

**Customer:** [REDACTED]

**Machine Used:** TensileMill CNC – Classic Upgrade Model

**Date:** [REDACTED]

**Prepared By:** [REDACTED]

### Supplied Material:

[REDACTED] provided the following plastic round tubes for machining:

1. 43 mm OD round plastic tube with a 4 mm wall thickness
2. 43 mm OD round plastic tube with a 4 mm wall thickness
3. 115 mm OD round plastic tube with a 9.6 mm wall thickness

### Machining Conditions:

The demonstration machine was operated without coolant. All samples were machined dry, using compressed air to cool the end mill and remove chips from the cutting tool and workpiece. Improved results may be possible with the application of coolant.

Machining was performed using the PLATE system in the TensileMill CNC Software, with a custom program developed for Type 1 dog-bone specimens.

### Additional Notes:

- Machining round tubes with very thin walls posed a significant challenge. In contrast, tubes with thicker walls demonstrated greater stability throughout the process.
- A custom aluminum jig was machined to securely hold section cords in place, providing effective support and accurate centering on the machine table.
- Standard cutting conditions were used for initial trials. Feed and speed optimization can reduce machining time and improve surface finish during full-scale production.
- [REDACTED]'s sample materials are fully compatible with the TensileMill CNC – Classic Upgrade Model.
- Due to the high quantity of materials received, this proof of concept was limited to three specimens in accordance with the Sending Your Sample Instructions document.

### Machining Parameters:

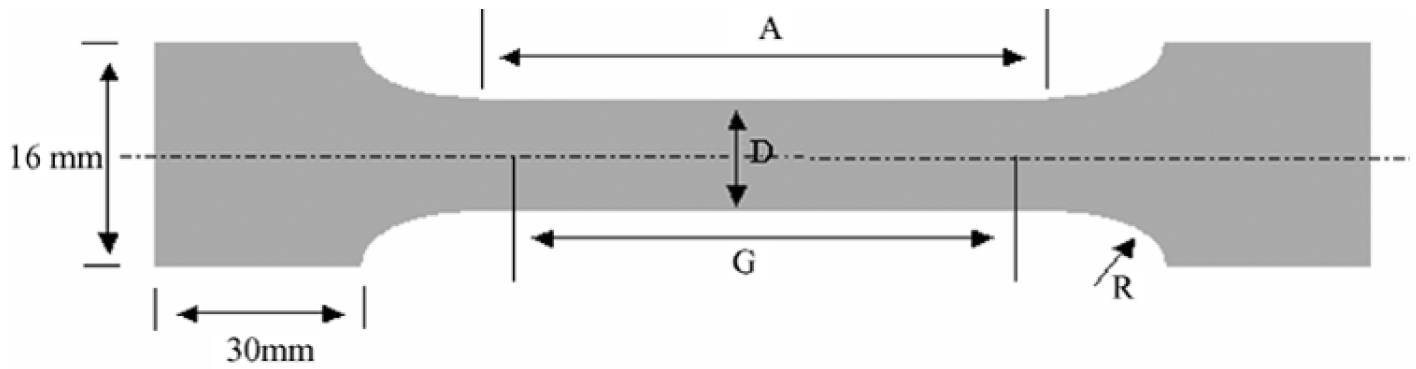
- **Tool:** 1/8" x 1/2" x 1-1/2" WISP-R-MILL, 3-Flute, ZrN Coated End Mill
- **Spindle Speed:** 20,000 RPM
- **Feed Rate:** 0.003 inches/rev (60 inches/min)
- **Depth of Cut (per pass):** 0.05 inches
- **Cycle Time:** Approximately 2 minutes per tube
- **Standard:** ASTM E8



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ASTM E8 Schematic Representation



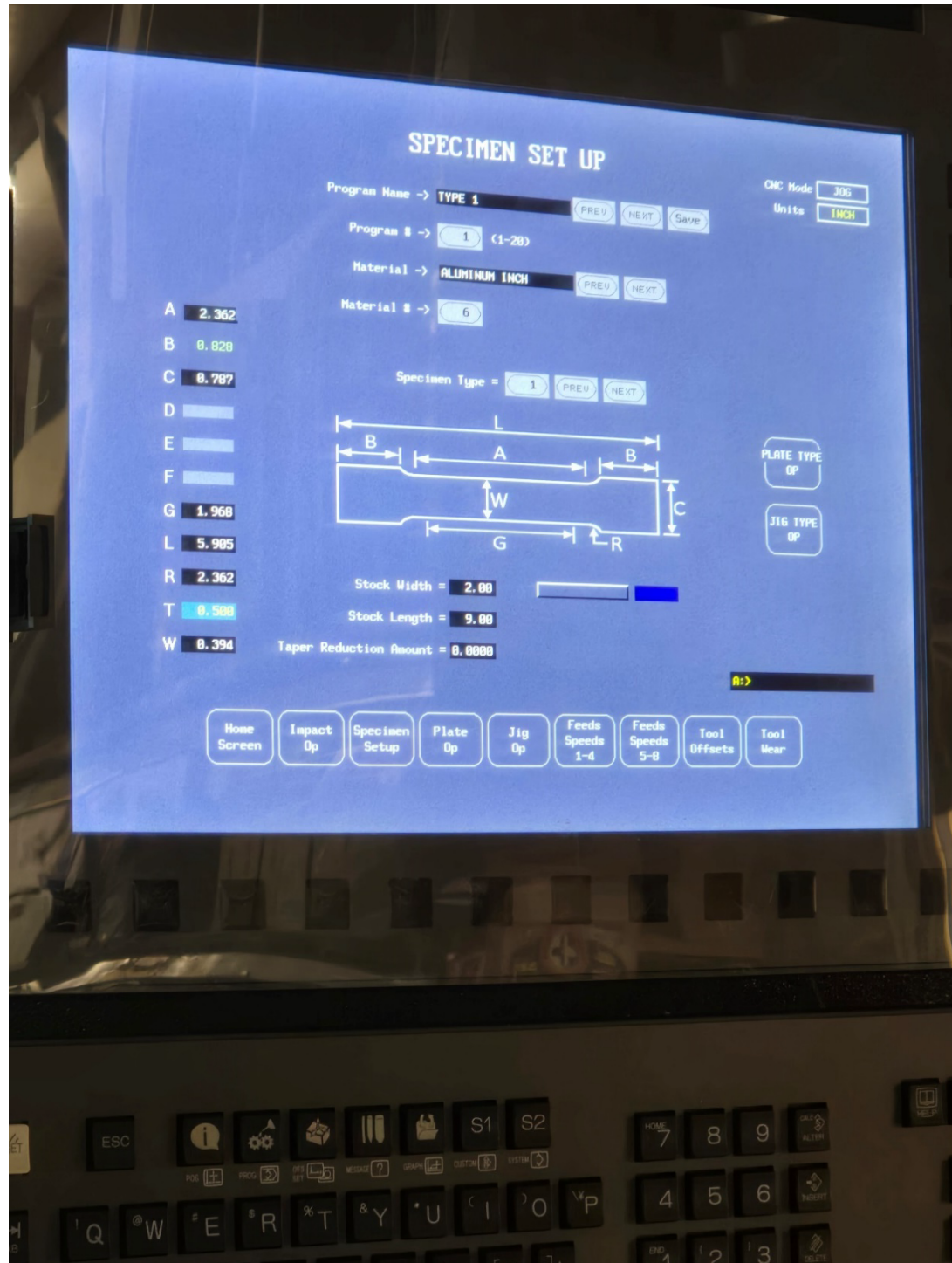
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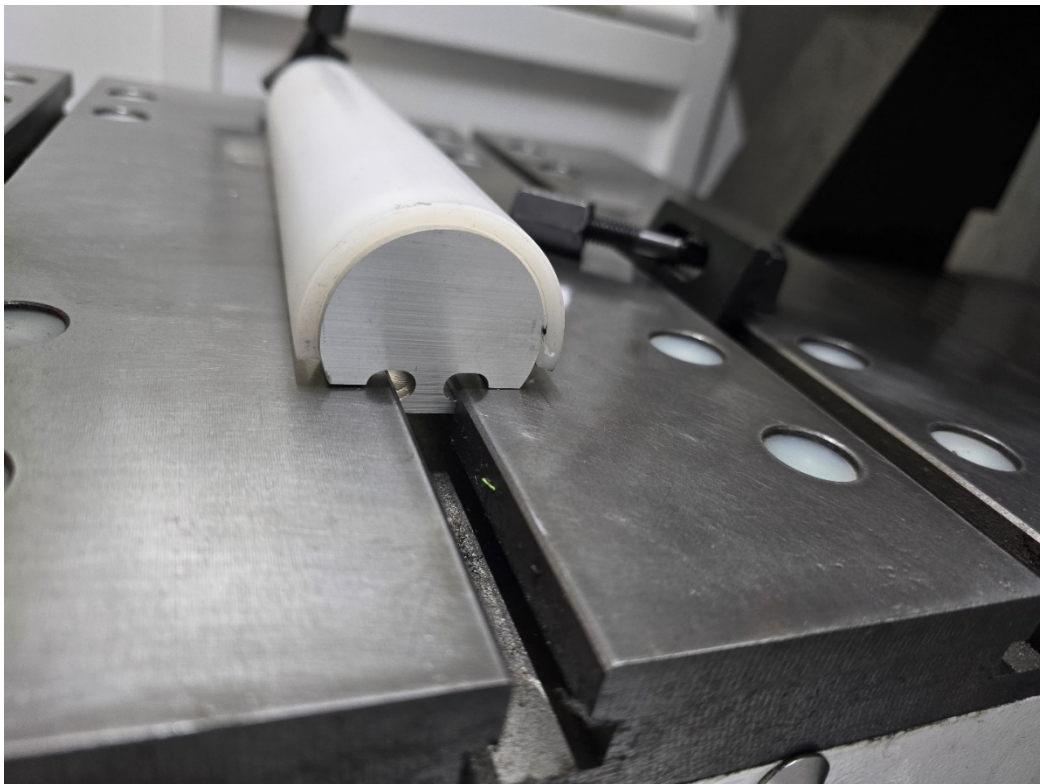
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### Photographic Documentation:

The following section includes various images capturing different stages of the machining process.





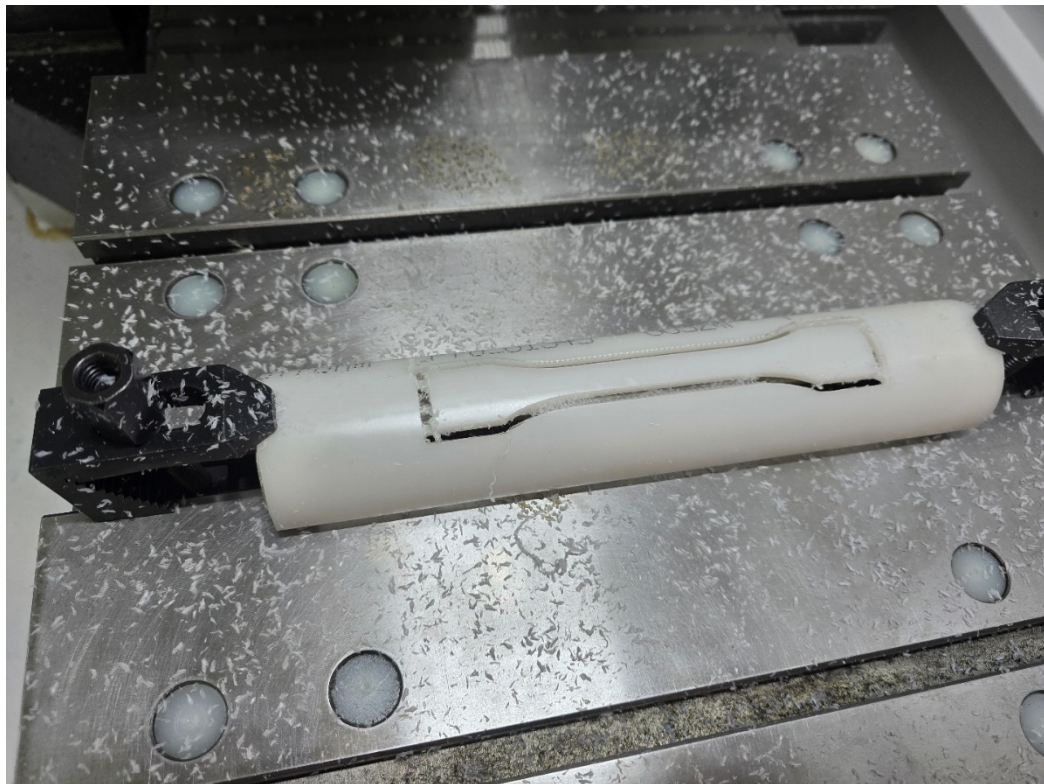


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