SolidShop – Your Complete Ecosystem for Shop Floor Digitization

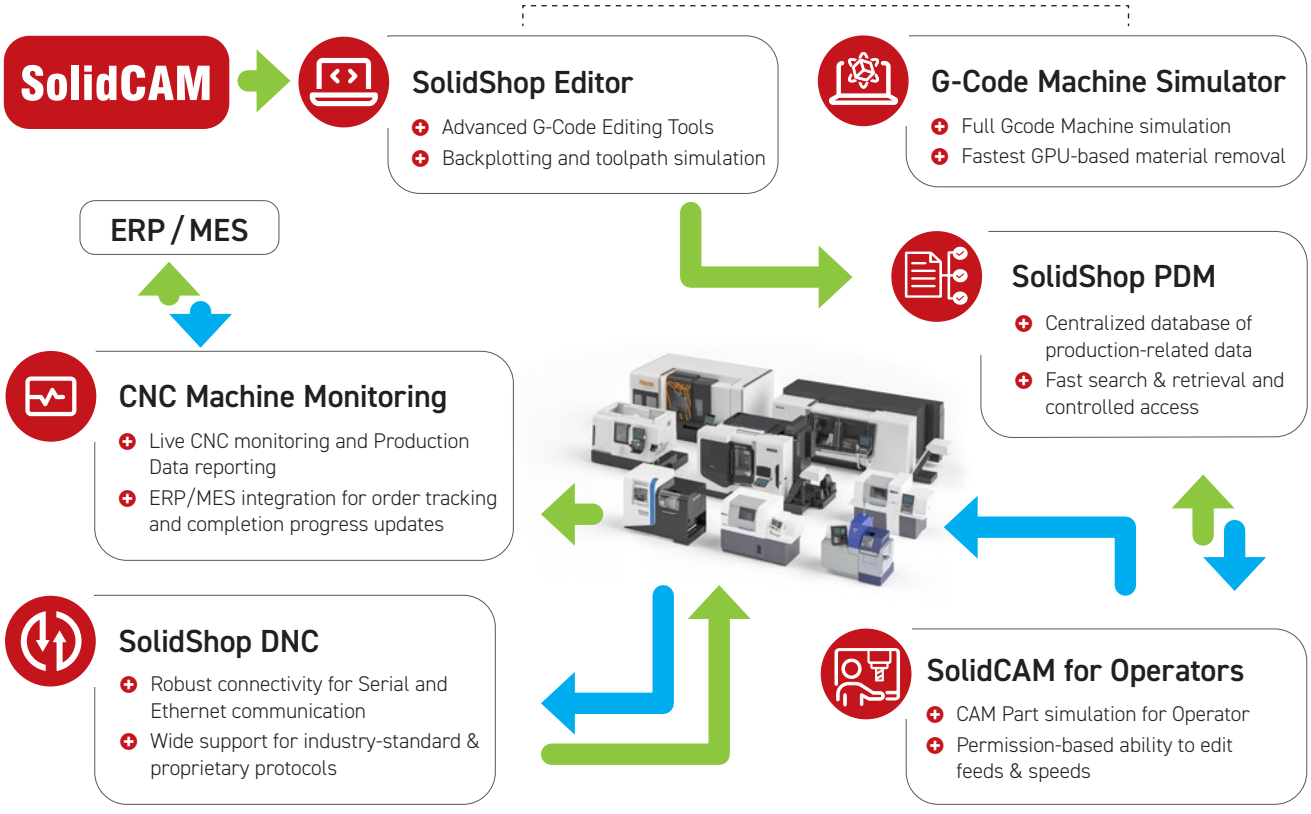
SolidShop is SolidCAM's all-in-one ecosystem for managing, controlling, and monitoring CNC production. It connects CAM programming with the shop floor through integrated modules for G-Code Editing & Simulation, Shop Floor PDM, SolidCAM for Operators, DNC Communication, Machine Monitoring & ERP/MES integration.

By uniting programming, documentation, communication, monitoring, and reporting, SolidShop empowers manufacturers to maximize productivity, eliminate errors, reduce downtime, get a fully paperless workflow and achieve complete traceability across their entire operation.

For years, manufacturers have been searching for an affordable, practical, and proven solution to bring digital control to the shop floor. SolidShop is SolidCAM's answer to all these demands and is designed specifically for production environments, offering:

- Compatibility with legacy and modern CNC machines
- Rapid implementation with short ROI times
- Scalable functionality that grows with your business

SolidShop is SolidCAM's answer to the demands of modern CNC manufacturing — an end-to-end ecosystem for digital, connected, and efficient production.

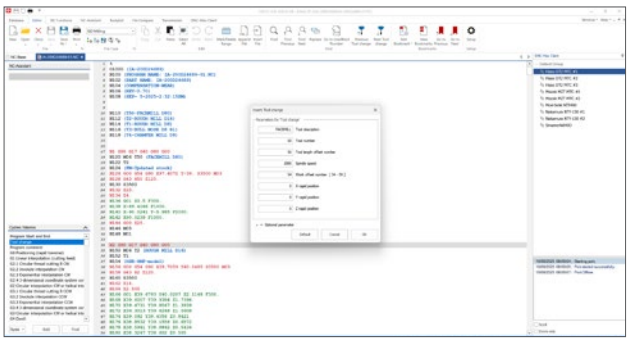


SolidShop Editor – The Industry-Standard G-Code Editor

SolidShop Editor combines a powerful text editing environment with toolpath simulation and comparison tools, making it the go-to solution for working with G-code.

Advanced Editing Tools – Intelligent NC functions, customizable shortcuts, and an easy-to-use interface designed for fast and efficient code editing.

- **Backplotting & Toolpath Simulation** – Visualize toolpaths directly from G-code to validate programs and ensure accuracy before machining
- **File Comparison** – Quickly compare program revisions line by line to identify differences and avoid costly mistakes
- **Transformations & Macros** – Apply rotations, mirroring, scaling, and other transformations, or use macros to automate repetitive tasks
- **DNC Communication** – When paired with DNC, seamlessly upload/download programs between PC and CNC machines
- **Code Conversion** – Translate proven programs between CNC types (e.g. Heidenhain <–> FANUC <–> Siemens)



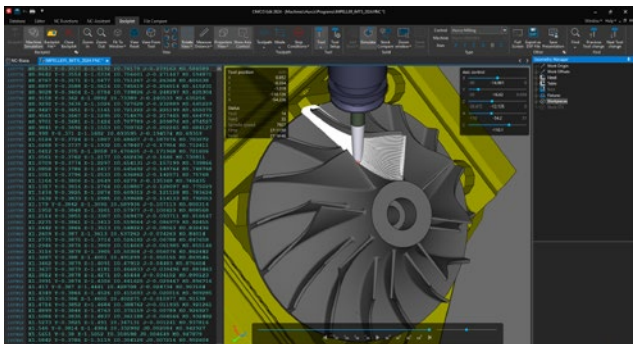
- **Cycle Simulation** – Verify canned and parametric cycles for turning, milling, drilling, threading, probing, block skips, and conditional logic used by mainstream CNC controls
- **Proven Compatibility** – Supports a wide range of CNC controls, parametric code, subprograms, and cycles

SolidShop Editor provides a reliable, fast, and proven NC editing environment, that reduces programming errors and setup times, standardizes editing and revision control, and improves productivity with efficient program validation.

SolidShop G-Code Machine Simulation – Accurate and Reliable Program Verification

SolidShop's G-Code Machine Simulation is a **field-proven solution for validating NC programs directly from the G-code**, ensuring that what is programmed is exactly what the CNC machine will execute. It provides accurate 3D simulation of both the machine tool and the machining process for CNC machines from 2 to 5 axes, as well as single channel lathes equipped with one or two spindles + C axis and a turret, helping manufacturers avoid costly errors and downtime.

- **True G-Code Simulation** – Reads and interprets the actual NC code, including macros, subprograms, and parametric commands, to provide an authentic machine run-through
- **3D Machine Environment** – Visualizes the tool, fixtures, stock material, and the full kinematics of the machine, detecting errors before they occur
- **Collision & Over-Travel Detection** – Identifies potential crashes, axis limit violations, and setup issues that could damage machines or parts
- Rigorous and configurable syntax checker that enables delivering verified code to the CNC
- Lightning-fast material removal simulation using GPU power
- **Broad Control Support** – Compatible with mainstream CNC controls and their unique cycle definitions, ensuring realistic behavior



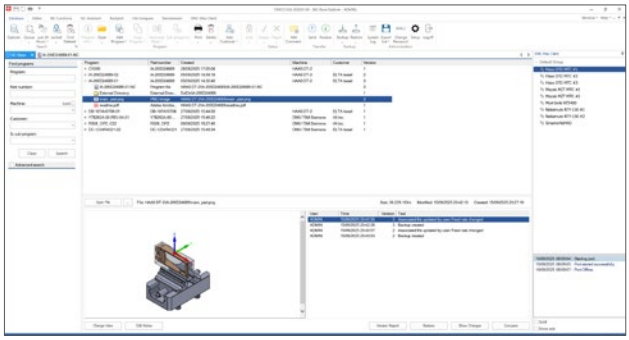
By simulating NC programs in advance, SolidShop Machine Simulation increases operator's confidence in program reliability, accelerates the process of moving from programming to production and enhances safety by preventing crashes and tool breakage.

SolidShop G-Code Machine Simulation provides a critical tool for manufacturers who want accuracy, efficiency, and risk-free CNC program validation.

Thanks to its tight integration with SolidShop PDM, DNC, and SolidCAM for Operators, the G-Code Machine Simulation module enables operators and programmers to simulate changes that were done at the CNC controller, before they are merged with the approved version.

SolidShop PDM – Centralized CNC Program Management

Our manufacturing-oriented Process Data Management module delivers one of the most important steps towards shop floor digitization. Fully integrated into SolidShop Editor, SolidShop PDM manages all types of documents in a centralized database accessible to anyone in the company, through a desktop application or web clients.

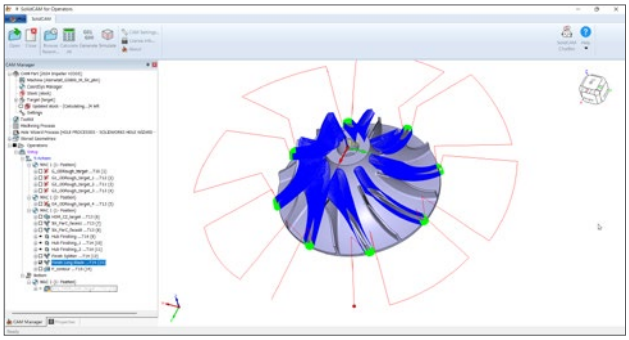


- **100% Shop Floor Focused** – Designed for CNC programmers, machinists, and operators
- **Single Source of Truth** – Centralized Database that stores CAM files, NC programs, subprograms, setup sheets, tool lists, CAD models, drawings, quotations, e-mails, and more in one central location
- **Fast Search & Retrieval** – Find programs instantly by machine, part, customer, or custom criteria
- **Program & Subprogram Management** – Manage parent/child program relationships and send main programs with linked subprograms directly to CNCs in one click (via SolidShop DNC)
- **Secure & Traceable** – Advanced access controls define user rights, while all interactions are logged for compliance and accountability
- **Shop Floor Access** – Provides controlled access to the latest approved CNC programs and documents
- **Integration with SolidShop Editor** – Directly open, edit, simulate, and send programs to CNC machines through DNC communication
- **Revision Control** – Track changes and maintain version history for all programs and documents
- **Regulatory Ready** – Supports ISO 9001, AS9100, and other standards, making it ideal for industries with strict compliance needs, such as medical, defense and pharma
- **End-to-End Integration** – Works seamlessly with SolidCAM and SolidCAM for Operators, enabling a fully paperless workflow

SolidShop PDM ensures data integrity, security, and compliance, while eliminating inefficiencies caused by outdated or misplaced documents. It improves efficiency by giving programmers and operators fast, reliable access to required data, bringing order, control, and reliability to CNC program management and data-driven manufacturing.

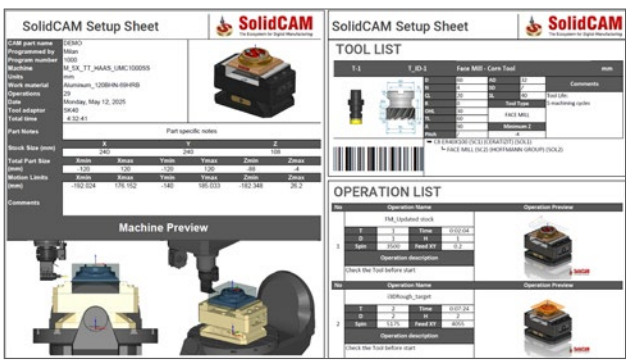
SolidCAM for Operators – Shop Floor Access to CAM Data

SolidCAM for Operators is designed to give machine operators direct, **simplified access to CAM data on the shop floor**. Instead of relying on programmers or printed documentation, operators can view all the relevant information they need in a controlled,user-friendly interface.



- **Direct Access to CAM Data** – Operators can access CAM parts, setup sheets, tool lists, and machining documentation directly from the shop floor
- **CAM Part simulation** – Enables operators to see full Machine simulation of the CAM Part, before starting machining at the CNC machine
- **Update of Feeds & Speeds** – Provides operators the ability to do changes to Feeds & Speeds, as needed
- **Integration with SolidShop PDM** – Ensures operators always work with the **latest approved version of CAM files** and documents, and to store any revisions they have done
- **Paperless Workflow** – Eliminates printed instructions and hard copies, ensuring revisions are instantly available
- **Traceability & Control** – Tracks which programs and revisions were used for production, improving compliance and accountability

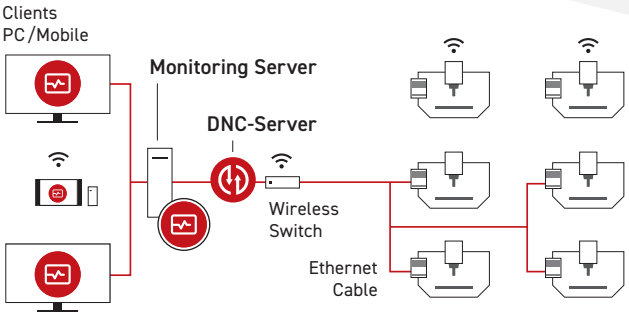
SolidCAM for Operators enables a **seamless connection between CAM programming and CNC execution**, reducing miscommunication, preventing outdated documents on the shop floor, and empowering operators with machine simulation, editing capabilities and with the right data at the right time. It is a key step toward a fully digital, paperless manufacturing environment.



SolidShop DNC – Reliable CNC Communication

SolidShop DNC provides secure, reliable, and efficient communication between CNC machines and the shop floor network. It is a trusted solution for uploading and downloading NC programs, ensuring revision control, and maintaining a smooth data flow across all types of machines.

- **Robust Connectivity** – Supports ethernet and serial (RS-232/RS-422) communication, ensuring compatibility with both modern and legacy CNC machines
- **Centralized Program Handling** – Send and receive NC programs directly to and from CNC controls, keeping all revisions synchronized
- **Error-Free Transfers** – Built-in safeguards prevent data loss or corruption during file transmission
- **Integration with SolidShop PDM** – Ensures operators always use the correct, approved program version, to provide traceability, version control, and secure transfer of programs



- **Bi-Directional Communication** – Changes made by machine operators can be uploaded back to the central system for traceability
- **Wide Protocol Support** – Works with both industry-standard and proprietary protocols
- **Scalability** – Supports shops with just a few CNCs up to large factories with hundreds of CNC machines

SolidShop DNC bridges the gap between machines and digital infrastructure, ensuring **seamless connectivity, secure data flow, and full revision control** — a critical enabler for digital manufacturing.

SolidShop Real-Time Manufacturing Data Collection

SolidShop Monitoring provides real-time monitoring and data collection from CNC machines, and other shop floor equipment, giving manufacturers full visibility of shop floor performance. It automatically records production data, tracks machine status, and delivers actionable insights to improve efficiency at the shop floor.

- **Live Machine Monitoring** – Displays the status of every machine (running, idle, setup, etc.) in real time
- **Data Collection & Connectivity** – Collects cycle times, downtimes, spindle loads, part counts, alarms, and operator inputs. With SolidShop DNC, the system captures live PLC signals and CNC part counters
- **OEE & KPI Reporting** – Calculates Overall Equipment Effectiveness (OEE), MTBF, MTTR, and other user-defined performance indicators
- **Custom Dashboards & Reports** – Visualization via shop floor screens, dashboards, or automatic reports
- **Flexible Connectivity** – Supports modern and legacy CNC machines, PLCs, and sensors, via dozens of protocols, such as MTConnect, OPC or RS-232/Ethernet

- **Flexible Reporting** – Detailed reports can be exported to Excel and PDF, or visualized directly through Power BI, Grafana, or custom dashboards
- **ERP/MES Integration** – Interface to business systems for synchronized production data and order tracking.

By combining live monitoring, powerful reporting and ERP/MES integration, Machine Monitoring enables manufacturers to increase production efficiency, reduces operational costs, eliminates downtime, ensuring a data-driven, traceable workflow across the shop floor. This makes SolidShop Machine Monitoring not just a monitoring tool, but a strategic partner in smart manufacturing, digital transformation, and maximum productivity.

SolidCAM
The Ecosystem for Digital Manufacturing

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