TORONTECH

REFRIGERATED MICROCENTRIFUGE (12 X 5 ML)

Refrigerated Microcentrifuge (12 x 5 mL) - ToronCent™ RM5

ToronCent RM5 is a 5 mL refrigerated microcentrifuge built for benches where space is the binding constraint, measuring 300 x 460 x 260 mm and weighing 32 kg. Three rotors mount on the drive: 24 x 1.5/2.2 mL microtubes, 12 x 5 mL tubes, and six 8-tube strips of 0.2 mL PCR tubes. All three turn at 15,000 rpm. The chamber holds any setpoint from -20°C to 40°C within ±1°C.

Uniform rotor speed simplifies method transfer here, since only radius changes between rotors. Relative centrifugal force runs from 15,722 x g on the PCR strip rotor to 21,532 x g on the 24-place microtube rotor, with the 12 x 5 mL rotor at 15,846 x g. An operator moving a protocol between formats adjusts for force rather than recalculating speed. The 5 mL format covers the gap between microtubes and 15 mL conical tubes, where sample volumes often land.

A variable frequency compressor adjusts cooling output to the actual thermal load rather than cycling at a fixed rate. Sleep timing lets the laboratory set how long the unit idles between experiments, which cuts energy draw and reduces compressor wear over a long service life. A brushless motor removes brush replacement from the maintenance schedule. Five-step programming chains speed and time stages so a multi-phase protocol runs without operator intervention.

APPLICATIONS

Refrigerated Microcentrifuge (12 x 5 mL) - ToronCent™ RM5 Applications

The fit is sample preparation at small scale, particularly where a laboratory needs cooling but cannot spare the bench or the circuit for a full-size instrument.

- **Sample Preparation in the 2 to 5 mL Range**: handles volumes that overflow microtubes without moving up to 15 mL conical tubes

- **Nucleic Acid and Protein Extraction**: pellets precipitates and clears lysates at up to 21,532 x g under continuous temperature control
- **PCR and qPCR Setup**: spins six 8-tube strips of 0.2 mL tubes to collect condensate and settle reaction mixes
- **Clinical and Diagnostic Research**: prepares small-volume serum, plasma, and extracted samples with cooling held throughout
- **Enzyme and Protein Assay Work**: the chamber stays near 4°C across repeated spins, which preserves activity between steps
- **Cell Biology and Microbiology**: harvests small bacterial and mammalian cultures in microtube and 5 mL formats
- **Space-Constrained Laboratories**: a 300 mm width, 32 kg mass, and 700 W draw fit satellite benches, hood surrounds, and mobile carts
- **Academic Teaching Laboratories**: three rotors and a single 15,000 rpm ceiling keep operation straightforward for students
- **Satellite and Remote Facilities**: low mass and power draw suit sites where a full-size refrigerated unit is impractical

TORONTECH
TorontCent™ RM5
ON
OFF

FEATURES

Refrigerated Microcentrifuge (12 x 5 mL) - ToronCent™ RM5 Key Features

Three rotors and one speed keep the operating model simple; the engineering effort sits in the cooling control and the programming.

- **Three Rotor Options**: 24 x 1.5/2.2 mL microtubes, 12 x 5 mL tubes, and 6 x 8 x 0.2 mL PCR strips, all rated to 15,000 rpm
- **5 mL Tube Capability**: a 12-place rotor covers the volume range between microtubes and conical tubes without a format change
- **Variable Frequency Compressor**: cooling output tracks the actual thermal load instead of cycling, which improves stability and reduces energy use
- **User-Defined Sleep Timing**: the laboratory sets how long the unit idles between experiments, cutting draw and compressor wear between batches
- **Five-Step Programming**: a single method chains up to five speed and time stages, so multi-phase separations run unattended
- **Eleven Acceleration and Twelve Deceleration Rates**: one acceleration rate and one deceleration rate remain user-definable for protocol-specific ramps
- **One-Touch Pre-Cooling**: a screen button starts the pre-cool, so the chamber is at temperature when samples arrive
- **Automatic Record Keeping**: run logs and diagnostic records save without operator action, giving a per-batch history for review
- **5-Inch HD Touchscreen**: setpoints and live run conditions appear together, and parameters enter directly rather than through menu steps
- **Brushless Maintenance-Free Motor**: no brushes to replace and no carbon dust in the chamber across a long service life
- **Dual Timer Ranges**: short protocols set in seconds, long runs program out to 99 h 59 min
- **Low Power Draw**: 700 W at 220 V suits benches sharing a circuit with other instruments

THEORY & METHOD

Theory and Method

The 5 mL tube occupies a real gap in sample handling. A 1.5 mL microtube caps the working volume at roughly 1.4 mL, while a 15 mL conical tube leaves a small pellet spread across a wide base and a long column of supernatant to remove. The 5 mL format keeps microtube proportions at three times the volume, so the pellet stays compact and visible and aspiration reaches close to it without disturbance. Sample prep protocols that outgrow microtubes land here.

Force differs across the three rotors even though speed does not. $RCF = 1.118 \times 10^{-5} \times r \times N^2$ makes radius the only variable when N is fixed, so a rotor's g-force reflects how far its tube seats sit from the axis. The 24-place microtube rotor spreads its positions widest and reaches 21,532 x g. The PCR strip rotor sits at 15,722 x g because its tubes are short and close in. Force belongs to the rotor, not the instrument.

Step centrifugation runs several conditions inside one program. A differential separation might clear debris at low force, then pellet the target at high force, then hold a gentle final stage, all without the operator returning to the instrument. Up to five program groups chain in sequence on this model. Eleven acceleration and twelve deceleration rates set each transition, and one rate of each kind stays user-definable, so a lab can tune the ramp its own protocol needs and keep it available.

TECHNICAL SPECIFICATIONS

Refrigerated Microcentrifuge (12 x 5 mL) - ToronCent™ RM5 Technical Specifications

Parameter	Specification

Order Number	0202253010
Maximum Speed	15,000 rpm
Maximum RCF	21,532 x g
Maximum Capacity	12 x 5 mL
Speed Accuracy	±10 rpm
Time Setting Range	1 s to 99 min 59 s, or 1 min to 99 h 59 min
Temperature Setting Range	-20°C to 40°C
Temperature Accuracy	±1°C
Refrigeration Unit	Variable frequency compressor, R134a refrigerant
Display	5-inch HD touchscreen
Program Steps	Up to 5 groups per method
Acceleration / Deceleration Rates	11 / 12, one of each user-definable
Pre-Cooling Function	Yes, one-touch from the screen
Drive Motor	Brushless, maintenance-free
Noise Level	≤65 dB(A)
Voltage	AC 220 V ±22 V, 50 Hz (110V is also available)
Power Consumption	700 W
Dimensions (W x D x H)	300 x 460 x 260 mm (11.8 x 18.1 x 10.2 in)
Net Weight	32 kg (71 lb)

Available Rotors

All three rotors are fixed-angle type and share the 15,000 rpm ceiling. Maximum RCF differs by rotor radius.

Rotor	Order Number	Capacity	Max Speed	Max RCF	Adapters
No. 1	0301805510	24 x 1.5/2.2 mL	15,000 rpm	21,532 x g	0.2 mL, 0.5 mL
No. 2	0301891075	12 x 5 mL	15,000 rpm	15,846 x g	0.5 mL, 1.5 mL
No. 3	0301891223	6 x 8 x 0.2 mL (PCR strip)	15,000 rpm	15,722 x g	—

TORONTECH.com

TORONTECH

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

USA | Canada | EU | UAE | GCC | KSA | India | Africa | Latin America | Asia