



hyperMILL®

2016.2

What's new?



OPEN MIND
THE CAM FORCE

© The helmet was programmed and produced by OPEN MIND.



What's new in 2016.2?

hyperMILL® 2016.2 offers even greater performance and is easier to use than previous versions. The new 3D plane level machining and further optimisations for 3D milling enable more efficient programming. Highlights such as the 5axis-optimised rest material roughing ensure extremely short calculation and machining times. 5axis tangent machining has been added to the *hyperMILL*® MAXX Machining performance package. In addition, *hyperCAD*®-S once again includes numerous highlights and new features.

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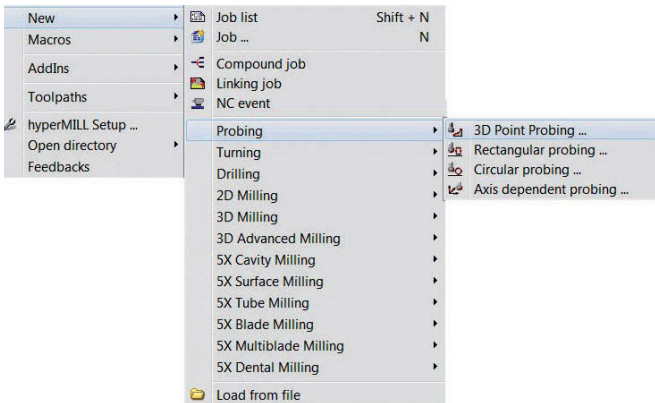
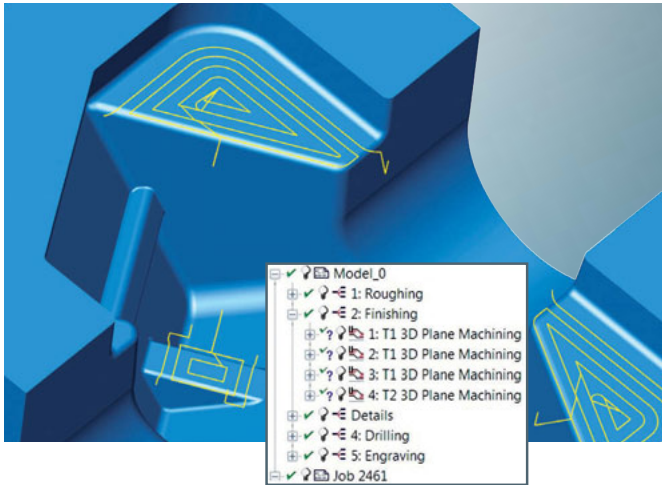
CAD integration: *hyperCAD*®-S

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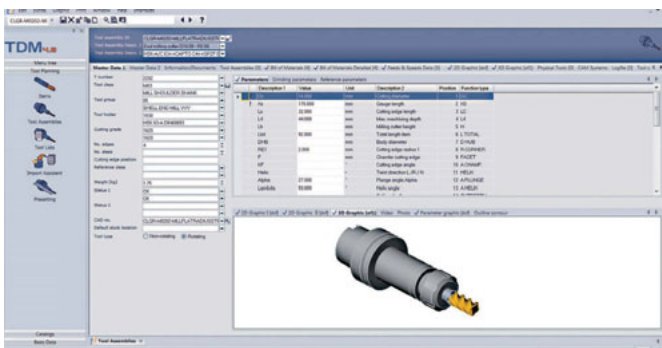
System requirements: Windows® 7 (64-bit), Windows® 8.1 Pro and Windows® 10

CAD integrations: *hyperCAD*®, *hyperCAD*®-S, Autodesk® Inventor®, SOLIDWORKS, ThinkDesign

Software languages: de, en, es, fr, it, nl, cs, pl, ru, sl, pt-br, ja, ko, zh-cn, zh-tw



hyperCAD-S document (*.hmc)
 hyperCAD-S document (*.hmc)
 CATIA V4 Model Files (*.model *.exp *.dlv)
 CATIA V5 files (*.catpart *.catproduct *.cgr)
 DXF, DWG files (*.dxf *.dwg)
 Geom files (*.hmcgeom)
 hyperCAD files (*.e3 *.e2 *.gkd)
 IGES Files (*.igs *.iges)
 Inventor Model Files (*.ipt *.iam)
JT Model Files (*.jt)
 Parasolid Model Files (*.x_t *.x_b)
 Point files (*.pt *.asc *.xyz *.txt)
 PTC CREO Model Files (*.prt.*.asm.*.prt.*.asm *.xpr *.xas)
 Siemens NX Model Files (*.prt)
 SolidWorks Model Files (*.sldprt *.sldasm)
 STEP Files (*.stp *.step)



tmdsystems

Highlight

Optimised menu navigation

hyperMILL® 2016.2 is even more user-friendly than before. A new shortcut menu ensures even simpler and faster programming. The menu windows are structured more clearly and feature new icons.

- **Visibility of toolpaths:** The toolpath display can be switched on and off using a visibility icon.
- **Feature generation:** Selected areas of a job, such as faces and contours, can be generated as a feature and reused in later jobs.
- **Feature machining:** You can now manually sort selected geometries in a feature and arrange them as required.
- **Global clearance plane:** You can globally define the clearance plane for a project, which is then adopted automatically for all jobs.
- **Automatic report generation:** The hyperVIEW® Report from hyperMILL® can now be generated automatically with the click of a button.

Highlight

JT format

hyperMILL® supports the JT neutral 3D data format for importing model data. The JT format has become the industry standard, especially in the automobile industry.

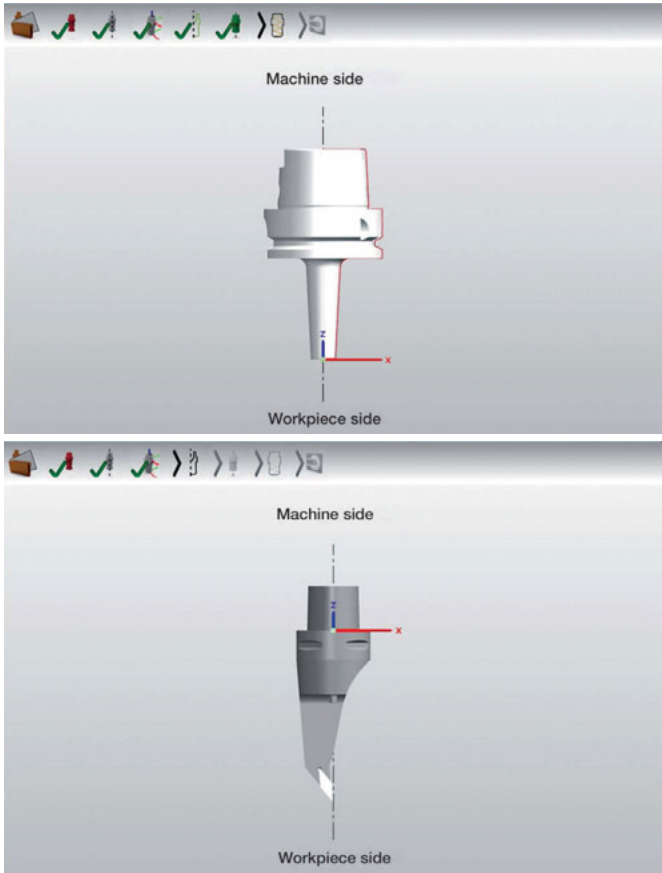
Benefit: Fast import of JT data.

Highlight

TDM Systems interface

The new integration in hyperMILL® enables fast data exchange with the TDM Systems tool management system.

Benefit: Easy to use, fast tool generation.



Highlight

TOOL Builder

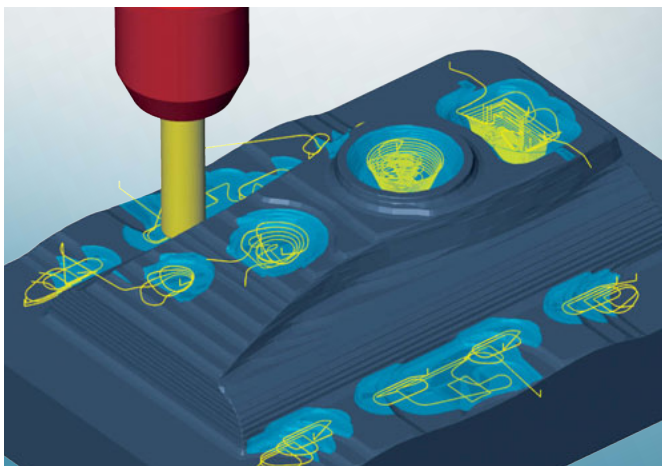
The new *hyperMILL*® TOOL Builder allows you to quickly and easily create holders for machining in *hyperMILL*®. An intuitive-to-use wizard allows you to directly import tool holder data from supplier catalogues in IGES or STEP format. The holders, extensions and turning tool holders generated can be assembled into an NC tool in the *hyperMILL*® tool database. All components are fully checked for collisions.

This way, tool holders and extensions for milling can be imported to *hyperMILL*® with the original data from the supplier.

hyperMILL® *millTURN* tools such as holders and boring bars can now be imported 1:1 from the supplier catalogues. This allows complex holders to be mapped true-to-detail in *hyperMILL*®.

Benefit: Simple and fast tool holder creation.

Stock management



Highlight

Stock management

Interactive stock chain

The user can create a stock chain for any number of jobs or for all jobs simultaneously. For each job, a resulting stock is generated for the previous job step. When a cycle is recalculated, stock is generated even for jobs that do not hold or carry stock.

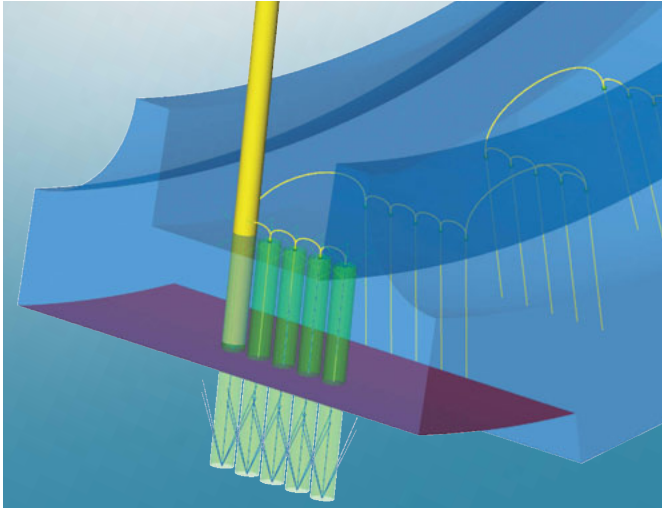
Stock generation

A history is now created during manual stock generation. This allows you to keep track of which stock has been used for which job. This history can be updated at any time.

Stock display

There is an option for *hyperMILL*® to automatically display the active job's resulting stock and stock removal.

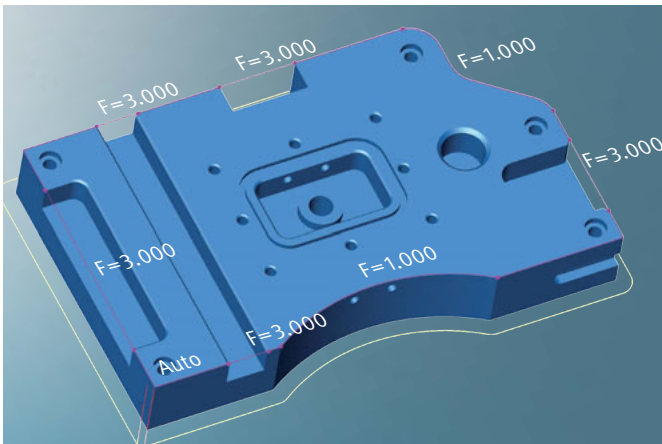
Benefit: Simpler programming, improved transparency.



Stop surfaces for drill holes

By selecting stop surfaces, you can set a limit on the depths of individual drill holes or exclude these from machining altogether.

Benefit: Easier exclusion of drill holes, greater safety, more efficient feature and macro programming.

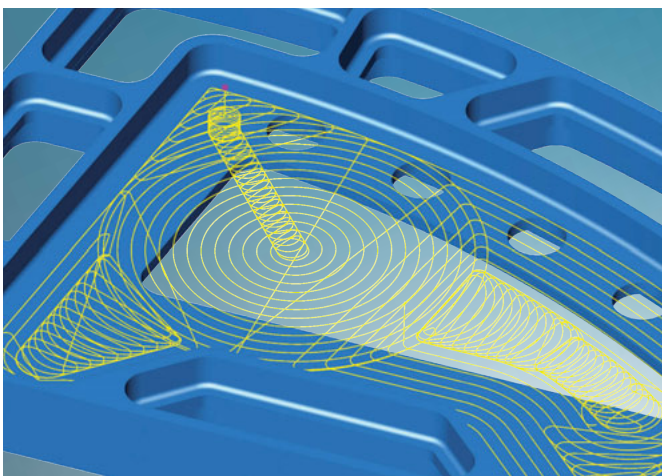


Highlight

2D contour milling on 3D models

A new feature for feedrate checking allows the feedrate to be adapted specifically for individual contour elements. You can define the feedrate for individual contours or specific segments on a contour. The 'Edge control' option allows the feedrate to be adapted automatically to the tool and component geometry.

Benefit: Protects the tool, simple programming, increased safety.



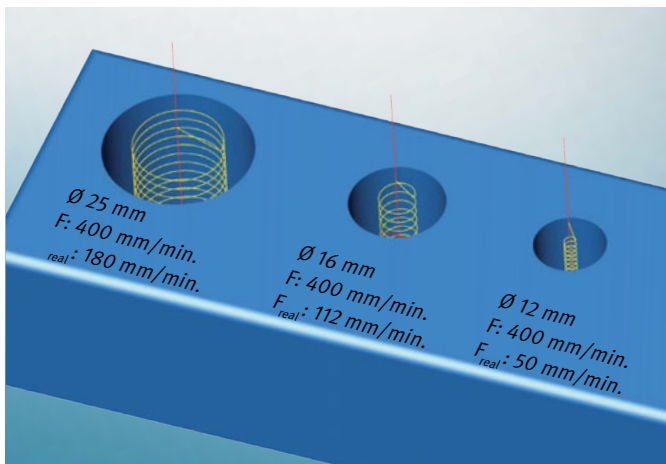
2D pocket milling

A reference job can be used in high-performance mode to define the plunge points.

The horizontal stepover can now also be defined by entering a value.

The 'Sort contours' option enables faster machining with fewer rapid movements. Movements with the shortest distance are selected automatically for the pocket contours.

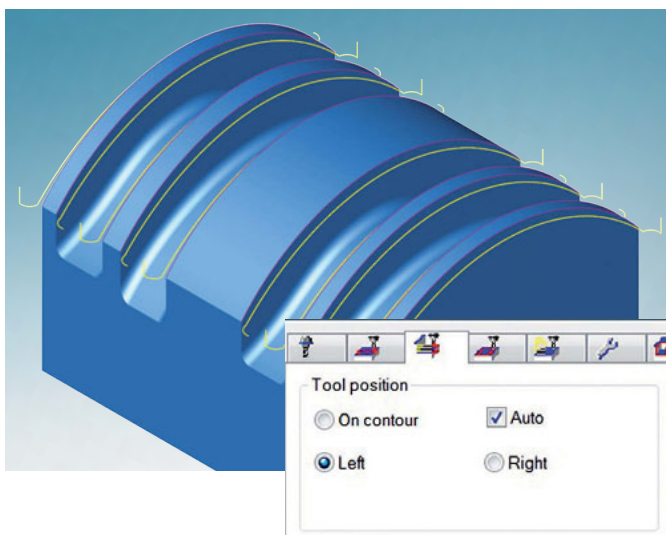
Benefit: Simple programming, efficient machining.



Helical drilling

The 'Edge control' option enables the feedrate to be adjusted automatically depending on the ratio between the tool diameter and hole diameter. This prevents the machining feedrate from becoming too high.

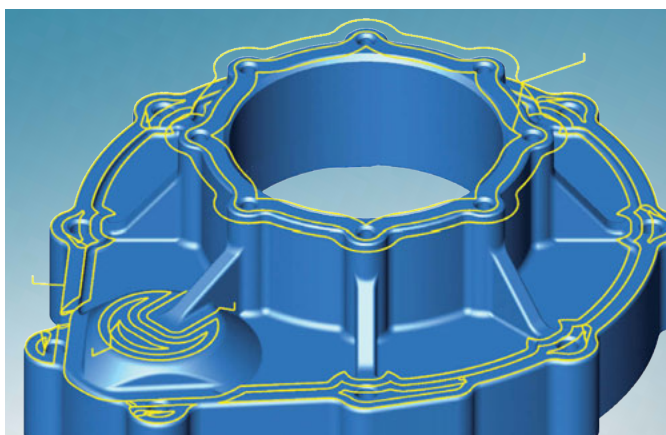
Benefit: Protects the tool, simple programming, increased safety.



3D free path milling

An 'Auto' option to automatically orient tools to the left or to the right of the contour has been added to the Tool position panel in this cycle.

Benefit: User-friendly, better automation capacity.

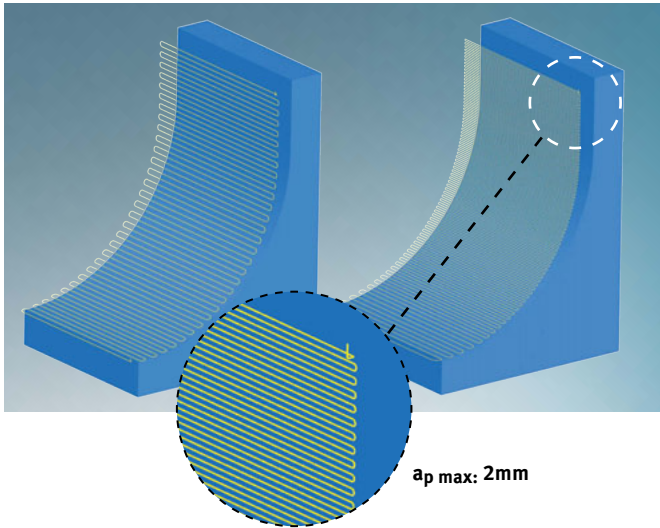


Highlight

3D plane level machining

This new cycle enables the finishing of planes. You select the area to be machined by making a simple selection of plane faces or via an automatic selection in the plane. The toolpaths can be optionally trimmed against a stock.

Benefit: User-friendly, fast programming.



3D Z-level finishing

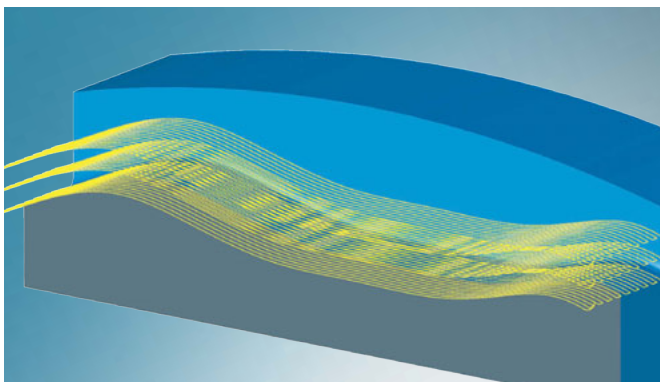
A 'Maximum stepdown' option has been added to the cycle. In steep areas, you can limit the maximum vertical stepdown in the scallop height infeed mode.

Benefit: Increased safety, avoids tool breakage.

3D complete finishing

Path filleting for inner corners in flat and steep areas can now be defined via a radius.

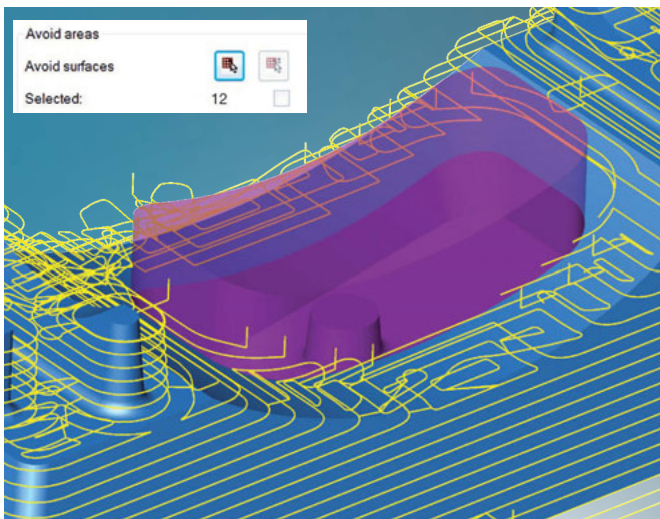
Benefit: Protects the tool.



3D profile finishing

The new 'Parallel stepdown' feature allows you to adapt the vertical stepdown to the material height. Multiple infeeds on the offset component contour ensure that the material removal rate is even and consistent. Roughing and semi-finishing jobs can be machined more efficiently.

Benefit: Faster programming, more efficient machining.



3D optimised rest material roughing

Three new functions are available in this cycle.

Avoid areas

By making a simple face selection, you can exclude certain areas from machining. These faces can be assigned an axial allowance to manage the milling even more precisely.

Undercut optimisation

You can avoid unnecessary redundant movements in undercut areas when performing multi-axis machining on stock.

Plane level detection

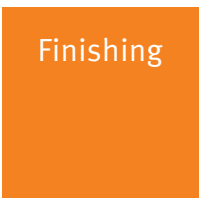
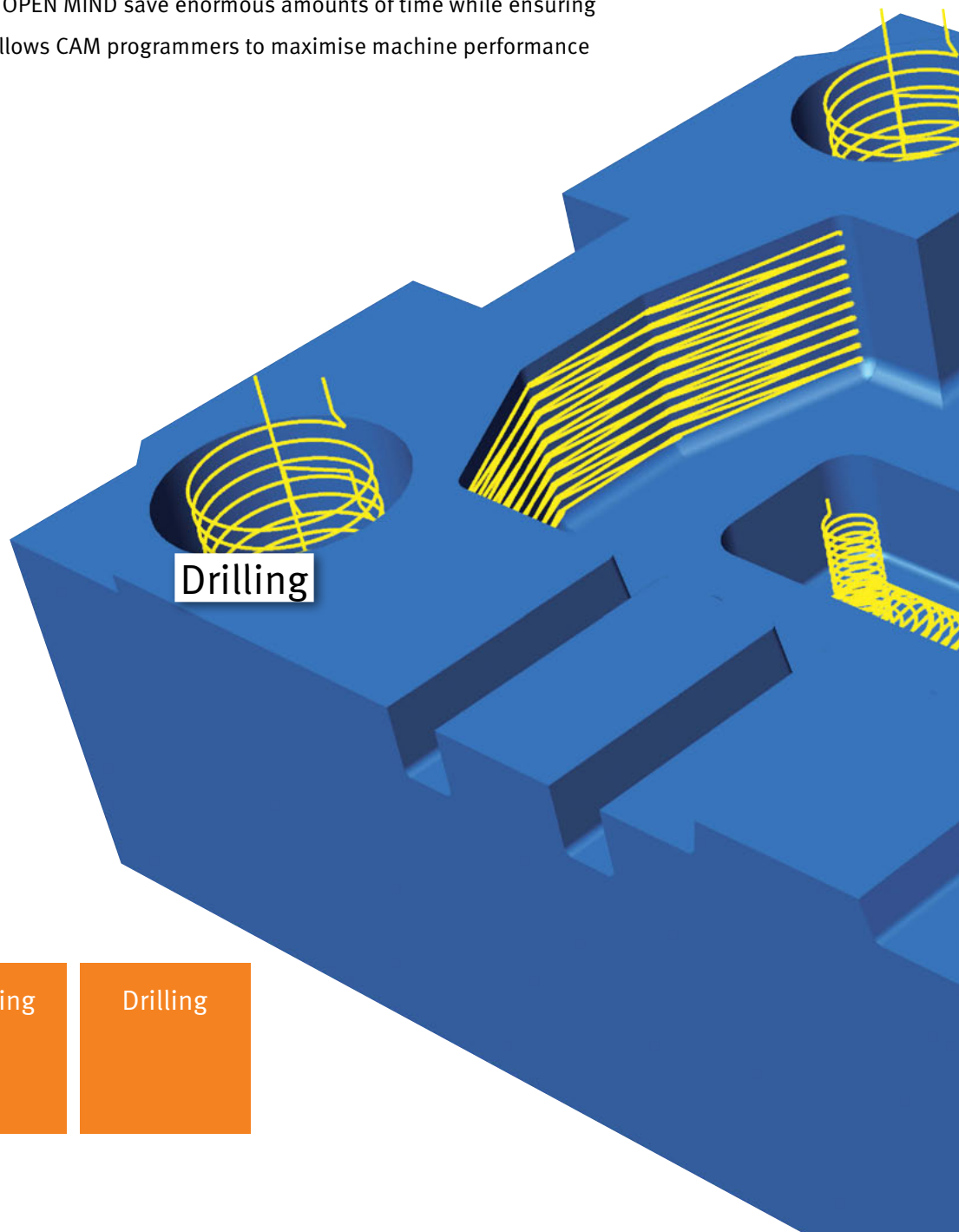
If a detected plane level needs to be machined using a different stepdown, an intermediate step is added automatically.

Benefit: Faster programming, increased safety.

Performance, Performance, Performance

Speed is more crucial than ever these days. This is why OPEN MIND developed *hyperMILL*® MAXX Machining, the comprehensive high-performance solution for roughing, finishing and drilling. Trochoidal tool paths ensure extremely fast material removal. Innovative strategies for barrel cutters allow for finishing in record time. Milling tools tilted in the cutting direction can quickly and easily drill holes and open pockets in hard material without the need for a predrilled hole.

These unique solutions from OPEN MIND save enormous amounts of time while ensuring the same high quality. This allows CAM programmers to maximise machine performance for any application.

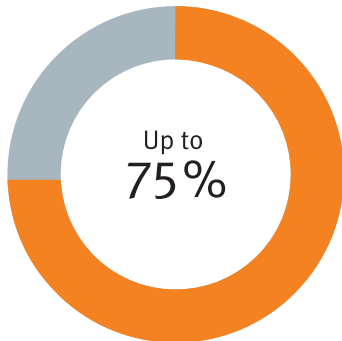


hyperMILL®

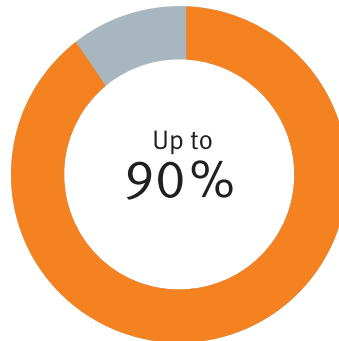
MAXX Machining

ADVANTAGES

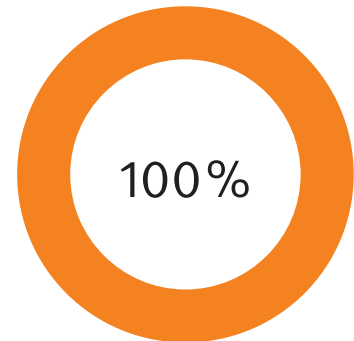
- Highly efficient
- Perfect surfaces
- Tool friendly
- Simple to program



Time savings
for roughing



Time savings
for finishing



Process safety

POSSIBLE APPLICATIONS:

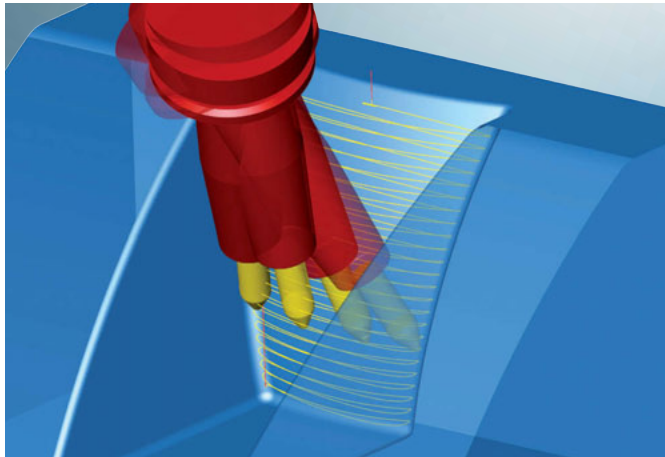
- Tool and mould manufacturing
- Production Machining
- Aerospace
- Automotive
- Motor sports
- Energy industries

Finishing

A 3D model of a blue gear with yellow lines indicating finishing paths on its teeth and surfaces.

Roughing

A 3D model of a blue gear with yellow lines indicating roughing paths, showing a dense, overlapping pattern of lines across the gear's surface.



Automatic collision avoidance

Highlight

5axis tangent machining*

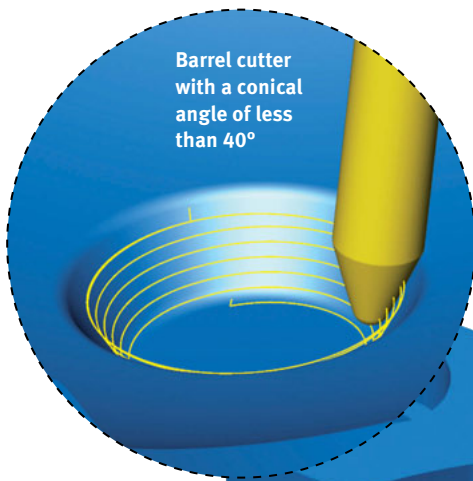
5axis tangent machining has been added to the *hyperMILL*® MAXX Machining finishing module. The cycle now supports the conical barrel cutter for semi-finishing and finishing operations on any continuous faces.

Intelligent automated functions ensure optimum tool orientation and fit. In collision areas, the tool tilts upwards away from the contact point or guiding angle.

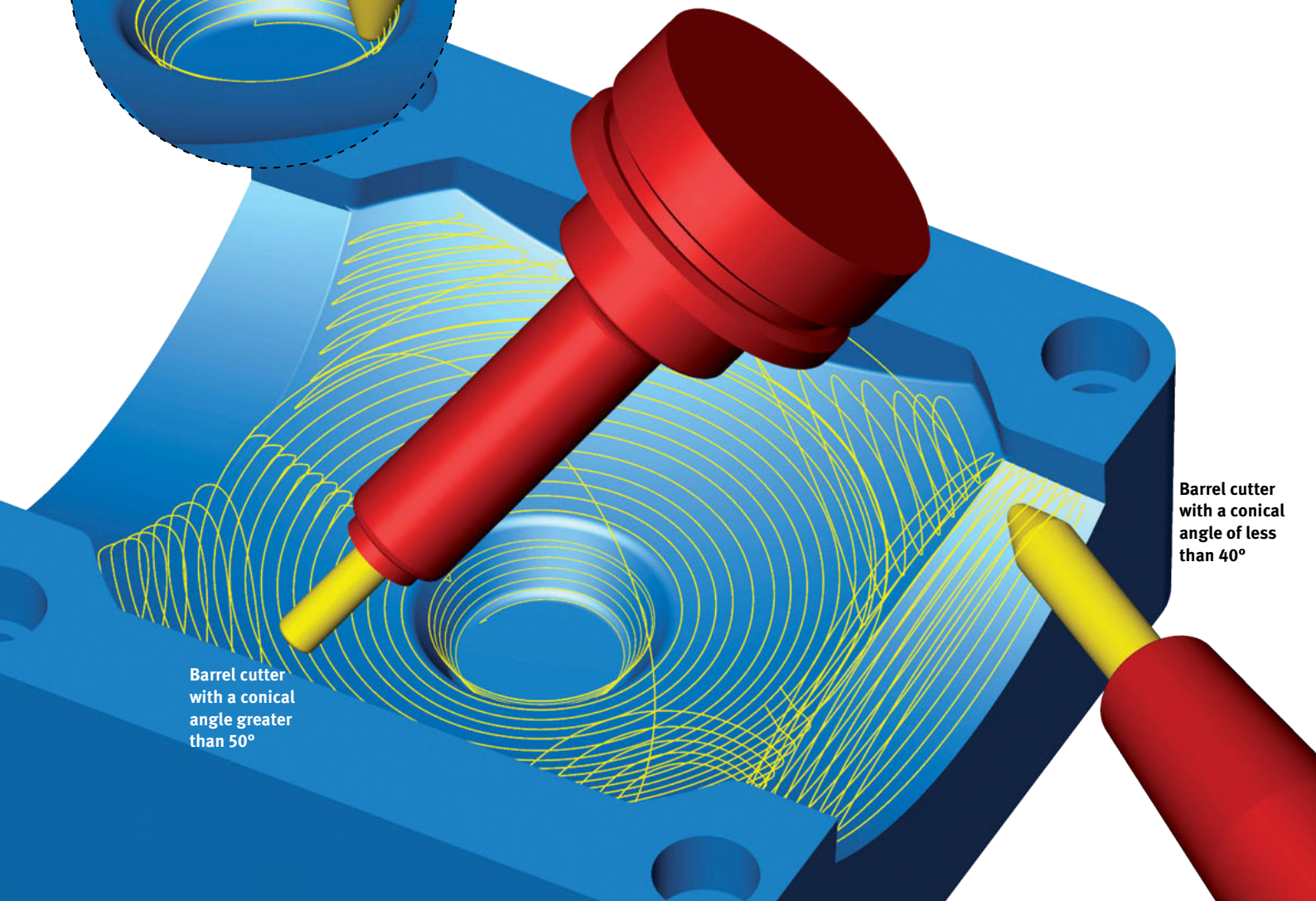
A new feature for Z-level and ISO machining enables simple selection of component surfaces. The cycle creates the toolpaths fully automatically without a special contour selection.

Benefit: Simple programming, faster finishing.

*Not included in maintenance contract.

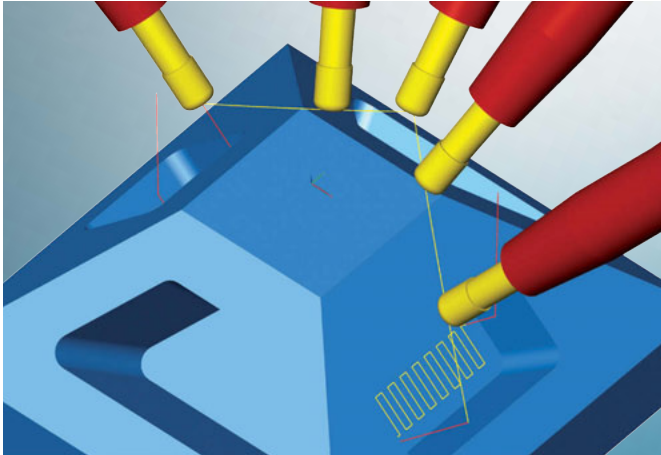


Barrel cutter with a conical angle of less than 40°



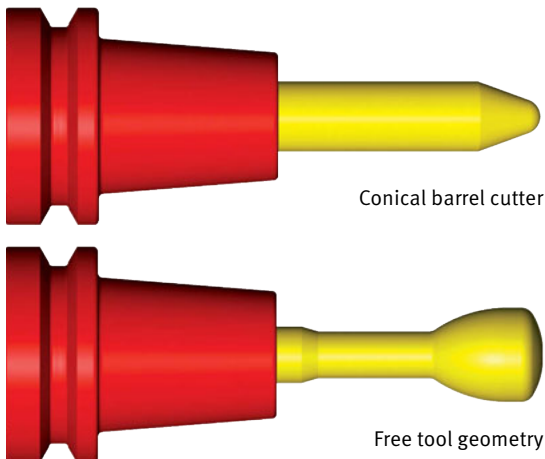
Barrel cutter with a conical angle greater than 50°

Barrel cutter with a conical angle of less than 40°

**Highlight****Conical interpolation**

The ‘Fast movement optimised’ option allows tools to be positioned around the pole in conical movements. This prevents singularities and generates simultaneous 5axis movement. Most machine tools can carry out this movement much more dynamically.

Benefit: Shorter machine times, movements are easier on the machine tool.



Conical barrel cutter

Free tool geometry

5axis swarf cutting with one curve

The cycle supports two new tool types.

- **Barrel cutters:** You can create optimal surface quality with large stepovers using barrel cutters – especially conical barrel cutters.
- **Freely definable tool cutting edge:** Special tools enable more efficient machining. These tools are easy to define in *hyperMILL*® and are fully checked for collision.

Benefit: More flexible programming, faster machining.

Highlight**5axis optimised rest material roughing***

This new cycle generates high-speed cutting (HSC)-optimised toolpaths for rest material machining, based on a preceding roughing operation. An advantage of indexed 5axis machining is that you can use shorter tools that guarantee higher stability and greater performance. The strategy is especially efficient for cavities and hard-to-reach areas.

Indexed machining

You can define the tilt angles for the B and C axes easily and quickly using two modes. The ‘Planes’ option allows you generate the tilt angle from the plane normals. In ‘3D mode’, tilt angles are generated automatically within a defined range of angles. All connecting paths between the tilt angles are optimised and fully checked for collisions.

Benefit: Machine-friendly, tool-friendly, extremely short machining and calculation times.

*Not included in maintenance contract.

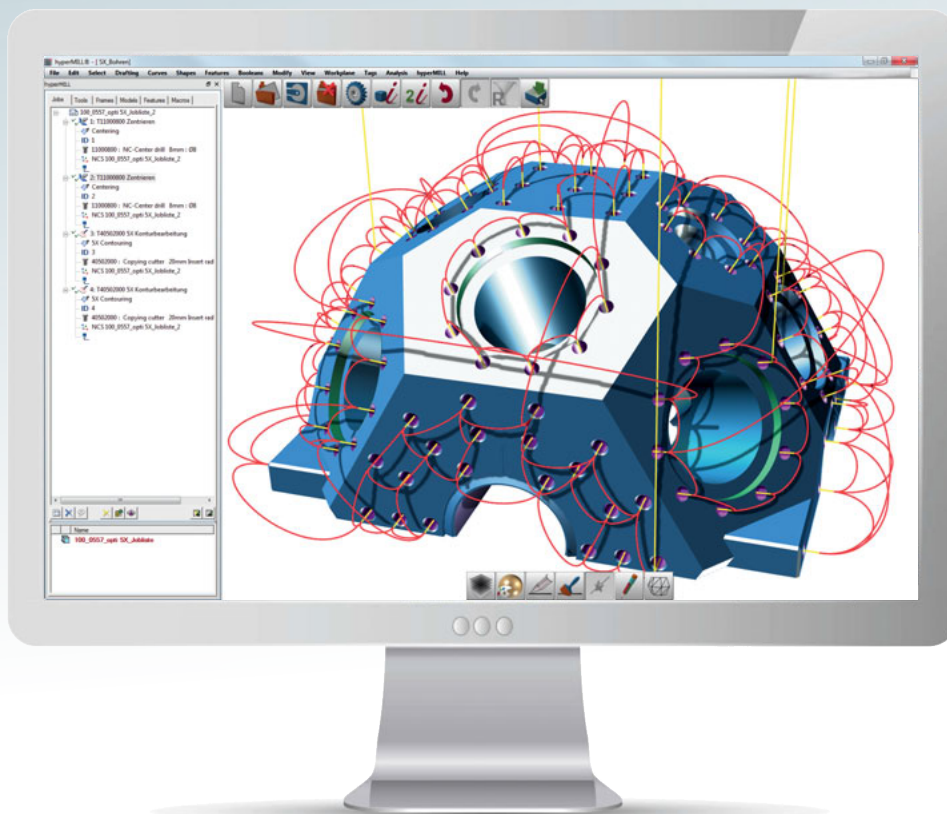
CAD for CAM

In a class of its own among CAD systems

Only a high-end CAM developer can do CAD for CAM. With this in mind, OPEN MIND Technologies AG – known as an innovative pioneer – developed a new CAD system from scratch that is perfectly matched to *hyperMILL*®. The system has its own 3D CAD kernel made by OPEN MIND. The result is a unique CAD system for CAM programmers that is very easy to learn and that vastly accelerates NC programming processes.

hyperCAD®-S fully exploits the performance offered by contemporary hardware systems to create digital manufacturing data. The advanced and extremely powerful 64-bit system is the perfect solution for mastering many of the daily challenges that arise when working with meshes, faces and solids to create precise components and tools. Large volumes of imported data can be prepared for subsequent NC programming easily, quickly, reliably and completely independently from the original CAD system. *hyperCAD*®-S is ‘CAD for CAM’ at its purest.

hyperCAD[®]_S

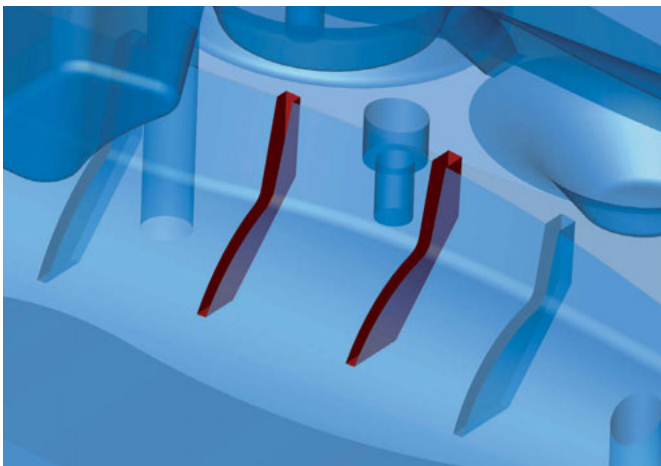


- CAD for CAM
- 64-bit multi-application
- Top performance
- Optimal ergonomics
- Highly intuitive
- Optimal hardware utilisation

**Highlight****Wrapping**

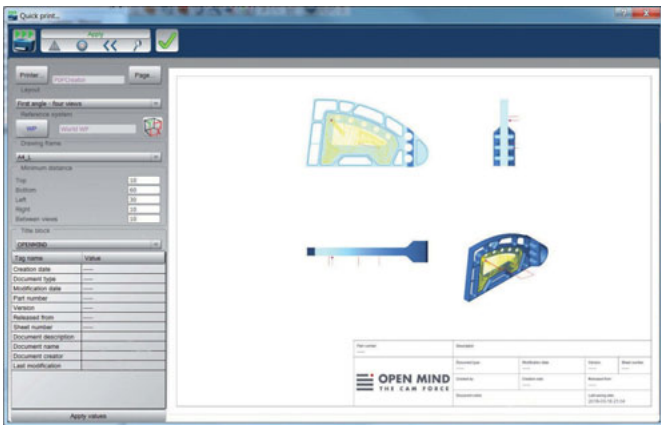
The new 'Wrapping' command allows you to wrap plane curves or texts onto cylindrical and rotational faces. The wrapping does not distort the geometry. The direction, scaling and mirroring can be modified.

Benefit: Fast generation and milling of engraved contours.

**Highlight****Compare and merge**

This function allows the user to compare various versions of CAD models and select modified geometry elements to insert them into an existing document. All unmodified geometries remain in hyperMILL® so only updated areas need to be reprogrammed.

Benefit: New versions can be adopted automatically by an existing document.

**Quick print**

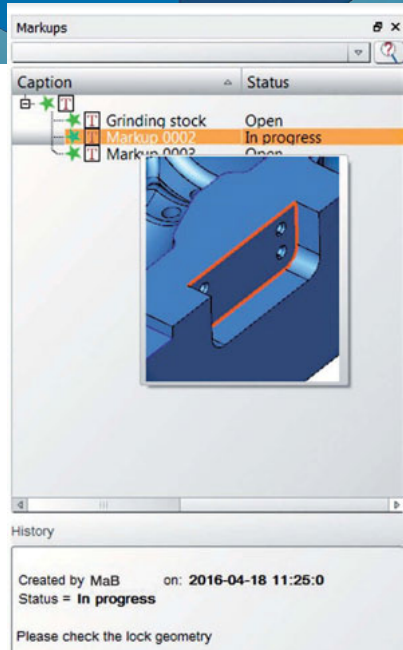
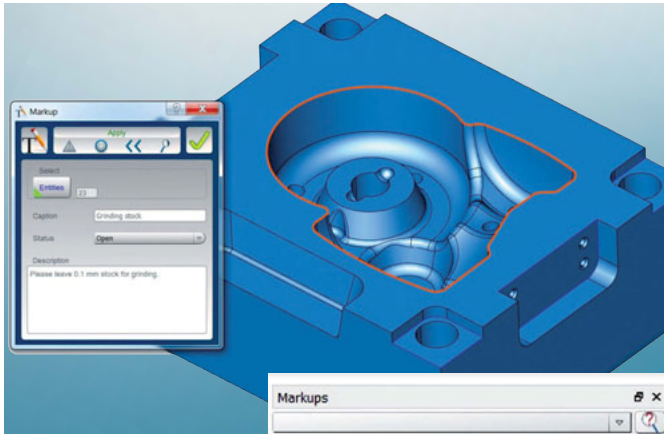
The 'Quick print' command allows you to generate a print template with predefined layout views. The model views are generated automatically and user-defined title blocks can be selected. You can enter the text for the title block directly in the user interface.

Benefit: Fast generation of joblists with predefined layouts.

Tooltip

You can read information on angles for faces and drill holes directly in a tooltip. This allows you to directly see the tilt angles for drill holes and demoulding drafts. This angle information can also be displayed for lines, edges, planes as well as cylindrical and rotational faces.

Benefit: More user-friendly.



Highlight

Markups

The new function improves communication between *hyperMILL*® programming workstations and *hyperMILL*® SHOP Viewer workstations. The user has the option to highlight areas in a model and add text information to these areas. The profile and machining status are documented and can be checked at every workstation using a preview. Markups can also be used in read-only documents in *hyperMILL*® SHOP Viewer.

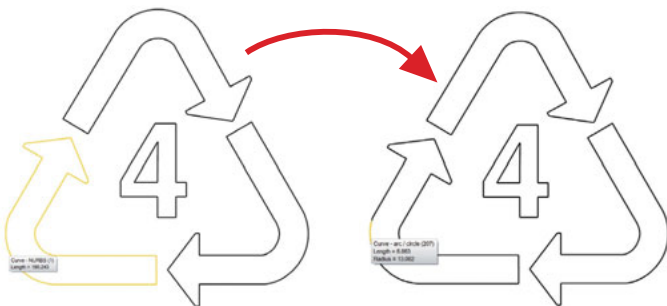
Benefit: Easier exchange of machining tips and information.

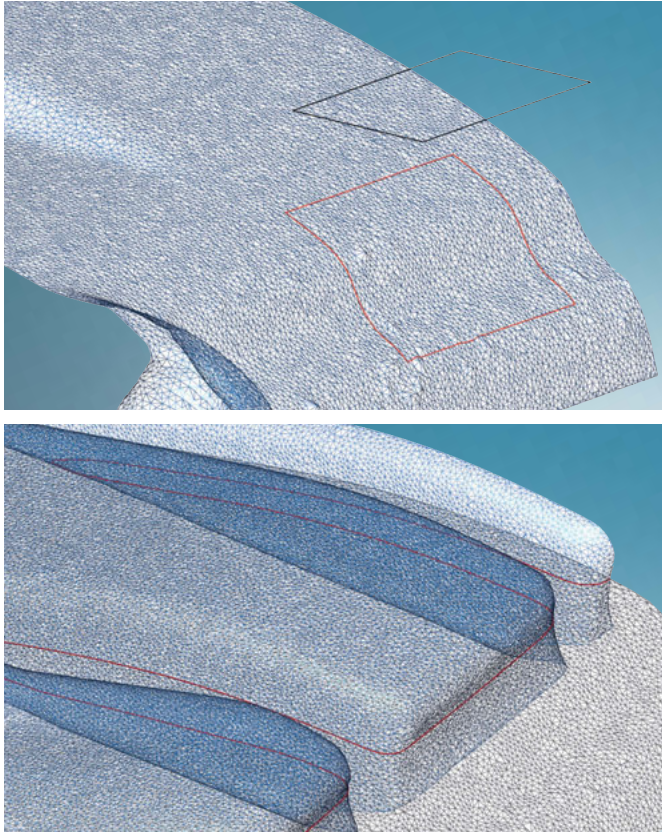
Highlight

Convert to analytical

The NURBS elements of faces and curves are converted to analytic elements such as lines, arcs, cylinder faces, rotational faces and planes. Splines are converted to lines and arcs, for example. This conversion enables faster, smoother machining.

Benefit: Simple conversion of NURBS elements, better milling results.



**Highlight****Mesh functions**

The 'Project' command allows curves to be projected onto a mesh surface, and then be used as a boundary entity for *hyperMILL*® programming.

The 'Intersect curve' command allows cutting curves to be created between two meshes.

Benefit: Easy preparation of meshes for milling.

Solid layer function

The layer information for creating solids has been simplified. The solid layer is automatically allocated to newly created features.

Benefit: More user-friendly.

Sketcher

You can freely configure the dependencies while sketching. Individual options such as angle dependencies can be enabled or disabled.

Benefit: More user-friendly.

Reuse settings from previous version

Configuration settings from a previous version can be adopted by the new version.

Benefit: More user-friendly.

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We push machining to the limit