InventorCAM 2013

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Parallel Computing

A major new capability in InventorCAM 2013:
Parallel Computing

• User can start calculation of an operation or several operations and, while it is calculating, he can in parallel continue to define and calculate additional operations

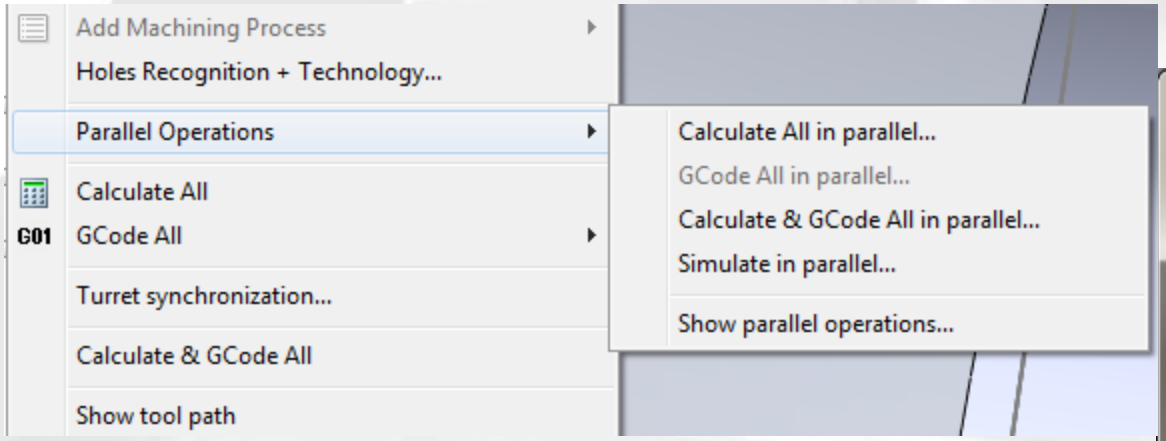
• User can start parallel simulation and, while it is simulating in the background, he can in parallel continue to work defining additional operations

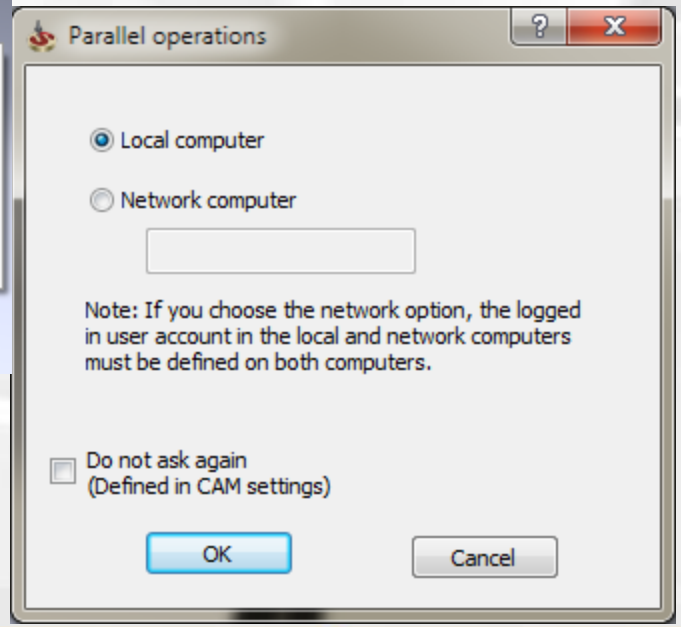
• User can start G-Code generation and, while it is generating G-code, he can in parallel continue to work defining additional operations

Parallel Computing – LOCAL or REMOTE

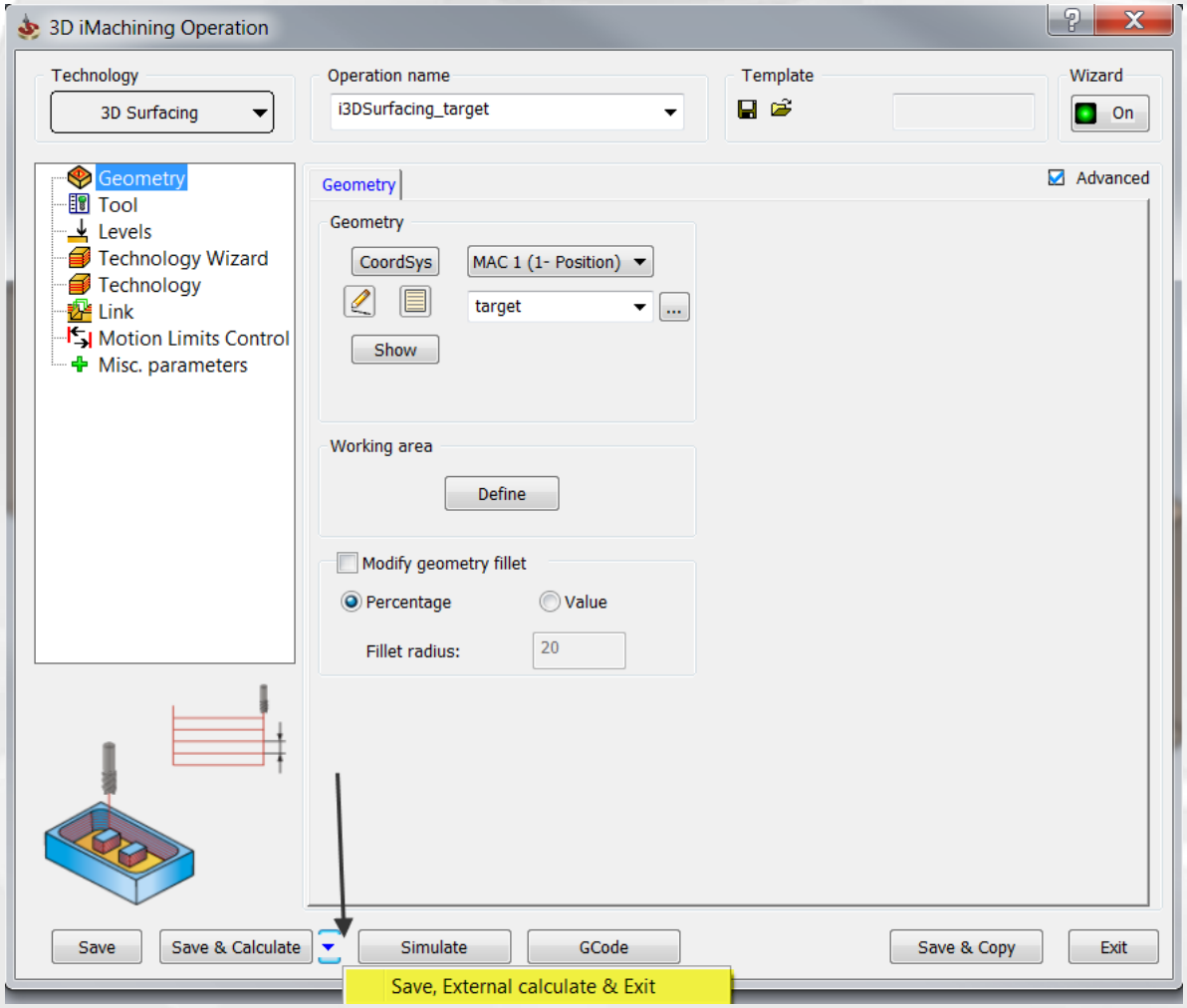
- LOCAL: Parallel computing on User Computer, using the power of multi-threading on multi-core CPUs

- REMOTE: Parallel computing on External computer on the Network





Parallel Computing – LOCAL or REMOTE



Software Licensing

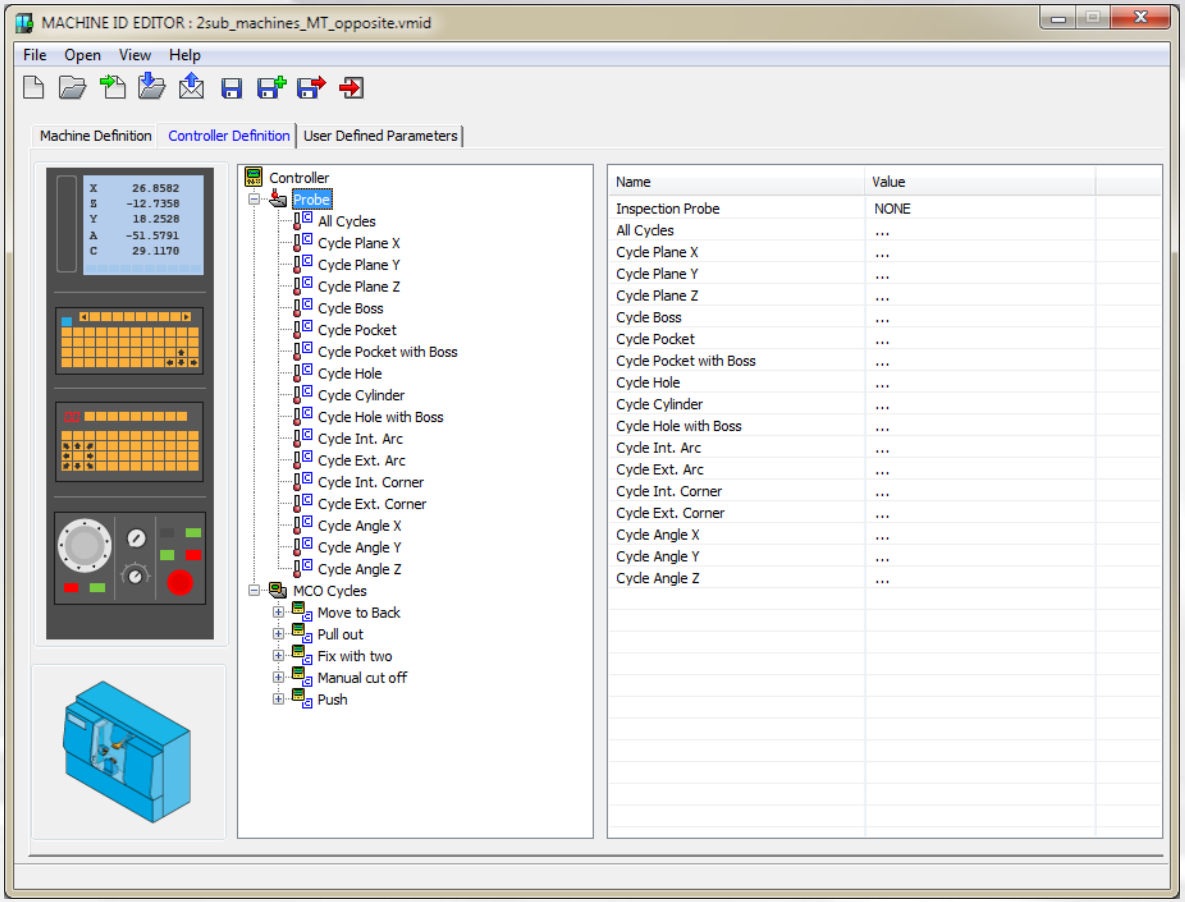
InventorCAM 2013 provides software licensing, in addition to the standard hardware dongle licensing.

Advantages:

- For companies demanding a network software license instead of network hardware dongle

- Used instead of hardware dongle for customers who want a 30-day evaluation of the software

Controller ID



- **First stage on the way to make machine definition in one file - *.VMID**
- **Probe cycles and MCO cycles are moved to *.VMID already in SC2012SP2**

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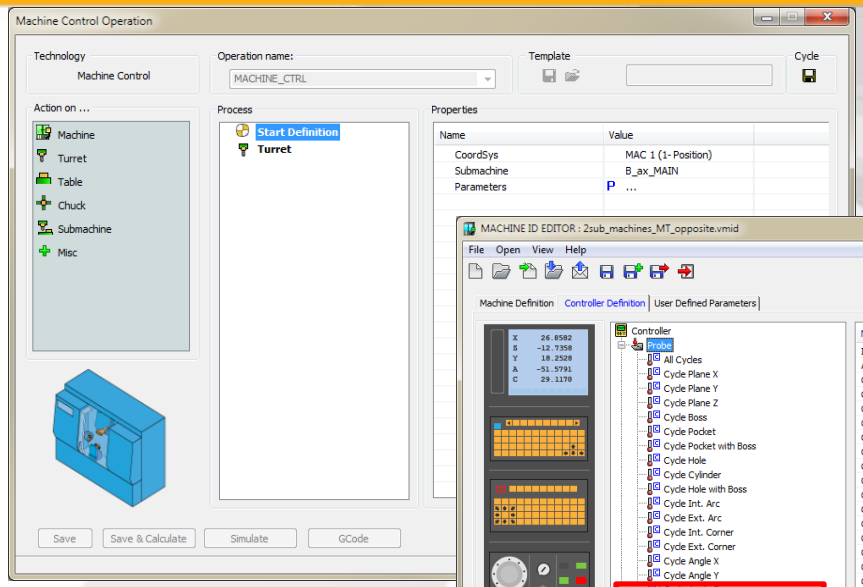
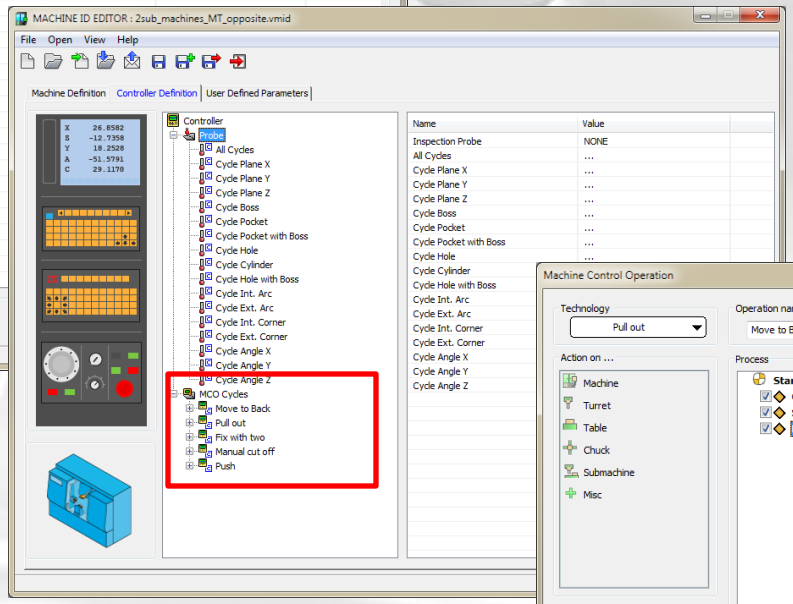
MCO cycles

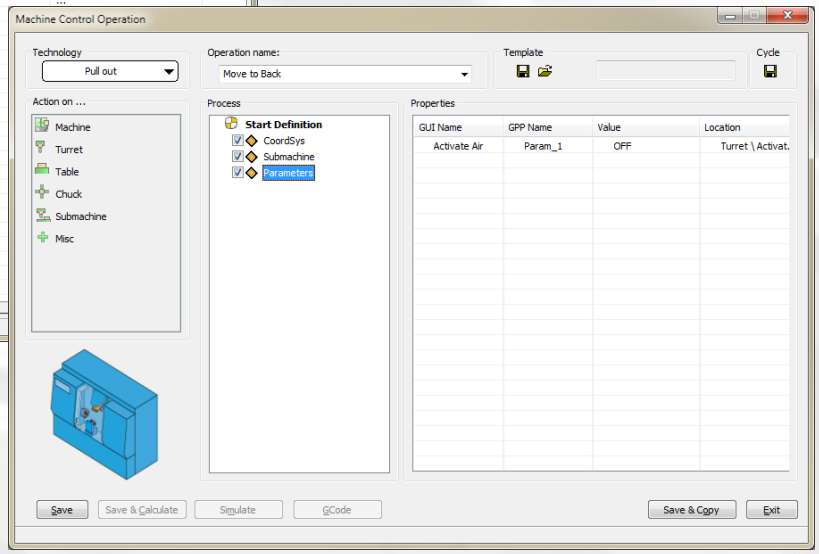
- **Predefined machine cycles**
- **User sees only needed parameters**



Create cycle



Save cycle



Use it in any CAM-part easily

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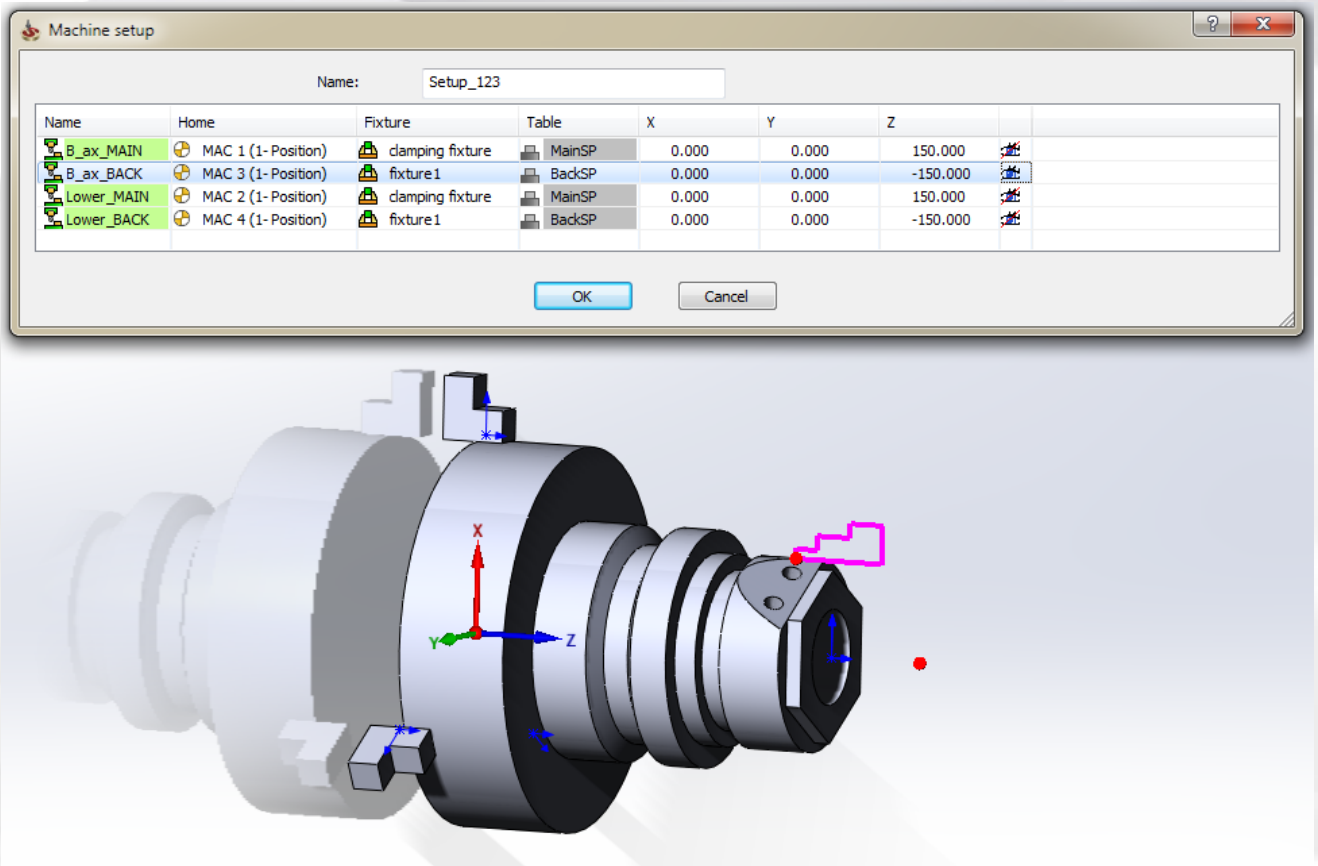
Machine Setup



- **Definition of fixture, MACs shiftings in one place**
- **Conection between fixture, MAC and Sub-Machine**

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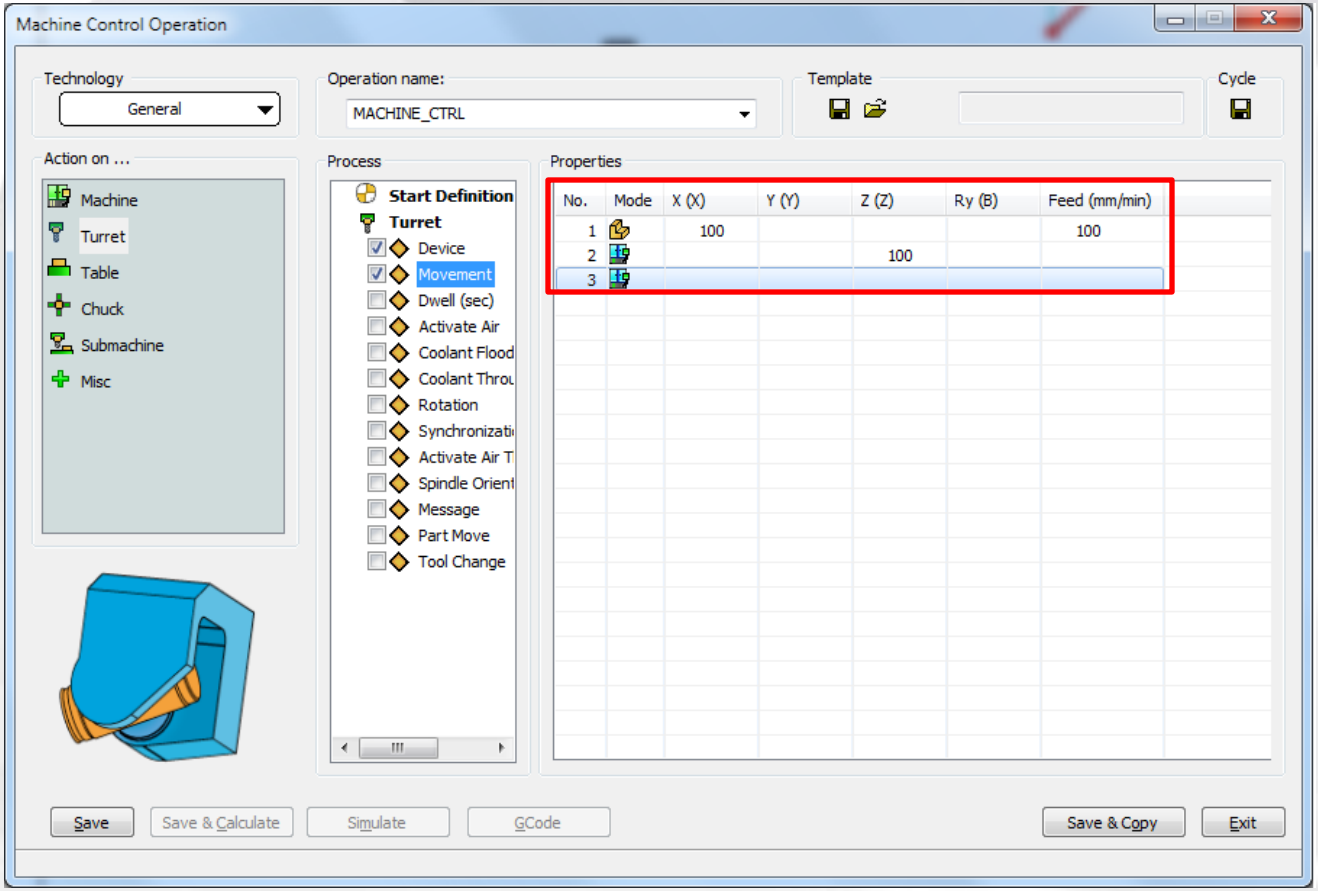
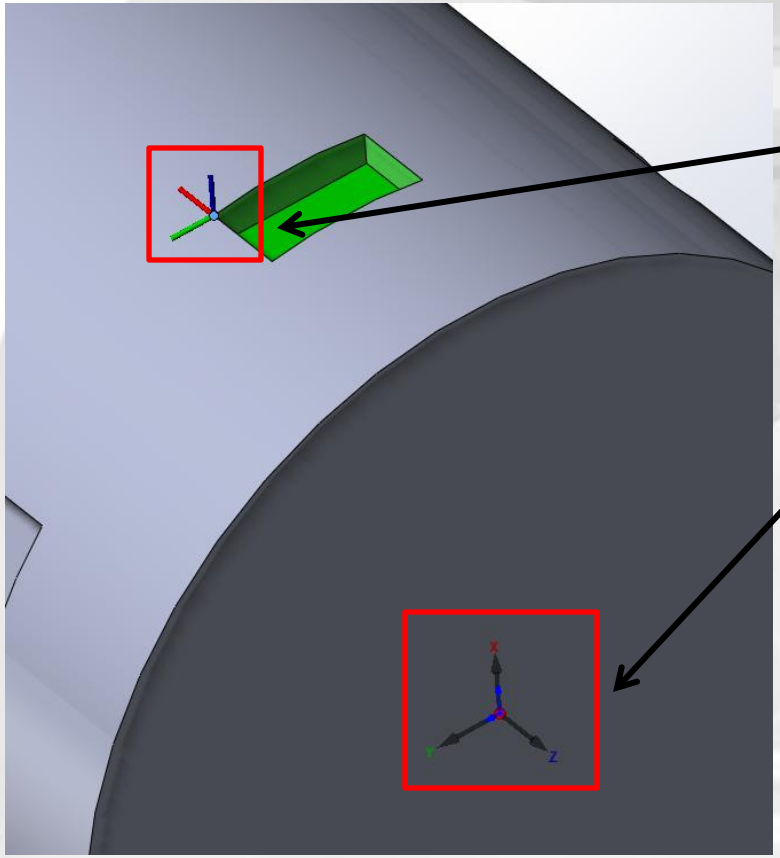
MCO: Movement definition styles



- **Definition of device movements in Part CoordSys**
- **Definition of device movement by axis value (according to Device CoordSys)**

CoordSys: Easier CoordSys Edit

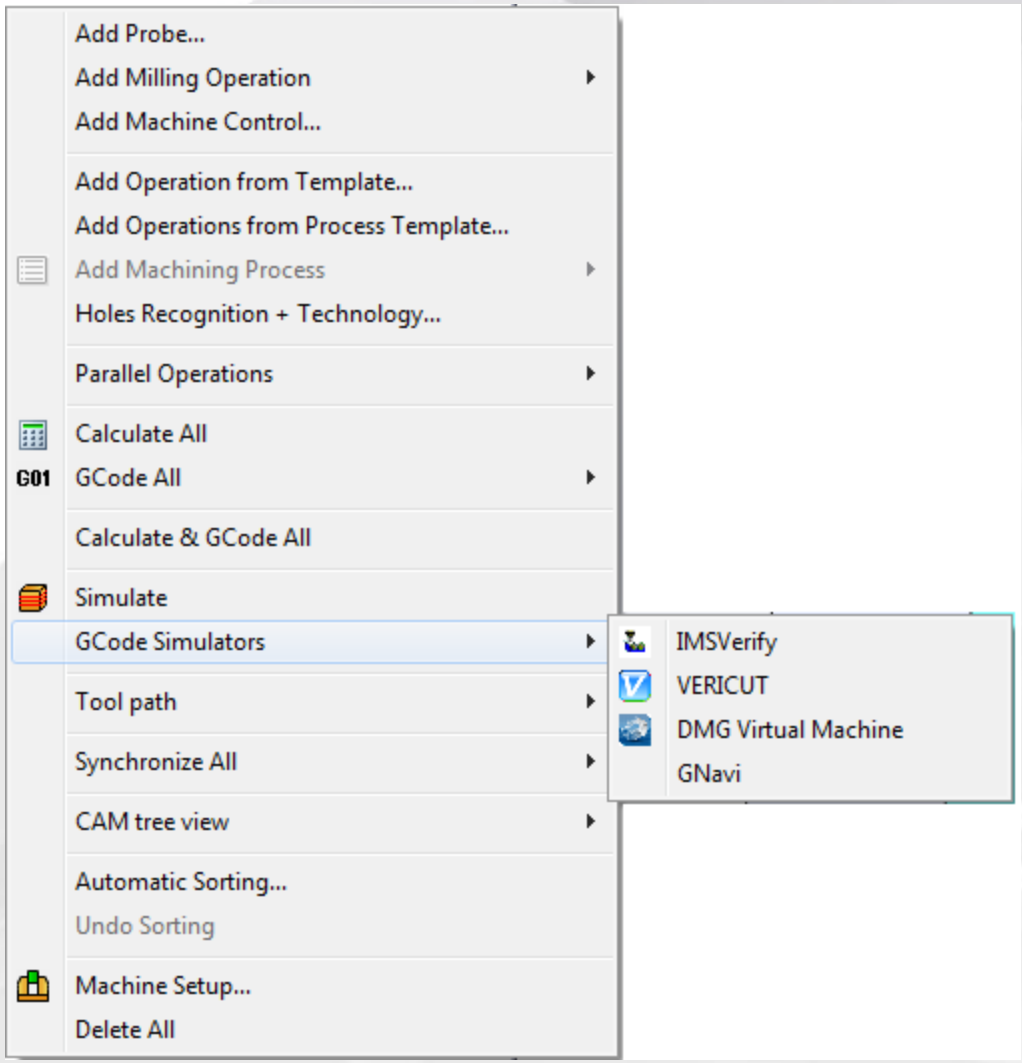


New CoordSys

Existing CoordSys
(highlighted by gray color)

- Partly highlighted Existing Coordinate System

Integration with G-code simulators



Possibility to use for Gcode simulation the following simulators:

- **VERICUT**
- **IMSVerify**
- **DMG Virtual Machine**
- **G-Navi**

Send all needed data by one mouse click

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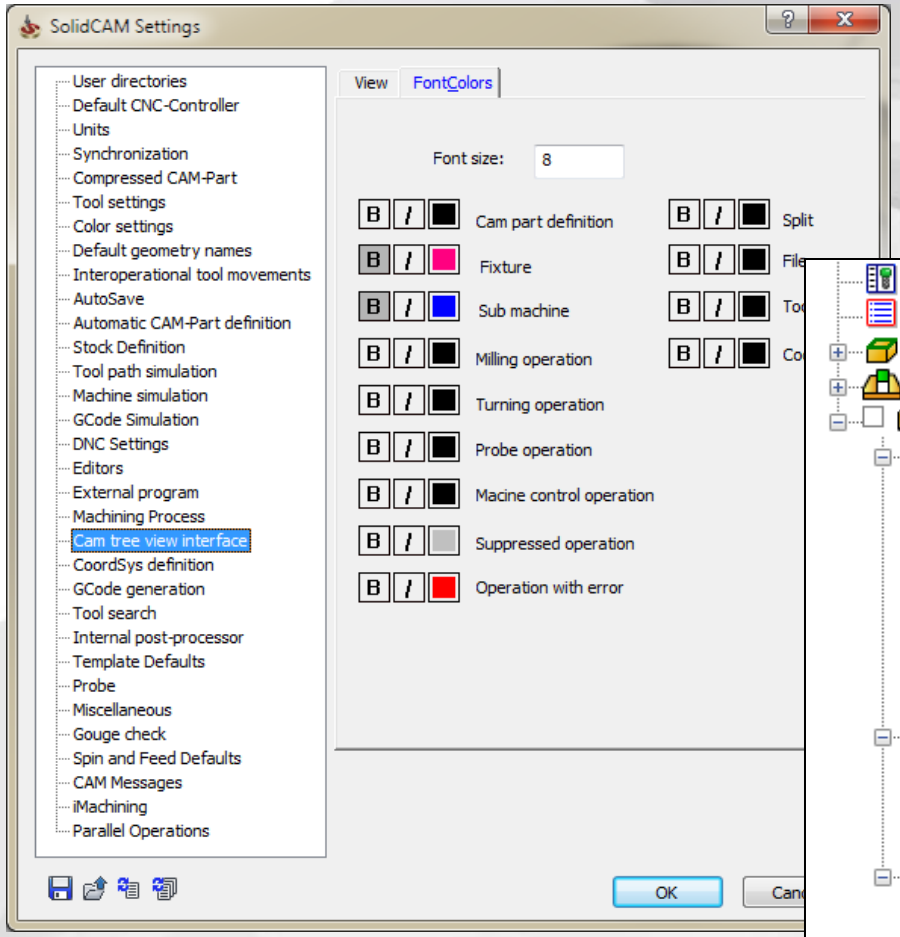
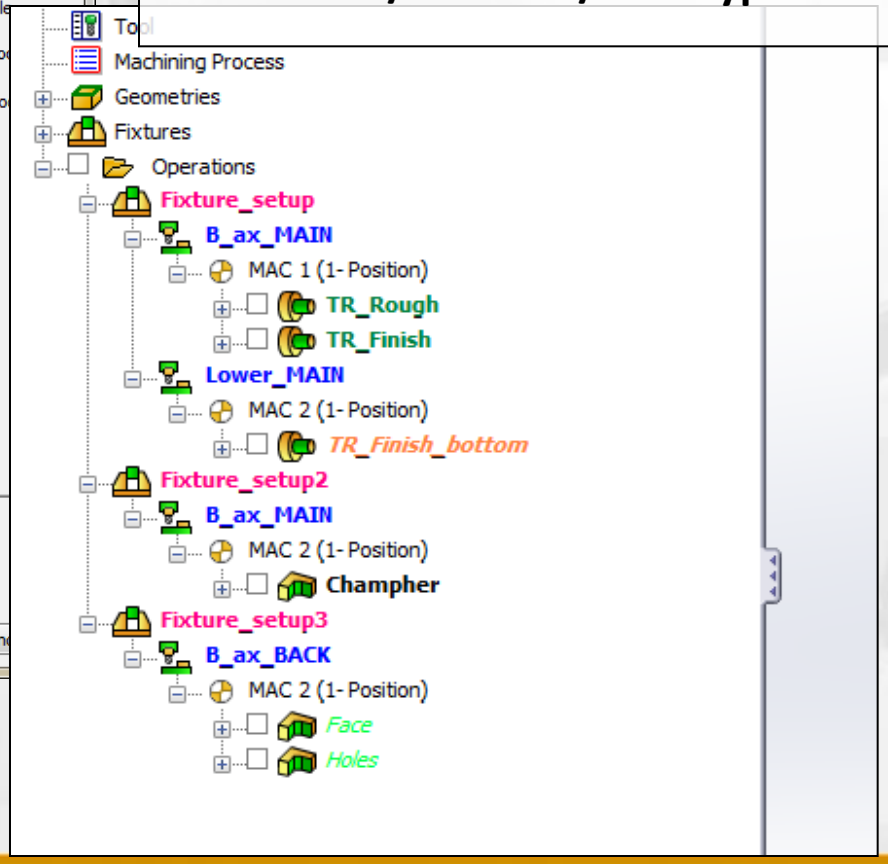
Color the CAM-tree

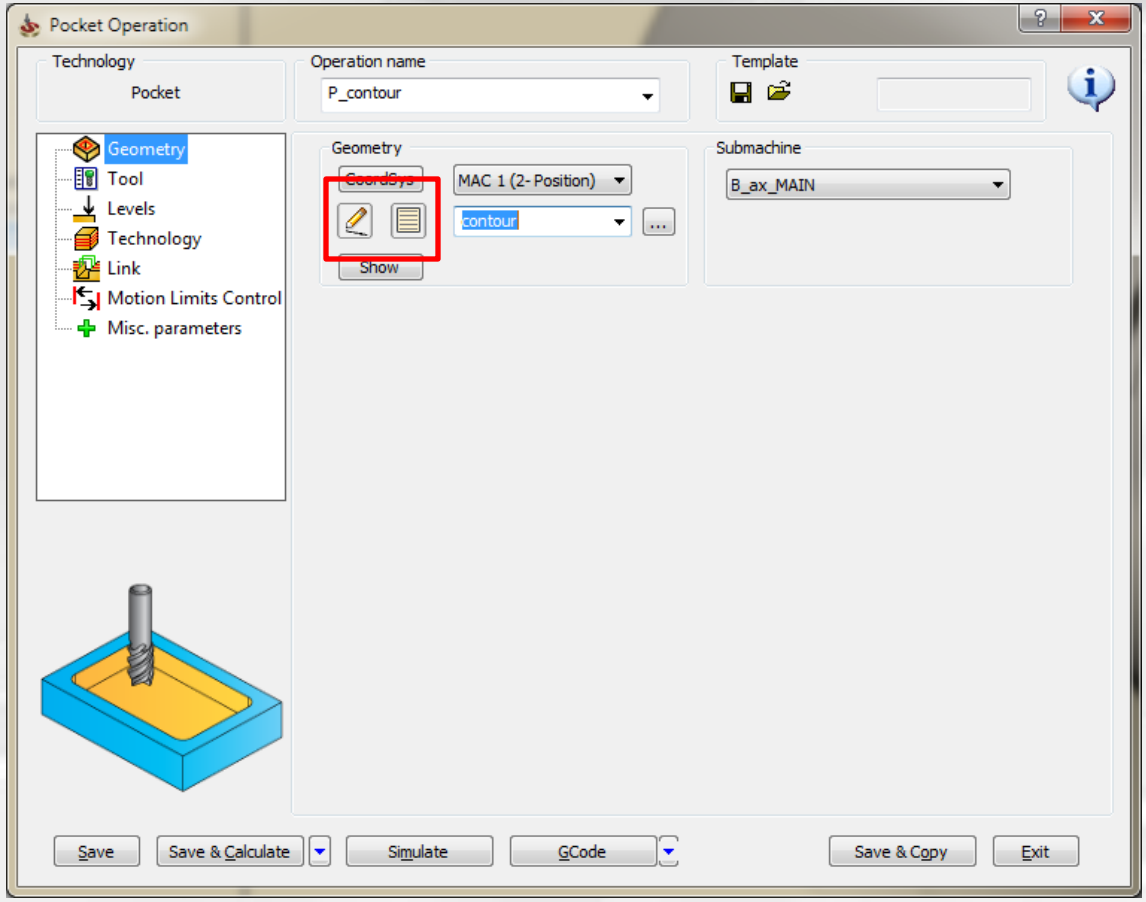
- Assign color for each operation group
- Color the operation by tool color
- Change font size
- Normal/Coursive/Bold types of fonts





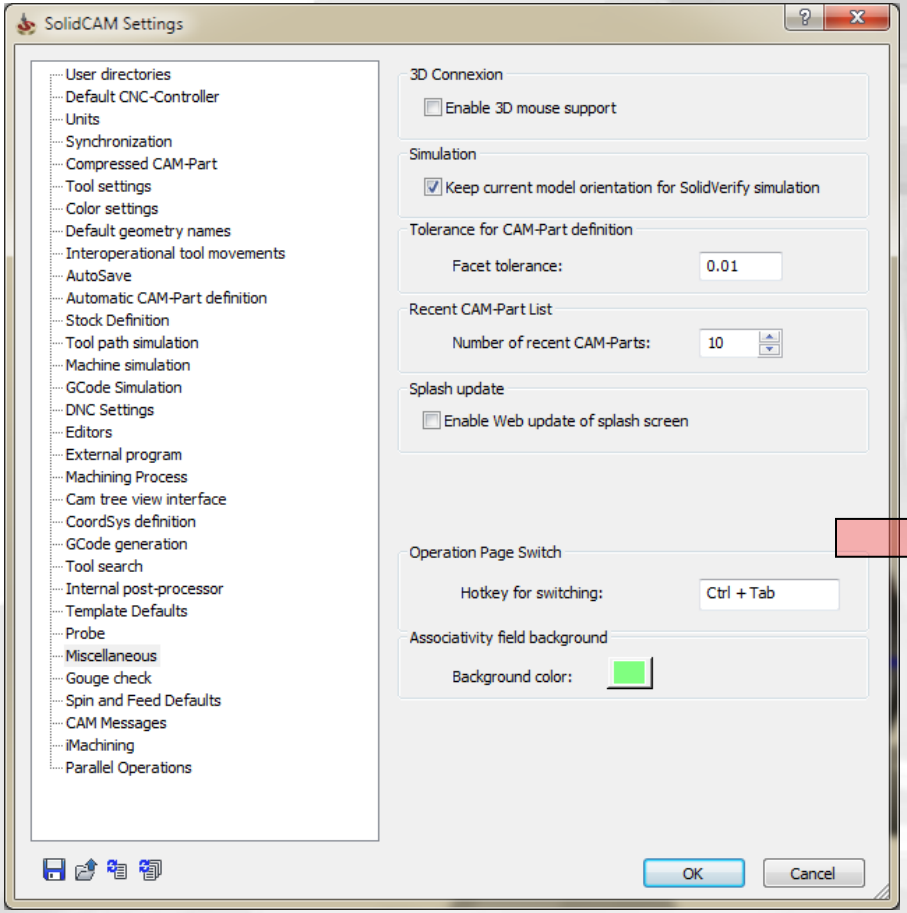
InventorCAM

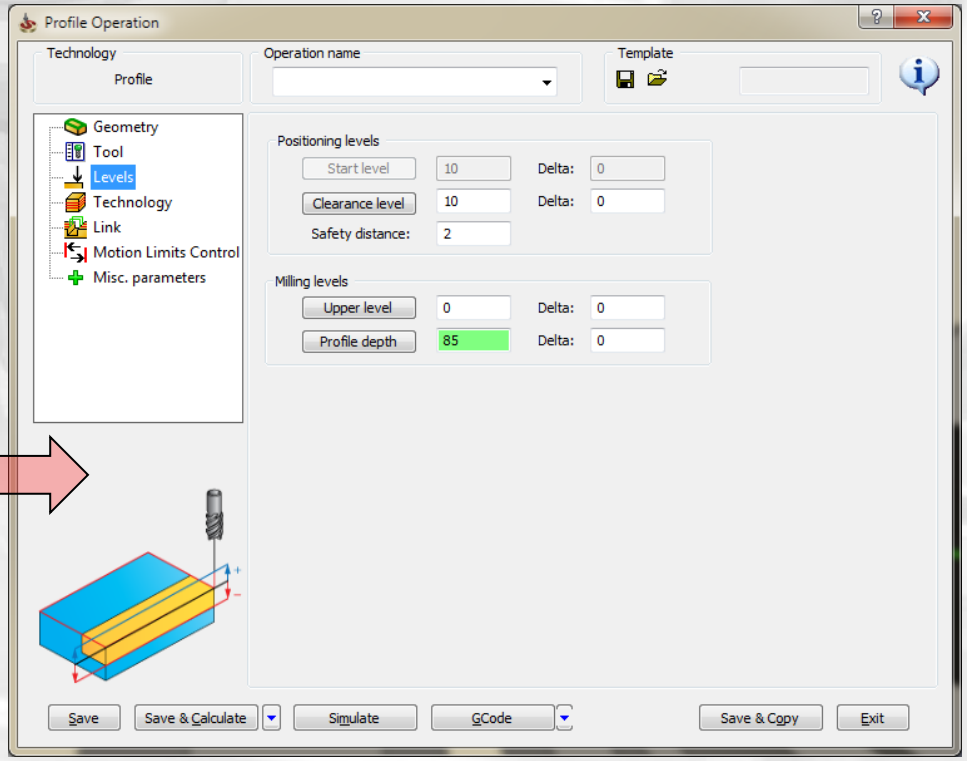
General: New and Edit geometry



- **No need to delete previous geometry from interface to define new one**

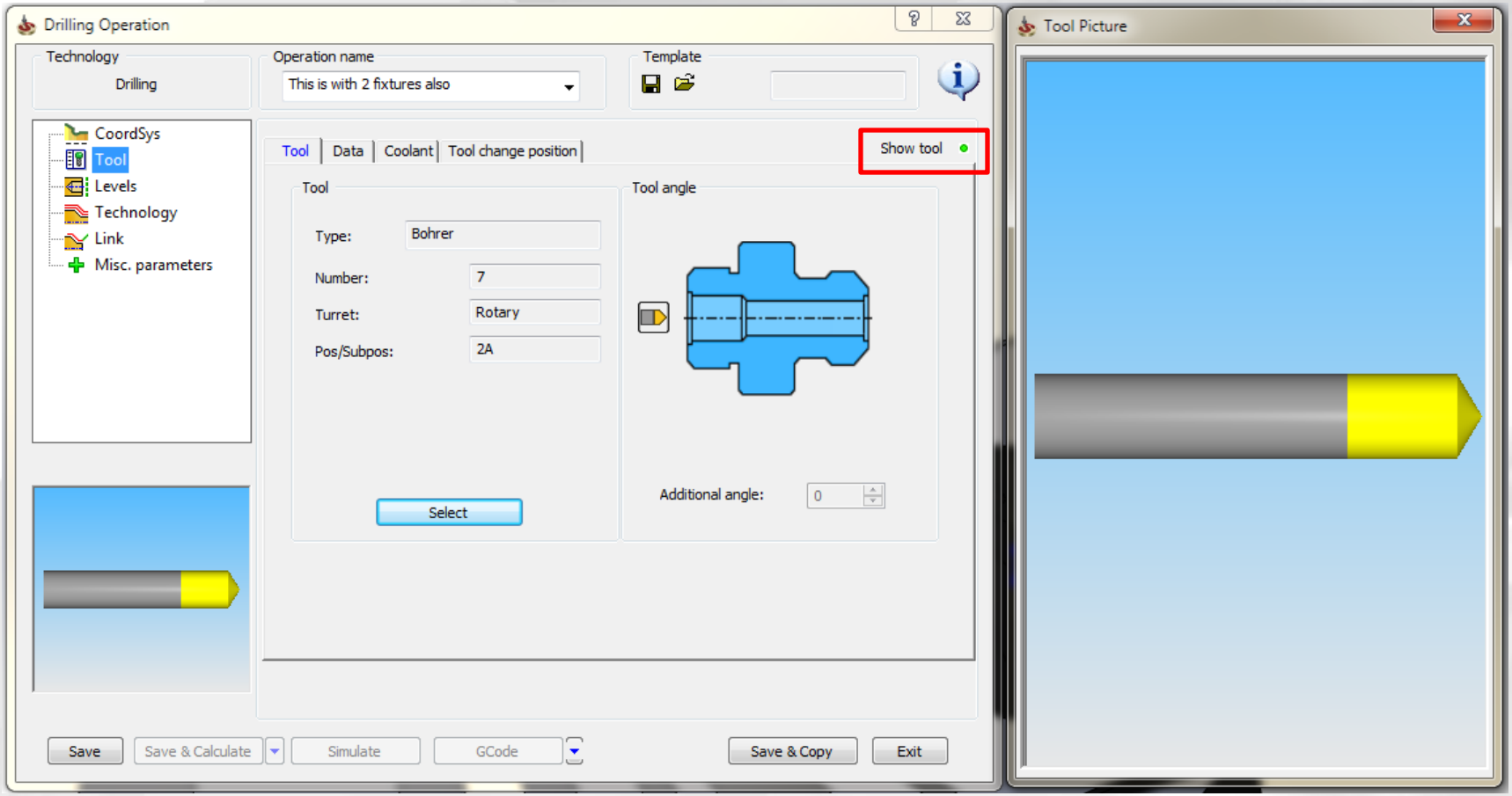
General: Associative cell color





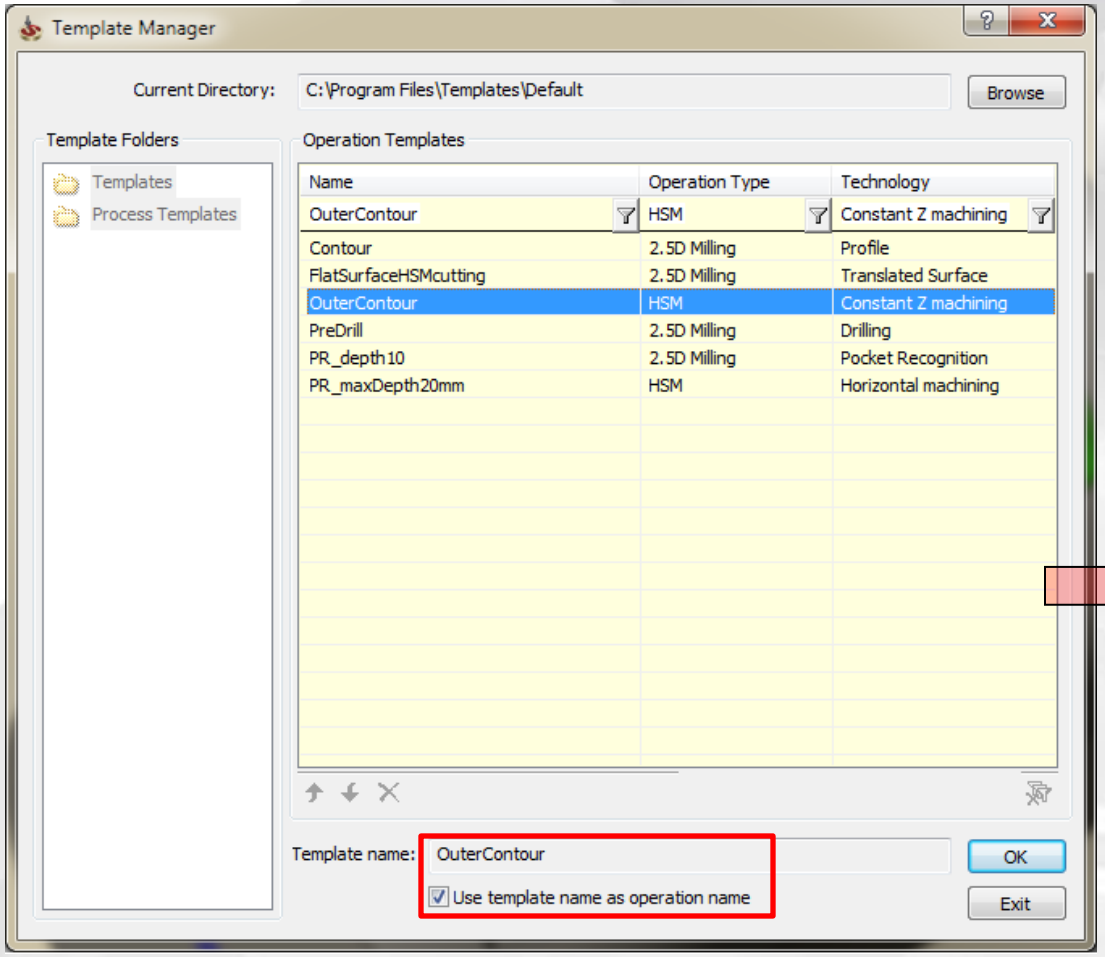
- **Customize the color of Associative field in interface (red was confusing)**

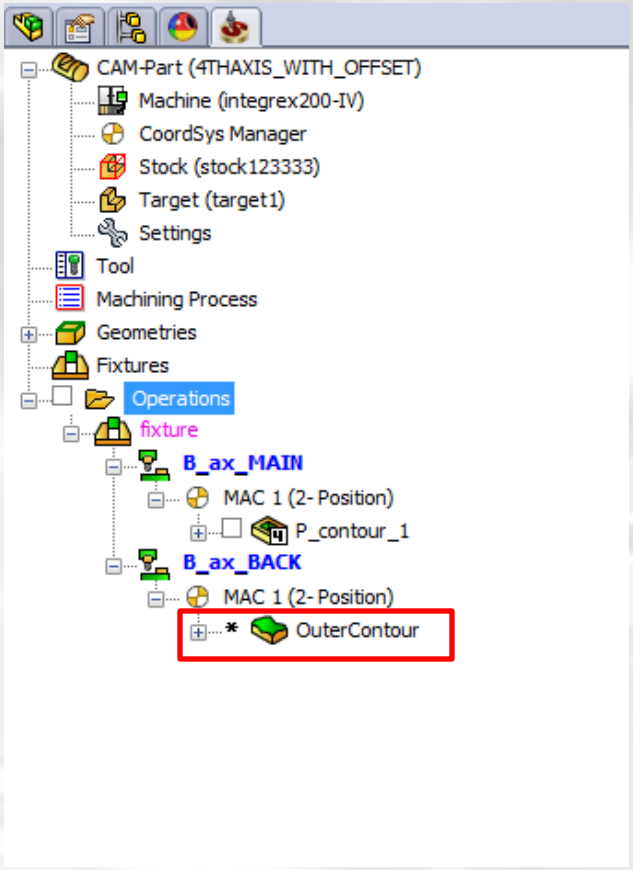
General: Show tool from all operations



- **Show 3D tool in separate window**

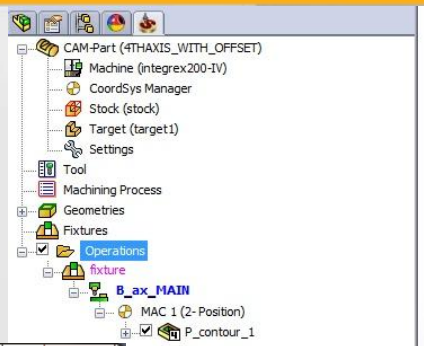
Template: Keep template name

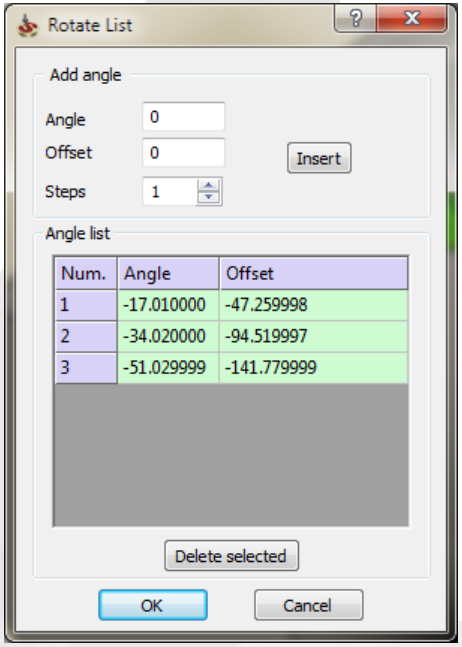




- **Use template name as name of operation created from this template**

Transform: 4x transform with offset

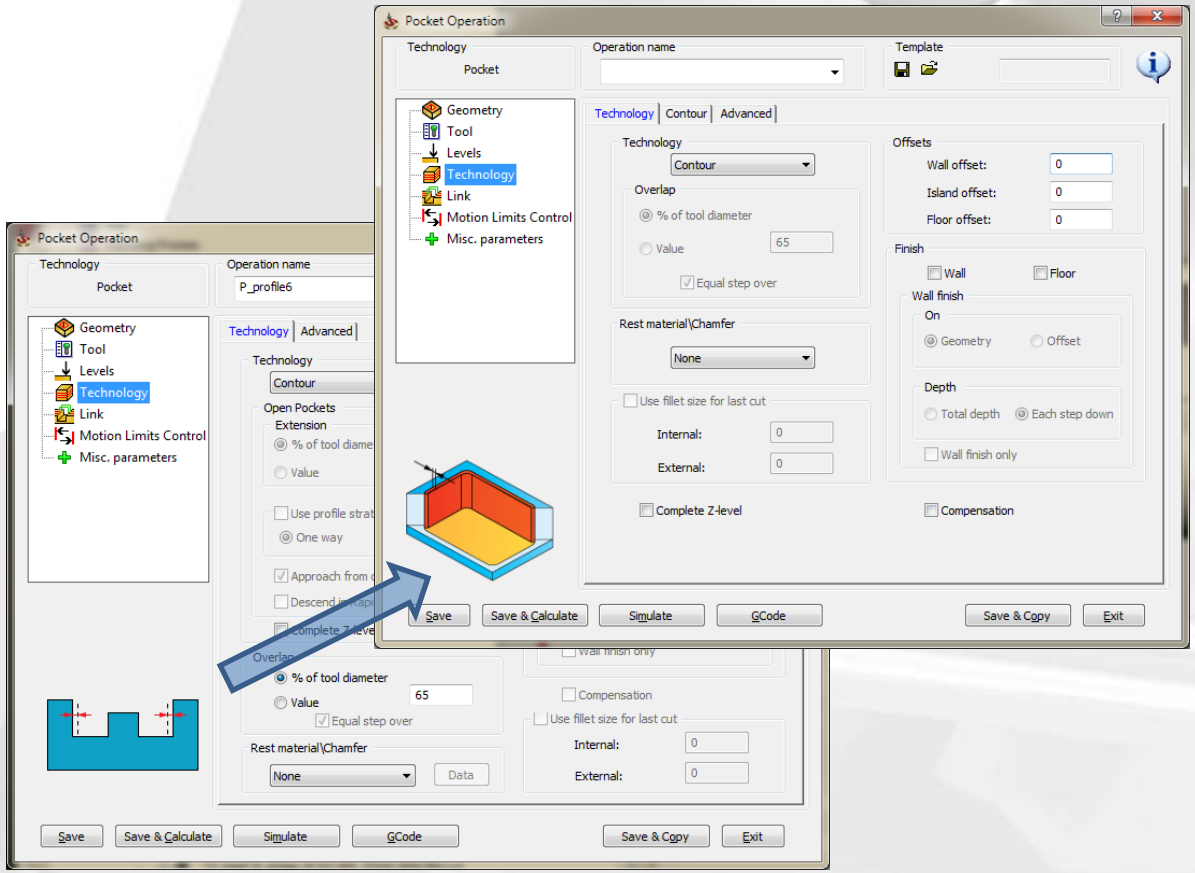


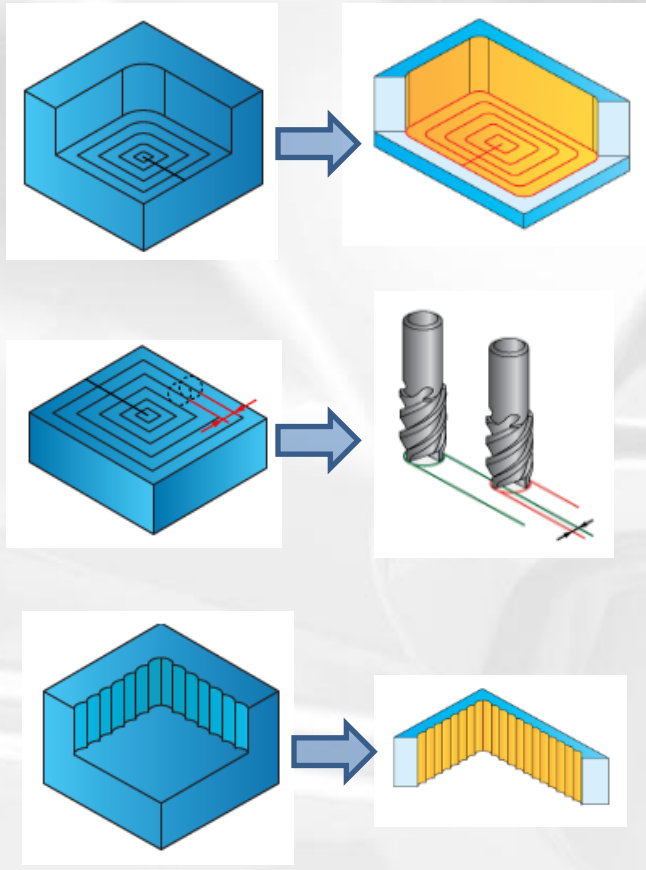


- **Possibility to add offset along 4th axis during transformation**

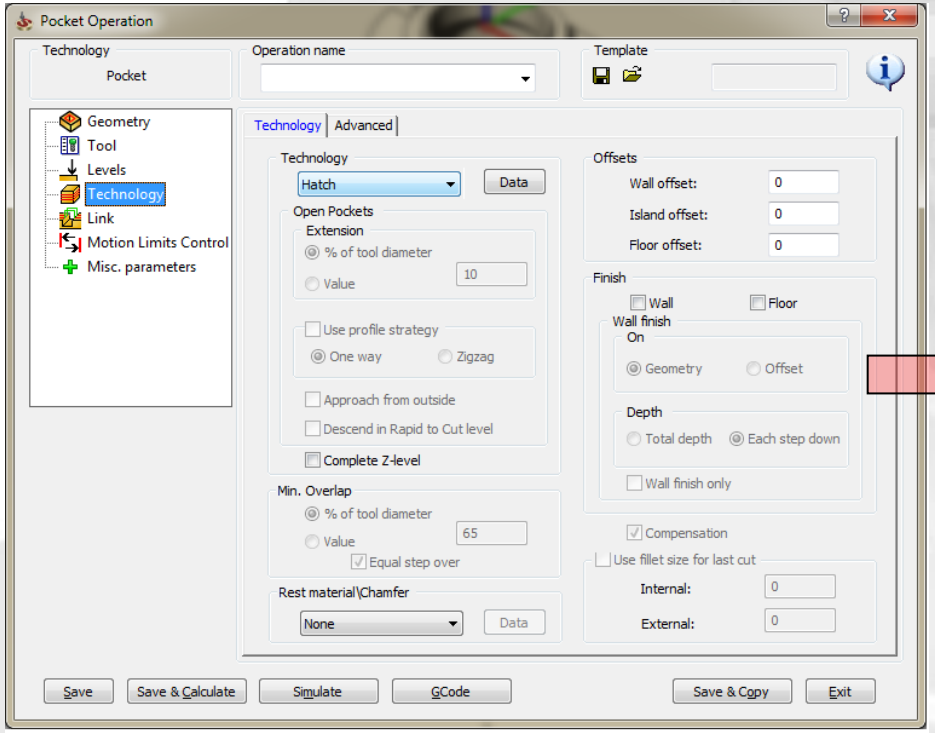
Impressive graphic interface

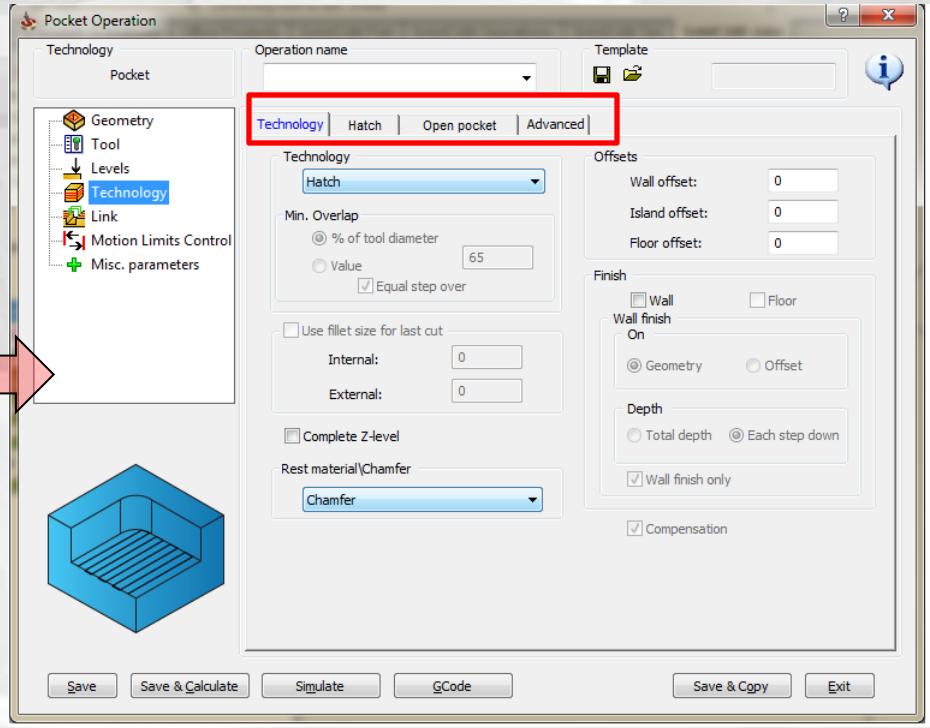
New 3D illustrations for every parameter = easier learning and activation of software





2.5D operations: technology on TABs





- **Split technology page of 2.5D milling operations to TABs**
- **More structured parameters placing**

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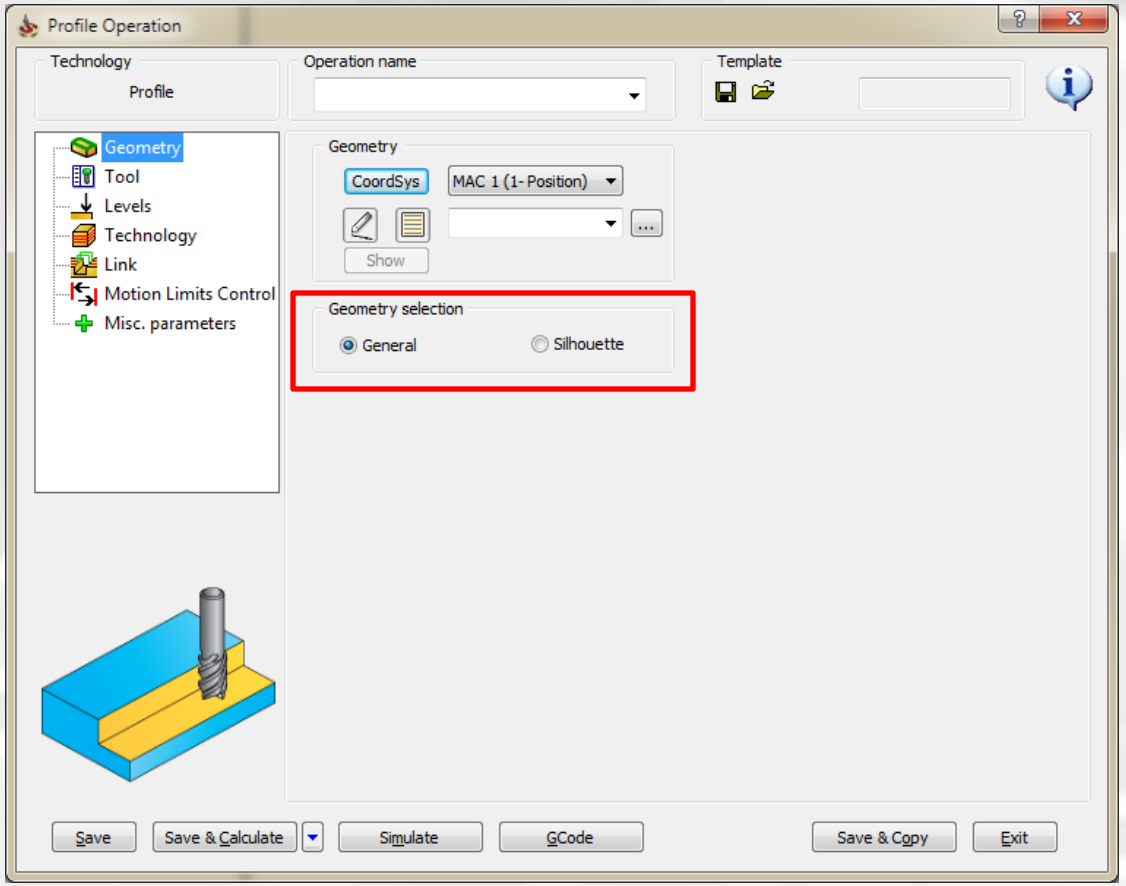
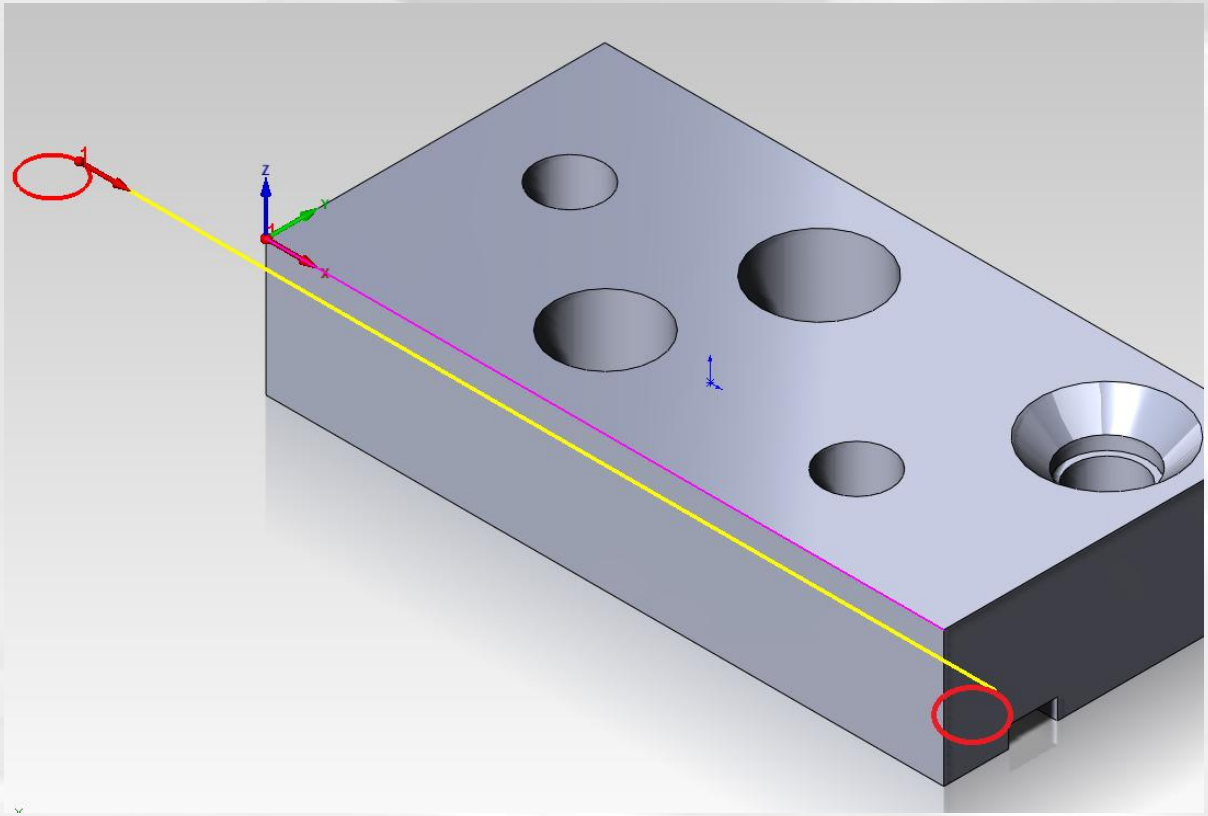
Profile geometry: Silhouette



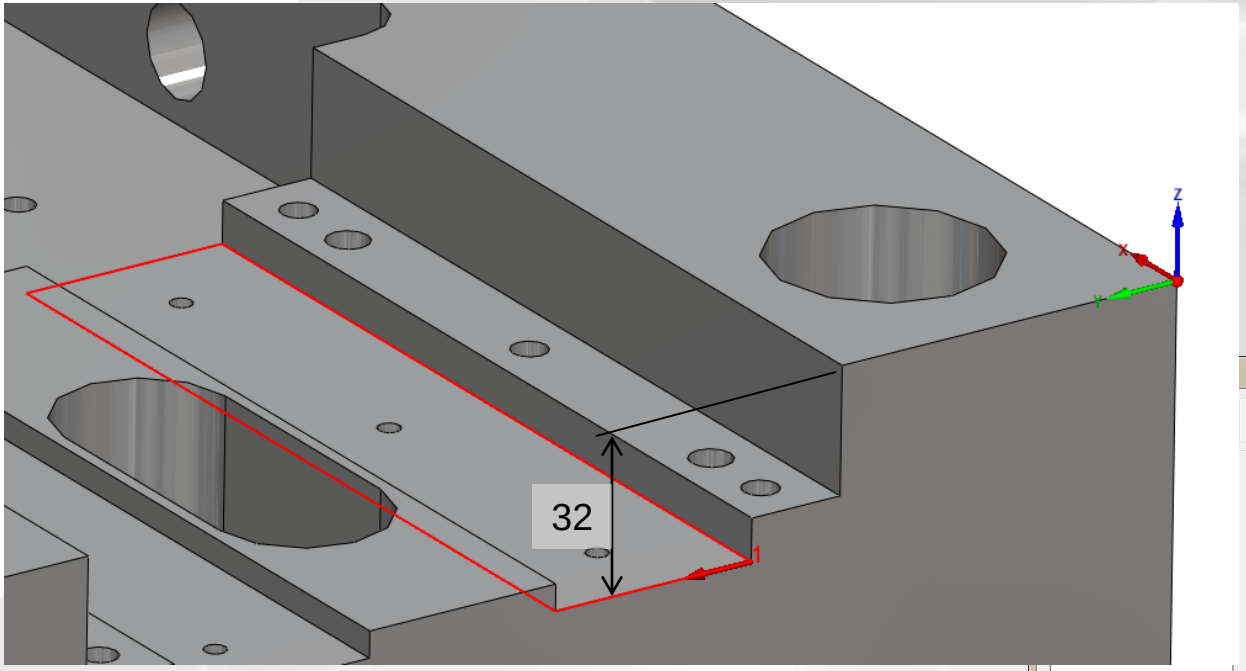
- **Automatic creation of silhouette around defined model**

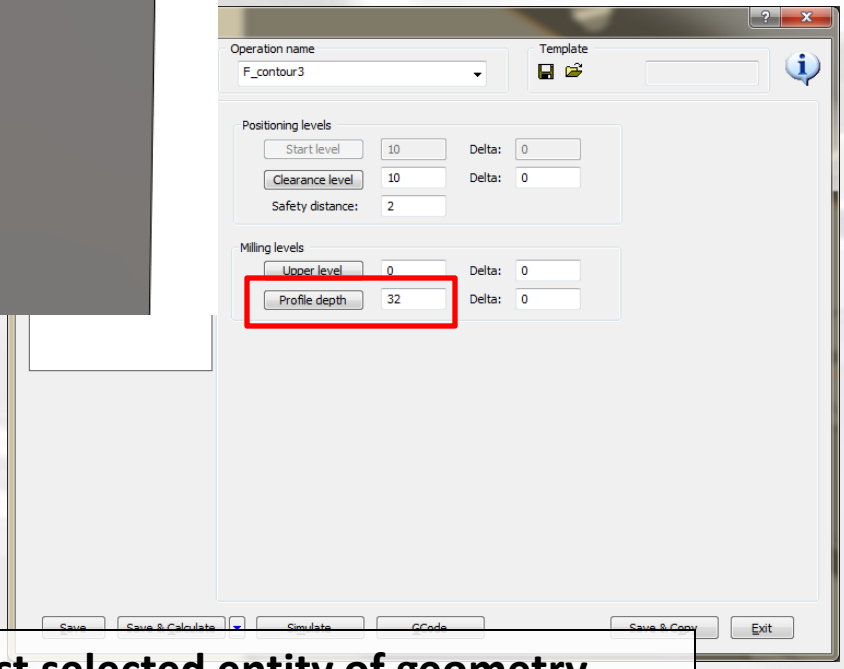
Profile geometry: Show tool at the end also



- **Under Modify geometry we can wee tool radius at the end and at the beginning of geometry**
- **Useful for complex geometries**

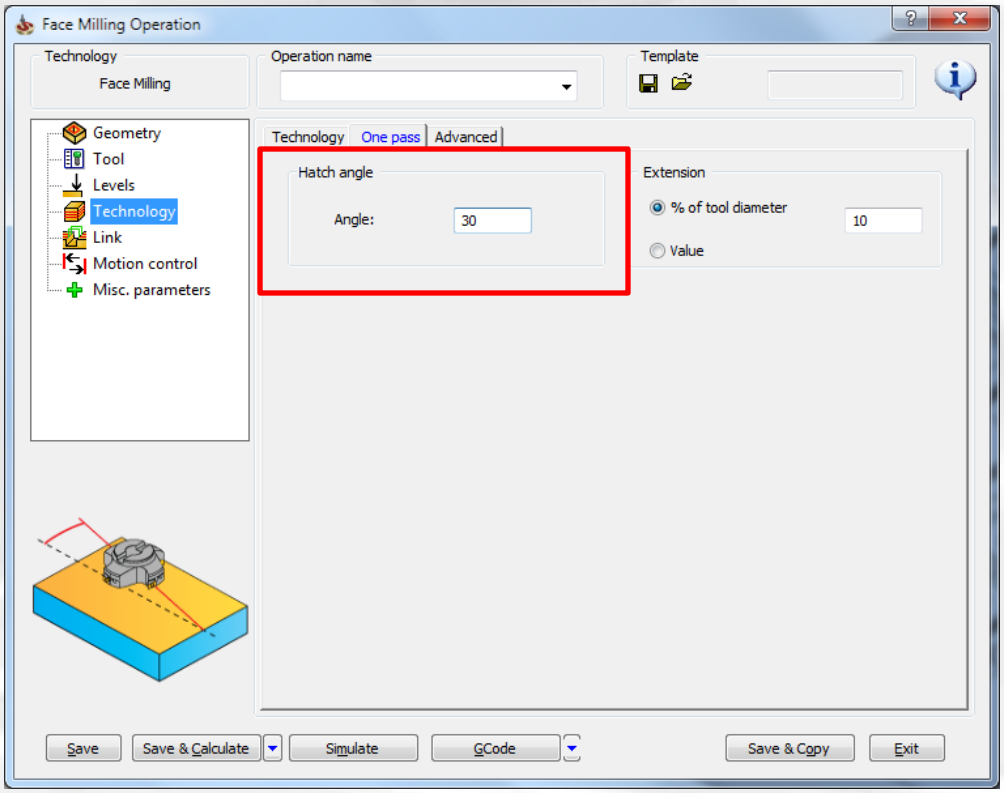
Profile geometry: Take depth from 1st selected item of geometry





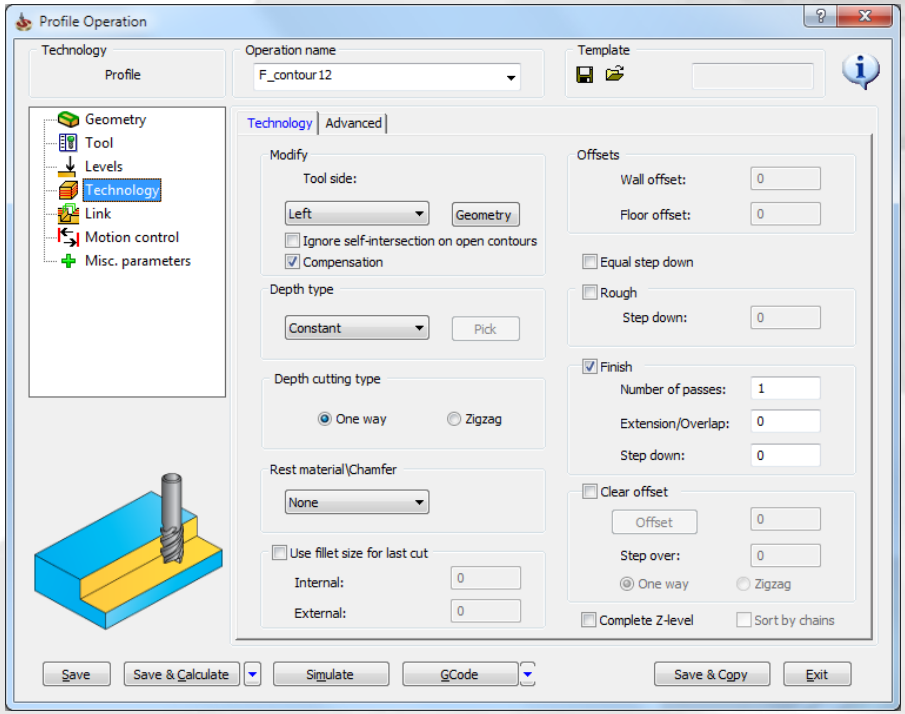
- **If select new geometry – get depth from 1st selected entity of geometry**

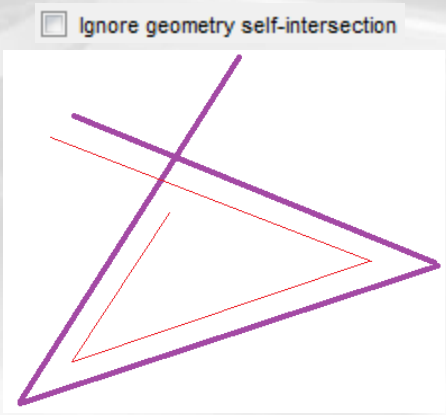
Face milling: Angle of cutting in “One pass”

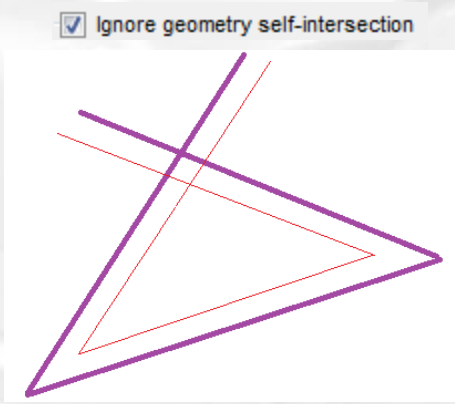


- **Angle is added to One pass in Face milling**

Profile: Ignore geometry self-intersection







- **Possible to use open self-intersecting geometry with compensation without reducing toolpath**

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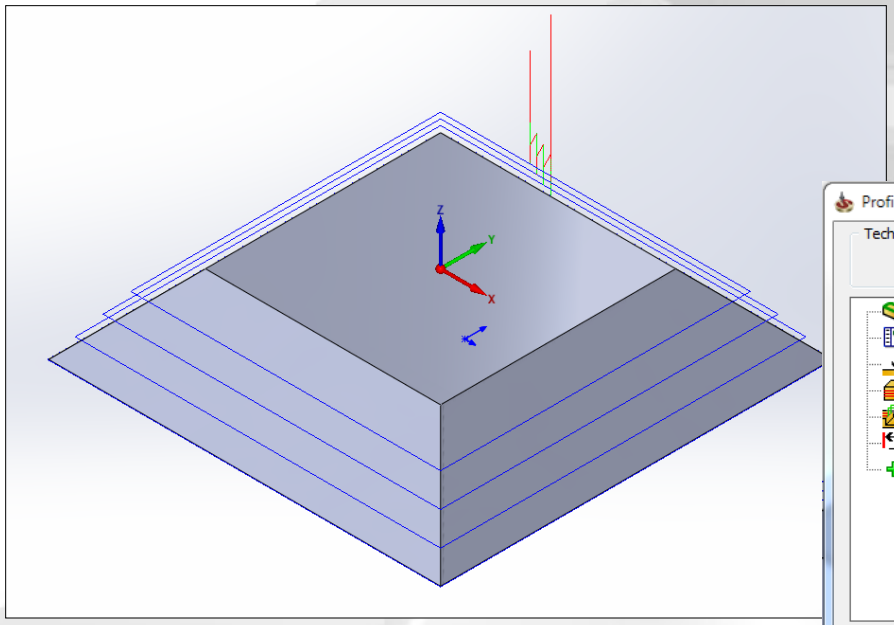
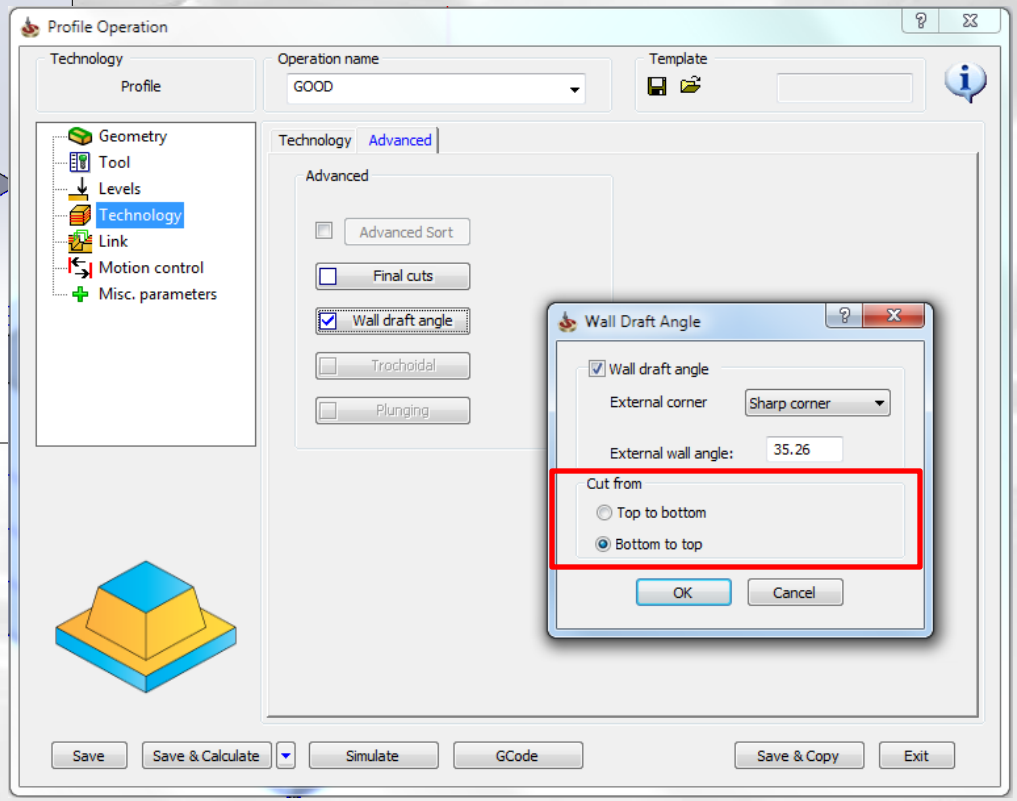
Draft wall angle: Bottom to top

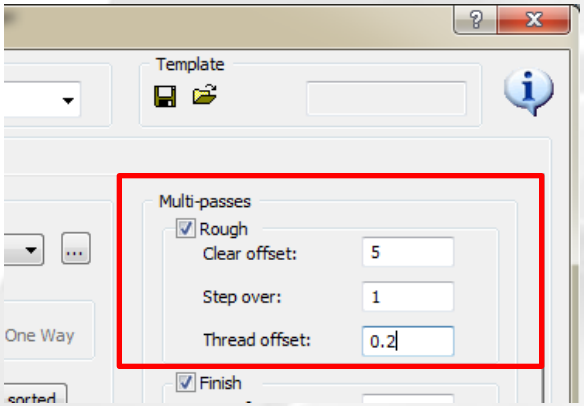




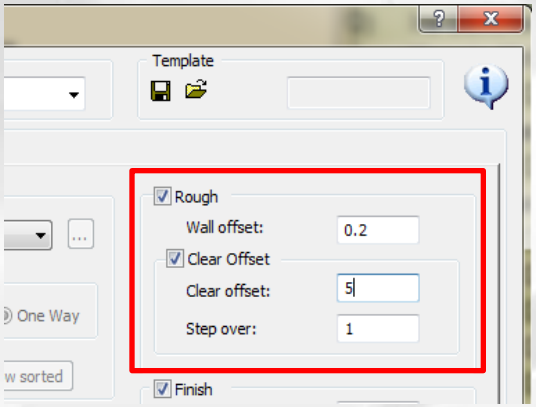
- **New option – bottom to top in Draft angle in Profile**

2.5D Threading: Roughing definition improvement

InventorCAM 2012



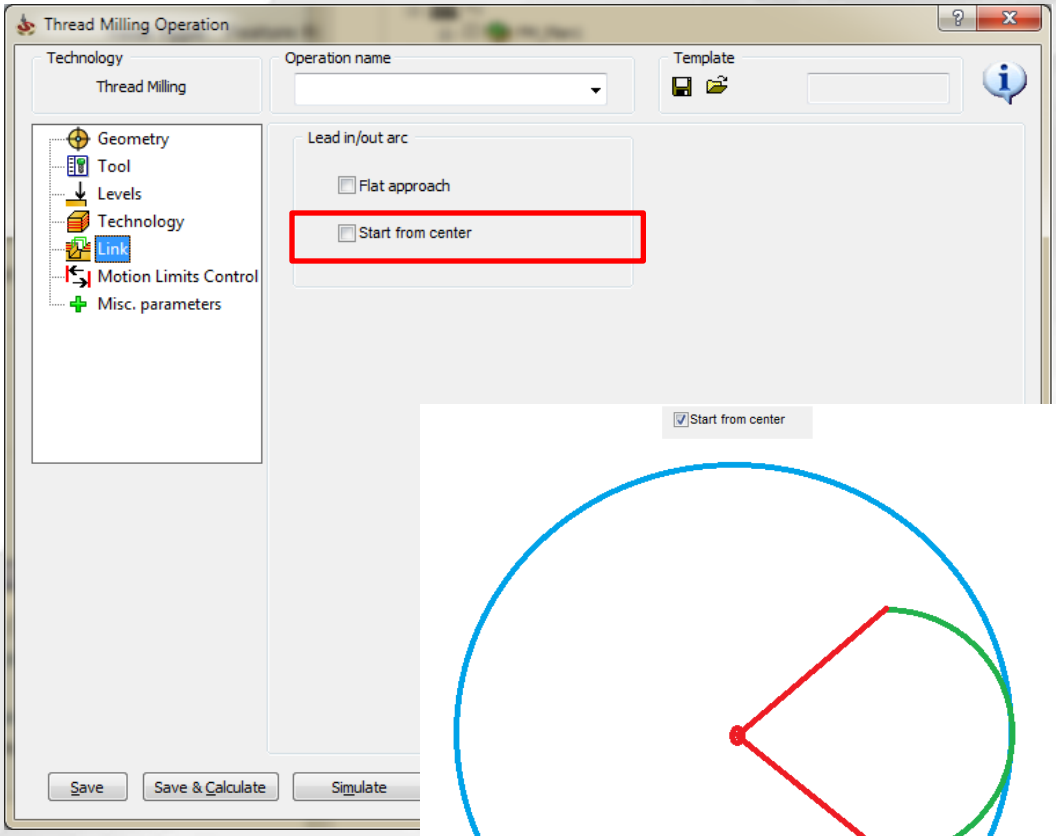
InventorCAM 2013



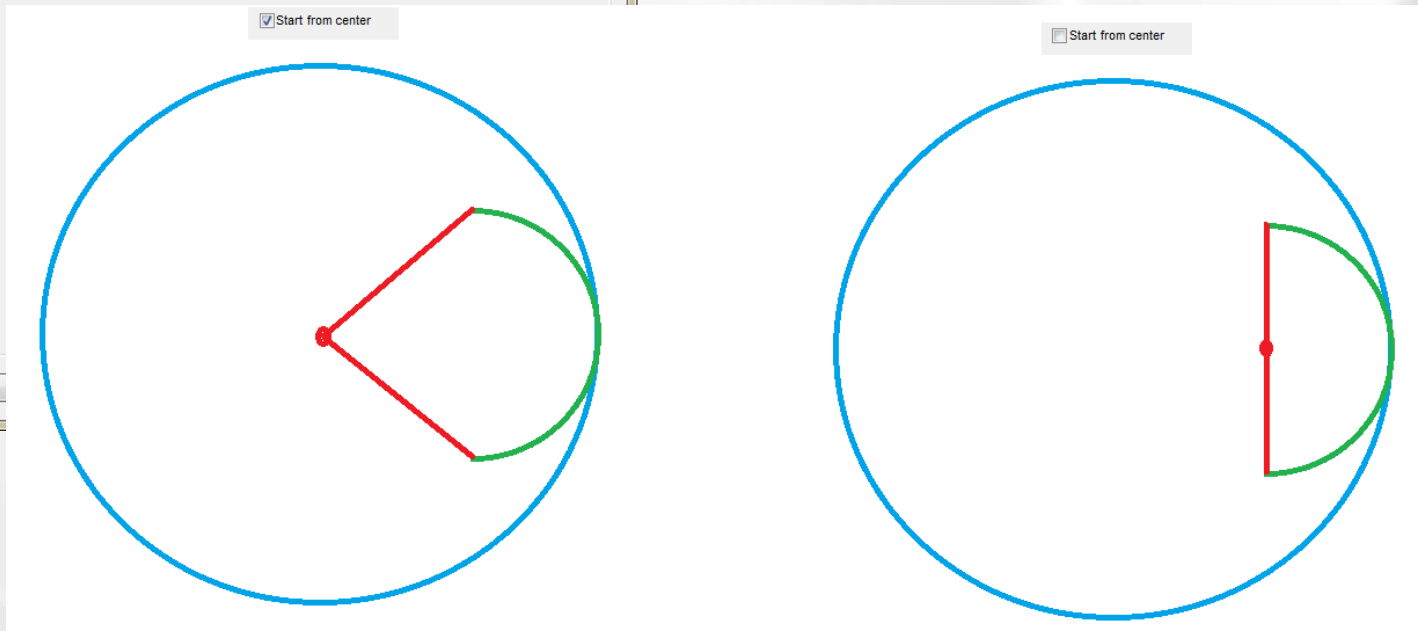
- Only multi-step Roughing is available

- Enable one step Roughing, in addition to multi-step Roughing (clear offset option)

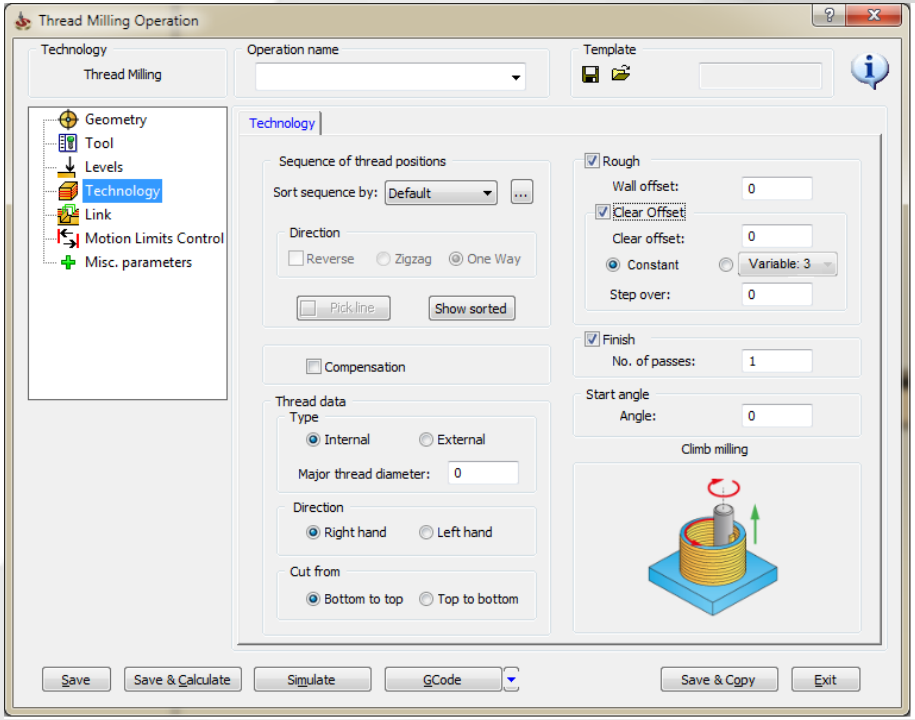
2.5D Threading: Minimize air cutting

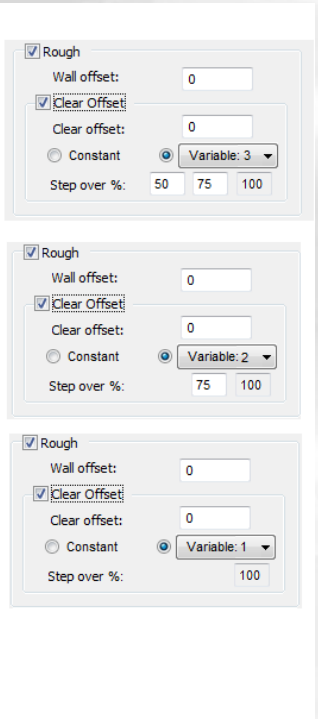


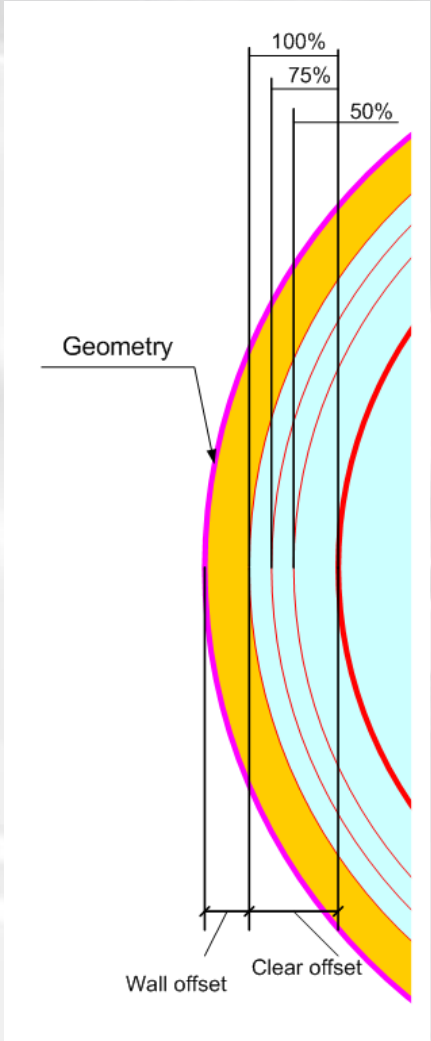
- For large internal threadings – now there is an option not to start from the cylinder center



Threading: Variable step over (%)







- **Up to 3 different depth on different rough cutting steps**

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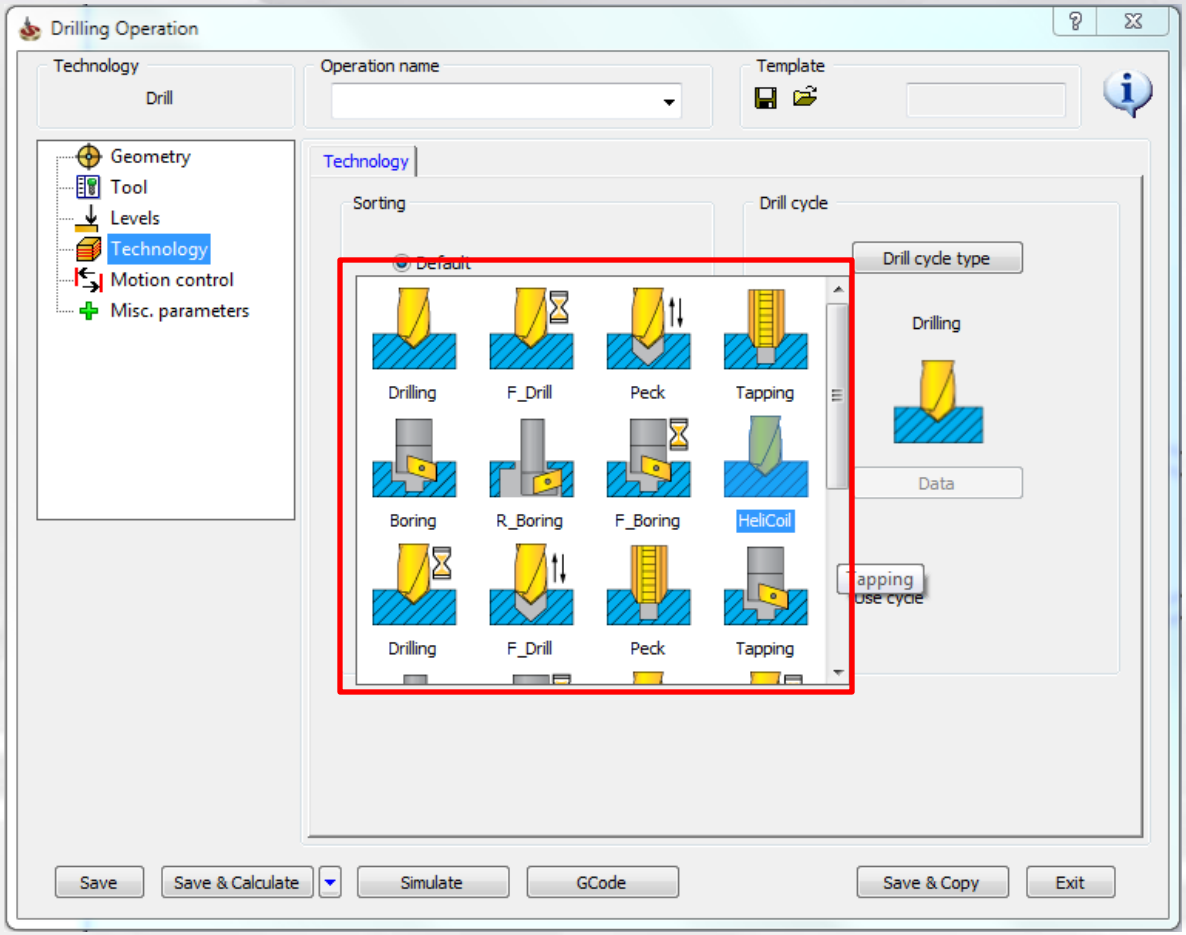
Drilling: up to 24 cycles available



- **Amount of Drill cycles was increased up to 24**

Drilling: Sorting options interface improvement

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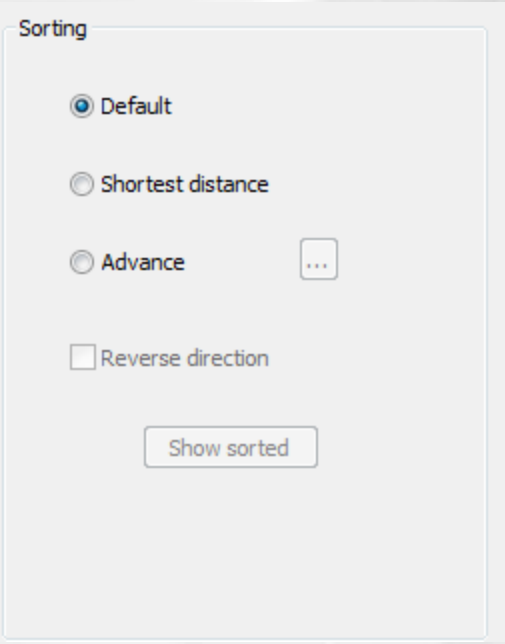
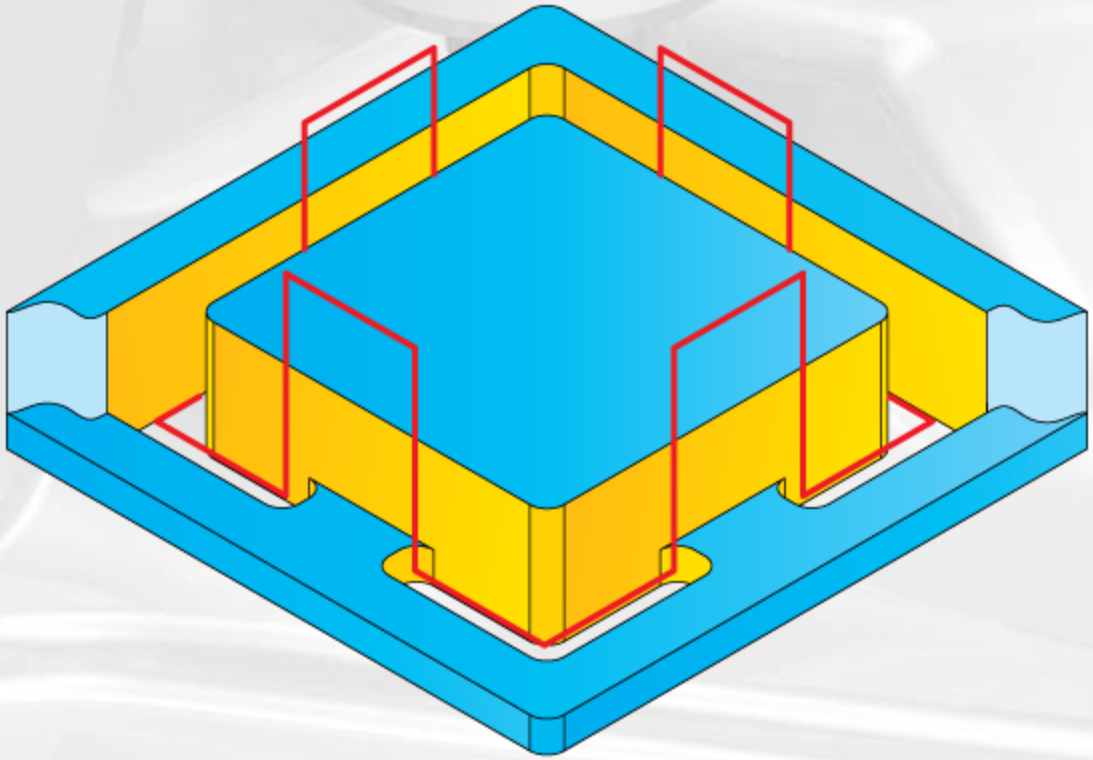


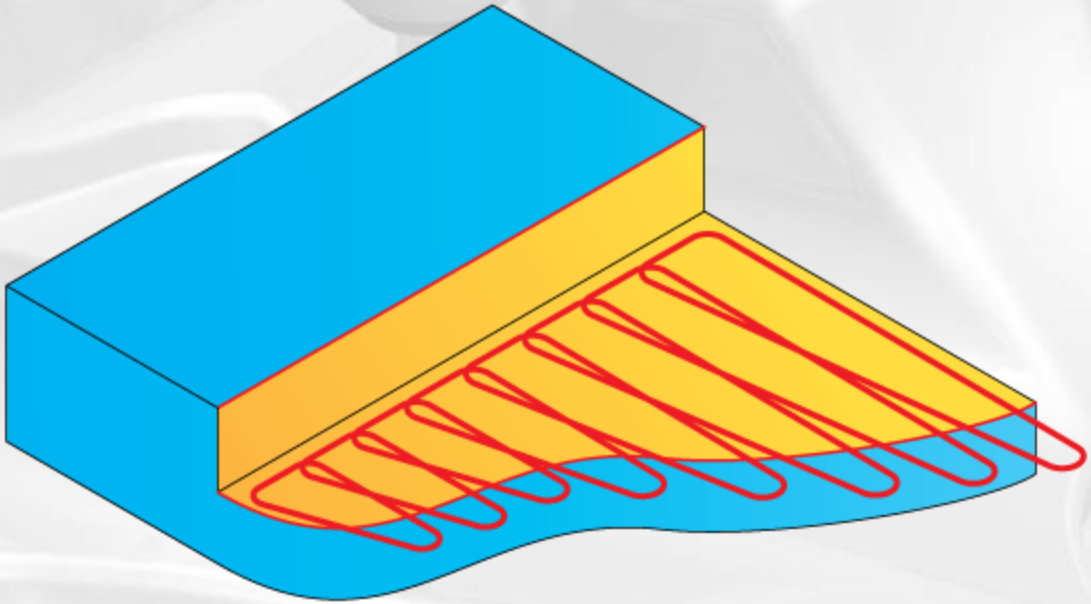
- Now all sorting options are on the screen
- Only useful options left (“Line” option is converted to Default, and deleted from options)
- Changes appear in 2.5D drill, Threading, 3D Drill, Multi-axes drill, Drill recognition

Toolbox: 4 nubs cycle



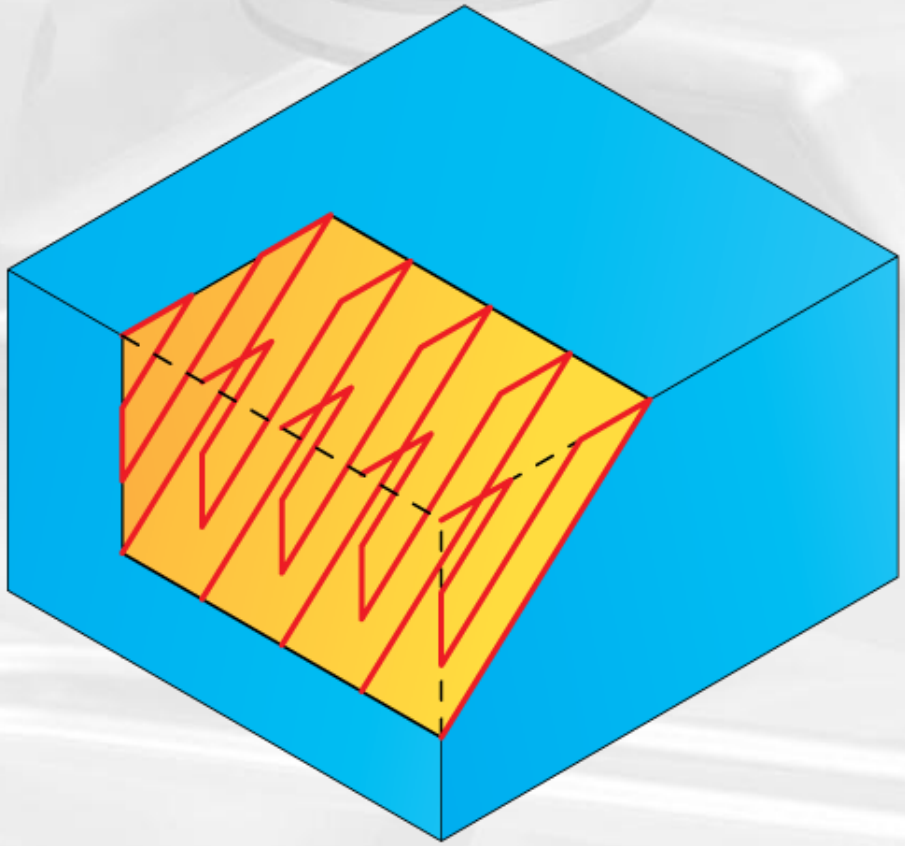
- **In case of big through holes - If user wants to break out the material, instead of machining it with simple pocket.**

Toolbox: 1 side open slot



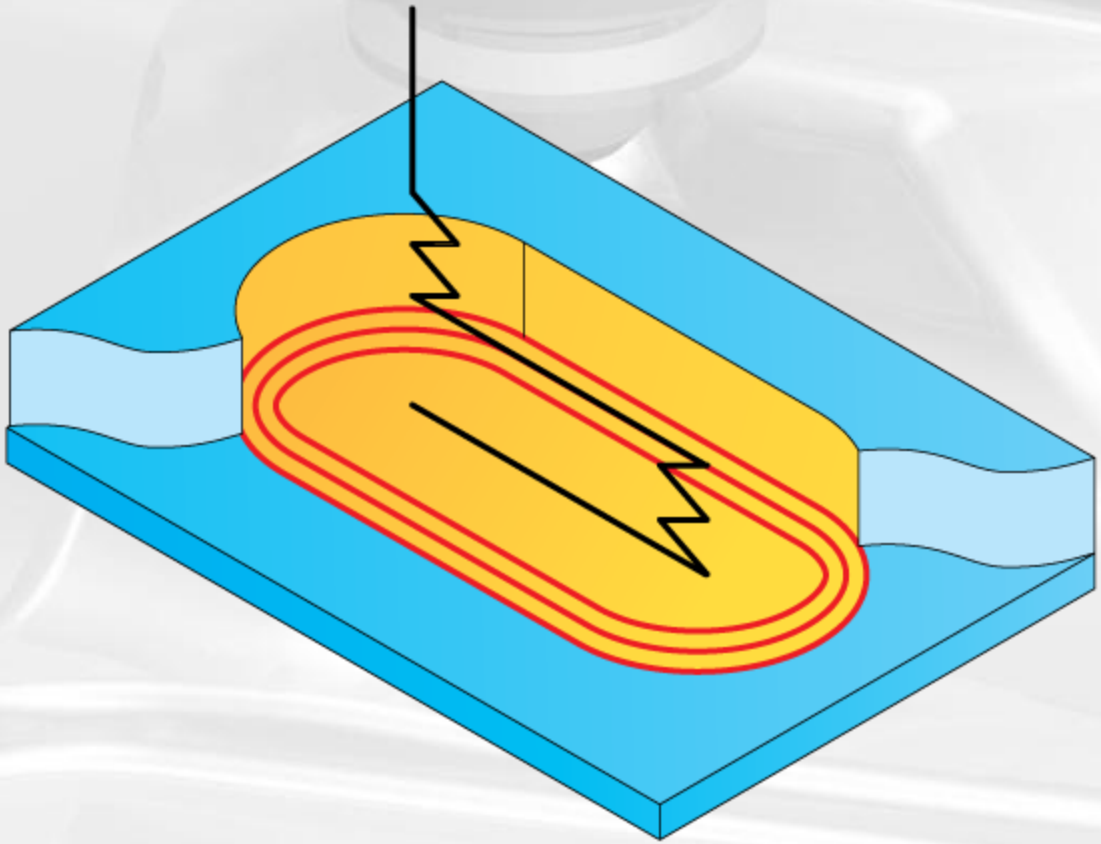
- **For cutting one-side open slots with spiral cuts**

Toolbox: Flatten surface on corner



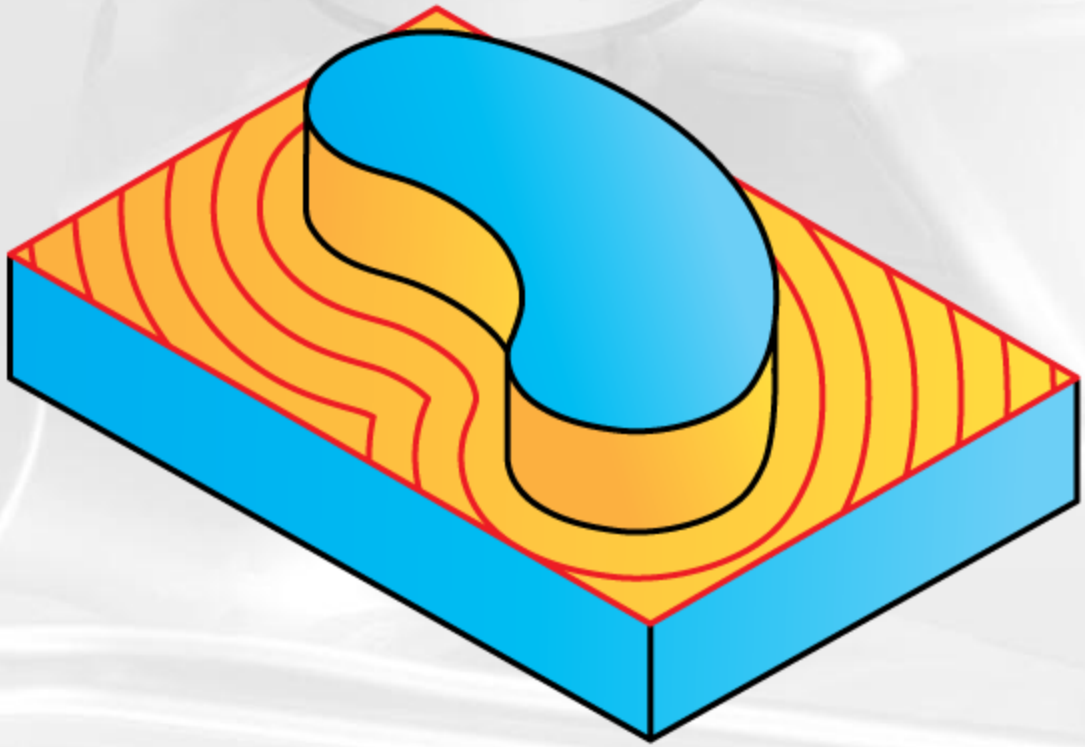
- **For big chamfers and corner faces machining**

Toolbox: Zig-zag slot operation



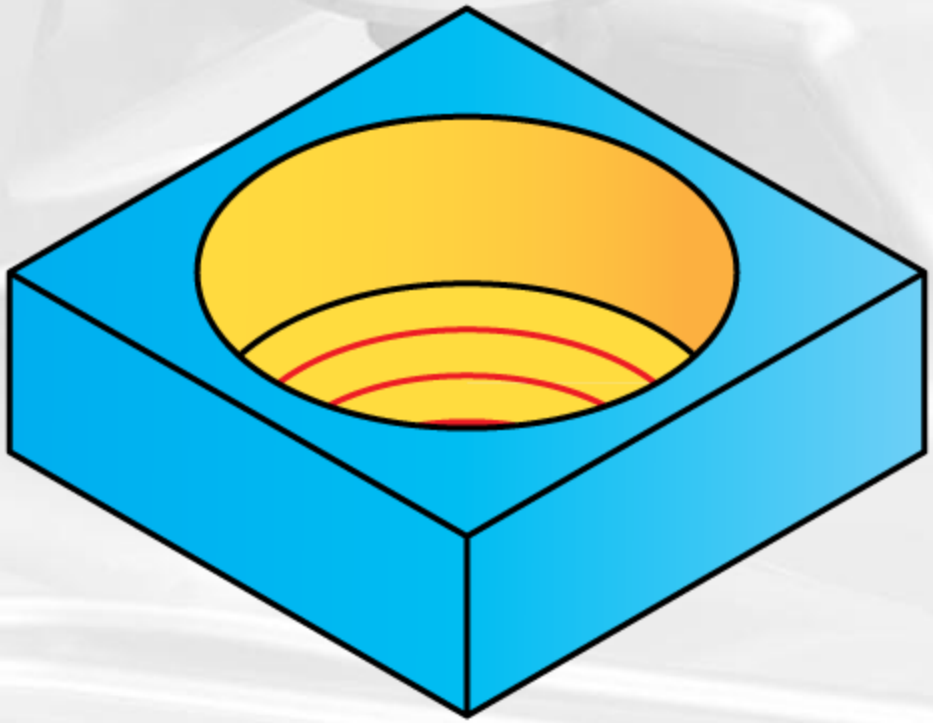
- **Slot machining with zig-zag ramping**

Toolbox: Simple boss



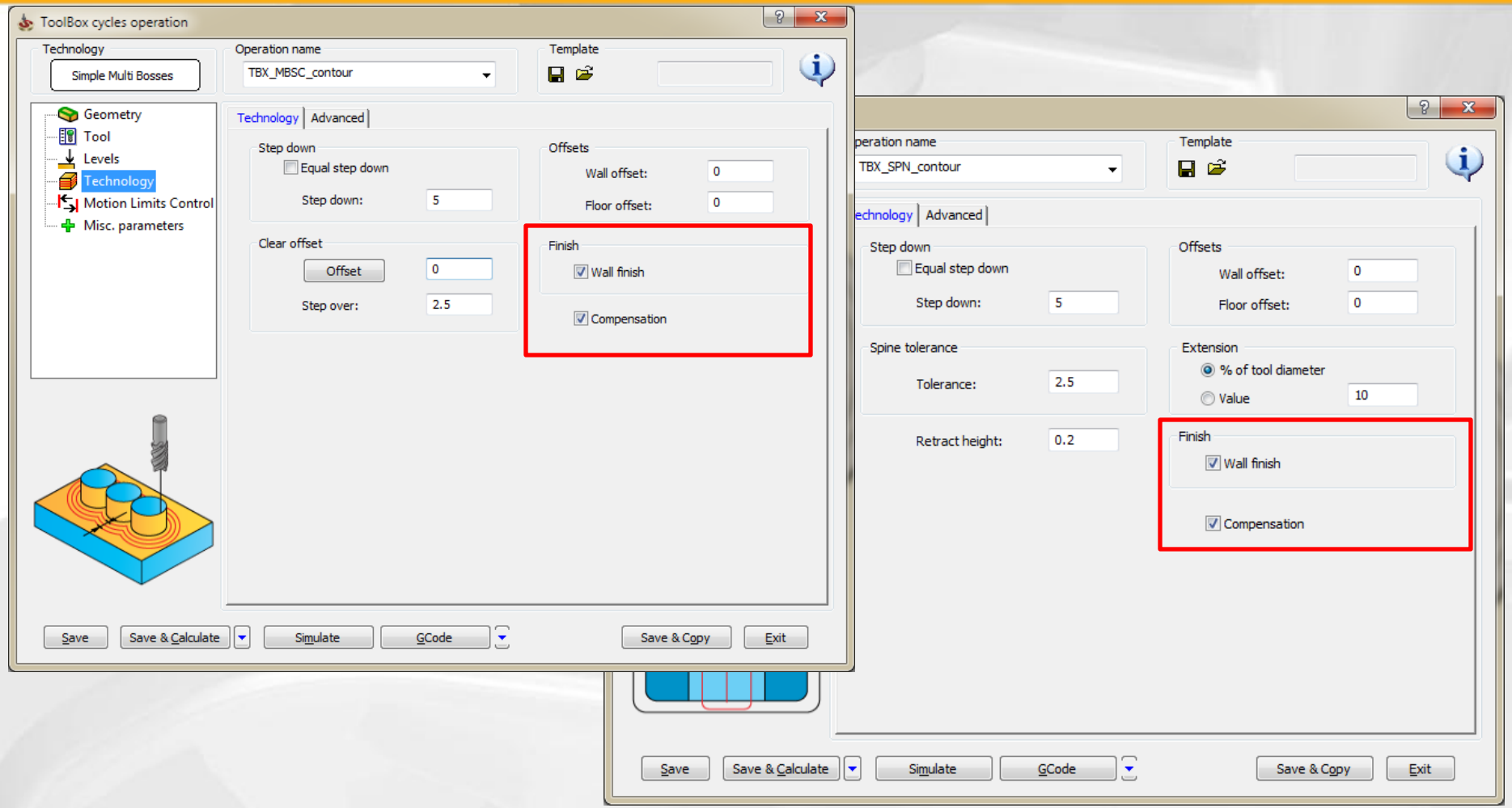
- **Slot machining with zig-zag ramping**

Toolbox: Spiral pocket



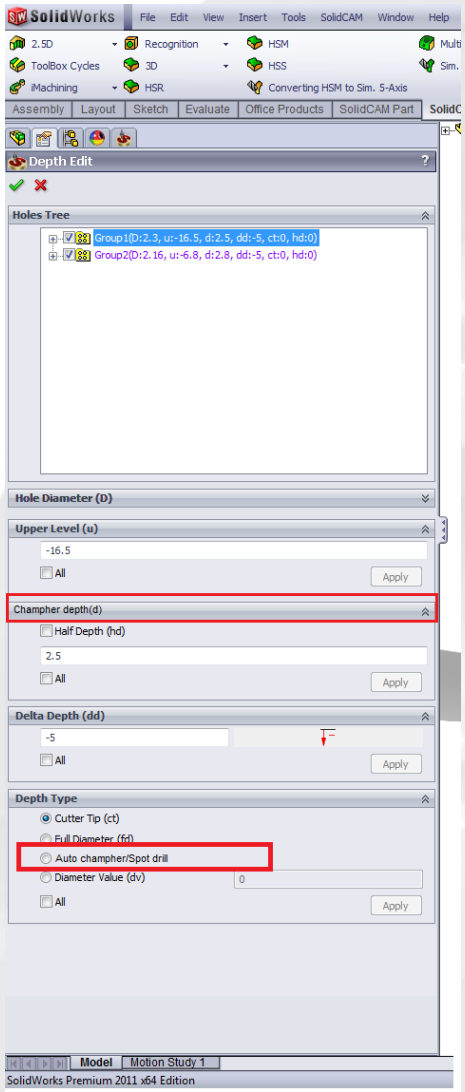
- **Slot machining with zig-zag ramping**

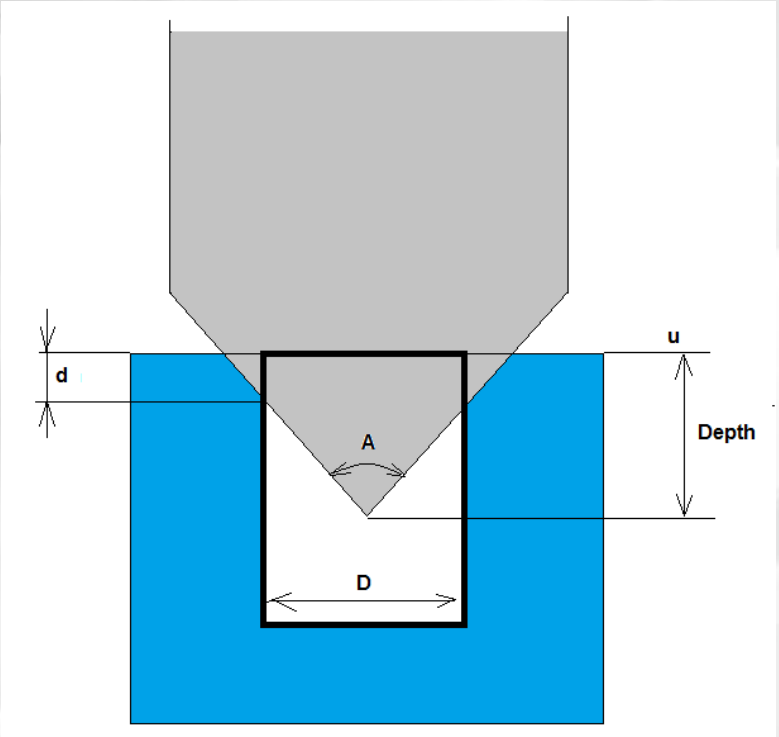
Toolbox: Compensation and Finish



- **Now Compensation and Finish options are almost in all Toolbox operations**

Drill Recognition: Champher/Spot





- **Define champher/Spot drill depth = Drilling depth will be calculated automatically**

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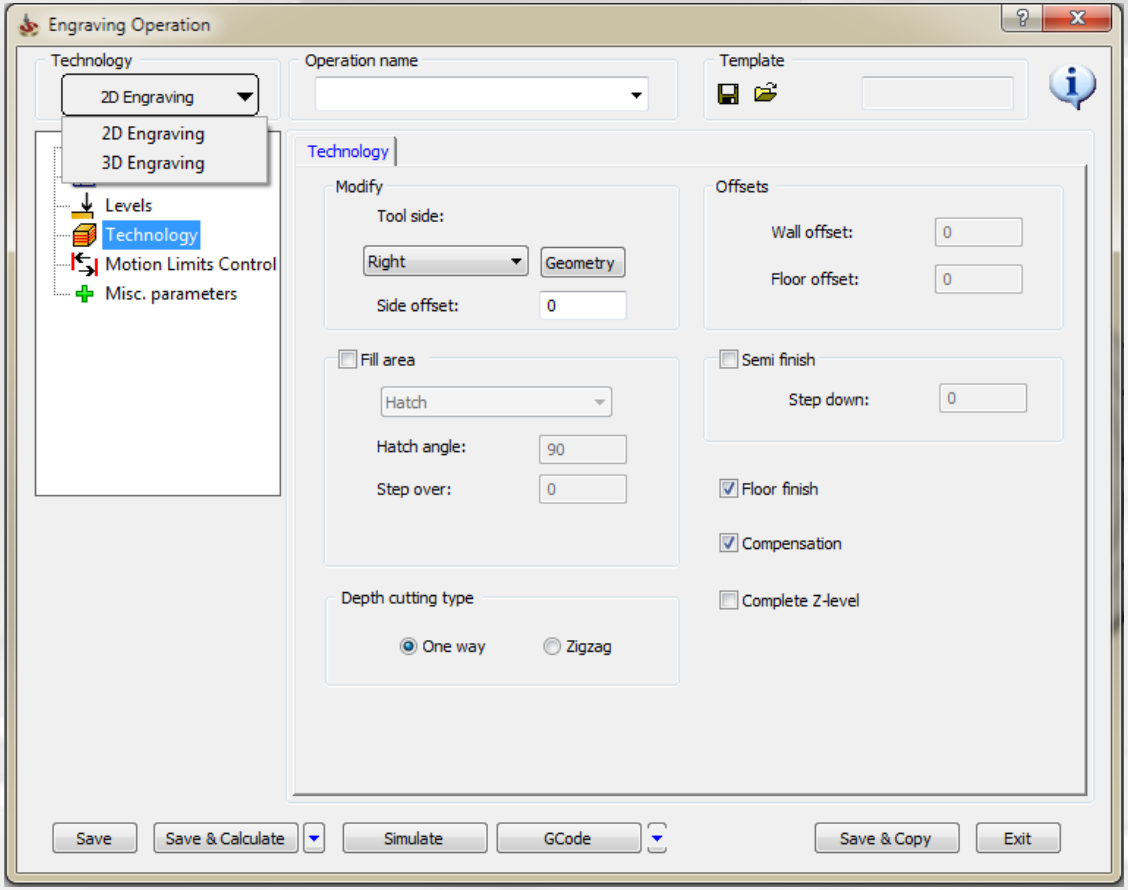
2D/3D Engraving operation



- **Separation to 2D and 3D Engraving**
- **Improvement in interface – easier to understand the, meaning on parameters**

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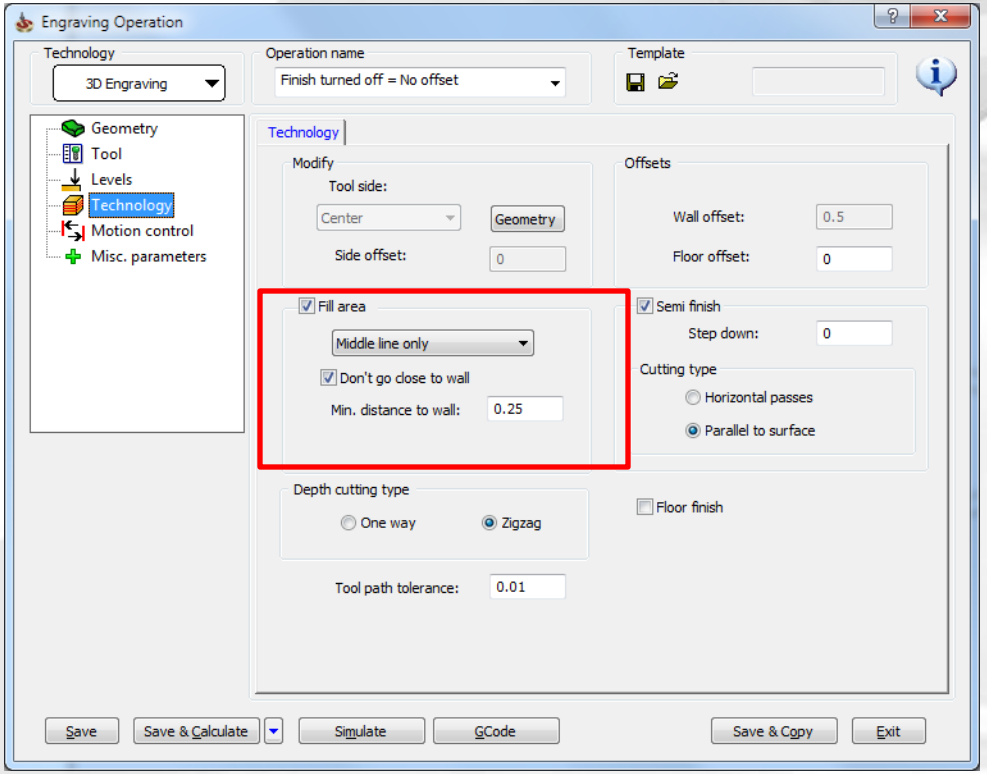
2D/3D Engraving: Middle line toopath



Geometry

Machining

- **Engraving only center line of multi-line text geometry**

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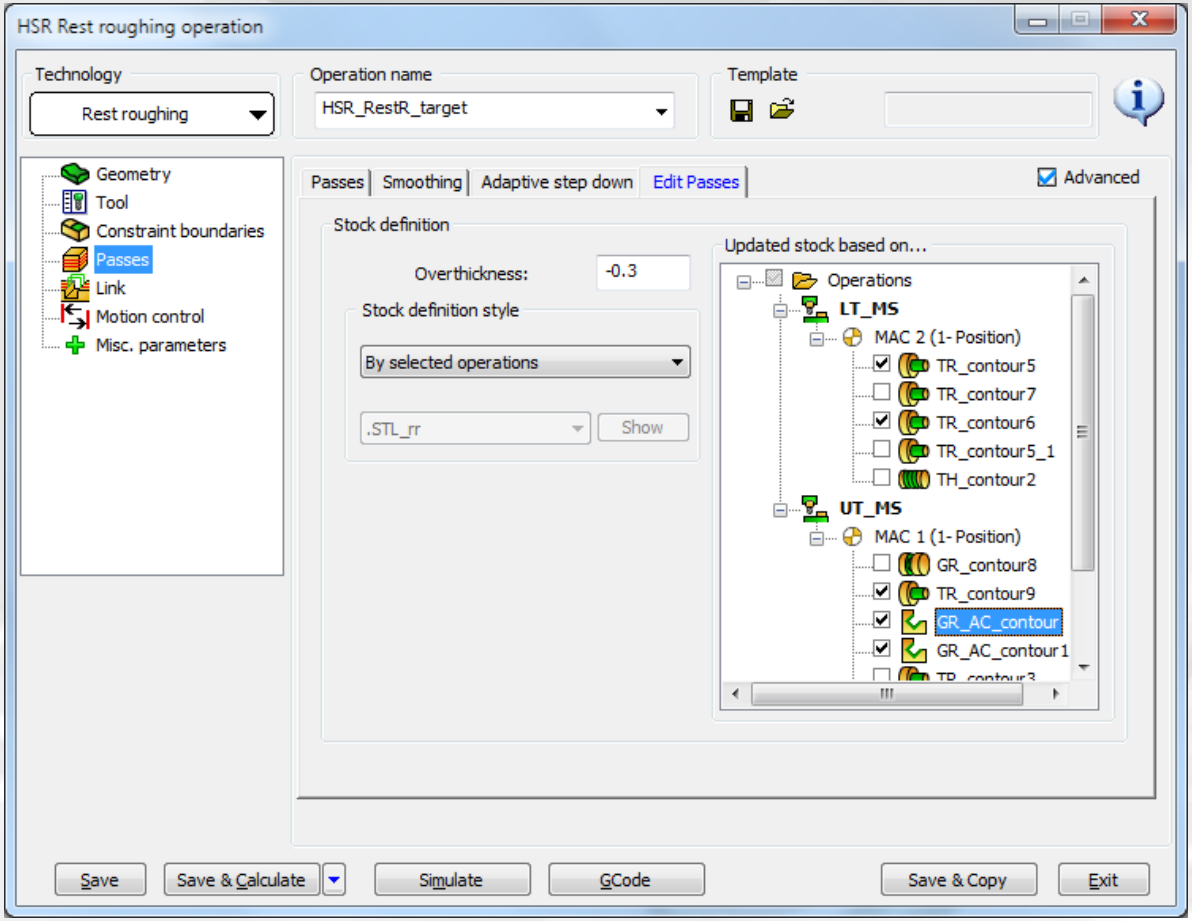
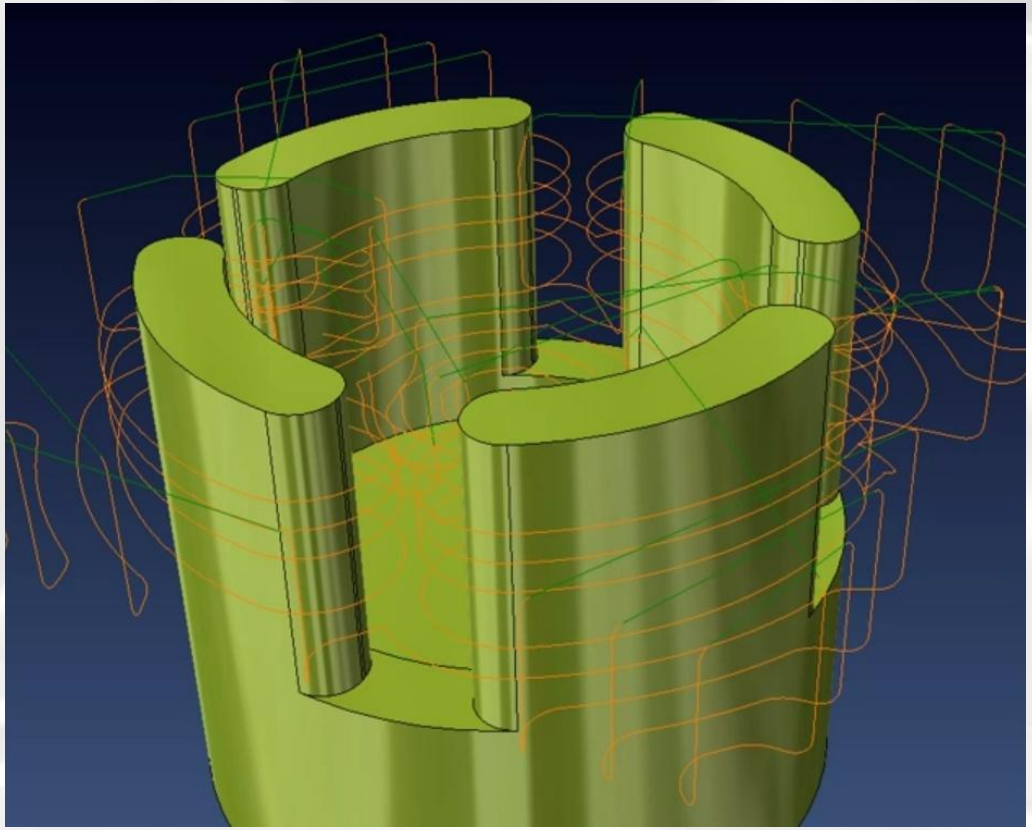
HSR: Edit passes by selected operations



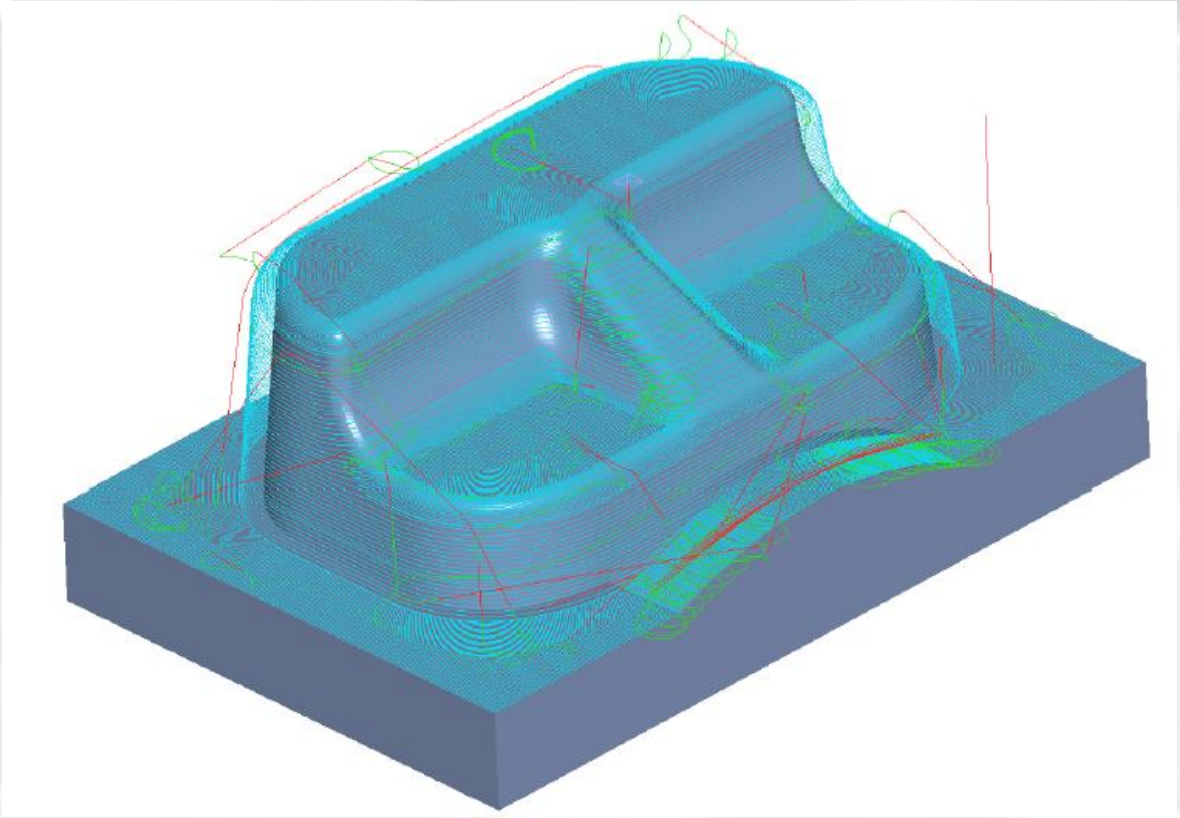
- **3 new options of Updated stock: Automatic, by *.FCT file, by Selected operations**

HSR: New operation - Rib machining



- For very thin walls made from exotic materials
- Rough+ semi-finish are combined in one operation, level by level.

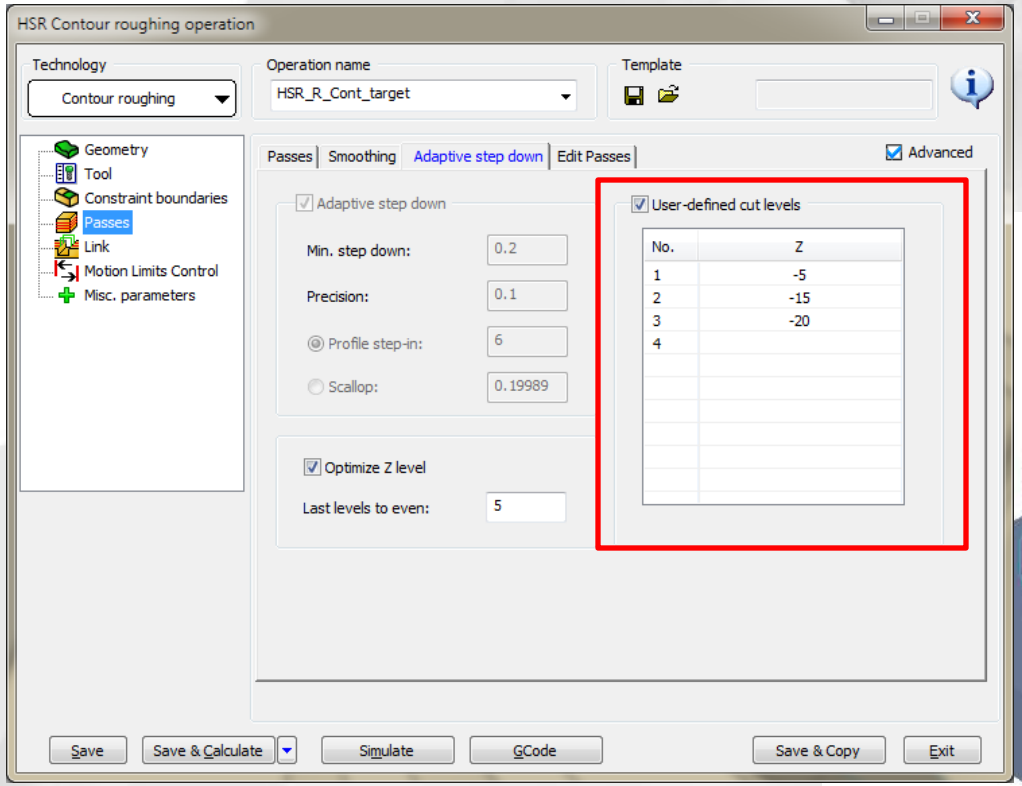
HSM: New Operation – Hybrid Constant Z

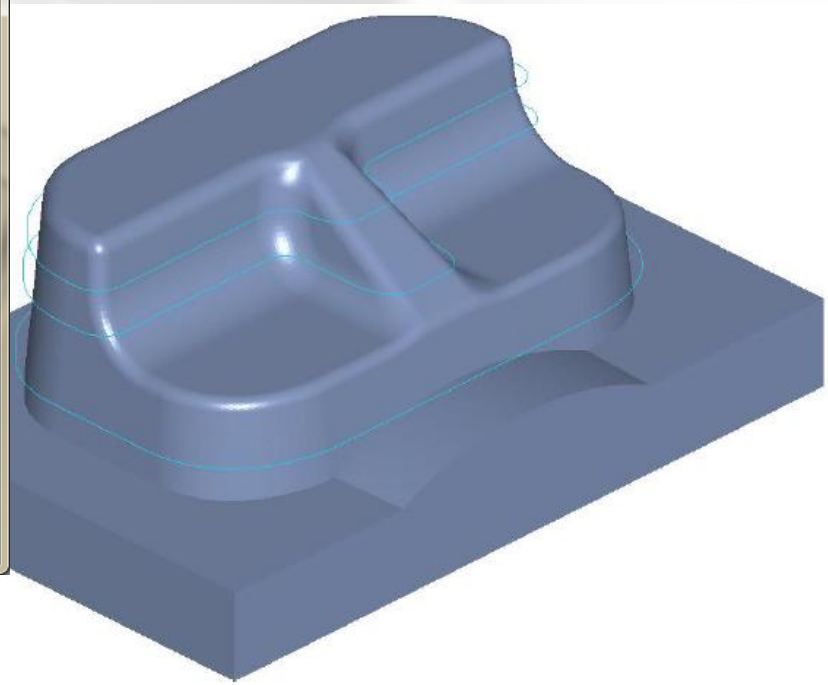


- New Finishing strategy combining Constant Z operation and 3D pocketing with 3D constant stepover, where needed

HSM/HSR: User-defined cut levels

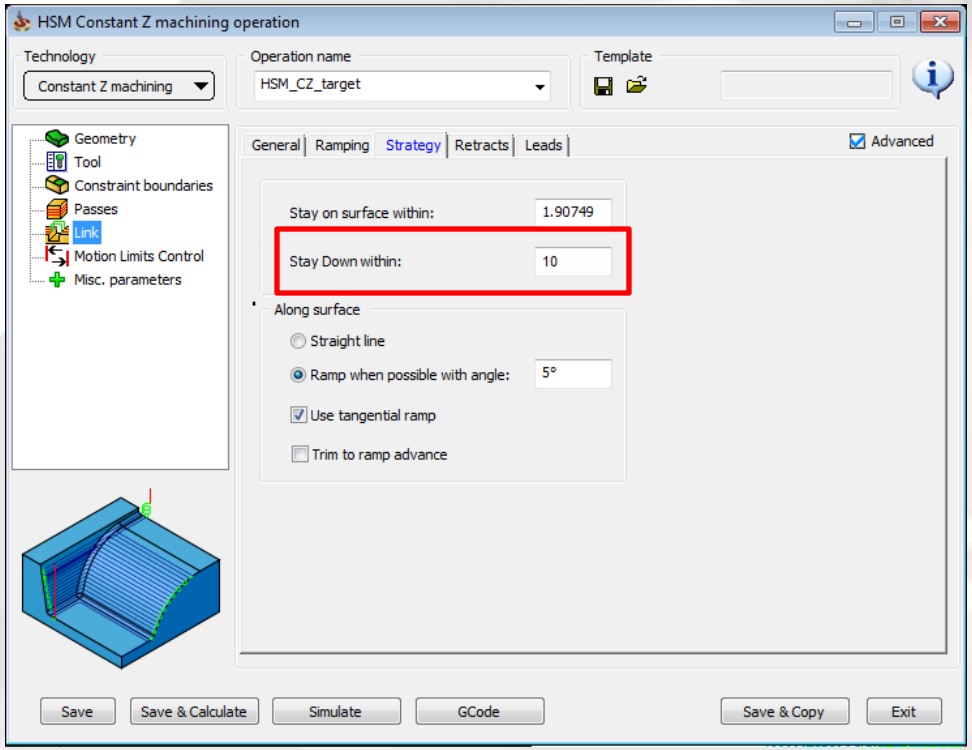
- Cut ONLY on specified Z levels, instead of cut on every step down



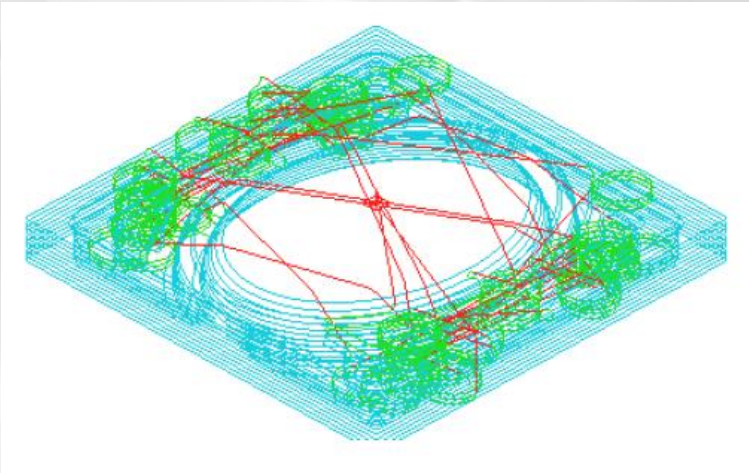


HSM/HSR: Stay down within

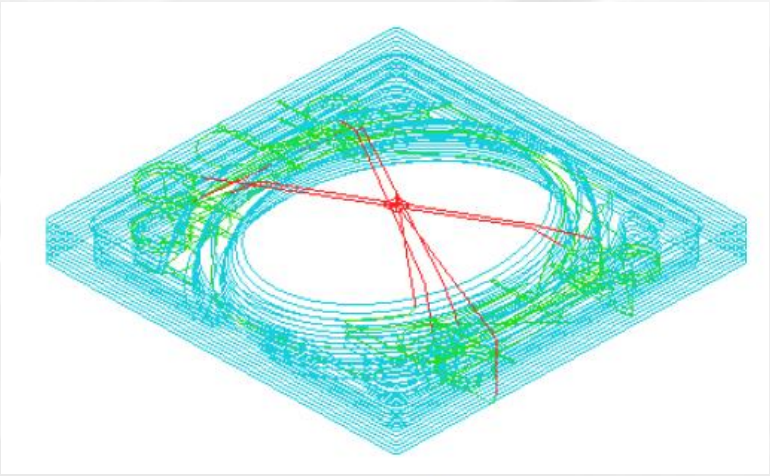
- Minimize amount of vertical tool moves
- The smaller this value – the more retract moves



Stay down within: 1

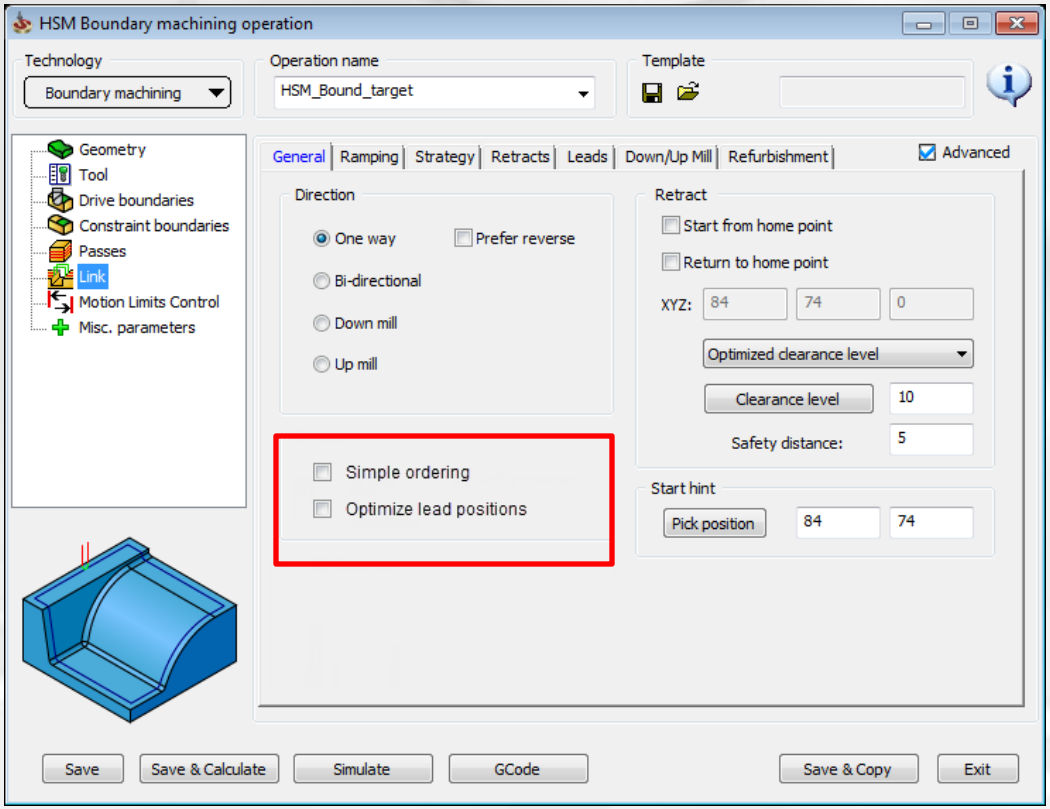


Stay down within: 10



HSM/HSR: Simple ordering and optimize lead position

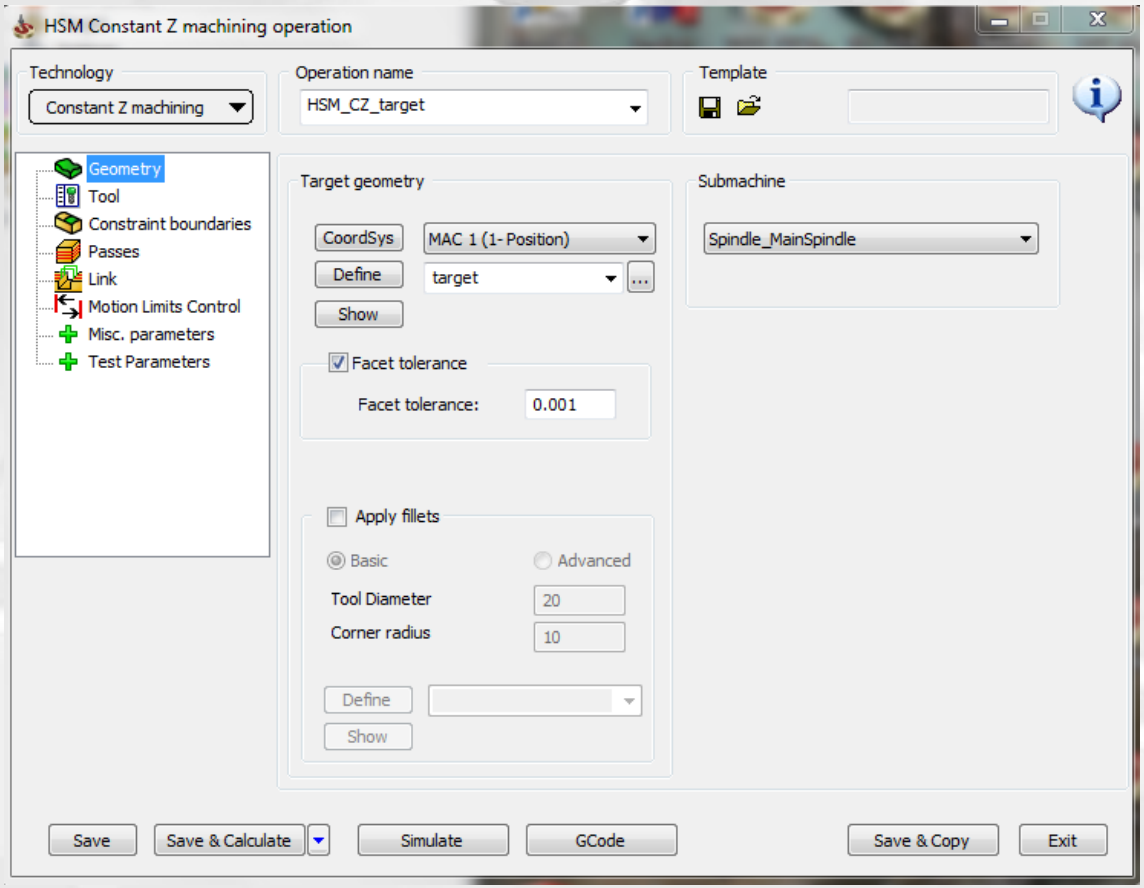
- Simple ordering between cutting passes – minimize length of connections between passes



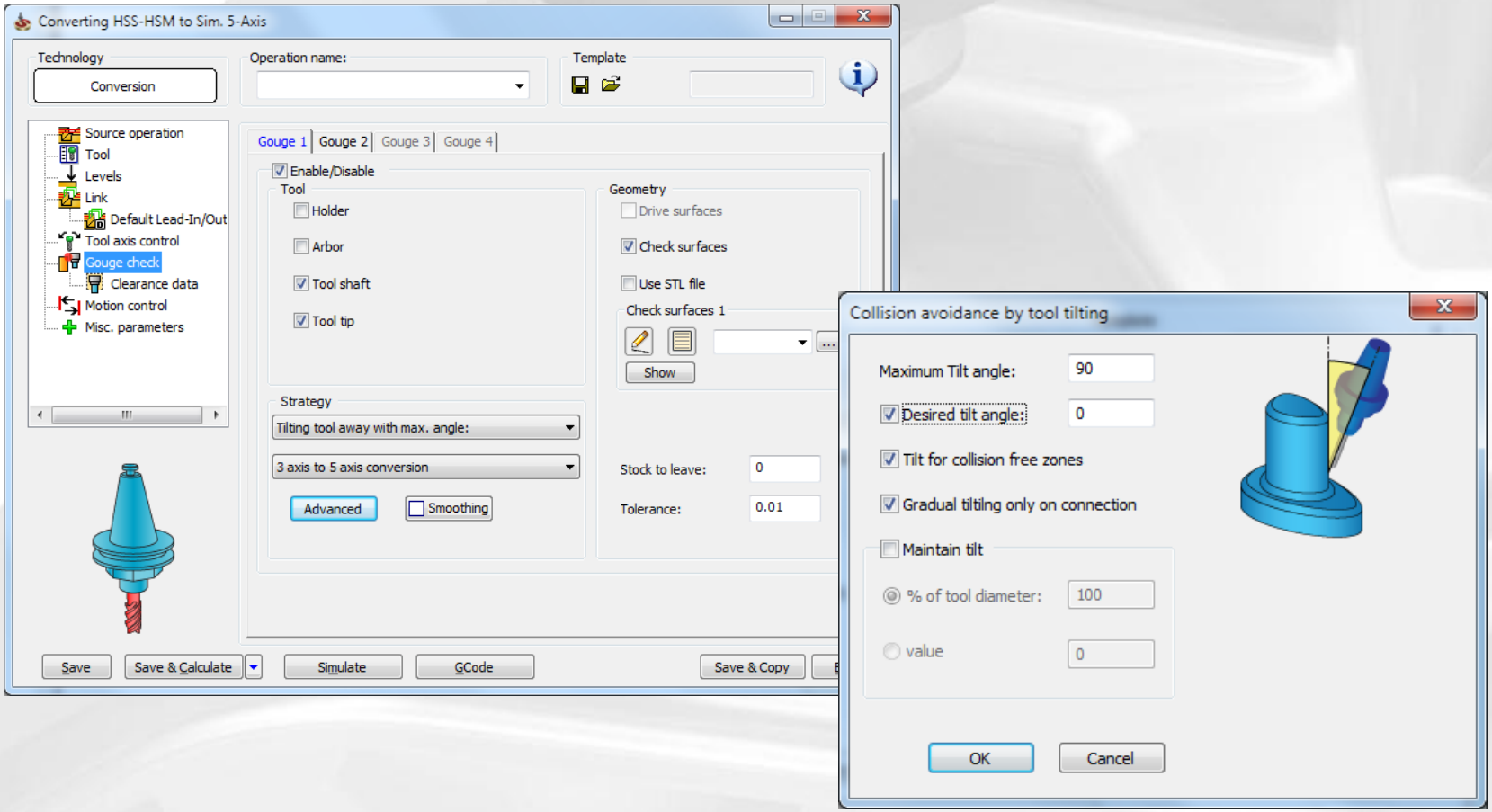
- Optimize Lead position– find the point to minimize length of Lead-In movement

HSM/HSR: User-defined Facet tolerance

- Enable the user to define the facet tolerance in any HSM operation – in previous versions this was automatically according to Passes tolerance

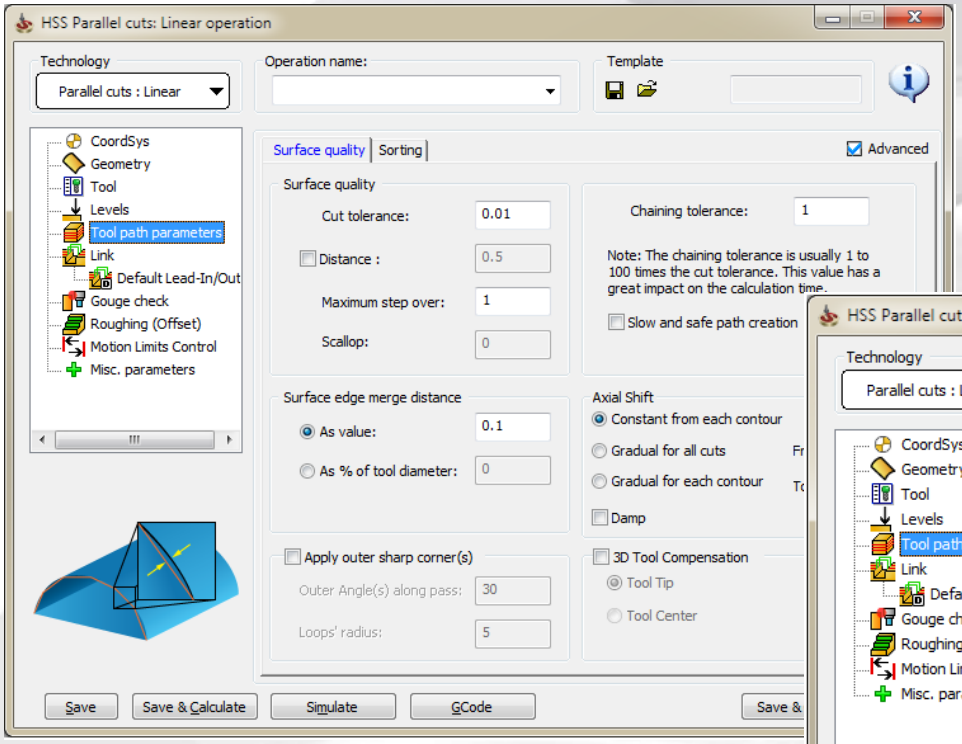


Convert From HSS/HSM: New tilting options

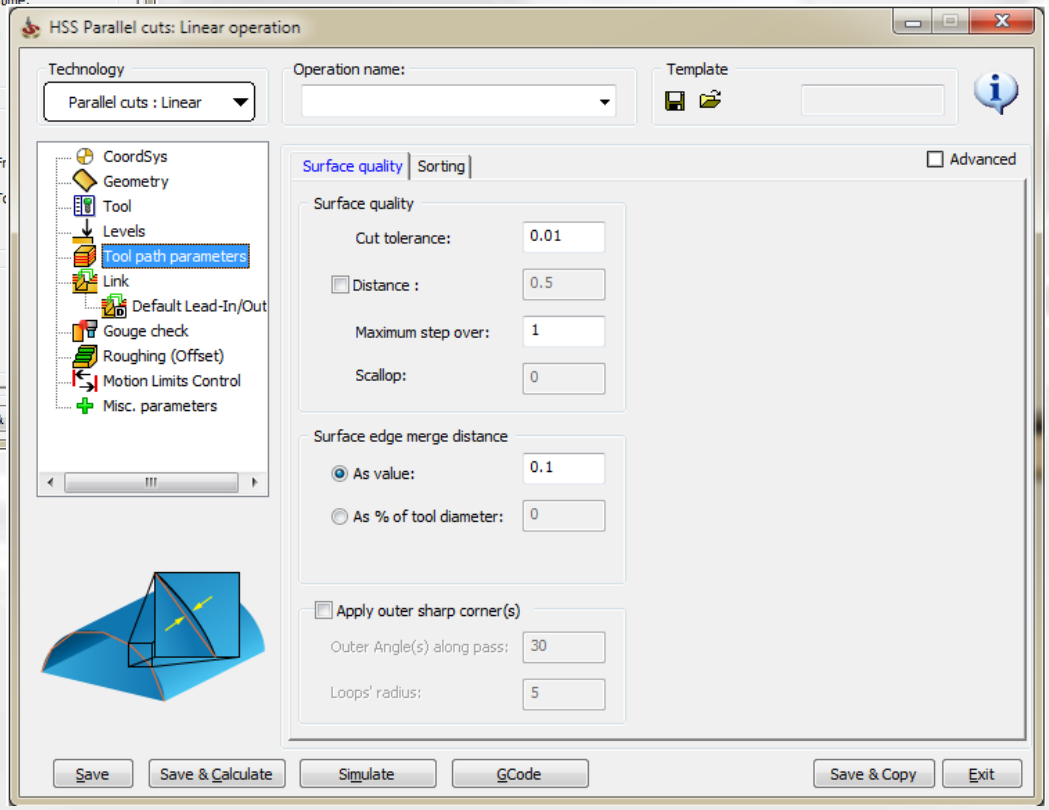


- **Advanced options of Tilting tool away with max. angle : 3 axis to 5 axis conversion**

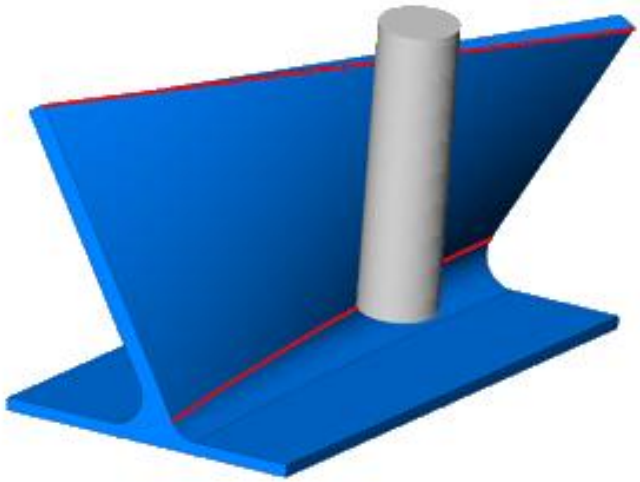
Advanced button in HSS and 5x sim. operations

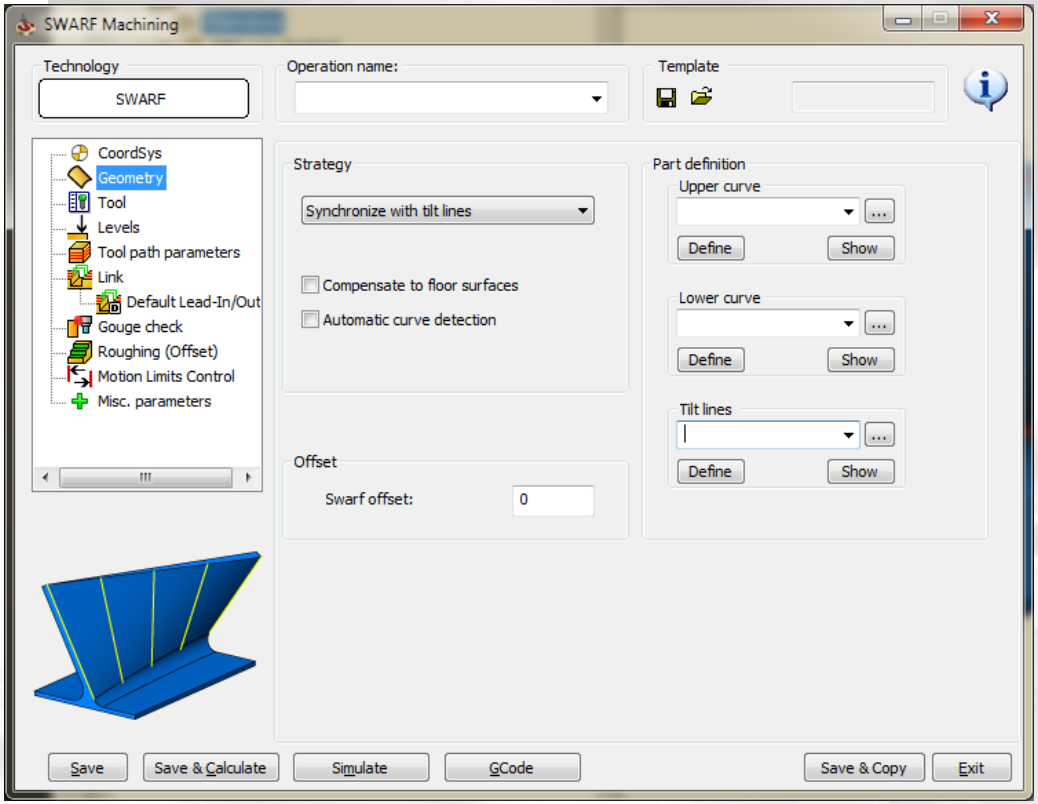


- Hide/Show advanced parameters, needed in rare cases



Swarf Machining – new sim 5x operation





- Easy definition of geometry
- Automatic definition of tool axis control

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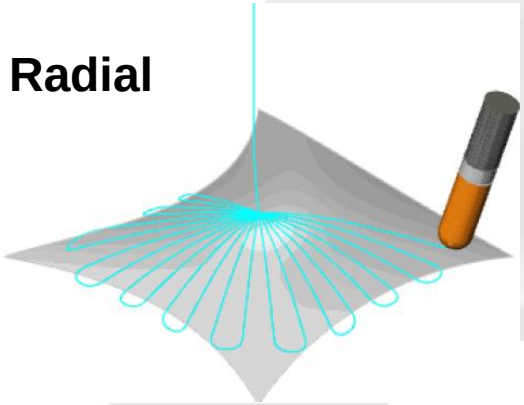
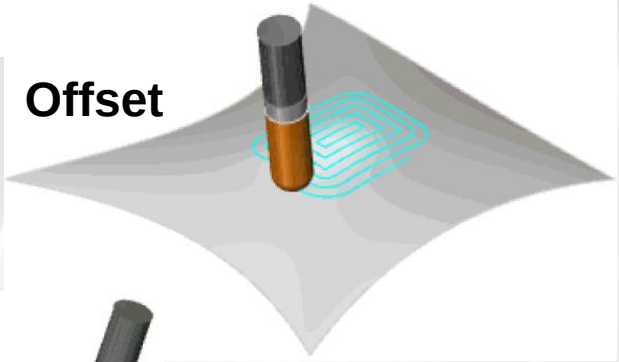
5x sim: Projection strategies

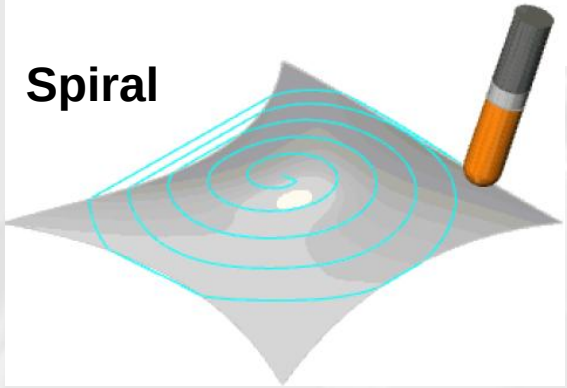
Radial

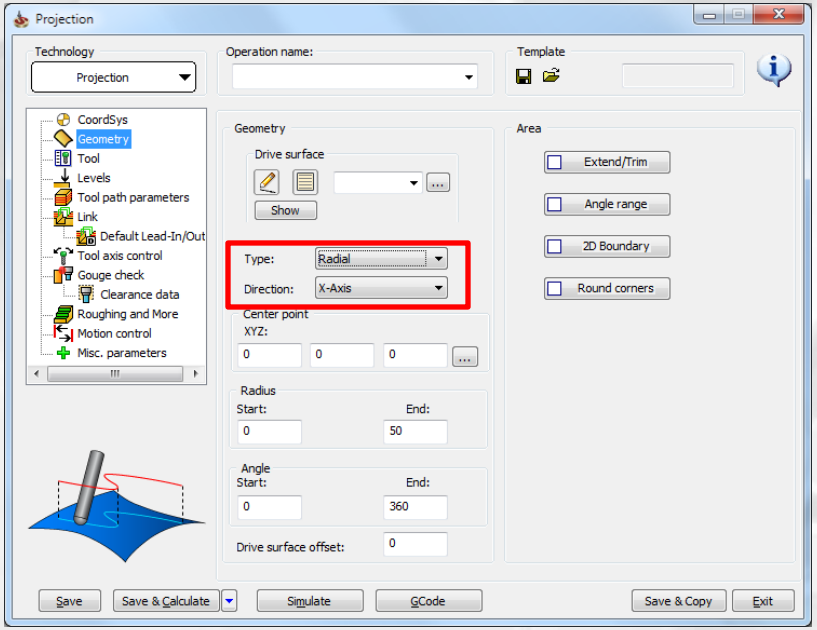


Offset



Spiral





- **3 new strategies of Projection technology**

- **Possibility to define direction of passes by X/Y/Z axis or user-sefined direction**

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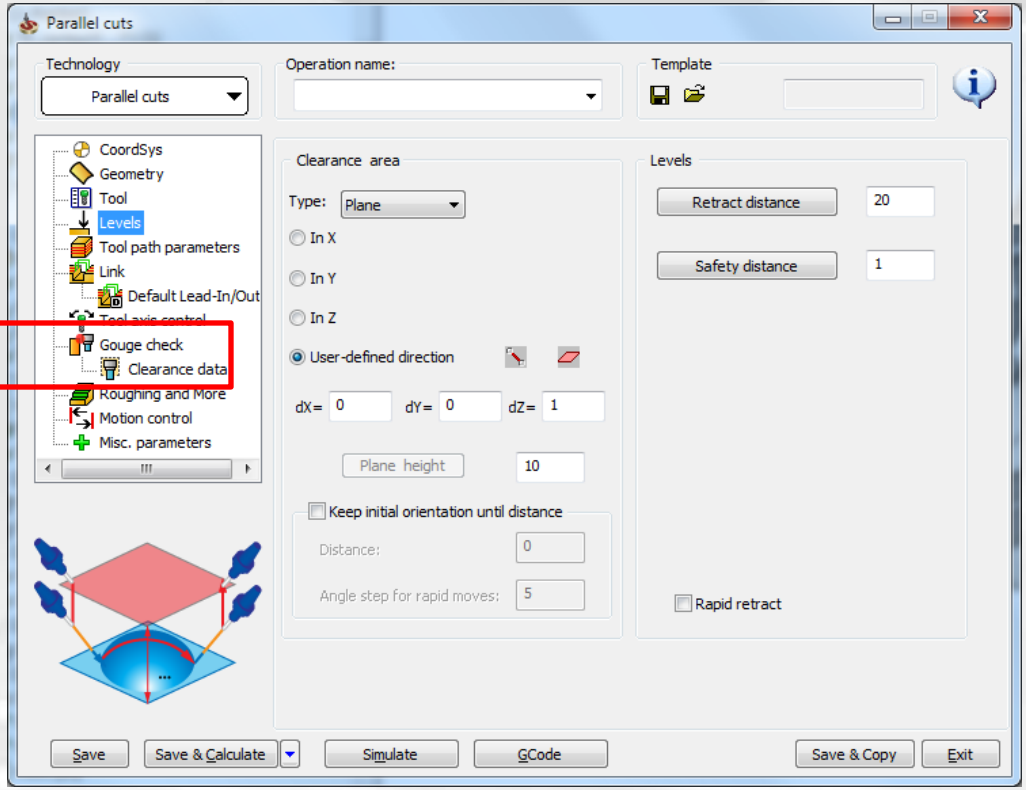
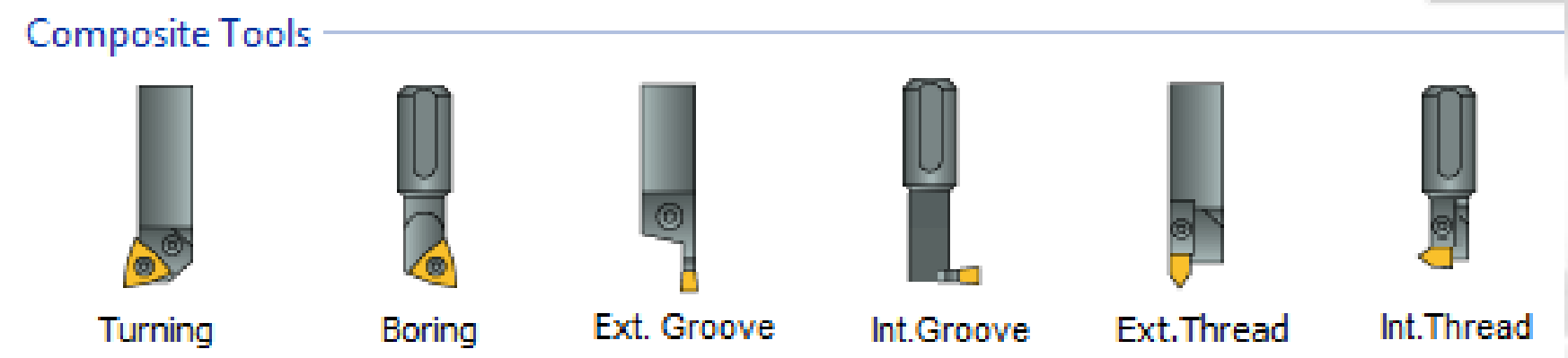
5x. Sim: Retract plane definition



Plane definition by:

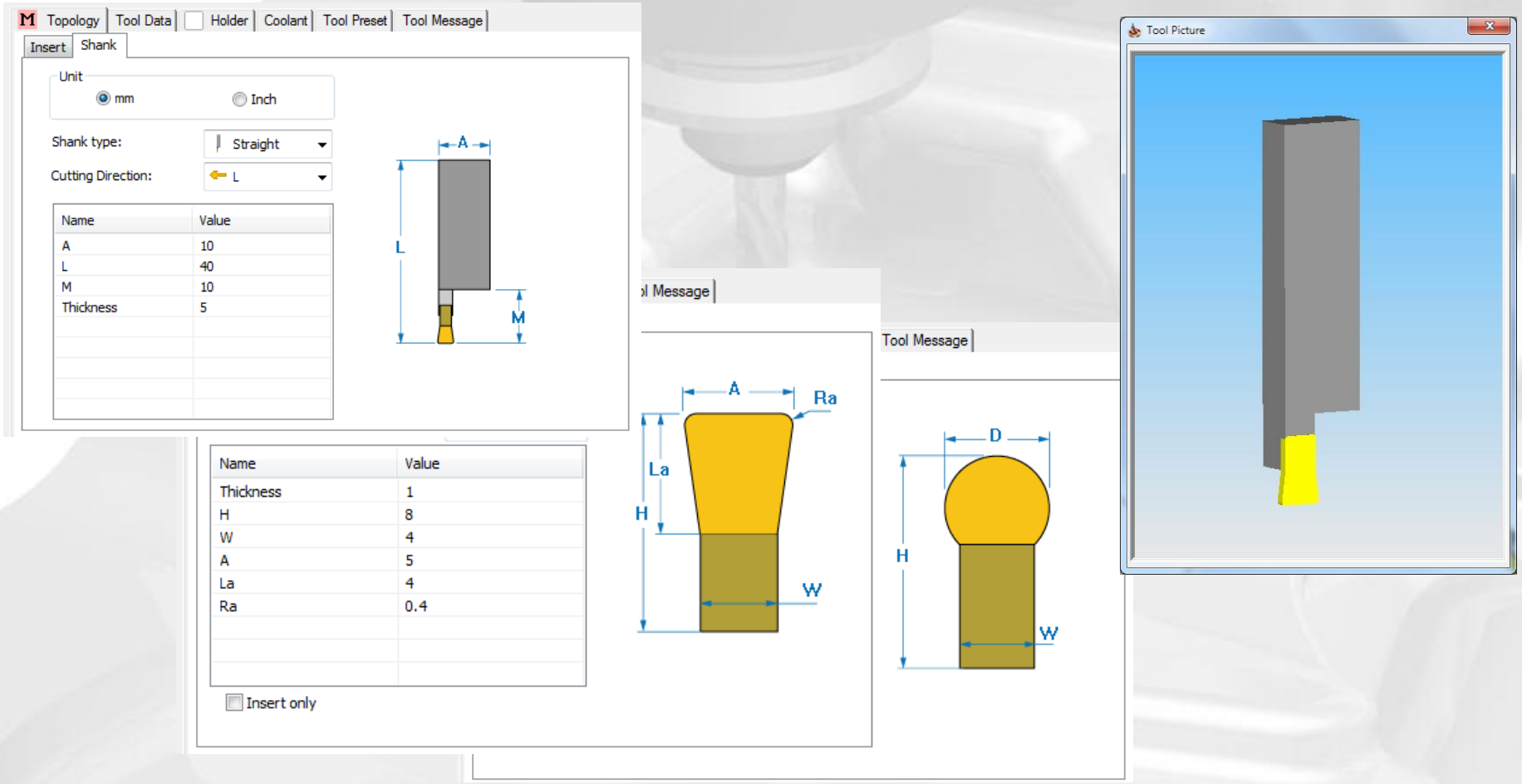
- **Normal vector (by 2 points)**
- **Plane**

Tooltable: composite tools



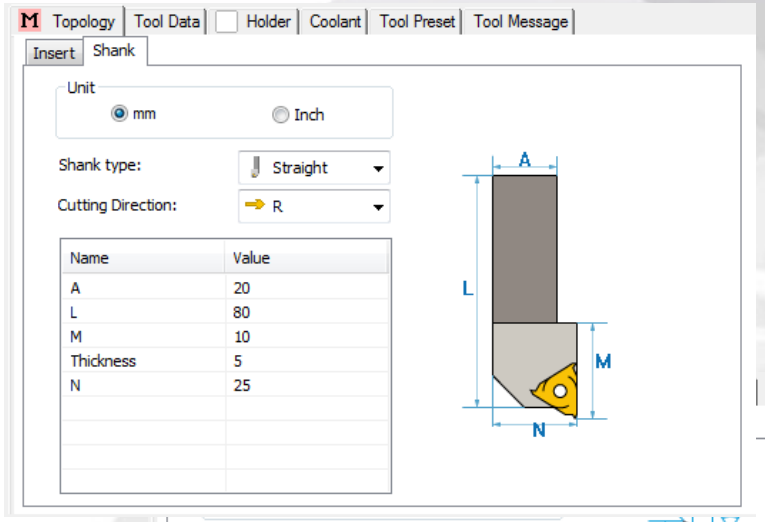
- **Composite turning, boring, grooving and threading tools**

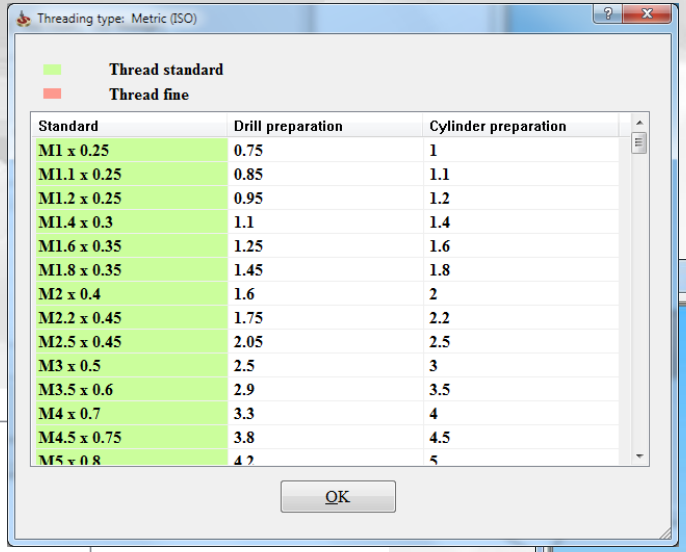
Tooltable: Grooving composite tools

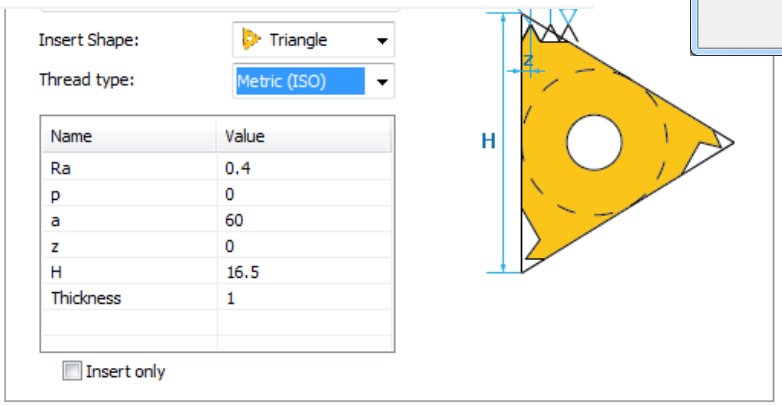


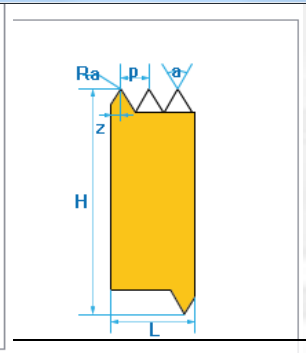
- **Internal and External grooving tools**
- **Square and Round inserts**

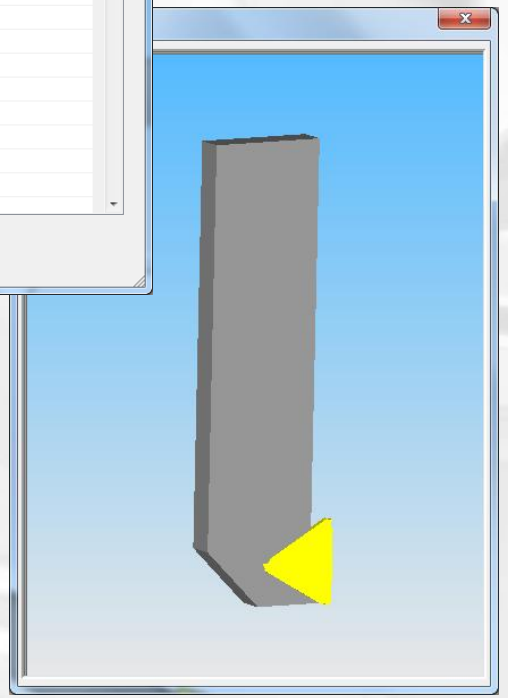
Tooltable: Threading composite tools











- **Internal and External threading tools**
- **Option to use standarg thread type tables**
- **Triangle and rectangle inserts**

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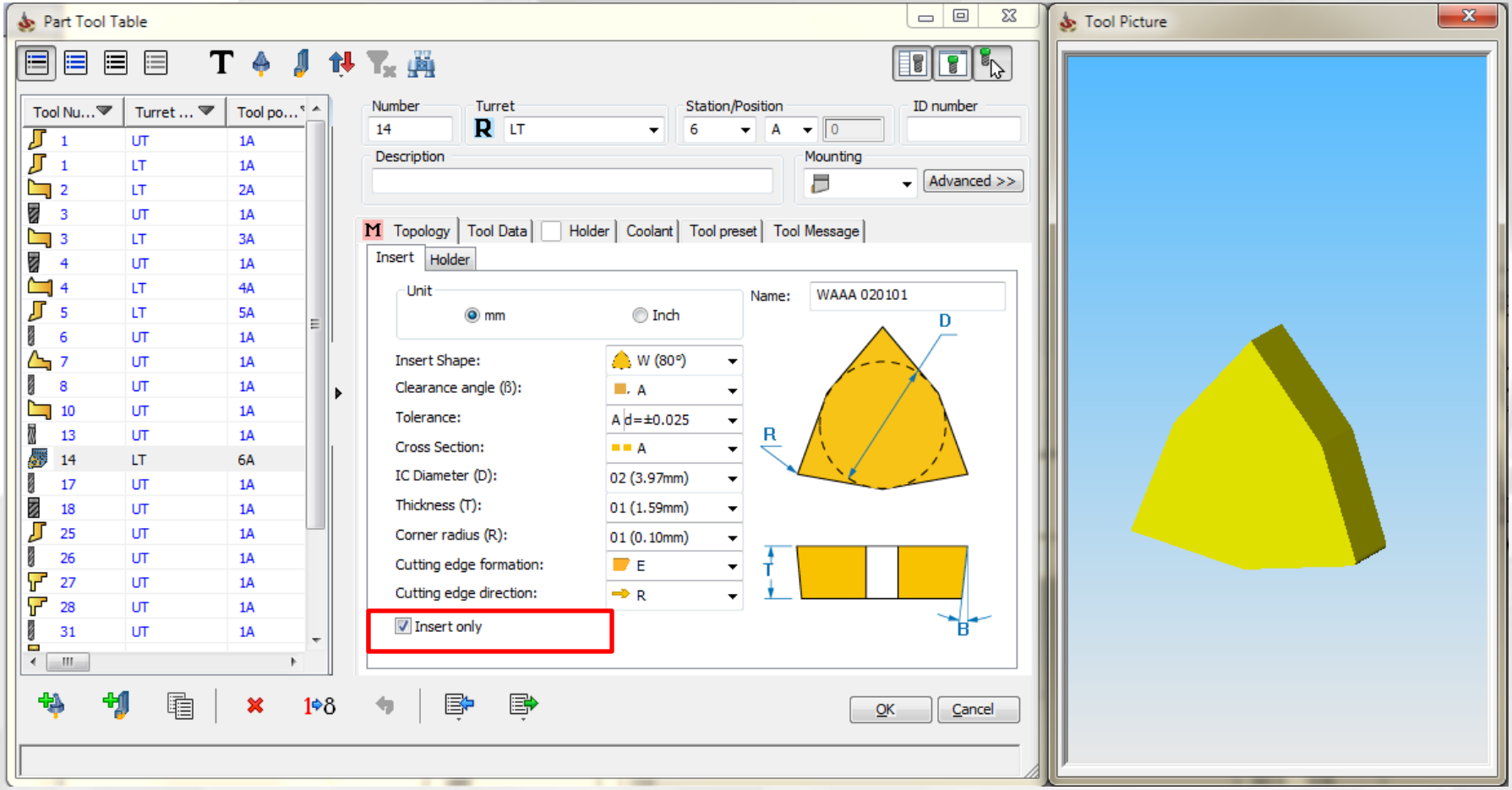
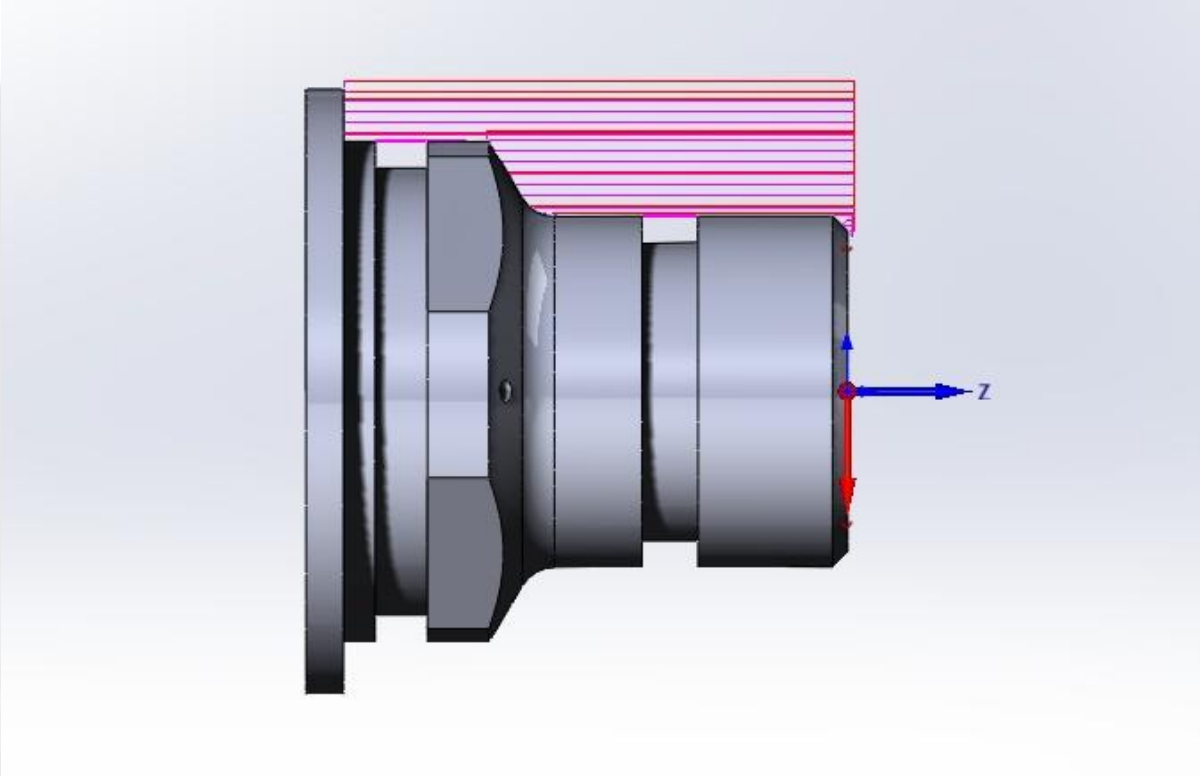
Tooltable: Use only insert



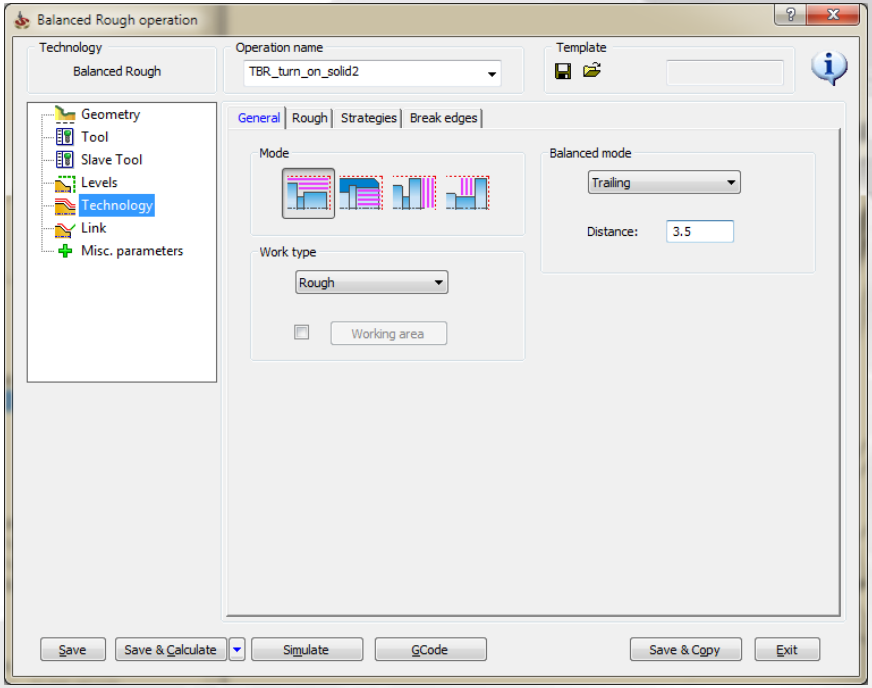
- **Define only cutting part of the tool - tool body can be deined as STL holder**

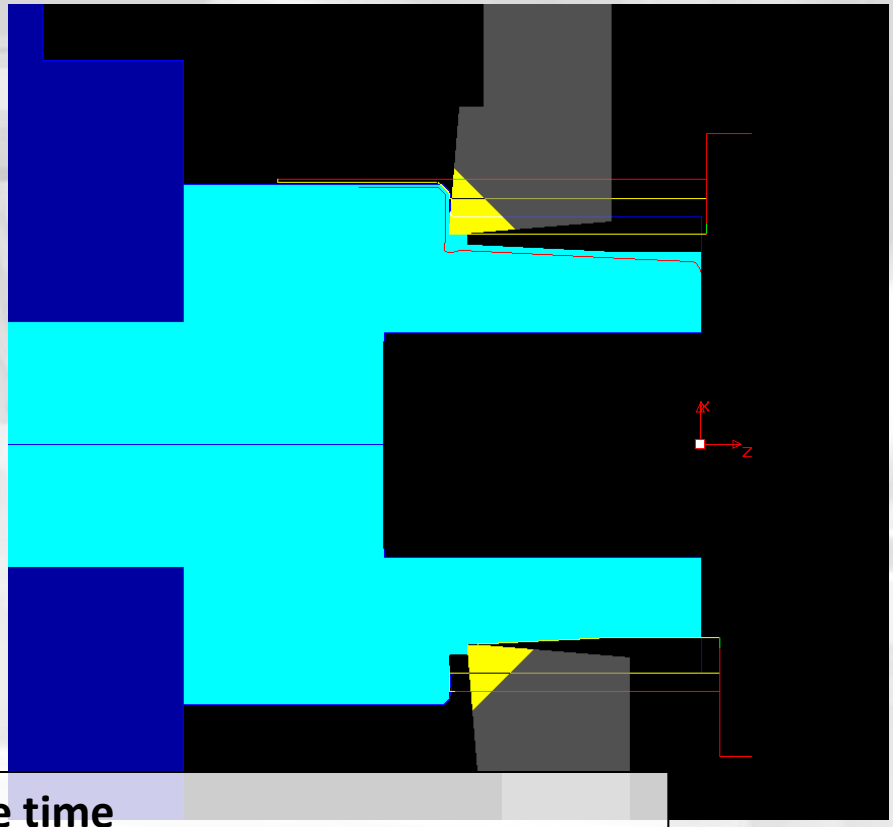
Turning: Work without fixture



- **If there is target defined – fixture is not needed anymore for turning**
- **If there is NO target – fixture is needed**
- **Machine without fixture and without traget - impossible**

Turning: Balanced roughing





- **Possibility to cut with 2 tools at the same time**
- **Simultaneous balanced turning**
- **Option to define trailing distance**
- **Twice faster machining on machines with 2 turrets**

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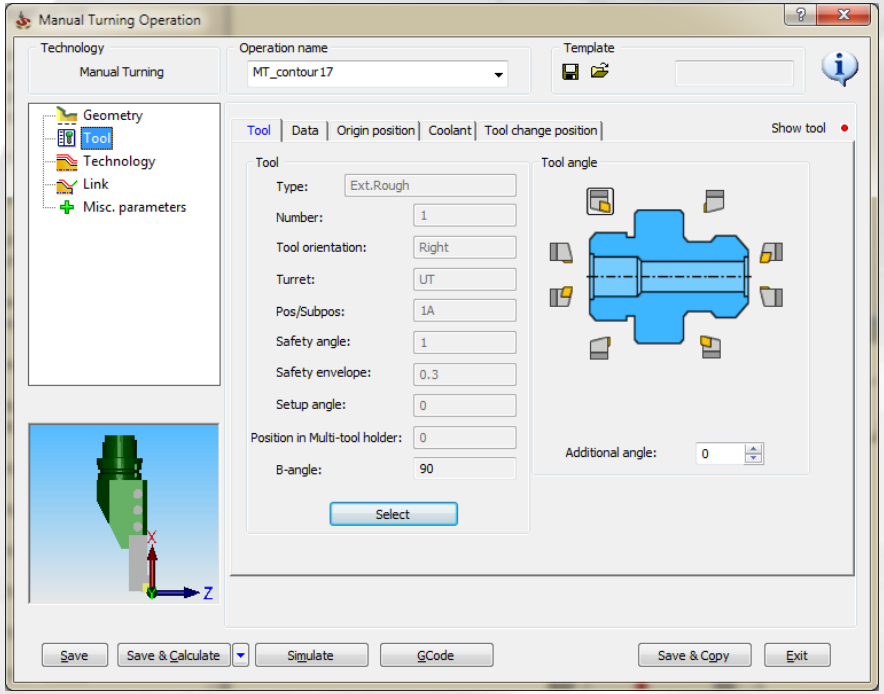
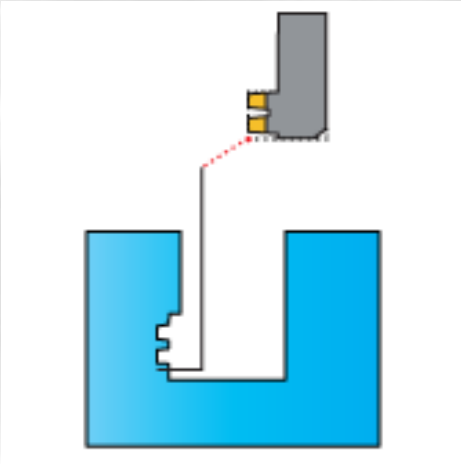
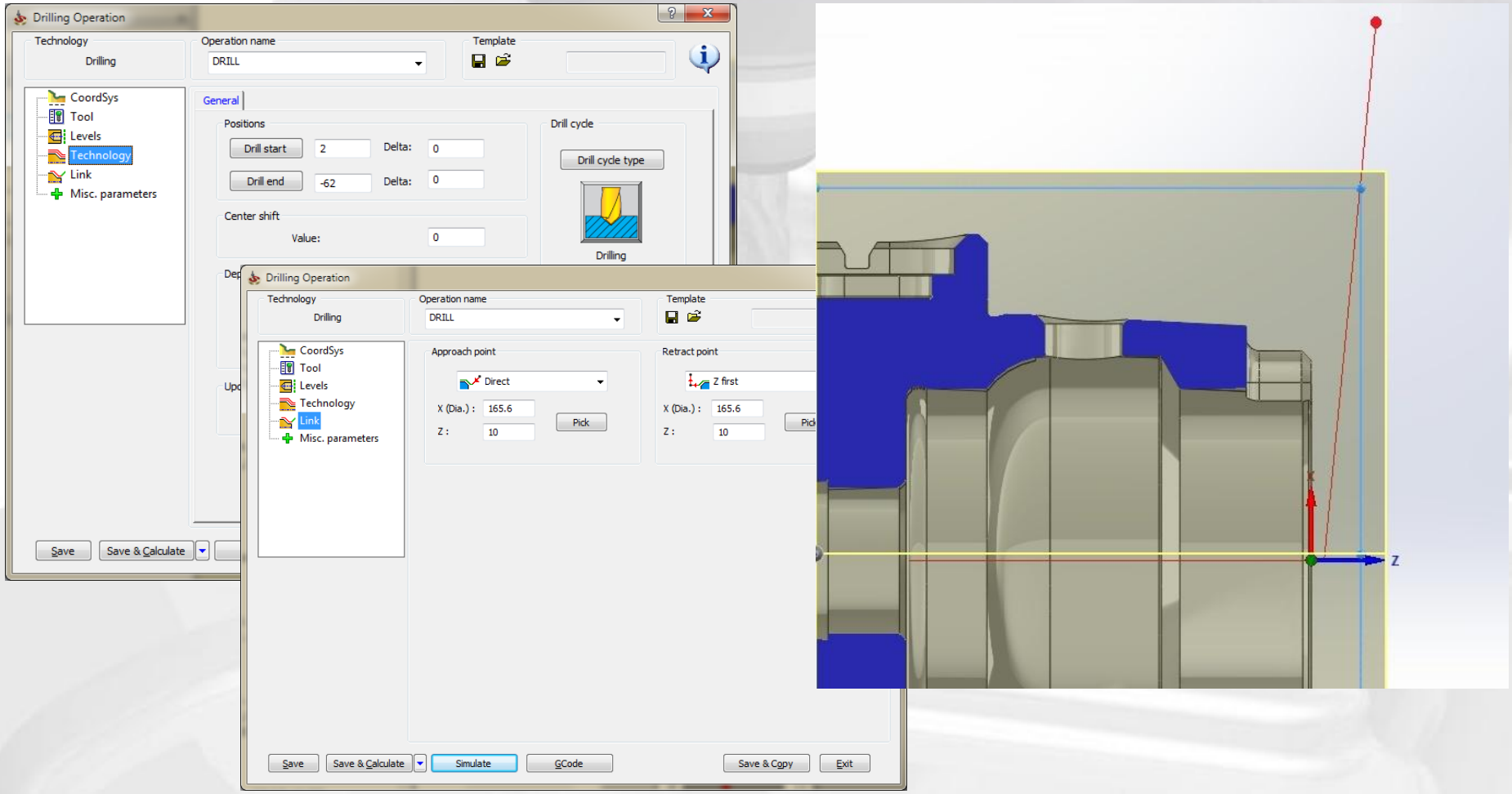
Turning: Manual turning





- **Define toolpath by sketch**
- **Full control on tool movements**

Turning: Approach/Retract in drilling



- **Control approach and retract motions in turning drilling operations**

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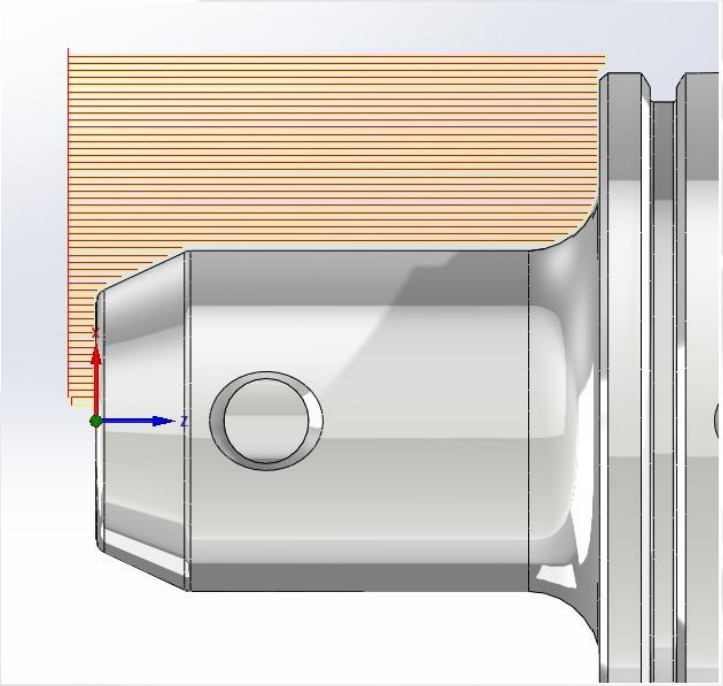
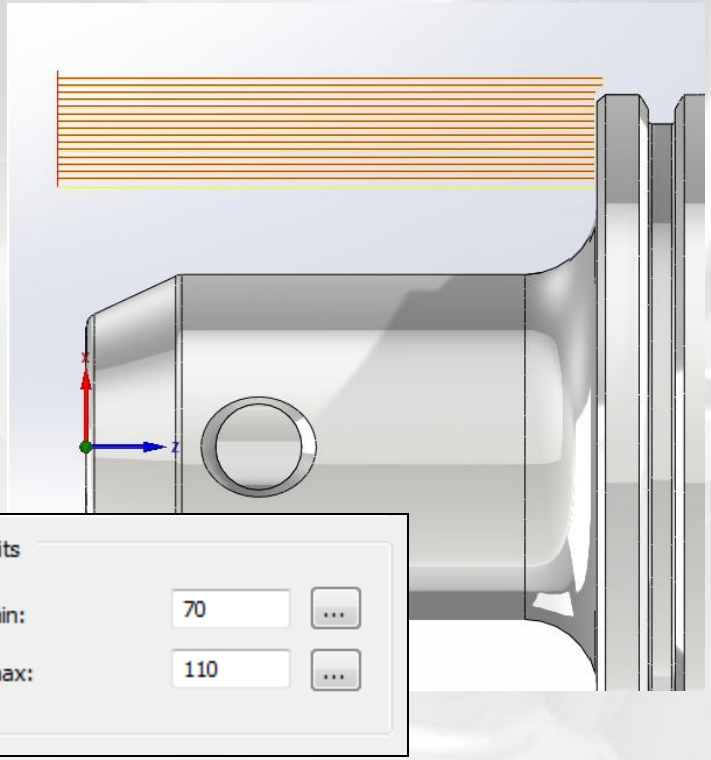
Turning: Reduce toolpath on X axis

Full toolpath

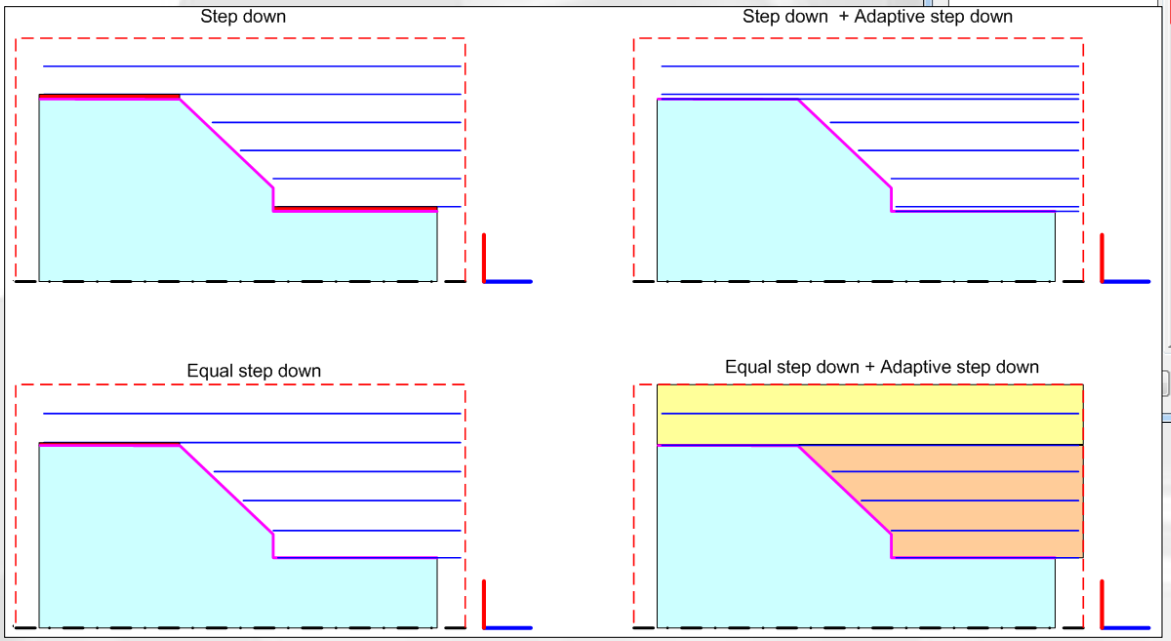


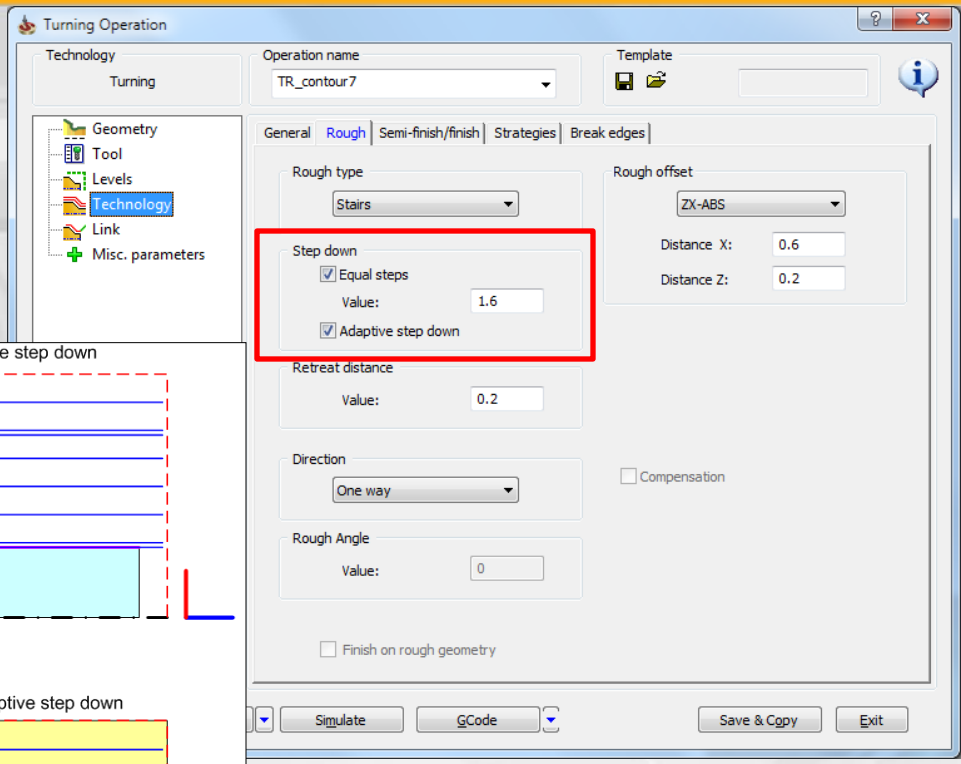
Limited toolpath



- **Available for Rough and Finish**

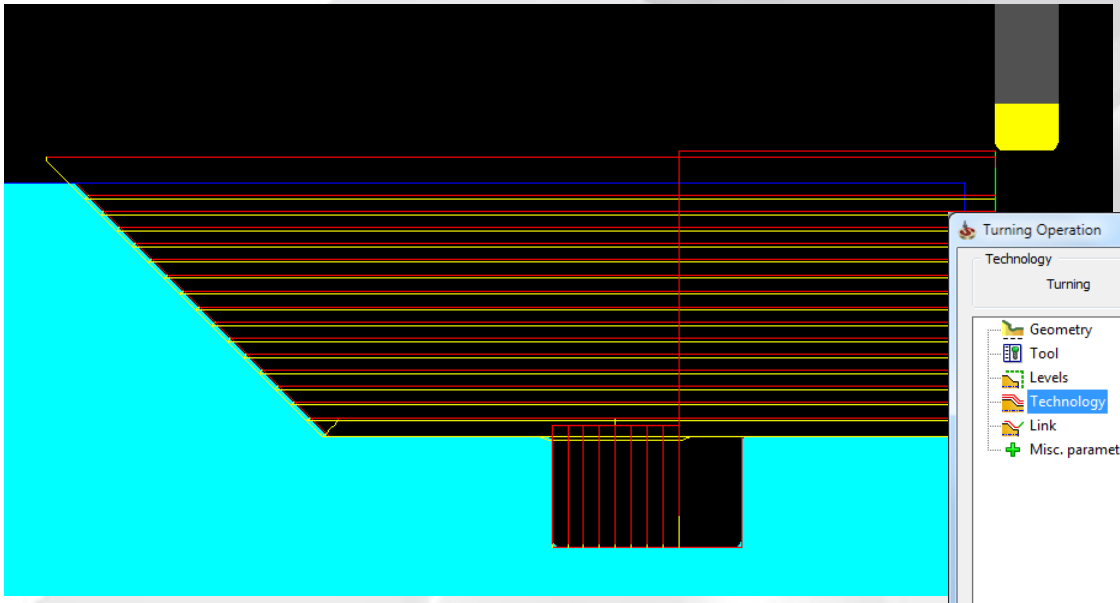
Turning: Adaptive step down

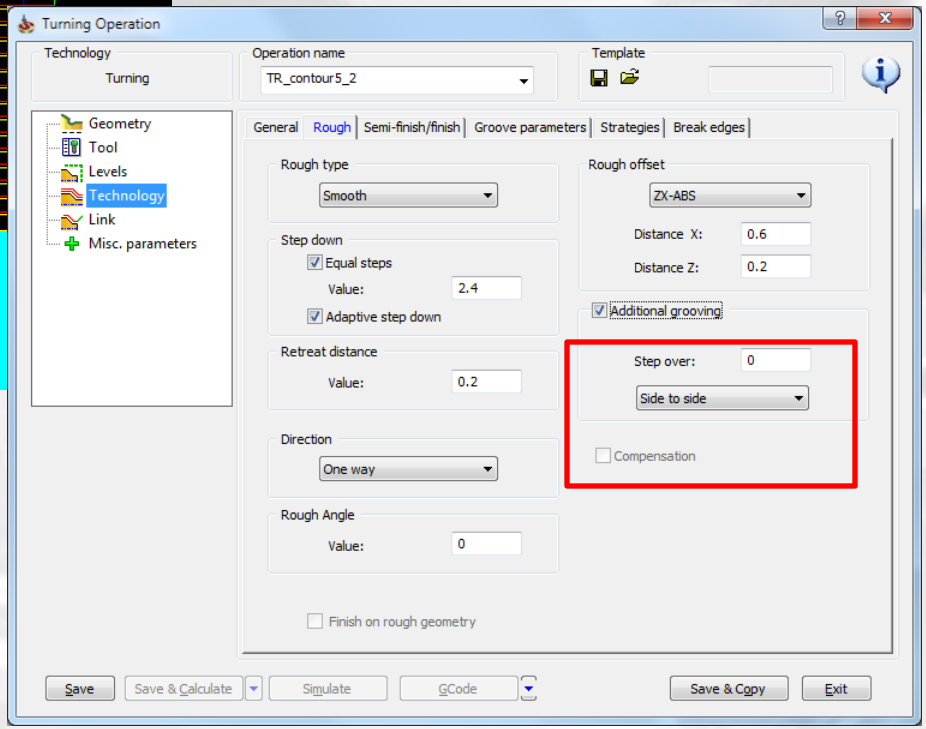




- **Add additional passes to clean „flat“ areas**

Turning: Additional grooving paths





- **Grooving tool in turning operation = Additional grooving passes could be optionally added**

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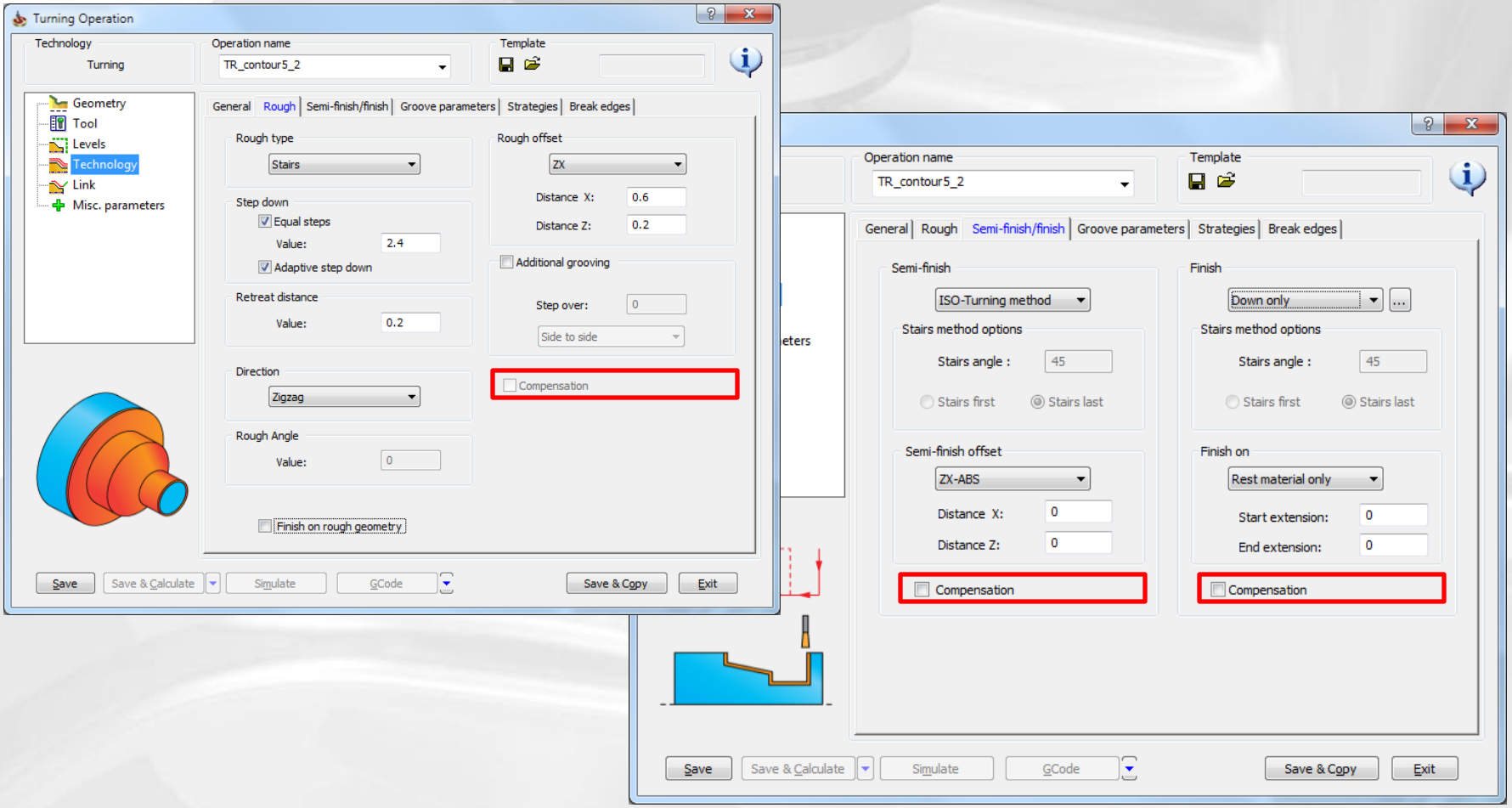
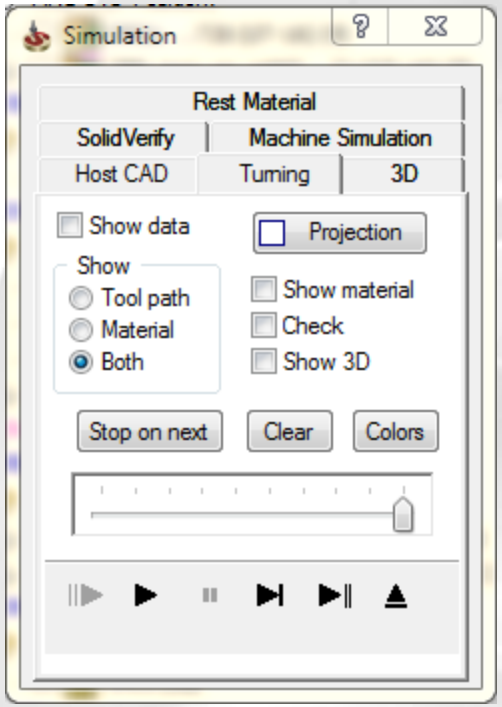
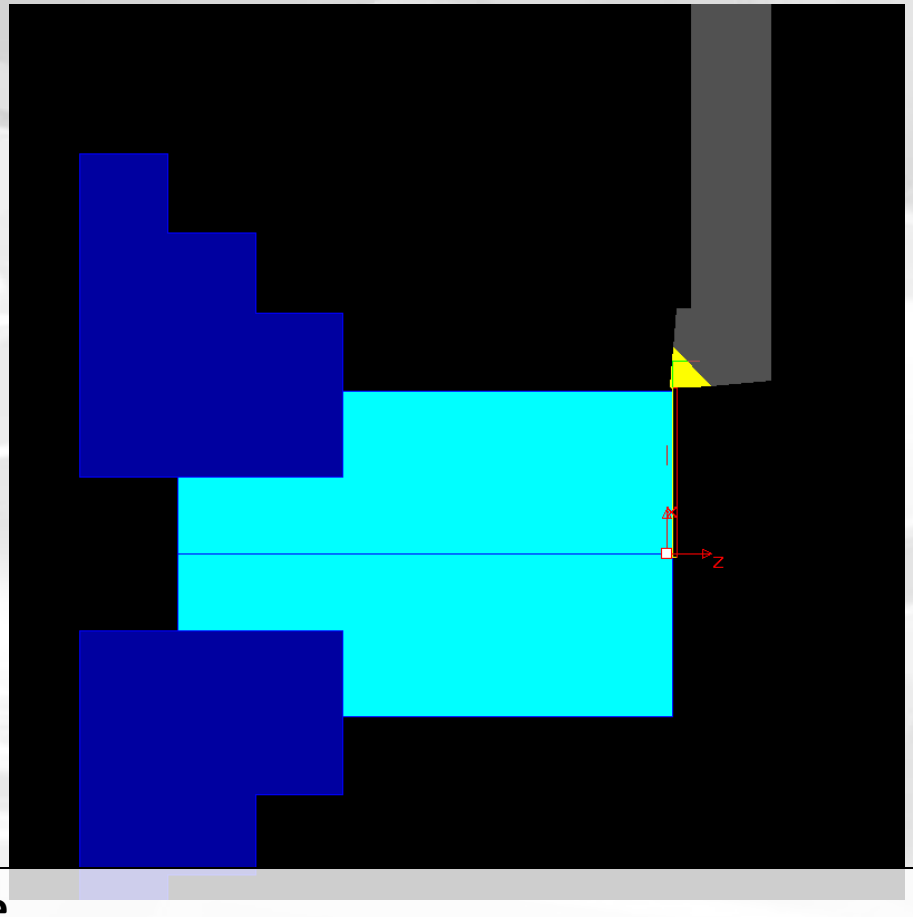
Turning: Separate Compensation for Rough and Finish



- **Separate compensation for Rough and Finish in turning**

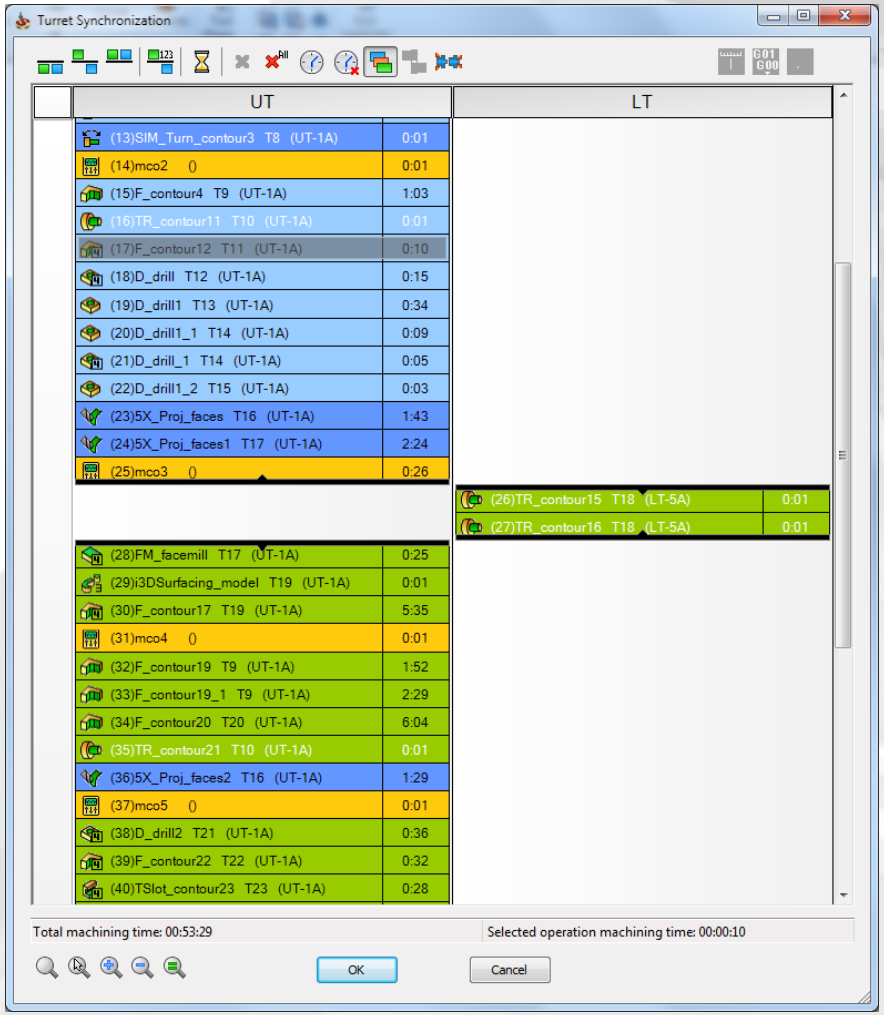
Turning: Improvement of simulation





- **Scroll/Zoom/Pan by mouse**
- **Colored tools**
- **Better visualization during actions (Scroll/Zoom/Pan)**

Turret Synchronization



- Easy to use vertical interface
- Color differentiation between tables
- Customizable settings of GUI
- Documentation

Synchronization types:

- Start at the same time
- End at the same time
- Start after previous

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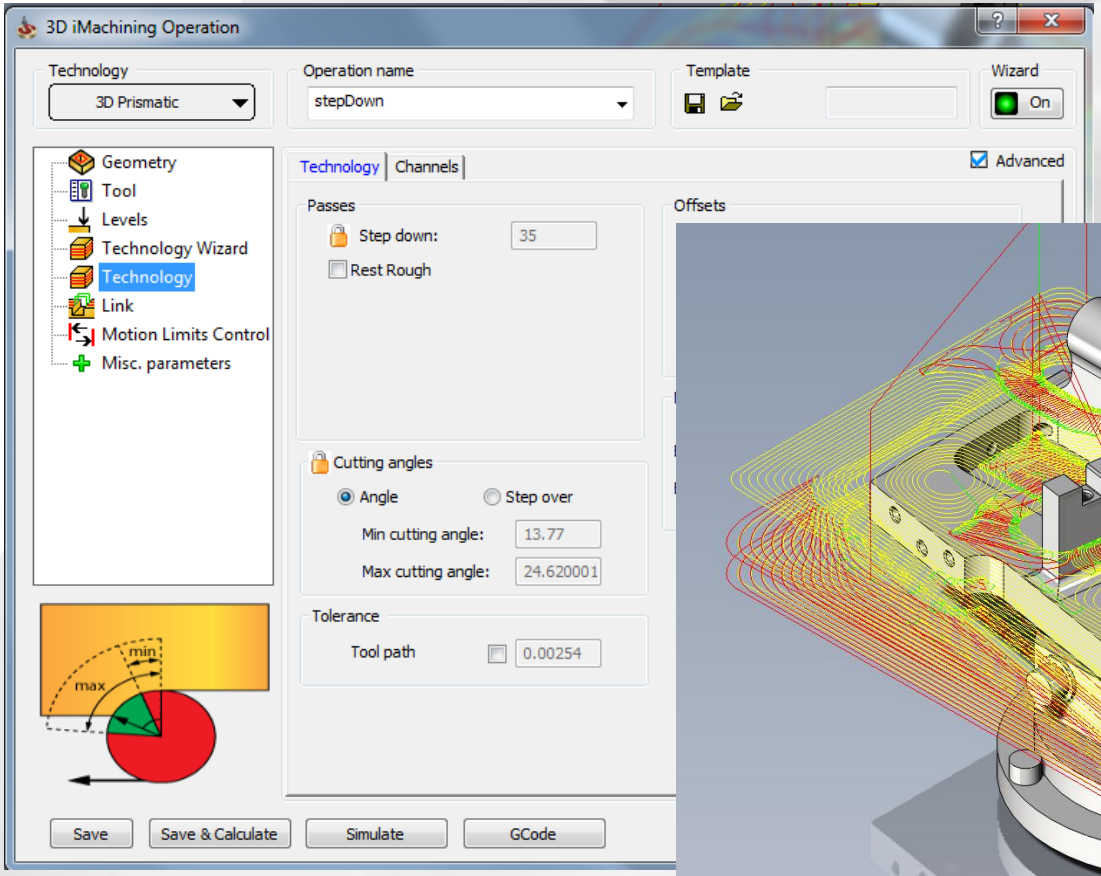
The new, revolutionary Milling technology

imachining® by SolidCAM

UP TO 70% TIME SAVINGS

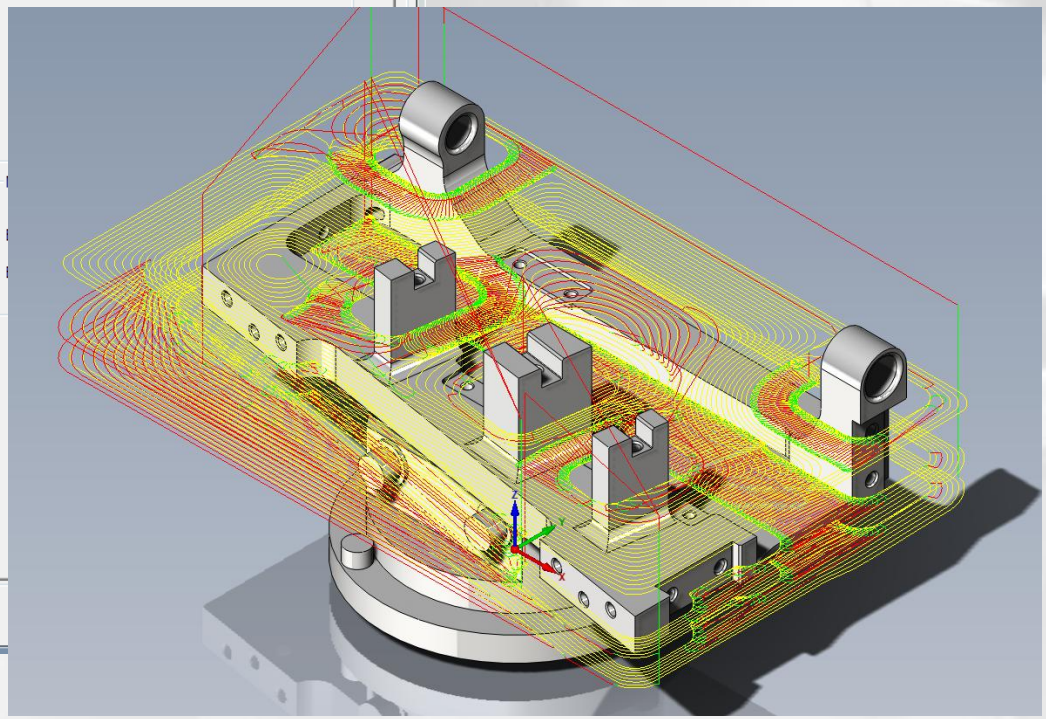
The revolution in CNC machining

3D iMachining



The new, revolutionary Milling technology

iMachining by SolidCAM



3D iMachining with intelligent step-up

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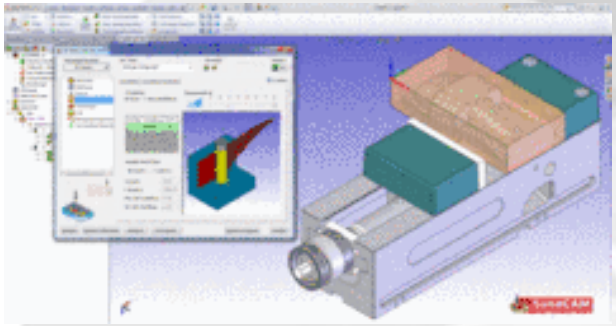
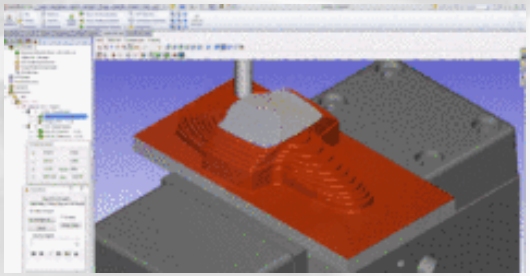
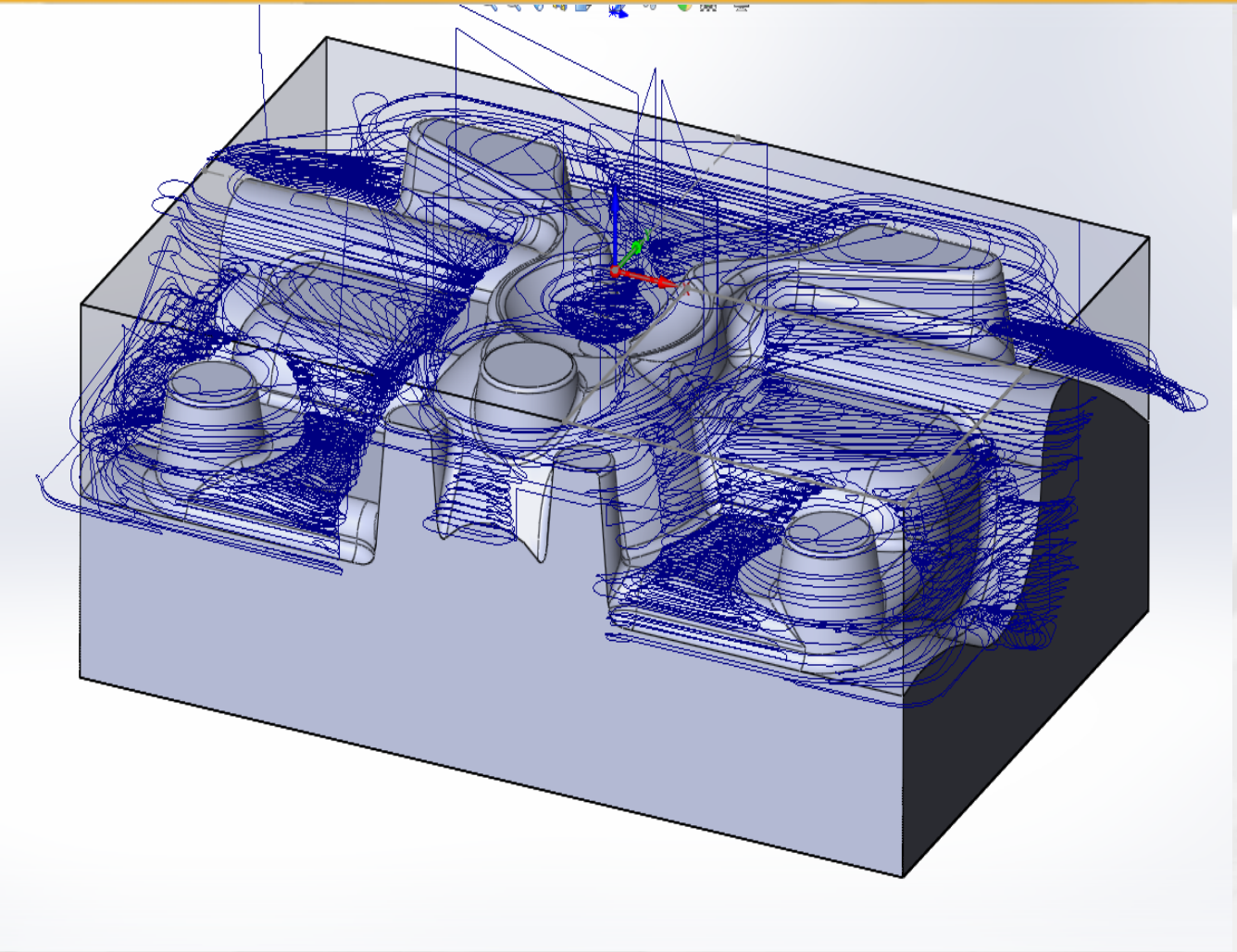
3D iMachining





3D iMachining with intelligent step-up

3D iMachining



3D iMachining smart positioning

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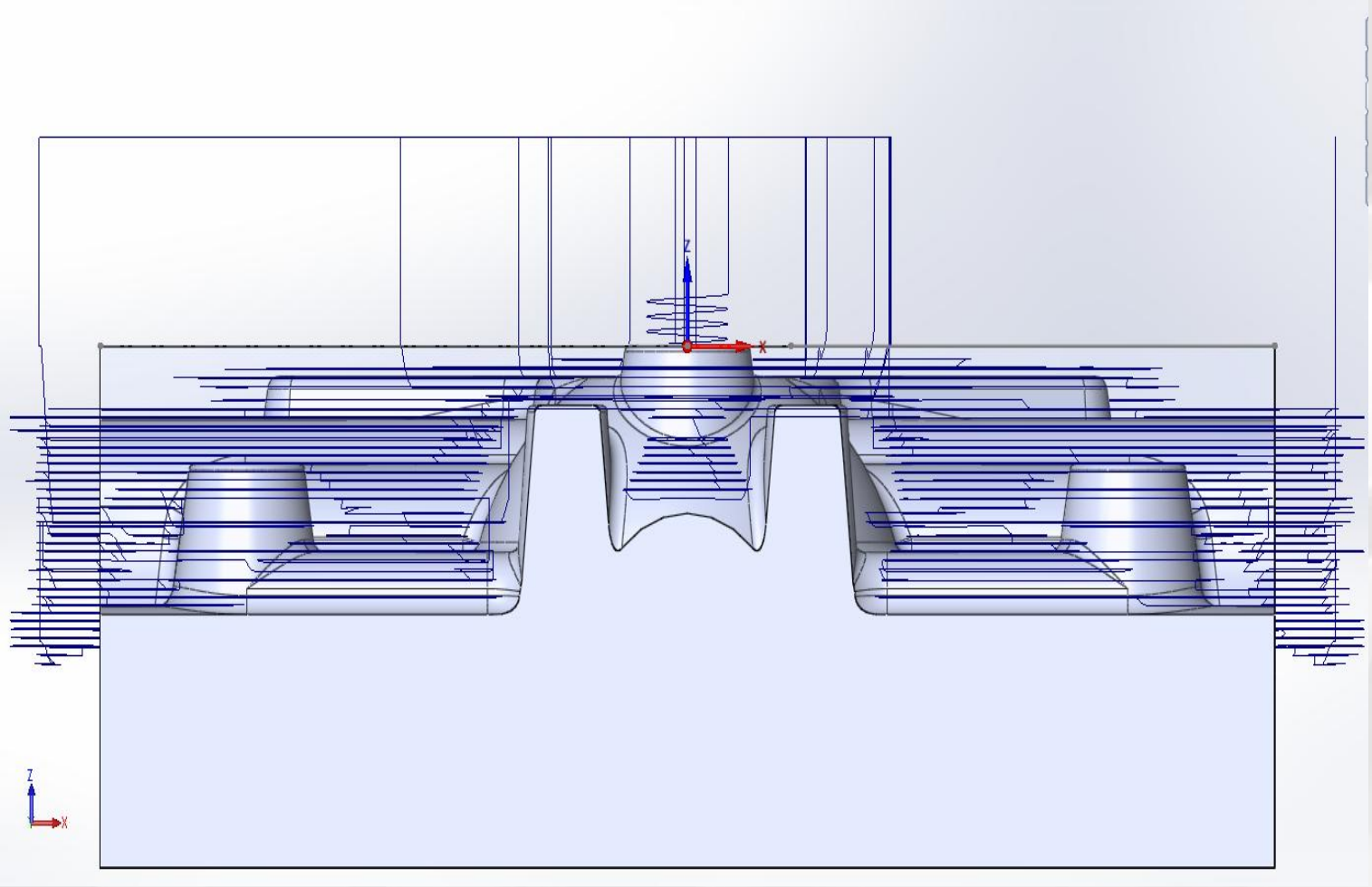
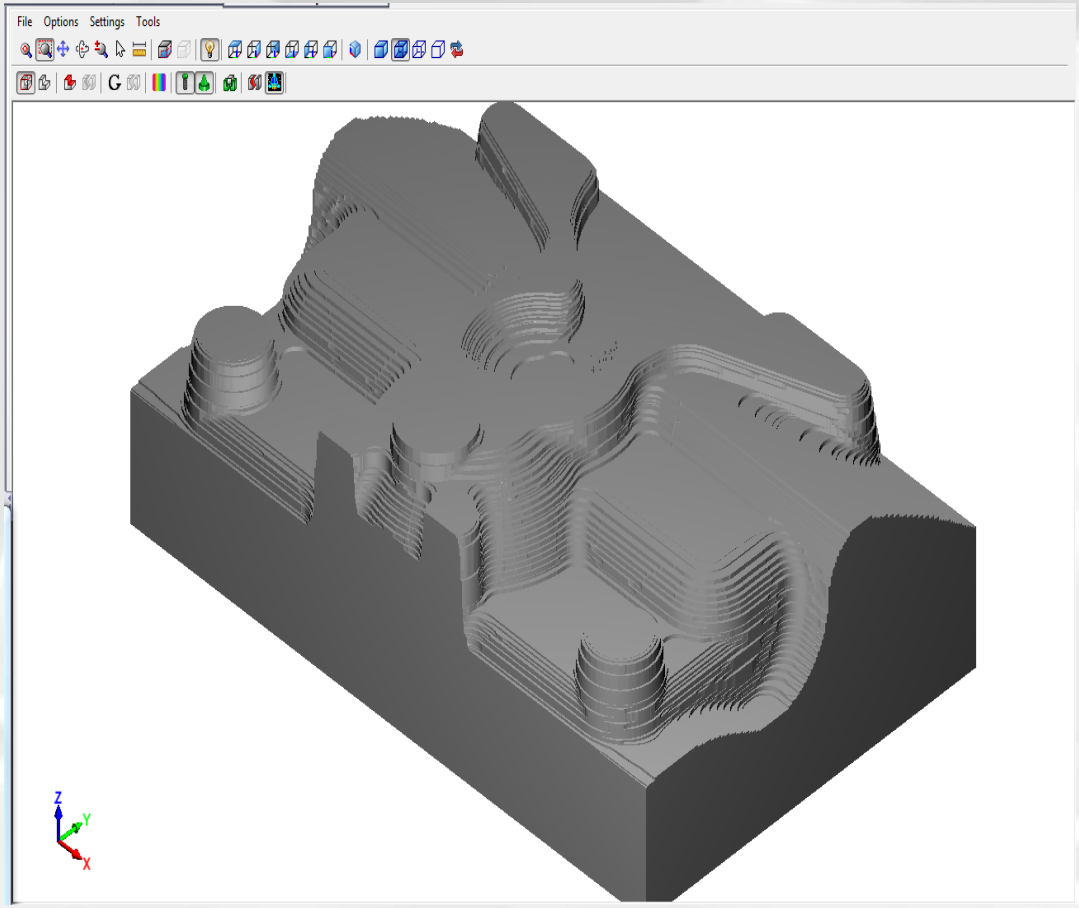
3D iMachining



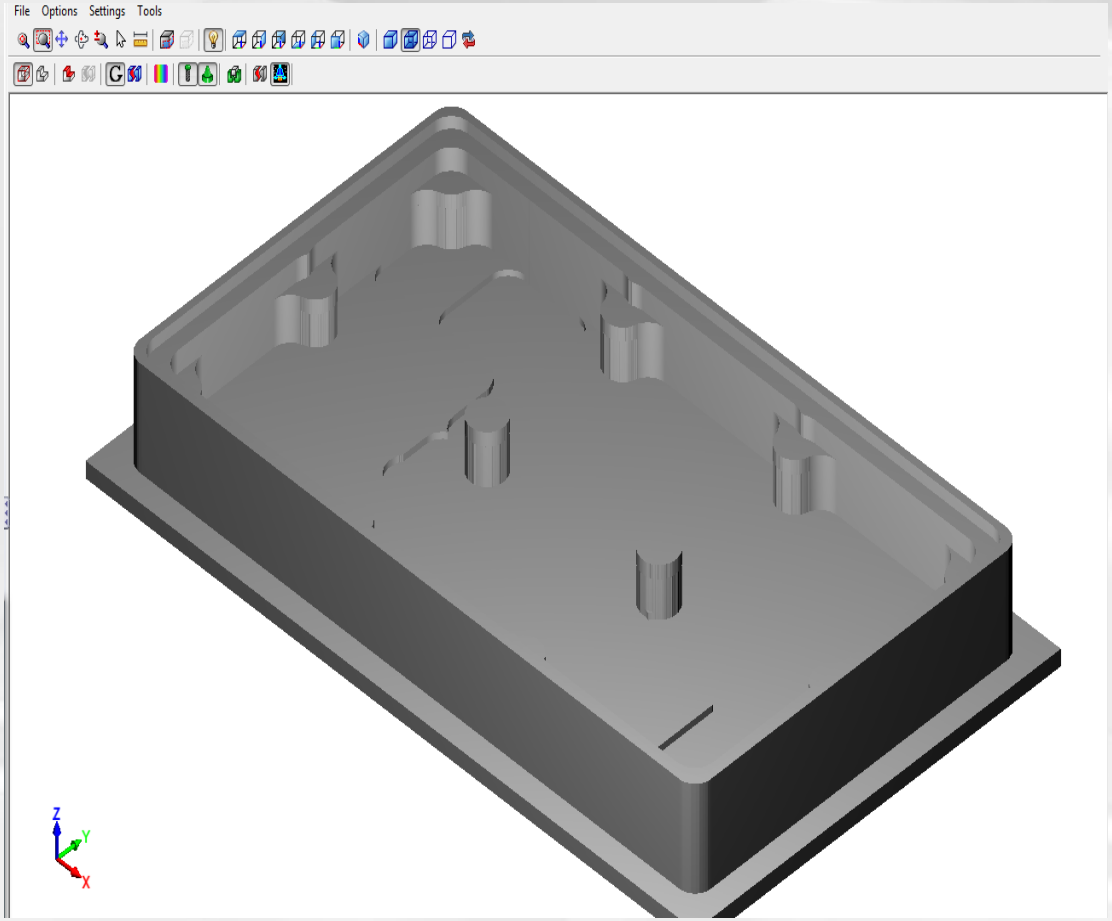
3D iMachining smart positioning

3D iMachining



3D iMachining for molds

3D iMachining



3D iMachining for Prismatic parts

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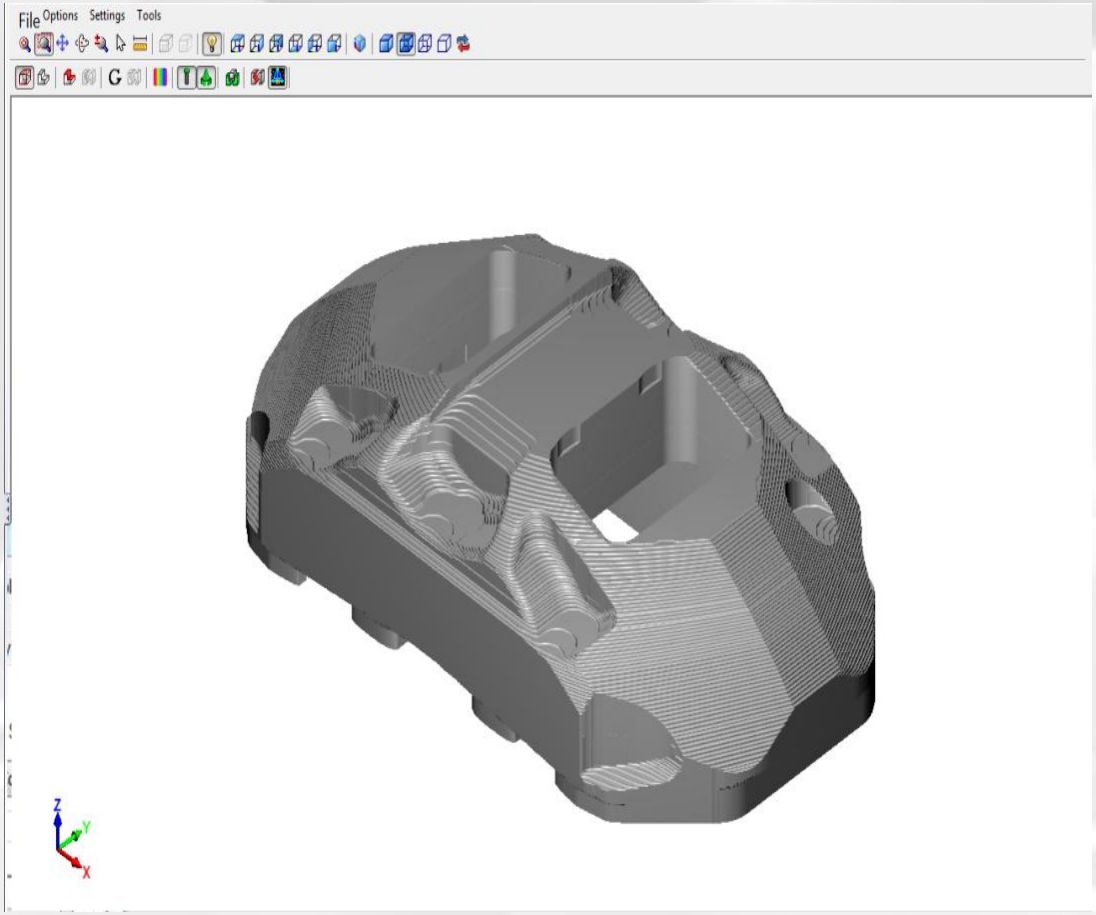
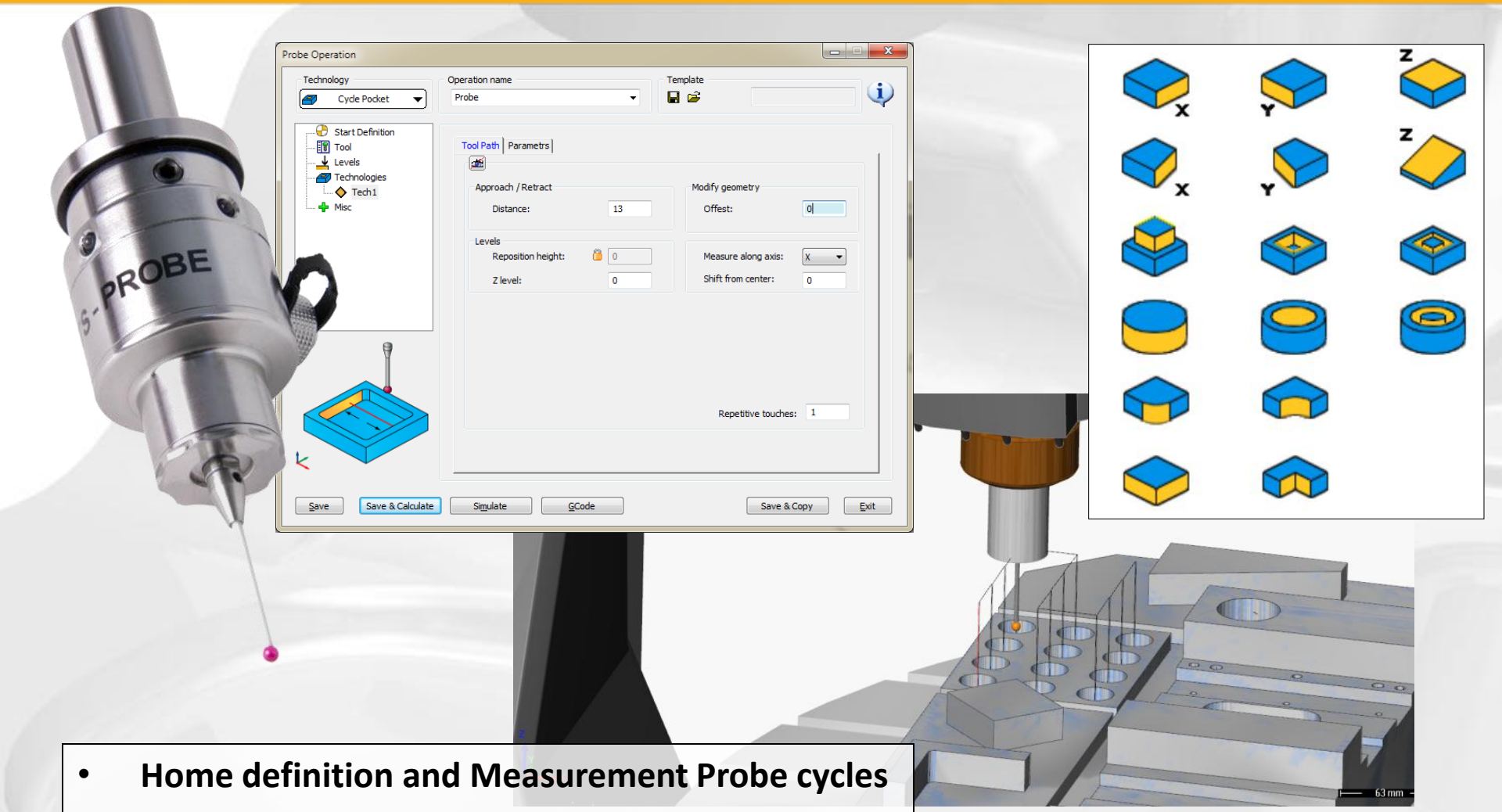
3D iMachining



3D iMachining for complex 3D parts

New Product: SolidProbe



- **Home definition and Measurement Probe cycles**
- **Tool presetter**

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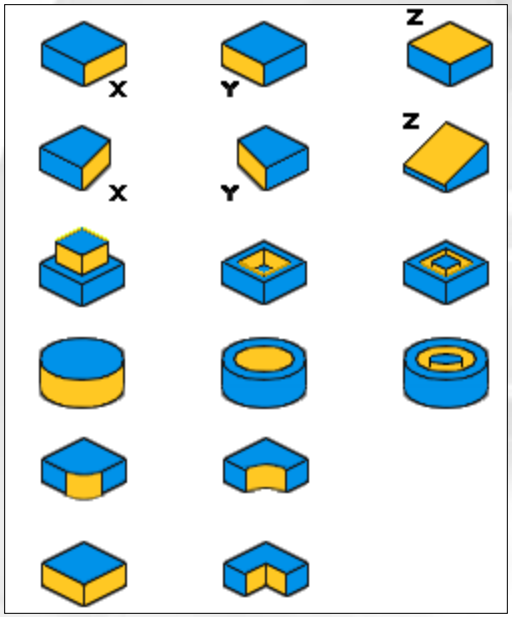
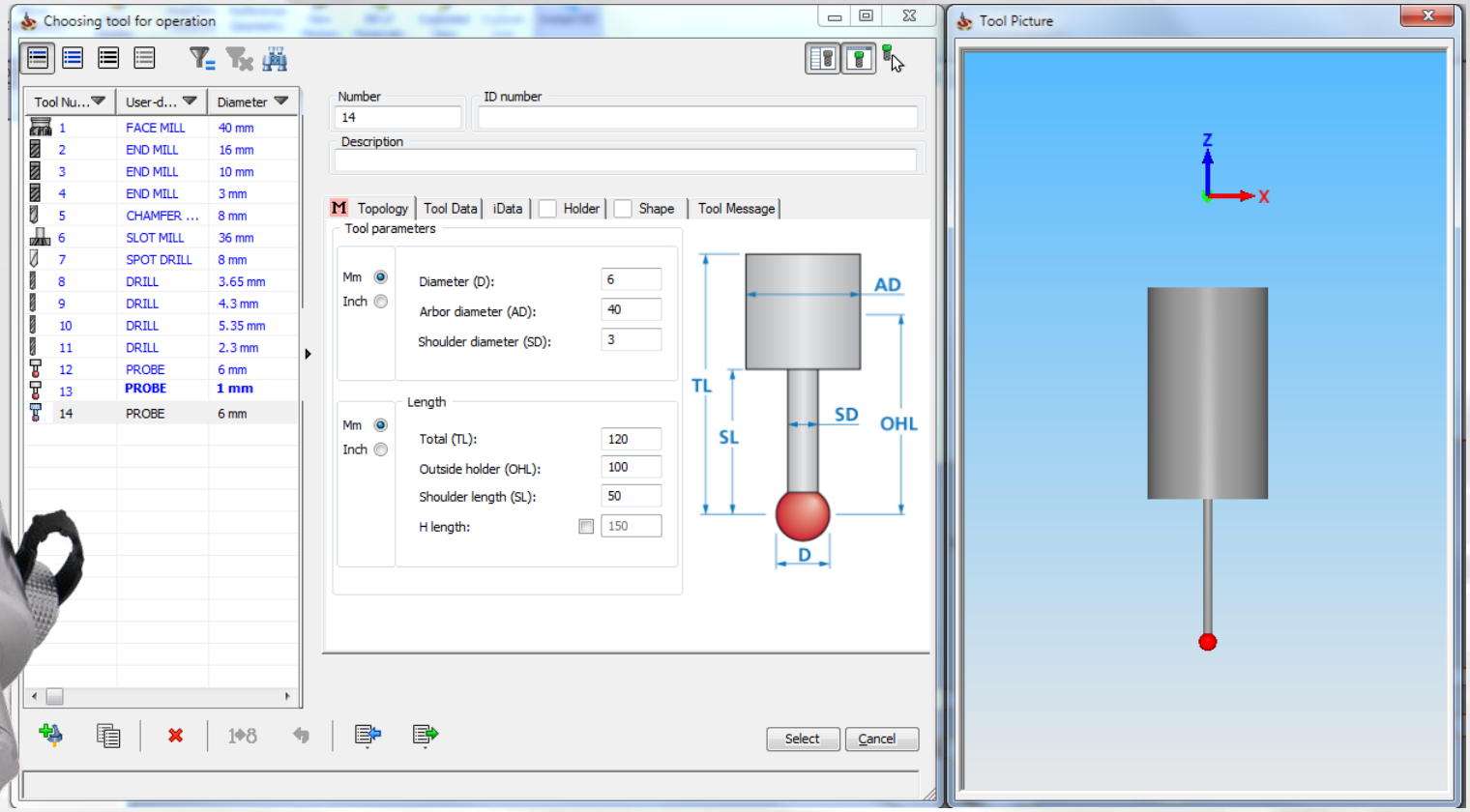
SolidProbe cycles



- Single point X
- Single point Y
- Single point Z
- Angle X
- Angle Y
- Angle Z
- Boss
- Pocket
- Pocket with boss
- Cylinder
- Hole
- Hole with boss
- External arc
- Internal arc
- External corner
- Internal corner

- Possibility to customize cycle usage in Measurement and Home Definition (inside *.VMID file)

Probe Tool



- **New Probe tool in tooltable**
- **Support of Probe tool in all simulations**

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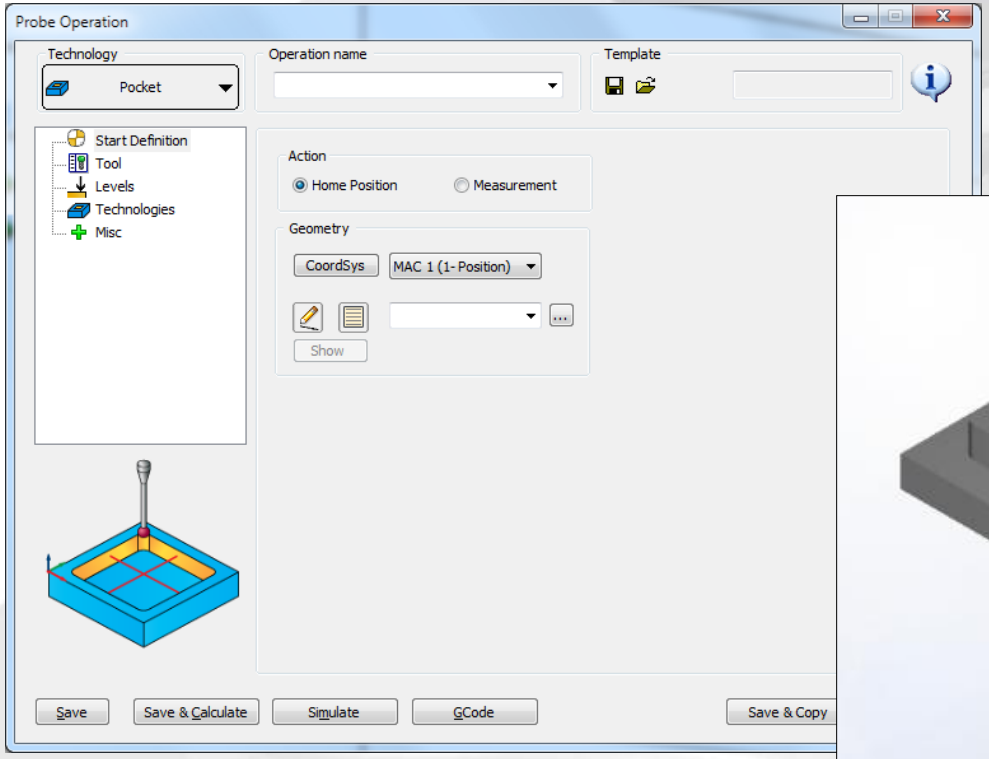
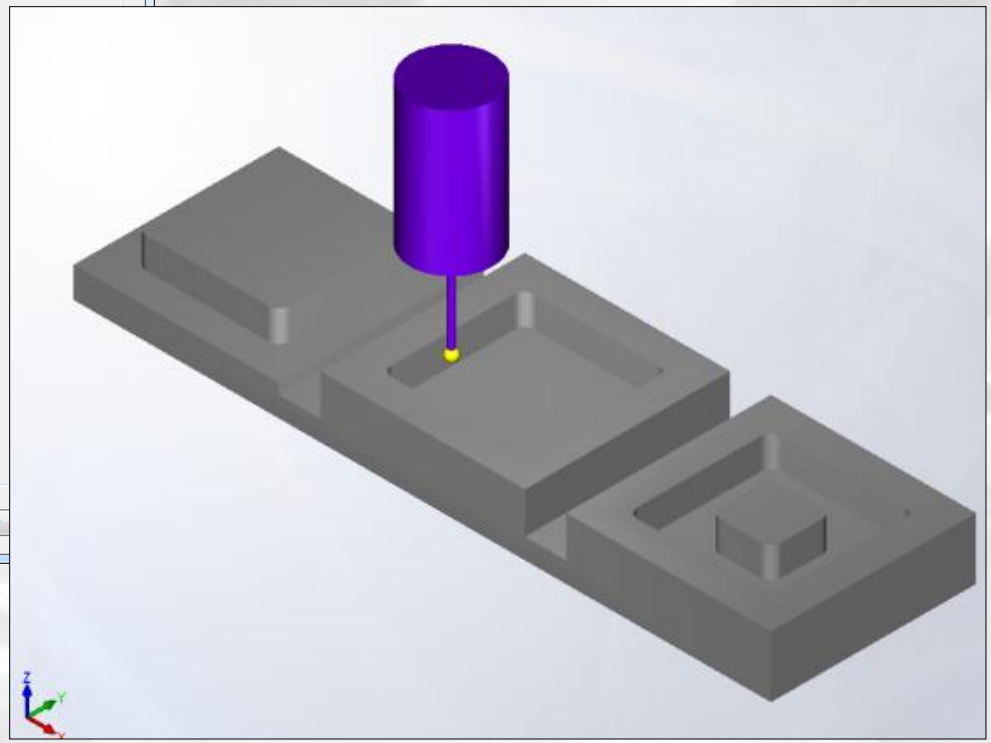
SolidProbe: Home definition

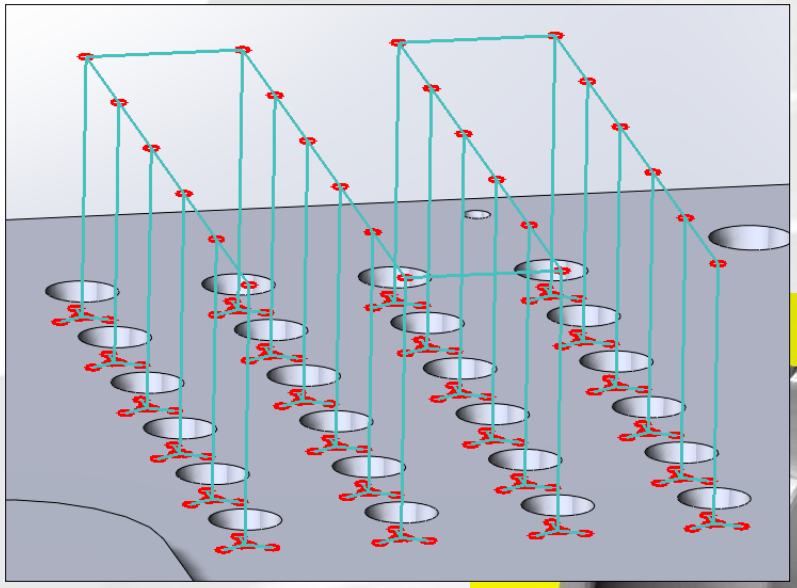


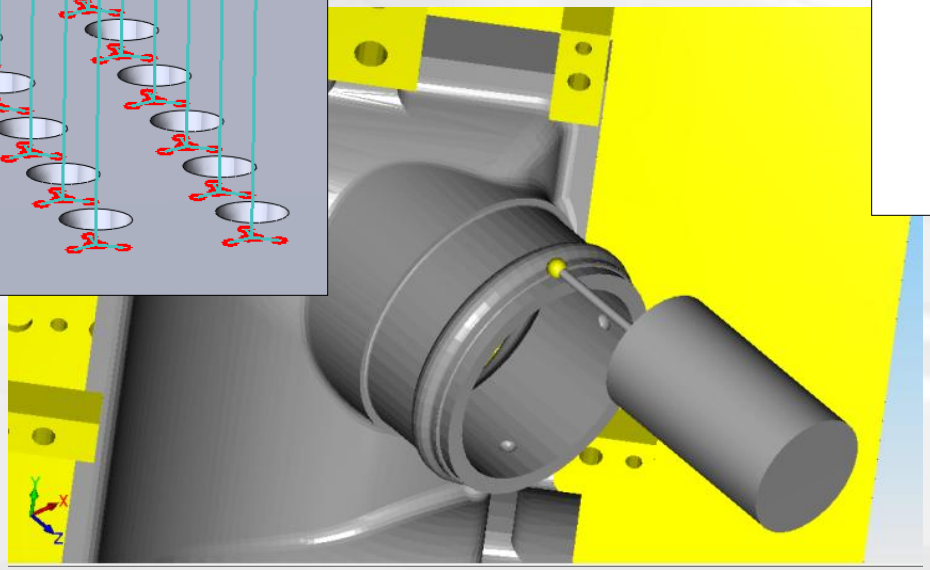


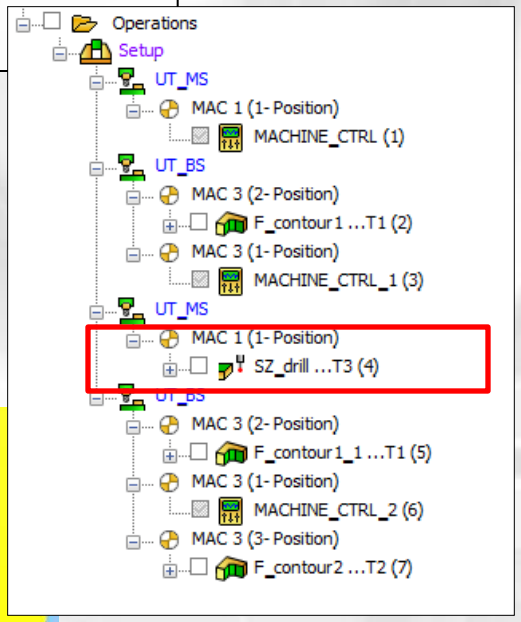
- **Probe cycles support home definition**

SolidProbe: Measurement

- **Enables measuring the part, during machining**
- **Includes many cycles of measurement**







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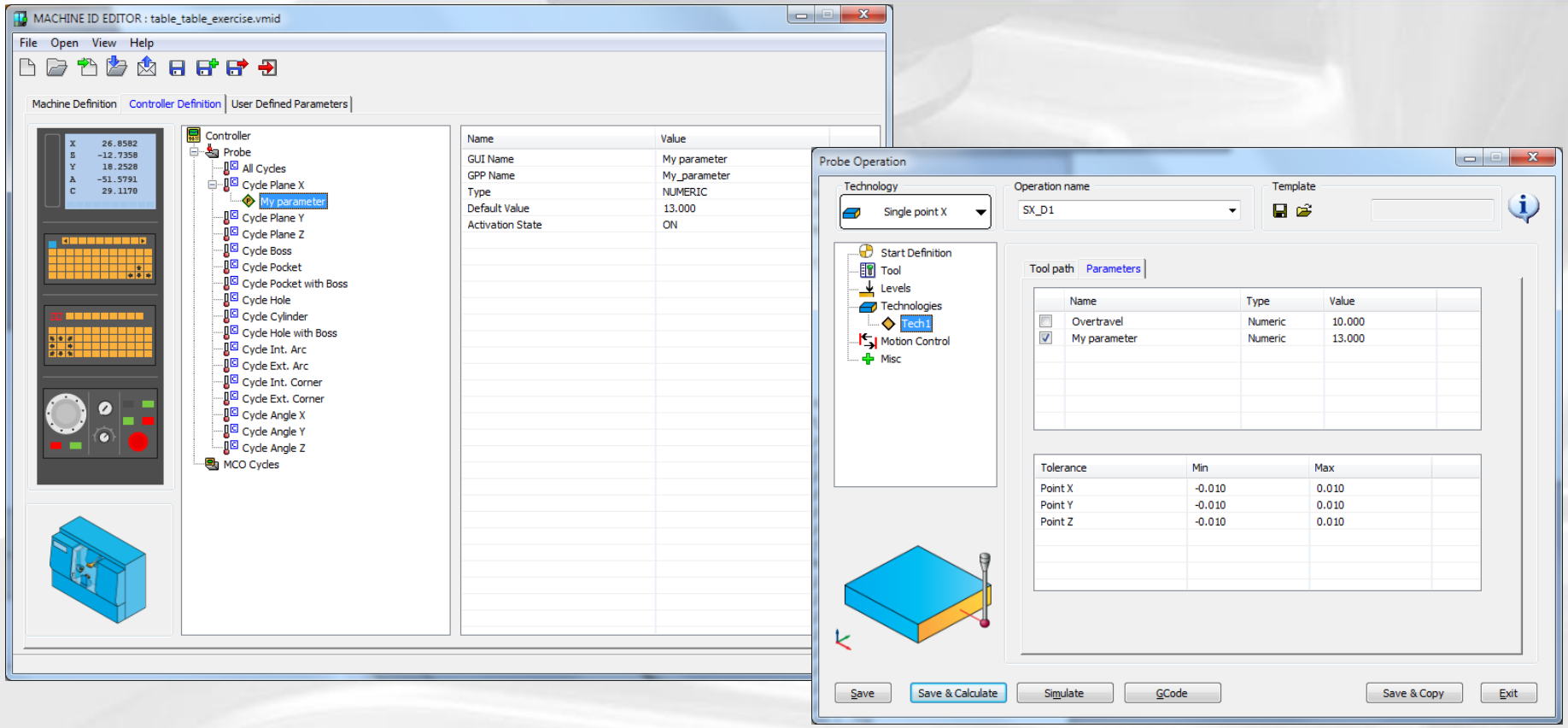
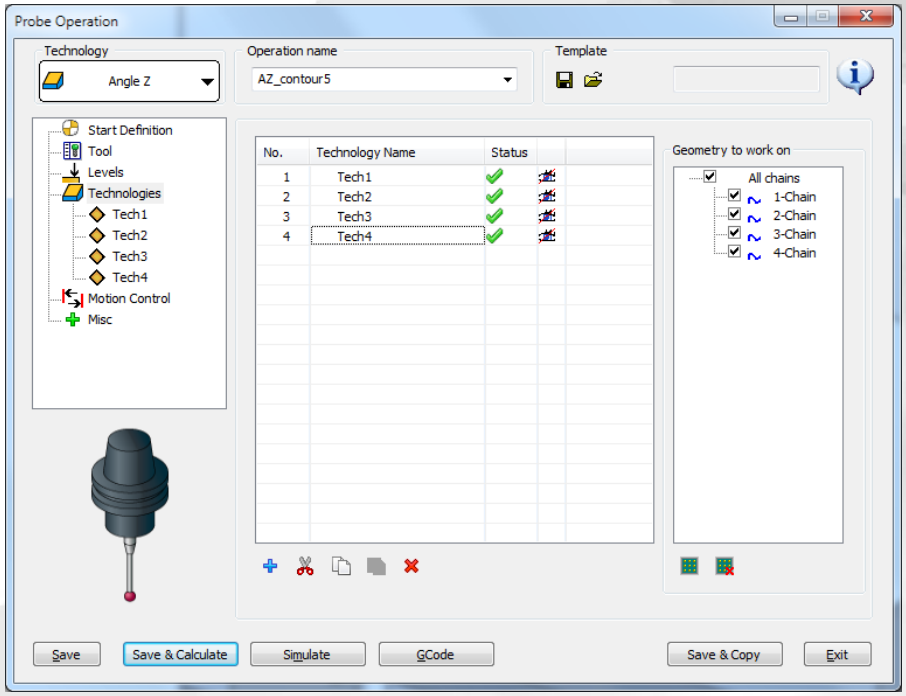
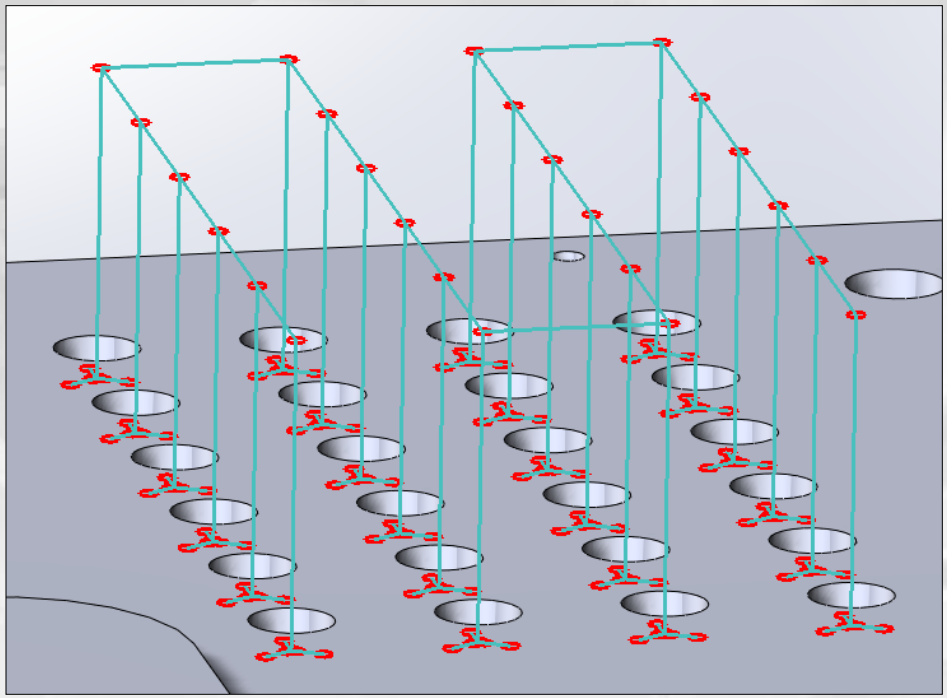
User-defined parameters in MachineID



- **Parameters for each Probe cycle in *.VMID file – Controller Definition page**
- **Separate GUI and GPP name – for easier localization**
- **Possibility to activate/deactivate parameter by checkbox**

SolidProbe: Technologies page





- **Support for multi-chains(points) geometries**
- **Several technologies (the same cycle type) in the same operation, if needed**
- **Sorting of chains(points)**
- **Preview of several technologies**
- **Preview of geometries by one click**
- **Status of geometry with technology compatibility** ✔ ⚠ ❗

Machining & Probe operations intermixed

- **Machining operations and Probe operations are intermixed in the CAM manger**
- **Machining operations and Probe operations can use the same geometries**
- **When the solid model is changed, both the machining and probe operations can be automatically synchronized to the change**