



WORKNC - 2025.4

What's NEW

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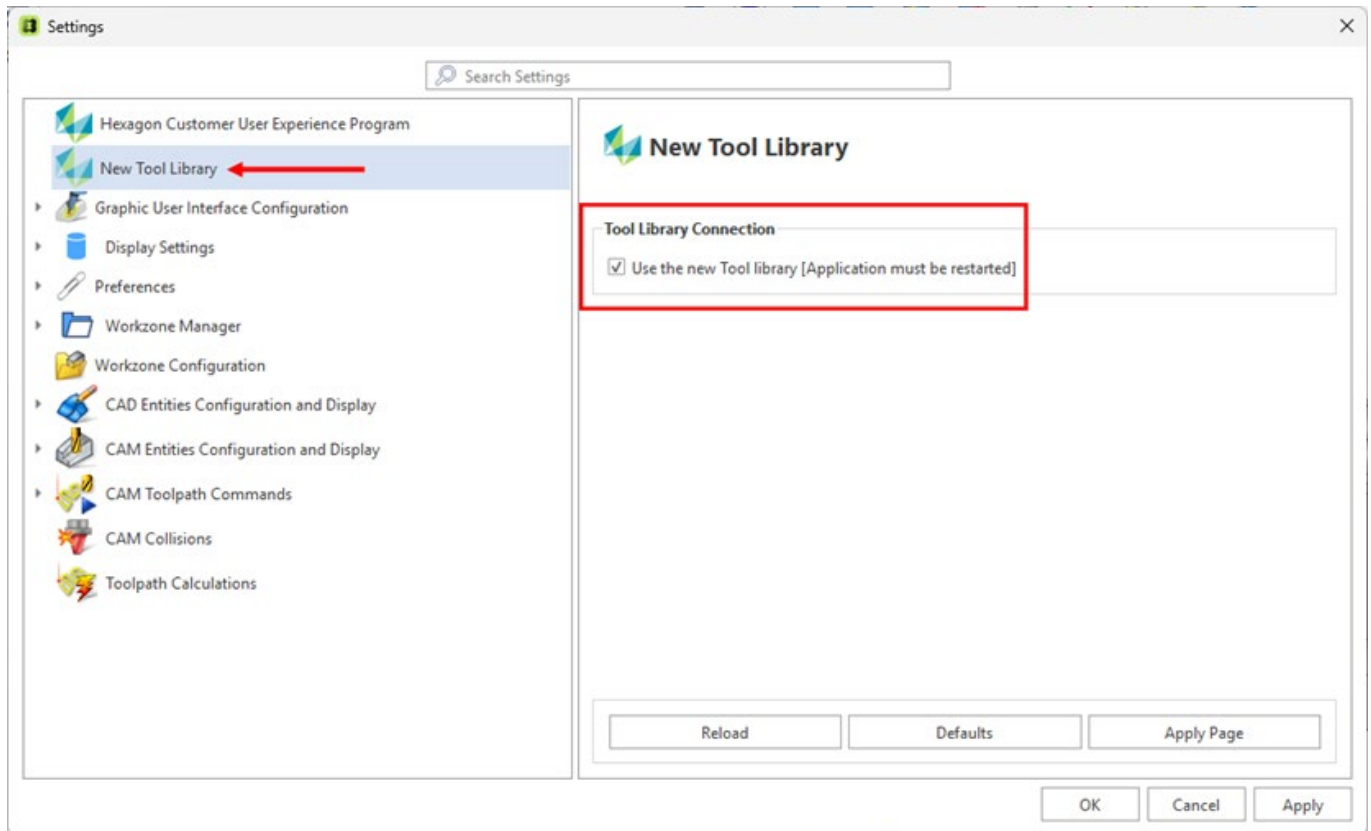
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New Tool Library

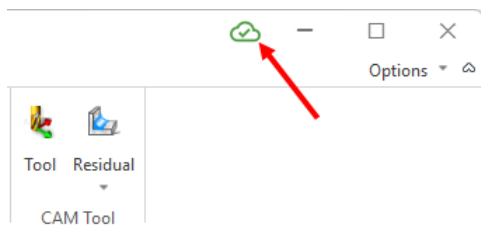
The **New Tool Library** is a full cloud application, hosted by **Hexagon**, which allows you to manage tool definition together with cutting data.


Access

The **New Tool Library** needs to be activated in the application **Settings**:



You need to connect to the **New Tool Library** using the icon in the top right-hand corner of the interface:



The **New Tool Library** is accessible by clicking the  icon in the **Toolpath Parameters** dialog box.

Tool Selection

The user interface displays only the essential filters by default:

- Name.
- Tool Type.
- Cutter Diameter.
- Cutting Length.



- Machine.
- Material.
- Tooling Type: Cutter only or Tool Assembly.

WORKNC pre-filters the tool type based on the toolpath constraints.

Supported tool types:

- Ball.
- Flat.
- Bull-nose.
- Lollipop.
- Spot Drill.
- Convex Milling.
- T-Slot.

Tool Extension Holder Type

The **New Tool Library** contains a sub-type for adapters. You can flag the adapters as holders or extensions.

New Toolpath Parameters Dialog Box

Toolpath Migration

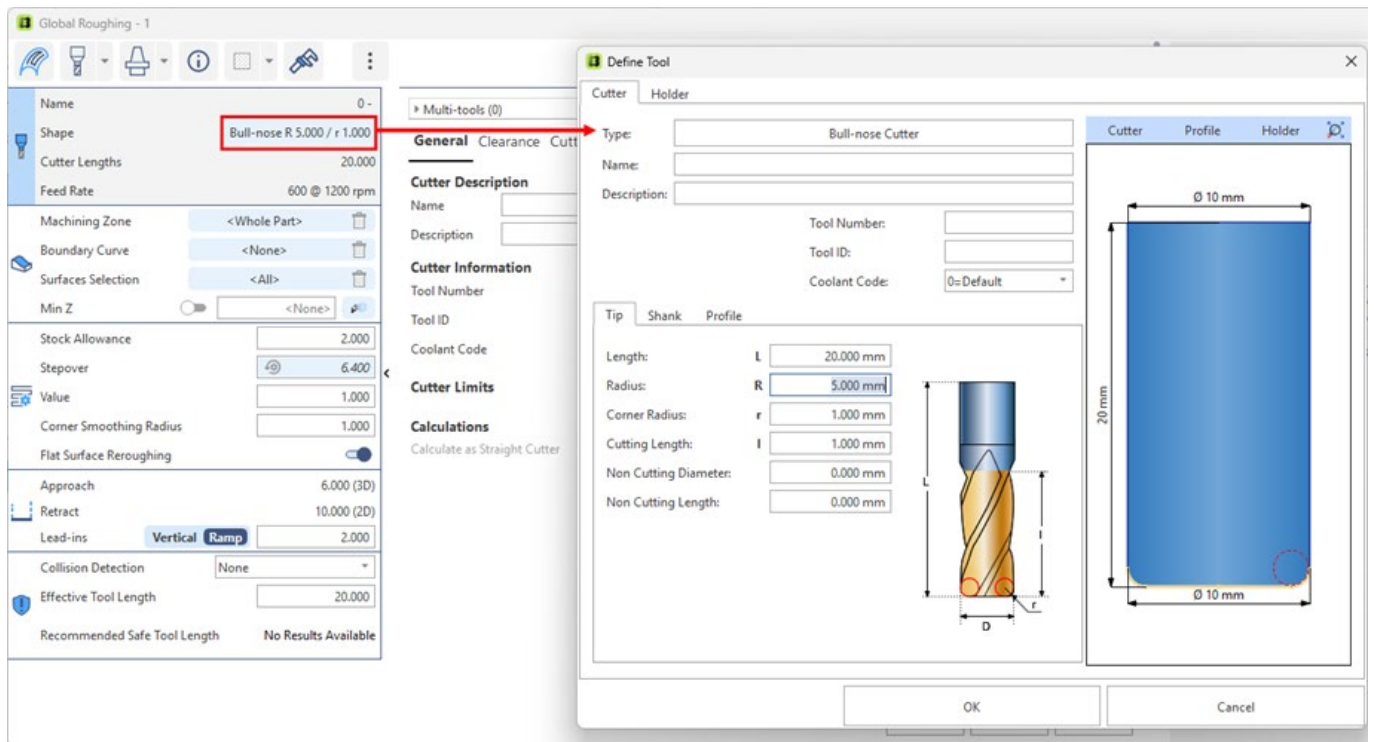
The following toolpaths are now available with the new interface:

- Along the Curve.
- Die Flats Roughing.

99.8 % of the calculated toolpaths can only be programmed with the next generation toolpath interface. Almost 80 % of users no longer have any reason to use the legacy interface for maintained toolpaths.

Quick Tool Editing

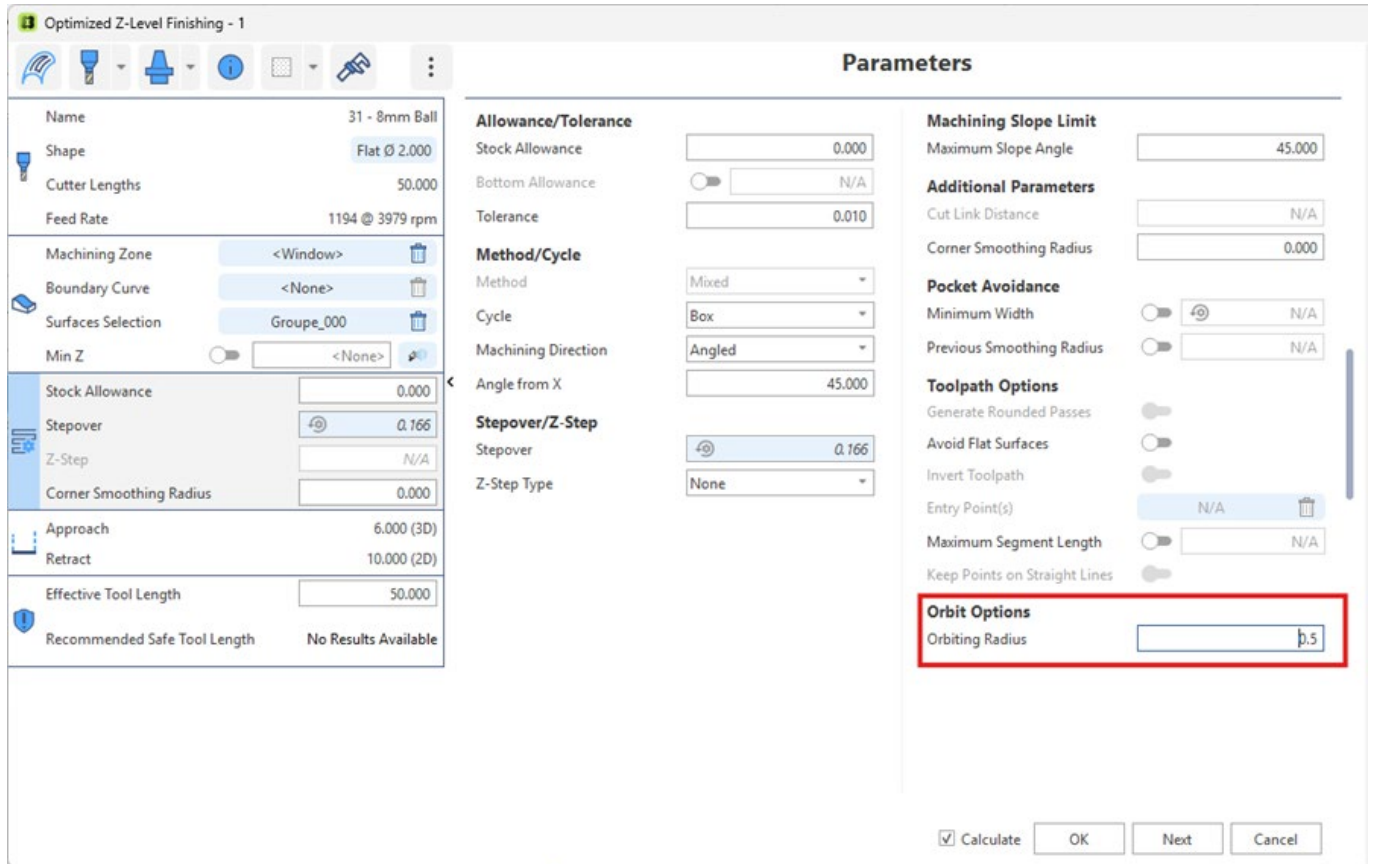
The button which allows you to edit the tool type and shape is back in the **Tool** tab:



Orbiting Radius

This option, which is available in the legacy toolpath interface, has been introduced in the **Orbit Options** section of the new **Parameters** tab for all toolpaths apart from **Global Roughing** and **Parallel Finishing** toolpaths.

This option allows you to set a negative Stock Allowance for flat cutter. It is only available with the dedicated environment variable.



The screenshot shows the 'Parameters' dialog box for 'Optimized Z-Level Finishing - 1'. The 'Orbit Options' section is highlighted with a red box, showing the 'Orbiting Radius' set to 0.5. Other parameters include:

- Name:** 31 - 8mm Ball
- Shape:** Flat Ø 2.000
- Cutter Lengths:** 50.000
- Feed Rate:** 1194 @ 3979 rpm
- Machining Zone:** <Window>
- Boundary Curve:** <None>
- Surfaces Selection:** Groupe_000
- Min Z:** <None>
- Stock Allowance:** 0.000
- Stepover:** 0.166
- Z-Step:** N/A
- Corner Smoothing Radius:** 0.000
- Approach:** 6.000 (3D)
- Retract:** 10.000 (2D)
- Effective Tool Length:** 50.000
- Recommended Safe Tool Length:** No Results Available

Allowance/Tolerance

- Stock Allowance:** 0.000
- Bottom Allowance:** N/A
- Tolerance:** 0.010

Method/Cycle

- Method:** Mixed
- Cycle:** Box
- Machining Direction:** Angled
- Angle from X:** 45.000

Stepover/Z-Step

- Stepover:** 0.166
- Z-Step Type:** None

Machining Slope Limit

- Maximum Slope Angle:** 45.000

Additional Parameters

- Cut Link Distance:** N/A
- Corner Smoothing Radius:** 0.000

Pocket Avoidance

- Minimum Width:** N/A
- Previous Smoothing Radius:** N/A

Toolpath Options

- Generate Rounded Passes:** Off
- Avoid Flat Surfaces:** Off
- Invert Toolpath:** Off
- Entry Point(s):** N/A
- Maximum Segment Length:** N/A
- Keep Points on Straight Lines:** Off

Orbit Options

- Orbiting Radius:** 0.5

Buttons: Calculate, OK, Next, Cancel

Stepover / Variable Z-Step

The **Stepover** parameter is now available in the **Stepover/Z-Step** section of the **Parameters** tab:

Parallel Finishing - 4

Parameters

Name	9 - 25mm R1.8 Highfeed 2	Allowance/Tolerance	Stock Allowance	0.500	Machining Slope Limit	Minimum Slope Angle	0.000
Shape	(Profiled Cutter) Bull-nose Ø 24.978 / r 1.800		Bottom Allowance	N/A		Maximum Slope Angle	90.000
Cutter Lengths	30.000	Method/Cycle	Tolerance	0.010		Additional Parameters	
Feed Rate	1376 @ 688 rpm					Cut Link Distance	20.000
Machining Zone	<Window>					Corner Smoothing Radius	2.000
Boundary Curve	<None>					Cross Machining	
Surfaces Selection	<All>					Main/Cross Order	None
Min Z	<None>					Contact Alignment Angle	N/A
Type	Planar Z-Level					Toolpath Options	
Stock Allowance	0.500					Avoid Flat Surfaces	<input type="checkbox"/>
Stepover	0.223					Maximum Segment Length	N/A
Corner Smoothing Radius	2.000					Angular Tolerance	N/A
Approach	6.000 (3D)						
Retract	10.000 (2D)						
Effective Tool Length	30.000						
Recommended Safe Tool Length	No Results Available						

Global Roughing - 1

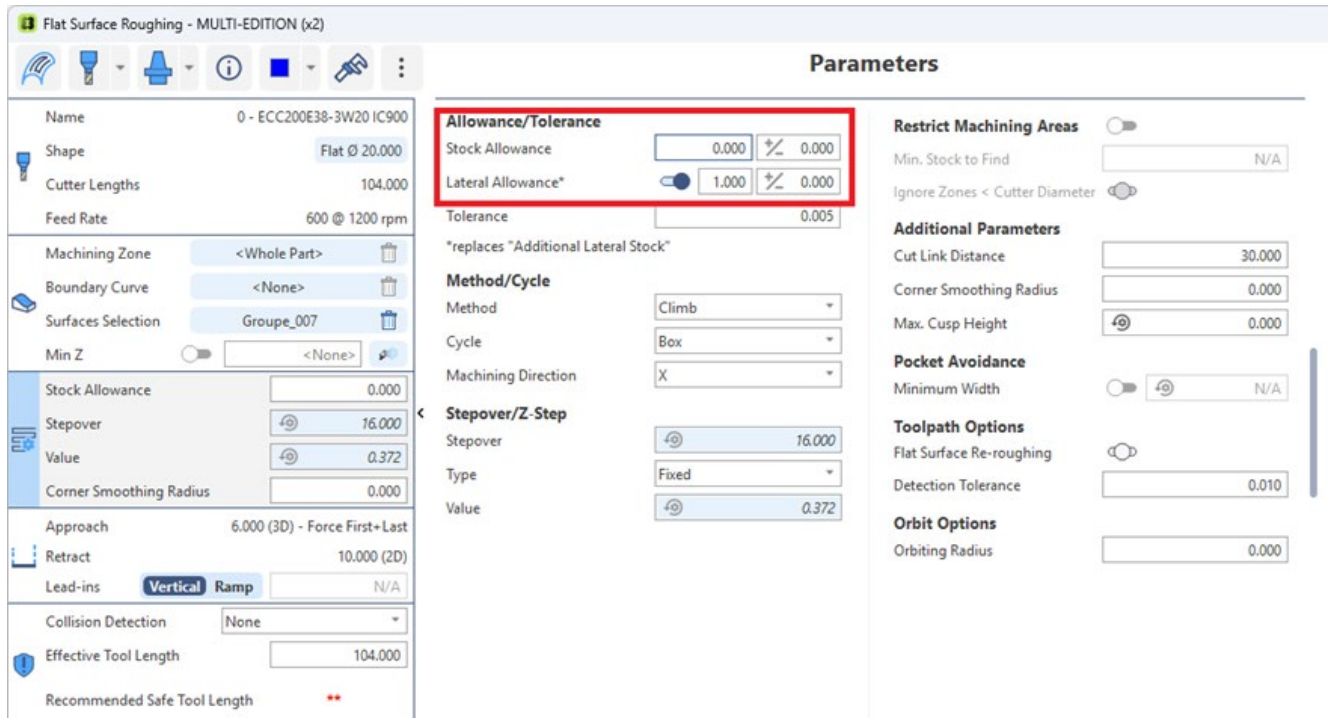
Parameters

Name	0 -	Allowance/Tolerance	Stock Allowance	2.000	Restrict Machining Areas	<input type="checkbox"/>
Shape	Bull-nose R 5.000 / r 1.000		Bottom Allowance	N/A	Min. Stock to Find	N/A
Cutter Lengths	20.000		Tolerance	0.050	Ignore Zones < Cutter Diameter	<input type="checkbox"/>
Feed Rate	600 @ 1200 rpm		Initial Lateral Step	N/A	Additional Parameters	
Machining Zone	<Whole Part>				Cut Link Distance	30.000
Boundary Curve	<None>				Corner Smoothing Radius	0.000
Surfaces Selection	<All>				Minimum Smoothing Radius	0.000
Min Z	<None>				Max. Cusp Height	0.000
Stock Allowance	2.000				Pocket Avoidance	
Stepover	6.400				Minimum Width	N/A
Z-Step	2.000				Toolpath Options	
Corner Smoothing Radius	0.000				Flat Surface Re-roughing	<input checked="" type="checkbox"/>
Flat Surface Reroughing	<input checked="" type="checkbox"/>				Detection Tolerance	0.010
Approach	3.000 (3D)				Cleaning Passes	None
Retract	10.000 (2D)				Pass Allowance	N/A
Lead-ins	Vertical Ramp N/A					
Collision Detection	None					
Effective Tool Length	20.000					
Recommended Safe Tool Length	No Results Available					

The issue with the display of the **Variable Z-Step** table, where excessive width implied lateral scrolling, has been fixed.

Increment in Multi-Edit Dialog Box

Increments for the allowance values are now available next to the **Stock Allowance** and **Lateral Allowance** fields, with +/- icons:



Flat Surface Roughing - MULTI-EDITION (x2)

Parameters

Name: 0 - ECC200E38-3W20 IC900

Shape: Flat Ø 20.000

Cutter Lengths: 104.000

Feed Rate: 600 @ 1200 rpm

Machining Zone: <Whole Part>

Boundary Curve: <None>

Surfaces Selection: Groupe_007

Min Z: <None>

Stock Allowance: 0.000

Stepover: 16.000

Value: 0.372

Corner Smoothing Radius: 0.000

Approach: 6.000 (3D) - Force First+Last

Retract: 10.000 (2D)

Lead-ins: Vertical Ramp N/A

Collision Detection: None

Effective Tool Length: 104.000

Recommended Safe Tool Length: **

Allowance/Tolerance

Stock Allowance: 0.000 +/- 0.000

Lateral Allowance*: 1.000 +/- 0.000

Tolerance: 0.005

*replaces "Additional Lateral Stock"

Method/Cycle

Method: Climb

Cycle: Box

Machining Direction: X

Stepover/Z-Step

Stepover: 16.000

Type: Fixed

Value: 0.372

Restrict Machining Areas

Min. Stock to Find: N/A

Ignore Zones < Cutter Diameter

Additional Parameters

Cut Link Distance: 30.000

Corner Smoothing Radius: 0.000

Max. Cusp Height: 0.000

Pocket Avoidance

Minimum Width: N/A

Toolpath Options

Flat Surface Re-roughing

Detection Tolerance: 0.010

Orbit Options

Orbiting Radius: 0.000

First, Last and Intermediate Retracts

The **First/Last Point** and **Intermediate Retracts** sections of the **Leads/Links** tab have been modified to allow you to not only define a safety Z-level plane, but also complete XYZ safety points.

- Select the point for which you want to adjust the minimum Z-level value from the **Apply to** drop-down list:

First/Last Point

Apply to:

Safety Reference:

Select Pointset:

(Note: The 'Apply to' dropdown menu is open, showing options: First and Last Points, None, First and Last Points, First Point only, Last Point only)

- Select the **Safety Point** option from the **Safety Reference** drop-down list:

First/Last Point

Apply to:

Safety Reference:

Select Pointset:

Lead-ins/Lead-outs

(Note: The 'Safety Reference' dropdown menu is open, showing options: Safety Point, Safety Plane (auto), Safety Plane (user), Safety Point)

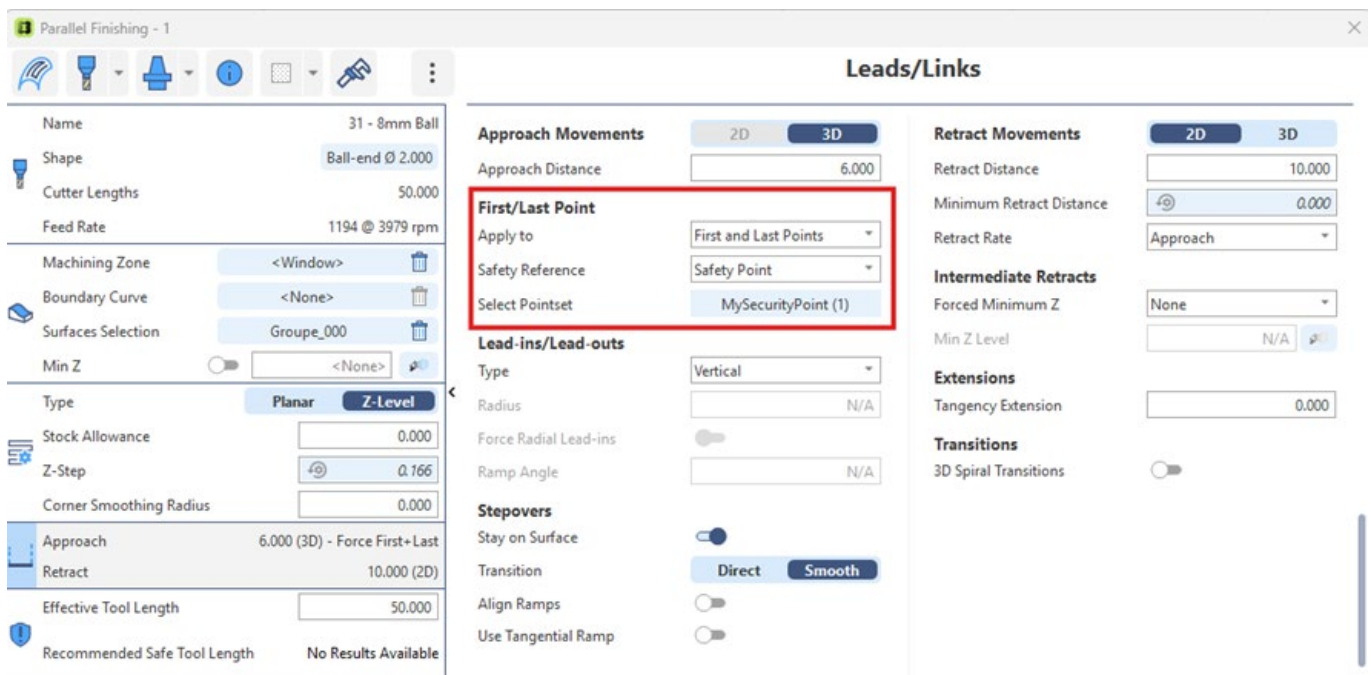
- Select the Point Set.



The point set must contain **ONLY ONE** point.

This functionality does **NOT YET** replace and is **NOT COMPATIBLE** with:

- Caldega and other postprocessors black boxes: By principle, Caldega will remove the first and last points. Line # 100 2 will also remove the first and last points.
- Assembled Toolpaths.
- 3+2-axis and 5-axis toolpaths.



Parallel Finishing - 1

Leads/Links

Approach Movements (2D | 3D): Approach Distance: 6.000

Retract Movements (2D | 3D): Retract Distance: 10.000, Minimum Retract Distance: 0.000, Retract Rate: Approach

First/Last Point (highlighted):

- Apply to: First and Last Points
- Safety Reference: Safety Point
- Select Pointset: MySecurityPoint (1)

Lead-ins/Lead-outs: Type: Vertical, Radius: N/A, Force Radial Lead-ins: Off, Ramp Angle: N/A

Stepovers: Stay on Surface: On, Transition: Direct | Smooth, Align Ramps: Off, Use Tangential Ramp: Off

Intermediate Retracts: Forced Minimum Z: None, Min Z Level: N/A

Extensions: Tangency Extension: 0.000

Transitions: 3D Spiral Transitions: Off

Tool Parameters: Name: 31 - 8mm Ball, Shape: Ball-end Ø 2.000, Cutter Lengths: 50.000, Feed Rate: 1194 @ 3979 rpm, Machining Zone: <Window>, Boundary Curve: <None>, Surfaces Selection: Groupe_000, Min Z: <None>, Type: Planar | Z-Level, Stock Allowance: 0.000, Z-Step: 0.766, Corner Smoothing Radius: 0.000, Approach: 6.000 (3D) - Force First+Last, Retract: 10.000 (2D), Effective Tool Length: 50.000, Recommended Safe Tool Length: No Results Available



User Interface Changes

The **Safety Reference** drop-down list replaces the **Min Z Level** option:

- **Safety Plane (auto)** = **Min Z Level** option deactivated.
- **Safety Plane (user)** = **Min Z Level** option activated with custom value defined.

The **Forced Minimum Z** drop-down list replaced the **Force Minimum Z** option for **Intermediate Retracts**:

- **None** = **Force Minimum Z** option deactivated.
- **Auto** = **Force Minimum Z** option activated and the application sets the safety Z-level above the part.
- **Given Z** = **Force Minimum Z** option activated with custom value defined.

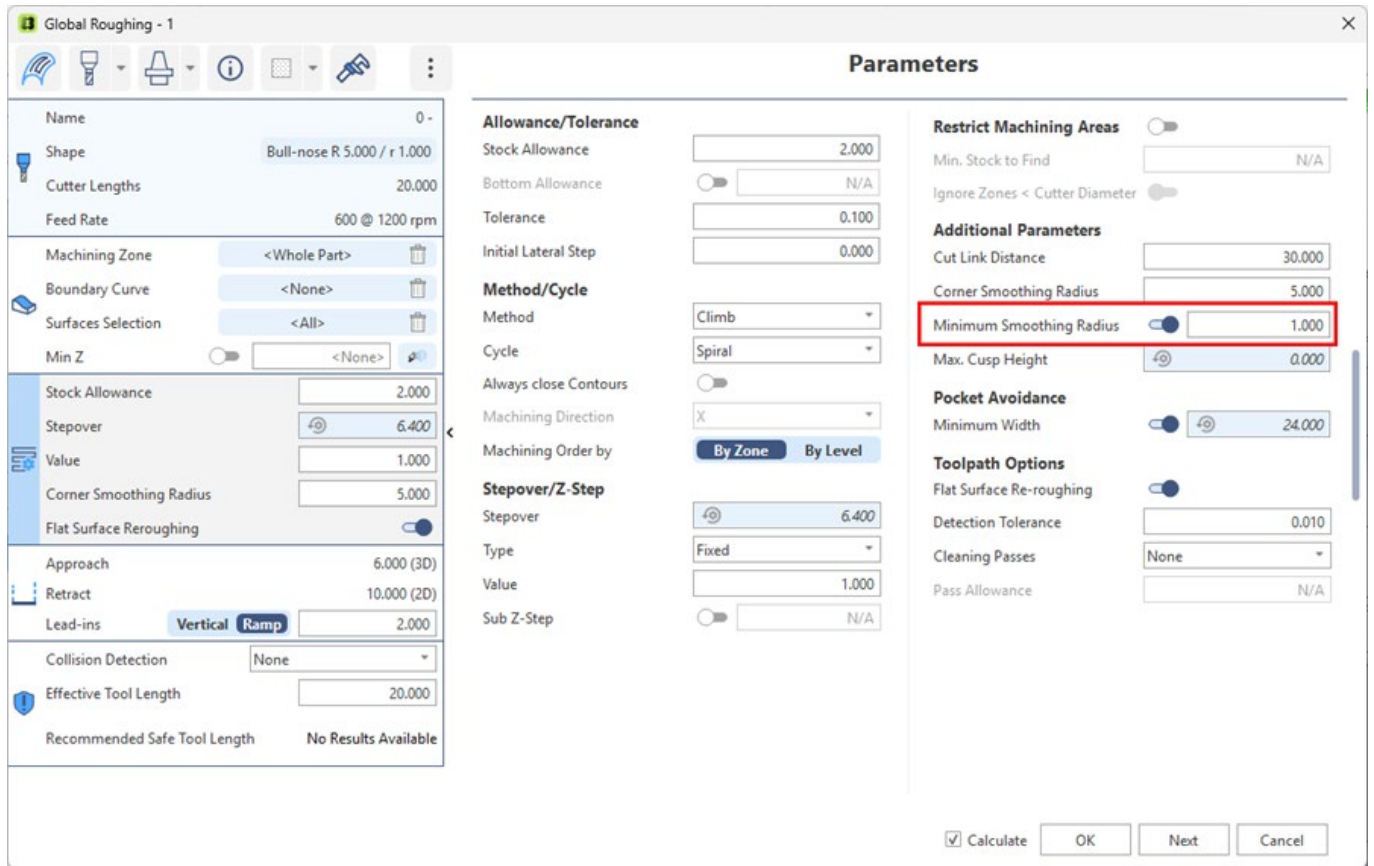
These parameters are available for all toolpaths except:

- Undercut Remachining.
- Manual 2D.
- Drilling.
- Tapping/Threading.
- Point Drilling.
- Automatic Hole Machining.
- Manual Hole Machining.
- All 5-axis toolpaths.

Global Roughing

Improved Machining in Narrow Areas - Minimum Smoothing Radius

A new option allows you to apply a minimum smoothing radius to effectively control the cutting process:



Activate the **Minimum Smoothing Radius** option to allow the toolpath to perform radii smaller than the **Corner Smoothing Radius**.

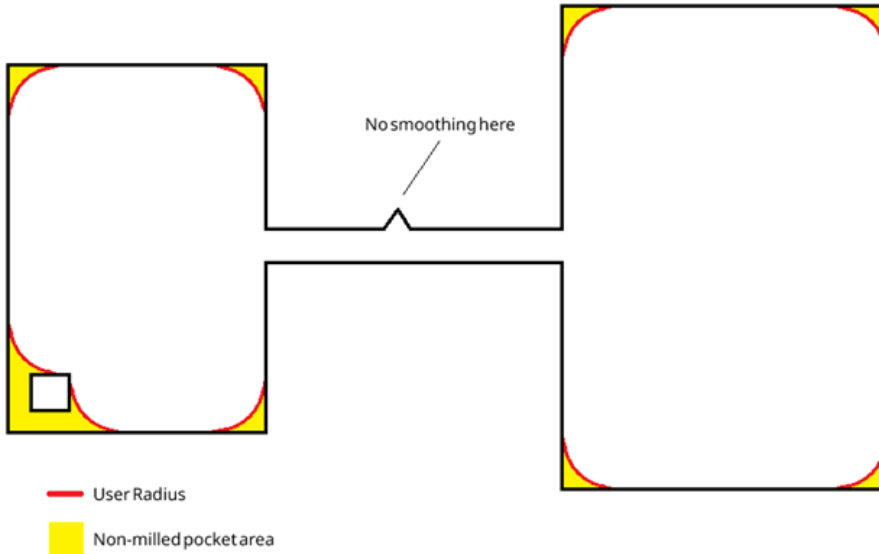
This also allows you to define a radius value when the Corner Smoothing Radius cannot be applied in narrow areas.

Use the **Minimum Smoothing Radius** field to define the minimum corner smoothing radius to be applied on narrow areas.

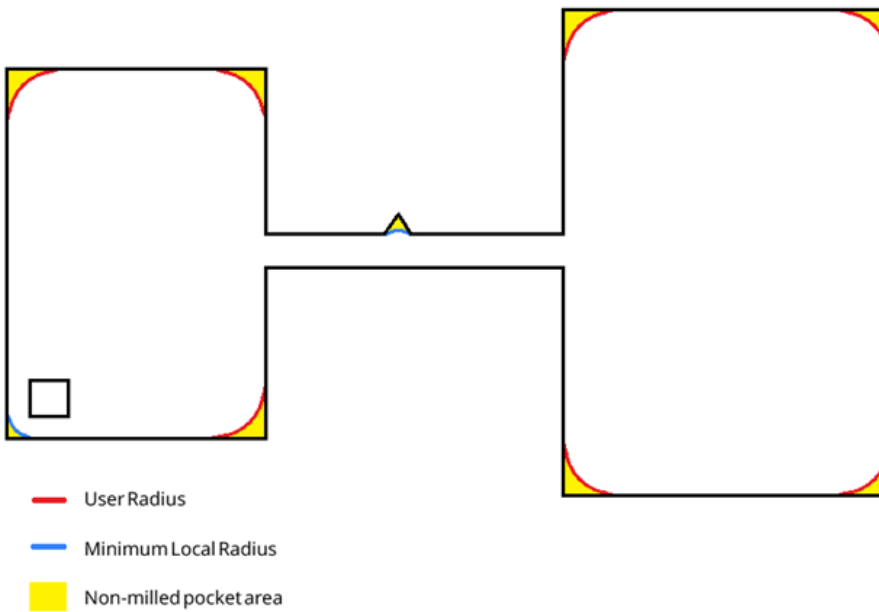


The **Minimum Smoothing Radius** cannot exceed the **Corner Smoothing Radius**.

Minimum Smoothing Radius option deactivated by default:



With the **Minimum Smoothing Radius** option activated, narrow areas are machined, and the Smoothing radius is respected for the whole toolpath:



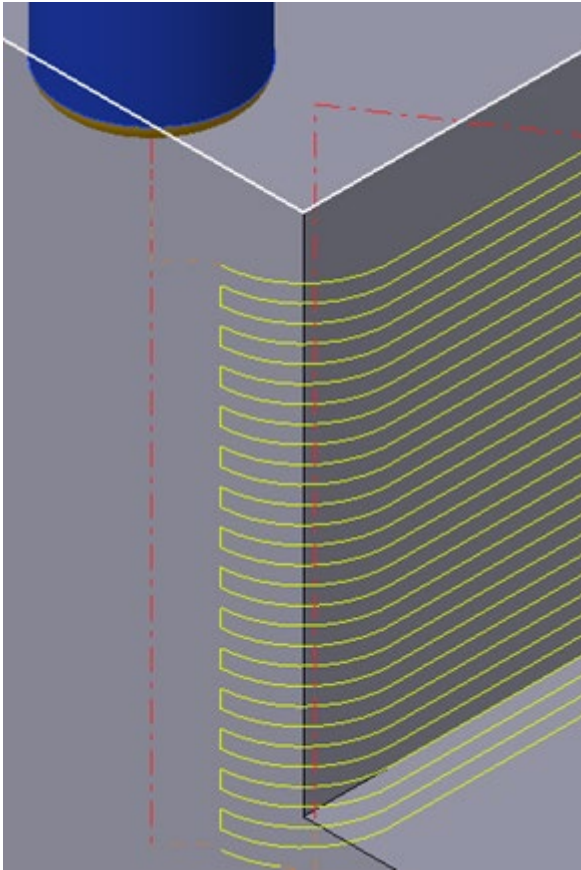
Parallel Finishing

Stop on Edges and Vertical Faces

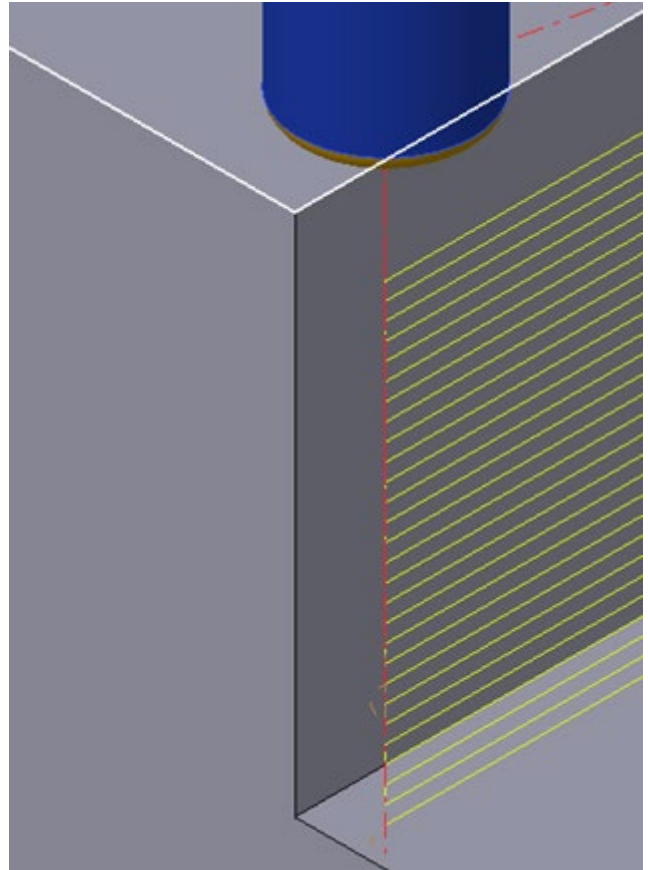
The toolpath algorithm has been reviewed to improve the behavior when stopping on surface edges. This ensures that the tool stops exactly at the edge without rolling around the edge, resulting in cleaner finishes and more precise geometry.

Combined with the **Tangency Extension** option, it generates the perfect finishing result.

Toolpath in previous version:

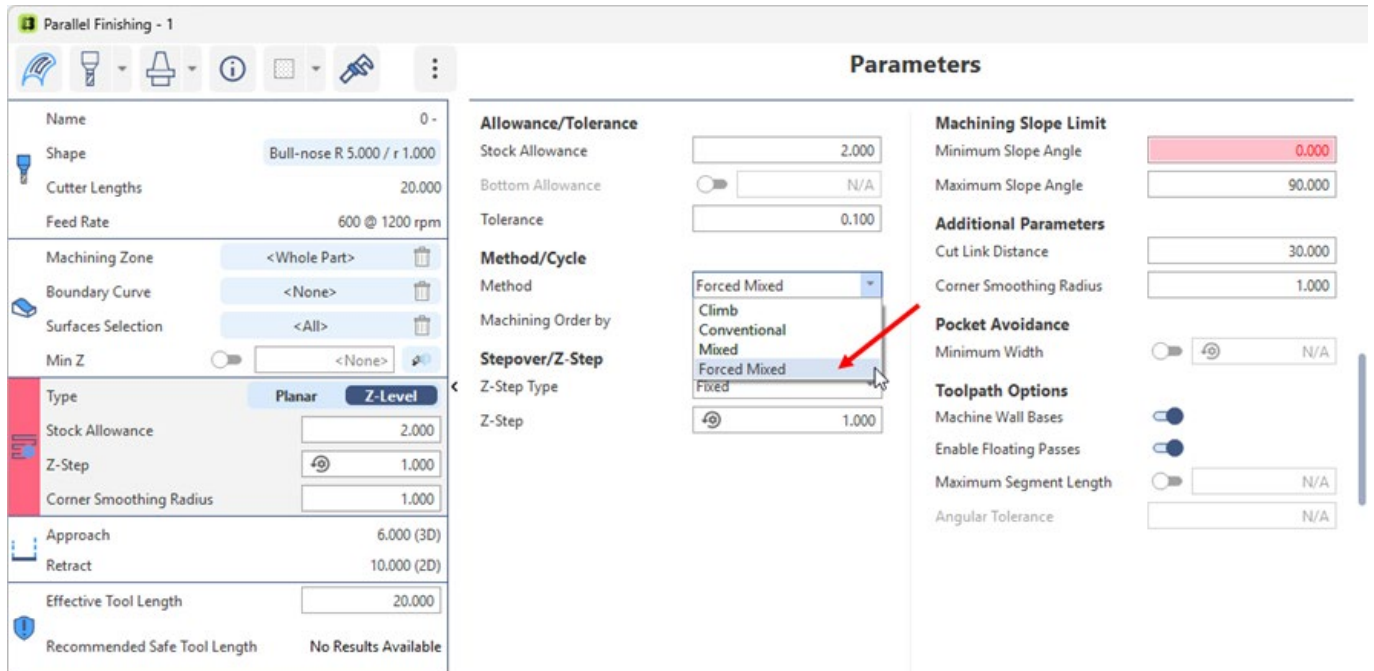


Toolpath in version 2025.4:



Forced Mixed Method

A new option has been added to give you the opportunity to choose between the 'optimized' **Mixed** machining method (which optimizes the use of **Climb** milling) and a strictly alternating mixed (**Forced Mixed**) method:



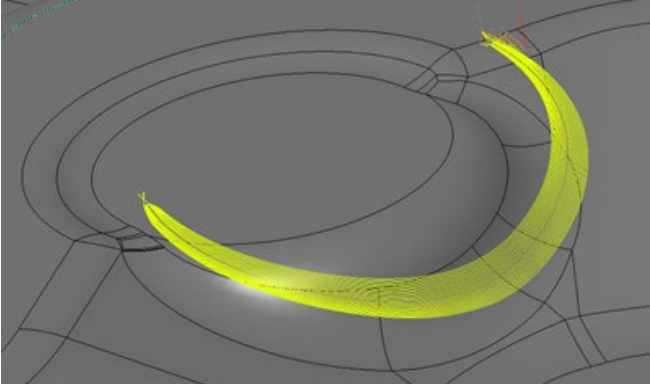
Method	Comment	From 2024.3 to 2025.3	2025.4
Climb	Climb only	Available	Available
Conventional	Convention only	Available	Available
Mixed	'Optimized' Mixed Method: <ul style="list-style-type: none"> Forces Climb milling on closed passes. Alternate between Climb and Conventional milling on open passes that are close to each others. 	Unavailable	New
Forced Mixed	Strictly alternates between consecutive Z-Levels	Available	Available

Contour Remachining

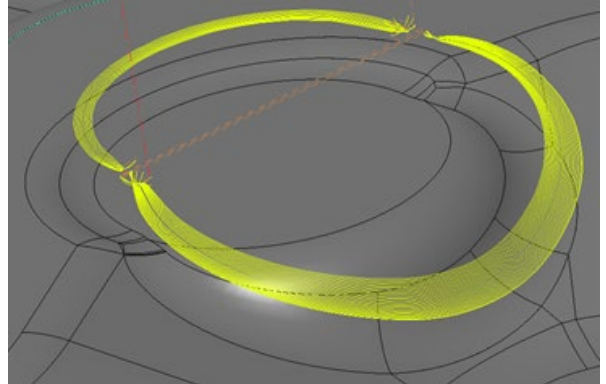
Precise Detection of Small Rest Areas

The previous version of **WORKNC** allowed you to improve rest material detection when using small cutters. The algorithm has been improved to refine the detection of small rest material areas, regardless of the tool size.

Toolpath in previous version:



Toolpath in version 2025.4:



5-axis - Rolling

Normal/Lateral Lead-ins

The normal and lateral direction of the legacy toolpath have been implemented in the current **5-axis - Rolling** toolpath. The **Lift Height legacy parameter has been replaced by the User Angle parameter.**

First case: Vertical

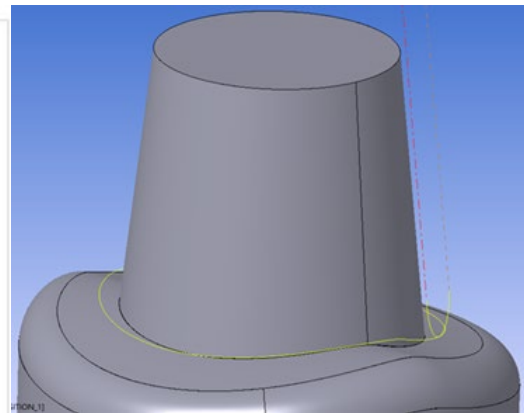
The radial lead-in movement is performed in a plane defined by the tool axis and the last toolpath pass:

Lead-in Movement

Vertical Lead-in Radius
 Ramp Force Radial Lead-ins
 Radial Invert (Backtrack)
 Segment along pass Backtrack Distance
 Helicoidal
 Segment normal to pass

Direction

Vertical
 Lateral
 User Angle



Second case: Lateral

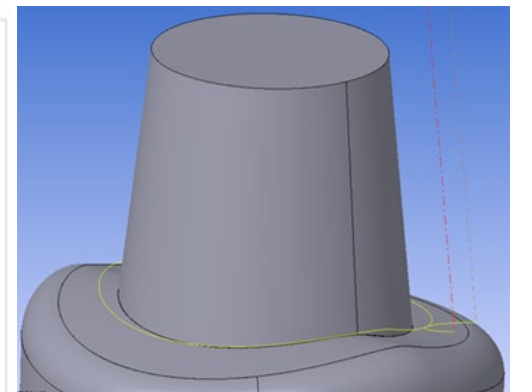
The radial lead-in movement is performed normal to the plane defined by the tool, the tool axis and the last pass segment:

Lead-in Movement

Vertical Lead-in Radius
 Ramp Force Radial Lead-ins
 Radial Invert (Backtrack)
 Segment along pass Backtrack Distance
 Helicoidal
 Segment normal to pass

Direction

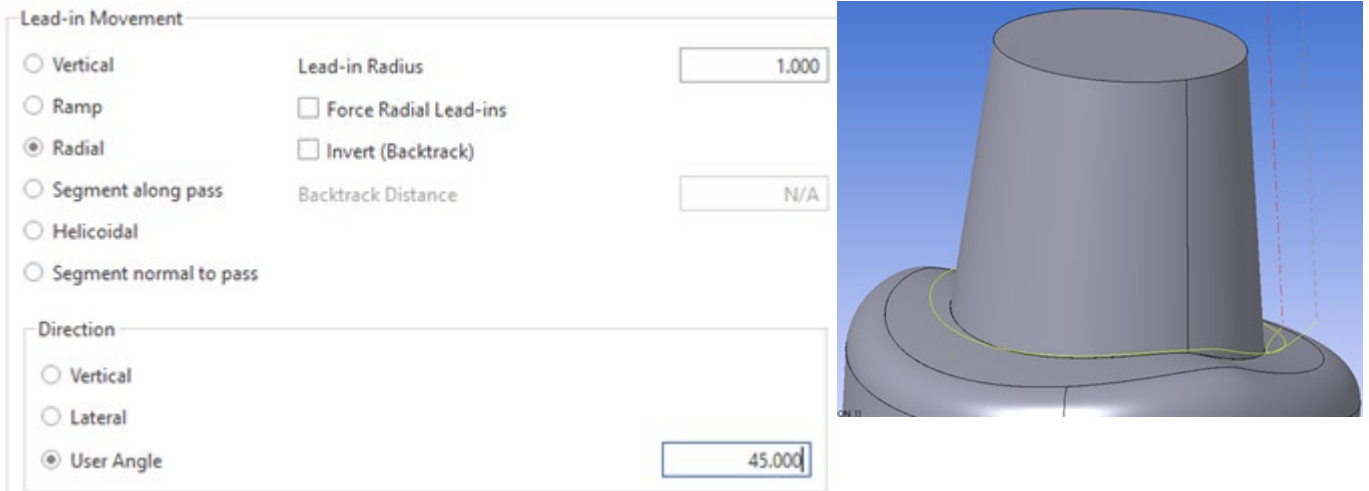
Vertical
 Lateral
 User Angle



Third case: User Angle at 45°

You may set an angle value to ensure that the lead-in movement is performed in a plane located between the Lateral and Vertical directions. This means that the inclination of the plane varies from:

- 0° = Lateral direction.
- 90° = Vertical direction.



Roughing Toolpaths - Detection of Vertical Plunges into Stock

The algorithms of the roughing toolpaths have been improved to detect vertical plunges into the Stock Model with the **Ramp** lead-in type.

The aim is to secure machining operations and improve toolpath reliability.

If a plunge movement is detected, toolpath calculations automatically result in error.

Miscellaneous Improvements

Display Issue with NVIDIA Graphical Cards

WORKNC 2025.4 now automatically uses its own configuration for the WORKNC.exe file. You may now keep the base profile for NVIDIA Graphical Card. This improves compatibility with other 3D applications.

The rotation issue with the NVIDIA RTX Graphical Card has been resolved.

Native CAD file compatibility

The new supported versions are highlighted in bold in the following table:

Import format	From	To	File extension
ACIS		2023 1.0	.asat, .sat
CADDS	4X	5.12	_pd
CATIA V4	4.15	4.25	*.model, *.dlv, *.session
CATIA V5	R10	V5-6R2025	*.CatPart, *.CatShape, *.CatProduct, *.CatDrawing
CATIA V6	R2010x	R2025x	*.3dxml
Dwg	2.5	2018	*.dwg, *.dxf
Cgr	R10	R29 called V5-6R2025 (R35)	*.cgr
Iges		5.3	*.igs
Inventor	9	2026	*.iam, *.ipt
Jt	6.4	10.10	*.jt
Parasolid	7	37.1	*.x_t, *.x_b, *.xmt_txt, *.xmt_bin
Creo	Pro/E 2000i	11.0	*.prt, *.asm, *.prt.*, *.asm.*, *.xar, *.xpr
Rhino	V1	8	*.3dm
Solid Edge	ST1	2025	*.par, *.asm, *.psm, *.pwd
SOLIDWORKS	1999	2025	*.sldprt, *.sldasm (possibility to read *.slddrw)
STEP AP203	Edition 1	Edition 2	*.stp, *.step, *.stp.Z, *.stpa
STEP AP214	Edition 1	Edition 3	*.stp, *.step, *.stp.Z, *.stpa
STEP AP242	Edition 1	Edition 3	*.stp, *.step, *.stp.Z, *.stpa
NX	UG V10	15 to NX 2506 Series (until 2412.7000)	*.prt
Vda	N/A		*.vda

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