



# CNC Mill Operations

## OVERVIEW

This certification validates that an individual is able to successfully machine parts by operating a computer numerical control (CNC) machine; maintain quality and safety standards; keep records; maintain equipment and supplies; and perform routine preventative maintenance.

## COMPETENCIES

## KNOWLEDGE + SKILLS

<b>Applied Mathematics</b>	Arithmetic IPM Calculations SFM to RPM Conversion	Sign Numbers Use of Scientific Calculator
<b>Cutting Tool Assembly</b>	Configuration (LOC and EOH) Fitting (tightening and setting) Holder Applications	Inspection of Cutters Inspection of Holders
<b>Geometrical Dimensioning and Tolerancing</b>	Feature Control Frame Geometric Control Symbols Geometric Tolerancing Categories	Geometric Tolerancing Characteristics Geometric Tolerancing Zone Shapes Symbols Associated with Feature Control Frames
<b>Inspection</b>	Feature with Size Verification Feature without Size Verification Flatness Verification Hole Gaging	Perpendicularity Verification Position Verification Profile of a Surface Verification Surface Finish Verification
<b>Machine Maintenance</b>	Coolants Oils and Lubrications	Refractometer Readings
<b>Machine Safety</b>	Machine Guarding	
<b>Machining Applications</b>	Drilling Face Milling Peripheral Milling	Pocket Milling Reaming Tapping
<b>Measurements</b>	Reading Micrometers Reading Steel Rule Reading Vernier Scales Use of Calipers	Use of Dial Indicators Use of Drop Indicators (travel dial) Use of Micrometers Use of Steel Rules
<b>Operations</b>	Deburring Fixture Offset Adjustments Geometry Offset Adjustments Machine Controls	Machine Startup and Shutdown Machine Warm Up Part Loading (vise/fixture) Tool Height Offset Adjustments
<b>Print Reading</b>	Block Tolerances Line Types and Conventions Orthographic Projection	Surface Finish Requirements Title Blocks and Revisions



## Machining Level I Credential Overview

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### COMPETENCIES

### KNOWLEDGE + SKILLS

#### Shop Safety

Blood Born Pathogen	Personal Protective Equipment (PPE)
Fire Prevention/Suppression	Safety Data Sheets (SDS)
Hazardous Material Identification System (HMIS)	Waste Removal
Lock Out/Tag Out	