

MECHANICAL CONVECTION DRYING OVEN (250 °C)



Mechanical Convection Drying Oven (250 °C) - ToronOVEN™ MC2

ToronOVEN™ MC2 is a high-performance forced-air blast drying oven engineered for precision thermal processing across laboratory, industrial, and medical research environments. Designed for demanding applications that require stable, uniform heat distribution up to 250°C, the ToronOVEN™ MC combines advanced programmable control, robust stainless steel construction, and wide-range capacity options — from 40 L bench-top units to 456 L floor-standing configurations.

The ToronOVEN™ MC2 drying oven delivers precise forced-convection heating for consistent, repeatable results in a wide range of thermal processing tasks. At its core is the PMMA II operating system, which provides an LCD display of live operating parameters alongside comprehensive controls for temperature, timing, fan speed, and multi-segment programming.

The working chamber is constructed from mirror-finish stainless steel with fully adjustable shelving, while the cold-rolled steel exterior features an electrostatic powder-coat finish for long-term durability. A preheating chamber design with power-supply recovery and appointment scheduling functions ensures seamless workflow integration — whether running short drying cycles or extended overnight heat-treatment programs.

The ToronOVEN™ MC2 is the trusted choice for laboratories and production environments requiring a reliable, feature-rich blast drying oven.

APPLICATIONS

Mechanical Convection Drying Oven (250 °C) - ToronOVEN™ MC2 Applications

The ToronOVEN™ MC Mechanical Convection Drying Oven is suited to a broad spectrum of thermal processing needs, including:

- Sample drying & dehydration
- Moisture content analysis
- Heat sterilization of lab ware
- Accelerated aging tests
- Curing of coatings & adhesives
- Pharmaceutical processing
- Material & polymer testing
- Electronics component baking
- Environmental simulation
- Food science research



FEATURES

Mechanical Convection Drying Oven (250 °C) - ToronOVEN™ MC2 Key Features

- Cold-rolled steel exterior with electrostatic powder-coat finish; mirror-finish stainless steel inner chamber with freely adjustable shelves for versatile load configurations
- PMMA II operating system with backlit LCD displaying all active parameters — temperature setpoint, actual temperature, timer, fan speed, and program status — at a glance
- Comprehensive control suite: temperature regulation, countdown/count-up timing (0–9999 min or hours), programmable ramp-and-soak profiles, 6-level adjustable fan speed, and over-temperature alarm
- Front-door observation window for continuous visual monitoring of chamber contents without opening the door and disrupting the thermal environment
- Heavy-duty door with rotating two-stage locking structure ensures a consistent, airtight seal and minimizes heat loss during operation
- Preheating chamber design conditions intake air before it enters the main workspace, improving temperature uniformity and shortening thermal stabilization time
- Power-supply recovery function automatically restores the last active setpoint after an unexpected power interruption, protecting long-running processes
- Appointment scheduling function allows users to pre-program a start time — the oven begins heating automatically at the designated time without manual intervention
- Advanced programmable engine supports 10 segments per cycle with up to 100 consecutive cycles, enabling complex multi-step thermal protocols for research and quality-control applications

THEORY & METHOD

Theory and Method

The ToronOVEN™ MC operates on the principle of forced-air convection — an electrically powered heating element raises the internal chamber temperature, while an adjustable-speed centrifugal fan continuously circulates heated air throughout the working space. This blast drying mechanism eliminates temperature stratification and provides significantly faster, more uniform heat transfer compared to gravity-convection ovens.

A high-precision resistance temperature detector (RTD) sensor continuously monitors the chamber temperature and feeds data back to the PMMA II microprocessor controller. The controller uses PID (Proportional-Integral-Derivative) algorithms to regulate heater output, maintaining setpoint accuracy within $\pm 1^{\circ}\text{C}$. Over-temperature protection is implemented as an independent hardware circuit that cuts power to the heater if the chamber temperature exceeds a user-defined safety threshold, protecting both samples and equipment.

The preheating chamber design thermally conditions incoming air before it enters the main workspace, further enhancing temperature uniformity and reducing warm-up time. When the power-supply recovery function is active, the oven automatically resumes its last programmed setpoint after a power interruption — a critical safeguard for long-duration processes. The programmable 10-segment, 100-cycle ramp-and-soak engine allows users to define complex time-temperature profiles for applications such as accelerated aging, curing protocols, or step-wise drying sequences.

TECHNICAL SPECIFICATIONS

Mechanical Convection Drying Oven (250 °C) – ToronOVEN™ MC2 Technical Specifications

Parameter	ToronOVEN™ MC240	ToronOVEN™ MC276	ToronOVEN™ MC2142	ToronOVEN™ MC2234	ToronOVEN™ MC2456
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Volume (L)	40	76	142	234	456
Temperature Range (°C)	RT+5 ~ 250				
Temp. Resolution (°C)	0.1				
Temp. Fluctuation at 105°C (°C)	±1				
Temp. Uniformity (%)	±2				
Heating Rate to 180°C (°C/min)	>4				
Rated Power (W)	950	1,350	1,750	2,150	3,000
Voltage (V, Hz)	220 ±10%, 50 ±2% (110V is also available)				380, 50
Timer Range (min or h)	0 - 9,999				
Reservation Range (min)	0 - 999				
Interior Dimensions W×D×H (mm)	350×330×350	450×380×450	550×470×550	600×520×750	600×585×1,300
Exterior Dimensions W×D×H (mm)	640×556×505	740×606×605	840×696×705	890×746×905	780×710×1,745
Shelves — Standard / Max (pcs)	2 / 4	2 / 5	3 / 7	3 / 10	3 / 6
Max Load per Shelf (kg)	15				
Net Weight (kg)	37	50	68	88	176
Gross Weight (kg)	47	61	91	111	204
Package Size (mm)	740×696×645	840×746×745	960×856×855	1,010×906×1,055	910×880×1,930



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