

DUAL COMPRESSOR CRYOSTAT



Dual Compressor Cryostat - ToronCryo™ 500

Dual Compressor Cryostat - ToronCryo™ 500 is a floor-standing Cryostat Machine designed for high-quality frozen tissue sectioning in pathology, dermatology, and histology laboratories. Dual Compressor Cryostat - ToronCryo™ 500 is a state-of-the-art freeze microtome with dual compressors, UV light disinfection, and an LED touchscreen control panel for sectioning, trimming, temperature, retraction, and defrost management.

This Cryostat Microtome is built for labs that need stable low-temperature control, fast pull-down, and dependable daily operation. The chamber, blade holder, clamp, freezing shelf, and smoothing board are all maintained in a freezing condition, while the external high-precision microtome layout helps reduce thermal effects on sectioning performance.

ToronCryo™ 500 also focuses on operator convenience. The unit includes a heated removable sliding window, easy-access top storage, one-click specimen return, anti-roll guidance, a lockable control panel, and a vacuum cleaner for chamber cleanup.

APPLICATIONS

Dual Compressor Cryostat - ToronCryo™ 500 Applications

- Frozen section pathology: this Cryostat is well suited for rapid frozen-section work in pathology and histology labs. The system was designed to support high-quality tissue sectioning in pathology, dermatology, and histology applications.
- Hospital and clinical laboratories: the instrument as a cryostat microtome for demanding clinical and laboratory use. Its fast cooling, automated defrost options, and precise thickness control make it a practical fit for hospital frozen-section workflows.
- Research and academic laboratories: its broad section-thickness range, specimen orientation control, and configurable trimming settings support laboratory research involving frozen tissue samples.

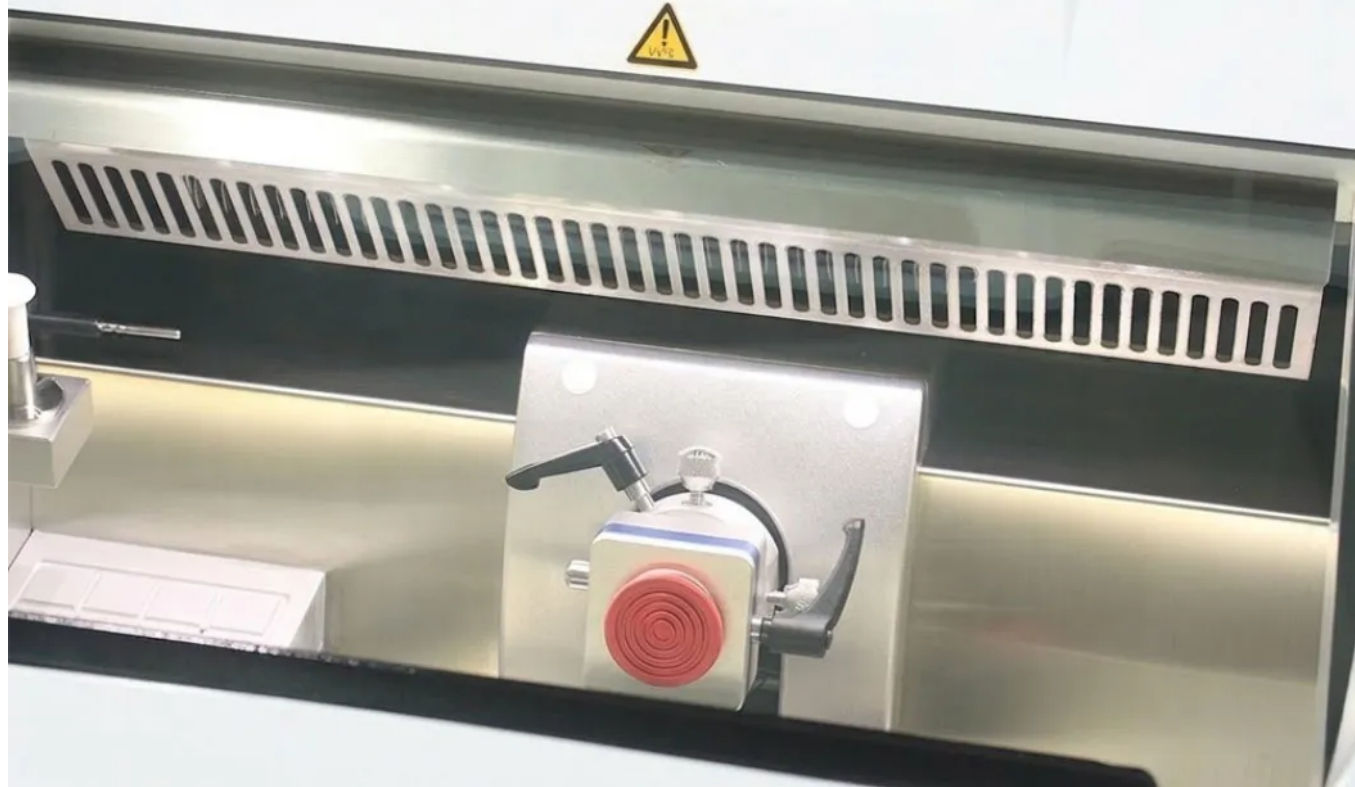
- High-throughput tissue sectioning environment: with dual compressors, a wide freezing shelf, specimen retraction, fast coarse feed, and storage for slides and tools, ToronCryo™ 500 is also a strong fit for busy labs that want smoother daily workflow around a Cryostat Machine.



FEATURES

Dual Compressor Cryostat - ToronCryo™ 500 Key Features

- Dual-compressor refrigeration system: ToronCryo™ 500 uses a double-compressor design for fast freezing and longer cryostat service life. It keeps five main areas in a freezing condition, including the chamber, blade holder, clamp, freezing shelf, and smoothing board.
- Large touchscreen control panel: the LED touchscreen is designed to show section thickness, trimming thickness, retraction, temperature settings, defrost control, timers, and related operating information. This makes the unit easier to manage during routine frozen-section work.
- Extra-large freezing chamber: the cryostat chamber is described as extra large and includes UV light sterilization, automatic defrost, and standby mode. This supports cleaner operation and practical daily use.
- Fast cooldown and standby recovery: the system reaches -50 °C in around 40 minutes after startup. In standby mode, the chamber can be controlled between -5 °C and -15 °C, then return to working temperature within about 15 minutes after standby is ended.
- Peltier quick-freeze station: the wide freezing shelf can hold 36 specimen discs and includes 8 Peltier fast-freeze stations. A lowest Peltier temperature of -60 °C and a working time of 15 minutes.
- Precise sectioning and trimming control: this Cryostat Machine supports section thickness from 1 to 100 µm, adjustable in defined increments, and trimming thickness from 0 to 600 µm. The trimming and cutting button makes it easy to switch between modes.



- Adjustable specimen orientation and movement: the specimen holder supports X/Y orientation of 12° and Z-axis rotation of 360°. The holder has 360-degree specimen orientation, with 65 mm vertical stroke as standard and 70 mm optional, plus 22 mm horizontal stroke.
- Adjustable retraction and one-click return: the system includes a specimen retraction range of 0 to 60 µm in 2 µm increments. It also returns the specimen clamp automatically to the initial position when the clamp reaches its limit position.
- Fully adjustable blade holder: the knife holder is fully adjustable and includes an anti-roll plate and blade guard. Compatibility with both low-profile and high-profile blades.
- External precision microtome structure: the high-precision microtome is positioned outside the cryostat chamber. This helps minimize thermal stress on the mechanism and supports lower service and maintenance needs.
- Heated sliding window and easy-clean layout: the chamber includes a heated removable sliding window, accessible condensate collection, and a built-in vacuum cleaner for easier cleaning. Top storage space is also provided for slides, stains, and tools.
- Defrost and disinfection functions: ToronCryo™ 500 includes timed or manual defrost, automatic defrost with cool-air circulation restart, and UVC sterilization for 35 minutes per cycle to improve cutting-area hygiene.
- User protection and diagnostics: the control panel includes a locking function to reduce unintended operation. The system also has self-diagnosis and alarm functions for temperature-sensor status.

THEORY & METHOD

Theory and Method

A Cryostat Microtome keeps the specimen, blade area, and working chamber at controlled low temperatures so frozen tissue can be sectioned cleanly with reduced deformation. The specimen is mounted on a holder, oriented for the cutting plane, trimmed to expose the tissue surface, and then sectioned at the selected thickness while the chamber and freezing

components maintain the required temperature. This Dual Compressor Cryostat - ToronCryo™ 500 model supports sectioning from 1 to 100 µm and trimming from 0 to 600 µm, with adjustable retraction to protect the specimen during return travel.

ToronCryo™ 500 uses a dual-compressor refrigeration system and a low-temperature circuit with R404 refrigerant. The freeze chamber, blade holder, and clamp can reach 0 °C to -50 °C, the Peltier quick-freeze station can reach -60 °C, and the system can cool to -50 °C in about 40 minutes after startup.

The microtome mechanism is positioned outside the cryostat chamber. This design helps protect the sectioning system from thermal expansion and contraction, reduces maintenance, and supports more stable cutting accuracy over time.

TECHNICAL SPECIFICATIONS

Dual Compressor Cryostat - ToronCryo™ 500 Technical Specification

Parameter	ToronCryo™ 500
Product type	Dual Compressor Cryostat
Freeze chamber temperature range	0°C to -50°C
Blade holder and clamp temperature range	0°C to -50°C
Cooling-down time to -50°C	40 min
Freeze shelf routine temperature	0°C to -50°C
Lowest temperature of Peltier unit on freeze shelf	-60°C
Peltier working time	15 min
Maximum specimen size	55 × 80 mm

Parameter	ToronCryo™ 500
Specimen vertical stroke	65 mm standard, 70 mm optional
Specimen horizontal stroke	22 mm
Coarse feeding speed	0.9 mm/s, 0.45 mm/s
Specimen orientation	X/Y-axis 12°, Z-axis 360°, specimen holder with 360° orientation
Section thickness range	1-100 µm
Section thickness increments	0.5-5 µm in 0.5 µm steps; 5-20 µm in 1 µm steps; 20-50 µm in 2 µm steps; 50-100 µm in 5 µm steps
Trimming thickness range	0-600 µm
Trimming thickness increments	0-50 µm in 5 µm steps; 50-100 µm in 10 µm steps; 100-600 µm in 50 µm steps
Retraction range	0-60 µm adjustable, in 2 µm steps
Voltage / frequency	AC 220 V ±10%, 50 Hz standard; special requirements customizable
Power	500 W
Weight	150 kg
Dimensions (W × D × H)	700 × 760 × 1160 mm



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