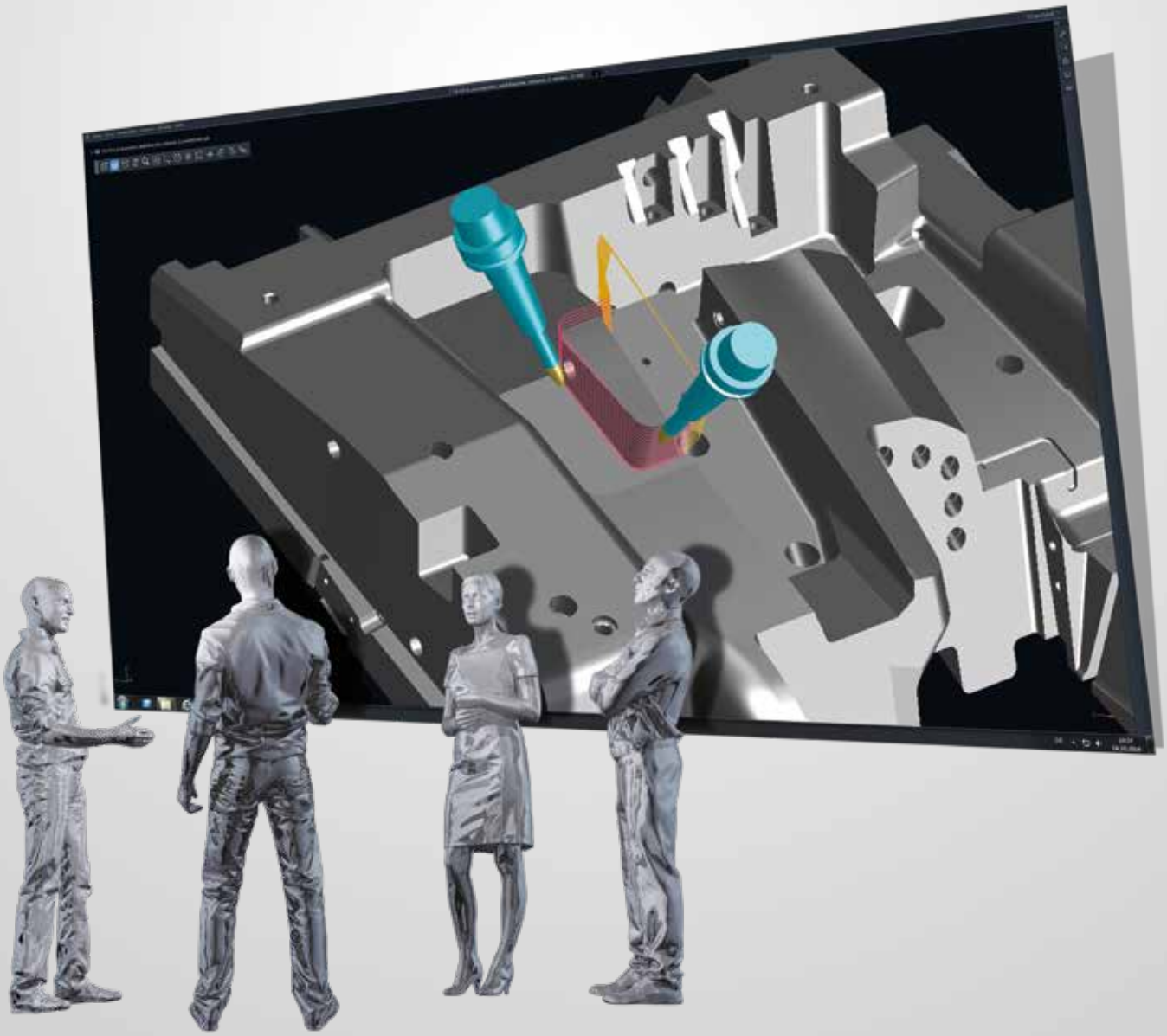
tebis
THE CAD/CAM EXPERTS

Software

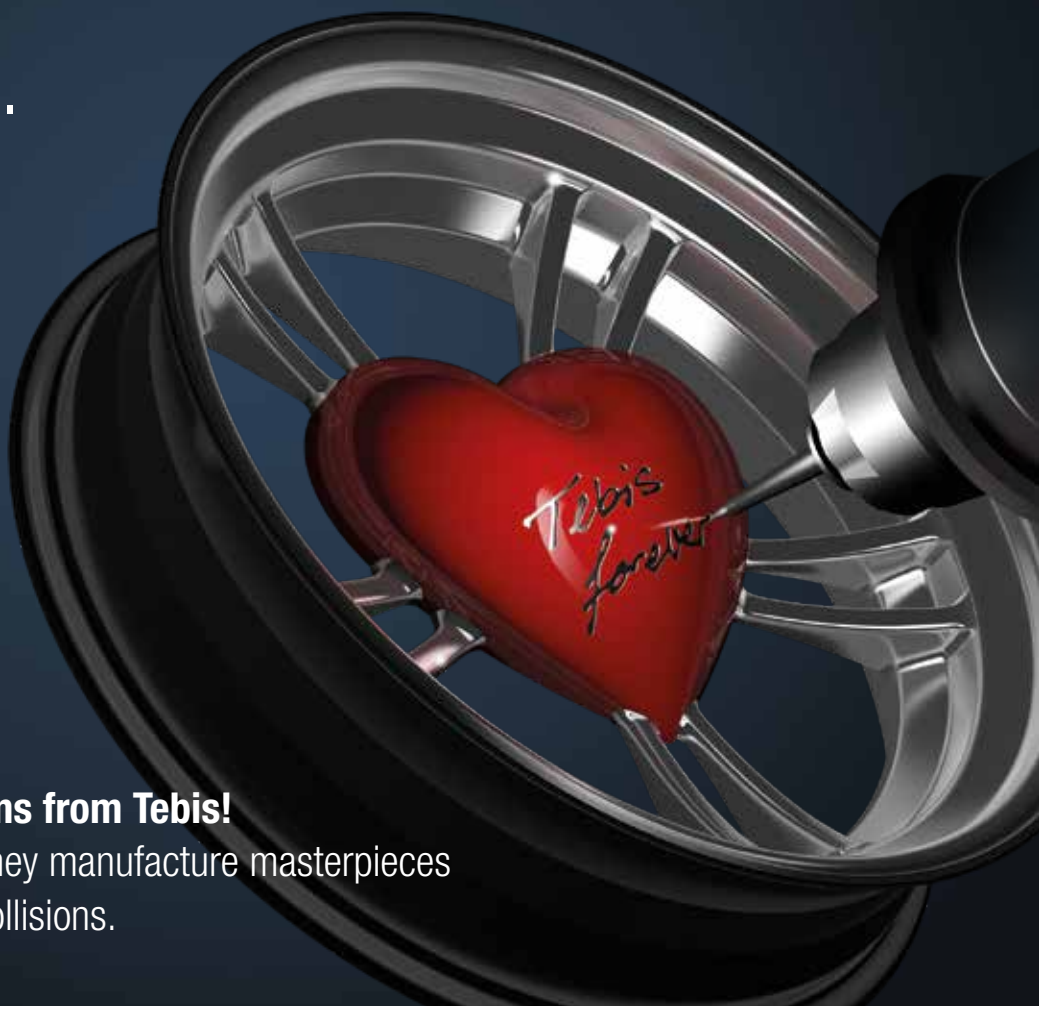
Tebis Version 4.0 Release 6

Simply better manufacturing



Tebis: The Process.

If machines were to decide ...



HIGH QUALITY
EFFICIENT
RELIABLE

... they'd choose NC programs from Tebis!
Machines love Tebis because they manufacture masterpieces in record time while avoiding collisions.

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Tebis strengths are your benefits.
Efficiently and reliably manufacture high-quality parts with Tebis.

HIGH QUALITY

Tebis lets you manufacture at the highest class A quality.
This applies not only to your CAD surfaces, but more important, to the parts you get from your machines. This is thanks to the extremely powerful Tebis surface mathematics. It enables convenient repair and optimization of free-form surfaces. Tebis also uses polynomial surfaces instead of substitute models like polyhedra in NC calculation. Tebis has a highly sensitive distribution algorithm for NC points in the NC paths and uses the exact cutter geometry when calculating NC programs for modern high-performance tools.

EFFICIENT

Tebis saves you time.
You work more efficiently by importing the geometry via interfaces, in design, repair and preparation of the surfaces for manufacturing, in NC programming, on the machine and especially in manual reworking in tryout.

RELIABLE

Tebis optimally protects your personnel, machines and parts.
Your shop operations are reliable because Tebis knows and always uses virtual models for your machines, tools and clamping devices. Tebis uses 5-axis avoidance and milling area reduction to prevent collisions. Tebis simulates using the exact physical properties of the machine and control. It displays detected collisions and limit switch problems in the CAM programming environment.

TEBIS Automill®

Tebis lets you standardize your manufacturing processes and ensures continuous high quality. Tebis process libraries allow you to save all necessary manufacturing knowledge, including machine parameters. All of your data is always up to date. Automill®, Tebis NC automation, is based on the process libraries, which results in tremendous time savings on NC programming for single-part manufacturing. Automill® evaluates your CAD models, accounts for your manufacturing environment and your manufacturing knowledge and automatically calculates reliable NC programs. Your Tebis process libraries are protected and can only be used by you.

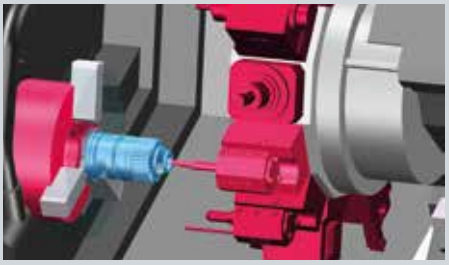
Efficient and reliable manufacturing of high-quality parts

Companies use Tebis Version 4.0 to organize and optimize their CAD/CAM process chains in manufacturing-intensive areas. They use Tebis systems throughout from design and engineering to equipment and part manufacturing. They benefit from the unique strengths of Tebis to deliver products at the highest quality in the shortest time, for the automotive, aerospace, machinery and equipment industries as well as appliance and medical equipment manufacturers.

Many manufacturing methods – one software solution

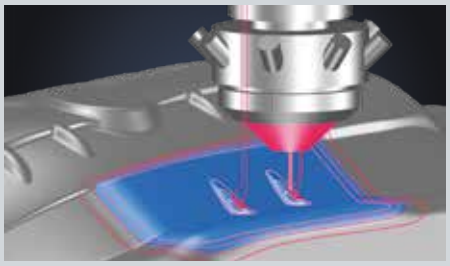
Efficient

Milling



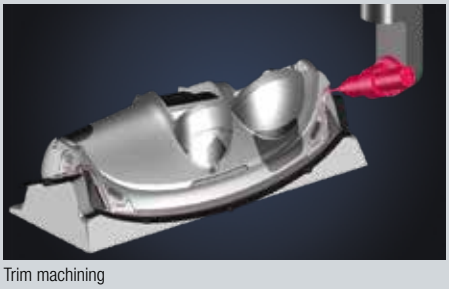
Turning

Laser cutting

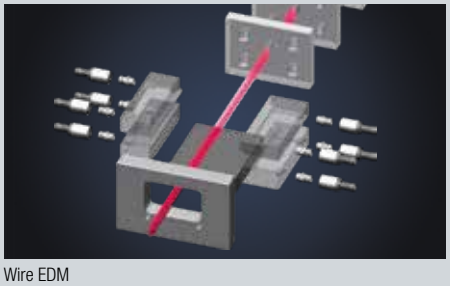


Laser weld cladding

You can keep all of your machinery running smoothly with software from a single source. Whether it's 3 or 5-axis milling, drilling, turning, laser cutting, laser hardening, trimming, hammer peening or sink and wire EDM, Tebis supports the entire spectrum. This single-system strategy makes the manufacturing process more fluid, faster and more transparent.



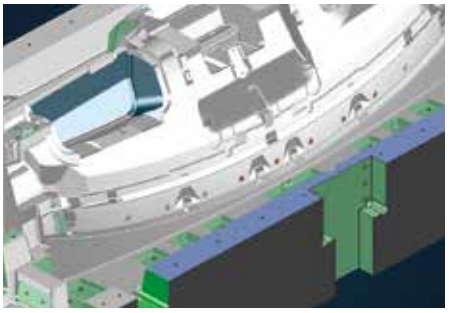
Trim machining



Wire EDM

A soft spot for large parts and complex geometries

Efficient



Tebis is especially well suited for handling large or complex parts with enormous data volumes. Robust algorithms make preparation and programming a breeze, even for large parts and complex geometries. Highly complex parts are always completed on time.

First-class interfaces

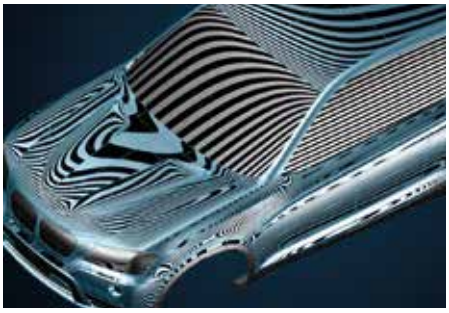
High quality

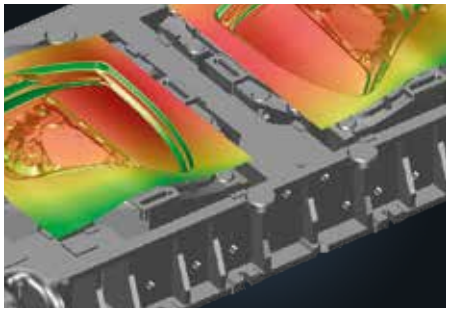
Efficient

Tebis interfaces are truly first-class. You can efficiently exchange geometries with other CAD systems like CATIA, NX or SOLIDWORKS with no loss of data. Assemblies are automatically split into individual manufacturing files upon import, with automatic optimization of surface quality. The surface quality optimized in Tebis is also retained in the target system upon export via direct interfaces.

Top technology for class A surfaces

High quality



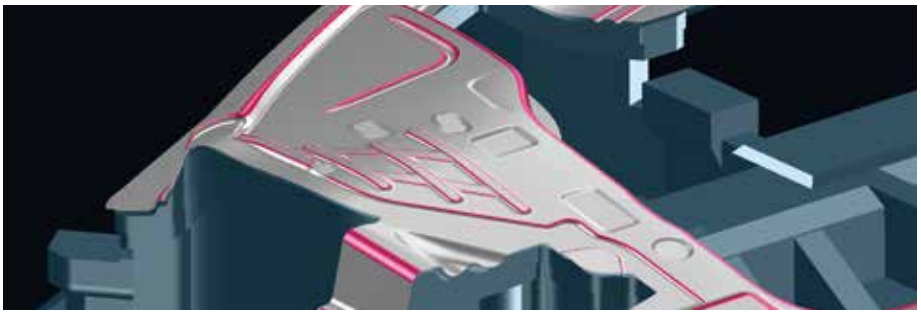


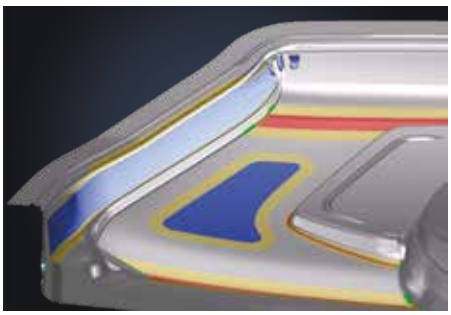
NC-manufactured free-form surfaces are only as good as your CAD data. You can use the Tebis functions for designing, modeling, repairing, morphing and reverse engineering, to give your CAD models the surface quality that meets your manufacturing requirements. On exterior surfaces, class A quality is ensured.

Active surface preparation with a tremendous impact on tryout

High quality

Efficient



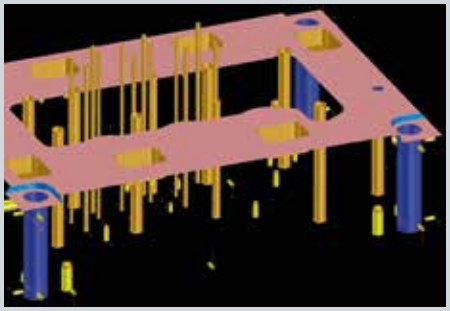


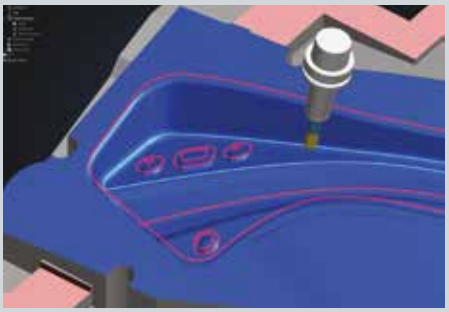
Specialized CAD functions for active surfaces let you design perfectly prepared, precise surfaces in the die. You can use automatic functions to create transition-free pressure surfaces as well as radius areas adjusted for the relevant pressing conditions. This lets you manufacture your dies without NC attributes like virtual sheet thicknesses and allowances. This results in a tremendous reduction in manual tryout work after NC machining.

Convenient manufacturing preparation for automated production

High quality

Efficient

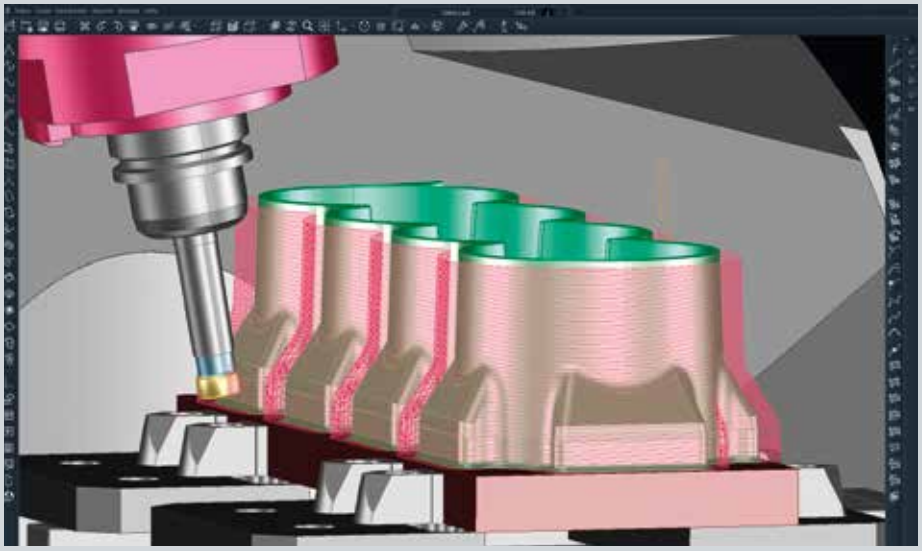




Specialized CAD functions enable NC programmers to conveniently prepare their manufacturing models for subsequent NC processes. This sets your course for automated NC programming and optimized surface quality.

Short run times on machines

Efficient

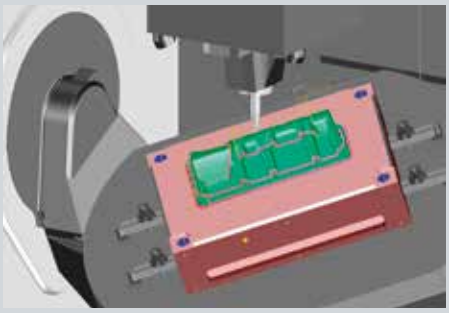


The Tebis NC algorithms have been continuously optimized over 30 years of development and ensure time-saving and effective processing on the machines, with minimized idle travel and maximized cutting performance. This also includes demanding technical support for HFC and HPC cutters for roughing, prefinishing and finishing. You can fully exploit the potential of these tools with special contact algorithms and path layouts with full-cut avoidance.

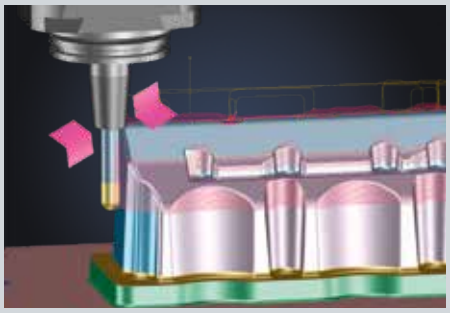
Virtual machine technology for maximum reliability

Reliable

Efficient



Tebis process libraries reflect the actual manufacturing environment. All tools, machines and clamping devices are stored there along with their geometric and technical properties. This benefits NC programmers as they select the appropriate machine in this virtual environment, define the optimal setup and select the appropriate tools.

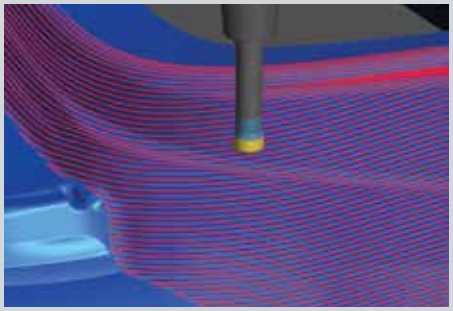


Before processing, you can use the integrated machine simulation to check the entire operation for collisions, and limit switch violations to protect your valuable machines and parts.
Tebis detects collisions during calculation of the NC paths and automatically prevents them by reducing milling areas and with 5-axis avoidance.

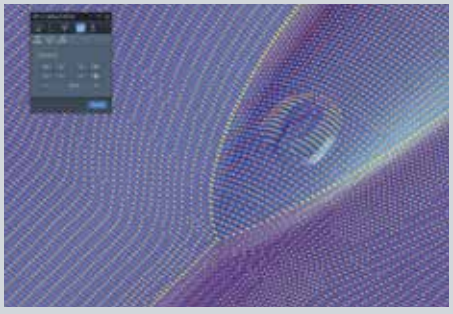
No reworking of parts with class A manufacturing quality

High quality

Efficient



Tebis transfers the high quality of the CAD surfaces directly to the NC programs. This is because the software calculates NC paths on the mathematically precise surfaces instead of on tesselated substitute models like polyhedra. Finish quality can also be influenced by adjustable NC point distributions. This renders time-consuming manual reworking unnecessary in most cases.



Perfect for 6-axis robots

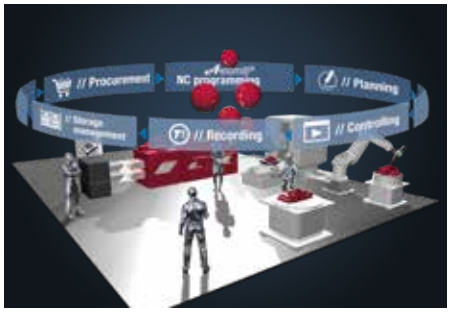
Reliable

Efficient

In addition to 3 to 5-axis machining centers, you can also use Tebis for NC programming of articulated robots with six or more axes.

Reliable planning with integrated MES solution

Efficient



ProLeiS MES (manufacturing execution system) works hand-in-hand with Tebis and is integrated in the Tebis user interface. It allows you to organize, plan and control your manufacturing projects – including machine planning, material and tool logistics. The integrated machine and production data acquisition always keeps you supplied with up-to-date and realistic information.

Low-cost access to Tebis CAD/CAM technology

Efficient

Tebis has the appropriate software package – at a variety of performance levels – for typical CAD/CAM applications. You can get started at a low cost and expand your solution as your requirements grow.

Standard **Pro** **Premium**

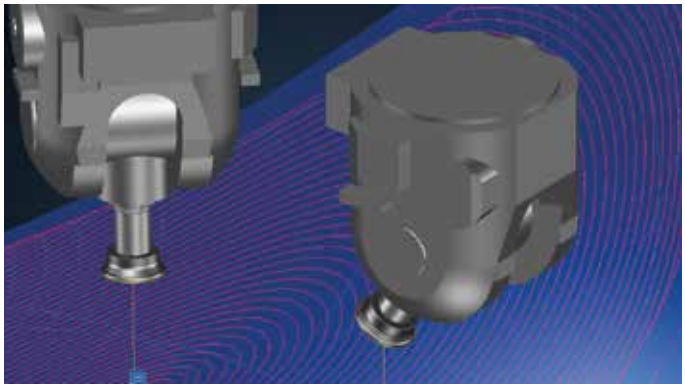
You can individually supplement the software packages and select additional functions from the comprehensive portfolio of add-ons. Your staff can configure their Tebis workstations as needed with floating licenses: If specific add-ons are used infrequently, your users can share these software components.

Simply better manufacturing

Outstanding 5-axis functions and very user-friendly

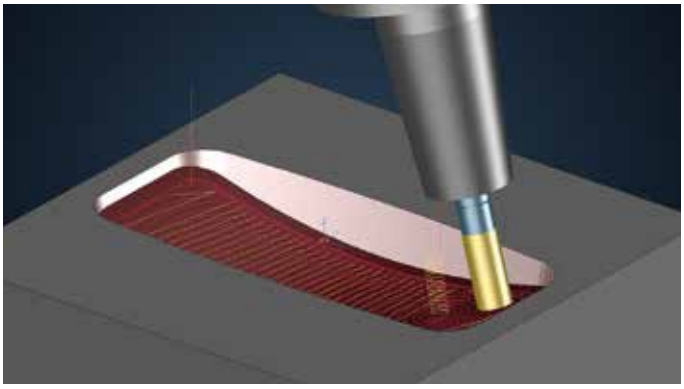
The new and optimized functions in 5-axis simultaneous milling let you unlock the optimum potential of your modern high-performance machines. The new release also has plenty to offer in terms of user-friendliness. See for yourself and read an overview of the most important new features.

CAM – 5-axis simultaneous milling



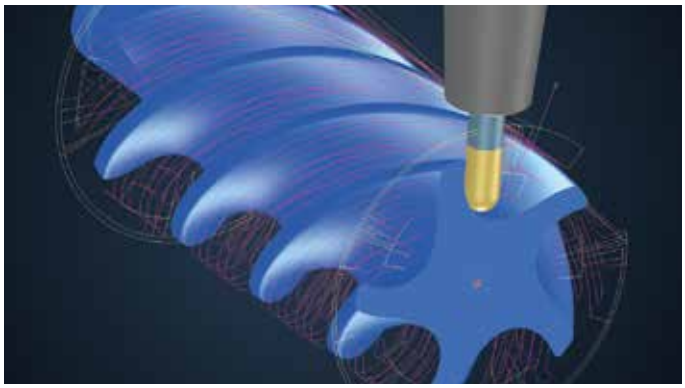
Roughing of free-form surfaces

The "NC5ax / MSurf" function is suitable for all those who want to take advantage, with minimal effort, of the benefits of 5-axis simultaneous machining when roughing free-form surfaces. There are many examples, including in die manufacturing, where often large free-form surfaces with few cavity fractions must be manufactured. Just select the surfaces and blank and you're ready to start. The function provides the adaptive and contour-parallel path layout.



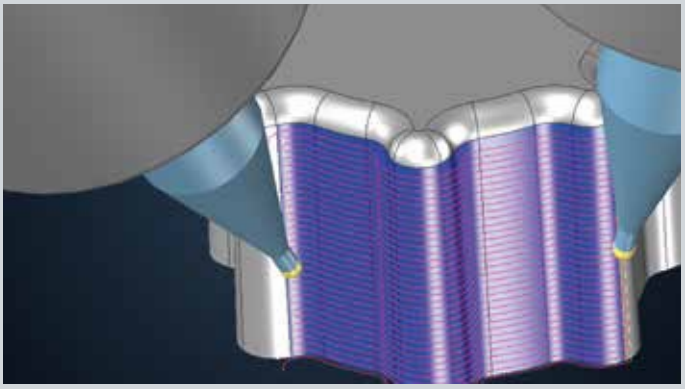
Highly efficient adaptive roughing of free-form pockets

The "NC5ax / MPocket" function is exactly matched to 5-axis simultaneous roughing of part areas with many cavity fractions. Adaptive and contour-parallel milling strategies are integrated. High-performance HPC tools can machine high volumes of material very quickly, especially in adaptive roughing.



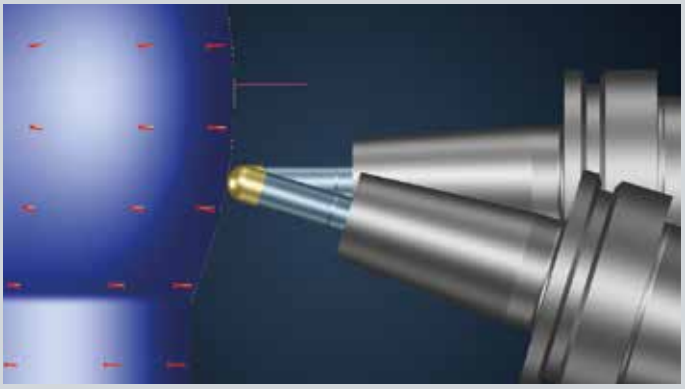
Roughing of rotational parts

The "NC5ax / MRadial" function is ideal for fast NC programming of 5-axis simultaneous toolpaths for roughing pocket and slot geometries in rotational parts: Again, just select the surfaces and the blank, and then machine the part with a contour-parallel path layout.



Easy machining of multiple surfaces by direct surface selection

Connected milling areas can now be machined in a single operation and with no extra design effort, even for isoparametric path layouts: Select the surfaces, display the milling area and start the calculation.



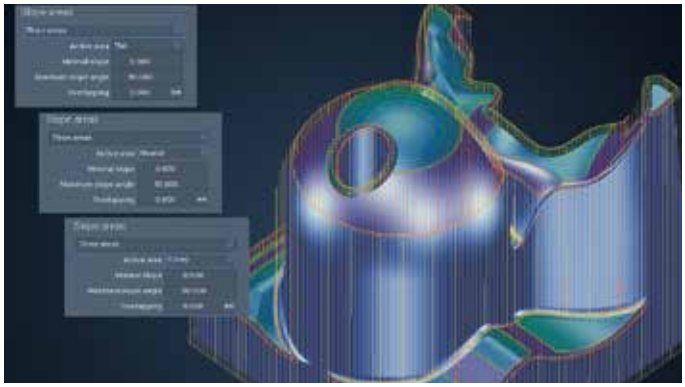
Milling with tilt direction preview

5-axis simultaneous finishing with the "NC5ax / MSurf" function was already very convenient before Release 6: The tool tilt direction is interpolated between easily selected vectors. Surface quality is often better than machining strictly normal to the part. This function has been further optimized in Release 6: The integrated tilt direction preview lets you check and optimize the quality of the tool direction during programming – it doesn't get any easier than that.

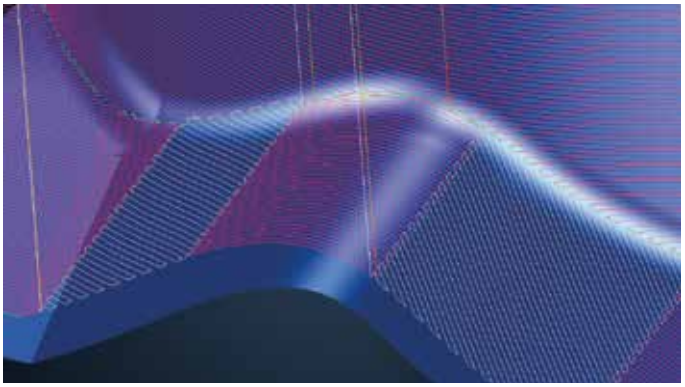
Videos about the new functions are available on our website!

https://www.tebis.com/en/news-events/latest-news/tebis-version-40-release-6-will-be-delivered-in-late-june/

CAM – 3D milling



Part divided in three milling areas

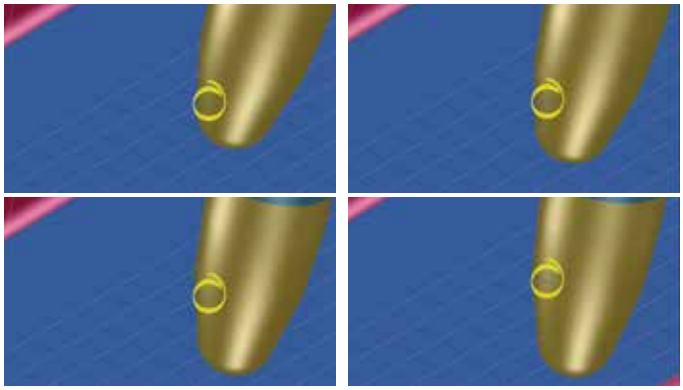


Overlap of milling areas for better surface quality

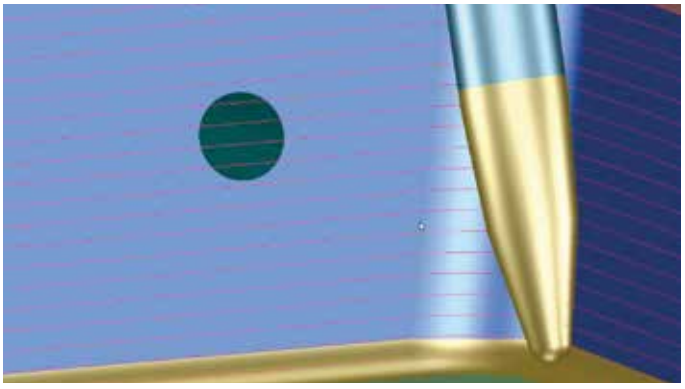
Quick splitting of parts into three slope-dependent areas with extended slope analysis

When finishing 3D contours with the "NC3ax / MSurf" function, the part can now be subdivided with two angles into flat, neutral and steep milling areas. You can define an overlap of the milling areas for even better surface quality of the transitions. This lets you use your tools optimally in each area of the part, optimize your milling templates and reduce machine run times.

CAM – Support for tools



Four contact points can be selected for tilted 3-axis finishing

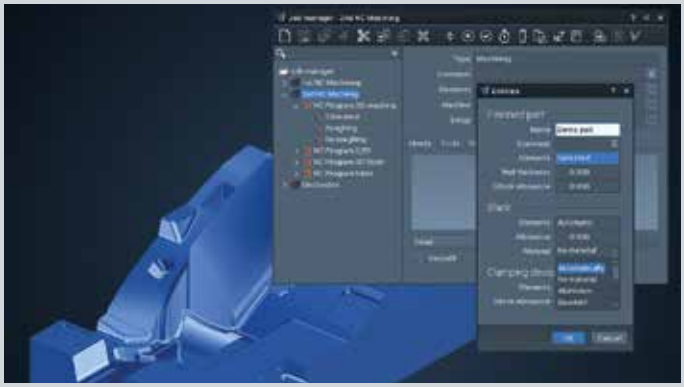


If desired, the contact point can be positioned at the lower end of the tool radius in 5-axis side milling

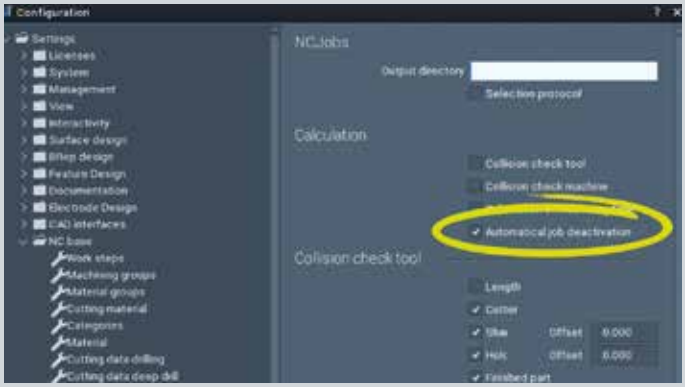
Optimal tool tilt direction when finishing with circular-segment cutters with barrel-shaped geometry

Get the best out of your barrel cutters in every machining situation: In 3-axis tilted finishing (NC3AX / MSurf), determine the suitable tool tilt direction with a special test function and define the optimal contact point as a function of part geometry. In 5-axis simultaneous side milling (NC5AX / MCont and NC5AX / MSide), the contact point is automatically positioned at the lower end of the tool radius. Thus, you can speed up calculation times and ensure higher surface quality.

CAM – Job planning

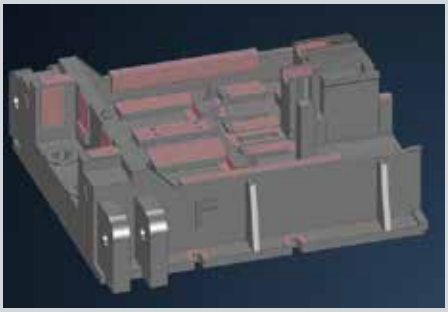


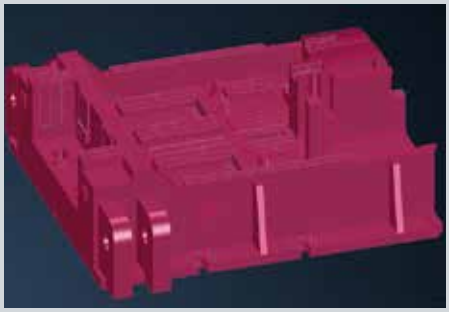
Global material assignment in the Job Manager
With a new automatic mode, you can automatically assign a specific material type to all machining operations. The stored cutting data are automatically applied. The material type can be individually adjusted for separate NCJobs. Therefore, parts with components made up of different materials can also be accurately modeled. You can also define in the configuration which material type is to be automatically assigned in all cases.

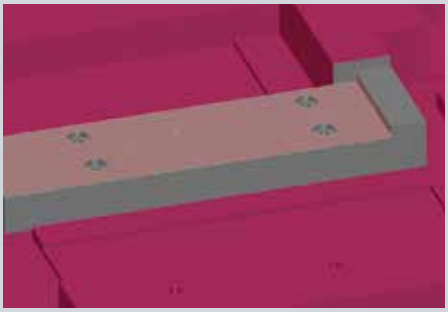


Automatic deactivation of NCJobs
This new function significantly simplifies working with NCJob templates: In the configuration, define whether NCJobs for which no milling areas or toolpaths can be generated should be deactivated. The processing sequence is then automatically adjusted in the Job Manager – based on the previous machining operations and the part geometry. These new features apply to the 3D milling functions for roughing in planes (RPlan) and for re-machining surfaces (RSurf) and corner blendings (RCorn) as well as for machining (MFill) and remachining (RFill) fillets.

CAM – NC automation

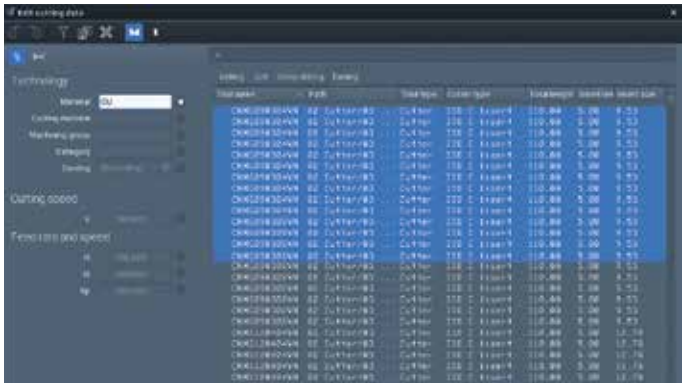

Part with machining features


Selecting the part as a protected surface


Selecting machining feature and deselecting protected surfaces

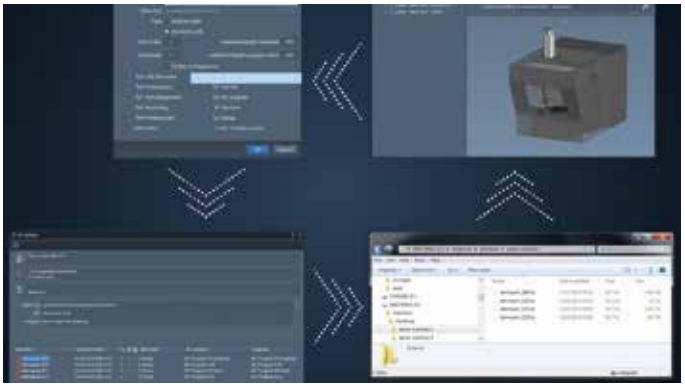
Easy assignment of protected surfaces in feature machining
Assign protected surfaces to features in three steps: Select all relevant areas as protected surfaces, then select the machining features and deselect the adjacent protected surfaces.

CAM – Machine technology



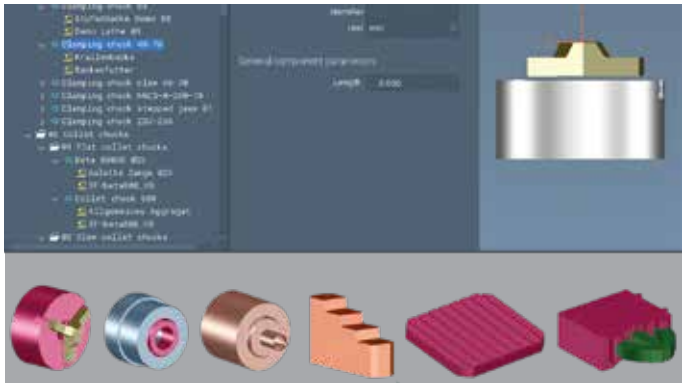
Simplified cutting data management for tools

Change cutting data – such as technology parameters, cutting speed, feed rate, rpm and contact in the tool library – for all selected tools, based on the manufacturing types of drilling, milling, turning or deep drilling, at the click of the mouse. Use the filter functions for more transparency, delete data sets or copy them together with assigned cutting materials, materials, categories and machining groups. This gives you more flexibility and lets you quickly adjust your cutting data to the requirements of different tool suppliers.



Configurable NC output

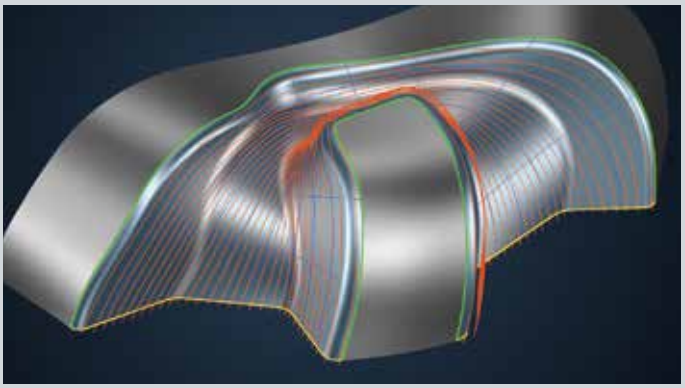
NC output can now be organized very clearly and easily: Based on your company-specific processes, you can define a machine-specific output directory or place the files in the start directory for the CAD file, so that all relevant files are in a central location. You can automatically create directories with a subdirectory structure, thereby simplifying work with multiple files.



New unit management for improved handling and greater reliability

Manage units for the machine tool – such as jaw chucks, steady rest and centers or machine tables, extension parts and partitions – centrally in a separate library and combine these to form complete units. You can equip the machine with all units in the Job Manager and perform a virtual simulation of the real manufacturing process. This ensures that only completely tested NC programs are output to the machine.

CAD – Preparation function for 5-axis simultaneous milling



Path layout created using guide curves and area curves

Analyzing head movements

Easy definition of milling areas for 5-axis simultaneous milling
For parts with highly complex geometric properties, the "NCPrep / Drive" function provides a convenient way to create and optimize milling areas for 5-axis simultaneous milling – for instance, using guide curves or planar cuts. You can display the path layout in advance, adjust the starting position, detect overlaps, kinks and head movements and, if necessary, change the cutter offset and smooth the paths in the milling or stepover direction. These milling areas can be automatically selected in the NCJob templates for 5-axis machining.

CAD – Processing digitized data

Extended Faro interface
For faster digitization: The Faro interface now supports modern blue lasers, with which significantly more detailed information and larger scanning fields can be recorded. Multiple geometry elements per plane can also be recorded. Planar surfaces and cylinders are automatically extended. Another advantage: You can operate the Faro Arm, mouse and keyboard simultaneously.

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