

CNC/VMC PROGRAMMING



Introduction of CNC

- About CNC Machines Panels
- Introduction to Swansoft Software
- Modes of Programs
- Software Start-Up Steps

Programming Start-up

- G-Code and M-Codes
- Parts of Programs
- Tool motion
- Tool offset
- Home position offset

Turning (Horizontal Cutting)

- Introduction to linear horizontal cutting
- Introduction to step cutting
- Introduction to External Cutting tool
- Simple Turning Cycle (G90)

Facing (Vertical Cutting)

- Introduction to linear vertical cutting
- Simple Facing Cycle (G94)

Circular Interpolation

- Introduction to circular cutting
- Circular Interpolation (Clockwise)
- Circular Interpolation (Anti-Clockwise)

Internal Cycles (Drilling and Boring)

- Introduction to Internal Cycles
- Introduction to Drills
- Simple Drilling Cycle (G74)
- Simple Boring Cycle

Grooving Cycles

- Introduction to Groove
- Introduction to Grooving tool
- Advanced Grooving Cycle

Multiple Turning Cycle (Horizontal)

- Introduction to Multi Cycles
- Introduction to Boring Tool
- Multiple Turning Cycle (G71)

Multiple Facing Cycle (Vertical)

- Introduction about Finishing Allowance
- Multiple Facing Cycle (G72)

Pattern Repeating Cycle

- Calculation of Depth Of Cut
- Tool Path Repetition
- Relief In X
- Pattern Repeating Cycle

Introduction to VMC (Milling)

- About VMC Machines Panels
- G-Code and M-Codes
- VMC Startu

Programming Start-up

- Program Start-Up
- Tool Positioning
- Home Positioning

Linear Cutting

- Introduction to Linear interpolation
- Flat Cutting tool
- Linear Cutting (Absolute)
- Linear Cutting (Incremental)

Sub-Routines

- Introduction to Part-Repetition
- Same Job, Same Profile, Same location
- Same job, Same Profile, Different location
- Different Job, Different Profile, Different location

Circular Interpolation

- Introduction to Circular Cutting
- Circular Interpolation when radius is given
- Circular Interpolation when radius is unknown

Cutter Radius Compensation

- Introduction
- Why Cutter Radius Compensation?
- Calculation for Radius
- Internal Path Cutting
- External Path Cutting

Polar Co-ordinates

- Introduction to Angular Cutting
- Polar Co-ordinates
- Switching between Polar and Cartesian
- Datum Shift Command

Canned Cycles

- Introduction about Canned Operations
- Drill cycle
- Peck Drilling Cycle
- Cancellation of Canned Cycles
- Offset Drilling
- Taping Operation



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