Efficient 3D-CAD/CAM solution for Laser material processing and simulation

• Inventor-interface
• Powerful CAD functions
• CAM: up to 8 Axes simultaneous
• CAM strategies for Laser material processing on NC-Machines and Robots
• CAM: 2.5D machining
• Simulation of robots and equipments
• Open postprocessor technology
• 3D-SCAN systems
• Adaptations and services

Simulation of machines and robots

• Simulation of NC tracks in Robot cells or CNC machines with complex tools or nozzles
• Robot path planning with EASY-ROB™-Kernel or Reis-VRC

3D-SCAN

• Digitizing system with integrated CAD/CAM functions
• Gathering 2D/3D points, contours, curves, stroke editing
• direct usage as CNC data

Postprocessors

• Open postprocessor technology for optimal NC programs
• Individual adaptation to application and machine
• Know how for 20 years in postprocessor development
• support for a lot of established and exotic CNC controls

Adaptations and services

• IT-CAD/CAM system house with 20 years experience in implementation of custom specific solutions
• 40 staff members, experienced developer team
• 3D-CAD modeling and visualization
• Reverse Engineering / Rapid Prototyping
• 3D-Digitizing
• Consulting service and CAD/CAM solutions
• Postprocessors appropriate to specification
• Software development
• Trainings and Hotline

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SKM DCAM is a 2D/3D software for rapid generation 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 tool-path visualization considerably lighten and enhance work.

**Powerful CAD-Functions**

**NC-Suitable Preparation of Curves and Surfaces.**

- Contour tracking 2D/3D including fault detection and correction
- Optimization of curves thinning, arc succession, spline smoothing
- Curve offset 2D/3D rounding of inner and outer corners
- Curve grouping automatic detection of outer and inner boundaries
- Boolean operations for curves
- Curve projection on surfaces or coiling to cylinder
- Cross sections calculation and editing
- Text generator TrueType fonts and vector fonts
- Drillings and drill patterns
- Surface modeling ruled surface, free-form surface, surface of revolution, top surface, surface offset
- Generating and editing of vector curves editing single vectors or a selection of vectors
- 3D-handling of complex parts static or dynamic, e.g. for robot kinematics
- Linear, radial and angle dimension
- Arbitrary dimension text for measurement and creation of clamping sketches

**CAM: Up to 8 Axes Simultaneously**

- Position, orientation and twist of tool
- Supports non-rotation-symmetric tools
- Special robot strategies

**CAM-Strategies for Laser Material Processing with CNC-Machines and Robots**

- Laser cutting cutting gap compensation, automatic sorting from inside outwards, loops at outer corners
- Laser hardening along a given curve, also with rectangular spots, track smoothing
- Laser cladding Volume build-up, surface coating, hardfacing of edges, special robot strategies
- Blisk-repair edge repair, tip repair
- Remote cutting trajectory planning for coupled axes systems, strategies for dynamic scanner optics
- Laser ablasting point- or vector modes, strategies for high-performance axes systems
- Glass laser engraving fascinating images in glass, processing of large point clouds

**CAM: 2.5D-machining**

- 2.5D-milling Milling cutter radius compensation, additional curve offset, arbitrary start/end points chamfer corners
- 3D curve milling
- Pocket milling incl. island recognition Line-by-line milling or by curve offsets
- Drilling drill patterns, free drill sequences, drill features, optimization of tool order and traverse path
- Wire EDM in 2 and 4 axes modes die and die-plate, roughing and finishing, optional oscillating
- Micro bars

**Comprehensive Services**

- Multi-windowing, unlimited undo/redo, moving, rotating, scaling, mirroring, clipping
- Data exchange with EXCEL using clipboard
- Support of Logitech SpaceNavigator
- User guidance in German or English (further languages on request)

**Inventor Data Link**

- Plug-In for AutoCAD Inventor Suite
- Easy switch over CAD→CAM for optimization of surfaces, curves, cross sections
- Automatic recognition of intelligent CAD/CAM objects (features, boundaries, developed views)
- Proprietary and standard CAD interfaces: CATIA V5, Pro/E, SWx, NX™, ACIS, Parasolid

**CAD Import**

Support of basic input formats (DXF, IGES, STEP, HPGL, EPS, STL, ...). Customized import filters for further formats

**Layer and Frame Support**

Using frame technique it is possible to create several construction planes and import machine coordinate systems. Frames establish a basis for multi-sided machining (also 3+2 indexed machining) or enables illustration of complex clampings e.g. for offline robot programming. Drill intersections could be easy identified and verified.