

VERICUT®

Composite Applications

Machine-independent Programming & Simulation Software for Automated Fiber placement & Tape Laying

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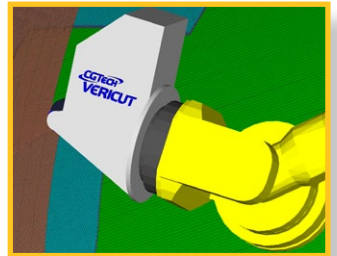
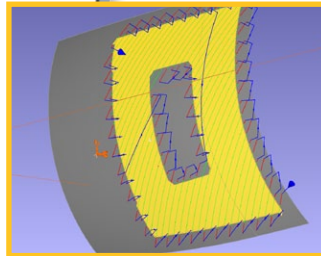
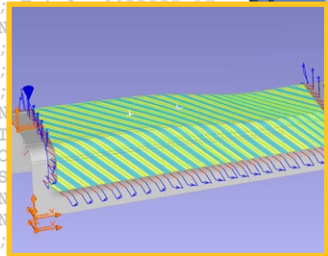
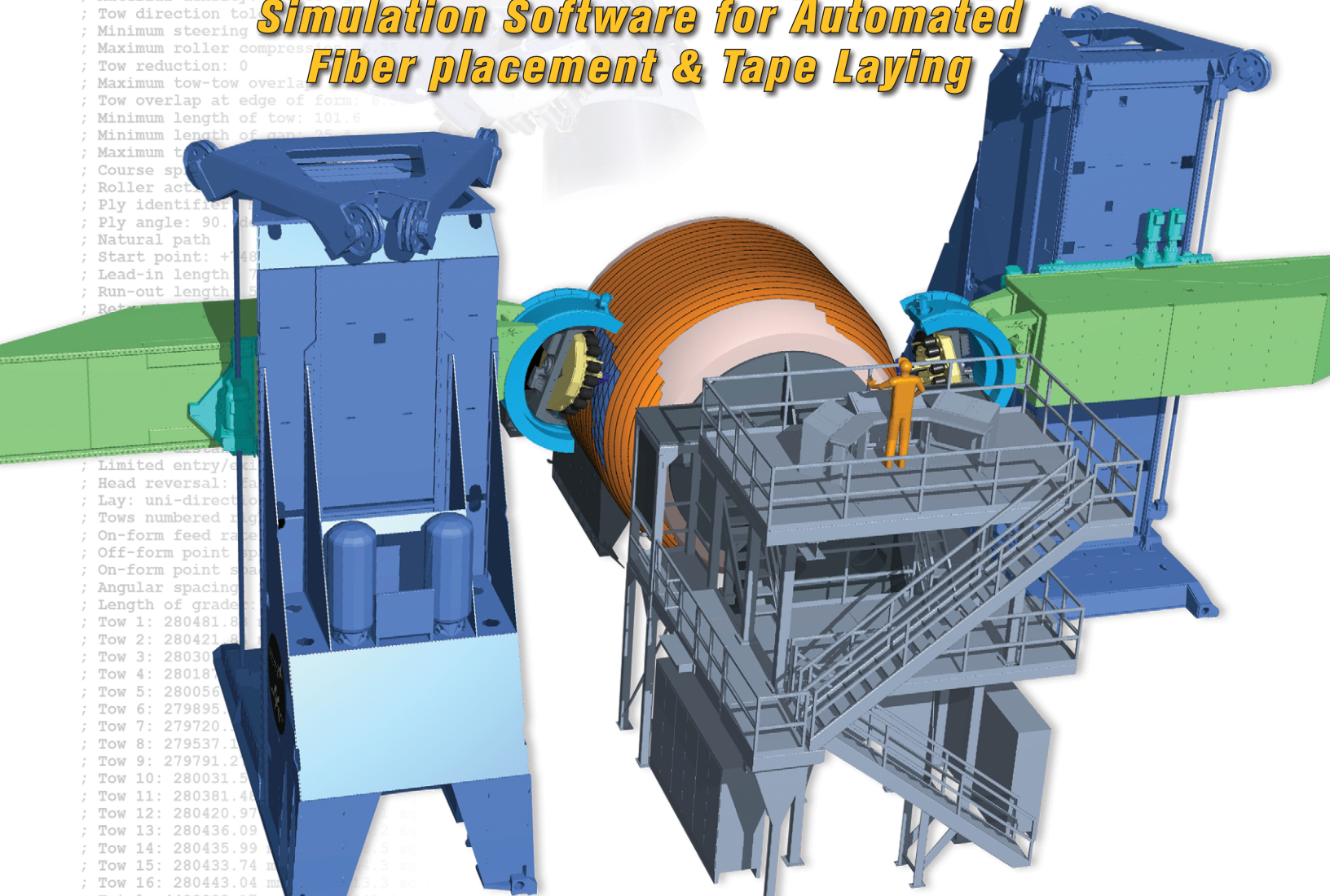
; Tow count: 16
; Tow width: 6.3
; Material thick:
; Material density:
; Tow direction tol:
; Minimum steering:
; Maximum roller compression:
; Tow reduction: 0
; Maximum tow-tow overlap:
; Tow overlap at edge of form:
; Minimum length of tow: 101.6
; Minimum length of gap:
; Maximum t
; Course sp
; Roller act
; Ply identifier:
; Ply angle: 90.
; Natural path
; Start point: +48
; Lead-in length:
; Run-out length:
; Ret

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; Limited entry/exit:
; Head reversal: fa
; Lay: uni-directional
; Tows numbered in order:
; On-form feed rate:
; Off-form point spacing:
; On-form point spacing:
; Angular spacing:
; Length of grade:
; Tow 1: 280481.8
; Tow 2: 280421.8
; Tow 3: 28030
; Tow 4: 28018
; Tow 5: 280056
; Tow 6: 279895
; Tow 7: 279720
; Tow 8: 279537.1
; Tow 9: 279791.2
; Tow 10: 280031.5
; Tow 11: 280381.4
; Tow 12: 280420.97
; Tow 13: 280436.09
; Tow 14: 280435.99
; Tow 15: 280433.74
; Tow 16: 280443.04

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N5 SYNCON
N6 X-15741.102 Y117.736 Z497.962

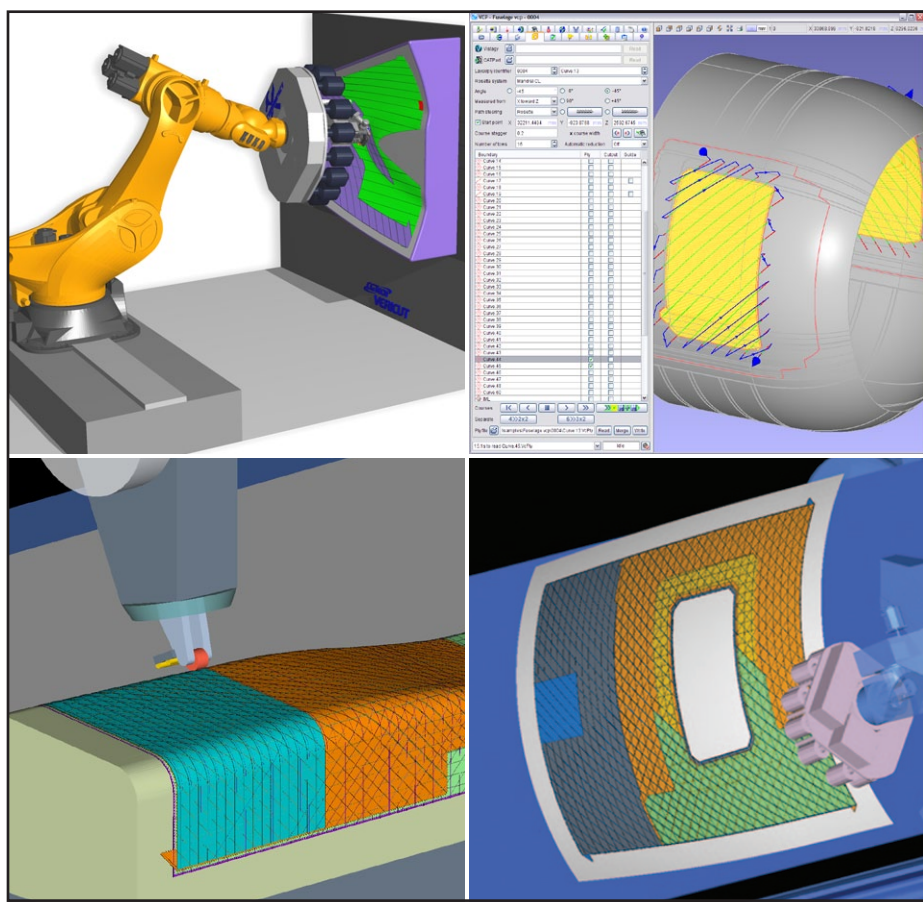
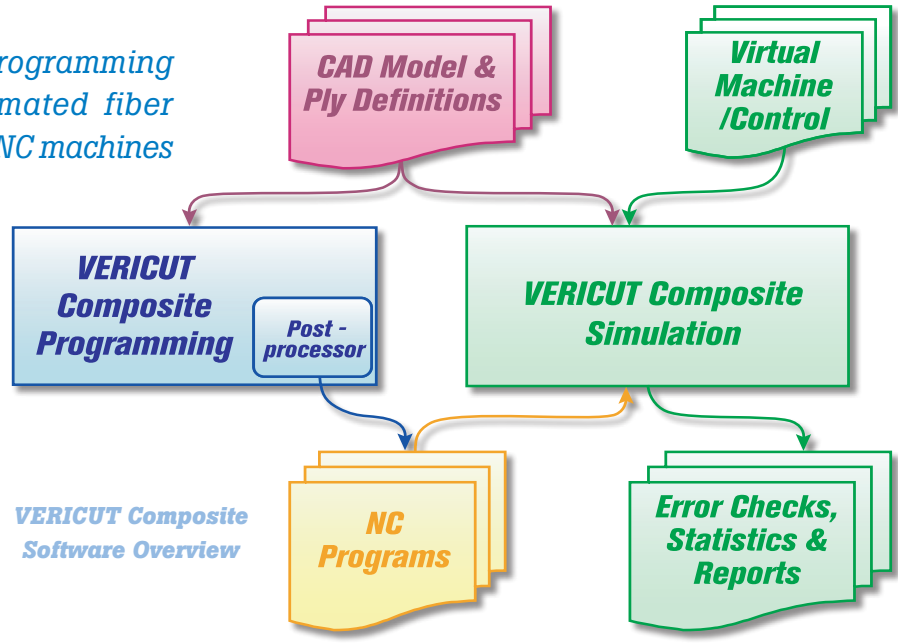
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CNC Composite Applications

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

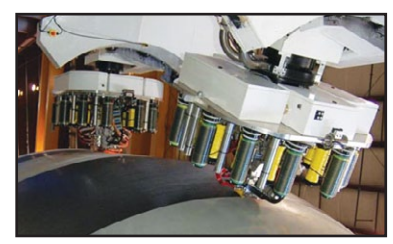
VERICUT Composite Programming (VCP)

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.

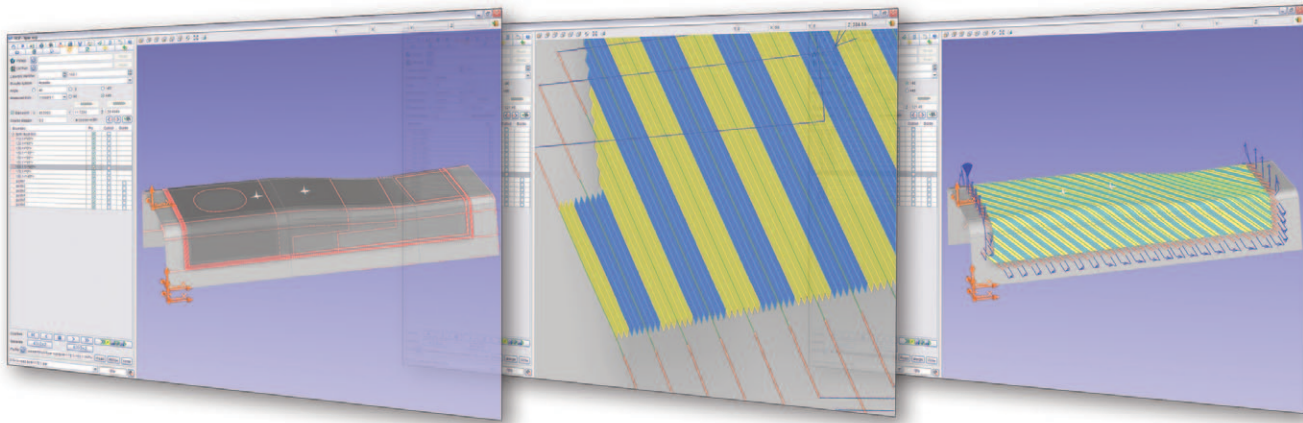


VERICUT Composite Simulation (VCS)

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 automatically created.



VERICUT Composite Programming Process



Reads CATIA, STEP or ACIS surface models

- Other model formats available upon request

Reads FiberSim, CATIA 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
- Follow natural path of form's surface

Adds thickness to form for subsequent 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

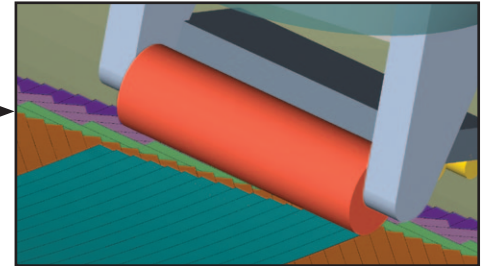
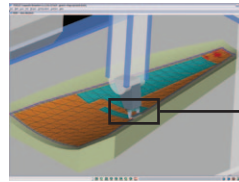
- Validate the actual NC program that will run on the layup equipment
- Add material to the form based on NC program commands
- Adds material in discrete layers/sequences, constructing the workpiece exactly like the physical process

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

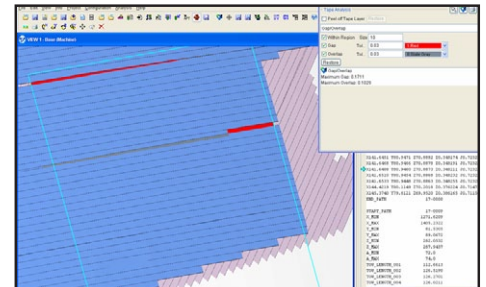


Checks the process for compaction roller/form conformance and direction

- 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

Measures added material and inspects for manufacturing requirements

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





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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.

Technology Partners with:



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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!