

CNC EXPERT STANDARDS

PROJECT: TITAN-90L
CERTIFICATION: CNC

OVERVIEW:

Successfully demonstrated comprehension of the TITAN-90L CNC performance standard. Machined a complete TITAN-90L part using part documentation, fully defined NC program, and met print requirements and specifications.

MATERIALS:

- TITAN-90L part print
- TITAN-90L setup sheet
- TITAN-90L first article report
- TITAN-90L setup checklist
- CNC machine and tooling per TITAN-90L setup sheet
- Inspection equipment per TITAN-90L 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 (CHUCK)

- **Setup:** Install and prepare chuck.
- **Jaws:** Install jaws or collet.
- **Accessories:** Install necessary support equipment e.g. spindle liners, collet stop, etc.

TOOLING

- **Install Tools:** Install tooling into CNC machine.

MATERIAL

- **Inspect Material:** Inspect material and deburr if necessary.
- **Load Material:** Load material into chuck, extend to required length, and clamp with sufficient pressure.

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 turret.
- **Dry Run Program:** Run Program 6" in front of material.
- **Tool Offsets:** Set tool offsets.
- **Work Offset:** Set work offset.

MACHINING

- **Drilling:** Create holes in the part.
- **Facing:** Remove material from the front of the part.
- **Outside Grooving:** Create grooves on the outside of the part.
- **Outside Threading:** Create external threads using single point cutting.
- **Outside Turning:** Remove material from the outside of the part.
- **Part Off Grooving:** Use grooving to remove the part from bar stock.
- **Tapping:** Create threads using taps.

INSPECTION

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

SAFETY

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