hyperMILL ®

Version 2015.1

What's new?

OPEN MIND
THE CAM FORCE

What's new in 2015.1?

The new *hyper*MILL® version features several optimisations and five outstanding highlights. New functions for 2D and 5axis machining considerably reduce programming times and enable efficient machining. Numerous powerful extensions in *hyper*CAD®-S, the CAD system for CAM users, offer real added value.

Contents

System requirements: Windows 7 (64-bit) and Windows 8.1 Pro (64-bit), DVD-capable drive
CAD integrations: *hyper*CAD®, *hyper*CAD®-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
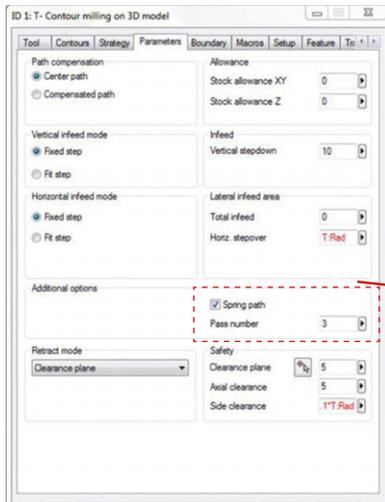
2D contour machining on 3D models

An extended feature makes it possible to specify the number of spring paths for the finishing cycle.

Benefit: Reduce deflections and improve surface quality.

Measuring

Internal process quality control on the CNC machine tool is becoming increasingly important. There are three new probing cycles featured in *hyper*MILL® 2015.1 in order to continue to satisfy this requirement: measurement of rectangle and circle elements as well as measuring parallel to the axis.

The touch probe is easy to program in all cycles, like a tool in *hyper*MILL®. Users can choose between three measuring functions:

Informative process control: It is possible to simply create measuring data for the individual component geometries and access it from the controller.

Active process control: The probing cycles can be integrated into the machining process in order to actively control it. Deviations in dimensional accuracy are processed in the controller for proper machining based on the offset value.

Zero-point definition: This way, it is possible to quickly and reliably define the component zero-point.

In addition, all movements are checked for collisions. By starting the NC measuring program, the machine records the measurement results that can be evaluated later with a separate program. Measuring supports both 3axis and 5axis machines.

Note: The measuring cycle requires an adapted postprocessor.

Benefit: Accelerated quality assurance process for checking workpiece properties.
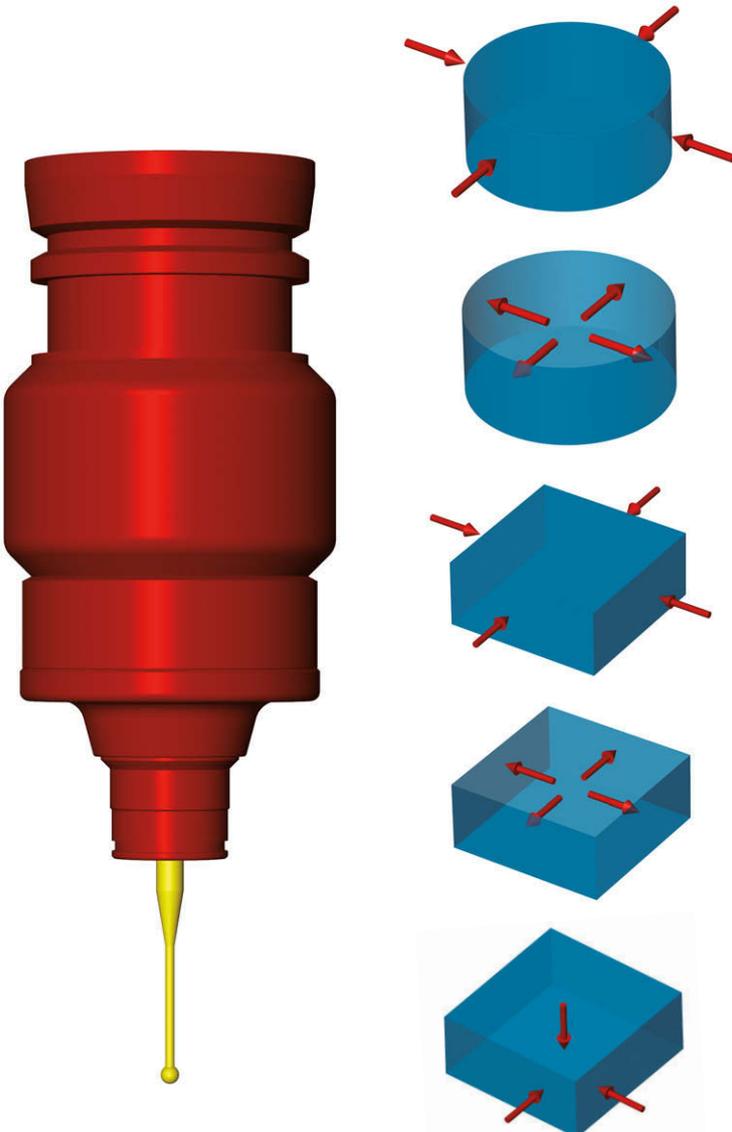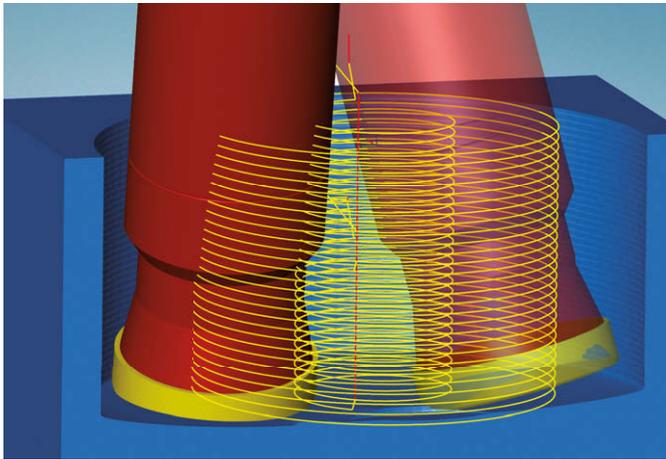
5axis helical drilling

Helical tool paths are generated with the new helical drilling cycle. The tool plunges into the material quickly and efficiently. Setting the milling tool's inclination based on 5 axes enables tool-friendly machining. This ensures safe removal of the chips. A tool change is no longer necessary, as non-centre cutting milling tools can be used. The cycle is particularly well-suited to hard material.

Benefit: Protects the tool. Predrilling is no longer necessary.
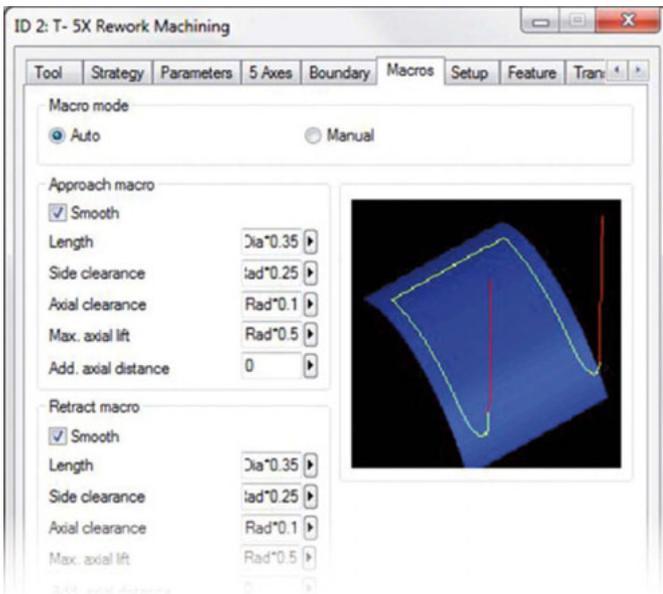
5axis rework machining

New retract strategies ensure the safe retraction of the tool from difficult undercut situations. This strategy is particularly well suited for woodruff and lollipop cutters.

Benefit: Reduced programming times, increased safety, easy to use.

New functionality for macros

A new function allows users to copy and paste individual or all jobs from one macro to another.

In addition, it is possible to copy job rules both within one macro and across all macros.

Benefit: Reduced programming times, increased flexibility.

HPC tool paths with *hyper*MAXX® – for maxximum results

*hyper*MAXX® is the high-performance cutting strategy (HPC) for *hyper*MILL®. The strategy is based on VoluMill™, a tried-and-tested best-in-class HPC technology from Celeritive Technologies as well as on highly efficient special developments from OPEN MIND. The result: *hyper*MAXX® is one of the most extensive and most powerful HPC packages for generating trochoidal-style tool paths.

Using this strategy, it is very easy to generate optimally distributed 2D, 3D and 5axis HPC paths. This allows CAM programmers to maximise machine performance for any application.

"Learning to work with *hyper*MAXX® did not take long. In fact, it took less than an hour. Our tool life has improved by 500 per cent with respect to our components. This is why we believe in doing everything with *hyper*MAXX®. It's the best way forward!"
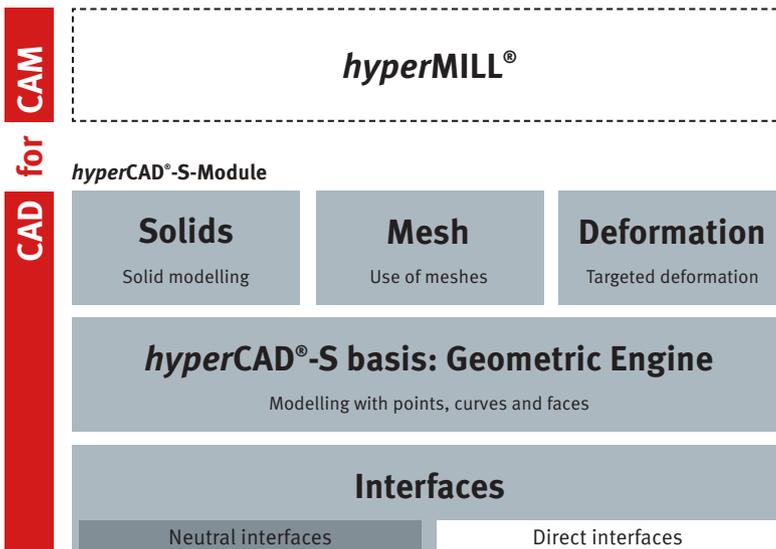
Roland Maschke, CNC programmer
at Werkzeugbau Gebr. Kemmerich GmbH

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 *hyper*MILL®. 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.

*hyper*CAD®-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. *hyper*CAD®-S is 'CAD for CAM' at its purest.

| CAD for CAM	*hyper*MILL®		
	*hyper*CAD®-S-Module		
	Solids Solid modelling	**Mesh** Use of meshes	**Deformation** Targeted deformation
	hyperCAD®-S basis: Geometric Engine Modelling with points, curves and faces		
	Interfaces		
	Neutral interfaces	Direct interfaces	

- **CAD for CAM**

- **64-bit multi-application**

- **Top performance**

- **Optimal ergonomics**

- **Highly intuitive**

- **Optimal hardware utilisation**

CAD for CAM

CAM programmers use CAD systems differently from most engineers and designers. *hyper*CAD®-S is therefore designed entirely to meet the specific demands of CAM users. Efficient CAM programming is of primary importance and perfectly supported by the CAD system.

- **Customisable filter functions:** In addition to familiar properties such as layer and colour, the most common geometric and system properties are available as user-defined filters.
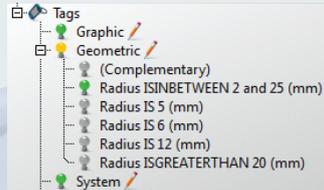

Keyword navigation: Graphic entities can be linked using tags, similar to keywords. This makes it easy to filter any CAD model information. For example: 'All faces with a radius of 2 and 20 mm'.
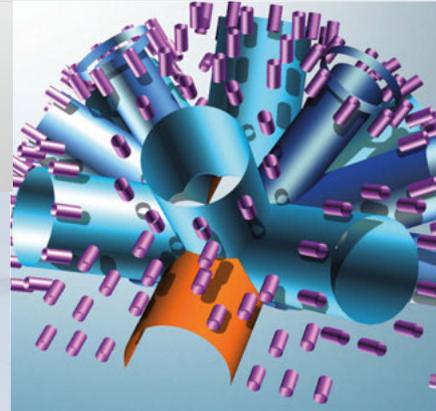
- **Intelligent entity management:** Tool paths, polygon meshes, point clouds, rectangles – the inclusion of CAM-relevant entities in the CAD kernel significantly speeds up processes.

- **Multi-application mode:** An integrated 64-bit system and IDE-style interface enable opening any number of documents each in its own application. Multiple models can be processed and calculated at the same time.

- **Smooth data exchange:** comprehensive interface package. **Import:** *hyper*CAD® files, IGES, STEP, STL, DXF/DWG, point cloud, Catia V4 and V5, Parasolid, Autodesk® Inventor®, Siemens NX, SOLIDWORKS, PTC Creo. **Export:** IGES, STEP, STL, DXF/DWG and point cloud.

- **Intuitive operation:** Self-explanatory icons and a highly transparent user interface without any hidden functions help to reduce errors and accelerate operating procedures.

- **All languages:** Available in all the same language versions as *hyper*MILL®.

> "At last we've got a CAD system for CAM programmers!"

**Stefan Nagel, Deputy Managing Director
of Kiefer Werkzeug- und Vorrichtungsbau, Pfullingen, Germany**
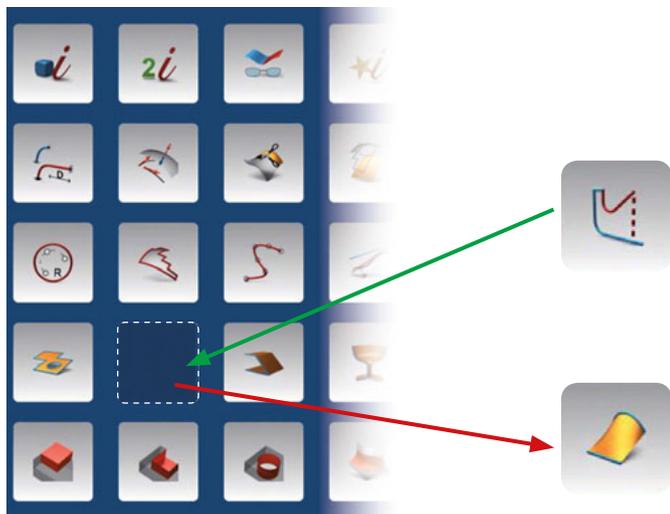
Individual toolbars

Toolbars can be created individually; the desired commands can be pasted to or deleted from the toolbars via drag and drop. All basic configurations can be recovered.

Benefit: Increased user friendliness.

Text resolution

Adjustable resolution of the text display enables optimal font contours for milling or engraving.

Benefit: Better engraving quality.

Improved data exchange

The current version now allows users to export and store DWG/DXF files. This makes it easier to exchange 2D geometries from *hyper*CAD®-S.

Benefit: Simplified data exchange.

Improved clipping plane

The clipping plane function is used to generate a planar section through a component. The selected clipping plane remains active within other functions but does not affect the existing geometry of the component. It is now possible to create different clipping planes and save them separately. Tool and tool paths remain unaffected. Cutting edges can be selected in the clipping plane in order to create boundary edges and dimensions. It is also possible to measure distances and angles in the clipping plane.

Benefit: Increased user friendliness. Better analysis of components.
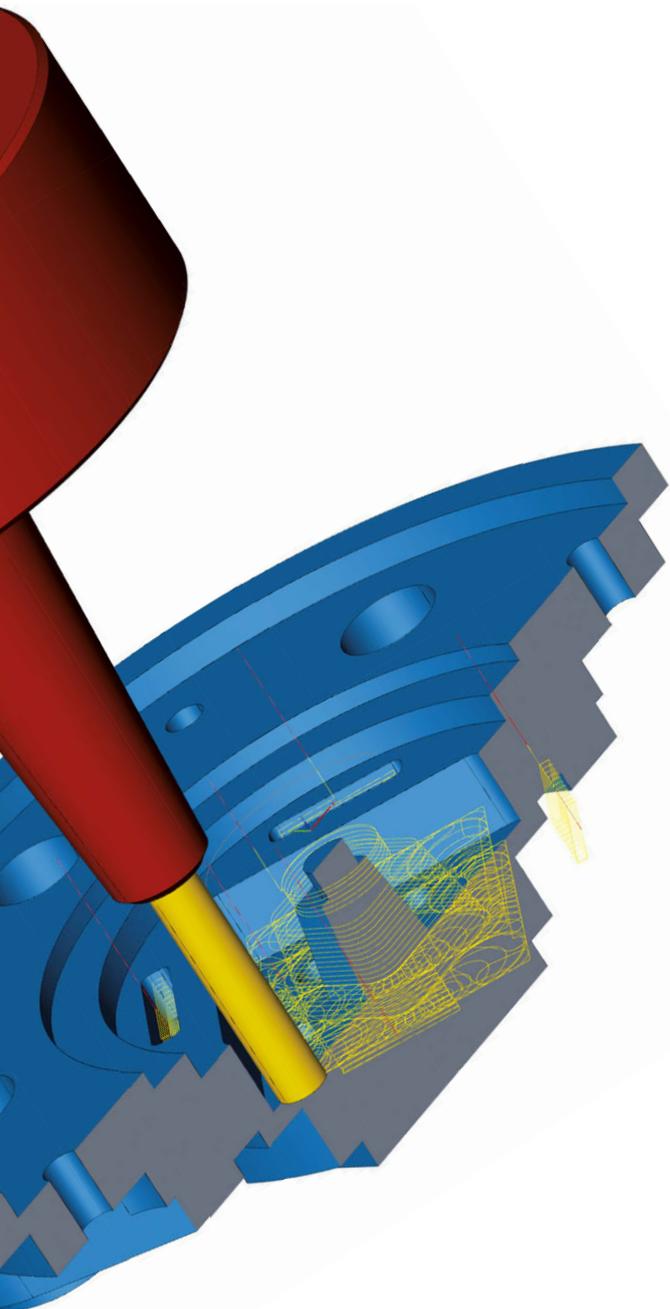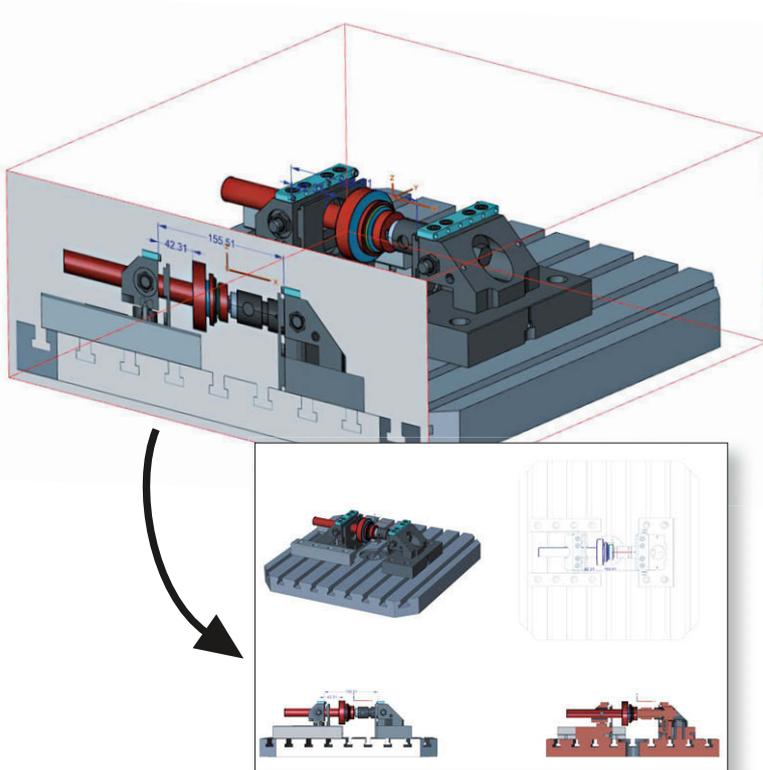
Print box

The 'Print box' function allows users to simply create and save different printing views of the component. Users can put together or print out individual views as well as clipping planes and areas to create the manufacturing documentation. Component dimensions and text information are automatically adopted into the view and can be moved, hidden or shown there.

Benefit: Simple creation of manufacturing plans.

Advanced snap options

Three new functions have been added to the snap point settings: 'Snap only', 'Permanent snap' and 'Automatic'. This makes it even easier and faster to select snap points.

Benefit: Increased user friendliness. Better selection options for cycle start conditions.

Turning views

The integration of CAD and CAM for turning has been advanced even further. There are now three turning views available in *hyper*CAD®-S: 'Turn machining view', 'Axial view' and 'Radial view'. Users can now quickly and simply toggle between the component and turning view.

**Benefit:** Increased programmer friendliness.

Smart selector technology

New and improved selection options for faces and curves.
- The chain selection has been extended to include tangency. It is now even easier to select component contours.
- Coplanar and coaxial faces: The selection can now also be applied to face modelling. All faces in the entire model with this constraint are selected by clicking the 'All models' option.

Benefit: Time saving. Increased user friendliness. Fewer clicks.
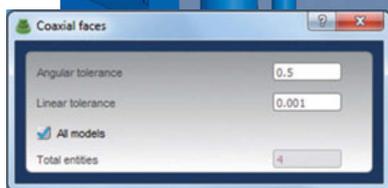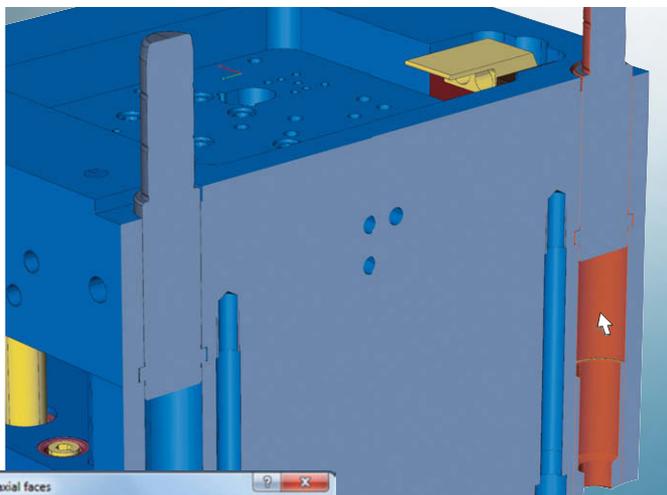
Direct modelling with lateral faces

There is now an option to create lateral faces during the direct modelling of solids. The new 'Side faces' option automatically fills the extended area with additional faces. This is important when it comes to stock thickness, for example. Now all that needs to be done is to add the allowances via direct modelling as extra faces with defined colours and provide direct identification for machining. Therefore, it is no longer necessary to modify the model itself.

Benefit: Better overview, increased user friendliness.
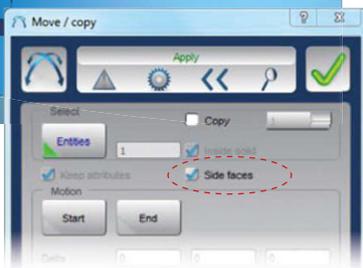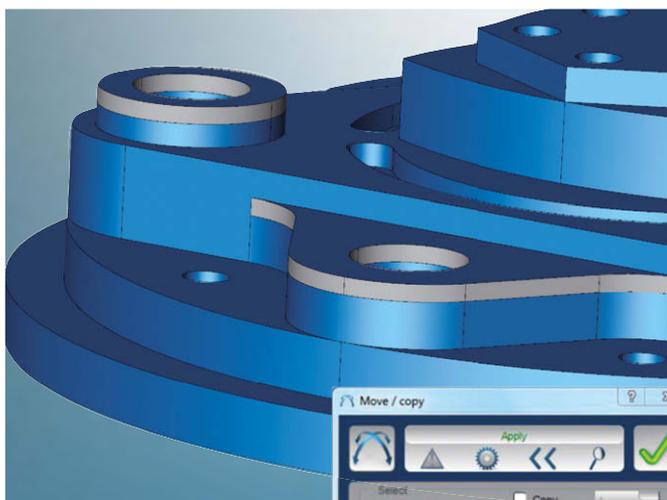
More transparency, fewer errors:
Review CAM/CAD data prior to production

Until now, for setup preparation only the NC programs were available to machine operators. With the *hyperMILL®* ShopViewer, the visualization solution for the workshop, the *hyper*CAD®-S and *hyper*MILL® data can be visualised directly next to the machine. Now every manufacturing operation can be checked in detail on the monitor even before the setup begins.

The clearly structured world of CAM programming has a far better connection to the workshop with the *hyper*MILL® ShopViewer. In this way, the machine operators with their vast knowledge about production practices can independently view and simulate CAM/CAD processes. This allows a far better understanding of the actual manufacturing process than before.

**Simple and fast display, analysing
and documenting of the prepared CAM/CAD data**

■ **Target group:** Machine operators can apply their in-depth manufacturing know-how with the *hyper*MILL® ShopViewer. Serious mistakes, such as wrong tool choice or unproductive processes, can be avoided.

■ **Usage area:** The *hyper*MILL® ShopViewer is designed for quick access in the manufacturing environment in the post-CAM programming phase.

NOTE: *hyper*MILL® ShopViewer is only available for *hyper*CAD®-S.

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THE CAM FORCE

We push machining to the limit