



TORONTECH



FULLY AUTOMATIC CRYOSTAT

Fully Automatic Cryostat - ToronCryo™ 400

Fully Automatic Cryostat - ToronCryo™ 400 is a floor-standing Cryostat Machine designed for frozen-section work in pathology, histology, and laboratory tissue preparation. The Fully Automatic Cryostat - ToronCryo™ 400 is a system with intelligent fully automatic temperature control, semi-automatic sectioning, LCD touchscreen operation, defrosting, fumigation, and controlled feed and thickness adjustment.

This Cryostat Microtome is built around a multi-point refrigeration design. It uses imported dual compressors and environmentally friendly refrigerant to cool the cryochamber, specimen holder, CoolClamp, freezing knife, and pre-cooled specimen discs. Up to 12 specimens can be rapidly frozen inside the chamber.

ToronCryo™ 400 is suited for labs that need stable low-temperature sectioning, practical operator control, and a compact frozen-section platform. Sleep mode for energy saving, an anti-roll guide to help reduce section curling, a heated frost-free glass door, and compatibility with high-profile blades, low-profile blades, or steel knives.

APPLICATIONS

Fully Automatic Cryostat - ToronCryo™ 400 Applications

- Frozen section pathology: ToronCryo™ 400 is suitable for frozen tissue sectioning in pathology and histology workflows where low-temperature cutting is needed for rapid slide preparation. Its cryochamber cooling, specimen retraction, and controlled thickness settings support routine frozen-section work.
- Hospital and clinical laboratory use: this Cryostat Machine fits hospital and clinical environments that need a practical bench-level frozen slicer for daily sectioning tasks. The touchscreen control, automatic temperature management, and heated glass door support easier routine operation in busy labs.

- Research and teaching laboratories: the system also works well in research or teaching settings that need controlled frozen sectioning with a smaller chamber-based format. The semi-automatic sectioning function and adjustable thickness settings make it suitable for repeatable training and laboratory sample preparation.



FEATURES

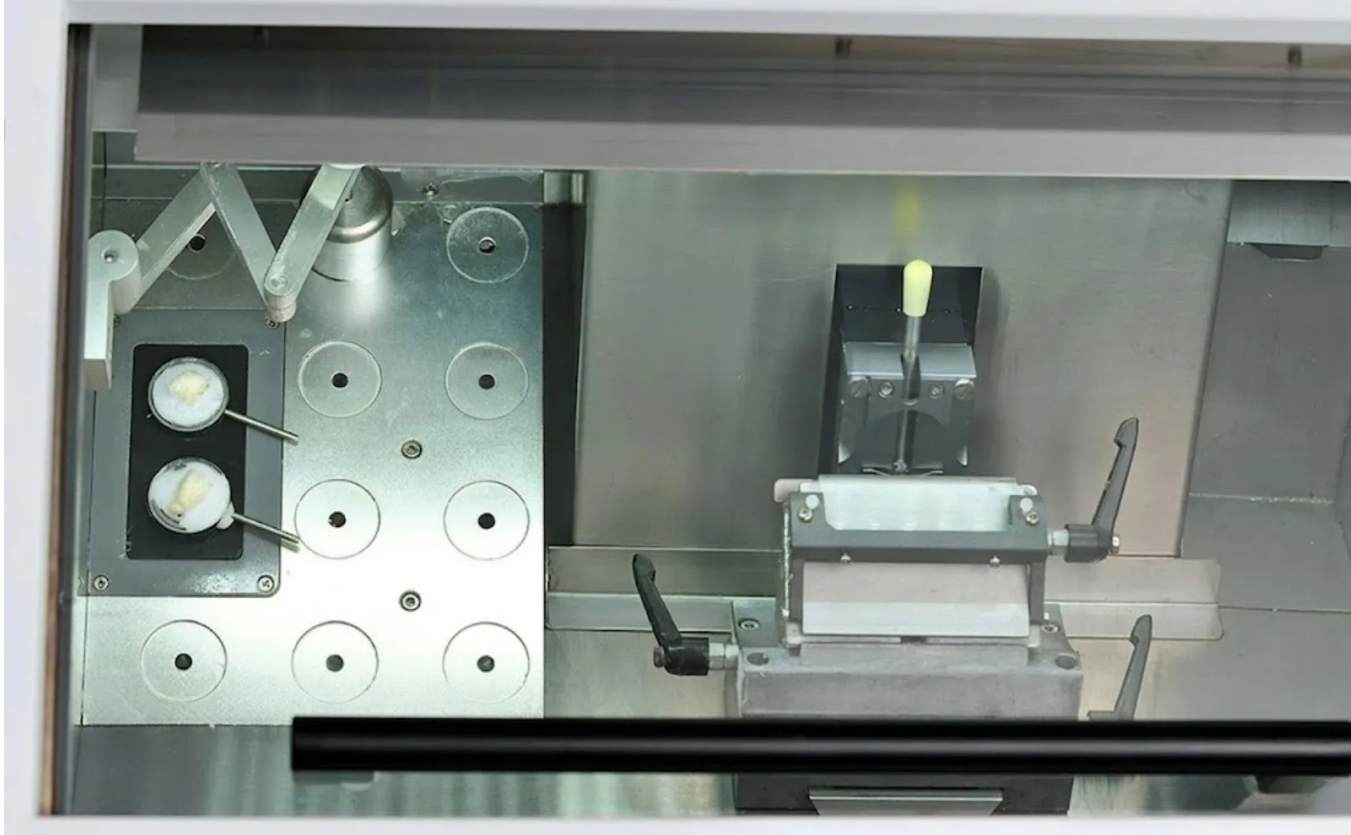
Fully Automatic Cryostat - ToronCryo™ 400 Key Features

- Intelligent temperature control: the system is using intelligent fully automatic temperature control. This helps maintain stable low-temperature working conditions throughout the frozen section process.



- Semi-automatic sectioning function: ToronCryo™ 400 supports semi-automatic sectioning, giving users a balance between controlled operation and routine productivity.
- LCD touchscreen control: The LCD touchscreen displays and controls feed distance, slicing thickness, timing, temperature control, fumigation, and defrost functions. This gives the operator a clearer and more centralized control interface.
- Dual-compressor refrigeration system: The system uses imported double compressors and environmentally friendly refrigerants. This supports five-point refrigeration and faster cooling performance.

- Five-point cooling design: cooling is applied to two pre-cooled specimen discs, the CoolClamp, the cryochamber, and the freezing knife. This arrangement helps maintain a more stable frozen sectioning environment.
- Rapid specimen freezing capacity: the cryochamber can rapidly freeze up to 12 specimens. This supports higher practical throughput for routine frozen-section work.
- Sleep mode for energy saving: sleep mode automatically controls chamber temperature to reduce power use and extend compressor service life. After an extended sleep period, the instrument can return to ideal slicing temperature within 30 minutes.
- Anti-roll slide guide: an anti-roll slide guide is included to help reduce section curling during frozen cutting. This supports smoother section pickup and handling.
- Stepper-motor feed control: the system uses a stepping motor for smoother and more stable forward and backward clamp movement. This helps improve feed consistency during sectioning.



- Lockable handwheel: the handwheel can be locked at any position. This improves safety and convenience during trimming, specimen loading, and blade handling.
- Flexible blade compatibility: the blade carrier is available for high-profile disposable blades, low-profile disposable blades, or steel knives. This gives labs more flexibility in how they configure the cutting system.
- Section counter and thickness display: the LCD screen shows the section counter and section thickness. This helps the operator monitor the cutting process more easily.
- Heated frost-free glass door: the glass door can be heated for demisting. This helps maintain visibility into the chamber during low-temperature operation.

THEORY & METHOD

Theory and Method

A Cryostat Microtome keeps the specimen, blade area, and chamber at controlled low temperatures so frozen tissue can be cut into thin sections without softening during the process. The operator places the specimen on the holder, sets the section thickness, trims the block, and cuts sections while the refrigeration system maintains the required temperature across the main cold components.

ToronCryo™ 400 uses multi-point refrigeration with dual compressors to cool the cryochamber, specimen holder, CoolClamp, freezing knife, and pre-cooled discs. This design supports fast cooling speed, accurate sectioning, and cost-effective operation.

The instrument also includes specimen retraction and an anti-roll slide guide. These functions help reduce friction on return travel and make frozen sections easier to control during cutting. The heated glass door is designed to reduce frosting on the viewing window during operation.

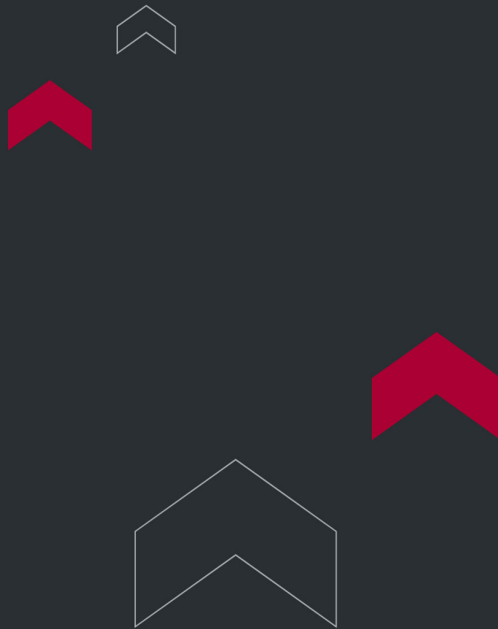
TECHNICAL SPECIFICATIONS

Fully Automatic Cryostat - ToronCryo™ 400 Technical Specification

Parameter	ToronCryo™ 400
Product Type	Fully Automatic Cryostat
Cryochamber Temperature	-5°C to -35°C (±2°C)
Specimen Holder Temperature	-10°C to -55°C (±2°C)

Parameter	ToronCryo™ 400
CoolClamp Temperature	-5°C to -40°C ($\pm 2^\circ\text{C}$)
Freezing Knife Temperature	-5°C to -40°C ($\pm 2^\circ\text{C}$)
Freeze Discs	≥ 12
Quick-Freeze Points	≥ 1
Section Thickness Range	0.5–100 μm
Section Thickness Increments	0.5–2 μm in 0.5 μm steps; 2–10 μm in 1 μm steps; 10–20 μm in 2 μm steps; 20–50 μm in 5 μm steps; 50–100 μm in 10 μm steps
Trimming Thickness Range	5–500 μm
Trimming Thickness Increments	5–10 μm in 5 μm steps; 10–100 μm in 10 μm steps; 100–200 μm in 20 μm steps; 200–500 μm in 50 μm steps
Maximum Section Size	30 × 30 mm
Horizontal Specimen Feed	20 mm
Vertical Specimen Stroke	60 mm
Specimen Retraction	20 μm , total retraction distance 500 μm
Specimen Feed Speed	0.8 mm/s
Sample Orientation	X/Y $\pm 8^\circ$
Knife Angle	0–15°
Precision Error	$\pm 1 \mu\text{m}$

Parameter	ToronCryo™ 400
Voltage and Power	220 V / 50 Hz or 110 V / 60 Hz
Net Weight	130 kg
Dimensions	600 × 640 × 1150 mm



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