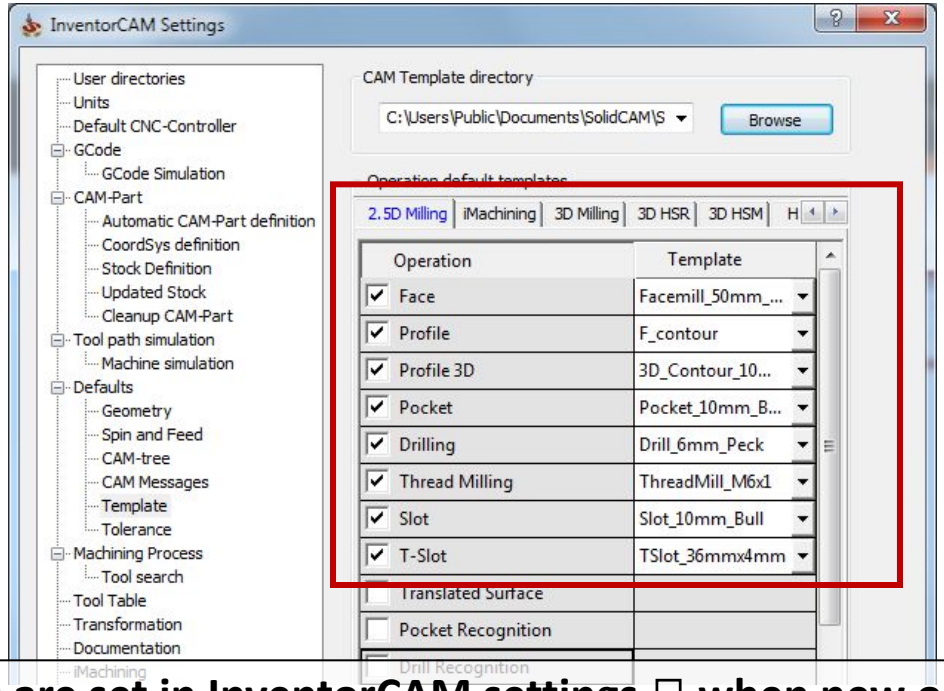
What's new in InventorCAM 2015

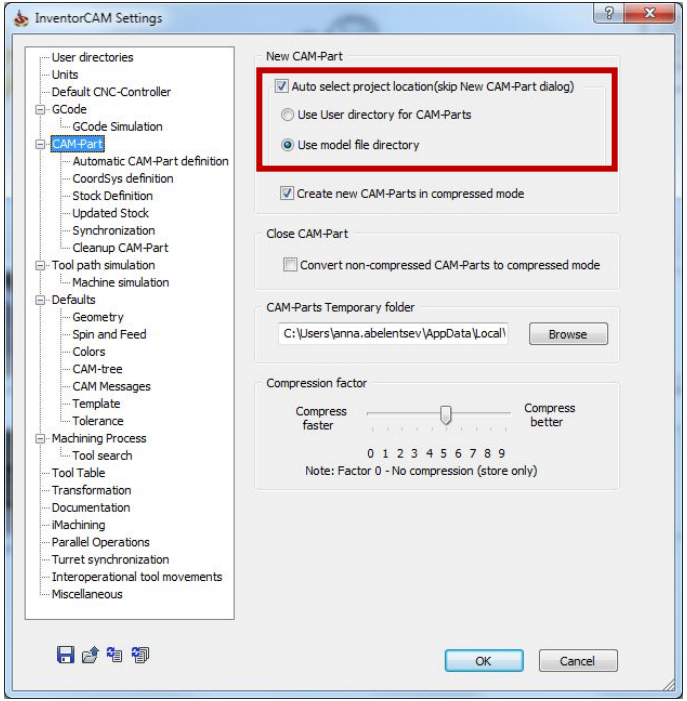
General

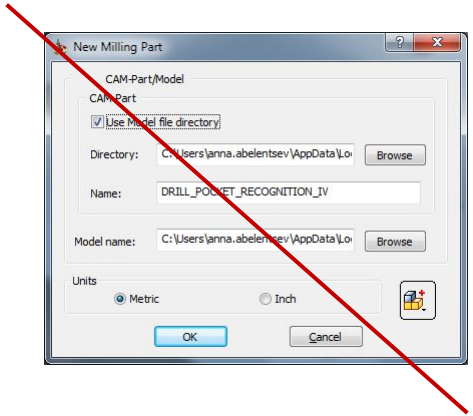
Templates: Default templates for 2.5D Mill operations



- **Default templates are set in InventorCAM settings when new operation is created these templates are used**
- **Useful for example to have a default starting Tool**

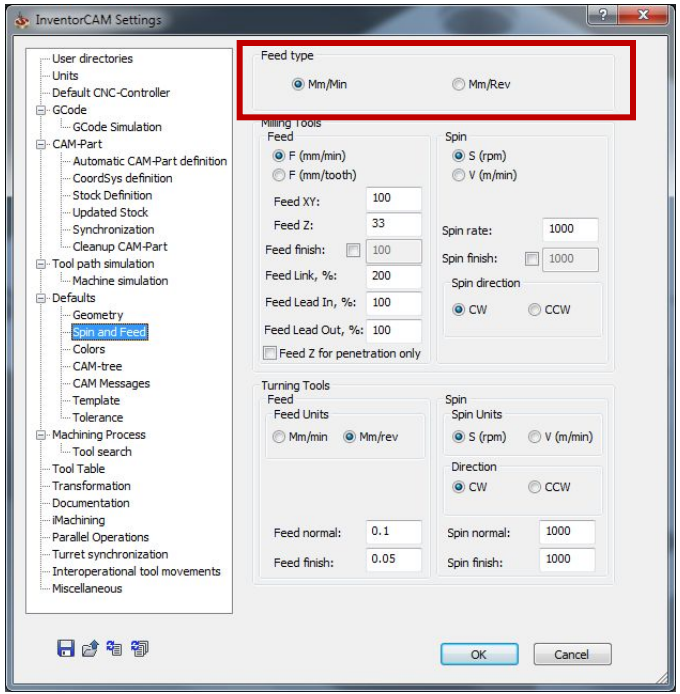
Quick Start settings - Skip “New CAM-part” dialog

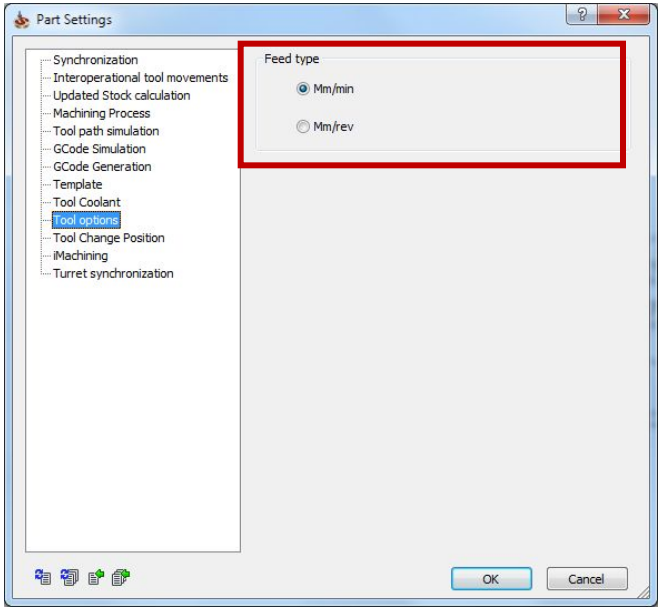




- **Options in SolidCAM settings to skip the first New CAM-part dialog with default values**
- **Enables the user to start directly adding operations in a new Part**

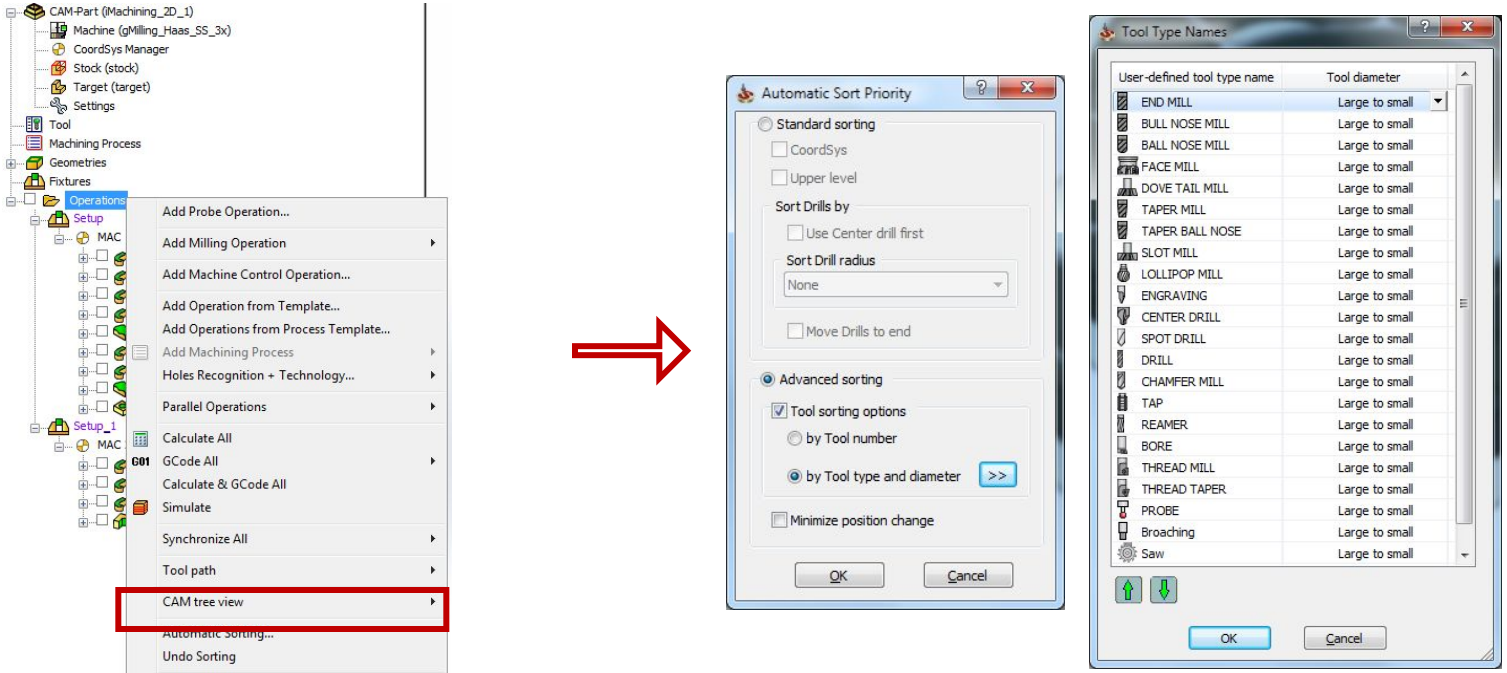
Feed units: mm/rev or mm/min by default





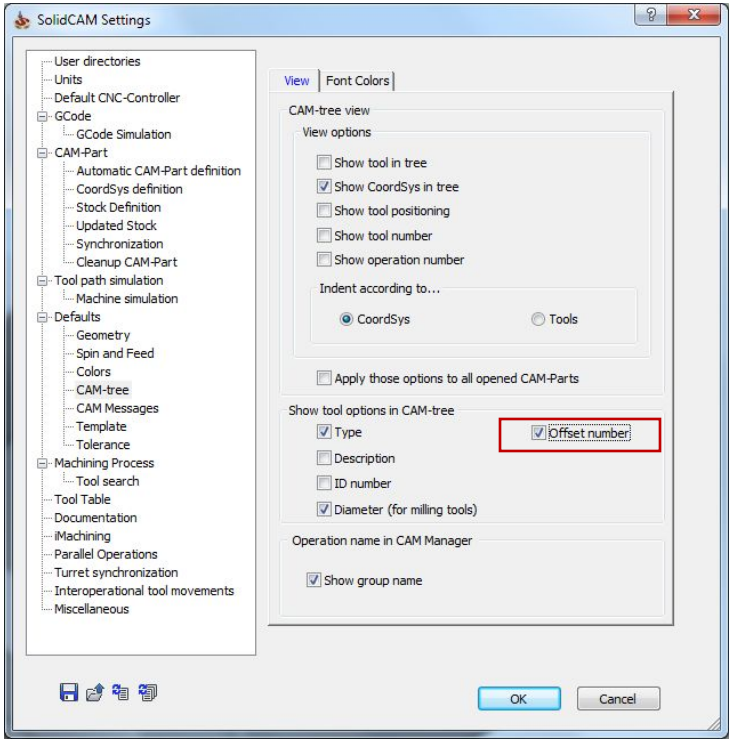
- **Define default feed type for new CAM-parts in InventorCAM settings**

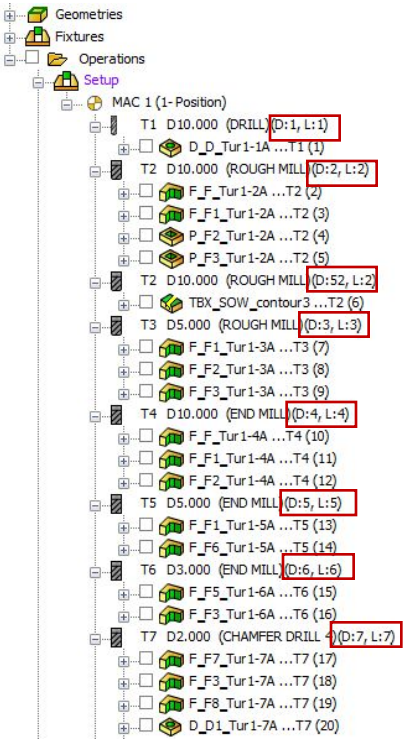
CAM tree: Advanced sorting of operations



- **Possibility to sort operations in CAM-tree by tool number and tool properties (Diameter, Tool Type)**

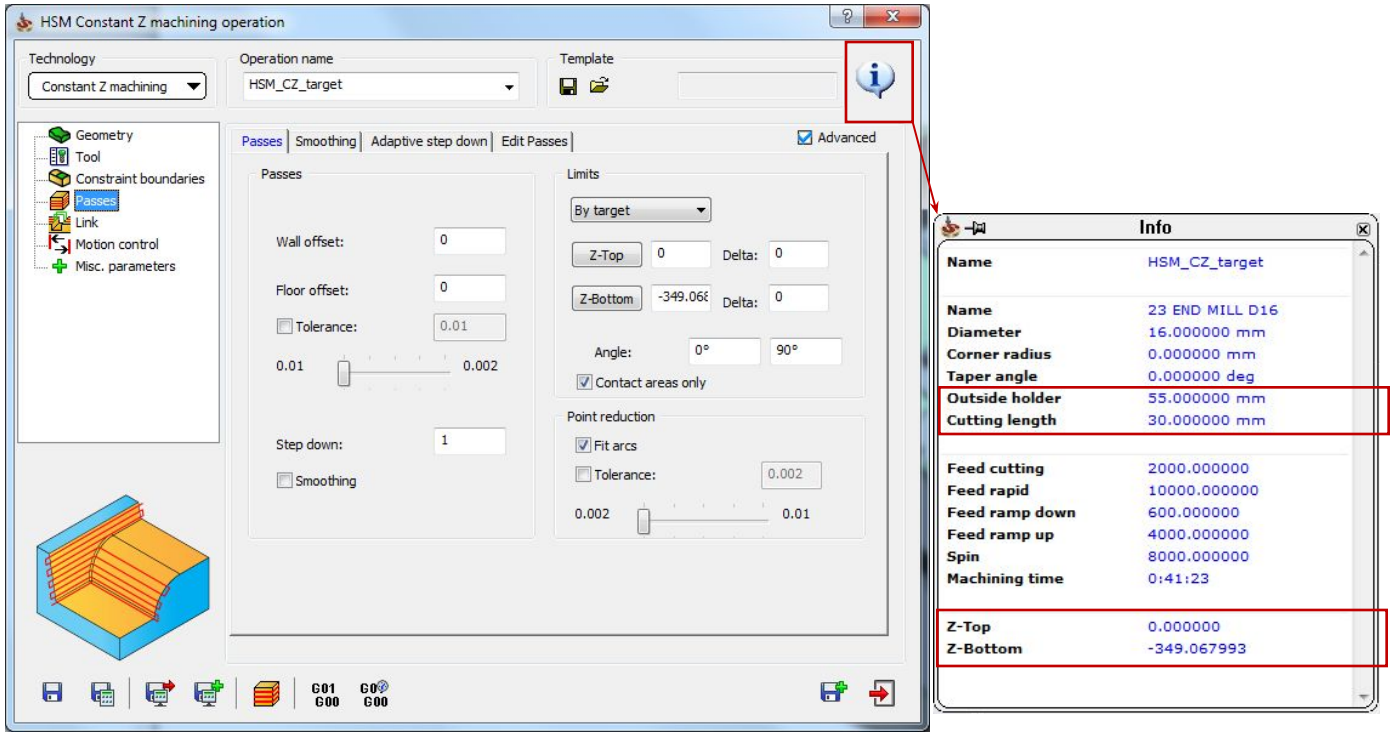
CAM-tree: Show Tool Offset numbers





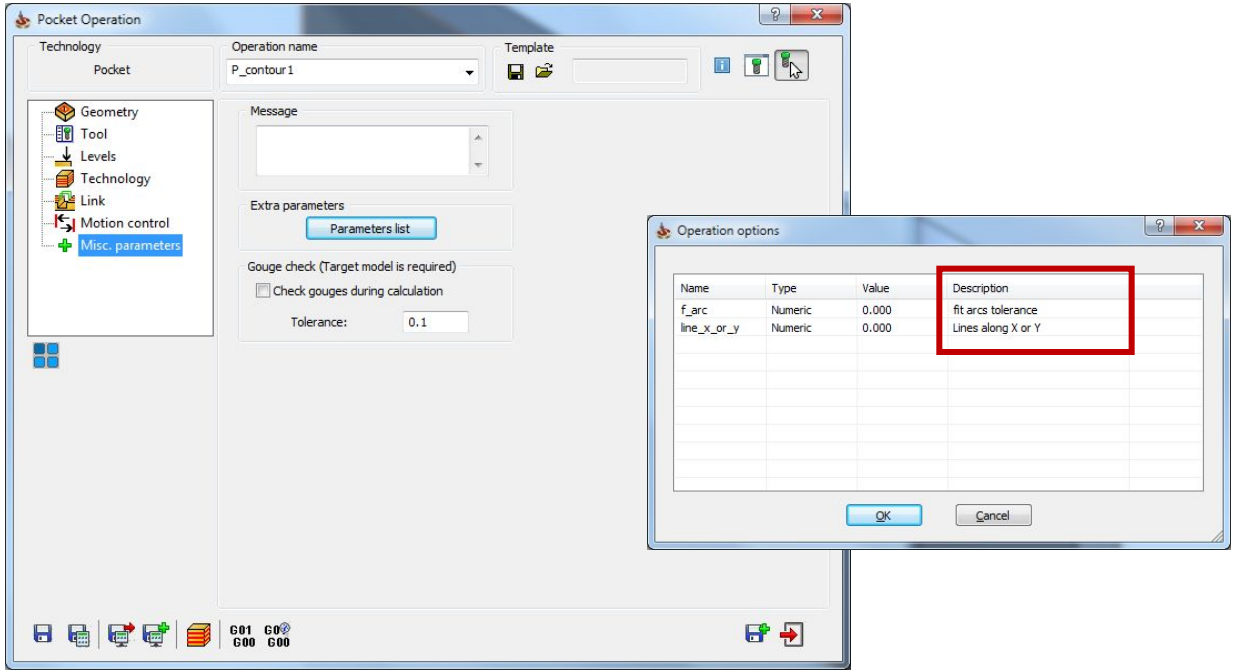
- **Show Tool Offset numbers in CAM-tree**

Operations: Additional parameters to INFO dialog



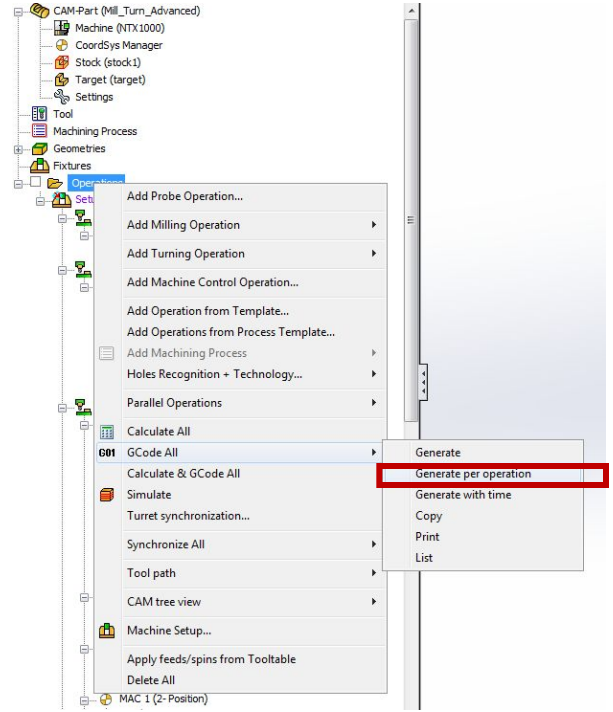
- **Show Cutting depth information and Additional tool data in Info dialog**

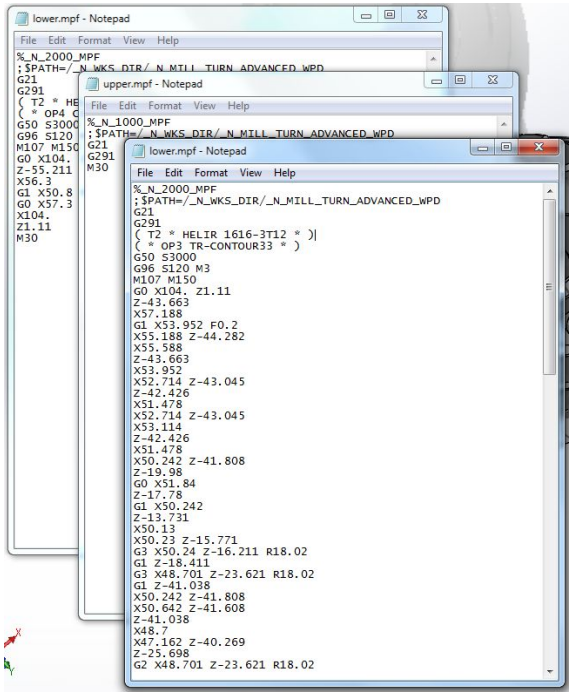
Operations: Description of parameters in GUI



- **Description of user-defined parameters is now visible inside the operation**

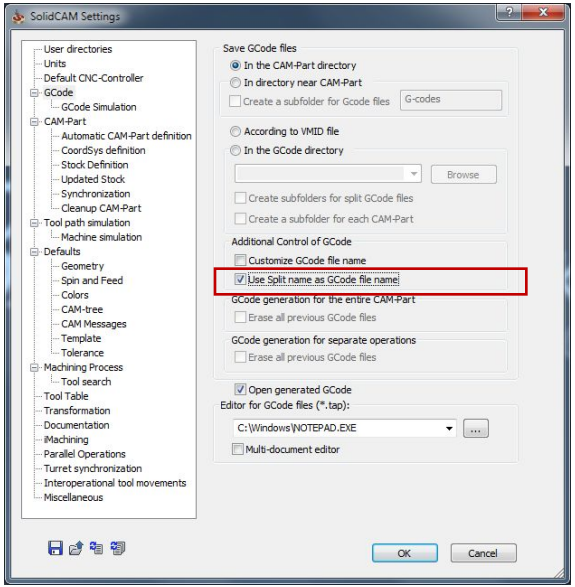
Generate G-code per operation

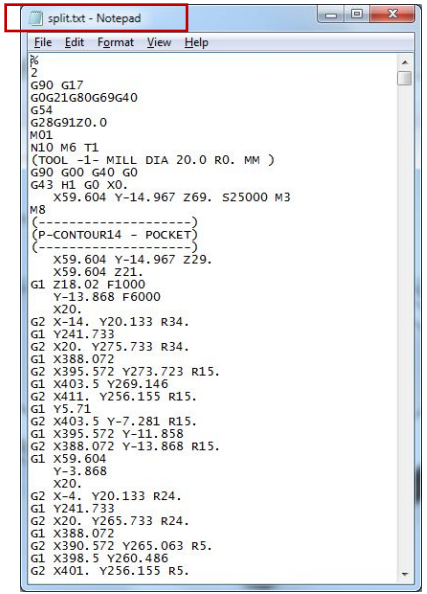




- **Generate separate file of G-code per each operation**

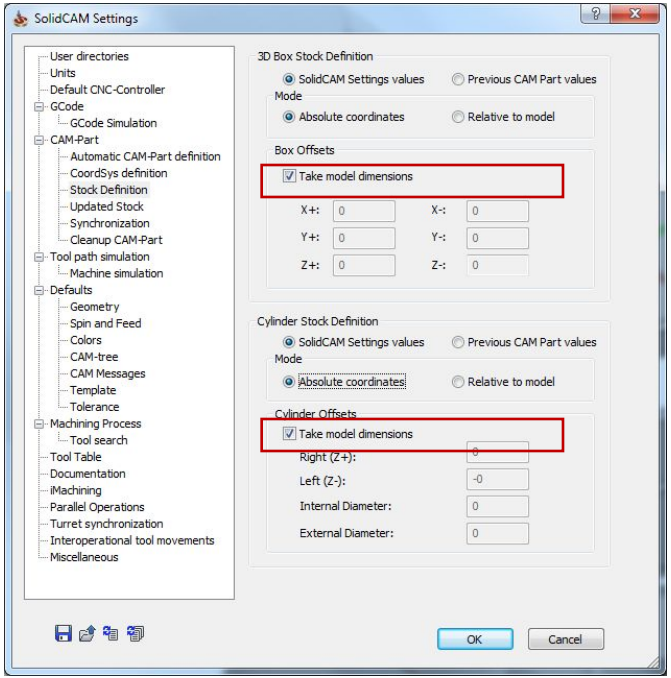
Use split name as G-code file name





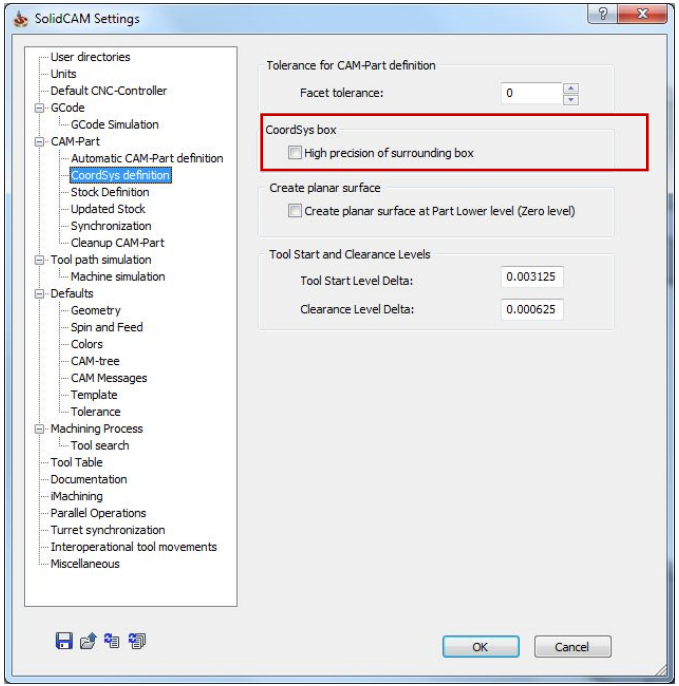
- **Use name of Split as name of G-code file**

Stock: Take target model dimensions by default



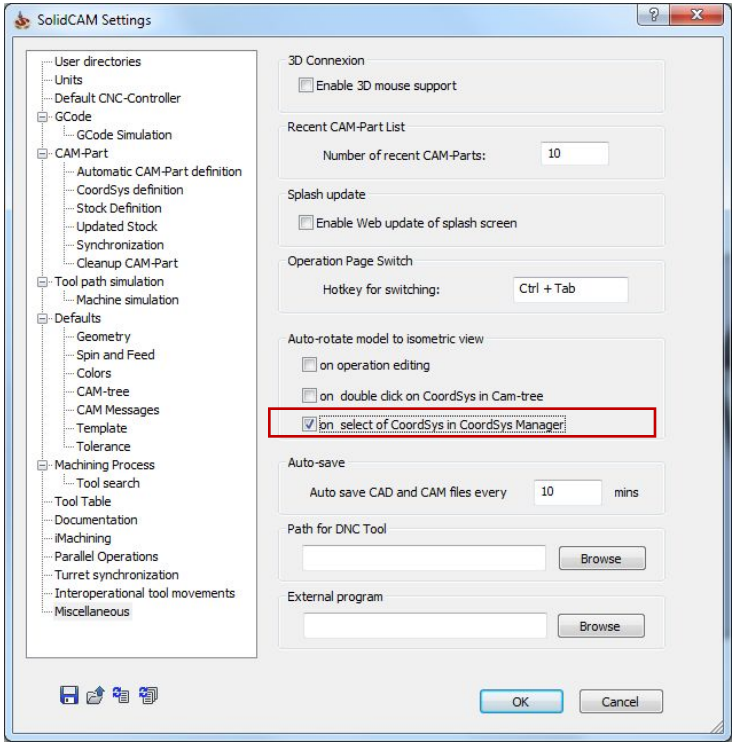
- **When Stock definition mode is set to Absolute Coordinates – dimensions of Target model will be taken automatically**

High precision of box for CoordSys definition (facetting)



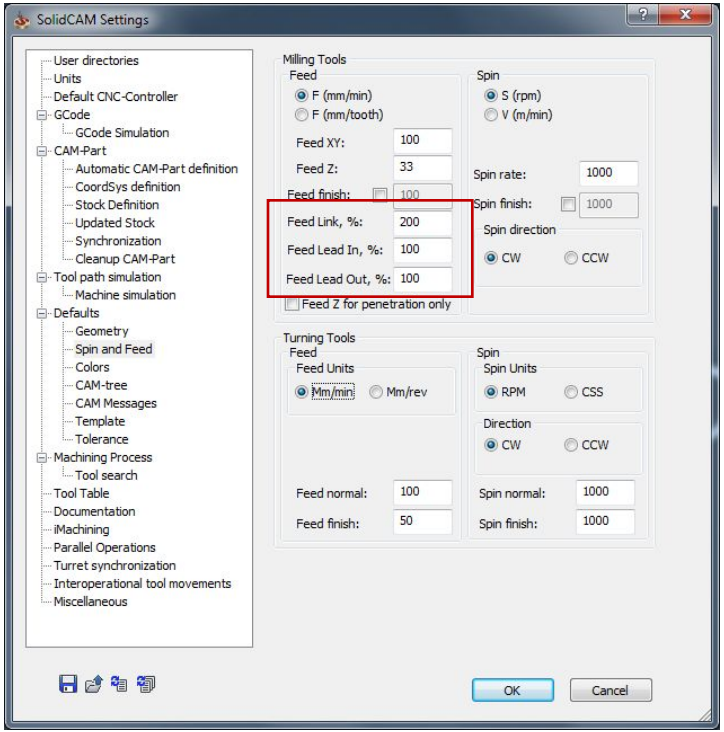
- **" High precision" for box (facetting) set to ON always during CoordSys definition**

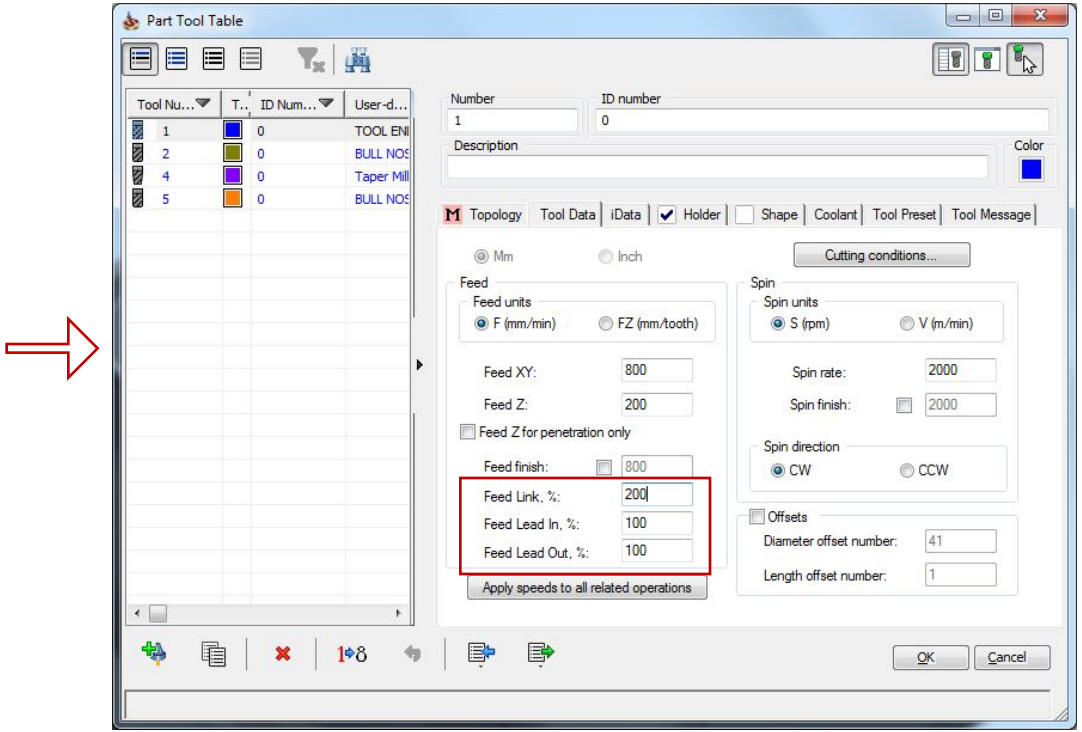
Rotate model to isometric in CoordSys manager



- **Rotate model to isometric view when clicking on CoordSys in CoordSys manager**

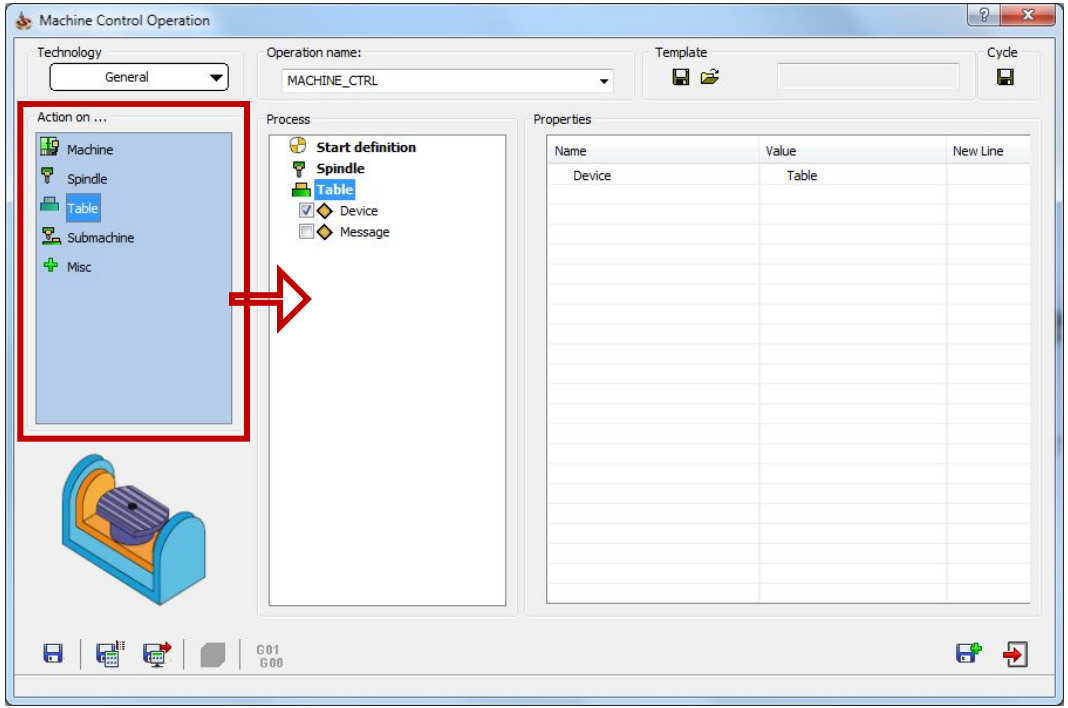
Defaults through Settings for Feed Link, Lead in, Lead out





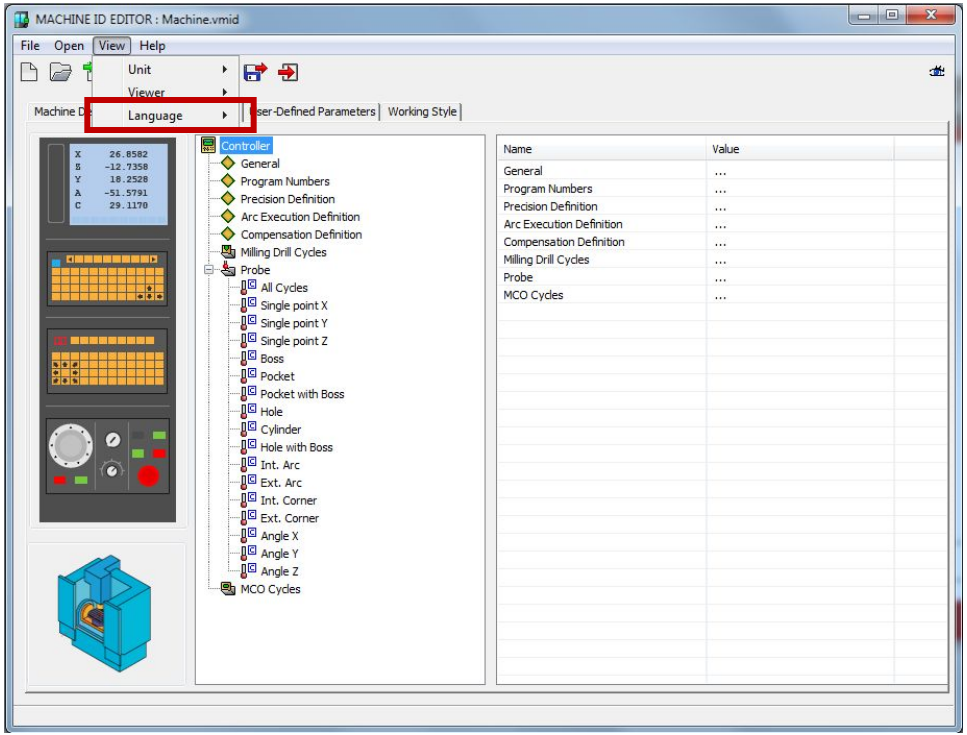
- **Possibility to define defaults through Settings for Feed Link, Lead In and Lead Out**

MCO: Faster action definition



- **Double click on the item in the „Action on...“ list automatically adds this item to the Process list.**

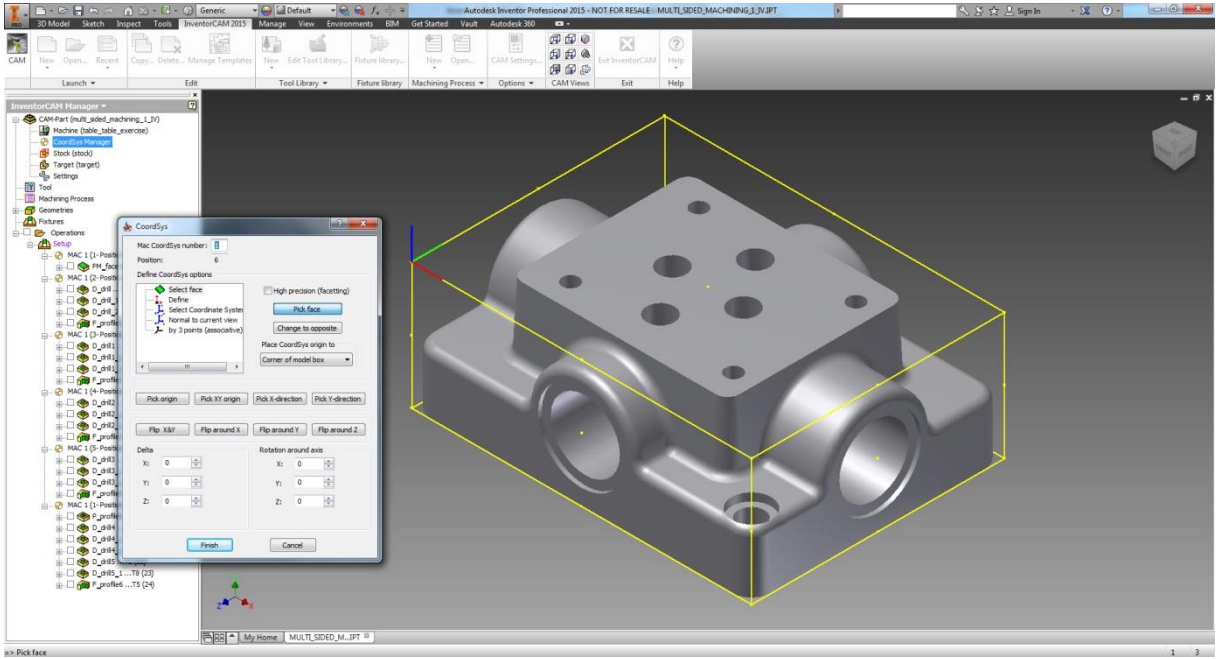
Machine ID: Change language of VMID



- **Possibility to show MachineID editor fields in any language, independent from main installation language**

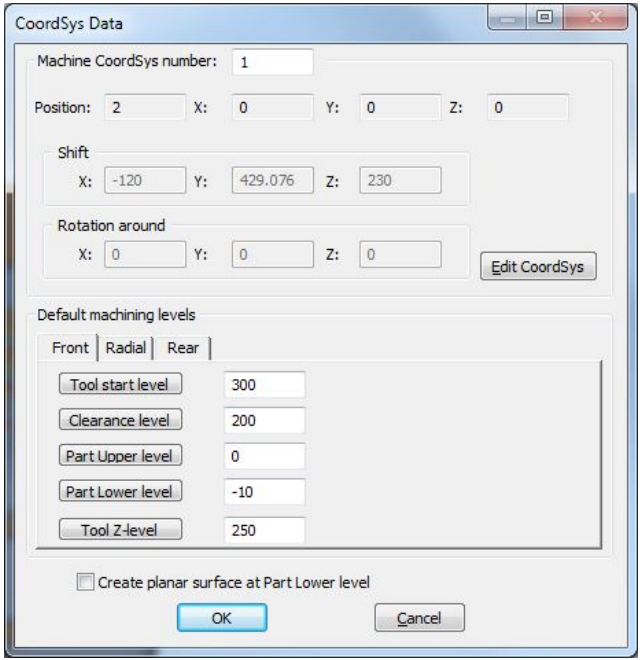
CoordSys

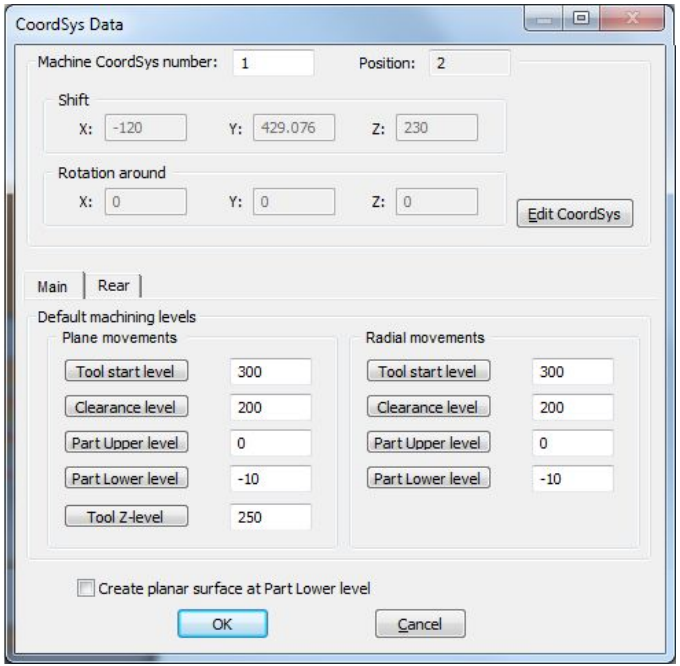
CoordSys: Always build box around target model



- **Create by default CoordSys envelope box around the target**
- **Useful for CoordSys Origin definition**

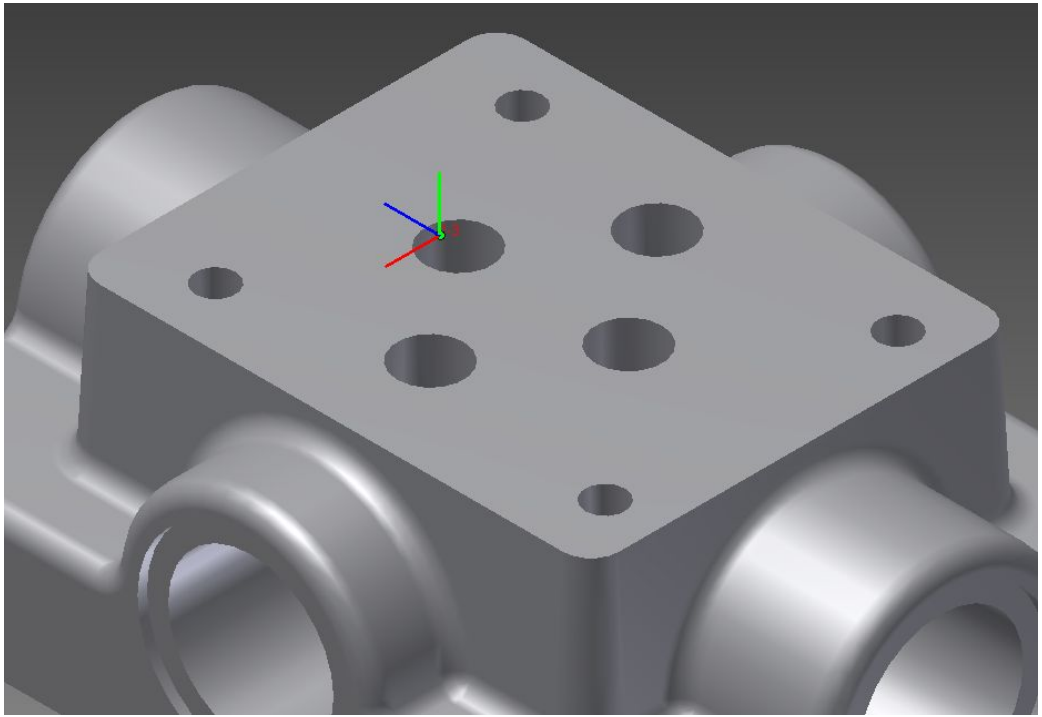
CoordSys: Changes in CoordSys dialog





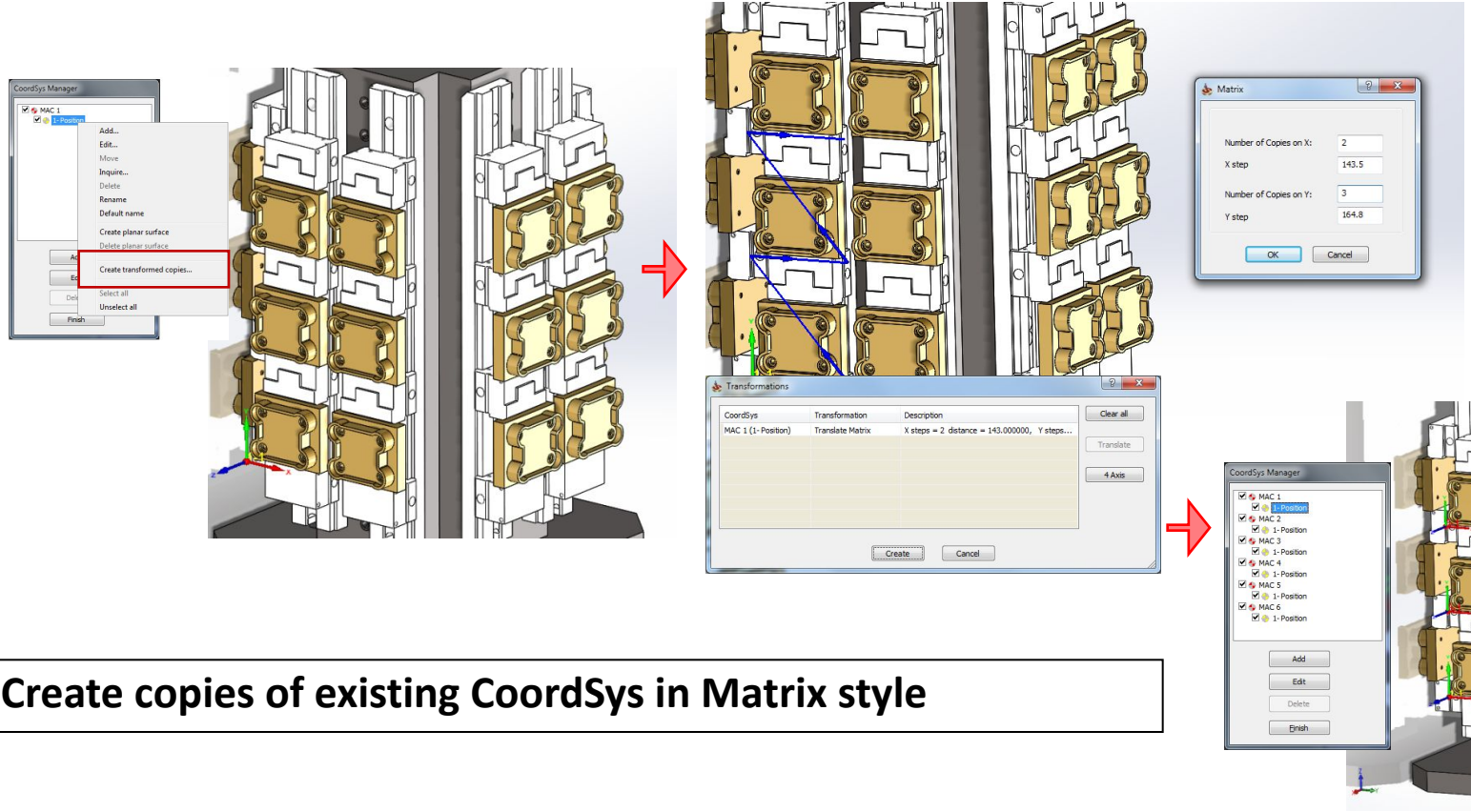
- **Radial movement levels are now on the main dialogue (instead of TAB)**
- **Better noticed by user**

CoordSys: Associativity with Inventor Coordinate System



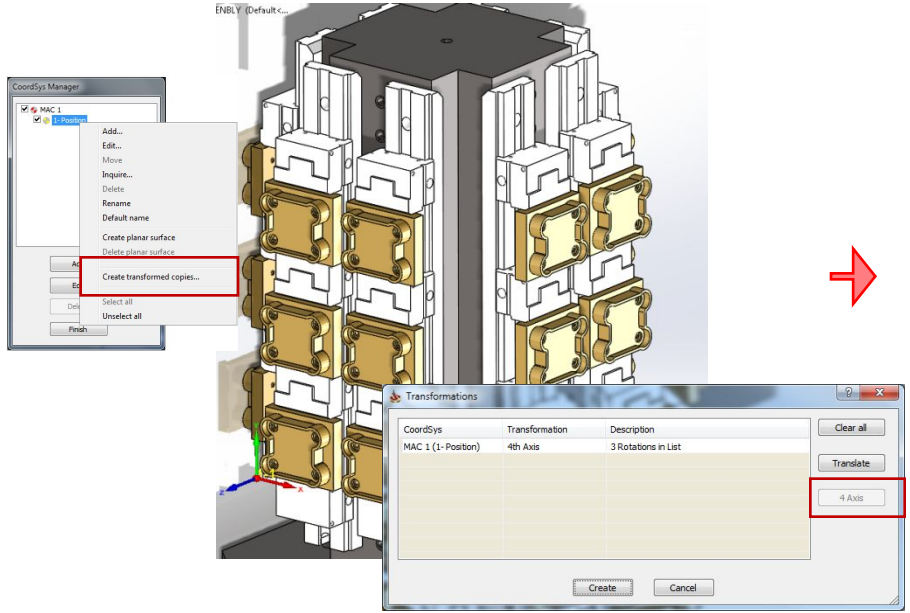
- **Support of associativity of a CAM CoordSys, that is built on a Inventor CoordSys**

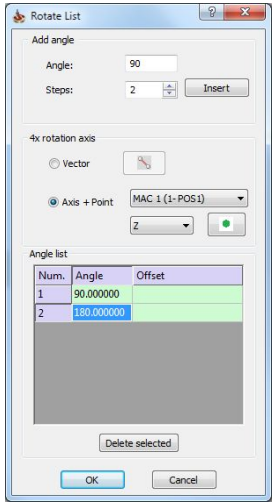
Copying of CoordSys in transformation style: Matrix

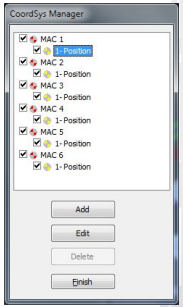


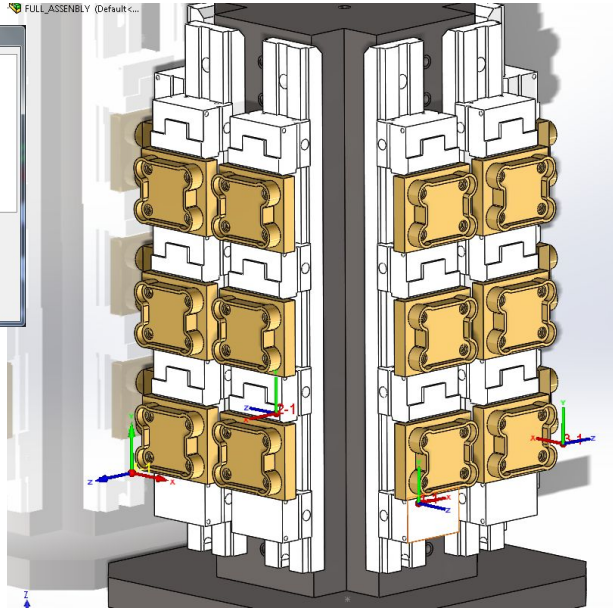
- **Create copies of existing CoordSys in Matrix style**

Copying of CoordSys in transformation style: Custom Axis



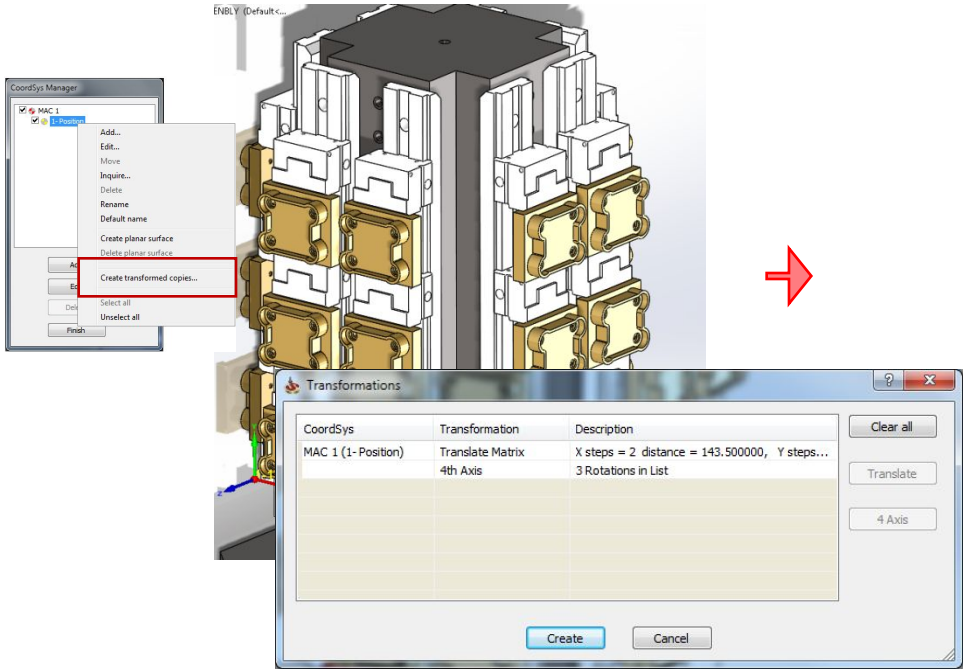


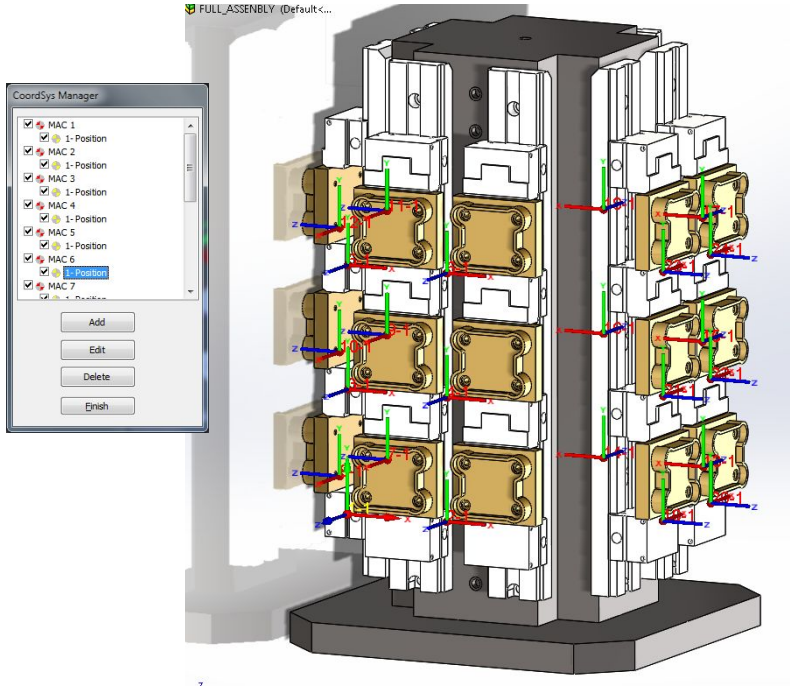




- **Create copies of existing CoordSys around user-defined axis**

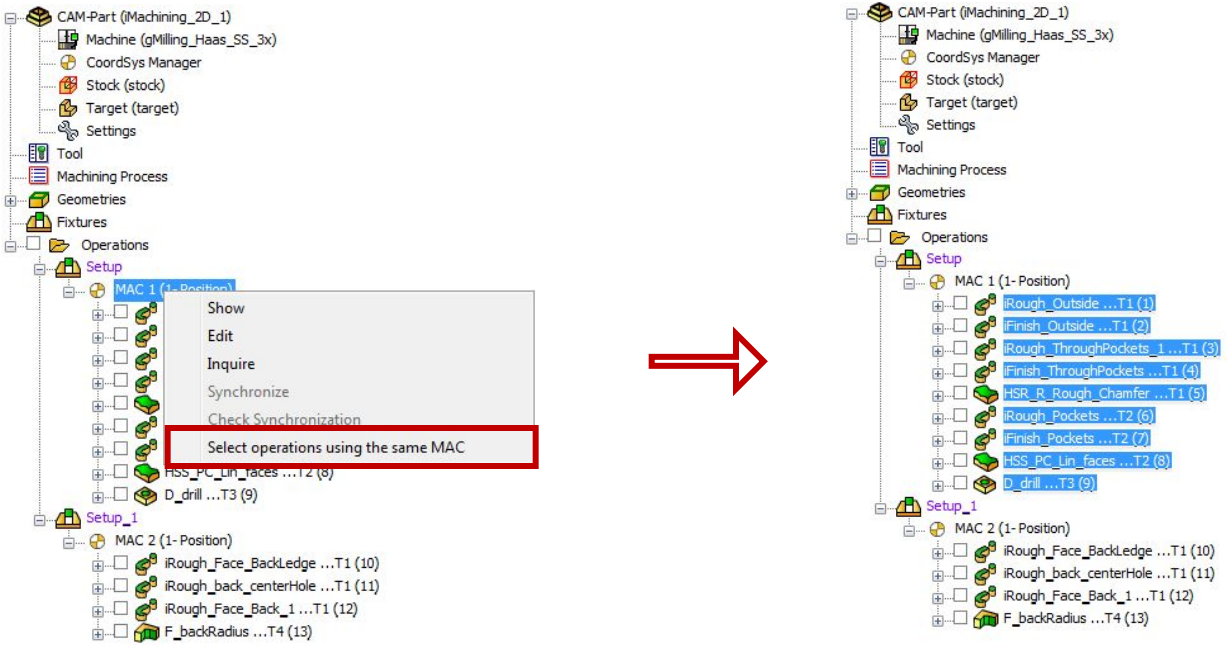
Copying of CoordSys in transformation style: Combined transformation





- **Combine 2 styles of CoordSys copying**
- **User can use each style of transformation only once**

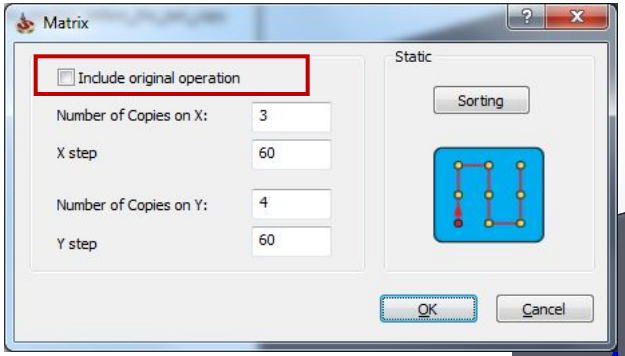
Select all operations of the same CoordSys

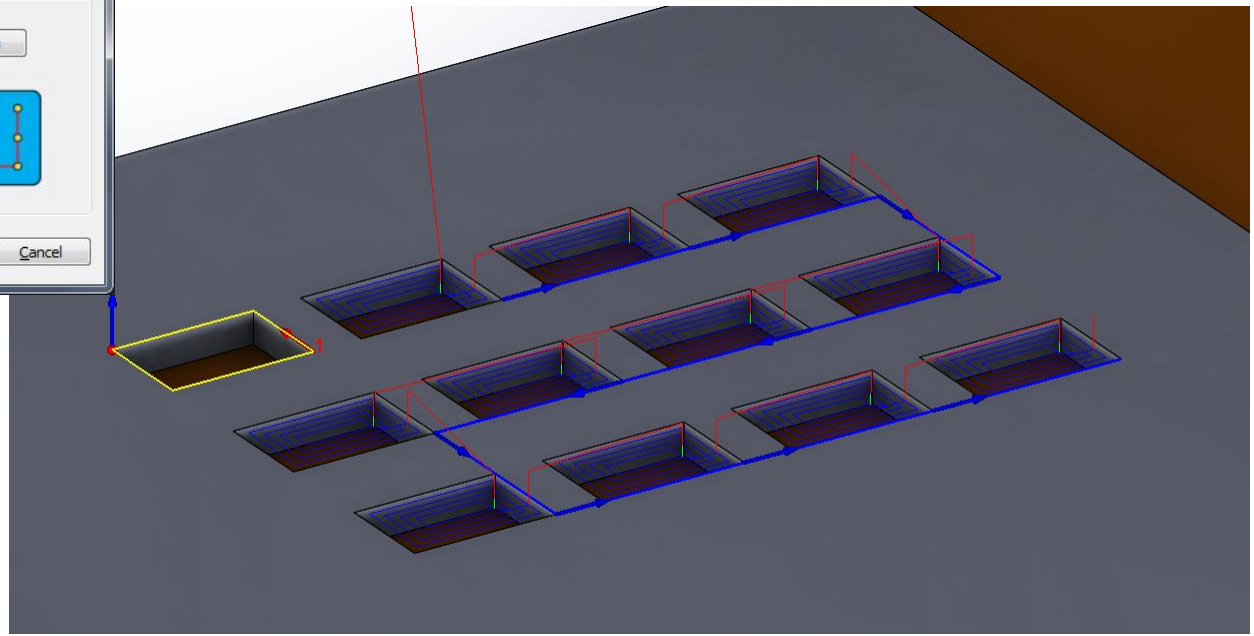


- **Fast selection of all operations defined in the Coordsys (MAC) and it‘s positions**

Transformation

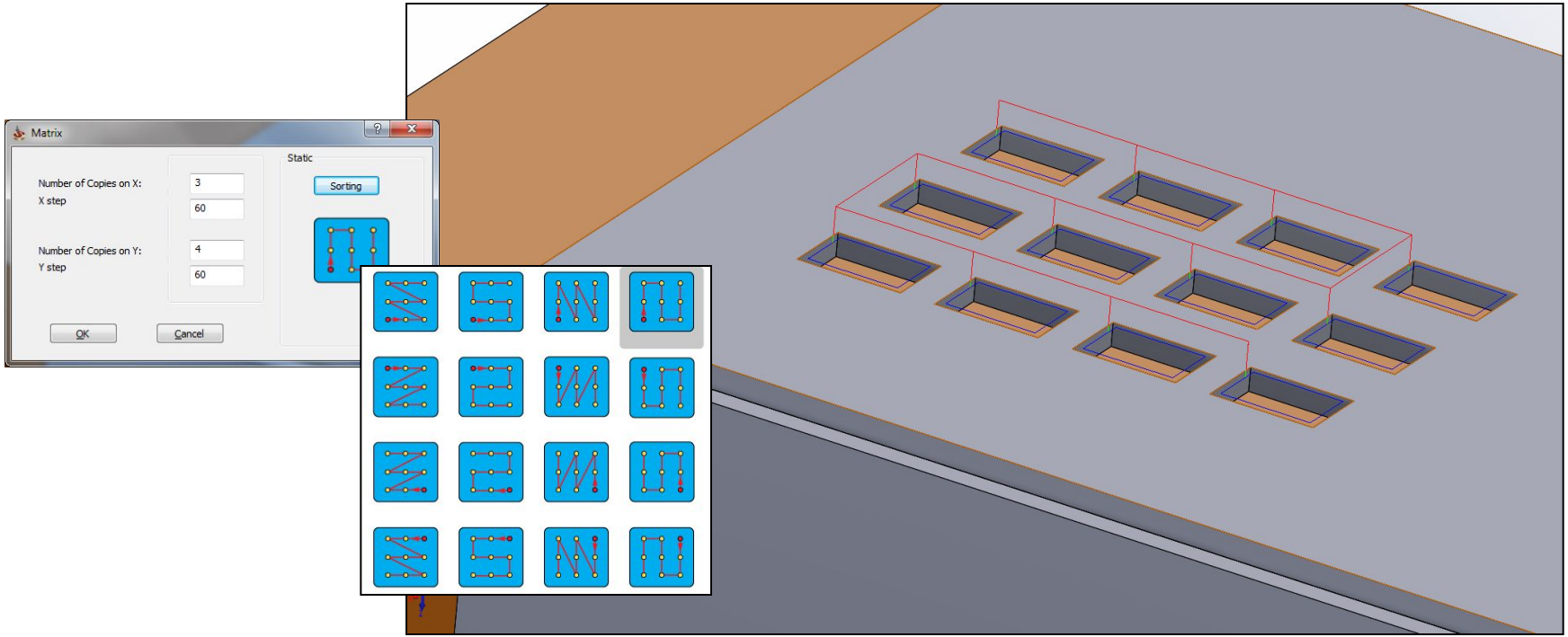
Transform: Matrix without original operation





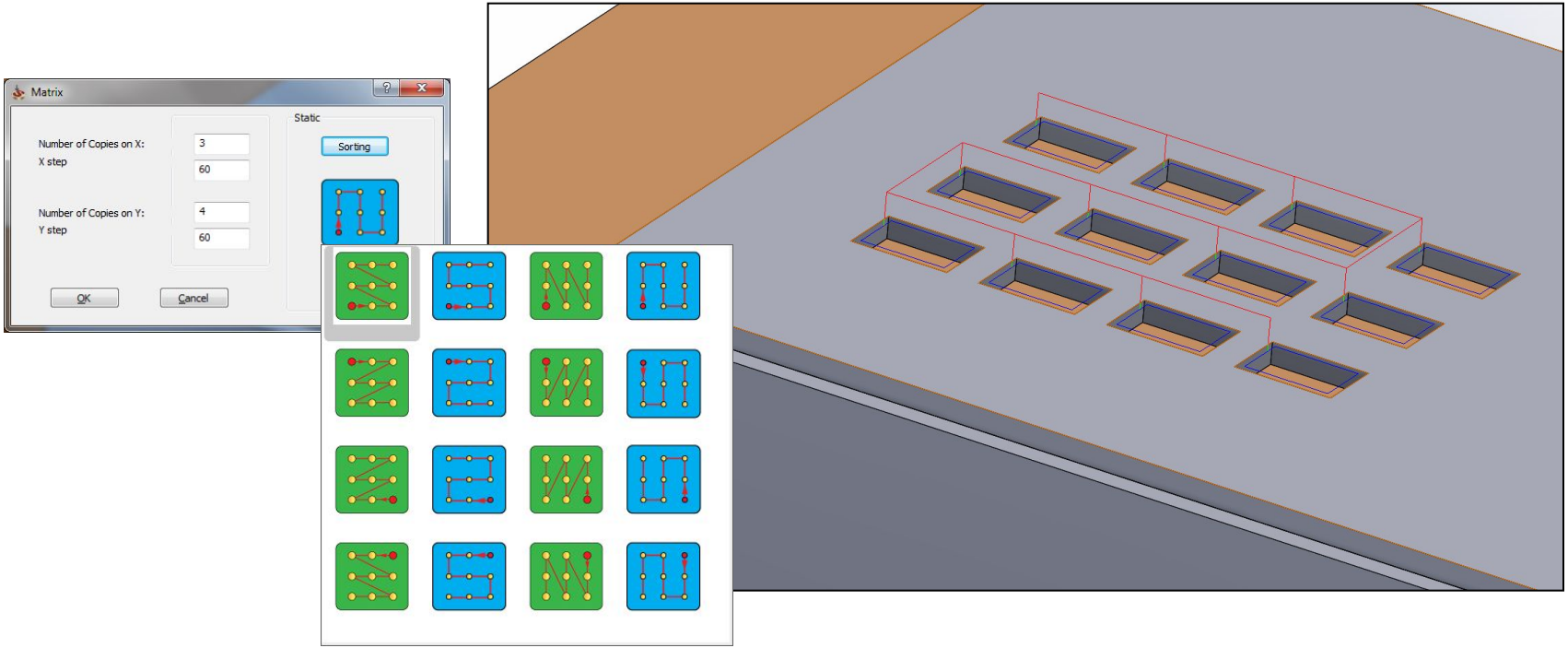
- **Possibility to make Matrix witout original operation toolpath**
- **Useful for postponed transformed operations**

Transform: Matrix sorting options



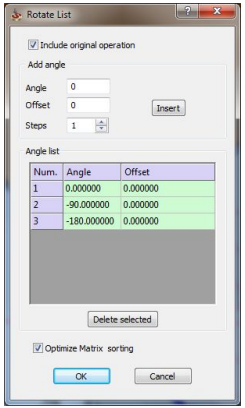
- **Additional Sorting options in Matrix transformation**

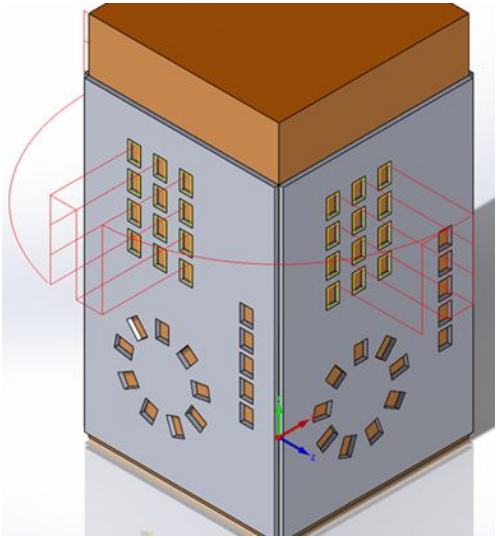
Transform: Marking of sorting types affected by optimization



- **If Optimization of operation loops is turned on in *.VMID, the sorting types which will be affected by optimization, are marked by green color**

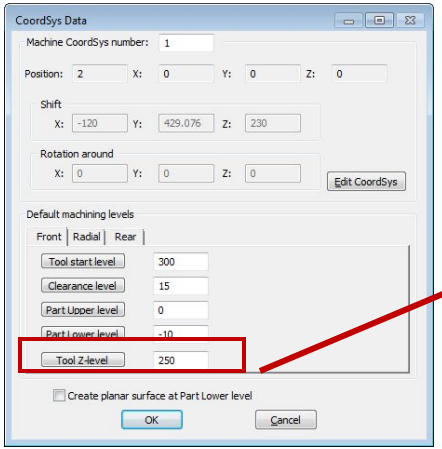
Transform: Optimize Matrix Sorting in 4x transformation

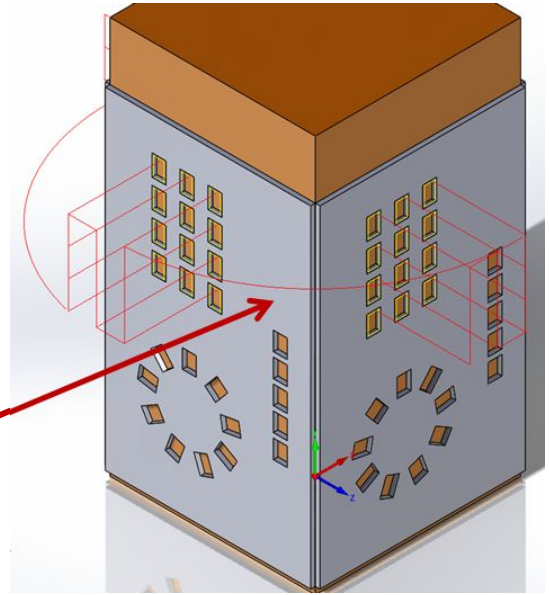




- **If “optimize Matrix sorting“ is checked – movements between 4th axis positions are done to minimize tool movements**

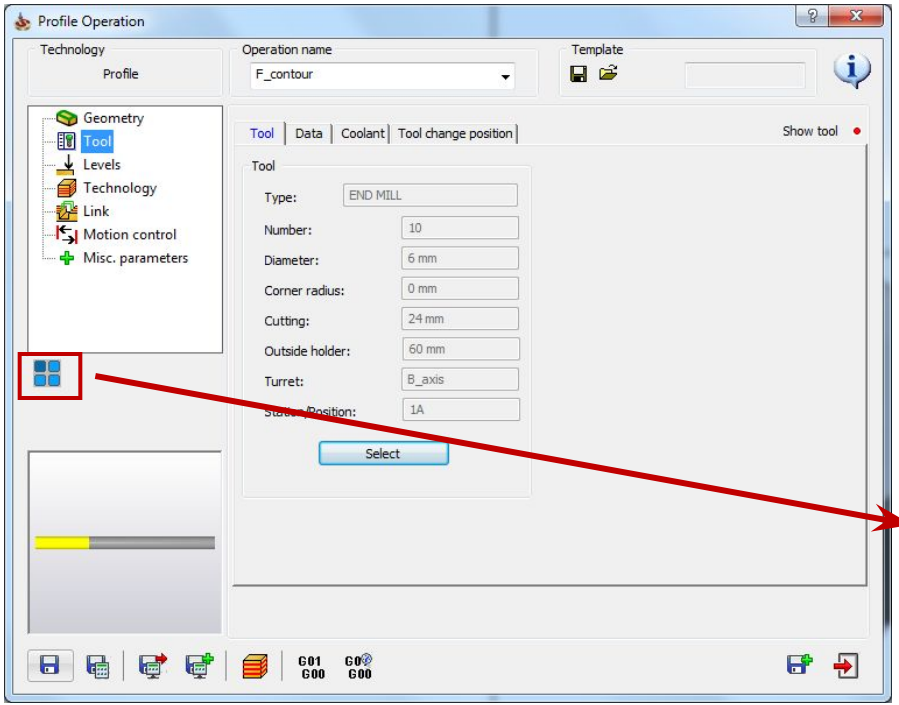
Transform: Clearance radius for movements between 4th axis positions

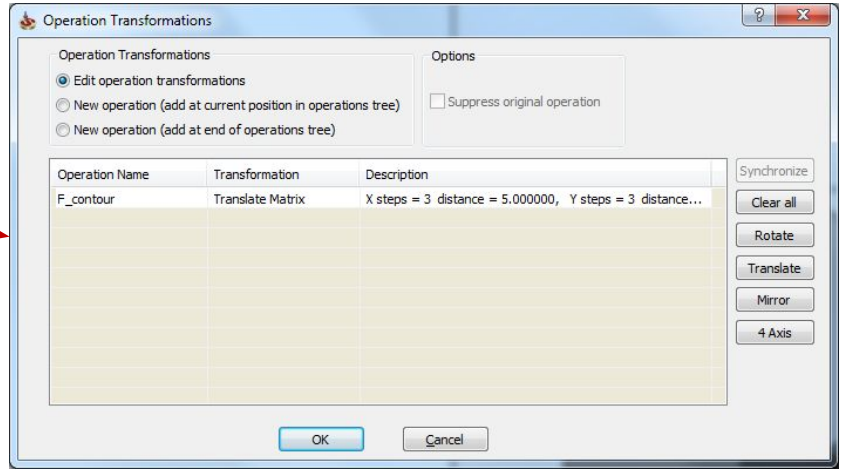




- **Use Tool Z level from MACx-posN for movements between planes in Transformation around 4x**

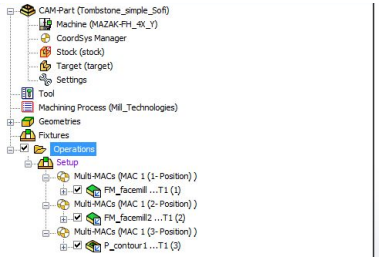
Transform: Access to transform from operation

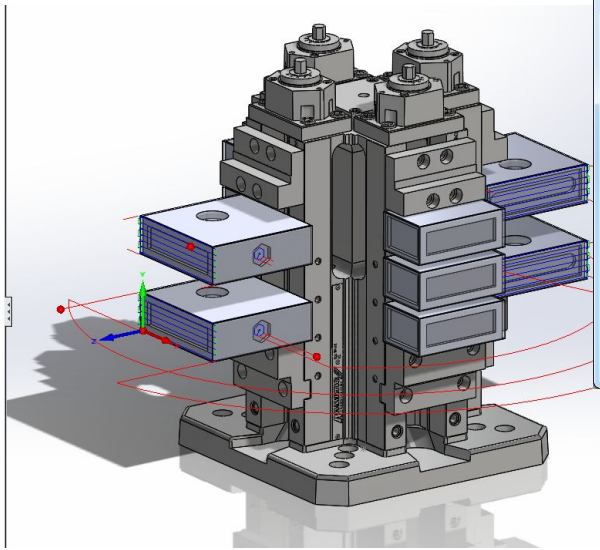


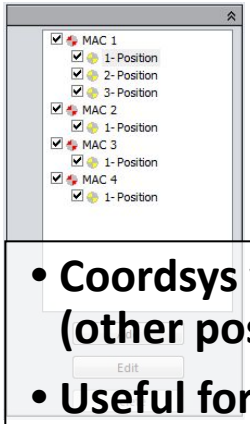


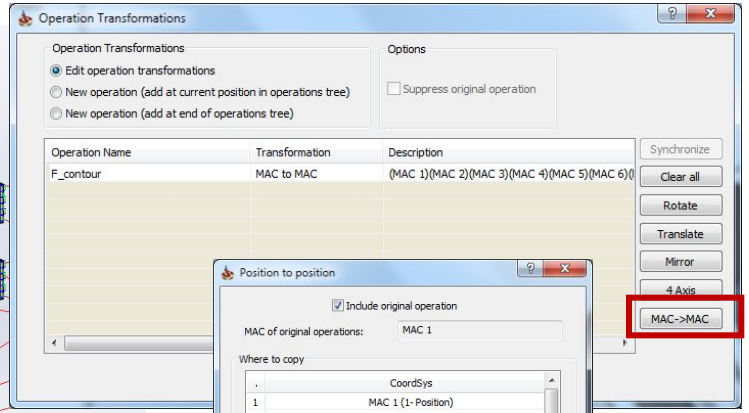
- **Possibility to open Transform dialog straight from the Operation dialog**

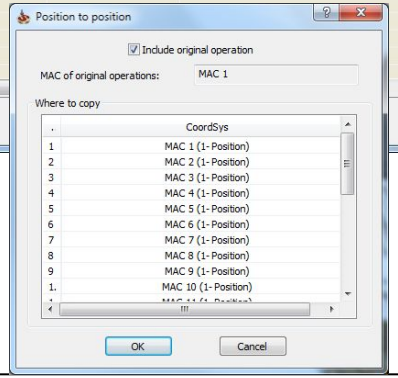
Transformation of operations from one CoordSys to another







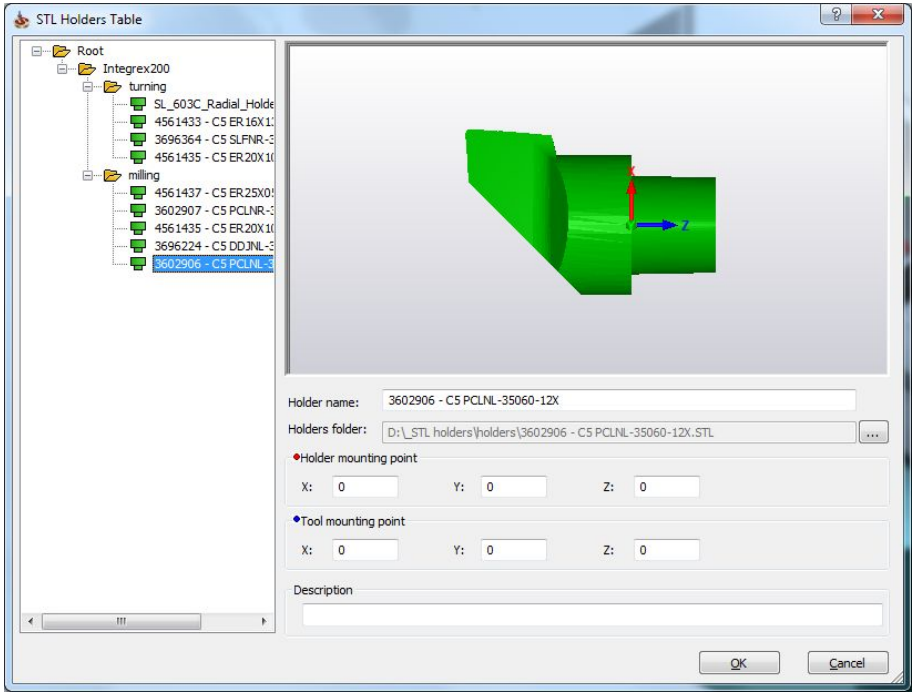




- **Coordsys where operations should be copied to , should contain only 1 position (other positions will be created automatically)**
- **Useful for Tombstone operations as it enables the simple transfer of an operation to any Coordinate system, created on any face of the Tombstone.**

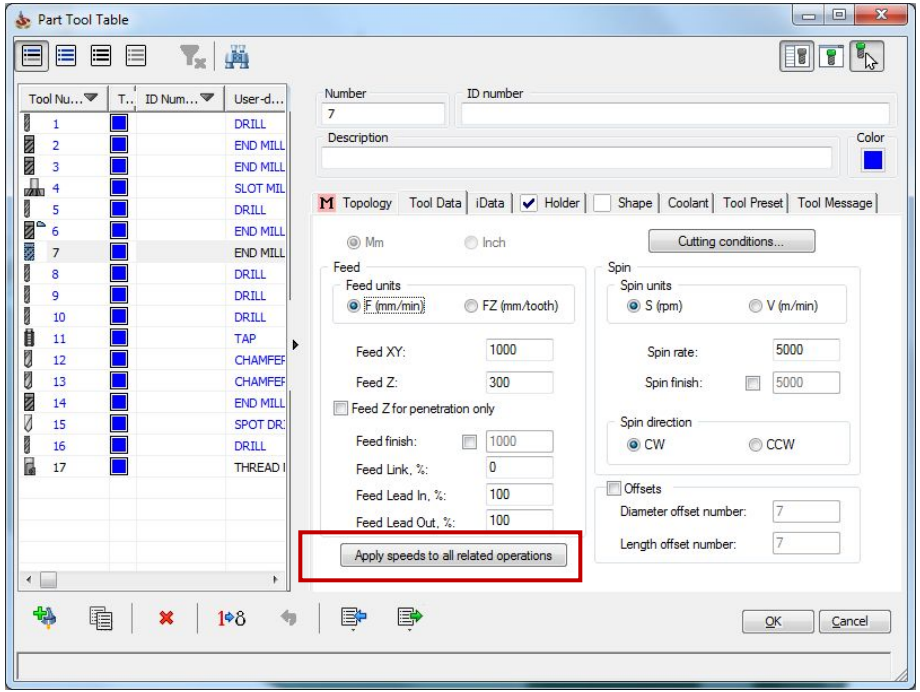
Tooltable

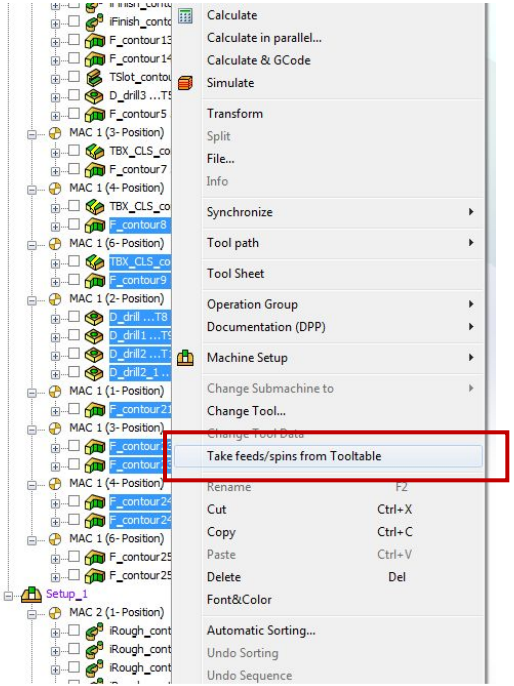
Tooltable: Changes in STL holders library



- **Combine Milling and Turning STL Holders under one machine library**

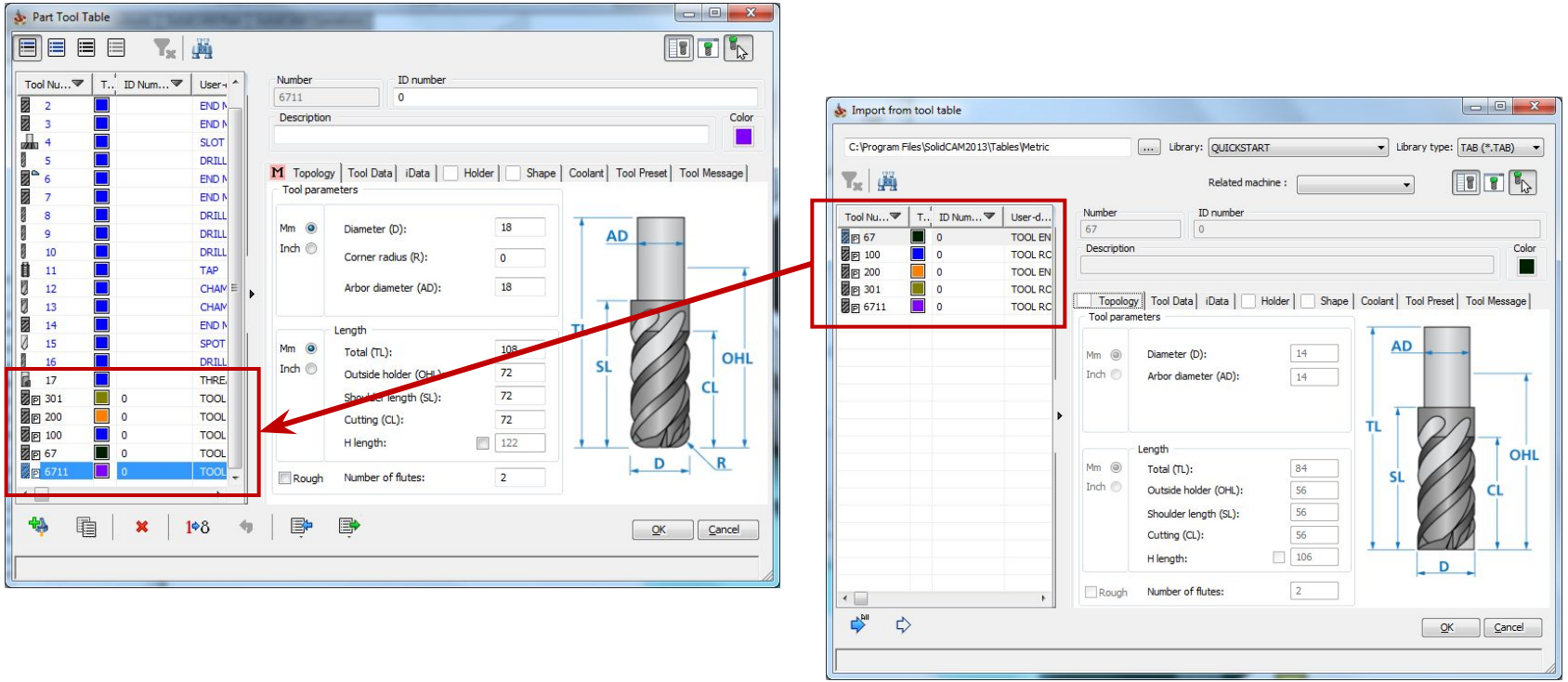
Tooltable: Update operation feeds/spins according to tooltable





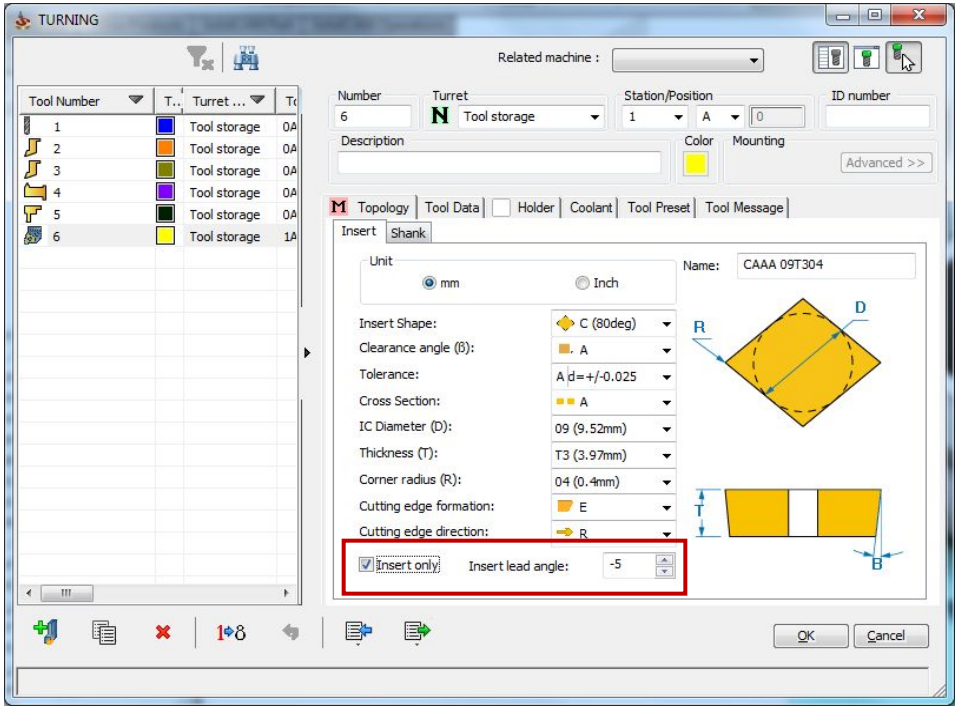
- **Possibilitiy to update feeds and spins in operations according to changes in tooltable**
- **Available from tooltable and from CAM-tree**

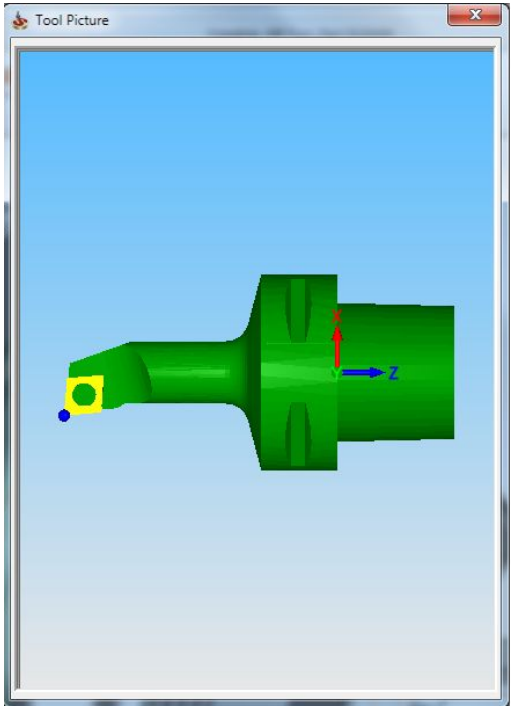
Tooltable: Permanent tool keeps it’s number during import



- **If tool is marked as permanent – it will be imported without any change in any field**

Tooltable: Insert only – add Lead angle

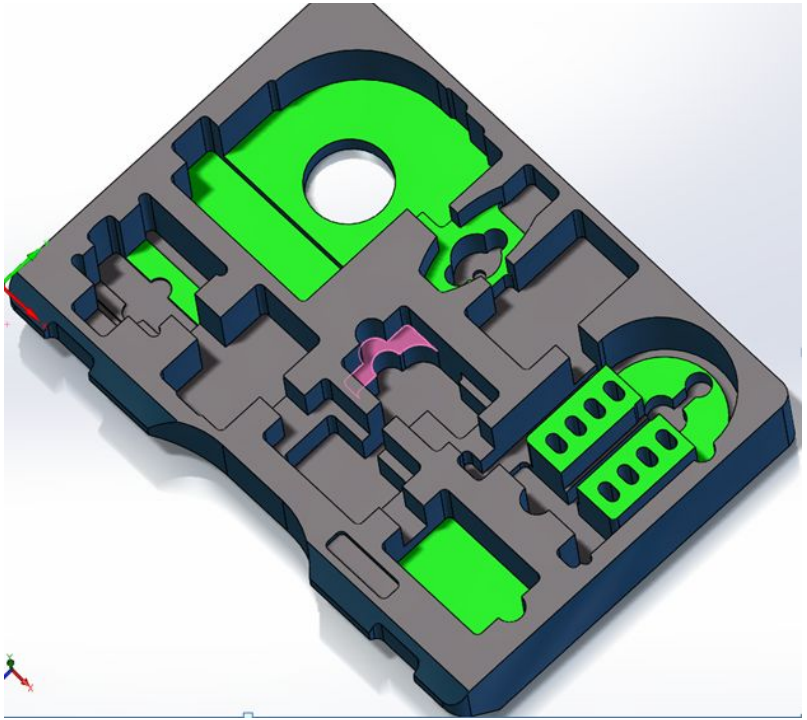




- **Option to rotate insert, when working in Insert only mode, by setting Insert Lead angle**

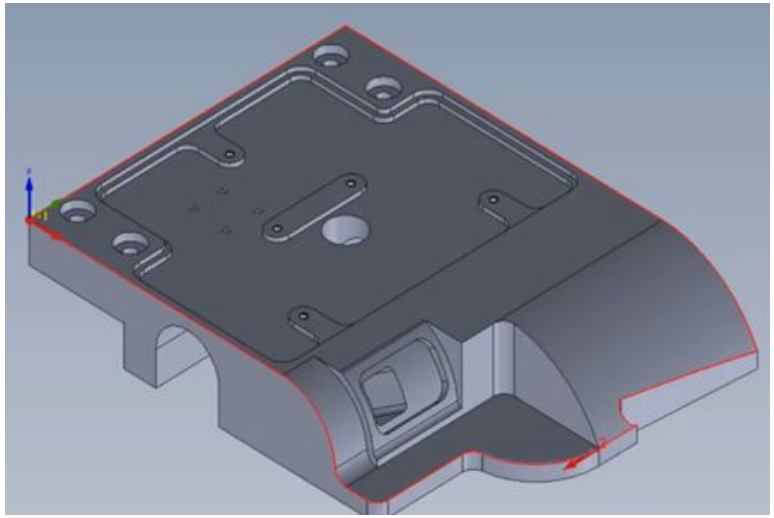
Geometry

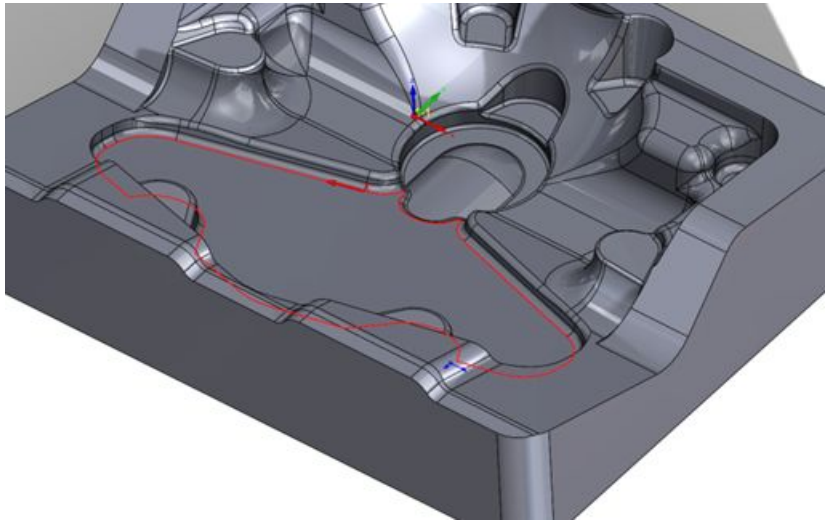
Geometry: Filtering of Pocket Recognition faces by color



- **Select only faces of specified color in Pocket Recognition geometry**

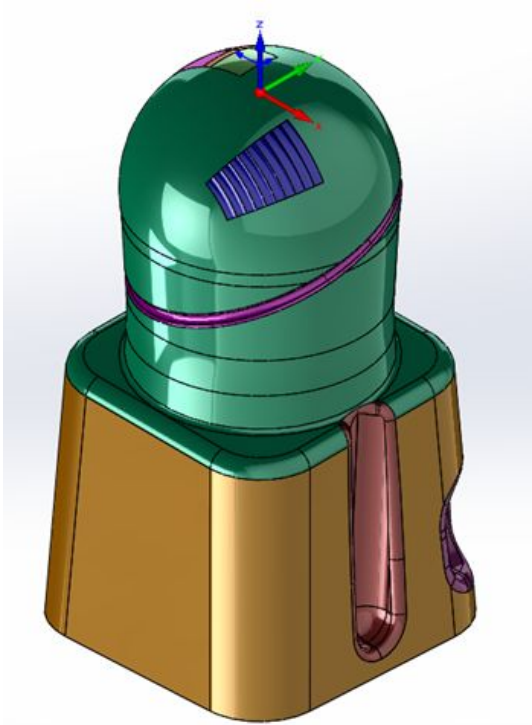
Geometry: Automatic Curve propagaton with Tangent and Delta-Z





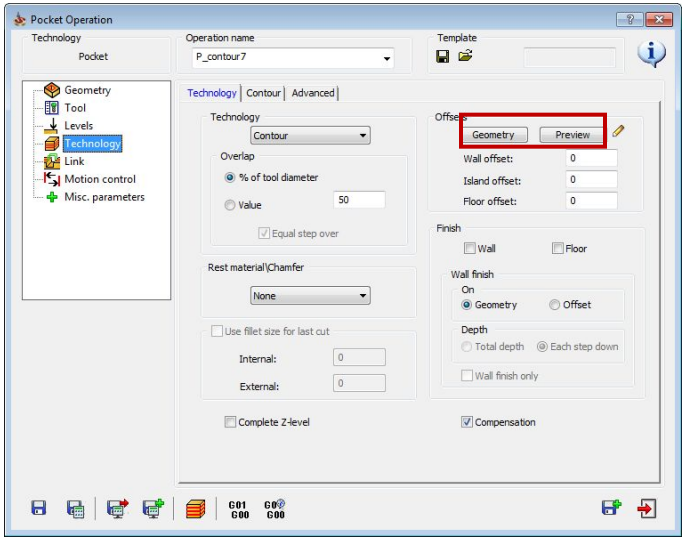
- **Creating chain geometries has been made a lot easier - this option enables you to use a combination of Tangent and Delta Z to create Multi level Chains.**

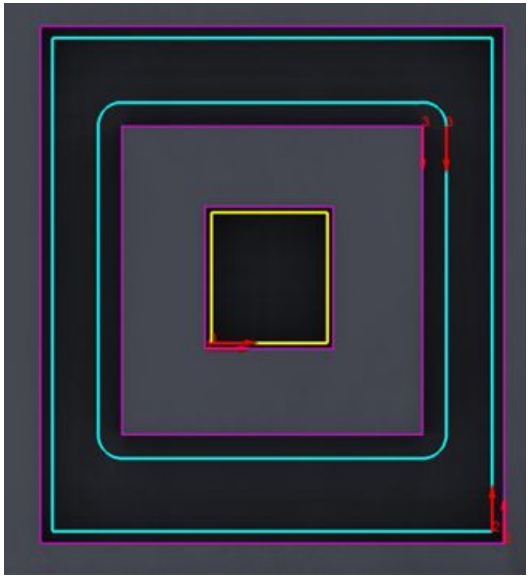
Geometry: Selection of faces by color



- **Select only faces of specified color in HSS and 5x geometries**

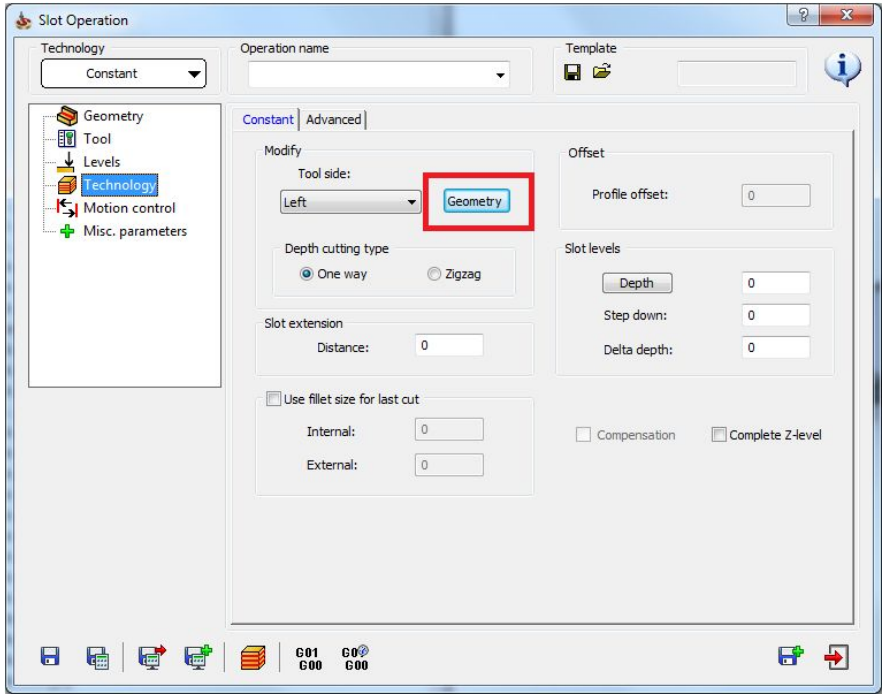
Pocket geometry: Option to add Offset





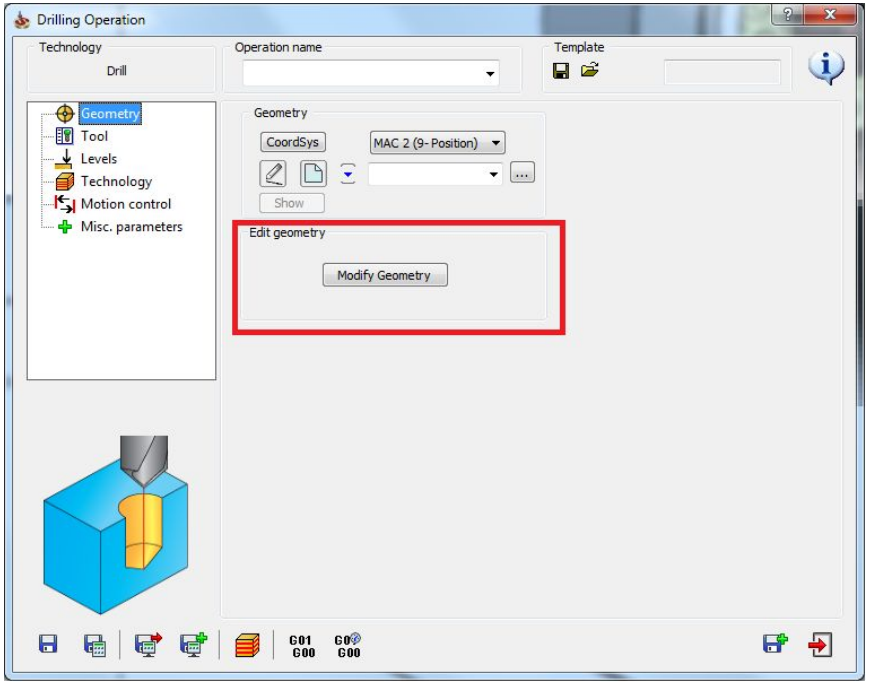
- **Option to add offset to geometry of Pocket operation**
- **Enable user to handle tolerances, without defining new geometry**

Slot geometry: Option to add Offset



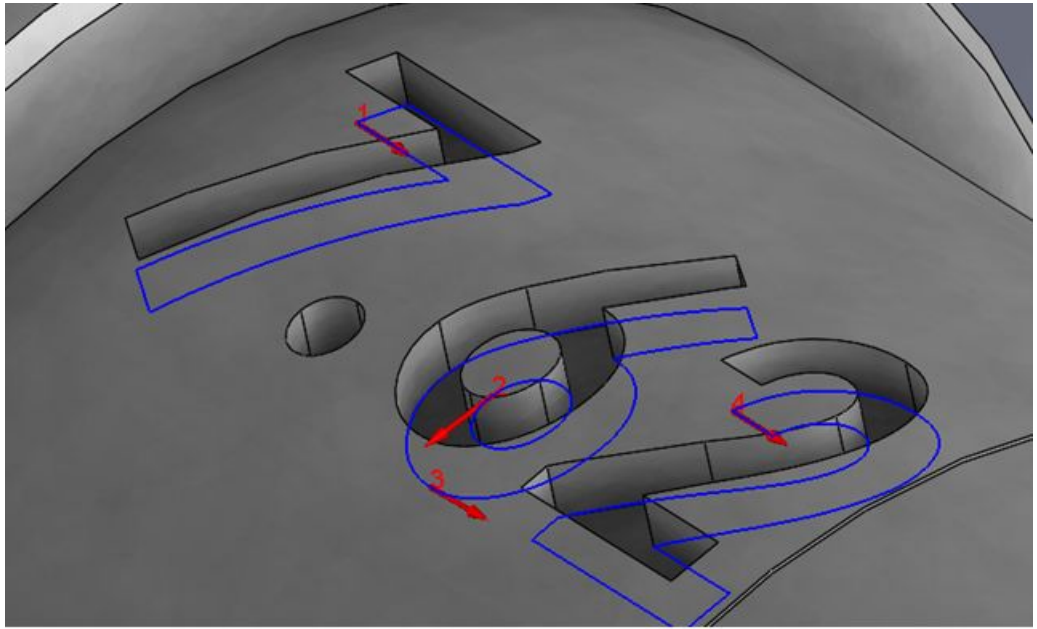
- **Option to add offset to geometry of Slot operation**
- **Enable user to handle tolerances, without defining new geometry**

Drill geometry: Modify option



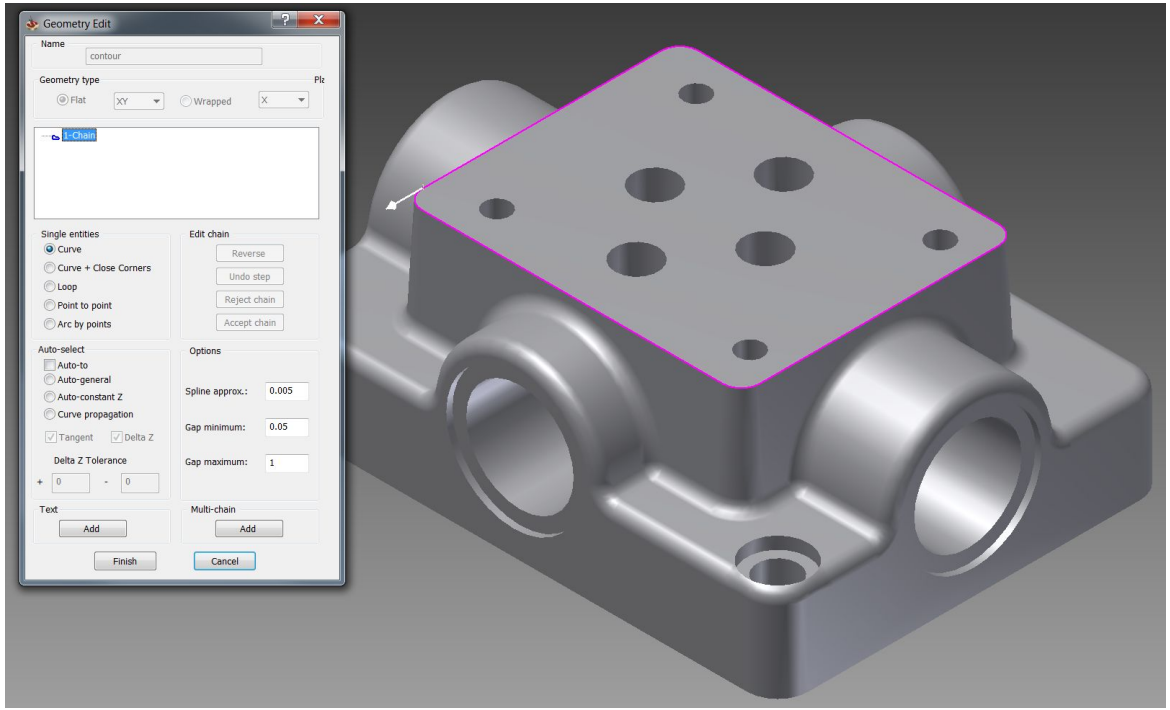
- **X and Y shiftings available per hole for Drilling geometry**

2D Geometry: Changes in wrapped geometry definition



- **User Interface changes in Wrapped geometry definition**

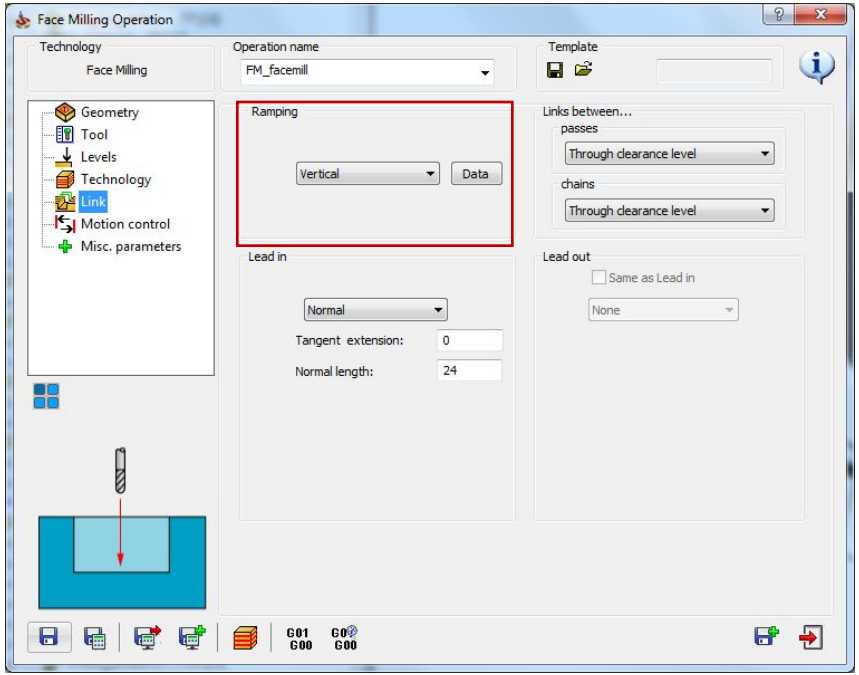
2D Geometry: Reverse geometry by F5 button

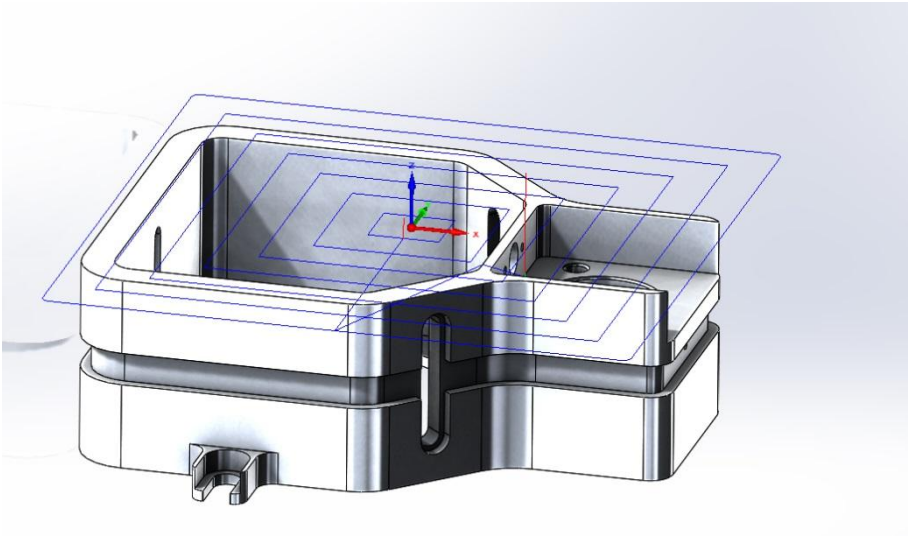


- **Easy way to reverse geometry – press F5 button on keyboard**

2.5D Mill

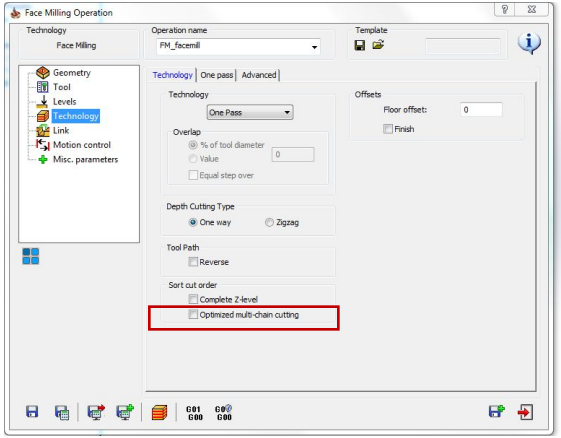
Face milling: Vertical ramping option

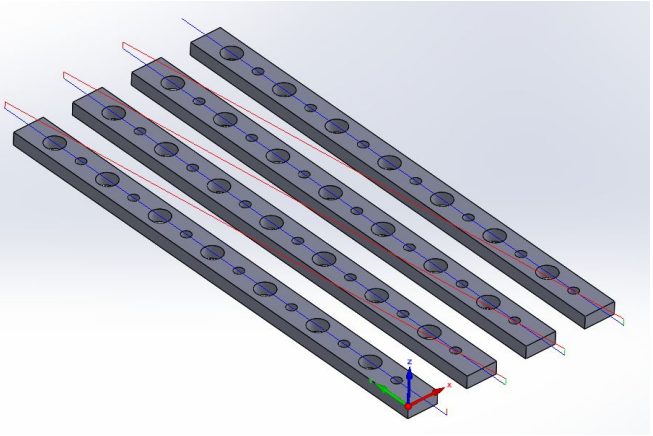




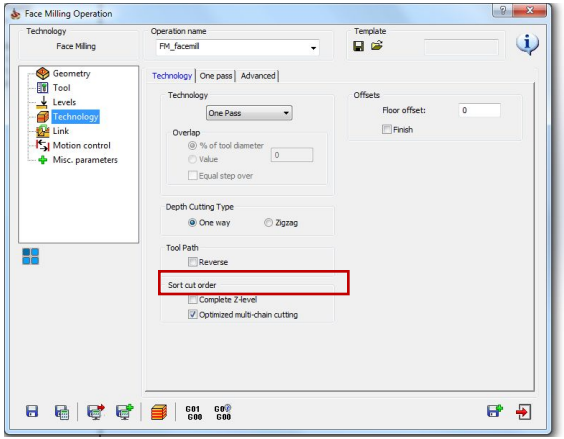
- **New option “Vertical“ for Ramping options in Face milling operation**

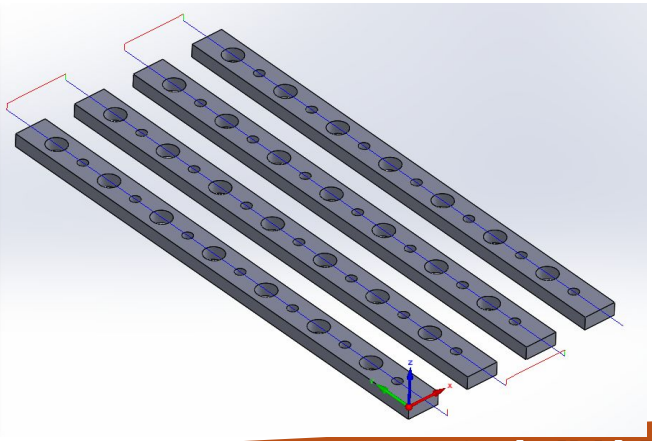
Face milling: Cutting direction optimization



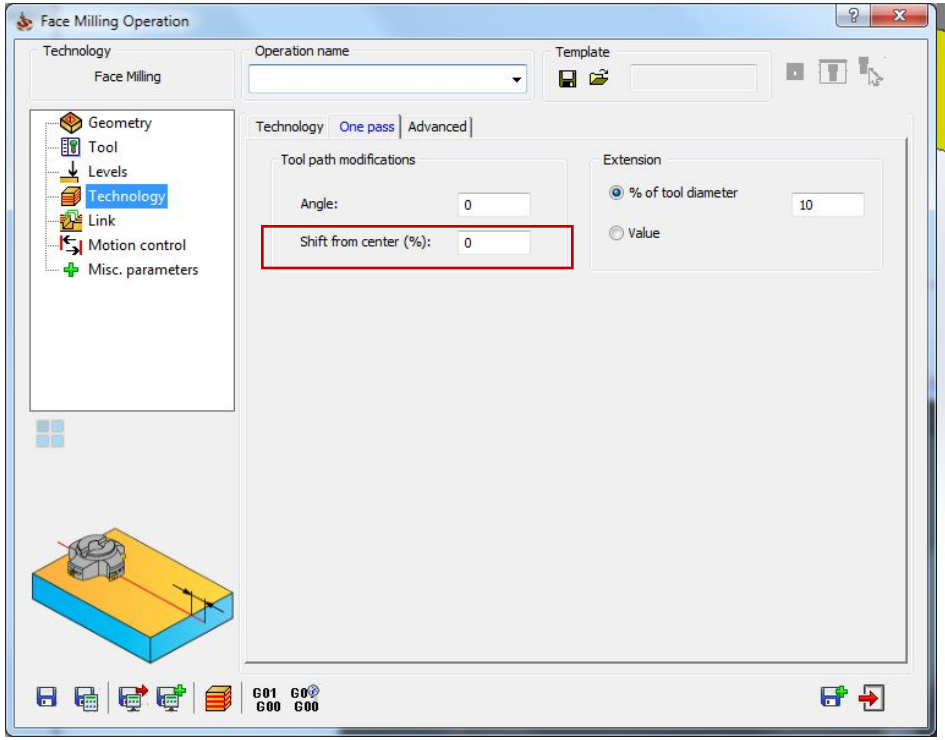


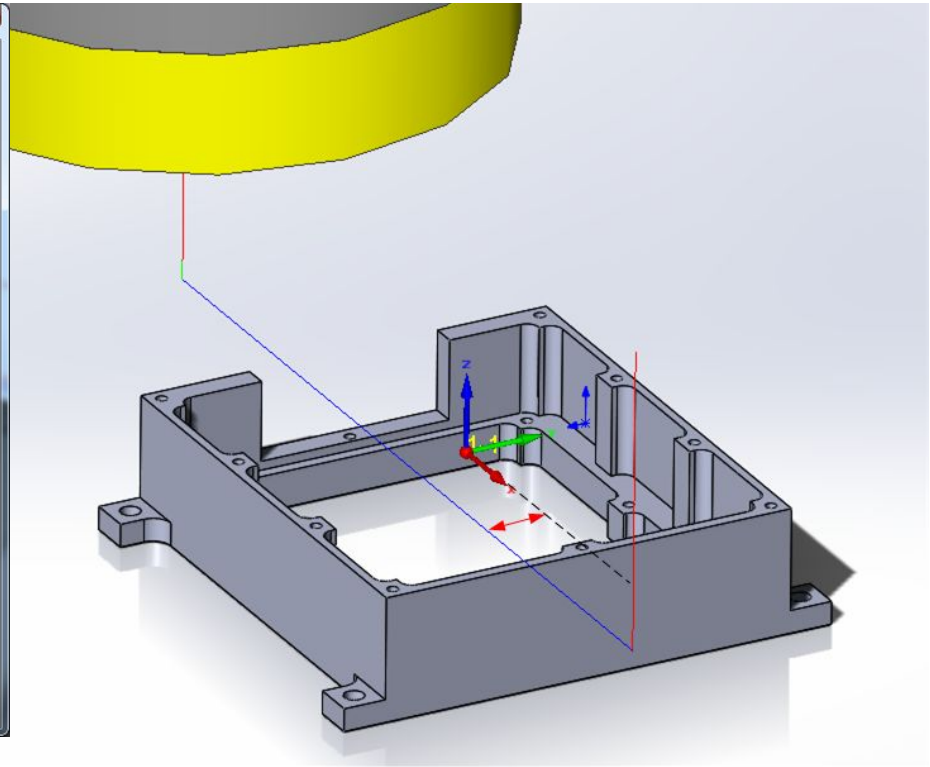
- **For long geometries that require one way face milling – there is option to skip long non-cutting tool moves**





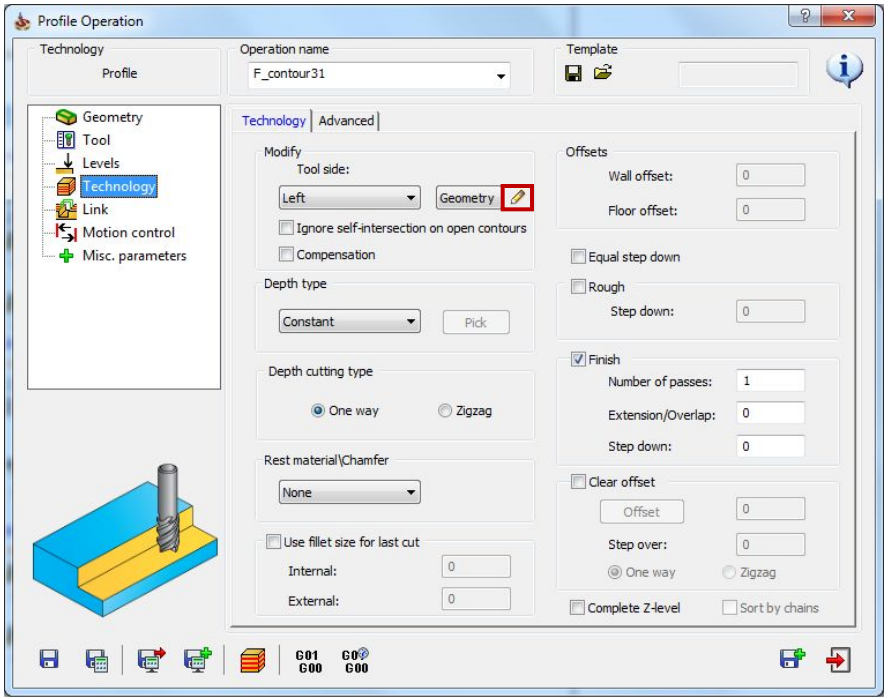
Face milling: Shifting from center





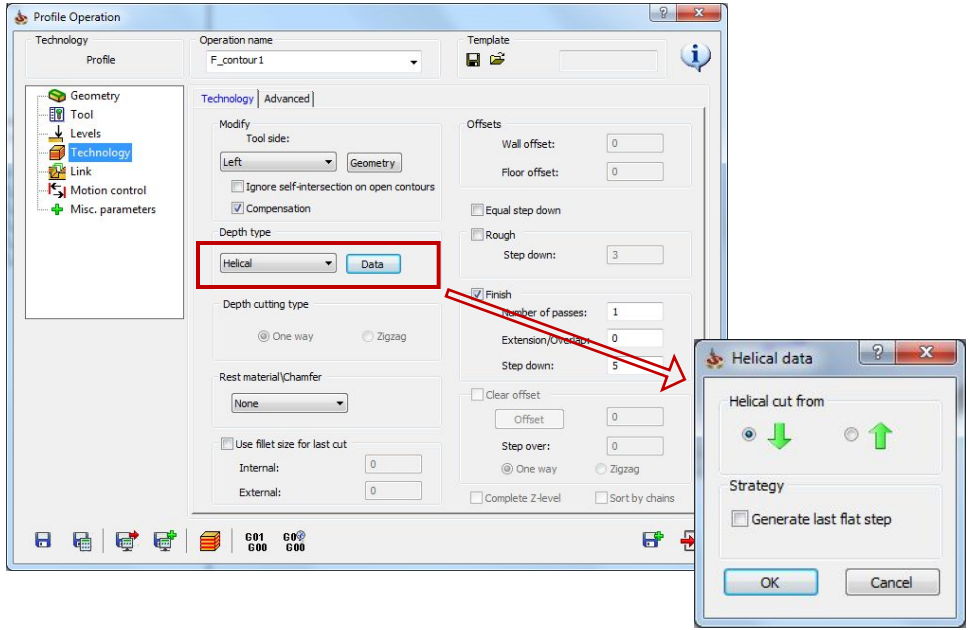
- **Shift the single cutting pass by applying % of tool diameter**

2.5D Mill: Mark by icon changes of geometry offsets



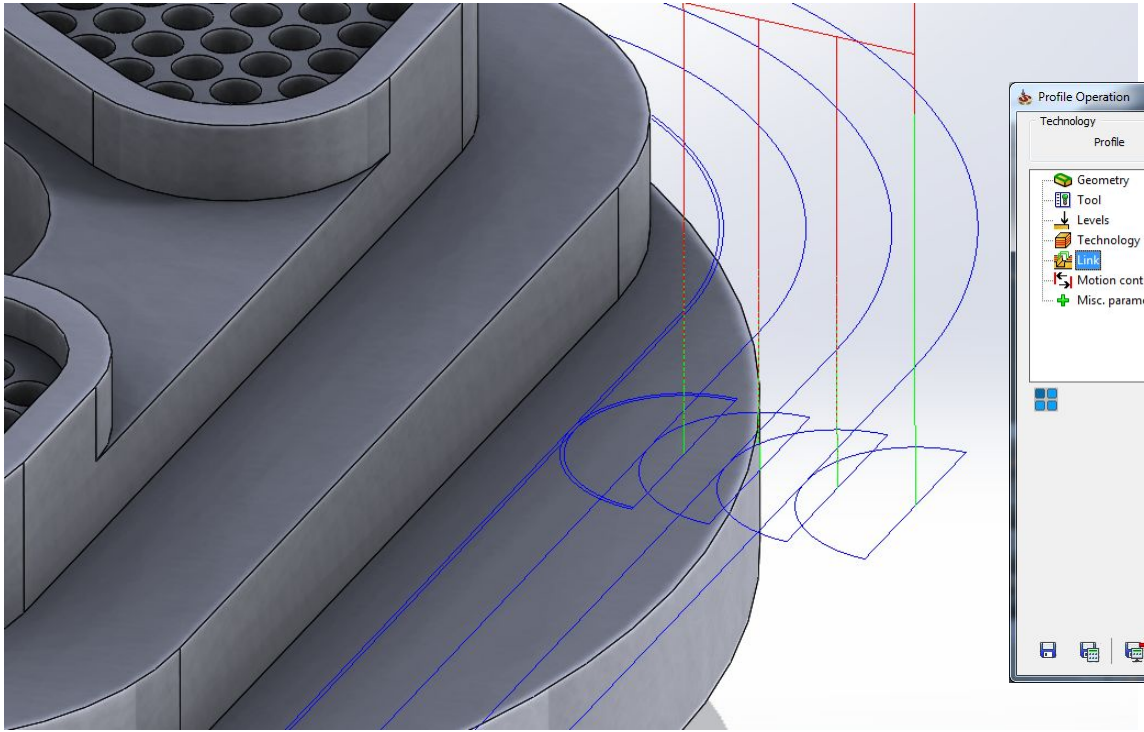
- **If in an operation, modification of geometry was applied – an icon indicating a change occured appears near Geometry button.**

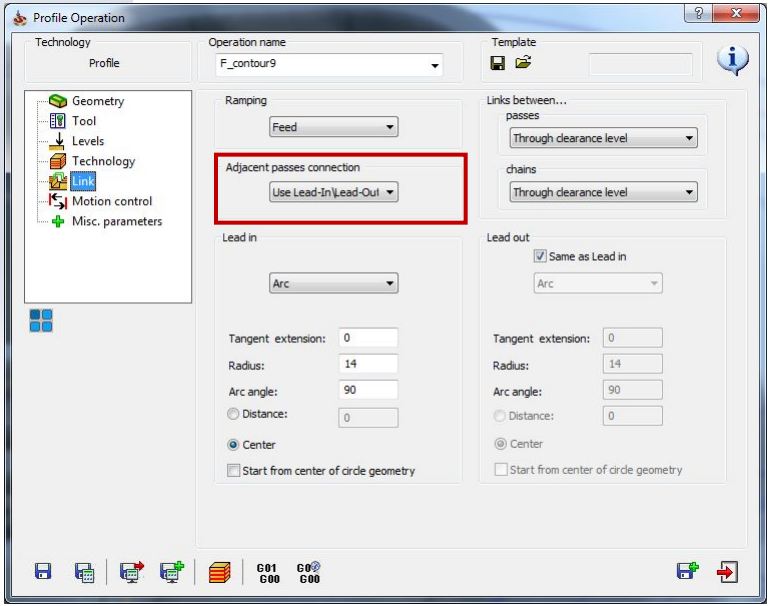
Profile: Helical movement improvement



- **Different start positions: From top to bottom, From bottom to top**
- **Optional flat circular movement at the bottom of helical cut**

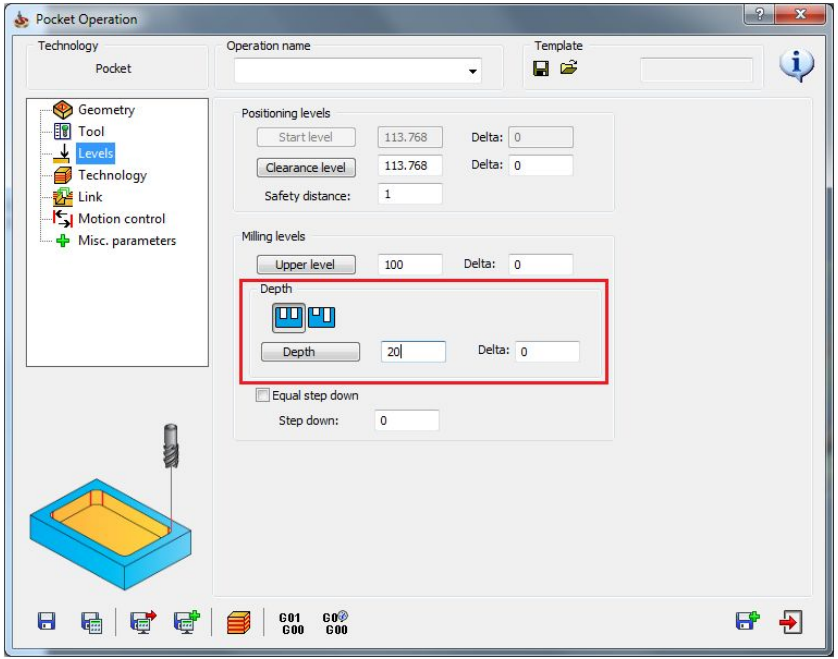
Profile: Lead in/out on each pass of Clear offset

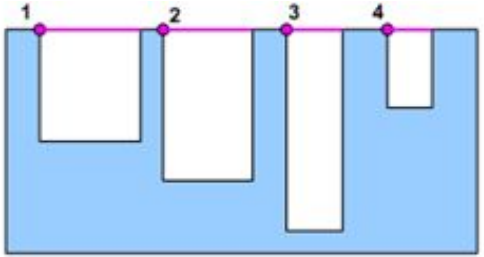




- **Use lead in/out on each cut of Clear offset strategy**

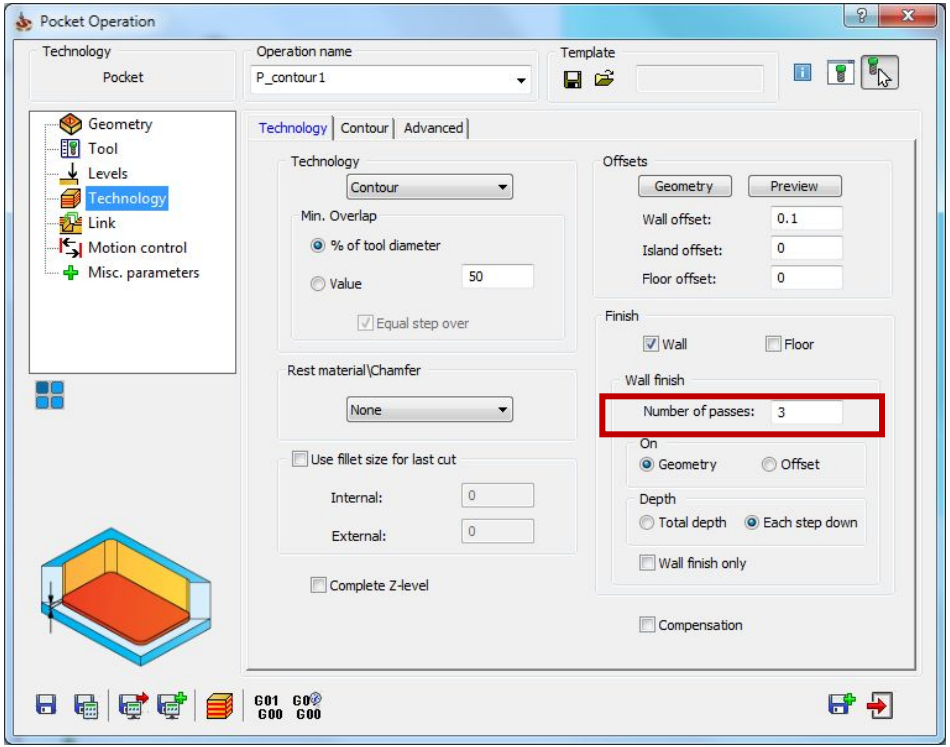
Pocket: Variable depth





- **Define depth of pocket per chain => possibility to machine pockets with same start level but different depths, in same operation**

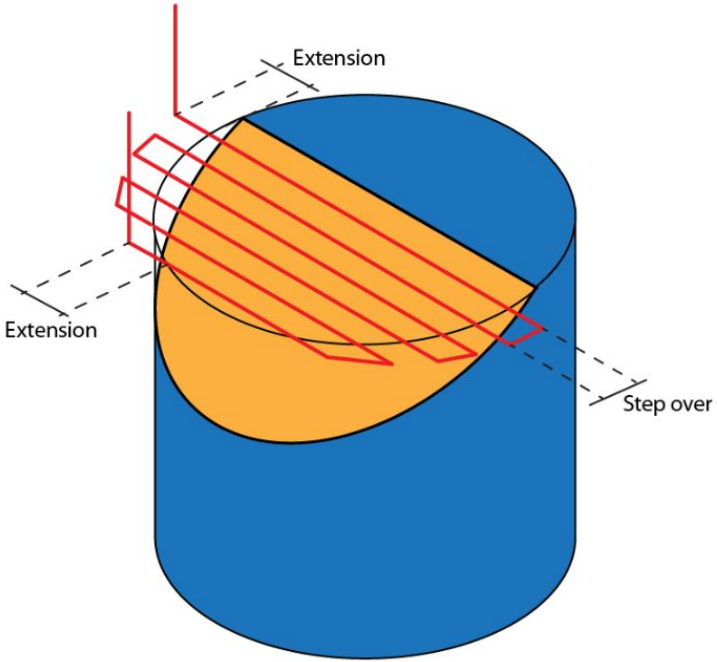
Pocket: Several wall finish passes



- **Several finish passes at the same place in Pocket operation**

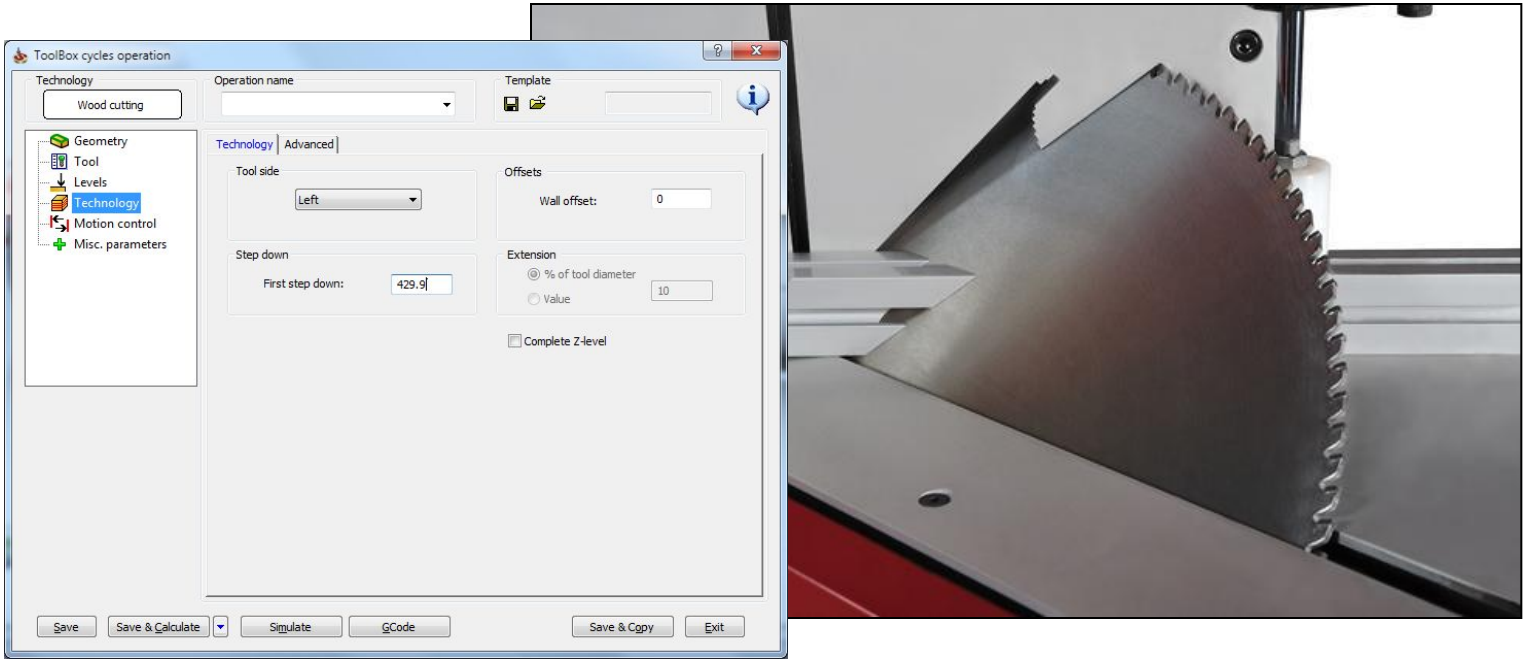
Toolbox

Toolbox: Angled cylinder



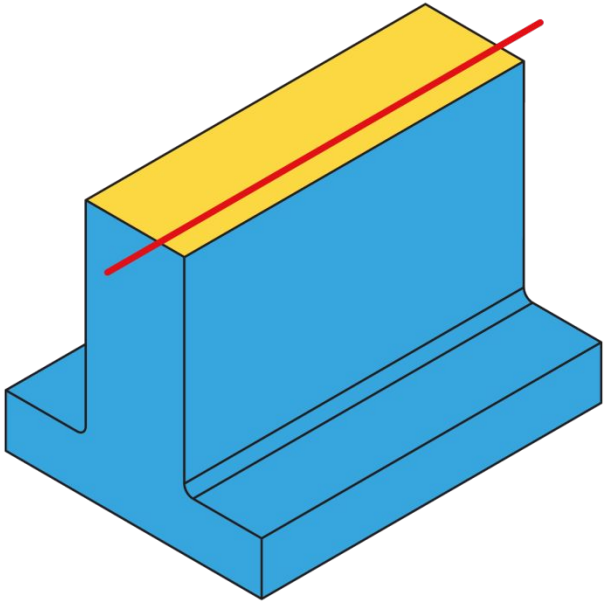
- **Machining of angled cylinder**
- **Minimizing air cuts**

Toolbox: Saw machining



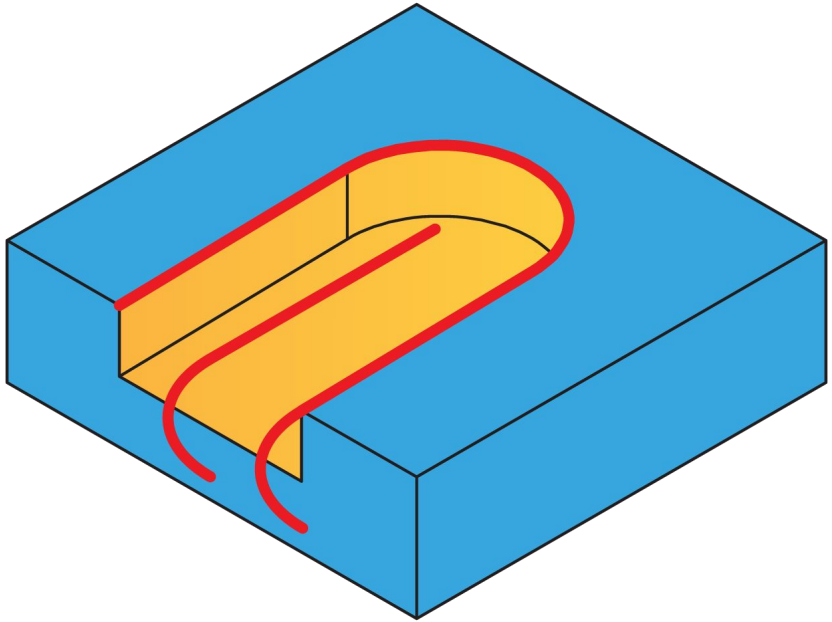
- **Special strategy for wood cutting**

Toolbox: Rib face milling



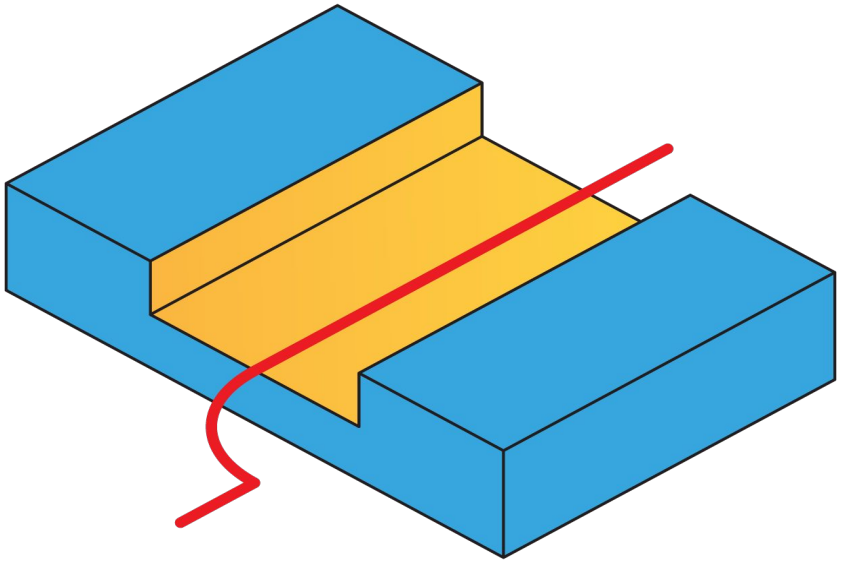
- **Cleaning of rib faces**

Toolbox: Roll into closed slot



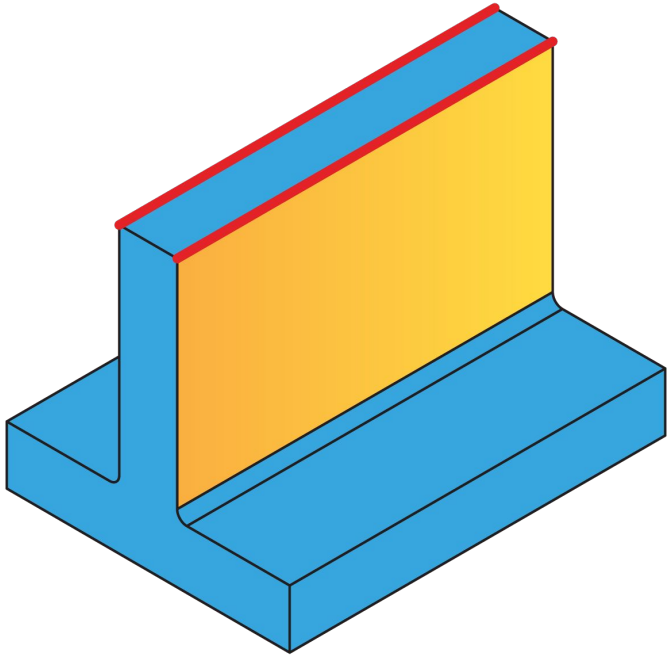
- **Constant tool loading, when entering a closed slot**

Toolbox: Roll into open slot

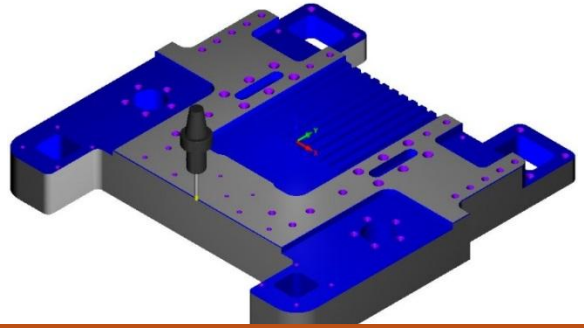


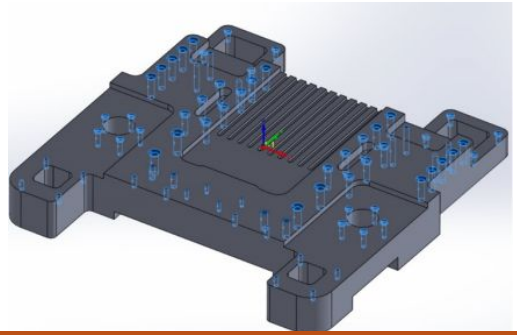
- **Constant tool loading when entering an open slot**

Toolbox: Thin wall machining

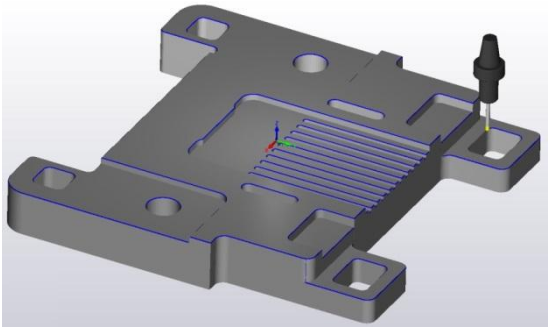


- **Special strategy for 2.5D thin wall machining**

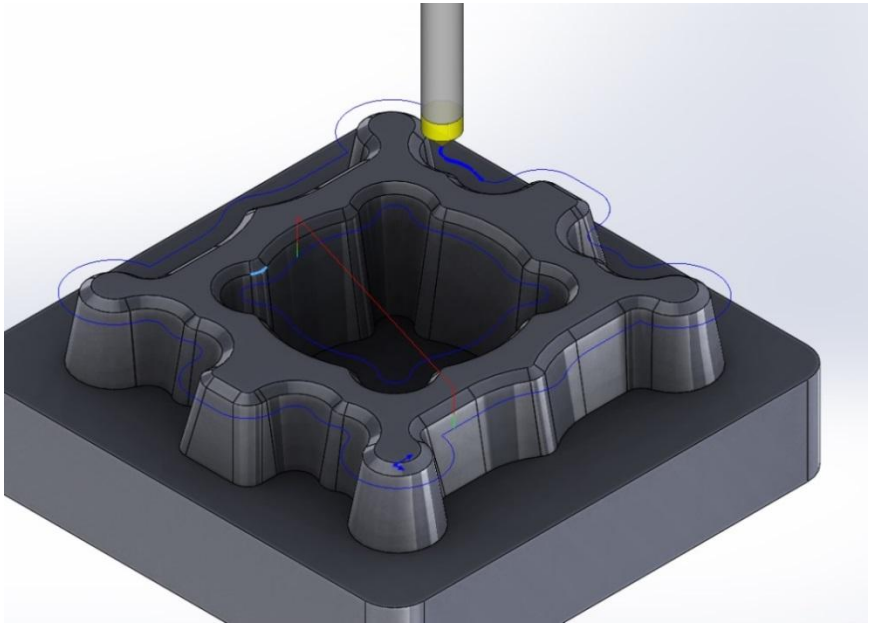


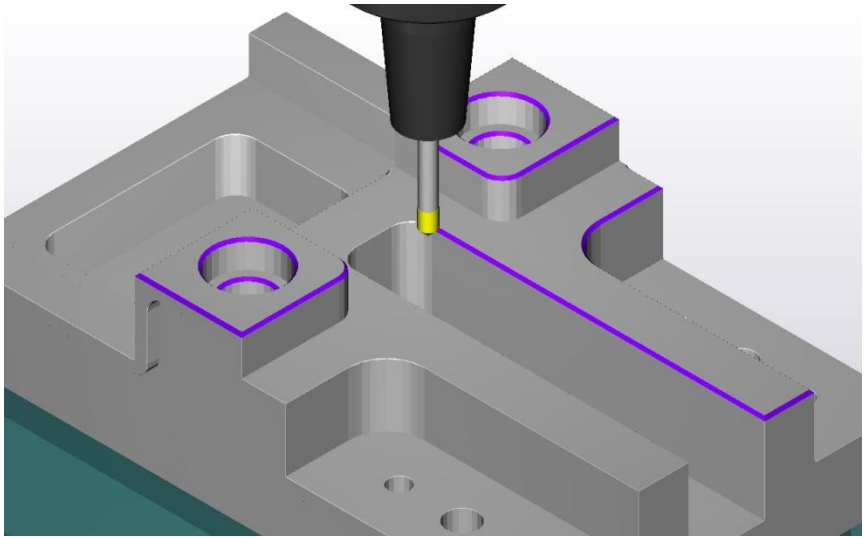


Automatic Feature Recognition and Machining (AFRM)



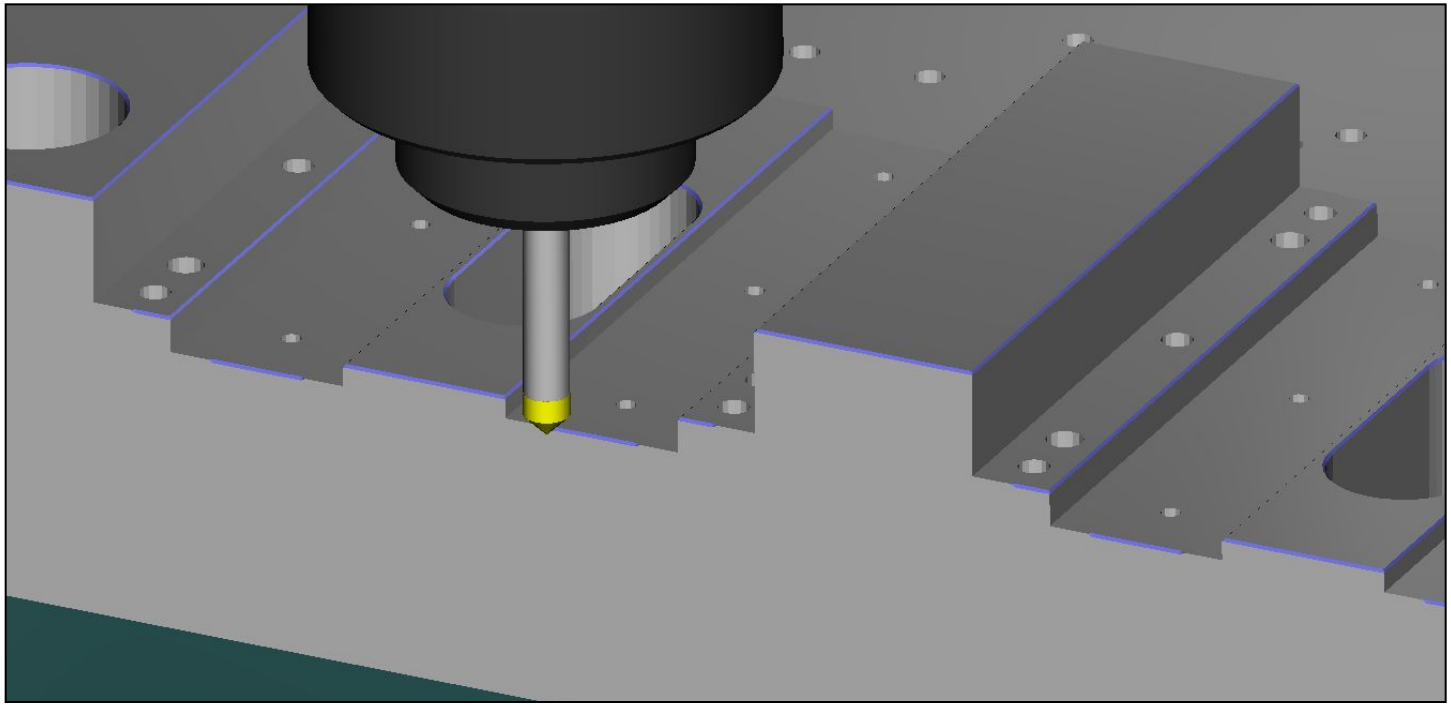
AFRM: Chamfer recognition and machining



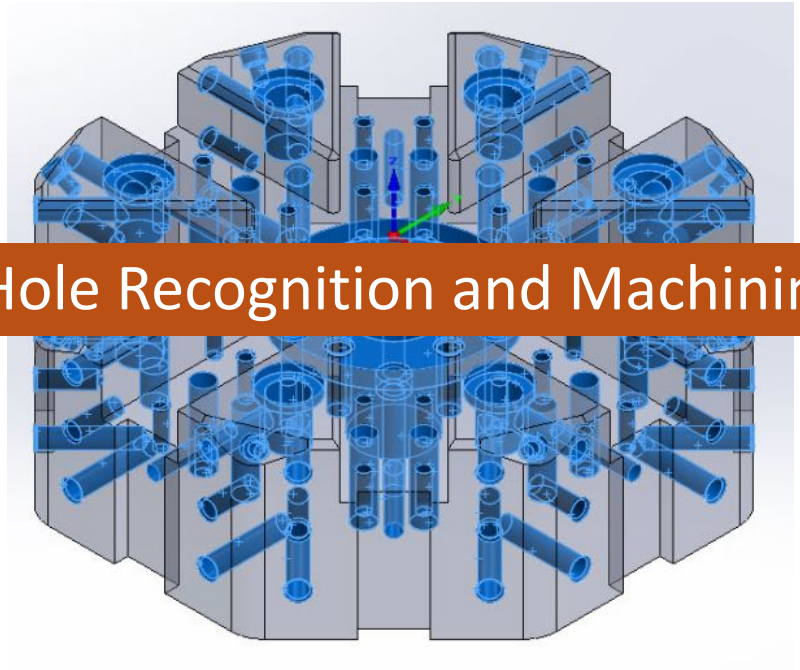


- **Automatic recognition and machining of edges where it is possible to apply chamfer**

AFRM: Chamfer recognition and machining



- **The Automatic recognition of edges is smart and avoids gouging the walls**

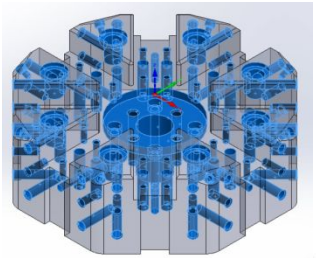


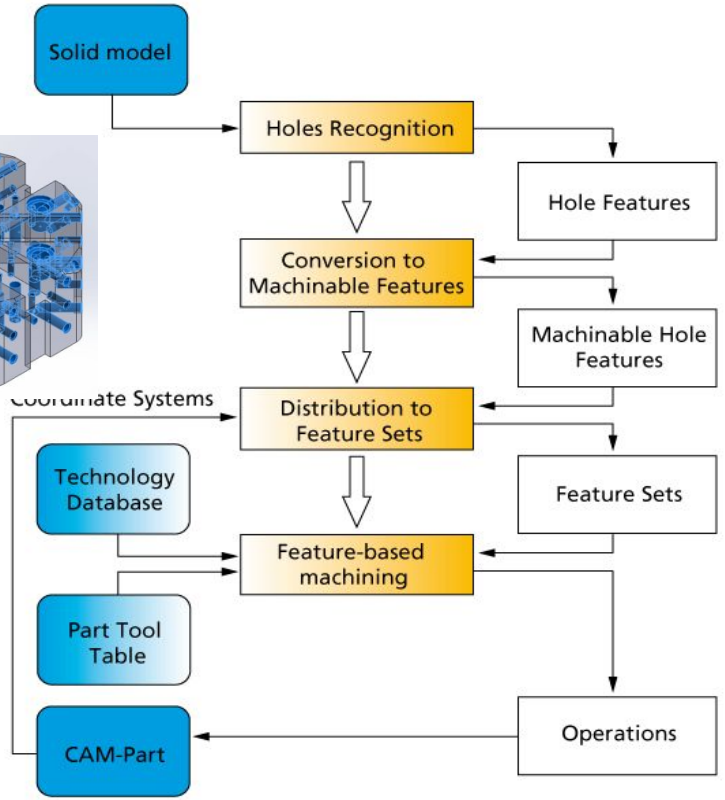
Automatic Hole Recognition and Machining (AHRM)

AHRM Review

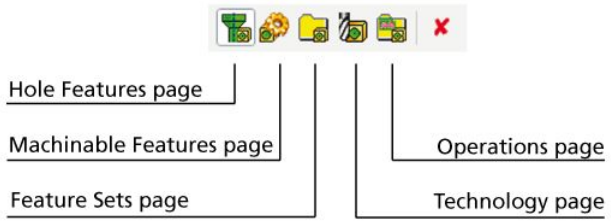
InventorCAM's AHRM module is designed to automatically:

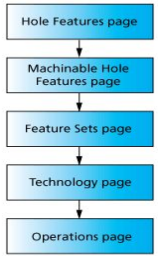
- Classify Shapes and Groups of Holes
- Convert to Machinable Features
- Select and/or Create All Required Tools
- Build Machining Technologies
- Generate Machining Operations
- Support all Work Position Orientations

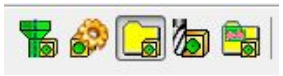


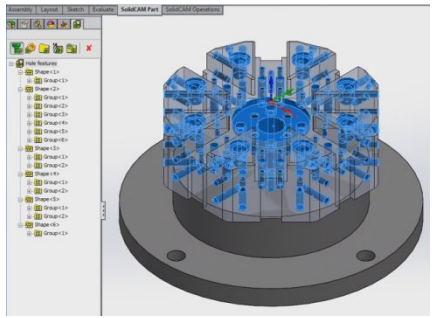


AHRM review – Process steps

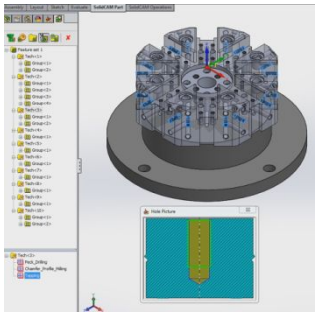




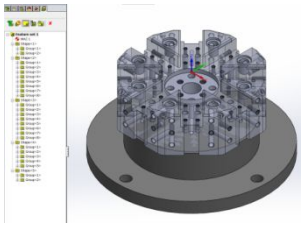




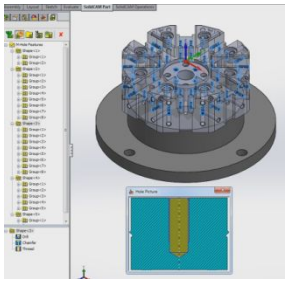
Step 1: Recognize Holes (Shapes & Groups)



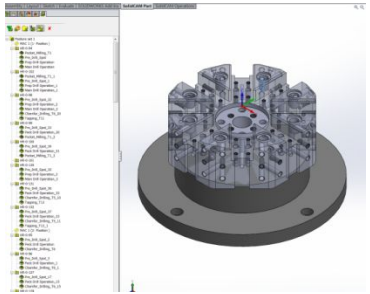
Step 2: Convert Holes to Machinable Segments



Step 3: Distribute Machinable Segments to Feature Sets



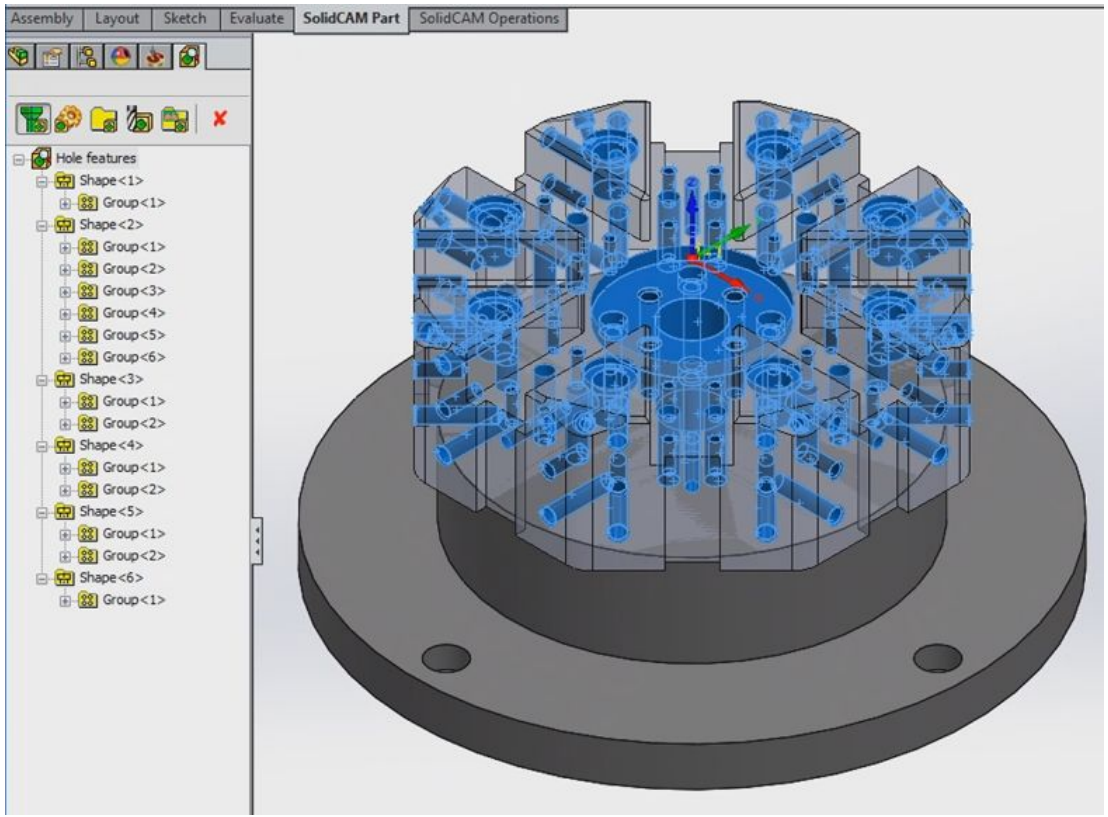
Step 4: Choose Technological Solution for Machinable Segments



Step 5: Generate all Machining Operations

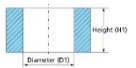
AHRM review - Step 1: Recognize Holes

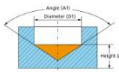
Step 1: Recognize Holes (Shapes & Groups)

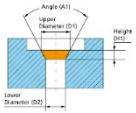


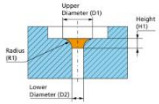
Types of Hole Segments:

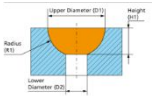
- Cylindrical
- Cone
- Chamfer
- Planar
- Torus
- Sphere







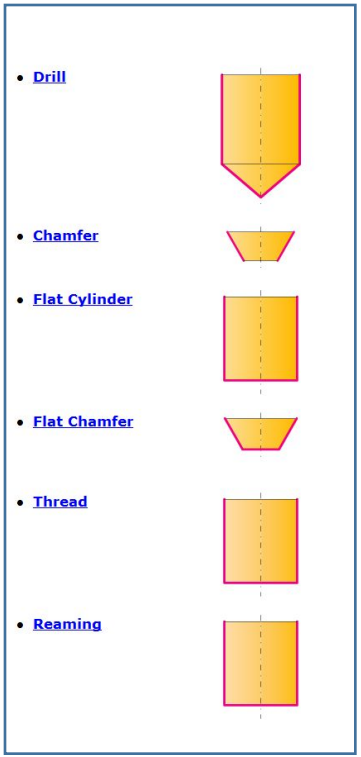


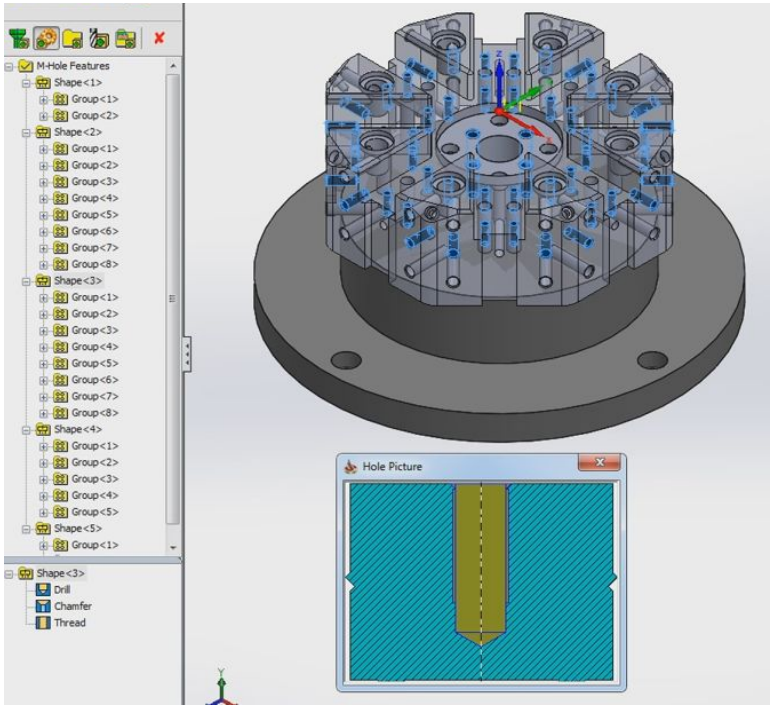


AHRM review - Step 2: Machinable segments

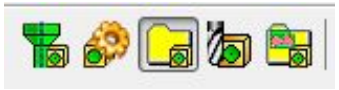
Step 2: Convert Holes to Machinable Segments

The **Machinable Hole Feature** consists of one or more **Machinable Hole Feature segments** that can be machined in one operation with the same tool.



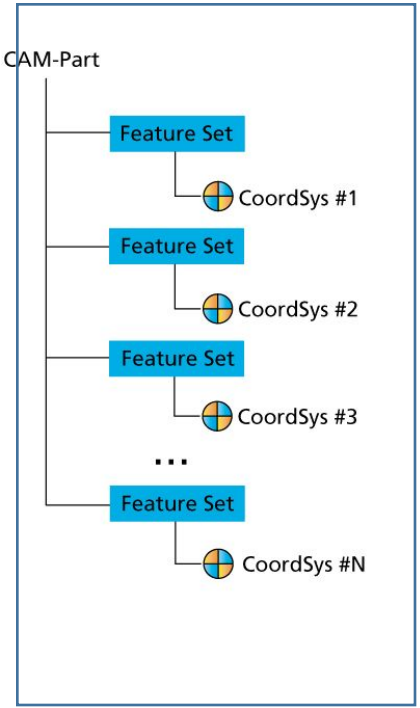


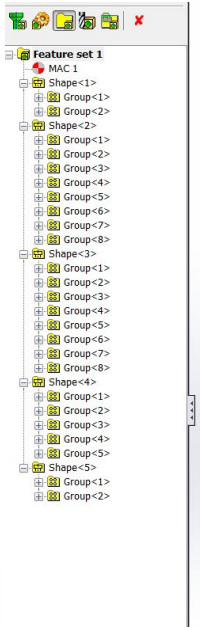
AHRM review - Step 3: Feature Sets

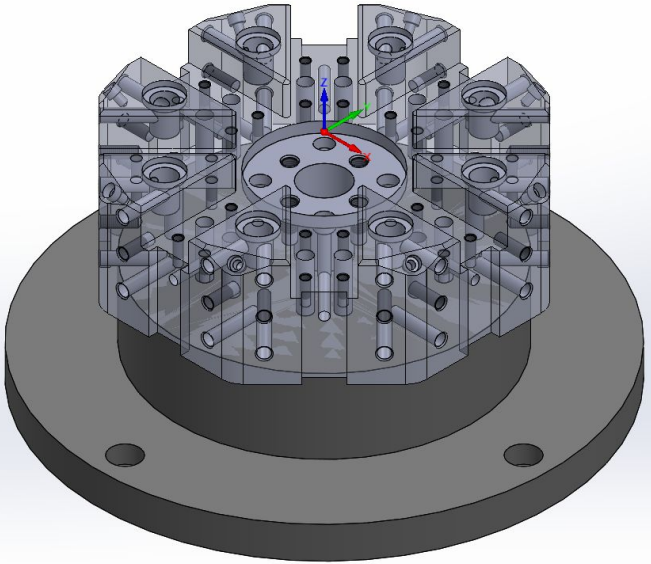


<u>Step 3</u>: Distribute Machinable segments to Feature sets

Feature Set is a number of Machinable segments that will be machined within the same setup using one Coordinate System.

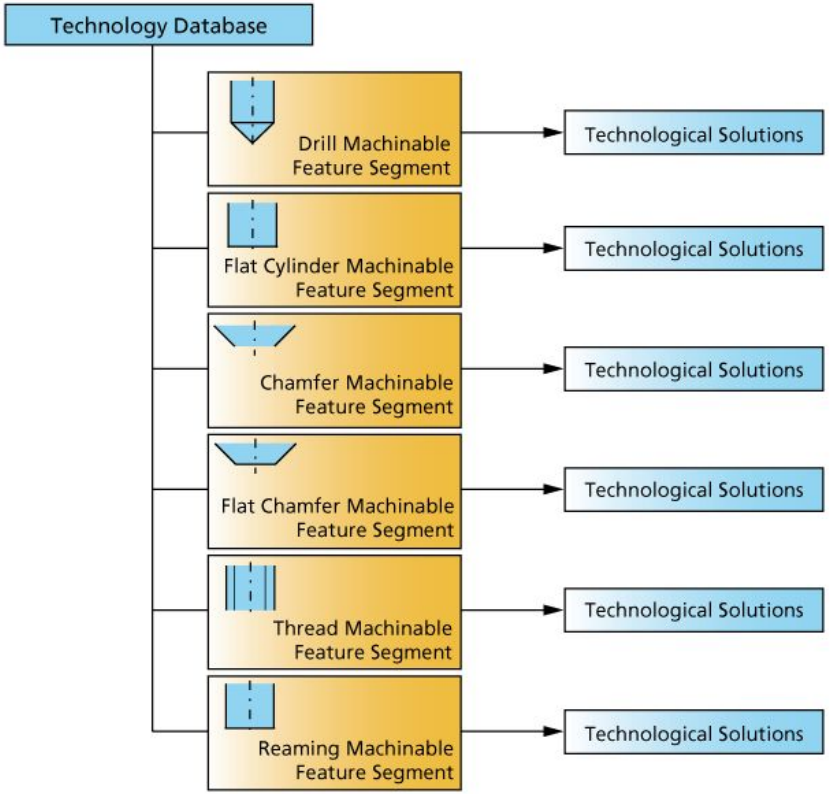


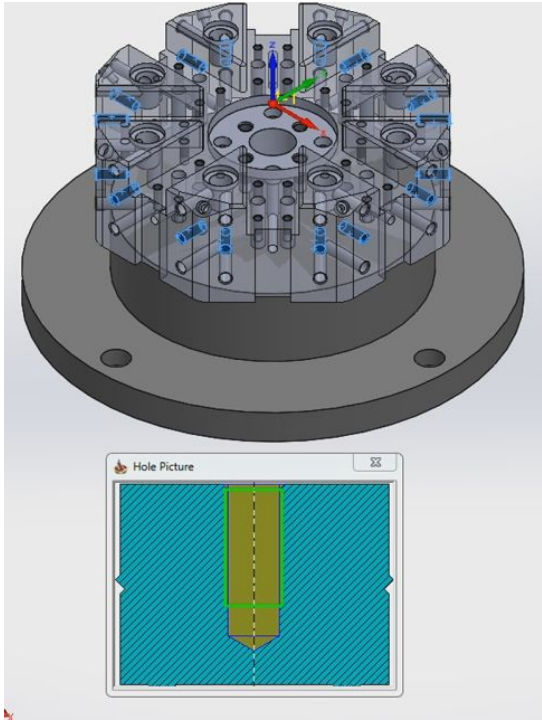




AHRM review - Step 4: Technology Database Solution

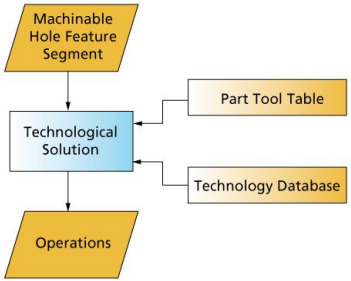
Step 4: Choose technological solution for Machinable Segments from Technology Data base

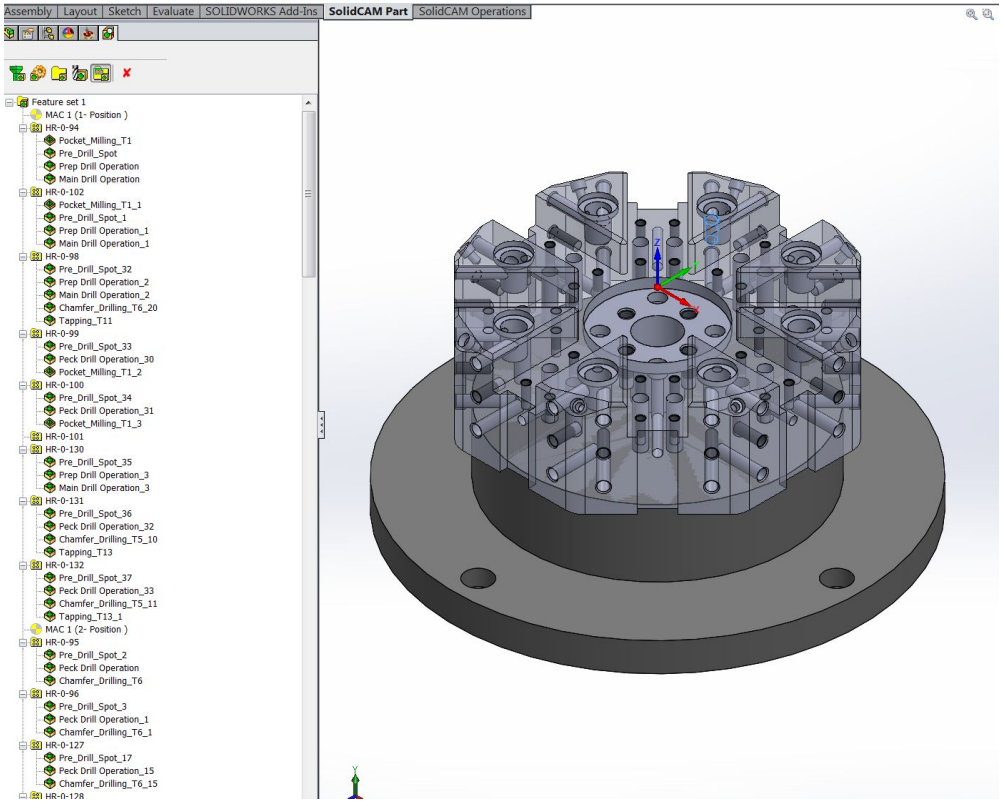




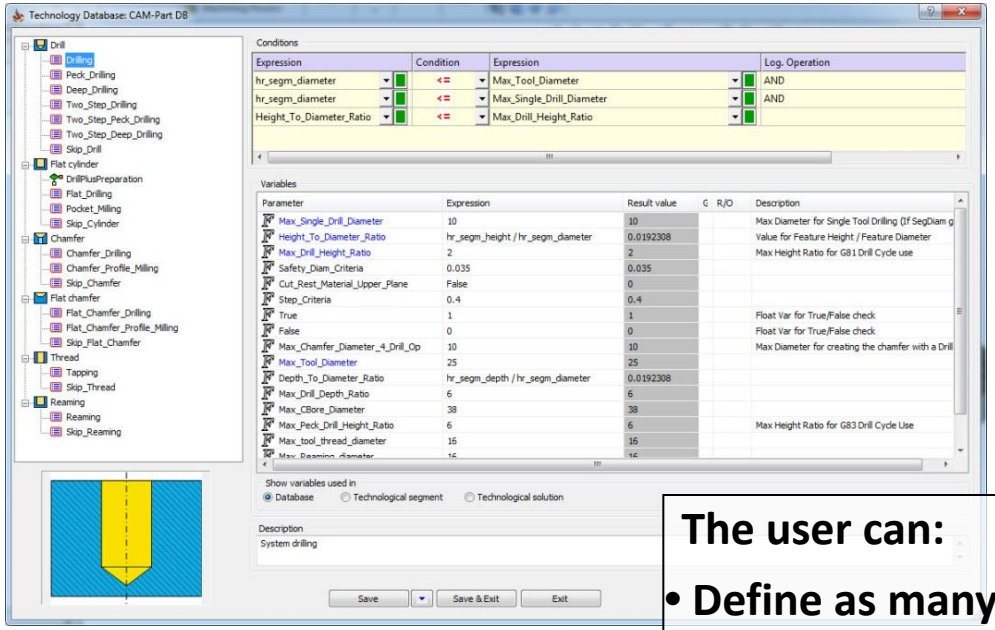
AHRM review - Step 5: Machining Operations

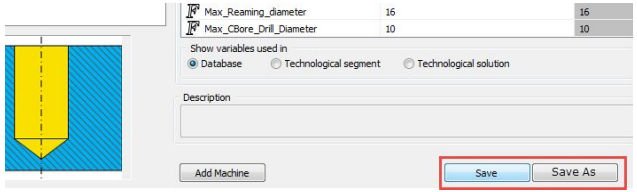
Step 5: Generate all machining operations

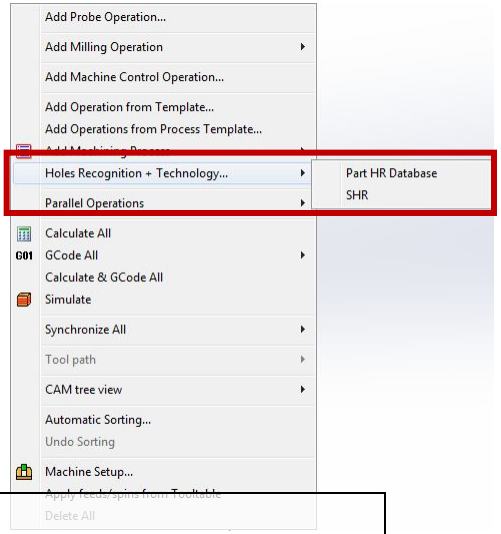




AHRM New: Limitless number of DataBase configurations



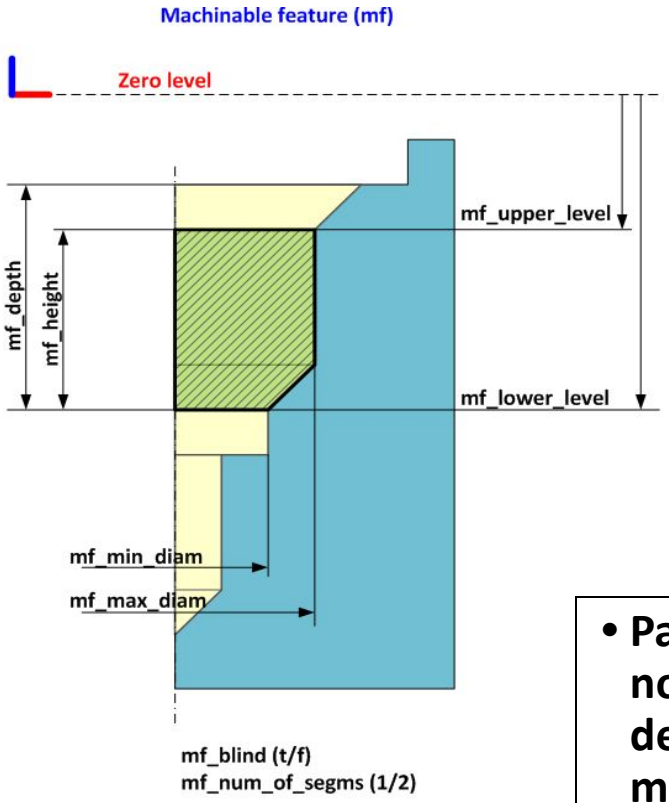


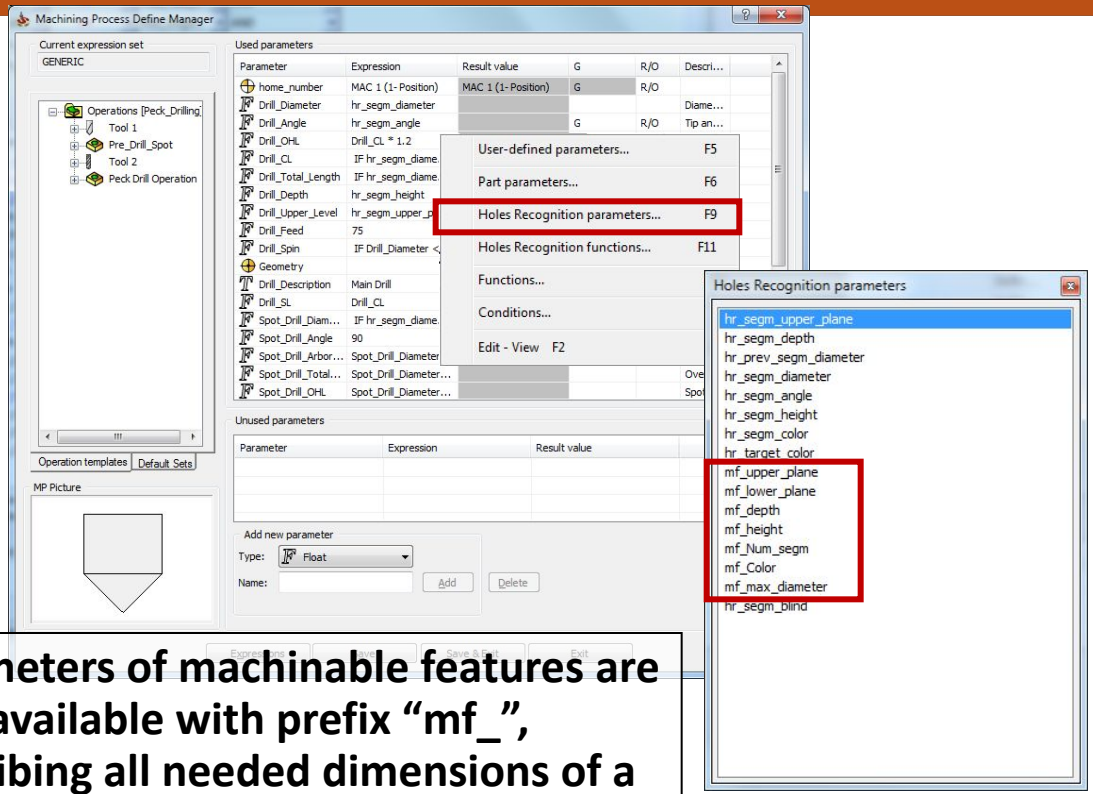


The user can:

- **Define as many DataBases as he wants**
- **Select any of them for the process**
- **Edit the “Part DataBase ” Independently**
- **Save active DataBase As a NEW one**

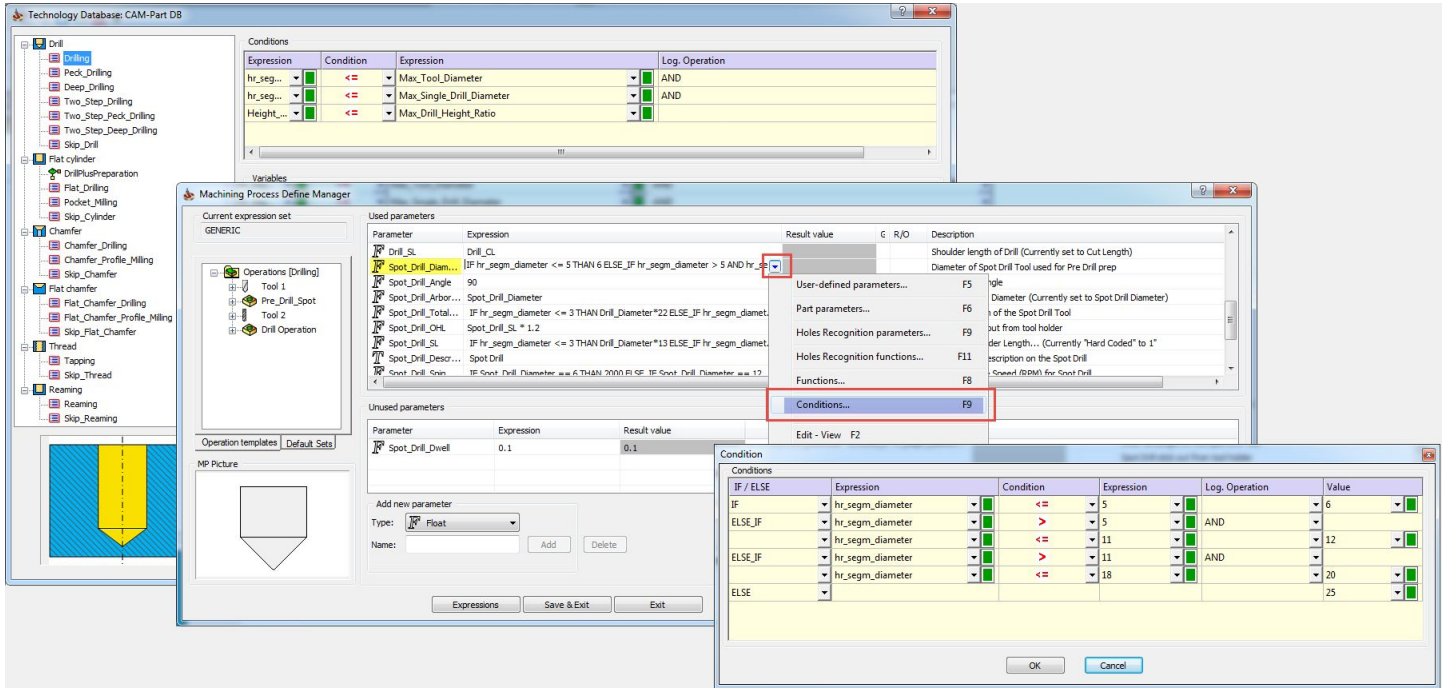
AHRM New: Machinable feature parameters (mf_xxx)





- **Parameters of machinable features are now available with prefix “mf_”, describing all needed dimensions of a machinable feature (which is not always equal to the hole segment)**

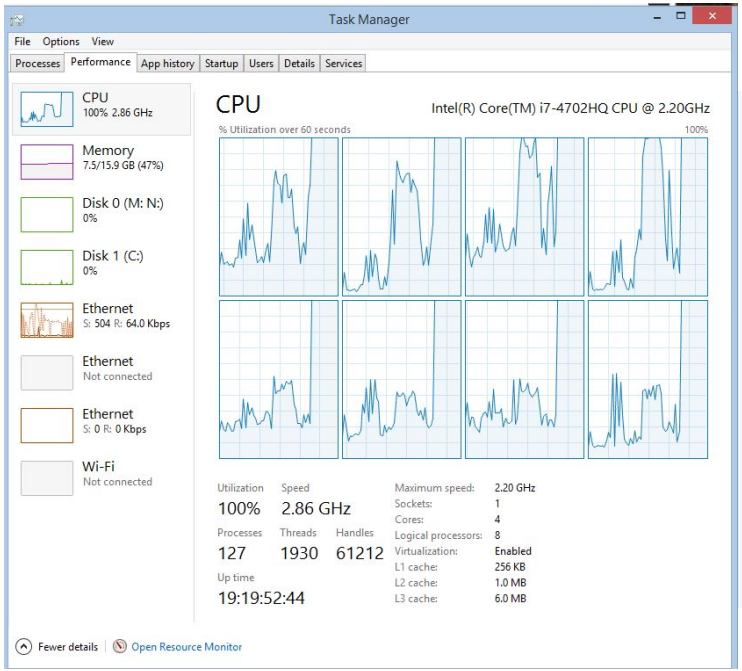
AHRM New: Conditional Logic Support

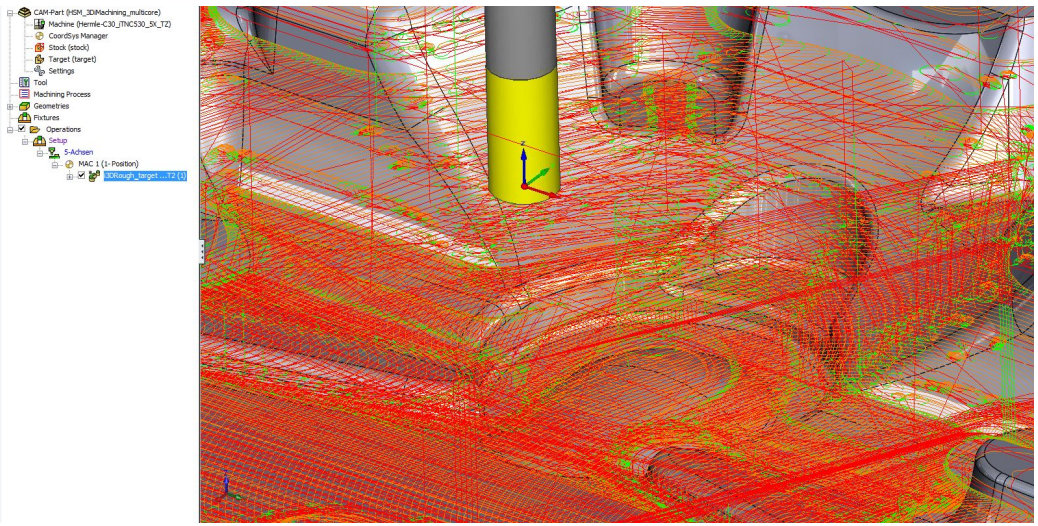


- **Apply different values to parameters, according to user-defined condition in the Machining Process of the AHRM (e.g. Enables Spot drills to be chosen according to hole size)**

iMachining 2D & 3D

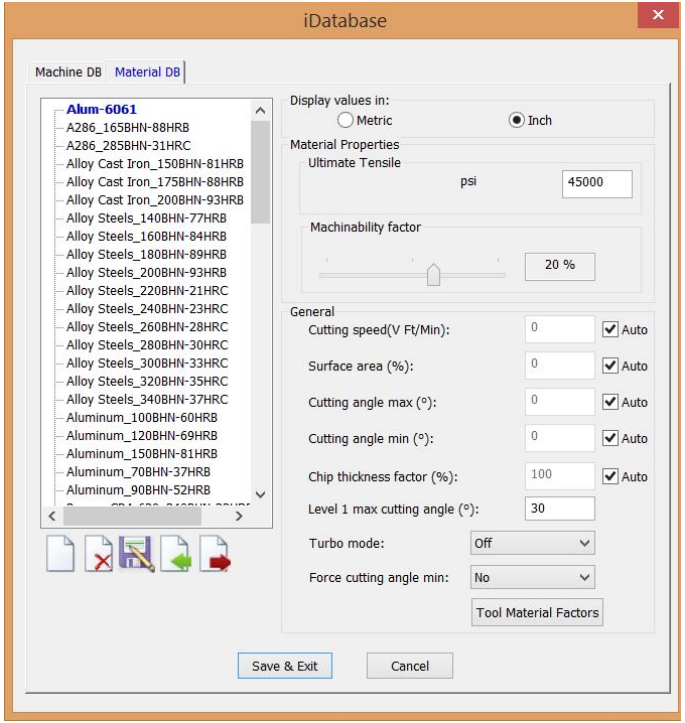
Parallel calculation in iMachining





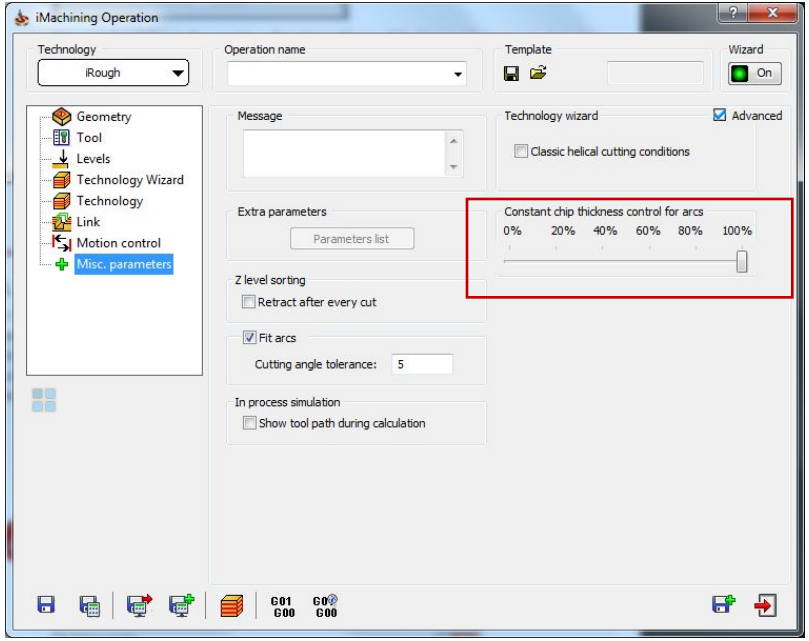
- **Speeding up iMachining calculation by using multi cores & multi threading for parallel calculation**

iDatabase Material: Machinability factor



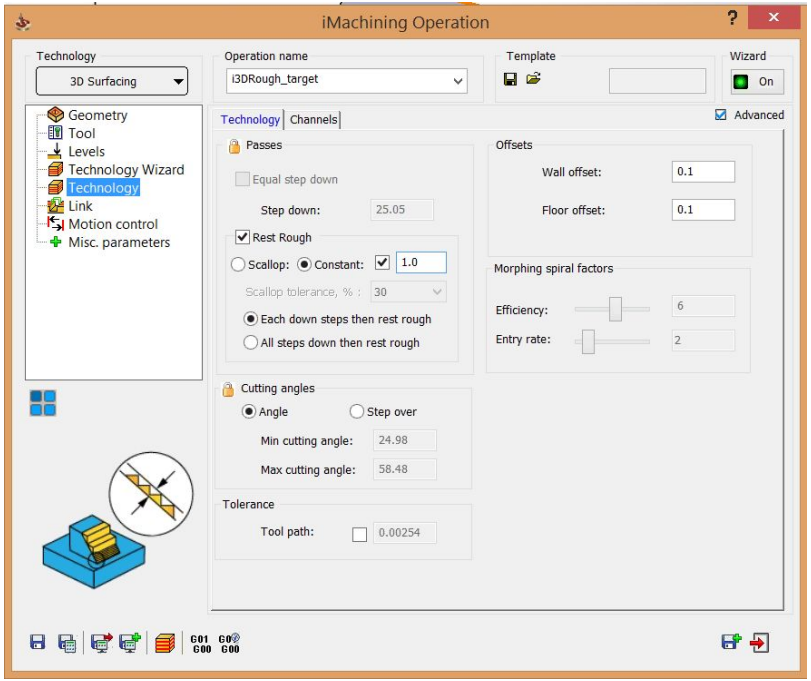
- **Increase/Decrease Cutting Conditions, based on Machinability of specific material**

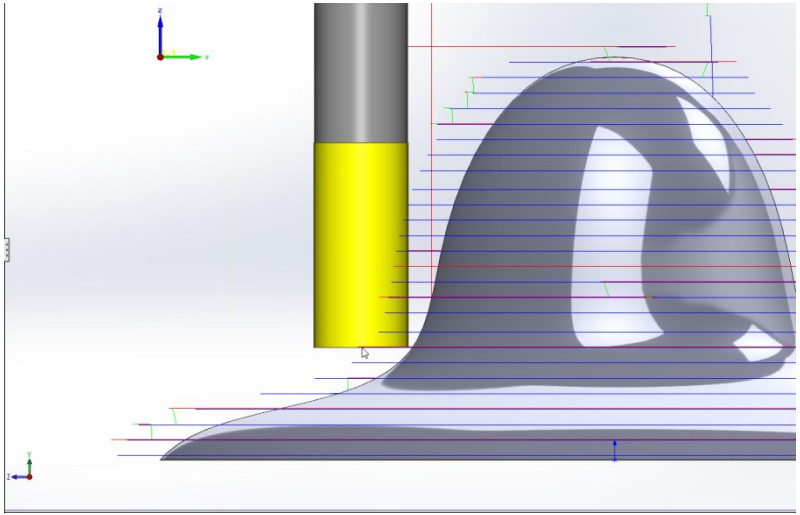
iMachining: Constant chip thickness control for arcs



- **Controls the feed correction for arcs**
- **Value of 0 means no feed rate correction, resulting in faster cutting and higher tool wear**
- **Value of 100 means complete correction, slower cutting but less tool wear**

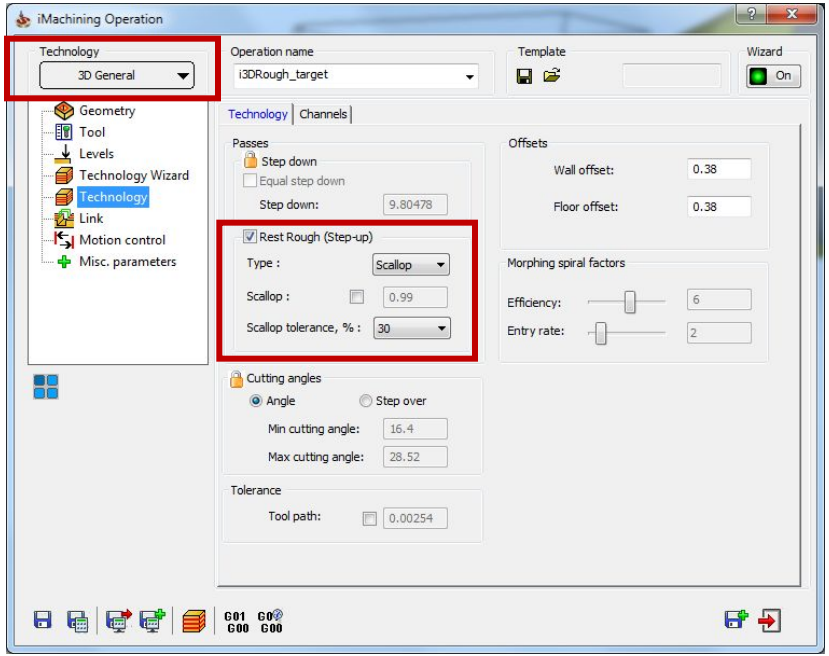
iMachining 3D: Constant Step up

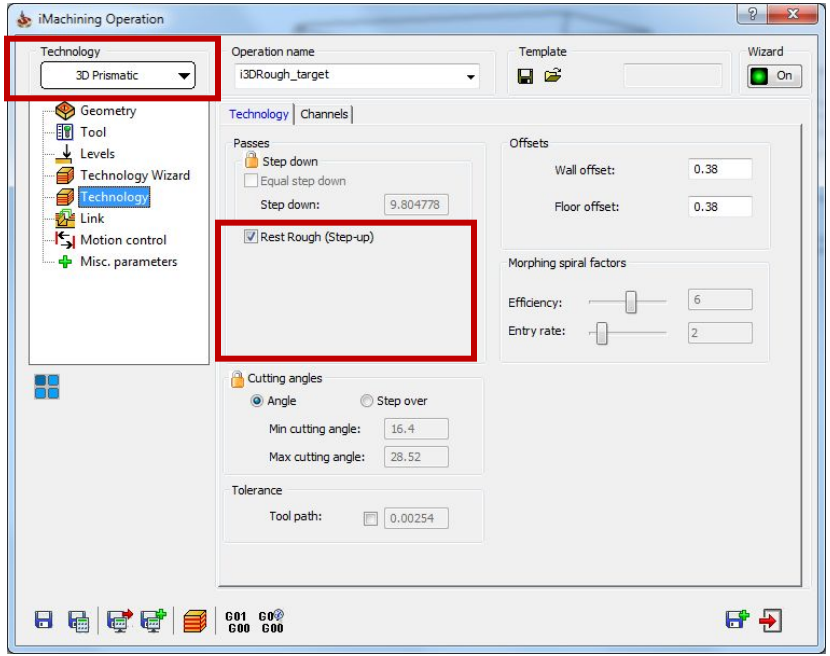




- **iMachining 3D option: Constant Set up (as alternative to Scallop)**

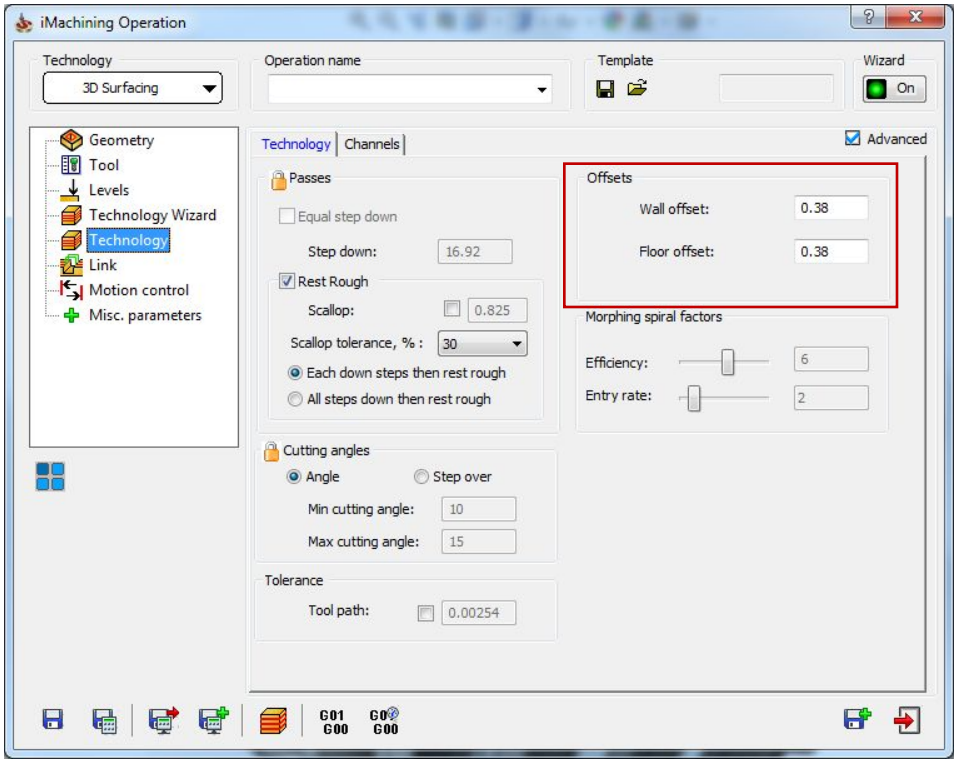
iMachining 3D: Prismatic parts machining technology





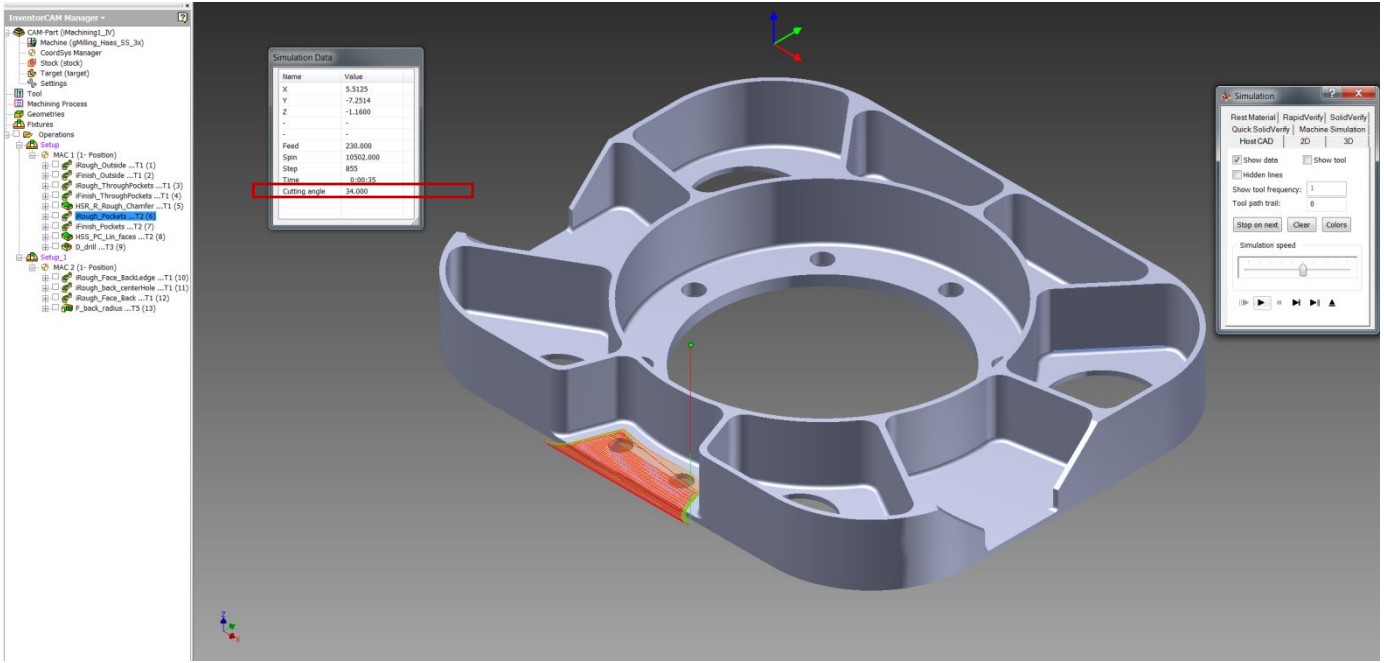
- **iMachining 3D technology for Prismatic Part Machining with automatic scallop calculation**

iMachining 3D: Floor offset



- **Enables you to define a Floor offset that is separate from the Wall offset**

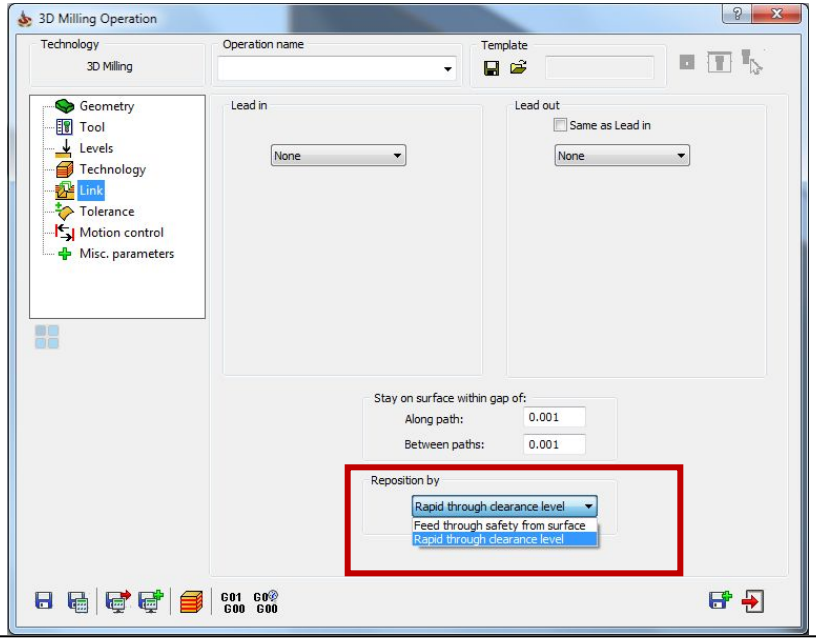
Show Cutting angle in simulation of iMachining



- **Showing the cutting angle in iMachining simulation**

3D Milling

3D Milling: Reposition options

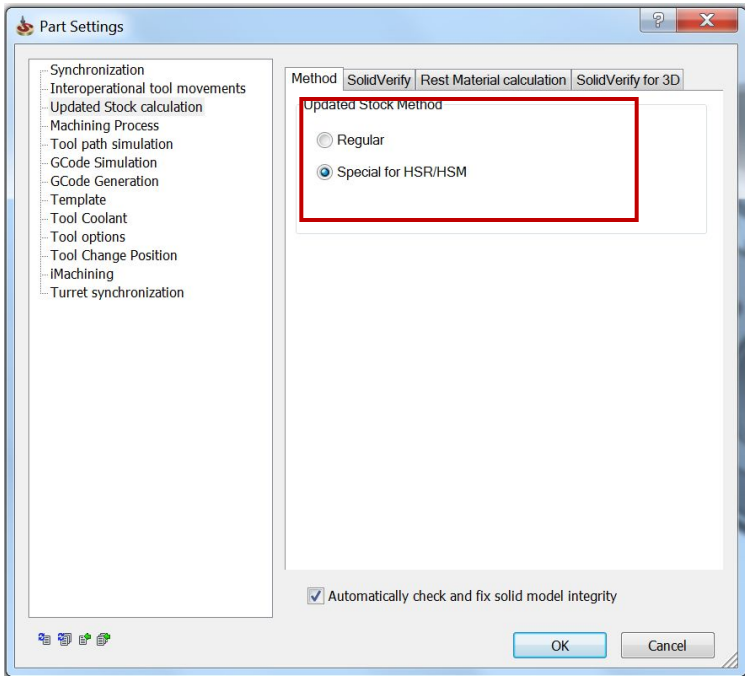


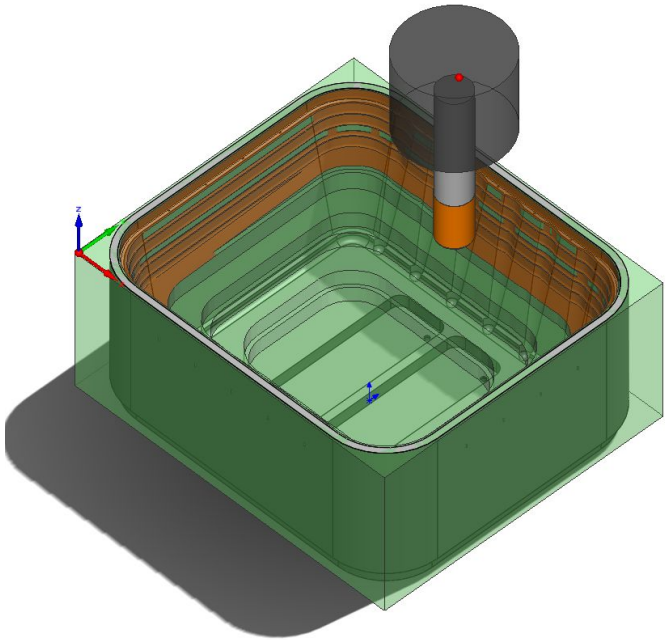
2 options of tool reposition:

- **By Rapid move through clearance plane**
- **By Feed move through saftey distance from the surface**

HSR/HSM

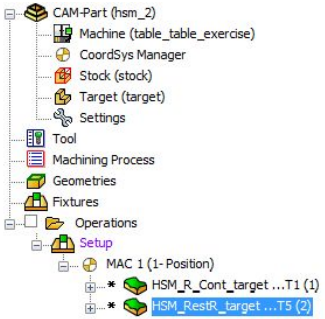
HSR/HSM: Major Speeding up of updated stock calculation

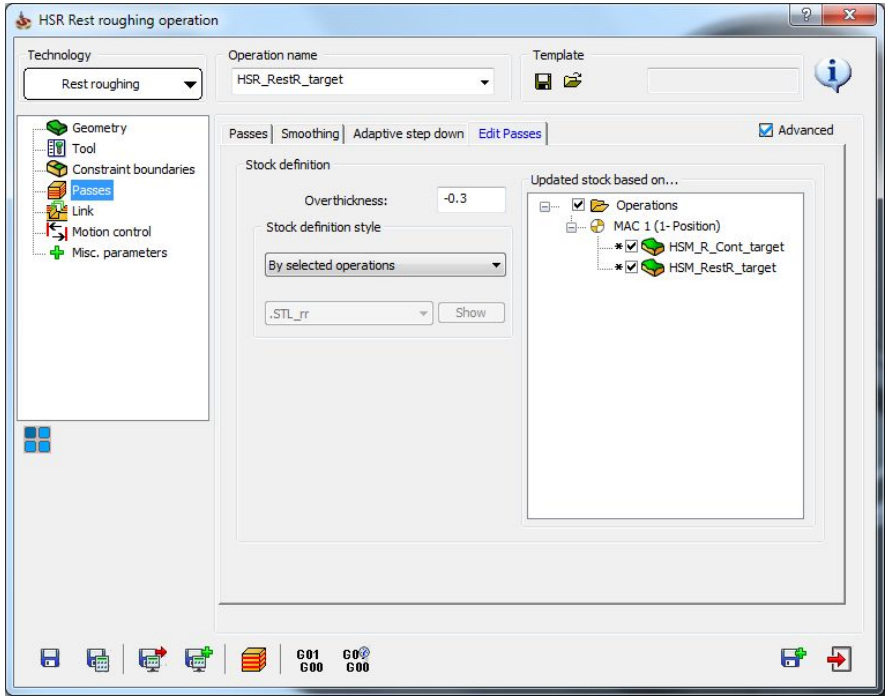




- **Choose in Settings option of speeding up Updated stock calculation, if all previous operations are HSR/HSM**
- **Saving on average 40% in updated stock calculation time**

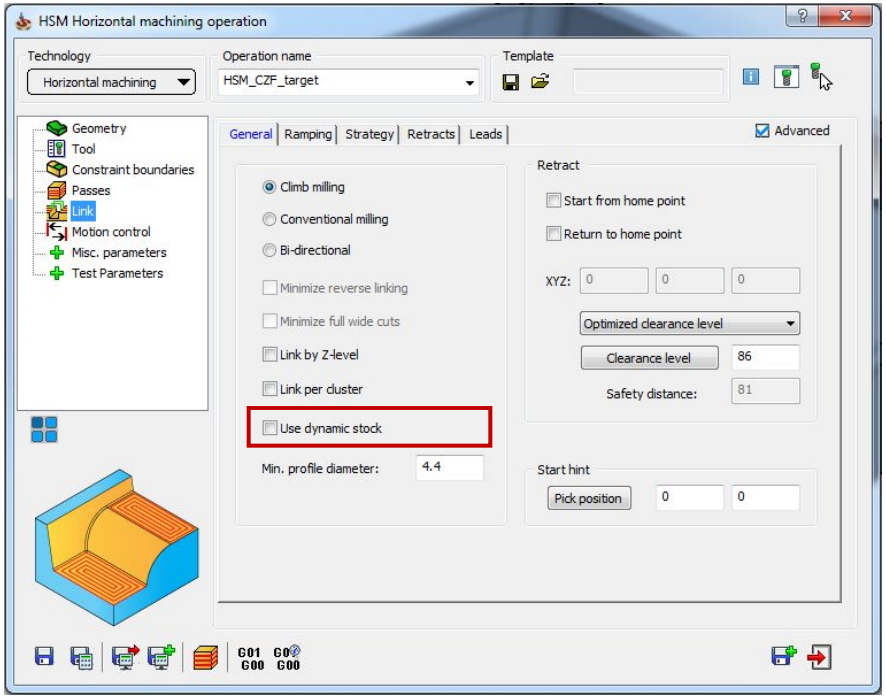
HSR/HSM: Selection of non-calculated operations for updated stock

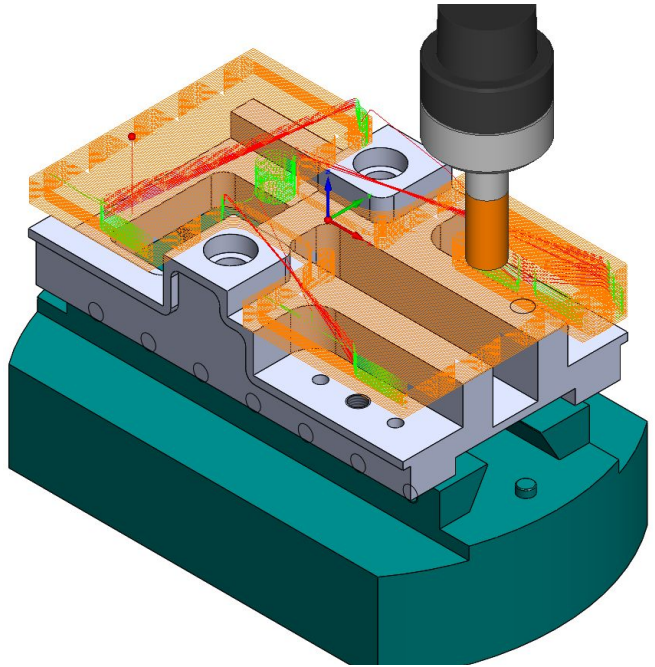




- **Even if previous operations are not calculated , it‘s possibe to select them for further updated stock calculation in HSR Rest Roughing**

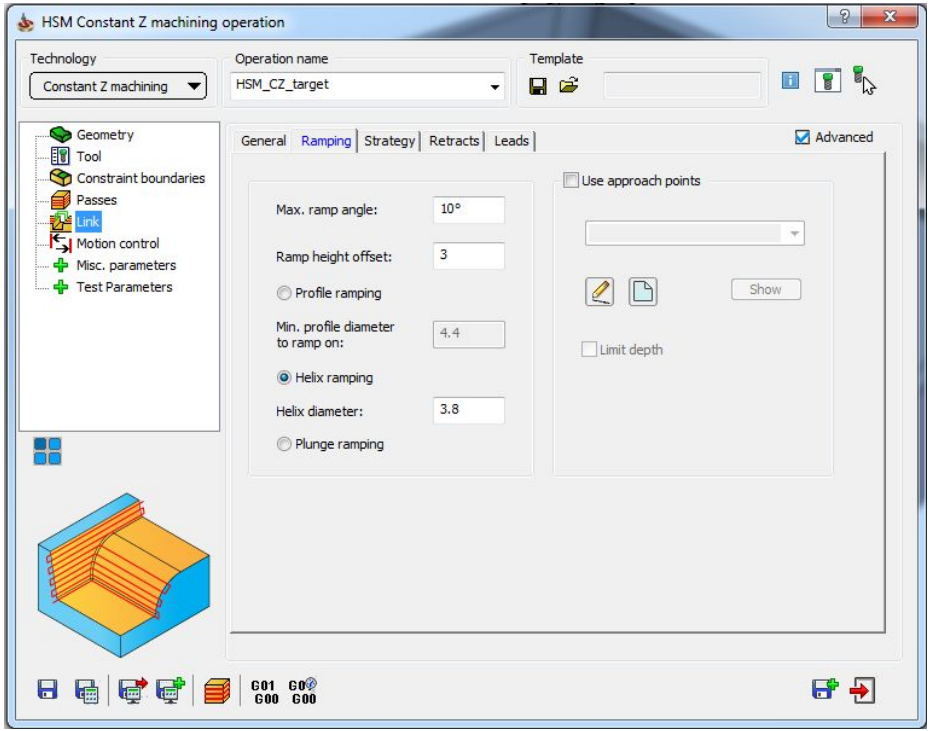
HSR/HSM: Use updated Stock for linking

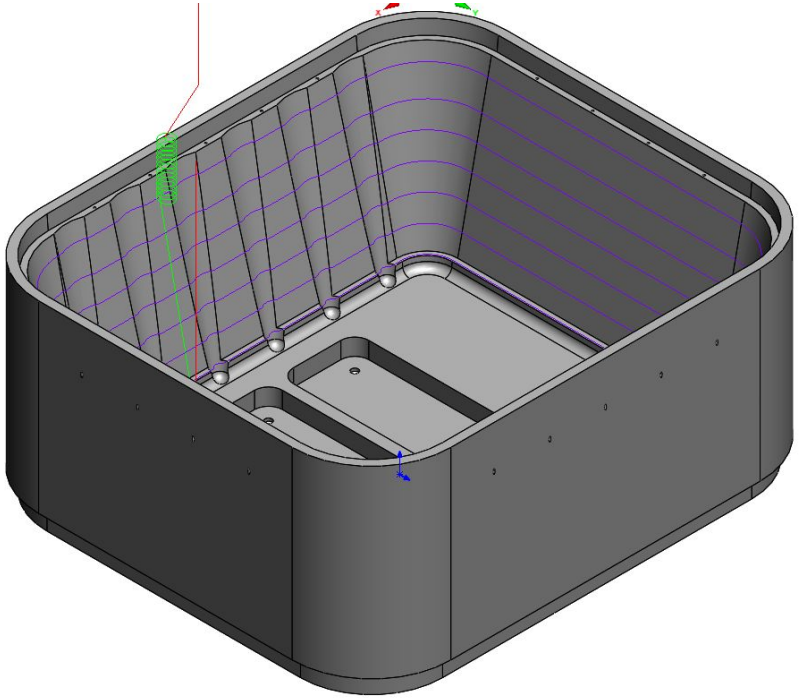




- **Links the passes using dynamic stock(updated stock), instead of static stock (the initial stock), resulting in a very efficient toolpath**

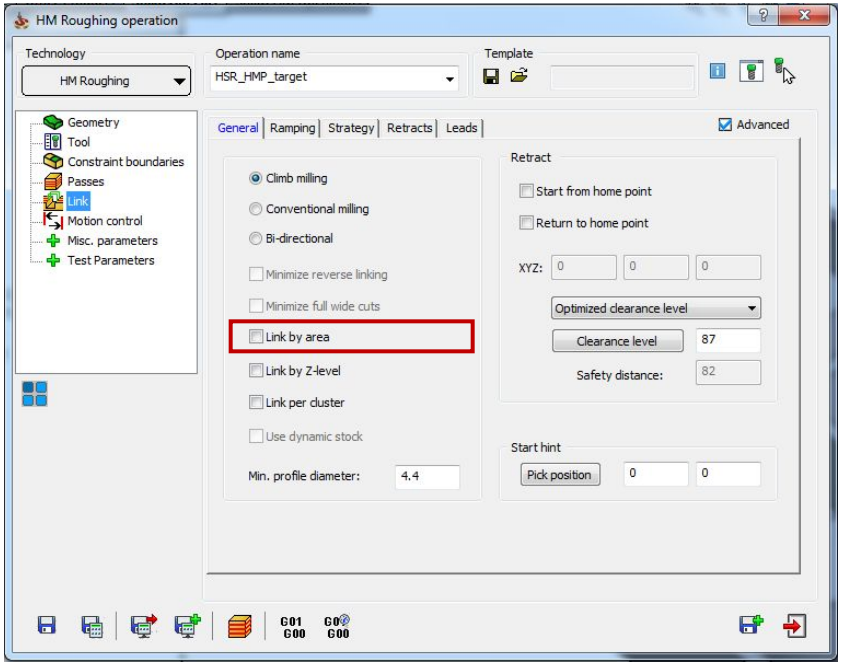
HSM: Ramping options added to Constant-Z machining

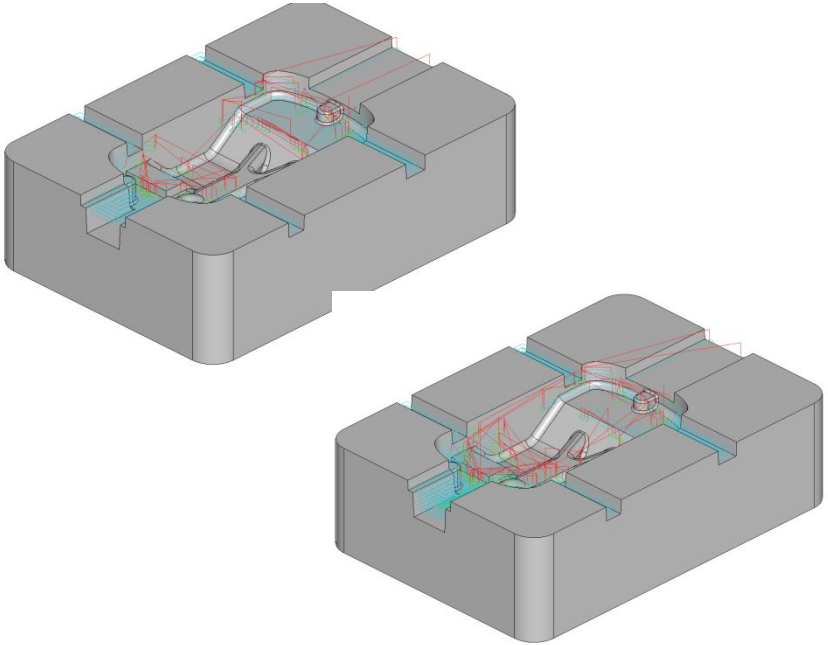




- **Ramping options, added to HSM Constant Z machining, similar to HSR operations, are useful to increase tool life, when finishing is done immediately after roughing**

HSR/HSM: Link by area added to HM Roughing

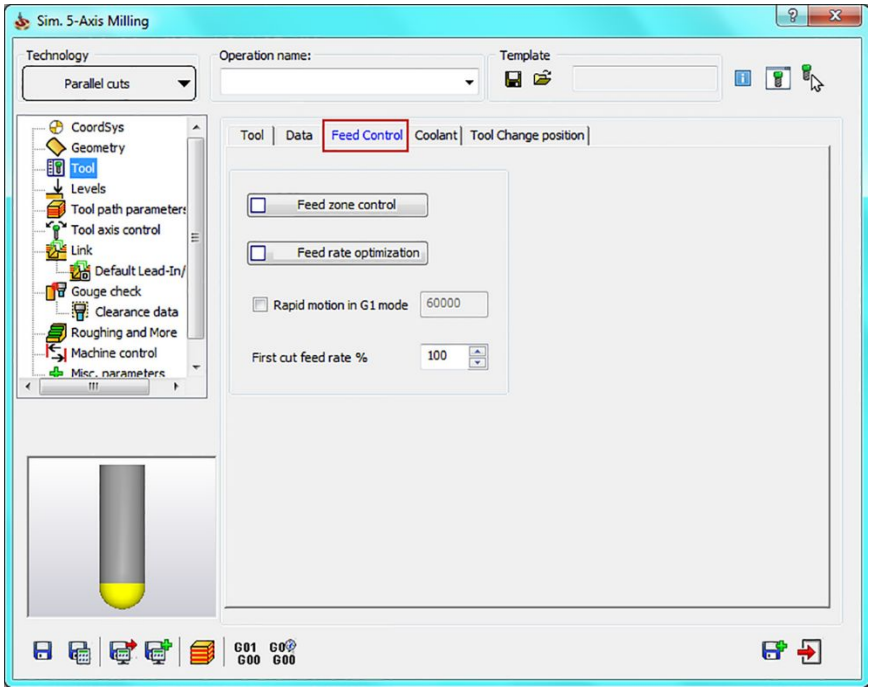




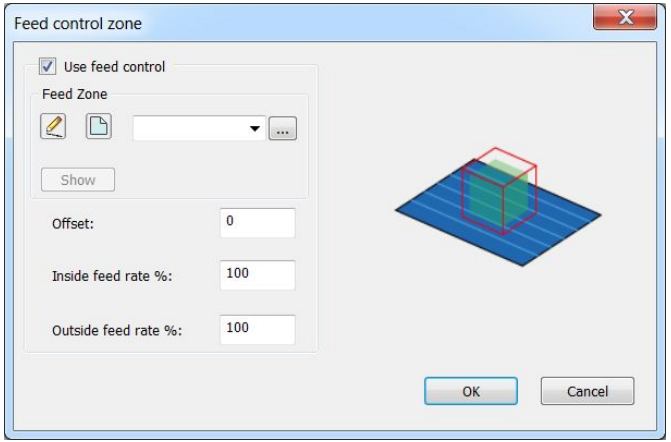
- **Pockets are machined independently, but within a pocket, strict Z level ordering is enforced**

Sim 5X Milling & HSS

Feed Control

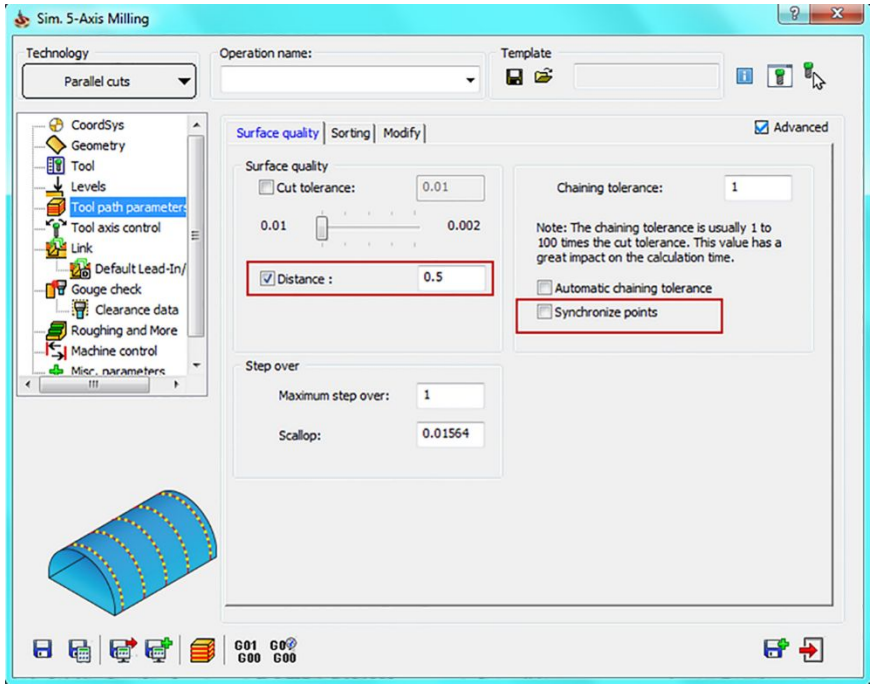


- **New Feed Control tab added.**
- **Feed Control enables the user to reduce/ increase cutting feed inside & outside defined volumes.**



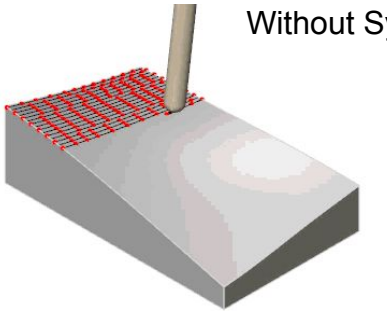
Toolpath parameters: Synchronize points

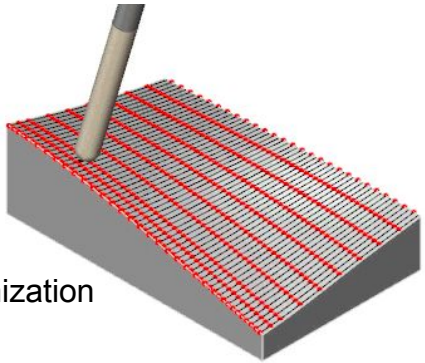
- **Surface quality tab: New option of Synchronize points added.**
- **Option is available when the Distance check box is ON.**



- **The Synchronize points option enables you to equalize the spacing and number of points on all contours, thus getting better surface quality**

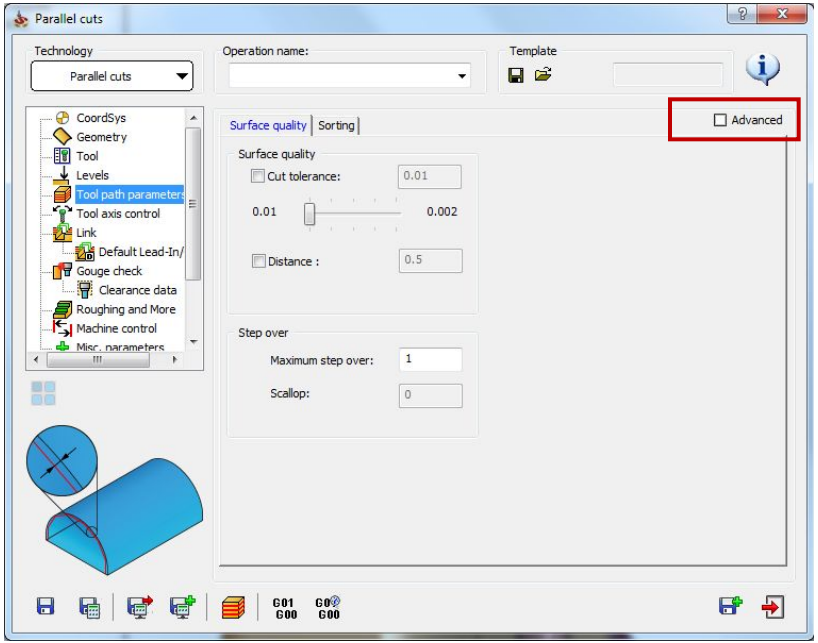
Without Synchronization

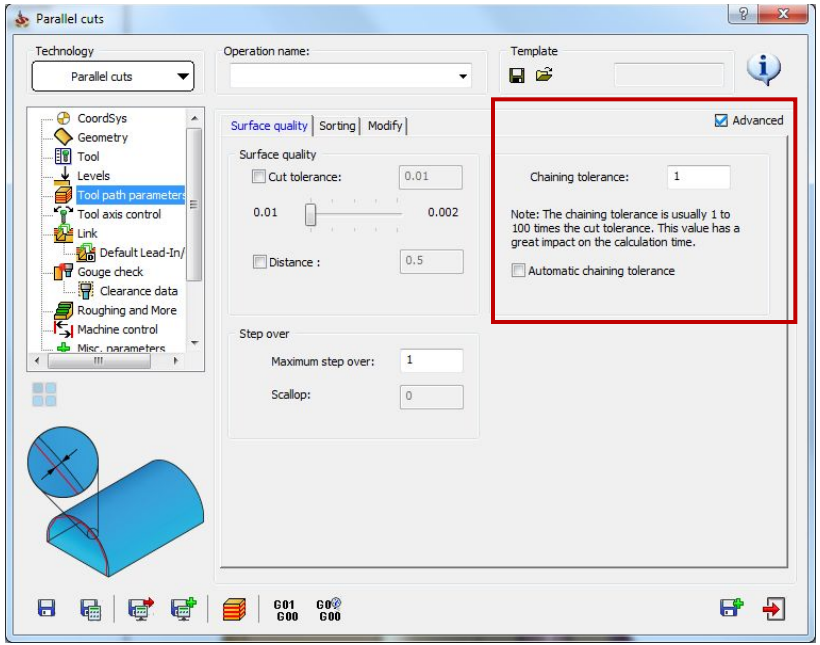




With Synchronization

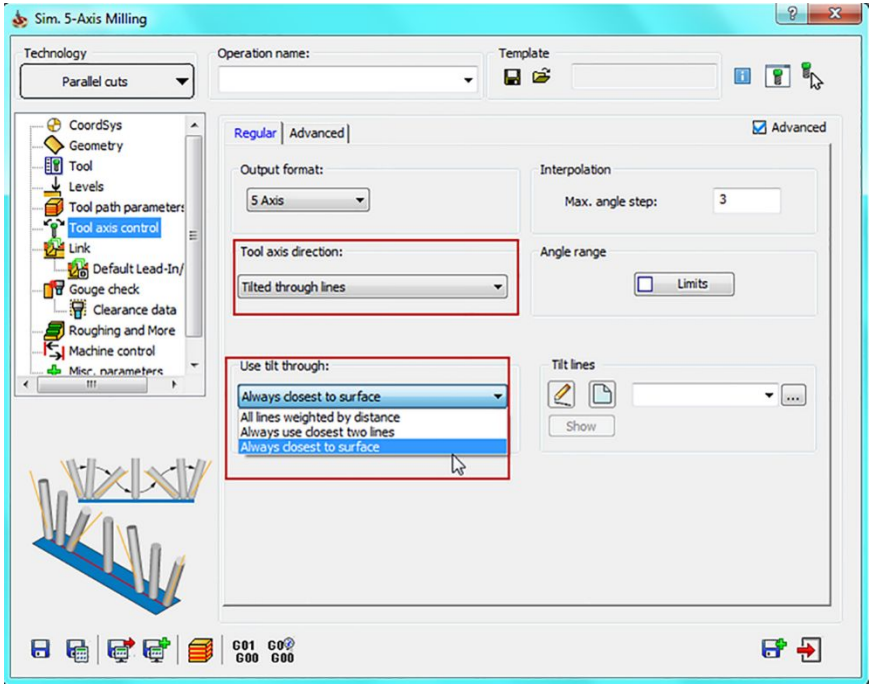
Sim 5x: Advanced mode button





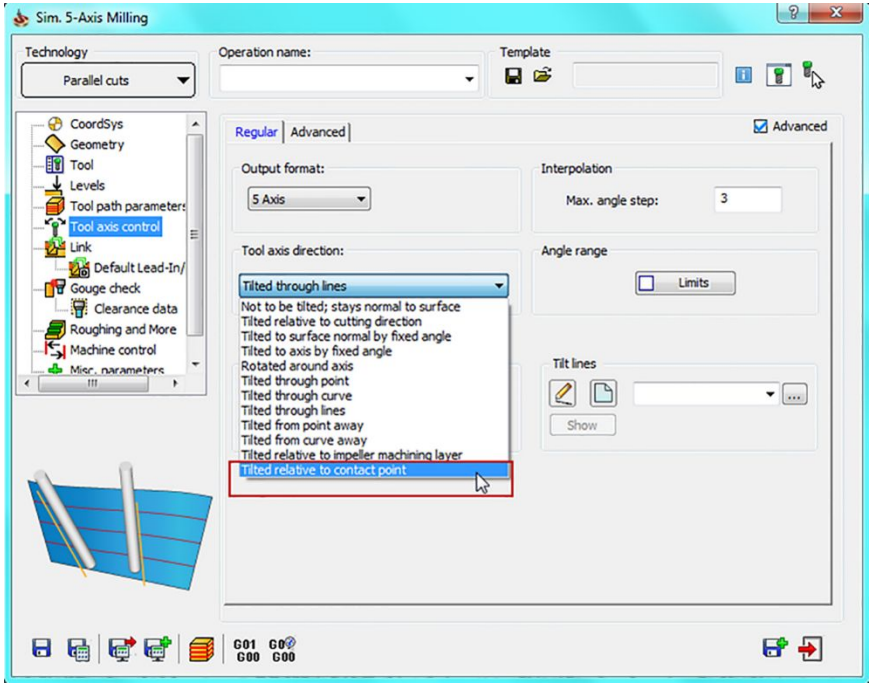
- **Only most used options are open in the standard interface, making it easier for customers**
- **Advanced button opens additional control options, needed by advanced users**

Sim5X - Tool axis control: Always closest to surface



- In Tool axis direction/Tilted through lines: New option of Always closest to surface is added in the *Use tilt through*.
- This option enables you to tilt the tool as defined in the Tilt lines section, maintaining always the tool at closest distance to the surface, avoiding sudden tilting
- This option maintains the tilt by using the tilt lines that are at the closest distance to the surface.

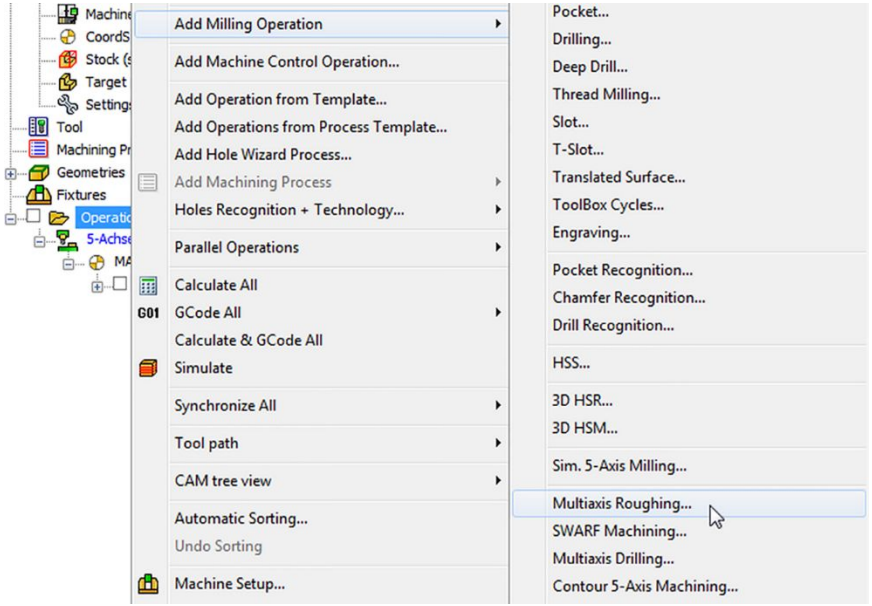
Sim5X - Tool axis control: Tilted relative to contact point

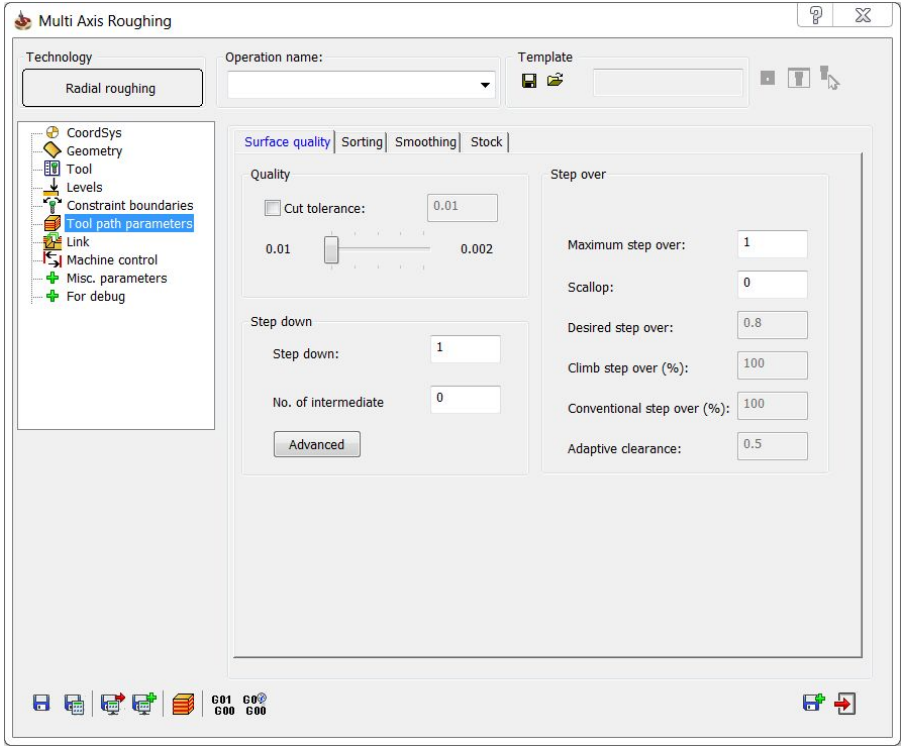


- **In Tool axis direction: New option of <u>Tilted relative to contact point</u> is added.**

- **This option is similar to “Tilted Relative to Cutting Direction”, however in this option instead of cutting direction, the tool tilting will be relative to the contact point of the tool with the surface.**

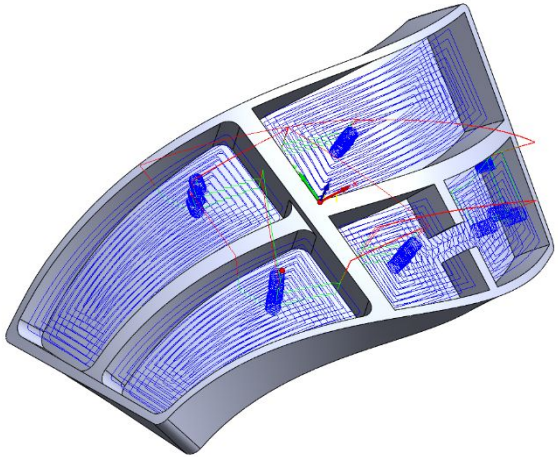
New operation: Multiaxis Roughing

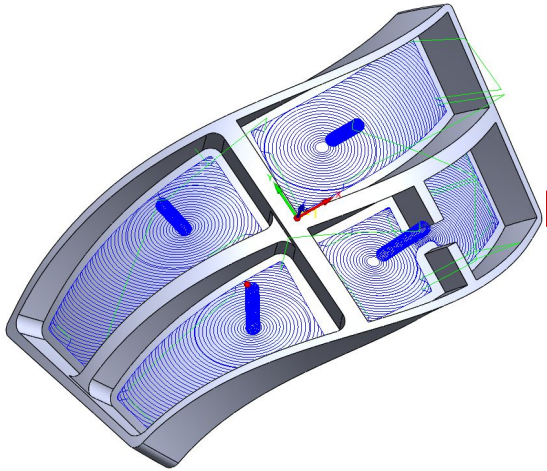




- **New Multiaxis Roughing operation is added for Roughing of parts, that need multiple setup if done in 3X.**

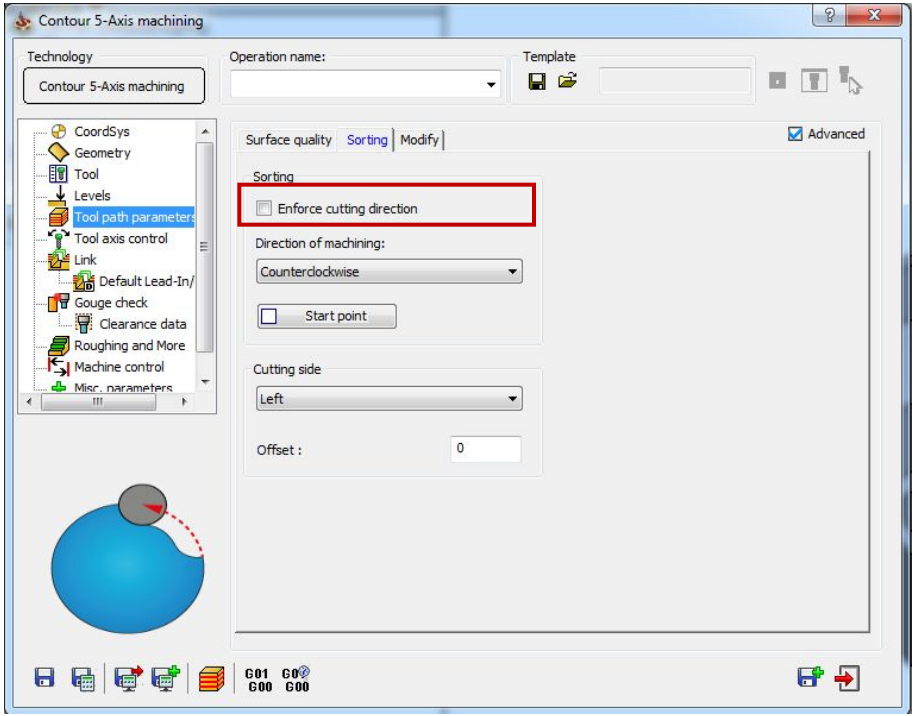
New operation: MultiAxis Roughing

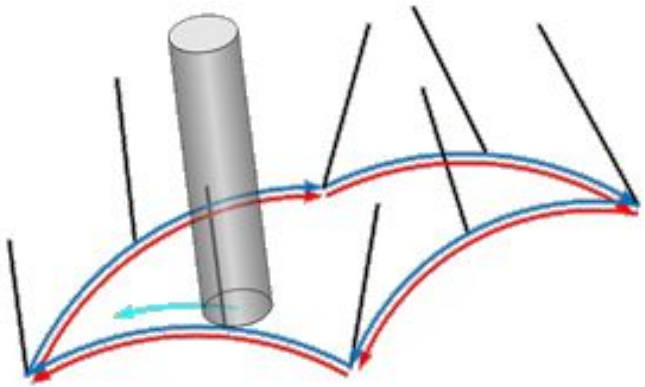




- This operation creates a multiaxis tool path that can be used to rough out pocket shaped geometries in full 5 Axis.
- The user has to specify the floor, wall and ceiling surfaces and the system automatically creates the roughing tool path.
- Adaptive roughing feature also available.

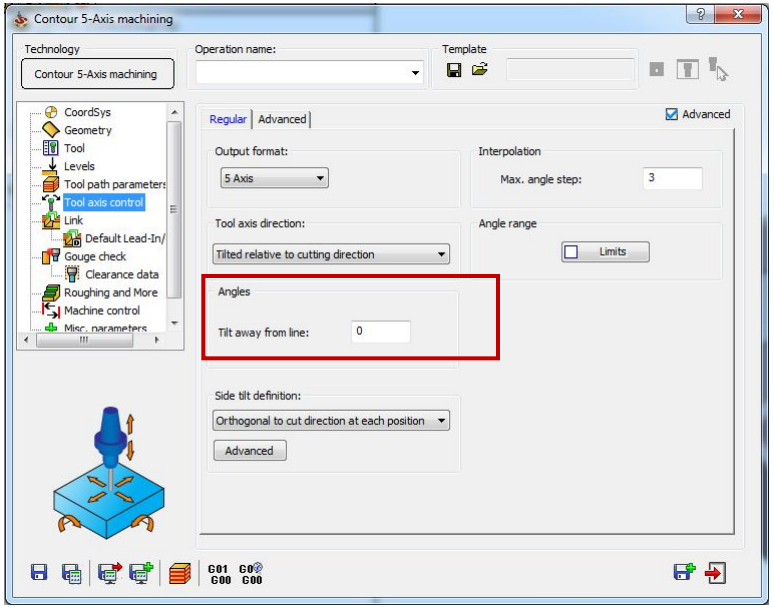
Contour 5x machining: Enforce cutting direction

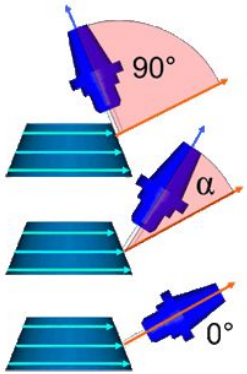


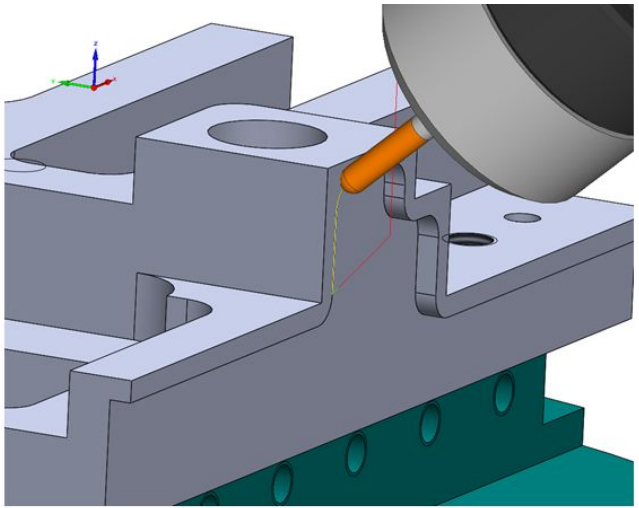


- **Direction is set according to direction of machining, ignoring the selected chain direction**

Contour 5x Machining: Tilt away from line

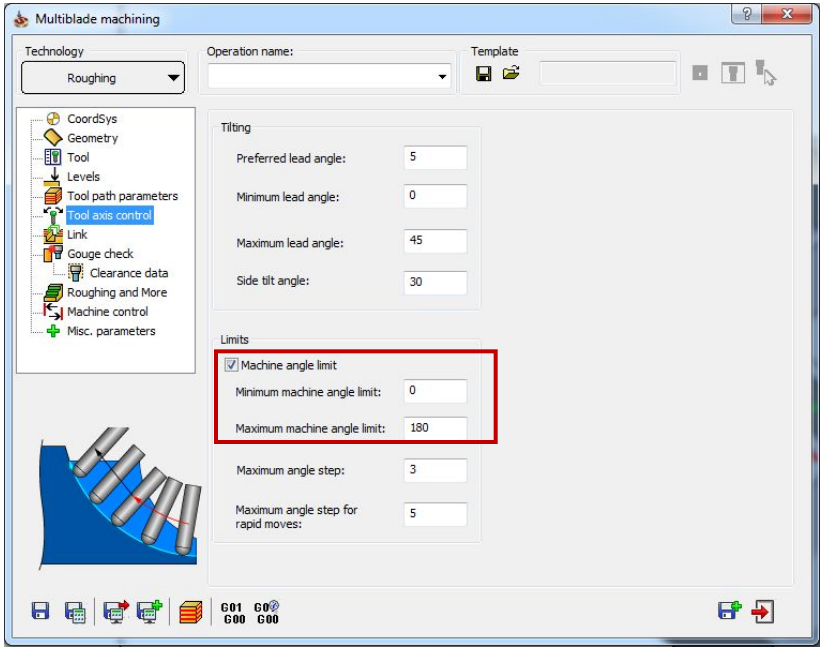


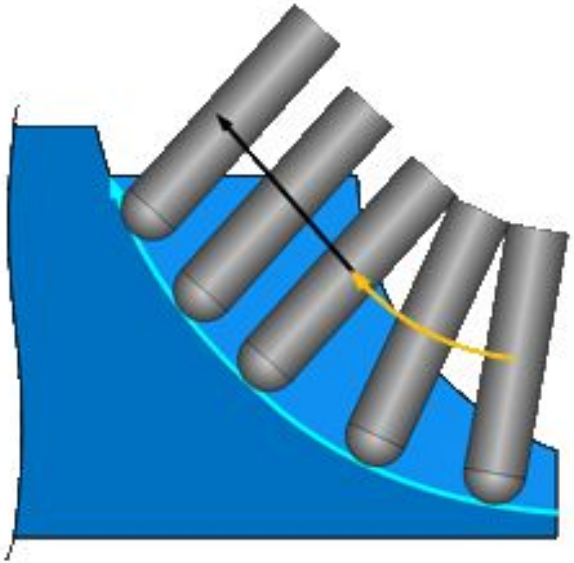




- **Tilt away from line defines the side tilt of the tool relative to the contour**

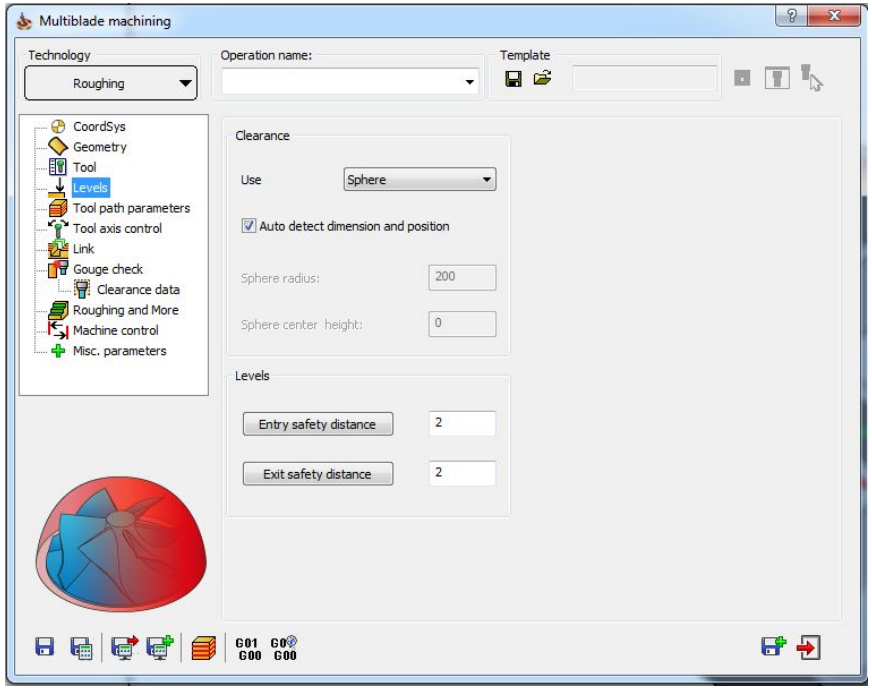
Multiblade Machining: Machine angle limits – Min & Max

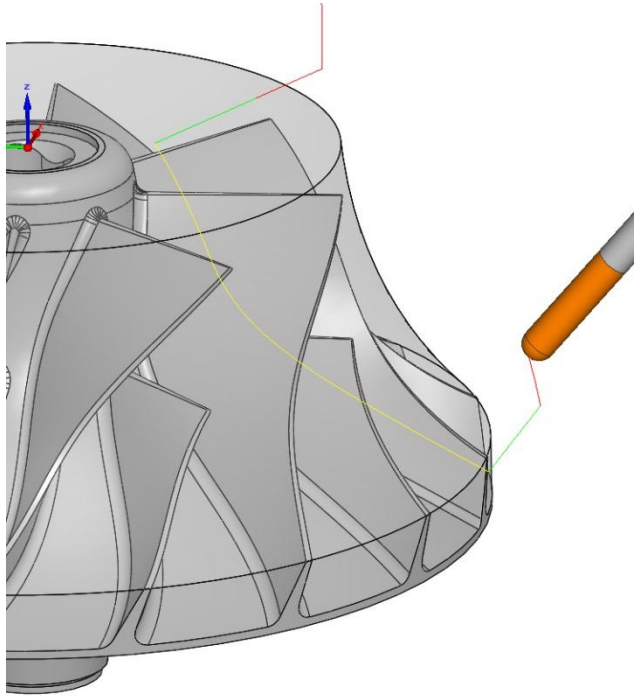




- **Machine angle limit is now controlled by two parameters: minimum and maximum angle, rather than by only one limit angle in older versions, giving much better control of angles in CNC machines that have less swivel**

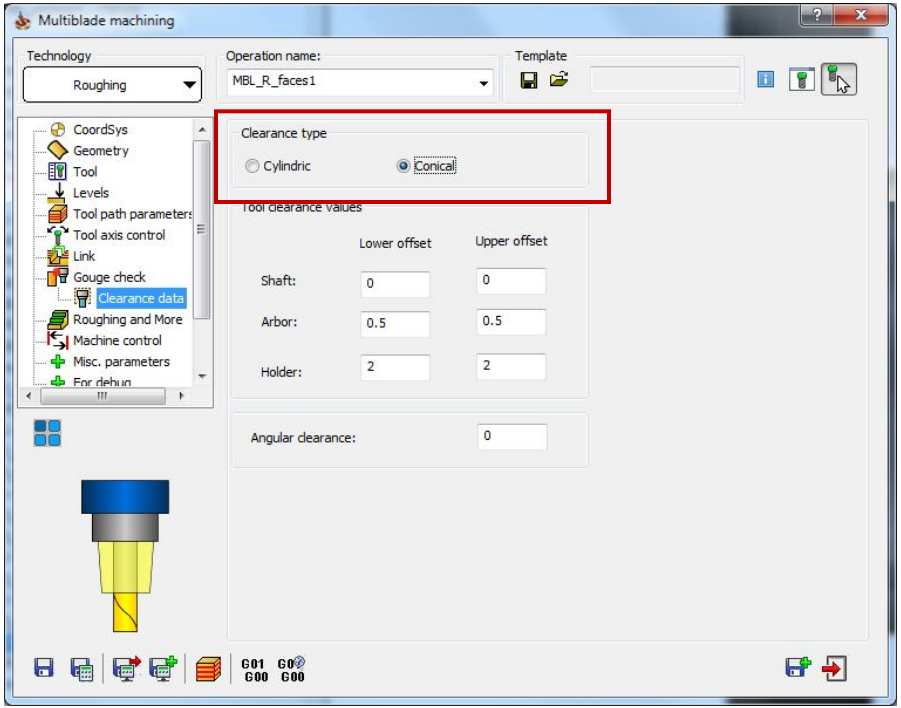
Multiblade Machining: Entry & Exit Safety distance

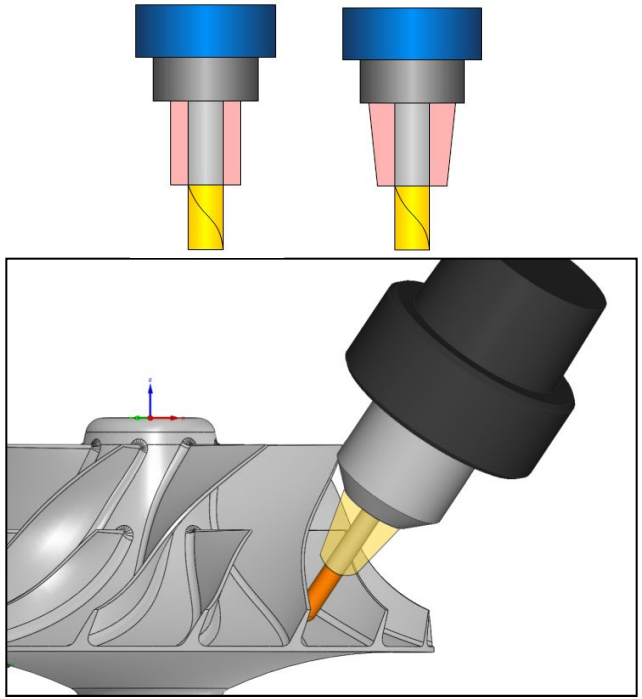




- **Safety distance is divided into two fields: Entry & Exit safety distance, providing better control**

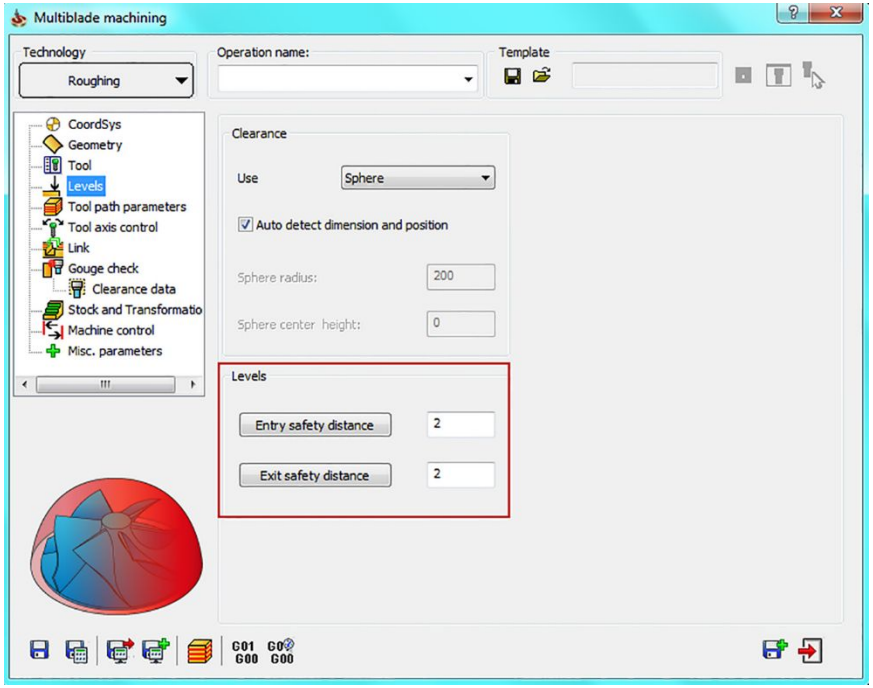
Multiblade Machining: Additional Clearance type - Conical





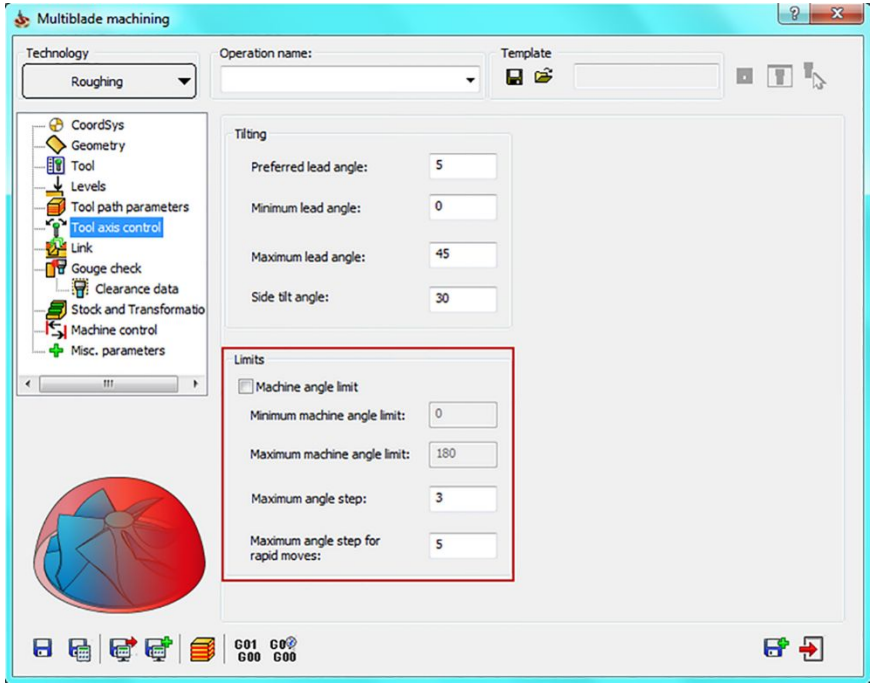
- **A new Tool Clearance type, Conical, is added to enable cutting more material and working deeper, while avoiding gouging**

Multiblade Machining: Levels section



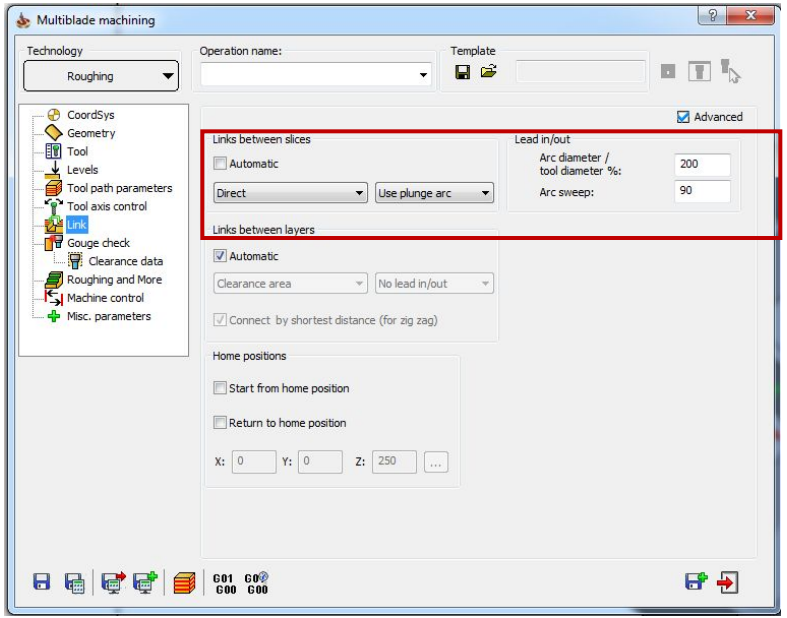
- **Levels page: New Levels section is added to enable entry and exit safety distance.**

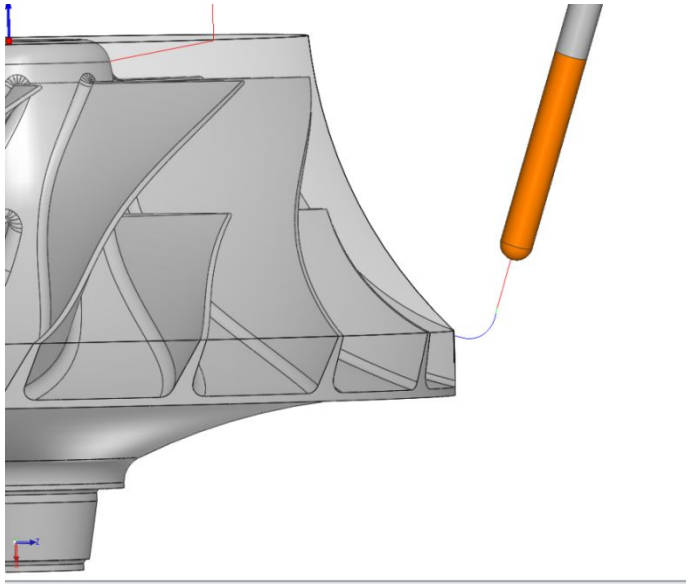
Multiblade Machining: Tool Axis Control Limits



- **Tool axis control page: Limits section has enhancements.**

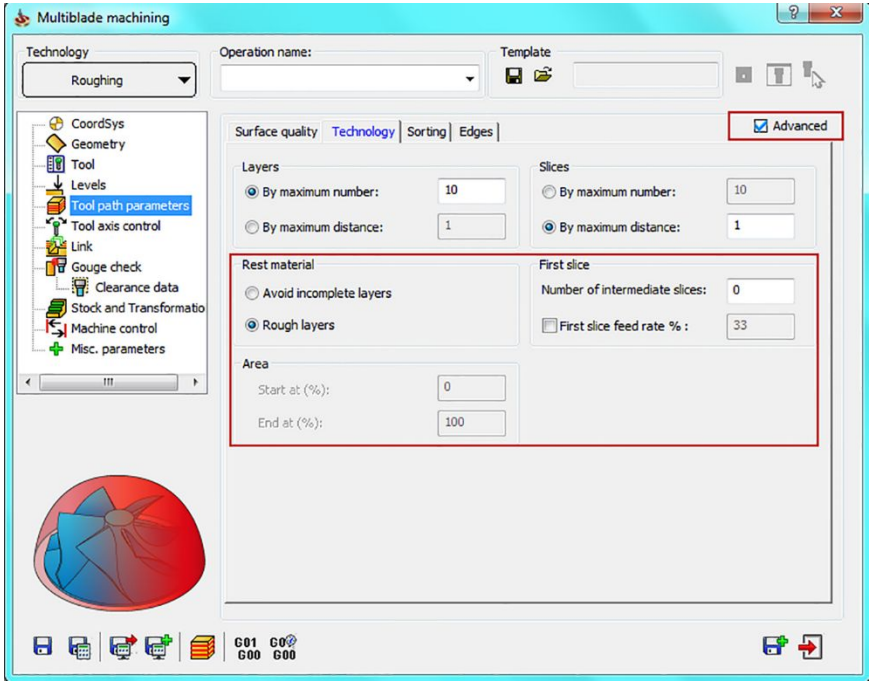
Multiblade Machining: Plunge arc for link between slices or layers





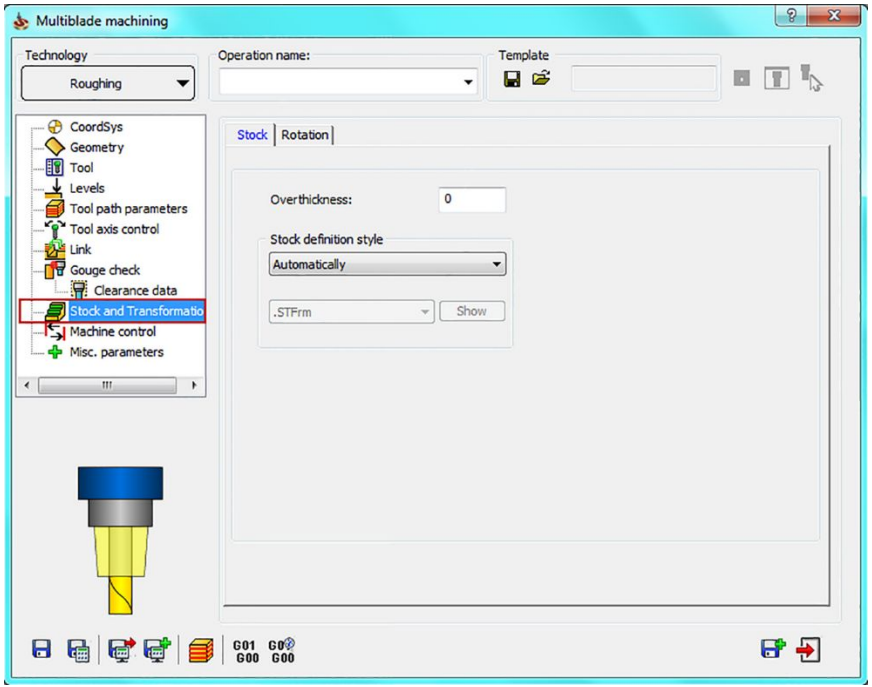
- **Option to use a plunge arc, while performing link between slices or layers, in order to provide gradual entry into the material**
- **Enables you to specify the diameter of the approach & retreat arc, using the ratio of the Arc diameter to the Tool diameter**

Multiblade Machining: GUI Improvements



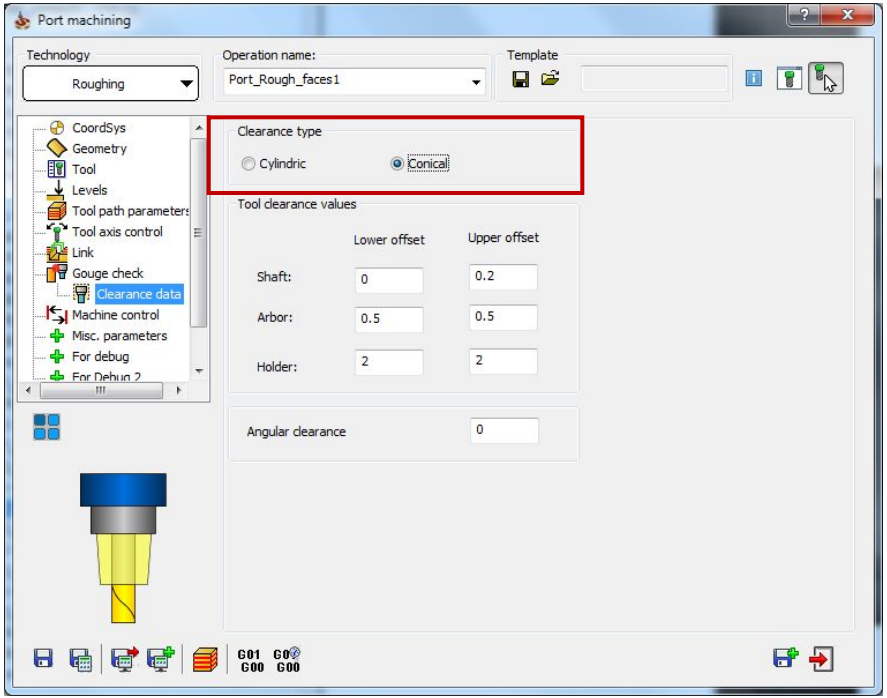
- **Tool path parameters page/Technology/ Options of Rest material, First slice, and Area are available only when the Advanced check box is selected.**

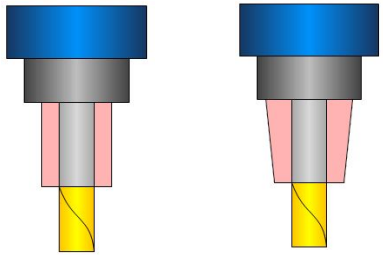
Multiblade Machining: GUI Improvements

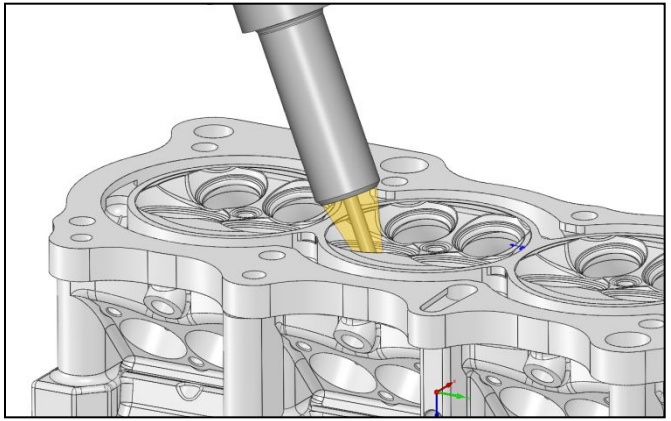


- **Roughing and More is renamed as Stock and Transformation.**

Port Machining: Additional Clearance type - Conical

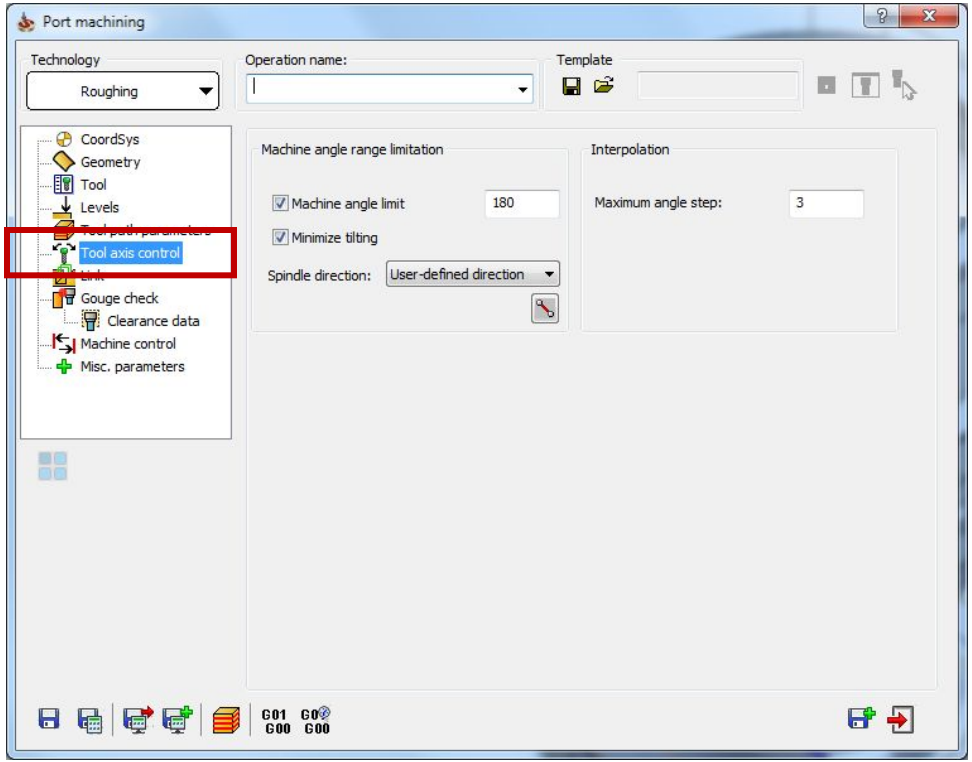






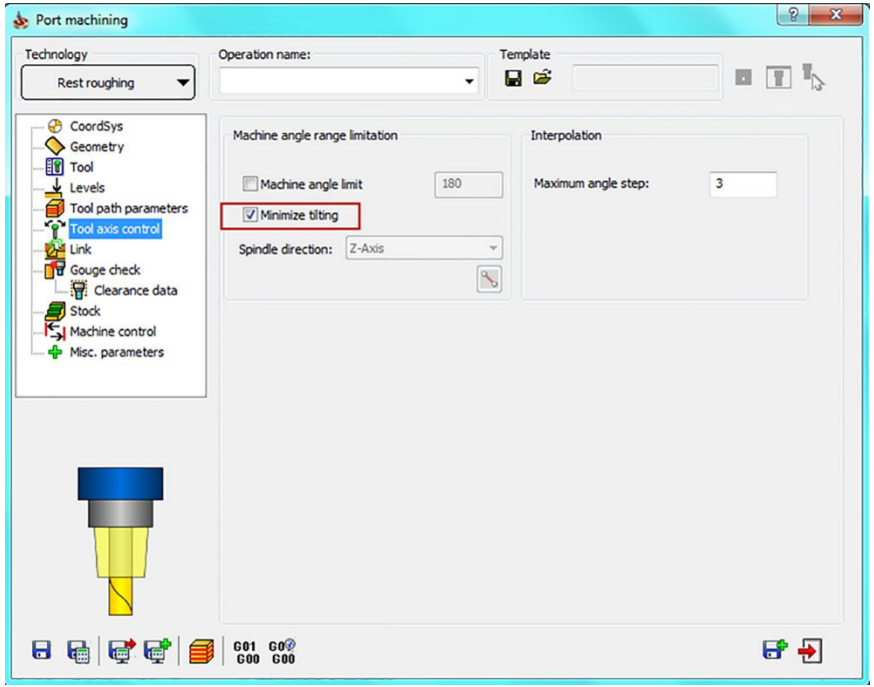
- **A new Tool Clearance type, Conical, is added to enable cutting more material and working deeper, while avoiding gouging**

Port Machining: Tool axis control page



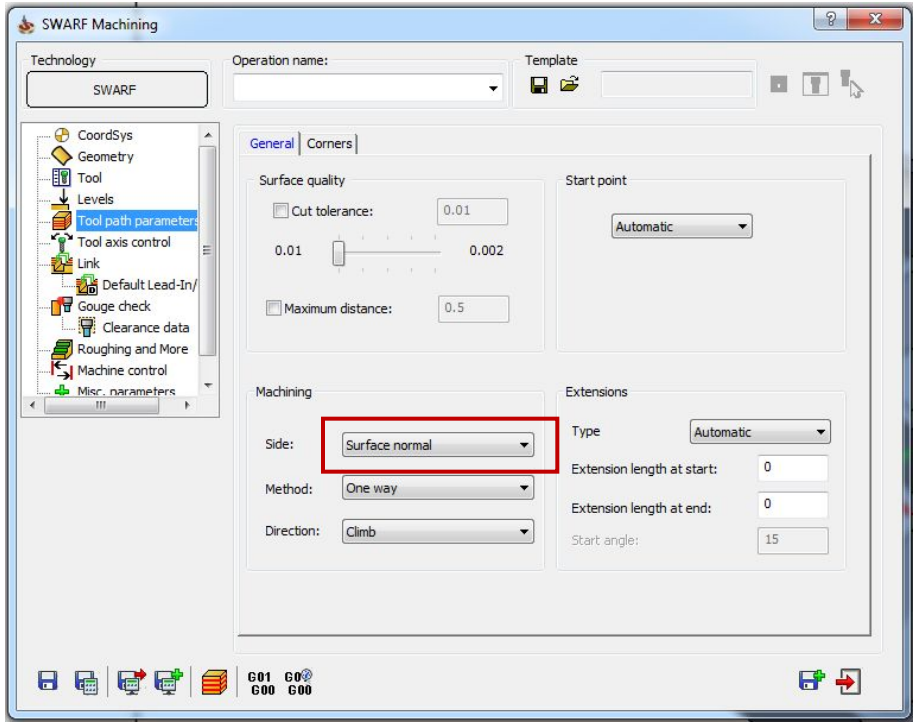
- **Tool axis control page added in order to provide smoother tool tilting during cutting**

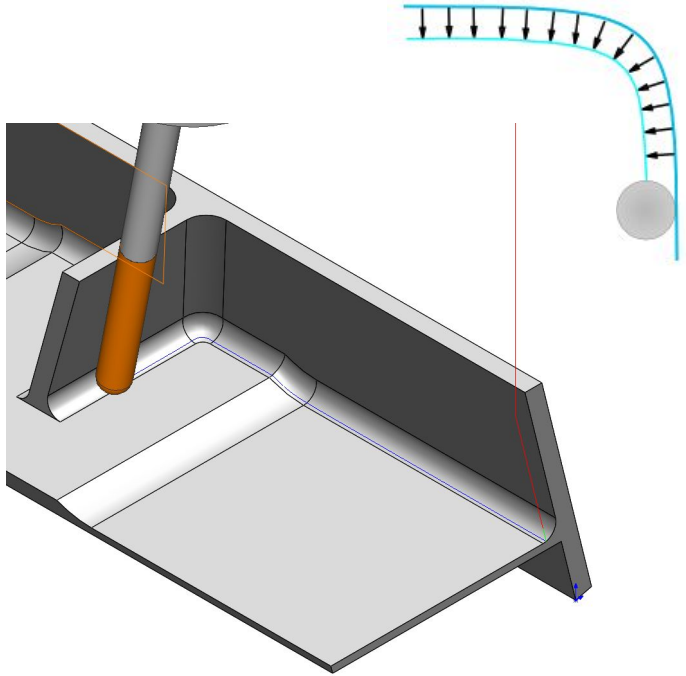
Port Machining: Tool Axis Control - Minimize Tilting



- **Tool axis control: <u>Minimize tilting</u> is added.**
- **This option improves tool tilting by minimizing angle changes and keeping machine tilt motions to minimum.**

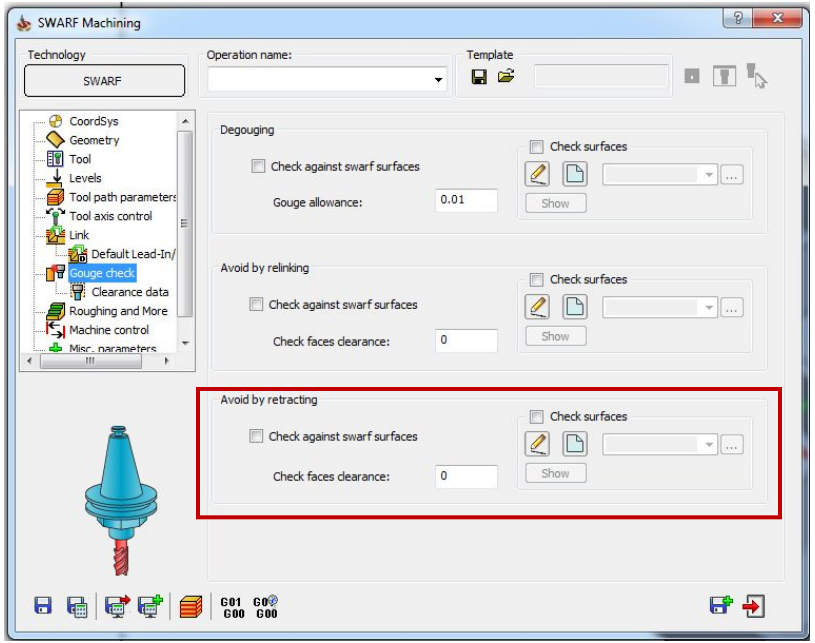
SWARF Machining: Surface normal defines machining side

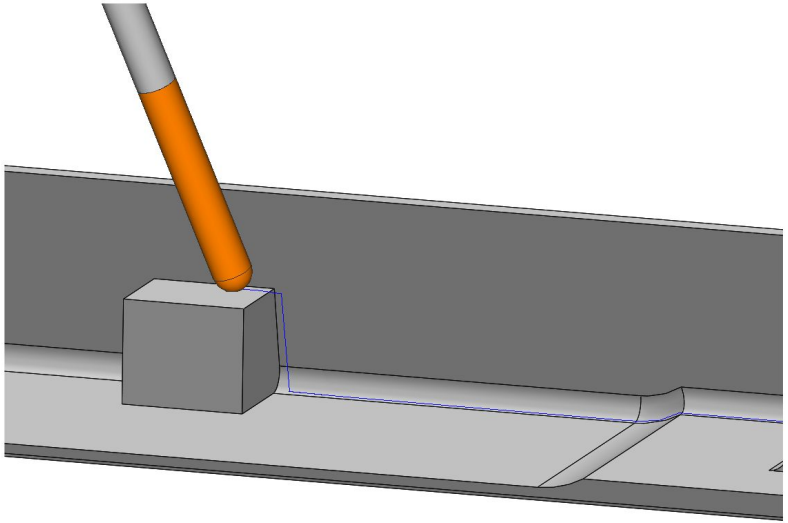




- **Side of machining is determined according to the surface normal, simplifying the determination of the machining side when machining multiple surfaces**

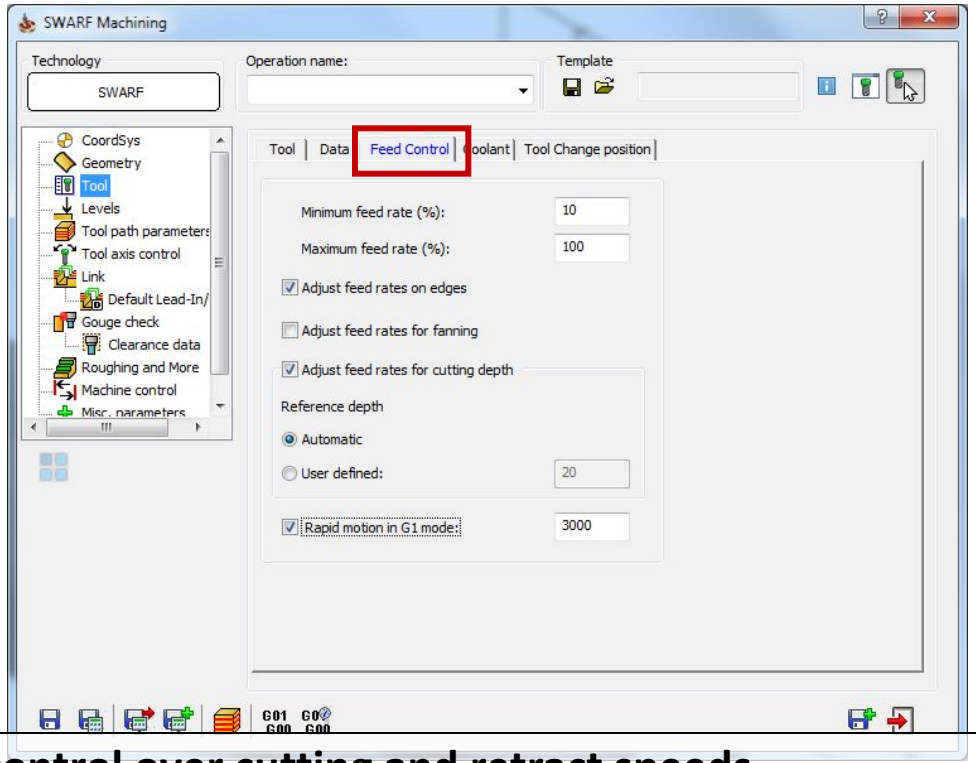
SWARF Machining: New Avoid gouge strategy and new Layout for gouge page





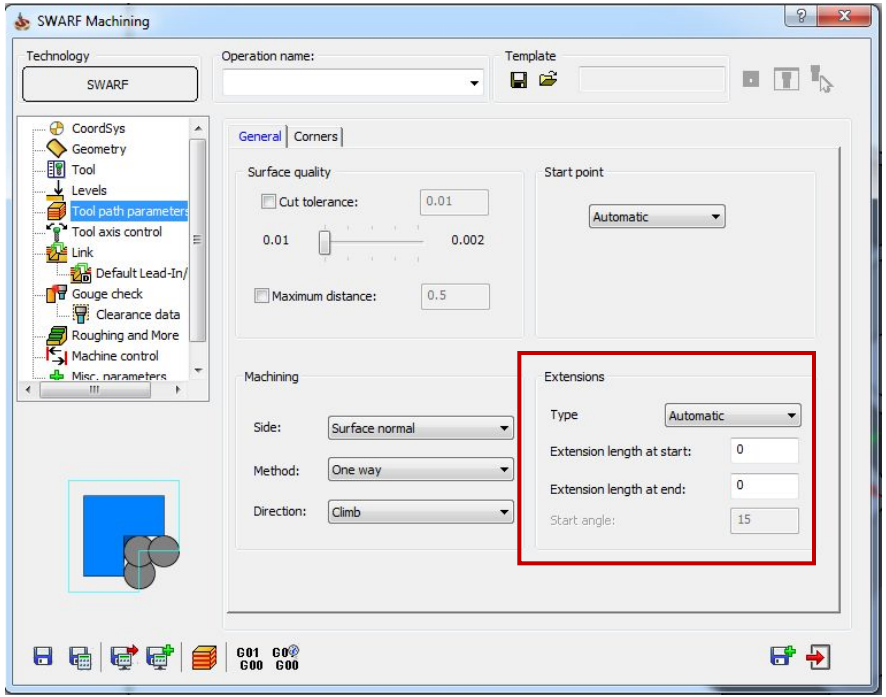
- **New Avoid Gouge strategy, Avoid by Retracting, enables the user to avoid obstacles by retracting the tool.**
- **New simplified layout for gouge page.**

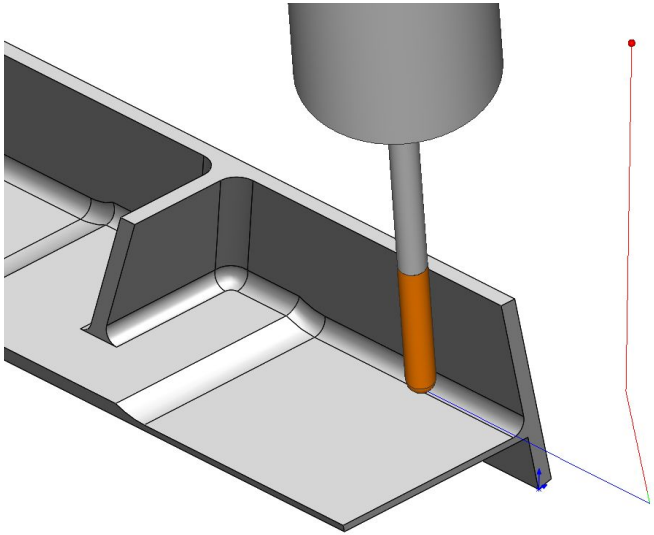
SWARF Machining: Feed control



- **More flexible control over cutting and retract speeds**
- **Possibility to replace Rapid movements by G1 moves**

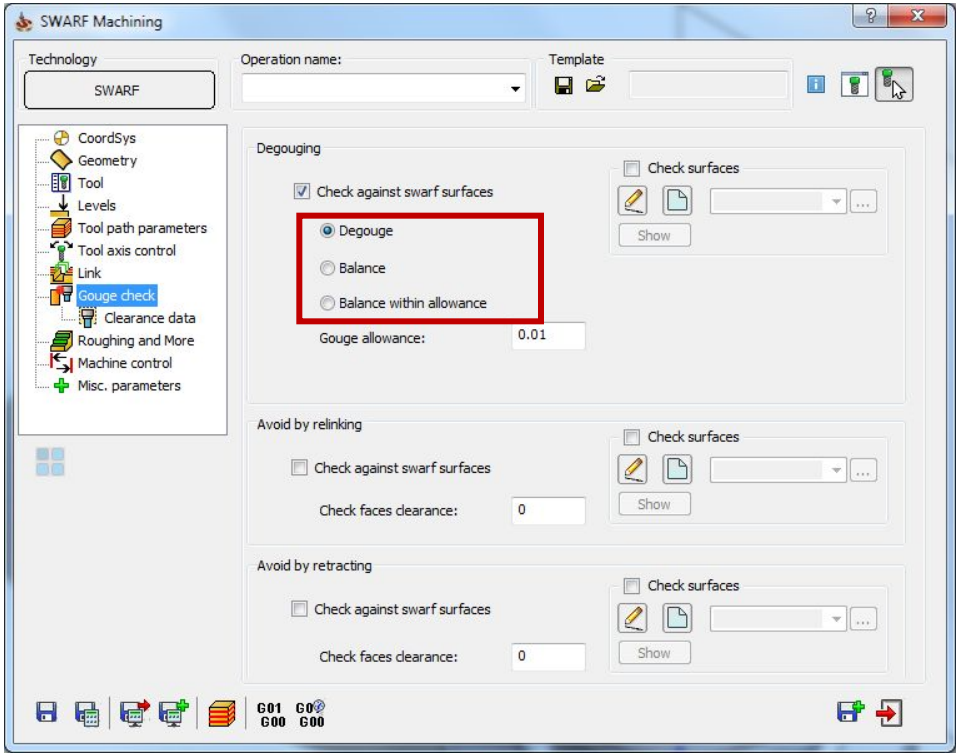
SWARF Machining: Adding extensions to toolpath



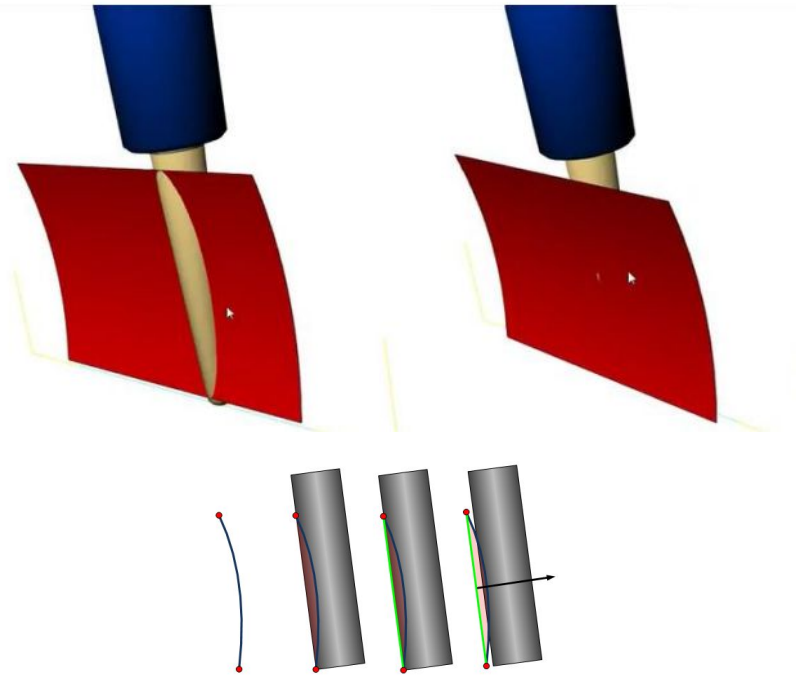


- **New option to add extensions to the tool path, to avoid direct entry into the material, thereby increasing tool life**

SWARF Machining: Degouging strategy

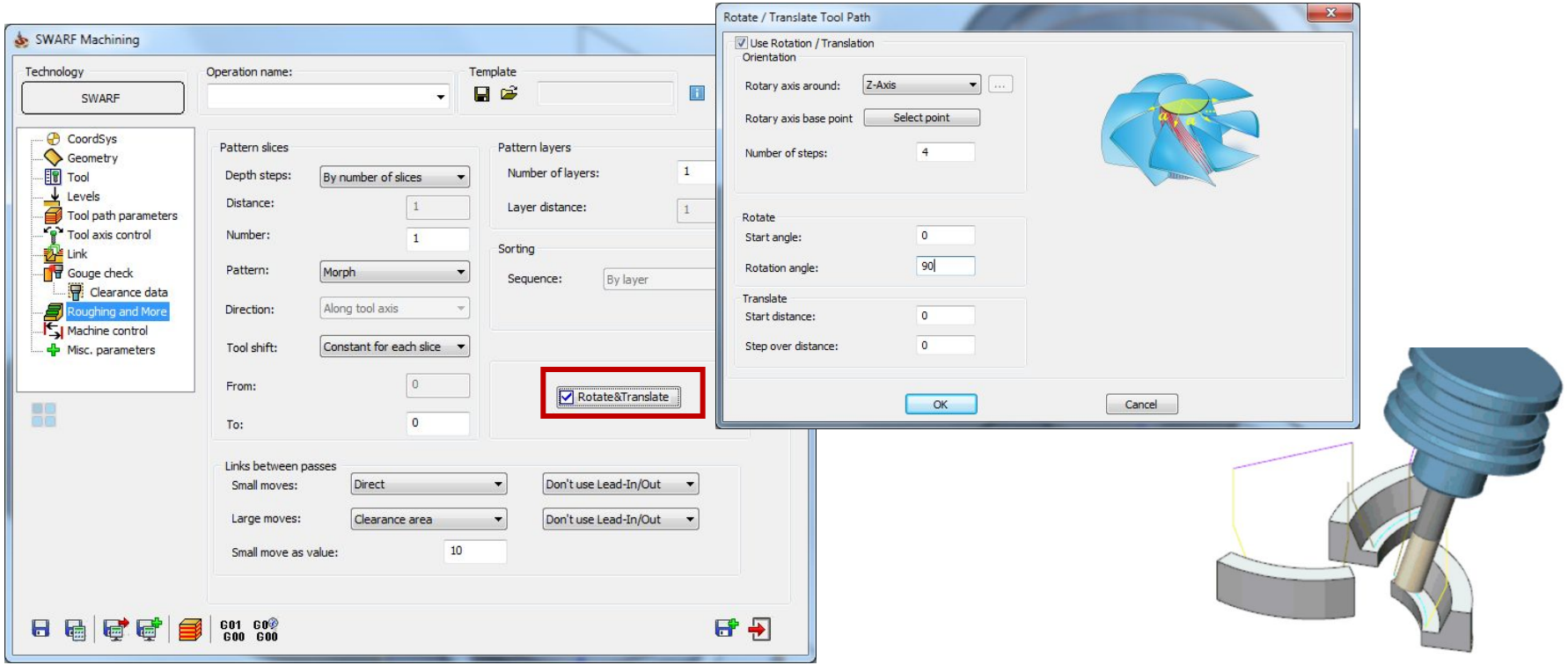


Degouge option



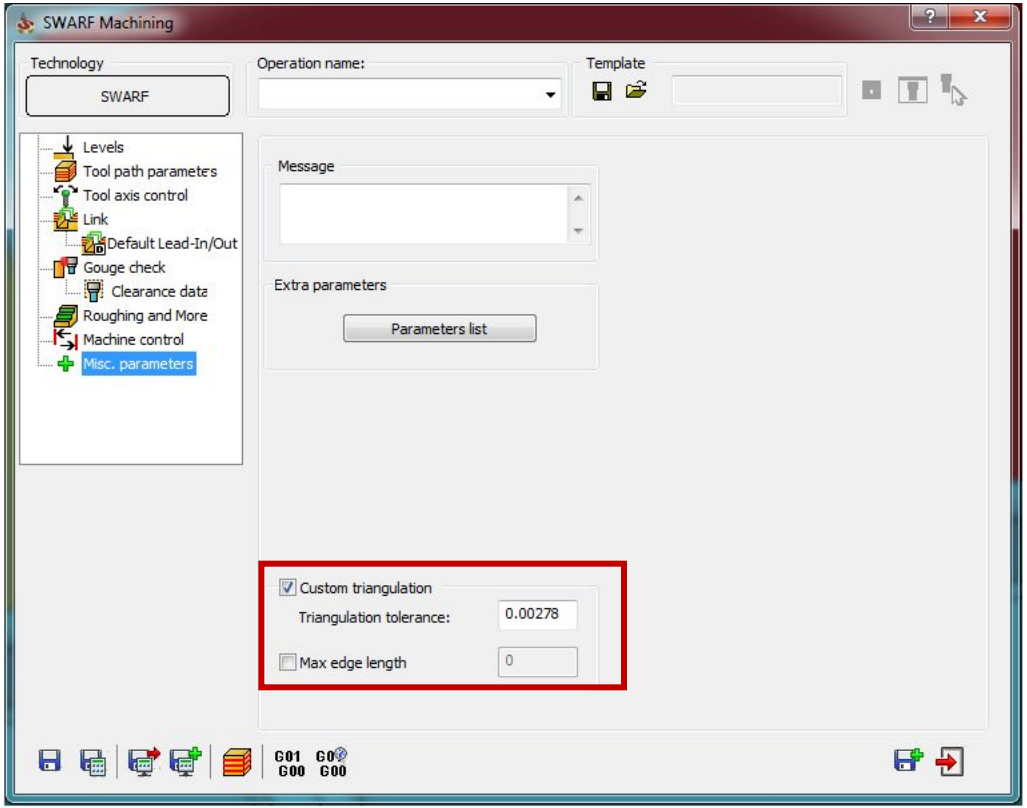
- **New options to avoid gouges with drive surface**

SWARF Machining: Rotate & Translate



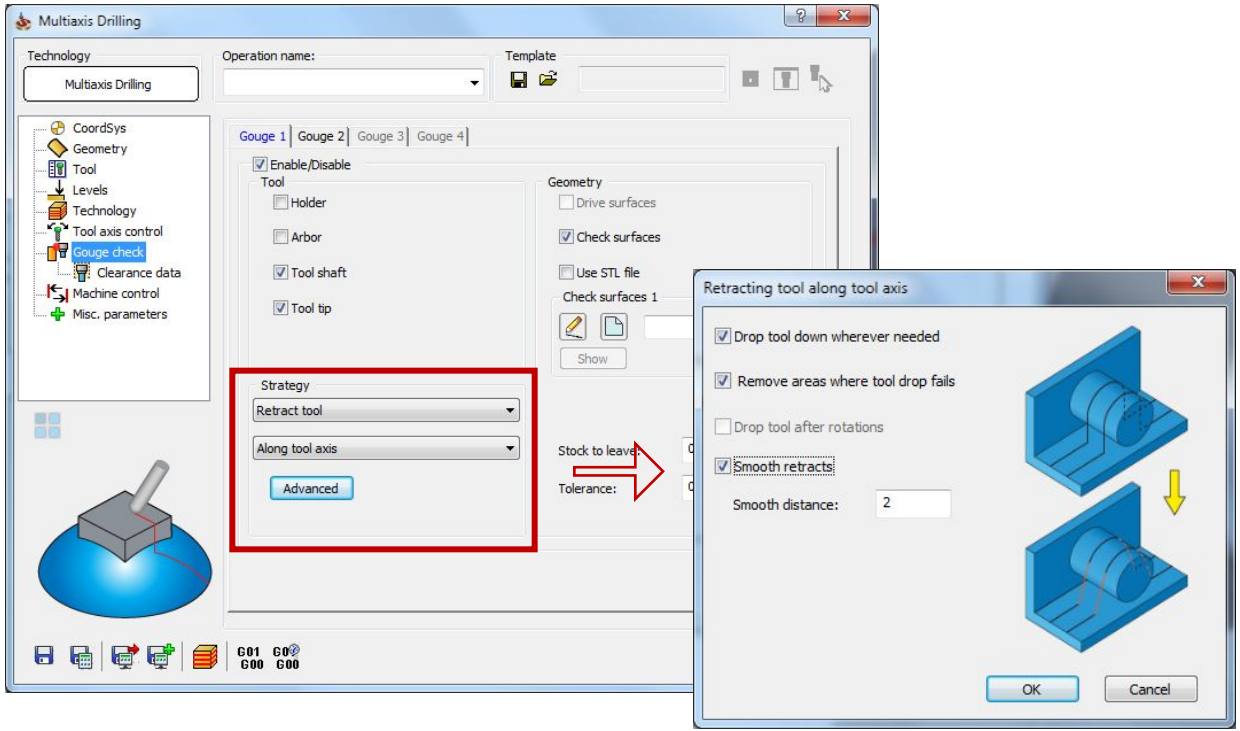
- **Rotate & Translate option is available for SWARF operation also**

SWARF/MultiBlade/Port/MultiAxis Roughing: Custom triangulation



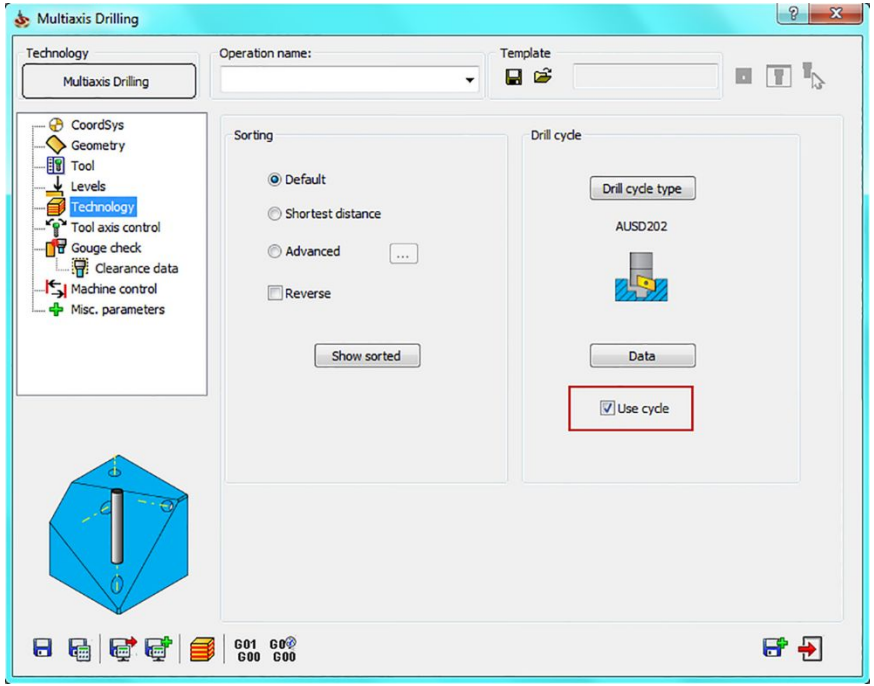
- **Provide more control over surface triangulation**
- **Custom triangulation check box = OFF, SolidCAM uses the native CAD triangulation method.**
- **Custom triangulation check box = ON, 5-Axis triangulation method is used to define the Triangulation tolerance and Max. edge length.**

Multiaxis Drilling: retract tool along tool axis



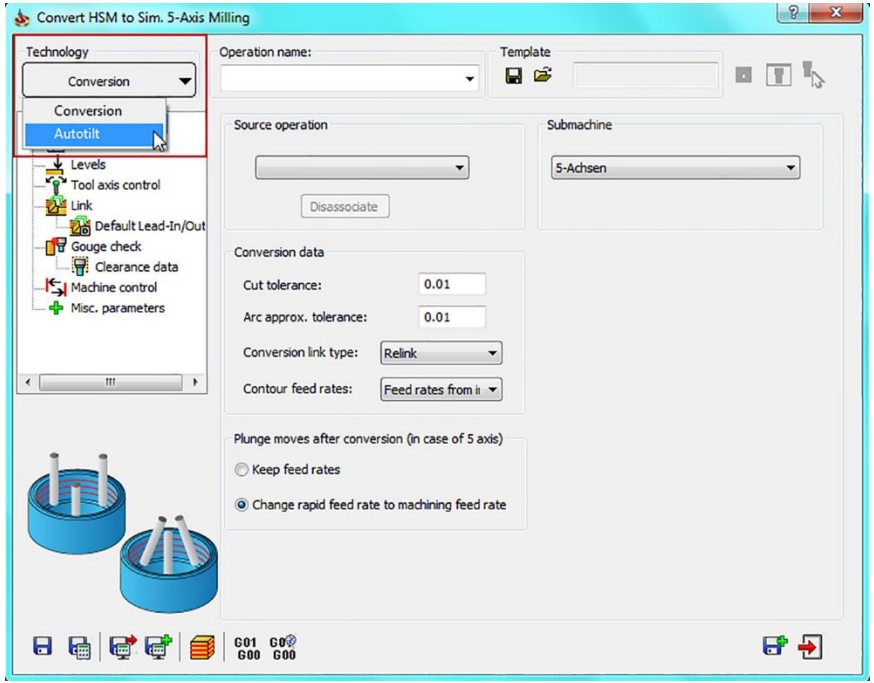
- **Avoid collisions by preventing sudden tool „jumps“**

Multiaxis Drilling: Use Cycle option



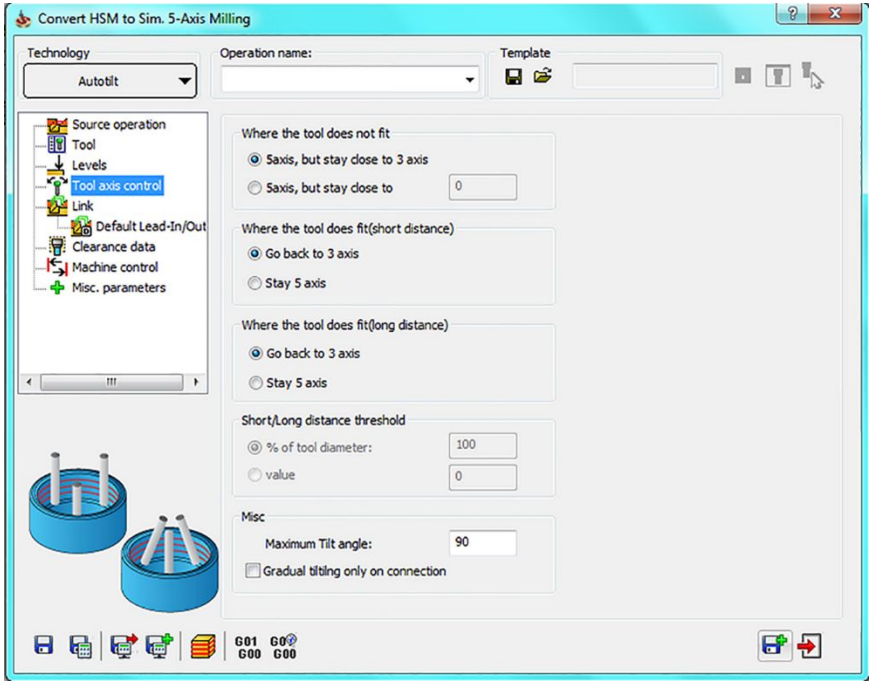
- The Multiaxis Drilling Technology page has a new option: Use cycle.
- When this check box is ON, the generated G-code uses canned drill cycles, if CNC machine enables it.
- If this check box is OFF, the output is in the form of linear movements.

Convert HSM to Sim 5-Axis Milling: Autotilt



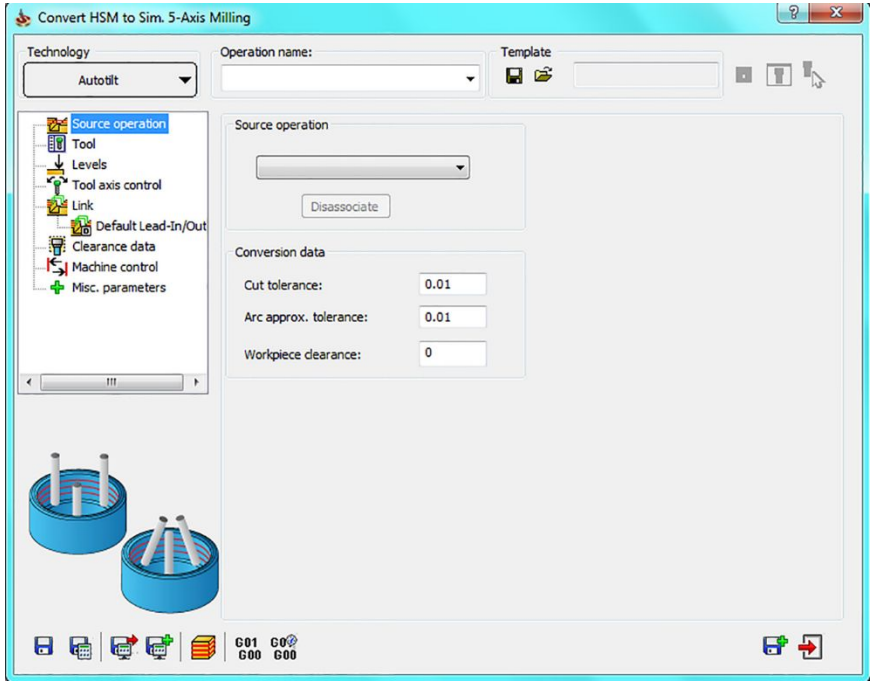
- New Technology of Autotilt is added.
- This option enables the conversion of a 3-axis input tool path into a full automatic collision-checked 5-axis tool path.
- The main aim is to take the 3-axis tool path and use it with a much shorter tool.
- The automatic tilting now does compensate the holder with the geometry and tilts it away.

Convert HSM to Sim 5-Axis Milling: Autotilt



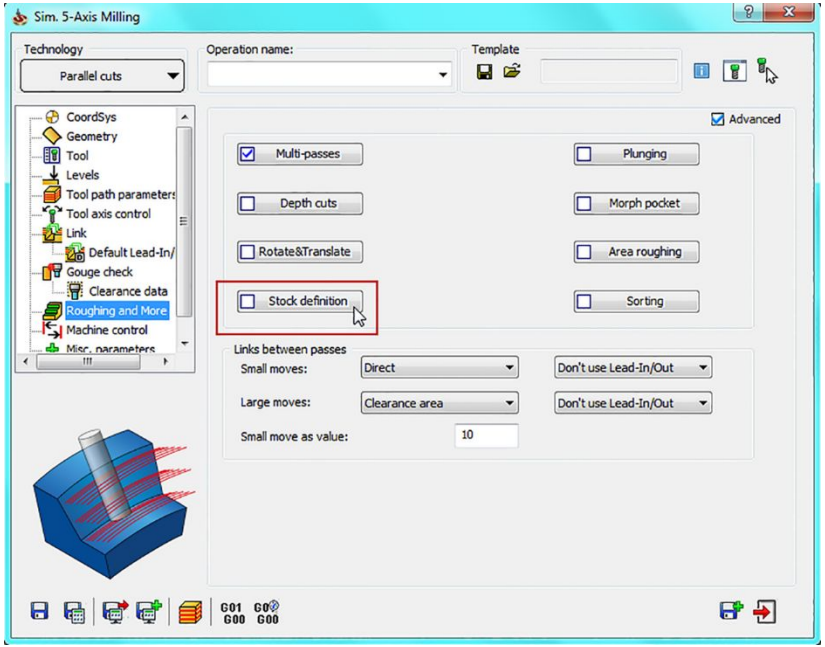
- **Tool axis control page has new options when Autotilt is selected as Technology.**

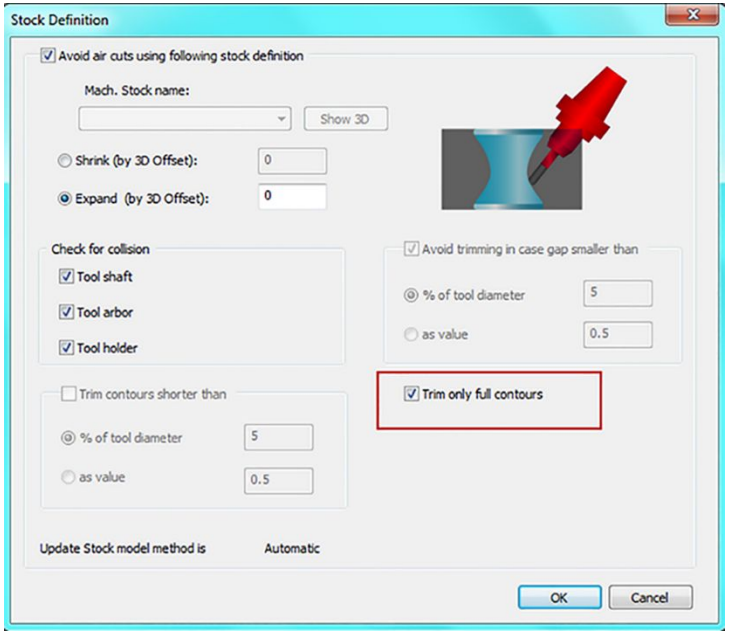
Convert HSM to Sim 5-Axis Milling: Autotilt - Workpiece Clearance



- Source operation page has the new option of Workpiece clearance.
- The Workpiece clearance option enables you to set a value by which the tool clears the workpiece when moving between two positions.
- Note: This option is available only with the Autotilt technology.

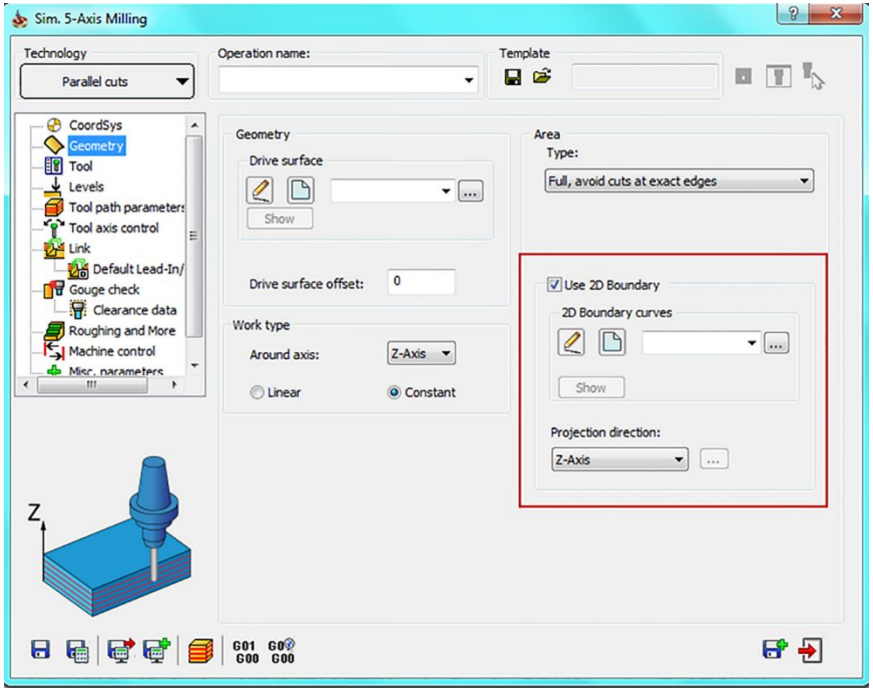
Roughing and More Page: Trim only full contours





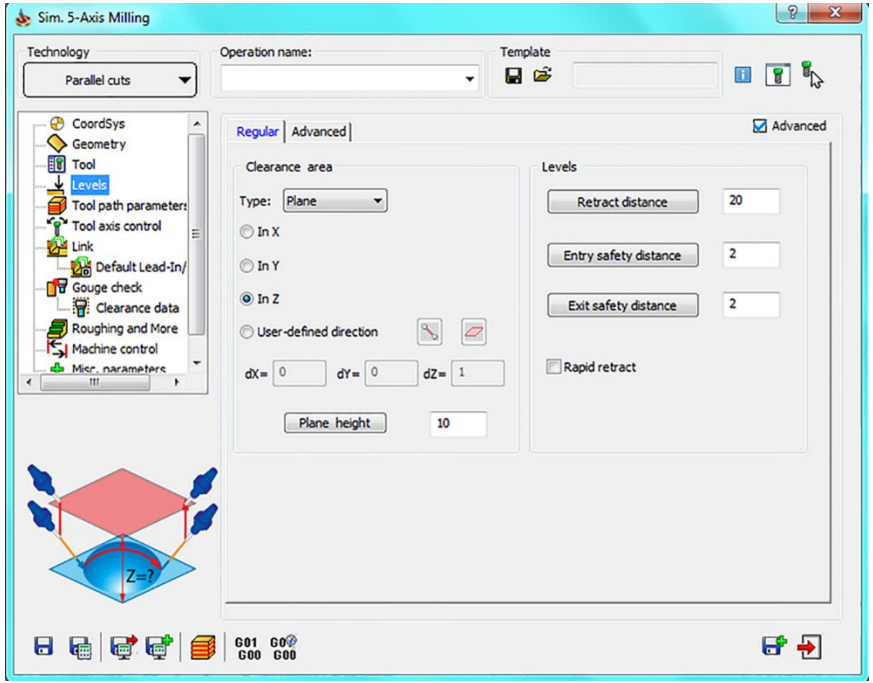
- **Stock definition: New option of Trim only full contours is added.**
- **Enables you to keep the cuts that are partially within the stock and remove the cuts which are completely outside the stock - enabling much smoother cuts and less jumps.**

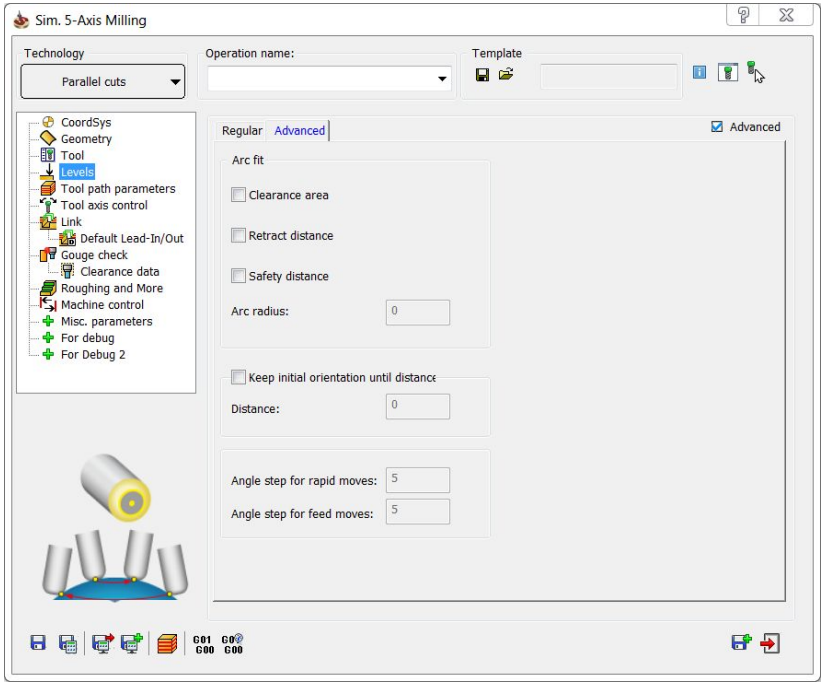
GUI Changes - Geometry Page



- **2D Boundary curves content is placed inside Geometry page.**

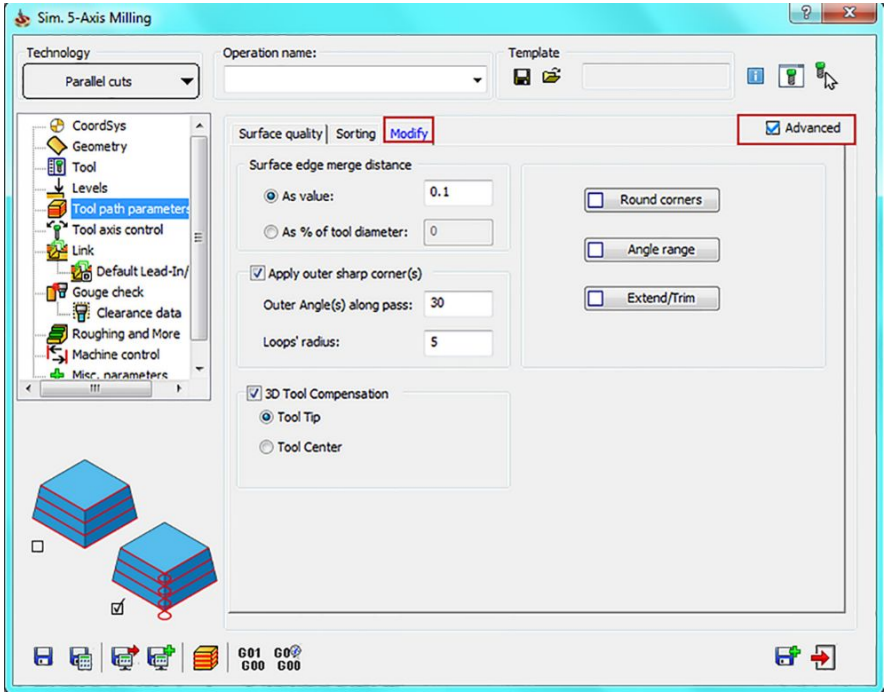
GUI Changes - Levels Page





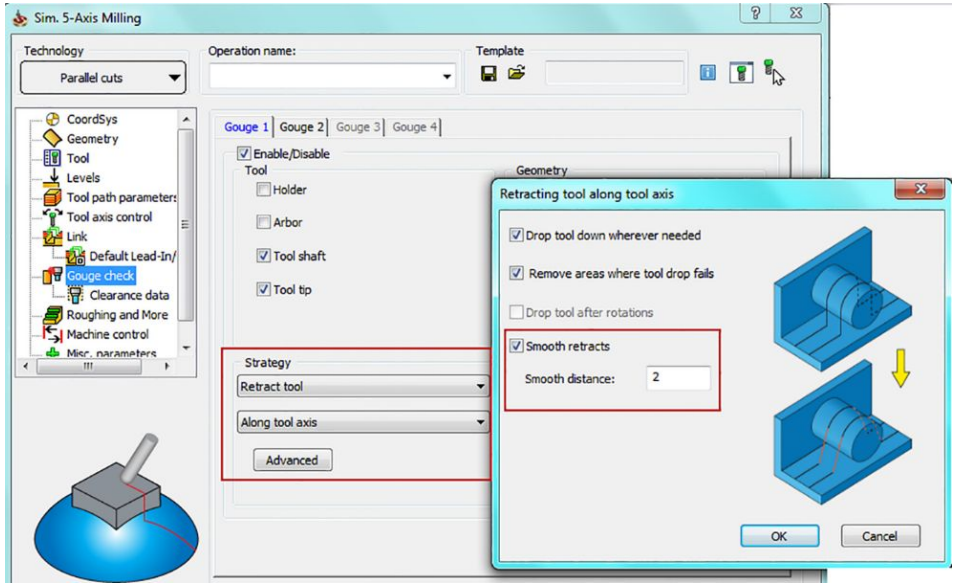
- **Parameters divided into two tabs: Regular (most used) and Advanced.**

GUI Changes - Toolpath parameters Page



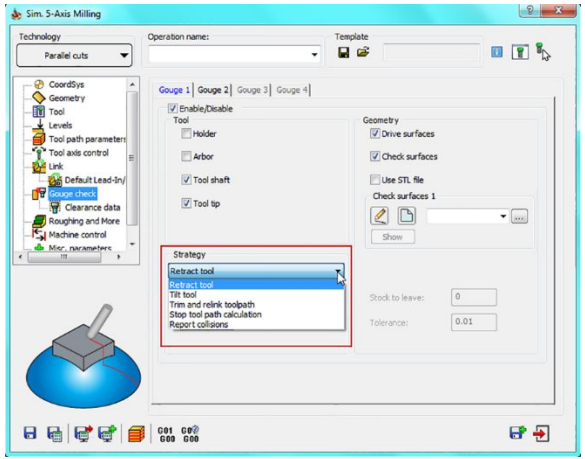
- New Modify tab is added.
- Round corners, Extend/Trim, and Angle range moved to this page from Geometry page since they are related to toolpath.
- Modify tab is available only when the Advanced check box is ON.

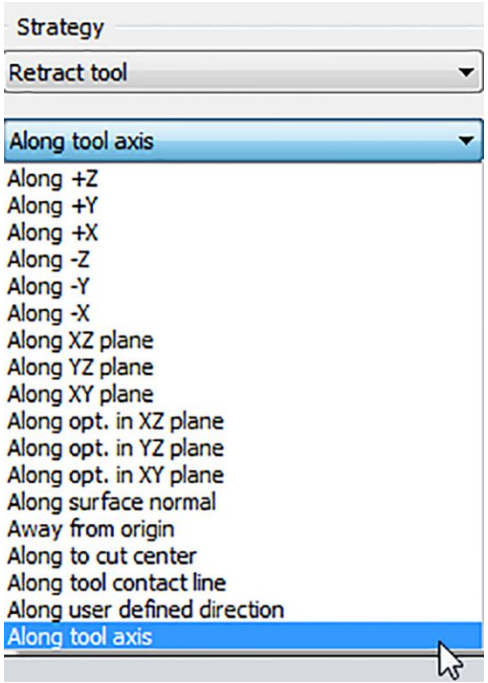
Gouge check Page: Smooth Retracts

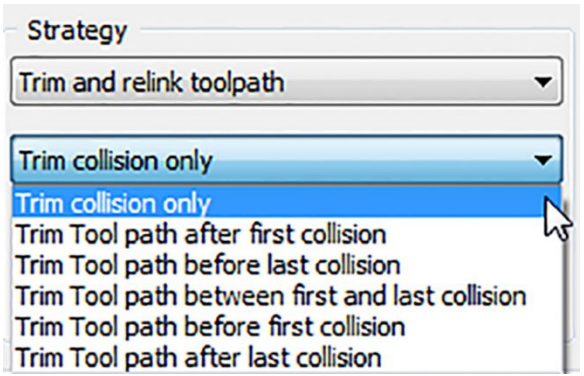


- **Strategy: Retract along tool axis/ Advanced: New option of Smooth retracts is added.**
- **The Smooth retracts check box enables you to smooth the transition from the collision free area to the tool retraction area by avoiding sudden axis jumps.**
- **The Smooth distance field determines the start distance of the smoothing to the collision area.**

Gouge check Page: Renaming of strategies

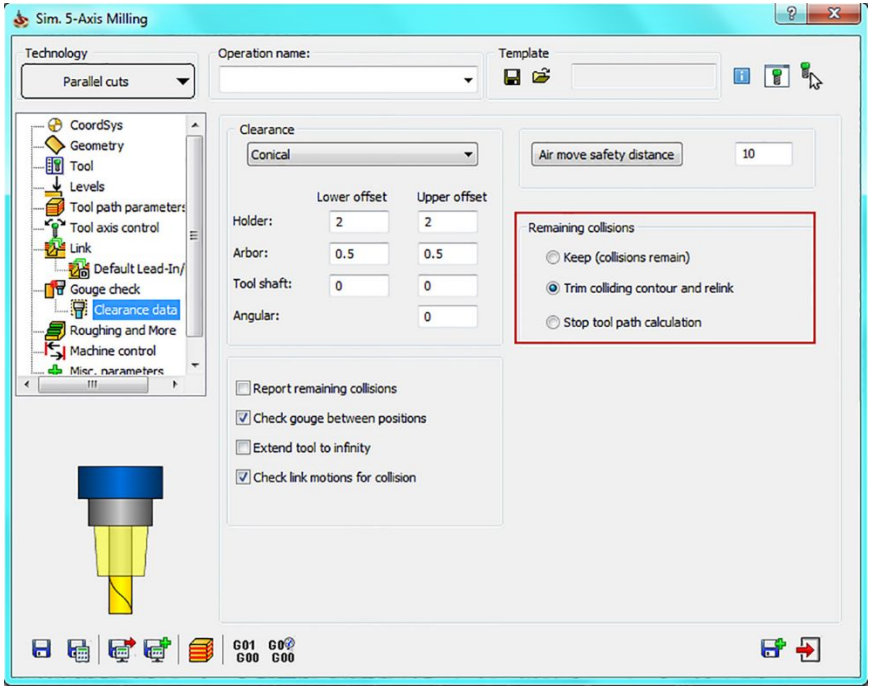






- **The Gouge check strategies are logically named**

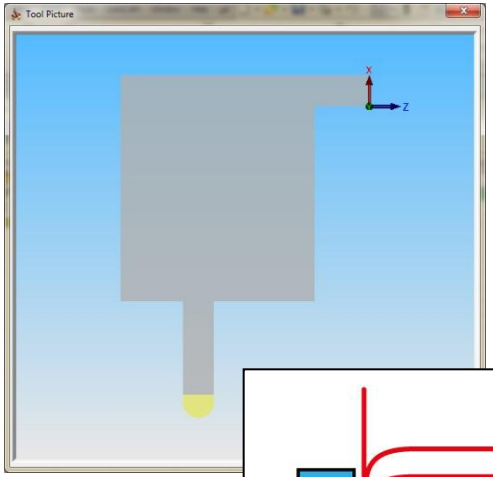
Gouge check Clearance data Page

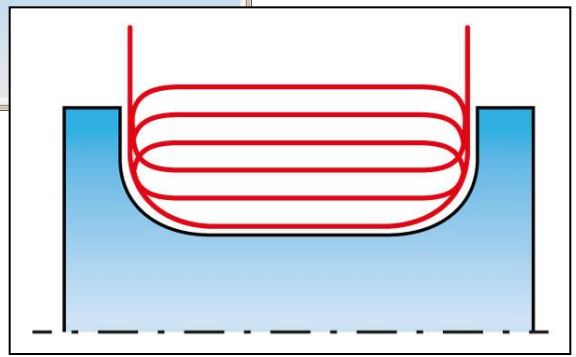


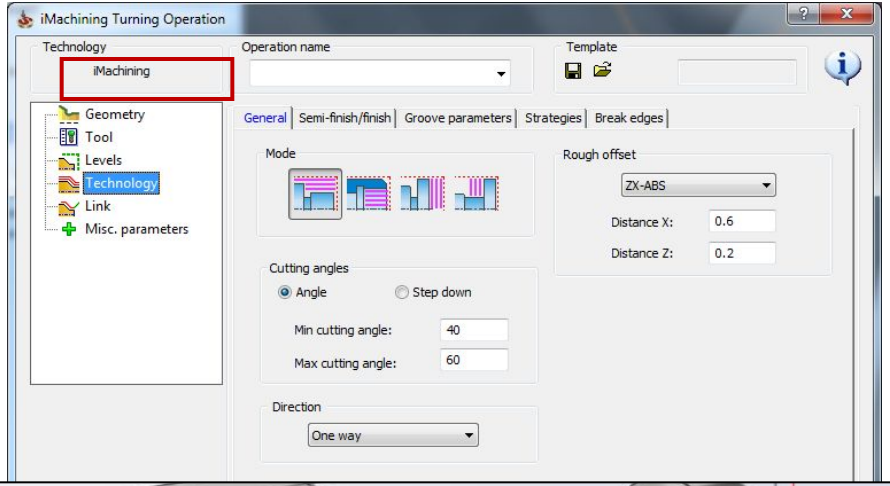
- **Remaining collisions section is updated – one option removed.**

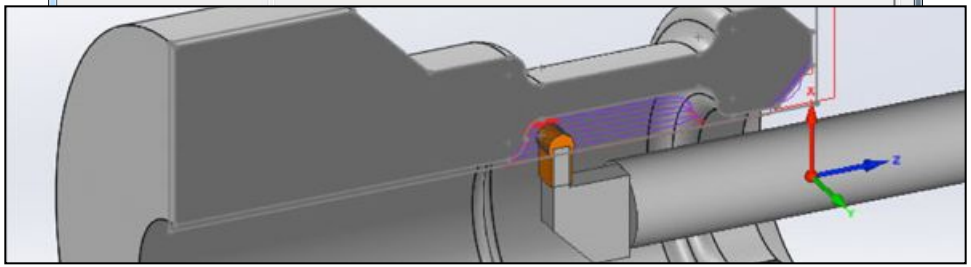
Turning

Turning: Torochoidal Turning operation



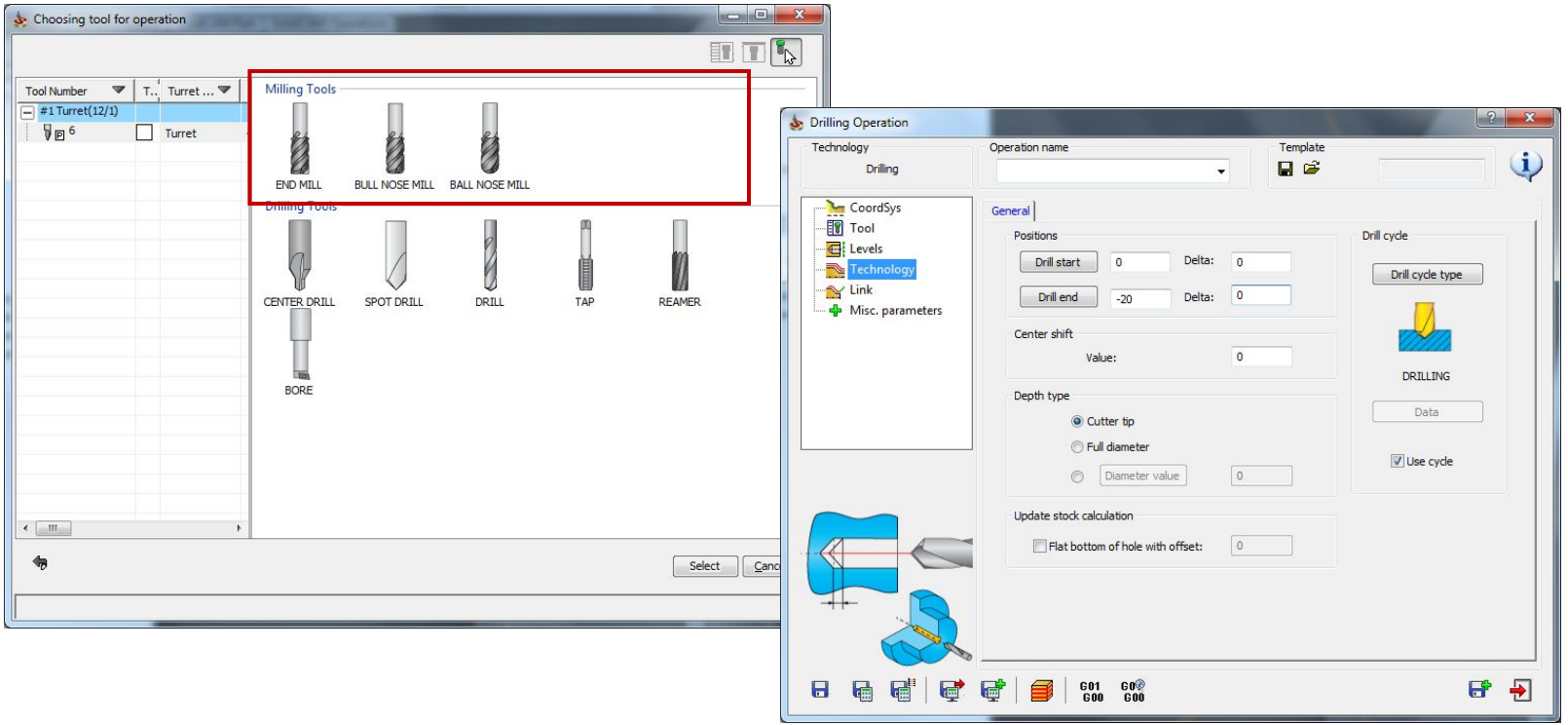






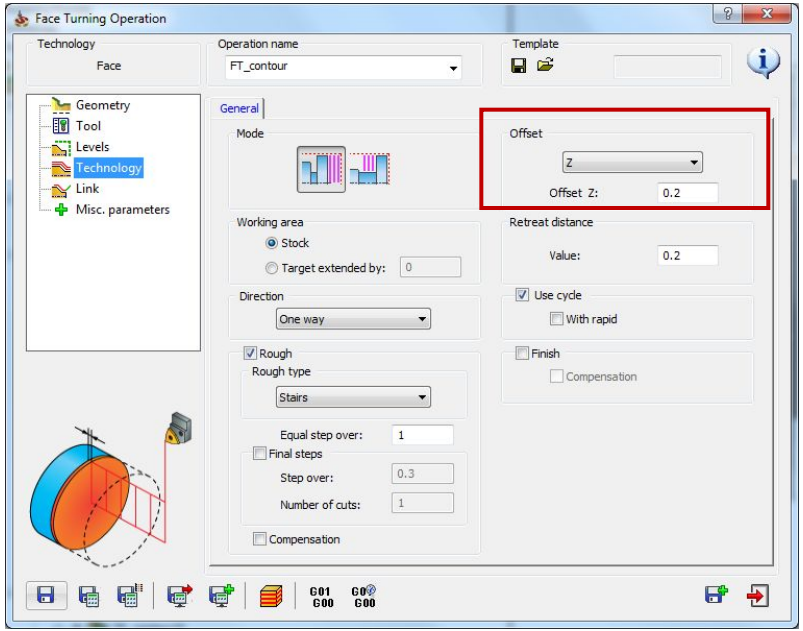
- **iMachining-style torochoidal moves of round grooving tool in turning**

Turning: Use all milling tools in turning drilling



- **Possibility to use Milling tools in Turning Drilling operation**

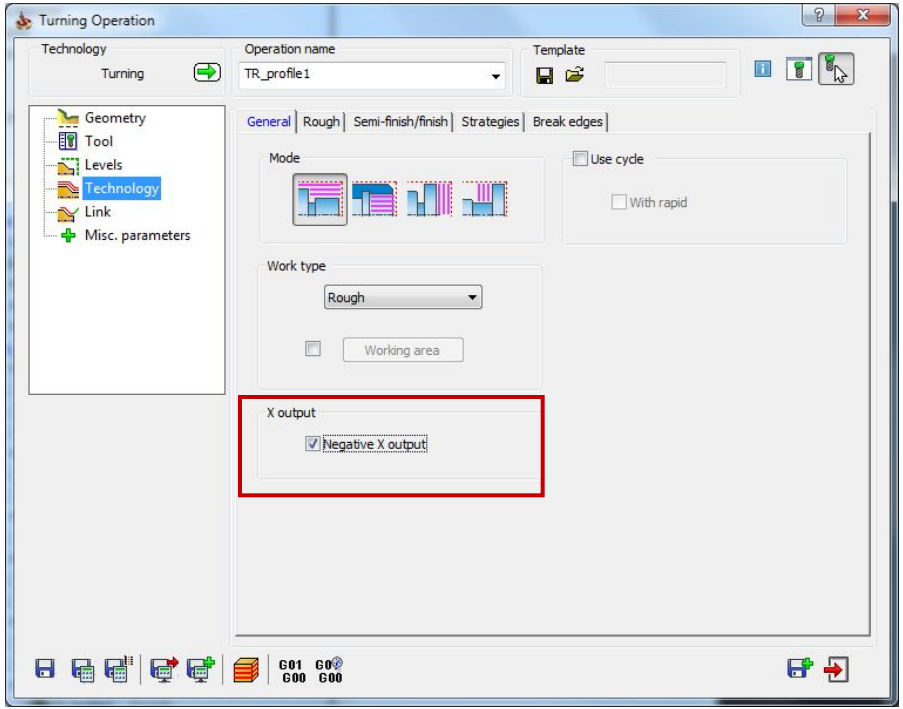
Turning: Offset types in face turning

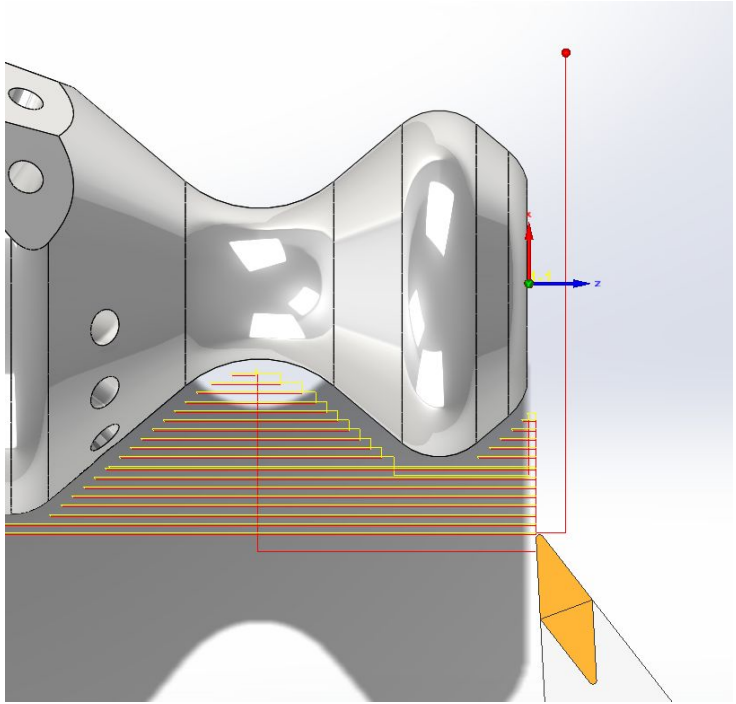


@turning ==> work_type:rough semi_finish:false finish:false
..> label:5002 start_line:10 end_line:12
..> process_type:face turning_mode:external
..> is_line:false num_points:0
..> rough_offset_x:0.000 rough_offset_z:0.200
..> semi_offset_x:0.000 semi_offset_z:0.000
..> first_pos_x:26.600 first_pos_z:0.000
..> last_pos_x:5.600 last_pos_z:0.000
..> down_step:1.000 safety:2.000
..> retreat_distance:0.200

- **Output offset value in Face turning cycle**

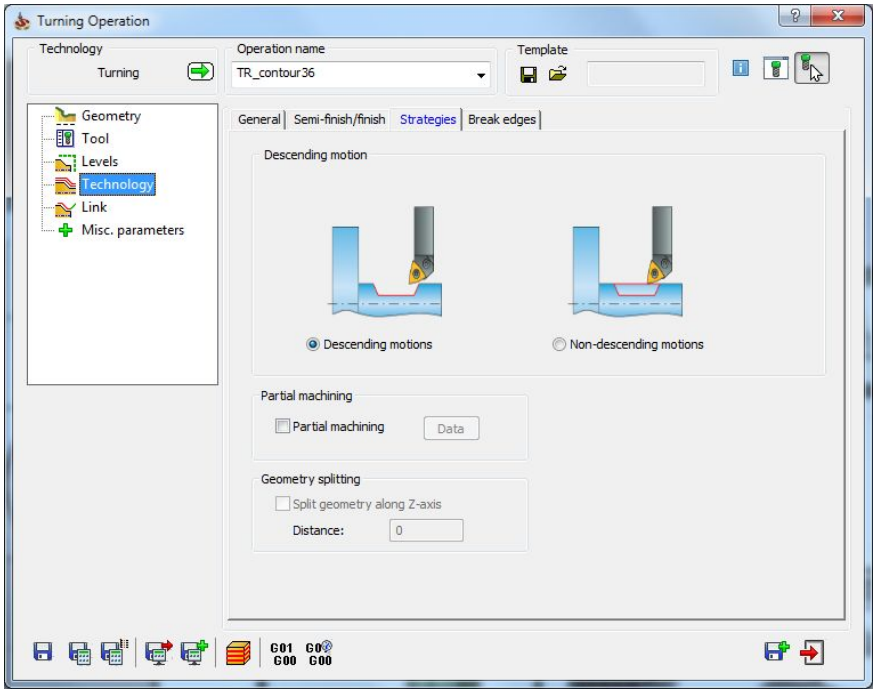
Turning: Negative X output

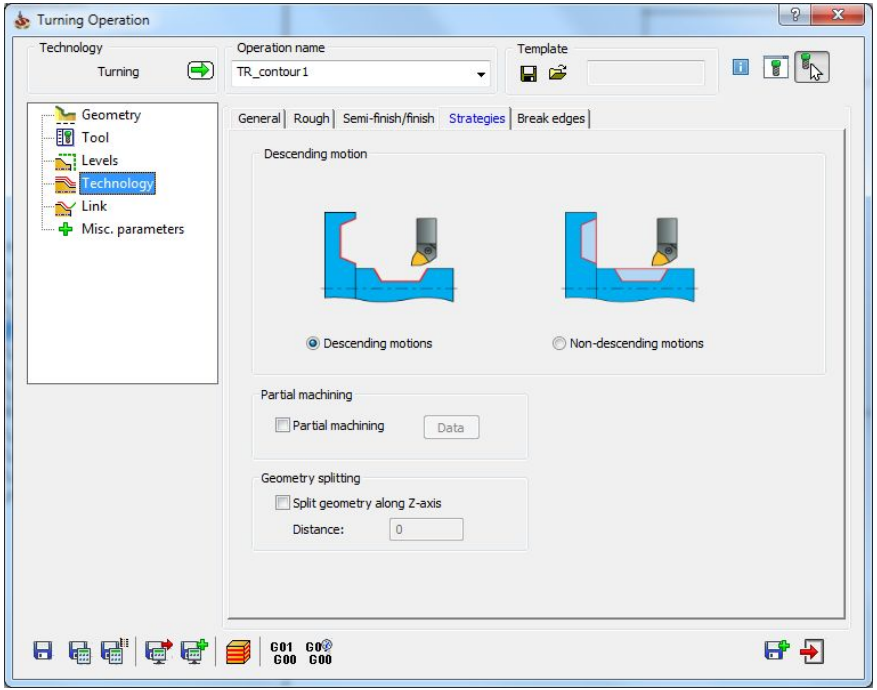




- **Possibility to get (-X) cutting toolpath with start/end points in (+X)**

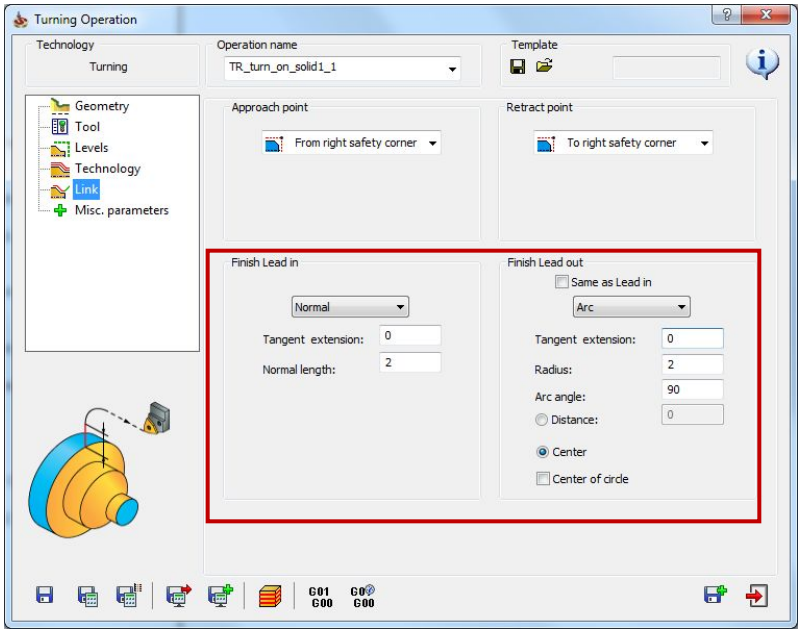
Turning: Non-descending motion on face surfaces also

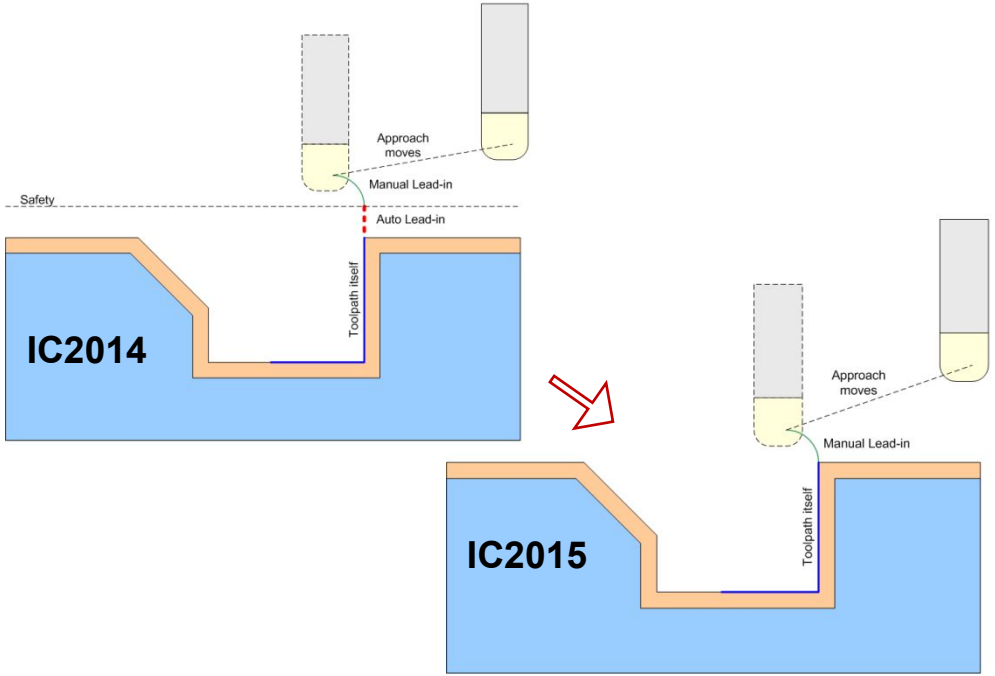




- **Option to avoid penetration to slots on face surfaces also**

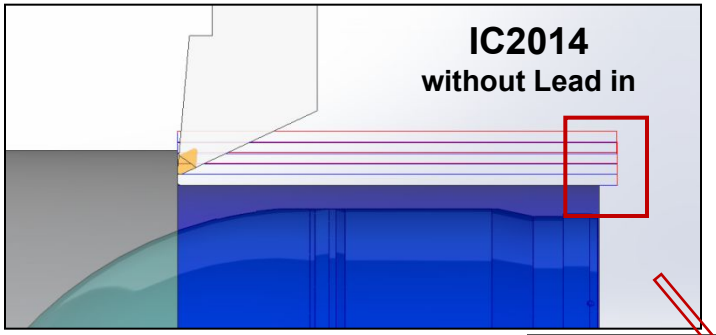
Turning: Auto Lead in/out cancelled

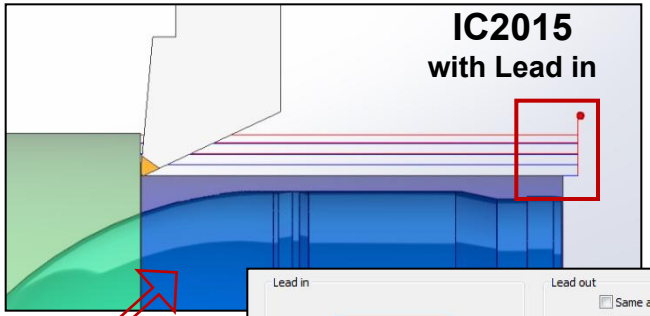


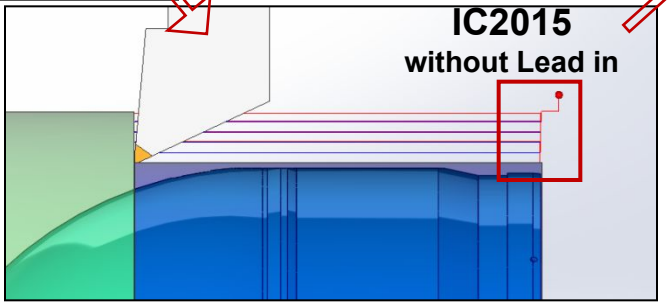


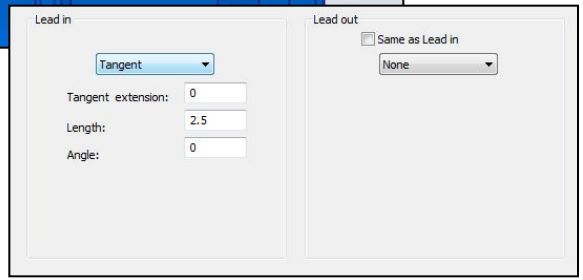
- **In previous versions, an additional movement before Lead in/out was added automatically. In this version they are not added; user defines lead-in and lead-out**

Turning: Lead in/out Used in rough turning also



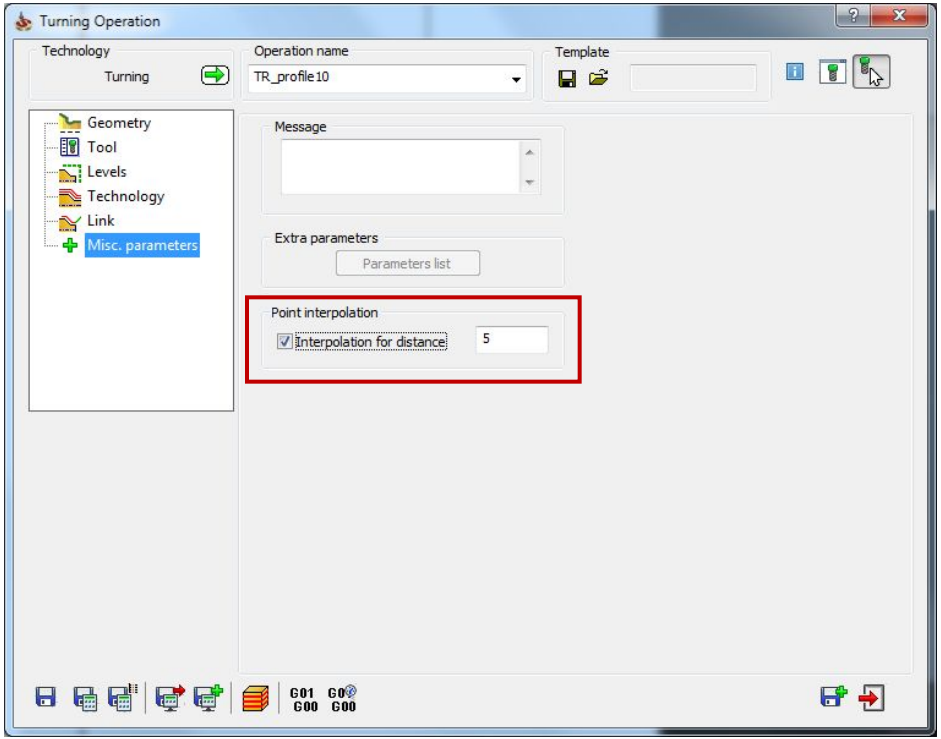


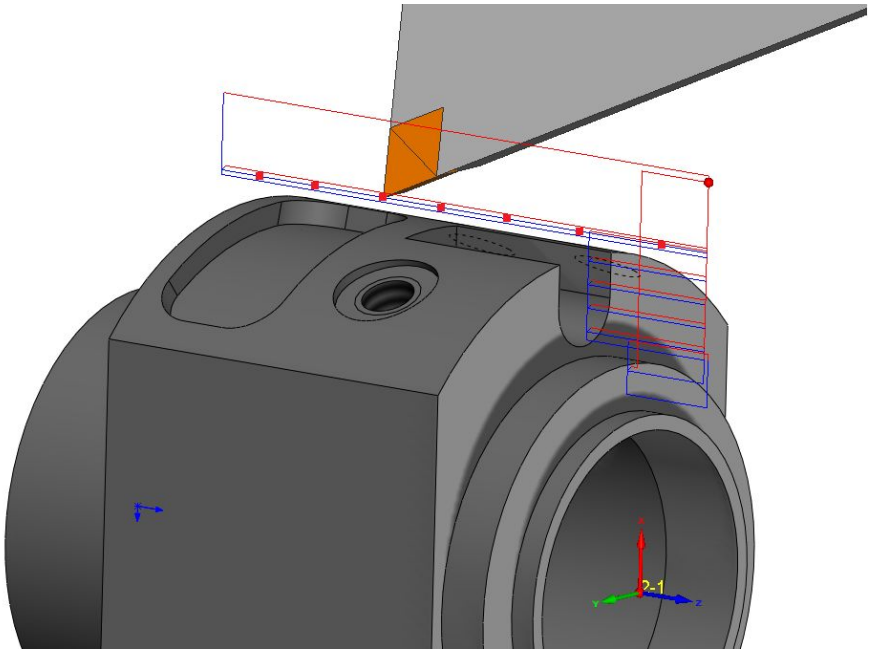




- **In previous versions, we had only an automatic lead in/out for roughing**
- **Now the automatic lead in/out is cancelled and manual lead in/out, if defined,will be applied to Rough toolpath also**

Turning: Split long lines of turning toolpath

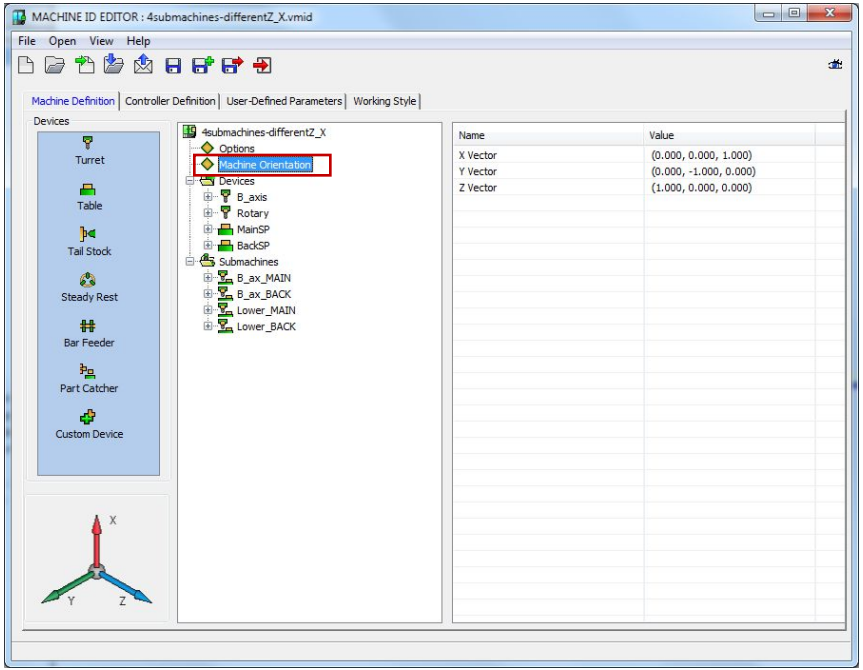


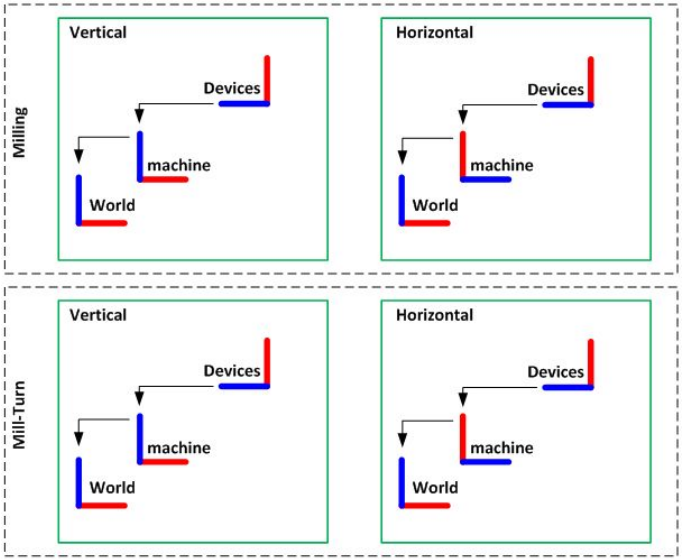


- **Split long lines of turning toolpath to short lines, according to the distance defined**

Mill-Turn

Machine ID: Machine orientation

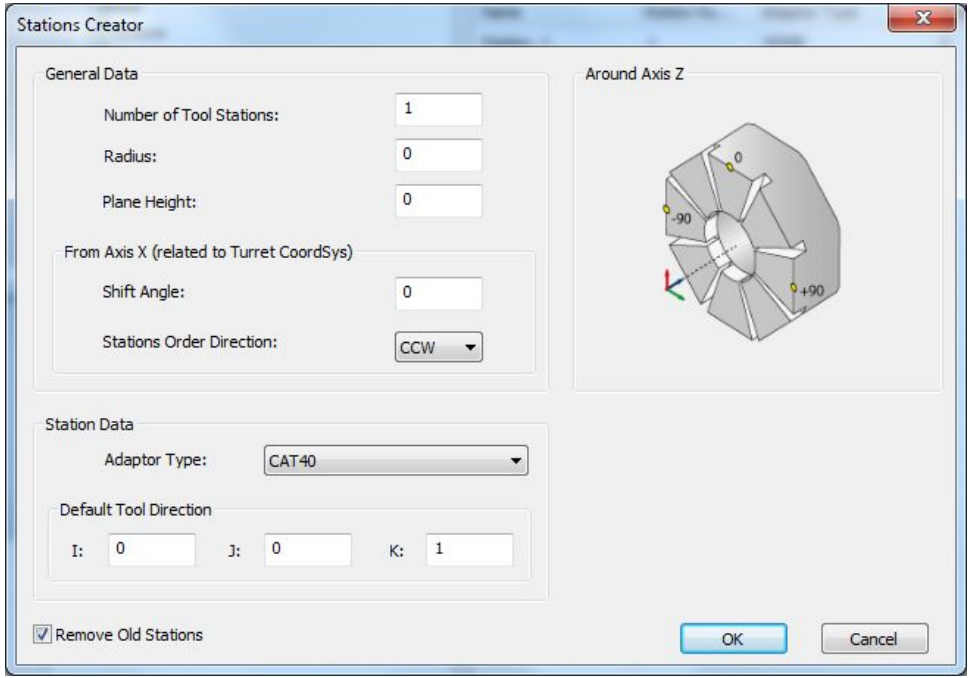


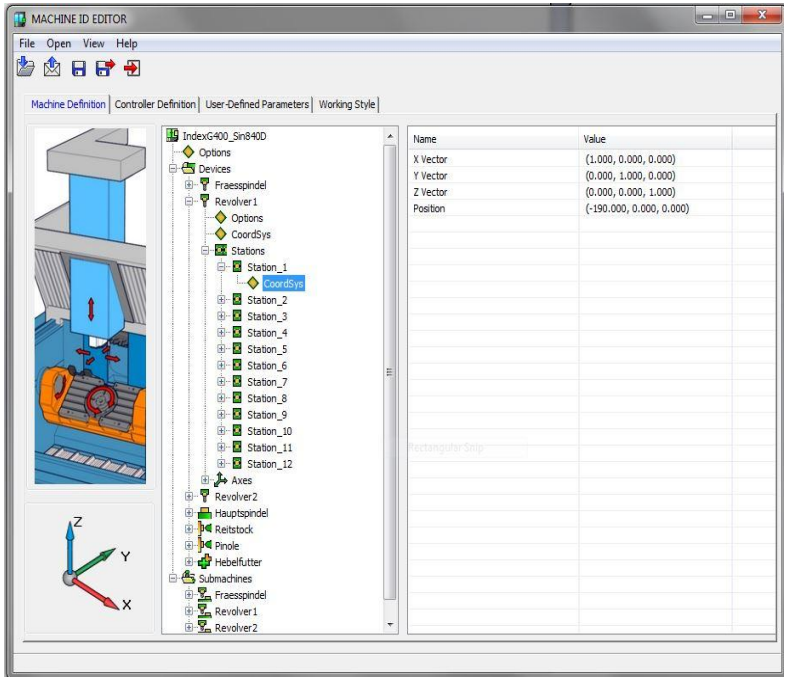


Z- Blue, X- Red

- **World CoordSys is always with Z vertically UP**
- **Machine orientation (vertical, horizontal) is defined in World CoordSys**

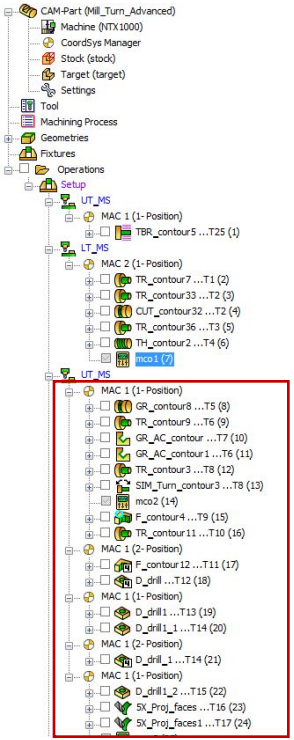
Turret: New style of station creation in VMID

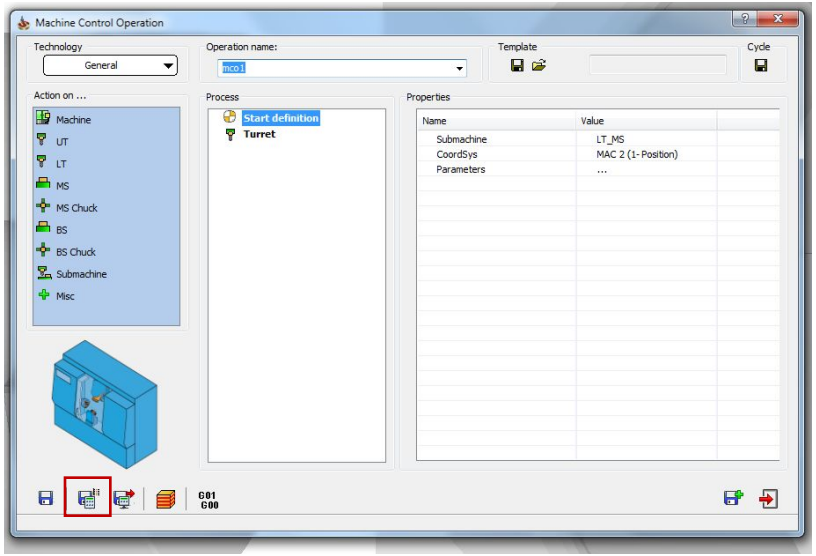




- **Easy way to create multiple stations in VMID**

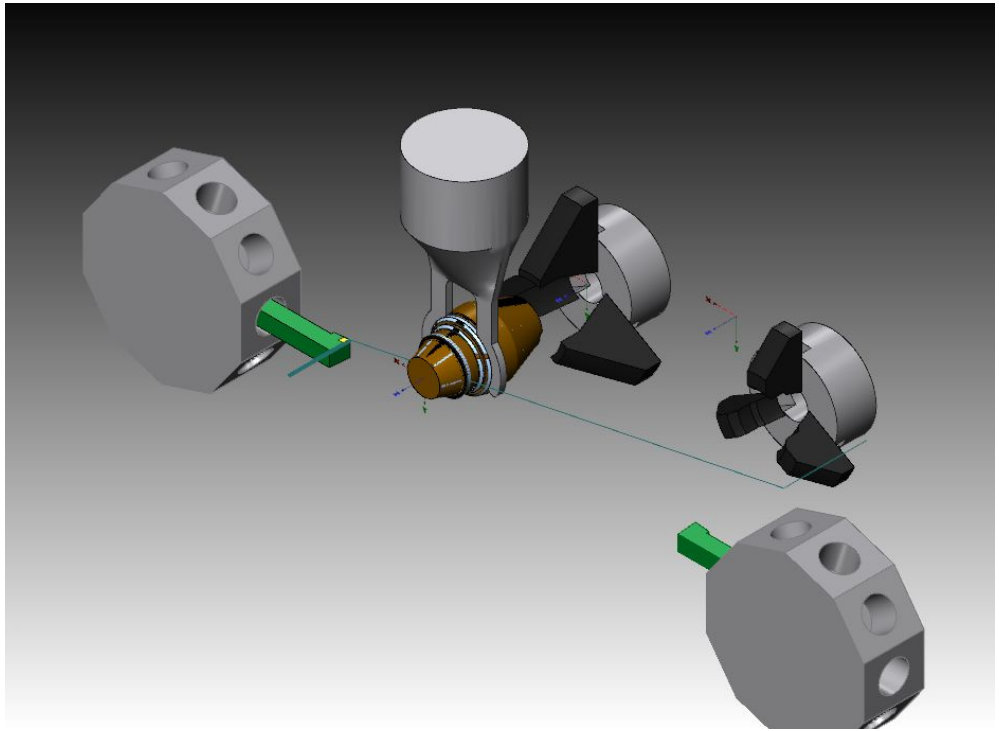
MCO: Calculate all related operations when MCO changes





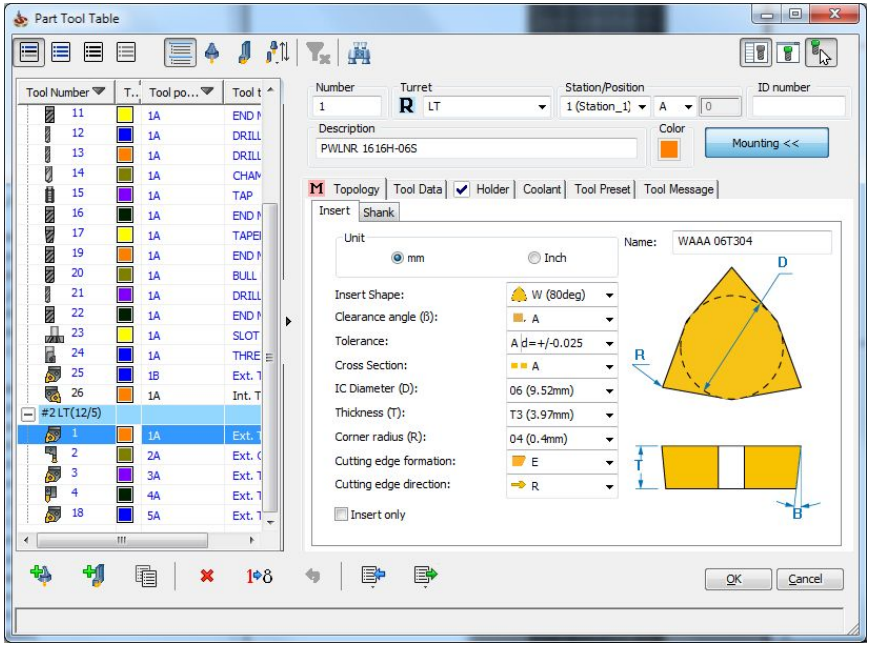
- **Automatic calculation of changed MCO‘s related operations**

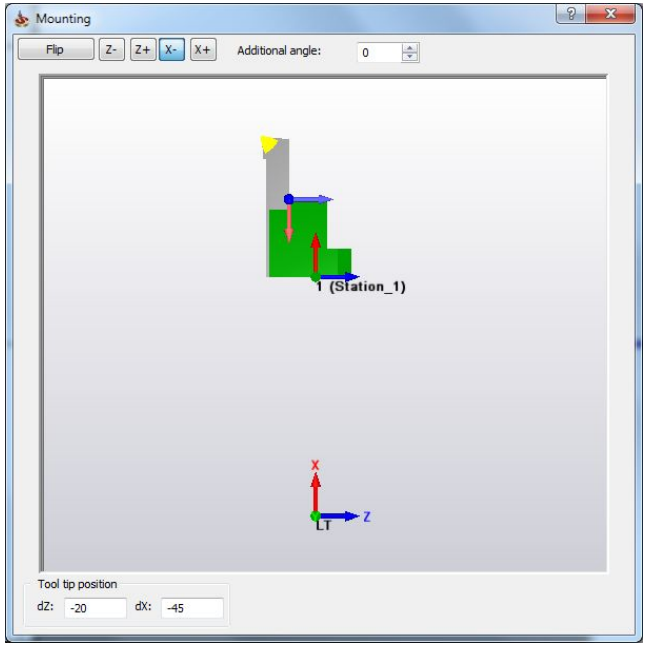
MCO: Move Part by turret or any other device



- **Possibility to move the CAM-part from Table to Table by turret or any other device**

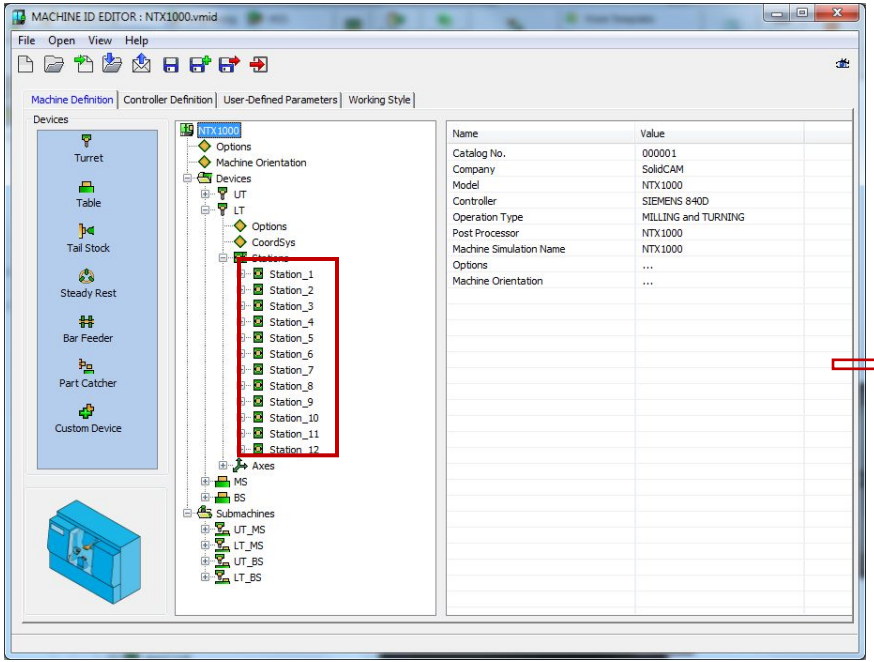
Tooltable: new mounting interface

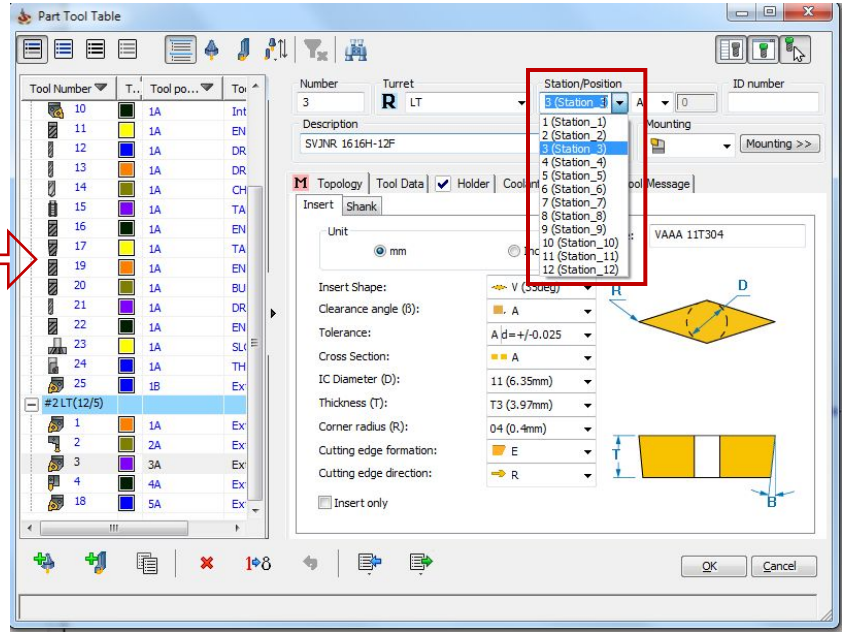




- **New tool mounting interface – based on station and device CoordSys**
- **Shown as it actually looks in CNC Machine**

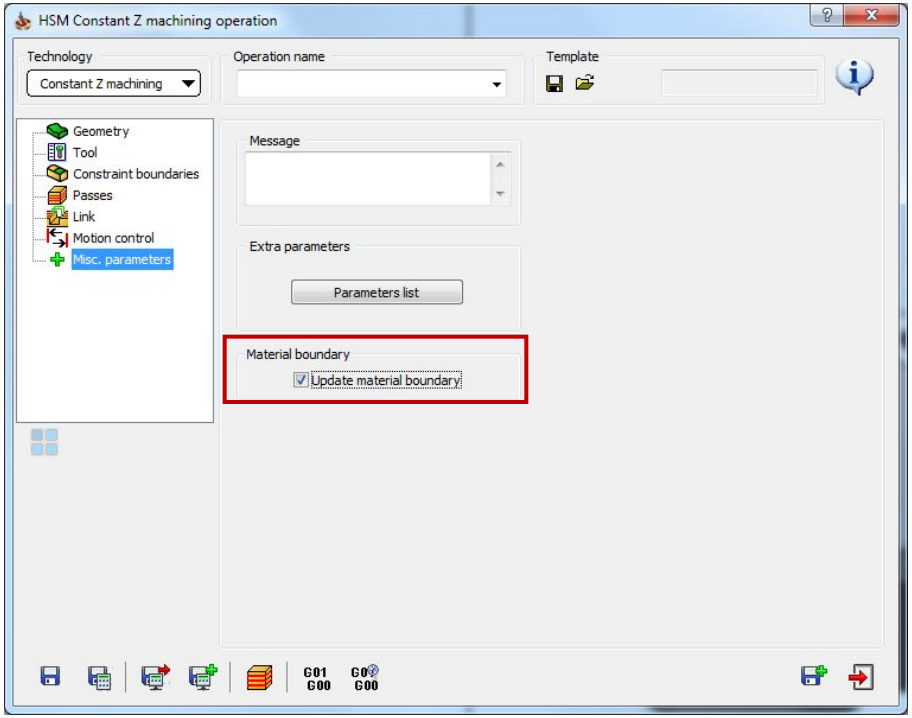
Tooltable: Show station name





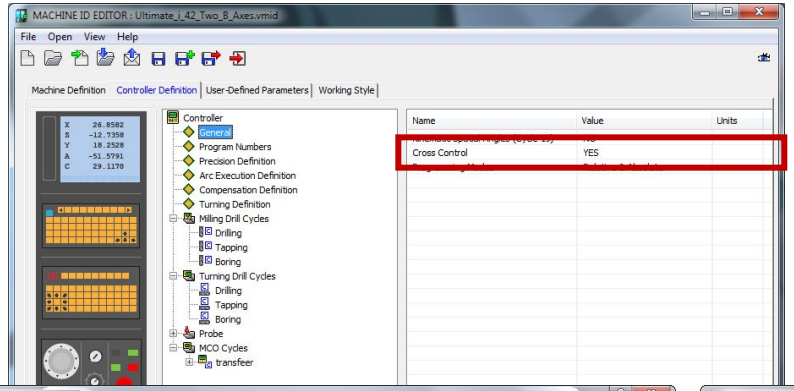
- **Show station name in the List of stations in Tooltable**

Update material boundary (for mill-turn)

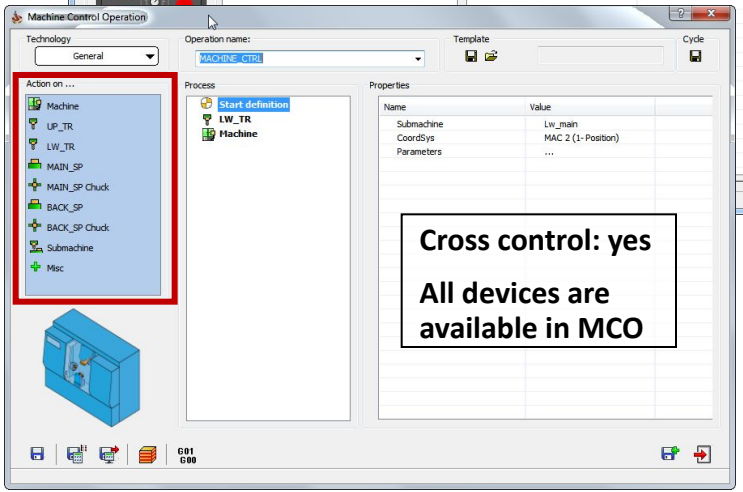


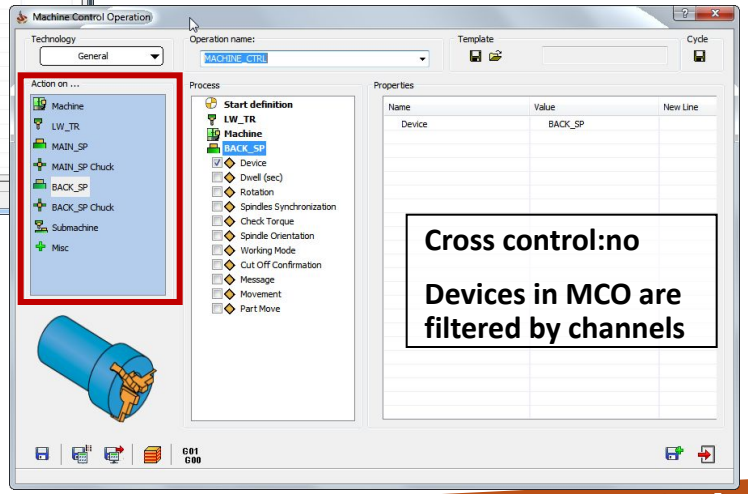
- **Take into account HSR/HSM operations when updating stock for further turning operations**

Definition of Cross Control

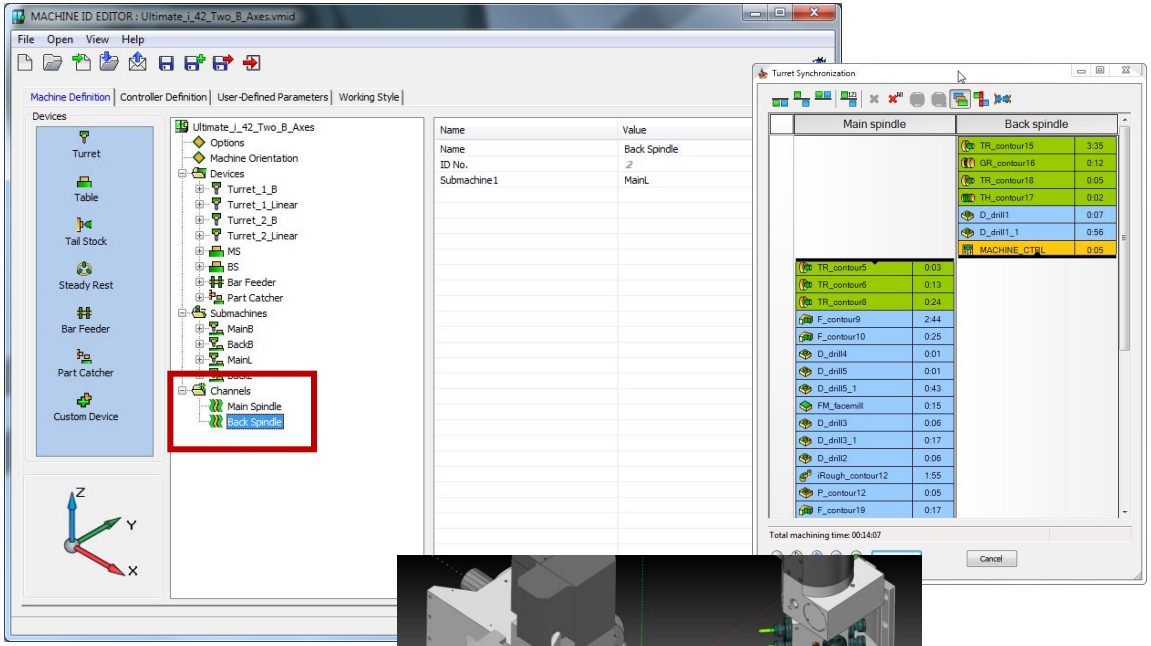


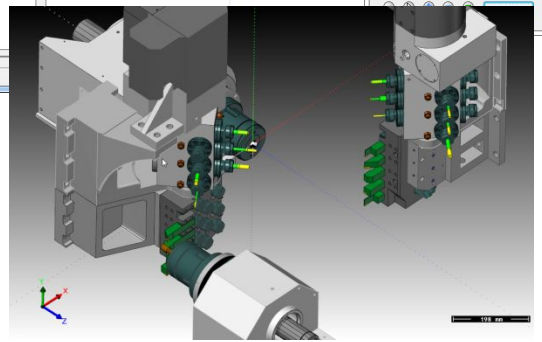
- **By default – cross control is always turned on**
- ***.VMID allows to cancel Cross Control (access to devices from opposite channel), if it is not supported by the machine.**





Channels definition in VMID





- **Custom channels definition**
- **Definition of channels by sub-machines, not turrets**
- **Enables synchronisation process between tables (Swiss Type lathes)**

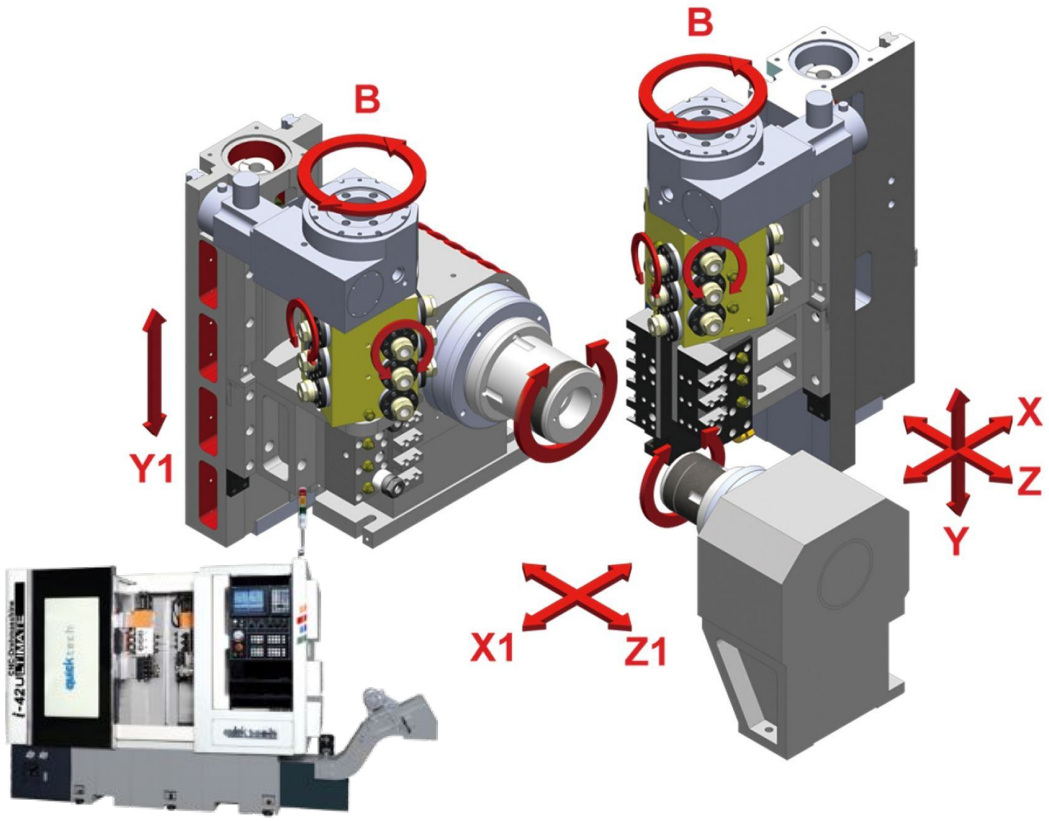
Full support of Mazak Mill Turn machines

- Opposite spindle
- Rotary turret
- Simultaneous 5 axes
- Balanced turning
- Part transfer
- Additional devices

Full support of Fanuc Mill Turn machines

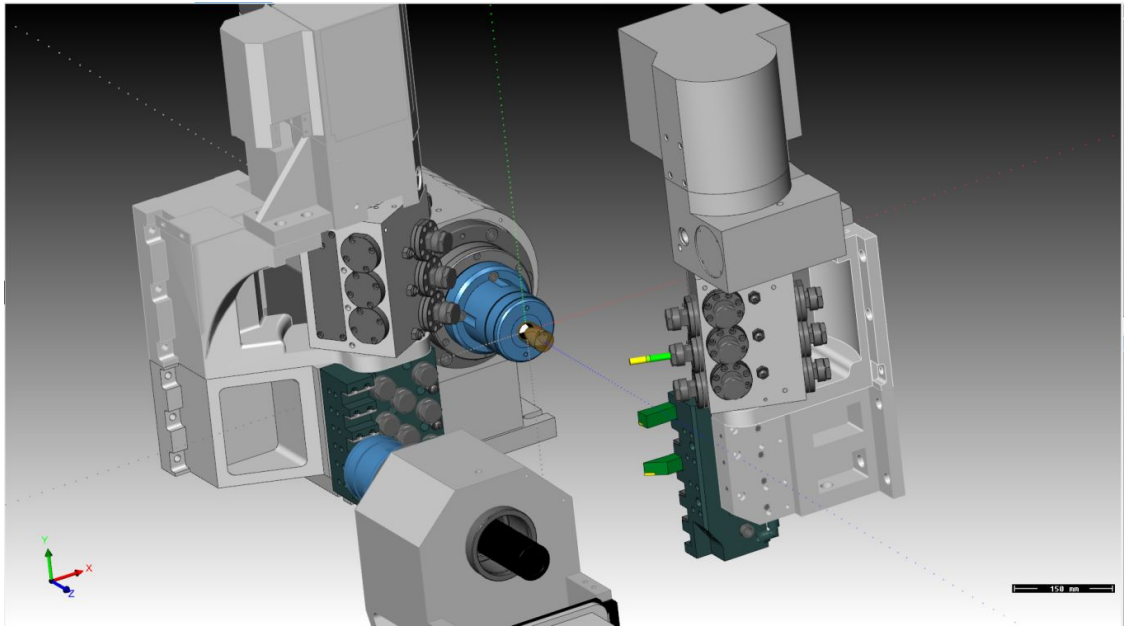
- Opposite spindle
- Rotary turret with milling functionality
- Simultaneous 5 axes
- Balanced turning
- Part transfer
- Additional devices

Support of machines with combined turrets

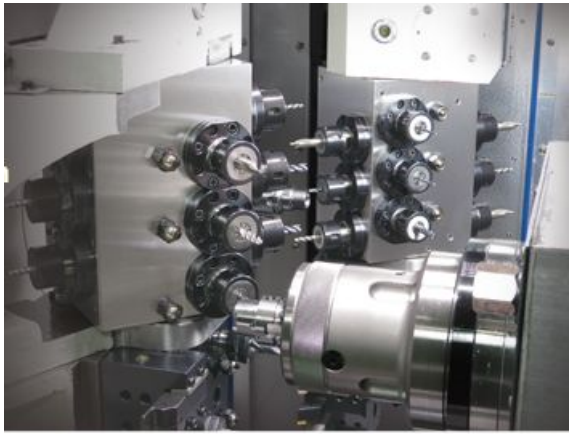


- Opposite spindle
- Rotary turret as B-axis
- Linear turrets
- Simultaneous 5 axes
- Synchronization
- Part transfer
- Combined turrets

Support of Multi-station Combined-turrets Mill-Turn machines

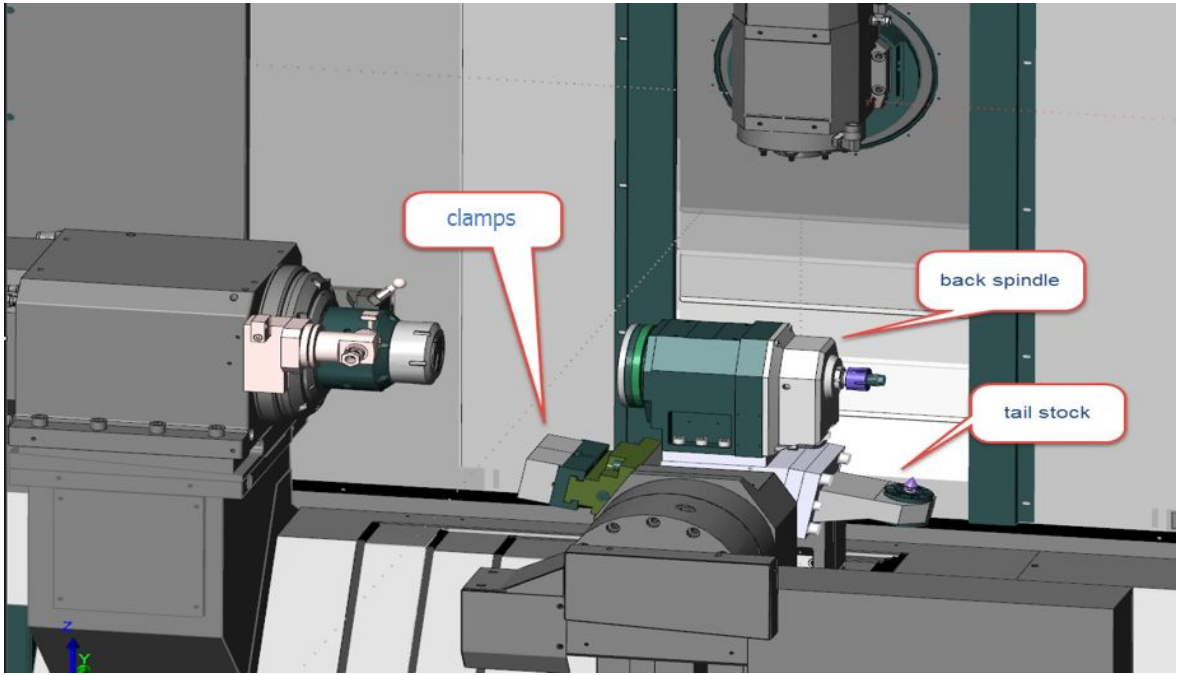


Quicktech Ultimate I42



- **Two spindles, Each turret is a combined turret (Rotary type and Linear type)**
- **Channel synchronization by tables**

Support of Willemin-style Mill-Turn machines



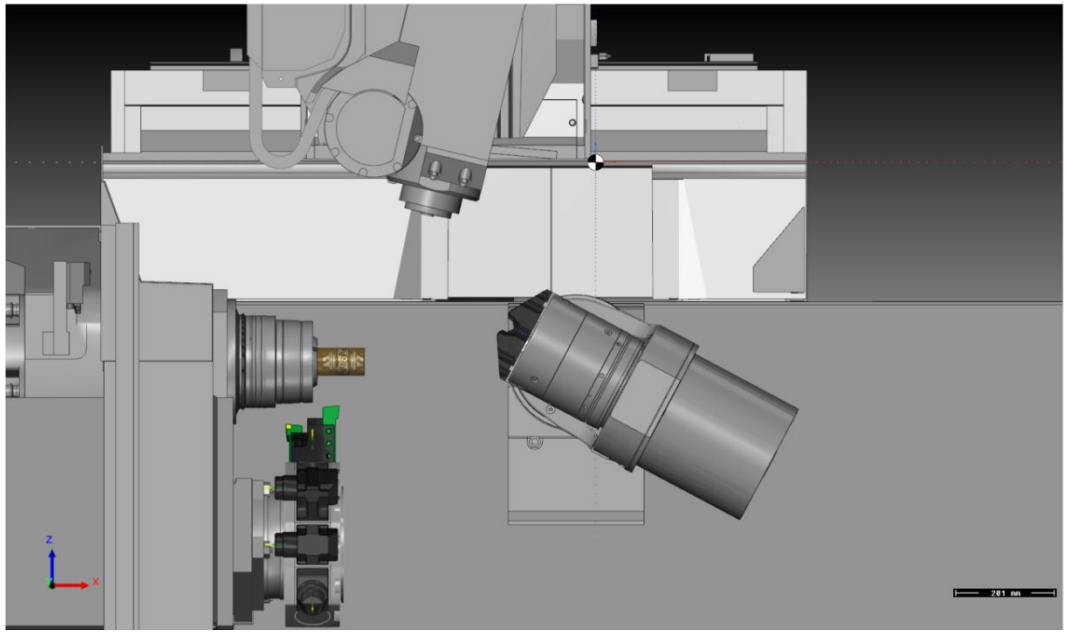
Willemin 508 MT

Cutting Video 1

Cutting Video2

- **Willemin-style: Two spindles, B-axis, Additional devices (Clamps and tail Stock)**
- **Additional devices support by MCO, with full machine simulation**

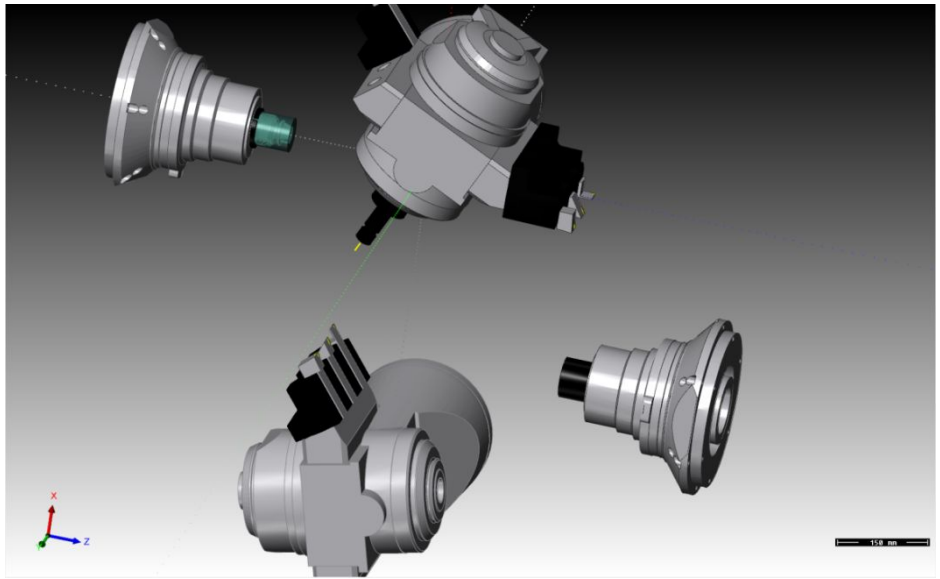
Support of Chiron-style Mill-Turn machines



Chiron FZ 12 MT

- **Chiron-style: Main spindle, Rotary Turret, B-axis, Tilting of back spindle**
- **Full support of MCO operations with full machine simulation**
- **Working with Synchronization (Multi-Channel)**

Support of Index-style Mill-Turn machines

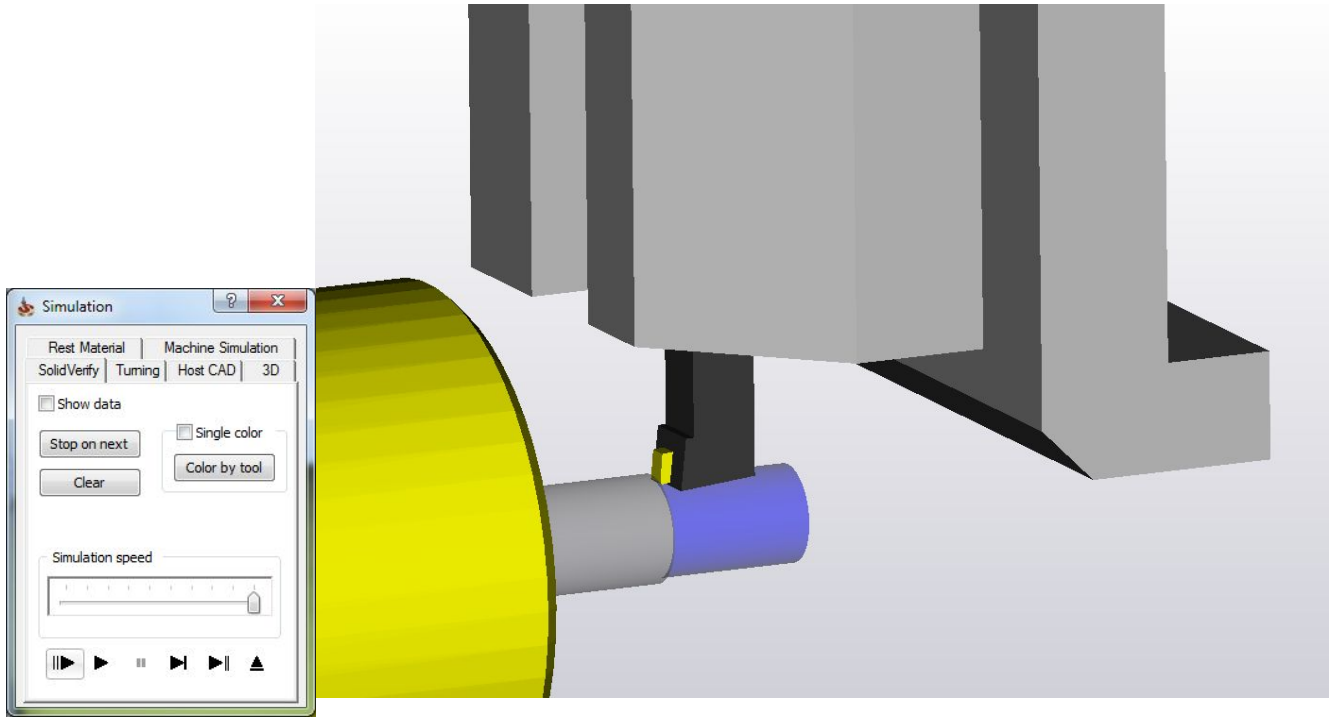


Index R200

- **Index-style: Two spindles, Each turret is a combined turret (B-axis type and Linear type)**
- **Full support of MCO operations, with full machine simulation**
- **Programming by Channels (not by Turrets)**

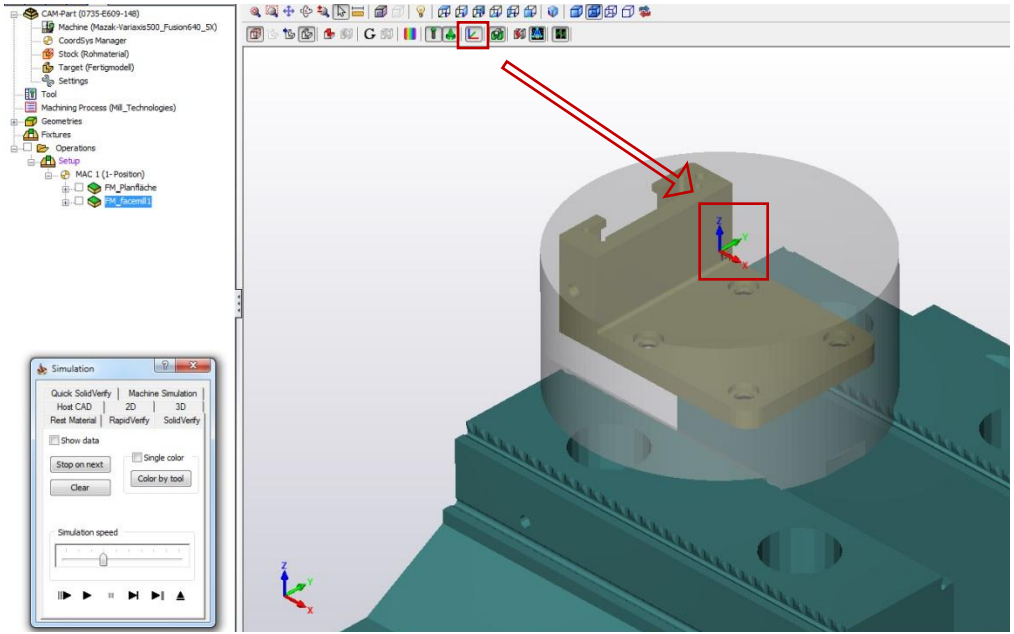
Simulation

Simulation: Show STL holders in simulation



- **Show STL holders in simulation and in gouge checking**

Simulation: Show current CoordSys in SolidVerify simulation



- **Show current CoordSys in SolidVerify simulation**
- **Useful for Shop Floor Editor, where SolidCAM runs standalone.**

Tool Libraries integrations

Tool Libraries

Iscar

Carmex

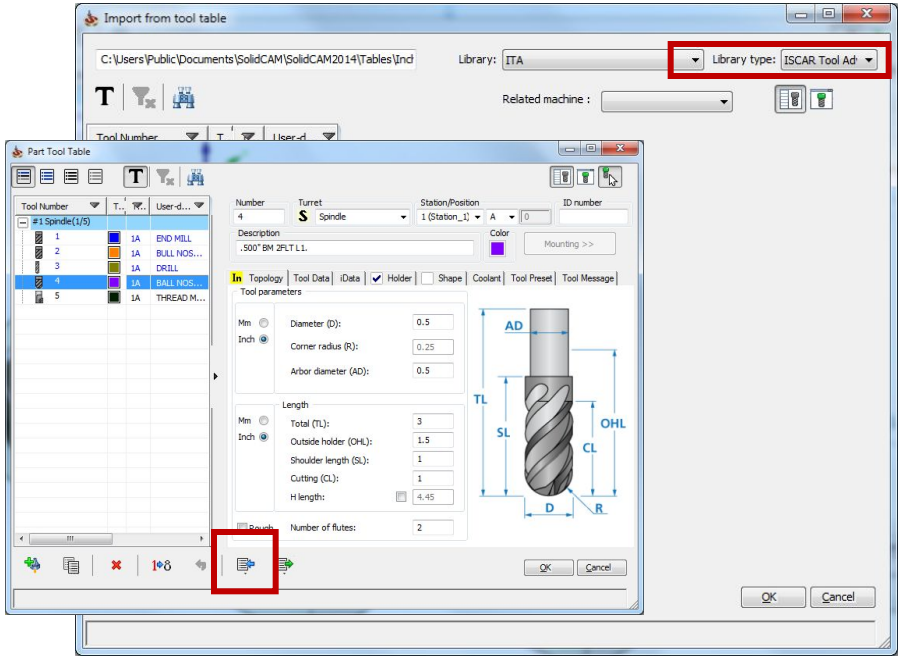
Vardex

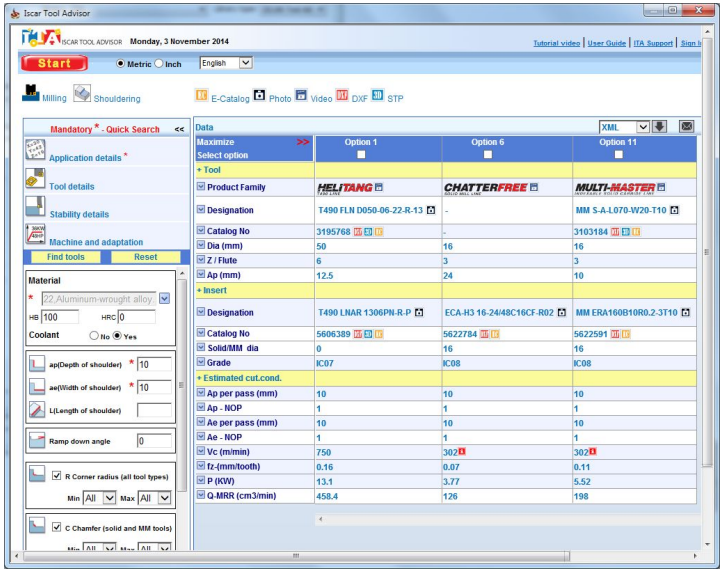
- **Online / Offline Databases from Tool Manufacturer**
- **Offering 2D/3D CAD Models with exact Tool Dimensions**
- **.. and recommended Cutting Conditions for their Tools**

ISCAR Tool Advisor (ITA)

- **Online Catalog with assistance to guide users to the best ISCAR Tools**

Integration with ISCAR Tool Advisor (ITA)





http://www.iscar.com/ita/MainPage.aspx

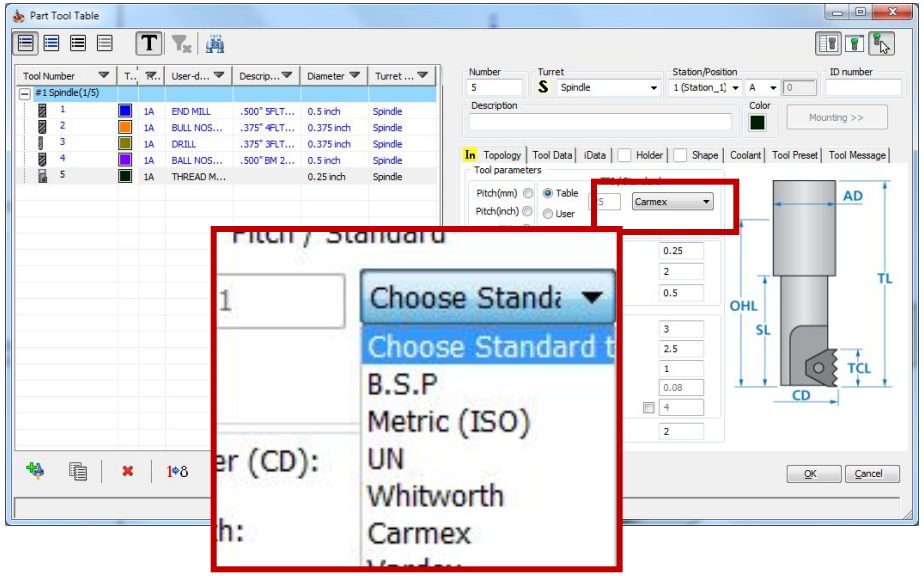
- **At the Import Option of the Tool Table, select ISCAR Tool Advisor to launch it**

Carmex

http://www.carmex.com

- **Carmex is specialized in the Production of Threading Tools for Turning and Milling**

Integration with Carmex Tool Library



(Carmex software should be installed)

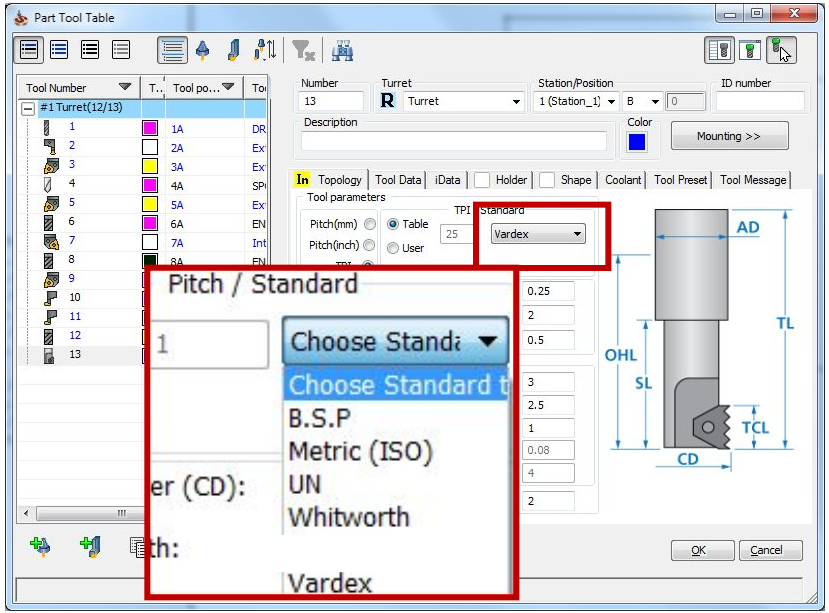
- **Integration at the Tool Type Thread Mill in the Table of Pitch / Standard**
- **Select Carmex from the List - Carmex Tool Recommendation Software starts**

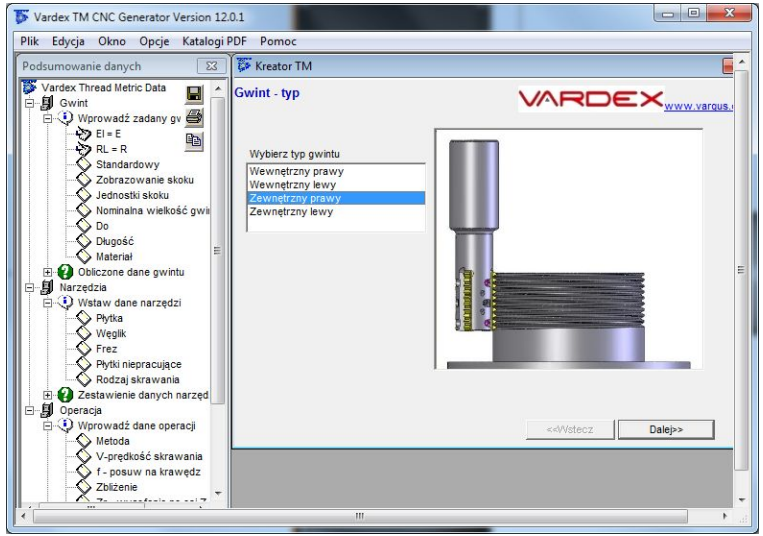
Vardex

http://www.vargus.de/

- **Vardex is a Product Line from Vargus for Threading Tools**

Integration with Vardex Tool Library



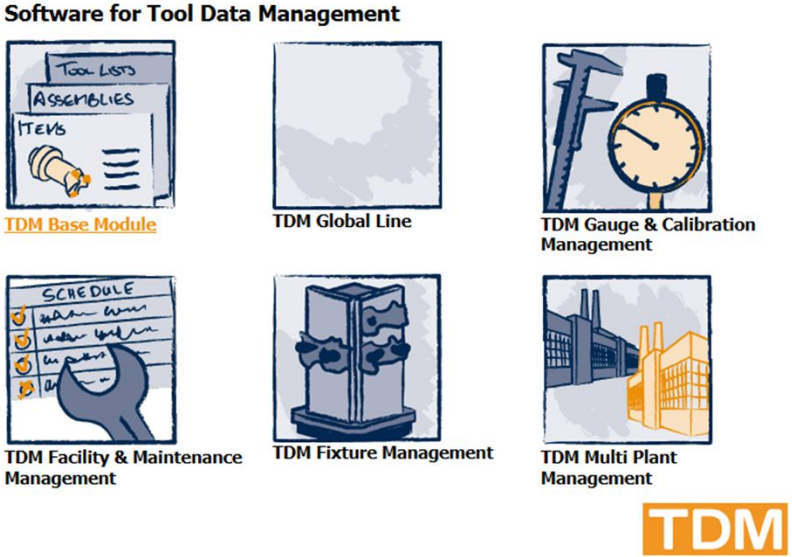


(Vardex software should be installed)

- **Integration at the Tool Type Thread Mill in the Table of Pitch / Standard**
- **Select Vardex from the List - The Vardex TM Assistant starts**

Tool Management Softwares Integration

Tool Data Management Softwares



TDM

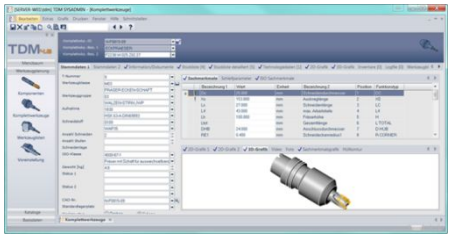
WinTool

- **Software to manage the overall information of Tools**

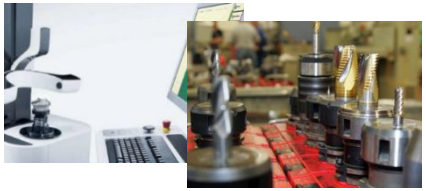
Tool Data Management (TDM) Software

2D / 3D CAD Model

Cutting Conditions



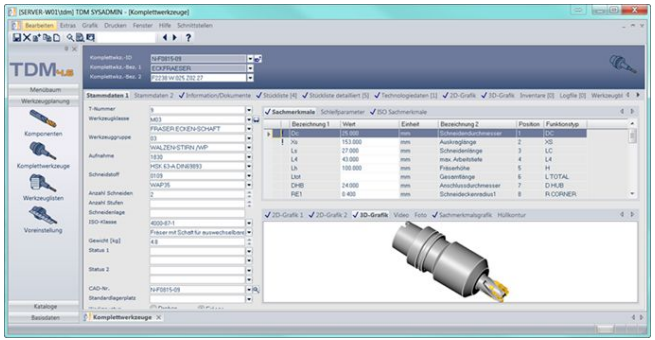
Production Information

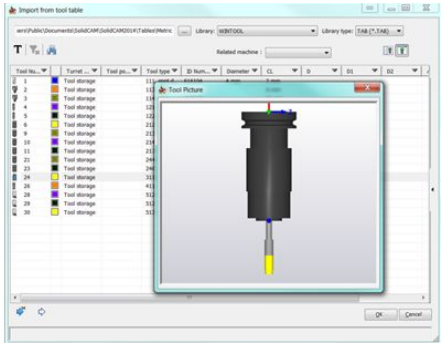


Tool Presetting

Workflow using TDM Software

Collect Data → Create a Tool with a combination of Data → Use in InventorCAM Import Tool Option





e.g. downloaded 2D/3D CAD Models

Build a Tool as a combination of different CAD Models and Information

Tool with Holder imported from TDM Software

TDM Version 4.6

tdmsystems

Software for Tool Data Management

TDM Base Module

TDM Global Line

TDM Gauge & Calibration Management

TDM Facility & Maintenance Management

TDM Fixture Management

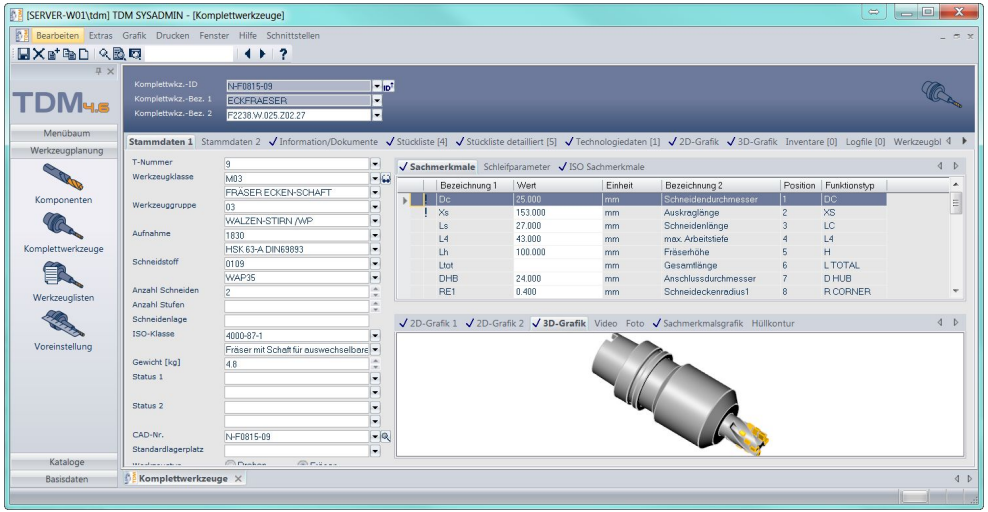
TDM Multi Plant Management

TDM

YouTube http://youtu.be/A3a-jyhMmUY

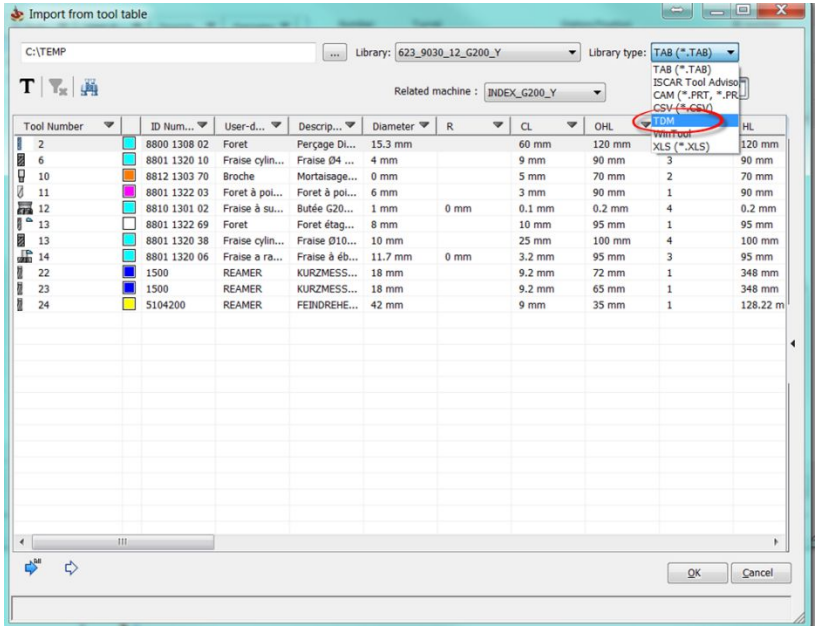
Management of Tools and Manufacturing Data in TDM

Collect components → **Assemble it** → **Export to CAM**

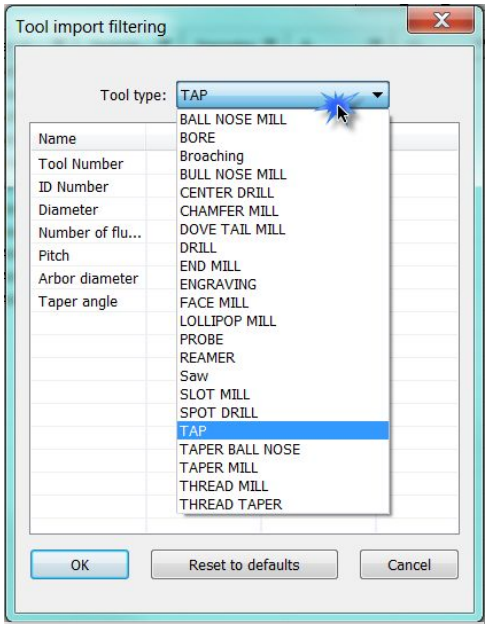


- **Users collect the models form online Recourses and build the Assembly of the whole Tool inside TDM**
- **TDM generates automatically ready to use Data for the InventorCAM Tool Table**

Integration with TDM



(TDM should be installed at the Client / Server)



Tool Import filtering dialog

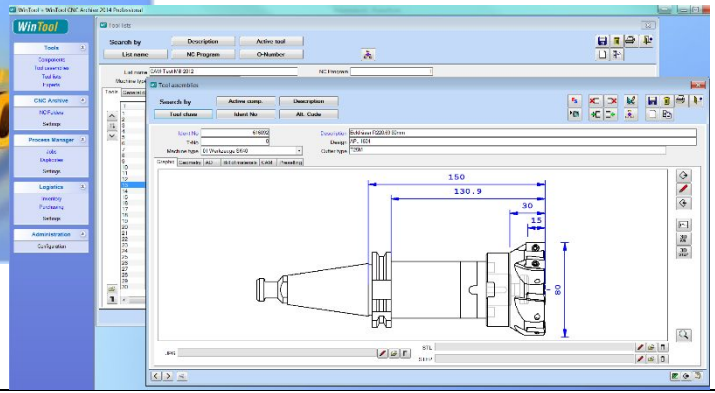
- **At the InventorCAM Import Option of Tool table, select TDM – tool import filtering dialog opens**

For more nformation
click to the Logo

- **WinTool - Software for Tool Data Management**

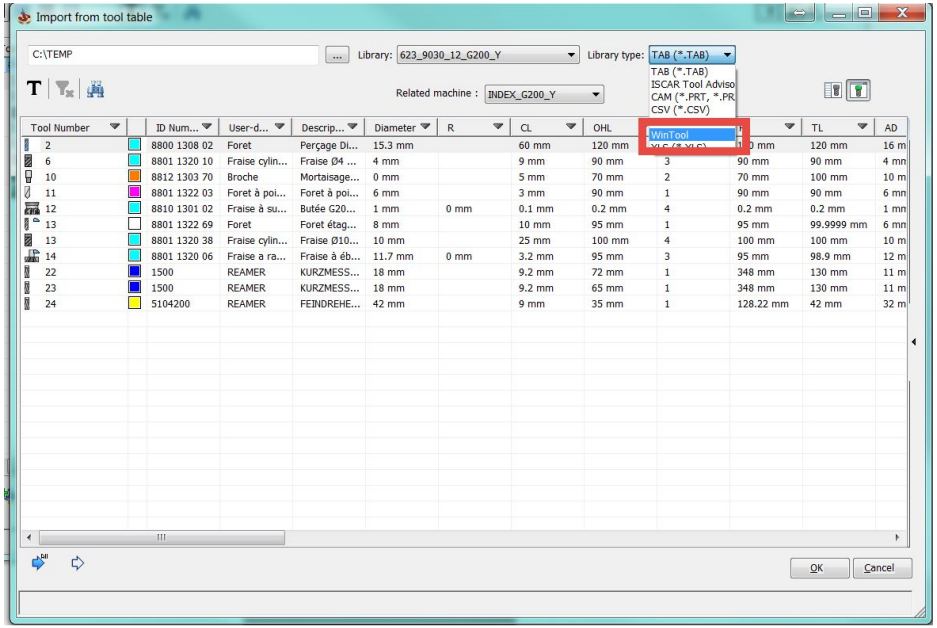
Collect components → Assemble it → Export to CAM

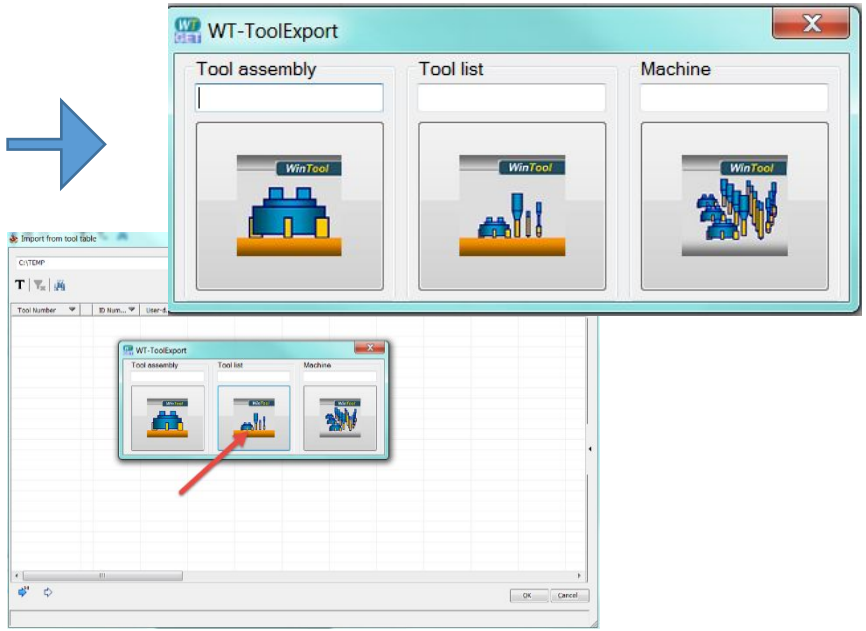
WinTool



- **Users collect the Models form Online Recourses and build the Assembly of the whole Tool inside WinTool**
- **WinTool generates ready to use Tool Data to import to InventorCAM ToolTable**

Integration with WinTool





(WinTool Professional should be installed and started)

- **At the InventorCAM Import Option of the Tool table, select Wintool - Tool Export Dialog opens**