

ENGLISH

OPTICAM

CAD/CAM SYSTEM



 **Camtek**
www.OPTICAM.cz



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INTRODUCTION

Camtek GmbH has more than 16 years of experience in programming Wire EDM machines. Our immense experience in this field has flown into our new CAD/CAM-system OPTICAM. OPTICAM is a fully integrated plug-in for the CAD-system SolidWorks™.



The programming is based directly on the designed or imported 3D model. Because of the automatic Feature-Recognition and the assignment of integrated machining technologies and strategies OPTICAM offers a very high automation level and reduces the programming time significantly. After a very short training period a beginner can create a correct nc-program with a few clicks, while an experienced user still has the complete flexibility to intervene in every detail.

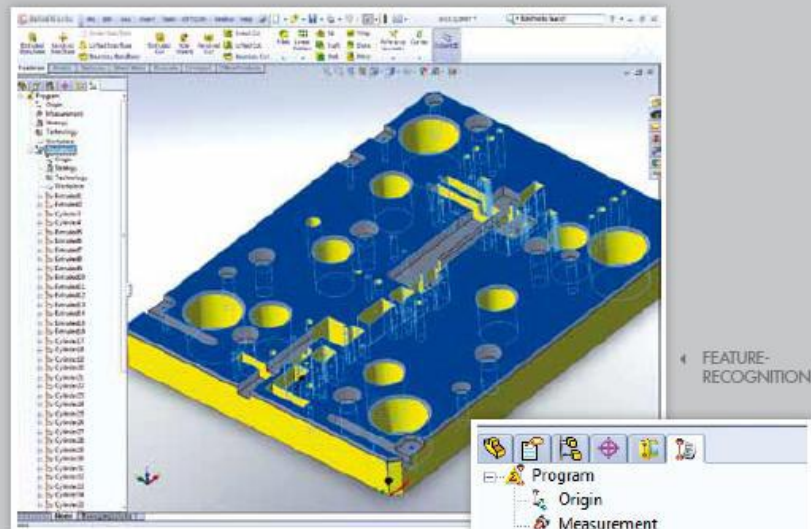
Integration in SolidWorks™

With the OPTICAM-Manager the user can work easily and clearly in his familiar CAD environment.

- Full integration in SolidWorks™
- User friendly interface
- Intuitive user guidance
- Quick access to all relevant information

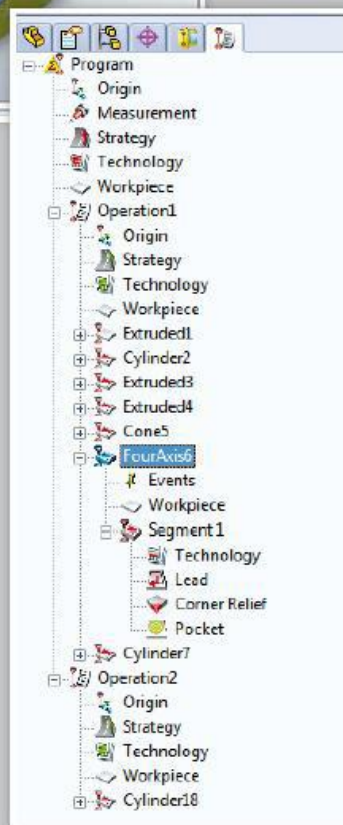


AUTOMATIC FEATURE-RECOGNITION



OPTICAM analyses the 3D models, recognizes wireable geometries and creates their machining simultaneously. The tool paths are shown graphically and follow subsequent changes of the model immediately or can be manipulated afterwards. Too short faces are extended and face gaps are bridged. Faces and edges can also be chosen manually to wire only specific areas or to create a user-defined feature. Furthermore integrated technologies and machining strategies can be assigned to create features automatically.

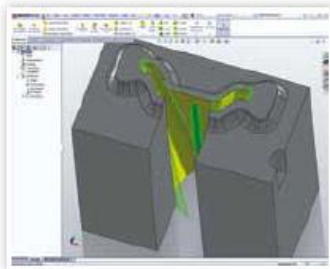
- Direct, parametric machining on the 3D faces and solid data
- Graphical offset display with direct model linking
- Manual Feature-Recognition
- Takeover of Feature information
- Undercut control
- Maximal concity control



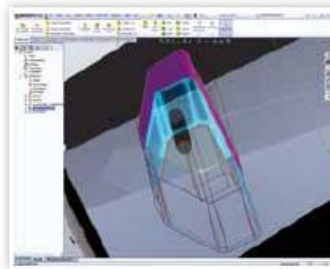
OPTICAM-MANAGER



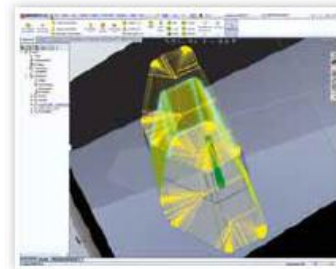
MACHINING FUNCTIONS



RULED SURFACE



COLLAR MACHINING



CONICAL POCKETING

OPTICAM assigns the correct machining functions automatically to the recognized features:

- Cylindrical machining
- Constant and variable taper control
- Ruled surface machining
- Offset ruled surface machining
- Collar machining
- Pocketing
- Variable lands
- Automatic wire tread and wire cut
- Diagonal wire tread
- Automatic positioning
- Automatic clustering of identically geometries
- Multi part machining

► Pocketing

To avoid manual interventions and machine downtimes an efficient pocketing of the geometry without tags is often needed. Therefore OPTICAM offers special cycles:

- Cylindrical or conical pocketing
- Ruled surface pocketing (optional)
- Partial pocketing

MACHINING STRATEGIES

OPTICAM contains all machining strategies, which are required for the efficient and safe operation of Wire EDM machines. All cuts are shown in the cuts dialog and can be changed afterwards.

- Strategies for attended or unattended day and night run
- Punch strategies
- Reverse cutting
- Automatic removal of tags
- User defined strategies can be saved as template

FURTHER FUNCTIONS

Start holes and bridges

The Feature-Recognition places the start holes at the best possible position automatically and can be influenced afterwards. If there are already existing geometries for the start holes the Feature-Recognition considers them and places the start holes there. Furthermore the position and number of bridges can be defined automatically or manually. Thereby break tags and multiple tagging with several start holes are possible.

Lead in and lead off

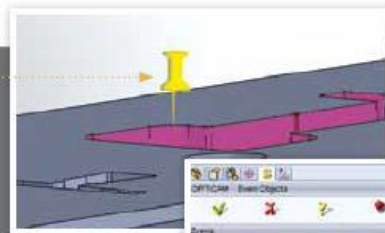
With just a few clicks the lead in- and lead off strategies can be set or influenced.

- Strait, at an angle and meander shaped
- Possibility to overtravel the contour
- Lead in and lead off technologies programmable



Events and Segments

An event can be placed at any position of a feature. At this point a comment, a machine code for example an M-code or G-code or an nc-set can be inserted. Furthermore features can be split up in several segments. For each segment the number of cuts, of offsets, the lead in- and lead off strategies or a partial pocketing can be set separately.

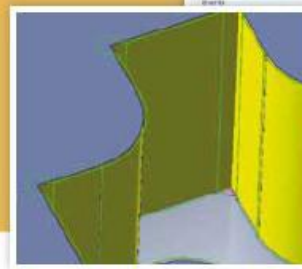


EVENT POINT



Corner Relief

Four types of corner reliefs allow a specific influence of the tool path in sharp edges without changing the model. This is especially important in cutting tool manufacturing.



CORNER RELIEF



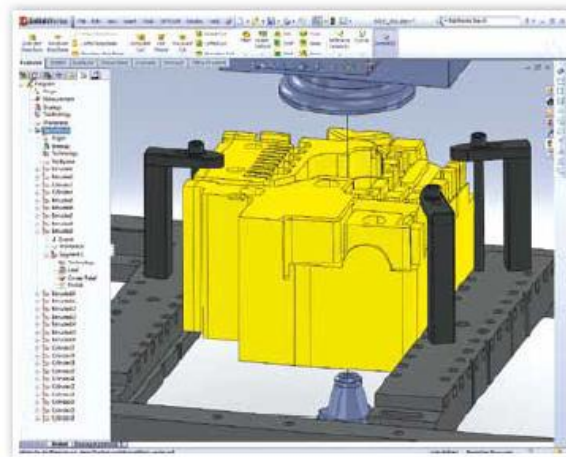
OPTICAM GEAR (optional)

With the OPTICAM.Gear module it is possible to create non standard gears. By changing the coefficient, the pitch circle, tooth thickness over rollers, tip and root radii or chamfers the involute can be manipulated very easily.



3D SIMULATION

For the secure checking of the tool paths a 3D simulation with material removal was inserted. Besides the offsetting, the clamps and machine heads are also simulated.



- Collision- and demoldability checking
- Checking of the maximal taper angle
- Calculation of the cutting time

3D SIMULATION

INTEGRATED TECHNOLOGIE DATABASE

OPTICAM offers an integrated technology database for all CNC-controls and CNC-machines. It is also possible to integrate customized technology databases. If the postprocessor is switched during runtime OPTICAM can find a comparable technology for the other machine.

- Postprocessors for all available CNC-machines
- Output of JOB, Script, CMD files and subroutines
- Automatic creation of a graphical set up sheet
- Automatic calculation of the start position
- Change of postprocessor during the runtime
- Creation of an nc-program for single features

POSTPROCESSORS / NC-OUTPUT

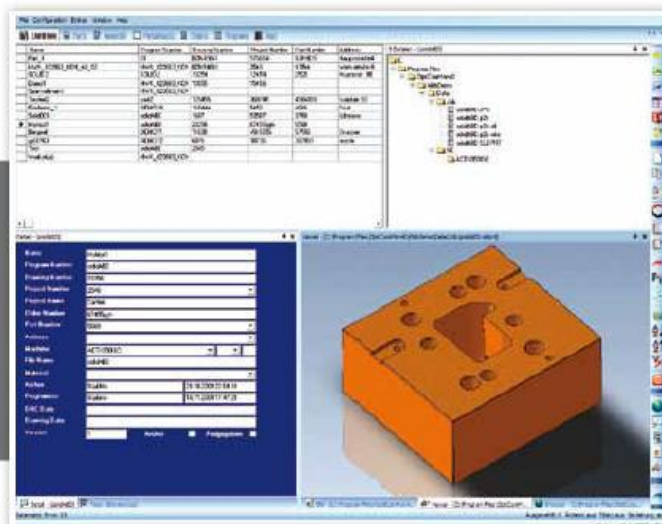
OPTICAM has been developed in co-operation with leading CNC-machine tool companies and is being continuously improved with new machine functionality. High-quality postprocessors and technology databases are available for all CNC-controls and CNC-machines.

CAMMAN

CAMMAN is a powerful data management system for the administration of NC-programs and CAD-drawing including SAP- and ERP-interface.

CAMMAN gives you easy access to existing data files and allows the input of additional information e.g. drawing number, order number, project number, version number, customer, comment, date, programmer, machine as well as security confirmations for DNC Systems. The file selection is supported by an

integrated file 3D viewer. By using the CAMMAN data management system, the designer, the programmer and the machine operator share the same database. This avoids file duplication and mistakes. It is easy and cheap to individually adjust and connect to existing databases.



CAMMAN NC-PROGRAM
MANAGEMENT WITH
3D-GRAPHICVIEWER

- Configurable, userfriendly interface
- Input of all relevant data
- Extensive search criteria
- Integrated 3D viewer
- Management and display of pictures
- Management of Word- and Office documents
- Display of file structure
- Interfaces to SAP- and ERP-systems
- Transfer from and to other databases
- Management of CAD-data



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