



TensileTurn CNC – Industrial Upgrade – Round Tensile Sample Preparation Machine

Standards: [ASTM E8](#), [ASTM B557](#)



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Description

The [TensileTurn CNC Industrial Upgrade](#) is a compact CNC lathe offered by our partner, TensileMill CNC, designed for preparing standardized round tensile test specimens in laboratory and production environments. The system uses the TensileSoft™ v2.0 interface, allowing operators to select specimen dimensions directly from a preloaded library based on ASTM E8, ASTM B557, ISO, and DIN standards, or to enter custom parameters using the touchscreen control panel.



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The machine is engineered to produce consistent specimen geometries from a wide range of metallic materials, including heat-treated alloys and specialty grades such as Inconel. It accepts round, square, or irregular starting stock and includes an automated center-drilling function to standardize preparation steps. Because the machining workflow is guided and automated, the system can be operated effectively by users with limited CNC background while still offering full CNC control functions for experienced machinists.

By bringing specimen preparation in-house, laboratories can reduce dependency on external machine shops, shorten testing lead times, and maintain tighter control over dimensional repeatability across production batches. The TensileTurn CNC Industrial Upgrade is suited for



preparing standard round bars, sub-size specimens, threaded tensile samples, fatigue specimens, and button-head tensile bars for mechanical testing applications.

Key System Capabilities

This system is designed to support consistent and efficient preparation of standardized round tensile specimens in laboratory and production environments. The guided interface allows new operators to learn the workflow quickly, while the machine's construction and motion system maintain dimensional repeatability across multiple batches.

- **Rapid Operator Onboarding:** The touchscreen TensileSoft™ interface allows operators with minimal machining background to prepare specimens in a short learning period.
- **Standardized Sample Geometry Control:** Supports round tensile specimen formats defined in ASTM E8, ASTM B557, and commonly used geometry profiles from ISO and DIN standards.
- **Independent Testing Workflow:** Specimen preparation can be performed without relying on general-purpose machining centers, reducing delays and test queue times.
- **Consistent Dimensional Repeatability:** Stable frame construction and servo motion control maintain consistent gauge diameter, shoulder transitions, and gauge length.
- **Flexible Material Compatibility:** Capable of machining a variety of metallic materials, including heat-treated steels, copper alloys, nickel alloys, aluminum, and magnesium.
- **Versatile Specimen Types:** Supports preparation of standard round bars, sub-size specimens, threaded tensile specimens, fatigue bars, and button-head tensile samples.



Core Mechanical Features

The mechanical architecture of the system is engineered to support stable cutting conditions and consistent specimen dimensions across repeated machining cycles. The following components form the structural and motion foundation of the machine:

- Granite base and precision ballscrew motion system for stable machining performance
- Stainless steel enclosure for laboratory and production environments
- 3500 rpm, 2 hp (1.5 kW) main motor
- 8-position electric tool turret, compatible with 1/2" OD tools
- 4 boring tool stations for 3/4" shank tools
- Servo drive system: FANUC Bis 0.5
- Automated center-drilling function for standardized workholding and alignment



Technical Specifications

Parameter	Specification
Swing Over Bed	Ø8 in (Ø203 mm)
Center Width	9 in (228 mm)
Spindle Bore	Ø1 in (Ø26 mm)
Spindle Speed Range	50–3500 rpm
Lathe Chuck Diameter	Ø4 in (Ø101 mm)
Tool Changer Type	Electric
Tool Positions	8 positions, 1/2 in OD tools (12.7 mm)
Boring Tool Holders	4 holders, 3/4 in shank (19 mm)
Max Tool Section	0.5 × 0.5 in (12.7 × 12.7 mm)
X-Axis Travel	7.09 in (180 mm)
Z-Axis Travel	8.85 in (225 mm)
X-Axis Speed	600 in/min (15 m/min)
Z-Axis Speed	600 in/min (15 m/min)
Position Accuracy	±0.0002 in (±0.005 mm)
Tailstock Taper	MT2



Parameter	Specification
Coolant Tank Capacity	10 gal (38 L)
Total Power Connection	3.2 kW
Servo Motor	FANUC Bis 0.5 (350 W AC)
Main Motor Power	2 hp (1.4 kW)
Main Motor Speed	3500 rpm
Coolant Pump Power	1/8 hp
Power Requirements	220 V AC, 20 A
Machine Weight	800 lb (362 kg)
Dimensions (L × W × H)	43.8 × 26 × 42.5 in (1.1 × 0.66 × 1.1 m)

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