



CAMWorks®
A Geometric Product



SOLIDWORKS

Certified Gold
Product

Intelligent Machining through Automation

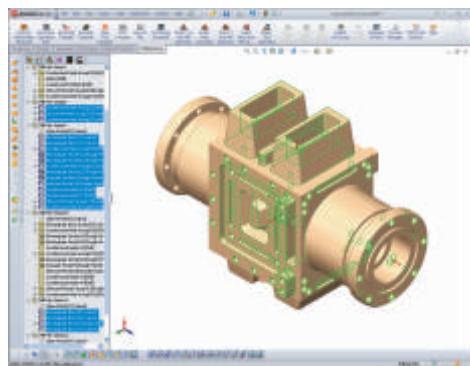
CAMWorks® is a 3D feature based CAM system that improves productivity and profitability by combining world-class technologies and integrated automation tools to optimize CNC programming and machining.

Intelligent Machining through Automation

CAMWorks

Easy to learn. Easy to Use!

CAMWorks is an intelligent, intuitive CAM application that eliminates the drudgery of CNC programming. In today's manufacturing scenario, getting products to market faster, more efficiently and within budget is essential. To achieve this level of complex hands-free programming, CAMWorks incorporates intelligent machining through automation.



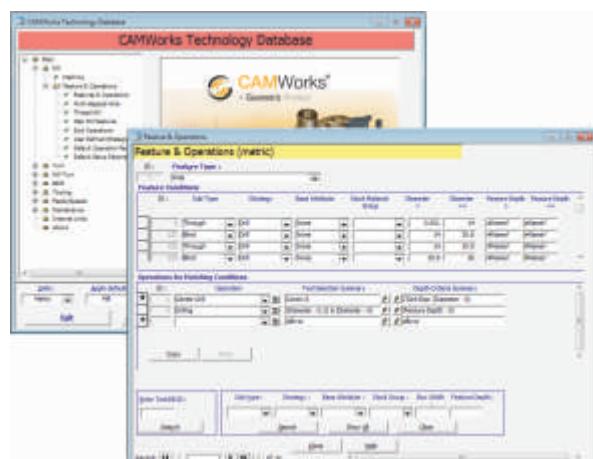
Minimize Efforts

CAMWorks' pioneering **Automatic Feature Recognition (AFR)** Technology analyzes the solid model geometry and identifies mill features such as holes, slots, pockets, and bosses; turning features such as outside and inside profiles, faces, grooves and cutoffs; and wire EDM features such as die openings. AFR recognizes features regardless of the CAD system in which they were created.

Automate and Control intelligently

CAMWorks' innovative TechDB™(Technology Database) is designed to significantly reduce the time required to generate machining strategies and processes. Using knowledge-based machining technology, the database associates tooling, operation strategies and machining parameters to the features. When operations are generated, CAMWorks applies these settings automatically. To further enhance the automation process, the knowledge-based rules in the TechDB are fully customizable to apply your company's best practices.

While CAMWorks promotes saving time through automation, at any time in the process, full interactive manual control is available.



"CAMWorks was the only tool we found out there that could meet all our demands and their flexible approach on APIs really helped us move forward this initiative to develop an Enterprise Business process that linked the order taking system with the design and manufacturing processes."

Karl Ramm

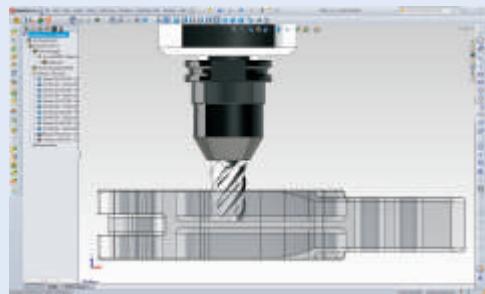
Senior Technology Manager and Project Developer

CP Carillo

2.5 Axis Milling

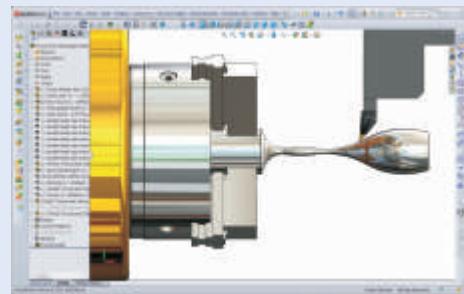
Includes automatic roughing, contouring (finishing), thread milling and single point (drilling, boring, reaming, tapping) cycles.

- Cutting cycles provide fast and gouge protected toolpaths
- Automatic tool path optimization to increase program efficiency



2 and 4 Axis Turning

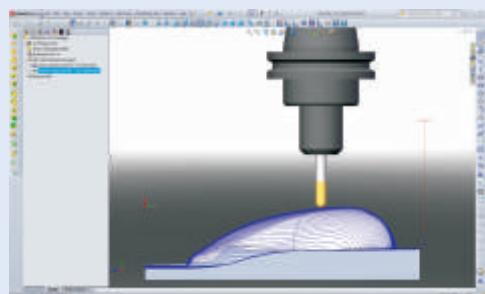
- Incorporates error free and gouge protected tool paths
- Support for sub-spindles and twin turrets
- Support for canned and long code output
- Increased cutting efficiency from Work in Process (WIP) machining



3 Axis Milling

Includes 2.5 Axis capabilities plus routines to machine complex, contoured surfaces routinely encountered in mold making and aerospace applications.

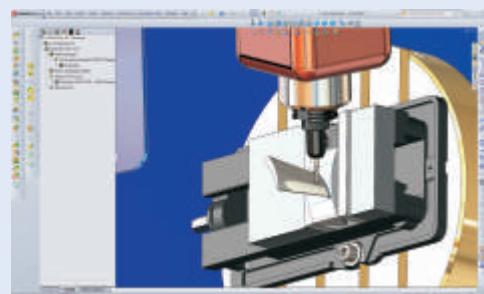
- The 3 Axis cycles have been developed for speed, accuracy and efficient memory usage
- Simple and complex parts can be cut quickly and accurately with a high quality toolpath
- Multi-tasking for improved speed and efficiency
- Adaptive roughing can reduce machining time up to 40% over conventional roughing with less wear



Multi Axis Milling

Machine complex parts including automotive port finishing, impellers, turbine blades, cutting tools, trimming/deflashing, and undercut machining in mold and die making.

- Advanced controls for machining complex 3 Axis parts, including 3 Axis undercut machining
- Supports full 4 and 5 Axis simultaneous motion
- Shorter cutting tools provides increased rigidity and allows to machine at higher speeds with no loss in accuracy. The result is better surface quality and reduced finishing time.
- Generating 5 Axis swarf toolpaths instead of traditional 3 Axis toolpaths can result in fewer cut passes and improved surface finish

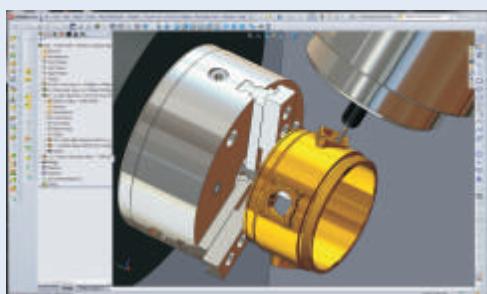


Capabilities

Mill – Turn

Includes all milling and turning capabilities for multitasking machine centers.

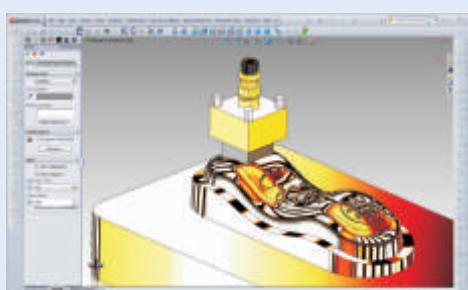
- Supports C, Y and B axis machining at compound angles
- Supports up to 5 Axis simultaneous machining



ElectrodeWorks™ - Electrodes for CAMWorks

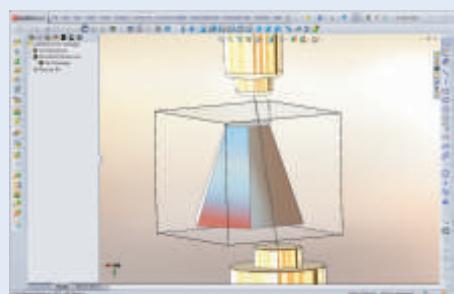
An optional module used to design electrodes for electrical discharge machining. This module automates all aspects of extraction, design and management, documentation, and manufacturing of EDM electrodes.

- Automatic electrode sizing and positioning according to face selection
- Modification through specific electrode feature tree
- EDM technology definition and output
- Geometric Spark and Pattern gap



WIRE EDM

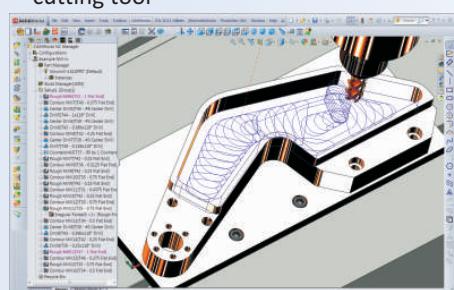
- Allows 2 Axis and 4 Axis cutting operations for creation of rough, skim and tab cuts
- Options are provided to order the cuts when machining parts with multiple pocket (die) areas



CAMWorks VoluMill™

An optional module for high-speed milling for 2.5 axis and 3 axis roughing operations. VoluMill creates an ultra high efficient toolpath by exploiting the capabilities of modern machining hardware to control the material removal rate.

- High performance, smart toolpath engine reduces the cycle times and extends cutting-tool life
- Intelligent slot milling and side milling options maximizes the material removal rate
- Fast machining of small pockets
- Up to 100% stepover with no uncut material
- Automatic feedrate adjustment helps maintain a more consistent load on the cutting tool



Universal Post Generator

The CAMWorks integrated post processor supports virtually any CNC machine tool. The quality NC code that is generated can be optimized for your facility's machines and production methods with the Universal Post Generator (UPG), which is a standalone utility included with CAMWorks. The easy-to-use graphical interface of the UPG is designed so users can quickly customize post processors to generate edit-free code for their machining environment.



CAMWorks Nesting

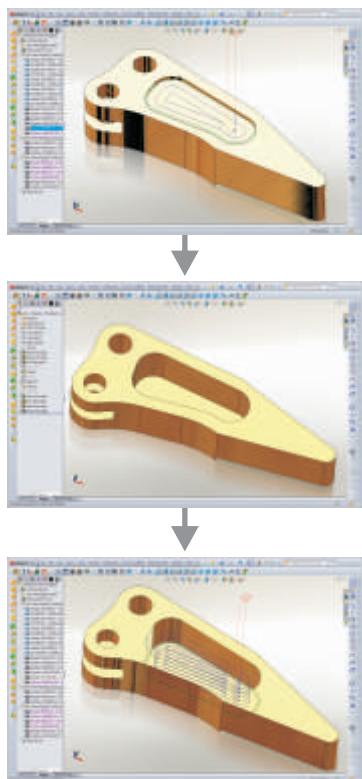
SolidWorks integrated nesting module to nest layouts of SolidWorks Parts or Assemblies

- Single/Multiple sheet selection
- Specify part to part distance, sheet margin/collar, rotation angle.
- Fast Nesting and Optimal Nesting (with time constraint) options
- Associative to original SolidWorks Part or Assembly



Associative Machining

The intelligent connection between the solid model and tool path generation provides associativity between CAD and CAM functions. CAMWorks identifies and recalculates toolpaths based on the changes to the part model. For example, when the depth of a pocket is changed, CAMWorks can update the toolpath automatically.

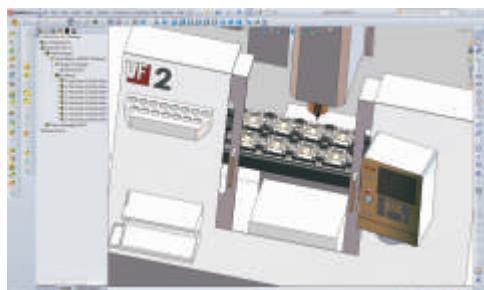


CAMWorks Solids

CAMWorks Solids, an integrated solid modeler, can be packaged with CAMWorks. This combination allows CAMWorks to function as a stand-alone product without the need to purchase an additional solid modeler. It also allows import of popular file formats including STEP, IGS and Parasolid files for tool path generation and simulation.

Multiple Part and Production Machining

CAMWorks supports CNC programming of multiple parts for production machining and offers an accurate representation of the virtual machining environment. The design and layout of machine components, parts, work pieces, clamps and fixtures provide a realistic representation of the machining environment. This not only helps the manufacturing engineer as he develops the program, but also the machine operator on the shopfloor, who has access to setup documents that show where the parts and fixtures are positioned on the machine. Moreover, the tool also allows the engineer to machine separate fixtures or operations within one program, graphically.



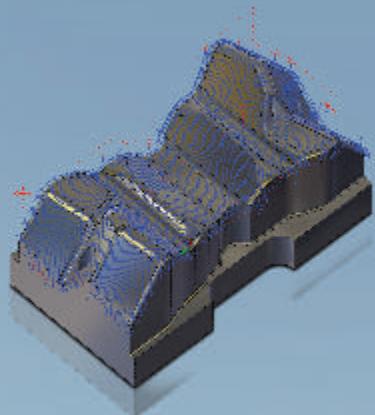
Machine Simulation

CAMWorks provides a realistic simulation of the complete machine tool, and enables collision checking between the tool and the machine components. The simulation shows the tool path on the actual 3D model. The complete machine tool can be created including axis configurations up to 5 Axis. The image can be manipulated during simulation to provide closer representations and views from different angles.

High Speed Machining with CAMWorks

Powerful fully integrated strategies to boost the productivity of any CNC

Today's marketplace demands shorter lead times, lower costs and improved quality. Advanced toolpath tactics increase machining productivity by avoiding sharp angles to ensure that the tool maintains maximum contact with the part, optimizing non-machining moves to reduce air-cutting, and generating smooth and tangential lead ins/ lead outs.



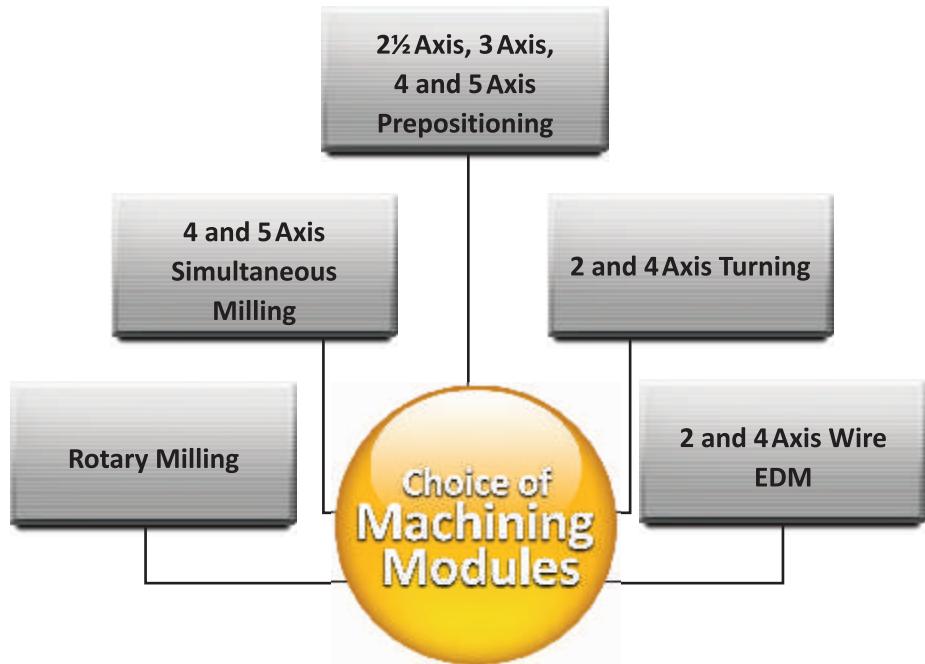
"We consider ourselves a very technologically advanced operation, but the combination of the new machine tools coupled with CAMWorks has enabled us to take things to a whole new level in terms of speed, productivity and machining complexity. This has been groundbreaking for us."

Rob Mank
Job Planning Supervisor,
Roush Industries



1st Gold Partner CAM product on SolidWorks®

- Seamlessly integrated within the SolidWorks environment
- Automatically accommodates changes to the part model
- Eliminates time consuming CAM system rework due to design updates
- Enables true associative machining



Each module provides an advanced collection of cutting strategies and time saving features to help automate the machining process.

CAMWorks can be purchased to run with SolidWorks or as part of a cost-effective package that includes CAMWorks Solids, an integrated solid modeler.

CAMWorks is available for 32 bit as well as 64 bit processors.

Call your CAMWorks Authorized Distributor today!

Geometric Technologies sells CAMWorks through a worldwide network of distributors. For more information on how CAMWorks can make your company more successful, contact your local Geometric Technologies distributor.

To locate a distributor in your area, visit
www.camworks.com

About Geometric

Geometric is a specialist in the domain of engineering solutions, services and technologies. Its Geometry Technology Solutions (GTS) business unit develops cutting-edge point productivity solutions that enhance design and improve manufacturing operations. The end-user products from Geometric include CAMWorks®, eDrawings® Publisher, DFMPro, GeomCaliper® and 3DPaintBrush™. The key technologies from Geometric are NestLib®, Feature Recognition (FR), GeomDiff and 3DSearchIT®. Geometric licenses these technologies to OEM partners and also designs and implements customized process solutions using these technologies for industrial customers.

For further details about Geometric's GTS business unit, please visit
www.geometricglobal.com/products

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