


- **Optimized tool path calculation is now 10 times or more faster**
- **Lead In & Lead Out definition for finishing operations**
- **Automatic Ramping**

SolidCAM Simulator

Simulator ToolTips – User Option

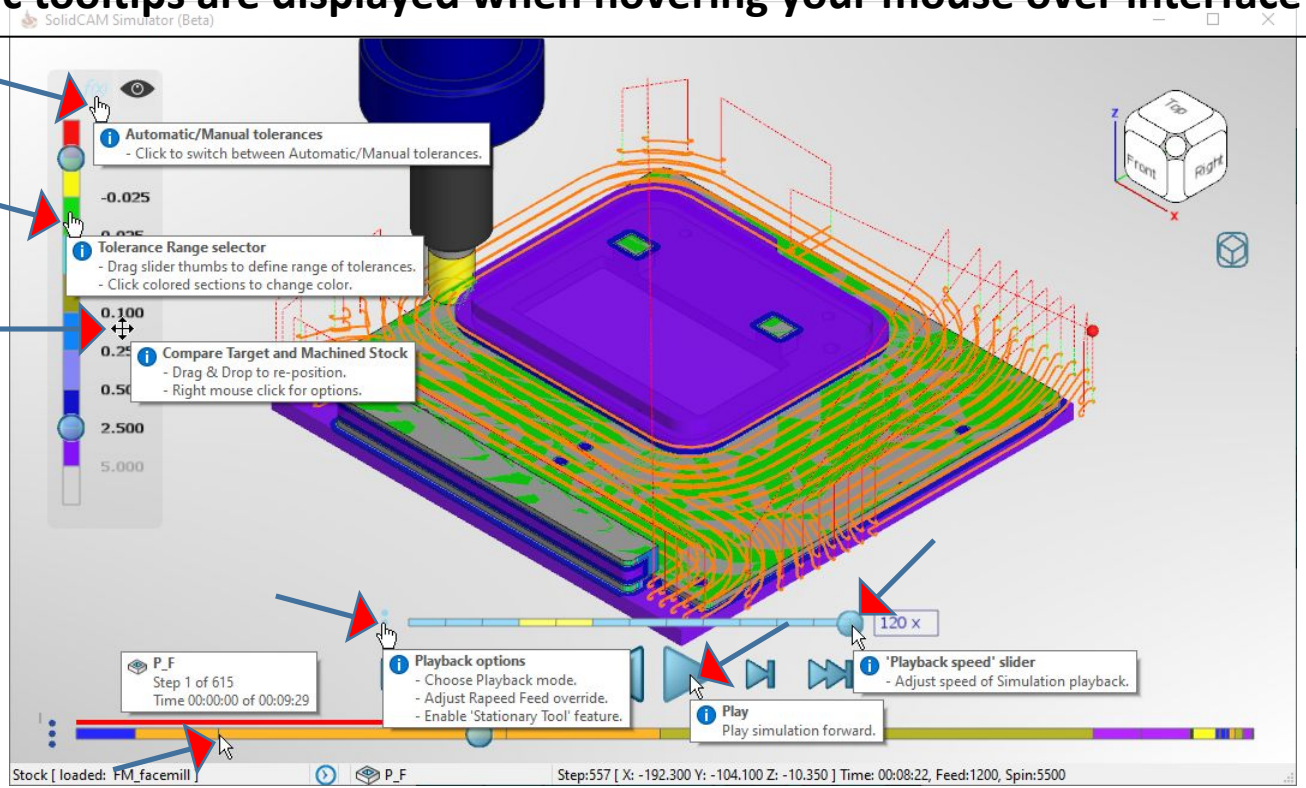
- **Show dynamic info option enables you to toggle off/on tooltips**



See Demo on YouTube

ToolTips – Interface Features

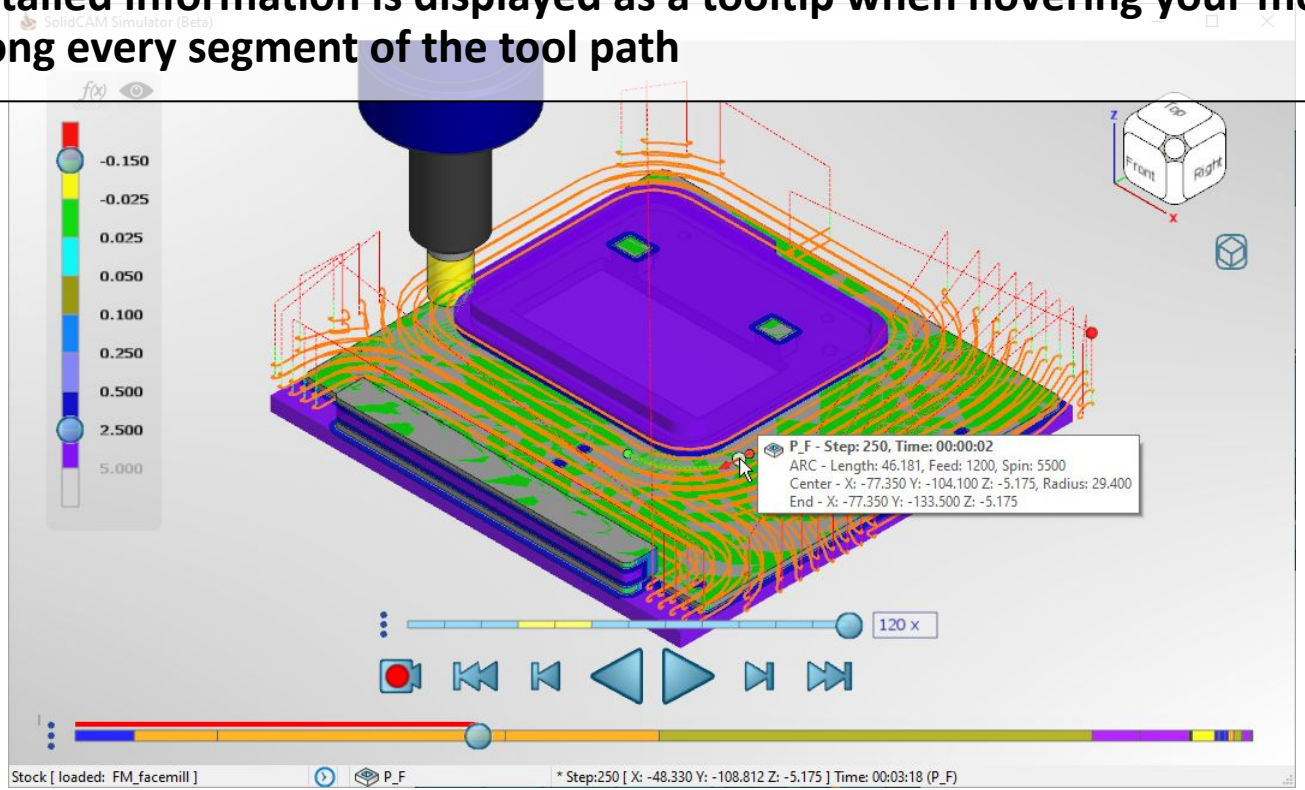
- **Dynamic tooltips are displayed when hovering your mouse over interface features**



See Demo on YouTube

ToolTips – Tool Path Information

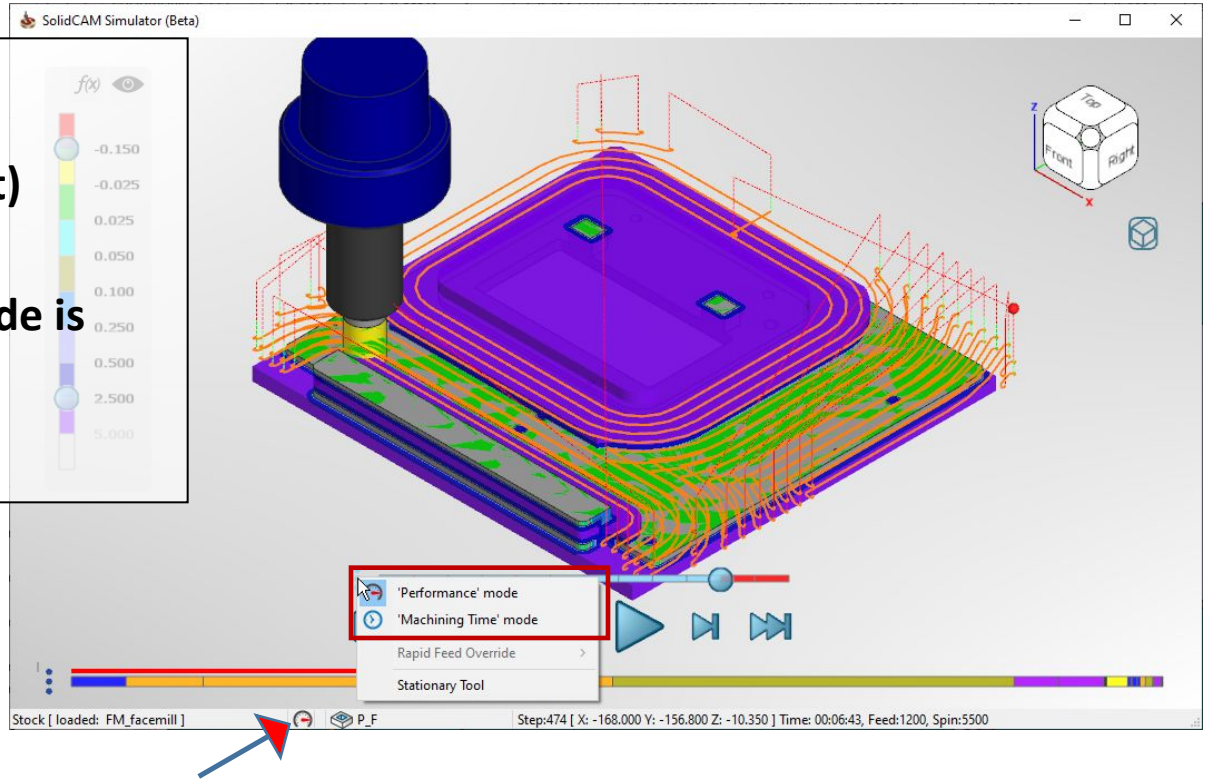
- **Detailed information is displayed as a tooltip when hovering your mouse along every segment of the tool path**



See Demo on YouTube

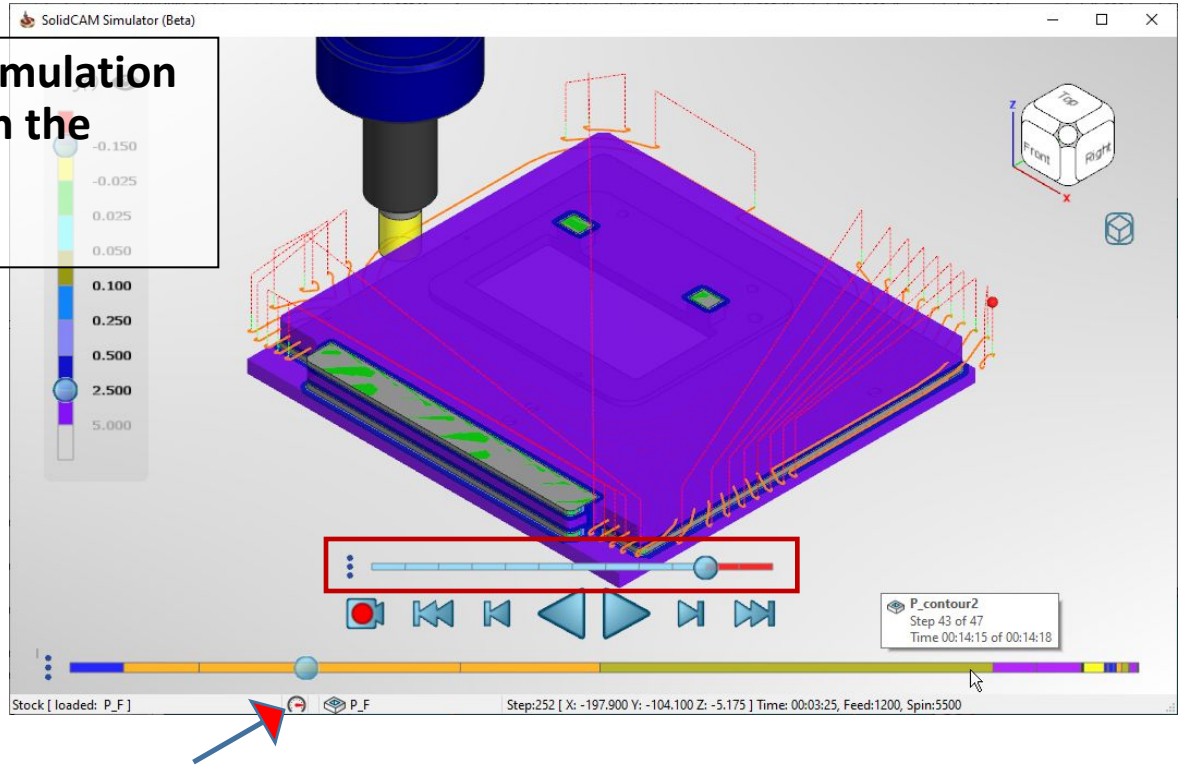
Simulation Playback Modes

- There are now two available simulation modes:
  - Performance mode (default)
  - Machining Time mode
- Icon for currently running mode is shown in the status bar



Performance Mode

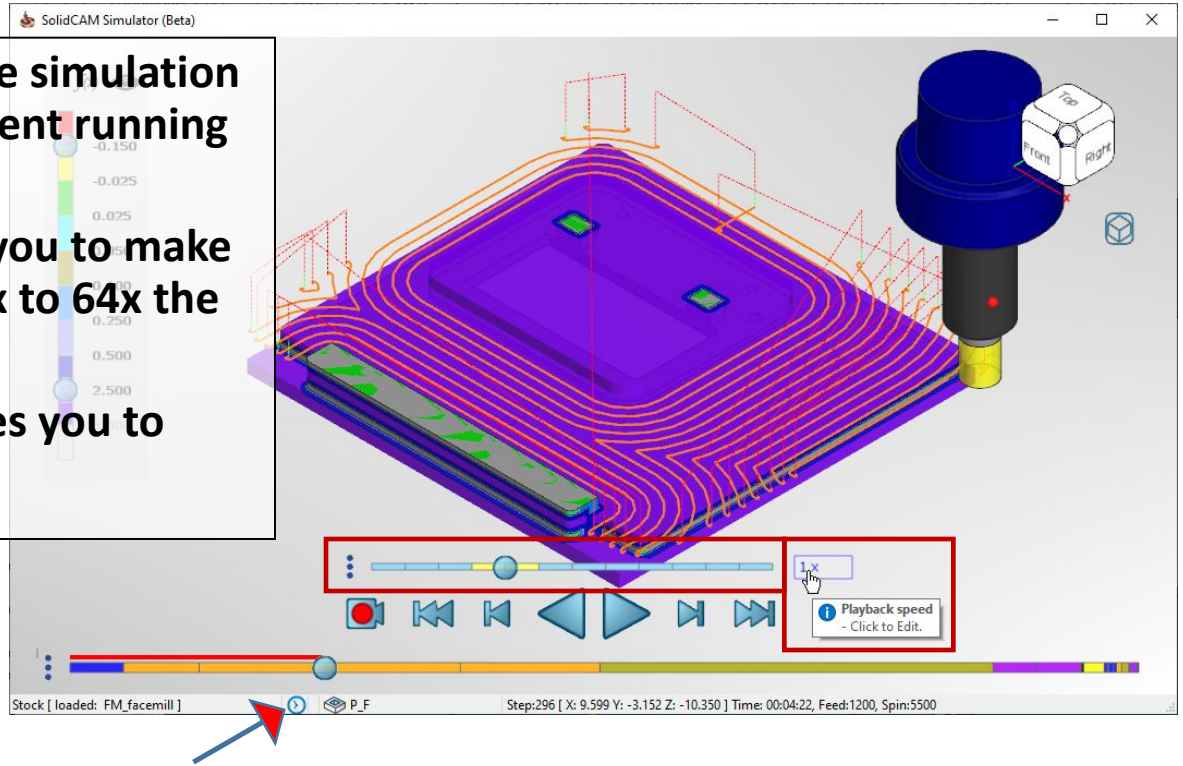
- **Performance mode plays the simulation at incremental speeds based on the Playback speed slider**



See Demo
Coming Soon
on YouTube

Machining Time Mode

- **Machining Time mode plays the simulation according to the actual time spent running on the machine**
- **Playback speed slider enables you to make default speed adjustments 0.1x to 64x the actual machining time**
- **Playback speed edit box enables you to enter any preferred value**

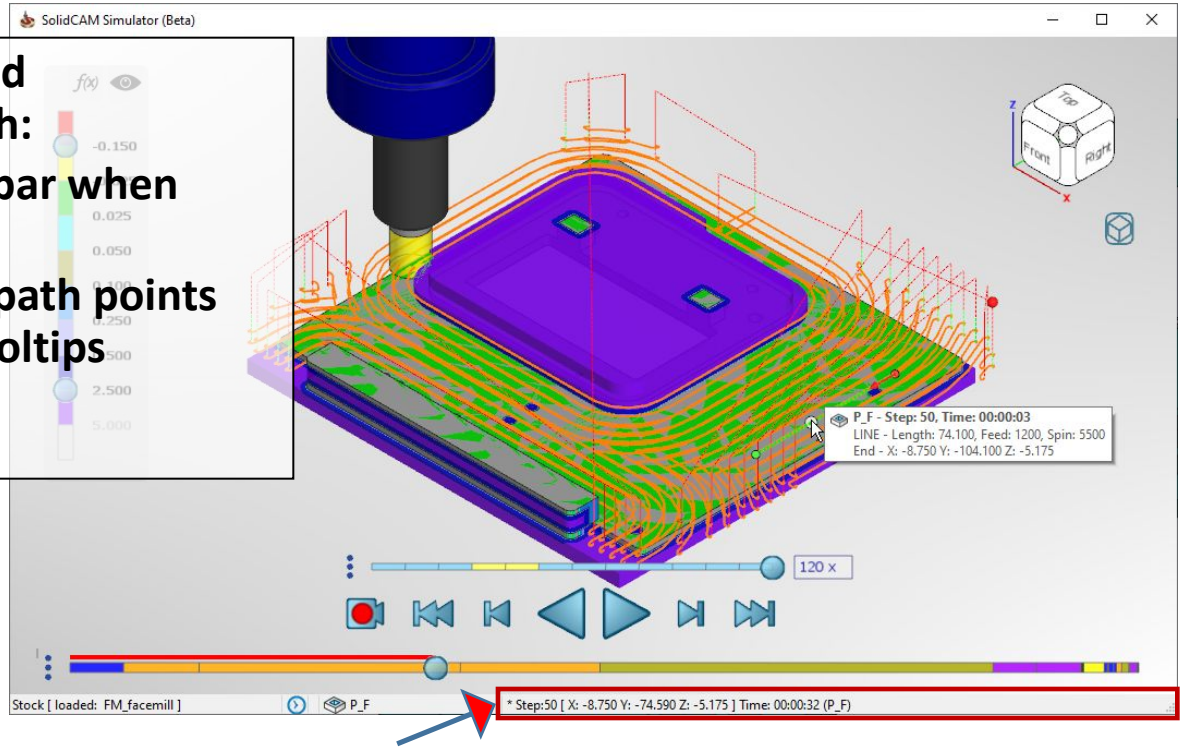


See Demo
Coming Soon
on YouTube

Improved Status Bar with Tool Path Data

- **Status bar now displays detailed information about the tool path:**
  - **Current point in Operations bar when playback is running**
  - **Data related to specific tool path points when hovering mouse for tooltips**

See Demo
on YouTube



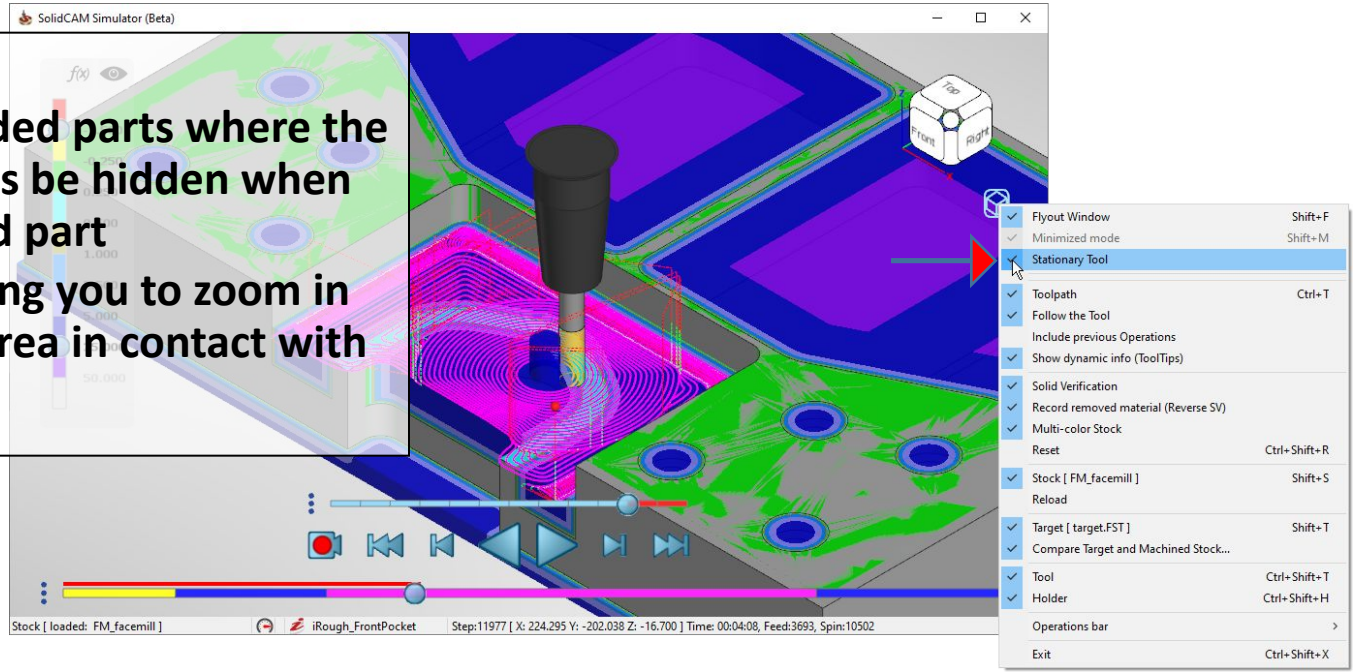
Simulator Stationary Tool – User Option

- **During simulation playback, you can now keep the tool stationary instead of the part**

- **Perfect for:**
  - **Multiaxis/multi-sided parts where the tool can sometimes be hidden when it is moving around part**
  - **Large parts, enabling you to zoom in and focus on the area in contact with the cutting tool**

See Demo

on YouTube



Stationary Tool – Unique Views

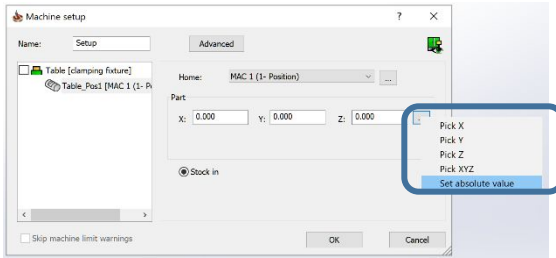
- **In top view, provides unique perspective on 3-Axis tool path that shows how the tool is engaging the material**

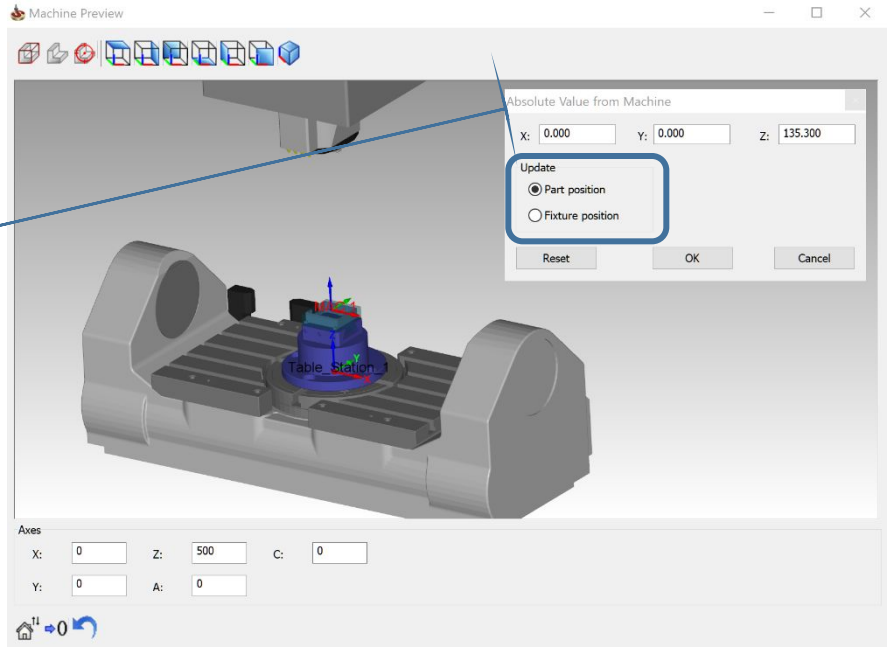
See Demo on YouTube

General

Full Position Control of Part and Fixture

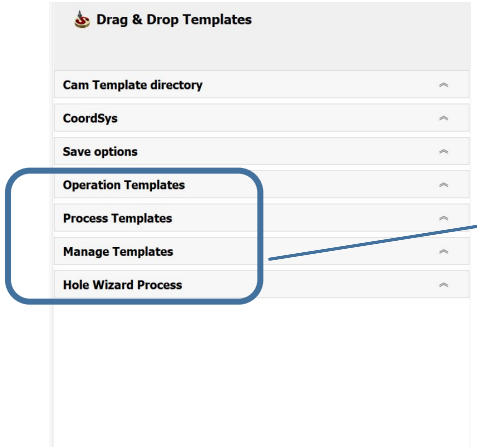
- **Allows you in the Setup to set the absolute value as is on the machine for the Part or Fixture separately**

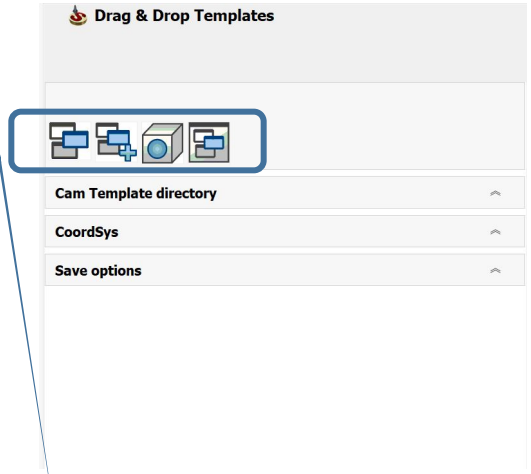




Drag & Drop – Easier Navigation

- **Improved Drag & Drop interface by changing the Operation Templates, Process Templates, Manage Templates and Hole Wizard Process commands into Toggle switch icons**



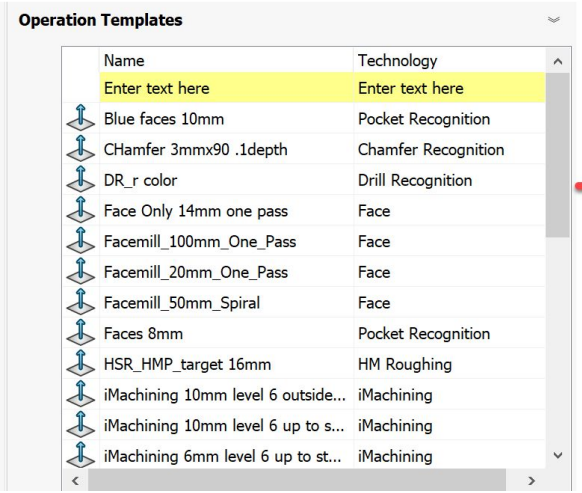


See Demo on YouTube

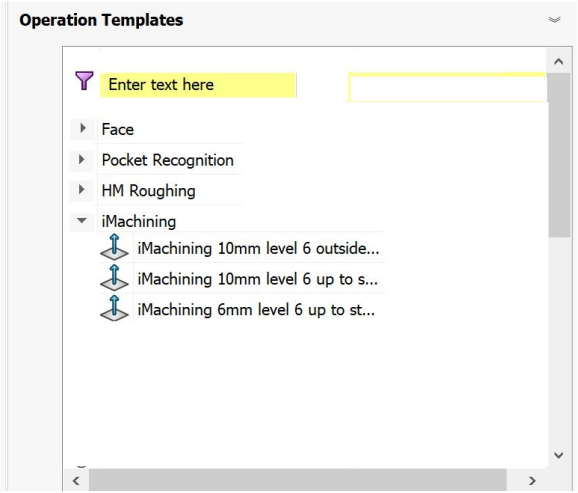
Drag & Drop – Cleaner Operation Templates Interface

- **Operation Templates have been grouped into Operation type folders, making it easier to navigate to the desired template to be used**

Old



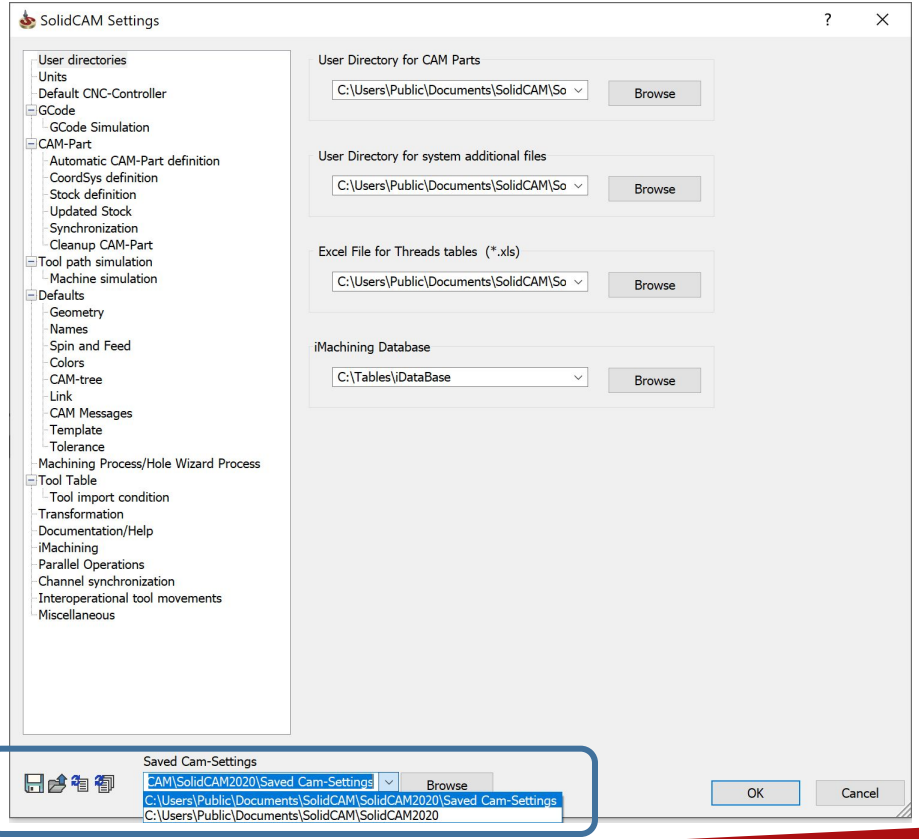
New



See DSee Demo on YouTube

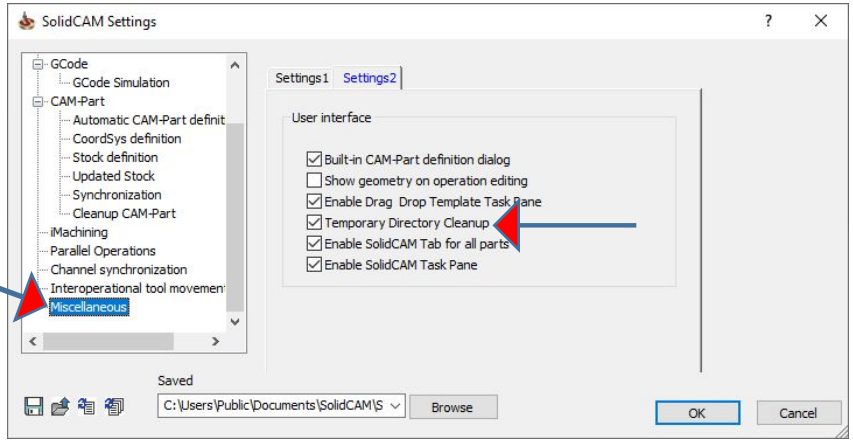
Saved Cam-Settings Location Default

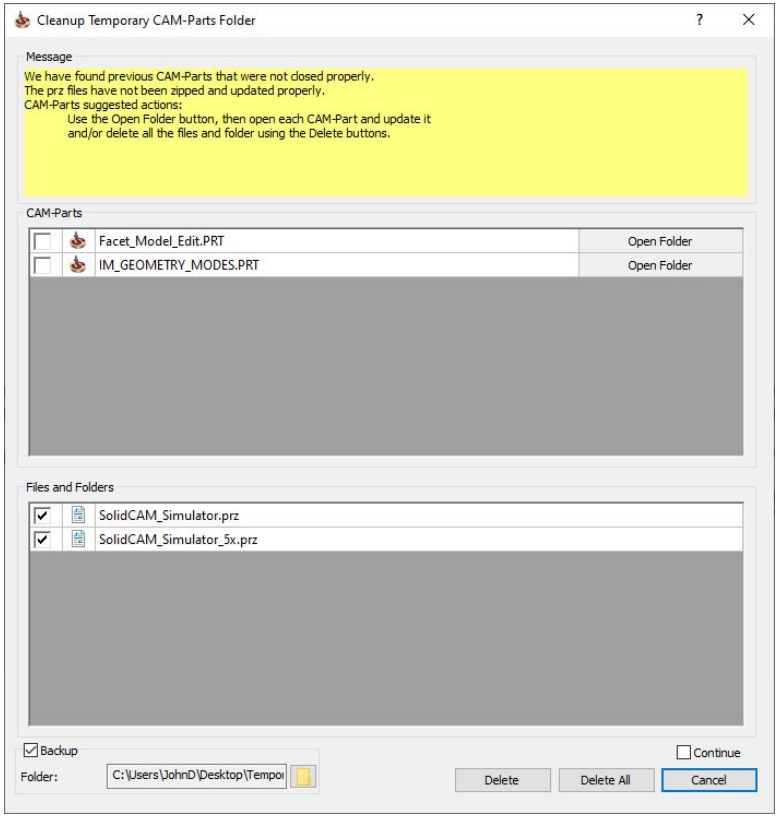
- **Gives you full and easy control as to where CAM settings are stored**



Temporary Directory Cleanup Utility

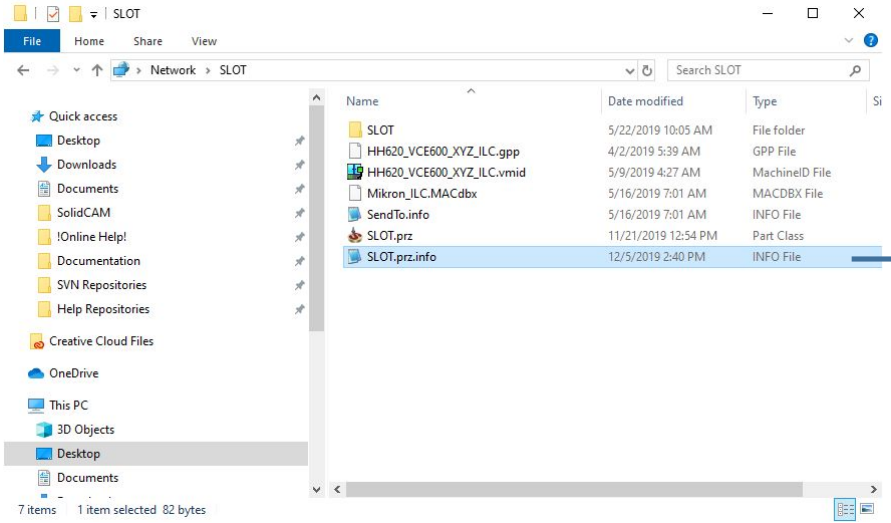
- **Improperly closed parts existing in SolidCAM Temporary Directory shown in Recovery Dialog, enabling you to perform cleanup actions**
- **Turn Utility on/off in CAM Settings**

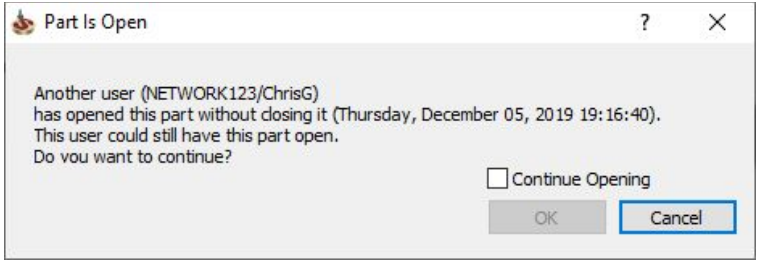




Network PRZ Multi-User Checking

- **SolidCAM supports checking of PRZ files that may already be opened from a network location by another user**





- **Multi-user and network info (*.prz.info) is created and stored in same directory as part file**