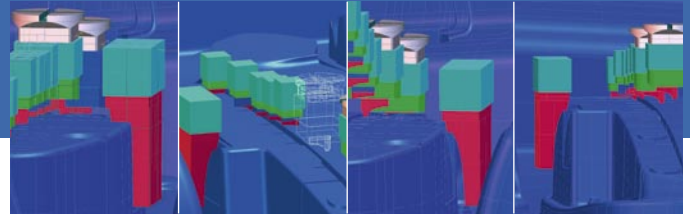


## SHORTER LEAD TIMES AND MORE PROCESS SAFETY IN MOLD MANUFACTURING



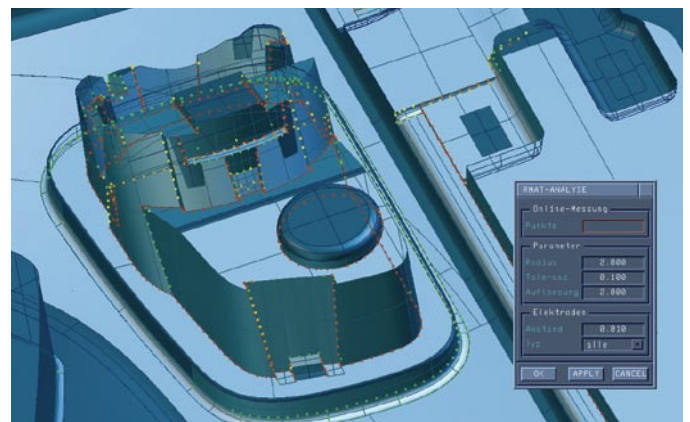
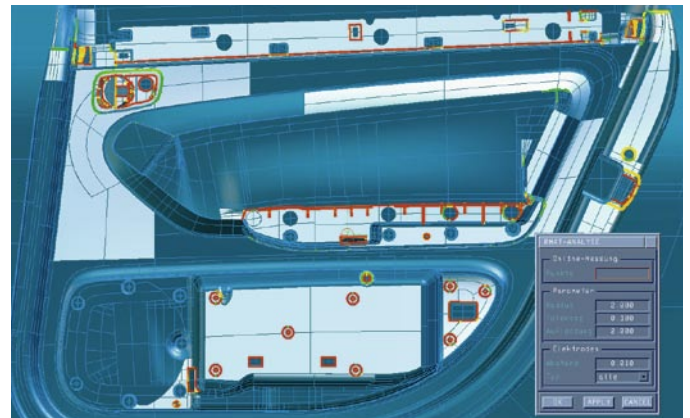
Electrode  
Design

Tebis CAD/CAM software enables enormous improvements in mold manufacturing processes. From automated recognition of the erosion-relevant areas to comfortable, database-supported electrode design, to methodical NC processing, all the way to the measurement of the mounted electrodes, Tebis will support the entire process. Using the "Electrode Design" CAD module, you can lay the foundation for profitable lead times and the highest level of process safety. Analysis functions support users in checking the electrodes for completeness, redundant usage and freedom from collisions. All parameters significant to milling manufacturing technology and the usage of the electrodes in the erosion machine are automatically managed in parts lists and passed along to automatically generatable onscreen documents or paper printouts, all the way to the erosion machine.



## Automatically recognizes areas that will remain unfinished after milling

Tebis offers you a fully automated analysis function that checks the mold for residual stock areas left over after the milling step with the smallest milling tool.



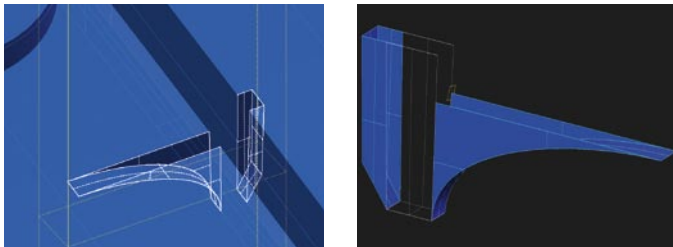
The residual stock function identifies areas that need to be eroded. A color code shows the stock thickness after milling.

Because injection molds are mostly only subjected to erosion machining in areas where milling technology approaches its inherent limits, the design of the necessary electrodes is a task ideally left to NC programmers to execute.

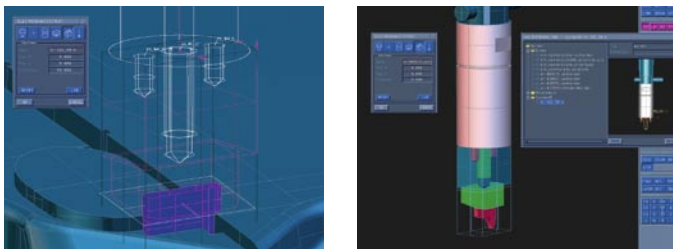
With its simple and easy-to-learn operating design, Tebis software has always been predestined for working close to the manufacturing line. And of course this applies to our CAD module for electrode design as well.

### Comfortable CAD design of the electrodes for the areas detected

Tebis provides graphic interface functions for picking up the burn area geometry from the shaping surface of the mold, to let you tangentially extend, trim and apply conicity to the burn areas. In its fully automated finishing of the electrode, the system takes blanks and electrode holders from previously created database libraries and generates design characteristics such as the probe frame, base and connections to the holder.



With its graphic interface, the system separates out the mold's burn area geometry and uses a few CAD functions to prepare for the subsequent design automation.



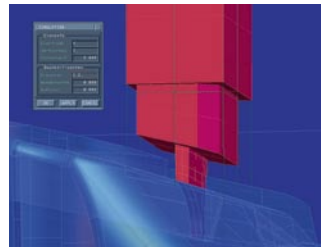
The electrode will automatically be designed ready for production. Blanks and holders can be taken from database libraries. The system stores all specifications for automated design, such as usage location, dimensions and holders, in the design assistant.

### Easy-to-comprehend parts list management of the designed electrodes, with all their manufacturing and usage parameters

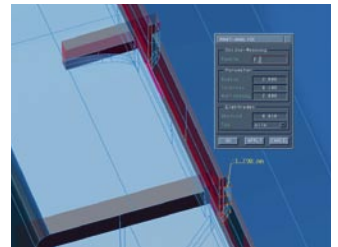
Tebis manages designed electrodes in parts lists, together with all their life cycle-relevant information. This includes the location where the electrode will be used in the mold, the dimensions required for the blank, the gap size, the aspects of the base, the suitable electrode holders, the erosion direction and the electrode's retract path after use.

### Reliable analysis of your electrodes for completeness, redundant usage and freedom from collisions

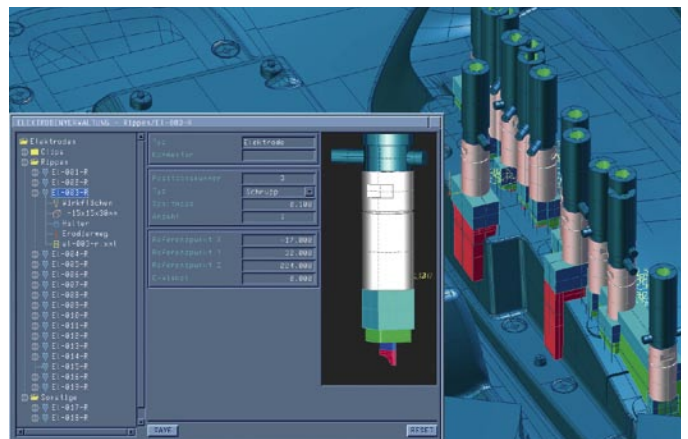
The completeness analysis determines whether electrodes have already been created for all erosion-relevant areas. The redundancy analysis assesses whether duplicated electrodes can be used in apparently identical areas. The collision analysis investigates not only the electrode but also its base and holder and detects both when contact occurs and when the electrode is too close to the mold. Finally, the ejection analysis determines whether the ejection angle was complied with.



In the collision test, the system identifies the areas of the finished electrode that are too close to the component. Problems detected can quickly be fixed via the automated design.



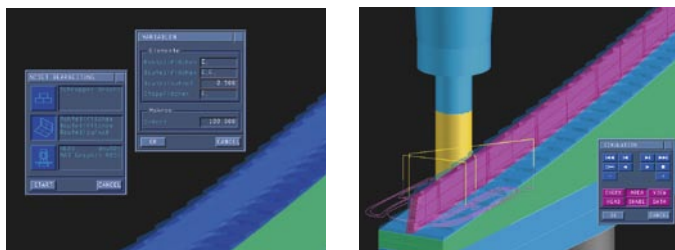
The completeness analysis identifies unfinished areas of the mold that cannot be milled to their final dimensions by milling procedures and for which no electrodes have yet been designed.



All the parts list information saved can be exported and thus used by external management systems.

### Optimized milling of electrodes using material-dependent and geometry-dependent methods

Tebis offers NC set technology to help you with NC programming. The system uses libraries to store individual prefinished processing sequences with tried-and-true chip removal strategies and parameters. NC programmers merely have to enter a few parameters, such as milling surfaces and milling direction, and then Tebis will calculate contiguous milling programs fully automatically that are put together from roughing, finishing and residual stock paths.



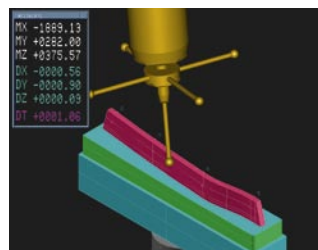
Tebis NC set technology: Tried-and-true chip removal strategies are retrieved from libraries and augmented with a few input parameters. Tebis then calculates milling programs completely automatically.

### Automated documentation of electrodes' manufacturing and usage parameters

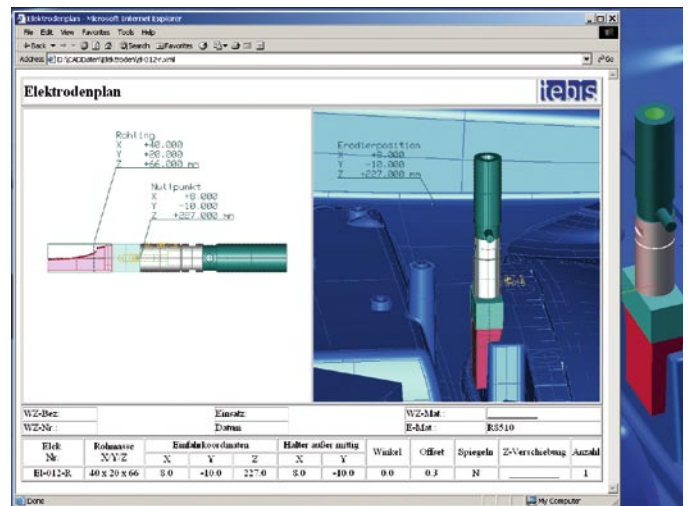
Tebis supports both paperless processes and the old-fashioned way that uses lots of notes. All the characteristic information on the manufacture and usage of the electrode, including blank dimensions, holders, usage position in the mold and erosion direction, is copied automatically from the parts list management into a freely configurable onscreen or paper document. Which means you can call up this information at any time from the milling, calibration and erosion machines.

### Calibration of the electrodes

After a milled electrode has been mounted onto its electrode holder, you can detect deviations caused by the milling or mounting procedures. The Tebis module for surface measurement supports this process seamlessly and thus enables the determination of compensation values on coordinate measuring machines that can be used later on when positioning the electrode in the injection molding die.



The coordinate measuring machine determines the burn area geometry's three-dimensional offset to the probe frame. These values are then taken into consideration when the electrode is used in the erosion machine.



Paperless or via the printer: The automatically generated documentation contains all the information on the technical milling manufacturing parameters and on the usage of the electrode in the erosion machine.

**tebis**

THE CAD/CAM EXPERTS.