CNC and Machine Tools Component

For CNC manufacturers and machine tool builders, ModuleWorks offers the full range of industry-proven toolpath generation and simulation technology directly on the CNC controller.

Toolpath Cycles

Extend your high-quality production machines with:

Advanced cycles: • Adaptive roughing
• Turn-milling

Feature-based machining: • Deburring
• Automatic 3+2 roughing

Innovative user experience: • 3D machining
• Simulation and collision checking

Digital Twin

Turn your virtual CNC control into a full digital twin.

Features:
• 3D simulation and visualization
• Material removal and additive simulation
• Full-scene collision detection and safety distance violation detection
• Powerful APIs to add custom PLC functionality
• Supports high-frequency data
• Can be integrated into Windows/Linux x64 and x86 environments

Simulation

Enhance your CNC control with a complete virtual environment for:
• Large and complex toolpath simulation
• High-performance verification
• Full-scene collision checking
• Toolpath analysis and optimization

Job Setup

• Handles all the necessary tool data including adapters and holders
• Stock, fixture and target 3D models
• Can be linked to tool management systems and libraries
• Can be integrated into CAM systems
Machining Strategies

The toolpath machining component uses 3D geometries to generate accurate gouge-free toolpaths.

• Adaptive roughing for simple 2D geometries and 3D models
• 3-axis cycles including high-speed machining
• Turning including adaptive and B-axis turning
• Rotary cycles for 4-axis machining
• Full range of 5-axis cycles

Cutting Simulation

• Interactive navigation between the NC-line and the simulation model
• Collision checking between the tool holder, tool shaft and workpiece
• Toolpath coloring for air cuts and collisions
• Comparison with the CAD model

Toolpath Statistics and Analysis

• Percentage of air cuts
• Removed material volume
• Tool engagement calculation
• Axis reversal detection
• Feedrate-based coloring

For more information about real-time collision avoidance, advanced cutting and machine simulation visit: www.moduleworks.com