

SolidCAM – The Solid
Platform for Manufacturing

SolidCAM 2023 SP0

What's New



SolidCAM

The Solid Platform for Manufacturing





SolidCAM

THE **CAM** FOR SOLIDWORKS

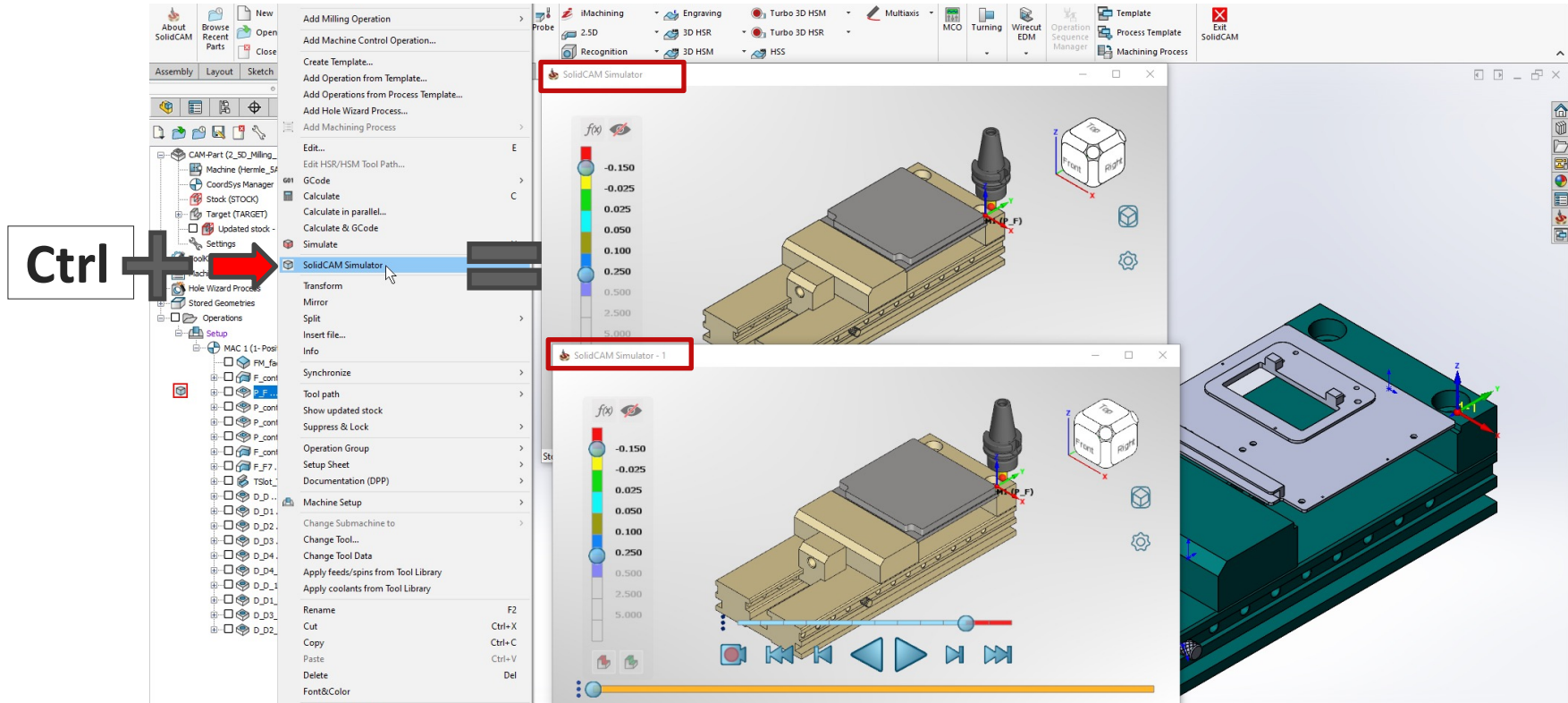
- ⊕ Seamless SOLIDWORKS Gold-certified Integration since 2003
- ⊕ Complete Solution for all Manufacturing Technologies
- ⊕ Advanced Mill-Turn/Swiss-Type for most complex CNCs
- ⊕ Unique, patented iMachining Technology

*Building the Future of
Manufacturing together*



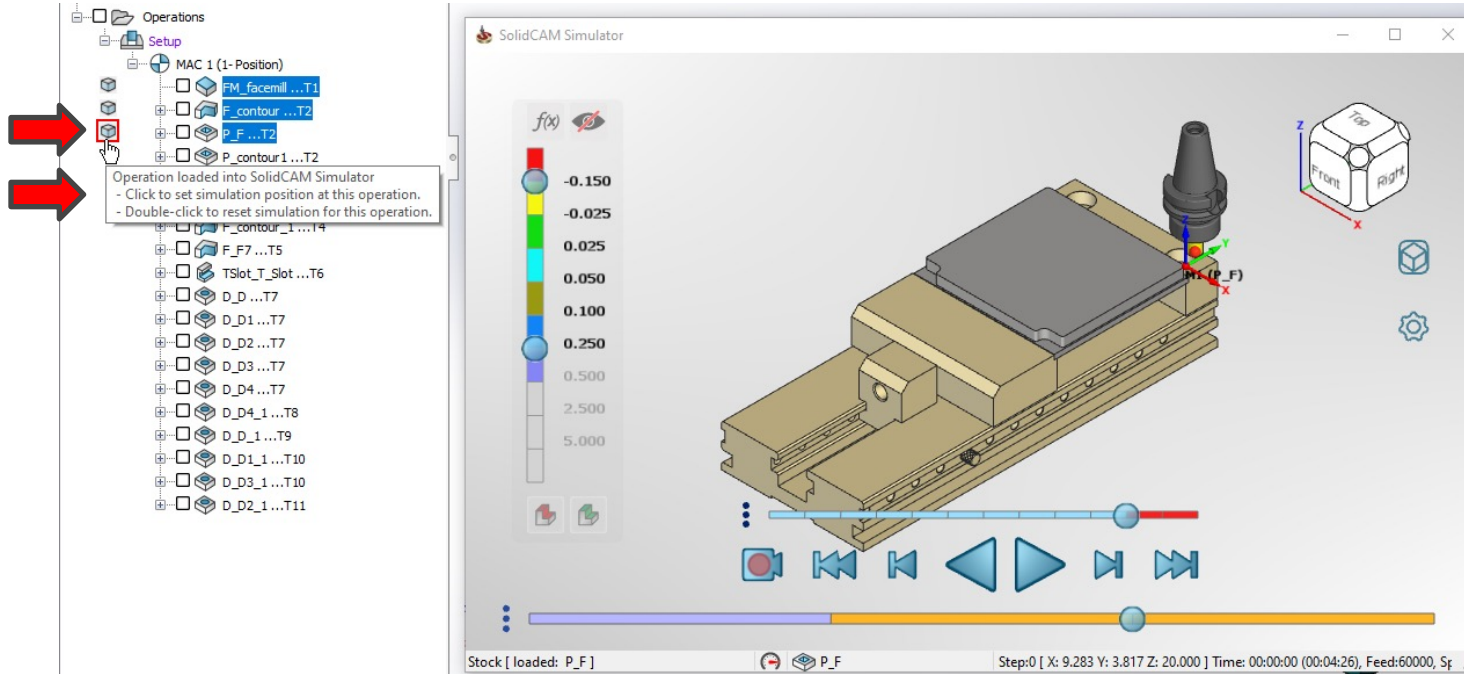
SolidCAM 2023 – SolidCAM Simulator

❑ Launch multiple instances of Simulator by holding Ctrl when launching from the CAM tree



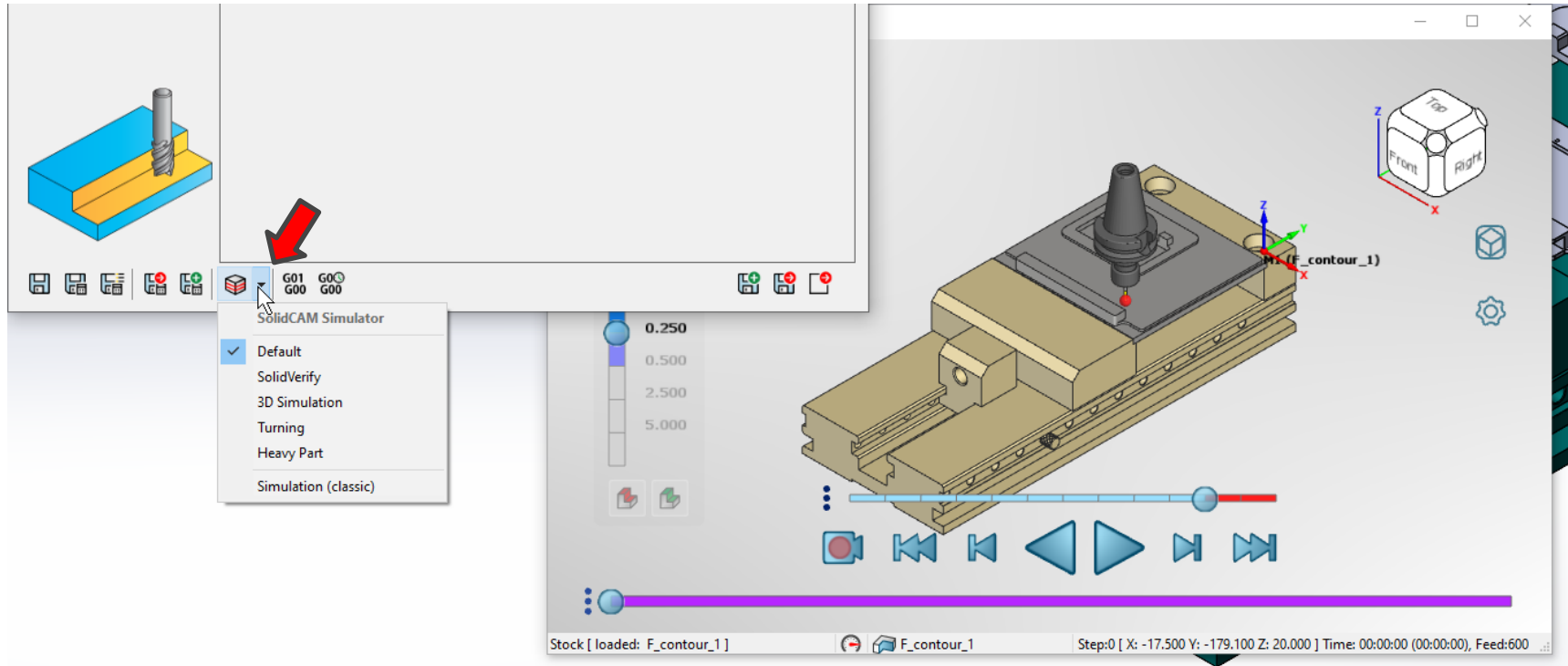
SolidCAM 2023 – SolidCAM Simulator

- ❑ Loaded operations are shown in the CAM tree with currently playing operation highlighted
- ❑ Single or double-click operation in CAM tree to set position or reset the simulation



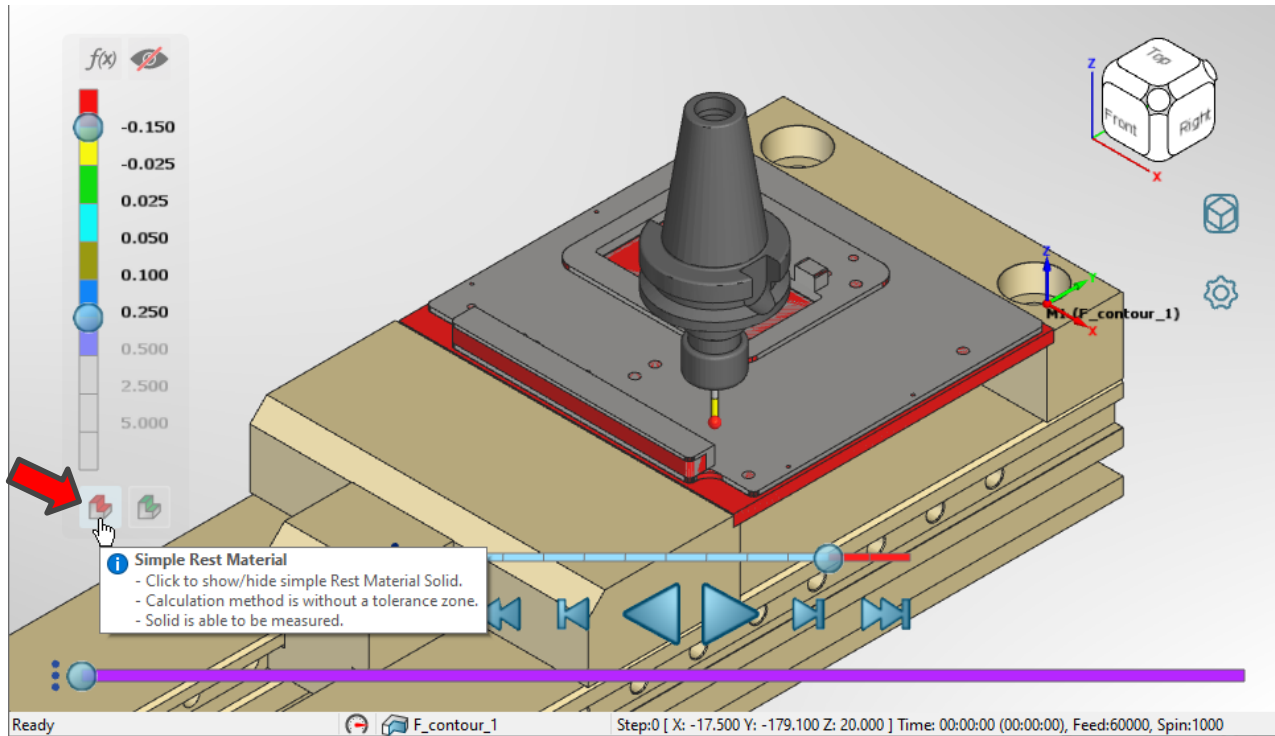
SolidCAM 2023 – SolidCAM Simulator

- ❑ Launch directly into preferred Simulator theme from Operation dialog box



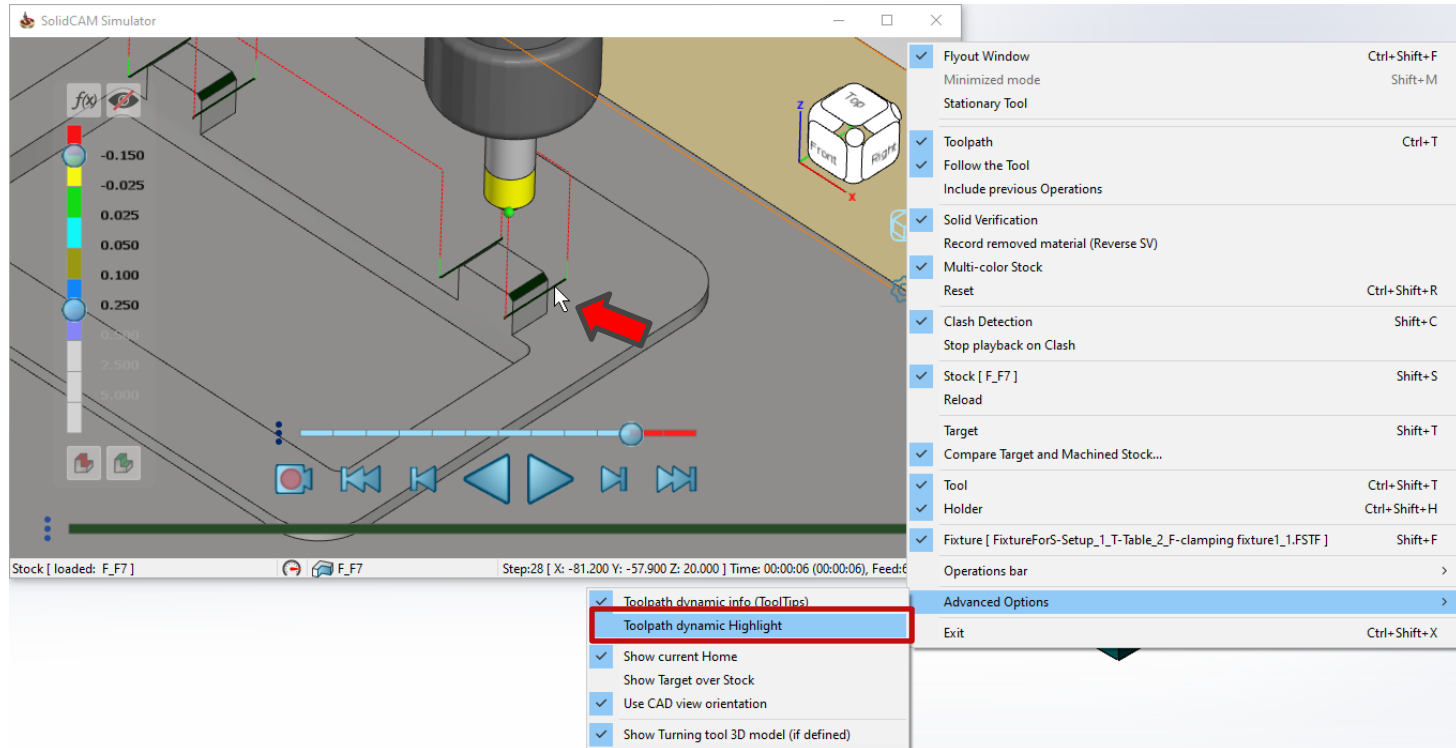
SolidCAM 2023 – SolidCAM Simulator

- ❑ Compare Target and Machined Stock options to show/hide simple rest material and simple gouges (like in SolidVerify Simulation)



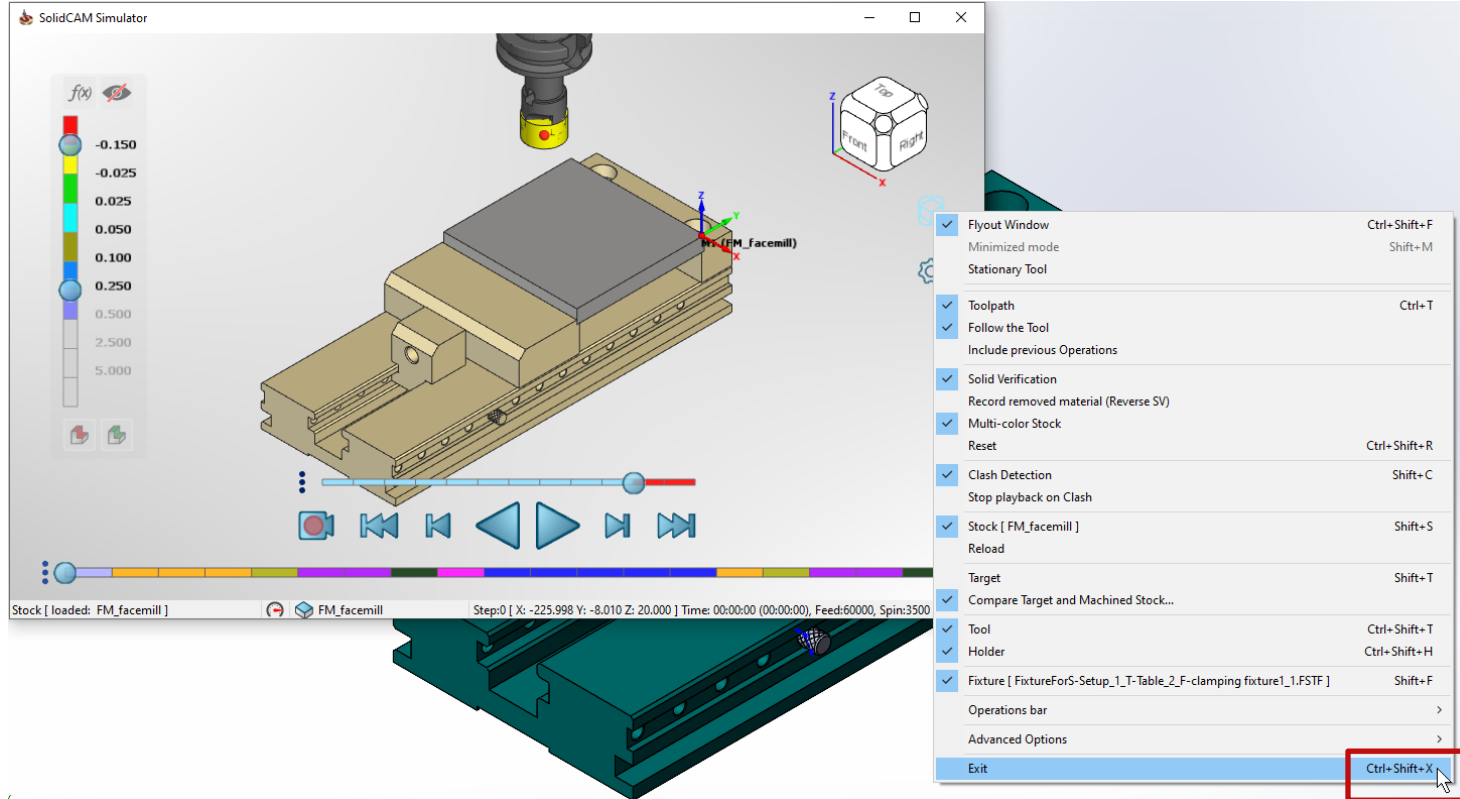
SolidCAM 2023 – SolidCAM Simulator

- Dynamic highlighting and selection of tool path can now be disabled for viewing only (ON/OFF Advanced Options)



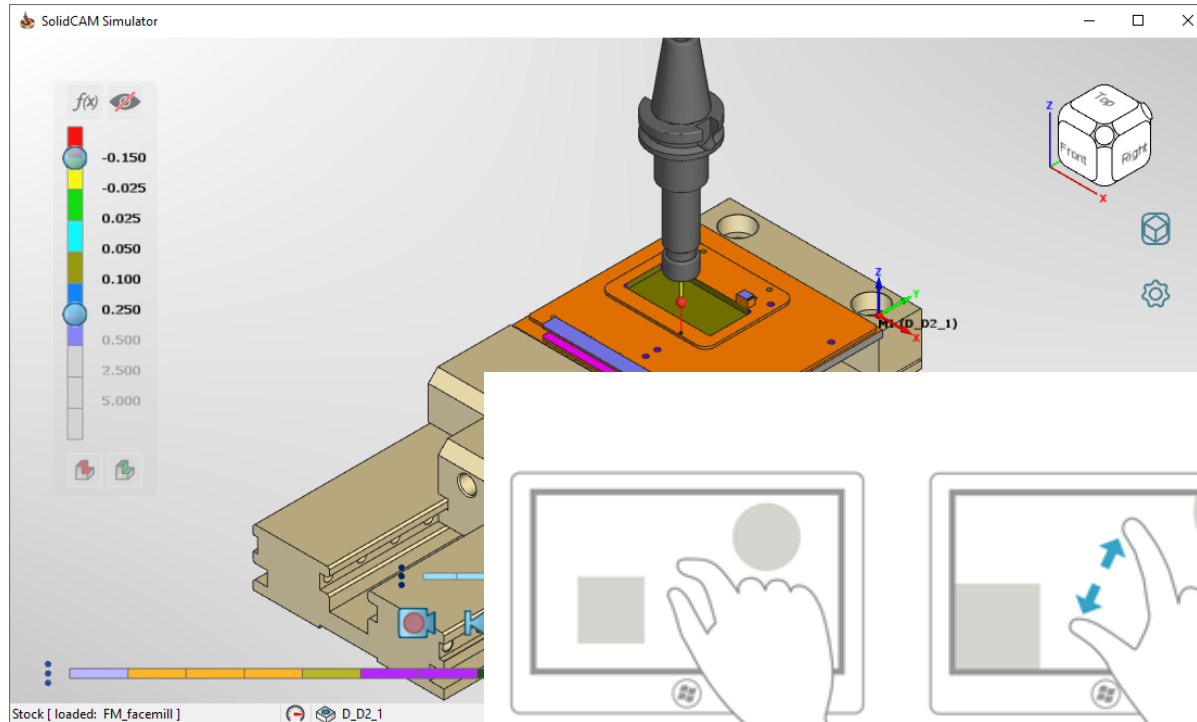
SolidCAM 2023 – SolidCAM Simulator

❑ Ctrl+Shift+X shortcut enables you to quickly exit the Simulator



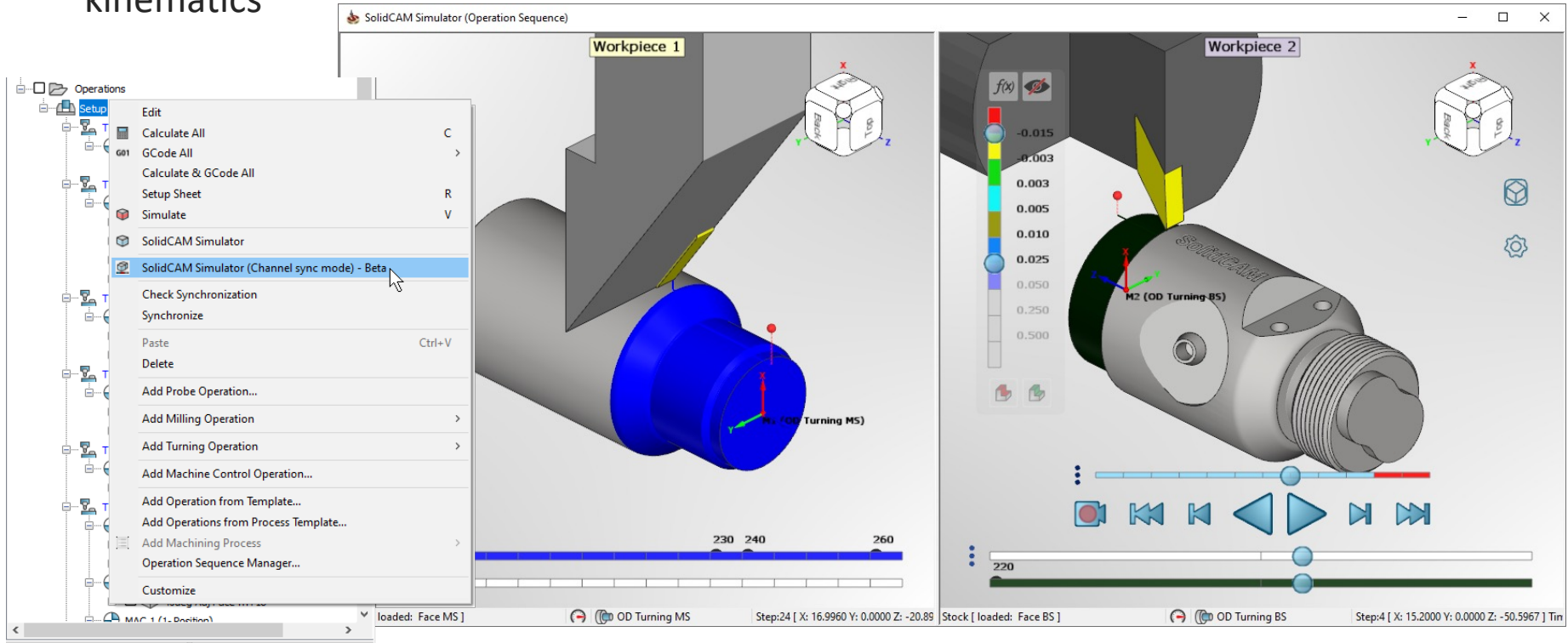
SolidCAM 2023 – SolidCAM Simulator

- ❑ Simulator supports touch controls (zoom/pan/rotate)



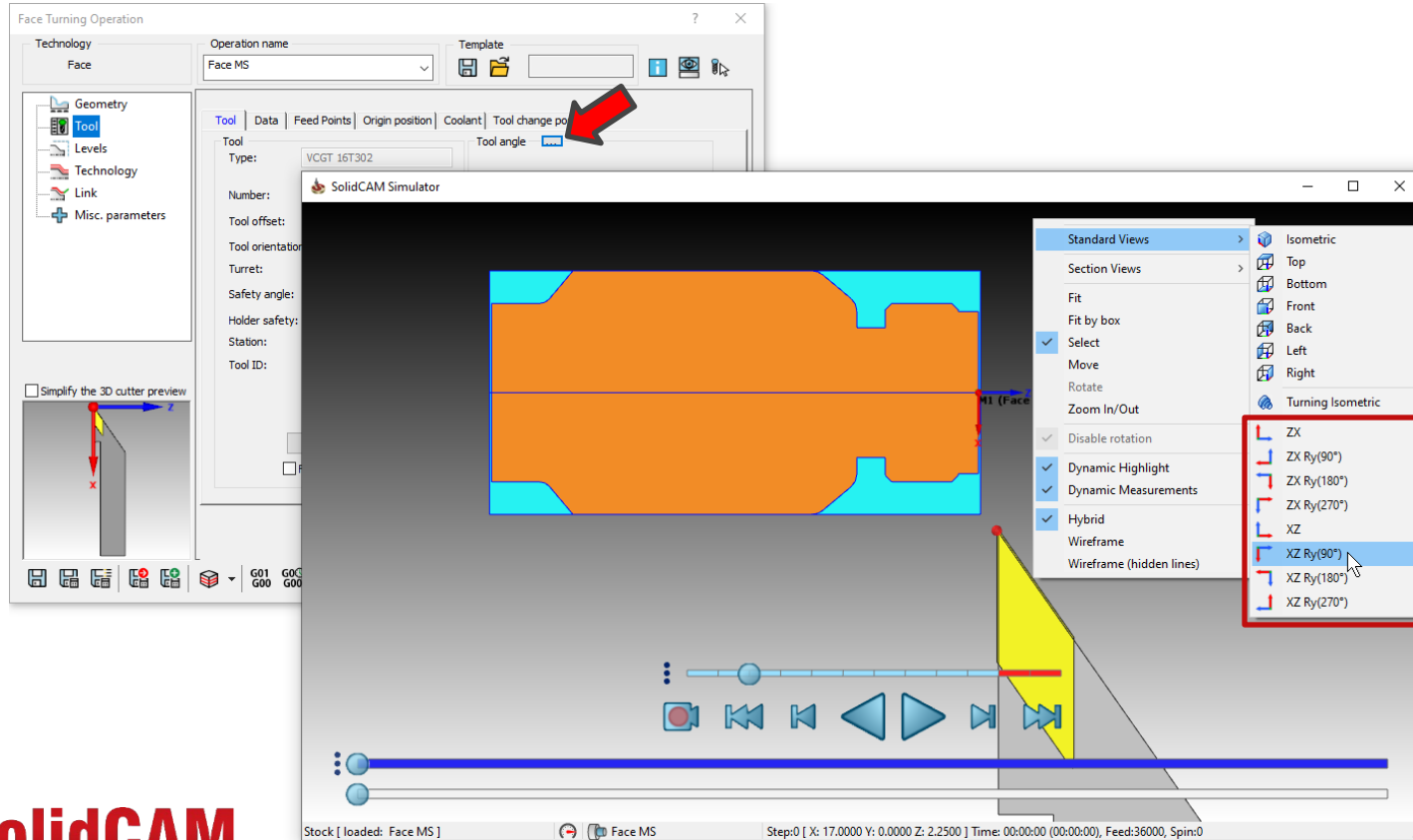
SolidCAM 2023 – SolidCAM Simulator

❑ Channel Sync Mode simulates multichannel operations, without full Machine Simulation kinematics



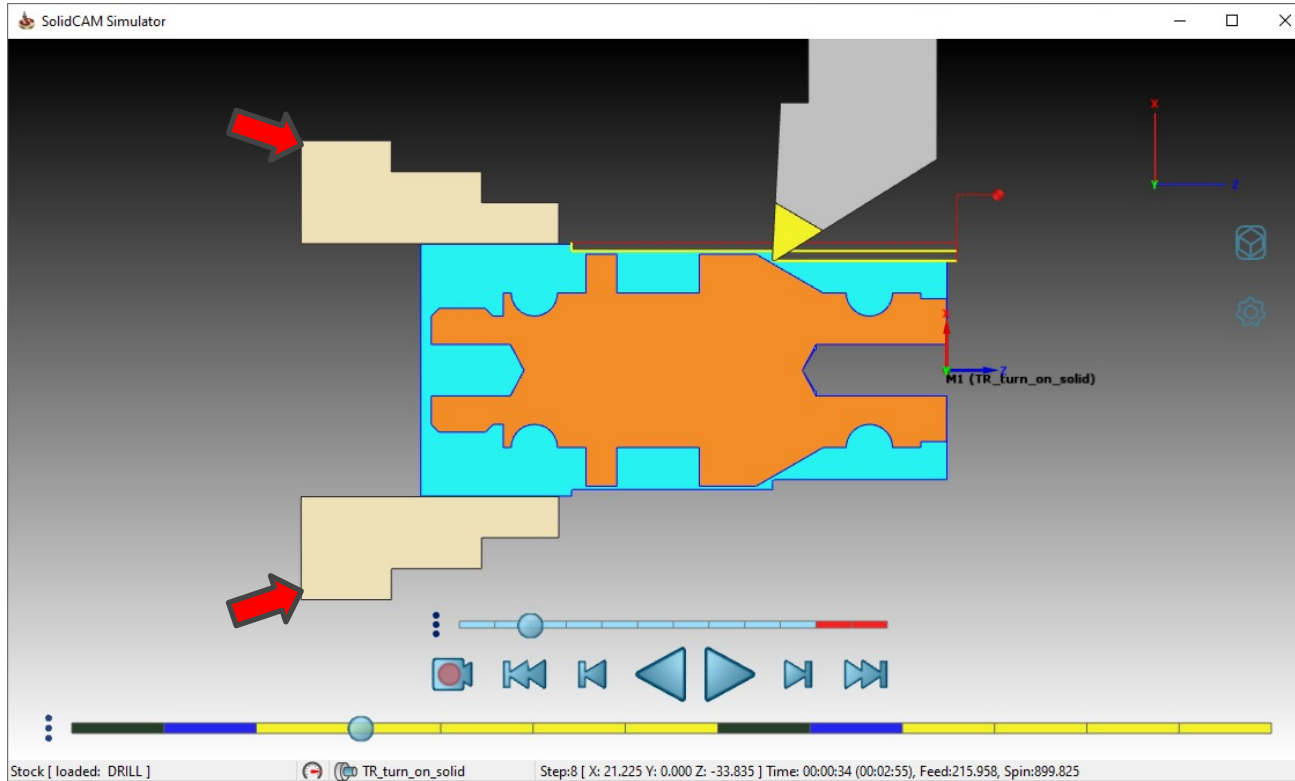
SolidCAM 2023 – SolidCAM Simulator

❑ Simulator supports Turning View Orientations & Auto Switches based on Operation



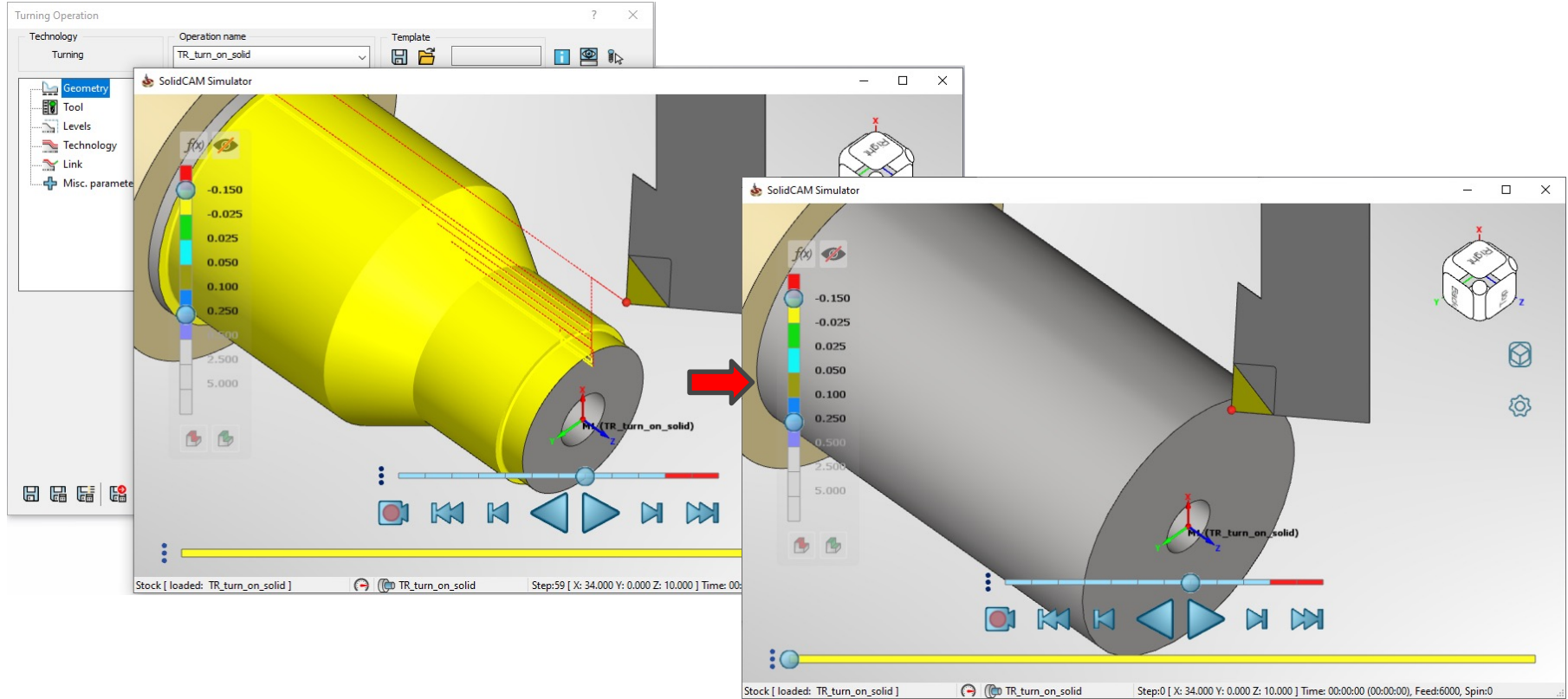
SolidCAM 2023 – SolidCAM Simulator

- ❑ Parametric and STL fixtures are now visible in Simulator 2D Turning theme



SolidCAM 2023 – SolidCAM Simulator

❑ Window and viewing orientation are automatically restored when Simulator is restarted



SolidCAM 2023 – SolidCAM Simulator

- ❑ Simulator displays 3D model representation of Turning Insert STLs (if defined in ToolKit)

The screenshot shows the SolidCAM Simulator window. On the left, there is a vertical color scale for stock level, ranging from -0.150 (red) to 5.000 (blue). Below the scale are icons for 'f(x)' and a refresh button. The main area displays a 3D model of a turning operation with a yellow tool cutting a grey workpiece. A red dashed line indicates the tool's path. At the bottom, there is a playback control bar with buttons for play, stop, and other functions. Two context menus are open on the right side of the window.

Top Context Menu:

- Flyout Window Ctrl+Shift+F
- Minimized mode Shift+M
- Stationary Tool
- Toolpath Ctrl+T
- Follow the Tool
- Include previous Operations
- Solid Verification
- Record removed material (Reverse SV)
- Multi-color Stock
- Reset Ctrl+Shift+R
- Clash Detection Shift+C
- Stop playback on Clash
- Stock [GR_AC_kontura] Shift+S
- Reload
- Target Shift+T
- Compare Target and Machined Stock...
- Tool Ctrl+Shift+T
- Holder Ctrl+Shift+H
- Fixture [Not available.] Shift+F
- Operations bar >
- Advanced Options >**
- Exit Ctrl+Shift+X

Bottom Context Menu:

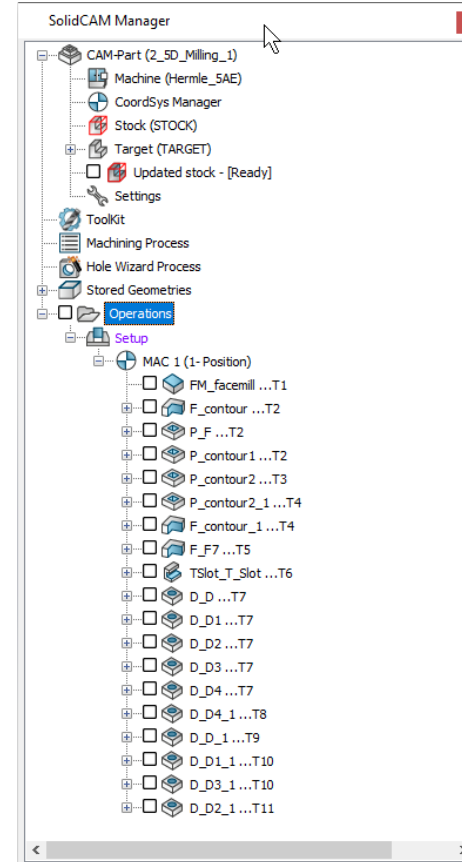
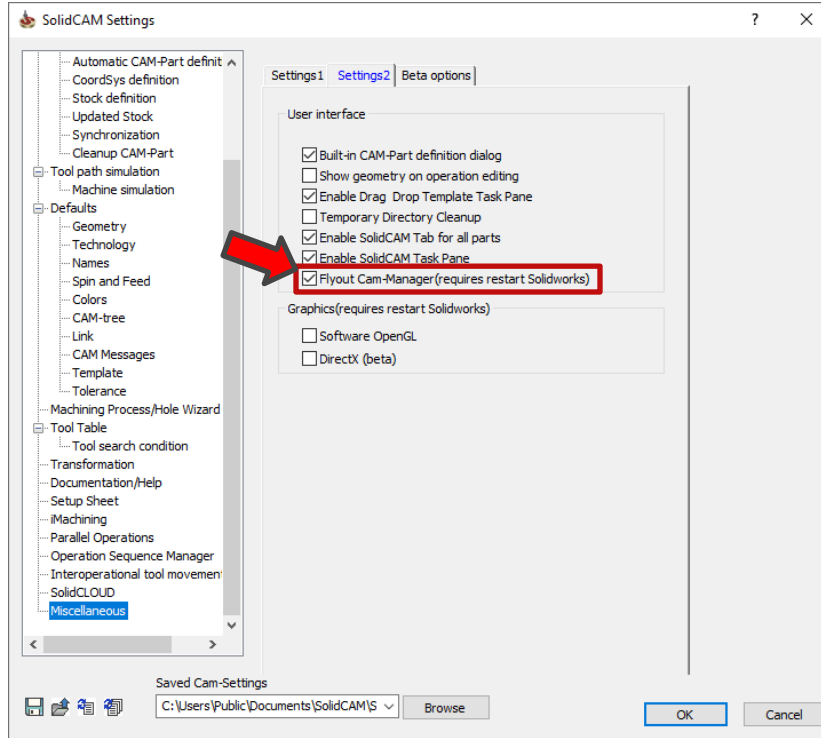
- Toolpath dynamic info (ToolTips)
- Toolpath dynamic Highlight
- Show current Home
- Show Target over Stock
- Use CAD view orientation
- Show Turning tool 3D model (if defined)

At the bottom of the simulator window, the status bar shows: Stock [loaded: GR_AC_kontura] | GR_AC_kontura | Step:1 [X: 61.997 Y: 0.000 Z: -84.402] Time: 00:00:00 (00:00:00), Feed:40000, Spin:0



SolidCAM 2023 – CAM Manager

❑ Flyout CAM Manager (requires restart of SolidWorks)



SolidCAM 2023 – Hole Wizard Enhancements

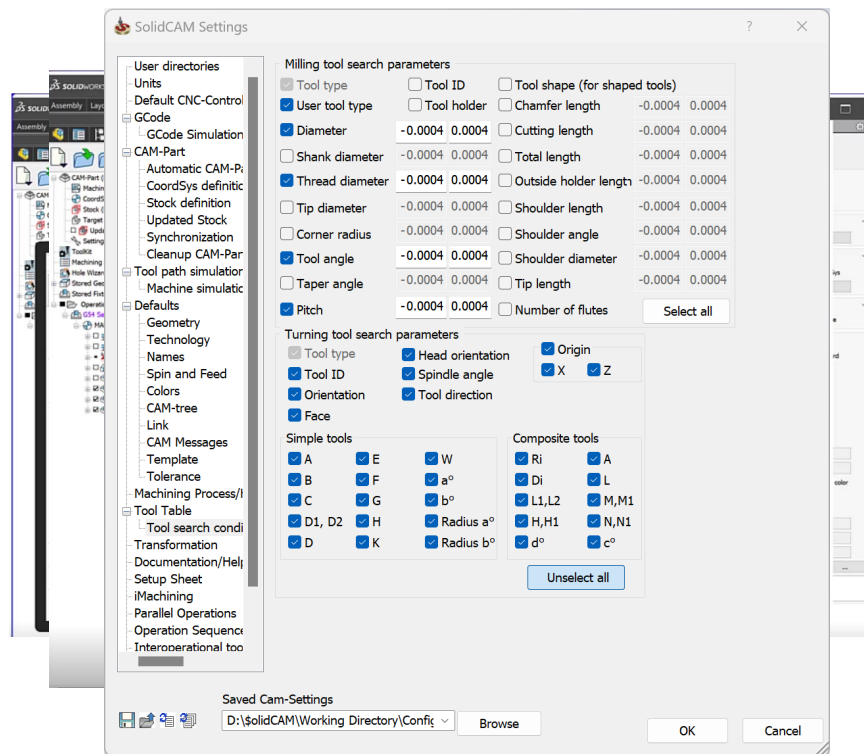
❑ Advanced Feature Recognition

- ❑ Recognize Once
- ❑ Use repeatedly

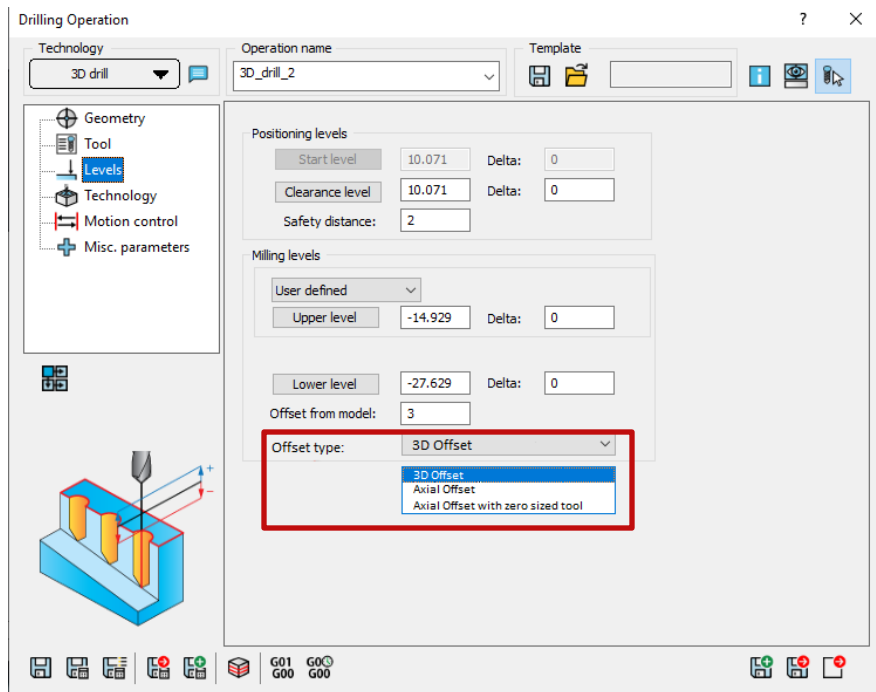
❑ Feature Based Attributes

- ❑ Dimensional Tolerances
- ❑ Feature Color Attribute

❑ Tool Search Criteria Tolerances



❑ 3D Drill supports Offset type options



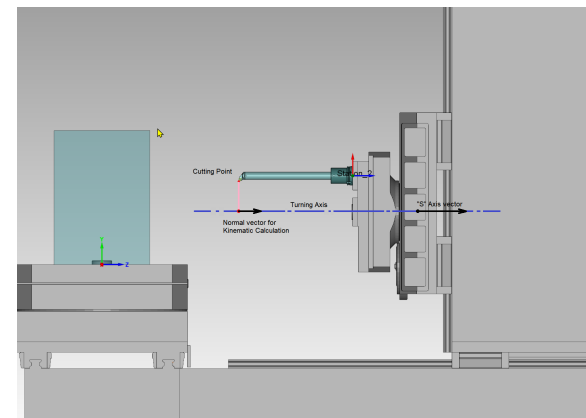
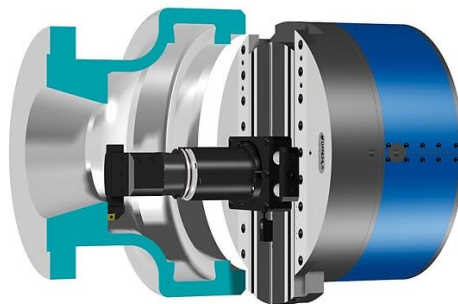
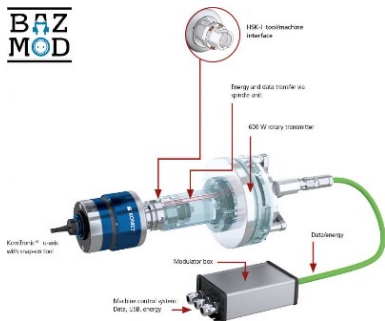
- 3D offset (default selection) - offsets the tool by the offset value
- Axial offset - tool is shifted up/down (+/-) in Z by the offset value
- Axial offset with zero tool - a zero sized tool is first projected on the model; tool is then shifted up/down (+/-) in Z by the offset value

SolidCAM 2023 – U-Axis support

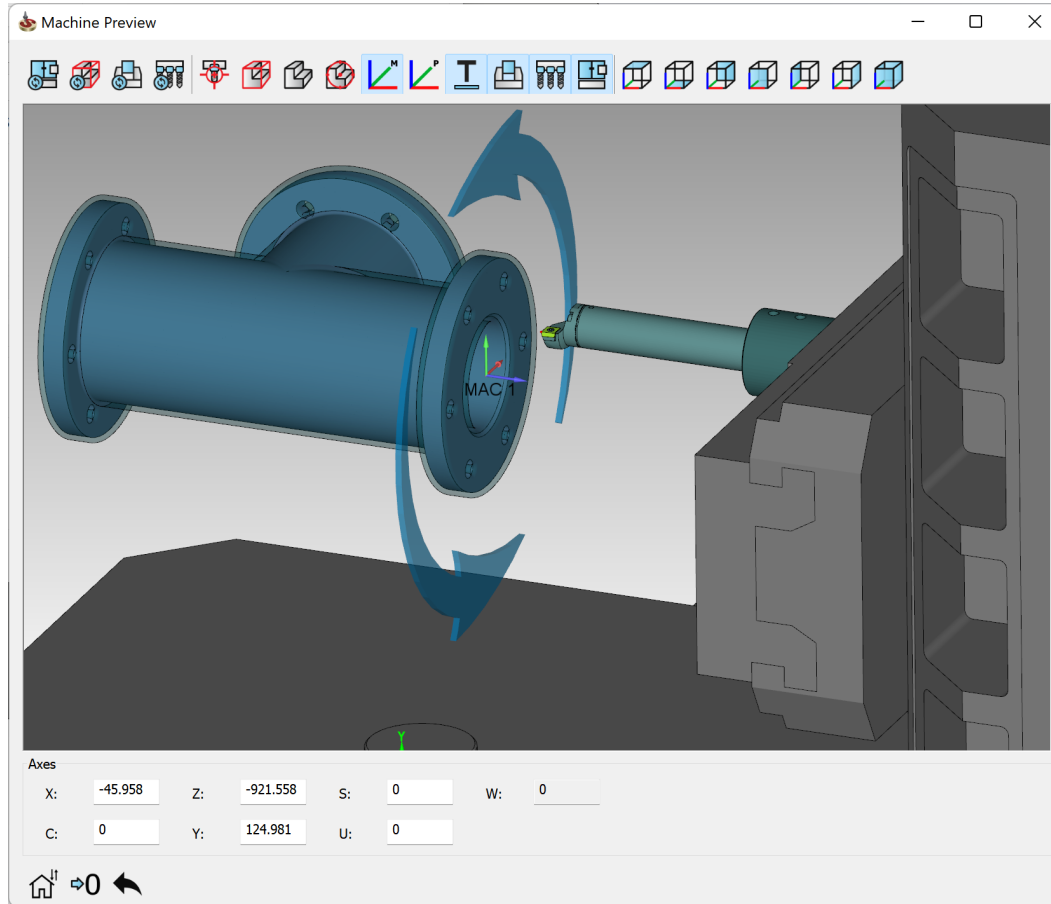
- ❑ **New axis type** “Sub Linear Axis” can be Simultaneous or Indexial
- ❑ **Tool vector** for kinematic calculations is the Drive Unit Axis vector as normal to plane vector.
- ❑ The **tool tip point** for positioning is the projection of the Cutting Point to the Turning Axis.

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

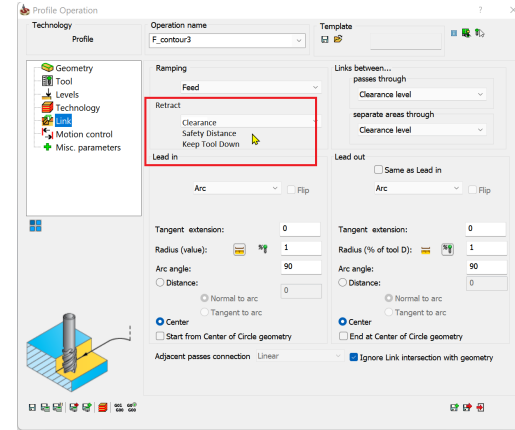


SolidCAM 2023 - U-axis machining Support



SolidCAM 2023 – 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 2023 - Collinear Axes Support

Profile Operation

Technology: Profile

Operation name: F_contour7

Template: [Save] [Open] [Info] [Eye] [Help]

Geometry: CoordSys: MAC 1 (3- Position)

contour7

Show

Geometry selection: General Silhouette

Collinear Axes Sequence table

#	Description	Z value	Submachine
0	desc	25	Milling Z
1	desc	2	Milling Z
2	desc	-25	Milling Z
8	desc	50	Milling W
14	desc	75	Milling Z
20	desc	-100	Milling Z
26	desc	25	Milling Z

OK Cancel

Machine Preview

Axes

X: 17.59 Z: -656.5 S: 0 W: -400

C: -90 Y: 409 U: 0

- ❑ **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**.



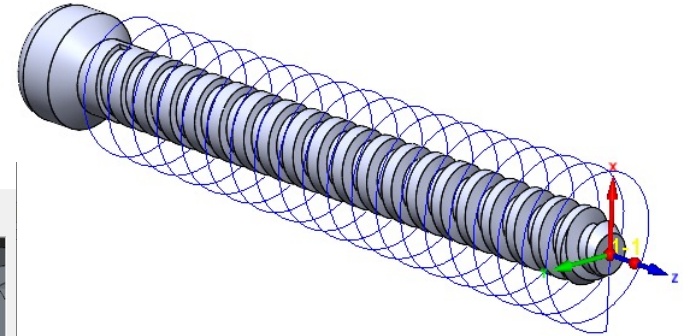
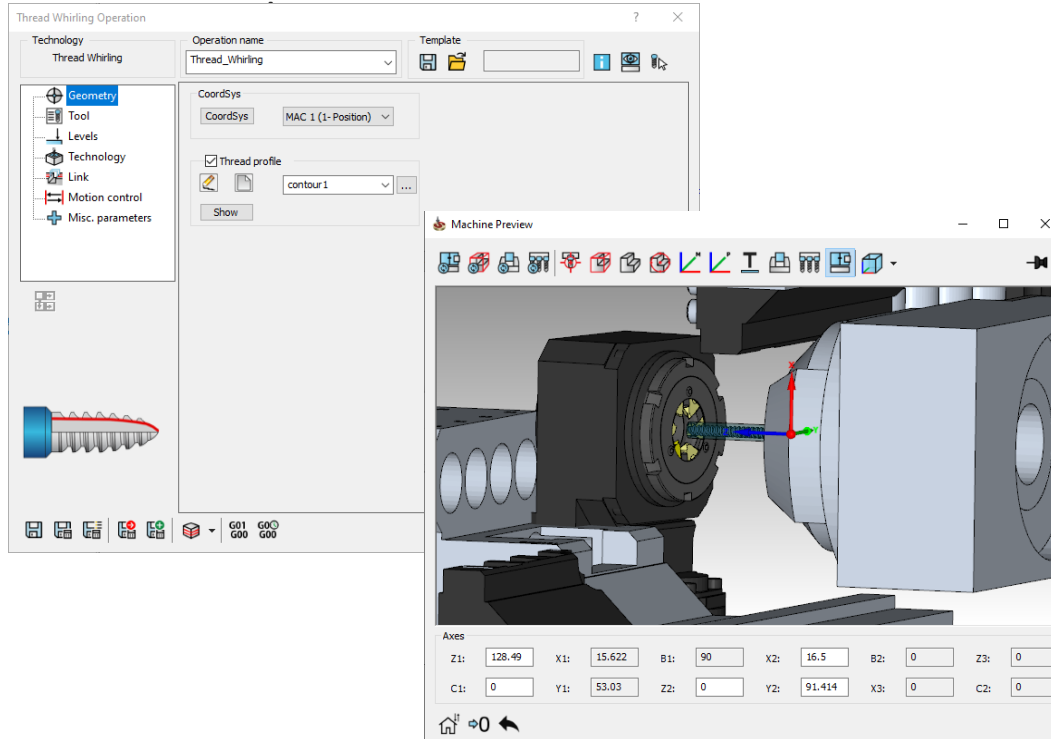
SolidCAM 2023 – Thread Whirling for SWISS type

- ❑ Newly supported threading technology that allows the machining of high-quality threads without the risk of bending or vibrations.
- ❑ In combination with a swiss type machine, it is a very suitable technology for parts with a high length-to-diameter ratio such as bone screws, implants, feed screws, and other microcomponents.



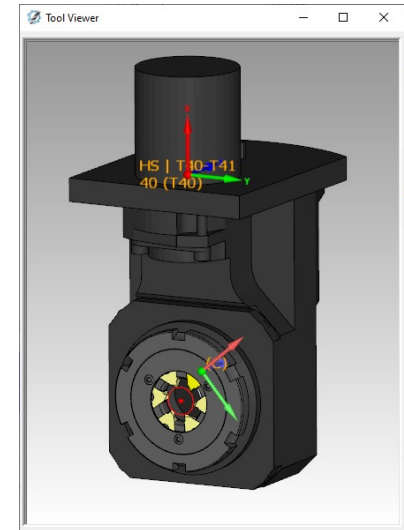
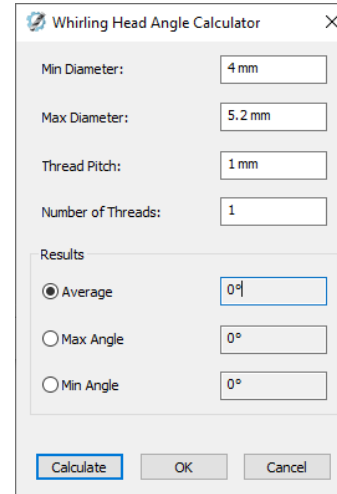
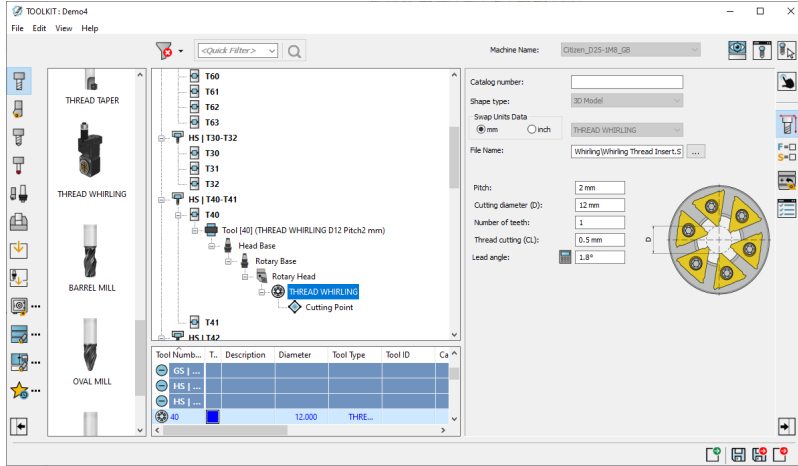
SolidCAM 2023 – Thread Whirling for SWISS type

- ❑ The operation is based on the thread milling module with additional features such as thread with custom profile, machining the thread in Z-axis segments, simplified G-code

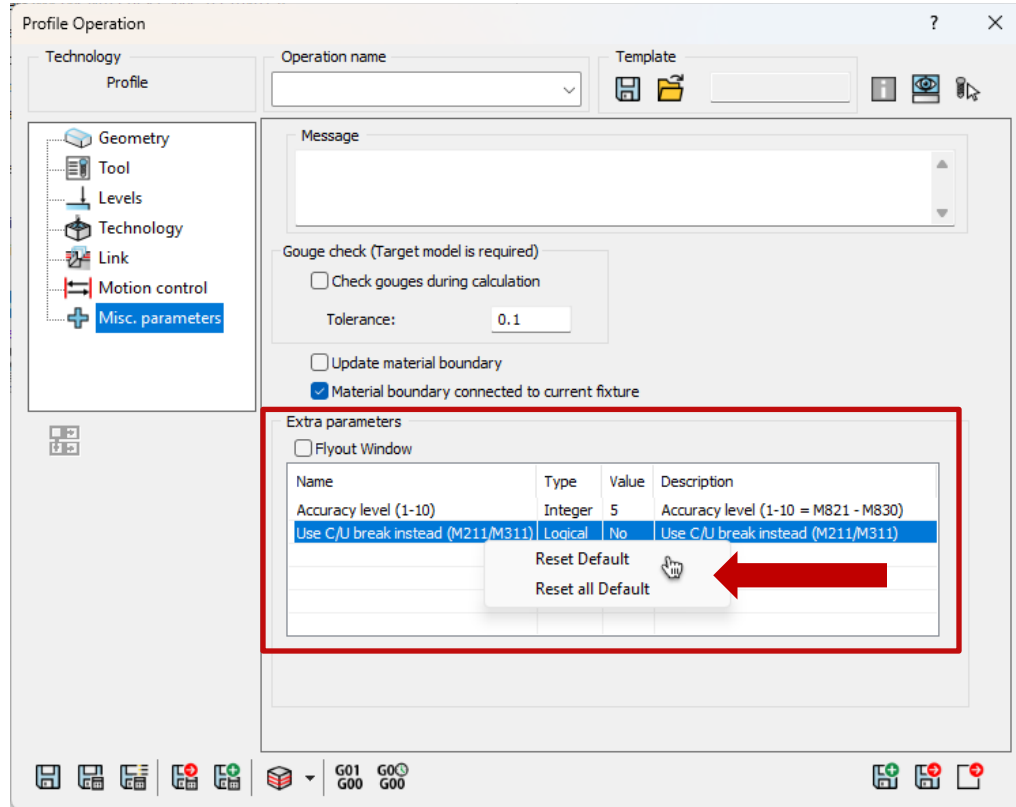


SolidCAM 2023 – Thread Whirling for SWISS type

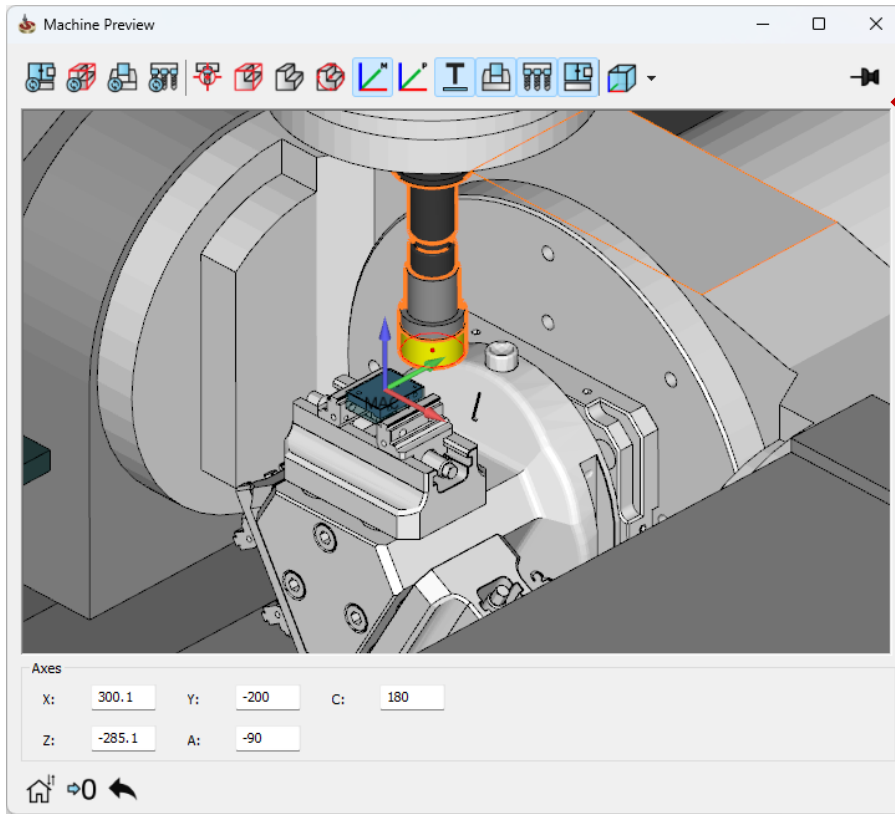
- ❑ SolidCAM tool table supports a new type of tool specifically for thread whirling.
- ❑ The whirling tool can be easily created with a predefined holder structure and default STL models, ready to use in thread whirling operation.
- ❑ The tool table offers a calculator for an easy and fast definition of the tool lead angle based on desired thread diameter and pitch.



Operation – Added ability to Reset to Default Misc. parameters



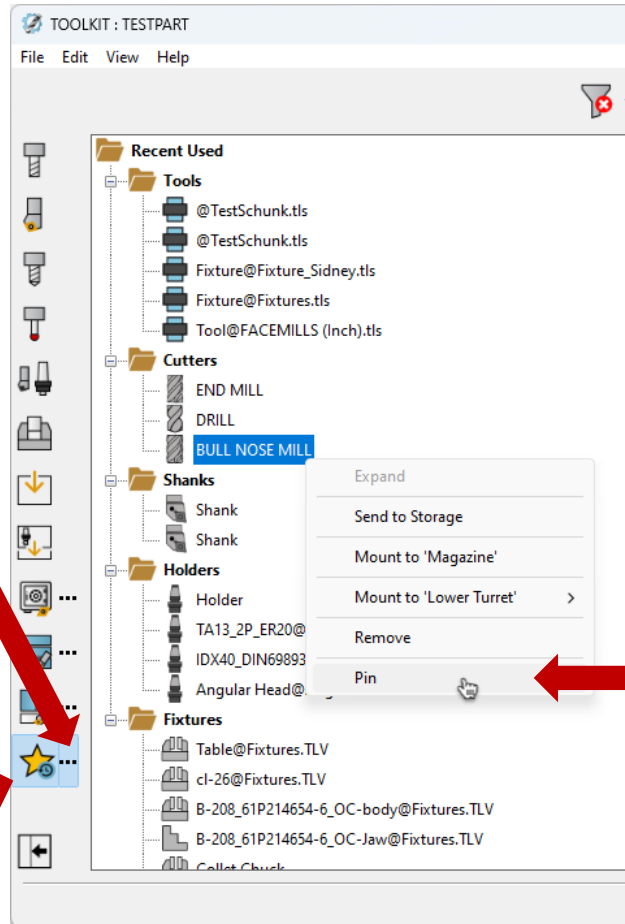
Machine Preview in Setup/ToolKit/Job/ - Added Pin feature



Added possibility to Pin Machine Preview

Control whether or not to open Machine Preview automatically when opening Machine Setup, ToolKit or Job by using "Pin" feature

ToolKit - Added "Recent Tools"



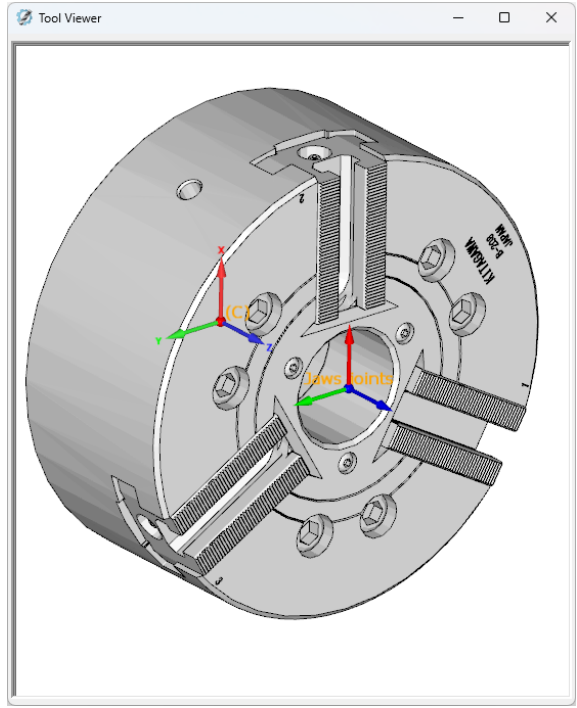
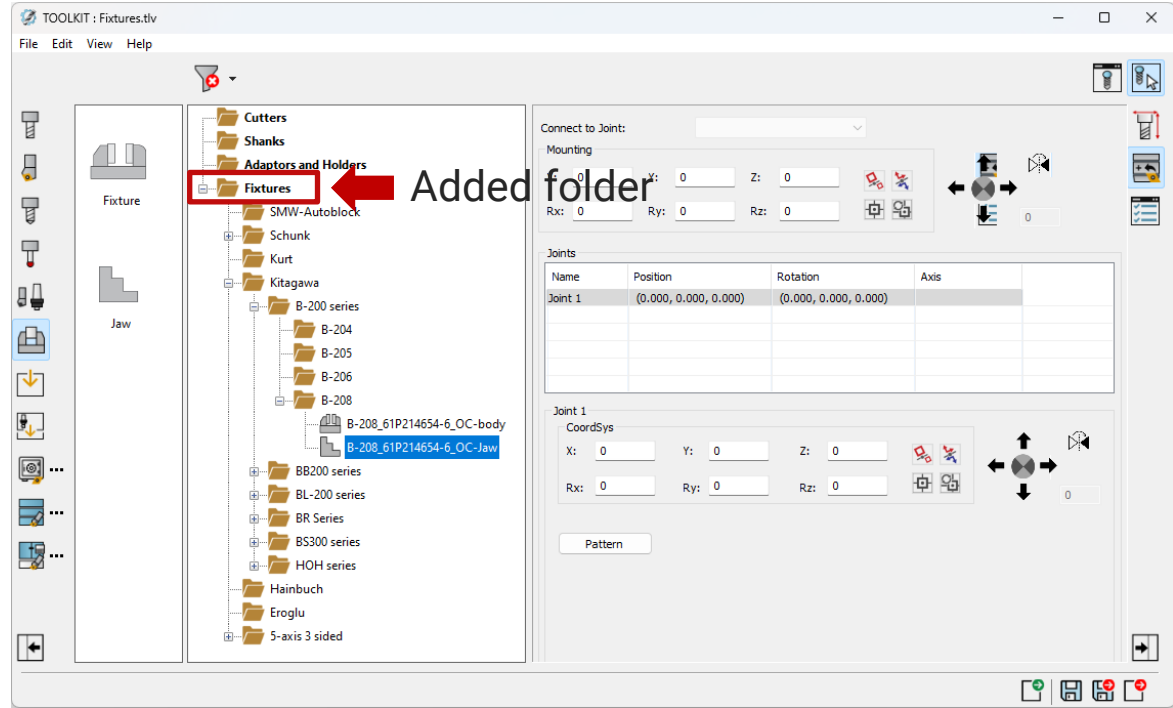
Recent Library

Recent Tools

❑ The "Recent Tools" shows 10 last recent components sorted in folders by their type...

❑ Added possibility to Pin specific component

ToolKit – Added Fixtures in ToolKit



☐ In **SolidCAM2023** added a possibility to define, manage and store fixture components into a vault (.tlv), assemblies (.tls) or machine assembly (.tlm) library.

ToolKit – Added Fixtures in ToolKit

The screenshot displays the SolidCAM ToolKit interface for a Mazak INTEGREX machine. The main window is titled 'TOOLKIT : Mazak_INTEGREX_i-200S.tlm' and has a menu bar with 'File', 'Edit', 'View', and 'Help'. A 'Quick Filter' search bar is located at the top right. On the left, a vertical toolbar contains various tool and fixture icons. The central area is divided into two main sections. The left section, titled 'The main fixture items', contains a grid of fixture icons: 'Fixture' and 'Jaw' in the top row, 'Vise' and 'Chuck' in the middle row, and 'Collet Chuck' in the bottom row. A red box highlights the 'Fixture' and 'Jaw' icons, with a red arrow pointing to them from the text 'The main fixture items'. Another red box highlights the 'Vise' and 'Chuck' icons, with a red arrow pointing to them from the text 'Pre-defined fixture templates'. A third red box highlights the 'Collet Chuck' icon, with a red arrow pointing to it from the text 'Pre-defined fixture templates'. The right section is a tree view showing the machine's structure: 'Magazine (0/72)', 'Upper turret', 'Main Spindle', 'MS', 'Kitagawa B-208', 'Back Spindle', 'BS', and 'Schunk CL26'. A red box highlights the 'Main Spindle' and 'Back Spindle' nodes, with a red arrow pointing to them from the text 'Added option to define fixture on Table'. A fourth red box highlights the 'Kitagawa B-208' and 'Schunk CL26' nodes, with a red arrow pointing to them from the text 'Added option to define fixture on Table'. A fifth red box highlights the 'Added fixture icon' in the toolbar, with a red arrow pointing to it from the text 'Added fixture icon'. The bottom of the interface shows a partially visible table with columns labeled 'T IN L', 'T ID', 'C L', and 'T M'.

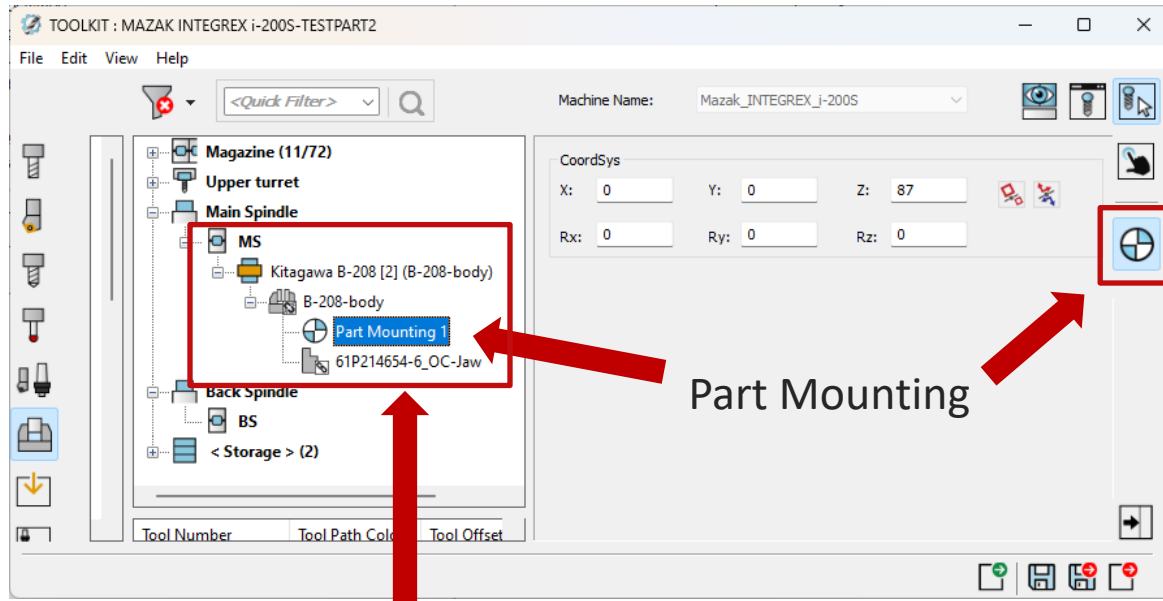
The main fixture items

Added fixture icon

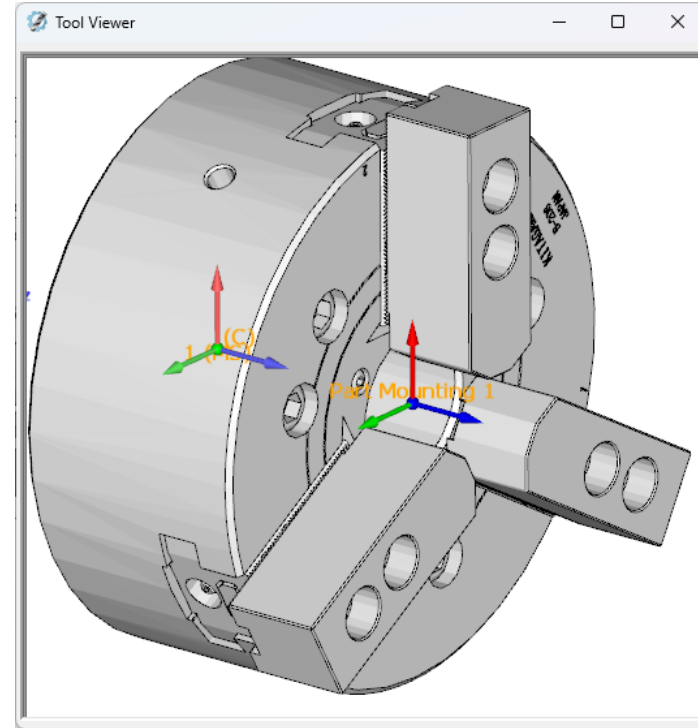
Added option to define fixture on Table

Pre-defined fixture templates

ToolKit – Added Fixtures in ToolKit

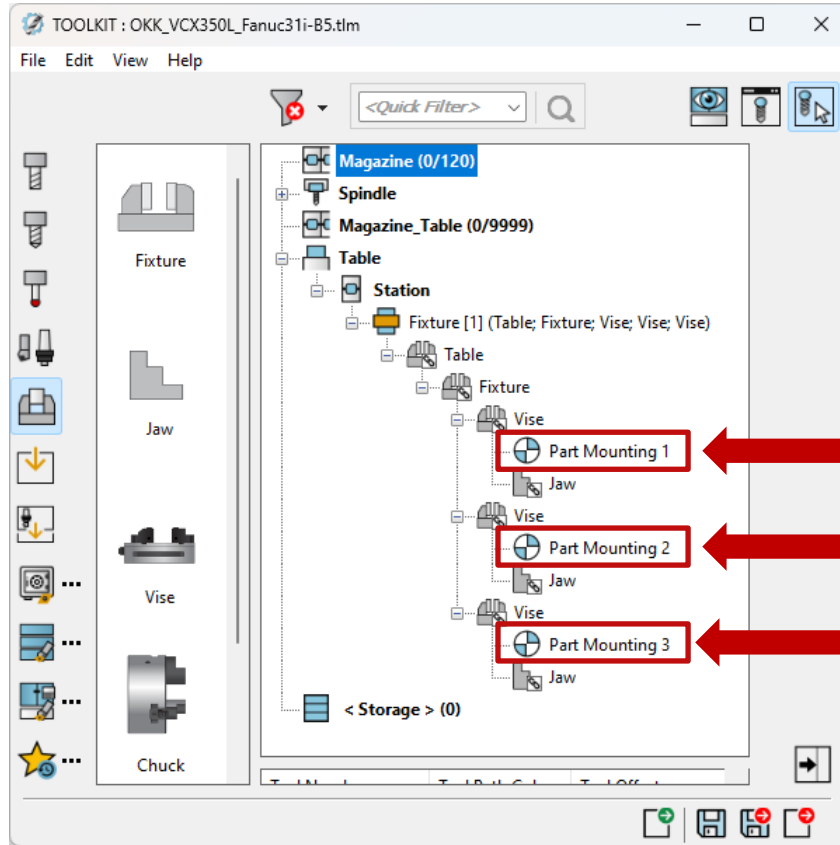


Part Mounting



Structure of standard
lathe chuck

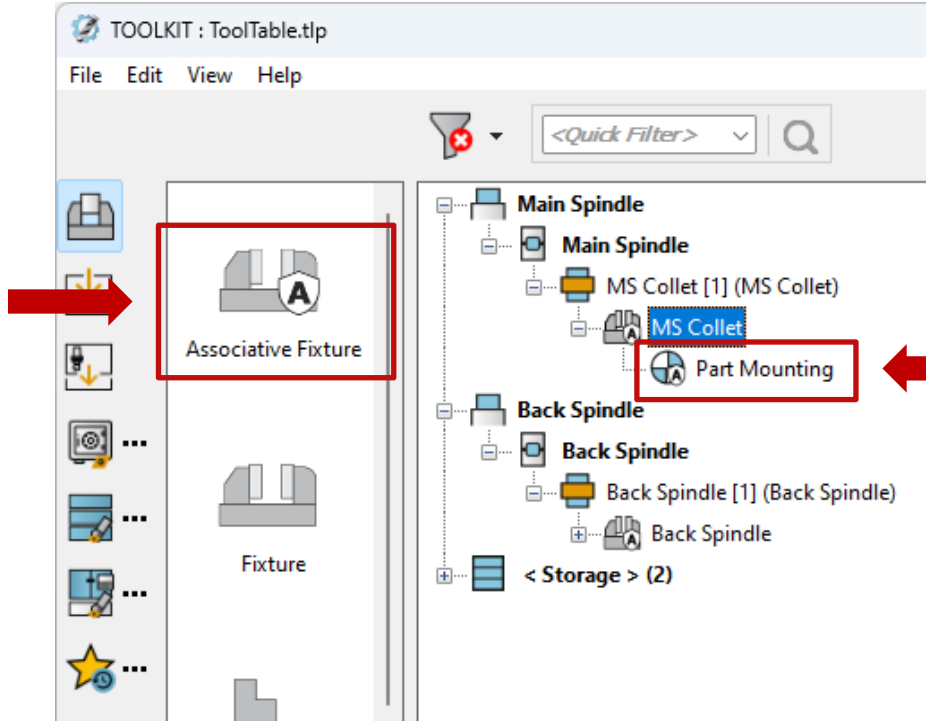
ToolKit – Added Fixtures in ToolKit



Supporting multi-part mounting positions

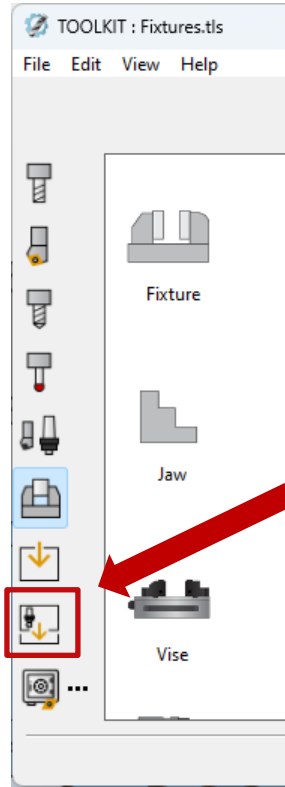
ToolKit- Fixtures Associativity

Fixtures CAD
Associativity is
supported!

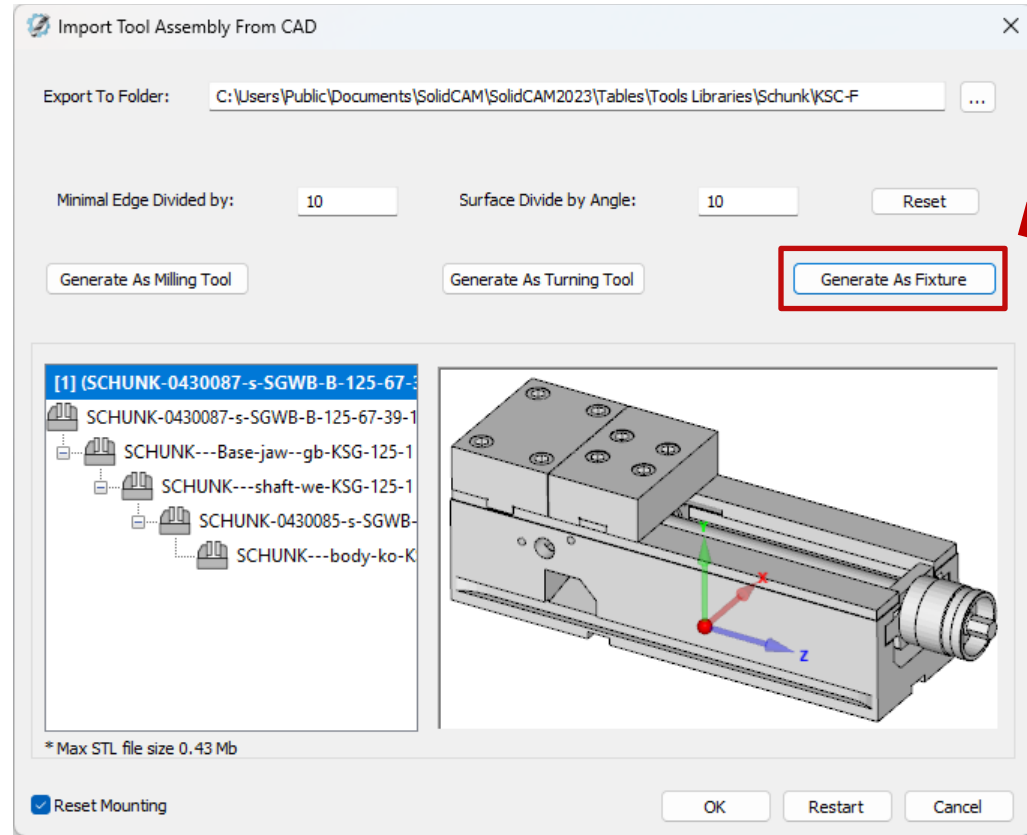


Associative Part and
Fixture Mounting is
supported!

ToolKit- Importing Fixture from Wizard



Import Fixtures
from CAD



ToolKit – Supported custom component color

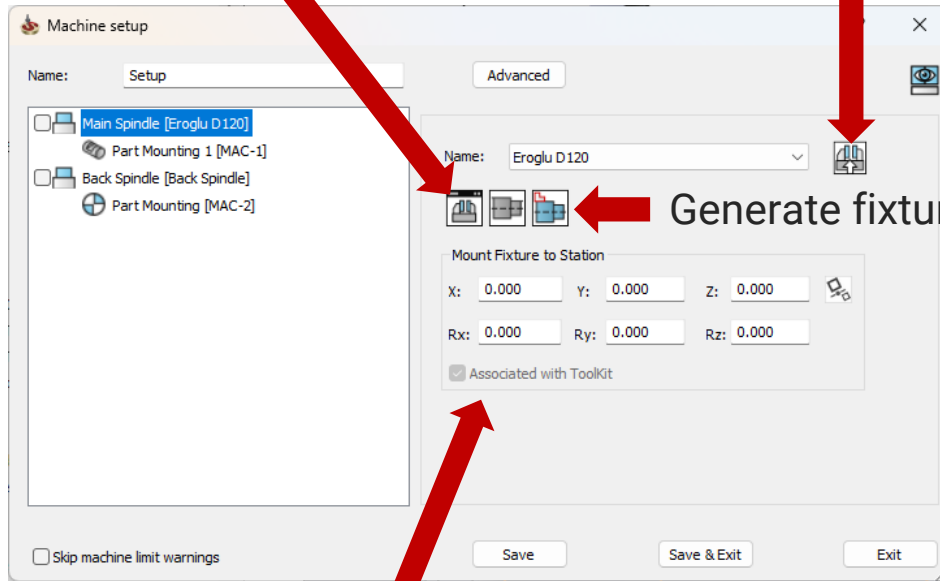
The image displays three overlapping windows from the SolidCAM software interface:

- ToolKit Settings:** Located on the left, it shows the 'General' tab. The 'Use Custom Component Color' checkbox is checked and highlighted with a red box and a red arrow pointing to it.
- TOOLKIT: OKK_VCX350L.tim:** The central window shows a hierarchical tree of tool components. A red box highlights the 'Component Color' section in the right-hand pane, which includes a color selection button and a 'Reset' button. A red arrow points to this section.
- Tool Viewer:** On the right, it shows a 3D model of a machine tool assembly. The components are color-coded: the base is orange, the main body is teal, and various fixtures and jaws are pink. A coordinate system (X, Y, Z) is visible at the bottom of the model.

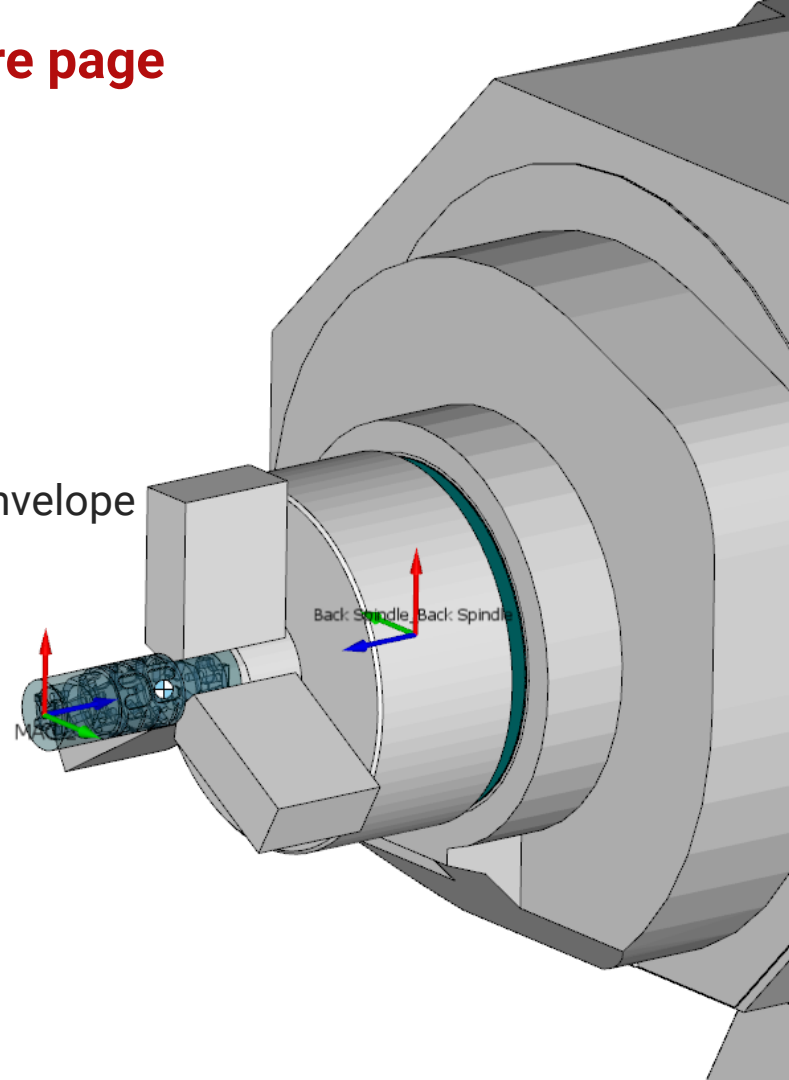
New Machine Setup – Fixture page

Show in 3D

Access to
Toolkit

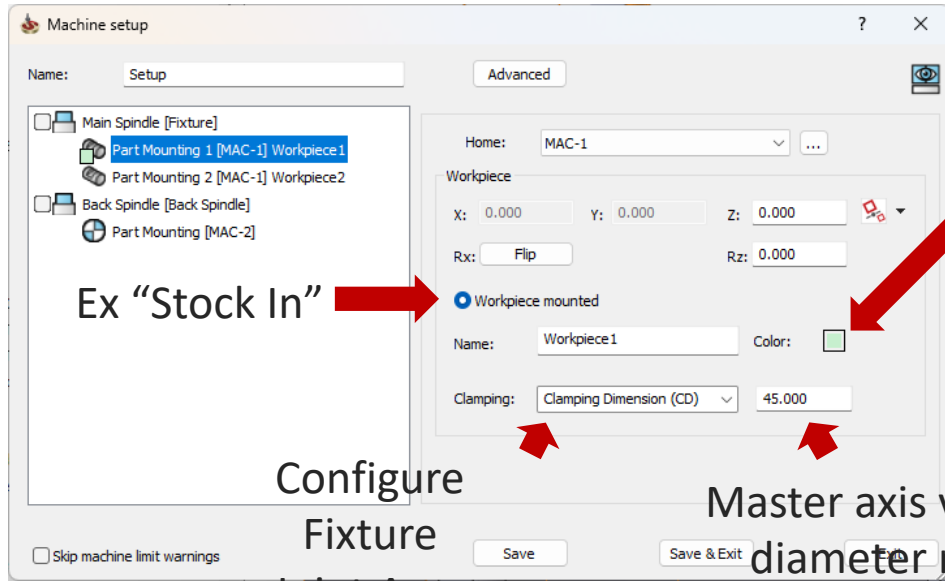


Generate fixture envelope



Associate Fixture position
according to data from
Toolkit

New machine setup – Part page

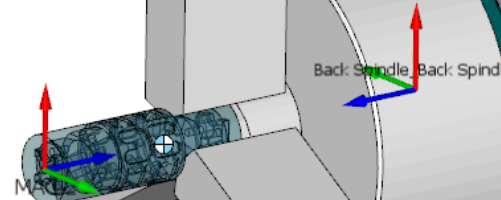


Ex "Stock In" →

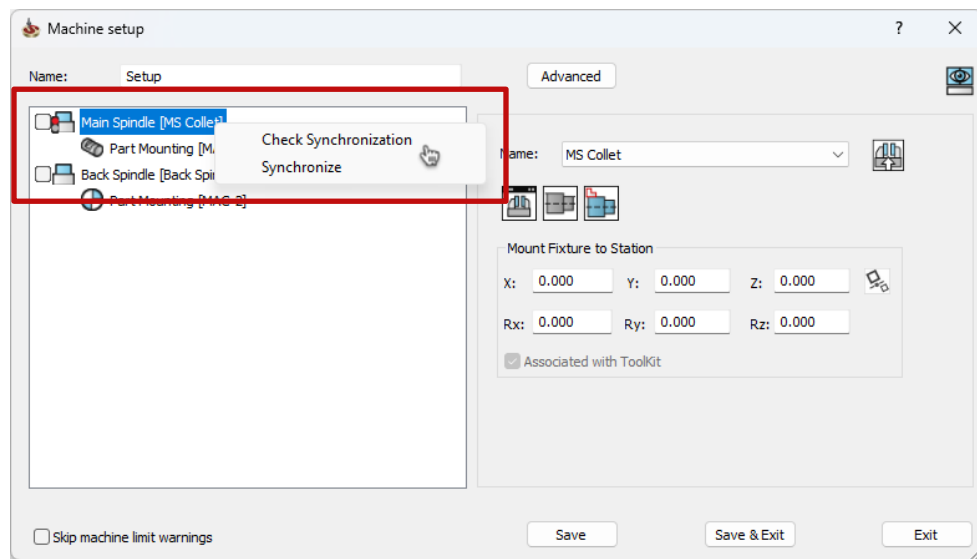
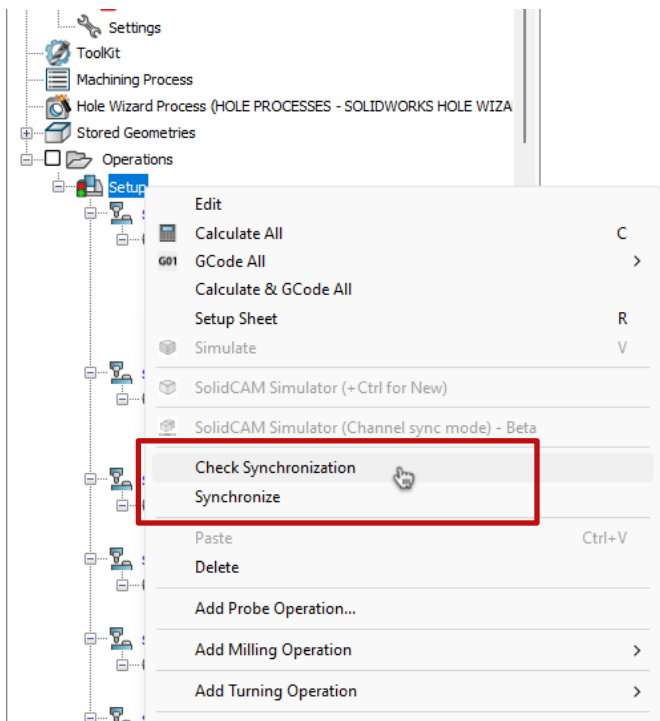
Configure
Fixture
Joint Axes

Master axis value or
diameter mode

Workpiece
name and
color

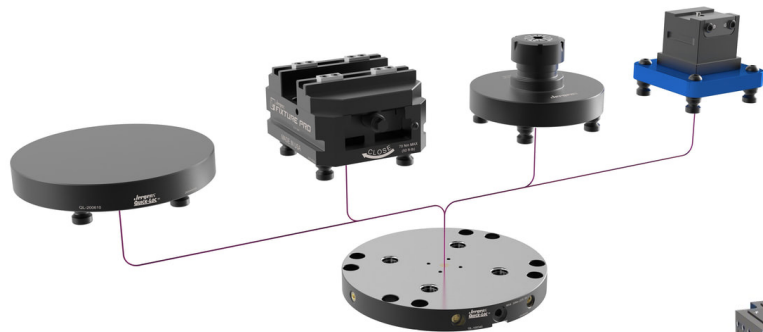


New machine setup – Fixture Associativity

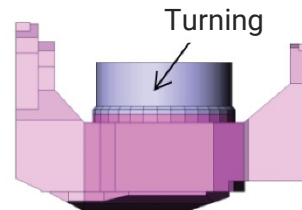
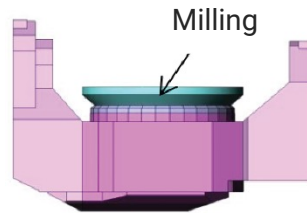


❑ Associativity fixtures can be synchronized on CAM-Tree or Machine Setup level

NEW Fixture capabilities and Setup supports...



Modular concept of fixtures



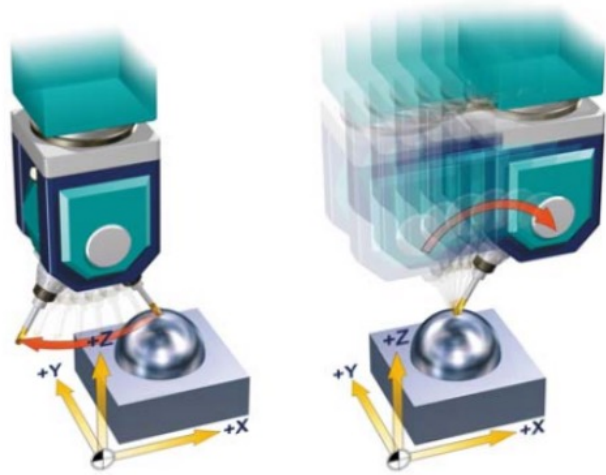
Replacable tables



Tombstones



MCO: Control the movements with or without the TCP option



❑ The example when TCP is OFF (left) and when TCP is ON (right)

MACHINE ID EDITOR : OKK_VCX350L_Fanuc31i-B5_Unimet.vmid

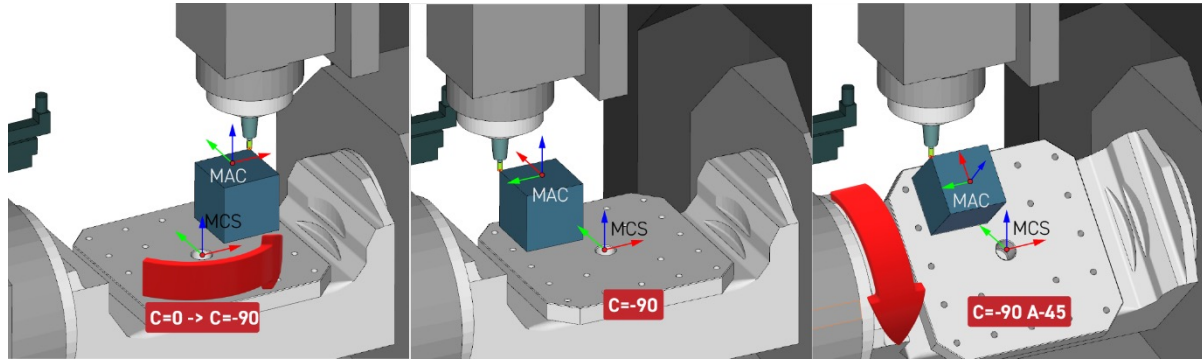
File Open View Help

Machine Definition | **Controller Definition** | User-Defined Parameters | Working Style

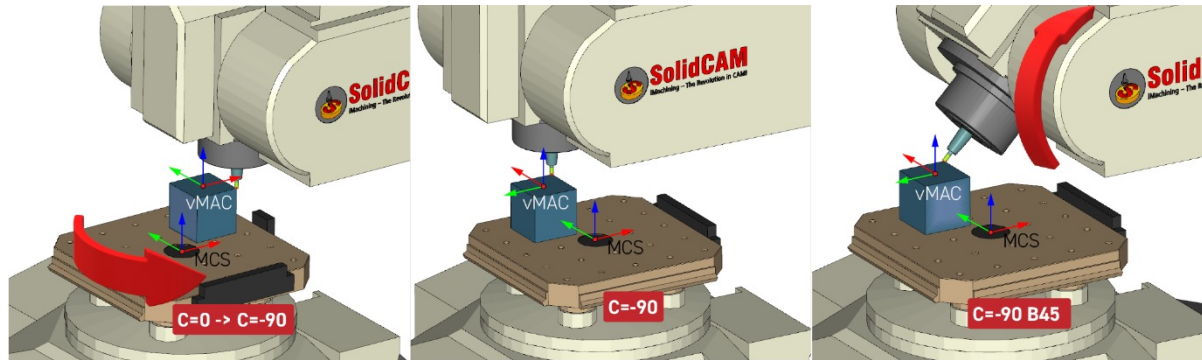
Name	Value
Rotation Type	Customize
First Rotation Axis	Z
Second Rotation Axis	X'
Third Rotation Axis	Z''
Preferred Solution	...
Plane Reference CoordSys	Tool Station CS
Reverse Working Plane Z	NO
4x Face With Tilt Plane	NO
Face With Deviation Angle	NO
Dynamic Offset	YES
TCP Type	<ul style="list-style-type: none"> ROTATED NONE FIXED ROTATED

TCP Type

MCO: Control the movements with or without the TCP option



“Rotated” type TCP on Table-Table



“Rotated” type TCP on Head-Table

MCO: Control the movements with or without the TCP option

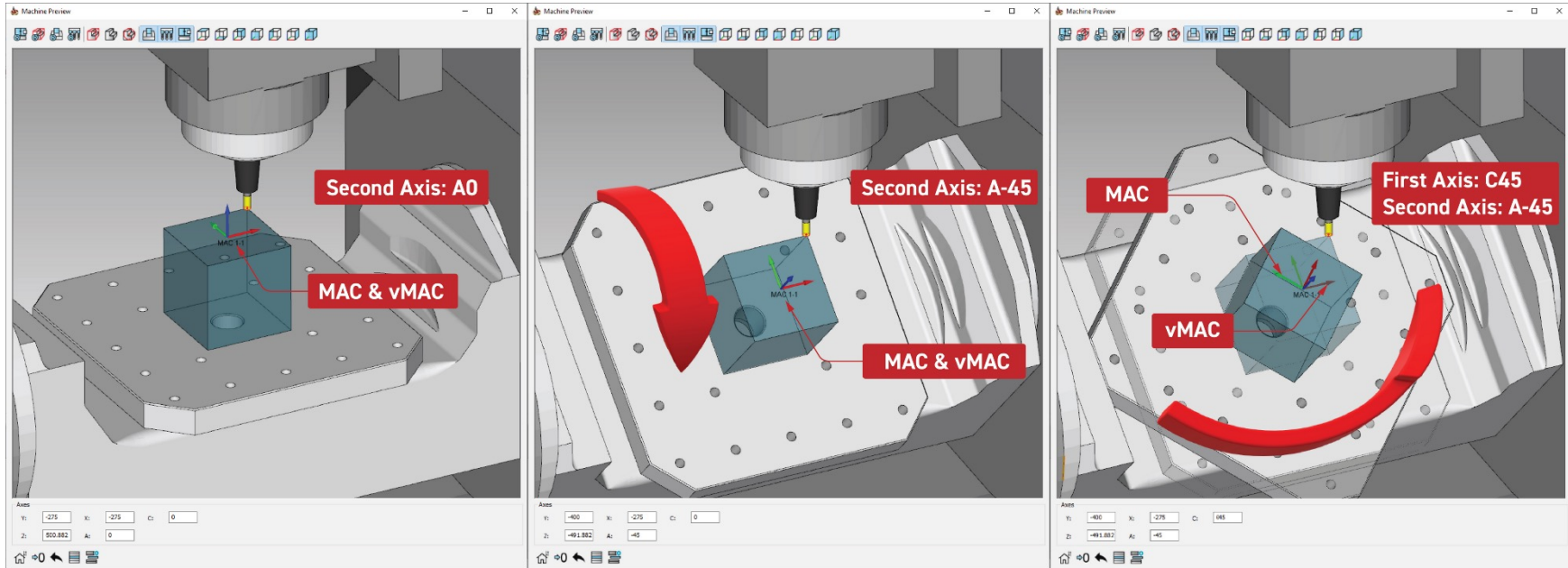
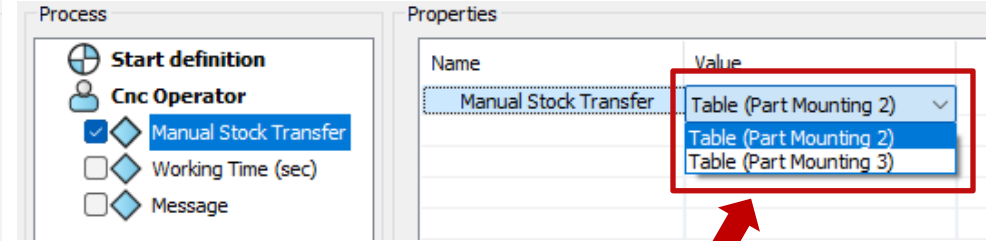
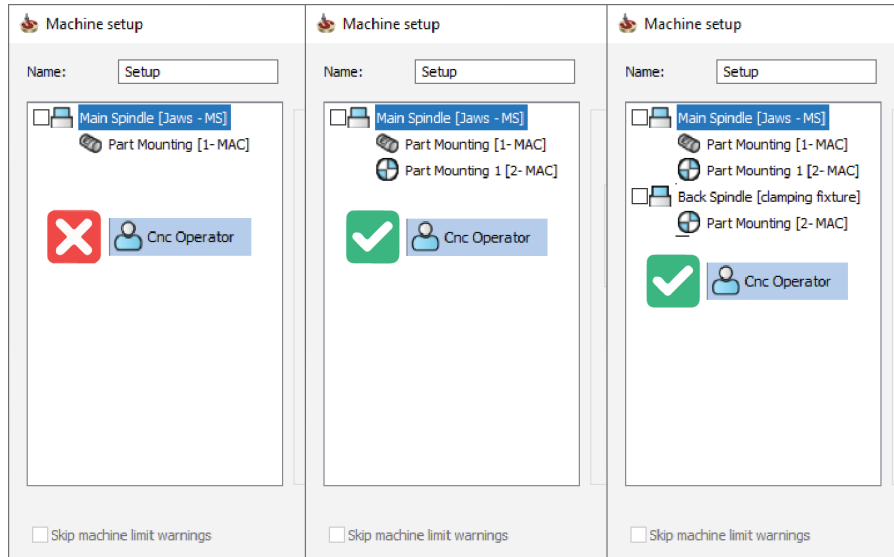


Table-centered part with the Fixed TCP on Table-Table

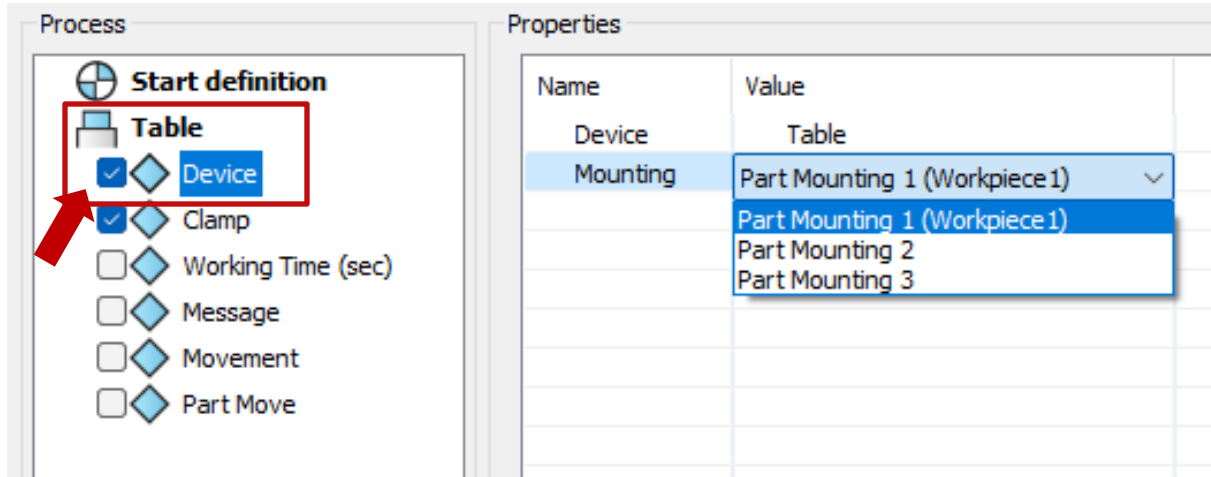
MCO: CNC Operator



List of available
Part Mounting
Points

CNC Operator is now available in the case of multiple Part Mounting Positions

MCO: Table Workpiece Clamp and Movements



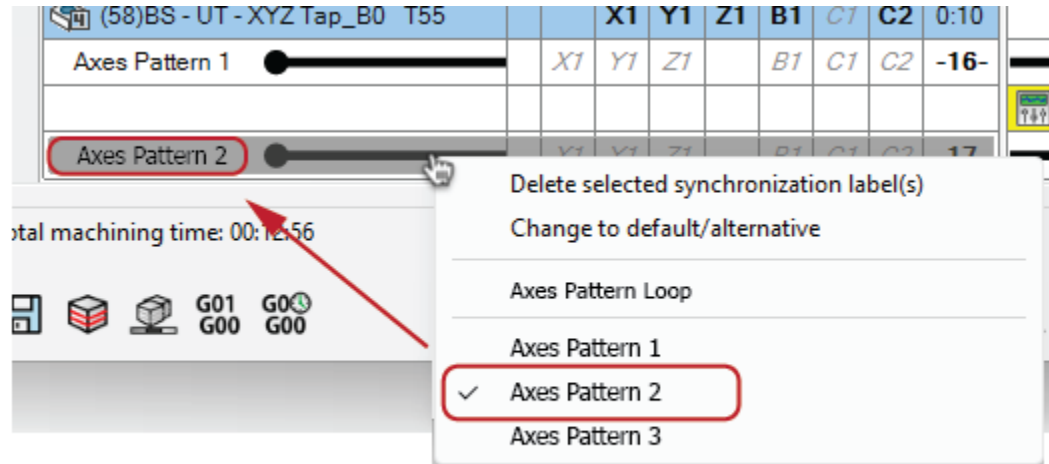
The screenshot displays the 'Process' and 'Properties' panels in SolidCAM. In the 'Process' panel, the 'Table' section is expanded, and the 'Device' and 'Clamp' options are checked. A red box highlights the 'Table' section, and a red arrow points to the 'Device' option. In the 'Properties' panel, the 'Mounting' dropdown menu is open, showing 'Part Mounting 1 (Workpiece 1)' as the selected option.

Name	Value
Device	Table
Mounting	Part Mounting 1 (Workpiece 1)
	Part Mounting 1 (Workpiece 1)
	Part Mounting 2
	Part Mounting 3

- ❑ Workpiece Clamping and Movements are done according to the selected Workpiece on Table Device

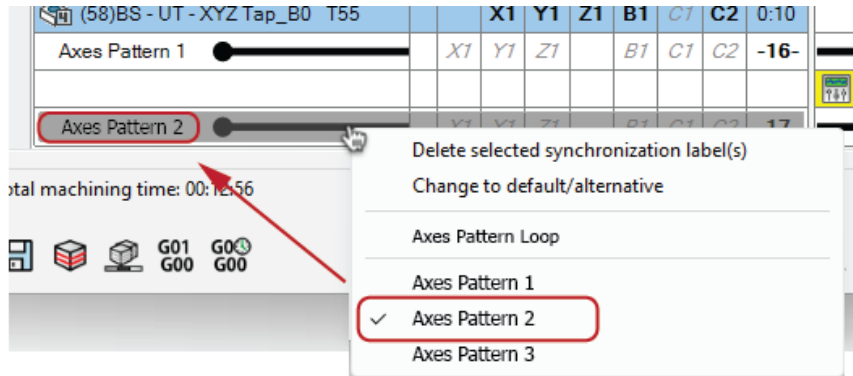


Channel Synchronization: Complete Control over the first and last Axes Pattern



- ❑ When **Axes Pattern Loop** is active (default), the **first** and **last** Axes Pattern are the same, however, the user can change to them.

Operation Sequence Manager: Complete Control over the first and last Axes Pattern



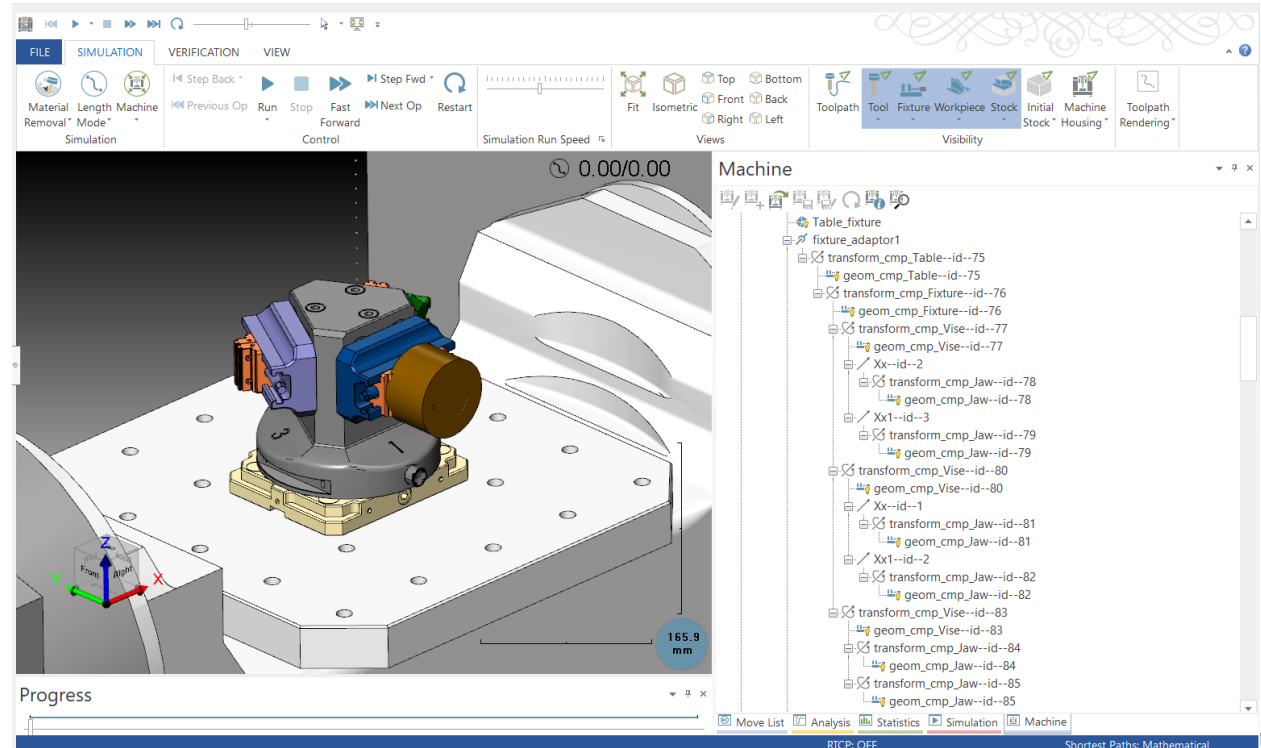
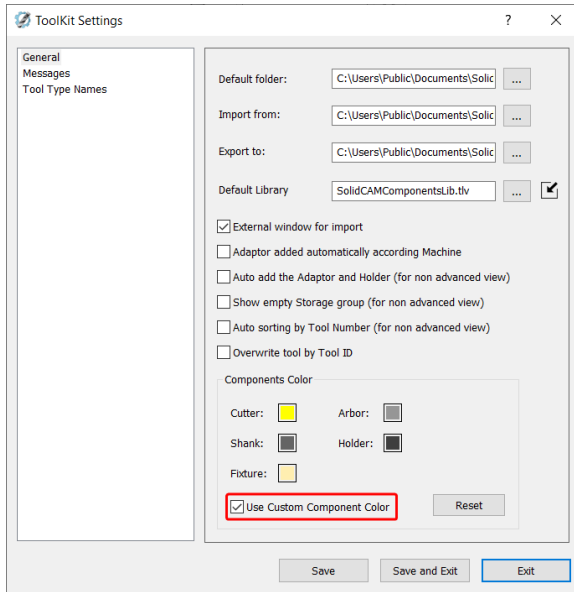
- ❑ When **Axes Pattern Loop** is active (default), the **first** and **last** Axes Pattern are the same, however, the user can change to any



Channel Synchronization -> Operation Sequence Manager

SolidCAM 2023 – Machine Simulation

- ❑ All tools and fixtures defined in the ToolKit are fully supported in Machine Simulation
- ❑ Tools and fixtures will be colored with the same colors as defined in the ToolKit



SolidCAM 2023 – Machine Simulation

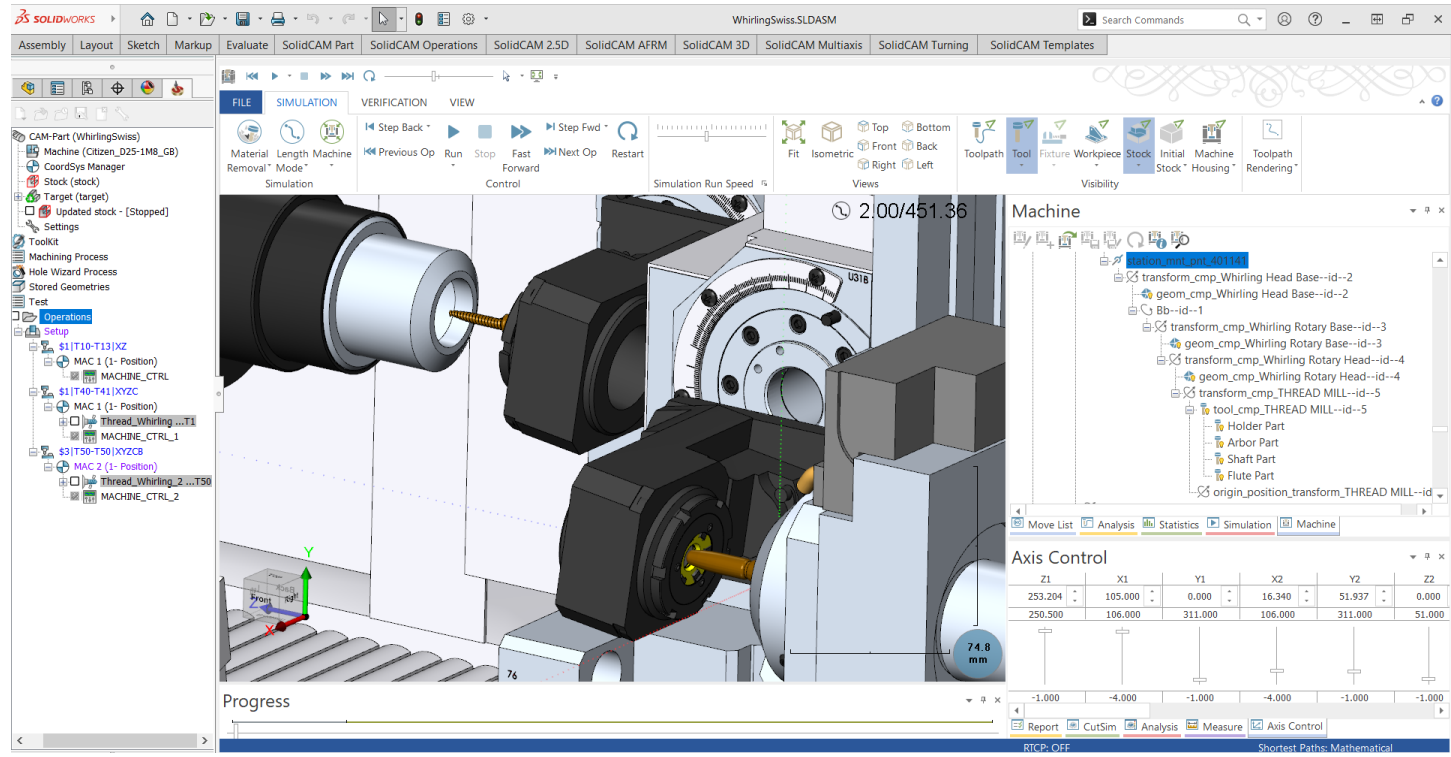
- ❑ Component axes defined in the ToolKit are now supported in Machine Simulation and the client has the option to display the axes in the Axis Control window

The screenshot displays the SolidCAM 2023 Machine Simulation environment. On the left, the 'SolidCAM Settings' dialog is open to the 'Miscellaneous' tab, where the 'Show Component Axis from Toolkit' checkbox is checked. The central area shows a 3D simulation of a machine tool cutting a part, with a 'Machine' tree on the right listing various components like 'geom_cmp_Angular Head--id--55' and 'C--id--1'. At the bottom right, the 'Axis Control' window is visible, showing a table of coordinates for the 'Bb--id--1' and 'C--id--1' axes.

X			Y			Z			Bb--id--1		C--id--1	
-65.011	-334.403	-313.500	90.000	-135.000		90.000	360.000					
0.000	0.000	0.000	90.000	360.000								

SolidCAM 2023 – Machine Simulation

Using Machine Simulation, new Thread Whirling operation can be simulated



SolidCAM 2023 – Machine Simulation

Movements defined with the Collinear Axes Sequence table are supported in Machine Simulation

Profile Operation

Technology Profile

Operation name: F_contour7

Technology: Advanced

Collinear Axes Sequence table

#	Description	Z value	Submachine
0	appr. re...	25	Milling Z
1	appr. fin...	-25	Milling W
2	appr. fin...	-25	Milling W
8	appr. fin...	-50	Milling Z
14	appr. fin...	-75	Milling Z
20	appr. fin...	-100	Milling Z
26	appr. re...	25	Milling Z

OK Cancel

450.00/2 785.32

Move List

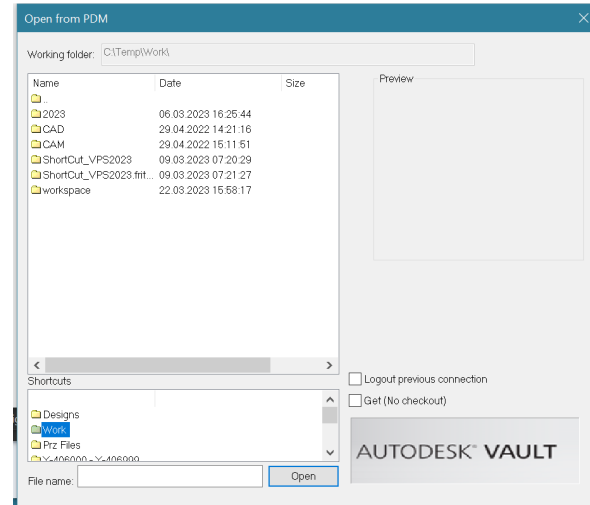
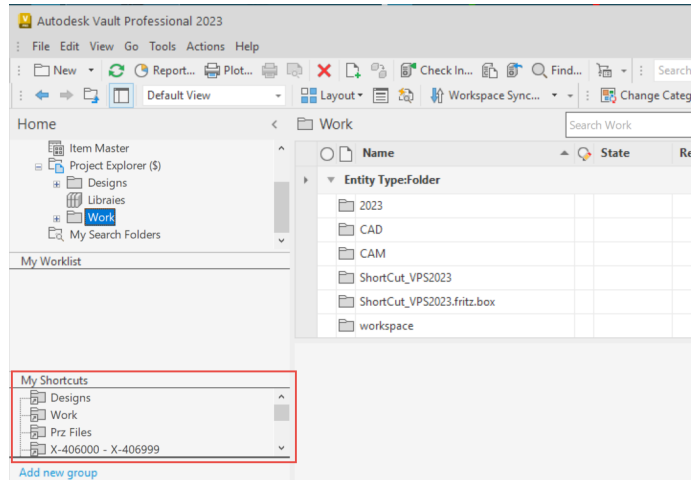
Block	Pos	X	Y	Z	C	W
5	0	-275.00000	400.00000	17.59000	-90.00000	-400.00000
6	1	-255.00000	400.00000	17.59000	-90.00000	-423.00000
7	2	-225.00000	400.00000	17.59000	-90.00000	-450.00000
8	3	-225.00000	404.13598	17.59000	-90.00000	-450.00000
9	4	-225.00000	404.11731	17.15725	-90.00000	-450.00000
10	5	-225.00000	404.04953	16.72924	-90.00000	-450.00000
11	6	-225.00000	403.93738	16.31067	-90.00000	-450.00000
12	7	-225.00000	403.78267	15.90611	-90.00000	-450.00000
13	8	-225.00000	403.58536	15.52000	-90.00000	-450.00000
14	9	-225.00000	403.34933	15.15657	-90.00000	-450.00000

Axis Control

U	W	X	Y	Z
0.000 -	-450.000 -	17.590 -	409.000 -	-656.500 -
100000.000	100000.000	9999.000	9999.000	9999.000

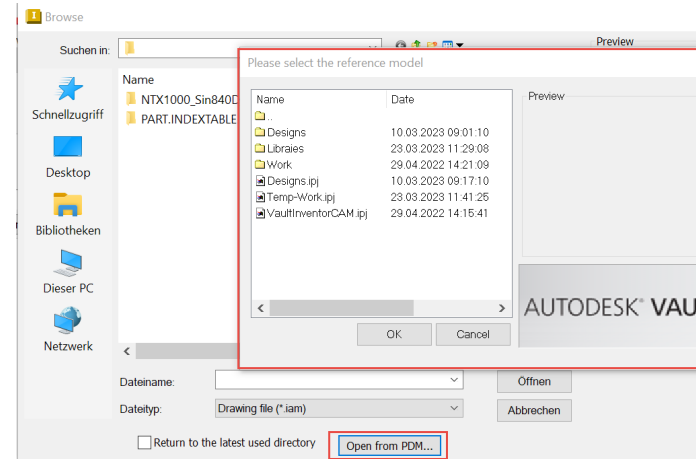
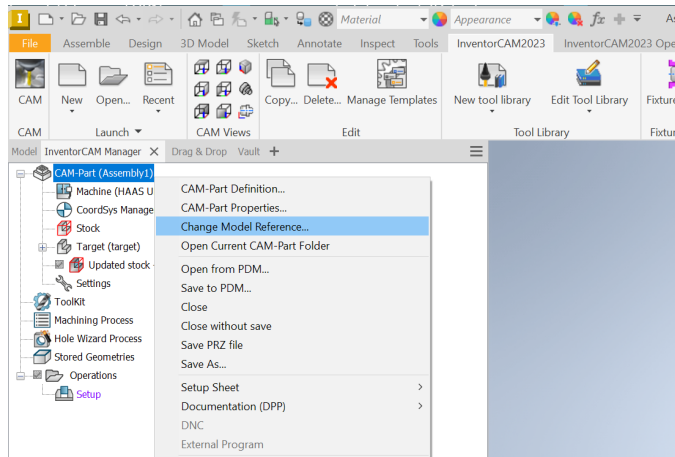
InventorCAM 2023 – Support Shortcuts of Vault Client

- ❑ Shortcuts defined in the Vault Client
- ❑ Available at the InventorCAM Vault browser



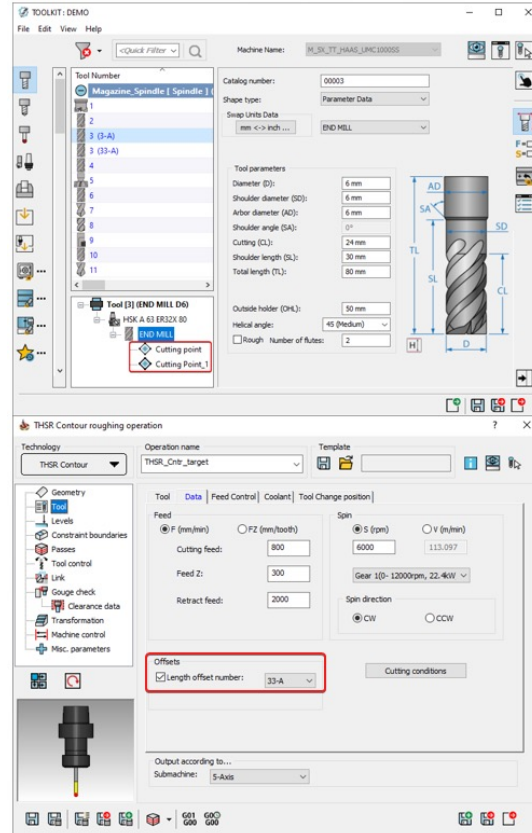
InventorCAM 2023 – Change reference model directly from Vault Server

- ❑ When reference model must be changed and the new model is located at the Vault Server
- ❑ Opening from PDM enables the selection of a design File from Vault Server



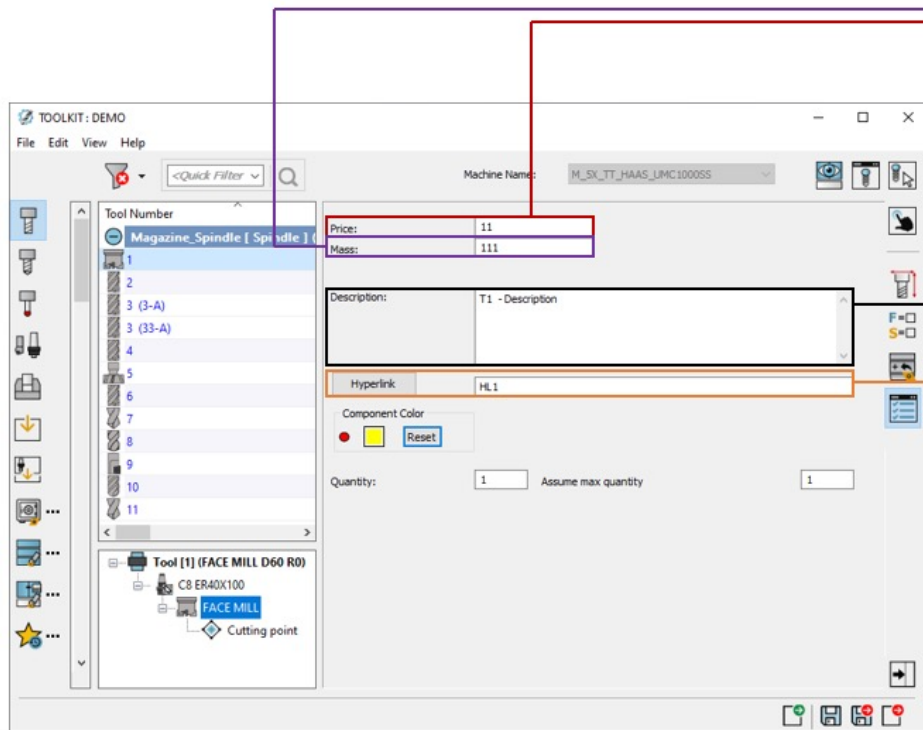
SolidCAM 2023 – Setup Sheet Tool Offset Section

- ❑ Tool Offsets are now fully supported within Tools Section Data
- ❑ It can be also supported as a separate Section
- ❑ Tool Offsets are updated and fully supported also within Operations Section



TOOL LIST							
T-1	T_ID-TOOL_1 (Spindle 1)	T1 - Description (00001-1)	mm				
	D	60	AD	32	Tool Offsets		
	N	4	SD	/	D offsets	H offsets	
	CL	20	SL	40			
	R	0	Tool Type		D1(A)	H1(A)	
	OHL	30	FACE MILL				
	TL	60	Minimum Z				
	A	90	Pitch				
	Pitch	/					
	▶ C8 ER40X100 (C00001) (CHL1) (Comp 1 - Description) (1) (11) ↳ FACE MILL (00001) (HL1) (T1 - Description) (11) (111)						
T-2	T_ID-TOOL_2 (Spindle 1)	T2 - Description (00002-2)	mm				
	D	16	AD	16	Tool Offsets		
	N	6	SD	16	D offsets	H offsets	
	CL	30	SL	30			
	R	/	Tool Type		D2(A)	H2(A)	
	OHL	40	END MILL				
	TL	80	Minimum Z				
	A	/	Pitch				
	Pitch	/					
	▶ HSK A 63 ER32X 80 (C00002) (CHL2) (Comp 2 - Description) (2) (22) ↳ END MILL (00002) (HL2) (T2 - Description) (22) (222)						
T-3	T_ID-TOOL_3 (Spindle 1)	T3 - Description (00003-3)	mm				
	D	6	AD	6	Tool Offsets		
	N	2	SD	6	D offsets	H offsets	
	CL	24	SL	30			
	R	/	Tool Type		D3(A)	H3(A)	
	OHL	50	END MILL				
	TL	80	Minimum Z				
	A	/	Pitch				
	Pitch	/					
	▶ HSK A 63 ER32X 80 (C00003) (CHL3) (Comp 3 - Description) (3) (33) ↳ END MILL (00003) (HL3) (T3 - Description) (33) (333)						

SolidCAM 2023 – New Setup Sheet Tool Component variables



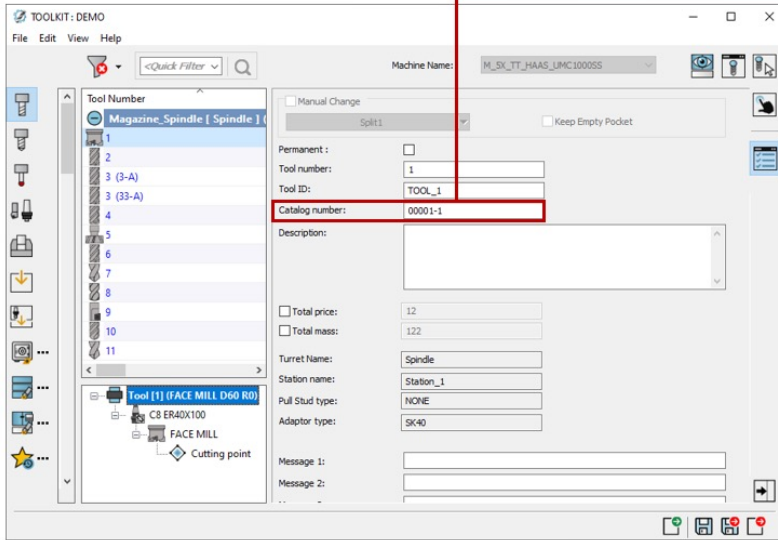
TOOL ASSEMBLIES

- 1. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00001-1
 - └ C8 ER40X100 | Cat. No: C00001 | Hyp.: CHL1 | Desc.: Comp 1 - Description | Price: 1\$ | Mass: 11g
 - └ FACE MILL | Cat. No: 00001 | Hyp.: HL1 | Desc.: T1 - Description | Price: 11\$ | Mass: 111g
- 2. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00002-2
 - └ HSK A 63 ER32X 80 | Cat. No: C00002 | Hyp.: CHL2 | Desc.: Comp 2 - Description | Price: 2\$ | Mass: 22g
 - └ END MILL | Cat. No: 00002 | Hyp.: HL2 | Desc.: T2 - Description | Price: 22\$ | Mass: 222g
- 3. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00003-3
 - └ HSK A 63 ER32X 80 | Cat. No: C00003 | Hyp.: CHL3 | Desc.: Comp 3 - Description | Price: 3\$ | Mass: 33g
 - └ END MILL | Cat. No: 00003 | Hyp.: HL3 | Desc.: T3 - Description | Price: 33\$ | Mass: 333g
- 4. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00004-4
 - └ HSK A 63 ER32X 80 | Cat. No: C00004 | Hyp.: CHL4 | Desc.: Comp 4 - Description | Price: 4\$ | Mass: 44g
 - └ BULL NOSE MILL | Cat. No: 00004 | Hyp.: HL4 | Desc.: T4 - Description | Price: 44\$ | Mass: 444g
- 5. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00005-5
 - └ HSK A 63 ER32X 80 | Cat. No: C00005 | Hyp.: CHL5 | Desc.: Comp 5 - Description | Price: 5\$ | Mass: 55g
 - └ SLOT MILL | Cat. No: 00005 | Hyp.: HL5 | Desc.: T5 - Description | Price: 55\$ | Mass: 555g
- 6. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00006-6
 - └ HSK A 63 ER32X 80 | Cat. No: C00006 | Hyp.: CHL6 | Desc.: Comp 6 - Description | Price: 6\$ | Mass: 66g
 - └ END MILL | Cat. No: 00006 | Hyp.: HL6 | Desc.: Tool 6 - Description | Price: 66\$ | Mass: 667g
- 7. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00007-7
 - └ HSK A 63 ER32X 80 | Cat. No: C00007 | Hyp.: CHL7 | Desc.: Comp 7 - Description | Price: 7\$ | Mass: 77g
 - └ SPOT DRILL | Cat. No: 00007 | Hyp.: HL7 | Desc.: T7 - Description | Price: 77\$ | Mass: 777g
- 8. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00008-8
 - └ HSK A 63 ER32X 80 | Cat. No: C00008 | Hyp.: CHL8 | Desc.: Comp 8 - Description | Price: 8\$ | Mass: 88g
 - └ DRILL | Cat. No: 00008 | Hyp.: HL8 | Desc.: T8 - Description | Price: 88\$ | Mass: 888g
- 9. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00009-9
 - └ HSK A 63 ER32X 80 | Cat. No: C00009 | Hyp.: CHL9 | Desc.: Comp 9 - Description | Price: 9\$ | Mass: 99g
 - └ THREAD MILL | Cat. No: 00009 | Hyp.: HL9 | Desc.: T9 - Description | Price: 99\$ | Mass: 998g
- 10. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00010-10
 - └ HSK A 63 ER32X 80 | Cat. No: C00010 | Hyp.: CHL10 | Desc.: Comp 10 - Description | Price: 10\$ | Mass: 10:
 - └ BALL NOSE MILL | Cat. No: 00010 | Hyp.: HL10 | Desc.: T10 - Description | Price: 101\$ | Mass: 1010g
- 11. Assembly Spindle 1 -> Station_1 -> Tool Item Catalog No: 00011-11
 - └ HSK A 63 ER32X 80 | Cat. No: C00011 | Hyp.: CHL11 | Desc.: Comp 11 - Description | Price: 11\$ | Mass: 11:
 - └ SPOT DRILL | Cat. No: 00011 | Hyp.: HL11 | Desc.: T11 - Description | Price: 11\$ | Mass: 111g

□ New variables for each Tool Assembly Component

SolidCAM 2023 – Setup Sheet Tool Item Catalog Number

- ❑ Catalog Number for Tool Item (whole Tool Assembly) is now fully supported within Tools and Tool Assemblies Sections.

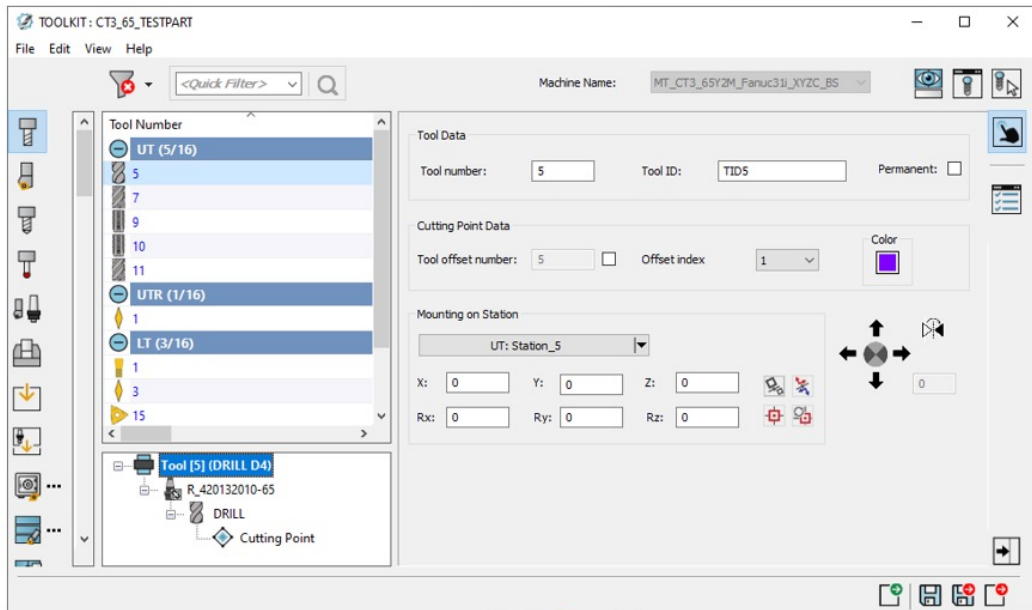


TOOL LIST

T-1	T_ID-TOOL_1 (Spindle 1)	T1 - Description (00001-1)	mm				
 	D	50	AD	32	Tool Offsets		
	N	4	SD	/	D offsets	H offsets	
	CL	20	SL	40	D1(A)	H1(A)	
	R	0	Tool type				
	OHL	30	FACE MILL				
	TL	50	Minimum Z				
	A	90	Pitch				
	Pitch	/					
							
	▶ C8 ER40X100 (C00001) (CHL1) (Comp 1 - Description) (1) (11) ↳ FACE MILL (00001) (HL1) (T1 - Description) (11) (111)						
T-2	T_ID-TOOL_2 (Spindle 1)	T2 - Description (00002-2)	mm				
 	D	16	AD	16	Tool Offsets		
	N	6	SD	16	D offsets	H offsets	
	CL	30	SL	80	D2(A)	H2(A)	
	R	/	Tool Type				
	OHL	40	END MILL				
	TL	80	Minimum Z				
	A	/	Pitch				
	Pitch	/					
							
	▶ HSK A 63 ER32X 80 (C00002) (CHL2) (Comp 2 - Description) (2) (22) ↳ END MILL (00002) (HL2) (T2 - Description) (22) (222)						
T-3	T_ID-TOOL_3 (Spindle 1)	T3 - Description (00003-3)	mm				
 	D	6	AD	6	Tool Offsets		
	N	2	SD	6	D3(A)	H3(A)	
	CL	24	SL	30	D offsets	H offsets	
	R	/	Tool Type				
	OHL	50	END MILL			H33(A)	
	TL	80	Minimum Z				
	A	/	Pitch				
	Pitch	/					
							
	▶ HSK A 63 ER32X 80 (C00003) (CHL3) (Comp 3 - Description) (3) (33) ↳ END MILL (00003) (HL3) (T3 - Description) (33) (333)						

SolidCAM 2023 – Setup Sheet Tools Section divided by Channels

Tools Section can now be divided and the output can be per Channel



TOOL LIST

Channel 1 - Upper Left Rotary Turret

T5	T_ID-TID5 (UT 1)	T5 - Description (05-5)	mm
D4	DRILL	TL(80 mm)	Catalog No: 05 Item Cat. No: 05-5
T7	T_ID-TID7 (UT 1)	T7 - Description (07-7)	mm
D5.5	END MILL	TL(80 mm)	Catalog No: 07 Item Cat. No: 07-7
T9	T_ID-TID9 (UT 1)	T9 - Description (09-9)	mm
D5	TAP	TL(60 mm)	Catalog No: 09 Item Cat. No: 09-9
T10	T_ID-TID10 (UT 1)	T10 - Description (010-10)	mm
D5	TAP	TL(60 mm)	Catalog No: 10 Item Cat. No: 010-10
T11	T_ID-TID11 (UT 1)	T11 - Description (011-11)	mm
D5.5	END MILL	TL(80 mm)	Catalog No: 11 Item Cat. No: 011-11

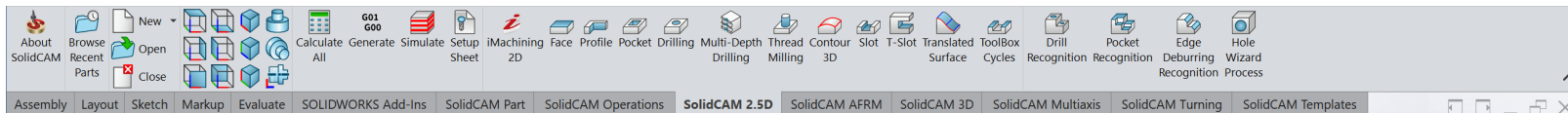
Channel 2 - Upper Right Rotary Turret

T1	T_ID-TID1 (UT 2)	T1 - Description (11-1)	mm
VBMT 160404	Ext. Turning	TLM (150.00 mm)	Catalog No: 11 Item Cat. No: 11-1

Channel 3 - Lower Rotary Turret

T1	T_ID-TID1 (LT 10)	T1 - Description (21-1)	mm
Ra0.2	Ext. Grooving	TL (150.00 mm)	Catalog No: 21 Item Cat. No: 21-1
T3	T_ID-TID3 (LT 10)	T3 - Description (23-3)	mm
VBMT 160404	Ext. Turning	TLM (150.00 mm)	Catalog No: 23 Item Cat. No: 23-3
T15	T_ID-TID15 (LT 10)	T15 - Description (215-15)	mm
Ra0.16	Ext. Threading	TL (150.00 mm)	Catalog No: 215 Item Cat. No: 215-15

SolidCAM 2023 – User Interface (UI) Enhancements

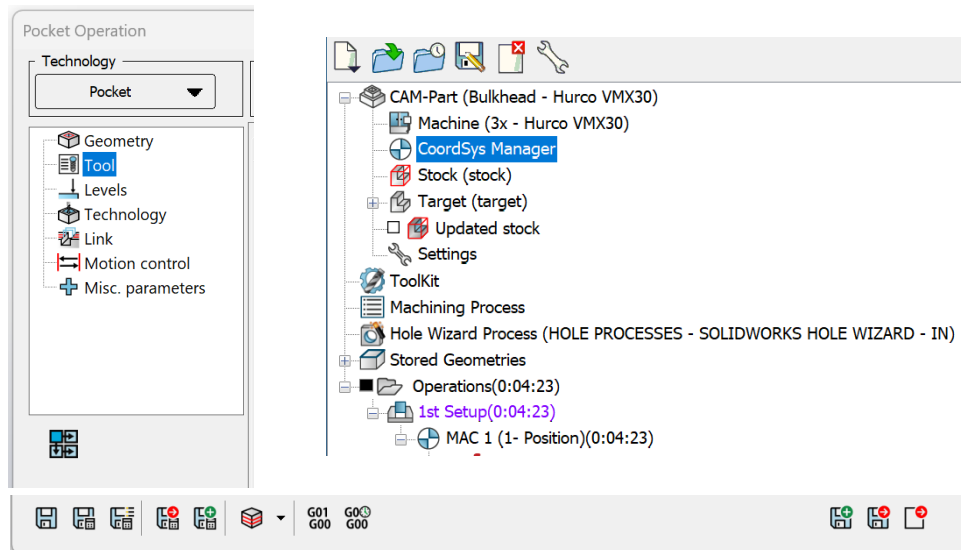


UI-Facelift

- Clean Fresh Icons
- Brighter Colors

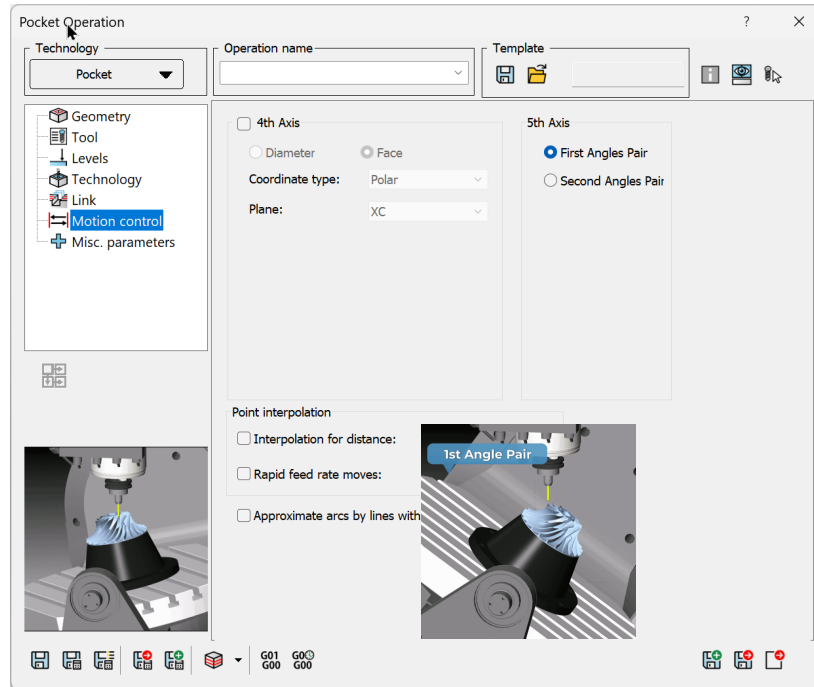
UI-Clarity

- Higher Resolution Icons
- More compatible for 4K



SolidCAM 2023 – User Interface (UI) Enhancements

❑ New Animated Help Graphics



Support Turning in Multiple Positions

Turning Operation

Technology: Turning

Operation name: TR_turn_on_solid1

Template: []

Geometry: **CoordSys: MAC 2 (2- Position)**

turn_on_solid1

Show Generate Envelope

Wireframe Solid

Edit geometry

Modify Geometry

Partial machining

Partial machining Data

Geometry Limits

Limit by the cutter angle

Simplify the 3D cutter preview

Machine Preview

MAC 2 POS 2

Axes

X:	344.378	Z:	-286.558	S:	0	W:	0
C:	0	Y:	130.632	U:	0		

Support Partial Envelope – Region Of Interest

CoordSys Data ?

✓ ✗

Coordsys ^

MAC Number:

Position: ←

Create planar surface at Part Lower level

Levels: Planar ∨

Levels: Radial ∨

Translation Data ^

Shift:

Rotation:

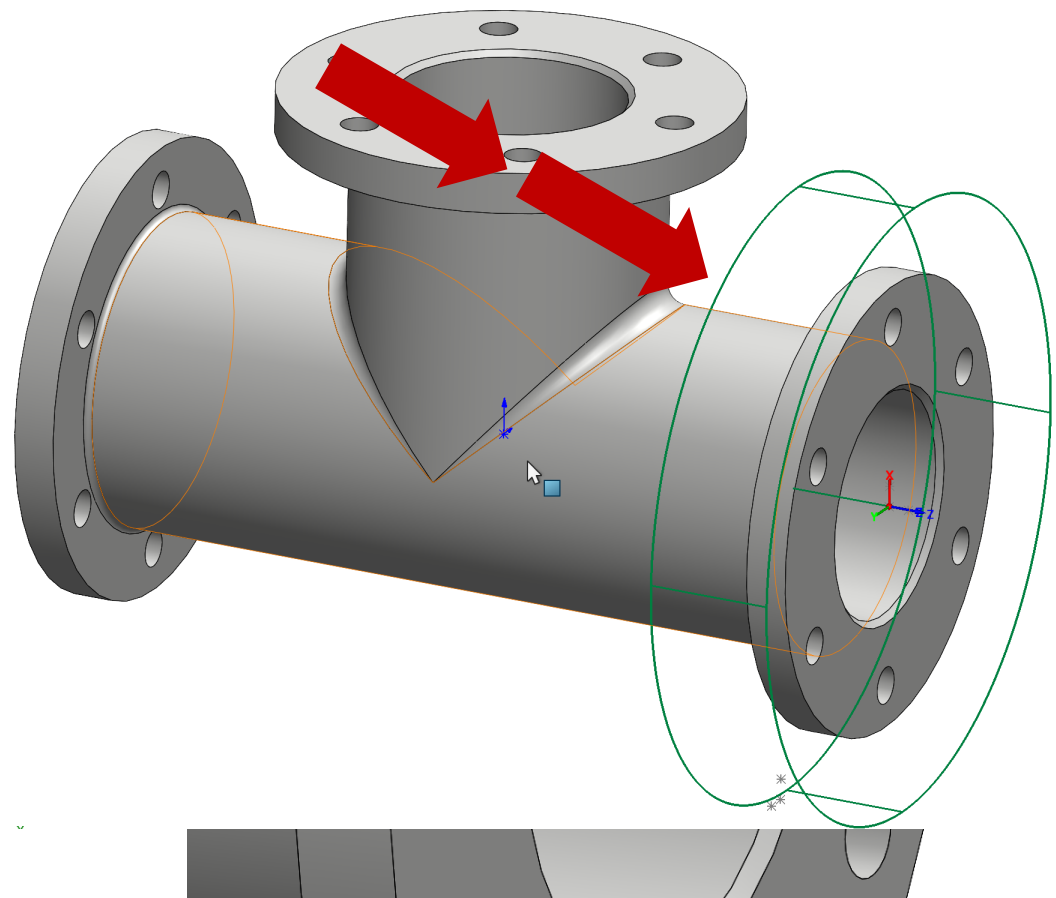
Region of interest

Z-:

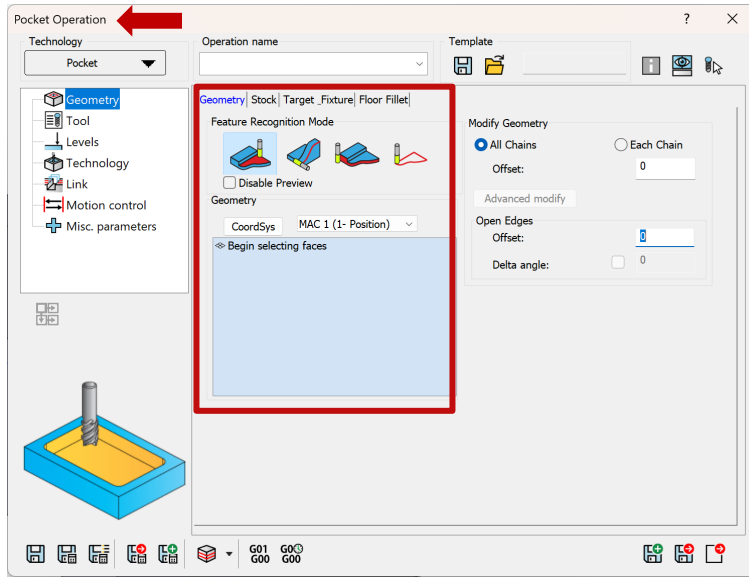
Z+:

Radius :

Preview



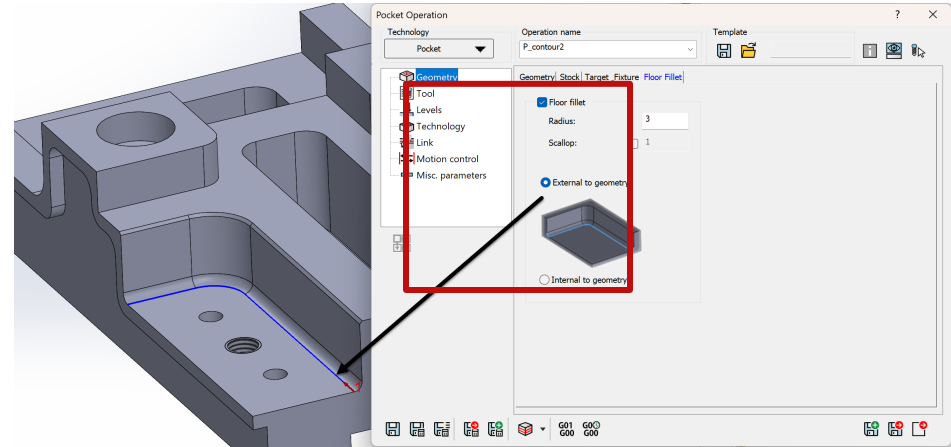
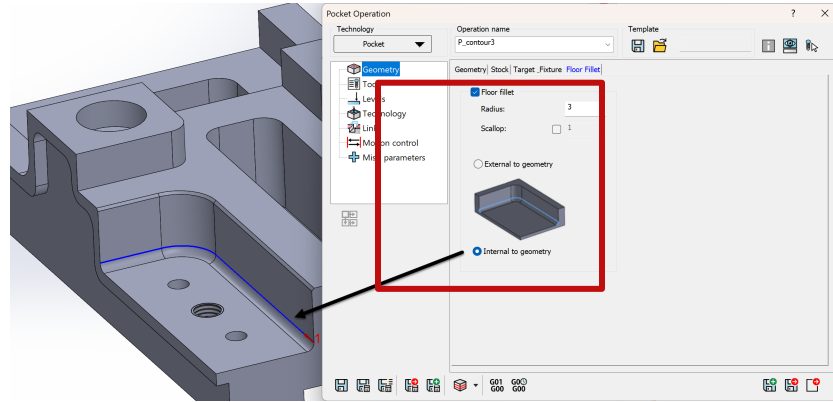
Pocket Geometry Feature recognition as in iMachining



- ❑ Automatically recognizes stock boundaries compared to the target
- ❑ Levels are automatically recognized
- ❑ Fixtures, Target and Holders are completely recognized and protected
- ❑ Profile like geometries can be defined with all the protection benefits offered in Pocket



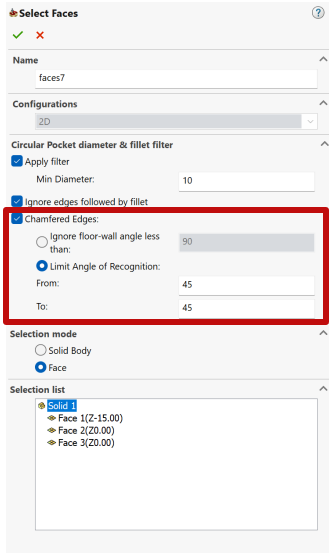
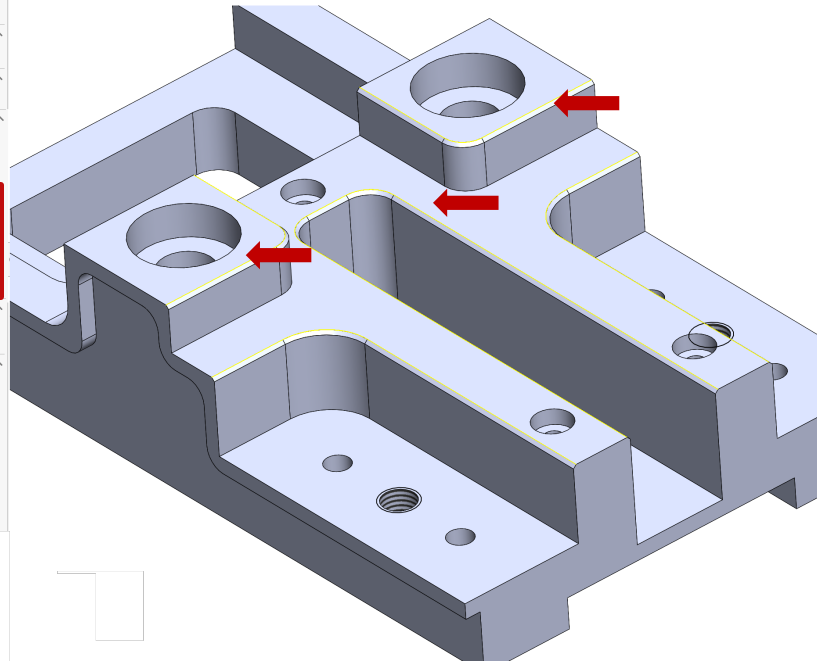
Pocket Operation – Floor Fillet Machining



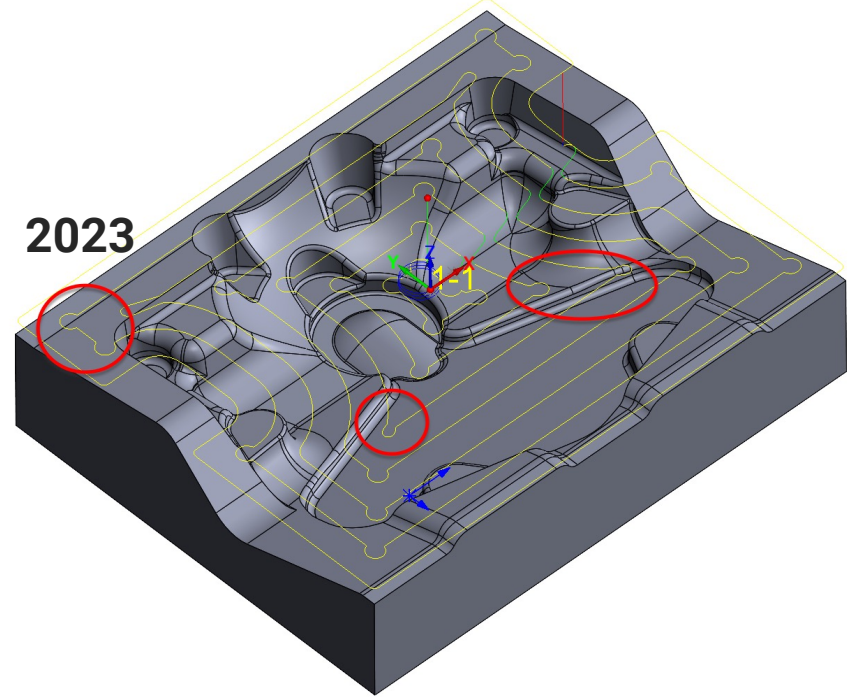
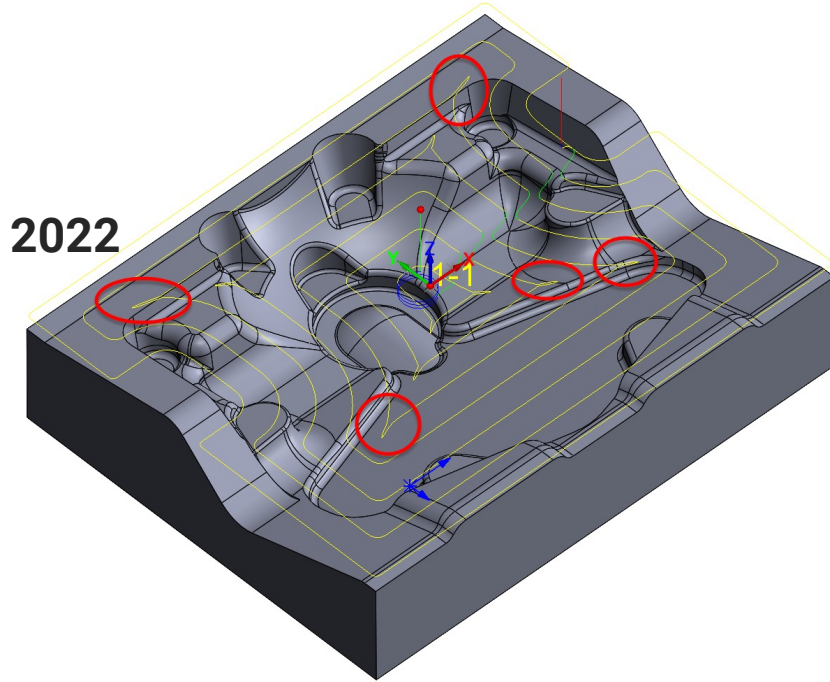
- Floor Fillets can now be roughed out in the Pocket operation.
- Geometry can be either internal or external to the fillet.

Edge Deburring Recognition – Limit Angle Range

- ❑ You can now limit the angle recognition to a specific angle
- ❑ Gives you the capability to machine predefined chamfers in the part, while ignoring the sharp edges.

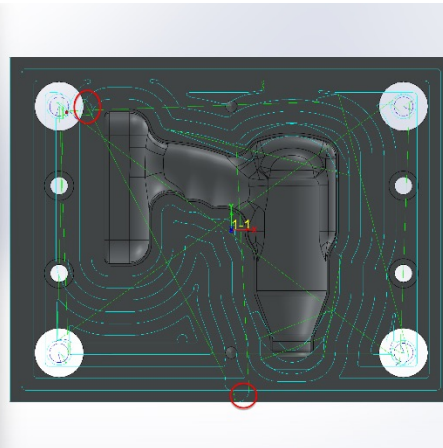
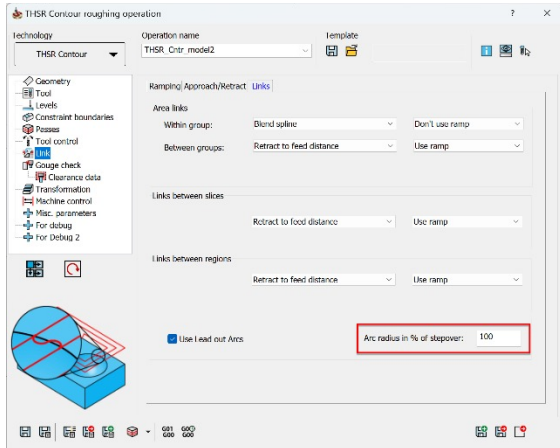


Turbo 3D HSR – Improved Corner Pegs

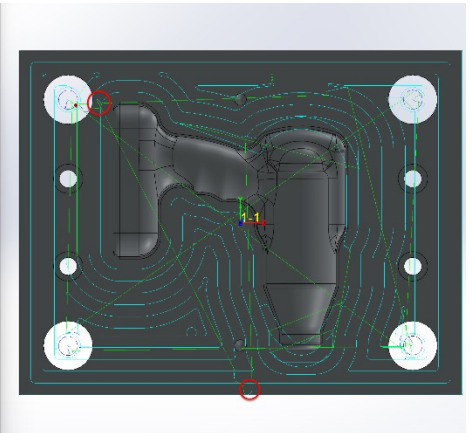
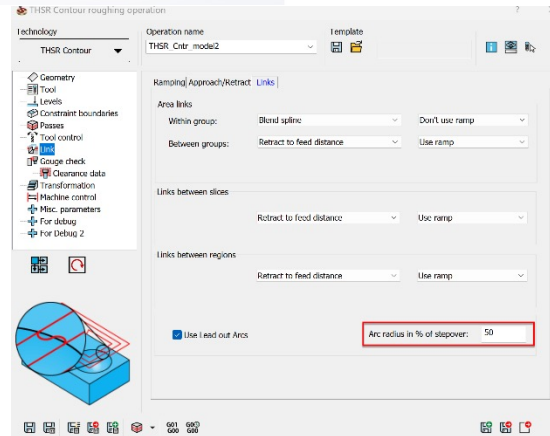


- ❑ The toolpath at the corners is now smoother, which eliminates the peak load on the tool during cutting.

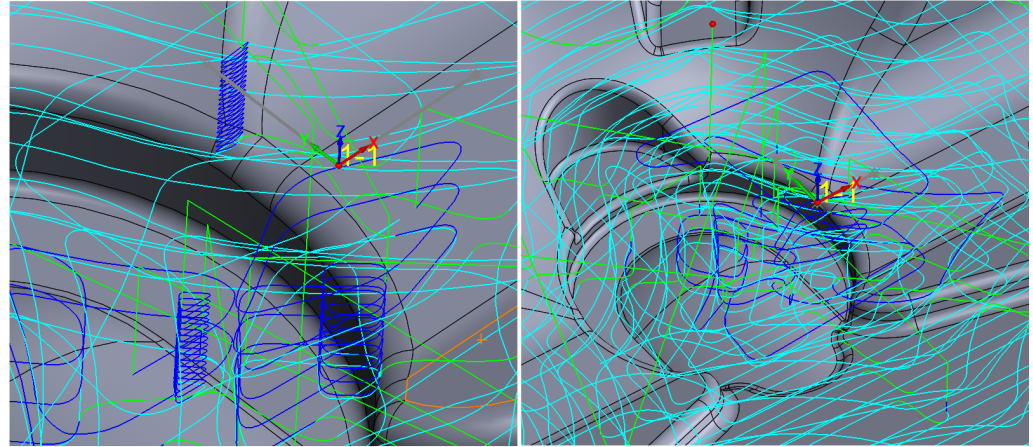
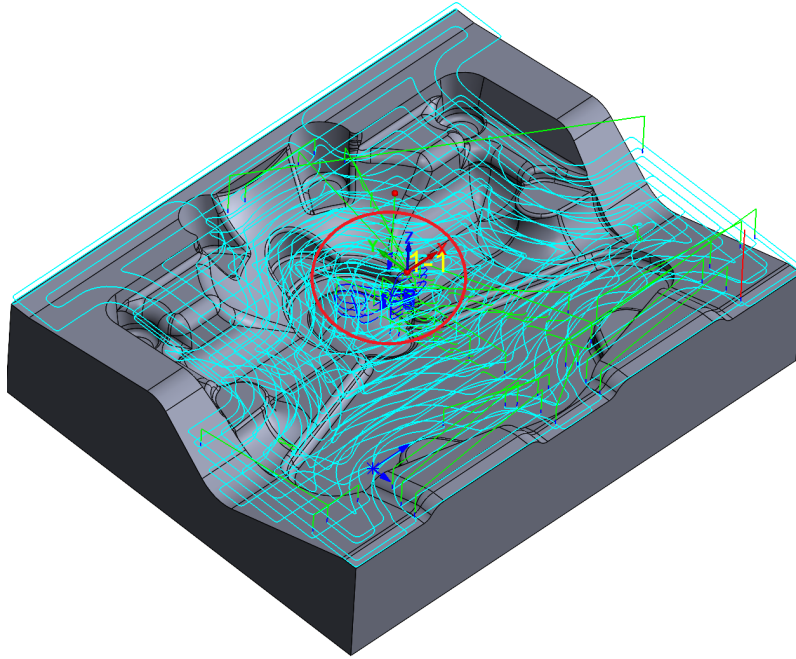
Turbo 3D HSR – Lead Out Control



Lead Out Parameter is now User Controlled.

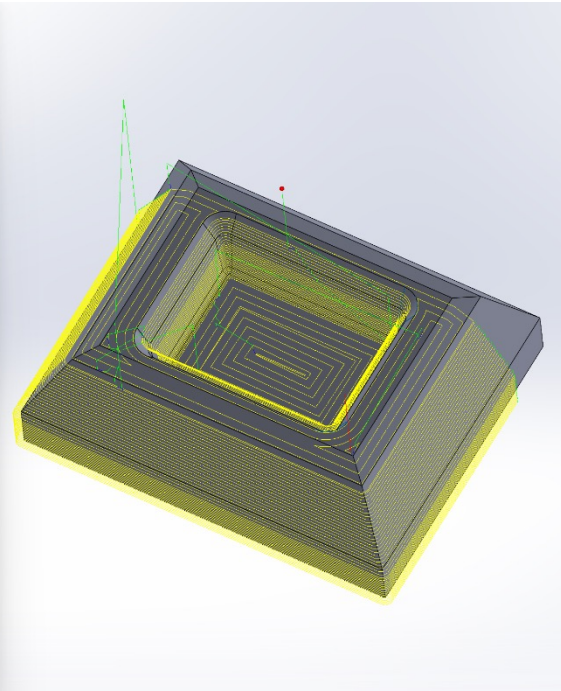
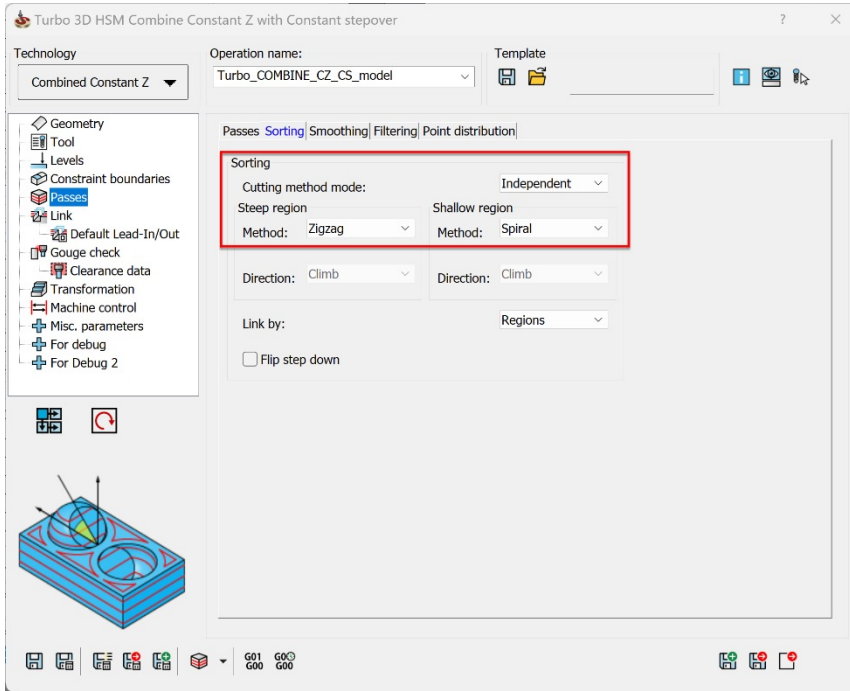


Turbo 3D HSR - Profile ramp/Min. Ramp diameter



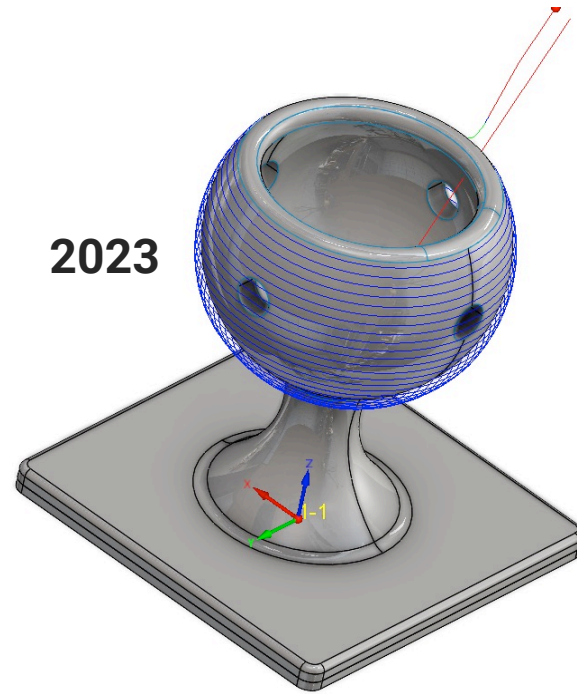
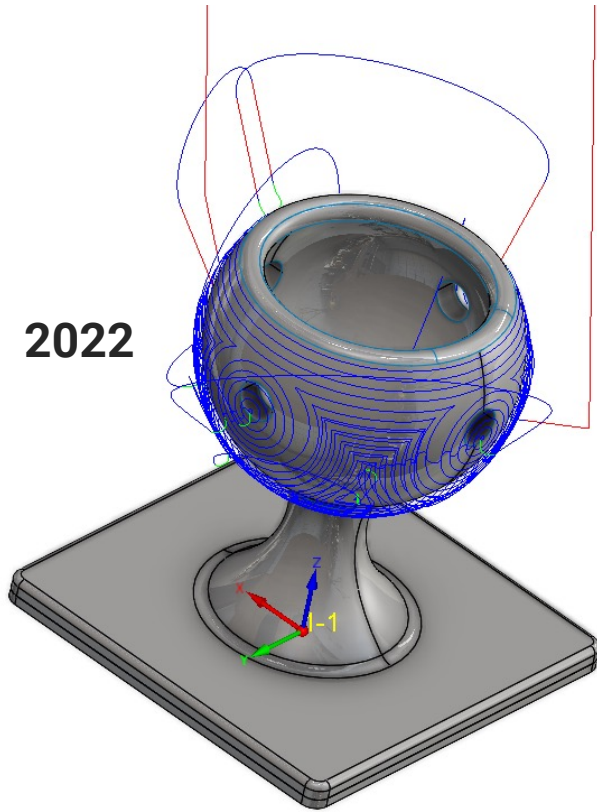
- ❑ The logic for Profile ramps creation has been improved - when creating small profile ramps, the template is shifted to the next pass of the tool, which avoids the creation of tiny ramps that are close to the plunge moves.

Turbo HSM – Independent Cutting Method



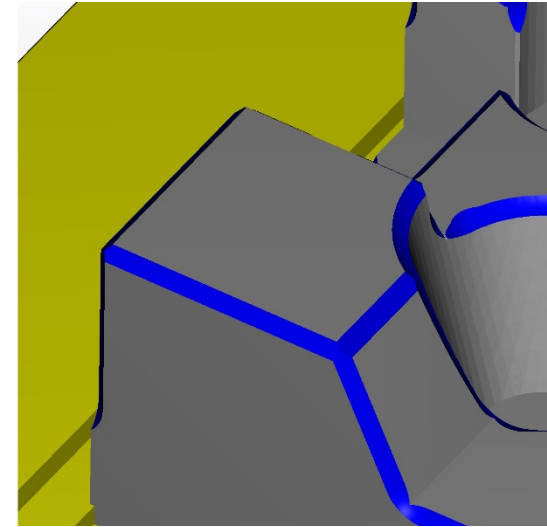
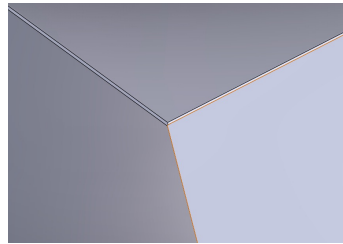
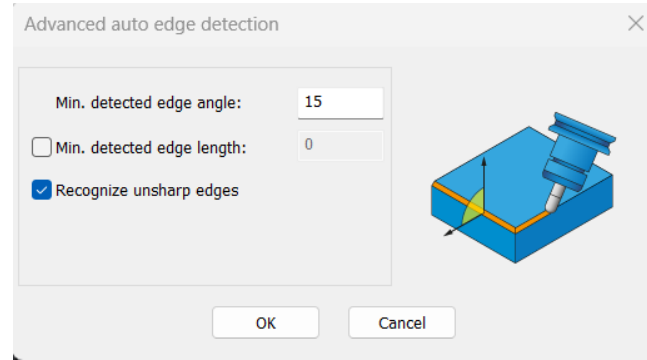
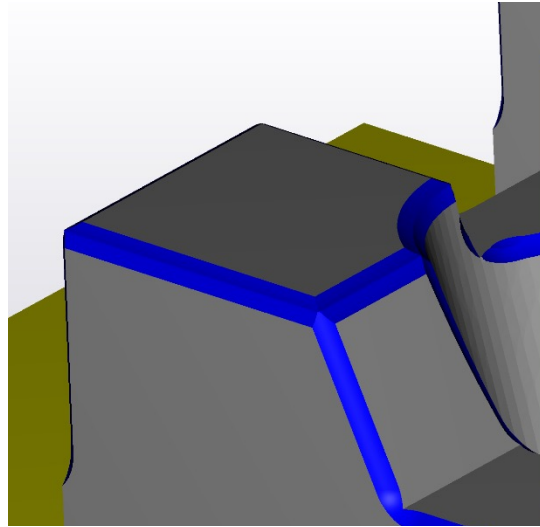
- ❑ The new option enables the user to apply independent cutting methods for the steep and shallow areas.

Sim5X: Geodesic Machining – Fill Holes Behaviour



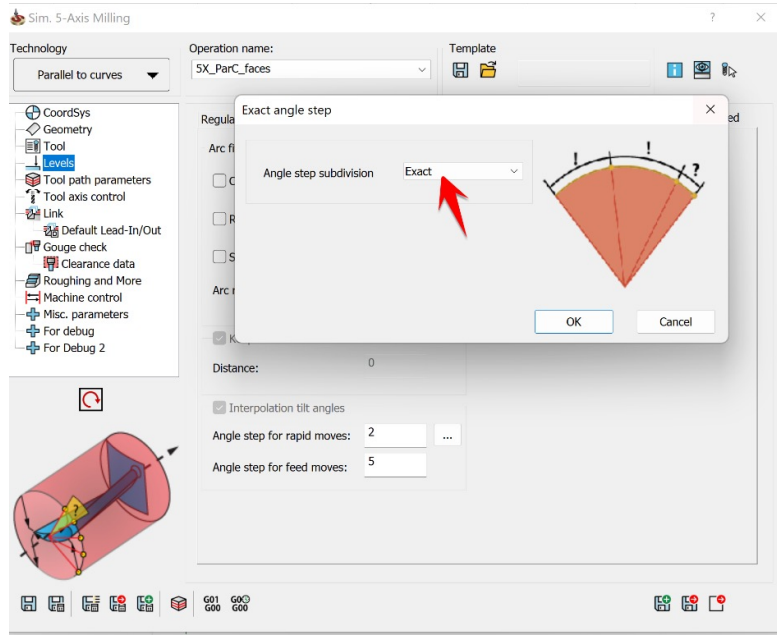
- ❑ Fill Holes has been enhanced in SolidCAM 2023 –the toolpath has less pattern distribution & more intuitive drive curve selection

Sim5X: Edge Breaking – Recognise not sharp Edges



- ❑ This feature deburrs the edges that cannot be identified from the input mesh, using the "Min. detected edge angle" threshold.

SIM 5X: Exact Angle Step



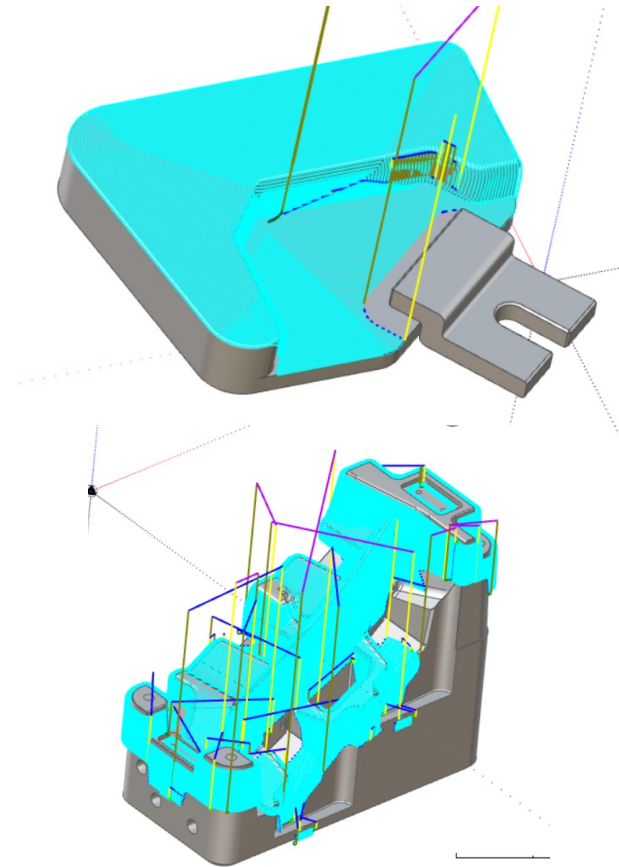
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45 N340 G00 Y-30.949 Z13.952 C-[90]
46 N350 G00 Y-14.636 Z6.345 C-[90]
47 N360 G01 Y-12.823 Z5.5 C-[90] F[P3]
48 N370 G01 X1.7 C-[90] F[P2]
49 N380 G01 Y-14.636 Z6.345 C-[90] F[P4]
50 N390 G00 Y-30.949 Z13.952 C-[90]
51 N400 G00 Y-42.23 Z17.605 C-[90]
52 N410 G00 Y-41.734 Z19.051 B63 C-[90]
53 N420 G00 Y-41.188 Z20.48 B61 C-[90]
54 N430 G00 Y-40.593 Z21.889 B59 C-[90]
55 N440 G00 Y-39.951 Z23.277 B57 C-[90]
56 N450 G00 Y-39.26 Z24.642 B55 C-[90]
57 N460 G00 Y-38.524 Z25.982 B53 C-[90]
58 N470 G00 Y-37.741 Z27.296 B51 C-[90]
59 N480 G00 Y-36.914 Z28.582 B49 C-[90]
60 N490 G00 Y-36.043 Z29.839 B47 C-[90]
61 N500 G00 Y-35.129 Z31.065 B45 C-[90]
62 N510 G00 Y-34.173 Z32.259 B43 C-[90]
63 N520 G00 Y-33.177 Z33.42 B41 C-[90]
64 N530 G00 Y-32.141 Z34.545 B39 C-[90]
65 N540 G00 Y-31.068 Z35.634 B37 C-[90]
66 N550 G00 Y-29.957 Z36.686 B35 C-[90]
67 N560 G00 Y-28.811 Z37.698 B33 C-[90]
68 N570 G00 Y-27.63 Z38.671 B31 C-[90]
69 N580 G00 Y-26.417 Z39.602 B29 C-[90]
70 N590 G00 Y-25.173 Z40.491 B27 C-[90]
71 N600 G00 Y-23.898 Z41.336 B25 C-[90]
72 N610 G00 Y-22.595 Z42.137 B23 C-[90]
    
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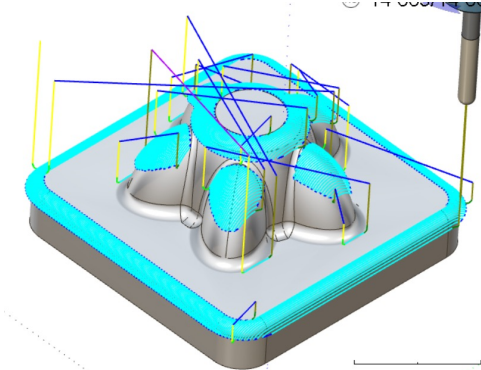
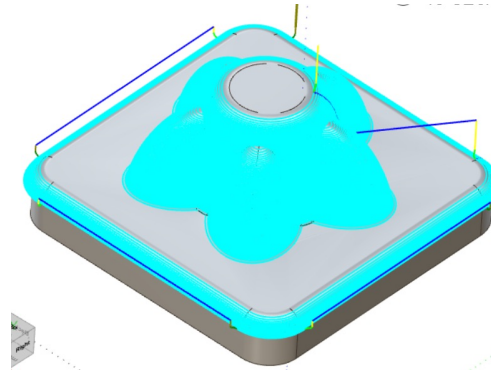
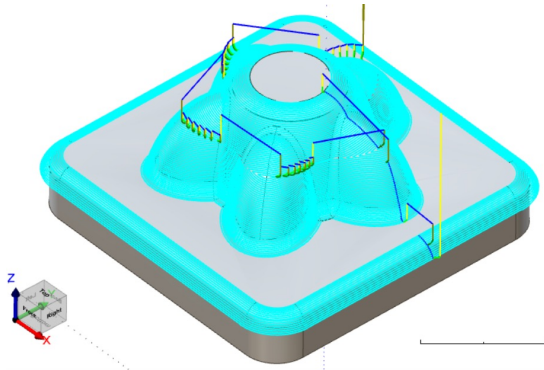
- ❑ A feature has been added as a new linking option, available for Sim. 5-axis Milling Geodesic Milling & MultiAxis Drilling.
- ❑ This new feature allows an exact angular subdivision of the linking move.

3D Milling: New Unified 3-axis machining engine

- ❑ Unified Engine for THSR & THSM
- ❑ One large development team
- ❑ Feature-rich engine
- ❑ Faster development & quicker deployment
- ❑ Faster implementation of feature requests



3D Milling: New Unified 3-axis machining engine



Rapid retract

Corner feed rate reduction

Min. feed rate

64.25

% feed rate

Up feed rate

50

% feed rate

Down feed rate

80

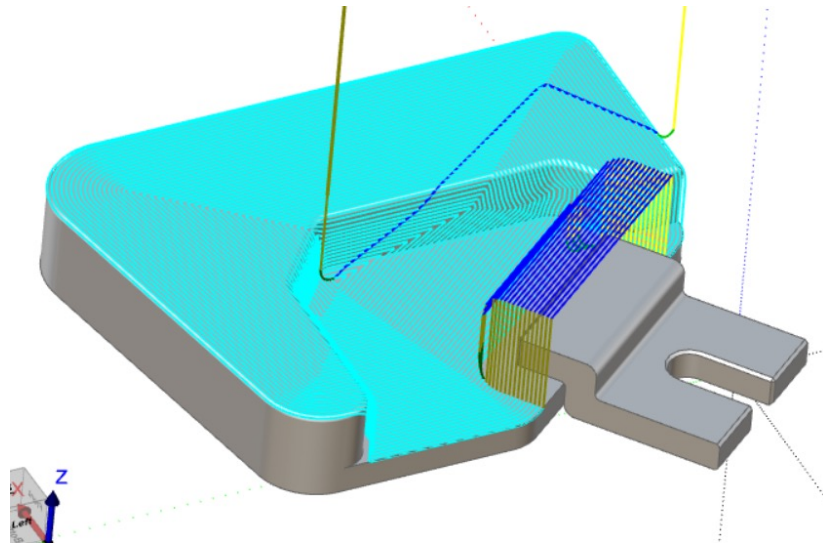
% feed rate

Feed Rate Reduction at Corners

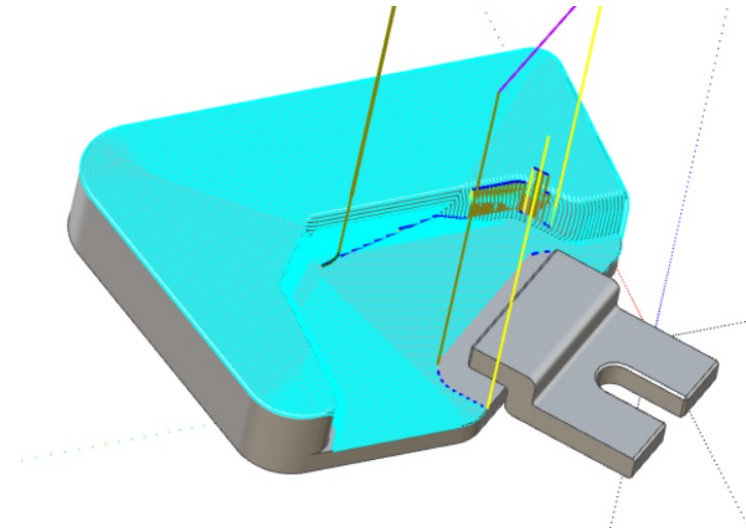
	Block	Feed Rate	X	Z	Y
	4790	1284.000000	7.322	243.575	-24.414
	4791	1307.000000	7.322	243.790	-23.968
	4792	1317.000000	7.322	243.989	-23.521
	4793	1344.000000	7.322	244.157	-23.074
	4794	1354.000000	7.322	244.310	-22.627
▶	4795	1376.000000	7.322	244.4...	-22....
	4796	1393.000000	7.322	244.546	-21.734
	4797	1408.000000	7.322	244.636	-21.287
	4798	1437.000000	7.322	244.695	-20.840
	4799	1453.000000	7.322	244.737	-20.394



3D Milling: New Unified 3-axis machining engine



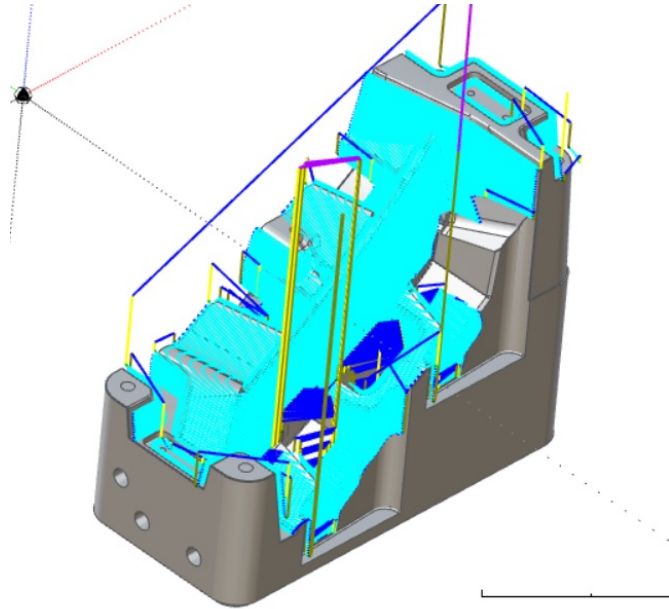
Turbo HSM



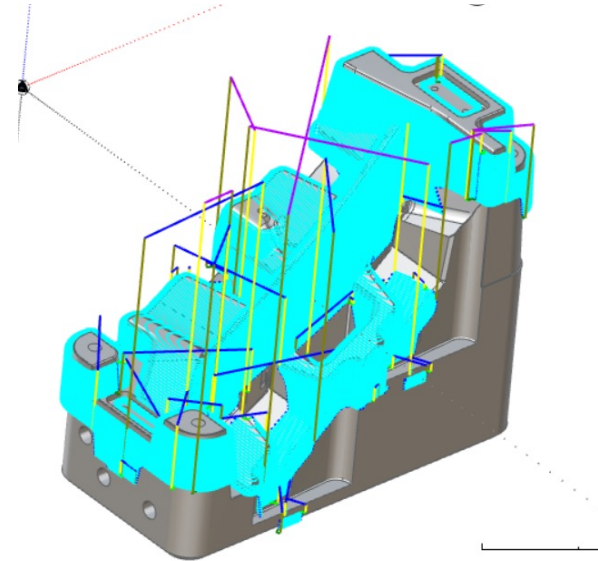
Unified Engine

- ❑ Optimised results with Unified engine when using Fixtures (less retracts)

3D Milling: New Unified 3-axis machining engine



Turbo HSM

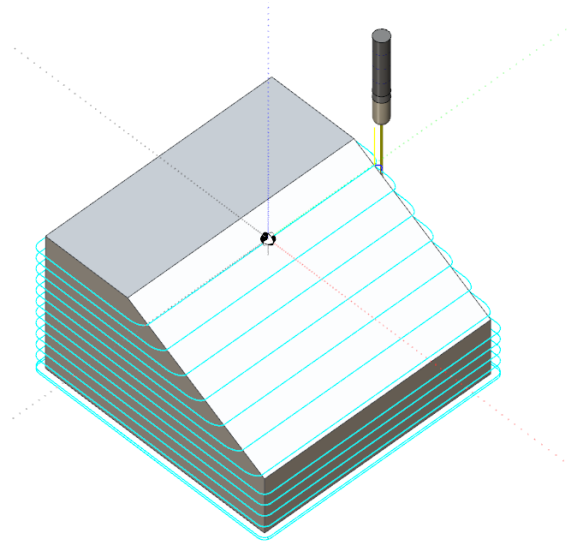


Unified Engine

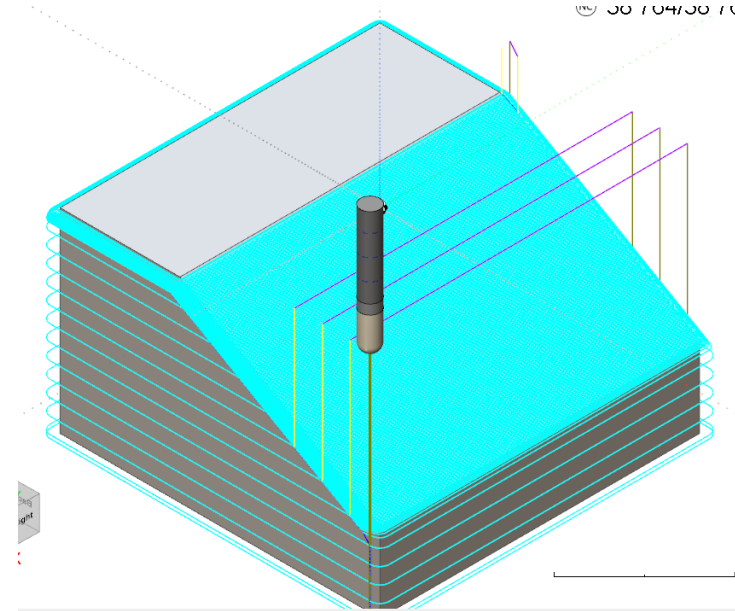
- ❑ Powerful & Simplified Dynamic Holder Collision Avoidance in Unified Engine (less retracts)



3D Milling: New Unified 3-axis machining engine



Turbo HSM

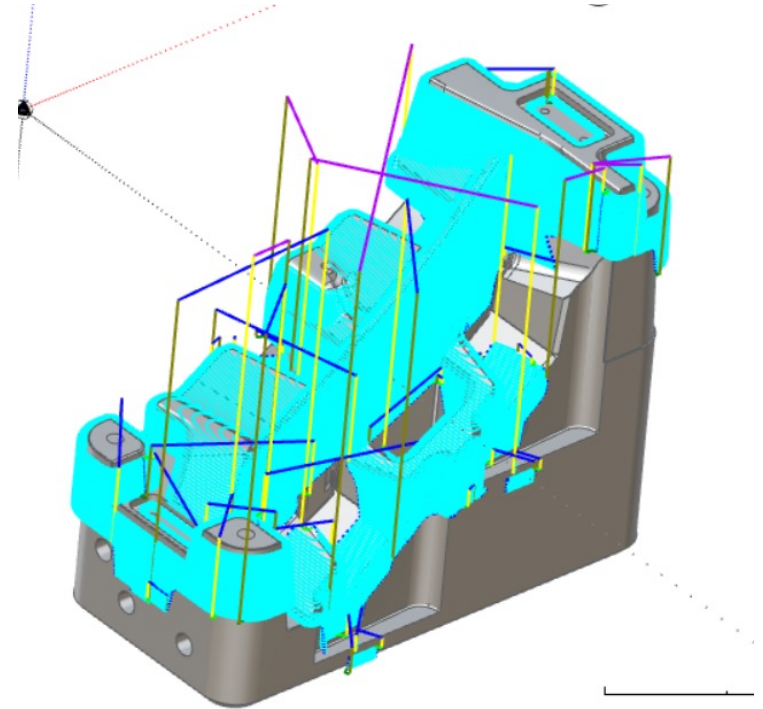


Unified Engine

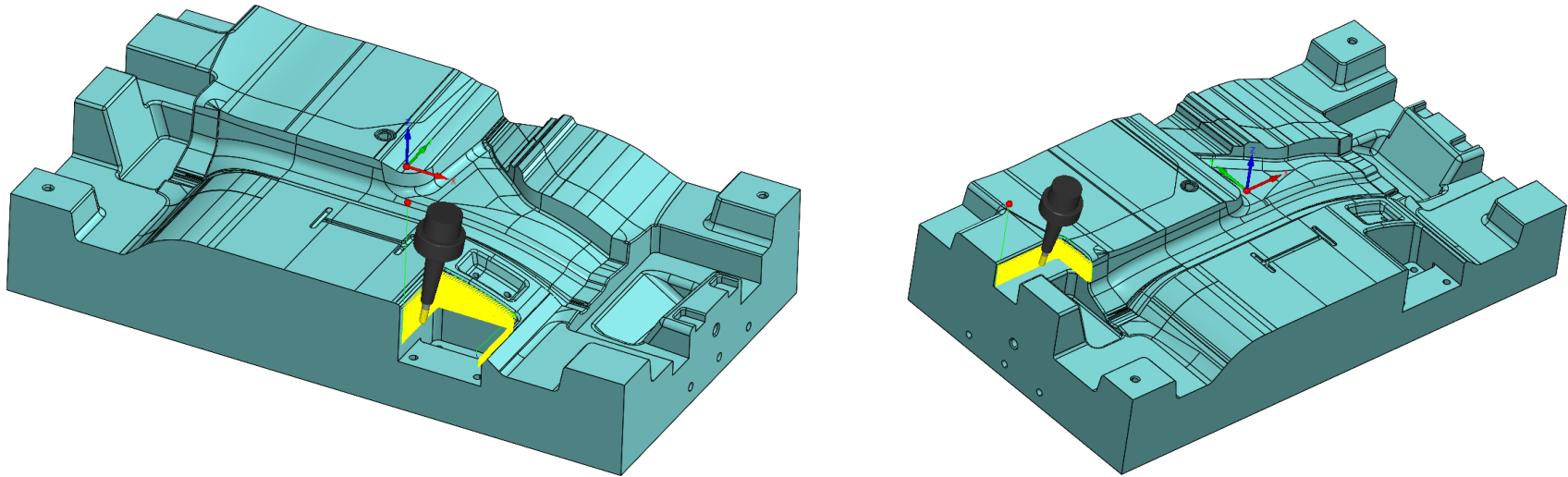
- ❑ Adaptive step-down allows you to give a bigger depth of cut on straight walls & small depth of cut on inclined walls

3D Milling: New Unified 3-axis machining engine

- ❑ Multi surface offset
- ❑ Prevent Edge Rolling
- ❑ Arc Fitting & Points Distribution
- ❑ Rest Finishing based on Tool or Stock
- ❑ Dynamic Holder Collision Avoidance System
- ❑ Feed Control Zones
- ❑ Much more functions....

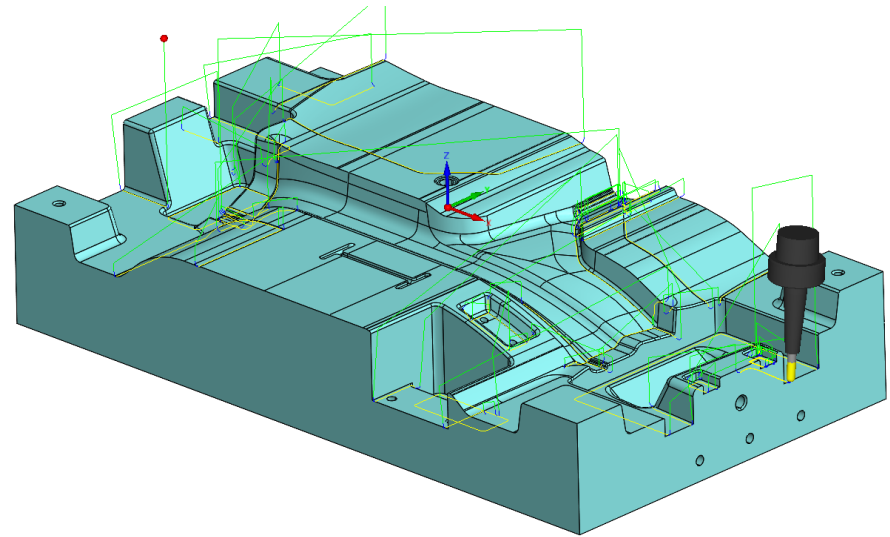
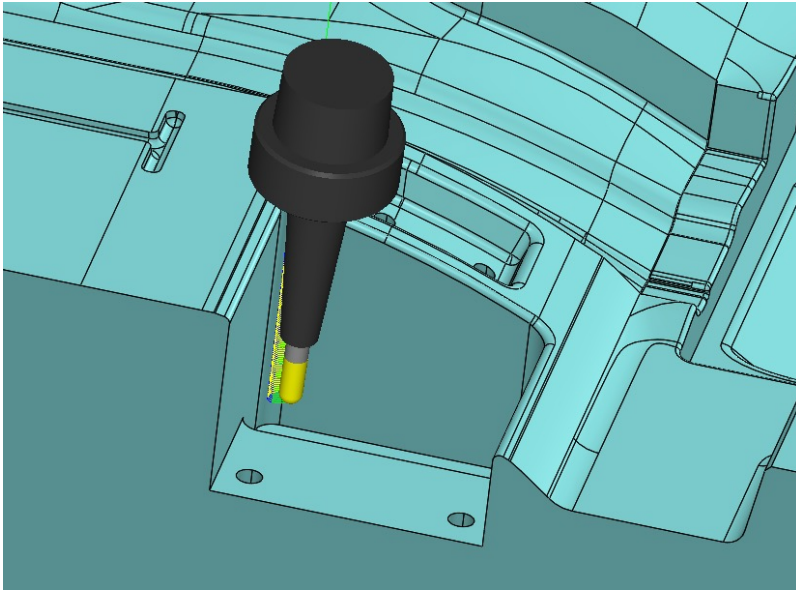


Sim5X toolpath directly in Turbo HSM



- Directly generate SIM 5X Constant Z, Linear, Constant Step Over, Rest Machining Toolpath on Solid model
- No need to Generate 3 Axis Toolpath and then Convert to SIM 5X

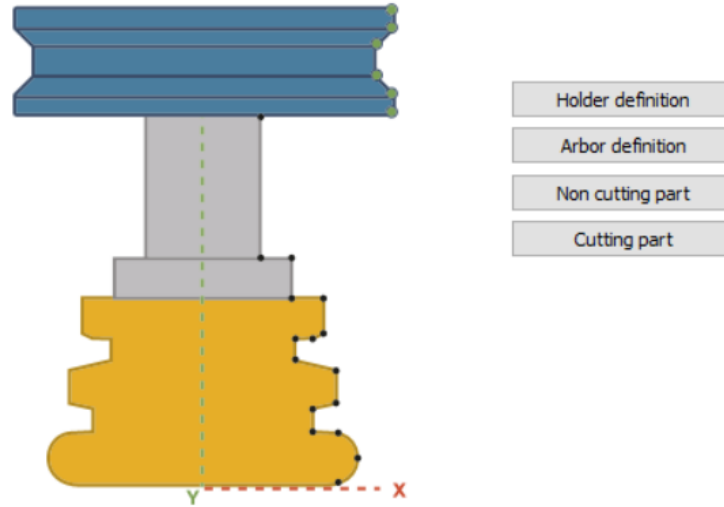
Sim5X toolpath directly in Turbo HSM



- ❑ Clean & Rapid toolpath Calculation.
- ❑ Compete with the best in the Industry with confidence.



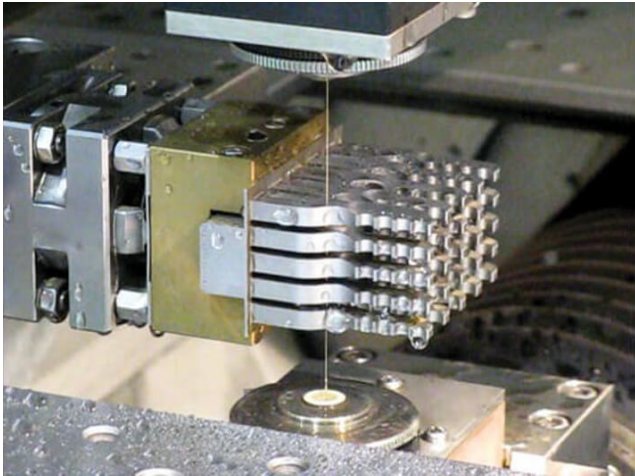
New Generic Revolved Tool



- ❑ SolidCAM will start supporting the Generic Revolved tool for THSR, THSM, Constant Z Undercut, HSS & SIM5X Operations.
- ❑ The user will be able to define a shape & the contact point for Calculation.

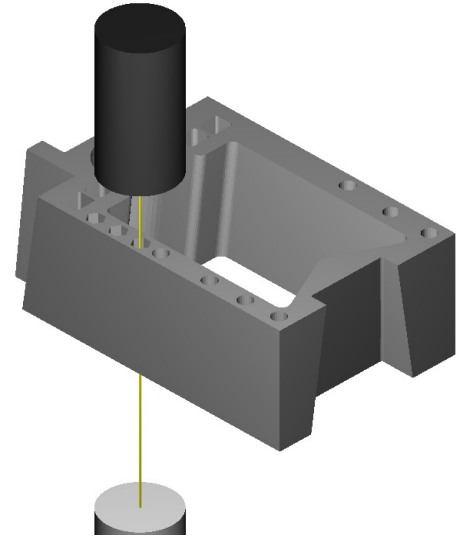
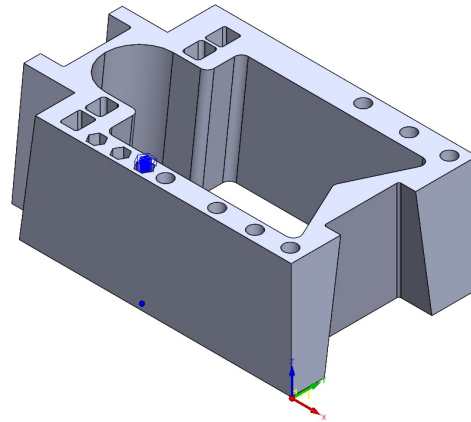


- ❑ We are relaunching our Wire EDM module, that was available in older versions of SolidCAM.
- ❑ We will be enhancing this module powerfully in next SPs and Versions.



SolidCAM 2023 – Wire EDM

- ❑ SolidCAM Wire EDM offers today the following features:
 - 2D profile - definition of contours based on CAD sketches
 - 2D profile - standard 2-axis wirecut
 - Constant Angle
 - Variable Angle
 - 4-axis contour definition
 - Destruction cut
 - Bridges
 - Customized machine Macros
 - Standard 2D & 3D simulation



New module: SolidFile

❑ **SolidFile** will provide **Backup of all SolidCAM data:**

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



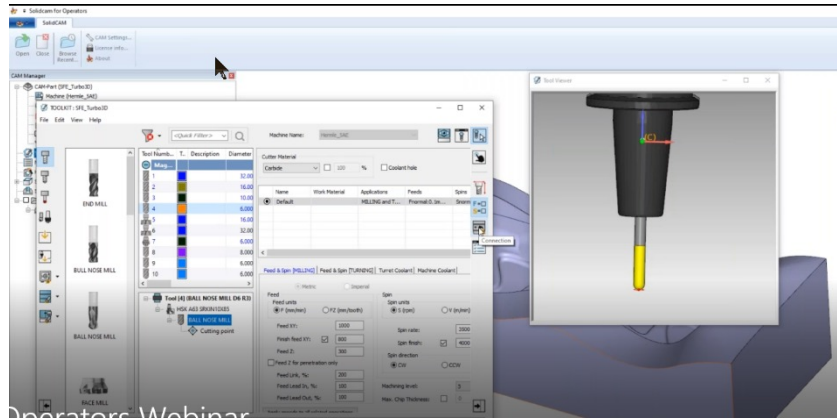
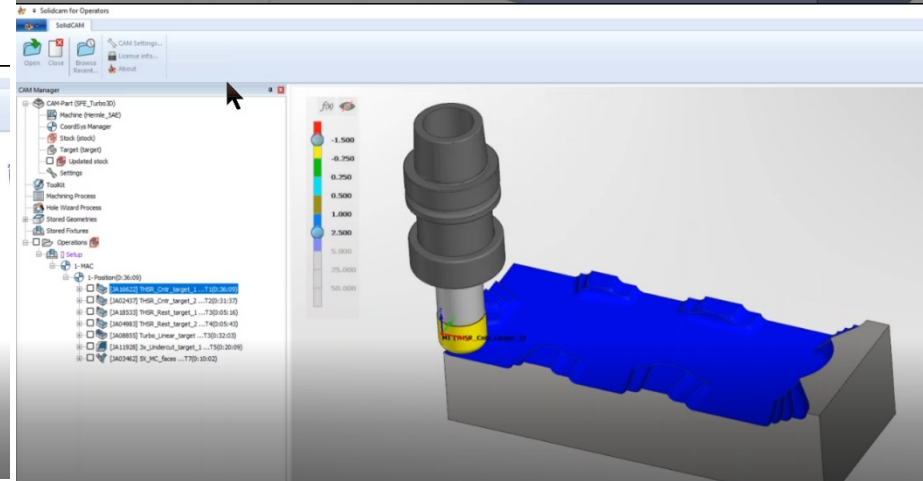
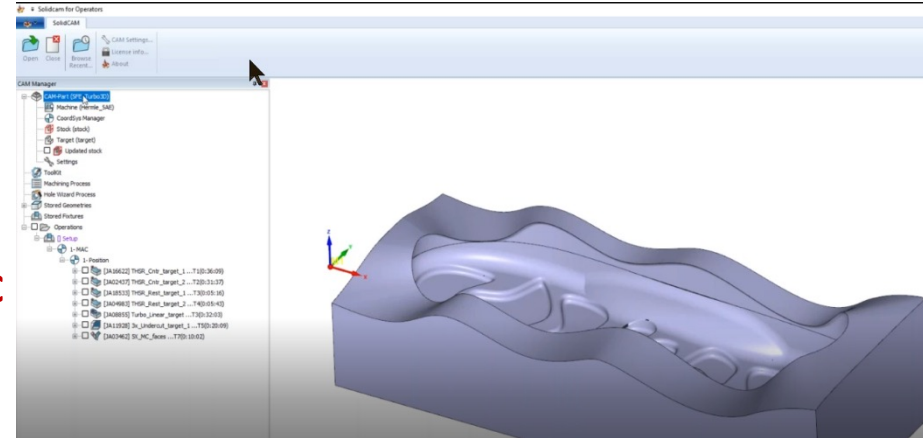
❑ If the **SolidCAM user computer has problems**, he could simply reinstall SolidCAM software and can **access all his backup data**.

❑ If the SolidCAM user wants to **work from another computer**, he can access all his backup data.

❑ Solidfile is based on **Google Drive**.

SolidCAM for Operators

- ❑ Upgrade of the **Shop Floor Editor/Simulator**
- ❑ **Essential tool** for the CNC machine Operator
- ❑ Bridges the work of **CAM Programmers** and **CNC machine Operators**, and thus assists greatly to streamline the Machine Shop process.



CNC Machine Shop/ Department Hierarchy

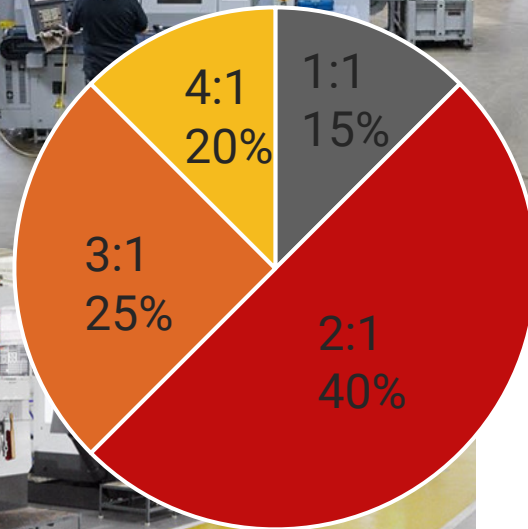
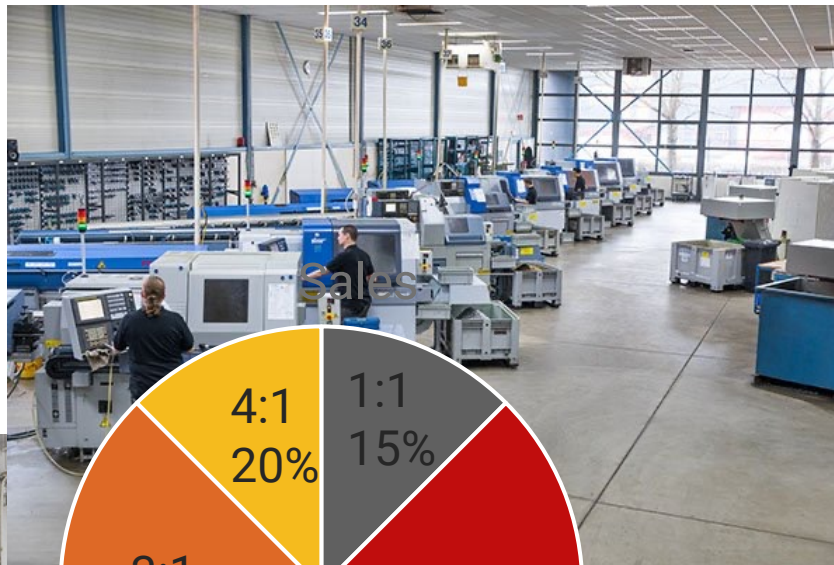
Programmers



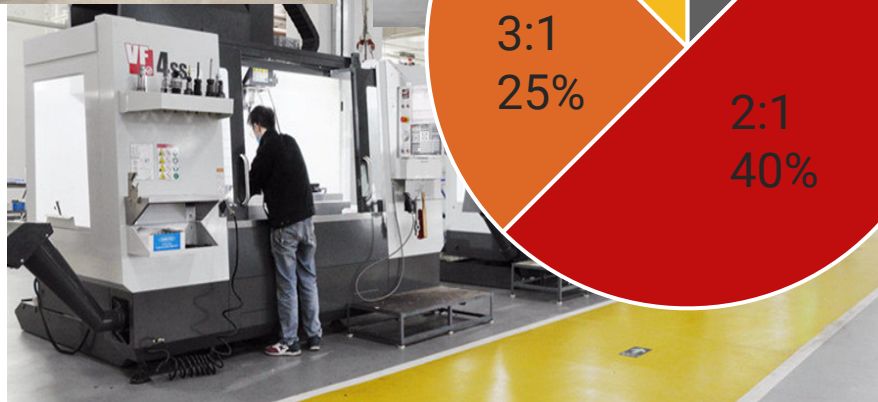
Operators



CNC Operators:CAM Programmers – Typical Ratio

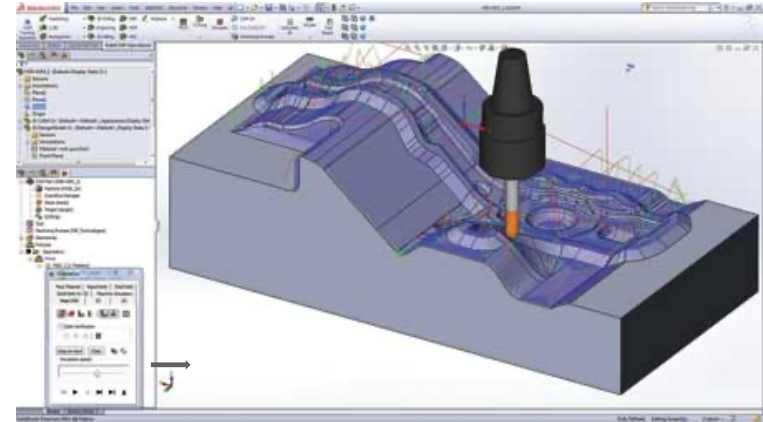
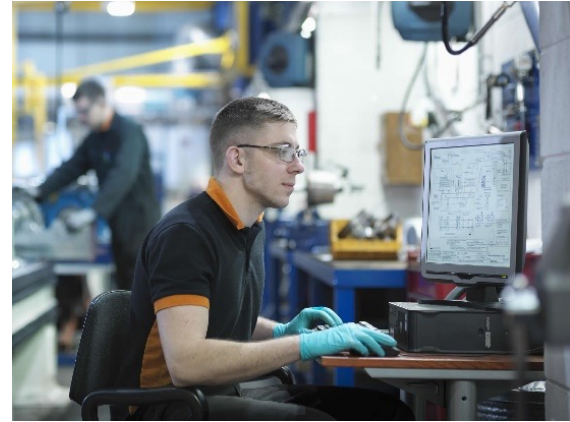


- 1 -3 CNC
- 4 -10 CNC
- 10 -30 CNC
- > 30 CNC



SolidCAM for Operators: The Goal

- ❑ To bridge the work of CAM Programmers & CNC machine Operators
- ❑ Assists greatly to streamline the Machine Shop process.



Why CNC Operator needs SolidCAM For Operators?

01

Clearer Picture for setup and prove outs

02

Change Minor Gcode Parameters

03

Preventing Crashes, broken tools, scrap parts

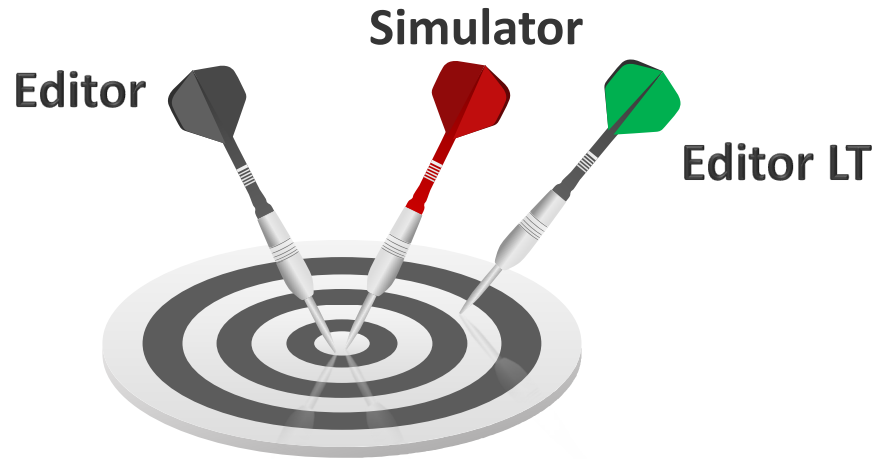
04

Stronger relationship between Shop and programming

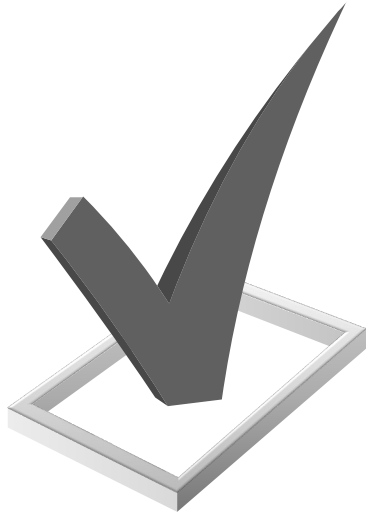
05

Improve skills, help transition to Programming

SolidCAM for Operators: 3 Different Licensing Modes



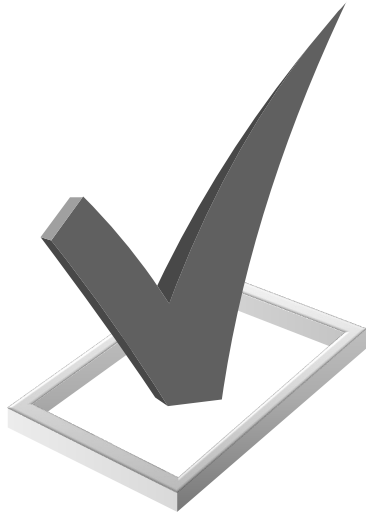
SolidCAM for Operators Mode 1: Editor



- Modify and edit** operations
- Change** tool kit
- Change** Part Setup
- Full Simulation**
- Generate G-Code**



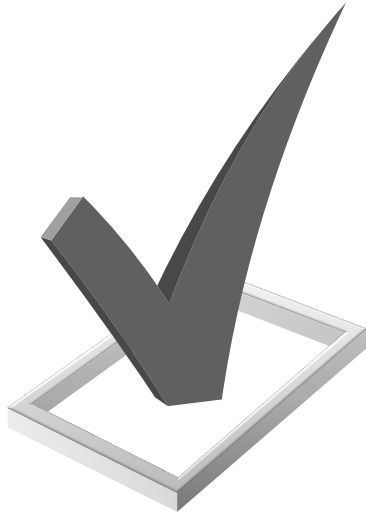
SolidCAM for Operators Mode 2: Editor LT



- View all operations
- Change** tool kit
- View Part Setup
- Full Simulation
- Generate G-Code



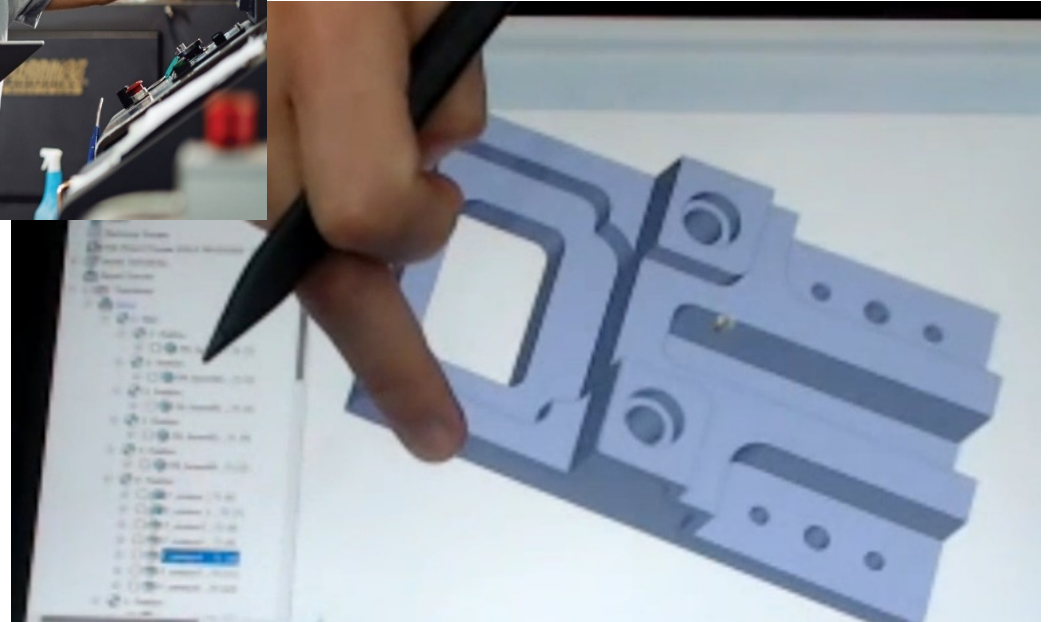
SolidCAM for Operators Mode 3: Simulator



- View all operations
- View tool kit
- View Part Setup
- Full Simulation
- Generate G-Code



SolidCAM for Operators: right by the CNC machine!



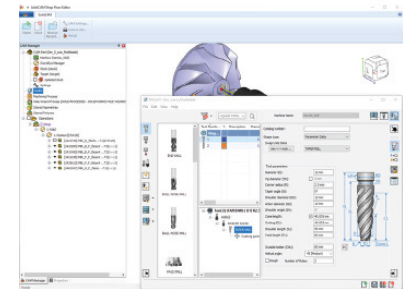
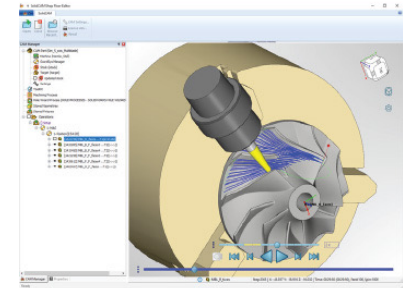
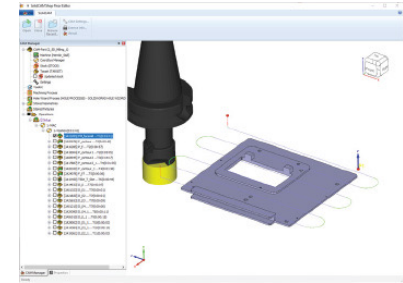
SolidCAM for Operators: Benefits summary

Preventing Machine and Cutting Tool Damage:
Operators see full solid and machine simulations

Working Efficiently: Operators can make minor adjustments, without need to rely on the CAM Programmer

Full Setup Picture: Operator can see all details of each operation including Tools, Setup Definition, Stock Clamping, Home Positions, and full simulation of the process.

Eliminate 'Dry-Runs': SolidCAM for Operators enables the user to step-through each move in program, reducing setup time & eliminating the need to dry-run programs on the CNC.

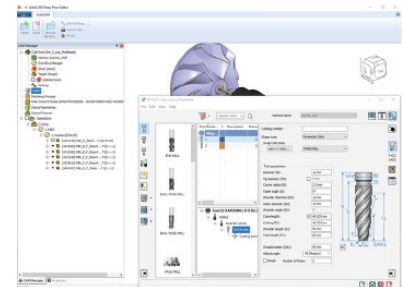
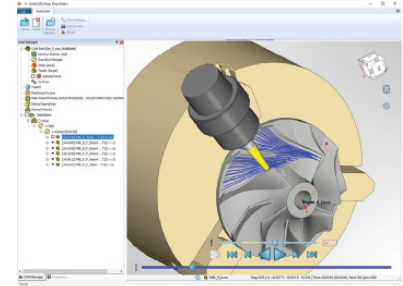
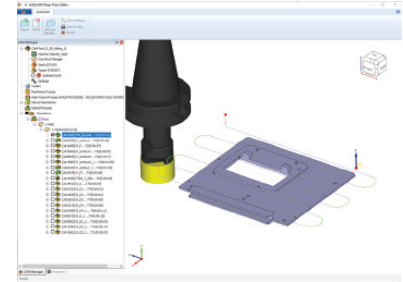
**SolidCAM**

The Solid Platform for Manufacturing

In summary..

SolidCAM for Operators is **a great tool for all Operators** at CNC Machine Shops using SolidCAM.

SolidCAM for Operators **bridges the work of CAM Programmers and CNC machine Operators**, assisting greatly to streamline the Machine Shop process.

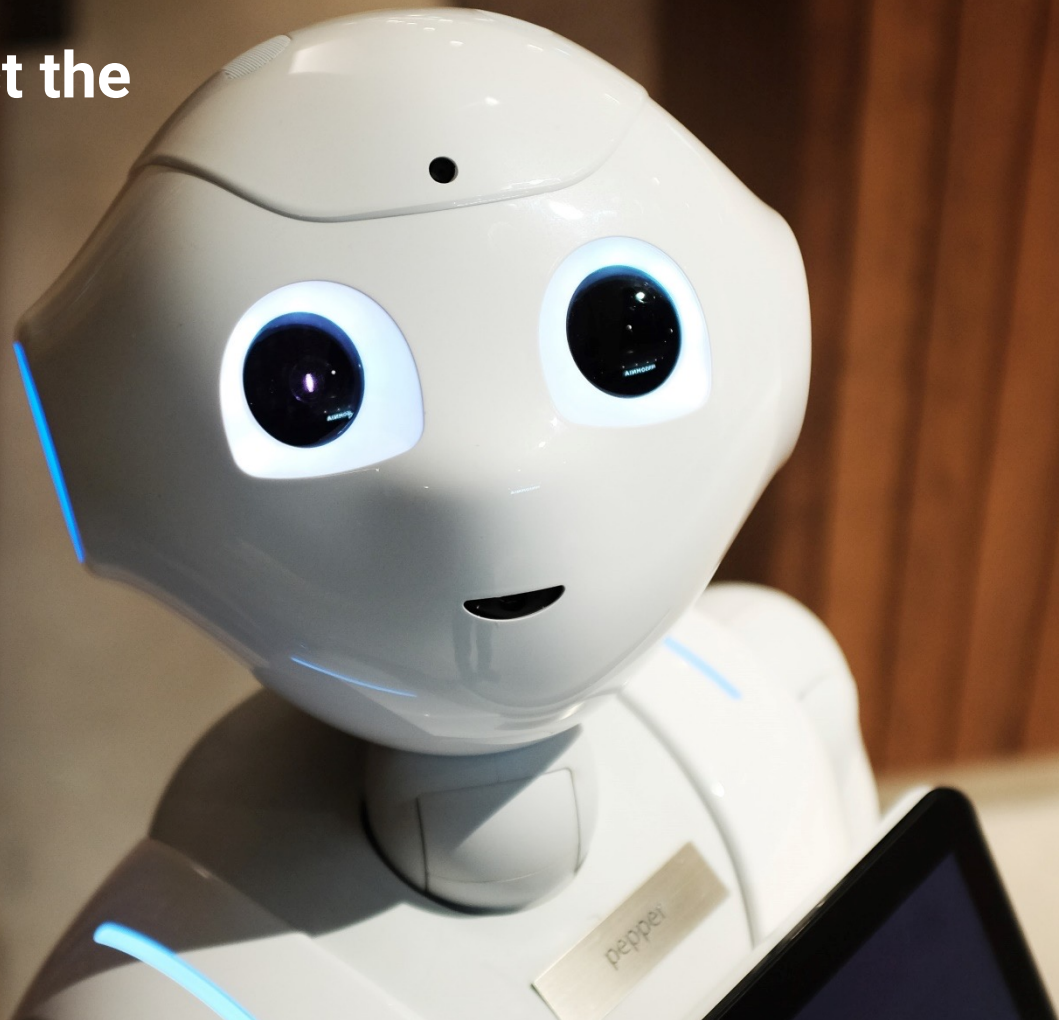


"The best way to predict the future is to create it."

– Peter Drucker

SolidCAM

THE FUTURE OF CAM



THANKS FOR WATCHING

