

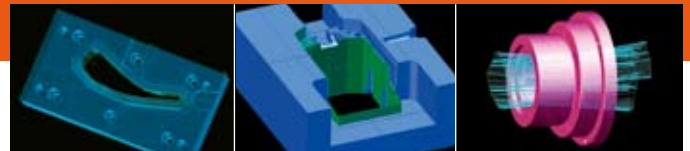
FROM THE CAD MODEL TO THE CUTTING PROGRAM – QUICKLY, SAFELY AND EFFICIENT.



Wire EDM

With the new programming station for wire EDM machines, you now have another powerful technology package available within Tebis software that is specially tailored for the manufacturing requirements in die and mold manufacturing.

Because the application is integrated into Tebis, both 2-Axis and 4-Axis wire EDM programs can be calculated and exported directly without extra interface runs. Time-consuming geometry adjustments have been completely eliminated. This also creates no extra data. Being able to access at any time a complete CAD system with comfortable design and analysis options has proven to be a considerable advantage throughout the entire programming process. **Another highlight:** The synchronization between the upper and lower contour is done automatically. Cutting paths can be derived directly from curves, surfaces and solids. Even complex 3D contours will be generated without errors based on the designed geometry.



From contour definition to NC export

The software's logical setup guides you safely and securely, and in a structured manner, through the individual steps of your process chain:

1. Select machine

2. Derive contours

3. Define bore holes

4. Assign contour properties

5. Define machining strategy

6. Start visualization and NC browser

Using templates for high-level process safety

The software's performance range lets you effectively combine automated standard processes with job-related interaction options. The system supports your assignment of machining strategies with standardized and tested-and-true parameter sets. It also allows for targeted adjustments required by individual erosion jobs or e.g. company-specific requirements. Together with other contour properties, such as approach and retract, rounding and interpolation, all settings can then be grouped into complex templates that can be simply and easily copied over for subsequent erosion jobs. Once defined, they need only be subsequently defined via bore hole and contour – Tebis will take care of everything else.

1 Fully integrated machine technology

The system supports and administers all the technology parameters of nearly all wire EDM machines on the market. It automatically adjusts spline curves to suit the performance capabilities of the selected machine.

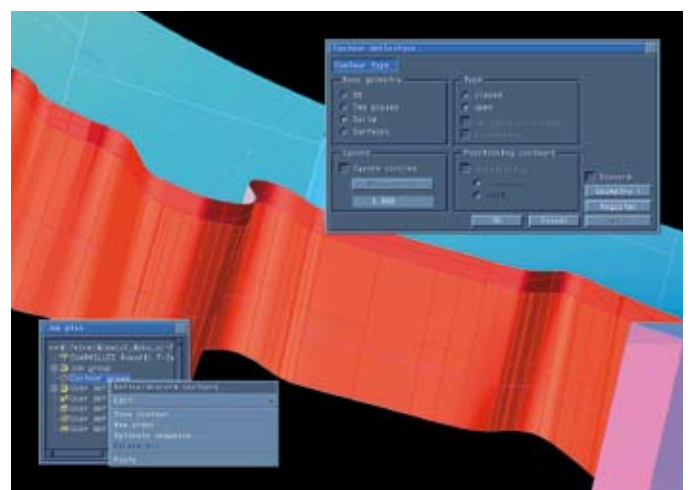


When machining is switched to another controller, the parameters are almost exclusively converted automatically.

2 Fast and optimized derivation of contours from CAD geometries

Our automatic synchronization of upper and lower contours provides a number of advantages. You can derive cutting paths directly from curves, surfaces and solids, without time-consuming geometrical adjustments such as making surface extensions or manually closing gaps. The placement of 2D sections into their Z heights has been completely eliminated. Redundant elements need not be deleted and overlaps need not be corrected. The system smoothes the contour during definition.

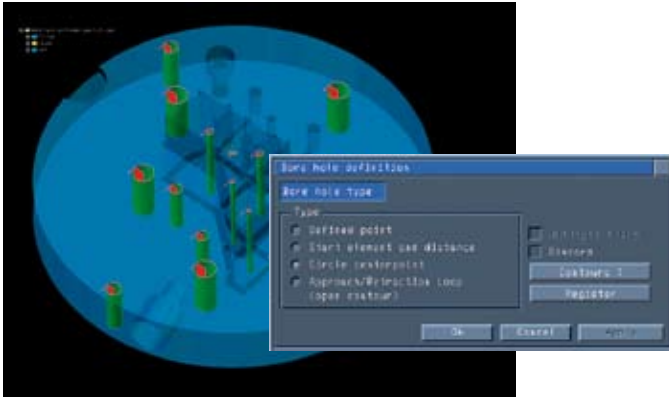
Combined milling and cutting processes are easy to process in Tebis as well. Changes made to the contour can be subsequently copied into the CAD geometry.



The system also identifies 3D contours directly and without errors, using all their surface information.

3 Targeted selection of bore holes

Bore holes can be quickly defined and adjusted to suit the component's structure.



Quick and uncomplicated derivation of the centerpoints of circle contours, using our capture function.

4 Assign contour properties and standardize work processes

A central mask lets you quickly and easily assign all properties necessary for the erosion process. **Special highlight:** All parameter settings for all contour properties can be turned into templates with a single mouse click and re-used for subsequent erosion jobs.

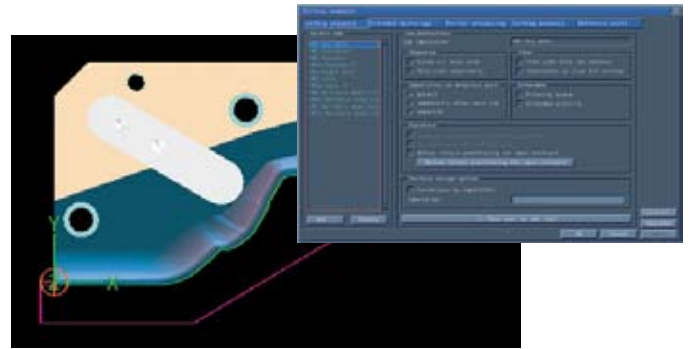


Use as template

1. Comprehensive approach and retract strategies
2. Automatic corner rounding
3. Interpolation line calculation
4. Core-less cuts for smaller contours via destruction paths
5. Technology parameters via qualities and registers
6. Additional technology for machining strategies
7. Additional offsets via stock allowances
8. Standard conics
9. Direct machine commands

5 Define job-based machining strategies

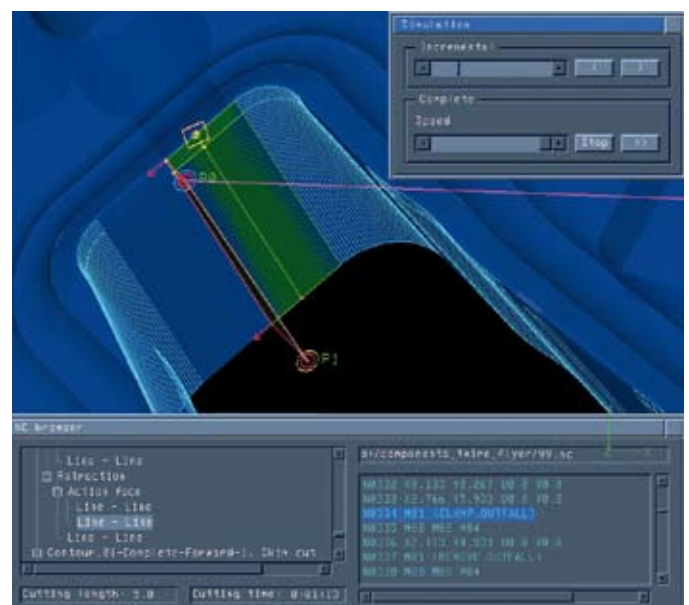
Assignment of a job groups the contours and all the actions and properties into a machining strategy. You can use predefined parameter sets but also have a wide range of designing options to choose from. Complex cutting sequences can be quickly and easily adjusted to suit the requirements of the most varied of situations. For example, if you want to do the main cuts first and the skim cuts later, as is done in day/night shifts, you can do so with Tebis.



To prevent collisions, you can individually assign the positioning paths between the erosion contours.

6 Visualizing the program

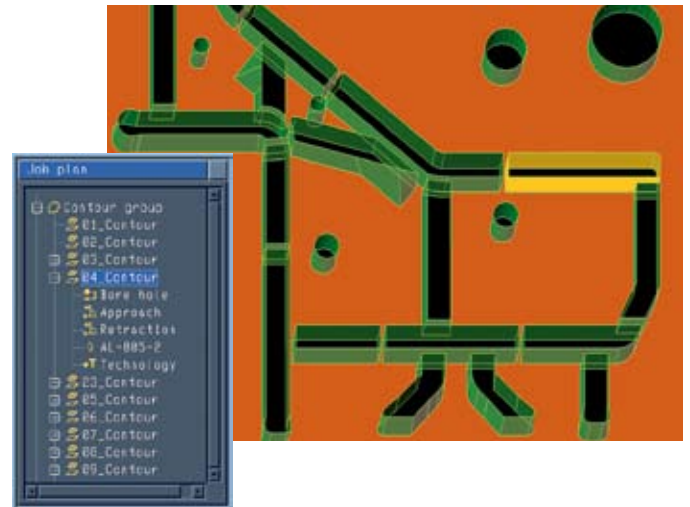
The visualization displays both graphically and as symbols all the sequences of the erosion job, including all traverse paths and actions such as wire threading, stops, separation cuts and filling and draining the tank. In the integrated NC browser, you can interactively move through the individual parts of the program and see the relationships between the NC code, the program structure and the simulated machining operation. Because that makes it possible to check each point of the program at any point in time, you gain transparency on even complex wire EDM processes.



You can start the visualization for the overall program, for individual jobs, for contour groups or for individual contours.

Supported by a comfortable job plan

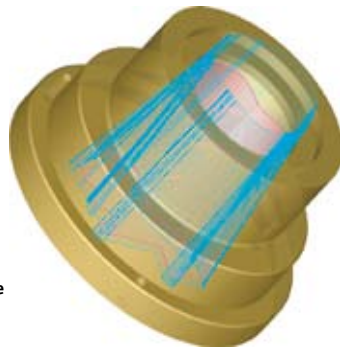
Tebis software offers a wide range of options for optimizing and simplifying programming for your erosion jobs. As the central control element, the job plan provides a structured overview of all parameters and functions used at all times. Each machining step is visualized and documented, and each newly defined contour or property is displayed with an appropriate symbol. Changes can be executed quickly and easily. As in Windows Explorer, command control is done via the context menu of a selected element. Use the drag & drop function to move and copy entries. Double-click to open and edit configuration masks. The pros do almost all their programming via the job plan!



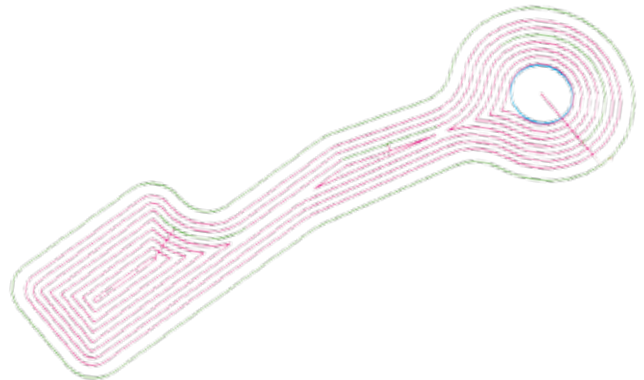
The job plan and the graphics window are linked. To highlight an element in the model, all you need to do is select the corresponding entry in the job plan.

High-precision curve functions

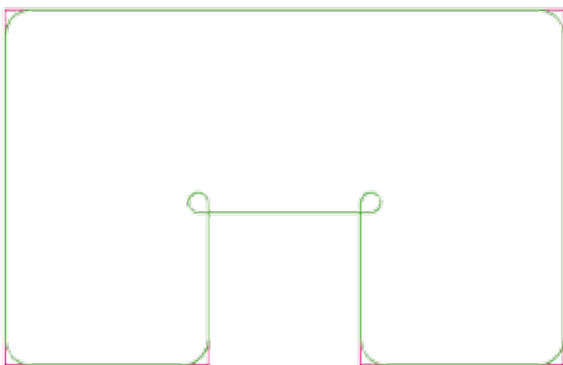
High-precision curve functions let you optimally prepare contours for NC export. They include precise calculations for destruction cuts, interpolations or approximations and the functions for automatic corner rounding or reblending. Advantages: This gives you short programs with effective machine run times.



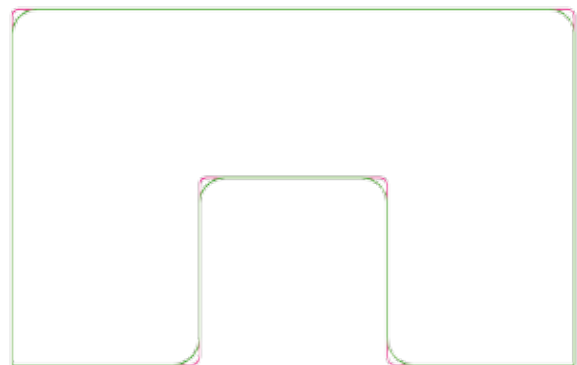
To ensure tangential transitions and reduce the number of elements, Tebis calculates interpolation lines within user-defined tolerance ranges.



Residual material is completely destroyed, even for complicated core-less cuts, without necessitating extra interventions from machine operators.



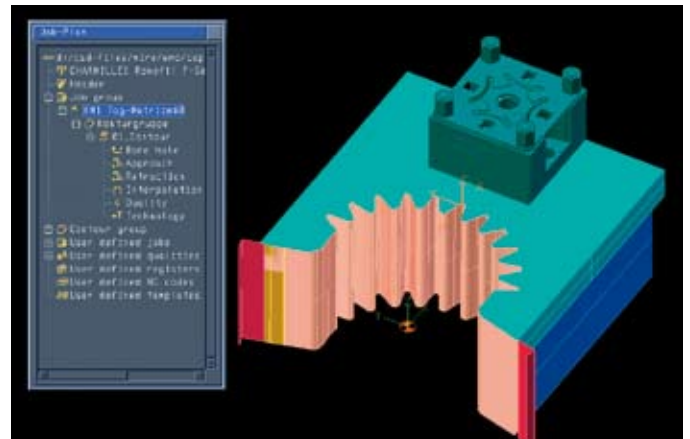
Contours whose corners are automatically rounded by target radii can then be copied over as CAD elements.



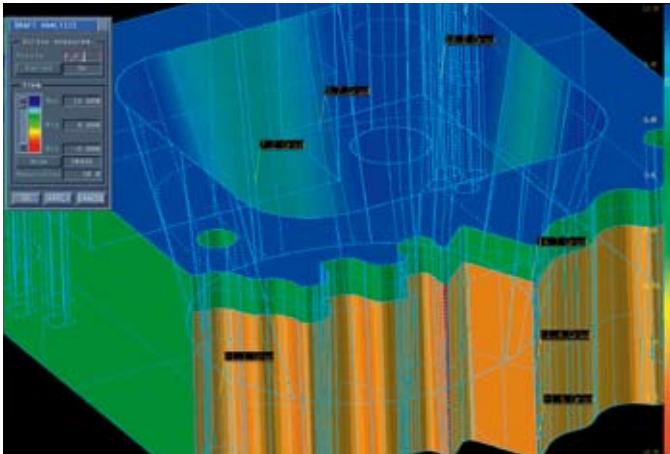
The reblending function lets you convert fixed design radii into variable radii and makes them parametrically manipulatable. This lets you use a single contour to program core and cavity, for example.

Integrated CAD/CAM system

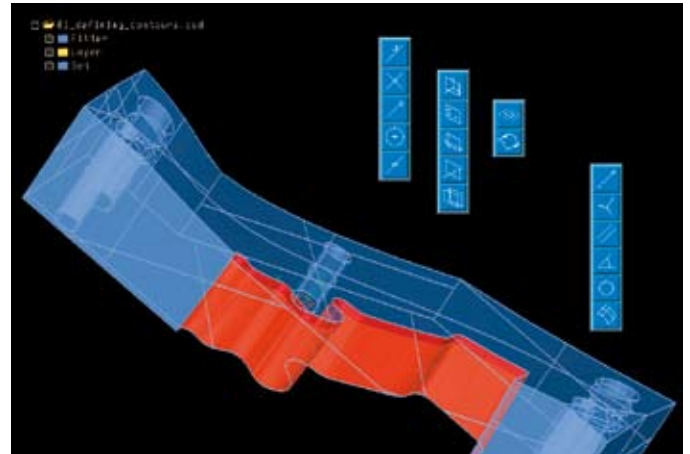
The integration of Tebis software aids design and manufacturing processes. Because you can execute all the steps in the process chain within a single system, you can avoid time-consuming geometric adjustments after data imports and the generation of additional data. And having access at any time to a complete CAD system with comfortable design and analysis options has proven to be a considerable advantage throughout the entire programming process.



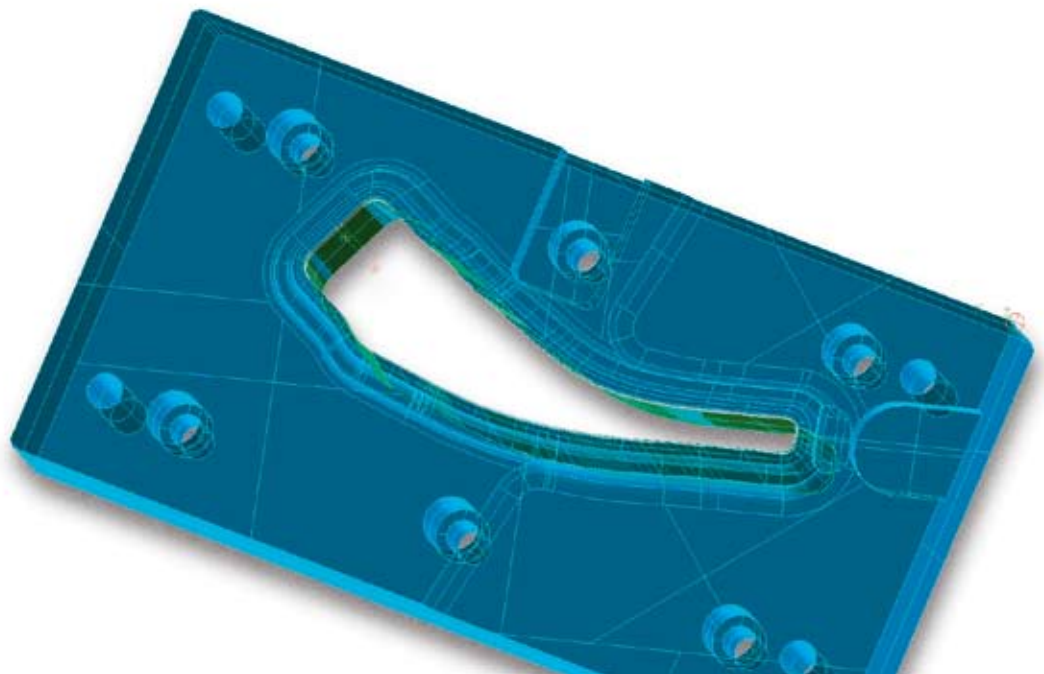
Mold and die manufacturers already using Tebis to run their milling and who also count on Tebis when designing and manufacturing electrodes can now use the same CAD/CAM system to calculate and export their wire EDM programs.



The extensive analysis functions available in the Tebis software can analyze curvatures and the quality of faces and surfaces. You can determine any coordinates, radii, lengths, slopes or angles, as well as the distances between geometric elements. You can also add and edit texts to the CAD model.

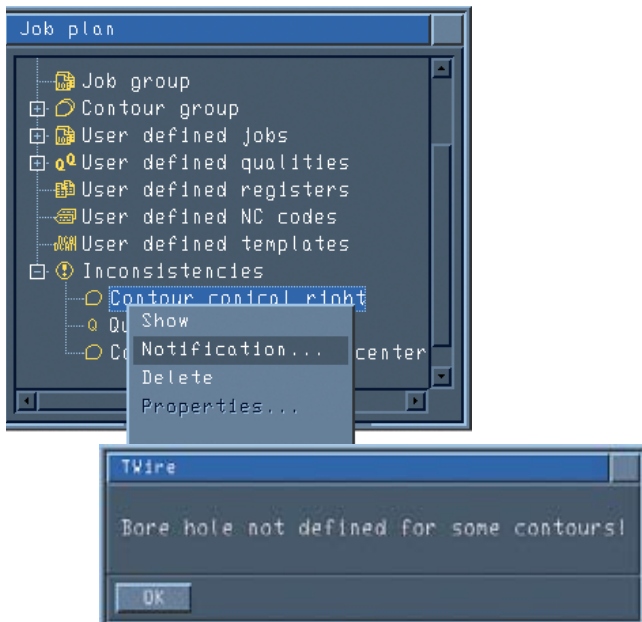


As in all the Tebis CAM applications, you can directly create simple CAD elements such as points, lines, circles, curves and planes. In addition, when using function cascades to enter parameters for a design or calculation function, you have the option of using temporary auxiliary elements such as intersections or circle centerpoints that will only be displayed until the conclusion of the cascaded function.



Quickly achieving your goals with the interactive user interface

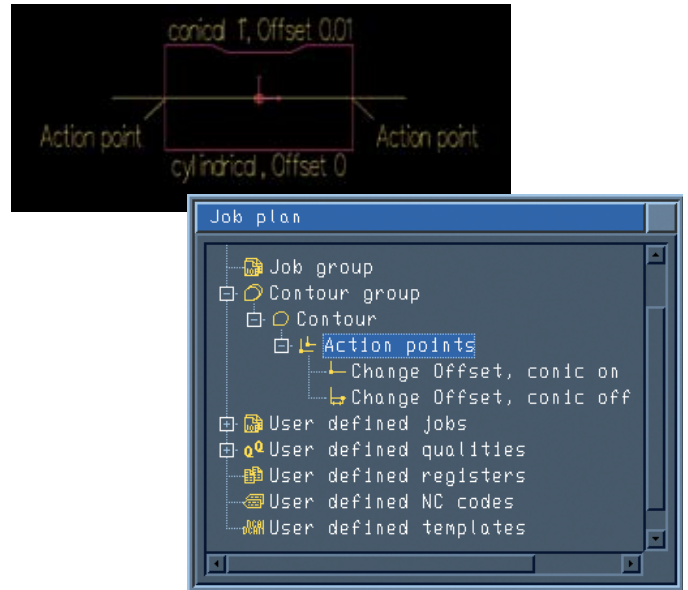
Our process-oriented job plan's functionality and clarity have proven to be important advantages throughout the programming process. You also benefit from the interactive user interface when troubleshooting programming-related inconsistencies as well, as you no longer have to spend a lot of time searching for error sources. For example, when a selected bore hole is not perpendicular to a contour or not all the necessary contour properties were defined in the job assignment, the system will let you execute fast and targeted fixes. You are directly notified about unsuitable parameter settings. This means that even less-experienced users will be systematically guided toward optimum NC programs.



An inconsistencies list automatically created in the job plan lets you directly follow up messages about programming-related problems and quickly and easily correct their sources.

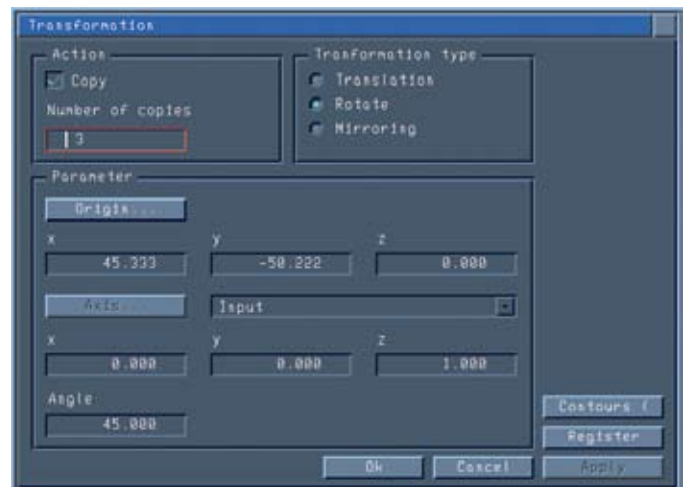
Switching functions within a contour

You can change cutting parameters for conic angles, offsets and machine-specific instructions within a contour for individual areas. This eliminates time-consuming adjustments to the CAD geometry.



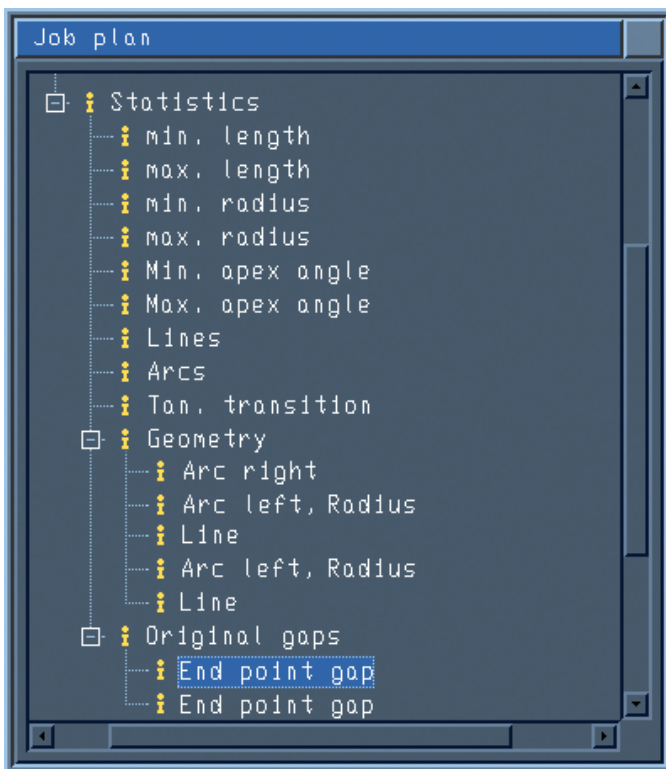
Transforming and copying completely processed contours

You can move, rotate and mirror contours and cutting sequences, including all their technological properties.



Comprehensive statistics

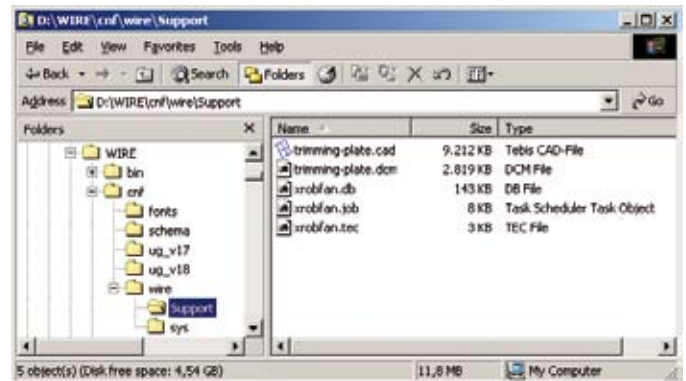
Our comprehensive and clear statistic functions keep you in complete control at all times. You can query all the important information for contour elements and their properties in the job plan. That also includes geometric information on the element types, the number of segments of a contour and the lengths, radii or angles, as well as listings of all the interpolation, approximation, rounding or radius restoration results. If gaps were closed when a contour was created, you can have the system display the original gaps and their statistics.



The structured overview of the geometry's statistical properties also lists the rounded elements and the original gaps. The graphics window displays the element limits of a selected entry.

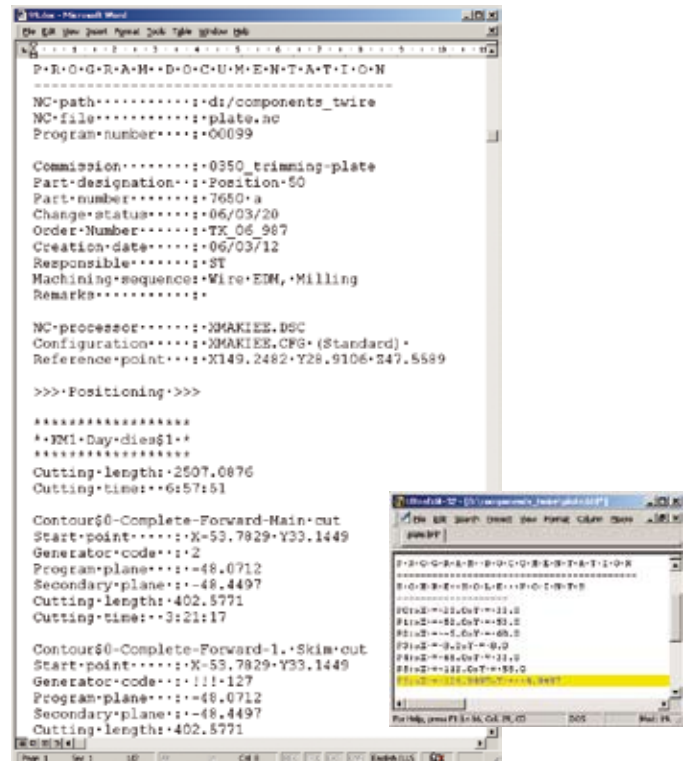
Problem-free data transfers

With a single mouse click you can automatically generate all the files necessary for data exchanges with third parties and save them to their own directory.



Automatic documentation

If you like, you can have the system create a file during NC export containing the complete documentation from the entire program. It is also possible to create files containing the coordinates of the individual bore holes.



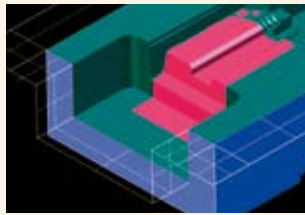
Tebis software in die and mold manufacturing: End-to-end organization of manufacturing processes.

1 CAD interfaces

- Includes many standard and direct interfaces
- Retain component structures (product/part)
- Copy features

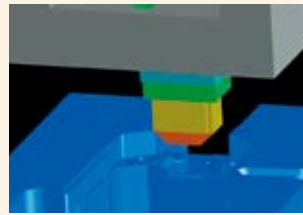
2 Production-ready design

- Closes gaps automatically
- Provides tangential extensions
- Checks and creates draft angles
- Places features



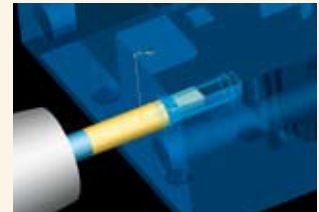
3 Derive electrodes

- Locate erosion areas
- Derive geometries comfortably
- Offer holder and blank libraries
- Provide electrode administration and documentation
- Include simulation functions



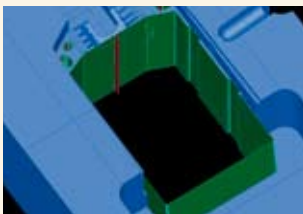
4 2.5D drilling and milling

- Fully automated drilling and milling (feature-based)
- Stepped bores with threads at any compound angle
- Collision testing that includes all tool changes



8 Wire EDM

- Fully automated contour definition
- Applicable directly on solid/surface model
- No additional interface runs
- No extraction of section contours



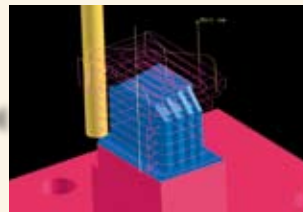
7 Measure electrodes

- Collision-tested measurement paths at the click of a button
- Start measurement within Tebis
- Determine offsets and quality



6 Mill electrodes

- Standardization by using NC templates
- Manage toolpaths and electrodes together



5 Mill molds

- Roughing with stock model tracking
- High surface quality during finishing
- Collision testing with tool assemblies
- Interactive control options



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THE CAD/CAM EXPERTS.