

CNC EXPERT STANDARDS

PROJECT: TITAN-1M
CERTIFICATION: CNC

OVERVIEW:

Successfully demonstrated comprehension of the TITAN-1M CNC performance standard. Machined a complete TITAN-1M part using part documentation, fully defined NC program, and met print requirements and specifications.

MATERIALS:

- TITAN-1M part print
- TITAN-1M setup sheet
- TITAN-1M first article report
- TITAN-1M setup checklist
- CNC machine and tooling per TITAN-1M setup sheet
- Inspection equipment per TITAN-1M setup sheet

SKILLS DEMONSTRATED:

PART DOCUMENTATION

- **Setup Sheet:** Use setup sheet instructions to help set up machining operation.
- **Analyze Print:** Identify print dimensions to compare with machined dimensions.
- **First Article Report:** Fill out the first article form with machined dimensions.

WORKHOLDING (VISE)

- **Preparation:** Clean and stone table.
- **Setup:** Install and indicate vise.
- **Jaws:** Install jaws.
- **Parallels:** Install parallels.
- **Machinist Stop:** Install part stop.

TOOLING

- **Toolholders:** Install cutting tools into appropriate tool holding.
- **Install Tools:** Install tool holding into CNC machine.

MATERIAL

- **Deburr Material:** Remove burrs from the material.
- **Load Material:** Load material into vise and torque per specification.

CNC CONTROL

- **Load Program:** Load program into CNC control.
- **Simulate Program:** Run program in graphics mode.
- **Cycle Start:** Start CNC operation.
- **Feed Hold:** Stop CNC operation.
- **Handle Jog:** Manually move CNC spindle.
- **Dry Run Program:** Run Program 6" above material.
- **Tool Offsets:** Set tool offsets.
- **Work Offset:** Set work offsets.

MACHINING

- **Facing:** Remove material from the top of the part.
- **Contouring:** Remove material from outside of the part.
- **Pocketing:** Remove material from inside of the part.
- **Drilling:** Create holes in the part.
- **Tapping:** Create threads in the part.
- **Chamfering:** Create chamfers on the part.

INSPECTION

- **Calipers:** Use calipers to check part dimensions.
- **Thread gauges (Plug):** Use thread gauges to check threaded holes.

SAFETY

- **PPE:** Wear proper personal protective equipment.