TWI

TWEATHERFORD, INC.

Technology Solutions For Manufacturing

Additive Manufacturing · Advanced Machining

A Preferred Systems Integrator for Advanced Manufacturing Technologies

TWeatherford, Inc. (TWI) is a certified, licensed value-added reseller and preferred systems integrator for a curated portfolio of advanced manufacturing technologies. We evaluate, deploy, and support solutions across two critical domains — additive manufacturing and advanced machining — selected specifically for their ability to deliver measurable results in real production environments.

TWI's role goes beyond the transaction. We provide application expertise, implementation guidance, and ongoing consultation to ensure the technologies we represent perform as promised — on your machines, with your materials, on your parts.

ADDITIVE MANUFACTURING

Large-format robotic composite and metal AM systems, plus integrated software for workflow management.

- Caracol / Heron AM
- Vipra AM (Metal WAAM)
- Eidos Manufacturing Software

ADVANCED MACHINING

Physics-based toolpath technology that reduces cycle times, extends tool life, and works with any CAM system.

- VoluMill Nexion
- VoluMill for Siemens NX CAM
- VoluTurn for Siemens NX CAM

Additive Manufacturing Solutions

Additive manufacturing is transforming how products are designed, developed, and produced. As a preferred systems integrator, TWI helps organizations leverage additive technologies to accelerate innovation, reduce costs, and improve product performance — from initial application identification through full production deployment.

Accelerate Development

Faster concept-to-part. Validate designs earlier, reduce iteration cycles.

Reduce Costs

Eliminate tooling, consolidate assemblies, lower inventory requirements.

Improve Performance

Design freedom for lightweight optimized structures impossible in traditional mfg.

Enable Flexibility

Low-volume, customized, on-demand production without added cost or complexity.

CARACOL

Large-Format Additive Manufacturing

Caracol delivers advanced large-format additive manufacturing solutions designed to produce high-performance composite parts at scale. Through robotic extrusion technology, Caracol systems enable manufacturers to produce large, complex components with exceptional efficiency and design freedom.

TWI, as an authorized Caracol technology partner, works with your team to evaluate applications, select appropriate configurations, and support successful implementation.

Key Capabilities

- Large single-piece component production
- Multi-axis robotic deposition for complex geometries
- Composite and thermoplastic material support
- Reduced tooling requirements vs. traditional methods
- Faster development cycles for large-scale parts
- Applications: aerospace, automotive, marine, tooling

HERON AM

Large-Format Robotic Composite AM

Heron AM is Caracol's robotic large-format additive manufacturing platform designed to produce large composite and thermoplastic components with exceptional flexibility and efficiency. Built on multi-axis robotic technology, Heron AM enables manufacturers to create complex geometries without the size limitations of traditional gantry-based systems.

The modular architecture supports reinforced thermoplastic materials, allowing organizations to reduce material waste, shorten lead times, and produce large-scale parts with greater design freedom.

Benefits

- Produce large parts faster — single-build oversized components
- Reduce material waste through precision additive deposition
- Enable complex geometries with multi-axis robotic motion
- Scale for industrial production with modular architecture
- Supports reinforced thermoplastic and composite materials
- Seamless integration into existing production workflows

VIPRA AM

Large-Scale Robotic Metal AM · WAAM Technology

Vipra AM is Caracol's robotic metal additive manufacturing platform for producing large-scale metal components using wire-arc additive manufacturing (WAAM) technology. Built on multi-axis robotic motion, Vipra AM enables efficient production of structural metal parts, near-net-shape components, and repair applications.

High deposition rates and support for industrial metal alloys allow manufacturers to reduce lead times, minimize material waste, and produce large metal parts with greater flexibility than traditional fabrication.

Benefits

- Print large metal parts without size constraints of machining or casting
- High deposition rates for productivity at large scale
- Near-net-shape production minimizes machining and material waste
- Enable repair & remanufacturing — extend part life, reduce costs
- Supports multiple industrial metal alloys
- Flexible modular robotic cell layout and scalable build volumes

Platform Note

Both Heron AM and Vipra AM are built on Caracol's multi-axis robotic platform, supporting flexible cell layouts, scalable build volumes, and integration with Eidos Manufacturing software for unified process control.

EIDOS MANUFACTURING

Software Platform for Robotic Additive Manufacturing

Eidos Manufacturing is Caracol's software platform designed to manage and optimize robotic additive manufacturing workflows. The system connects planning, slicing, machine control, and process monitoring into a single unified environment — purpose-built for large-format robotic AM.

By integrating hardware, materials, and production data, Eidos helps improve repeatability, reduce setup time, and streamline operations across both Heron AM and Vipra AM deployments. TWI, as an authorized Caracol technology partner, supports evaluation, deployment, and ongoing integration of Eidos within your production environment.

Key Capabilities

- Unified workflow — planning, slicing, monitoring, and production in one environment
- Robotic toolpath control with optimized multi-axis deposition paths
- Consistent process control across builds for predictable results
- Reduced setup time with integrated software tools
- Purpose-built for large-format additive manufacturing environments
- Seamless integration with Caracol Heron AM and Vipra AM systems

The Complete Caracol Additive Platform

Heron AM, Vipra AM, and Eidos Manufacturing form an integrated additive manufacturing platform designed for industrial-scale production. Heron AM addresses large composite and thermoplastic components. Vipra AM extends those capabilities into structural metal parts using wire-arc technology. Eidos ties both together with unified software for toolpath generation, process monitoring, and production management.

Heron AM

Large-format composite and thermoplastic robotic additive manufacturing

Vipra AM

Wire-arc metal additive for structural and near-net-shape components

Eidos Software

Unified planning, toolpath, control, and monitoring platform

Machining Solutions Overview

Precision machining remains a critical foundation of modern manufacturing. TWI, as a certified, licensed value-added reseller of VoluMill and VoluTurn toolpath technologies, helps organizations improve machining efficiency, reduce cycle times, and increase productivity — without requiring new capital equipment.

Our approach is consultative: we evaluate your current machining environment, identify bottlenecks and inefficiencies, then recommend proven technologies and process strategies that deliver measurable results on your shop floor.

What Machining Optimization Delivers

Reduce Cycle Times

Advanced toolpath strategies consistently deliver 20–50% cycle time reductions on roughing operations — freeing machine capacity without capital investment.

Extend Tool Life

Physics-based cutting engagement eliminates over-engagement and shock loading, distributing wear evenly and increasing usable tool life 2–4×.

Improve Process Reliability

Consistent cutting conditions reduce tool breakage, improve surface finish, and lower operator intervention — resulting in more predictable production.

Optimize Existing Equipment

Many organizations achieve significant gains without new machines. TWI focuses on getting more value from current investment through toolpath and process improvement.

20–50%	2–4×	100%	3
Cycle Time Reduction	**Tool Life Improvement**	**Existing Equipment**	**Products Available**
Consistently achieved on roughing operations	Through controlled cutting engagement	No new capital investment required	Nexion, VoluMill NX, VoluTurn NX

TWI's Machining Methodology

1. Evaluate current machining workflows and identify bottlenecks and inefficiencies
2. Recommend VoluMill / VoluTurn solutions matched to your parts, materials, and CAM environment
3. Support implementation, operator training, and ongoing performance measurement

VOLUMILL NEXION

Platform-Independent Toolpath Technology

VoluMill Nexion is the next generation of VoluMill Universal — a standalone, platform-independent toolpath technology that works alongside any CAM system. Using physics-based, high-speed continuous tangent motion rather than sharp interrupted movements, Nexion dramatically reduces cycle times and extends tool life across all non-finishing milling operations.

Because Nexion operates as a standalone solution, it delivers the benefits of physics-based toolpaths regardless of your current CAM platform. No migration. No disruption. Works on any material, part geometry, or feature — open or closed shapes, any number of features.

TWI is a licensed value-added reseller of VoluMill Nexion, providing application assessment, deployment support, and ongoing consultation.

Key Advantages

- Works with any CAM system — no platform lock-in required
- High-speed continuous tangent motion vs. sharp interrupted cuts
- Double machine output and extend tool life significantly
- Works on any material, part geometry, or feature type
- Physics-based toolpath planning using machine and tool capability
- Handles open or closed shapes with any number of features
- Automatic control of material removal rates regardless of geometry

Real-World Performance Results

2×	20–50%	Significant	Any CAM
Machine Output	**Cycle Time Reduction**	**Tool Life Extension**	**Platform Compatible**
Double throughput on existing equipment	Across all roughing operations	Reduced wear through constant chip load	No migration or disruption required

VOLUMILL FOR SIEMENS NX CAM

High-Efficiency Roughing Integrated in NX CAM

VoluMill for Siemens NX CAM delivers proven physics-based toolpath performance natively inside NX CAM — the fastest, most cost-effective method of bulk-material removal for all non-finishing milling operations.

Perfect for airframe, automotive, mold & die, medical, and machinery component manufacturing. VoluMill's patented technology makes programming simple by automatically controlling material removal rates regardless of geometry or complexity — you will never worry about over-engaging cutting tools or work-hardening materials.

Compatible with all latest versions of Siemens NX CAM. Works on any shape, open or closed, with any number of features.

Key Advantages

- Natively integrated within the Siemens NX CAM environment
- High-speed tangent motion — eliminates sharp direction changes
- Automatic chip load control regardless of geometry complexity
- Works on all roughing needs — free-form and prismatic parts
- Compatible with all latest versions of NX CAM
- Proven in airframe, automotive, mold & die, medical markets
- Never over-engages tools or work-hardens materials

Primary Markets

Airframe & Aerospace	Automotive	Mold & Die	Medical Devices	Machinery Components	Consumer Products

VOLUTURN FOR SIEMENS NX CAM

Science-Based Rough Turning for Siemens NX CAM

VoluTurn is a powerful turning toolpath technology designed to significantly improve the machining of parts using ISO standard inserts. It creates smooth, flowing tool motion that reduces machining loads, increases tool life, and delivers predictable, repeatable results.

By intelligently managing entry, exit, and cutting engagement, VoluTurn improves productivity while minimizing wear on cutting tools and machine components. Automatic collision avoidance, efficient repositioning between cuts, and both unidirectional and bidirectional cutting patterns with constant or variable depths are all handled automatically.

Key Advantages

- Smooth, flowing toolpaths — continuous tangential motion throughout
- Extended tool life by eliminating over-engagement and dwell conditions
- Reduced programming time — complex paths generated automatically
- Predictable performance with consistent entry and exit conditions
- Automatic collision avoidance and efficient repositioning
- Supports unidirectional and bidirectional cutting patterns
- Constant or variable cut depths — fully utilizes inserts, prevents notch formation

VoluTurn at a Glance

Smooth Flowing Toolpaths

Continuous tangent motion reduces cutting forces

Extended Tool Life

Even wear distribution across inserts

Faster Programming

Complex paths generated automatically

Predictable Results

Consistent entry/exit, repeatable outcomes

Ready to Evaluate These Technologies?

TWI provides no-obligation application assessments for both additive and machining solutions. As a certified, licensed value-added reseller and preferred systems integrator, we help you identify the right fit and stay engaged through implementation.

LOCATION
Cicero, Indiana

WEB
www.tweatherford.com

CERTIFIED
WBENC · WOSB