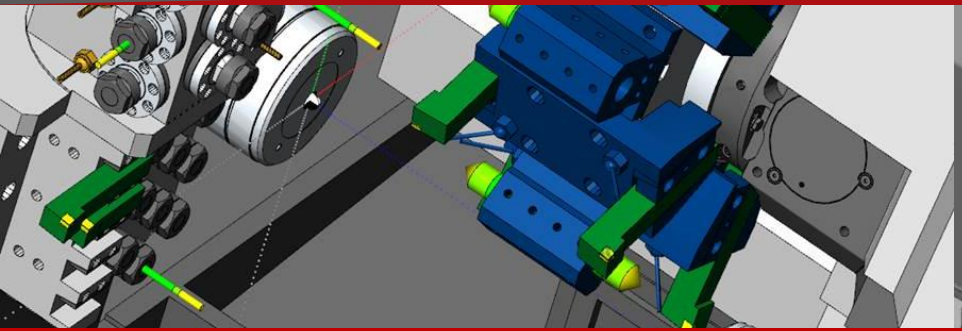
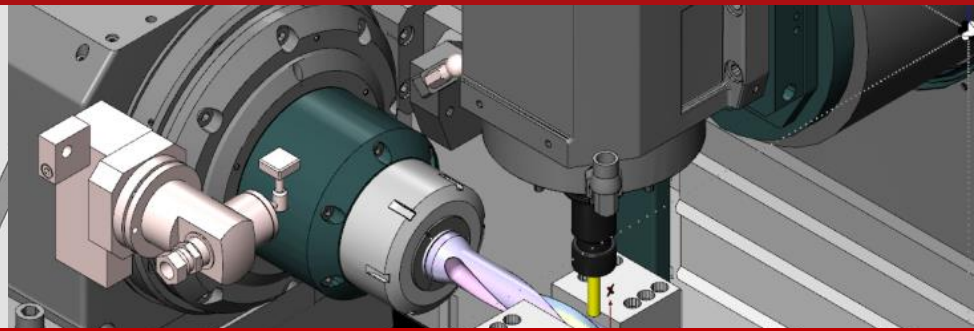
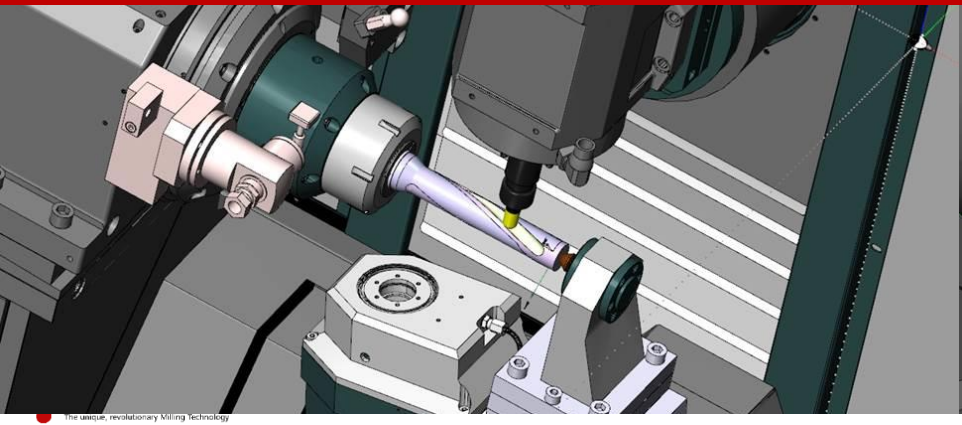
What's New in SolidCAM 2016

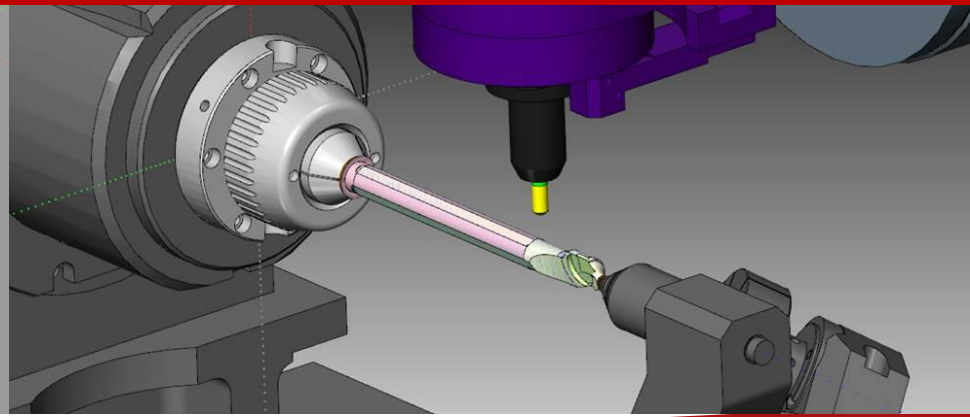
www.solidcam.com



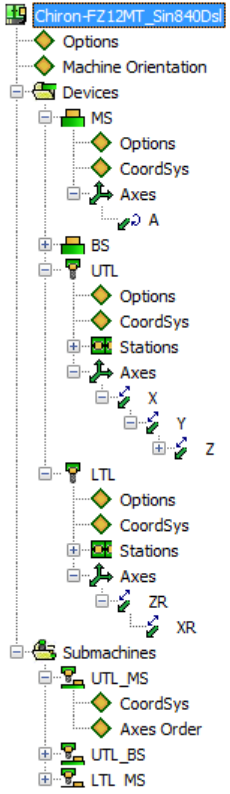


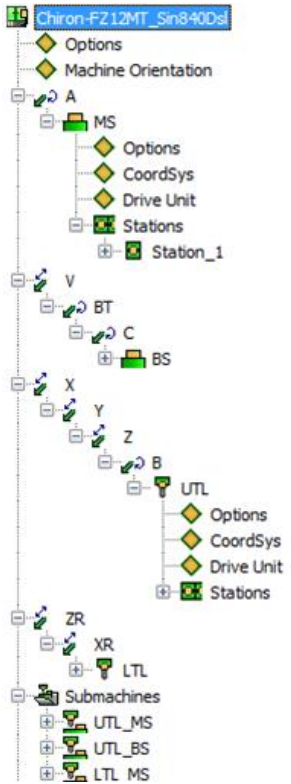
SolidCAM2016: Advanced Mill-turn solution





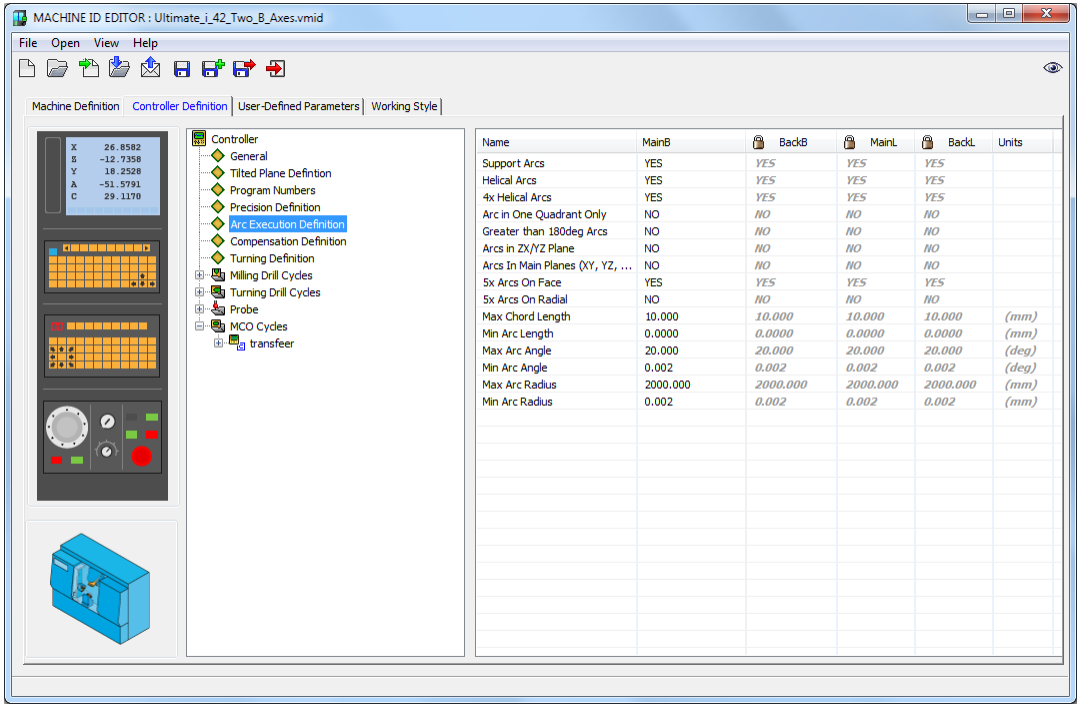
VMID (Virtual Machine ID) change : Devices on Axes





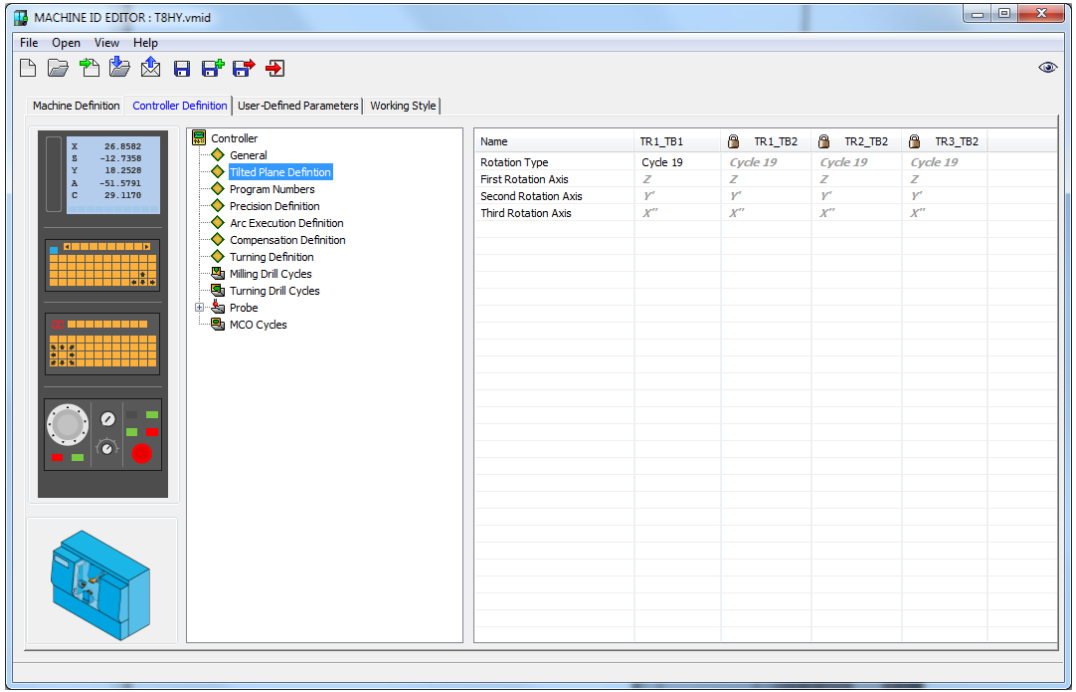
- **<u>Devices on Axes</u> (and not Axes on Devices): support of several devices mounted on the same axis**
- **<u>The VMID definition is now similar to the Machine Simulation structure</u>**

VMID (Virtual Machine ID) change : Separation of parameters by Submachines & Channels



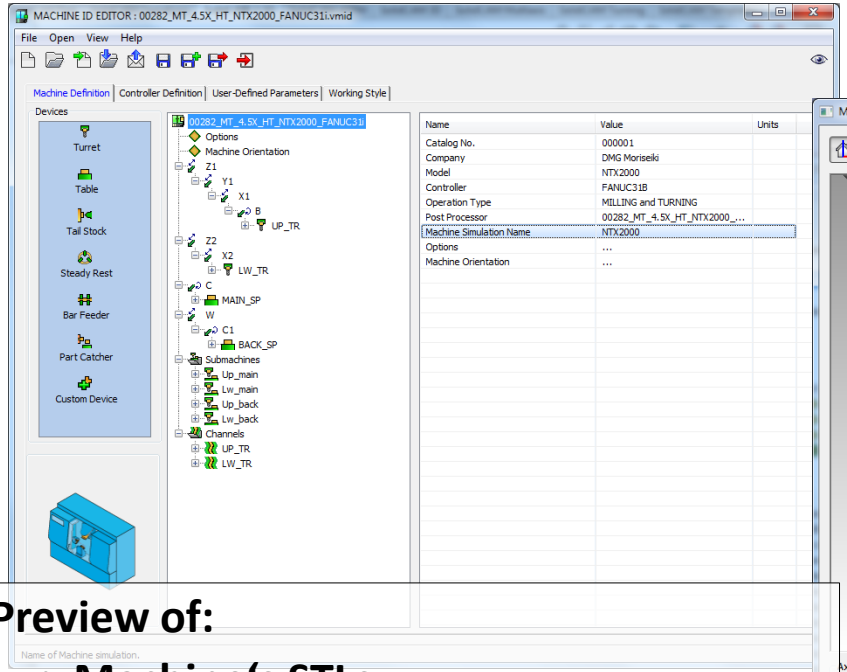
- **More <u>flexible definition of Controller parameters</u> : possibility to apply different values to parameters used in different Submachines & Channels**

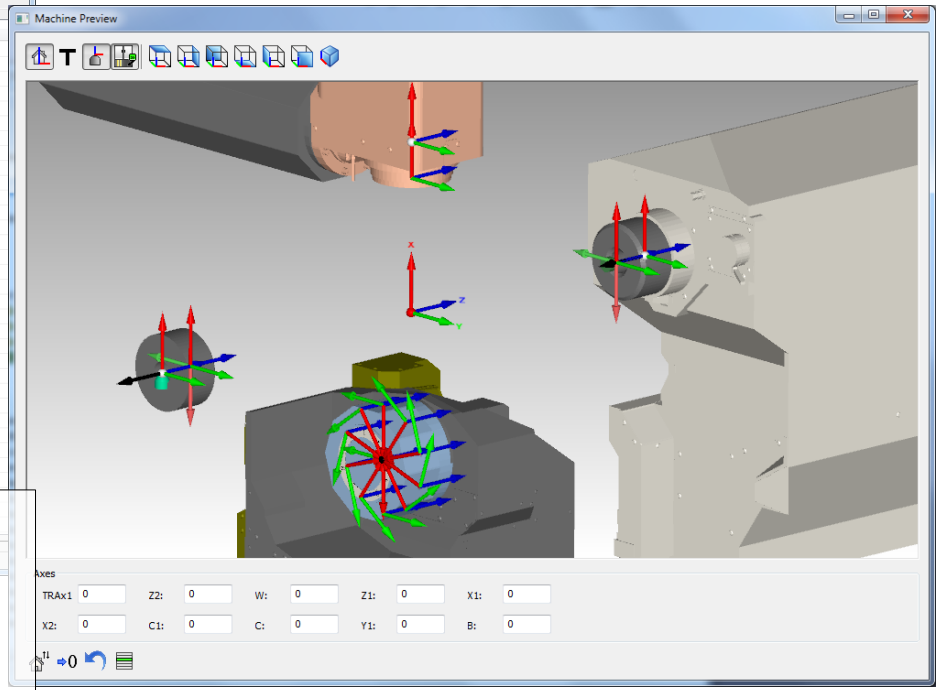
VMID (Virtual Machine ID) change : Tilted plane definition



- **Full control over coordinates calculation, in case when physical rotary axes are missing on the machine**

Interactive Machine Preview for VMID

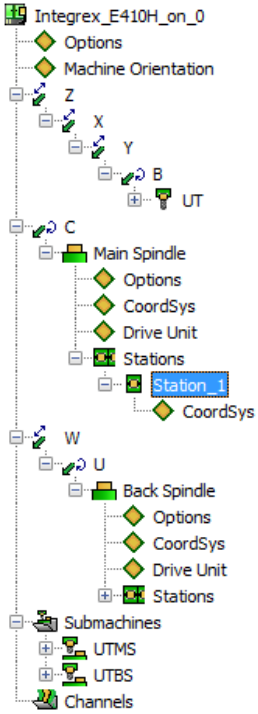


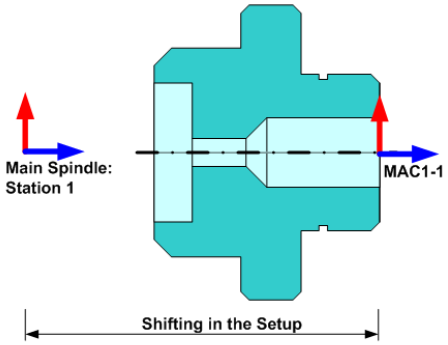


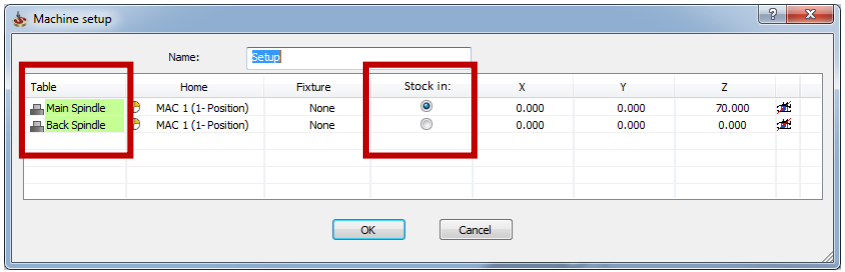
Preview of:

- **Machine's STLs**
- **Device/Stations CoordSys**
- **Kinematic axes**

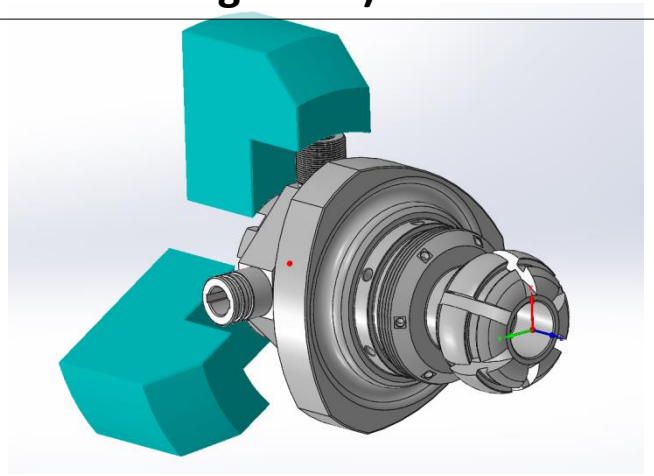
Stock positioning: Mounting the stock on the table



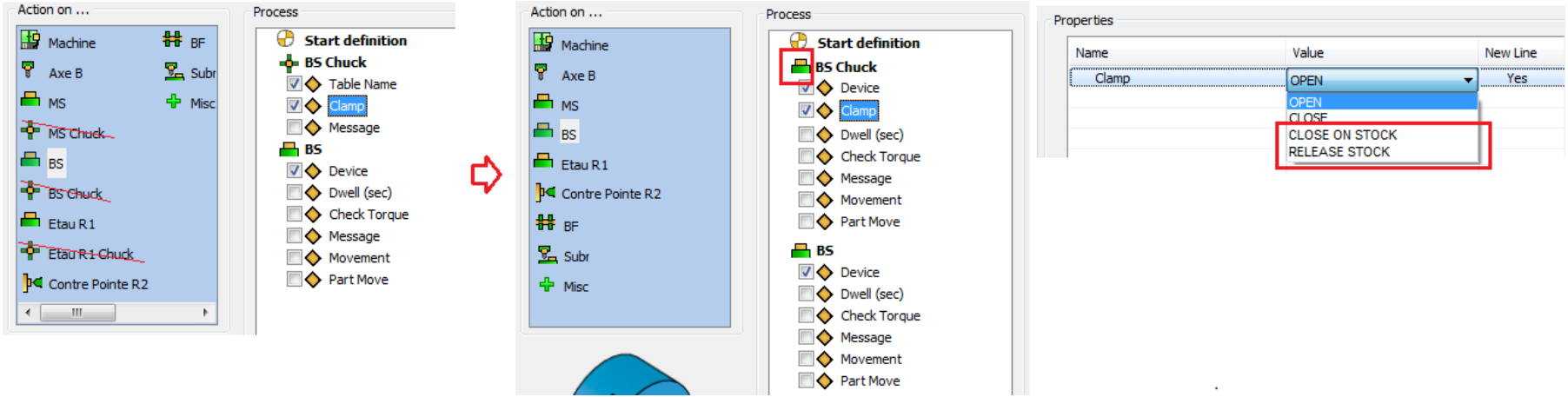




- **Stock is mounted on the table (instead of Submachine) – same as on the real machine**
- **Definition of initial stock position (on which Table the machining starts)**

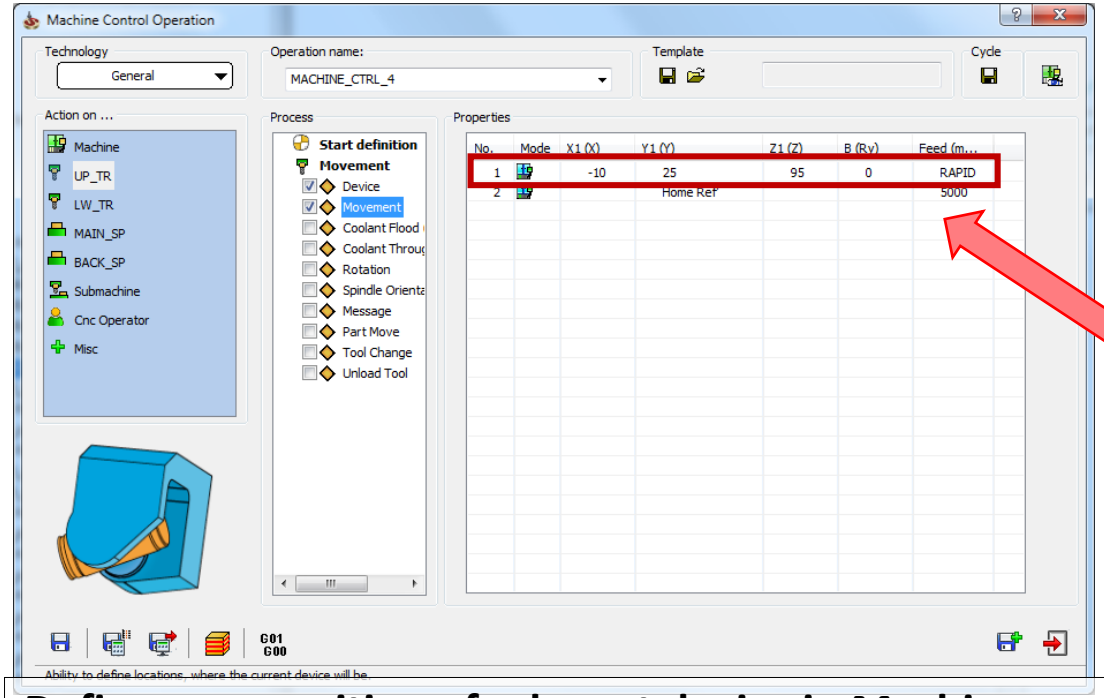


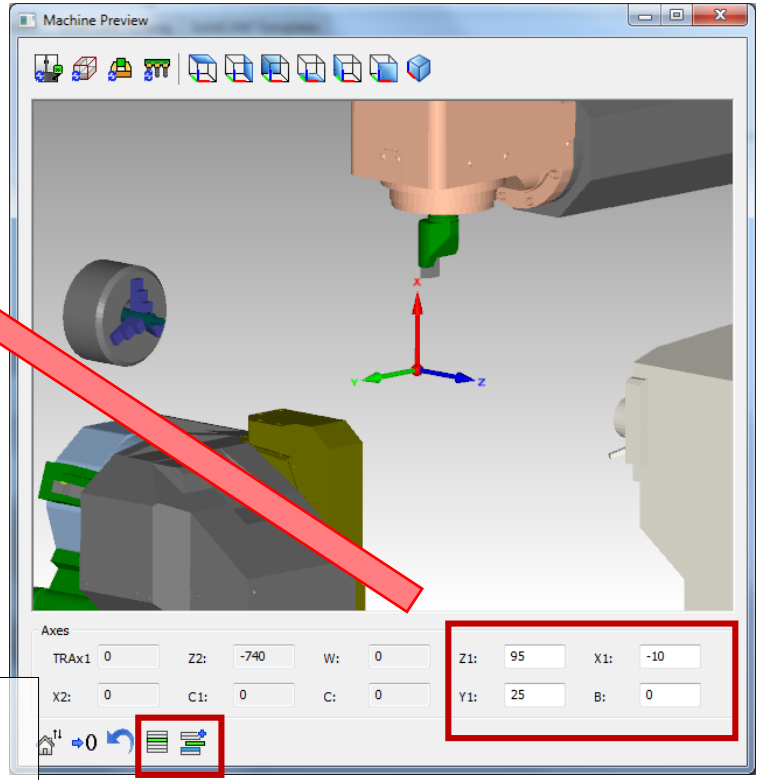
Tracking the stock position in the Machine: New Clamp options



- **The stock tracking is added in order to assist the programmer in definition of CAM-part movements**
- **Chuck device is moved to the Table as “Clamp“ action, with 2 additional options:**
  - **“Close on stock“ (connect stock to this table)**
  - **“Release stock“ (when machining is complete – stock is removed from the machine)**

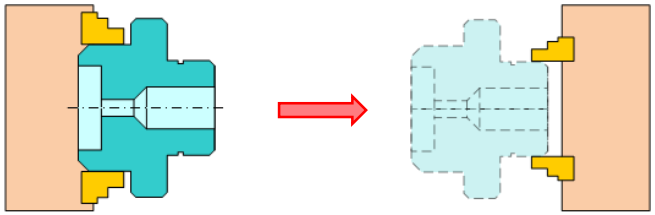
Interactive Machine Preview for MCO

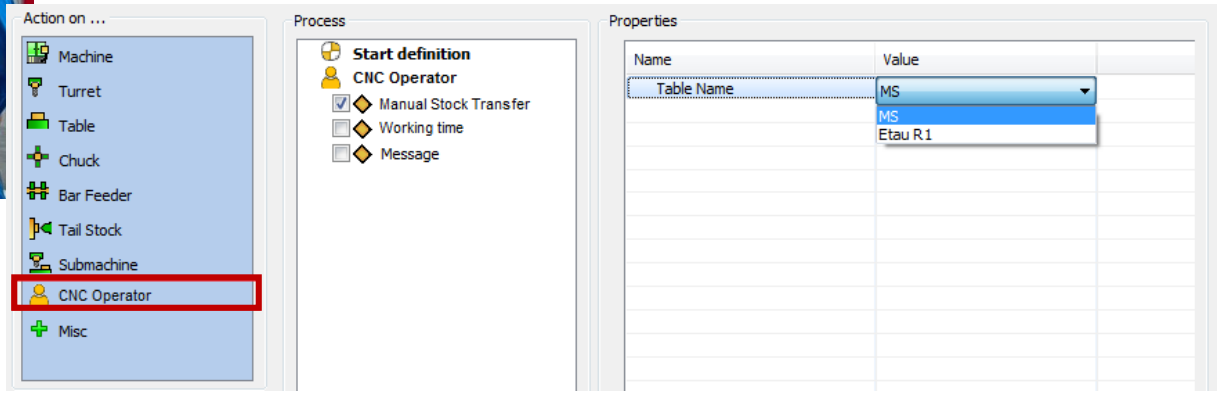




Define axes position of relevant device in Machine preview → import the position to the Movements list

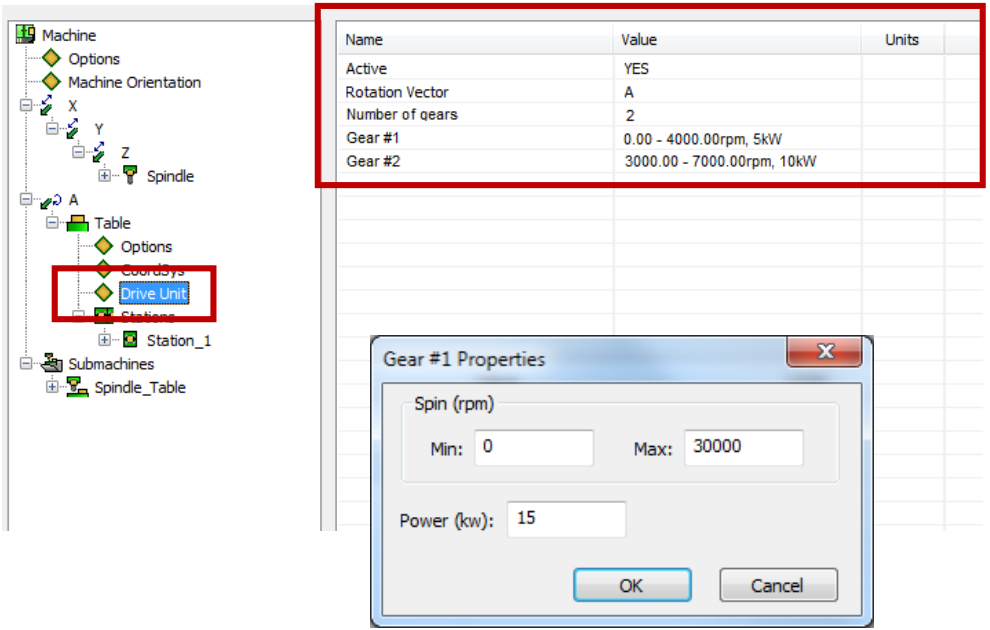
Action by CNC Operator: new MCO “device”

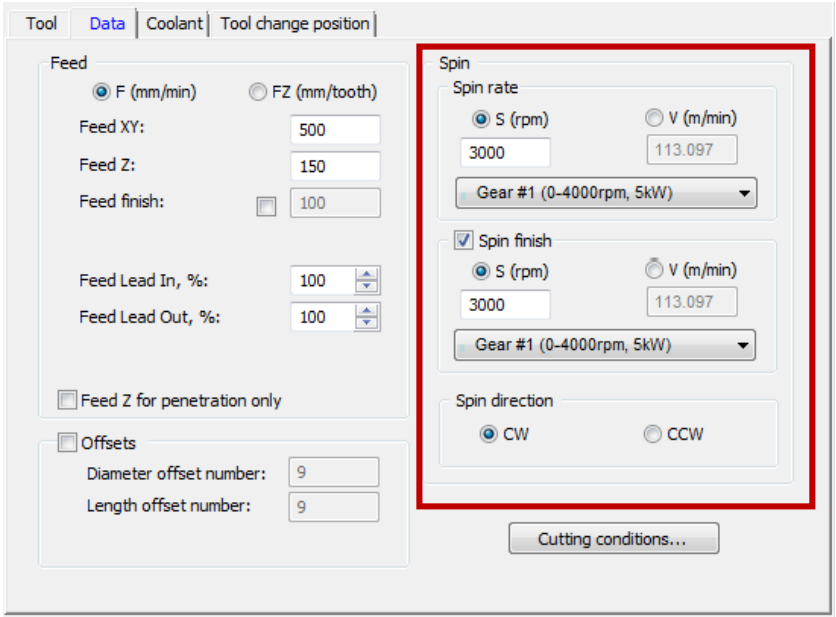




- **Any action of CNC Operator can be taken into account in machining time calculation**
- **Manual Stock Transfer from table to table option**

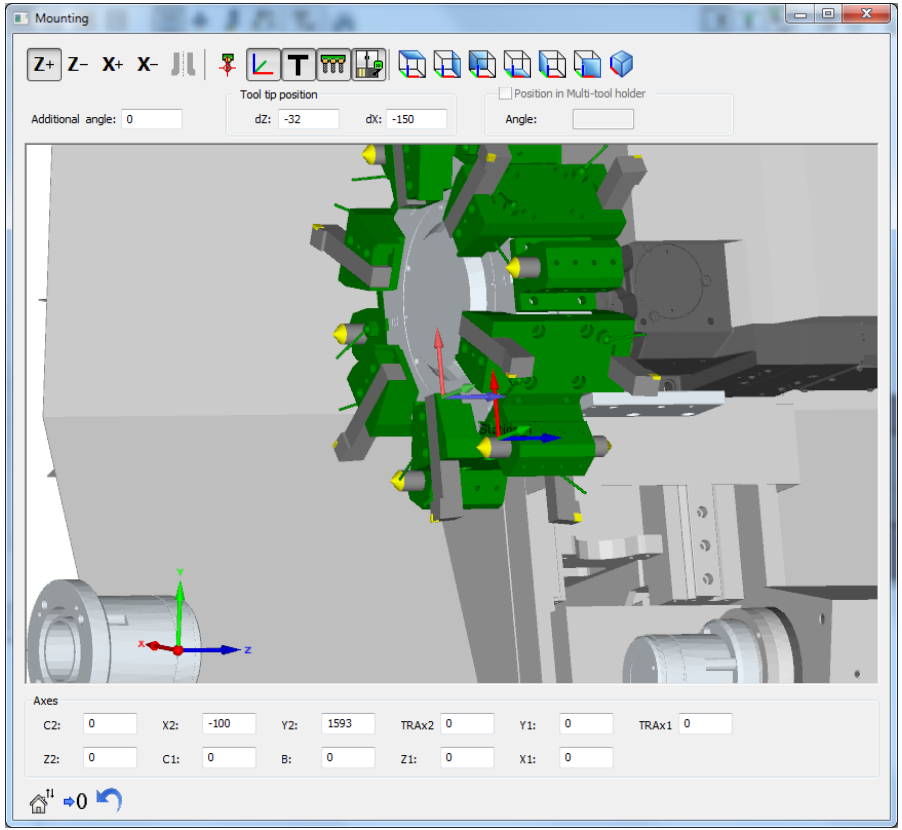
Drive units : Improvement in Spin definition





- **Support of several Gears on the same device = spin definition as on real machine**
- **Automatic selection of the Gear according to the Spin defined**

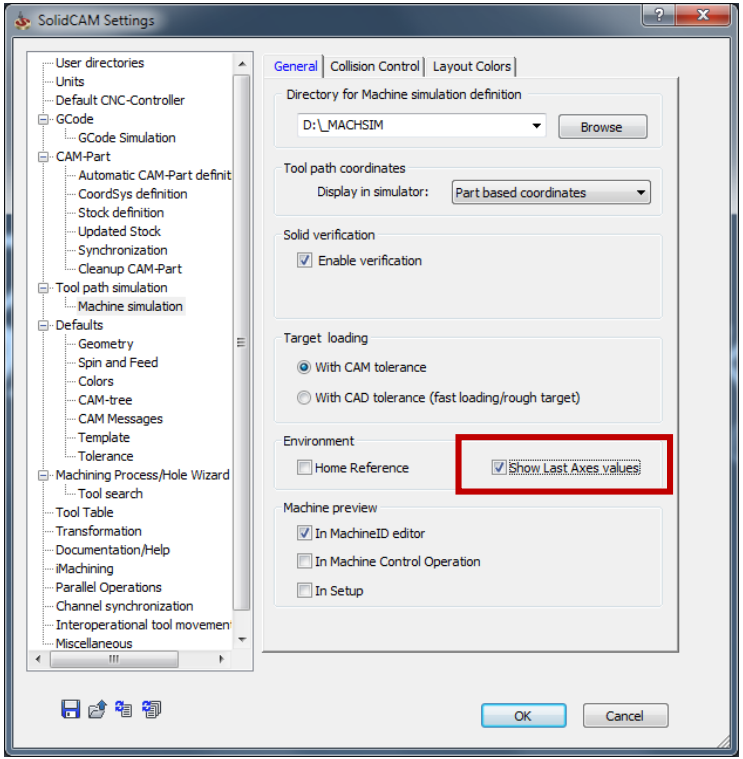
Interactive Machine Preview for Tooltable

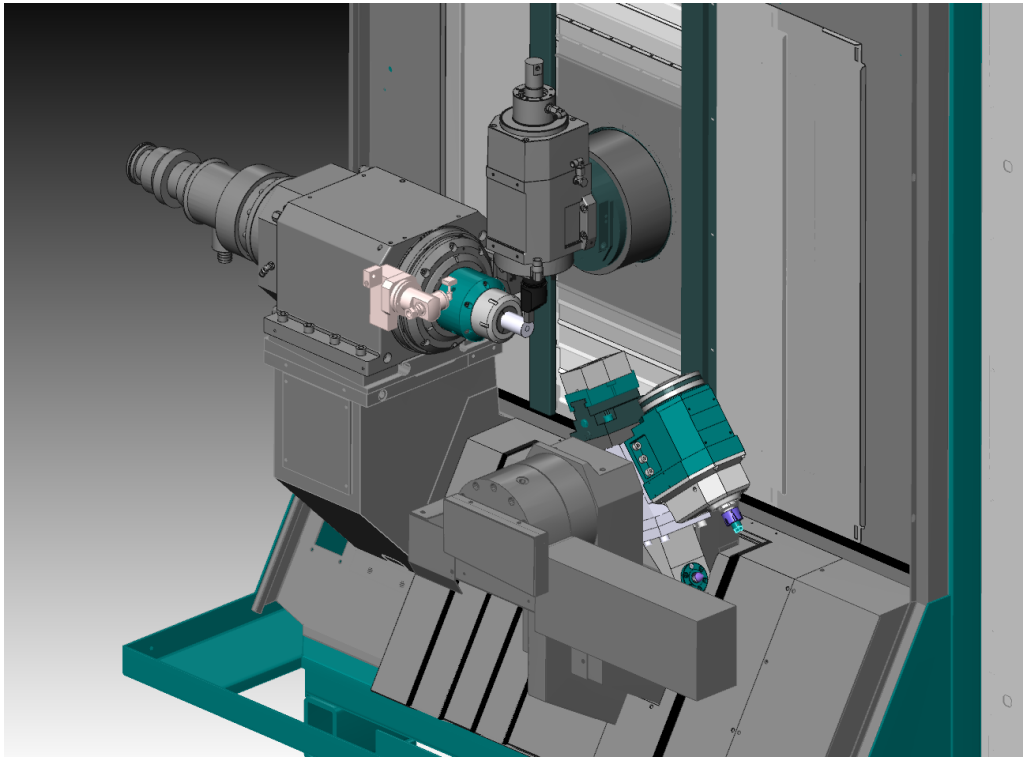


New Mounting interface:

- **Possibility to see other tools mounted on the same turret**
- **Preview of machine (if Machine model for Machine simulation is defined)**
- **Contol over machine axes position – for better understanding of mounting**

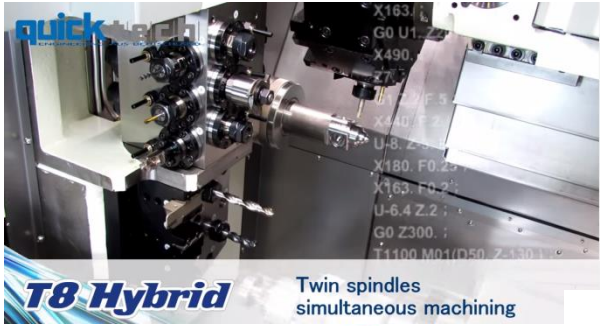
Machine Simulation : Show actual axes positions





No need anymore to select previous MCOs in order to launch MachSim on selected operation

Result: Extended support of complex mill-turn CNC machines

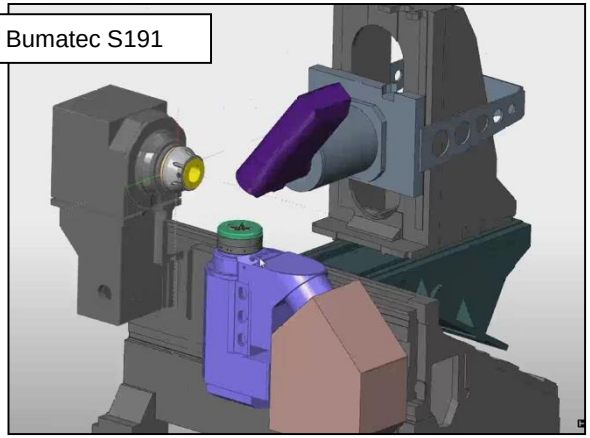


Extended support of complex mill-turn machines in all stages:

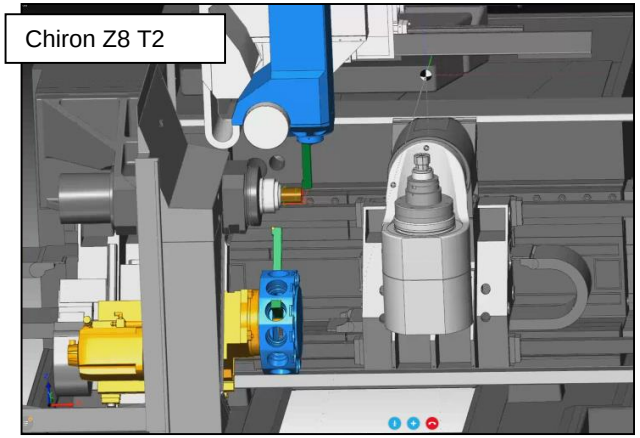
- **Virtual machine (*.VMID) definition**
- **Tool mounting**
- **CAM-part programming**
- **Machine Simulation**
- **G-code generation**

Extended support of complex mill-turn CNC machines

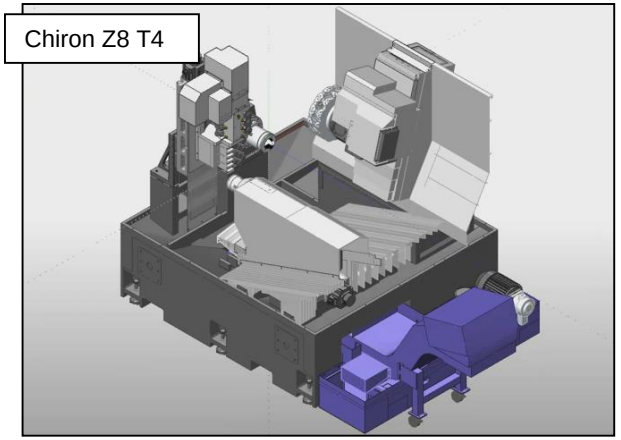
Bumatec S191



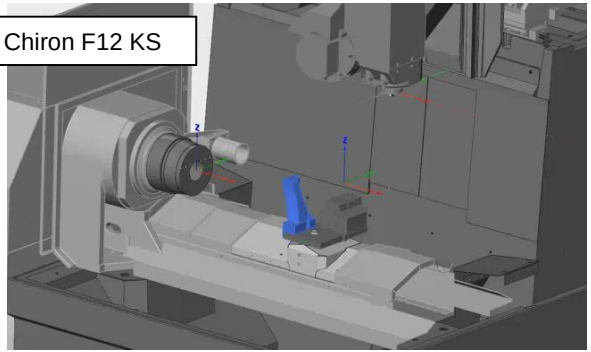
Chiron Z8 T2



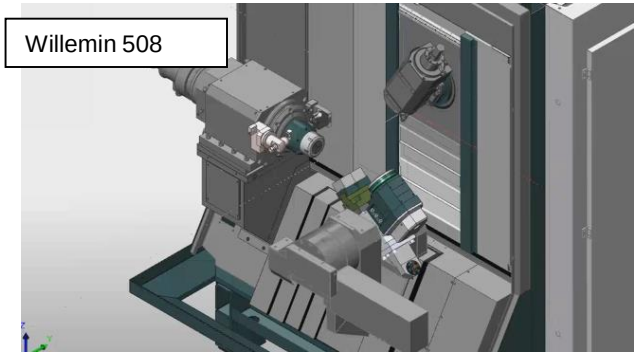
Chiron Z8 T4



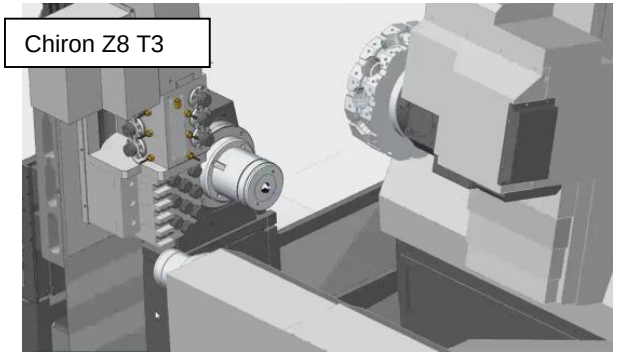
Chiron F12 KS



Willemin 508

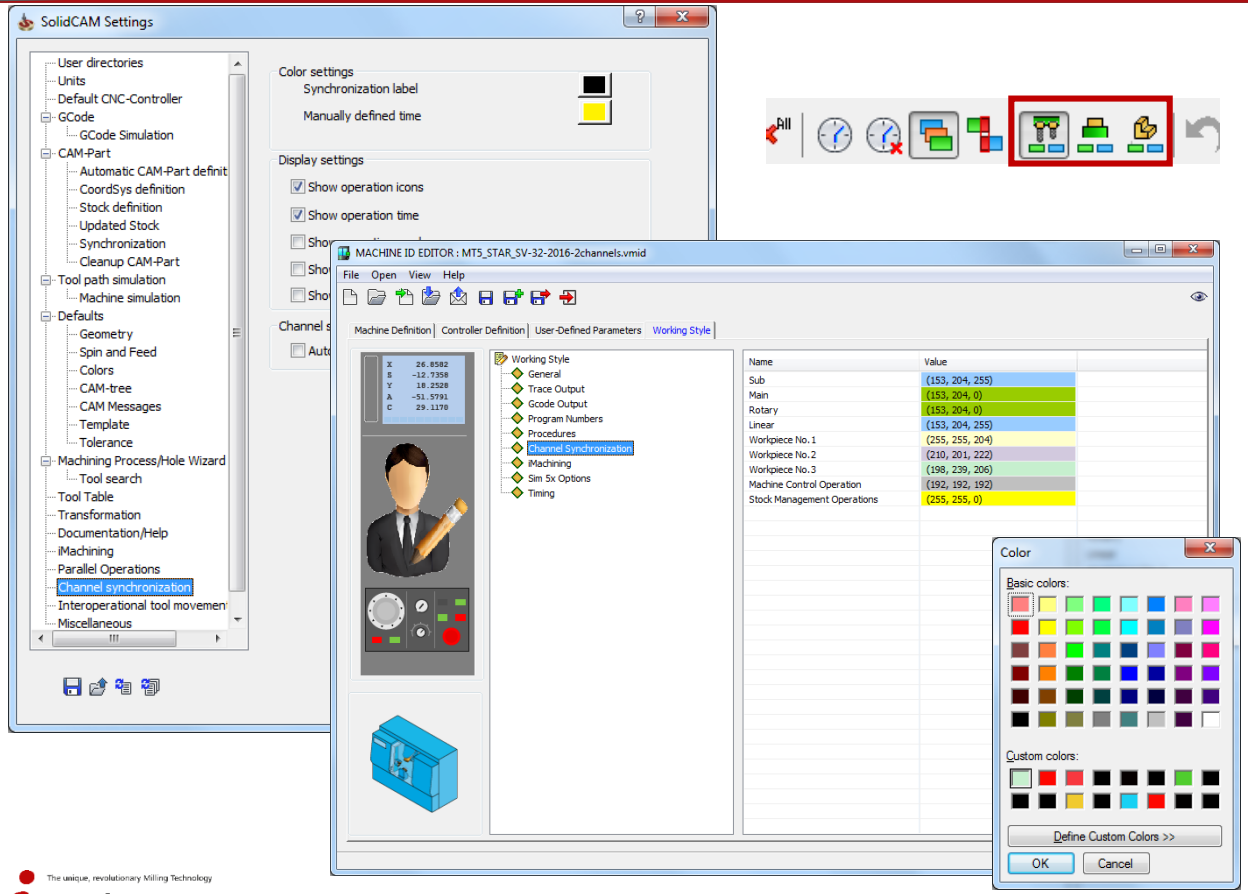


Chiron Z8 T3



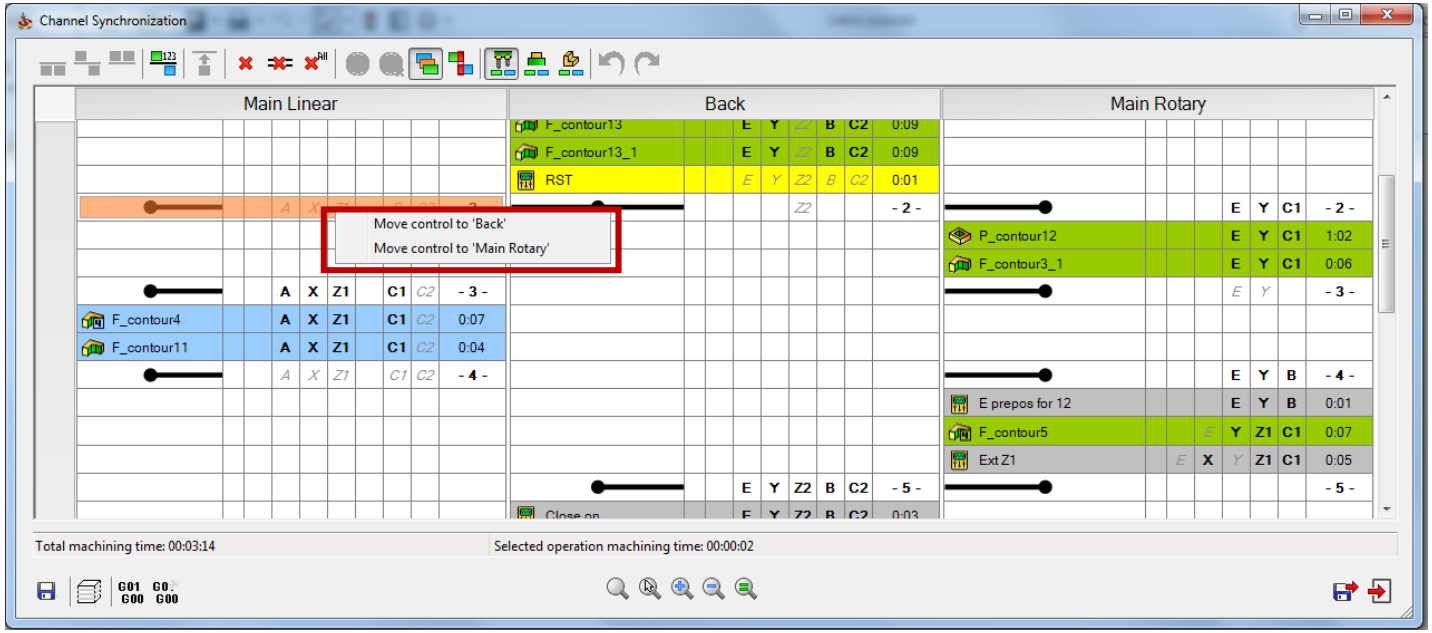
Channel Synchronization

Channels Synchronization : Colors definition in Machine ID file (*.VMID)



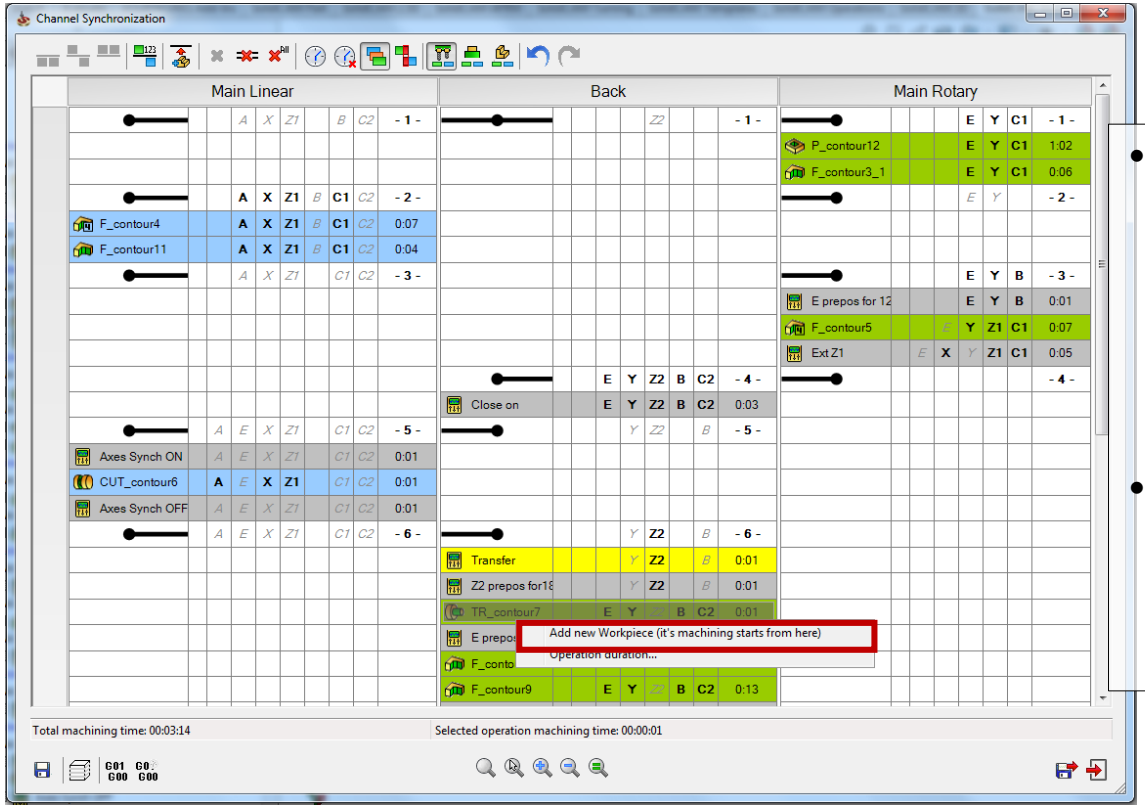
- **Operation in Channel Synchronization manager could be colored by Table, by Turret and by Workpiece**
- **Colors of table, turret, workpiece and various stock management operations are set in *.VMID file**
- **Colors of Label and of the cell in case of manual operation duration definition is set in SolidCAM settings**

Channels Synchronization : Axes transfer from channel to channel



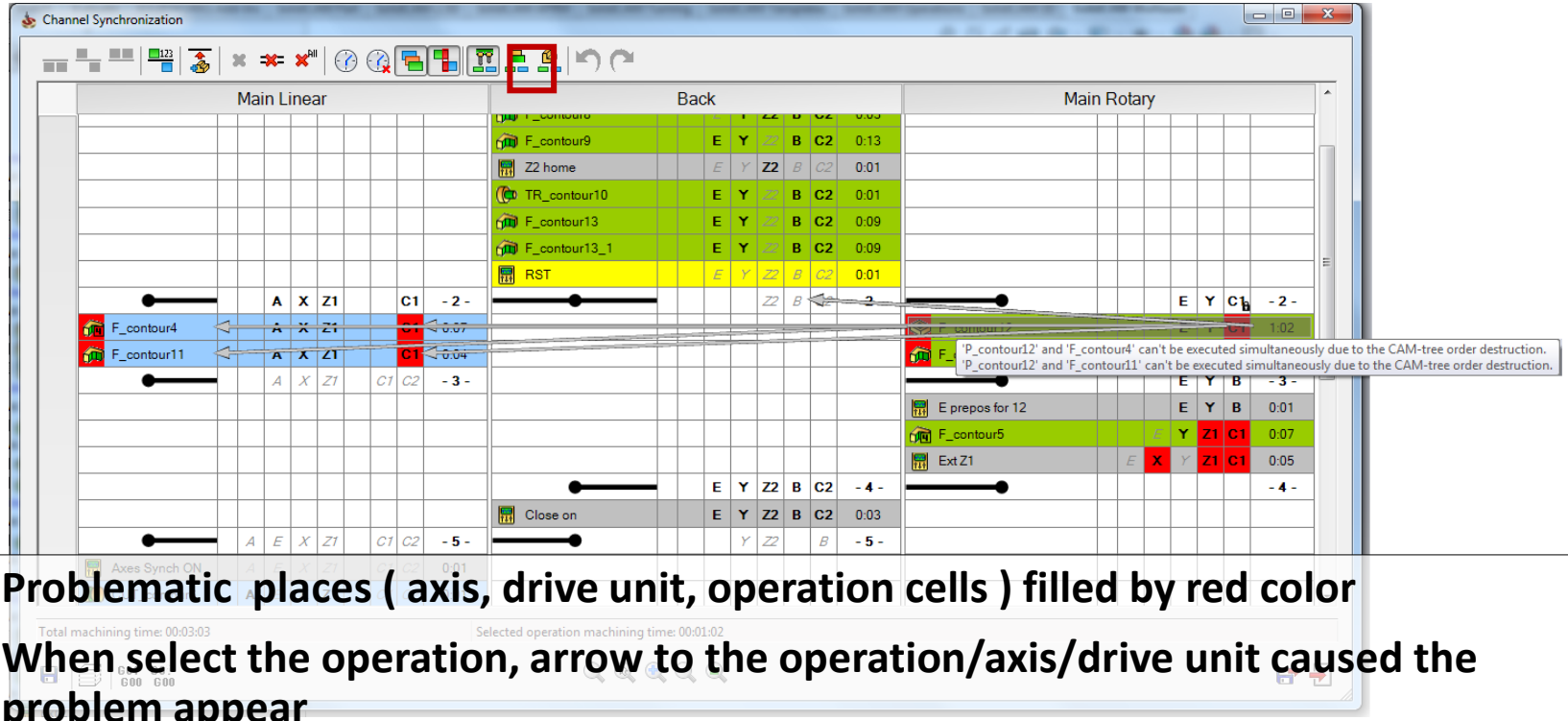
- **Right click on non-kinematic (gray italic) Axis in Lable allows to transfer contol over this axis to another channel**

Channels Synchronization : Continuous production



- **Reordering of the operations inside the same channel in order to provide synchronization between the start and the end of the CAM-part machining process**
- **Possibility to emulate the machining of several workpieces on different tables simultaneously**

Channels Synchronization : Clash reports' visualization



- **Problematic places (axis, drive unit, operation cells) filled by red color**
- **When select the operation, arrow to the operation/axis/drive unit caused the problem appear**
- **Floating tip with explanation**

Channels Synchronization : Functional toolbar improvement

Redo

Undo

Color operations by Workpiece

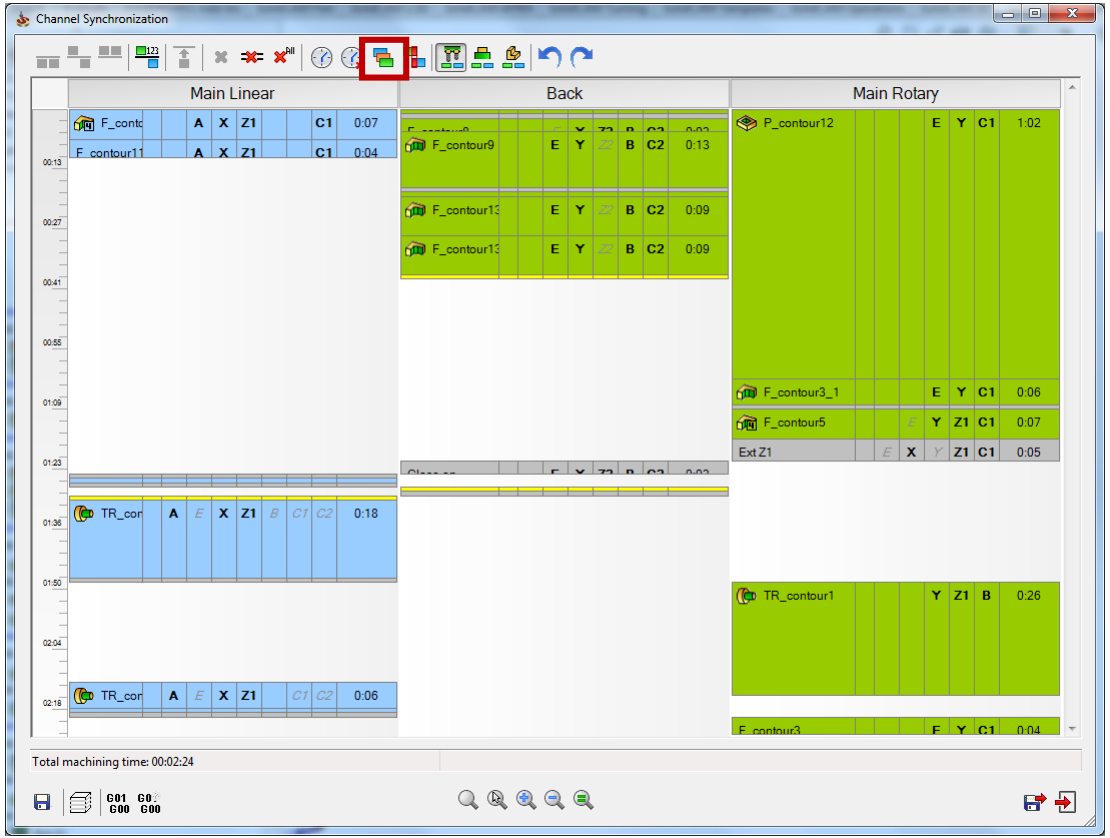
Color operations by Table

Color operations by Turret

Delete all labels, but keep the operations order

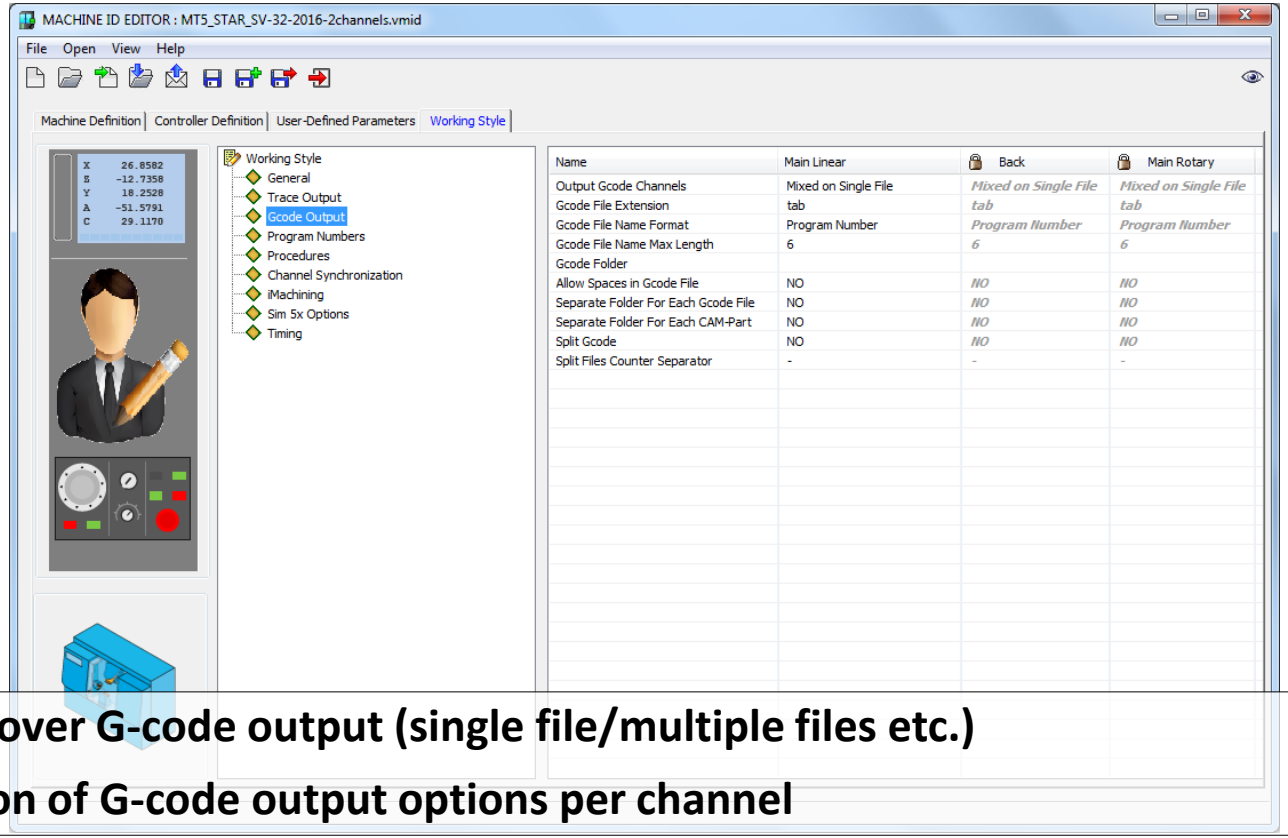
Add Workpiece (and start it‘s machining from the selected operation)

Channels Synchronization : Time mode



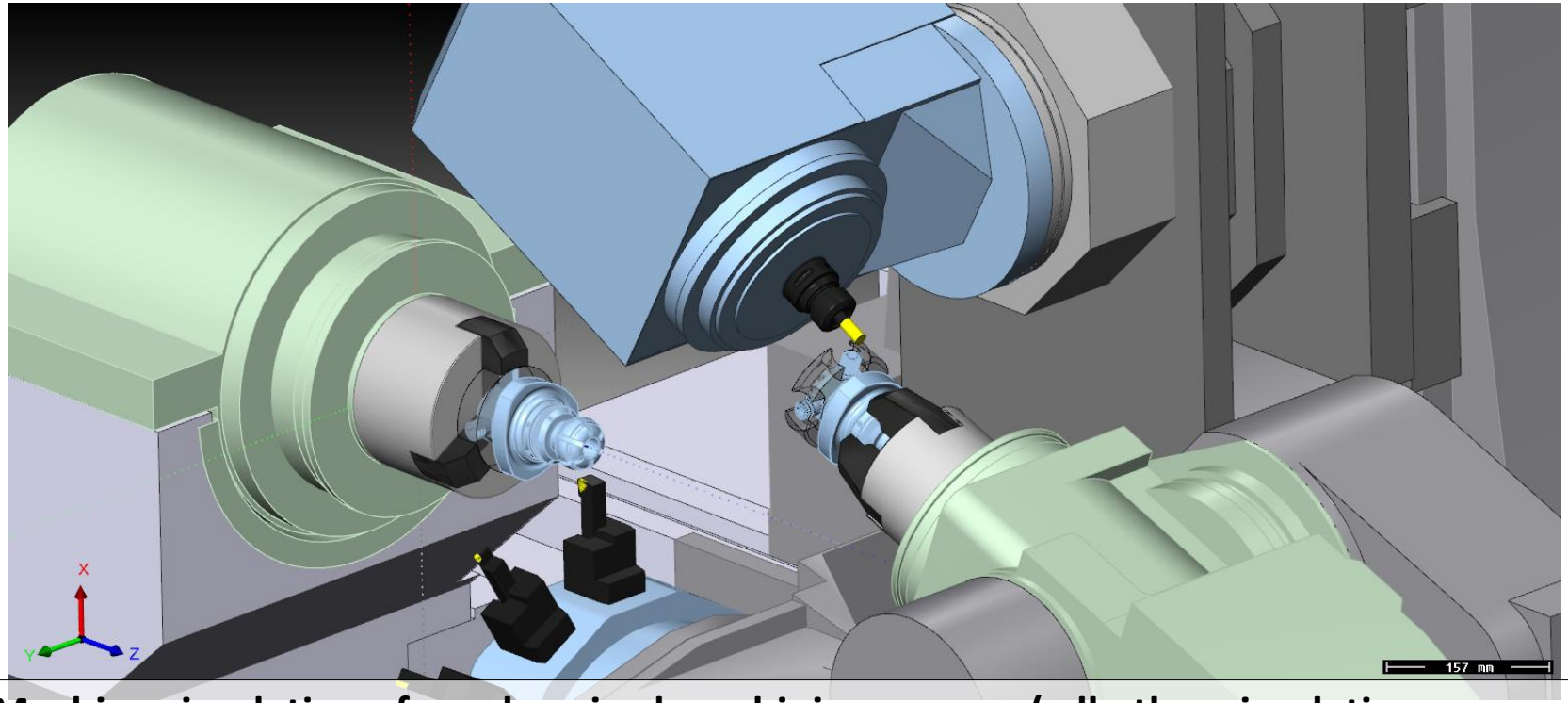
- **Preview of operations in real time mode**
- **Impossible to change synchronization labels and operations order – it‘s only preview mode**

Channels Synchronization : G-code



- **Control over G-code output (single file/multiple files etc.)**
- **Definition of G-code output options per channel**

Channels Synchronization : Machine Simulation

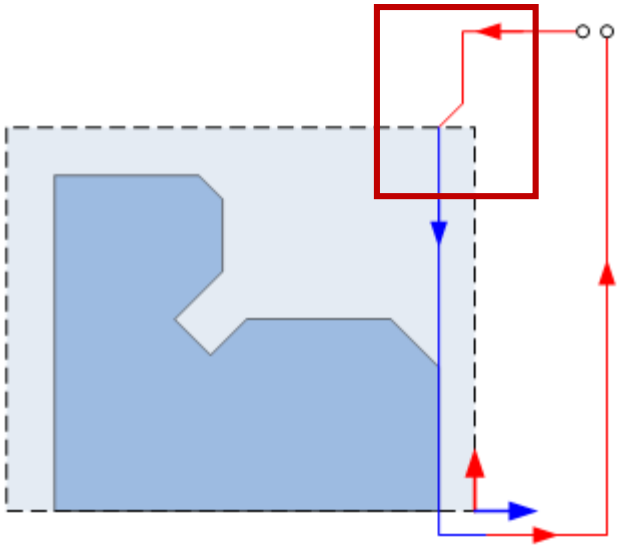


- **Machine simulation of synchronized machining process (all other simulations execute operations in CAM-tree order)**

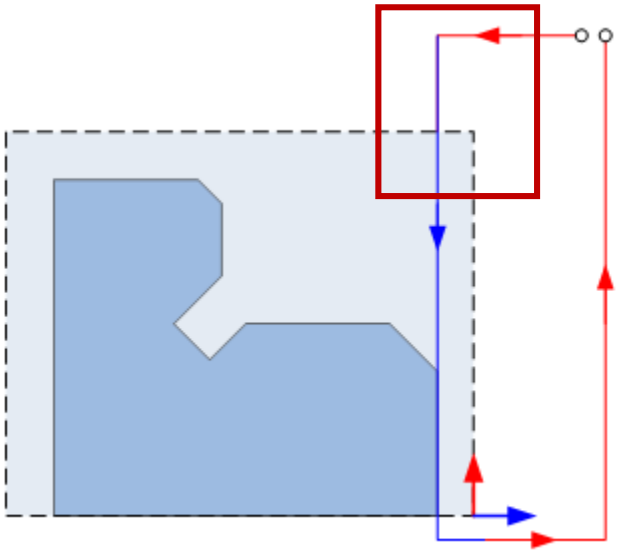
Turning

Turning: Changes in compensation

Previous versions

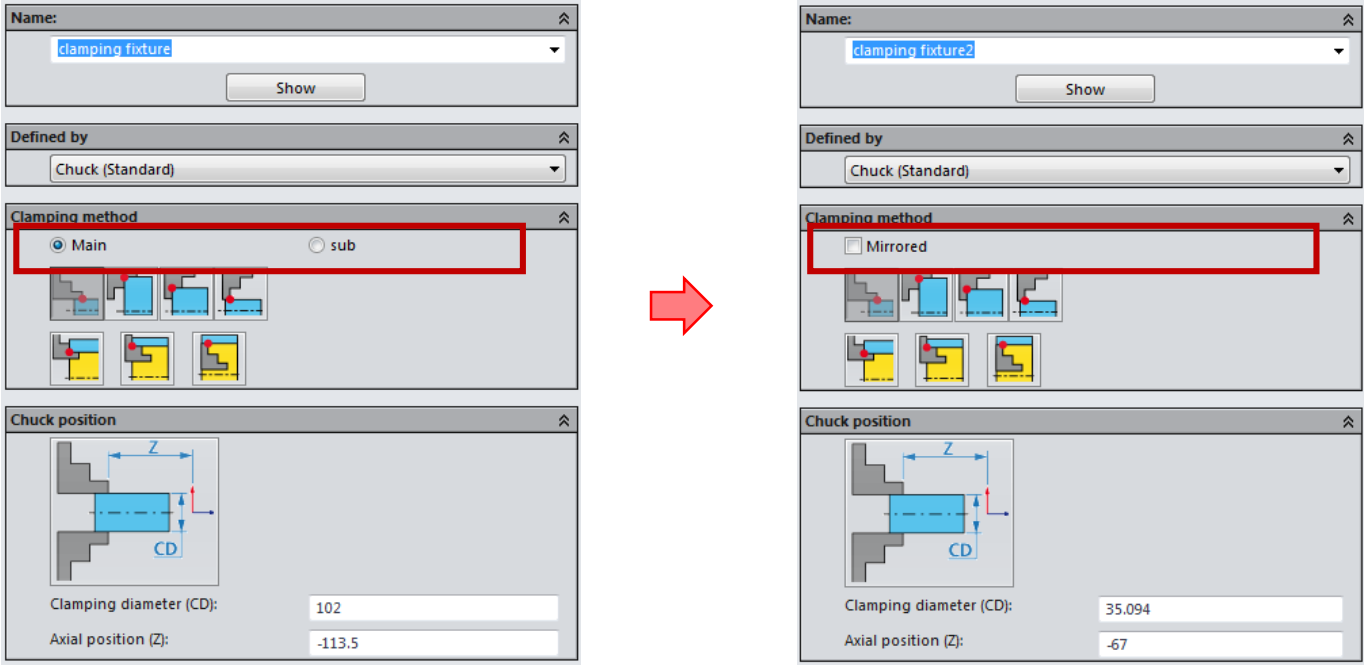


SolidCAM 2016



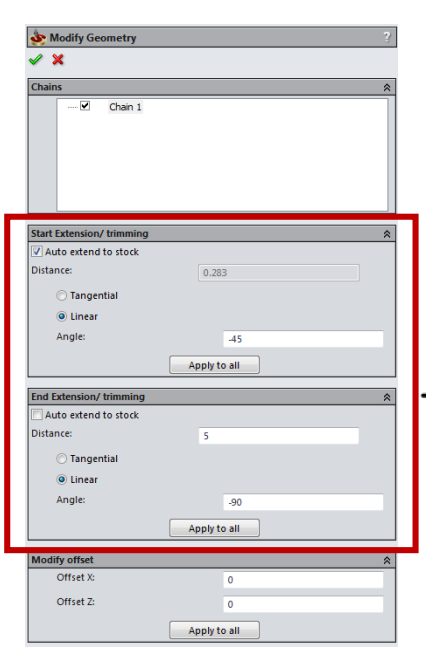
Optimized (less movements) entrance to compensation in turning operation

Turning: Standard Chuck definition

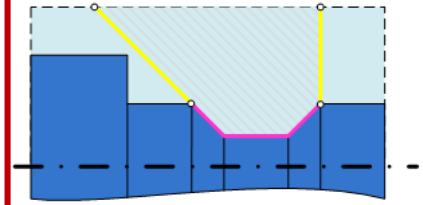


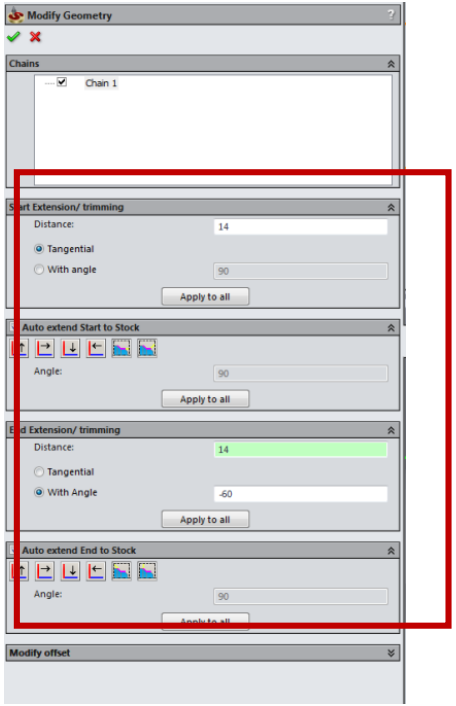
Change in interface defining the orientation of poliarc (radiobuttons replaced by checkbox)

Geometry: Enhanced geometry extension options

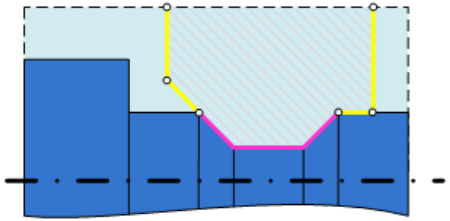


Previous versions



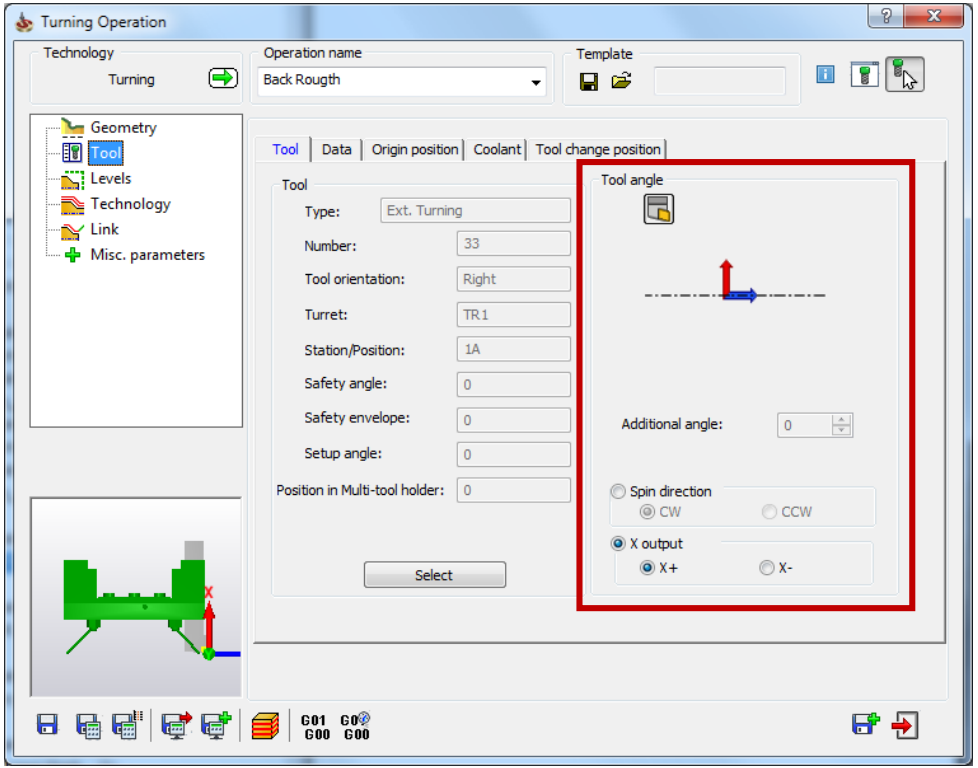


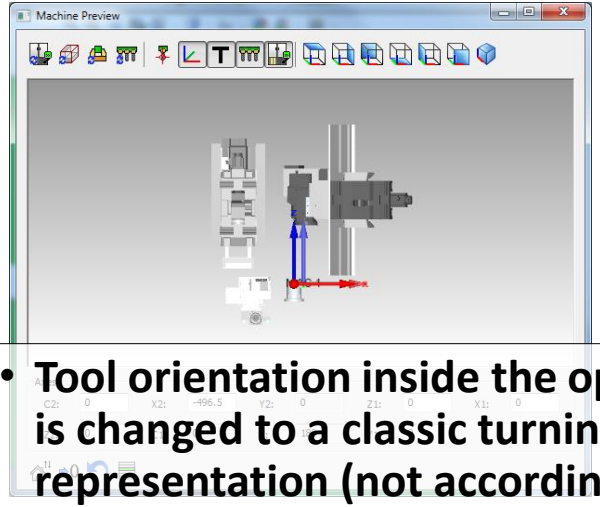
SolidCAM 2016



More flexible extension of the geometry by 2 segments on both sides of the polyarc

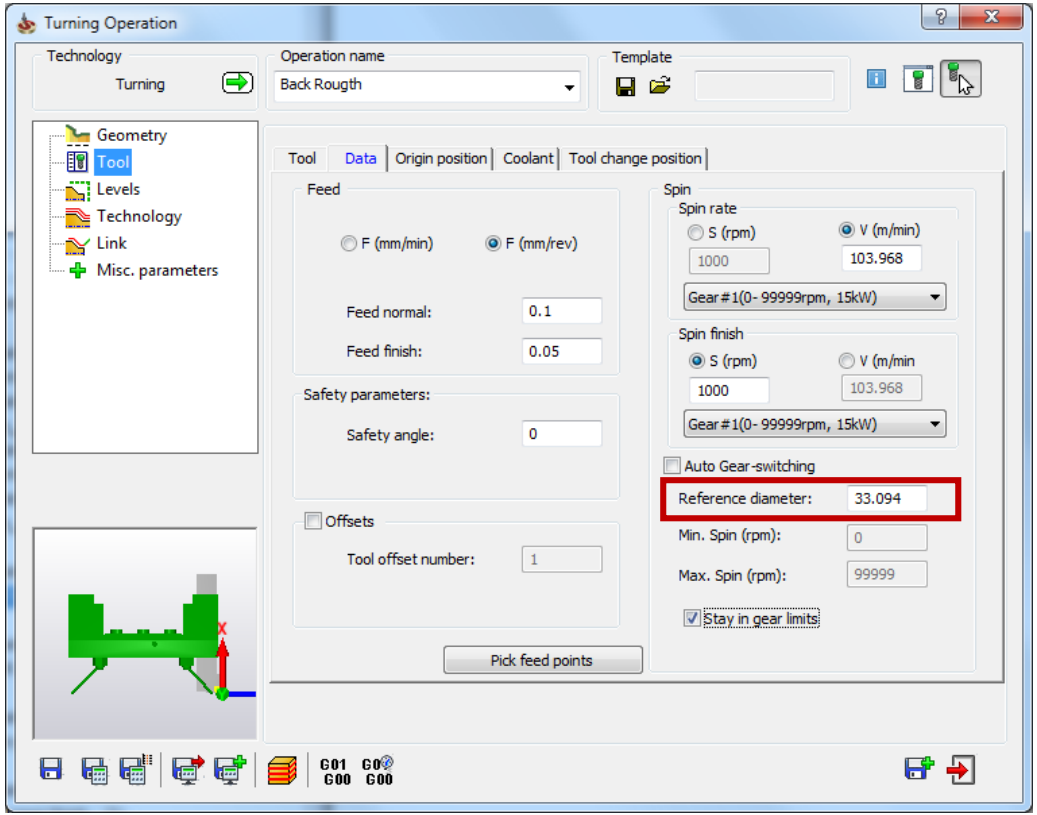
Turning: non-kinematic tool orientation definition inside the operation





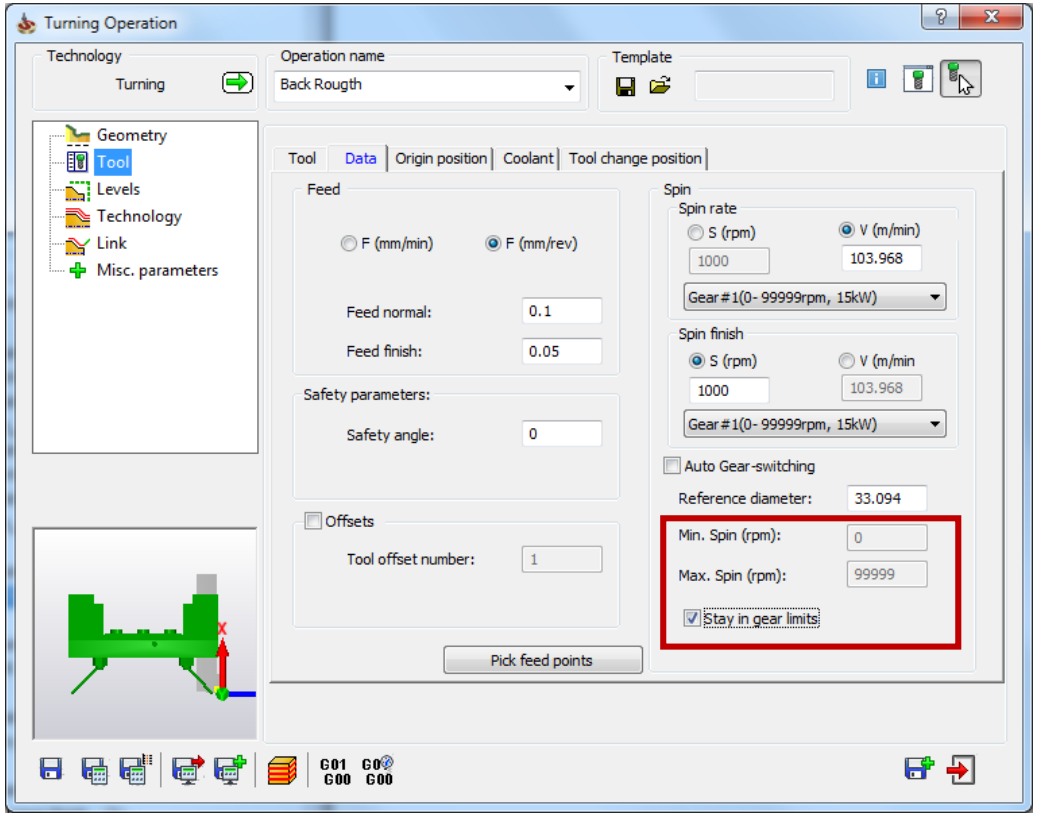
- **Tool orientation inside the operation is changed to a classic turning representation (not according to the actual tool position in the machine)**
- **Actual tool orientation is visualised in Machine Preview dialog available from within the Operation**
- **X output (+ or -) and Spin direction are now connected**

Turning: Reference diameter



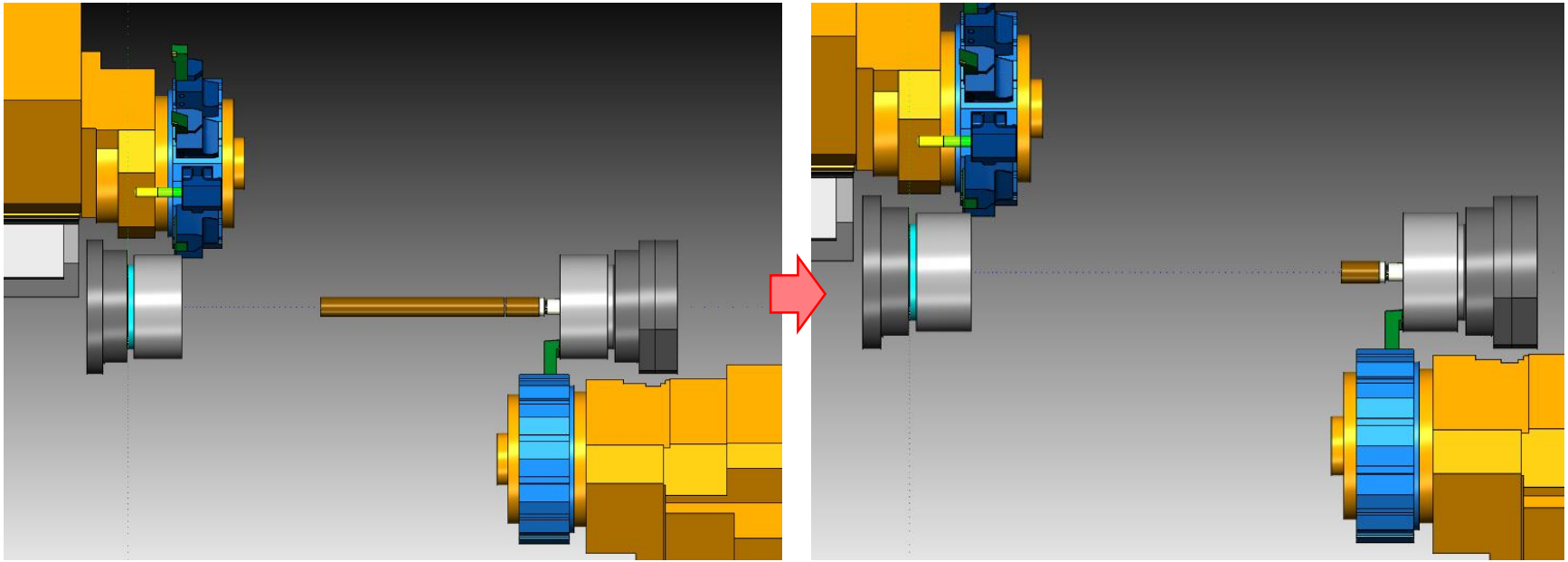
- **For V (m/min) spin definition – reference diameter added.**
- **Spin for smaller/ larger diameter is calculated accordingly**

Turning: Stay in Gear limits



- **2 option to define spin limits:**
- **Take values from the selected Gear automatically**
- **Enter the values manually**

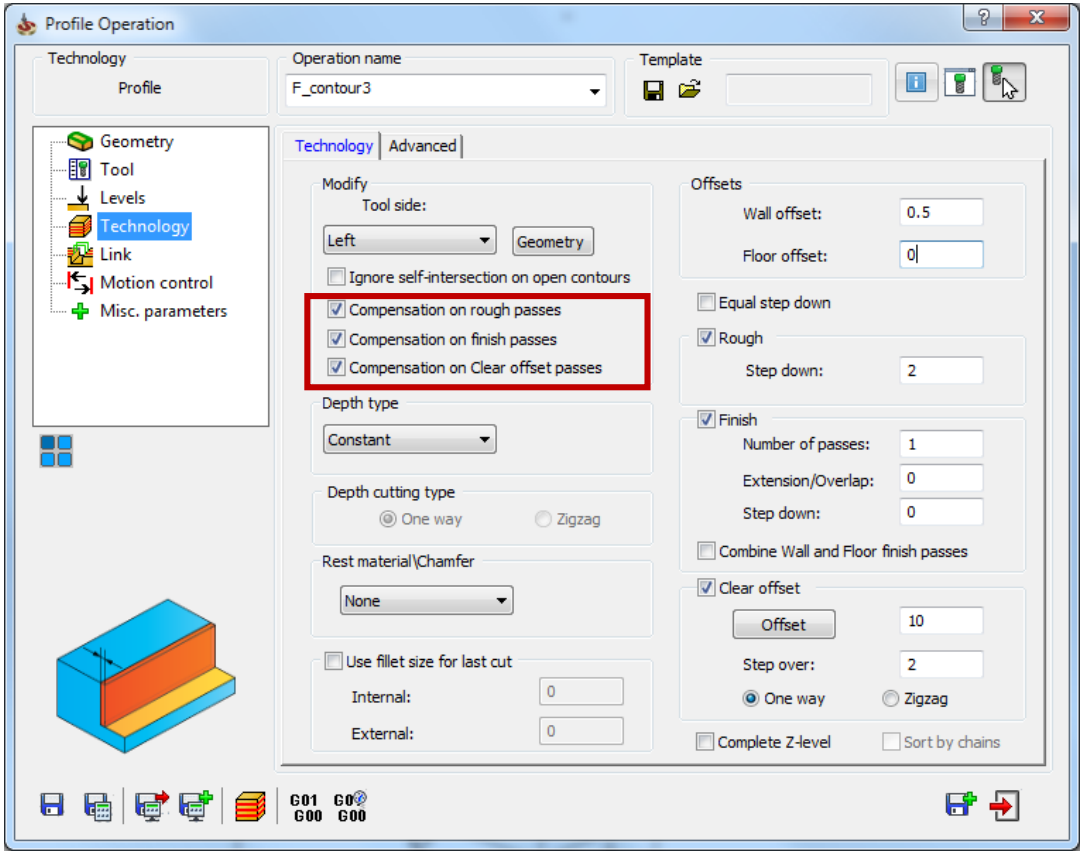
MachSim: Remove redundant stock after CutOff



In new version the needless piece of stock remained after the CutOff operation is automatically deleted

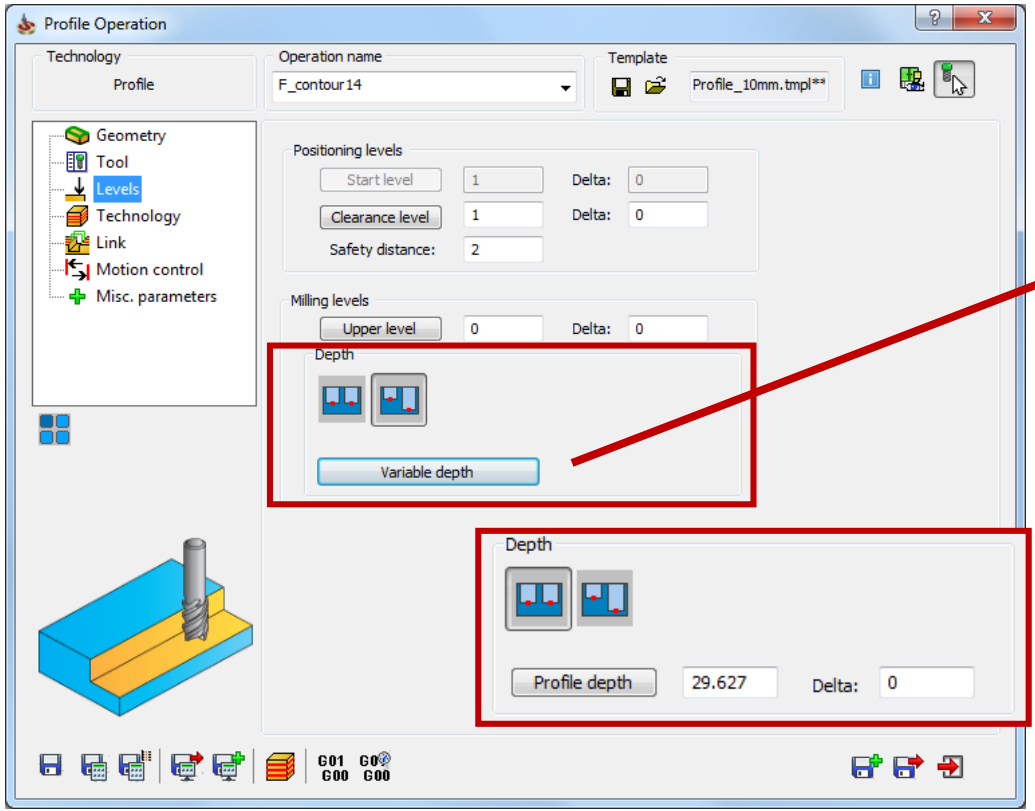
2.5D Milling

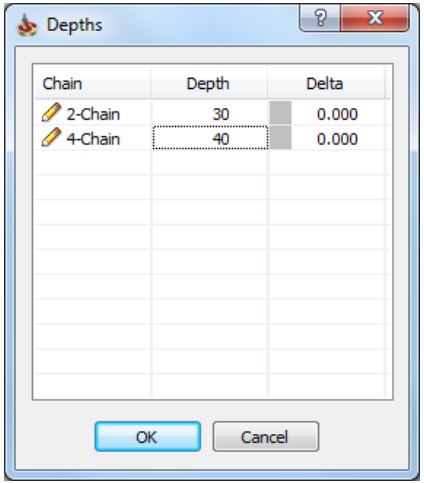
2.5D Milling: Compensation for Rough, Finish and Clear Offset separately



Possibility to turn on compensation separately for Rough, Finish and Clear Offset passes.

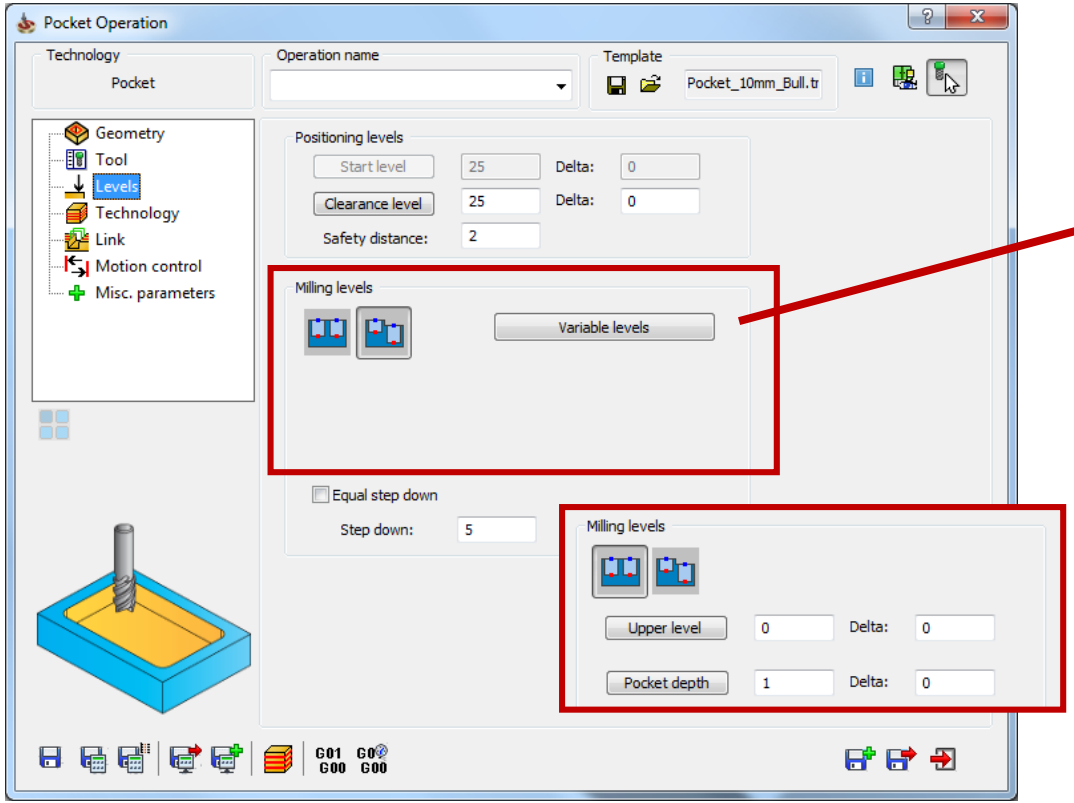
2.5D Milling: Variable Depth in Profile

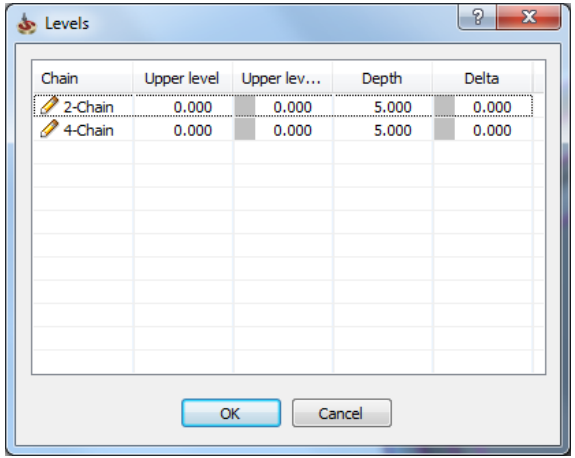




Possibility to define various depth for each profile chain

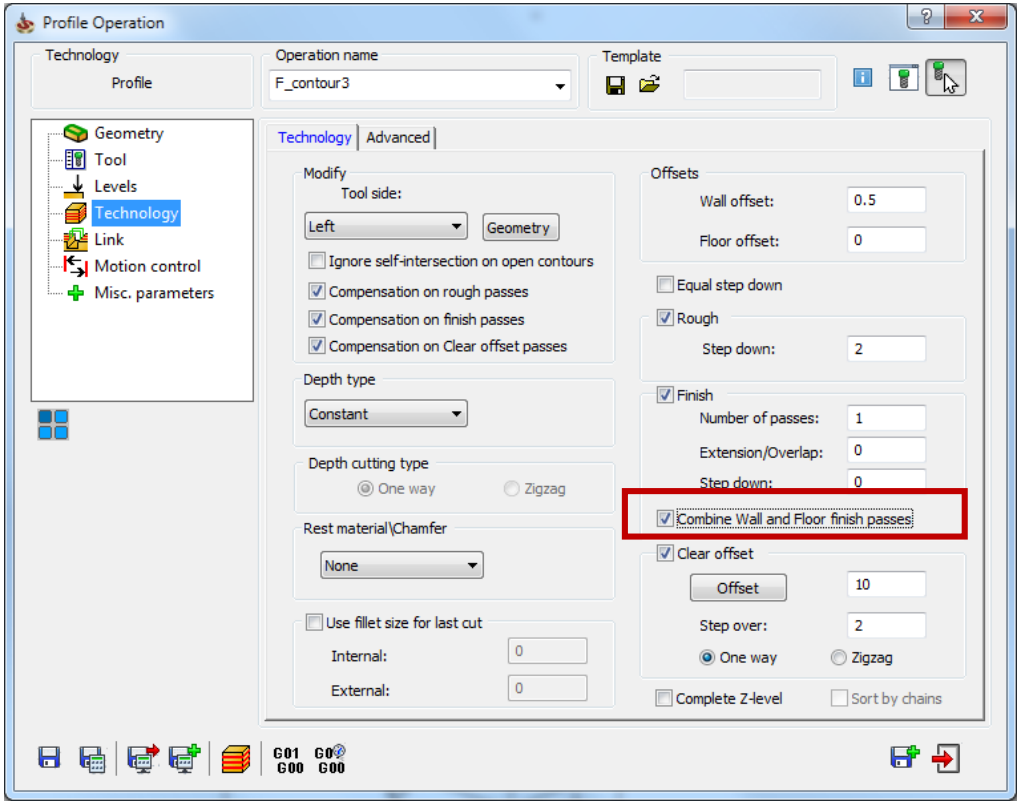
2.5D Milling: Variable Levels in Pocket



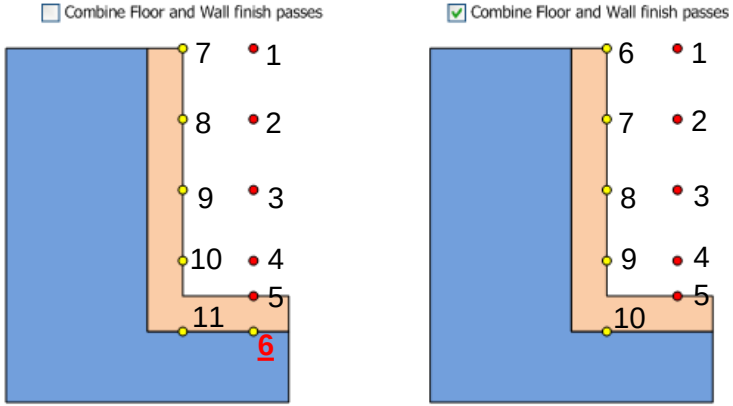


Possibility to define various upper level and depth for each pocket chain

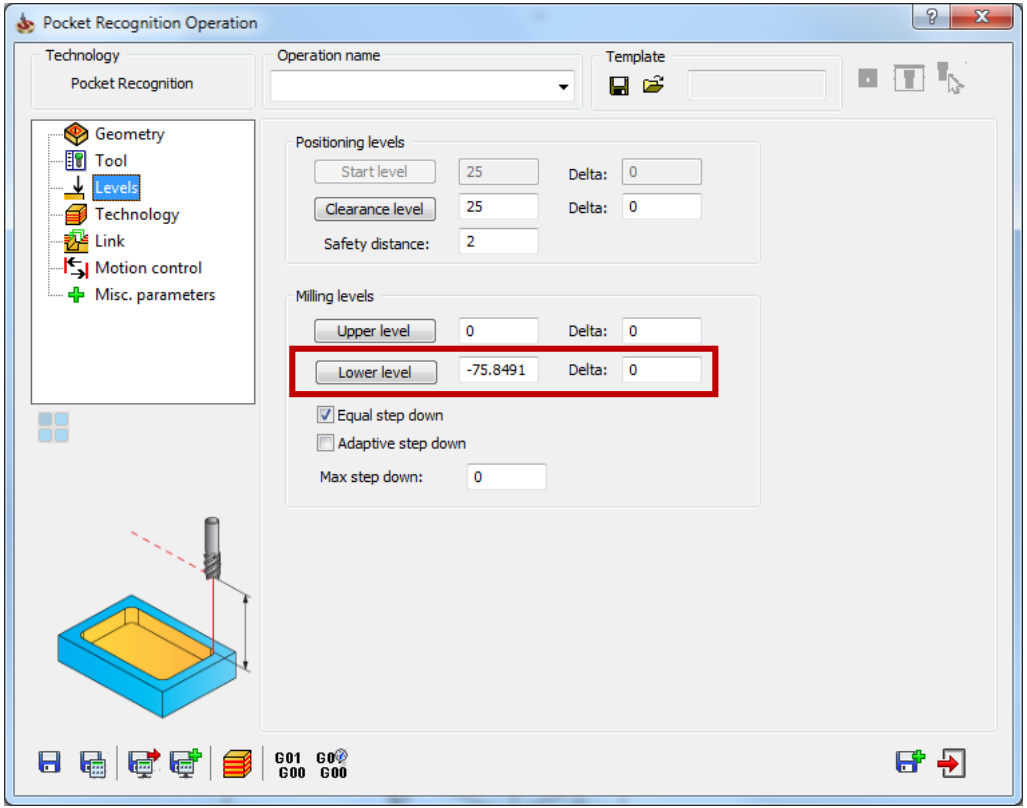
2.5D Milling: Combine Wall and Floor finish passes



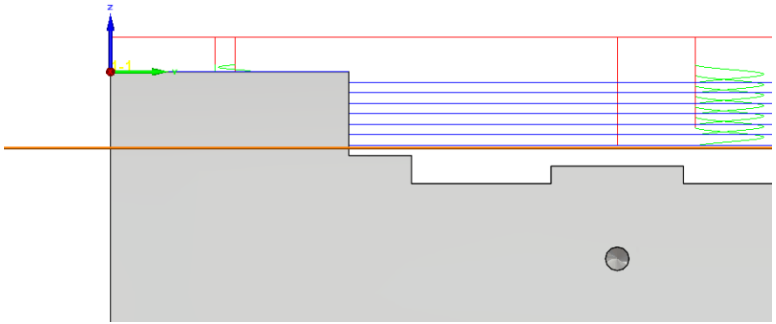
Combine wall and floor offset passes to one pass



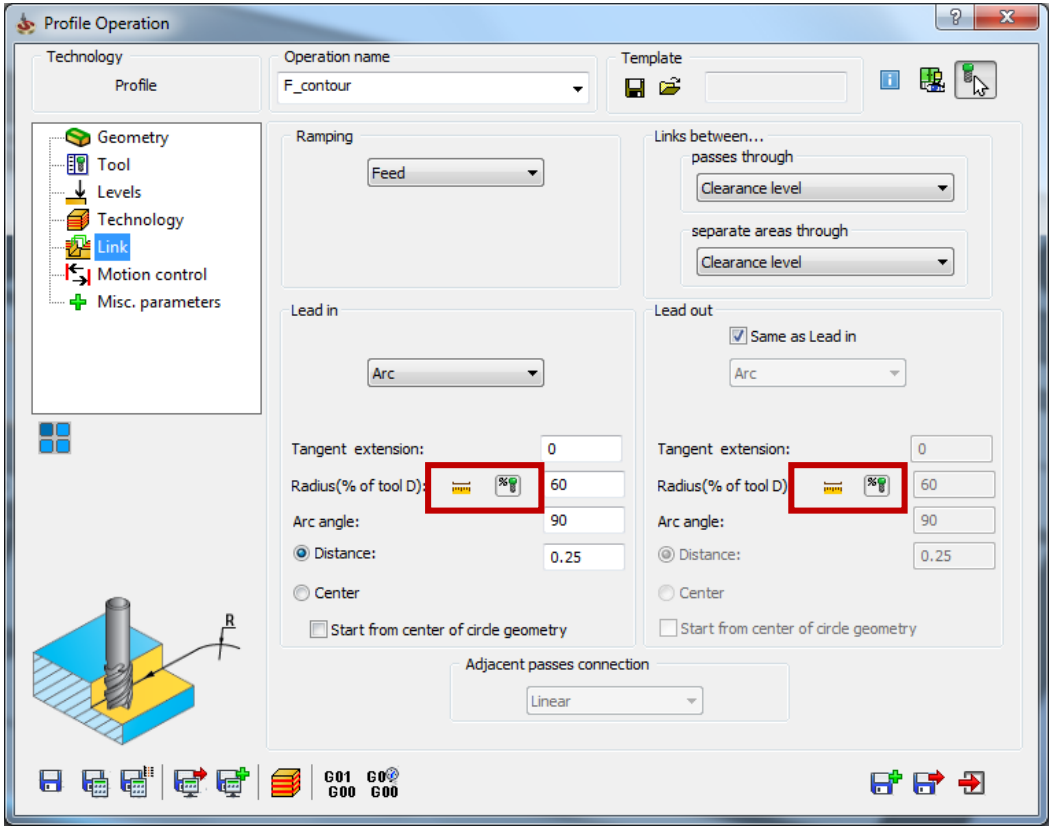
Pocket Recognition: Limit the machining depth



Limit the depth of cutting in Pocket Recognition operation



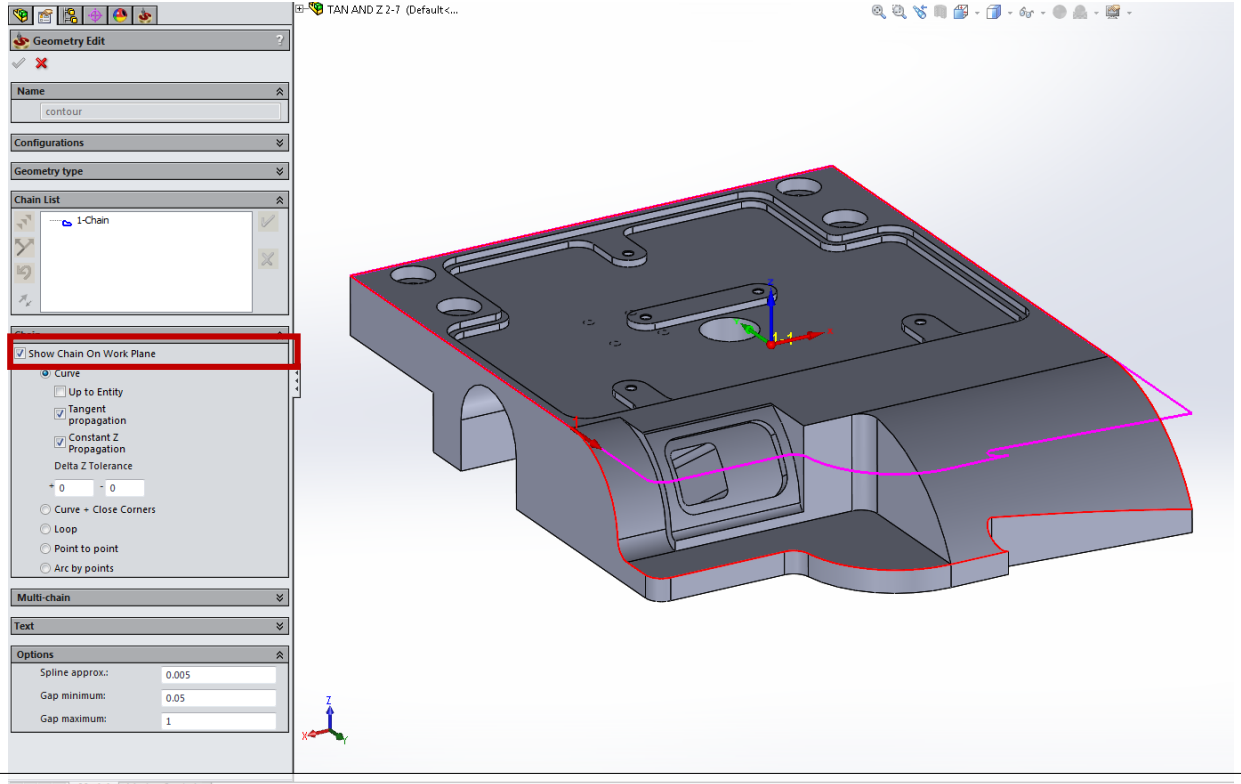
2.5D Milling: Lead in/out radius in % of tool diameter



Possibility to define lead in and lead out radiuses not only in mm/inch, but in % of tool diameter too.

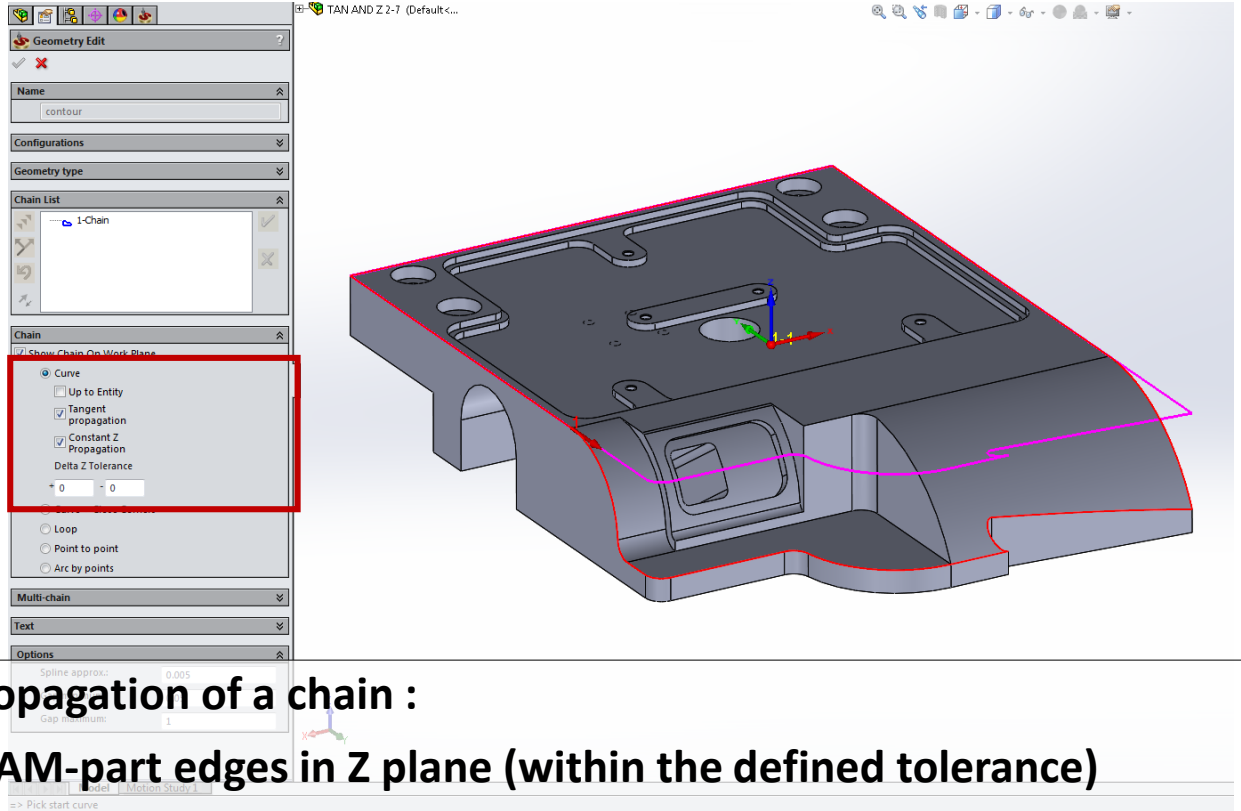
Geometry

Geometry: Show chain on work plane



- **Shows the chain projected to the XY plane (the way it will be used in the operation)**

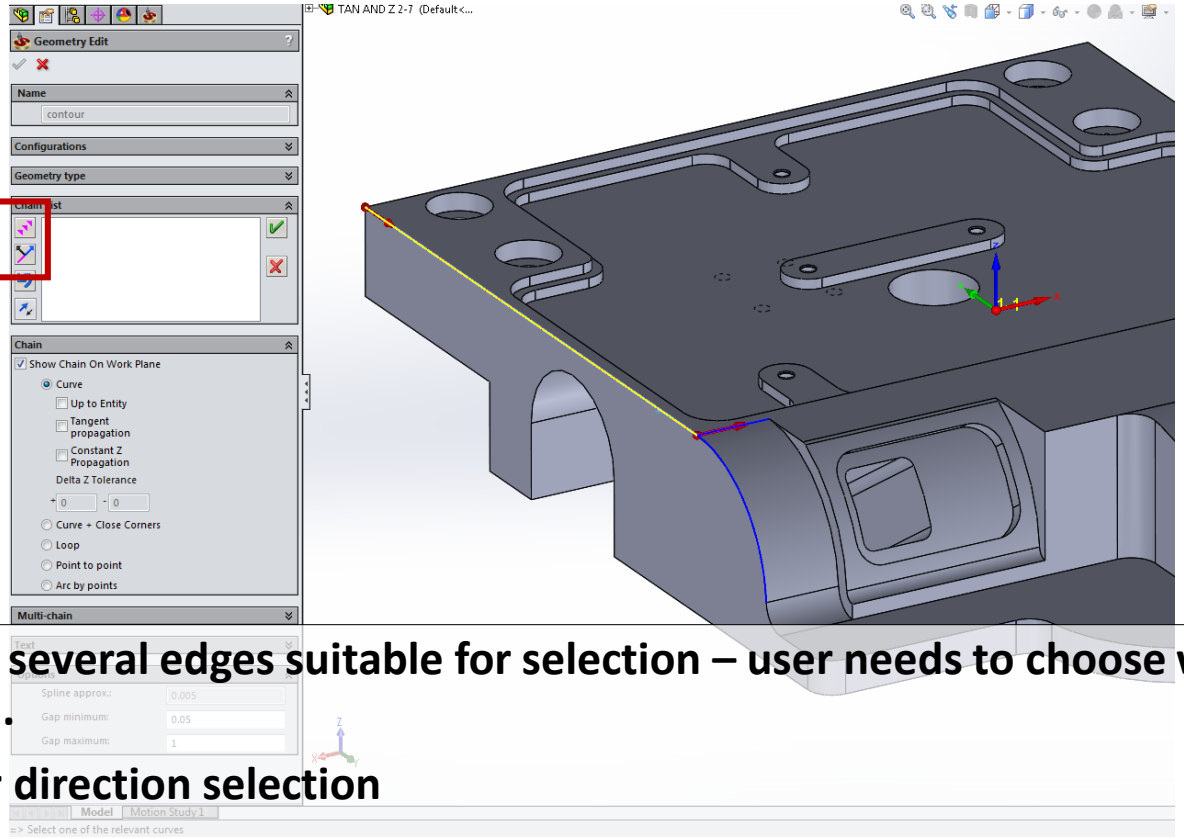
Geometry: New Propagation options



Automatic propagation of a chain :

- **Along the CAM-part edges in Z plane (within the defined tolerance)**
- **Along edges tangential to the previously selected one**

Geometry: New Buttons for faster chain selection

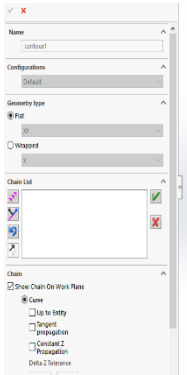


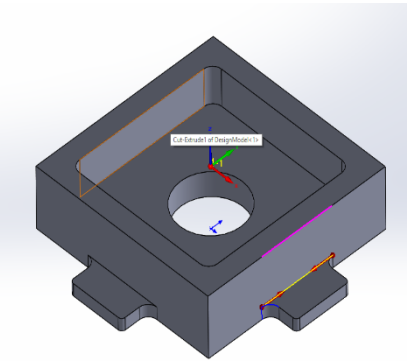
When there are several edges suitable for selection – user needs to choose which one should be taken.

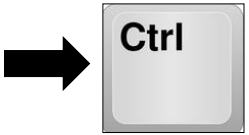
- button for direction selection

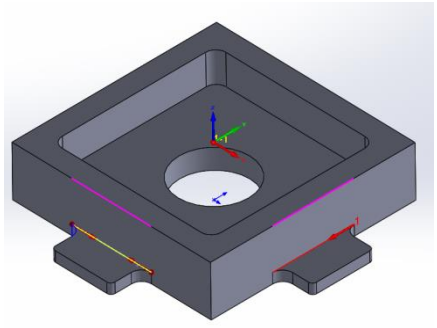
- button to continue automatic selection process

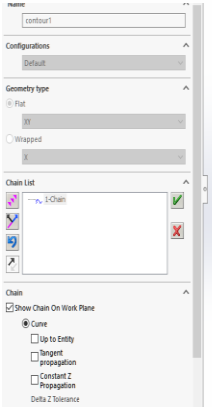
Geometry: Next Chain Creation

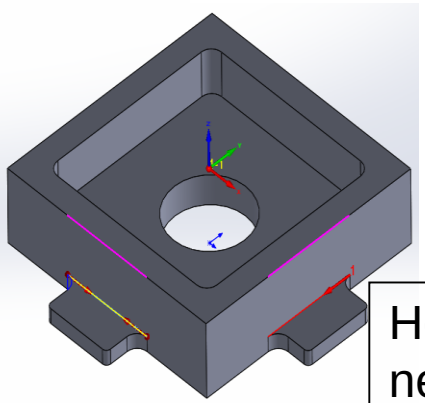






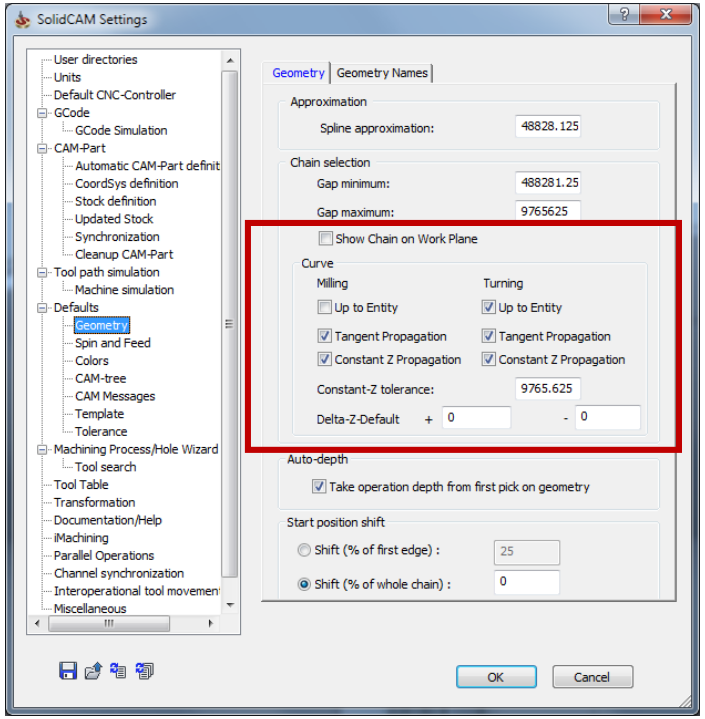






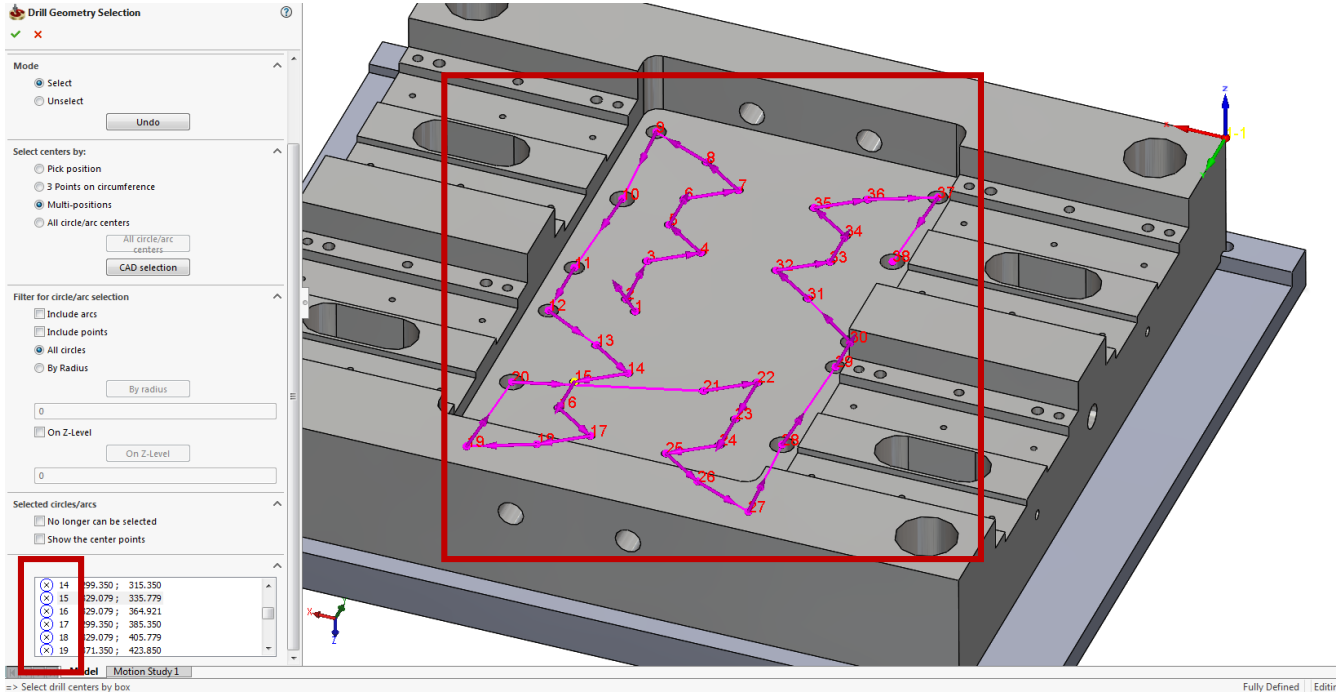
Holding the Control button and picking the next curve will start to create your next chain.

Geometry: Control over chain selection defaults



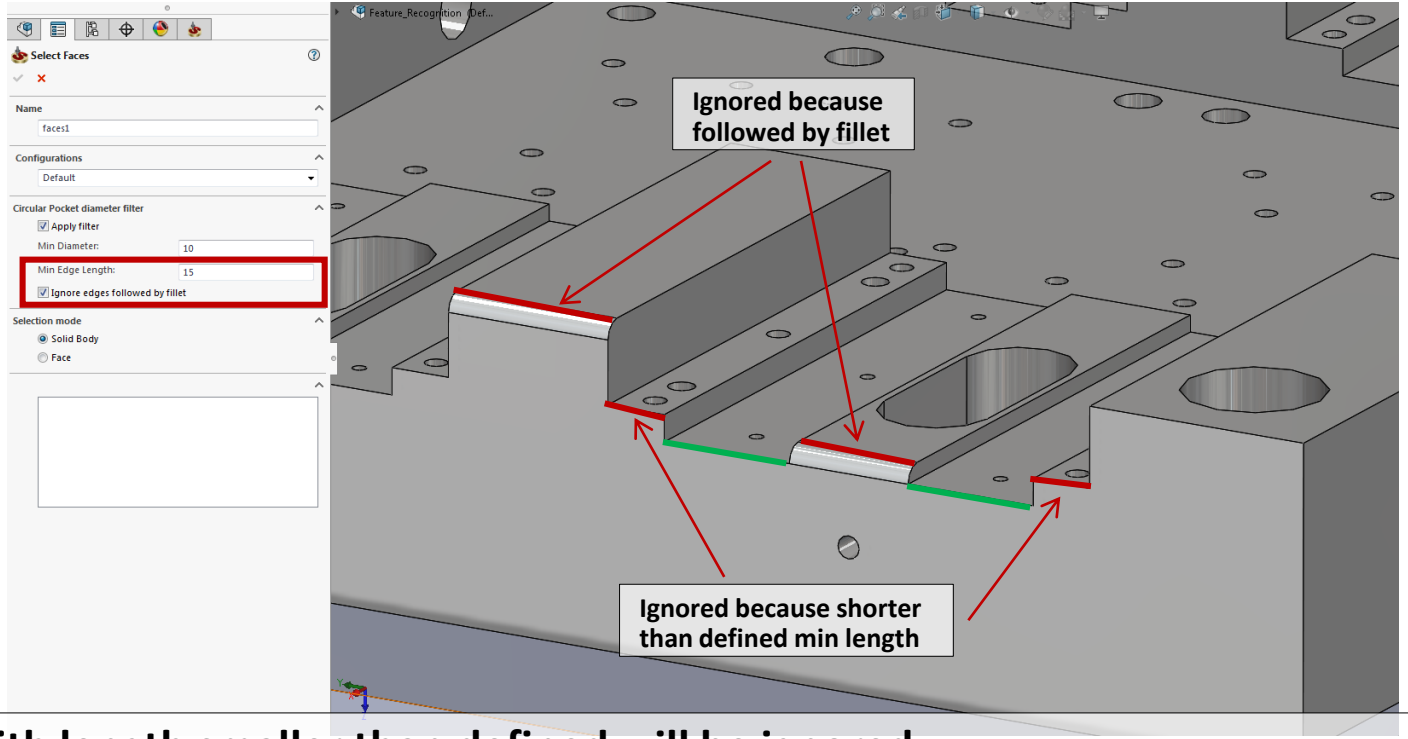
Possibility to define in settings which options are active by default

Geometry: Preview of holes numbers in drill geometry



Better visualisation of define holes and easier matching with the list of drill points.

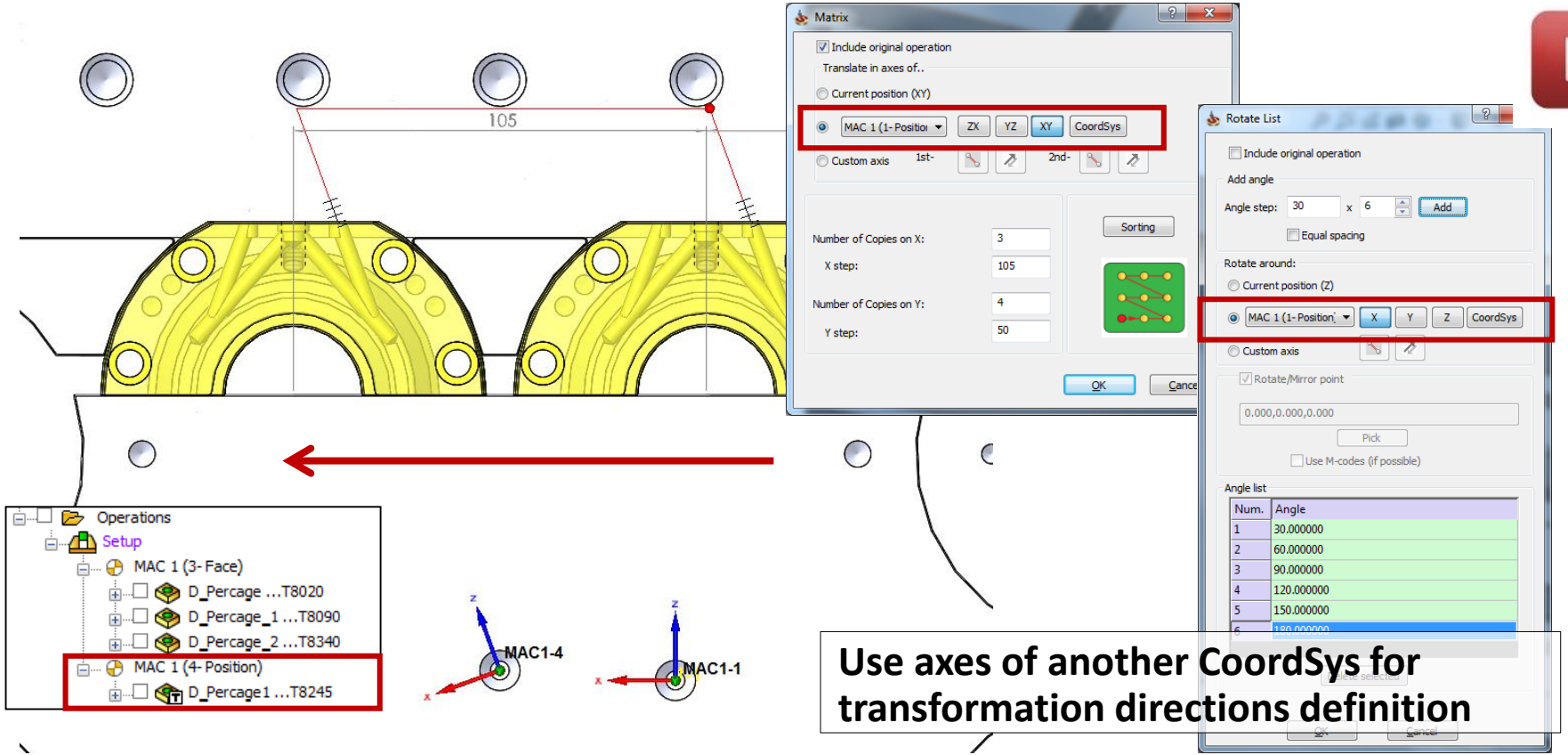
Geometry: Chamfer recognition filters



- **Chains with length smaller than defined will be ignored**
- **Edges followed by fillet optionally could be ignored**

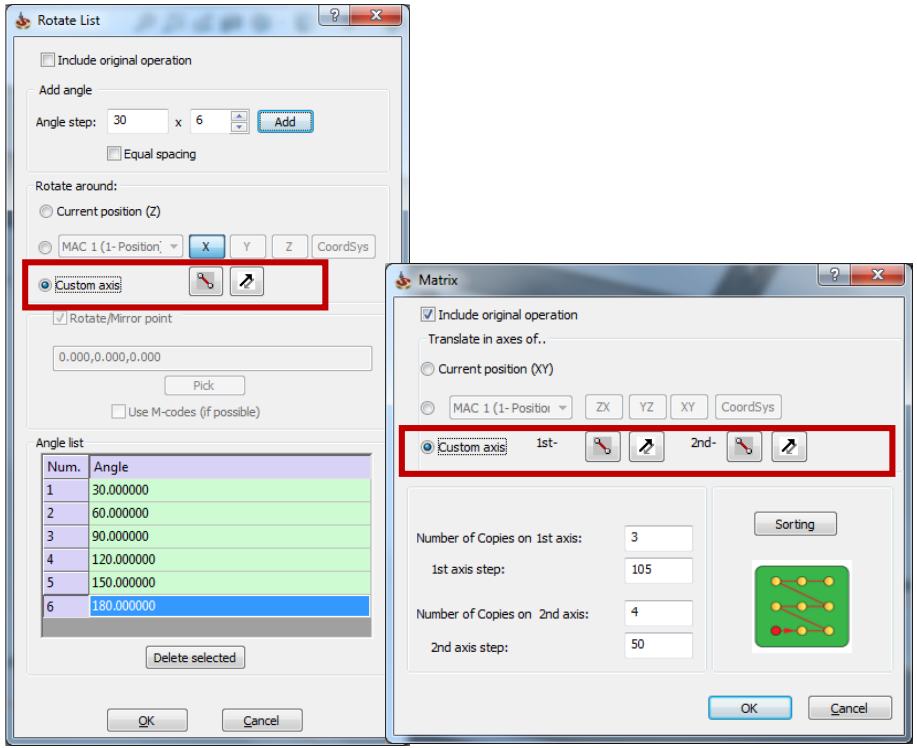
Transformation

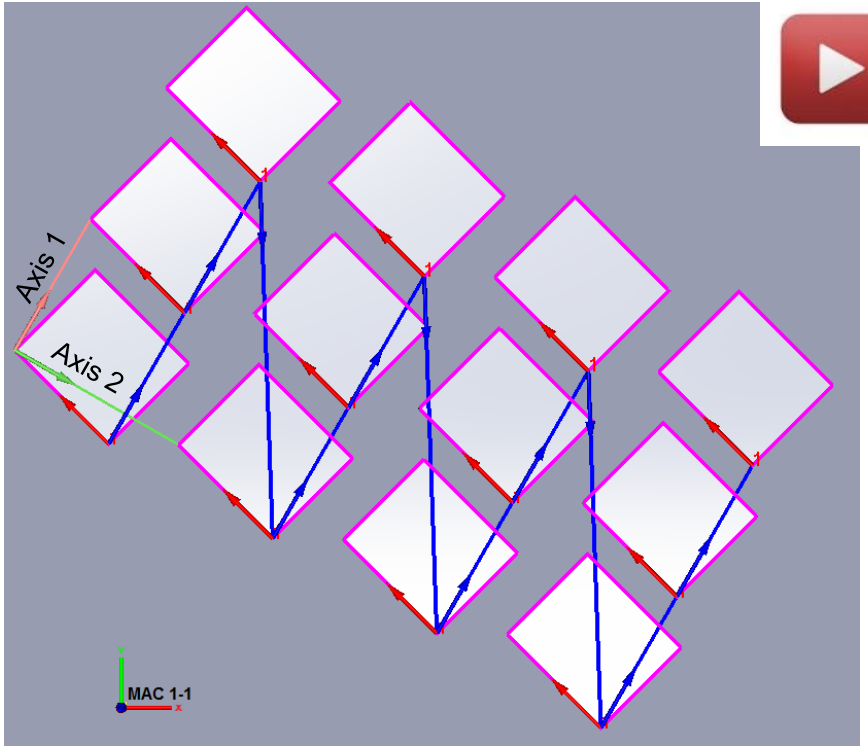
Transform: Selection of custom transformation direction (CoordSys)



Use axes of another CoordSys for transformation directions definition

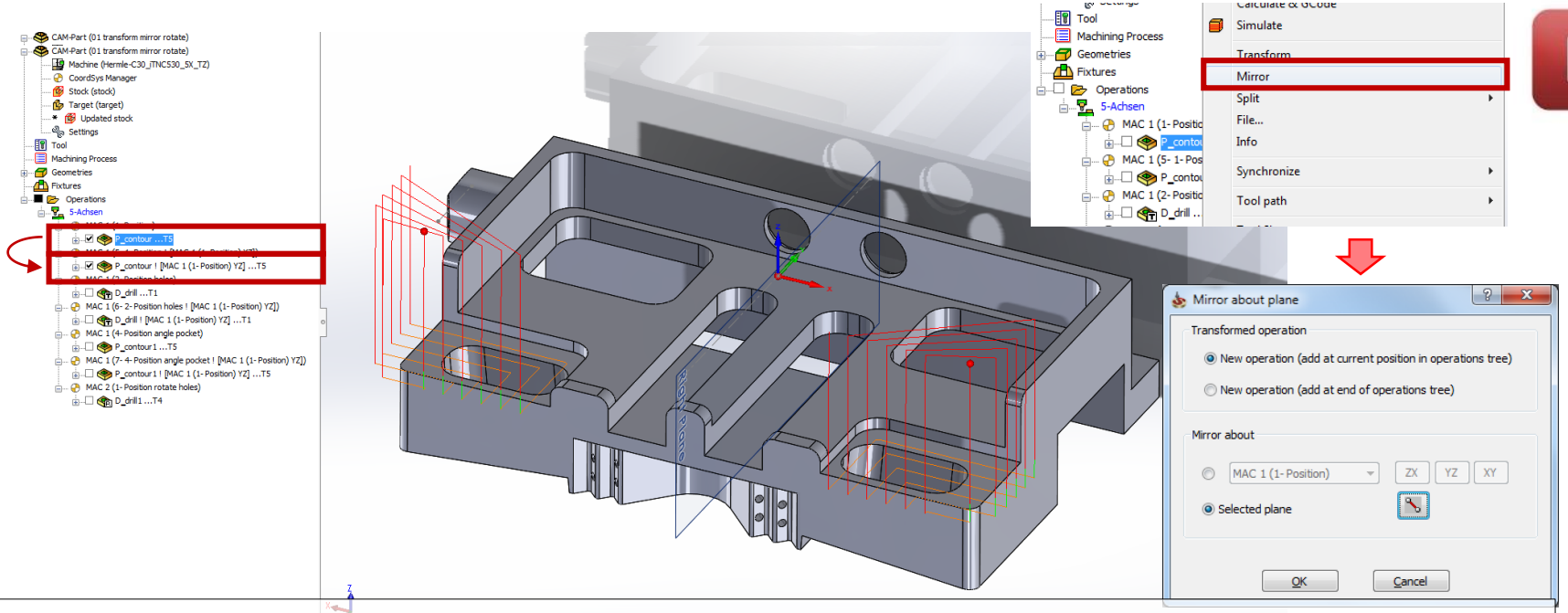
Transform: Selection of custom transformation direction (Vector)





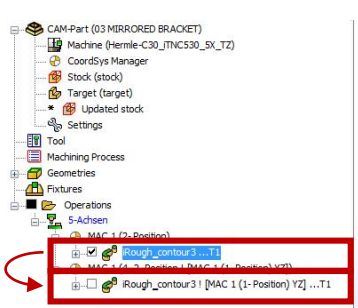
Use custom axes for definition of transformation directions

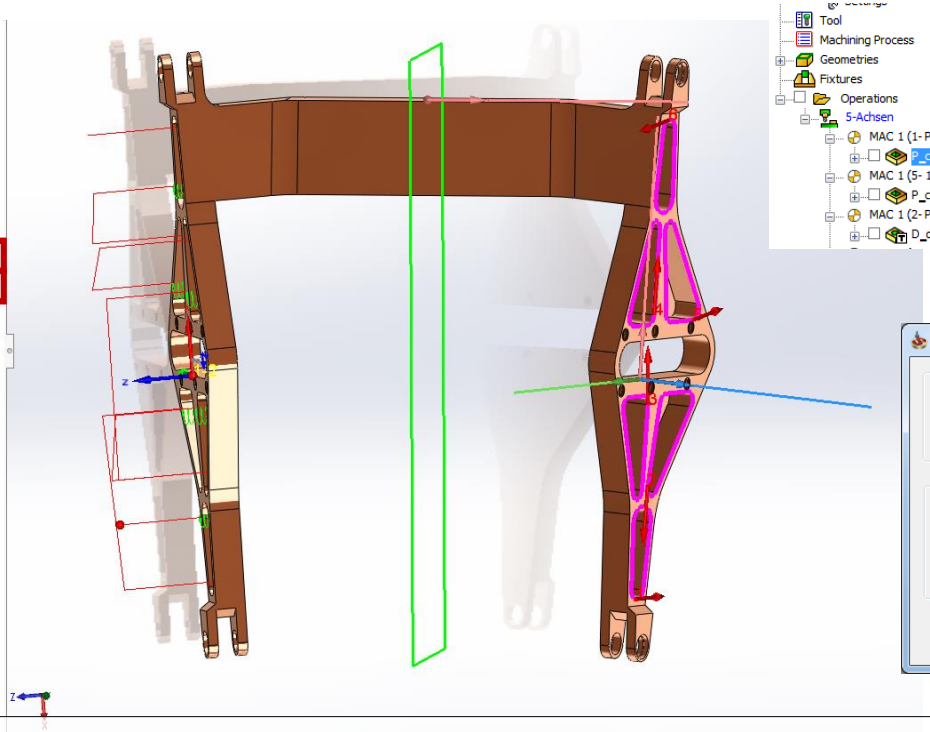
Transform: Mirror

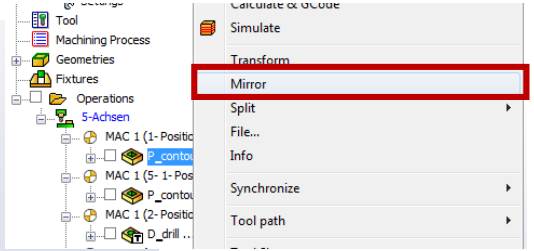


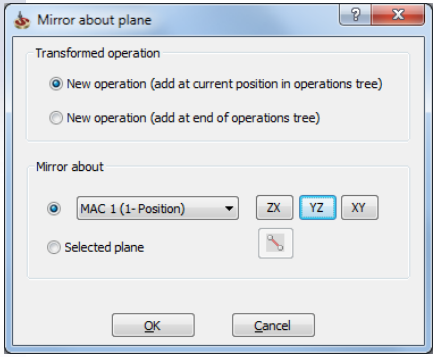
- **Mirror according to selected plane or one of standard planes of selected CoordSys**
- **Additional operation is created**
- **Keep cutting direction (climb/conventional)**

Transform: Mirror



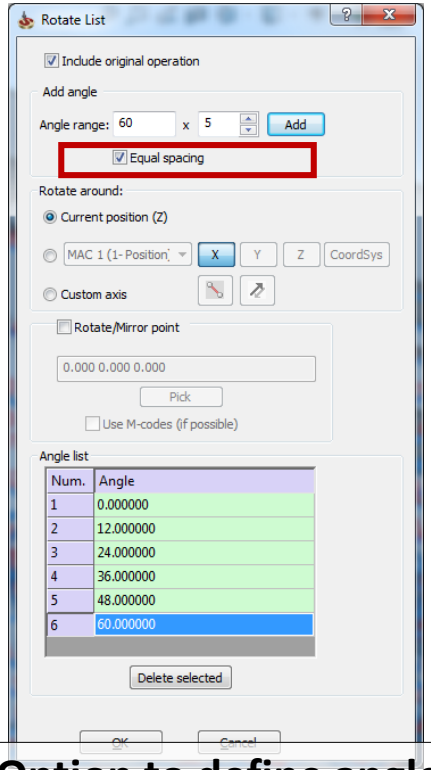


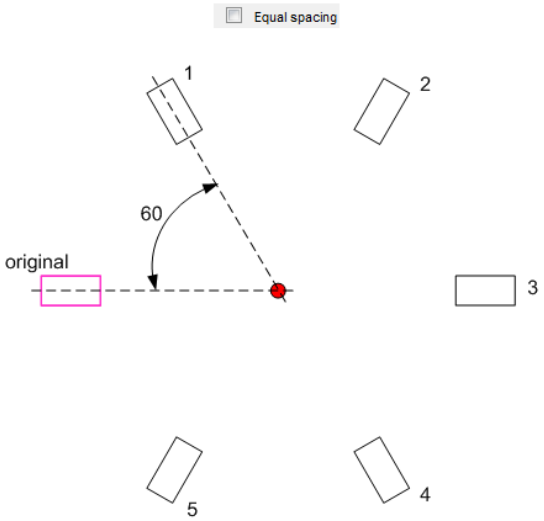


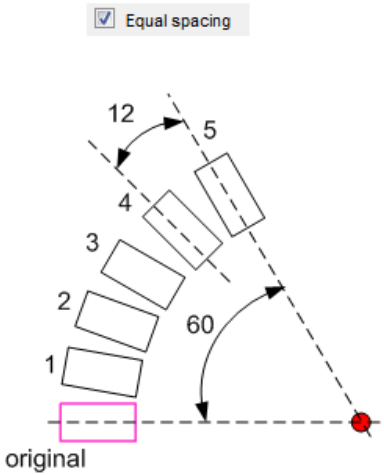


- **Preview of mirroring direction and new operation‘s geometry**
- **Additional CoordSys is created if required**

Transform: Equal spacing in Rotate transformation

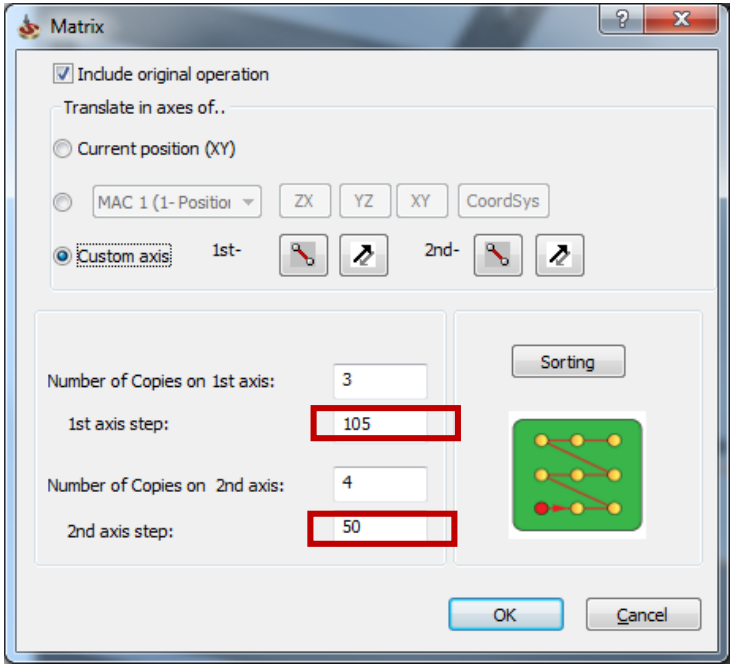


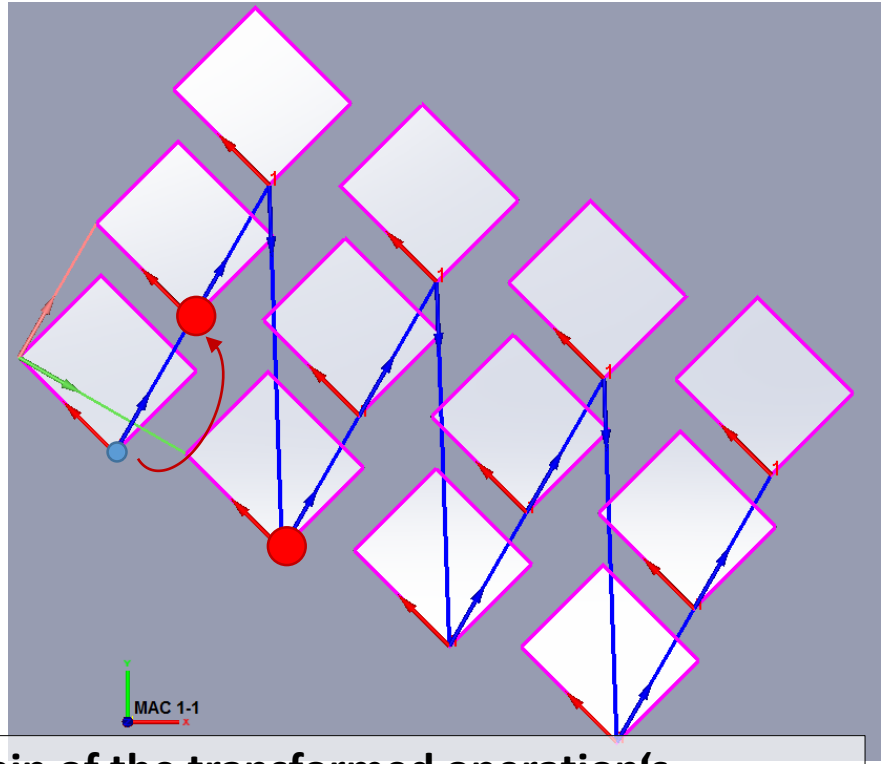




- **Option to define angles for translation by angle range and amount of step**

Transform: Pick matrix step from the model

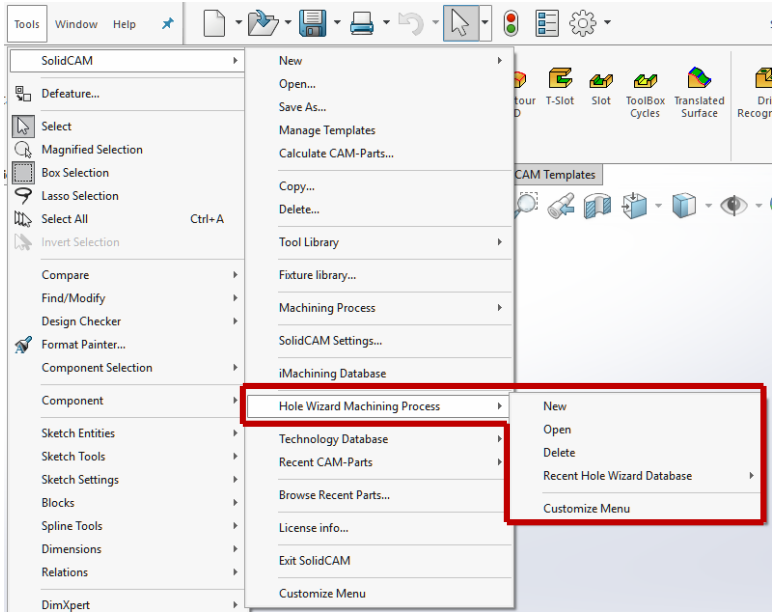


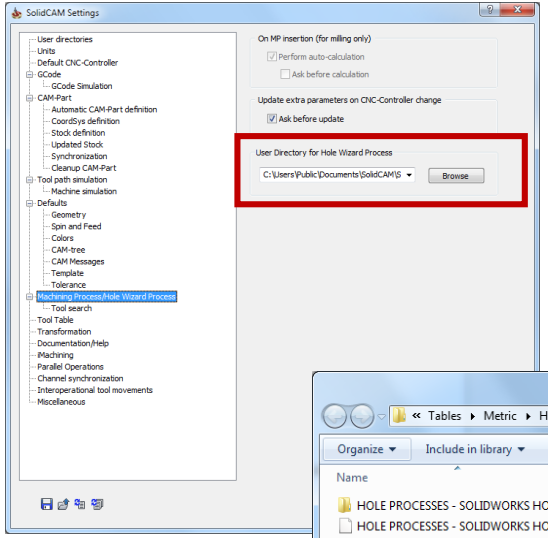


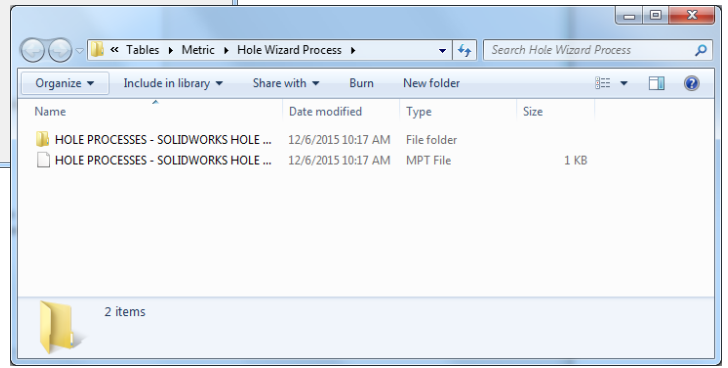
- **Pick the point where the start of first chain of the transformed operation‘s geometry should be ➔ it is taken as a step in Matrix transformation**

Hole Wizard

Hole Wizard: Separated folder

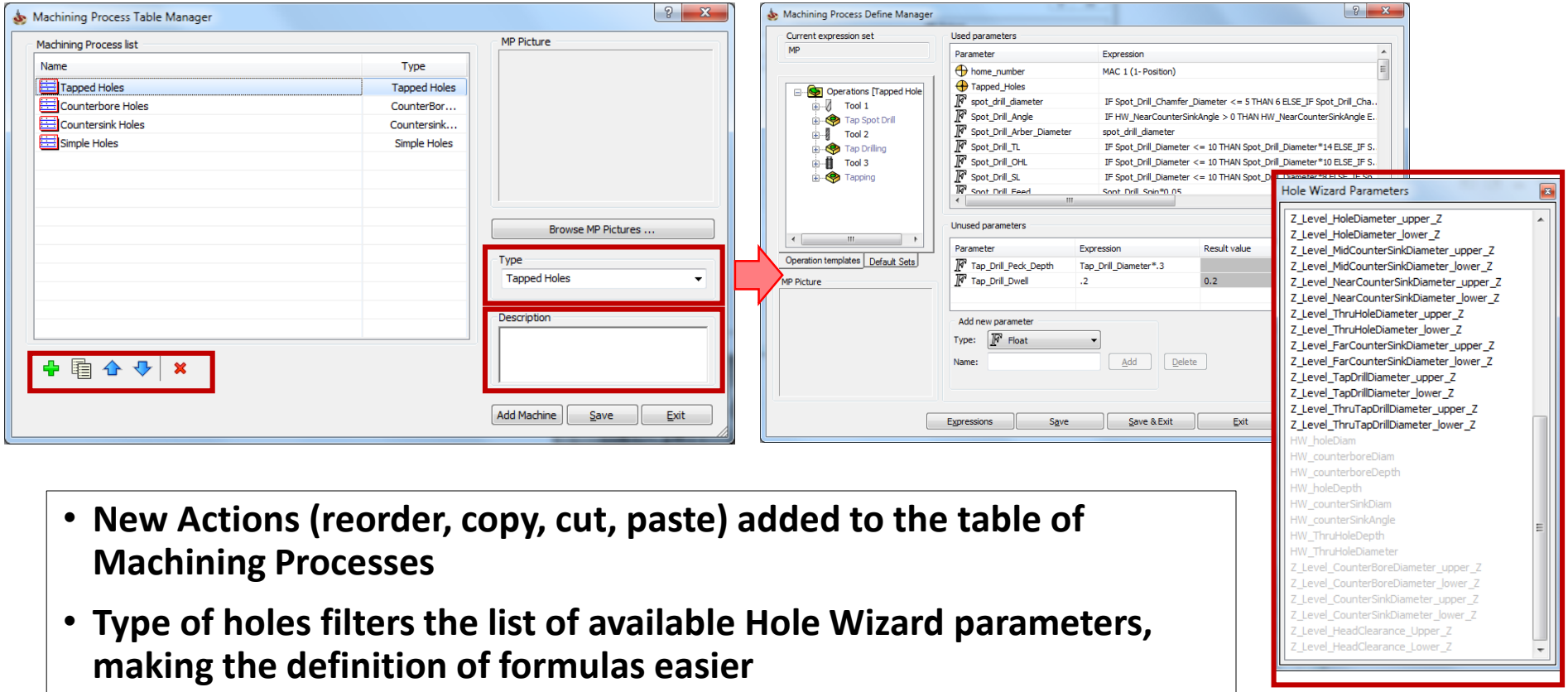






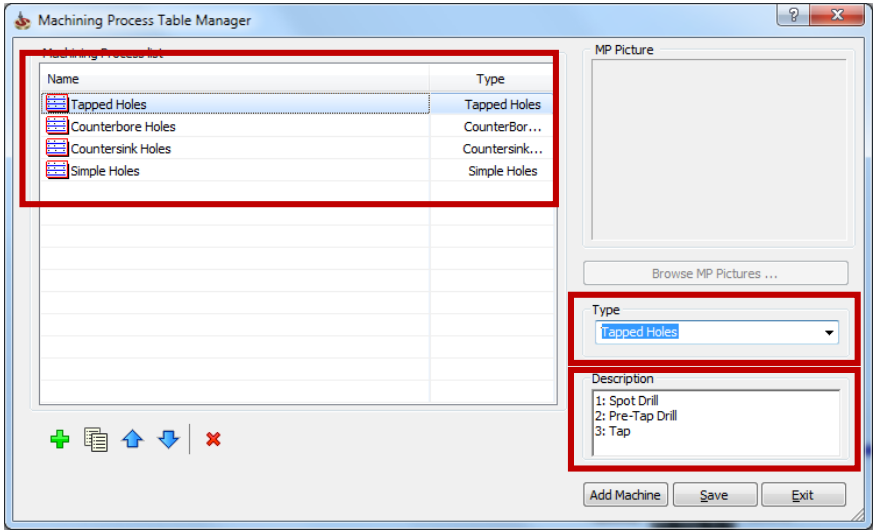
- **Separated folder for Hole Wizard Machining Process files**

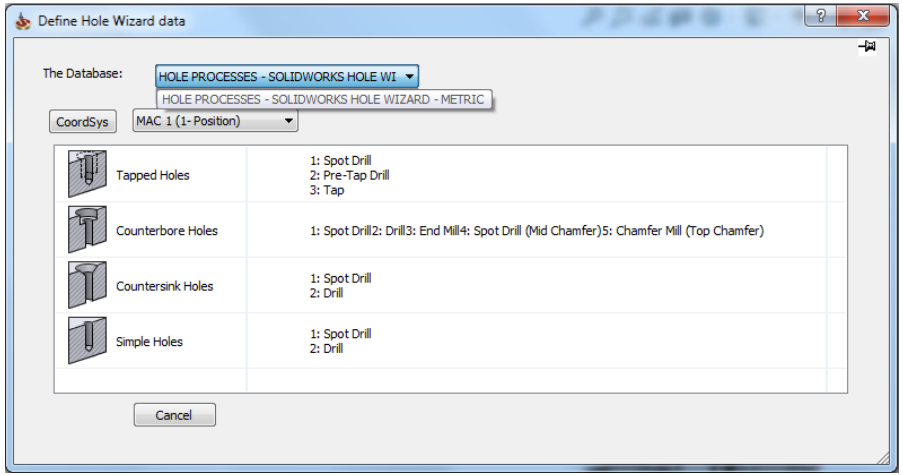
Hole Wizard: Customization



- **New Actions (reorder, copy, cut, paste) added to the table of Machining Processes**
- **Type of holes filters the list of available Hole Wizard parameters, making the definition of formulas easier**

Hole Wizard: Enhanced User Interface

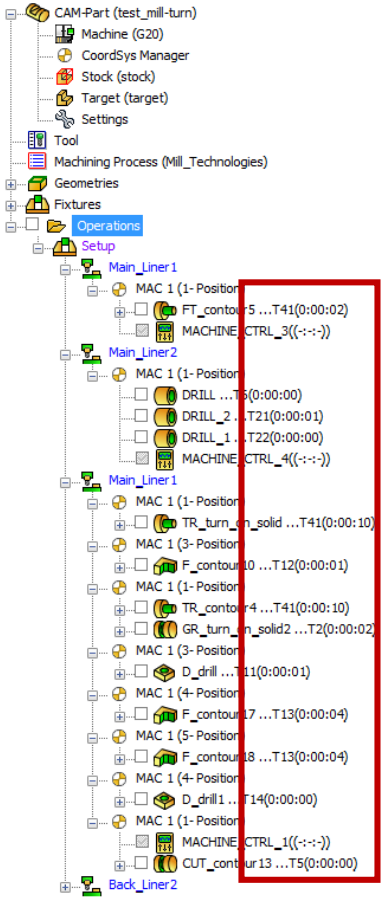


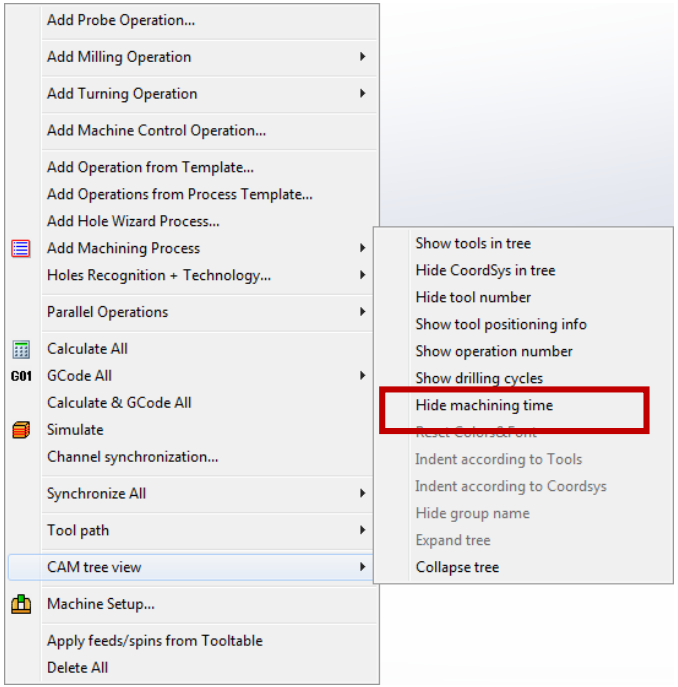


- **Combobox of Databases contains only DBs compatible with current machine (= have the same Drilling cycles)**
- **Description is added in order to make selection of the Machining Process easier**

CAM-tree

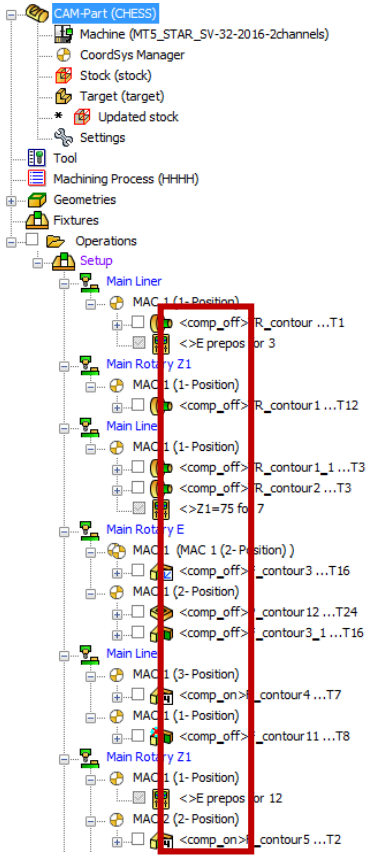
CAM-tree: Show machining time

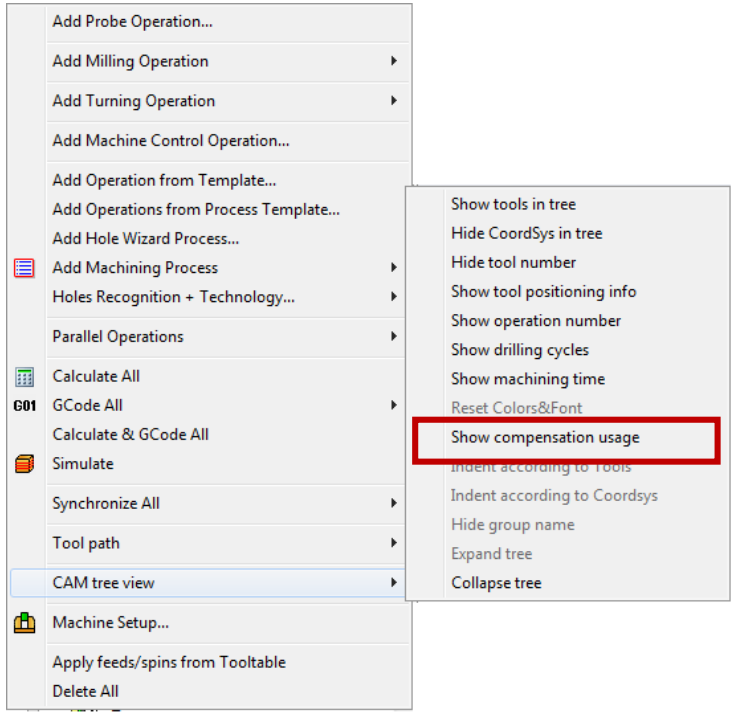




Show machining time in CAM-tree

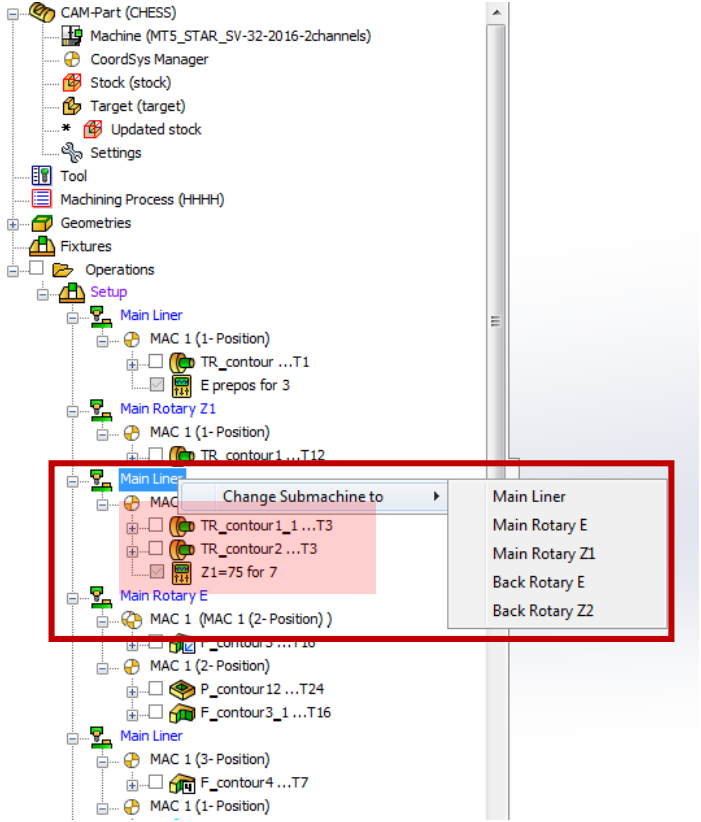
CAM-tree: Show information about compensation usage





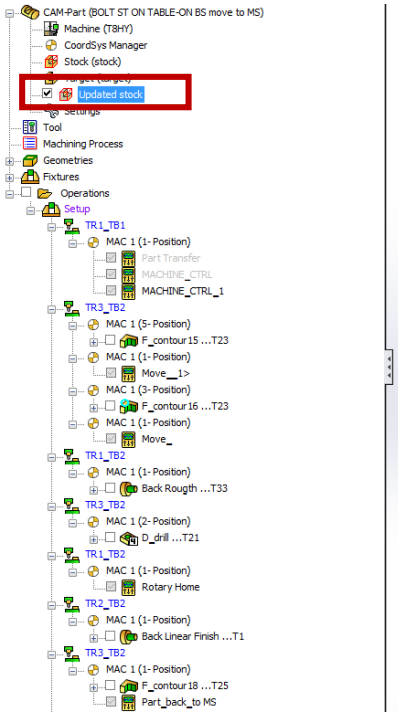
Show indicator whether compensation is used in the operation or not

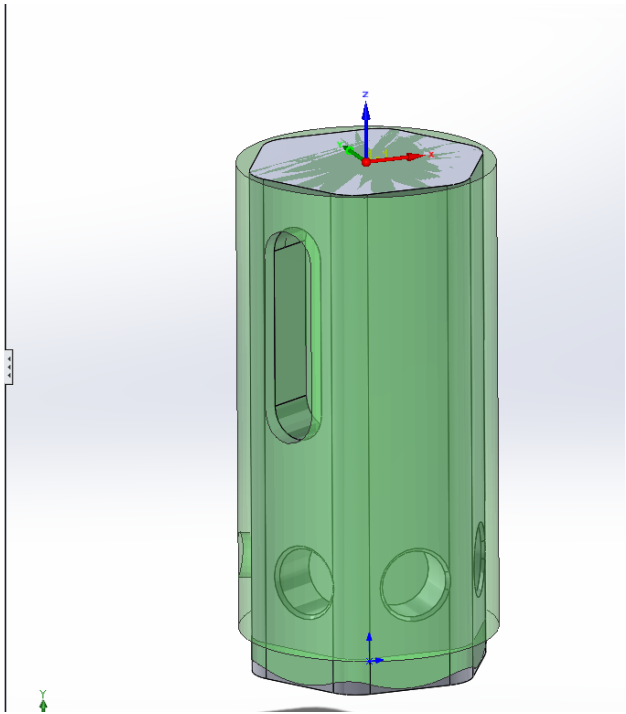
CAM-tree: Change Submachine from the CAM-tree



Right click on the submachine item in the CAM-tree allows to change submachine in all operation between selected submachine and the next one in the CAM-tree

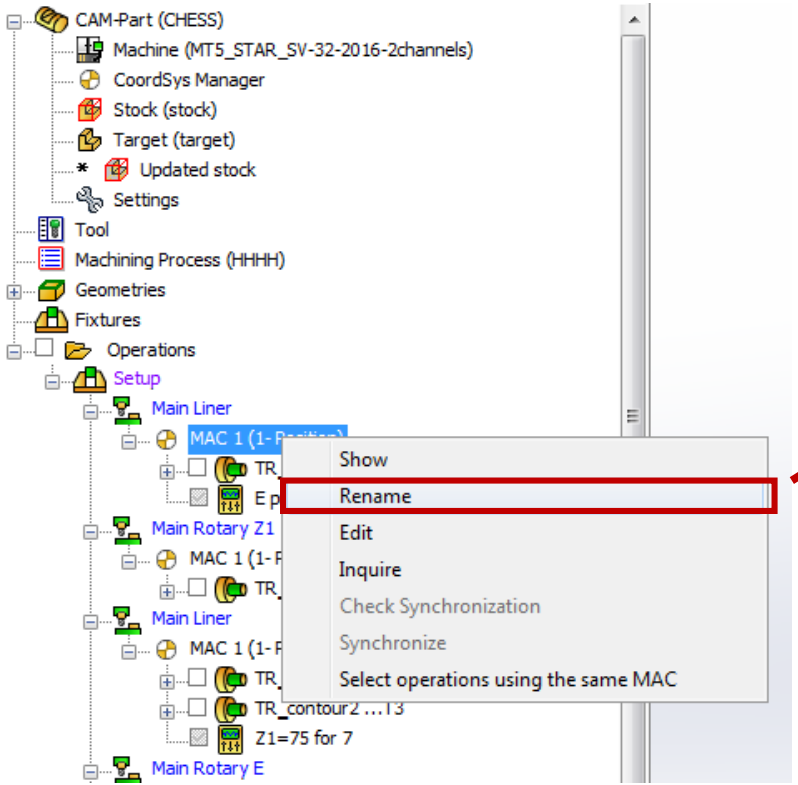
CAM-tree: Show updated stock

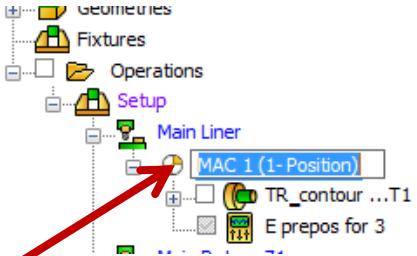




- **Option to see rest material left after the last operation during new operations definition.**
- **Preview in CAD area**
- **Color and transparency are taken from HostCAD simulation settings**

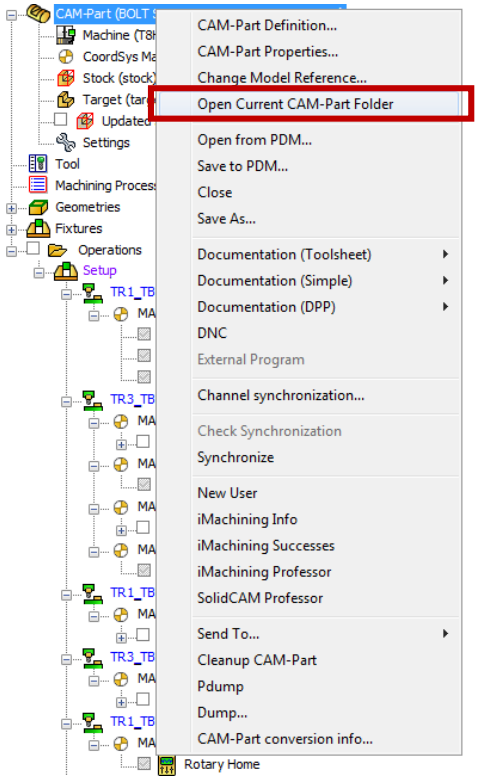
CAM-tree: Rename CoordSys

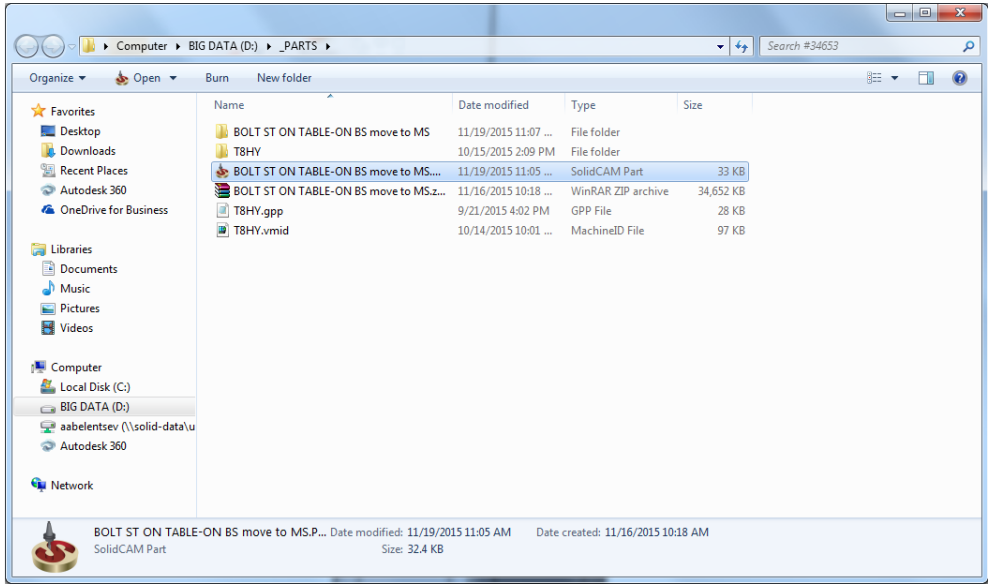




Possibility to rename CoordSys (MAC/Position) directly from the CAM-tree

CAM-tree: Open Current CAM-part folder

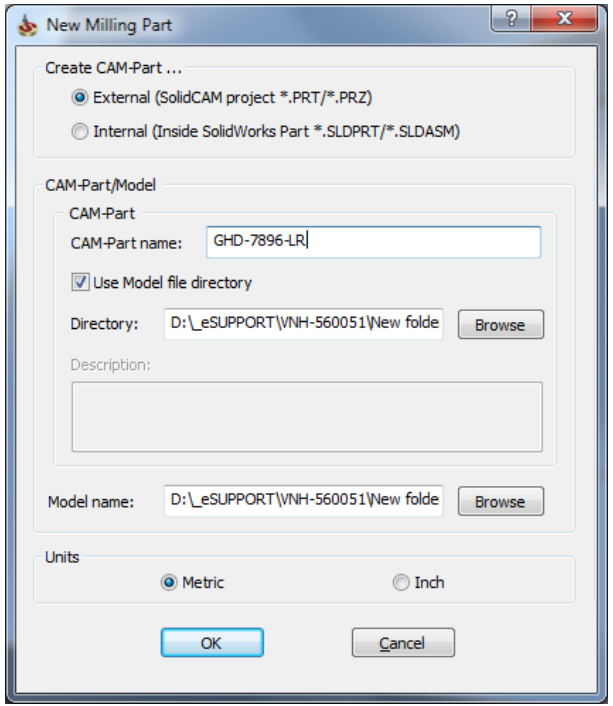


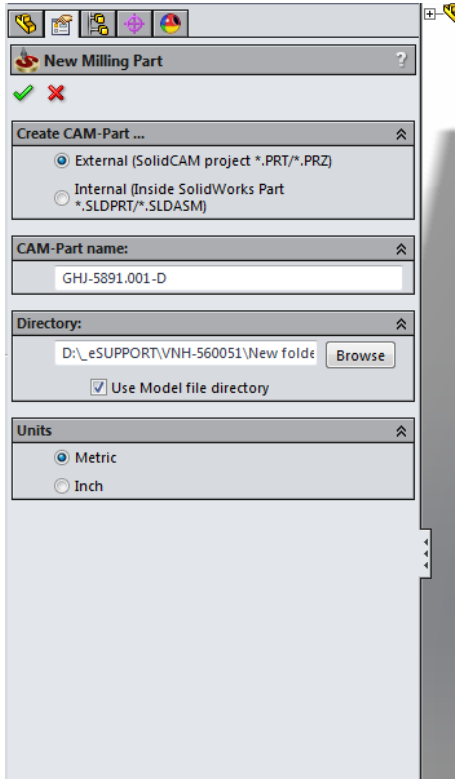


Reach the folder containing the current CAM-part by single click

General

Integration: More SolidWorks-integrated dialogs

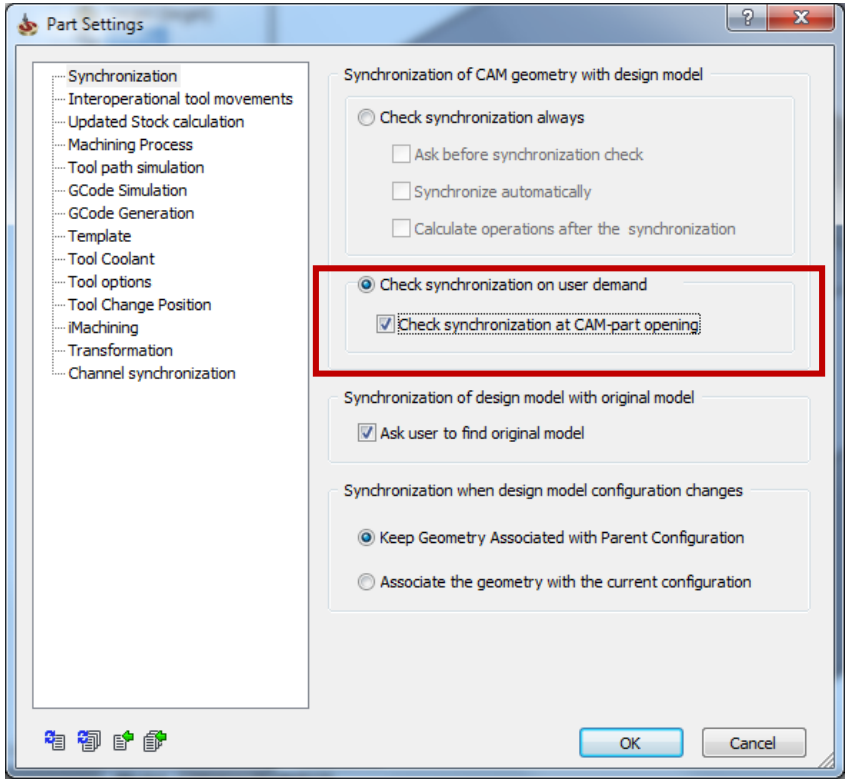




Dialogs integrated in SolidWorks Feature manager:

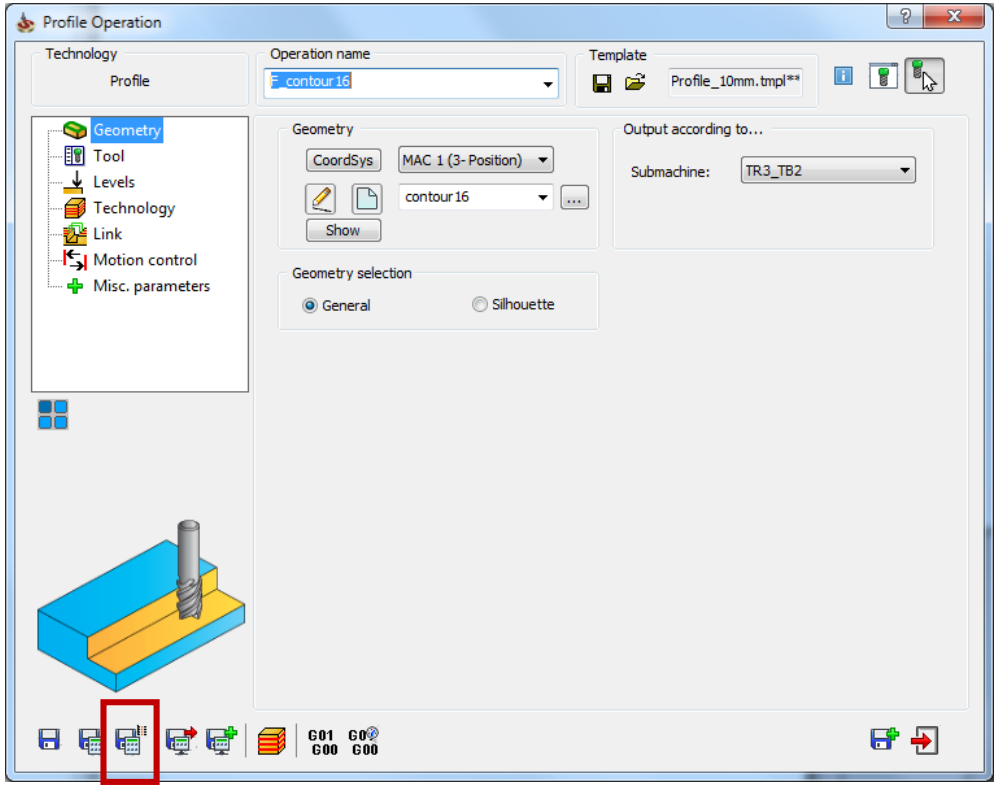
- **New CAM-part**
- **CoordSys Definition**

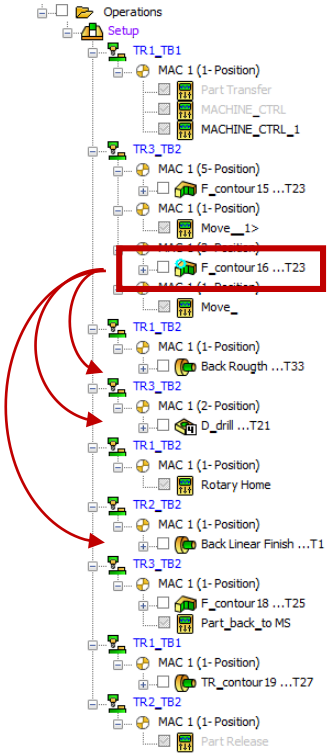
Synchronization: Check Synchronization at CAM-part opening



Check synchronization with original CAD-model every time user opens the CAM-part

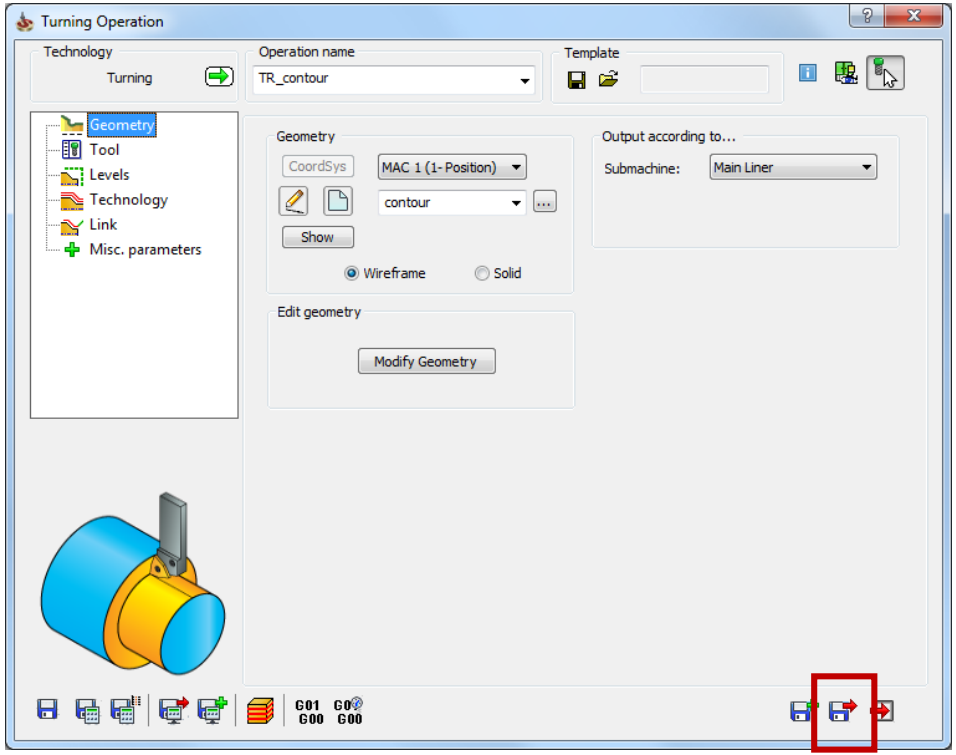
Milling operations: Calculate with related operations





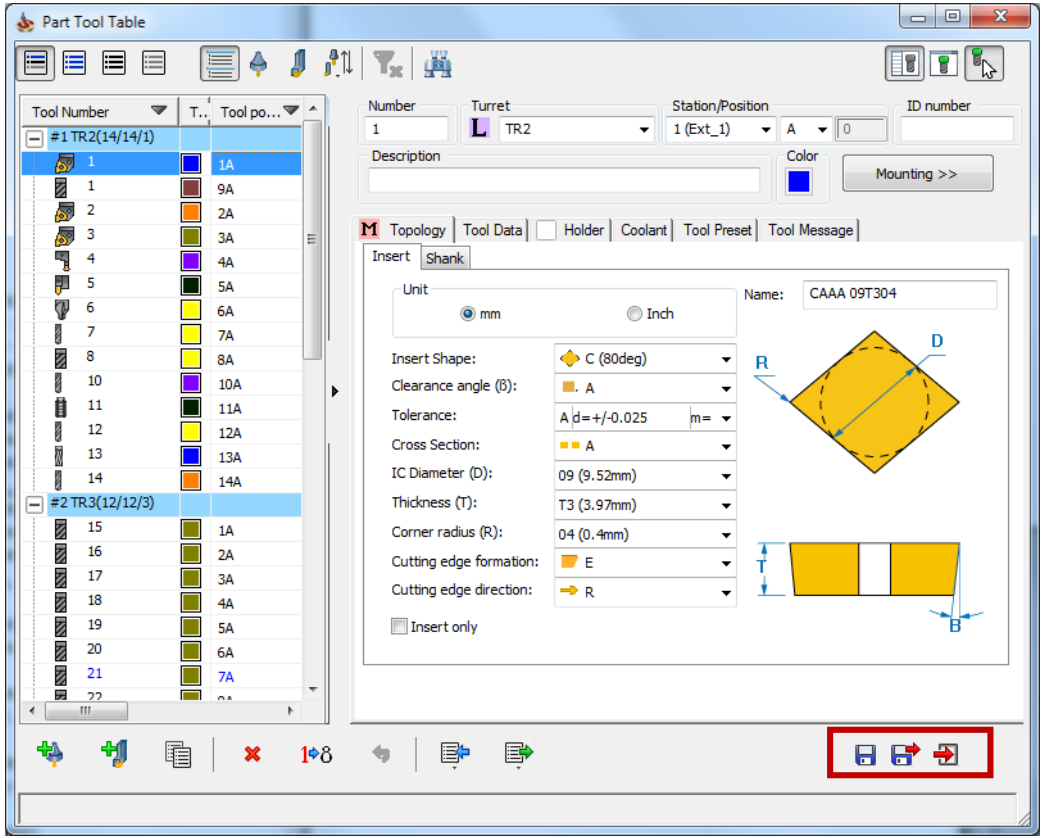
Option to calculate current operation and all following dependant ones

Operations: “Save&Exit” button



Button to save operation and exit without calculation

Tooltable: Save Tooltable without closing

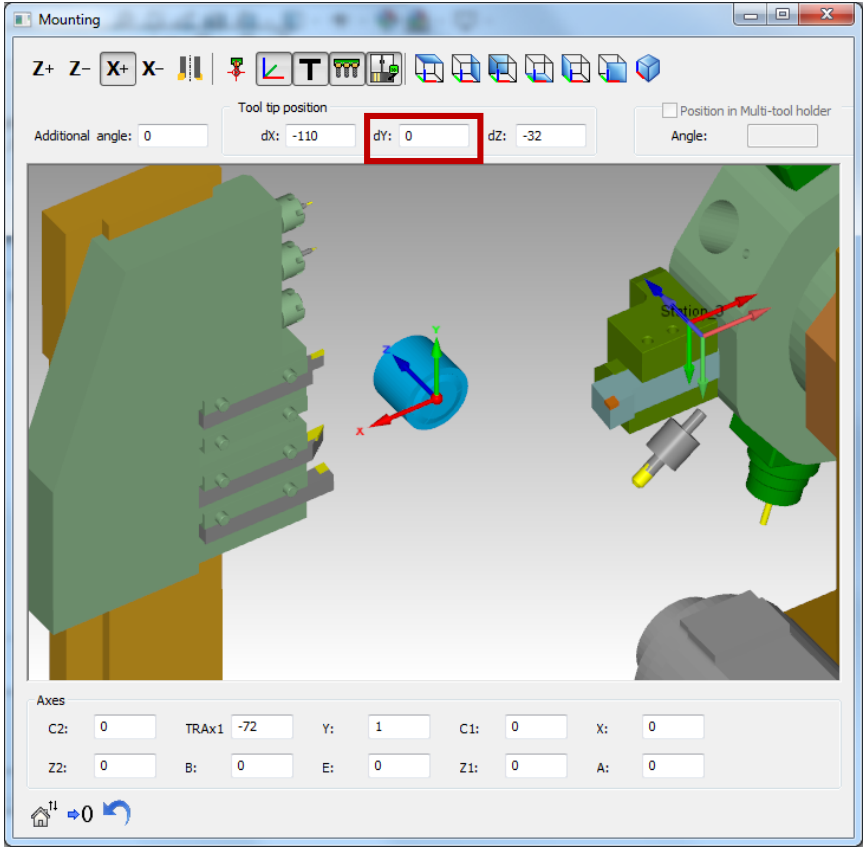


3 new buttons in tooltable:

- **Save**
- **Save and Exit**
- **Exit**

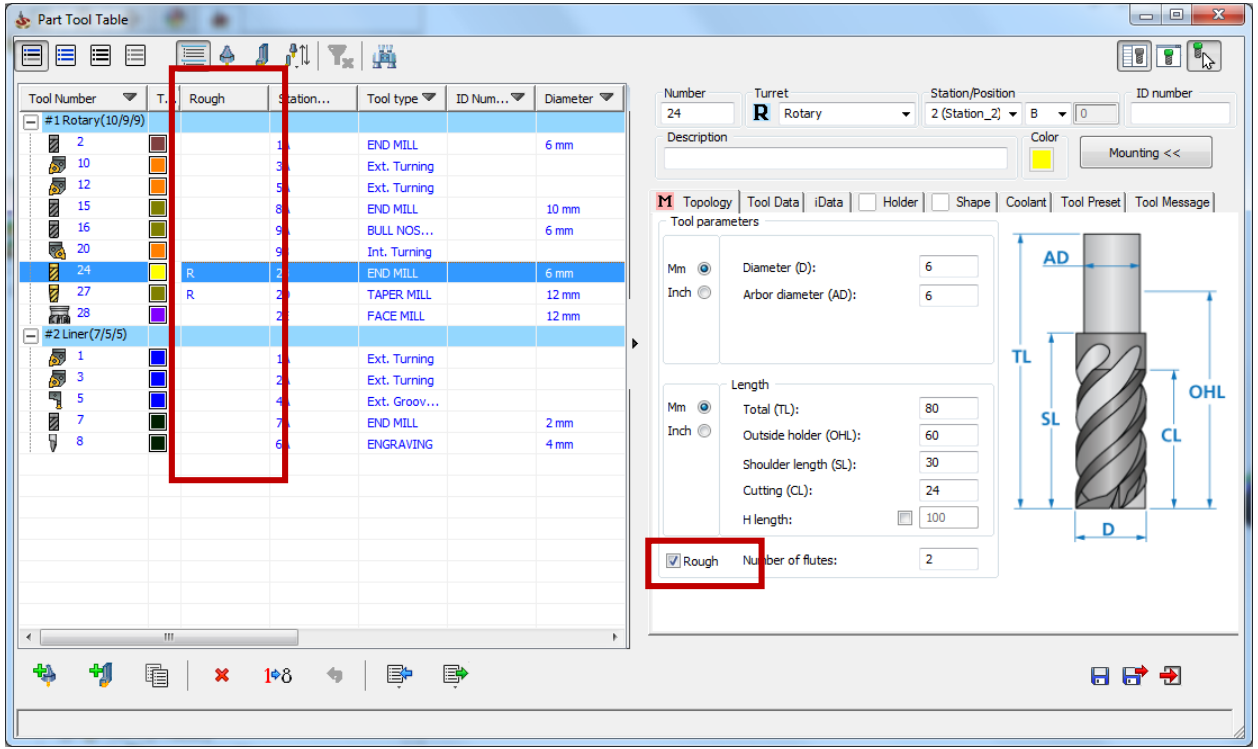
*-Now there is an option to save the tooltable without closing the dialog.

Tooltable: dY tool tip position shifting



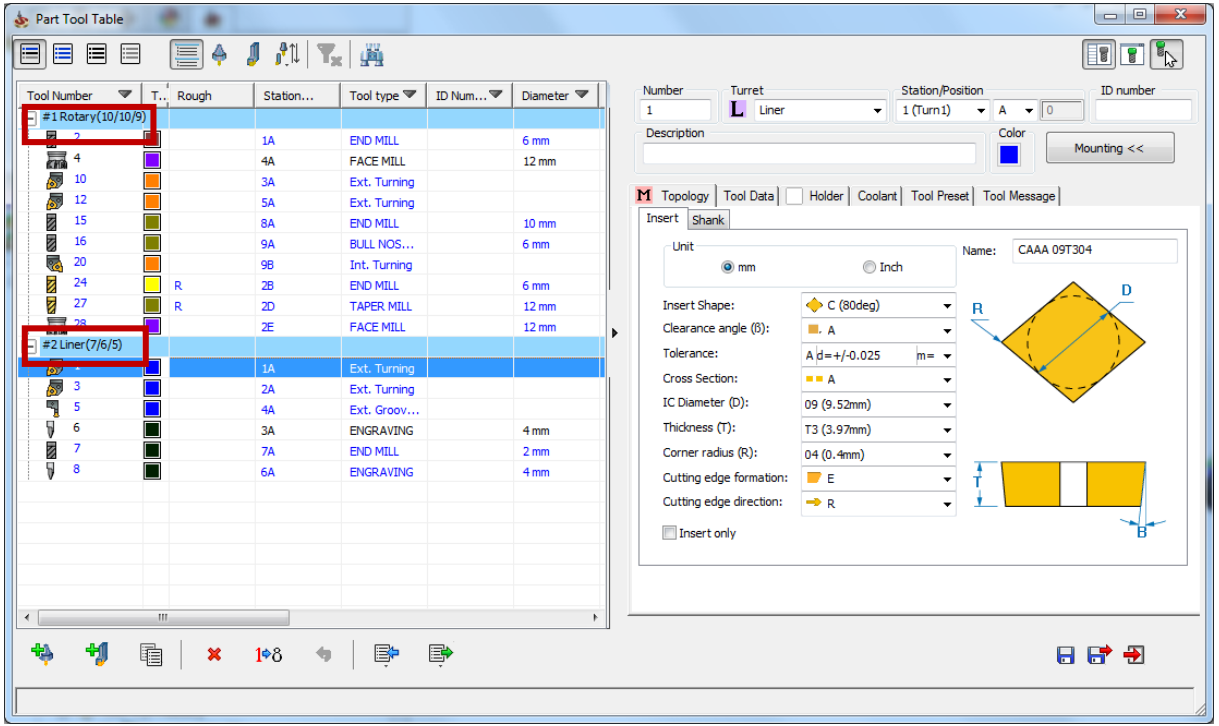
In addition to dX and dZ values, now there is a possibility to define dY coordinate of tool tip in Station's CoordSys as well

Tooltable: “Rough” option to tooltable



Additional inforamtion in tooltable about tool for Rough machining only

Tooltable: Tools quantity information



Information about the tools quantity in turret title row in the following format:

#turretID TurretName (number_of_stations/mounted_tools/used_tools)