SolidCAM – The Solid Platform for Manufacturing

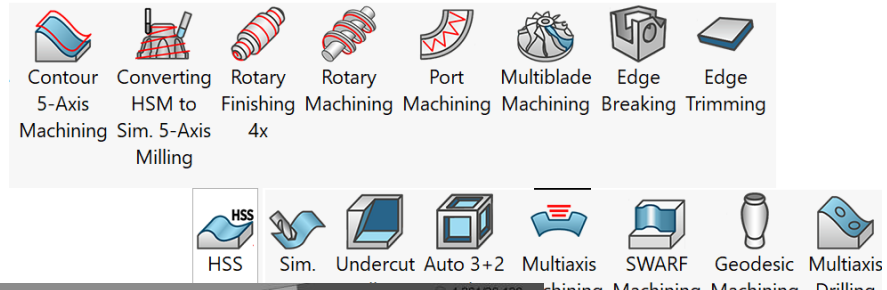
SolidCAM 2024
New Functionalities

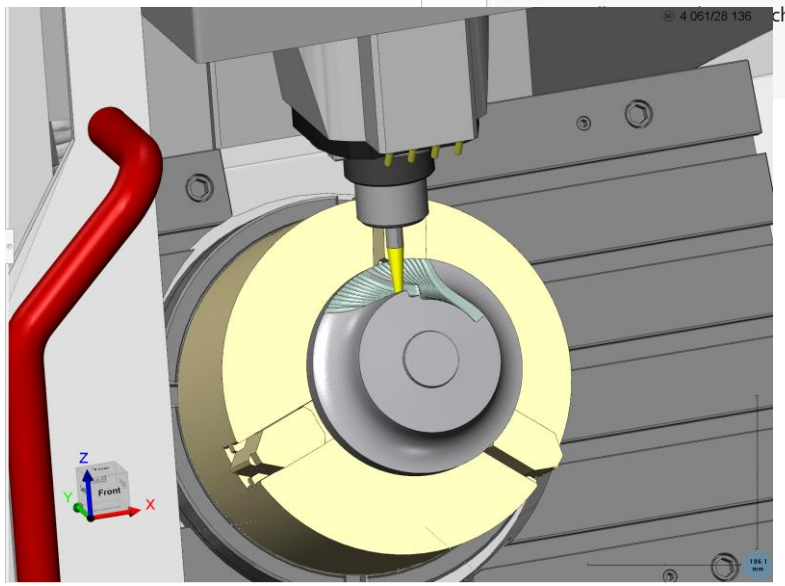
June 2024

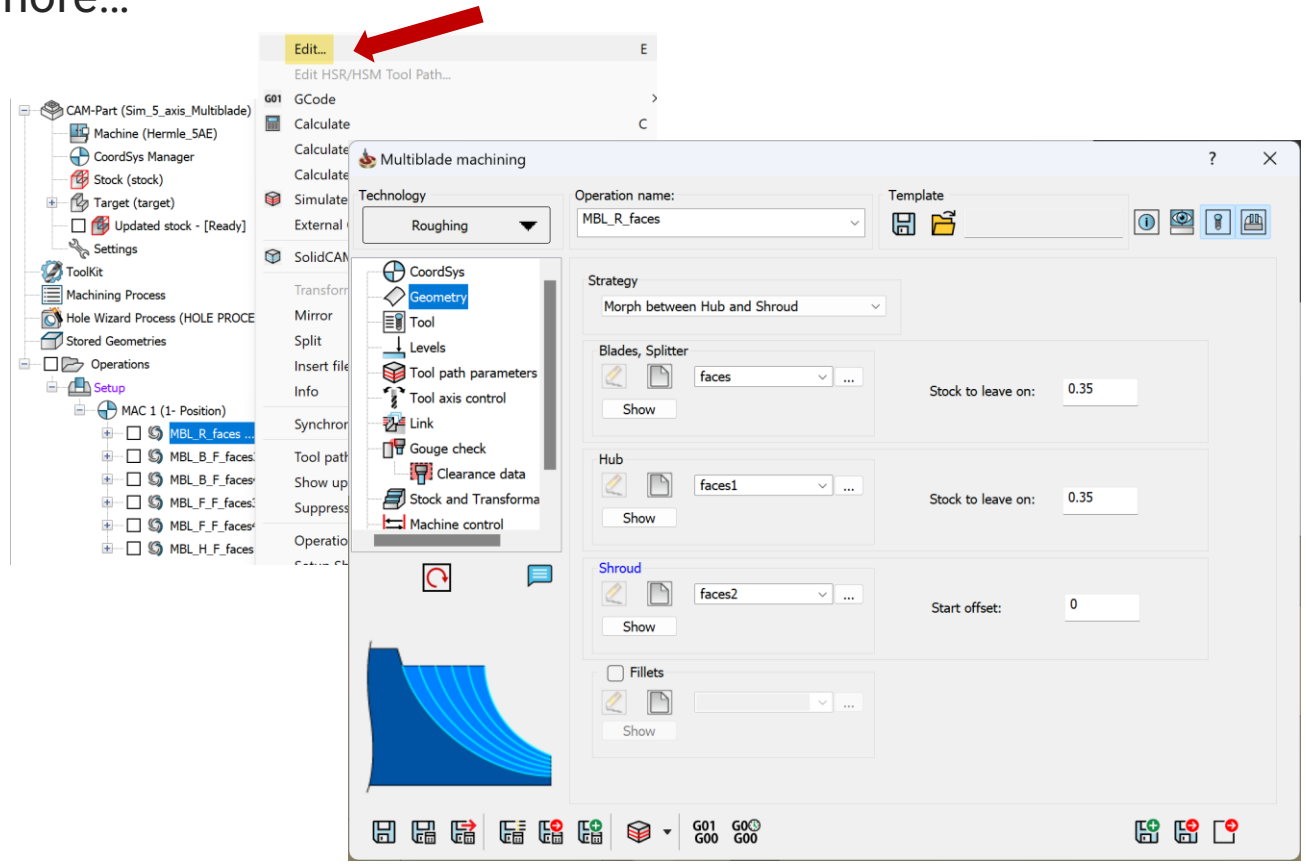
General-

Greatly Improved Performance Time on Opening and Editing Operations

- Vastly improved the speed performance when opening or editing operations in many operations such as Multi-Axis Machining, HSS, Swarf Machining and more…







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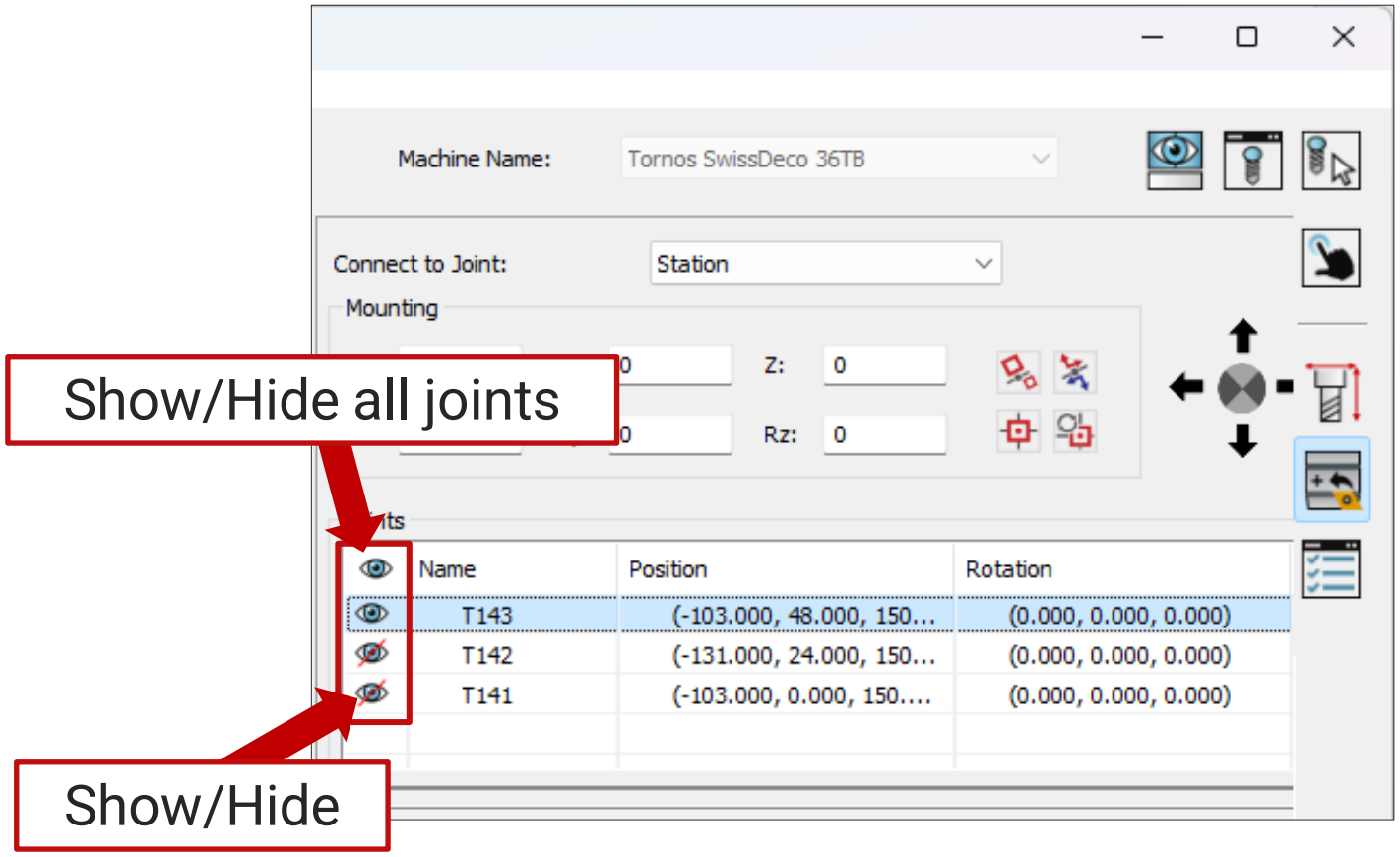
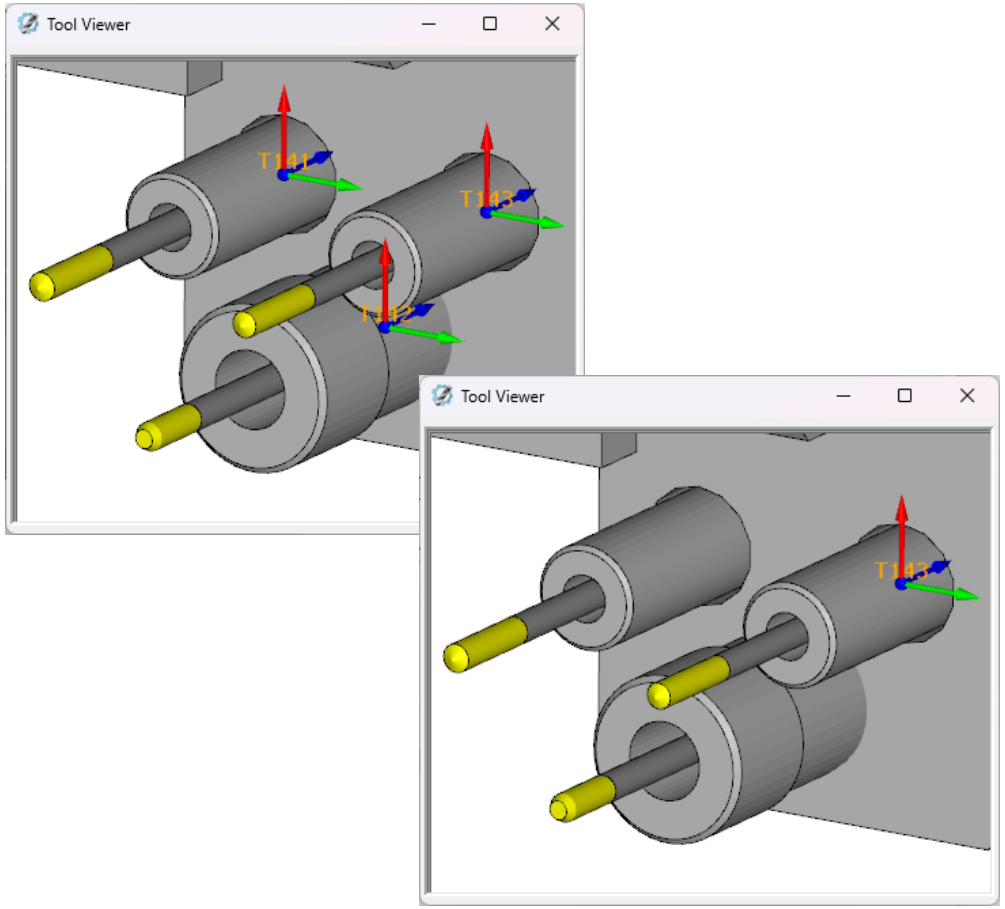
ToolKit – Show/Hide joints

- Improved visibility experience in Tool Viewer with **Show/Hide** joints on tool components





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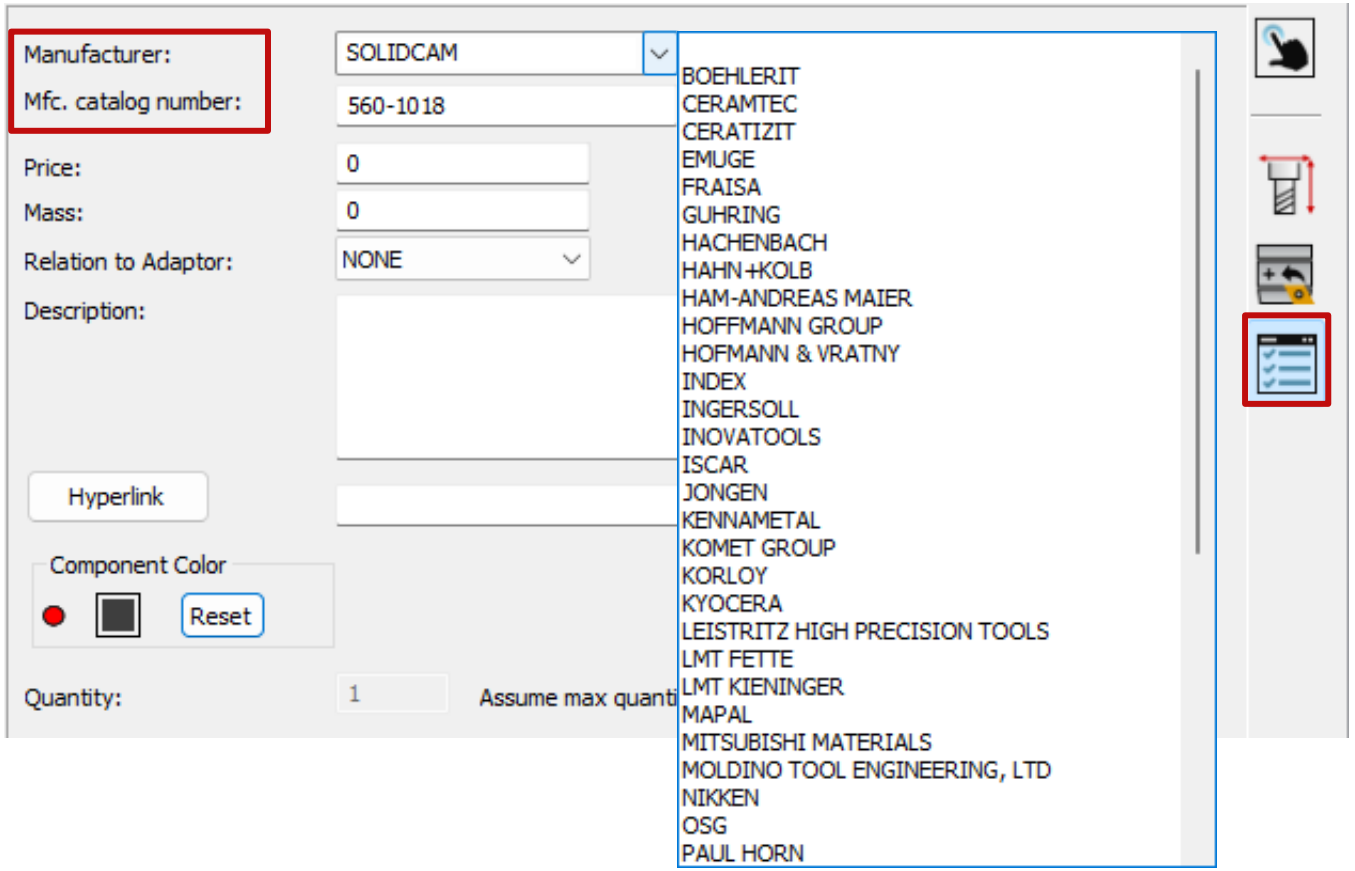
ToolKit – Added Manufacturer and Mfc. Catalog number

- Added **Manufacturer** and **Mfc. Catalog number** to Properties page
- Pre-defined list of Manufacturer is available, but it is possible to write custom too!



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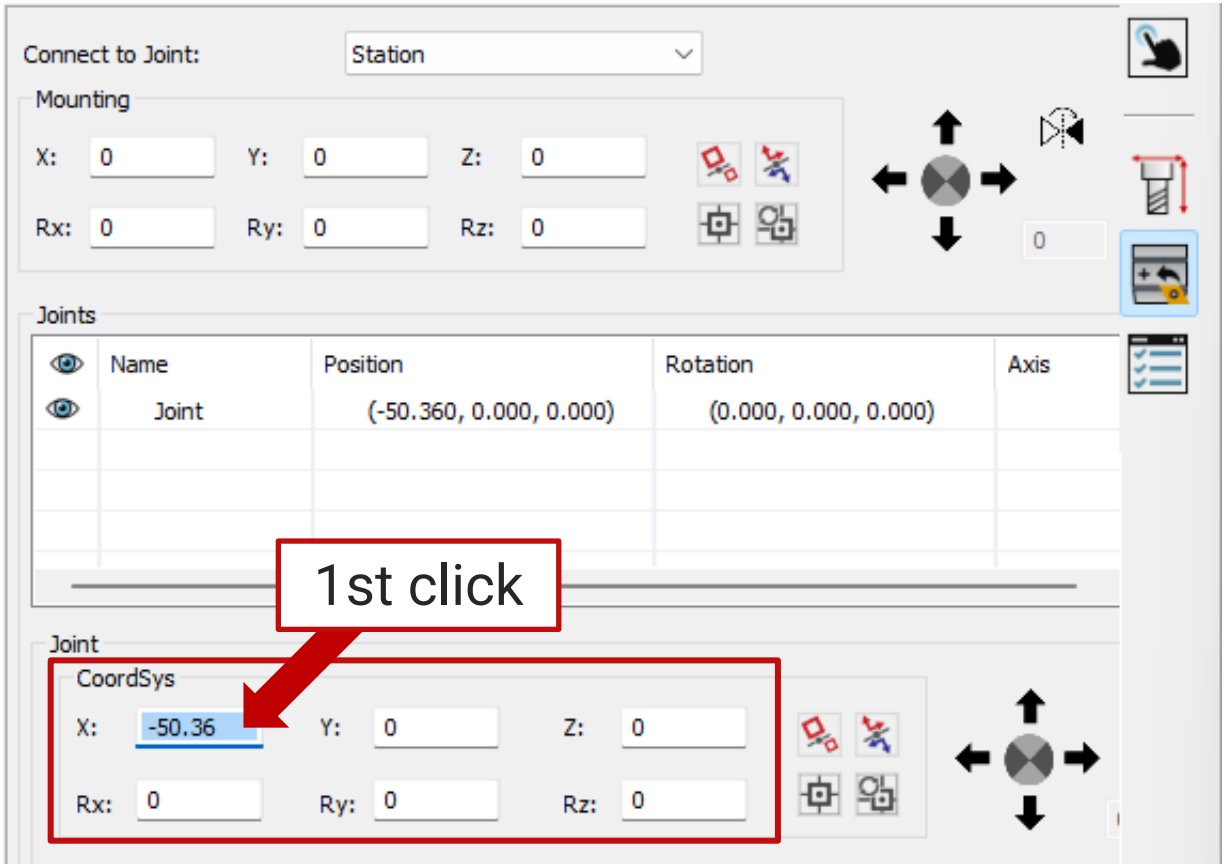
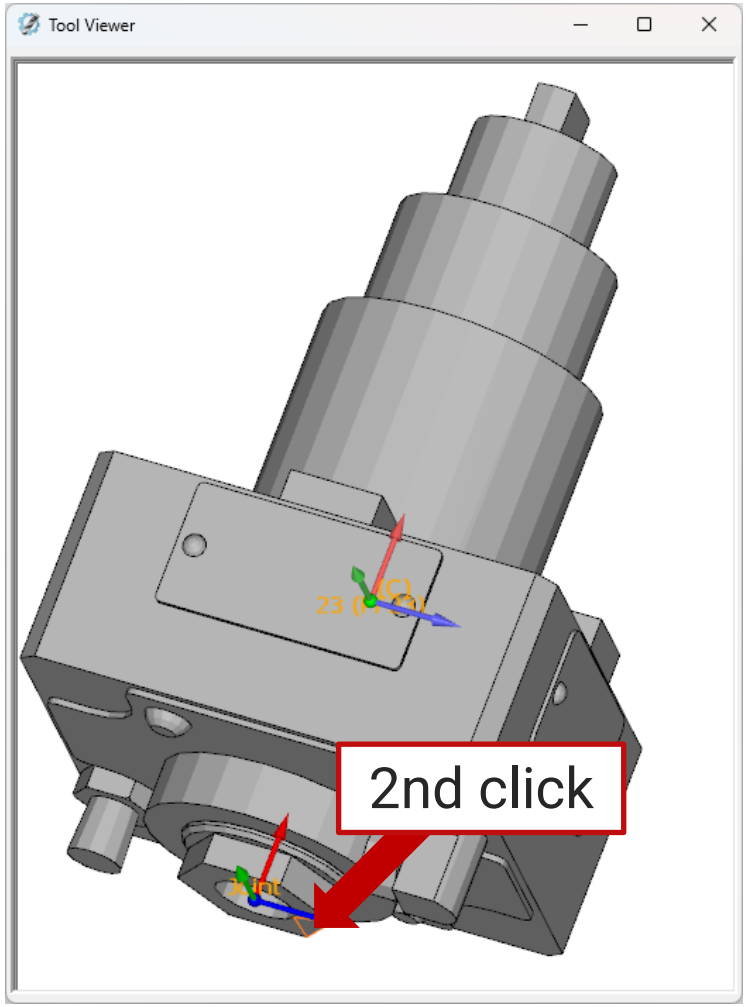
ToolKit –Joint origin and orientation by clicking on 3D Model

- Faster joint definition
- Pre-measure relevant distances is not necessary





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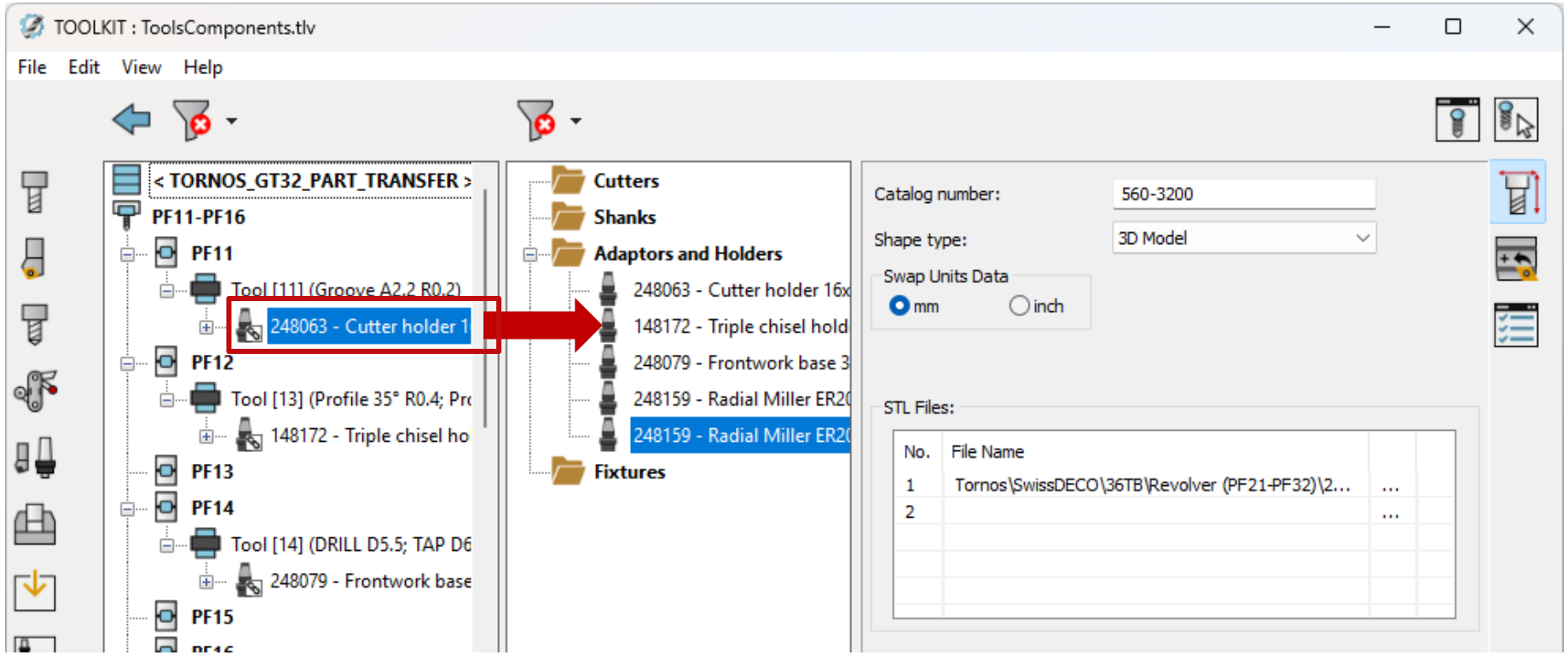
ToolKit – Import components from Assembly libraries

- Added possibility to import components from Assembly libraries into a Tool Components Library (TLV)



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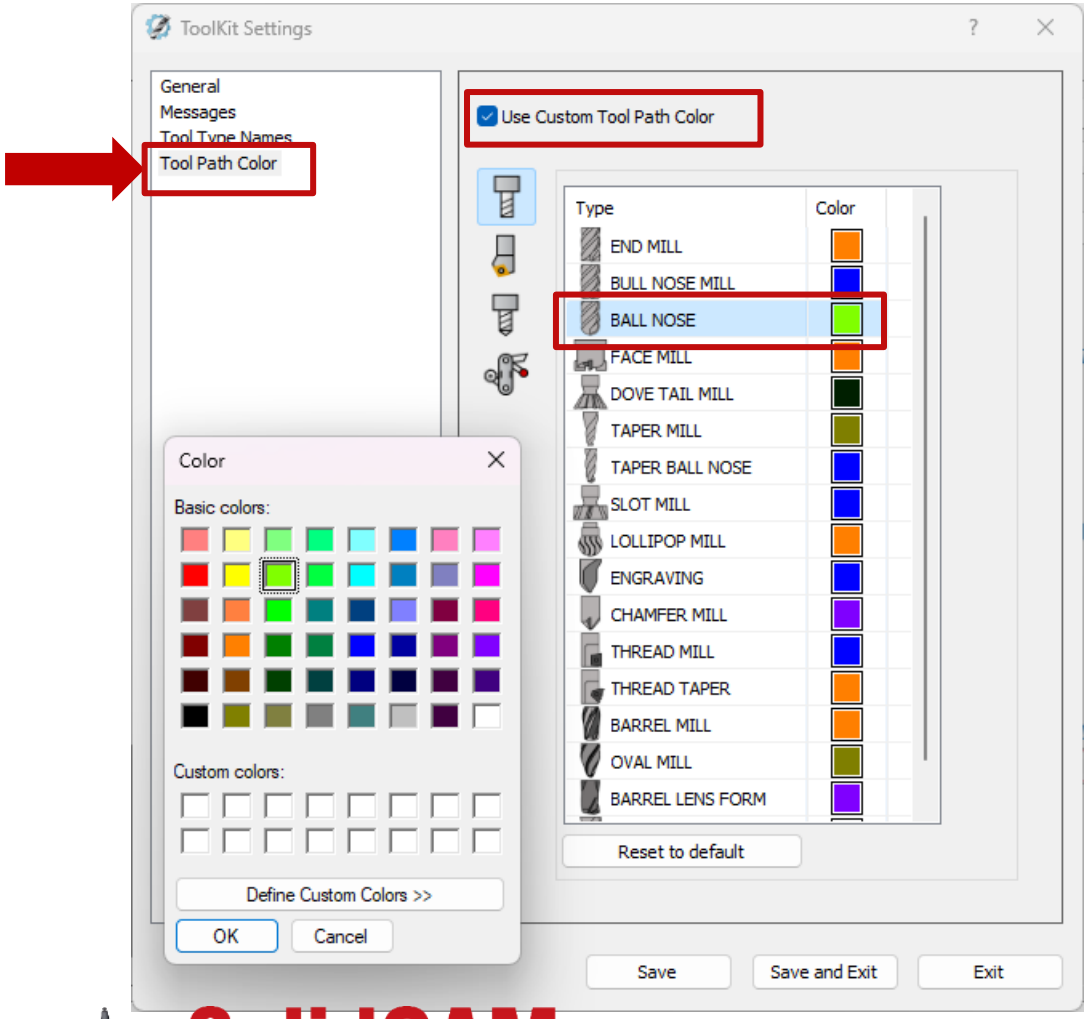
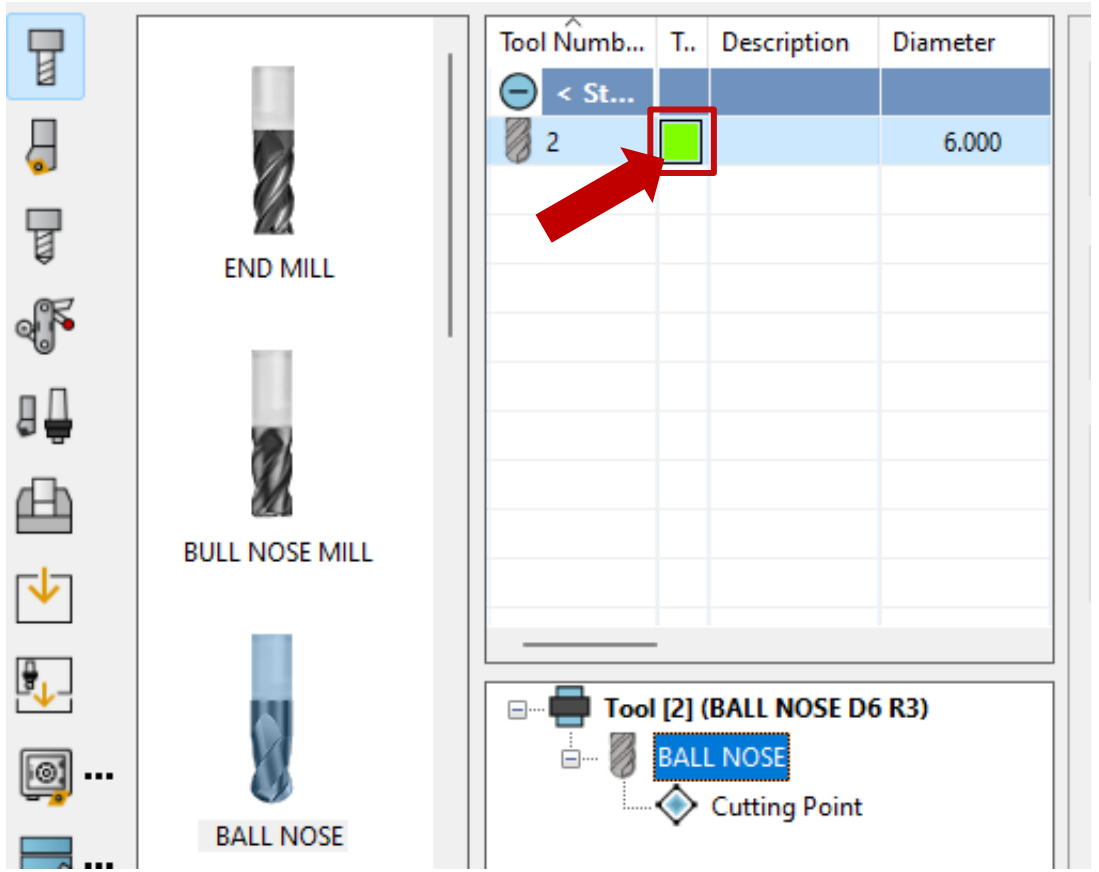
ToolKit Settings – Use Custom Tool-Path color

- Added possibility to use pre-defined custom color





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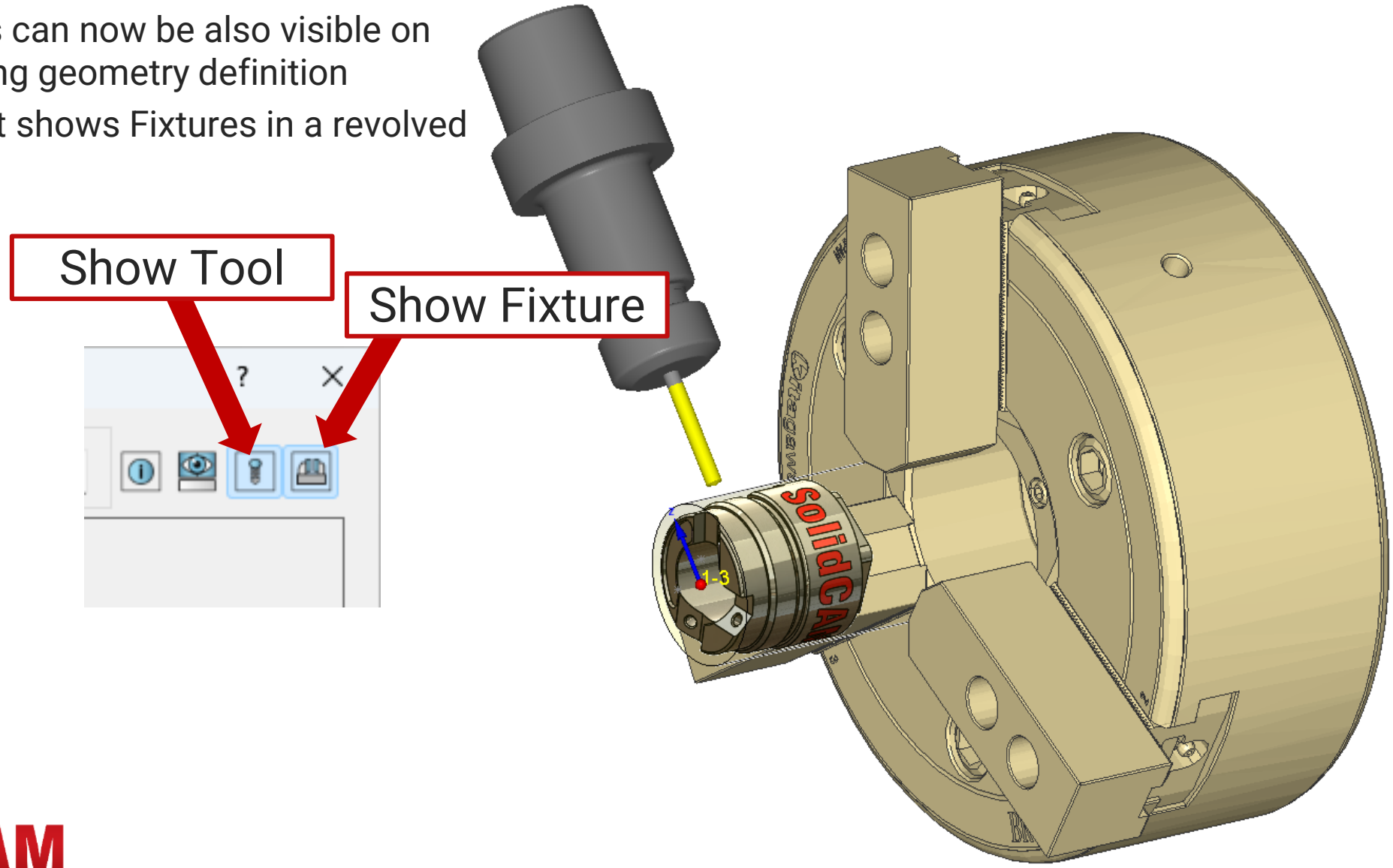
Job – Ability to see Fixture in CAD eviorement

- Selected Fixtures can now be also visible on the job level during geometry definition
- In Turning Jobs it shows Fixtures in a revolved state



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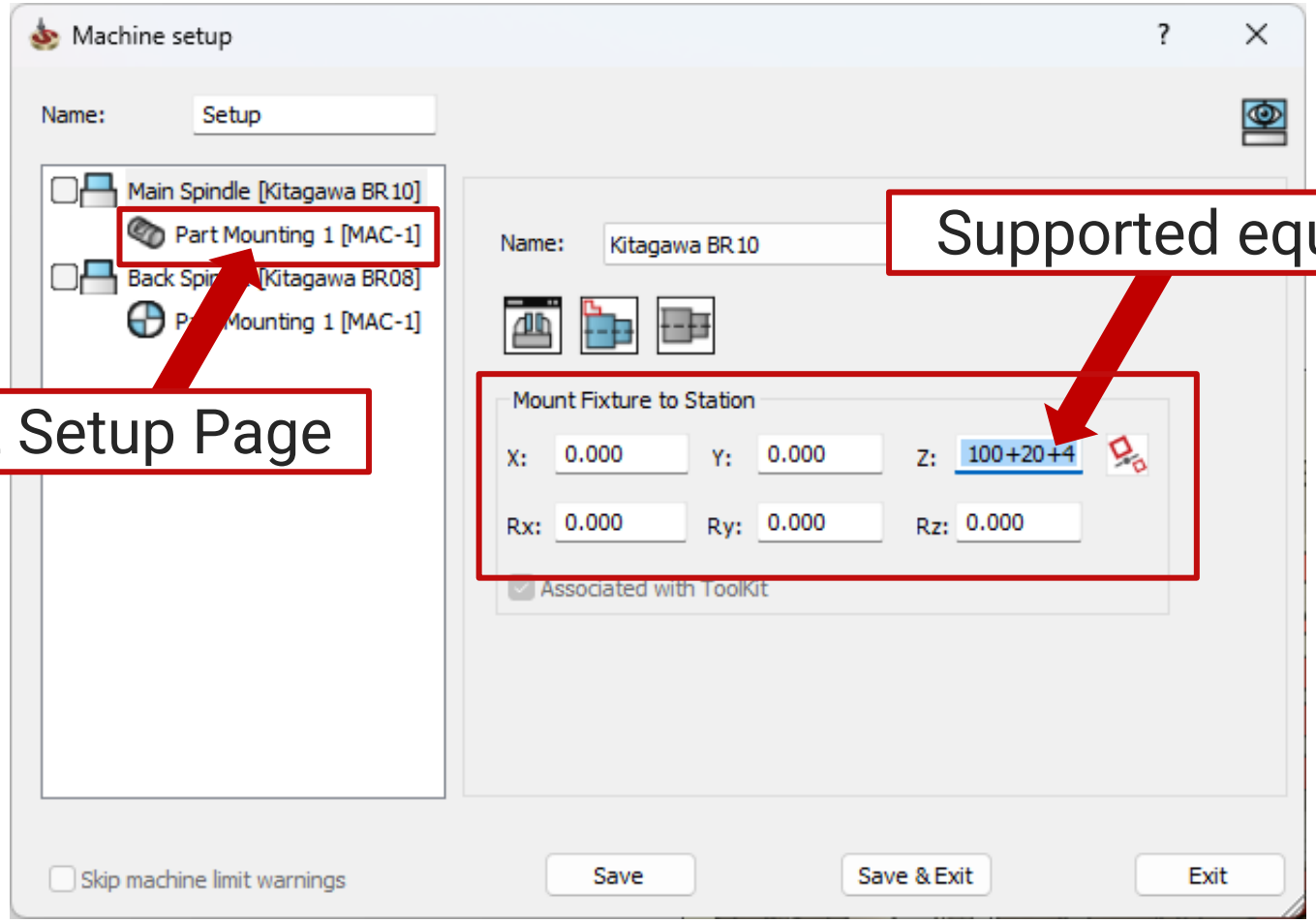
Machine Setup – Expanded equations in value fields



Supported equations

…also in Part Setup Page

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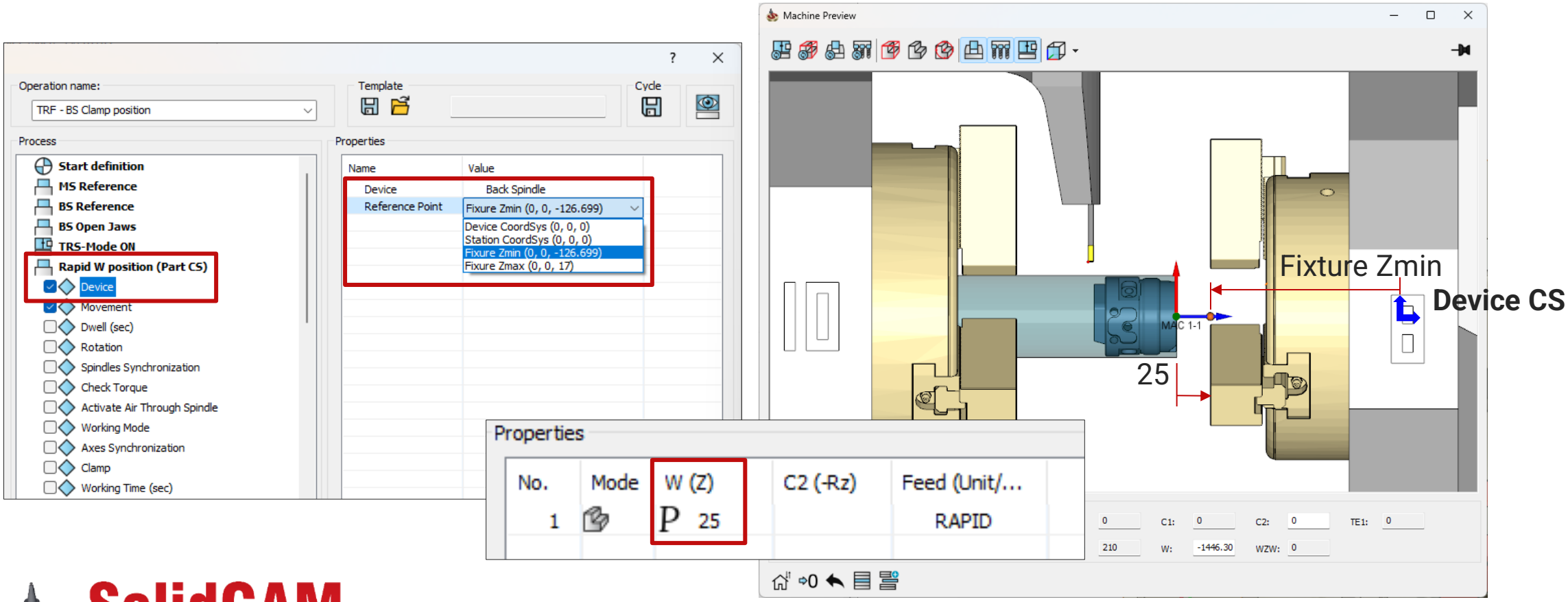
MCO – Shift Table Referenece point

- Having ability to shift reference point of Table (point of interest) when performing Table Movement in **Part CS**.
- Suitable for any Part Transfer routines in **Mill-Turn** and **Swiss-Type**



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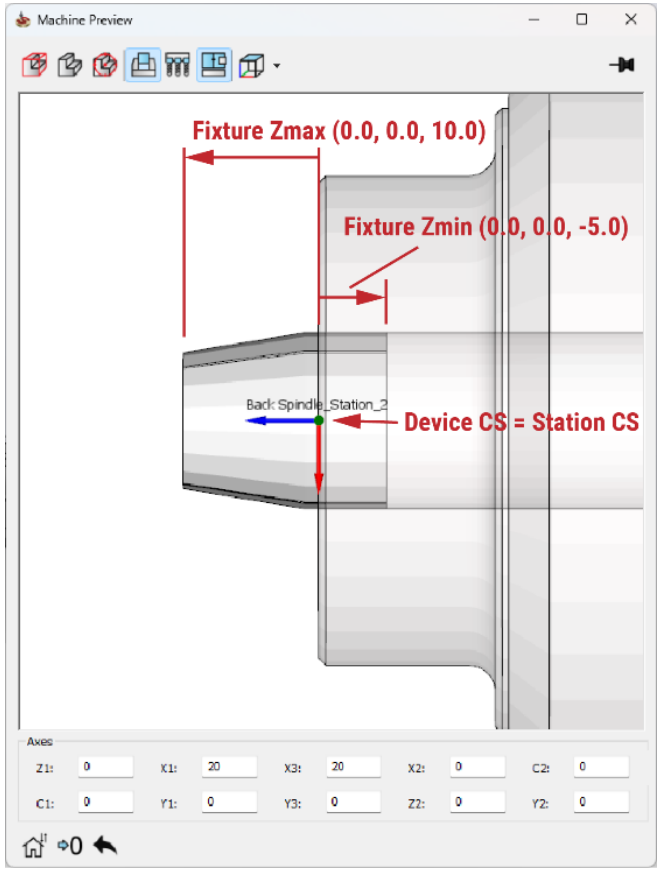
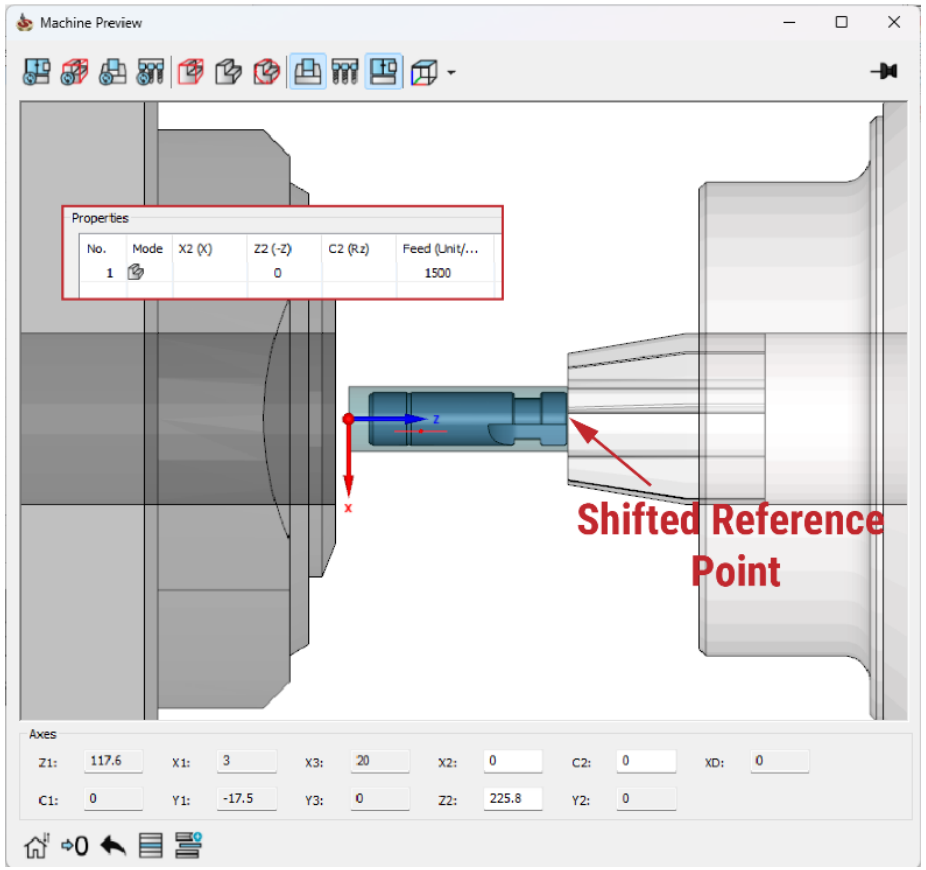
MCO – Shift Table Referenece point

- Shifts have pre-calculated **Fixture Zmin** and **Fixture Zmax** point for easy use
- It is possible to select **Non-cutting** point (will be listed if defined in ToolKit)





The case when Extension collet used on Swiss-Type

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MCO – OPEN/CLOSE of Jaws is simulated

- Jaws **OPEN** and **CLOSE** is now shown in **Machine Preview** and simulated in **Machine Simulation**
- **OPEN/RELEASE STOCK** position is axis value defined in **ToolKit**
- **CLOSE/CLOSE ON STOCK** position is axis value defined in **Machine Setup**

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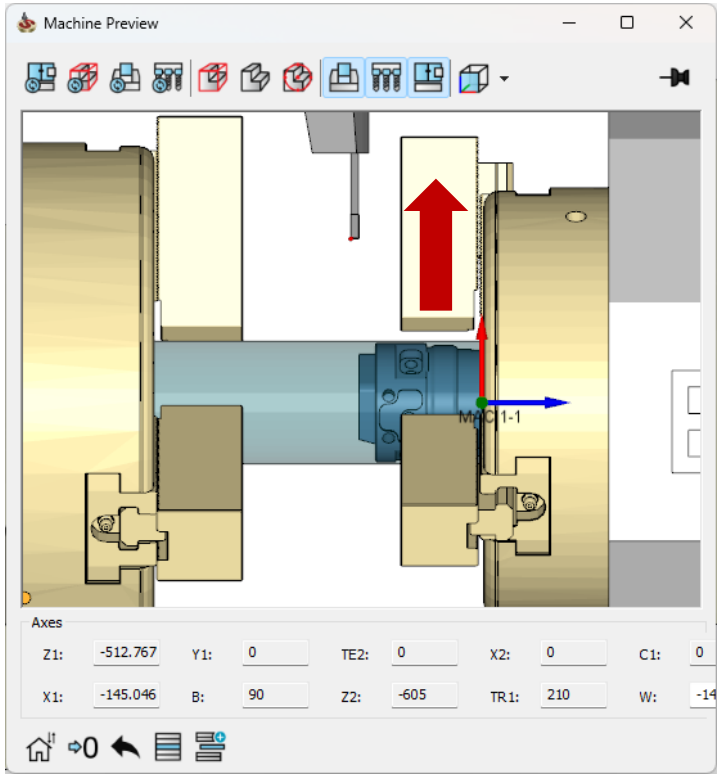

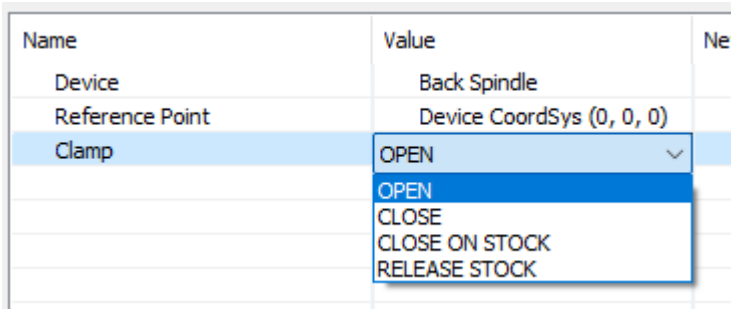

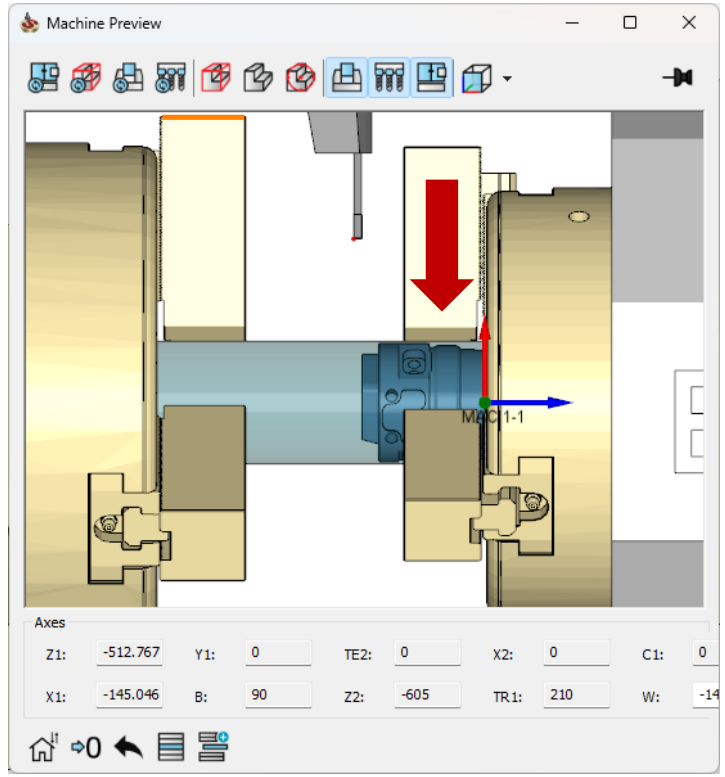

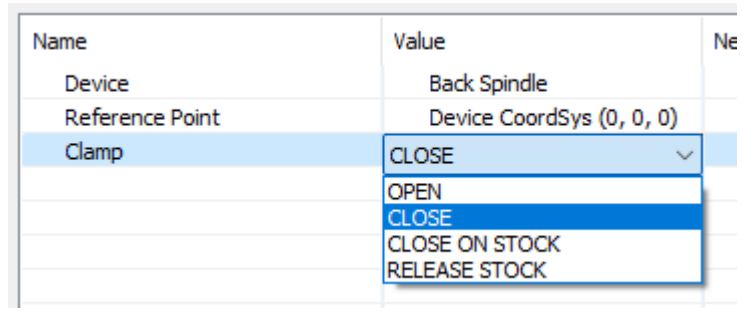

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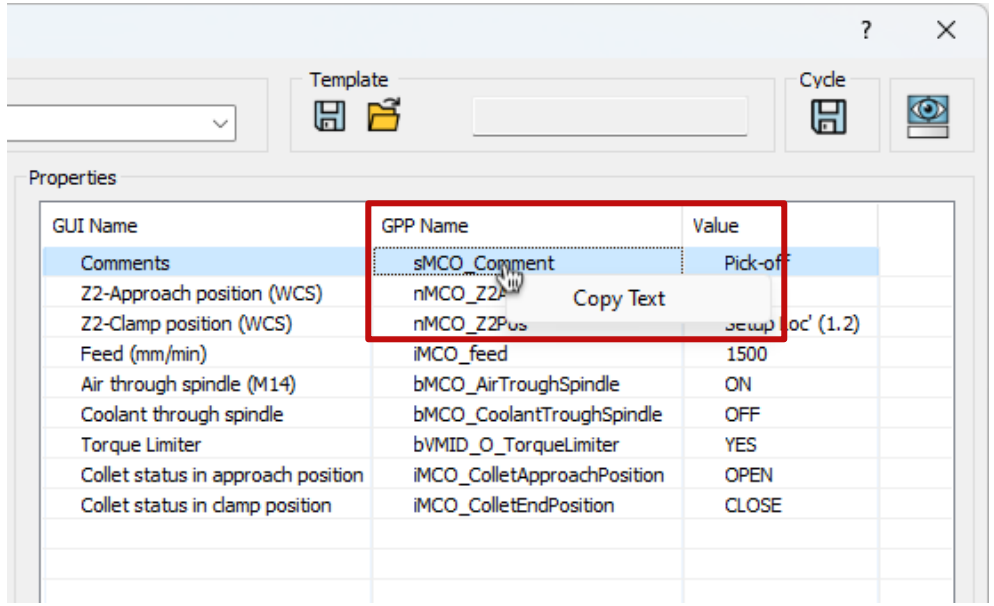
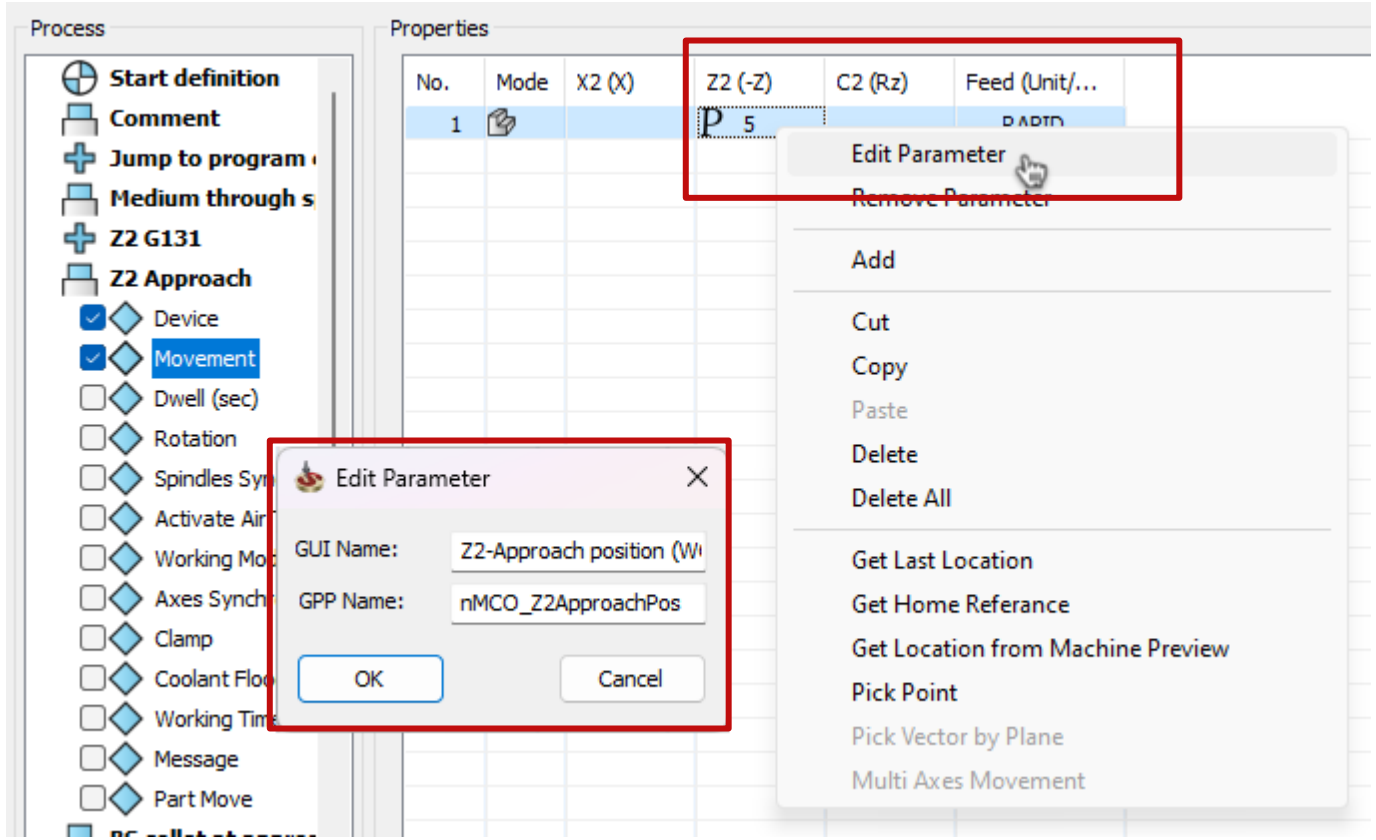
MCO – Improvements in Cycles



Easy copy of GPP Name



Ability to Edit Parameter

Pro 3D HSM - Highlights

- **Pro 3D HSM** is High Speed Machining technology Generates semi-finishing and finishing toolpaths quickly and efficiently on any given machining surfaces, including complex 3D models or prismatic models.
- **Automatic Collision-Free Toolpaths**: Automatically generates collision-free toolpaths with holder and arbor, using infeed cutting for optimized links and generating true arcs to reduce NC blocks.
- **Precision 3D Boundaries**: Utilizes 3D boundaries for precise toolpath trimming, allows variable surface offsets, and user-defined cut levels in various strategies, excluding flat areas in specific approaches.
- **Flexible Toolpath Definitions**: Provides options for defining overlap, excluding undercut areas, and setting individual cutting methods, particularly in steep/shallow and combined strategies.
- **Optimized Feed Rates**: Optimizes feed rates at corners and during ascending/descending movements for better control, improved tool life, and enhanced surface finish.
- **Enhanced Performance and Flexibility**: Ensures efficient semi-finishing and finishing toolpaths on complex 3D or prismatic models, offering flexibility and precision in Mold component machining.

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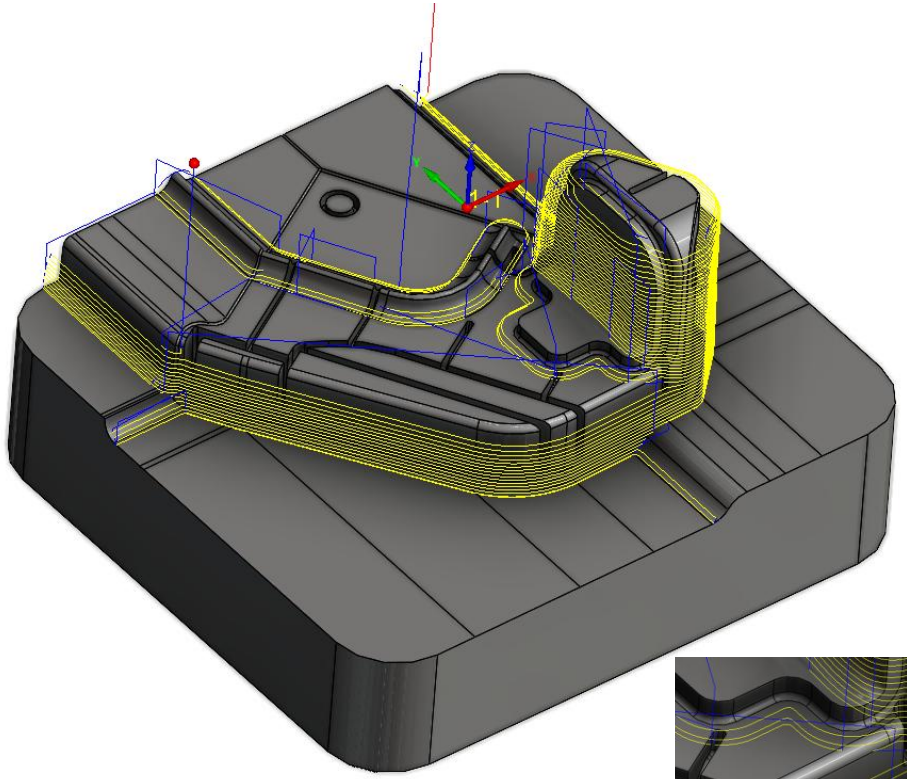
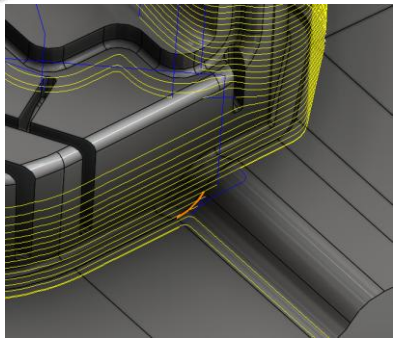
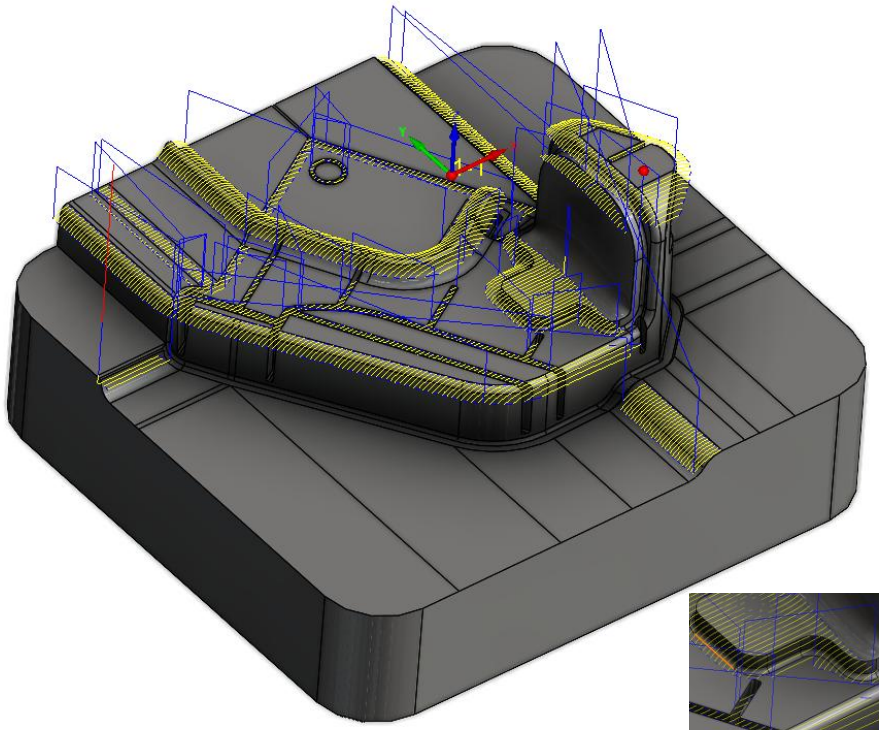
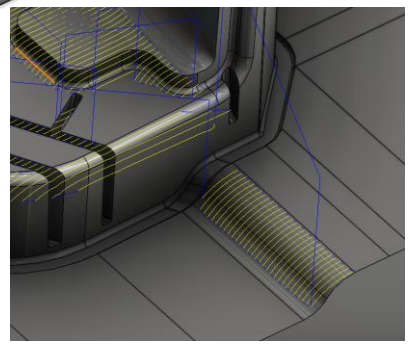
Pro 3D HSM - Strategies





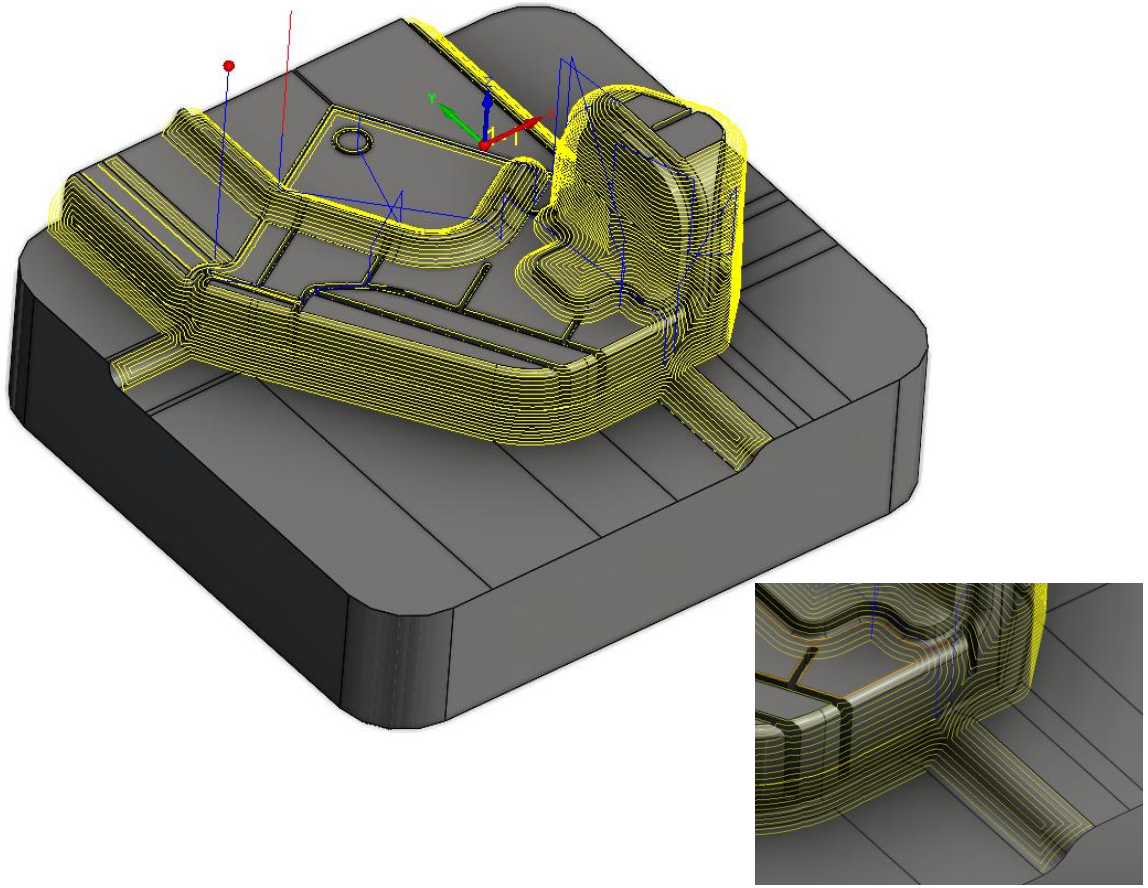
CONSTANT Z



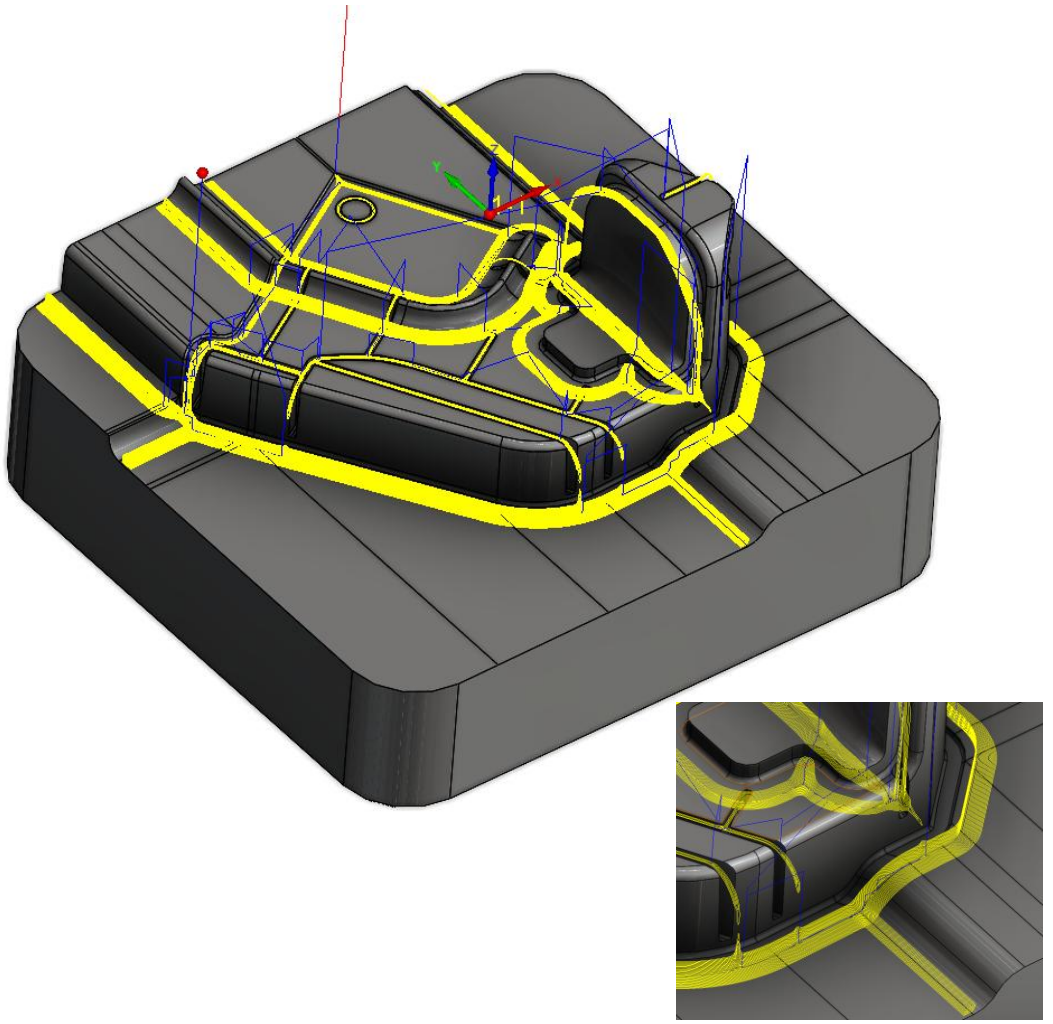


LINEAR

Pro 3D HSM - Strategies

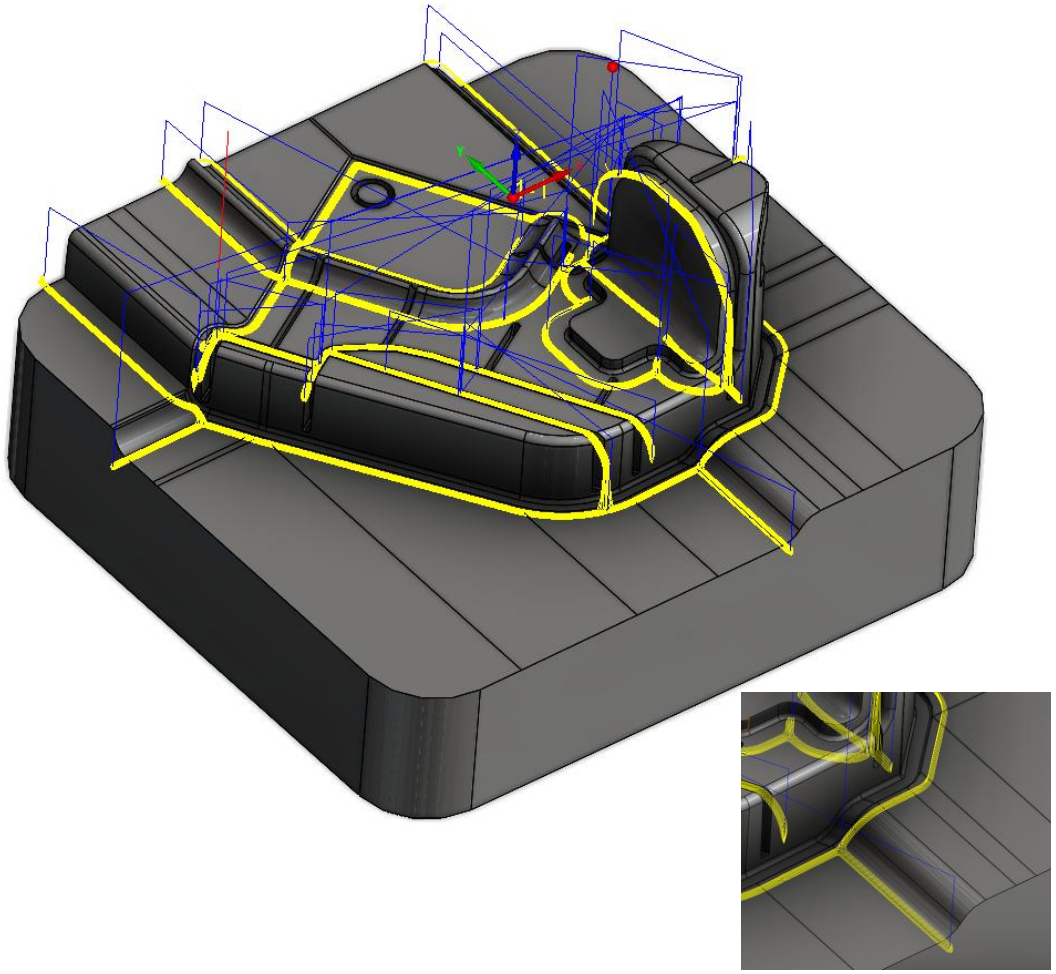


CONSTANT STEPOVER

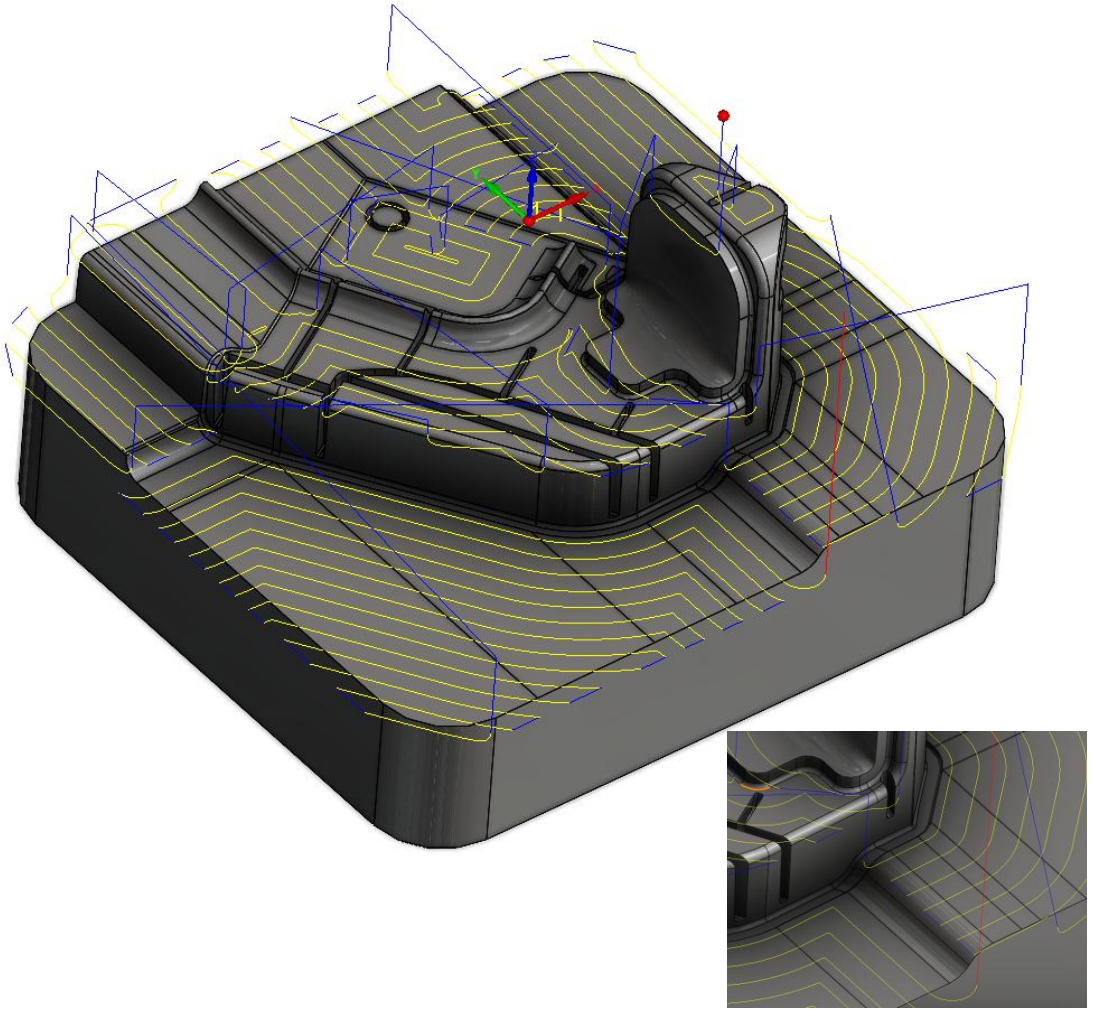


CONSTANT STEPOVER REST FINISHING

Pro 3D HSM - Strategies

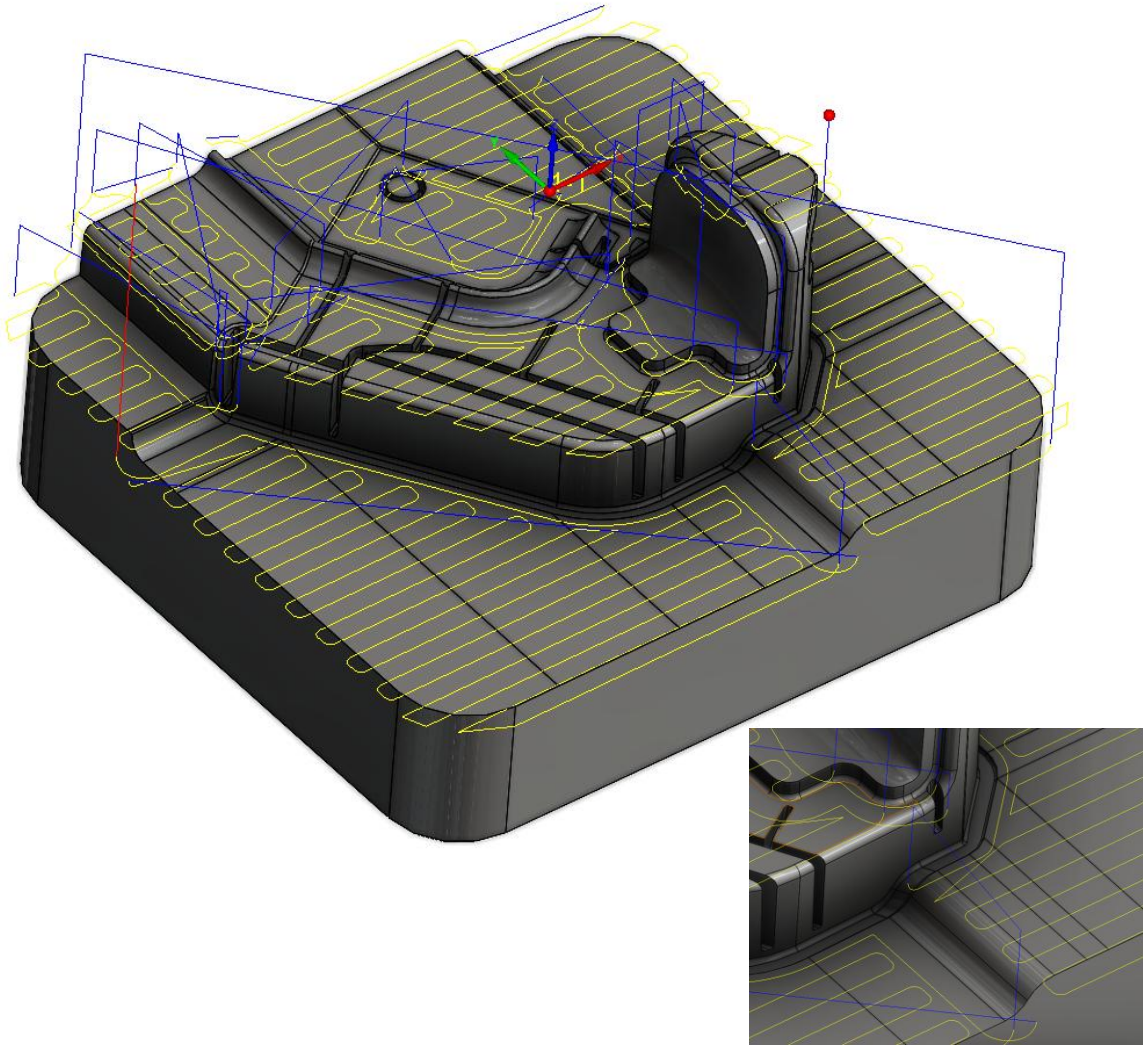


PENCIL MILLING

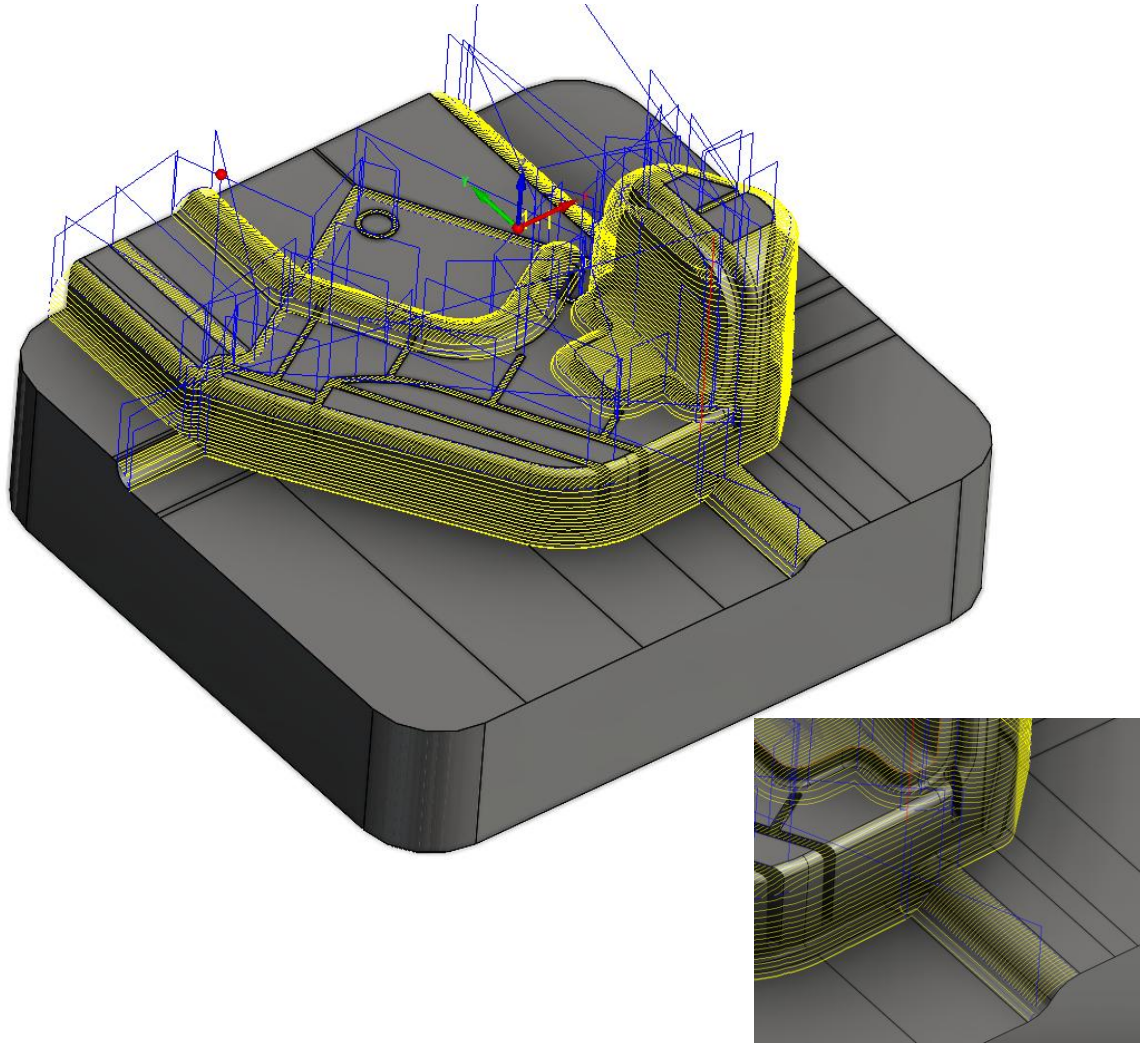


HORIZONTAL MACHINING - CONTOUR

Pro 3D HSM - Strategies

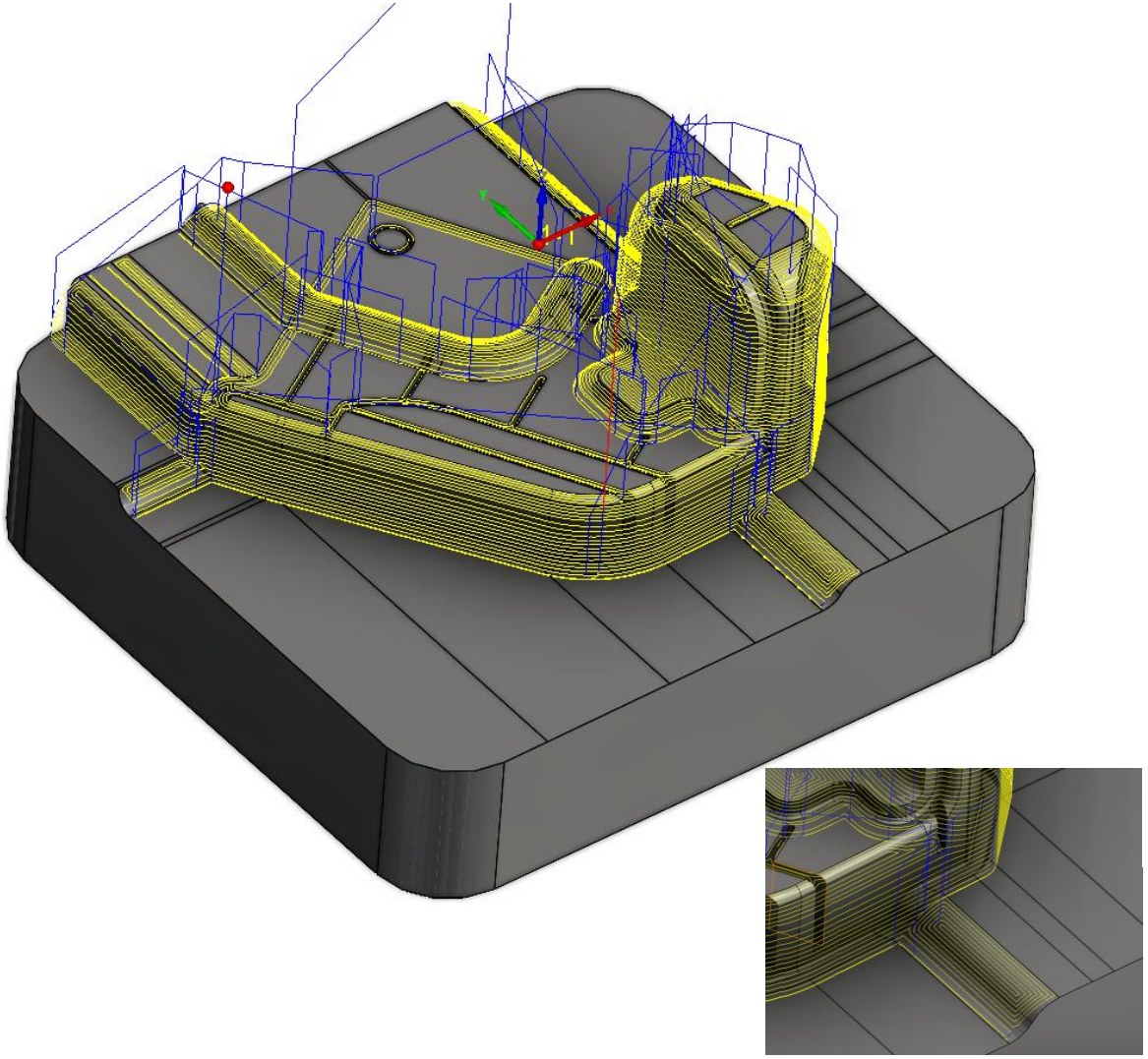


HORIZONTAL MACHINING - HATCH

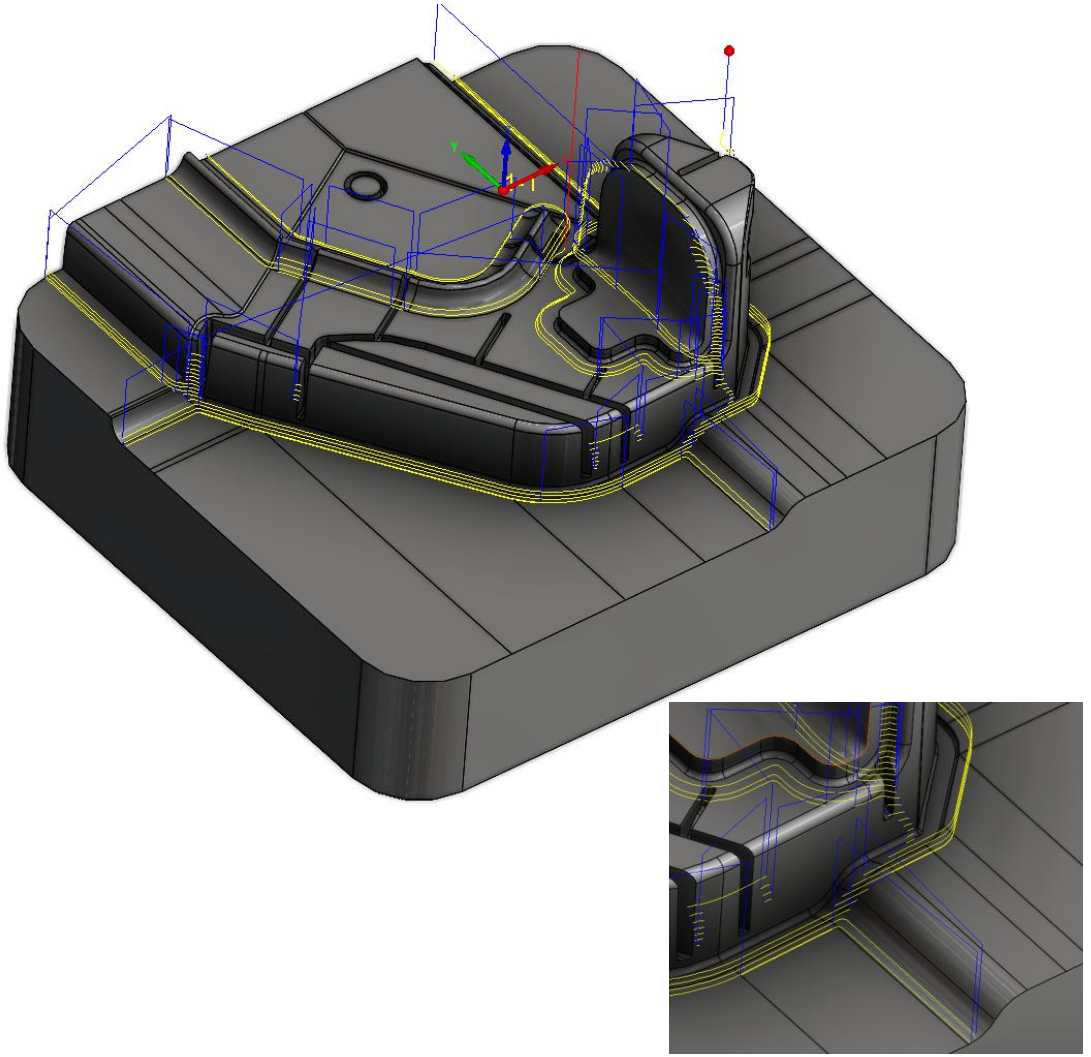


COMBINED MACHINING - LINEAR

Pro 3D HSM - Strategies



COMBINED MACHINING – CONSTANT STEPOVER



CONSTANT Z – REST MACHINING

Undercut Milling – MultiAxis

- Multiaxis Undercut Milling is designed for machining both undercut and non-undercut areas of vertical or near-vertical surfaces in Sim 5-axis mode. It is primarily used for semi-finishing or finishing process.
- This technology slices the machining surfaces (target) at each stepdown to create a constant Z pattern.
- Multiaxis Undercut Milling allows you to generate toolpaths either exclusively in undercut areas or within defined constraint boundaries, which can be easily created by selecting the surfaces.
- It automatically generates collision-free toolpaths and offers a semi-automated process that may require minimal user intervention for fine-tuning.
- The Optimized Collision-Free Tilting mechanism allows users to define whether to use rotary or tilt movements to avoid collisions within user-defined limits.
- Ball Nose , Taper Ball Nose & Lollipop Tools are Supported.

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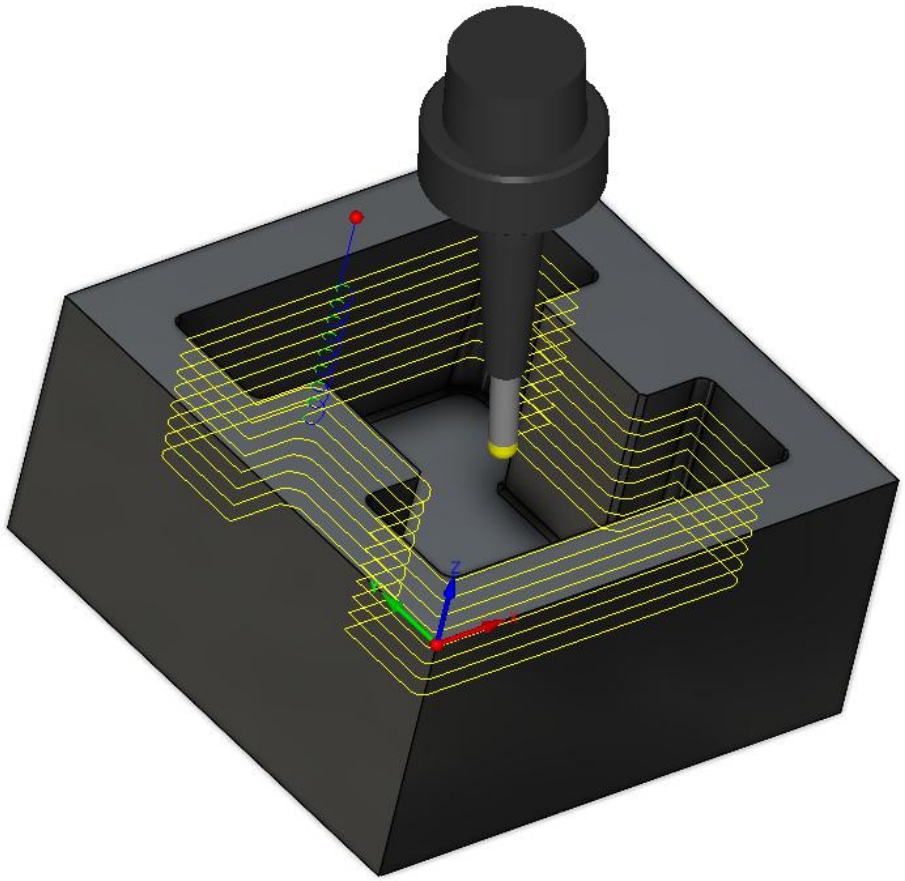
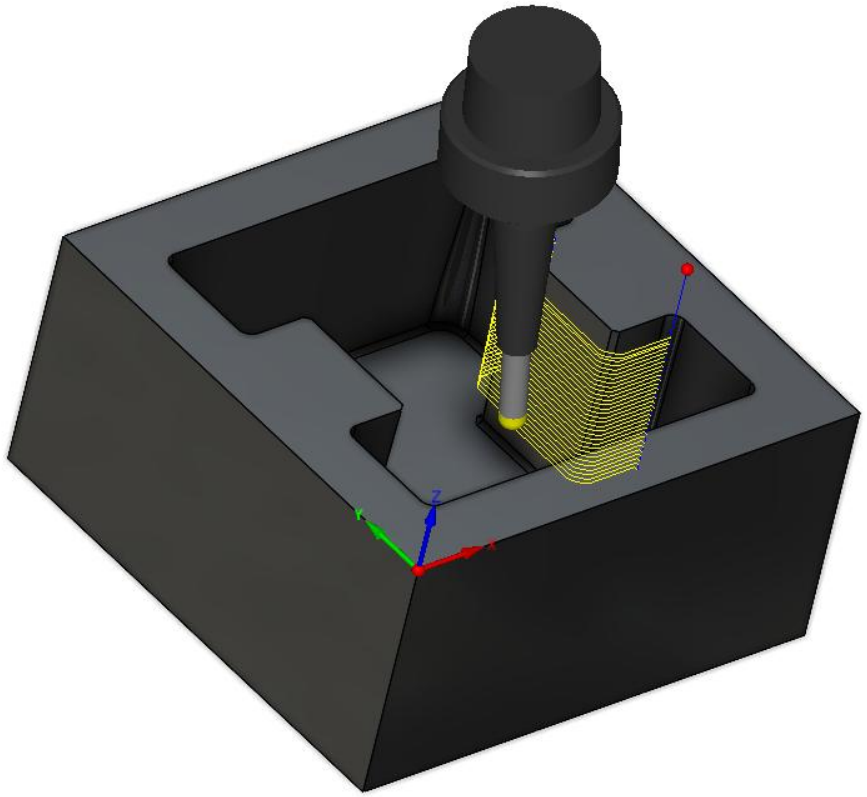
Undercut Milling – MultiAxis

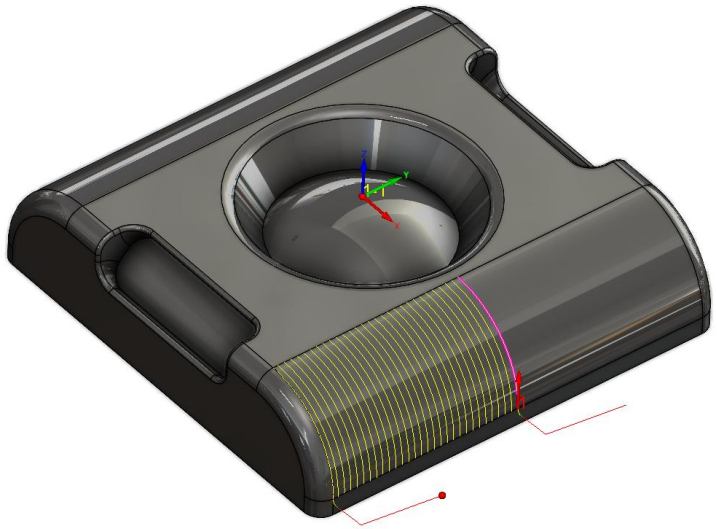


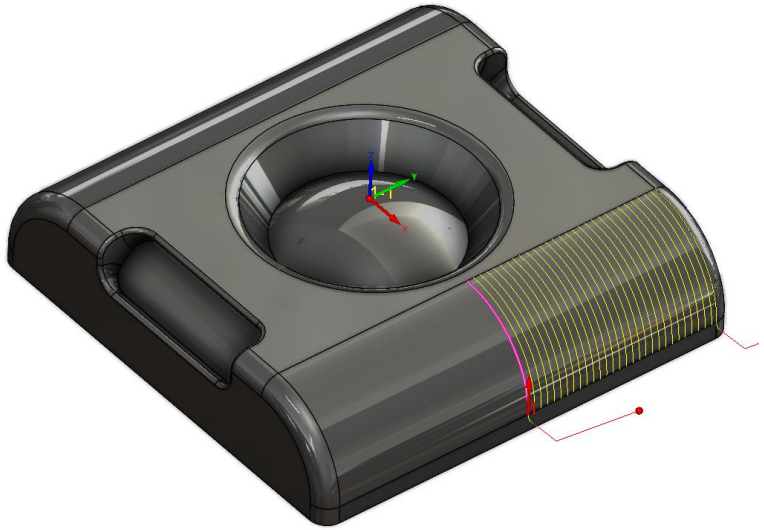
COMPLETE PART WITH UNDERCUTS

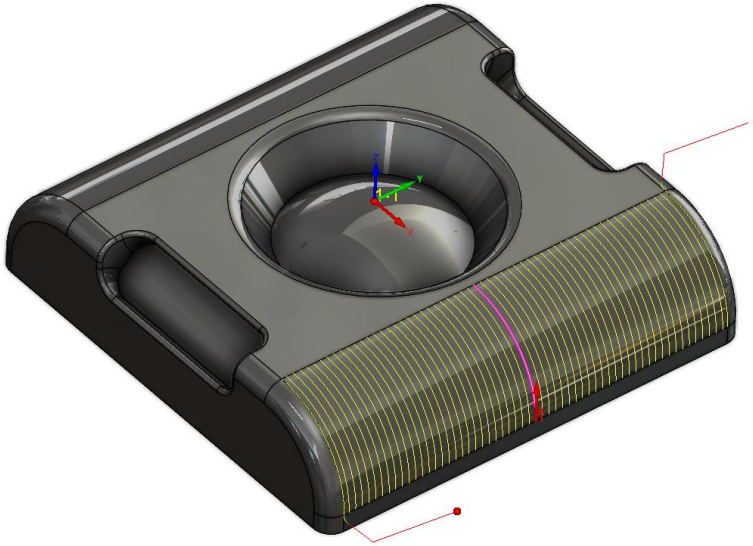


ONLY UNDERCUT MACHINING

Geodesic Machining – Machining area relative to drive curve







Flexible Toolpaths with Drive Curve: Geodesic Enables toolpath creation on either side of the drive curve for closed boundaries or split areas, providing user control and flexibility.

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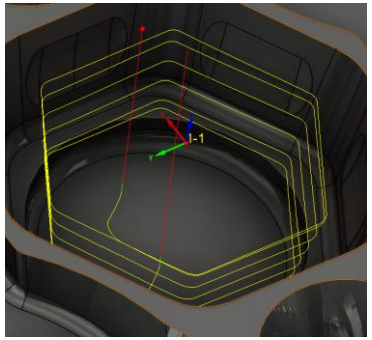
SWARF Milling – Spiral Pattern



Spiral Cutting Method: Swarf Machining uses a spiral pattern for multiple slices on closed contours, resulting in a long spiral toolpath that avoids stepdown or tepover marks with a single entry and exit.

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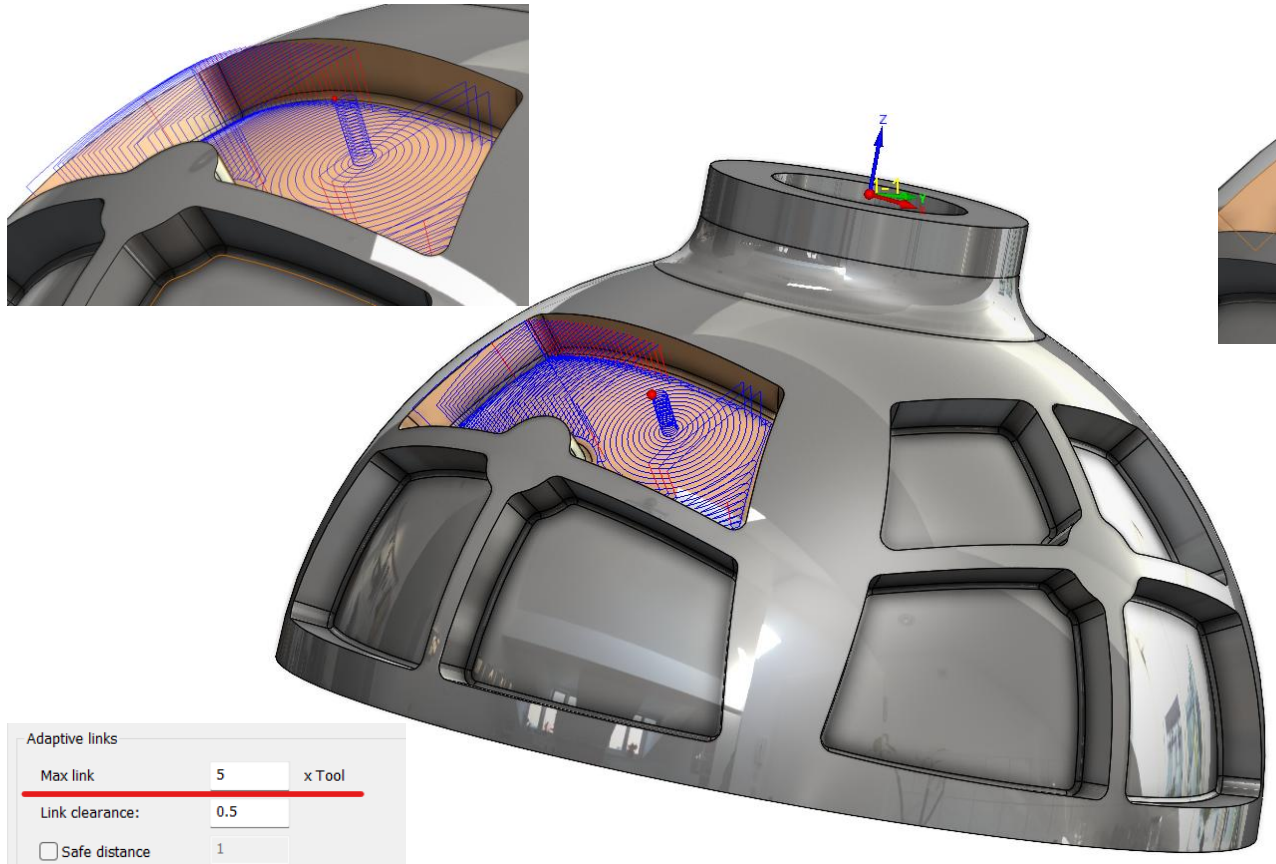
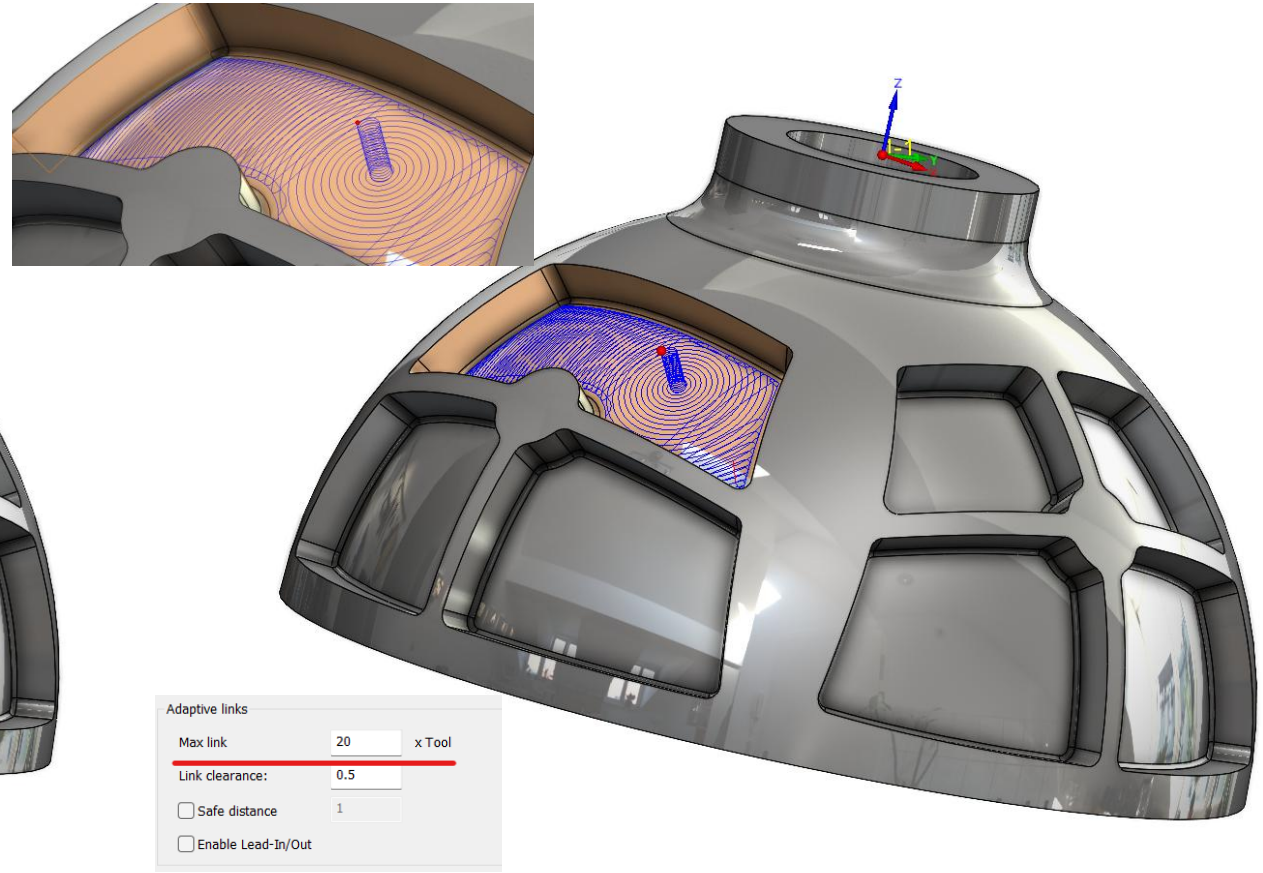
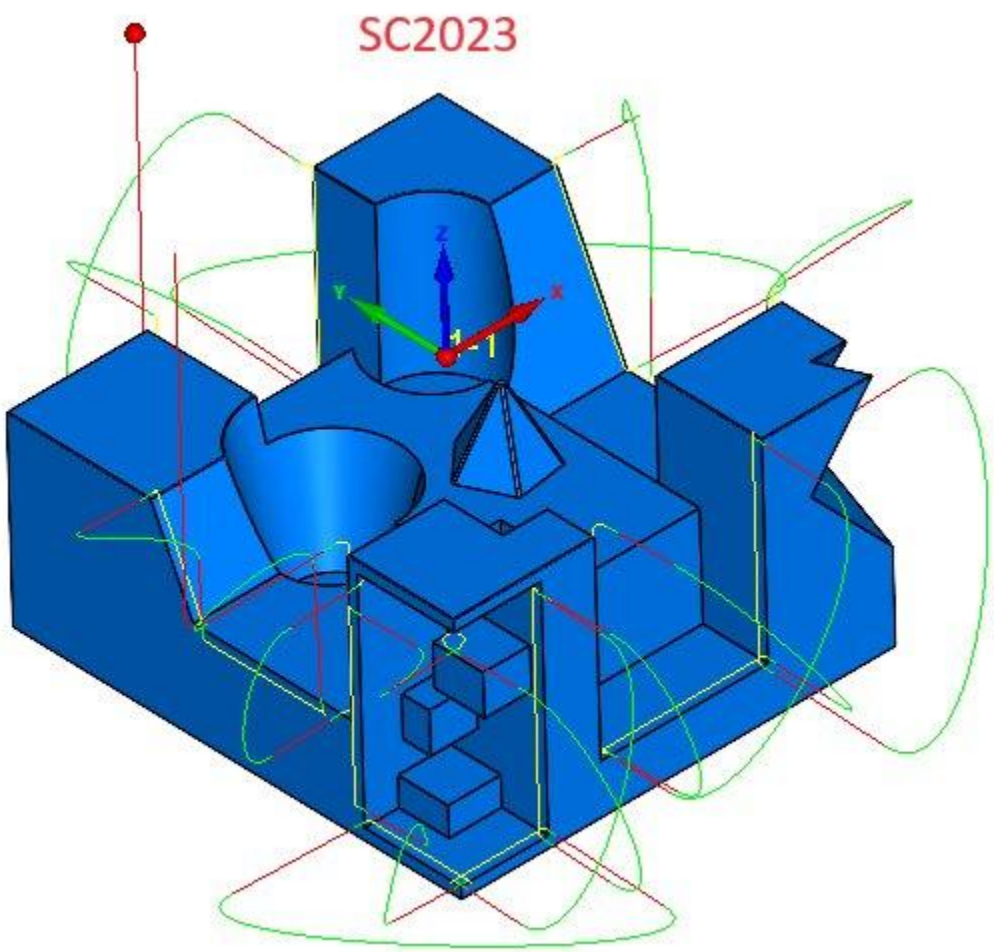
MultiAxis Machining - Radial Roughing – Link Threshold

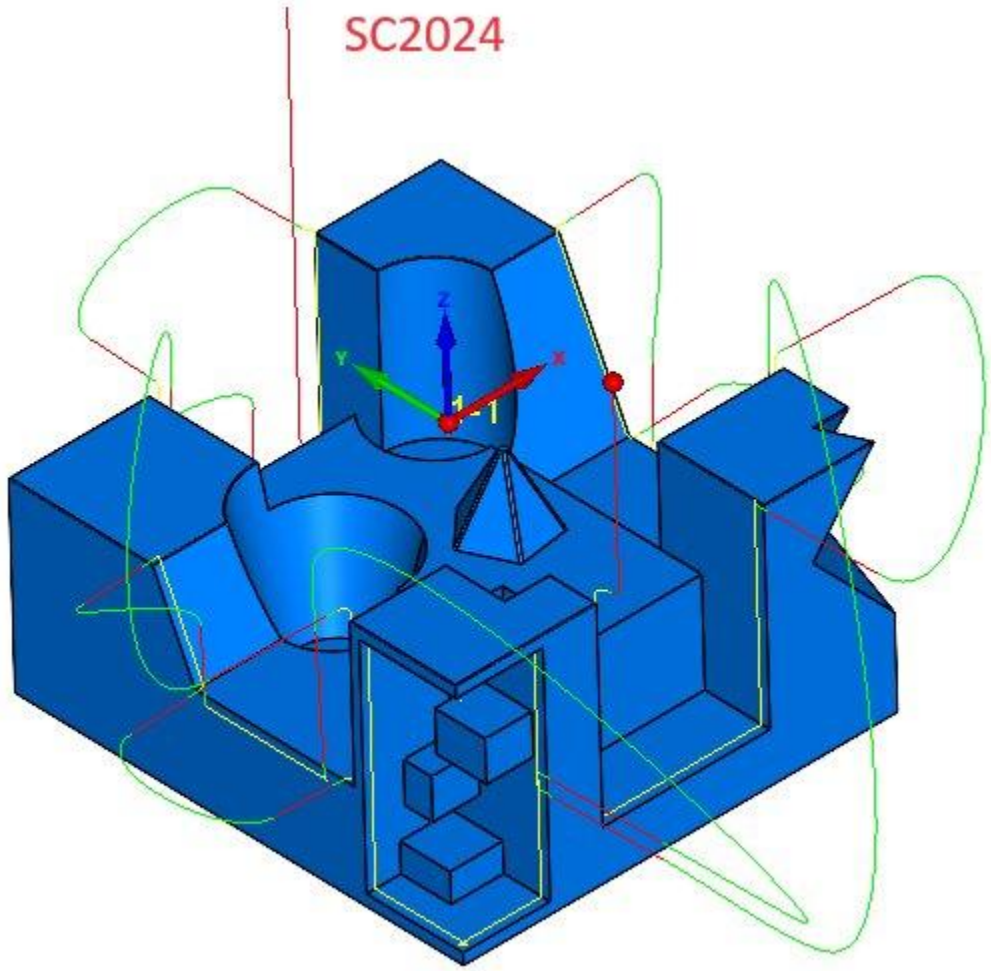




Max Link Length Control: Allows specifying the maximum length for Adaptive roughing links, including Intended and Follow stock links, optimizing links and reducing cycle time.

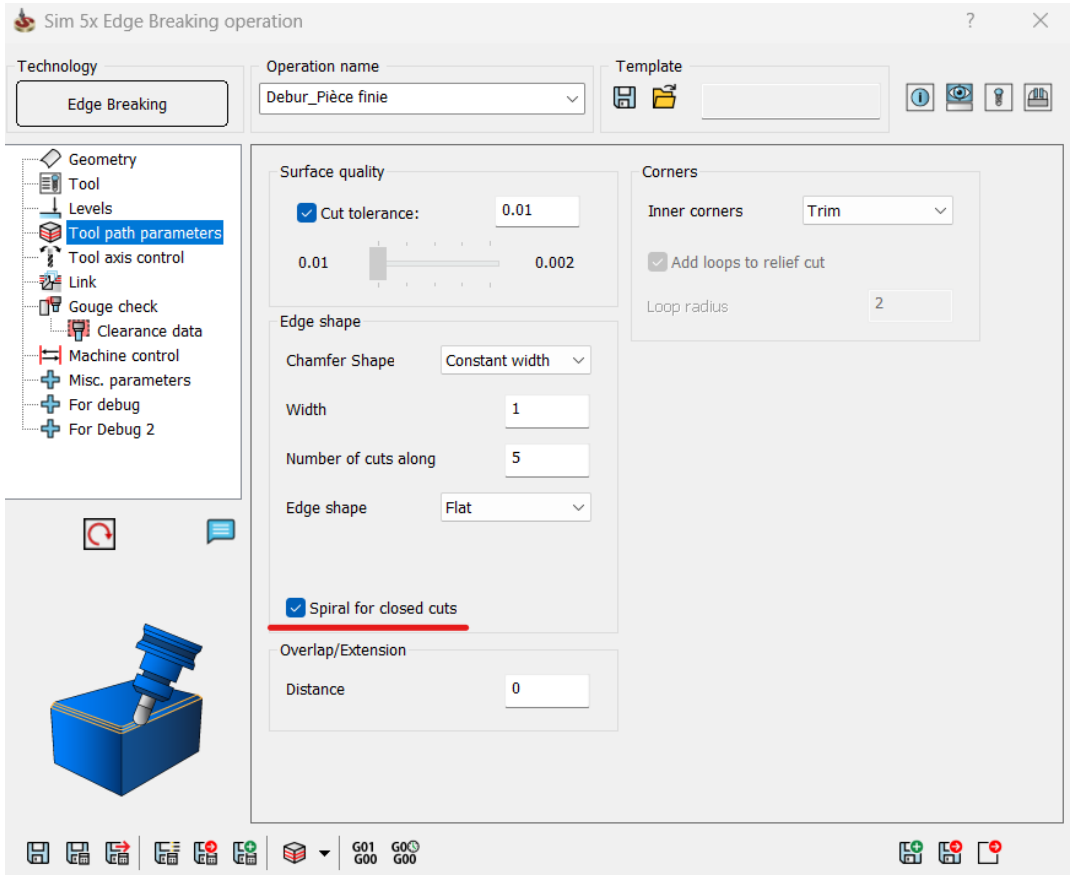
Edge Breaking – Enhanced toolpath with Taper Mill Tool





Enhanced 5-Axis Edge Breaking: Creates a continuous toolpath around inner and outer corners with a taper mill, eliminating intermediate links for reduced cycle time, available by default in SC2024.

Edge Breaking – Spiral cutting method



Spiral Cutting Method: Enables multiple cuts using a spiral pattern on closed contours, avoiding stepover marks on chamfered or radius edges, roviding a smoother toolpath with fewer machine movements.

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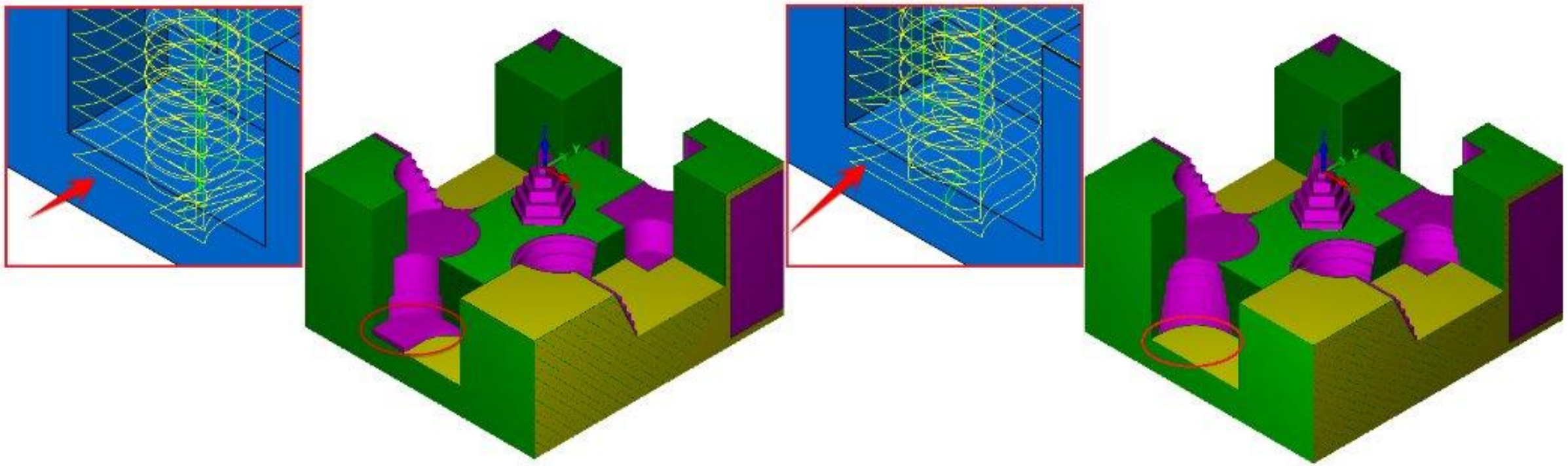
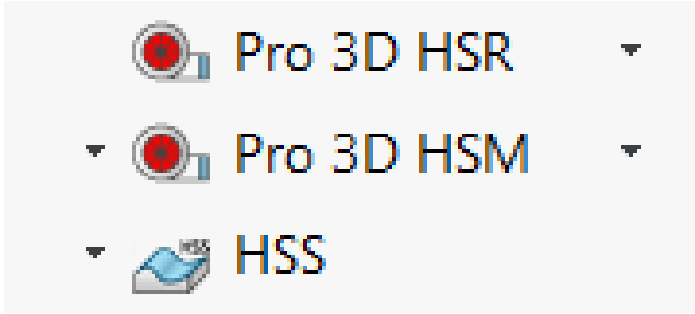
Pro 3D HSR – Modified sorting of Machining of Flat areas



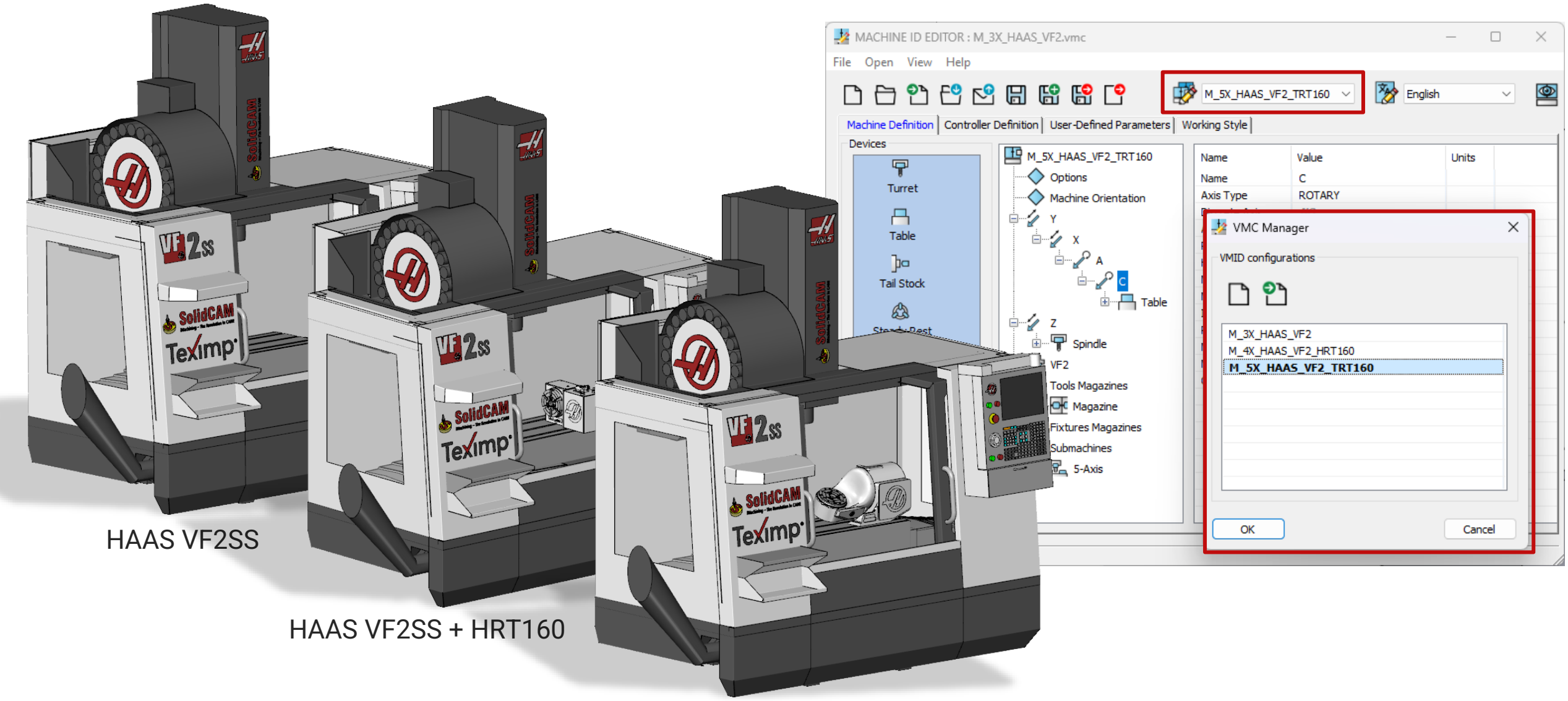
Improved Flat Area Machining: In SC2024, flat areas are machined after each depth of cut, allowing safer access to deeper pockets and addressing stock issues from unsuitable stepdowns. This modification enhances machining efficiency and tool access.

Important Information

- **Turbo 3D HSR** will be referred (renamed) as **Pro 3D HSR.**
- **Pro 3D HSR** is applicable only for new operation.
- **Turbo 3D HSM** Technology is depreciated.
- Creating new Turbo 3D HSM operations from the CAM tree menu, template, or process template is possible only using a **feature flag**.
- Existing **Turbo 3D HSM** operations can be calculated without the feature flag.
- **Pro 3D HSM** is the alternative technology for Turbo 3D HSM.
- **Turbo 5-Axis Milling** is available in the SolidCAM Beta options.
- **Improved geometry preparation algorithm** for Mesh based toolpath technologies, there will be some changes in the toolpath from the previous version.



VMID – Support Configurations



HAAS VF2SS

HAAS VF2SS + HRT160

HAAS VF2SS + TRT160

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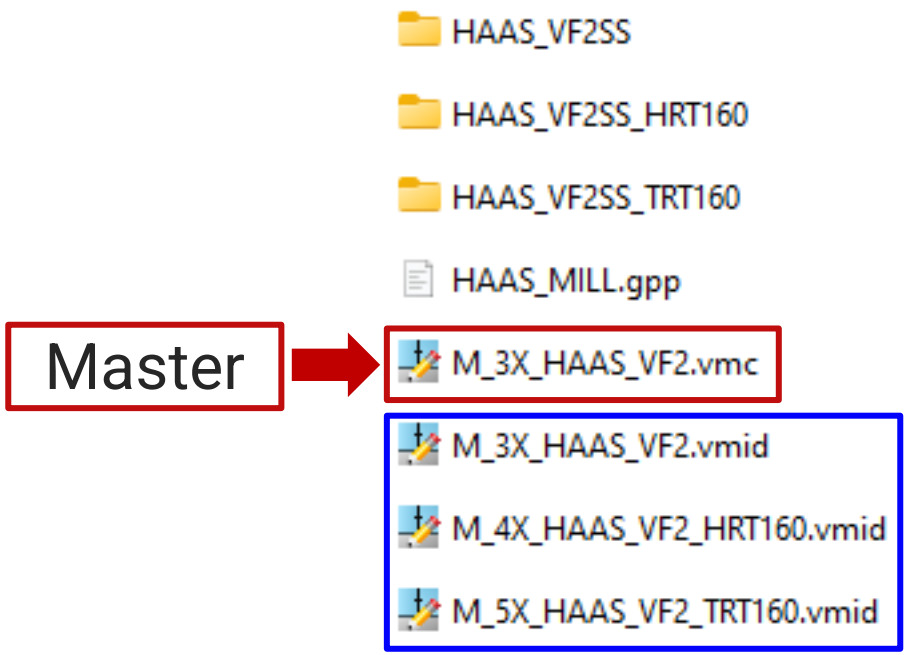
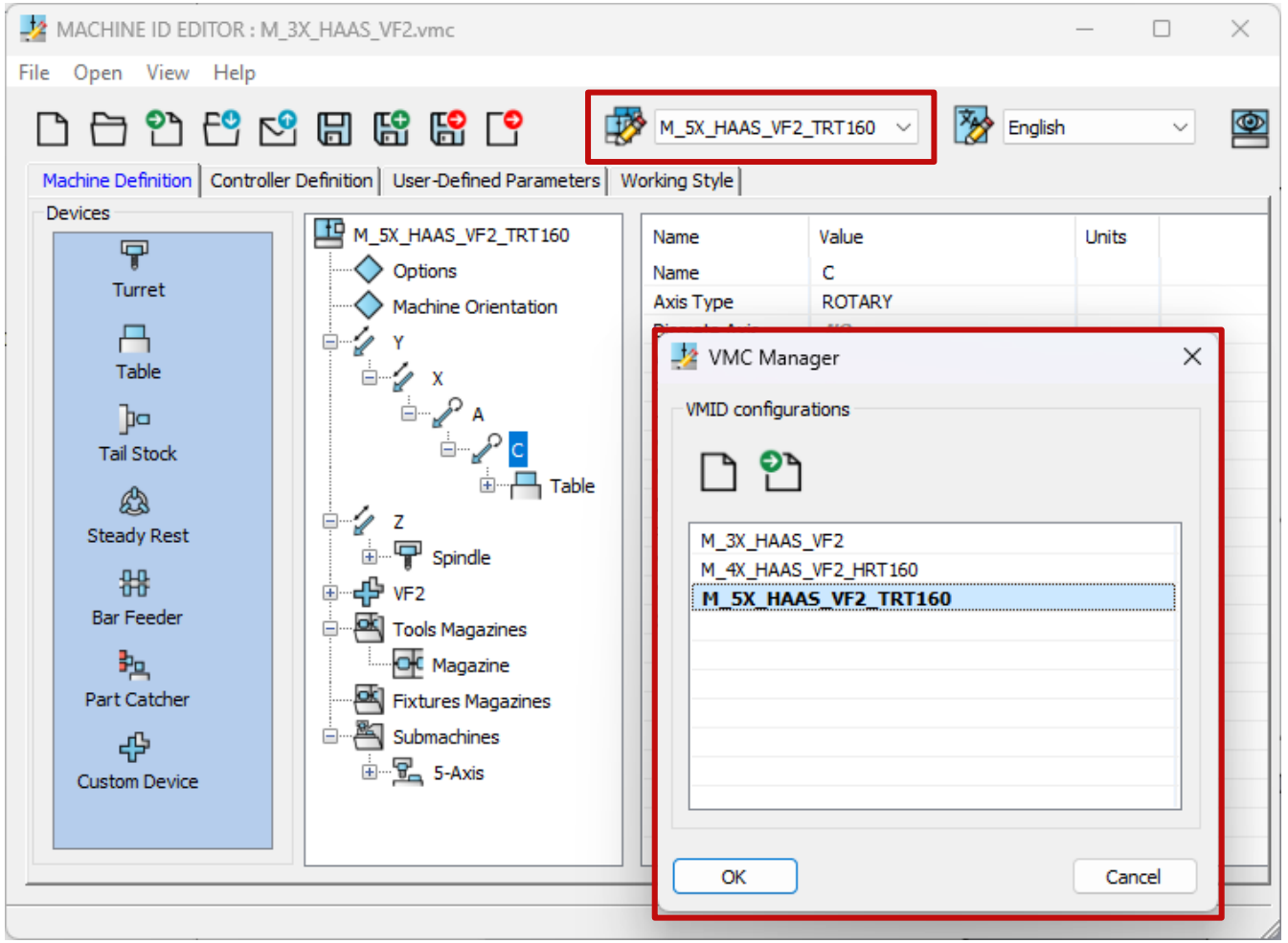
VMID – Support Configurations

- Ability to **create**, **import** and **manage** machine configurations within single interface
- If configurations are defined, they are placed in the **VMC** file; otherwise, **VMID** remains.





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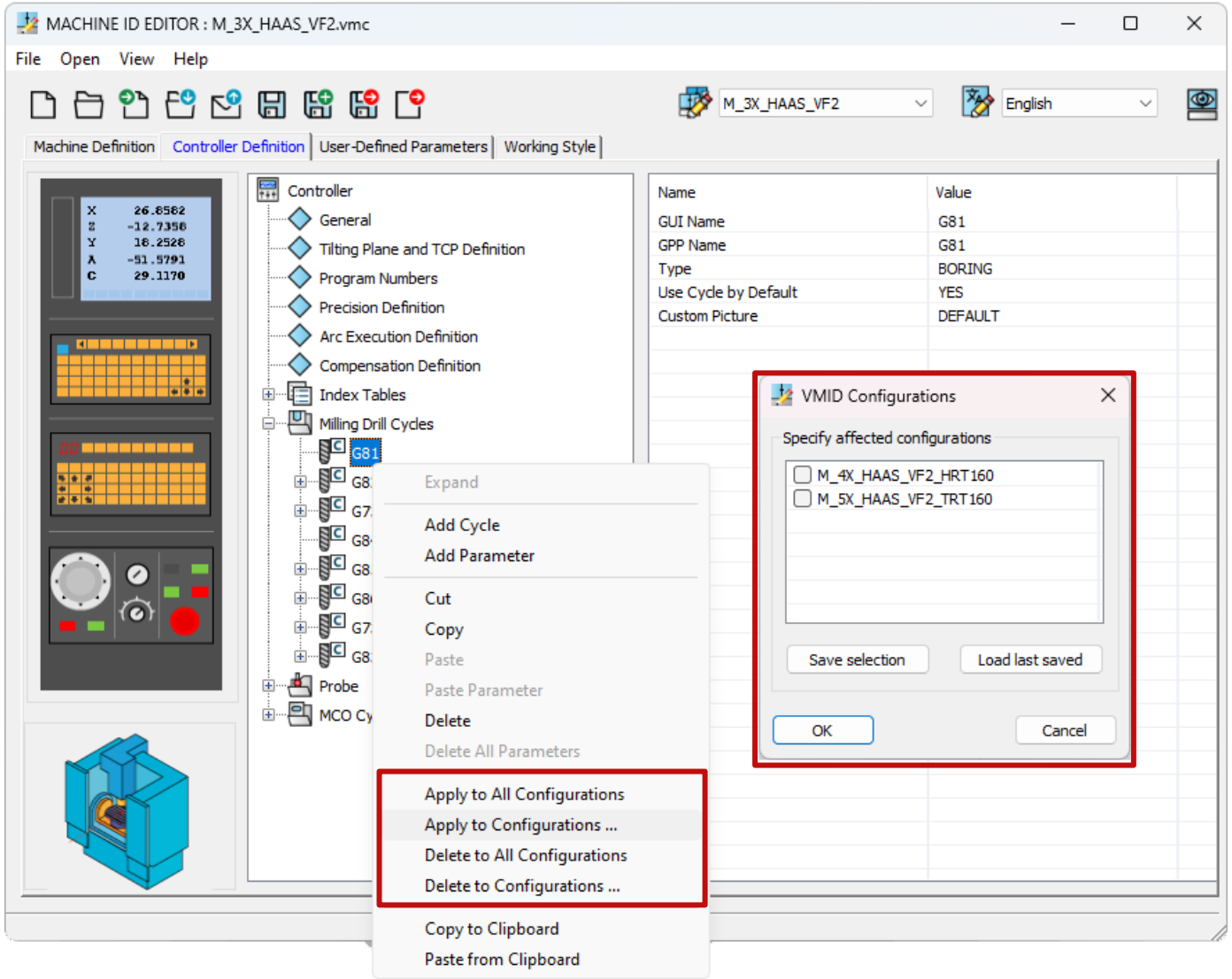
VMID – Support Configurations

- Any change in configuration may be **applied to other Configuration**
- **Save selection** and **Load last saved** configuration helps to easily selects last saved configuration.
- **Changes (adding, modifying or removing)** may be applied on Axes, Devices, Submachines, Index Tables, Parameters, MCO and Drilling Cycles.



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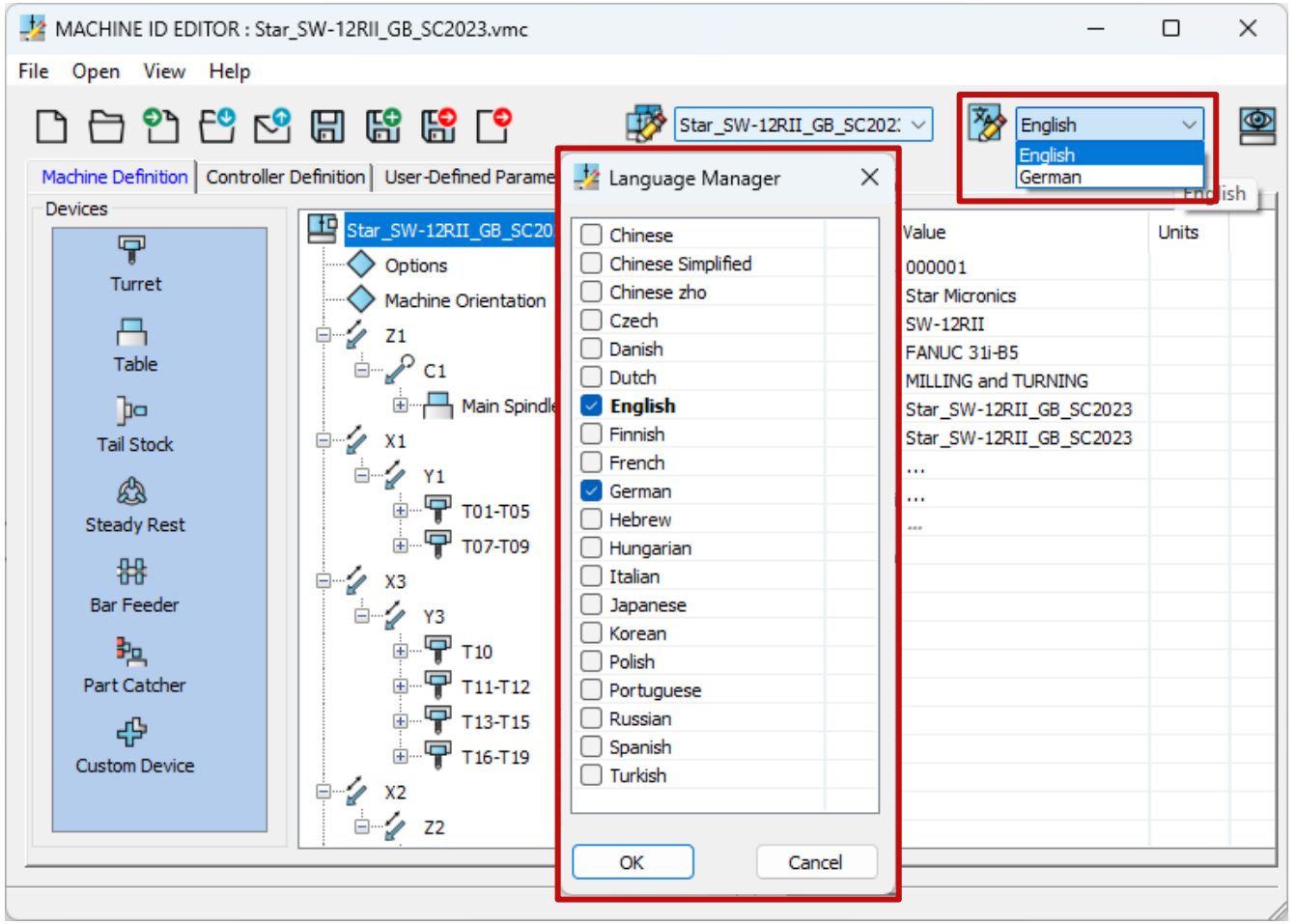
VMID – Multi-language support

- **Maintain** two or more languages within **VMC** file.
- **GUI Name** on Device, Magazine, Submachine, Milling and Turning Drilling cycles, MCO's, Machine, Misc., Milling, Turning and Probe Parameters are affected by multi-language option.
- **Axis Name** is not Language sensitive!



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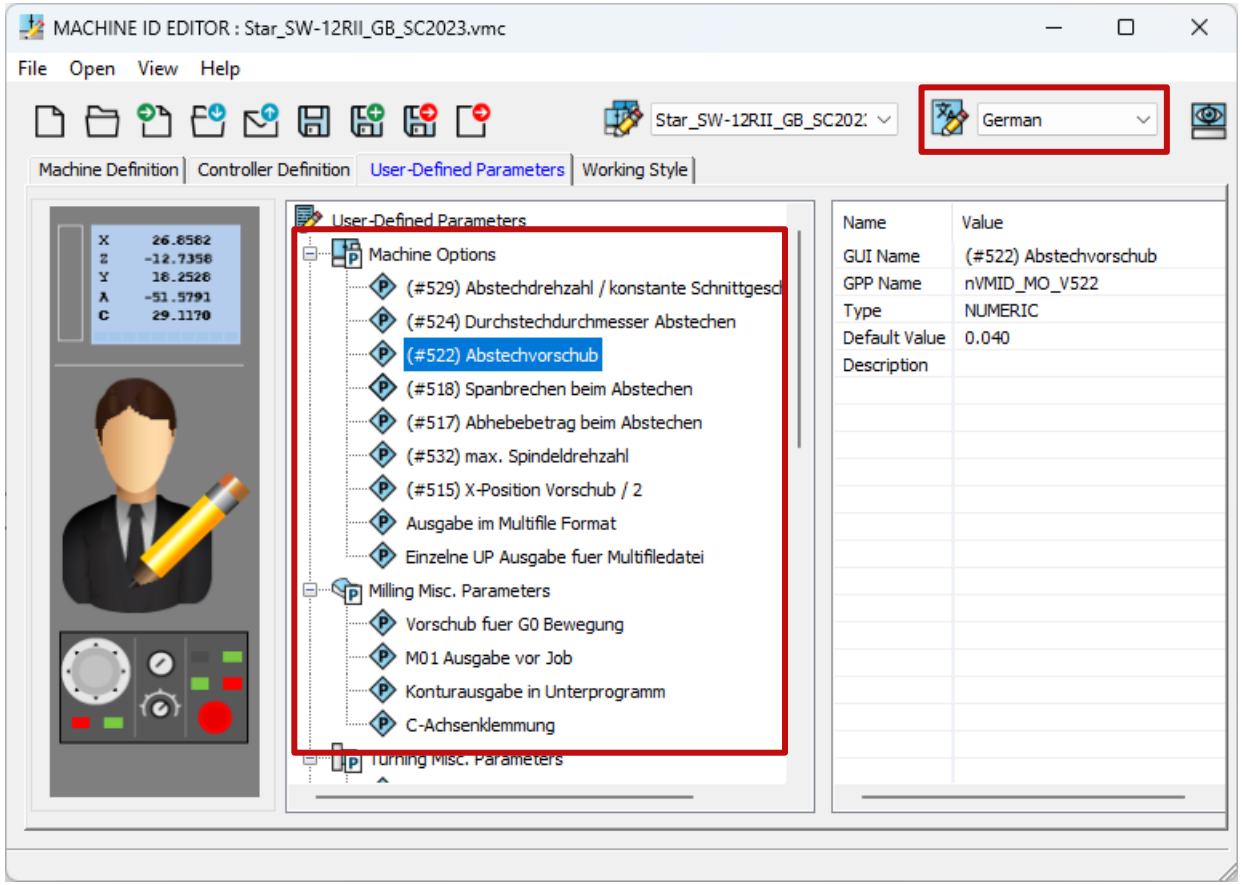
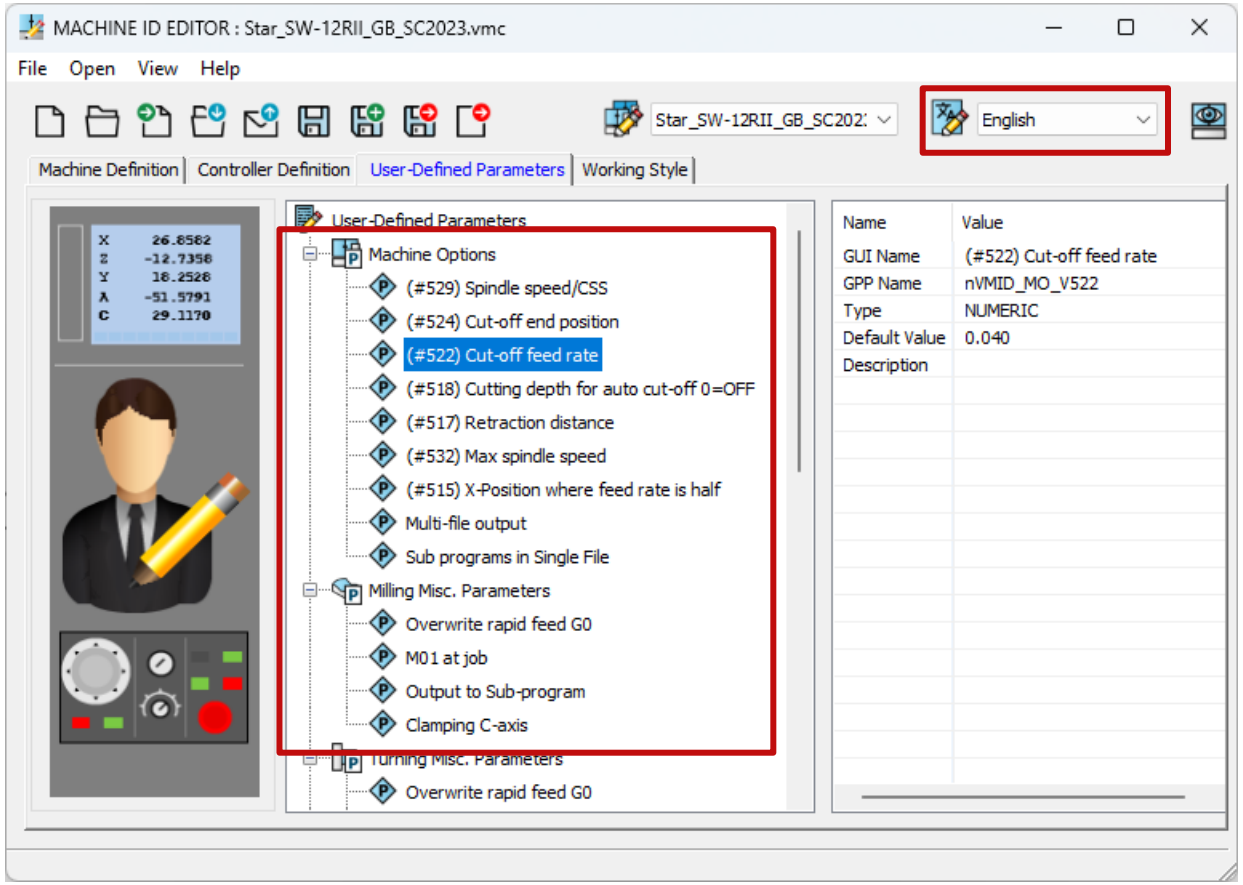
VMID – Multi-Language GUI parameters support

- **Languages** are not auto-translated





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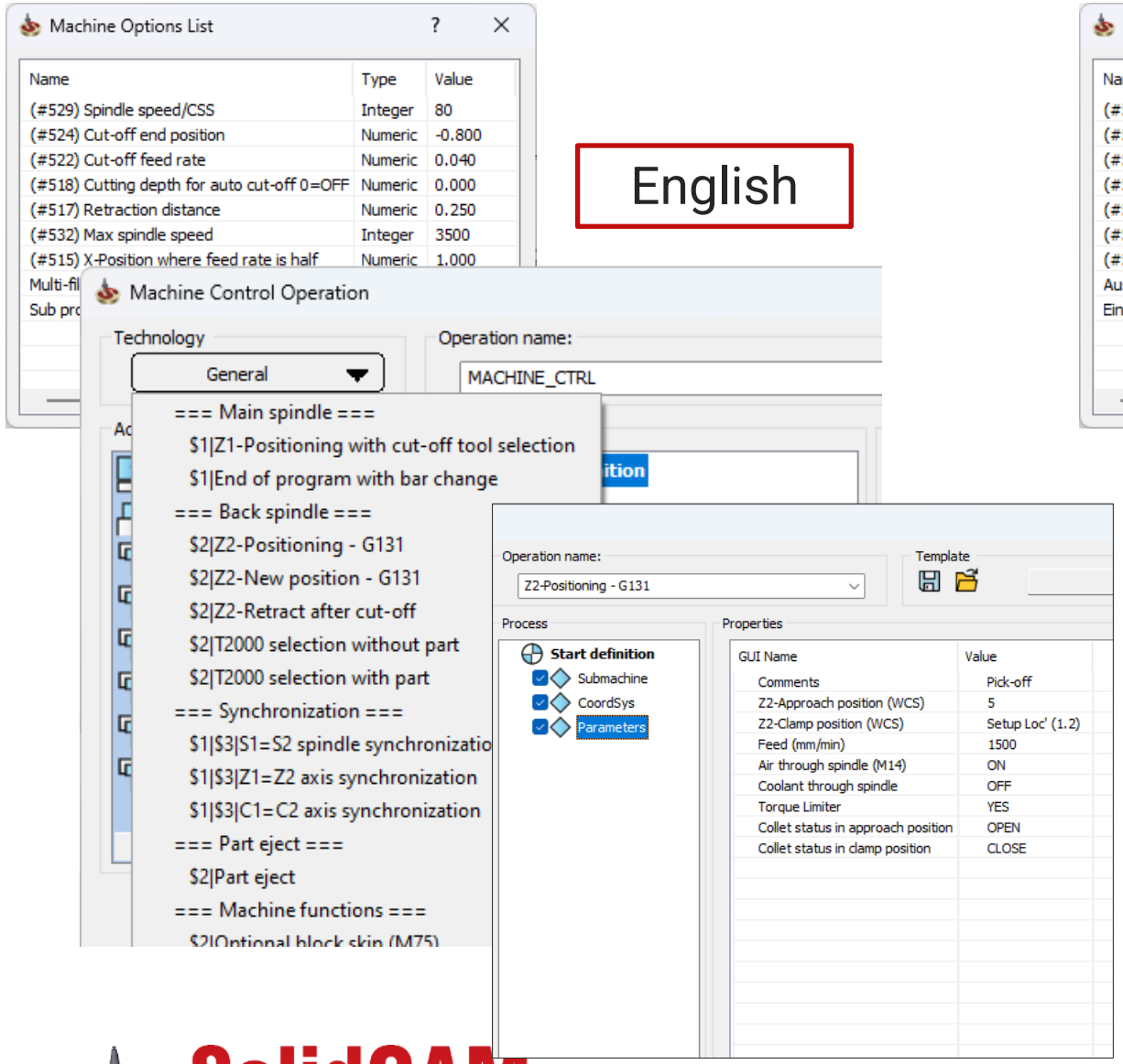
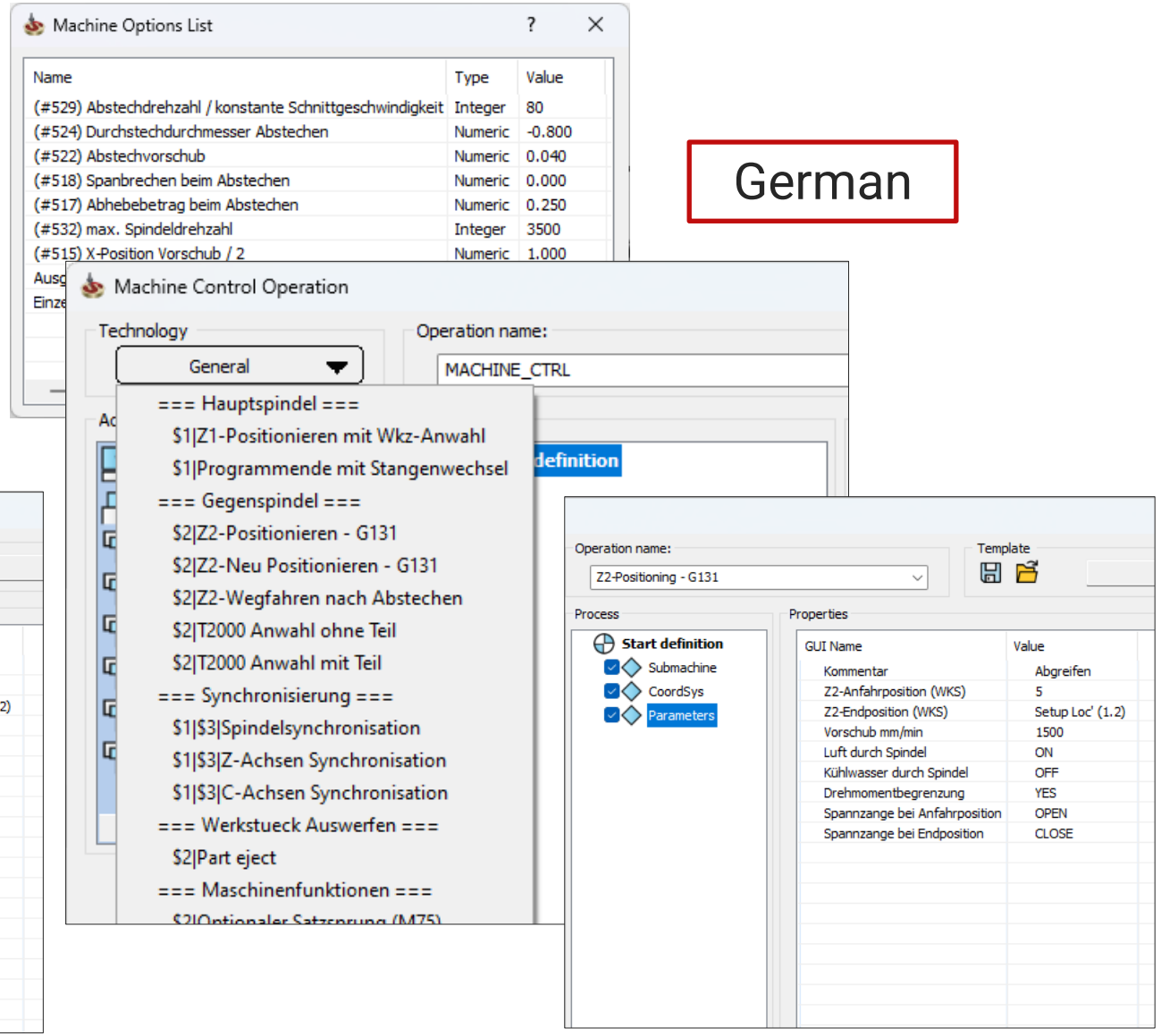
VMID – Multi-Language GUI parameters support

English



German



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"The best way to predict the future is to create it."
– Peter Drucker
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THANKS FOR WATCHING