

CHARPY IMPACT TEST SPECIMEN LOW TEMPERATURE CHAMBER - CHARPY- LTC100



Charpy Impact Test Specimen Low Temperature Chamber - CHARPY-LTC100 is a cutting-edge refrigeration system developed according to the requirements for low-temperature testing outlined in ASTM E23-2018, ISO148-1-2016, DIN EN 10045-1-1991, and JB 5376-1991.

This equipment incorporates compressor refrigeration technology, the heat balance principle, and a circulating stirring method to achieve uniform and precise cooling, ensuring the constant temperature of the test specimens. It uses single-chip microcomputer control for automatic temperature adjustment, with digital display, automatic timing, and alarm features for ease of operation and enhanced safety. Offering fast cooling speed, large capacity, and high-precision temperature control, the CHARPY-LTC100 is an ideal solution for Charpy impact testing and other low-temperature applications, fully meeting the temperature control criteria set out in relevant international standards.

Charpy Impact Test Specimen Low Temperature Chamber

APPLICATIONS

Applicable Standards

- **ASTM E23-2018** - Metallic materials: Notched specimens impact test method
- **ISO 148-1-2016** - Metallic materials — Charpy pendulum impact test — Part 1: Test method
- **DIN EN 10045-1-1991** - Charpy impact test on metallic materials; Part 1: Test method
- **JB 5376-1991** - Technical requirements of low-temperature constant temperature tank

FEATURES

Performance Characters

The **Charpy Impact Test Specimen Low Temperature Chamber** - CHARPY-LTC100 is designed with humanized structure and advanced features for efficient and precise low-temperature testing of metallic materials. The entire machine is divided into high and low sides, forming an "L" shape for optimal functionality. The high side is dedicated to controls, allowing easy observation, temperature settings, and operation, while the low side serves as the freezing tank for sample placement and clamping. The design aligns with impact testing machines, ensuring quick and accurate positioning of specimens.

The system is equipped with high-end refrigeration components, including an **fully enclosed compressor** and an **external rotor condensing fan** known for their long life, low noise, and environmentally-friendly refrigerants. The **temperature control system** features high precision, featuring a high-performance **platinum resistance sensor** with a stainless steel probe, ensuring stable performance and accuracy in extreme low temperatures. The system is also designed with a fully enclosed, low-noise magnetic induction stirring motor, providing efficient agitation and fluidity in the cooling medium. A high-quality stainless steel heater ensures durability and safety, minimizing temperature fluctuations and promoting uniformity.

For versatility, the chamber can hold up to **60 standard samples** (10 * 10 * 55mm) at once, with the option to freeze smaller sample sizes like 7.5 * 10 * 55mm, 5 * 10 * 55mm, and 2.5 * 10 * 55mm. The equipment features **universal casters** for mobility, an easy-to-use sample basket system for placement and removal, and a liquid discharge port for convenient recycling of cooling medium and cleaning. It also includes temperature alarms and insulation timing functions, assisting operators in organizing their work efficiently.

The **CHARPY-LTC100** offers robust protection with comprehensive safety features, including overload protection, leakage protection, grounding protection, compressor overload protection, and medium over-temperature protection (anti-drying). This system ensures safe, reliable, and long-term operation while meeting international standards for Charpy impact testing.

Configuration

The **Charpy Impact Test Specimen Low Temperature Chamber** - CHARPY-LTC100 is equipped with high-end components to ensure efficient and reliable performance. The key features include:

- 1. **Compressor:** Three **fully enclosed compressors** with original packaging (each with serial number), ensuring consistent refrigeration performance and long service life.
- 2. **Condensing Device:** Includes a **high-efficiency finned condenser** paired with an **external rotor condensing fan**, designed for high performance and low noise levels.
- 3. **Heat Exchanger:** Two **stainless steel plate heat exchangers**, offering excellent thermal conductivity and durability.
- 4. **Heat Insulation:** **Rigid polyurethane foam insulation** to minimize heat loss and maintain optimal temperature control.
- 5. **Shell:** The chamber is constructed from **cold-rolled sheet metal**, folded and coated with **electrostatic spray**, providing a durable and corrosion-resistant exterior.
- 6. **Stirring Device:** A high-performance **stirring device** for uniform cooling of the test medium.
- 7. **Temperature Control Device:** A precise **temperature control system** for automatic regulation, ensuring consistent low temperatures for accurate test results.
- 8. **Sample Basket:** Three **stainless steel sample baskets**, designed for holding multiple test specimens during the low-temperature cooling process.

These components work together to create an advanced system that delivers stable temperature control, rapid cooling, and efficient testing conditions for Charpy impact specimens, meeting the rigorous requirements of international standards.

TECHNICAL SPECIFICATIONS

Temperature control range	+30 -100°C
Temperature control accuracy	≤±0.5°C
Temperature uniformity	≤1°C

Cooling speed (when room temperature is 25°C)	Room temperature□ 0°C: 2°C/min 0°C□ -40°C: 1.5°C/min -40°C□ -80°C: 1.3°C/min -80°C□ -100°C: 0.8°C/min
Heating speed	3°C/min
Size of cooling tank	275×160×120mm (Length x Width x Height), 5L
Effective size of cooling tank	150×140×110mm (Length x Width x Height)
Specimen capacity	60 pieces (impact specimen size:10×10×55mm)
Digital timer	1minute ~ 9999 minutes, resolution: 1minute
Cooling medium	Absolute ethyl alcohol
Dimensions	1105×705×1110mm (Length x Width x Height)
Voltage	AC220V□ 50HZ (110V is also available)
Power	3.2kW
Operating environment temperature	5°C□ 30°C

Dimensions

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