# SolidCAM 2022 New Features

**July 2022**

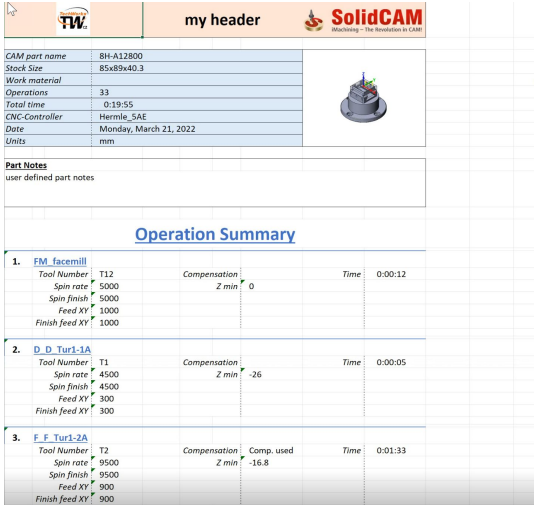
SolidCAM
The Solid Platform for Manufacturing

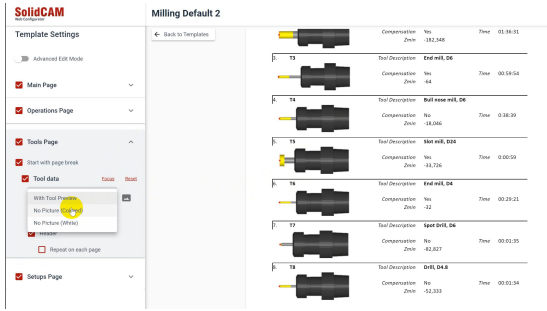
# SolidCAM 2022 SP1- Setup Sheet Web-based template configurator

**Setup Sheet WEB Configurator** offers an online database of predefined templates.

The user can easily do **template customizations**, then download a customized template ready for use

- Go to the configurator website – select a template
- Configure the template on the cloud
- Download to user Desktop
- Install template in SolidCAM
- Generate Setup Sheet with the new template



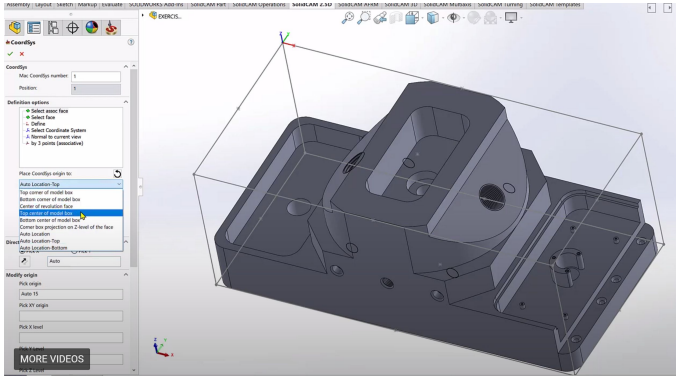



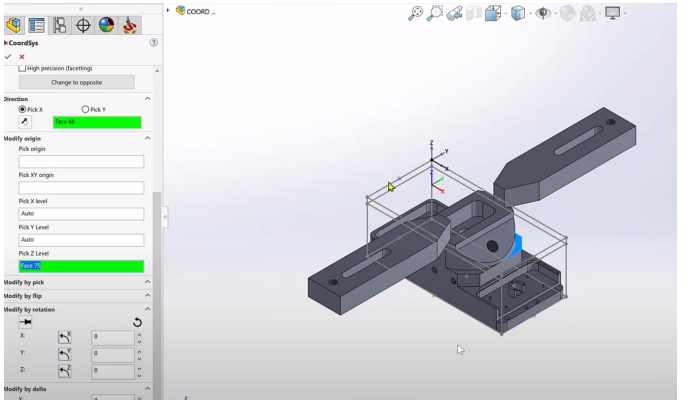
# SolidCAM 2022 SP1– Associative Coordinate System

- In **SolidCAM2021**, the Coordinate System is **not associative** - if you had a change in the part and the **location** of the coordinate system moved, you would have to redefine the Coordinate System.

- If you want to make an **edit to the location** of the Coordinate System, you will have to restart from the beginning.

- With the **Associative Coordinate System** in **SolidCAM 2022**, everything is associative, including the **levels page** - you can also **edit the location**, without having to recreate the Coordinate system from scratch.



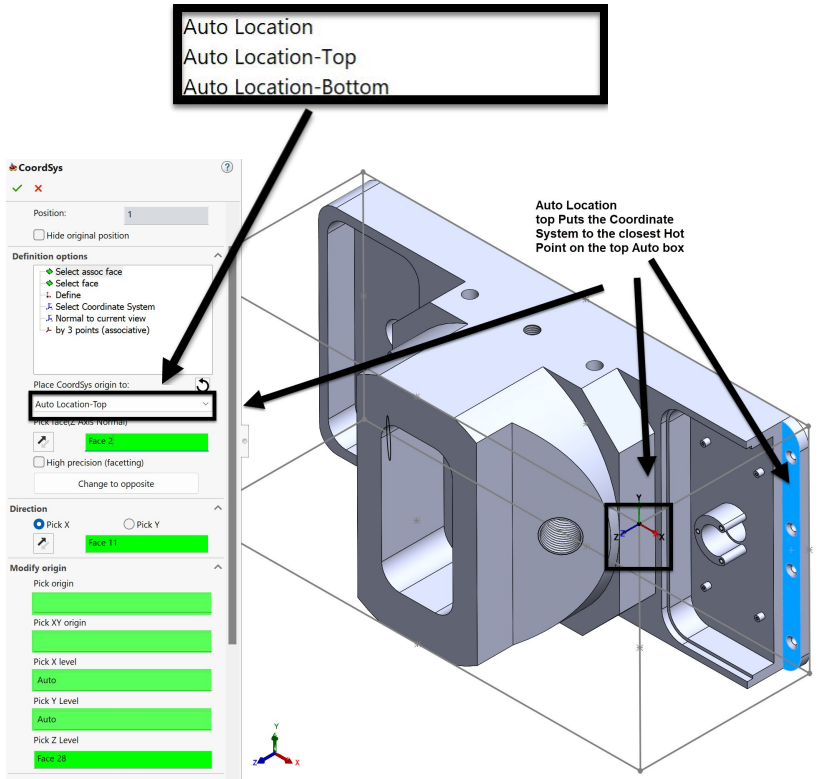



# SolidCAM 2022 SP1– Associative Coordinate System (Auto Location with Associative Fields)

- When choosing a face to be used for the perpendicular Z direction, it will be automatically placed at the closest hot point on the automatic box:

- **Auto Location** – The closest point on the Auto box
- **Auto Location - Top** - The closest point on the top of the Auto box
- **Auto Location – Bottom** - The closest point on the bottom of the  Auto box

- Picking a cylindrical surface with the Auto Locations will place the origin at the center axis of that cylinder

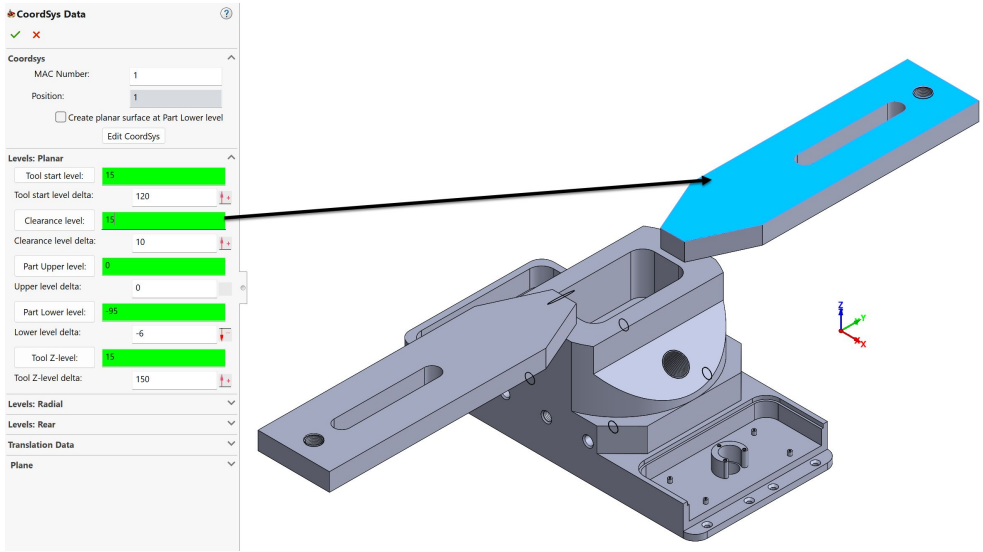


# SolidCAM 2022 SP1– Associative Coordinate System (Levels Page)

- With the **Associative Coordinate System Levels Page** in **SolidCAM 2022**, everything is **associative** and has **Delta** fields.

- You can for example pick the top of a clamp for the **Clearance level** and that value will appear in the field as associative - add a **Delta value** for the distance you want it above the clamp.

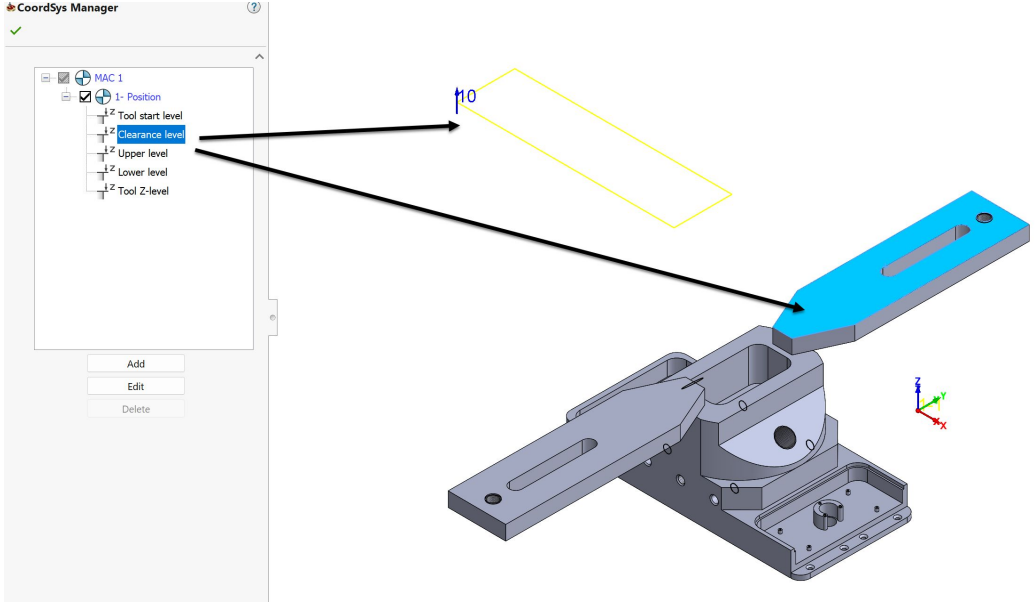
- If the clamp changes, the ClearanceLevel will always be the delta value above the clamp.



# SolidCAM 2022 SP1– Associative Coordinate System (CoordSys Manager)

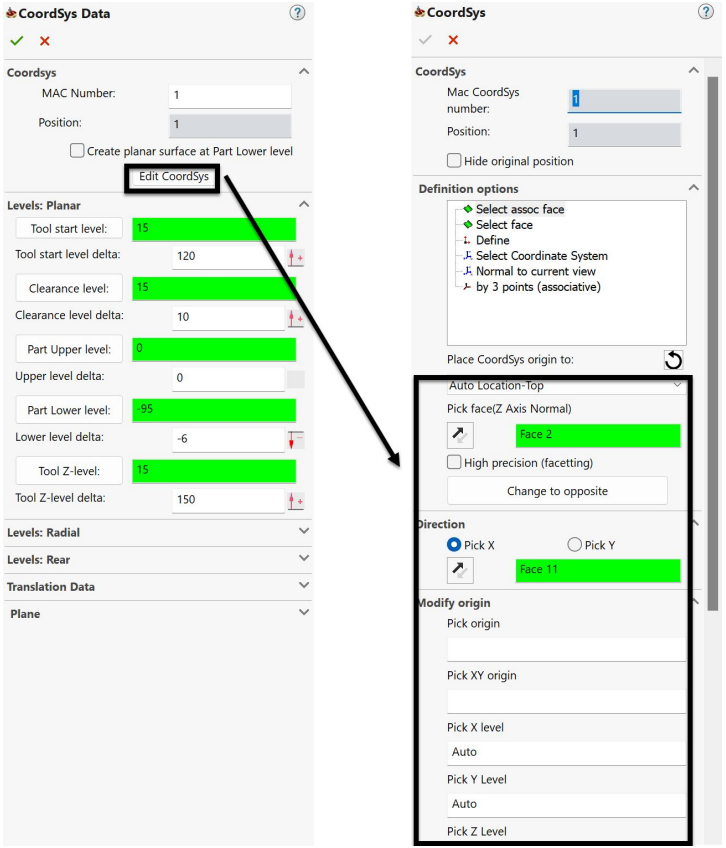
- With the **CoordSys Manager Page** in **SolidCAM 2022**, everything that is associative is also visible, including the Delta levels.

- You can for example pick the **Clearance level**, and that will be *highlighted on the appropriate face*, as well as the Delta value.



# SolidCAM 2022 SP1– Associative Coordinate System (Edit Coordinate System)

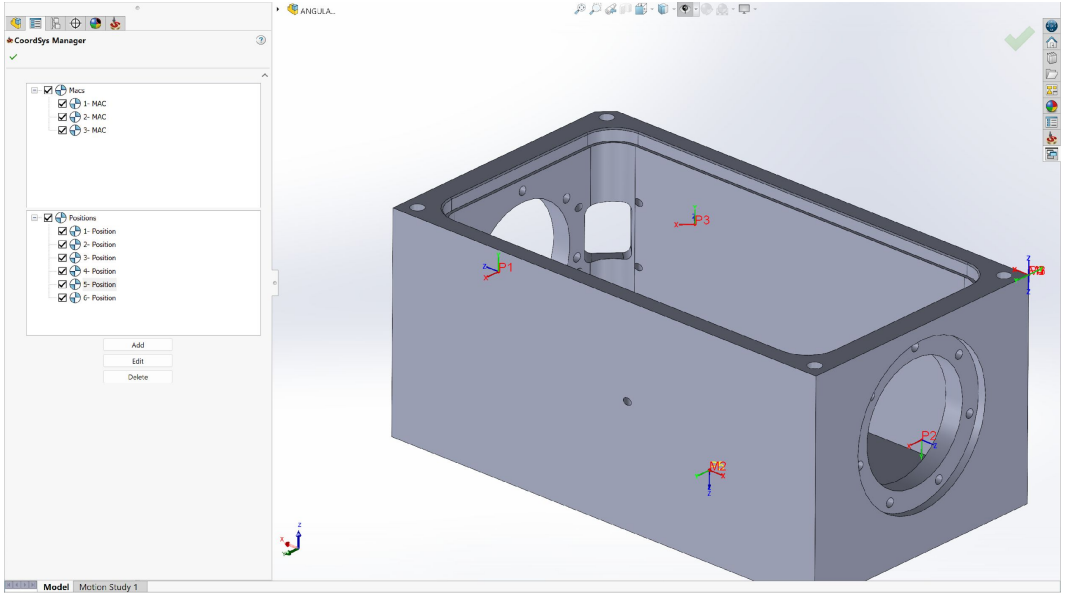
- You can now **Edit the Coordinate System,** without having to rebuild the Coordinate system from scratch.
- All the fields are open.



# SolidCAM 2022 SP1– Position sharing between Coordinate systems

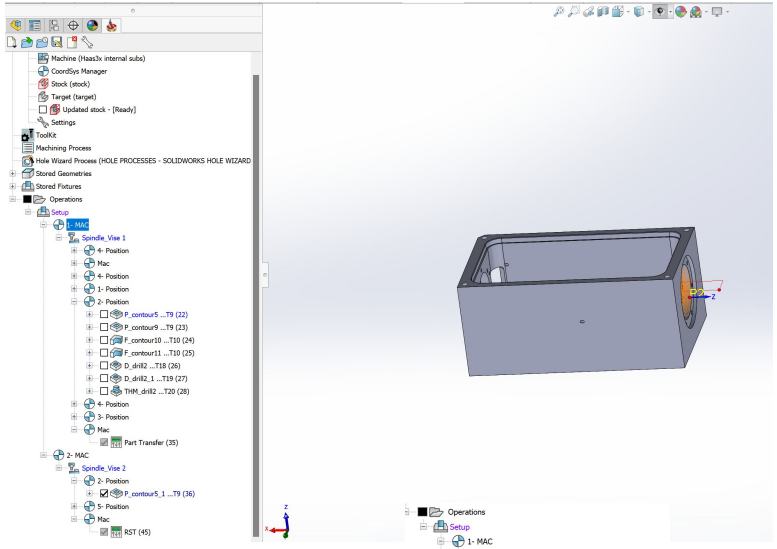
- With the new style of Position definition in the Coordinate System Manager, you can now **share a position among several different MACs**.

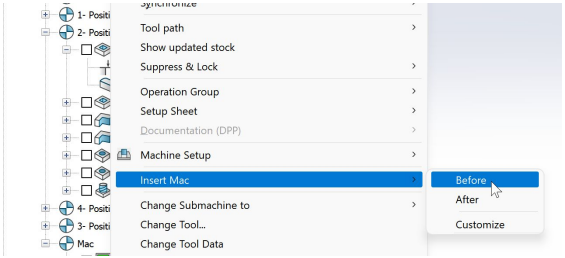
- You can easily change the MAC of the operation, without the need to redefine the Geometry.

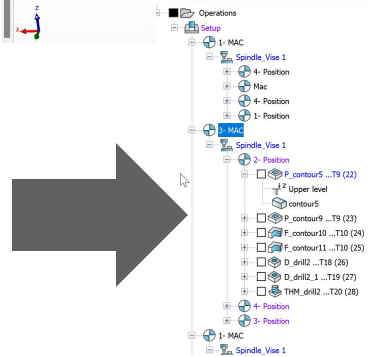


# Changing the MAC for the operation

- Simply Copy and Paste the operation to the different MAC – you will get the same operation and position, but in another MAC
- Or add new MAC before the operation and select required MAC from the list



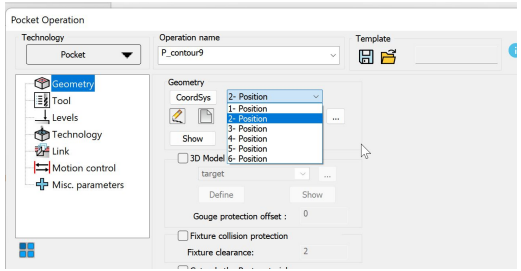


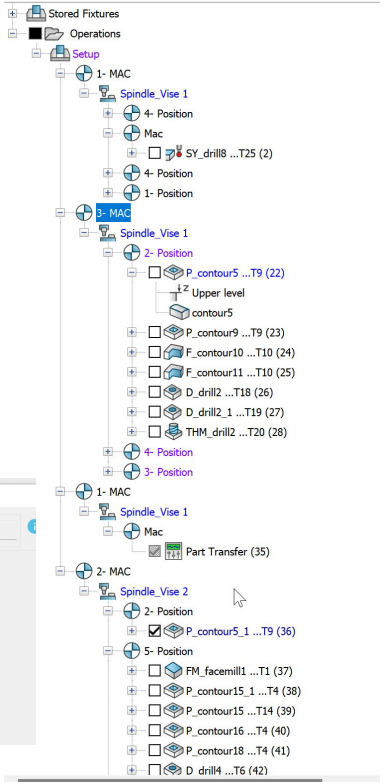



# The CAM tree Structure is more flexible

- With the new CAM Tree structure, the user can see the MAC–Position relation, drag operations between MACs, add MACs and more powerful features.

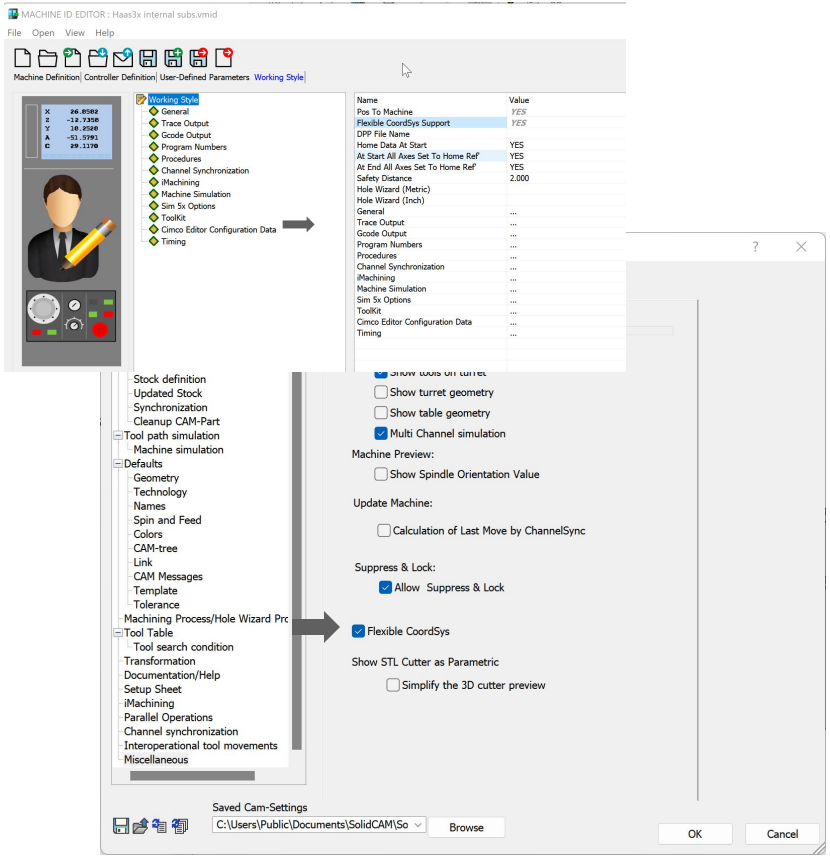
- In the operation's Coordinate System definition dialog, only position can be defined - it provides more flexible definition of the Coordinate System.



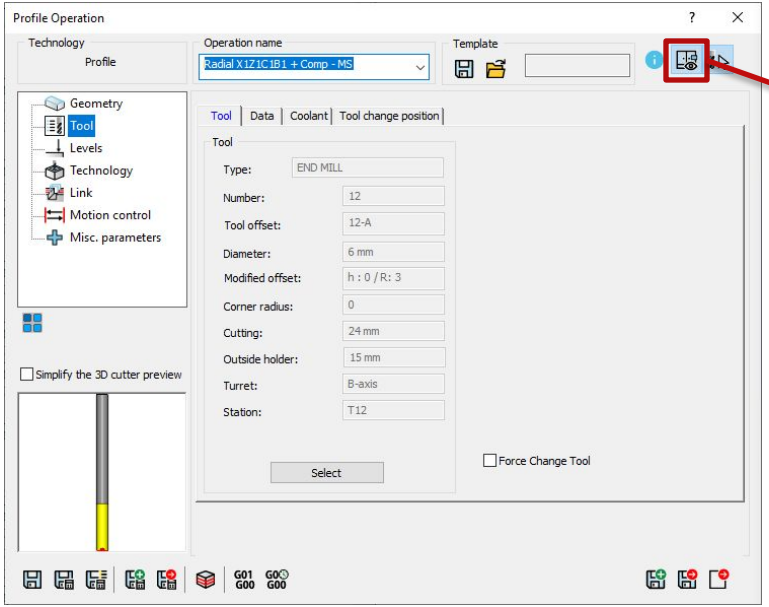



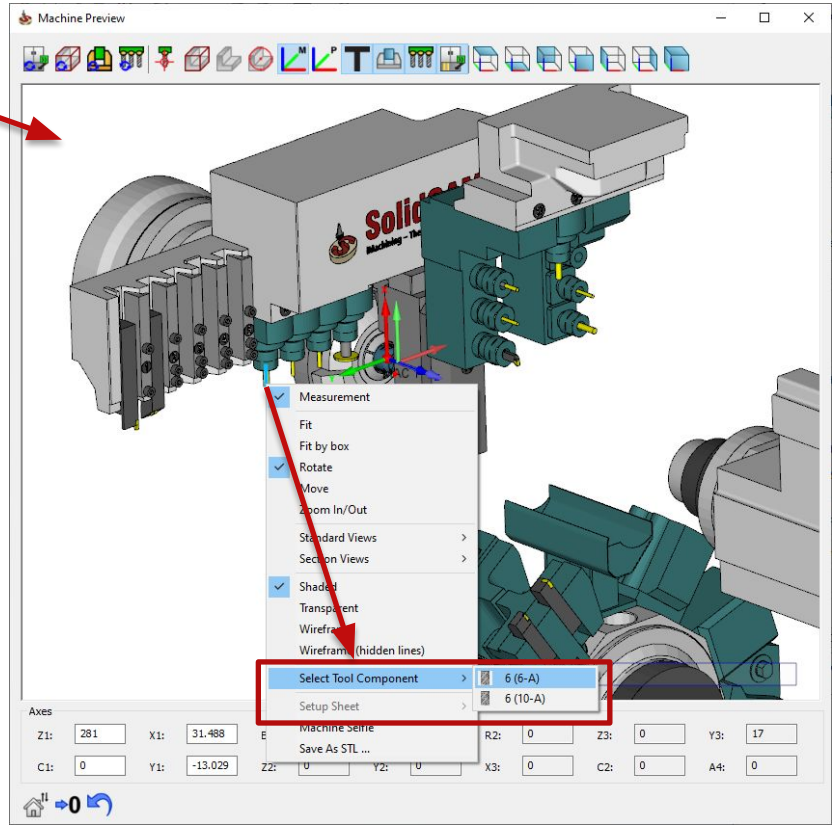
# How to use the Shared Position feature

- There is no need for special support of the Shared Position Feature in the Post processor
- The Feature can be activated in the CAM Settings
- After that, you can enable the Feature in the VMID
- The CAM Part that was opened in the Shared Position mode, can't be back converted - make sure you are creating backup for your part.



# SolidCAM 2022 SP1– Select Tool from Machine Preview



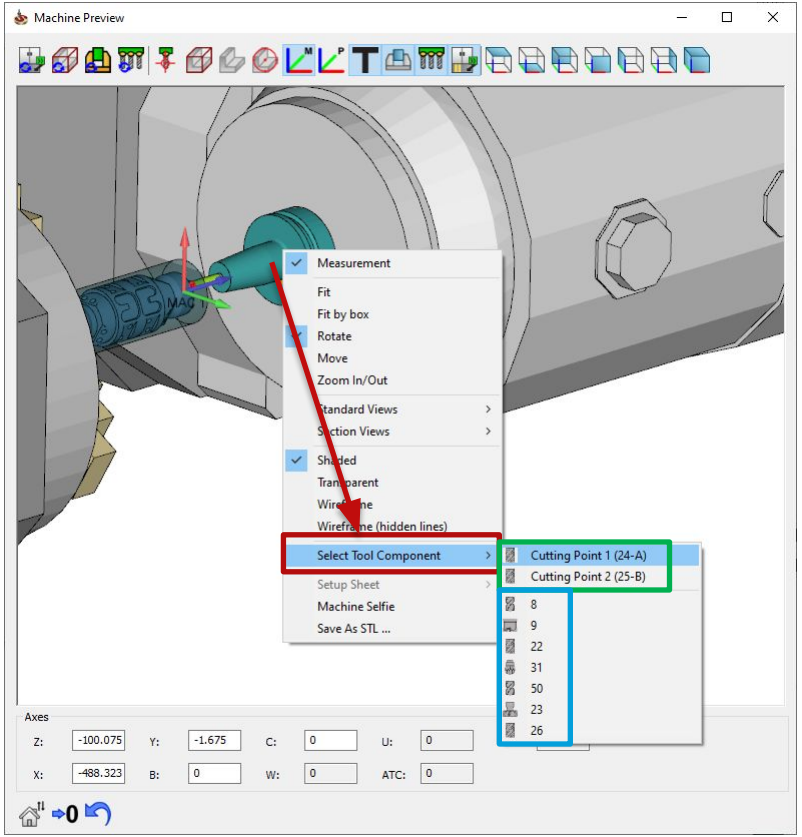




- In **SolidCAM2022**, it is possible to select the tool from the **Machine Preview**
- **Speed up** the process of tool selection

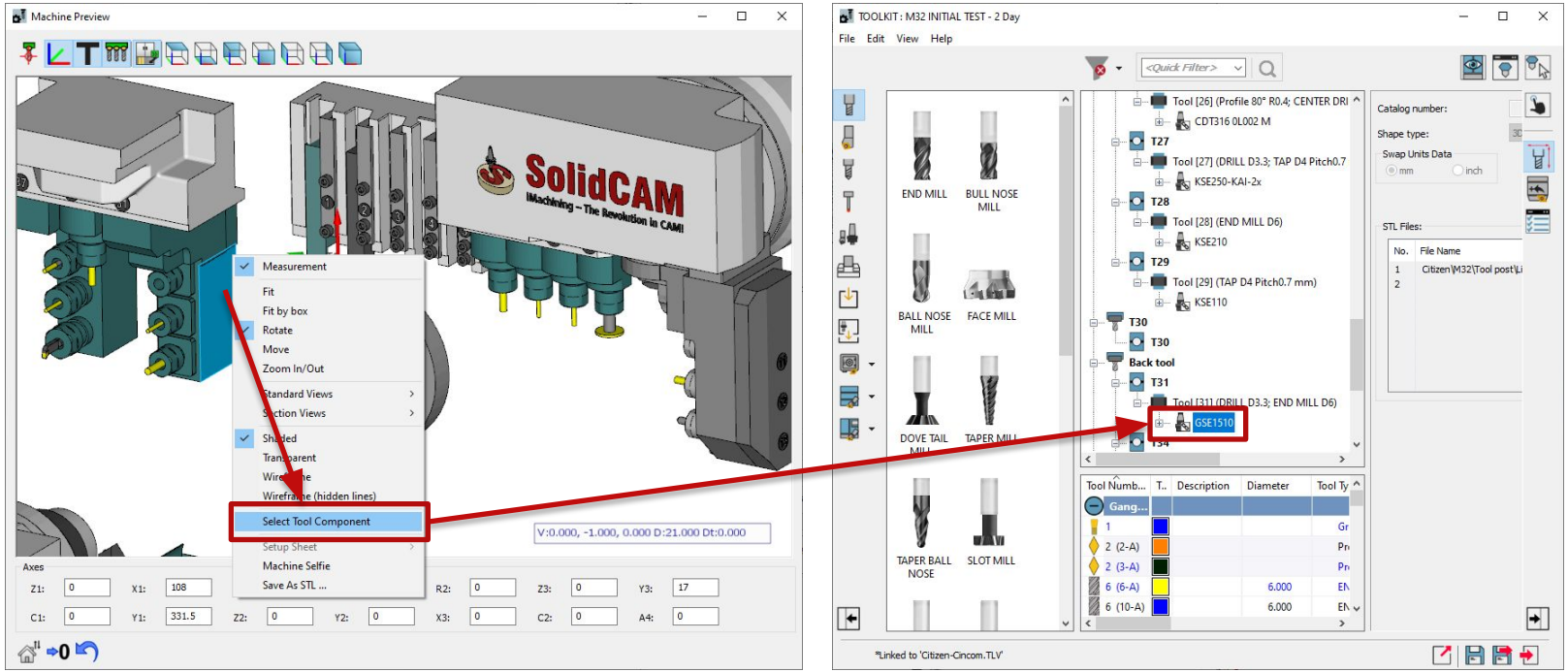
# SolidCAM 2022 SP1– Select Tool from Machine Preview

- For **Spindle type turret**, this feature displays **all available tool cutting points**, allowing fast switch between them

- It also filters **10 recent tools,** that can be used in the current job



# SolidCAM 2022 SP1 – ToolKit
# Navigate Tool Component from the Machine Preview

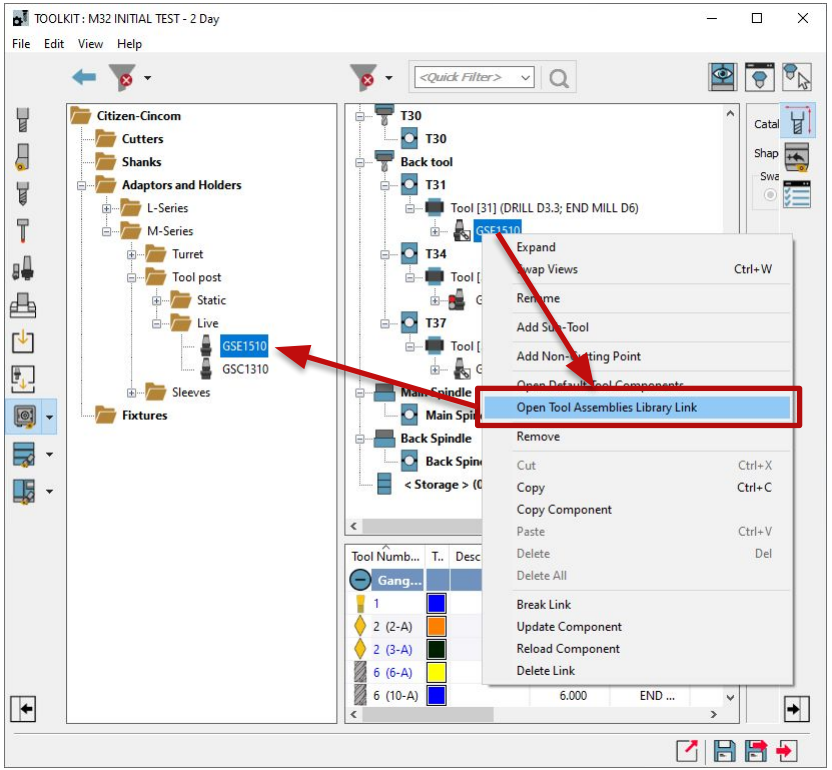



- Select and navigate the tool component, in **ToolKit's Machine Preview**

# SolidCAM 2022 SP1 – ToolKit
# Navigate the linked Tool Component in the library

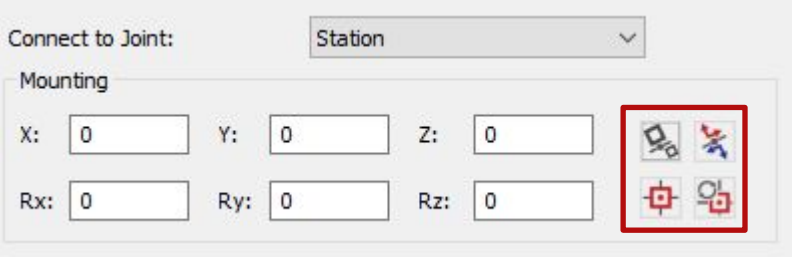
- If **linked**, the tool component or assembly **can be navigated in the library**

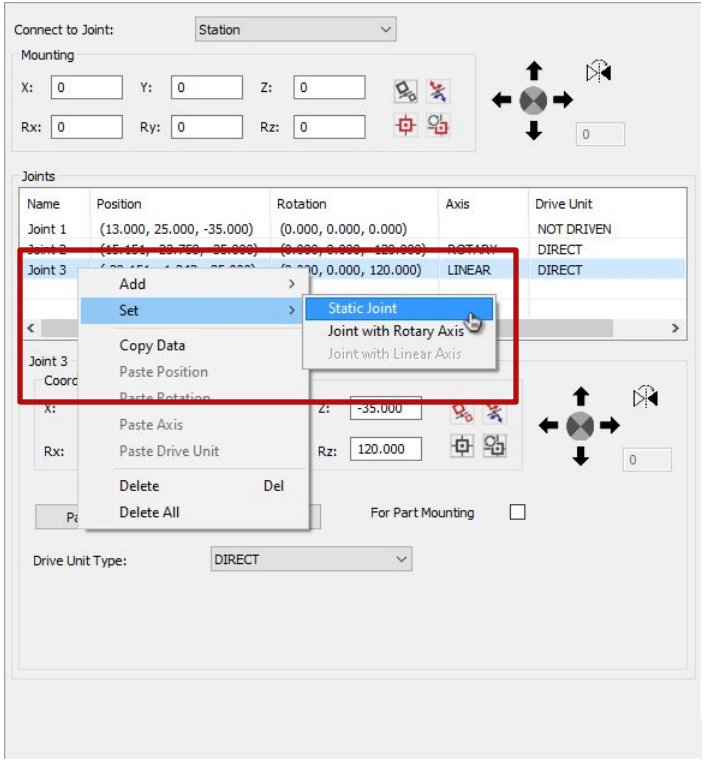
- **Speed up** the process of adding or replacing other tool components from the same library



# SolidCAM 2022 SP1 – ToolKit
# Added new possibilities in the Connection page

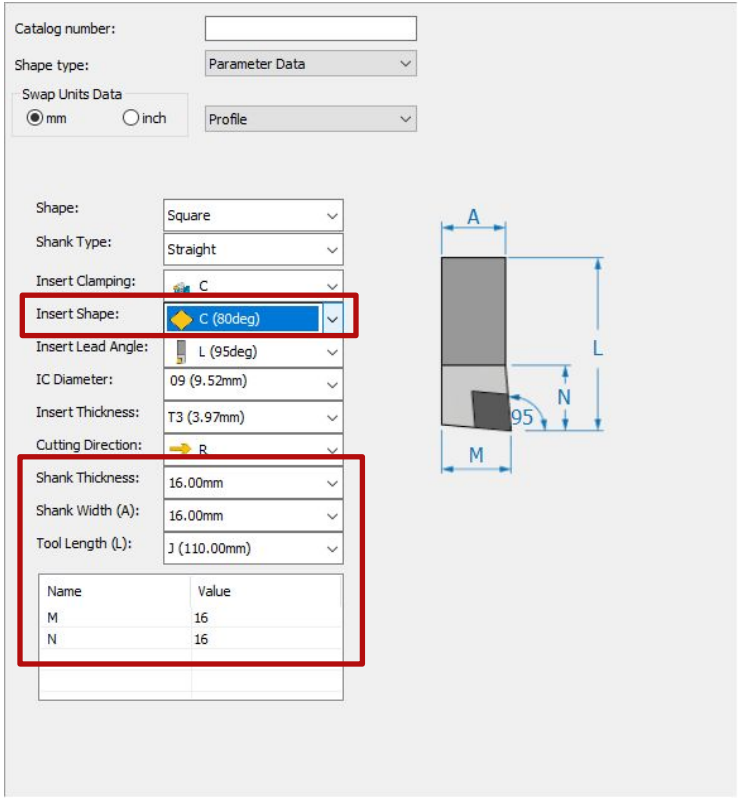
- Added possibility to **add** specific joint type
- Added possibility to **change** the joint type
- Implemented new icons for **Mounting Tools**



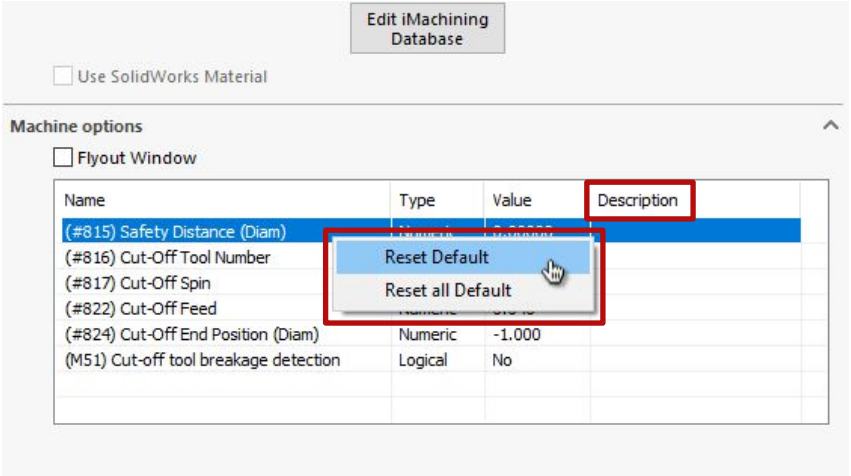
# SolidCAM 2022 SP1 – ToolKit
# Flexible data input for shank

- Changing the insert shape doesn't change the shank size anymore (Thickness, Width, Length, M and N parameters)



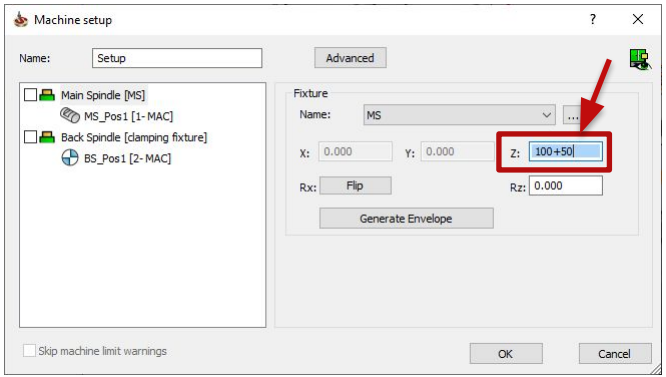
# SolidCAM 2022 SP1– CAMPart
# Added capability to reset Machine Options parameters

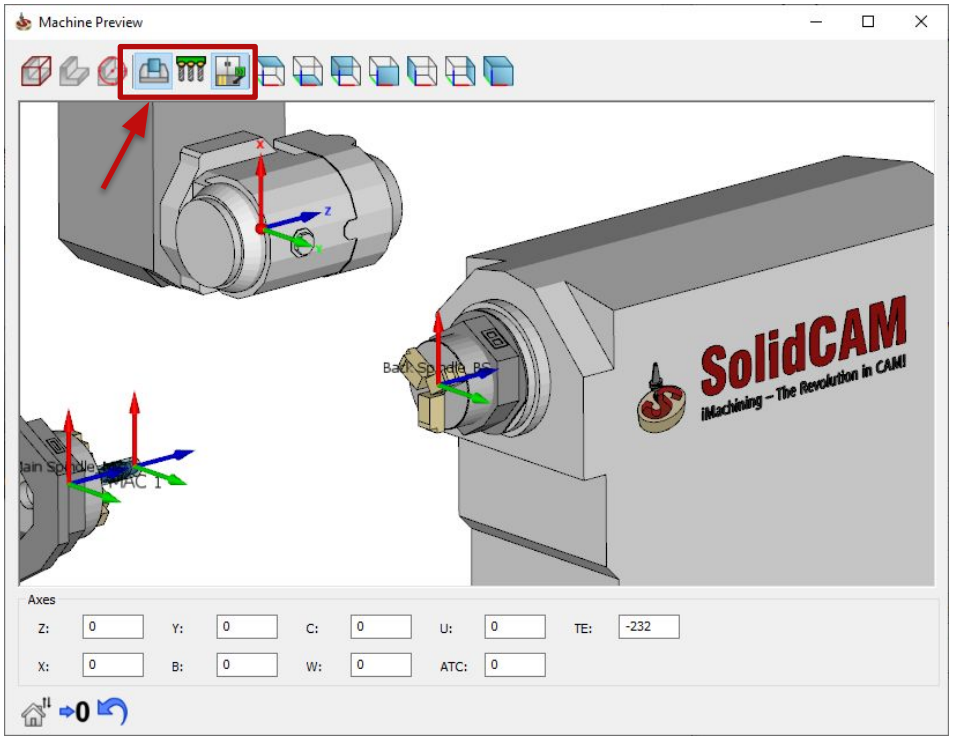
- Added possibility to reset one, many or all parameters to their **Default** value
- Selection of the multiple parameters can be done with **CTRL+** or **SHIFT+Click**
- The **Description** has been added to Machine Options



# SolidCAM 2022 SP1– Machine Setup
# Supports equations and added display filters to Machine Preview

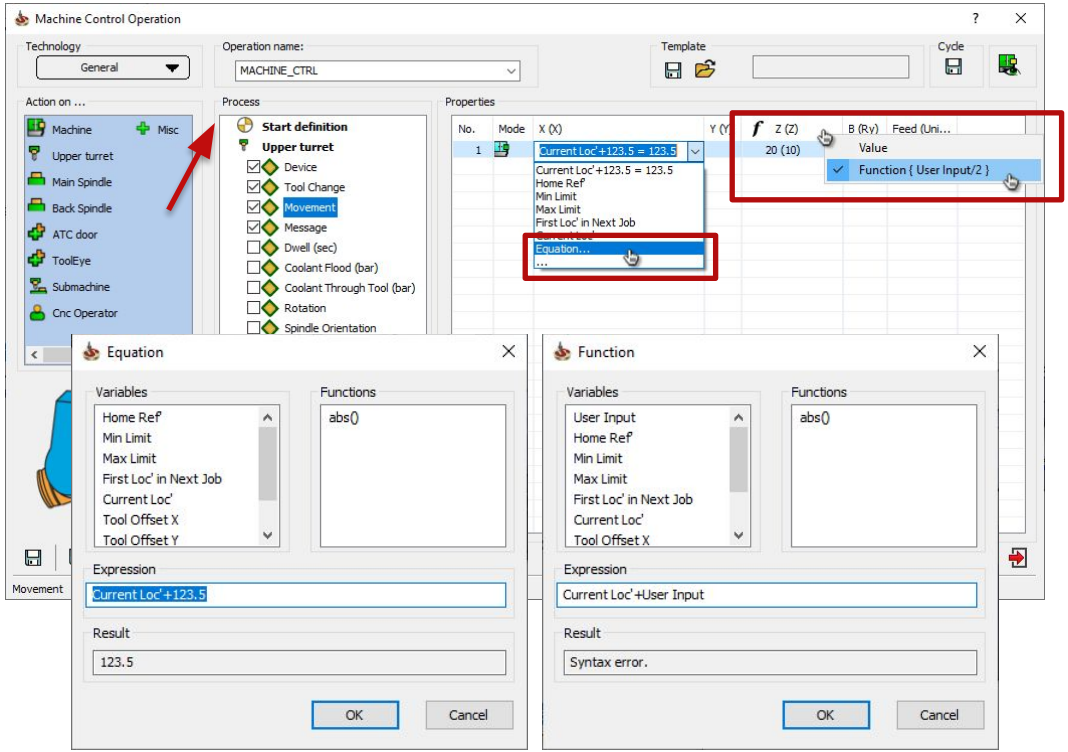
- Supports **Equations** in the matrix shifts values
- Added **display filters** for Fixtures, Tools and Machine Housing int **Machine Preview**



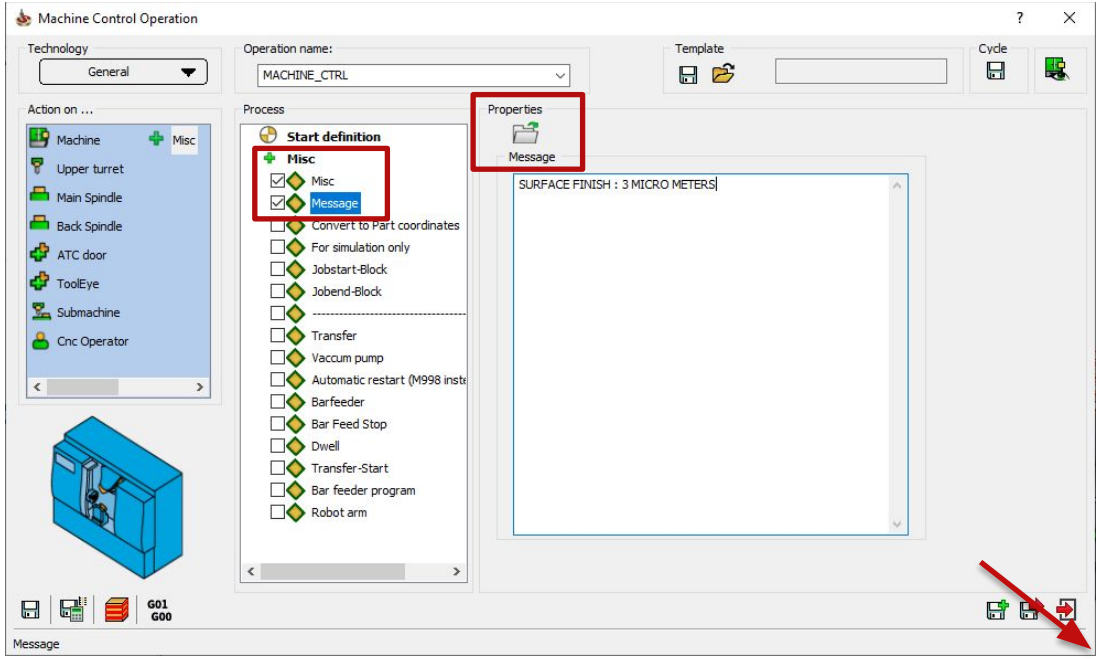
# SolidCAM 2022 SP1 – Machine Control Operation Supports Functions and Equations

- Added possibility to define **Equation** for movements
- Movement input can be defined as **Function** supporting diameter input, relative input, etc.



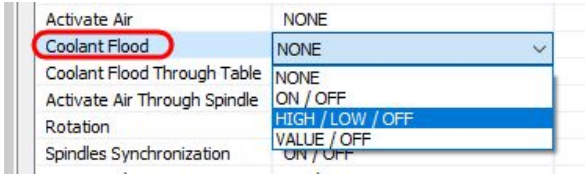
# SolidCAM 2022 SP1– Machine Control Operation
# Import custom message

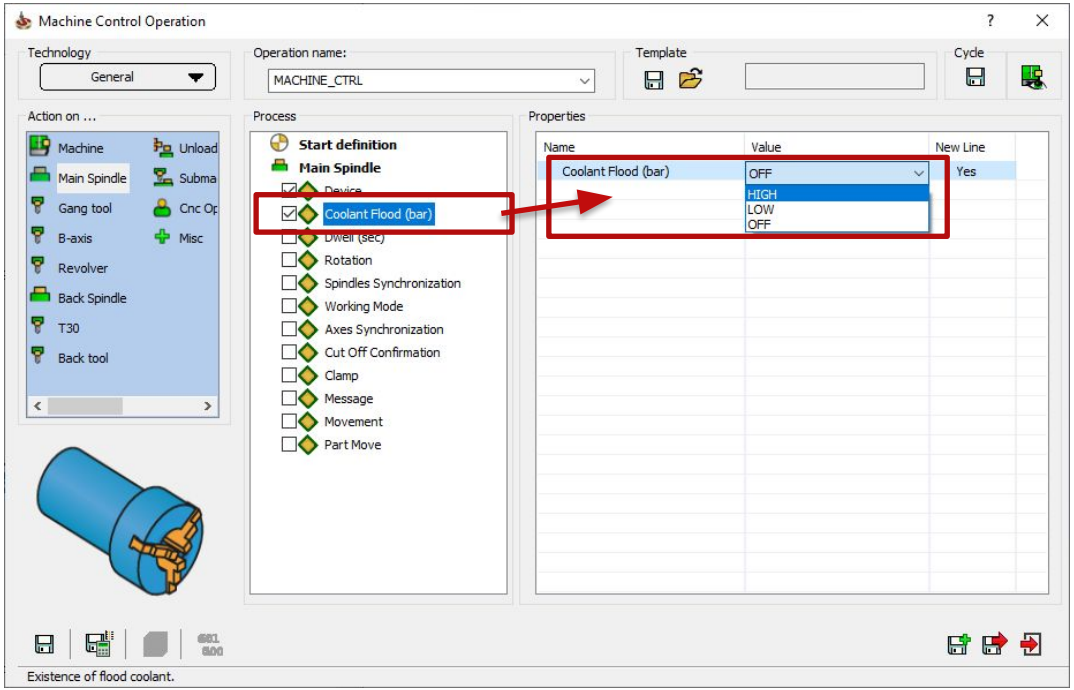
- Added possibility to **import custom messages**
- MCO window is now **resizable**



# SolidCAM 2022 SP1– Machine Control Operation
# Control Flood Coolant on Table

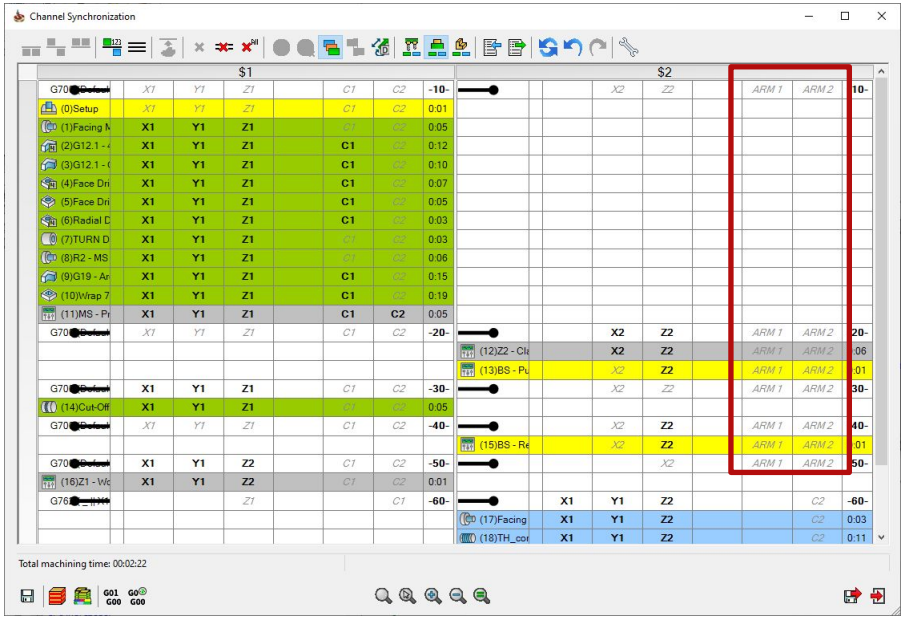
- Added possibility to control **Coolant Flood** on **Table** device (if supported by machine)

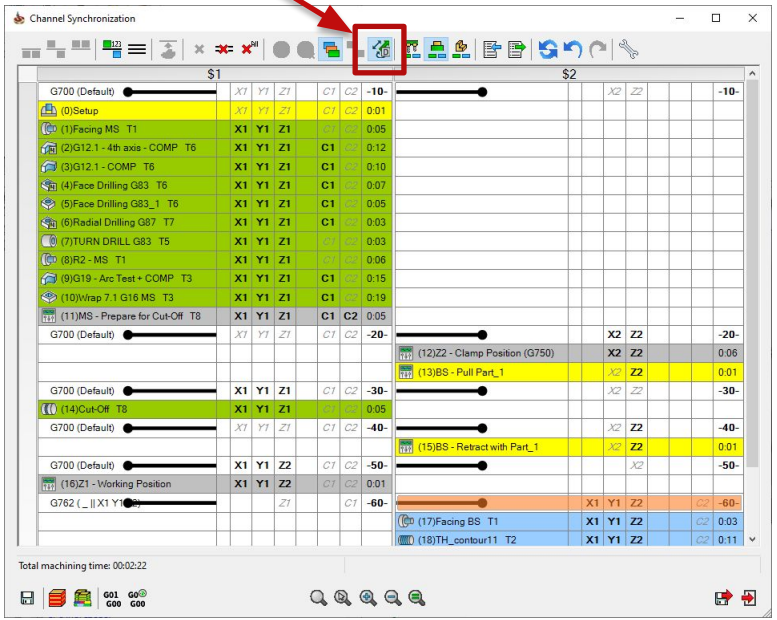


# SolidCAM 2022 SP1– Channel Synchonization
# Show/Hide Discrete axes

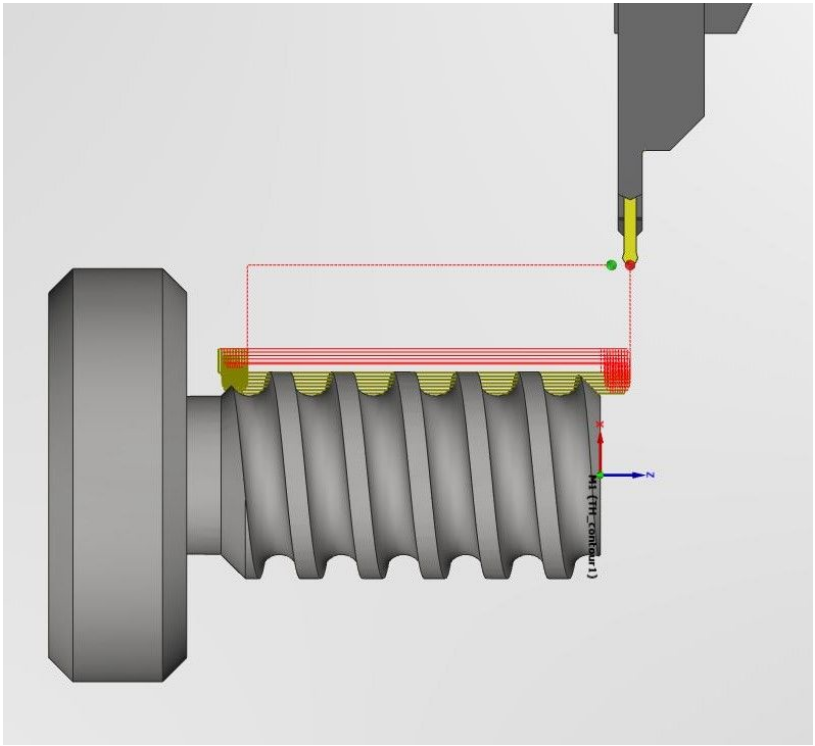
- Added possibility to **Show/Hide Discrete axes** (if defined in VMID)



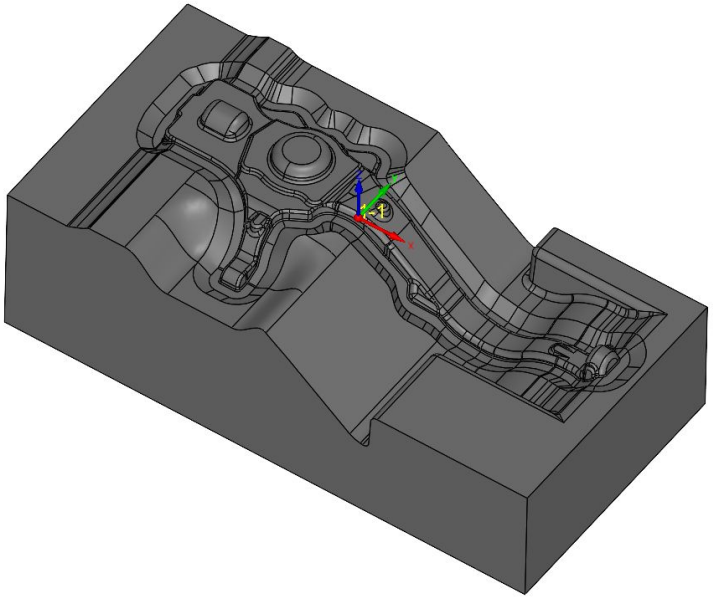



# SolidCAM 2022 SP1 – Threading/Custom Shape Threading

- A new feature of **SolidCAM 2022** threading operation enables us to machine **custom profile threads,** using a variety of tool insert shapes.
- We are able to set **vertical and horizontal steps** for roughing and the **scallop** for finishing, to reach the required result.
- Perfect use for **trapezoidal, buttress, and knuckle threads** or **screw conveyors,** with any profile geometry.



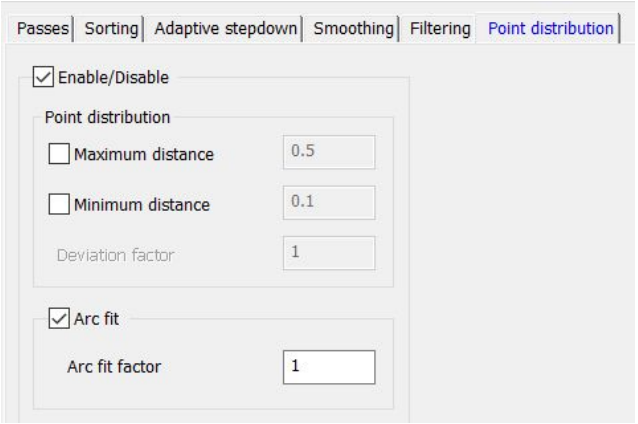
| SolidCAM 2021 |
| --- |
| Roughing – 20 Seconds |
| Rest Roughing – 66 Seconds |
| Rest Roughing – 40 Seconds |



| SolidCAM 2022 |
| --- |
| Roughing – 10 Seconds |
| Rest Roughing –16 Seconds |
| Rest Roughing – 15 Seconds |

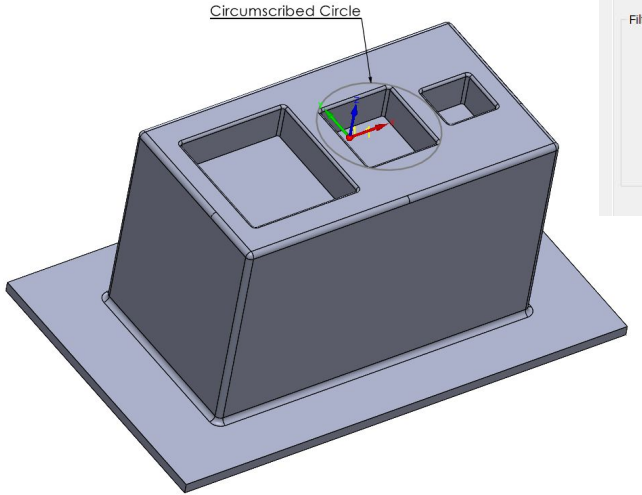
- Much Faster Turbo HSR **Calculation times!**

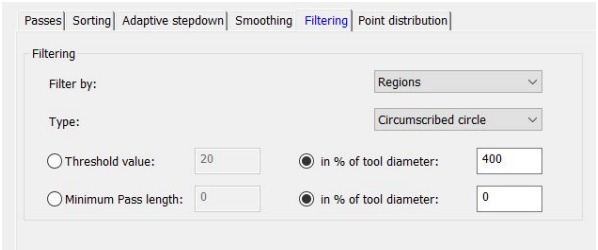
| Without ARCFIT |
| --- |
| Roughing – 785970 Lines |
| Rest Roughing - 332635 Lines |
| Finishing – 2507440 Lines |

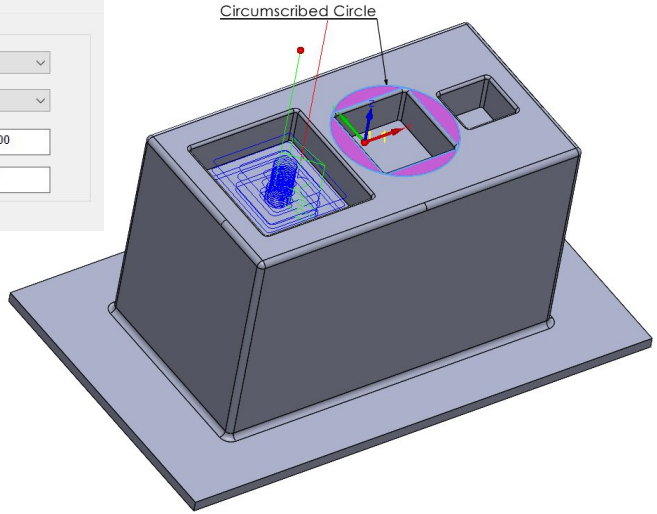



| With ARCFIT |
| --- |
| Roughing – 464135 Lines |
| Rest Roughing - 121670 Lines |
| Finishing – 1441510 Lines |

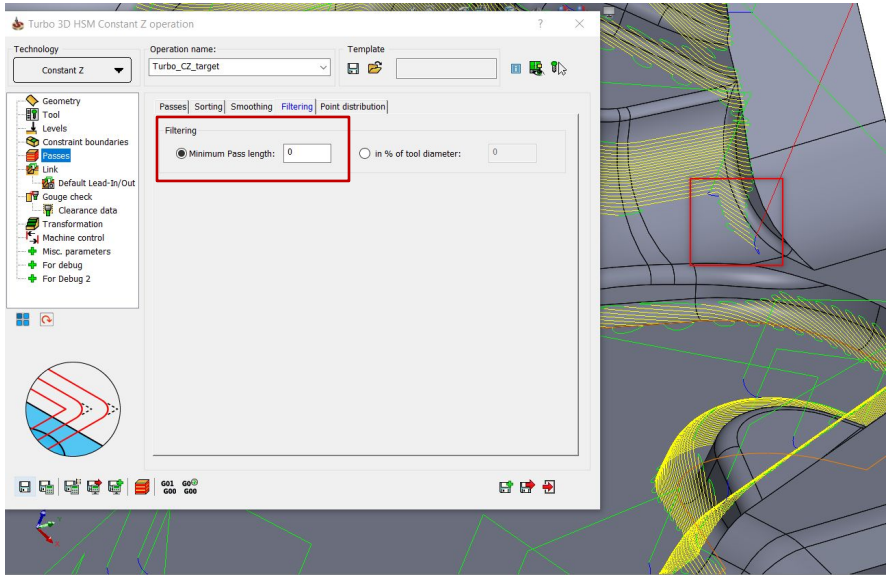
- Turbo Roughing & Finishing now have the option to **Fit Arcs**.
- This feature **reduces the program size** by over 50%, **reduces machining time** & **improves surface quality**.

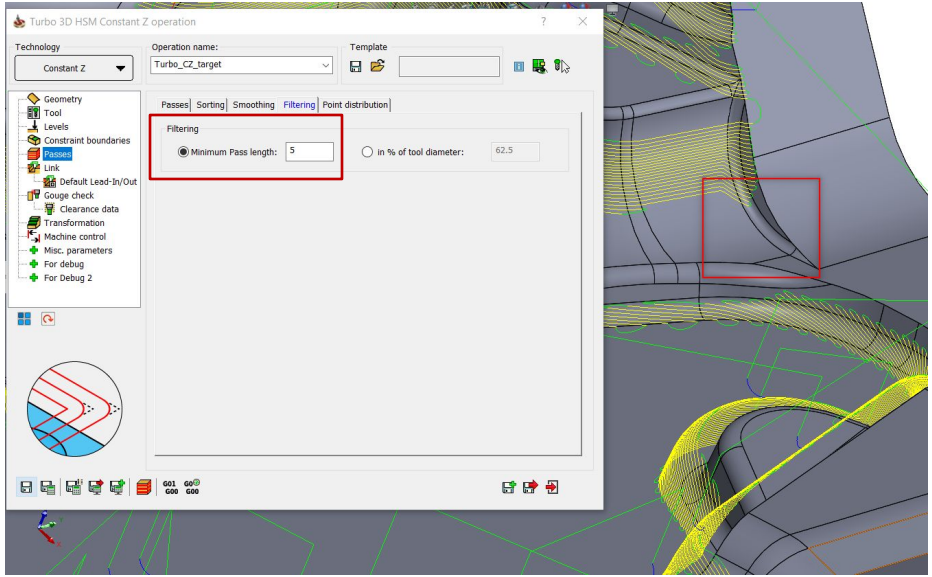


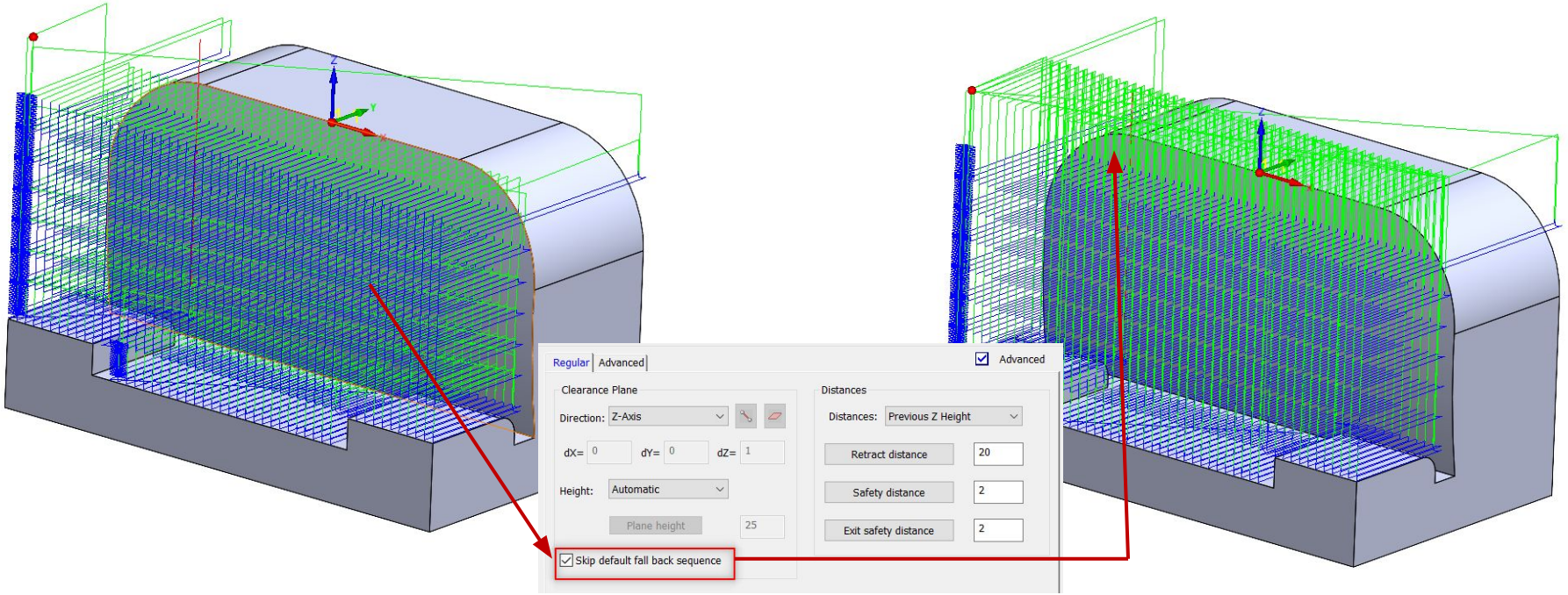




- Toolpaths are checked with a circumscribed circle, to detect and filter the slices that are smaller than the threshold value - this is very useful when working with Tools without Center cutting.

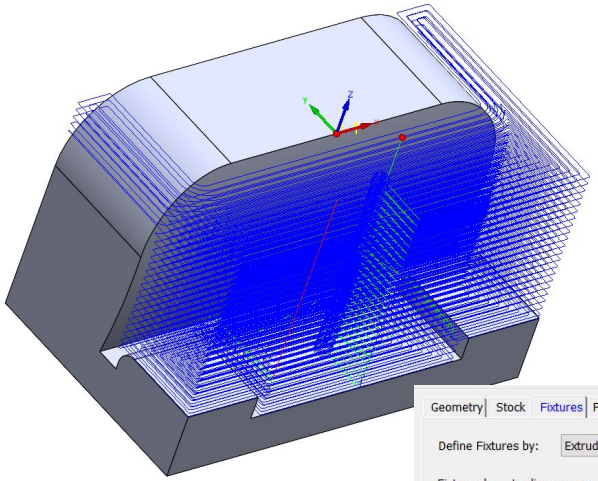


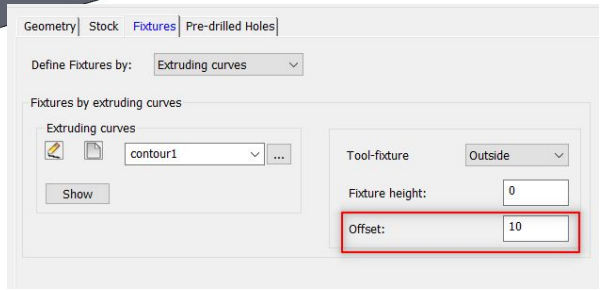



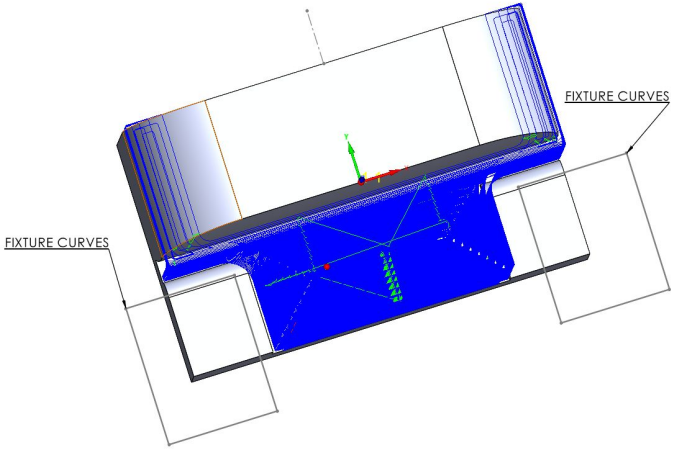

- This option filters out toolpath segments, below the defined threshold value. This helps to eliminate small irrelevant moves in the toolpath & helps reduce machining time.



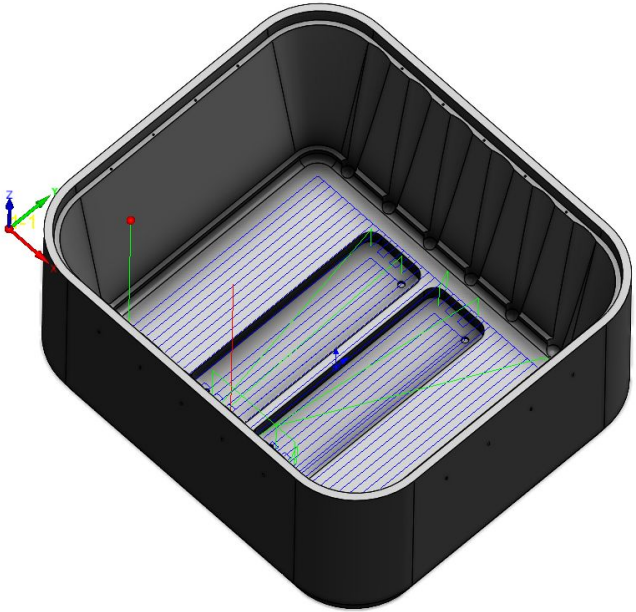

- This option enables the retract moves to the clearance area plane height, avoiding intermediate retractions to the feed, rapid distances, in case if the requested direct or blend spline area links within group, cannot be created.

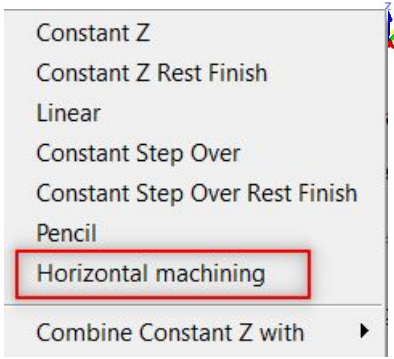


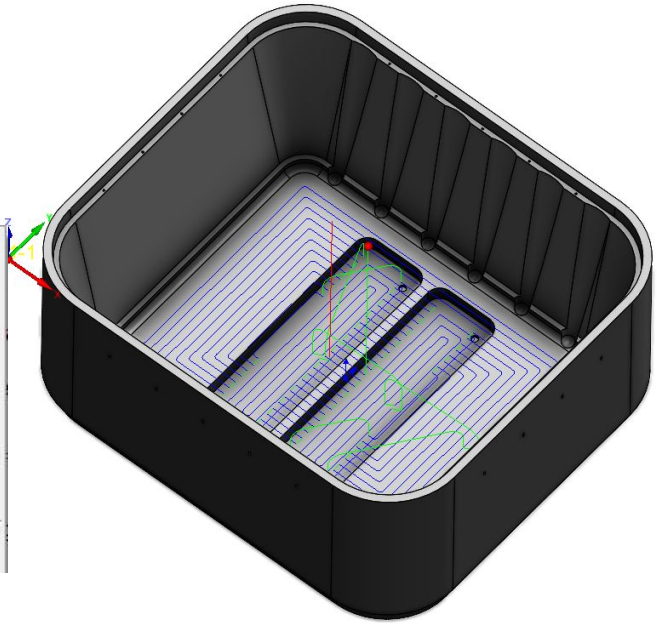


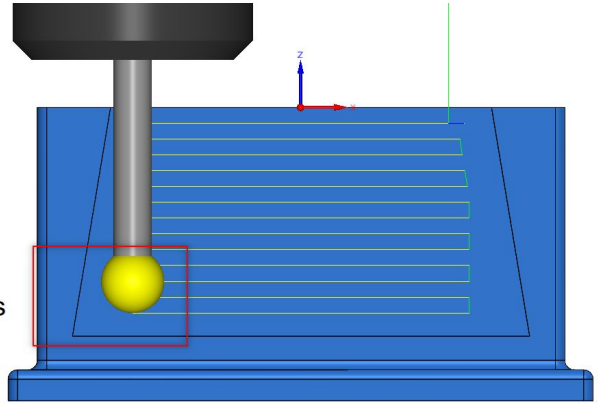

- Fixture offset can now be applied to the Fixture Curves.
- Fixture curves eliminate the need to define a 3D model of the Fixture (Clamps etc.).

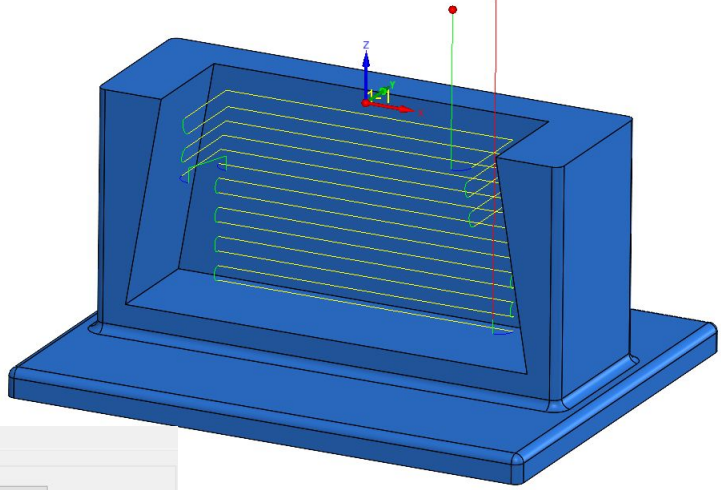


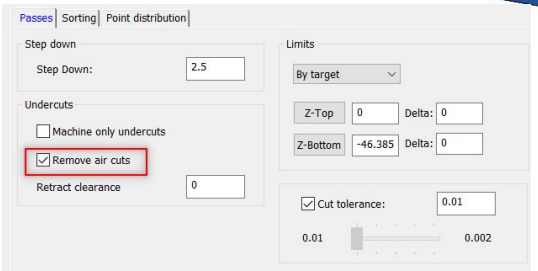


- New option to create Horizontal Machining inside Turbo HSM
- Hatch & Contour Patterns are available.



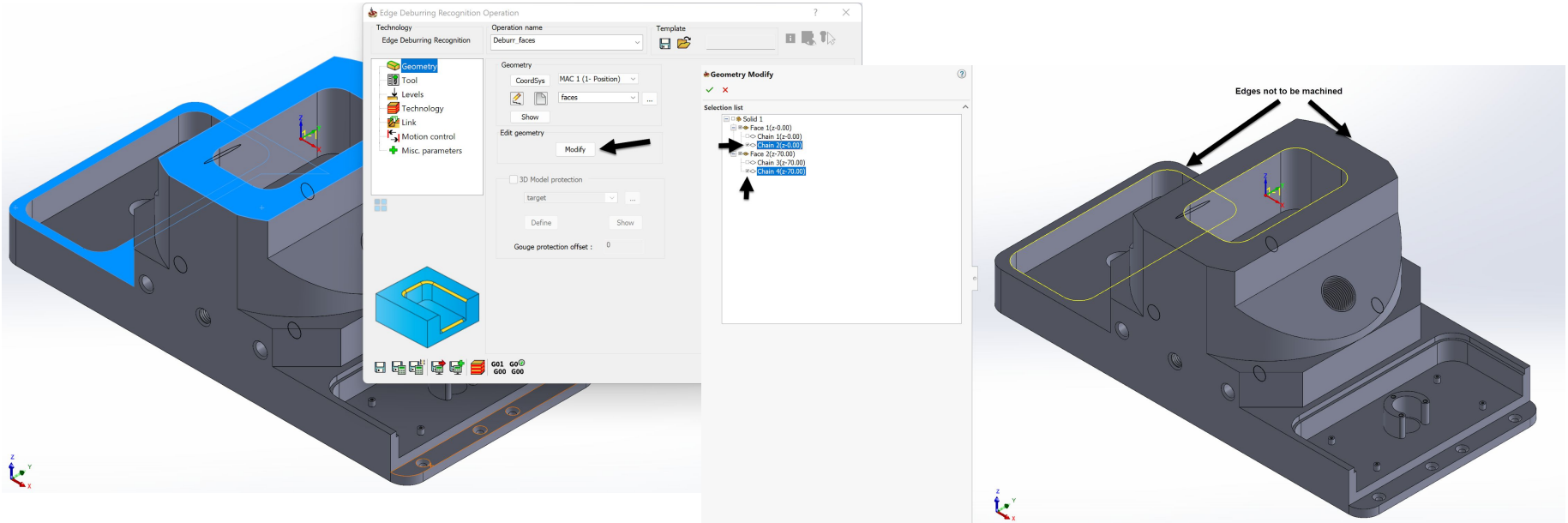





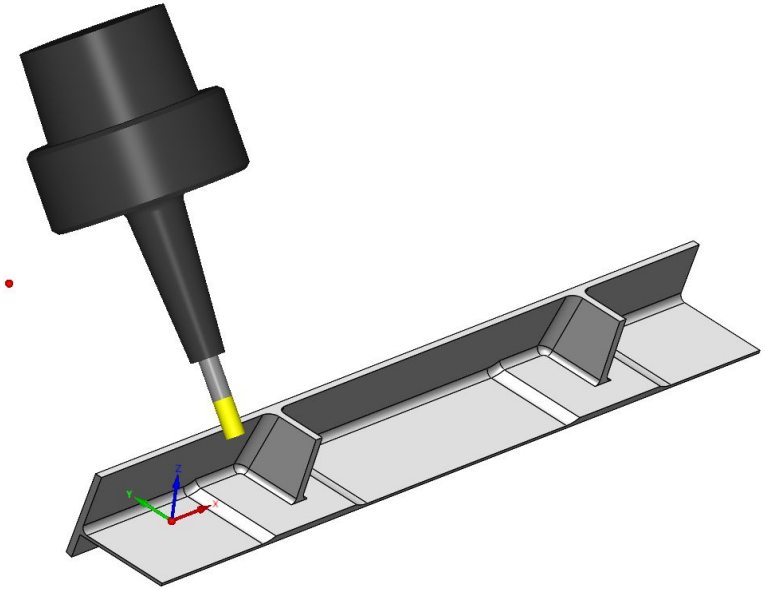

- Removing aircuts in Undercut milling, eliminates the Air Passes that are otherwise created to avoid Collision on the Arbor or Holder - this saves a lot of Machining time.

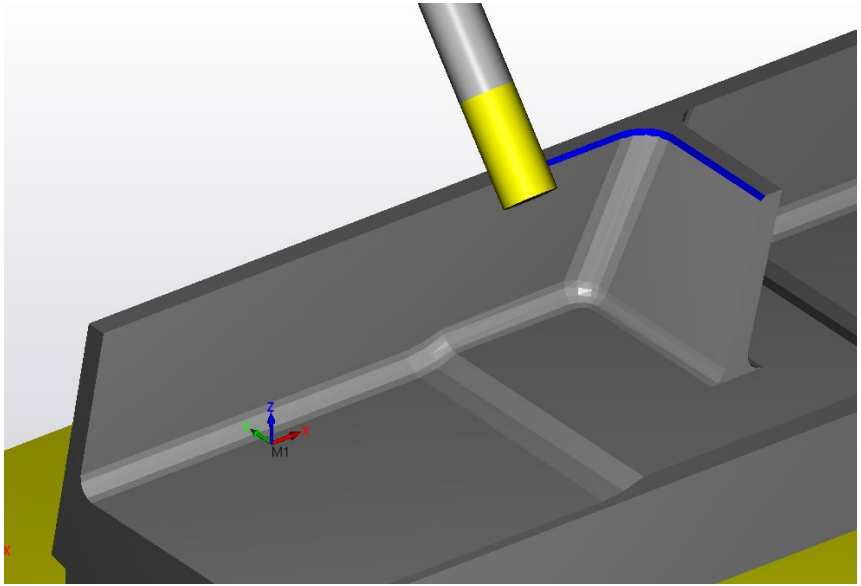
# SolidCAM 2022 SP1 – Edge Deburring Recognition
# Filter out unwanted chains

- We can now modify a geometry to **exclude chains** that you do not want to machine, by simply unchecking the check box of the chains.

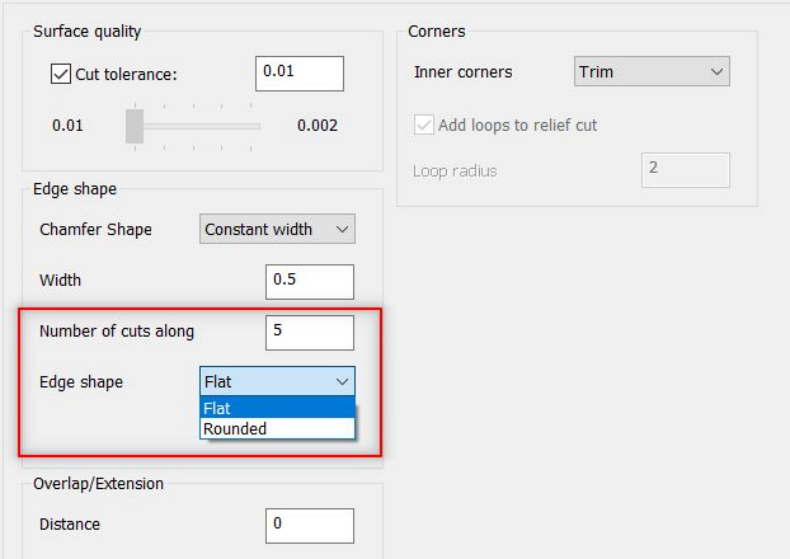


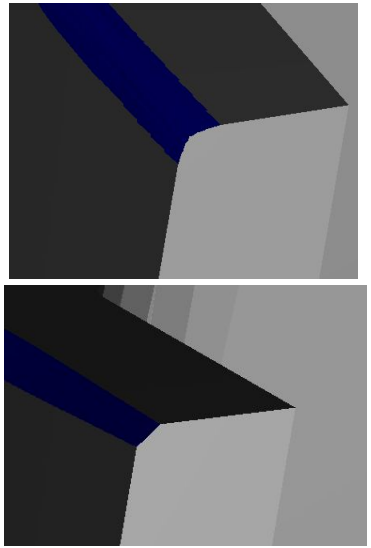

- Edge Breaking now supports 6 different types of tools.
- Toolpaths can now be created for Flat End Mill, Ball Nose End Mill, Taper Mill, Taper Ball Nose Mill, Lollipop Mill & Chamfer Mill.

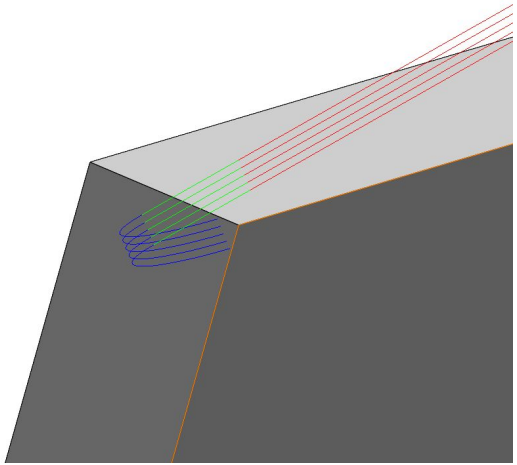




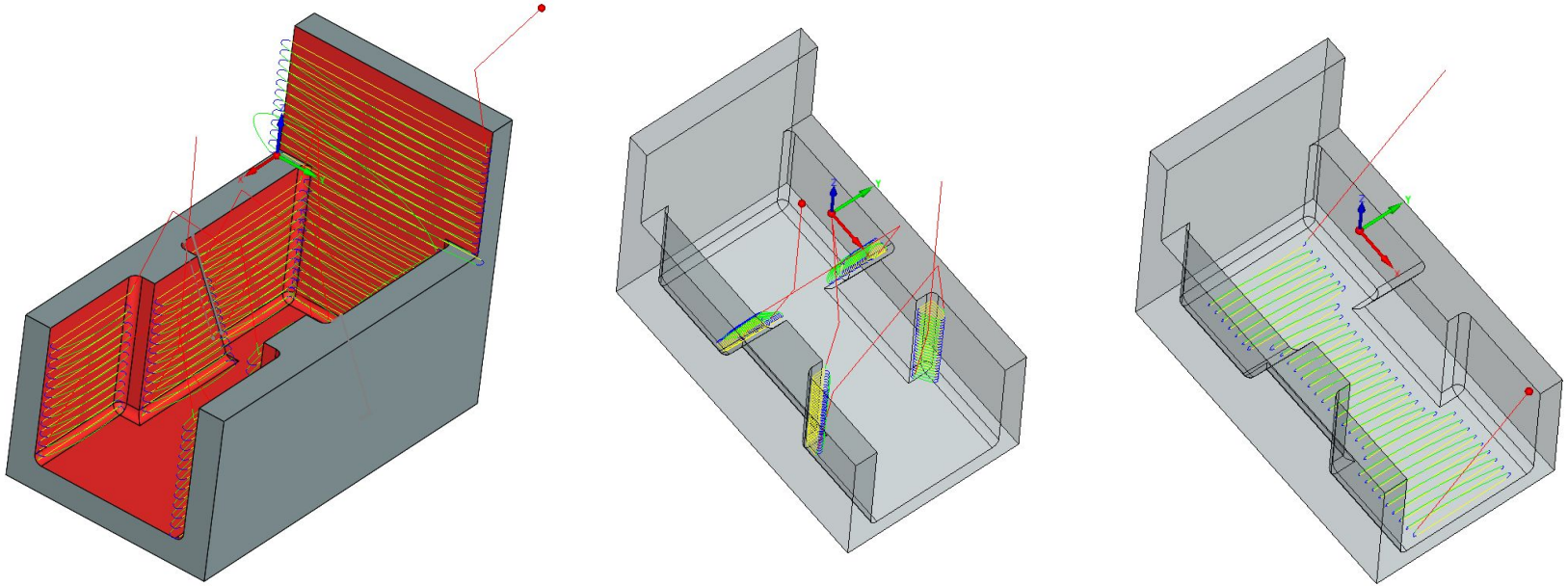
- Flat End Mills can be used to created the Chamfers directly.
- The Contact point of the tool can be moved along the cutting length of the Tool, to enhance tool life.





- Edge breaking can now generate Chamfers or Fillets, using Multiple passes.
- Ball Nose, Lollipop Mills & Taper Ball Nose Mills can be used to generate Fillets on edges.



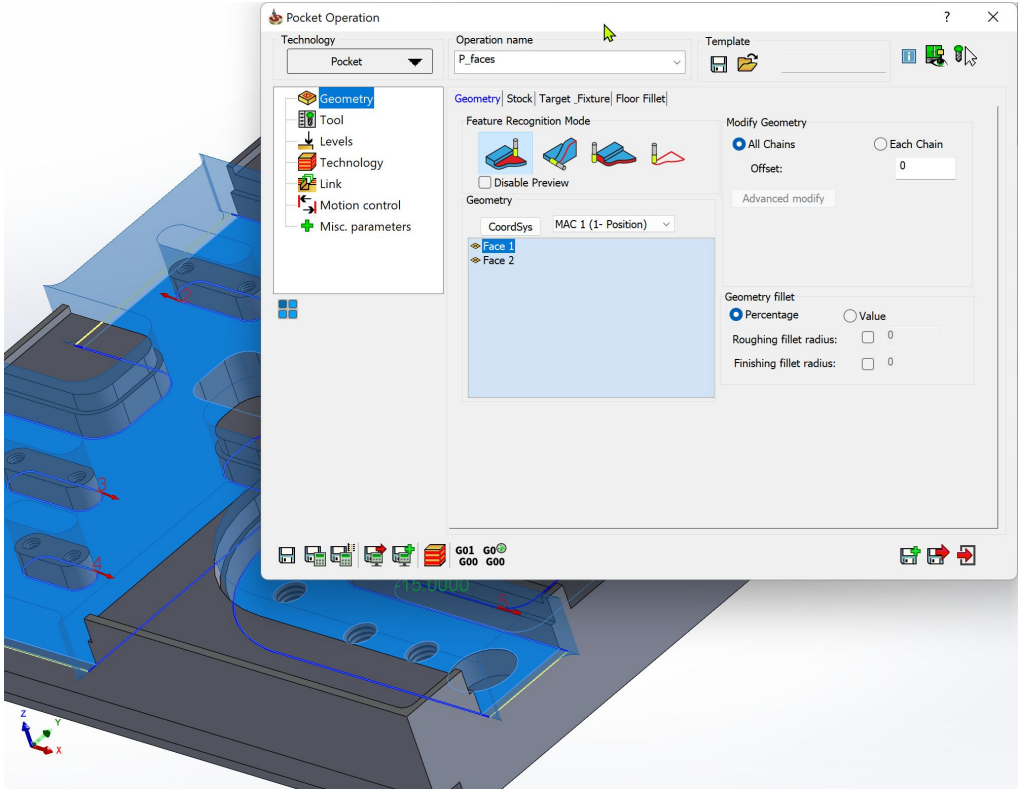
- Multiaxis Machining can now Finish Wall & Floor using Barrel Mills Automatically. User defines the Target, Wall & Floor Surfaces.
- Rest Machining can also be performed by defining boundaries using Barrel Mills.

# SolidCAM 2022 SPx – Mill 2.5D/New Pocket Geometries

SolidCAM
THE FUTURE OF CAM

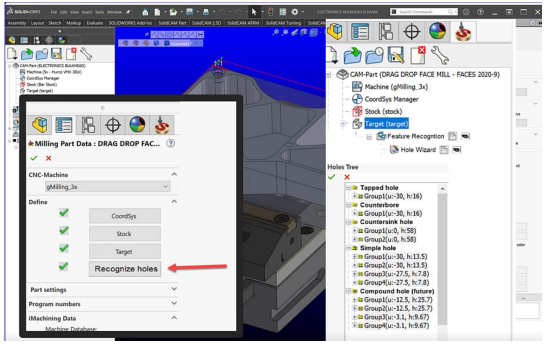
- The Pocket operation will now have all the advantages and options as we have in iMachining 2D.

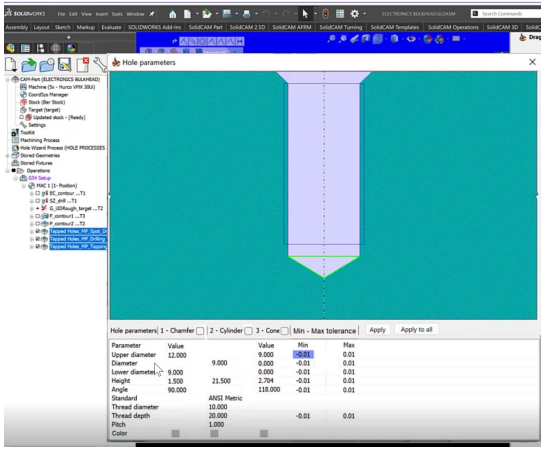
- This includes:
  - Feature recognition by Faces
  - Feature  Recognition by Chains
  - Outside Feature Recognition
  - Chains without Feature Recognition



# SolidCAM 2022 SPx – Hole Wizard Enhancements

- **Advanced Feature Recognition**
  - Recognize Once
  - Use repeatedly
- **Feature Based Attributes**
  - Dimensional Tolerances
  - Feature Color Attribute
  - Logical Flags
- Tool „Search Criteria“ Tolerancing

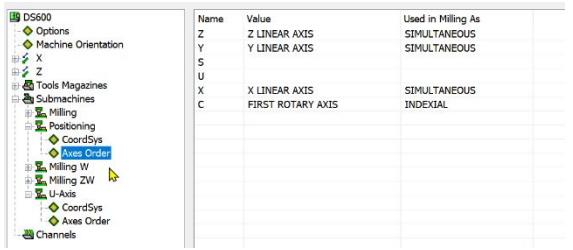


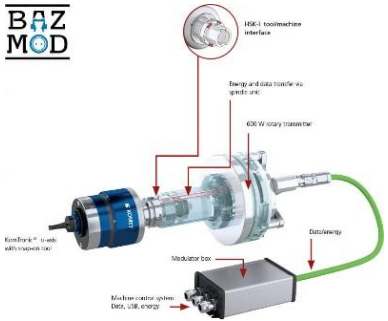
# SolidCAM 2022 SPx – U-Axis support

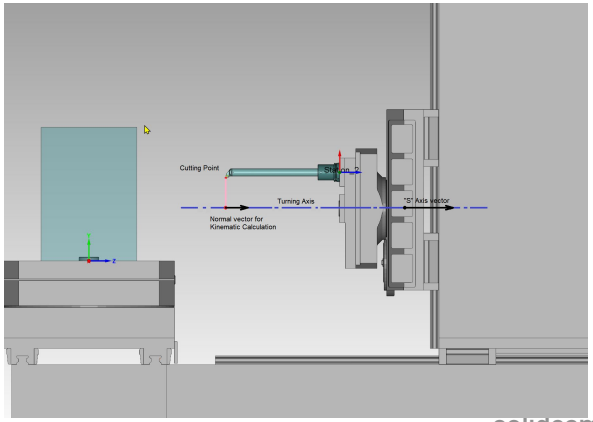
- **New axis type** “Sub Linear Axis” can be Simultaneous or Indexial
- **Tool vector** for kinematic calculations is the Drive Unit Axis vector as normal to plane vector.
- The **tool tip point** for positioning is the projection of the Cutting Point to the Turning Axis.

| Name | Value | Used in Turning As | Inclined Turning |
|---|---|---|---|
| Z | Z LINEAR AXIS | SIMULTANEOUS | |
| Y | Y LINEAR AXIS | SIMULTANEOUS | |
| S | FIRST ROTARY AXIS | NOT USED | FALSE |
| U | SUB LINEAR AXIS | SIMULTANEOUS | |
| X | X LINEAR AXIS | SIMULTANEOUS | |
| C | | | |




| Name | Value | Used in Milling As |
|---|---|---|
| Z | Z LINEAR AXIS | SIMULTANEOUS |
| Y | Y LINEAR AXIS | SIMULTANEOUS |
| S | | |
| U | | |
| X | X LINEAR AXIS | SIMULTANEOUS |
| C | FIRST ROTARY AXIS | INDEXIAL |

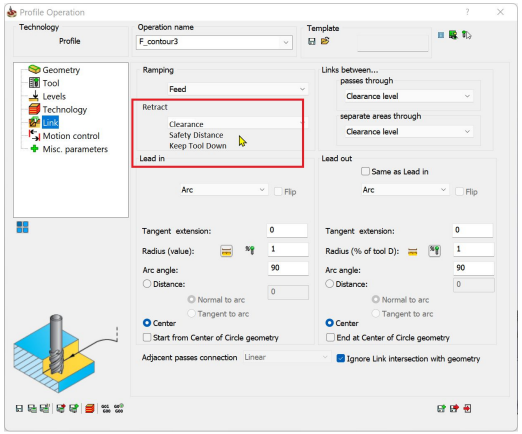


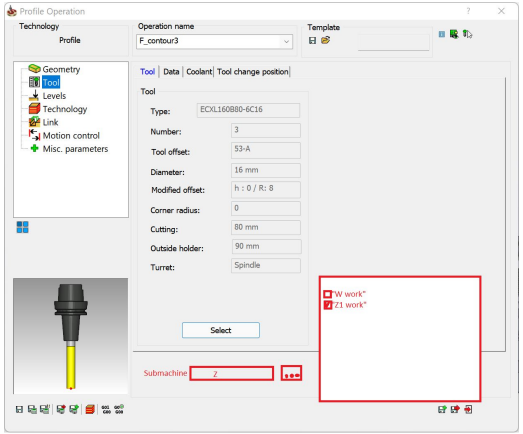



# SolidCAM 2022 SPx– Collinear axes support

- In order to support the **CNC machines for heavy and gas & oil industries**, we are implementing support of machines with **collinear axes**.

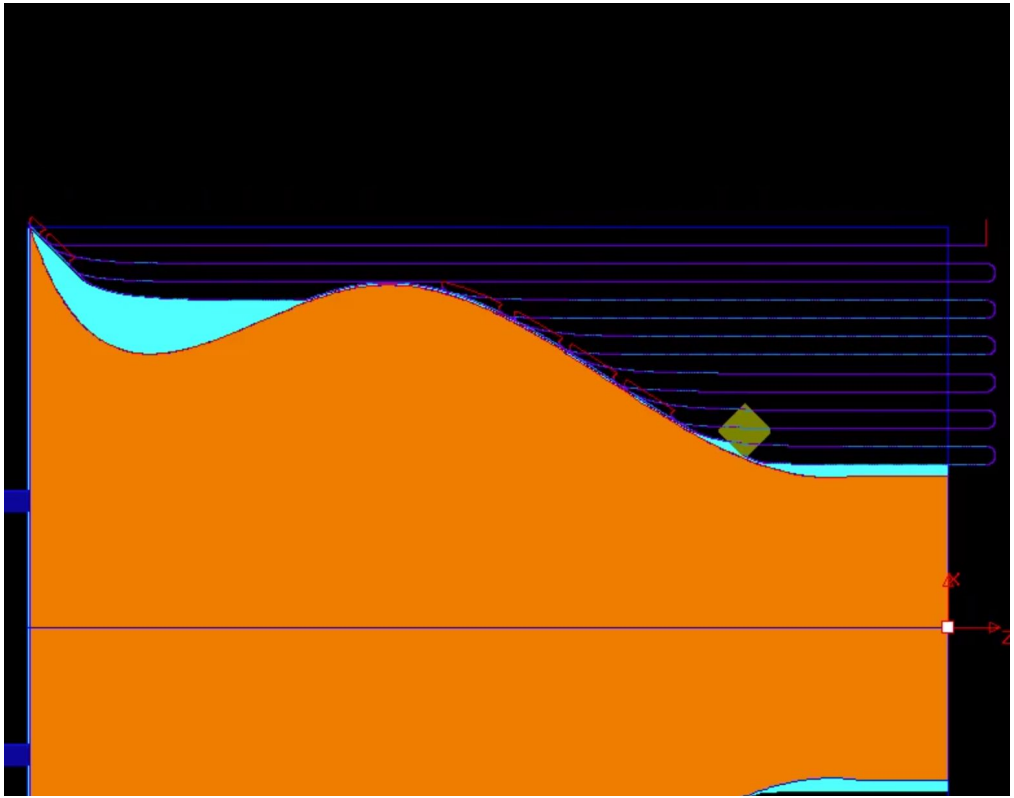
- Those CNC machines are designed to hold **heavy parts** and make **deep holes machining**



# SolidCAM 2022 SPx – iTurning

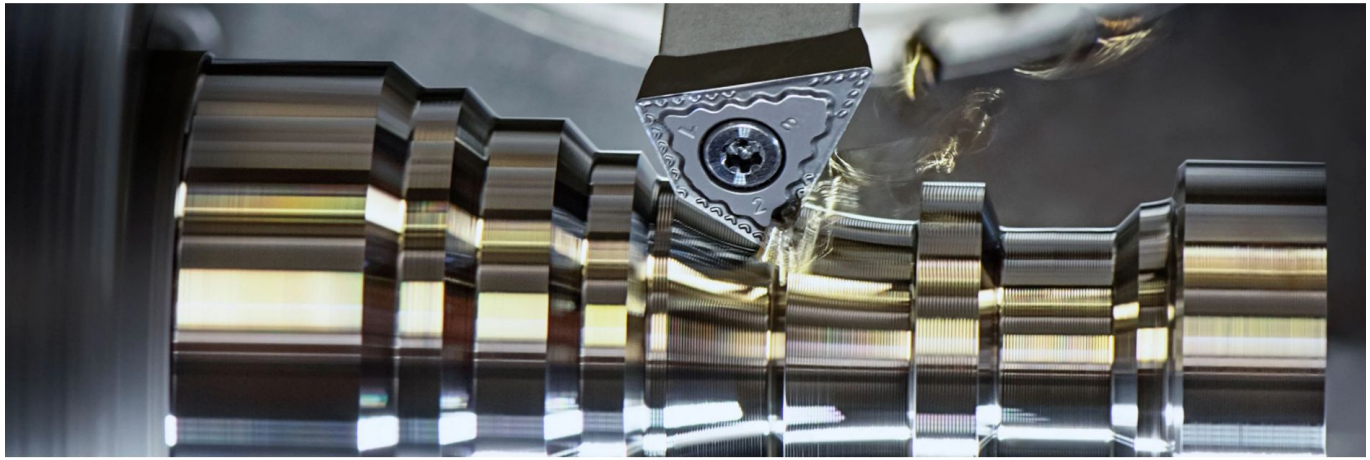
- Enhanced **Trochoidal** turning toolpath
- Supports **all Insert shapes**
- Easier on machine-tools – always **smooth, flowing motion**
- **Increased tool life** – eliminates over engagement and dwelling
- **Reduced machining loads** – material entry and exit is always smooth, circular, and tangential



# SolidCAM 2022 SPx – Ceratizit Free Turn



- All familiar turning operations such as **roughing**, **finishing**, **contour turning**, **facing** and **longitudinal turning** are completed using **just one tool**.

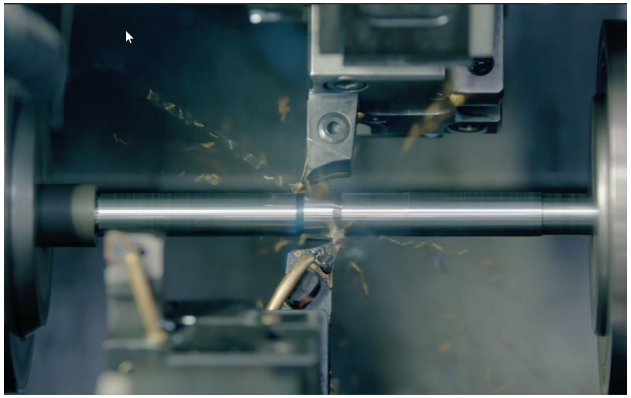


# SolidCAM 2022 SPx – Sandvik Prime Turning

SolidCAM
THE FUTURE OF CAM

- **PrimeTurning** is a new methodology that enables you to do **turning in all directions,** in a much more efficient and productive way as compared to conventional turning.

- Delivers a **50% increase in productivity.**



# SolidCAM 2022 SPx – Thread Whirling (SWISS type)

- **Thread Whirling** is a form of the thread milling process. Inserts are mounted on the inside of a cutting ring that rotates around a cylindrical component to cut a thread.

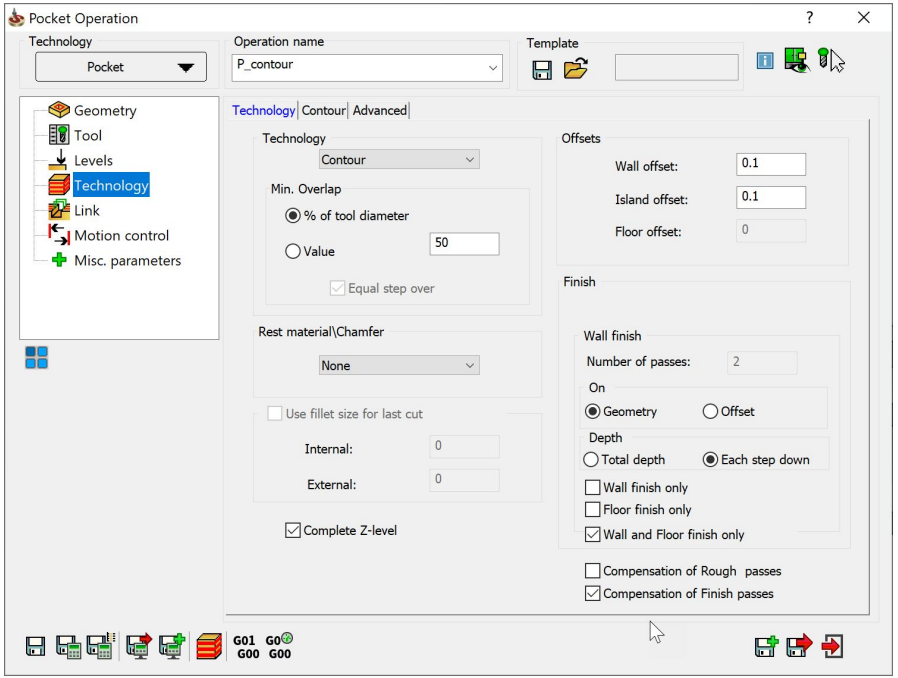
- It is a productive method often used on Swiss-type CNC machines for thread parts that need to be **produced quickly** and at **tight tolerances** or for threads with a **high length-to-diameter ratio**.

- Typical parts for thread whirling are **medical bone screws, implants, feed screws and other microcomponents**.

# SolidCAM 2022 SPx – Automatic Operation Defaults

- For faster User working, we will generate an **automatic template** for each **tool size**, **operation** type, and type of **stock material**.

- Next time the user **adds an operation and chooses tool size,** he can choose from the last three automatically saved templates, the **one whose parameters** he wants to use in the current operation.



# SolidCAM 2022 SPx – SolidCloud

SolidCAM
THE FUTURE OF CAM

- **SolidCloud** will provide **synchronized Backup on the Cloud of all SolidCAM data**:

  - SolidCAM settings
  - Post Processors
  - Machine simulations
  - Material and Machine Tool databases (for iMachining)
  - Global tool tables
  - SolidCAM CAM Parts

- If the **SolidCAM user computer has problems**, he could simply reinstall SolidCAM software and can **access all his data on the Cloud**.

- If the SolidCAM user wants to **work from another computer**, he can access all his data on the Cloud - any changes done on this computer will be **synchronized to the cloud**.

- SolidCloud is based on Google Drive.

SolidCloud
Your SolidCAM Cloud Backup

# SolidCAM Maker Version

- **SolidCAM Maker Version** will have the functionality of the Regular Version, except it will have only three built-in post processors:
  - HAAS Milling post
  - Mach3 Milling post
  - HAAS Turning post
- For **Makers, Hobbyists** and **Students**
- CAM Parts built in the Maker version cannot be read in the **Educational** or **Industrial** versions.
- SolidCAM Maker Version is downloaded **for free** from the SolidCAM website and will be updated, same as the latest Regular version.


"The best way to predict the future is to create it."
– Peter Drucker
SolidCAM
THE FUTURE OF CAM
pepper

# THANKS FOR WATCHING