



What's New in AlibreCAM 2017

July 31

This document describes new features and enhancements introduced in AlibreCAM 2017 the fully integrated CAM system for Alibre Design 2017.

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This document describes the new functionality that is being introduced with the release of the AlibreCAM 2017 for the Alibre Design 2017 product. This document is organized by listing and describing each of the enhancements incorporated into each of the constituent modules of AlibreCAM.

The last release of AlibreCAM was called VisualCAM 2015 for Geomagic Design. MecSoft had stopped development of VisualCAM for Geomagic Design in 2015. After the change of the Geomagic Design product into the Alibre Design product in 2017, development of the CAM product for Alibre Design was restarted and the result of this development is AlibreCAM 2017.

ALIBRECAM 2017

AlibreCAM 2017 as is a plug-in that runs inside the Alibre Design system and hosts the following modules:

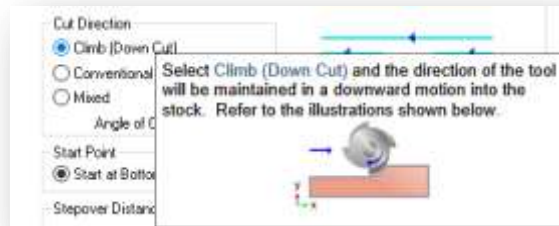
1. MILL
2. TURN

Each of these modules can be licensed and invoked separately of the other modules. Users upgrading from older versions will be upgraded to AlibreCAM and the corresponding CAM module that the user has a license to. This section describes the various enhancements and improvement to each of the modules.

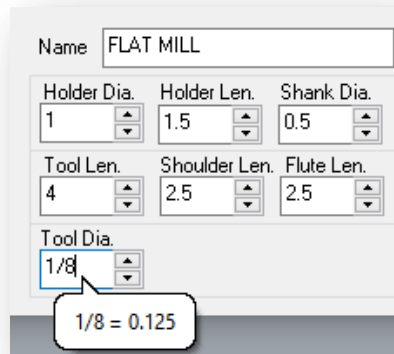
COMMON ENHANCEMENTS

This section describes the common enhancements and changes to AlibreCAM 2017, which is the base platform that hosts the other CAM modules such as MILL & TURN.

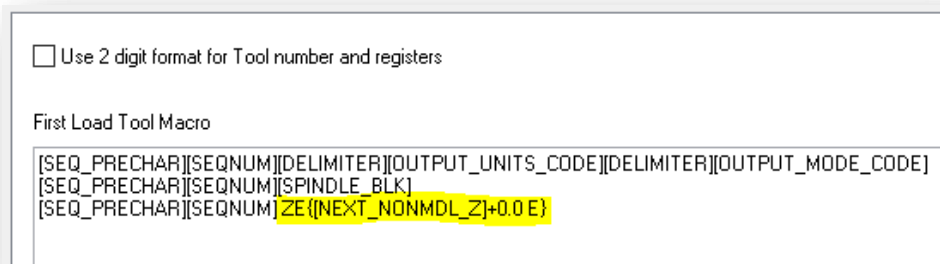
- 1) AlibreCAM has been transitioned over to use software licensing from a hardware key (dongle) licensing scheme used in previous versions.
- 2) Upgrade licenses will require the dongle to be plugged in the first time the product is upgraded but will not be necessary after the upgrade process completes
- 3) Internet access is necessary when activating the license for the first time. Once activation takes place, internet access is not necessary for normal operation
- 4) All old style dialog pictures and icons have been reworked for a more modern look
- 5) On-line help for all modules completely rewritten and enhanced
- 6) Cut material simulation libraries have been upgraded and enhanced for better quality and performance
- 7) New tooltip help for all dialogs have been implemented



- 8) Allow algebraic operations in all edit boxes in all dialogs



- 9) Saving all preference parameters in part files
 10) Simulation libraries have been upgraded which results in better performance
 11) On-line help for all modules have been enhanced
 12) Allowing arithmetic expressions in Post Processors macro definitions Tool list display in the Tool Definition dialog now follows the same sorting rules as the tool display in the browser window



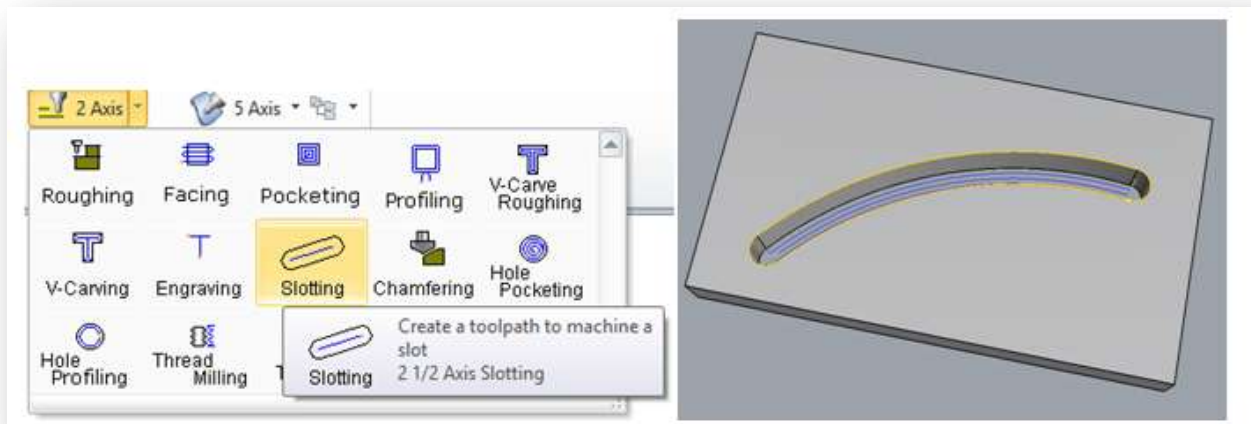
- 13) Tool list display in the Tool Definition dialog now follows the same sorting rules as the tool display in the browser window
 14) Simulation libraries in Milling and Turning have been upgraded and enhanced with:
 - Multi-threaded simulation
 - Faster simulation
 - Smaller memory footprint
 15) Add the ability to save Drive/Containment geometry selection rules & filters in Knowledge Bases has been introduced. This allows Knowledge Bases, upon load to automatically, select geometry into the operations. This functionality greatly enhances the use of Knowledge Bases in machining automation.

WHAT'S NEW IN ALIBRECAM - MILL 2017

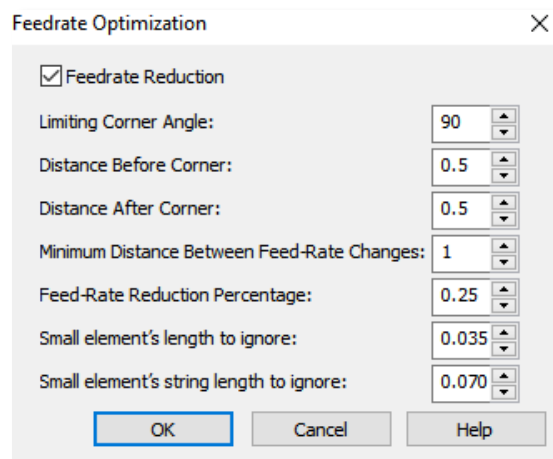
This section describes the enhancements and changes to the MILL module.

MAJOR NEW ENHANCEMENTS

1. New 2 ½ Axis Slot Milling Method has been introduced. This allows both single line cutting and trochoidal machining of slots.

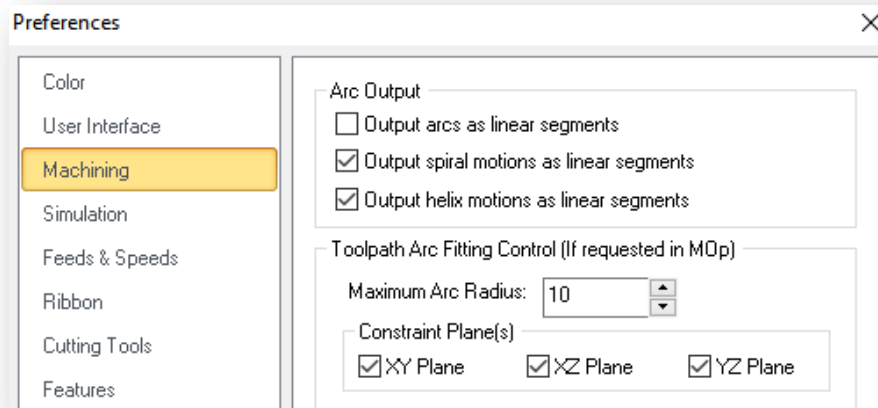


2. Feedrate slowdown in corners has been implemented in the toolpath editor. (Only in the PRO configuration and above)



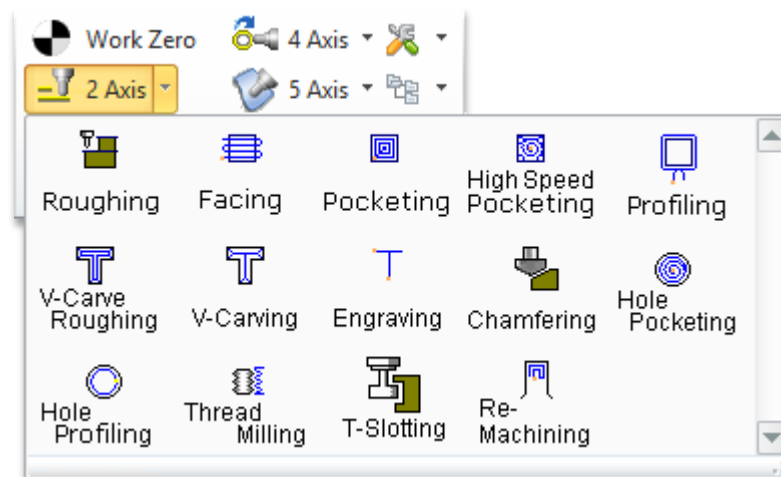
CAM UTILITIES

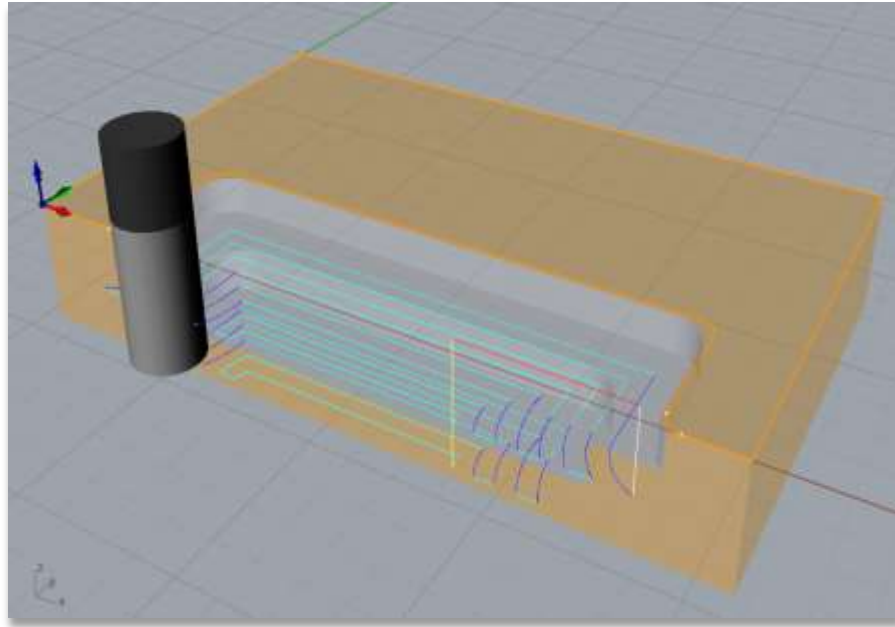
1. Arc Fitting control has been enhanced to introduce planes as well as limiting arc dimensions to prevent machines from erroring out has been introduced in the preferences



2-AXIS ENHANCEMENTS

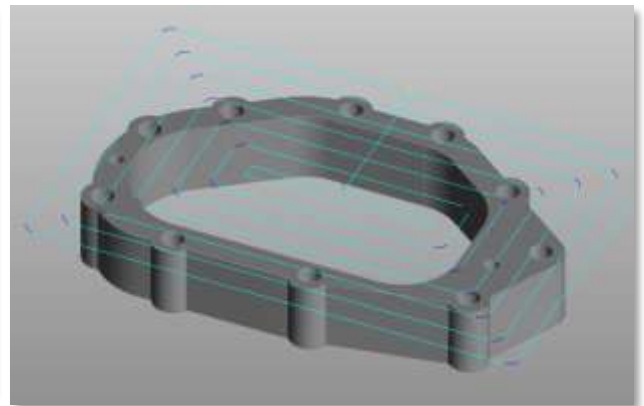
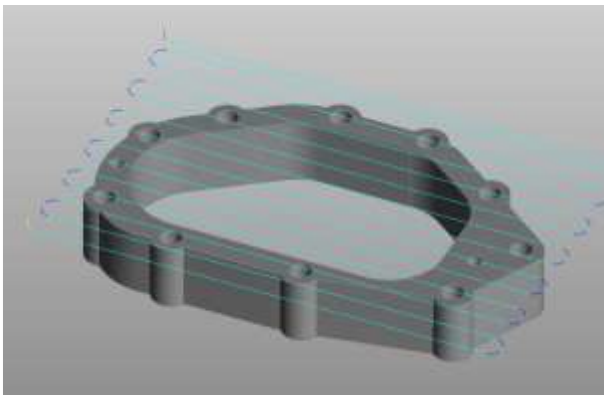
1. Use of Stock model to generate the material regions instead of having to select material regions in 2-1/2 Axis milling. This has the advantage of not having to create 3D part models if you are working only with curves. This has the added advantage of being able to machine arbitrary open area machining. A new method called 2-1/2 Axis Roughing has been introduced to implement this. The heights of the selected regions are honored in this method. Also allows separate machining for Core(Facing) regions and Cavity(Pocketing) regions



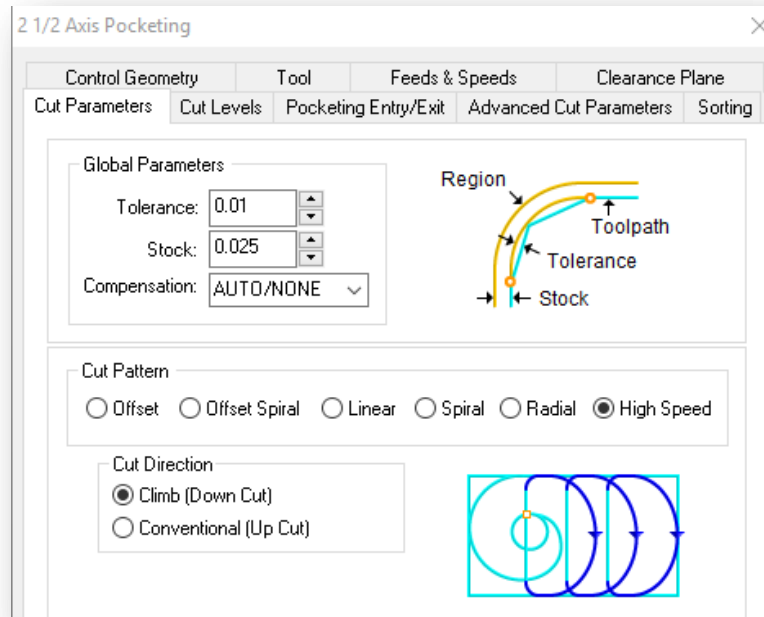


Use of 3D Stock Model to define material regions in Facing

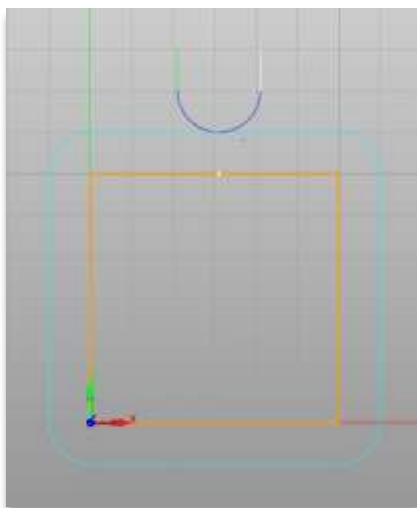
2. A new Slot Machining method has been implemented.
3. T-Slot machining has been enhanced to handle open slots.
4. More controls to arc fitting of toolpaths has been implemented.
5. Along path ramp entry motions have been added to engraving toolpaths.
6. 2 ½ Axis Roughing Facing Offset cut pattern has been enhanced to add high-speed cut rounding.



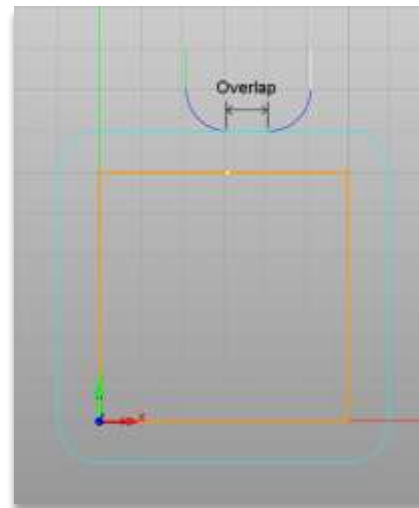
7. High speed pocketing is now part of 2 ½ Axis pocketing operation dialog instead of a separate method. This unifies all of the 2-1/2 axis pocketing methods making it easier to use.



8. Overlap Distance for Closed Profiles Added. The Overlap option on the Exit block in the Profile Engage/Retract page has been added. Specify an overlap distance for closed profiles to avoid leaving small tool marks at the start point of the part. The toolpath will start as specified, follow the closed profile back to the start point and then continue past for the specified distance. The overlap distance will be restricted so that it cannot exceed the profile length.

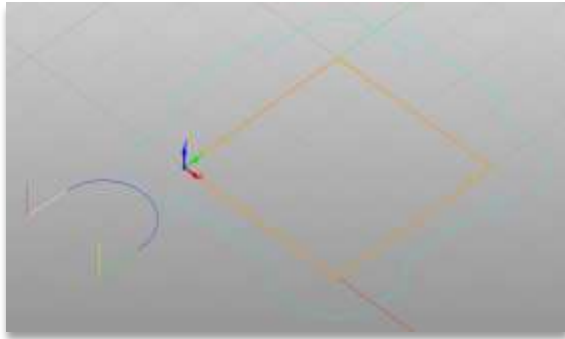


No overlap

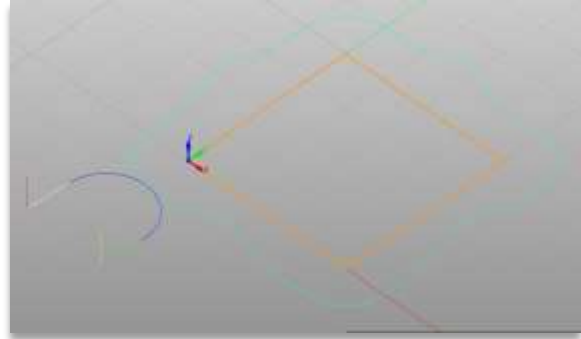


Overlap specified

9. Option for Triangular or Rectangular bridges added for profile machining

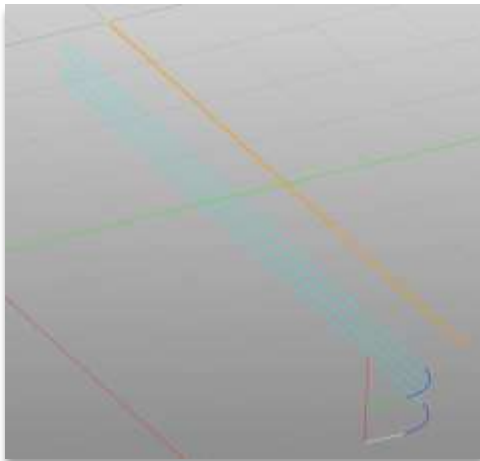


Rectangular Bridges

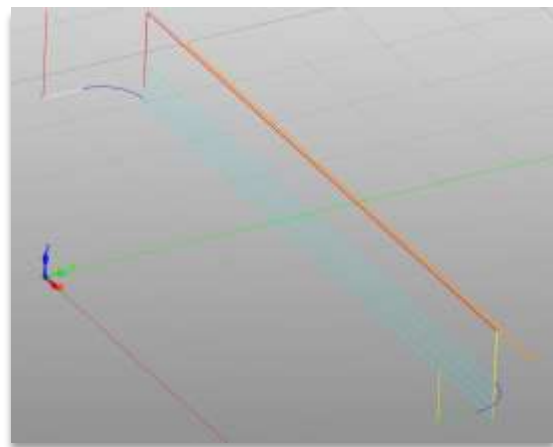


Triangular Bridges

10. Zig Zag option for Z levels in profiling allowing for less retracts between Z levels.

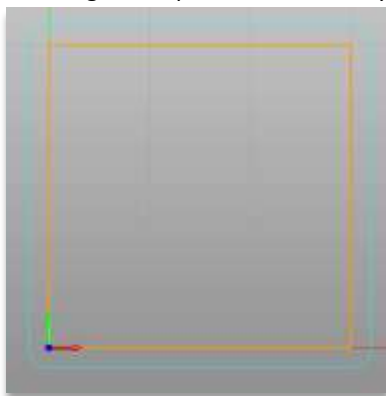


2015 – no retract between levels

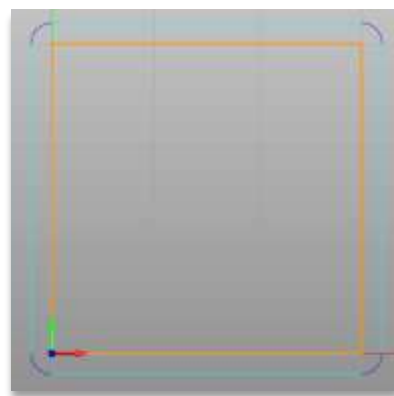


2017 – retracts between levels

11. Use overlapping Stock and Part regions for machining open pockets. Not necessary to create open regions to define open pockets in 2-1/2 Axis Facing
12. Arc fitting of toolpaths automatically turned on now.



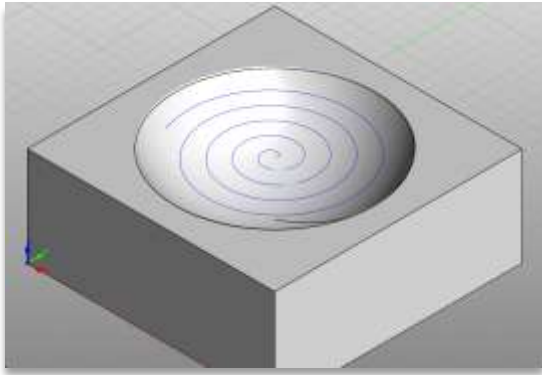
2015 – without arc-fitting



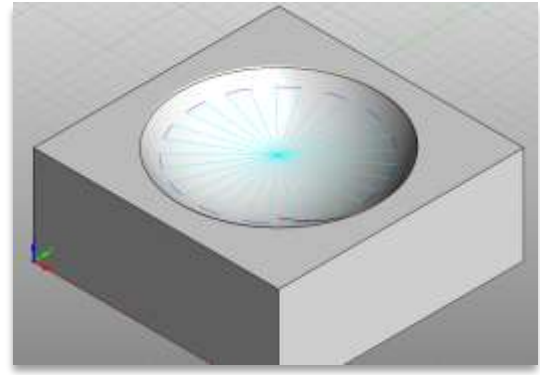
2017 – default behavior

3-AXIS ENHANCEMENTS

1. Horizontal Roughing has been enhanced to add Spiral and Radial cut patterns for machining each cut level. The dialogs also have been unified with 2-1/2 Axis Pocketing making this cut method even more easy to use.

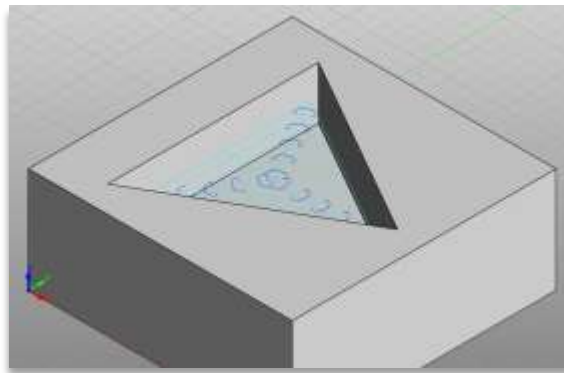


Spiral Machining in each cut level



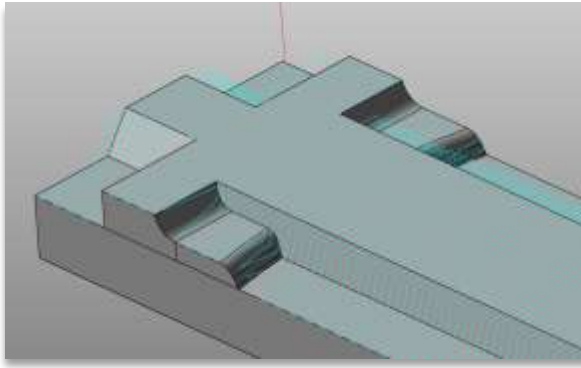
Radial Machining in each cut level

2. Corner cleanup now implemented in Horizontal Roughing

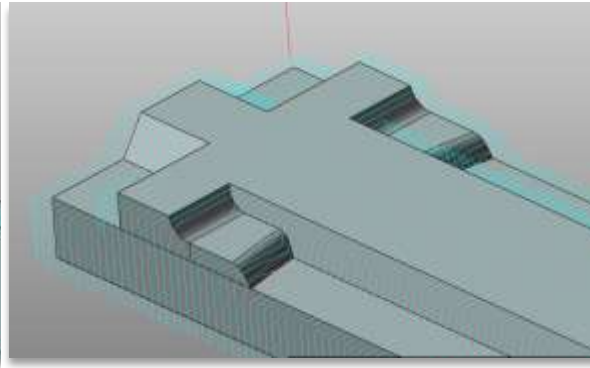


Inside Corner Cleanup loops in each level

3. Cutting Top Only or Top And Sides control added to Parallel Finishing in 3 Axis machining

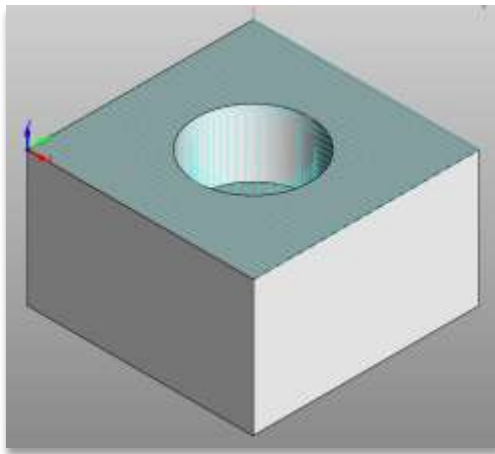


Top Only Machining

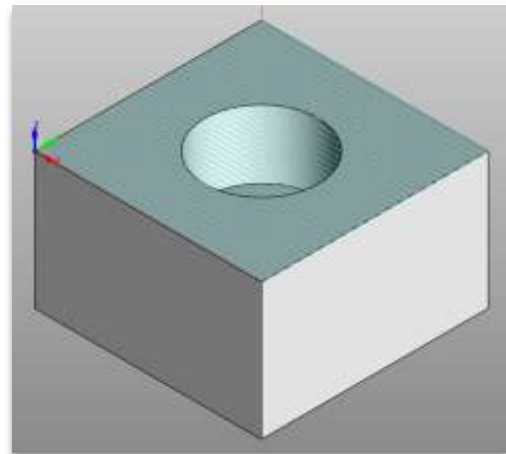


Top & Sides Machining

4. Added an option to cap holes in Parallel Finishing in 3 Axis machining

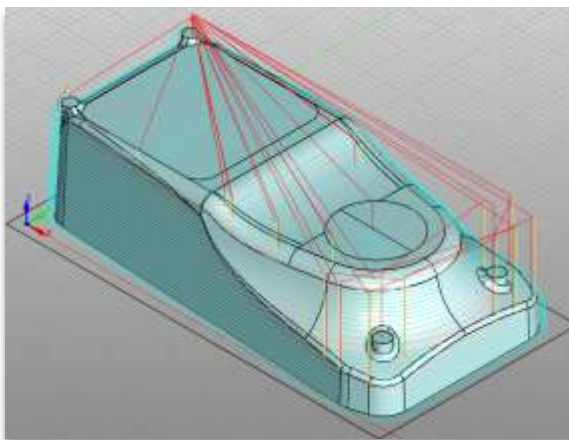


2015 – Tool drops into hole

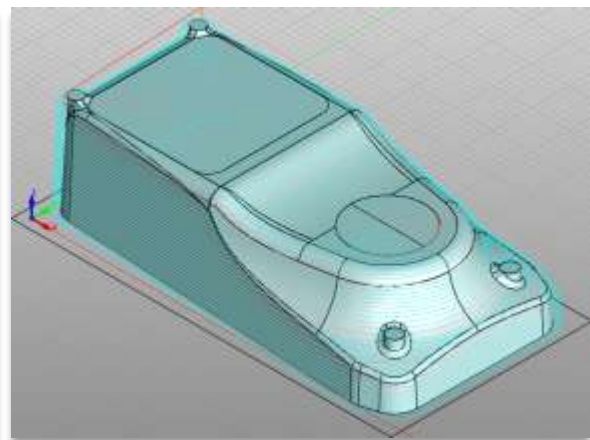


2017 – Tool ignores hole if Ignore Holes on

5. Horizontal Finishing – Reduce retracts in optimized machining

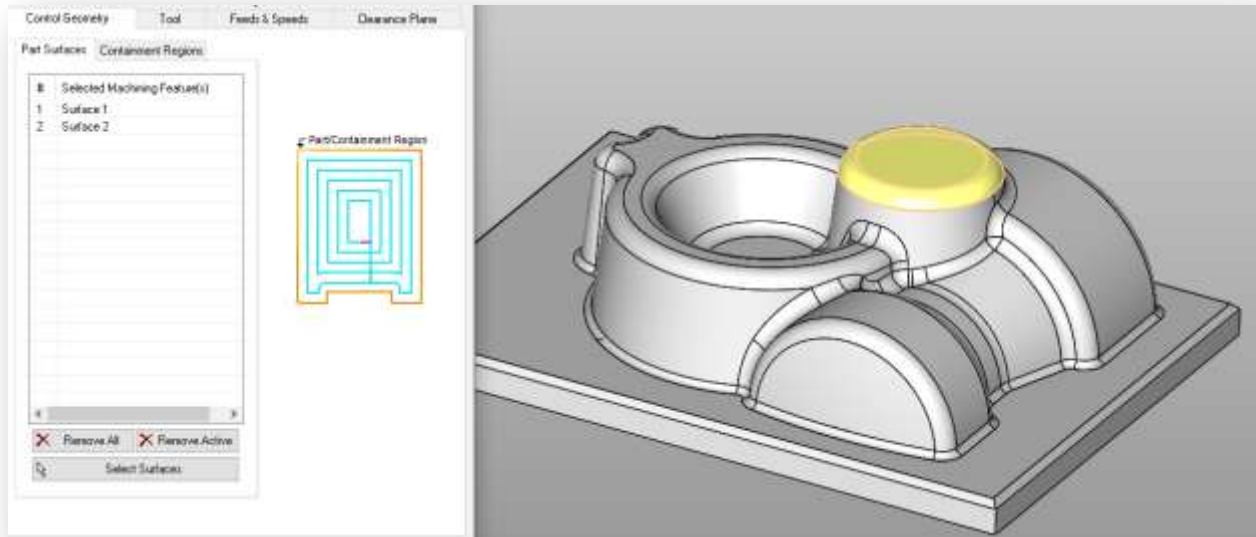


2015

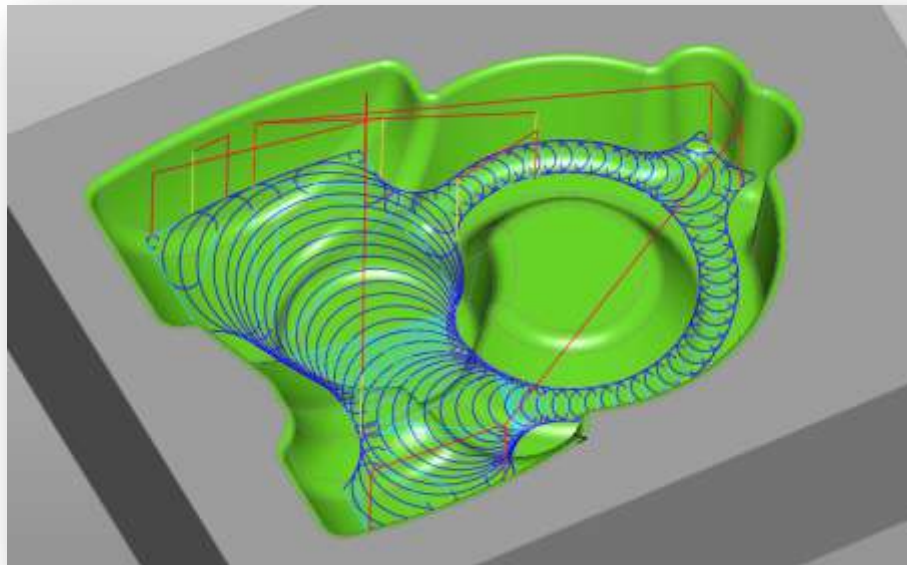


2017

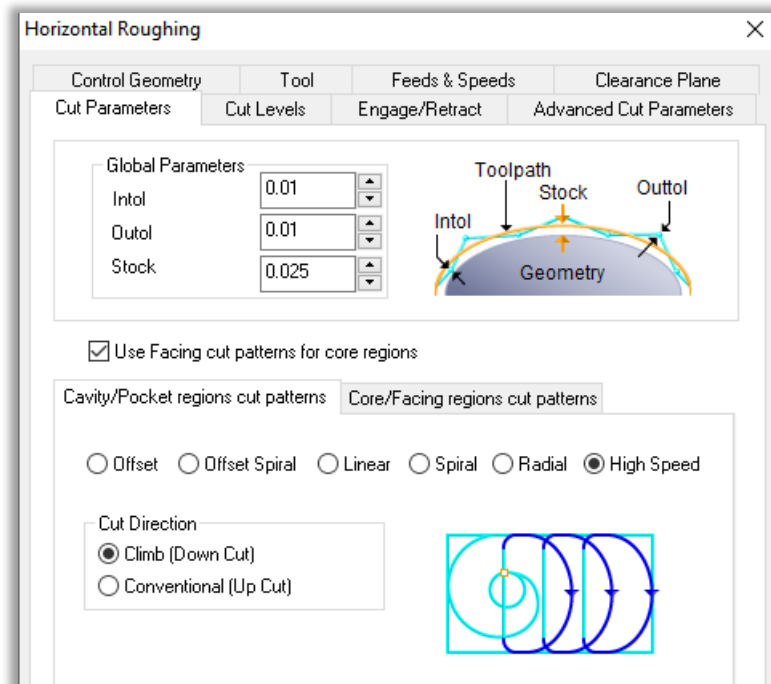
6. Arc Fitting property page added in Horizontal Finishing as well as Parallel Finishing
7. Surfaces can be selected as control geometry.



8. 3 Axis Roughing has been enhanced to allow separate machining for Core (Facing) regions and Cavity (Pocketing) regions. This is similar to the 2 ½ Axis Pocketing method changes.
9. 3 Axis Roughing Facing Offset cut pattern has been enhanced to add high-speed cut rounding, similar to the 2 ½ Axis Pocketing method. This is shown below:

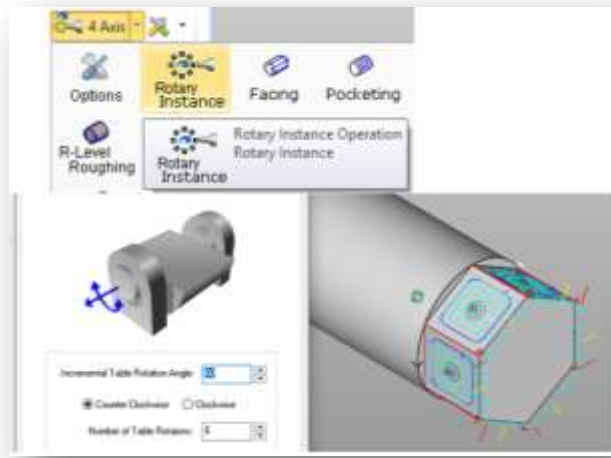


10. High Speed constant engagement cut pattern has been added to 3 Axis Roughing method to machining Core (Pocketing) regions.

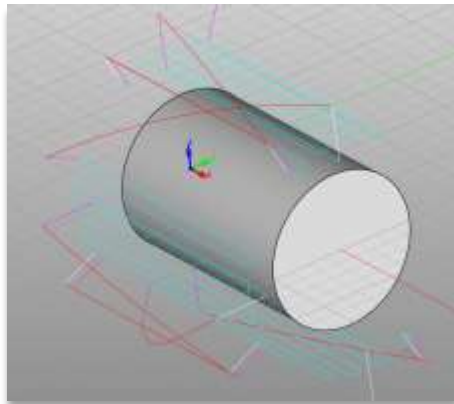


4 AXIS TOOLPATH ENHANCEMENTS

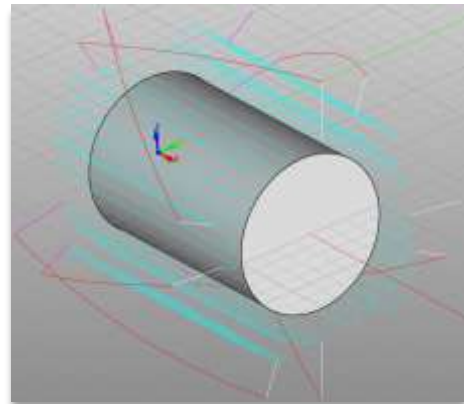
1. 4 Axis Indexing with a repeat count has been introduced.



1. R-Level Roughing has been completely revamped to produce better toolpaths as shown below:

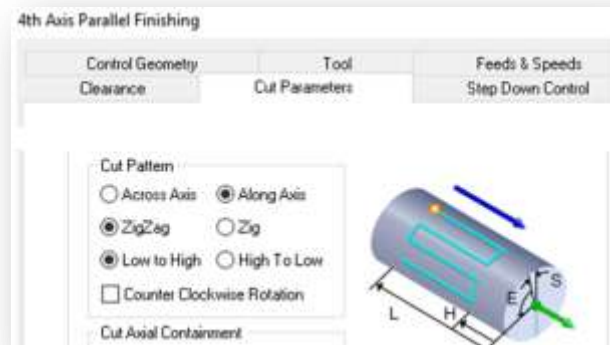


Machining from rectangular stock in 2015

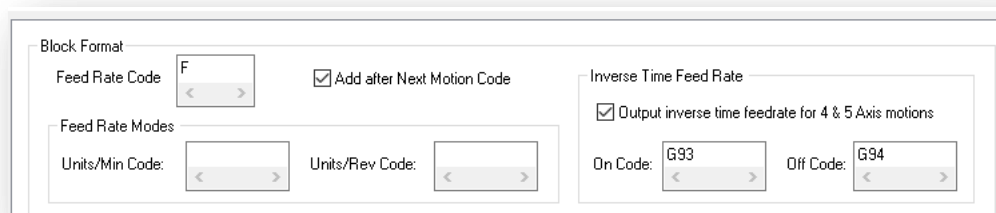


Same toolpath in 2017

2. R-Level Finishing has been completely revamped to produce better toolpaths as well
3. Setting to rotate the part counter clockwise in Parallel Finishing has been introduced



4. Inverse time feed rate has been introduced



5. Unwinding when seams are encountered in 4 Axis machining has been introduced

DRILLING TOOLPATH ENHANCEMENTS

1. Option to output drill cycles as linear moves has been implemented



2. Pick top level has been added to all hole making operations

UI ENHANCEMENTS

1. Moved all CAM options and preferences into one dialog
2. Dialog behavior in dual monitor setup enhanced.
3. Machining Operations Info. - Subtotals for each mop set are now provided when a setup or machining job includes multiple mop sets
4. Now allowing a way to disable automatic loading default library in the Tools Browser
5. 4 Axis dialogs enhanced to show containment graphically on the screen

6. Machining Operations browser expanded/collapsed information now saved with the file
7. Machining dialogs now adapt to low resolution monitors
8. New shop documentation templates have been added
9. Tool Information Dialog has been enhanced to display Adjust Register, Cutcom Register and Comments

Cutting Tools Information

Tools Information

Name	Tool Type	Diameter	Corner Radius	Taper	Flute Length	Tool Length	Tool #	Tool Material	Spindle RPM	Cut Feed	Adjust R	Cutcom R	Comments
FLATMILL-1/2 INCH	MI	0.5 in	0 in	0 deg	2.5 in	4 in	1	HSS	5000	40.00	1	1	
FLATMILL-1/4 INCH	MI	0.25 in	0 in	0 deg	2.5 in	3 in	2	HSS	5000	40.00	2	2	
FLATMILL-1/8 INCH	MI	0.125 in	0 in	0 deg	1.5 in	2.5 in	3	HSS	5000	40.00	3	3	
FLATMILL-3/4 INCH	MI	0.75 in	0 in	0 deg	2.5 in	4 in	4	HSS	5000	40.00	4	4	
BALLMILL-1/2 INCH	MI	0.5 in	0.25 in	0 deg	2.5 in	4 in	5	HSS	6000	48.00	5	5	
BALLMILL-1/4 INCH	MI	0.25 in	0.125 in	0 deg	2.5 in	3 in	6	HSS	6000	48.00	6	6	
BALLMILL-1/8 INCH	MI	0.125 in	0.0625 in	0 deg	1.5 in	2.5 in	7	HSS	6000	48.00	7	7	
VEE-45 DEG	MI	0 in	0 in	45 deg	0.25 in	1 in	8	HSS	4000	25.00	8	8	
VEE-30 DEG	MI	0 in	0 in	30 deg	0.433 in	1 in	9	HSS	4000	25.00	9	9	
DRILL-1/2 INCH	Drill	0.5 in	0 in	0 deg	2.5 in	4 in	10	HSS	3500	28.00	10	0	

FEEDS/SPEEDS ENHANCEMENTS

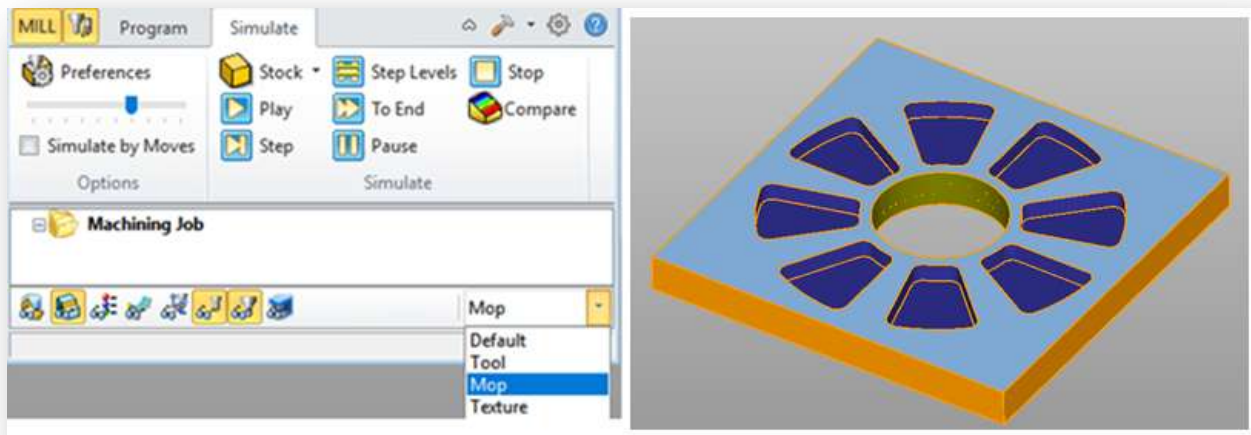
1. The system now allows coolant specification in feeds/speeds dialog in the operation to override the one in tool.
2. Editing a mop by replacing the current tool with a new one does not update feeds/speeds. This has been implemented.
3. Updating feeds/speeds on a tool & saving edits to tool, requires feeds/speeds on each mop to be updated by editing a mop & selecting load from tool from feeds/speeds tab. This is now done automatically.
4. Inverse feedrate for 4 Axis machining has been introduced
5. Fadal output for 4 Axis machining has been implemented
6. Feedrate reduction around corners when changing direction has been introduced

KNOWLEDGE BASE ENHANCEMENTS

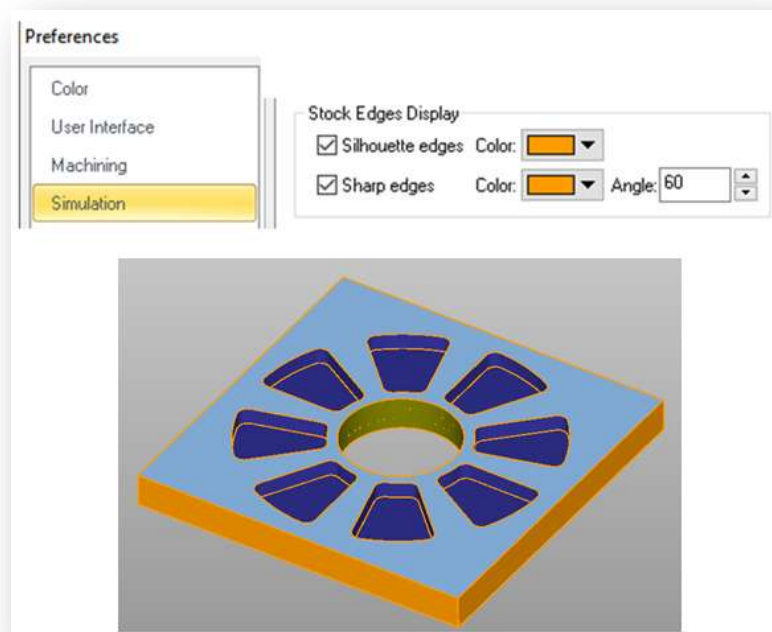
1. Use of bounding box side length range for selection of geometry when loading Knowledge Bases has been introduced.

SIMULATION ENHANCEMENTS

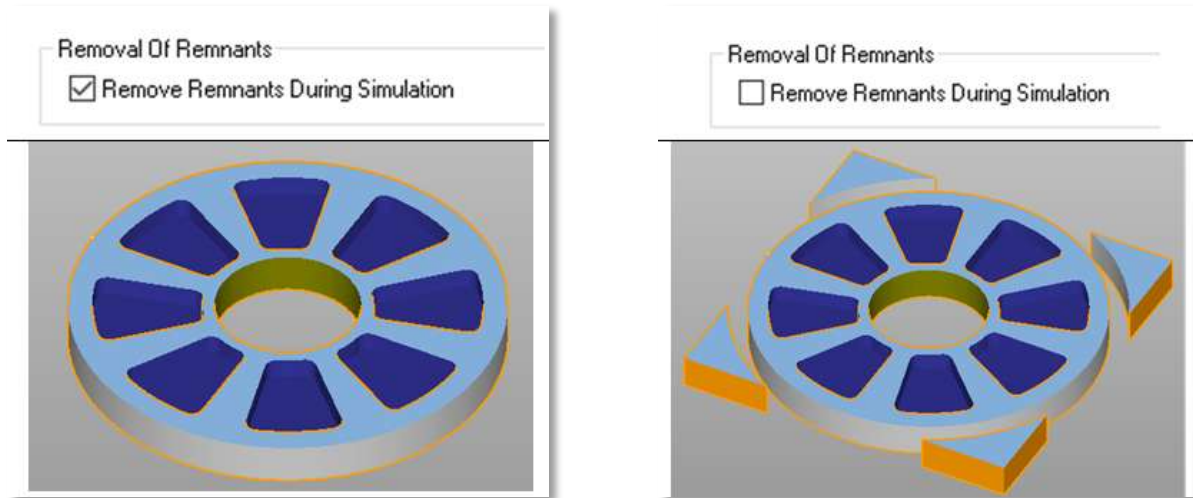
1. The previously separately priced Advanced Simulation Module is now included in the Standard configuration of the Mill module.
2. Simulation of Instancing operation has been changed to simulation of all instanced operations instead of just the first one as was done in previous releases
3. Colors for Mops based on Mop settings, Tool Settings and Default settings has been introduced



4. Display of edges in the simulated model to enhance visibility



5. Removal of remnants have been implemented. This functionality removes pieces left over in the simulation after the simulation is completed as shown below.



6. Simulation of Peck and Break Chip drilling has been introduced
7. Window repaint causing a flicker when transitioning from one operation to another during simulation has been removed.

MACHINING REGIONS ENHANCEMENTS

1. Display each contiguous region as sub object of the Machining Region object. Users should be able to edit these sub-objects independently

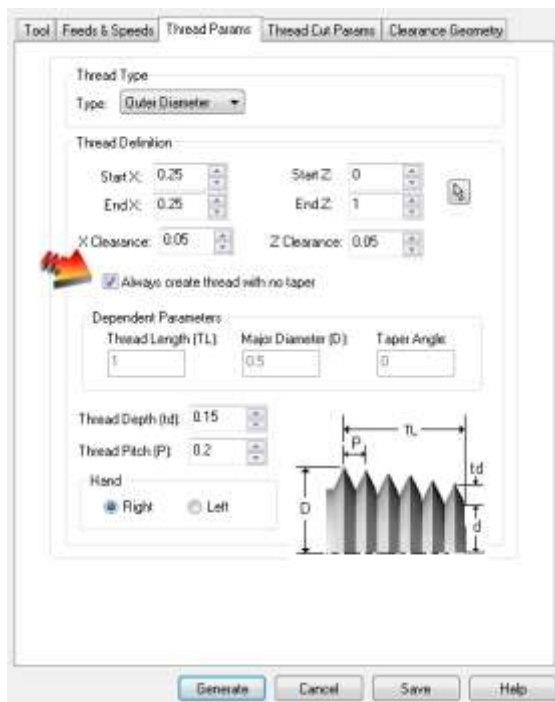
BUGS FIXED

Numerous other smaller usability enhancements and over 200 bug-fixes

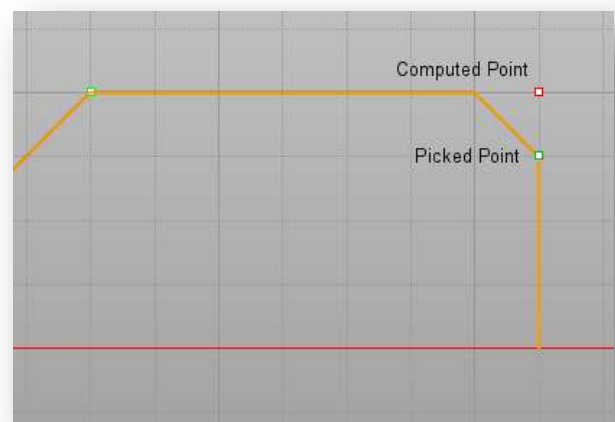
WHAT'S NEW IN ALIBRECAM - TURN 2017

This section describes the enhancements and changes specific to the AlibreCAM-TURN 2017 module.

- 1) Display issues when displaying Part and Stock model has been fixed
- 2) The tool preview display in the Tool Definition dialog now displays differently depending on Tool Tip or Tool Center programming set in the Machining Preferences
- 3) Pull out variable for threading added to post processor
- 4) "Always create thread with no taper" check box added to threading parameters dialog. This allows users to pick points on a non-straight area of the model and create a straight thread with no additional geometry creation.



to force straight threads



Effect on thread computed point

Parameter

distributore unico per l'Italia:

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