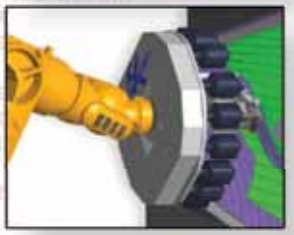
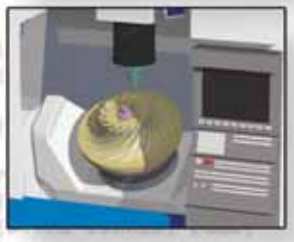
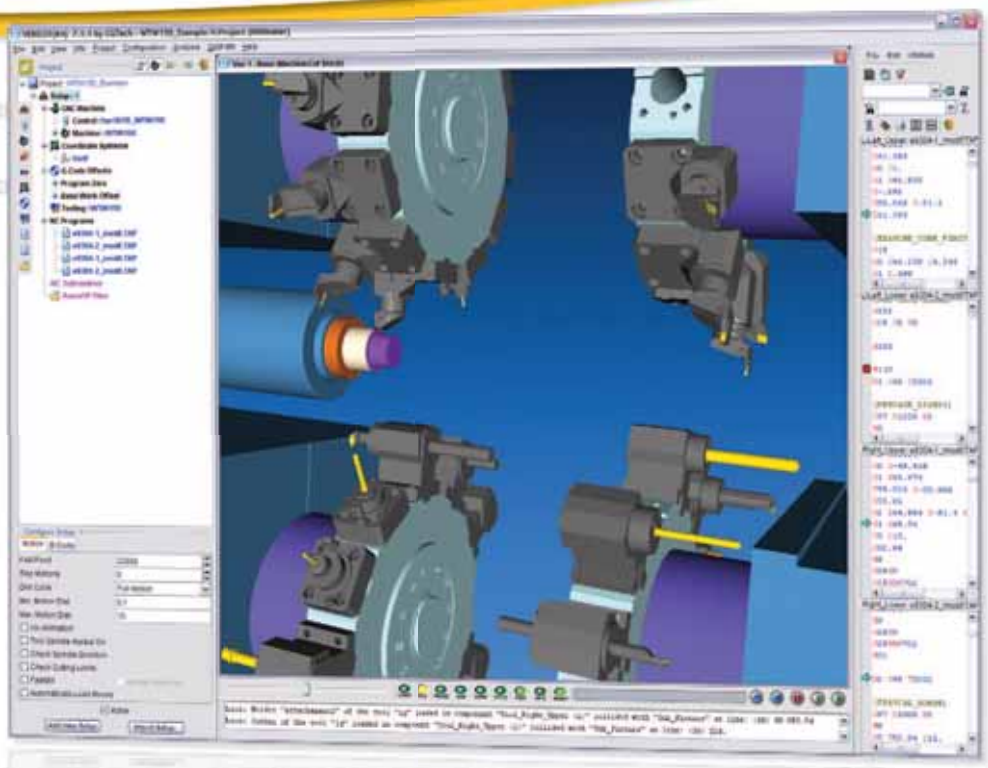
VERICUT®







"VERICUT is a non-biased checking mechanism of the post-processed code from both of our CAM systems. Our policy is that no program can go to the floor unless it has gone through VERICUT."

Frank Dorsey, Engineering Manager
Ellanef Manufacturing Corporation
A Subsidiary of Magellan Aerospace USA, Inc.

- **CNC Machine Simulation**
- **Program Verification**
- **Cutting Speed Optimization**
- **Composite Applications**

CGTECH.com

Go ahead...

CRASH Your Machine!

...as long as it's in VERICUT

A crash in VERICUT's "virtual machining" world can save you in the real one!

VERICUT CNC simulation software enables you to machine parts on the computer before actual cutting occurs so you can eliminate errors that could ruin the part, damage the fixture, break the cutting tool, or crash the machine!

VERICUT also optimizes the cutting process so in addition to being error-free, your programs are fast and efficient. And, VERICUT offers the best tools available for analyzing, inspecting, and using the in-process, "as-cut" model.

"VERICUT paid for itself the first time we used it."

Dave Watson, Manufacturing Eng.
Lockheed Martin
Aeronautical Systems

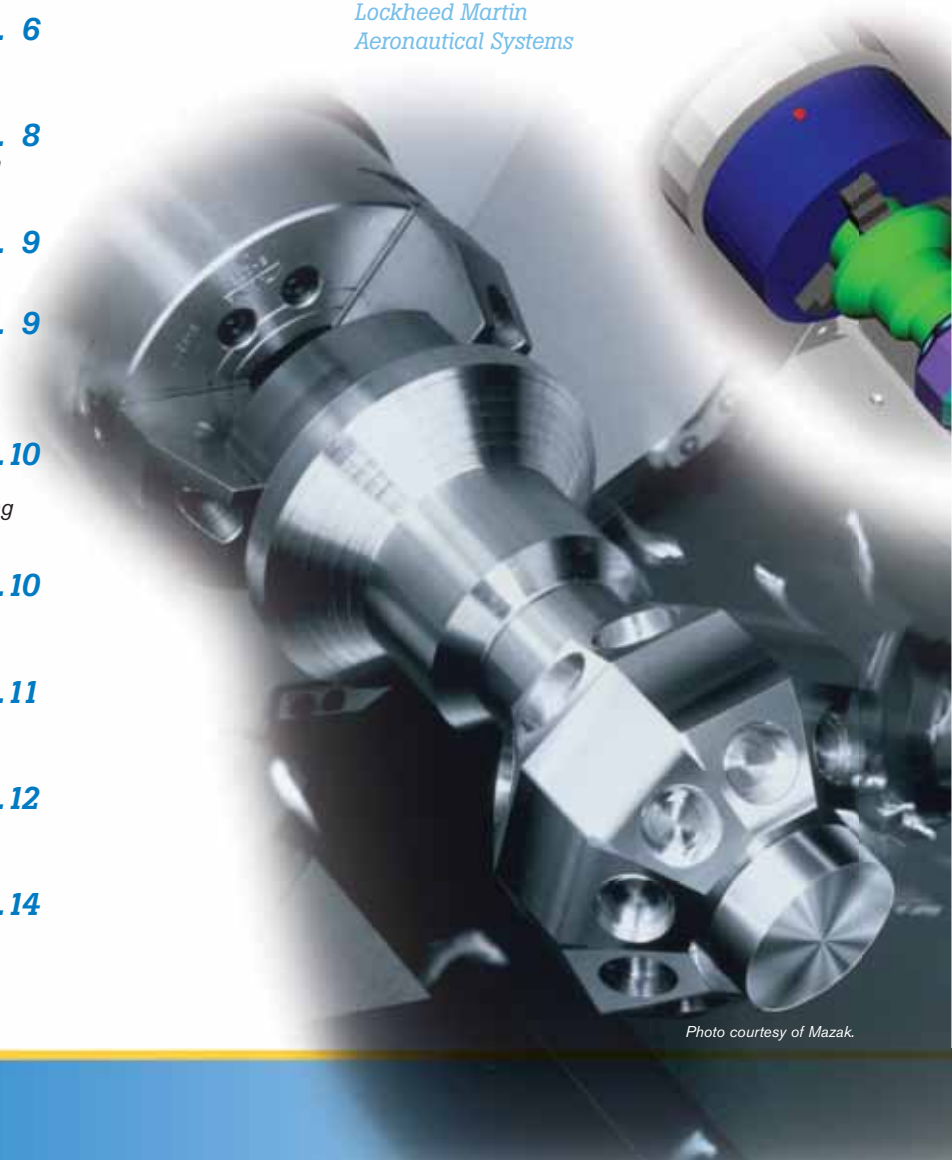


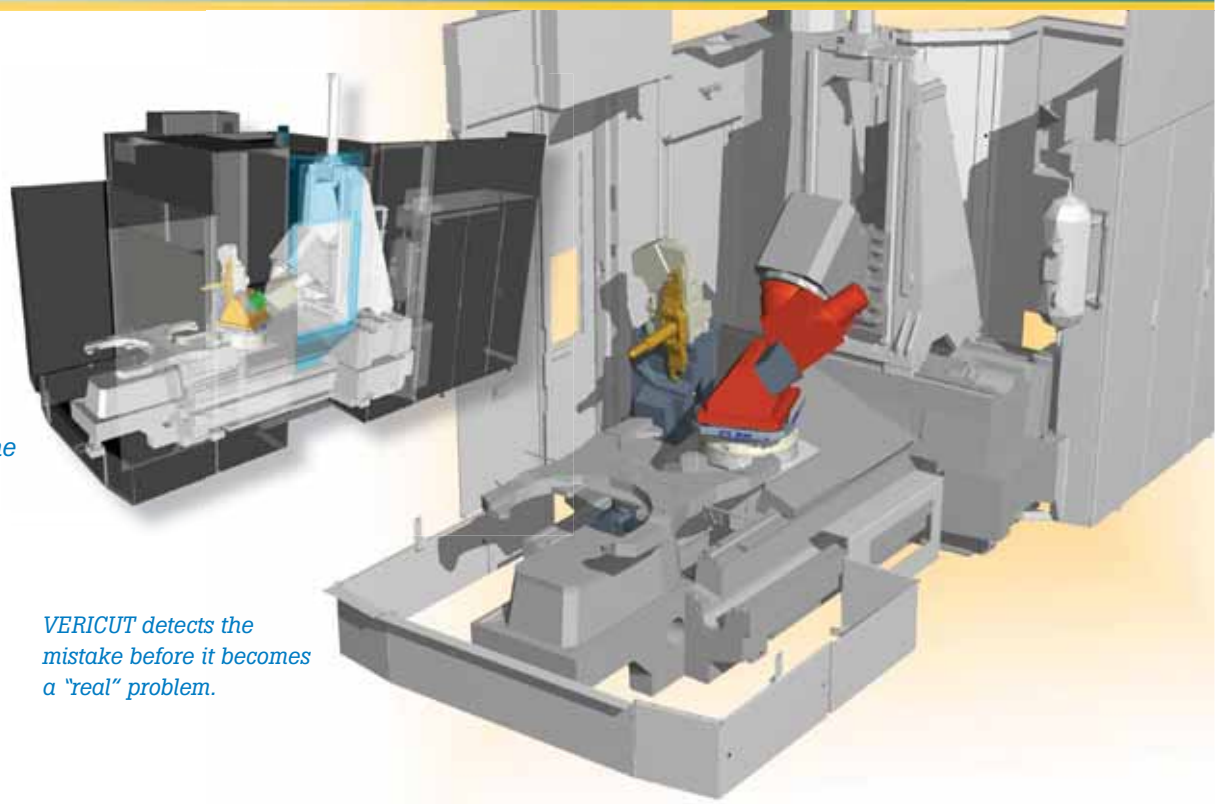
Photo courtesy of Mazak.

CRASH!

That sound can be devastating...

A simple mistake can ruin your part, tool, machine, or even your machinist! And it can throw your production schedule into disarray.

If you use a CNC machine seriously, you should seriously consider VERICUT simulation!



VERICUT detects the mistake before it becomes a "real" problem.

VERICUT Modules & Licensing

MACHINE SIMULATION | MULTI-AXIS | OPTIPATH® | AUTO-DIFF™

VERICUT VERIFICATION

MODEL EXPORT | CNC MACHINE PROBING | INTERFACES

MACHINE SIMULATION
CUTTER/GRINDER VERIFICATION

FIBERSIM | CATIA V5
VERICUT COMPOSITE PROGRAMMING (VCP)

VERICUT COMPOSITE SIMULATION (VCS)

VERICUT's modular format provides flexibility – you purchase only the capabilities you need. It's easy to add modules; just let us know and we provide a license that gives you immediate access. VERICUT runs on both Windows and UNIX platforms. VERICUT is delivered as both a 32 bit and 64 bit application. G-codes and CAM centerline formats are supported.

With VERICUT, you can:

- prevent crashes.
- eliminate prove-outs.
- shorten cycle times.
- increase tool life.
- boost CNC efficiency.
- be more competitive.

"VERICUT saved us $30,000 on one part alone."

John Sweeney, Schmiede Corporation – A Leading High-Precision Contract Machine Shop

CNC Machine Simulation

No more expensive surprises! Simulate your CNC machines, exactly as they behave on the shop floor, so you can detect errors and potential problems before the program goes out to the shop!

A machine crash can be very expensive, potentially ruin the machine, and delay your entire manufacturing schedule! But with VERICUT, you can dramatically reduce the chance for error and avoid wasting valuable production time proving-out new programs on the machine.

Machine Simulation detects collisions and near-misses between all machine tool components such as axis slides, heads, turrets, rotary tables, spindles, tool changers, fixtures, work pieces, cutting tools, and other user-defined objects. You can also set up "near-miss zones" around the components to check for close calls, and detect over-travel errors. Machine movements can even be simulated while stepping or playing backwards in VERICUT's Review Mode.

A selection of customizable machine models are included. Or, you can build models from scratch. Machine components can be designed in a CAD system or defined in VERICUT. A "Component Tree" feature makes it easy to connect the pieces and manage the kinematics of the machine.

Machine Simulation Supports:

- Multi-axis milling, drilling, turning, mill-turn, EDM.
- Simultaneous mill/turn on different spindles and workpieces.
- Machines with multiple synchronized CNC controls.
- Auxiliary attachments: tail stock, steady rests, part catchers, bar pullers, pallet changers, etc.
- Automatic workpiece transfer to pick-off or sub-spindles.
- IGES or STL models, and others.

Many sample machines and control configurations are included.

VERICUT's MDI includes axis jog buttons and allows tool positioning by graphical picks. Using the simple MDI controls, you can make sure your machine can reach all the necessary features of the part.

Prevent CNC machine crashes and near-misses

Reduce the time it takes to implement new CNC machines

Show machinists what to expect from new NC programs

Improve process efficiency

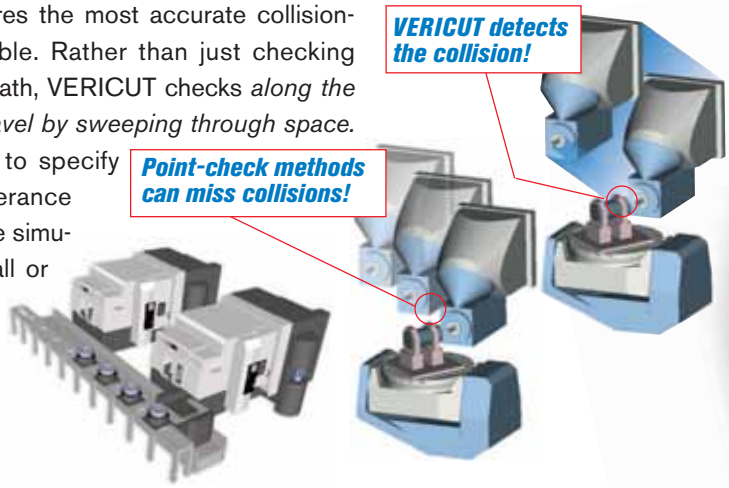
Increase shop safety

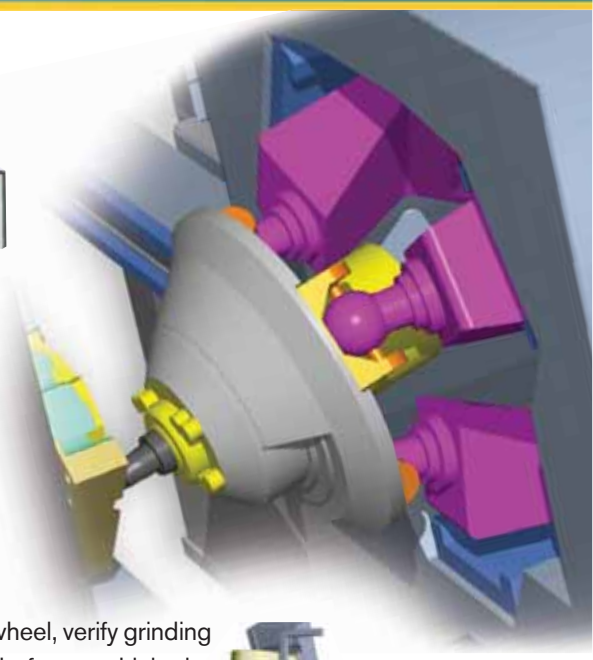
Enhance presentations and documentation

Train programmers and machinists without using production time... or risking a crash

Superior Collision Checking

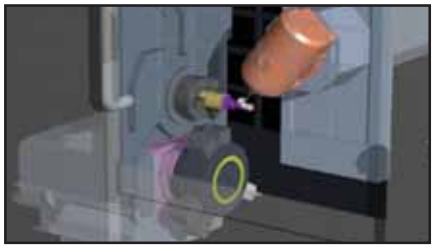
VERICUT features the most accurate collision-checking available. Rather than just checking points along a path, VERICUT checks *along the entire path of travel by sweeping through space.* You don't have to specify "step size" tolerance that can slow the simulation if too small or miss the collision if too large!

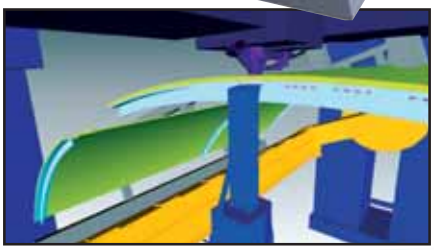
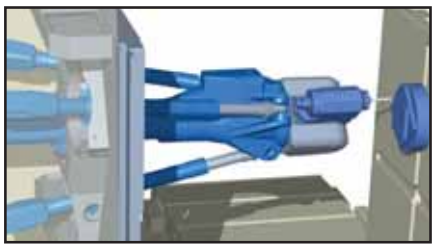
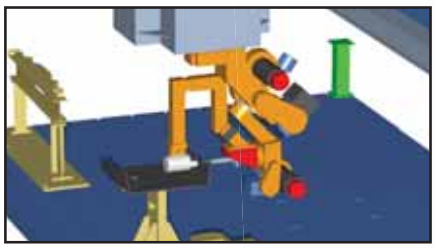
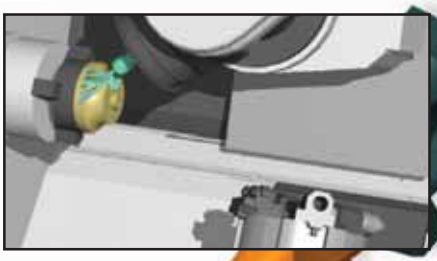




Cutter/Grinder Verification & Machine Simulation

Before you risk crashing the machine, breaking the cutter, or destroying the grinding wheel, verify grinding operations in VERICUT and perform detailed analysis to make sure the part is correct before machining! Featuring an interface designed especially for grinding, Cutter/Grinder Verification can be launched from a grinder programming system (i.e. NUMROTOplus® or Schütte) to verify multi-axis grinding. Cutter/Grinder Machine Simulation detects collisions, overtravel, and near-misses.



Tools to Simulate More Complex Applications...

VERICUT supports:

- Automatic part transfer between fixtures
- Facing head (or "programmable boring bar")
- Mill/turn machining center's multi-channel programming/ synchronization
- CNC controls which allow programming of the tool axis using IJK tool axis vectors
- Turning operations which are not symmetric about the lathe spindle
- Parallel kinematics machines such as the Tricept head
- Multi-axis waterjet cutting operations
- Material removal for gear hobbing and synchronizes the tool spindle with part spindle
- Auto-fastener programming and simulation

CNC Program Optimization


OptiPath supports multi-axis machining!

Cut Parts Faster! Improve Surface Finish! Reduce Tool Wear!

VERICUT's optimization module, OptiPath,® automatically modifies feed rates based on the current cutting conditions to make your programs more efficient... while also extending tool life and improving finish quality!

Knowledge-Based Machining

VERICUT is a true knowledge-based machining system: through the simulation process, it learns the exact depth, width, and angle of each cut. And it knows exactly how much material is removed by each cut segment. With that knowledge, OptiPath divides the motion into smaller segments. Where necessary, based on the amount of material removed in each segment, it assigns the best feed rate for each cutting condition encountered. It then outputs a new tool path, identical to the original but with improved feed rates. *It does not alter the trajectory.*

"4½ hours of programmer time spent on optimization saved us $75,000!"

Brian Carlson
Programming Manager
Aerospace Dynamics, International

Simplified Setup and Use

A setup wizard prompts you for cutter settings as you machine the part. Essentially, you add intelligence to the cutter. All the settings for that cutter are stored in an optimization library. You define the settings once. Every time you use that cutter the results can be instantly optimized!

OptiPath also features a "learn mode" for creating the optimization library with no setup required. For each tool, OptiPath finds the maximum volume removal rate and chip thickness and uses them to determine the optimization settings for the tool.

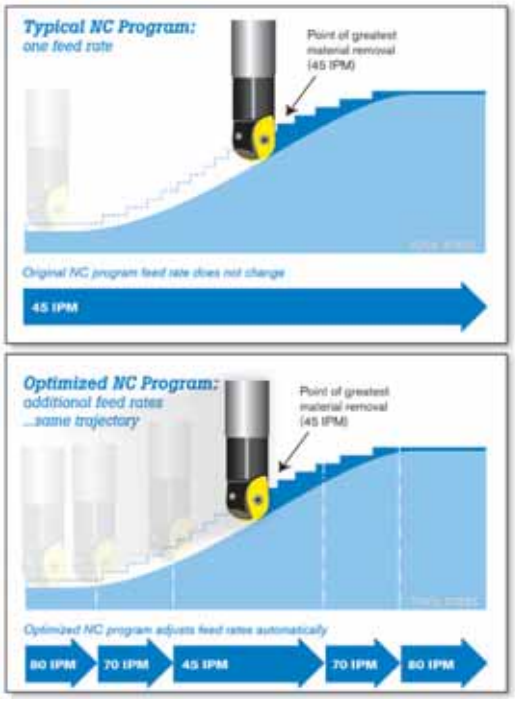
Optimization for Roughing

During roughing, the goal is to remove as much material as quickly as possible. OptiPath keeps the cutter at its maximum safe rate-of-advance into material for the varying cutting conditions. For example, during planar roughing of an aluminum aerospace structural component, material may be removed at a constant axial depth, but the radial width of cut could differ greatly from cut to cut. OptiPath modifies the feed rates to maintain a constant volume removal rate.

Optimization for Finishing

Chip loads typically vary widely as the tool profiles through the material left behind during roughing cuts and over the contours of the workpiece to near net shape. OptiPath adjusts the feed rates to maintain a constant chip load. (Consistent chip loads are recommended by cutting tool makers to reduce "chip thinning.") The results are improved tool life and better finish. This is especially critical when tip cutting with a ball end mill or contouring a surface with a small step-over, such as semi-finishing or finishing in a tool steel mold cavity, for example.

OptiPath features a "learn mode" for easy creation of optimized NC programs with no setup required.



"...the result of using the optimization feature is a savings of more than 81 hours on one job alone."

Ben Miller
Tool & Die Programmer,
Parker Hannifin Corporation, Racor Division

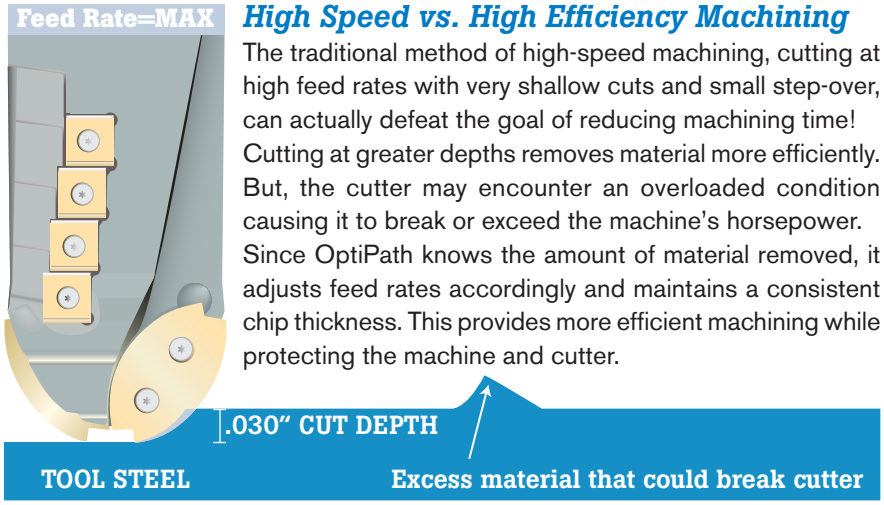
How it Works...

As the cutting tool encounters more material, feed rates decrease; as less material is removed, the feed rates speed up accordingly. Based on the amount of material removed by each cut segment, OptiPath automatically calculates and inserts improved feed rates where necessary. Without changing the trajectory, OptiPath writes the updated feed rates to a new NC program.

Could You Benefit from OptiPath?

Do any of the following sound familiar? If so, OptiPath can help!

- Removing a lot of material
- Long machining times
- Large NC programs
- Interrupted cuts (multiple entry/exit)
- Cutting at variable depths/widths
- High speed machining
- Thin wall machining
- Delicate tooling and materials
- Expensive tooling and materials
- Hard materials, soft materials
- Older equipment
- Multiple parts
- Premature cutter wear/failure
- Optimizing programs "by ear"
- Reworking programs for feeds/speeds... or no time to do so
- CAM system and/or programmers don't have necessary knowledge
- "Resident expert" retiring/leaving
- Poor surface finish
- Excessive bench time
- Chip thinning problems
- Cutter deflection problems
- Chatter in corners
- Air cuts or light cuts at slow or programmed feed rates



High Speed vs. High Efficiency Machining

The traditional method of high-speed machining, cutting at high feed rates with very shallow cuts and small step-over, can actually defeat the goal of reducing machining time! Cutting at greater depths removes material more efficiently. But, the cutter may encounter an overloaded condition causing it to break or exceed the machine's horsepower. Since OptiPath knows the amount of material removed, it adjusts feed rates accordingly and maintains a consistent chip thickness. This provides more efficient machining while protecting the machine and cutter.

Machine More Efficiently...

Cut more parts in the same amount of time – it's like getting another CNC machine! Reducing cycle time increases productivity and gets parts to market more quickly.

Save Money...

Increased productivity by reducing the time it takes to cut parts can add up to significant yearly savings.

Improve Part Quality...

Constant cutting pressure causes little or no variation in cutter deflection. Finishes on corners, edges, and blend areas are better so less bench work is required.

Make Cutters Last Longer...

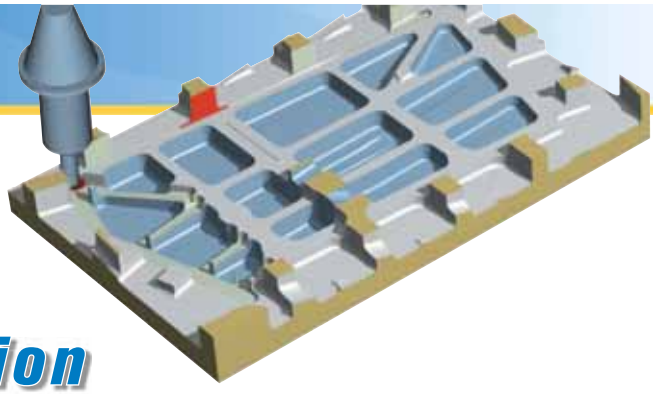
Optimum cutting conditions prolong tool life. Shorter machining times mean less cutter wear, so you have to change tools or inserts less frequently.

Reduce Machine Wear...

A more constant cutting pressure between the machine tool and the workpiece reduces variable forces on the axis motors for smoother machine operation.

Make Better Use of Time...

Machinists don't have to be glued to the feed rate override! They can run multiple machines, set up the next job, or attend to other duties.



CNC Program Workpiece Verification

VERICUT Verification makes detecting program mistakes and verifying part accuracy easy!

Superior Performance:

VERICUT's unique algorithm provides fast, accurate results. Performance does not degrade with increased cuts, so VERICUT can process programs with millions of cuts and virtually any type of material removal technique.

The Project Tree allows you to view and configure all setups for a job. Each setup has its own CNC machine, fixtures, tools, NC programs, and simulation settings. The cut stock automatically orients as it moves from setup to setup.

Three Steps Get You Started:

1. Define your stock model

- Import from your CAD system or create it in VERICUT

2. Set up your tooling

- Tool setup wizards for milling tools and turrets
- Create any cutter shape
- Read cutter descriptions from the tool path file
- Import CAD solid models
- Import via CAD/CAM or tool management interface

3. Import your NC program

- G-code
- CAM files (APT)

Then press cut. It's that simple!

Machining Support:

- 3-axis milling; 2-axis turning
- Rotary 5-axis positioning
- EDM Die Sinking
- Multiple simultaneous cutting tools
- Multiple setups or operations

Control Support:

Verification supports most common control functions, and controls are easily modified.

- Rotary axis pivot points
- Look-ahead cutter compensation
- Supports several different tool length compensation methods
- Control cycles; fixture offsets
- Variables, subroutines, macros, looping, branching logic

Inspection and Measurement:

- Zoom, reverse, rotate, cross-section the cut stock
- Measure thickness, volume, depth, gaps, distances, angles, hole diameters, corner radii, scallop heights, etc.

Other Capabilities:

- Video and image capture
- Create a custom user interface for specific applications
- Add previously removed material back to the cut stock when stepping back in Review Mode

VERICUT Reviewer

The VERICUT Reviewer incorporates all the functionality of NC Review mode in a stand-alone viewer that does not use a license. The Reviewer can play forward and backward while removing and replacing material.

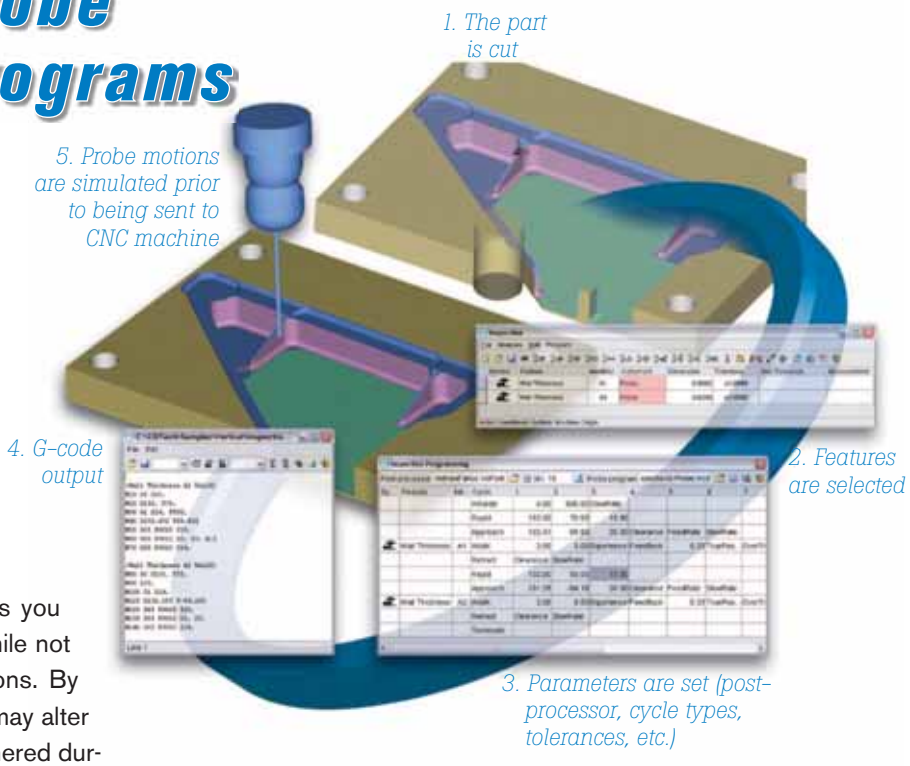
You can rotate, pan and zoom just like normal VERICUT, and the cut stock can be measured using all the standard X-caliper tools. The "Reviewer" file can be saved at any point in a VERICUT session.

Multi-Axis

As complexity of the part and the machining operation increases, so does the chance for error. Don't leave the accuracy of the NC program, the quality of the part, or the safety of the operator to chance! The Multi-Axis module verifies and simulates material removal during:

- Multi-axis milling (i.e. cutting with a changing tool axis)
- Synchronized motion of multiple independent cutting heads or attachments such as 4-axis lathes/mill-turns or multiple-head machines

CNC Probe Programs



Create & Simulate CNC Probe Programs with VERICUT!

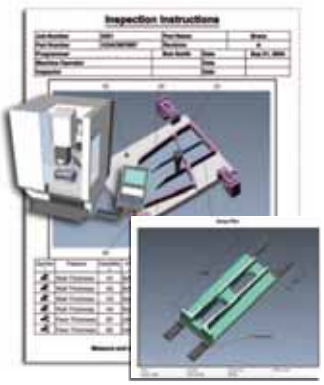
VERICUT is an ideal place to create probing sequences in a CNC program because of its 'in-process' model. This in-process feature geometry is not available anywhere else in the CNC manufacturing process.

With VERICUT simulation, there is no reason creating your probing operations should ever cause a headache! It notifies you when the probe tip contacts an object while not in 'probe mode,' and detects any collisions. By emulating the probe cycle's logic (which may alter machine motion based on information gathered during probing), VERICUT helps protect probes and probe tips that could be damaged or broken by programming errors.

VERICUT simulates probe cycle subroutines or sub-programs, including complex logic and Type II formats used to set offsets and make decisions based on probe results. Contact CGTech to learn how VERICUT can create and simulate your custom probe cycles!

Inspection Reports & Setup Plans

Save time and improve accuracy by generating in-process inspection instructions and other documentation from VERICUT's simulated in-process machined features!

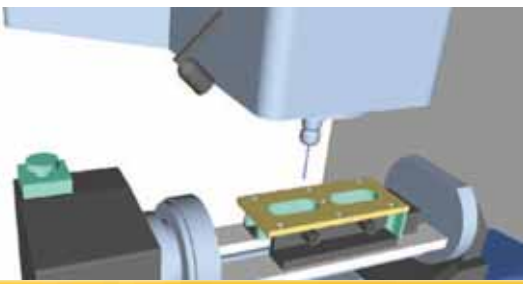


With VERICUT, you can establish a formal, but simple and efficient method to create and document inspection and setup procedures.

All VERICUT reports are customizable using a simple template. When modifying a template, a preview window shows exactly how the finished report will display. Creating the reports is quick and easy because you use the in-process model to graphically select features. For inspection reports, VERICUT identifies the feature, extracts feature sizes, and applies a standard tolerance for the measurement. You can then add any additional instructions and select the measuring instrument from a list. The setup plan feature allows you to add simple dimensions and notes to a VERICUT image that can then be added to a VERICUT report. All VERICUT reports can be saved in standard HTML or PDF formats.

CNC Machine Probing will help ensure that you will not destroy the probe or crash the machine during tasks such as:

- Locating the stock and/or fixture and adjusting offsets
- Measuring and adjusting for stock variations
- Identifying stock and/or fixture configuration or part number
- Measuring and adjusting tool or fixture offsets
- Simulating tool check cycles
- Inspecting machined features



CNC Program Analysis & CAD Export

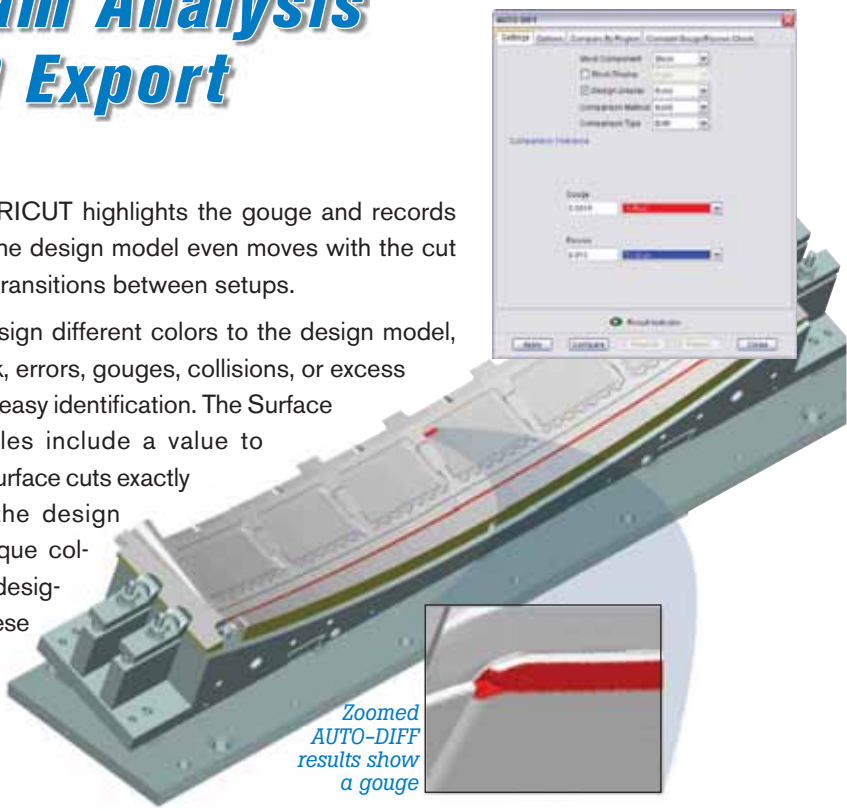
AUTO-DIFF™

AUTO-DIFF enables you to detect gouges and excess material by comparing the design model to the VERICUT "as-machined" model.

By the time it is ready to be machined, a design may have passed through several engineers/programmers, departments, companies, and CAD/CAM systems. In the end, it can be difficult to tell whether the tool path accurately reflects the design intent. With AUTO-DIFF, you can be sure.

The design model can be a solid, surface, skin, or points. You can "embed" it inside the rough material for interactive gouge-checking. If the tool contacts the design, VERICUT highlights the gouge and records the error. The design model even moves with the cut stock as it transitions between setups.

You can assign different colors to the design model, rough stock, errors, gouges, collisions, or excess material for easy identification. The Surface Range tables include a value to represent surface cuts exactly matching the design model. Unique colors can be designated for these features.



Zoomed AUTO-DIFF results show a gouge

Included Analysis Tools

The base Verification module enables you to view and analyze the geometry of the cut part. Models can be cross-sectioned multiple times at any orientation, so you can check areas that would be impossible to see in a solid model (such as the intersection of drilled holes).

The X-Caliper™ tool measures thickness, volume, depth, gaps, distances, angles, hole diameters, tapping features, corner radii, scallop height, and edges. Delta X, Y, Z component distance measurements are included. X-Caliper also allows you to optionally highlight features, such as all planes on the same level. You can view and measure all tool collisions, even after subsequent machining operations have removed them from the screen.

Model Export

With Model Export, you can create CAD models of the cut part from your NC data... at any stage of the machining process, complete with machined features.

VERICUT can be used to create a CAD model from an existing NC program. The model includes features such as holes, fillets, corner radii, pocket floors and walls – just as it's cut on the machine.

- Export a CAD model at any stage in the machining process
- IGES, STL and NX output
- CATIA V5, CATIA V4, STEP and ACIS output with an optional Model Interface (not included with Model Export. See next page.)

In-process, "as-machined" model you can use in your CAD program!

Make Legacy Data Useful:

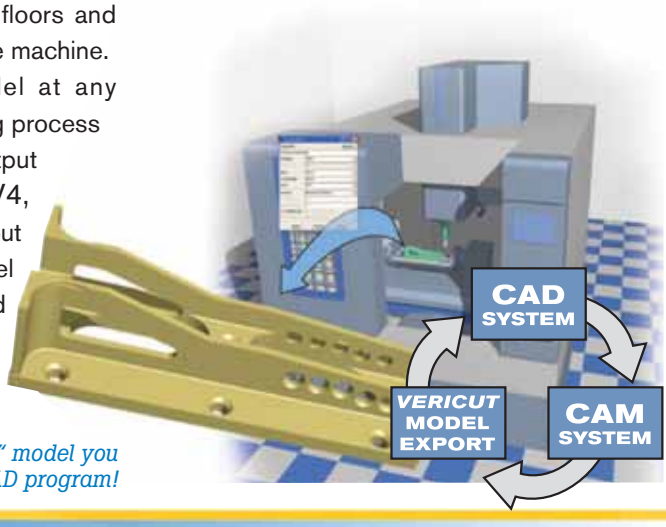
- Create CAD models from old G-code or APT programs

Improve Process Planning:

- Plan for multiple setups or staged machining

Improve Reverse Engineering:

- Take the "as-machined" model back into your CAD system



Seamless Integration

CAD/CAM Interfaces

The interfaces tightly integrate VERICUT and your CAM system(s) to help you create the most accurate and efficient NC programs possible! They make verifying and optimizing NC programs and simulating CNC machines a much easier and more efficient process. In most cases you can verify individual operations, a series of operations, or a set of complete NC programs. All stock, fixture, and design geometry is automatically transferred to VERICUT in the correct orientation, along with your NC program, tooling, machine and control data and other simulation parameters. VERICUT runs independently, so you can continue working in your CAM system while simulating and optimizing your NC programs. With VERICUT as your simulation package, you can also verify and optimize NC programs from other CAM systems in CL or post-processed G-code format.

The following interfaces are available directly from CGTech:

V5 CATIA INTEGRATION · V4 CATIA INTEGRATION · PTC PartnerAdvantage GOLD · NX · edgecam · Mastercam · GibbsCAM · FiberSIM

Other interfaces available:

PowerMILL (Available from Delcam) · hyperMILL (Available from Open Mind) · TopSolid (Available from Missler) · Schütte (Available from Schütte) · COSCOM (Available from COSCOM)

Tool Management Interfaces

Tool Management Interfaces extracts tool lists from your tool manager system and creates VERICUT tool assemblies. It is an on-the-fly live connection to your tool manager. No intermediate files are produced, so the tooling information used is always the most current available.

TDM systems · WinTool · FASys · BIG BIG DAISHOWA · LMbA · ZOLLER

Model Interfaces

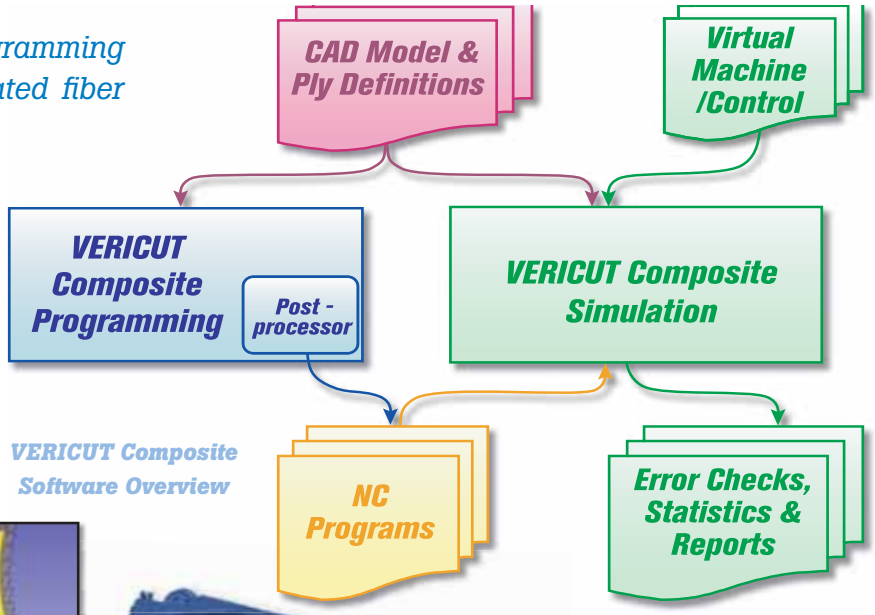
What is a "Model" Interface? Model Interfaces enable VERICUT to read the designated model file formats and use them as stock, fixture, design, tool holder and machine models. When combined with Model Export, VERICUT's cut stock may be written out in these formats as well. These modules do not require a CAD/CAM system to be available for VERICUT to read or write most of the formats. VERICUT includes the ability to use several industry-standard model file formats: STL, IGES, VDA-FS, DXF and NX. Optional model interface modules allow VERICUT to use these additional formats: STEP, ACIS, CATIA V4, and CATIA V5.

CNC Composite Applications

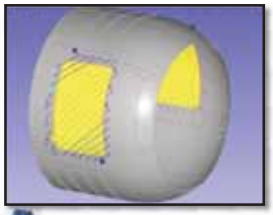
Machine-independent off-line programming & simulation software for automated fiber placement (AFP) CNC machines

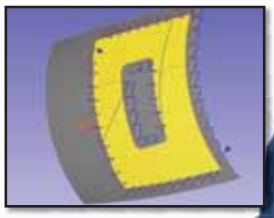
VERICUT Composite Programming (VCP)

VCP reads CAD surfaces and ply boundary information and adds material to fill the plies according to user-specified manufacturing standards and requirements. Layup paths are then linked together to form specific layup sequences and are output as NC programs for the automated layup machine.



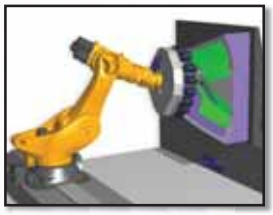
VERICUT Composite Software Overview

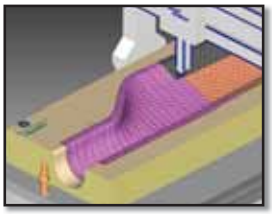




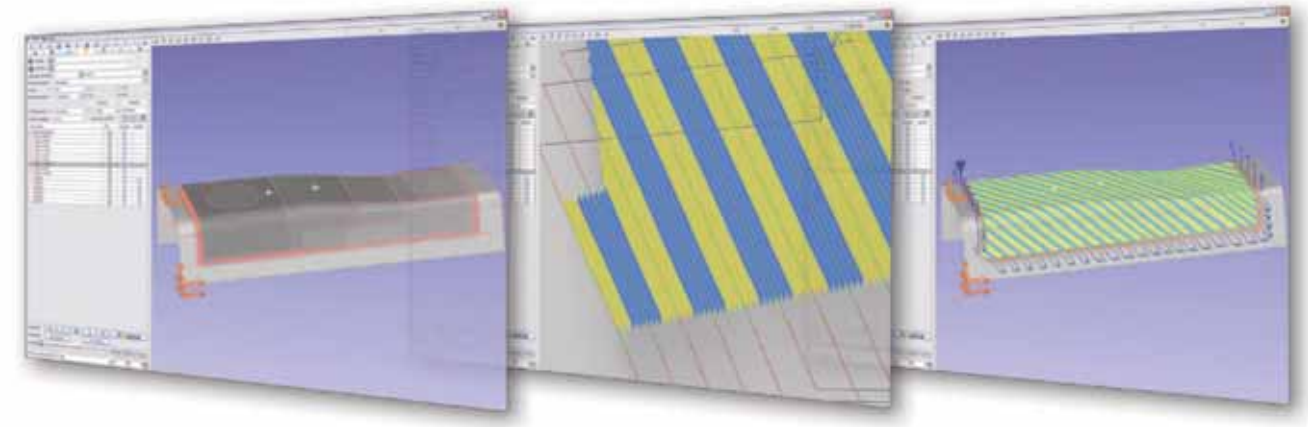
VERICUT Composite Simulation (VCS)

VCS reads CAD models and NC programs, either from VCP or other composite layup path-generation applications, and simulates the sequence of NC programs on a virtual machine. Material is applied to the layup form via NC program instructions in a virtual CNC simulation environment. The simulated material applied to the form can be measured and inspected to ensure the NC program follows manufacturing standards and requirements. A report showing simulation results and statistical information can be created automatically.





VERICUT Composite Programming Process



Reads CATIA V5 or ACIS surface models

- Other model formats available upon request

Reads FiberSim, CATIA V5 or other external ply geometry and information

- Boundary geometry
- Ply direction
- Start points

Generates layup paths based on manufacturing engineering rules

- Rosette projection at specified angles
- Parallel to guiding curve
- Following the natural path of the form's surface

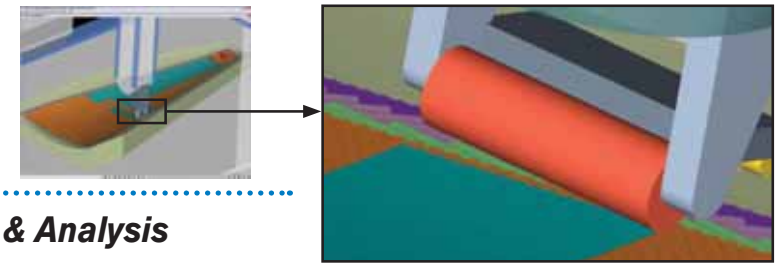
Add thickness to form for subsequent sequences

Links paths to create form layup sequences

- Automatically and manually link paths based on shortest distance and form's topology
- Insert machine-specific commands and actions
- Insert safe start and restart events

Post-processes linked paths

- Output per machine requirements
- Configurable machine-specific events
- Output safe start and restart sequences



VERICUT Composite Machine Simulation & Analysis

Reads CAD geometry of the layup form

- Used for collision detection and material application

Uses VERICUT virtual machine and control emulation to simulate the layup machinery

- Can be configured for virtually any CNC syntax and machine kinematics configuration

Reads the NC program and simulates the layup process based on NC program commands

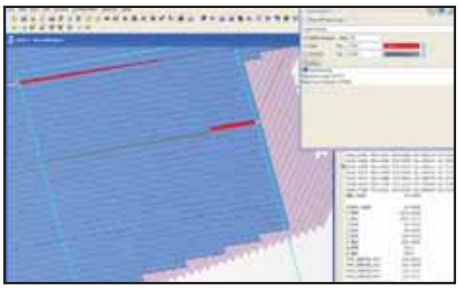
- Validate the actual NC program that will run on the layup equipment
- Add material to the form based on NC program commands
- Material is added in discrete layers/sequences, constructing the workpiece exactly like the physical process

Checks the process for compaction roller/form conformance and direction

- Verify roller orientation to path
- Verify path correctness to the form and previously applied sequences/layers of material
- Check roller conformance for bridging or excessive compaction

Added material is measurable and can be inspected for manufacturing requirements

- Measure lap, gap and thickness
- Detect steering radius violations



CNC Services & Training

Gain a manufacturing partner with the best reputation in the business!

Hire CGTech to simulate every machine in your shop!

VERICUT training is offered regularly at several locations. Following are descriptions of training courses, implementation services and consultancy that may be available in your area. For more information contact your CGTech representative or reseller.

Standard VERICUT Training

CGTech's hands-on training gives you the knowledge & skills to maximize VERICUT's potential. These courses are suited to NC programmers, and CAD/CAM and CNC machine operators. After completing a course, you will be a better VERICUT user!

Machine & Control Building Training

VERICUT Machine & Control Building training is intended for experienced VERICUT users with a good working knowledge of VERICUT. The class builds on your existing knowledge as you learn techniques for configuring VERICUT Machine Configurations (VMC) that can be used by all users at your company.

On-site VERICUT Training

Can't make it to a CGTech facility? Need customized training? We'll come to you! On-site training can raise your VERICUT skills to the next level and is a perfect complement to implement newly purchased VERICUT Machine Configurations (see Contract Services on page 15).

New Release Update Training

Improve your productivity with new VERICUT features quickly as a CGTech expert helps you learn how to apply them to your manufacturing processes.

Implementation Services:

Implementation & Automation Consulting

Get help integrating VERICUT into your manufacturing engineering and NC programming processes: both upstream CAD/CAM systems and downstream shop-floor systems. Ensure that VERICUT fits into your electronic workflow as smoothly and efficiently as possible! On-site advice from a VERICUT expert while working on your initial VERICUT projects, eliminates false starts and confusion, and can be the key to accelerating your R.O.I.

VERICUT Audit

Are you using VERICUT to its full potential? Here's how to tell! A VERICUT expert comes to your site and evaluates your VERICUT use and provides you with a written report covering potential risks in your current operation and areas where you can achieve better results. We check your VERICUT installation and assess whether your staff is sufficiently trained.

OptiPath Mentoring

Make sure you take full advantage of VERICUT's optimization capabilities. We teach you how to optimize NC programs – using your parts, on your machines. We work with you to set up optimization libraries and fine-tune the results, including runs on your machines, so your operators can see for themselves how efficient the optimized programs are.

When you invest in VERICUT, you're teaming up with experts committed to helping you succeed with our technology. Our dedicated staff of trainers, support engineers, & developers are available to help you reach your NC manufacturing goals!

Contract Services:

VERICUT Machine Configuration

Hire CGTech to create VERICUT Machine Configurations (VMC's) of your exact equipment and make running simulations a "push-button" operation!

NC Program Optimization

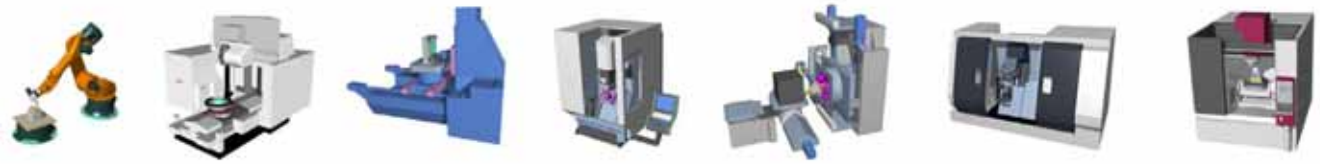
Want to improve the quality and production rates of your NC machining? Send us your NC programs (G-code or APT), and we return faster, more efficient programs. This is an ideal solution for shops with limited time, manpower, or optimization expertise.

CAD Model Export

Need an accurate CAD representation of your machined part, mid-process or at the end of the final operation? We convert your NC programs (G-code or APT) into an "as-machined" CAD model.

Custom Tool Libraries & Custom Software Development

We build VERICUT tool libraries from scratch or from your existing spreadsheets and databases. Do you need special capabilities not currently found in the software? We tailor the software to suit your specific needs!



Configuring VERICUT to Simulate your CNC Machines

VERICUT Machine Configuration (VMC)

CGTech has an extensive collection of VMC's developed over several years for customers and with our machine tool partners. We maintain this collection, updating it for new VERICUT versions, features, and added machine and control functionality.

CAD models are only part of a working VMC. VERICUT also needs the control emulation logic and machine kinematics contained in the VMC. The VMC is configured to exactly match the Machine Tool options to ensure that your Virtual machine and real machine behave identically.

Supplying VMCs

Each VMC requires some configuration to ensure it meets your exact machine specifications and options. This configuration is usually done by CGTech (or a VERICUT reseller). However, training can be provided to allow an experienced user to create and configure his own VMCs.

Your CGTech representative or reseller can work with you to provide a quotation for VMCs. They will discuss your requirements in detail in order to accurately determine the project scope. They will need to know the make and model of your machine(s), control type, special machine features beyond basic motion axes (tool changers, tailstocks, etc.) and control features. They will also make sure that the VMCs are delivered to your satisfaction.

Our Machine Tool Partners

CGTech has many years of experience creating and editing VMCs to meet the needs of its users. We are able to provide VMCs for machines from many of the leading Machine Tool Builders, often using CAD data supplied through our partnerships with these companies.

Our Machine Tool partners include DMG, Mazak, Mori-Seiki, Matsuura, Makino, Chiron, Hermle, Doosan and many more. Machine Tool brands we have built VMCs for, include:

ABB · brother · chiron · MAG CINCINNATI · CITIZEN · CMS Industries · DIXI · DMG · DOOSAN · DST · MAG FADAL · fpt · HAAS · handtmann · HARDINGE GROUP · HELLER · HERMLE · HURCO · HURON · INDEX · JOBS · KUKA · MAKINO · Matsuura · Mazak · MCM · MECOF · MITSUI SEIKI · MORI SEIKI · NAKAMURA-TOME · Nicolás Correa · OKK · OKUMA · SNK · STAMA · starragheckert · STÄUBLI · TAJMAC-ZPS · TSUGAMI · unisign · WFL · ZOLLER

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CGTech® is the leader in CNC machine simulation, verification, and optimization software technology. Since 1988, our products have become the standard in manufacturing industry sectors including aerospace, automotive and ground transportation, mold and die, consumer products, power generation, and heavy industry. Today, with offices throughout Europe and Asia, and a global network of resellers, CGTech software is used by companies of all sizes, universities, trade schools, and government agencies.

CGTech maintains an active Technology Partnership program. VERICUT users in this program include many of the world's leading machine builders, CAD/CAM developers, and manufacturing software companies.

VERICUT customer support is provided by a team of dedicated technical support engineers. Full training, implementation, and contract consulting services are available.

When you invest in VERICUT, you're not just buying a software program, you're teaming up with a manufacturing partner with the best reputation in the business!

System requirements are subject to change. See the CGTech web site for the most up-to-date product information and system requirements.