



Multipurpose CAD/CAM solutions

cost-effective and powerful solution for CNC programming and industrial robots





About us

SprutCAM Tech

SprutCAM Tech team has been working on CAM software development since 1987

We have acquired extensive experience and expertise in the CAD/CAM domain. Our team consists of experts with hands on experience in the technologies, which make CNC programming easier, faster, and more effective for our customers

19 841

SprutCAM users around the world

100

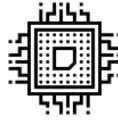
Dealers in 54 countries

35 years

of software development for CNC and industrial robots

About SprutCAM X

SprutCAM is a CAD/CAM system for streamlined CNC machines and industrial robots programming



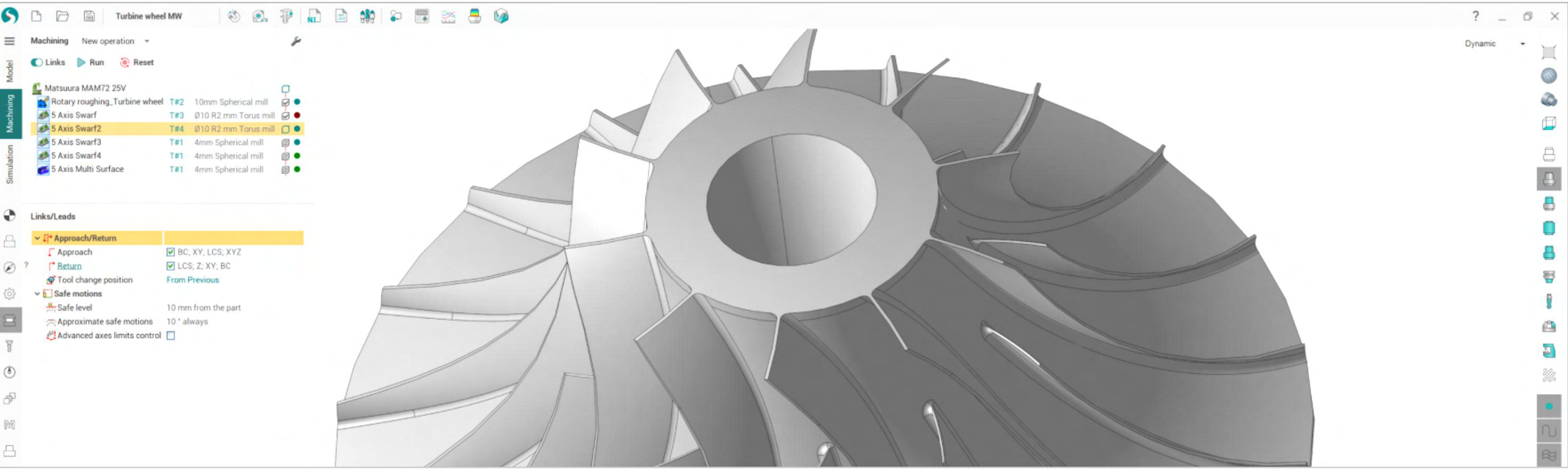
Proprietary code

The software kernel and all algorithms of toolpath calculation and simulation are proprietary



TOP-5 worldwide

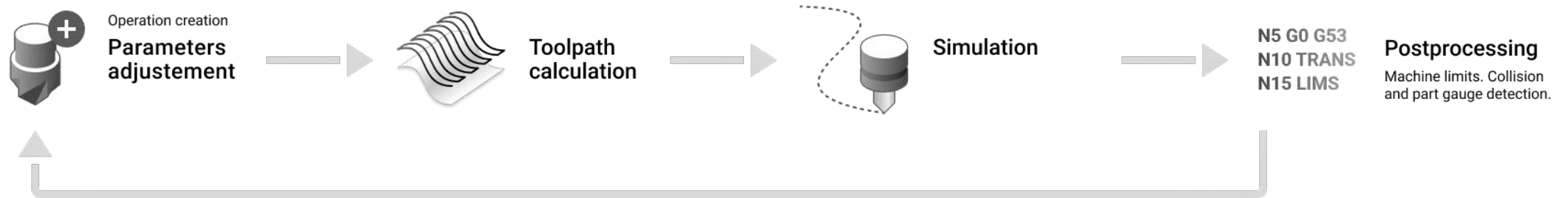
in the global CAD/CAM



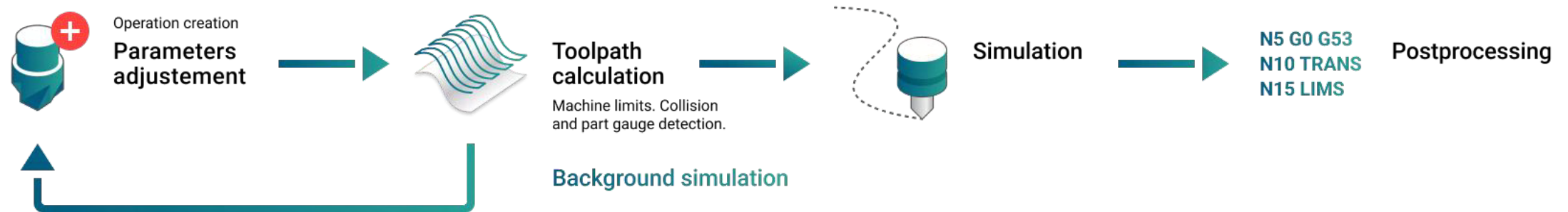
Unique workflow

SprutCAM X

Other CAD/CAM



SprutCAM X



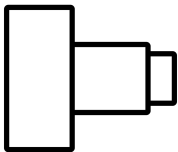
Unique selling points

SprutCAM X



Toolpath calculation taking into account machine kinematics realtime

Unlike other CAM systems, SprutCAM allows visualization of collisions and air-cutting immediately after the toolpath calculation



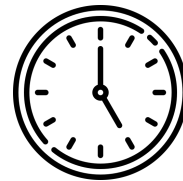
Workpiece updated live

Workpiece for the subsequent operation is the result of all the previous operations. SprutCAM always keeps the workpiece updated live and visible to the user.

N5 G0 G53
N10 TRANS
N15 LIMS

Simulation by G-code

SprutCAM users don't need separate applications for G-code verification. G-code verification is supported by numerical controllers with embedded cycles from Fanuc, Heidenhain, Siemens

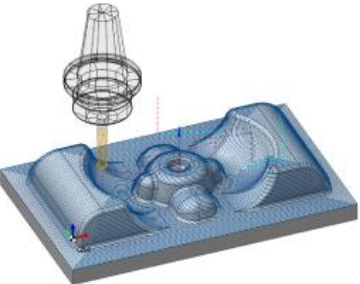


Streamlined production

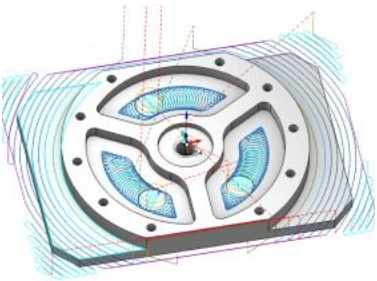
70% reduction of time necessary to obtain ready-to-use G-code for CNC machines



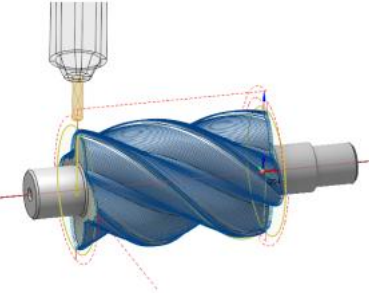
Solutions for any type of CNC machine



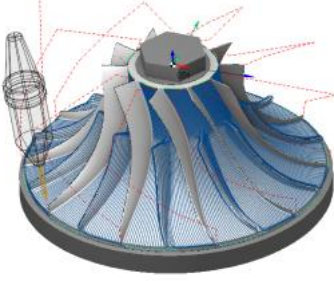
2.5x and 3x mill



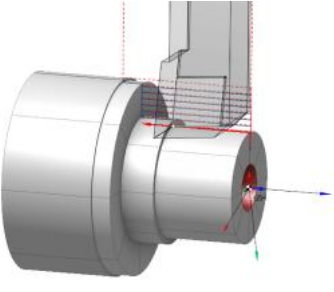
HSM and adaptive



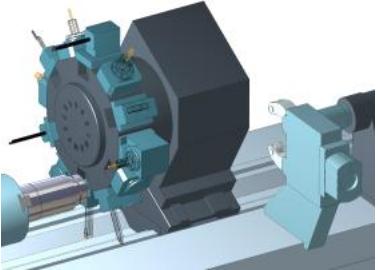
Rotary



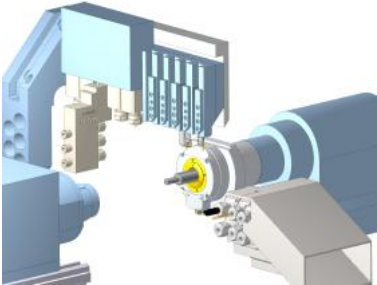
Multiaxis



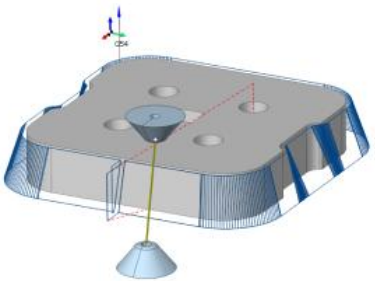
Lathe



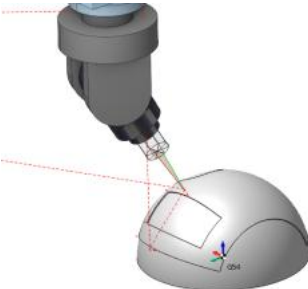
Turn-mill



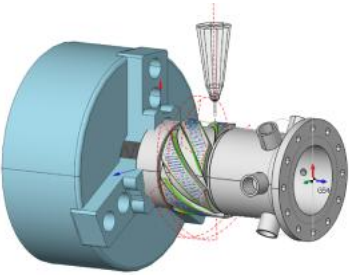
Swiss and MTM



2x and 4x axis EDM



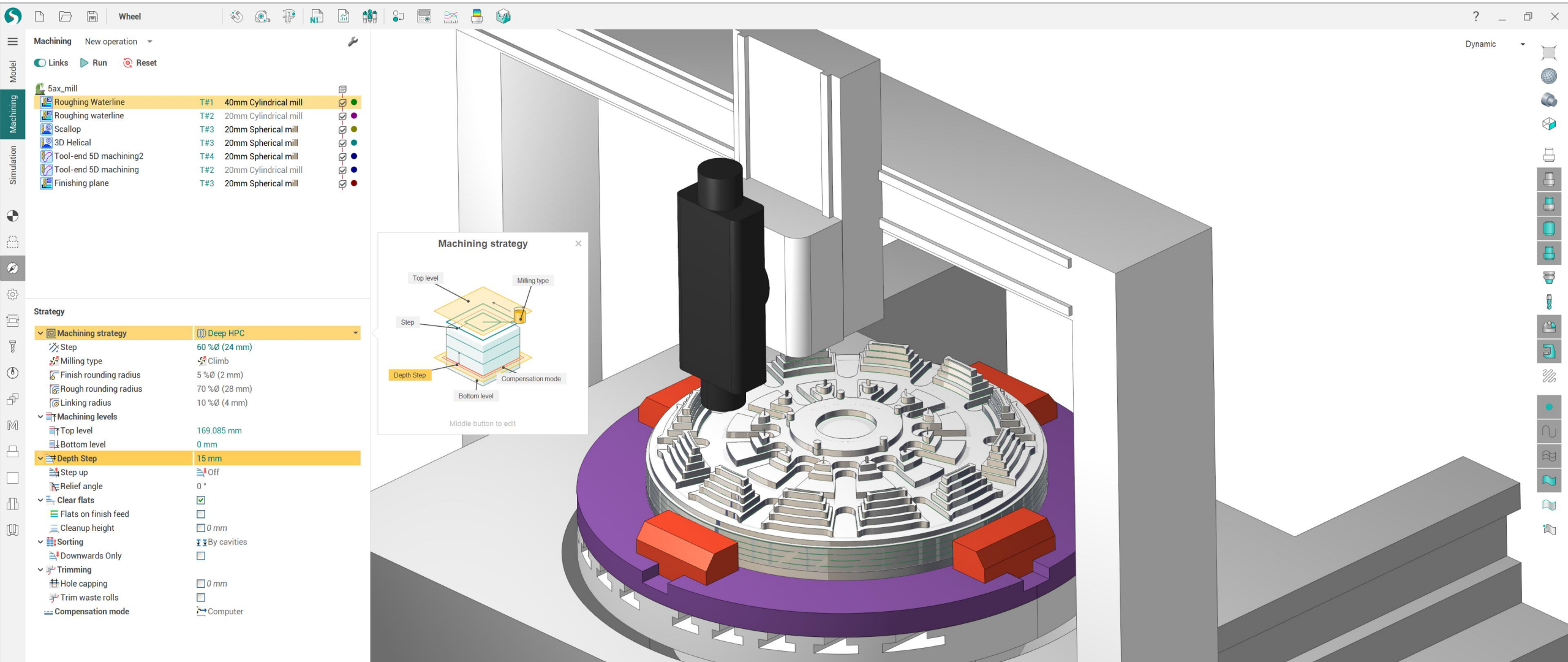
5-6D cutting



Additive and hybrid

Easy and intuitive user interface

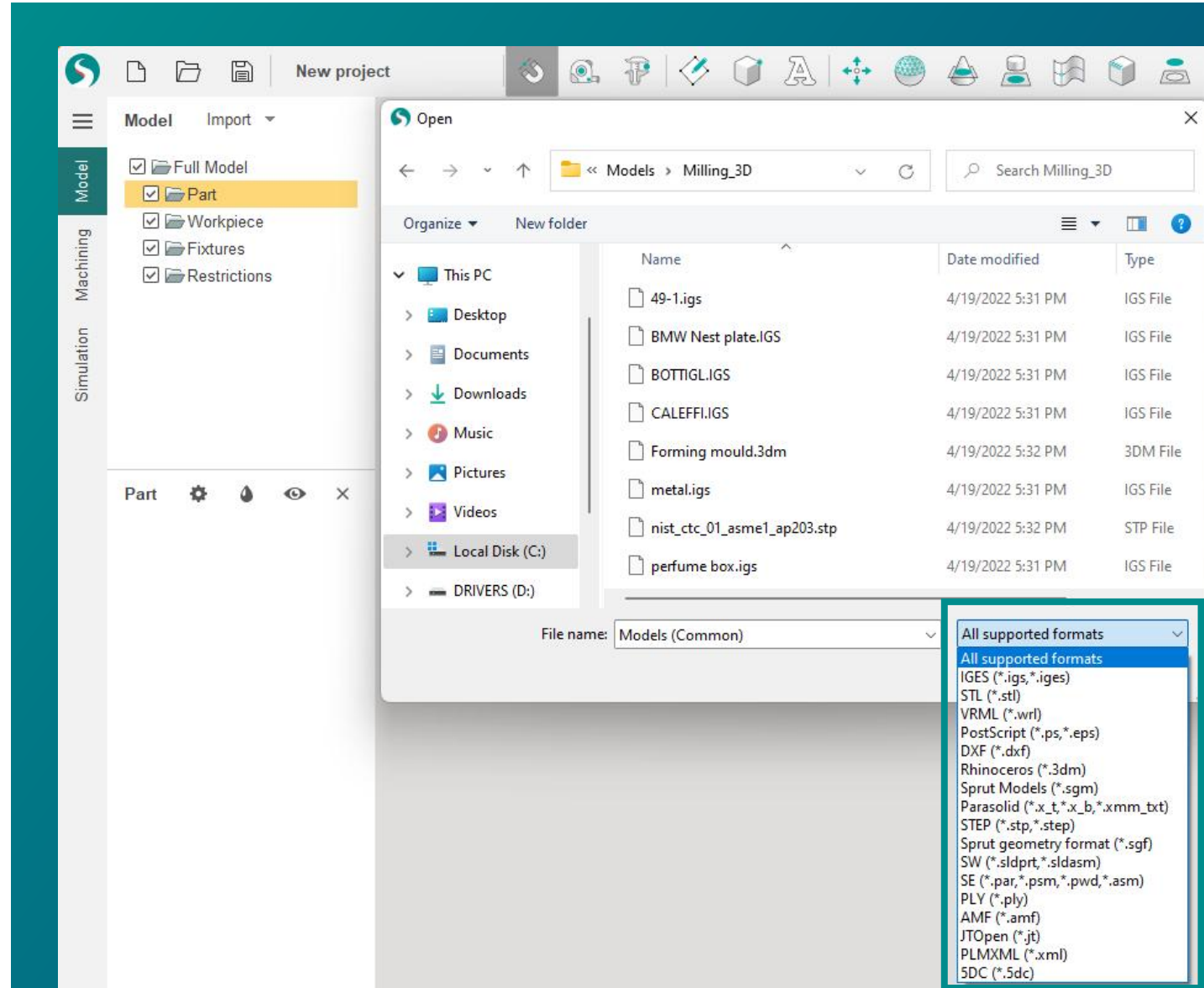
Entire workflow in one window



CAD/CAM

Import from CAD systems

SprutCAM supports import of 3D models in various formats, for instance: IGES, STEP, Parasolid, STL and DXF.



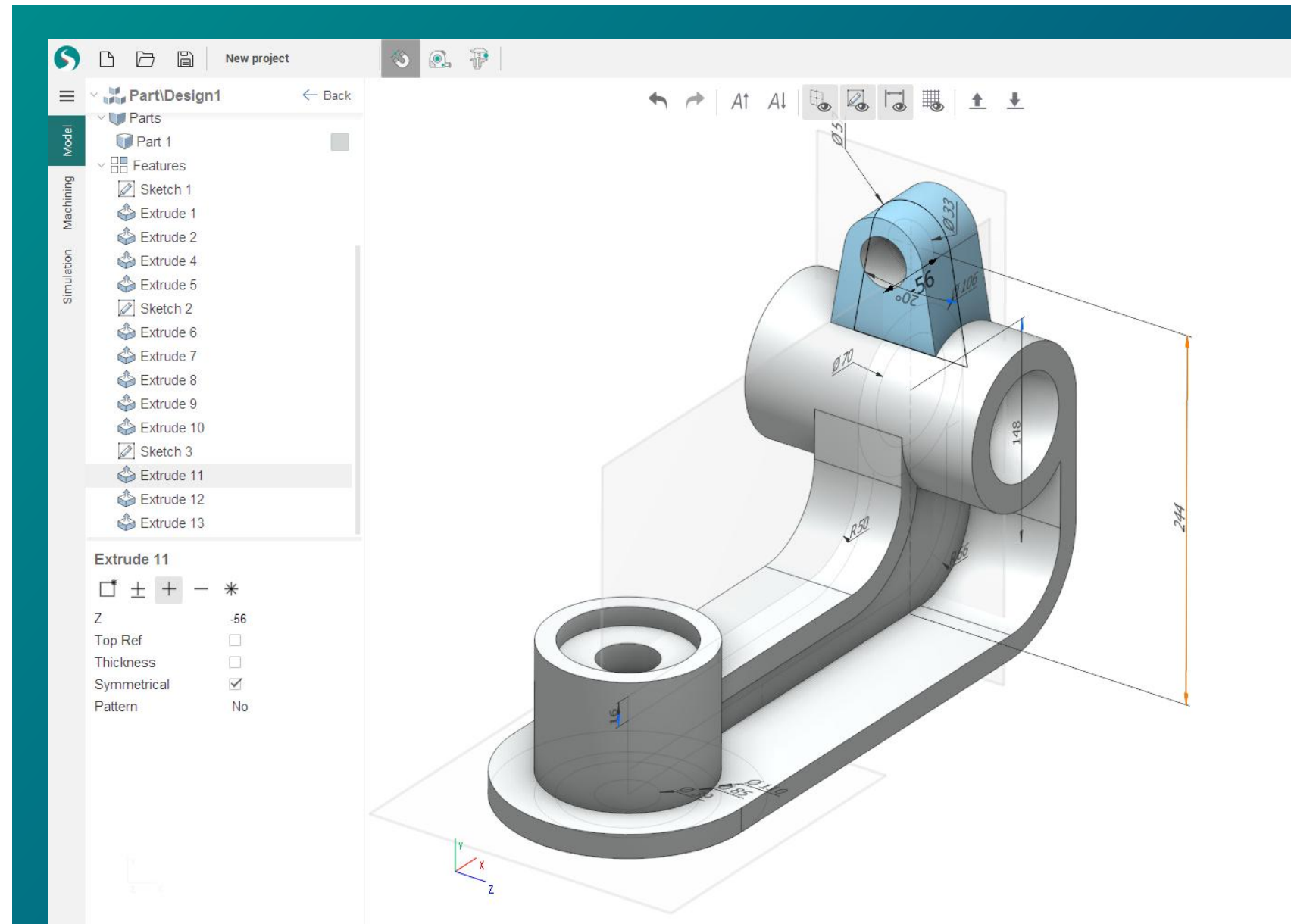
3D CAD

Integrated solution.
Model designing and machining
programming
without leaving SprutCAM

Easy-to-use and “learn as you go”
user interface

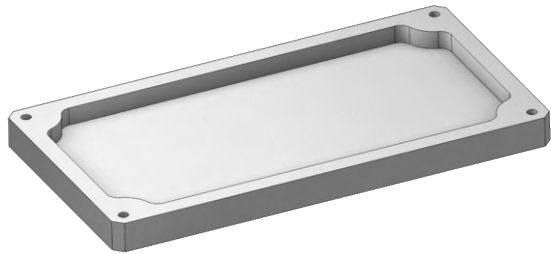
System suggests the next suitable
step at any given point

Dynamic snaps. Automatic
snapping of limits and dimensions



Associative links with the imported 3D models

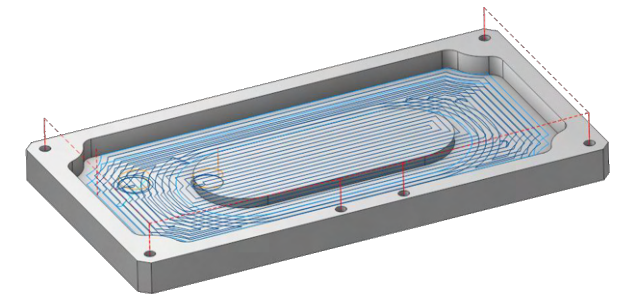
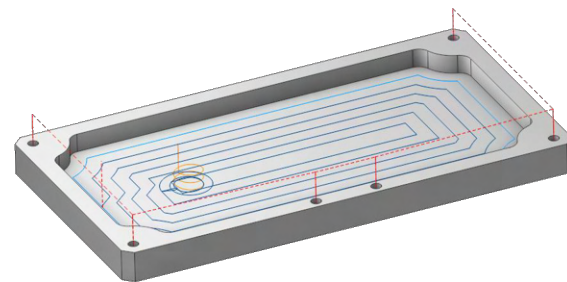
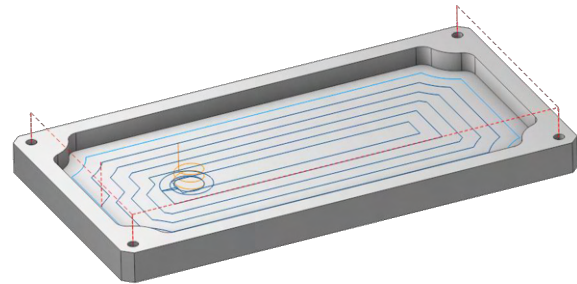
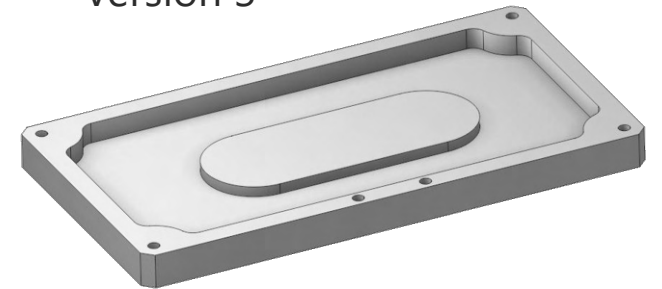
Version 1



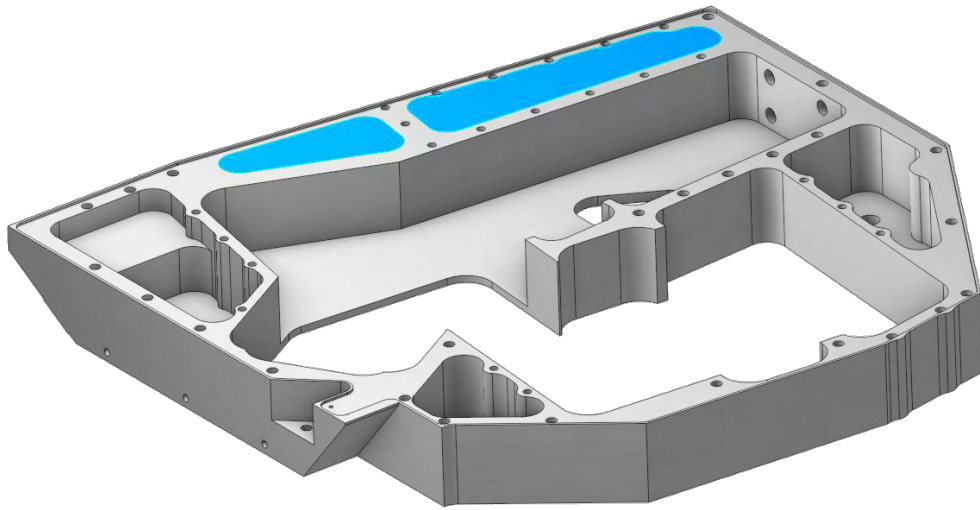
Version 2



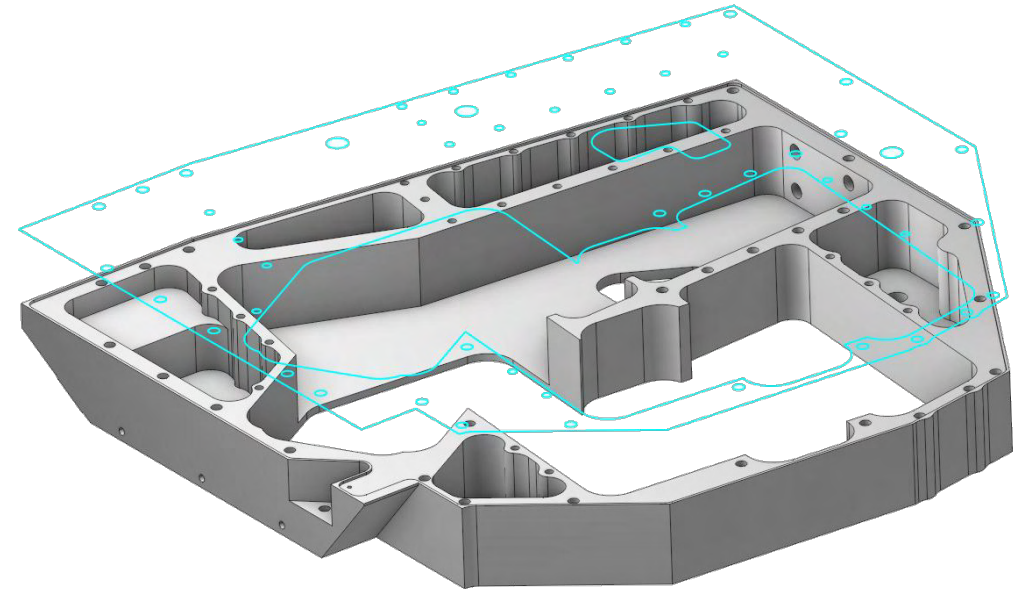
Version 3



3D geometry

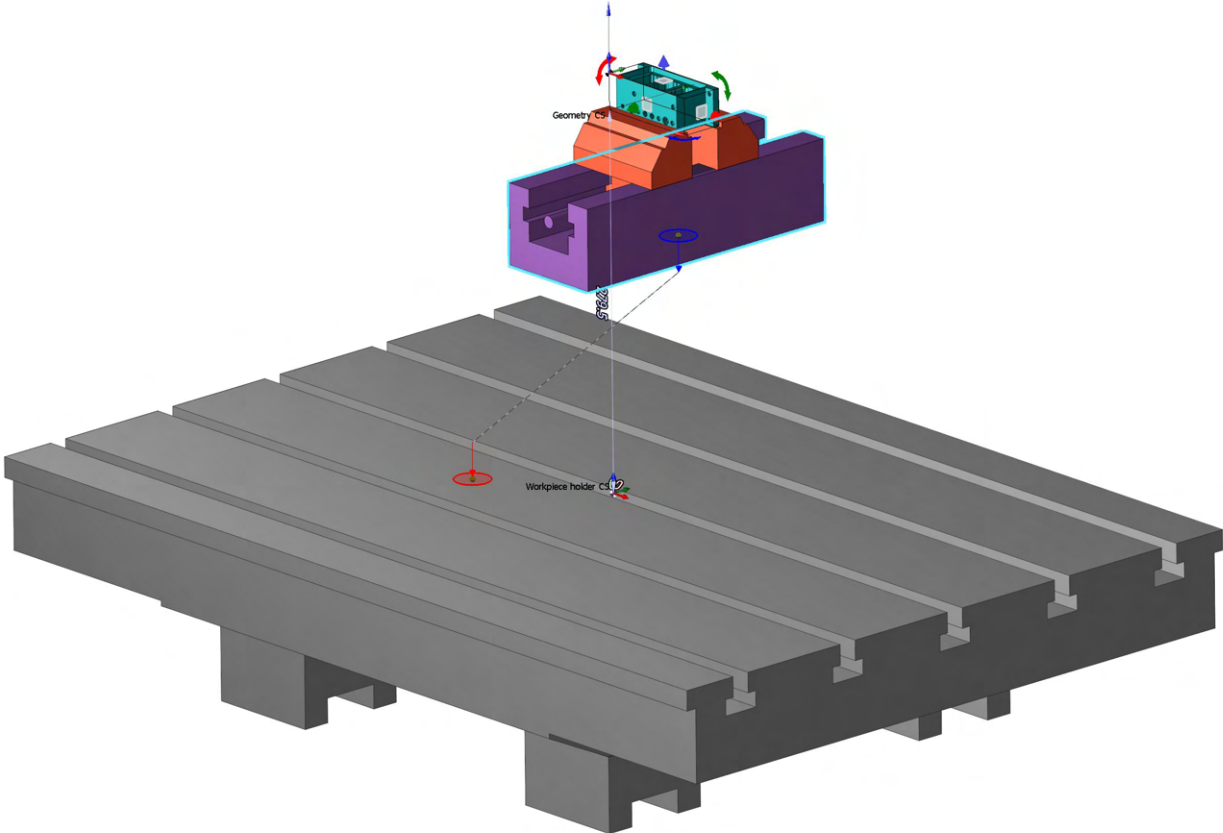
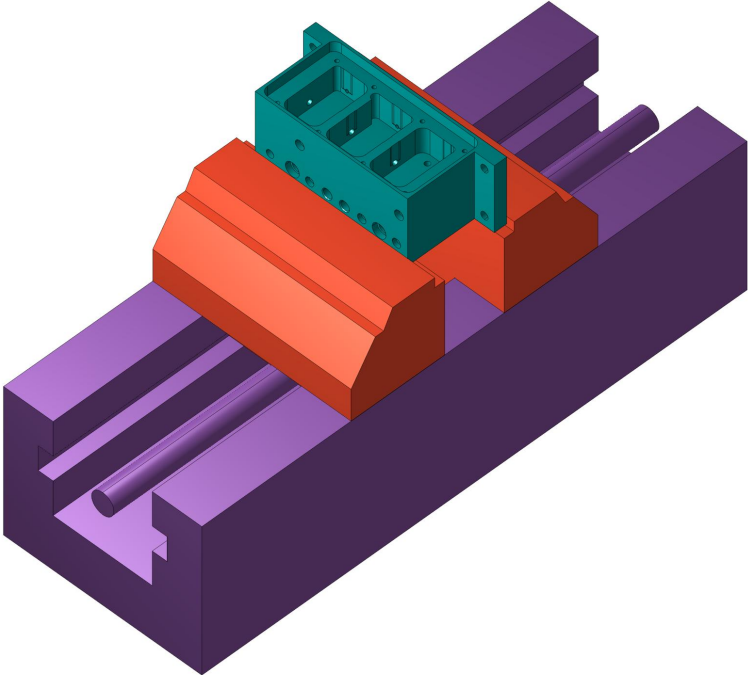


Patch hole function



Surfaces boundary projection

Fixture with smart snaps



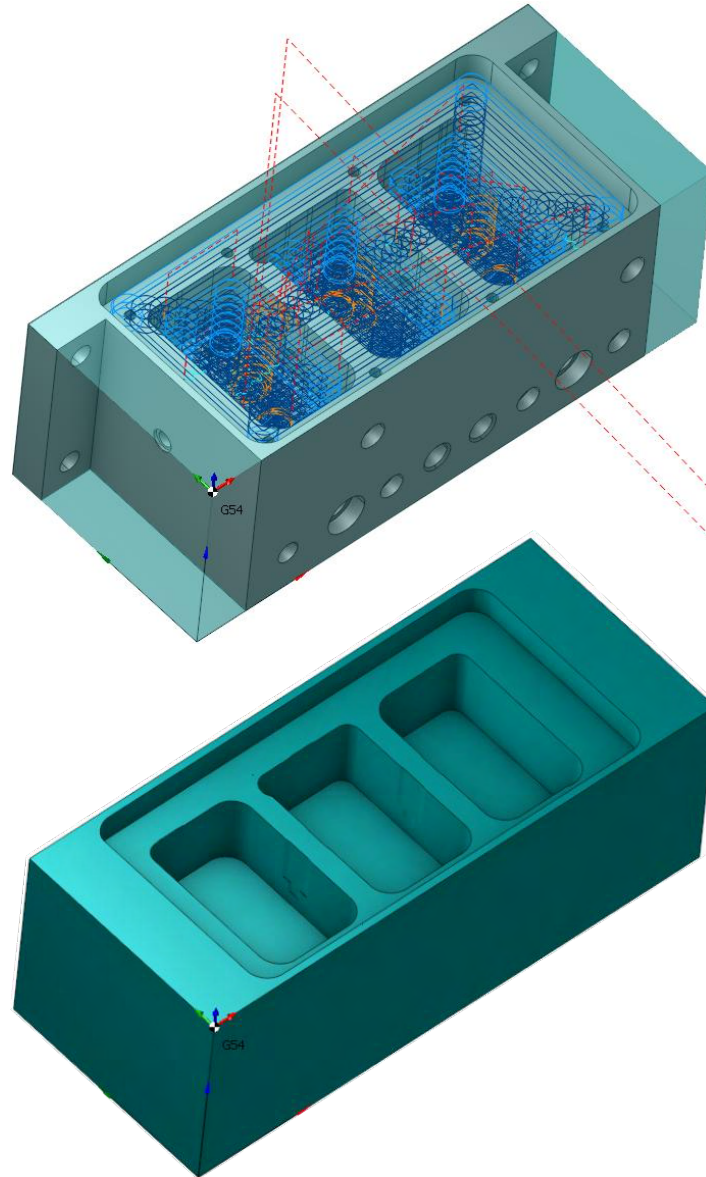


Capabilities and functions for the
3 - 4 - 5 axis machining

Machining result

Machining result is visible immediately after the calculation is complete

When calculating the toolpath, SprutCAM takes into account machining result of the previous operation

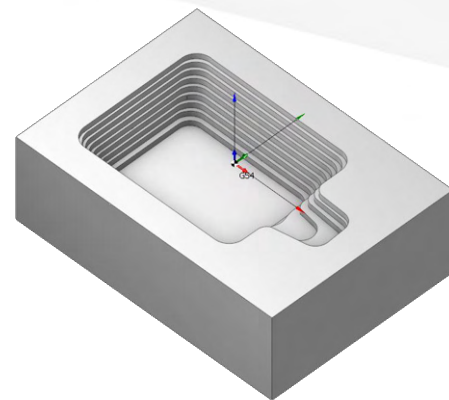
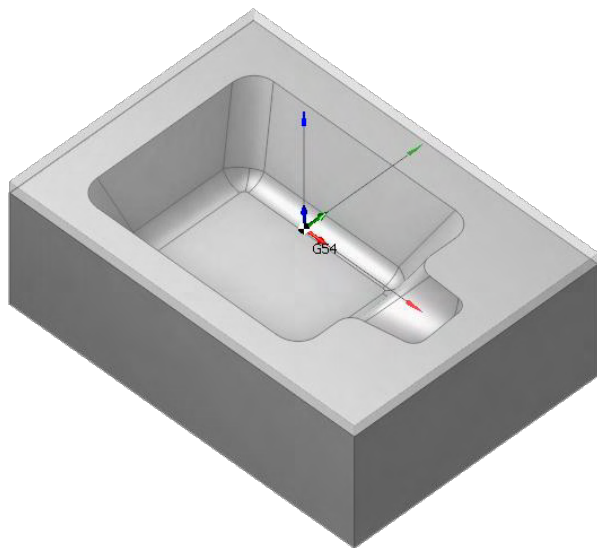


Machining result		✕
Color	<input checked="" type="checkbox"/> 	
Metal	<input type="checkbox"/>	
Transparent	<input type="checkbox"/> 75%	
Display mode	Default	▼
Turn mode	Default	▼
Line width	<input type="text" value="1"/>	
Motionless	<input type="checkbox"/>	

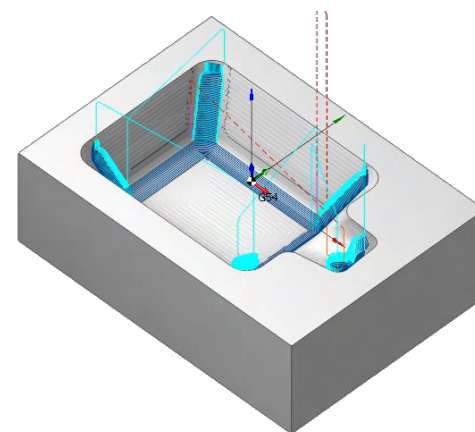
Workpiece update

Rest material is considered for automatic calculation of additional operations

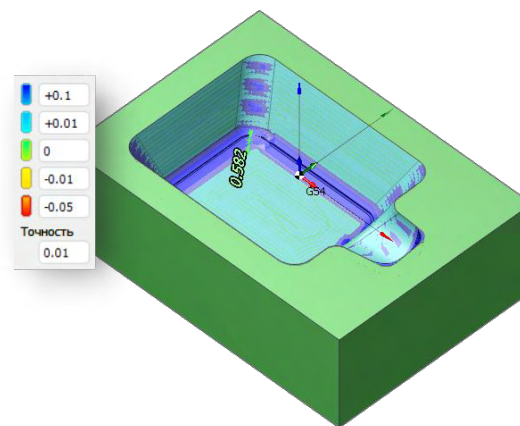
Rest material control is precise and highlighted in color



Stock after roughing



Automatic additional operation



Visual and precise control of the stock

Workpiece update

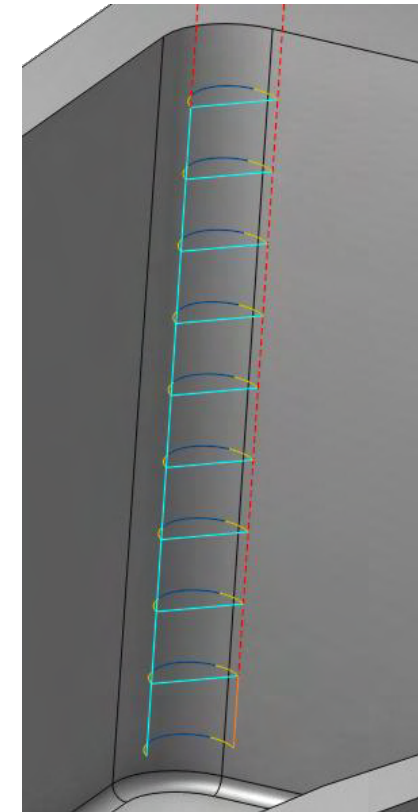
Toolpath calculation based on approximate rest material for 2.5D axial additional machining operations

Parameters

- Check part
 - Tolerance: 0.02 mm
 - Radial stock: 0 mm
 - Axial stock: 0 mm
 - Use fast calculation method:
 - Max motion length: 1 mm
- Check workpiece
 - Radial Ignore Thickness: 0.01 mm
 - Axial Ignore Thickness: 0.01 mm
 - Extend toolpath: 25 %Ø (2 mm)
 - Theoretical rest material:
 - After Tool Diameter: 22 mm
 - With Corner Radius: 0 mm
 - Model resolution: Standard
 - Check Holder:
 - Plunge roughing:
- Simulation
 - Check for gouges:
 - Simulation type: Auto
 - Delete chips:

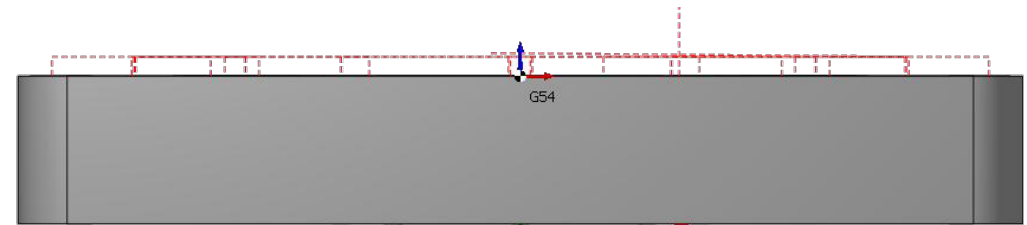
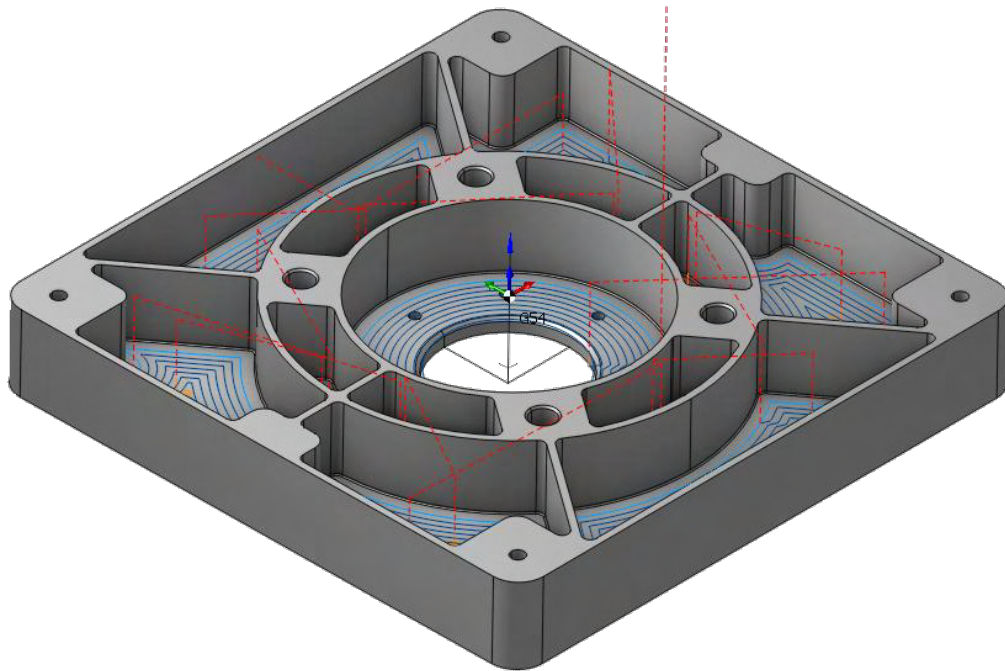
Strategy

- Machining strategy: Equidistant
- Step: 50 %Ø (4 mm)
- HSC step: 100 %Step (4 mm)
- Milling type: **Climb** (dropdown menu open showing: Climb, Conventional, Both)
- Finish rounding radius: 0.5 mm
- Rough rounding radius:
- Linking radius:
- Finish pass:
- Machining levels
 - Top level: 0 mm
 - Bottom level: -23 mm
- Depth Step
 - Step up: 6 x (Count)
 - Step down: Off
 - Relief angle: 0 °
- Clear flats
 - Flats on finish feed:
 - Cleanup height: 10 mm
- Sorting
 - By cavities:
 - Downwards Only:
- Trimming
 - Hole capping: 0 mm
 - Trim waste rolls:
- Compensation mode: Computer



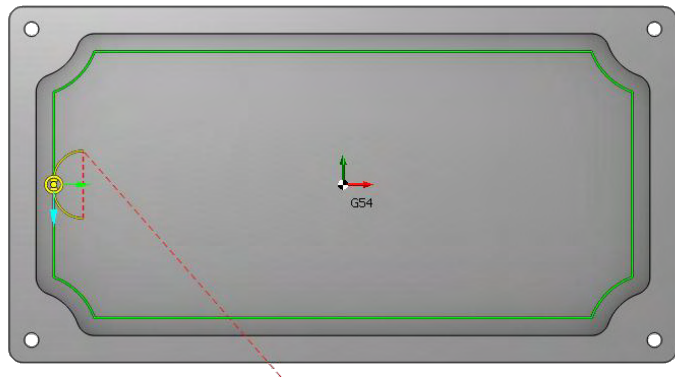
Control of safe motions

Automatic calculation of short and long links on different machining levels taking into account the safe level

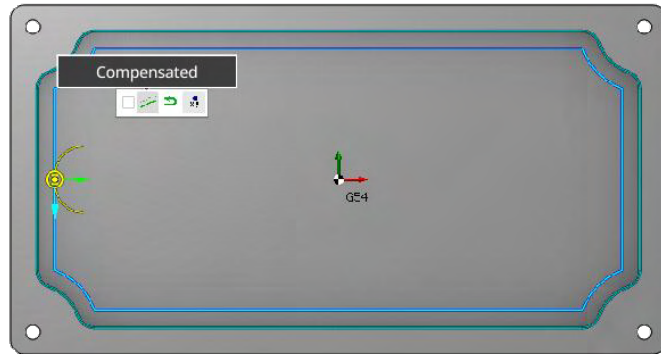


Interactive settings of contouring operations

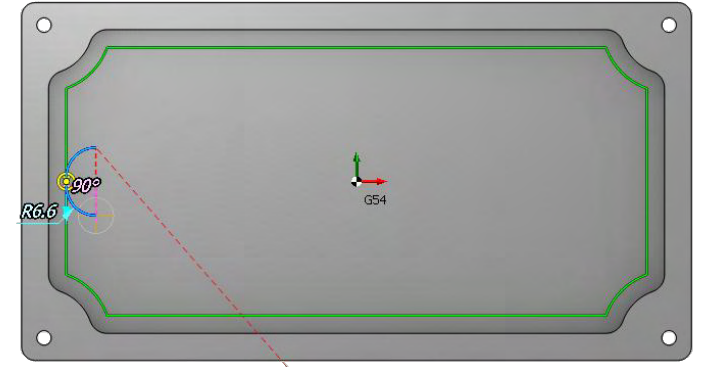
Control of contouring, start point, machining direction
and radius compensation



Start point control



Approach by tangent

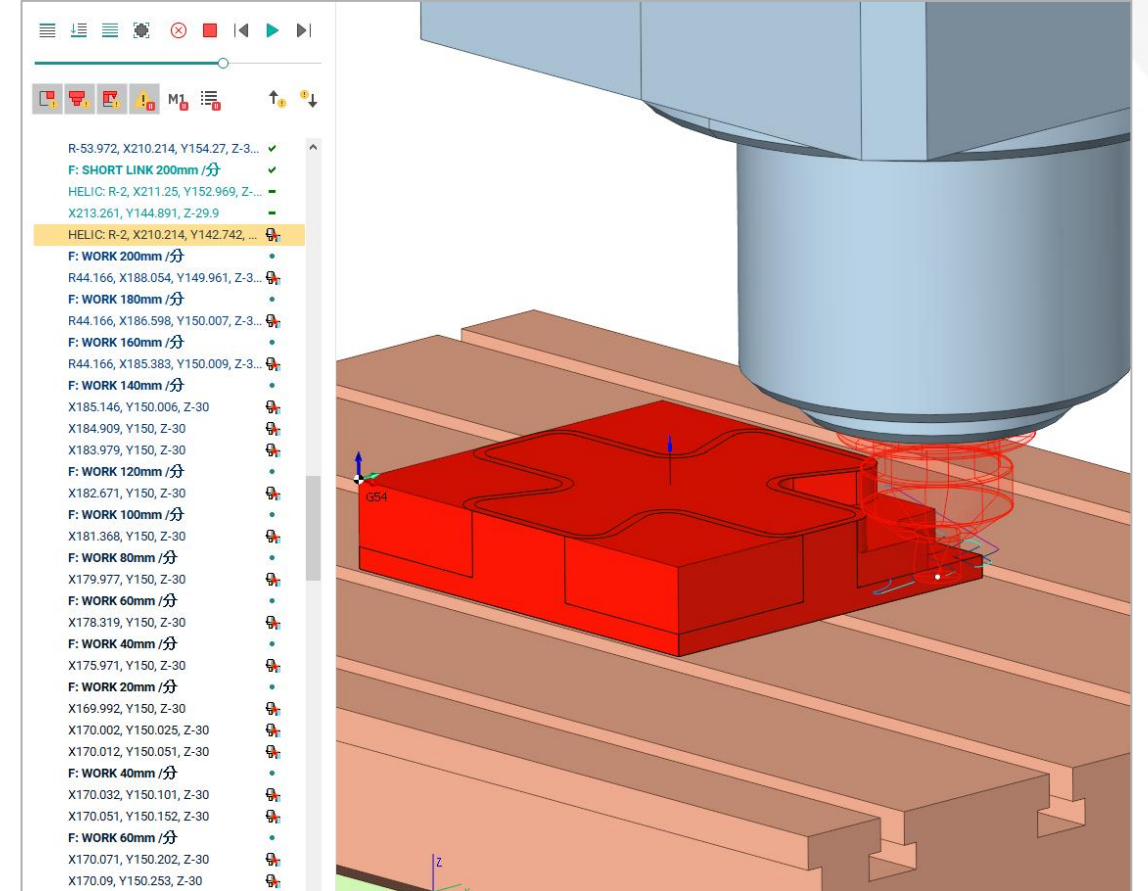
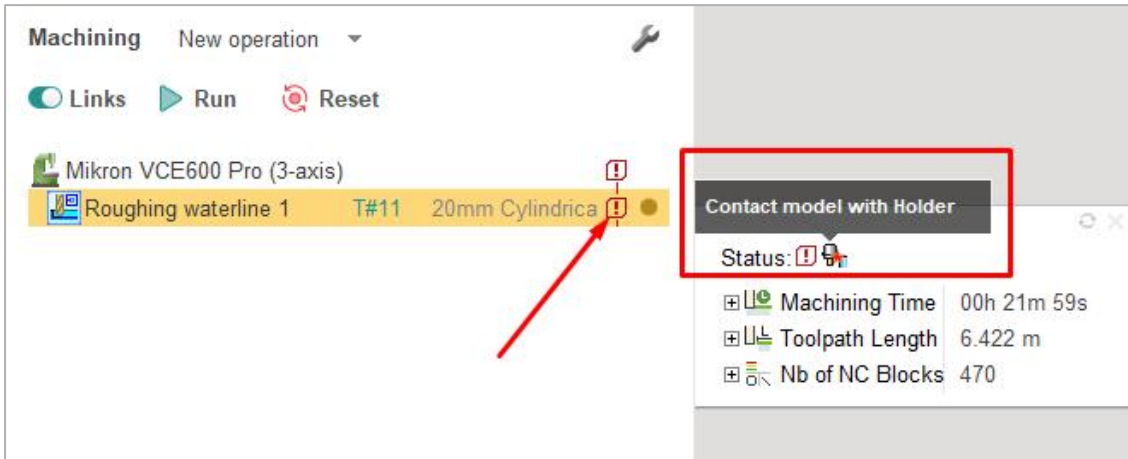


Approach by arc

Collision control

SprutCAM shows errors immediately after toolpath calculation and before the simulation stage

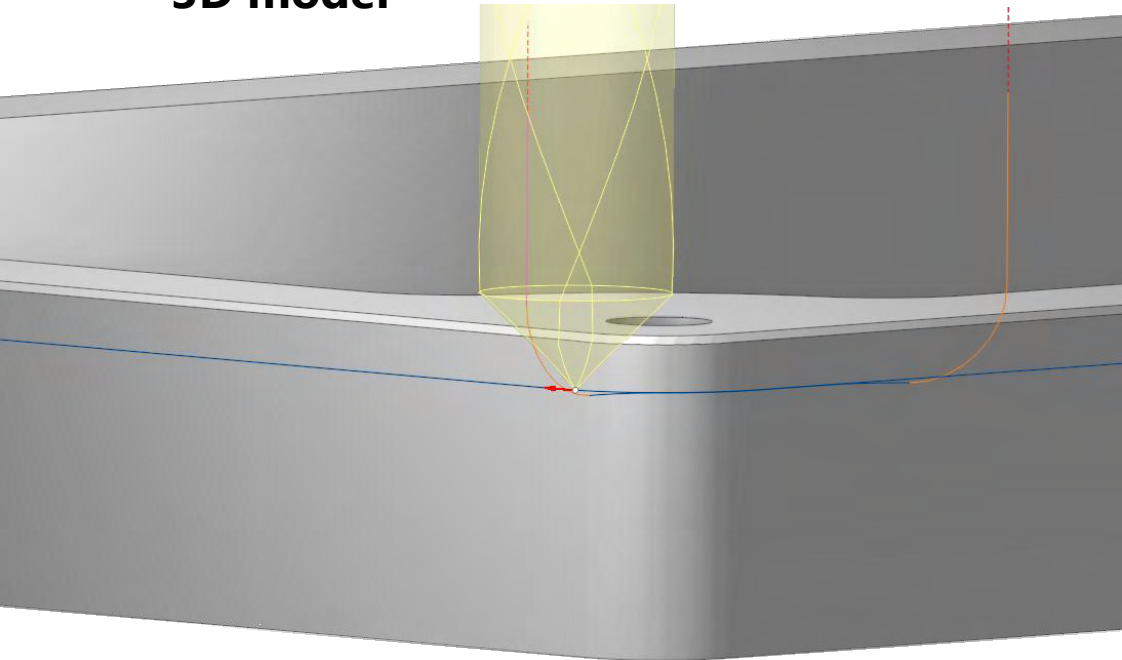
In simulation mode, frames with errors are marked red



Chamfering

Automatic and manual detection of sharp edges.
Adjustable chamfer depth and Tool contact point

You don't need to draw the chamfer on the 3D model



Machining New operation

Reset

Mikron VCE600 Pro (3-axis)

Face Milling 1	T#170	Ø65 R1 mm Toi		
Roughing waterline 1	T#11	20mm Cylindrica		
Hole machining 1	T#79	22mm Drill		
Roughing waterline 2	T#11	20mm Cylindrica		
2D contouring 1	T#7	8mm Cylindrical n		
Hole machining 2	T#59	8mm Drill		
2D contouring 2	T#7	8mm Cylindrical n		
Hole machining 3	T#138	10mm Spot drill		
2D contouring 3	T#7	8mm Cylindrical n		
Chamfering 1	T#169	10mm Conical i		

Strategy

Strategy

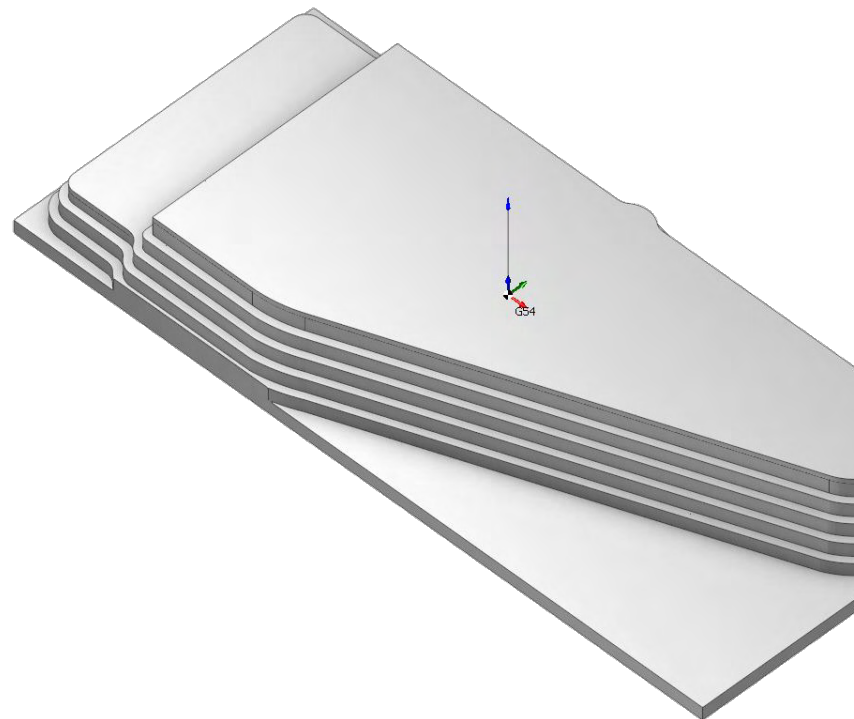
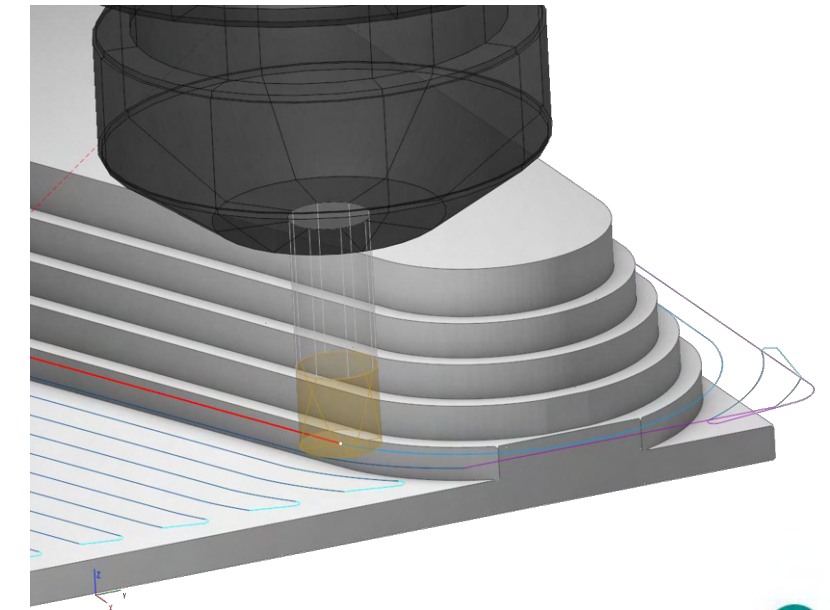
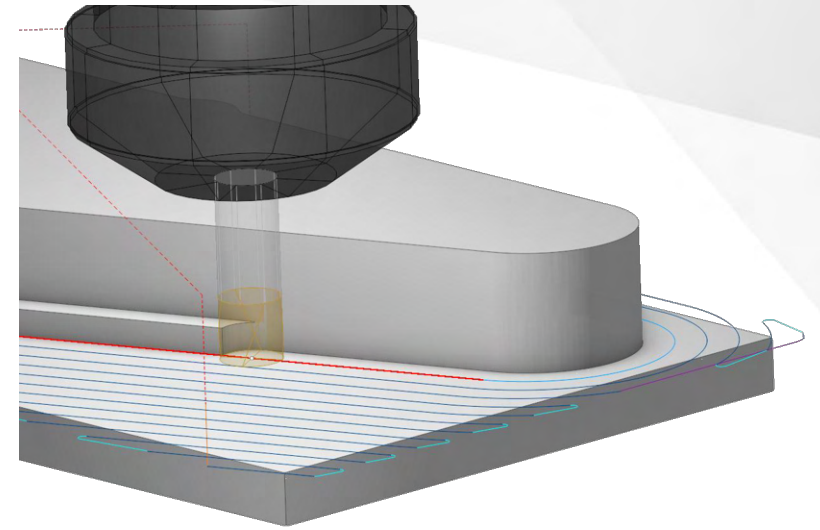
Chamfer Depth	0.5 mm
Tool contact point	2.5 mm
Overlap	50 %Ø (5 mm)
SafeDistance	1 mm
Sorting	
Mill mode	Climb

Tool contact point

Middle button to edit

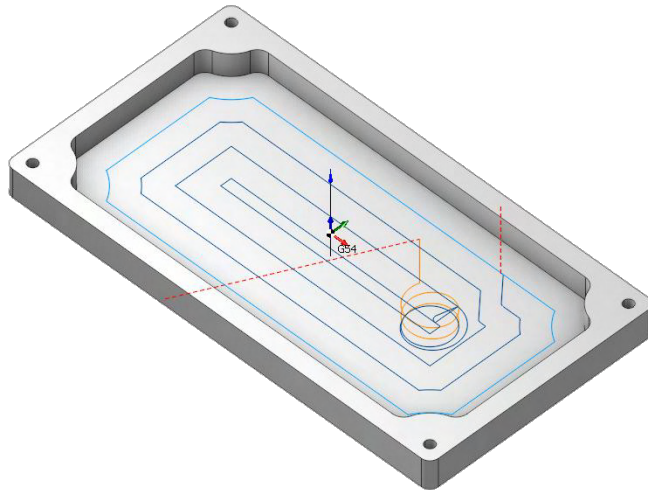
Holder control

Holder geometry control for collisions with the part
Automatic correction of the toolpath taking into account
holder geometry

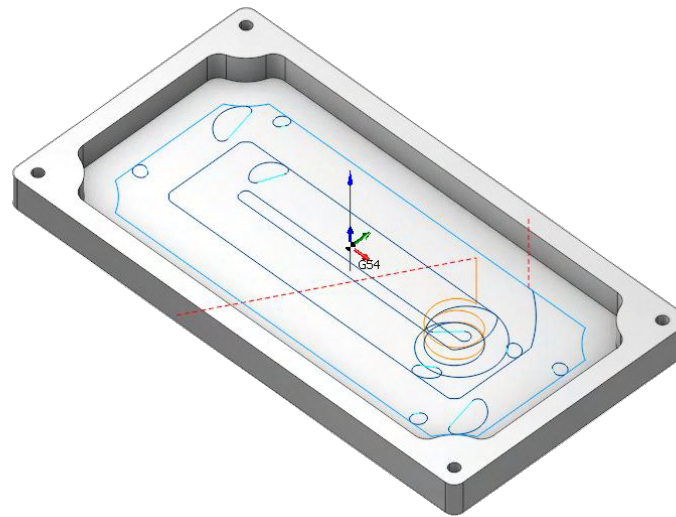


Parameters		
✓	Check part	
	Tolerance	0.02 mm
	Radial stock	0 mm
	Axial stock	0 mm
	Use fast calculation method	<input checked="" type="checkbox"/>
	Max motion length	<input type="checkbox"/> 1 mm
✓	Check workpiece	
	Radial Ignore Thickness	0.01 mm
	Axial Ignore Thickness	0.01 mm
	Extend toolpath	<input type="checkbox"/> 25 %Ø (2 mm)
	Theoretical rest material	<input type="checkbox"/>
✓	Check Holder	<input checked="" type="checkbox"/>
	Tool working length	24 mm
	Tool radial clearance	0 mm
	Tool angular clearance	0 °
	Holder radial clearance	5 mm
	Holder axial clearance	5 mm
	Check spindle	<input type="checkbox"/> Auto
	Plunge roughing	<input type="checkbox"/>
✓	Simulation	
	Check for gouges	<input checked="" type="checkbox"/>
	Simulation type	<input type="checkbox"/> Auto
	Delete chips	<input type="checkbox"/>

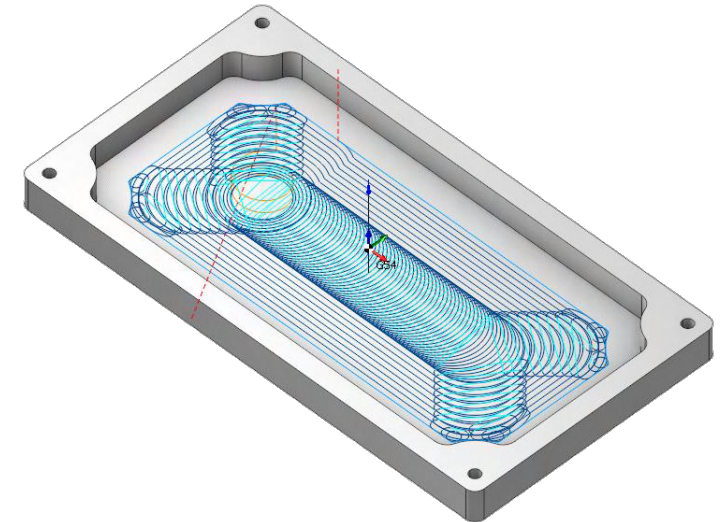
High Speed Cutting strategies



Equidistant strategy
Classic milling strategy



High Speed Machining (HSM)
Contains special arcs for machining of unmachined pockets



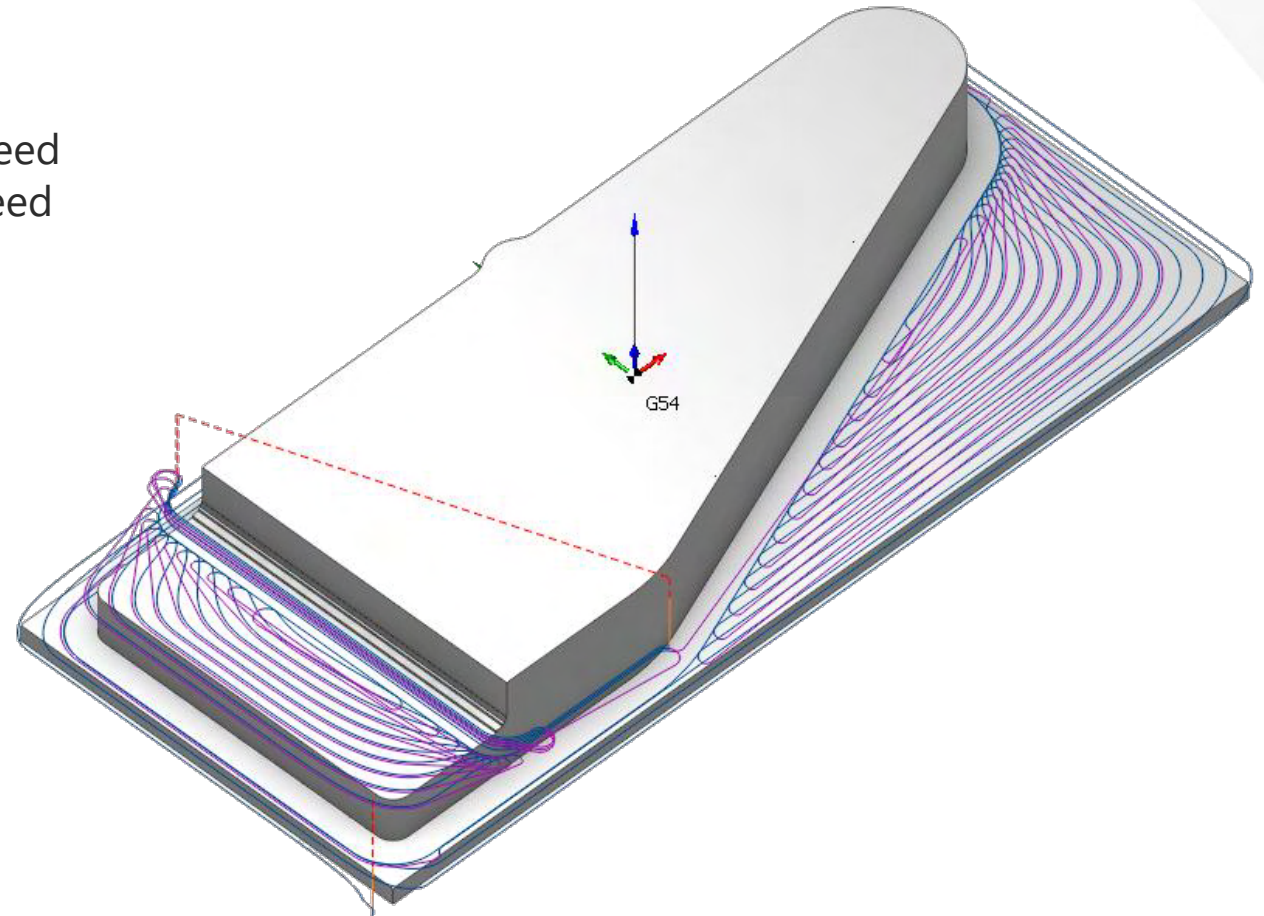
Deep High Speed Cutting (HPC)
Even load on the tool

Adaptive Speed Cutting

Adaptive Speed Cutting strategy is used for maximal cutting depth and material removal due to the high speed tool feed and relatively low cutting width with lateral feed ranging from 5 to 30% of the tool diameter

Even load on the tool

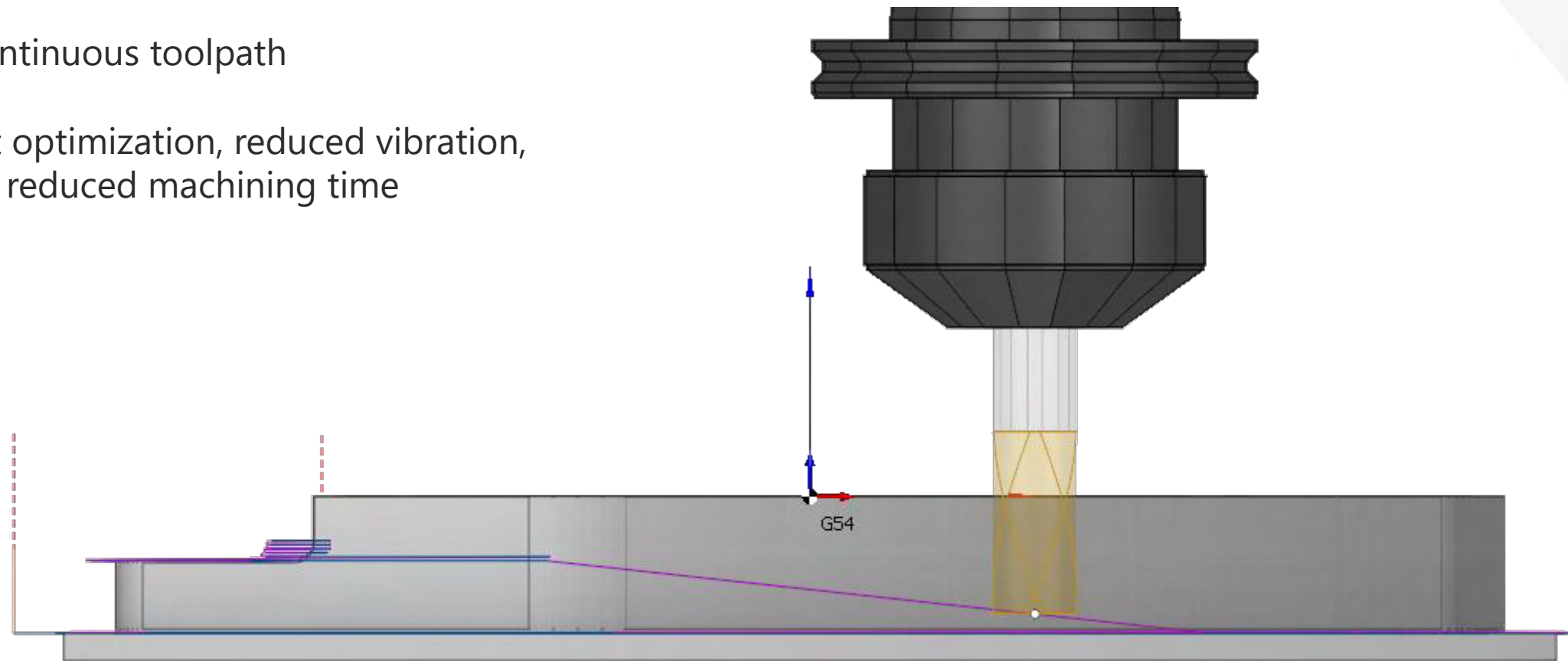
Roughing time reduced by 70%



Adaptive Speed Cutting strategies

Smooth and continuous toolpath

Tool movement optimization, reduced vibration,
longer tool life, reduced machining time



Tool Engage and Retract strategies

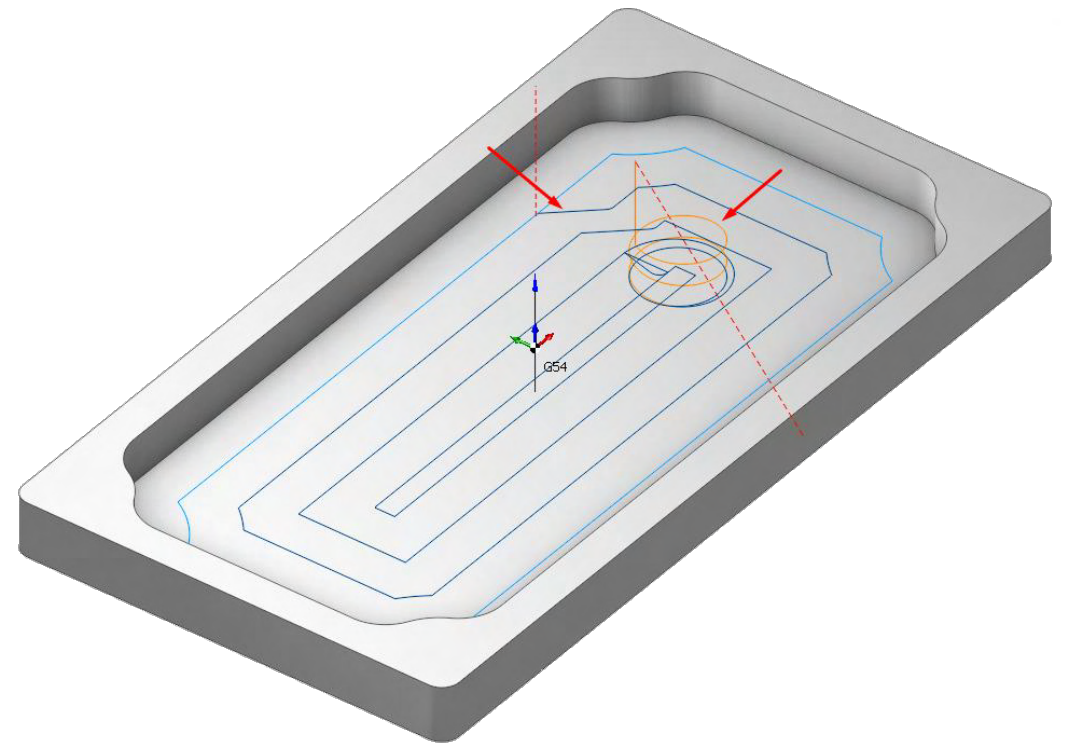
Different cutting and tool Engage and Retract strategies

Links/Leads

- Approach/Return
 - Approach C;CH;B;LCS;XY;Z
 - Return Z;XY;LCS
 - Tool change position From Previous
- Safe motions
 - Safe level 10 mm from the part
 - Approximate safe motions 10 ° when needed
 - Advanced axes limits control
- Links
 - Go up if farther 500 mm
 - Short link max distance 300 %Ø (90 mm)
 - Back-off distance 1 %Ø (0.3 mm)
- Leads
 - Safe distance 5 %Ø (1.5 mm)
 - Feed switch level 100 %Ø (30 mm)
- Engage **By Tangent**
 - L Length Off
- Retract **By Tangent**
 - L Length
- Plunges
 - Plunge angle By Line
 - Min size 50 %Ø (15 mm)
 - Max size 90 %Ø (27 mm)
 - Degression 2 mm
 - Smooth radius 2 mm

Links/Leads

- Approach/Return
 - Approach XY;Z
 - Return Z;XY
 - Tool change position From Previous
- Safe motions
 - Safe level 10 mm from the part
 - Approximate safe motions 10 ° when needed
 - Advanced axes limits control
- Links
 - Go up if farther 500 mm
 - Short link max distance 300 %Ø (60 mm)
 - Back-off distance 1 %Ø (0.2 mm)
- Leads
 - Safe distance 5 %Ø (1 mm)
 - Feed switch level 100 %Ø (20 mm)
- Engage **By Tangent**
 - L Length 60 %Ø (12 mm)
- Retract **By Tangent**
 - L Length 60 %Ø (12 mm)
- Plunges
 - Plunge angle 5 °
 - Min size 50 %Ø (10 mm)
 - Max size 90 %Ø (18 mm)
 - Degression 2 mm
 - Smooth radius 2 mm



Adaptive feed

Reduces Full Cut Feed

Feed change control

Reduces tool runout

Feeds/Speeds T#11: 20mm Cylindrical mill

Feeds/Speeds	Click to calculate
Spindle	2500 rev/min
Coolant	(Flood)
Rapid feed	10000 mm/min
Work feed	800 mm/min
Engage feed	100 %
Retract feed	100 %
Short link feed	100 %
Long link feed	300 %
First feed	100 %
Finish feed	100 %
Plunge feed	100 %
Approach feed	100 %
Approach from safe	Rapid
Return to safe surfac	Rapid
Transition on safe fe	Rapid
Adaptive feedrate	<input checked="" type="checkbox"/>
Full Cut Feed	10 %
No Cut Feed	100 %
Feed Increment	10 %
Mark overloads	<input type="checkbox"/> 50 %

Simulation

X6.731, Y108.649, Z-8.333
X6.647, Y108.551, Z-8.333
F: WORK 1120mm/min.
X6.559, Y108.448, Z-8.333
X6.472, Y108.346, Z-8.333
F: WORK 1040mm/min.
X6.385, Y108.243, Z-8.333
X6.298, Y108.141, Z-8.333
F: WORK 960mm/min.
R89.982, X5.438, Y107.109, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1040mm/min.
R89.982, X4.873, Y106.413, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1120mm/min.
R89.982, X4.331, Y105.733, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1200mm/min.
R89.982, X3.762, Y105.005, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1280mm/min.
R89.982, X3.167, Y104.226, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1360mm/min.
R89.982, X2.544, Y103.39, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1440mm/min.
R89.982, X1.891, Y102.493, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1520mm/min.
R89.982, X1.206, Y101.524, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1600mm/min.
R89.982, X0.49, Y100.484, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1680mm/min.
R89.982, X-0.256, Y99.364, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1760mm/min.
R89.982, X-1.043, Y98.145, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...
F: WORK 1840mm/min.
R89.982, X-1.862, Y96.825, Z-8.333, Xc74.982, Yc50.009, Zc-8.333...



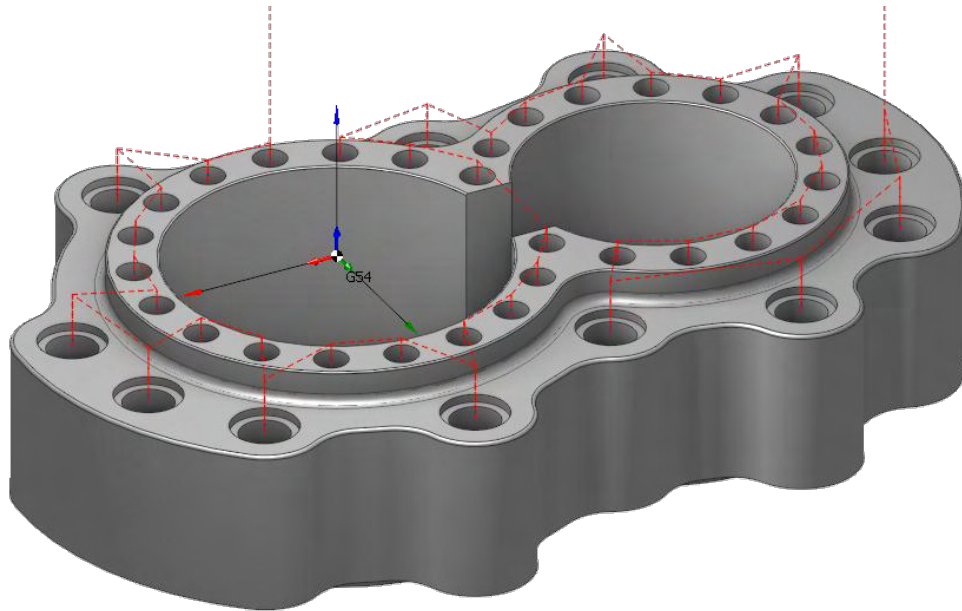
Holes machining

Automatic hole detection

Automatic tool selection

Safe tool approaches

All possible machining cycles available



Holes recognition

Search options

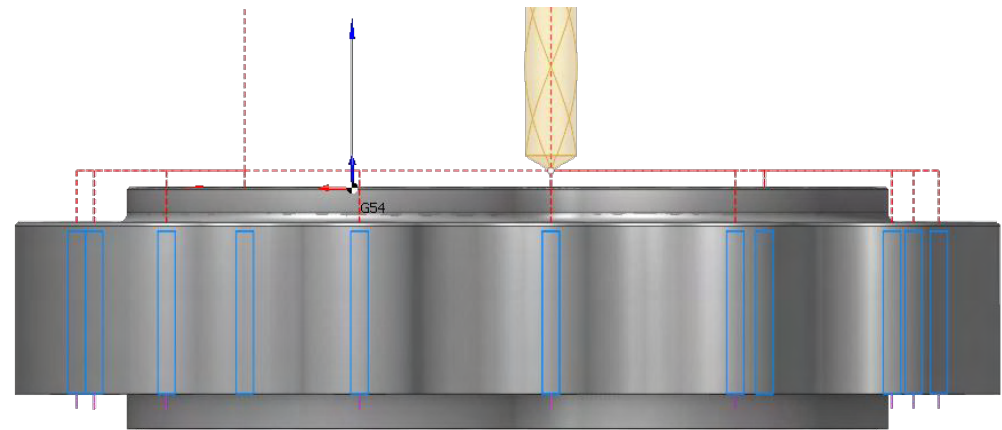
- Through holes
- Blind holes
- Others

Dmin: 4
Dmax: 20
Tolerance: 0.02

29 Holes found

	Xc	Yc	Zc	D	H	Zmax	Zmin	Plane
<input checked="" type="checkbox"/>	-110.915	41.863	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	114.976	2.352	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	-139.280	73.062	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	89.767	-71.881	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	-174.445	91.498	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	107.289	41.401	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	-214.075	93.952	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1
<input checked="" type="checkbox"/>	59.891	-98.174	-138.902	20.000	138.902	138.902	0.000	X0.000, Y0.000, Z1

Ok Cancel Help

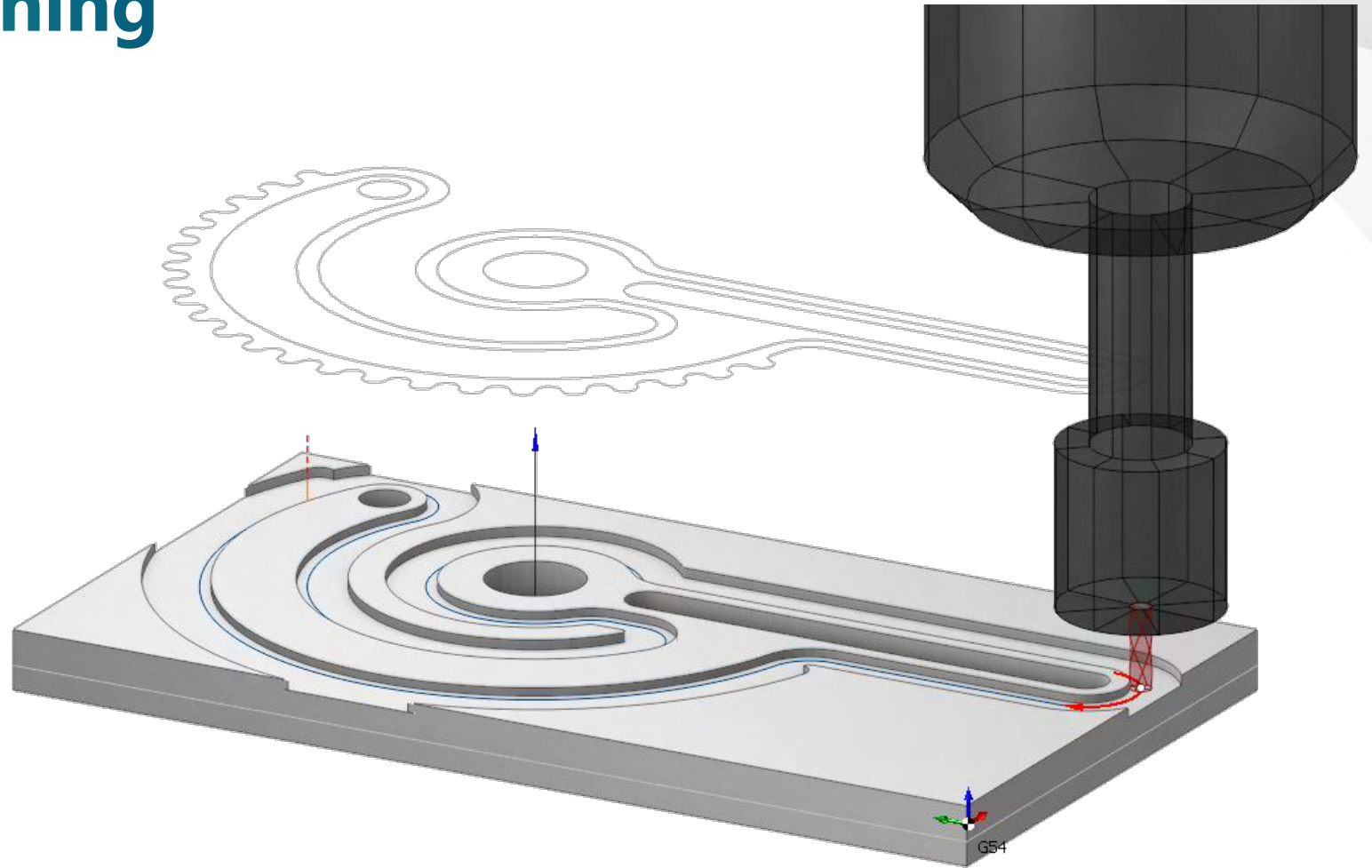


2D geometry machining


DXF file import




2D editor for geometry creation in SprutCAM



3D machining simulation taking into account the workpiece and part






Engraving


Machining New operation 


 Links  Run  Reset



 Mikron VCE600 Pro (3-axis) 


 Engraving 1 T#125 10mm Engraver  



Strategy



 V Carving



▼  Machining levels


-  Top level 0 mm
-  Bottom level -2 mm




▼  Depth Step 2 mm

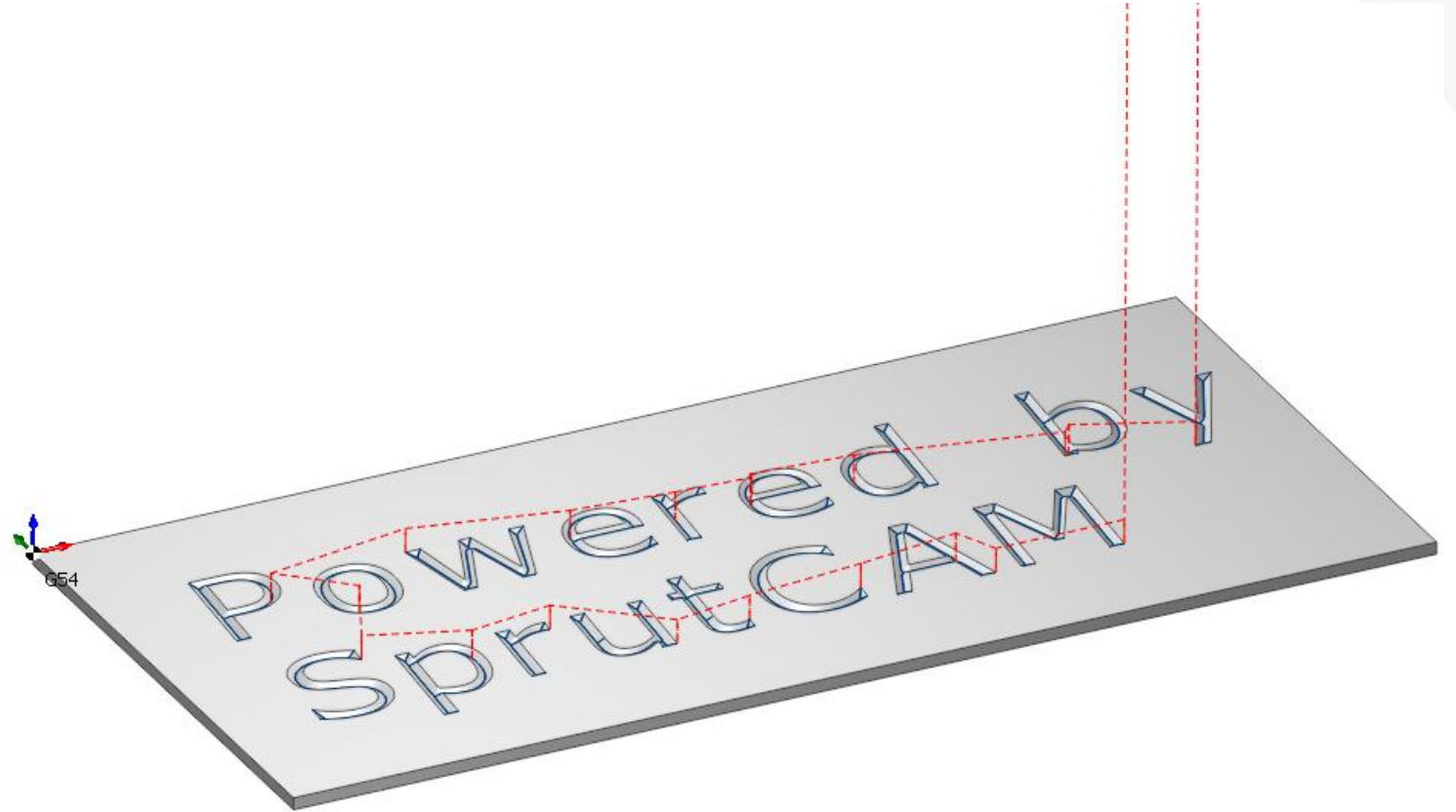
-  Side angle 60°
-  Relief angle 0°

▼  Sorting  Both

-  Machining direction  Downwards

▼  Corners

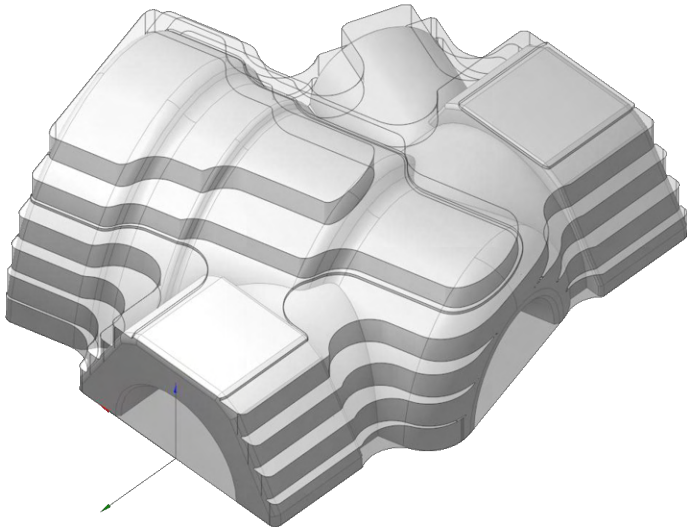
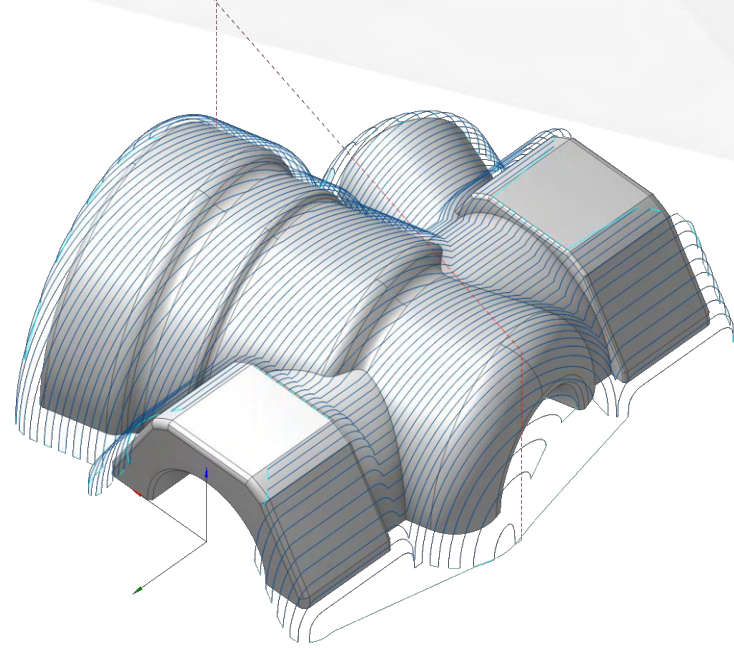
-  Corners smoothing 1 mm
-  Corner roll type  By arc



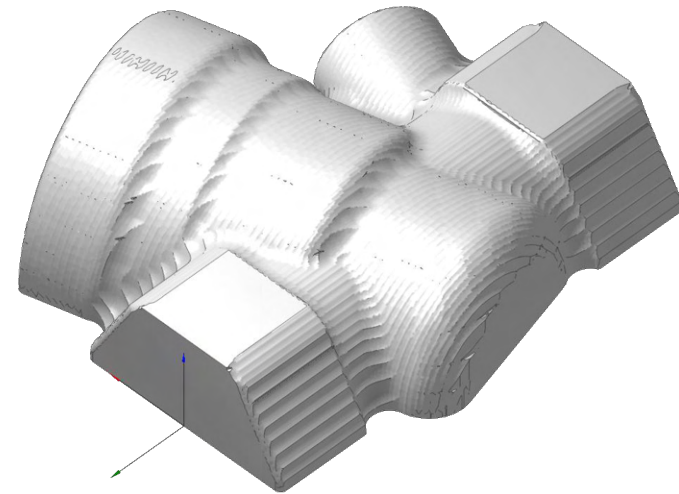
Finishing operations

Rest material automatic detection

Toolpath calculated taking into account rest material

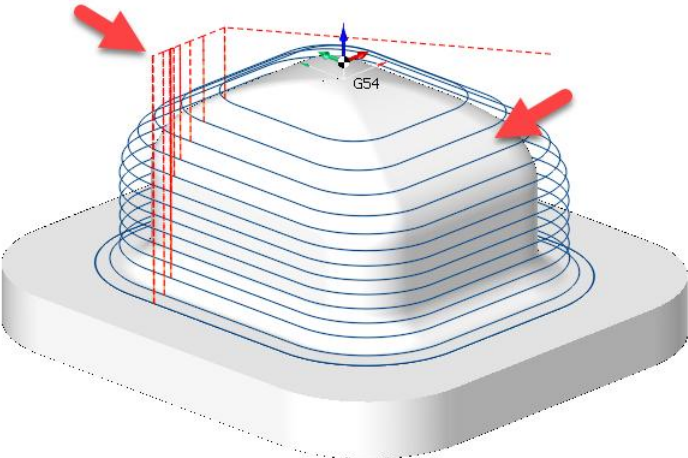


Roughing

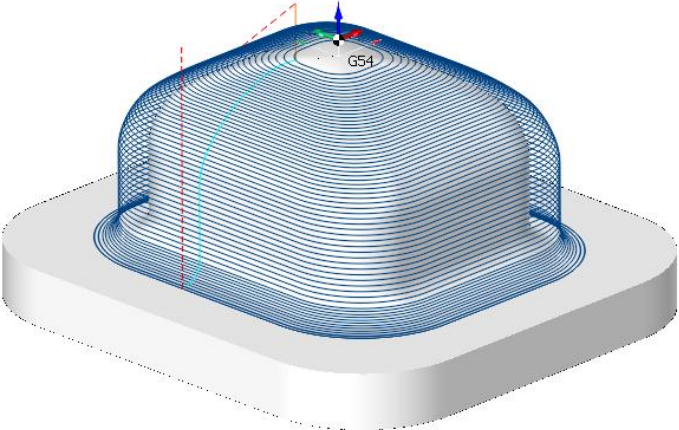


Finishing

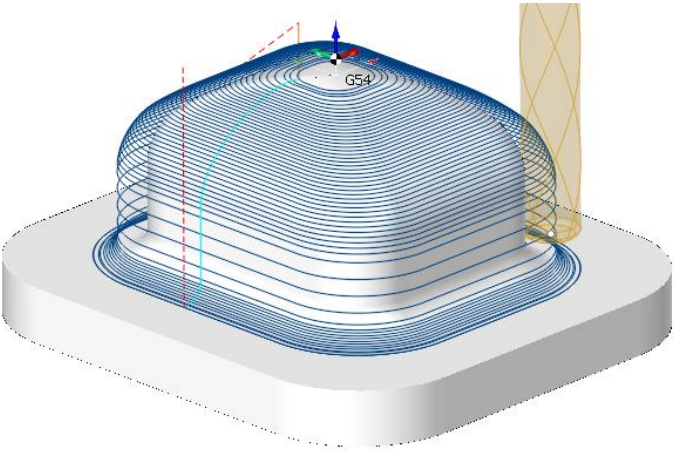
Optimized operation



Classic strategy



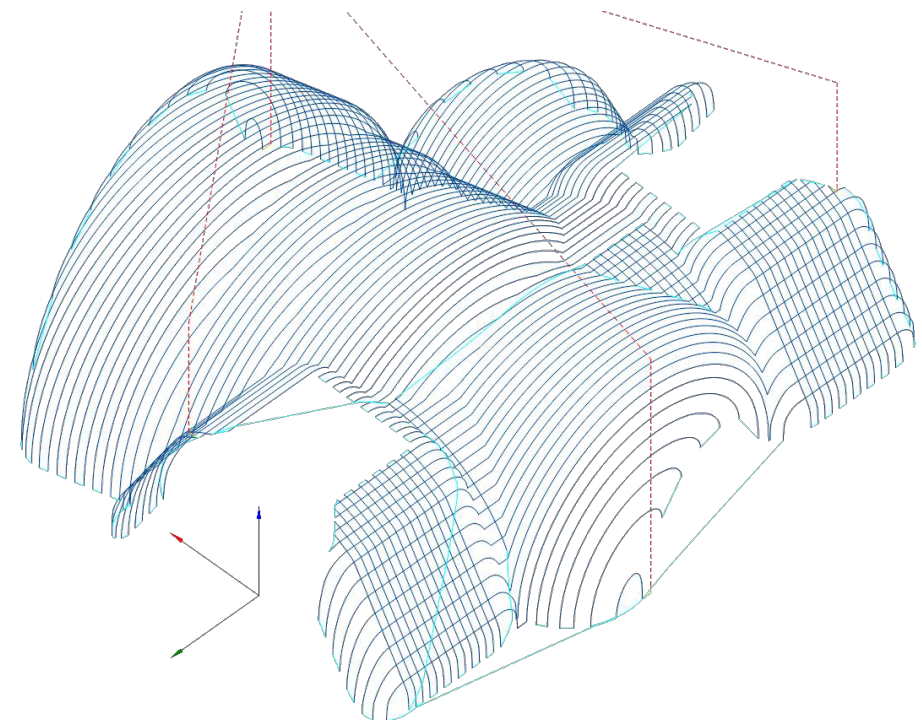
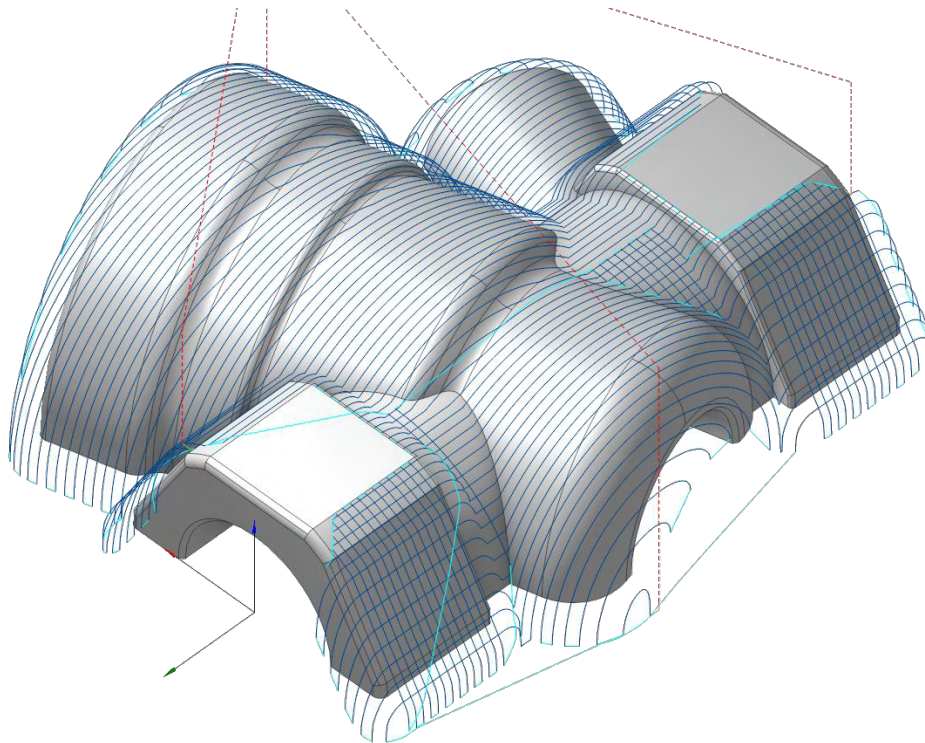
Continuous strategy



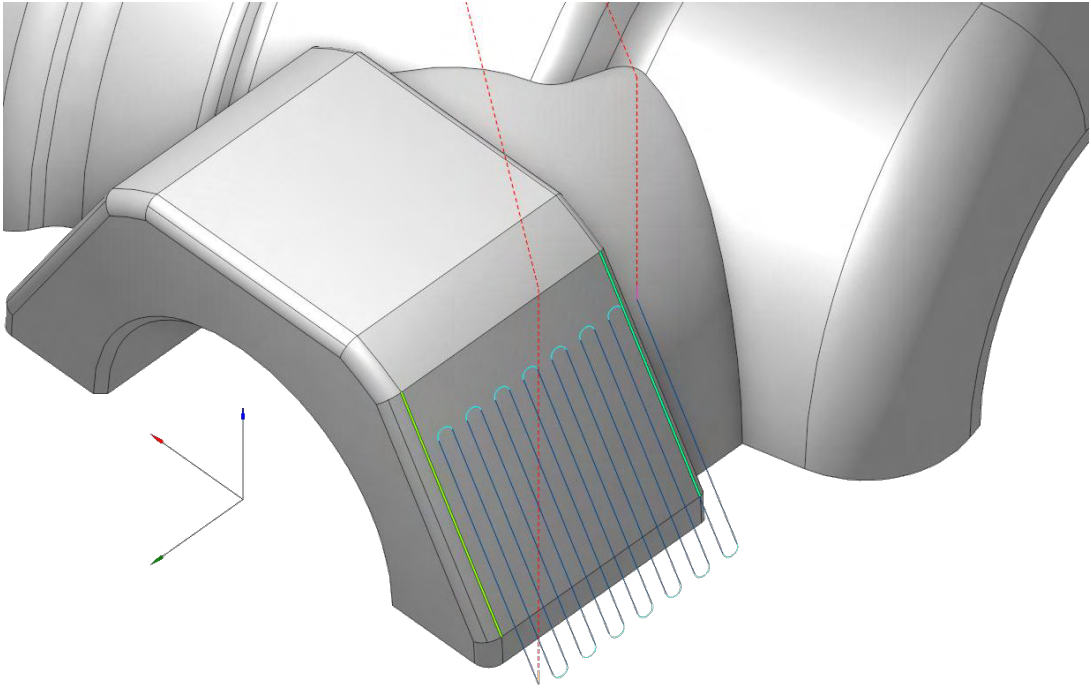
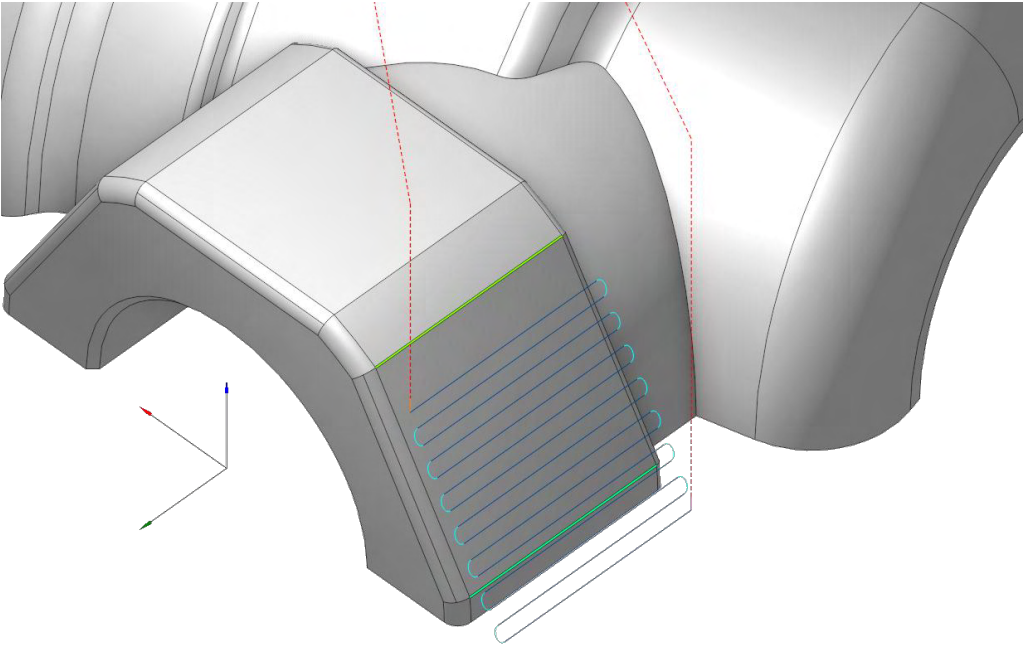
Optimized strategy

Complex operation

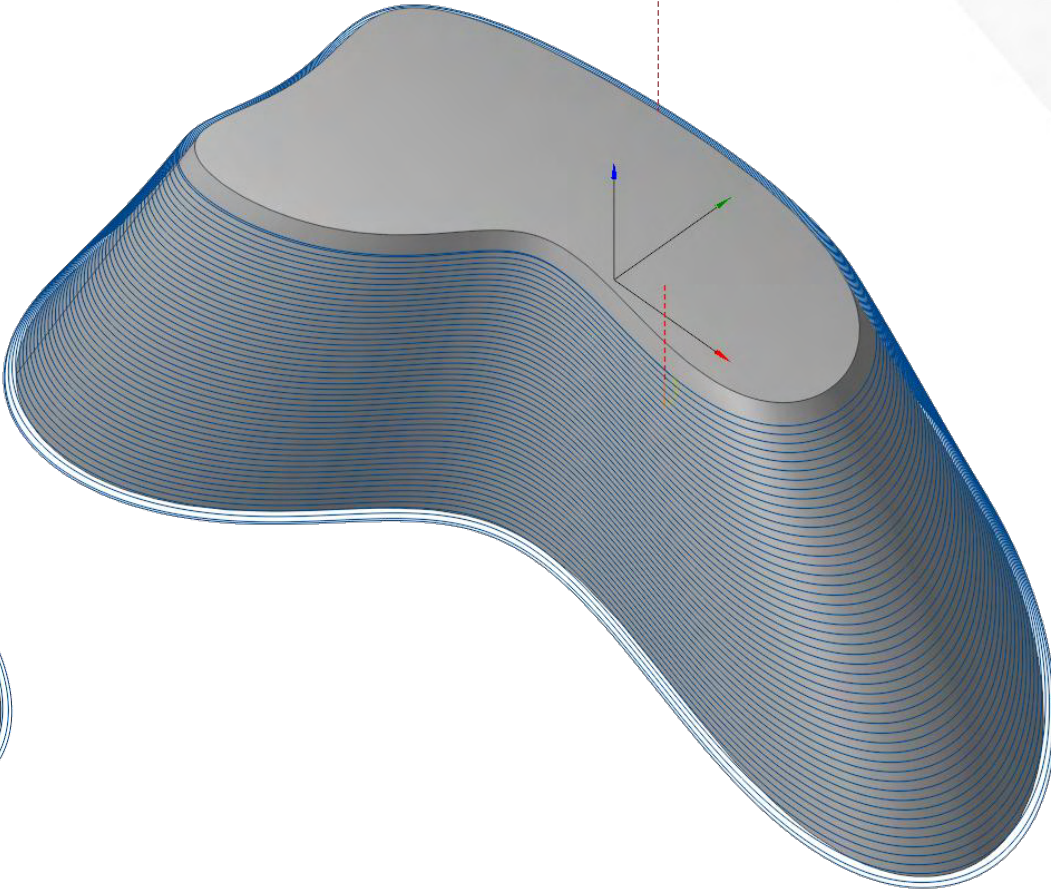
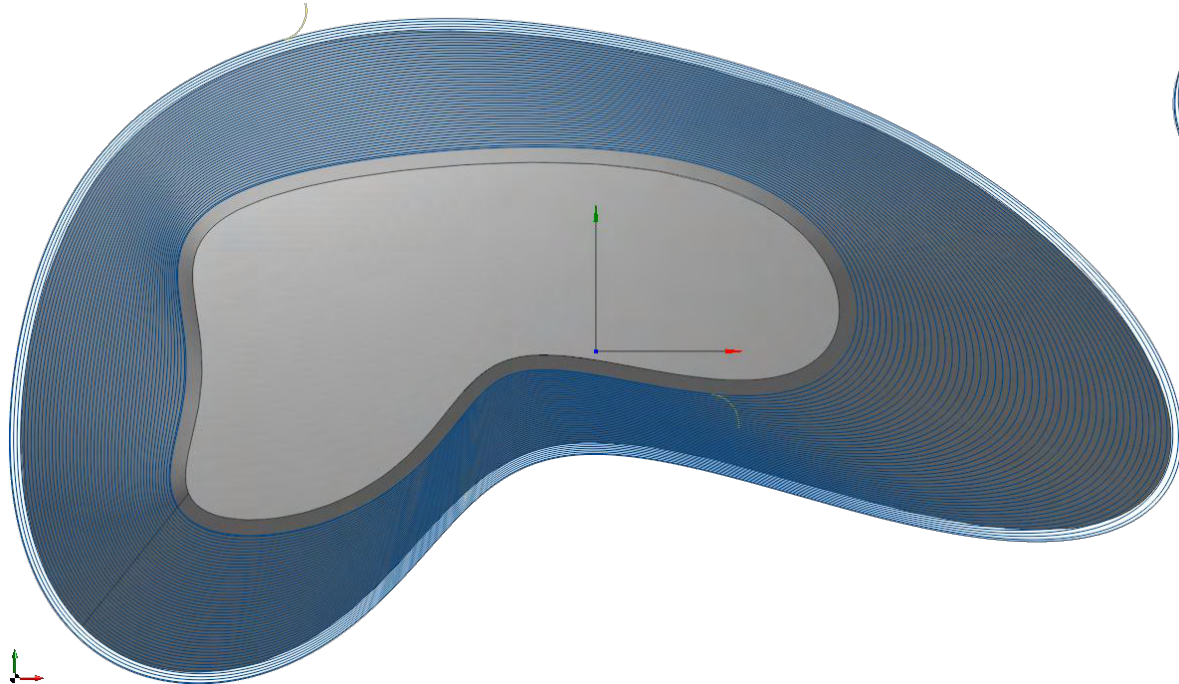
In one operation, toolpath direction varies depending on machining surface



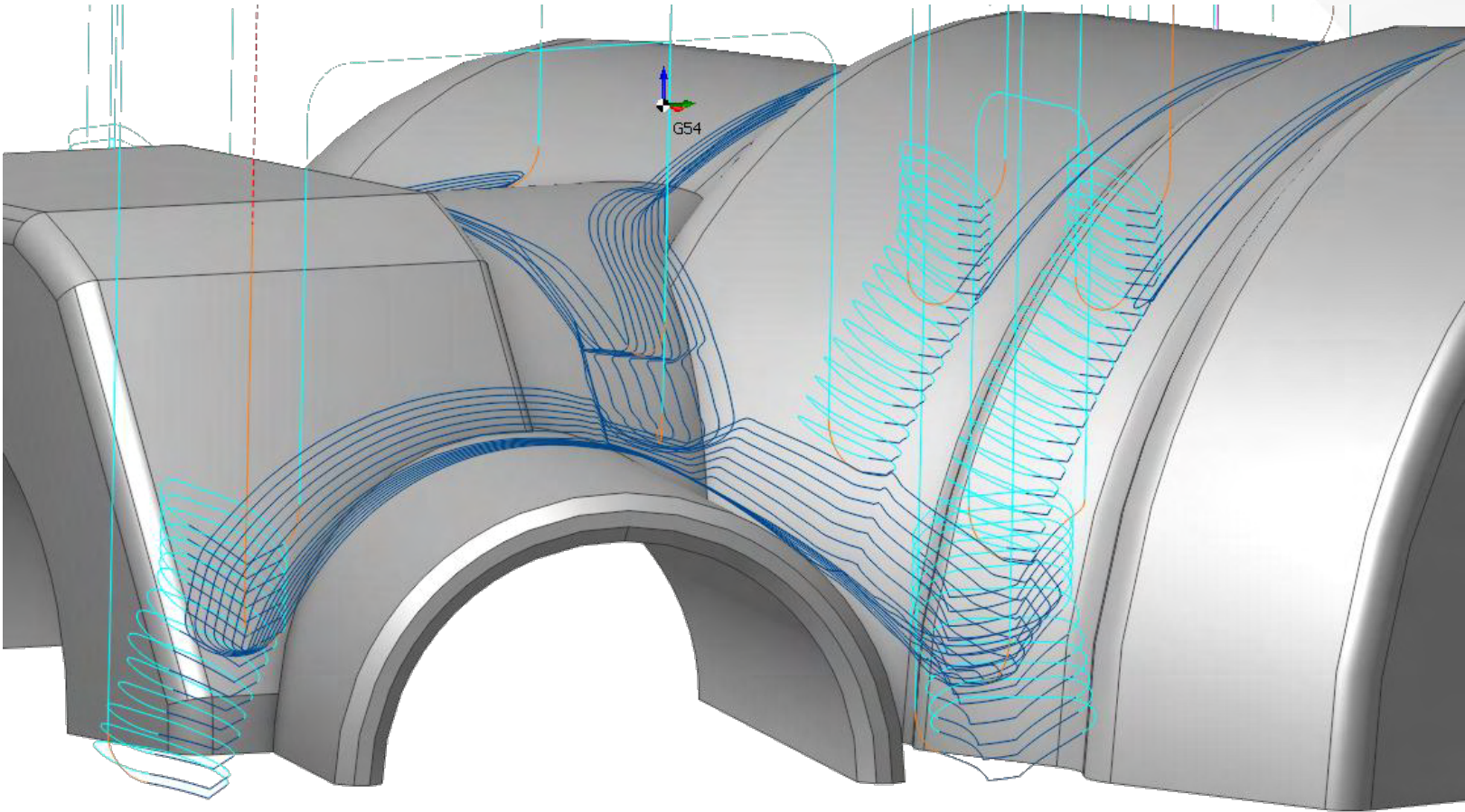
Morphing between 2 curves



3D Helical



Corners cleanup

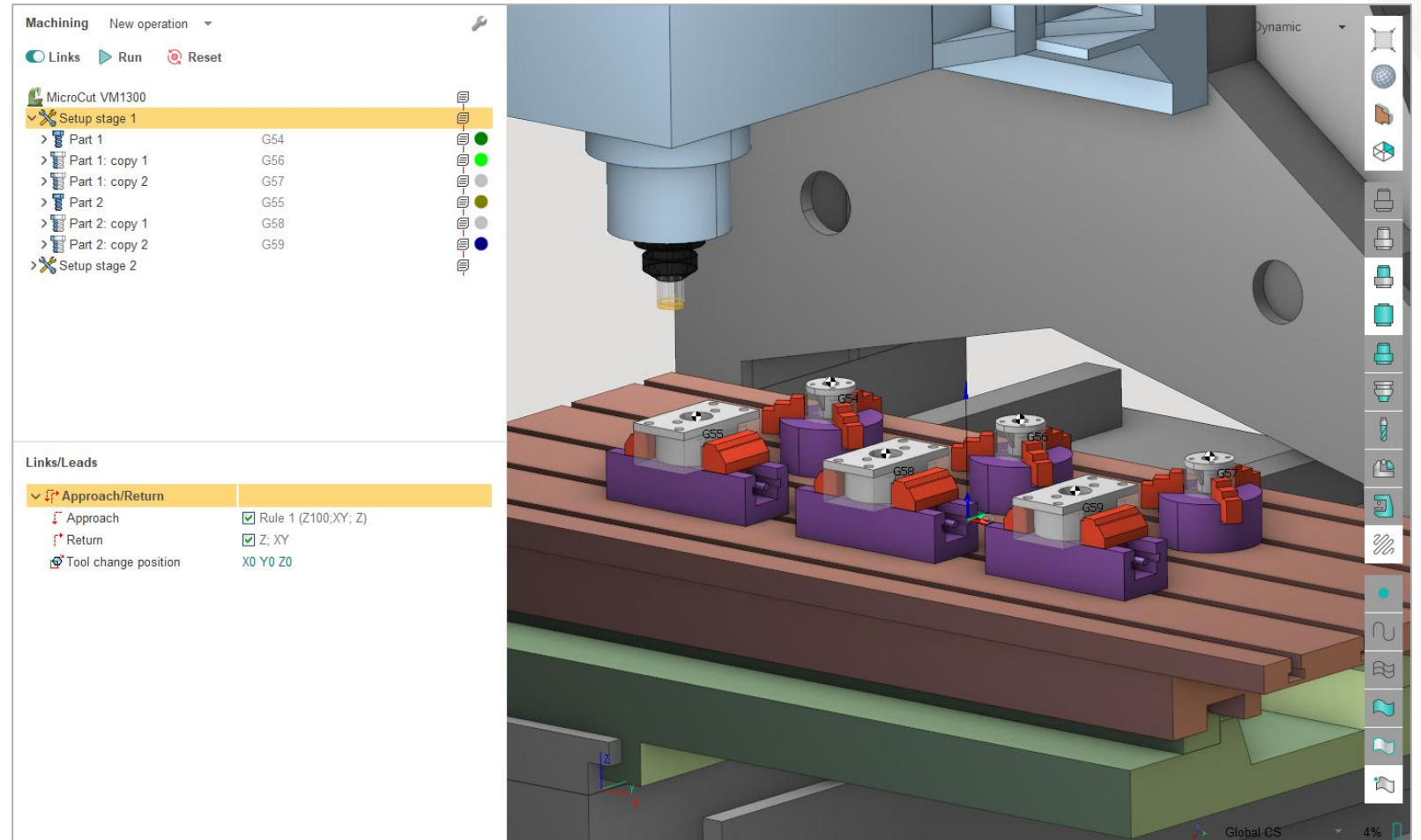


Multipart projects

Multiple part machining
in one project

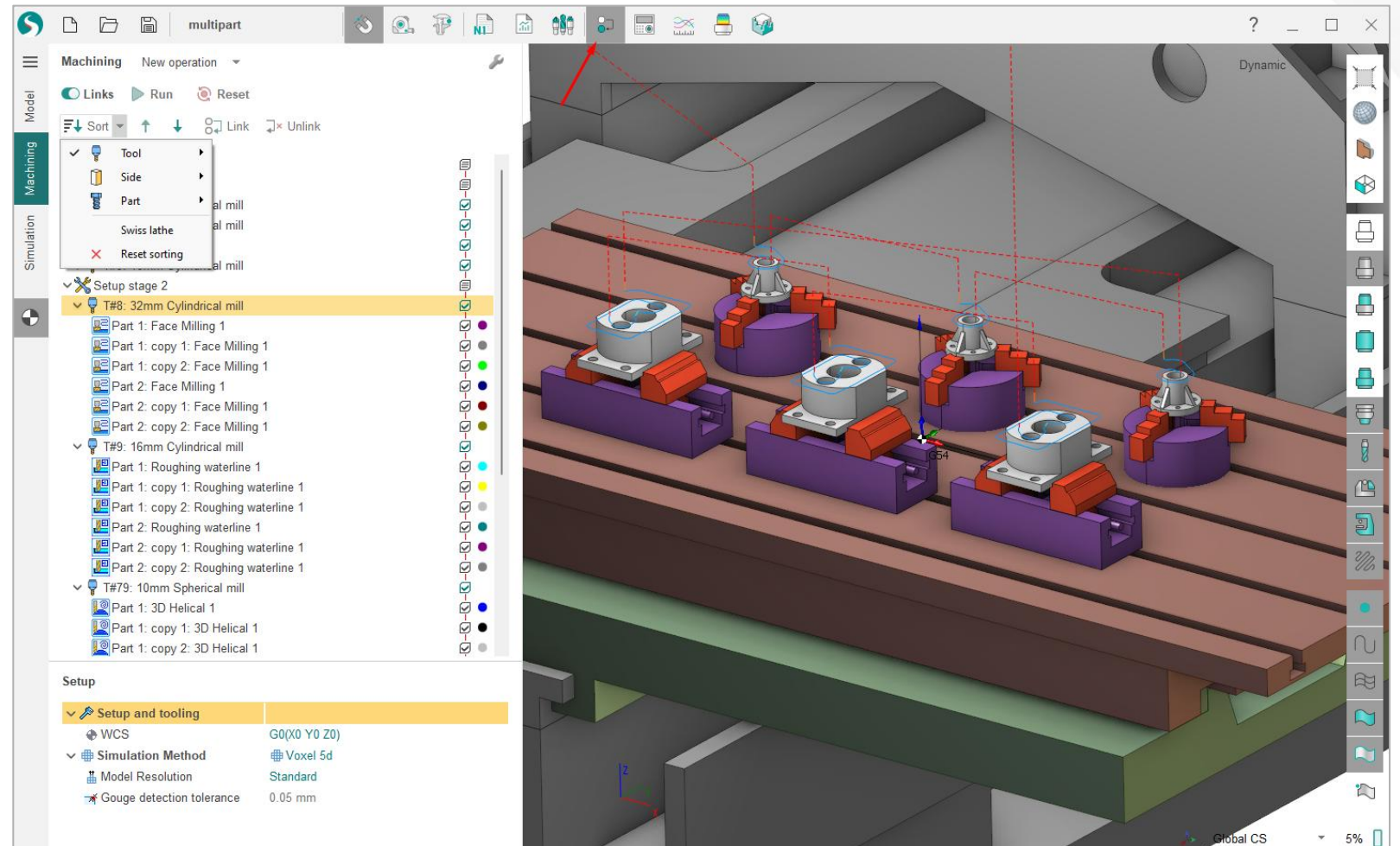
Every part has its own
coordinate system

Copying of parts
including operations

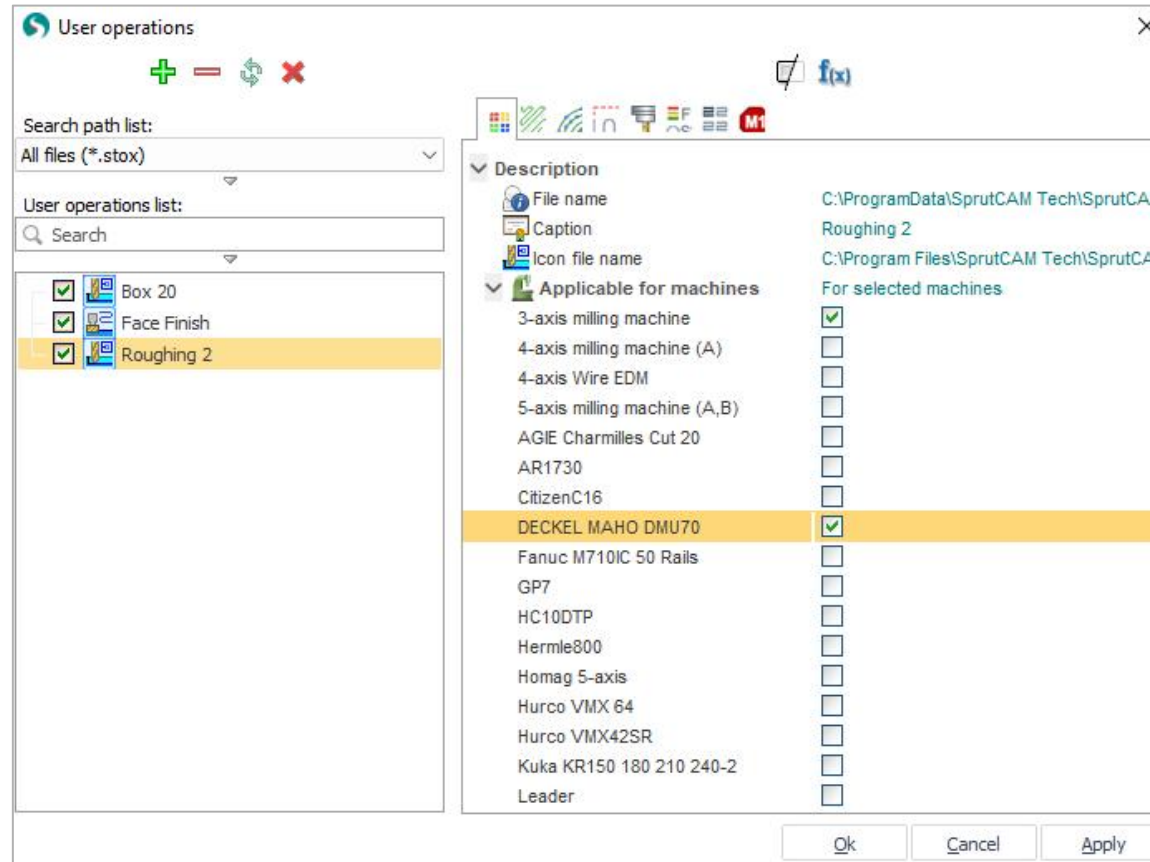
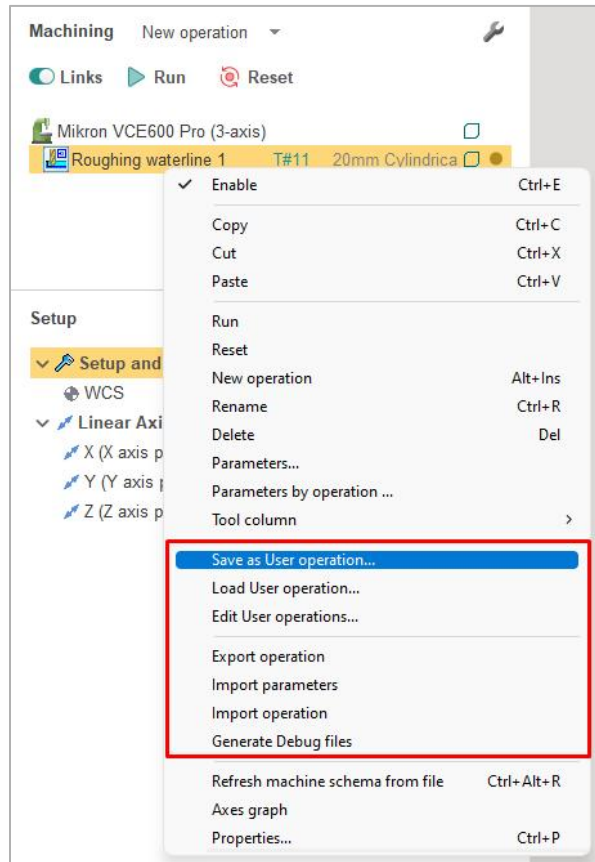


Sequencing and Links

Automatically sorting operations by Tool, Side, Part



User operations library



Machining report templates

Mikron VCE600 Pro (3-axis)		Generated by SprutCAM X [®] version 16				
NC name: C:\Users\sever\Documents\SprutCAM\NB\Version 16\NC Programs\NoName.mpf		Project: C:\Users\Public\Documents\SprutCAM\NB\Version 16\Project\part2.stc				
Job list						
N	Operation name	Type	N Tool	NC Program	Time hh:mm:ss	Comment
1	Face Milling 1	FaceMilling	170		00:05:32	Overhang=172;
2	Roughing waterline 1	Roughing waterline	11		00:45:03	Overhang=70;
3	Hole machining 1	Hole machining	79		00:00:30	Overhang=100;
4	Roughing waterline 2	Roughing waterline	11		00:09:39	Overhang=70;
5	2D contouring 1	2D contouring	7		00:01:50	Overhang=50;
6	Hole machining 2	Hole machining	59		00:00:31	Overhang=136;
7	2D contouring 2	2D contouring	7		00:02:32	Overhang=50;
8	Hole machining 3	Hole machining	138		00:00:43	Overhang=70;
9	2D contouring 3	2D contouring	7		00:01:17	Overhang=50;
10	Chamfering 1	Chamfering	169		00:02:23	Overhang=60;
Total time:					01:10:05	
Tools table						
N	Type	Name	Prog. pnt.	Operations	The sketch	
170	Torus mill (L72, D65, R1)	Ø65 R1 mm Torus mill	end of tool	1		
11	Cylindrical mill (L70, D20)	20mm Cylindrical mill	end of tool	2, 4		
79	Drill (L100, D22, A118)	22mm Drill	end of tool	3		

Mill report																			
Detail	Case																		
Setup number	1																		
Path to NC program																			
Fixtures	Collet																		
<table border="1"> <thead> <tr> <th colspan="2">Machining time (min.)</th> <th>Develop</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>Inspect.</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Respons.</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Machining time (min.)		Develop						Inspect.						Respons.			
Machining time (min.)		Develop																	
		Inspect.																	
		Respons.																	

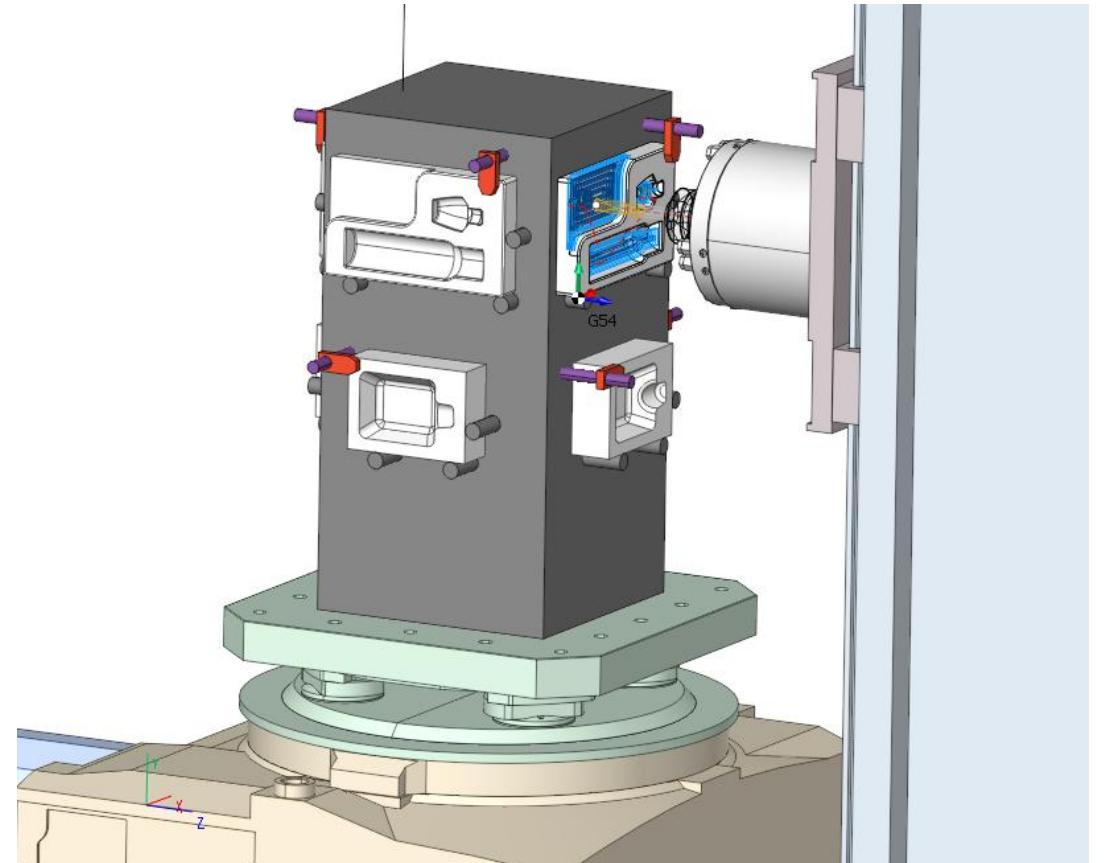
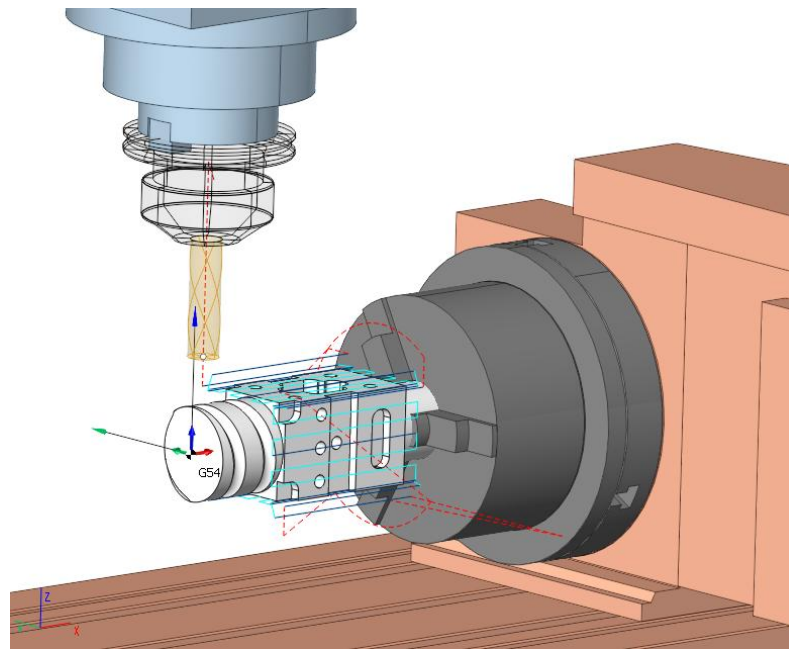
Tool N	Tool type	Diameter	NC program name	Operation description	No operation	Time, min	Cutting length	Overhang	Cutting R	Cone angle	Tooth number	F, mm/min	S, rev/min
170	Ø65 R1 mm Torus mill	65		Face Milling 1	1	00:05:32	-	72	1	0	2	200	159
11	20mm Cylindrical mill	20		Roughing waterline 1	2	00:45:03	-	70	0	0	2	200	159
79	22mm Drill	22		Hole machining 1	3	00:00:30	-	100	0	118	2	200	145
11	20mm Cylindrical mill	20		Roughing waterline 2	4	00:09:39	-	70	0	0	2	200	159
7	8mm Cylindrical mill	8		2D contouring 1	5	00:01:50	-	50	0	0	2	200	398
59	8mm Drill	8		Hole machining 2	6	00:00:31	-	136	0	118	2	200	398
7	8mm Cylindrical mill	8		2D contouring 2	7	00:02:32	-	50	0	0	2	200	398
138	10mm Spot drill	10		Hole machining 3	8	00:00:43	-	70	0	90	2	200	796
7	8mm Cylindrical mill	8		2D contouring 3	9	00:01:17	-	50	0	0	2	200	398
169	10mm Conical mill	10		Chamfering 1	10	00:02:23	-	60	0	45	2	200	200



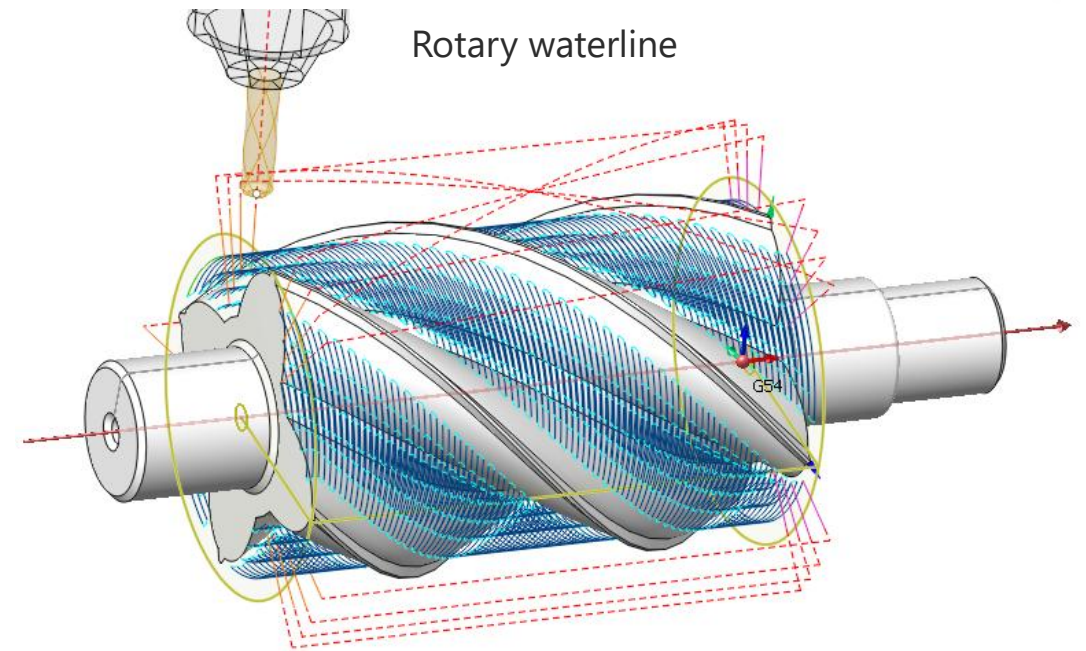
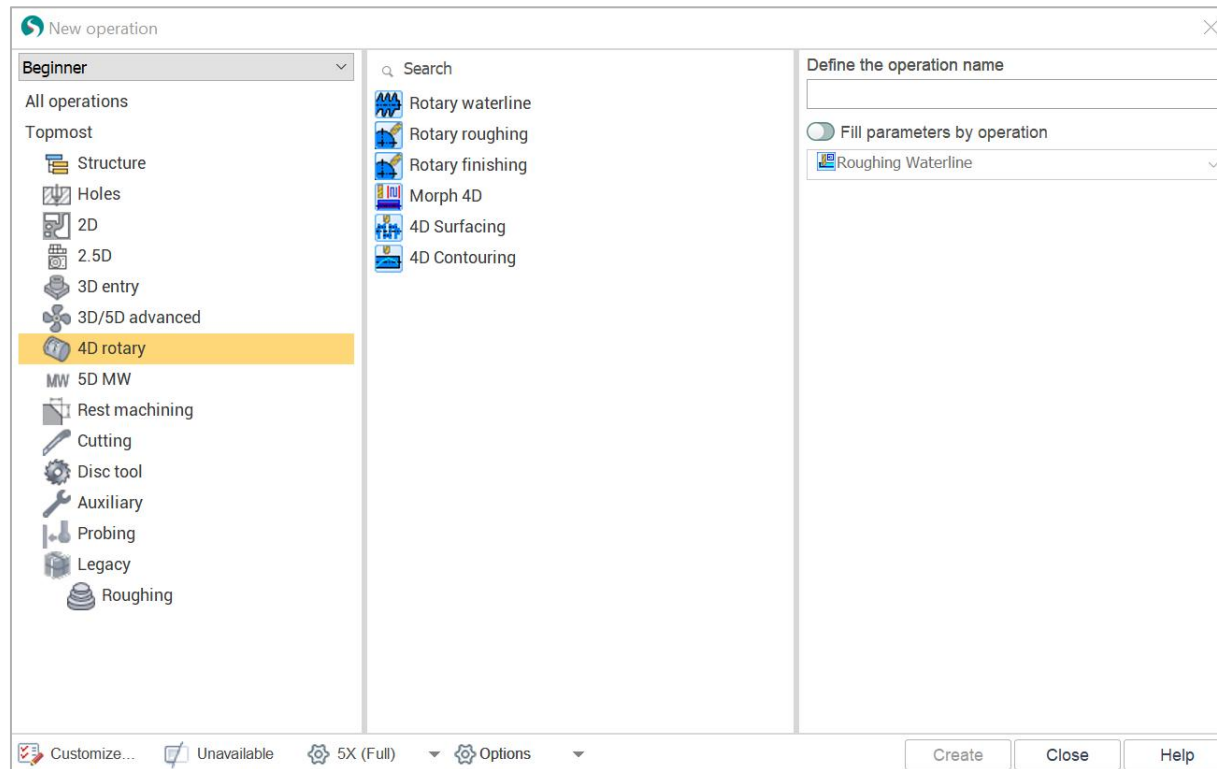
4-axis index machining

All possible operations for 3-axis machining available

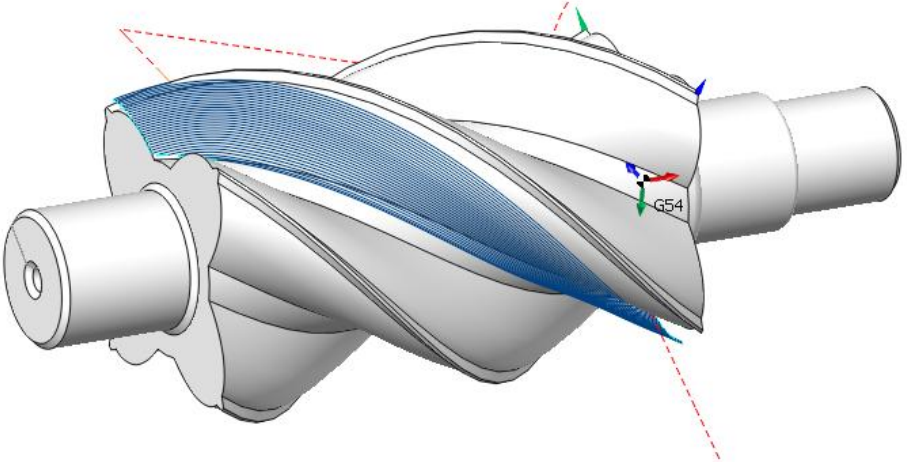
Rotary angle automatic calculation



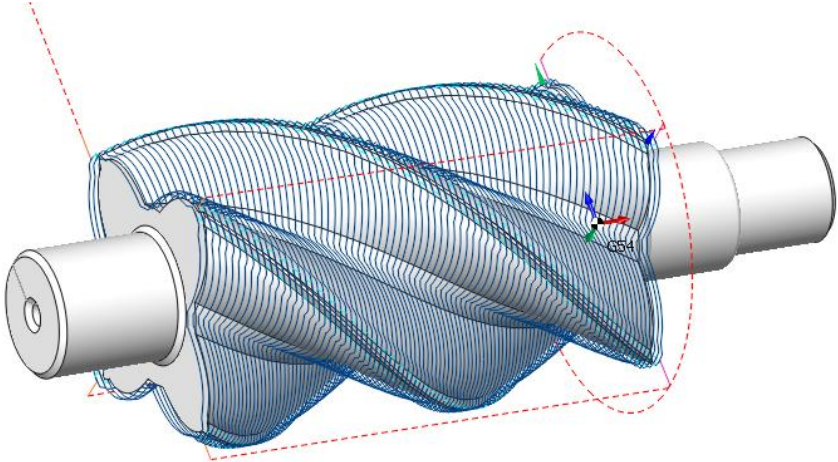
Rotary machining



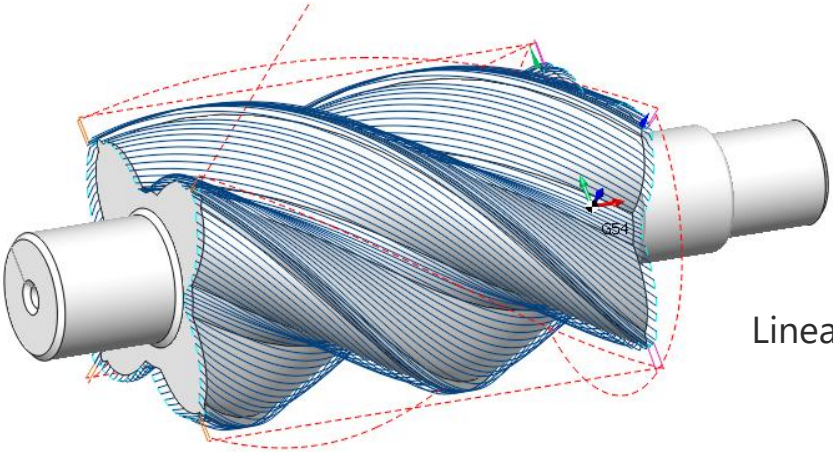
Rotary machining



Morph between two curves



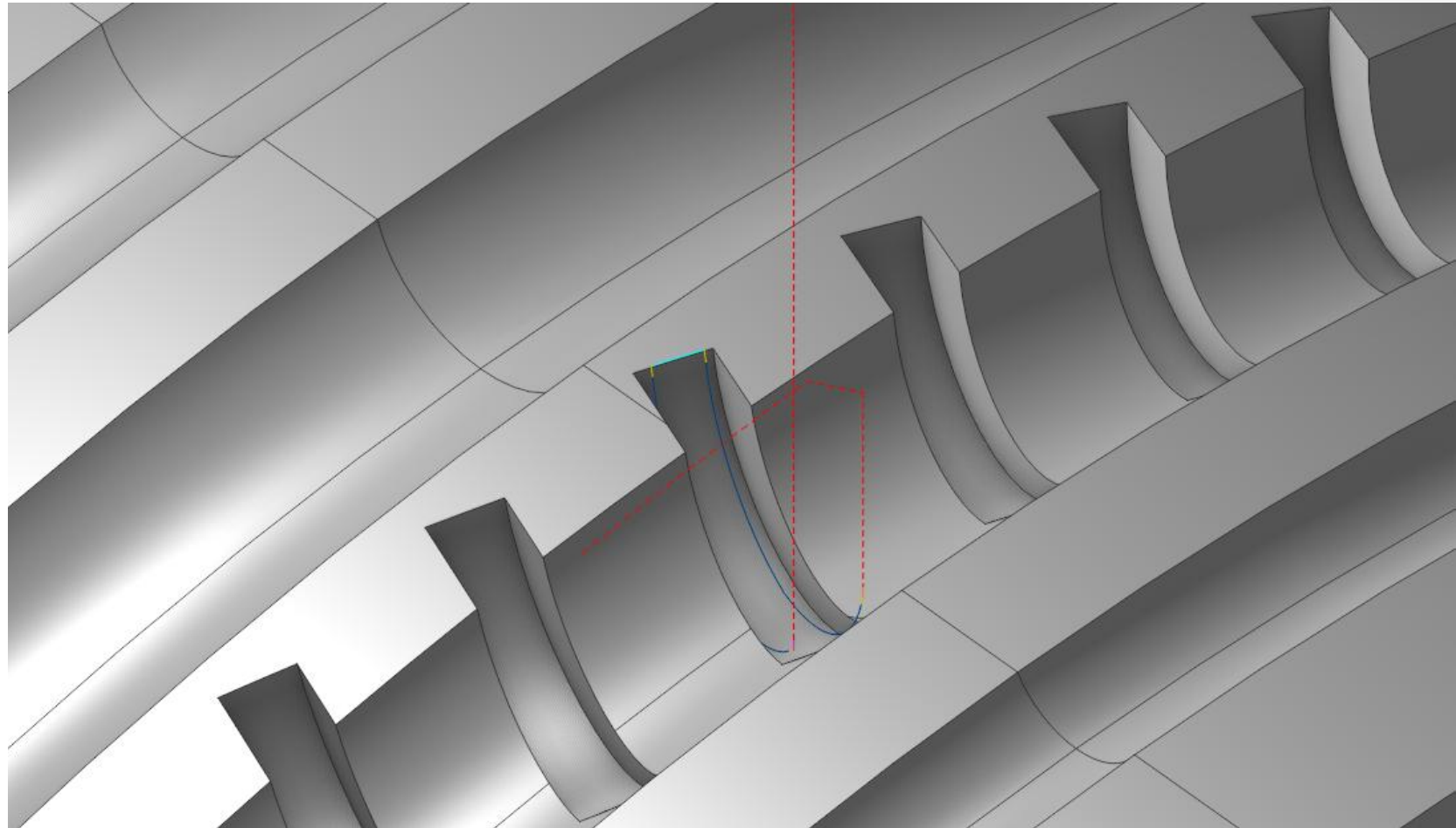
Spiral



Linear

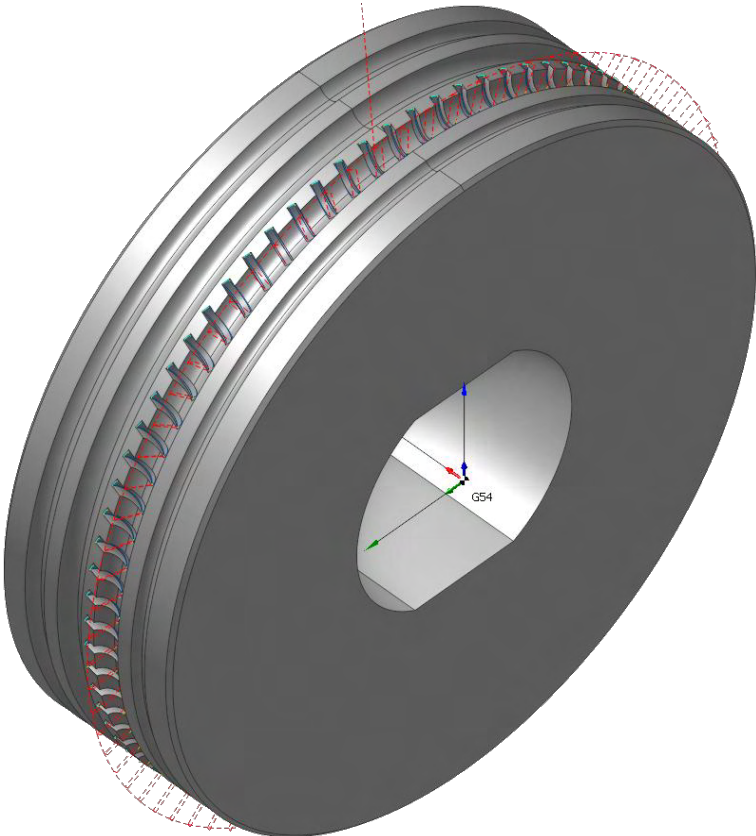
4D contouring

4 axis contour machining



Toolpath copying

Fast copying of toolpaths

A screenshot of a software interface for toolpath copying. The interface is titled "New project" and has a "Machining" tab selected. The "Machining" tab shows a list of operations: "Leader" and "4D Contouring 1". The "4D Contouring 1" operation is selected, and its parameters are shown: "T#24" and "20mm Spherical mill". The "Transformations" section is expanded, showing the following settings:

Setting	Value
Part copying	Default
Multiply toolpath by axis	<input checked="" type="checkbox"/> X (Axis X Position)
Machining order	<input checked="" type="checkbox"/> Consistently
Multiply step	10
Multiply count	2
Formalize as subroutine	<input type="checkbox"/>
Multiply scheme	<input type="checkbox"/> None
Base coordinate system	Tool CS
Rotary transformations	Off

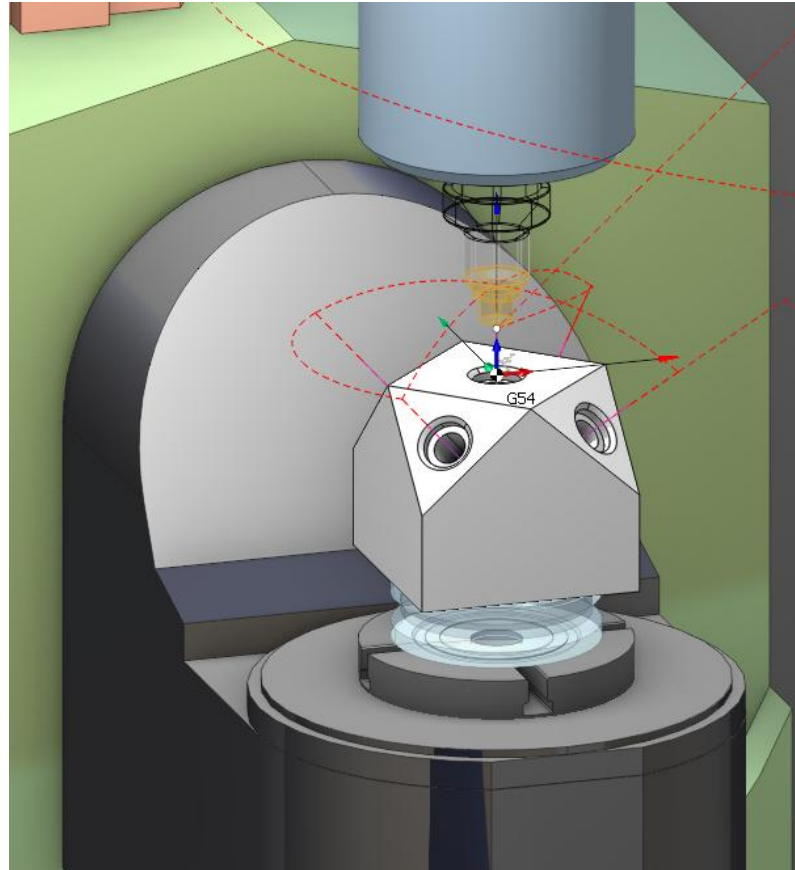


3 + 2 axis machining

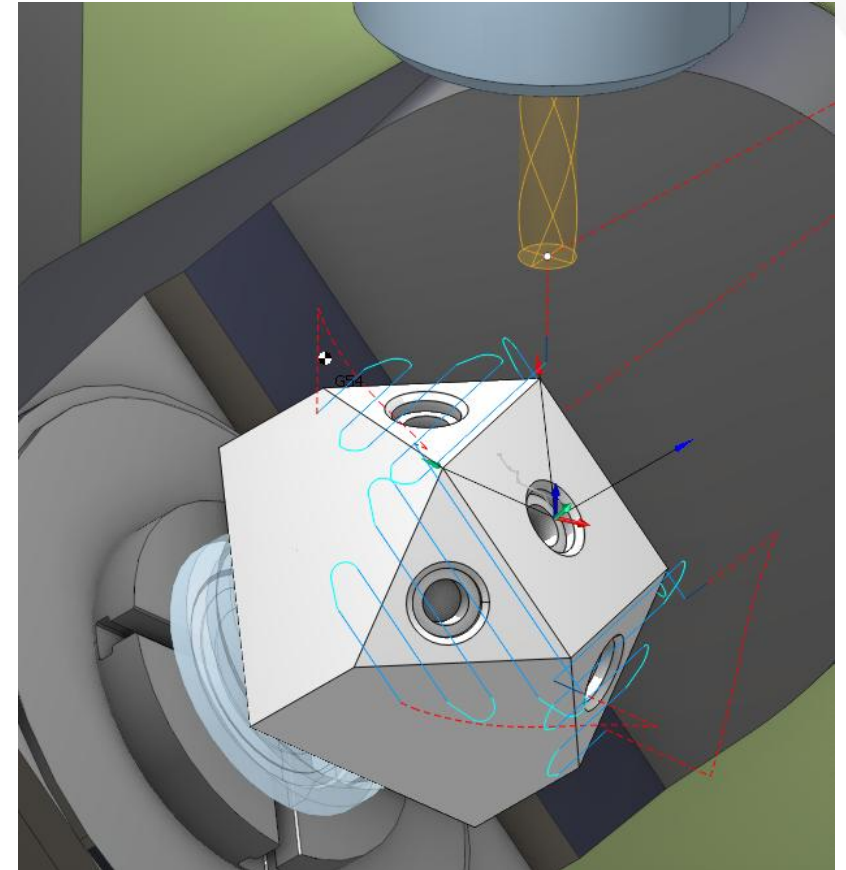
Automatic calculation of turning angles

Bulky parts machining

Interactive set up tools



Drilling



Milling

3 + 2 axis machining

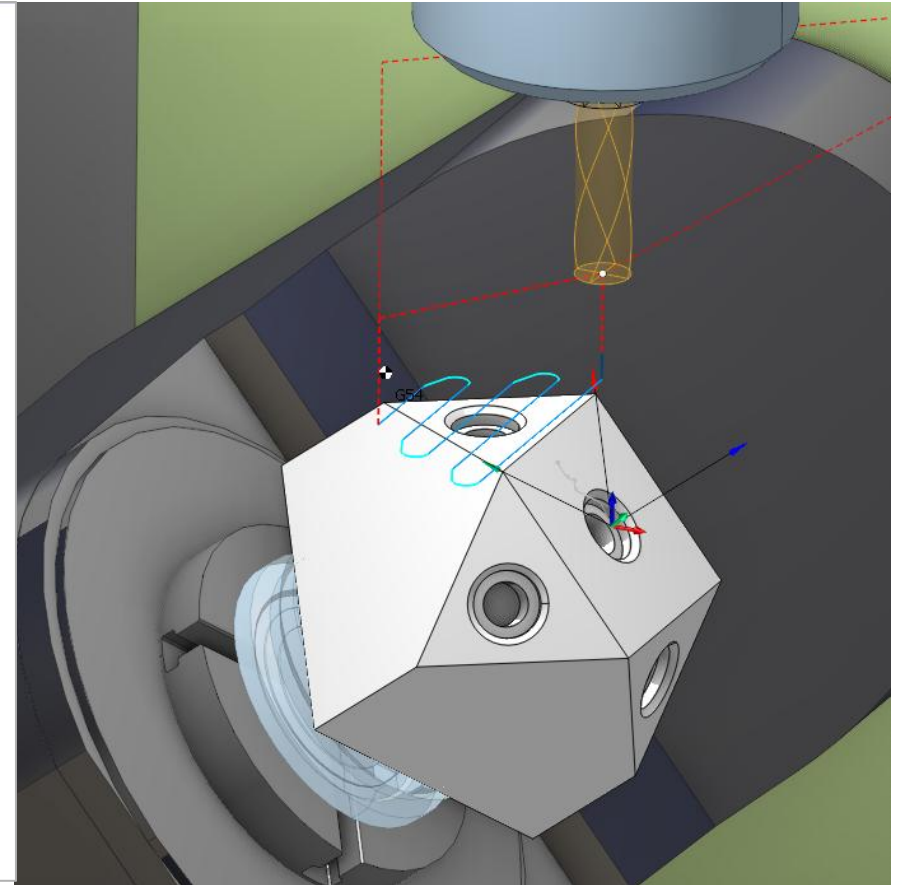
Coordinate system transformation cycles

FANUC G68.2

SIEMENS CYCLE800

HEIDENHAIN; PLANE SPATIAL

```
%  
5D_STAGE_DRILLING  
  
( GENERATED BY SprutCAM )  
( DATE: 17.05.2022 )  
( TIME: 14:59:17 )  
  
( TOOLS LIST )  
( T1 CYLINDRICAL_MILL D25 )  
  
G00G21G40G49G69G80G90G17  
G53Z0.  
G53B0.C0.  
( FACE MILLING2 )  
G53Z0.  
G53X0.Y0.  
T1M6 (25MM ENDMILL)  
G54  
S200M3  
G00B-51.622C45.  
G68.2X0.Y0.Z0.I-45.J51.622K90.  
G53.1  
G43H1X-35.028Y65.235Z89.35  
X-35.027  
Z51.303  
G01G94Z38.803F200M8  
Y-65.232  
G02X-47.012Y-67.717I-6.25J0.  
G01X-51.309Y-57.801  
G02X-51.824Y-55.316I5.735J2.485  
G01Y55.322  
G03X-63.853Y57.703I-6.25J0.
```



Continuous 5-axis machining

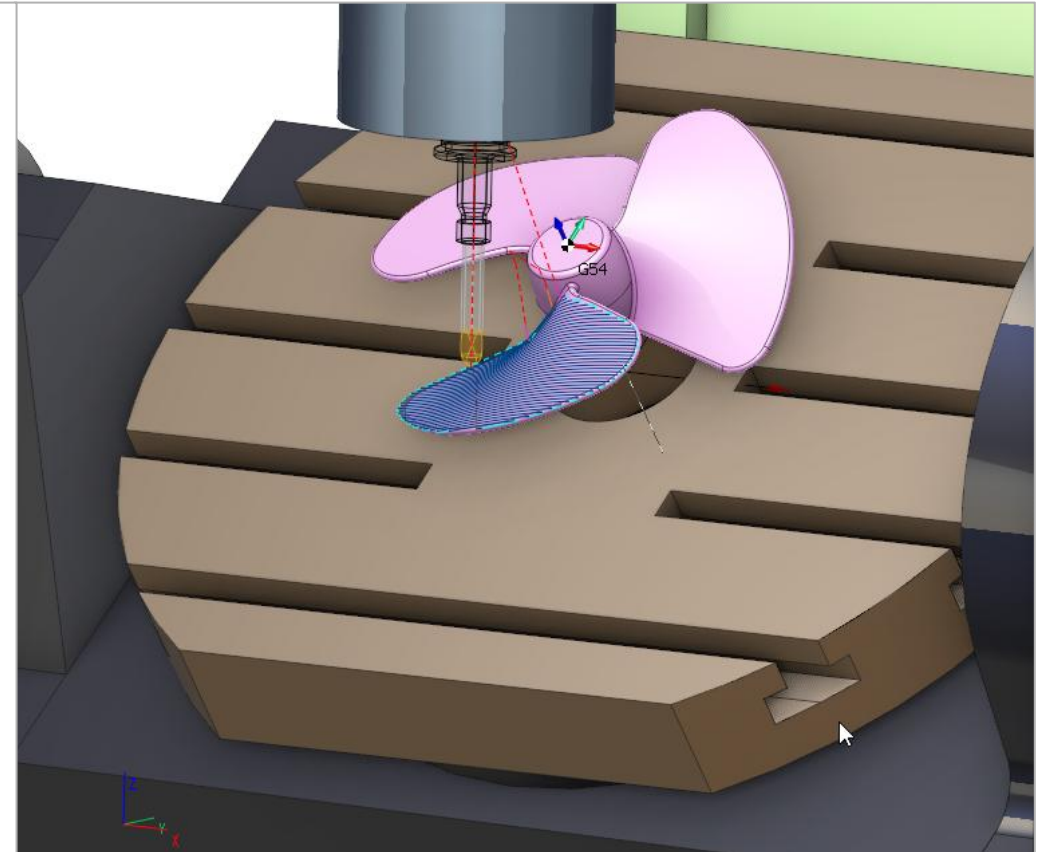
TCP support

FANUC G43.4

SIEMENS TRAORI

HEIDENHAIN M128

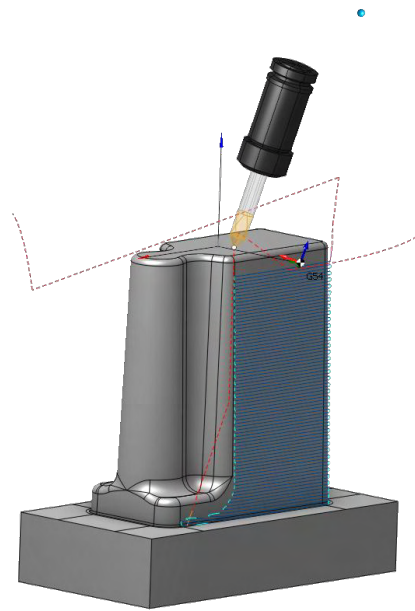
```
%  
NONAME01  
  
( GENERATED BY SprutCAM )  
( DATE: 17.05.2022 )  
( TIME: 15:14:29 )  
  
( TOOLS LIST )  
( T8 CYLINDRICAL_MILL D10 )  
  
G00G21G40G49G69G80G90G17  
G53Z0.  
G53A0.C0.  
( 5D SURFACING 1 )  
G53Z0.  
G53X0.Y0.  
T8M6 (10MM CYLINDRICAL MILL)  
G54  
S318M3  
G00A0.C0.  
Y-19.958  
G43.4H8X-92.105Y-19.958Z10.  
X-92.105Y-19.958Z-46.247  
G01G94X-92.105Y-19.958Z-56.247F200M8  
G03X-90.753Y-25.45Z-55.023I91.888J19.709  
X-89.241Y-30.4Z-53.849I70.388J18.802  
X-87.519Y-35.037Z-52.676I91.755J31.437  
X-85.574Y-39.604Z-51.444I111.55J44.792  
X-83.549Y-43.72Z-50.253I85.124J39.319  
X-81.274Y-47.826Z-48.979I94.589J49.737  
X-78.856Y-51.751Z-47.673I102.66J60.544  
X-76.327Y-55.424Z-46.356I79.158J51.797  
X-73.468Y-59.174Z-44.907I88.666J64.625  
X-70.28Y-62.981Z-43.322I121.135J98.191
```



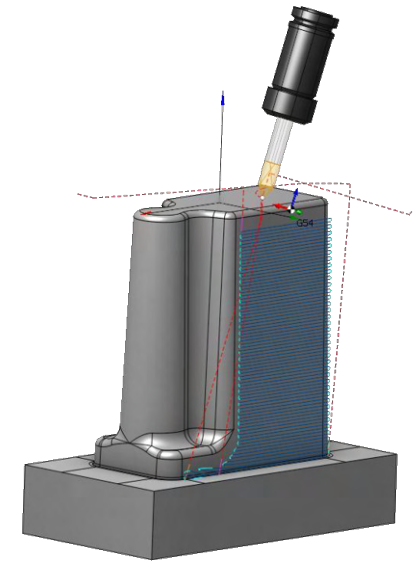
Continuous 5-axis machining

Strategy

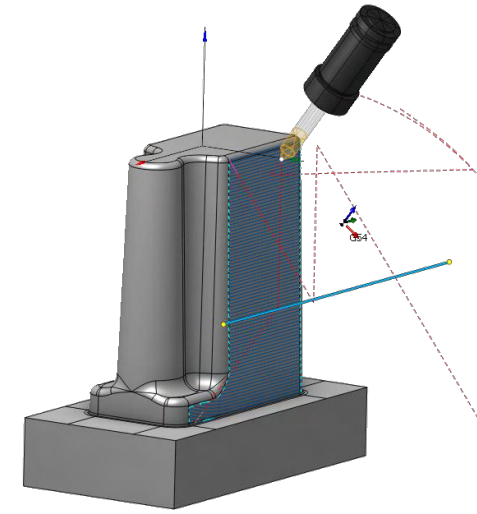
- Strategy: Parallel to Curve
- Step: 1 mm
- Adaptive step:
- Calculate based on tool cen:
- Project curves: Project and offset
- One side machining: Left
- Extend curves to infinity:
- Tool orientation**
 - Through point
 - Normal to surface
 - Flank
 - Fixed
 - To rotary axis
 - Through point
 - Through curve
 - Perpendicular to toolpath
- Margins
 - Start margin
 - Zone width
- Corners smoothing
 - Blend distance: 20 mm
 - Roughing passes: By surface normal
- Sorting
 - Machining order: Downwards
 - Mill mode: Both
- Trimming
 - Hole capping: 1 mm
 - Gap capping: 1 mm
 - Project toolpath onto the par:



Through point



Perpendicular to toolpath



Through curve

Barrel mill support

Reduces machining time

Safe toolpath

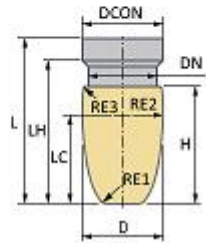
Superior quality of the machined surface

Geometry Numbers Design Tooling

Tool name

Tool group

Subtype

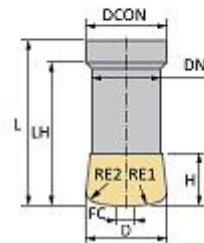


Geometry Numbers Design Tooling

Tool name

Tool group

Subtype

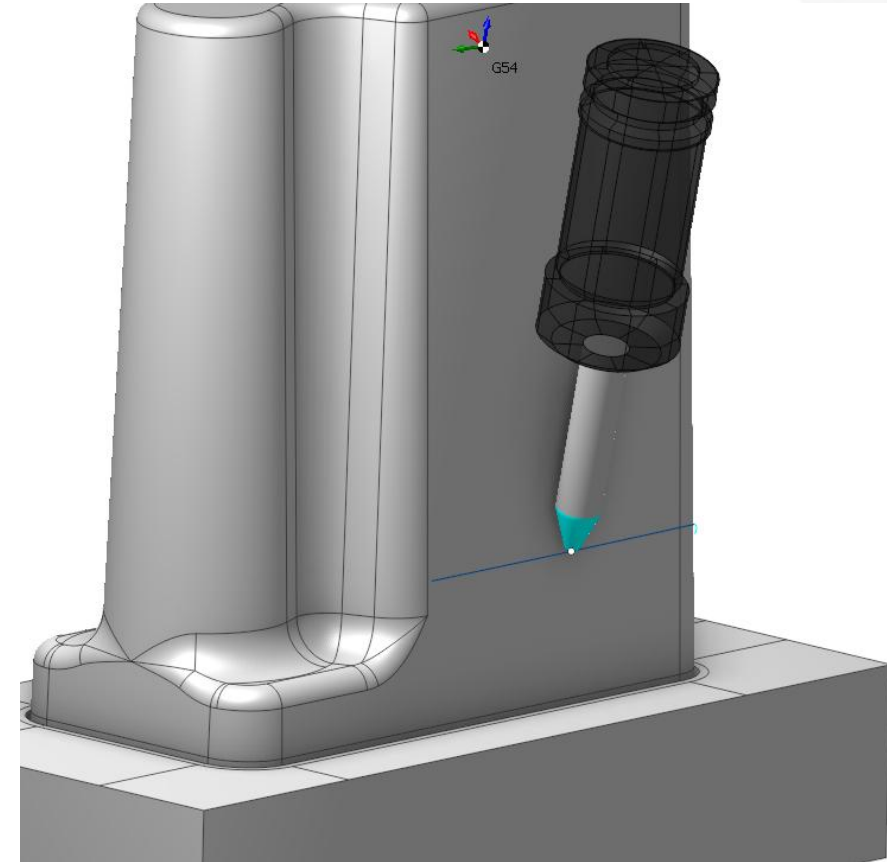
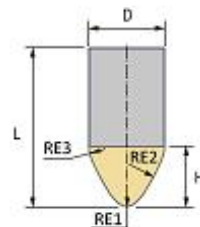


Geometry Numbers Design Tooling

Tool name

Tool group

Subtype



Barrel mill support

Tool contact adjustment

Geometry Numbers Design **Tooling** Holder Feeds/Speeds

Tool name 16mm Taper ba

Tool group Undercut mill

Subtype Taper barrel r

Length (L) 50

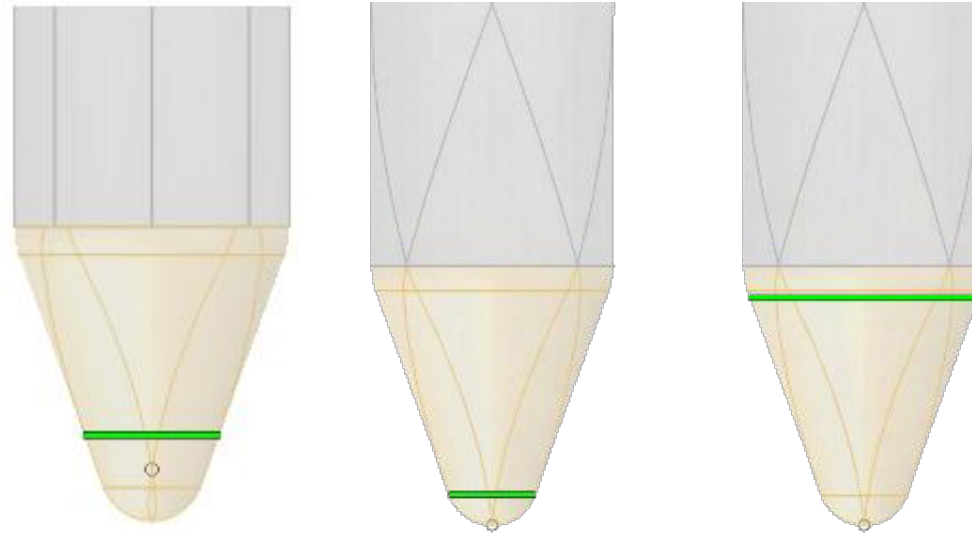
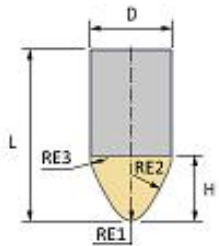
Working length (WL) 50

Overhang 150

Contact point Height 5

Tooling point 1 Custom 0

2nd tooling point
End
Center
Custom
Connect point
Top edge

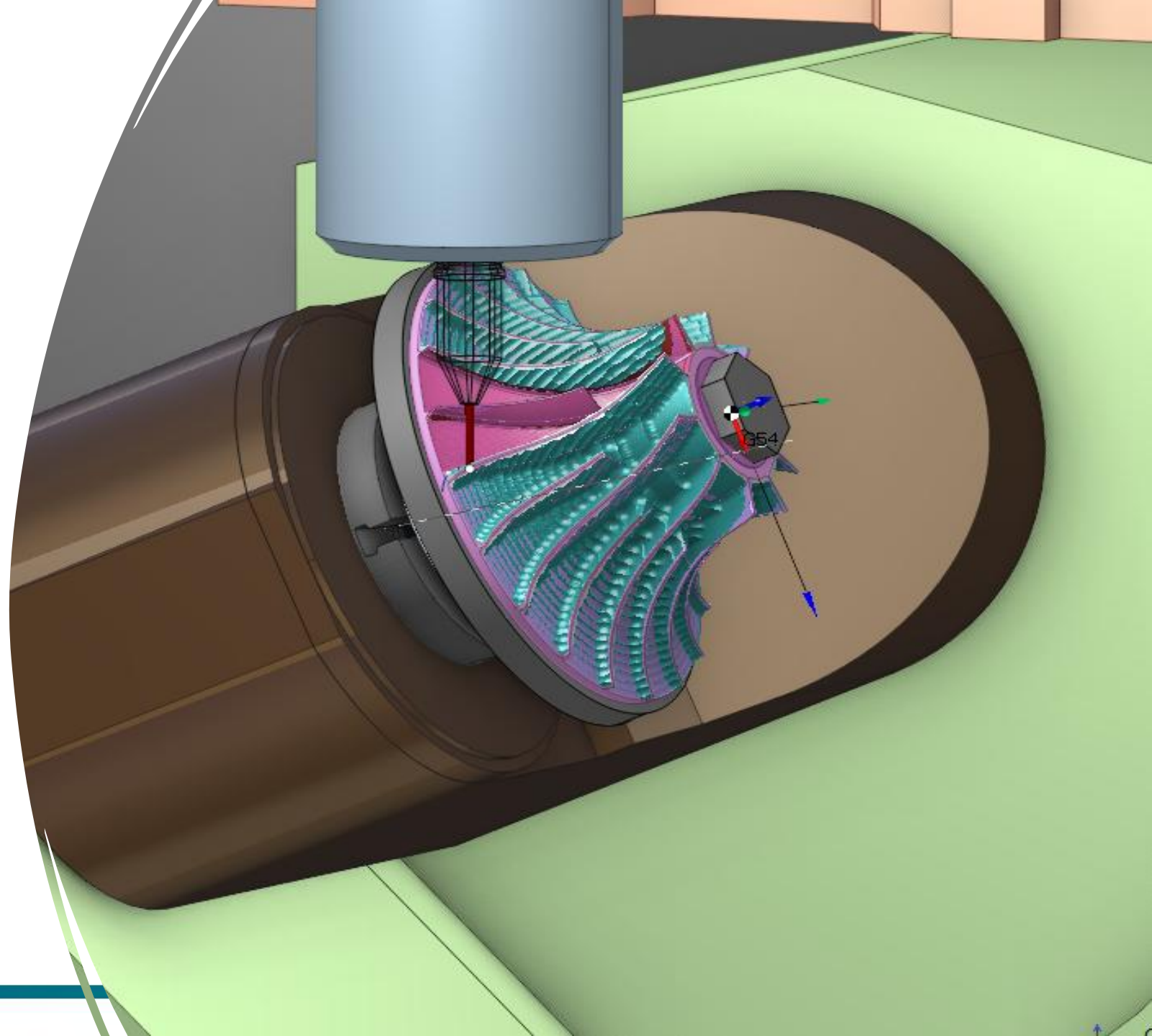


Tool contact adjustment

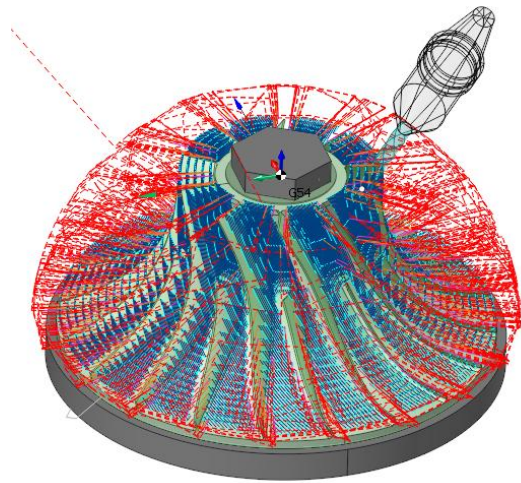
Turbine machining strategies

Intuitive set up

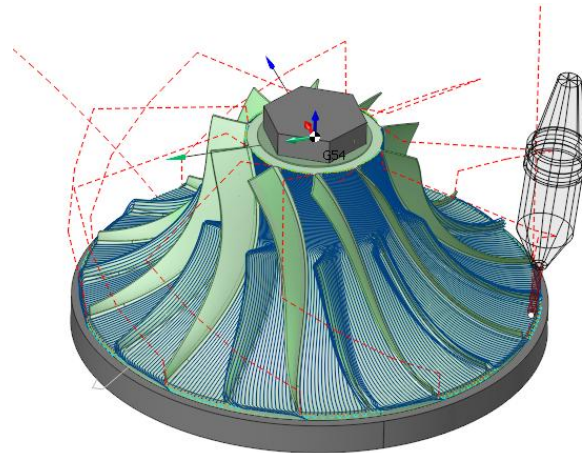
Predictable result



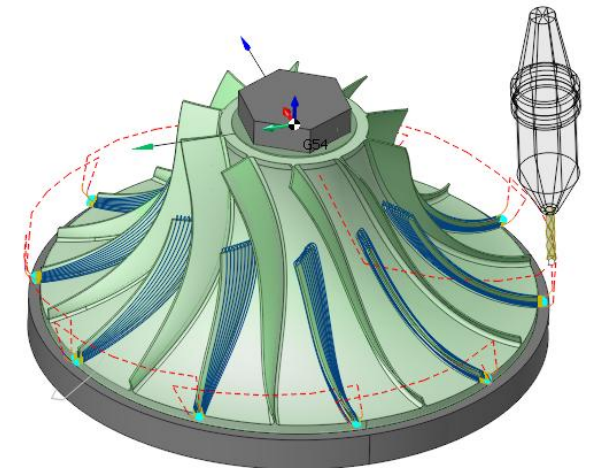
Turbine machining strategies



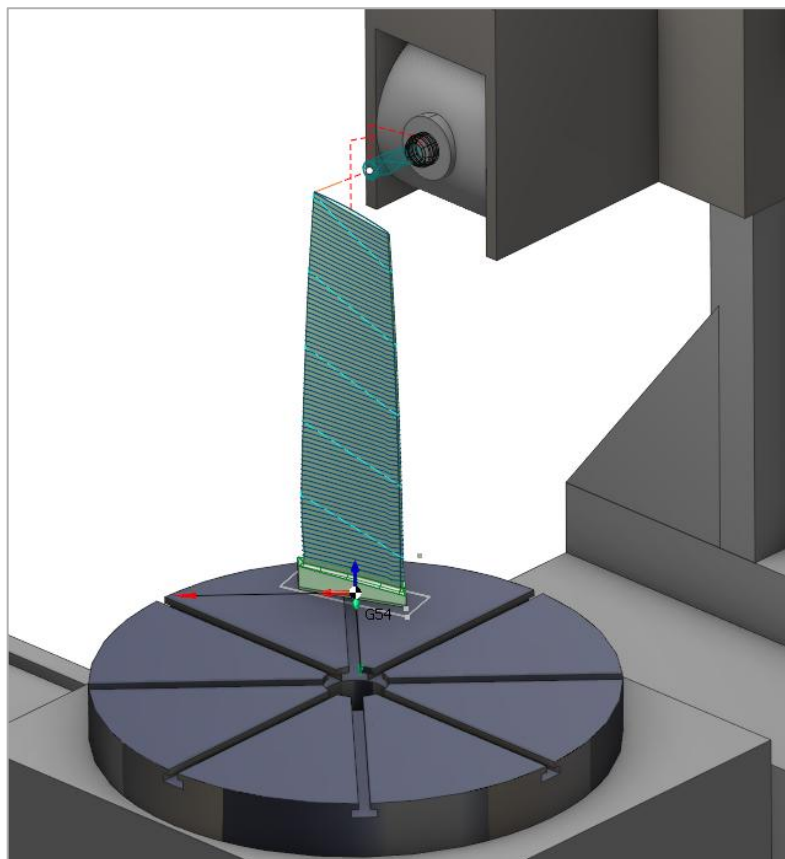
5-axis roughing



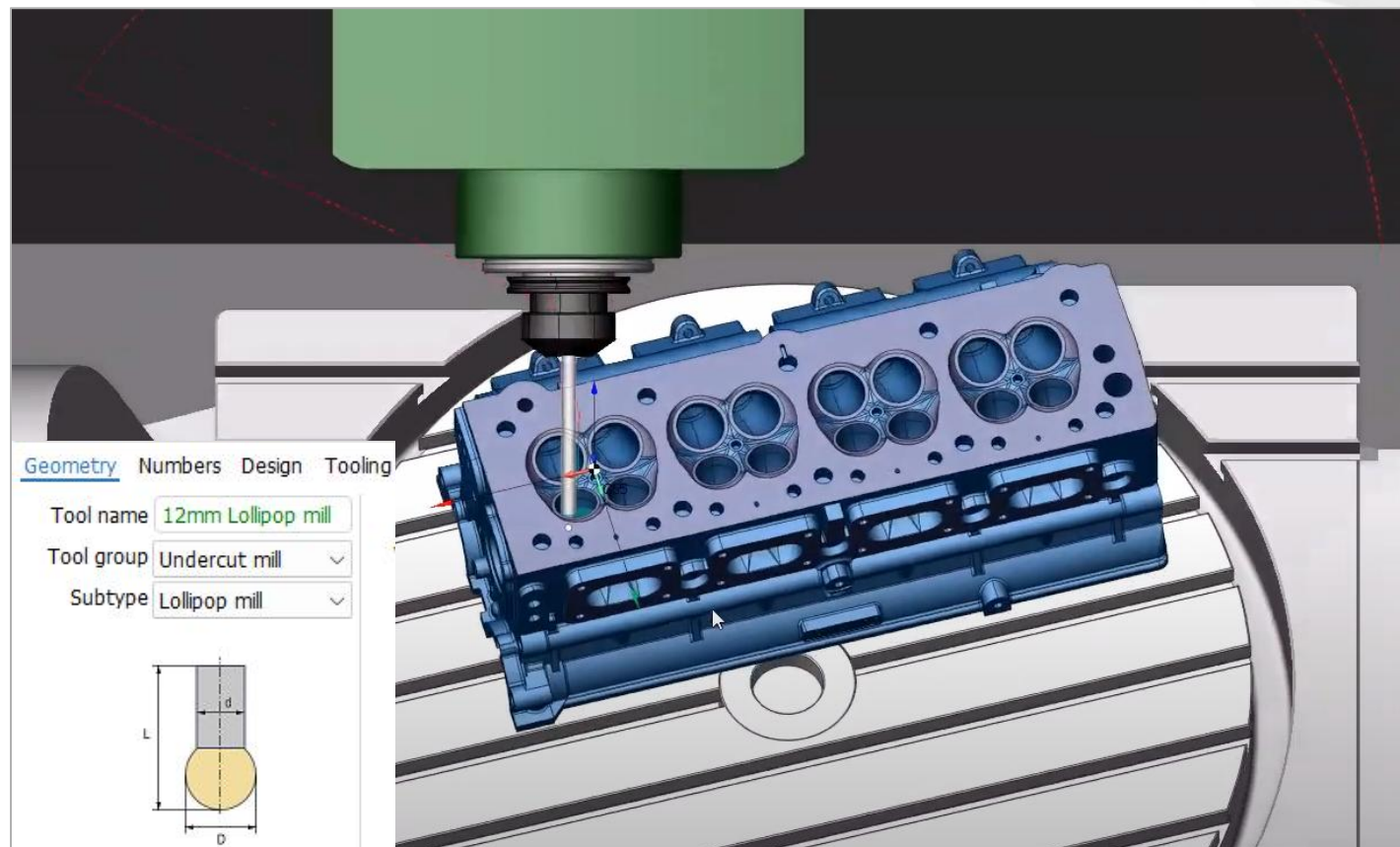
Bottom finishing



Blades finishing



5D machining perpendicular to the directing curves



Lollipop mill support

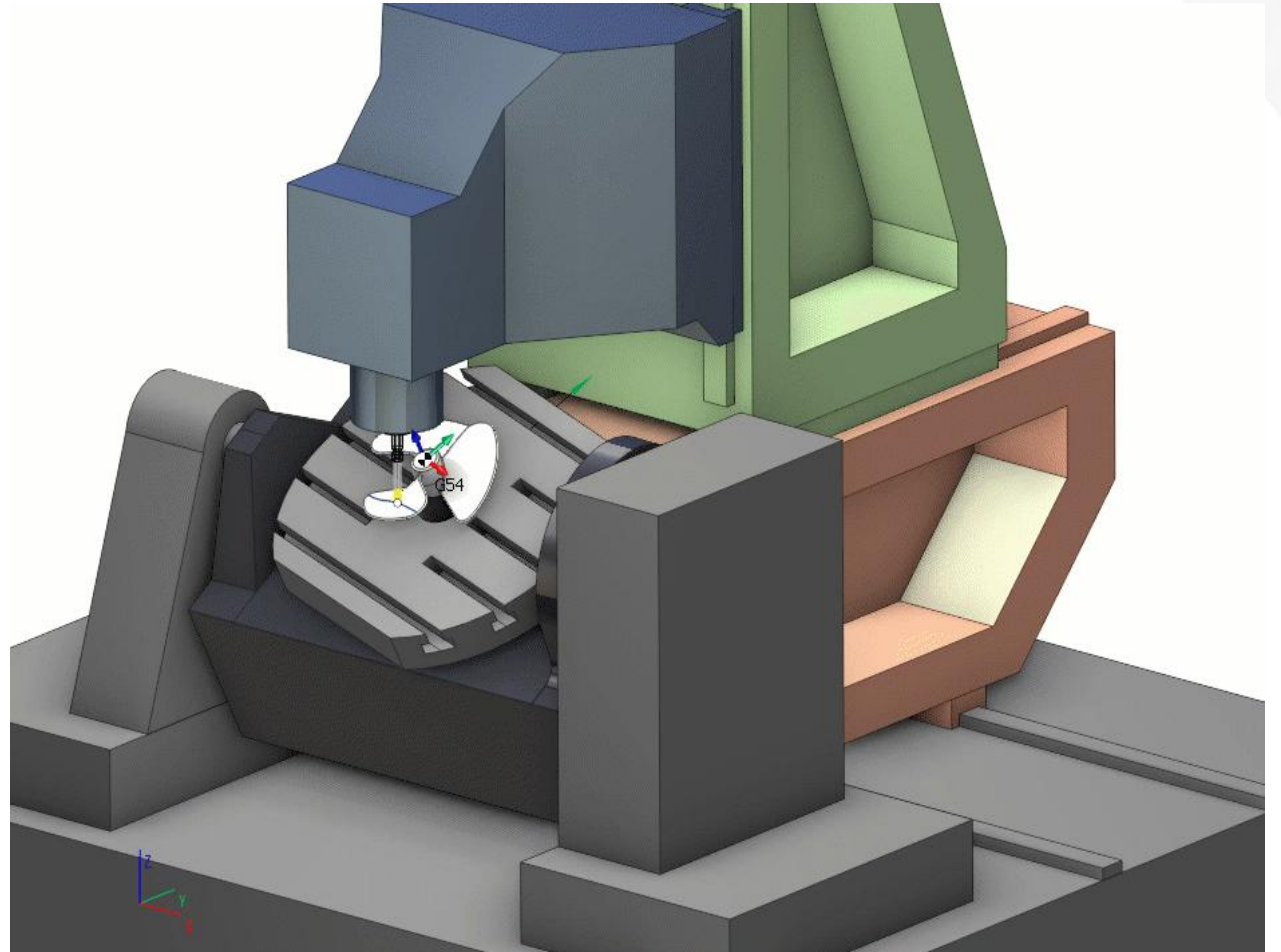
Machining simulation

When calculating the toolpath, SprutCAM takes into account machine kinematics and limitations

Once the toolpath calculated is started, in background SprutCAM checks for all possible collisions and machine area limitations

When setting up machining operations, you don't need to switch to the Simulation mode to verify every operation

Considerably reduced time for programming of multi-axis type machines

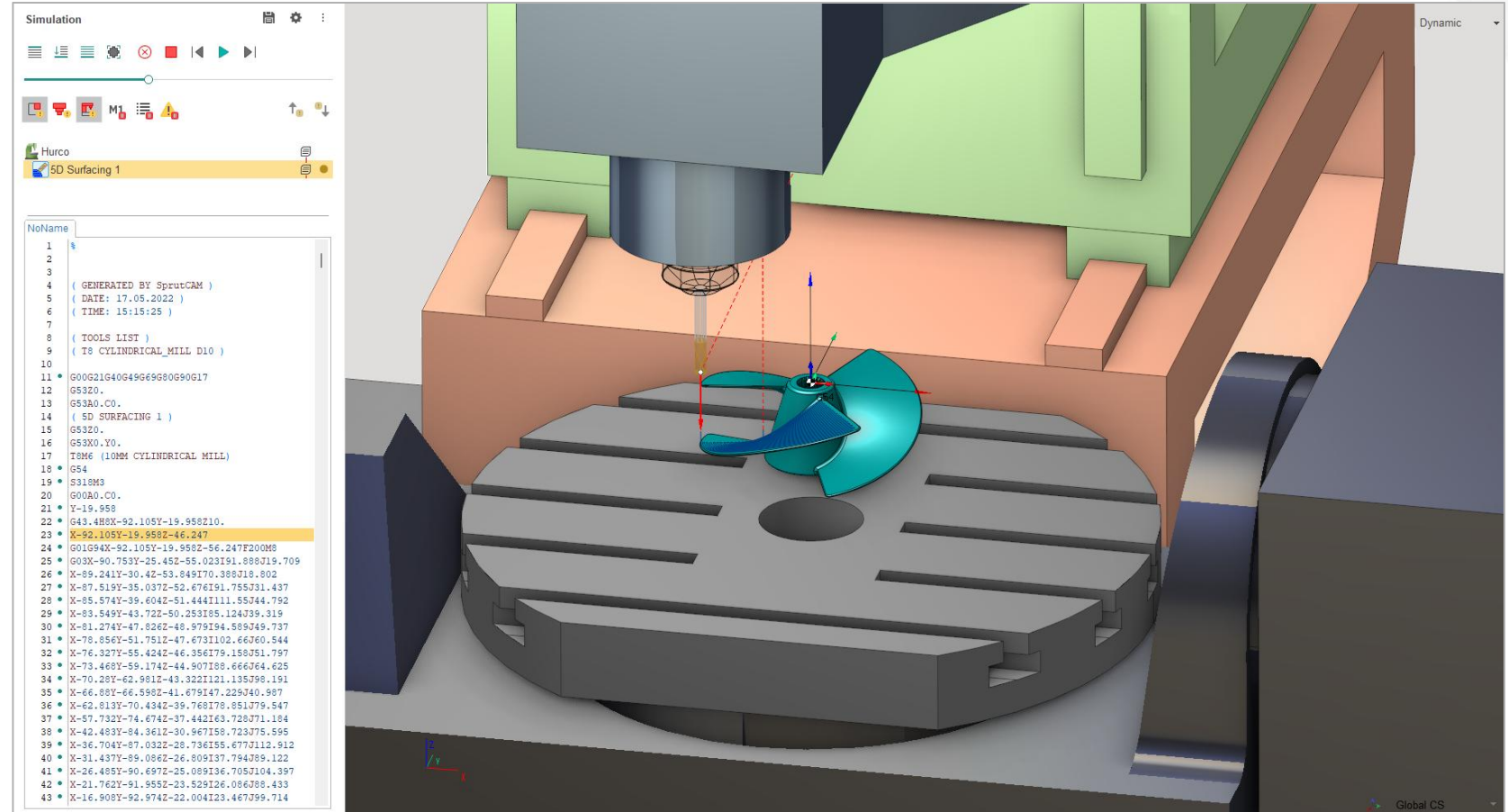


G-code based simulation

Toolpath verified using G-code during the simulation stage

FANUC, HEIDENHEIN, SIEMENS systems is available

No separate software for verification needed



Probing

New operation

Beginner

All operations

Topmost

- Structure
- Lathe
- Holes
- 2D
- 2.5D
- 3D entry
- 3D/5D advanced
- 4D rotary
- MW 5D MW
- Rest machining
- Cutting
- Disc tool
- Auxiliary
- Move part
- Probing**

Search

- Mill tool probing
- Mill part probing
- Turn tool probing
- Turn part probing

Machining New operation

Links Run Reset

- Milling_machine
 - Ring gauge G59
 - Calibrate probe T#1 Spherical probe
 - 3-ax probing G54
 - Hole T#1 Spherical probe
 - Boss T#1 Spherical probe**
 - HoleProtected T#1 Spherical probe
 - SingleSurface T#1 Spherical probe
 - Web T#1 Spherical probe
 - Pocket T#1 Spherical probe
 - PocketProtected T#1 Spherical probe
 - InternalCorner T#1 Spherical probe
 - ExternalCorner T#1 Spherical probe

Job assignment

Probing cycle Movement Add group Delete Save as template

- 1. Boss P9814

Properties

Caption Boss P9814

Write to report

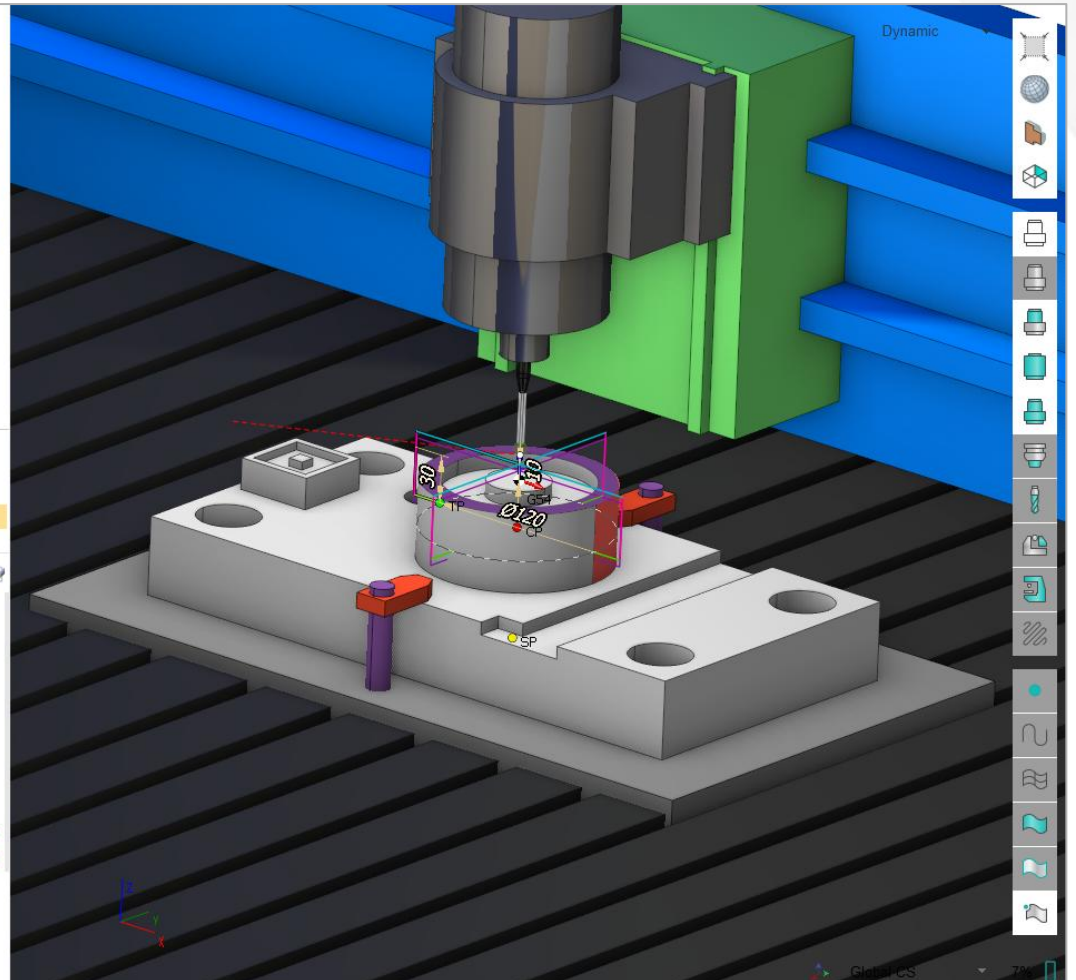
- Component number 1 (auto)
- Feature number 5 (auto)

Options

- H - tolerance 0.2
- M - true position tolerance 0.2
- Q - Overtravel distance 4

Measuring geometry

- Geometry item (1)
- Top side (1)
- Orientation Manual
- Top clearance 10 mm
- Side clearance 20
- Depth 30





Capabilities and functions for the
turn and turn-milling

Turn and turn-milling

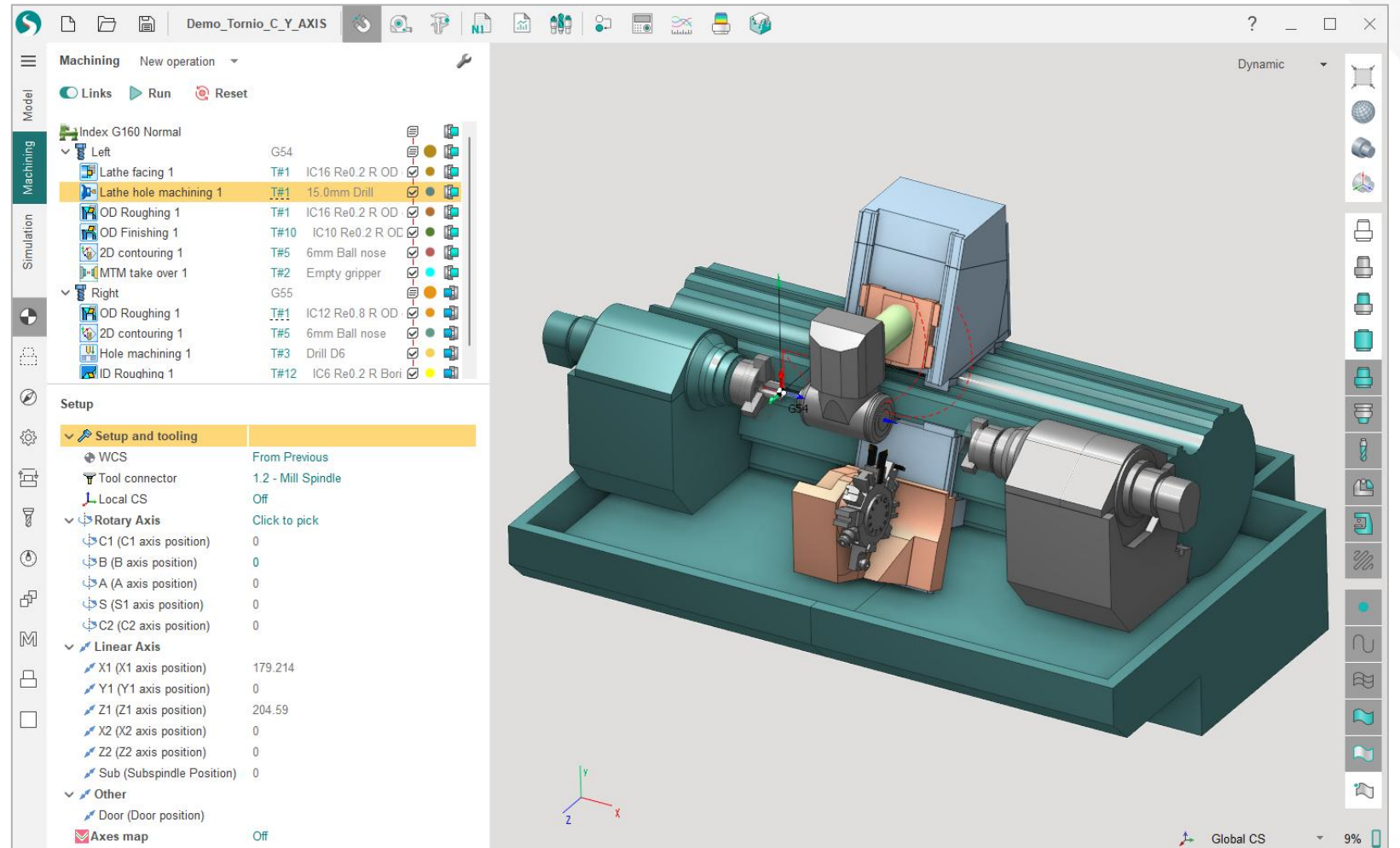
All types of turning operations

Toolpath preview, interactive approaches and retracts, drag & drop contour editing, threads database

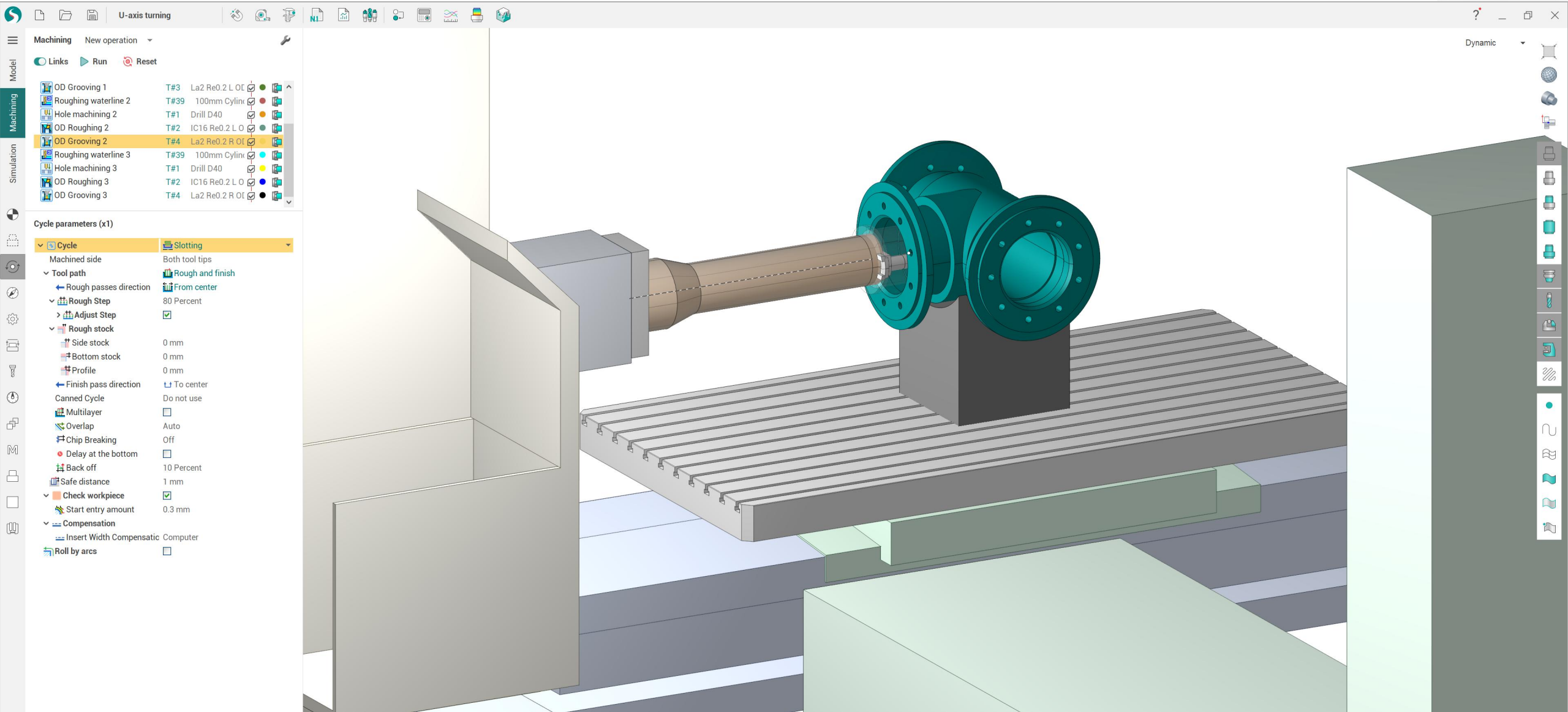
Use C and Y axes for machining in the main spindle or counter-spindle, on the part OD and on the part face.

Polar interpolation support

B-axis support



U-axis turning



Swiss type lathes

Automatic reordering and synchronization

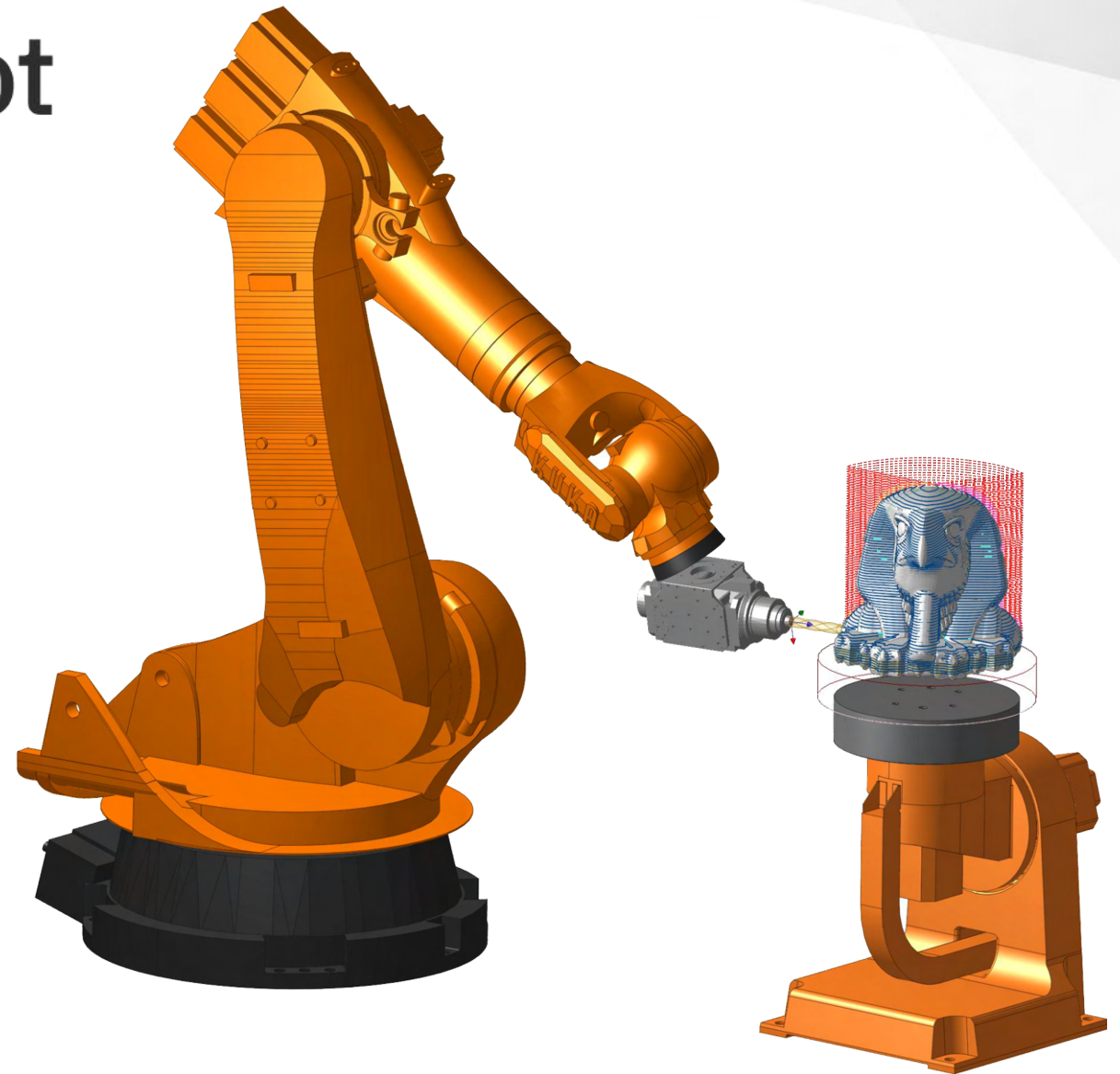
The image displays a CAD simulation environment for a Swiss type lathe. The main window shows a 3D model of the machine with a yellow workpiece being machined. The interface includes a top toolbar with icons for file operations, simulation control, and dynamic settings. On the left, a 'Simulation' panel shows a timeline and a 'M1' button. Below this, two columns of G-code are displayed, one for the 'Main spindle' and one for the 'Counter spindle'. The G-code includes various commands such as 'RAPID', 'WAIT', 'F: WORK', 'X', 'Y', 'Z', 'M', and 'PPFUN'. The 'Counter spindle' code includes a 'TAKEOVER' command. The right side of the interface features a 'Dynamic' panel with various view and simulation controls.

Time	Main spindle	Counter spindle
00:00	Hanwha 32II	Hanwha 32II
00:01	Part 1: Bar feeding 1	Part 2: ID Roughing 1
00:41	Part 1: OD Roughing 1	Part 2: Lathe hole machin...
01:06	Part 1: OD Roughing 2	Part 1: pick-and-place for l...
01:18	Part 1: OD Grooving 1	Part 1: pick-and-place for l...
01:33	Part 1: OD Roughing 3	Part 1: Sub spindle workin...
01:45	Part 1: OD Grooving 2	Part 1: MTM take over 1
02:11	Part 1: OD Roughing 4	PPFUN: 58, 250, 0, 0, -184...
02:11	Part 1: Lathe part-off 1	WAIT 7 (00:00:16)
02:11	PPFUN: 58, 250, -0.5, 0, 96...	Header
02:11	Header	Approach
02:11	Approach	Clamp 2: Off, Dir(1)
02:11	RAPID: 10000	SYNCAXES: AxisC1Pos,Axi...
02:11	X12.999, Y0, Z96	SYNCAXES: AxisZ1Pos,Axi...
02:11	WAIT 7	MultIGOTO: X1(19.999), Y...
02:12	WAIT 8 (00:00:00)	SYNCAXES: AxisC1Pos,Axi...
02:12	PPRINT: "#KeyPoint: Start...	SYNCAXES: AxisZ1Pos,Axi...
02:12	F: WORK 200mm/min.	Clamp 2: On, Dir(-1)
02:16	X-0.5, Y0, Z96	WAIT 8
02:16	WAIT 9	WAIT 9 (00:00:04)
02:16	WAIT 10	TAKEOVER: Counter spindle
02:16	PPRINT: "#KeyPoint: EndC...	SYNCAXES: AxisC1Pos,Axi...
02:16	RAPID: 10000	SYNCAXES: AxisZ1Pos,Axi...
02:16	X12.999, Y0, Z96	F: RETRACT 200mm/min.
02:16	SPINDL: Off	WAIT 10
02:16	Return	Return
02:16	PPFUN: 59, 250, -0.5, 0, 96...	CUTCOM: LC#0 Off
		PPFUN: 59, 250, 0, 0, -184...



Capabilities and functions for the
industrial robots programming

SprutCAM X Robot

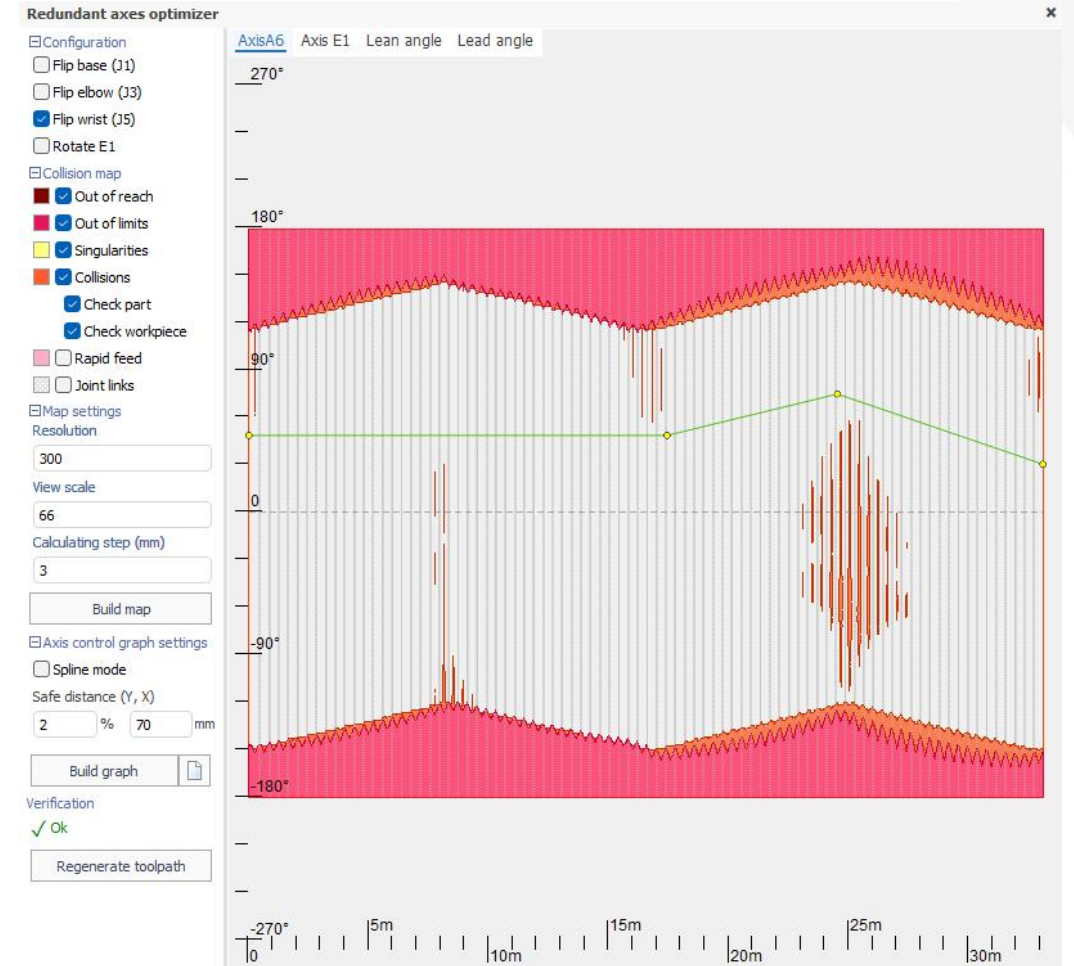
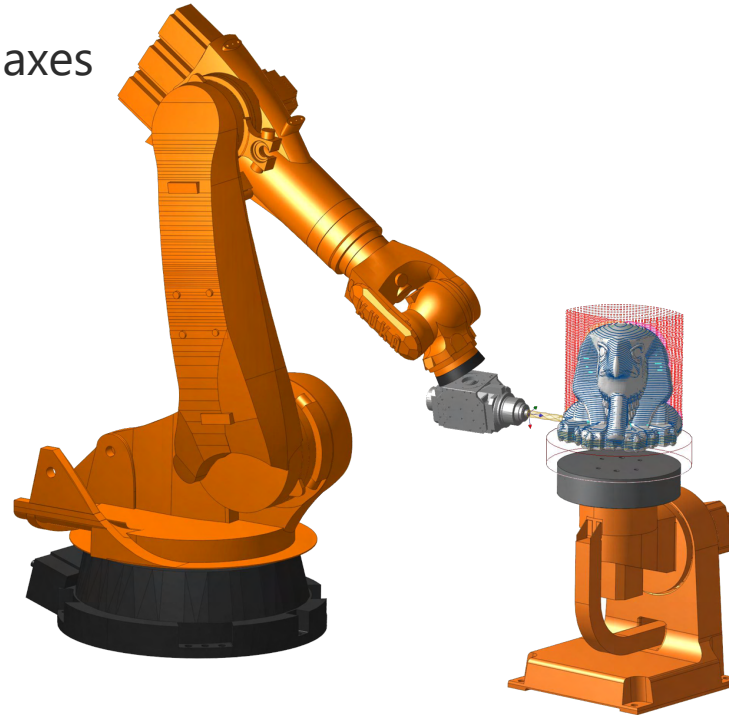


Universal environment for industrial robots programming

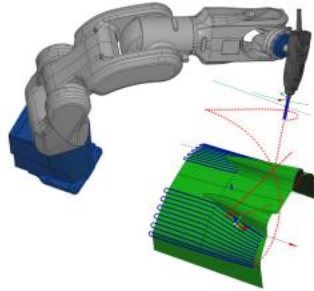
Intelligent industrial robots programming

Support of additional axes

6-axis control

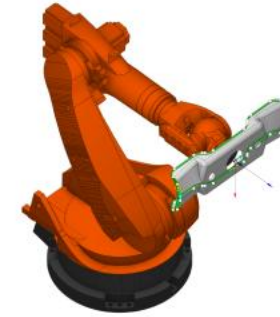


Supported technologies



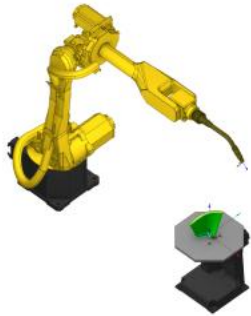
Milling

3—5D milling with redundant axes support



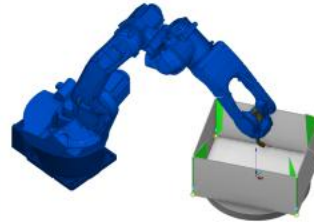
Cutting

Miltiaxis cutting with precise tool vector control



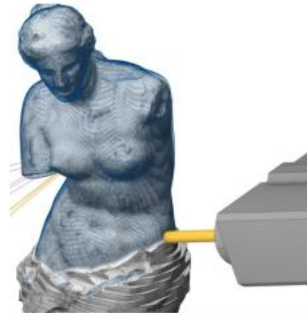
Additive

3—5D cladding with advanced layer thickness control



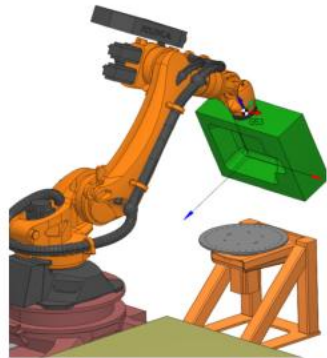
Welding

Simple easy-to-use solution for welding programming



Sculpture Stone

Stone roughing, disk tool, advanced 5D finishing for mesh models



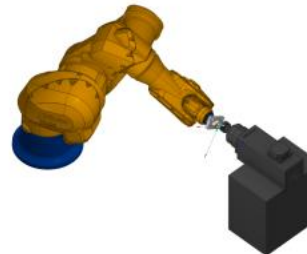
Pick and place

Collision-free automatic pick-and-place



Spray painting

Simulate and test your painting on your PC. SprutCAM Robot will give you all you need for it.



Polishing

Tool-to-part and part-to-tool supported

Supported every manufactures of robot





SprutCAM Tech Ltd.
9, Aiolou and Panagioti
Diomidous
3020 Limassol
Cyprus

<http://sprutcam.com>
email: info@sprutcamtech.io

Multipurpose CAD/CAM solutions

cost-effective and powerful solution for CNC
programming and industrial robots