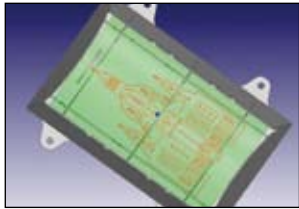


Strategies for Laser Material Processing

Laser Cutting, Laser Cladding and Laser Hardening are supported in several variants. The laser is routed by CNC machines or robot systems. Robot kinematics are mapped. The robot motion is simulated by interlinking a virtual robot controller.



Postprocessors

NC programs are generated by dint of postprocessors which are adapted to the controller intelligence. Numerous CNC controllers are supported. The postprocessors are user-specific and in-depth configurable.

From pattern to workpiece

- Measuring of free-form surfaces and 3D curves for creating CNC tool paths and quality testing
- manually or semi-automatic
- dynamic spline calculation of surface boundaries
- quality testing of finished surfaces (set-actual comparison)
- modeling of surfaces via text curves appending
- CNC tool path generating based on surfaces

NC-Scan

- Digitizer with integrated CAD/CAM functions
 - direct takeover of 2D and 3D points, curves and free-form curves from object to system.
- The data could immediately be further processed, for example generating of CNC controlling data.

With smart modules from draft to CNC program

- Import and preparing of CAD-Files
- Import of measuring and design data
- Surface modeling based on profile curves
- Multi sided machining (3+2 indexed axes)
- Macro support for customized applications
- Pocketing
- 3D milling over surfaces and point clouds
- 4 axes wire cutting
- Generalized postprocessor

SKM DCAM 2009 – Applicable for processes

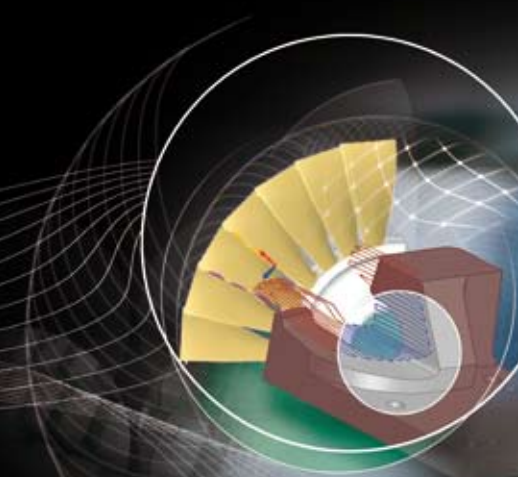


- Boring
- Milling
- Laser cutting, laser cladding
- Wire cutting
- Robot processing

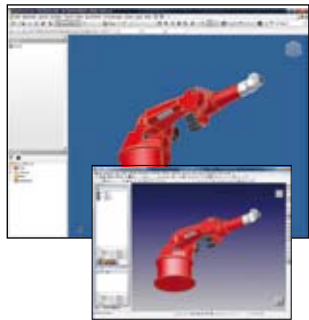


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SKM DCAM 2009 is a 2D/3D software for rapid generating of CNC programs. The groundbreaking performance of this software is based on CAD-data migration and CNC-suitable processing of geometric data. This program is completely menu-driven. A clearly-arranged window system, processing strategies and the tool-path visualization considerably lighten and enhance your work.



User specific applications

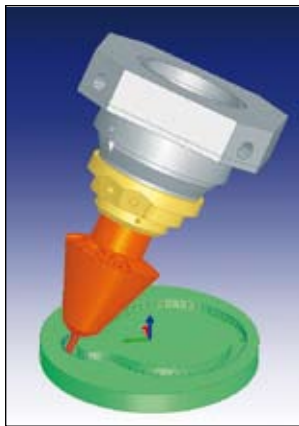
There are implemented numerous functions for specific requirements which range from „welding perforation“, unrollings to repairing of blades. SKM DCAM 2009 captivates with its high bandwidth of special applications. Open postprocessors and a flexible code generator afford quick user-specific adjustments like for instance a particular parameter setting for drilling and milling subroutines. Arbitrative advantage: The user gets a custom-made program,

including an editor and individual improvement-options, for his control unit.

Inventor integration

SKM DCAM 2009 is available as an addin for AutoCAD Inventor Suite 2009. The direct data migration of any geometric shapes, assemblies up to intelligent CAD/CAM objects like drillings or boundaries of unrollings etc. is also integrated.

Powerful CAD functions



The CAD functions serve the nc-suitable processing of curve and surfaces.

- tracing of polylines 2D/3D incl. failure detection and repairing
- optimization of curves: thinning, arc succession, spline smoothing
- curve offset 2D/3D, rounding of inner and outer corners
- form curve groups, automatic

detection of outer curves and islands

- boolean operations for curves
- curve projection on surfaces or coiling to cylinder
- cross sections calculating and editing
- generating texts: true type or vector fonts
- drills and drill patterns
- surface shaping (ruled surface, free-form surface, surface of revolution, top surface, surface offset)
- generating and editing of vector curves: editing single vectors or field of vectors
- modelling of complex assemblies by element groups, also as dynamic kinematics modules

CAD-Import

The basic input formats (DXF, IGES, STEP, HPGL, EPS, STL, ...) are naturally supported. External converters could also be integrated so that further formats could be imported.

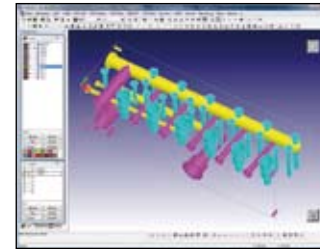
Layer technique

Using layer technique filtration of drawing information plus creating new layers are possible.

Frame technique

Using frame technique both creating of several construction planes and taking over of machine coordinate systems are possible. Frames establish a basis for multi-sided machining (also 3+2

indexed machining) or enable the illustration of complex clampings for example for offline robot programming. Drill intersections could be simply discovered and checked.

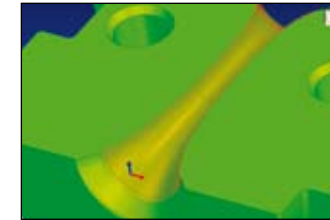


Comprehensive services

- multi-windowing, unbounded undo/redo, moving, rotating, scaling, mirroring, clipping
- data exchange to EXCEL by clipboard
- supporting of Logitech SpaceNavigator
- operator guidance in German or English (further languages on request)

Dimensioning

- linear, radial and angle dimensioning
- free connected dimensioning text (for measuring and creating of clamping sketches)

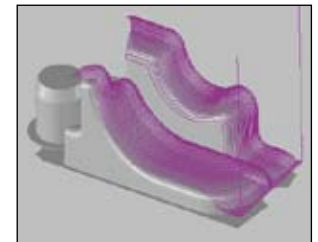


CAM functions

- high-performance 2.5D handling: milling of open and closed curves, variable start and end points, cutter radius compensation, additional offset, clean up of curves, removal of interfering elements at inner corners, start-up with tangential arc or at right angle
- pocket milling incl. islands
- cutting 2D: variable start and end points, cutting crack adjustment, additional offset, automatic in sequence from inner to outer, optional loops at outer corners
- assignment of tool parameters (connected with tool data base)
- setting bars to tool paths
- drilling on point patterns
- 3D-handling: curve milling and line-by-line milling using sample curves. Presetting strategy: parallel lines, pocketing or oscillating along a base curve. Milling directly on point clouds.
- 4 axis handling: cylinder surface handling also excentric, chamfering, taking over of vectors from surfaces or

presetting “cylindric”

- Wire Cutting(EDM) 2 and 4 axis: mode die-plate or die, curve cut and section separately executable, roughing and finishing, optionally oscillating
- 5 axis handling: simultaneous 5 axis handling along vector curves or on meshes adapted for cartesian machines or robots, reworking of vector curves or robot paths possible: smoothing, adjust orientation, remove points
- 5 axis cutting: conditional cutter width compensation, loops at outer corners, consideration of an additional (6th) axis for tangential cutting



Simulation

- Simulating of tool paths: Illustrating of complex tool geometries, machine/robot simulation, 3, 4 and 5 axis, material removal