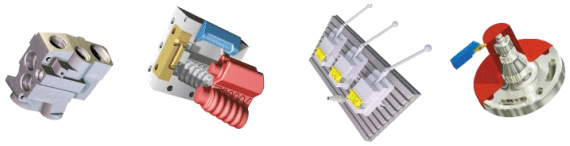
CAMWorks 2001



Fully integrated to operate within SolidWorks

3 Axis Milling

For Microsoft® Windows® 98, 2000, ME, NT®

New in CAMWorks 2001

- **SolidWorks Assembly Mode**
  - Machine multiple parts.
  - Avoid clamps and fixtures.
  - Sub-program G-code output.
  - New workpiece definition.
  - Reference machine origin.
  - Manage offset registers.
  - New copy machinable features.
- **User Interface**
  - New simulation tool bar.
  - New part manager.
  - New material manager.
  - Improved rotary definition.
  - New offset register control.
- **New Simulation Enhancements**
  - Cast parts simulation.
  - Display tool holders.
  - Display custom tools.
  - Display fixtures and clamps.
  - Show tool / holder / fixture collision.
  - Improved thread mill simulation.
- **Automatic Feature Recognition**
  - Automatic face feature creation.
  - Automatic open pocket features.
  - Condenses broken holes.
  - Improved face end condition.
- **3 Axis Milling**
  - Improved Z-level finish.
  - Improved Pencil milling.
  - User defined custom tools.
  - Rough spiral entry.
  - Shorter calculation times.
  - Rough order by area.
  - Hit flats option.
  - Rough auto containment.
  - New linked operations.
  - New edit tool path command.
  - Insert post operations.
- **Technology Database Enhancements**
  - User defined tool definition.
  - Tool holder definition.
  - Improved multi stepped hole def.
  - Tool path length and machining time in report database.

CAM Solution for SolidWorks

Considered the most advanced CAM solution available for solid machining, CAMWorks is also the first CAM solution to offer knowledge-based, feature recognition and associative machining capabilities within the SolidWorks environment.
This close integration means:

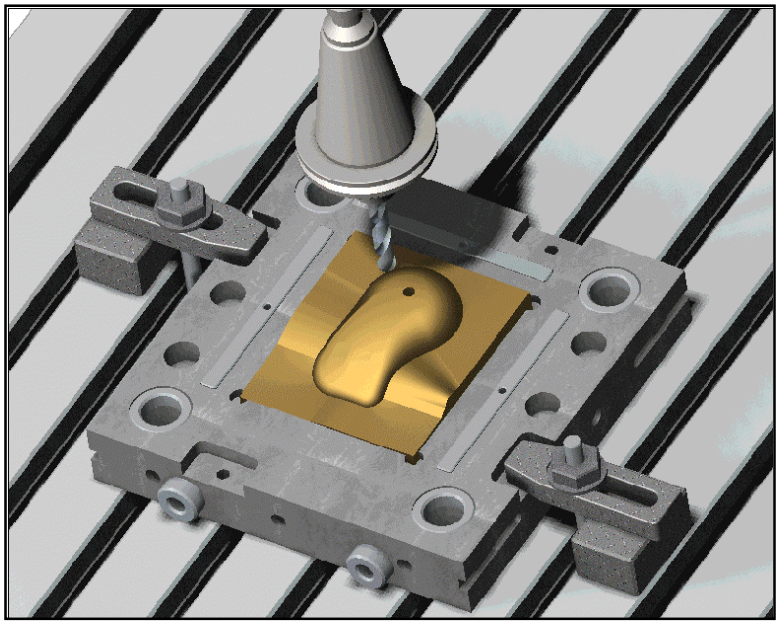
- When you are using SolidWorks, the CAMWorks machining tree and commands are available with the click of a button. You never have to leave SolidWorks to generate toolpaths.
- CAMWorks uses the same SolidWorks geometry to generate toolpaths to ensure the part you machine is the same part you have modeled.
- Time-consuming file transfers using standard file formats such as IGES and SAT are eliminated.

Ease of Use

CAMWorks uses the familiar SolidWorks interface, so it is easy to learn and easy to use. The CAMWorks Machining tree is similar to the SolidWorks FeatureManager design tree. Items in the tree can be expanded, moved, renamed and suppressed using the same procedures as SolidWorks. In addition to the familiar interface, online help and a Getting Started manual with tutorials will help you generate toolpaths and code from day one. The Getting Started guide is also provided in an Adobe PDF format file.

Best-in-Class Choice

CAMWorks is a best-in-class choice for users who want an optimum modeling system (SolidWorks) and an innovative manufacturing, feature-based CAM solution.



Knowledge-based Machining

CAMWorks includes a Technology Database that allows you to capture and store your facility's machining methods, expertise and procedures. This knowledge can then be recalled and applied in CAMWorks to help automate and promote consistency in NC programming and machining. A manual override for all the automatic functions means the user is always in control. CAMWorks also generates operations and creates stock automatically.

Technology Database

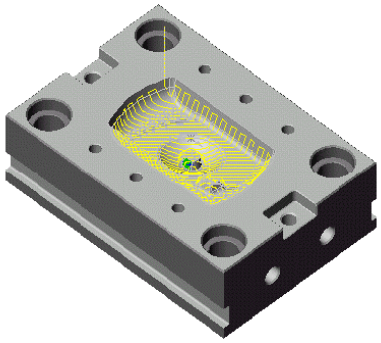
The Technology Database is shipped with data that is considered generally applicable to most machining environments. In order to gain full advantage of CAMWorks, the user may want to modify this data and input additional knowledge that represents the user's expertise and the facility's capabilities.

The machining information in the database is divided into these categories:

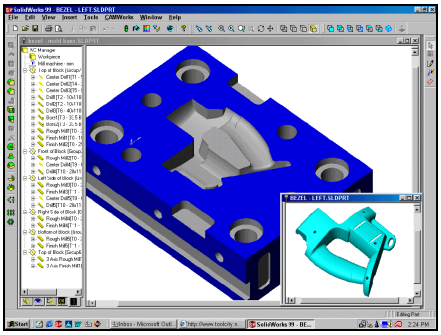
- Machine
  "Virtual" machines for all the CNC machines in your facility and the associated controller and tool crib.
- Tools
  The tool library can contain all the tools in your facility.
- Cutting Parameters
  Information for calculating feed rates and spindle speeds, workpiece materials and tool materials.
- Feature and Operations
  The machining sequence and operation for each combination of feature type, end condition, and size.

3 Axis Features

- Define 3 axis features interactively by picking faces to cut and faces to avoid.
- Four selection modes: individual, window, adjacent faces, and select all.
- Select from a list of sketches to contain the toolpath and sketches that the toolpath should stay outside of.



- Copy command for creating similar features quickly.
- Edit Definition command for modifying parameters of existing features.



Machining Operations

After machinable features have been defined, the user can generate an Operation Plan to machine the features on the part. Machining operations include roughing, finishing, drilling, etc. Machining operations are associated to machinable features. The Operations tree provides an outline view of the operations. Before generating toolpaths, operations can be customized including:

- Suppress, delete and rename
- Combine similar operations
- Change machining parameters
- Add machinable features
- Change the machining order

3 Axis Milling

CAMWorks handles several types of machining methods: complex multiple-axis machining, automatic Z-level roughing, and automatic finishing including planer, flowline, spiral, circular, and Z-level machining cycles.

- Cutting cycles in 3 Axis Milling provide fast, error-free surface cutting using ball, flat end mill and hog nose tools.
- 3 Axis features can be machined to exact tolerances set by the user.
- Machining algorithms use the latest tool path and gouge protection methods of cutting faceted data.
- "Facet once" technology facets faces only once improving 3-axis toolpath calculation.
- Scallop height or step-over is user-defined to reduce hand polishing operations.

2½ Axis Milling

CAMWorks includes 2½ Axis Milling with automatic roughing, finishing and single point (drilling, boring, reaming and tapping) cycles for machining two-dimensional prismatic features.

Additional Features and Tools

CAMWorks provides numerous integrated features and visual tools to improve productivity including:

- Drag and drop reordering of operations before generating toolpaths.
- Graphical toolpath generation display.
- Material removal simulation can reduce the need for dry runs at the machine tool.
- Step Thru Toolpath command includes options for viewing toolpath movements one movement at a time, a specified number of movements or all movements.
- Reorder Tool command assigns tool numbers sequentially for manufacturing environments that require sequential tool order.
- Completely integrated post processor supports virtually any CNC machine tool.
- Universal Post Generator can be used to customize the way code is output.

System Requirements

Hardware

- Platform: Intel®
- RAM: 128MB (256MB recommended)

Software

- Windows 98, 2000, ME, or NT
- SolidWorks 2000 (SP7+) or 2001
- Microsoft Access 2000

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