

CLINICAL REFRIGERATED CENTRIFUGE (8 X 10 ML)



Clinical Refrigerated Centrifuge (8 x 10 mL) - ToronCent™ LSR CL

ToronCent™ LSR CL is a clinical refrigerated centrifuge sized for diagnostic laboratories, collection sites, and mobile units that process blood tubes close to the point of draw. The swing-out rotor reaches 5,000 rpm and 3,354 x g, holding 8 x 10 mL tubes or 12 vacuum tubes in 5 mL and 7 mL formats. Chamber temperature sets anywhere from -20°C to 40°C. The whole unit occupies 400 x 470 mm of bench and weighs 30 kg.

Design choices here follow from the intended setting. A double-layer housing damps vibration and noise, keeping acoustic output at or below 60 dB(A) in an enclosed space. Suction-cup feet grip the bench surface so the instrument stays put during transport, which matters on a blood collection vehicle. The refrigeration circuit uses a fully enclosed rotary compressor with R134a refrigerant, a configuration that tolerates movement better than open compressor designs.

A 5-inch HD touchscreen puts setup and running parameters on one screen, readable at a glance during a busy collection session. Adapter sets cover 2 mL and 5 mL vacuum blood collection tubes, 8 mL and 10 mL nucleic acid tubes, and other 10 mL formats. Protection circuits watch over-speed, over-temperature, and lid lock status. Power draw stays at 450 W, low enough for a vehicle electrical system or a shared bench circuit.

APPLICATIONS

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Applications

The ToronCent™ LSR CL suits laboratories and collection programs where sample stability depends on separating early and separating cold. Bracket options let the same rotor handle vacuum tubes and larger nucleic acid tubes.

- **Mobile Blood Collection Units:** on-vehicle separation of collected tubes so plasma and serum reach the laboratory already processed
- **Clinical Diagnostics and Serum Chemistry:** routine serum and plasma separation from 5 mL and 7 mL vacuum tubes ahead of analyzer loading
- **Hormone and Labile Analyte Assays:** chilled separation for ACTH, renin, catecholamines, and other analytes that degrade at ambient temperature
- **Nucleic Acid Testing:** dedicated brackets for 8 mL and 10 mL nucleic acid centrifuge tubes used in PCR and molecular diagnostic sample preparation
- **Coagulation Testing:** preparation of platelet-poor plasma under temperature control for PT, aPTT, and factor assays
- **Small Diagnostic and Physician Office Laboratories:** full refrigerated capability in a footprint that fits a crowded bench
- **Field and Outreach Collection Sites:** temporary clinics and screening drives where turnaround depends on processing on location
- **Research and Biobanking Sample Prep:** chilled aliquot preparation before freezing, to hold analyte integrity through storage



FEATURES

Clinical Refrigerated Centrifuge (8 x 10 mL) - ToronCent™ LSR CL Key Features

The ToronCent™ LSR CL is built around a compact, vibration-tolerant chassis with clinical tube handling as the design target.

- **Double-Layer Housing:** the twin-wall structure damps vibration and holds noise at or below 60 dB(A), workable inside a vehicle or a small room
- **Compact 400 x 470 mm Footprint:** refrigerated capability on a fraction of the bench a larger unit needs, at 30 kg for two-person handling
- **Suction-Cup Feet:** the base grips the work surface so the instrument stays anchored during vehicle movement and transport
- **Fully Enclosed Rotary Compressor:** the sealed rotary design with R134a refrigerant tolerates motion better than open reciprocating compressors
- **5-Inch HD Touchscreen:** setup values and live run parameters share one display, so the operator reads status without stepping through menus
- **-20°C to 40°C Setting Range:** covers chilled clinical protocols and ambient-controlled runs on the same instrument
- **Dedicated Nucleic Acid Tube Brackets:** positions sized for 8 mL and 10 mL nucleic acid centrifuge tubes support molecular testing without improvised inserts
- **12-Position Vacuum Tube Bracket:** holds 12 tubes in 5 mL or 7 mL format, or 8 positions at 10 mL, matching common collection panels
- **Layered Safety Protection:** over-speed, over-temperature, and lid lock monitoring stop the run before a fault reaches the operator or the sample
- **450 W Power Draw:** modest consumption suits a vehicle electrical system or a shared laboratory circuit
- **Swing-Out Rotor Standard:** horizontal bucket travel produces the flat pellet and sharp plasma interface that clinical aspiration depends on

THEORY & METHOD

Theory and Method

Clinical separations do not need high field strength. Whole blood divides into plasma, buffy coat, and packed cells within ten to fifteen minutes at fields most protocols set between 1,000 and 2,000 x g. Relative centrifugal force scales with rotating radius and the square of speed: $RCF = 1.118 \times 10^{-5} \times r \times N^2$. The 5,000 rpm ceiling and 3,354 x g output leave headroom above routine tube protocols without oversizing the drive.

Temperature control addresses a pre-analytical problem rather than a mechanical one. Cells left in contact with serum keep metabolizing, and several analytes shift measurably within an hour at room temperature: potassium leaks from red cells, glucose falls through glycolysis, and peptide hormones degrade under plasma proteases. Cooling the sample during the spin slows all three processes. The setting range runs from -20°C to 40°C with ±2°C accuracy, which covers protocols specifying a 4°C spin.

Swing-out buckets rotate to horizontal once the rotor is up to speed, so particles sediment along the full tube length and pack into a flat pellet. The interface between plasma and cells stays level and sharp, which makes aspiration cleaner and reduces cell carryover into the sample. Rotor balance matters more on a moving platform than a fixed bench, so operators should load tubes in opposing pairs of matched weight and fill level before every run.

TECHNICAL SPECIFICATIONS

Clinical Refrigerated Centrifuge (8 x 10 mL) - ToronCent™ LSR CL
Technical Specifications

Parameter	Specification
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Max Speed	5,000 rpm
Max RCF	3,354 x g
Max Capacity	8 x 10 mL
Speed Accuracy	±30 rpm
Time Setting Range	1 min to 99 min
Temperature Setting Range	-20°C to 40°C
Temperature Accuracy	±2.0°C
Compressor Unit	High-performance fully enclosed rotary compressor, R134a refrigerant
Display	5-inch HD touchscreen
Rotor Type	Swing-out
Safety Protection	Over-speed, over-temperature, lid lock
Chassis	Double-layer structure with suction-cup feet
Noise	≤60 dB(A)
Voltage	AC 220 V ±22 V, 50 Hz (110V is also available)
Power Consumption	450 W
Dimensions (W x D x H)	400 × 470 × 350 mm
Packing Dimensions (W x D x H)	720 × 520 × 550 mm
Net Weight	30 kg

Rotor and Bracket Options

Component	Max Speed	Max RCF	Capacity
Swing-out rotor	5,000 rpm	3,354 x g	8 x 10 mL
10 mL tube bracket	5,000 rpm	3,354 x g	8 x 10 mL
Vacuum tube bracket	5,000 rpm	3,354 x g	12 x 5/7 mL

Adapter Compatibility

Tube Type	Format
Vacuum blood collection tube	2 mL
Vacuum blood collection tube	5 mL
Nucleic acid centrifuge tube	8 mL
Nucleic acid centrifuge tube	10 mL
General laboratory tube	10 mL

Additional adapter configurations can be customized on request.



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