



Milling I

OVERVIEW

This certification validates that an individual has the skills and knowledge to successfully complete process planning, basic manual milling machining applications, machine set ups, operations, inspection techniques and safety standards.

COMPETENCIES

KNOWLEDGE + SKILLS

Applied Mathematics	Arithmetic IPM Calculations (based on given chip load)	SFM to RPM Conversion Use of Scientific Calculator
Cutting Tool Assembly	Configuration (LOC and EOH) Fitting (tightening and setting) Holder Applications	Inspection of Cutters Inspection of Holders
Cutting Tool Selection	Cutter Applications Cutter Features/Attributes	Manufacturers Technical Data References
Geometrical Dimensioning and Tolerancing	Datum Reference Frame (DRF) Degrees of Freedom (DOF) Feature Control Frame Geometric Control Symbols	Geometric Tolerancing Categories Geometric Tolerancing Characteristics Geometric Tolerancing Zone Shapes Symbols Associated with Feature Control Frames
Inspection	Feature with Size Verification Feature without Size Verification Hole Gaging Parallelism Verification	Perpendicularity Verification Position Verification at MMC Surface Finish Verification Thread Gaging
Machine Maintenance	Coolants Gib Adjustment	Oils and Lubrications Refractometer Readings
Machine Safety	Machine Guarding	
Machining Applications	Drilling Face Milling Peripheral Milling	Plunge Milling (optional) Reaming Slot Milling
Material Preparations	Bar Stock Sizes Cutting Blanks	Deburring
Measurements	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
Operations	Deburring	Part Loading (vise/fixture)



Machining Level I Credential Overview

Manual Milling Skills

COMPETENCIES	KNOWLEDGE + SKILLS	
Print Reading	Block Tolerances Line Types and Conventions Orthographic Projection	Surface Finish Requirements Title Blocks and Revisions
Process Planning	Machine Configuration Machine Selection	Operation Sequencing Workholding Concepts/Devices
Setup	Aligning a Vise/Fixture Establish XY Zero from a Hole	Establish XY Zero from Two Surfaces Tramming
Shop Safety	Blood Born Pathogen Fire Prevention/Suppression Hazardous Material Information System (HMIS) Lock Out/Tag Out	Personal Protective Equipment (PPE) Safety Data Sheets (SDS) Waste Removal