



TORONTECH



TENSILE TEST CHAMBER TORONTTC™ 150-300

Tensile Test Chamber ToronTTC™ 150-300 is designed to meet precise temperature requirements for material testing. It utilizes liquid nitrogen cooling and features a PID-controlled temperature system for minimal overshoot and high accuracy. A centrifugal fan ensures consistent airflow, maintaining uniform conditions within the chamber. This advanced testing equipment is ideal for universities, research institutions, and industrial material testing facilities.

The chamber integrates seamlessly with testing machines without requiring modifications. It operates on a track system, allowing easy repositioning for ambient temperature tests. Designed for versatility, it enables tensile, compression, bending, and shear testing of both metal and non-metal materials under extreme temperature conditions. It also meets the needs of specialized industries, including plastics and rubber.

APPLICATIONS

Standards

1. Metallic materials – Tensile testing at elevated temperatures
2. Other relevant industry standards for high- and low-temperature testing chambers and tensile testing of metallic materials

FEATURES

Key Features

- 1. Low temperatures are achieved using liquid nitrogen refrigeration, while thermal compensation operates through a PID-controlled heater.
- 2. The chamber's exterior features an electrostatic coating, while the interior is made of mirror-finish stainless steel. The front door includes an observation window with a demisting function. Built-in lighting provides clear visibility during testing.
- 3. The temperature control system uses PID regulation with a display accuracy of 0.1°C, ensuring precise and stable temperature management.
- 4. A centrifugal fan enables forced air circulation, maintaining uniform temperature distribution to meet testing standards.
- 5. The chamber is equipped with a guide rail system for easy movement in and out of the testing machine's test space, with adjustable height for flexibility.
- 6. Both the top and bottom ends of the chamber have a U-shaped opening with a sealing component, allowing smooth integration with the testing machine.

TECHNICAL SPECIFICATIONS

Temperature control range	-150~300°C
Temperature control accuracy	≤±1°C
Temperature uniformity	≤±2°C□ Axial center 200mm□
Cooling speed (25°C room temp)	1~3°C/min□ Free load□
Heating speed	1~3°C/min□ Free load□
Internal Dimensions	250 × 530 × 260 mm (width x height x depth)
Chamber External Dimensions	370 × 670 × 880 mm (width x height x depth)
Tensile rod hole size	Φ 50 mm
Dimensions	Please reference the dimensions picture

Voltage	AC220V, 50HZ (110V is also available)
Power	1.5 kW
Operating environment temperature	5°C~30°C

Configuration

1. **Observation Window:** Features a hollow electric-heated glass window that prevents water mist buildup.
2. **Temperature Control:** PID automatic temperature regulation ensures stability.
3. **Exterior Material:** Cold-rolled sheet with electrostatic coating or stainless steel.
4. **Interior Material:** Mirror-finish stainless steel.
5. **Insulation:** Flame-retardant insulation for enhanced safety.
6. **Lighting:** One illumination lamp positioned for optimal visibility, with an external control switch.
7. **Air Regulation System:**
 1. **Temperature Control:** PID automatic temperature management.
 2. **Air Circulation:** Centrifugal fan for uniform airflow.
 3. **Heating Method:** Stainless steel electric heater with forced ventilation and internal circulation for precise temperature control.
 4. **Cooling Method:** Liquid nitrogen refrigeration.
 5. **Temperature Sensor:** High-precision platinum resistance sensor.
8. **Sealing:** The door and chamber body are fitted with silicone strips for an airtight seal.
9. **Mobility:** Equipped with guide rails for smooth linear movement, simplifying installation and removal.
10. **Refrigeration System:**
 1. **Liquid Nitrogen Tank:** Stainless steel self-pressurized tank with booster, exhaust, and infusion valves, along with a pressure gauge, double safety valves, and universal casters for easy mobility. A specialized ultra-low-temperature stainless steel hose ensures consistent liquid nitrogen supply. The system operates without the need for external power or compressed air, making it efficient and easy to use.

2. **Solenoid Valve:** Ultra-low temperature liquid nitrogen solenoid valve ensures stable operation and long service life.

11. **Safety Features:**

1. Power overload and short circuit protection.
2. Grounding protection.
3. Leakage protection.
4. Over-temperature protection.

Dimensions

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Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

